Catalogue 31

www.fascinating-future.com

RITTAL

We look to the future

FRIEDHELM *LOH* GROUP

Rittal is already working enthusiastically on the solutions of the future. This is our tradition, and is the key to our **innovativeness** in the field of technology packaging. Experience the future of **communications technology and automation** with Rittal, trendsetters in holistic solutions. Setting trends means understanding customers, creating future-safe solutions, and being very forward-thinking. Industrial Ethernet, nano-spray-finishing and Rittal Liquid Cooling Systems are just some of the examples which impressively underscore our commitment to this principle.

With **fascinating future,** progress becomes possible – this is our mission.

The Rittal corporate principle
We are aware of our responsibility to the environment and the world in which we live. We want to help structure and improve them!

RITTAL

It is only through **intelligent production techniques** that pioneering ideas acquire a clear added value. Mindful of this fact, Rittal has always chosen innovative paths and produced modern products in superb quality, whilst exploiting the cost benefits of mass production.

We produce the future

For example, the patented section in the TS 8 frame is **16-fold profiled** in a special technique.
All 12 frame parts are linked together in a combined **seam and welding robot system.** Exceptionally smooth enclosure seams are achieved with the **powder plasma welding technique.** In order to achieve highly practical paint structures and enhanced corrosion protection, Rittal uses **electrophoretic dipcoat-priming** developed for the automotive industry, as an outstanding feature of Rittal surface quality! In addition, the techniques of **zinc phosphating** and **aluminization** ensure exceptional longevity and resistance. A state-of-the-art powder coating technique enables us to realise **customised colour changes in next to no time.** In this way, we produce a decisive, lasting added value for your application.

FRIEDHELM **L O H** GROUP

The Rittal corporate principle
We concentrate all our efforts on
perfect, cost-effective production of our
products, professional marketing, and
reliable delivery!

RITTAL®

We offer forward-thinking information

Rittal offers product selection support from a number of information platforms which systematically complement one another: Our comprehensive Catalogue, the compact CD-ROM with useful links, and the Rittal website, which is always up-to-date. This enables you to compile your own individual system solution very easily, selectively and quickly.
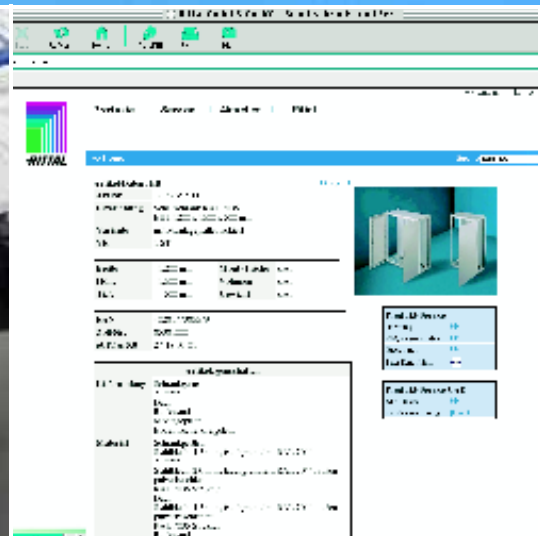
Navigation through the Catalogue is now even easier, because it is structured into three parts:

– **Range overview (A)** with the relevant product group at a glance,
– **Order information (B)** containing full details, and
– **The technical part (C)** containing detailed dimensional drawings.

The CD-ROM features cross-references to take you, for example, straight to the matching system accessories at the click of a mouse, while Model Numbers offer direct links to the Internet for standardised CAD files, precise assembly instructions, and up-to-date approvals.

We call it the **Triple C:**
Complete,
Compact,
Comfortable.

All three information platforms from Rittal – Catalogue, CD-ROM and Internet – will guide you swiftly to the appropriate solution for your particular task. In this way, you benefit from forward-thinking information and navigation.

The Rittal corporate principle

We view our customers as partners who determine the success of our company:

- We must find solutions to our customers' requests and problems, because our customers are our livelihood and our safeguard for the future!
- Our products must offer clear benefits and advantages for the customer, particularly in terms of quality, technical execution, product selection and deliverability.
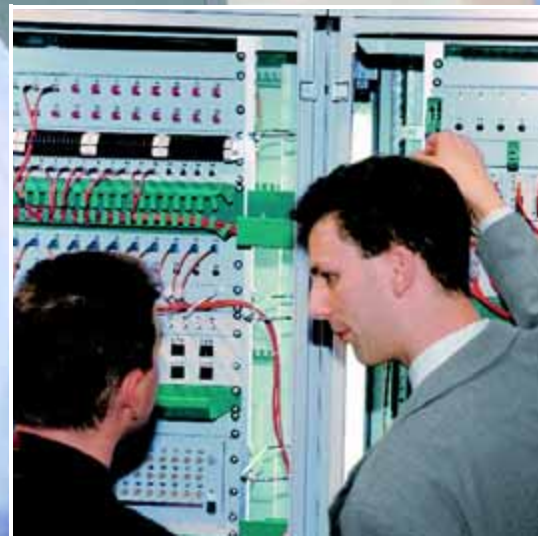
Dialogue with us offers exciting prospects

Your application demands solutions for specific tasks. As such, **dialogue with our customers** is always our primary source of information when devising new products and services. To this end, we utilise all the major platforms to forge long lasting relationships with our customers – national and international trade fairs, competence days, and the new media.
We continue this dialogue throughout every phase of the process, from the initial idea, to development of a solution, through to the use of our products.

Pre-sales service: Information, advice, planning aids, analyses.

Sales service: Online shops, project planning, prototype construction, tests, assembly, warehousing and delivery service.

After-sales service: Training, commissioning, maintenance, repair and spare parts service.

Constructive dialogue creates shared prospects for all of us.

TE 7000 - TOP EFFICIENCY

RITTAL®

There is a demand for the **holistic solutions** of modern technology packaging **in all segments of industry.** All areas of the system, such as enclosures, climate control, power distribution, racks and monitoring, are expertly coordinated with one another. Synergies are utilised to perfection. Rittal provides you with intelligent product packaging when technologies become merged, such as **communications technology** and **automation.**

The provision of cross-industry, complete solutions, e.g. for industrial automation, mechanical engineering, electronics, networks and servers, fixed network and mobile communications, transport technology and facility management, is our mission.

Thanks to perfect interplay between the many different facets, solutions become complete.
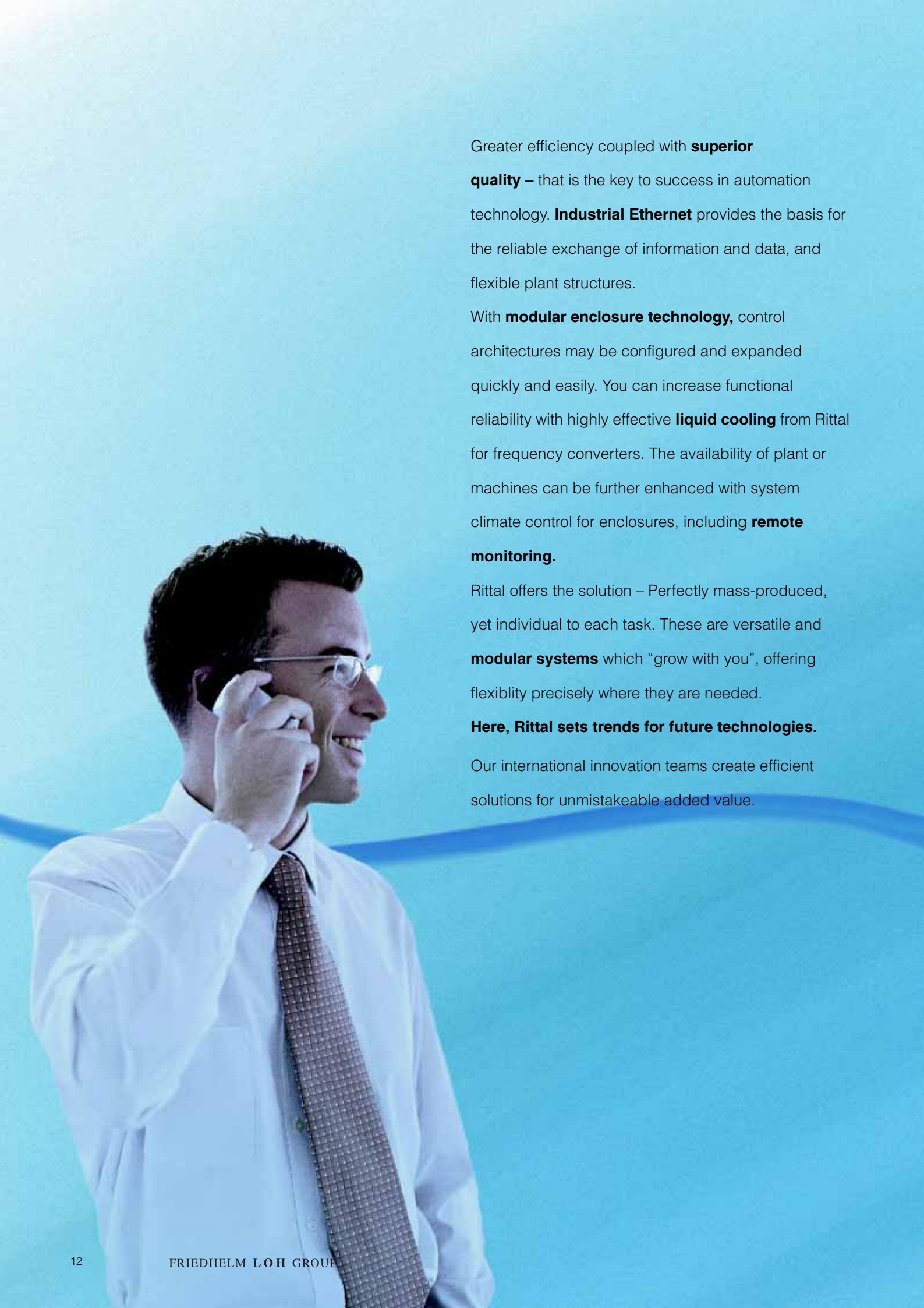
We say,
"Complete is better!"

The Rittal corporate principle

Perfect mastery of our day-to-day business safeguards our existence and enables us to master the requirements of the future!

Greater efficiency coupled with **superior quality –** that is the key to success in automation technology. **Industrial Ethernet** provides the basis for the reliable exchange of information and data, and flexible plant structures.

With **modular enclosure technology,** control architectures may be configured and expanded quickly and easily. You can increase functional reliability with highly effective **liquid cooling** from Rittal for frequency converters. The availability of plant or machines can be further enhanced with system climate control for enclosures, including **remote monitoring.**

Rittal offers the solution – Perfectly mass-produced, yet individual to each task. These are versatile and **modular systems** which "grow with you", offering flexiblity precisely where they are needed.

Here, Rittal sets trends for future technologies.

Our international innovation teams create efficient solutions for unmistakeable added value.

We safeguard efficiency

The Rittal corporate principle

We need to be faster and better than the competition.
We must prove this competitive lead to our customers on a daily basis.

RITTAL®

We open up new horizons full of opportunities

Innovative information technologies with an **extremely high data throughput** – in the mobile communications, network and server sectors, as well as in biotechnology and medical engineering – demand holistic enclosure solutions. Rittal offers enclosures with a modern layout, **integral power modules, effective cooling** and **super-fast backplanes.** AdvancedTCA Shelves from Rittal are one such example.

Our dynamic **Liquid Cooling technology** facilitates maximum blade server performance – with a flexible choice of several cooling systems. With Rittal, you can always be sure of getting the right solution, from a matching 482.6 mm (19″) rack, to an efficient IT rack, through to modular components for the modern IT infrastructure. Take advantage of **Rittal's expertise as a complete provider** for packaging tasks in information technology and automation – including a comprehensive service concept. We offer expert advice, planning support and test services in accredited Rittal laboratories, through to CFD analyses – take advantage of our know-how, and ensure maximum availability in all areas.

High technological demands reveal new opportunities, which are transformed into solutions with clear benefits.

The Rittal corporate principle

We are aware of the correlation between qualification, motivation and company success; in other words, we encourage our employees to participate in training, and involve them in our overall success.

The Rittal corporate principle

Our aim is to establish long-term
partnerships with our suppliers;
the pre-requisite for this is to remain
competitive in terms of quality, delivery
service and price, and optimum
problem-solving!

Worldwide, we are on your doorstep

Customer proximity is a key Rittal philosophy:

With global solutions, with local advisors, and with

100 % availability of our products and services.

19 production sites, 50 subsidiaries, 70 agents and

150 distribution and logistic centres – around the

globe – are testimony to our consistent customer

orientation.

When it comes to technical applications, quality and

reliability, Rittal is your first choice.

All our products meet the very latest technical findings,

globally recognised quality standards with certifica-

tions, and **internationally valid approvals.**

Our comprehensive Total Quality Management system

ensures consistently high product quality worldwide.

We meet all your requirements, globally and locally, in

close partnership with our customers – our advantage,

your value-added benefit.

RITTAL

The Rittal corporate principle
Our ideas and creativity safeguard our competitive lead; we must constantly search for new inspiration and ideas, and implement these in a consistent and professional manner!
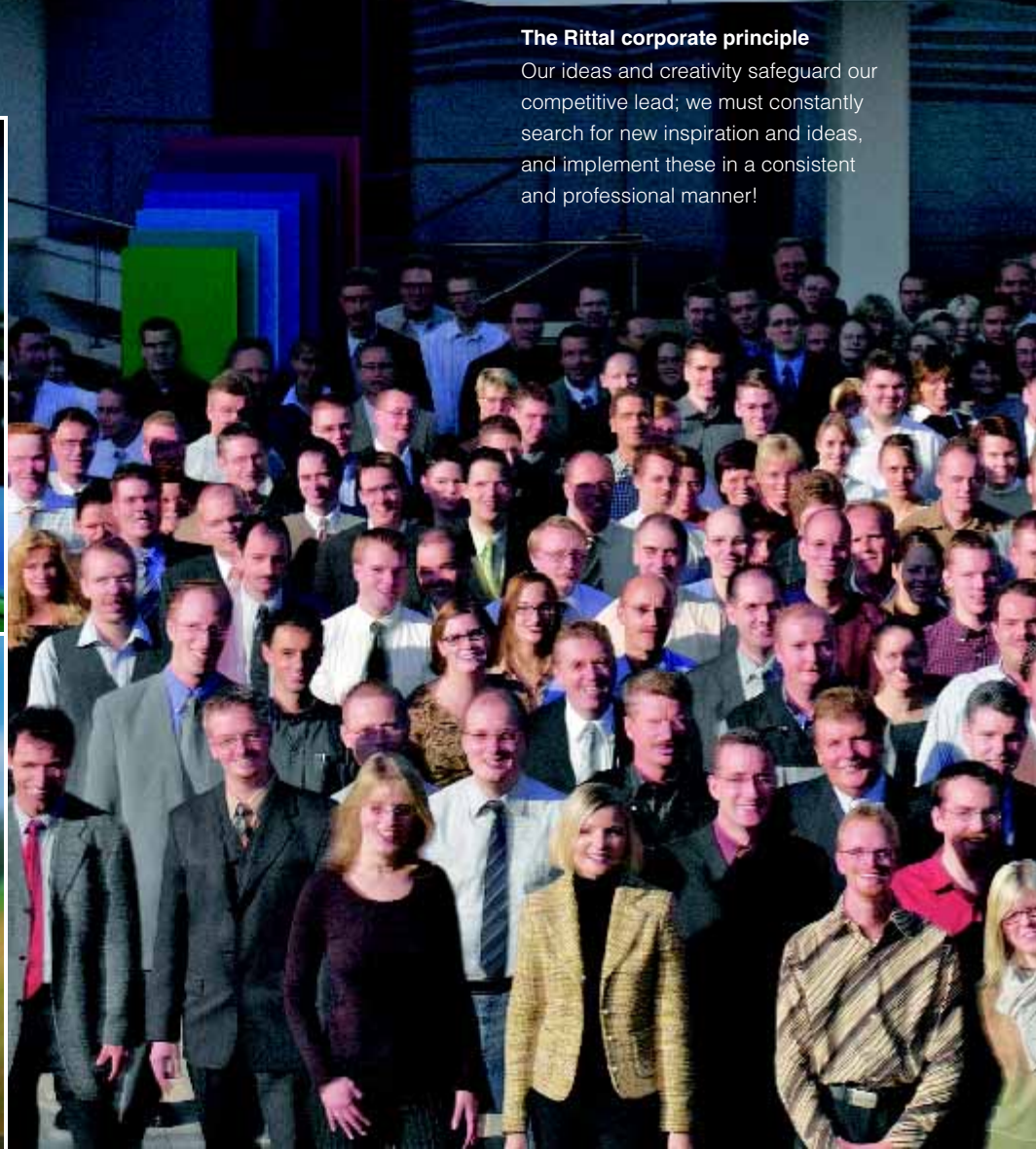
In the IT sector, transport technology, automation industry and beyond,
**Rittal solves all tasks for a wide variety of application areas – always
with an eye on the future.**

Over 8,000 employees worldwide are thinking and acting on your behalf,
with precise knowledge of the industry, practical expertise, curiosity and
far-sightedness.

Progress is possible – with Rittal, in all sectors and for all applications.

Over 8,000 employees committed to a fascinating future

For experts and beginners alike, the product overview facilitates **fast selection of individual product groups within the range.**

For example, the appropriate dimensions of an enclosure or the correct cooling output of a climate control component are easily ascertained.

For all Rittal components of technology packaging, power supply, climate control and monitoring technology, a comprehensive pre-selection is provided.

RITTAL

Product overview

Industrial enclosures   from page   22

Power distribution   from page   40

Electronic packaging   from page   54

System climate control   from page   66

IT solutions   from page   81

Communication systems   from page   93

Industrial Enclosures

**Industrial enclosures –
reap the benefits of the extensive
Rittal enclosure range:**
Perfect, cost-effective solutions to suit every
application. All in all, the wide range of sizes, the
application-oriented choice of materials, the tailor-
ing to specific application areas, the modular
range of system accessories and compatibility
with all other Rittal lines gives Rittal customers a
competitive lead from a single source.

Holistic solutions to perfection:
- Small enclosures
- Compact enclosures
- Compact system enclosures
- Large enclosures
- Industrial workstations
- PC enclosure systems
- Console systems

**Detailed information may be found on Catalogue
pages 96 – 295 and on our website at www.rittal.com**

1.1 Polycarbonate enclosures PK

Dimensions mm			Model No. PK		Page
Width	Height	Depth	Cover grey	transp.	
50	52	35	**9530.000[1]**	–	100
50	65	35	**9531.000[1]**	–	100
65	65	57	**9500.000**	–	100
65	65	81	**9501.000**	–	100
94	65	57	**9502.000**	–	100
94	65	81	**9503.000**	–	100
94	94	57	**9504.000**	9504.100	100
94	94	81	**9505.000**	–	100
110	110	66	**9506.000**	9506.100	100
110	110	90	**9507.000**	9507.100	100
130	94	57	**9508.000**	9508.100	100
130	94	81	**9509.000**	9509.100	100
130	130	75	**9510.000**	9510.100	100
130	130	99	**9511.000**	9511.100	100

Dimensions mm			Model No. PK		Page
Width	Height	Depth	Cover grey	transp.	
180	94	57	**9512.000**	9512.100	100
180	94	81	**9513.000**	9513.100	100
180	110	90	**9514.000**	9514.100	101
180	110	111	**9515.000**	9515.100	101
180	110	165	**9516.000**	9516.100	101
182	180	90	**9517.000**	9517.100	101
182	180	111	**9518.000**	9518.100	101
182	180	165	**9519.000**	9519.100	101
254	180	90	**9520.000**	9520.100	101
254	180	111	**9521.000**	9521.100	101
254	180	165	**9522.000**	9522.100	101
360	254	111	**9523.000**	9523.100	101
360	254	165	**9524.000**	9524.100	101

[1] With cable gland

Approvals:
- Bureau Veritas

1.1 Cast aluminium enclosures GA

Dimensions mm			Model No. GA	Page
Width	Height	Depth		
50	45	30	**9100.210**	104
58	64	36	**9101.210**	104
75	80	57	**9104.210**	104
98	64	36	**9102.210**	104
125	80	57	**9105.210**	104
122	120	80	**9108.210**	104
150	64	36	**9103.210**	104
160	160	90	**9112.210**	104
175	80	57	**9106.210**	104
200	230	110	**9116.210**	104

Dimensions mm			Model No. GA	Page
Width	Height	Depth		
220	120	90	**9110.210**	104
250	80	57	**9107.210**	104
260	160	90	**9113.210**	104
280	230	110	**9117.210**	104
330	230	110	**9118.210**	104
330	230	180	**9119.210**	104
360	122	80	**9111.210**	104
360	160	90	**9114.210**	104

1.1 Terminal boxes KL

Dimensions mm			Model No. KL				Model No. KL	
			Sheet steel				Stainless steel	
Width	Height	Depth	with gland plate	Page	without gland plate	Page	without gland plate	Page
150	150	80	–		1514.510	107	1521.010	270
150	150	120	–		1500.510	108	–	
200	150	80	–		1528.510	107	–	
200	150	120	–		1529.510	108	–	
200	200	80	–		1516.510	107	1523.010	270
200	200	120	–		1502.510	108	–	
300	150	80	–		1515.510	107	1522.010	270
300	150	120	1530.510	109	1501.510	108	–	
300	200	80	–		1517.510	107	1524.010	270
300	200	120	1531.510	109	1503.510	108	–	
300	300	120	1535.510	109	1507.510	108	1526.010	270
400	150	120	–		1589.510	108	–	
400	200	80	–		1518.510	107	–	
400	200	120	1532.510	109	1504.510	108	1525.010	270
400	300	120	1536.510	109	1508.510	108	–	
400	400	120	1539.510	109	1511.510	108	–	
500	200	120	1533.510	109	1505.510	108	–	
500	300	120	1537.510	109	1509.510	108	–	
600	200	80	–		1519.510	107	–	
600	200	120	1534.510	109	1506.510	108	–	
600	300	120	1538.510	109	1510.510	108	–	
600	400	120	1540.510	109	1512.510	108	–	
800	200	120	1542.510	109	1527.510	108	–	
800	400	120	1541.510	109	1513.510	108	–	

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Norske Veritas
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- Bureau Veritas
- VDE

1.1 E-Box EB

Dimensions mm			Model No. EB	Page		Dimensions mm			Model No. EB	Page
Width	Height	Depth				Width	Height	Depth		
150	150	80	1551.500	110		200	400	80	1547.500	110
150	150	120	1553.500	110		200	400	120	1550.500	110
150	300	80	1545.500	110		200	500	120	1557.500	110
150	300	120	1548.500	110		300	300	120	1555.500	110
200	200	80	1546.500	110		300	400	120	1556.500	110
200	200	120	1549.500	110		300	400	155	1577.500	110
200	300	80	1552.500	110		300	600	155	1578.500	110
200	300	120	1554.500	110		300	800	155	1579.500	110

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Norske Veritas
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- Bureau Veritas
- VDE

A
1.
Industrial Enclosures

Industrial Enclosures

1.1 Bus enclosures BG
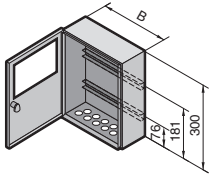
Dimensions mm			Version PG		Version metric	
Width	Height	Depth	**Model No. BG**	Page	**Model No. BG**	Page
200	300	80	**1583.510**	111	**1583.520**	111
300	300	80	**1584.510**	111	**1584.520**	111
400	300	80	**1585.510**	111	**1585.520**	111
500	300	80	**1586.510**	111	**1586.520**	111
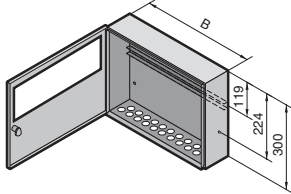
Approvals:
- TÜV
- Lloyds Register of Shipping
- VDE
- UL
- C-UL
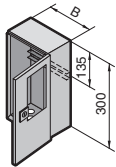
Dimensions mm			PG version						Metric version					
			Number of PG holes				**Model No. BG**	Page	Number of metric holes				**Model No. BG**	Page
Width	Height	Depth	9	13.5	29	36			M12	M20	M32	M50		
200	300	120	2	–	5	–	**1605.510**	112	2	–	5	–	**1605.520**	112
400	300	120	–	2	9	1	**1606.510**	112	–	2	9	1	**1606.520**	112

Approvals:
- TÜV
- Lloyds Register of Shipping
- VDE
- UL
- C-UL
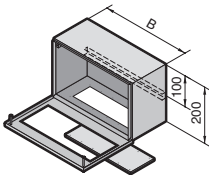
Dimensions mm			**Model No. BG**	Page
Width	Height	Depth		
400	200	125	**1558.510**	112
600	200	125	**1559.510**	112

Approvals:
- TÜV
- Lloyds Register of Shipping
- VDE
- UL
- C-UL
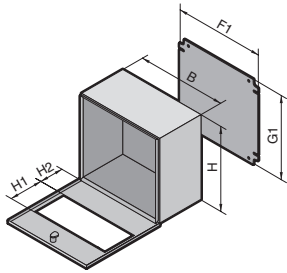
1.1 Bus enclosures BG

Dimensions mm			Model No. BG	Page
Width	Height	Depth		
400	300	155	**1577.500**	113
600	300	155	**1578.500**	113
800	300	155	**1579.500**	113

Approvals:
● TÜV
● Lloyds Register of Shipping
● VDE
● UL
● C-UL
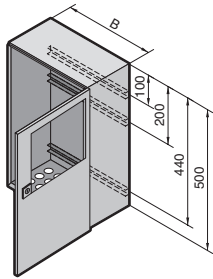
Dimensions mm			Model No. BG	Page
Width	Height	Depth		
400	500	160	**1611.510**	113

Approvals:
● TÜV
● Lloyds Register of Shipping
● VDE
● UL
● C-UL
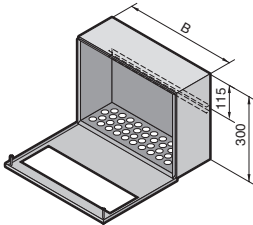
Dimensions mm			Model No. BG	Page
Width	Height	Depth		
500	300	120	**1609.510**	114

Approvals:
● TÜV
● Lloyds Register of Shipping
● VDE
● UL
● C-UL
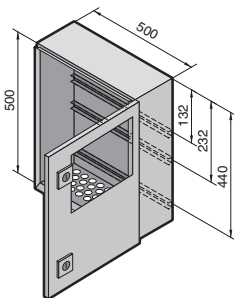
Dimensions mm			Model No. BG	Page
Width	Height	Depth		
500	500	210	**1050.900**	114

Approvals:
● TÜV
● Lloyds Register of Shipping
● VDE
● UL
● C-UL

Industrial Enclosures

1.2 Compact enclosures AE

| Dimensions mm			Model No. AE	Page	Model No. AE	Page
Width	Height	Depth	Sheet steel		Stainless steel	
Single-door						
200	300	120	**1032.500**	118	–	
200	300	155	**1035.500**	118	**1002.600**	273
300	300	210	**1033.500**	118	–	
300	380	210	–		**1005.600**	273
300	400	210	**1034.500**	118	–	
380	300	155	**1030.500**	118	**1004.600**	273
380	300	210	**1031.500**	118	–	
380	380	210	**1380.500**	118	**1006.600**	273
380	600	210	**1038.500**	119	**1008.600**	273
380	600	350	**1338.500**	119	–	
400	500	210	**1045.500**	119	–	
500	500	210	**1050.500**	119	**1007.600**	273
500	500	300	**1350.500**	119	**1013.600**	273
500	700	250	**1057.500**	119	–	
600	380	210	**1039.500**	118	**1009.600**	273
600	380	350	**1339.500**	118	–	
600	600	210	**1060.500**	119	**1010.600**	273
600	600	350	**1360.500**	119	–	
600	760	210	**1076.500**	119	**1012.600**	273
600	760	350	**1376.500**	119	–	
600	800	250	**1058.500**	119	–	
600	1000	250	**1090.500**	119	–	
600	1200	300	**1260.500**	120	–	
760	760	210	**1077.500**	119	–	
760	760	300	**1073.500**	119	**1014.600**	273
800	1000	300	**1180.500**	119	**1016.600**	273
800	1200	300	**1280.500**	120	**1017.600**	273
Double-door						
1000	760	210	**1100.500**	120	–	
1000	760	300	**1130.500**	120	–	
1000	1000	300	**1110.500**	120	**1018.600**	273
1000	1200	300	**1213.500**	120	**1019.600**	273
1000	1400	300	**1114.500**	120	–	

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Norske Veritas
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- Bureau Veritas
- VDE

Compact enclosures AE, protection category IP 69K

Dimensions mm			Model No. AE	Page
Width	Height	Depth		
Single-door				
230	330	155	**1101.010**	121
400	400	250	**1101.020**	121
400	650	250	**1101.030**	121
650	650	250	**1101.040**	121

1.2 Compact enclosures AK

Dimensions mm			Model No. AK	Page
Width	Height	Depth		
Single-door				
600	1200	400	**1646.500**	122
800	1200	400	**1648.500**	122

Dimensions mm			Model No. AK	Page
Width	Height	Depth		
Double-door				
1000	1200	400	**1650.500**	122
1000	1400	400	**1647.500**	122
1200	1200	400	**1652.500**	122

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Norske Veritas
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- Bureau Veritas
- VDE

1.2 Plastic enclosures KS

Dimensions mm			Door(s)	Model No. KS		Page
				Viewing window		
Width	Height	Depth		without	with	
200	300	150	1	**1423.600**	–	123
250	350	150	1	**1432.600**	–	123
300	400	200	1	**1434.600**	–	123
400	400	200	1	**1444.600**	1448.600	123
400	600	200	1	**1446.600**	1449.600	123
500	500	300	1	**1453.600**	1454.600	123
600	600	200	1	**1466.600**	1467.600	123
600	800	300	1	**1468.600**	1469.600	124
800	1000	300	1	**1480.600**	1479.600	124
1000	1000	300	2	**1400.600**	–	124

Approvals:
- UL (without viewing window)
- CSA (without viewing window)
- TÜV
- Germanischer Lloyd
- Norske Veritas
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- Bureau Veritas
- VDE

1.3 Compact system enclosures Rittal CM

Dimensions mm			Model No. CM	Page
Width	Height	Depth		
Single-door				
600	800	400	**5110.500**	128
600	1000	400	**5111.500**	128
600	1200	300	**5112.500**	128
600	1200	400	**5113.500**	128
800	1000	300	**5114.500**	128
800	1000	400	**5115.500**	128
800	1200	300	**5116.500**	128
800	1200	400	**5117.500**	129

Dimensions mm			Model No. CM	Page
Width	Height	Depth		
Double-door				
1000	1000	300	**5118.500**	129
1000	1200	300	**5119.500**	129
1000	1200	400	**5120.500**	129
1000	1400	300	**5121.500**	129
1000	1400	400	**5122.500**	129
1200	1200	400	**5123.500**	129

1.3 Compact system enclosures Rittal CL

Dimensions mm			Model No. CL	Page
Width	Height	Depth		
Single-door				
600	1600	500	**5150.500**	130
600	1800	400	**5151.500**	130
600	2000	500	**5152.500**	130
800	1600	500	**5153.500**	130
800	1800	400	**5154.500**	130
800	2000	500	**5155.500**	130
1000	1800	400	**5156.500**	130

Dimensions mm			Model No. CL	Page
Width	Height	Depth		
Double-door				
1000	1800	400	**5157.500**	131
1200	1600	500	**5158.500**	131
1200	1800	400	**5159.500**	131
1200	2000	500	**5160.500**	131

1.4 Free-standing enclosure ES 5000

Dimensions mm			Model No. ES Sheet steel	Page	Model No. ES Stainless steel	Page
Width	Height	Depth				
Single-door						
600	1600	400	–		**5450.600**	285
600	1600	500	**5665.500**	136	–	
600	1800	400	**5684.500**	136	–	
600	1800	500	–		**5451.600**	285
600	2000	500	**5605.500**	136	–	
800	1600	500	**5865.500**	136	–	
800	1800	400	**5884.500**	136	–	
800	1800	500	–		**5452.600**	285
800	2000	500	**5805.500**	136	–	
800	2000	600	–		**5453.600**	285
1000	1800	400	**5084.500**	136	**5454.600**	285
Double-door						
1000	1800	400	**5080.500**	136	–	
1200	1600	500	**5265.500**	137	–	
1200	1800	400	**5284.500**	137	–	
1200	2000	500	**5205.500**	137	**5455.600**	285
1600	1800	400	**5784.500**	137	–	
1800	2000	500	**5905.500**	137	–	

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Norske Veritas
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- Bureau Veritas
- VDE

1.4 Baying system TS 8

Dimensions mm			Model No. TS	Page	Model No. TS	Page
Width	Height	Depth	Sheet steel		Stainless steel	
Single-door						
400	1800	500	8485.510[1]	141	–	
400	1800	600	8486.510[1]	142	–	
400	2000	500	8405.510[1]	144	–	
400	2000	600	8406.510[1]	145	–	
600	1400	500	8645.500	138	–	
600	1600	500	8665.500	139	–	
600	1800	400	8684.500	140	–	
600	1800	500	8685.500	141	8457.600	284
600	1800	600	8686.500	142	–	
600	2000	400	8604.500	143	–	
600	2000	500	8605.500	144	–	
600	2000	600	8606.500	145	8452.600	284
600	2000	800	8608.500	146	–	
600	2200	600	8626.500	147	–	
800	1400	500	8845.500	138	–	
800	1600	500	8865.500	139	–	
800	1800	400	8884.500	140	8454.600	284
800	1800	500	8885.500	141	8455.600	284
800	1800	600	8886.500	142	–	
800	2000	400	8804.500	143	–	
800	2000	500	8805.500	144	–	
800	2000	600	8806.500	145	8450.600	284
800	2000	800	8808.500	146	–	
800	2200	600	8826.500	147	–	
1000	1800	400	8084.500	140	–	
Double-door						
800	1800	500	8880.500	141	–	
800	1800	600	8881.500	142	–	
1000	1800	400	8080.500	140	–	
1000	2000	500	8005.500	144	–	
1000	2000	600	8006.500	145	–	
1200	1400	500	8245.500	138	–	
1200	1600	500	8265.500	139	–	
1200	1800	400	8284.500	140	8456.600	284
1200	1800	500	8285.500	141	8453.600	284
1200	1800	600	8286.500	142	–	
1200	2000	400	8204.500	143	–	
1200	2000	500	8205.500	144	–	
1200	2000	600	8206.500	145	8451.600	284
1200	2000	800	8208.500	146	–	
1200	2200	600	8226.500	147	–	

[1] Without tubular door frame, mounting plate and gland plates.

Approvals:
- UL
- CSA
- TÜV
- Russian Maritime Register of Shipping
- TÜV Mark
- Lloyds Register of Shipping
- Bureau Veritas
- VDE
- Germanischer Lloyd

1.4 Baying system TS 8

Electronic enclosure

Dimensions mm			Model No. TS	Page
Width	Height	Depth	Enclosure	
600	1600	600	**8410.510**	148
600	1600	800	**8418.510**	148
600	2000	600	**8430.510**	148
600	2000	800	**8438.510**	148

Approvals:
- UL
- C-UL

For modular front design

Dimensions mm			Model No. TS	Page
Width	Height	Depth	Enclosure	
600	2000	600	**8606.512**	149
800	2000	600	**8806.512**	149

For isolator door locking

Dimensions mm			Model No. TS	Page
Width	Height	Depth	Enclosure	
800	1800	400	**8984.500**	150
800	1800	500	**8985.500**	150
800	2000	500	**8905.500**	150
800	2000	600	**8906.500**	150

Approvals:
- UL
- C-UL

IP 65/NEMA 4x, NEMA 4

Dimensions mm			Model No. TS	Page
Width	Height	Depth	Enclosure	
NEMA 4x, stainless steel				
600	1800	600	**8458.640**	151
800	1800	600	**8459.640**	151
600	2000	600	**8452.640**	151
800	2000	600	**8450.640**	151
NEMA 4, sheet steel				
600	1800	600	**8686.540**	151
800	1800	600	**8886.540**	151
600	2000	600	**8606.540**	151
800	2000	600	**8806.540**	151

Approvals:
- UL
- C-UL

1.4 Baying system TS 8
prepared for EX pressurisation

Dimensions mm			Model No. TS	Page	Model No. TS	Page
Width	Height	Depth	Sheet steel		Stainless steel	
600	1400	500	**8645.560**	152	–	
800	1400	500	**8845.560**	152	–	
600	1600	500	**8665.560**	152	–	
800	1600	500	**8865.560**	152	–	
600	1800	400	**8684.560**	152	–	
800	1800	400	**8884.560**	152	**8454.660**	152
1000	1800	400	**8084.560**	152	**8461.660**	152
600	1800	500	**8685.560**	152	**8457.660**	152
800	1800	500	**8885.560**	152	**8455.660**	152
600	1800	600	**8686.560**	152	**8458.660**	152
800	1800	600	**8886.560**	152	–	
600	2000	400	**8604.560**	152	–	
800	2000	400	**8804.560**	152	–	
600	2000	500	**8605.560**	152	–	
800	2000	500	**8805.560**	152	–	
600	2000	600	**8606.560**	152	**8452.660**	152
800	2000	600	**8806.560**	152	**8450.660**	152
600	2000	800	**8608.560**	152	–	
800	2000	800	**8808.560**	152	**8460.660**	152
600	2200	600	**8626.560**	152	–	
800	2200	600	**8826.560**	152	–	

1.5 VIP 6000
Selection of operating/keyboard housings see page 154 – 169.

Approvals:
- UL
- CSA
- TÜV
- DNV
- Lloyds Register of Shipping
- BV
- VDE

1.5 Optipanel
**Selection of operating/keyboard housings** see page 170 – 177.

1.5 Optipanel
Standard sizes

To fit front panels mm	To fit TFT monitor Model No. SM	Dimensions mm			Model No. CP	Page	Rear panel, hinged		Support arm connection
		Width	Height	Depth			Quick-release fastener for screwdriver	Cam with double-bit insert	
270 x 234	–	314	278	60	**6380.100**	178	–	■	CP-S VESA 75
482.6 x 310.3	–	527	354	110	**6380.000**	178	–	■	CP-L[1]
430 x 343	6450.010/.030	475	387	60	**6380.010**	178	■	–	CP-L[1], rear
430 x 343	6450.010/.030	475	387	110	**6380.020**	178	–	■	CP-L[1]
482.6 x 354.8	6450.020/.040	527	399	60	**6380.030**	178	■	–	CP-L[1], rear
482.6 x 354.8	6450.020/.040	527	399	110	**6380.040**	178	–	■	CP-L[1]

[1] ☐ 120 x 65 mm
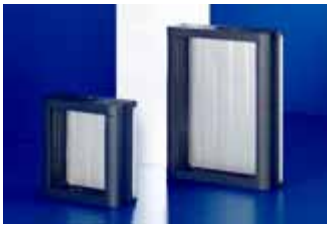
1.5 Compact Panel

Dimensions mm			To fit		Model No. CP			Page
Width	Height	Depth	Front panel width mm	Front panel height mm	with support arm connection CP-S	with support arm connection CP-L[1]	without support arm connection	
241	238	87	178	200	**6340.000**	**6340.010**	**6340.020**	183
241	388	87	178	350	**6340.100**	**6340.110**	**6340.120**	183
241	521	87	178/4 U	482.6/19″	**6340.200**	**6340.210**	**6340.220**	183
315	238	87	252	200	**6340.300**	**6340.310**	**6340.320**	183
315	388	87	252	350	**6340.400**	**6340.410**	**6340.420**	183

[1] ☐ 120 x 65 mm

1.5 Command panel housing with door
based on AE

Dimensions mm			Model No. CP	Page	Model No. CP	Page
Width	Height	Depth	Sheet steel		Stainless steel	
300	200	180	**6534.000**	184	–	
300	300	150	–		**6535.010**	276
300	300	180	**6535.000**	184	–	
300	400	180	**6537.000**	184	–	
400	300	150	–		**6536.010**	276
400	300	180	**6536.000**	184	–	
400	400	150	–		**6538.010**	276
400	400	180	**6538.000**	184	–	
500	500	180	**6544.000**	184	–	
600	400	150	–		**6539.010**	276

Approvals:
- UL
- C-UL

1.5 Operating housing
based on AE

Dimensions mm			Model No. CP	Page
Width	Height	Depth		
300	200	155	**6540.200**	185
380	300	210	**6531.200**	185
380	380	210	**6530.200**	185
500	500	210	**6532.200**	185
600	380	210	**6533.200**	185

Approvals:
- UL
- C-UL

1.5 Operating housing
based on AE with display panel front

Dimensions mm			Model No. CP	Page
Width	Height	Depth		
380	380	249	**6442.500**	186
380	600	249	**6462.500**	186
500	500	249	**6552.500**	186
600	600	249	**6662.500**	186

Operating housing based on AE with wide VIP 6000 frame see page 187.

Approvals:
- UL
- C-UL

1.5 Support arm systems
Fast selection of CP-S see page 191.

Fast selection of CP-L see page 200.

Fast selection of CP-XL see page 218.

Support arm system CP-S, stainless steel see page 277.

1.5 Stand systems
Selection see from page 228.

A

1.

Industrial Enclosures

Industrial Enclosures

1.5 Industrial workstations

Fast selection

Approvals,
may be found on our website: www.rittal.com

1.5 PC enclosure systems

| Dimensions mm			Model No. PC	Page	Model No. PC	Page	Model No. PC	Page	Model No. PC	Page	Model No. PC	Page
Width	Height	Depth	with keyboard drawer, glazed door, top		with keyboard drawer, glazed door, top, mounting compartment, small		with keyboard drawer, mounting compartment, large		with folding keyboard, glazed door, top		with desk section, glazed door, top	
Based on TS 8												
600	1600	636	**8366.000**	257	**8366.300**	257	**8366.400**	257	**8366.100**	258	**8366.200**	258
600	1600	836	**8368.000**	257	–		–		**8368.100**	258	–	
Based on ES												
600	1600	650	**4603.703**	259	**4603.913**	259	**4603.603**	259	**4603.920**	260	**4603.704**	260
600	1600	850	**4609.703**	259	–		–		**4609.920**	260	–	
Stainless steel												
600	1600	620	**4650.000**	283	–		–		–		**4650.704**	283

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- VDE

A

1.

Industrial Enclosures

1.5 Console systems AP
Combination options of the modules
see page 262.

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- VDE

A
1.
Industrial Enclosures

1.5 Consoles

Dimensions mm			Model No. AP	Page
Width	Height	Depth		
Cover, front				
800	430	400	**2612.500**	264
1200	430	400	**2642.500**	264
1600	430	400	**2652.500**	264
Cover, front and rear				
800	430	500	**2614.500**	264
1200	430	500	**2644.500**	264
1600	430	500	**2654.500**	264
800	630	500	**2647.500**	264
1200	630	500	**2648.500**	264
1600	630	500	**2649.500**	264
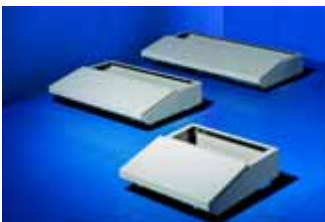
1.5 Desk units

Dimensions mm			Model No. AP	Page
Width	Height	Depth		
For depth 400 mm (consoles)				
800	200	850	**2611.500**	264
1200	200	850	**2641.500**	264
1600	200	850	**2651.500**	264

Dimensions mm			Model No. AP	Page
Width	Height	Depth		
For depth 500 mm (consoles)				
800	200	950	**2613.500**	264
1200	200	950	**2643.500**	264
1600	200	950	**2653.500**	264

1.5 Pedestals

Dimensions mm			Model No. AP	Page
Width	Height	Depth		
Door(s) front				
800	670	400	**2600.500**	265
1200	670	400	**2620.500**	265
1600	670	400	**2630.500**	265

Dimensions mm			Model No. AP	Page
Width	Height	Depth		
Door(s) front and rear				
800	670	500	**2610.500**	265
1200	670	500	**2640.500**	265
1600	670	500	**2650.500**	265
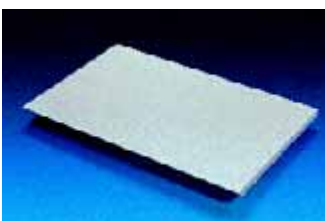
1.5 Trim panel
For console, desk unit and pedestal

To fit		Model No. AP	Page
Width mm	Depth mm		
800	400	**2615.500**	265
1200	400	**2645.500**	265
1600	400	**2655.500**	265
800	500	**2616.500**	265
1200	500	**2646.500**	265
1600	500	**2656.500**	265

Industrial Enclosures

1.5 One-piece consoles AP

Dimensions mm			Model No. AP	Page	Model No. AP	Page
Width	Height	Depth	Sheet steel		Stainless steel	
Single-door						
600	960	400/480	**2666.500**	266	**2683.600**	282
800	960	400/480	**2668.500**	266	**2684.600**	282
Double-door						
1000	960	400/480	**2670.500**	266	**2685.600**	282
1200	960	400/480	**2672.500**	266	**2686.600**	282

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- VDE

1.5 Universal consoles AP

Dimensions mm			Model No. AP	Page
Width	Height	Depth		
with short front door				
600	1300	500	**2694.500**	267
with tall front door				
600	1300	500	**2695.500**	267

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- VDE

1.6 Stainless steel

Terminal boxes KL see page 23

Compact enclosures AE see page 26

Command panel housing with door see page 32

Support arm system CP-S see page 277

Stand systems see page 281

One-piece consoles AP see page 36

PC enclosure systems see page 34

Baying systems TS 8 see page 29

Free-standing enclosure ES 5000 see page 28

1.6 Premium Line KL, protection category IP 69K, stainless steel

Dimensions mm			Model No. KL	Page
Width	Height	Depth		
150	150	80	**1024.010**	271
150	150	120	**1024.020**	271
300	200	120	**1024.030**	271
400	300	120	**1024.040**	271

1.6 Bus enclosures BG, stainless steel

Dimensions mm			Model No. BG	Page
Width	Height	Depth		
200	300	80	**1583.010**	272
300	300	80	**1584.010**	272
400	300	80	**1585.010**	272
400	200	123	**1558.010**	272
600	200	123	**1559.010**	272

Approvals:
- TÜV
- Lloyds Register of Shipping
- VDE
- UL
- C-UL

1.6 Premium Panel, protection category IP 69K, stainless steel

Width	Height		Depth	For installation panel W x H		Installation depth:		Support arm connec-tion	Model No. CP	Page
	Operating housing	Keyboard housing	Operating housing	Operating housing	Keyboard housing	Operating housing	Keyboard housing			
With keyboard housing										
530	460	200	120	482.6 mm (19″) x 354.8 mm (8 U)	482.6 mm (19″) x 177 mm (4 U)	115	front 58 rear 63	top	**6680.000**	274
530	460	200	120			115	front 58 rear 63	bottom	**6680.010**	274
530	460	200	220			215	front 58 rear 63	top	**6680.100**	274
530	460	200	220			215	front 58 rear 63	bottom	**6680.110**	274
Without keyboard housing										
530	360	–	120	482.6 mm (19″) x 310 mm (7 U)	–	115	–	top, or bottom by rotating the enclosure	**6681.000**	274
530	360	–	220			215	–		**6681.100**	274

Industrial Enclosures

1.6 Operating housing, stainless steel

Dimensions mm			Model No. CP	Page
Width	Height	Depth		
320	240	160	**6670.000**	275
400	320	160	**6672.000**	275

Approvals:
- CSA
- UL
- C-UL

1.7 Ex enclosures, stainless steel
with screw fastened lid

Dimensions mm			Model No. KEL	Page
Width	Height	Depth		
150	150	80	**9301.000**	287
200	200	80	**9303.000**	287
300	150	80	**9302.000**	287
300	200	80	**9304.000**	287
300	300	120	**9306.000**	287
400	200	120	**9305.000**	287

with hinged door

Dimensions mm			Number of fasteners	Model No. KEL	Page
Width	Height	Depth			
200	300	155	1	**9401.600**	287
300	380	210	1	**9409.600**	287
380	300	155	1	**9402.600**	287
380	380	210	1	**9403.600**	287
380	600	210	2	**9404.600**	287
600	600	210	2	**9405.600**	287
600	760	210	2	**9406.600**	287
760	760	300	2	**9407.600**	287
800	1000	300	2	**9408.600**	287

Approvals:
- PTB

1.7 Ex enclosures, plastic

Dimensions mm			Model No. KEL	Page
Width	Height	Depth		
200	300	150	**9201.600**	288
250	350	150	**9202.600**	288
300	400	200	**9203.600**	288
400	400	200	**9204.600**	288
400	600	200	**9205.600**	288
500	500	300	**9207.600**	288
600	600	200	**9206.600**	288
600	800	300	**9208.600**	288
800	1000	300	**9209.600**	288

Approvals:
- PTB

1.8 EMC enclosures

EMC baying systems TS 8 see page 291

EMC E-Box EB see page 290

EMC free-standing enclosure ES 5000 see page 291

1.8 EMC terminal boxes KL

Dimensions mm			Model No. KL	Page
Width	Height	Depth		
300	300	120	**1507.710**	290

Approvals:
- UL
- CSA
- TÜV
- Norske Veritas
- Lloyds Register of Shipping
- VDE

1.8 EMC compact enclosures AE

Dimensions mm			Model No. AE	Page
Width	Height	Depth		
380	380	210	**1380.700**	290
600	380	210	**1039.700**	290
600	600	210	**1060.700**	290
800	1000	300	**1180.700**	290

Approvals:
- UL
- CSA
- TÜV
- Norske Veritas
- Lloyds Register of Shipping
- VDE

1.9 Modular enclosure technology

Compact enclosures AE (mounting plate with modular pitch pattern of holes) see page 295

Approvals:
- UL
- CSA
- TÜV
- Germanischer Lloyd
- Norske Veritas
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- Bureau Veritas
- VDE

1.9 Modular enclosure technology

Baying systems TS 8 (mounting plate with modular pitch pattern of holes) see page 295

Approvals:
- UL
- CSA
- TÜV
- Russian Maritime Register of Shipping
- TÜV Mark
- Lloyds Register of Shipping
- Bureau Veritas
- VDE
- Germanischer Lloyd

Power Distribution

Power distribution – the benefit lies in the system

Modern power distribution systems are becoming ever more powerful. For this reason, users demand the security of internationally recognised and approved power distribution components.

Rittal provides the switchgear designer with innovative systems which conform to the relevant regulations.

Type testing on short-circuit resistance, which is performed in accredited laboratories, provides an impressive testimony to the suitability of Rittal busbar systems.

Successful solutions for industrial power distribution
- SV busbar systems
- SV connection systems
- SV bus-mounting fuse bases
- NH bus-mounting on-load isolators
- NH fused isolators
- SV component adaptors
- SV-TS 8 and Maxi-PLS
- ISV distribution enclosures

Detailed information may be found on Catalogue pages 298 – 420 or refer to our website: www.rittal.com

The current status of approvals can be found on our website: www.rittal.com

2.1 Busbar systems up to 250 A (40 mm)

Rittal Mini-PLS
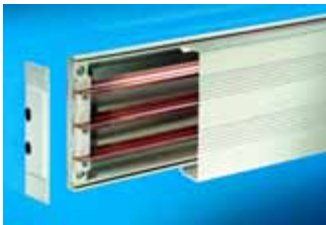
Description	Length mm	Packs of	Model No. SV	Page
Mini-PLS busbar supports up to 250 A, 690 V~, 3-pole, 40 mm bar centre distance	–	4	**9600.000**	302
Mini-PLS end cover	–	2	**9610.000**	302
Mini-PLS special busbars E-Cu 250 A, 120 mm²	500	3	**9601.000**	302
	700	3	**9602.000**	302
	1100	3	**9603.000**	302
	1500	3	**9624.000**	302
Mini-PLS busbar connectors	–	3	**9611.000**	302
Mini-PLS base tray sections	250	1	**9604.000**	302
	500	1	**9605.000**	302
	700	1	**9606.000**	302
	1100	1	**9607.000**	302
Mini-PLS cover sections	250	1	**9608.000**	302
	500	1	**9609.000**	302

Mini-PLS busbar connection adaptor

Version	Packs of	Model No. SV	Page
63 A, 690 V~, connection top/bottom for round conductors 1.5 – 35 mm² and for laminated copper bars, clamping area 10 x 8 mm	1	**9613.000**	303
250 A, 690 V~, connection top/bottom for round conductors 10 – 120 mm² and for laminated copper bars, clamping area 17 x 15 mm	1	**9612.000**	303

2.1 Busbar systems up to 250 A (40 mm)
Mini-PLS component adaptor
Cable outlet at the top

Construction width mm	Rated current up to	Rated operating voltage	Connection cables[1]	Support rails		Packs of	Model No. SV	Page
				Height mm	Number			
45	12 A	690 V~	AWG 14	7.5	1	1	**9614.110**	304
45	25 A	690 V~	AWG 12	7.5	1	1	**9614.100**	304
45	25 A	690 V~	AWG 12	15	1	1	**9615.100**	304
54	25 A	690 V~	AWG 12	7.5	1	1	**9614.000**	304
54	25 A	690 V~	AWG 12	15	1	1	**9615.000**	304
72	25 A	690 V~	AWG 12	7.5	1	1	**9625.000**	304
72	25 A	690 V~	AWG 12	15	1	1	**9626.000**	304
90	25 A	690 V~	AWG 12	7.5	1	1	**9629.010**	304
99	25 A	690 V~	AWG 12	15	1	1	**9629.020**	304
108	25 A	690 V~	AWG 12	7.5	1	1	**9629.030**	304
54	40 A	690 V~	AWG 10	7.5	1	1	**9616.000**	306
54	40 A	690 V~	AWG 10	15	1	1	**9617.000**	306
72	40 A	690 V~	AWG 10	7.5	1	1	**9627.000**	306
72	40 A	690 V~	AWG 10	15	1	1	**9628.000**	306
90	100 A	690 V~	35 mm²	Mounting plate		1	**9629.000**	306

[1] AWG = American Wire Gauges
AWG 14 = 2.08 mm² ≙ 2.5 mm²
AWG 12 = 3.31 mm² ≙ 4 mm²
AWG 10 = 5.26 mm² ≙ 6 mm²

Note:
For allocation of "power circuit-breakers/starter combinations",
see page 1128/1129.

Mini-PLS quick-fit component adaptor

Construction width mm	Rated current up to[1]	Rated operating voltage	For power circuit-breakers	Packs of	Model No. SV	Page
54	25 A (32 A)	690 V~	AEG, General Electric, Schiele	1	**9618.000**	305
54	25 A (32 A)	690 V~	Moeller Electric	1	**9619.000**	305
54	25 A (32 A)	690 V~	Allen Bradley, Moeller	1	**9620.000**	305
54	25 A (32 A)	690 V~	Telemecanique	1	**9621.000**	305
54	25 A (32 A)	690 V~	ABB, Siemens, Telemecanique	1	**9622.000**	305

[1] Rated current 25 A at 35°C and 32 A at 25°C ambient temperature

Note:
For allocation of "power circuit-breakers/starter combinations",
see page 1128.

Mini-PLS bus-mounting fuse base

Version	Packs of	Model No. SV	Page
D 02-E 18, 63 A, 400 V~, terminal for round conductors 1.5 – 16 mm²	1	**9630.000**	307

NH on-load isolators

Version	Packs of	Model No. SV	Page
Size 000, 100 A, 690 V~, cable outlet top/bottom, terminal up to 50 mm²	1	**3431.000**	307
Mini-PLS busbar adaptor for SV 3431.000	1	**9629.100**	307

Power Distribution

2.1 Busbar systems up to 360 A (40 mm)
System components

Description	Dimensions mm	Length mm	Packs of	Model No. SV	Page
Busbar support up to 360 A, 690 V~, 3-pole, 40 mm bar centre distance, for E-Cu busbars 12 x 5 mm to 15 x 10 mm	–	–	4	**9350.000**	308
End cover	–	–	2	**9610.000**	308
Busbars E-Cu	12 x 5	2400	6	**3580.000**	308
	12 x 10	2400	6	**3580.100**	308
	15 x 5	2400	6	**3581.000**	308
	15 x 10	2400	6	**3581.100**	308
Base tray sections	–	250	1	**9604.000**	309
	–	500	1	**9605.000**	309
	–	700	1	**9606.000**	309
	–	1100	1	**9607.000**	309
Cover sections	–	250	1	**9608.000**	309
	–	500	1	**9609.000**	309
Busbar cover sections for busbars 12/15 x 5 mm	–	1000	4	**9350.010**	309
12/15 x 10 mm	–	1000	4	**9350.060**	309
Busbar connectors	–	–	3	**9350.070**	309

Busbar connection adaptor

Version	For busbars mm	Packs of	Model No. SV	Page
360 A, 690 V AC, for round conductors 10 – 120 mm² (max. 250 A) and laminated copper bars (max. 360 A), clamping area 17 x 15 mm	12 x 5/10	1	**9350.020**	310
	15 x 5/10	1	**9350.030**	310

Bus-mounting fuse base

Version	For busbars mm	Packs of	Model No. SV	Page
D 02-E 18, 63 A, 400 V~, terminal for round conductors 1.5 – 16 mm²	12 x 5/10	1	**9350.050**	311
	15 x 5/10	1	**9350.500**	311

NH on-load isolators

Version	For busbars mm	Packs of	Model No. SV	Page
Size 000, 100 A, 690 V~, cable outlet top/bottom, terminal up to 50 mm²	–	1	**3431.000**	311
Busbar adaptor for SV 3431.000	12 x 5/10	1	**9350.400**	311
	15 x 5/10	1	**9350.410**	311

A

2.

Power Distribution

2.1 Busbar systems up to 360 A (40 mm)

Multi-functional component adaptor

Con-struc-tion width mm	Rated current up to	Rated operating voltage	Connec-tion cables[1]	Connection of round conductors up to	Cable outlet	Support rails		For bar thickness mm	Packs of	Model No. SV	Page
						Height mm	Number				
45	12 A	690 V~	AWG 14	–	top	10	1	5	1	**9350.080**	312
45	12 A	690 V~	AWG 14	–	top	10	1	10	1	**9350.090**	312
45	25 A	690 V~	AWG 12	–	top	10	1	5	1	**9350.100**	312
45	25 A	690 V~	AWG 12	–	top	10	1	10	1	**9350.110**	312
45	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9350.120**	312
45	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9350.130**	312
45	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9350.260**	312
45	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9350.270**	312
45	25 A	690 V~	AWG 12	–	top	10	2 (1 var.)	5	1	**9350.140**	312
45	25 A	690 V~	AWG 12	–	top	10	2 (1 var.)	10	1	**9350.150**	312
90	25 A	690 V~	AWG 12	–	top	10	1	5	1	**9350.280**	313
90	25 A	690 V~	AWG 12	–	top	10	1	10	1	**9350.290**	313
99	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9350.300**	313
99	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9350.310**	313
108	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9350.320**	313
108	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9350.330**	313
45	25 A	690 V~	–	16 mm²	top	10	2 (1 var.)	5	1	**9350.160**	314
45	25 A	690 V~	–	16 mm²	top	10	2 (1 var.)	10	1	**9350.170**	314
45	25 A	690 V~	–	16 mm²	top/bottom	10	2	5	1	**9350.180**	314
45	25 A	690 V~	–	16 mm²	top/bottom	10	2	10	1	**9350.190**	314
54	40 A	690 V~	–	16 mm²	top	10	2	5	1	**9350.220**	314
54	40 A	690 V~	–	16 mm²	top	10	2	10	1	**9350.230**	314
54	40 A	690 V~	–	16 mm²	top/bottom	10	2	5	1	**9350.240**	314
54	40 A	690 V~	–	16 mm²	top/bottom	10	2	10	1	**9350.250**	314
54	40 A	690 V~	AWG 10	–	top	10	2	5	1	**9350.200**	315
54	40 A	690 V~	AWG 10	–	top	10	2	10	1	**9350.210**	315
54	40 A	690 V~	AWG 10	–	top	15	1	5	1	**9350.340**	315
54	40 A	690 V~	AWG 10	–	top	15	1	10	1	**9350.350**	315

[1] AWG = American Wire Gauges
AWG 14 = 2.08 mm² ≙ 2.5 mm²
AWG 12 = 3.31 mm² ≙ 4 mm²
AWG 10 = 5.26 mm² ≙ 6 mm²

Note:
For allocation of "power circuit-breakers/starter combinations",
see page 1129/1130.

Component adaptor

Version	For busbars mm	Packs of	Model No. SV	Page
100 A, 690 V~, construction width 90 mm, connection cables 35 mm², cable outlet at the top	12 x 5/10	1	**9350.420**	315
	15 x 5/10	1	**9350.430**	315

Note:
For allocation of "power circuit-breakers/starter combinations",
see page 1130.

A

2.

Power Distribution

Power Distribution

2.2 Busbar systems up to 800 A (60 mm)
System components

Description	Number of poles	Bar centre distance mm	For busbars mm	Packs of	Model No. SV	Page
Busbar supports up to 800 A, 1000 V~	3-pole	60	12 x 5 – 30 x 10^{1}	4	**3000.000**	318
	2-pole	60	12 x 5 – 30 x 10^{1}	4	**3050.000**	318
	1-pole	–	12 x 5 – 30 x 10^{1}	4	**3078.000**	318
	4-pole	60	12 x 5 – 30 x 10^{1}	3	**3064.000**	318
Busbar supports up to 450 A, 1000 V~	3-pole	60	30 x 5	4	**3066.000**	318
Inserts for SV 3000.000 SV 3050.000 SV 3064.000 SV 3078.000	–	–	12 x 5	12	**3009.000**	319
	–	–	12 x 10	24	**3008.000**	319
	–	–	15 x 5	12	**3007.000**	319
	–	–	20 x 5	12	**3004.000**	319
	–	–	20 x 10	24	**3003.000**	319
	–	–	25 x 5	12	**3002.000**	319
	–	–	30 x 5	12	**3001.000**	319
End covers						319
Support cover						319
Busbars of E-Cu						319
Busbar cover sections						319

[1] Max. busbar accommodation without inserts 30 x 10 mm
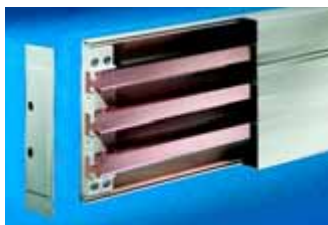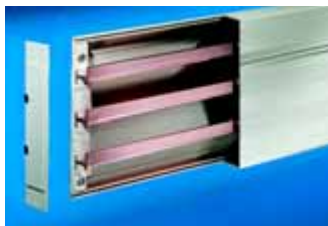
2.2 Busbar systems up to 800 A/1600 A (60 mm)
Rittal PLS

Description	Rated current up to	For PLS bar cross-section (bar thickness)	Packs of	Model No. SV	Page
PLS busbar supports, 3-pole, 60 mm bar centre distance, rated operating voltage 1000 V~.	800 A	300 mm² (5 mm)	4	**3500.000**	320
	1600 A	900 mm² (10 mm)	4	**3510.000**	320

Description	Length mm	For enclosure width mm	Packs of	Model No. SV for PLS 800 A	Model No. SV for PLS 1600 A	Page
PLS end covers	–	–	2	**3501.000**	**3511.000**	320
PLS special busbars E-Cu[1]	2400	variable	1	**3509.000**	**3516.000**	320
	495	600	3	**3524.000**	**3527.000**	320
	695	800	3	**3525.000**	**3528.000**	320
	1095	1200	3	**3526.000**	**3529.000**	320
PLS base tray sections	500	–	2	**3502.000**	**3512.000**	321
	700	–	1	**3503.000**	**3513.000**	321
	1100	–	1	**3518.000**	**3519.000**	321
PLS cover sections	250	–	2	**3506.000**	**3506.000**	321
	500	–	2	**3507.000**	**3507.000**	321
	700	–	1	**3508.000**	**3508.000**	321

[1] Bar cross-section (bar thickness)
  PLS 800 A: 300 mm² (5 mm)
  PLS 1600 A: 900 mm² (10 mm)

Busbar connection adaptor

Rated current up to	Rated operating voltage	Connection	Connection of round conductors up to	Clamping area for laminated copper bars mm	Packs of	Model No. SV	Page
63 A	690 V~	bottom	10 mm²/2 x 6 mm²	–	1	**3443.000**	322
125 A	690 V~	bottom	35 mm²	11 x 14	1	**3444.000**	322
250 A	690 V~	bottom	70 mm²	16 x 15	1	**3442.000**	322
400 A	690 V~	bottom	150 mm²	–	1	**3440.000**	322
600 A	690 V~	top/bottom	35 to 240 mm²	24 x 21	1 set	**3439.010**	323
800 A	690 V~	bottom	185 mm²	30 x 25	1	**3441.000**	322
800 A	690 V~	top/bottom	–	34 x 21 (16)	1 set	**3439.000**	323
1600 A	690 V~	top/bottom	–	65 x 21	1 set	**3517.000[1]**	323

[1] Only suitable for Rittal PLS 1600 A
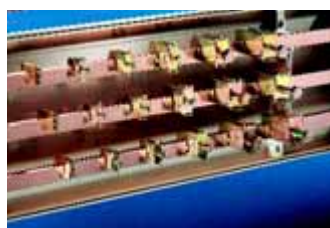
2.2 Busbar systems up to 800 A/1600 A (60 mm)
Connection clamps/system covers

Description	Page
Conductor connection clamps	324
Plate clamp	324
System covers	324

Multi-functional component adaptor

Con-struc-tion width mm	Rated current up to	Rated operating voltage	Connec-tion cables[1]	Connection of round conductors up to	Cable outlet	Support rails		For bar thickness mm	Packs of	Model No. SV	Page
						Height mm	Number				
45	12 A	690 V~	AWG 14	–	top	10	1	5	1	**9320.160**	325
45	12 A	690 V~	AWG 14	–	top	10	1	10	1	**9320.170**	325
45	25 A	690 V~	AWG 12	–	top	10	1	5	1	**9320.180**	325
45	25 A	690 V~	AWG 12	–	top	10	1	10	1	**9320.190**	325
45	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9320.200**	325
45	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9320.210**	325
45	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9320.440**	325
45	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9320.450**	325
45	25 A	690 V~	AWG 12	–	top	10	2 (1 var.)	5	1	**9320.220**	325
45	25 A	690 V~	AWG 12	–	top	10	2 (1 var.)	10	1	**9320.230**	325
45	25 A	690 V~	AWG 12	–	bottom	10	2	5	1	**9320.240**	325
45	25 A	690 V~	AWG 12	–	bottom	10	2	10	1	**9320.250**	325
90	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9320.380**	326
90	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9320.390**	326
99	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9320.400**	326
99	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9320.410**	326
108	25 A	690 V~	AWG 12	–	top	10	2	5	1	**9320.420**	326
108	25 A	690 V~	AWG 12	–	top	10	2	10	1	**9320.430**	326
45	25 A	690 V~	–	16 mm²	top	10	2 (1 var.)	5	1	**9320.260**	326
45	25 A	690 V~	–	16 mm²	top	10	2 (1 var.)	10	1	**9320.270**	326
45	25 A	690 V~	–	16 mm²	top/bottom	10	2	5	1	**9320.280**	326
45	25 A	690 V~	–	16 mm²	top/bottom	10	2	10	1	**9320.290**	326
54	40 A	690 V~	AWG 10	–	top	10	2	5	1	**9320.300**	327
54	40 A	690 V~	AWG 10	–	top	10	2	10	1	**9320.310**	327
54	40 A	690 V~	AWG 10	–	top	15	1	5	1	**9320.460**	327
54	40 A	690 V~	AWG 10	–	top	15	1	10	1	**9320.470**	327
54	40 A	690 V~	AWG 10	–	bottom	10	2	5	1	**9320.320**	327
54	40 A	690 V~	AWG 10	–	bottom	10	2	10	1	**9320.330**	327
54	40 A	690 V~	–	16 mm²	top	10	2	5	1	**9320.340**	327
54	40 A	690 V~	–	16 mm²	top	10	2	10	1	**9320.350**	327
54	40 A	690 V~	–	16 mm²	top/bottom	10	2	5	1	**9320.360**	327
54	40 A	690 V~	–	16 mm²	top/bottom	10	2	10	1	**9320.370**	327

[1] AWG = American Wire Gauges
AWG 14 = 2.08 mm² ≙ 2.5 mm²
AWG 12 = 3.31 mm² ≙ 4 mm²
AWG 10 = 5.26 mm² ≙ 6 mm²

Note:
For allocation of "power circuit-breakers/starter combinations",
see page 1130/1131.

A

2.

Power Distribution

Power Distribution

2.2 Busbar systems up to 800 A/1600 A (60 mm)
Component adaptor
Cable outlet at the top

Construc-tion width mm	Rated current up to	Rated operating voltage	Connection cables[1]	Connection of round conductors mm²	Support rails Height mm	Support rails Number	For bar thickness mm	Packs of	Model No. SV	Page
54	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	1	5	1	**3540.000**	328
54	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	1	10	1	**3541.000**	328
54	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	2	5	1	**3040.000**	328
54	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	2	10	1	**3041.000**	328
72	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	1	5	1	**3544.000**	328
72	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	1	10	1	**3545.000**	328
108	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	2	5	1	**3042.000**	329
108	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	2	10	1	**3043.000**	329
126	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	2	5	1	**3069.000**	329
126	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	7.5	2	10	1	**3070.000**	329
144	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	15	2	5	1	**3044.000**	329
144	50 A	690 V~	AWG 10 (32 A)	1.5 – 10	15	2	10	1	**3045.000**	329
54	63 A	690 V~	AWG 8	1.5 – 10	7.5	1	5	1	**3036.000**	330
54	63 A	690 V~	AWG 8	1.5 – 10	7.5	1	10	1	**3037.000**	330
72	63 A	690 V~	AWG 8	1.5 – 10	7.5	2	5	1	**3038.000**	330
72	63 A	690 V~	AWG 8	1.5 – 10	7.5	2	10	1	**3039.000**	330
72	63 A	690 V~	AWG 8	1.5 – 10	15	1	5	1	**3067.000**	330
72	63 A	690 V~	AWG 8	1.5 – 10	15	1	10	1	**3068.000**	330
72	63 A	690 V~	AWG 8	1.5 – 10	15	2	5	1	**3046.000**	330
72	63 A	690 V~	AWG 8	1.5 – 10	15	2	10	1	**3047.000**	330
144	63 A	690 V~	AWG 8	1.5 – 10	15	2	5	1	**3048.000**	330
144	63 A	690 V~	AWG 8	1.5 – 10	15	2	10	1	**3049.000**	330
54	63 A	690 V~	AWG 10	1.5 – 10	7.5	1	5 – 10	1	**3445.000**	331
54	63 A	400 V~	–	1.5 – 16	7.5	1	5 – 10	1	**3446.000**[2]	331
90	100 A	690 V~	35 mm²	–	Mounting plate		5	1	**9320.000**	332
90	100 A	690 V~	35 mm²	–	Mounting plate		10	1	**9320.010**	332
110	160 A	690 V~	–	6 – 70	Mounting plate		5 – 10	1	**3438.000**	332
110	160 A	690 V~	–	6 – 70	Mounting plate		5 – 10	1	**3539.000**	332
110	250 A	690 V~	–	50 – 120	–		5 – 10	1	**3437.000**	333
110	250 A	690 V~	–	50 – 120	–		5 – 10	1	**3437.010**	333

[1] AWG = American Wire Gauges
AWG 10 = 5.26 mm² ≙ 6 mm²
AWG 8 = 8.37 mm² ≙ 10 mm²
[2] with pre-fuse unit D 02-E 18

Note:
For allocation of "power circuit-breakers/starter combinations",
see page 1131.

Component support (without contact system)

Construction width mm	Support rails Height mm	Support rails Number	For bar thickness mm	Packs of	Model No. SV	Page
54	7.5	1	5	1	**3542.000**	333
54	7.5	1	10	1	**3543.000**	333
72	7.5	1	5	1	**3546.000**	333
72	7.5	1	10	1	**3547.000**	333

2.2 Busbar systems up to 800 A/1600 A (60 mm)
Bus-mounting fuse bases

Type	Rated current	Rated operating voltage	For bar thickness mm	Packs of	Model No. SV				Page
					Bus-mounting fuse base	Contact hazard protection cover	End caps	Side cover	
For clamping screw attachment									
D 02-E 18[1]	63 A	400 V~	5 – 10	10	**3418.000**	**3419.000**	**3420.000**	**3093.000**	334
D II-E 27[2]	25 A	500 V~	5 – 10	10	**3427.000**	**3428.000**	**3429.000**	**3093.000**	334
D III-E 33[2]	63 A	690 V~	5 – 10	10	**3433.000**	**3434.000**	**3435.000**	**3093.000**	334
For snap-on mounting									
D 02-E 18[1]	63 A	400 V~	5	10	**3422.000**	**3424.000**	**3425.000**	**3093.000**	335
D 02-E 18[1]	63 A	400 V~	10	10	**3423.000**	**3424.000**	**3425.000**	**3093.000**	335
D II-E 27[3]	25 A	500 V~	5	10	**3520.000**	**3522.000**	**3429.000**	**3093.000**	335
D II-E 27[3]	25 A	500 V~	10	10	**3521.000**	**3522.000**	**3429.000**	**3093.000**	335
D III-E 33[3]	63 A	690 V~	5	10	**3530.000**	**3532.000**	**3435.000**	**3093.000**	335
D III-E 33[3]	63 A	690 V~	10	10	**3531.000**	**3532.000**	**3435.000**	**3093.000**	335

[1] Adaptor sleeve
[2] Adaptor screw
[3] Gauge ring

NH fused isolators/NH on-load isolators

Description	Cable outlet	Type of connection	For bar thickness mm	Packs of	Model No. SV	Page
NH fused isolators size 00 160 A, 690 V~	top	Screw M8	5 – 10	1	**3591.020**	336
	bottom	Screw M8	5 – 10	1	**3591.030**	336
NH on-load isolators size 000 100 A, 690 V~	top/bottom	Terminal up to 50 mm^2	–	1	**3431.000**	337
Busbar adaptor for SV 3431.000	–	–	5	1	**9320.040**	337
	–	–	10	1	**9320.050**	337

NH bus-mounting on-load isolator

Version	Cable outlet	Type of connection	Packs of	Model No. SV	with fuse monitoring		Page
					Model No. SV[1]	Model No. SV[2]	
Size 00, 160 A, 690 V~	top	Screw M8 up to 95 mm^2	1	**3400.000**	**3490.000**	**3490.210**	338
Size 00, 160 A, 690 V~	bottom	Screw M8 up to 95 mm^2	1	**3401.000**	**3491.000**	**3491.210**	338
Size 00, 160 A, 690 V~	top	Clamp-type terminal connection up to 70 mm^2	1	**3402.000**	**3492.000**	**3492.210**	338
Size 00, 160 A, 690 V~	bottom	Clamp-type terminal connection up to 70 mm^2	1	**3403.000**	**3493.000**	**3493.210**	338
Size 1, 250 A, 690 V~	top	Screw M10 up to 150 mm^2	1	**3411.000**	**3495.000**	**3495.210**	339
Size 1, 250 A, 690 V~	bottom	Screw M10 up to 150 mm^2	1	**3410.000**	**3494.000**	**3494.210**	339
Size 2, 400 A, 690 V~	top	Screw M10 up to 240 mm^2	1	**3415.020**	**3415.120**	**3415.210**	340
Size 2, 400 A, 690 V~	bottom	Screw M10 up to 240 mm^2	1	**3415.030**	**3415.130**	**3415.230**	340
Size 3, 630 A, 690 V~	top	Screw M10 up to 240 mm^2	1	**3095.020**	**3095.120**	**3095.210**	341
Size 3, 630 A, 690 V~	bottom	Screw M10 up to 240 mm^2	1	**3095.030**	**3095.130**	**3095.230**	341

[1] Electromechanical fuse monitoring
[2] Electronic fuse monitoring and LED display

A

2.

Power Distribution

Power Distribution

2.3 Busbar systems up to 1250 A (100 mm)
System components

Description	For busbars mm	Packs of	Model No. SV	Page
Busbar supports up to 1250 A, 1000 V~, 3-pole, 100 mm bar centre distance	–	4	**3073.000**	343
Inserts for SV 3073.000	30 x 10	24	**3074.000**	343
	40 x 10	24	**3075.000**	343
	50 x 10	24	**3076.000**	343
Busbars E-Cu				343
End cover	–	10	**3083.000**	343
Busbar cover sections				343

Connection clamps/system covers

Description	Page
Plate clamps	344
Conductor connection clamps	344
System covers	344

NH bus-mounting on-load isolator

Version	Cable outlet	Type of connection	Packs of	Model No. SV	with fuse monitoring		Page
					Model No. SV[1]	Model No. SV[2]	
Size 00, 160 A, 690 V~	top	Screw M8 up to 95 mm²	1	**3400.000**	**3490.000**	**3490.210**	345
Size 00, 160 A, 690 V~	bottom	Screw M8 up to 95 mm²	1	**3401.000**	**3491.000**	**3491.210**	345
Size 00, 160 A, 690 V~	top	Clamp-type terminal connection up to 70 mm²	1	**3402.000**	**3492.000**	**3492.210**	345
Size 00, 160 A, 690 V~	bottom	Clamp-type terminal connection up to 70 mm²	1	**3403.000**	**3493.000**	**3493.210**	345
Size 1, 250 A, 690 V~	top	Screw M10 up to 150 mm²	1	**3411.000**	**3495.000**	**3495.210**	346
Size 1, 250 A, 690 V~	bottom	Screw M10 up to 150 mm²	1	**3410.000**	**3494.000**	**3494.210**	346
Size 2, 400 A, 690 V~	top/bottom	Screw M10 up to 240 mm²	1	**3415.010**	**3415.110**	**3415.310**	347
Size 3, 630 A, 690 V~	top/bottom	Screw M10 up to 240 mm²	1	**3095.010**	**3095.110**	**3095.310**	348
Busbar adaptor for NH isolators		Size 00, Size 1	1	**3412.000**			345
		Size 2	1	**3499.020**			347
		Size 3	1	**3499.030**			348

[1] Electromechanical fuse monitoring
[2] Electronic fuse monitoring and LED display

NH fused isolator

Version	Cable outlet	Type of connection	Packs of	Model No. SV	Page
Size 00, 160 A, 690 V~	top/bottom	Screw M8	1	**3591.010**	349

2.4 Busbar systems up to 1600 A (185 mm)
System components

Description	For busbars mm	Packs of	Model No. SV	Page
Busbar supports up to 1600 A, 1000 V~, 3-pole, 185 mm bar centre distance	50 – 80 x 10^{1}	2	**3052.000**	351
Inserts for SV 3052.000	50 x 10	24	**3074.000**	351
	60 x 10	24	**3075.000**	351
Busbars E-Cu				351
Busbar cover sections				351

[1] Max. busbar accommodation without inserts 80 x 10 mm.
The base component of the busbar support may also be used as a single-pole support.

A
2.
Power Distribution

2.4 Busbar systems up to 1600 A (185 mm)
Connection clamps

Description	Page
Plate clamps	352
Conductor connection clamps	352

NH fused isolators

Version	Cable outlet	Type of connection	Packs of	Model No. SV	Page
Size 00, 160 A, 690 V~	top/bottom	Screw M8	1	3591.040[1]	353
			2	3591.050[2]	353
Size 1, 250 A, 690 V~	top/bottom	Screw M12	1	3485.000	353
Size 2, 400 A, 690 V~	top/bottom	Screw M12	1	3486.000	353
Size 3, 630 A, 690 V~	top/bottom	Screw M12	1	3487.000	353

[1] Including busbar adaptor
[2] Including busbar adaptor (double adaptor)

2.5 Busbar systems up to 2500 A/3000 A (150 mm)
System components

Description	Rated current up to	Max. bar accommodation without spacing pieces	Packs of	Model No. SV	Page
Busbar support, 3-pole, 150 mm bar centre distance, rated operating voltage 1000 V~	2500 A	2 x 80 x 10 mm	2	3055.000	355
	3000 A	2 x 100 x 10 mm	2	3057.000	355
Spacing pieces			12	3056.000	355
Busbars E-Cu					355
Connection plates					356
Bar insulation					356

2.6 Mounting plate assembly
NH on-load isolators

Version	Cable outlet	Type of connection	Packs of	Model No. SV	with fuse monitoring		Page
					Model No. SV[1]	Model No. SV[2]	
Size 000, 100 A, 690 V~	top/bottom	Terminal up to 50 mm²	1	3431.000	–	–	358
Size 00, 160 A, 690 V~	top/bottom	Screw M8 up to 95 mm²	1	3488.000	–	–	358
Size 00, 160 A, 690 V~	bottom	Screw M8 up to 95 mm²	1	–	–	3488.310	358
Size 00, 160 A, 690 V~	top/bottom	Clamp-type terminal up to 70 mm²	1	3489.000	–	–	358
Size 00, 160 A, 690 V~	bottom	Clamp-type terminal up to 70 mm²	1	–	–	3489.310	358
Size 1, 250 A, 690 V~	top/bottom	Screw M10 up to 150 mm²	1	3409.000	–	–	358
Size 1, 250 A, 690 V~	bottom	Screw M10 up to 150 mm²	1	–	–	3409.310	358
Size 2, 400 A, 690 V~	top/bottom	Screw M10 up to 240 mm²	1	3415.010	–	–	359
Size 2, 400 A, 690 V~	top/bottom	Screw M10 up to 240 mm²	1	–	3415.110	–	359
Size 2, 400 A, 690 V~	bottom	Screw M10 up to 240 mm²	1	–	–	3415.310	359
Size 3, 630 A, 690 V~	top/bottom	Screw M10 up to 240 mm²	1	3095.010	–	–	359
Size 3, 630 A, 690 V~	top/bottom	Screw M10 up to 240 mm²	1	–	3095.110	–	359
Size 3, 630 A, 690 V~	bottom	Screw M10 up to 240 mm²	1	–	–	3095.310	359

[1] Electromechanical fuse monitoring
[2] Electronic fuse monitoring and LED display

Power Distribution

2.8 Rittal Maxi-PLS up to 2000 A/3200 A

Description	up to 2000 A page	up to 3200 A page
Connection kits (3-pole)	368 – 369	378 – 381
Connection kits for coupling sets (3-pole)	370 – 371	382 – 383
Connection kits for rear section (3-pole)	372 – 373	384 – 387
Connection kits for coupling sets – rear section (3-pole)	374 – 375	388 – 389
System components		
Busbar support	376	390
Busbar support, suitable for top mounting	376	390
End supports	376	390
System attachment	376	390
Maxi-PLS busbars, E-Cu 57	376	390
Cover section	376	390
Longitudinal connector E-Cu	376	390
End cover	376	390
Stabiliser	–	390
Connection components		
Connection bracket E-Cu	377	391
Isolator chassis	377	391
U contact maker E-Cu	377	391
Connection clamp	377	391
Connection plates	377	391
Terminal studs	377	391
Sliding blocks	377	391
Sliding nuts	377	391
Threaded bolts	377	391

2.8 Rittal Maxi-PLS SV-TS 8 enclosures
for incoming/outgoing

Dimensions mm			Model No. SV		Model No. TS						Page
					Side panels Packs of 2	Base/plinth Packs of 1 set					
						Components front and rear		Trim panels sides			
Width	Height	Depth	For Maxi-PLS	Enclosure		100 mm	200 mm	100 mm	200 mm		
3-pole											
600	2000	600	2000 A	**9660.665[1]**	8106.235	8601.600	8602.600	8601.060	8602.060		392
600	2000	600	2000 A	**9660.675[2]**	8106.512	8601.600	8602.600	8601.060	8602.060		392
800	2000	600	3200 A	**9660.865[1]**	8106.235	8601.800	8602.800	8601.060	8602.060		392
800	2000	600	3200 A	**9660.875[2]**	8106.512	8601.800	8602.800	8601.060	8602.060		392
4-pole											
800	2000	600	2000 A	**9649.625[1]**	8106.235	8601.800	8602.800	8601.060	8602.060		393
800	2000	600	2000 A	**9649.635[2]**	8106.512	8601.800	8602.800	8601.060	8602.060		393
800	2000	800	3200 A	**9659.625[1]**	8108.235	8601.800	8602.800	8601.080	8602.080		393
800	2000	800	3200 A	**9659.635[2]**	8108.512	8601.800	8602.800	8601.080	8602.080		393

[1] 1-door
[2] 3-door

A

2.

Power Distribution

2.8 Rittal Maxi-PLS SV-TS 8 enclosures
for Rittal NH fused isolators

Dimensions mm			Model No. TS						Page
				Side panels Packs of 2	Base/plinth Packs of 1 set				
					Components front and rear		Trim panels sides		
Width	Height	Depth	Enclosure[1]		100 mm	200 mm	100 mm	200 mm	
3-pole/4-pole (2000 A/3200 A)									
600	2000	500	**9660.505[2]**	8105.235	8601.600	8602.600	8601.050	8602.050	394
600	2000	600	**9660.605[2]**	8106.235	8601.600	8602.600	8601.060	8602.060	394
600	2000	800	**9660.805[2]**	8108.235	8601.600	8602.600	8601.080	8602.080	394
800	2000	500	**9660.535[2]**	8105.235	8601.800	8602.800	8601.050	8602.050	394
800	2000	600	**9660.635[2]**	8106.235	8601.800	8602.800	8601.060	8602.060	394
800	2000	800	**9660.835[2]**	8108.235	8601.800	8602.800	8601.080	8602.080	394
1000	2000	500	**9660.595[3]**	8105.235	8601.000	8602.000	8601.050	8602.050	395
1000	2000	600	**9660.695[3]**	8106.235	8601.000	8602.000	8601.060	8602.060	395
1200	2000	500	**9660.555[3]**	8105.235	8601.200	8602.200	8601.050	8602.050	395
1200	2000	600	**9660.655[3]**	8106.235	8601.200	8602.200	8601.060	8602.060	395
1200	2000	800	**9660.855[3]**	8108.235	8601.200	8602.200	8601.080	8602.080	395

[1] Without mounting plate
[2] 1-door
[3] 2-door

for NH fused isolators

Dimensions mm			Model No. SV	Model No. TS					Page
				Side panels Packs of 2	Base/plinth Packs of 1 set				
					Components front and rear		Trim panels sides		
Width	Height	Depth	Enclosure 1-door		100 mm	200 mm	100 mm	200 mm	
3-pole (2000 A/3200 A)									
1000	2000	600	**9660.515[1]**	8106.512	8601.000	8602.000	8601.060	8602.060	396
1200	2000	600	**9660.545[1]**	8106.512	8601.200	8602.200	8601.060	8602.060	396
1000	2000	600	**9660.415[2]**	8106.512	8601.000	8602.000	8601.060	8602.060	396
1200	2000	600	**9660.445[2]**	8106.512	8601.200	8602.200	8601.060	8602.060	396
4-pole (2000 A)									
1000	2000	600	**9649.665[1]**	8106.512	8601.000	8602.000	8601.060	8602.060	397
1200	2000	600	**9649.675[1]**	8106.512	8601.200	8602.200	8601.060	8602.060	397
1000	2000	600	**9649.645[2]**	8106.512	8601.000	8602.000	8601.060	8602.060	397
1200	2000	600	**9649.655[2]**	8106.512	8601.200	8602.200	8601.060	8602.060	397
4-pole (3200 A)									
1000	2000	800	**9659.665[1]**	8108.512	8601.000	8602.000	8601.080	8602.080	397
1200	2000	800	**9659.675[1]**	8108.512	8601.200	8602.200	8601.080	8602.080	397
1000	2000	800	**9659.645[2]**	8108.512	8601.000	8602.000	8601.080	8602.080	397
1200	2000	800	**9659.655[2]**	8108.512	8601.200	8602.200	8601.080	8602.080	397

[1] For NH fused isolators, brand ABB SlimLine
[2] For NH fused isolators, brand Jean Müller SASIL

System components for NH fused isolator panels
For NH fused isolator brands ABB SlimLine/Jean Müller SASIL

Description	Page
T-bar support 800 A/1600 A	398
T-busbars E-Cu 800 A/1600 A	398
T-connector kits 800 A/1600 A	398

Power Distribution

2.8 Rittal Maxi-PLS SV-TS 8 enclosures
for coupling sets

Dimensions mm			Model No. SV		Model No. TS					Page
					Side panels Packs of 2	Base/plinth Packs of 1 set				
						Components front and rear		Trim panels sides		
Width	Height	Depth	For Maxi-PLS	Enclosure		100 mm	200 mm	100 mm	200 mm	
3-pole										
800	2000	600	2000 A	**9660.305**	8106.512	8601.800	8602.800	8601.060	8602.060	399
1000	2000	600	3200 A	**9660.355**	8106.512	8601.000	8602.000	8601.060	8602.060	399
4-pole										
1000	2000	600	2000 A	**9649.685**	8106.512	8601.000	8602.000	8601.060	8602.060	399
1000	2000	800	3200 A	**9659.695**	8108.512	8601.000	8602.000	8601.080	8602.080	399

System components for coupling sets

Description	Page
Coupling sets, vertical	400
System attachment for vertical coupling set	400

2.9 ISV distribution enclosures
ISV-TS 8 enclosures for distribution enclosures up to 630 A

Dimensions mm			Model No. SV		Model No. TS					Page
				Side panels Packs of 2	Base/plinth Packs of 1 set					
					Components front and rear		Trim panels sides			
Width	Height	Depth	Enclosure		100 mm	200 mm	100 mm	200 mm		
600	2000	400	**9665.945[1]**	8104.235	8601.600	8602.600	8601.040	8602.040		409
600	2000	600	**9665.905[1]**	8106.235	8601.600	8602.600	8601.060	8602.060		409
850	2000	400	**9665.955[1]**	8104.235	8601.850	8602.850	8601.040	8602.040		409
850	2000	600	**9665.915[1]**	8106.235	8601.850	8602.850	8601.060	8602.060		409
1100	2000	400	**9665.965[2]**	8104.235	8601.300	8602.100	8601.040	8602.040		409
1100	2000	600	**9665.925[2]**	8106.235	8601.300	8602.100	8601.060	8602.060		409

[1] 1-door
[2] 2-door

ISV-TS 8 enclosures for distribution enclosures up to 1600 A

Dimensions mm			Model No. SV		Model No. TS					Page
				Side panels Packs of 2	Base/plinth Packs of 1 set					
					Components front and rear		Trim panels sides			
Width	Height	Depth	Enclosure		100 mm	200 mm	100 mm	200 mm		
600	2000	600	**9665.975[1]**	8106.235	8601.600	8602.600	8601.060	8602.060		410
850	2000	600	**9665.985[1]**	8106.235	8601.850	8602.850	8601.060	8602.060		410

[1] 1-door

A

2.

Power Distribution

2.9 ISV distribution enclosures
Installation modules

Description	Page
Contact hazard protection modules	411
Mounting plate modules	411
Support rail modules	412
Support modules	412
Connection modules	413
DIN rail mounted device modules	413
NH on-load isolator modules	414
Power circuit-breaker modules	414
Busbar support	415
Contact hazard protection cover for conductor connection clamps and plate clamps	416/418
Contact hazard protection covers for bus-mounting fuse bases	416
Contact hazard protection covers for NH bus-mounting on-load isolator size 00	416
NH fused isolator modules	417
Contact hazard protection covers for NH fused isolator size 00	417
Busbar modules, 2-pole	418
Meter mounting board module	418

A

2.

Power Distribution

Electronic Packaging
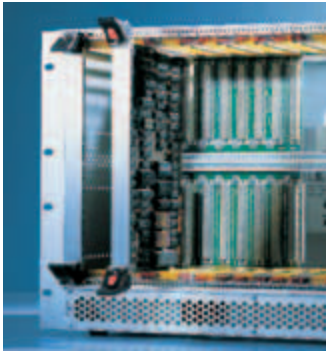
Fully assembled, pre-wired and tested.
Rittal Electronic Systems offer "complete know-how" in the field of electronic packaging. From variable subrack systems, to a variety of enclosure solutions, operation and monitoring solutions, backplanes, power supplies, and climate control components, through to complete microcomputer systems for VMEbus, CompactPCI, ATCA or ATX.

The complete range for electronic packaging
- Microcomputer systems
- Industrial PC systems
- 19″ keyboard rack
- Power supplies
- Backplanes
- Subrack systems
- System enclosures/instrument cases

3.1 ATCA

AdvancedTCA Shelf VA-1 (Rittal ShMC connectable from rear)

U	Slots	Backplane	IPMI	Rittal ShMC[1]	Switch slots	PC	PEM	PEM-Amp	RiCool-2	Model No. RP	Page
13	14	Dual Star	bussed	2 x kernels	centre	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.306**	426
13	14	Dual Star	bussed	2 x kernels	centre	2 x	4 x	50 A each	4 x 48 V-IPMI	**On request**	426
13	14	Full Mesh	bussed	2 x kernels	1 + 2	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.305**	426
13	14	Full Mesh	bussed	2 x kernels	1 + 2	2 x	4 x	50 A each	4 x 48 V-IPMI	**3688.463**	426

[1] ShMC not included with the supply.

AdvancedTCA Shelf VB-1 (Intel ShMC connectable from front)

U	Slots	Backplane	IPMI	Intel ShMC[1]	Switch slots	PC	PEM[2]	PEM-Amp	RiCool-2	Model No. RP	Page
13	14	Dual Star	radial	2 x CMM	centre	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.303**	427
13	14	Dual Star	radial	2 x CMM	centre	2 x	4 x	50 A each	4 x 48 V-IPMI	**On request**	427
13	14	Full Mesh	radial	2 x CMM	1 + 2	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.301**	427
13	14	Full Mesh	radial	2 x CMM	1 + 2	2 x	4 x	50 A each	4 x 48 V-IPMI	**3688.466**	427

[1] ShMC not included with the supply.
[2] PEM-IPMI included with the supply.

AdvancedTCA Shelf version VB-2 (Pigeon Point ShMC connectable from front)

U	Slots	Backplane	IPMI	Pigeon Point ShMC[1]	Switch slots	PC	PEM[2]	PEM-Amp	RiCool-2	Model No. RP	Page
13	14	Dual Star	bussed	2 x CMM	centre	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.304**	427
13	14	Dual Star	bussed	2 x CMM	centre	2 x	4 x	50 A each	4 x 48 V-IPMI	**3688.469**	427
13	14	Full Mesh	bussed	2 x CMM	1 + 2	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.302**	427
13	14	Full Mesh	bussed	2 x CMM	1 + 2	2 x	4 x	50 A each	4 x 48 V-IPMI	**3688.470**	427

[1] ShMC not included with the supply.
[2] PEM-IPMI included with the supply.

A

3.

Electronic Packaging

3.2 CPCI
Rack-mount systems, Slim-Box

U	Depth mm	Installation space for		Model No. RP			Page
		Boards mm	Rear I/O boards mm	with CPCI backplane and power supply	with CPCI backplane without power supply	without backplane with power supply	
1	300	160	80	**9907.475**	**3689.177**	**9907.479**	433
1	300	160	–	**9907.471**	**–**	**–**	433
2	300	160	80	**9907.476**	**3689.178**	**9907.480**	433
2	300	160	–	**9907.472**	**–**	**–**	433
3	300	160	80	**9907.477**	**3689.179**	**9907.481**	433
3	300	160	–	**9907.473**	**–**	**–**	433
4	300	160	80	**9907.478**	**3689.180**	**9907.482**	433
4	300	160	–	**9907.474**	**–**	**–**	433

Rack-mount systems, Ripac

Slots (version)	U	Depth mm	Wiring space depth mm	For PCB	Model No. RP MPS system	Page
5 horizontal	3	405	210	6 U x 160 mm	**3687.717**	434
7 horizontal	4	405	210	6 U x 160 mm	**3687.718**	434
8	4 (3 + 1)	405	210	3 U/6 U x 160 mm	**3687.719**	435
8	7 (6 + 1)	405	210	3 U/6 U x 160 mm	**3687.720**	435
8	7 (6 + 2 x $^1/_2$)	405	210	6 x U 160 mm	**3687.721**	436
8 (with radial fan)	9 (6 + 2 x 1$^1/_2$)	290.5	85.5	6 U x 160 mm	**3687.723**	437

3.2 CPCI
Backplanes 3.5 U

Slots	Version	Model No. RP		Page
		32-bit	64-bit	
2	SE	**–**	**3687.864**	440
3	SBE	**3687.865**	**3686.578**	440
4	SBE	**3687.863**	**3686.576**	440
5	SBE	**3687.862**	**3686.575**	440
6	SBME	**3687.861**	**3686.548**	440
7	SBE	**3687.860**	**3686.547**	440
8	S	**3687.859**	**3686.546**	440

S = Stand alone
B = Beginning segment
M = Middle segment
E = Ending segment

A
3.
Electronic Packaging
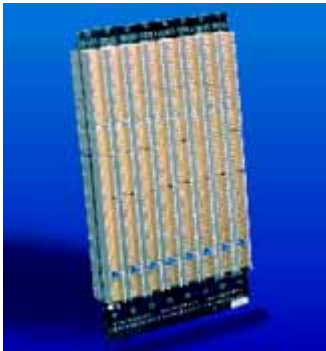
3.2 CPCI
Backplanes 6.5 U

Slots	Version	Model No. RP		Page
		32-bit	64-bit	
Backplanes[1]				
2	SBE	–	3686.581	440
3	SBE	3687.871	3686.580	440
4	SBE	3687.870	3686.579	440
5	SBE	3687.869	3686.552	440
6	SBME	3687.868	3686.551	440
7	SBE	3687.867	3686.550	440
8	S	3687.866	3686.549	440
Backplanes for low profile bridge[2]				
3	SBE	–	3689.209	440
4	SBE	–	3689.208	440
5	SBE	–	3689.207	440
6	SBME	–	3689.206	440
7	SBE	–	3689.205	440

[1] Cannot be used when rear connection of 80 mm boards is required.
[2] May be used when rear connection of 80 mm boards is required.
S = Stand alone
B = Beginning segment
M = Middle segment
E = Ending segment

Backplanes 7 U with H.110

Slots	Version	Model No. RP		Page
		H.110 connected to system slot	H.110 not connected to system slot	
3	S	3688.508[1]	–	441
4	SE	3688.507[2]	–	441
5	SB	3687.875[2]	3688.506[2]	441
6	SBME	3687.874[2]	3688.505[2]	441
7	SBE	3687.873[2]	3688.504[2]	441
8	S	3687.877	9805.494	441

[1] Extendible with low profile bridges
[2] Extendible with bridges RP 3686.571
S = Stand alone
B = Beginning segment
M = Middle segment
E = Ending segment

Backplanes 7 U, Switch Fabric to PICMG 2.16
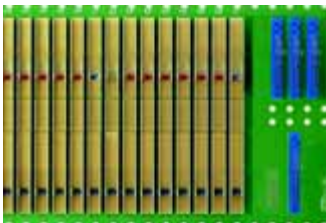
Width	Number of slots	Description of slots	Model No. RP	Page
32 HP	8	1 fabric slot 6 node slots with CPCI and H.110 1 host slot	3689.188	442
32 HP	8	see RP 3689.188, but without H.110	3686.414	442
84 HP	16	1 fabric slot 6 node slots with CPCI and H.110 1 host slot 1 fabric slot 6 node slots with CPCI and H.110 1 host slot 3 slots for power supplies	3686.396	442
84 HP	16	see RP 3686.396, but without H.110	3689.186	442
84 HP	21	7 node slots with CPCI and H.110 1 host slot 1 node slot with H.110, without CPCI 1 fabric slot 7 node slots with CPCI and H.110 1 host slot 1 node slot with H.110, without CPCI 1 fabric slot 1 alarm slot	3686.397	442
84 HP	21	see RP 3686.397, but without H.110	3689.190	442
84 HP	21	see RP 3686.397, but without CPCI	3689.191	442
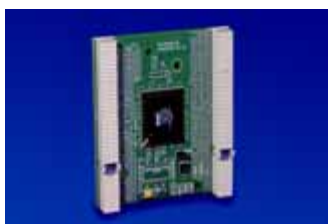
3.2 CPCI

Modular CPCI bridge

Description	Model No. RP	Page
64-bit CPCI bridge	**3686.571**	443
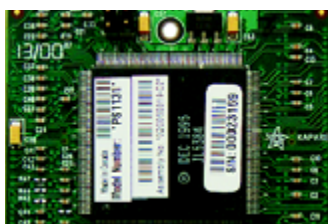
Modular low profile bridge

Version	Bits	Model No. RP	Page
left-right	32	**3689.210**	443
right-left	32	**3689.211**	443
left-right	64	**9810.637**	443
right-left	64	**9812.625**	443

Only suitable for use in conjunction with low profile backplanes.

Power supply board

Description	Model No. RP	Page
3.5 U, 16 HP		
Board for pluggable power supply with Positronic connector, 47 pin	**3688.603**	444
ATX (12″) cable harness	**9810.337**	444
ATX (16″) cable harness	**3686.570**	444
ATX (20″) cable harness	**9810.338**	444
6.5 U, 8 HP[1]		
Board for pluggable power supply with Positronic connector, 47 pin	**3688.607**	445
ATX (12″) cable harness	**9810.337**	445
ATX (16″) cable harness	**3686.570**	445
ATX (20″) cable harness	**9810.338**	445
6.5 U, 16 HP[1]		
Board for 2 x pluggable power supplies with Positronic connector, 47 pin	**3688.608**	446
ATX (12″) cable harness	**9810.337**	446
ATX (16″) cable harness	**3686.570**	446
ATX (20″) cable harness	**9810.338**	446

[1] Extended delivery times.
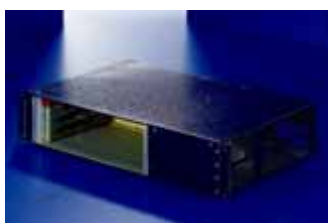
3.2 VME

Rack-mount systems, Slim-Box

U	Depth mm	Installation space for		Model No. RP		Page
		Boards mm	Rear I/O boards mm	with VME backplane and power supply	without backplane with power supply	
1	300	160	80	–	**9907.479**	447
1	360	160	160	**9907.467**	–	447
1	300	160	–	**9907.463**	–	447
2	300	160	80	–	**9907.480**	447
2	360	160	160	**9907.468**	–	447
2	300	160	–	**9907.464**	–	447
3	300	160	80	–	**9907.481**	447
3	360	160	160	**9907.469**	–	447
3	300	160	–	**9907.465**	–	447
4	300	160	80	–	**9907.482**	447
4	360	160	160	**9907.470**	–	447
4	300	160	–	**9907.466**	–	447

A

3.

Electronic Packaging

Electronic Packaging

3.2 VME/VME64x
Rack-mount systems, Ripac

Slots (version)	U	For	Depth mm	Wiring space depth mm	For PCB	Model No. RP MPS system	Page
5 horizontal	3	VME	405	210	6 U x 160 mm	**3687.698**	448
5 horizontal	3	VME64x	405	210	6 U x 160 mm	**3687.699**	448
7 horizontal	4	VME	405	210	6 U x 160 mm	**3687.700**	448
7 horizontal	4	VME64x	405	210	6 U x 160 mm	**3687.696**	448
12	4 (3 + 1)	VME	405	210	3 U x 160 mm	**3687.702**	449
12	7 (6 + 1)	VME	405	210	3/6 U x 160 mm	**3687.703**	449
12	7 (6 + 1)	VME64x	405	210	3/6 U x 160 mm	**3687.704**	449
12	7 (6 + 2 x $^1/_2$)	VME	405	210	6 U x 160 mm	**3687.705**	450
12	7 (6 + 2 x $^1/_2$)	VME64x	405	210	6 U x 160 mm	**3687.706**	450
12 (with radial fan)	9 (6 + 2 x $1^1/_2$)	VME64x	290.5	85.5	6 U x 160 mm	**3687.708**	451

3.2 VME
Backplanes VME64x

Slots	Dimensions in mm		Model No. RP		Page
	Width	Height	without P0 connector	with P0 connector	
6 U					
5	100	261.6	**3687.608**	**3687.609**	454
7	161.5	261.6	**3687.610**	**3687.611**	454
9	181.5	261.6	**9904.930**	**9904.932**	454
10	202	261.6	**9904.931**	**9904.933**	454
12	242.5	261.6	**3686.634**	**3686.473**	454
21	425.5	261.6	**3686.635**	**3686.474**	454

Slots	Dimensions in mm		Model No. RP		Page
	Width	Height	without P0 connector	with P0 connector	
6.5 U					
5	100	283.7	**9910.012**	**9910.007**	454
7	161.5	283.7	**9910.013**	**9910.008**	454
9	181.5	283.7	**9910.014**	**9910.009**	454
10	202	283.7	**9904.928**	**9904.929**	454
12	242.5	283.7	**9910.015**	**9910.010**	454
21	425.5	283.7	**9910.016**	**9910.011**	454

Backplanes VME J1/J2 Monolithic

Slots	Dimensions in mm		Model No. RP		Page
	Width	Height	passive	active	
2	39.5	261.7	**3686.475**	**3686.495**	455
3	59.5	261.7	**3686.476**	**3686.496**	455
4	80	261.7	**3686.477**	**3686.497**	455
5	100	261.7	**3686.478**	**3686.498**	455
6	120.5	261.7	**3686.479**	**3686.499**	455
7	141	261.7	**3686.480**	**3686.500**	455
8	161.5	261.7	**3686.481**	**3686.501**	455
9	181.5	261.7	**3686.482**	**3686.502**	455
10	202	261.7	**3686.483**	**3686.503**	455
11	222.5	261.7	**3686.484**	**3686.504**	455

Slots	Dimensions in mm		Model No. RP		Page
	Width	Height	passive	active	
12	242.5	261.7	**3686.485**	**3686.505**	455
13	263	261.7	**3686.486**	**3686.506**	455
14	283	261.7	**3686.487**	**3686.507**	455
15	303.5	261.7	**3686.488**	**3686.508**	455
16	324	261.7	**3686.489**	**3686.509**	455
17	344	261.7	**3686.490**	**3686.510**	455
18	364.5	261.7	**3686.491**	**3686.511**	455
19	385	261.7	**3686.492**	**3686.512**	455
20	405	261.7	**3686.493**	**3686.513**	455
21	425.5	261.7	**3686.494**	**3686.514**	455

Backplanes VME J1 system bus

Slots	Dimensions in mm		Model No. RP	Page
	Width	Height		
3	59.5	128.4	**3686.555**	456
4	80	128.4	**3686.556**	456
5	100	128.4	**3686.557**	456
6	120.5	128.4	**3686.558**	456
7	141	128.4	**3686.559**	456
8	161.5	128.4	**3686.560**	456
9	181.5	128.4	**3686.561**	456
10	202	128.4	**3686.562**	456

Slots	Dimensions in mm		Model No. RP	Page
	Width	Height		
12	242.5	128.4	**3686.563**	456
13	263	128.4	**3686.564**	456
14	283	128.4	**3686.565**	456
15	303.5	128.4	**3686.566**	456
18	364.5	128.4	**3686.567**	456
20	405	128.4	**3686.568**	456
21	425.5	128.4	**3686.569**	456

A

3.

Electronic Packaging

3.2 VME

Backplanes VME J2 expansion bus

Slots	Dimensions in mm		Model No. RP	Page	Slots	Dimensions in mm		Model No. RP	Page
	Width	Height				Width	Height		
3	59.5	128.4	**3686.585**	456	12	242.5	128.4	**3686.593**	456
4	80	128.4	**3686.586**	456	13	263	128.4	**3686.594**	456
5	100	128.4	**3686.587**	456	14	283	128.4	**3686.595**	456
6	120.5	128.4	**3686.588**	456	15	303.5	128.4	**3686.596**	456
7	161.5	128.4	**3686.589**	456	18	364.5	128.4	**3686.597**	456
8	161.5	128.4	**3686.590**	456	20	405	128.4	**3686.598**	456
9	181.5	128.4	**3686.591**	456	21	425.5	128.4	**3686.599**	456
10	202	128.4	**3686.592**	456					

3.3 Rack-mount systems for industrial PCs

U	Dimensions in mm			Packs of	Model No. RP	Page
	Width	Height Flanges/ Side panels	Depth			
ATX Ripac 4 U, aluminium						
4	482.6 (19″)	177	440	1	**3659.000**	462
ATX 1, 2 and 4 U, sheet steel						
1	482.6 (19″)	44	532.5/530	1	**3659.500**	463
2	482.6 (19″)	88	532.5/530	1	**3659.600**	464
4	482.6 (19″)	177/174	442.5/440	1	**3659.900**	465
ATX Economy with front door 4 U, sheet steel						
4	482.6 (19″)	177/174	430/415	1	**3659.100**	466
Modular system AT/ATX Vario Economy with front door, 4 U, sheet steel Expansion for AT/ATX power pack (PS/2) or redundant power pack (PS/2), ATX/AT 8 + 4 slots/AT 14 slots. Basic enclosure individually upgradable for AT or ATX applications.						
4	482.6 (19″)	177/174	430	1	**3659.400**	467
ATX with front connections for 482.6 mm (19″) installation, 4 U						
4	482.6 (19″)	177/174	442.5/440	1	**3659.700**	468
ATX with front connections for wall mounting						
	380	330	292.5/290	1	**3659.710**	469
ATX for PICMG backplane, 4 U, sheet steel						
4	482.6 (19″)	177/174	442.5/440	1	**3659.650**	470
ATX with alternative accommodation, 2 U, sheet steel						
2	482.6 (19″)	88	532/530	1	**3659.640**	471

3.3 Rack-mount systems for storage devices

Version	Dimensions in mm			Packs of	Model No. RP	Page
	Width	Height Flanges/ Side panels	Depth			
19″ RAID subrack	482.6 (19″)	177 (4 U)	455/440	1	**3659.300**	472
19″ ATX RAID subrack, 6-drive	482.6 (19″)	177/174 (4 U)	450/435	1	**3659.420**	473
19″ ATX RAID subrack, 9-drive	482.6 (19″)	177 (4 U)	692.5/690	1	**3659.430**	474

Electronic Packaging

3.4 Power supplies

Ripac power supplies – Open Frame

Watts	Output voltage/output current			Model No. RP				Page
	Output 1	Output 2	Output 3	35 A	60 A	85 A	110 A	
250	5 V/35 A	+12 V/8 A	−12 V/8 A	**3686.622**	–	–	–	479
400	5 V/60 A, 85 A	+12 V/8 A	−12 V/8 A	–	**3686.623**	**3686.629**	–	479
600	5 V/85 A	+12 V/8 A	−12 V/8 A	–	–	**3686.624**	–	479
1000	5 V/110 A	+12 V/16 A	−12 V/8 A	–	–	–	**3686.625**	479
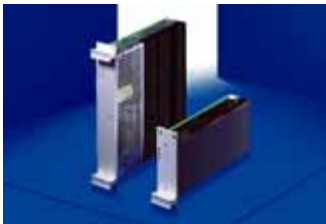
Ripac power supplies, plug-in

Watts	Width (HP)	Height (U)	Output voltage/output current			Model No. RP		Page
			Output 1	Output 2	Output 3	Power supply	Font panel	
130	10	3	5 V/14 A	+12 V/5 A	−12 V/2 A	**3686.469**	**3685.304**	480
160	12	3	5 V/20 A	+12 V/5 A	−12 V/2 A	**3686.470**	**3685.305**	480
160	8	6	5 V/20 A	+12 V/5 A	−12 V/2 A	**3686.471**	**3686.472**	480
270	12	6	5 V/35 A	+12 V/6 A	−12 V/2 A	**3685.306**	**3685.307**	480

Ripac power supplies for CPCI, plug-in

Watts	Width (HP)	Height (U)	Output voltage/output current				Output current Output 1 + 2	Model No. RP		Page
			Output 1	Output 2	Output 3	Output 4		Power supply AC	Power supply DC	
175	8	3	5 V/25 A	3.3 V/20 A	12 V/5 A	−12 V/0.5 A	30 A max.	**3688.534**	**3688.537**	481
200	8	3	5 V/30 A	3.3 V/25 A	12 V/5 A	−12 V/0.5 A	38 A max.	**3688.694**	**3688.655**	481
250	8	3	5 V/33 A	3.3 V/33 A	12 V/6 A	−12 V/1.5 A	38 A max.	**3688.695**	**3688.696**	481
350	8	6	5 V/40 A	3.3 V/40 A	12 V/9 A	−12 V/1 A	80 A max.	**3688.528**	**3688.530**	481

CPCI open frame power supply

Watts	Dimensions in mm			Model No. RP	Page
	Height	Width	Depth		
400	126	63	279	**3687.695**	482

CPCI power supply, plug-in

Watts	Height (U)	Width (HP)	Model No. RP		Page
			Power supply	Front panel for power supply	
180	3	12	**3686.682**	**3685.330**	482

A
3.
Electronic Packaging

3.4 Power supplies

AT/ATX power supply

Version	Watts	PFC	Packs of	**Model No. RP**	Page
ATX power supply for external switch					
ATX	300	passive	1	**3687.793**	483
AT/ATX power supply					
AT	300	passive	1	**3688.118**	483
AT for RAID	300	passive	1	**3688.119**	483
ATX	300	passive	1	**3688.121**	483
ATX	250	active	1	**3688.127**	483
ATX	300	active	1	**3688.129**	483
ATX	400	active	1	**3688.128**	483
ATX power supply unit 1 U					
ATX	200	active	1	**3688.130**	484

Front panel for ATX power supply

U	HP	**Model No. RP**		Page
		EMC	Non-EMC	
3	42	**3685.331**	**3685.328**	483
6	21	**3685.332**	**3685.329**	483

Redundant power supply

Version	Watts	PFC	Packs of	**Model No. RP**	Page
for RAID					
RAID version	2 x 300	active	1	**3688.125**	484
Power pack module (spare)			1	**3688.126**	484
for ATX					
ATX version (1 connector)	2 x 300	active	1	**3688.123**	484
Power pack module (spare)			1	**3688.124**	484
ATX version (2 connector)	2 x 300	active	1	**3688.120**	485
Power pack module (spare)			1	**3688.122**	485

Uninterruptible power supply

Power	Input/output voltage	Input frequency	Output frequency	**Model No. RP**	Page
300 VA/180 W	220, 230, 240 V AC ±15 %	50 Hz ±5 %	50 Hz ±1 %	**3659.080**	482

3.5 Subrack

Ripac ECO 3 U, 6 U, sheet steel

Side panel depth mm	Maximum board depth mm	**Model No. RP**		Page
		3 U	6 U	
175	160	**3688.114**	**3688.116**	488
235	220	**3688.115**	**3688.117**	488

A

3.

Electronic Packaging

3.5 Subrack

Ripac Vario

3 U, 6 U, 9 U

Side panel depth mm	Max. card depth mm	Model No. RP						Page
		3 U		6 U		9 U		
		For backplane	For connector IEC 60 603-2	For backplane	For connector IEC 60 603-2	For backplane	For connector IEC 60 603-2	
185	160	**3684.020**	**3684.034**	**3684.043**	**3684.056**	–	–	489
225	160	**3684.021**	**3684.035**	**3684.044**	**3684.057**	–	–	489
245	220	**3684.022**	**3684.036**	**3684.045**	**3684.058**	–	–	489
285	220	**3684.023**	**3685.281**	**3684.046**	–	–	–	489
305	280	**3685.231**	**3685.233**	**3685.238**	**3685.240**	–	–	489
345	280	**3684.024**	–	**3684.047**	–	**3684.051**	**3684.059**	489
365	340	**3685.232**	**3685.234**	**3685.239**	–	–	–	489
405	340	**3684.025**	–	**3684.048**	–	**3684.052**	**3684.060**	489
465	400	**3684.026**	–	**3684.049**	–	**3684.053**	**3684.061**	489
525	400	**3684.027**	–	**3684.050**	–	**3684.054**	–	489
585	400	–	–	–	–	**3684.055**	–	489

4 U, 7 U

Side panel depth mm	Max. card depth mm	Model No. RP						Page
		4 U (3 + 1)		4 U (3 + 2 x $^1/_2$)		7 U (6 + 1)	7 U (6 + 2 x $^1/_2$)	
		For backplane	For connector IEC 60 603-2	For backplane	For connector IEC 60 603-2	For backplane	For backplane	
245	220	**3685.235**	–	–	–	–	–	490
285	220	**3684.028**	**3684.037**	**3684.031**	**3684.040**	–	–	490
305	280	**3685.236**	–	–	–	–	–	490
345	280	**3684.029**	**3684.038**	**3684.032**	**3684.041**	–	–	490
365	340	**3685.237**	–	–	–	–	–	490
405	340	**3684.030**	**3684.039**	**3684.033**	**3684.042**	**3684.064**	**3684.062**	490
465	400	–	–	–	–	**3684.065**	**3684.063**	490

Ripac Vario EMC

3 U, 6 U, 9 U

Side panel depth mm	Max. card depth mm	Model No. RP						Page
		3 U		6 U		9 U		
		For backplane	For backplane[1]	For backplane	For backplane[1]	For backplane	For backplane[1]	
245	160	**3684.128**	**3684.142**	**3684.156**	**3684.169**	–	–	491
285	220	**3684.129**	**3684.143**	**3684.157**	**3684.170**	–	–	491
305	220	**3685.241**	**3685.243**	**3685.242**	**3685.244**	–	–	491
345	280	**3684.130**	**3684.144**	**3684.158**	**3684.171**	**3684.162**	**3684.175**	491
405	340	**3684.131**	**3684.145**	**3684.159**	**3684.172**	**3684.163**	**3684.176**	491
465	400	**3684.132**	**3684.146**	**3684.160**	**3684.173**	**3684.164**	**3684.177**	491
525	400	**3684.133**	**3684.147**	**3684.161**	**3684.174**	**3684.165**	**3684.178**	491
585	400	–	–	–	–	**3684.166**	**3684.179**	491

4 U

Side panel depth mm	Max. card depth mm	Model No. RP				Page
		4 U (3 + 1)		4 U (3 + 2 x $^1/_2$)		
		For backplane	For backplane[1]	For backplane	For backplane[1]	
285	220	**3684.134**	**3684.148**	**3684.137**	**3684.151**	492
345	280	**3684.135**	**3684.149**	**3684.138**	**3684.152**	492
405	340	**3684.136**	**3684.150**	**3684.139**	**3684.153**	492

7 U

Side panel depth mm	Max. card depth mm	Model No. RP				Page
		7 U (6 + 1)		7 U (6 + 2 x $^1/_2$)		
		For backplane	For backplane[1]	For backplane	For backplane[1]	
285	220	**3684.187**	**3684.192**	–	–	492
345	280	**3684.188**	**3684.193**	**3684.189**	**3684.196**	492
405	340	**3684.180**	**3684.194**	**3684.190**	**3684.197**	492
465	400	**3684.181**	**3684.195**	**3684.191**	**3684.198**	492

[1] Front horizontal rails with 10 mm extension for injector/extractor handles.

3.5 Subrack
Ripac Compact 3 U, 6 U

Side panel depth mm	Max. PCB depth mm	Model No. RP					Page
		3 U				6 U	
		21 HP		42 HP		42 HP	
		Top hat rail	Mounting plate	Top hat rail	Mounting plate	Mounting plate	
For backplane							
225	160	**3687.667**	**3687.669**	**3687.671**	**3687.673**	**3687.680**	493
285	220	**3687.668**	**3687.670**	**3687.672**	**3687.674**	**3687.681**	493
For backplane – EMC version							
225	160	**3687.682**	**3687.684**	**3687.686**	**3687.688**	**3687.690**	493
285	220	**3687.683**	**3687.685**	**3687.687**	**3687.689**	**3687.691**	493

Ripac Vario Mobil 3 U, 6 U, for mobile use

Side panel depth mm	Max. card depth mm	Model No. RP						Page
		3 U			6 U			
		For backplane	For connector IEC 60 603-2	For backplane – EMC Version	For backplane	For connector IEC 60 603-2	For backplane – EMC Version	
245	220	**3687.782**	**3687.780**	**3687.784**	**3687.783**	**3687.781**	**3687.785**	494

Accessories for subracks

	Page
Subracks, individual components	
Side panels and flanges	495 – 497
Horizontal rails	498 – 505
Subrack, climate control	519 – 524
Subrack, accessories	
Components for EMC installation	506 – 507
Internal mounting kits	508 – 509
Guide rails	509 – 513
Keying/card ejectors	514
Top and bottom covers	515 – 518
Front panels, handles	525 – 540
Ripac box-type plug-in units – Type I	541
Ripac box type plug-in units – individual components	542 – 543
Ripac box-type plug-in units for drives	544
Ripac box-type plug-in units, covers and guides	545
Connectors	546 – 551
Assembly parts	576 – 577

A

3.

Electronic Packaging

A

3.
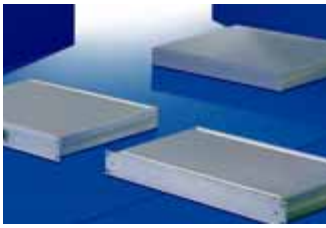
3.6 Instrument cases/system enclosures

RiBox system enclosures 1 U

Dimensions in mm		Model No. RP	Page
Width	Depth		
Rack-mounted			
19″ (482.6)	150	**3687.814**	554
19″ (482.6)	200	**3687.815**	554
19″ (482.6)	250	**3687.816**	554
19″ (482.6)	300	**3687.817**	554
19″ (482.6)	350	**3687.818**	554
Rack mount including assembly kit for double Euroboards			
19″ (482.6)	250	**3684.072**	554
19″ (482.6)	350	**3684.073**	554
Instrument cases			
447	150	**3687.819**	554
447	200	**3687.820**	554
447	250	**3687.821**	554
447	300	**3687.822**	554
447	350	**3687.823**	554

Ripac Vario-Module, system enclosures
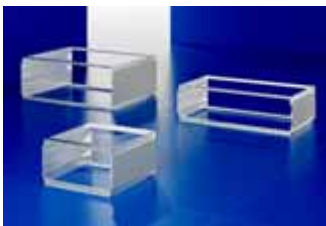
U	Installation width (HP)	Depth mm	Packs of	Model No. VM			
				Basic enclosure	Page	EMC basic enclosure	Page
3	42	250.4	1	**3982.040**	555	**3983.040**	556
3	42	310.4	1	**3982.070**	555	**3983.070**	556
3	63	250.4	1	**3982.050**	555	**3983.050**	556
3	63	310.4	1	**3982.080**	555	**3983.080**	556
3	84	250.4	1	**3982.060**	555	**3983.060**	556
3	84	310.4	1	**3982.090**	555	**3983.090**	556
3	84	370.4	1	**3982.100**	555	**3983.100**	556
4 (3 + 1)	84	250.4	1	**3982.110**	555	**3983.110**	556
4 (3 + 1)	84	310.4	1	**3982.120**	555	**3983.120**	556
4 (3 + 1)	84	370.4	1	**3982.130**	555	**3983.130**	556
6	84	310.4	1	**3982.140**	557	**3983.140**	558
6	84	370.4	1	**3982.150**	557	**3983.150**	558
6	84	430.4	1	**3982.160**	557	**3983.160**	558
7 (6 + 1)	84	310.4	1	**3982.170**	557	**3983.170**	558
7 (6 + 1)	84	430.4	1	**3982.190**	557	**3983.190**	558
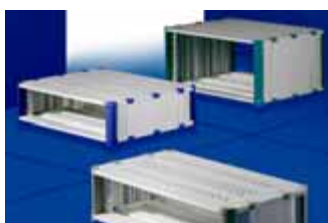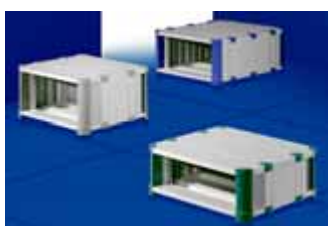
3.6 Instrument cases/system enclosures

Rittal RiCase, instrument case

U	Depth mm		Model No. RC						Page
	Vented	Unvented	Vented RAL 5018[1]	Unvented RAL 5018[1]	Vented RAL 5012[1]	Unvented RAL 5012[1]	Vented RAL 7030	Unvented RAL 7030	
Rittal RiCase 269.2 mm (¹/₂ 19″)									
1	420	300	3750.110	3750.100	3750.112	3750.102	3750.114	3750.104	562
2	540	300	3750.220	3750.200	3750.222	3750.202	3750.224	3750.204	562
3	420	300	3750.350	3750.210	3750.352	3750.212	3750.354	3750.214	562
3	540	420	3750.360	3750.300	3750.362	3750.302	3750.364	3750.304	562
4	540	420	3750.450	3750.400	3750.452	3750.402	3750.454	3750.404	562
Rittal RiCase 482.6 mm (19″)									
3	300	300	3750.330	3750.310	3750.332	3750.312	3750.334	3750.314	563
3	420	420	3750.340	3750.320	3750.342	3750.322	3750.344	3750.324	563
4	300	300	3750.430	3750.410	3750.432	3750.412	3750.434	3750.414	563
4	420	420	3750.440	3750.420	3750.442	3750.422	3750.444	3750.424	563
6	300	300	3750.630	3750.600	3750.632	3750.602	3750.634	3750.604	563
6	420	420	3750.640	3750.610	3750.642	3750.612	3750.644	3750.614	563
6	540	540	3750.650	3750.620	3750.652	3750.622	3750.654	3750.624	563
7	420	420	3750.720	3750.700	3750.722	3750.702	3750.724	3750.704	563
7	540	540	3750.730	3750.710	3750.732	3750.712	3750.734	3750.714	563
9	420	420	3750.920	3750.900	3750.922	3750.902	3750.924	3750.904	563
9	540	540	3750.930	3750.910	3750.932	3750.912	3750.934	3750.914	563
12	540	540	3750.030	3750.000	3750.032	3750.002	3750.034	3750.0004	563

[1] Extended delivery times.
Packs of 1
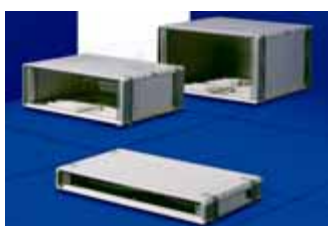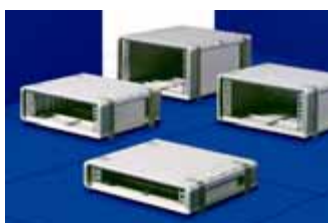
Rittal Vario-Case iS, instrument case

U	Depth	Packs of	Model No. VC		Page
			without vent slots	with vent slots	
Rittal Vario-Case iS, 269.2 mm (¹/₂ 19″)					
1	300	1	3710.000	–	569
2	300	1	3720.000	–	569
3	300	1	3730.000	–	569
3	400	1	3731.000	–	569
4	300	1	3740.000	–	569
4	400	1	3741.000	–	569
Rittal Vario-Case iS, 482.6 mm (19″)					
1	300	1	3713.000[1]	3713.200[1]	570
1	400	1	3714.000	3714.200	570
4	300	1	3743.000[2]	3743.200	570
4	400	1	3744.000	3744.200	570
4	500	1	3745.000[1]	3745.200[1]	570
7	400	1	3774.000[2]	3774.200	570
7	500	1	3775.000	3775.200	570
3	300	1	3733.000[2]	3733.200	571
3	400	1	3734.000[2]	3734.200	571
3	500	1	3735.000	3735.200	571
6	300	1	3763.000	3763.200	571
6	400	1	3764.000[2]	3764.200	571
6	500	1	3765.000[2]	3765.200	571
9	400	1	3794.000	3794.200	571
9	500	1	3795.000[2]	3795.200	571

[1] Extended delivery times.
[2] To order EMC version, please add extension .700 to the Model No.

A

3.

Electronic Packaging

System Climate Control

System climate control creates the correct ambient conditions for every application, particularly for sensitive electronics.
A broad selection of cooling units, recooling systems, heat exchangers, fan-and-filter units and enclosure heaters protects against adverse physical and thermal influences.
This is supplemented by a versatile range of accessory components.

With a full advisory service and its PC software package Rittal Therm, Rittal will help you to select the correct climate control unit to suit your precise requirements.

Enhanced operational reliability and a longer service life for electronics
- Climate controlled enclosure systems
- Cooling units
- Recooling systems
- Heat exchangers
- Fan-and-filter units
- Roof-mounted fans
- Rack-mounted climate control
- Enclosure heaters
- Cooling

Detailed information may be found on catalogue pages 578 – 675 or refer to our website: www.rittal.com

The current status of approvals may be found on our website: www.rittal.com

4.1 Climate controlled enclosures

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
1100 W	600 x 1800 x 600	230, 50/60	**8687.100**	■	■		■	582
	600 x 2000 x 600		**8607.100**	■	■		■	582
	600 x 1800 x 600	400, 2~, 50/60	**8687.840**	■	■		■	582
	600 x 2000 x 600		**8607.840**	■	■		■	582
1500 W	800 x 1800 x 600	230, 50/60	**8887.150**	■	■	■	■	582
	800 x 2000 x 600		**8807.100**	■	■	■	■	582
	800 x 1800 x 600	400, 2~, 50/60	**8887.140**	■	■	■	■	582
	800 x 2000 x 600		**8807.140**	■	■	■	■	582
2000 W	1200 x 1800 x 600	230, 50/60	**8287.170**	■	■			583
			8807.180	■	■			583
	1200 x 2000 x 600		**8207.170**	■	■			583
			8207.180	■	■			583
2500 W	1200 x 1800 x 600	400, 3~, 50/60	**8807.260**					583
	1200 x 2000 x 600		**8807.250**					583

Delivery times available on request.
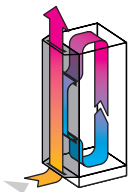
4.1 Climate control doors

for single-door TS 8 enclosures with thermostat

Useful cooling output	For enclosure dimensions W x H mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
1100 W	600 x 1800	230, 50/60	**3306.880**[1]	■	■		■	584
	600 x 2000		**3306.800**[1]	■	■		■	584
	600 x 1800	400, 2~, 50/60	**3306.884**[1]	■	■		■	584
	600 x 2000		**3306.840**[1]	■	■		■	584
1500 W	600 x 1800	230, 50/60	**3307.880**[1]					584
	600 x 2000		**3307.800**[1]					584
	600 x 1800	400, 2~, 50/60	**3307.890**[1]					584
	600 x 2000		**3307.840**					584
	800 x 1800	230, 50/60	**3308.880**[1]	■	■	■	■	585
	800 x 2000		**3308.800**[1]	■	■	■	■	585
	800 x 1800	400, 2~, 50/60	**3308.884**[1]	■	■	■	■	585
	800 x 2000		**3308.840**[1]	■	■	■	■	585
2000 W	600 x 1800	230, 50/60	**3309.880**[1]	■	■			586
	600 x 2000		**3309.800**	■	■			586
	600 x 1800	400, 2~, 50/60	**3309.884**[1]	■	■			586
	600 x 2000		**3309.840**[1]	■	■			586
2500 W	600 x 1800	400, 3~, 50/60	**3310.880**[1]					586
	600 x 2000		**3310.800**					586

[1] Delivery times available on request.
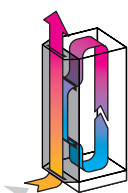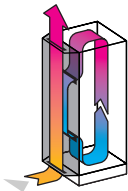
4.1 Climate control doors
for single-door TS 8 enclosures with microcontroller

Useful cooling output	For enclosure dimensions W x H mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
1100 W	600 x 1800	230, 50/60	3306.580[1]	■	■			584
	600 x 2000		3306.500[1]	■	■			584
	600 x 1800	400, 2~, 50/60	3306.590[1]	■	■			584
	600 x 2000		3306.540[1]	■	■			584
1500 W	600 x 1800	230, 50/60	3307.580[1]					584
	600 x 2000		3307.500[1]					584
	600 x 1800	400, 2~, 50/60	3307.590[1]					584
	600 x 2000		3307.540[1]					584
	800 x 1800	230, 50/60	3308.580[1]	■	■			585
	800 x 2000		3308.500	■	■			585
	800 x 1800	400, 2~, 50/60	3308.590[1]	■	■			585
	800 x 2000		3308.540	■	■			585
2000 W	600 x 1800	230, 50/60	3309.580[1]	■	■			586
	600 x 2000		3309.500	■	■			586
	600 x 1800	400, 2~, 50/60	3309.590[1]					586
	600 x 2000		3309.540					586
2500 W	600 x 1800	400, 3~, 50/60	3310.580[1]					586
	600 x 2000		3310.500[1]					586

[1] Delivery times available on request.
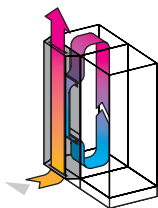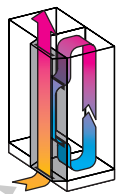
for two-door TS 8 enclosures

Useful cooling output	For enclosure dimensions W x H mm	Voltage V, Hz	Device position	Model No. SK		Approvals				Page
				with thermostat	with micro-controller	UL	CUL	DIN	GS	
1100 W	1200 x 1800	230, 50/60	right	3306.250	3306.550	■	■			587
		400, 2~, 50/60		3306.450	3306.650	■	■			587
	1200 x 2000	230, 50/60		3306.210	3306.510	■	■			587
		400, 2~, 50/60		3306.410	3306.610	■	■			587
	1200 x 1800	230, 50/60	left	3306.270	3306.570	■	■			587
		400, 2~, 50/60		3306.470	3306.670	■	■			587
	1200 x 2000	230, 50/60		3306.230	3306.530	■	■			587
		400, 2~, 50/60		3306.430	3306.630	■	■			587
1500 W	1200 x 1800	230, 50/60	right	3307.250	3307.550					587
		400, 2~, 50/60		3307.450	3307.650					587
	1200 x 2000	230, 50/60		3307.210	3307.510					587
		400, 2~, 50/60		3307.410	3307.610					587
	1200 x 1800	230, 50/60	left	3307.270	3307.570					587
		400, 2~, 50/60		3307.470	3307.670					587
	1200 x 2000	230, 50/60		3307.230	3307.530					587
		400, 2~, 50/60		3307.430	3307.630					587
2000 W	1200 x 1800	230, 50/60	right	3309.170	3309.570	■	■			588
		400, 2~, 50/60		3309.470	3309.670					588
	1200 x 2000	230, 50/60		3309.120	3309.520	■	■			588
		400, 2~, 50/60		3309.420	3309.620					588
	1200 x 1800	230, 50/60	left	3309.210	3309.510	■	■			588
		400, 2~, 50/60		3309.410	3309.610					588
	1200 x 2000	230, 50/60		3309.140	3309.530	■	■			588
		400, 2~, 50/60		3309.440	3309.640					588
2500 W	1200 x 1800	400, 3~, 50/60	right	3310.250	3310.650					588
	1200 x 2000			3310.230	3310.630					588
	1200 x 1800	400, 3~, 50/60	left	3310.150	3310.550					588
	1200 x 2000			3310.130	3310.530					588

Delivery times available on request.

System Climate Control

4.1 Climate control side panels
for TS 8 enclosures

Useful cooling output	For enclosure dimensions W x H mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
1100 W	1800 x 600	230, 50/60	**3331.116**					589
	2000 x 600		**3331.316**					589
	1800 x 600	400, 2~, 50/60	**3331.140[1]**					589
	2000 x 600		**3331.340[1]**					589
1400 W	1800 x 600	230, 50/60	**3331.216[1]**					589
	2000 x 600		**3331.416**					589
	1800 x 600	400, 2~, 50/60	**3331.240[1]**					589
	2000 x 600		**3331.440[1]**					589

[1] Delivery times available on request.

4.1 TopTherm roof-mounted cooling units

Useful cooling output	For enclosure dimensions W x H x D mm	Voltage V, Hz	Model No. SK		Approvals				Page
			with Basic controller	with Comfort controller	UL	CUL	DIN	GS	
500 W	597 x 415 x 375	230, 50/60	**3382.100**	**3382.500**	■	■			590
		115, 50/60	**3382.110**	**3382.510**	■	■			590
750 W	597 x 415 x 375	230, 50/60	**3359.100**	**3359.500**	■	■			590
		115, 50/60	**3359.110**	**3359.510**	■	■			590
		400, 2~, 50/60	**3359.140**	**3359.540**	■	■			590
1000 W	597 x 415 x 475	230, 50/60	**3383.100**	**3383.500**	■	■			591
		115, 50/60	**3383.110**	**3383.510**	■	■			591
		400, 2~, 50/60	**3383.140**	**3383.540**	■	■			591
1500 W	597 x 415 x 475	230, 50/60	**3384.100**	**3384.500**	■	■			593
		115, 50/60	**3384.110**	**3384.510**	■	■			593
		400, 2~, 50/60	**3384.140**	**3384.540**	■	■			593
2000 W	597 x 415 x 475	230, 50/60	**3385.100**	**3385.500**	■	■			593
		115, 50/60	**3385.110**	**3385.510**	■	■			593
		400, 2~, 50/60	**3385.140**	**3385.540**	■	■			593
3000 W	796 x 470 x 580	400, 3~, 50 460, 3~, 60	**3386.140**	**3386.540**	■	■			594
4000 W	796 x 470 x 580	400, 3~, 50 460, 3~, 60	**3387.140**	**3387.540**	■	■			594

Roof-mounted cooling units in stainless steel version, see page 69.

4.1 TopTherm roof-mounted cooling units
for the office sector

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
1100 W	597 x 415 x 510	115, 50/60	**3273.515[1]**					592
		230, 50/60	**3273.500**					592

[1] Delivery times available on request.
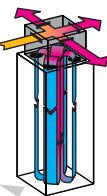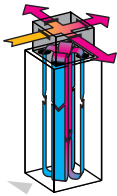
4.1 TopTherm roof-mounted cooling units
Stainless steel

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK		Approvals				Page
			with Basic controller	with Comfort controller	UL	CUL	DIN	GS	
500 W	597 x 415 x 375	230, 50/60	**3382.200**	**3382.600**	■	■			590
		115, 50/60	**3382.210**	**3382.610**	■	■			590
750 W	597 x 415 x 375	230, 50/60	**3359.200**	**3359.600**					590
		115, 50/60	**3359.210**	**3359.610**					590
		400, 2~, 50/60	**3359.240**	**3359.640**					590
1000 W	597 x 415 x 475	230, 50/60	**3383.200**	**3383.600**	■	■			591
		115, 50/60	**3383.210**	**3383.610**	■	■			591
		400, 2~, 50/60	**3383.240**	**3383.640**	■	■			591
1500 W	597 x 415 x 475	230, 50/60	**3384.200**	**3384.600**	■	■			593
		115, 50/60	**3384.210**	**3384.610**	■	■			593
		400, 2~, 50/60	**3384.240**	**3384.640**	■	■			593
2000 W	597 x 415 x 475	230, 50/60	**3385.200**	**3385.600**	■	■			593
		115, 50/60	**3385.210**	**3385.610**	■	■			593
		400, 2~, 50/60	**3385.240**	**3385.640**	■	■			593
3000 W	796 x 470 x 580	400, 3~, 50 460, 3~, 60	**3386.240**	**3386.640**	■	■			594
4000 W	796 x 470 x 580	400, 3~, 50 460, 3~, 60	**3387.240**	**3387.640**	■	■			594

Delivery times available on request.
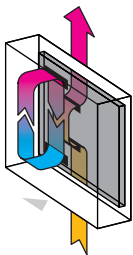
4.1 Wall-mounted cooling units
VIP small cooling units

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Condenser design	Model No. SK	Approvals				Page
					UL	CUL	DIN	GS	
225 W	526 x 353.5 x 105	230, 50/60	left	**3201.100**	■	■			595
			right	**3202.100**	■	■			595

4.1 TopTherm wall-mounted cooling units
Mini cooling unit, in horizontal format

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
300 W	525 x 340 x 153	230, 50/60	**3302.300**			■		596
		115, 60	**3302.310**			■		596

A

4.

System Climate Control

4.1 TopTherm wall-mounted cooling units

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK		Approvals				Page
			with Basic controller	with Comfort controller	UL	CUL	DIN	GS	
300 W	280 x 550 x 140	230, 50/60	**3302.100**	–	▪	▪			597
		115, 60	**3302.110**	–	▪	▪			597
500 W	280 x 550 x 200	230, 50/60	**3303.100**	3303.500	▪	▪			597
		115, 60	**3303.110**	3303.510	▪	▪			597
750 W	280 x 550 x 280	230, 50/60	**3361.100**	3361.500					598
		115, 60	**3361.110**	3361.510					598
		400, 2~, 50/60	**3361.140**	3361.540					598
1000 W	400 x 950 x 260	230, 50/60	**3304.100**	3304.500	▪	▪			599
		115, 50/60	**3304.110**	3304.510	▪	▪			599
		400, 3~, 50 460, 3~, 60	**3304.140**	3304.540	▪	▪			599
1500 W	400 x 950 x 260	230, 50/60	**3305.100**	3305.500	▪	▪			599
		115, 50/60	**3305.110**	3305.510	▪	▪			599
		400, 3~, 50 460, 3~, 60	**3305.140**	3305.540	▪	▪			599
2000 W	400 x 1580 x 290	230, 50/60	**3328.100**	3328.500	▪	▪			600
		115, 50/60	**3328.110**	3328.510	▪	▪			600
		400, 3~, 50 460, 3~, 60	**3328.140**	3328.540	▪	▪			600
2500 W	400 x 1580 x 290	230, 50/60	**3329.100**	3329.500	▪	▪			600
		115, 50/60	**3329.110**	3329.510	▪	▪			600
		400, 3~, 50 460, 3~, 60	**3329.140**	3329.540	▪	▪			600
4000 W	500 x 1580 x 340	400, 3~, 50 460, 3~, 60	**3332.140**	3332.540	▪	▪			601

Stainless steel

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK		Approvals				Page
			with Basic controller	with Comfort controller	UL	CUL	DIN	GS	
300 W	280 x 550 x 140	230, 50/60	**3302.200**	–	▪	▪			597
		115, 60	**3302.210**	–	▪	▪			597
500 W	280 x 550 x 200	230, 50/60	**3303.200**	3303.600	▪	▪			597
		115, 60	**3303.210**	3303.610	▪	▪			597
750 W	280 x 550 x 280	230, 50/60	**3361.200**	3361.600					598
		115, 60	**3361.210**	3361.610					598
		400, 2~, 50/60	**3361.240**	3361.640					598
1000 W	400 x 950 x 260	230, 50/60	**3304.200**	3304.600	▪	▪			599
		115, 50/60	**3304.210**	3304.610	▪	▪			599
		400, 3~, 50 460, 3~, 60	**3304.240**	3304.640	▪	▪			599
1500 W	400 x 950 x 260	230, 50/60	**3305.200**	3305.600	▪	▪			599
		115, 50/60	**3305.210**	3305.610	▪	▪			599
		400, 3~, 50 460, 3~, 60	**3305.240**	3305.640	▪	▪			599
2000 W	400 x 1580 x 290	230, 50/60	**3328.200**	3328.600	▪	▪			600
		115, 50/60	**3328.210**	3328.610	▪	▪			600
		400, 3~, 50 460, 3~, 60	**3328.240**	3328.640	▪	▪			600
2500 W	400 x 1580 x 290	230, 50/60	**3329.200**	3329.600	▪	▪			600
		115, 50/60	**3329.210**	3329.610	▪	▪			600
		400, 3~, 50 460, 3~, 60	**3329.240**	3329.640	▪	▪			600
4000 W	500 x 1580 x 340	400, 3~, 50 460, 3~, 60	**3332.240**	3332.640	▪	▪			601

Delivery times available on request.

4.1 TopTherm wall-mounted cooling units
Slimline

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK		Approvals				Page
			with Basic controller	with Comfort controller	UL	CUL	DIN	GS	
1500 W	450 x 1580 x 165	230, 50/60	**3377.100[1)]**	**3377.500[1)]**					602
		115, 50/60	**3377.110[1)]**	**3377.510[1)]**					602
		400/460, 3~, 50/60	**3377.140[1)]**	**3377.540[1)]**					602
1500 W	450 x 1580 x 195	230, 50/60	**3366.100**	**3366.500**					602
		115, 50/60	**3366.110**	**3366.510**					602
		400/460, 3~, 50/60	**3366.140**	**3366.540**					602

[1)] Delivery times available on request.

Slimline, stainless steel

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK		Approvals				Page
			with Basic controller	with Comfort controller	UL	CUL	DIN	GS	
1500 W	450 x 1580 x 165	230, 50/60	**3377.200**	**3377.600**					602
		115, 50/60	**3377.210**	**3377.610**					602
		400/460, 3~, 50/60	**3377.240**	**3377.640**					602
1500 W	450 x 1580 x 195	230, 50/60	**3366.200**	**3366.600**					602
		115, 50/60	**3366.210**	**3366.610**					602
		400/460, 3~, 50/60	**3366.240**	**3366.640**					602

Delivery times available on request.

4.1 TopTherm wall-mounted cooling units
NEMA 4x version

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK		Approvals				Page
			with Basic controller	with Comfort controller	UL	CUL	DIN	GS	
500 W	280 x 550 x 200	230, 50/60	**3303.104**	**3303.504**	■	■			603
		115, 50/60	**3303.114**	**3303.514**	■	■			603
1000 W	400 x 950 x 260	230, 50/60	**3304.104**	**3304.504**	■	■			603
		115, 50/60	**3304.114**	**3304.514**	■	■			603
		400, 3~, 50 460, 3~, 60	**3304.144**	**3304.544**	■	■			603
1500 W	400 x 950 x 260	230, 50/60	**3305.104**	**3305.504**	■	■			603
		115, 50/60	**3305.114**	**3305.514**	■	■			603
		400, 3~, 50 460, 3~, 60	**3305.144**	**3305.544**	■	■			603
2000 W	400 x 1580 x 290	230, 50/60	**3328.104**	**3328.504**	■	■			604
		115, 50/60	**3328.114**	**3328.514**	■	■			604
		400, 3~, 50 460, 3~, 60	**3328.144**	**3328.544**	■	■			604
2500 W	400 x 1580 x 290	230, 50/60	**3329.104**	**3329.504**	■	■			604
		115, 50/60	**3329.114**	**3329.514**	■	■			604
		400, 3~, 50 460, 3~, 60	**3329.144**	**3329.544**	■	■			604

Delivery times available on request.

A
4.

System Climate Control

System Climate Control
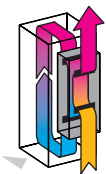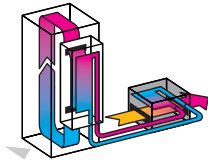
4.2 Recooling systems
Mini

Cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK Roof mounting	Model No. SK Wall mounting	UL	CUL	DIN	GS	Page
1000 W	400 x 950 x 310	400, 3~, 50/60/ 460, 3~, 60	–	3360.100					610
2500 W	400 x 1580 x 290	400, 3~, 50/60/ 460, 3~, 60	–	3360.250					610
4000 W	500 x 1580 x 340	400, 3~, 50/60/ 460, 3~, 60	–	3360.400					610
960 W	600 x 400 x 430	230, 50/60	3318.600	–					608
			3318.610	–					608
1490 W	600 x 400 x 430	230, 50/60	3319.600	–					608
			3319.610	–					608
3000 W	600 x 680 x 625	400, 3~, 50/60/ 460, 3~, 60	3320.600	–					609
4500 W	600 x 680 x 625	400, 3~, 50/60/ 460, 3~, 60	3334.600	–					609

In a floor standing enclosure
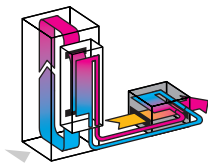
Cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	UL	CUL	DIN	GS	Page
2100 W	470 x 725 x 540	400, 3~, 50	3336.100					611
2580 W	485 x 965 x 650	400, 3~, 50	3336.200					611
3360 W	485 x 965 x 650	400, 3~, 50	3336.300					611
5040 W	595 x 1180 x 800	400, 3~, 50	3336.500					611
6160 W	595 x 1180 x 800	400, 3~, 50	3336.600					611
7700 W	595 x 1180 x 800	400, 3~, 50	3336.650					611
10000 W	615 x 1178 x 1160	400, 3~, 50 460, 3~, 60	3336.700					612
14350 W	615 x 1178 x 1160	400, 3~, 50 460, 3~, 60	3336.710					612
16300 W	615 x 1178 x 1160	400, 3~, 50 460, 3~, 60	3336.720					612
18500 W	715 x 1178 x 1360	400, 3~, 50 460, 3~, 60	3336.730					612
20900 W	715 x 1178 x 1360	400, 3~, 50 460, 3~, 60	3336.740					612
25200 W	715 x 1178 x 1360	400, 3~, 50 460, 3~, 60	3336.750					612

Delivery times available on request.

A

4.

System Climate Control

4.2 Recooling systems
In a floor standing enclosure for oil

Cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
2550 W	485 x 965 x 650	400, 3~, 50	**3337.200**					613
3400 W	485 x 965 x 650	400, 3~, 50	**3337.300**					613
5150 W	595 x 1180 x 800	400, 3~, 50	**3337.500**					613
6700 W	595 x 1180 x 800	400, 3~, 50	**3337.600**					613
7900 W	595 x 1180 x 800	400, 3~, 50	**3337.650**					613
10600 W	615 x 1178 x 1160	400, 3~, 50 / 460, 3~, 60	**3337.700**					614
15150 W	615 x 1178 x 1160	400, 3~, 50 / 460, 3~, 60	**3337.710**					614
17200 W	615 x 1178 x 1160	400, 3~, 50 / 460, 3~, 60	**3337.720**					614
19250 W	715 x 1178 x 1360	400, 3~, 50 / 460, 3~, 60	**3337.730**					614
21600 W	715 x 1178 x 1360	400, 3~, 50 / 460, 3~, 60	**3337.740**					614
26100 W	715 x 1178 x 1360	400, 3~, 50 / 460, 3~, 60	**3337.750**					614
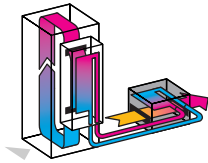
Delivery times available on request.

In the TS 8 Top enclosure system

Cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
6000 W	600 x 2000 x 600	400, 3~, 50	**3335.060**					615
7500 W	600 x 2000 x 600	400, 3~, 50	**3335.075**					615
10000 W	800 x 2000 x 600	400, 3~, 50	**3335.100**					616
12000 W	800 x 2000 x 600	400, 3~, 50	**3335.120**					616
15000 W	800 x 2000 x 600	400, 3~, 50	**3335.150**					616
20000 W	1200 x 2000 x 600	400, 3~, 50	**3335.200**					616
25000 W	1200 x 2000 x 600	400, 3~, 50	**3335.250**					616

Delivery times available on request.

A

4.

System Climate Control

System Climate Control
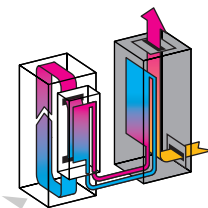
4.2 Recooling systems
In an industrial enclosure

Cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
32025 W	815 x 1400 x 1560	400, 3~, 50 460, 3~, 60	**3339.100**					617
36225 W	815 x 1400 x 1560	400, 3~, 50 460, 3~, 60	**3339.200**					617
66700 W	1550 x 2000 x 2500	400, 3~, 50	**3339.300**					617
75900 W	1550 x 2000 x 2500	400, 3~, 50	**3339.400**					617
172200 W	1630 x 2200 x 3400	400, 3~, 50	**3339.500**					617

Delivery times available on request.
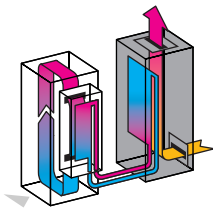
4.2 Immersible recooling systems
for oil

Cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
2400 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.020**					618
3200 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.040**					618
4600 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.060**					618
5600 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.080**					618
8500 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.100**					619
10500 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.120**					619
12000 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.140**					619
13600 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.160**					619
15300 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.180**					619
17300 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.200**					619
20700 W	785 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.220**					620
30800 W	785 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.240**					620
34900 W	785 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.260**					620
44500 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.280**					620
48600 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.300**					620
60600 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.320**					620
72600 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.340**					620
77900 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.360**					620

Delivery times available on request.

A

4.

System Climate Control
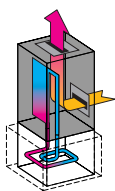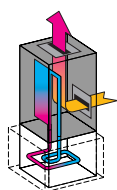
4.2 Immersible recooling systems
for emulsion

Cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
2400 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.500**					621
3200 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.520**					621
4600 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.540**					621
5600 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.560**					621
8500 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.580**					622
10500 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.600**					622
12000 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.620**					622
13600 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.640**					622
15300 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.660**					622
17300 W	785 x 1650 x 785	400, 3~, 50 460, 3~, 60	**3338.680**					622
20700 W	785 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.700**					623
30800 W	785 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.720**					623
34900 W	785 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.740**					623
44500 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.760**					623
48600 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.780**					623
60600 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.800**					623
72600 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.820**					623
77900 W	1830 x 1650 x 1830	400, 3~, 50 460, 3~, 60	**3338.840**					623

Delivery times available on request.

4.3 Air/water heat exchangers
Micro, for wall mounting

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
300 W	150 x 300 x 85	230, 50/60	**3212.230**					626
		115, 50/60	**3212.115**[1]					626
		24 V (DC)	**3212.024**					626

[1] Delivery times available on request.

System Climate Control

4.3 Air/water heat exchanger
Wall-mounted

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
			Wall mounting	UL	CUL	DIN	GS	
600 W	200 x 500 x 100	230, 50/60	**3214.100**					627
1000 W	298 x 520 x 135	230, 50/60	**3217.100**	■	■			627
1250 W	200 x 950 x 100	230, 50/60	**3215.100**					628
1540 W	380 x 825 x 105	230, 50/60	**3247.000**	■	■			628
2250 W	400 x 950 x 200	230, 50/60	**3218.104[1]**					629
3000 W	400 x 950 x 200	230, 50/60	**3218.100**	■	■			629
4500 W	450 x 1400 x 250	230, 50/60	**3216.100**	■	■			629

[1] Delivery times available on request.
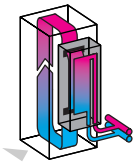
4.3 TopTherm air/water heat exchanger
Roof-mounted

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK		Approvals				Page
			with Basic controller	with Comfort controller	UL	CUL	DIN	GS	
1875 W	597 x 415 x 475	230, 50/60	**3209.104[1]**	**3209.504[1]**					630
		115, 50/60	**3209.114[1]**	**3209.514[1]**					630
		400, 2~, 50/60	**3209.144[1]**	**3209.544[1]**					630
2500 W	597 x 415 x 475	230, 50/60	**3209.100**	**3209.500**					630
		115, 50/60	**3209.110**	**3209.510**					630
		400, 2~, 50/60	**3209.140[1]**	**3209.540[1]**					630
3000 W	597 x 415 x 475	230, 50/60	**3210.104[1]**	**3210.504[1]**					631
		115, 50/60	**3210.114[1]**	**3210.514[1]**					631
		400, 2~, 50/60	**3210.144[1]**	**3210.544[1]**					631
4000 W	597 x 415 x 475	230, 50/60	**3210.100**	**3210.500**					631
		115, 50/60	**3210.110**	**3210.510**					631
		400, 2~, 50/60	**3210.140[1]**	**3210.540[1]**					631

[1] Delivery times available on request.
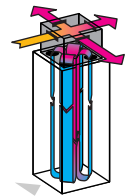
4.3 Air/water heat exchanger
As a side panel for TS 8 enclosures

Useful cooling output	To fit enclosures H x D mm	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
					UL	CUL	DIN	GS	
700 W	1800 x 600	600 x 1800 x 95	230, 50/60	**3316.180**					632
700 W	2000 x 600	600 x 2000 x 95	230, 50/60	**3316.200**					632
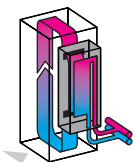
4.3 TopTherm air/air heat exchanger
Wall mounting

Specific thermal output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
17.5 W/K	280 x 550 x 150	230, 50/60	**3126.100**	▪	▪			633
30.0 W/K	400 x 950 x 205	230, 50/60	**3127.100**	▪	▪			633
45.0 W/K	400 x 950 x 225	230, 50/60	**3128.100**	▪	▪			633
60.0 W/K	400 x 950 x 225	230, 50/60	**3129.100**	▪	▪			633
90.0 W/K	400 x 1580 x 215	230, 50/60	**3130.100**	▪	▪			634
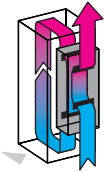
4.4 Fan-and-filter unit

Air throughput, unimpeded air flow	Voltage V, Hz	Model No. SK RAL 7035	Approvals					Page
			UL	CUL	DIN	GS	CSA	
20/25 m³/h	230, 50/60	**3321.107**	▪	▪				636
	115, 50/60	**3321.117**	▪	▪				636
20 m³/h	24 (DC)	**3321.027**	▪	▪				636
	48 (DC)	**3321.047**[1]	▪	▪				636
55/66 m³/h	230, 50/60	**3322.107**	▪	▪			▪	636
	115, 50/60	**3322.117**	▪	▪			▪	636
55 m³/h	24 (DC)	**3322.027**	▪	▪				636
	48 (DC)	**3322.047**[1]	▪	▪				636
105/120 m³/h	230, 50/60	**3323.107**	▪	▪			▪	637
	115, 50/60	**3323.117**	▪	▪			▪	637
105 m³/h	24 (DC)	**3323.027**	▪	▪			▪	637
	48 (DC)	**3323.047**[1]	▪	▪				637
180/160 m³/h	230, 50/60	**3324.107**	▪	▪			▪	637
	115, 50/60	**3324.117**	▪	▪			▪	637
180 m³/h	24 (DC)	**3324.027**	▪	▪			▪	637
	48 (DC)	**3324.047**[1]	▪	▪				637
230/265 m³/h	230, 50/60	**3325.107**	▪	▪			▪	638
	115, 50/60	**3325.117**	▪	▪			▪	638
230 m³/h	24 (DC)	**3325.027**	▪	▪			▪	638
	48 (DC)	**3325.047**[1]	▪	▪				638
550/600 m³/h	230, 50/60	**3326.107**	▪	▪			▪	639
	115, 50/60	**3326.117**	▪	▪			▪	639
700/720 m³/h	230, 50/60	**3327.107**	▪	▪				639
	115, 50/60	**3327.117**	▪	▪				639
	400/460, 3~, 50/60	**3327.147**	▪	▪				639

[1] Delivery times available on request.

System Climate Control
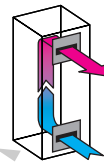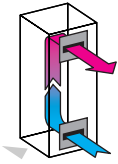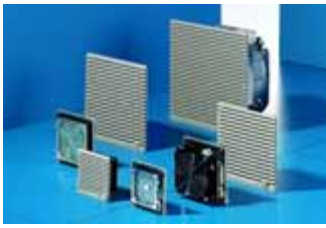
4.4 Fan-and-filter unit – EMC

Air throughput, unimpeded air flow	Voltage V, Hz	Model No. SK RAL 7035	Approvals					Page
			UL	CUL	DIN	GS	CSA	
20/25 m³/h	230, 50/60	3321.607	■	■				640
	115, 50/60	3321.617[1]	■	■				640
55/66 m³/h	230, 50/60	3322.607	■	■				640
	115, 50/60	3322.617[1]	■	■				640
105/120 m³/h	230, 50/60	3323.607	■	■				640
	115, 50/60	3323.617[1]	■	■				640
180/160 m³/h	230, 50/60	3324.607	■	■				641
	115, 50/60	3324.617[1]	■	■				641
230/265 m³/h	230, 50/60	3325.607	■	■				641
	115, 50/60	3325.617	■	■				641
550/600 m³/h	230, 50/60	3326.607	■	■				641
	115, 50/60	3326.617[1]	■	■				641
700/720 m³/h	230, 50/60	3327.607	■	■				641
	115, 50/60	3327.617[1]	■	■				641

[1] Delivery times available on request.
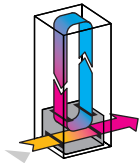
4.5 Rack-mounted cooling units

Useful cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
1000 W	445 x 265.9 x 542	115, 50/60	3278.134[1]					644
		230, 50/60	3292.134					644

[1] Delivery times available on request.
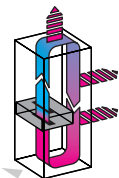
4.5 Rack-mounted fan

Air throughput, unimpeded air flow	No. of fans	Distance between axes mm	Voltage V, Hz	Model No. SK	Approvals					Page
					UL	CUL	DIN	GS	VDE	
250 m³/h	3	85	36 (DC) – 72 (DC)	9769.002[1]						645
320 m³/h	2	85	24 (DC)	3340.024[1]	■	■			■	645
	2	85	115 (AC), 50/60	3340.115[1]	■	■			■	645
	2	85	230 (AC), 50/60	3340.230	■	■			■	645
480 m³/h	3	85	24 (DC)	3341.024[1]	■	■			■	645
	3	105	24 (DC)	3342.024	■	■			■	645
	3	85	115 (AC), 50/60	3341.115	■	■			■	645
	3	105	115 (AC), 50/60	3342.115[1]	■	■			■	645
	3	85	230 (AC), 50/60	3341.230	■	■			■	645
	3	105	230 (AC), 50/60	3342.230	■	■			■	645
	3	105	24 (DC) 115 – 230 (AC), 50/60	3342.500	■	■			■	645

[1] Delivery times available on request.
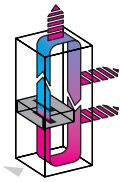
4.5 Vario rack-mounted fan

Air throughput, unimpeded air flow	No. of fans	Distance between axes mm	Voltage V, Hz	Model No. SK	Approvals					Page
					UL	CUL	DIN	GS	VDE	
320 m³/h	2	85	24 (DC)	3350.024[1)]	■	■			■	645
	2	85	115 (AC), 50/60	3350.115[1)]	■	■			■	645
	2	85	230 (AC), 50/60	3350.230	■	■			■	645
480 m³/h	3	85	24 (DC)	3351.024[1)]	■	■			■	645
	3	105	24 (DC)	3352.024[1)]	■	■			■	645
	3	85	115 (AC), 50/60	3351.115[1)]	■	■			■	645
	3	105	115 (AC), 50/60	3352.115[1)]	■	■			■	645
	3	85	230 (AC), 50/60	3351.230	■	■			■	645
	3	105	230 (AC), 50/60	3352.230	■	■			■	645
	3	105	24 (DC) 115 – 230 (AC), 50/60	3352.500[1)]	■	■			■	645

[1)] Delivery times available on request.
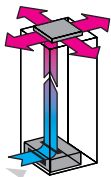
4.5 Centrifugal fan

Air throughput, unimpeded air flow	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
320 m³/h	482.6 x 87.2 x 158	115, 50/60	3145.000					646
		230, 50/60	3144.000					646

4.5 Roof-mounted fan and vent attachment
For TS 8
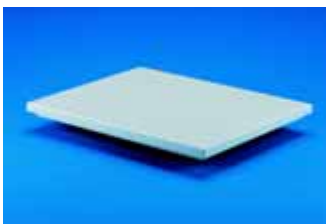
Air throughput, unimpeded air flow	Voltage V, Hz	Required mounting cutout W x D mm	Model No. SK	Approvals					Page
				UL	CUL	DIN	GS	CSA	
400 m³/h	115, 50/60	475 x 260	3149.410						647
	230, 50/60	475 x 260	3149.420						647
	400, 3~, 50/60 460, 3~, 60	475 x 260	3149.440						647
800 m³/h	115, 50/60	475 x 260	3149.810						647
	230, 50/60	475 x 260	3149.820						647
	400, 3~, 50/60 460, 3~, 60	475 x 260	3149.840						647
Without motor		490 x 390	8801.380						647

4.5 Roof-mounted fans

Air throughput, unimpeded air flow	Voltage V, Hz	Required mounting cutout W x D mm	Model No. SK	Approvals					Page
				UL	CUL	DIN	GS	CSA	
360 m³/h	230, 50/60	345 x 265	3149.007						647
	115, 50/60	345 x 265	3169.007						647
Without fan motor		345 x 265	3148.007						647

System Climate Control

4.5 Roof-mounted fans
for TS/FR(i) for the office sector

Air throughput, unimpeded air flow	Voltage V, Hz	Version		Dimensions W x H x D mm	Model No. SK	Approvals					Page
		with roof plate	without roof plate			UL	CUL	DIN	GS	CSA	
1,500 m³/h	115, 50/60	■		800 x 240 x 800	**3164.610**						648
	230, 50/60	■		800 x 240 x 800	**3164.620**						648
1,500 m³/h	115, 50/60	■		800 x 240 x 900	**3164.810**						648
	230, 50/60	■		800 x 240 x 900	**3164.820**						648
1,500 m³/h	115, 50/60		■	511 x 227 x 511	**3164.115**						648
	230, 50/60		■	511 x 227 x 511	**3164.230**						648

4.6 Enclosure heaters

Continuous thermal output for $T_u = 20°C$	Voltage V, Hz	Model No. SK	Approvals					Page
			UL	CUL	DIN	GS	VDE	
10 W	110 – 240 (AC/DC)	**3105.000**	■	■			■	655
20 W	110 – 240 (AC/DC)	**3106.000**	■	■			■	655
30 W	110 – 240 (AC/DC)	**3115.000**	■	■			■	655
50 W	110 – 240 (AC/DC)	**3116.000**	■	■			■	655
130 W	110 – 240 (AC/DC)	**3107.000 + 3108.000**	■	■			■	655
300 W	230, 50/60	**3102.000 (incl. fan)**	■	■			■	655
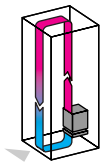
4.6 Enclosure heaters
for CS outdoor enclosures

Continuous thermal output for $T_u = 20°C$	Voltage V, Hz	Installation		Dimensions W x H x D mm	Model No. CS	Approvals					Page
		in the enclosure	19" mounting angles			UL	CUL	DIN	GS	VDE	
1000 W	230, 50/60	■	–	325 x 82 x 220	**9769.015**	■	■				656
600 W	230, 50/60	–	■	482.6 x 87.2 x 236	**9769.023**						656

4.8 Liquid Cooling Package
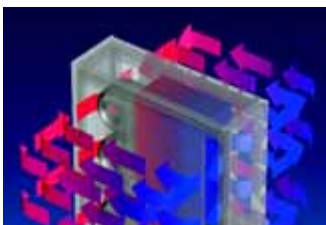
Cooling output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
Enclosure + 3 modules								
4000 W	300 x 2000 x 1000	230, 50/60	**3301.230**					672
4000 W	300 x 2000 x 1000	115, 50/60	**3301.210**					672
Cooling module, single								
4000 W	250 x 550 x 950	230, 50/60	**3301.250**					672

4.8 Rack-mounted recooling system

Specific thermal output	Dimensions W x H x D mm	Voltage V, Hz	Model No. SK	Approvals				Page
				UL	CUL	DIN	GS	
1000 W	442 x 175 x 751	230, 50/60	**3301.260**					673

Delivery times available on request.

A
4.
System Climate Control

IT solutions – the perfect, customised solution
With emerging technologies, network technology places ever increasing demands on the infrastructure at the "information hub", and hence on competent system suppliers.
Whether you are after a small floor distributor for a fibre-optic network or a combined distribution and component enclosure, the Rittal range has the optimum practical system solution to solve every problem, whatever the application.

- Networking
- Server racks
- Monitoring
- Terminals
- Telecom

Detailed information may be found on
catalogue pages 676 – 811
or refer to our website: www.rittal.com
The latest status of approvals may be found on the
Internet at: www.rittal.com

5.1 Networking

Network enclosures based on TE 7000

Dimensions in mm				U	Model No. TE, RAL 7035		Page
					Side panels		
Width	Height	Depth	19″ distance between levels as delivered Depth		with	without	
600	600	600	495	12	**7000.390**	–	682
600	600	800	495	12	**7000.410**	–	682
600	1200	600	495	24	**7000.430**	–	682
600	1200	800	495	24	**7000.440**	–	682
600	2000	600	495	42	**7000.500**[2]	**7000.502**	682
600	2000	800	495	42	**7000.510**[3]	–	682
600	2200	600	495	47	**7000.560**	**7000.562**	682
600	2200	800	495	47	**7000.570**	–	682
800	1200	600	495	24	**7000.450**	–	685
800	1200	800	495	24	**7000.460**[1]	–	685
800	2000	600	495	42	**7000.520**[4]	–	685
800	2000	800	495	42	**7000.530**[1] [5]	**7000.532**[1]	685
800	2200	600	495	47	**7000.580**	–	685
800	2200	800	495	47	**7000.590**	**7000.592**	685

[1] Model No. TE preconfigured with base/plinth, earthing and accessory kit: Height 1200 mm: 7000.840,
   Height 2000 mm: wih side panel 7000.850, without side panel 7000.852
[2] Model No. TE in RAL 9005: 7000.505 [3] Model No. TE in RAL 9005: 7000.515
[4] Model No. TE in RAL 9005: 7000.525 [5] Model No. TE in RAL 9005: 7000.535

Network enclosures based on Rittal TS 8, pre-configured

Dimensions mm			U	Model No. DK		Page
				Side panels		
Width	Height	Depth		with	without	
Enclosure type V1						
600	1200 + 100	600	24	**7830.100**	–	687
Enclolsure type V2						
800	1800 + 100	800	38	**7830.800**	**7830.850**	687
800	2000 + 100	800	42	**7830.200**	**7830.250**	687
800	2200 + 100	800	47	**7830.220**	**7830.270**	687
Enclosure type V3						
800	1200 + 100	900	24	**7830.120**	–	689
800	2000 + 100	900	42	**7830.300**	**7830.350**	689
800	2000 + 100	1000	42	**7830.330**	**7830.335**	689
800	2200 + 100	900	47	**7830.320**	**7830.370**	689
800	2200 + 100	1000	47	**7830.340**	**7830.380**	689
Enclosure type V4						
800	2000 + 100	800	42	**7830.400**	–	691
Enclosure type V5						
800	2000 + 100 + 25	800	42	**7830.500**	**7830.550**	691
Enclosure type V6						
800	2000 + 100 + 25	800	40	**7830.660**	**7830.670**	691

IT Solutions

A

5.

5.1 Networking
Network enclosures, based on Rittal TS 8, types 1 and 2

Dimensions mm			U	Model No. DK		Page
Width	Height	Depth		Type 1	Type 2	
600	800	600	15	**7820.100**	**7821.100**	693
600	1000	600	20	**7820.200**	**7821.200**	693
800	1000	600	20	**7820.240**	**7821.240**	693
600	1200	600	24	**7820.300**	**7821.300**	693
800	1200	600	24	**7820.340**	**7821.340**	693
800	1200	800	24	**7820.350**	–	693
800	1200	900	24	**7820.355**	**7821.355**	693
800	1200	1000	24	**7820.360**	–	693
600	1400	600	29	**7820.400**	**7821.400**	693
600	1400	800	29	**7820.410**	**7821.410**	693
800	1400	600	29	**7820.440**	**7821.440**	693
600	1600	600	33	**7820.500**	**7821.500**	693
600	1600	800	33	**7820.510**	**7821.510**	693
800	1600	600	33	**7820.540**	**7821.540**	693
600	1800	600	38	**7820.600**	**7821.600**	693
600	1800	800	38	**7820.610**	**7821.610**	693
600	1800	900	38	**7820.620**	**7821.620**	694
800	1800	600	38	**7820.640**	**7821.640**	694
800	1800	800	38	**7820.650**	**7821.650**	694
800	1800	1000	38	**7820.670**	**7821.670**	694
600	2000	600	42	**7820.700**	**7821.700**	694
600	2000	800	42	**7820.710**	**7821.710**	694
800	2000	600	42	**7820.740**	**7821.740**	694
800	2000	800	42	**7820.750**	**7821.750**	694
800	2000	900	42	**7820.760**	**7821.760**	694
800	2000	1000	42	**7820.770**	**7821.770**	694
600	2200	600	47	**7820.800**	**7821.800**	694
600	2200	800	47	**7820.810**	**7821.810**	694
800	2200	600	47	**7820.840**	**7821.840**	694
800	2200	800	47	**7820.850**	**7821.850**	694
800	2200	900	47	**7820.860**	**7821.860**	694
800	2200	1000	47	**7820.870**	**7821.870**	694

Approvals:
- UL
- C-UL

Network enclosures based on Rittal flexRack(i), pre-configured

Dimensions mm			U	Model No. FR(i)		Page
Width	Height	Depth[1]		Side panels		
				with	without	
600	600	805	11	**7855.480**	–	703
600	600	1005	11	**7855.500**	–	703
600	1200	1005	25	**7855.510**	–	703
800	2000 + 100	805	42	**7855.550**	**7855.540**	703
800	2000 + 100	1005	42	**7855.570**	**7855.560**	703

[1] Nominal size excluding lock system.

5.1 Networking
Network enclosures based on Rittal flexRack(i)

Dimensions mm			U	Model No. FR(i)	Page
Width	Height	Depth[1]			
600	600	605	11	**7855.610**	705
600	600	1005	11	**7855.620**	705
600	1200	605	24	**7855.630**	705
600	1200	1005	24	**7855.640**	705
600	1800	605	38	**7855.650**	705
600	2000	605	42	**7855.660**	705
600	2000	1005	42	**7855.670**	705
600	2200	1005	47	**7855.680**	705
800	1200	805	24	**7855.690**	705
800	1800	805	38	**7855.700**	705
800	2000	805	42	**7855.710**	705
800	2000	1005	42	**7855.720**	705
800	2200	805	47	**7855.730**	705
800	2200	1005	47	**7855.740**	705

[1] Nominal size excluding lock systems.

Distributor racks based on Rittal Data Rack

Dimensions mm			U	Model No. DK	Page
Width	Height	Depth			
550	1499.5	750	31	**7391.000**	708
550	1721.8	750	36	**7396.000**	708
550	1899.5	750	40	**7400.000**	708
550	2121.8	750	45	**7445.000**	708

Mobile workstation, Rittal RiLab

Dimensions mm			Model No. DK	Page
Width	Height	Depth		
Type 1				
714	820	625	**7600.100**	711
Type 2				
714	1108	625	**7600.200**	711
Type 3				
714	1428	625	**7600.300**	711

Approvals:
● TÜV tested safety

IT Solutions

A
5.

IT Solutions
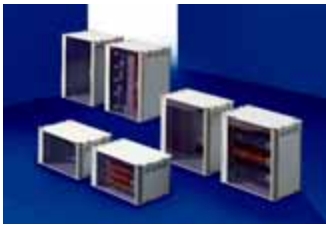
5.2 Networking

RNC enclosure

Dimensions mm			U	Mounting position	Model No. DK		Page
Width	Height	Depth			Single	Bulk pack	
342	255	280	4	horizontal	**7870.100**	**7870.500**	716
342	390	280	8	horizontal	**7870.200**	**7870.510**	716
342	490	400	6	vertical	**7870.300**	**7870.520**	716

RNC universal enclosure

Dimensions mm			U 1/2 19″	U 19″	Model No. DK		Page
Width	Height	Depth			Single	Bulk pack	
350	500	350	10	5	**7870.350**	**7870.530**	717

Wall-mounted enclosure, based on Rittal QuickBox, 6 – 21 U

Dimensions mm			U/SU	Model No. DK		Page
Width	Height	Depth		With glazed door	With sheet steel door	
600	362	300	6/10	**7502.013**	–	718
600	362	400	6/10	**7502.014**	**7502.114**	718
600	362	600	6/10	**7502.016**	–	718
600	495	300	9/15	**7502.023**	**7502.123**	718
600	495	400	9/15	**7502.024**	**7502.124**	718
600	495	600	9/15	**7502.026**	**7502.126**	718
600	628	400	12/20	**7502.034**	**7502.134**	718
600	628	500	12/20	**7502.035**	–	718
600	628	600	12/20	**7502.036**	**7502.126**	718
600	762	400	15/26	**7502.044**	**7502.144**	719
600	762	500	15/26	**7502.045**	–	719
600	762	600	15/26	**7502.046**	**7502.146**	719
600	895	400	18/31	**7502.054**	–	719
600	895	500	18/31	**7502.055**	–	719
600	895	600	18/31	**7502.056**	–	719
600	1028	400	21/36	**7502.064**	–	719
600	1028	600	21/36	**7502.066**	**7502.166**	719

IT Solutions

A

5.

5.2 Networking
Wall-mounted enclosure, based on Rittal QuickBox with vertical 482.6 mm (19″) level

Dimensions mm			U vertical	Model No. DK	Page
Width	Height	Depth			
600	631	210	3	**7502.630**	720
600	631	360	6	**7502.660**	720

Wall-mounted enclosure, based on Rittal AE, with pull-out frame

Dimensions mm			U sides, vertical	U front	Model No. DK	Page
Width	Height	Depth				
600	600	350	4	10	**7644.000**	721

Wall-mounted enclosure, based on Rittal AE

Dimensions mm			U	Model No. DK	Page
Width	Height	Depth			
600	380	350	8	**7641.000**	722
600	600	350	13	**7643.000**	722
600	760	350	16	**7645.000**	722

Approvals:
- UL
- CSA
- Lloyds Register of Shipping

Office distributor, 2 and 4 U, for fibre-optic and copper cables

Dimensions mm			U	Model No. DK	Page
Width	Height	Depth			
400	504	106	2	**7245.000**	723
400	504	195	4	**7245.400**	723

Small fibre-optic distributors

Dimensions mm			Number of fibres	Model No. DK	Page
Width	Height	Depth			
500	500	120	1 – 48	**7452.035**	724
500	900	120	1 – 96	**7453.035**	724

IT Solutions
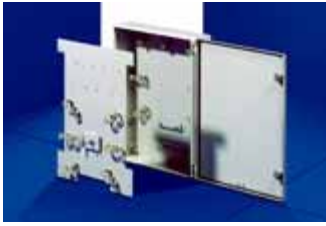
5.2 Networking

Small fibre-optic distributors, based on Rittal AE

Dimensions mm			Number of fibres	Model No. DK	Page
Width	Height	Depth			
400	500	155	1 – 48	**7454.000**	725

Fibre-optic marshalling enclosure

Dimensions mm			Number of fibres	Model No. DK	Page
Width	Height	Depth			
400	250	120	1 – 24	**7247.000**	726

Small fibre-optic distributor, polycarbonate

Dimensions mm			Number of fibres	Model No. DK	Page
Width	Height	Depth			
180	254	90	1 – 24	**7451.000**	727

Wall-mounted enclosure, based on Rittal EL, 3-part, pre-configured, depth 573

Dimensions mm			U	Model No. DK		Page
Width	Height	Depth		With glazed door	With slotted metal door[1]	
600	478	572.5	9	**7709.735**	**7709.835**	728
600	746	572.5	15	**7715.735**	**7715.835**	728
600	1012	572.5	21	**7721.735**	**7721.835**	728

[1] Extended delivery times.
Additional features of the pre-configured wall-mounted enclosure:
Earth rail with star earthing, one outlet filter on both the left and right, 4 wall mounting brackets.

Approvals (for glazed doors only)
● UL
● C-UL

Wall-mounted enclosure, based on Rittal EL, 3-part, with punched rails, depth 473

Dimensions mm			U	Model No. DK	Page
Width	Height	Depth			
600	345	472.5	6	**7706.135**	729
600	478	472.5	9	**7709.135**	729
600	612	472.5	12	**7712.135**	729
600	746	472.5	15	**7715.135**	729
600	878	472.5	18	**7718.135**	729
600	1012	472.5	21	**7721.135**	729

Approvals:
● UL
● C-UL
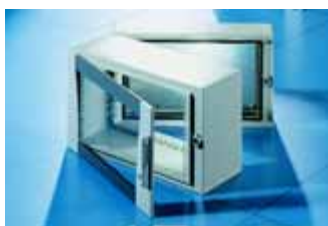
5.2 Networking

Wall-mounted enclosure, based on Rittal EL, 3-part, with mounting plate, depth 373 and 473

Dimensions mm		U	Model No. DK	Page	Model No. DK	Page
Width	Height		Depth 373 mm		Depth 473 mm	
600	212	3	**2243.605**	730	**2253.605**	731
600	345	6	**2246.605**	730	**2256.605**	731
600	478	9	**2249.605**	730	**2259.605**	731
600	612	12	**2252.605**	730	**2262.605**	731
600	746	15	**2255.605**	730	**2265.605**	731
600	878	18	**2258.605**	730	**2268.605**	731
600	1012	21	**2261.605**	730	**2271.605**	731

Approvals:
- UL
- C-UL

Wall-mounted enclosure, based on Rittal EL, 2-part, depth 369

Dimensions mm			U	Model No. EL	Page
Width	Height	Depth			
600	380	369	6	**1919.500**	732
600	600	369	11	**1920.500**	732
600	760	369	14	**1926.500**	732

Approvals:
- TÜV
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping
- VDE

5.3 Server racks

Based on Rittal TS 8, pre-configured

Dimensions mm			U	Model No. DK		Page
Width	Height	Depth		RAL 7035	RAL 9005	
600	1200	900	24	**7831.431**	**7831.432**	737
600	1200	1000	24	**7831.433**	**7831.434**	737
600	2000	900	42	**7831.436**	**7831.437**	737
600	2000	1000	42	**7831.438**	**7831.439**	737
600	2200	900	47	**7831.440**	**7831.441**	737
600	2200	1000	47	**7831.442**	**7831.443**	737
800	2000	1000	42	**7831.446**	**–**	737

Based on Rittal TS 8, pre-configured, multi-door

Dimensions mm			U	SU	Number of front and rear doors	Model No. DK		Page
Width	Height	Depth				RAL 7035	RAL 9005	
600	2200	900	2 x 21	2 x 37	2	**7831.450**	**7831.451**	737
600	2200	900	2 x 21	2 x 37	2 (vertically divided)	**7831.457**	**7831.458**	737
600	2200	900	4 x 10	4 x 17	4	**7831.460**	**7831.461**	737

IT Solutions

A

5.

5.3 Server racks
Based on Rittal flexRack(i), pre-configured

Dimensions mm			U	Model No. FR(i)	Page
Width	Height	Depth[1]			
600	1200	1000	24	**7855.310**	738
600	2000	1000	42	**7855.330**	738
600	1200	1200	24	**7855.312**	738
600	2000	1200	42	**7855.332**	738

[1] **Nominal size** excluding lock systems.

5.3 Server racks
Based on Rittal TE 7000

Dimensions mm			U	Model No. TE		Page
Width	Height	Depth		RAL 7035	RAL 9005	
600	2000	1000	42	**7000.882**	–	736
600	2000	1000	42	–	**7000.885**	736
800	2000	1000	42	**7000.892**	–	736
800	2000	1000	42	–	**7000.895**	736

Monitor/keyboard unit, 1 U

		15″		17″		Page
		RAL 7035/ RAL 9006	RAL 9005/ RAL 9006	RAL 7035/ RAL 9006	RAL 9005/ RAL 9006	
Touchpad	German	**9050.100**	**9050.200**	**9050.300**	**9050.400[1]**	739
	English	**9050.102**	**9050.202**	**9050.302[1]**	**9050.402[1]**	739
	French	**9050.103[1]**	**9050.203[1]**	**9050.303[1]**	**9050.403[1]**	739
Trackball	German	**9050.150**	**9050.250**	**9050.350**	**9050.450**	739
	International	**9050.151[2]**	**9050.251[2]**	**9050.351[2]**	**9050.451[2]**	739

[1] Extended delivery times.
[2] International version only available with trackball, without number pad.

Rittal SSC view 8/SSC view 32 Cat
for monitor/keyboard unit, 1 U

Dimensions			No. of channels	Connections Video	Video resolution, maximum (depending on distance)	Bandwidth	Model No. DK	Page
Width	Height	Depth						
482.5 mm (19″)	1 U	140 mm	8	VGA/HD15	1280 x 1024 @ 85 Hz	200 MHz	**7552.000**	740
482.5 mm (19″)	1 U	140 mm	32	Cat 5	1920 x 1044 @ 75 Hz	250 MHz	**7552.100**	740
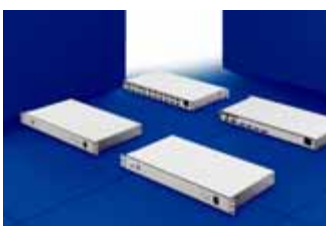
Rittal SSCmini/SSCmulti

Rittal Server Switch Control SSC	No. of computers in stand-alone mode	Number of local operator consoles	Video resolution, maximum (depending on distance) at 85 Hz	Bandwidth	Model No. DK	Page
SSCmini 4	4	1	1600 x 1200	250 MHz	**7551.000**	741
SSCmulti 4	4	1	1600 x 1200	250 MHz	**7551.010**	741
SSCmulti 8	8	1	1600 x 1200	250 MHz	**7551.020**	741
SSCmuti 16	16	1	1600 x 1200	250 MHz	**7551.030**	741

5.4 Power

	Page
Power Distribution Rack PDR	743
Power Distribution Module PDM	743
Power System Module PSM	744
Connection cable	745
Voltage supply	746

5.4 UPS systems

UPS, single-phase	U	Power kVA	Model No. DK	Page
UPS for 482.6 mm (19″) racks with integral battery	2	1	**7857.401**	753
UPS for 482.6 mm (19″) racks with integral battery	2	1.5	**7857.402**	753
UPS control unit for 482.6 mm (19″) racks (matching battery pack 2/3 kVA is always needed)	2 2	2	**7857.403 7857.408**	753
UPS control unit for 482.6 mm (19″) racks (matching battery pack 2/3 kVA is always needed)	2 2	3	**7857.404 7857.408**	753
UPS floor standing enclosure with integral battery	–	6	**7857.405**	753

5.6 Monitoring
Computer Multi Control Top Concept CMC-TC

CMC-TC main products	Packs of	Model No. DK	Page
CMC-TC monitoring system master	1	**7320.000**	769
CMC-TC monitoring system processing unit	1	**7320.100**	766
CMC-TC sensor unit I/O unit	1	**7320.210**	764
CMC-TC sensor unit access unit	1	**7320.220**	765
CMC-TC sensor unit climate unit	1	**7320.230**	765
CMC-TC display unit	1	**7320.490**	767
CMC-TC GSM unit	1	**7320.820**	767
CMC-TC ISDN unit	1	**7320.830**	768
CMC extension unit 3 x voltage 100 – 230 V AC	1	**7200.520**	776
Fan Control System FCS	1	**7320.810**	786
Fan Alarm System FAS	1	**7320.811**	787

Sensor unit	I/O unit	Access unit	Climate unit	Packs of	Model No. DK	Page
Sensors/actuators:						
Temperature sensor	■		■	1	**7320.500**	773
Smoke alarm	■		■	1	**7320.560**	773
Humidity sensor	■			1	**7320.510**	773
Airflow monitor	■		■	1	**7320.550**	774
Voltage monitor	■		■	1	**7320.600**	774
Voltage monitor with switch output	■			1	**7320.610**	774
Voltage monitor 48 V DC	■		■	1	**7320.620**	775
Vandalism sensor	■			1	**7320.540**	777
Access sensor (max. 5 sensors in series supported)	■	■	■	2	**7320.530**	777
CMC-TC motion detector	■		■	1	**7320.570**	778
Leakage sensor	■			1	**7320.630**	778
Analog sensor input module "4 – 20 mA"	■			1	**7320.520**	779
Digital sensor input module	■	■	■	1	**7320.580**	779
Digital relay output module	■			1	**7320.590**	779
Lock/reader:						
Electro-magnetic TS 8 handle with master key function		■		1	**7320.721**	781
Electro-magnetic Ergoform-S FR/PS/TC and TE		■		1	**7320.700**	781
Electro-magnetic Ergoform-S QR		■		1	**7320.710**	781
Smart card reader		■		1	**7320.750**	782
Magnetic card reader		■		1	**7320.760**	782
Coded lock		■		1	**7320.770**	782
Universal lock		■		1	**7320.730**	783
Relay output module for room door		■		1	**7320.740**	780
Lock FR(i)		■		1	**7320.900/.910/ .920/.930**	783

5.7 Kiosks

ITS Arc-Line II

TFT display, 17″		Dimensions of kiosk enclosures approx. mm			Contact sensor (touchscreen) including controller	Keyboard recess for use of ITS keyboards	Model No. ITS	Page
		Width	Height	Depth				
Basic (sheet steel)	Rear door	550	1180	700	■	–	**9012.100**	792
		550	1180	700	–	■	**9012.110**	792
	Front door	550	1180	700	■	–	**9012.200**	792
		550	1180	700	–	■	**9012.210**	792
Classic (stainless steel)	Rear door	550	1180	700	■	–	**9012.300**	792
		550	1180	700	–	■	**9012.310**	792
	Front door	550	1180	700	■	–	**9012.400**	792
		550	1180	700	–	■	**9012.410**	792

Accessories see page 800.

ITS Opti-Line II

TFT display	Dimensions of kiosk enclosures approx. mm			Contact sensor (touchscreen) including controller	Keyboard support for use of ITS keyboards	Model No. ITS	Page
	Width	Height	Depth				
15″	560	1500	510	■	–	**9006.505**	793
15″	560	1500	580	–	■	**9006.605**	793
17″	560	1500	510	■	–	**9006.705**	793
17″	560	1500	580	–	■	**9006.805**	793

Accessories see page 800.

ITS Opti-Desk

TFT display	Dimensions approx. mm						Model No. ITS		Page
	With worktop			Base enclosure only with front door			Door and worktop curved inwards	Door and worktop curved outwards	
	Width	Height	Depth	Width	Height	Depth			
15″	1000	1500	800	435	1000	530	**9021.250**	**9021.255**	794
17″	1000	1500	800	435	1000	530	**9021.270**	**9021.275**	794

Accessories see page 800.

ITS Opti-Wall

TFT display	Enclosure dimensions approx. mm			Contact sensor (touchscreen) including controller	Keyboard support for use of ITS keyboards	Model No. ITS	Page
	Width	Height	Depth				
15″	560	1000	200	■	–	**9020.150**	795
15″	560	1000	400	–	■	**9020.250**	795
17″	560	1000	200	■	–	**9020.170**	795
17″	560	1000	400	–	■	**9020.270**	795

Accessories see page 800.

5.7 Kiosks
ITS Alpha-Line

	Dimensions including base plate and viewing guard approx. mm			TFT display 15″	Model No. ITS	Page
	Width	Height	Depth			
Touchscreen	580	1300	540	■	**9007.105**	796
Prepared for keyboard	580	1300	640	■	**9007.205**	796

Accessories see page 800.

ITS Out-Line Wall

	Enclosure dimensions approx. mm						TFT display (high brightness for outdoor applications)	Model No. ITS[1]	Page
	Body			Including all projecting parts					
	Width	Height	Depth	Width	Height 2	Depth			
Touchscreen	480	1100	305	600	1360	305	15″	**9023.150**	797
	480	1100	305	600	1360	305	17″	**9023.170**	797
Prepared for keyboard	480	1100	365	600	1360	365	15″	**9023.250**	797
	480	1100	365	600	1360	365	17″	**9023.270**	797

Accessories see page 800.
[1] Climate control needed.

ITS Out-Line Pro

TFT display (suitable for outdoor use with increased luminosity)	Dimensions approx. mm						Contact sensor (touchscreen) including controller	Keyboard support for use of ITS keyboards	Model No. ITS[1]	Page
	Kiosk enclosures			Kiosk including roof						
	Width	Height	Depth	Width	Height	Depth				
15″	650	2000	400	1000	2400	1000	■	–	**9022.150**	798
15″	650	2000	400	1000	2400	1000	–	■	**9022.250**	798
17″	650	2000	400	1000	2400	1000	■	–	**9022.170**	798
17″	650	2000	400	1000	2400	1000	–	■	**9022.270**	798

Accessories see page 800.
[1] Climate control needed.

ITS PC systems,
see page 799.

Keyboards,
see page 800/801.

IT Solutions

A

5.

IT Solutions

5.8 Telecom
Rack system, based on Rittal TC-Rack

Dimensions mm			U	SU	Model No. DK	Page
Width	Height	Depth				
600	2200	300	46	82	**7723.035**	803
600	2200	600	46	82	**7726.035**	803

Small FM distributors

Dimensions mm			FM systems	Paired wires	Model No. DK	Page
Width	Height	Depth				
300	500	120	–	100	**7052.035**	806
500	500	120	–	200	**7053.035**	806
500	700	120	–	400	**7054.035**	806
900	700	120	–	800	**7055.035**	806

Modular FM wall-mounted distributor

Dimensions mm			FM systems	Paired wires	Model No. DK	Page
Width	Height	Depth				
600	600	350	2 sets	max. 340	**7011.535**	807
760	760	300	2 sets	max. 500	**7012.535**	807
800	1000	300	3 sets	max. 990	**7013.535**	807
800	1200	300	3 sets	max. 1170	**7014.535**	807

Approvals:
- UL
- CSA
- TÜV
- Lloyds Register of Shipping
- VDE

Modular FM distributor racks

Dimensions mm			FM systems	Paired wires	Model No. DK	Page
Width	Height	Depth				
600	2000	400	2	max. 1300	**7834.060**	808
800	2000	400	3	max. 1950	**7834.080**	808
1200	2000	400	5	max. 3250	**7834.120**	808

Approvals:
- UL
- CSA
- TÜV
- Lloyds Register of Shipping
- VDE

Communication Systems – Perfect protection for all weathers

Rittal's expertise in the fields of enclosure technology, climate control, security management and system integration is combined in standard solutions and customised outdoor systems. The specific requirements of mobile communications, IT technology, environmental technology and power distribution are accommodated on a project-specific basis.

High-quality materials such as aluminium and zinc-plated sheet steel combine corrosion resistance and protection from vandalism with UV stability and a high level of RF attenuation.

Individual complete solutions using mass-produced modules:
- CS Toptec (twin-walled)
- CS wall-mounted enclosure (enclosure within an enclosure)
- CS compact enclosure (single-walled)
- CS basic enclosure (single-walled)
- CS modular enclosure (twin-walled)
- CS Indoor Racks
- CS Outdoor climate control

Detailed information may be found on catalogue pages 812 – 831 or refer to our website: www.rittal.com

6.1 CS Toptec

Dimensions mm			Model No. CS		Page
Width	Height	Depth			
Without climate control module					
650	1200	650	**9774.100**		817
800	1200	650	**9774.200**		817
650	1600	650	**9774.300**		817
800	1600	650	**9774.400**		817
With heat exchanger			85 W/K	135 W/K	
800	1200	650	**9774.210**	**9774.230[1]**	817
800	1600	650	**9774.410**	**9774.430[1]**	817
With cooling unit			1000 W	1500 W	
800	1200	650	**9774.250**	**9774.270[1]**	817
800	1600	650	**9774.450**	**9774.470[1]**	817

[1] Delivery times available on request.

6.1 CS wall-mounted enclosures

Dimensions external/internal mm			Model No. CS	Page
Width	Height	Depth		
370/300	522.5/400	210/170	**9791.015**	818
420/350	560.5/440	210/170	**9791.025**	818
530/460	700/565	265/220	**9791.035**	818
630/580	780/580	380/333	**9791.045**	818
with rotating frame, 5 U, instead of mounting plate				
630/580	780/580	380/333	**9791.145**	818

6.1 CS compact enclosures

Dimensions mm			Enclosure	Model No. CS	Page
Width	Height	Depth			
Aluminium AlMg3					
800	1100	320	single-door	**9771.115**	819
1100	1100	320	double-door	**9772.115**	819
Sheet steel, zinc-plated, passivated					
800	1100	320	single-door	**9771.111**	819
1100	1100	320	double-door	**9772.111**	819

Communication Systems

A

6.

Communication Systems

6.1 Compact enclosures, Outdoor

Dimensions mm			Model No.		Page
Width	Height	Depth	Sheet steel	Stainless steel	
800	1200	350	**1620.000**	**1620.100**	820
1200	800	350	**1621.000**	**1621.100**	820
1200	1200	350	**1622.000**	**1622.100**	820

6.1 CS basic enclosures

Dimensions mm			Model No. CS		Page
Width	Height	Depth	without centre bar	with centre bar	
single-door					
600	800	400	**9783.040**	–	821
600	1200	400	**9783.050**	–	821
600	1400	400	**9783.060**	–	821
600	1200	500	**9783.030**	–	821
800	800	400	**9783.010**	–	821
800	1200	400	**9783.020**	–	821
800	1400	400	**9783.120**	–	821
800	1200	500	**9783.110**	–	821
double-door					
1200	800	400	**9784.110**	**9784.010**	822
1200	1200	400	**9784.120**	**9784.020**	822
1200	1200	500	**9784.140**	**9784.040**	822
1200	1400	400	**9784.130**	**9784.030**	822

6.1 CS modular enclosures

Dimensions mm			Model No. CS	Page
Width	Height	Depth		
600	1200	600	**9751.125**	823
800	1200	500	**9751.145**	823
800	1600	600	**9751.165**	823
1200	1200	600	**9752.125**	823

Other modules and size variants may be found on page 824.

6.1 CS Indoor Racks

Dimensions mm			Mounting angles	Model No. CS	Page
Width	Height	Depth			
600	2200	300	19″	**9790.042**	825
600	2200	300	Metric	**9790.043**	825

6.2 Heat exchanger for CS modular enclosures/ compact enclosures

Dimensions mm			Mounting situation	Specific thermal output	Heater[2]	Rated operating voltage	Model No. CS	Page
Width	Height	Depth						
470	158	380	Roof mounting	30 W/K	without	48 V DC	9764.040	827
535	390	400	Roof mounting	60 W/K	400 W	48 V DC	9764.012	827
515	1170	151.5	Wall mounting	60 W/K	400 W	48 V DC	9763.012	827
480	1005	110	Door mounting	40 W/K	400 W	48 V DC	9768.032	828
510	1005	150	Door mounting	60 W/K	400 W	48 V DC	9768.012	828
445	1050	150	Door mounting	85 W/K	without	48 V DC	9768.042	828
575	1050	195	Door mounting	120 W/K	without	48 V DC	9768.062	828
855	95	240	Roof mounting[1]	15 W/K	without	48 V DC	9767.012	828

[1] For compact enclosures
[2] Rated operating voltage 230 V AC, 50/60 Hz

Note:
Enclosure heaters for CS outdoor enclosures,
see page 80, 656.

6.2 Cooling units for CS modular enclosures

Dimensions mm			Mounting situation	Useful cooling output EN 814		Rated operating voltage	Model No. CS	Page
Width	Height	Depth		L35 L35	L35 L50			
535	390	400	Roof mounting	900 W	750 W	230 V AC, 50/60 Hz	9762.012	829
430	1170	210	Door mounting	900 W	650 W	230 V AC, 50/60 Hz	9768.100	829
515	1070	151.5	Wall mounting	900 W	750 W	230 V AC, 50/60 Hz	9761.012	829
695	1132	151.5	Wall mounting	1400 W	1050 W	230 V AC, 50/60 Hz	9761.032	829
776	1100	250	Wall mounting	2500 W	2000 W	230 V AC, 50/60 Hz	9761.042	829
400	1050	310	Universal built-in	1500 W	1250 W	230 V AC, 50/60 Hz	9768.150	829

Approvals CS 9761.032:
● UL
● C-UL

6.2 Climate control units for CS Toptec

Dimensions mm			Mounting situation	Useful cooling output EN 814		Specific thermal output	Rated operating voltage	Model No. CS	Page
Width	Height	Depth		L35 L35	L35 L50				
Heat exchanger									
500	1000	150	Universal built-in	–	–	85 W/K	48 V DC	9776.100	830
500	1000	260	Universal built-in	–	–	135 W/K	48 V DC	9776.150	830
Cooling unit									
500	1000	150	Universal built-in	1000 W	680 W	–	230 V AC, 50/60 Hz	9776.500	830
500	1000	260	Universal built-in	1500 W	1150 W	–	230 V AC, 50/60 Hz	9776.550	830

Communication Systems

A

6.

Rittal has all the elements of **packaging technology for the factory of the future,** even in the toughest ambient conditions. Current examples include:

Compact, secure technologies for **Industrial Ethernet,** enabling simple modifications to production procedures.

Modular enclosure technology is advantageous in terms of the rapid assembly and adaptation of controllers.

At the human/machine interface, your ergonomic requirements are precisely realised with the **Command Panel and Industrial Workstations**.

High-quality products + matching accessories + modular assembly

= perfect solutions at an inexpensive price.

RITTAL

Industrial Enclosures

B

1.

Industrial enclosures

Small enclosures

Features

This is application-oriented diversity:

6 enclosure types in 4 materials and more than 100 sizes.

With

● Fibreglass-reinforced polycarbonate

● Cast aluminium

● Sheet steel with high-quality coating

● Stainless steel

every aspect of your requirements is met.

It goes without saying that all this is achieved in Rittal's

familiar high quality, and to suit every security requirement.

And for special requirements:

Stainless steel enclosures, see page 268 – 272.

Ex enclosures, see page 286 – 288.

EMC enclosures, see page 289 – 290.

Polycarbonate enclosures

Hinges available as accesso-
ries. Cover screw prepared for a
lead seal.

3 attachment options:
1 Wall mounting brackets
2 Below the cover screws
3 Knockouts in the enclosure

Enclosures with knockouts for
metric screw fastening and
assembly are available on
request.

Cast aluminium enclosures

Some holes tapped for the
attachment of support rails,
mounting plates or earthing
systems.

Cover with captive screws.
Wall mounting optionally
● below the cover
● via wall mounting bracket
(available as an accessory).

Hole drilling and assembly of the
cable glands (see page 972)
available on request.

Terminal boxes KL with and without gland plate

NEW: Cover may be opened and securely locked in a flash, with the new quick-action screw. $^1/_4$ turn instead of thread ensures correct contact pressure of the seal.

Support rail TS 35/7.5 for better use of the depth, optionally attached at the bottom or via the profile strips on both sides with self-tapping screws.

Electrophoretic dipcoat priming and powder coating – reliable surface protection thanks to even coating in all the corners and edges.

E-Box

The "E-Box" supplied as standard with mounting plate, 180° hinge and double-bit lock system.

Lock insert exchangeable or prepared for a lead seal with lock cover as an accessory – see page 890.

The highly elastic foamed-in PU seal guarantees perfect sealing. High protection category IP 66 to EN 60 529/10.91.

Bus enclosure

Door hinged at the bottom or side. Hinges with 180° opening angle, may be unscrewed from the inside.

Viewing window made from Macrolon with recess set flush into the metal.

Bus modules of virtually all makes may be attached via the built-in support rails. Upon request also with fitted cable glands, see page 972.
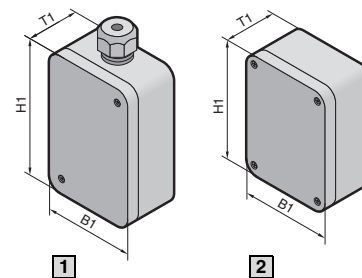
B

1.₁

Small enclosures

Polycarbonate enclosures PK

Material:
Grey enclosure and cover (version .000) from fibreglass-reinforced polycarbonate, transparent cover (version .100) from polycarbonate, cover screws from polyamide, insulating bungs from polyethylene.

Colour:
RAL 7035

Protection category:
IP 66 to EN 60 529/10.91

Supply includes:
Enclosure and cover, cover screws, insulating bung for wall mounting screws (not with 9530.000 and 9531.000), all-round foamed-in PU seal.

Approvals,
see page 22.

Detailed drawing,
see page 1079.

									Page
Width (B1) in mm	50	50	65	65	94	94	94	94	
Height (H1) in mm	52	65	65	65	65	65	94	94	
Depth (T1) in mm	35	35	57	81	57	81	57	81	
① **Model No. PK with cable gland**	**9530.000**	**9531.000**	–	–	–	–	–	–	
② **Model No. PK with grey cover**	–	–	**9500.000**	**9501.000**	**9502.000**	**9503.000**	**9504.000**	**9505.000**	
Model No. PK with transparent cover	–	–	–	–	–	–	**9504.100**	–	
Packs of	10	10	12	12	8	8	6	6	
Accessories									
Mounting plate	9551.000	9552.000	9540.000		9541.000		9542.000		102
Packs of	10	10	12		12		12		
Support rail (Packs of 12)									
TS 15/5.5 — Installation in the width	–	–	9560.000		9561.000		9561.000		103
TS 15/5.5 — Installation in the height	–	–	–		9560.000		9561.000		103
TS 35/7.5 — Installation in the width	–	–	–		–		9564.000		103
TS 35/7.5 — Installation in the height	–	–	–		–		9564.000		103

									Page
Width (B1) in mm	110	110	130	130	130	130	180	180	
Height (H1) in mm	110	110	94	94	130	130	94	94	
Depth (T1) in mm	66	90	57	81	75	99	57	81	
② **Model No. PK with grey cover**	**9506.000**	**9507.000**	**9508.000**	**9509.000**	**9510.000**	**9511.000**	**9512.000**	**9513.000**	
Model No. PK with transparent lid	**9506.100**	**9507.100**	**9508.100**	**9509.100**	**9510.100**	**9511.100**	**9512.100**	**9513.100**	
Packs of	6	6	4	4	4	4	2	2	
Accessories									
Mounting plate	9543.000		9544.000		9545.000		9546.000		102
Packs of	12		12		10		10		
Support rail (Packs of 12)									
TS 15/5.5 — Installation in the width	9562.000		9563.000		9563.000		–		103
TS 15/5.5 — Installation in the height	9562.000		9561.000		9563.000		9561.000		103
TS 35/7.5 — Installation in the width	9564.000		9565.000		9565.000		9566.000		103
TS 35/7.5 — Installation in the height	9564.000		9564.000		9565.000		9564.000		103

Cable gland, polyamide,
Model No. see page 972.

Wall mounting bracket,
Model No. see page 103.

External mounting bracket,
Model No. see page 102.
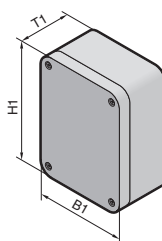
Accessories Page 832

Material:
Grey enclosure and cover (version .000) from fibreglass-reinforced polycarbonate, transparent cover (version .100) from polycarbonate, cover screws from polyamide, insulating bungs from polyethylene.

Colour:
RAL 7035

Protection category:
IP 66 to EN 60 529/10.91

Supply includes:
Enclosure and cover, cover screws, insulating bungs for wall mounting screws, all-round foamed-in PU seal.

Approvals,
see page 22.

Detailed drawing,
see page 1079.

Width (B1) in mm	180	180	180	182	182	182	Page
Height (H1) in mm	110	110	110	180	180	180	
Depth (T1) in mm	90	111	165	90	111	165	
Model No. PK with grey cover	**9514.000**	**9515.000**	**9516.000**	**9517.000**	**9518.000**	**9519.000**	
Model No. PK with transparent cover	**9514.100**	**9515.100**	**9516.100**	**9517.100**	**9518.100**	**9519.100**	
Packs of	2	2	2	1	1	1	
Accessories							
Mounting plate		9547.000			9548.000		102
Packs of		10			10		
Support rail TS 35/7.5 (Packs of 12)							
Installation in the width		9566.000			9566.000		103
Installation in the height		9564.000			9566.000		103

Width (B1) in mm	254	254	254	360	360	Page
Height (H1) in mm	180	180	180	254	254	
Depth (T1) in mm	90	111	165	111	165	
Model No. PK with grey cover	**9520.000**	**9521.000**	**9522.000**	**9523.000**	**9524.000**	
Model No. PK with transparent cover	**9520.100**	**9521.100**	**9522.100**	**9523.100**	**9524.100**	
Packs of	1	1	1	1	1	
Accessories						
Mounting plate		9549.000			9550.000	102
Packs of		8			4	
Support rail TS 35/7.5 (Packs of 12)						
Installation in the width		9567.000			9568.000	103
Installation in the height		9566.000			9567.000	103

Hinges,
Model No. see page 102.

Turn-lock fastener,
Model No. see page 102.

Accessories Page 832

B

1.1

Polycarbonate enclosures PK

Polycarbonate enclosures PK

Accessories

Mounting plate

For individual configuration of the enclosure interior, the mounting plate offers a stable, secure and flexible design option.

Design:
Melamine phenol-coated laminated paper, 2.5 mm thick.

Colour:
RAL 7035

Supply includes:
Self-tapping assembly screws.

To fit	Width mm	Height mm	Packs of	Model No. PK
PK 9500.000/PK 9501.000	45	45	12	**9540.000[1)]**
PK 9502.000/PK 9503.000	74	45	12	**9541.000[1)]**
PK 9504.000/PK 9505.000	74	74	12	**9542.000[1)]**
PK 9506.000/PK 9507.000	90	90	12	**9543.000[1)]**
PK 9508.000/PK 9509.000	110	74	12	**9544.000[1)]**
PK 9510.000/PK 9511.000	110	110	10	**9545.000**
PK 9512.000/PK 9513.000	160	74	10	**9546.000**
PK 9514.000/PK 9515.000/PK 9516.000	150	90	10	**9547.000**
PK 9517.000/PK 9518.000/PK 9519.000	150	150	10	**9548.000**
PK 9520.000/PK 9521.000/PK 9522.000	220	150	8	**9549.000**
PK 9523.000/PK 9524.000	331	220	4	**9550.000**

[1)] with spacers

Mounting plate

for polycarbonate enclosures
- PK 9530.000
- PK 9531.000

Via a 3-way depth-adjustable assembly component, the mounting plate may also be used as an inner cover for installed equipment.

Material:
Polycarbonate

For enclosure	Packs of	Model No. PK
9530.000	10	**9551.000**
9531.000	10	**9552.000**

Supply includes:
Assembly parts.

Turn-lock fastener

A quick, convenient screw fastening aid is obtained by clipping into the head of the lid screw.

Material:
Polyamide

Supply includes:
1 pack

	Packs of	Model No. PK
For all enclosures	100	**9582.000**

Hinges

For hinged attachment of lids.
The supplied drilling template ensures problem-free assembly.

Supply includes:
1 set =
2 hinges,
4 assembly screws,
3 polyethylene sealing bungs,
1 drilling template.

For enclosure	Material	Packs of	Model No. PK
PK 9500.000 – PK 9513.000	Polycarbonate	10 sets	**9580.000**
PK 9514.000 – PK 9524.000	Polystyrene	10 sets	**9581.000**

External mounting bracket

To fit enclosure
- PK 9530.000
- PK 9531.000

With moulded lug for cable tie.

Material:
Polyamide

Supply includes:
Assembly parts.

Packs of	Model No. PK
10	**9553.000**

Wall mounting brackets

The enclosure can be screwed to the wall using four wall mounting brackets. The bracket is securely attached to the enclosure by means of pins.

Material:
Polyamide, grey

Supply includes:
1 pack

	Packs of	Model No. PK
For all enclosures	40	9583.000

The assembly screw is located in the wall mounting bracket, making it accessible at all times.

The wall mounting bracket may be fitted to the side or top.

90°

A

12.5

A
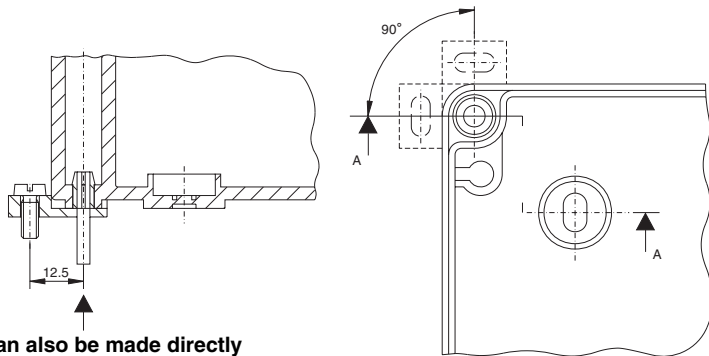
Wall attachment can also be made directly without the bracket:

Variant 1
Wall attachment in the cover screw channel is a simple, secure means of attachment.
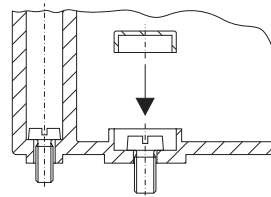
Variant 2
By knocking out the hole in the enclosure base, mounting in the enclosure interior is also possible.
The screws must be concealed using the sealing bungs supplied with the enclosure. The spacing between the attachment holes is marked on the rear panel of the enclosure.
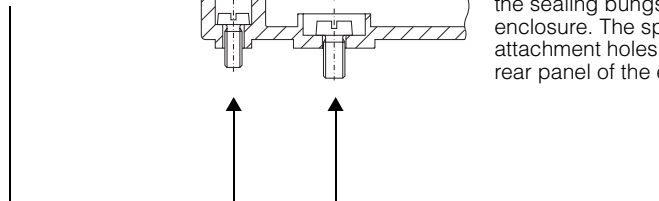
Support rail

The two support rail sections provide good flexibility for accommodating terminal blocks and installed components.

Design:
The support rails are designed in accordance with EN 50 045 (TS 15/5.5) or EN 50 022 (TS 35/7.5); the surface finish is zinc-plated.

Supply includes:
Two self-tapping assembly screws.

Rail	Maximum number of terminals with the following terminal sizes			Bar length mm	Packs of	Model No. PK
	2.5 mm²	4 mm²	10 mm²			
TS 15/5.5	5	5	4	49.5	12	9560.000
	11	11	8	80	12	9561.000
	14	14	10	92	12	9562.000
	18	18	13	111	12	9563.000
TS 35/7.5	12	9	5	81	12	9564.000
	17	13	8	106	12	9565.000
	24	20	11	144	12	9566.000
	38	32	19	216	12	9567.000
	61	50	30	336	12	9568.000

Calculation of the maximum number of terminals is based on two end holders and a cover.

Cast aluminium enclosures GA
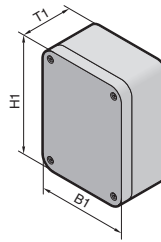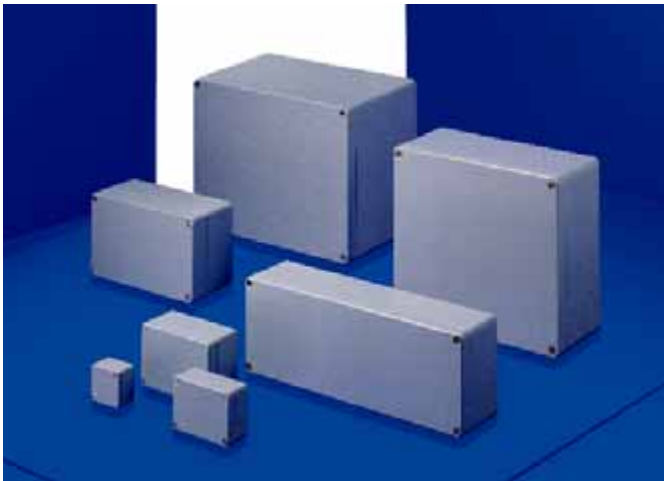
Material:
Enclosure and lid made from cast aluminium, lid with neo-prene cord seal.

Surface finish:
Smooth spray finish similar to RAL 7001

Protection category:
IP 67 to EN 60 529/10.91, complies with NEMA 4.

Supply includes:
2 or 4 cover screws, captive mounted
2 or 4 screws for the attachment of support rails, mounting plates etc.
1 screw for connection of the PE conductor.

Rittal service:

Individual standard solutions for enclosures and covers
● Hole drilling
● Thread tapping
● Milling
● Screen printing
● Engraving
● Choice of RAL colours
 and other surface finishes
 available on request.

Detailed drawing,
see page 1080.

Width (B1) in mm	50	58	98	150	75	125	175	250	122	Page
Height (H1) in mm	45	64	64	64	80	80	80	80	120	
Depth (T1) in mm	30	36	36	36	57	57	57	57	80	
Model No. GA	**9100.210**	**9101.210**	**9102.210**	**9103.210**	**9104.210**	**9105.210**	**9106.210**	**9107.210**	**9108.210**	
Packs of	6	5	3	2	1	1	1	1	1	
Accessories										
Mounting plate	–	–	–	–	–	9105.700	9106.700	9107.700	9108.700	105
Packs of	–	–	–	–	–	10	10	5	2	
Support rail[1] TS 15/5.5 (Packs of 10)	–	–	–	–	–	9105.150	9106.150	9107.150	–	105
TS 35/7.5 (Packs of 5)	–	–	–	–	–	–	–	–	9108.350	105
Wall mounting brackets (Packs of 2)	–	–	–	–	–	–	–	–	9121.122	106
Exterior hinge (Packs of 2)	–	–	–	–	–	9123.100	9123.100	9123.100	9123.000	106

Width (B1) in mm	220	360	160	260	360	200	280	330	330	Page
Height (H1) in mm	120	122	160	160	160	230	230	230	230	
Depth (T1) in mm	90	80	90	90	90	110	110	110	180	
Model No. GA	**9110.210**	**9111.210**	**9112.210**	**9113.210**	**9114.210**	**9116.210**	**9117.210**	**9118.210**	**9119.210**	
Packs of	1	1	1	1	1	1	1	1	1	
Accessories										
Mounting plate	9110.700	9111.700	9112.700	9113.700	9114.700	9116.700	9117.700	9118.700	9119.700	105
Packs of	2	2	2	2	1	1	1	1	1	
Support rail[1] TS 35/7.5 (Packs of 5)	9110.350	9111.350	9112.350	9113.350	9111.350	9116.350	9117.350	9118.350	9118.350	105
Wall mounting brackets (Packs of 2)	9121.122	9121.122	9121.160	9121.160	9121.160	9121.230	9121.230	9121.230	9121.230	106
Exterior hinge (Packs of 2)	9123.000	9123.000	9123.000	9123.000	9123.000	9123.000	9123.000	9123.000	9123.000	106

[1] Installation in the width

Cable gland, brass,
Model No. see page 972.

Cover screws prepared for a lead seal,
Model No. see page 106.

Accessories Page 832
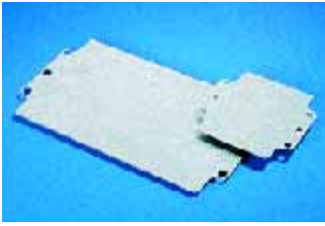
Mounting plate

for universal interior installation.

Material:
Sheet steel, zinc-plated, passivated, with attachment holes.

Exterior dimensions (mm)		For enclosure	Packs of	Model No. GA
Width	Height			
114	69	GA 9105.210	10	**9105.700**
164	69	GA 9106.210	10	**9106.700**
239	69	GA 9107.210	5	**9107.700**
109	107	GA 9108.210	2	**9108.700**
207	107	GA 9110.210	2	**9110.700**
347	107	GA 9111.210	2	**9111.700**
144	142	GA 9112.210	2	**9112.700**
245	142	GA 9113.210	2	**9113.700**
346	142	GA 9114.210	1	**9114.700**
183	214	GA 9116.210	1	**9116.700**
264	214	GA 9117.210	1	**9117.700**
314	214	GA 9118.210/GA 9119.210	1	**9118.700**

Support rail

To accommodate terminal blocks or other installed equipment.

Material:
Sheet steel, zinc-plated, passivated, with attachment holes.

Rail	Maximum number of terminals with the following terminal sizes			Rail length available for population mm	For enclosure width mm	Packs of	Model No. GA
	2.5 mm²	4 mm²	10 mm²				
TS 15/5.5 to EN 50 045	15	15	12	95	125	10	**9105.150**
	27	22	19	145	175	10	**9106.150**
	42	35	29	220	250	10	**9107.150**
TS 35/7.5 to EN 50 022	12	12	9	80	122	5	**9108.350**
	18	18	14	115	160	5	**9112.350**
	25	25	18	155	200	5	**9116.350**
	29	29	21	180	220	5	**9110.350**
	34	34	26	215	260	5	**9113.350**
	37	37	28	230	280	5	**9117.350**
	46	46	35	290	330	5	**9118.350**
	51	51	39	320	360	5	**9111.350**
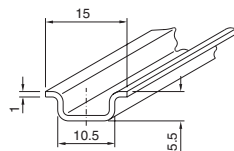
TS 15/5.5   TS 35/7.5
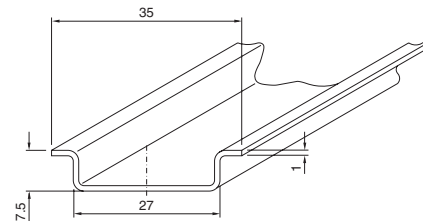
Cast aluminium enclosures GA

Accessories

Wall mounting bracket

For external mounting to surfaces – no need to dismantle the lid if pre-assembled.

Material:
Sheet steel, zinc-plated, passivated

For enclosure	Packs of	Model No. GA
GA 9108.210/ GA 9110.210/ GA 9111.210	2	**9121.122**
GA 9112.210/ GA 9113.210/ GA 9114.210	2	**9121.160**
GA 9116.210/ GA 9117.210/ GA 9118.210/ GA 9119.210	2	**9121.230**

Hinge, exterior

For fastening the lid to the enclosure base, complete with drilling template.

Material:
Die-cast aluminium

Colour:
RAL 7001

For enclosure	Packs of	Model No. GA
GA 9105.210/ GA 9106.210/ GA 9107.210	2 + 8 screws	**9123.100**
GA 9108.210/ GA 9110.210/ GA 9111.210/ GA 9112.210/ GA 9113.210/ GA 9114.210/ GA 9116.210/ GA 9117.210/ GA 9118.210/ GA 9119.210	2 + 8 screws	**9123.000**

Cover screws, prepared for lead seal

to protect against unauthorised opening. Two per cover are required.

Material:
Stainless steel

For enclosure	Packs of	Model No. GA
GA 9104.210/ GA 9105.210/ GA 9106.210/ GA 9107.210	6	**9122.424**

Material:
Enclosure: Sheet steel 1.25 mm
Cover: Sheet steel 1.25 mm

Surface finish:
Case and cover:
Dipcoat-primed,
powder-coated on the outside
in textured RAL 7035

Protection category:
IP 66 to EN 60 529/10.91,
Complies with NEMA 4.

Supply includes:
Enclosure, cover with all-round
foamed-in PU seal and cover
screws, including plastic
bushes.

Approvals,
see page 23.

Detailed drawing,
see page 1081.

Width (B1) in mm	Packs of	150	200	200	300	300	400	600	Page
Height (H1) in mm		150	150	200	150	200	200	200	
Depth (T1) in mm		80	80	80	80	80	80	80	
Model No. KL	1	**1514.510**	**1528.510**	**1516.510**	**1515.510**	**1517.510**	**1518.510**	**1519.510**	
Weight (kg)		1.4	1.6	1.9	2.1	2.6	3.2	4.6	
Accessories									
Mounting plate	1	1560.700	1575.700	1562.700	1561.700	1563.700	1564.700	1566.700	909
Support rail TS 35/7.5	10	2314.000	2315.000	2315.000	2316.000	2316.000	2317.000	–	927
Support rail TS 35/15	10	–	–	–	–	–	–	2319.000	927
Cover retainer	3 pairs	1591.000	1591.000	1591.000	1591.000	1591.000	1591.000	1591.000	–
Cover hinge	6	1592.000	1592.000	1592.000	1592.000	1592.000	1592.000	1592.000	894

**To order terminal boxes in textured RAL 7032 please add extension .210 to the Model No., and for primed terminal boxes use extension .310.
Delivery times available on request.**

**Double-membrane gland,
stepped collar** for cable entry,
Model No. see page 973.

Cover retainer
The cover retainer KL 1591.000
is easily fitted without drilling,
and allows the covers to be
opened upwards, even when the
terminal box below is bayed.

Accessories Page 832 **KL stainless steel** Page 270 **KL Premium Line stainless steel** Page 271 **KL EMC-shielded** Page 290 **KL Ex-proof** Page 287

Terminal boxes KL

without gland plate, depth: 120
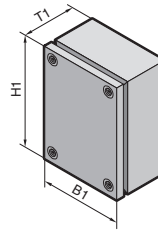
Material:
Enclosure: Sheet steel 1.25 mm;
1.38 mm for KL 1507.510 to
KL 1513.510
Cover: Sheet steel 1.25 mm

Surface finish:
Case and cover:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035

Protection category:
IP 66 to EN 60 529/10.91,
Complies with NEMA 4.

Supply includes:
Enclosure, cover with all-round
foamed-in PU seal and cover
screws, including plastic
bushes.

Approvals,
see page 23.

Detailed drawing,
see page 1081.

Width (B1) in mm	Packs of	150	200	200	300	300	300	400	400	400	400	Page
Height (H1) in mm		150	150	200	150	200	300	150	200	300	400	
Depth (T1) in mm		120	120	120	120	120	120	120	120	120	120	
Model No. KL	1	**1500.510**	**1529.510**	**1502.510**	**1501.510**	**1503.510**	**1507.510**	**1589.510**	**1504.510**	**1508.510**	**1511.510**	
Weight (kg)		1.6	1.8	2.3	2.6	3.0	4.0	3.2	3.6	4.8	6.2	
Accessories												
Mounting plate	1	1560.700	1575.700	1562.700	1561.700	1563.700	1567.700	1576.700	1564.700	1568.700	1571.700	909
Support rail TS 35/7.5	10	2314.000	2315.000	2315.000	2316.000	2316.000	2316.000	2317.000	2317.000	2317.000	2317.000	927

Width (B1) in mm	Packs of	500	500	600	600	600	800	800	Page
Height (H1) in mm		200	300	200	300	400	200	400	
Depth (T1) in mm		120	120	120	120	120	120	120	
Model No. KL	1	**1505.510**	**1509.510**	**1506.510**	**1510.510**	**1512.510**	**1527.510**	**1513.510**	
Weight (kg)		4.4	5.8	5.7	6.8	8.4	6.8	11.0	
Accessories									
Mounting plate	1	1565.700	1569.700	1566.700	1570.700	1572.700	1574.700	1573.700	909
Support rail TS 35/15	10	2318.000	2318.000	2319.000	2319.000	2319.000	–	–	927
Cover retainer	3 pairs	1591.000	1591.000	1591.000	1591.000	1591.000	1591.000	1591.000	107
Cover hinge	6	1592.000	1592.000	1592.000	1592.000	1592.000	1592.000	1592.000	894

**To order terminal boxes in textured RAL 7032 please add extension .210 to the Model No., and for primed terminal boxes use extension .310.
Delivery times available on request.**

**Cable gland and multi-seal
inserts,**
Model No. see page 972 – 973.

Accessories Page 832 **KL stainless steel** Page 270 **KL Premium Line stainless steel** Page 271 **KL EMC-shielded** Page 290 **KL Ex-proof** Page 287
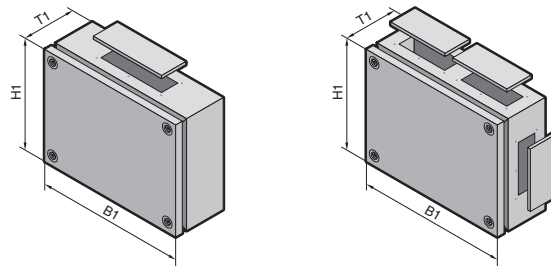
Material:
Enclosure: Sheet steel 1.38 mm;
1.25 mm for KL 1530.510 to
KL 1534.510 and KL 1542.510
Cover: Sheet steel 1.25 mm

Surface finish:
Case and cover:
Dipcoat-primed,
powder-coated on the outside in
in textured RAL 7035

Protection category:
IP 55 to EN 60 529/10.91,
Complies with NEMA 12.

Supply includes:
Enclosures with gland aper-
tures, cover with foamed-in
special seal and cover screws
including plastic bushes, sheet
steel gland plates with seals and
assembly parts.

Approvals,
see page 23.

Detailed drawing,
see page 1081.

Width (B1) in mm	Packs of	300	300	300	400	400	400	Page
Height (H1) in mm		150	200	300	200	300	400	
Depth (T1) in mm		120	120	120	120	120	120	
Model No. KL	1	**1530.510**	**1531.510**	**1535.510**	**1532.510**	**1536.510**	**1539.510**	
Weight (kg)		2.7	3.3	4.5	4.0	5.2	6.7	
Accessories								
Mounting plate	1	1561.700	1563.700	1567.700	1564.700	1568.700	1571.700	909
Gland plate (top + bottom)		1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	
Gland plate (left + right)		–	–	1 + 1	–	1 + 1	1 + 1	
Support rail TS 35/7.5	10	2316.000	2316.000	2316.000	2317.000	2317.000	2317.000	927

Width (B1) in mm	Packs of	500	500	600	600	600	800	800	Page
Height (H1) in mm		200	300	200	300	400	200	400	
Depth (T1) in mm		120	120	120	120	120	120	120	
Model No. KL	1	**1533.510**	**1537.510**	**1534.510**	**1538.510**	**1540.510**	**1542.510**	**1541.510**	
Weight (kg)		4.9	5.2	5.9	7.7	9.0	7.2	12.0	
Accessories									
Mounting plate	1	1565.700	1569.700	1566.700	1570.700	1572.700	1574.700	1573.700	909
Gland plate (top + bottom)		2 + 2	2 + 2	2 + 2	2 + 2	2 + 2	3 + 3	3 + 3	
Gland plate (left + right)		–	1 + 1	–	1 + 1	1 + 1	–	1 + 1	
Support rail TS 35/15	10	2318.000	2318.000	2319.000	2319.000	2319.000	–	–	927
Cover retainer	3 pairs	1591.000	1591.000	1591.000	1591.000	1591.000	1591.000	1591.000	107
Cover hinge	6	1592.000	1592.000	1592.000	1592.000	1592.000	1592.000	1592.000	894

To order terminal boxes in textured RAL 7032 please add extension .210 to the Model No., and for primed terminal boxes use extension .310.
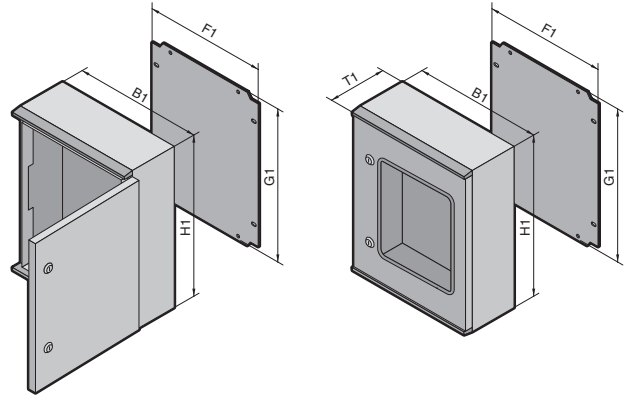**Delivery times available on request.**

Accessories Page 832   **KL stainless steel** Page 270   **KL Premium Line stainless steel** Page 271   **KL EMC-shielded** Page 290   **KL Ex-proof** Page 287

E-Box EB
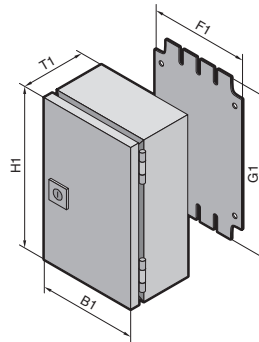
Material:
Sheet steel
Enclosure: 1.25 mm
1.38 mm for
EB 1555.500, EB 1556.500,
EB 1577.500 to EB 1579.500

Surface finish:
Enclosure and door:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Mounting plate: Zinc-plated

Protection category:
IP 66 to EN 60 529/10.91

Supply includes:
Enclosure with mounting plate,
door including 180° hinges and
cam lock with double-bit insert.

Approvals,
see page 23.

Detailed drawing,
see page 1082.

Depth 80 mm

Width (B1) in mm	Packs of	150	150	200	200	200
Height (H1) in mm		150	300	200	300	400
Depth (T1) in mm		80	80	80	80	80
Mounting plate width (F1) in mm		125	125	175	175	175
Mounting plate height (G1) in mm		135	285	185	285	385
Model No. EB	1	**1551.500**	**1545.500**	**1546.500**	**1552.500**	**1547.500**
Weight (kg)		1.7	2.6	2.4	3.2	4.4

Depth 120 mm

Width (B1) in mm	Packs of	150	150	200	200	200	300	300	200
Height (H1) in mm		150	300	200	300	400	300	400	500
Depth (T1) in mm		120	120	120	120	120	120	120	120
Mounting plate width (F1) in mm		125	125	175	175	175	275	275	175
Mounting plate height (G1) in mm		135	285	185	285	385	285	385	485
Model No. EB	1	**1553.500**	**1548.500**	**1549.500**	**1554.500**	**1550.500**	**1555.500**	**1556.500**	**1557.500**
Weight (kg)		2.0	3.0	2.8	3.6	5.0	5.0	6.4	6.2

Depth 155 mm

Width (B1) in mm	Packs of	300	300	300
Height (H1) in mm		400	600	800
Depth (T1) in mm		155	155	155
Mounting plate width (F1) in mm		275	275	275
Mounting plate height (G1) in mm		385	585	785
Model No. EB	1	**1577.500**	**1578.500**	**1579.500**
Weight (kg)		7.1	11.0	13.2

Lock systems

Standard double-bit lock insert may be exchanged for lock inserts, type A, see page 888,
lock cylinder inserts, plastic handles and T handles, type B, see page 886 – 889.

To order terminal boxes in textured RAL 7032 please add extension .600 to the Model No., and for primed terminal boxes use extension .310.
Delivery times available on request.

Accessories Page 832 **E-Box, EMC-shielded** Page 290

Bus enclosure

Material:
Sheet steel
Enclosure: 1.38 mm
Door: 1.5 mm
Viewing window made from polycarbonate, 4 mm

Surface finish:
Enclosure and door:
powder-coated in textured RAL 7035

Protection category:
IP 65 to EN 60 529/10.91

Supply includes:
Door hinged on the left,
1 cam lock with double-bit insert,
2 (1) support rail(s) TS 35/7.5 (for BG 1586.510).
Drilled holes for cable glands in the base.

Approvals,
see page 24.

Dimensions mm			PG version					Model No. BG	Metric version			Model No. BG
			Number of PG holes						Number of metric holes			
W	H	D	9	11	13.5	16	21		M12	M20	M25	
200	300	80	1	8	–	1	1	**1583.510**	9	–	2	**1583.520**
300	300	80	1	14	–	1	1	**1584.510**	15	–	2	**1584.520**
400	300	80	1	18	–	1	2	**1585.510**	19	–	3	**1585.520**
500	300	80	3	–	24	–	–	**1586.510**	3	24	–	**1586.520**

Lock systems

Standard double-bit lock insert may be exchanged for lock inserts, type A,
see page 888 and plastic handles, type B, see page 886.

To order enclosures in RAL 7032, please add the extension .210 or .220 to the Model No.
Delivery times available on request.

PG
BG 1583.510
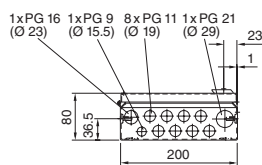
Metric
BG 1583.520

1 x PG 16 (Ø 23)   1 x PG 9 (Ø 15.5)   8 x PG 11 (Ø 19)   1 x PG 21 (Ø 29)

1 x M25 (Ø 25.5)   9 x M12 (Ø 12.5)   1 x M25 (Ø 25.5)

BG 1584.510

BG 1584.520

1 x PG 16 (Ø 23)   1 x PG 9 (Ø 15.5)   14 x PG 11 (Ø 19)   1 x PG 21 (Ø 29)

1 x M25 (Ø 25.5)   15 x M12 (Ø 12.5)   1 x M25 (Ø 25.5)

BG 1585.510

BG 1585.520

1 x PG 16 (Ø 23)   1 x PG 9 (Ø 15.5)   18 x PG 11 (Ø 19)   2 x PG 21 (Ø 29)

1 x M25 (Ø 25.5)   19 x M12 (Ø 12.5)   2 x M25 (Ø 25.5)

BG 1586.510

BG 1586.520

1 x PG 9 (Ø 15.5)   12 x PG 13.5 (Ø 21)   1 x PG 9 (Ø 15.5)   12 x PG 13.5 (Ø 21)   1 x PG 9 (Ø 15.5)

1 x M12 (Ø 12.5)   12 x M20 (Ø 20.5)   1 x M12 (Ø 12.5)   12 x M20 (Ø 20.5)   1 x M12 (Ø 12.5)
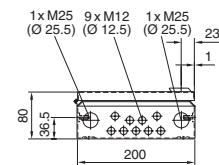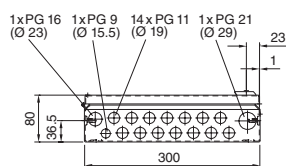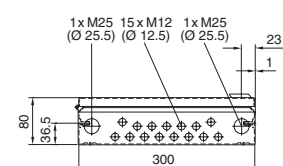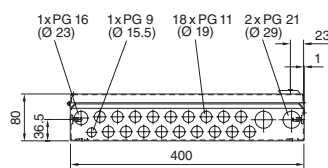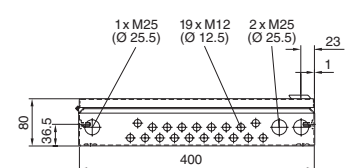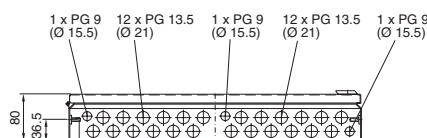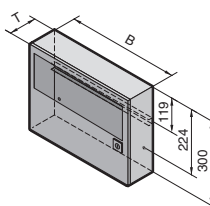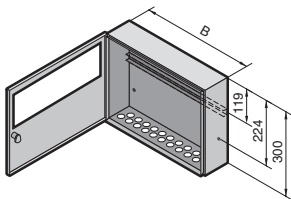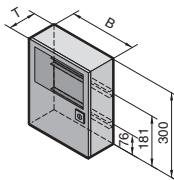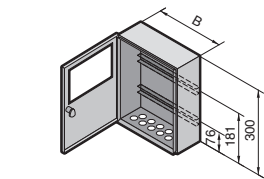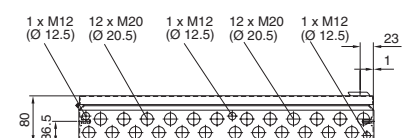
B = Width
T = Depth
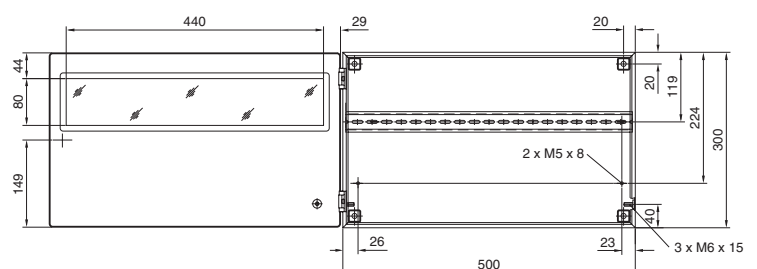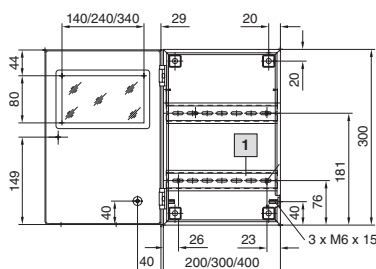
1   Not applicable to BG1586.510

Bus enclosure
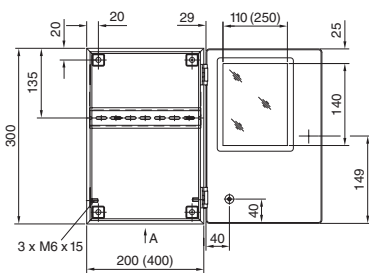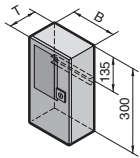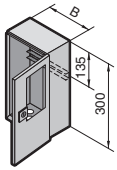
Material:
Sheet steel
Enclosure: 1.38 mm
Door: 1.5 mm
Viewing window made from polycarbonate, 4 mm

Surface finish:
Enclosure and door:
Powder-coated in textured RAL 7035

Protection category:
IP 65 to EN 60 529/10.91

Supply includes:
Door with r/h hinge,
1 cam lock with double-bit insert,
1 support rail TS 35/7.5.
Drilled holes for cable glands in the base.

Approvals,
see page 24.

Dimensions mm			PG version				Model No. BG	Metric version				Model No. BG
			Number of PG holes					Number of metric holes				
W	H	D	9	13.5	29	36		M12	M20	M32	M50	
200	300	120	2	–	5	–	**1605.510**	2	–	5	–	**1605.520**
400	300	120	–	2	9	1	**1606.510**	–	2	9	1	**1606.520**

Lock systems

Standard double-bit lock insert may be exchanged for lock inserts, type A,
see page 888 and plastic handles, type B, see page 886.

To order enclosures in RAL 7032, please add the extension .210 or .220 to the Model No.
Delivery times available on request.

BG 1605.510

2 x PG 9 (Ø 15.5)   5 x PG 29 (Ø 37.5)

BG 1605.520

2 x M12 (Ø 12.5)   5 x M32 (Ø 32.5)

BG 1606.510

2 x PG 13.5 (Ø 21)
1 x PG 36 (Ø 47.5)
9 x PG 29 (Ø 37.5)

BG 1606.520

2 x M20 (Ø 20.5)
1 x M50 (Ø 50.5)
9 x M32 (Ø 32.5)

B = Width
T = Depth

3 x M6 x 15

Bus enclosure

Material:
Sheet steel
Enclosure: 1.38 mm
Door: 1.5 mm
Viewing window made from polycarbonate, 4 mm

Surface finish:
Enclosure and door:
Dipcoat-primed, powder-coated
in textured RAL 7035

Protection category:
IP 65 to EN 60 529/10.91

Dimensions in mm			Model No. BG
W	H	D	
400	200	125	**1558.510**
600	200	125	**1559.510**

To order enclosures in RAL 7032, please add the extension .210 to the Model No.
Delivery times available on request.

Supply includes:
Door with bottom hinge,
2 (3) quick-release fasteners for screwdrivers
(with BG 1559.510),
1 support rail TS 35/7.5,
1 gland plate at bottom.
Holes for cable glands in the gland plate or
directly in the enclosure available on request.

Approvals,
see page 24.

i.L. = Clearance width

B = Width
T = Depth
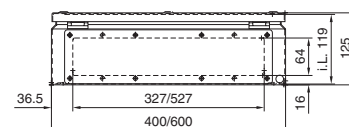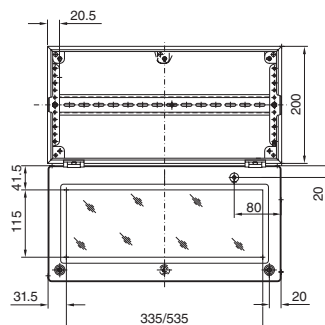
Bus enclosure

Material:
Sheet steel
Enclosure: 1.38 mm
Door: 1.5 mm
Polycarbonate viewing window
Zinc-plated mounting plate

Surface finish:
Enclosure and door:
Powder-coated in textured RAL 7035

Supply includes:
Door with bottom hinge,
cam lock with double-bit insert
may be exchanged for lock inserts,
type A, page 888 and plastic handles, type B,
page 886.

Approvals,
see page 24.
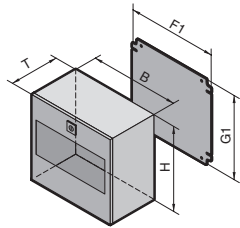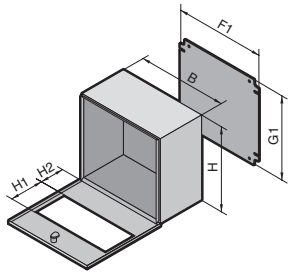
B = Width
T = Depth
i.L. = Clearance width
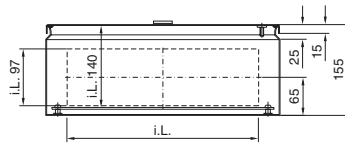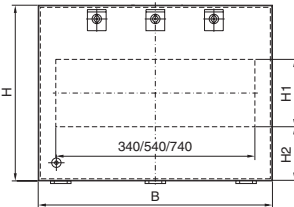
Dimensions in mm					Cam lock	Model No. BG
Enclosure			Mounting plate			
W	H	D	F1	G1		
400	300	155	385	275	1	**1577.500**
600	300	155	585	275	2	**1578.500**
800	300	155	785	275	2	**1579.500**

To order enclosures in RAL 7032, please add extension .600 to the Model No.
Delivery times available on request.

Bus enclosure modifications
Viewing window and gland plates – see table.

Height of viewing window mm		Gland plate cutout[2] at bottom (clearance width) mm	Model No. BG	
H1	H2		Basic	Extension
		327 x 97	**1577.**	
		527 x 97	**1578.**	
		2 off 327 x 97	**1579.**	
115	92	–		**.520**[1]
190	42	–		**.530**[1]
115	92	■		**.550**[1]
190	42	■		**.560**[1]
155	92	–		**.450**[1]

[1] Extended delivery times.
[2] Gland plates 14 mm larger all-round.
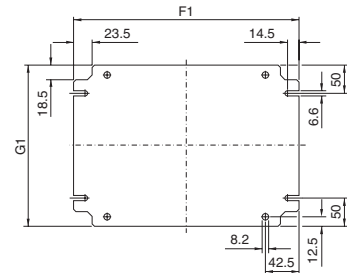
340/540/740

Bus enclosure

Material:
Sheet steel
Enclosure: 1.38 mm
Door: 1.5 mm
Viewing window made from polycarbonate, 4 mm

Surface finish:
Enclosure and door:
Powder-coated in textured RAL 7035

Approvals,
see page 24.
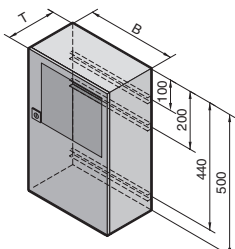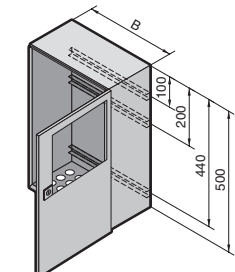
Dimensions in mm			Number of holes for PG 13.5 or M20	Model No. BG
W	H	D		
400	500	160	33	**1611.510**

To order enclosures in RAL 7032, please add the extension .210 to the Model No.
Delivery times available on request.

Supply includes:
Door with r/h hinge,
1 cam lock with 3 mm double-bit insert, may be
exchanged for type A lock inserts, page 888 and
type B plastic handles, page 886.
3 support rails TS 35/7.5.
Drilled holes for cable glands in the base.

B = Width
T = Depth
i.L. = Clearance width

Ø 20.7 (33 x)

3 x M6 x 15

Bus enclosure BG

Bus enclosure

Material:
Sheet steel
Enclosure: 1.38 mm
Door: 1.5 mm
Viewing window made from polycarbonate, 4 mm

Surface finish:
Enclosure and door:
Powder-coated in textured RAL 7035

Approvals,
see page 24.

Dimensions in mm			Number of holes for PG 13.5 or M20	Model No. BG
W	H	D		
500	300	120	48	**1609.510**

To order enclosures in RAL 7032, please add the extension .210 to the Model No.
Delivery times available on request.

Supply includes:
Door with bottom hinge,
2 quick-release fasteners for screwdrivers,
1 support rail TS 35/7.5.
Drilled holes for cable glands in the base.

B = Width
T = Depth
i.L. = Clearance width

Bus enclosure
for modular cable entry

Material:
Sheet steel
Enclosure: 1.38 mm
Door: 1.5 mm
Viewing window made from polycarbonate, 4 mm

Surface finish:
Enclosure and door:
Powder-coated in textured RAL 7035

Protection category:
IP 55 to EN 60 529/10.91
(in conjunction with module plates)

Approvals,
see page 24.

Width mm	Height mm	Depth mm	Model No. BG
500	500	210	**1050.900**

Supply includes:
18 cutouts in the base for module plates,
Pre-configured top-hat rail for bus systems
(I/O modules, motor starters) and terminal blocks.
Door with viewing panel for visual monitoring of
the installed components.

! Also required:

Module plates,
see page 969.

B = Width
T = Depth

B

1.₁

Notes
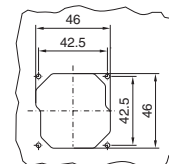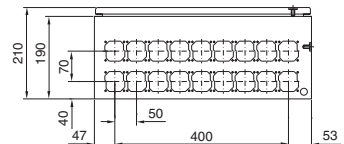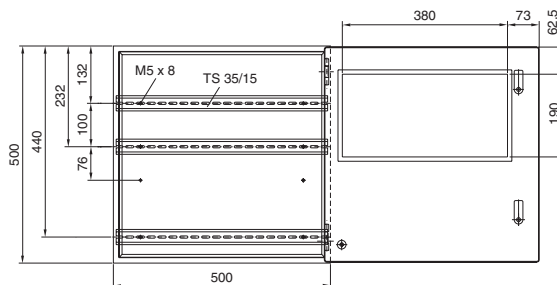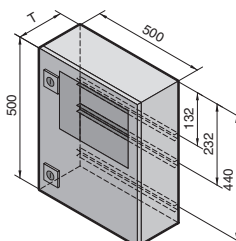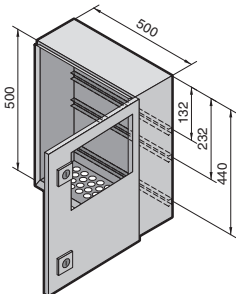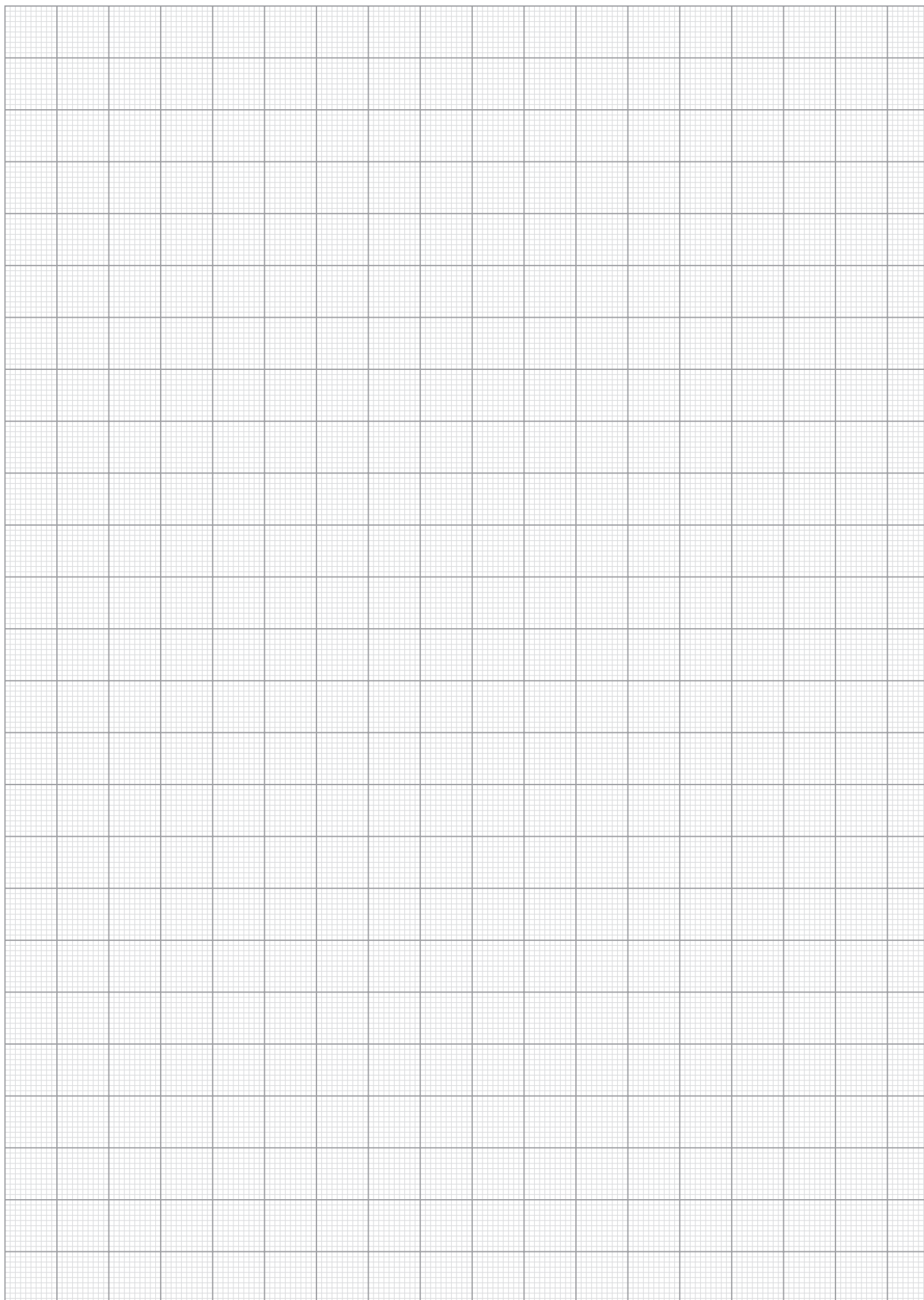
Compact enclosures

Features

The major success of Rittal compact enclosures is based on three key advantages:

1. Rittal mass-produced quality with triple surface treatment (phosphating, electrophoretic dipcoat-priming and powder coating).

2. Materials, sizes and variants are tailored to all major requirement profiles.

3. Superior value for money and virtually unlimited solution diversity thanks to Rittal system accessories.

Simply outstanding – everything fits for years to come:

Rittal CM and Rittal CL compact system enclosures – compact-class enclosures which are fully compatible with the TS 8 range of system accessories.

For exceptional requirements:

Stainless steel compact enclosures, see page 273.

Ex enclosures, see page 286 – 288.

EMC enclosures, see page 289 – 290.

Compact enclosures AE

Perforated mounting strips in the door for fast attachment of support strips, cable conduit holders and covers.

Rear panel with holes, prepared for wall mounting bracket or direct wall mounting.
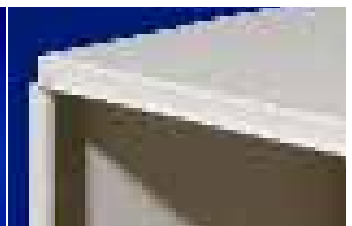
Multi-folded **enclosure protection channel** prevents the ingress of dirt and water when the door is opened.

PE conductor connection facilities on the enclosure, door and mounting plate. See system accessories.

Gland plates made from sheet steel for self-assembly may be exchanged for prepunched plates or plastic plates with membranes.

Triple surface treatment: Phosphating, electrophoretic dipcoat priming, powder coating.

B

1.2

Compact enclosures

B

1.₂

Compact enclosures

Compact enclosures AE IP 69K

Ideal for **mounting on vehicles:** Lock, hinges and mounting plate are all secured in a vibration-resistant manner.

Resistant to high-pressure cleaning
The silicone seal is protected from direct hosed water by the labyrinth seal of the door and enclosure return edge.

Secure, sealed **wall mounting** from the outside via press-fitted M8 nuts, either directly or using wall mounting brackets 1594.000 and 2433.000, see page 905.

Compact enclosures, Outdoor

Mounting plates
The enclosure is prepared for the installation of an MDF or sheet steel mounting plate. The MDF version is mounted via the mounting brackets.

Roof plate screw-fastened at the correct distance for permanent air circulation. The bonded insulating plate additionally helps to prevent the formation of drips.

Plastic **handle**, prepared for the installation of semi-cylinders 40 or 45 mm to DIN 18 254.

Compact system enclosures Rittal CM and Rittal CL

Compact Medium Rittal CM
The alternative to large enclosures in the AE series, and a replacement for the AK series.
See page 128 – 129.

Compact Large Rittal CL
The economical variant of free-standing enclosures ES 5000.
See page 130 – 131.

Plastic enclosures KS

C-sections for infinitely variable mounting plate depth adjustment, and to create several mounting levels.

Twin seal on the top and bottom edges of the door in all enclosures, thanks to the integral rain protection strip.

Mounting inserts for threaded inserts in the door and in the rear panel of the enclosure, for simple installation.

Compact enclosures AE

Width: 200 – 600, height: 300 – 400
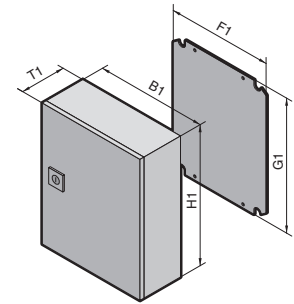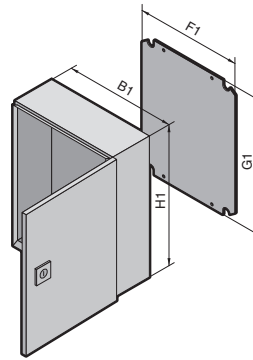
Material:
Sheet steel

Surface finish:
Enclosure and door:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Mounting plate: Zinc-plated

Protection category:
IP 66 to EN 60 529/10.91,
Complies with NEMA 12
(AE 1032.500, AE 1035.500),
Complies with NEMA 4
(AE 1030.500, AE 1031.500,
AE 1380.500, AE 1039.500,
AE 1339.500).

Supply includes:
Enclosure of all-round solid con-
struction, single door,
1 gland plate in the enclosure
base,
r/h door hinge, may be swapped
to opposite side (except with
AE 1032.500 and AE 1035.600),
with one cam lock,
foamed-in door seal, mounting
plate.

Approvals,
see page 26.

Detailed drawing,
see page 1083.

	Packs of									
Width (B1) in mm		200	200	300	300	380	380	380	600	600
Height (H1) in mm		300	300	300	400	300	300	380	380	380
Depth (T1) in mm		120	155	210	210	155	210	210	210	350
Mounting plate width (F1) in mm		162	162	254	254	334	334	334	549	549
Mounting plate height (G1) in mm		275	275	275	375	275	275	355	355	355
Mounting plate thickness in mm		2.0	2.0	2.0	2.0	2,.0	2.0	2.0	2.5	2.5
Model No. AE	1	**1032.500**	**1035.500**	**1033.500**	**1034.500**	**1030.500**	**1031.500**	**1380.500**	**1039.500**	**1339.500**
Weight (kg)		4.0	4.5	7.0	8.8	7.4	7.5	9.8	15.4	20.0

Lock systems

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888,
lock cylinder, plastic handles and T handles, type B, see page 886 – 889.

To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.

Cable glands
made from polyamide, brass,
and multi-seal inserts,
Model No. see page 972/973.

Dust guard trim
for the gap between the door
and the enclosure,
Model No. see page 899.

Accessories Page 832   **AE stainless steel** Page 273   **AE IP 69K** Page 121   **AE EMC shielded** Page 290   **AE Ex-proof** Page 287

Width: 380 – 800, height: 500 – 1000
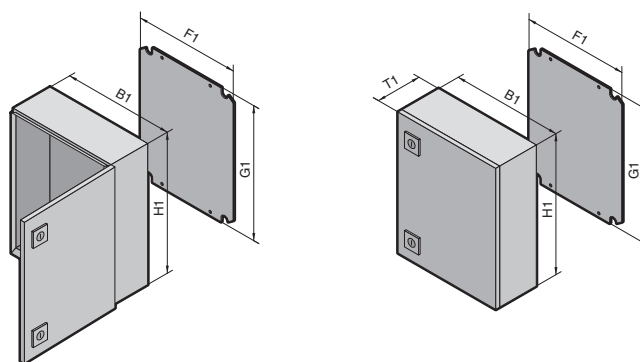
Material:
Sheet steel

Surface finish:
Enclosure and door:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Mounting plate: Zinc-plated

Protection category:
to EN 60 529/10.91:
IP 56,
IP 66 for AE 1038.500,
AE 1338.500, AE 1045.500,
AE 1050.500, AE 1350.500,
AE 1060.500, AE 1360.500,
Complies with NEMA 4.

Supply includes:
Enclosure of all-round solid con-
struction, single door,
1 gland plate in the enclosure
base,
r/h door hinge,
may be swapped to opposite
side,
with 2 cam locks,
foamed-in door seal,
zinc-plated mounting plate.

Approvals,
see page 26.

Detailed drawing,
see page 1083.

B
1.2

Compact enclosures AE

Width (B1) in mm	Packs of	380	380	400	500	500	500	600	600
Height (H1) in mm		600	600	500	500	500	700	600	600
Depth (T1) in mm		210	350	210	210	300	250	210	350
Mounting plate width (F1) in mm		334	334	354	449	449	449	549	549
Mounting plate height (G1) in mm		570	570	475	470	470	670	570	570
Mounting plate thickness in mm		2.5	2.5	2.0	2.5	2.5	3.0	2.5	2.5
Model No. AE	1	**1038.500**	**1338.500**	**1045.500**	**1050.500**	**1350.500**	**1057.500**	**1060.500**	**1360.500**
Weight (kg)		15.6	19.4	13.0	16.8	19.6	31.2	22.8	28.4

Width (B1) in mm	Packs of	600	600	600	600	760	760	800
Height (H1) in mm		760	760	800	1000	760	760	1000
Depth (T1) in mm		210	350	250	250	210	300	300
Mounting plate width (F1) in mm		549	549	549	539	704	704	739
Mounting plate height (G1) in mm		730	730	770	955	730	730	955
Mounting plate thickness in mm		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Model No. AE	1	**1076.500**	**1376.500**	**1058.500**	**1090.500**	**1077.500**	**1073.500**	**1180.500**
Weight (kg)		32.1	36.0	34.2	50.5	40.0	44.5	57.0

Lock systems

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888,
lock cylinder, plastic handles and T handles, type B, see page 886 – 889.

To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.

Metal gland plates,
pre-punched,
Model No. see page 968.

Plastic wiring plan pocket,
screw-fastened,
Model No. see page 897.

Accessories Page 832 **AE IP 69K** Page 121 **AE stainless steel** Page 273 **AE EMC-shielded** Page 290 **AE Ex-proof** Page 287

Compact enclosures AE

Width: 600 – 1000, height: 760 – 1400
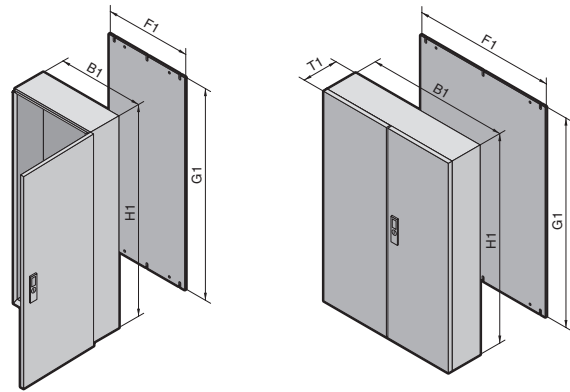
Material:
Sheet steel
Enclosure: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure and door:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Mounting plate: Zinc-plated

Protection category:
IP 55 to EN 60 529/10.91,
Complies with NEMA 12.
IP 56 to EN 60 529/10.91
for AE 1260.500 and
AE 1280.500.

Supply includes:
Enclosure of all-round solid con-
struction, single door:
1 gland plate,
twin-door: 2 gland plates in the
enclosure base,
3-point lock system,
prepared for use of the Ergo-
form-S lock system,
2 cam locks for 1100.500,
1130.500, 1110.500, foamed-in
door seal, zinc-plated mounting
plate.

Approvals,
see page 26.

Detailed drawing,
see page 1084.

➡ **Possible
alternative:**

Compact system enclosures
Rittal CM, see page 128 – 129.

Width (B1) in mm	Packs of	600	800	1000	1000	1000	1000	1000	Page
Height (H1) in mm		1200	1200	760	760	1000	1200	1400	
Depth (T1) in mm		300	300	210	300	300	300	300	
Mounting plate width (F1) in mm		540	740	944	944	939	940	940	
Mounting plate height (G1) in mm		1155	1155	730	730	955	1155	1355	
Model No. AE	1	**1260.500**	**1280.500**	**1100.500**	**1130.500**	**1110.500**	**1213.500**	**1114.500**	
Door(s)		1	1	2	2	2	2	2	
Weight (kg)		55.0	70.0	52.0	56.0	71.0	85.0	97.0	
Accessories									
Self-tapping screws	300				2487.000				937
Base/plinth	Height 100 mm	1	2816.200	2818.200	–	–	2801.200	2801.200	2801.200	843
	Height 200 mm	1	2826.200	2828.200	–	–	2802.200	2802.200	2802.200	843
Stainless steel rain canopy	1	–	2475.000	–	2363.000	2363.000	2363.000	2363.000	899
Plastic cable gland plate	5	2563.000	2563.000	2562.000	2562.000	2562.000	2562.000	2562.000	966
Eyebolts	4	2509.000	2509.000	–	–	–	2509.000	2509.000	904
Lock systems									

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888
and Ergoform-S lock system (not for 1100.500, 1130.500, 1110.500), see page 885.

**To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.**
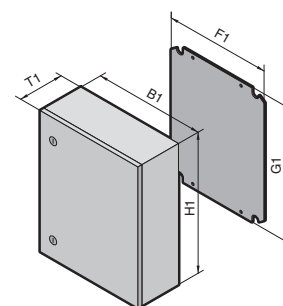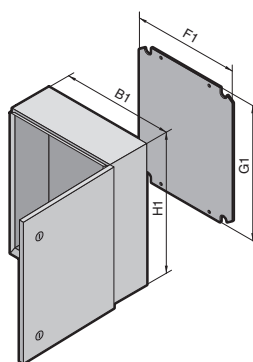
Perfect protection in a tough environment

The compact enclosure AE in IP 69K is the ideal solution when a high protection category and corrosion resistance are needed.

● Resistant to high-pressure cleaning (protection category IP 69K). The interior seal is protected against direct hosed water.
● Ideal for mounting on vehicles: Lock, hinges and mounting plate are all vibration resistant.
● The enclosure and door have an aluminium zinc coating for a high level of corrosion protection.

● Foamed-in silicone seal, water-impermeable, with high resistance to temperature and chemicals.
● Prepared to accommodate the door stay 1101.800 and the interior door.
● Wall mounting

Material:
Sheet steel

Surface finish:
Enclosure and door:
Aluminium zinc coating, powder-coated in textured RAL 7035
Mounting plate: Zinc-plated

Protection category:
IP 69K to DIN 40 050-9/5.93

Supply includes:
Enclosure of all-round solid construction, single door, door hinge may be swapped to opposite side by rotating the enclosure, cam lock with double-bit insert, other inserts available on request.

🖉 **Rittal service:**

Other sizes available on request. Cutouts and drilled holes to your specifications.

Detailed drawing,
see page 1086.

	Packs of	230	400	400	650	Page
Width (B1) in mm		230	400	400	650	
Height (H1) in mm		330	400	650	650	
Depth (T1) in mm		155	250	250	250	
Mounting plate width (F1) in mm		–	334	334	549	
Mounting plate height (G1) in mm		–	355	570	570	
Mounting plate thickness in mm		2	2	2,5	2,5	
Model No. AE	1	**1101.010**	**1101.020**	**1101.030**	**1101.040**	
Weight (kg)		6.6	13.8	20	29.6	
Locks		1	2	2	2	
Accessories						
Interior door	1	1101.910	1101.920	1101.930	1101.940	873
Door stay	1	1101.800	1101.800	1101.800	1101.800	898

Interior door
with 4 (2 for 1101.010) studs for the installation of punched rails 23 x 23 (may be cut to required length) and universal installation accessories.

Wall mounting
directly from the rear via M8 nut or with wall mounting bracket, see page 905.

Compact enclosures AK

Depth: 400
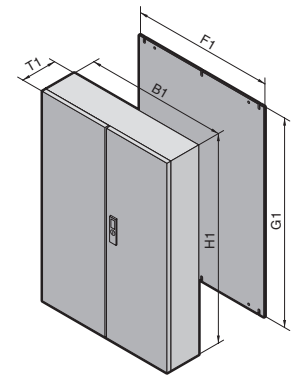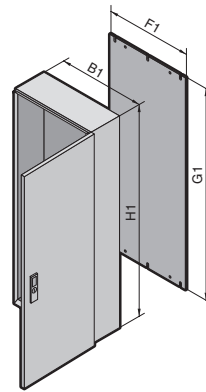
Material:
Sheet steel
Enclosure: 1.5 mm
Door(s): 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure and door(s):
Dipcoat-primed, powder-coated
in textured RAL 7035 on the
outside
Mounting plate: Zinc-plated

Protection category:
IP 55 to EN 60 529/10.91,
Complies with NEMA 12.

Supply includes:
Enclosure of all-round solid con-
struction,
r/h door hinge, may be swapped
to opposite side, AK 1652.500,
AK 1650.500, AK 1647.500:
Lockable door on right, foamed-
in door seal, holes provided for
eyebolts, mounting plate,
two-part gland plates.

Approvals,
see page 27.

Detailed drawing,
see page 1086.

Possible alternative:

Compact system enclosures
Rittal CL, see page 130 – 131.

NOTE: Discontinued item, please do not use for new designs.

Width (B1) in mm	Packs of	600	800	1000	1000	1200	Page
Height (H1) in mm		1200	1200	1200	1400	1200	
Depth (T1) in mm		400	400	400	400	400	
Mounting plate width (F1) in mm		514	714	914	914	1114	
Mounting plate height (G1) in mm		1125	1125	1125	1325	1125	
Model No. AK	1	**1646.500**	**1648.500**	**1650.500**	**1647.500**	**1652.500**	
Door(s)		1	1	2	2	2	
Weight (kg)		60.0	75.0	88.5	103.5	108.0	
Accessories							
Base/plinth	Height 100 mm	1	2911.200	2901.200	2891.200	2891.200	2921.200	843
	Height 200 mm	1	2912.200	2902.200	2892.200	2892.200	2922.200	843
Lock systems							

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888,
and Ergoform-S lock system, see page 885.

To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.

Cable gland
made from polyamide/brass,
and multi-seal inserts,
Model No. see page 972/973.

Signal pillar LED compact,
Model No. see page 1041.

Accessories Page 832 **Console systems** Page 261

Material:
Enclosure and door:
Fibreglass-reinforced unsaturated polyester
Mounting plate:
Sheet steel
For KS with viewing window:
Impact resistant glazed acrylic, 3.0 mm with all-round rubber cable clamp strip

Surface finish:
Enclosure and door:
No after-treatment,
dyed plastic,
similar to RAL 7032
Mounting plate: Zinc-plated

Protection category:
KS without viewing window:
IP 66 to EN 60 529/10.91,
complies with NEMA 4x.
KS with viewing window:
IP 56 to EN 60 529/10.91,
complies with NEMA 12.

Supply includes:
Enclosure of solid all-round construction,
r/h door hinge,
door hinge may be swapped to opposite site by rotating the enclosure,
mounting plate,
all-round foamed-in PU seal in the door,
twin seal on the top and bottom edges of the door (integral rain protection strip), press-fitted C sections at the sides for infinitely variable mounting plate depth adjustment.

Note:
Under the influence of long-term UV radiation (sunlight) in conjunction with wind and rain, the surface finish may become visually impaired.
In other words, the fibreglass portions become visible on unprotected surfaces. This does not impair the protection of the installed electrical components in any way. All other surface finishes are likewise impaired by ultraviolet radiation.
If the enclosures cannot be protected from radiation, e.g. via a sun canopy, we recommend that they should be painted with a PUR paint. Older enclosures where the surface finish already reveals visible fibreglass portions can likewise be treated in this way after thorough cleaning.

Of course, all enclosures can also be supplied spray-finished in RAL colours. For outdoor siting, we recommend pale shades.

Approvals,
see page 27.

Detailed drawing,
see page 1087.

	Packs of	Without viewing window							With viewing window			
Width (B1) in mm		200	250	300	400	400	500	600	400	400	500	600
Height (H1) in mm		300	350	400	400	600	500	600	400	600	500	600
Depth (T1) in mm		150	150	200	200	200	300	200	200	200	300	200
Mounting plate width (F1) in mm		145	195	245	345	345	417	545	345	345	417	545
Mounting plate height (G1) in mm		250	300	350	350	550	450	550	350	550	450	550
Mounting plate thickness in mm		2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Model No. KS	1	**1423.600**	**1432.600**	**1434.600**	**1444.600**	**1446.600**	**1453.600**	**1466.600**	**1448.600**	**1449.600**	**1454.600**	**1467.600**
Door(s)		1	1	1	1	1	1	1	1	1	1	1
Weight (kg)		3.0	4.1	6.0	7.9	11.5	12.9	15.9	8.0	11.5	13.4	15.9

Lock systems

Standard double-bit lock insert may be exchanged for lock inserts, type A, see page 888,
and plastic handle, type E, KS 1484.000, see page 886.

Cable gland, polyamide,
Model No. see page 972.

Double-membrane gland and stepped collar for cable entry,
Model No. see page 973.

Accessories Page 832 **KS Ex-proof** Page 288

Plastic enclosures KS

Width: 600 – 1000, height: 800 – 1000
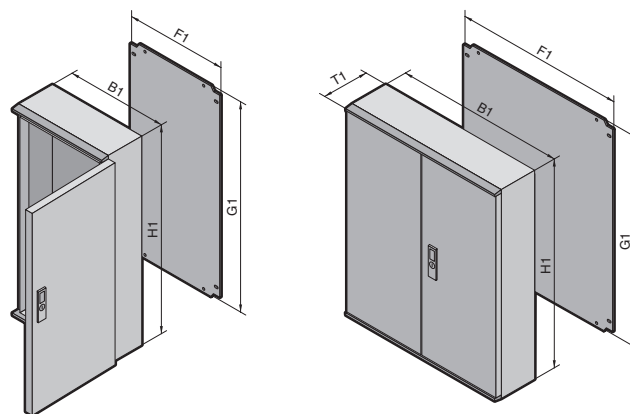
Material:
Enclosure and door:
Fibreglass-reinforced unsaturated polyester
Mounting plate:
Sheet steel
For KS with viewing window:
Impact resistant glazed acrylic,
3.0 mm with all-round rubber
cable clamp strip

Surface finish:
Enclosure and door:
No after-treatment,
dyed plastic,
Similar to RAL 7032
Mounting plate: Zinc-plated

Protection category:
IP 56
IP 66 for KS 1468.600

Supply includes:
Enclosure of solid all-round construction,
r/h door hinge, may be swapped
to opposite side by rotating the
enclosure (only with single-door
models), mounting plate,
all-round foamed-in PU seal in
the door,
twin seal on the top and bottom
edges of the door (integral rain
protection strip),
press-fitted C sections at the
sides for infinitely variable
mounting plate depth adjustment.
KS 1400.600 additionally with
removable centre bar in the
enclosure.

Note:
Under the influence of long-term
UV radiation (sunlight) in conjunction with wind and rain, the
surface finish may become visually impaired.
In other words, the fibreglass
portions become visible on
unprotected surfaces. This does
not impair the protection of the
installed electrical components
in any way. All other surface
finishes are likewise impaired
by ultraviolet radiation.
If the enclosures cannot be protected from radiation, e.g. via a
sun canopy, we recommend that
they should be painted with a
PUR paint. Older enclosures
where the surface finish already
reveals visible fibreglass portions can likewise be treated in
this way after thorough cleaning.

Of course, all enclosures can
also be supplied spray-finished
in RAL colours. For outdoor siting, we recommend pale
shades.

Approvals,
see page 27.

Detailed drawing,
see page 1088.

	Packs of	Without viewing window			With viewing window	
Width (B1) in mm		600	800	1000	600	800
Height (H1) in mm		800	1000	1000	800	1000
Depth (T1) in mm		300	300	300	300	300
Mounting plate width (F1) in mm		517	717	917	517	717
Mounting plate height (G1) in mm		750	950	950	750	950
Mounting plate thickness in mm		3.0	3.0	3.0	3.0	3.0
Model No. KS	1	**1468.600**	**1480.600**	**1400.600**	**1469.600**	**1479.600**
Door(s)		1	1	2	1	1
Weight (kg)		26.0	39.0	50.0	25.5	33.0
Lock systems						

Standard double-bit lock insert may be exchanged for lock inserts, type A, see page 888,
and Ergoform-S lock system, KS 1490.000, see page 885.
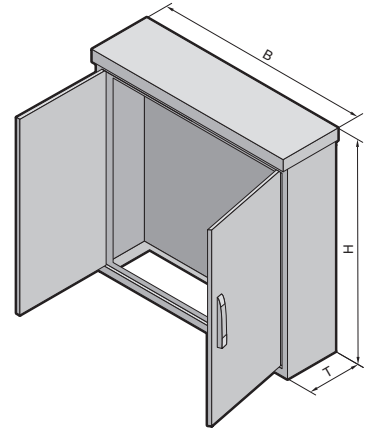
Cable ducts,
Model No. see page 978.

Signal pillar LED compact,
in protection category IP 65,
Model No. see page 1041.

Accessories Page 832 **KS Ex-proof** Page 288

Material:
Optionally
Sheet steel, zinc-plated,
or
Stainless steel 1.4301

Colour:
RAL 7035

Supply includes:
Enclosure, closed back and sides,
interior door(s):
Swing handle prepared for semi-cylinder 40 or 45 mm, overall length to DIN 18 254.

Roof plate:
With bonded insulating plate to prevent the formation of drips, screw-fastened at a distance to prevent condensation.

Protection category:
IP 44 to 60 529/10.91

Detailed drawing,
see page 1185.

Width (B) in mm	Packs of	800	1200	1200	Page
Height (H) in mm		1200	800	1200	
Depth (T) in mm		350	350	350	
Model No. Sheet steel	1	**1620.000**	**1621.000**	**1622.000**	
Model No. Stainless steel	1	**1620.100**	**1621.100**	**1622.100**	
Doors		1	2	2	
Accessories					
Mounting plate sheet steel, 3 mm, zinc-plated, passivated	1	1616.200	1616.210	1616.220	916
Mounting plate MDF, 15 mm	1	1616.230	1616.230	1616.240	916
Concrete base/plinth	1	1616.300[1]	1616.310[1]	1616.310[1]	842
Wiring plan pocket	1	4116.000	4115.000	4115.000	898
Door stay	1	1616.110	1616.110	1616.110	898

[1] Delivery times available on request.

Accessories Page 832

Compact system enclosures

Features

Rittal CM and Rittal CL – the new compact class for the configuration of compact enclosures with a diverse range of opportunities for interior installation and cable entry.

Rittal Compact Medium, the alternative to large enclosures in the AE series and the replacement for the AK series. **Rittal Compact Large,** the economic variant of free-standing enclosures ES 5000.

Compatibility with TS 8 mounting components and Rittal system accessories make these enclosures the "unbeatable heroes" of your applications.

Key features of Rittal CM and Rittal CL

Solid sides with studs on the inside for the installation of adaptor rails for interior configuration with TS 8 accessories.

Automatic potential equalisation via earthing inserts on the attachments of the gland plates.

Earthing bolts with paint-free, corrosion-proof contact discs, on the hinge side of the enclosure at the bottom.

More space, greater stability, and more opportunities for cable entry, thanks to a large opening and a wide range of gland plate combinations,
see page 132.
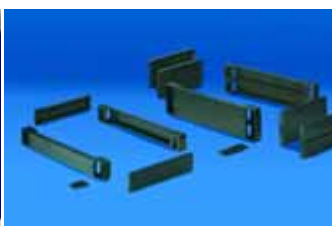
Fewer parts, more opportunities, plus lower purchasing, storage and assembly costs – the formula for the new modular base/plinth system TS 8 – now also for Rittal CM and Rittal CL.

Enclosure slotted for interchangeable door hinge.

Roof with holes and bungs, prepared for the mounting of eyebolts.

The triple surface finish:
1. Phosphating,
2. Electrophoretic dipcoat priming,
3. Powder coating.

Corrosion protection and resistance to lubricants, machining products and cleaning agents.

Compact Medium Rittal CM

Lock insert is protected from contamination by the inserted trim panel. There is space for your company logo behind the top plexiglass cover.

Enclosure top and bottom, with stud at front for installation of an adaptor rail for fast assembly of system light, door operated switch, door stay or covers.

Doors right and left with spot welded perforated mounting strips (25 mm pitch pattern) for universal interior installation.

Fast attachment: The mounting plate (folded over at the side) is inserted at the bottom, and secured at the top with clips.

Perfect seal, thanks to the twin edge of the enclosure and optimum compression of the foamed-in seal.

Fold rather than turn – this handle facilitates optimum use of the door space for internal and external mounting.

Compact Large Rittal CL

Mounting plate (identical to the TS 8) – with grid pattern print on the right and left for easy positioning of mounted equipment – depth-variable.

Enclosure perforated on a 25 mm pitch pattern at the front top for the installation of a system light, door operated switch, door stay etc.

Adjacent door with additional centre protection with a bar at the top, with interconnecting rods and handle at the bottom.

Doors (identical to TS 8) with square frame, perforations on a 25 mm pitch pattern.

The rods of the lock are locked from top to bottom. This is safe for transportation, and vibration-proof.

The welded rear panel facilitates direct screw fastening to a machine or wall.

Compact system enclosures Rittal CM

Width: 600 – 800, height: 800 – 1200

Material:
Sheet steel
Enclosure: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure and door:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Mounting plate: Zinc-plated

Protection category:
IP 55 with selection of the appro-
priate gland plates,
see page 132.

Supply includes:
Enclosure with one door, r/h
door hinge, may be swapped to
opposite side, mounting plate,
open base for individual cable
entry,
see page 132.

Available from October 2005.

Width (B) in mm		Packs of	600	600	600	600	800	800	800	800	Page
Height (H) in mm			800	1000	1200	1200	1000	1000	1200	1200	
Depth (T) in mm			400	400	300	400	300	400	300	400	
Mounting plate width (F) in mm			540	540	540	540	740	740	740	740	
Mounting plate height (G) in mm			755	955	1155	1155	955	955	1155	1155	
Model No. CM		1	**5110.500**	**5111.500**	**5112.500**	**5113.500**	**5114.500**	**5115.500**	**5116.500**	**5117.500**	
Door			1	1	1	1	1	1	1	1	
Base/plinth											
Components front and rear	Height 100 mm	1 set	8601.600	8601.600	8601.600	8601.600	8601.800	8601.800	8601.800	8601.800	835
	Height 200 mm	1 set	8602.600	8602.600	8602.600	8602.600	8602.800	8602.800	8602.800	8602.800	835
Trim panels (sides)	Height 100 mm	1 set	8601.040	8601.040	8601.030	8601.040	8601.030	8601.040	8601.030	8601.030	835
	Height 200 mm	1 set	8602.040	8602.040	8602.030	8602.040	8602.030	8602.040	8602.030	8602.030	835
Accessories											
Rail for interior installation	for height	4	5001.051	5001.052	5001.053	5001.053	5001.052	5001.052	5001.053	5001.053	133
	for width	4	5001.050	5001.050	5001.050	5001.050	5001.051	5001.051	5001.051	5001.051	133
Matching punched section with mounting flange	in depth	4	8612.140	8612.140	8612.130	8612.140	8612.130	8612.140	8612.130	8612.140	921
	in width	4	8612.060	8612.060	8612.060	8612.060	8612.080	8612.080	8612.080	8612.080	921
Support strips for door		20	4596.000	4596.000	4596.000	4596.000	4598.000	4598.000	4598.000	4598.000	895
Wiring plan pocket, sheet steel		1	4116.000	4116.000	4116.000	4116.000	4118.000	4118.000	4118.000	4118.000	898
Lock systems											

Standard double-bit lock insert may be exchanged for lock inserts, type A, see page 888,
and folding lever handle, see page 133.

To order primed enclosures, please add extension .800 to the Model No. Delivery times available on request.

Cable entry plates and grommets,
suitable for integration into the
modular gland plate concept,
see page 964/965.

Base/plinth,
Model No. see page 835.

One Model No. for
the **base/plinth
components**
front and rear.

One Model No. for
the **base/plinth trim
panels** at the sides.

One complete **base/
plinth.**
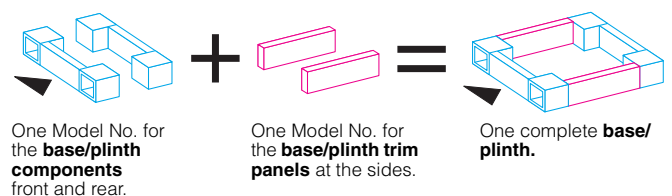
Accessories Page 832

Width: 1000 – 1200, height: 1000 – 1400
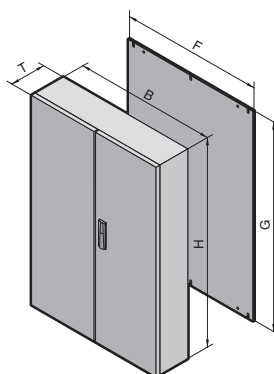
Material:
Sheet steel
Enclosure: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure and door:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Mounting plate: Zinc-plated

Protection category:
IP 55 with selection of the appropriate gland plates,
see page 132.

Supply includes:
Enclosure with two doors, r/h door lockable, may be swapped to opposite side, mounting plate, open base for individual cable entry,
see page 132.

Available from October 2005.

Width (B) in mm		Packs of	1000	1000	1000	1000	1000	1200	Page
Height (H) in mm			1000	1200	1200	1400	1400	1200	
Depth (T) in mm			300	300	400	300	400	400	
Mounting plate width (F) in mm			940	940	940	940	940	1140	
Mounting plate height (G) in mm			955	1155	1155	1355	1355	1155	
Model No. CM		1	**5118.500**	**5119.500**	**5120.500**	**5121.500**	**5122.500**	**5123.500**	
Doors			2	2	2	2	2	2	
Base/plinth									
Components front and rear	Height 100 mm	1 set	8601.000	8601.000	8601.000	8601.000	8601.000	8601.200	835
	Height 200 mm	1 set	8602.000	8602.000	8602.000	8602.000	8602.000	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.030	8601.030	8601.040	8601.030	8601.040	8601.040	835
	Height 200 mm	1 set	8602.030	8602.030	8602.040	8602.030	8602.040	8602.040	835
Accessories									
Rail for interior installation	for height	4	5001.052	5001.053	5001.053	5001.054	5001.054	5001.053	133
	for width	4	5001.052	5001.052	5001.052	5001.052	5001.052	5001.053	133
Matching punched section with mounting flange	in depth	4	8612.130	8612.130	8612.140	8612.130	8612.140	8612.140	921
	in width	4	8612.000	8612.000	8612.000	8612.000	8612.000	8612.020	921
Support strips for door		20	4309.000	4309.000	4309.000	4309.000	4309.000	4596.000	895
Wiring plan pocket, sheet steel		1	4115.000	4115.000	4115.000	4115.000	4115.000	4116.000	898

Lock systems

Standard double-bit lock insert may be exchanged for lock inserts, type A, see page 888,
and folding lever handle, see page 133.

To order primed enclosures, please add extension .800 to the Model No. Delivery times available on request.

Sections for cable entry,
suitable for integration into the modular gland plate concept,
see page 965.

Punched section with mounting flange, 17 x 73 mm
Model No. see page 921.

Accessories Page 832

Compact system enclosures Rittal CL

Width: 600 – 1000, height: 1600 – 2000

Material:
Sheet steel
Enclosure: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure and door:
Dipcoat-primed, powder-coated
in textured RAL 7035 on the out-
side
Mounting plate: Zinc-plated

Protection category:
IP 55 with selection of the appro-
priate gland plates,
see page 132.

Supply includes:
Enclosure with one door, r/h
door hinge, may be swapped to
opposite side,
mounting plate, open base for
individual cable entry,
see page 132.

**Available from the 2nd quarter
2006 on.**

		Packs of	600	600	600	800	800	800	1000	Page
Width (B) in mm										
Height (H) in mm			1600	1800	2000	1600	1800	2000	1800	
Depth (T) in mm			500	400	500	500	400	500	400	
Mounting plate width (F) in mm			499	499	499	699	699	699	899	
Mounting plate height (G) in mm			1496	1696	1896	1496	1696	1896	1696	
Model No. CL		1	**5150.500**	**5151.500**	**5152.500**	**5153.500**	**5154.500**	**5155.500**	**5156.500**	
Door			1	1	1	1	1	1	1	
Base/plinth										
Components front and rear	Height 100 mm	1 set	8601.600	8601.600	8601.600	8601.800	8601.800	8601.800	8601.000	835
	Height 200 mm	1 set	8602.600	8602.600	8602.600	8602.800	8602.800	8602.800	8602.000	835
Trim panels (sides)	Height 100 mm	1 set	8601.050	8601.040	8601.050	8601.050	8601.040	8601.050	8601.040	835
	Height 200 mm	1 set	8602.050	8602.040	8602.050	8602.050	8602.040	8602.050	8602.040	835
Accessories										
Rail for interior installation	for height	4	5001.055	5001.056	5001.057	5001.055	5001.056	5001.057	5001.056	133
Matching punched section with mounting flange	in depth	4	8612.150	8612.140	8612.150	8612.150	8612.140	8612.150	8612.140	921
	in width	4	8612.060	8612.060	8612.060	8612.080	8612.080	8612.080	8612.000	921
Support strips for door		20	4596.000	4596.000	4596.000	4598.000	4598.000	4598.000	4599.000	895
Wiring plan pocket, sheet steel		1	4116.000	4116.000	4116.000	4118.000	4118.000	4118.000	4124.000	898
Lock systems										

Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881/888.

To order primed enclosures, please add extension .800 to the Model No. Delivery times available on request.

Cable entry plates,
suitable for integration into the
modular gland plate concept,
see page 964.

**Transport handles for mount-
ing plates and doors,**
Model No. see page 912/898.

Accessories Page 832
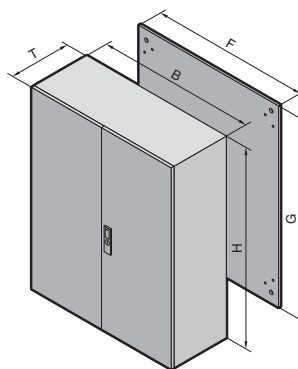
Compact system enclosures Rittal CL

Material:
Sheet steel
Enclosure: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure and door:
Dipcoat-primed,
powder-coated in textured
RAL 7035 on the outside
Mounting plate: Zinc-plated

Protection category:
IP 55 with selection of the appropriate gland plates,
see page 132.

Supply includes:
Enclosure with two doors,
Lockable door on r/h side,
mounting plate,
open base for individual cable entry,
see page 132.

Available from the 2nd quarter 2006 on.

Width (B) in mm		Packs of	1000	1200	1200	1200	Page
Height (H) in mm			1800	1600	1800	2000	
Depth (T) in mm			400	500	400	500	
Mounting plate width (F) in mm			899	1099	1099	1099	
Mounting plate height (G) in mm			1696	1496	1696	1896	
Model No. CL		1	**5157.500**	**5158.500**	**5159.500**	**5160.500**	
Doors			2	2	2	2	
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.000	8601.200	8601.200	8601.200	835
	Height 200 mm	1 set	8602.000	8602.200	8602.200	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.040	8601.050	8601.040	8601.050	835
	Height 200 mm	1 set	8602.040	8602.050	8602.040	8602.050	835
Accessories							
Rail for interior installation	for height	4	5001.056	5001.055	5001.056	5001.057	133
Matching punched section with mounting flange	in depth	4	8612.140	8612.150	8612.140	8612.150	921
	in width	4	8612.000	8612.200	8612.200	8612.000	921
Support strips for door		20	4309.000	4596.000	4596.000	4596.000	895
Wiring plan pocket, sheet steel		1	4115.000	4116.000	4116.000	4116.000	898
Lock systems							
Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881/888.							

To order primed enclosures, please add extension .800 to the Model No. Delivery times available on request.

Cable duct, horizontal,
sized to the width of the mounting plate or in a fixed length of 2000 mm,
Model No. see page 978.
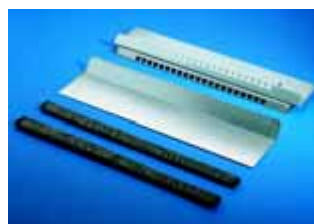
EMC gland plates,
suitable for integration into the modular gland plate concept,
see page 958.

Accessories Page 832

Compact system enclosures Rittal CM/CL

Accessories
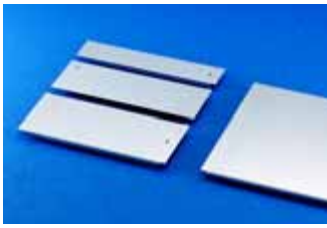
Gland plates

Select suitable gland plates depending on the application. The following examples illustrate how individually cable entry may be organised. Potential equalisation via assembly components and earthing points are provided.

Version	For enclosure width mm			
	600	800	1000	1200
	Model No.			
1	5001.010	5001.014	5001.018	5001.022
2	5001.011	5001.015	5001.019	5001.023
3	5001.012	5001.016	5001.020	5001.024
4	5001.013	5001.017	5001.021	5001.025

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
1, including assembly parts.

Note:
For greater stability and universal cable entry, the base opening is divided in the width for 1000 and 1200 mm wide enclosures.

Available from the 2nd quarter 2006 on.

Order example:
CM 5120.500 (W/H/D 1000 x 1200 x 400 mm)
– On left, gland plates divided into two with cable clamp strip
– On right, one-piece gland plate
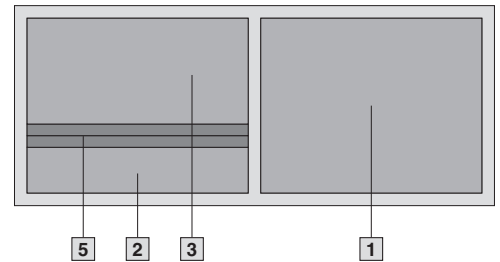
You will need:
2 sections for cable entry, TS 8802.100, see page 965 (packs of 4)
1 gland plate, depth 75 mm, 5001.019
1 gland plate, depth 175 mm, 5001.020
1 gland plate, depth 275 mm, 5001.018

Base/ cable entry

Rittal CM, depth 300 mm | **Rittal CM, depth 400 mm**

One-piece/ cable gland
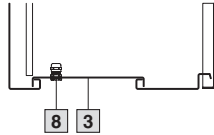
Two-piece/ cable gland
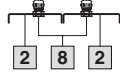
Two-piece/ cable clamp strip
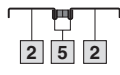
Divided/ grommets
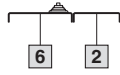
Three-piece/ grommets

Three-piece/ cable gland

Three-piece/ cable clamp strip

EMC
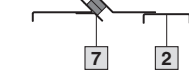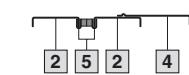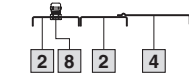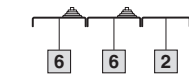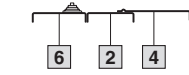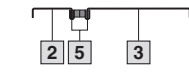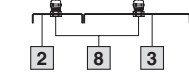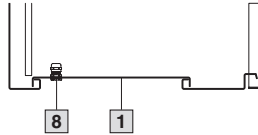
Base/ cable entry

Rittal CL, depth 400 mm | **Rittal CL, depth 500 mm**

One-piece/ cable gland
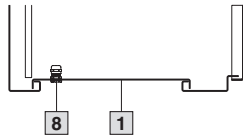
Three-piece/ cable gland
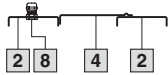
Three-piece/ cable clamp strip
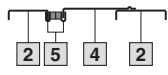
Three-piece/ grommets
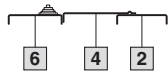
Three-piece/ grommets

EMC
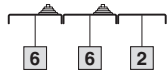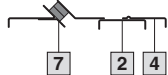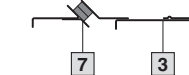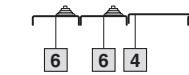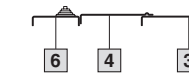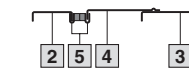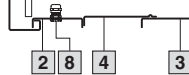
1. Gland plate, depth 275 mm
2. Gland plate, depth 75 mm
3. Gland plate, depth 175 mm
4. Gland plate, sliding
5. Section for cable entry, see page 965.
6. Cable entry plates and grommets, see page 964 – 965.
7. EMC gland plate, see page 958.
8. Cable glands, see page 972.

Rails for interior installation

For mounting in:
● Rittal CM
● Rittal CL
on the threaded bolts provided in the enclosure.

With TS system punchings for mounting:
● TS punched section with mounting flange,
  17 x 73 mm,
  – in the depth for outer mounting level,
  – in the width for inner
    mounting level
● TS punched rail 18 x 38 mm
● TS mounting bars
  for outer mounting level
● PS punched rail 23 x 23 mm,
  in conjunction with TS mounting bracket
● PS punched section without mounting flange,
  23 x 73 mm, in conjunction with support
  bracket TS

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure height mm	Packs of	Model No. SZ
600	4	**5001.050**
800	4	**5001.051**
1000	4	**5001.052**
1200	4	**5001.053**
1400	4	**5001.054**
1600	4	**5001.055**
1800	4	**5001.056**
2000	4	**5001.057**

Available from the 2nd quarter 2006 on.

⊞ **Accessories:**

TS punched section with mounting flange,
17 x 73 mm, see page 921.
TS punched rail 18 x 38 mm, see page 923.
TS support strips, see page 924.
PS punched rail 23 x 23 mm, see page 925.
PS punched section without mounting flange,
23 x 73 mm, see page 925.
TS mounting bracket, see page 932.
TS support bracket, see page 933.

B

1.3

Compact system enclosures Rittal CM/CL

Folding lever handle

Because the handle does not take up any swing
space, due to its folding mechanism, the door
surface area may be maximised to install equip-
ment.

Prepared for the installation of:
● Semi-cylinders with an overall length of 40 or
  45 mm (to DIN 18 254)
● All lock inserts
● As well as SZ lock and push-button inserts

Available from the 2nd quarter 2006 on.

Version	Model No. CM
Dark grey with light handle	**5001.060**

⊞ **Accessories:**

Lock inserts,
see page 881.
SZ lock and push-button inserts,
see page 882.

With security lock insert E1.
Only for applications in the VW, Audi, SEAT,
Skoda Auto sector.
Supplied without key.
Other locks available on request.

Version	Model No. CM
Dark grey with light handle	**5001.061**

Enclosure systems

Features

ES, the free-standing enclosure with firmly linked side panels.

TS 8, the Top enclosure system, a system platform for individual tasks.

Every enclosure, with all-round accessibility, is a specialist – however particular the task in hand.

ES free-standing enclosures
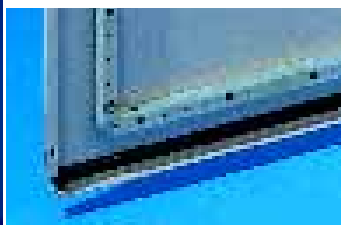
Door frame with slots on a 25 mm pitch pattern for the mounting of ducts, utility lectern, cable harnesses, wiring plan pockets etc.

Enclosure, **with system slots** on a 25 mm pitch pattern all round, for interior installation with PS accessories.

Three-piece, interchangeable, movable **gland plates** for easier cable entry and machining.

Compact system enclosures

New:
Compact Large Rittal CL,
the cost-effective alternative.

Monobloc construction.

Doors, mounting plates and interior installation compatible with TS 8.

See page 130 – 131.

Baying systems TS 8

The system platform for
● Electronic enclosures,
  see page 148.
● Modular front design,
  see page 149.
● Isolator door locking,
  see page 150.
● Corner enclosures,
  see page 868.
● Climate controlled
  enclosures,
  see page 582 – 583.

● Ex pressurisation,
  see page 152.
● Higher protection categories,
  see page 151.
● Stainless steel enclosure
  systems,
  see page 284.
● EMC enclosures,
  see page 291.

Baying systems TS 8
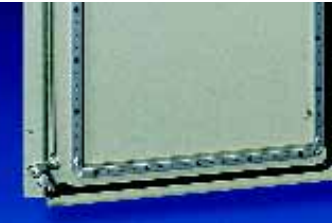
Door frame with punchings on a 25 mm pitch pattern, for the attachment of ducts, utility lecterns, cable harnesses, wiring plan pockets etc.
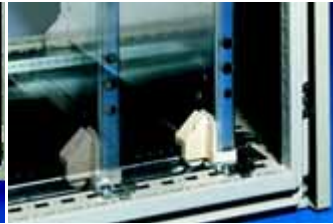
Mounting plate, zinc-plated, with C-fold at the side, **depth-variable** on a 25 mm pitch pattern. After installation, the slide rails may be used as mounting rails for the interior installation.

Maximum space for cable entry, thanks to multi-divided gland plates and accessory modules. With a square base area, cable entry may be installed rotated through 90°.

Universal interior installation: Frame sections, slotted on a 25 mm pitch pattern, with two mounting levels vertically with a TS hole pattern, and horizontally with a PS pitch pattern.

The roof plate is secured with **removable eyebolts.** The **all-round rain channel** prevents dirt and moisture from lying in contact with the seal.

Adjacent door locked into position by bars top and bottom with interconnecting rods and handle.

It couldn't be any faster: With the gland plates, side panels, rear panel and cover, **potential equalisation occurs automatically via earthing points** during assembly.

Between bayed enclosures, the **cover** affords additional protection for the seal.
Cover see page 867.

Fastening of the rods on all lock pieces is **from top to bottom.** This means that the lock cannot be opened during transportation or as a result of vibrations.

Base/plinth components (front and rear) combined with **trim panels** (side) or used to link two base/plinths.
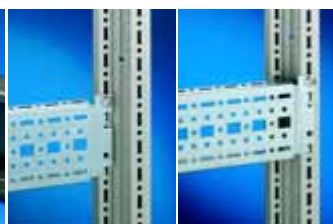
Two symmetrical levels for **maximum space utilisation** in the width and depth.

Potential equalisation is not necessary on the lock, because the lockable door latches onto the adjacent door outside of the sealing zone.

Free-standing enclosure ES 5000

Width: 600 – 1000
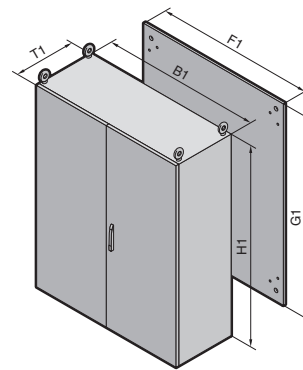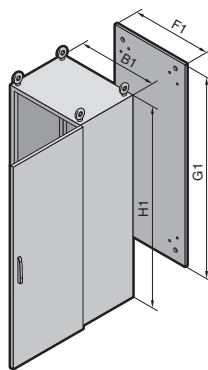
Material:
Sheet steel
Enclosure: 1.8 mm
Door: 2.0 mm
Rear panel and gland plates:
1.5 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure, door and rear panel:
Dipcoat-primed, powder-coated
in textured RAL 7035 on the
outside
Mounting plate and gland
plates: Zinc-plated

Protection category:
IP 56 to EN 60 529/10.91,
IP 55 to EN 60 529/10.91
for ES 5080.500,
Complies with NEMA 12.

Supply includes:
Enclosure with door(s), r/h door
hinge, can be changed to oppo-
site side (except 5080.500),
mounting plate, gland plates
and rear panel, detachable,
2 eyebolts, not fitted
(ES 5080.500, ES 5084.500:
4 eyebolts, fitted).

Approvals,
see page 28.

**Detailed drawing/
nominal dimensions,**
see page 1089 – 1090.

⇄ **Possible
alternative:**

Compact system enclosure
Rittal CL, see page 130 – 131.

Width (B1) in mm	Packs of	600	800	600	800	1000	1000	600	800	Page
Height (H1) in mm		1600	1600	1800	1800	1800	1800	2000	2000	
Depth (T1) in mm		500	500	400	400	400	400	500	500	
Mounting plate width (F1) in mm		499	699	499	699	899	899	499	699	
Mounting plate height (G1) in mm		1496	1496	1696	1696	1696	1696	1896	1896	
Model No. ES	1	**5665.500**	**5865.500**	**5684.500**	**5884.500**	**5084.500**	**5080.500**	**5605.500**	**5805.500**	
Door(s)		1	1	1	1	1	2	1	1	
Weight (kg)		102.5	124.5	104.5	125.0	147.0	148.0	124.0	151.5	
Accessories										
Base/plinth — Height 100 mm	1	2807.200	2829.200	2804.200	2823.200	2909.200	2909.200	2807.200	2829.200	843
Base/plinth — Height 200 mm	1	2808.200	2830.200	2805.200	2824.200	2910.200	2910.200	2808.200	2830.200	843

Lock systems

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888
and Ergoform-S lock system, see page 885.

**To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
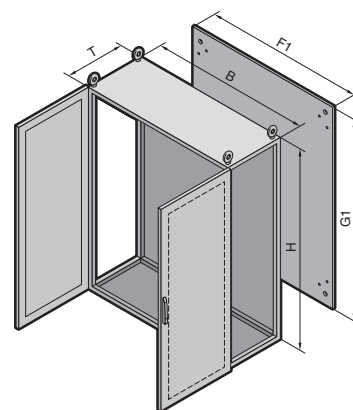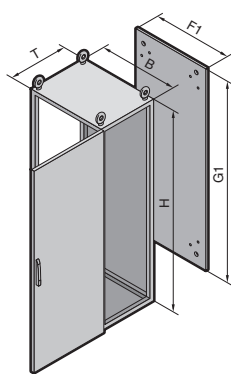Delivery times available on request.**

**Fold-out tray for keyboard and
mouse,**
Model No. see page 1049.

**Transport handles for mount-
ing plates and doors,**
Model No. see page 912/898.

Accessories Page 832 **ES 5000 stainless steel** Page 285 **ES 5000 EMC-shielded** Page 291
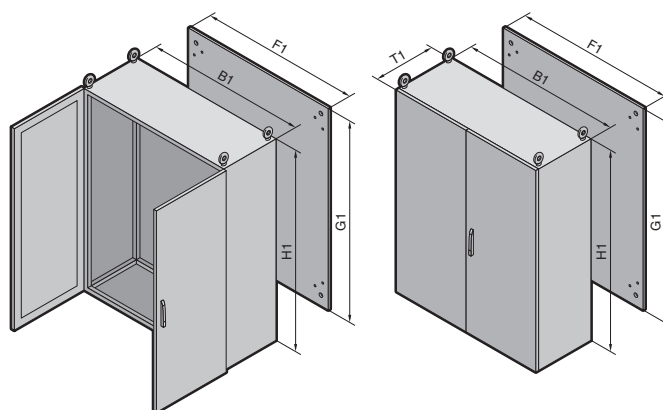
Material:
Sheet steel
Enclosure: 1.8 mm
Double door: 2.0 mm
Rear panel and gland plates:
1.5 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure, double door and rear panel: Dipcoat-primed, powder-coated on the outside in textured RAL 7035
Mounting plate and gland plates: Zinc-plated

Protection category:
IP 55 to EN 60 529/10.91,
Complies with NEMA 12.

Supply includes:
Enclosure with doors, mounting plate, gland plates and rear panel (ES 5784.500,
ES 5905.500 two-piece), detachable,
4 eyebolts, fitted.

Approvals,
see page 28.

**Detailed drawing/
nominal dimensions,**
see page 1089 – 1090.

**Possible
alternative:**

Compact system enclosure
Rittal CL, see page 130 – 131.

Width (B1) in mm		Packs of	1200	1200	1600	1200	1800	Page
Height (H1) in mm			1600	1800	1800	2000	2000	
Depth (T1) in mm			500	400	400	500	500	
Mounting plate width (F1) in mm			1099	1099	1499	1099	1699	
Mounting plate height (G1) in mm			1496	1696	1696	1896	1896	
Model No. ES		1	**5265.500**	**5284.500**	**5784.500**	**5205.500**	**5905.500**	
Doors			2	2	2	2	2	
Weight (kg)			175.5	180.0	222.0	210.0	300.0	
Accessories								
Base/plinth	Height 100 mm	1	2839.200	2836.200	2905.200	2839.200	2903.200	843
	Height 200 mm	1	2840.200	2837.200	2906.200	2840.200	2904.200	843
Lock systems								

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888
and Ergoform-S lock system, see page 885.

**To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.**

Cable duct, horizontal,
Model No. see page 978.

Viewing window
to protect against unauthorised access and preserve the protection category,
Model No. see page 878.

Baying systems TS 8

Height: 1400, depth: 500

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated
in textured RAL 7035 on the
outside
Mounting plate and gland
plates: Zinc-plated

Supply includes:
Enclosure frame with doors,
mounting plate, gland plates,
rear panel and roof plate

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12.

Approvals,
see page 29.

**Detailed drawing/
nominal dimensions,**
see page 1091 – 1092.

	Packs of	600	800	1200	Page
Width (B) in mm		600	800	1200	
Height (H) in mm		1400	1400	1400	
Depth (T) in mm		500	500	500	
Mounting plate width (F1) in mm		499	699	1099	
Mounting plate height (G1) in mm		1296	1296	1296	
Model No. TS	1	**8645.500**	**8845.500**	**8245.500**	
Door(s)		1	1	2	
Weight (kg)		86.0	107.5	163.5	
Walls					
Side panels	2	8145.235	8145.235	8145.235	853
Divider panel	1	8609.450	8609.450	8609.450	857
Divider panel for module plates	1	8609.180	8609.180	8609.180	858
Base/plinth					
Components front and rear — Height 100 mm	1 set	8601.600	8601.800	8601.200	835
Components front and rear — Height 200 mm	1 set	8602.600	8602.800	8602.200	835
Trim panels (sides) — Height 100 mm	1 set	8601.050	8601.050	8601.050	835
Trim panels (sides) — Height 200 mm	1 set	8602.050	8602.050	8602.050	835
Accessories					
Cable clamp rails for cable clamps	2	4191.000	4192.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	4944.000	4945.000	4947.000	928
Support strips for door	20	4596.000	4598.000	4596.000	895
Wiring plan pocket, sheet steel	1	4116.000	4118.000	4116.000	898
Lock systems					
Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.					

**To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.**

Signal pillar LED compact,
Model No. see page 1041.

Baying cover,
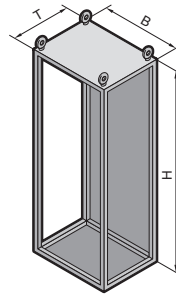Model No. see page 867.

B

1.4

Baying systems TS 8

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated
in textured RAL 7035 on the
outside
Mounting plate and gland
plates: Zinc-plated

Supply includes:
Enclosure frame with doors,
mounting plate, gland plates,
rear panel and roof plate

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12.

Approvals,
see page 29.

**Detailed drawing/
nominal dimensions,**
see page 1091 – 1092.

Width (B) in mm	Packs of	600	800	1200	Page
Height (H) in mm		1600	1600	1600	
Depth (T) in mm		500	500	500	
Mounting plate width (F1) in mm		499	699	1099	
Mounting plate height (G1) in mm		1496	1496	1496	
Model No. TS	1	**8665.500**	**8865.500**	**8265.500**	
Door(s)		1	1	2	
Weight (kg)		100.0	103.0	159.3	
Walls					
Side panels	2	8165.235	8165.235	8165.235	853
Divider panel	1	8609.650	8609.650	8609.650	857
Divider panel for module plates	1	8609.165	8609.165	8609.165	858
Base/plinth					
Components front and rear	Height 100 mm	1 set	8601.600	8601.800	8601.200	835
	Height 200 mm	1 set	8602.600	8602.800	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.050	8601.050	8601.050	835
	Height 200 mm	1 set	8602.050	8602.050	8602.050	835
Accessories					
Cable clamp rails for cable clamps	2	4191.000	4192.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	4944.000	4945.000	4947.000	928
Support strips for door	20	4596.000	4598.000	4596.000	895
Wiring plan pocket, sheet steel	1	4116.000	4118.000	4116.000	898
Lock systems					
Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.					

**To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.**

Connector gland
for connecting a keyboard,
mouse or scanner,
Model No. see page 975.

Hinge attachment
for partial mounting plates,
Model No. see page 911.

Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

Baying systems TS 8

Height: 1800, depth: 400

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated
in textured RAL 7035 on the
outside
Mounting plate and gland
plates: Zinc-plated

Supply includes:
Enclosure frame with doors,
mounting plate, gland plates,
rear panel and roof plate.

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12.

Approvals,
see page 29.

**Detailed drawing/
nominal dimensions,**
see page 1091 – 1092.

⊞ Accessories:

Corner enclosures,
see page 868.

**⇄ Possible
alternative:**

A matching climate control door
instead of the door or rear panel,
see page 584 – 588.

Width (B) in mm	Packs of	600	800	1000	1000	1200	Page
Height (H) in mm		1800	1800	1800	1800	1800	
Depth (T) in mm		400	400	400	400	400	
Mounting plate width (F1) in mm		499	699	899	899	1099	
Mounting plate height (G1) in mm		1696	1696	1696	1696	1696	
Model No. TS	1	**8684.500**	**8884.500**	**8084.500**	**8080.500**	**8284.500**	
Door(s)		1	1	1	2	2	
Weight (kg)		91.3	113.5	136.4	140.0	170.6	
Walls							
Side panels	2	8184.235	8184.235	8184.235	8184.235	8184.235	853
Divider panel	1	8609.840	8609.840	8609.840	8609.840	8609.840	857
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.600	8601.800	8601.000	8601.000	8601.200	835
	Height 200 mm	1 set	8602.600	8602.800	8602.000	8602.000	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.040	8601.040	8601.040	8601.040	8601.040	835
	Height 200 mm	1 set	8602.040	8602.040	8602.040	8602.040	8602.040	835
Accessories							
Cable clamp rails for cable clamps	2	4191.000	4192.000	4336.000	4336.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	4944.000	4945.000	4946.000	4946.000	4947.000	928
Support strips for door	20	4596.000	4598.000	4599.000	4309.000	4596.000	895
Wiring plan pocket, sheet steel	1	4116.000	4118.000	4124.000	4115.000	4116.000	898
Lock systems							

Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.

To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
**Delivery times available on request.**

Snap-on nut
for screw-fastening to the
vertical section with a thread,
Model No. see page 931.

System windows
to protect against unauthorised
access and preserve the protec-
tion category,
Model No. see page 877.
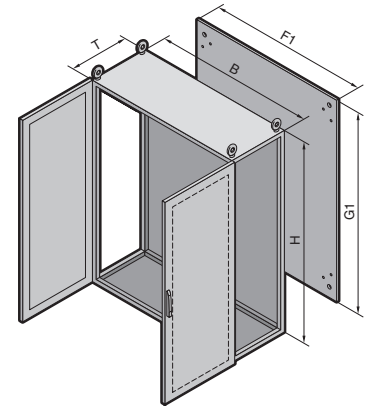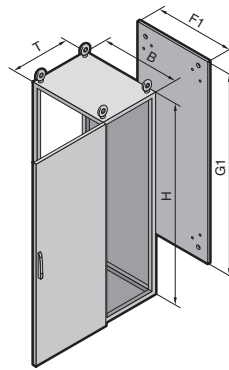
Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

B

1.4

Baying systems TS 8

Material:
Sheet steel
Enclosure frame, roof, rear panel and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated in textured RAL 7035 on the outside
Mounting plate and gland plates: Zinc-plated

Supply includes:
Enclosure frame with doors, mounting plate, gland plates, rear panel and roof plate.

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12
(apart from TS 8485.510).

Approvals,
see page 29.

**Detailed drawing/
nominal dimensions,**
see page 1091 – 1092.

⊞ Accessories:

Corner enclosures,
see page 868.

**⇄ Possible
alternative:**

A matching climate control door instead of the door or rear panel, see page 584 – 588.

Width (B) in mm	Packs of	400	600	800	800	1200	Page
Height (H) in mm		1800	1800	1800	1800	1800	
Depth (T) in mm		500	500	500	500	500	
Mounting plate width (F1) in mm		–	499	699	699	1099	
Mounting plate height (G1) in mm		–	1696	1696	1696	1696	
Model No. TS	1	**8485.510[1]**	**8685.500**	**8885.500**	**8880.500**	**8285.500**	
Door(s)		1	1	1	2	2	
Weight (kg)		49.2	93.8	115.8	122.5	173.3	
Walls							
Side panels	2	8185.235	8185.235	8185.235	8185.235	8185.235	853
Divider panel	1	8609.850	8609.850	8609.850	8609.850	8609.850	857
Divider panel for module plates	1	8609.100	8609.100	8609.100	8609.100	8609.100	858
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.400	8601.600	8601.800	8601.800	8601.200	835
	Height 200 mm	1 set	8602.400	8602.600	8602.800	8602.800	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.050	8601.050	8601.050	8601.050	8601.050	835
	Height 200 mm	1 set	8602.050	8602.050	8602.050	8602.050	8602.050	835
Accessories							
Cable clamp rails for cable clamps	2	4193.000	4191.000	4192.000	4192.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	–	4944.000	4945.000	4945.000	4947.000	928
Support strips for door	20	–	4596.000	4598.000	4594.000	4596.000	895
Wiring plan pocket, sheet steel	1	–	4116.000	4118.000	4114.000	4116.000	898
Lock systems							
Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.							

[1] Without tubular door frame, mounting plate and gland plates.
**To order enclosures in textured RAL 7032 please add extension .600 or .610 to the Model No., and for primed enclosures use extension .800 or .810.
Delivery times available on request.**

Interface flap
for the secure, lockable accommodation of sockets, ports or drives,
Model No. see page 1059.

Keyboard, pull-out
with integral trackball,
Model No. see page 1048.
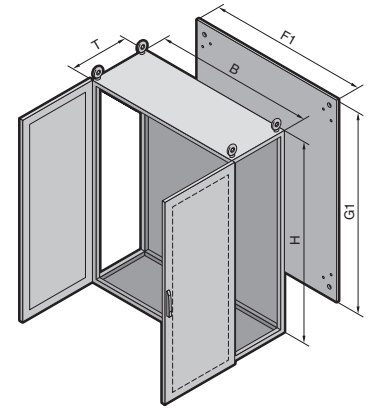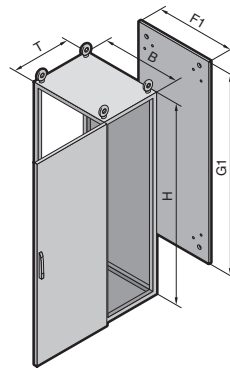
Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

Baying systems TS 8

Height: 1800, depth: 600

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated

in textured RAL 7035 on the
outside
Mounting plate and gland
plates: Zinc-plated

Supply includes:
Enclosure frame with doors,
mounting plate, gland plates,
rear panel, roof plate and
2 support strips
(TS 4696.000, see page 924),
fitted in the enclosure depth.

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12
(apart from TS 8486.510).

+ Accessories:

Corner enclosures,
see page 868.
Climate controlled enclosure
KTS single-door/two-door,
see page 582 – 583.

Approvals,
see page 29.

**Detailed drawing/
nominal dimensions,**
see page 1091 – 1092.

Width (B) in mm	Packs of	400	600	800	800	1200	Page
Height (H) in mm		1800	1800	1800	1800	1800	
Depth (T) in mm		600	600	600	600	600	
Mounting plate width (F1) in mm		–	499	699	699	1099	
Mounting plate height (G1) in mm		–	1696	1696	1696	1696	
Model No. TS	1	8486.510[1]	8686.500	8886.500	8881.500	8286.500	
Door(s)		1	1	1	2	2	
Weight (kg)		51.7	96.8	120.3	125.8	179.9	
Walls							
Side panels	2	8186.235	8186.235	8186.235	8186.235	8186.235	853
Divider panel	1	8609.860	8609.860	8609.860	8609.860	8609.860	857
Divider panel for module plates	1	8609.110	8609.110	8609.110	8609.110	8609.110	858
Climate control side panel	1	3331.XXX	3331.XXX	3331.XXX	3331.XXX	3331.XXX	589
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.400	8601.600	8601.800	8601.800	8601.200	835
	Height 200 mm	1 set	8602.400	8602.600	8602.800	8602.800	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	8601.060	8601.060	8601.060	835
	Height 200 mm	1 set	8602.060	8602.060	8602.060	8602.060	8602.060	835
Accessories							
Cable clamp rails for cable clamps	2	4193.000	4191.000	4192.000	4192.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	–	4944.000	4945.000	4945.000	4947.000	928
Support strips for door	20	–	4596.000	4598.000	4594.000	4596.000	895
Wiring plan pocket, sheet steel	1	–	4116.000	4118.000	4114.000	4116.000	898
Lock systems							

Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.

[1] Without tubular door frame, mounting plate and gland plates.
**To order enclosures in textured RAL 7032 please add extension .600 or .610 to the Model No., and for primed enclosures use extension .800 or .810.
Delivery times available on request.**

**Enclosure surface connector
and support for keyboards,**
Model No. see page 1034/1048.

Cross-brace for door
to stabilise an externally
mounted keyboard housing,
Model No. see page 895.

Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated

in textured RAL 7035 on the
outside
Mounting plate and gland
plates: Zinc-plated

Supply includes:
Enclosure frame with doors,
mounting plate, gland plates,
rear panel and roof plate.

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12.

⊞ Accessories:

Corner enclosures,
see page 868.
Climate controlled enclosure
KTS single-door/two-door,
see page 582 – 583.

Approvals,
see page 29.

**Detailed drawing/
nominal dimensions,**
see page 1091 – 1092.

Width (B) in mm	Packs of	600	800	1200	Page
Height (H) in mm		2000	2000	2000	
Depth (T) in mm		400	400	400	
Mounting plate width (F1) in mm		499	699	1099	
Mounting plate height (G1) in mm		1896	1896	1896	
Model No. TS	1	**8604.500**	**8804.500**	**8204.500**	
Door(s)		1	1	2	
Weight (kg)		99.0	124.0	184.5	
Walls					
Side panels	2	8104.235	8104.235	8104.235	853
Divider panel	1	8609.040	8609.040	8609.040	857
Climate control side panel	1	3331.XXX	3331.XXX	3331.XXX	589
Side panel with air/water heat exchangers	1	3316.200	3316.200	3316.200	632
Base/plinth					
Components front and rear	Height 100 mm	1 set	8601.600	8601.800	8601.200	835
	Height 200 mm	1 set	8602.600	8602.800	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.040	8601.040	8601.040	835
	Height 200 mm	1 set	8602.040	8602.040	8602.040	835
Accessories					
Cable clamp rails for cable clamps	2	4191.000	4192.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	4944.000	4945.000	4947.000	928
Support strips for door	20	4596.000	4598.000	4596.000	895
Wiring plan pocket, sheet steel	1	4116.000	4118.000	4116.000	898
Lock systems					

Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.

**To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.**

Vertical cable trunking,
sized to the section and horizon-
tally on the mounting plate,
Model No. see page 977 – 978.
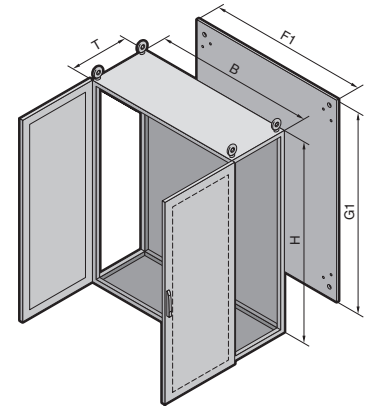
Bar
for EMC shielding brackets and
cable clamps,
Model No. see page 957.

Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

Baying systems TS 8

Height: 2000, depth: 500
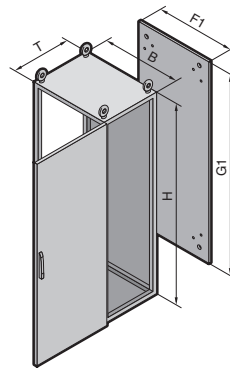
Material:
Sheet steel
Enclosure frame, roof, rear panel and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame, door, roof and rear panel: RAL 7044
Dipcoat-primed, powder-coated in textured RAL 7035 on the outside
Mounting plate and gland plates: Zinc-plated

Supply includes:
Enclosure frame with doors, mounting plate, gland plates, rear panel and roof plate.

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12
(apart from TS 8405.510).

⇄ Possible alternative:
A matching climate control door instead of the door or rear panel, see page 584 – 588.

⊞ Accessories:
Corner enclosures, see p. 868.
Climate controlled enclosure KTS single-door/two-door, see page 582 – 583.

Approvals,
see page 29.

Detailed drawing/ nominal dimensions,
see page 1091 – 1092.

Width (B) in mm	Packs of	400	600	800	1000	1200	Page
Height (H) in mm		2000	2000	2000	2000	2000	
Depth (T) in mm		500	500	500	500	500	
Mounting plate width (F1) in mm		–	499	699	899	1099	
Mounting plate height (G1) in mm		–	1896	1896	1896	1896	
Model No. TS	1	8405.510[1]	8605.500	8805.500	8005.500	8205.500	
Door(s)		1	1	1	2	2	
Weight (kg)		60.7	101.3	126.3	157.1	190.6	
Walls							
Side panels	2	8105.235	8105.235	8105.235	8105.235	8105.235	853
Divider panel	1	8609.050	8609.050	8609.050	8609.050	8609.050	857
Divider panel for module plates	1	8609.120	8609.120	8609.120	8609.120	8609.120	858
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.400	8601.600	8601.800	8601.000	8601.200	835
	Height 200 mm	1 set	8602.400	8602.600	8602.800	8602.000	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.050	8601.050	8601.050	8601.050	8601.050	835
	Height 200 mm	1 set	8602.050	8602.050	8602.050	8602.050	8602.050	835
Accessories							
Cable clamp rails for cable clamps	2	4193.000	4191.000	4192.000	4336.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	–	4944.000	4945.000	4946.000	4947.000	928
Support strips for door	20	–	4596.000	4598.000	4309.000	4596.000	895
Wiring plan pocket, sheet steel	1	–	4116.000	4118.000	4115.000	4116.000	898
Lock systems							
Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.							

[1] Without tubular door frame, mounting plate and gland plates.
**To order enclosures in textured RAL 7032 please add extension .600 or .610 to the Model No., and for primed enclosures use extension .800 or .810.
Delivery times available on request.**

Cable glands
made from polyamide or brass,
Model No. see page 972.

Fold-out tray for keyboard and mouse,
Model No. see page 1049.

Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated

in textured RAL 7035 on the
outside
Mounting plate and gland
plates: Zinc-plated

Supply includes:
Enclosure frame with doors,
mounting plate, gland plates,
rear panel, roof plate and
2 support strips
(TS 4696.000, see page 924),
fitted in the enclosure depth.

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12
(apart from TS 8406.510).

+ **Accessories:**

Corner enclosures,
see page 868.
Climate controlled enclosure
KTS single-door/two-door,
see page 582 – 583.

Approvals,
see page 29.

**Detailed drawing/
nominal dimensions,**
see page 1091 – 1092.

Width (B) in mm	Packs of	400	600	800	1000	1200	Page
Height (H) in mm		2000	2000	2000	2000	2000	
Depth (T) in mm		600	600	600	600	600	
Mounting plate width (F1) in mm		–	499	699	899	1099	
Mounting plate height (G1) in mm		–	1896	1896	1896	1896	
Model No. TS	1	8406.510[1]	8606.500	8806.500	8006.500	8206.500	
Door(s)		1	1	1	2	2	
Weight (kg)		55.7	104.0	130.5	161.2	194.6	
Walls							
Side panels	2	8106.235	8106.235	8106.235	8106.235	8106.235	853
Divider panel	1	8609.060	8609.060	8609.060	8609.060	8609.060	857
Divider panel for module plates	1	8609.130	8609.130	8609.130	8609.130	8609.130	858
Climate control side panel	1	3331.XXX	3331.XXX	3331.XXX	3331.XXX	3331.XXX	589
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.400	8601.600	8601.800	8601.000	8601.200	835
	Height 200 mm	1 set	8602.400	8602.600	8602.800	8602.000	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	8601.060	8601.060	8601.060	835
	Height 200 mm	1 set	8602.060	8602.060	8602.060	8602.060	8602.060	835
Accessories							
Cable clamp rails for cable clamps	2	4193.000	4191.000	4192.000	4336.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	–	4944.000	4945.000	4946.000	4947.000	928
Support strips for door	20	–	4596.000	4598.000	4309.000	4596.000	895
Wiring plan pocket, sheet steel	1	–	4116.000	4118.000	4115.000	4116.000	898
Lock systems							
Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.							

[1] Without tubular door frame, mounting plate and gland plates.
**To order enclosures in textured RAL 7032 please add extension .600 or .610 to the Model No., and for primed enclosures use extension .800 or .810.
Delivery times available on request.**

Section for cable entry
for top mounting on gland plates
with routing of the cable clamp
strip,
Model No. see page 965.

Module panel
for cable entry in divider panel,
Model No. see page 859.

Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

Baying systems TS 8

Height: 2000, depth: 800

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated

in textured RAL 7035 on the
outside
Mounting plate and gland
plates: Zinc-plated

Supply includes:
Enclosure frame with doors,
mounting plate, gland plates,
rear panel and roof plate.

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12.

⇄ **Possible
alternative:**
A matching climate control door
instead of the door or rear panel,
see page 584 – 588.

⊞ **Accessories:**
Climate controlled enclosure
KTS single-door/two-door,
see page 582 – 583.

Approvals,
see page 29.

**Detailed drawing/
nominal dimensions,**
see page 1091 – 1092.

Width (B) in mm	Packs of	600	800	1200	Page
Height (H) in mm		2000	2000	2000	
Depth (T) in mm		800	800	800	
Mounting plate width (F1) in mm		499	699	1099	
Mounting plate height (G1) in mm		1896	1896	1896	
Model No. TS	1	**8608.500**	**8808.500**	**8208.500**	
Door(s)		1	1	2	
Weight (kg)		111.3	137.0	203.0	
Walls					
Side panels	2	8108.235	8108.235	8108.235	853
Divider panel	1	8609.080	8609.080	8609.080	857
TS 8 internal fan mounting panel	1	3348.200	3348.200	3348.200	653
Base/plinth					
Components front and rear	Height 100 mm 1 set	8601.600	8601.800	8601.200	835
	Height 200 mm 1 set	8602.600	8602.800	8602.200	835
Trim panels (sides)	Height 100 mm 1 set	8601.080	8601.080	8601.080	835
	Height 200 mm 1 set	8602.080	8602.080	8602.080	835
Accessories					
Cable clamp rails for cable clamps	2	4191.000	4192.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	4944.000	4945.000	4947.000	928
Support strips for door	20	4596.000	4598.000	4596.000	895
Wiring plan pocket, sheet steel	1	4116.000	4118.000	4116.000	898
Lock systems					
Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.					

To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.

**Punched section without
mounting flange 45 x 88 mm**
The universal installation solu-
tion with 11 rows of holes for
heavy mounted equipment and
for screw-fastening to the
machine,
Model No. see page 922.

**Mounting
plate attach-
ment**
in conjunction
with a mount-
ing plate infill,
Model No.
see page 910.
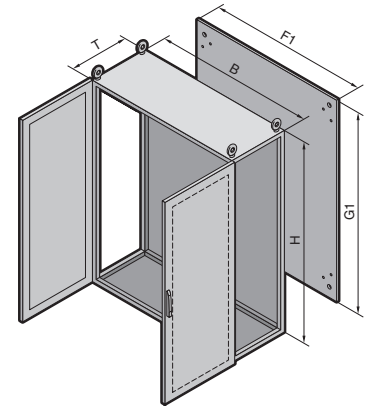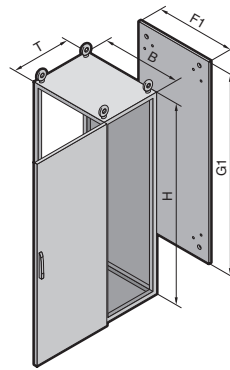
Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

Material:
Sheet steel
Enclosure frame, roof, rear panel and gland plates: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed, powder-coated in textured RAL 7035 on the outside
Mounting plate and gland plates: Zinc-plated

Supply includes:
Enclosure frame with doors, mounting plate, gland plates, rear panel and roof plate.

Protection category:
IP 55 to EN 60 529,
Complies with NEMA 12.

Accessories:

Corner enclosures,
see page 868.

Approvals,
see page 29.

Detailed drawing/ nominal dimensions,
see page 1091 – 1092.

Width (B) in mm	Packs of	600	800	1200	Page
Height (H) in mm		2200	2200	2200	
Depth (T) in mm		600	600	600	
Mounting plate width (F1) in mm		499	699	1099	
Mounting plate height (G1) in mm		2096	2096	2096	
Model No. TS	1	**8626.500**	**8826.500**	**8226.500**	
Door(s)		1	1	2	
Weight (kg)		113.1	139.3	208.0	
Walls					
Side panels	2	8126.235	8126.235	8126.235	853
Divider panel	1	8609.260	8609.260	8609.260	857
Base/plinth					
Components front and rear	Height 100 mm	1 set	8601.600	8601.800	8601.200	835
	Height 200 mm	1 set	8602.600	8602.800	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	8601.060	835
	Height 200 mm	1 set	8602.060	8602.060	8602.060	835
Accessories					
Cable clamp rails for cable clamps	2	4191.000	4192.000	4196.000	979
Cable clamp rails (C section) for cable clamps	6	4944.000	4945.000	4947.000	928
Support strips for door	20	4596.000	4598.000	4596.000	895
Wiring plan pocket, sheet steel	1	4116.000	4118.000	4116.000	898
Lock systems					

Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.

To order enclosures in textured RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.

Roof plates
with cutout for cooling units,
Model No. see page 664.

Utility shelves
for external mounting on surfaces as a support e.g. for scanners or tools,
Model No. see page 1039.

Accessories Page 832 **TS 8 stainless steel** Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 – 583
TS 8 climate control doors Page 584 – 588

Baying systems TS 8

Electronic enclosure
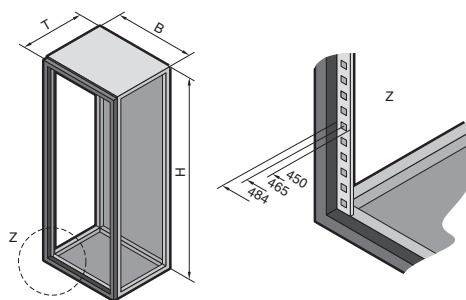
Material:
Enclosure frame:
1.5 mm sheet steel
Front frame:
Extruded aluminium sections
with die-cast corner pieces
Rear door: Sheet steel 2 mm
Roof and gland plates:
1.5 mm sheet steel
Adaptor sections: Aluminium

Surface finish:
Enclosure frame:
Dipcoat-primed
Front frame, rear door and roof:
Powder-coated in RAL 7035
Adaptor sections:
Conductive, corrosion-resistant
coating
Gland plates: Zinc-plated

Supply includes:
Enclosure frame, front frame (r/h
hinge, opening angle 130°, held
via mechanical snap fasteners
on left), rear door (r/h hinge, may
be swapped to opposite side),
roof, adaptor sections and gland
plates.

Approvals,
see page 30.

**Detailed drawing/nominal
dimensions,**
see page 1094.

U	Packs of	33	33	42	42	Page
Width (B) in mm		600	600	600	600	
Height (H) in mm		1600	1600	2000	2000	
Depth (T) in mm		600	800	600	800	
Model No. TS	1	**8410.510**	**8418.510**	**8430.510**	**8438.510**	
Door(s)		1	1	1	1	
Base/plinth						
Components front and rear	Height 100 mm	1 set	8601.600	8601.600	8601.600	8601.600	835
	Height 200 mm	1 set	8602.600	8602.600	8602.600	8602.600	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.080	8601.060	8601.080	835
	Height 200 mm	1 set	8602.060	8602.080	8602.060	8602.080	835
Accessories						
Side panels	2	8166.235	8168.235	8106.235	8108.235	853
Cable clamp rails for cable clamps	2	4191.000	4191.000	4191.000	4191.000	979
Cable clamp rails (C section) for cable clamps	6	4944.000	4944.000	4944.000	4944.000	928
Lock systems						

Standard double-bit lock insert (in rear door) may be exchanged for other lock inserts and comfort handle, see page 881 – 889.

For primed enclosures, please add extension .810 to the Model No. Delivery times available on request.

Signal pillar LED compact,
Model No. see page 1041.

Earthing plate,
the central earthing point for up
to eight flat-pin connectors.
Model No. see page 961.

The basic enclosures without
- Mounting plate
  for universal interior installation with
  – Partial mounting plates
  – Component shelves and drawers
  – Punched sections and rails
- Doors
  Frame for the installation of
  – Partial doors with and without viewing panels
  – Completely glazed doors
  – Drawers and desk sections
  – Profile blanking frame
  – Vertically divided doors
  – Trim panels hinged at the top

Material:
Sheet steel
Enclosure frame, roof, rear panel and gland plates: 1.5 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door and rear panel:
Dipcoat-primed
Powder-coated on the outside in Textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame, roof, rear panel, gland plates, three-piece.

**Detailed drawing
(TS basic enclosures without door),**
see page 1094.

Width (B) in mm	Packs of	600	800	Page
Height (H) in mm		2000	2000	
Depth (T) in mm		600	600	
Model No. TS	1	**8606.512**	**8806.512**	
Weight (kg)		52.5	63.0	
Walls				
Side panels	2	8106.512	8106.512	876
Divider panel	1	8609.060	8609.060	857
Divider panel for module plates	1	8609.130	8609.130	858
Base/plinth				
Components front and rear — Height 100 mm	1 set	8601.600	8601.800	835
Components front and rear — Height 200 mm	1 set	8602.600	8602.800	835
Trim panels (sides) — Height 100 mm	1 set	8601.060	8601.060	835
Trim panels (sides) — Height 200 mm	1 set	8602.060	8602.060	835

**To order enclosures in textured RAL 7032 please add extension .612 to the Model No., and for primed enclosures use extension .812.
Delivery times available on request.**

Trim panels TS
For height trim at the top and bottom,
Model No. see page 875.

Drawer tray
pull-out,
Model No. see page 942.

Baying systems TS 8

For isolator door locking
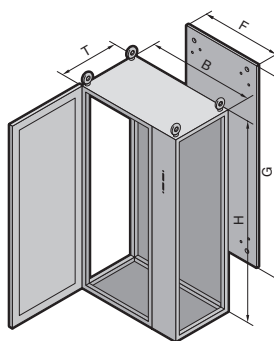
Material:
Sheet steel
Enclosure frame, roof, rear panel and gland plates:
1.5 mm
Door and trim panel: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, trim panel, roof and rear panel:
Dipcoat-primed
Powder-coated on the outside in textured RAL 7035
Mounting plate and
gland plates: Zinc-plated

Protection category:
IP 55 to EN 60 529/10.91,
Complies with NEMA 12
(with fitted/sealed isolator switch actuation)

Supply includes:
Enclosure frame, door
(l/h hinge),
trim panel (r/h hinge, with a swing lever at the top and bottom, with cutout for isolator switch actuation), roof,
rear panel, mounting plate,
three-piece gland plates.

Approvals,
see page 30.

Detailed drawing/nominal dimensions,
see page 1093.

Width (B) in mm		Packs of	800	800	800	800	Page
Height (H) in mm			1800	1800	2000	2000	
Depth (T) in mm			400	500	500	600	
Mounting plate width (F) in mm			699	699	699	699	
Mounting plate height (G) in mm			1696	1696	1896	1896	
Model No. TS		1	**8984.500**	**8985.500**	**8905.500**	**8906.500**	
Door(s)			1	1	1	1	
Weight (kg)			113.5	115.8	126.3	130.5	
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.800	8601.800	8601.800	8601.800	835
	Height 200 mm	1 set	8602.800	8602.800	8602.800	8602.800	835
Trim panels (sides)	Height 100 mm	1 set	8601.040	8601.050	8601.050	8601.060	835
	Height 200 mm	1 set	8602.040	8602.050	8602.050	8602.060	835
Also required							
Latch for bayed suites							892
Accessories							
Isolator door locking (USA version)		1	8611.310	8611.310	8611.310	8611.310	892
Lock systems							
Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.							

To order enclosures in RAL 7032 please add extension .600 to the Model No., and for primed enclosures use extension .800.
Delivery times available on request.

Cable gland
made from polyamide or brass,
Model No. see page 972.

Snap-on nut
for screw-fastening to the vertical section,
Model No. see page 931.

Accessories Page 832 **Adjacent cubicle latch mechanism** Page 883
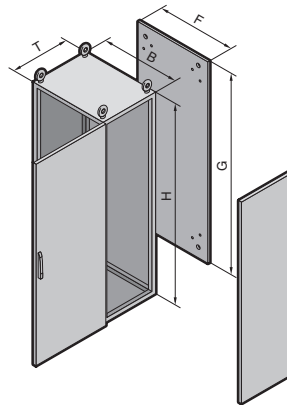
Material:
NEMA 4x:
Stainless steel 1.4301

NEMA 4:
Sheet steel, spray-finished

Enclosure frame, roof, base/
plinth, rear panel, side panels:
1.5 mm
Door: 2.0 mm
Mounting plate:
3.0 mm (sheet steel)

Surface finish:
NEMA 4x:
Enclosure frame: Bare
Door, roof, base, rear panel, side
panels: Brushed on the outside,
grain size 240
Mounting plate: Zinc-plated

NEMA 4:
Enclosure frame:
Dipcoat-primed
Door, roof, base, rear panel,
side panels:
Dipcoat-primed
and powder-coated
Textured RAL 7035
Mounting plate: Zinc-plated

Protection category:
IP 65 to EN 60 529/10.91
(NEMA 4x or NEMA 4 is met)

Supply includes:
NEMA 4x/NEMA 4:
Enclosure frame with door,
roof/base plate, rear panel,
side panels, mounting plate.

Approvals,
see page 30.

**Detailed drawing
(TS basic enclosures),**
see page 1091.

		Packs of	NEMA 4x, stainless steel				NEMA 4, sheet steel				Page
Width (B) in mm			600	800	600	800	600	800	600	800	
Height (H) in mm			1800	1800	2000	2000	1800	1800	2000	2000	
Depth (T) in mm			600	600	600	600	600	600	600	600	
Mounting plate width (F) in mm			499	699	499	699	499	699	499	699	
Mounting plate height (G) in mm			1696	1696	1896	1896	1696	1696	1896	1896	
Model No. TS		1	**8458.640**	**8459.640**	**8452.640**	**8450.640**	**8686.540**	**8886.540**	**8606.540**	**8806.540**	
Door(s)			1	1	1	1	1	1	1	1	
Base/plinth											
Components front and rear	Height 100 mm	1 set	8701.600	8701.800	8701.600	8701.800	8601.600	8601.800	8601.600	8601.800	841/835
	Height 200 mm	1 set	8702.600	8702.800	8702.600	8702.800	8602.600	8602.800	8602.600	8602.800	841/835
Trim panels (sides)	Height 100 mm	1 set	8701.060	8701.060	8701.060	8701.060	8601.060	8601.060	8601.060	8601.060	841/835
	Height 200 mm	1 set	8702.060	8702.060	8702.060	8702.060	8602.060	8602.060	8602.060	8602.060	841/835
Base/plinth trim, modular SO		4	2913.000	2913.000	2913.000	2913.000	–	–	–	–	841
Accessories											
Cable clamp rails		2	4191.000	4192.000	4191.000	4192.000	4191.000	4192.000	4191.000	4192.000	979
System support rails		2	4361.000	4362.000	4361.000	4362.000	4361.000	4362.000	4361.000	4362.000	926
Support strips for door		20	4596.000	4598.000	4596.000	4598.000	4596.000	4598.000	4596.000	4598.000	895
Wiring plan pocket, sheet steel		1	4116.000	4118.000	4116.000	4118.000	4116.000	4118.000	4116.000	4118.000	898
Lock systems											

Standard double-bit lock insert may be exchanged for other lock inserts and comfort handle, see page 881 – 889.

Delivery times available on request.

Cable glands IP 68
in polyamide and brass,
Model No. see page 972.

Punched rail
25 x 38 mm,
Model No. see page 923.

Accessories Page 832 **Cable entry** From page 964

Baying systems TS 8

prepared for EX pressurisation
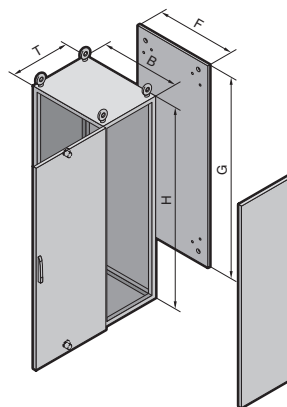
In conjunction with an EX over-pressure control, e.g. from Stahl (not included with the supply), conventional operating equipment may be used in explosion hazard areas. To this end, a permanent overpressure is applied to the enclosure which prevents the ingress of potentially explosive atmospheres. Economical operation is guaranteed, thanks to a minimal leakage rate of less than 20 l/min, at 2 mbar test pressure.

Design:
● Base as for roof
● Door with additional cams top and bottom, r/h hinge (l/h hinge on request)
● Side panels fitted

Surface finish:
Sheet steel:
Enclosure frame:
Dipcoat-primed door, roof, base, side panels and rear panel:
Dipcoat-primed, powder-coated on the outside
Textured RAL 7035
Mounting plate: Zinc-plated

Stainless steel:
Enclosure frame: Bare
Door, side panels, roof, base/plinth, and rear panel:
Brushed, grain 240
Mounting plate: Zinc-plated

Protection category:
IP 65 to EN 60 529/10.91

Supply includes:
Enclosure frame with door (with additional cam top and bottom), roof/base plate, rear panel, side panels, mounting plate.

Note:
According to ATEX an EExp empty enclosure cannot be certified.

Width (B) in mm	600	800	600	800	600	800	1000	600	800	600	–
Height (H) in mm	1400	1400	1600	1600	1800	1800	1800	1800	1800	1800	–
Depth (T) in mm	500	500	500	500	400	400	400	500	500	600	–
Mounting plate width (F) in mm	499	699	499	699	499	699	899	499	699	499	–
Mounting plate height (G) in mm	1296	1296	1496	1496	1696	1696	1696	1696	1696	1696	–
Model No. TS sheet steel	**8645.560**	**8845.560**	**8665.560**	**8865.560**	**8684.560**	**8884.560**	**8084.560**	**8685.560**	**8885.560**	**8686.560**	–

Width (B) in mm	800	600	800	600	800	600	800	600	800	600	800
Height (H) in mm	1800	2000	2000	2000	2000	2000	2000	2000	2000	2200	2200
Depth (T) in mm	600	400	400	500	500	600	600	800	800	600	600
Mounting plate width (F) in mm	699	499	699	499	699	499	699	499	699	499	699
Mounting plate height (G) in mm	1696	1896	1896	1896	1896	1896	1896	1896	1896	2096	2096
Model No. TS sheet steel	**8886.560**	**8604.560**	**8804.560**	**8605.560**	**8805.560**	**8606.560**	**8806.560**	**8608.560**	**8808.560**	**8626.560**	**8826.560**

Width (B) in mm	800	1000	600	800	600	600	800	800	–	–	–
Height (H) in mm	1800	1800	1800	1800	1800	2000	2000	2000	–	–	–
Depth (T) in mm	400	400	500	500	600	600	600	800	–	–	–
Mounting plate width (F) in mm	699	899	499	699	499	499	699	699	–	–	–
Mounting plate height (G) in mm	1696	1696	1696	1696	1696	1896	1896	1896	–	–	–
Model No. TS stainless steel	**8454.660**	**8461.660**	**8457.660**	**8455.660**	**8458.660**	**8452.660**	**8450.660**	**8460.660**	–	–	–

Delivery times available on request.

For areas at risk from earthquakes
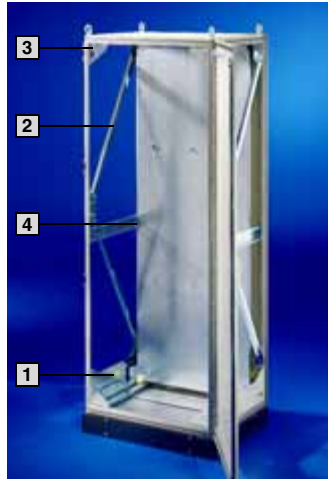
TS 8 for earthquake zone 1, 2 and 3 to Bellcore
TS 8806.500:
W x H x D 800 x 2000 x 600 mm

With base/plinth (base/plinth components front and rear and base/plinth trim, side, see page 835), 100 mm high, with weight load of 125 kg distributed evenly over the mounting plate.

Note:
These versions have been tested and meet the requirements to Telcordia GR 63-CORE. They should be seen as a comparative variable to the customer's own plant, since the certification of empty enclosures is not possible.

TS 8 for earthquake zone 4 to Bellcore
TS 8806.500:
W x H x D 800 x 2000 x 600 mm

Fitted with:
● Earthquake kit and
● Base/plinth, complete see page 153,

with weight load of 450 kg distributed evenly over the mounting plate.

✐ **Rittal service:**

● Mounting on the enclosure available on request.
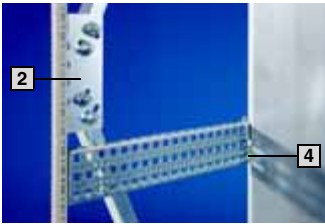
Earthquake kit
for TS 8806.500

Material:
Sheet steel

Surface finish:
Zinc-plated, passivated

Supply includes:

1 2 side reinforcements, bottom

2 2 bracing struts each, sides

3 8 gusset plates

4 Mounting plate attachment and reinforcement including assembly parts

Packs of	Model No. TS
1 set	**8613.860**
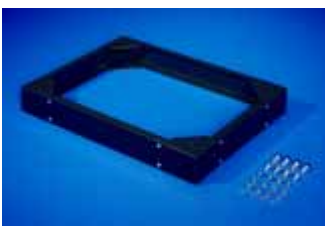
Base/plinth, complete
for TS 8806.500

Material:
Sheet steel.
Corner pieces 5 mm
Trim panels 2 mm

Surface finish:
Powder-coated in RAL 7022

Supply includes:
1 set =
● 4 corner pieces
● 2 depth stays
● 1 trim panel each front and rear
fully assembled.

Base/plinth height	Packs of	Model No. TS
100 mm	1 set	**8601.860**

Accessories Page 832 **Base/plinth** Page 834

Command Panel VIP 6000

Diversity: Frame and front design

The VIP 6000 offers exceptionally diverse opportunities.

Each of the three frames conveys its own design line with special functions.

Each enclosure is manufactured to order and covers every conceivable requirement. Every operator panel is assembled quickly and precisely.

Should you have any queries, please contact your specialist Rittal advisor.

As we have said, there's always a solution!

Protective rights for frames:
German patent
No. 195 25 876
German patent
Nr. P 41 09 695
European patent no. 0 505 681
with validity for CH, FR, GB, IT
European patent no. 0 839 299
with validity for FR, GB, IT
Jap. patent no. 3199745
Jap. patent no. 3221506
South Korean patent
No. 97-70 77 12
US patent no. 5,921,050

German registered design
No. M 94 08 533
IR Reg. Des. No. DM/032 843
with validity for BE, CH, ES, FR,
IT, NL
Austral. Reg. Des. No. 125352
Japan. registered design
No. 983 783
Austrian Registered Design
No. 17467
Swedish Registered Design
No. 58 996

South Korean Reg. Des.
No. 191148
UK Reg. Des. No. 2047055
US Design Patent No.
Des. 375,726
Brazilian design pattern
No. DI 5500 709-0

Approvals,
see page 31.

Three customised design lines

Wide frame
A frame and handle in one; the ideal choice where enclosures with fins all round are used for better heat dissipation.

Narrow frame
An eye-catching design with its stylish lines, particularly for small enclosures.

Combined handle
The soft-coated frame at the sides is particularly sympathetic to the touch. This is also suitable for use with enclosures with fins at the sides.

Individual front design
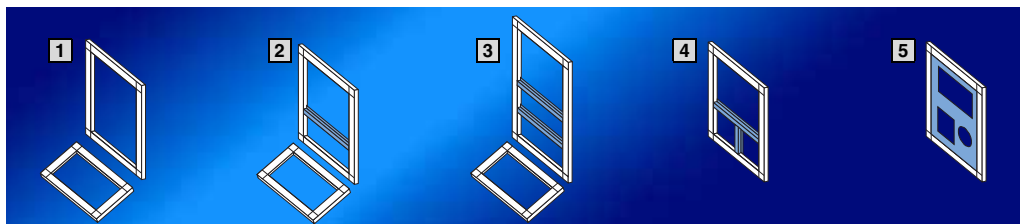
[1] Without subdivision
[2] With cross member or sealing bar
[3] With two cross members or sealing bars, including combinations
[4] Combined with horizontal/vertical cross member or sealing bar
[5] Adaptor plate with individual cutouts

Attachment/trim
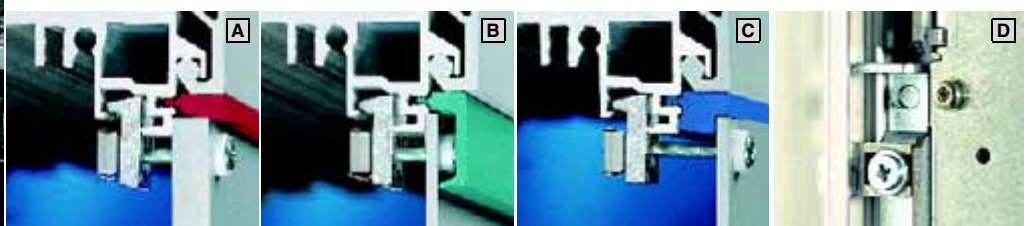
Each attachment point all round is achieved with sliding retaining claws.

The screw heads disappear stylishly beneath the cover trim (A).
Front panels with threaded bolts may also be combined with the end trim (B) or spacer trim (C).
Panels with screw clamp (D) are mounted with the end trim.

Diversity: Enclosures, rear panels, heat dissipation

Tailor-made operating housings
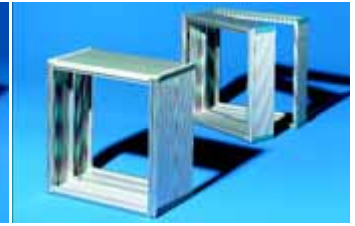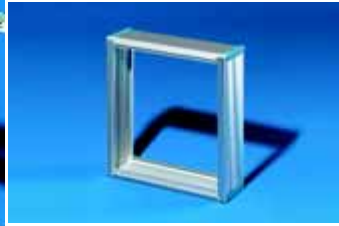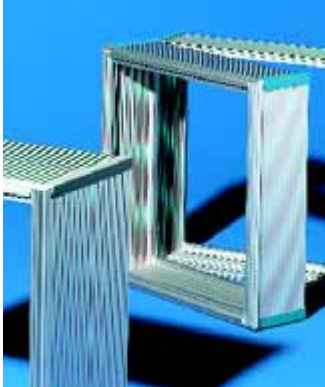
There is a choice of five installation depths (155, 185, 295, 328 and 438 mm) available. Either screw-fastened or hinged, depending on requirements.

They provide space e.g. for: industrial PCs, machine control panels, flat screens and monitors, keyboard drawers, drives, bus modules and every other conceivable application.

Versatile configuration is individual and easy, thanks to the internal screw channels.

Rear panels to order

Screw-fastened/vertically or horizontally hinged –

choose the rear panel according to your servicing requirements.

A depth extension of 45 or 245 mm can also be achieved using special rear panels.

Effective heat dissipation
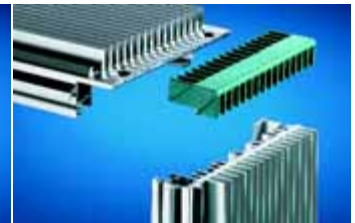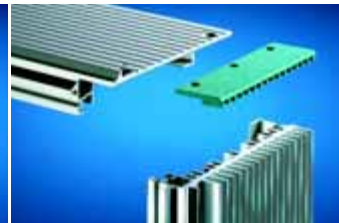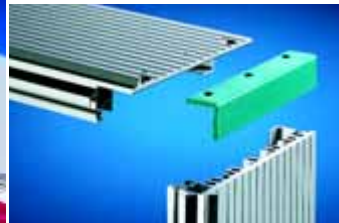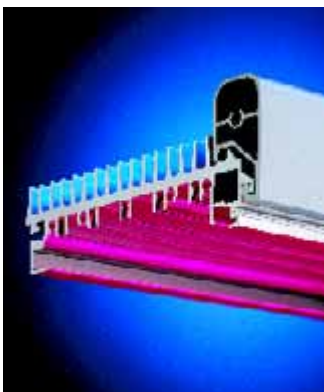
No fins
Because it is equipped with cooling fins, the VIP 6000 solution often eliminates the need for active cooling components. Even the VIP 6000 enclosure version without fins boasts excellent heat loss dissipation.

Fins at sides
For an installation depth of 155 mm, with all-round cooling fins the dissipatable heat loss is increased by approximately 30%. With air circulation inside the enclosure, the dissipatable heat loss is increased by up to

Fins all round
a further 15%. A further significant increase in heat dissipation can be achieved with the modular cooling rear panel.

Dissipatable heat loss[1]				
Installation depth 155 mm	19″/ 7 U	Rear cooling panel, modular	19″/ 7 + 3.5 U	Rear cooling panel, modular
No fins	80 W	88 W	100 W	110 W
Fins at sides	95 W	105 W	115 W	127 W
Fins all round	110 W	121 W	130 W	148 W

[1] P_v (W) at $\Delta T = 20$ K

Enclosures with installation depth 185 mm and 328 mm are directly behind the front frame at a depth of 44 mm, without fins.
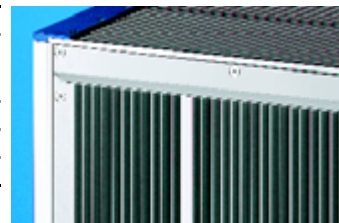
Cooling fins on the rear cooling panel considerably increase the dissipatable heat loss.

VIP SK small cooling unit
This cooling unit provides added peace of mind when cooling fins are not enough.

Command Panel VIP 6000

Diversity: Keyboard housing and ergonomics

Further diversity from the modular system:

Keyboard housing in three different depths.

The matching keyboard housing
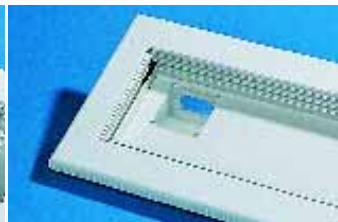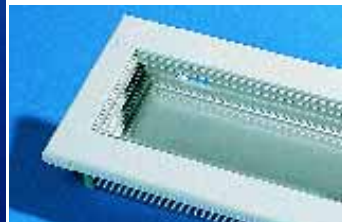
For all three frame types, keyboard housings are available in the installation depths 105 and 44 mm. For the wide frame, a depth of 27 mm is additionally

available in two variants. The width of the keyboard and operating housing is identical with the wide VIP 6000 frame. With narrow and combined VIP 6000

frames, different widths of keyboard and operating housings may also be used.

Keyboard housing connectors for wide frames and . . .

Wide frame

Combined frame

Narrow frame
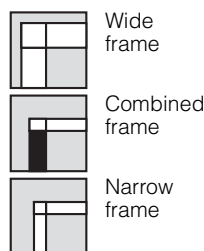
Depending on the chosen VIP 6000 frame, rigid and adjustable connections between the operating housing and the keyboard housing are available.

Frame connector and cable tube, rigid
Tilting angle 120°.

Frame connector, adjustable and cable tube, flexible
Tilting angle adjustable from 75° – 120° in 7.5° increments.

. . . for narrow and combined frames
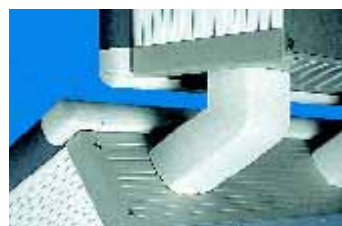
Enclosure duct connector
Tilting angle 120°, rigid, with integral cable tube, for enclosure installation depth 105 mm.

Enclosure bar connector
Tilting angle 120°, rigid, for enclosure installation depth 44 mm.

Hinged frame connector
Tilting angle 75° – 120° infinitely adjustable.

Diversity: Keyboard housing and ergonomics

Precisely the right position

Different viewing angles of the machine, whether the operating staff are tall or short, sitting or standing – with Rittal support arm systems, the command panel is always in the optimum position. Depending on the system configuration, jib length and enclosure weight, support arm systems CP-L or CP-XL are used. If you want to combine a high load capacity with a stylish look, system combinations provide the ideal solution.

Always within reach

Tailored precisely to the operator's requirements, various handle sets may be fitted in accordance with ergonomic requirements.

"Steering" the enclosure becomes child's play.

Stationary or mobile

Floor-standing systems in a variety of designs – even height-adjustable – round off the application diversity of the VIP 6000 Command Panel.

Command Panel VIP 6000

Diversity: Configuration examples

Nothing's impossible . . .

A kaleidoscope of incredible solution diversity. Configure

your perfect enclosure.

Allow yourself to be inspired by these examples: e.g. by the

front divisions, the handle arrangements, the enclosure

depths, and much more besides.

. . . with wide frame.

A small selection from the wide range of opportunities available.
For enclosures with cooling fins, the wide frame is important.

Example A
- Operating housing, 155 mm deep
- Keyboard housing, 27 mm deep, with cable entry grommet
- Frame connector, adjustable
- Vertical handle set
- With vertical and horizontal cross member
- Support arm connection at bottom
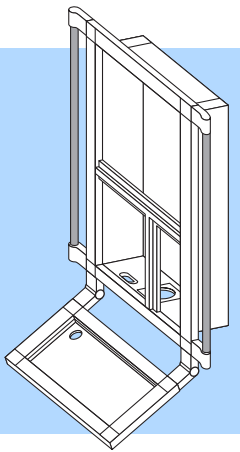
Example B
- Operating housing, 155 mm deep
- Side keyboard housing, 44 mm deep
- Frame connector, rigid
- Vertical handle set with clipboard
- With horizontal cross member and vertical sealing bar
- Support arm connection at the bottom
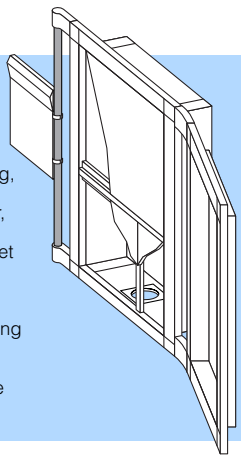
Example C
- Command panel, 155 mm deep
- Keyboard housing at top, 44 mm deep, with frame connector, adjustable
- Keyboard housing at bottom, 44 mm deep, with frame connector, rigid
- Cable tube, flexible
- Vertical handle sets
- Support arm connection bottom
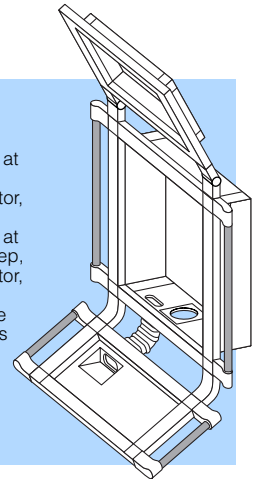
Example D
- Operating housing, 155 mm deep, with vertical handle set
- Keyboard housing with handle set horizontal and vertical
- Cable tube, flexible
- Support arm connection at bottom
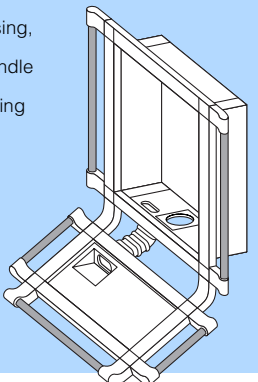
Example E
- Operating housing, 155 mm deep
- Keyboard housing, 105 mm deep
- Frame connector and cable tube, rigid
- Support arm connection at bottom
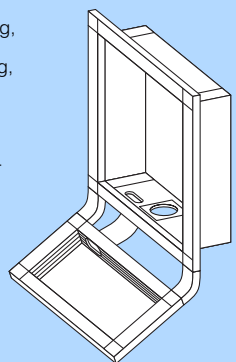
Example F
- Operating housing, 438 mm deep, e.g. for colour screen
- With handle set vertical
- With horizontal sealing bar
- Support arm connection top
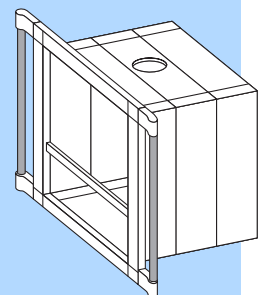
. . . with narrow frame.

Stylish lines for small enclosures and those without fins.

Example G
- Operating housing, 155 mm deep
- With U handle, vertical
- Enclosure connector, adjustable, on l/h side for vertically hinged wall mounting
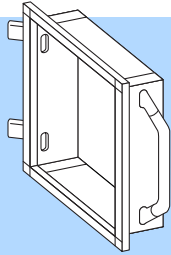
Example H
- Operating housing, 155 mm deep
- Keyboard housing, 105 mm deep
- Enclosure duct connector
- Support arm connection at the bottom
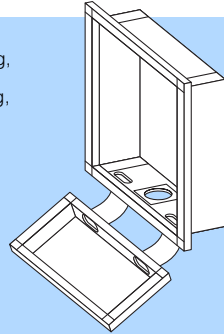
Example I
- Operating housing, 155 mm deep
- Keyboard housing, 44 mm deep
- Hinged frame connector
- U handles, vertical
- Cable tube, flexible
- Support arm connection, top
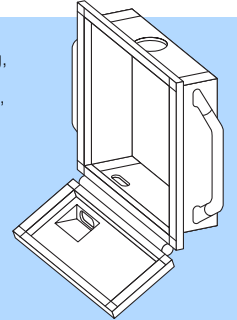
Example J
- Command panel, 155 mm deep
- Keyboard housing, 44 mm deep
- With enclosure bar connector
- With corner handles
- Cable tube, flexible
- Support arm connection at bottom
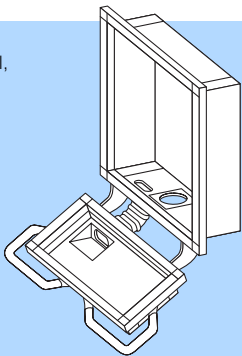
Example K
- Operating housing, 155 mm deep
- Keyboard housing, 44 mm deep
- Enclosure bar connector
- Support arm connection at bottom
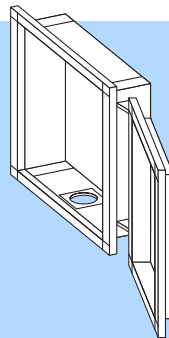
Example L
- Operating housing, 185 mm deep, hinged
- Keyboard housing, 44 mm deep
- Enclosure bar connector
- Cable tube, flexible
- Support arm connection top
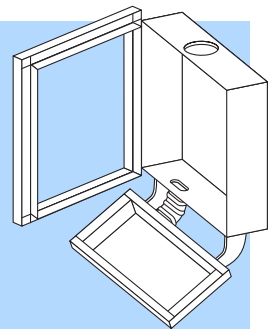
. . . with combined frame.

The soft-coated frame at the sides is particularly sympathetic to the touch.

Example M
- Operating housing, 155 mm deep
- Keyboard housing, 44 mm deep
- Enclosure bar connector
- Cable tube, flexible
- Support arm connection top
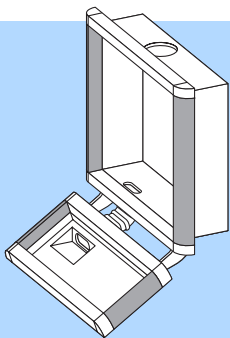
Example N
- Operating and keyboard housing in various widths
- Keyboard housing, 105 mm deep, with cross member
- Enclosure duct connector
- U handle horizontal
- Support arm connection top
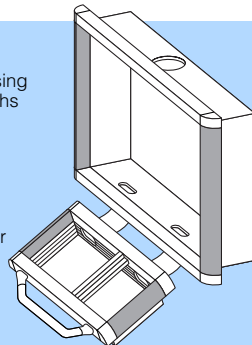
Example O
- Command panel, 155 mm deep
- Keyboard housing, top, with hinged frame connector
- Keyboard housing, bottom, with enclosure bar connector
- Cable tube, flexible
- Support arm connection, top
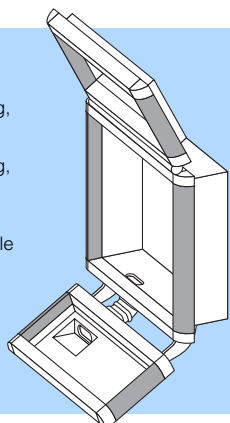
Example P
- Operating housing, 155 mm deep
- Corner handles
- Support arm connection, top

B

1.5

Command Panel VIP 6000
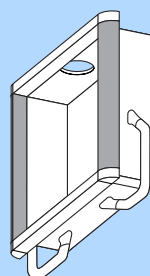
Command Panel VIP 6000

Selection: Operating housing/keyboard housing

We need the following information in order to deal with your enquiry/order:
- Model No. front frame: CP 6392.X09
- The dimensions and number of panels/front panels to be installed in the operating/keyboard housing
- Design code number for the operating/keyboard housing

Protection category:
IP 65 (if the opening in the enclosure is covered or sealed in accordance with the protection category).

Order form,
available on the Internet.

1. Front frame

Select the frame to match your requirements. It is used automatically for a keyboard housing as well.

.009

Wide frame
Extruded aluminium section

Die-cast zinc corner pieces

Colour: RAL 7035[1]
finely textured

0

.109

Combined frame[2]
Extruded aluminium section

Soft-coated frame similar to RAL 7024 (sides), vertical

Die-cast zinc corner pieces

Note:
For visual reasons only enclosures without fins or with fins on the side should be mounted here.

1

.209

Narrow frame[2]
Extruded aluminium section

Die-cast zinc corner pieces

Note:
For visual reasons only enclosures without fins should be mounted here.

2

[1] Other RAL colours available on request.
[2] For keyboard housing depth 27 mm not possible (see selection 4.1).

Model No. CP
Command panel

| 6 | 3 | 9 | 2 | . | | 0 | 9 |

Model No. CP
Keyboard housing

| 6 | 3 | 5 | 1 | . | | 0 | 9 |

2. Panel dimensions

2.1 For operating housings CP 6392.X09 and
2.2 For keyboard housings CP 6351.X09
On the order form, please state the width (B) x height (H) x depth (T) of the control components and the manufacturer/model, with due regard for the installation criteria (see below).

Checking the installation criteria

Please check whether your operator panel is installed directly into the VIP 6000. Otherwise, an adaptor panel is needed – cf. 3.2, design code number **6**, page 162.
The dimensions of the operating panel and keyboard housing are derived from the dimensions of your panel and the number of cross members.

1 **7 to 13 mm edge spacing** of the mounting hole or bolt.

2 **Front panel projection** on sides with mounting holes or bolts **at least 17 mm,** on sides without mounting holes at least 6 mm.

3 **Front panel thickness** depending on the type of trim section variable, see page 163, version 3.4.

4 **Installation depths:**
Operating housing = 155 mm, 185 mm[1], 295 mm[1], 328 mm[1], 438 mm[1].
Command panel **with 45 mm deep rear panel[2]** = 200 mm, 230 mm[1], 340 mm[1], 373 mm[1], 483 mm[1].
Command panel **with 245 mm deep rear panel[2]** = 400 mm, 430 mm[1], 540 mm[1], 573 mm[1], 683 mm[1].

5 For versions with a hinged rear panel, the maximum installation depth is reduced by 27 mm in the vicinity of the lock.

[1] Enclosure without fins with a 60 mm deeper rear section available on request.

[2] Other depths available on request.

Note:
Load information for installed equipment, see page 1186.
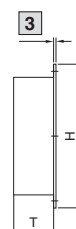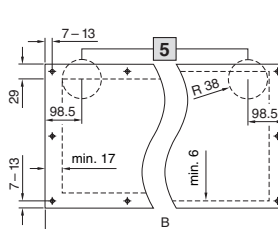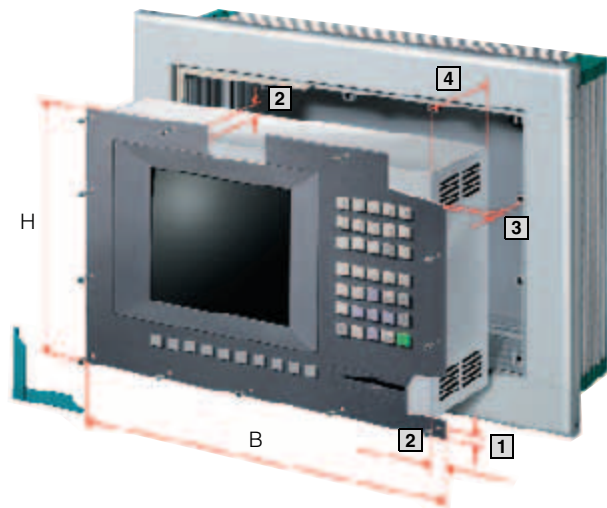
3.1 Installation depth

Material:
Enclosure:
Extruded aluminium section
Corner protectors:
Plastic, self-extinguishing

Surface finish:
Enclosure: Natural anodised

Note:
Support arm connection see 3.6.
Drawing view from above.
R/h hinge is also possible.

Detailed drawing,
see page 1095/1096.

Installation depth 155 mm

screw-fastened — 3.1 / 1

Support arm system CP-L	prepared
Support arm system CP-XL	with adaptor CP 6528.500

Installation depth 185 mm[1]

screw-fastened — 3.1 / 2

hinged[2] — 3.1 / 3

Support arm system CP-L	prepared
Support arm system CP-XL	with adaptor CP 6528.500
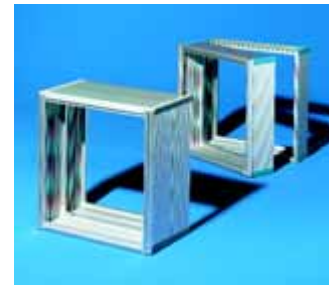
Installation depth 295 mm[1]
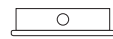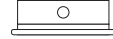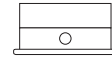
screw-fastened — 3.1 / 4
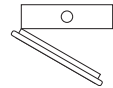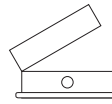
hinged[2] — 3.1 / 5

Support arm system CP-L	prepared
Support arm system CP-XL	with adaptor CP 6528.500
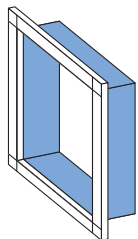
Installation depth 328 mm[1]
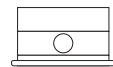
screw-fastened — 3.1 / 6

hinged[2] — 3.1 / 7
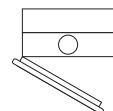
Support arm system CP-L	with adaptor CP 6528.000[3]
Support arm system CP-XL	prepared

Installation depth 438 mm[1]
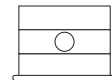
screw-fastened — 3.1 / 8
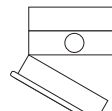
hinged[2] — 3.1 / 9

Support arm system CP-L	with adaptor CP 6528.000[3]
Support arm system CP-XL	prepared

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

[1] Enclosure without fins with a 60 mm deeper rear section available on request.

[2] Cam lock with double-bit lock insert, may be exchanged for 41 mm lock inserts, type C, see page 888.

[3] Provided the admissible load capacity of the support arm system is adequate, see page 188.

Command Panel VIP 6000

Selection: Operating housings

3.2 Front design

Cross member
For horizontal and/or vertical division. With channel on both sides for mounting kits, see page 1037.

Material:
Extruded aluminium section, RAL 7035

Sealing bar
For horizontal and/or vertical division. The "slot-free" division produces a height gain of 28 mm.

Material:
Extruded aluminium section 8 x 20 mm, natural anodised

Adaptor plate

Material thickness:
3 mm aluminium, natural anodised.

Please specify the dimensions for the front panel and the desired holes and cutouts.

Spacing and built-in trim panel
For additional space for cable entry and for installing switches/indicator lights, emergency off/key switches, CD-ROM drives, interfaces etc. With channel on one side for mounting kits, see page 1037.

Material:
Extruded aluminium section, natural anodised.

Detailed drawing,
see page 1038.

! Also required:

Mounting kit for the installation of front panels, operating panels and keyboards in command panels and keyboard housings, see page 1037.

Without cross member	3.2 0
With one cross member	3.2 1
With one sealing bar[1]	3.2 2
With two cross members	3.2 3
With two sealing bars[1]	3.2 4
With one cross member and one sealing bar[1] [2]	3.2 5
With one adaptor plate (to specifications)	3.2 6
With spacing and built-in trim panel at the top[3]	3.2 7
With spacing and built-in trim panel at the bottom[3]	3.2 8
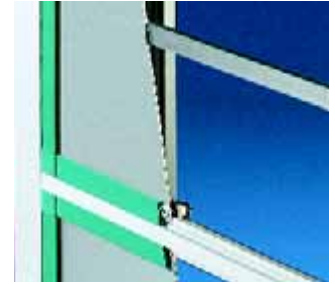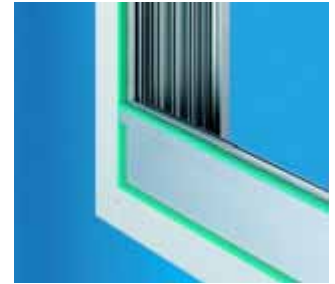
With front panel hinged[4] — 3.2 9
If, for example, a disk drive built into the operator panel needs this free access.

Standard design
- Screw-fastened from the outside
- R/h hinge

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

[1] Not possible with spacer trim (cf. 3.4).

[2] Unless otherwise specified: Sealing bar at the top, cross member at the bottom.

[3] Only for use in conjunction with end trim.

[4] Screw-fastened from the inside, with cam or l/h hinge on request.

B

1.5

3.3 Cooling fins
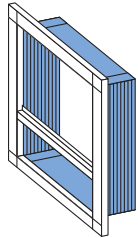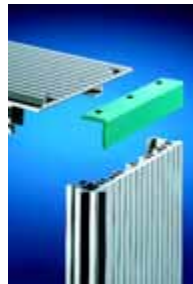
No fins | 3.3 / 1
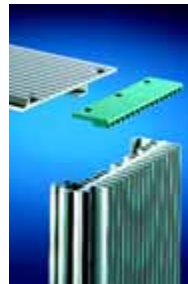
Fins at sides | 3.3 / 2

Fins all round | 3.3 / 3

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
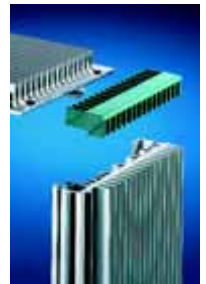
Fins are selected according to the heat loss to be dissipated, see page 155.

Enclosures in installation depth 185 mm and 328 mm are directly behind the front frame at a depth of 44 mm, without fins. The colour of the corner protectors matches the trim colour selected under 3.5.

3.4 Trim types
Detailed drawing,
see page 1097.
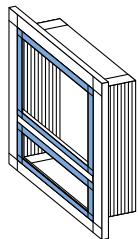
Cover trim | 3.4 / 1
To conceal the front panel assembly screws. For front panel thickness up to 3.5 mm.

End trim | 3.4 / 2
Attractively finishes off the space between the front panel and the frame section. For all front panel thicknesses. Only this trim may be selected when installing drawers.

Spacer trim | 3.4 / 3
For installed equipment flush with the frame section. For front panel thickness approx. 3.5 mm.

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

3.5 Trim colours
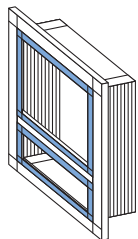
Turqoise (similar to RAL 5018) | 3.5 / 1

Bright blue (similar to RAL 5005) | 3.5 / 2

Bright red (similar to RAL 3001) | 3.5 / 3

Pebble grey (similar to RAL 7030) | 3.5 / 5

Graphite grey (similar to RAL 7024) | 3.5 / 6

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

Note:
Enclosure corner protectors are likewise supplied in the chosen colour. Other colours available on request with larger orders.

Command Panel VIP 6000

Selection: Operating housings

3.6 Support arm/ wall and pedestal connection

3 different support arm systems, see page 188 and various floor-standing systems, see page 228 are available.

Note:
Support arm connection CP-S for small enclosures with an installation depth of 155 mm are selected by adding an "S" after the design code number.

Detailed drawing,
see page 1102.
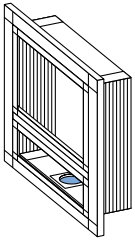
3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

Without connection 3.6 0

Connection top 3.6 1

Wall connection rigid, see page 1035

Connection bottom 3.6 2

Connection top and bottom, one cover plate included 3.6 3
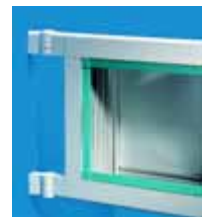
Wall connection vertically hinged, see page 907

Examples showing the versatility for mounting on surfaces.

3.7 Preparation for mounting keyboard housings

Detailed drawing,
see page 1098.
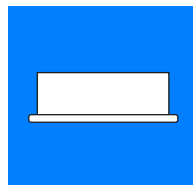
	Without connection to the keyboard housing 3.7 0	**Connection with hinged frame connector, rigid or adjustable** 3.7 1	**Connection with enclosure duct connector** 3.7 2
To fit keyboard housing depth:	–	105	105
	–	44	–
	–	27	–
Connection of operating housing to keyboard housing: (Selection 4.4, page 168)	–	Frame connector, rigid/adjustable	Enclosure duct connector
Cable tube: (Selection 4.5, page 169)	–	rigid/flexible	Enclosure duct connector
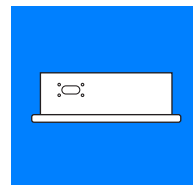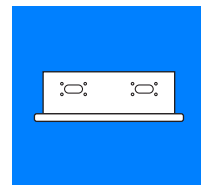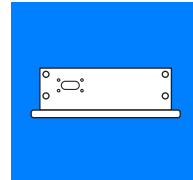
	Connection with enclosure bar connector 3.7 3	**Connection with hinged frame connector** 3.7 4
To fit keyboard housing depth:	–	105
	44	44
Connection of operating housing to keyboard housing: (Selection 4.4, page 168)	Enclosure bar connector	Hinged frame connector
Cable tube: (Selection 4.5, page 169)	flexible	flexible
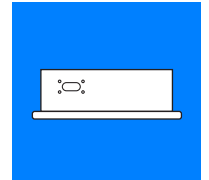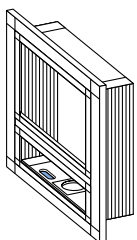
3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

3.8 Rear panels

Screw-fastened `3.8` `1`
Material:
Aluminium,
natural anodised

Hinged[1] `3.8` `2`
For rapid
service access

Material:
Aluminium,
natural anodised
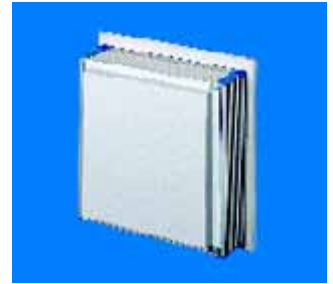
Depth plus 45 mm `3.8` `3`
Hinged,
screw fastener

Material:
Sheet steel, RAL 7035

[1] On the longest side (right/
bottom), cam with double-bit
insert, may be exchanged for
lock inserts 41 mm, type C,
see page 888, plastic handles
and T handles, type C,
see page 886/887.
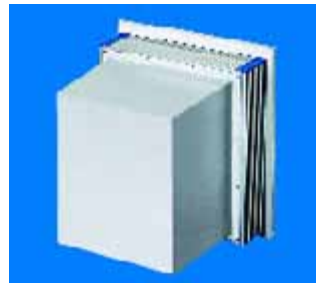
Depth plus 245 mm, `3.8` `4`
square[2], screw-fastened

Material:
Sheet steel, RAL 7035

[2] For 482.6 mm (19″)/7 U
concave

Hinged[1] `3.8` `5`
for heavy installed
equipment

Material:
Aluminium,
natural anodised
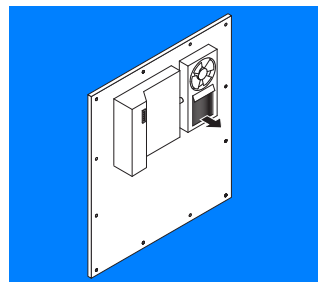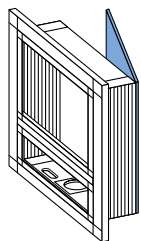
Screw-fastened with `3.8` `6`
built-in VIP SK small
cooling unit, condenser
mounting top left
Recommendation for command
panel design
(see 3.1 Installation depth,
3, 5, 7, 9)

Material:
Aluminium,
natural anodised

Detailed drawing,
see page 595.
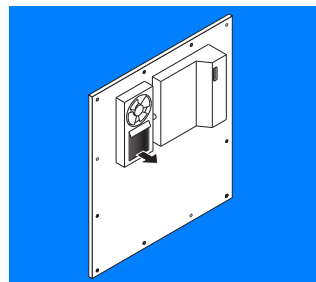
Screw-fastened with `3.8` `7`
built-in VIP SK small
cooling unit, condenser
mounting top right
Recommendation for command
panel design
(see 3.1 Installation depth,
3, 5, 7, 9)

Material:
Aluminium,
natural anodised

Detailed drawing,
see page 595.

Rear cooling panel `3.8` `8`
modular[3]
Significantly increases
heat dissipation from the
enclosure!

Material:
Extruded aluminium section,
natural anodised

Detailed drawing
and arrangement of the
sections,
see page 1103.

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

[3] When installing the pull-out keyboard CP 6002.100
(see page 1048) in VIP 6000, design variant 3.1, no. 1,
the 11 mm cooling fins protruding into the enclosure and screw
channels in this area may be milled off.
Please state the installation position when ordering.

B
1.5

Command Panel VIP 6000

Command Panel VIP 6000

Selection: Keyboard housings

4.1 Keyboard housing

Without fins.

For installing or positioning keyboards on top (with a depth of 27 mm).

All keyboard housings are custom-produced to your dimensions. Where the wide front frame is selected, the width of the keyboard housing is dependent on the operating housing.

Material:
Extruded aluminium section

Detailed drawing,
see page 1098 – 1100.

⚠ **Also required:**

Mounting kit for installing front panels, operating panels and keyboards in command panels and keyboard housings, see page 1037.
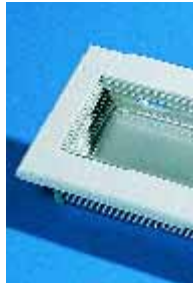
Installation depth 105 mm for built-in keyboards — **4.1** **1**
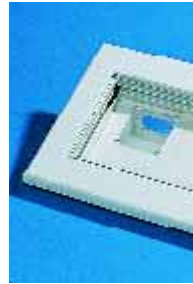
Installation depth 44 mm for built-in keyboards — **4.1** **2**

Example of the versatility of the keyboard housing: External mounting on doors
With all keyboard housings, on request the rear panel may be supplied prepared for external mounting on surfaces.

⚠ **Also required:**

Enclosure duct connector CP 6006.000, see page 1035. For mounting and cable entry. Cross-brace for door TS 8800.960/TS 8800.980, see page 895, when mounting on 600/800 mm wide doors TS, CM, CL, ES.
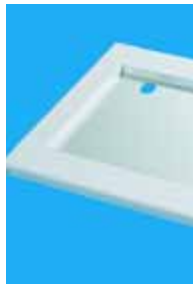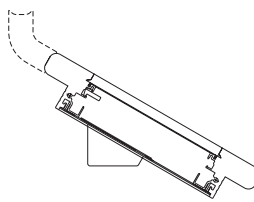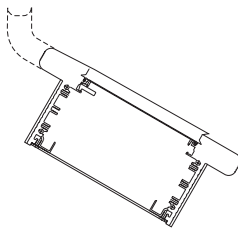
Depth 27 mm with cable entry grommet, for desktop enclosures — **4.1** **3**
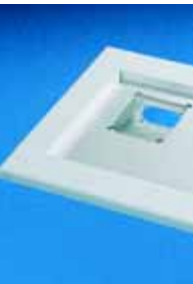
Depth 27 mm with cable tube, flexible, for desktop enclosures — **4.1** **4**
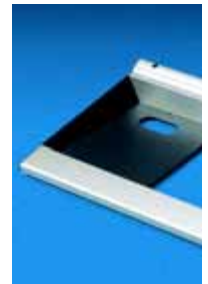
Support for keyboards with cable entry grommet[1] — **4.1** **5**
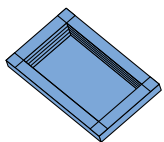
4.1	4.2	4.3	4.4	4.5
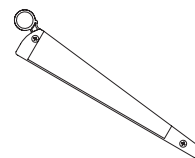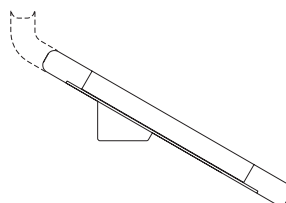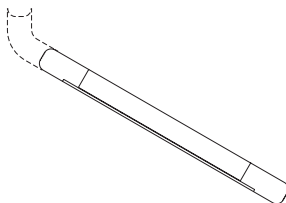
[1] Only for use in conjunction with hinged frame connector, see 4.4 design code number **5.**

4.2 Trim types[1]

Detailed drawing,
see page 1097.

Cover trim `4.2` `1`
To conceal the front panel assembly screws. For front panel thickness up to 3.5 mm.

End trim `4.2` `2`
Attractively finishes off the space between the front panel and the frame section. For all front panel thicknesses.

Spacer trim `4.2` `3`
For installed equipment flush with the frame section. For front panel thickness approx. 3.5 mm.

4.1	4.2	4.3	4.4	4.5
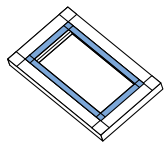
[1] Cannot be selected with keyboard housing depth 27 mm or support for keyboards. In such cases, please enter an **X.**

4.3 Trim colours[1]

Note:
Enclosure corner protectors are likewise supplied in the chosen colour.
For larger orders, other colours are available on request.

Turqoise `4.3` `1`
(similar to RAL 5018)

Bright blue `4.3` `2`
(similar to RAL 5005)

Bright red `4.3` `3`
(similar to RAL 3001)

Pebble grey `4.3` `5`
(similar to RAL 7030)

Graphite grey `4.3` `6`
(similar to RAL 7024)

4.1	4.2	4.3	4.4	4.5
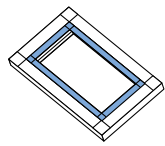
[1] Cannot be selected with keyboard housing depth 27 mm or support for keyboards. In such cases, please enter an **X.**

B
1.5

Command Panel VIP 6000

Command Panel VIP 6000

Selection: Keyboard housings

4.4 Keyboard housing connector

With keyboard housing, supplied loose to connect operating and keyboard housings.
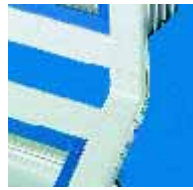
Frame connector (rigid) — 4.4 / 1

Frame connector (adjustable) — 4.4 / 2

Enclosure duct connector — 4.4 / 3

	Frame connector (rigid)	Frame connector (adjustable)	Enclosure duct connector
Keyboard housing depth:	105	105	105
	44	44	–
	27	27	–
Tilt angle:	120°, rigid	75 – 120°, adjustable in 7.5° increments	120°, rigid
Cable tube:	See 4.5	See 4.5	Integral

To fit operating and keyboard housings with a wide frame in the same width.

Material:
Die-cast zinc, RAL 7035

To fit operating and keyboard housings with a wide frame in the same width.

Material:
Die-cast zinc, RAL 7035

To fit operating housings with keyboard housings 105 mm deep, also available in different widths.

Material:
Aluminium, RAL 7035

Enclosure bar connector — 4.4 / 4

Hinged frame connector — 4.4 / 5

	Enclosure bar connector	Hinged frame connector
Keyboard housing depth:	–	105
	44	44
Tilt angle:	120°, rigid	75 – 120°, infinitely adjustable
Cable tube:	See 4.5	See 4.5

To fit operating housings with keyboard housings 44 mm deep, also available in different widths.

Material:
Sheet steel, RAL 7035

To fit operating housings with keyboard housings 105, 44 mm deep and support for keyboards, also available in different widths.
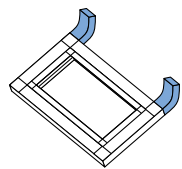
Material:
Aluminium, RAL 7035

4.5 Cable tube
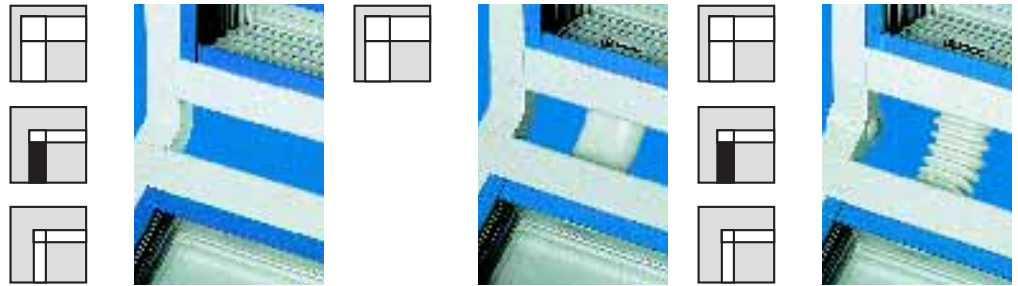
Without cable tube `4.5` `0`

Cable tube, rigid `4.5` `1`

Suitable for cable entry when using the rigid frame connector (for wide frames) and keyboard housing with 105 mm installation depth.

Material:
Aluminium, RAL 7035

Note:
Not possible with:
3.1 Operating housing, design code numbers 3 and 7.

4.4 Keyboard housing connector, design code number 2.

Cable tube, flexible `4.5` `2`

Suitable for cable entry when using the frame connector, adjustable, hinged frame connector or enclosure bar connector. Mounting on keyboard housings with 105, 44 or 27 mm deep.

Material:
Plastic, RAL 7035

Note:
Not possible with:
4.1 Keyboard housing, design code numbers 3 and 5.
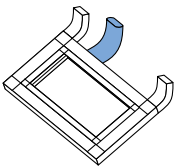
4.1	4.2	4.3	4.4	4.5

Examples

The picture opposite shows the solution we have chosen, together with its corresponding design code number.
The following key explains how the code number in our example is made up.

In order to deal with your enquiry/order we will need the following information:
- Model No. front frame: CP 6392.X09[2]
- The dimensions and number of panels/front panels to be installed in the operating/keyboard housing
- Design code number operating/keyboard housing

Order form, available on the Internet.

Operating housing
Model No.: CP 6392.009

Design code number:

3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
1	1	2	1	2	2	1	2

3.1 **1**	Command panel, installation depth 155 mm
3.2 **1**	1 cross member
3.3 **2**	Cooling fins (sides)
3.4 **1**	Cover trim
3.5 **2**	Trim colour: bright blue
3.6 **2**	Support arm connection at the bottom
3.7 **1**	Connection with frame connector, rigid
3.8 **2**	Rear panel, hinged with double-bit fastener

Keyboard housing
Model No.: CP 6351.009

Design code number:

4.1	4.2	4.3	4.4	4.5
1	1	2	1	1

4.1 **1**	Keyboard housing, installation depth 105 mm
4.2 **1**	Cover trim
4.3 **2**	Trim colour: bright blue
4.4 **1**	Frame connector, rigid
4.5 **1**	Cable tube, rigid

[2] Replace X with the number after selecting the front frame.

Note:
If the design code number does not cover your requirements, please enter an X here and enclose a written explanation.

B
1.5

Command Panel VIP 6000
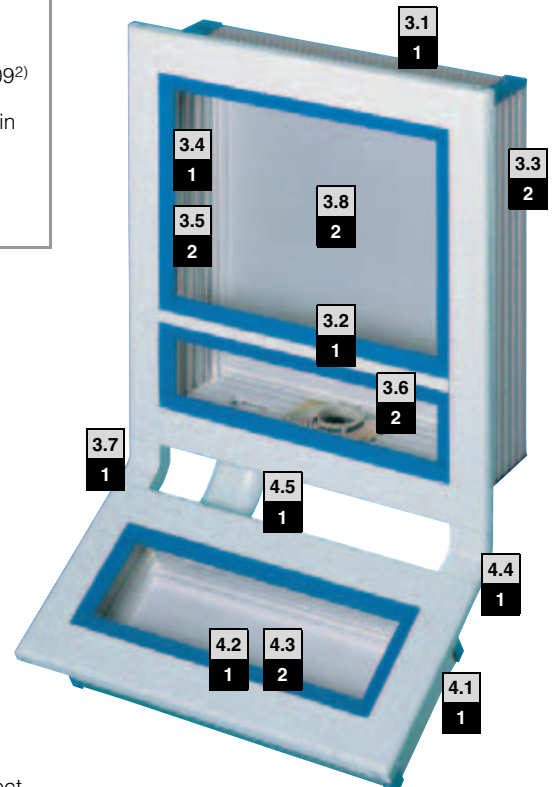
Optipanel

Diversity: Enclosure, front design, attachment

The stylish, customised solution.

Three installation depths: 50 mm, 100 mm, 150 mm.

Hinged rear panels offer easy servicing.

Customised to order or in standard sizes

off the shelf.

Property rights:
German patent No. 41 09 695
European patent no. 0 505 681
with validity for CH, FR, GB, IT
Jap. patent no. 3221506
German patent
No. 199 02 174
German patent
No. 100 13 283

German registered design
no. 400 02 955
IR Reg. Design no. DM/053 168
with validity for CH, FR, IT
US Design Patent No. D 456,403
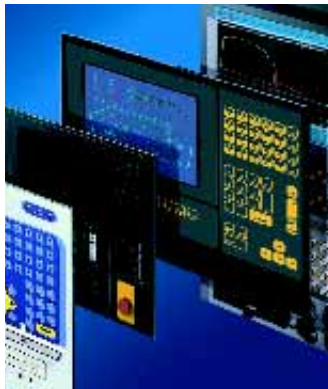
Always within reach

Tailored precisely to the operator's requirements, various handle sets may be fitted in accordance with ergonomic requirements. "Steering" the enclosure becomes child's play.
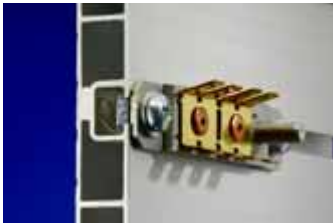
All-round spring groove channels for flexible interior installation and for mounting accessories.

Superior seal helps to achieve protection category IP 65. For installations flush with the frame section with a front panel thickness of approx. 3.5 mm.

Individual front design

Subdivison of the operating level with Rittal standard modules covers every conceivable requirement. Individual cutouts may be achieved e.g. via the adaptor plate.

Should you have any queries, please contact your Rittal specialist advisor.

As we have said,
there's always a solution!
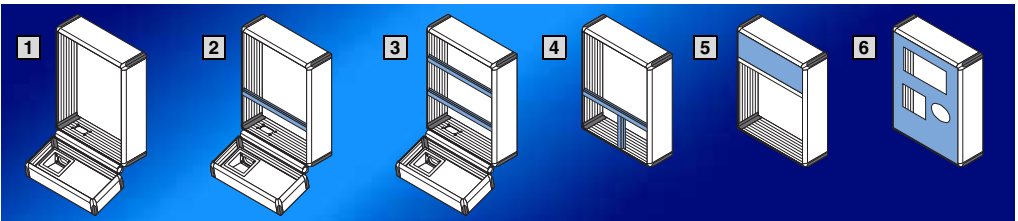
1 Without subdivision

2 With cross member or sealing bar

3 With two cross members or sealing bars, including combinations

4 With combined horizontal/vertical cross member or sealing bar

5 With spacing panel and built-in trim panel. May be positioned at the top, bottom or side.

6 Adaptor plate with individual cutouts

All-round attachment

Every attachment point is accessible on all sides!

Movable retaining claws create sufficient play to accommodate virtually all hole spacings (distance from the panel's outer edge 7 – 13 mm). Panels with screw fastening from the front, with studs or screw clamps, may be used.

Diversity: Rear panels, keyboard housings, ergonomics

Rear panels to order
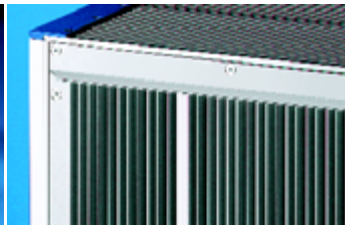
Choose the rear panel according to your servicing requirements:
- screw fastened
- hinged with cam fastener and double-bit insert

- hinged with quick-release fasteners

The modular rear cooling panel significantly increases dissipation of the heat loss from the enclosure!

This is achieved thanks to a combination of cooling fins on the outside and screw channels on the inside, which ensure optimum heat absorption and dissipation.

Keyboard housing
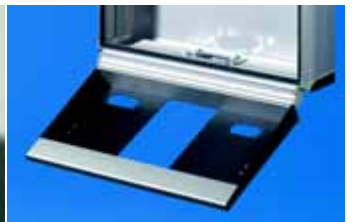
Select the most suitable keyboard housing, tailored to your requirements. Two installation depths are available. The keyboard housing with an installation depth of 50 or 100 mm and the keyboard support may be attached directly to the command panel or to the enclosure door.

Precisely the right position

Different viewing angles of the machine, whether the operating staff are tall or short, sitting or standing – with Rittal support arm systems, the Optipanel is always in the optimum position. All system components for rotating, tilting, swivelling, raising and lowering are combined with one another to create incredible diversity.
Depending on the system configuration, jib length and enclosure weight, support arm systems CP-S or CP-L are used. If you want to combine a high load capacity with a stylish look, system combinations provide the ideal solution.

Stationary or mobile

Stand systems in a variety of designs – even height-adjustable – round off the application diversity of the Optipanel.

Optipanel

Selection: Operating housing/keyboard housing

It's so easy!

We need the following three pieces of information in order to deal with your enquiry/order:

- Model No.: CP 6382.009
- The dimensions and number of panels/front panels to be installed in the keyboard/operating housing
- Design code number

Order form,
available on the Internet.
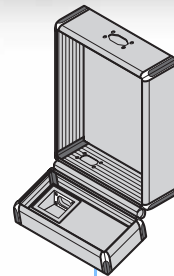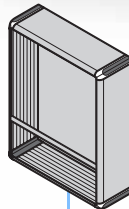
Operating/keyboard housing

Model No. CP

| 6 | 3 | 8 | 2 | . | 0 | 0 | 9 |

Material:
Enclosure: Extruded aluminium section
Corner pieces: Die-cast zinc
Corner protectors:
Plastic, self-extinguishing
Sealing trim: Flexible plastic section

Surface finish:
Enclosure: Natural anodised
Corner pieces: Powder-coated in finely textured RAL 7035
Corner protectors and sealing trims: Dyed similar to RAL 7024

For larger orders, other colours similar to RAL
- 5018 (turquoise)
- 5005 (bright blue)
- 3001 (bright red)
- 7030 (pebble grey)
are available.

Protection category:
IP 65 to EN 60 529
(if the openings in the enclosure are covered or sealed in accordance with the protection category).

B

1.5

Optipanel

1. Panel dimensions

**1.1 For operating housings and
1.2 For keyboard housings**
On the order form, please state the width (B) x height (H) x depth (T) of the control components and the manufacturer/model.
(See installation criteria).

Checking the installation criteria

Please check whether your operator panel may be installed directly into the Optipanel. Otherwise, an adaptor panel is needed – cf. 2.2, design code number 2.
The dimensions of the operating and keyboard housing are derived from the dimensions of your panel and the number of cross members.

Note:
Different widths of operating and keyboard housings are possible (whereby only the keyboard housing may be wider than the operating housing).
For minimum size, refer to minimum front panel width under "Technical Details", page 1103.

1 **7 to 13 mm edge spacing** of the mounting hole or bolt.

2 **Front panel projection** on sides with mounting holes and bolts at least 17 mm, on sides without attachments at least 6 mm.

3 **Front panels up to 5 mm.** With a thickness of approximately 3.5 mm the front panel is flush with the sealing trim and the enclosure front.

4 **Installation depths:** Operating housing = 50 mm, 100 mm, 150 mm. Keyboard housing = 50 mm, 100 mm.

5 For versions with a hinged rear panel with cam fastener, the maximum installation depth is reduced by 25 mm in the vicinity of the lock.
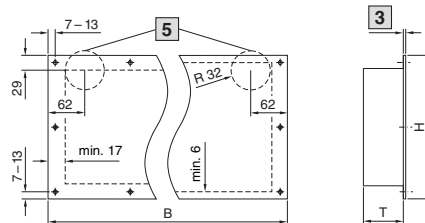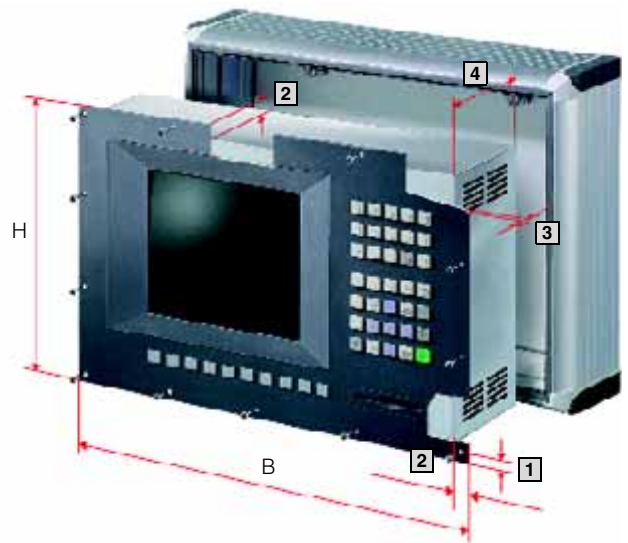
2.1 Installation depth

Detailed drawing, see page 1101.
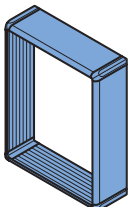
2.1	2.2	2.3	2.4	2.5

50 mm | 2.1 / 1

100 mm | 2.1 / 2

150 mm | 2.1 / 3

Note:
Installation depth > 150 mm over recessed rear panel on request (like VIP 6000, design variant 3.8, no. 3 and 4, see page 165).

Optipanel

Selection: Operating housings

2.2 Front design

⚠ Also required:

Mounting kit for installing front panels, operating panels and keyboards in command panels and keyboard housings, see page 1037.

Detailed drawing, see page 1101.

[1] Suitable quantity for sealing the individual separation points. Example: 3 front panels in operating housing = 2 separation points = 2 cross members/sealing bars included with the supply. Other combinations available on request.

[2] Screw-fastened from the inside, with cam or l/h hinge on request.

[3] **Detailed drawing,** see page 1038.

Without cross member `2.2 0`

With cross member[1] `2.2 1`
For horizontal and/or vertical subdivision of the operating housing front. With mounting channel on both sides to accommodate mounting kits, see page 1037.

Material:
Extruded aluminium section, natural anodised

With an adaptor plate `2.2 2`
(to specifications)

Material thickness:
3 mm aluminium, natural anodised.

Please specify the dimensions for the front panel and the desired holes and cutouts.

With spacing and built-in trim panel[3], top `2.2 3`
For additional space for cable entry and for installing switches/indicator lights, emergency off/key switches, CD-ROM/disk drives, interfaces etc.

Material:
Extruded aluminium section, natural anodised
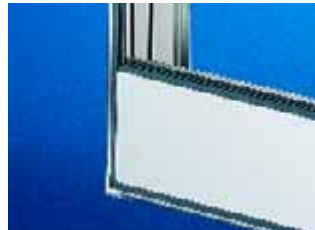
With spacing and built-in trim panel[3], bottom `2.2 4`
For additional space for cable entry and for installing switches/indicator lights, emergency off/key switches, CD-ROM/disk drives, interfaces etc.

Material:
Extruded aluminium section, natural anodised

With sealing bar[1] `2.2 5`
For horizontal and/or vertical subdivision of operating housings. The "slot-free" division produces a height gain of 22 mm.

Material:
Extruded aluminium section 8 x 20 mm, natural anodised

With front panel, hinged[2] `2.2 6`
For example, if a disk drive built into the operator panel needs this free access, see page 1036.

Standard design:
● Screw-fastened from the outside
● R/h hinge

Material:
Front panel: 3 mm aluminium, natural anodised.
Extruded aluminium section: Natural anodised

2.1	2.2	2.3	2.4	2.5

B

1.5
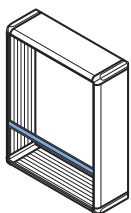
Optipanel

2.3 Support arm wall and pedestal connection

➕ **Accessories:**

Support arm components for connection of the Optipanel to the support arm system CP-S[1], CP-L see page 188 onwards. Pillars, see page 228 onwards.

Detailed drawing, see page 1102.

[1] For support arm system CP-S, steel, for installation depth 50, 100 and 150 mm please add an **S** after the design code number.

[2] Including a cover plate for sealing the unused section.

[3] Unless otherwise specified, will be supplied in RAL 7024.

Without connection `2.3` `0`

Connection top `2.3` `1`

Connection bottom `2.3` `2`

Connection top and bottom[2] `2.3` `3`

CP-L ▭ 120 x 65 mm for
Housing coupling CP 6525.1X0,
Enclosure attachment CP 6525.6X0,
Housing coupling CP-S, CP 6501.130
only applies to installation depth 100 and 150 mm

Connection top[1] `2.3` `4`

Connection bottom[1] `2.3` `5`

Connection top and bottom[1][2] `2.3` `6`

CP-L, Ø 130 mm for
Housing coupling CP 6525.0X0,
Enclosure attachment CP 6525.5X0,
Angle coupling CP 6526.0X0
only applies to installation depth 150 mm

Note:
Wall mounting possible: hinged with CP 6016.200, see page 907.

Connection at rear, top[3] `2.3` `7`

Connection at rear, bottom[3] `2.3` `8`

CP-L ▭ 120 x 65 mm for
Housing coupling CP 6525.1X0,
Enclosure attachment CP 6525.6X0,
Enclosure attachment, tilting CP 6902.640/.670,
Housing coupling CP-S, CP 6501.130
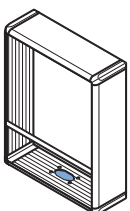
2.1	2.2	2.3	2.4	2.5

Optipanel

Selection: Operating housings

2.4 Rear panels
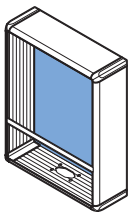
Rear panel screw-fastened

2.4
1

Rear panel hinged on longest side
Viewed from rear, hinged on the right or at the bottom[1] [2] [3] [4].

2.4
2

Example of the versatility of the enclosure:
External mounting on doors
With all operating/keyboard housings, on request the rear panel may be supplied prepared for external mounting on flat surfaces.

! Also required:

Enclosure duct connector CP 6006.000, see page 1035. For mounting and cable entry. Cross-brace for door TS 8800.960/TS 8800.980, see page 895, when mounting on 600/800 mm wide doors TS, CM, CL, ES.
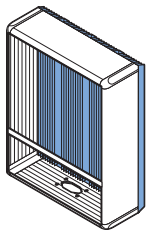
Rear cooling panel, modular
Increases the dissipation of heat loss from the enclosure by approx. 10%.

2.4
3

Material:
Extruded aluminium section

Note:
When installing the pull-out keyboard CP 6002.100 (see page 1048) in an Optipanel, design variant 2.1, no. 3, the 11 mm cooling fins and screw channels protruding into the enclosure may be milled off in this area – please specify when ordering.

Detailed drawing,
see page 1103.

Rear panel hinged with quick-release fasteners[1]

2.4
4

2.1	2.2	2.3	2.4	2.5

Note:
[1] With a support arm connection at the rear, only possible on the side opposite the support arm connection.
[2] Not for operating housings with an installation depth of 50 mm with keyboard housings.
[3] Standard double-bit lock insert may be exchanged for 41 mm lock inserts, type C, see page 888, plastic handles and T handles, type C, see page 886/887.
[4] With a hinged rear panel, the maximum installation depth in the vicinity of the lock is reduced by 25 mm (see page 173, drawing point **5**).

[1]

2.5 Keyboard housing

Width independent of operating housing.
The swivel bracket is infinitely adjustable from 80° to 155°.

! Also required:

[1] Mounting kit for installing front panels, operating panels and keyboards in operating and keyboard housings, see page 1037.

Detailed drawing, see page 1102.
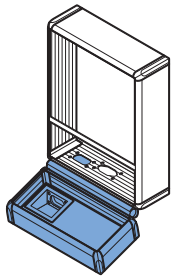
2.1	2.2	2.3	2.4	2.5

Without keyboard housing — 2.5 / 0

With keyboard housing Installation depth 50 mm[1] — 2.5 / 1

With keyboard housing Installation depth 100 mm[1] — 2.5 / 2

With support for keyboards — 2.5 / 3

Utility bars, vertically hinged with cable entry grommet[2] — 2.5 / 4

[2] With a support bar connection at the bottom, from depth 150 mm, only in conjunction with: enclosure attachment CP-S (CP 6501.070), enclosure attachment CP-L for support arm connection ☐ 120 x 65 mm (CP 6525.6X0)

When mounting beneath surfaces, the bars may alternatively be pushed towards the rear.

Examples

The picture opposite shows the solution we have chosen, together with its corresponding design code number. The following key explains how the code number in our example is made up.

Operating/keyboard housing

Model No.: CP 6382.009

Design code number:

2.1	2.2	2.3	2.4	2.5
2	1	2	1	1

2.1 2 Command panel, installation depth 100 mm

2.2 1 With cross member

2.3 2 Support arm connection CP-L ☐ 120 x 65 mm, bottom

2.4 1 Rear panel, screw-fastened

2.5 1 With keyboard housing, installation depth 50 mm

We need the following three pieces of information in order to deal with your enquiry/order:
- Model No.: CP 6382.009
- The dimensions and number of panels/front panels to be installed in the keyboard/operating housing
- Design code number

Order form, available on the Internet.

Note:
If the design code number does not cover your requirements, please enter an X here and enclose a written explanation.

Optipanel

Standard sizes
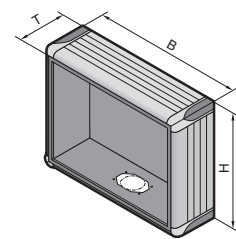
Material:
Enclosure:
Extruded aluminium section
Corner pieces:
Die-cast zinc
Corner protectors:
Plastic, self-extinguishing
Sealing trim:
Flexible plastic section

Surface finish:
Enclosure:
Natural anodised
Corner pieces:
Powder-coated in finely textured
RAL 7035
Corner protectors and sealing
trims:
Dyed similar to RAL 7024

Protection category:
IP 65 to EN 60 529/10.91
(if the openings in the enclosure
are covered or sealed in accord-
ance with the protection cate-
gory).

Detailed drawing,
see page 1104.

To fit front panels[1] Width x height mm		Packs of	270 x 234	482.6 x 310.3	430 x 343	430 x 343	482.6 x 354.8	482.6 x 354.8	Page
To fit TFT monitor[2]			–	–	SM 6450.010/ .030	SM 6450.010/ .030	SM 6450.020/ 0.040	SM 6450.020/ 0.040	1046
Width (B) in mm			314	527	475	475	527	527	
Height (H) in mm			278	354	387	387	399	399	
Depth (T) in mm			60	110	60	110	60	110	
Model No. CP		1	**6380.100**	**6380.000**	**6380.010[3]**	**6380.020**	**6380.030[3]**	**6380.040**	
Rear panel, hinged	Quick-release fastener for screwdriver				■		■		
	Cam with double-bit insert[3]		■	■		■		■	
Support arm connection[4]			CP-S VESA 75[5]	CP-L ▭ 120 x 65 mm	CP-L ▭ 120 x 65 mm, rear	CP-L ▭ 120 x 65 mm	CP-L ▭ 120 x 65 mm, rear	CP-L ▭ 120 x 65 mm	
Weight (kg)			2.8	6.2	4.08	5.28	4.41	4.86	

[1] Installation criteria required for direct mounting of the panels, see page 173.
[2] For depth 60 mm the power pack must be mounted externally for reasons of space, e.g. in IW Station.
[3] Standard double-bit lock insert may be exchanged for 41 mm lock inserts, type C, see page 888, plastic handles and T handles, type C, see page 886/887.
[4] Support arm connection at the top or bottom, by rotating the enclosure.
[5] Additional marked points for drilling holes, for the external mounting of:
    Assembly components with drilling pattern to VESA 75 = Enclosure attachment, tilting IW 6902.670
    Support arm system CP-L, ▭ 120 x 65 mm
    Support arm system CP-S.

Utility bars, vertically hinged,
Model No. see page 1049.

TFT monitor,
Model No. see page 1046.

B

1.5

Notes
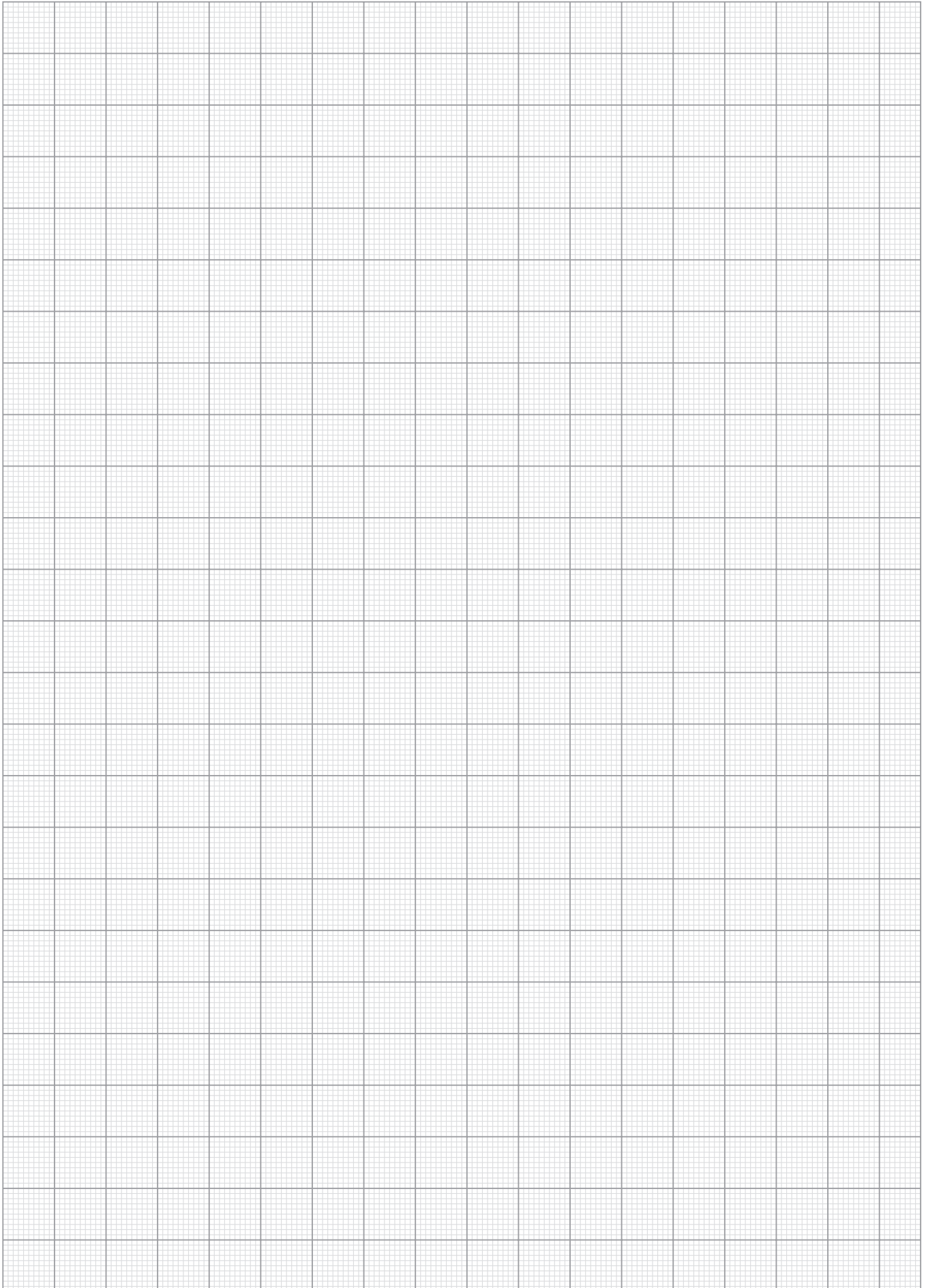
Operating housings

Features

Modern, flexible production technology demands solutions which precisely meet the required standards of ergonomics, user-friendliness, hygiene or corrosion protection at the operating interface. The Rittal operating housing range is tailored to these requirements. Supplemented by a support arm or pedestal system, system accessories or system climate control, an enclosure becomes a complete solution. All this is achieved quickly and practically on your behalf.

Compact Panel, aluminium

Front panels are inserted from the rear and secured with a screw clamp.

Rear door hinged optionally on the right or left by loosening the screws.

Mounting optionally on support arm system CP-S or directly with the wall attachment, vertically hinged, see page 908.

Command panel housing with door, with handle strips
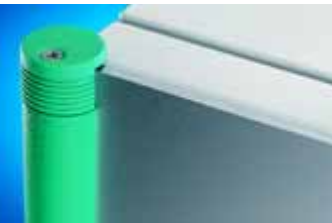
For additional front panels of aluminium, the handle strips may be set forward by up to 5 mm.

Rear panel with welded nuts for the attachment of mounting plate or support rails.

Space for tools, measuring instruments or scanners with the utility shelf, screw connection, see page 1039.

Operating housing with handle strips

Interior installation of the enclosure via side mounting angles with system punchings.

Additional installation space is created by the perforated mounting strips on both sides in the rear door.

For external mounting of a terminal box as an additional keyboard housing, connectors CP 6005.100 may be used, see page 1034.

Operating housing with display panel front

For installation or servicing, the hinged display panel front may be opened from the inside by loosening the screws.

Interior installation of the enclosure via side mounting angles with system punchings.

For the support of keyboards. For programming and servicing work, the vertically hinged utility bars, CP 6514.200, may be externally mounted,
see page 1049.

Operating housing with wide VIP 6000 frame

External mounting of VIP keyboard housings via frame connectors, rigid or adjustable,
see page 168.

Interior installation of the enclosure via side mounting angles with system punchings.

The interface flap SZ 2482.200 ensures secure accommodation of sockets, ports or drives,
see page 1059.

Premium Panel, stainless steel

Exceptionally hygienic, thanks to easy-to-clean, external, highly resistant silicone seal.
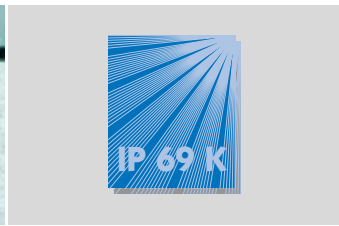
Pressure washer-resistant (protection category IP 69K) and high EMC shielding effect thanks to ideal shaping of the seal and all-round metallic contact between the enclosure and the rear panel.

Suitable for use in clean rooms to meet the most demanding requirements, certified by the Fraunhofer-Institut IPA.
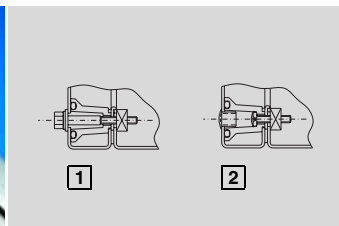
Clear hygiene benefits compared with external hinges, rear panel bracket CP 6682.000, see page 893.

Screw fastening of the rear panel optionally via external hex screws **1** or internal screws, concealed with plastic stoppers **2.**

Protected cable routing from the operating housing to the keyboard housing via a robust duct connector.

B

1.5

Operating housings

Operating housings

Features

Command panel housing with door, stainless steel

Rear panel with welded studs for the attachment of mounting plate or support rails.

Simple mounting on the support arm system CP-S stainless steel by locating the pre-assembled screw in the cutout.

Safe handling when swivelling, thanks to side handle strips.

Operating housing, stainless steel
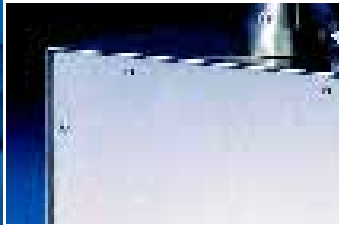
Perfect protection of keys or signal lamps thanks to internal front panel.

The operator panels and other command and indicator devices may also be fitted in the rotated enclosure.
In such cases, the front panel becomes a screw-fastened rear panel.

Simple mounting on the support arm system CP-S stainless steel by locating the pre-assembled screw in the cutout.
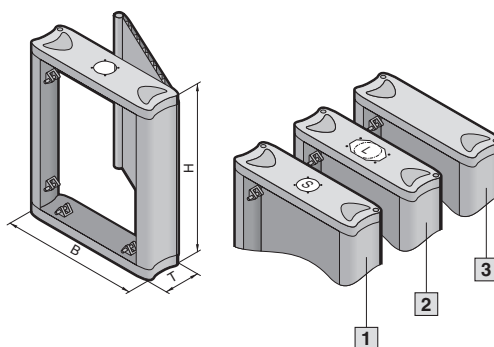
For small operating units built into front panels. The front panel is inserted from the rear and secured from the inside with screw clamps. Special front panels with a material thickness of between 2 and 6 mm are possible. Rear panel optionally hinged on the left or right.

Material:
Roof tray, base tray, rear panel: Aluminium
Side parts:
Extruded aluminium section
Screw cover:
Plastic

Surface finish and colour:
Roof tray, base tray, side parts: Powder-coated, RAL 7024
Rear panel: Natural anodised
Screw cover:
Similar to RAL 7024

Protection category:
IP 65 to EN 60 529

Supply includes:
Roof tray, base tray, rear panel, side parts, screw cover, including seal and screw clamp.

Rittal service:
● Other RAL colours
● Holes and cutouts in the roof and base tray

Detailed drawing,
see page 1105.

Property rights:
German patent
No. 102 16 448
German patent
No. 102 16 366

Assembly examples:
with wall mounting bracket
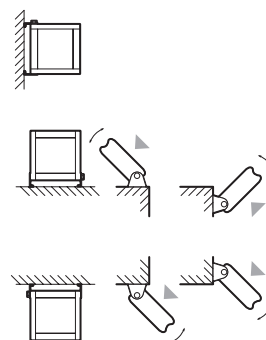
with support arm connection
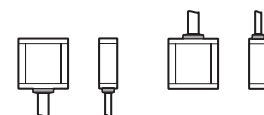
Width (B) in mm	Packs of	241	241	241	315	315	Page
Height (H) in mm		238	388	521	238	388	
Depth (T) in mm		87	87	87	87	87	
To fit — Front panel width mm		178	178	178/4U	252	252	
To fit — Front panel height mm		200	350	482.6/19″	200	350	
1 Model No. CP (with support arm connection CP-S)	1	**6340.000**	**6340.100**	**6340.200**	**6340.300**	**6340.400**	
2 Model No. CP[1] (with support arm connection CP-L, ▭ 120 x 65 mm)	1	**6340.010**	**6340.110**	**6340.210**	**6340.310**	**6340.410**	
3 Model No. CP[1] (without support arm connection)	1	**6340.020**	**6340.120**	**6340.220**	**6340.320**	**6340.420**	
Weight (kg)		2.8	3.8	4.5	3.4	4.5	
Accessories							
Front panel, 3.0 mm aluminium, natural anodised	1	6028.500	6028.510	6028.520	6028.530	6028.540	1036
Wall mounting bracket, vertically hinged	1 set	6341.000	6341.000	6341.000	6341.000	6341.000	908
Cover plate for support arm connection CP-S	1	6505.200	6505.200	6505.200	6505.200	6505.200	1040
Spring nut M5	50	6108.000	6108.000	6108.000	6108.000	6108.000	937

[1] Extended delivery times.
To order different heights for front panel width:
– 178 mm use Model No.: CP 6342.109
– 252 mm use Model No.: CP 6342.209
and additionally specify the front panel height. Extended delivery times.

Command panel housing with door
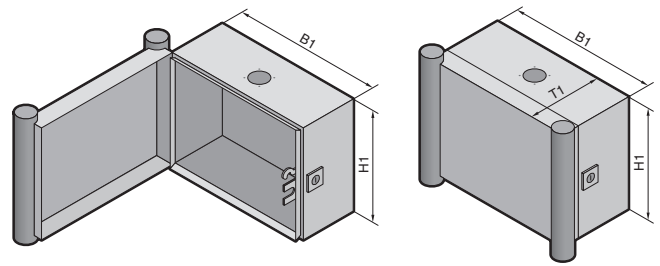
based on AE

Material and surface finish:
Enclosure and door:
Sheet steel, dipcoat-primed
and powder-coated in
textured RAL 7035
Handle strips:
Aluminium, powder-coated in
RAL 5018
Cover caps:
Plastic, RAL 5018

Protection category:
IP 55 to EN 60 529

Supply includes:
Enclosure with cutout and
reinforcement for support arm
system CP-L[1]), Ø 130 mm,
with seal.
Door with sealing frame, side
handle strips and end caps.

Note:
The support arm connection and
door hinge may be swapped
over by rotating the enclosure.

Rittal service:
- Other sizes
- Other RAL colours
- Modified support arm
  cutout or door hinge
- Holes and cutouts
  for key pads and operator
  panels
- Aluminium front panels
  (up to 5 mm thick may be
  placed between the side
  handle strips and door on the
  enclosure front)
available on request.

Detailed drawing,
see page 1105.

Approvals,
see page 32.

Width (B1) in mm	Packs of	300	300	300	400	400	500	Page
Height (H1) in mm		200	300	400	300	400	500	
Depth (T1) in mm		180	180	180	180	180	180	
Model No. CP[1])	1	**6534.000**	**6535.000**	**6537.000**	**6536.000**	**6538.000**	**6544.000**	
Weight (kg)		5.5	7.1	8.4	8.4	10.6	14.5	
Accessories								
Matching mounting plate — AE type		1032.500	1033.500	1034.500	1030.500	1380.500	1050.500	118/119
Matching mounting plate — Model No.[3])		0271.324	0271.926	0271.927	0274.131	0271.548	0271.333	
Support rails[2]) — Model No.	10	2316.000	2316.000	2316.000	2317.000	2317.000	2318.000	927
Lock systems								
Standard double-bit lock insert may be exchanged for 41 mm lock inserts, plastic handle and T handle, type C, see page 886 – 888.								

[1]) To order a command panel housing with door with mounting cutout CP-S, please use the extension number .080.
Delivery times available on request.
[2]) Only with vertical attachment of punched rail 23 x 23 mm, see page 925.
[3]) Delivery times available on request.

Signal pillar LED compact.
Model No. see page 1041.

Utility bars, vertically hinged
for keyboards.
Model No. see page 1049.
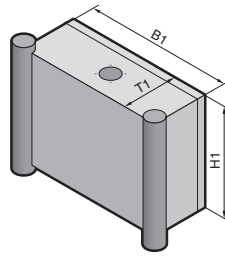
Material and surface finish:
Enclosure and door:
Sheet steel, dipcoat-primed
and powder-coated in
textured RAL 7035
Handle strips:
Aluminium in RAL 7030
Cover caps:
Plastic, RAL 7030

Protection category:
IP 55 to EN 60 529

Supply includes:
Enclosure with cutout and
reinforcement for support arm
system CP-L, Ø 130 mm and
with mounting angles spot
welded at the sides.
Front with maximum cutout,
covered with easily machinable
3 mm aluminium front panel and
side handle strips with end
caps.
Rear with door.

Note:
The support arm connection and
door hinge may be swapped
over by rotating the enclosure.

Rittal service:
● Other sizes
● Other RAL colours
● Modified support arm
cutout or door hinge
● Holes and cutouts
for key pads and operator
panels
available on request.

Property rights:
German patent no. 44 13 543
French Patent no. 95 04769
GB patent no. 2 288 971
Ital. patent no. 01273518
Jap. patent no. 2 820 637
US patent no. 5,662,397
German registered design
no. M 94 03 156
IR reg. design no. DM/031 020
with validity for BE, DE, ES, FR,
IT, LU, NL
U.K. reg. des. no. 2 042 639
Jap. reg. des. No. 955 950
US Design Patent
no. Des 375,938

Detailed drawing,
see page 1106.

Approvals,
see page 33.

Width (B1) in mm	Packs of	300	380	380	500	600	Page
Height (H1) in mm		200	300	380	500	380	
Depth (T1) in mm		155	210	210	210	210	
Model No. CP	1	6540.200[1]	6531.200	6530.200	6532.200	6533.200	
Weight (kg)		4.9	9.3	10.2	15.4	14.6	
Accessories							
Support strips for attaching to the mounting angles on the sides	20	–	–	4594.000	4309.000	4594.000	895
Lock systems							

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A,
plastic handles, T handles, type B, and lock cylinders, see page 886 – 888.

[1] Support arm connection and door hinge at the bottom.

Support arm bracket 90° CP-L
for the configuration of compact
support arm systems.
Model No. see page 204.

**Connector for compact
enclosures.**
Model No. see page 1034.

Command panel

based on AE with display panel front
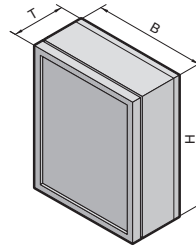
Material and surface finish:
Enclosure and door:
Sheet steel, dipcoat-primed
and powder-coated in
textured RAL 7035
Frame and front panel:
Aluminium, natural anodised.

Protection category:
IP 54 to EN 60 529

Supply includes:
Enclosure without support arm
connection with mounting
angles spot-welded at the sides.
With maximum cutout at the front
and fitted, easily machinable
3 mm front panel with aluminium
frame, with r/h hinge, screw-
fastened from the inside.
Rear door with r/h hinge,
with two cam locks (for
CP 6442.500 one lock).

Rittal service:

● Other sizes
● Other RAL colours
● With support arm cutout
● Holes and cutouts
  for key pads and operator
  panels
available on request.

Detailed drawing,
see page 1106.

Approvals,
see page 33.

Width (B) in mm	Packs of	380	380	500	600	Page
Height (H) in mm		380	600	500	600	
Depth (T) in mm		249	249	249	249	
Model No. CP	1	**6442.500**	**6462.500**	**6552.500**	**6662.500**	
Weight (kg)		9.5	13.4	18.0	19.6	
Accessories						
Reinforcement plate with support arm cutout CP-L	1	6143.210	6143.210	6143.210	6503.000	237
Lock systems						

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A,
lock cylinder, plastic handles and T handles, type B, see page 886 – 888.

To order command panels in RAL 7032, please add extension .200 to the Model No. Delivery times available on request.

TFT monitor
for industrial use.
Model No. see page 1046.

Support for keyboards.
Model No. see page 1048.

based on AE with wide VIP 6000 frame

Width dimensions:
B = Enclosure width
B1 = B + 79 mm, overall width
B2 = B – 42 mm, clearance between the front frames
B3 = B – 5 mm, front panel width

Height dimensions:
H = Enclosure height
H1 + 79 mm, overall height
H2 = H – 42 mm, clearance between the front frames
H3 = H – 5 mm, front panel height

Depth dimensions:
T = Enclosure depth

The right frame, even for deeper operator panels.
On request, the compact enclosure AE can be equipped with a stylish VIP 6000 frame mounted on the rear panel. The large AE door provides easy access for servicing.

Material and surface finish:
Enclosure and door:
Sheet steel, dipcoat-primed and powder-coated in textured RAL 7035
Front panel:
3 mm aluminium, natural anodised
Frame section:
Aluminium, powder-coated in RAL 7035
Frame corner pieces:
Die-cast zinc, powder-coated in RAL 7035

Protection category:
IP 56 to EN 60 529,
Complies with NEMA 12.

Supply includes:
Enclosure with integral roof or base reinforcement and connection for support arm system CP-L or CP-XL. Aluminium front panel and front frame supplied loose, rear door.

Support arm connection for system CP-XL

Support arm connection for system CP-L, Ø 130 mm
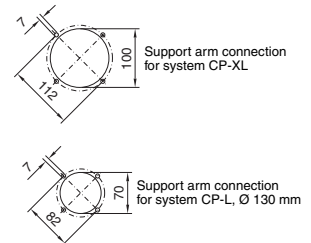
Command panel with wide VIP 6000 frame in the dimensions of compact enclosures AE or in individual sizes	Basic Model No. CP	Design code number		
	6541.009			
Support arm connection for support arm system				
without	6541.009	**0**		
CP-XL, top	6541.009	**1**		
CP-XL, bottom	6541.009	**2**		
CP-L, Ø 130 mm, top	6541.009	**3**		
CP-L, Ø 130 mm, bottom	6541.009	**4**		
Cable tube connection				
without	6541.009	X	**0**	
bottom	6541.009	X	**1**	
Dimensions				
Individual sizes mm	6541.009	X	X	W x H x D:
Like compact enclosure AE (see page 118)	6541.009	X	X	Model No. AE:
Lock systems				

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, lock cylinder, plastic handles and T handles, type B, see page 886 – 888.

Order example	6541.009	**4**	**1**	W x H x D: 537 x 352 x 350 mm (or e.g AE 1050.600)
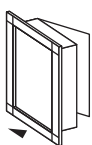
Order example

Model No. CP 6541.009
Design code numbers:
● Support arm connection CP-L, Ø 130 mm, bottom (4)
● Cable tube connection at the bottom (1)
● Individual dimensions:
  W x H x D: 537 x 352 x 350 mm
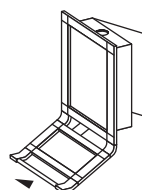
Additional mounting of a VIP 6000 keyboard housing is possible via the design code number (see page 166).
The front panel width refers to an enclosure width B – 54 mm and is achieved via a frame connector, which is included with the supply of the keyboard housing.

Support arm systems

Features

Different viewing angles of the machine, tall or short operating staff, sitting or standing – with the support arm systems from Rittal, the interaction between monitoring and operating is achieved to perfection.

Three different systems are used, depending on the system configuration, jib length and enclosure weight.
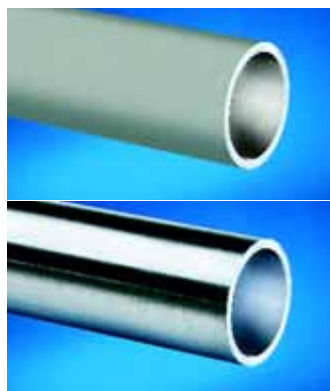
Load capacity CP-S steel/stainless steel

48.3

48
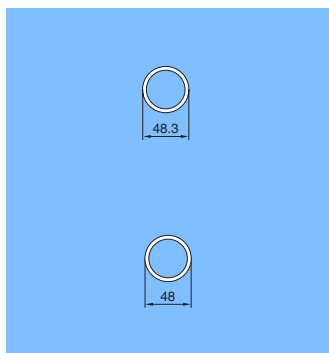
For use of CP-S in conjunction with CP-L
(in the horizontal run of the system), the CP-L load diagram applies.
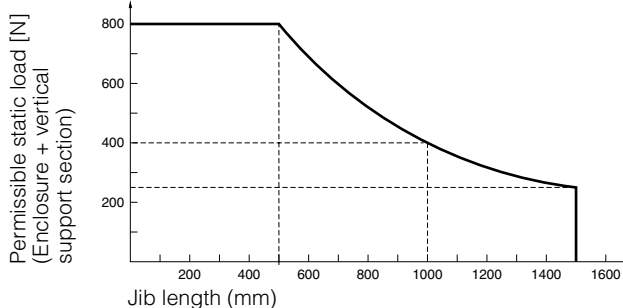
Permissible static load [N]
(Enclosure + vertical support section)

800
600
400
200

200 400 600 800 1000 1200 1400 1600

Jib length (mm)

Load capacity CP-L

85

50

1 System assembly without joint
2 System assembly with one joint
3 System assembly with two joints
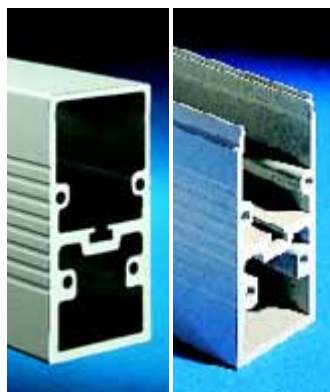
Permissible load depending on system assembly
Intermediate hinge CP 6523.0X0 should only be used once per system!

Permissible static load [N]
(Enclosure + vertical support section)

800
700
600
500
400
300
200
100
0

0 200 400 600 800 1000 1200 1400 1600 1800 2000

Jib length (mm)

1
2
3

Load capacity CP-XL

155

80   80

1 Open and solid support section
2 Solid support section with one joint
3 Open support section with one joint

Permissible load depending on system assembly
Intermediate hinge CP 6120.000 should only be used once per system!

Permissible static load [N]
(Enclosure + vertical support section)

1600
1300

800
650
550
400

0

0 1000 2000 3000

Jib length (mm)

1 + 2
3

B

1.5

Support arm systems

CP-S steel and stainless steel
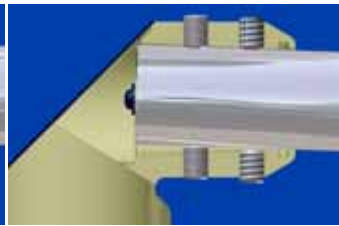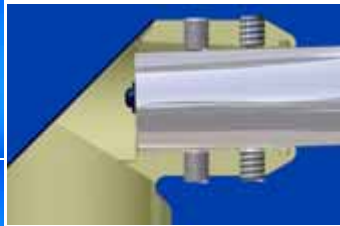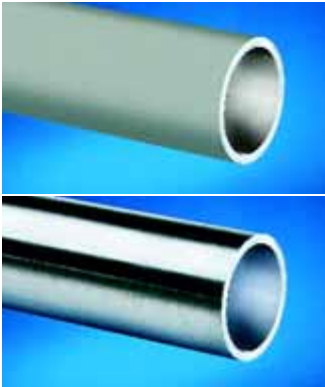
The angle coupling and angle piece, wall-mounted and top-mounted joint of the system from steel have an integral adjustment facility.

This means that deviations in the horizontal of ±2.5° may be balanced out in a flash.

The enclosures are easily located on the enclosure coupling of the stainless steel system with a pre-assembled screw.

Angle adaptor 90°
The ideal connection from a small to a medium-sized system.

Due to the differing requirements and slightly deviating attachment types, the support arm and enclosure should be made from the same material (steel or stainless steel).

CP-L aluminium

The alternative for the configuration of compact systems – the 90° support arm bracket.

Signal pillars may be mounted on many connecting elements of the systems using the mounting component,
see page 1045.

The height-adjustable support arm offers even better ergonomics.

Angle adaptor 90°
The ideal connection from a medium-sized to a large system.

CP-XL aluminium
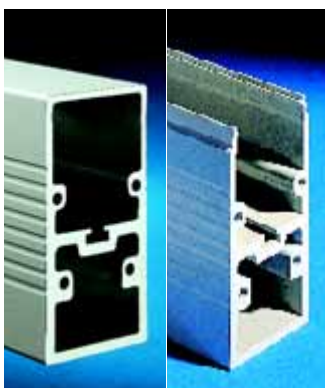
With quadruple screw-fastening, the system offers a particularly high level of safety.

Two ducts allow the control cable and supply voltage to be separated.

A stable base point for the system – the custom-produced pillar,
see page 236.

Support arm systems

Getting from the enclosure to the matching support arm components

The diagrams show how the connection points of the Rittal enclosures may be continued with support arm systems, either directly or via adaptors.
There is a choice of four support arm systems, depending on your design, load and cabling requirements.

(tiltable or ⌒ rotatable components

⊢ system end

► **CP-S steel**
For small and lightweight enclosures.

► **CP-S stainless steel**
For use where there are special requirements in terms of corrosion and hygiene.

► **CP-L**
The system for average command panel weights, stylish lines, and outstanding solution diversity.

► **CP-XL**
The system for extreme loads. Also with open cable duct for super-easy cable entry.

Make a simple sketch showing the basic form of the support arm. Next, select the corresponding support arm components.
Start with **1** system start by selecting the appopriate enclosure situation.

▶ Continue with CP-S according to the item numbers.

▶ System changes are indicated by the colour.
  Green = CP-L

System continuation/system end:
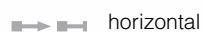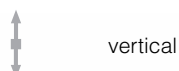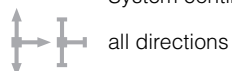
| | all directions

| | vertical

| | horizontal

| | angled

(tiltable or

⌣ rotatable components

◎ From position **3** enclosure attachments, a support section is required between each component (minimum length approx. 100 mm, for wall/floor mounting approx. 160 mm).

T Support sections

T1 Support section CP-S

$A_{min.}$ = 100 mm
$A_{max.}$ = 2000 mm
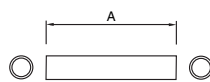
A mm	RAL 9006 **Model No. CP**
500	6501.010
1000	6501.030
To specifications	6501.340[1]

see page 193.
[1] Delivery times available on request.
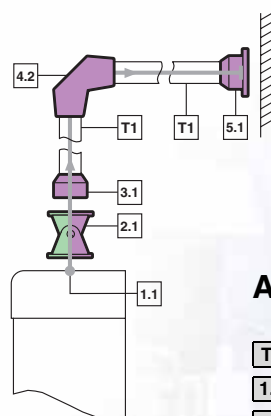
Assembly example:

T1	Support section CP-S
1.1	Mounting cutout CP-S
2.1	Tilting enclosure attachment, top mounting
3.1	Enclosure attachment CP-S
4.2	Angle piece 90° CP-S
5.1	Wall/base mounting CP-S

Note:
After any given support section, the 90° angle adaptor CP-L to CP-S may be used as a transition to the CP-L system.
Load diagram,
see page 188.

B
1.5

Support arm system CP-S steel

Support arm system CP-S steel
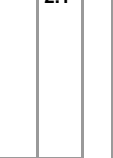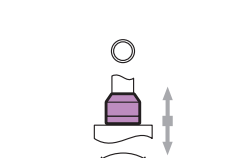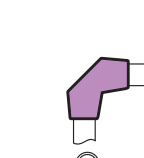
Fast selection

1 System start
Enclosure with mounting cutout

1.1 Mounting cutout CP-S

see page 190

▶ 2.1 3.1 3.2 3.4

1.2 Mounting cutout CP-L, ☐ 120 x 65 mm

see page 190

▶ 2.1 3.3

1.3 Mounting cutout VESA 75

see page 190

▶ 2.1

Vesa 75

2 Tilting adaptor

2.1 Enclosure attachment, tilting, top mounting[1]

IW 6902.670 (RAL 7024)

see page 193

▶ 3.1 3.2 3.4

▶ CP-L 2.4 see p. 201

Vesa 75

[1] May also be used rotated through 180°, e.g. from CP-L ☐ 120 x 65 mm or CP-S to CP-L Ø 130 mm.
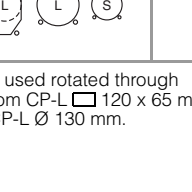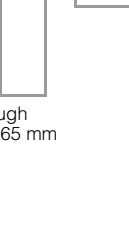
3 Enclosure attachments

3.1 Attachment CP-S

CP 6501.070 (RAL 7024)

see page 194

▶ 4.1 4.2 5.1 5.2 5.3

3.2 Housing coupling, round CP-S

CP 6501.050 (RAL 7024)

see page 195

3.3 Housing coupling, for support arm connection CP-L ☐ 120 x 65 mm

CP 6501.130 (RAL 7024)

see page 195

3.4 Angle coupling 90° CP-S

CP 6501.120 (RAL 7024)

see page 196

▶ 5.1 5.2 5.3
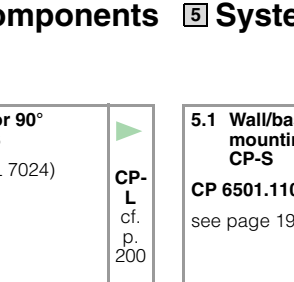
4 Angle components

4.1 Angle adaptor 90° CP-L to CP-S

CP 6501.090 (RAL 7024)

see page 214

▶ CP-L cf. p. 200

4.2 Angle piece 90° CP-S

CP 6501.140 (RAL 7024)

see page 197

▶ 5.1 5.2 5.3

5 System end

5.1 Wall/base mounting CP-S

CP 6501.110 (RAL 7024)

see page 198

5.2 Wall mounted hinge CP-S

CP 6501.150 (RAL 7024)

see page 199

5.3 Top mounted joint CP-S

CP 6501.160 (RAL 7024)

see page 198

Support section CP-S

Attachment to the connecting components with 2 clamping screws.

Size:
External diameter: 48.3 mm
Wall thickness: 4.0 mm

Material:
Steel conduit, powder-coated

Colour:
RAL 9006

Note:
Bent support sections available on request.

A mm	Weight kg	Model No. CP
500	2.1	**6501.010**
1000	4.2	**6501.030**
To specifications A =	4.2 kg/m	**6501.340**[1]

[1] Delivery times available on request.

$A_{min.}$ = 100 mm
$A_{max.}$ = 2000 mm

Enclosure attachment, tilting, top mounting

For mounting on:
● IW worktop, prepared for enclosure attachment CP-L, Ø 130 mm, see page 249
● Surfaces
● Enclosure attachment/coupling CP-L ☐ 120 x 65 mm, see page 210/212
● Attachment/housing coupling CP-S (may also be used as tilting adaptor +100°/–60° for CP-S), see page 194/195.

To fit enclosures up to 20 kg with support arm connection:
● CP-S
● CP-L ☐ 120 x 65 mm
● CP-L Ø 130 mm
● VESA Standard 75

With cable tube for protected cable entry.

Tilt angle:
+100°/–60°, adjustable in 7.2° increments via clamping lever and may be limited to +100°/–15° using the stop screw supplied loose.

Colour RAL	Weight kg	Model No. IW
7024	0.8	**6902.670**

Material:
Sheet steel, spray-finished

Supply includes:
Assembly parts and plastic concertina section.

Accessories:

IW worktops prepared for enclosure attachment, see page 249.

B
1.5

Support arm system CP-S
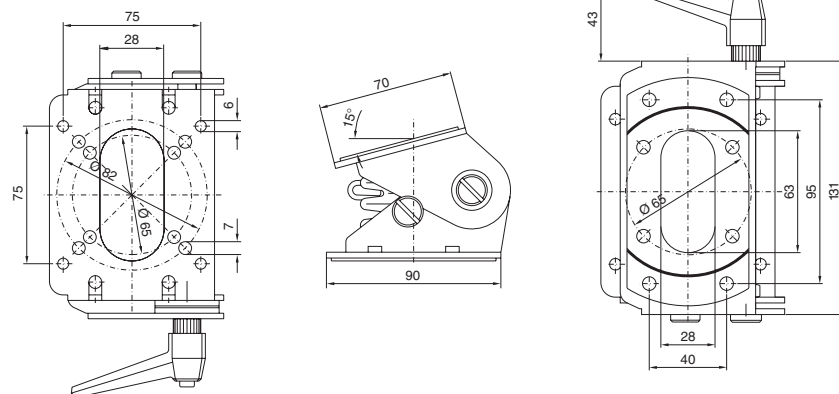
Support arm system CP-S

Steel
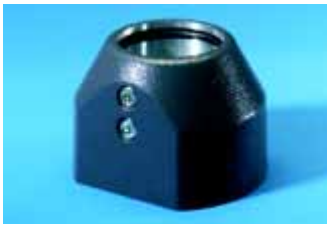
CP-S attachment

For rigid attachment of the
- enclosure to the support section,
- support arm to flat surfaces, rear[1].

With two drilling patterns for
a) Rittal Command Panel
b) Complete Control Panel.

Material:
Die-cast zinc

Supply includes:
Seal and 2 clamping screws for support section CP-S.

Colour RAL	Weight kg	Model No. CP
7024	1.0	**6501.070**

[1] Maximum load 400 N.
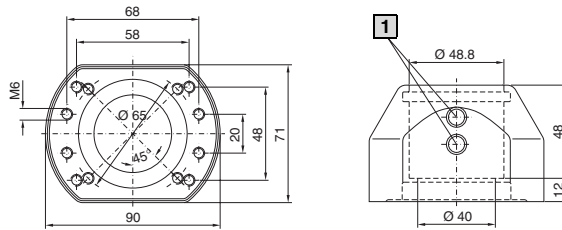
1 Clamping screw

Mounting cutouts
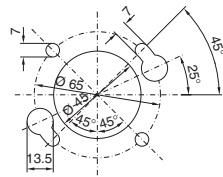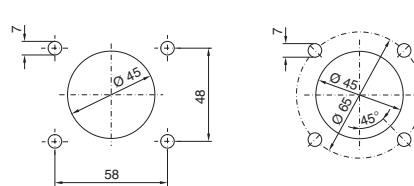
a)

b)

Like cutout a),
but without
lock holes

Enclosure coupling CP-S

for support arm connection CP-S, round
For swivel mounting of the enclosure on the vertical section of the support arm system.
With two drilling patterns for
a) Rittal Command Panel
b) Complete Control Panel.

Rotation range:
Approx. 305°, lockable via clamping lever.
By inserting additional pins 4 x 16 mm
to ISO 8752 the rotation range may be limited
to ± 7°, 44°, 104°, 142°.

Colour RAL	Weight kg	Model No. CP
7024	1.1	**6501.050**

Material:
Die-cast zinc

Supply includes:
Seal, 2 clamping screws for support section CP-S and clamping lever.
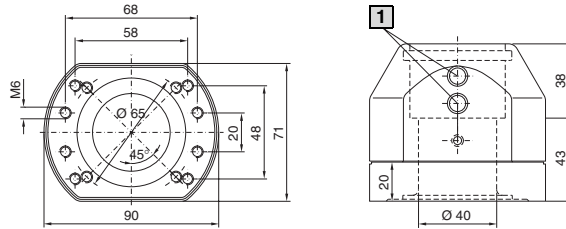
1 Clamping screw

Mounting cutouts

a)

b)

Like cutout a),
but without
lock holes
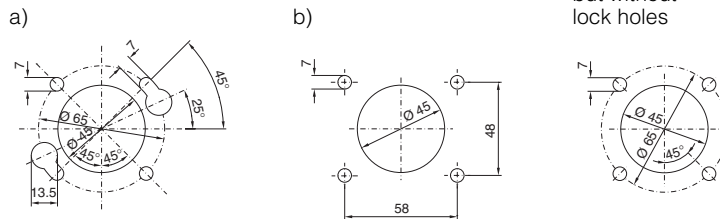
Enclosure coupling CP-S

for support arm connection CP-L,
☐ 120 x 65 mm
For swivel mounting of the enclosure on the vertical section of the support arm system.

For mounting on:
● Optipanel to fit TFT monitors
  CP 6380.010 – .040 (see page 178)
● Optipanel W x H x D = 19″ x 7 U x 100 mm
  CP 6380.000 (see page 178)
● Optipanel installation depth 50 mm, with rear support arm connection.

Rotation range:
Approx. 305°, lockable via clamping lever.
By inserting additional pins 4 x 16 mm
to ISO 8752 the rotation range may be limited
to ± 7°, 44°, 104°, 142°.

Colour RAL	Weight kg	Model No. CP
7024	1.5	**6501.130**

Material:
Die-cast zinc

Supply includes:
Seals, 2 locking screws.

Mounting cutout, enclosure
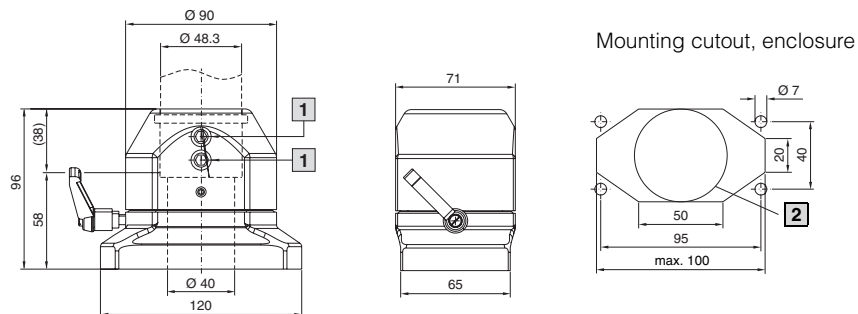
1 Locking screw

2 alternative max. Ø 55 mm

Support arm system CP-S

Steel
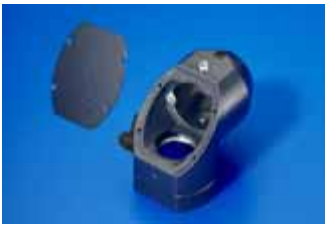
Angle coupling 90° CP-S

For swivel fastening of the enclosure to the
horizontal support arm system.
● Enclosure top-mounted or suspended
● Adjustment facility for the support arm system
  (see page 189)
● Removable panel for problem-free cable entry

Rotation range:
Approx. 305°, lockable via clamping lever.
By inserting additional pins 4 x 16 mm
to ISO 8752 the rotation range may be limited
to ± 7°, 44°, 104°, 142°.
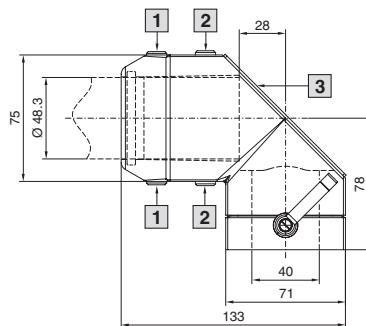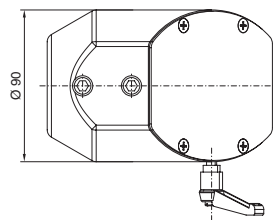
Colour RAL	Weight kg	Model No. CP
7024	1.6	**6501.120**

Material:
Cast aluminium/die-cast zinc

Supply includes:
Seals, 2 locking screws and 2 adjusting screws.

1 Locking screw
2 Adjusting screw
3 Removable plate

Possible mounting cutouts of enclosures

a)

b)

c)
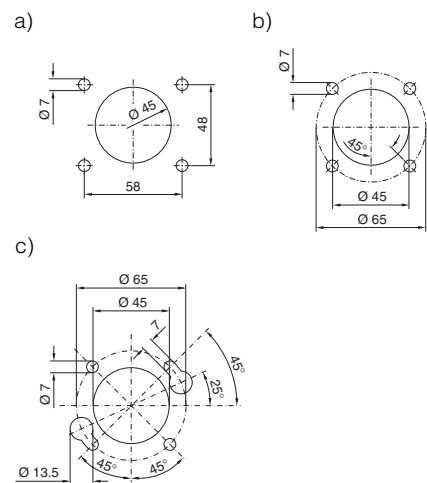
Version c) for quick/one-man assembly

Angle adaptor 90°
CP-L to CP-S

Angle piece 90° CP-S

For connecting horizontal and vertical support arm components.
● Adjustment facility for the support arm system (see page 189)
● Removable panel for problem-free cable entry

Material:
Cast aluminium

Supply includes:
Seals, 4 locking screws and 2 adjusting screws.

Colour RAL	Weight kg	Model No. CP
7024	1.1	**6501.140**

✚ Accessories:

Mounting component for signal pillars (SZ 2375.030),
see page 1045.

Support arm system CP-S
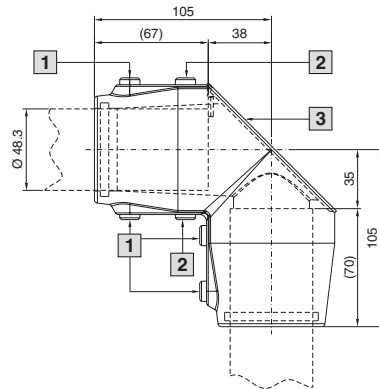
1 Locking screw
2 Adjusting screw
3 Removable plate
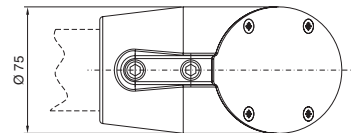
Mounting component CP-S

for signal pillars
For mounting a signal pillar with connection component for tube mounting on the angle piece 90° CP-S, see page 1045.

Steel

Wall/base mounting CP-S

For rigid attachment of the support section to surfaces. With flange for front mounting.

Material:
Cast aluminium

Supply includes:
Seal, 2 clamping screws for support section CP-S and 3 pre-fitted adjusting screws.

Colour RAL	Weight kg	Model No. CP
7024	0.7	**6501.110**
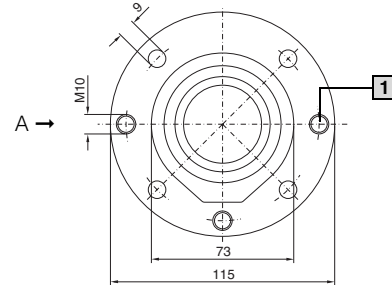
1 Adjusting screw

Mounting cutout

View A
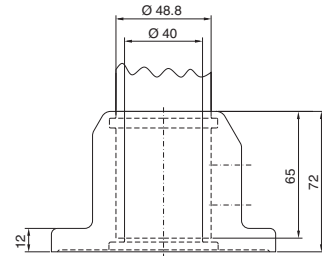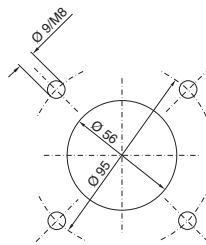
Top mounted joint CP-S

For swivel mounting of the support arm system to horizontal surfaces.
- Enclosure top-mounted or suspended
- Adjustment facility for the support arm system (see page 189)
- Removable panel for problem-free cable entry

Rotation range:
Approx. 300°. By inserting additional pins
6 x 20 mm to ISO 8752 the rotation range may be limited to ± 6°, 51°, 96°. To lock the joint, the screw may be exchanged for standard clamping lever M6 x 25 mm.

Colour RAL	Weight kg	Model No. CP
7024	1.8	**6501.160**

Material:
Cast aluminium

Supply includes:
Seals, 2 locking screws and 2 adjusting screws.

Mounting cutout
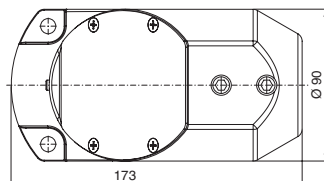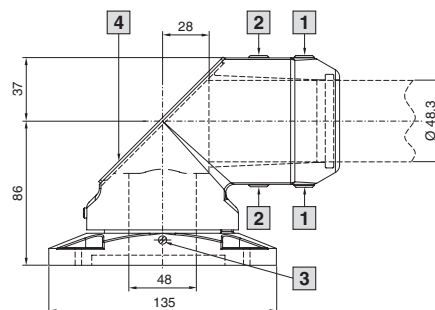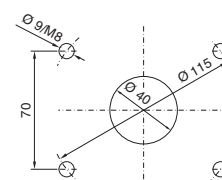
1 Locking screw
2 Adjusting screw
3 Screw for adjusting rotatability
4 Removable plate

Wall mounted hinge CP-S

For vertically hinged mounting of the support arm on vertical surfaces.
- Machined keyhole as mirror image for support arm outlet at the top or bottom for easy one-man assembly.
  - Pre-mount the screws on a vertical surface
  - Locate the wall-mounted hinge (support arm system pre-mounted)
  - Tighten the screws
- Adjustment facility for the support arm system (see page 189)
- Removable panel for problem-free cable entry

Rotation range:
Approx. 300°. By inserting additional pins 6 x 20 mm to ISO 8752 the rotation range may be limited to ± 6°, 51°, 96°. To lock the joint, the screw may be exchanged for standard clamping lever M6 x 25 mm.

Colour RAL	Weight kg	Model No. CP
7024	2.2	**6501.150**

Material:
Cast aluminium
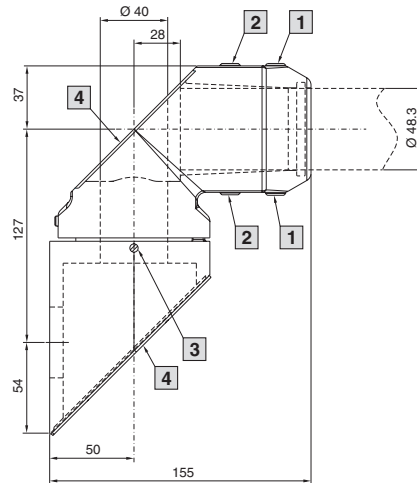
Supply includes:
Seals, 2 locking screws and 2 adjusting screws.

B

1.5

Support arm system CP-S

Mounting cutout 90°

1 Locking screw

2 Adjusting screw

3 Screw for adjusting rotatability

4 Removable plate
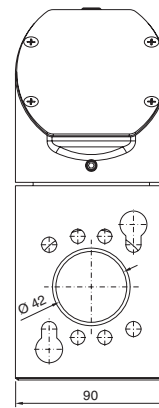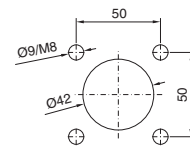
Support arm system CP-L

Fast selection

Make a simple sketch showing the basic form of the support arm.
Next, select the corresponding support arm components.
Start with **1** system start by selecting the appopriate enclosure situation.

▶ Continue with CP-L according to the item numbers.

System changes are indicated by the colour.

▶ Violet = CP-S

▶ Blue = CP-XL

System continuation/system end:
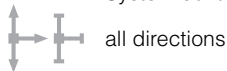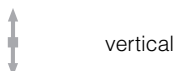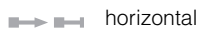
all directions

vertical

horizontal

angled

tiltable or

rotatable components

From position **3** enclosure attachments, a support section is required between each component (minimum length approx. 100 mm, for wall/floor mounting approx. 160 mm).
The cross-sections indicate the installation position(s).

X = 0 (RAL 7030)

X = 1 (RAL 7024)
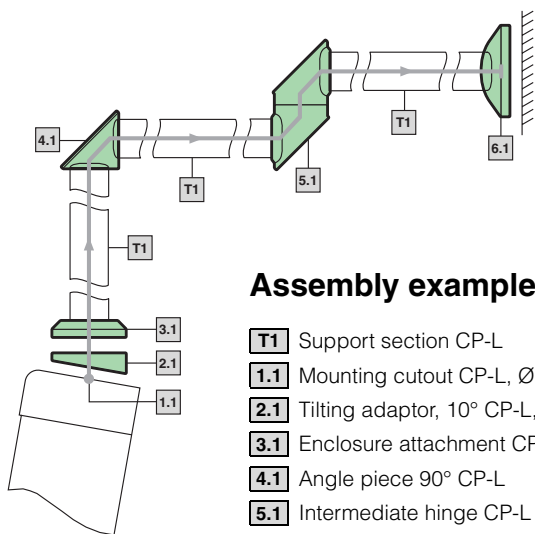
Assembly example:

T1	Support section CP-L
1.1	Mounting cutout CP-L, Ø 130 mm
2.1	Tilting adaptor, 10° CP-L, Ø 130 mm
3.1	Enclosure attachment CP-L, Ø 130 mm
4.1	Angle piece 90° CP-L
5.1	Intermediate hinge CP-L
6.1	Wall/base mounting CP-L

T Support sections

T1 Support section CP-L
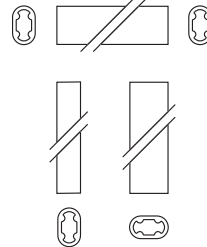
Length mm	Colour RAL	Model No. CP
250	7035	6509.000
500	7035	6511.000
1000	7035	6513.000
2000	7035	6515.000
250	9006	6509.010
500	9006	6511.010
1000	9006	6513.010
2000	9006	6515.010

See page 204

T2 Support arm CP-L, height-adjustable

max. 800 mm
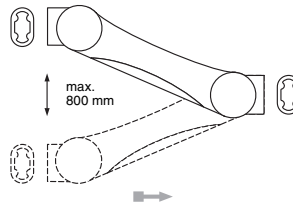
Colour: RAL 7024/9006

Weight range kg	Length mm	Model No. CP
10 – 20	962	6510.210
19 – 30	958	6510.310

See page 202

T3 Support arm bracket 90°, CP-L

350

350
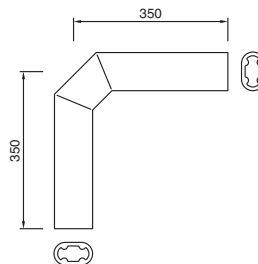
Colour RAL	Model No. CP
7035	6519.000
9006	6519.010

See page 204

1 System start

Enclosure with mounting cutout

1.1 Mounting cutout CP-L, Ø 130 mm

L

▶ 2.1 2.2 2.4 3.1 3.2 3.3

1.2 Connection plate for support arm CP-L

CP 6528.2X0, see page 209

L

L

1.3 Connection adaptor CP-L to CP-XL

CP 6528.000, see page 208

L

XL

1.4 Mounting cutout CP-L, ▭ 120 x 65 mm

L

▶ 2.3 2.4 3.4 3.5 3.6
▶ CP-S 3.3 cf. p. 192

1.5 Connection console CP-L ▭ 120 x 65 mm A

CP 6508.0X0
on Optipanel support plate **B**
CP 6508.100

Other enclosures with mounting cutout **C** for connection console

see page 211

L

C A B

▶ 2.3 2.4 3.4 3.5 3.6
▶ CP-S 3.3 cf. p. 192

1.6 Mounting cutout VESA 75

see page 190

Vesa 75

▶ 2.4

B

1.5

Support arm system CP-L

② Tilting adaptor

2.1 Tilting adaptor 10° CP-L, Ø 130 mm
CP 6527.0X0, see page 205

3.1
3.2
3.3

2.2 Tilting adaptor +/− 45° CP-L, Ø 130 mm
CP 6529.0X0, see page 205

2.3 Tilting adaptor 10° CP-L, ☐ 120 x 65 mm
CP 6527.1X0, see page 206

3.4
3.5
3.6

2.4 Enclosure attachment tilting, top mounting[1]
CP 6902.670 (RAL 7024), see page 193

3.4
3.5

CP-S
cf. p. 191/192

Vesa 75

③ Enclosure attachments

3.1 Enclosure attachment CP-L, Ø 130 mm
CP 6525.5X0, see page 206

4.1
4.2
4.3
6.1
6.2
6.3
6.4

3.2 Housing coupling CP-L, Ø 130 mm
CP 6525.0X0, see page 212

4.1
4.3
6.1
6.2
6.3[2]
6.4[2]

3.3 Angle coupling 90° CP-L, Ø 130 mm
CP 6526.0X0, see page 213

4.1
5.1
6.1
6.2
6.3
6.4

3.4 Enclosure attachment CP-L, ☐ 120 x 65 mm
CP 6525.6X0, see page 207

4.1
4.2
4.3
6.1
6.2
6.3[2]
6.4[2]

3.5 Housing coupling CP-L, ☐ 120 x 65 mm
CP 6525.1X0, see page 212

4.1
4.3
6.1
6.2
6.3[2]
6.4[2]

3.6 Enclosure attachment CP-L, ☐ 120 x 65 mm, locatable
CP 6525.2X0, see page 210

4.1
4.2
4.3
6.1
6.2

④ Angle components

4.1 Angle piece 90° CP-L
CP 6524.0X0, see page 213

5.1
6.1
6.2
6.3
6.4

4.2 Angle joint 90° CP-L
CP 6524.2X0, see page 214

4.3 Angle adaptor 90° CP-L to CP-XL
CP 6528.100, see page 214

CP-XL
see p. 218

⑤ Intermediate hinge

5.1 Intermediate hinge CP-L
CP 6523.0X0, see page 215

4.1
6.1
6.2

⑥ System end

6.1 Wall/base mounting, small, CP-L
CP 6520.5X0, see page 215

6.2 Wall/base mounting, large, CP-L
CP 6520.0X0, see page 216

6.3 Top mounted joint CP-L
CP 6522.0X0, see page 216

6.4 Wall mounted hinge CP-L
CP 6521.0X0, see page 217

Notes:

Re T2
Support arm, height adjustable should always be inserted as the first horizontal component after the enclosure.

Re 5.1 / 6.3 / 6.4
It is always expedient to use only one intermediate hinge or one wall mounted hinge. Two joints will restrict load capacity and make positioning the command panel more difficult.
Load diagram, see page 188.

Re 4.1
Two angle pieces may also be used one after the other.

[1] May also be used rotated through 180°, e.g. from CP-L ☐ 120 x 65 mm or CP-S to CP-L Ø 130 mm.
[2] Via T3 support arm bracket 90° CP-L.

Support arm system CP-L

Support arm, height adjustable

Support arm, height adjustable CP-L

Offers enhanced ergonomics thanks to:
● Adjustment range
  – for tall and short operators
  – for seated and standing work
  adjustable to up to 800 mm as required via an adjusting screw at the front of the support arm.
● Precise coordination of the compression spring to the enclosure weight via an adjusting screw at the rear of the support arm.
● Complete functional reliabilty – if the compression spring breaks, the arm will remain in position.
● Plastic casing clips off for access to the integral U-section cable tray.
● Tilting angle of the mounted enclosure is identical in every height position.

Material:
Steel

Supply includes:
Round tube with compression spring relief and U-section cable tray, 2 threaded connectors, plastic casing, including assembly parts.

Note:
Connection pieces for other support arms available on request.

Overall length mm	Colour RAL	Weight range kg[1]	Model No. CP
962	9006	10 – 20	**6510.210**
958	9006	19 – 30	**6510.310**

[1] For configured enclosure and vertical support section

20 kg version

View A

Max. cross-section
for cable entry
16 x 15 mm

30 kg version

View B

Max. cross-section
for cable entry
16 x 26 mm
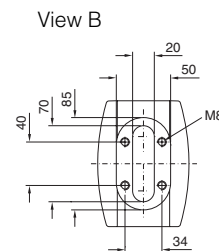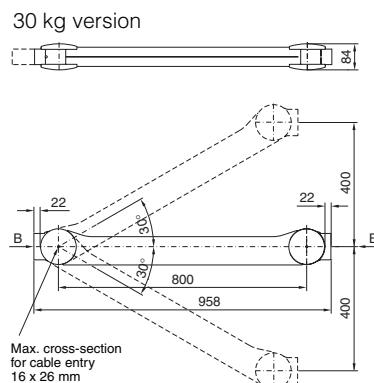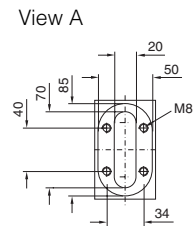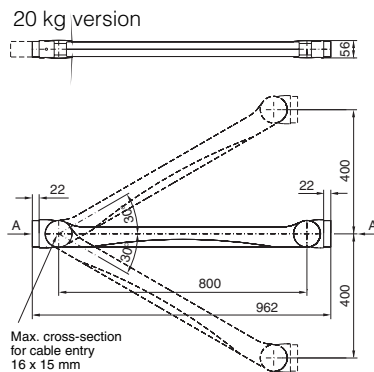
Support arm, height adjustable

The versatile combination options with horizontal
mounting are illustrated in this diagram.

Enclosure side

Angle piece 90° CP-L
Model No. 6524.0X0[1]),
see page 213.

Articulated joint 90° CP-L
Model No. 6524.2X0[1]),
see page 214.

Angle coupling 90° CP-L
for support arm connection
Ø 130 mm
Model No. 6526.0X0[1]),
see page 213.

Enclosure attachment CP-L for
support arm connection Ø 130 mm
Model No. 6525.5X0[1]),
enclosure attachment CP-L
for support arm connection
☐ 120 x 65 mm
Model No. 6525.6X0,
see page 206/207.
Enclosure with rear support
arm cutout/reinforcement available
on request.

Angle adaptor 90°
CP-L to CP-S
Model No. 6501.090 (RAL 7024),
see page 214.

Attachment side

Angle piece 90° CP-L
Model No. 6524.0X0[1]),
see page 213.

Intermediate hinge CP-L
Model No. 6523.0X0[1]),
see page 215.

Wall/base mounting, small,
CP-L
Model No. 6520.5X0[1]),
see page 215.

Wall mounted hinge CP-L
Model No. 6521.0X0[1]),
see page 217.

Top mounted joint CP-L
Model No. 6522.0X0[1]),
see page 216.

[1] Key:
X = 0 RAL 7030
X = 1 RAL 7024

Support arm system CP-L

Aluminium

Support section CP-L

Attachment to the connection components with 4 self-tapping screws in a screw channel, may be cut to any required length.

Size:
50 x 85 mm

Wall thickness:
8 mm

Material:
Extruded aluminium section

Note:
Load information,
see page 188.

German patent no. 43 31 124
French patent no. 94 10 806
Ital. patent no. 01275022
Jap. patent no. 2730621
US patent no. 5,460,894

Length (L)[1] mm	Weight kg	RAL 7035 Model No. CP	RAL 9006 Model No. CP
250	1.3	**6509.000**	**6509.010**
500	2.6	**6511.000**	**6511.010**
1000	5.1	**6513.000**	**6513.010**
2000	10.2	**6515.000**	**6515.010**

[1] L min = 135 mm
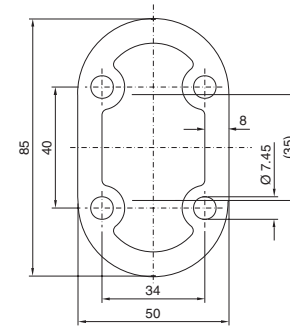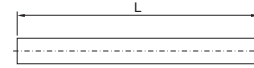
Support arm bracket 90° CP-L

The compact, firmly linked alternative.

Material:
Extruded aluminium section

Colour RAL	Weight kg	Model No. CP
7035	3.4	**6519.000**
9006	3.4	**6519.010**
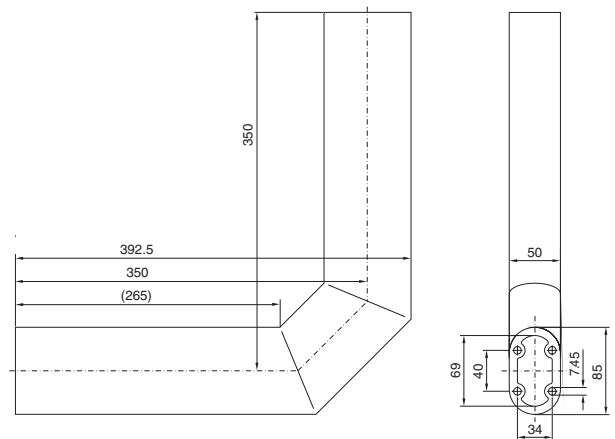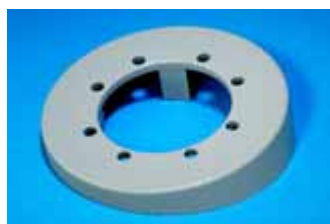
Tilting adaptor, 10° CP-L

for support arm connection Ø 130 mm
For mounting between:
- Housing coupling CP-L (CP 6525.0X0)

or
- Enclosure attachment CP-L (CP 6525.0X0)

or
- Angle coupling 90° CP-L (CP 6526.0X0)

and the command panel.

Material:
Die-cast zinc

Supply includes:
Seal and assembly parts.

Colour RAL	Weight kg	Model No. CP
7030	0.6	**6527.000**
7024	0.6	**6527.010**
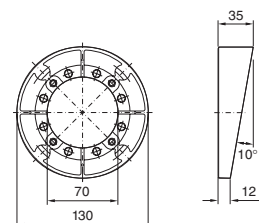
Mounting cutout
Enclosure CP-L, Ø 130 mm
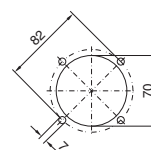
Tilting adaptor, ± 45° CP-L

for support arm connection Ø 130 mm
For mounting between:
- Housing coupling CP-L (CP 6525.0X0)

or
- Enclosure attachment CP-L (CP 6525.0X0)

or
- Angle coupling 90° CP-L (CP 6526.0X0)

and the command panel.

Tilting angle:
Adjustable in 7.5° increments

Material:
Cast aluminium

Supply includes:
Seal, plastic concertina section and assembly parts.

German patent no. 195 40 298
US patent no. 5,911,393

Colour RAL	Weight kg	Model No. CP
7030	1.3	**6529.000**
7024	1.3	**6529.010**
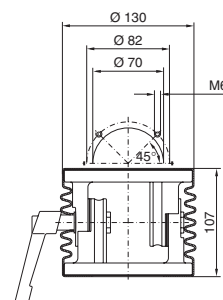
Mounting cutout
Enclosure CP-L, Ø 130 mm
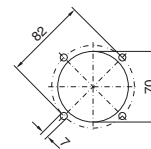
Support arm system CP-L

Aluminium

Tilting adaptor, 10° CP-L
for support arm connection ☐ 120 x 65 mm
For mounting between:
● Housing coupling CP-L (CP 6525.1X0)
or
● Enclosure attachment CP-L (CP 6525.6X0)
or
● Housing coupling CP-S (CP 6501.130)
and the command panel.

Material:
Die-cast zinc

Supply includes:
Seal and assembly parts.

Colour RAL	Weight kg	Model No. CP
7030	0.4	**6527.100**
7024	0.4	**6527.110**
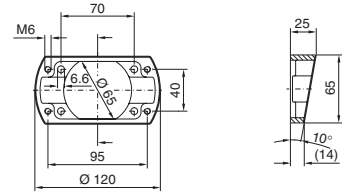
Mounting cutout
Enclosure CP-L ☐ 120 x 65 mm
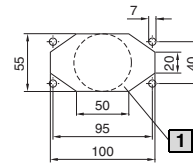
1 Alternative max. Ø 55 mm

Enclosure attachment, tilting
see page 193.

Enclosure attachment CP-L
for support arm connection Ø 130 mm
For rigid fastening of the enclosure to the support arm system.

Material:
Die-cast zinc

Supply includes:
Seals and self-tapping screws for CP-L support section attachment.

Colour RAL	Weight kg	Model No. CP
7030	1.0	**6525.500**
7024	1.0	**6525.510**
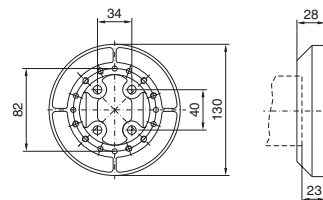
Mounting cutout
Enclosure CP-L, Ø 130 mm
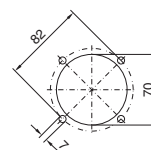
Enclosure attachment CP-L

for support arm connection ▢ 120 x 65 mm
For rigid fastening of the enclosure to the support arm system.

Material:
Die-cast zinc

Supply includes:
Seals and self-tapping screws for CP-L support section attachment.

Colour RAL	Weight kg	Model No. CP
7030	1.0	6525.600
7024	1.0	6525.610

✚ Accessories:

Connection console CP-L, see page 211.
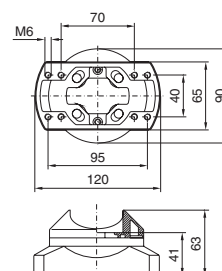
B
1.5

Support arm system CP-L

Mounting cutout
Enclosure CP-L, ▢ 120 x 65 mm
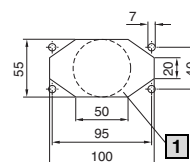
1 Alternative max. Ø 55 mm

Enclosure attachment, tilting, base mounting

CP-L ▢ 120 x 65 mm
For mounting beneath:
- IW worktop with pedestal
- Sufficiently large surfaces

Fits enclosures with mounting cutout:
- CP-L ▢ 120 x 65 mm (e.g. Optipanel), see page 175.

With mounting cutout for connector grommet for sealed cable entry.

Tilt angle:
+40°/–40°, lockable via clamping lever

Material:
Sheet steel, spray-finished

Supply includes:
Assembly parts

Colour RAL	Weight kg	Model No. IW
7024	1.6	6902.640

Note:
The enclosure attachment can be mounted either on the support arm connection of the Optipanel enclosure or on the underside or rear of any enclosure.

✚ Accessories:

Connector grommet, see page 975.
IW worktop, see page 249.
Pedestal, see page 232.
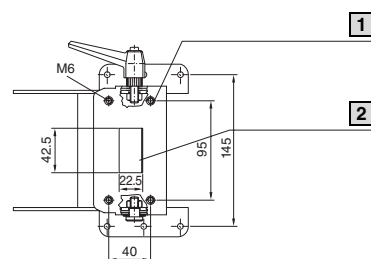
1 Prepared for enclosure with connection CP-L/CP-S, ▢ 120 x 65 mm or connection console CP-L CP 6508.0X0

2 Prepared for connector gland SZ 2400.300/SZ 2400.500

A = max. 62 mm
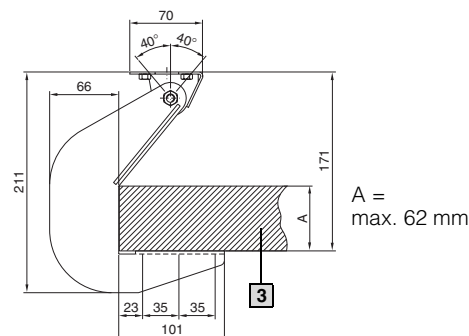
3 Worktop, e.g. IW 6902.310/ IW 6902.320

Aluminium

Connection adaptor
CP-L to CP-XL

For mounting between:
- Enclosure with support arm connection CP-L and
- Support arm system CP-XL.

May also be used for the attachment of command panels with cutout for CP-L directly to machines and systems without a support arm.

Assembly sequence:
- Mount the connection adaptor on the supporting structure
- Mount the enclosure and tighten the screws

The seal to the supporting structure is available on request, if required.

Material:
Cast aluminium

Supply includes:
Seal and assembly parts.

Height mm	Colour RAL	Weight kg	Model No. CP
20[1]	7030	0.6	**6528.000**
55[2]	7030	0.7	**6528.500**

[1] Provided the load permits, may also be mounted between enclosure with support arm connection CP-XL and support arm system CP-L Ø 130 mm.

[2] For command panel VIP 6000, see page 161, 3.1. Operating housing, design code number 1 to 5.
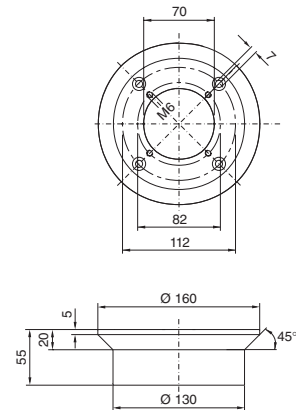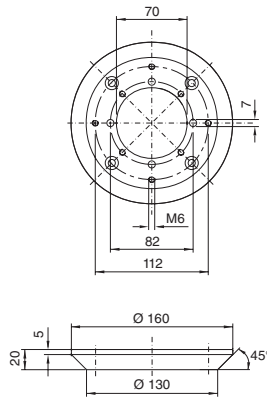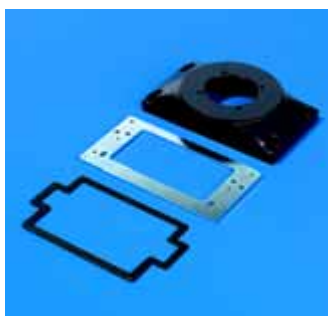
Connection plate

with reinforcement plate
- For easy location of the command panel onto the support arm or pedestal.
- After drilling 4 holes Ø 7 mm, simply screw-fasten from the outside.
- More space for cable entry plus clamping bracket.

For assembling:
- VIP 6000[1]
- Optipanel[2]
- Sheet steel command panel[3]

to:

Support arm system components	CP-L	CP-XL
Enclosure attachment	CP 6525.5X0	CP 6130.600
Housing coupling	CP 6525.0X0	CP 6130.000
Angle coupling	CP 6526.0X0	CP 6040.000
Tilting adaptor 10°	CP 6527.0X0	–
Tilting adaptor +/– 45°	CP 6529.0X0	–

1 Pre-install screws, locate the enclosure, tighten the screws, and voila!

With support arm connection	Colour RAL	Weight kg	Model No. CP
CP-XL	7030	0.8	**6528.300**
CP-L	7030	0.7	**6528.200**
CP-L	7024	0.7	**6528.210**

Note:
The square support arm cutout can be prepared on request.

Material:
Connection plate: Cast aluminium
Reinforcement plate: Sheet steel 6 mm

Supply includes:
Seals and assembly parts.

[1] From a front panel width of 265 mm.
The CP-XL version cannot be used in conjunction with installation depth 155 mm and 295 mm.

[2] From a front panel width of 220 mm and installation depth of 150 mm.

[3] Mounting surface area, minimum W x D = 300 mm x 135 mm (e.g. command panel housing with door).

Mounting cutout CP-L/CP-XL
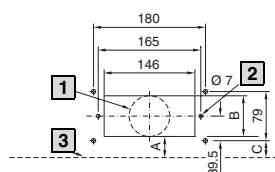
1 Alternative Ø B

2 Ø 6 mm only with metal enclosures for securing the reinforcement plate

3 Enclosure outer edge rear
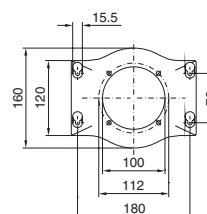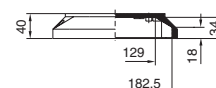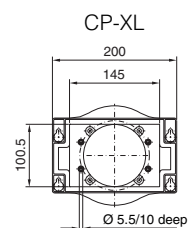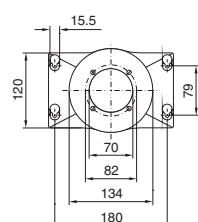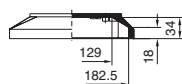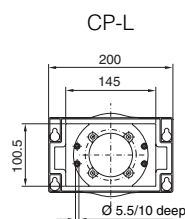
	Installation depth mm	A	B	C
VIP 6000	155 – 185	32	81	30.5
	295 – 438	174.5	81	173
Opti-panel	150	34	65.5	28
Metal enclo-sure	–	1)	86	1)

1) Drill the holes/cutout in the centre of the reinforcement plate of the enclosure.

CP-L

CP-XL

Support arm system CP-L

Aluminium

Enclosure attachment, locatable CP-L

for support arm connection ☐ 120 x 65 mm
For rigid fastening of the enclosure to the support section.
With "machined keyholes" for easy, secure mounting by just one person:
● Screw the enclosure attachment to the support arm.
● Secure the supporting plate to the inside of the enclosure and pre-fit two screws from the outside.
● Locate the enclosure and tighten the screws.

For enclosures from a depth of 70 mm. More space for entry of cables with connectors.

Material:
Enclosure attachment: Die-cast zinc
Support plate: Sheet steel

Supply includes:
Seal, support plate and assembly parts.

Colour RAL	Weight kg	Model No. CP
7030	0.4	**6525.200**
7024	0.4	**6525.210**

⚠ Also required:

90° articulated joint CP-L, see page 214.
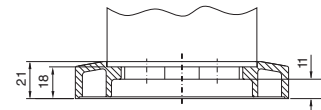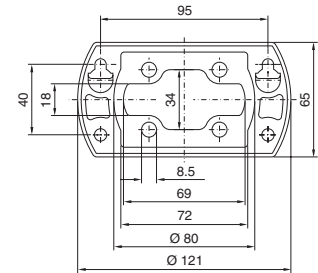
Mounting cutout
Enclosure ☐ 120 x 65 mm
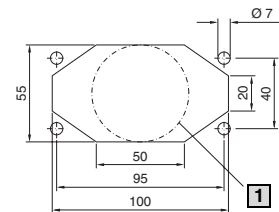
1 Alternative max. Ø 55 mm

Connection console CP-L

For rear connection of slimline operating housings. Removable lid for simple cable entry.

Material:
Cast aluminium

Supply includes:
Seals and assembly parts for mounting on the enclosure and 2 cable ties.

Mounting options:

1. Optipanel
Retro-fitting:
- Cutout in rear panel/door
- With support plate CP 6508.100 (see page 212) directly screw-fastened to extrusion (see Fig. A)

Selection via design code number
(see page 175, item 2.3, selection 7 or 8):
Connection console and support plate are fitted.

1. Optipanel

Fig. A

2. General
e.g.
- Terminal boxes
  (see page 107),
- Cast aluminium enclosures
  (see page 104)

the connection console may be mounted
a) directly, flush with enclosure edge
(see Fig. B top),
b) in the centre with spacer plate CP 6508.200 (on request) (see Fig. B below),
on the rear wall of the enclosure. Additional reinforcement of the rear panel should be checked in individual cases.

2. General
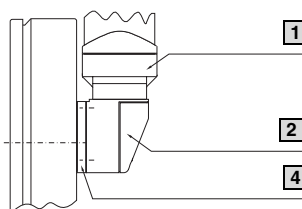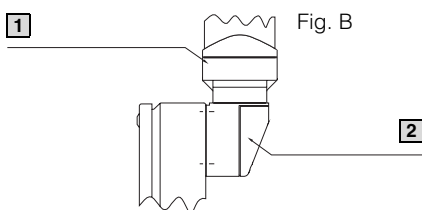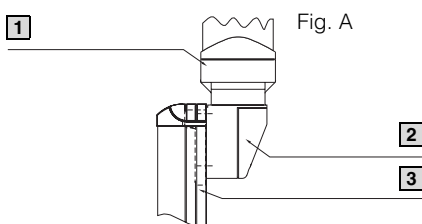
Colour RAL	Weight kg	Model No. CP
7030	0.7	**6508.000**
7024	0.7	**6508.010**

! Also required:

Enclosure attachment CP 6525.6X0),
see page 207.
Housing coupling (CP 6525.1X0),
see page 212.
Tilting adaptor 10° (CP 6527.1X0),
see page 206.
Housing coupling CP-S (CP 6501.130),
see page 195.

+ Accessories:

Spacer plate (CP 6508.200), available on request.
Support plate Optipanel CP 6508.100,
see page 212.

View A

Mounting cutout

Fig. B
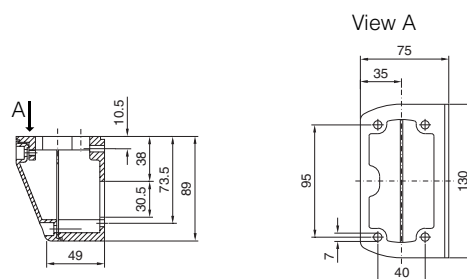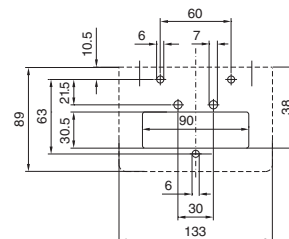
1 Support arm component CP-L
   ☐ 120 x 65 mm

2 Connection console CP-L

3 Support plate (inside)

4 Spacer plate

Support arm system CP-L

Aluminium

Optipanel support plate

For mounting on the enclosure section.
The rear panel or door are recessed in this area, thereby ensuring easy access in case of servicing.

Material:
Cast aluminium

Supply includes:
Seals and assembly parts.

Weight kg	Model No. CP
0.2	6508.100
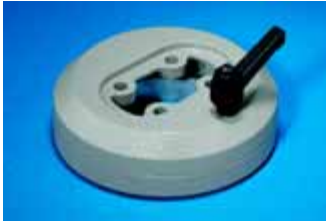
Housing coupling CP-L

for support arm connection Ø 130 mm
For swivel mounting of the enclosure on the vertical section of the support arm system.

Rotation range:
Approx. 310°, lockable via clamping lever.
By inserting additional pins 5 x 18 mm to ISO 8752, the rotation range may be limited to ±5°, 65°, 95° and 155°.

Material:
Die-cast zinc

Supply includes:
Seals and self-tapping screws for CP-L support section attachment.

Colour RAL	Weight kg	Model No. CP
7030	1.7	6525.000
7024	1.7	6525.010
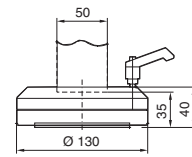
Mounting cutout
Enclosure CP-L, Ø 130 mm
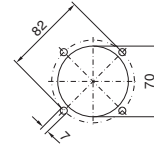
Housing coupling CP-L

for support arm connection ☐ 120 x 65 mm
For swivel mounting of the enclosure on the vertical section of the support arm system.

Rotation range:
Approx. 350°, lockable via clamping lever.
By inserting additional pins 6 x 20 mm to ISO 8752, the rotation range may be limited to ±5° and ±100°.

Material:
Die-cast zinc

Supply includes:
Seals and self-tapping screws for CP-L support section attachment.

Colour RAL	Weight kg	Model No. CP
7030	1.4	6525.100
7024	1.4	6525.110

➕ **Accessories:**

Connection console CP-L (CP 6508.0X0), see page 211.

Mounting cutout
Enclosure CP-L, ☐ 120 x 65 mm
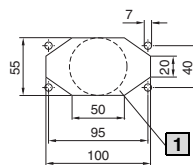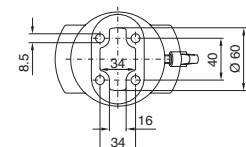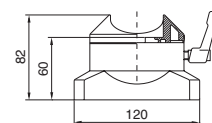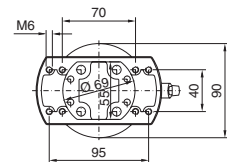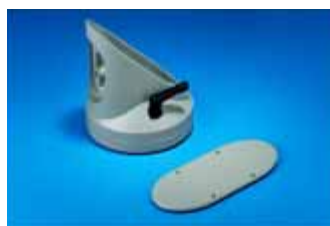
1 Alternative max. Ø 55 mm

Angle coupling 90° CP-L

for support arm connection Ø 130 mm
For swivel mounting of the enclosure on the horizontal part of the support arm system. Enclosure may be suspended or top-mounted.
The removable plate enables problem-free cable entry.

Rotation range:
Approx. 310°.
By inserting additional pins 5 x 18 mm to ISO 8752, the rotation range may be limited to ±5°, 65°, 95° and 155°.

Material:
Cast aluminium/die-cast zinc

Supply includes:
Seals, adjustment set and self-tapping screws for CP-L support section attachment.
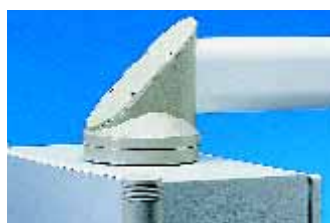
Colour RAL	Weight kg	Model No. CP
7030	1.9	6526.000
7024	1.9	6526.010

+ Accessories:

Mounting component for signal pillars (SZ 2375.000), see page 1045.
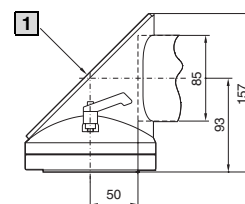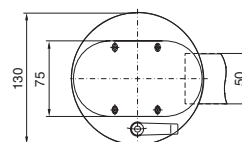
[1] Removable plate

Mounting cutout
Enclosure CP-L Ø 130 mm
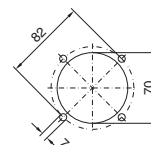
Angle piece 90° CP-L

For connecting horizontal and vertical support arm components. The removable plate ensures easier cable entry.

Material:
Die-cast zinc

Supply includes:
Seals, adjustment set and self-tapping screws for CP-L support section attachment.

German patent no. 43 31 125
French patent no. 94 10901
**Italian patent no. 012 74 738**
Japanese patent no. 2 809 993
US patent no. 5,533,763

Colour RAL	Weight kg	Model No. CP
7030	1.4	6524.000
7024	1.4	6524.010

+ Accessories:

Mounting component for signal pillars (SZ 2375.000), see page 1045.
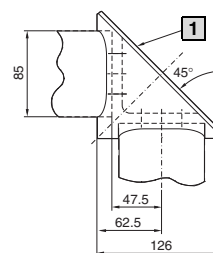
[1] Removable plate
75 x 174 mm

B

1.5

Support arm system CP-L

Support arm system CP-L

Aluminium
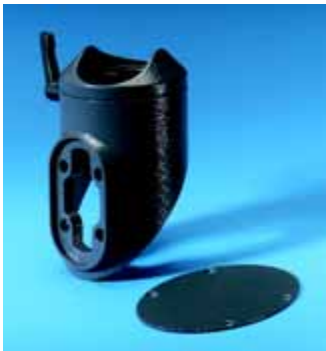
Articulated joint 90° CP-L

The swivel connection between horizontal and vertical support sections.
With very slimline enclosures, there is no need for the deep housing coupling. With the shallow enclosure attachment (CP 6525.2X0), the support section may also be attached with its wide side.

Rotation range:
Approx. 325°.
Option of limiting the rotation range via the use of additional pins 5 x 18 mm to ISO 8752 to ±54° and ±98°.

Material:
Cast aluminium/die-cast zinc

Supply includes:
Seals, self-tapping screws for support section attachment and adjustment set.

Colour RAL	Weight kg	Model No. CP
7030	1.2	6524.200
7024	1.2	6524.210

! Also required:

Enclosure attachment, locatable CP-L for support arm connection ▭ 120 x 65 mm (CP 6525.2X0), see page 210,
or enclosure attachment CP-L for support arm connection ▭ 120 x 65 mm (CP 6525.6X0), see page 207.
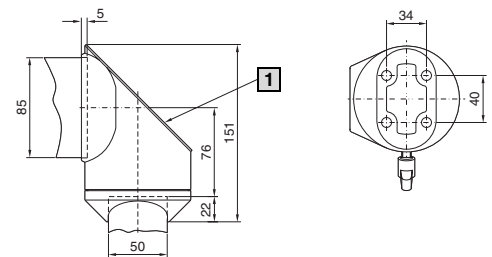
1 Removable plate
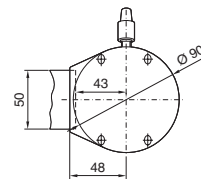
Angle adaptor 90°

Connection component between:
● small and larger support arm systems.
Outlet optionally at the top or bottom if this configuration is chosen for static or visual reasons. The removable cover ensures easier cable entry.

Material:
Cast aluminium

Supply includes:
Seal for support section attachment.

Note:
Mounting component for signal pillar available on request.

	Colour RAL	Weight kg	Model No. CP
CP-L to CP-S	7024	1.0	6501.090
CP-XL to CP-L	7030	1.7	6528.100

CP 6501.090
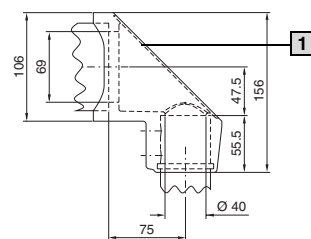
1 Removable plate
    71 x 149 mm

CP 6528.100

2 Removable cover
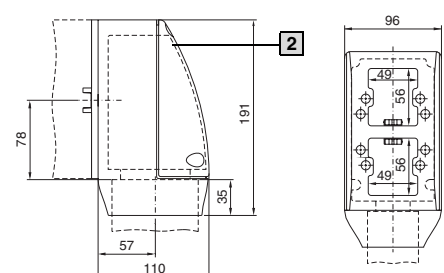
Intermediate hinge CP-L

For vertically hinged connection of horizontal support sections within the support arm system. The removable plates allow simple cable entry.

Rotation range:
Approx. 315°.
With the option of restricting the rotation range in 60° increments using the screws supplied.

Material:
Cast aluminium

Supply includes:
Seals, adjustment set and self-tapping screws for CP-L support section attachment.

German patent no. 44 03 593
French patent no. 94 10902
Ital. patent no. 01274751
Japanese patent no. 2 675 264
US patent no. 5,522,118
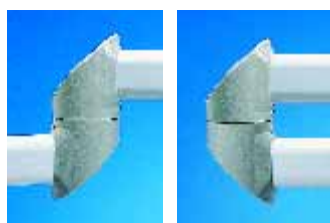
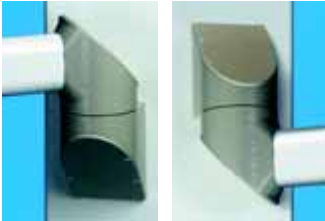| Colour RAL	Weight kg	Model No. CP
7030	3.2	6523.000
7024	3.2	6523.010

Accessories:

Mounting component for signal pillars (SZ 2375.020),
see page 1045.
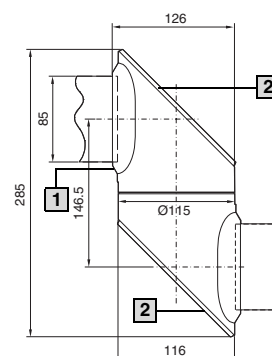
1 Screw for adjusting rotatability
2 Removable plate

Wall/base mounting, small CP-L

For rigid attachment of the support arm system to vertical or horizontal surfaces.
Particularly suitable for the configuration of compact support arm systems with cable infeed from the inside.

Material:
Cast aluminium

Supply includes:
Seals, adjustment set for support section and self-tapping screws for CP-L support section attachment.

Colour RAL	Weight kg	Model No. CP
7030	0.6	6520.500
7024	0.6	6520.510
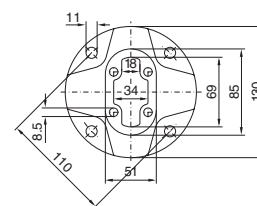
Mounting cutout
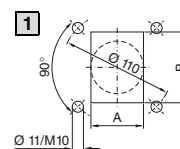
1 Alternative Ø 52
A = max. 52
B = max. 70

B
1.5

Support arm system CP-L
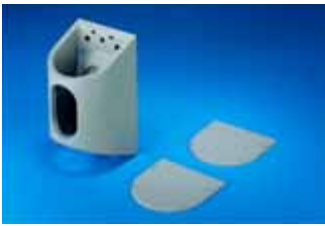
Aluminium

Wall/base mounting, large CP-L

For rigid attachment of the support arm system to vertical or horizontal surfaces with cable infeed from the inside.

Material:
Cast aluminium

Supply includes:
Seals, opportunity for adjustment with grub screws and self-tapping screws supplied loose for CP-L support section attachment.
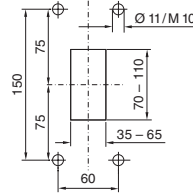
Colour RAL	Weight kg	Model No. CP
7030	1.9	6520.000
7024	1.9	6520.010

+ Accessories:

Pillar,
see page 236.

Mounting cutout
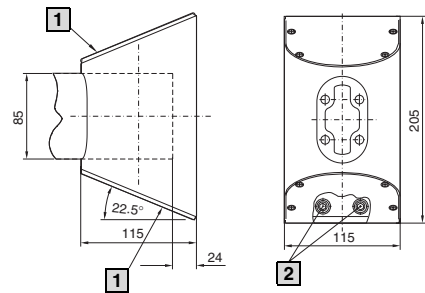
1 Removable plate

2 Adjusting screws
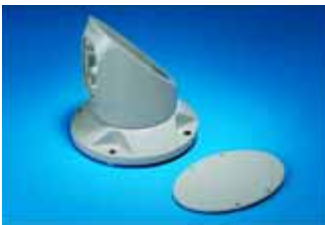
Top mounted joint CP-L

For swivel mounting of the support arm system on horizontal surfaces – also suitable for suspending from the ceiling. The removable plate allows easier cable entry.

Rotation range:
Approx. 315°.
Option of restricting the rotation range in 60° increments and adjusting the mobility of the joint with the screws supplied loose. To lock the joint, the screw may be exchanged for a standard commercially available clamping lever M8 x 16.

Material:
Cast aluminium

Supply includes:
Seals, adjustment set and self-tapping screws for CP-L support section attachment.

Note:
Not suitable for the suspension of enclosures.
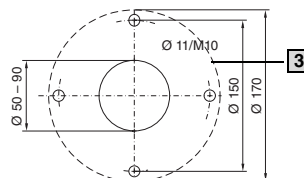
| Colour RAL	Weight kg	Model No. CP
7030	3.0	6522.000
7024	3.0	6522.010

+ Accessories:

Pillar,
see page 236.
Mounting component for signal pillars
(SZ 2375.020),
see page 1045.

Mounting cutout
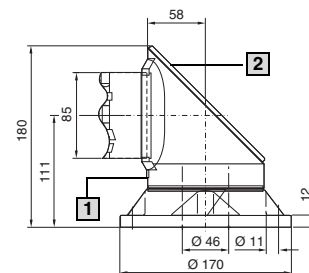
1 Screw for adjusting rotatability

2 Removable plate

3 Mounting surface
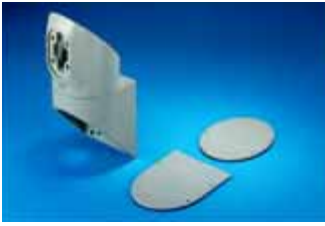
Wall mounted hinge CP-L

For vertically hinged mounting of the support arm on vertical surfaces. The removable plates facilitate problem-free cable routing and cable entry.

Rotation range:
Approx. 315°.
Option of restricting the rotation range in 60° increments and adjusting the mobility of the joint with the screws supplied loose. To lock the joint, the screw may be exchanged for a standard commercially available clamping lever M8 x 16 to adjust rotatability.

Material:
Cast aluminium

Supply includes:
Seals, adjustment via grub screws and self-tapping screws for CP-L support section attachment.

German patent no. 44 03 593
French patent no. 94 10902
Ital. patent no. 01274751
Japanese patent no. 2 675 264
US patent no. 5,522,118

Colour RAL	Weight kg	Model No. CP
7030	3.2	**6521.000**
7024	3.2	**6521.010**

Accessories:

Pillar, see page 236.
Mounting component for signal pillars (SZ 2375.020), see page 1045.

Mounting cutout

1 Screw for adjusting rotatability

2 Removable plate

B

1.5
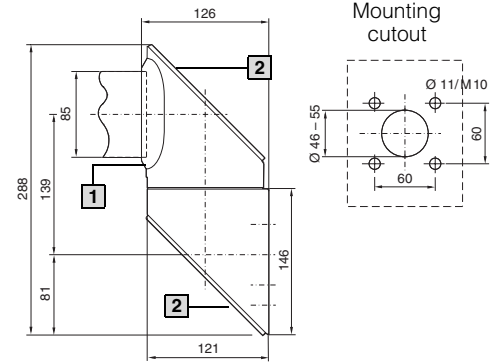
Support arm system CP-L
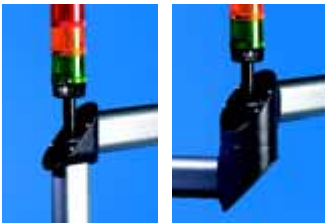
Mounting component CP-L
for signal pillars
For mounting a signal pillar with connection component for conduit mounting on support arm system CP-L, see page 1045.

Support arm system CP-XL

Fast selection

Make a simple sketch showing the basic form of the support arm.
Next, select the corresponding support arm components.
Start with **1** system start by selecting the appopriate enclosure situation.

System continuation/system end:
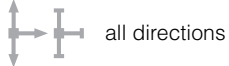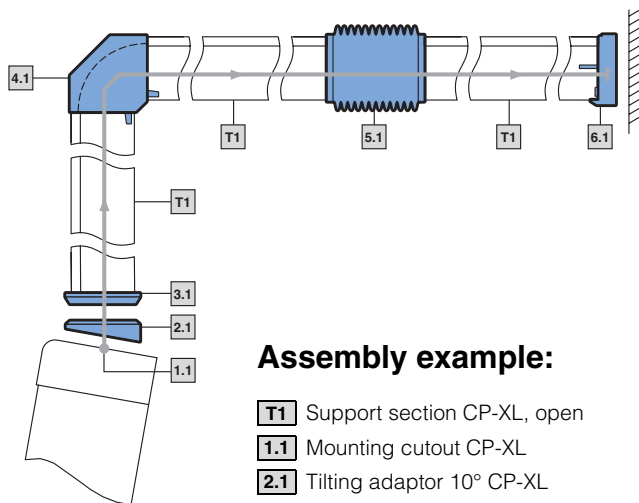
all directions

vertical
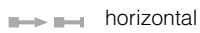
horizontal

angled

rotatable components

From position **3** enclosure attachments, a support section is required between each component (minimum length approx. 100 mm, for wall/floor mounting approx. 160 mm).
The cross-sections indicate the installation position(s).

T Support sections

T1 Support section CP-XL, open

Length mm	Colour RAL	Model No. CP
500	7035	6050.000
1000	7035	6100.000
2000	7035	6200.000

See page 220

T2 Support arm CP-XL, solid
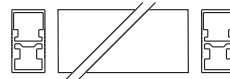
Length mm	Colour RAL	Model No. CP
500	7035	6050.500
1000	7035	6100.500
2000	7035	6200.500

See page 220

1 System start
Enclosure with mounting cutout
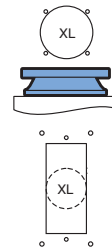
1.1 Mounting cutout CP-XL

XL

► 2.1 2.2 3.1 3.2 3.3 3.4

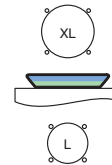**1.2 Connection plate CP-XL**

CP 6528.300 (RAL 7030)

see page 209

1.3 Connection adaptor CP-L to CP-XL
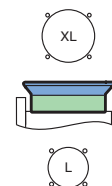
CP 6528.000 (RAL 7030)

see page 208

1.4 Connection adaptor CP-L to CP-XL
for VIP 6000 enclosure in installation depths 155, 185 and 295 mm

CP 6528.500 (RAL 7030)

see page 208

Assembly example:

T1	Support section CP-XL, open
1.1	Mounting cutout CP-XL
2.1	Tilting adaptor 10° CP-XL
3.1	Enclosure attachment CP-XL, round
4.1	Angle piece 90° CP-XL, outlet at bottom
5.1	Intermediate hinge CP-XL
6.1	Wall/base mounting CP-XL

Note:
● Only insert one intermediate hinge
● Two angle pieces may also be used one after the other
● With angle pieces, take care to ensure correct positioning of the support section cable duct
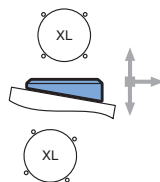● **Load diagram,** see page 188.

B
1.5
Support arm system CP-XL
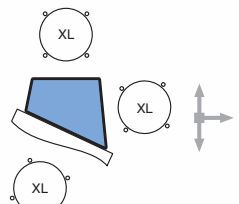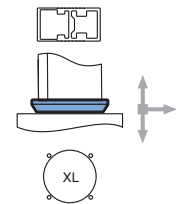
2 **Tilting adaptor**

2.1 Tilting adaptor 10° CP-XL	▶
CP 6023.000 (RAL 7030) see page 221	3.1 3.3 3.4
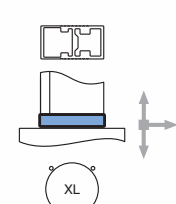
2.2 Tilting adaptor 25°/60° CP-XL
CP 6150.000 (RAL 7030) see page 222

3 **Enclosure attachments**
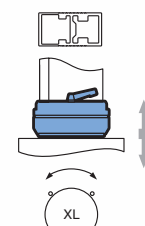
3.1 Enclosure attachment CP-XL, round	▶
CP 6130.600 (RAL 7030) see page 222	4.1 4.2 5.1 6.1 6.2 6.3
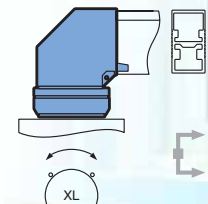
3.2 Enclosure attachment CP-XL, rectangular
CP 6130.500 (RAL 7030) see page 223
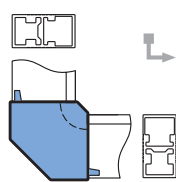
3.3 Housing coupling CP-XL
CP 6130.000 (RAL 7030) see page 223
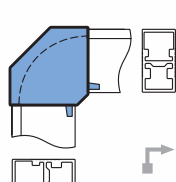
3.4 Angle coupling 90° CP-XL
CP 6040.000 (RAL 7030) see page 224

4 **Angle components**

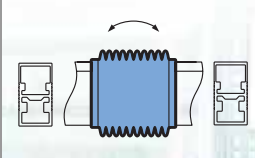| 4.1 Angle piece 90° CP-XL, outlet at bottom	▶
CP 6140.000 (RAL 7030) see page 225	5.1 6.1 6.2 6.3

4.2 Angle piece 90° CP-XL, outlet at top
CP 6180.000 (RAL 7030) see page 225

5 **Intermediate hinge**
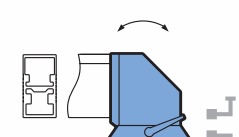
5.1 Intermediate hinge CP-XL	▶
CP 6120.000 (RAL 7030) see page 225	4.1 4.2 6.2 6.3

6 **System end**
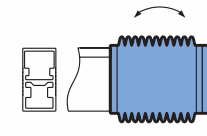
6.1 Wall/base mounting CP-XL	▬
CP 6160.000 (RAL 7030) see page 227	

6.2 Top mounted joint CP-XL
CP 6170.000 (RAL 7030) see page 227

6.3 Wall mounted hinge CP-XL
CP 6110.000 (RAL 7030) see page 226

B

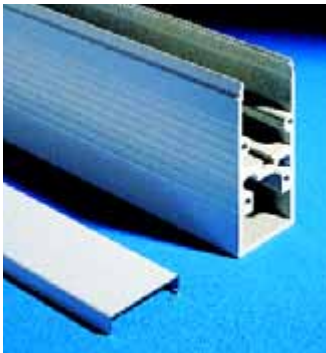**1**.5

Support arm system CP-XL

Support arm system CP-XL

Aluminium

Support section CP-XL, open

Attachment to the connecting components with 4 self-tapping screws in the screw channel, may be cut to any required length.
With open cable duct, for easy servicing access and for pre-assembled cables with connectors; easily locked via clip-in lid.

Size:
80 x 155 mm

Material:
Extruded aluminium section

Supply includes:
Clip-in lid

Length mm	Colour RAL	Weight kg	Model No. CP
500	7035	4.9	**6050.000**
1000	7035	9.8	**6100.000**
2000	7035	19.6	**6200.000**

Note:
Load information, see page 188.

✛ **Accessories:**

Adjustment set for support section, see page 221.
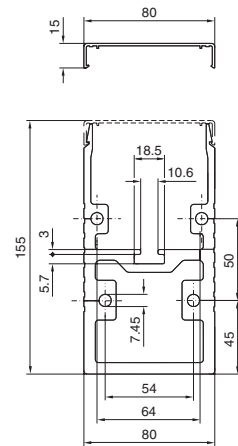
Support section CP-XL, solid

The alternative solution for higher loads and torsion compared with the CP-L support section, open.

Size:
80 x 155 mm

Material:
Extruded aluminium section

Length mm	Colour RAL	Weight kg	Model No. CP
500	7035	5.5	**6050.500**
1000	7035	11.0	**6100.500**
2000	7035	22.0	**6200.500**

Note:
Load information, see page 188.

✛ **Accessories:**
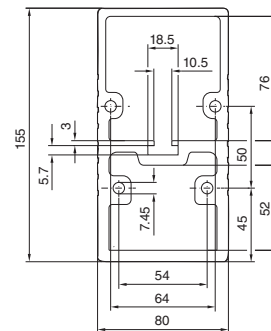
Adjustment set for support section, see page 221.

Adjustment set for support section CP-XL

The adjustment set permits retrospective alignment of the CP support section.

Material:
Sheet steel 1.0 mm, zinc-plated, passivated.

Packs of	Model No. CP
10	6205.000
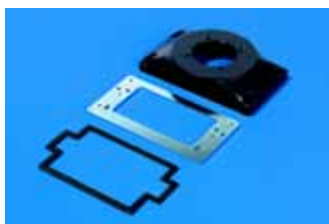
Connection plate

with reinforcement plate
see page 209.

Connection adaptor CP-L to CP-XL

see page 208.

Tilting adaptor 10° CP-XL

For mounting between:
● Housing coupling (CP 6130.000)
or
● Enclosure attachment (CP 6130.600)
or
● Angle coupling (CP 6040.000)
and the command panel.

Material:
Die-cast zinc

Supply includes:
Seals and assembly parts.

Colour RAL	Weight kg	Model No. CP
7030	1.4	6023.000
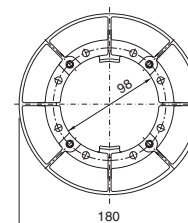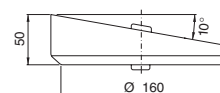
Mounting cutout
Enclosure CP-XL
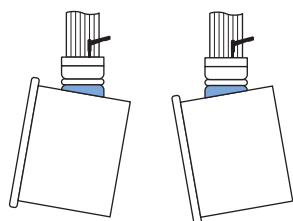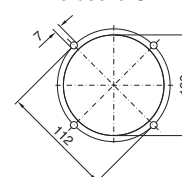
Aluminium

Tilting adaptor 25°/60° CP-XL

For mounting between:
- Housing coupling (CP 6130.000)

or
- Enclosure attachment (CP 6130.600)

or
- Angle coupling (CP 6040.000)

and the command panel.

Material:
Cast aluminium

Supply includes:
Seals, plastic cover and assembly parts.

Tilt 25°
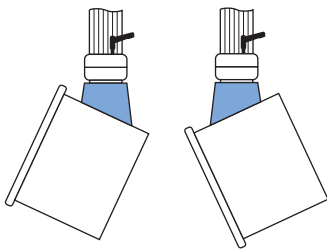
Tilt 60°
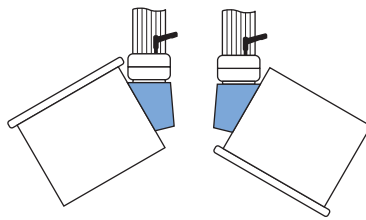
Colour RAL	Weight kg	Model No. CP
7030	1.7	6150.000
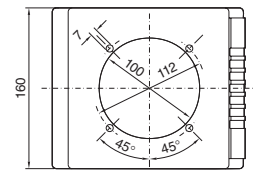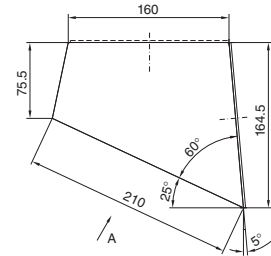
View A
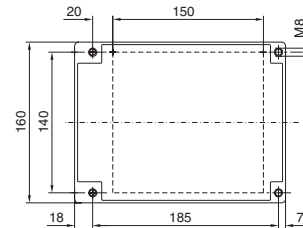
Enclosure attachment CP-XL, round

For rigid external mounting of enclosures to:
- Support section
- Tilting adaptor 10° (CP 6023.000)
- Tilting adaptor 25°/60° (CP 6150.000)

Material:
Die-cast zinc

Supply includes:
Seals and self-tapping screws for CP-XL support section attachment.

Colour RAL	Weight kg	Model No. CP
7030	1.6	6130.600

B

1.5
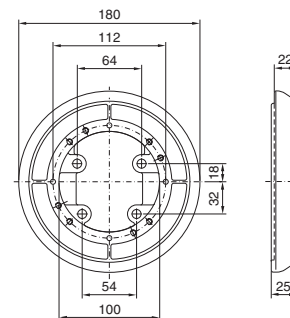
Support arm system CP-XL
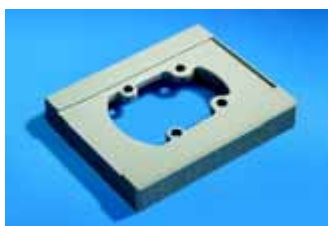
Enclosure attachment CP-XL, rectangular

For rigid external mounting on the enclosure.

Material:
Die-cast zinc

Supply includes:
Seal and self-tapping screws for CP-XL support section attachment.

Colour RAL	Weight kg	Model No. CP
7030	1.2	**6130.500**

Mounting cutout enclosure CP-XL
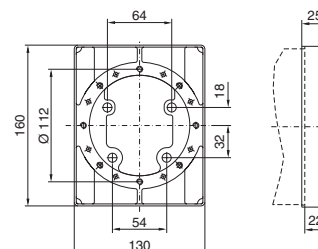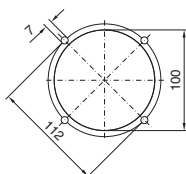
Housing coupling CP-XL

For swivel mounting of the enclosure on the vertical section of the support arm system.

Rotation range:
Approx. 350°

Material:
Die-cast zinc

Supply includes:
Seals and self-tapping screws for CP-XL support section attachment.

Note:
By inserting pins 5 x 12 to DIN EN ISO 8741, the rotation range may be limited in 90° increments.

Colour RAL	Weight kg	Model No. CP
7030	6.8	**6130.000**
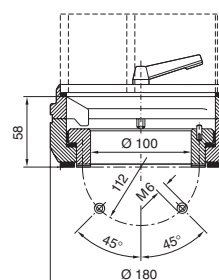
Mounting cutout Enclosure CP-XL
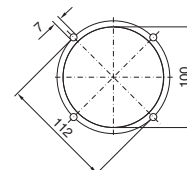
Support arm system CP-XL

Aluminium
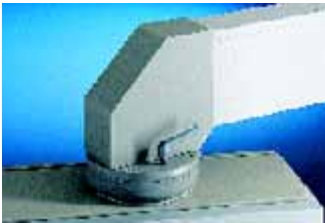
Angle coupling 90° CP-XL

For swivel mounting of the enclosure on the horizontal part of the support arm system. Enclosure may be suspended or top-mounted.

Rotation range:
Approx. 350°

Material:
Spheroidal-graphite cast iron and die-cast zinc

Supply includes:
Seals, plastic casing and self-tapping screws for CP-XL support section attachment.

Note:
By inserting pins 5 x 12 to DIN EN ISO 8741, the rotation range may be limited in 90° increments.

German patent no. 4033747
Italian patent no. 1252120

Colour RAL	Weight kg	Model No. CP
7030	6.2	6040.000
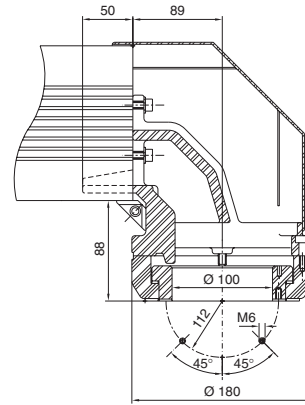
Mounting cutout
Enclosure CP-XL
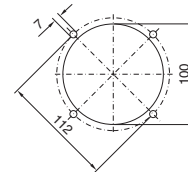
Top-mounting is only possible as shown in the diagrams below (without intermediate hinge).
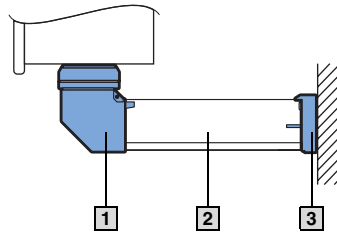
1 Angle coupling (CP 6040.000)
2 Support section CP-XL 6050.500
3 Wall/base mounting bracket 6160.000
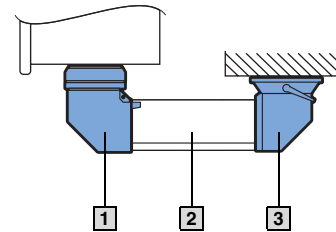
1 Angle coupling (CP 6040.000)
2 Support section CP-XL 6050.500
3 Top mounted joint 6170.000

Angle adaptor 90° CP-XL to CP-L
see page 214.

Aluminium
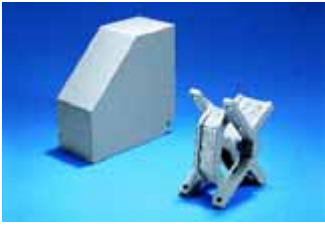
Angle piece 90° CP-XL

For connecting horizontal and vertical support arm components.

Material:
Spheroidal-graphite cast iron

Supply includes:
Seals, plastic casing and self-tapping screws for CP-XL support section attachment.

German patent no. 58901106
European patent no. 0330027
with validity for IT
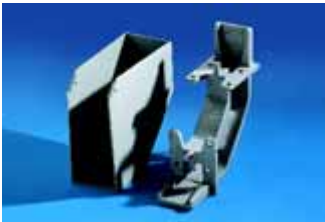
Outlet	Colour RAL	Weight kg	Model No. CP
Bottom	7030	2.4	**6140.000**
Top	7030	3.6	**6180.000**
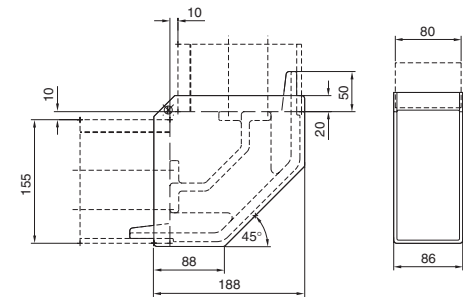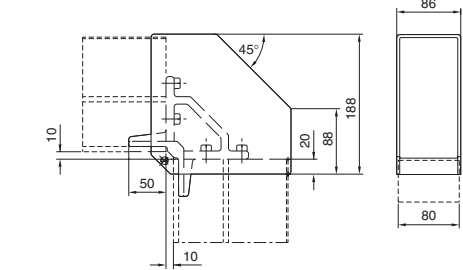
Intermediate hinge CP-XL

For vertically hinged connection of horizontal support sections within the support arm system.

Rotation range:
Approx. 180°

Material:
Spheroidal-graphite cast iron

Supply includes:
Self-tapping screws for CP-XL support section attachment and divided concertina section with zip for uninhibited access to the cable duct.

Note:
Rotation range may be reduced with rotation range restrictor.

German patent no. 3805424
European patent no. 0330029
with validity for IT

Colour RAL	Weight kg	Model No. CP
7030	6.5	**6120.000**

＋ Accessories:

Rotation range restrictor CP-XL,

B

1.5

Support arm system CP-XL

Support arm system CP-XL

Aluminium

Wall mounted hinge CP-XL

For vertically hinged mounting of the support arm on vertical surfaces.

Rotation range:
Approx. 180°

Material:
Spheroidal-graphite cast iron

Supply includes:
Seals, concertina section and assembly parts.

Note:
Rotation range may be reduced with rotation range restrictor CP-XL.

Colour RAL	Weight kg	Model No. CP
7030	8.5	6110.000

➕ **Accessories:**

Pillar, see page 236.
Rotation range restrictor CP-XL,
see page 226.

Mounting cutout
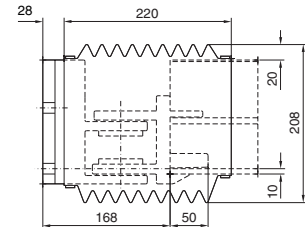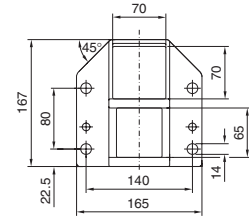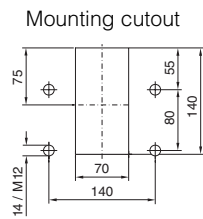
Rotation range restrictor CP-XL

Suitable for:
- Wall-mounted hinge (CP 6110.000)
- Intermediate hinge (CP 6120.000).

Material:
Steel, zinc-plated, passivated

Supply includes:
2 steel disks, slotted, including 3 cheese-head screws for assembly.

Packs of	Weight kg	Model No. CP
1 set	0.6	6110.100

Adjustable swivel area:
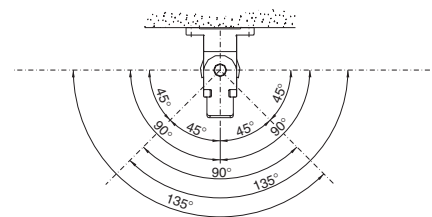
Top mounted joint CP-XL

For swivel mounting of the support arm system on horizontal surfaces – also suitable for suspending from the ceiling.

Rotation range:
Approx. 350°, lockable.

Material:
Steel and cast parts

Supply includes:
Seals and plastic casing, self-tapping screws for CP-XL support section attachment.

Note:
Safety end stop as anti-twist protection.

Colour RAL	Weight kg	Model No. CP
7030	11.9	6170.000

Accessories:

Pillar, see page 236.

Mounting cutout
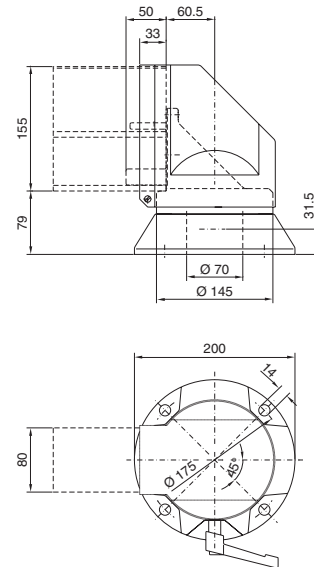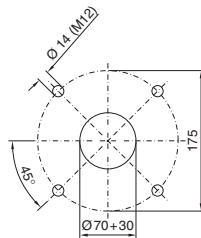
Wall/base mounting CP-XL

For rigid attachment of the support arm system to vertical or horizontal surfaces.

Material:
Spheroidal-graphite cast iron

Supply includes:
Seals and self-tapping screws for CP-XL support section attachment.

Colour RAL	Weight kg	Model No. CP
7030	4.1	6160.000

Accessories:

Pillar, see page 236.

Mounting cutout

B

1.5

Support arm system CP-XL
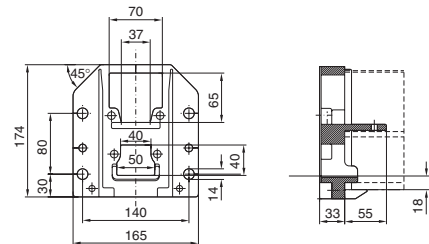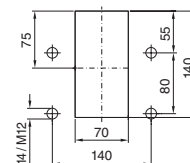
Stand systems

Features

Bringing movement to Rittal stand systems, to meet all your ergonomic and technical requirements.

For every enclosure type, height variability, mobile use, and accommodation of cables.

Our extensive solution diversity meets every conceivable requirement.
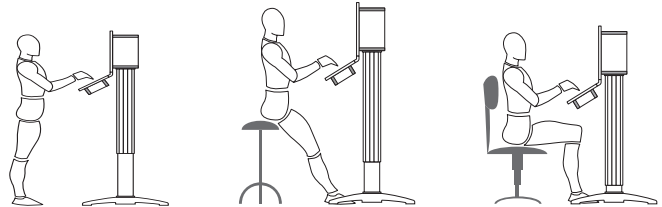
Powerful pillars with numerous options – fixed …
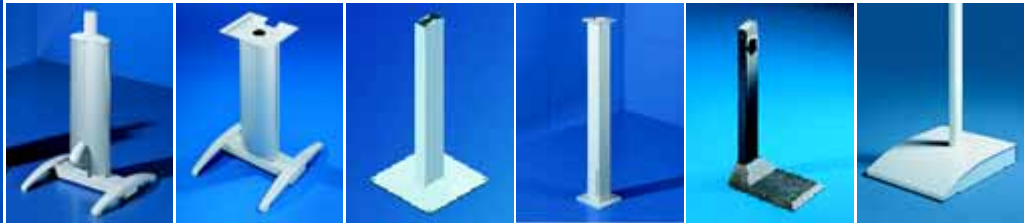
Pedestal for Command Panel with support section CP-L

Pedestal for IW worktops

Pillar, small
For compact assemblies

Pillar, large
The robust base point for heavy assemblies.

Pedestal for operating housing
Suitable for side mounting of operating housings.

Pedestal base plate, large

… and with variable height

Lifting pillar, electric
Height adjustment (from 670 to 1140 mm), spindle drive secured against unintentional dropping.

Support section, height-adjustable
Adjustment range from 732 to 1122 mm. Inner section for external mounting of operating housings.

Pedestal, modular, small
for the configuration of compact operating stations. Height of support section may be shortened by sawing to the required length.

Pedestals in every variant – fixed or mobile

Pedestal base plate, large
Fitted with: Cutout for concealed mounting of cable conduit adaptors and PG segments.

Cross member with cast feet
Steel cross member with mounting holes for lifting pillar.

Pedestal, mobile
for changing locations.

Pedestal, height-adjustable
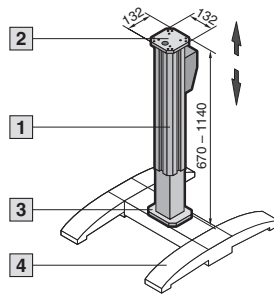
May be compiled from the following modules:	Model No. CP	Page
☐1 Lifting pillar, electric	6142.000	
Control unit for: – Manual operation – External mounting on surfaces/enclosures	6142.010 6142.020	see below
☐4 Cross member with cast feet	6142.100	233

Mounting surface Head plate

Mounting surface Base plate

B

1.5

Stand systems
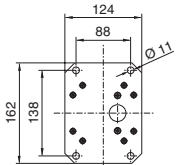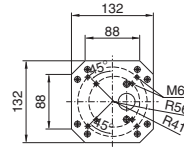
☐1 Lifting pillar, electric

Height adjustment 470 mm (from 670 to 1140 mm), spindle drive locked against unintentional dropping.
With electronic overload cutout to protect the drive.
Adjusting unit made from extruded aluminium section with groove on all sides for individual mounting using accessory attachment CP 6142.030.

☐2 Head plate
● For direct mounting of worktop attachment IW, enclosures with support arm connection
  – CP-L, Ø 130 mm
  – CP-XL
● For swivel mounting of enclosures, including those with keyboard support via wall/base mounting bracket, small CP-L CP 6520.510, in conjunction with support arm system CP-L, see page 200.

☐3 Base plate
For external mounting on the cross member or a sub-structure provided by the customer.

Weight kg	Packs of	Model No. CP
13.8	1	6142.000

Technical specifications:
Permissible load: max. 80 kg
Duty cycle: max. 6 min/h w. continuous operation
Ambient temperature: +5°C to +40°C
Mains connection: 230 V/50 Hz
Transformer: 24 V DC

Protection category:
IP 65 to EN 60 529
(for electrical components).

Supply includes:
Adjusting drive with transformer, head and base plate.

⚠ Also required:
Control unit, see page 229.

✚ Accessories:
Cross member with cast feet CP 6142.100, see page 233.
Worktop attachment 6902.780, see page 1040.
Wall/base mounting bracket, small, CP-L, CP 6520.5X0, see page 215.

Control unit
for height adjustment of the lifting pillar. Design ready for connection with spiral cable and connector.

For manual operation:
With hooks for location e.g. on the enclosure handle set.

For external mounting:
With mounting brackets for screw fastening.

Version	Protection category	Model No. CP
Manual operation	IP 65	6142.010
Mounting on surfaces/enclosures	IP 30	6142.020

Accessory attachment
for lifting pillar
Simply slide into the groove of the lifting pillar and secure at any chosen height using the existing screws.
With M10 thread for mounting tools or your own components, such as utility trays.

Packs of	Model No. CP
1 set	6142.030

VIP 6000 Page 154 **Optipanel** Page 170 **Compact Panel** Page 183 **Support arm system CP-L** Page 200

Stand systems

Pedestal, modular, CP-S
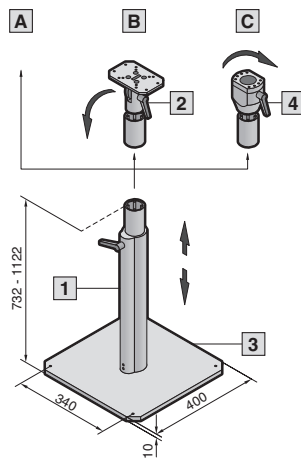
For small panels and keyboard housings up to 20 kg

May be compiled from the following modules:	Model No. CP	Page
1 Support section, height-adjustable	6146.200	230
2 Tilt adjustment	6146.300	231
3 Pedestal base plate	6146.100	231
4 CP-S attachment or	6501.070	194
enclosure coupling CP-S	6501.050	195

External mounting of operating housings or other devices:

A Direct screw-fastening

B With tilt adjuster **2**

C With attachment 6501.070 or housing coupling 6501.050 CP-S, see page 194/195.

Support arm section

height-adjustable
Adjustment range from 732 to 1122 mm.
Inner section for external mounting of operating housings.
External section with:
- Clamping screws at the rear for external mounting on pedestal base plate CP 6146.100
- Clamping lever for height fixing
- Surface for external cable routing.

Material:
Extruded aluminium section, natural anodised

Supply includes:
Inner and outer section including locking lever and assembly parts for external mounting on the base plate and enclosure.

Weight kg	Packs of	Model No. CP
3.0	1	6146.200

➕ Accessories:

Tilt adjustment CP 6146.300,
see page 231.
Pedestal base plate CP 6146.100,
see page 231.
Attachment CP-S CP 6501.070,
see page 194.
Housing coupling CP-S CP 6501.050,
see page 195.

✎ Rittal service:

Other heights available on request.
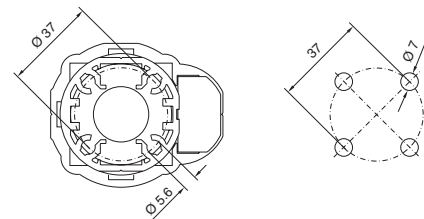
Gas pressurised spring
- For relief with height adjustment
- Optional installation
- Internal mounting
- Load capacity 15 kg
- Length 490/885 mm

Supply includes:
Assembly parts for installing in the support section, height-adjustable.

Packs of	Model No. CP
1	6146.400

Optipanel Page 170 Compact Panel Page 183

Tilt adjustment

For direct top-mounting on enclosures with mounting cutout:
- CP-S
- CP-L, ☐ 120 x 65 mm
- CP-L, Ø 130 mm

Cannot be combined with enclosure attachment or coupling.

Adjustment range:
± 30°

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Locking lever and assembly parts for height-adjustable mounting on the support section.

Packs of	Model No. CP
1	**6146.300**

🖊 **Rittal service:**

As tilt adjustment for support arm system CP-S on request.
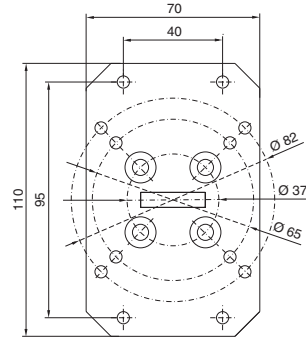
Pedestal base plate

With large surface for stability and welded tube connectors (Ø 48.3 mm) to accommodate the external profile of the support section, height-adjustable.

Material:
Sheet steel, powder-coated

Colour RAL	Packs of	Model No. CP
7024	1	**6146.100**

➕ **Accessories:**

Twin castors CP 6148.000,
see page 848.
Base mount (from the outside using screws up to M10).

Optipanel Page 170 **Compact Panel** Page 183
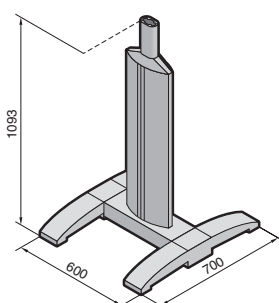
Pedestals

1 + 2

3
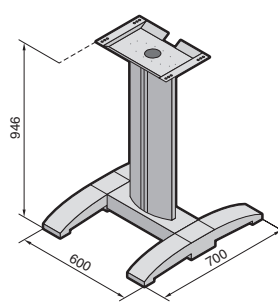
Detailed drawing,
see page 1107.

Pedestal

One oval panel is permanently screw-fastened, whilst the other can be opened by "spreading" with a screwdriver for easy laying of cables.
In order to ensure opening of the front panels, we recommend that the adjustable frame connector or hinged frame connector be used with the Command Panel and VIP 6000 with keyboard housing (see page 907).

Material:
Feet: Cast aluminium
Cross member, vertical support tubes: Steel
Panels: Aluminium section

Supply includes:
for Command Panel:
2 cast aluminium feet,
1 cross member made of steel,
2 steel support tubes welded to cross member,
2 oval panels made from aluminium section,
1 top cover made from cast aluminium with support section CP-L,
partially pre-assembled.

for IW worktops:
2 cast aluminium feet,
1 cross member made of steel,
2 steel support tubes welded to cross member,
2 oval panels made from aluminium section,
1 worktop attachment of sheet steel.

Version	for Command Panel		for IW worktops	
	1 with drilled hole for cable entry in cross member	**2** with cable conduit adaptor and drilled hole for cable entry in cross member	**3** with drilled hole for cable entry in cross member	Page
W x H x D mm[1]	600 x 1093 x 700	600 x 1093 x 700	600 x 946 x 700	
Model No.	**6141.000**	**6141.100**	**6141.200**	
Weight kg	34.9	35.1	33.7	
Colour RAL	7035/ natural anodised	7035/ natural anodised	7035/ natural anodised	
Accessories				
Twin castors	6148.000, 4611.000, 4634.500	6148.000, 4611.000, 4634.500	6148.000, 4611.000, 4634.500	848
Levelling feet	4612.000	4612.000	4612.000	848
Base mount	6147.000	6147.000	6147.000	233
Foot rest	6145.100	6145.100	6145.100	233
Trim panel	6144.100	6144.100	6144.100	233
Enclosure attachment CP-L, Ø 130 mm	6525.500	6525.500	–	206
Enclosure attachment CP-L, ▭ 120 x 65 mm	6525.600	6525.600	–	207
Housing coupling CP-L, Ø 130 mm	6525.000	6525.000	–	212
Housing coupling CP-L, ▭ 120 x 65 mm	6525.100	6525.100	–	212
Enclosure attachment CP-L, ▭ 120 x 65 mm, locatable	6525.2X0	6525.2X0	–	210
Enclosure attachment, tilting	–	–	6902.640	207
Worktop without handle (W x H x D 950 x 38 x 600 mm)	–	–	6902.310	249
Worktop with handle (W x H x D 950 x 38 x 658 mm)	–	–	6902.320	249

[1] Other widths and heights and support tubes available on request.

VIP 6000 Page 154 **Optipanel** Page 170 **IW worktops** Page 247

Cross member

with cast feet
Steel cross member with mounting holes for lifting
pillar or other individual assemblies, including
2 cast aluminium feet.

Colour RAL	Weight kg	Model No. CP
7035	5.8	**6142.100**

➕ **Accessories:**

Foot rest CP 6145.100,
Trim panel CP 6144.100,
Base mount CP 6147.000,
see page 233.
Twin castors,
see page 848.

Detailed drawing,
see page 1108.

Base mount

Brackets for screw-fastening from below to the
cast feet with posidrive raised countersunk
screws M12.
Optionally with projection at the front, interior or
sides, with Ø 11 mm hole for screw-fastening to
the base.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Posidrive raised countersunk screws M12

Packs of	Model No. CP
4	**6147.000**

Trim panel

Material:
Cast aluminium

Supply includes:
Assembly parts for screw-fastening between the
cast feet at the front or rear.

Colour RAL	Model No. CP
7035 textured	**6144.100**

Foot rest

Material:
Connector pieces: Cast aluminium
Round tube section: Aluminium

Supply includes:
Assembly parts.

Colour RAL	Weight kg	Model No. CP
7035 textured/natural anodised	0.6	**6145.100**

VIP 6000 Page 154 **Optipanel** Page 170 **IW worktops** Page 247

B

1.5

Stand systems

Stand systems
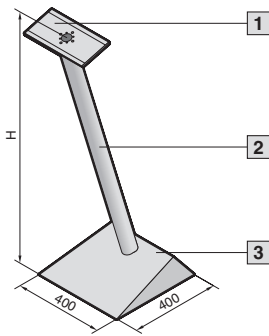
Pedestals

Pedestal
modular, CP-L

May be compiled from the following modules:	Model No. CP	Page
1 Enclosure reinforcement	**6143.210**	237
2 Support section, straight (may be shortened to required length by sawing)		
500 mm	**6511.000**	204
1000 mm (H + 65 mm)	**6513.000**	204
2000 mm	**6515.000**	204
3 Pedestal base plate, small	**6143.200**	234
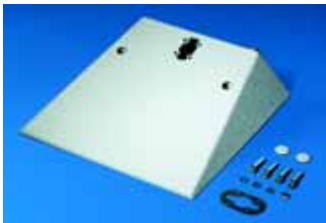
Pedestal base plate
small
- With one hole at the rear for commercially available cable conduit gland M20.
- With two holes at the top (including sealing bung) for floor attachment.
- Prepared on the inside for a cable clamp for strain relief.

Material:
Sheet steel, 2.5 mm

Supply includes:
Assembly parts.

Note:
Commercially available screws up to M8 may be used for floor attachment.

Weight kg	Colour RAL	Model No. CP
6.3	7035	**6143.200**

➕ **Accessories:**

Cable clamp DK 7077.000 or DK 7078.000, see page 981.
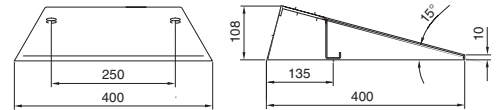
Pedestal base plate
large
- Cutout for concealed mounting of cable conduit adaptor M50
- Cutout for PG segments (EL 2235.010 to EL 2235.080) or cable conduit adaptor up to Ø 70 mm
- Integral cable clamping bracket.

Material:
Sheet steel, powder-coated

Supply includes:
Integral reinforcement and mounting cutout for support section CP-L or CP-XL, including assembly parts for mounting the support section.

For support arm section	Colour RAL	Weight kg	Model No. CP
CP-L	7035	12.4	**6137.535**
CP-XL	7035	13.1	**6137.035**

⚠ **Also required:**

Support section
CP-L, see page 204,
CP-XL, see page 220.

➕ **Accessories:**

CP enclosure or worktops according to choice.
Twin castors,
see page 848.
Levelling feet,
see page 848.
Wall mounting bracket KL 1580.000 or
KL 1590.000 for base attachment,
see page 905.

Detailed drawing,
see page 1108.

Pedestal

mobile
Consisting of:
2 sheet steel axles, each with
2 die-cast zinc roller bearings with plastic coating,
4 twin castors, 2 x with, 2 x without locks,
1 cross-brace, screw fastened, of sheet steel with
integral cable clamping bracket,
1 support section of aluminium (for CP 6136.000
with clip-in lid).

Material:
Powder-coated in RAL 7035,
Roller bearings RAL 7030,
Partially pre-assembled.

Pedestal, mobile with support section	Model No. CP
CP-L (see page 204)	**6136.500**
CP-XL (see page 220)	**6136.000**

✚ **Accessories:**

Enclosure attachment for	Model No. CP	Page
6136.500 CP-L	6525.5X0 6525.6X0	206/207
6136.000 CP-XL	6130.600 6130.500	222/223

Detailed drawing,
see page 1107.

Pedestal

for operating housing
For side mounting.

Consisting of:
● Pedestal plate, on castors
● Support section
● End cap with recessed handle.

Supply includes:
Assembly parts.

Size:
W x H x D:
360 x 500 x 995 mm

Note:
Up to a maximum enclosure width of 380 mm.

Colour RAL	Weight kg	Model No. CP
9011	23.6	**6135.000**

Mounting cutout

89
7
100
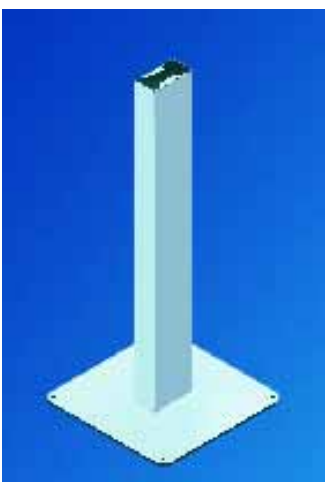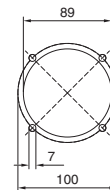
Pillar

small
For heavy assemblies, connection plates at the
top for support arm components CP-XL.
● With cutout for 24-pole connectors for cable
entry at the bottom rear
● Height: 1,150 mm.

Material:
Steel

Design:
Base plate cross-section 500 x 500 mm,
12 mm thick, with 4 mounting holes.
Pedestal tube cross-section 160 x 80 mm,
wall thickness 3.2 mm) welded to base plate.

Colour RAL	Model No. CP
7035	**6214.500**

✚ **Accessories:**

Enclosure coupling CP-XL,
see page 223.
Enclosure attachment CP-XL,
see page 222.

Detailed drawing,
see page 1107.

Command panel housing with door Page 184 **Operating housing** Page 185 **VIP 6000** Page 154 **Optipanel** Page 170

Rittal Catalogue 31/Industrial enclosures

235

Stand systems

Pillars

6501.110   6520.0X0   6170.000

6501.160   6522.0X0

6501.110   6520.0X0   6160.000

6501.150   6521.0X0   6110.000
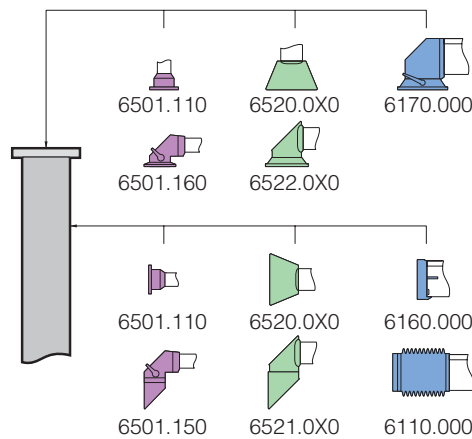
Detailed drawing,
see page 1108.

Pillar

The stable base point for the support arm system. The attachment of additional enclosures, e.g. for security systems, is also possible.
There is a choice of 2 cross-sections:
● 140 x 140 mm
● 200 x 200 mm

Design:
Base plate 15 mm thick, with four mounting holes, cutout in the base plate according to the cross-section for cable entry from below. Pedestal tube (wall thickness 5 mm) welded to the base plate, with connection facilities for support arm systems as per the selection table.

Delivery time:
Extended delivery times

Material:
Steel, spray-finished

Colour:
RAL 7035

Supply includes:
Assembly parts for support arm system according to selection.

Note:
Customer-specific designs, such as:
● Other RAL colours
● Drilling patterns
● Heights
● Consoles for additional enclosures
available on request.

⊞ Accessories:

Support arm system
CP-S, see page 191,
CP-L, see page 200,
CP-XL, see page 218,
Metal gland plates,
see page 969.

Supply includes					Model No. CP				Page
Cross-section 140 x 140 mm, height 2000 mm					**6214.**	X	X	0	
Cross-section 200 x 200 mm, height 2000 mm					**6220.**	X	X	0	
Cutout for cable entry									
Without cutout in pillar						0			
Cutout on the front						1			
Cutout at rear						2			
Cutout on the left						3			
Cutout on the right						4			
Support arm connection									
	For								
	Wall/base mounting		Wall mounted hinge	Top mounted joint					
	Front	Top	Front	Top					
without							0		–
CP-S	6501.110						6		198
CP-S		6501.110					7		198
CP-S			6501.150				8		199
CP-S				6501.160			9		198
CP-L	6520.0X0						2		216
CP-L			6521.0X0				3		217
CP-L				6522.0X0			4		216
CP-XL	6160.000		6110.000				1		227/226
CP-XL				6170.000			5		227

Support arm system CP-S Page 191 **Support arm system CP-L** Page 200 **Support arm system CP-XL** Page 218
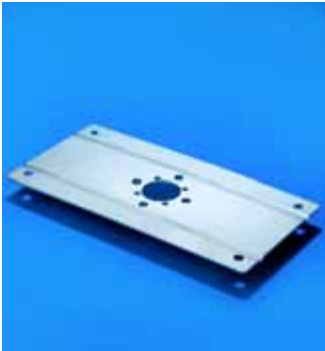
CP 6143.310

CP 6143.210
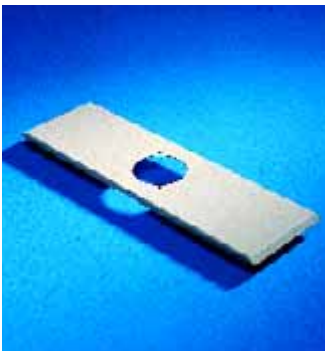
CP 6503.000

Enclosure reinforcement

For external or internal reinforcement of enclo-
sures of a corresponding size.
Smaller enclosures may also be mounted directly
without enclosure reinforcement.

Supply includes:
Assembly parts for the enclosure and support
section plus 2 seals.

For enclosure	Support arm connection	Material	Weight kg	Model No. CP
B1 ≥ 300 mm, T1 ≥ 150 mm	CP-S	Stainless steel 1.4301	0.9	**6143.310**
B1 ≥ 300 mm, T1 ≥ 150 mm	CP-L	Sheet steel	0.9	**6143.210**
CP 6662.000 or AE (B1 = 600 mm, T1 ≥ 210 mm)	CP-XL	Sheet steel	2.2	**6503.000**

CP 6143.310
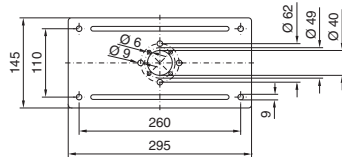
CP 6143.210
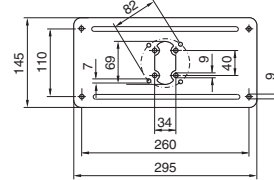
CP 6503.000
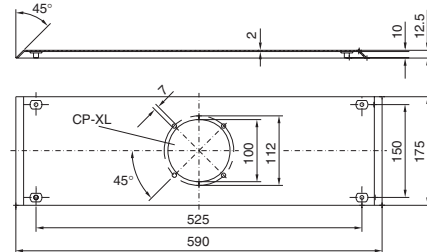
Industrial workstations

Features

For Rittal, industrial workstations means the ability to create professional workstations for virtually any application from a comprehensive modular system.

In conjunction with operating housings, support arm systems, PC enclosures and the diverse range of system accessories, there are virtually no limits to your creativity.

Here are few examples:
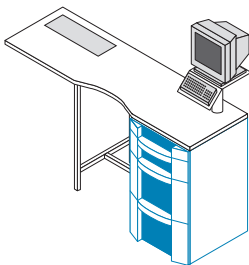
Workbench/assembly bench
consisting of:
● IW enclosure
● IW pedestal
● Individual worktop
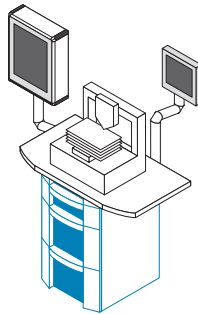
Laboratory equipment and
small machinery consisting of:
● IW enclosure
● Worktop
● Support arm system
● Operating housings
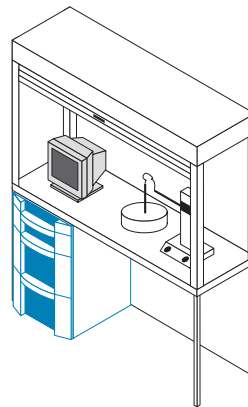
Protective cabinets:
with lockable roller blind on request.
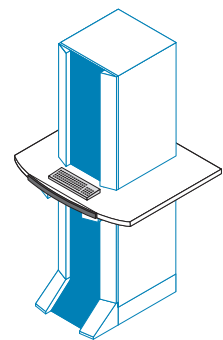
Measurement/control systems:
"More space" with the enclosure on top of the worktop.
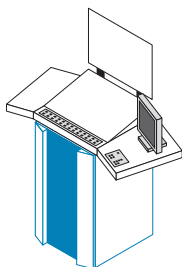
Control desks e.g. for printing presses consisting of:
● IW enclosure
● Individual worktop and assemblies
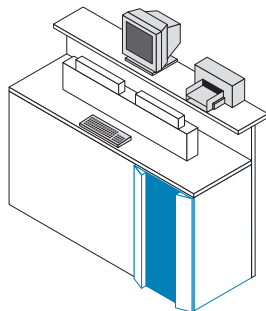
Workbench consisting of:
● IW enclosure for tools etc.
● Individual worktop with shelf for monitor, printer etc.
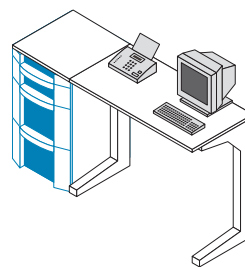
Calibration/measuring station
consisting of:
● IW enclosure
● IW pedestal
● Worktop
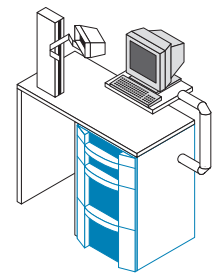
Programming station:
Ergonomically adaptable via the support arm system.
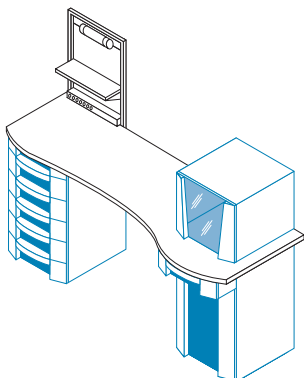
Laboratory workstation consisting of:
● IW enclosures
● Worktop
● Monitor housing
● Shelf system
● Socket strip, light
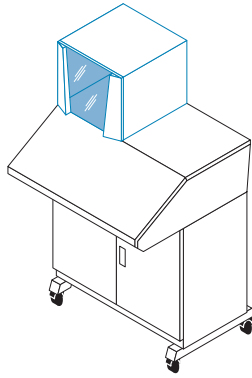
Process visualisation:
e.g. on production line via swivel-mounted IW monitor housing on AP console system.
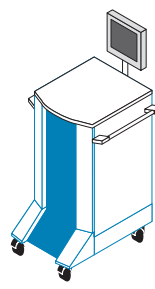
Mobile workstation/workshop trolley consisting of:
● Base/plinth with castors
● IW enclosure
● Worktop
● Handle system
● Operating housing
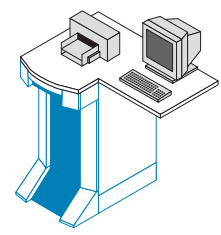
Scanner/PC station consisting of:
● IW enclosure
● Individual worktop

Rittal Catalogue 31/Industrial enclosures

B

1.5

Industrial workstations

IW Quality Point

The integration of a TFT monitor creates space on the work surface.

The rotatable printer shelf and the paper tray are a perfect duo for the secure accommodation of printers in an industrial environment.

Optimum glare-free illumination of the workplace with the integral workstation light.

IW enclosure

In two standard heights, optionally with designer door or glazed door. Offers plenty of storage space.

With drawer front for an orderly filing system.
A pull-out lock which prevents the simultaneous opening of several drawers is integrated to increase operational safety.

If no enclosure is needed to accommodate documents or equipment, the IW pedestal may be used instead. By combining with a worktop, a large work surface is created.

IW monitor housing
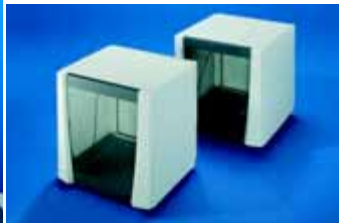
In two sizes for monitors up to 17″ and 21″ screen diagonal respectively. In conjunction with a turntable, the monitor can be viewed from all angles.

TFT monitors are increasingly being used in industrial environments. Thanks to the large number of standardised system components, TFTs may be easily integrated into the workstation.

Mounting of a TFT monitor without reducing the work space. With the aid of the enclosure attachment, the angle of the display is ideally adapted to suit the user.

IW worktops

14 different worktops in 7 different sizes accommodate virtually all requirements.

Monitor housings may be mounted either rigidly or swivel-mounted on worktops prepared for a turntable.
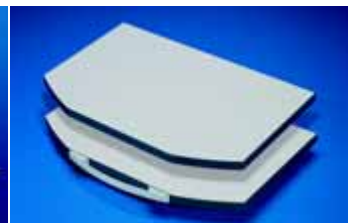
Worktops with or without a handle – both variants are available off the shelf.

Industrial workstations

Fast selection

Choose the appropriate IW components according to your requirements.

▶ Continue with system assembly using the item numbers shown beneath the arrow.

▬ System assembly can be completed here.
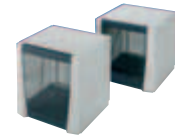
1 Pre-configured complete solutions

1.1 Quality Point L
Width 1000 mm
Height 2000 mm

IW 6920.100

Quality Point XL
Width 2000 mm
Height 2000 mm

IW 6920.200

see page 243

▶ 11.1

1.2 Enclosure with worktop
Height 1000 mm

IW 6901.100¹⁾

see page 246

▶ 11.1
11.2
11.6
▬

1.3 Enclosure with roof
Height 1000 mm

IW 6901.200¹⁾

see page 246

¹⁾ The assembled versions
IW 6901.100 (with worktop) and
IW 6901.200 (with roof) are also
available with other worktops on
request.

2 Monitor housing and add-ons
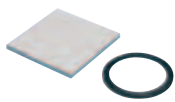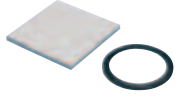
2.1 Monitor housing 17″

IW 6902.510

Monitor housing 21″

IW 6902.500

see page 250

▶ 3.1
3.2

2.2 Optipanel
For TFT monitors or other
display and input units

see page 172

For 15″ TFT
CP 6380.010

For 17″ TFT
CP 6380.030

see page 178

TFT monitor 15″
SM 6450.010

TFT monitor 17″
SM 6450.020

see page 1046

▶ 3.4
3.5
3.6

2.3 Quality Point attachment L
Width 1000 mm
Height 960 mm

IW 6920.110

Quality Point attachment XL
Width 2000 mm
Height 960 mm

IW 6920.210

see page 250

▶ 4.3
4.4
5
6
4.5
4.6

[2.2]
[3.4]
[6.1]
[9.1]
[11.1]
[11.6]

Assembly example:

[2.2] Optipanel
[3.4] Support arm system CP-L
[6.1] Worktop, prepared
for enclosure attachment
[9.1] Enclosure
with drawer section
[11.1] Base/plinth, stationary
[11.6] Twin castors
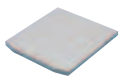
3 Mounting components

f. monitor a. operating housings

3.1 Feet **for monitor housing** **IW 6902.610** see page 251	
3.2 Spacer plate **for monitor housing** **IW 6902.630** rotatable in conjunction with: **Turntable** for spacer and support plate **IW 6902.620** see page 252/253	▶ **5**
3.3 Support plate **for individual** **equipment** **IW 6902.650** rotatable in conjunction with: **Turntable** for spacer and support plate **IW 6902.620** see page 252/253	
3.4 Support arm system **CP-L** for rotatable, swivel and height-adjustable positioning of the Optipanel command panel see page 200	▶ **6**
3.5 Enclosure attachment **tilting, top mounting[1]** **IW 6902.670** see page 193	▶ **6**
3.6 Enclosure attachment **tilting, bottom mounting** **IW 6902.640** see page 207	▶ **7**

[1] May also be used rotated through 180°.

4 Worktops

Solid

4.1 Cover **solid** Width 600 mm Depth 640 mm **IW 6902.400** see page 247	▶ 8.1 8.2 8.3 8.4 9.3
4.2 Without handle Width 610 mm Depth 645 mm **IW 6902.300** see page 248	▶
4.3 Without handle Width 1000 mm Depth 895 mm **IW 6902.100** see page 248	▶ 8.1 8.2 8.3 8.4 9 10.1
4.4 With handle Width 1200 mm Depth 950 mm **IW 6902.000** see page 248	▶ 8.1 8.2 8.3 8.4 9.3 10.1
4.5 Without handle Width 2000 mm Depth 685 mm **IW 6902.200** see page 248	▶ 8.1 8.2 8.3 8.4 10.1
4.6 Without handle Width 2000 mm Depth 685/900 mm **IW 6902.210** Width 2000 mm Depth 900/685 mm **IW 6902.220** see page 248	▶ 8.1 8.2 8.3 8.4 9 10.1

5 Worktops

for turntable
see 3.2/3.3

5.1 Without handle Width 1000 mm Depth 895 mm **IW 6902.110** see page 248	▶ 8.1 8.2 8.3 8.4 9 10.1
5.2 With handle Width 1200 mm Depth 950 mm **IW 6902.010** see page 248	▶ 8.1 8.2 8.3 8.4 9.3 10.1

6 Worktops
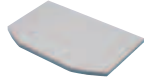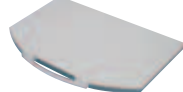
prepared for enclosure
attachment CP-L, Ø 130 mm
see 3.4/3.5

6.1 Without handle, **prepared on l/h side** Width 1000 mm Depth 895 mm **IW 6902.120[1]** **Without handle,** **prepared on r/h side** Width 1000 mm Depth 895 mm **IW 6902.130[1]** see page 249	▶ 8.1 8.2 8.3 8.4 9 10.1
6.2 With handle, **prepared on l/h side** Width 1200 mm Depth 950 mm **IW 6902.020[1]** **With handle,** **prepared on r/h side** Width 1200 mm Depth 950 mm **IW 6902.030[1]** see page 249	▶ 8.1 8.2 8.3 8.4 9.3 10.1

[1] Hole may be used in conjunction with the adaptor plate for connector entry IW 6902.660 (see page 975) for cable entry.

7 Worktops

for pedestal/enclosure
for tower PC
See 3.6

7.1 Without handle Width 950 mm Depth 600 mm **IW 6902.310** see page 249	▶ 8.5 10.2
7.2 With handle Width 950 mm Depth 658 mm **IW 6902.320** see page 249	

Industrial workstations

Fast selection

8 Enclosure
with doors

8.1 Designer door, rear panel screw-fastened from the inside
Height 900 mm
IW 6900.000
see page 245
▶ 11.1 11.2 11.6

8.2 Designer door, rear panel screw-fastened from the outside
Height 1000 mm
IW 6901.000
see page 245

8.3 Designer door, rear door
Height 900 mm
IW 6900.100
see page 245

8.4 Glazed door, rear door
Height 900 mm
IW 6900.200
see page 245

8.5 Enclosure for tower PC
Width 760 mm
Height 760 mm
IW 6900.300
see page 244
▶ 10.3

9 Enclosure
with drawers

9.1 Drawer section, designer door, rear door
Height 900 mm
IW 6900.400
see page 246
▶ 11.1 11.2 11.6

9.2 Drawer section for keyboard and mouse, designer door, rear door
Height 900 mm
IW 6900.410
see page 246

9.3 Drawer front, rear panel, screw fastened from the inside
Height 900 mm
IW 6900.600
see page 246

Note:
Component shelf,
see page 942,
Drawer tray,
see page 942.

10 Pedestals

10.1 Worktop base
Height 702 mm
IW 6900.500
Height 902 mm
IW 6900.510
Prepared for attachment of the:
Cable duct
IW 6903.700
see page 251
▶ 11.6

10.2 Pedestal
IW 6141.200
see page 232

10.3 Cast feet for tower PC
IW 6902.920
see page 845
▶ 11.6

11 Base/plinth components

11.1 Base/plinth, stationary
PC 8800.920
see page 840
▶ 11.4

11.2 Base/plinth components, front and rear for TS, sealed
Height 100 mm
TS 8601.600 (RAL 7022)
Height 200 mm
TS 8602.600 (RAL 7022)
see page 835
▶ 11.3 11.4 11.6 11.5

11.3 Base/plinth trim panels, side, for TS
Height 100 mm
TS 8601.060 (RAL 7022)
Height 200 mm
TS 8602.060 (RAL 7022)
see page 835

11.4 Base/plinth trim panels, with brush strip
Height 100 mm
TS 8601.610 (RAL 7022)
see page 839

11.5 Base/plinth trim panel PC
Height 200 mm
PC 8360.920
see page 839

11.6 Twin castors
PC 4634.500
see page 848
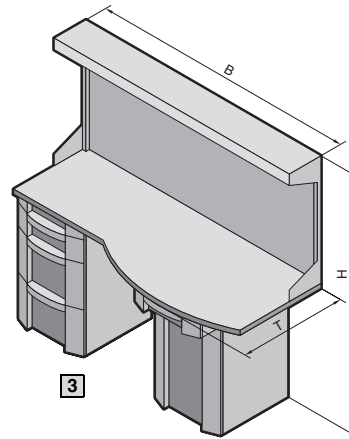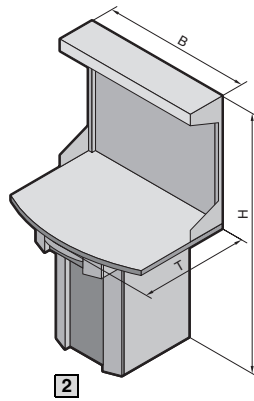
The complete system for use as a testing station in industrial environments (e.g. directly at the machine) where testing needs to be carried out and data processed electronically. An individual PC system is integrated to perfection.

Benefits:
- Plenty of space to accommodate test equipment
- Easy integration of PCs, monitors, printers etc.
- Integral lighting
- Theft protection

Colour:
RAL 7015/7035/9006

Supply includes Quality Point L:
Enclosure with keyboard drawer section IW 6900.410, see page 246, worktop W/H/D: 1000 x 38 x 895 mm, Quality Point attachment with side system punchings on a 25 mm pitch pattern for the attachment of system accessories (e.g. punched sections), workstation light IW, 2 x 36 W, 230 V, 50 Hz.

Supply includes Quality Point XL:
Enclosure with drawer front (left), IW 6900.600, see page 246, enclosure with keyboard drawer section (right) IW 6900.410, see page 246, worktop W/H/D: 2000 x 38 x 895 mm, Quality Point attachment with side system punchings on a 25 mm pitch pattern for the attachment of system accessories (e.g. punched sections), workstation light IW (quantity: 2), 2 x 36 W, 230 V, 50 Hz.

1 Assembly example
2 Quality Point L
3 Quality Point XL

Material:
Enclosure, see page 246, Quality Point attachment, see page 250, Worktop, see page 248.

Detailed drawing, see page 1110.

	Quality Point L	Quality Point XL	Page
Width (B) in mm	1000	2000	
Height (H) in mm	2000	2000	
Depth (T) in mm	895	895	
Model No. IW	**6920.100**	**6920.200**	
Weight (kg)	139	276	
Accessories			
Vertical section	–	6903.010	253
Bracket, locatable for shelves	6902.690	6902.690	951
Paper tray	6903.000	6903.000	1058
Cable duct	–	6903.700	251
Mounting plate	8614.675	8614.675	913
Component shelf, fixed installation	8800.900	8800.900	942
Component shelf, pull-out	6902.960	6902.960	942
Drawer tray	6902.700	6902.700	942
Lock systems			

Standard double-bit lock insert may be exchanged for lock inserts, lock cylinder inserts type B or comfort handle, see from page 881, With the designer door at the front, only in conjunction with handle adaptor PC 8611.300, see page 869.

Accessories Page 832 **Optipanel** Page 170 **TFT monitor** Page 1046

Industrial workstations

Enclosure for tower PC

1
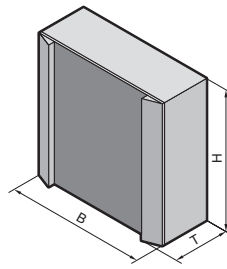
Compact enclosure, ready to connect. Standard commercially available tower PCs, up to W/H/D: 250 x 530 x 600 mm (max. 20 kg) may be attached securely to the base screw fastened to the door using the retaining strap supplied loose. The rear interfaces of the PC are readily accessible with the door open. Because the socket strip and fan-and-filter unit are already pre-installed, the enclosure is ready for immediate use.

Roof prepared for mounting
● of worktop
  IW 6902.310/IW 6902.320
● beneath surfaces
Base prepared for mounting
● of cast feet IW 6902.920
● on surfaces

Material:
Enclosure:
Sheet steel, powder-coated in textured RAL 7035
Door:
Sheet steel, spray-finished in RAL 7015 with fitted design strips of aluminium in RAL 7035.

Protection category:
IP 54 to EN 60 529 (in conjunction with connector gland SZ 2400.300/.500 supplied loose)

Supply includes:
Enclosure of all-round solid construction,
door hinged on r/h side, with base screw-fastened to the inside of the tubular door frame to accommodate a tower PC, lock with fitted cam lock at the side.

Rear panel with two cutouts for use of the connector gland SZ 2400.300 and .500 supplied loose,
connector for power supply, retaining strap for securing the tower PC to the base,
side panel, left, with fitted outlet filter SK 3322.200,

Side panel, right, fitted with:
● Fan-and-filter unit
  SK 3322.107,
  technical description see page 636, with door operated switch PS 4315.500
● Supply socket for 230 V power supply
● Socket strip with 3 sockets and overvoltage protection.

1 Assembly example

	Enclosure for tower PC	Page
Width (B) in mm	760	
Height (H) in mm	760	
Depth (T) in mm	300	
Model No. IW	**6900.300**	
Weight (kg)	55	
Accessories		
Cast feet	6902.920	845
Twin castors	4634.500	848
Worktop without handle	6902.310	249
Worktop with handle	6902.320	249
Enclosure attachment, tilting, base mounting	6902.640	207
Optipanel for TFT monitor 17″	6380.030	178
TFT monitor 17″ with safety glass screen	6450.020	1046
Desktop keyboard IP 65	6446.000	1047
IP 67 mouse	6445.000	1054
Mousepad IP 67 – PS/2 interface	6444.500	1054
Lock systems		
Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, Lock cylinder, plastic handles and T handles, type B, see page 886 – 889.		

1
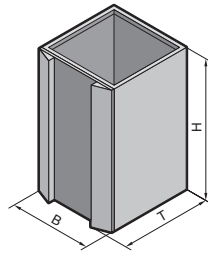
Material:
Enclosure, designer door,
rear panel,
Rear door: Sheet steel,
RAL 7035
Glazed door: Plastic to
UL 94-V0, RAL 7035,
safety glass 4.0 mm

Note:
● Other enclosure depths or
heights variable on a 25 mm
pitch pattern,
● All IW components as well as
system accessories available
fully assembled ex works
are available upon request.

1 Assembly example

For detailed supply scope,
see page 1109.

Detailed drawing,
see page 1110.

Property rights:
German patent
No. 100 13 034
German registered design
No. 400 02 953
US patent no. 6,538,876
US design patent no. D 487,730
UK reg. design no. 2 094 499
Japan. Reg. Design
no. 113 95 92
IR Reg. Design no. DM/053 554
with validity for FR, IT

B
1.5

Industrial workstations

Version	Designer door, rear panel screw-fastened from the inside	Designer door, rear panel screw-fastened from the outside	Designer door, rear door	Glazed door, rear door	Page
Width (B) in mm	600	600	600	600	
Height (H) in mm	900	1000	900	900	
Depth (T) in mm	600	600	600	600	
Model No. IW	**6900.000**	**6901.000**	**6900.100**	**6900.200**	
Weight (kg)	54.9	59.8	59.9	60.6	
Accessories					
Base/plinth, stationary	8800.920	8800.920	8800.920	8800.920	840
Cross member, adjustable	8601.680	8601.680	8601.680	8601.680	845
Twin castors	4634.500	4634.500	4634.500	4634.500	848
Mounting plate for enclosure width 600 mm	8614.675	8614.675	8614.675	8614.675	913
Component shelf, fixed installation	8800.900	8800.900	8800.900	8800.900	942
Component shelf, pull-out	6902.960	6902.960	6902.960	6902.960	942
Drawer tray	6902.700	6902.700	6902.700	6902.700	942
Drawer extension lock	6902.730	6902.740	6902.730	6902.730	952
Mobile workstation	4641.000	4641.000	4641.000	4641.000	1057
Adaptor section 482.6 mm (19″)	8613.070	8613.070	8613.070	8613.070	1003
Lock systems					

Standard double-bit lock insert may be exchanged for lock inserts, lock cylinder inserts type B, or comfort handle,
see from page 881, with the designer door and glazed door only in conjunction with handle adaptor PC 8611.300, see page 869.

Accessories Page 832 **Optipanel** Page 170 **TFT monitor** Page 1046

Industrial workstations

Enclosure with drawers, worktop or roof

1 Assembly example
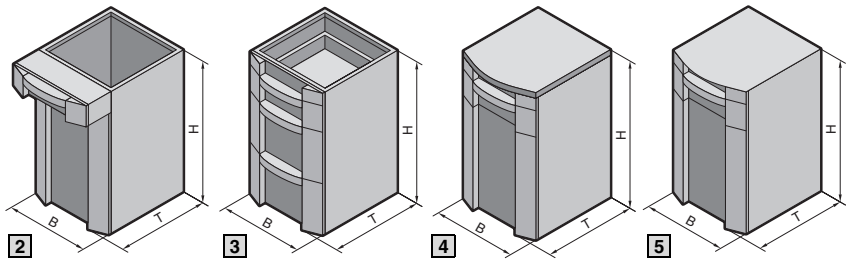
Material:
Enclosure, roof, drawer tray, designer door and rear door: Sheet steel, RAL 7035
Worktop:
Chipboard, plastic-laminated on both sides, similar to RAL 7035, with tough plastic edging, similar to RAL 7015
Drawer trim panel:
Plastic, RAL 7035/7015/9006.

Note:
● Other enclosure depths or heights, variable on a 25 mm pitch pattern,
● All IW components as well as system accessories available fully assembled ex works,
● Other drawer combinations,

● The fitted versions IW 6901.100 (with worktop) and IW 6901.200 (with roof) also available with other worktops, see page 248, are available upon request.

1 Assembly example

For detailed supply scope, see page 1109.

Detailed drawing, see page 1110.

Version	Drawer section for documents, designer door, rear door	Drawer section for keyboard and mouse, designer door, rear door	Drawer front, rear panel	Enclosure with worktop	Enclosure with roof	Page
	2	**2**	**3**	**4**	**5**	
Width (B) in mm	600	600	600	600	600	
Height (H) in mm	900	900	900	1000	1000	
Depth (T) in mm	600 (890)	600 (890)	600	645	645	
Model No. IW	**6900.400**	**6900.410**	**6900.600**	**6901.100**	**6901.200**	
Weight (kg)	73	73	78	91	86	
Accessories						
Base/plinth, stationary	8800.920	8800.920	8800.920	8800.920	8800.920	840
Cross member, adjustable	8601.680	8601.680	8601.680	–	–	845
Twin castors	4634.500	4634.500	4634.500	4634.500	4634.500	848
Paper tray	6903.000	6903.000	–	6903.000	6903.000	1058
Cable gland	6902.770	6902.770	–	6902.770	6902.770	976
Mounting plate	8614.675	8614.675	–	8614.675	8614.675	913
Component shelf, fixed installation	8800.900	8800.900	–	8800.900	8800.900	942
Component shelf, pull-out	6902.960	6902.960	–	6902.960	6902.960	942
Drawer tray	6902.700	6902.700	–	6902.700	6902.700	942
Drawer extension lock	6902.730	6902.730	■[1]	–	–	952
Mobile workstation	4641.000	4641.000	–	–	–	1057
Adaptor section 482.6 mm (19″)	8613.070	8613.070	–	–	–	1003
Lock systems						

Standard double-bit lock insert may be exchanged for lock inserts, type B cylinder inserts, or comfort handle, see from page 881, with the designer door only in conjunction with handle adaptor PC 8611.300, see page 869.

[1] Included with the supply.

Accessories Page 832 **Optipanel** Page 170 **TFT monitor** Page 1046

Roof, worktops

Note:
- Keyboard and front panels for keys integrated into the worktop,
- Worktops in modified sizes,
- All IW components as well as system accessories available fully assembled ex works,

are available upon request.

Detailed drawing,
see page 1111.

Combination options for enclosures/worktops

Width in mm		600	600	600	600	600	600	600
Height in mm		900	900	900	900	900	900	1000
Depth in mm		600	600	600	600 (890)	600 (890)	600	600
Enclosure Model No. IW		6900.000	6900.100	6900.200	6900.400	6900.410	6900.600	6901.000
Worktop	Page							
6902.000	248	▪	▪	▪	–	–	▪	▪
6902.010	248	▪	▪	▪	–	–	▪	▪
6902.020 6902.030	249	▪	▪	▪	–	–	▪	▪
6902.100	248	▪	▪	▪	–	–	▪	▪
6902.110	248	▪	▪	▪	▪	▪	▪	▪
6902.120 6902.130	249	▪	▪	▪	▪	▪	▪	▪
6902.200	248	▪	▪	▪	–	–	▪	▪
6902.210	248	▪	▪	▪	▪	▪	▪	▪
6902.220	248	▪	▪	▪	▪	▪	▪	▪
6902.300	248	▪	▪	▪	–	–	▪	▪
Roof								
6902.400	247	▪	▪	▪	–	–	▪	▪

To order worktops in the ESD version, please add the extension .XX8 to the Model No. Delivery times available on request.
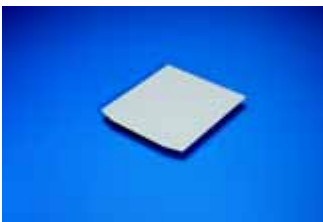
Cover
Folded all-round, with brackets for screw-fastening to the enclosure from the inside.

Material:
1.5 mm sheet steel

Surface finish:
Spray-finished in textured RAL 7035

Width (B) in mm	600
Height (H) in mm	13
Depth (T) in mm	640
Weight (kg)	7.4
Model No. IW	**6902.400**

Industrial workstations

Roof, worktops

Worktops

Material and surface finish:
Chipboard, plastic-laminated on both sides,
similar to RAL 7035, with tough plastic edging,
similar to RAL 7015
Handle made from aluminium, powder-coated in
RAL 9006.
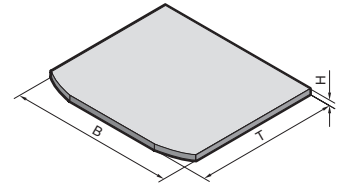
Solid			
Version	Without handle for enclosure	Without handle for enclosure/worktop base	With handle for enclosure
Width (B) in mm	610	1000	1200
Height (H) in mm	38	38	38
Depth (T) in mm	645	895	950
Model No. IW	**6902.300**	**6902.100**	**6902.000**
Weight (kg)	11.6	24	34

Solid			
Version	Without handle for enclosure/worktop base	Without handle for enclosure/worktop base	Without handle for enclosure/worktop base
Width (B) in mm	2000	2000	2000
Height (H) in mm	38	38	38
Depth (T) in mm	685	685/900	900/685
Model No. IW	**6902.200**	**6902.210**	**6902.220**
Weight (kg)	37	45	45

Prepared for turntable			
Version	Without handle	With handle	Page
Width (B) in mm	1000	1200	
Height (H) in mm	38	38	
Depth (T) in mm	895	950	
Model No. IW	**6902.110**	**6902.010**	
Weight (kg)	23	33	
Accessories			
Turntable	6902.620	6902.620	253
Spacer plate for monitor housing	6902.630	6902.630	252
Support plate for screen	6902.650	6902.650	252

B
1.5

Industrial workstations
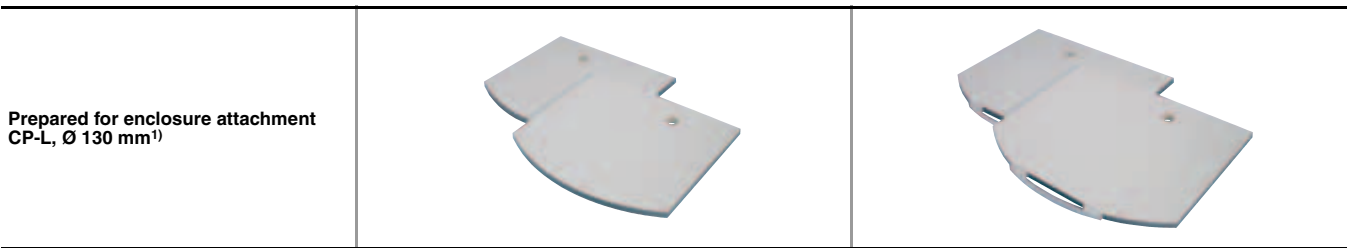
	Without handle prepared on l/h side	Without handle, prepared on r/h side	With handle prepared on l/h side	With handle prepared on r/h side
Prepared for enclosure attachment CP-L, Ø 130 mm[1]				
Version				
Width (B) in mm	1000	1000	1200	1200
Height (H) in mm	38	38	38	38
Depth (T) in mm	895	895	950	950
Model No. IW	**6902.120**	**6902.130**	**6902.020**	**6902.030**
Weight (kg)	23	23	33	33

[1] Hole may be used in conjunction with the adaptor plate for connector grommet IW 6902.660 (see page 975) for cable entry.
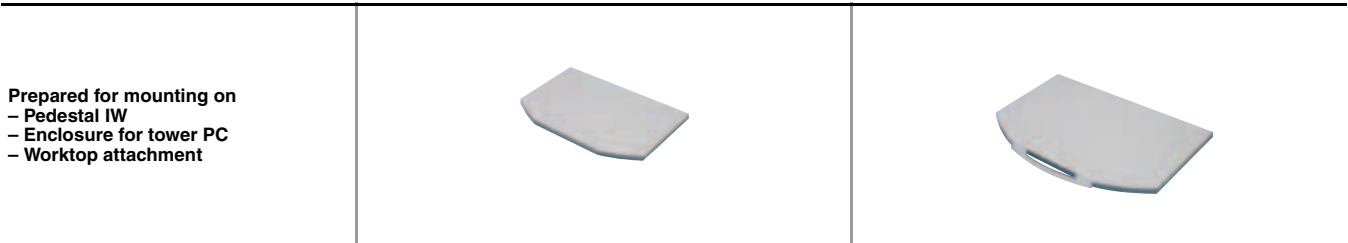
	Without handle for pedestsal	With handle for pedestsal
Prepared for mounting on **– Pedestal IW** **– Enclosure for tower PC** **– Worktop attachment**		
Version		
Width (B) in mm	950	950
Height (H) in mm	38	38
Depth (T) in mm	600	658
Model No. IW	**6902.310**	**6902.320**
Weight (kg)	16	18

Cable glands.
Model No. see page 976.

For tiltable attachment of operating housings.
Model No. see page 207.

Industrial workstations

Attachments and monitor housings

Quality Point attachment

Existing IW solutions may be upgraded to a complete testing station. Side punched profile on a 25 mm pitch pattern for the attachment of system accessories (e.g. TS punched section with mounting flange 17 x 73 mm for inner mounting level, see page 921). Projection with integral glare shield prepared for mounting of workstation light 6903.080 (1 x for IW 6920.110/ 2 x for IW 6920.210).

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Supply includes:
Assembly parts for mounting on worktops (see page 248).

Note:
The Quality Point attachment may be mounted directly on the wall if necessary.
Shelf to finish off at the bottom available on request.

	Quality Point attachment L	Quality Point attachment XL	Page
Width (B) in mm	1000	2000	
Height (H) in mm	960	960	
Model No. IW	**6920.110**	**6920.210**	
Accessories			
Workstation light	6903.080	6903.080	255
Vertical section	–	6903.010	253
Display board with wall bracket	6013.100	6013.100	1030
Utility shelf 220 mm wide	6514.110	6514.110	1039
Utility shelf 450 mm wide	6514.100	6514.100	1039
Mounting plates, locatable	8612.400	8612.400	929
Hexagon socket screws BZ 5.5 x 13 mm	2486.500	2486.500	937
Bracket, locatable, for shelves	6902.690	6902.690	951

Monitor housing

For protected accomodation of monitors up to 17″ or 21″ screen diagonal.

Material:
Enclosure, rear door and component shelf:
1.5 mm sheet steel
Designer door: Vertical plastic decorative trim panels to UL 94-V0
Glass pane: Safety glass 4.0 mm

Surface finish:
Enclosure and rear door: Textured RAL 7035.
Designer door: Decorative trim panels RAL 7035, screen printed mask on pane RAL 7015
Component shelf: RAL 7015

Supply includes:
Front designer door with internal lock, unlatched behind the rear door via a lever with Bowden cable.
Rear door with standard double-bit lock insert, may be exchanged for 27 mm lock inserts, type A or lock cylinder inserts, type B,
see page 888/889,
and Ergoform S lock system,
see page 885.
Enclosure with cutout and reinforcement at the bottom for mounting
– on worktops, prepared for turntable,
see page 248,
– on spacer plate for monitor housing,
see page 252.
Base prepared for the mounting of feet for desktop use IW 6902.610.
Fitted component shelf, slotted,
height-adjustable on a 25 mm pitch pattern,
prepared for mounting fan extension kit
DK 7980.000, see page 649,
and a socket strip, 482.6 mm (19″) long,
see page 746.

	Monitor housing for screen 17″	Monitor housing for screen 21″
Width (B) in mm	600	600
Height (H) in mm	600	600
Depth (T) in mm	500	600
Model No. IW	**6902.510**	**6902.500**
Weight (kg)	38.5	42.5

⊞ Accessories:

Feet for desktop use,
see page 251.
Spacer plate for monitor housing,
see page 252.
Turntable for spacer plate,
see page 253.

Detailed drawing,
see page 1110.

B

1.5

Industrial workstations
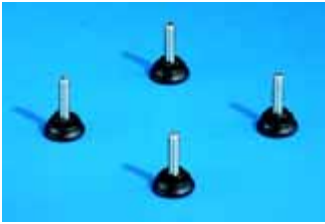
Feet

for monitor housing
Thread length 29 mm.

Max. static load per foot:
300 kg

Thread	Packs of	Model No. IW
M8	4	**6902.610**

Worktop base

For mounting instead of an IW enclosure when using a wide worktop. Prepared for attachment of cable duct IW 6903.700.

Material:
Steel, spray-finished

Colour:
RAL 7035

Supply includes:
Levelling feet and screws for the attachment of a worktop.

Note:
For reasons of stability, the worktop base should always be fitted in conjunction with cable duct IW 6903.700 or other suitable cross-braces.

Height mm	Packs of	Model No. IW
702	1	**6900.500**
902	1	**6900.510**

⊞ **Accessories:**

Cable duct,
see page 251.
Worktops,
see page 248.
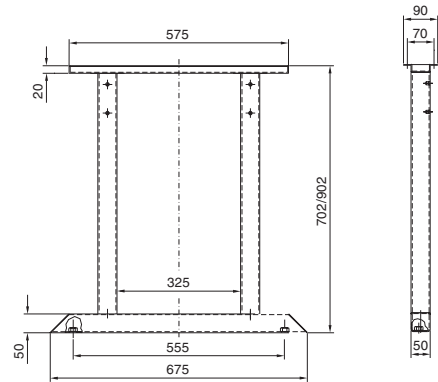
Cable duct

With punchings for the attachment of cable ties and prepared for the installation of a socket strip. Extension to any length may be achieved by baying several cable ducts together.

Installation:
● Beneath worktops IW
● Beneath surfaces
● Between IW enclosures
● Between IW worktop bases

Material:
Sheet steel, spray-finished

Colour:
Textured RAL 7035

Length mm	Packs of	Model No. IW
760	1	**6903.700**

⊞ **Accessories:**

Cable tie for quick assembly SZ 2597.000,
see page 982.
Socket strip,
see page 746.

Adaptor plate

for connector entry,
see page 975.

Accessories

Cable gland
for IW worktops,
see page 976.
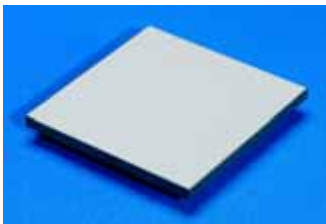
Support plate
for screen
Rotatable in conjunction with turntable
IW 6902.620.

Material:
Chipboard, plastic laminated on both sides,
similar to RAL 7035, with tough plastic edging,
similar to RAL 7015.

Note:
● Other sizes
● With drilled holes
available upon request.

Width mm	Depth mm	Height mm	Model No. IW
400	400	25	**6902.650**

⊞ Accessories:

Turntable,
see page 253.
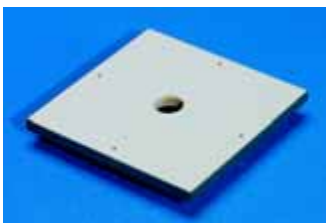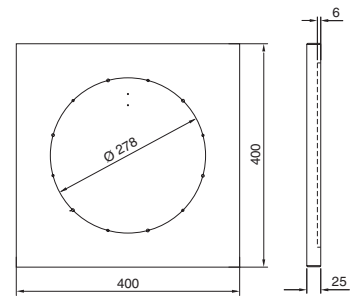
Spacer plate
for monitor housing
Creates distance from the worktop to prevent
damage to the mouse and keyboard.

Material:
Chipboard, plastic laminated on both sides,
similar to RAL 7035, with tough plastic edging,
similar to RAL 7015.

Note:
If a wider gap is required, 2 spacer plates may
also be screw-fastened on top of one another.

● Other sizes
● Other drilled holes
available upon request.

Width mm	Depth mm	Height mm	Model No. IW
400	400	25	**6902.630**

⊞ Accessories:

Turntable,
see page 253.
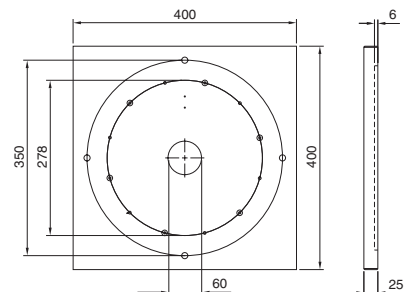
Turntable

for spacer plate IW 6902.630 and support plate IW 6902.650.
Diameter: 328 mm
Height: 14 mm
Load capacity: 300 kg, vertical

Rotation range:
350°, may be limited to 90°, 180° and 270° by 3 end stops.

Material:
Cast aluminium, powder-coated

Colour:
Black

Supply includes:
Assembly parts for screw-fastening on both sides.

Packs of	Model No. IW
1	6902.620
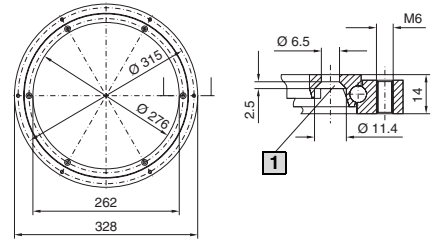
1 For csk screw M6

Optipanel

A stylish enclosure of extruded aluminium section. In installation depths 50, 100 and 150 mm the width and height are sized to the panel supplied by the customer.

For TFT monitors 15″ and 17″ with safety glass or touch screen, see page 1046, standard sizes are available off the shelf.

Full details of the Optipanel from page 170.

Support arm system CP-L

Using support section CP-L, operating housings may be positioned in a rotatable and swivelling configuration depending on the respective ergonomic conditions, see from page 200.

Compact Panel

For slimlline and compact panels, or as a visually appealing switch housing.
Thanks to the tiltable enclosure attachment IW 6902.670, see page 193, may also be fitted via support arm system CP-L on worktops prepared for enclosure attachment CP-L, Ø 130 mm, see page 206.

Full details of the Compact Panel from page 183.

Vertical section

For subdividing the vertical surface of the Quality Point XL. By locating e.g. TS punched sections with mounting flanges (17 x 73 mm) into the TS punched profile, the simple mounting of system accessories (e.g. utility shelves CP) is supported.
Length: 950 mm

Material:
Sheet steel, 1.5 mm

Colour:
RAL 7035

Supply includes:
Assembly parts.

Packs of	Model No. IW
1	6903.010

➕ **Accessories:**

TS punched section with mounting flange, 17 x 73 mm, see page 921, Utility shelves CP, see page 1039. Snap-on nuts, see page 931.

B

1.5

Industrial workstations

Industrial workstations

Accessories

Worktop mat

To protect against damage, and as an anti-slip mat.

Material:
Rubber

Colour:
Black

To fit IW	Width mm	Depth mm	Packs of	Model No. IW
6902.300 6902.400	600	640	1	**6903.100**
6902.310 6902.320	950	600	1	**6903.110**
6902.100	1000	895	1	**6903.120**
6902.000	1200	950	1	**6903.130**
6902.200	2000	845	1	**6903.140**
6902.210	2000	685/900	1	**6903.150**
6902.220	2000	900/685	1	**6903.160**

Drawer

for documents

Under-mounting

For mounting beneath
● Worktop
● Sufficiently large surfaces
For test equipment, pens, production documents etc. Lockable, lock cylinder insert, lock no. 3524 E.

Material:
Drawer housing: Sheet steel
Front: Plastic to UL 94-V0

Colour:
RAL 7035,
front surface RAL 7015,
handle strip RAL 9006.

Protection category:
IP 55 to EN 60 529/10.91
Complies with NEMA 12.

Packs of	Model No. IW
1	**6902.900**

Delivery times available on request.

Drawer

for keyboard and mouse

Bottom-mounting

For mounting beneath
● Worktop
● Sufficiently large surfaces
With mouspad support, pulls out on the left or right, and hinged cable support for secure, pinch-free cable routing.
Sealed cable entry for 3 cables (up to Ø 6 mm).

Material:
Drawer housing: Sheet steel
Front: Plastic to UL 94-V0

Colour:
RAL 7035,
front surface RAL 7015,
handle strip RAL 9006.

Protection category:
IP 55 to EN 60 529/10.91
Complies with NEMA 12.

Packs of	Model No. IW
1	**6902.910**

B

1.5

Industrial workstations

Workstation light
for IW
For mounting on the IW Quality Point attachment.
The workstation light ensures optimum, glare-free
illumination of the workstation.

Technical specifications:
2 compact fluorescent lamps (36 W, 230 V,
50 Hz) TC-L 36, cap 2 GL. With switch, sockets
and connectors for power infeed and through-
wiring.

Supply includes:
Assembly parts
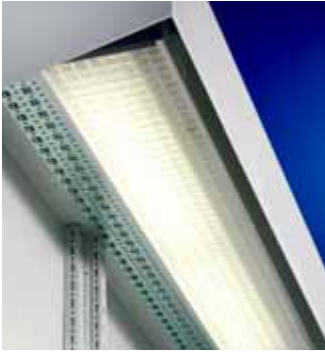
Width mm	Height mm	Depth mm	Model No. IW
900	135	60	**6903.080**

⚠ **Also required:**

Connection accessories
see page 956.

B

1.5

Industrial workstations

PC enclosure systems

Features

Housing all your computer equipment, from the monitor, computer system, printer and keyboard to the mouse, becomes child's play with Rittal's PC enclosure systems.

The result is perfect protection from humidity and dirt, temperature fluctuations and unauthorised access. What is more, when it comes to ergonomics, design and accessory diversity, these systems will exceed your expectations.

IW enclosure for tower PC

Enclosure ready for connection to accommodate a standard tower PC in the door.

The fan-and-filter unit integrated as standard ensures optimum climate control at protection category IP 54.

The cast feet with twin castors ensure optimum stability and mobility.

PC enclosure systems based on TS 8, bayable
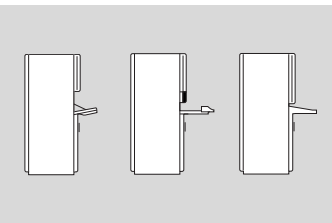
Operated via:
- Folding keyboard
- Keyboard drawer
- Desk section

Monitored with:
- Mounting compartment, large, or
- Glazed door, large, or
- Combination of small glazed door and small mounting compartment

PC enclosure systems based on ES

Operated via:
- Folding keyboard
- Keyboard drawer
- Desk section

Monitored with:
- Mounting compartment, large, or
- Glazed door, large, or
- Combination of small glazed door and small mounting compartment

Based on TS 8, with keyboard drawer

Material:
see page 1112.

Protection category:
IP 55 to EN 60 529,
complies with NEMA 12.
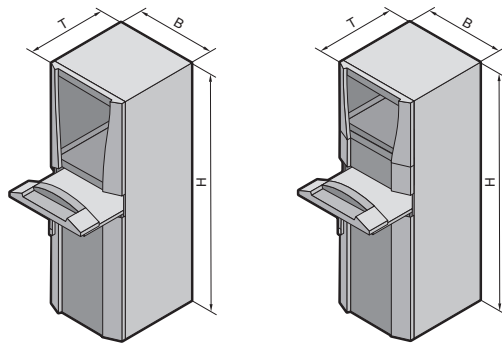
Supply includes,
see page 1112.

Detailed drawing,
see page 1112.

Approvals,
see page 34.

Version		Packs of	with keyboard drawer, glazed door, top	with keyboard drawer, glazed door, top	with keyboard drawer, glazed door, top mounting compartment, small	with keyboard drawer, mounting compartment, large	Page
Width (B) in mm			600	600	600	600	
Height (H) in mm			1600	1600	1600	1600	
Depth (T) in mm			636	836	636	636	
Model No. PC		1	**8366.000**	**8368.000**	**8366.300**	**8366.400**	
Maximum keyboard dimensions in mm	Width		480	480	480	480	
	Height		70	70	70	70	
	Depth		260	260	260	260	
Weight (kg)			118	133	118	117	
Accessories							
Base/plinth, stationary		1	8800.920	8800.920	8800.920	8800.920	840
Base/plinth components front and rear	Height 100 mm	1	8601.600	8601.600	8601.600	8601.600	835
	Height 200 mm	1	8602.600	8602.600	8602.600	8602.600	835
Base/plinth trim, front	Height 200 mm	1	8360.920	8360.920	8360.920	8360.920	839
Base/plinth trim, side	Height 100 mm	1	8601.060	8601.060	8601.060	8601.060	835
	Height 200 mm	1	8602.060	8602.060	8602.060	8602.060	835
Cross member, adjustable	Height 70 mm	2	8601.680	8601.680	8601.680	8601.680	845
Partial mounting plate	Height 775 mm	1	8614.675	8614.675	8614.675	8614.675	913
Lock systems							

Standard lock insert, may be exchanged for rear door: TS lock inserts, see page 881, comfort handle, see page 881.
Designer door, front: TS lock inserts, see page 881, comfort handle, see page 881 (via handle adaptor PC 8611.300, see page 869).
Keyboard drawer/fold-out tray: Lock inserts, 27 mm, version A, see page 888.

Handle set.
Model No. see page 1030.

PC enclosure systems

Based on TS 8, with folding keyboard or desk section

Material:
see page 1113.

Protection category:
IP 55 to EN 60 529,
complies with NEMA 12.
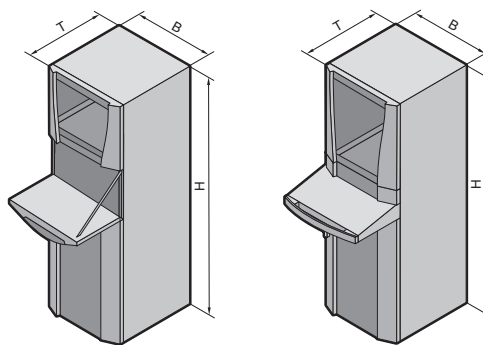
Supply includes,
see page 1113.

Detailed drawing,
see page 1113.

Approvals,
see page 34.

Version		Packs of	with fold-out keyboard tray, glazed door, top		with fold-out keyboard tray, glazed door, top		with desk section, glazed door, top	Page
Width (B) in mm			600		600		600	
Height (H) in mm			1600		1600		1600	
Depth (T) in mm			636		836		636	
Model No. PC		1	**8366.100**		**8368.100**		**8366.200**	
Maximum keyboard dimensions in mm	Width		475		475		540	
	Height		60	50	60	50	40	
	Depth		200	250	200	250	175	
Weight (kg)			118		124		108	
Accessories								
Base/plinth, stationary		1	8800.920		8800.920		8800.920	840
Base/plinth components front and rear	Height 100 mm	1	8601.600		8601.600		8601.600	835
	Height 200 mm	1	8602.600		8602.600		8602.600	835
Base/plinth trim, front	Height 200 mm	1	8360.920		8360.920		8360.920	839
Base/plinth trim, side	Height 100 mm	1	8601.060		8601.060		8601.060	835
	Height 200 mm	1	8602.060		8602.060		8602.060	835
Cross member, adjustable	Height 70 mm	2	8601.680		8601.680		8601.680	845
Partial mounting plate	Height 775 mm	1	8614.675		8614.675		8614.675	913
Lock systems								

Standard lock insert, may be exchanged for rear door: TS lock inserts, see page 881, comfort handle, see page 881.
Designer door, front: TS lock inserts, see page 881, comfort handle, see page 881 (via handle adaptor PC 8611.300, see page 869).
Keyboard drawer/fold-out tray: Lock inserts, 27 mm, version A, see page 888.

Base/plinth trim PC
200 mm high.
Model No. see page 839.

Accessories Page 832 **Component shelves** Page 939 **Monitors, keyboards** Page 1046 **Climate control** Page 578

Material:
see page 1114.

Protection category:
IP 55 to EN 60 529,
complies with NEMA 12.
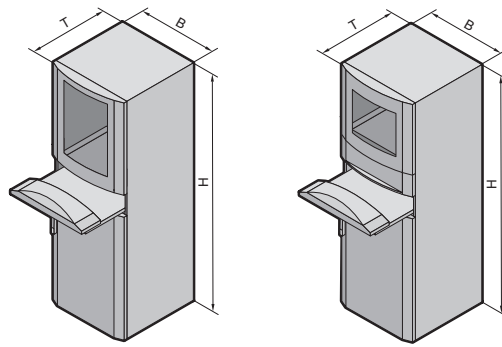
Supply includes,
see page 1114.

Detailed drawing,
see page 1114.

Approvals,
see page 34.

Version		Packs of	with keyboard drawer, glazed door, top	with keyboard drawer, glazed door, top	with keyboard drawer, glazed door, top mounting compartment, small	with keyboard drawer, mounting compartment, large	Page
Width (B) in mm			600	600	600	600	
Height (H) in mm			1600	1600	1600	1600	
Depth (T) in mm			650	850	650	650	
Model No. PC		1	**4603.703**	**4609.703**	**4603.913**	**4603.603**	
Maximum keyboard dimensions in mm	Width		480	480	480	480	
	Height		55[1]/40[2]	55[1]/40[2]	55[1]/40[2]	55[1]/40[2]	
	Depth		250	250	250	250	
Weight (kg)			106	121	107	106	
Accessories							
Base/plinth, complete	Height 100 mm	1	2813.200	2846.200	2813.200	2813.200	843
	Height 200 mm	1	2814.200	2847.200	2814.200	2814.200	843
Cross member, adjustable		2	8601.680	8601.680	8601.680	8601.680	845
Twin castors		1	4634.500	4634.500	4634.500	4634.500	848
Mousepad, passive		1	4614.000	4614.000	4614.000	4614.000	1055
Lock systems							

Standard lock insert, may be exchanged for rear door/designer door, front: Lock inserts, 27 mm, version A, see page 888.
Ergoform-S lock system, see page 885.
Keyboard drawer/fold-out tray: Lock inserts, 27 mm, version A, see page 888.

[1] Without mousepad
[2] With mousepad

Cross member, adjustable.
Model No. see page 845.

Accessories Page 832   **Component shelves** Page 939   **Monitors, keyboards** Page 1046   **Climate control** Page 578

PC enclosure systems

Based on ES with fold-out keyboard tray or desk section

Material:
see page 1115.

Protection category:
IP 55 to EN 60 529,
complies with NEMA 12.
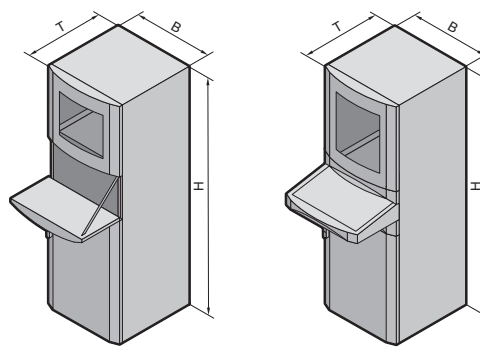
Supply includes,
see page 1115.

Detailed drawing,
see page 1115.

Approvals,
see page 34.

Version		Packs of	with fold-out keyboard tray, glazed door, top	with fold-out keyboard tray, glazed door, top	with desk section, glazed door, top	Page
Width (B) in mm			600	600	600	
Height (H) in mm			1600	1600	1600	
Depth (T) in mm			650	850	650	
Model No. PC		1	**4603.920**	**4609.920**	**4603.704**	
Maximum keyboard dimensions in mm	Width		480	480	462	
	Height		69[1]/62[2]	69[1]/62[2]	40	
	Depth		230	230	208	
Weight (kg)			101	114	102	
Accessories						
Base/plinth, complete	Height 100 mm	1	2813.200	2846.200	2813.200	843
	Height 200 mm	1	2814.200	2847.200	2814.200	843
Cross member, adjustable		2	8601.680	8601.680	8601.680	845
Twin castors		1	4634.500	4634.500	4634.500	848
Mousepad, passive		1	4613.000	4613.000	–	1055
Lock systems						

Standard lock insert, may be exchanged for rear door/designer door, front: Lock inserts, 27 mm, version A, see page 888.
Ergoform-S lock system, see page 885.
Keyboard drawer/fold-out tray: Lock inserts, 27 mm, version A, see page 888.

[1] Without mousepad
[2] With mousepad

Mobile workstation.
Model No. see page 1057.

Features

Function and variability are key features of all Rittal console systems. Perfect designs offer added benefits in terms of assembly, security and operation.

The performance capability of a machine or plant is decided at the console and operating unit. Only optimum packaging of today's sensitive controls combined with optimum ergonomic conditions for operating staff can create the pre-requisites for cost-effective plant operation.

Console systems AP
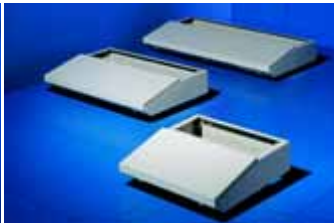
Consoles
with mounting plate, in two heights and three depths for virtually any installation situation.

Desk units
in two depths with perforated strips in the base and cover for easy installation.

Pedestals
with mounting plate, in two depths, also suitable for use as consoles.

One-piece consoles AP
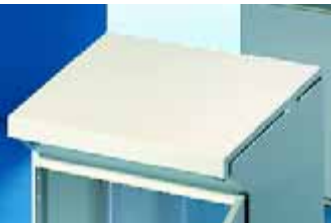
Cover
including perforated strips for cable routing. Safety lid stay may be unlatched with two-handed operation.

Door hinge
may be swapped from right to left by simply unscrewing the hinges.

Variable installation depth in the cover area
and cable entry from the rear via a mounting plate, height-adjustable by 2 x 40 mm.

Universal consoles AP
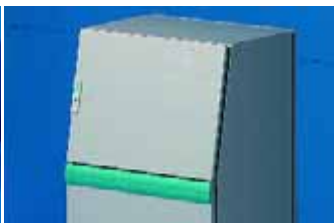
Optionally with short or tall door.
Short door offers free field for mounting desk section or keyboard drawer.

High stability and protection category
thanks to a body which is manufactured more or less from a single piece.

Universal interior installation
with partial mounting plates, component shelves, punched sections and rails.

Console systems AP

Combination options for the modules

Easy selection of your required combination

The elements of the AP console system in depths 400 mm (blue) and 500 mm (green) may be combined in numerous user-specific variants, as shown in the diagram.

The table opposite allows you to find the order number for your selection immediately.

Modern, slimline HMI (human/machine interfaces) or displays may also be used.

Integrated into the stylish, tailor-made command panel systems VIP 6000, Optipanel and Compact Panel (yellow), this produces a wide range of modern extension options for the classic AP console systems.

- VIP 6000, see page 154.
- Optipanel, see page 170.
- Compact Panel, see page 183.
- Support arm systems, see page 188.

Trim plate (A2/B2) with reinforcement and cutout for support arm systems available on request.

Please specify the dimensions for positioning on the end plate and the Model No. of the enclosure attachment.

[1] May also be configured with the door at the rear (see diagram on opposite page).

[2] When assembling, additional holes are needed on the desk unit.

Combination options for the modules

B4

B3

B2
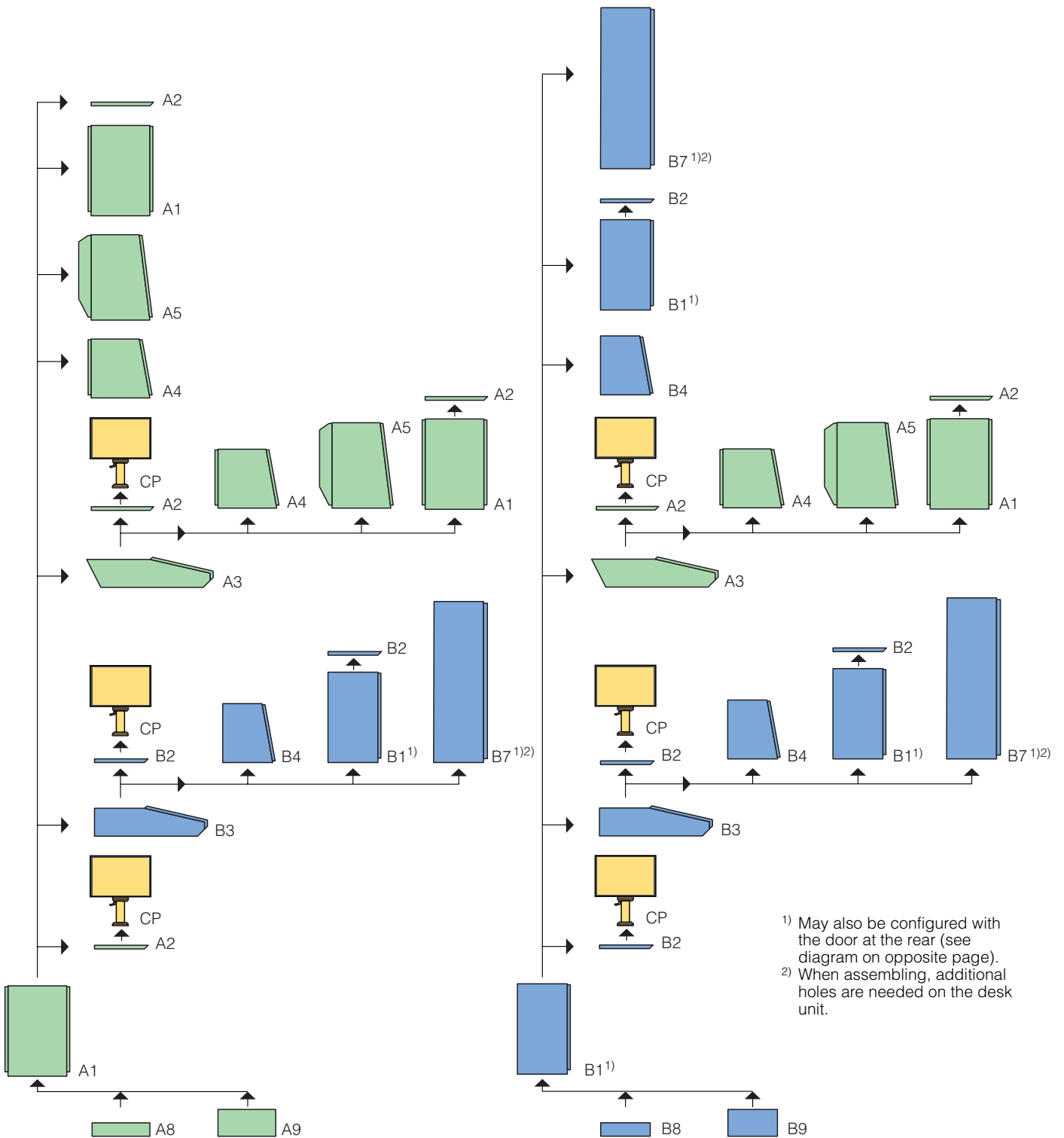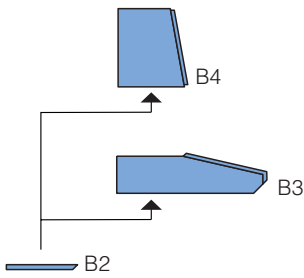
Further information,
see page 264 – 265.

Technical details,
see page 1116 – 1117.

Approvals,
see page 35.

A5

A4

A3

A2

B2

B1

B3

B1
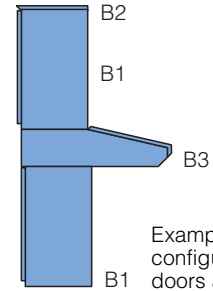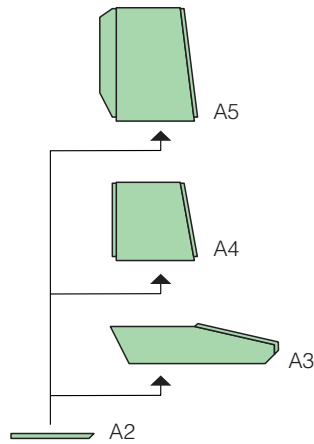
Example of
configuration with
doors at rear

	D = 500 mm			Height mm		D = 400 mm		
Width	800	1200	1600		Width	800	1200	1600
	Model No.	Model No.	Model No.			Model No.	Model No.	Model No.
AK enclosure								
				1200	B7	1648.500	1652.500	
Console								
A5	2647.500	2648.500	2649.500	630 with deep rear door				
Console								
A4	2614.500	2644.500	2654.500	430	B4	2612.500	2642.500	2652.500
Desk unit								
A3	2613.500	2643.500	2653.500	200	B3	2611.500	2641.500	2651.500
Trim panel								
A2	2616.500	2646.500	2656.500	28	B2	2615.500	2645.500	2655.500
Pedestal								
A1	2610.500	2640.500	2650.500	670	B1	2600.500	2620.500	2630.500
Base/plinth								
A9	2842.200	2852.200	2864.200	200	B9	2902.200	2922.000	2962.200
A8	2841.200	2851.200	2863.200	100	B8	2901.200	2921.200	2961.200

Console systems AP

Modules

Consoles

Material:
Sheet steel
Enclosure: 1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Dipcoat-primed,
powder-coated on the outside
Mounting plate: Zinc-plated

Colour:
Textured RAL 7035

Supply includes:
Enclosure, open at the bottom,
door(s) hinged at the bottom
with retaining cords at the front,
for depth 500 mm with door(s) at
the rear,
mounting plate for depth
500 mm, adjustable on a 25 mm
pitch pattern.

Detailed drawing,
see page 1117.

Width in mm	Packs of	800	1200	1600	800	1200	1600	800	1200	1600
Height in mm		430						630		
Depth in mm		400			500			500 (with deep rear door)		
Model No. AP	1	2612.500	2642.500	2652.500	2614.500	2644.500	2654.500	2647.500	2648.500	2649.500
Number of lids		1	1	1	2	2	2	2	2	2
Weight (kg)		22.5	40.0	52.5	30.6	48.0	62.4	47.8	64.4	86.8
Lock systems										
Standard double-bit lock insert may be exchanged for 47 mm lock inserts, type D, see page 888.										

To order consoles in textured RAL 7032 please add extension .600 to the Model No., and for primed consoles use extension .800.
Delivery times available on request.

Desk units

Material:
Sheet steel
Enclosure: 1.5 mm
Console lid: 2.0 mm

Surface finish:
Dipcoat-primed,
powder-coated on the outside

Colour:
Textured RAL 7035

Supply includes:
Enclosure, open at the top and
bottom, console lid with cam
and support stand.

Detailed drawing,
see page 1117.

Width in mm	Packs of	800	1200	1600	800	1200	1600	Page
Height in mm		200						
Depth in mm		850 (for depth 400)			950 (for depth 500)			
Model No. AP	1	2611.500	2641.500	2651.500	2613.500	2643.500	2653.500	
Weight (kg)		25.5	35.5	44.0	30.6	42.6	52.8	
Accessories								
Aluminium strips	3	2678.000	2682.000	–	2678.000	2682.000	–	1040
Lock systems								
Standard double-bit lock insert may be exchanged for 47 mm lock inserts, type D, see page 888.								

To order desk units in textured RAL 7032 please add extension .200 to the Model No., and for primed desk units use extension .300.
Delivery times available on request.

Accessories Page 832 **Monitors, keyboards** Page 1046 **Climate control** Page 578

B

1.5

Console systems AP

Pedestals

Material:
Sheet steel
Enclosures and gland plates:
1.5 mm
Door: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Dipcoat-primed,
powder-coated on the outside
Gland plates and mounting
plate: Zinc-plated.

Colour:
Textured RAL 7035

Supply includes:
Enclosure, open at the top, door
or double door with locking rod
(with depth 400 mm at the front,
with depth 500 mm at the front
and rear),
two-part gland plates,
mounting plate, with depth
500 mm: infinitely adjustable.

Detailed drawing,
see page 1116.

Width in mm		Packs of	800	1200	1600	800	1200	1600	Page
Height in mm			670						
Depth in mm			400			500			
Model No. AP		1	**2600.500**	**2620.500**	**2630.500**	**2610.500**	**2640.500**	**2650.500**	
Door(s)			1	2	2	1/1	2/2	2/2	
Weight (kg)			43.5	62.3	80.0	52.2	75.0	96.0	
Accessories									
Base/plinth	Height 100 mm	1	2901.200	2921.200	2961.200	2841.200	2851.200	2863.200	843
	Height 200 mm	1	2902.200	2922.200	2962.200	2842.200	2852.200	2864.200	843
Cross member, adjustable		2	2697.450						845
Swing frame 11 U		1	2027.200	2027.200[1]		2027.200	2027.200[1]		1002
Lock systems									
Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888 and Ergoform-S lock system, see page 885.									

[1] Two swing frames may be installed
To order pedestals in textured RAL 7032 please add extension .600 to the Model No., and for primed pedestals use extension .800.
Delivery times available on request.
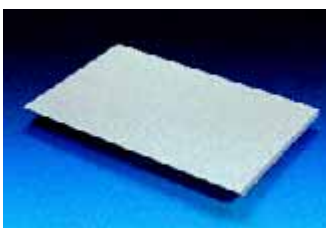
Trim panel
To finish off pedestals, desk units or consoles.

Material:
Sheet steel, spray-finished, 1.5 mm

Colour:
Textured RAL 7035

To fit		Model No. AP
Width mm	Depth mm	
800		**2615.500**
1200	400	**2645.500**
1600		**2655.500**
800		**2616.500**
1200	500	**2646.500**
1600		**2656.500**

To order trim panels in textured RAL 7032 please add extension .200 to the Model No., and for primed versions use extension .300.
Delivery times available on request.
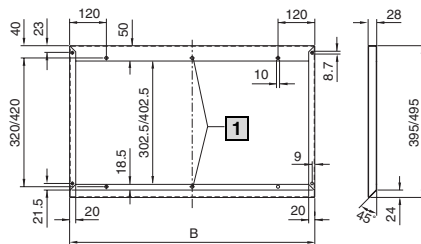
1 Not applicable to console width 800 mm

Accessories Page 832 **Monitors, keyboards** Page 1046 **Climate control** Page 578

One-piece consoles AP
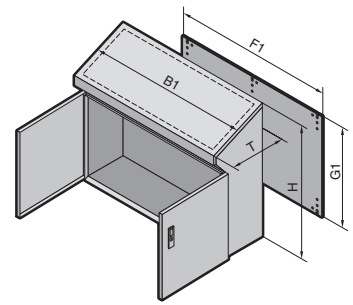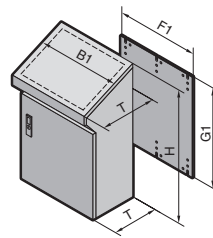
Sheet steel

Material:
Sheet steel
Enclosure: 1.5 mm
Door and console lid: 2.0 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure, door and console lid:
Dipcoat-primed, powder-coated
on the outside
Mounting plate and gland
plates: Zinc-plated

Colour:
Textured RAL 7035

Protection category:
IP 55 to EN 60 529/10.91,
complies with NEMA 12.

Supply includes:
Enclosure, closed back and
sides,
door or double door at front,
console lid with lid stay,
two-piece gland plate,
mounting plate.

Detailed drawing,
see page 1118.

Approvals,
see page 36.

Width (B1) in mm	Packs of	600	800	1000	1200	Page
Height (H) in mm		960	960	960	960	
Depth (T) in mm		400/480	400/480	400/480	400/480	
Mounting plate width (F1) in mm		530	730	930	1130	
Mounting plate height (G1) in mm		780	780	780	780	
Model No. AP	1	**2666.500**	**2668.500**	**2670.500**	**2672.500**	
Door(s)		1	1	2	2	
Weight (kg)		52.0	65.2	79.5	90.3	
Accessories						
Base/plinth	Height 100 mm	1	2911.200	2901.200	2891.200	2921.200	843
	Height 200 mm	1	2912.200	2902.200	2892.200	2922.200	843
Cross member, adjustable		2	2697.450	2697.450	2697.450	2697.450	845
Aluminium strips		3	2676.000	2678.000	2682.000[1]	2682.000	1040
Swing frame		1	–	2027.200	2027.200	2027.200	1002
Lock systems						

Console lid: Standard double-bit lock insert may be exchanged for 47 mm lock inserts, type D, see page 888.
Door: Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888,
and Ergoform-S lock system, see page 885.

[1] To be shortened by 200 mm.
To order consoles in textured RAL 7032 please add extension .600 to the Model No., and for primed versions use extension .800.
Delivery times available on request.

Cross member, adjustable
Model No. see page 845.

Utility shelf, screw-fastened
for measuring instruments,
mouse or scanner.
Model No. see page 1039.

Accessories Page 832 **Monitors, keyboards** Page 1046 **Climate control** Page 578

Rittal Catalogue 31/Industrial enclosures
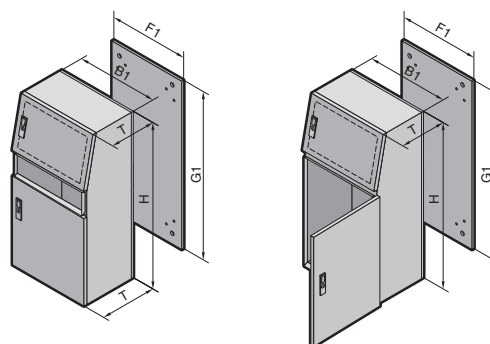
Material:
Sheet steel
Enclosure, gland plates: 1.5 mm
doors: 2.0 mm
Mounting plate: 3.0 mm
Design strips (AP 2695.500):
Aluminium section

Surface finish:
Enclosure:
Dipcoat-primed, powder-coated
on the outside
Mounting plate and gland
plates: Zinc-plated

Colour:
Enclosure: textured RAL 7035.
Design strips (AP 2695.500):
RAL 5018

Protection category:
IP 55 to EN 60 529/10.91,
complies with NEMA 12.
With a short door at the bottom
(AP 2694.500), in order to pre-
serve the protection category,
a drawer or desk section
(see page 1052/1039) should
be fitted.

Supply includes:
Enclosure with doors,
mounting plate,
gland plates,
design strips (AP 2695.500).
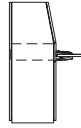
Note:
Top door with studs left and right
for installing vertical perforated
mounting strips SZ 2310.038
and horizontal support strips
SZ 2325.000 to be mounted on
top (see page 896/895).
AP universal consoles are equiv-
alent to free-standing enclosure
ES 5000 in terms of interior
installation – in other words,
the accessory components will
fit.

Detailed drawing,
see page 1118.

Approvals,
see page 36.

	Packs of	with short front door			with tall front door	Page
Width (B1) in mm		600			600	
Height (H) in mm		1300			1300	
Depth (T) in mm		500/417.5			500/417.5	
Mounting plate width (F1) in mm		499			499	
Mounting plate height (G1) in mm		1196			1196	
Model No. AP	1	**2694.500**			**2695.500**	
Weight (kg)		77.0			80.0	
Also required						
Desk section		2696.500	2696.500	–	–	1039
Drawer for keyboard		–	–	4757.500[1]	–	1052
Accessories						
Base/plinth	Height 100 mm	1	2807.200		2807.200	843
	Height 200 mm	1	2808.200		2808.200	843
Cross member, adjustable	2	2697.450			2697.450	845
Cable clamp rail	1	4191.000			4191.000	979
Lock systems						
Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888 and Ergoform-S lock system, see page 885.						

[1] Only suitable for installation without a mounting plate.
To order in textured RAL 7032, please add extension .600 to the Model No. Delivery times available on request.

Accessories Page 832 **Monitors, keyboards** Page 1046 **Climate control** Page 578

Stainless steel

Features

Be it automation, communications or power supply technology, Rittal offers the correct enclosures and cabinets to suit virtually all requirement profiles in modern industrial technology. Of course, these are also available in stainless steel for extremely high standards of hygiene and corrosion protection. Cleverly thought-out system platforms in conjunction with an extensive selection of system accessories provide the basis for the outstanding solution diversity of the Rittal stainless steel range. Why not arrange a consultation? We will tailor a solution to suit your specific requirements.

Resistant to high-pressure cleaning, suitable for use in clean rooms
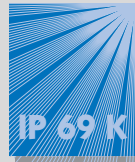
The compact enclosures **Premium Line KL** and the command panels **Premium Panel** offer a high level of EMC shielding and are resistant to high-pressure cleaning and suitable for use in clean rooms.

Resistant to high-pressure cleaning
The new gap-free sealing concept facilitates the high protection category of IP 69K.

Suitable for clean room use
For the highest standards in the food and hygiene sector (certified by the Fraunhofer-Institut IPA).

Compact enclosures

Terminal boxes with screw-fastened lid and profile strips with mounting holes on both sides for the installation of cross rails or mounting plate.

Bus enclosure with 180° hinges and built-in support rail.

Premium Line KL
Resistant to high-pressure cleaning, IP 69K and high level of EMC shielding thanks to the sealing system and metallic contact between the enclosure and rear panel.

Compact enclosures

Enclosure protection channel prevents the ingress of dirt and water when the door is opened.

To dismantle the door, the **hinge pin** is simply pulled out of the compact enclosures AE.

Rain canopies for AE offer additional protection.

Command panel

Premium Panel
First-class in terms of sealing, protection, hygiene and design, with or without keyboard housing.

Operating housings
Front panel may optionally be used either for the installation of operating and display components, or as a rear panel.

Command panel housing with door
with handle strips and rear panel with welded studs for the attachment of a mounting plate or support rails.

Consoles

The lid stay of the one-piece consoles is locked against unintentional closure.

Maximum space for cable entry with divided gland plates.

The mounting plate is height-adjustable by 2 x 40 mm, e.g. with deep installed equipment in the lid or cable entry from the rear.

Enclosure systems

PC enclosure systems with keyboard drawer or with desk section.

Free-standing enclosures ES 5000 with profiled enclosure formed from a single piece (roof + side panel).

Baying systems TS 8 – infinite options for interior installation.

Stainless steel

Terminal boxes KL
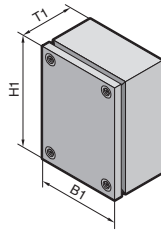
Material:
Stainless steel 1.4301
Enclosure: 1.25 mm
Cover: 1.25 mm

Surface finish:
Case and cover:
Brushed, grain 180

Protection category:
IP 66 to EN 60 529/10.91,
complies with NEMA 4x.

Supply includes:
Enclosure, cover with all-round foamed-in PU seal and cover screws, including plastic bushes.

Approvals,
see page 23.

Detailed drawing,
see page 1119.

To order terminal boxes in 1.4404 (AISI 316L), please add extension .510 the the Model No. Delivery times available on request.

Wall mounting bracket
for secure attachment to the wall.
Model No. see page 905.

Housing coupling
for attaching the 120 mm deep KL to the support arm system.
Model No. see page 278.

Premium Line KL, protection category IP 69K
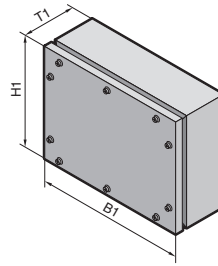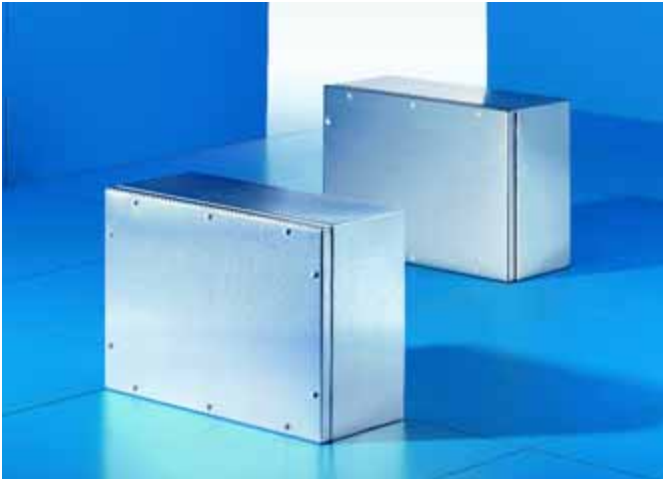
A new design, a new concept for the seal and lock
- **Resistant to high-pressure cleaning** (protection category IP 69K). The seal lies between two surfaces and is ideally compressed by the screw fastening (see detailed drawing, page 1119).
- **Suitable for clean room use.** Optional screw fastening to comply with high standards in the food and hygiene sectors:
  1 external with hex screws,
  2 internal with plastic stoppers.

- **Optimum EMC conditions.** The labyrinthine seal achieves a particularly high level of RF shielding of the enclosure.
- **Accessibility.** Internal rear panel bracket. This solution is clearly superior to external hinges from a hygiene point of view.
- Wall mounting can be implemented directly from the rear using M8 pull-in nuts, or from the front using wall mounting brackets.

Material:
Stainless steel 1.4301, 1.5 mm

Surface finish:
Brushed, grain 240

Protection category:
IP 69K to DIN 40 050-9/5.93

Rittal service:

Other sizes and other enclosures with this sealing concept are available on request. Cutouts and drilled holes to your specifications.

Detailed drawing, see page 1119.

Width (B1) in mm	Packs of	150	150	300	400	Page
Height (H1) in mm		150	150	200	300	
Depth (T1) in mm		80	120	120	120	
Model No. KL	1	**1024.010**	**1024.020**	**1024.030**	**1024.040**	
Number of lid screws		4	4	6	10	
Accessories						
Mounting plate	1	1024.910	1024.910	1024.920	1024.930	909
Wall mounting bracket	4	1594.000	1594.000	1594.000	1594.000	905
Wall angle	1	2583.000	2583.000	2583.000	2583.000	906
Rear panel bracket	2	6682.000	6682.000	6682.000	6682.000	893
Mounting brackets	1 set	1024.810	1024.810	1024.820	1024.830	909
Support rail TS 35/7.5	10	2314.000	2314.000	2316.000	2317.000	927

To order Premium Line KL in 1.4404 (AISI 316L), please add extension .5X0 to the Model No. Delivery times available on request.
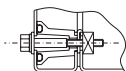
1 Depending on customer requirements, screw head on the outside . . .
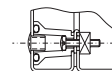
2 . . . or plastic stoppers on the outside with concealed screws (included in the supply).

Accessories Page 832

Stainless steel

Bus enclosure BG
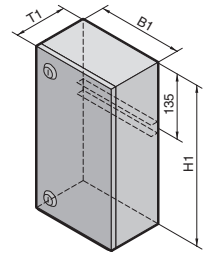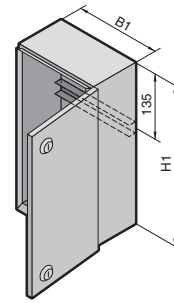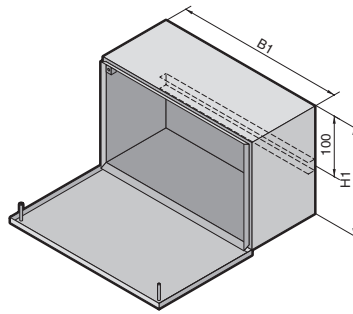
Material:
Stainless steel 1.4301
Enclosure: 1.25 mm
Cover: 1.25 mm
Hinges: Die-cast zinc

Surface finish:
Case and cover:
Brushed, grain 180
Hinges: Plated

Protection category:
IP 66 to EN 60 529/10.91,
complies with NEMA 4x.

Supply includes:
Enclosure with 1 support rail
TS 35/7.5
Cover with foamed-in seal
180° hinges
with quick-release fasteners.

BG 1558.010, BG 1559.010
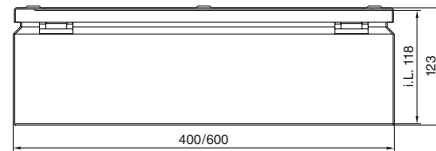
BG 1583.010, BG 1584.010, BG 1585.010
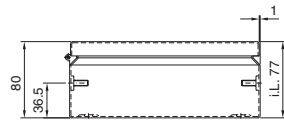
i.L. = Clearance width
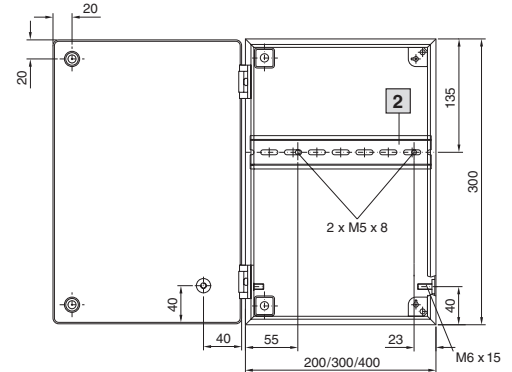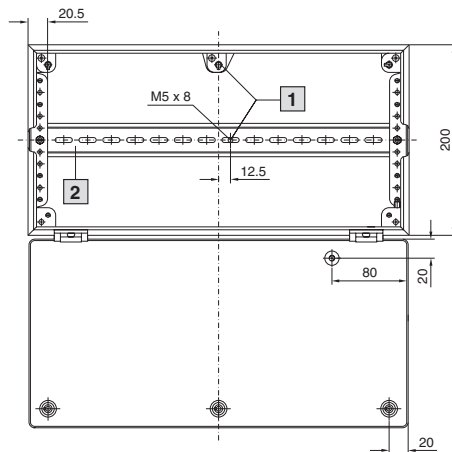
1 Only for BG 1559.010
2 Support rail TS 35/7.5

Width (B1) in mm	Packs of	200	300	400	400	600	Page
Height (H1) in mm		300	300	300	200	200	
Depth (T1) in mm		80	80	80	123	123	
Model No. BG	1	**1583.010[1]**	**1584.010[1]**	**1585.010[1]**	**1558.010[2]**	**1559.010[2]**	
Weight (kg)		2.8	3.7	4.5	4.5	6.0	
Accessories							
Wall mounting bracket	4	1594.000	1594.000	1594.000	1594.000	1594.000	905
Pole clamp	1	2584.000	2584.000	2584.000	2584.000	2584.000	906
Condensate discharge	6	2459.000	2459.000	2459.000	2459.000	2459.000	852

To order bus enclosures in 1.4404 (AISI 316L), please add extension .500 the the Model No. Delivery times available on request.
[1] Support rail attached to studs
[2] Support rail adjustable on profile strip

Wall mounting bracket
For secure attachment of enclo-sures.
Model No. see page 905.

EMC cable glands
with contact spring for optimum all-round contact.
Model No. see page 958.
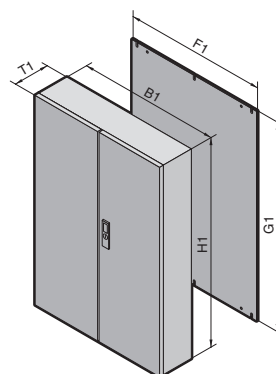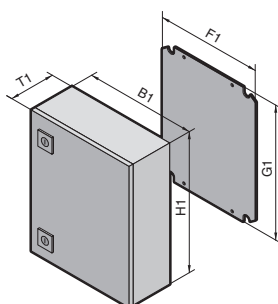
Material:
Stainless steel 1.4301
Enclosure and door:
Stainless steel
Mounting plate: Sheet steel
Cam lock: Die-cast zinc,
nickel-plated

Surface finish:
Enclosure and door:
Brushed, grain 180
Mounting plate: Zinc-plated

Protection category:
IP 66 to EN 60 529/10.91
for AE 1002.600 – AE 1017.600,
complies with NEMA 4x.
IP 55 to EN 60 529/10.91
for AE 1018.600/AE 1019.600,
complies with NEMA 12.

Supply includes:
Enclosure, door(s) with foamed-
in PU seal, mounting plate.

Approvals,
see page 26.

Detailed drawing,
see page 1120.

Width (B1) in mm	Packs of	200	380	300	380	500	500	380	Page
Height (H1) in mm		300	300	380	380	500	500	600	
Depth (T1) in mm		155	155	210	210	210	300	210	
Mounting plate width (F1) in mm		–	334	334	334	449	449	334	
Mounting plate height (G1) in mm		–	275	275	355	470	470	570	
Model No. AE	1	**1002.600**	**1004.600**	**1005.600**	**1006.600**	**1007.600**	**1013.600**	**1008.600**	
Door(s)		1	1	1	1	1	1	1	
Weight (kg)		4.5	8.8	8.7	12.0	18.4	18.9	17.0	
Accessories									
Rain canopy	1	2470.000	2471.000	2361.000	2472.000	2362.000	–	2472.000	899
Wall mounting bracket	4	2433.000	2433.000	2433.000	2433.000	2433.000	2433.000	2433.000	905
Wall angle	1	2583.000	2583.000	2583.000	2583.000	2583.000	2583.000	2583.000	906
Pole clamp	1	2584.000	2584.000	2584.000	2584.000	2584.000	2584.000	2584.000	906
Cam lock made from 1.4301	1	2304.000	2304.000	2304.000	2304.000	2304.000	2304.000	2304.000	887

Width (B1) in mm	Packs of	600	600	600	760	800	800	1000	1000	Page
Height (H1) in mm		380	600	760	760	1000	1200	1000	1200	
Depth (T1) in mm		210	210	210	300	300	300	300	300	
Mounting plate width (F1) in mm		549	549	549	704	739	–	939	–	
Mounting plate height (G1) in mm		355	570	730	730	955	–	955	–	
Model No. AE	1	**1009.600**	**1010.600**	**1012.600**	**1014.600**	**1016.600**	**1017.600**	**1018.600**	**1019.600**	
Door(s)		1	1	1	1	1	1	2	2	
Weight (kg)		17.0	25.0	31.7	42.5	52.9	70.0	71.0	85.0	
Accessories										
Rain canopy	1	2473.000	2473.000	2473.000	2474.000	2475.000	2475.000	2363.000	2363.000	899
Wall mounting bracket	4	2433.000	2433.000	2433.000	2433.000	2433.000	2433.000	2433.000	2433.000	905
Wall angle	1	2583.000	2583.000	2583.000	2583.000	2583.000	2583.000	2583.000	2583.000	906
Pole clamp	1	2584.000	2584.000	2584.000	–	–	–	–	–	906
Cam lock made from 1.4301	1	2304.000	2304.000	2304.000	2304.000	2304.000	–	–	–	887

Lock systems

Standard double-bit lock insert may be exchanged in enclosures with cam (except AE 1018.600/AE 1019.600) for lock inserts
41 mm, lock cylinder insert, plastic handles, T-handles, type C, see page 886 – 889.
With AE 1018.600, may only be exchanged for 41 mm lock inserts, see page 888.
For enclosures with locking rod, may be exchanged for 27 mm lock inserts, type A, see page 888 and Ergoform-S lock system, see page 885.

To order compact enclosures in 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.

Stainless steel

Premium Panel, protection category IP 69K
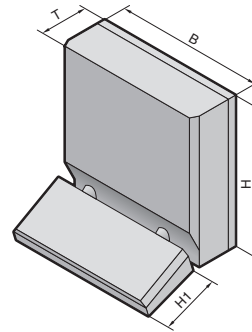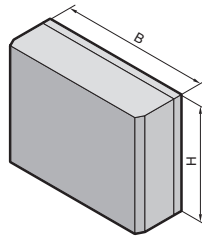
A new design, a new concept for the seal and lock
- **Resistant to high-pressure cleaning** (protection category IP 69K). The seal lies between two surfaces and is ideally compressed by the screw fastening (see detailed drawing).
- **Suitable for clean room use.** Screw fastening to meet high standards in the food and hygiene sectors. With plastic stoppers on the inside or hex screws on the outside.

- **Optimum EMC conditions.** The labyrinthine seal achieves a particularly high level of RF shielding of the enclosure.
- **Accessibility.** Internal rear panel bracket. This solution is clearly superior to external hinges from a hygiene point of view.
- **Handling.** Two duct connectors between the enclosures.

Material:
Stainless steel 1.4301

Surface finish:
Brushed, grain 240

Protection category:
IP 69K to DIN 40 050-9/5.93

Property rights:
German patent
No. 102 16 430

Detailed drawing,
see page 1121.

		Packs of	Premium Panel					
			With keyboard housing				Without keyboard housing	
Model No. CP		1	**6680.000**	**6680.010**	**6680.100**	**6680.110**	**6681.000**	**6681.100**
Width (B) in mm			530	530	530	530	530	530
Height in mm	Operating housing (H)		460	460	460	460	360	360
	Keyboard housing (H1)		200	200	200	200	–	–
Depth in mm	Operating housing (T)		120	120	220	220	120	220
For installation panel W x H	Operating housing		482.6 mm (19″) x 354.8 mm (8 U)				482.6 mm (19″) x 310 mm (7 U)	
	Keyboard housing		482.6 mm (19″) x 177 mm (4 U)				–	–
Installation depth mm	Operating housing		115	115	215	215	115	215
	Keyboard housing		front 58 rear 63	front 58 rear 63	front 58 rear 63	front 58 rear 63	–	–
Support arm connection			top	bottom	top	bottom	top, bottom by rotating the enclosure	
Accessories								
Rear panel bracket		2	6682.000	6682.000	6682.000	6682.000	6682.000	6682.000

To order the Premium Panel in stainless steel 1.4404 (AISI 316L), use Model No. CP XX5X.XXX. Delivery times available on request.

The **rear panel bracket** holds the rear panel in an open position.
Model No. see page 893.

Premium Panel with 17″ TFT.
Model No. see page 1046.

Command panel
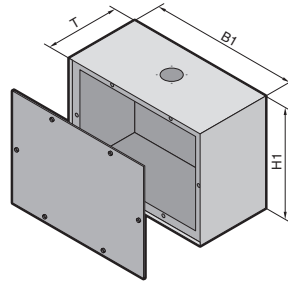
Two configuration options:
- Front panel screw-fastened at the front, recessed front panel installation for a high level of mechanical protection for the top-mounted equipment.
- Front panel as rear panel, additional handle strips from plastic approved for use with foodstuffs similar to RAL 5002 (ultramarine blue) available on request.

Material:
Stainless steel 1.4301
Enclosure: 1.25 mm
Front panel: 2.0 mm

Surface finish:
Brushed, grain 240

Protection category:
IP 65 to EN 60 529/10.91

Supply includes:
Enclosure with cutout and reinforcement for support arm system (see page 277), front panel or rear panel with seal and assembly parts.

Approvals,
see page 38.

Detailed drawing,
see page 1122.

Width (B1) in mm	Packs of	320	400	Page
Height (H1) in mm		240	320	
Depth (T) in mm		160	160	
Model No. CP	1	**6670.000**	**6672.000**	
Weight (kg)		5	8	
Accessories				
Mounting plate	1	1563.700	1567.700	909
Mounting plate	4	4532.000	4532.000	929
Mounting brackets	4	4597.000	4597.000	930
Support rail TS 35/7.5 SZ	10	2316.000	2316.000	927

To order the operating housing in stainless steel 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.

Handle strips
made from plastic approved for use with food, RAL 5002, on request.

Enclosure attachment CP-S, stainless steel
with prefitted screw for location. Model No. see page 278.

Accessories Page 832 **Support arm system CP-S stainless steel** Page 277

Stainless steel

Command panel housing with door
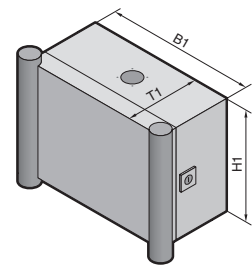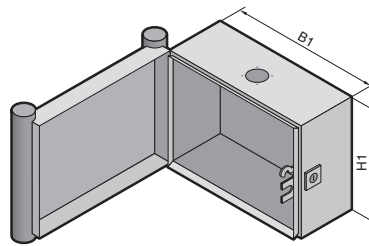
Material:
Enclosure and door:
Stainless steel 1.4301
Handle strips: Plastic approved
for use with foodstuffs, similar to
RAL 5002 (ultramarine blue).

Surface finish:
Brushed, grain 240

Protection category:
IP 66 to EN 60 529/10.91

Supply includes:
Enclosure of all-round solid
construction, with cutout and
reinforcement for support arm
system,
fastener with guide plate.
Door with sealing frame and
side handle strips.
The support arm connection and
door hinge may be swapped
over by rotating the enclosure.

Rittal service:

Separate keyboard housing,
other sizes,
modified support arm cutout or
door hinge,
holes and cutouts for switches
and operator panels
available on request.

Approvals,
see page 32.

Detailed drawing,
see page 1122.

Width (B1) in mm	Packs of	300	400	400	600	Page
Height (H1) in mm		300	300	400	400	
Depth (T1) in mm		150	150	150	150	
Model No. CP	1	**6535.010**	**6536.010**	**6538.010**	**6539.010**	
Weight (kg)		6.3	7.5	8.8	12.1	
Accessories						
Matching mounting plate from AE		1033.500	1030.500	1380.500	1039.500	118
ID no.		271926	274131	271548	271351	
Support rails[1] SZ **Model No. SZ**	10	2316.000	2317.000	2317.000	2319.000	927
Lock systems						
Standard double-bit lock insert may be exchanged for 41 mm lock inserts, plastic handle and T handle, type C, see page 886 – 888.						

To order the command panel housing with door in stainless steel 1.4404 (AISI 316L), please add extension .510 to the Model No.
Delivery times available on request.
[1] Only with vertical attachment of punched rail 23 x 23 mm, see page 925.

Semi-cylinder lock
for retro-fitting to all stainless
steel enclosures with cam lock.
Model No. see page 889.

Accessories Page 832 **Support arm system CP-S stainless steel** Page 277

Support arm system CP-S, stainless steel

In conjunction with stainless steel command panels, terminal boxes 120 mm deep and compact enclosures AE from stainless steel, this support arm system is particularly well-suited for meeting high standards of corrosion protection and hygiene.
The tilting adaptor and enclosure coupling may optionally be mounted on the top or bottom of the enclosure. **They are not suitable for use as the base point of a system.** For this purpose, we recommend wall/base mountings, or with larger heights and widths, an additional pillar made of steel tubing or stainless steel (available on request).

Material:
Stainless steel 1.4305

Protection category:
IP 69K to DIN 40 050-9/5.93
(resistant to high-pressure cleaning)

Load information:
see page 188.

IP 69 K

B

1.6

Stainless steel

Support section CP-S, stainless steel

Attachment to the connecting components with 2 clamping screws.

Dimensions:
External diameter: 48.3 mm
Wall thickness: 3.6 mm

Material:
Stainless steel 1.4301

Surface finish:
Brushed, grain 240

Other sizes possible on request according to specifications.

Order example:
U-shaped = CP 6660.200
Dimension A = 300 mm
Dimension B = 800 mm
Dimension C = 240 mm

The minimum dimensions must be adhered to, because of the bending radius and insertion depth of the enclosure attachment, housing coupling and wall/base mountings.

Straight
$A_{min.}$ = 100 mm,
A_{max} = 2000 mm
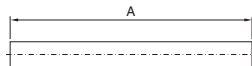
A mm	Weight kg	Model No. CP
500	2.0	**6660.050**
1000	3.9	**6660.010**
2000	7.8	**6660.020**
To specifications A =	3.9 kg/m	**6660.000[1]**

[1] Extended delivery times.

L-shaped
$A_{min.}$ = $B_{min.}$ = 240 mm,
$B_{max.}$ = 1500 mm
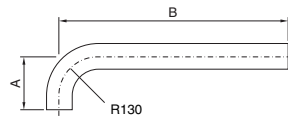
A mm	B mm	Weight kg	Model No. CP
240	500	2.6	**6660.110**
500	1000	5.5	**6660.120**
To specifications A =	To specifications B =	3.9 kg/m	**6660.100[1]**

[1] Extended delivery times.

U-shaped
$A_{min.}$ = $C_{min.}$ = 240 mm,
$B_{min.}$ = 410 mm,
$B_{max.}$ = 1500 mm
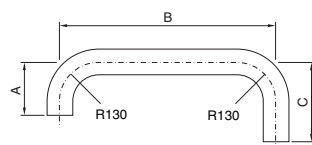
A mm	B mm	C mm	Weight kg	Model No. CP
240	800	800	6.6	**6660.210**
240	500	500	4.3	**6660.220**
To specifications A =	To specifications B =	To specifications C =	3.9 kg/m	**6660.200[1]**

[1] Extended delivery times.

Stainless steel

Support arm system CP-S

Tilting adaptor, 10° CP-S stainless steel

For mounting between the command panel and
- Enclosure attachment CP 6664.500
  or
- Housing coupling CP 6664.000

Material:
Stainless steel 1.4305

Weight kg	Model No. CP
0.7	**6664.100**

Supply includes:
Seal and assembly parts.

Mounting cutout
Enclosure

84 40 30 49 15 10°

40 5.5 49
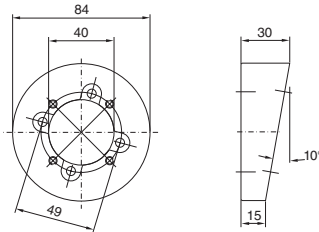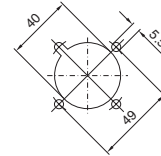
Enclosure attachment CP-S stainless steel

For rigid fastening of the enclosure to the support section.

Material:
Stainless steel 1.4305

Supply includes:
Seals and 2 clamping screws for support section CP-S, stainless steel.

Note:
For assembly of a pedestal, modular, see page 281, 2 pieces are required.

Weight kg	Model No. CP
1.3	**6664.500**

➕ **Accessories:**

Enclosure reinforcement, see page 281.

Ø 48.3 31 52 Ø 40 Ø 84
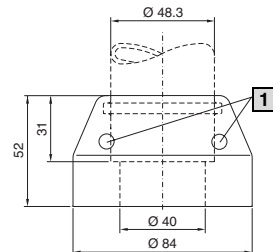
1 Clamping screw

Mounting cutout
for pedestal, bottom

Ø 9 Ø 40 Ø 62

Mounting cutout
enclosure

40 5.5 49
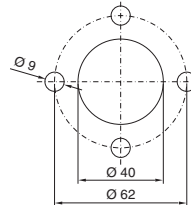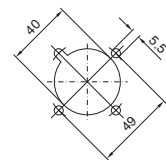
Housing coupling CP-S stainless steel

For mounting on the vertical part of the support arm system.

Rotation range:
Approx. 350°, lockable via knurled screw.

Material:
Stainless steel 1.4305

Supply includes:
Seals and 2 clamping screws for support section CP-S, stainless steel.

Weight kg	Model No. CP
1.1	**6664.000**

➕ **Accessories:**

Enclosure reinforcement, see page 281.

Ø 48.3 53 30 23 Ø 40 Ø 84

Mounting cutout
enclosure

40 5.5 49
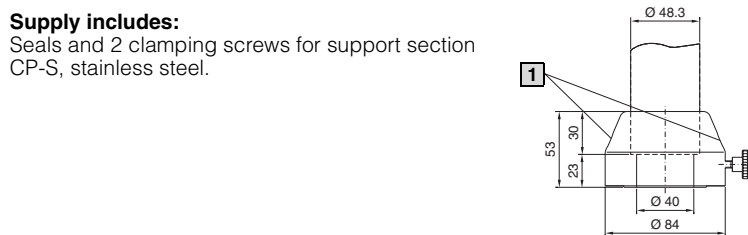
1 Clamping screw
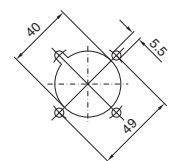
Support arm system CP-S

Wall/base mounting, rigid, CP-S stainless steel

For attaching the support arm system to vertical or horizontal surfaces.

Material:
Stainless steel 1.4305

Supply includes:
Seals, 3 adjusting screws to compensate for any irregularities, and 2 clamping screws for support section CP-S, stainless steel.

Weight kg	Model No. CP
1.7	**6663.000**

+ Accessories:

Wall consoles,
see page 280.

B

1.6

Stainless steel

Mounting cutout

65 · 110 · 42 · Ø 48.3 · 3 · 20 · 9 / M8 · 90 · 42 – 50
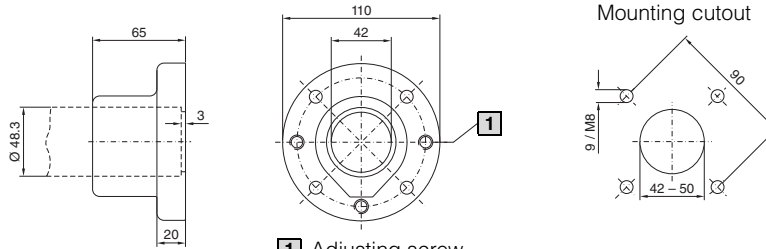
1 Adjusting screw

Swivel base mount, CP-S stainless steel

For external mounting on
● Horizontal surfaces (suspended or top-mounted)
● Wall console (CP 6663.500 only)

Rotation range:
Approx. 350°, lockable via knurled screw.

Material:
Stainless steel 1.4305

Supply includes:
Seals and 2 clamping screws for support section CP-S, stainless steel.

Note:
Rotation range may be limited in 60° increments using a limit plate, supplied loose.

Attachment		Weight kg	Model No. CP
1	rear, M8 thread	3.9	**6663.500**
2	front, hole Ø 9 mm	4.5	**6663.400**

+ Accessories:

Wall consoles for base attachment
CP 6663.500,
see page 280.

1 Rear attachment CP 6663.500

Ø 48.3 · 48 · 111 · M8 · Ø 40 · M8 · Ø 110

Mounting cutout
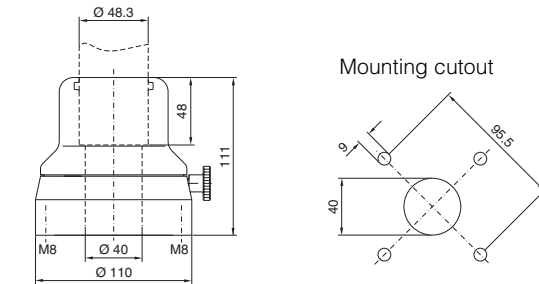
9 · 95.5 · 40
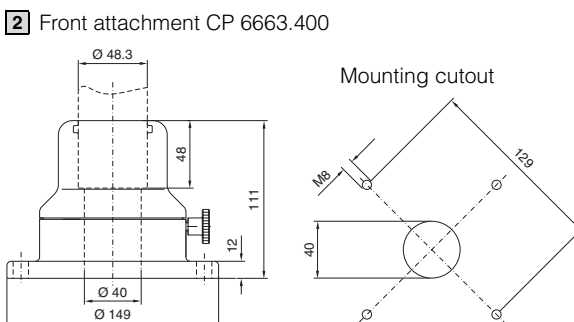
2 Front attachment CP 6663.400

Ø 48.3 · 48 · 111 · 12 · Ø 40 · Ø 149

Mounting cutout

M8 · 129 · 40

Stainless steel

Support arm system CP-S

1

1

2

2
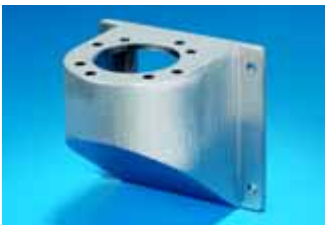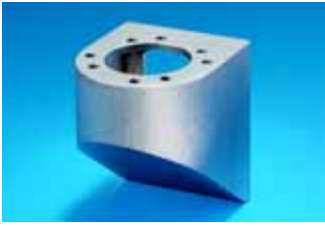
Wall console CP-S stainless steel

With holes for mounting
- Base mount, swivel, CP-S
  (CP 6663.500), with 4 screws
- Wall/base mount, rigid, CP-S
  (CP 6663.000), with 4 screws and nuts

Material:
Stainless steel 1.4301

Surface finish:
Brushed, grain 240

Supply includes:
Seals and assembly parts.

1 Rear attachment, M8 thread

2 Front, hole Ø 9 mm

Attachment	Weight kg	Model No. CP
rear, M8 thread	1.5	**6665.000**
front, hole Ø 9 mm	1.8	**6665.500**

Rear fastening

129
52
71
144

Mounting cutout

3
71
116
70
116
M8
M8

90
105
100
70
9
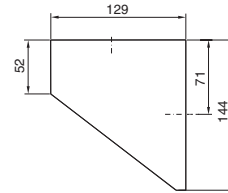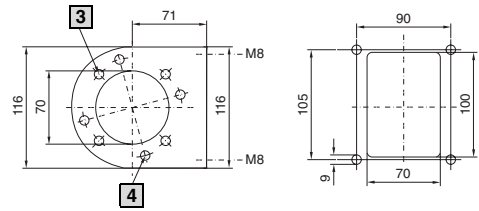
3 Hole for PG 6663.000
4 Hole for PG 6663.500

Front fastening

129
52
71
144

Mounting cutout

3
71
116
70
160

140
105
100
M8
70

7.5
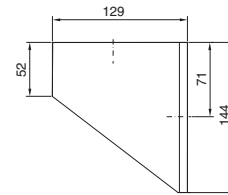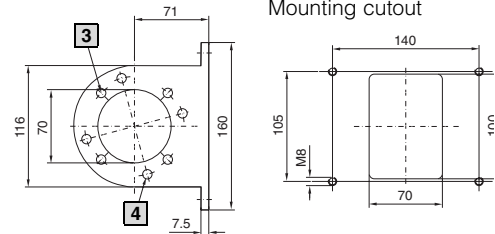
3 Hole for PG 6663.000
4 Hole for PG 6663.500
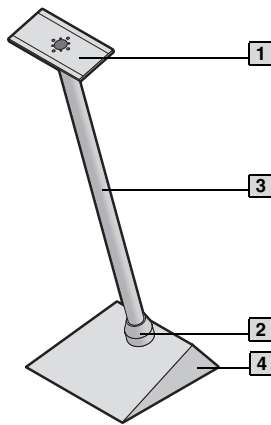
Pedestal, modular, CP-S stainless steel

For the configuration of compact operating stations.

May be compiled from the following modules:	Model No. CP	Page
1 Enclosure reinforcement	**6143.310**	281
2 2 enclosure attachments top/bottom	**6664.500**	278
3 Support section, straight (may be shortened to required length by sawing)		
500 mm	**6660.050**	277
1000 mm	**6660.010**	277
2000 mm	**6660.020**	277
4 Pedestal base plate, small	**6143.300**	281

Detailed drawing,
see page 1123.

B

1.6

Stainless steel

Enclosure reinforcement CP-S stainless steel

For external or internal reinforcement of stainless steel enclosures of a corresponding size. Smaller enclosures may also be mounted directly without a flange.

For use with
- Enclosure attachment CP 6664.500
- Housing coupling CP 6664.000

Material:
Stainless steel 1.4301

Surface finish:
Brushed

Supply includes:
Assembly parts for the enclosure and support section plus 2 seals.

Packs of	Model No. CP
1	**6143.310**

+ Accessories:

Enclosure attachment CP 6664.500, see page 278.
Housing coupling CP 6664.000, see page 278.
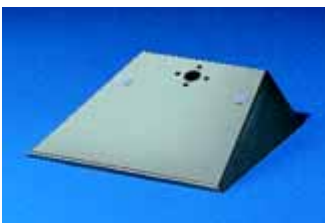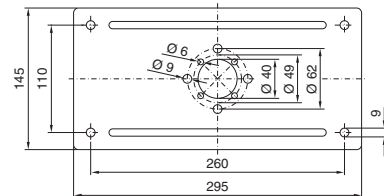
Pedestal base plate, small

With reinforcement bracket for assembling a support section via an enclosure attachment.

- With one hole at the rear for commercially available cable conduit gland M20.
- With two holes at the top (including sealing bung) for lower base attachment cross member.
- Prepared on the inside for a cable clamp DK 7077.000 or DK 7078.000 for strain relief.

Material:
Stainless steel 1.4301

Surface finish:
Brushed

Packs of	Model No. CP
1	**6143.300**

Supply includes:
Assembly parts for enclosure attachment plus seal.

Note:
Commercially available screws up to M8 may be used for floor attachment.

+ Accessories:

Cable clamp DK 7077.000 or DK 7078.000, see page 981.

Stainless steel

One-piece consoles AP
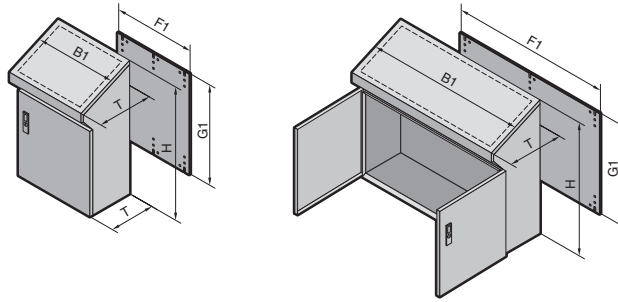
Material:
Stainless steel 1.4301
Enclosure: 1.5 mm
Door or double door and
console lid: 2.0 mm
Mounting plate:
3.0 mm sheet steel

Surface finish:
Enclosure, door and console lid:
Brushed, grain 120
Mounting plate: Zinc-plated

Protection category:
IP 55 to EN 60 529/10.91,
complies with NEMA 12.

Supply includes:
Enclosure, solid rear and sides,
door or double door at front,
with locking rod,
console lid with lid stay and
stainless steel cam latched in
the enclosure,
two-piece gland plate,
mounting plate, zinc-plated,
passivated.

Approvals,
see page 36.

Detailed drawing,
see page 1118.

Width (B1) in mm	Packs of	600	800	1000	1200	Page
Height (H) in mm		960	960	960	960	
Depth (T) in mm		400/480	400/480	400/480	400/480	
Mounting plate width (F1) in mm		530	730	930	1130	
Mounting plate height (G1) in mm		780	780	780	780	
Model No. AP	1	**2683.600**	**2684.600**	**2685.600**	**2686.600**	
Door(s)		1	1	2	2	
Weight (kg)		52.0	65.2	79.5	90.3	
Accessories						
Base/plinth — Height 100 mm	1	2865.000	2869.000	2867.000	2870.000	844
Base/plinth — Height 200 mm	1	2875.000	2878.000	2885.000	2886.000	844

Lock systems

Standard double-bit lock insert of the locking rod may be exchanged for 27 mm lock inserts, type A, see page 888
and Ergoform-S lock system, see page 885.

To order one-piece consoles in stainless steel 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.

Wall console, stainless steel
mounted on the rear panel for an
additional operating housing.
Model No. see page 280.

Cable gland, brass.
Model No. see page 972.

B

1.6

Stainless steel
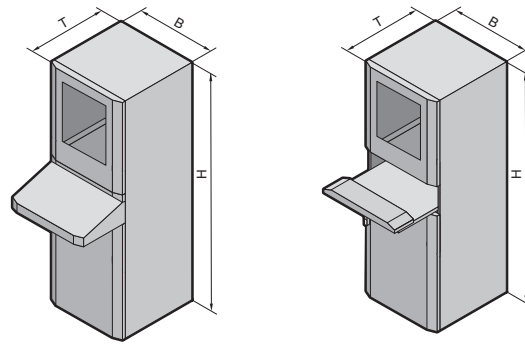
PC 4650.000
with keyboard drawer
● Lock insert,
  lock no. 3524 E
● Swing-down front for handrest
● Mousepad support (also
  suitable for IP 67 mouse),
  may optionally be used on
  the left or right
● Hinged cable support

PC 4650.704
with desk section
● Cover plate top and bottom
● Designer strip made from
  plastic approved for use with
  foodstuffs

Material:
Stainless steel 1.4301
Enclosure:
10-fold profiled, 1.8 mm
Rear door: 2.0 mm
Gland plates: 1.5 mm
Monitor field with single-panel
safety glass for screen diagonal
482.6 mm (19″).

Surface finish:
Brushed, grain 240

Protection category:
IP 55 to EN 60 529,
complies with NEMA 12.

Supply includes:
see page 1123.

Available on request:
● PC enclosure system
  with mounting compartment,
  large and drawer
● PC enclosure system
  with drawer
● PC enclosure system
  with desk section

Approvals,
see page 34.

Detailed drawing,
see page 1123.
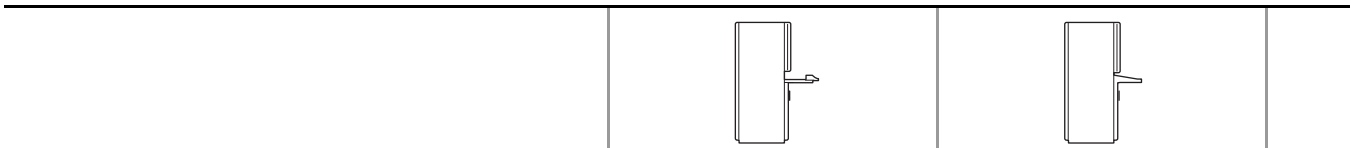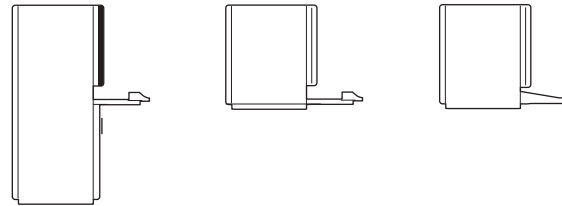
Version			1 With keyboard drawer	2 With desk section	Page
Width (B) in mm			600	600	
Height (H) in mm			1600	1600	
Depth (T) in mm			620	620	
Model No. PC		1	**4650.000**	**4650.704**	
Weight (kg)			115	123	
Accessories					
Base/plinth	Height 100 mm	1	2855.000	2855.000	844
	Height 200 mm	1	2877.000	2877.000	844
Levelling feet, 100 mm high		1 set	2859.000	2859.000	848
Base/plinth trim, modular		4	2913.000	2913.000	841
Adaptor sections 482.6 mm (19″)		4	4632.000	4632.000	1003
Adaptor pieces 482.6 mm (19″)		8	4547.000	4547.000	1004
Lock systems					

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888, or lock cylinder inserts, type B, see page 889.
Lower and rear door prepared for installation of the Ergoform-S lock system, see page 885.

To order enclosures in stainless steel 1.4404 (AISI 316L), please add extension .50X the the Model No. Delivery times available on request.

Stainless steel

Baying systems TS 8
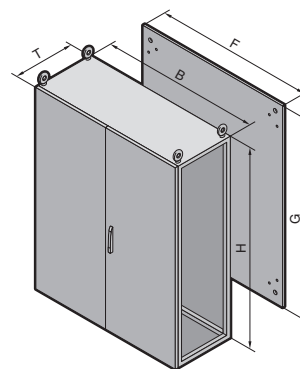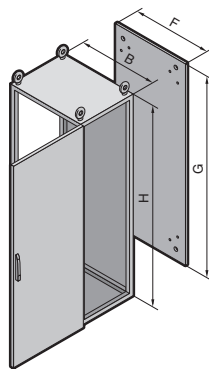
Material:
Stainless steel 1.4301:
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door(s): 2.0 mm
Mounting plate:
Sheet steel, 3.0 mm

Surface finish:
Enclosure frame and gland
plates: Bare
Door, roof and rear panel:
Brushed on the outside,
grain size 240
Mounting plate: Zinc-plated

Protection category:
IP 55 to EN 60 529/10.91,
complies with NEMA 12.

Supply includes:
Enclosure frame with door(s),
mounting plate, gland plates,
rear panel and roof, 2 support
strips fitted in the enclosure
depth (only with depth 600 mm).

Note:
Due to the hardness of the
material, we recommend using
metal hexagon socket screw
SZ 2486.300, see page 937,
for the interior installation.

Approvals,
see page 29.

Detailed drawing,
see page 1091.

Rittal service:

TS stainless steel (1.4301)
available in protection category
NEMA 4x on request – please
add extension .640 to the
Model No.

Width (B) in mm	Packs of	800	1200	600	800	1200	600	800	1200	Page
Height (H) in mm		1800	1800	1800	1800	1800	2000	2000	2000	
Depth (T) in mm		400	400	500	500	500	600	600	600	
Mounting plate width (F) in mm		699	1099	499	699	1099	499	699	1099	
Mounting plate height (G) in mm		1696	1696	1696	1696	1696	1896	1896	1896	
Model No. TS	1	**8454.600**	**8456.600**	**8457.600**	**8455.600**	**8453.600**	**8452.600**	**8450.600**	**8451.600**	
Door(s)		1	2	1	1	2	1	1	2	
Weight (kg)		112.9	170.4	92.5	116.3	174.9	104.4	129.7	194.7	
Walls										
Side panels	2	8700.840	8700.840	8700.850	8700.850	8700.850	8700.060	8700.060	8700.060	853
Divider panel	1	8609.840	8609.840	8609.850	8609.850	8609.850	8609.060	8609.060	8609.060	857
Divider panel for module plates	1	–	–	8609.100	8609.100	8609.100	8609.130	8609.130	8609.130	858
Base/plinth										
Components front and rear	Height 100 mm	1 set	8701.800	8701.200	8701.600	8701.800	8701.200	8701.600	8701.800	8701.200	841
	Height 200 mm	1 set	8702.800	8702.200	8702.600	8702.800	8702.200	8702.600	8702.800	8702.200	841
Trim panels (sides)	Height 100 mm	1 set	8701.040	8701.040	8701.050	8701.050	8701.050	8701.060	8701.060	8701.060	841
	Height 200 mm	1 set	8702.040	8702.040	8702.050	8702.050	8702.050	8702.060	8702.060	8702.060	841
Base/plinth trim, modular	4	2907.000	2907.000	2908.000	2908.000	2908.000	2913.000	2913.000	2913.000	841
Accessories										
Cable clamp rails	2	4192.000	4196.000	4191.000	4192.000	4196.000	4191.000	4192.000	4196.000	979
Cable entry plates	2	8700.800	8700.120[1]	8700.600	8700.800	8700.120[1]	8700.600	8700.800	8700.120[1]	964
Wiring plan pocket, sheet steel	1	4118.000	4116.000	4116.000	4118.000	4116.000	4116.000	4118.000	4116.000	898
Lock systems										
Standard double-bit lock insert may be exchanged for other inserts and comfort handle, see page 881/888.										

To order enclosures in stainless steel 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.
[1] Packs of 4

Snap-on nut
for screw-fastening to the
vertical section with a thread.
Model No. see page 931.

Cable trunking, vertical,
sized to the section and
horizontally on the mounting
plate.
Model No. see page 977.

Free-standing enclosures ES 5000
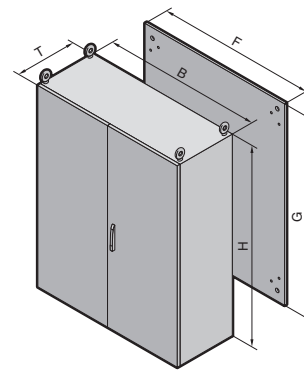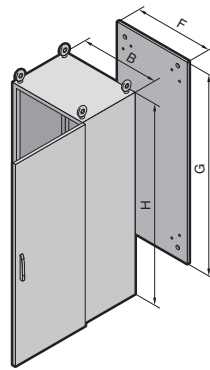
Material:
Stainless steel 1.4301
Enclosure: 1.8 mm
Door(s): 2.0 mm
Rear panel: 1.5 mm
Mounting plate:
3.0 mm sheet steel

Surface finish:
Enclosure, rear panel and doors:
Brushed, grain 240
Mounting plate: Zinc-plated

Protection category:
IP 56 to EN 60 529/10.91
(single-door ES),
IP 55 to EN 60 529/10.91
(double-door ES),
complies with NEMA 12.

Supply includes:
Enclosure, solid top and sides,
removable rear panel,
r/h door hinge,
may be swapped to opposite
side, except ES 5455.600;
130° hinges,
mounting plate,
three-piece gland plates.

Note:
Due to the hardness of the
material, we recommend using
metal hexagon socket screw
SZ 2486.300 for the interior
installation, see page 937.

Approvals,
see page 28.

Detailed drawing,
see page 1089.

Width (B) in mm	Packs of	600	600	800	800	1000	1200	Page
Height (H) in mm		1600	1800	1800	2000	1800	2000	
Depth (T) in mm		400	500	500	600	400	500	
Mounting plate width (F) in mm		499	499	699	699	899	1099	
Mounting plate height (G) in mm		1496	1696	1696	1896	1696	1896	
Model No. ES	1	**5450.600**	**5451.600**	**5452.600**	**5453.600**	**5454.600**	**5455.600**	
Door(s)		1	1	1	1	1	2	
Eyebolts		2	2	2	2	4	4	
Weight (kg)		92.5	169.6	131.8	154.0	146.9	205.4	
Accessories								
Base/plinth	Height 100 mm	1	2865.000	2868.000	2866.000	2856.000	2867.000	2860.000	844
	Height 200 mm	1	2875.000	2876.000	2879.000	2880.000	2885.000	2887.000	844
Base/plinth trim, modular		4	2907.000	2908.000	2908.000	2913.000	2907.000	2908.000	841
System support rails		2	4361.000	4361.000	4362.000	4362.000	4347.000	4363.000	926
Cable clamp rails		2	4191.000	4191.000	4192.000	4192.000	4336.000	4196.000	979
Mounting bars		20	4596.000	4596.000	4598.000	4598.000	4599.000	4596.000	895
Utility lectern		1	4638.600	4638.600	4638.800	4638.800	–	4638.600	896
Wiring plan pockets		1	4116.000	4116.000	4118.000	4118.000	4124.000	4116.000	898

Lock systems

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888, and Ergoform-S lock system, see page 885.

To order enclosures in stainless steel 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.

Cable gland, brass,
nickel-plated in IP 68
(5 bar, 30 min),
Model No. see page 972.

Signal pillar LED compact,
Model No. see page 1041.

Accessories Page 832 **ES 5000 sheet steel** Page 136 **ES 5000 EMC-shielded** Page 291

Ex enclosures

Features

Under ATEX, the requirements placed on Ex enclosures for use in explosion hazard atmospheres are high. For this reason, Rittal refuses to compromise in this area. Enclosure concepts proven a million times over are tailored to the specific Ex requirements. The results is a series of empty enclosures providing ideal conditions for applications in the chemicals and petrochemicals industries, in the offshore sector and in the foods industry.

Baying systems TS 8 prepared for Ex pressurisation, see page 152.

| Rittal Ex enclosures | Individual Ex equipment | Signing-off by a test institute |
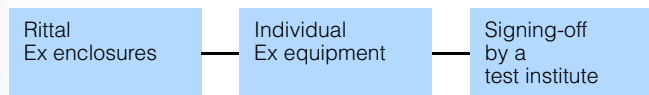
Ex enclosures, stainless steel
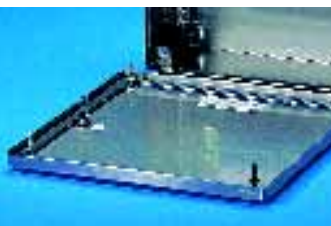
Based on KL
with screw-fastened cover and profile strips with mounting holes on both sides of the enclosure for the attachment of support rails or mounting plate.

Based on AE
with hinged door, cam lock and mounting plate made from sheet steel, zinc-plated.

Blind threaded bushes M8 in the rear panel for wall mounting and side panel for **external connection of a PE conductor.**

Ex enclosures, plastic

Double seal on top and/or bottom edges of the door thanks to additional, integral rain protection strip.

Attachment from the outside with **wall mounting bracket** 9266.000 into the threaded inserts M8 x 15.

Moulded **bosses** in the door for the attachment of cable routing.
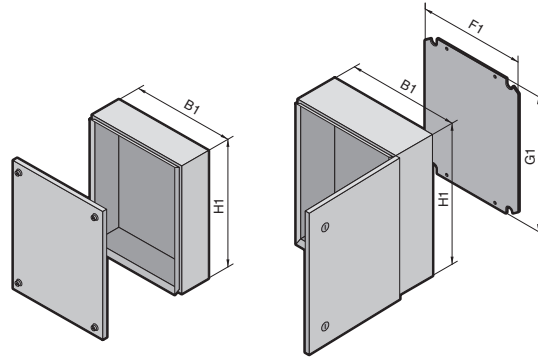
With screw-fastened lid

Material:
Stainless steel 1.4301

Surface finish:
Brushed, grain 240

Protection category:
IP 66 to EN 60 529/10.91

Supply includes:
Enclosure, lid with all-round foamed-in PU seal.

Certificates:
PTB 03 ATEX 1013U

With hinged door

Material:
Stainless steel 1.4301
Mounting plate: Sheet steel

Surface finish:
Brushed, grain 240
Mounting plate: Zinc-plated

Protection category:
IP 66 to EN 60 529/10.91

Supply includes:
Enclosure, door with all-round foamed-in PU seal, mounting plate.

Certificates:
PTB 02 ATEX 1082U

Approvals,
see page 38.

Detailed drawing,
see page 1119 – 1120.

With screw-fastened lid

	Packs of	150	200	300	300	300	400	Page
Width (B1) in mm		150	200	300	300	300	400	Page
Height (H1) in mm		150	200	150	200	300	200	
Depth in mm		80	80	80	80	120	120	
Model No. KEL	1	**9301.000**	**9303.000**	**9302.000**	**9304.000**	**9306.000**	**9305.000**	
Weight (kg)		1.3	1.8	1.8	2.4	3.9	3.6	
Accessories								
Mounting plates		1560.700	1562.700	1561.700	1563.700	1567.700	1564.700	909

To order Ex enclosures in stainless steel 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.

With hinged door

|	Packs of	200	300	380	380	380	600	600	760	800
Width (B1) in mm		200	300	380	380	380	600	600	760	800
Height (H1) in mm		300	380	300	380	600	600	760	760	1000
Depth in mm		155	210	155	210	210	210	210	300	300
Mounting plate width (F1) in mm		162	334	334	334	334	549	549	704	739
Mounting plate height (G1) in mm		275	275	275	355	570	570	730	730	955
Model No. KEL	1	**9401.600**	**9409.600**	**9402.600**	**9403.600**	**9404.600**	**9405.600**	**9406.600**	**9407.600**	**9408.600**
Number of fasteners		1	1	1	1	2	2	2	2	2
Weight (kg)		3.8	7.7	7.4	9.7	13.3	15.6	22.3	30.5	36.3

To order Ex enclosures in stainless steel 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.
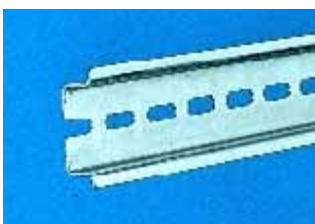
Support rails
in matching sizes,
Model No. see page 927.

Wall mounting bracket,
Model No. see page 905.

Accessories Page 832 **Cable entry** Page 964

Ex enclosures

Plastic
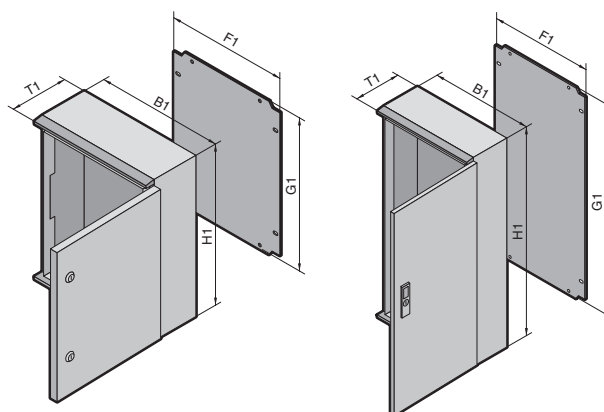
Material:
Enclosure: Fibreglass-reinforced unsaturated polyester.
Surface resistance: < 10^9 Ω
Mounting plate:
Sheet steel, zinc-plated, passivated

Colour:
RAL 9011

Protection category:
IP 66 to EN 60 529/10.91
KEL 9209.600:
IP 56 to EN 60 529/10.91

Supply includes:
Enclosure, door with all-round foamed-in PU seal, mounting plate.

Certificates:
PTB 03 ATEX 1011U

Approvals,
see page 38.

Detailed drawing,
see page 1087 – 1088.

Width (B1) in mm	Packs of	200	250	300	400	400	500	600	600	800
Height (H1) in mm		300	350	400	400	600	500	600	800	1000
Depth (T1) in mm		150	150	200	200	200	300	200	300	300
Mounting plate width (F1) in mm		145	195	245	345	345	417	545	517	717
Mounting plate height (G1) in mm		250	300	350	350	550	450	550	750	950
Model No. KEL	1	**9201.600**	**9202.600**	**9203.600**	**9204.600**	**9205.600**	**9207.600**	**9206.600**	**9208.600**	**9209.600**
Number of cams		1	1	2	2	2	2	2	1)	1)
Weight (kg)		3.7	4.6	6.0	6.5	11.5	12.9	15.9	24.3	39.0

1) 3-point lock system.

Wall mounting bracket,
Model No. see page 905.

Baying system TS 8,
prepared for EX pressurisation,
Model No. see page 152.

Accessories Page 832 **Cable entry** Page 964

Features

Forward-thinking EMC planning is crucial for the permanent functioning of sensitive electronics.

Electromagnetic compatibility is required of your product. For this reason, our EMC specialists will support you with expert assistance and advice. We can help you to effectively prevent both the inlet and outlet of interference fields into and from enclosures.

B

1.8

EMC
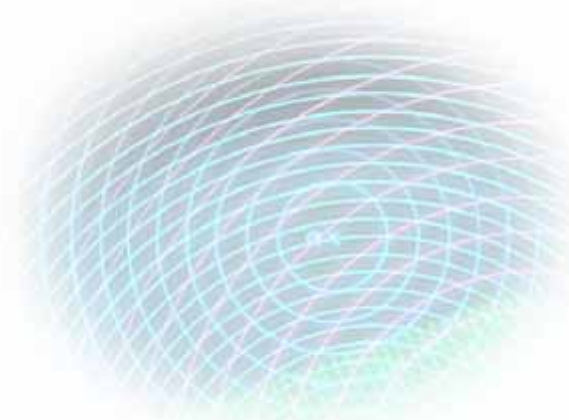
EMC enclosures and cases

EMC enclosures: Gland plates are deliberately omitted in order to achieve a high shielding effect.

EMC baying system: Frame made from sheet steel with an aluminium zinc surface finish. EMC/IP combination seals ensure slot-free all-round contact.

EMC free-standing enclosures: Solid top and sides. EMC/IP seals are attached to the door, rear panel and gland plate.

EMC subracks and systems

Ripac rack-mounted systems for CPCI and VMEbus, complete with power supply, backplane, climate control, EMC and ESD protection.
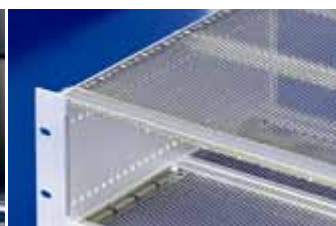
Ripac Vario EMC: Vibration and shock-tested subracks equipped for EMC-compatible installation.
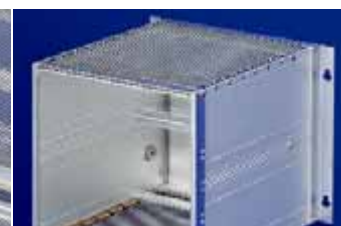
Ripac Compact and Ripac Vario Mobil: The EMC specialists for mounting on top-hat rails, mounting plates, or for use in rail vehicles.

EMC electronic enlcosures
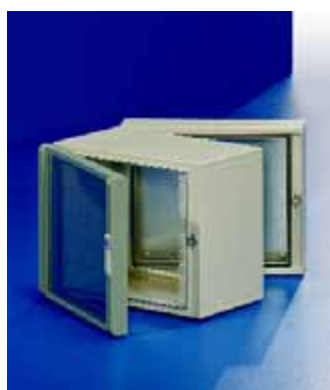
Electronic Kombi systems EL: Front door with EMC safety glass, hinged centre part, solid wall unit.

Low-resistance connection between the glazed door and conductive sealing edge ensures a high shielding effect.

Instrument case Vario-Case iS: The plastic base and cover tray are aluminium-coated.

EMC enclosures

The Rittal EMC concept

Rittal offers excellent pre-requisites for EMC enclosure configurations in the form of its standard sheet steel enclosures, EMC-shielded enclosures, and a practical range of EMC accessories.
Even the standard enclosures offer a good shielding effect against electrical fields which is sufficient for many applications.

Be it closely intermeshed potential equalisation in a standard enclosure to prevent line-bound interference, or extra shielding to protect against high-frequency electromagnetic fields – everything is possible, to suit the individual application.
The large enclosures in the TS 8 series offer "good" shielding, even in the standard version.

For Rittal EMC enclosures with a high level of shielding, excellent attenuation levels and attractive value-for-money products are achieved on the basis of zinc-plated metal surfaces in conjunction with low-resistance EMC shields.
According to EMC legislation, CE labelling is only compulsory for (active) equipment and systems.
Empty enclosures are not subject to the EMC Directive because these are passive components which cannot be furnished with a declaration of conformity with regard to EMC standards.

EMC terminal boxes KL

Material/surface finish:
Sheet steel with aluminium zinc coating, powder-coated on the outside in RAL 7035, interior surfaces conductive.

Protection category:
IP 55 to EN 60 529/10.91.
The EMC version ("high RF attenuation") has been certified by the VDE.

Supply includes:
Enclosure, cover with special seal and cover screws.

Width mm	Height mm	Depth mm	Model No. KL
300	300	120	**1507.750**

Other sizes available on request.

Approvals,
see page 39.

EMC diagram,
see page 293.

EMC E-Box EB

Material/surface finish:
Sheet steel with aluminium zinc coating, powder-coated on the outside in RAL 7035, interior surfaces conductive.

Protection category:
IP 55 to EN 60 529/10.91.
The EMC version ("high RF attenuation") has been certified by the VDE.

Supply includes:
Enclosure with mounting plate, door with special seal including 180° hinge and cam lock with double-bit insert.

Note:
All sizes available on request.

EMC diagram,
see page 293.

EMC compact enclosures AE

Material/surface finish:
Sheet steel with aluminium zinc coating, powder-coated on the outside in RAL 7035, interior surfaces conductive.

Protection category:
IP 55 to EN 60 529/10.91.
The EMC version ("high RF attenuation") has been certified by the VDE.

Supply includes:
Enclosure with mounting plate, door with special seal (130° hinge) including cam lock with double-bit insert.

Width mm	Height mm	Depth mm	Model No. AE
380	380	210	**1380.750**
600	380	210	**1039.750**
600	600	210	**1060.750**
800	1000	300	**1180.750**

Other sizes available on request.

Approvals,
see page 39.

EMC diagram,
see page 293.

EMC baying systems TS 8

Material:
Sheet steel with aluminium zinc coating
Door: 2.0 mm
Rear panel: 1.5 mm
Mounting plate: 3.0 mm

Surface finish:
Framework, door, rear panel and roof plate of
sheet steel with an aluminium zinc coating,
spray-finished on the outside in RAL 7035 and
unpainted on the inside.

Protection category:
IP 55 to EN 60 529/10.91.
The EMC version ("high RF attenuation") has been
certified by the VDE.

Supply includes:
Enclosure frame with door,
rear panel and roof plate removable,
r/h door hinge, may be swapped to opposite side,
4 eyebolts, fitted,
mounting plate,
three-piece gland plates.

Note:
All sizes and side panels
available on request.

Property rights:
European patent no. 0 857 406
with validity for
CH, ES, FR, GB, IT, NL, SE
US patent no. 6,384,323
Japanese patent no. P 3 193 059

Also required:
EMC baying seal TS 8800.690,
see page 959, with bayed enclosure suites.

Approvals,
see page 293.

EMC diagram,
see page 293.

EMC free-standing enclosure ES 5000

Material:
Sheet steel with aluminium zinc coating
Enclosure body: 10-fold profiled
Door: 2.0 mm
Rear panel: 1.5 mm
Mounting plate: 3.0 mm

Surface finish:
Enclosure body, door and rear panel of sheet
steel with aluminium zinc coating,
painted in RAL 7035 on the outside and unpainted
on the inside.

Protection category:
IP 55 to EN 60 529/10.91.
The EMC version ("high RF attenuation") has been
certified by the VDE.

Supply includes:
Enclosure, solid top and sides, removable rear
panel,
r/h door hinge, may be swapped to opposite side,
2 eyebolts, not fitted,
mounting plate,
three-piece gland plates.

Note:
All sizes available on request.

Approvals,
see page 293.

EMC diagram,
see page 293.
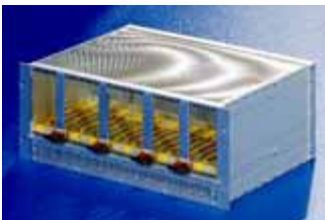
EMC subracks Ripac Vario

The Ripac Vario EMC subrack system was devel-
oped with consideration for EMC aspects. The
subracks are equipped with a conductive surface
finish and may be supplemented with additional
EMC components such as springs and extru-
sions. This allows individual EMC requirements to
be met, depending on the specific application in
question.

Technical specifications:
Overall depth:
245, 285, 305, 345, 405, 465, 525, 585 mm
Installation width: 84 HP
Height: 3 U, 4 U, 6 U, 7 U, 9 U

Testing:
Vibration and shock-tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards:
Ripac Vario subracks are based on the system
dimensions to IEC 60 297-3/-5.

Material:
Side panels: 2.5 mm aluminium
Gland plates and horizontal rails:
Extruded aluminium section
Cover plates: Aluminium

Surface finish:
Clear-chromated

Note:
For further information,
see page 491.

EMC diagram,
see page 293.

EMC enclosures
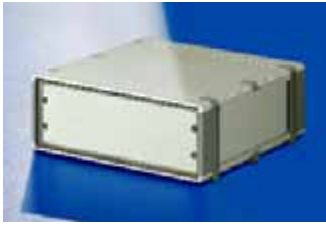
EMC instrument case Vario-Case iS

Instrument case for slide-in equipment, 482.6 mm (19″) and modular assemblies.
Width: 534 mm

Material:
Side panels:
Extruded aluminium section, chromated on the inside, painted on the outside
Cover trays:
Plastic to UL 94-V0 (self-extinguishing), with a conductive coating on the inside
Rear panel: 2 mm aluminium, clear-chromated
Front panel: 2 mm aluminium, clear-chromated

Surface finish:
Clear-chromated/spray-finished, RAL 7030/7035

Supply includes:
2 plastic cover trays,
8 enclosure feet (12 with 400 mm depth),
2 side panels,
1 rear panel,
1 front panel,
4 mounting flanges, 482.6 mm (19″),
4 tapped strips,
4 untapped strips,
assembly parts.

HP	U	Height mm	Depth mm	Model No. VC
84	4	208.10	300	**3743.700**
84	7	341.40	400	**3774.700**
84	3	163.65	300	**3733.700**
84	3	163.65	400	**3734.700**
84	6	297.00	400	**3764.700**
84	6	297.00	500	**3765.700**
84	9	430.50	500	**3795.700**

Delivery times available on request.

EMC diagram,
see page 293.

EMC electronic Kombi system EL, 3-part

Material:
Wall unit and centre part:
1.5 mm sheet steel, yellow-passivated on the inside
Mounting plate:
2.75 mm sheet steel
Front door:
Extruded aluminium section, die-cast aluminium corner connectors, 4 mm safety glass, with EMC mesh.

Surface finish:
Textured stove enamel,
enclosure RAL 7035,
interior surfaces zinc-plated and passivated,
door frame RAL 7033.

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
1 wall unit, solid,
2 gland plates, solid,
1 centre part, vertically hinged,
2 mounting angles, 482.6 mm (19″), fitted,
1 mounting plate, zinc-plated,
1 front door with EMC safety glass.

U	Width mm	Height mm	Depth mm	Model No. EL
3	600	212	415	**2243.705**
6	600	345	415	**2246.705**
9	600	478	415	**2249.705**
6	600	345	515	**2256.705**
9	600	478	515	**2259.705**
15	600	746	515	**2265.705**
21	600	1012	515	**2271.705**

Delivery times available on request.

Approvals,
see page 293.

EMC diagram,
see page 293.

EMC terminal boxes KL Page 290
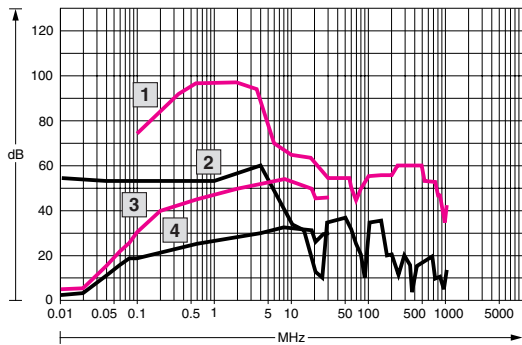
EMC free-standing enclosure ES 5000 Page 291
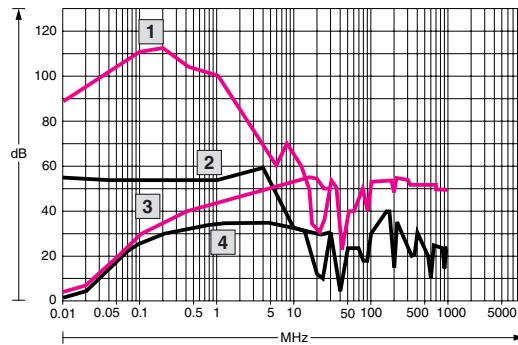
MHz = Frequency
dB = RF attenuation

1 E field = Electrical field [V/m] EMC enclosures

2 E field standard enclosures

3 H field = Magnetic field [A/m] EMC enclosures

4 H field standard enclosures

B

1.8

EMC enclosures

EMC E box EB Page 290
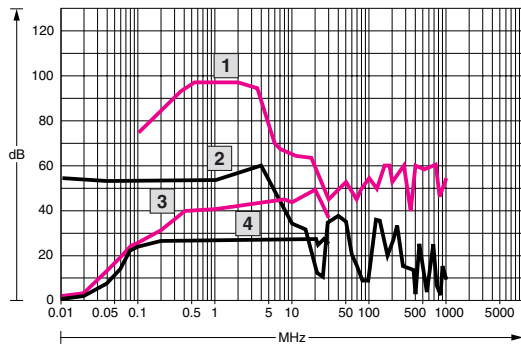
EMC subrack Ripac Vario Page 291
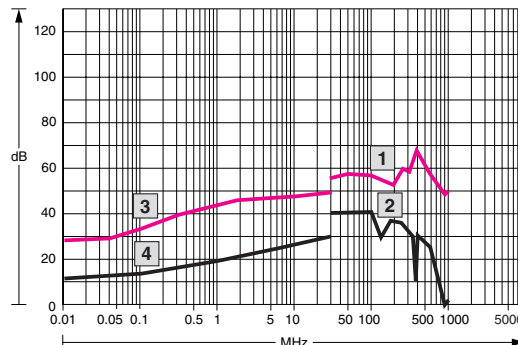
EMC compact enclosures AE Page 290
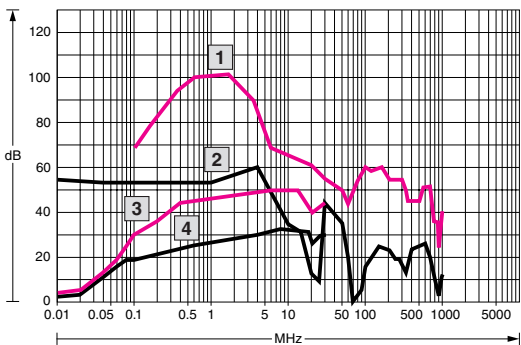
EMC electronic Kombi system EL, 3-part Page 292
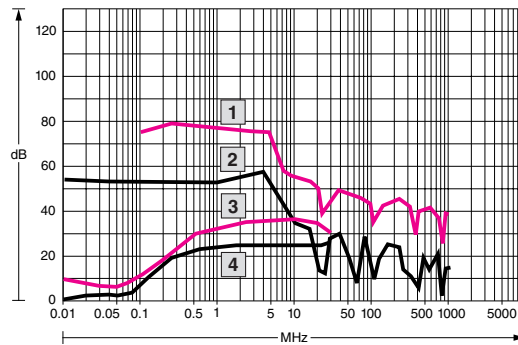
EMC baying systems TS 8 Page 291
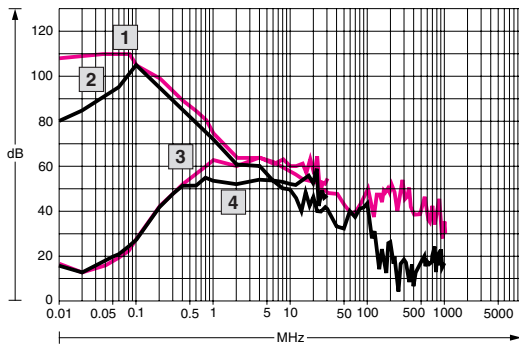
EMC instrument case Vario-Case iS Page 292
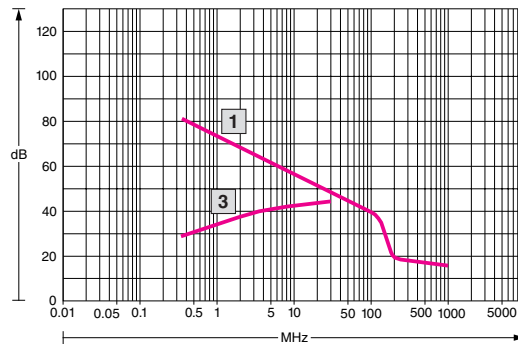
Approvals:

EMC terminal boxes KL
- UL
- CSA
- TÜV
- Norske Veritas
- Lloyds Register of Shipping
- VDE

EMC baying systems TS 8
- UL – Underwriters Laboratories Inc. For USA and Canada

EMC free-standing enclosure ES 5000
- UL
- CSA

EMC electronic Kombi system EL, 3-part
- TÜV
- Norske Veritas
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping

- VDE
- UL – Underwriters Laboratories Inc. For USA and Canada

Modular enclosure technology

Features

Trumpf, Phönix, Siemens and Rittal are collaborating on a new concept for mechanical and plant engineering.

Rittal supplies cases and enclosures with mounting plates that are specially perforated for module technology.

This helps to significantly reduce design, assembly and throughput times. The full range of modules is available from our partners. In addition, function modules for power supply and for the monitoring of climate control units are currently under development.

More rational, simpler and more secure is the outcome of this new, multi-functional modular system.

Please contact us for further information.

Modules

Function module, machine-neutral, standardised unit, pre-assembled on a module plate. In case of malfunctions, quickly replaced by the user.

A standardised mechnical interface is provided by the module plate. It is simply located into the modular pitch pattern of holes of the mounting plate.

Standardised electrical inter-faces are pre-configured, multi-pole bus cables. No need for time-consuming point-to-point wiring and cable ducts.

Enclosures and cases
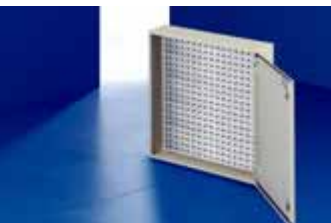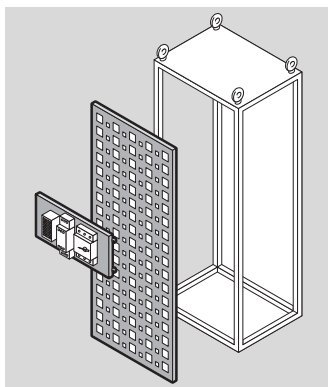
Compact enclosures AE
Mounting plate with modular pitch pattern of holes.
Design, see page 295.

Baying systems TS 8
Mounting plate with modular pitch pattern of holes.
Design, see page 295.
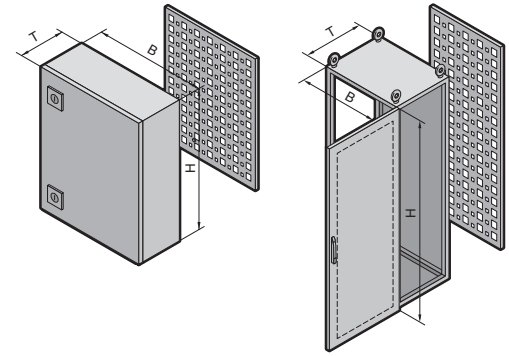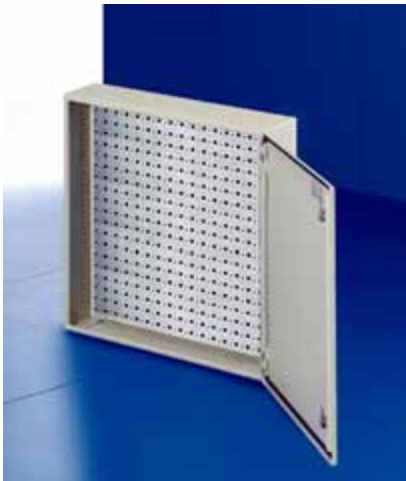
Material:
Sheet steel

Surface finish, protection category, supply scope and technical details for

Compact enclosures AE, see from page 118.

Baying systems TS 8, see from page 138.

Compact enclosures AE

Width (B) in mm	Packs of	380	380	380	400	500	500	500	600	600
Height (H) in mm		380	600	600	500	500	500	700	380	380
Depth (T) in mm		210	210	350	210	210	300	250	210	350
Model No. AE	1	**1380.100**	**1038.100**	**1338.100**	**1045.100**	**1050.100**	**1350.100**	**1057.100**	**1039.100**	**1339.100**

Width (B) in mm	Packs of	600	600	600	600	600	600	600	760	760
Height (H) in mm		600	600	760	760	800	1000	1200	760	760
Depth (T) in mm		210	350	210	350	250	250	300	210	300
Model No. AE	1	**1060.100**	**1360.100**	**1076.100**	**1376.100**	**1058.100**	**1090.100**	**1260.100**	**1077.100**	**1073.100**

Width (B) in mm	Packs of	800	800	1000	1000	1000	1000	1000		
Height (H) in mm		1000	1200	760	760	1000	1200	1400		
Depth (T) in mm		300	300	210	300	300	300	300		
Model No. AE	1	**1180.100**	**1280.100**	**1100.100**[1]	**1130.100**[1]	**1110.100**[1]	**1213.100**[1]	**1114.100**[1]		

[1] Two-door

Baying systems TS 8

Width (B) in mm	Packs of	600	800	1200	600	800	1200	600	800	1000
Height (H) in mm		1400	1400	1400	1600	1600	1600	1800	1800	1800
Depth (T) in mm		500	500	500	500	500	500	400	400	400
Door(s)		1	1	2	1	1	2	1	1	1
Model No. TS	1	**8645.100**	**8845.100**	**8245.100**	**8665.100**	**8865.100**	**8265.100**	**8684.100**	**8884.100**	**8084.100**

Width (B) in mm	Packs of	1000	1200	600	800	800	1200	600	800	800
Height (H) in mm		1800	1800	1800	1800	1800	1800	1800	1800	1800
Depth (T) in mm		400	400	500	500	500	500	600	600	600
Door(s)		2	2	1	2	1	2	1	1	2
Model No.	1	**8080.100**	**8284.100**	**8685.100**	**8880.100**	**8885.100**	**8285.100**	**8686.100**	**8886.100**	**8881.100**

Width (B) in mm	Packs of	1200	600	800	1200	600	800	1000	1200	600
Height (H) in mm		1800	2000	2000	2000	2000	2000	2000	2000	2000
Depth (T) in mm		600	400	400	400	500	500	500	500	600
Door(s)		2	1	1	2	1	1	2	2	1
Model No. TS	1	**8286.100**	**8604.100**	**8804.100**	**8204.100**	**8605.100**	**8805.100**	**8005.100**	**8205.100**	**8606.100**

Width (B) in mm	Packs of	800	1000	1200	600	800	1200	600	800	1200
Height (H) in mm		2000	2000	2000	2000	2000	2000	2200	2200	2200
Depth (T) in mm		600	600	600	800	800	800	600	600	600
Door(s)		1	2	2	1	1	2	1	1	2
Model No. TS	1	**8806.100**	**8006.100**	**8206.100**	**8608.100**	**8808.100**	**8208.100**	**8626.100**	**8826.100**	**8226.100**

Accessories Page 832 **AE stainless steel** Page 273 **AE EMC-shielded** Page 290 **AE Ex-proof** Page 287
TS 8 stainless steel Page 284 **TS 8 EMC-shielded** Page 291 **TS 8 climate controlled enclosure** Page 582 **TS 8 climate control doors** Page 584

Industrial networking

Ethernet infrastructure for production buildings

Building cabling to standard EN 50 173, based on the office sector model, is moving into the production halls. This standardisation of the Ethernet infrastructure simplifies plant modifications, integrates terminal workstations and employee information systems via a plug-in connection, connects machinery and plant to a central monitoring system, and much more besides . . . The successful concept: **Improved efficiency and superior reliability** through information exchange, process coordination and safety monitoring.

Fascinating future!

Ethernet goes factory! Cabling of industrial buildings

to standard EN 50 173 (ISO/IEC 11801).

Ethernet infrastructure for production buildings

A concept with innovative enclosures and a comprehensive range of system accessories for outstanding implementation of industrial networks.

For the main distributor: Our extensive rack expertise from the office sector comes into play here.

For sub-distribution: Modified enclosures from the AE and KL series with a protection category tailored to industrial use, equipped with or without patch panel, cable routing supports and cable entry.

Terminal connection boxes: Made from die-cast aluminium in protection category IP 67.

When it comes to future-oriented solutions for modern low-voltage power distribution, you are most definitely on the right track with **Rittal busbar systems.**

Take this example showing the cross-section of a power circuit-breaker panel with main busbar system, cable connection system and connection kits. Achieved with Rittal Maxi-PLS, the modular system for optimum fast assembly.

RITTAL®

Power distribution

Busbar systems   From page   300

Rittal Maxi-PLS   From page   366

ISV distribution enclosure   From page   408

B
2.

Power distribution

Busbar systems up to 250 A (40 mm)

Overview of Rittal Mini-PLS

The Rittal Mini-PLS busbar system with 40 mm bar centre distance is sure to impress, with its unique use of space and fast assembly.

● High static and thermal load capacity thanks to the T-support form of the special rail

● The components are simply plugged in from the front

● Busbar support suitable for top mounting

● Contact hazard protection thanks to all-round accommodation (end cover, base tray and cover section)

System components

Mini-PLS end cover
Mini-PLS base tray section

Mini-PLS busbar supports
up to 250 A, 3-pole

Mini-PLS special busbars E-Cu
250 A, 120 mm²

Mini-PLS busbar connectors
up to 250 A
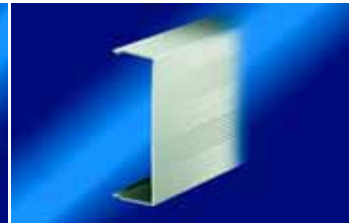
Mini-PLS cover sections

Compact
● The special busbars are simply pushed into the one-piece support and locked into position.
● Unrestricted top mounting of the busbar supports and busbar connector sets with top-mounting components.
● Precise-fit installation, because the build height (160 mm) matches the installation space requirement exactly.
● Simple component assembly via plug and lock action from the front.

Assembly components

Mini-PLS busbar connection
adaptor up to 63 A and
up to 250 A

Mini-PLS bus-mounting fuse
base D 02-E 18

Mini-PLS component adaptor
12/25/40/100 A

Mini-PLS quick-fit component
adaptor 25 A (32 A)

NH on-load isolators,
size 000

Overview

- Busbar support including inserts for flat copper rails

- 40 mm bar centre distance

- All-round contact hazard protection identical to the

  Rittal Mini-PLS

- Busbar cover sections may be used as an alternative.
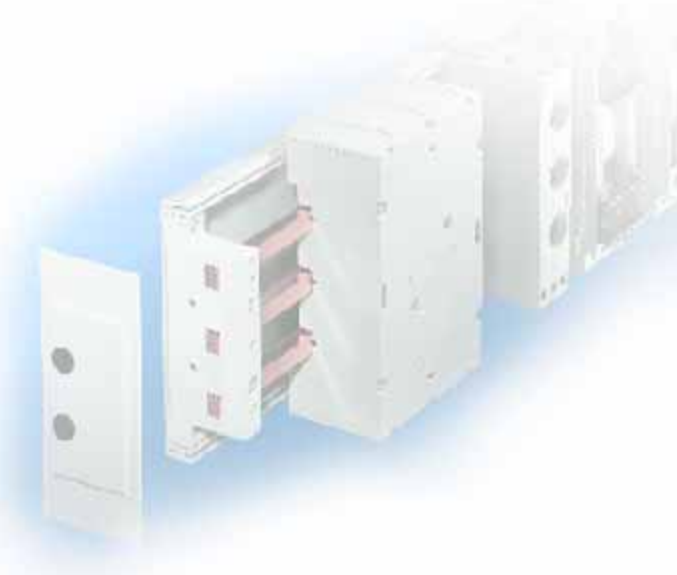
System components

End cover

Base tray sections

Busbar support
up to 360 A, 3-pole

Busbars of E-Cu
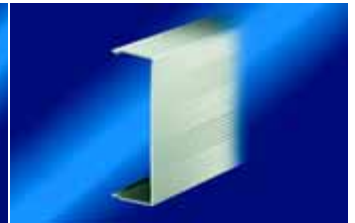
Busbar cover sections

Cost-effective
- The inserts pre-integrated into the busbar support facilitate the bar accommodation of 12 x 5, 12 x 10 and 15 x 5 mm. Without these inserts, the maximum bar cross-section of 15 x 10 mm is used.
- Simple component assembly via insertion and/or snap-mounting.
- End cover, base tray section and cover section are identical to the Mini-PLS contact hazard protection.

Assembly components

Cover sections

Connection adaptor
up to 360 A

Bus-mounting fuse base
D 02-E-18

Multi-functional component
adaptor 12/25/40 A

Component adaptor 100 A

NH on-load isolators,
size 000

Busbar systems up to 250 A (40 mm)
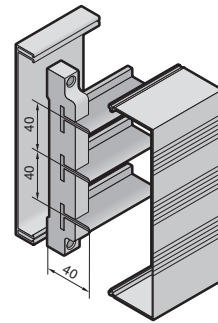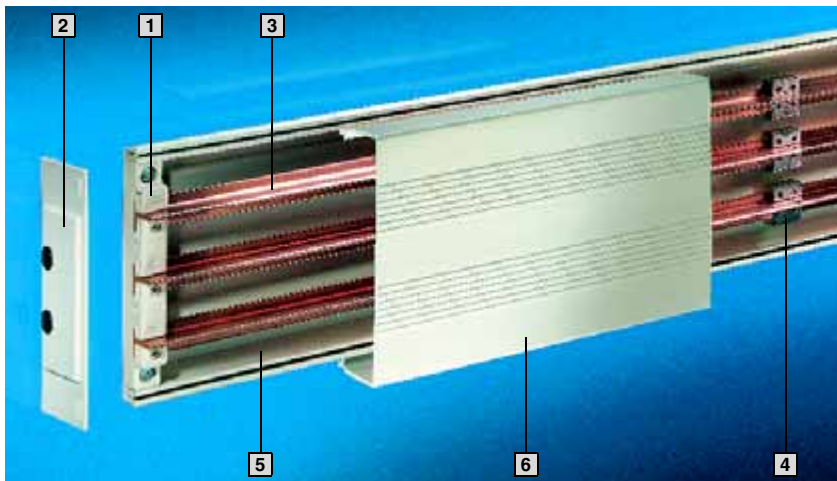
Rittal Mini-PLS
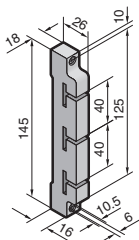
1 Mini-PLS busbar support

Material:
Polyamide (PA 6.6), 30 % fibreglass-reinforced.
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Short-circuit protection diagram,
see page 1124.

Rated current up to	250 A
Rated operating voltage up to	690 V~, 50/60 Hz to VDE 0660
Number of poles	3-pole
Bar centre distance	40 mm
Packs of	4
Model No. SV	**9600.000**

2 Mini-PLS end cover

For side contact hazard protection of the Mini-PLS assembly. For simple clip-on mounting on SV 9600.000.

Packs of	Model No. SV
2	**9610.000**
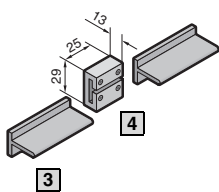
3 Mini-PLS special busbars

E-Cu 250 A, 120 mm²
3 mm bar thickness.

Length mm	Packs of	Model No. SV
500	3	**9601.000**
700	3	**9602.000**
1100	3	**9603.000**
1500	3	**9624.000**

4 Mini-PLS busbar connectors

up to 250 A
For connecting Mini-PLS special busbars;
no drilling required.
Maximum tightening torque 2 Nm.

Packs of	Model No. SV
3	**9611.000**
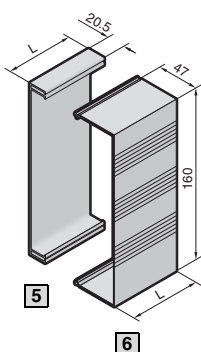
5 Mini-PLS base tray sections

For rear contact hazard protection of the Mini-PLS assembly.

Length (L) mm	Packs of	Model No. SV
250	1	**9604.000**
500	1	**9605.000**
700	1	**9606.000**
1100	1	**9607.000**

6 Mini-PLS cover sections

May be cut to length individually; for clip-on mounting onto the Mini-PLS base tray section.

Length (L) mm	Packs of	Model No. SV
250	1	**9608.000**
500	1	**9609.000**

Material
Base tray and cover sections:
Thermally modified hard PVC.
Continuous operating temperature: max. 100°C.
Fire protection corresponding to UL 94-V0.

Mini-PLS busbar connection adaptor
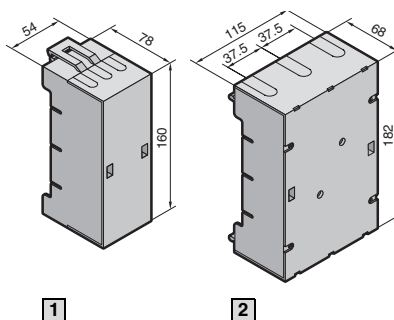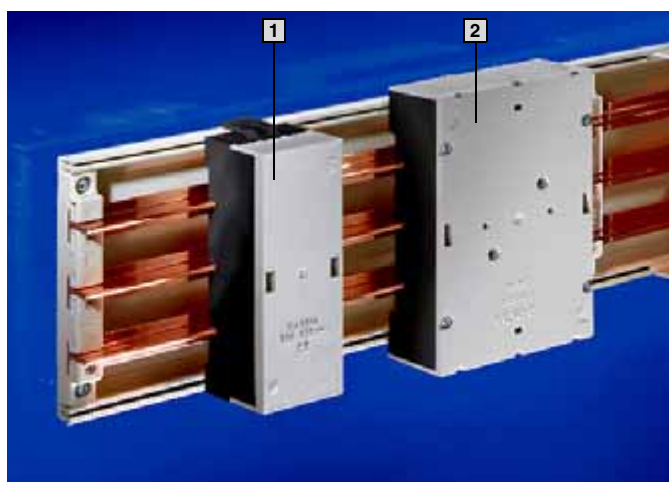
Material:
Polyamide (PA 6.6),
30% fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Supply includes:
Cover.

Version	1	2	Page
Rated current up to	63 A	250 A	
Rated operating voltage	690 V~	690 V~	
Connection	top/bottom	top/bottom	
Connection of round conductors[1]	1.5 – 35 mm²	10 – 120 mm²	
Clamping area for laminated copper bars	10 x 8 mm	17 x 15 mm	
Tightening torque ● Terminal screw	2 – 3 Nm	4 – 6 Nm	
Packs of	1	1	
Model No. SV	**9613.000**	**9612.000**	
Accessories			
Laminated copper bars	■	■	361

[1] Wire end ferrules should be used with fine wire conductors.

Mini-PLS component adaptors 12 A/25 A

Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Note:
The current carrying capacity of
the supply cables fitted as
standard can be found on
page 1128.

Version		1			2		3		4	5	6	Page
Construction width	A	45 mm			54 mm		72 mm		90 mm	99 mm	108 mm	
	B	–			–		–		45 mm	–	54 mm	
Rated current up to		12 A	25 A	25 A	25 A	25 A	25 A	25 A	25 A	25 A	25 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	top	top	top	top	top	top	
Connection cables[1]		AWG 14	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12	
Support rails	Quantity	1	1	1	1	1	1	1	1	1	1	
	Height	7.5 mm	7.5 mm	15 mm	7.5 mm	15 mm	7.5 mm	15 mm	7.5 mm	15 mm	7.5 mm	
Packs of		1	1	1	1	1	1	1	1	1	1	
Model No. SV		**9614.110**	**9614.100**	**9615.100**	**9614.000**	**9615.000**	**9625.000**	**9626.000**	**9629.010**	**9629.020**	**9629.030**	

For power circuit-breakers/starter combinations
Make

	1			2		3		4	5	6	
ABB	–	■	■	■	■	–	–	–	–	–	
AEG	–	■	■	■	■	–	–	–	–	–	
Allen Bradley	–	■	■	–	–	–	–	■	–	–	
Moeller Electric	–	■	■	–	■	■	■	■	–	■	1128
Siemens	■	■	■	–	■	–	–	■	■	–	
Telemecanique	–	■	■	–	–	–	■	■	–	■	
Universal application	■	■	■	■	■	■	■	■	■	■	

Accessories	Packs of											
Insert strip	2	9623.000	9623.000	9623.000	9623.000	9623.000	9623.000	9623.000	9623.000	9623.000	9623.000	362
Support rails, width 45 mm, height 7.5 mm	10	9320.150	9320.150	9320.150	–	–	–	–	9320.150	9320.150	–	362
Support rails, width 54 mm, height 7.5 mm	10	–	–	–	3548.000	3548.000	–	–	–	3548.000	3548.000	362
Support rails, width 72 mm, height 7.5 mm	10	–	–	–	–	–	3549.000	3549.000	–	–	–	362
Plug-in connector	1	9623.100	9623.100	9623.100	9623.100	9623.100	–	–	9623.100	9623.100	9623.100	362

[1] AWG = American Wire Gauges
AWG 14 = 2.08 mm² ≙ 2.5 mm²
AWG 12 = 3.31 mm² ≙ 4 mm²
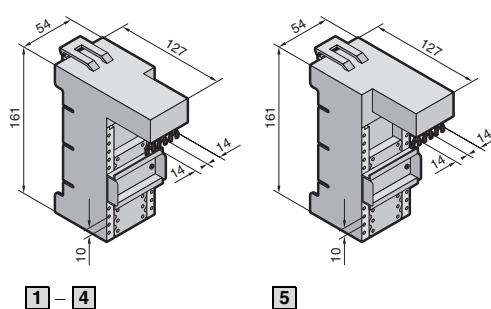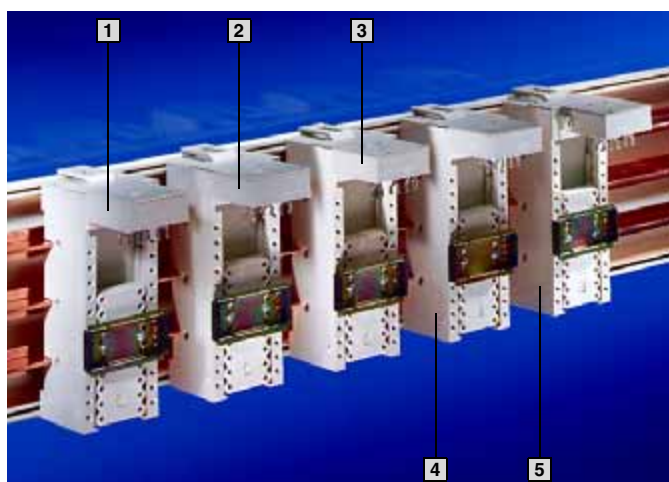
Rapid DIN rail adjustment for component connection.

Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Version		1	2	3	4	5	Page
Construction width		54 mm	54 mm	54 mm	54 mm	54 mm	
Rated current up to		25 A at 35°C ambient temperature 32 A at 25°C ambient temperature					
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	
Support rails	Quantity	1	1	1	1	1	
	Height	7.5 mm	7.5 mm	7.5 mm	7.5 mm	7.5 mm	
Packs of		1	1	1	1	1	
Model No. SV		**9618.000**	**9619.000**	**9620.000**	**9621.000**	**9622.000**	
For power circuit-breakers/starter combinations Make							
ABB		–	–	–	–	■	
AEG		■	–	–	–	–	
Allen Bradley		–	–	■	–	–	
General Electric		■	–	–	–	–	
Moeller Electric		–	■	■	–	–	1128
Siemens		–	–	–	–	■	
Schiele		■	–	–	–	–	
Telemecanique		–	–	–	■	■	
Universal application		■	■	■	■	■	
Accessories	Packs of						
Insert strip	2	9623.000	9623.000	9623.000	9623.000	9623.000	362

Busbar systems up to 250 A (40 mm)
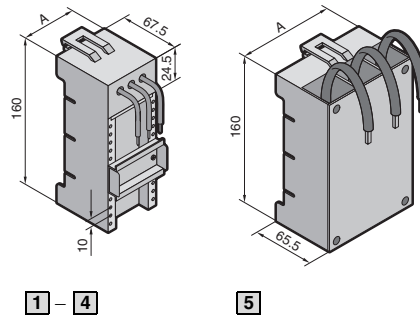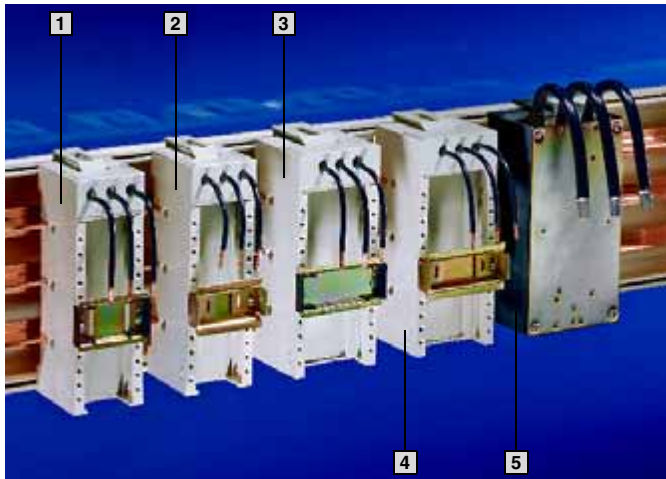
B

2.1

Mini-PLS component adaptors 40 A/100 A

Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Note:
The current carrying capacity
of the supply cables fitted as
standard can be found on
page 1128.

Version		1	2	3	4	5	Page
Construction width (A)		54 mm	54 mm	72 mm	72 mm	90 mm	
Rated current up to		40 A	40 A	40 A	40 A	100 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	top	
Connection cables[1]		AWG 10	AWG 10	AWG 10	AWG 10	35 mm²	
Support rails	Quantity	1	1	1	1	–	
	Height	7.5 mm	15 mm	7.5 mm	15 mm	–	
Packs of		1	1	1	1	1	
Model No. SV		**9616.000**	**9617.000**	**9627.000**	**9628.000**	**9629.000**	

For power circuit-breakers/starter combinations

Make		1	2	3	4	5	
ABB		–	■	–	–	■	
AEG		–	–	–	–	■	
Allen Bradley		■	■	–	–	■	
Merlin Gerin		–	–	–	–	■	1129
Moeller Electric		–	■	■	■	■	
Siemens		–	■	–	–	■	
Telemecanique		–	–	–	■	■	
Universal application		■	■	■	■	■	

Accessories	Packs of						
Insert strip	2	9623.000	9623.000	9623.000	9623.000	–	362
Support rails width 54 mm, height 7.5 mm	10	3548.000	3548.000	–	–	–	362
Support rails width 72 mm, height 7.5 mm	10	–	–	3549.000	3549.000	–	362
Support rails width 72 mm, height 15 mm	5	–	–	–	–	9320.120	362
Plug-in connector	1	9623.100	9623.100	–	–	–	362

[1] AWG = American Wire Gauges
AWG 10 = 5.26 mm² ≙ 6 mm²
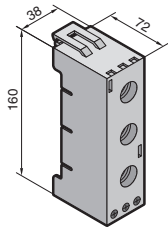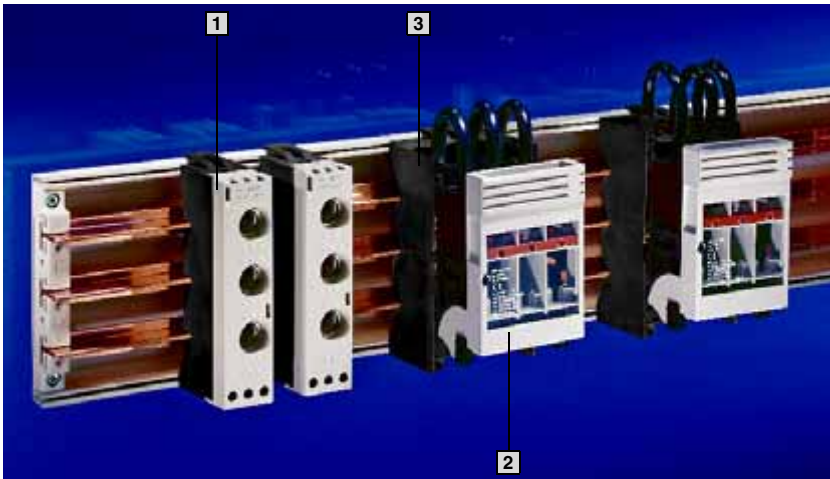
1 Mini-PLS bus-mounting fuse base D 02-E 18

Material:
Polyamide (PA 6.6), 30 % fibreglass-reinforced.
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Supply includes:
Cover.

Rated current	63 A
Rated operating voltage	400 V~
Connection of round conductors[1]	1.5 – 16 mm^2
Tightening torque ● Terminal	2.5 Nm
Packs of	1
Model No. SV	**9630.000**

[1] When using fine wire conductors, wire end ferrules should be used.

+ Accessories:

Identification labels SV 9320.080,
see page 363.
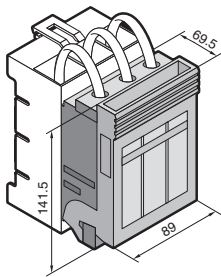
---

2 NH on-load isolators size 000

Material:
Isolator lid, contact hazard protection,
isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Technical information,
see page 1132.

Size	000
Rated current	100 A
Rated operating voltage	690 V~
Cable outlet	top/bottom
Type of connection	Terminal up to 50 mm^2
Tightening torque	3 Nm
Packs of	1
Model No. SV	**3431.000**

! Also required:

Mini-PLS busbar adaptor,
see page 307.

+ Accessories:

Micro-switch SV 3071.000,
see page 363.

---
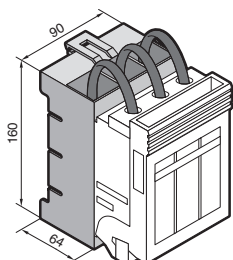
3 Mini-PLS busbar adaptor

For mounting SV 3431.000 on Rittal Mini-PLS.

Material:
Polyamide (PA 6.6), 30 % fibreglass-reinforced.
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Supply includes:
35 mm^2 connection cables fitted as standard.

Packs of	Model No. SV
1	**9629.100**

B
2.1
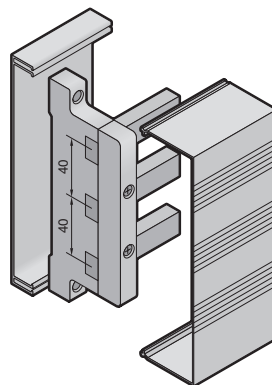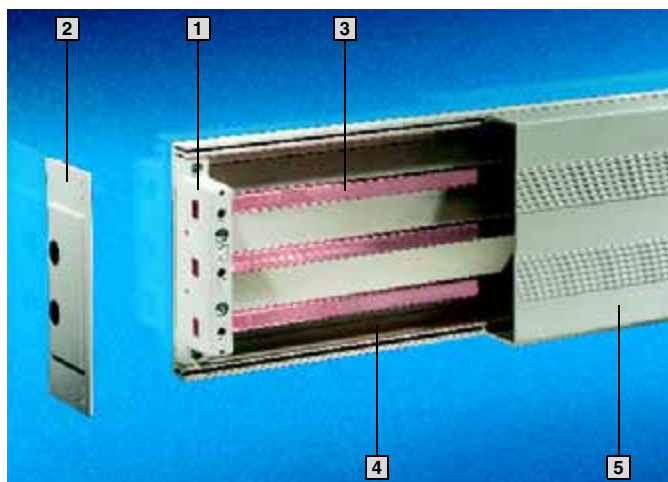
Busbar systems up to 250 A (40 mm)

Busbar systems up to 360 A (40 mm)

System components

**Planning software
Rittal SV Plan/
Power Plan,**
see page 1061.
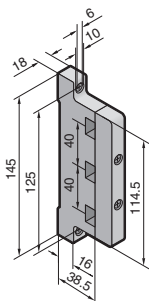
1 Busbar support

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT). Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Supply includes:
Inserts for adaptation of bar sizes 12 x 5 – 15 x 5 mm.

Short-circuit protection diagram,
see page 1124.

Technical information
for the calculation of rated currents, see page 1137.

Rated current up to	360 A
Rated operating voltage up to	690 V~, 50/60 Hz to VDE 0660
Number of poles	3-pole
Bar centre distance	40 mm
Bar accommodation	12 x 5 – 15 x 10 mm
Tightening torque • Assembly screw • Cover attachment	3 – 5 Nm 1 – 3 Nm
Packs of	4
Model No. SV	**9350.000**

2 End cover

For side contact hazard protection of the busbar assembly.
Suitable for connection to SV 9350.000.

Packs of	**Model No. SV**
2	**9610.000**

3 Busbars

made from E-Cu
To DIN EN 13 601.
Length: 2400 mm/bar.

Dimensions mm	Packs of	Model No. SV
12 x 5	6	**3580.000**
12 x 10	6	**3580.100**
15 x 5	6	**3581.000**
15 x 10	6	**3581.100**
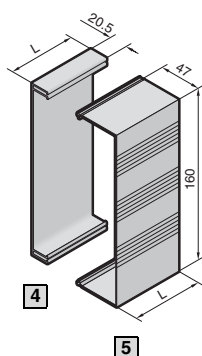
4 Base tray sections

For rear contact hazard protection of the busbar assembly.

Length (L) mm	Packs of	Model No. SV
250	1	**9604.000**
500	1	**9605.000**
700	1	**9606.000**
1100	1	**9607.000**

5 Cover sections

May be cut to length as required; for clip-on mounting to the base tray section.

Length (L) mm	Packs of	Model No. SV
250	1	**9608.000**
500	1	**9609.000**

Material
Base tray and cover sections:
Thermally modified hard PVC.
Continuous operating temperature: max. 100°C.
Fire protection corresponding to UL 94-V0.
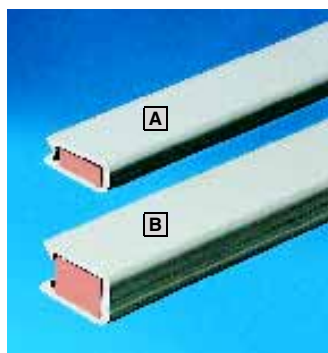
Busbar Cover sections

Contact hazard protection via covering of the busbars. May be cut to required length.
Length: 1000 mm/section.

Material:
Thermally modified hard PVC.
Continuous operating temperature: max. 100°C.
Fire protection corresponding to UL 94-V0.

For busbars mm	Packs of	Model No. SV
A 12/15 x 5	4	**9350.010**
B 12/15 x 10	4	**9350.060**
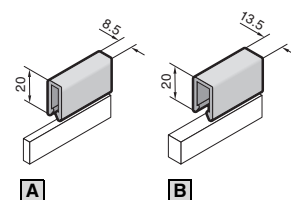
Busbar connectors

For connecting SV busbars from 12 x 5 to 15 x 10 mm; no drilling required.
Tightening torque: 10 Nm.

Material:
Brass.
Nickel-plated surface finish.

Packs of	Model No. SV
3	**9350.070**

A = max. 10 mm

Busbar systems up to 360 A (40 mm)

B

2.1
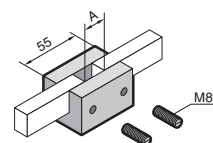
Busbar systems up to 360 A (40 mm)

Busbar connection adaptor
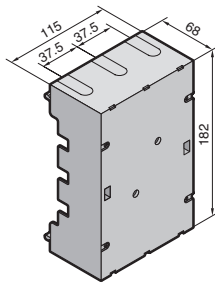
Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Supply includes:
Cover.

Note:
Conductor connection clamps
for the connection of round
conductors 1 – 16 mm²,
see page 324.

Rated current up to	360 A		Page
Rated operating voltage	690 V~		
Connection	top/bottom		
Connection of round conductors[1]	10 – 120 mm² (max. 250 A)		
Clamping area for laminated copper bars	17 x 15 mm (max. 360 A)		
Tightening torque ● Terminal screw	4 – 6 Nm		
For busbars	12 x 5/10 mm	15 x 5/10 mm	
Packs of	1	1	
Model No. SV	**9350.020**	**9350.030**	
Accessories			
Laminated copper bars	■	■	361

[1] Wire end ferrules should be used with fine wire conductors.

1 Bus-mounting fuse base D 02-E 18

Material:
Polyamide (PA 6.6), 30 % fibreglass-reinforced.
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Supply includes:
Cover.

⊞ Accessories:

Identification labels SV 9320.080,
see page 363.

Rated current	63 A
Rated operating voltage	400 V~
Connection of round conductors[1]	1.5 – 16 mm²
Tightening torque ● Terminal	2.5 Nm
Packs of	1
For busbars 12 x 5/10 mm **Model No. SV**	**9350.050**
For busbars 15 x 5/10 mm **Model No. SV**	**9350.500**

[1] When using fine wire conductors, wire end ferrules should be used.

⚠ Also required:

Base tray section,
see page 309.
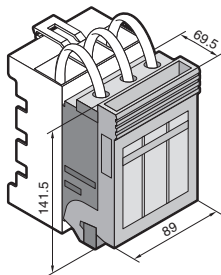
---

2 NH on-load isolators size 000

Material:
Isolator lid, contact hazard protection,
isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Technical information,
see page 1132.

⊞ Accessories:

Micro-switch SV 3071.000,
see page 363.

Size	000
Rated current	100 A
Rated operating voltage	690 V~
Cable outlet	top/bottom
Type of connection	Terminal up to 50 mm²
Tightening torque	3 Nm
Packs of	1
Model No. SV	**3431.000**

⚠ Also required:

Busbar adaptor,
see page 311.

---

3 Busbar adaptor

For mounting SV 3431.000 on 40 mm busbar systems.

Material:
Polyamide (PA 6.6), 30 % fibreglass-reinforced.
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Supply includes:
35 mm² connection cables fitted as standard.

For busbars mm	Packs of	Model No. SV
12 x 5/10	1	**9350.400**
15 x 5/10	1	**9350.410**

⚠ Also required:

Base tray section,
see page 309.

B

2.1

Busbar systems up to 360 A (40 mm)

Busbar systems up to 360 A (40 mm)

Multi-functional component adaptor 25 A/40 A
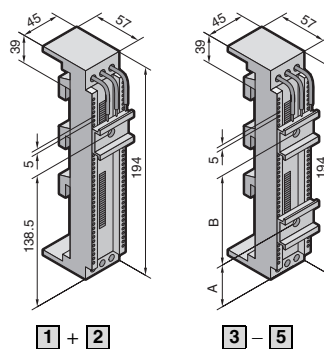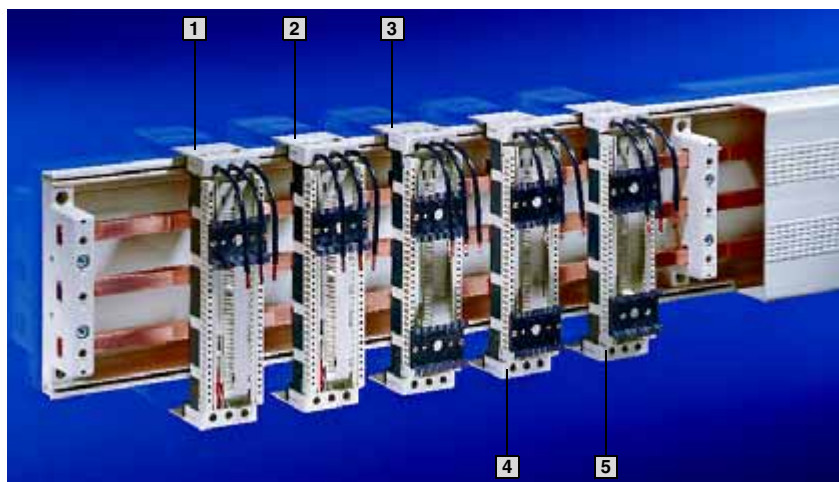
For snap-on mounting		1	2	3	4	5	Page
Construction width		45 mm	45 mm	45 mm	45 mm	45 mm	
Rated current up to		12 A	25 A	25 A	25 A	25 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	top	
Connection cables[1]		AWG 14	AWG 12	AWG 12	AWG 12	AWG 12	
Support rails	Quantity	1	1	2	2	2 (1 variable)	
	Height	10 mm	10 mm	10 mm	10 mm	10 mm	
	A	–	–	38.5 mm	28 mm	variable	
	B	–	–	100 mm	125 mm	variable	
Packs of		1	1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9350.080**	**9350.100**	**9350.120**	**9350.260**	**9350.140**	
For 10 mm bar thickness **Model No. SV**		**9350.090**	**9350.110**	**9350.130**	**9350.270**	**9350.150**	
For power circuit-breakers/starter combinations Make							
AEG		–	■	–	–	–	
Allen Bradley		–	■	–	■	–	
Moeller Electric		–	■	–	–	–	1129
Siemens		■	■	–	–	–	
Telemecanique		–	■	–	■	–	
Universal application		■	■	■	■	■	
Accessories	Packs of						
Support rails width 45 mm, height 10 mm	5	9320.090	9320.090	9320.090	9320.090	9320.090	362
Plug-in connector	1	9320.110	9320.110	9320.110	9320.110	9320.110	362
Mounting clip	5	9320.140	9320.140	9320.140	9320.140	9320.140	363

[1] AWG = American Wire Gauges
AWG 14 = 2.08 mm² ≙ 2.5 mm²
AWG 12 = 3.31 mm² ≙ 4 mm²

B
2.1
Busbar systems up to 360 A (40 mm)

Multi-functional component adaptor 25 A

Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Note:
The current carrying capacity of
the supply cables fitted as
standard can be found on
page 1128.

For snap-on mounting		1	2	3	Page
Construction width		90 mm	99 mm	108 mm	
Rated current up to		25 A	25 A	25 A	
Rated operating voltage		690 V~	690 V~	690 V~	
Cable outlet		top	top	top	
Connection cables[1]		AWG 12	AWG 12	AWG 12	
Support rails	Quantity	1	2	2	
	Height	10 mm	10 mm	10 mm	
Packs of		1	1	1	
For 5 mm bar thickness **Model No. SV**		**9350.280**	**9350.300**	**9350.320**	
For 10 mm bar thickness **Model No. SV**		**9350.290**	**9350.310**	**9350.330**	
For power circuit-breakers/starter combinations Make					
Allen Bradley		■	–	–	
Moeller Electric		■	–	■	
Siemens		■	■	–	1129
Telemecanique		■	–	■	
Universal application		■	■	■	
Accessories	Packs of				
Support rails width 45 mm, height 10 mm	5	9320.090	9320.090	–	362
Support rails width 54 mm, height 10 mm	5	–	9320.100	9320.100	362
Mounting clip	5	9320.140	9320.140	–	363

[1] AWG = American Wire Gauges
  AWG 12 = 3.31 mm² ≙ 4 mm²

Busbar systems up to 360 A (40 mm)
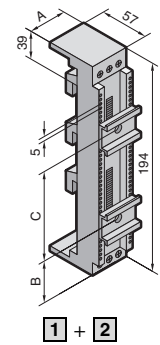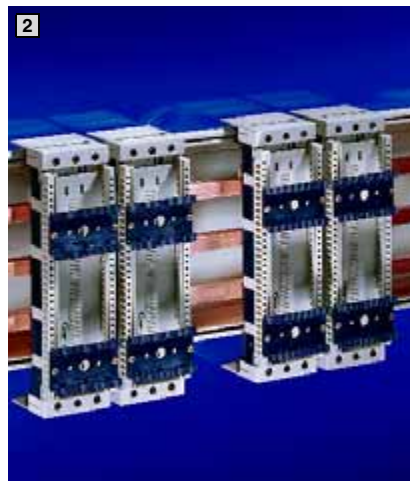
Multi-functional component adaptor 25 A/40 A

Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

For snap-on mounting		1		2		Page
Construction width (A)		45 mm		54 mm		
Rated current up to		25 A	25 A	40 A	40 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top/bottom	top	top/bottom	
Connection of round conductors up to		16 mm²	16 mm²	16 mm²	16 mm²	
Support rails	Quantity	2 (1 variable)	2	2	2	
	Height	10 mm	10 mm	10 mm	10 mm	
	B	variable	38.5 mm	38.5 mm	38.5 mm	
	C	variable	100 mm	100 mm	100 mm	
Packs of		1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9350.160**	**9350.180**	**9350.220**	**9350.240**	
For 10 mm bar thickness **Model No. SV**		**9350.170**	**9350.190**	**9350.230**	**9350.250**	
Accessories	Packs of					
Support rails width 45 mm, height 10 mm	5	9320.090	9320.090	–	–	362
Support rails width 54 mm, height 10 mm	5	–	–	9320.100	9320.100	362
Plug-in connector	1	9320.110	–	–	–	362
Mounting clip	5	9320.140	9320.140	–	–	363

Multi-functional component adaptor 40 A/component adaptor 100 A
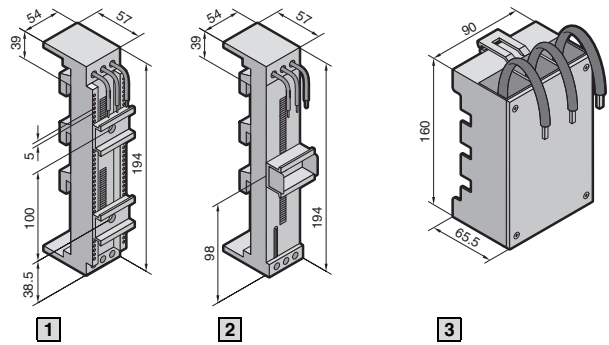
Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
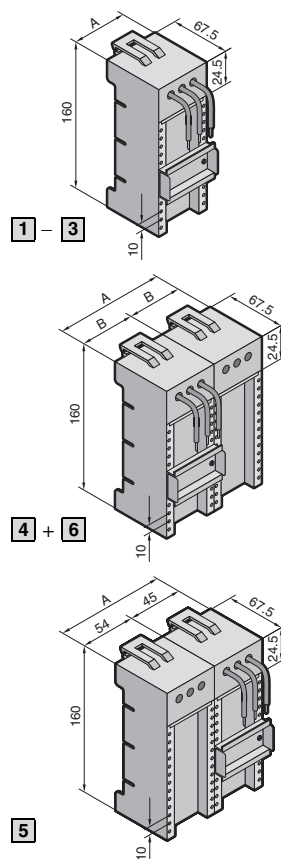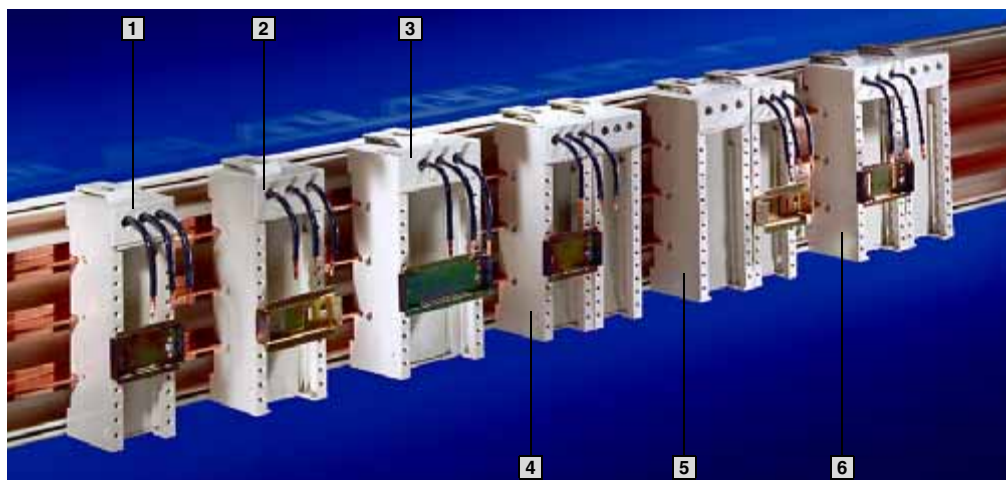Fire protection corresponding to
UL 94-V0.

Note:
The current carrying capacity
of the supply cables fitted as
standard can be found on
page 1128.

For snap-on mounting		1	2	3	3	Page
Construction width		54 mm	54 mm	90 mm	90 mm	
Rated current up to		40 A	40 A	100 A	100 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	
Connection cables		AWG 10[1]	AWG 10[1]	35 mm²	35 mm²	
Support rails	Quantity	2	1	–	–	
	Height	10 mm	15 mm	–	–	
For bar width		12/15 mm	12/15 mm	12 mm	15 mm	
Packs of		1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9350.200**	**9350.340**	**9350.420**	**9350.430**	
For 10 mm bar thickness **Model No. SV**		**9350.210**	**9350.350**			
For power circuit-breakers/starter combinations Make						
ABB		■	■	■	■	
AEG		■	–	■	■	
Allen Bradley		■	–	■	■	
Moeller Electric		–	■	■	■	
Siemens		–	■	■	■	1130
Merlin Gerin		–	–	■	■	
Telemecanique		–	–	■	■	
Universal application		■	■	■	■	
Also required						
Base tray section		–	–	■	■	309
Accessories	Packs of					
Support rails width 72 mm, height 15 mm	5	–	–	9320.120	9320.120	362

[1] AWG = American Wire Gauges
AWG 10 = 5.26 mm² ≙ 6 mm²

Busbar systems up to 800 A (60 mm)

Overview

- Busbar supports 1-pole, 2-pole, 3-pole, 4-pole and 5-pole (combination of 2-pole and 3-pole)
- 60 mm bar centre distance
- By using inserts, the maximum bar accommodation is reduced from 30 x 10 mm to 12 x 5 mm

System components

Busbar support, 1-pole
Busbar support, 2-pole
Busbar support, 3-pole
End cover
Support cover

Busbar support, 4-pole
End cover
Busbar support, 5-pole

Inserts
Busbar cover sections
System covers

Assembly components

Busbar connection adaptor
63 A to 1600 A
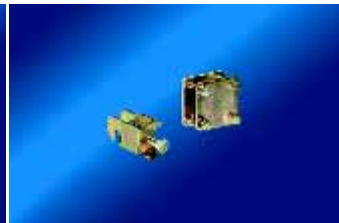
Conductor connection clamps
Plate clamp

Bus-mounting fuse bases

Multi-functional component
adaptor 12/25/40 A

Component adaptor
50/63/100/160/250 A

Component support

NH on-load isolators,
size 000

NH bus-mounting on-load
isolators, sizes 00, 1, 2 and 3

NH fused isolators,
size 00

Busbar systems up to 800 A/1600 A (60 mm)

Overview of Rittal PLS

The outstanding features of Rittal PLS include its consistent space utilisation, impressive safety back-up and contact hazard protection.

- Busbar support suitable for top mounting
- High static and thermal load capacity, thanks to the special styling of the profile
- Optimum heat dissipation, thanks to the large surface area of the special copper bars
- Contact hazard protection thanks to all-round encapsulation (end cover, base tray and cover section)
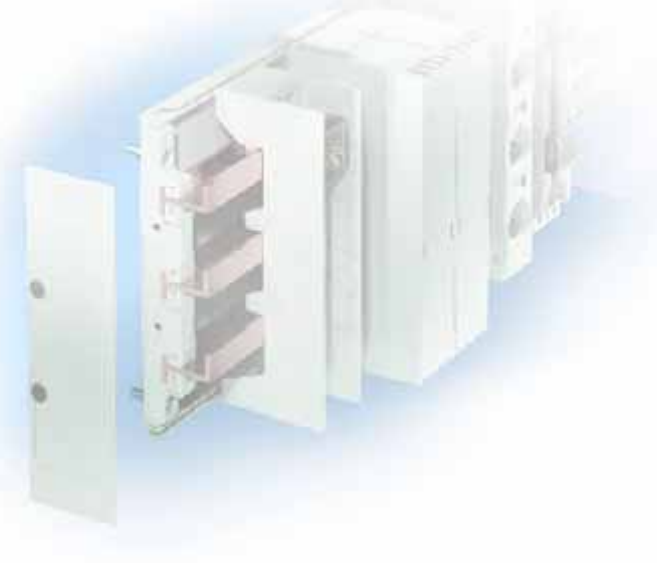
Rittal PLS up to 800 A

PLS end cover

PLS busbar supports up to 800 A, 3-pole

PLS base tray sections
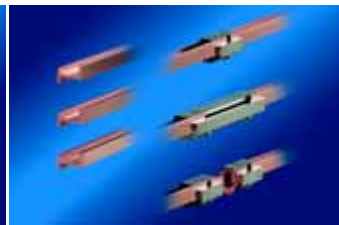
PLS special busbars E-Cu 800 A, 300 mm^2

PLS busbar connectors

PLS expansion connectors

PLS cover sections

Performance in a confined space

Rittal PLS has two positive spatial advantages over flat copper bars:

- 60 mm bar centre distance with a load of up to 1600 A.
- The special busbars are simply pushed into the one-piece supports and locked into position.
- Unrestricted top-mounting of the PLS busbar support with power distribution components. In other words, free positioning of the support means easier planning, greater stability where required, and more effective space utilisation.

Rittal PLS up to 1600 A

PLS end cover

PLS busbar supports up to 1600 A, 3-pole

PLS base tray sections
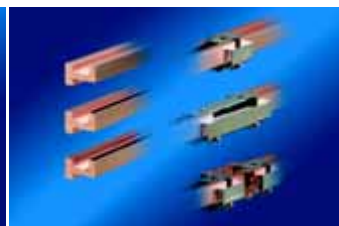
PLS busbars E-Cu 1600 A, 900 mm^2

PLS busbar connectors

PLS expansion connectors

PLS cover sections

The top-mounting components used in the Rittal PLS are identical to the top-mounting components for the 60 mm flat copper busbar system.

Busbar systems up to 800 A (60 mm)

Busbar support
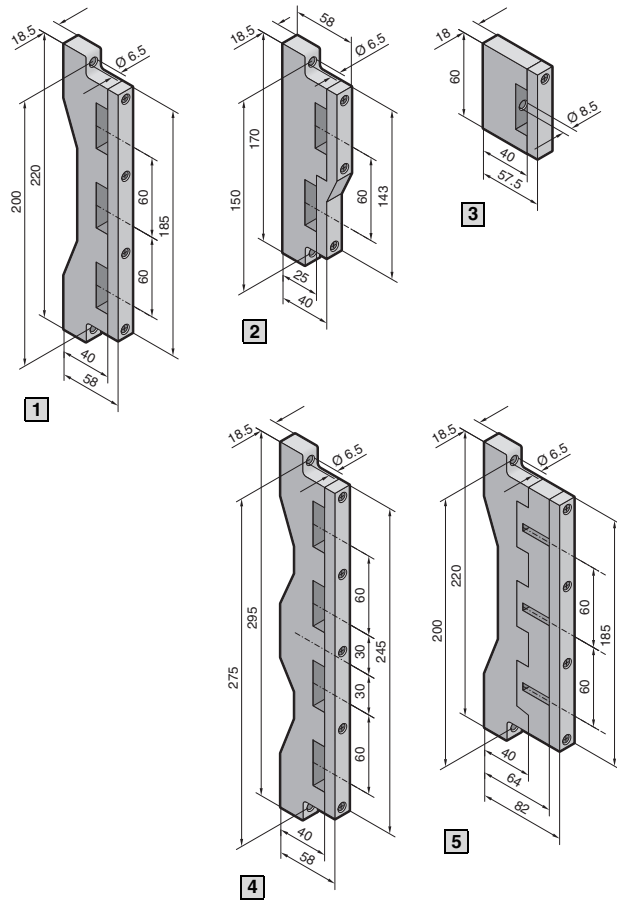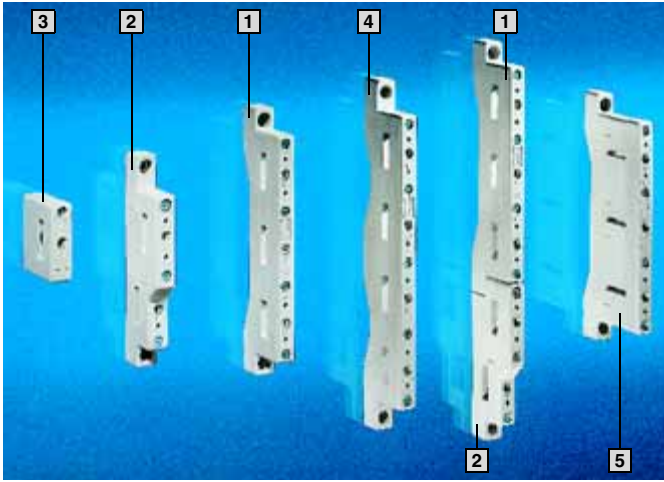
Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Short-circuit protection diagrams,
see page 1124 and 1125.

Technical information
for the calculation of rated currents,
see page 1137.

Planning software Rittal SV Plan/ Power Plan,
see page 1061.

Version	1	2	3	4	5	Page
Rated current up to	800 A	800 A	800 A	800 A	450 A	
Rated operating voltage up to	1000 V~, 50/60 Hz to VDE 0660					
Number of poles	3-pole	2-pole	1-pole	4-pole	3-pole	
Bar centre distance	60 mm	60 mm	–	60 mm	60 mm	
Max. bar accommodation without inserts	30 x 10 mm	30 x 10 mm	30 x 10 mm	30 x 10 mm	30 x 5 mm	
Tightening torque ● Assembly screw ● Cover attachment	3 – 5 Nm 1 – 3 Nm	3 – 5 Nm 1 – 3 Nm	5 – 8 Nm 1 – 3 Nm	3 – 5 Nm 1 – 3 Nm	3 – 5 Nm 1 – 3 Nm	
Packs of	4	4	4	3	4	
Model No. SV	**3000.000**	**3050.000[1])**	**3078.000[2])**	**3064.000**	**3066.000**	
Also required						
Inserts for busbars smaller than 30 x 10 mm	■	■	■	■	–	319
Accessories	Packs of					
End covers	10	3080.000	–	–	3084.000	–	319
Support cover	4	3089.000	–	–	–	–	319

[1]) N/PE support
[2]) PEN/N/PE support

Inserts

for busbar supports SV 3000.000, SV 3050.000, SV 3064.000, SV 3078.000

For busbars mm	Rated current	Packs of	Model No. SV
30 x 5	447 A	12	**3001.000**
25 x 5	384 A	12	**3002.000**
20 x 10	497 A	24	**3003.000**
20 x 5	319 A	12	**3004.000**
16 x 8	397 A	12	**3005.000**
16 x 3/4/5	198/225/280 A	12	**3006.000**
15 x 3/4/5	187/210/260 A	12	**3007.000**
12 x 10	340 A	24	**3008.000**
12 x 5	210 A	12	**3009.000**

For busbars mm (inches)	Rated current	Packs of	Model No. SV
9.53 x 25.40 ($^3/_8$ x 1″)	599 A	24	**3012.000**
6.35 x 25.40 ($^1/_4$ x 1″)	449 A	12	**3013.000**
4.76 x 25.40 ($^3/_{16}$ x 1″)	349 A	12	**3014.000**
3.18 x 25.40 ($^1/_8$ x 1″)	299 A	12	**3015.000**
9.53 x 19.05 ($^3/_8$ x $^3/_4$″)	449 A	24	**3016.000**
6.35 x 12.70 ($^1/_4$ x $^1/_2$″)	249 A	12	**3017.000**

End covers

For side contact hazard protection on the busbar support. Simple clip-on mounting.

For busbar supports	Packs of	Model No. SV
SV 3000.000	10	**3080.000**
SV 3064.000	10	**3084.000**

Support cover

The support cover ensures side contact hazard protection from the assembled bus-mounting fuse bases. The build height is the same as the bus-mounting fuse bases, with contact hazard protection cover plate.

For busbar supports	Packs of	Model No. SV
SV 3000.000	4	**3089.000**

Busbars

made from E-Cu
To DIN EN 13 601.
Length: 2400 mm/bar.

Dimensions mm	Packs of	Model No. SV
30 x 10	6	**3586.000**
30 x 5	6	**3584.000**
25 x 5	6	**3583.000**
20 x 10	6	**3585.000**
20 x 5	6	**3582.000**
15 x 5	6	**3581.000**
12 x 10	6	**3580.100**
12 x 5	6	**3580.000**

Busbar connectors

For connecting busbars, no drilling required.

For busbars mm	Application		Packs of	Model No. SV
	Single connection	Baying clamp[1]		
12 x 5 – 15 x 10	■	–	3	**9350.070**
20 x 5 – 30 x 10	■	–	3	**9320.020**
	–	■	3	**9320.030**

[1] From enclosure to enclosure

Note:
For technical data and material specifications, see page 360.
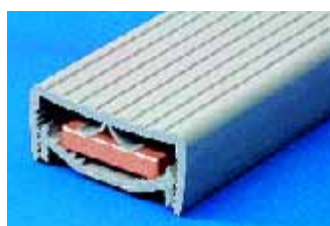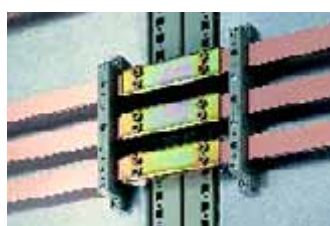
Busbar cover sections

Contact hazard protection via full encapsulation of the busbars. May be cut to required length.

Material:
Thermally modified hard PVC.
Continuous operating temperature: max. 100°C.
Fire protection corresponding to UL 94-V0.

For busbars mm	Packs of	Model No. SV
12 x 5 – 30 x 10	10 à 1 m	**3092.000**

20,6

40,6

B

2.2

Busbar systems up to 800 A (60 mm)
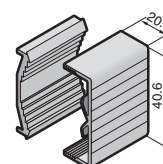
Busbar systems up to 800 A/1600 A (60 mm)

Rittal PLS
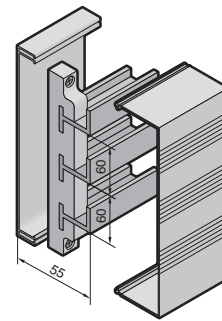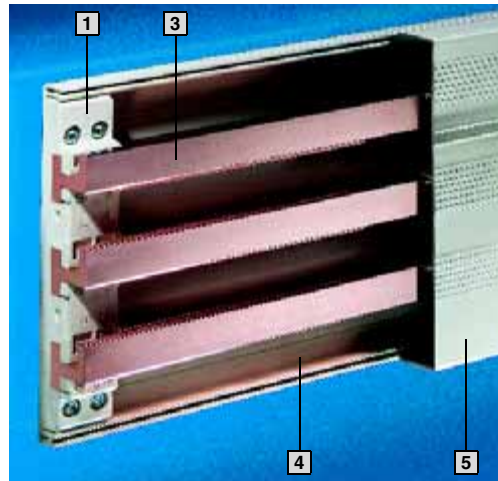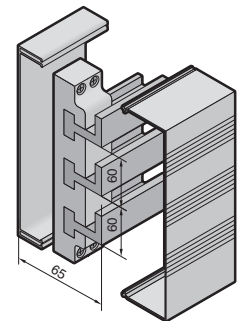
PLS 800 A   **PLS 1600 A**

**Planing software
Rittal SV Plan/
Power Plan,**
see page 1061.
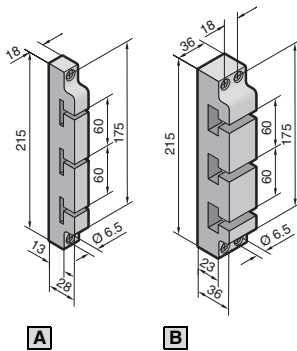
1 PLS busbar supports

Material:
Fibreglass-reinforced, thermoplastic
polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Short-circuit protection diagrams,
see page 1125.

Technical information
for the calculation of rated currents,
see page 1137.

Rated current up to	**A** 800 A	**B** 1600 A
Rated operating voltage up to	1000 V~, 50/60 Hz to VDE 0660	
Number of poles	3-pole	
Bar centre distance	60 mm	
Packs of	4	4
Model No. SV	**3500.000**	**3510.000**

2 PLS end cover

For contact hazard protection of the PLS
assembly on the sides. Simple clip-on mounting
on the PLS busbar support.

For PLS busbar support	Packs of	**Model No. SV**
SV 3500.000	2	**3501.000**
SV 3510.000	2	**3511.000**
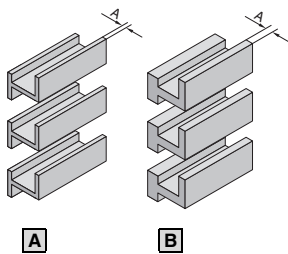
3 PLS special busbars
made from E-Cu

Rated current up to			**A** 800 A	**B** 1600 A
Cross-section mm^2			300	900
Bar thickness (A) mm			5	10
Length mm	For enclosure width mm	Packs of	**Model No. SV**	
2400	variable	1	**3509.000**	**3516.000**
495	600[1]	3	**3524.000**	**3527.000**
695	800[1]	3	**3525.000**	**3528.000**
1095	1200[1]	3	**3526.000**	**3529.000**

[1] For Rittal TS 8/ES enclosure systems
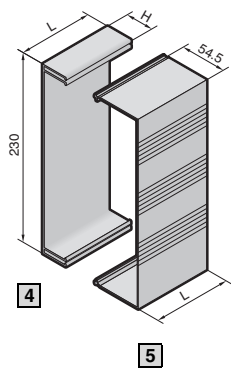
④ PLS base tray sections

For rear contact hazard protection of the PLS assembly.

| Length (L) mm	Packs of	Model No. SV for PLS assembly	
		800 A	1600 A
500	2	**3502.000**	**3512.000**
700	1	**3503.000**	**3513.000**
1100	1	**3518.000**	**3519.000**
Height (H) mm		13.5	24.5

⑤ PLS cover sections

May be cut to length as required; for clip-on mounting to the PLS base tray section.

Length (L) mm	Packs of	Model No. SV for PLS assembly	
		800 A	1600 A
250	2	**3506.000**	
500	2	**3507.000**	
700	1	**3508.000**	

Material
Base tray and cover sections:
Thermally modified hard PVC.
Continuous operating temperature: max. 100°C.
Fire protection corresponding to UL 94-V0.
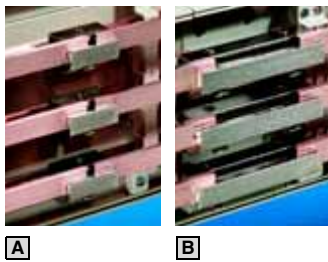
PLS busbar connectors

For connecting the PLS special busbars; no drilling required.
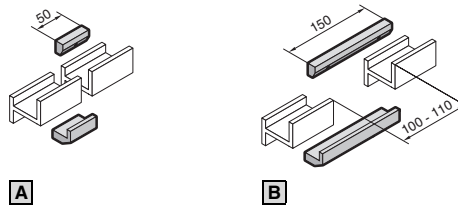
For	Packs of	Model No. SV for PLS assembly	
		800 A	1600 A
Ⓐ Single connection	3	**3504.000**	**3514.000**
Ⓑ Baying clamp[1]	3	**3505.000**	**3515.000**
Tightening torque		10 – 15 Nm	15 – 20 Nm

[1] From enclosure to enclosure (TS 8)
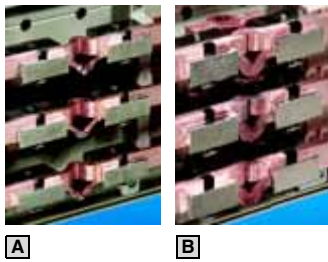
PLS expansion connectors

For thermal and mechanical compensation during connection of PLS special busbars from enclosure to enclosure (TS 8).

Material:
E-Cu
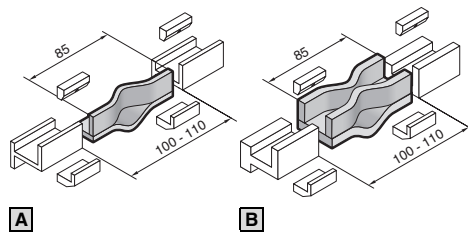
Packs of	Model No. SV for PLS assembly	
	Ⓐ 800 A	Ⓑ 1600 A
3	**9320.060**	**9320.070**
Also required		
PLS Busbar connectors[1]	3504.000	3514.000

[1] For mounting one expansion connector, two busbar connectors are required.

Note:
For a temperature increase of 30 K, the busbars are extended in length by around 0.5 mm/m. Consequently, the use of an expansion connector is recommended for busbar systems with lengths in excess of 3 m.
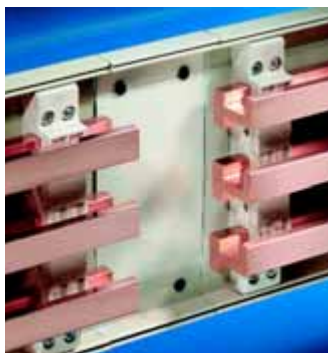
PLS base tray section infill

For rear contact hazard protection when connecting the PLS special busbars from enclosure to enclosure (TS 8).

Material:
Thermally modified hard PVC.
Continuous operating temperature: max. 100°C.
Fire protection corresponding to UL 94-V0.

Supply includes:
Assembly parts.

Packs of	Model No. SV for PLS assembly	
	800 A	1600 A
1	**3523.000**	**3533.000**
Height (H) mm	13.5	24.5

B
2.2
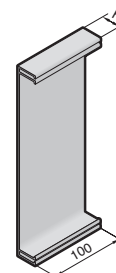
Busbar systems up to 800 A/1600 A (60 mm)

Busbar systems up to 800 A/1600 A (60 mm)

Busbar connection adaptor
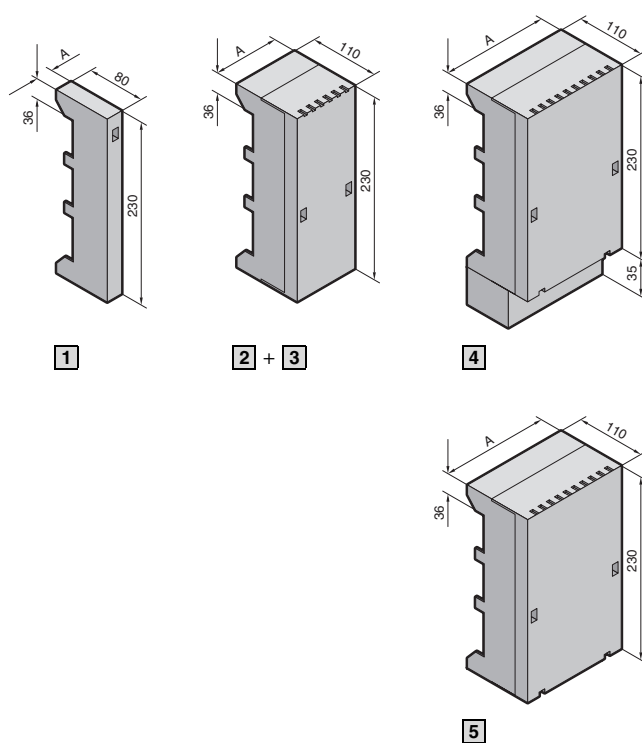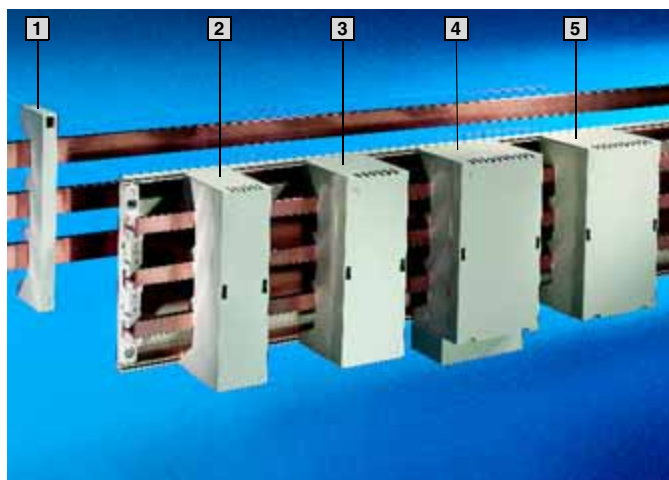
Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT).
Continuous operating temperature: max. 140°C.
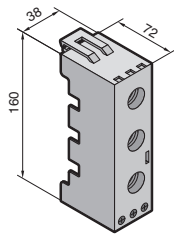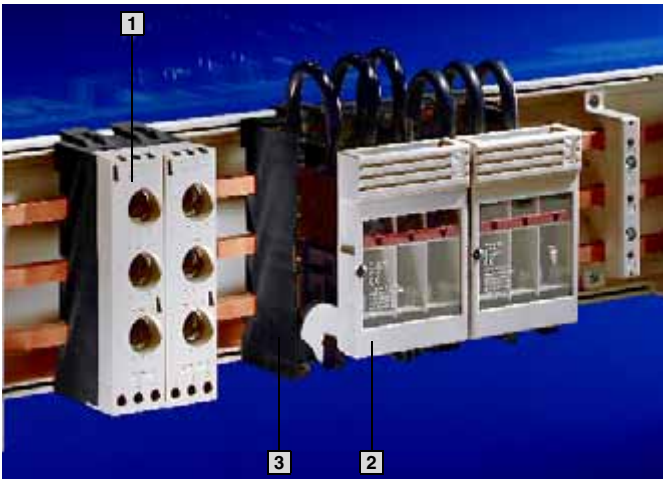Fire protection corresponding to UL 94-V0.

Supply includes:
Cover.

Version	1	2	3	4	5	Page
Width (A)	17.5 mm	61 mm	85 mm	125 mm	125 mm	
Rated current up to	63 A	125 A	250 A	400 A	800 A	
Rated operating voltage	690 V~	690 V~	690 V~	690 V~	690 V~	
Connection	bottom	bottom	bottom	bottom	bottom	
Connection of round conductors up to	10 mm²/ 2 x 6 mm²	35 mm²	70 mm²	150 mm² [1]	185 mm² [2]	
Clamping area for laminated copper bars	–	11 x 14 mm	16 x 15 mm	–	30 x 25 mm	
Tightening torque ● Assembly screw ● Terminal screw	2 Nm 2 Nm	5 Nm 6 Nm	6 Nm 10 Nm	6 Nm 15 Nm	6 Nm 12 Nm	
Packs of	1	1	1	1	1	
For 5 – 10 mm bar thickness **Model No. SV**	**3443.000**	**3444.000**	**3442.000**	**3440.000**	**3441.000**	
Accessories						
Laminated copper bars	–	■	■	–	■	361

[1] With ring terminal M10
[2] With neatly crimped wire end ferrule

Busbar connection adaptor

Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Supply includes:
Cover.

Version	[1]	[2]	[3]	Page
Rated current up to	600 A	800 A	1600 A	
Rated operating voltage	690 V~	690 V~	690 V~	
Connection	top/bottom		top/bottom	
Connection of round conductors	35 – 240 mm² [1]	–	–	
Clamping area for laminated copper bars ● For 5 mm bar thickness ● For 10 mm bar thickness	24 x 21 mm 24 x 21 mm	34 x 21 mm 34 x 16 mm	– 65 x 21 mm	
Tightening torque ● Assembly screw ● Terminal screw	15 – 20 Nm 15 Nm	– 10 – 12 Nm	– 15 – 20 Nm	
Packs of	1 set (of 3)	1 set (of 3)	1 set (of 3)	
For 5 – 10 mm bar thickness **Model No. SV**	**3439.010**	**3439.000**	**–**	
For 10 mm bar thickness **Model No. SV**	**–**	**–**	**3517.000**[2]	
Accessories				
Laminated copper bars	■	■	■	361

[1] Connection of round conductors up to 300 mm² with ring terminal available on request.
[2] Only suitable for Rittal PLS 1600 A system.

Connection clamps/system covers
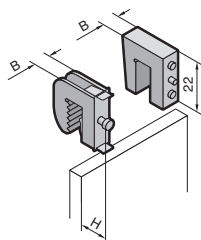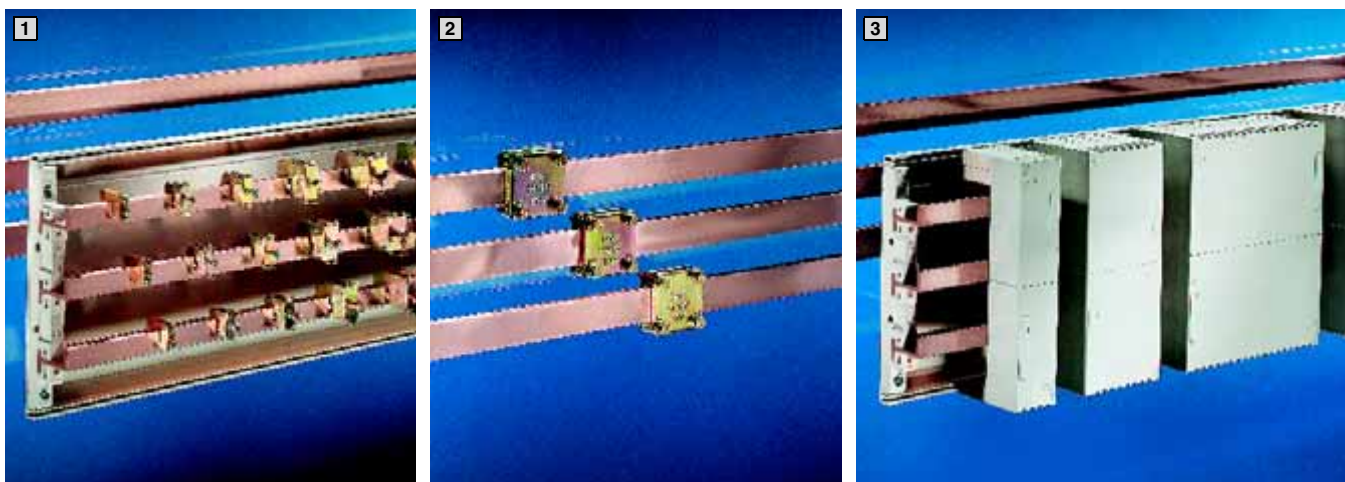
① Conductor connection clamps

For bar thickness mm	Connection of round conductors[1] mm²	Clamping area for laminated copper bars mm	Tightening torque Nm	Width (B) mm	Height (H) mm min.	Height (H) mm max.	Packs of	Model No. SV
3 – 5	1 – 4	–	2	8.0	–	–	15	**3550.000**
5	1 – 4	–	2	11.0	17	23	15	**3450.500**
5	2.5 – 16	8 x 8	3	14.0	22	29	15	**3451.500**
5	16 – 50	10.5 x 11	6 – 8	18.5	26	39	15	**3452.500**
5	35 – 70	16.5 x 15	10 – 12	24.5	39	57	15	**3453.500**
5	70 – 185	22.5 x 20	12 – 15	30.5	44	66	15	**3454.500**
6 – 10	1 – 4	–	2	8.0	–	–	15	**3555.000**
10	1 – 4	–	2	11.0	17	23	15	**3455.500**
10	2.5 – 16	8 x 8	3	14.0	22	29	15	**3456.500**
10	16 – 50	10.5 x 11	6 – 8	18.5	26	39	15	**3457.500**
10	35 – 70	16.5 x 15	10 – 12	24.5	39	57	15	**3458.500**
10	70 – 185	22.5 x 20	12 – 15	30.5	44	66	15	**3459.500**

[1] Wire end ferrules should be used with fine wire conductors.

Material:
Sheet steel, zinc-plated, passivated
(SV 3450.500 – SV 3459.500),
brass
(SV 3550.000/SV 3555.000).

+ Accessories:

Laminated copper bars,
see page 361.
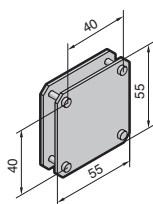
② Plate clamp

For busbars 12 x 5 – 30 x 10 mm.
Clamping area for laminated copper bars:
34 x 10 mm.
Tightening torque: 6 – 8 Nm.

Material:
Sheet steel, zinc-plated, passivated.

Packs of	Model No. SV
3	**3554.000**

+ Accessories:

Laminated copper bars,
see page 361.

③ System covers

For conductor connection clamps and plate clamps.

Material:
ABS.
Continuous operating temperature: max. 80°C.
Fire protection corresponding to UL 94-V0.

Width (B) mm	Height (H) mm	Packs of	Model No. SV
50	80	4	**3086.000**
100	80	4	**3087.000**
100	110	4	**3090.000**
200	80	4	**3088.000**
200	110	4	**3091.000**

Multi-functional component adaptor 25 A/40 A

Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Note:
The current carrying capacity
of the supply cables fitted as
standard can be found on
page 1128.

| For snap-on mounting		1	2	3	4	5	6	Page
Construction width		45 mm	45 mm	45 mm	45 mm	45 mm	45 mm	
Rated current up to		12 A	25 A	25 A	25 A	25 A	25 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	top	bottom	
Connection cables[1]		AWG 14	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12	
Support rails	Quantity	1	1	2	2	2 (1 variable)	2	
	Height	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm	
	A	–	–	68.5 mm	55 mm	variable	–	
	B	–	–	100 mm	125 mm	variable	–	
Packs of		1	1	1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9320.160**	**9320.180**	**9320.200**	**9320.440**	**9320.220**	**9320.240**	
For 10 mm bar thickness **Model No. SV**		**9320.170**	**9320.190**	**9320.210**	**9320.450**	**9320.230**	**9320.250**	
For power circuit-breakers/starter combinations Make								
AEG		–	■	–	–	–	–	
ABB		–	■	–	–	–	–	
Allen Bradley		–	■	–	■	–	–	
Moeller Electric		–	■	–	–	–	–	1130
Siemens		■	■	–	–	–	–	
Telemecanique		–	■	–	■	–	–	
Universal application		■	■	■	■	■	■	
Accessories	Packs of							
Support rails width 45 mm, height 10 mm	5	9320.090	9320.090	9320.090	9320.090	9320.090	9320.090	362
Plug-in connector	1	9320.110	9320.110	9320.110	9320.110	9320.110	–	362
Mounting clip	5	9320.140	9320.140	9320.140	9320.140	9320.140	9320.140	363

[1] AWG = American Wire Gauges
AWG 14 = 2.08 mm² ≙ 2.5 mm²
AWG 12 = 3.31 mm² ≙ 4 mm²

B
2.2

Busbar systems up to 800 A/1600 A (60 mm)

Busbar systems up to 800 A/1600 A (60 mm)
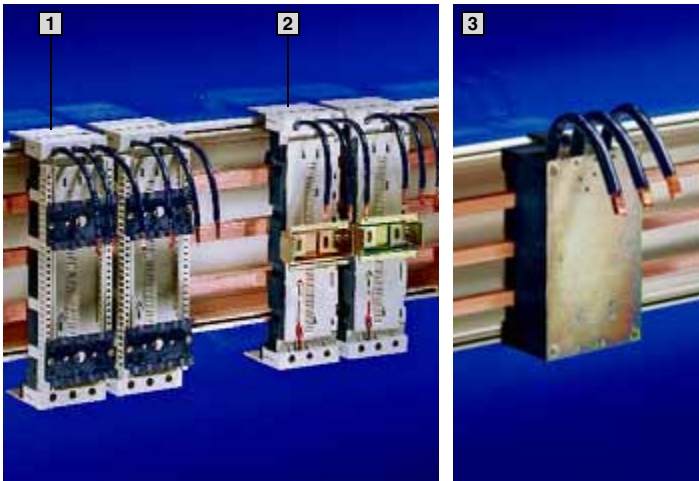
Multi-functional component adaptor 25 A

Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Note:
The current carrying capacity
of the supply cables fitted as
standard can be found on
page 1128.

For snap-on mounting		1	2	3	4	4	Page
Construction width		90 mm	99 mm	108 mm	45 mm	45 mm	
Rated current up to		25 A	25 A	25 A	25 A	25 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	top/bottom	
Connection cables[1]		AWG 12	AWG 12	AWG 12	–	–	
Connection of round conductors up to		–	–	–	16 mm²	16 mm²	
Support rails	Quantity	2	2	2	2 (1 variable)	2	
	Height	10 mm	10 mm	10 mm	10 mm	10 mm	
	A	68.5 mm	43 mm	43 mm	variable	68.5 mm	
	B	100 mm	125 mm	90 mm	variable	100 mm	
Packs of		1	1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9320.380**	**9320.400**	**9320.420**	**9320.260**	**9320.280**	
For 10 mm bar thickness **Model No. SV**		**9320.390**	**9320.410**	**9320.430**	**9320.270**	**9320.290**	
For power circuit-breakers/starter combinations Make							
Allen Bradley		■	–	–	–	–	
Moeller Electric		■	–	■	–	–	
Siemens		■	■	–	–	–	1130
Telemecanique		■	–	■	–	–	
Universal application		■	■	■	■	■	
Accessories	Packs of						
Support rails width 45 mm, height 10 mm	5	9320.090	9320.090	–	9320.090	9320.090	362
Support rails width 54 mm, height 10 mm	5	–	9320.100	9320.100	–	–	362
Plug-in connector	1	–	–	–	9320.110	–	362
Mounting clip	5	9320.140	9320.140	–	9320.140	9320.140	363

[1] AWG = American Wire Gauges
 AWG 12 = 3.31 mm² ≙ 4 mm²

Multi-functional component adaptor 40 A

Material:
Polyamide (PA 6.6),
30 % fibreglass-reinforced.
Continuous operating
temperature: max. 140°C.
Fire protection corresponding to
UL 94-V0.

Note:
The current carrying capacity
of the supply cables fitted as
standard can be found on
page 1128.

For snap-on mounting		1	2	3	4	4	Page
Construction width		54 mm	54 mm	54 mm	54 mm	54 mm	
Rated current up to		40 A	40 A	40 A	40 A	40 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	bottom	top	top/bottom	
Connection cables[1]		AWG 10	AWG 10	AWG 10	–	–	
Connection of round conductors up to		–	–	–	16 mm²	16 mm²	
Support rails	Quantity	2	1	2	2	2	
	Height	10 mm	15 mm	10 mm	10 mm	10 mm	
Packs of		1	1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**9320.300**	**9320.460**	**9320.320**	**9320.340**	**9320.360**	
For 10 mm bar thickness **Model No. SV**		**9320.310**	**9320.470**	**9320.330**	**9320.350**	**9320.370**	
For power circuit-breakers/starter combinations Make							
ABB		■	■	–	–	–	
AEG		■	–	–	–	–	
Allen Bradley		■	–	–	–	–	1131
Moeller Electric		–	■	–	–	–	
Siemens		–	■	–	–	–	
Universal application		■	■	■	■	■	
Accessories	Packs of						
Support rails width 54 mm, height 10 mm	5	9320.100	–	9320.100	9320.100	9320.100	362

[1] AWG = American Wire Gauges
AWG 10 = 5.26 mm² ≙ 6 mm²

B
2.2

Busbar systems up to 800 A/1600 A (60 mm)

Busbar systems up to 800 A/1600 A (60 mm)

Component adaptor 50 A

Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Note:
The current carrying capacity of the supply cables fitted as standard can be found on page 1128.

For snap-on mounting, with additional terminals up to 10 mm²		1	2	3	Page
Construction width		54 mm	54 mm	72 mm	
Rated current up to		50 A	50 A	50 A	
Rated operating voltage		690 V~	690 V~	690 V~	
Cable outlet		top	top	top	
Connection cables[1]		AWG 10 (32 A)	AWG 10 (32 A)	AWG 10 (32 A)	
Support rails	Quantity	1	2	1	
	Height	7.5 mm	7.5 mm	7.5 mm	
Packs of		1	1	1	
For 5 mm bar thickness **Model No. SV**		**3540.000**	**3040.000**	**3544.000**	
For 10 mm bar thickness **Model No. SV**		**3541.000**	**3041.000**	**3545.000**	
For power circuit-breakers/starter combinations Make					
ABB		■	–	–	
AEG		■	–	–	
Allen Bradley		■	–	–	1131
Moeller Electric		–	–	■	
Siemens		–	■	–	
Universal application		■	■	■	
Accessories	Packs of				
Insert strip	1	3538.000	3538.000	3538.000	362
Support rails width 54 mm, height 7.5 mm	10	3548.000	3548.000	–	362
Support rails width 72 mm, height 7.5 mm	10	–	–	3549.000	362
Cover strips, width 54 mm	20	3536.000	3536.000	–	363
Cover strips, width 72 mm	20	–	–	3537.000	363

[1] AWG = American Wire Gauges
AWG 10 = 5.26 mm² ≙ 6 mm²

B
2.2
Busbar systems up to 800 A/1600 A (60 mm)

Component adaptor 50 A

Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Note:
The current carrying capacity of the supply cables fitted as standard can be found on page 1128.

For snap-on mounting, with additional terminals up to 10 mm²		1	2	3	Page
Construction width		108 mm	126 mm	144 mm	
Rated current up to		50 A	50 A	50 A	
Rated operating voltage		690 V~	690 V~	690 V~	
Cable outlet		top	top	top	
Connection cables[1]		AWG 10 (32 A)	AWG 10 (32 A)	AWG 10 (32 A)	
Support rails	Quantity	2	2	2	
	Height	7.5 mm	7.5 mm	15 mm	
Packs of		1	1	1	
For 5 mm bar thickness **Model No. SV**		**3042.000**	**3069.000**	**3044.000**	
For 10 mm bar thickness **Model No. SV**		**3043.000**	**3070.000**	**3045.000**	
For power circuit-breakers/starter combinations Make					
Moeller Electric		■	–	–	
Siemens		–	■	–	1131
Telemecanique		■	–	–	
Universal application		■	■	■	
Accessories	Packs of				
Insert strip	1	3538.000	3538.000	3538.000	362
Support rails width 54 mm, height 7.5 mm	10	3548.000	3548.000	–	362
Support rails width 72 mm, height 7.5 mm	10	–	3549.000	3549.000	362
Cover strips, width 54 mm	20	3536.000	3536.000	–	363
Cover strips, width 72 mm	20	–	3537.000	3537.000	363

[1] AWG = American Wire Gauges
AWG 10 = 5.26 mm² ≙ 6 mm²

B
2.2

Busbar systems up to 800 A/1600 A (60 mm)

Component adaptor 63 A

B

2.2

Busbar systems up to 800 A/1600 A (60 mm)

Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT). Continuous operating temperature: max. 140°C. Fire protection corresponding to UL 94-V0.

Note:
The current carrying capacity of the supply cables fitted as standard can be found on page 1128.

For snap-on mounting, with additional terminals up to 10 mm²		1	2	3	4	5	Page
Construction width		54 mm	72 mm	72 mm	72 mm	144 mm	
Rated current up to		63 A	63 A	63 A	63 A	63 A	
Rated operating voltage		690 V~	690 V~	690 V~	690 V~	690 V~	
Cable outlet		top	top	top	top	top	
Connection cables[1]		AWG 8	AWG 8	AWG 8	AWG 8	AWG 8	
Support rails	Quantity	1	2	1	2	2	
	Height	7.5 mm	7.5 mm	15 mm	15 mm	15 mm	
Packs of		1	1	1	1	1	
For 5 mm bar thickness **Model No. SV**		**3036.000**	**3038.000**	**3067.000**	**3046.000**	**3048.000**	
For 10 mm bar thickness **Model No. SV**		**3037.000**	**3039.000**	**3068.000**	**3047.000**	**3049.000**	
For power circuit-breakers/starter combinations Make							
ABB		▪	–	▪	–	–	
Moeller Electric		▪	–	–	▪	▪	
Siemens		▪	–	▪	–	–	1131
Telemecanique		–	–	▪	–	–	
Universal application		▪	▪	▪	▪	▪	
Accessories	Packs of						
Insert strip	1	3538.000	3538.000	3538.000	3538.000	3538.000	362
Support rails width 54 mm, height 7.5 mm	10	3548.000	–	–	–	–	362
Support rails width 72 mm, height 7.5 mm	10	–	3549.000	3549.000	3549.000	3549.000	362
Cover strips, width 54 mm	20	3536.000	–	–	–	–	363
Cover strips, width 72 mm	20	–	3537.000	3537.000	3537.000	3537.000	363

[1] AWG = American Wire Gauges
AWG 8 = 8.37 mm² ≙ 10 mm²
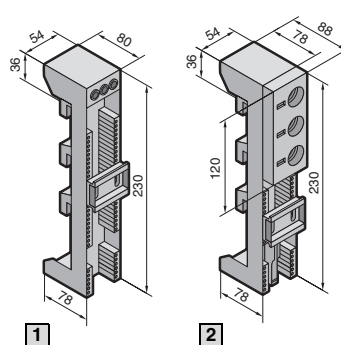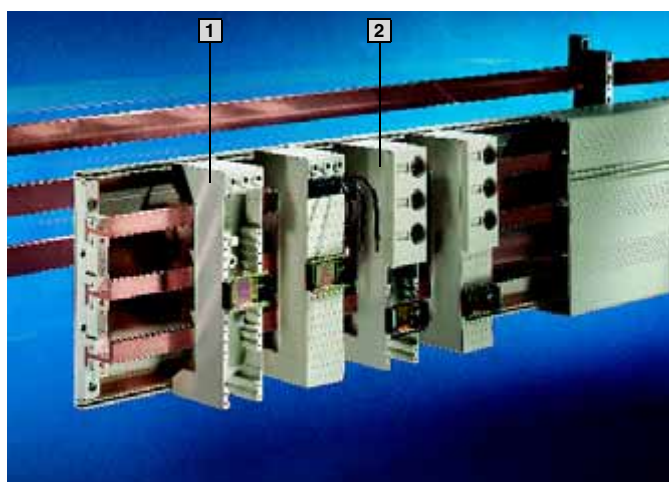
Component adaptor 63 A

Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Scope of supply SV 3445.000:
Including connection cables supplied loose
(AWG 10 = 5.26 mm² ≙ 6 mm²) and cover strips.

Scope of supply SV 3446.000:
Including cover strips.

Note:
Current carrying capacity of connection cables, see page 1128.

For clamping screw attachment		1	2	Page
Construction width		54 mm	54 mm	
With pre-fuse unit		–	D 02-E 18	
Rated current up to		63 A	63 A	
Rated operating voltage		690 V~	400 V~	
Cable outlet		top	top	
Connection of round conductors		1.5 – 10 mm²	1.5 – 16 mm²	
Support rails	Quantity	1	1	
	Height	7.5 mm	7.5 mm	
Tightening torque ● Assembly screw ● Terminal screw		2 Nm 2 Nm	2 Nm 2 Nm	
Packs of		1	1	
For 5 – 10 mm bar thickness **Model No. SV**		**3445.000**	**3446.000**	
For power circuit-breakers/starter combinations Make				
ABB		■	■	
AEG		■	■	
Allen Bradley		■	■	1131
Moeller Electric		■	–	
Siemens		■	–	
Universal application		■	■	
Accessories	Packs of			
Insert strip	1	3448.000[1]	3448.000[1]	362
Support rails width 54 mm, height 7.5 mm	10	3447.000	3447.000	362
Support rails width 70 mm, height 7.5 mm	10	3496.000[2]	3496.000[2]	362

[1] Including extended support rail and cover strips.
[2] For component adaptor with adaptor extension piece SV 3448.000.
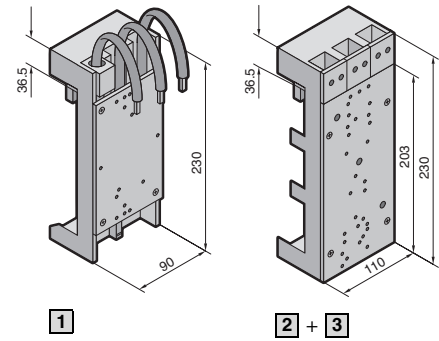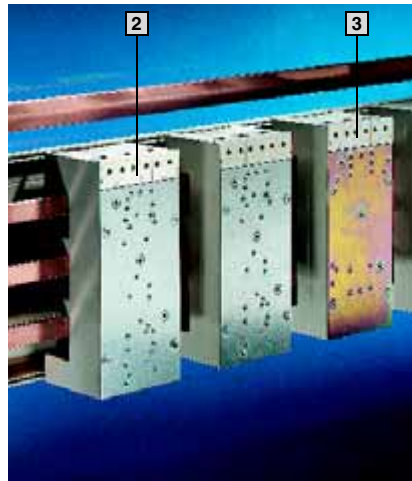
Component adaptor 100 A/160 A

Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Note:
The current carrying capacity of the supply cables fitted as standard can be found on page 1128.

Component adaptor 100 A for snap-on mounting		Component adaptor 160 A for clamping screw attachment		Page
Version	1	2	3	
Construction width	90 mm	110 mm	110 mm	
Rated current up to	100 A	160 A	160 A	
Rated operating voltage	690 V~	690 V~	690 V~	
Connection cables	35 mm²	–	–	
Connection of round conductors up to	–	6 – 70 mm²	6 – 70 mm²	
Clamping area for laminated copper bars	–	13 x 10 mm	13 x 10 mm	
Tightening torque ● Assembly screw ● Terminal screw	– –	6 Nm 3 Nm	6 Nm 3 Nm	
Packs of	1	1	1	
For 5 mm bar thickness **Model No. SV**	9320.000	3438.000	3539.000	
For 10 mm bar thickness **Model No. SV**	9320.010			

For power circuit-breakers Make				
ABB	LNA 32/63/100[1], Tmax (T1, T2)	S1/2/3, LNA 32/63/100	Tmax (T1, T2, T3)	
AEG	Mbs100[2]	MC 128/167/168	–	
Allen Bradley	140-CMN-...[2]	–	–	
Delta	–	Sizes E and F	–	
Merlin Gerin	Compact NS 80	Compact NS 80/100/160	Compact NS 80/100/160	
Moeller Electric	NZM 1, NZM 7	NZM 2	NZM 1/6/7	
Siemens	S3 (3RV104...)[2]	–	3VE4/5, 3VF3, 3VN4/5, 3VT4/5, 3VP5, Sentron VL 160 X (3VL1...)	
Telemecanique	GV3-M...[2], GK3-EF..[2]	–	–	
Vynckier	–	JF1/2, JS1/2/3, XF1/2, XH3, XS1/2/3	–	

Accessories	Packs of				
Laminated copper bars		–	■	■	361
Support rails width 72 mm, height 15 mm	5	9320.120	–	–	362

[1] Mounting of power circuit-breakers for fixed installation is only possible with ABB mounting bracket (Model No. UXAB 169264 R005).
[2] Mounting only possible with support rail.

B
2.2

Busbar systems up to 800 A/1600 A (60 mm)

Component adaptor 250 A/component support
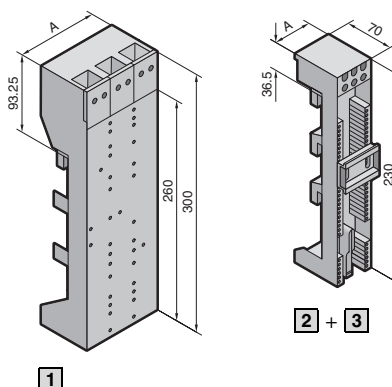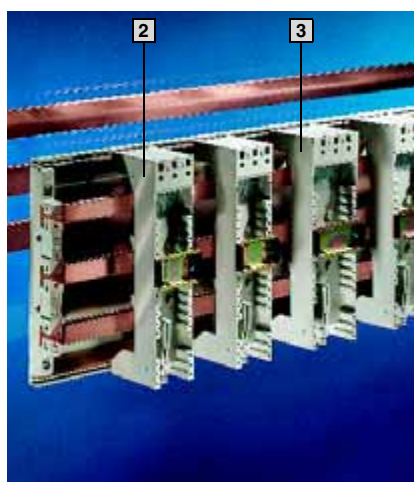
Material:
Fibreglass-reinforced, thermo-plastic polyester (PBT).
Continuous operating temperature max. 140°C.
Fire protection corresponding to UL 94-V0.

Component adaptor 250 A for clamping screw attachment				Component support (without contact system) for snap-on mounting		Page
Version		1	1	2	3	
Construction width (A)		110 mm	110 mm	54 mm	72 mm	
Rated current up to		250 A	250 A	–	–	
Rated operating voltage		690 V~	690 V~	–	–	
Connection of round conductors up to		50 – 120 mm²	50 – 120 mm²	–	–	
Clamping area for laminated copper bars		16 x 12 mm	16 x 12 mm	–		
Tightening torque ● Assembly screw ● Terminal screw		4 – 6 Nm 8 – 10 Nm	4 – 6 Nm 8 – 10 Nm	– –	– –	
Support rails	Quantity	–	–	1	1	
	Height	–	–	7.5 mm	7.5 mm	
Packs of		1	1	1	1	
For 5 mm bar thickness Model No. SV		3437.000	3437.010	3542.000	3546.000	
For 10 mm bar thickness Model No. SV				3543.000	3547.000	
For power circuit-breakers						
Make	**Type**					
ABB	S3, S4	■	–	–	–	
AEG	MC 168/257/258	■	–	–	–	
Delta	Size J	■	–	–	–	
Merlin Gerin	Compact NS 250	■	–	–	–	
Moeller Electric	NZM 6/7	■	–	–	–	
	NZM 2	–	■	–	–	
Siemens	3VF3/4	■	–	–	–	
Sprecher & Schuh	KTA 3-250S	■	–	–	–	
Also required	Packs of					
Mounting kit for power circuit breaker	Moeller, Siemens (3VF3)	1 set	**3018.000**	–	–	–
	AEG, Delta, Sprecher & Schuh	1 set	**3019.000**	–	–	–
	ABB, Merlin Gerin, Siemens (3VF4)	1 set	**3063.000**	–	–	–
Accessories						
Insert strip	1	–	–	3538.000	3538.000	362
Support rails, width 54 mm, height 7.5 mm	10	–	–	3548.000	–	362
Support rails, width 72 mm, height 7.5 mm	10	–	–	–	3549.000	362
Cover strips, width 54 mm	20	–	–	3536.000	–	363
Cover strips, width 72 mm	20	–	–	–	3537.000	363
Laminated copper bars		■	■	–	–	361

B
2.2

Busbar systems up to 800 A/1600 A (60 mm)

Busbar systems up to 800 A/1600 A (60 mm)

Bus-mounting fuse bases

Material:

Bus-mounting fuse base:
Fibreglass-reinforced,
thermoplastic polyester (PBT).
Continuous operating
temperature max. 140°C.
Fire protection corresponding to
UL 94-V0.

Contact hazard protection cover:
Talcum-reinforced polypro-
pylene.
Continuous operating
temperature max. 100°C.
Fire protection corresponding to
UL 94-V0.

For clamping screw attachment		1	2	3
Type		D 02-E 18 (adaptor sleeve)	D II-E 27 (adaptor screw)	D III-E 33 (adaptor screw)
Width (A)		27 mm	42 mm	57 mm
Rated current		63 A	25 A	63 A
Rated operating voltage		400 V~	500 V~	690 V~
Terminal for round conductors[1]		1.5 – 16 mm²	1.5 – 16 mm²	1.5 – 16 mm²
Tightening torque ● Assembly screw ● Terminal screw		2 Nm 2.5 Nm	2 Nm 2.5 Nm	2 Nm 2.5 Nm
Packs of		10	10	10
For 5 – 10 mm bar thickness **Model No. SV**		**3418.000**	**3427.000**	**3433.000**
Accessories	Packs of			
4 **Contact hazard protection cover** **Model No. SV**	10	**3419.000**	**3428.000**	**3434.000**
5 **Extension cover** **Model No. SV**	10	**3421.000**	**3430.000**	**3436.000**
6 **End caps** **Model No. SV**	10	**3420.000**	**3429.000**	**3435.000**
7 **Side cover** **Model No. SV**	10	**3093.000**	**3093.000**	**3093.000**
8 **Identification labels** **Model No. SV**	100	**9320.080**	**9320.080**	**9320.080**
Width (A) mm		27	42	57
Spacing (B) mm		57	40	40
Depth (C) mm		67	71.5	71.5

[1] Wire end ferrules should be used with fine wire conductors.

Bus-mounting fuse bases

B

2.2

Busbar systems up to 800 A/1600 A (60 mm)

Material:
Bus-mounting fuse base:
Fibreglass-reinforced,
thermoplastic polyester (PBT).
Continuous operating
temperature max. 140°C.
Fire protection corresponding to
UL 94-V0.

Contact hazard protection cover:
Talcum-reinforced polypro-
pylene.
Continuous operating
temperature max. 100°C.
Fire protection corresponding to
UL 94-V0.

For snap-on mounting		1	2	3
Type		D 02-E 18 (adaptor sleeve)	D II-E 27 (gauge ring)	D III-E 33 (gauge ring)
Width (A)		36 mm	42 mm	57 mm
Rated current		63 A	25 A	63 A
Rated operating voltage		400 V~	500 V~	690 V~
Terminal for round conductors[1]		1.5 – 16 mm²	1.5 – 16 mm²	1.5 – 16 mm²
Tightening torque ● Terminal screw		2.5 Nm	2.5 Nm	2.5 Nm
Packs of		10	10	10
For 5 mm bar thickness **Model No. SV**		**3422.000**	**3520.000**	**3530.000**
For 10 mm bar thickness **Model No. SV**		**3423.000**	**3521.000**	**3531.000**
Accessories	Packs of			
4 **Contact hazard protection cover Model No. SV**	10	**3424.000**	**3522.000**	**3532.000**
5 **Extension cover Model No. SV**	10	–	**3430.000**	**3436.000**
6 **End caps Model No. SV**	10	**3425.000**	**3429.000**	**3435.000**
7 **Side cover Model No. SV**	10	**3093.000**	**3093.000**	**3093.000**
8 **Identification labels Model No. SV**	100	**9320.080**	**9320.080**	**9320.080**
Width (A) mm		36	42	57
Spacing (B) mm		57	40	40
Depth (C) mm		67	71.5	71.5

[1] Wire end ferrules should be used with fine wire conductors.

NH fused isolators, size 00

* Off-load position

Material:
Cover:
Fibreglass-reinforced polyamide
Strip chassis:
Duroplastic polyester
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Technical information,
see page 1134.

Version		1	2	Page
Size		00	00	
Rated current		160 A	160 A	
Rated operating voltage		690 V~	690 V~	
Cable outlet		Top	Bottom	
Type of connection		Screw M8	Screw M8	
Tightening torque ● Assembly screw ● Terminal screw		6 Nm 14 Nm	6 Nm 14 Nm	
For bar thickness		5 – 10 mm	5 – 10 mm	
Packs of		1	1	
Model No. SV		**3591.020**	**3591.030**	
Accessories	Packs of			
Identification label support	6	3595.010	3595.010	363
Micro-switch	5	3071.000	3071.000	363
PLS cover	2	3499.070	3499.070	364
Lug terminal connection parts	1 set	3592.020	3592.020	365
Clamp-type terminal connection	1 set	3592.010	3592.010	365

B
2.2
Busbar systems up to 800 A/1600 A (60 mm)

NH on-load isolators, size 000
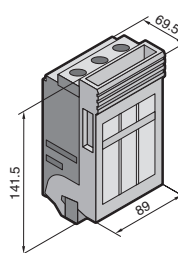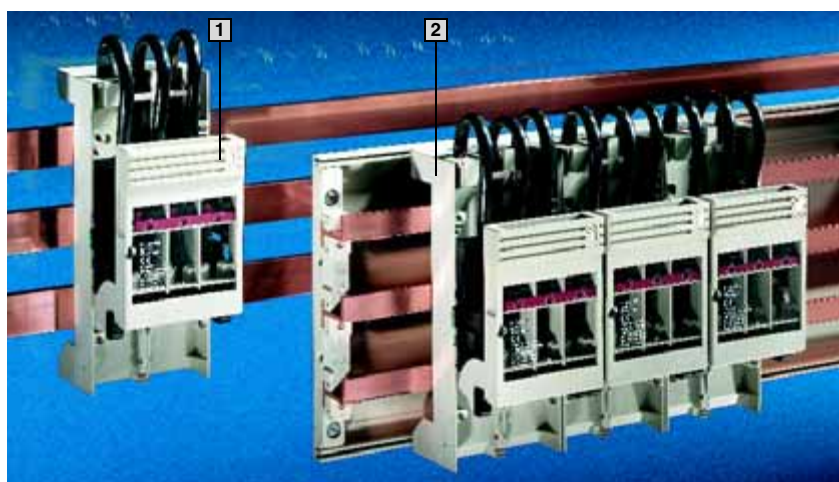
Material:
Isolator lid, contact hazard protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Technical information,
see page 1132.

Size		000	Page
Rated current		100 A (160 A)[1]	
Rated operating voltage		690 V~	
Cable outlet		top/bottom	
Type of connection		Terminal up to 50 mm²	
Tightening torque ● Terminal screw		3 Nm	
Packs of		1	
1 **Model No. SV**		**3431.000**	
Also required			
Busbar adaptor		see below	
Accessories	Packs of		
Micro-switch	5	3071.000	363

[1] 160 A at 95 mm² connection cross-section (95 mm² connector pieces available on request).
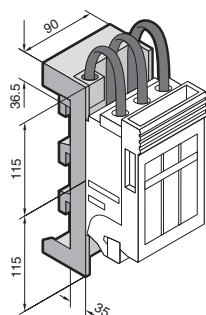
2 Busbar adaptor

For mounting SV 3431.000 on 60 mm busbar systems.

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Supply includes:
35 mm² connection cables fitted as standard.

For bar thickness mm	Packs of	Model No. SV
5	1	**9320.040**
10	1	**9320.050**

NH bus-mounting on-load isolator, size 00/NH bus-mounting fuse bases, size 00
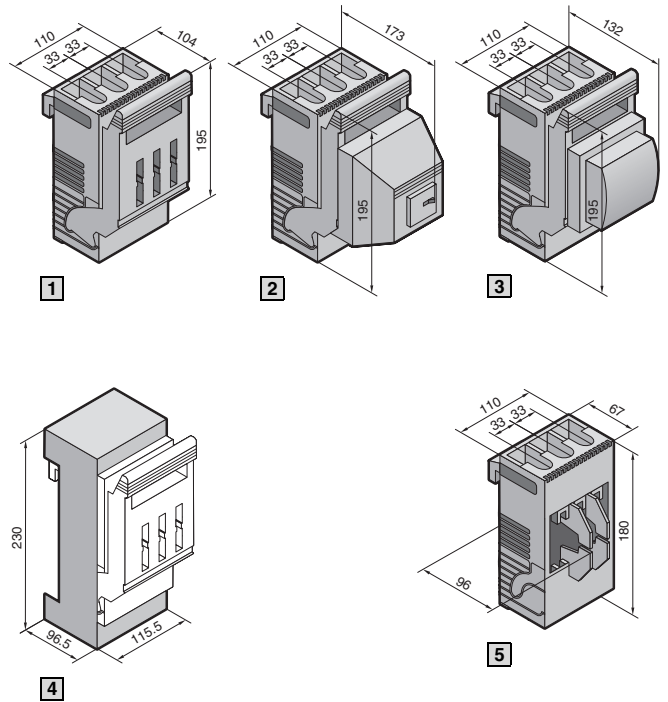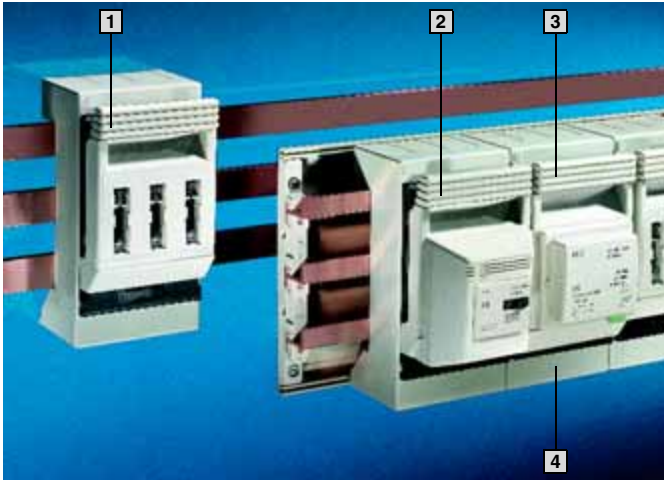
Material:
Isolator lid, contact hazard
protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts
(VDE 0636/23) in NH equipment,
please observe the information
on page 1134.

The NH bus-mounting fuse base
is not suitable for fitting with an
isolator lid.

Technical information,
see page 1132.

NH bus-mounting on-load isolators

		00		00		Page
Size		00		00		
Rated current		160 A		160 A		
Rated operating voltage		690 V~		690 V~		
Cable outlet		Top	Bottom	Top	Bottom	
Type of connection		Screw terminal M8 up to 95 mm²		Clamp-type terminal connection up to 70 mm²		
Tightening torque ● Assembly screw ● Terminal screw		5 – 6 Nm 10 – 15 Nm	5 – 6 Nm 10 – 15 Nm	5 – 6 Nm 2 – 3 Nm	5 – 6 Nm 2 – 3 Nm	
For bar thickness		5 – 10 mm	5 – 10 mm	5 – 10 mm	5 – 10 mm	
Packs of		1	1	1	1	
[1] **Model No. SV**		**3400.000**	**3401.000**	**3402.000**	**3403.000**	
[2] **with electromechanical fuse monitoring Model No. SV**		**3490.000**	**3491.000**	**3492.000**	**3493.000**	
[3] **with electronic fuse monitoring and LED display Model No. SV**		**3490.210**	**3491.210**	**3492.210**	**3493.210**	
Accessories	Packs of					
Micro-switch	5	3071.000	3071.000	3071.000	3071.000	363
[4] Contact hazard protection frame	1	3408.000	3408.000	3408.000	3408.000	364

NH bus-mounting fuse bases[1]

		00		00		
Size		00		00		
Rated current		160 A		160 A		
Rated operating voltage		690 V~		690 V~		
Cable outlet		Top	Bottom	Top	Bottom	
Type of connection		Screw terminal M8 up to 95 mm²		Clamp-type terminal connection up to 70 mm²		
Tightening torque ● Assembly screw ● Terminal screw		5 – 6 Nm 10 – 15 Nm	5 – 6 Nm 10 – 15 Nm	5 – 6 Nm 10 – 15 Nm	5 – 6 Nm 10 – 15 Nm	
For bar thickness		5 – 10 mm	5 – 10 mm	5 – 10 mm	5 – 10 mm	
Packs of		1	1	1	1	
[5] **Model No. SV**		**3406.000**	**3407.000**	**3404.000**	**3405.000**	

[1] Component mounting with an isolator lid is not possible.

B
2.2
Busbar systems up to 800 A/1600 A (60 mm)

NH bus-mounting on-load isolators, size 1

B

2.2

Busbar systems up to 800 A/1600 A (60 mm)

Material:
Isolator lid, contact hazard protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Technical information, see page 1132.

Size	1		Page
Rated current	250 A		
Rated operating voltage	690 V~		
Cable outlet	Top	Bottom	
Type of connection	Screw terminal M10 up to 150 mm²	Screw terminal M10 up to 150 mm²	
Tightening torque ● Assembly screw ● Terminal screw	8 – 10 Nm 15 – 20 Nm	8 – 10 Nm 15 – 20 Nm	
For bar thickness	5 – 10 mm	5 – 10 mm	
Packs of	1	1	
1 Model No. SV	**3411.000**	**3410.000**	
2 with electromechanical fuse monitoring Model No. SV	**3495.000**	**3494.000**	
3 with electronic fuse monitoring and LED display Model No. SV	**3495.210**	**3494.210**	
Accessories	Packs of		
Micro-switch	5	3071.000	3071.000	363
PLS cover	2	3099.000	3099.000	364
Lug terminal connection parts	1 set	3414.000	3414.000	365

Busbar systems up to 800 A/1600 A (60 mm)

NH bus-mounting on-load isolators, size 2

Material:
Isolator lid, contact hazard protection, isolator chassis: Fibreglass-reinforced polyamide
Contact tracks: Silver-plated hard copper

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Technical information, see page 1132.

Detailed drawing, see page 1135.

Size	2		Page
Rated current	400 A		
Rated operating voltage	690 V~		
Cable outlet	Top	Bottom	
Type of connection	Screw terminal M10 up to 240 mm²	Screw terminal M10 up to 240 mm²	
Tightening torque ● Assembly screw ● Terminal screw	14 Nm 32 Nm	14 Nm 32 Nm	
For bar thickness	5 – 10 mm	5 – 10 mm	
Packs of	1	1	
1 Model No. SV	**3415.020**	**3415.030**	
2 with electromechanical fuse monitoring Model No. SV	**3415.120**	**3415.130**	
3 with electronic fuse monitoring and LED display Model No. SV	**3415.210**	**3415.230**	
Accessories	Packs of		
Micro-switch	5	3071.000	3071.000	363
PLS cover	1	3499.040	3499.040	364
Lug terminal connection parts	1 set	3499.000	3499.000	365
Clamp-type terminal connection	1 set	3499.010	3499.010	365

NH bus-mounting on-load isolators, size 3

Material:
Isolator lid, contact hazard protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Technical information,
see page 1132.

Detailed drawing,
see page 1135.

Size	3		Page
Rated current	630 A		
Rated operating voltage	690 V~		
Cable outlet	Top	Bottom	
Type of connection	Screw terminal M10 up to 240 mm²	Screw terminal M10 up to 240 mm²	
Tightening torque ● Assembly screw ● Terminal screw	14 Nm 32 Nm	14 Nm 32 Nm	
For bar thickness	5 – 10 mm	5 – 10 mm	
Packs of	1	1	
1 **Model No. SV**	**3095.020**	**3095.030**	
2 **with electromechanical fuse monitoring** **Model No. SV**	**3095.120**	**3095.130**	
3 **with electronic fuse monitoring and LED display** **Model No. SV**	**3095.210**	**3095.230**	
Accessories	Packs of		
Micro-switch	5	3071.000	3071.000	363
PLS cover	1	3499.050	3499.050	364
Lug terminal connection parts	1 set	3499.000	3499.000	365
Clamp-type terminal connection	1 set	3499.010	3499.010	365

B
2.2

Busbar systems up to 800 A/1600 A (60 mm)

Busbar systems up to 1250 A (100 mm)

Overview

The busbar support with 100 mm bar centre distance is designed for the accommodation of bars 60 x 10 mm; by using inserts the cross-section may be reduced to 50/40/30 x 10 mm.
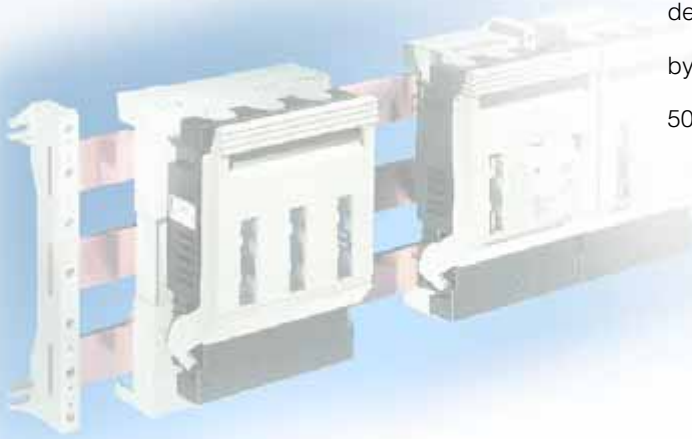
System components

End cover

Busbar support
up to 1250 A, 3-pole

Inserts
for busbar supports
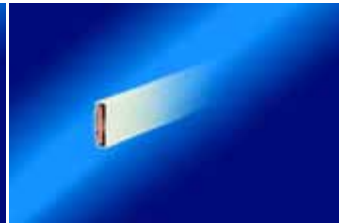
Busbars E-Cu

Busbar cover sections

Plate clamps

Conductor connection clamps

System covers

NH-bus-mounting on-load isolator size 00, size 1, size 2 and size 3

NH fused isolator, size 00

1 Busbar support

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Short-circuit protection diagram,
see page 1126.

Technical information
for the calculation of rated currents,
see page 1137.

Rated current up to	1250 A
Rated operating voltage up to	1000 V~, 50/60 Hz to VDE 0660
Number of poles	3-pole
Bar centre distance	100 mm
Max. bar accommodation without inserts	60 x 10 mm
Tightening torque ● Assembly screw ● Cover attachment	8 – 10 Nm 1 – 3 Nm
Packs of	4
Model No. SV	**3073.000**

Inserts

for SV 3073.000
To adapt bar dimensions
30 x 10 – 50 x 10 mm.

Busbars

made from E-Cu
To DIN EN 13 601.
Length: 2400 mm/bar.

Rated current	Busbar dimensions mm	Inserts[1] Model No. SV	Busbars[2] Model No. SV
800 A	30 x 10	3074.000	3586.000[3]
850 A	40 x 10	3075.000	3587.000
1000 A	50 x 10	3076.000	3588.000
1250 A	60 x 10	–	3589.000

Supply includes:
[1] Packs of 24
[2] Packs of 3
[3] Packs of 6

2 End cover

For side contact hazard protection of the busbar assembly. Simple clip-on mounting to SV 3073.000.

Packs of	**Model No. SV**
10	**3083.000**
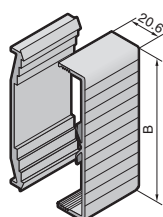
3 Busbar covers

Contact hazard protection via full encapsulation of the busbars. May be cut to required length.

Material:
Thermally modified hard PVC.
Continuous operating temperature: max. 100°C.
Fire protection corresponding to UL 94-V0.

For busbars mm	Width (B) mm	Packs of	**Model No. SV**
12 x 5 – 30 x 10	40,6	10 à 1 m	**3092.000**
40 x 10 – 60 x 10	70,6	10 à 1 m	**3085.000**

Busbar systems up to 1250 A (100 mm)

Connection clamps/system covers
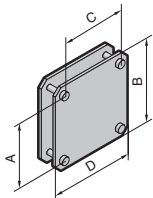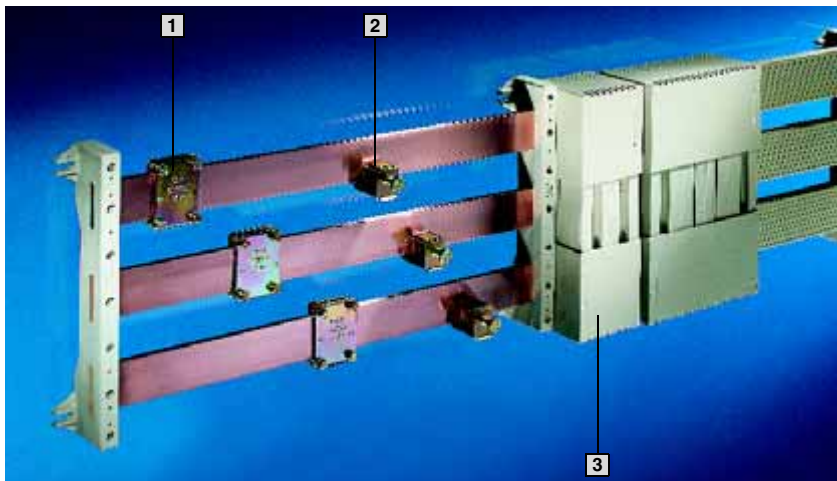
1 Plate clamps

For connecting laminated copper bars; no drilling required.

Material:
Sheet steel, zinc-plated, passivated.

+ Accessories:

Laminated copper bars,
see page 361.

For busbars mm	Clamping area for laminated copper bars mm	Tightening torque Nm	A mm	B mm	C mm	D mm	Packs of	Model No. SV
30 x 10	34 x 10	6 – 8	40	55	40	55	3	**3554.000**
40 x 10	34 x 10	6 – 8	50	65	40	55	3	**3559.000**
50 x 10	34 x 10	6 – 8	60	75	40	55	3	**3560.000**
50 x 10	54 x 10	6 – 8	60	75	60	75	3	**3562.000**
60 x 10	34 x 10	6 – 8	70	85	40	55	3	**3561.000**
60 x 10	54 x 10	6 – 8	70	85	60	75	3	**3563.000**

2 Conductor connection clamps

For 10 mm bar thickness.

Material:
Sheet steel, zinc-plated, passivated
(SV 3455.500 – SV 3459.500), brass
(SV 3555.000).

Note:
Conductor connection clamps for 5 mm bar thickness, see page 324.

+ Accessories:

Laminated copper bars,
see page 361.

Connection of round conductors[1] mm²	Clamping area for laminated copper bars mm	Tightening torque Nm	Width (B) mm	Height (H) mm min.	Height (H) mm max.	Packs of	Model No. SV
1 – 4	–	2	8	–	–	15	**3555.000**
1 – 4	–	2	11	17	23	15	**3455.500**
2.5 – 16	8 x 8	3	14	22	29	15	**3456.500**
16 – 50	10.5 x 11	6 – 8	18.5	26	39	15	**3457.500**
35 – 70	16.5 x 15	10 – 12	24.5	39	57	15	**3458.500**
70 – 185	22.5 x 20	12 – 15	30.5	44	66	15	**3459.500**

[1] Wire end ferrules should be used with fine wire conductors.

3 System covers

For conductor connection clamps and plate clamps.

Material:
ABS.
Continuous operating temperature: max. 80°C.
Fire protection corresponding to UL 94-V0.

Width (B) mm	Height (H) mm	Packs of	Model No. SV
50	80	4	**3086.000**
100	80	4	**3087.000**
100	110	4	**3090.000**
200	80	4	**3088.000**
200	110	4	**3091.000**

NH bus-mounting on-load isolator, size 00

Material:
Isolator lid, contact hazard
protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts
(VDE 0636/23) in NH equipment,
please observe the information
on page 1134.

Technical information,
see page 1132.

Size			00		00		Page
Rated current			160 A		160 A		
Rated operating voltage			690 V~		690 V~		
Cable outlet			Top	Bottom	Top	Bottom	
Type of connection			Screw terminal M8 up to 95 mm²		Clamp-type terminal connection up to 70 mm²		
Tightening torque ● Assembly screw ● Terminal screw			5 – 6 Nm 10 – 15 Nm	5 – 6 Nm 10 – 15 Nm	5 – 6 Nm 2 – 3 Nm	5 – 6 Nm 2 – 3 Nm	
Packs of			1	1	1	1	
1 Model No. SV			**3400.000**	**3401.000**	**3402.000**	**3403.000**	
2 with electromechanical fuse monitoring Model No. SV			**3490.000**	**3491.000**	**3492.000**	**3493.000**	
3 with electronic fuse monitoring and LED display Model No. SV			**3490.210**	**3491.210**	**3492.210**	**3493.210**	
Also required							
4 Busbar adaptor			see below				
5 Cover			see below				
Accessories		Packs of					
Micro-switch		5	3071.000	3071.000	3071.000	3071.000	363
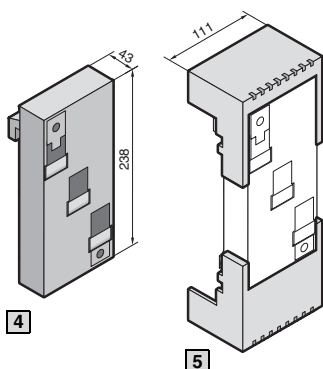
4 Busbar adaptor
For mounting SV 3400.000 – SV 3493.210
on 100 mm busbar systems.

Packs of	Model No. SV
1	**3412.000**

5 Cover
for SV 3412.000
To comply with contact hazard protection,
plug-type.

Packs of	Model No. SV
1 set	**3413.000**

B

2.3

Busbar systems up to 1250 A (100 mm)

Busbar systems up to 1250 A (100 mm)

NH bus-mounting on-load isolators, size 1

Material:
Isolator lid, contact hazard protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Technical information,
see page 1132.

Size		1		Page
Rated current		250 A		
Rated operating voltage		690 V~		
Cable outlet		Top	Bottom	
Type of connection		Screw terminal M10 up to 150 mm²		
Tightening torque ● Assembly screw ● Terminal screw		8 – 10 Nm 15 – 20 Nm	8 – 10 Nm 15 – 20 Nm	
Packs of		1	1	
1 Model No. SV		**3411.000**	**3410.000**	
2 with electromechanical fuse monitoring Model No. SV		**3495.000**	**3494.000**	
3 with electronic fuse monitoring and LED display Model No. SV		**3495.210**	**3494.210**	
Also required				
4 Busbar adaptor		see below		
5 Cover		see below		
6 System cover		see below		
Accessories	Packs of			
Micro-switch	5	3071.000	3071.000	363
Lug terminal connection parts	1 set	3414.000	3414.000	365
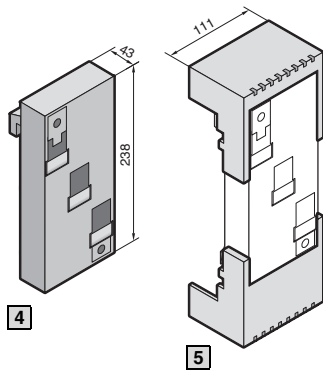
4 Busbar adaptor
For mounting SV 3410.000 – 3495.210 on 100 mm busbar systems.

Packs of	Model No. SV
1	3412.000

5 Cover
for SV 3412.000
To comply with contact hazard protection, plug-type.

Packs of	Model No. SV
1 set	3413.000

6 System cover
Width 50 mm, height 80 mm.

Further information,
see page 344.

Packs of	Model No. SV
4	3086.000
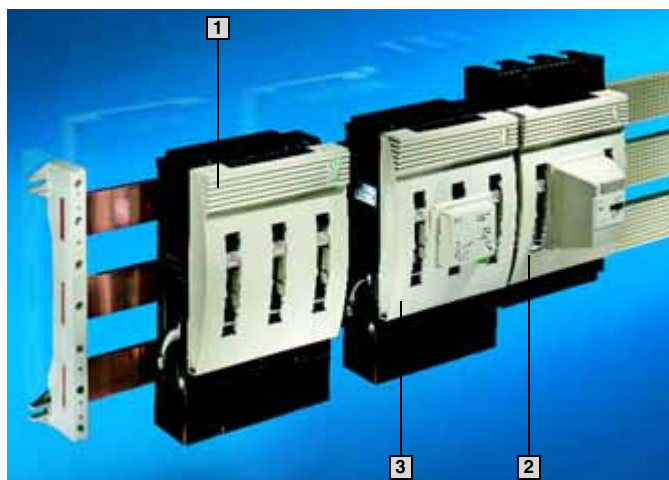
Material:
Isolator lid, contact hazard
protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts
(VDE 0636/23) in NH equipment,
please observe the information
on page 1134.

Technical information,
see page 1132.

Detailed drawing,
see page 1136.

B
2.3
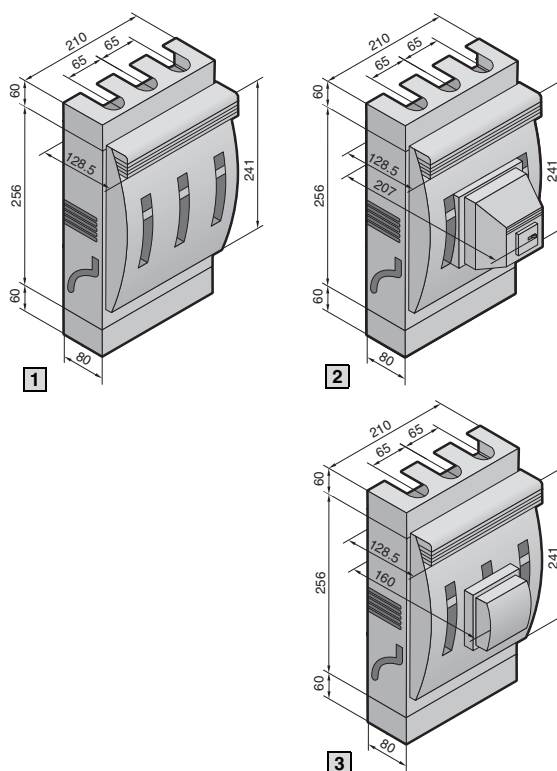
Busbar systems up to 1250 A (100 mm)

Size		2	Page
Rated current		400 A	
Rated operating voltage		690 V~	
Cable outlet		top/bottom	
Type of connection		Screw terminal M10 up to 240 mm^2	
Tightening torque ● Assembly screw ● Terminal screw		14 Nm 32 Nm	
Packs of		1	
1 Model No. SV		3415.010	
2 with electromechanical fuse monitoring Model No. SV		3415.110	
3 with electronic fuse monitoring and LED display Model No. SV		3415.310	
Also required			
Busbar adaptor		see below	
Accessories	Packs of		
Micro-switch	5	3071.000	363
Lug terminal connection parts	1 set	3499.000	365
Clamp-type terminal connection	1 set	3499.010	365
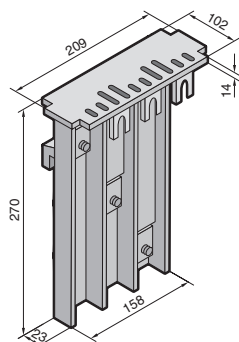
Busbar adaptor
For mounting SV 3415.010 – SV 3415.310
on 100 mm busbar systems.
Outlet top/bottom.

Packs of	Model No. SV
1	3499.020

Busbar systems up to 1250 A (100 mm)
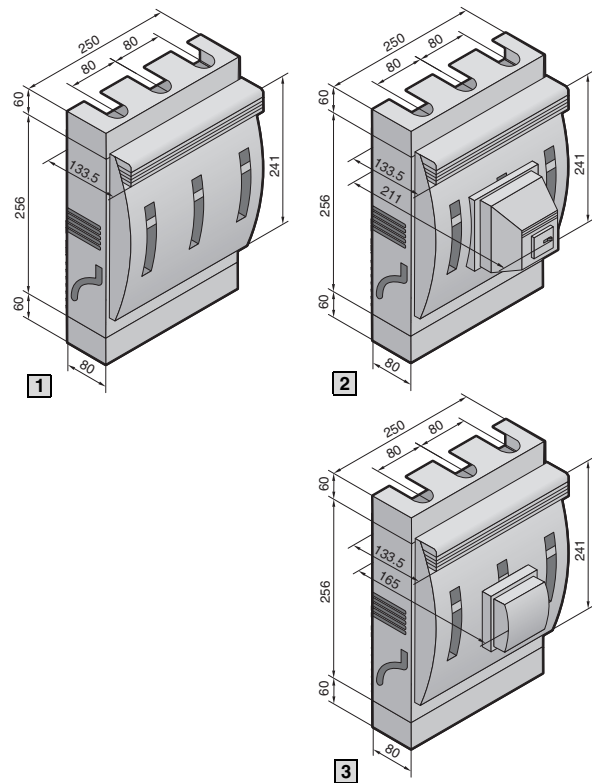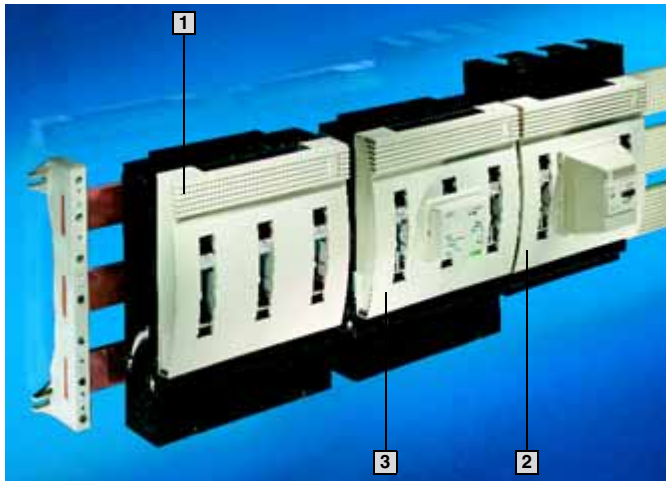
NH bus-mounting on-load isolators, size 3

Material:
Isolator lid, contact hazard protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Technical information,
see page 1132.

Detailed drawing,
see page 1136.

Size		3	Page
Rated current		630 A	
Rated operating voltage		690 V~	
Cable outlet		top/bottom	
Type of connection		Screw terminal M10 up to 240 mm²	
Tightening torque ● Assembly screw ● Terminal screw		14 Nm 32 Nm	
Packs of		1	
1 **Model No. SV**		**3095.010**	
2 **with electromechanical fuse monitoring Model No. SV**		**3095.110**	
3 **with electronic fuse monitoring and LED display Model No. SV**		**3095.310**	
Also required			
Busbar adaptor		see below	
Accessories	Packs of		
Micro-switch	5	3071.000	363
Lug terminal connection parts	1 set	3499.000	365
Clamp-type terminal connection	1 set	3499.010	365
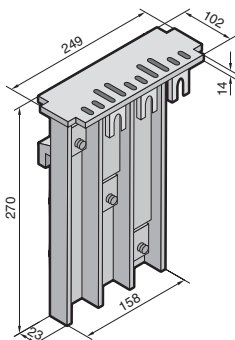
Busbar adaptor
For mounting SV 3095.010 – SV 3095.310 on 100 mm busbar systems.
Outlet top/bottom.

Packs of	Model No. SV
1	**3499.030**
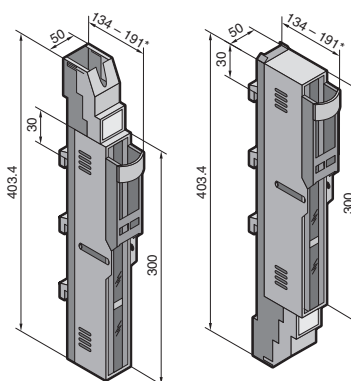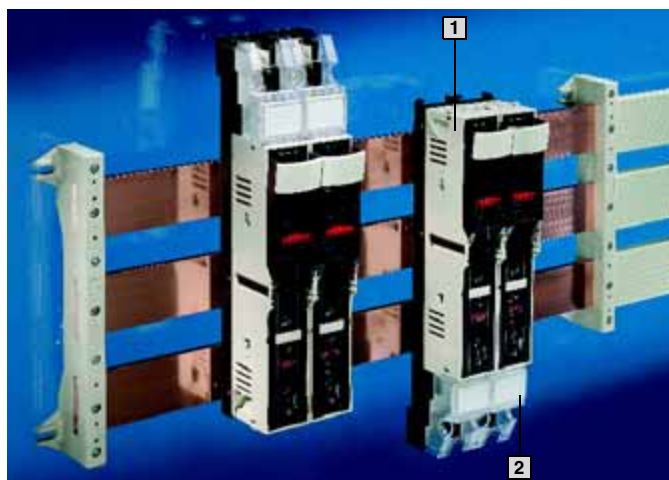
134 ~ 191*

* Off-load position

Material:
Cover:
Fibreglass-reinforced polyamide
Strip chassis:
Duroplastic polyester
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts
(VDE 0636/23) in NH equipment,
please observe the information
on page 1134.

Technical information,
see page 1134.

Size		00	Page
Rated current		160 A	
Rated operating voltage		690 V~	
Cable outlet		top/bottom	
Type of connection		Screw M8	
Tightening torque ● Assembly screw ● Terminal screw		6 Nm 14 Nm	
Packs of		1	
1 **Model No. SV**		**3591.010**	
Accessories	Packs of		
2 Identification label support	6	3595.010	363
Micro-switch	5	3071.000	363
Lug terminal connection parts	1 set	3592.020	365
Clamp-type terminal connection	1 set	3592.010	365

B

2.3

Busbar systems up to 1250 A (100 mm)

Busbar systems up to 1600 A (185 mm)

Overview
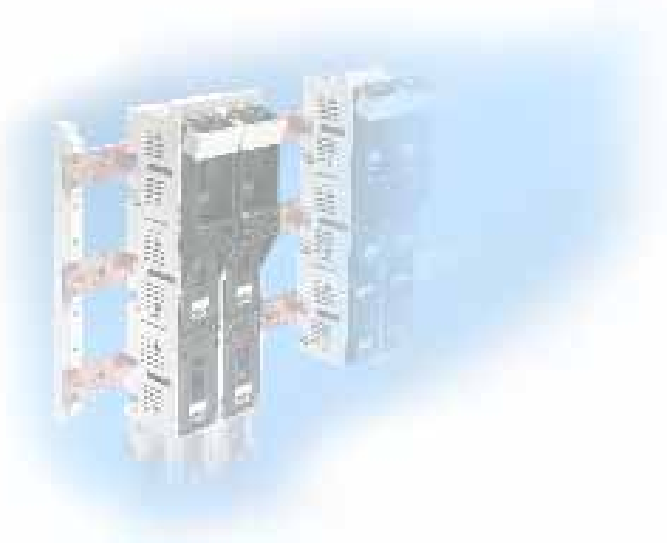
The busbar support with 185 mm bar centre distance is designed for the accommodation of bars 80 x 10 mm; by using inserts the cross-section may be reduced to 60/50 x 10 mm.

The special design of the busbar support facilitates seamless top mounting in the vicinity of the support. For this purpose, the isolator, bar and support are screwed together with a single screw.
In addition, the individual modules of the busbar support can also be used as single-pole supports.

System components
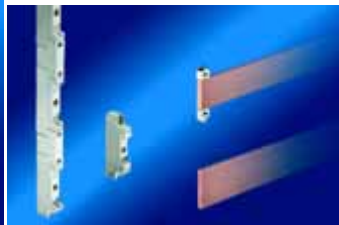
Busbar support
up to 1600 A, 3-pole

Inserts
for busbar supports
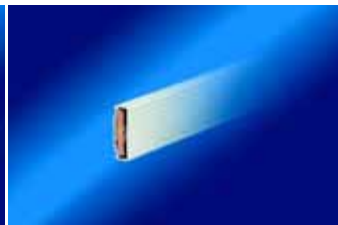
Busbars E-Cu

Busbar cover sections
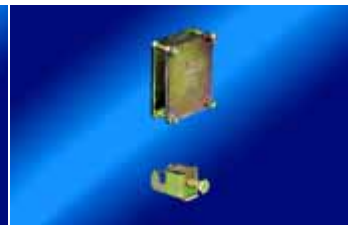
Plate clamps
Conductor connection clamps

NH fused isolator, size 00
Included with the supply:
Single or double adaptor for mounting the NH strip on 185 mm bar systems

NH fused isolators, sizes 1 – 3
for direct mounting on 185 mm bar systems.
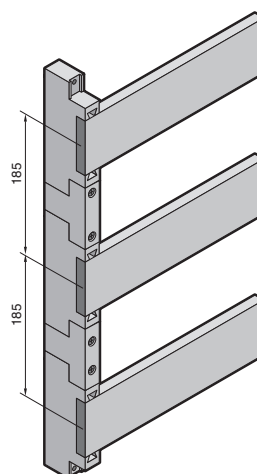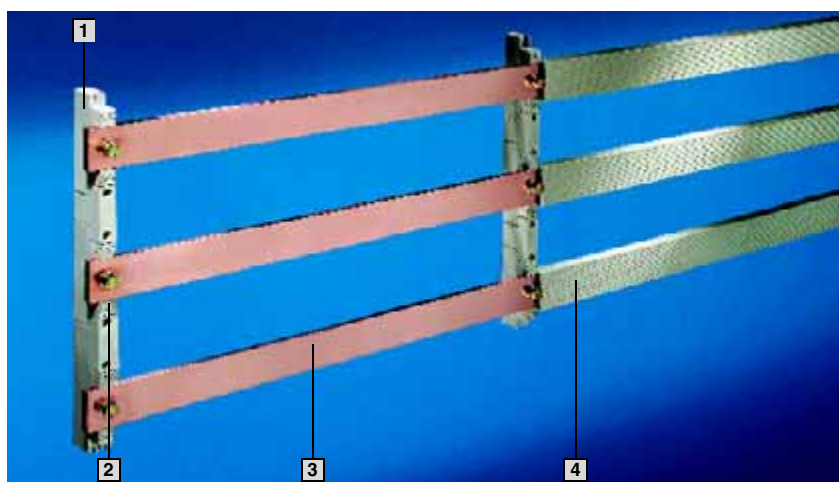
**Planning software
Rittal SV Plan/
Power Plan,**
see page 1061.
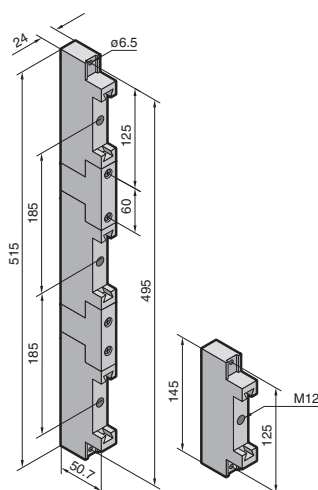
1 Busbar support

Material:
Fibreglass-reinforced, thermoplastic
polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Note:
The base component of the busbar support may
also be used as a single-pole support.

Short-circuit protection diagram,
see page 1126.

Technical information
for the calculation of rated currents,
see page 1137.

Rated current up to	1600 A
Rated operating voltage up to	1000 V~, 50/60 Hz to VDE 0660
Number of poles	3-pole
Bar centre distance	185 mm
Max. bar accommodation without inserts	80 x 10 mm
Tightening torque ● Assembly screw ● Bar attachment screw	3 – 5 Nm 40 Nm
Packs of	2
Model No. SV	**3052.000**

2 Inserts

for SV 3052.000
To adapt bar dimensions
50 – 60 x 10 mm.

3 Busbars

made from E-Cu
To DIN EN 13 601.
Length: 2400 mm/bar.

Rated current	Busbar dimensions mm	Inserts[1] Model No. SV	Busbars[2] Model No. SV
1000 A	50 x 10	**3074.000**	**3588.000**
1250 A	60 x 10	**3075.000**	**3589.000**
1600 A	80 x 10	–	**3590.000**

Supply includes:
[1] Packs of 24
[2] Packs of 3
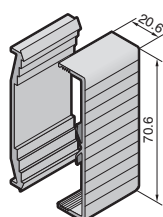
4 Busbar covers

Contact hazard protection via full encapsulation of
the busbars. May be cut to required length.

Material:
Thermally modified hard PVC.
Continuous operating temperature: max. 100°C.
Fire protection corresponding to UL 94-V0.

For busbars mm	Packs of	**Model No. SV**
40 – 60 x 10	10 à 1 m	**3085.000**

Busbar systems up to 1600 A (185 mm)
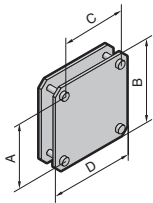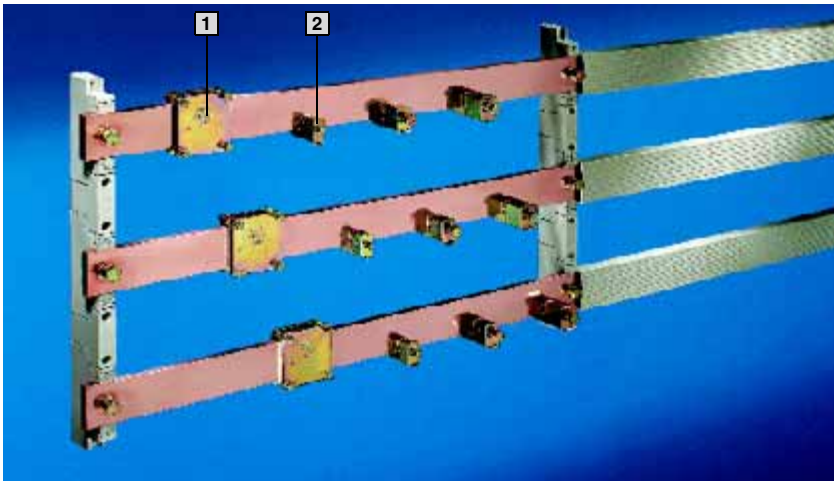
Connection clamps

1 Plate clamps

For connecting laminated copper bars;
no drilling required.

Material:
Sheet steel, zinc-plated, passivated.

Accessories:

Laminated copper bars,
see page 361.

For busbars mm	Clamping area for laminated copper bars mm	Tightening torque Nm	A mm	B mm	C mm	D mm	Packs of	Model No. SV
50 x 10	34 x 10	6 – 8	60	75	40	55	3	**3560.000**
50 x 10	54 x 10	6 – 8	60	75	60	75	3	**3562.000**
60 x 10	34 x 10	6 – 8	70	85	40	55	3	**3561.000**
60 x 10	54 x 10	6 – 8	70	85	60	75	3	**3563.000**
80 x 10	65 x 10	6 – 8	90	105	71	86	3	**3460.500**

2 Conductor connection clamps

For 10 mm bar thickness.

Material:
Sheet steel, zinc-plated, passivated
(SV 3455.500 – SV 3459.500), brass
(SV 3555.000).

Note:
Conductor connection clamps for 5 mm bar
thickness, see page 324.

Accessories:

Laminated copper bars,
see page 361.

Connection of round conductors[1] mm^2	Clamping area for laminated copper bars mm	Tightening torque Nm	Width (B) mm	Height (H) mm		Packs of	Model No. SV
				min.	max.		
1 – 4	–	2	8	–	–	15	**3555.000**
1 – 4	–	2	11	17	23	15	**3455.500**
2.5 – 16	8 x 8	3	14	22	29	15	**3456.500**
16 – 50	10.5 x 11	6 – 8	18.5	26	39	15	**3457.500**
35 – 70	16.5 x 15	10 – 12	24.5	39	57	15	**3458.500**
70 – 185	22.5 x 20	12 – 15	30.5	44	66	15	**3459.500**

[1] Wire end ferrules should be used with fine wire conductors.

* Off-load position

Material:
Cover:
Fibreglass-reinforced polyamide
Strip chassis:
Duroplastic polyester
Contact tracks:
Silver-plated hard copper

Scope of supply SV 3591.040:
Including
1 busbar adaptor[1],
2 compensating panels

Scope of supply SV 3591.050:
Including
1 busbar adaptor[1]
(two-way adaptor),
4 compensating panels

[1] Tightening torque 25 Nm (bar attachment)

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Technical information,
see page 1134.

Version	1		2			Page
Size	00		1	2	3	
Rated current	160 A		250 A	400 A	630 A	
Rated operating voltage	690 V~		690 V~	690 V~	690 V~	
Cable outlet	top/bottom		top/bottom	top/bottom	top/bottom	
Type of connection	Screw M8		Screw M12	Screw M12	Screw M12	
Tightening torque ● Assembly screw ● Terminal screw	14 Nm 14 Nm		40 Nm 40 Nm	40 Nm 40 Nm	40 Nm 40 Nm	
Packs of	1	2	1	1	1	
Model No. SV	**3591.040**	**3591.050**	**3485.000**	**3486.000**	**3487.000**	
Accessories	Packs of					
3 Identification label support	6	3595.010	3595.010	–	–	–	363
Micro-switch	5	3071.000	3071.000	3071.000	3071.000	3071.000	363
Lug terminal connection parts	1 set	3592.020	3592.020	–	–	–	365
Clamp-type terminal connection	1 set	3592.010	3592.010	–	–	–	365
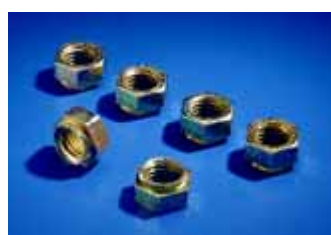
Inserted screw nuts M12
Self-holding nuts with knurled ring.
For drilled holes in busbars Ø 14.5 mm.

Note:
Inserted screw nuts M12 are already included in the supply of SV 3591.040/.050 and SV 3485.000 – SV 3487.000.

Packs of	Model No. SV
30	**3591.060**

Busbar systems up to 2500 A/3000 A (150 mm)

Overview
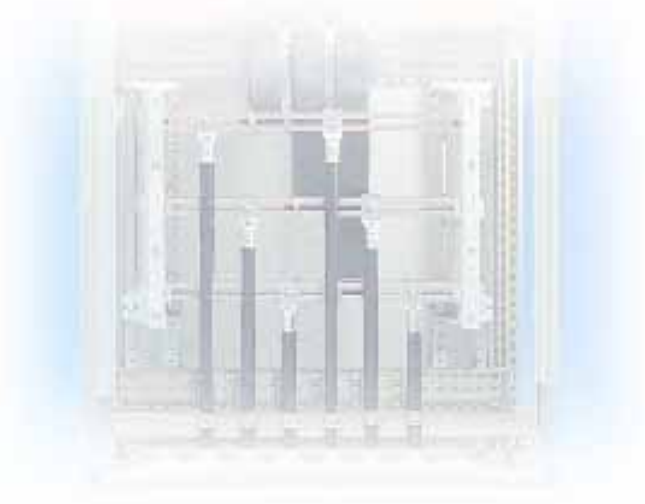
These bar systems with 150 mm bar centre distance are suitable for power transmission and distribution.

The maximum bar accommodation of the busbar supports is 80 x 10 mm or 100 x 10 mm.

System components

Busbar support
up to 2500 A, 2 x 3-pole

Spacing pieces
to reduce the bar cross-section in 10 mm increments

Busbars E-Cu

Connection plates

Bar insulation

Busbar support
up to 3000 A, 2 x 3-pole
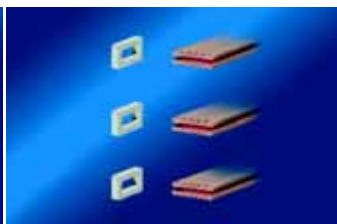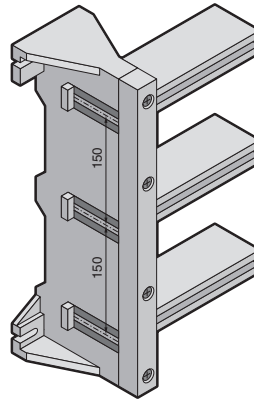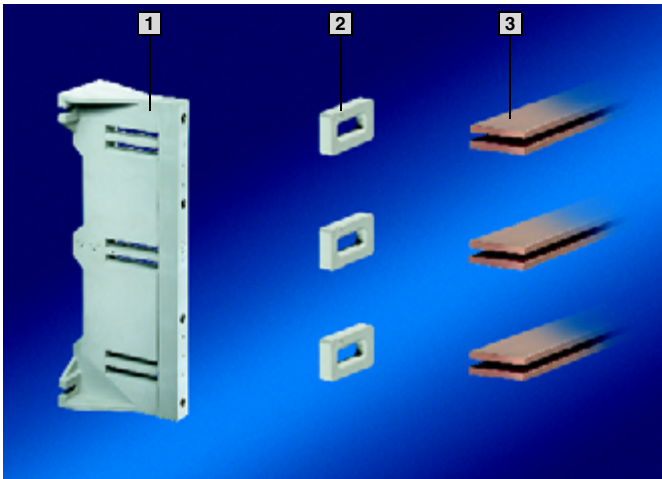
Spacing pieces
to reduce the bar cross-section in 10 mm increments

Commercially available
busbars E-Cu
Cross-sections: 100 x 10 mm

Connection plates

Bar insulation

B

2.5

Busbar systems up to 2500 A/3000 A (150 mm)
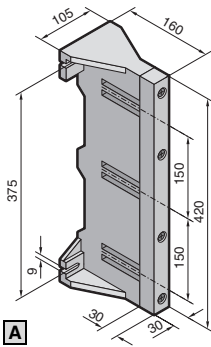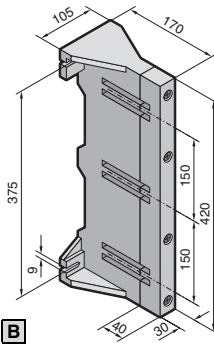
1 Busbar support

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Continuous operating temperature: max. 140°C.
Fire protection corresponding to UL 94-V0.

Short-circuit protection diagram, see page 1126.

Technical information
for the calculation of rated currents, see page 1137.

Rated current up to	A 2500 A	B 3000 A
Rated operating voltage up to	1000 V~, 50/60 Hz to VDE 0660	
Number of poles	3-pole	
Bar centre distance	150 mm	
Max. bar accommodation without spacing pieces	2 x 80 x 10 mm	2 x 100 x 10 mm
Tightening torque ● Assembly screw ● Cover attachment	8 – 10 Nm 5 – 10 Nm	8 – 10 Nm 5 – 10 Nm
Packs of	2	2
Model No. SV	**3055.000**	**3057.000**

2 Spacing pieces
for SV 3055.000/SV 3057.000
To reduce the bar dimensions in 10 mm increments. Also suitable for stepped busbar assemblies.

Packs of	Model No. SV
12	**3056.000**

3 Busbars
made from E-Cu
To DIN EN 13 601.
Length: 2400 mm/bar.

Dimensions	Packs of	Model No. SV
60 x 10 mm	3	**3589.000**
80 x 10 mm	3	**3590.000**

System components
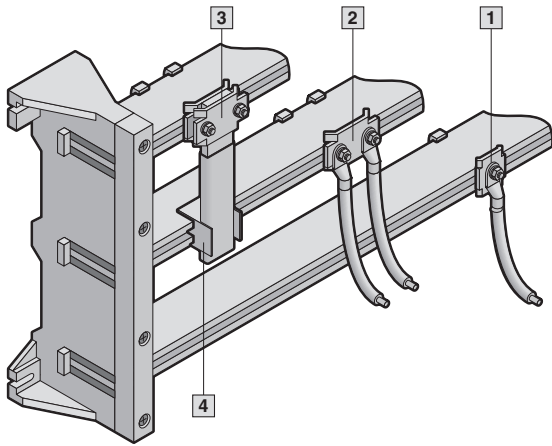
Connection plates
for SV 3055.000
Tightening torque: 10 – 15 Nm.

	Connection	Packs of	Model No. SV
1	Ring terminal M10 up to 240 mm²	3 sets	**3058.000[1]**
2	2 x ring terminals M10 up to 240 mm²	3 sets	**3059.000[1]**
3	Laminated flat copper up to 40 x 10 mm	3 sets	**3061.000[2]**

T-head screws:
[1] M10 x 100 mm
[2] M10 x 120 mm

➕ Accessories:

Laminated copper bars,
see page 361.

Connection plates
for SV 3057.000
Tightening torque: 10 – 15 Nm.

Note:
One connection plate per terminal connection is omitted.

	Connection	Packs of	Model No. SV
3	2 x ring terminals M10 up to 240 mm²	3 sets	**3061.000[1]**

T-head screws:
[1] M10 x 120 mm

④ Bar insulation
for SV 3055.000 and SV 3057.000
For supply lead routing, plug-type.

Packs of	Model No. SV
9	**3060.000**

B

2.5
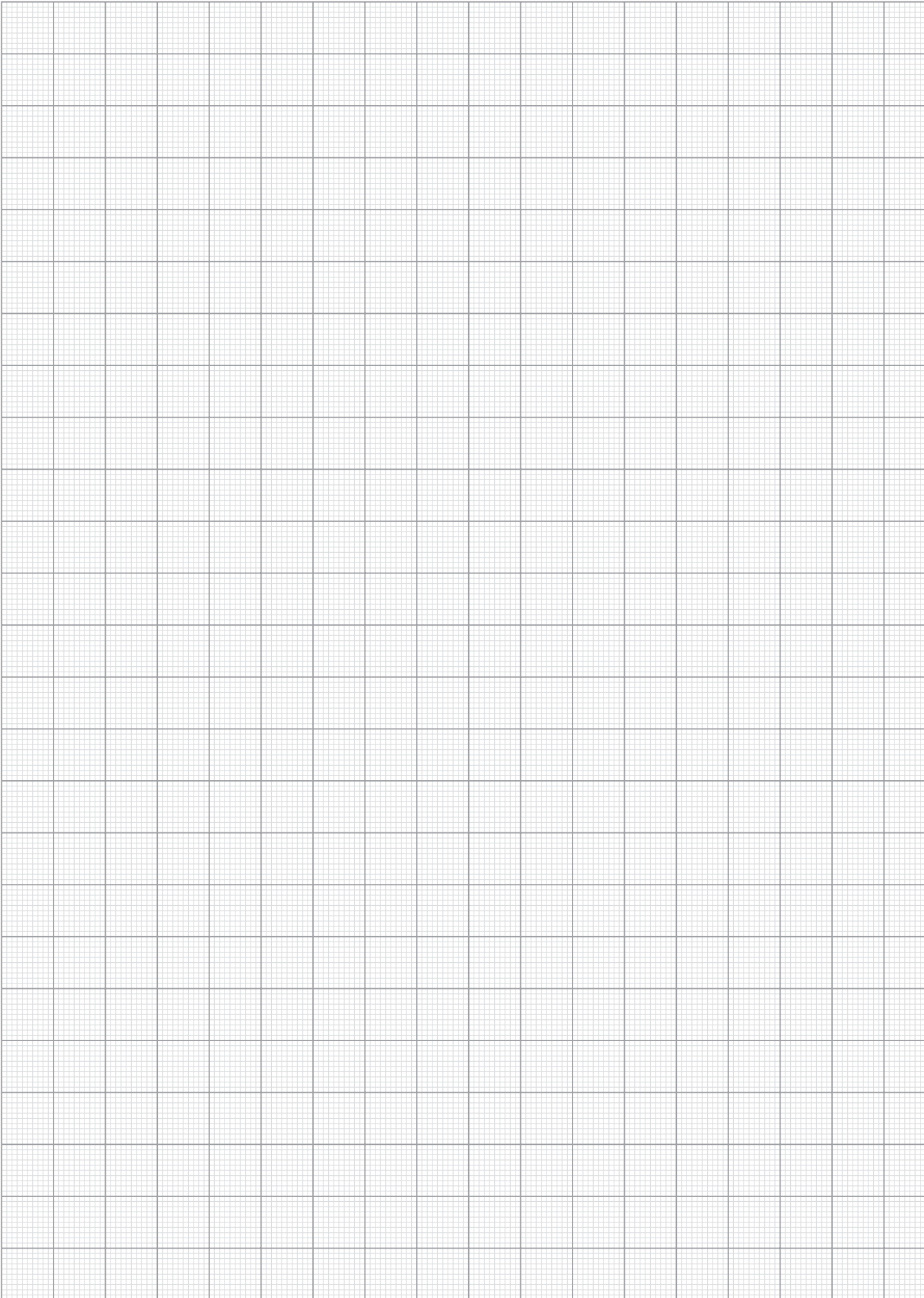
Notes

Mounting plate assembly

NH on-load isolator, size 000/00/1

Material:
Isolator lid, contact hazard protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Drilling dimensions,
see page 1136.

Technical information,
see page 1132.

Version		1	2	3	2	3	4	5	Page
Size		000	00		00		1		
Rated current		100 A (160 A)[1]	160 A		160 A		250 A		
Rated operating voltage		690 V~	690 V~		690 V~		690 V~		
Cable outlet		top/ bottom	top/ bottom	bottom	top/ bottom	bottom	top/ bottom	bottom	
Type of connection	Terminal up to	50 mm²	–	–	–	–	–	–	
	Screw terminal	–	M8 up to 95 mm²		–	–	M10 up to 150 mm²		
	Clamp-type terminal connection up to	–	–	–	70 mm²	70 mm²	–	–	
Tightening torque ● Assembly screw ● Terminal screw		– 3 Nm	3 – 5 Nm 10 – 15 Nm	3 – 5 Nm 10 – 15 Nm	3 – 5 Nm 2 – 3 Nm	3 – 5 Nm 2 – 3 Nm	3 – 5 Nm 15 – 20 Nm	3 – 5 Nm 15 – 20 Nm	
Packs of		1	1	1	1	1	1	1	
Model No. SV		**3431.000**	**3488.000**	**–**	**3489.000**	**–**	**3409.000**	**–**	
with electronic fuse monitoring and LED display Model No. SV		**–**	**–**	**3488.310**	**–**	**3489.310**	**–**	**3409.310**	
Accessories	Packs of								
Micro-switch	5	3071.000	3071.000	3071.000	3071.000	3071.000	3071.000	3071.000	363
Mounting set	1	3432.000	–	–	–	–	–	–	364
Lug terminal connection parts	1 set	–	–	–	–	–	3414.000	3414.000	365

[1] 160 A with 95 mm² connection cross-section (95 mm² connector pieces available on request).
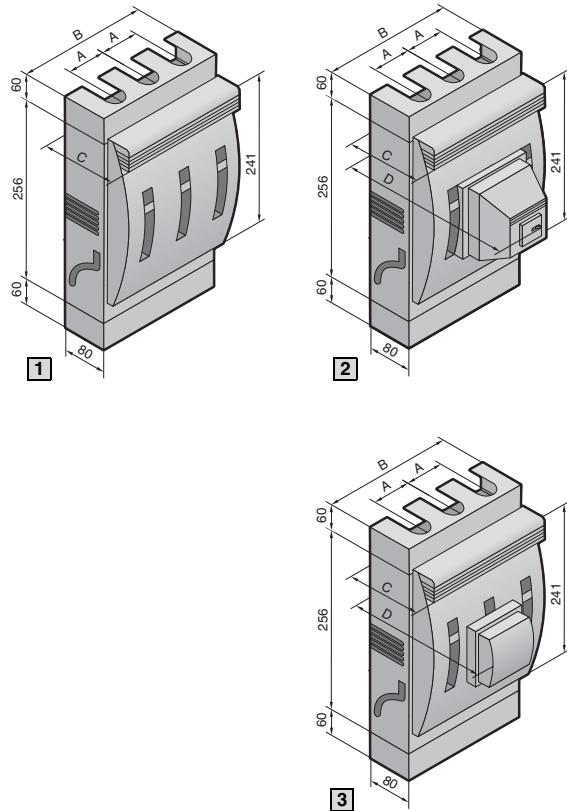
Material:
Isolator lid, contact hazard protection, isolator chassis:
Fibreglass-reinforced polyamide
Contact tracks:
Silver-plated hard copper

Note:
When using gR fuse inserts (VDE 0636/23) in NH equipment, please observe the information on page 1134.

Drilling dimensions,
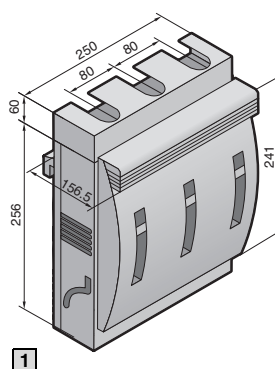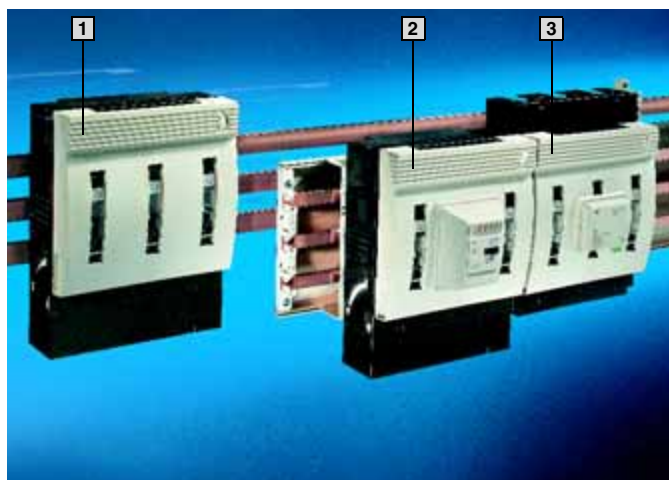see page 1136.

Detailed drawing,
see page 1136.

Technical information,
see page 1132.

Size		2		3		Page
Rated current		400 A		630 A		
Rated operating voltage		690 V~		690 V~		
Cable outlet		top/bottom	bottom	top/bottom	bottom	
Type of connection		Screw terminal M10 up to 240 mm²		Screw terminal M10 up to 240 mm²		
Tightening torque ● Assembly screw ● Terminal screw		14 Nm 32 Nm		14 Nm 32 Nm		
A mm		65	65	80	80	
B mm		210	210	250	250	
C mm		128.5	128.5	133.5	133.5	
D mm		207	160	211	165	
Packs of		1		1		
1 **Model No. SV**		**3415.010**	–	**3095.010**	–	
2 **with electromechanical fuse monitoring Model No. SV**		**3415.110**	–	**3095.110**	–	
3 **with electronic fuse monitoring and LED display Model No. SV**		–	**3415.310**	–	**3095.310**	
Accessories	Packs of					
Micro-switch	5	3071.000	3071.000	3071.000	3071.000	363
Lug terminal connection parts	1 set	3499.000	3499.000	3499.000	3499.000	365
Clamp-type terminal connection	1 set	3499.010	3499.010	3499.010	3499.010	365

Accessories Page 360

B
2.6

Mounting plate assembly

Busbars

and accessories
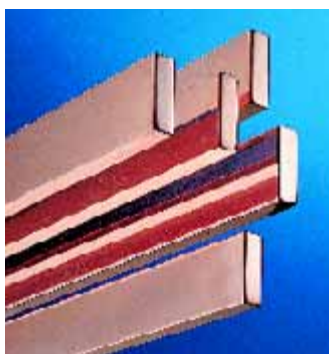
Busbars

made from E-Cu
To DIN EN 13 601.
Length: 2400 mm/bar.

Dimensions mm	Weight per bar kg	Packs of	Model No. SV
12 x 5	1.28	6	**3580.000**
15 x 5	1.60	6	**3581.000**
20 x 5	2.14	6	**3582.000**
25 x 5	2.67	6	**3583.000**
30 x 5	3.20	6	**3584.000**
12 x 10	2.56	6	**3580.100**
15 x 10	3.20	6	**3581.100**
20 x 10	4.27	6	**3585.000**
30 x 10	6.41	6	**3586.000**
40 x 10	8.55	3	**3587.000**
50 x 10	10.68	3	**3588.000**
60 x 10	12.82	3	**3589.000**
80 x 10	17.09	3	**3590.000**

Busbar connectors

For connecting busbars, no drilling required.

Material:
SV 9350.070
Brass, nickel-plated surface finish

SV 9320.020/SV 9320.030
Top piece: Sheet steel, yellow passivated
Contact plate: E-Cu, silver-plated
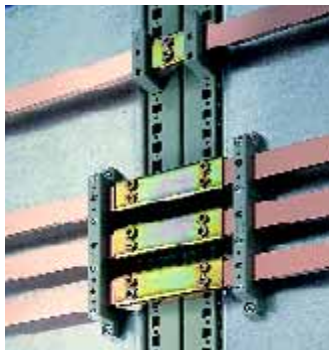
For busbars mm	Application		Tightening torque	Packs of	Model No. SV
	Single connection	Baying connection[1]			
12 x 5 – 15 x 10	1	–	10 Nm	3	**9350.070**
20 x 5 – 30 x 10	2	–	20 Nm	3	**9320.020**
	–	3	20 Nm	3	**9320.030**

[1] From enclosure to enclosure

A = max. 10 mm
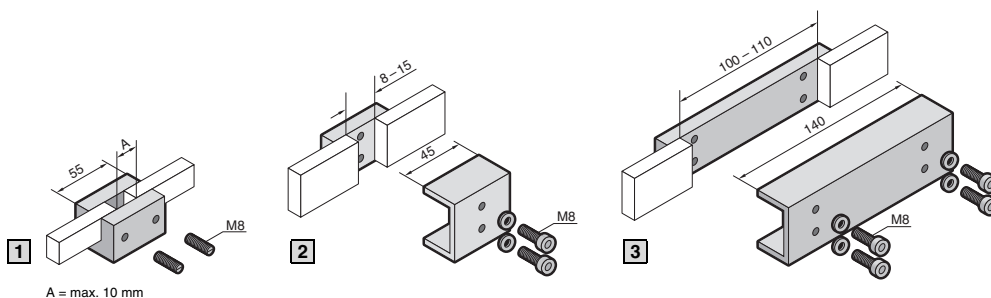
Base isolators

For configuring busbar systems with any given bar centre distances and for assembling PE or PEN bars.

Material:
Duroplastic polyester (UP resin).
Continuous operating temperature: max. 135°C.

Rated operating voltage	1 kV	1 kV
Tensile strength	12 kN	13 kN
Torsional strength	75 Nm	90 Nm
Bending strength	6 kN	6 kN
Tightening torque	40 Nm	40 Nm
A mm	40	50
B mm	15	19
Ø C mm	32	42
D mm	SW 36	SW 50
Packs of	6	6
Model No. SV	**3031.000**	**3032.000**
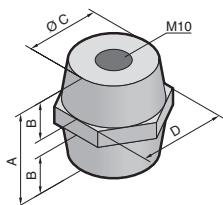
Laminated copper bars Rittal Flexibar "S"

Length: 2000 mm/bar.

Material:
Cu lamina
- High-purity electrolyte copper F20

Insulation
- High-strength vinyl compound
- Expansion 370 %
- Temperature range: –30°C to +105°C
- Flame retardant version to UL 94-V0
- Dielectric strength: 20 kV/mm

Short-circuit protection diagram,
see page 1127.

Construction[1] mm	I_n at 50 K[2]	I_n at 30 K[2]	I_n at 10 K[2]	Packs of	Model No. SV
6 x 9.0 x 0.8	250 A	220 A	120 A	1	**3565.000**
6 x 13.0 x 0.5	200 A	150 A	110 A	1	**3566.000**
4 x 15.5 x 0.8	300 A	210 A	140 A	1	**3567.000**
6 x 15.5 x 0.8	350 A	290 A	170 A	1	**3568.000**
10 x 15.5 x 0.8	450 A	350 A	190 A	1	**3569.000**
5 x 20.0 x 1.0	400 A	300 A	180 A	1	**3570.000**
5 x 24.0 x 1.0	450 A	370 A	230 A	1	**3571.000**
10 x 24.0 x 1.0	800 A	600 A	340 A	1	**3572.000**
5 x 32.0 x 1.0	550 A	470 A	280 A	1	**3573.000**
10 x 32.0 x 1.0	1000 A	800 A	460 A	1	**3574.000**
5 x 40.0 x 1.0	800 A	600 A	340 A	1	**3575.000**
10 x 40.0 x 1.0	1200 A	950 A	500 A	1	**3576.000**
5 x 50.0 x 1.0	900 A	700 A	400 A	1	**3577.000**
10 x 50.0 x 1.0	1400 A	1000 A	600 A	1	**3578.000**
10 x 63.0 x 1.0	1600 A	1240 A	715 A	1	**3579.000**

[1] Number of lamina x lamina width x lamina thickness
[2] The sum total of the ambient temperature and the temperature increase produces the resultant conductor temperature of the laminated flat copper bar.
Example:
SV 3565.000 loaded with 220 A, i.e. the temperature increases by 30 K. At an ambient temperature of 35°C, this produces a resultant conductor temperature of 35°C + 30 K = 65°C.
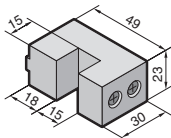
Universal support

For the attachment of laminated copper bars from 20 x 5 to 63 x 10 mm.

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Fire protection corresponding to UL 94-V0.

Supply includes:
Screws and "U" nuts for mounting on PS/TS mounting rails.

Packs of	Model No. SV
3	**3079.000**

Short-circuit protection diagram,
see page 1127.

Universal support

For the attachment of laminated copper bars from 40 x 5 to 100 x 10 mm.

Material:
Fibreglass-reinforced, thermoplastic polyester (PBT).
Fire protection corresponding to UL 94-V0.

Supply includes:
Screws and sliding nuts for attachment on C rails.

Packs of	Model No. SV
3 sets	**3079.010**

➕ Accessories:

C rails 30/15,
see page 928.

Busbar systems

Accessories

Insert strip

To extend the build width of the component
adaptors and component supports.

For		see page	Width mm	Packs of	Model No. SV
1	Mini-PLS component adaptors and quick-fit component adaptors	304 – 306	9	2	**9623.000**
2	Component adaptors and component supports	328 – 330 + 333	9	1	**3538.000**
2	Component adaptor (SV 3445.000/SV 3446.000)	331	17.5	1	**3448.000**[1]

[1] Including extended support rail and cover strips.
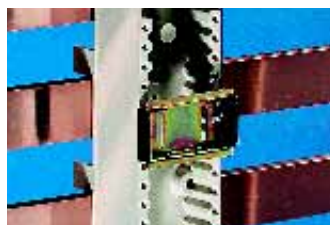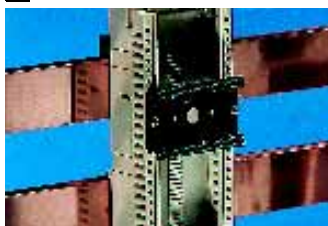
Support rails

Supply includes:
Assembly parts.

For	see page	Support rails				
		Fig.	Width mm	Height mm	Packs of	Model No. SV
Mini-PLS component adaptor	304		45	7.5	10	**9320.150**
	304 + 306	1	54	7.5	10	**3548.000**
			72	7.5	10	**3549.000**
	306	2	72	15	5	**9320.120**
Multi-functional component adaptor	312 – 314 325 + 326	3	45	10	5	**9320.090**
	313 + 314 326 + 327		54	10	5	**9320.100**
Component adaptor	304 + 306	1	54	7.5	10	**3548.000**
	328 – 330		72	7.5	10	**3549.000**
Component adaptor (SV 3445.000/SV 3446.000)	331	1	54	7.5	10	**3447.000**
Component adaptor (SV 3445.000/SV 3446.000 with SV 3448.000)	331	1	70	7.5	10	**3496.000**
Component adaptor (SV 9320.000/SV 9320.010)	332	2	72	15	5	**9320.120**
Component support	333	1	54	7.5	10	**3548.000**
			72	7.5	10	**3549.000**

Plug-in connector

For mounting the AS-interface load feeder module
with matching support type 3RK1 901-3CA00,
Siemens brand, on the Mini-PLS component
adaptor and multi-functional component adaptor.

For	see page	Packs of	Model No. SV
Mini-PLS component adaptor (width 45/54 mm)	304 + 306	1	**9623.100**
Multi-functional component adaptor (width 45 mm)	312 + 314 325 + 326	1	**9320.110**

Mounting clip
for multi-functional component adaptor (width 45 mm)
For additional locking of motor starter combinations.

Supply includes:
Support rails, 45 mm wide.

Packs of	Model No. SV
5	9320.140

Cover strips
for component adaptors and component supports

For width mm	Packs of	Model No. SV
54	20	3536.000
72	20	3537.000

Identification labels
for bus-mounting fuse bases

Packs of	Model No. SV
100	9320.080

Identification label support
for NH fused isolators, size 00
For clip-on mounting on the isolator housing.

Packs of	Model No. SV
6	3595.010

Micro-switches
for NH isolators/NH fused isolators
To indicate the switching position of the NH device (lid unit).

Packs of	Model No. SV
5	3071.000

B

2.7

Busbar systems

Busbar systems

Accessories

Contact hazard protection frame

Material:
ABS,
fire protection corresponding to UL 94-V0.

For	see page	Packs of	**Model No. SV**
NH bus-mounting on-load isolators, size 00	338	1	**3408.000**
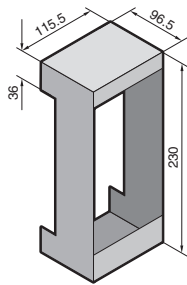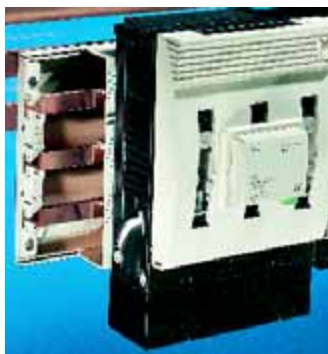
PLS cover

The PLS cover guarantees additional contact hazard protection for special busbars when using NH equipment on Rittal PLS 800 A/1600 A. Attached by simply clipping onto the PLS base tray section.

Material:
SV 3099.000/SV 3499.070
ABS.

SV 3499.040/SV 3499.050
Thermally modified hard PVC.

Fire protection corresponding to UL 94-V0.

For		see page	A mm	Packs of	**Model No. SV**
1 NH fused isolator	Size 00	336	50	2	**3499.070**
2 NH bus-mounting on-load isolators	Size 1	339	186	2	**3099.000**
3 NH bus-mounting on-load isolators	Size 2	340	210	1	**3499.040**
	Size 3	341	250	1	**3499.050**
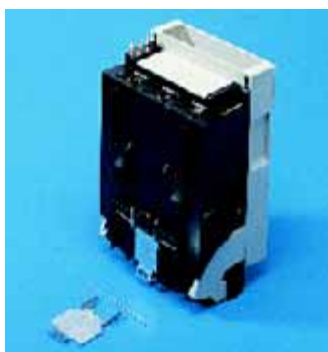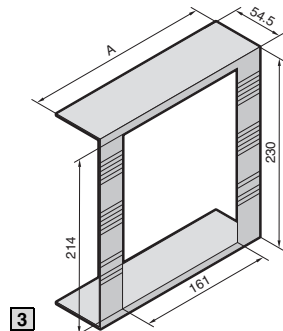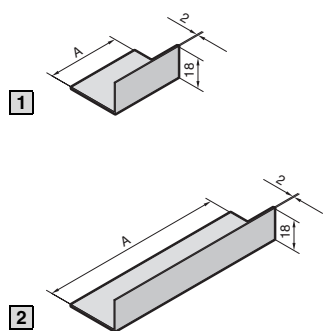
Mounting set

For mounting the NH on-load isolator on 35 mm support rails to DIN EN 715 (7.5 mm/15 mm high).

For	see page	Packs of	**Model No. SV**
NH on-load isolators, size 000	358	1	**3432.000**

Lug terminal connection parts

for NH isolators, sizes 1 to 3
For connecting laminated copper bars and round conductors up to 70 mm².
Tightening torque:
Terminal screw
[1] 8 Nm
[2] 15 Nm

For NH isolators	Clamping area	Packs of	Model No. SV
Size 1	16 x 12 mm	1 set	**3414.000[1]**
Size 2, 3	21 x 11 mm	1 set	**3499.000[2]**

Clamp-type terminal connection

for NH isolators, sizes 2 and 3
For the connection of round conductors up to 240 mm².
Tightening torque:
Terminal screw 15 Nm.

Packs of	Model No. SV
1 set	**3499.010**

Lug terminal connection parts

for NH fused isolators size 00
For connecting laminated copper bars and round conductors 1.5 to 25 mm².
Clamping area: 16 x 10 mm.
Tightening torque:
Terminal screw 4 Nm.

Packs of	Model No. SV
1 set	**3592.020**

Clamp-type terminal connection

for NH fused isolators size 00
For the connection of round conductors 1.5 to 95 mm².
Tightening torque:
Terminal screw 4 Nm.

Packs of	Model No. SV
1 set	**3592.010**

B

2.7

Busbar systems

Rittal Maxi-PLS

Overview, Rittal SV-TS 8 and Maxi-PLS
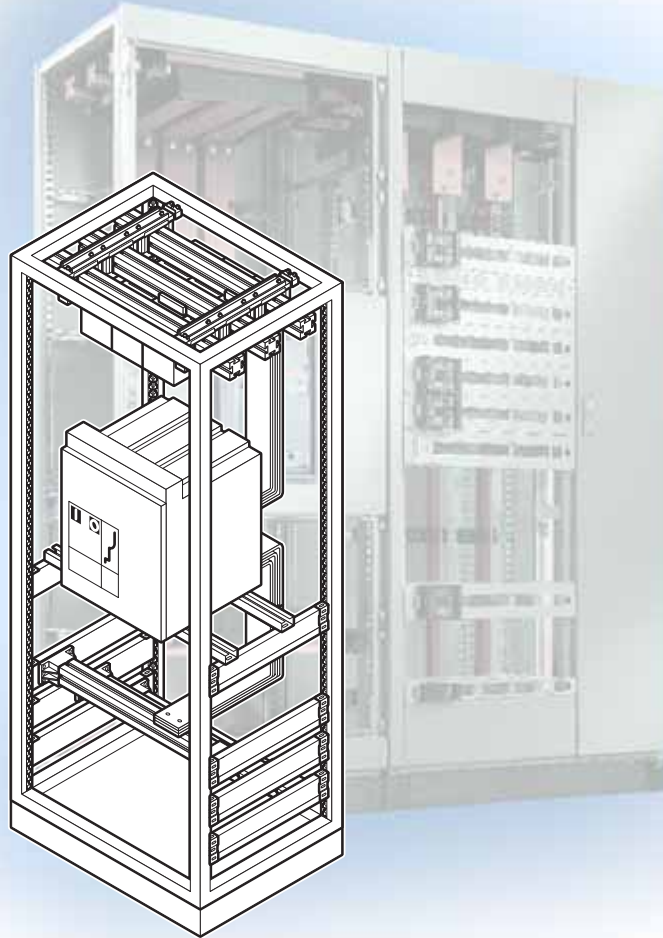
SV-TS 8 and Maxi-PLS – the ideal combination for low-voltage distributors and switchgear in the heavy current range. The system is assembled without any form of machining (such as sawing, drilling, bending etc.). As a result, this future-oriented, fully modular system offers new dimensions in fast assembly and safety.

The futuristic modular system

SV-TS 8 enclosures are fully prepared.
The enclosure frame is fully fitted with a three-piece gland plate, rear panel, roof and door or partial doors.
Punched sections without mounting flanges to accommodate the end supports and system support rails for the power circuit-breakers are fitted ready to install.

Standardised Maxi-PLS busbars with ingenious fastening technology
Thanks to the perfect system technology and customised pitch pattern, installation of Maxi-PLS supports and bars is precise-fit, simple and fast. With the aid of sliding blocks or studs, the four attachment levels of the Maxi-PLS busbars permit infinitely variable attach-ment and contacting of round conductors, laminated flat cop-per and Maxi-PLS connection brackets and connection kits.

System packages for all commercially available power circuit-breakers.
Maxi-PLS busbars, in conjunc-tion with the isolator chassis, U contact maker and connec-tion brackets, form the heart of the modular system for con-necting air circuit-breakers up to 3200 A with standard com-ponents.

The connection kits are pre-cisely tailored to the respective power circuit-breakers.

Type testing to
EN 60 439-1/IEC 60 439-1
Special testing under accidental arcing conditions to EN 60 439-1, supplement 2/IEC 1641
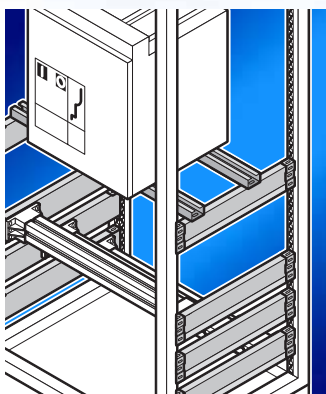
SV-TS 8 system components
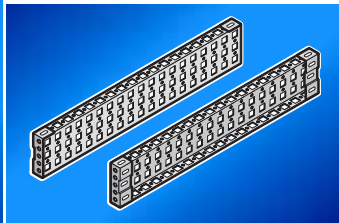
TS punched section with mounting flange, 23 x 73 mm
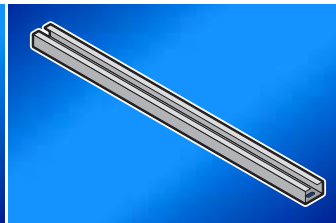
System support rails
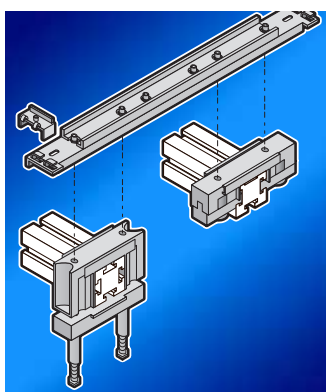
Maxi-PLS busbar support
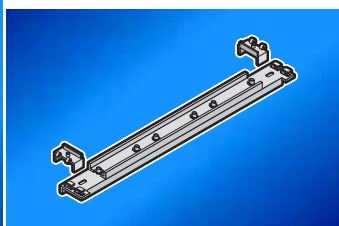
System attachment
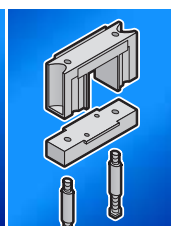
Busbar support
Busbar support, suitable for top mounting
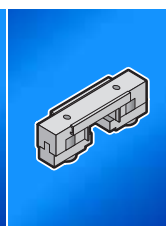
End supports

Maxi-PLS system components
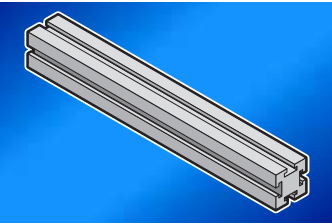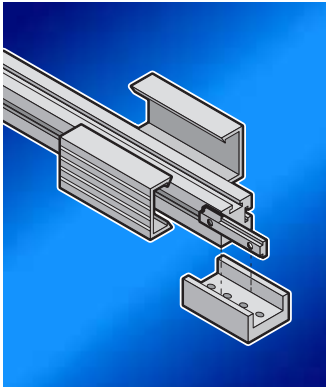
Busbars E-Cu
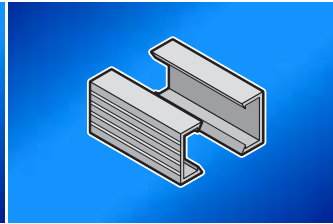
Cover section
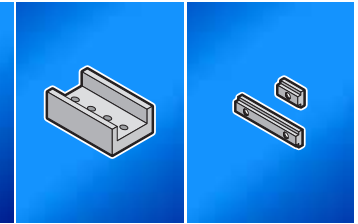
Longitudinal connector E-Cu

Sliding blocks

B

2.8

Rittal Maxi-PLS

Maxi-PLS connection components
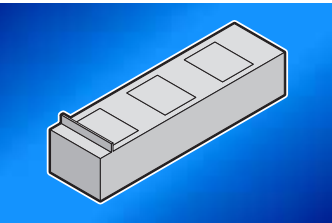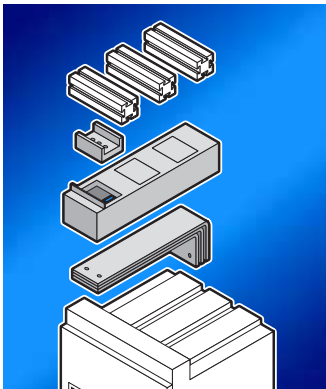
Isolator chassis
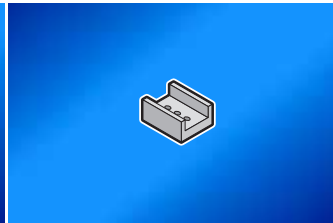
U contact makers E-Cu
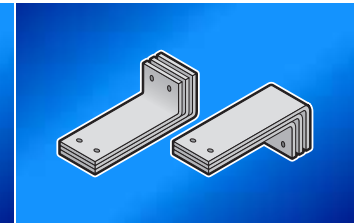
Connection bracket E-Cu

Maxi-PLS connector kits
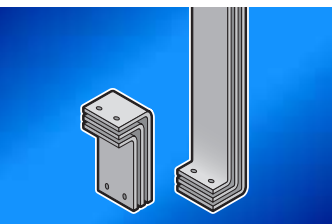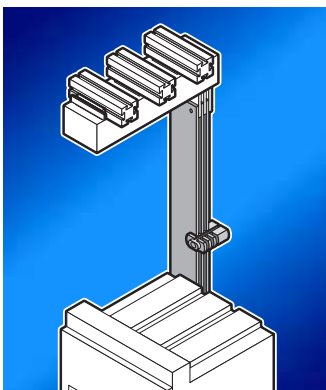
Connector kits top/bottom
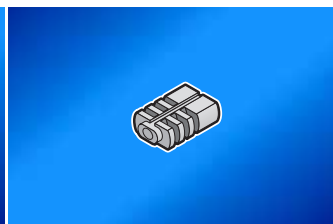
Stacking insulator

System concept
- All manual machining is eliminated
- Type testing of the system technology
- Compact busbar with four attachment levels; bar length tailored to the enclosure dimensions
- Standardised contact hazard protection

System benefits
- Increased productivity (easier project planning, no manual production of busbar connections and connection points, faster assembly)
- Compact configuration, easy access to all connection points

Rittal Maxi-PLS up to 2000 A
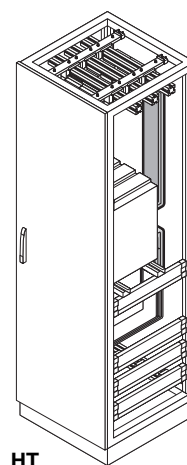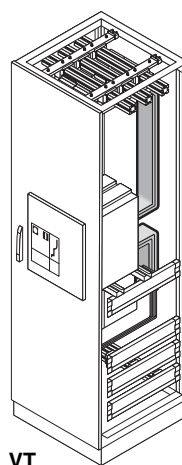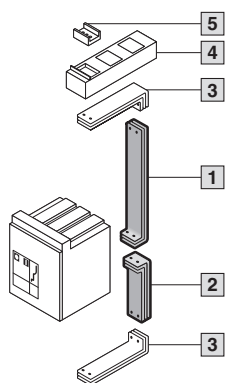
Connection kits (3-pole)

VT   **HT**

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 600 mm.

Correct selection should be made according to the following criteria:

- Make, size
- Rated current I_e
- Switch version either "static installation" or "rack-mounted"
- Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1 Connection kit, top
2 Connection kit, bottom
3 Connection bracket
4 Isolator chassis
5 U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Extended
Extended delivery times.

Siemens 3WN6			Model No. SV						Page
Rated operating current I_e			630 A	800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			I	I	I	I	I	–	
Static	VT	1 top	**9641.030**	**9641.070**	**9641.110**	**9641.150**	**9641.190**	–	
		2 bottom	**9641.040**	**9641.080**	**9641.120**	**9641.160**	**9641.200**	–	
	HT	1 top	**9641.010**	**9641.050**	**9641.090**	**9641.130**	**9641.170**	–	
		2 bottom	**9641.020**	**9641.060**	**9641.100**	**9641.140**	**9641.180**	–	
Rack-mounted	VT	1 top	**9641.350**	**9641.390**	**9641.430**	**9641.470**	**9641.510**	–	
		2 bottom	**9641.360**	**9641.400**	**9641.440**	**9641.480**	**9641.520**	–	
	HT	1 top	**9641.330**	**9641.370**	**9641.410**	**9641.450**	**9641.490**	–	
		2 bottom	**9641.340**	**9641.380**	**9641.420**	**9641.460**	**9641.500**	–	
Approximate weight (kg) top/bottom			16/10	16/10	31/19.5	31/19.5	31/19.5	–	
Accessories	Packs of								
3 Connection bracket	1 set		9640.430	9640.430	9640.440	9640.440	9640.440	–	377
4 Isolator chassis	1 set		9640.020	9640.020	9640.020	9640.020	9640.020	–	377
5 U contact maker	3		9640.170	9640.170	9640.170	9640.170	9640.170	–	377
Stacking insulator	6		9660.200	9660.200	9660.200	9660.200	9660.200	–	405

Siemens 3WL, Moeller IZM			Model No. SV						Page
Rated operating current I_e			630 A	800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			I	I	I	I	I	II	
Static	VT	1 top	**9644.030**	**9644.070**	**9644.110**	**9644.150**	**9644.190**	**9644.510**	
		2 bottom	**9644.040**	**9644.080**	**9644.120**	**9644.160**	**9644.200**	**9644.520**	
	HT	1 top	**9644.010**	**9644.050**	**9644.090**	**9644.130**	**9644.170**	**9644.490**	
		2 bottom	**9644.020**	**9644.060**	**9644.100**	**9644.140**	**9644.180**	**9644.500**	
Rack-mounted	VT	1 top	**9644.310**	**9644.350**	**9644.390**	**9644.430**	**9644.470**	**9644.530**	
		2 bottom	**9644.320**	**9644.360**	**9644.400**	**9644.440**	**9644.480**	**9644.540**	
	HT	1 top	**9644.290**	**9644.330**	**9644.370**	**9644.410**	**9644.450**	**9644.550**[1]	
		2 bottom	**9644.300**	**9644.340**	**9644.380**	**9644.420**	**9644.460**	**9644.560**[1]	
Approximate weight (kg) top/bottom			16/10	16/10	16/10	31/19.5	31/19.5	41/29	
Accessories	Packs of								
3 Connection bracket	1 set		9640.430	9640.430	9640.430	9640.440	9640.440	9640.450	377
4 Isolator chassis	1 set		9640.020	9640.020	9640.020	9640.020	9640.020	9640.020	377
5 U contact maker	3		9640.170	9640.170	9640.170	9640.170	9640.170	9640.170	377
Stacking insulator	6		9660.200	9660.200	9660.200	9660.200	9660.200	9660.200	405

[1] For installation in 800 mm deep enclosures.

Connection kits (3-pole)

Mitsubishi AE-SS				Model No. SV					Page
Rated operating current I$_e$			800 A	1000 A	1250 A	1600 A	2000 A		
Static	VT	**1** top	–	9645.030	9645.070	9645.110	9645.150		
		2 bottom	–	9645.040	9645.080	9645.120	9645.160		
	HT	**1** top	–	9645.010	9645.050	9645.090	9645.130		
		2 bottom	–	9645.020	9645.060	9645.100	9645.140		
Rack-mounted	VT	**1** top	–	9645.350	9645.390	9645.430	9645.470		
		2 bottom	–	9645.360	9645.400	9645.440	9645.480		
	HT	**1** top	–	9645.330	9645.370	9645.410	9645.450		
		2 bottom	–	9645.340	9645.380	9645.420	9645.460		
Approximate weight (kg) top/bottom			–	16/10	31/19.5	31/19.5	47/29		
Accessories		Packs of							
3 Connection bracket		1 set	–	9640.430	9640.440	9640.440	9640.450		377
4 Isolator chassis		1 set	–	9640.020	9640.020	9640.020	9640.020		377
5 U contact maker		3	–	9640.170	9640.170	9640.170	9640.170		377
Stacking insulator		6	–	9660.200	9660.200	9660.200	9660.200		405

Merlin Gerin Masterpact NW				Model No. SV					Page
Rated operating current I$_e$			800 A	1000 A	1250 A	1600 A	2000 A		
Static	VT	**1** top	9642.030	9642.070	9642.110	9642.150	9642.190		
		2 bottom	9642.040	9642.080	9642.120	9642.160	9642.200		
	HT	**1** top	9642.010	9642.050	9642.090	9642.130	9642.170		
		2 bottom	9642.020	9642.060	9642.100	9642.140	9642.180		
Rack-mounted	VT	**1** top	9642.310	9642.350	9642.390	9642.430	9642.470		
		2 bottom	9642.320	9642.360	9642.400	9642.440	9642.480		
	HT	**1** top	9642.290	9642.330	9642.370	9642.410	9642.450		
		2 bottom	9642.300	9642.340	9642.380	9642.420	9642.460		
Approximate weight (kg) top/bottom			16/10	31/19.5	31/19.5	31/19.5	41/29		
Accessories		Packs of							
3 Connection bracket		1 set	9640.430	9640.440	9640.440	9640.440	9640.450		377
4 Isolator chassis		1 set	9640.020	9640.020	9640.020	9640.020	9640.020		377
5 U contact maker		3	9640.170	9640.170	9640.170	9640.170	9640.170		377
Stacking insulator		6	9660.200	9660.200	9660.200	9660.200	9660.200		405

ABB Sace Emax				Model No. SV					Page
Rated operating current I$_e$			800 A	1000 A	1250 A	1600 A	2000 A		
Size (BG)			E1	–	E1	E2	E2		
Static	VT	**1** top	9643.030	–	9643.070	9643.110	9643.150		
		2 bottom	9643.040	–	9643.080	9643.120	9643.160		
	HT	**1** top	9643.010	–	9643.050	9643.090	9643.130		
		2 bottom	9643.020	–	9643.060	9643.100	9643.140		
Rack-mounted	VT	**1** top	9643.310	–	9643.350	9643.390	9643.430		
		2 bottom	9643.320	–	9643.360	9643.400	9643.440		
	HT	**1** top	9643.290	–	9643.330	9643.370	9643.410		
		2 bottom	9643.300	–	9643.340	9643.380	9643.420		
Approximate weight (kg) top/bottom			16/10	–	31/19.5	31/19.5	47/29		
Accessories		Packs of							
3 Connection bracket		1 set	9640.430	–	9640.440	9640.440	9640.450		377
4 Isolator chassis		1 set	9640.020	–	9640.020	9640.020	9640.020		377
5 U contact maker		3	9640.170	–	9640.170	9640.170	9640.170		377
Stacking insulator		6	9660.200	–	9660.200	9660.200	9660.200		405

B
2.8

Rittal Maxi-PLS up to 2000 A

Rittal Maxi-PLS up to 2000 A

Connection kits for coupling sets (3-pole)

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 800 mm.

Correct selection should be made according to the following criteria:

- Make, size
- Rated current I_e
- Switch version either "static installation" or "rack-mounted"
- Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1 Connection kit, top see page 368 and 369.

2 Connection kit, bottom for coupling set

3 Connection bracket

4 Isolator chassis

5 U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Size (BG)			I	–	
Static	VT	**2** bottom	**9641.205**	**–**	
	HT	**2** bottom	**9641.185**	**–**	
Rack-mounted	VT	**2** bottom	**9641.525**	**–**	
	HT	**2** bottom	**9641.505**	**–**	
Approximate weight (kg)			19.5	–	
Accessories	Packs of				
3 Connection bracket	1 set		9640.440	–	377
4 Isolator chassis	1 set		9640.020	–	377
5 U contact maker	3		9640.170	–	377
Stacking insulator	6		9660.200	–	405

Siemens 3WL, Moeller IZM			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Size (BG)			I	II	
Static	VT	**2** bottom	**9644.205**	**9644.525**	
	HT	**2** bottom	**9644.185**	**9644.505**	
Rack-mounted	VT	**2** bottom	**9644.485**	**9644.545**	
	HT	**2** bottom	**9644.465**	**9644.565[1)]**	
Approximate weight (kg)			19.5	29	
Accessories	Packs of				
3 Connection bracket	1 set		9640.440	9640.450	377
4 Isolator chassis	1 set		9640.020	9640.020	377
5 U contact maker	3		9640.170	9640.170	377
Stacking insulator	6		9660.200	9660.200	405

[1)] For installation in 800 mm deep enclosures.

Connection kits for coupling sets (3-pole)

Mitsubishi AE-SS			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Static	VT	**2** bottom	**9645.125**	**9645.165**	
	HT	**2** bottom	**9645.105**	**9645.145**	
Rack-mounted	VT	**2** bottom	**9645.445**	**9645.485**	
	HT	**2** bottom	**9645.425**	**9645.465**	
Approximate weight (kg)			19.5	29	
Accessories		Packs of			
3 Connection bracket		1 set	9640.440	9640.450	377
4 Isolator chassis		1 set	9640.020	9640.020	377
5 U contact maker		3	9640.170	9640.170	377
Stacking insulator		6	9660.200	9660.200	405

Merlin Gerin Masterpact NW			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Static	VT	**2** bottom	**9642.165**	**9642.205**	
	HT	**2** bottom	**9642.145**	**9642.185**	
Rack-mounted	VT	**2** bottom	**9642.445**	**9642.485**	
	HT	**2** bottom	**9642.425**	**9642.465**	
Approximate weight (kg)			19.5	29	
Accessories		Packs of			
3 Connection bracket		1 set	9640.440	9640.450	377
4 Isolator chassis		1 set	9640.020	9640.020	377
5 U contact maker		3	9640.170	9640.170	377
Stacking insulator		6	9660.200	9660.200	405

ABB Sace Emax			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Size (BG)			E2	E2	
Static	VT	**2** bottom	**9643.125**	**9643.165**	
	HT	**2** bottom	**9643.105**	**9643.145**	
Rack-mounted	VT	**2** bottom	**9643.405**	**9643.445**	
	HT	**2** bottom	**9643.385**	**9643.425**	
Approximate weight (kg)			19.5	29	
Accessories		Packs of			
3 Connection bracket		1 set	9640.440	9640.450	377
4 Isolator chassis		1 set	9640.020	9640.020	377
5 U contact maker		3	9640.170	9640.170	377
Stacking insulator		6	9660.200	9660.200	405

B

2.8

Rittal Maxi-PLS up to 2000 A

Rittal Maxi-PLS up to 2000 A

Connection kits for rear section (3-pole)

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 600 mm.

Correct selection should be made according to the following criteria:

● Make, size
● Rated current I_e
● Switch version either "static installation" or "rack-mounted"
● Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1 Connection kit, top
2 Connection kit, bottom
3 Connection bracket
4 U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6			Model No. SV						Page
Rated operating current I_e			630 A	800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			I	I	I	I	I	–	
Static	VT	1 top	**9641.033**	**9641.073**	**9641.113**	**9641.153**	**9641.193**	–	
		2 bottom	**9641.043**	**9641.083**	**9641.123**	**9641.163**	**9641.203**	–	
	HT	1 top	**9641.013**	**9641.053**	**9641.093**	**9641.133**	**9641.173**	–	
		2 bottom	**9641.023**	**9641.063**	**9641.103**	**9641.143**	**9641.183**	–	
Rack-mounted	VT	1 top	**9641.353**	**9641.393**	**9641.433**	**9641.473**	**9641.513**	–	
		2 bottom	**9641.363**	**9641.403**	**9641.443**	**9641.483**	**9641.523**	–	
	HT	1 top	**9641.333[1]**	**9641.373[1]**	**9641.413[1]**	**9641.453[1]**	**9641.493[1]**	–	
		2 bottom	**9641.343[1]**	**9641.383[1]**	**9641.423[1]**	**9641.463[1]**	**9641.503[1]**	–	
Approximate weight (kg) top/bottom			16/10	16/10	31/19.5	31/19.5	31/19.5	–	
Accessories		Packs of							
3 Connection bracket		1 set	9640.430	9640.430	9640.440	9640.440	9640.440	–	377
4 U contact maker		3	9640.170	9640.170	9640.170	9640.170	9640.170	–	377

Siemens 3WL, Moeller IZM			Model No. SV						Page
Rated operating current I_e			630 A	800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			I	I	I	I	I	II	
Static	VT	1 top	**9644.033**	**9644.073**	**9644.113**	**9644.153**	**9644.193**	**9644.513**	
		2 bottom	**9644.043**	**9644.083**	**9644.123**	**9644.163**	**9644.203**	**9644.523**	
	HT	1 top	**9644.013**	**9644.053**	**9644.093**	**9644.133**	**9644.173**	**9644.493**	
		2 bottom	**9644.023**	**9644.063**	**9644.103**	**9644.143**	**9644.183**	**9644.503**	
Rack-mounted	VT	1 top	**9644.313**	**9644.353**	**9644.393**	**9644.433**	**9644.473**	**9644.533[1]**	
		2 bottom	**9644.323**	**9644.363**	**9644.403**	**9644.443**	**9644.483**	**9644.543[1]**	
	HT	1 top	**9644.293[1]**	**9644.333[1]**	**9644.373[1]**	**9644.413[1]**	**9644.453[1]**	**9644.553[1]**	
		2 bottom	**9644.303[1]**	**9644.343[1]**	**9644.383[1]**	**9644.423[1]**	**9644.463[1]**	**9644.563[1]**	
Approximate weight (kg) top/bottom			16/10	16/10	16/10	31/19.5	31/19.5	41/29	
Accessories		Packs of							
3 Connection bracket		1 set	9640.430	9640.430	9640.430	9640.440	9640.440	9640.450	377
4 U contact maker		3	9640.170	9640.170	9640.170	9640.170	9640.170	9640.170	377

[1] For installation in 800 mm deep enclosures.

Connection kits for rear section (3-pole)

Mitsubishi AE-SS				Model No. SV					Page
Rated operating current I_e				800 A	1000 A	1250 A	1600 A	2000 A	
Static	VT	**1** top		–	**9645.033**	**9645.073**	**9645.113**	**9645.153**	
		2 bottom		–	**9645.043**	**9645.083**	**9645.123**	**9645.163**	
	HT	**1** top		–	**9645.013**	**9645.053**	**9645.093**	**9645.133**	
		2 bottom		–	**9645.023**	**9645.063**	**9645.103**	**9645.143**	
Rack-mounted	VT	**1** top		–	**9645.353**	**9645.393**	**9645.433**	**9645.473**	
		2 bottom		–	**9645.363**	**9645.403**	**9645.443**	**9645.483**	
	HT	**1** top		–	**9645.333**	**9645.373**	**9645.413**	**9645.453**[1]	
		2 bottom		–	**9645.343**	**9645.383**	**9645.423**	**9645.463**[1]	
Approximate weight (kg) top/bottom				–	16/10	31/19.5	31/19.5	47/29	
Accessories		Packs of							
3 Connection bracket		1 set		–	9640.430	9640.440	9640.440	9640.450	377
4 U contact maker		3		–	9640.170	9640.170	9640.170	9640.170	377

Merlin Gerin Masterpact NW				Model No. SV					Page
Rated operating current I_e				800 A	1000 A	1250 A	1600 A	2000 A	
Static	VT	**1** top		**9642.033**	**9642.073**	**9642.113**	**9642.153**	**9642.193**	
		2 bottom		**9642.043**	**9642.083**	**9642.123**	**9642.163**	**9642.203**	
	HT	**1** top		**9642.013**	**9642.053**	**9642.093**	**9642.133**	**9642.173**	
		2 bottom		**9642.023**	**9642.063**	**9642.103**	**9642.143**	**9642.183**	
Rack-mounted	VT	**1** top		**9642.313**	**9642.353**	**9642.393**	**9642.433**	**9642.473**	
		2 bottom		**9642.323**	**9642.363**	**9642.403**	**9642.443**	**9642.483**	
	HT	**1** top		**9642.293**	**9642.333**	**9642.373**	**9642.413**	**9642.453**	
		2 bottom		**9642.303**	**9642.343**	**9642.383**	**9642.423**	**9642.463**	
Approximate weight (kg) top/bottom				16/10	31/19.5	31/19.5	31/19.5	41/29	
Accessories		Packs of							
3 Connection bracket		1 set		9640.430	9640.440	9640.440	9640.440	9640.450	377
4 U contact maker		3		9640.170	9640.170	9640.170	9640.170	9640.170	377

ABB Sace Emax				Model No. SV					Page
Rated operating current I_e				800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)				E1	–	E1	E2	E2	
Static	VT	**1** top		**9643.033**	–	**9643.073**	**9643.113**	**9643.153**	
		2 bottom		**9643.043**	–	**9643.083**	**9643.123**	**9643.163**	
	HT	**1** top		**9643.013**	–	**9643.053**	**9643.093**	**9643.133**	
		2 bottom		**9643.023**	–	**9643.063**	**9643.103**	**9643.143**	
Rack-mounted	VT	**1** top		**9643.313**	–	**9643.353**	**9643.393**	**9643.433**	
		2 bottom		**9643.323**	–	**9643.363**	**9643.403**	**9643.443**	
	HT	**1** top		**9643.293**	–	**9643.333**	**9643.373**	**9643.413**[1]	
		2 bottom		**9643.303**	–	**9643.343**	**9643.383**	**9643.423**[1]	
Approximate weight (kg) top/bottom				16/10	–	31/19.5	31/19.5	47/29	
Accessories		Packs of							
3 Connection bracket		1 set		9640.430	–	9640.440	9640.440	9640.450	377
4 U contact maker		3		9640.170	–	9640.170	9640.170	9640.170	377

[1] For installation in 800 mm deep enclosures.

B 2.8

Rittal Maxi-PLS up to 2000 A

Connection kits for coupling sets – rear section (3-pole)

VT **HT**

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 800 mm.

Correct selection should be made according to the following criteria:

● Make, size
● Rated current I_e
● Switch version either "static installation" or "rack-mounted"
● Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1 Connection kit, top see page 368 and 369.
2 Connection kit, bottom for coupling set
3 Connection bracket
4 Isolator chassis
5 U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Size (BG)			I	–	
Static	VT	2 bottom	**9641.204**	**–**	
	HT	2 bottom	**9641.184**	**–**	
Rack-mounted	VT	2 bottom	**9641.524**	**–**	
	HT	2 bottom	**9641.504[1]**	**–**	
Approximate weight (kg)			19.5	–	
Accessories	Packs of				
3 Connection bracket	1 set		9640.440	–	377
4 Isolator chassis	1 set		9640.020	–	377
5 U contact maker	3		9640.170	–	377

Siemens 3WL, Moeller IZM			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Size (BG)			I	II	
Static	VT	2 bottom	**9644.204**	**9644.524**	
	HT	2 bottom	**9644.184**	**9644.504**	
Rack-mounted	VT	2 bottom	**9644.484**	**9644.544[1]**	
	HT	2 bottom	**9644.464[1]**	**9644.564[1]**	
Approximate weight (kg)			19.5	29	
Accessories	Packs of				
3 Connection bracket	1 set		9640.440	9640.450	377
4 Isolator chassis	1 set		9640.020	9640.020	377
5 U contact maker	3		9640.170	9640.170	377

[1] For installation in 800 mm deep enclosures.

Connection kits for coupling sets – rear section (3-pole)

Mitsubishi AE-SS			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Static	VT	**2** bottom	**9645.124**	**9645.164**	
	HT	**2** bottom	**9645.104**	**9645.144**	
Rack-mounted	VT	**2** bottom	**9645.444**	**9645.484**	
	HT	**2** bottom	**9645.424**	**9645.464**[1]	
Approximate weight (kg)			19.5	29	
Accessories	Packs of				
3 Connection bracket	1 set		9640.440	9640.450	377
4 Isolator chassis	1 set		9640.020	9640.020	377
5 U contact maker	3		9640.170	9640.170	377

Merlin Gerin Masterpact NW			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Static	VT	**2** bottom	**9642.164**	**9642.204**	
	HT	**2** bottom	**9642.144**	**9642.184**	
Rack-mounted	VT	**2** bottom	**9642.444**	**9642.484**	
	HT	**2** bottom	**9642.424**	**9642.464**	
Approximate weight (kg)			19.5	29	
Accessories	Packs of				
3 Connection bracket	1 set		9640.440	9640.450	377
4 Isolator chassis	1 set		9640.020	9640.020	377
5 U contact maker	3		9640.170	9640.170	377

ABB Sace Emax			Model No. SV		Page
Rated operating current I_e			1600 A	2000 A	
Size			E2	E2	
Static	VT	**2** bottom	**9643.124**	**9643.164**	
	HT	**2** bottom	**9643.104**	**9643.144**	
Rack-mounted	VT	**2** bottom	**9643.404**	**9643.444**	
	HT	**2** bottom	**9643.384**	**9643.424**[1]	
Approximate weight (kg)			19.5	29	
Accessories	Packs of				
3 Connection bracket	1 set		9640.440	9640.450	377
4 Isolator chassis	1 set		9640.020	9640.020	377
5 U contact maker	3		9640.170	9640.170	377

[1] For installation in 800 mm deep enclosures.

B
2.8

Rittal Maxi-PLS up to 2000 A

Rittal Maxi-PLS up to 2000 A

System components

Material:
Busbar support, end support,
end cover: PA 6.6
System attachment:
Stainless steel
Cover section: Hard PVC

Detailed drawing,
see page 1138.

Maxi-PLS system components			3-pole			4-pole		
			approx. weight (kg/pack)	Packs of	Model No. SV	approx. weight (kg/pack)	Packs of	Model No. SV
1 **Busbar support**			–	3	**9640.000**	–	3 + 1	**9640.000** **9649.000**
2 **Busbar support, suitable for top mounting**			–	3	**9640.160**	–	3	**9640.160**
3 **End supports**			–	6	**9640.010**	–	6 + 2	**9640.010** **9649.010**
4 **System attachment** for installing the busbar supports.								
For enclosures	Enclosure depth mm	Bar centre distance mm						
TS (roof section)	500	100	–	2	9640.100	–	–	**–**
	600	100	–	2	**9640.120**	–	2	**9640.080**
	600	150	–	2	9640.140	–	–	**–**
PS (roof section)	500	100	–	2	9640.110	–	–	**–**
	600	100	–	2	9640.130	–	–	**–**
TS/PS (rear section)	–	185	–	2	**9640.150**	–	–	**–**
	–	100	–	–	–	–	2	**9640.090**
5 **Maxi-PLS busbars E-Cu** (special lengths available on request).								
Length mm	For enclosure width mm	For application[1]						
491	600	A	19.2	3	**9640.200**	25.6	4	**9649.200**
525	600	B	20.4	3	**9640.210**	27.2	4	**9649.210**
599	600	C	24.0	3	**9640.220**	32.0	4	**9649.220**
691	800	A	27.0	3	**9640.230**	36.0	4	**9649.230**
725	800	B	28.5	3	**9640.240**	38.0	4	**9649.240**
799	800	C	31.5	3	**9640.250**	42.0	4	**9649.250**
891	1000	A	36.0	3	**9640.260**	48.0	4	**9649.260**
925	1000	B	37.0	3	**9640.270**	49.4	4	**9649.270**
999	1000	C	40.0	3	**9640.280**	53.4	4	**9649.280**
1091	1200	A	43.0	3	**9640.290**	57.4	4	**9649.290**
1125	1200	B	45.0	3	**9640.300**	60.0	4	**9649.300**
1199	1200	C	48.0	3	**9640.310**	64.0	4	**9649.310**
2400	–	–	96.0	3	**9640.360**	128.0	4	**9649.360**
6 **Cover section** for clip-on mounting on the Maxi-PLS busbars, length 1000 mm.			–	5	**9640.050**	–	5	**9640.050**
7 **Longitudinal connector E-Cu** for simple baying connection of the Maxi-PLS busbars. Including sliding blocks, bolts, washers and nuts.			5.2	3	**9640.190**	5.2 1.7	3 + 1	**9640.190** **9649.190**
End cover for clip-on mounting on the end surface of Maxi-PLS busbars.			–	6	**9640.060**	–	6 + 2	**9640.060** **9649.060**

[1] A = Cable connection system with end support
B = Left-hand or right-hand end enclosure in a switchgear installation
C = Bayed enclosure with panels bayed on the left and right

Connection components

Detailed drawing,
see page 1139.

Maxi-PLS connection components			3-pole			4-pole		
			approx. weight (kg/pack)	Packs of	Model No. SV	approx. weight (kg/pack)	Packs of	Model No. SV
1 **Connection bracket E-Cu** Transition from the main busbar system to the connection kits.								
For enclosure depth mm	Width mm	Number of brackets per phase						
500	60	1	5	1 set	9640.400	–	–	–
500	60	2	10	1 set	9640.410	–	–	–
500	60	3	14	1 set	9640.420	–	–	–
600	60	1	6	1 set	**9640.430**	9	1 sets	**9649.430**
600	60	2	11	1 set	**9640.440**	15	1 sets	**9649.440**
600	60	3	16	1 set	**9640.450**	22	1 sets	**9649.450**
2 **Isolator chassis** for isolated routing of the connection brackets. Material: PA 6.6, black, including assembly parts.								
Bar centre distance mm		For connection bracket width mm						
100		60	–	1 set	**9640.020**	–	1 set	**9649.020**
150		60	–	1 set	9650.020	–	–	–
150		100	–	1 set	9650.030	–	–	–
3 **U contact maker E-Cu** for contacting the connection brackets to the Maxi-PLS busbars. Including sliding blocks.								
Width 60 mm			2.4	3	**9640.170**	2.4 0.8	3 + 1	**9640.170** **9649.170**
Width 100 mm			4.0	3	9640.180	–	–	–
4 **Connection clamp** for the connection of round conductors 95 to 300 mm² (multi-wire and sector). Suitable for retro-fitting on Maxi-PLS busbars. Including assembly parts.								
			–	3	**9640.320**	–	3	**9640.320**
5 **Connection plates** for the connection of laminated flat copper bars. Including assembly parts.								
Maximum clamping area	2 x 10 x 32 x 1 mm		–	3	**9640.330**	–	3	**9640.330**
	2 x 10 x 63 x 1 mm		–	3	**9640.340**	–	3	**9640.340**
	2 x 10 x 100 x 1 mm		–	3	**9640.350**	–	3	**9640.350**
6 **Terminal stud** for connecting cables with ring terminals. Including sliding blocks.								
Thread	M12	Length 30 mm	–	3	**9640.370**	–	3	**9640.370**
	M16	Length 30 mm	–	3	**9640.380**	–	3	**9640.380**
7 **Sliding blocks** for sliding into the Maxi-PLS busbar section at the sides.								
Thread	M8	Length (L) 20 mm	–	15	**9640.970**	–	15	**9640.970**
	M10	Length (L) 25 mm	–	15	**9640.980**	–	15	**9640.980**
8 **Sliding nuts** for retrospective insertion into the Maxi-PLS busbar section.								
Thread	M6		–	15	**9640.900**	–	15	**9640.900**
	M8		–	15	**9640.910**	–	15	**9640.910**
	M10		–	15	**9640.920**	–	15	**9640.920**
Threaded bolts for individual connection options[1]. Including plain washers, spring lock washers and nuts.								
Thread	M6	Length 35 mm	–	6	**9640.930**	–	6	**9640.930**
	M8	Length 35 mm	–	6	**9640.940**	–	6	**9640.940**
	M10	Length 80 mm	–	6	**9640.960**	–	6	**9640.960**

[1] Sliding blocks or sliding nuts are additionally required for attachment.

Rittal Maxi-PLS up to 3200 A

Connection kits (3-pole)

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 600 mm.

Correct selection should be made according to the following criteria:

- Make, size
- Rated current I_e
- Switch version either "static installation" or "rack-mounted"
- Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1 Connection kit, top

2 Connection kit, bottom

3 Connection bracket

4 Isolator chassis

5 U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6			Model No. SV						Page
Rated operating current I_e			630 A	800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			I	I	I	I	I	–	
Static	VT	1 top	**9651.030**	**9651.070**	**9651.110**	**9651.150**	**9651.190**	–	
		2 bottom	**9651.040**	**9651.080**	**9651.120**	**9651.160**	**9651.200**	–	
	HT	1 top	**9651.010**	**9651.050**	**9651.090**	**9651.130**	**9651.170**	–	
		2 bottom	**9651.020**	**9651.060**	**9651.100**	**9651.140**	**9651.180**	–	
Rack-mounted	VT	1 top	**9651.350**	**9651.390**	**9651.430**	**9651.470**	**9651.510**	–	
		2 bottom	**9651.360**	**9651.400**	**9651.440**	**9651.480**	**9651.520**	–	
	HT	1 top	**9651.330**	**9651.370**	**9651.410**	**9651.450**	**9651.490**	–	
		2 bottom	**9651.340**	**9651.380**	**9651.420**	**9651.460**	**9651.500**	–	
Approximate weight (kg) top/bottom			16/10	16/10	31/19.5	31/19.5	31/19.5	–	
Accessories	Packs of								
3 Connection bracket	1 set		9650.400	9650.400	9650.410	9650.410	9650.410	–	391
4 Isolator chassis	1 set		9650.020	9650.020	9650.020	9650.020	9650.020	–	391
5 U contact maker	3		9650.170	9650.170	9650.170	9650.170	9650.170	–	391
Stacking insulator	6		9660.200	9660.200	9660.200	9660.200	9660.200	–	405

Siemens 3WL, Moeller IZM			Model No. SV						Page
Rated operating current I_e			630 A	800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			I	I	I	I	I	II	
Static	VT	1 top	**9654.030**	**9654.070**	**9654.110**	**9654.150**	**9654.190**	**9654.690**	
		2 bottom	**9654.040**	**9654.080**	**9654.120**	**9654.160**	**9654.200**	**9654.700**	
	HT	1 top	**9654.010**	**9654.050**	**9654.090**	**9654.130**	**9654.170**	**9654.710**	
		2 bottom	**9654.020**	**9654.060**	**9654.100**	**9654.140**	**9654.180**	**9654.720**	
Rack-mounted	VT	1 top	**9654.350**	**9654.390**	**9654.430**	**9654.470**	**9654.510**	**9654.650**	
		2 bottom	**9654.360**	**9654.400**	**9654.440**	**9654.480**	**9654.520**	**9654.660**	
	HT	1 top	**9654.330**	**9654.370**	**9654.410**	**9654.450**	**9654.490**	**9654.670**[1]	
		2 bottom	**9654.340**	**9654.380**	**9654.420**	**9654.460**	**9654.500**	**9654.680**[1]	
Approximate weight (kg) top/bottom			16/10	16/10	16/10	31/19.5	31/19.5	41/29	
Accessories	Packs of								
3 Connection bracket	1 set		9650.400	9650.400	9650.400	9650.410	9650.410	9650.420	391
4 Isolator chassis	1 set		9650.020	9650.020	9650.020	9650.020	9650.020	9650.020	391
5 U contact maker	3		9650.170	9650.170	9650.170	9650.170	9650.170	9650.170	391
Stacking insulator	6		9660.200	9660.200	9660.200	9660.200	9660.200	9660.200	405

[1] For installation in 800 mm deep enclosures.

System overview Page 366 **System components** Page 390 **Connection components** Page 391 **SV-TS 8 enclosures** Page 392 **Accessories** Page 401

Mitsubishi AE-SS				Model No. SV				Page
Rated operating current I$_e$			800 A	1000 A	1250 A	1600 A	2000 A	
Static	VT	1 top	–	9655.030	9655.070	9655.110	9655.150	
		2 bottom	–	9655.040	9655.080	9655.120	9655.160	
	HT	1 top	–	9655.010	9655.050	9655.090	9655.130	
		2 bottom	–	9655.020	9655.060	9655.100	9655.140	
Rack-mounted	VT	1 top	–	9655.310	9655.350	9655.390	9655.430	
		2 bottom	–	9655.320	9655.360	9655.400	9655.440	
	HT	1 top	–	9655.290	9655.330	9655.370	9655.410	
		2 bottom	–	9655.300	9655.340	9655.380	9655.420	
Approximate weight (kg) top/bottom			–	16/10	31/19.5	31/19.5	47/29	
Accessories	Packs of							
3 Connection bracket	1 set		–	9650.400	9650.410	9650.410	9650.420	391
4 Isolator chassis	1 set		–	9650.020	9650.020	9650.020	9650.020	391
5 U contact maker	3		–	9650.170	9650.170	9650.170	9650.170	391
Stacking insulator	6		–	9660.200	9660.200	9660.200	9660.200	405

Merlin Gerin Masterpact NW				Model No. SV				Page
Rated operating current I$_e$			800 A	1000 A	1250 A	1600 A	2000 A	
Static	VT	1 top	9652.030	9652.070	9652.110	9652.150	–	
		2 bottom	9652.040	9652.080	9652.120	9652.160	–	
	HT	1 top	9652.010	9652.050	9652.090	9652.130	–	
		2 bottom	9652.020	9652.060	9652.100	9652.140	–	
Rack-mounted	VT	1 top	9652.310	9652.350	9652.390	9652.430	–	
		2 bottom	9652.320	9652.360	9652.400	9652.440	–	
	HT	1 top	9652.290	9652.330	9652.370	9652.410	–	
		2 bottom	9652.300	9652.340	9652.380	9652.420	–	
Approximate weight (kg) top/bottom			16/10	31/19.5	31/19.5	31/19.5	–	
Accessories	Packs of							
3 Connection bracket	1 set		9650.400	9650.410	9650.410	9650.410	–	391
4 Isolator chassis	1 set		9650.020	9650.020	9650.020	9650.020	–	391
5 U contact maker	3		9650.170	9650.170	9650.170	9650.170	–	391
Stacking insulator	6		9660.200	9660.200	9660.200	9660.200	–	405

ABB Sace Emax				Model No. SV				Page
Rated operating current I$_e$			800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			E1	–	E1	E2	E2	
Static	VT	1 top	9653.030	–	9653.070	9653.110	9653.150	
		2 bottom	9653.040	–	9653.080	9653.120	9653.160	
	HT	1 top	9653.010	–	9653.050	9653.090	9653.130	
		2 bottom	9653.020	–	9653.060	9653.100	9653.140	
Rack-mounted	VT	1 top	9653.310	–	9653.350	9653.390	9653.430	
		2 bottom	9653.320	–	9653.360	9653.400	9653.440	
	HT	1 top	9653.290	–	9653.330	9653.370	9653.410	
		2 bottom	9653.300	–	9653.340	9653.380	9653.420	
Approximate weight (kg) top/bottom			16/10	–	31/19.5	31/19.5	47/29	
Accessories	Packs of							
3 Connection bracket	1 set		9650.400	–	9650.410	9650.410	9650.420	391
4 Isolator chassis	1 set		9650.020	–	9650.020	9650.020	9650.020	391
5 U contact maker	3		9650.170	–	9650.170	9650.170	9650.170	391
Stacking insulator	6		9660.200	–	9660.200	9660.200	9660.200	405

B
2.8

Rittal Maxi-PLS up to 3200 A

Rittal Maxi-PLS up to 3200 A

Connection kits (3-pole)

VT   **HT**

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 800 mm.

Correct selection should be made according to the following criteria:

● Make, size
● Rated current I_e
● Switch version either "static installation" or "rack-mounted"
● Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1	Connection kit, top
2	Connection kit, bottom
3	Connection bracket
4	Isolator chassis
5	U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6			Model No. SV			Page
Rated operating current I_e			2000 A	2500 A	3200 A	
Size (BG)			II	II	II	
Static	VT	1 top	**9651.230**	**9651.270**	**9651.310**	
		2 bottom	**9651.240**	**9651.280**	**9651.320**	
	HT	1 top	**9651.210**	**9651.250**	**9651.290**	
		2 bottom	**9651.220**	**9651.260**	**9651.300**	
Rack-mounted	VT	1 top	**9651.550**	**9651.590**	**9651.630**	
		2 bottom	**9651.560**	**9651.600**	**9651.640**	
	HT	1 top	**9651.530**	**9651.570**	**9651.610**	
		2 bottom	**9651.540**	**9651.580**	**9651.620**	
Approximate weight (kg) top/bottom			48/32	67/50	67/50	

Accessories	Packs of				
3 Connection bracket	1 set	9650.470	9650.480	9650.480	391
4 Isolator chassis	1 set	9650.030	9650.030	9650.030	391
5 U contact maker	3	9650.180	9650.180	9650.180	391
Stacking insulator	6	9660.200	9660.200	9660.200	405

Siemens 3WL, Moeller IZM			Model No. SV			Page
Rated operating current I_e			2000 A	2500 A	3200 A	
Size (BG)			II	II	II	
Static	VT	1 top	**9654.690**	**9654.270**	**9654.310**	
		2 bottom	**9654.700**	**9654.280**	**9654.320**	
	HT	1 top	**9654.710**	**9654.250**	**9654.290**	
		2 bottom	**9654.720**	**9654.260**	**9654.300**	
Rack-mounted	VT	1 top	**9654.650**	**9654.590**	**9654.630**	
		2 bottom	**9654.660**	**9654.600**	**9654.640**	
	HT	1 top	**9654.670**[1]	**9654.570**[1]	**9654.610**[1]	
		2 bottom	**9654.680**[1]	**9654.580**[1]	**9654.620**[1]	
Approximate weight (kg) top/bottom			41/29	67/50	67/50	

Accessories	Packs of				
3 Connection bracket	1 set	9650.420	9650.480	9650.480	391
4 Isolator chassis	1 set	9650.020	9650.030	9650.030	391
5 U contact maker	3	9650.170	9650.180	9650.180	391
Stacking insulator	6	9660.200	9660.200	9660.200	405

[1] For installation in 800 mm deep enclosures.

Mitsubishi AE-SS				Model No. SV			Page
Rated operating current I_e				2000 A	2500 A	3200 A	
Static	VT	**1** top		**9655.190**	**9655.230**	**9655.270**	
		2 bottom		**9655.200**	**9655.240**	**9655.280**	
	HT	**1** top		**9655.170**	**9655.210**	**9655.250**	
		2 bottom		**9655.180**	**9655.220**	**9655.260**	
Rack-mounted	VT	**1** top		**9655.470**	**9655.510**	**9655.550**	
		2 bottom		**9655.480**	**9655.520**	**9655.560**	
	HT	**1** top		**9655.450**	**9655.490**	**9655.530**	
		2 bottom		**9655.460**	**9655.500**	**9655.540**	
Approximate weight (kg) top/bottom				48/32	67/50	67/50	
Accessories		Packs of					
3 Connection bracket		1 set		9650.470	9650.480	9650.480	391
4 Isolator chassis		1 set		9650.030	9650.030	9650.030	391
5 U contact maker		3		9650.180	9650.180	9650.180	391
Stacking insulator		6		9660.200	9660.200	9660.200	405

Merlin Gerin Masterpact NW				Model No. SV			Page
Rated operating current I_e				2000 A	2500 A	3200 A	
Static	VT	**1** top		**9652.190**	**9652.230**	**9652.270**	
		2 bottom		**9652.200**	**9652.240**	**9652.280**	
	HT	**1** top		**9652.170**	**9652.210**	**9652.250**	
		2 bottom		**9652.180**	**9652.220**	**9652.260**	
Rack-mounted	VT	**1** top		**9652.470**	**9652.510**	**9652.550**	
		2 bottom		**9652.480**	**9652.520**	**9652.560**	
	HT	**1** top		**9652.450**	**9652.490**	**9652.530**	
		2 bottom		**9652.460**	**9652.500**	**9652.540**	
Approximate weight (kg) top/bottom				41/29	48/32	67/50	
Accessories		Packs of					
3 Connection bracket		1 set		9650.420	9650.470	9650.480	391
4 Isolator chassis		1 set		9650.020	9650.030	9650.030	391
5 U contact maker		3		9650.170	9650.180	9650.180	391
Stacking insulator		6		9660.200	9660.200	9660.200	405

ABB Sace Emax				Model No. SV			Page
Rated operating current I_e				2000 A	2500 A	3200 A	
Size (BG)				E3	E3	E3	
Static	VT	**1** top		**9653.190**	**9653.230**	**9653.270**	
		2 bottom		**9653.200**	**9653.240**	**9653.280**	
	HT	**1** top		**9653.170**	**9653.210**	**9653.250**	
		2 bottom		**9653.180**	**9653.220**	**9653.260**	
Rack-mounted	VT	**1** top		**9653.470**	**9653.510**	**9653.550**	
		2 bottom		**9653.480**	**9653.520**	**9653.560**	
	HT	**1** top		**9653.450**	**9653.490**	**9653.530**	
		2 bottom		**9653.460**	**9653.500**	**9653.540**	
Approximate weight (kg) top/bottom				48/32	48/32	67/50	
Accessories		Packs of					
3 Connection bracket		1 set		9650.470	9650.470	9650.480	391
4 Isolator chassis		1 set		9650.030	9650.030	9650.030	391
5 U contact maker		3		9650.180	9650.180	9650.180	391
Stacking insulator		6		9660.200	9660.200	9660.200	405

B

2.8

Rittal Maxi-PLS up to 3200 A

Rittal Maxi-PLS up to 3200 A

Connection kits for coupling sets (3-pole)

VT

HT

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 1000 mm.

Correct selection should be made according to the following criteria:

● Make, size
● Rated current I_e
● Switch version either "static installation" or "rack-mounted"
● Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1 Connection kit, top see page 378 – 381.

2 Connection kit, bottom for coupling set

3 Connection bracket

4 Isolator chassis

5 U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6		Model No. SV				Page
Rated operating current I_e		1600 A[1]	2000 A	2500 A	3200 A	
Size (BG)		I	II	II	II	
Static	VT 2 bottom	**9651.205**	**9651.245**	**9651.285**	**9651.325**	
	HT 2 bottom	**9651.185**	**9651.225**	**9651.265**	**9651.305**	
Rack-mounted	VT 2 bottom	**9651.525**	**9651.565**	**9651.605**	**9651.645**	
	HT 2 bottom	**9651.505**	**9651.545**	**9651.585**	**9651.625**	
Approximate weight (kg)		19.5	32	50	50	
Accessories	Packs of					
3 Connection bracket	1 set	9650.410	9650.470	9650.480	9650.480	391
4 Isolator chassis	1 set	9650.020	9650.030	9650.030	9650.030	391
5 U contact maker	3	9650.170	9650.180	9650.180	9650.180	391
Stacking insulator	6	9660.200	9660.200	9660.200	9660.200	405

Siemens 3WL, Moeller IZM		Model No. SV				Page
Rated operating current I_e		1600 A[1]	2000 A[1]	2500 A	3200 A	
Size (BG)		I	II	II	II	
Static	VT 2 bottom	**9654.205**	**9654.705**	**9654.285**	**9654.325**	
	HT 2 bottom	**9654.185**	**9654.725**	**9654.265**	**9654.305**	
Rack-mounted	VT 2 bottom	**9654.525**	**9654.665**	**9654.605**	**9654.645**	
	HT 2 bottom	**9654.505**	**9654.685[2]**	**9654.585[2]**	**9654.625[2]**	
Approximate weight (kg)		19.5	29	50	50	
Accessories	Packs of					
3 Connection bracket	1 set	9650.410	9650.420	9650.480	9650.480	391
4 Isolator chassis	1 set	9650.020	9650.020	9650.030	9650.030	391
5 U contact maker	3	9650.170	9650.170	9650.180	9650.180	391
Stacking insulator	6	9660.200	9660.200	9660.200	9660.200	405

[1] Installation of the power circuit-breaker is also possible in 800 mm wide enclosures.
[2] For installation in 800 mm deep enclosures.

Rittal Catalogue 31/Power distribution

Connection kits for coupling sets (3-pole)

Mitsubishi AE-SS			Model No. SV				Page
Rated operating current I_e			1600 A[1]	2000 A	2500 A	3200 A	
Static	VT	**2** bottom	**9655.125**	**9655.205**	**9655.245**	**9655.285**	
	HT	**2** bottom	**9655.105**	**9655.185**	**9655.225**	**9655.265**	
Rack-mounted	VT	**2** bottom	**9655.405**	**9655.485**	**9655.525**	**9655.565**	
	HT	**2** bottom	**9655.385**	**9655.465**	**9655.505**	**9655.545**	
Approximate weight (kg)			19.5	32	50	50	
Accessories	Packs of						
3 Connection bracket	1 set		9650.410	9650.470	9650.480	9650.480	391
4 Isolator chassis	1 set		9650.020	9650.030	9650.030	9650.030	391
5 U contact maker	3		9650.170	9650.180	9650.180	9650.180	391
Stacking insulator	6		9660.200	9660.200	9660.200	9660.200	405

Merlin Gerin Masterpact NW			Model No. SV				Page
Rated operating current I_e			1600 A[1]	2000 A[1]	2500 A	3200 A	
Static	VT	**2** bottom	**9652.165**	**9652.205**	**9652.245**	**9652.285**	
	HT	**2** bottom	**9652.145**	**9652.185**	**9652.225**	**9652.265**	
Rack-mounted	VT	**2** bottom	**9652.445**	**9652.485**	**9652.525**	**9652.565**	
	HT	**2** bottom	**9652.425**	**9652.465**	**9652.505**	**9652.545**	
Approximate weight (kg)			19.5	29	32	50	
Accessories	Packs of						
3 Connection bracket	1 set		9650.410	9650.420	9650.470	9650.480	391
4 Isolator chassis	1 set		9650.020	9650.020	9650.030	9650.030	391
5 U contact maker	3		9650.170	9650.170	9650.180	9650.180	391
Stacking insulator	6		9660.200	9660.200	9660.200	9660.200	405

ABB Sace Emax			Model No. SV					Page
Rated operating current I_e			1600 A	2000 A		2500 A	3200 A	
Size (BG)			E2[1]	E2[1]	E3	E3	E3	
Static	VT	**2** bottom	**9653.125**	**9653.165**	**9653.205**	**9653.245**	**9653.285**	
	HT	**2** bottom	**9653.105**	**9653.145**	**9653.185**	**9653.225**	**9653.265**	
Rack-mounted	VT	**2** bottom	**9653.405**	**9653.445**	**9653.485**	**9653.525**	**9653.565**	
	HT	**2** bottom	**9653.385**	**9653.425**	**9653.465**	**9653.505**	**9653.545**	
Approximate weight (kg)			19.5	29	32	32	50	
Accessories	Packs of							
3 Connection bracket	1 set		9650.410	9650.420	9650.470	9650.470	9650.480	391
4 Isolator chassis	1 set		9650.020	9650.020	9650.030	9650.030	9650.030	391
5 U contact maker	3		9650.170	9650.170	9650.180	9650.180	9650.180	391
Stacking insulator	6		9660.200	9660.200	9660.200	9660.200	9660.200	405

[1] Installation of the power circuit-breaker is also possible in 800 mm wide enclosures.

B

2.8

Rittal Maxi-PLS up to 3200 A

Rittal Maxi-PLS up to 3200 A

Connection kits for rear section (3-pole)

VT　　　　**HT**

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 600 mm.

Correct selection should be made according to the following criteria:

- Make, size
- Rated current I_e
- Switch version either "static installation" or "rack-mounted"
- Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1 Connection kit, top
2 Connection kit, bottom
3 Connection bracket
4 U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6			Model No. SV						Page
Rated operating current I_e			630 A	800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			I	I	I	I	I	–	
Static	VT	1 top	**9651.033**	**9651.073**	**9651.113**	**9651.153**	**9651.193**	–	
		2 bottom	**9651.043**	**9651.083**	**9651.123**	**9651.163**	**9651.203**	–	
	HT	1 top	**9651.013**	**9651.053**	**9651.093**	**9651.133**	**9651.173**	–	
		2 bottom	**9651.023**	**9651.063**	**9651.103**	**9651.143**	**9651.183**	–	
Rack-mounted	VT	1 top	**9651.353**[1]	**9651.393**[1]	**9651.433**[1]	**9651.473**[1]	**9651.513**[1]	–	
		2 bottom	**9651.363**[1]	**9651.403**[1]	**9651.443**[1]	**9651.483**[1]	**9651.523**[1]	–	
	HT	1 top	**9651.333**[1]	**9651.373**[1]	**9651.413**[1]	**9651.453**[1]	**9651.493**[1]	–	
		2 bottom	**9651.343**[1]	**9651.383**[1]	**9651.423**[1]	**9651.463**[1]	**9651.503**[1]	–	
Approximate weight (kg) top/bottom			16/10	16/10	31/19.5	31/19.5	31/19.5	–	
Accessories	Packs of								
3 Connection bracket	1 set		9650.400	9650.400	9650.410	9650.410	9650.410	–	391
4 U contact maker	3		9650.170	9650.170	9650.170	9650.170	9650.170	–	391

Siemens 3WL, Moeller IZM			Model No. SV						Page
Rated operating current I_e			630 A	800 A	1000 A	1250 A	1600 A	2000 A	
Size (BG)			I	I	I	I	I	II	
Static	VT	1 top	**9654.033**	**9654.073**	**9654.113**	**9654.153**	**9654.193**	**9654.693**	
		2 bottom	**9654.043**	**9654.083**	**9654.123**	**9654.163**	**9654.203**	**9654.703**	
	HT	1 top	**9654.013**	**9654.053**	**9654.093**	**9654.133**	**9654.173**	**9654.713**	
		2 bottom	**9654.023**	**9654.063**	**9654.103**	**9654.143**	**9654.183**	**9654.723**	
Rack-mounted	VT	1 top	**9654.353**	**9654.393**	**9654.433**	**9654.473**[1]	**9654.513**[1]	**9654.653**[1]	
		2 bottom	**9654.363**	**9654.403**	**9654.443**	**9654.483**[1]	**9654.523**[1]	**9654.663**[1]	
	HT	1 top	**9654.333**[1]	**9654.373**[1]	**9654.413**[1]	**9654.453**[1]	**9654.493**[1]	**9654.673**[1]	
		2 bottom	**9654.343**[1]	**9654.383**[1]	**9654.423**[1]	**9654.463**[1]	**9654.503**[1]	**9654.683**[1]	
Approximate weight (kg) top/bottom			16/10	16/10	16/10	31/19.5	31/19.5	41/29	
Accessories	Packs of								
3 Connection bracket	1 set		9650.400	9650.400	9650.400	9650.410	9650.410	9650.420	391
4 U contact maker	3		9650.170	9650.170	9650.170	9650.170	9650.170	9650.170	391

[1] For installation in 800 mm deep enclosures.

Mitsubishi AE-SS				Model No. SV					Page
Rated operating current I_e				800 A	1000 A	1250 A	1600 A	2000 A	
Static	VT	1	top	–	9655.033	9655.073	9655.113	9655.153	
		2	bottom	–	9655.043	9655.083	9655.123	9655.163	
	HT	1	top	–	9655.013	9655.053	9655.093	9655.133	
		2	bottom	–	9655.023	9655.063	9655.103	9655.143	
Rack-mounted	VT	1	top	–	9655.313	9655.353	9655.393	9655.433[1]	
		2	bottom	–	9655.323	9655.363	9655.403	9655.443[1]	
	HT	1	top	–	9655.293	9655.333[1]	9655.373[1]	9655.413[1]	
		2	bottom	–	9655.303	9655.343[1]	9655.383[1]	9655.423[1]	
Approximate weight (kg) top/bottom				–	16/10	31/19.5	31/19.5	47/29	
Accessories	Packs of								
3 Connection bracket	1 set			–	9650.400	9650.410	9650.410	9650.420	391
4 U contact maker	3			–	9650.170	9650.170	9650.170	9650.170	391

Merlin Gerin Masterpact NW				Model No. SV					Page
Rated operating current I_e				800 A	1000 A	1250 A	1600 A	2000 A	
Static	VT	1	top	9652.033	9652.073	9652.113	9652.153	–	
		2	bottom	9652.043	9652.083	9652.123	9652.163	–	
	HT	1	top	9652.013	9652.053	9652.093	9652.133	–	
		2	bottom	9652.023	9652.063	9652.103	9652.143	–	
Rack-mounted	VT	1	top	9652.313	9652.353	9652.393	9652.433	–	
		2	bottom	9652.323	9652.363	9652.403	9652.443	–	
	HT	1	top	9652.293[1]	9652.333[1]	9652.373[1]	9652.413[1]	–	
		2	bottom	9652.303[1]	9652.343[1]	9652.383[1]	9652.423[1]	–	
Approximate weight (kg) top/bottom				16/10	31/19.5	31/19.5	31/19.5	–	
Accessories	Packs of								
3 Connection bracket	1 set			9650.400	9650.410	9650.410	9650.410	–	391
4 U contact maker	3			9650.170	9650.170	9650.170	9650.170	–	391

ABB Sace Emax				Model No. SV					Page
Rated operating current I_e				800 A	1000 A	1250 A	1600 A	2000 A	
Size				E1	–	E1	E2	E2	
Static	VT	1	top	9653.033	–	9653.073	9653.113	9653.153	
		2	bottom	9653.043	–	9653.083	9653.123	9653.163	
	HT	1	top	9653.013	–	9653.053	9653.093	9653.133	
		2	bottom	9653.023	–	9653.063	9653.103	9653.143	
Rack-mounted	VT	1	top	9653.313	–	9653.353	9653.393	9653.433[1]	
		2	bottom	9653.323	–	9653.363	9653.403	9653.443[1]	
	HT	1	top	9653.293[1]	–	9653.333[1]	9653.373[1]	9653.413[1]	
		2	bottom	9653.303[1]	–	9653.343[1]	9653.383[1]	9653.423[1]	
Approximate weight (kg) top/bottom				16/10	–	31/19.5	31/19.5	47/29	
Accessories	Packs of								
3 Connection bracket	1 set			9650.400	–	9650.410	9650.410	9650.420	391
4 U contact maker	3			9650.170	–	9650.170	9650.170	9650.170	391

[1] For installation in 800 mm deep enclosures.

B

2.8

Rittal Maxi-PLS up to 3200 A

Rittal Maxi-PLS up to 3200 A

Connection kits for rear section (3-pole)

VT　　　**HT**

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 800 mm.

Correct selection should be made according to the following criteria:

- Make, size
- Rated current I_e
- Switch version either "static installation" or "rack-mounted"
- Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1 Connection kit, top
2 Connection kit, bottom
3 Connection bracket
4 U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6			Model No. SV			Page
Rated operating current I_e			2000 A	2500 A	3200 A	
Size (BG)			II	II	II	
Static	VT	1 top	**9651.233**	**9651.273**	**9651.313**	
		2 bottom	**9651.243**	**9651.283**	**9651.323**	
	HT	1 top	**9651.213**	**9651.253**	**9651.293**	
		2 bottom	**9651.223**	**9651.263**	**9651.303**	
Rack-mounted	VT	1 top	**9651.553**[1]	**9651.593**[1]	**9651.633**[1]	
		2 bottom	**9651.563**[1]	**9651.603**[1]	**9651.643**[1]	
	HT	1 top	**9651.533**[1]	**9651.573**[1]	**9651.613**[1]	
		2 bottom	**9651.543**[1]	**9651.583**[1]	**9651.623**[1]	
Approximate weight (kg) top/bottom			48/32	67/50	67/50	
Accessories	Packs of					
3 Connection bracket	1 set		9650.470	9650.480	9650.480	391
4 U contact maker	3		9650.180	9650.180	9650.180	391

Siemens 3WL, Moeller IZM			Model No. SV			Page
Rated operating current I_e			2000 A	2500 A	3200 A	
Size (BG)			II	II	II	
Static	VT	1 top	**9654.693**	**9654.273**	**9654.313**	
		2 bottom	**9654.703**	**9654.283**	**9654.323**	
	HT	1 top	**9654.713**	**9654.253**	**9654.293**	
		2 bottom	**9654.723**	**9654.263**	**9654.303**	
Rack-mounted	VT	1 top	**9654.653**[1]	**9654.593**[1]	**9654.633**[1]	
		2 bottom	**9654.663**[1]	**9654.603**[1]	**9654.643**[1]	
	HT	1 top	**9654.673**[1]	**9654.573**[1]	**9654.613**[1]	
		2 bottom	**9654.683**[1]	**9654.583**[1]	**9654.623**[1]	
Approximate weight (kg) top/bottom			41/29	67/50	67/50	
Accessories	Packs of					
3 Connection bracket	1 set		9650.420	9650.480	9650.480	391
4 U contact maker	3		9650.170	9650.180	9650.180	391

[1] For installation in 800 mm deep enclosures.

Connection kits for rear section (3-pole)

Mitsubishi AE-SS			Model No. SV			Page
Rated operating current I_e			2000 A	2500 A	3200 A	
Static	VT	**1** top	**9655.193**	**9655.233**	**9655.273**	
		2 bottom	**9655.203**	**9655.243**	**9655.283**	
	HT	**1** top	**9655.173**	**9655.213**	**9655.253**	
		2 bottom	**9655.183**	**9655.223**	**9655.263**	
Rack-mounted	VT	**1** top	**9655.473**	**9655.513[1]**	**9655.553[1]**	
		2 bottom	**9655.483**	**9655.523[1]**	**9655.563[1]**	
	HT	**1** top	**9655.453[1]**	**9655.493[1]**	**9655.533[1]**	
		2 bottom	**9655.463[1]**	**9655.503[1]**	**9655.543[1]**	
Approximate weight (kg) top/bottom			48/32	67/50	67/50	
Accessories	Packs of					
3 Connection bracket	1 set		9650.470	9650.480	9650.480	391
4 U contact maker	3		9650.180	9650.180	9650.180	391

Merlin Gerin Masterpact NW			Model No. SV			Page
Rated operating current I_e			2000 A	2500 A	3200 A	
Static	VT	**1** top	**9652.193**	**9652.233**	**9652.273**	
		2 bottom	**9652.203**	**9652.243**	**9652.283**	
	HT	**1** top	**9652.173**	**9652.213**	**9652.253**	
		2 bottom	**9652.183**	**9652.223**	**9652.263**	
Rack-mounted	VT	**1** top	**9652.473**	**9652.513**	**9652.553[1]**	
		2 bottom	**9652.483**	**9652.523**	**9652.563[1]**	
	HT	**1** top	**9652.453[1]**	**9652.493[1]**	**9652.533[1]**	
		2 bottom	**9652.463[1]**	**9652.503[1]**	**9652.543[1]**	
Approximate weight (kg) top/bottom			41/29	48/32	67/50	
Accessories	Packs of					
3 Connection bracket	1 set		9650.420	9650.470	9650.480	391
4 U contact maker	3		9650.170	9650.180	9650.180	391

ABB Sace Emax			Model No. SV			Page
Rated operating current I_e			2000 A	2500 A	3200 A	
Size (BG)			E3	E3	E3	
Static	VT	**1** top	**9653.193**	**9653.233**	**9653.273**	
		2 bottom	**9653.203**	**9653.243**	**9653.283**	
	HT	**1** top	**9653.173**	**9653.213**	**9653.253**	
		2 bottom	**9653.183**	**9653.223**	**9653.263**	
Rack-mounted	VT	**1** top	**9653.473**	**9653.513**	**9653.553[1]**	
		2 bottom	**9653.483**	**9653.523**	**9653.563[1]**	
	HT	**1** top	**9653.453[1]**	**9653.493[1]**	**9653.533[1]**	
		2 bottom	**9653.463[1]**	**9653.503[1]**	**9653.543[1]**	
Approximate weight (kg) top/bottom			48/32	48/32	67/50	
Accessories	Packs of					
3 Connection bracket	1 set		9650.470	9650.470	9650.480	391
4 U contact maker	3		9650.180	9650.180	9650.180	391

[1] For installation in 800 mm deep enclosures.

B

2.8

Rittal Maxi-PLS up to 3200 A

Rittal Maxi-PLS up to 3200 A

Connection kits for coupling sets – rear section (3-pole)

VT

HT

For installation in 600 mm deep and 2000 mm high enclosures. Recommended enclosure width 1000 mm.

Correct selection should be made according to the following criteria:

- Make, size
- Rated current I_e
- Switch version either "static installation" or "rack-mounted"
- Position of the power circuit-breaker:
  VT = in door cutout
  HT = behind the door

1	Connection kit, top, see page 378 – 381.
2	Connection kit, bottom for coupling set
3	Connection bracket
4	Isolator chassis
5	U contact maker

Note:
Technical modifications reserved.
Connection kits for other enclosure sizes or 4-pole systems available on request.

Delivery time:
Extended delivery times.

Siemens 3WN6			**Model No. SV**				Page
Rated operating current I_e			1600 A[1]	2000 A	2500 A	3200 A	
Size (BG)			I	II	II	II	
Static	VT	**2** bottom	**9651.204**	**9651.244**	**9651.284**	**9651.324**	
	HT	**2** bottom	**9651.184**	**9651.224**	**9651.264**	**9651.304**	
Rack-mounted	VT	**2** bottom	9651.524[2]	9651.564[2]	9651.604[2]	9651.644[2]	
	HT	**2** bottom	9651.504[2]	9651.544[2]	9651.584[2]	9651.624[2]	
Approximate weight (kg)			19.5	32	50	50	
Accessories	Packs of						
3 Connection bracket	1 set		9650.410	9650.470	9650.480	9650.480	391
4 Isolator chassis	1 set		9650.020	9650.030	9650.030	9650.030	391
5 U contact maker	3		9650.170	9650.180	9650.180	9650.180	391

Siemens 3WL, Moeller IZM			**Model No. SV**				Page
Rated operating current I_e			1600 A[1]	2000 A[1]	2500 A	3200 A	
Size (BG)			I	II	II	II	
Static	VT	**2** bottom	**9654.204**	**9654.704**	**9654.284**	**9654.324**	
	HT	**2** bottom	**9654.184**	**9654.724**	**9654.264**	**9654.304**	
Rack-mounted	VT	**2** bottom	9654.524[2]	9654.664[2]	9654.604[2]	9654.644[2]	
	HT	**2** bottom	9654.504[2]	9654.684[2]	9654.584[2]	9654.624[2]	
Approximate weight (kg)			19.5	29	50	50	
Accessories	Packs of						
3 Connection bracket	1 set		9650.410	9650.420	9650.480	9650.480	391
4 Isolator chassis	1 set		9650.020	9650.020	9650.030	9650.030	391
5 U contact maker	3		9650.170	9650.170	9650.180	9650.180	391

[1] Installation of the power circuit-breaker is also possible in 800 mm wide enclosures.
[2] For installation in 800 mm deep enclosures.

Connection kits for coupling sets – rear section (3-pole)

Mitsubishi AE-SS			Model No. SV				Page
Rated operating current I_e			1600 A[1]	2000 A	2500 A	3200 A	
Static	VT	[2] bottom	**9655.124**	**9655.204**	**9655.244**	**9655.284**	
	HT	[2] bottom	**9655.104**	**9655.184**	**9655.224**	**9655.264**	
Rack-mounted	VT	[2] bottom	**9655.404**	**9655.484**	**9655.524**[2]	**9655.564**[2]	
	HT	[2] bottom	**9655.384**[2]	**9655.464**[2]	**9655.504**[2]	**9655.544**[2]	
Approximate weight (kg)			19.5	32	50	50	
Accessories	Packs of						
[3] Connection bracket	1 set		9650.410	9650.470	9650.480	9650.480	391
[4] Isolator chassis	1 set		9650.020	9650.030	9650.030	9650.030	391
[5] U contact maker	3		9650.170	9650.180	9650.180	9650.180	391

Merlin Gerin Masterpact NW			Model No. SV				Page
Rated operating current I_e			1600 A[1]	2000 A[1]	2500 A	3200 A	
Static	VT	[2] bottom	**9652.164**	**9652.204**	**9652.244**	**9652.284**	
	HT	[2] bottom	**9652.144**	**9652.184**	**9652.224**	**9652.264**	
Rack-mounted	VT	[2] bottom	**9652.444**	**9652.484**	**9652.524**	**9652.564**[2]	
	HT	[2] bottom	**9652.424**[2]	**9652.464**[2]	**9652.504**[2]	**9652.544**[2]	
Approximate weight (kg)			19.5	29	32	50	
Accessories	Packs of						
[3] Connection bracket	1 set		9650.410	9650.420	9650.470	9650.480	391
[4] Isolator chassis	1 set		9650.020	9650.020	9650.030	9650.030	391
[5] U contact maker	3		9650.170	9650.170	9650.180	9650.180	391

ABB Sace Emax			Model No. SV					Page
Rated operating current I_e			1600 A	2000 A		2500 A	3200 A	
Size (BG)			E2[1]	E2[1]	E3	E3	E3	
Static	VT	[2] bottom	**9653.124**	**9653.164**	**9653.204**	**9653.244**	**9653.284**	
	HT	[2] bottom	**9653.104**	**9653.144**	**9653.184**	**9653.224**	**9653.264**	
Rack-mounted	VT	[2] bottom	**9653.404**	**9653.444**[2]	**9653.484**	**9653.524**	**9653.564**[2]	
	HT	[2] bottom	**9653.384**[2]	**9653.424**[2]	**9653.464**[2]	**9653.504**[2]	**9653.544**[2]	
Approximate weight (kg)			19.5	29	32	32	50	
Accessories	Packs of							
[3] Connection bracket	1 set		9650.410	9650.420	9650.470	9650.470	9650.480	391
[4] Isolator chassis	1 set		9650.020	9650.020	9650.030	9650.030	9650.030	391
[5] U contact maker	3		9650.170	9650.170	9650.180	9650.180	9650.180	391

[1] Installation of the power circuit-breaker is also possible in 800 mm wide enclosures.
[2] For installation in 800 mm deep enclosures.

<div style="text-align: right">

B

2.8

Rittal Maxi-PLS up to 3200 A

</div>

System components

Material:
Busbar support, end support,
end cover: PA 6.6
System attachment:
Stainless steel
Cover section: Hard PVC

Detailed drawing,
see page 1138.

Maxi-PLS system components			3-pole			4-pole		
			approx. weight (kg/pack)	Packs of	Model No. SV	approx. weight (kg/pack)	Packs of	Model No. SV
☐1 **Busbar support**			–	3	**9650.000**	–	3 + 1	**9650.000** **9659.000**
☐2 **Busbar support, suitable for top mounting**			–	3	**9650.160**	–	3	**9650.160**
☐3 **End supports**			–	6	**9650.010**	–	6 + 2	**9650.010** **9659.010**
☐4 **System attachment** for installing the busbar supports.								
For enclosures	Enclosure depth mm	Bar centre distance mm						
TS (roof section)	600	150	–	2	**9650.100**	–	–	**–**
	800	150	–	2	9650.120	–	2	**9650.080**
PS (roof section)	600	150	–	2	9650.110	–	–	**–**
	800	150	–	2	9650.130	–	–	**–**
TS/PS (rear section)	–	185	–	2	**9650.150**	–	–	**–**
	–	150	–	–	**–**	–	2	**9650.090**
☐5 **Maxi-PLS busbars E-Cu** (special lengths available on request).								
Length mm	For enclosure width mm	For application[1]						
491	600	A	35.0	3	**9650.200**	46.7	4	**9659.200**
525	600	B	37.0	3	**9650.210**	49.4	4	**9659.210**
599	600	C	43.0	3	**9650.220**	57.4	4	**9659.220**
691	800	A	49.0	3	**9650.230**	65.4	4	**9659.230**
725	800	B	51.0	3	**9650.240**	68.0	4	**9659.240**
799	800	C	56.0	3	**9650.250**	74.7	4	**9659.250**
891	1000	A	63.0	3	**9650.260**	84.0	4	**9659.260**
925	1000	B	65.0	3	**9650.270**	86.7	4	**9659.270**
999	1000	C	71.0	3	**9650.280**	94.7	4	**9659.280**
1091	1200	A	77.0	3	**9650.290**	102.7	4	**9659.290**
1125	1200	B	80.0	3	**9650.300**	106.7	4	**9659.300**
1199	1200	C	85.0	3	**9650.310**	113.4	4	**9659.310**
2400	–	–	171.0	3	**9650.360**	228.0	4	**9659.360**
☐6 **Cover section** for clip-on mounting on the Maxi-PLS busbars, length 1000 mm.			–	5	**9650.050**	–	5	**9650.050**
☐7 **Longitudinal connector E-Cu** for simple baying connection of the Maxi-PLS busbars. Including sliding blocks, bolts, washers and nuts.			7.0	3	**9650.190**	7.0 2.4	3 + 1	**9650.190** **9659.190**
End cover for clip-on mounting on the end surface of Maxi-PLS busbars.			–	6	**9650.060**	–	6 + 2	**9650.060** **9659.060**
Stabiliser to increase short-circuit resistance (I_{cw} up to 120 kA).			–	4[2]	**9650.140**	–	–	**–**

[1] A = Cable connection system with end support
B = Left-hand or right-hand end enclosure in a switchgear installation
C = Bayed enclosure with panels bayed on the left and right
[2] Modules for two complete stabilisers

Detailed drawing,
see page 1139.

Maxi-PLS connection components			3-pole			4-pole		
			approx. weight (kg/pack)	Packs of	Model No. SV	approx. weight (kg/pack)	Packs of	Model No. SV
1 **Connection bracket E-Cu** Transition from the main busbar system to the connection kits.								
For enclosure depth mm	Width mm	Number of brackets per phase						
600	60	1	6	1 set	**9650.400**	–	–	**–**
600	60	2	11	1 set	**9650.410**	–	–	**–**
600	60	3	17	1 set	**9650.420**	–	–	**–**
800	60	1	8	1 set	9650.430	11	1 set	9659.400
800	60	2	15	1 set	9650.440	20	1 set	9659.410
800	60	3	22	1 set	9650.450	30	1 set	9659.420
600	100	1	9	1 set	**9650.460**	–	–	**–**
600	100	2	18	1 set	**9650.470**	–	–	**–**
600	100	3	26	1 set	**9650.480**	–	–	**–**
800	100	1	13	1 set	9650.490	18	1 set	9659.460
800	100	2	24	1 set	9650.500	32	1 set	9659.470
800	100	3	36	1 set	9650.510	48	1 set	9659.480
2 **Isolator chassis** for isolated routing of the connection brackets. Material: PA 6.6, black, including assembly parts.								
Bar centre distance mm		For connection bracket width mm						
150		60	–	1 set	9650.020	–	1 set	9659.020
150		100	–	1 set	**9650.030**	–	1 set	9659.030
3 **U contact maker E-Cu** for contacting the connection brackets to the Maxi-PLS busbars. Including sliding blocks.								
Width 60 mm			3.4	3	9650.170	3.4 1.2	3 + 1	**9650.170** **9659.170**
Width 100 mm			5.7	3	**9650.180**	5.7 1.9	3 + 1	**9650.180** **9659.180**
4 **Connection clamp** for the connection of round conductors 95 to 300 mm² (multi-wire and sector). Suitable for retro-fitting on Maxi-PLS busbars. Including assembly parts.								
			–	3	**9650.320**	–	3	**9650.320**
5 **Connection plates** for the connection of laminated flat copper bars. Including assembly parts.								
Maximum clamping area	2 x 10 x 32 x 1 mm		–	3	**9650.330**	–	3	**9650.330**
	2 x 10 x 63 x 1 mm		–	3	**9650.340**	–	3	**9650.340**
	2 x 10 x 100 x 1 mm		–	3	**9650.350**	–	3	**9650.350**
6 **Terminal stud** for connecting cables with ring terminals. Including sliding blocks.								
Thread	M12	Length 32 mm	–	3	**9650.370**	–	3	**9650.370**
	M16	Length 32 mm	–	3	**9650.380**	–	3	**9650.380**
7 **Sliding blocks** for sliding into the Maxi-PLS busbar section at the sides.								
Thread	M10	Length (L) 25 mm	–	15	**9650.980**	–	15	**9650.980**
	M12	Length (L) 35 mm	–	15	**9650.990**	–	15	**9650.990**
8 **Sliding nuts** for retrospective insertion into the Maxi-PLS busbar section.								
Thread	M6		–	15	**9650.900**	–	15	**9650.900**
	M10		–	15	**9650.910**	–	15	**9650.910**
	M12		–	15	**9650.920**	–	15	**9650.920**
Threaded bolts for individual connection options[1]. Including plain washers, spring lock washers and nuts.								
Thread	M6	Length 35 mm	–	6	**9650.930**	–	6	**9650.930**
	M10	Length 35 mm	–	6	**9650.940**	–	6	**9650.940**
	M12	Length 80 mm	–	6	**9650.960**	–	6	**9650.960**

[1] Sliding blocks or sliding nuts are additionally required for attachment.

Rittal Maxi-PLS SV-TS 8 enclosures

for incoming/outgoing circuit

Pre-assembled for direct instal-
lation of power circuit-breakers

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame
with fitted punched section with-
out mounting flange for Maxi-
PLS end support attachment
and fitted system support rails
for power circuit-breaker attach-
ment;
door(s), roof, rear panel,
gland plates (three-piece).

Detailed drawing,
see page 1140.

Technical information,
see page 1142.

For Maxi-PLS		Packs of	3-pole				Page
			2000 A		3200 A		
Width (B) in mm			600		800		
Height (H) in mm			2000		2000		
Depth (T) in mm			600		600		
Model No. SV		1	**9660.665**	**9660.675**	**9660.865**	**9660.875**	
Door(s)			1	3	1	3	
Approximate weight (kg)			78	78	88	88	
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.600	8601.600	8601.800	8601.800	835
	Height 200 mm	1 set	8602.600	8602.600	8602.800	8602.800	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	8601.060	8601.060	835
	Height 200 mm	1 set	8602.060	8602.060	8602.060	8602.060	835
Accessories							
Cable clamp rails		2	4191.000	4191.000	4192.000	4192.000	979
Cable entry plates[1]		2	8800.060	8800.060	8800.080	8800.080	964
Side panels		2	8106.235	8106.512	8106.235	8106.512	853
Roof plates, vented[2]		1	9660.235	9660.235	9660.245	9660.245	406
Roof plates with pressure relief function[2]		1	9660.935	9660.935	9660.945	9660.945	406
Cover attachment		8	–	9660.680	–	9660.680	404
Device module			■	■	■	■	401
Contact hazard protection cover			■	■	■	■	402
Mounting bracket		24	9660.090	9660.090	9660.090	9660.090	404
Lock systems							
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.							

[1] Cable entry grommets, see page 965.
[2] In exchange for the standard TS roof.
To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.

Pre-assembled for direct installation of power circuit-breakers

Material:
Sheet steel
Enclosure frame, roof, rear panel and gland plates: 1.5 mm
Door: 2.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed,
powder-coated on the outside in textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame
with fitted punched section without mounting flange for Maxi-PLS end support attachment and fitted system support rails for power circuit-breaker attachment;
door(s), roof, rear panel, gland plates (three-piece).

Detailed drawing,
see page 1140.

Technical information,
see page 1142.

For Maxi-PLS		Packs of	4-pole				Page
			2000 A		3200 A		
Width (B) in mm			800		800		
Height (H) in mm			2000		2000		
Depth (T) in mm			600		800		
Model No. SV		1	**9649.625**	**9649.635**	**9659.625**	**9659.635**	
Door(s)			1	3	1	3	
Approximate weight (kg)			90	90	100	100	
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.800	8601.800	8601.800	8601.800	835
	Height 200 mm	1 set	8602.800	8602.800	8602.800	8602.800	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	8601.080	8601.080	835
	Height 200 mm	1 set	8602.060	8602.060	8602.080	8602.080	835
Accessories							
Cable clamp rails		2	4192.000	4192.000	4192.000	4192.000	979
Cable entry plates[1]		2	8800.080	8800.080	8800.080	8800.080	964
Side panels		2	8106.235	8106.512	8108.235	8108.512	853
Roof plates, vented[2]		1	9660.245	9660.245	9659.535	9659.535	406
Roof plates with pressure relief function[2]		1	9660.945	9660.945	–	–	406
Cover attachment		8	–	9660.680	–	9660.680	404
Device module			■	■	■	■	401
Contact hazard protection cover			■	■	■	■	402
Mounting bracket		24	9660.090	9660.090	9660.090	9660.090	404
Lock systems							
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.							

[1] Cable entry grommets, see page 965.
[2] In exchange for the standard TS roof.
To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.

Rittal Maxi-PLS SV-TS 8 enclosures

for Rittal NH fused isolators

1 Mounting in rear section
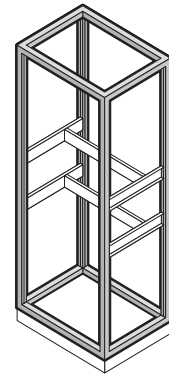
2 Mounting in centre section

Material:
Sheet steel
Enclosure frame, roof, rear panel and gland plates: 1.5 mm
Door: 2.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed,
powder-coated on the outside in textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame, door, roof, rear panel, gland plates (three-piece), TS punched sections with mounting flanges

Technical information,
see page 1143.

Maxi-PLS **1** For mounting in the rear section		Packs of	3-pole/4-pole						Page
			2000 A/3200 A						
Width (B) in mm			600	600	600	800	800	800	
Height (H) in mm			2000	2000	2000	2000	2000	2000	
Depth (T) in mm			500	600	800	500	600	800	
Model No. SV		1	9660.505[1]	9660.605[1]	9660.805[1]	9660.535[1]	9660.635[1]	9660.835[1]	
Technical specifications correspond to Model No. TS			8605.500	8606.500	8608.500	8805.500	8806.500	8808.500	144 – 146
Door			1	1	1	1	1	1	
Approximate weight (kg)			74.0	76.0	83.0	88.4	92.6	99.1	
Base/plinth									
Components front and rear	Height 100 mm	1 set	8601.600	8601.600	8601.600	8601.800	8601.800	8601.800	835
	Height 200 mm	1 set	8602.600	8602.600	8602.600	8602.800	8602.800	8602.800	835
Trim panels (sides)	Height 100 mm	1 set	8601.050	8601.060	8601.080	8601.050	8601.060	8601.080	835
	Height 200 mm	1 set	8602.050	8602.060	8602.080	8602.050	8602.060	8602.080	835
Also required									
2 For mounting in the centre section									
TS punched section with mounting flange (4 per enclosure)		4	8612.550	8612.560	8612.580	8612.550	8612.560	8612.580	922
PS punched section without mounting flange (2 per enclosure)		4	4376.000	4376.000	4376.000	4377.000	4377.000	4377.000	925
Support bracket (4 per enclosure)		24 sets	4183.000	4183.000	4183.000	4183.000	4183.000	4183.000	933
Threaded blocks M6 (8 per enclosure)		50	4162.000	4162.000	4162.000	4162.000	4162.000	4162.000	936
Accessories									
Cable clamp rails		2	4191.000	4191.000	4191.000	4192.000	4192.000	4192.000	979
Cable entry plates[2]		2	8800.060	8800.060	8800.060	8800.080	8800.080	8800.080	964
Side panels		2	8105.235	8106.235	8108.235	8105.235	8106.235	8108.235	853
Roof plates, vented[3]		1	–	9660.235	9659.525	–	9660.245	9659.535	406
Roof plates with pressure relief function[3]		1	–	9660.935	–	–	9660.945	–	406
Cover plate, contact hazard protection[4]		1 set	–	9660.460	–	–	9660.470	–	403
Mounting bracket		24	–	9660.090	–	–	9660.090	–	404
Blanking cover			■	■	■	■	■	■	404
Terminal studs			■	■	■	■	■	■	405
Lock systems									
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.									

[1] Without mounting plate.
[2] Cable entry grommets, see page 965.
[3] In exchange for the standard TS roof.
[4] Only used when mounting the Maxi-PLS system in the rear section.
To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.

1 Mounting in rear section

2 Mounting in centre section

Material:
Sheet steel
Enclosure frame, roof, rear panel and gland plates: 1.5 mm
Door: 2.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed,
powder-coated on the outside in textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame, door(s), roof, rear panel, gland plates (three-piece), TS punched sections with mounting flanges.

Technical information,
see page 1143.

Maxi-PLS **1** For mounting in the rear section		Packs of	3-pole/4-pole					Page
			2000 A/3200 A					
Width (B) in mm			1000	1000	1200	1200	1200	
Height (H) in mm			2000	2000	2000	2000	2000	
Depth (T) in mm			500	600	500	600	800	
Model No. SV		1	9660.595[1]	9660.695[1]	9660.555[1]	9660.655[1]	9660.855[1]	
Technical specifications correspond to Model No. TS			8005.500	8006.500	8205.500	8206.500	8208.500	144 – 146
Doors			2	2	2	2	2	
Approximate weight (kg)			109.6	113.7	133.6	137.6	146.0	
Base/plinth								
Components front and rear	Height 100 mm	1 set	8601.000	8601.000	8601.200	8601.200	8601.200	835
	Height 200 mm	1 set	8602.000	8602.000	8602.200	8602.200	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.050	8601.060	8601.050	8601.060	8601.080	835
	Height 200 mm	1 set	8602.050	8602.060	8602.050	8602.060	8602.080	835
Also required								
2 For mounting in the centre section								
TS punched section with mounting flange (4 per enclosure)		4	8612.550	8612.560	8612.550	8612.560	8612.580	922
PS punched section without mounting flange (2 per enclosure)		4	4382.000	4382.000	4378.000	4378.000	4378.000	925
Support bracket (4 per enclosure)		24 sets	4183.000	4183.000	4183.000	4183.000	4183.000	933
Threaded blocks M6 (8 per enclosure)		50	4162.000	4162.000	4162.000	4162.000	4162.000	936
Accessories								
Cable clamp rails		2	4336.000	4336.000	4196.000	4196.000	4196.000	979
Cable entry plates[2]		4	8800.100	8800.100	8800.120	8800.120	8800.120	964
Side panels		2	8105.235	8106.235	8105.235	8106.235	8108.235	853
Roof plates, vented[3]		1	–	9660.255	–	9660.265	9659.555	406
Roof plates with pressure relief function[3]		1	–	9660.955	–	9660.965	–	406
Cover plate, contact hazard protection[4]		1 set	–	9660.480	–	9660.490	–	403
Mounting bracket		24	–	9660.090	–	9660.090	–	404
Blanking cover			■	■	■	■	■	404
Terminal studs			■	■	■	■	■	405
Lock systems								
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.								

[1] Without mounting plate.
[2] Cable entry grommets, see page 965.
[3] In exchange for the standard TS roof.
[4] Only used when mounting the Maxi-PLS system in the rear section.
To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.

Rittal Maxi-PLS SV-TS 8 enclosures

for NH fused isolators

For Maxi-PLS		Packs of	3-pole				Page
			2000 A/3200 A				
For NH fused isolators brand			ABB SlimLine		Jean Müller SASIL		
Width (B) in mm			1000	1200	1000	1200	
Height (H) in mm			2000	2000	2000	2000	
Depth (T) in mm			600	600	600	600	
Model No. SV		1	**9660.515**	**9660.545**	**9660.415**	**9660.445**	
Door			1	1	1	1	
Approximate weight (kg)			110	135	110	135	
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.000	8601.200	8601.000	8601.200	835
	Height 200 mm	1 set	8602.000	8602.200	8602.000	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	8601.060	8601.060	835
	Height 200 mm	1 set	8602.060	8602.060	8602.060	8602.060	835
Maxi-PLS system components							
T-bar supports up to 800 A	T-support	3	9660.000	9660.000	9660.000	9660.000	398
	T-end support	3	9660.010	9660.010	9660.010	9660.010	398
T-bar supports up to 1600 A	T-support	3	9660.100	9660.100	9660.100	9660.100	398
	T-end support	3	9660.110	9660.110	9660.110	9660.110	398
T-busbars E-Cu up to 800 A	Length 1000 mm	3	9660.020	9660.020	9660.020	9660.020	398
	Length 1600 mm	3	9660.030	9660.030	9660.030	9660.030	398
T-busbars E-Cu up to 1600 A	Length 1000 mm	3	9660.120	9660.120	9660.120	9660.120	398
	Length 1600 mm	3	9660.130	9660.130	9660.130	9660.130	398
T-connection kits up to 800 A, for Maxi-PLS	2000 A	1 set	9660.050	9660.050	9660.050	9660.050	398
	3200 A	1 set	9660.070	9660.070	9660.070	9660.070	398
T-connection kits up to 1600 A, for Maxi-PLS	2000 A	1 set	9660.140	9660.140	9660.140	9660.140	398
	3200 A	1 set	9660.160	9660.160	9660.160	9660.160	398
U contact maker			■	■	■	■	377/391
Isolator chassis			■	■	■	■	377/391
Accessories							
Side panels		2	8106.512	8106.512	8106.512	8106.512	853
Cover for distribution busbar (from the isolator manufacturer's range)			ABB Model No. NHP 407062 R..		Jean Müller Model No. A 8900 101		
Roof plates, vented[1]		1	9660.255	9660.265	9660.255	9660.265	406
Roof plates with pressure relief function[1]		1	9660.955	9660.965	9660.955	9660.965	406
Lock systems							
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.							

[1] In exchange for the standard TS roof.
To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.

Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame
with fitted support rails to
accommodate the T-bar
support;
Door, roof, rear panel,
gland plates (three-piece).

Detailed drawing,
see page 1141.

Technical information,
see page 1144.

For Maxi-PLS		Packs of	4-pole								Page
			2000 A				3200 A				
For NH fused isolators brand			ABB SlimLine		Jean Müller SASIL		ABB SlimLine		Jean Müller SASIL		
Width (B) in mm			1000	1200	1000	1200	1000	1200	1000	1200	
Height (H) in mm			2000	2000	2000	2000	2000	2000	2000	2000	
Depth (T) in mm			600	600	600	600	800	800	800	800	
Model No. SV		1	**9649.665**	**9649.675**	**9649.645**	**9649.655**	**9659.665**	**9659.675**	**9659.645**	**9659.655**	
Door			1	1	1	1	1	1	1	1	
Approximate weight (kg)			120	145	120	145	145	160	145	160	
Base/plinth											
Components front and rear	Height 100 mm	1 set	8601.000	8601.200	8601.000	8601.200	8601.000	8601.200	8601.000	8601.200	835
	Height 200 mm	1 set	8602.000	8602.200	8602.000	8602.200	8602.000	8602.200	8602.000	8602.200	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	8601.060	8601.060	8601.080	8601.080	8601.080	8601.080	835
	Height 200 mm	1 set	8602.060	8602.060	8602.060	8602.060	8602.080	8602.080	8602.080	8602.080	835
Maxi-PLS system components											
T-bar supports up to 800 A	T-support	3 + 1	9660.000 **+** 9649.100								398
	T-end support	3 + 1	9660.010 **+** 9649.110								398
T-bar supports up to 1600 A	T-support	3 + 1	9660.100 **+** 9659.100								398
	T-end support	3 + 1	9660.110 **+** 9659.110								398
T busbars E-Cu up to 800 A	Length 1000 mm	3 + 1	9660.020 **+** 9649.120								398
	Length 1600 mm	3 + 1	9660.030 **+** 9649.130								398
T busbars E-Cu up to 1600 A	Length 1000 mm	3 + 1	9660.120 **+** 9659.120								398
	Length 1600 mm	3 + 1	9660.130 **+** 9659.130								398
T-connection kits up to 800 A		1 set	9649.080	9649.080	9649.140	9649.140	9659.080	9659.080	9659.140	9659.140	398
T-connection kits up to 1600 A		1 set	9649.090	9649.090	9649.150	9649.150	9659.090	9659.090	9659.150	9659.150	398
U contact maker		3 + 1	9640.170 **+** 9649.170				9650.170 **+** 9659.170				377/ 391
Isolator chassis		1 set	9649.020	9649.020	9649.020	9649.020	9659.020	9659.020	9659.020	9659.020	377/ 391
Accessories											
Side panels		2	8106.512	8106.512	8106.512	8106.512	8108.512	8108.512	8108.512	8108.512	853
Cover for distribution busbar (from the isolator manufacturer's range)			ABB Model No. NHP 407062 R..		Jean Müller Model No. A 8900 101		ABB Model No. NHP 407062 R..		Jean Müller Model No. A 8900 101		
Roof plates, vented[1]		1	9660.255	9660.265	9660.255	9660.265	9659.545	9659.555	9659.545	9659.555	406
Roof plates with pressure relief function[1]		1	9660.955	9660.965	9660.955	9660.965	–	–	–	–	406
Lock systems											
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.											

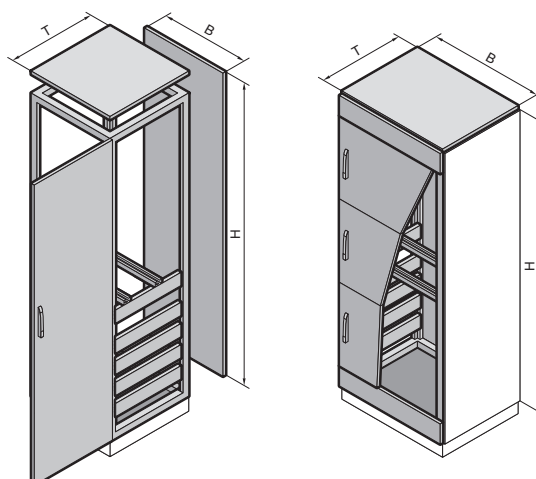[1] In exchange for the standard TS roof.

To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.

Rittal Maxi-PLS SV-TS 8 enclosures

System components for NH fused isolator panels

T-bar supports

Rated current up to	Version	3-pole		4-pole			
		Packs of	Model No. SV	Packs of	Model No. SV		Packs of	Model No. SV
800 A	T-support	3	**9660.000**	3	**9660.000**	+	1	**9649.100**
	T-end support	3	**9660.010**	3	**9660.010**	+	1	**9649.110**
1600 A	T-support	3	**9660.100**	3	**9660.100**	+	1	**9659.100**
	T-end support	3	**9660.110**	3	**9660.110**	+	1	**9659.110**

Detailed drawing,
see page 1141.
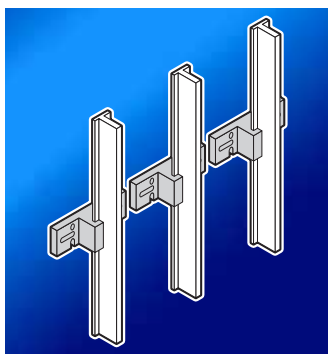
T-busbars E-Cu
10 mm knife edge

Rated current up to	Length mm	approx. weight (kg/busbar)	3-pole		4-pole			
			Packs of	Model No. SV	Packs of	Model No. SV		Packs of	Model No. SV
800 A	1000	4.3	3	**9660.020**	3	**9660.020**	+	1	**9649.120**
	1600	6.7	3	**9660.030**	3	**9660.030**	+	1	**9649.130**
1600 A	1000	8.3	3	**9660.120**	3	**9660.120**	+	1	**9659.120**
	1600	13.3	3	**9660.130**	3	**9660.130**	+	1	**9659.130**

Detailed drawing,
see page 1141.

Technical information,
see page 1144.
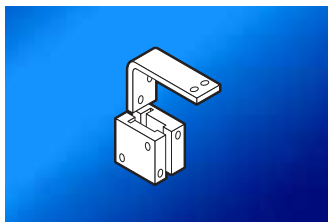
T-connection kits
800 A/1600 A
For NH fused isolator brands ABB and
Jean Müller

For Maxi-PLS	Packs of	3-pole					4-pole		Page
		2000 A			3200 A		2000 A	3200 A	
For enclosure depth mm		500	600	600	600	800	600	800	
Bar centre distance mm		100	100	150	150	150	100	150	
For T-busbar up to 800 A									
Approximate weight (kg/set)		8	9	9	9	10	12	14	
For ABB SlimLine **Model No. SV**	1 set	9660.040	**9660.050**	9660.060	**9660.070**	9660.080	**9649.080**	**9659.080**	
For Jean Müller SASIL **Model No. SV**	1 set	9660.040	**9660.050**	9660.060	**9660.070**	9660.080	**9649.140**	**9659.140**	
For T-busbar up to 1600 A									
Approximate weight (kg/set)		–	13	13	13	15	18	20	
For ABB SlimLine **Model No. SV**	1 set	–	**9660.140**	9660.150	**9660.160**	9660.170	**9649.090**	**9659.090**	
For Jean Müller SASIL **Model No. SV**	1 set	–	**9660.140**	9660.150	**9660.160**	9660.170	**9649.150**	**9659.150**	
Accessories									
U contact maker	3 + 1	9640.170 –	9640.170 –	9640.170 –	9650.170 –	9650.170 –	9640.170 9649.170	9650.170 9659.170	377/ 391
Isolator chassis	1 set	9640.020	9640.020	9650.020	9650.020	9650.020	9649.020	9659.020	377/ 391
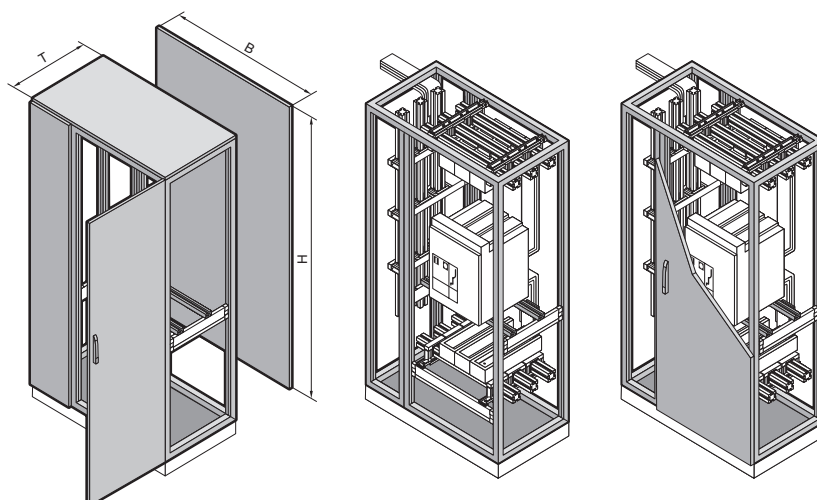
Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm

Surface finish:
Enclosure frame:
Dipcoat-primed
Door, roof and rear panel:
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame
with fitted system support rails
for power circuit-breaker attach-
ment;
door, roof, rear panel,
gland plates (three-piece).

Detailed drawing,
see page 1141.

Technical information,
see page 1145.

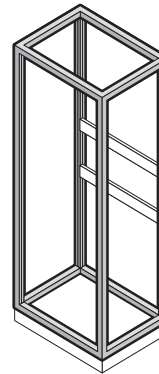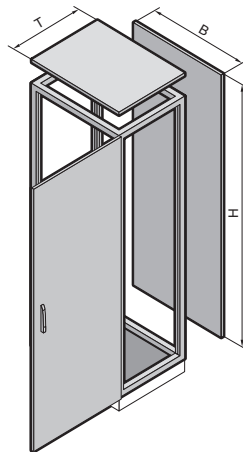| For Maxi-PLS		Packs of	3-pole		4-pole		Page
			2000 A	3200 A	2000 A	3200 A	
Width (B) in mm			800	1000	1000	1000	
Height (H) in mm			2000	2000	2000	2000	
Depth (T) in mm			600	600	600	800	
Model No. SV		1	**9660.305**	**9660.355**	**9649.685**	**9659.695**	
Door			1	1	1	1	
Approximate weight (kg)			145	175	165	195	
Base/plinth							
Components front and rear	Height 100 mm	1 set	8601.800	8601.000	8601.000	8601.000	835
	Height 200 mm	1 set	8602.800	8602.000	8602.000	8602.000	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	8601.060	8601.080	835
	Height 200 mm	1 set	8602.060	8602.060	8602.060	8602.080	835
Maxi-PLS system components							
Coupling sets, vertical (Maxi-PLS in the roof section)		1 set	9660.320	9660.370	9649.700	9659.700	400
Coupling sets, vertical (Maxi-PLS in the rear section)		1 set	9660.310	9660.360	–	–	400
Maxi-PLS busbars, E-Cu 57		3	9640.210	9650.240	–	–	376/390
		4	–	–	9649.240	9659.240	376/390
System attachment (Maxi-PLS in the roof section)	for coupling set[1]	2	9640.070	9650.070	9649.070	9659.070	400
	for busbars[1]	2	9640.120	9650.100	9640.080	9650.080	376/390
System attachment (Maxi-PLS in the rear section)	for coupling set[1]	2	9640.070	9650.070	9649.070	9659.070	400
	for system rear[2]	2	9640.150	9650.150	9640.090	9650.090	376/390
	for system bottom[2]	2	9640.120	9650.100	9640.080	9650.080	376/390
Accessories							
Side panels		2	8106.512	8106.512	8106.512	8108.512	853
Roof plates, vented[3]		1	9660.245	9660.255	9660.255	9659.545	406
Roof plates with pressure relief function[3]		1	9660.945	9660.955	9660.955	–	406
Device module			■	■	■	■	401
Mounting bracket		24	9660.090	9660.090	9660.090	9660.090	404
Lock systems							
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.							

[1] 2 packs required per system configuration.
[2] 1 pack required per system configuration.
[3] In exchange for the standard TS roof.
To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.

Rittal Maxi-PLS SV-TS 8 enclosures

System components for coupling sets

Coupling sets
vertical
For installation in 600/800 mm deep SV-TS 8 enclosures for coupling sets.

Coupling sets are selected according to the rated current I_e of the primary busbars to be coupled:
- Coupling set 2000 A:
  $I_e \leq 2000$ A
- Coupling set 3200 A:
  I_e 2000 A $\leq$ 3200 A

Supply includes:
3-pole
3 Maxi-PLS busbars E-Cu,
1 set of connection brackets E-Cu, top
(L1 – L3),
1 set of connection brackets E-Cu, bottom
(L1 – L3),
assembly parts.

4-pole
4 Maxi-PLS busbars E-Cu,
1 set of connection brackets E-Cu, top
(L1 – L3, N),
1 set of connection brackets E-Cu, bottom
(L1 – L3, N),
assembly parts.

For Maxi-PLS in the roof section	3-pole		4-pole		Page
	2000 A	3200 A	2000 A	3200 A	
Approximate weight (kg)	98	152	130	202	
Packs of	1 set	1 set	1 set	1 set	
Model No. SV	**9660.320**	**9660.370**	**9649.700**	**9659.700**	
Also required					
Sliding blocks (Packs of 15)	9640.980[1]	9650.990[1]	9640.980[2]	9650.990[2]	377/391

For Maxi-PLS in the rear section	3-pole				Page
	2000 A	3200 A			
Weight (kg)	82	140			
Packs of	1 set	1 set			
Model No. SV	**9660.310**	**9660.360**			
Also required					
Sliding blocks (Packs of 15)	9640.980[1]	9650.990[1]			377/391

[1] Quantity required per system configuration: 24
[2] Quantity required per system configuration: 32
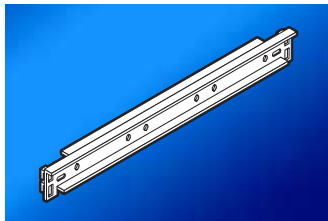
System attachment
for vertical coupling set
For attaching the busbar supports – see page 376/390 – and coupling sets to the side TS frame section.

Material:
Stainless steel

For Maxi-PLS coupling section	3-pole		4-pole	
	2000 A	3200 A	2000 A	3200 A
Bar centre distance mm	100	150	100	150
Packs of	2	2	2	2
Model No. SV	**9640.070**	**9650.070**	**9649.070**	**9659.070**

Device module
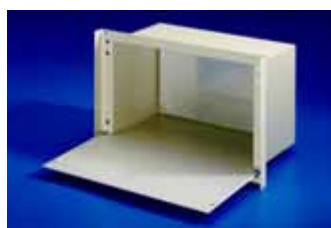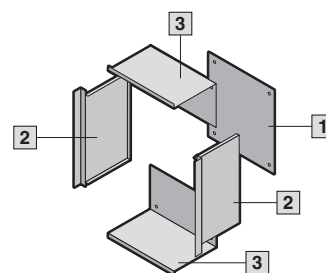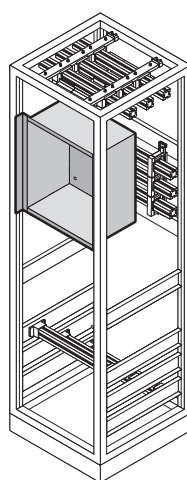
For use in power circuit breaker incoming/outgoing feeder panels with a minimum depth of 600 mm.
The removable mounting plate may be used for the configuration e.g. of fuses, power circuit-breakers and switchgear.

Material:
Side parts, centre parts:
Sheet steel, spray-finished in RAL 7035
Mounting plate:
Sheet steel, zinc-plated, passivated
Front panel:
Aluminium, anodised

Supply includes:
2 side parts,
2 centre parts,
connector parts,
mounting plate,
optional front panel.

1 Mounting plate
2 Side parts
3 Centre parts

Note:
Please observe the manufacturer-specific data regarding the arcing space of power circuit-breakers.

Version		Packs of	For enclosure width 600 mm	For enclosure width 800 mm	Page
Interior dimensions, clearance width	Width in mm		432	632	
	Height in mm		263	263	
	Depth in mm		245.5	245.5	
Mounting plate	Width in mm		420	620	
	Height in mm		250	250	
without front panel **Model No. SV**		1	**9660.700**	**9660.710**	
with front panel **Model No. SV**		1	**9660.720**	**9660.730**	
with front panel, horizontally hinged **Model No. SV**		1	**9660.740**	**9660.750**	
with front panel, vertically hinged **Model No. SV**		1	**9660.760**	**9660.770**	
Also required					
Mounting bracket		24	9660.090[1]	9660.090[1]	404

[1] 4 mounting brackets are required to attach a device module.

Rittal Maxi-PLS accessories

Contact hazard protection cover

For SV-TS 8 enclosures with power circuit-breaker
For covering incoming or outgoing feeder panels so that they are safe from finger-contact (IP 2X).

Material:
Sheet steel, spray-finished.

Colour:
RAL 7035

Supply includes:
3 front covers.

Note:
Cutouts for power circuit-breakers must be provided by the customer.
SV-TS 8 enclosures, see page 392/393.

Device modules,
see page 401.
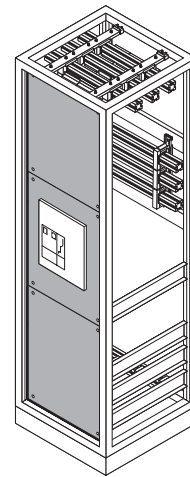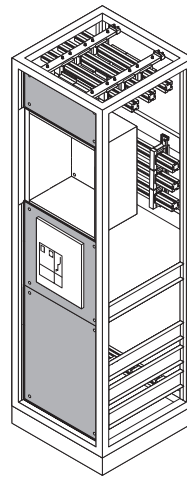
Variant A:
Incoming/outgoing panel with device module

Variant B:
Incoming/outgoing panel without device module

For enclosure		Packs of	Variant A (for enclosures with device module)		Variant B (for enclosures without device module)		Page
For enclosure	Width in mm		600	800	600	800	
	Height in mm		2000	2000	2000	2000	
For design	1-door **Model No. SV**	1 set	**9660.280**	**9660.380**	**9660.780**	**9660.880**	
	3-door **Model No. SV**	1 set	**9660.290**[1]	**9660.390**[1]	**9660.790**	**9660.890**	
Also required							
Mounting bracket		24	9660.090[2]	9660.090[2]	9660.090[2]	9660.090[2]	404

[1] Including trim panel
[2] 12 mounting brackets are required to attach the contact hazard protection cover plates.

Dimensions of the contact hazard protection cover plates

Model No. SV	Width mm	Height mm			
		Top	Middle	Bottom	Trim panel
9660.280	506	204	656	721	–
9660.290	506	246.5	567	567	20
9660.380	706	204	656	721	–
9660.390	706	246.5	567	567	20
9660.780	506	526	656	721	–
9660.790	506	567	567	567	–
9660.880	706	526	656	721	–
9660.890	706	567	567	567	–

Contact hazard protection cover
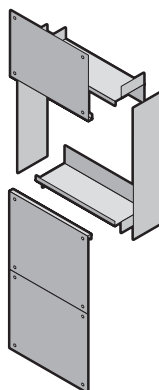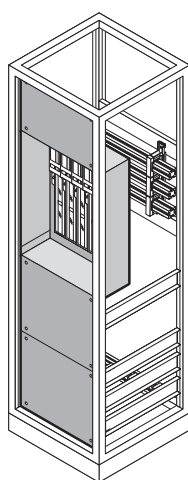
For SV-TS 8 enclosures with Rittal NH fused isolators
To cover NH fused isolators in the rear enclosure area so that they are safe from finger-contact (IP 2X).

Material:
Sheet steel, spray-finished.

Colour:
RAL 7035

Supply includes:
3 front covers,
2 depth covers,
2 side covers,
connector parts.

Note:
SV-TS 8 enclosures,
see page 394/395.
NH fused isolators,
see page 353.

For enclosure	Width in mm	Packs of	600	800	1000	1200	Page
	Height in mm		2000	2000	2000	2000	
	Depth in mm		600	600	600	600	
Free installation width for Rittal NH fused isolators[1] mm	**without** use of longitudinal connectors		500	700	900	1100	
	with use of longitudinal connectors		400	600	800	1000	
Model No. SV		1 set	**9660.460**	**9660.470**	**9660.480**	**9660.490**	
Also required							
Mounting bracket		24	9660.090[2]	9660.090[2]	9660.090[2]	9660.090[2]	404
Accessories							
Cover panel for NH isolators	Size 00	4	9660.180	9660.180	9660.180	9660.180	404
	Size 1 – 3	4	9660.190	9660.190	9660.190	9660.190	404

[1] When using the top-mounted busbars SV 9640.160/SV 9650.160, see page 376/390.
Longitudinal connectors SV 9640.190/SV 9650.190 for Maxi-PLS busbars, see page 376/390.
[2] 12 mounting brackets are required to attach the contact hazard protection cover plates.

Rittal Maxi-PLS accessories

Mounting bracket

For attaching the device modules and
contact hazard protection covers.
Tapped hole M6.

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
Assembly screws.

Packs of	Model No. SV
24	**9660.090**
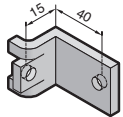
Blanking cover

To cover free NH fused isolator slots.

Material:
Sheet steel, spray-finished.

Colour:
RAL 7035

Supply includes:
Assembly screws.

For NH size	Width (B) mm	Packs of	Model No. SV
00	49.5	4	**9660.180**
1 to 3	99.5	4	**9660.190**

Note:
NH fused isolators,
see page 353.
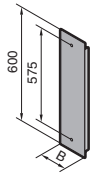
Cover attachment

For simple mounting of covers.

Note:
Only suitable for use in conjunction with three-
door enclosures.

Packs of	Model No. SV
8	**9660.680**
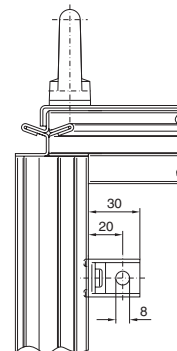
Terminal studs

For the attachment of NH fused isolators,
size 00 (Model No. SV 3591.040)
– see page 353 – on Maxi-PLS busbars.
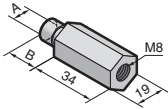
For Maxi-PLS	2000 A	3200 A	Page
A	M10	M12	
B	9	12	
Packs of	3	3	
Model No. SV	**9640.390**	**9650.390**	
Also required			
Sliding blocks	9640.980	9650.990	377/391

Stacking insulator

To support the connection kits top/bottom.
Easily retro-fitted.

Supply includes:
Assembly parts.

Packs of	**Model No. SV**
6	**9660.200**
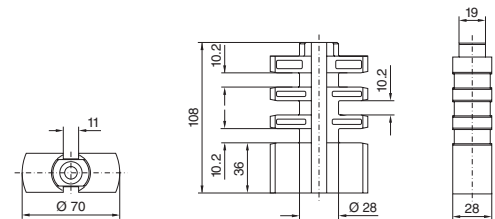
C rails

For attaching the stacking insulator to the
TS frame section.

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
4 C rails,
8 brackets,
assembly parts.

For TS enclosures		Length (L) mm	Packs of	**Model No. SV**
Width mm	Depth mm			
600	600	600	4	**9660.210**
800	800	800	4	**9660.220**

Rittal Maxi-PLS accessories
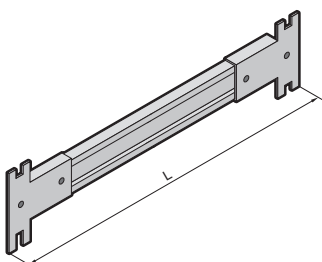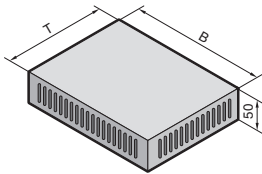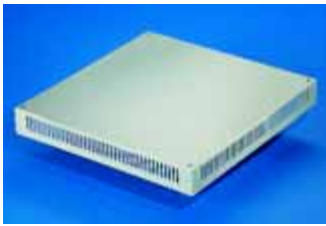
Roof plates, vented

In exchange for the standard SV-TS roof.
All-round vent slots

Material:
Sheet steel, spray-finished.

Colour:
RAL 7035

Protection category:
IP 2X

Supply includes:
Assembly parts.

For TS enclosures		Packs of	Model No. SV
Width (B) mm	Depth (T) mm		
600	600	1	**9660.235**
	800	1	**9659.525**
800	600	1	**9660.245**
	800	1	**9659.535**
1000	600	1	**9660.255**
	800	1	**9659.545**
1200	600	1	**9660.265**
	800	1	**9659.555**

To order roof plates in textured RAL 7032, please add extension .XX0 to the Model No.
Delivery times available on request.
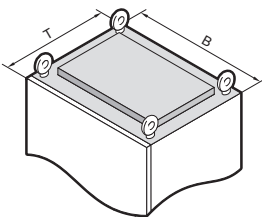
Roof plates
with pressure relief function

In exchange for the standard SV-TS roof.
Roof plates with pressure relief function to
IEC 60 439-1, supplement 2 (special test):
"Procedure for testing under accidental arc
conditions".

Material:
Sheet steel, spray-finished.

Colour:
RAL 7035

For TS enclosures		Packs of	Model No. SV
Width (B) mm	Depth (T) mm		
600	600	1	**9660.935**
800	600	1	**9660.945**
1000	600	1	**9660.955**
1200	600	1	**9660.965**

To order roof plates in textured RAL 7032, please add extension .XX0 to the Model No.
Delivery times available on request.
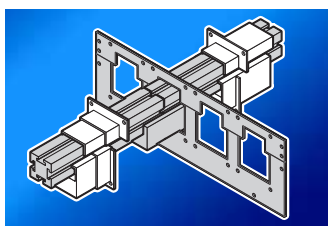
Busbar gland

Exceeds the requirements of BGV A2 in conjunction with the divider panel and the divider panel modules.

Material:
PA 6.6

Supply includes:
Assembly parts.

Note:
The busbar gland may also be used as a cover for the longitudinal connectors.
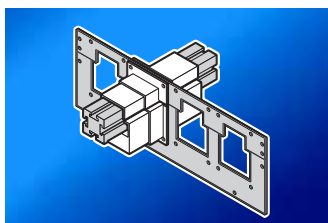
For Maxi-PLS	Packs of	For use **without** longitudinal connectors Model No. SV	For use **with** longitudinal connectors Model No. SV	
2000 A	1 set	**9640.600[1]**	**9640.610[2]**	**–**
3200 A	1 set	**9650.600[1]**	**–**	**9650.610[2]**
Also required				
Busbar gland	1 set	**–**	**9640.600[2]**	**9650.600[2]**

Required number of packs for system configuration
[1] 3-pole = 6 packs
4-pole = 8 packs
[2] 3-pole = 3 packs
4-pole = 4 packs
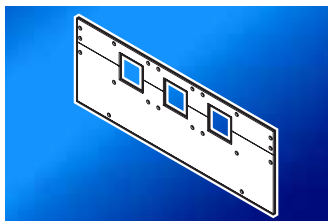
Divider panel modules

For Maxi-PLS		For enclosure depth mm	Bar centre distance mm	Packs of	For use **without** longitudinal connectors Model No. SV	For use **with** longitudinal connectors Model No. SV
2000 A	3-pole	600	100	1 set	**9640.620**	**9640.630**
	3-pole	–	185	1 set	**9640.640**	**9640.650**
	4-pole	600	100	1 set	**9649.600**	**9649.610**
3200 A	3-pole	600	150	1 set	**9650.620**	**9650.630**
	3-pole	–	185	1 set	**9650.640**	**9650.650**
	4-pole	800	150	1 set	**9659.600**	**9659.610**

Material:
PA 6.6

Supply includes:
Assembly parts.
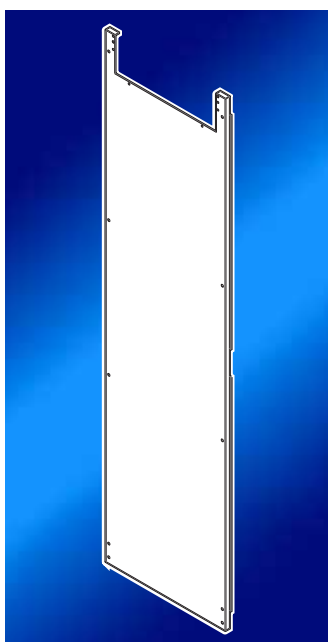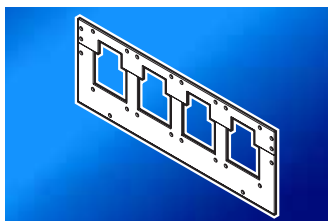
Divider panel

For side shielding from neighbouring panels. In conjunction with the busbar gland and the divider panel modules, as a preventive measure to prevent arcing.

1 For TS enclosurs with Maxi-PLS busbars in the roof section

For TS enclosures		B1 mm	B2 mm	Packs of	Model No. SV
Depth mm	Height mm				
600	2000	502	418	1	**9660.620**
800	2000	702	618	1	**9659.590**

2 For TS enclosurs with Maxi-PLS busbars in the rear section

For TS enclosures		B1 mm	Packs of	Model No. SV
Depth mm	Height mm			
600	2000	502	1	**9660.610**
800	2000	702	1	**9659.580**
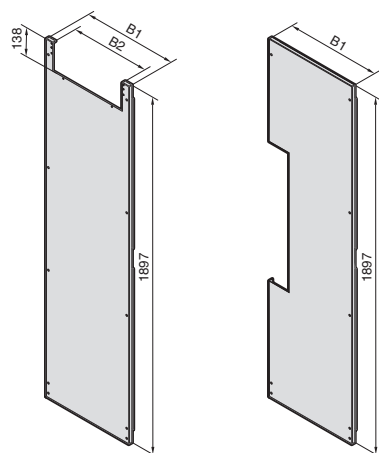
Material:
Sheet steel, 1.5 mm, zinc-plated, passivated.

Supply includes:
Assembly parts.

1   **2**   B = Width

B
2.8

Rittal Maxi-PLS accessories

ISV distribution enclosure

up to 630 A/up to 1600 A

The "one-stop supplier" concept has distinct advan-

tages. Easier planning and procurement with one part-

ner, faster installation thanks to coordinated systems,

and hence reduced labour and investment costs.

ISV-TS 8 enclosure system
- Bayable with all TS 8 enclosures of the same height and depth
- Pre-configured
- Flexible interior installation with the TS 8 enclosure accessories range, such as doors, lock systems, partial mounting plates, climate control components
- Optional door hinging on l/h or r/h side
- Suitable for component mounting as an incoming or outgoing feeder panel, depending on requirements
- Cable entry freely selectable depending on the enclosure configuration

ISV modules
- Pitch pattern 150 x 250 mm (H x W)
- Refined quick-fit assembly system facilitates precise positioning of the modules in the ISV-TS 8 enclosure
- Cover is prepared for a lead seal

ISV components
Fully configurable with Rittal components, such as
- NH fused isolators
- NH on-load isolators
- Bus-mounting fuse bases
- Connection components
- Optional busbar installation with SV busbar systems up to 1600 A (185 mm bar centre distance) or Rittal Maxi-PLS up to 2000 A

Systematic fast assembly

The ISV enclosure system, with its pre-configured mounting level, is perfectly prepared for mounting the installation modules.

The required modules may be screw-fastened directly to the mounting levels without any further accessories.

The matching contact hazard protection cover plates inside the enclosure guard against accidental contact with live parts.

ISV-TS 8 enclosures for distribution enclosures up to 630 A
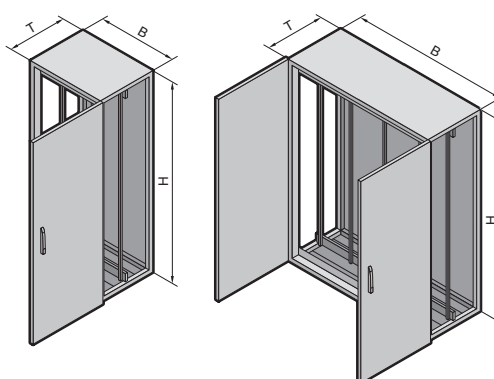
Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Contact hazard protection
frame: Hard PVC, RAL 9002

Surface finish:
Enclosure frame:
Dipcoat-primed
Roof, rear panel, door(s):
Dipcoat-primed,
powder-coated on the outside in
textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame with mounting
level,
door(s), roof, rear panel, gland
plates (three-piece), contact
hazard protection frame.

Detailed drawing,
see page 1148.

Technical specifications,
see page 1148.

Width (B) in mm		Packs of	600		850		1100		Page
Height (H) in mm			2000		2000		2000		
Depth (T) in mm			400	600	400	600	400	600	
Model No. SV		1	**9665.945**	**9665.905**	**9665.955**	**9665.915**	**9665.965**	**9665.925**	
Door(s)			1	1	1	1	2	2	
Approximate weight (kg)			89.5	94.5	113.5	120	157	167	
Base/plinth									
Components front and rear	Height 100 mm	1 set	8601.600	8601.600	8601.850	8601.850	8601.300	8601.300	835
	Height 200 mm	1 set	8602.600	8602.600	8602.850	8602.850	8602.100	8602.100	835
Trim panels (sides)	Height 100 mm	1 set	8601.040	8601.060	8601.040	8601.060	8601.040	8601.060	835
	Height 200 mm	1 set	8602.040	8602.060	8602.040	8602.060	8602.040	8602.060	835
Accessories									
Cable clamp rails		2	4191.000	4191.000	4195.000	4195.000	–	–	979
Cable entry plates[1]		2	8800.060	8800.060	8800.085	8800.085	–	–	964
Side panels		2	8104.235	8106.235	8104.235	8106.235	8104.235	8106.235	853
Cable entry gland			■	■	■	■	■	■	420
Lock systems									
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.									

[1] Cable entry grommets, see page 965.
To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.
To order side panels in textured RAL 7032, please add extension .200 to the Model No. Delivery times available on request.

ISV distribution enclosure

ISV-TS 8 enclosures for distribution enclosures up to 1600 A
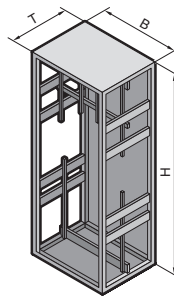
Material:
Sheet steel
Enclosure frame, roof, rear panel
and gland plates: 1.5 mm
Door: 2.0 mm
Contact hazard protection
frame: Hard PVC, RAL 9002

Surface finish:
Enclosure frame:
Dipcoat primed
Roof, rear panel, door:
Dipcoat primed,
powder-coated on the outside in
textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame with mounting
level,
door, roof, rear panel,
gland plates (three-piece),
contact hazard protection frame.

Note:
● For assembly and space
reasons, a contact hazard
protection module with
4 height units (600 mm) and
2 or 3 width units (500 or
750 mm), depending on the
enclosure selection, is always
required on the inlet or
outlet side.

● When using Rittal NH fused
isolators size 00 – 3,
see page 353, care should be
taken to ensure that for ther-
mal reasons, a contact protec-
tion hazard module with at
least 1 height unit (150 mm)
is always fitted above the
NH isolators.
● The contact hazard protec-
tion modules to cover the
NH strips all round will need
to be machined by the cus-
tomer.

Detailed drawing,
see page 1148.

Width (B) in mm	Packs of	600	850	Page
Height (H) in mm		2000	2000	
Depth (T) in mm		600	600	
Model No. SV	1	**9665.975**	**9665.985**	
Door		1	1	
Approximate weight (kg)		94.5	120	
Base/plinth				
Components front and rear	Height 100 mm	1 set	8601.600	8601.850	835
	Height 200 mm	1 set	8602.600	8602.850	835
Trim panels (sides)	Height 100 mm	1 set	8601.060	8601.060	835
	Height 200 mm	1 set	8602.060	8602.060	835
Also required				
Support bracket	24 sets	4183.000	4183.000	933
Punched sections without mounting flanges	4	4376.000	4382.000	925
Maxi-PLS system attachment for mounting the busbar supports SV 3052.000, see page 351 or SV 9640.160, see page 376	2	9640.150	9640.150	376
Accessories				
Cable clamp rails	2	4191.000	4195.000	979
Cable entry plates[1]	2	8800.060	8800.085	964
Side panels	2	8106.235	8106.235	853
Cable entry gland		■	■	420
Lock systems				
Standard double-bit lock insert may be exchanged for comfort handle, see page 881 and other inserts, see page 888.				

[1] Cable entry grommets, see page 965.
To order enclosures in textured RAL 7032, please add extension .XX0 to the Model No. Delivery times available on request.
To order side panels in textured RAL 7032, please add extension .200 to the Model No. Delivery times available on request.

B
2.9
ISV distribution enclosure

Contact hazard protection modules

- For covering free installation areas
- Cover is prepared for a lead seal
- Insulating material RAL 9002

Mechanical interior installation	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
Empty module	1	250 mm	1	150 mm	1	**9665.000**
	1	250 mm	2	300 mm	1	**9665.010**
	1	250 mm	3	450 mm	1	**9665.020**
	1	250 mm	4	600 mm	1	**9665.030**
	2	500 mm	1	150 mm	1	**9665.040**
	2	500 mm	2	300 mm	1	**9665.050**
	2	500 mm	3	450 mm	1	**9665.060**
	2	500 mm	4	600 mm	1	**9665.070**
	3	750 mm	4	600 mm	1	**9665.510**

Accessories	Page
Terminal block	420
Cable clamp rails	420

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
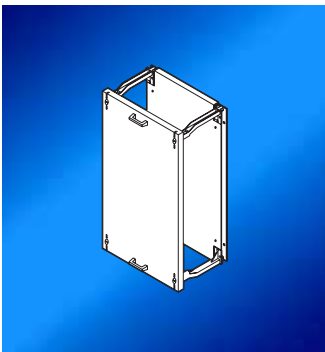
Mounting plate modules

- With mounting plate made from 2 mm zinc-plated sheet steel
- Cover is prepared for a lead seal
- Maximum usable depth 142 mm
- Insulating material RAL 9002

Mechanical interior installation: Mounting plate (W x H)	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
200 x 150 mm	1	250 mm	1	150 mm	1	**9665.080**
200 x 300 mm	1	250 mm	2	300 mm	1	**9665.090**
200 x 450 mm	1	250 mm	3	450 mm	1	**9665.100**
200 x 600 mm	1	250 mm	4	600 mm	1	**9665.110**
450 x 150 mm	2	500 mm	1	150 mm	1	**9665.120**
450 x 300 mm	2	500 mm	2	300 mm	1	**9665.130**
450 x 450 mm	2	500 mm	3	450 mm	1	**9665.140**
450 x 600 mm	2	500 mm	4	600 mm	1	**9665.150**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
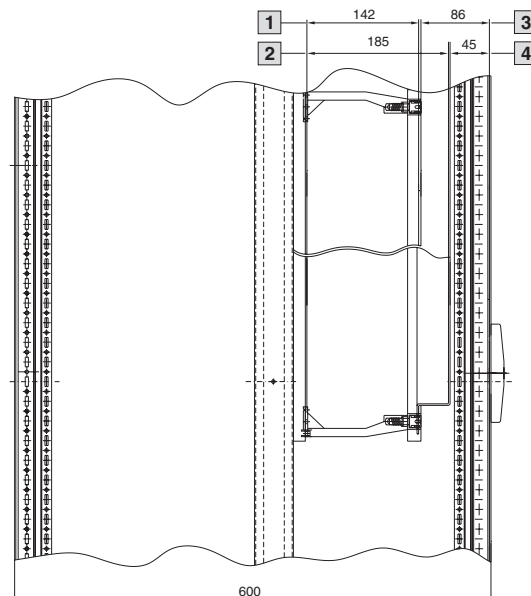
Clearance frame
1 Mounting plate module
2 Mounting plate module with deep cover
3 Contact hazard protection
4 Contact hazard protection with deep cover

ISV distribution enclosure

Installation modules
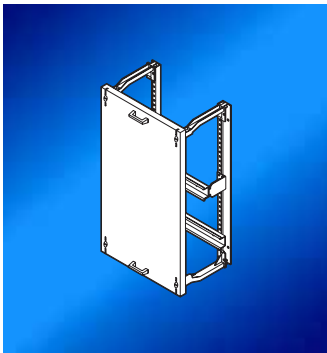
Support rail modules
- For the installation of terminal blocks, contactors etc.
- Support rails 35/15 mm
- Adjustable on a 25 mm pitch pattern
- Cover is prepared for a lead seal
- Insulating material RAL 9002

Mechanical interior installation: Number of support rails	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
1	1	250 mm	1	150 mm	1	**9665.160**
	1	250 mm	2	300 mm	1	**9665.170**
2	1	250 mm	3	450 mm	1	**9665.180**
3	1	250 mm	4	600 mm	1	**9665.190**
1	2	500 mm	1	150 mm	1	**9665.200**
	2	500 mm	2	300 mm	1	**9665.210**
2	2	500 mm	3	450 mm	1	**9665.220**
3	2	500 mm	4	600 mm	1	**9665.230**

Accessories	Page
Spacers	419
Terminal block	420
Cable clamp rails	420
Support rails	420

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
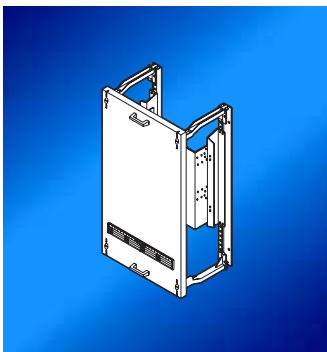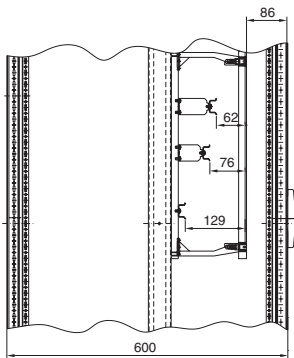
Support modules
- Variably usable with switchgear
- Solid mounting plate
- Cover is prepared for a lead seal
- Insulating material RAL 9002

Mechanical interior installation: Mounting surface	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
W x H 190 x 210 mm, installation depth variable from 86 – 161 mm	1	250 mm	3	450 mm	1	**9665.360**
W x H 190 x 210 mm, installation depth variable from 86 – 153 mm	2	500 mm	3	450 mm	1	**9665.370**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm

B
2.9

ISV distribution enclosure
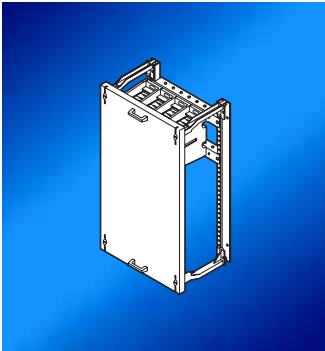
Connection modules

- For connecting copper and aluminium conductors
- Single-wire or multi-wire conductors with crimped wire end ferrule or laminated copper bar
- Cover is prepared for a lead seal
- Insulating material RAL 9002

Mechanical interior installation: Terminal connection top and bottom		Size				Packs of	Model No. SV
		Width unit (WU)[1]		Height unit (U)[2]			
250 A, 4-pole	Round conductor: 1 x 16 – 150 mm² or 2 x 16 – 70 mm²	1	250 mm	3	450 mm	1	**9665.300**
250 A, 5-pole	Laminated flat copper: Clamping area W x H 17 x 21 mm	1	250 mm	3	450 mm	1	**9665.310**
400 A, 4-pole	Round conductor: 1 x 50 – 240 mm² or 2 x 25 – 120 mm²	1	250 mm	3	450 mm	1	**9665.320**
400 A, 5-pole	Laminated flat copper: Clamping area W x H 25 x 21 mm	1	250 mm	3	450 mm	1	**9665.330**
630 A, 4-pole	Round conductor: 1 x 120 – 300 mm² or 2 x 120 – 185 mm²	2	500 mm	3	450 mm	1	**9665.340**
630 A, 5-pole	Laminated flat copper: Clamping area W x H 41 x 21 mm	2	500 mm	3	450 mm	1	**9665.350**

Accessories	Page
Laminated copper bars	361
Cable clamp rails	420

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
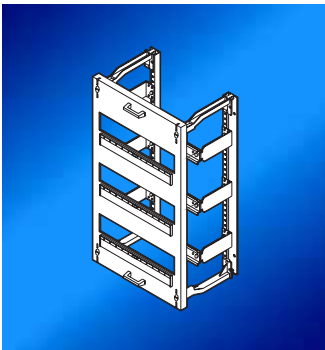
DIN rail mounted device modules

- To accommodate DIN rail mounted devices
- Support rails 35/7.5 mm
- Cover is prepared for a lead seal
- Insulating material RAL 9002

Mechanical interior installation		Size				Packs of	Model No. SV
		Width unit (WU)[1]		Height unit (U)[2]			
Horizontal pitch of 12 (1 x 12 x 18 mm)		1	250 mm	1	150 mm	1	**9665.240**
Horizontal pitch of 24 (2 x 12 x 18 mm)		1	250 mm	2	300 mm	1	**9665.250**
Horizontal pitch of 36 (3 x 12 x 18 mm)		1	250 mm	3	450 mm	1	**9665.260**
Horizontal pitch of 48 (4 x 12 x 18 mm)		1	250 mm	4	600 mm	1	**9665.270**
Horizontal pitch of 24 (2 x 12 x 18 mm)		2	500 mm	1	150 mm	1	**9665.280**
Horizontal pitch of 48 (4 x 12 x 18 mm)		2	500 mm	2	300 mm	1	**9665.290**
Horizontal pitch of 72 (6 x 12 x 18 mm)		2	500 mm	3	450 mm	1	**9665.500**

Accessories	Page
Cover strips	419
Terminal block	420

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm

48.5   86

600

B

2.9

ISV distribution enclosure
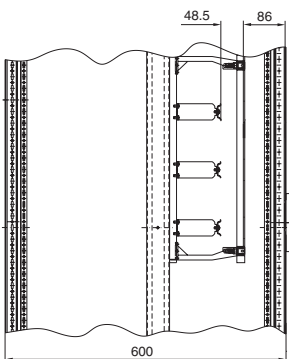
ISV distribution enclosure

Installation modules
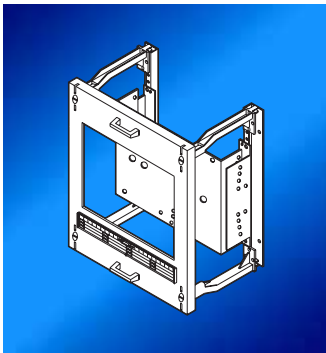
NH on-load isolator modules

- Suitable to accommodate Rittal on-load isolators for mounting plate assembly
- Cover is prepared for a lead seal
- Insulating material RAL 9002

Mechanical interior installation			Size				Packs of	Model No. SV
			Width unit (WU)[1]		Height unit (U)[2]			
Mounting plate slotted and positioned plus cutout in the cover to fit NH on-load isolators	1 x size 00 160 A	[1]	1	250 mm	2	300 mm	1	**9665.380**
	2 x size 00 160 A	[1]	1	250 mm	2	300 mm	1	**9665.390**
	1 x size 1 250 A	[2]	1	250 mm	3	450 mm	1	**9665.400**
	1 x size 2 400 A	[3]	1	250 mm	3	450 mm	1	**9665.410**
	1 x size 3 630 A	[4]	2	500 mm	3	450 mm	1	**9665.420**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm

NH on-load isolator for mounting plate assembly

	Size	Model No. SV	Model No. SV[1]	Page
[1]	Size 00	3488.000 3489.000	3488.310 3489.310	358
[2]	Size 1	3409.000	3409.310	358
[3]	Size 2	3415.010	3415.310	359
[4]	Size 3	3095.010	3095.310	359

[1] with electronic fuse monitoring and LED display
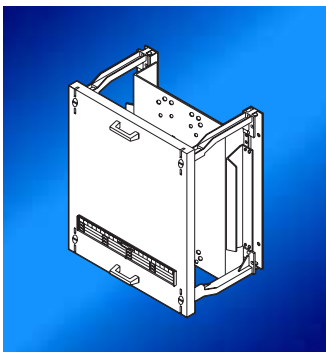
Power circuit-breaker modules

- Suitable for accommodating commercially available power circuit-breakers of brands ABB, Merlin Gerin, Moeller and Siemens in 3-pole versions, up to 630 A
- Cover is prepared for a lead seal
- Insulating material RAL 9002

Note:
The pitch patterns of holes for attachment of the power circuit-breakers and the corresponding cut-out dimensions for the covers are shown in the ISV assembly instructions.

Power circuit-breakers are not included with the supply.

Mechanical interior installation		Size				Packs of	Model No. SV
		Width unit (WU)[1]		Height unit (U)[2]			
Mounting plate slotted and positioned for power circuit-breakers	[1]	1	250 mm	2	300 mm	1	**9665.430**
	[2]	1	250 mm	3	450 mm	1	**9665.440**
	[3]	1	250 mm	2	300 mm	1	**9665.450**
	[4]	1	250 mm	3	450 mm	1	**9665.460**
	[5]	1	250 mm	3	450 mm	1	**9665.470**
	[6]	1	250 mm	3	450 mm	1	**9665.480**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm

Power circuit-breakers

I_N	Brand							
	ABB		Merlin Gerin		Moeller Electric		Siemens	
160 A	[1]	Tmax T1 Tmax T2	[3]	Compact NS 100 Compact NS 160	[1] [3]	NZM 1 NZM 7	[3]	Sentron VL160 Sentron VL160X
250 A	[2]	Tmax T3	[4]	Compact NS 250	[1] [5]	NZM 2 NZM 7	[4]	Sentron VL250
400 A	[5]	SACE Isomax S5	[6]	Compact NS 400	[5]	NZM 10	[5]	Sentron VL400
630 A	[5]	SACE Isomax S5 SACE Isomax S6	[6]	Compact NS 630	[5]	NZM 10	[5]	Sentron VL630

B
2.9

ISV distribution enclosure
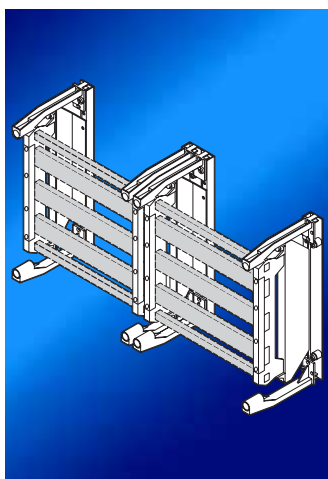
Busbar support

- 5-pole, 60 mm bar centre distance

Note:
- Depending on the configuration and connection variant, the busbars must be cut to length prior to installation, in accordance with the ISV assembly instructions.
- 5-pole busbar variant only suitable for the configuration of busbar connections and NH bus-mounting on-load isolators, size 00.

- With bus-mounting fuse bases, only 3-pole configuration (L1/L2/L3) is supported. In such cases, N and PE must be configured via busbar support SV 3050.000 (see page 318) or busbar module (Model No. SV 9665.590 or SV 9665.600, see page 418).

Mechanical interior installation		Usable busbar dimensions E-Cu	Packs of	**Model No. SV**
Busbar support for 2 height units[1] and max. 2 width units[2]		Busbars L1/L2/L3 30 x 5 mm (400 A) 30 x 10 mm (630 A)	4	**9665.490**
		Busbar N 25 x 10 mm		
		Busbar PE 12 x 10 mm		
Assembly components		Model No. SV		Page
[1] Conductor connection clamps for bar thickness	5 mm	3450.500 – 3453.500/3550.000		324
	10 mm	3455.500 – 3458.500/3555.000		324
[2] Plate clamp		3554.000		324
[3] Bus-mounting fuse bases				see below
[4] NH bus-mounting on-load isolators, size 00				see below
Also required				
Contact hazard protection cover plate for				
[1] Conductor connection clamps				416
[2] Plate clamp				416
[3] Bus-mounting fuse bases				416
[4] NH bus-mounting on-load isolators, size 00				416
Accessories				
Busbars E-Cu				360
Busbar connectors for E-Cu[3]	30 x 5/10 mm (L1/L2/L3)	9320.020		360
	25 x 10 mm (N)	9320.020		360
	12 x 10 mm (PE)	9350.070		360
Laminated copper bars				361

[1] 1 U ≙ 150 mm
[2] 1 WU ≙ 250 mm
[3] for busbar connections from enclosure to enclosure

[3] Bus-mounting fuse bases and accessories

Type	Bus-mounting fuse base Model No. SV	Contact hazard protection cover Model No. SV	End caps Model No. SV	Page
D 02-E 18	3418.000	3419.000	3420.000	334
D II-E 27	3427.000	3428.000	3429.000	334
D III-E 33	3433.000	3434.000	3435.000	334

[4] NH bus-mounting on-load isolator

Size	Model No. SV	Model No. SV[1]	Page
Size 00	3400.000 3401.000 3402.000 3403.000	3490.210 3491.210 3492.210 3493.210	338

[1] with electronic fuse monitoring and LED display

B
2.9

ISV distribution enclosure
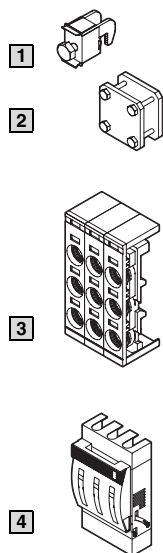
ISV distribution enclosure

Installation modules
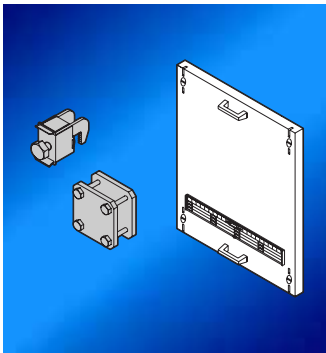
Contact hazard protection cover

for conductor connection clamps and plate clamp

- Cover is prepared for a lead seal
- Insulating material RAL 9002

Version	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
Solid	1	250 mm	2	300 mm	1	**9665.530**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
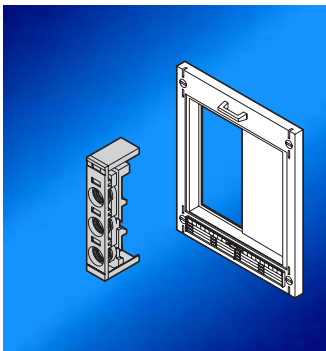
Contact hazard protection covers

for bus-mounting fuse bases

- Cover is prepared for a lead seal
- Insulating material RAL 9002

For	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
6 x D 02-E 18	1	250 mm	2	300 mm	1	**9665.520**
4 x D II-E 27, 3 x D III-E 33	1	250 mm	2	300 mm	1	**9665.540**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
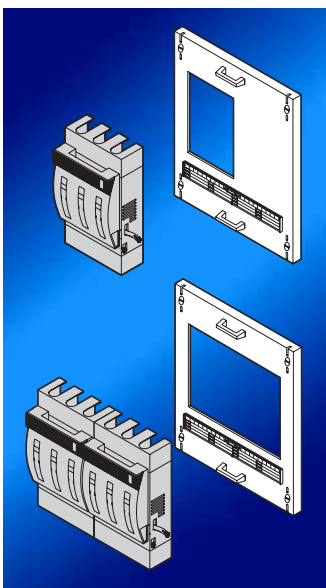
Contact hazard protection covers

for NH bus-mounting on-load isolators, size 00

- Cover is prepared for a lead seal
- Insulating material RAL 9002

For	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
1 x size 00	1	250 mm	2	300 mm	1	**9665.550**
2 x size 00	1	250 mm	2	300 mm	1	**9665.560**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
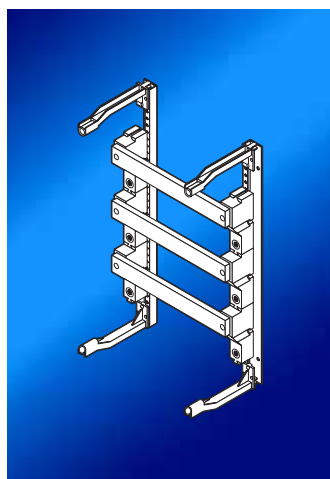
NH fused isolators modules

- With busbars E-Cu
  (100 mm bar centre distance)
- For NH fused isolator, size 00
  or busbar connections

Note:
- In order to be able to guarantee problem-free cable connection, a contact hazard protection module (Model No. SV 9665.000, see page 411) must be installed beneath the NH fused isolator modules.
- Busbar connection in accordance with "ISV" assembly instructions.

Mechanical interior installation: Busbar system	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
630 A, 3-pole with busbars E-Cu 30 x 10 mm	1	250 mm	3	450 mm	1	**9665.570**
	2	500 mm	3	450 mm	1	**9665.580**

Assembly components	Model No. SV	Page
1 NH fused isolator, size 00	3591.010	349
2 Conductor connection clamps	3455.500 – 3459.500/3555.000	344
3 Plate clamp	3554.000	344
Also required		
Contact hazard protection cover plate for		
1 NH fused isolator, size 00		see below
2 Conductor connection clamps		418
3 Plate clamp		418
Accessories		
Laminated copper bars		361

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm

B
2.9

ISV distribution enclosure
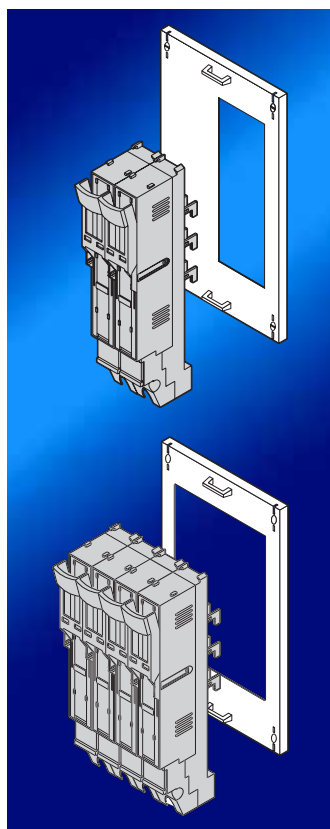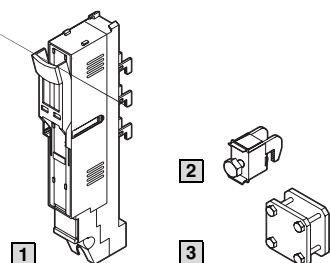
Contact hazard protection covers

For NH fused isolator, size 00

- Cover is prepared for a lead seal
- Insulating material RAL 9002

For	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
2 x size 00	1	250 mm	3	450 mm	1	**9665.620**
4 x size 00	1	250 mm	3	450 mm	1	**9665.630**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm

ISV distribution enclosure
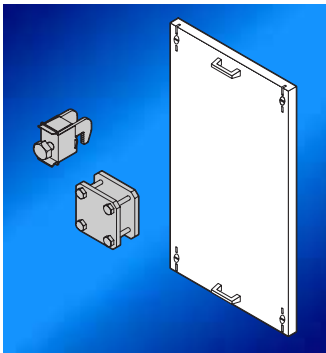
Installation modules

Contact hazard protection cover

for conductor connection clamps and plate clamp

- Cover is prepared for a lead seal
- Insulating material RAL 9002

Version	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
Solid	1	250 mm	3	450 mm	1	**9665.610**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
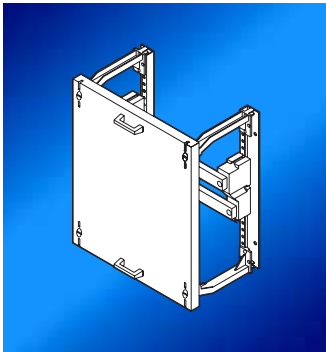
Busbar modules

2-pole

- For connecting N and PE
- Contact hazard protection cover included
- Cover is prepared for a lead seal
- Insulating material RAL 9002

Mechanical interior installation: Busbar system	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
2-pole for N and PE with busbars E-Cu 30 x 10 mm	1	250 mm	2	300 mm	1	**9665.590**
	2	500 mm	2	300 mm	1	**9665.600**

Assembly components	Model No. SV	Page
1 Conductor connection clamps	3455.500 – 3459.500/3555.000	324
2 Plate clamp	3554.000	324
Accessories		
Laminated copper bars		361

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm
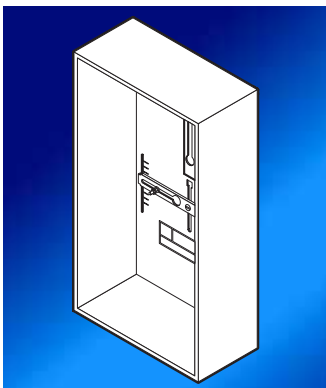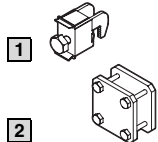
Meter mounting board module

- Open module for internal measurements
- Clearance depth available for meter installation 170 mm
- Insulating material RAL 9002

Note:
The meter mounting board module does not comply with meter mounting board standard DIN 43 870/VDE 0603 and does not meet the conditions for total insulation.
Use in unmetered areas only by arrangement with the local electricity supply company.

Mechanical interior installation	Size				Packs of	Model No. SV
	Width unit (WU)[1]		Height unit (U)[2]			
Attachment rails to accommodate a meter	1	250 mm	3	450 mm	1	**9665.790**

[1] 1 WU ≙ 250 mm
[2] 1 U ≙ 150 mm

B
2.9

ISV distribution enclosure

Accessories
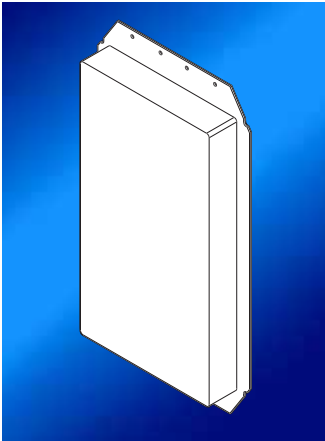
Deep cover

For increasing the usable depth.

- For installation on one-piece contact hazard protection covers
- W x H x D 450 x 250 x 43 mm
- Insulating material RAL 7035

Packs of	Model No. SV
1	9665.640
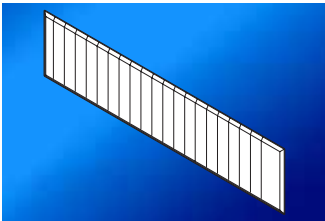
Cover strips

For blanking spare component cutouts in DIN rail mounted device modules, max. 12 divider units (12 x 18 mm), divisible every 9 mm.

Packs of	Model No. SV
1	9665.650
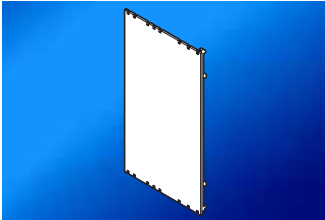
Blanking cover

For blanking spare cutouts for bus-mounting fuse bases, 108 mm wide.

Packs of	Model No. SV
1	9665.660
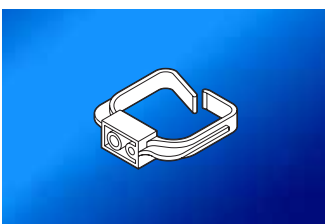
Wiring brackets

for installing

- C rails 30/15 mm
- TS punched sections with mounting flanges
- TS frame section

Packs of	Model No. SV
10	9665.670
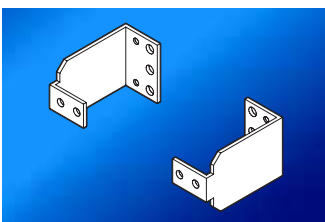
Spacers

For configuring support rails with attachment screws, 53 mm high.

Packs of	Model No. SV
2	9665.680

B

2.9

ISV distribution enclosure

ISV distribution enclosure

Accessories
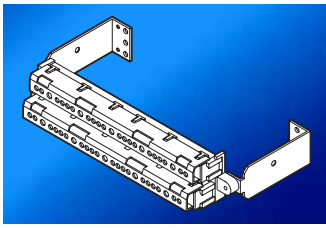
Terminal block

For installation into 250 mm wide contact hazard
protection and support rail modules 2-pole for N
and PE, each with 20 x 4 mm², 5 x 25 mm².

Packs of	Model No. SV
1	**9665.690**
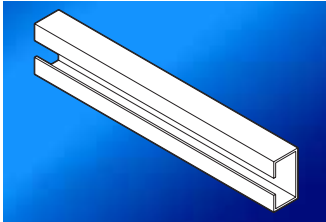
Cable clamp rails

For attaching cable clamps,
see page 981, in

- Connection modules
- Contact hazard protection modules
- Support rail modules

Width units required for the modules	Packs of	Model No. SV
1 WU (250 mm)	1	**9665.700**
2 WU (500 mm)	1	**9665.710**
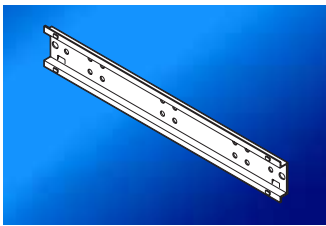
Support rails

For snap fastening components or terminals,
15 mm high.

Width units required for the modules	Packs of	Model No. SV
1 WU (250 mm)	1	**9665.720**
2 WU (500 mm)	1	**9665.730**
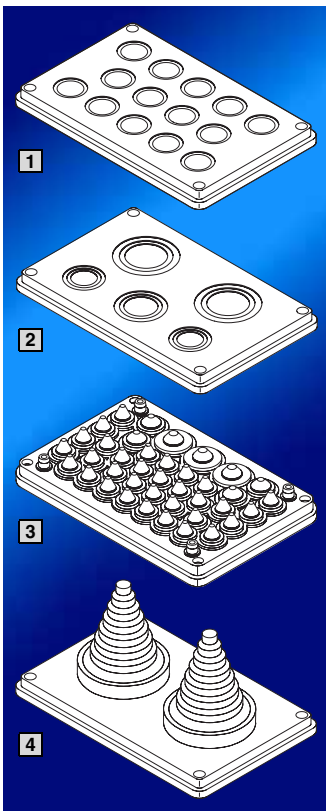
Cable entry gland

- Including seal
- External dimensions 250 x 160 mm
- Protection category IP 55
- Insulating material RAL 7032

Version	Packs of	Model No. SV
1 14 x M25/32	1	**9665.750**
2 2 x M25/32/40, 1 x M32/40/50, 2 x M40/50/63	1	**9665.760**
3 With sealing membranes 32 x dia. 7 – 16 mm, 4 x dia. 10 – 20 mm, 3 x dia. 14 – 26 mm	1	**9665.770**
4 With entry glands up to 66 mm diameter	1	**9665.780**
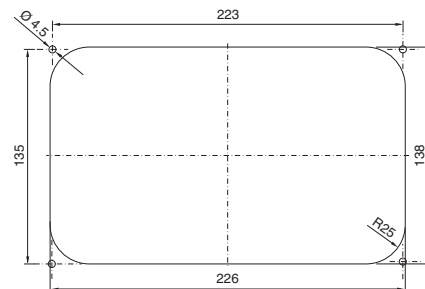
Cutout dimensions for
SV 9665.750 to SV 9665.780

Rittal Electronic Systems offer "complete know-how" in the field of electronic

packaging at a high level – up to Level 4 integration.

For CPCI, VME and AdvancedTCA applications.

This means "plug & play" systems for **extremely high data throughput**

levels – in telecommunications, in the network and server segment,

in automation, in traffic guidance systems and in medical technology.

System solutions in a modern design, with **super-fast backplanes,** with

integral power modules and with **effective climate control concepts.**

RITTAL

Electronic Packaging

ATCA   from page 424

Rack-mount systems for CPCI and VMEbus   from page 430

Rack-mount systems for industrial PCs and storage devices   from page 460

Power supplies   from page 478

Subracks   from page 486

Instrument cases/system enclosures   from page 552

B

3.

Electronic Packaging

ATCA

Features

ATCA – Advanced Telecom Computing Architecture –

The first cross-industry standard developed by the PICMG (PCI Industrial Computers Manufacturer Group) for telecommunications applications that were previously developed on a proprietary basis. ATCA – The solution for high demands in terms of system availability and performance, in both telecommunications and industrial automation, transport technology and medical technology. Rittal's product spectrum includes a range of complete systems in various designs with the corresponding accessories.

System benefits

- System availability of at least 99.999 %.
- Fail-safe maximised, thanks to redundancy
- Hot-swap capability ensures uninterrupted operation.
- Transfer rates of up to 2.5 Terabit/s.

- Large board formats: 8 U x 280 mm.
- Switched Fabric architecture.
- By reducing proprietary platforms, the high cost of development and training is eliminated.
- Available off the shelf.

- Specified heat losses up to 200 W per board.
- Support of different protocols (Ethernet, Infiniband, Rapid I/O, PCI-Express).
- Defined performance of up to 3.125 Gbit/sec.

The mechanical components ATCA Shelf (PICMG 3.0)

- 1 x system rack (mechanical)
- 1 x backplane (Switched Fabric)
- 1 x backplane (electrical distribution)
- 4 x fans
- 2 x or 4 x 48 V power entry modules (PEM)
- Installation space for 2 x Shelf Management Controllers
- Installation space for 2 x PC controllers

- A shelf has either 14 or 16 slots.
- A shelf with 14 slots is based on 482.6 mm (19″).
- A shelf with 16 slots is based on 23″ or ETSI.
- The height of a shelf is N x U (19″/23″) or N x 25 mm (ETSI).

- The depth of a shelf is 385 mm and is suitable for installation in 600 mm deep enclosures.
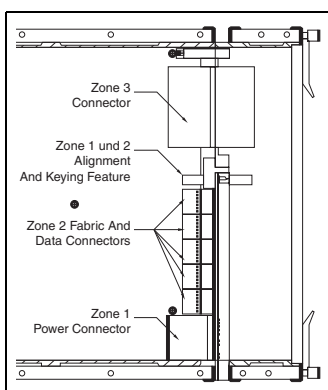
Boards

- Dimensions according to IEC 60297-3 and specifications to PICMG 3.0.
- The front boards (8 U x 6 HP and 280 mm depth) contain the electronic functions and the connectors. They are offset from the pitch line by 6.61 mm and are 1.6 to 2.4 mm thick, have an ESD clip on the component side 1, and attachment holes for the

cover of component side 2. Essentially, a board type plug-in unit consists of a front panel with centering pin, EMC seal, ESD clip, injector/extractor handles with optional microswitch operation for hot swap, and optional M3-knurled screws.

A cover is obligatory for component side 2 (rear) to reinforce the PCB and/or for EMC protection.
- Rear I/O boards (RTM): 8 U x 6 HP x 70 mm

Zone 3 Connector

Zone 1 und 2 Alignment And Keying Feature

Zone 2 Fabric And Data Connectors

Zone 1 Power Connector
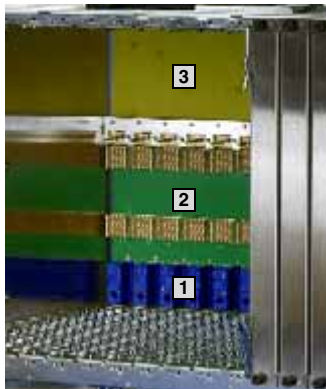
Connector zones

Zone 1:
Power supply and system
management

Zone 2:
Data communication

Zone 3:
RTM (rear I/O)

Zone 1 and Zone 2 are
equipped with a special center-
ing/keying device.
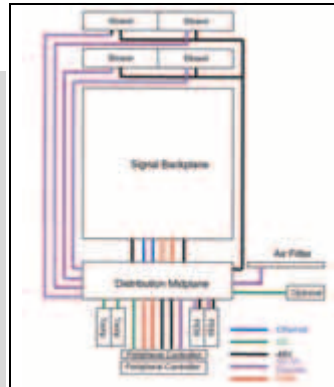
Shelf management

**Interfaces for the monitoring
and control of:**
● Boards
● PEMs
  (power entry modules)
● Fan
● Air inlet temperature
● Remote alarm signals
● Air filter available/
  not available
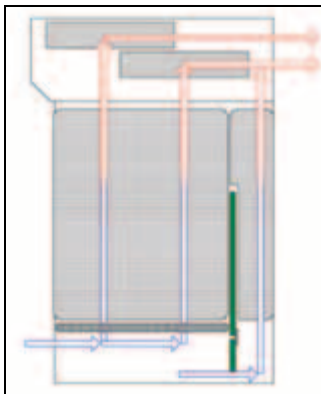
Shelf cooling

Side view, right
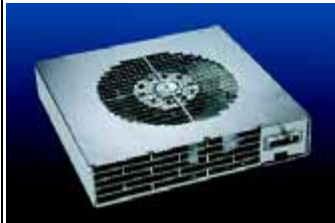
● ATCA specifies heat losses of
up to 200 W per front board
and 30 W per rear board,
which translates into approxi-
mately 3 kW for a fully config-
ured shelf with 14 boards.

● The four high-capacity RiCool
fans from Rittal with 300 m³/h
ensure optimum climatic con-
ditions.

● Redundancy and hot-swap
ensure reliability, even in the
event of a fan failure.
● Replaceable dust filter in the
air inlet zone.
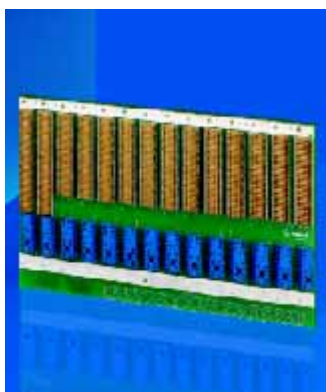
Backplanes

3 times higher performance!
● Full Mesh backplane from
Rittal with 10 Gbit/sec. (acc.
to PICMG 3.x, 3.125 Gbit/sec.
is required).
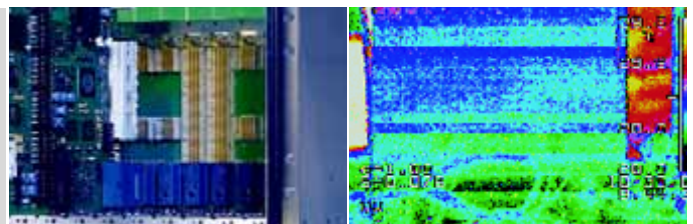
● Dual Intelligent Platform
Management Interface (IPMI),
bussed or radial.
● Product range: Full Mesh,
Dual Star, Dual Dual Star also
optionally available with addi-
tional Mesh performance.

● Thermal image of a Rittal
backplane under full load.
The red zone at the top is
attributable to resistive loads.

AdvancedTCA solutions from Rittal

As a competent supplier of
Electronic Packaging Solutions,
Rittal and its subsidiary Kaparel
have been actively involved
in development of the
AdvancedTCA standard.

This knowledge and experi-
ence is incorporated into prod-
uct development. Rittal offers
complete solutions for ATCA
applications. Upon request,
these may also be tailored to
specific requirements. There is
a particular emphasis on the
area of heat management.

Complex solutions, from direct
cooling of the board via the
shelf through to the enclosure,
provide reliability, even with
extreme requirements.

ATCA

AdvancedTCA Shelf Version VA-1 (Rittal ShMC)

385

13 HE

482.6

HE = U
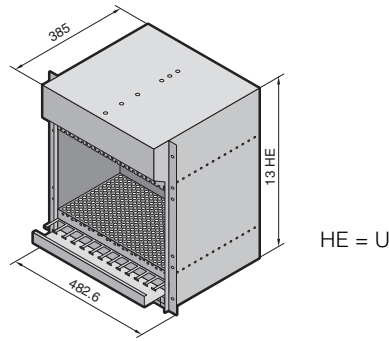
Technical specifications:
- 482.6 mm (19″) x 13 U x 385 mm deep
- 14 x 6 HP slots for front boards and RTM
- 14 slot backplanes with bussed IPMI
- 2 or 4 x PEM connected at the rear
- Prepared for 2 x rear connected Rittal ShMC
- Rear connected PC (2 x)
- Space for rear telecom service connection
- RiCool fan connected at the front (4 fans each with 180 cfm/300 m³/h, dual IPMI, dual 48 V)

- Filter frame connected at the front (with air baffle plate and filter mat)
- Zone 3 air seal (14 x 6 HP – slot-based)
- Optional cable ducts for front and rear

ShMC:
The choice of backplane depends on the Shelf Management Controller (ShMC) used. The function of the chosen ShMC determines the function of the peripheral controller (PC).

PEM:
Depending on the application, different types of Power Entry Modules (PEMs) are available. At least two (@ 90 A) are required, and up to a maximum of four (@ 50 A) may be used

Detailed drawing,
see page 1149/1150.

AdvancedTCA Shelf VA-1 (ShMC connectable from rear)

Shelf	U	Slots	Backplane	IPMI	Rittal ShMC[1]	SwitchSlots	PC	PEM	PEM-Amp	RiCool-2	Model No. RP
VA-1	13	14	Dual Star	bussed	2 x kernels	centre	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.306**
VA-1	13	14	Dual Star	bussed	2 x kernels	centre	2 x	4 x	50 A each	4 x 48 V-IPMI	**On request**
VA-1	13	14	Full Mesh	bussed	2 x kernels	1 + 2	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.305**
VA-1	13	14	Full Mesh	bussed	2 x kernels	1 + 2	2 x	4 x	50 A each	4 x 48 V-IPMI	**3688.463**

Accessories	Packs of		Page
Filler panel at front with airflow management	1	3688.267	429
Filler panel at rear with airflow management	1	3688.268	429
Filler panel front/rear without airflow management	1	3688.266	429
Cable duct, front	1	On request[2]	
Cable duct, rear	1	On request[2]	
Spare parts			
PC (Peripheral Controller)	1	**3688.323**	
PEM-IPMI 90 A (Power Entry Module)	1	**3688.464**	
PEM-IPMI 50 A	1	**3688.465**	
ShMC (Shelf Management Controller)	1	**3688.326**	
Filter (frame, air baffle plate, mat)	1	**3688.385**	
RiCool-2 fan	1	**3688.297**	
Zone 3 air seal 6 HP	1	**3688.290**	
Assembly parts for Zone 3 air seal	100	**3688.387**	

[1] ShMC not included with the supply.
[2] Standard attachment for application-specific solutions.

AdvancedTCA Shelf Version VB-1/VB-2

HE = U
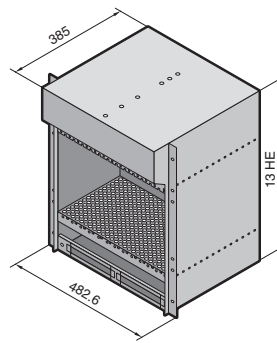
Technical specifications:
Version VB-1 (Intel/ShMC)
- 482.6 mm (19″) x 13 U x 385 mm deep
- 14 x 6 HP slots for front boards and RTM
- 14 slot backplanes with radial IPMI
- 2 or 4 x PEM connected at the rear
- Prepared for 2 x front connectable Intel ShMC
- Rear connected PC (2 x)
- Space for rear telecom service connection
- RiCool fan connected at the front (4 fans each with 180 cfm/300 m³/h, dual IPMI, dual 48 V)

- Filter frame connected at the front (with air baffle plate and filter mat)
- Zone 3 air seal (14 x 6 HP – slot-based)
- Optional cable ducts for front and rear

Technical specifications:
Version VB-2 (PigeonPoint ShMC)
- 482.6 mm (19″) x 13 U x 385 mm deep
- 14 x 6 HP slots for front boards and RTM
- 14 slot backplanes with bussed IPMI
- 2 or 4 x PEM connected at the rear

- Prepared for 2 x rear connectable PigeonPoint ShMC
- Rear connected PC (2 x)
- Space for rear telecom service connection
- RiCool fan connected at the front (4 fans each with 180 cfm/300 m³/h, dual IPMI, dual 48 V)
- Filter frame connected at the front (with air baffle plate and filter mat)
- Zone 3 air seal (14 x 6 HP – slot-based)
- Optional cable ducts for front and rear

ShMC:
The choice of backplane depends on the Shelf Management Controller (ShMC) used. The function of the chosen ShMC determines the function of the peripheral controller (PC).

PEM:
Depending on the application, different types of Power Entry Modules (PEMs) are available. At least two (@ 90 A) are required, and up to a maximum of four may be used (@ 50 A).

Detailed drawing,
see page 1149/1150.

B

3.1

ATCA

AdvancedTCA Shelf VB-1 (ShMC connectable from front)

Shelf	U	Slots	Backplane	IPMI	Intel ShMC[1]	SwitchSlots	PC	PEM[2]	PEM-Amp	RiCool-2	Model No. RP
VB-1	13	14	Dual Star	radial	2 x CMM	centre	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.303**
VB-1	13	14	Dual Star	radial	2 x CMM	centre	2 x	4 x	50 A each	4 x 48 V-IPMI	**On request**
VB-1	13	14	Full Mesh	radial	2 x CMM	1 + 2	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.301**
VB-1	13	14	Full Mesh	radial	2 x CMM	1 + 2	2 x	4 x	50 A each	4 x 48 V-IPMI	**3688.466**

AdvancedTCA Shelf VB-2 (ShMC connectable from front)

Shelf	U	Slots	Backplane	IPMI	PigeonPoint ShMC[1]	SwitchSlots	PC	PEM[2]	PEM-Amp	RiCool-2	Model No. RP
VB-2	13	14	Dual Star	bussed	2 x CMM	centre	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.304**
VB-2	13	14	Dual Star	bussed	2 x CMM	centre	2 x	4 x	50 A each	4 x 48 V-IPMI	**3688.469**
VB-2	13	14	Full Mesh	bussed	2 x CMM	1 + 2	2 x	2 x	90 A each	4 x 48 V-IPMI	**3688.302**
VB-2	13	14	Full Mesh	bussed	2 x CMM	1 + 2	2 x	4 x	50 A each	4 x 48 V-IPMI	**3688.470**

Accessories	Packs of		Page
Filler panel at front with airflow management	1	3688.267	429
Filler panel at rear with airflow management	1	3688.268	429
Filler panel front/rear without airflow management	1	3688.266	429
Cable duct, front	1	On request[3]	
Cable duct, rear	1	On request[3]	

Spare parts		for VB-1	for VB-2
PC (Peripheral Controller)	1	**3688.322**	**3688.324**
PEM-IPMI 90 A (Power Entry Module)	1	**3688.388**	
PEM-IPMI 50 A	1	**3688.467**	**3688.471**
PEM-Basic 90 A (Power Entry Module)	1	**3688.378**	
PEM-Basic 50 A	1	**3688.468**	**3688.472**
ShMC (Shelf Management Controller)	1	**3688.338**	**3688.320**
Filter (frame, air baffle plate, mat)	1	**3688.385**	
RiCool-2 fan	1	**3688.297**	
Zone 3 air seal 6 HP	1	**3688.290**	
Assembly parts for Zone 3 air seal	100	**3688.387**	

[1] ShMC not included with the supply. [2] PEM-IPMI included with the supply. [3] Standard attachment for application-specific solutions.

Accessories for ATCA Page 428

Accessories
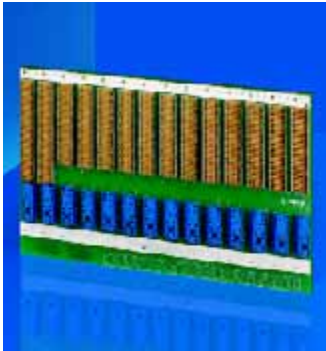
1

AdvancedTCA backplanes

- 4, 14, 16 slot version
- Dual Star, Full Mesh
- Meets AdvancedTCA specification
  Version 1.0
- Other versions available on request

Description	Number of slots	Model No. RP
Triple Full Mesh with bussed IPMI	4	**3688.760**
1 Full Mesh with bussed IPMI	14	**3688.763**
Dual Star with bussed IPMI	14	**3688.307**
Full Mesh with bussed IPMI	16	**3688.317**
Dual Star with bussed IPMI	16	**3688.429**

Face plates, filler panels, handles

A complete customer-specific range of face plates and filler panels is available and offers individual cutouts, screen printing or coating on request, together with a range of handle types, including lock and microswitch actuation. The face plates and filler panels are optionally available with stick-on or snap-on EMC seals. The lock device of the handle also serves as earthing and guarantees a secure hold, even in earthquake zone 4 (NEBS level 3).

The AdvancedTCA face plates and filler panels may be used both for the front boards and for the RTMs (Rear Translation Modules). For the front board, the obligatory cover of component side 2 is integrated into the front panel design. An air management version for front slots or RTM is available for Zone 3.

- Every face plate has two locks.
- Injector/extractor handles, assembly parts and EMC seals must be ordered separately.
- The face plates are deigned for the I/O interface.
- The filler panels are used on unused or reserved slots and offer EMC protection and airflow management.
- The AdvancedTCA face plate with 6 HP is defined in PICMG 3.0.
- I/O units requiring a connection to the chassis ground should be connected via the front panel alignment/ground pin.

1   **2**   **3**
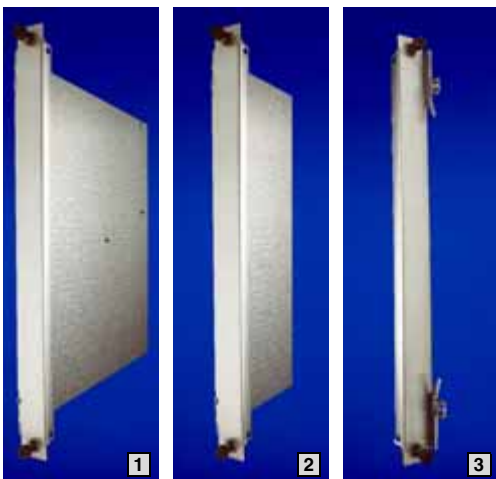
Face plate

1 Front, with cover for component side 2

2 Rear, with cover for component side 2

3 Front/rear, without cover for component side 2

Material:
Stainless steel

Face plate front with compulsory cover for component side

HP	Packs of	Model No. RP
6	1	**9805.174**
12	1	**On request**

Face plate front with compulsory cover for component side

HP	Packs of	Model No. RP
6	1	**9808.764**
12	1	**On request**

Face plate front/rear (optional) without cover for component side 2

HP	Packs of	Model No. RP
6	1	**9805.172**
12	1	**On request**

Detailed drawing,
see page 1150.
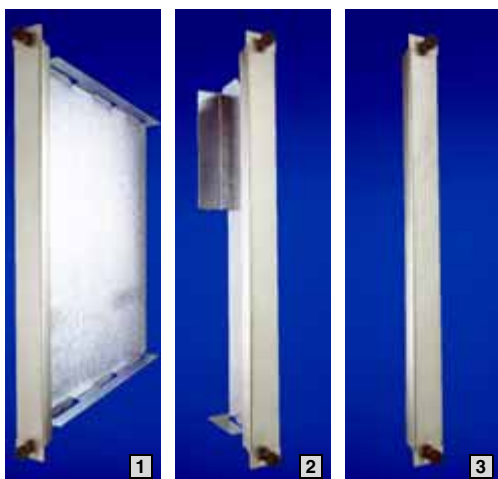
Filler panel

1 Front with airflow management

2 Rear with airflow management

3 Front/rear without airflow management

Material:
Stainless steel

Filler panel, front with compulsory airflow regulation – 8 U, 6 HP, 280 mm

Type	HP	Packs of	Model No. RP
Front	6	1	3688.267

Filler panel, rear with compulsory airflow regulation – 8 U, 6 HP, 70 mm

Type	HP	Packs of	Model No. RP
Rear	6	1	3688.268

Filler panel front/rear (optional) without airflow regulation

Type	HP	Packs of	Model No. RP
Front/rear	6	1	3688.266
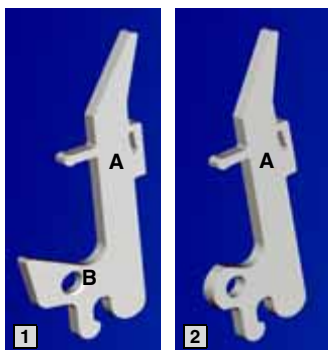
Handles

1 Handles, type 1 –
Handle with microswitch,
control component A + B

2 Handles, type 2 –
Handle with microswitch, control component A

3 Handles, type 1 –
Handle with microswitch, control component B

4 Handles, type 2 –
Handle without microswitch,
control component C
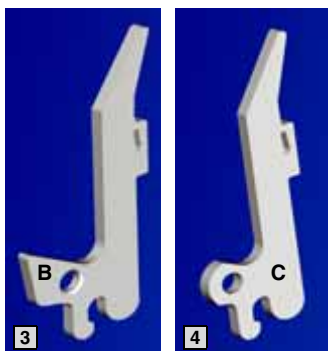
Type 1 handle
Microswitch A + B (B position for max. I/O)

Control component	Packs of	Material	Model No. RP
A + B	1	Stainless steel	9805.161
B	1	Stainless steel	9808.691

Type 2 handle
Microswitch A (position for 4 x PMC, if PMC is installed on the outermost position of the host)

Control component	Packs of	Material	Model No. RP
A	1	Stainless steel	9808.692
C	1		9808.693

Detailed drawing,
see page 1150.

B

3.1

ATCA

EMC seals
for face plates and filler panels

Attachment	U	Packs of	Material	Model No. RP
Bonded	8	1	Foam	9805.160
Bonded	8	1	Stainless steel	3688.342
Snap-on	8	1	Stainless steel	3688.397

Screws

Type	Used for	Packs of	Head	Model No. RP
M2.5 x 6	PCB attachment	100	Phillips	3654.340
M3 x 10	Backplane	100		3688.386

Rack-mount systems for CPCI and VMEbus

Features

Rittal supplies complete plug-and-play solutions for VME and CompactPCI applications at a high level – up to Level 4 integration. The systems are supplied complete with power supply, backplane, measures for EMC and ESD protection, as well as climate control. Fully assembled, pre-wired and tested.

Individually customised to your requirements.

Systems for CompactPCI
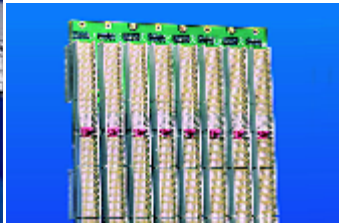
Backplanes
High-speed CompactPCI back-planes. Optionally with H.110 bus and bridges for extension.

Power supplies in various out-put categories, plug-in or open frame.

- Systems for the configuration of industrial computers to CompactPCI specifications
- Complies with IEC 60 297-3 and IEEE 1101.1/10/11 as well as CompactPCI Spec. Rev. 1.0 (PICMG)

Systems for VMEbus
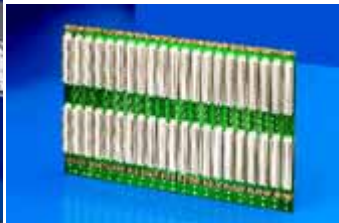
Backplanes
High-speed backplanes to VME/VME64x specifications.

Power supplies in various out-put categories, plug-in or open frame.

- Systems for the configuration of industrial computers to VME specifications
- Complies with IEC 60 297-3 as well as IEEE 1101.1/ 1101.10 and 1101.11

Design features
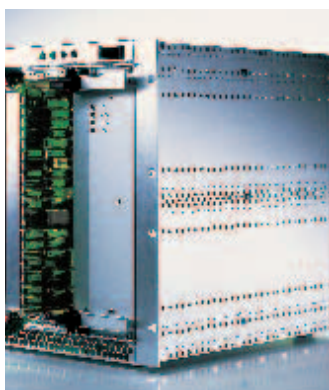
Side panels and flanges
of aluminium, clear-chromated.

10 mm pitch pattern of holes
in the side panels allows individual system configuration.

Horizontal rails with 10 mm extension for injector/extractor handles.

EMC measures

Conductive surface finish of all system components.
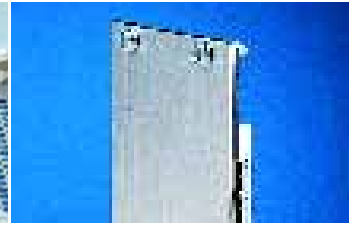
EMC gaskets of stainless steel make contact with the individual components.

U-shaped EMC front panels with EMC gaskets ensure reliable contact.

Safety and ESD protection

Keyable guide rails for the installation of keys.

Potential equalisation
ESD pin and ESD clip in the guide rail to discharge static charges before making contact with the board type plug-in unit.

ESD clip in the guide rail ensures permanent direct discharge from the PCB.

Climate control

Maximum air flow, thanks to the narrow design of the guide rails and horizontal rails.
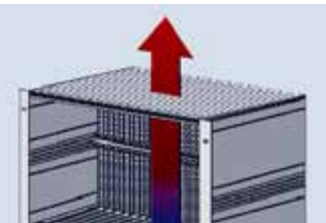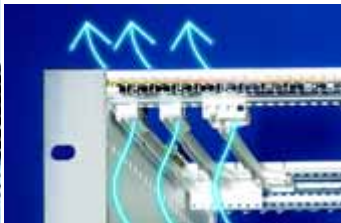
Individual air flow management ensures targeted air routing and optimum heat dissipation. Optionally from bottom to top or from front to rear.

High-performance RiCool fan ensures optimum ventilation. 1 U, hot swap-compatible 204 m³/h, including speed control and fault alarm signal.

System configuration

Injector/extractor handles to reliably overcome high insertion/extraction forces.

Live insertion
Microswitches in the injector/extractor handles inactivate the hot-swap circuitry.

Keyable, red guide rails for defined positioning of the CPU.

B

3.2

Rack-mount systems for CPCI and VMEbus

Rack-mount systems for CPCI and VMEbus
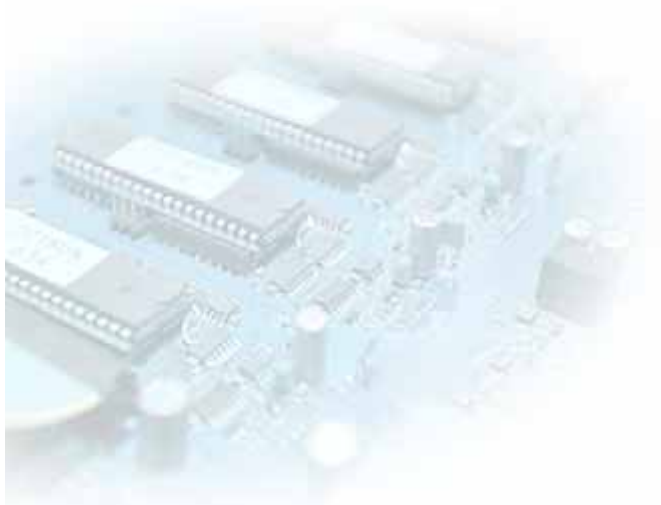
Features

The 300 mm deep Slim-Box enclosures are designed for the horizontal installation of CPCI/VME boards.

The technical features offered by the enclosures are truly impressive: 2 slots per U front and rear, excellent heat dissipation from left to right thanks to fans in the side panel, and a Monolithic backplane.

Depending on the design, including one ATX power supply or prepared for installation of a plug-in power supply.

Slim-Box with VME backplane, see page 447.

Slim-Box rack-mount systems 1, 2, 3, 4 U
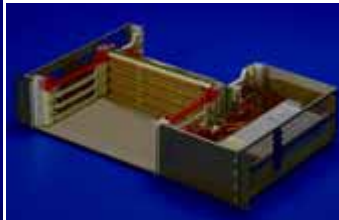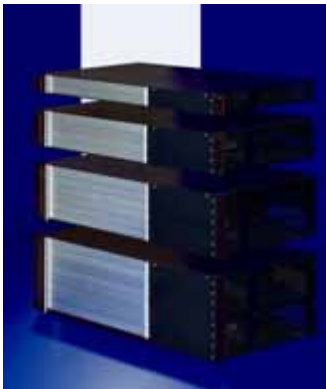
Version 1:
with backplane and ATX power supply or . . .
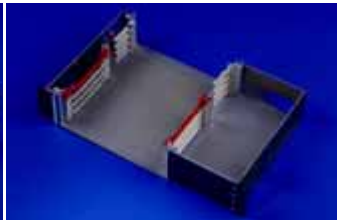
Version 2:
without backplane with ATX power supply for individual configuration or . . .

Version 3:
with backplane (from 2 U with H. 110) and prepared for installation of a plug-in power supply (accessory).

2 slots per U for CPCI/ VME boards at the front and rear.

Keyable plastic guide rail.

VME or CPCI backplane,
some with H. 110 (Version 3).

Integral ATX power supply
(Version 1, 2).

Optional plug-in power supply
hot swap-compatible
(Version 3).

DC fan in the side panel for optimum horizontal ventilation.

Rack-mount system, Slim-Box 1 U, 2 U, 3 U, 4 U
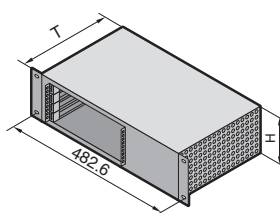
Technical specifications:
- Rack-mount housing 482.6 mm (19″) for the horizontal installation of boards
- Front and rear 2 slots per U for CPCI boards
- Enclosure cooling from left to right
- EMC and ESD-compatible design

- Including fan:
  for 1 U: 12 V DC, 21 m³/h
  for 2 U: 12 V DC, 74 m³/h
  for 3 U: 12 V DC, 195 m³/h or 74 m³/h,
  for 4 U: 12 V DC, 74 m³/h
- Conforms to IEEE 1101.1/10/11, CompactPCI Spec. 2.0

Material:
Sheet steel, spray-finished

Slim-Box Version 1	**U** (H)	1	1	2	2	3	3	4	4
	Depth (T) in mm	300	300	300	300	300	300	300	300
Model No. RP with CPCI backplane and power supply		**9907.475**	**9907.471**	**9907.476**	**9907.472**	**9907.477**	**9907.473**	**9907.478**	**9907.474**
Installation space for boards, mm		160	160	160	160	160	160	160	160
Installation space for rear I/O boards, mm		80	–	80	–	80	–	80	–
Number of front/rear slots		2/2	2	4/4	4	6/6	6	8/8	8
Keyable guide rails		8	4	16	8	24	12	32	16
Power supply unit (ATX)		200 W	200 W	200 W	200 W	300 W	300 W	300 W	300 W
Monolithic CPCI backplane 64 Bit/33 MHz, 6.5 U		1	1	1	1	1	1	1	1
DC fan in the left-hand side panel		3	3	2	2	1	1	4	4

Slim-Box Version 2	**U** (H)	1	2	3	4
	Depth (T) in mm	300	300	300	300
Model No. RP without backplane, with power supply		**9907.479**	**9907.480**	**9907.481**	**9907.482**
Installation space for boards, mm		160	160	160	160
Installation space for rear I/O boards, mm		80	80	80	80
Number of front/rear slots		2	4	6	8
Keyable guide rails		8	16	24	32
Power supply unit (ATX)		200 W	200 W	300 W	300 W
DC fan in the left-hand side panel		3	2	1	4

Slim-Box Version 3	**U** (H)	1	2	3	4		
	Depth (T) in mm	300	300	300	300		
Model No. RP with CPCI backplane, without power supply		**3689.177**	**3689.178**	**3689.179**	**3689.180**		
Installation space for boards, mm		160	160	160	160		
Installation space for rear I/O boards, mm		80	80	80	80		
Number of front/rear slots		2/1	4/2	6/3	8/4		
Keyable guide rails		10	20	30	40		
Monolithic CPCI backplane 6.5 U 64 Bit/33 MHz, H.110 (from 2 U)		1	1	1	1		
DC fan in the left-hand/right-hand side panel		3/4	2/3	1/1 + 1	4/6		
Plug-in power supply unit, order separately		see page 481					
Accessories		**EMC**		Page	**Non-EMC**		Page
Front panels	3 U, 4 HP	3685.178		538	3684.891		537
	3 U, 8 HP	3685.182		538	3684.895		537
	6 U, 4 HP	3685.186		538	3684.913		537
	6 U, 8 HP	3685.190		538	3684.917		537
H.110, 48 V connection cable		**3688.697**					

CPCI

Rack-mount system, Ripac 3 U, 5 slots/4 U, 7 slots horizontal
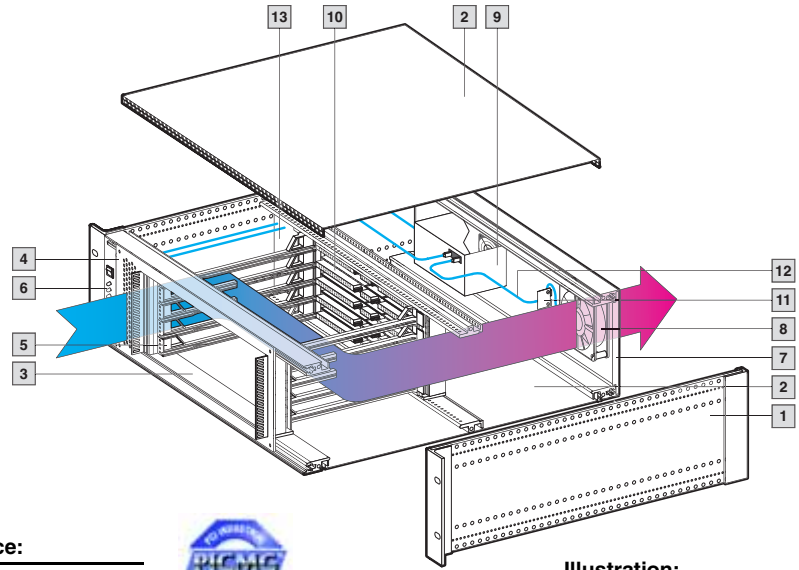
Technical specifications:
Subrack, 405 mm deep,
for installation in 482.6 mm (19″)
enclosures or cases.
Prepared to accommodate CPCI
boards and drives.
Complies with IEC 60 297-3/-5
and IEEE 1101.1/1101.10.
Fully assembled, pre-wired and
tested.

Rittal service:

Modifications or individual system solutions can be provided at short notice. Rittal's system specialists will be happy to assist you with planning and configuration.

Illustration:
MPS system 3 U for CPCI

B
3.2
CPCI

U			3	4	Page
Side panel depth mm			405	405	
Wiring space (depth in mm)			210	210	
For PCB			6 U x 160 mm	6 U x 160 mm	
MPS system Model No. RP for CPCI			**3687.717**	**3687.718**	
Mechanical supply includes					
	Description	Material	Quantity		
1	Ripac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/ stainless steel	1	1	–
2	Top and bottom/covers, solid	Aluminium, unplated	2	2	515
13	Air block panel	Aluminium	1	1	521
	EMC shielding plate for fan	Aluminium, clear-chromated	1	1	524
3	Horizontal mounting kit	Aluminium, clear-chromated	1	1	508
4	Trim frame for horizontal mounting kit	2.5 mm aluminium, clear-chromated	1	1	509
5	Plastic guide rails, keyable	Polycarbonate UL 94-V0	8	12	510
	Plastic guide rails, keyable, red	Polycarbonate	2	2	510
6	EMC front panel 3 U/5 HP for switches/LED	2.5 mm aluminium, clear-chromated	1	–	457
	EMC front panel 4 U/5 HP for switches/LED	2.5 mm aluminium, clear-chromated	–	1	457
7	EMC rear panel 3 U/84 HP with fan and connector cutout	2.5 mm aluminium, clear-chromated	1	–	–
	EMC rear panel 4 U/84 HP with fan and connector cutout	2.5 mm aluminium, clear-chromated	–	1	–
Electrical/electronic supply includes					
	Description	Technical specifications			
8	DC fan	12 V DC, 48 m³/h, per fan (UL, CSA, VDE) optionally speed-controlled	1	1	523
9	Power supply unit ATX, PS/2 (RP 3687.793)	300 W	1	1	483
10	CPCI backplane	6.5 U, 5 slots	1	–	440
	CPCI backplane	6.5 U, 7 slots	–	1	440
	LED display module with mains switch	for 3.3 V, +5 V, ±12 V, fan failure	1	1	–
11	Filter module for DC fan	Interference voltage filter	1	1	457
12	DC cable harness	–	■	■	–

Rack-mount systems, Ripac 4 U/7 U, 8 slots
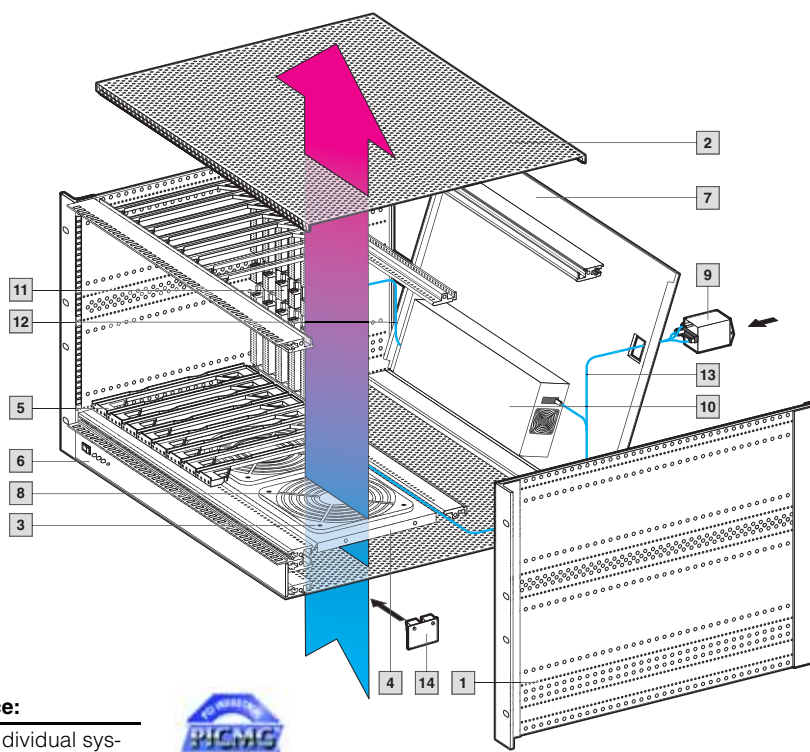
Technical specifications:
Subrack, 405 mm deep,
for installation in 482.6 mm (19″)
enclosures or cases.
Prepared to accommodate CPCI
boards and drives.
Complies with IEC 60 297-3/-5
and IEEE 1101.1/1101.10.
Fully assembled, pre-wired and
tested.

Rittal service:

Modifications or individual sys-
tem solutions can be provided
at short notice. Rittal's system
specialists will be happy to
assist you with planning and
configuration.

Illustration:
MPS system 7 U for CPCI

B

3.2

CPCI

U		4 (3 + 1)	7 (6 + 1)	Page
Side panel depth mm		405	405	
Wiring space (depth in mm)		210	210	
For PCB		3 U/ 6 U x 160 mm	3 U/ 6 U x 160 mm	
MPS system Model No. RP for CPCI		**3687.719**	**3687.720**	
Mechanical supply includes				
Description	Material	Quantity		
1 Ripac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/ stainless steel	1	1	–
2 Top and bottom covers, vented	Aluminium, unplated	2	2	515
3 Finger guard	Polyamide	3	3	524
4 Fan mounting plate	1 mm aluminium, anodised	1	1	520
5 Plastic guide rails, keyable	Polycarbonate UL 94-V0	14	14	510
Plastic guide rails, keyable, red	Polycarbonate	2	2	510
6 EMC front panel 1 U/84 HP for switches and LED	2.5 mm aluminium, clear-chromated	1	1	–
EMC rear panel 4 U/84 HP, horizontally hinged with connector cutout	2.5 mm aluminium, clear-chromated	1	–	–
7 EMC rear panel 7 U/84 HP, horizontally hinged with connector cutout	2.5 mm aluminium, clear-chromated	–	1	–
Electrical/electronic supply includes				
Description	Technical specifications			
8 DC fan	24 V DC, 140 m³/h, per fan (VDE, UL, CSA) optionally speed-controlled	3	3	523
9 IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	1	458
10 Open frame power supply (RP 3687.695)	400 W, 3.3 V/25 A, 5 V/25 A, 12 V/8 A, –12 V/7 A (VDE, UL, CSA)	–	1	482
Power supply unit ATX PS/2 (RP 3687.793)	300 W with switch connection cable	1	–	483
CPCI backplane	3.5 U, 8 slots	1	–	440
11 CPCI backplane	6.5 U, 8 slots	–	1	440
LED display module with mains switch	for 3.3 V, +5 V, ±12 V, fan failure	1	–	–
12 DC cable harness	–	■	■	–
13 AC cable harness	–	–	■	–
14 Filter module for DC fan	Interference voltage filter	3	3	457

CPCI

Rack-mount systems, Ripac 7 U, 8 slots

Technical specifications:
Subrack, 405 mm deep,
for installation in 482.6 mm (19″)
enclosures or cases.
Prepared to accommodate CPCI
boards and drives.
Complies with IEC 60 297-3/-5
and IEEE 1101.1/1101.10.
Fully assembled, pre-wired and
tested.

Rittal service:

Modifications or individual sys-
tem solutions can be provided
at short notice. Rittal's system
specialists will be happy to
assist you with planning and
configuration.

Illustration:
MPS system 7 U for CPCI

U		7 (6 + 2 x $^{1}/_{2}$)	Page
Side panel depth mm		405	
Wiring space (depth in mm)		210	
For PCB		6 U x 160 mm	
MPS system Model No. RP for CPCI		**3687.721**	

Mechanical supply includes

	Description	Material	Quantity	
1	Ripac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	–
2	Cover with $^{1}/_{2}$ U edge fold and cutouts for LED/switches	Aluminium, unplated	1	517
3	Bottom cover with $^{1}/_{2}$ U edge fold, ventilated at the front	Aluminium, unplated	1	517
	EMC shielding plate for fan	Aluminium, clear-chromated	3	524
4	Air baffle plate	Aluminium	1	521
5	Air block panel $^{1}/_{2}$ U	Epoxy	1	521
6	Plastic guide rails, keyable	Polycarbonate UL 94-V0	14	510
	Plastic guide rails, keyable, red	Polycarbonate	2	510
7	EMC rear panel, horizontally hinged, 7 U, with fan and connector cutout	2.5 mm aluminium, clear-chromated	1	

Electrical/electronic supply includes

	Description	Technical specifications		
8	DC fan	12 V DC, 140 m³/h, per fan (UL, CSA, VDE) optional speed control	3	523
9	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	458
10	Open frame power supply (RP 3687.695)	400 W, 3.3 V/25 A, 5 V/25 A, 12 V/8 A, −12 V/7 A (VDE, UL, CSA)	1	482
11	CPCI backplane	6.5 U, 8 slots	1	440
12	Filter module for DC fan	Interference voltage filter	3	457
13	AC cable harness	–	■	–
14	DC cable harness	–	■	–
15	LED display module with mains switch	for 3.3 V, +5 V, ±12 V, fan failure	1	–

Rack-mount systems, Ripac 9 U, 8 slots, with RiCool radial fan
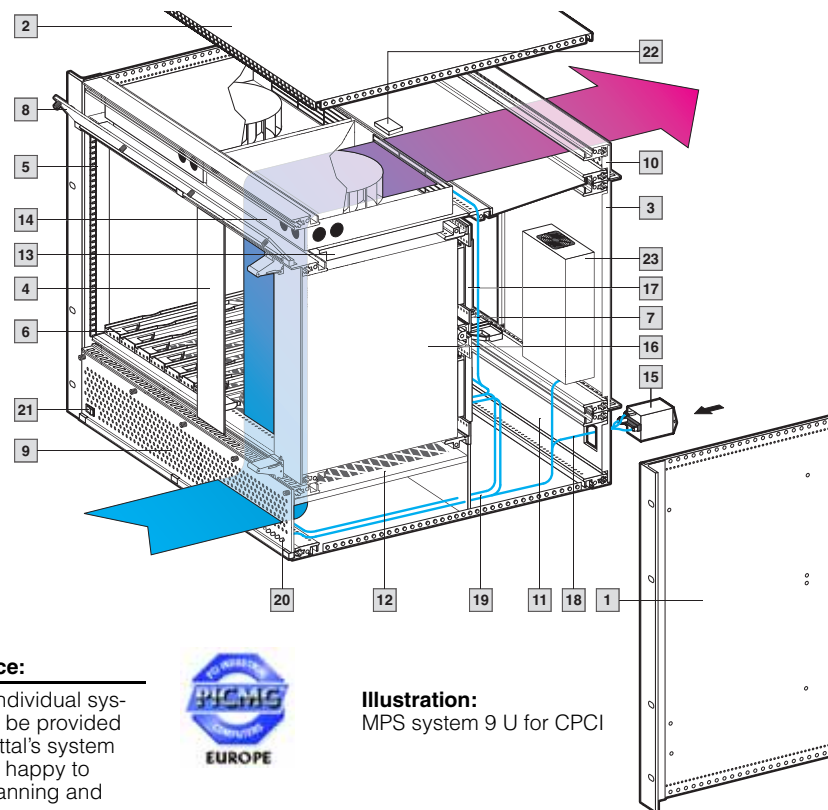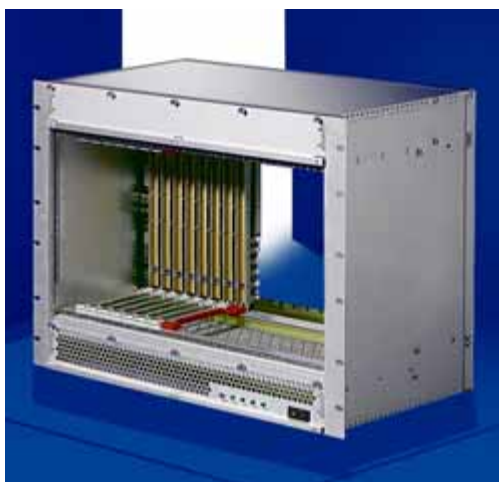
Technical specifications:
Subrack, 290.5 mm deep,
for installation in 482.6 mm (19″)
enclosures or cases.
Prepared to accommodate CPCI
boards and drives.
Complies with IEC 60 297-3/-5
and IEEE 1101.1/10/11.
Fully assembled, pre-wired and
tested.

Rittal service:
Modifications or individual system solutions can be provided
at short notice. Rittal's system
specialists will be happy to
assist you with planning and
configuration.

Illustration:
MPS system 9 U for CPCI

U	9 (6 + 2 x 1^1/$_2$)	Page
Side panel depth mm	290.5	
Wiring space (depth in mm)	85.5	
For PCB	6 U x 160 mm	
MPS system Model No. RP for CPCI	**3687.723**	

Mechanical supply includes

	Description	Material	Quantity	
1	Ripac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	–
2	Top and bottom covers	Aluminium, unplated	2	515
3	EMC rear panel 6 U/28 HP + 8 HP	2.5 mm aluminium, clear-chromated	1	–
4	EMC front panel	2.5 mm aluminium, clear-chromated	1	539
5	EMC contact strip	Aluminium, clear-chromated	1	507
6	Plastic guide rails, keyable	Polycarbonate UL 94-V0	14	510
	Plastic guide rails, keyable, red	Polycarbonate	2	510
7	Guide rails for I/O transition modules	Polycarbonate UL 94-V0	16	511
	Guide rails, keyable, green, for power supply	Polycarbonate	2	510
8	Front panel 1^1/$_2$ U/84 HP, horizontally hinged	2.5 mm aluminium, electrically conductive	1	–
9	Front panel 1^1/$_2$ U/84 HP, vented, horizontally hinged, for switch/LED	2.5 mm aluminium, electrically conductive	1	–
10	EMC rear panel 1^1/$_2$ U/84 HP, vented	2.5 mm aluminium, electrically conductive	1	–
11	EMC rear panel 1^1/$_2$ U/84 HP with connector cutout	2.5 mm aluminium, electrically conductive	–	–
12	Filter mat 84 HP, 160 mm, for slide-in attachment	–	1	–
13	Mounting plate for RiCool	1 mm sheet steel, zinc-plated, passivated	1	–

Electrical/electronic supply includes

	Description	Technical specifications		
14	RiCool DC fan, individually removable including fault alarm signal, speed control	24 V DC, 204 m^3/h, 48 W	2	–
15	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	458
16	Power supply, plug-in, 6 U/8 HP	350 W	1	481
	CPCI backplane	6.5 U, 8 slots	1	440
17	CPCI backplane for power supply	–	1	–
18	AC cable harness	–	■	–
19	DC cable harness	–	■	–
20	LED display module	for 3.3 V, +5 V, ±12 V, fan failure	1	–
21	Mains switch	–	1	–
22	Monitoring module for RiCool	–	1	–
23	Power supply for RiCool	–	1	–

B
3.2

CPCI

CPCI

Backplanes, technical specifications
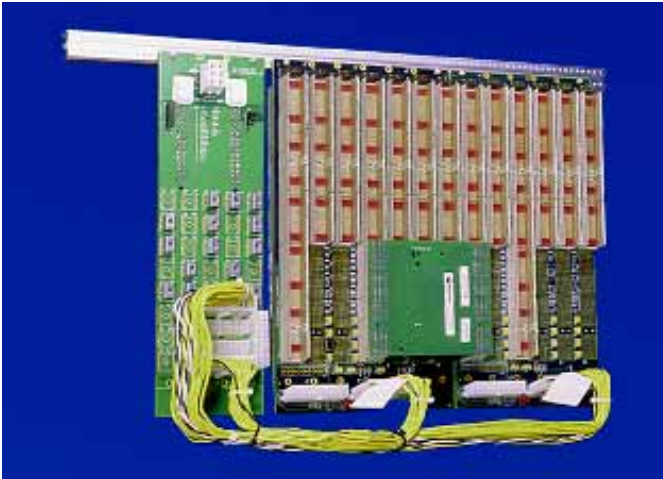
Rittal offers an extensive range of powerful backplanes for CompactPCI.

- Modular assembly facilitates expansion up to a maximum of 21 slots
- Connection between the individual segments via CPCI or H.110 bridge modules
- Voltage supply via ATX-compatible connector
- Additional 2 x 3 Mate-N-Lock connector for 48 V with H.110 backplane
- Optional development of customer-specific Monolithic backplanes
- 8 layer multi-layer
- System slot on right (left upon request)

Modular assembly

The Ripac backplanes in 32 or 64-bit versions allow the configuration of CPCI systems from 2 to 21 slots. This is possible thanks to the modular design of the backplanes and connection of the individual segments via CPCI or H.110 bridge modules. Each backplane segment contains between 2 and 8 slots and operates in stand-alone mode in conjunction with a CPU board and a power supply unit.

For assembling larger systems, several segments may be joined together via PCI bridge modules fitted at the rear. In such cases, only one of the segments will run in the system slot with a CPU board. The remaining segments will have a subordinate status without CPU boards. However, the first slot on the right of the backplane is available for a standard 32 or 64 bit CompactPCI host CPU.

Technical specifications

CPU slot
A single 3 U or 6 U CPU board with 32 or 64 bits is required for each system. The system slot on the right-hand side ensures that 2-slot or wider system boards do not conceal other slots, thus rendering them unusable.

Available slots
Each backplane contains two to eight 3 U or 6 U slots (32 or 64 bit).

Data transfer rate
132/264 Mbytes for 32/64-bit version
+5 V, 33 MHz PCI bus interface
264/512 Mbytes for 32/64-bit version
+3.3 V, 66 MHz (max. 5 slots) PCI bus interface

PCI bridges
Single backplanes do not require bridges. For each additional backplane, however, a bridge fitted at the rear is required.

Power supply
Voltage supply via one or more ATX connectors.

Control connector
Each backplane has a control connector at which +3.3, +5, ±12 V voltages can be picked off, e.g. for the connection of power LEDs.

I/O modules for J3 – J5
I/O modules can be connected at the rear of each slot.

Standards
- PCI 2.1 (PCI specification)
- PICMG 2.0 (CompactPCI spec.)
- PICMG 2.1 (hot swap spec.)
- IEEE 1101.1, mechanical system
- IEEE 1101.10, mechanical system
- IEEE 1101.11, mechanical system

As viewed from rear of subrack

Backplanes, technical specifications
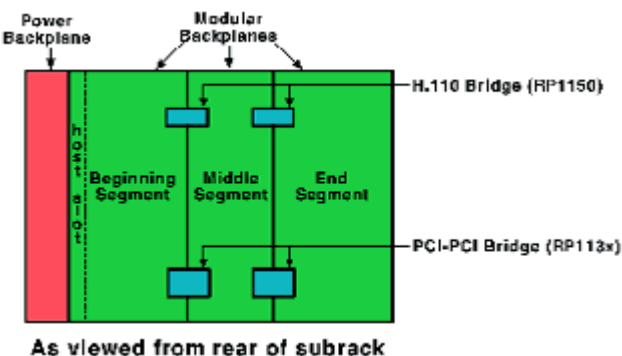
32-bit pin assignment

P2 connector[9]

PIN	Z[6]	A	B	C	D	E	F
22	GND	GA4[5]	GA3[5]	GA2[5]	GA1[5]	GAO[5]	GND
21	GND	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	BP(I/O)	GND
20	GND	**BP(I/O)**	**BP(I/O)**	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
19	GND	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	BP(I/O)	GND
18	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
17	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
16	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
15	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
14	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
13	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
12	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
11	GND	BP(I/O)	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
10	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
9	GND	BP(I/O)	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
8	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
7	GND	BP(I/O)	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
6	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
5	GND	BP(I/O)	**BP(I/O)**	**BP(I/O)**	BP(I/O)	BP(I/O)	GND
4	GND	**BP(I/O)**	**BP(I/O)**	BP(I/O)	**BP(I/O)**	BP(I/O)	GND
3	GND	BP(I/O)	BP(I/O)	BP(I/O)	**BP(I/O)**	**BP(I/O)**	GND
2	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND
1	GND	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	**BP(I/O)**	GND

P1 connector[9]

PIN	Z[6]	A	B	C	D	E	F
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND
24	GND	AD(1)	5 V	V(I/O)[3]	AD(O)	ACK64#	GND
23	GND	3.3 V	AD(4)	AD(3)	5 V	AD(2)	GND
22	GND	AD(7)	GND	3.3 V	AD(6)	AD(5)	GND
21	GND	3.3 V	AD(9)	AD(8)	M66EN[3]	C/BE(0)#	GND
20	GND	AD(12)	GND	V(I/O)[3]	AD(11)	AD(10)	GND
19	GND	3.3 V	AD(15)	AD(14)	GND	AD(13)	GND
18	GND	SERR#	GND	3.3 V	PAR	C/BE(1)#	GND
17	GND	3.3 V	SDONE	SBQ#	GND	PERR#	GND
16	GND	DEVSEL	GND	V(I/O)[1][3]	STOP#	LOCK#	GND
15	GND	3.3 V	FRAME#	IRDY	GND[2]	TRDY#	GND
12 – 14		KEY AREA					GND
11	GND	AD(18)	AD(17)	AD(16)	GND	C/BE(2)#	GND
10	GND	AD(21)	GND	3.3 V	AD(20)	AD(19)	GND
9	GND	C/BE(3)#	IDSEL	AD(23)	GND	AD(22)	GND
8	GND	AD(26)	GND	V(I/O)[3]	AD(25)	AD(24)	GND
7	GND	AD(30)	AD(29)	AD(28)	GND	AD(27)	GND
6	GND	REQ#	GND	3.3 V	CLK	AD(31)	GND
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT#	GND
4	GND	BRSVP1A4	GND	V(I/O)[3]	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5 V	INTD#	GND
2	GND	TCK	5 V	TMS	TDO	TDI	GND
1	GND	5 V	–12 V	TRST#	+12 V	5 V	GND

32-bit and 64-bit backplane – Technical specifications:
The CPCI specifications define both 32-bit and 64-bit versions. Both versions may be implemented on a 3 U daughterboard. However, the 32-bit version allows the complete P2/J2 connector to be used for user-defined I/O signals (slots 2 – 8). Slot 1 (system slot) uses separate P2/J2 pins for functions such as clock, arbitration, (grant/requests) and other system functions. These pins are printed in bold in the table. In 32-bit systems the P2/J2 connection may optionally be populated at the rear with 16 mm long pins and a transfer frame. Signals can be picked off or I/O boards connected at the rear.

64-bit CompactPCI pin assignments – Technical specifications:
With the 64-bit CompactPCI, both P1 and P2 connectors are fully assigned with signals. User-defined I/O signal pins are not available. I/O signals are only available with 6 U boards on connectors P3, P4 and P5.

64-bit pin assignment

P2 connector[9]

PIN	Z[7]	A	B	C	D	E	F
22	GND	GA4[6]	GA3[6]	GA2[6]	GA1[6]	GAO[6]	GND
21	GND	**CLK6**	GND	RSV	RSV	RSV	GND
20	GND	**CLK5**	**GND**	RSV	GND[8]	RSV	GND
19	GND	**GND**	GND[8]	RSV	RSV	RSV	GND
18	GND	BRSVP2A18	BRSVP2B18	BRSVP2C18	GND[8]	BRSVP2E18	GND
17	GND	BRSVP2A17	GND[8]	PRST#	**REQ6#**	**GNT6#**	GND
16	GND	BRSVP2A16	BRSVP2B16	DEG#	GND[8]	BRSVP2E16	GND
15	GND	BRSVP2A15	GND	FAL#	**REQ5#**	**GNT5#**	GND
14	GND	AD(35)	AD(34)	AD(33)	GND	AD(32)	GND
13	GND	AD(38)	GND	V(I/O)[3]	AD(37)	AD(36)	GND
12	GND	AD(42)	AD(41)	AD(40)	GND	AD(39)	GND
11	GND	AD(45)	GND	V(I/O)[3]	AD(44)	AD(43)	GND
10	GND	AD(49)	AD(48)	AD(47)	GND	AD(46)	GND
9	GND	AD(52)	GND	V(I/O)[3]	AD(51)	AD(50)	GND
8	GND	AD(56)	AD(55)	AD(54)	GND	AD(53)	GND
7	GND	AD(59)	GND	V(I/O)[3]	AD(58)	AD(57)	GND
6	GND	AD(63)	AD(62)	AD(61)	GND	AD(60)	GND
5	GND	C/BE(5)#	GND	V(I/O)[3]	C/BE(4)#	PAR64	GND
4	GND	V(I/O)[3]	BRSVP2B4	C/BE(7)#	–	C/BE(6)#	GND
3[3]	GND	**CLK4**	GND	**GNT3#**	–	**GNT4#**	GND
2[3]	GND	**CLK2**	**CLK3**	SYSEN#[4]	–	**REQ3#**	GND
1[3]	GND	**CLK1**	GND	**REQ1#**	–	**REQ2#**	GND

P1 connector[9]

PIN	Z[7]	A	B	C	D	E	F
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND
24	GND	AD(1)	5 V	V(I/O)[3]	AD(0)	ACK64#	GND
23	GND	3.3 V	AD(4)	AD(3)	5 V	AD(2)	GND
22	GND	AD(7)	GND	3.3 V	AD(6)	AD(5)	GND
21	GND	3.3 V	AD(9)	AD(8)	M66EN[4][5]	C/BE(0)	GND
20	GND	AD(12)	GND	V(I/O)[3]	AD(11)	AD(10)	GND
19	GND	3.3 V	AD(15)	AD(14)	GND	AD(13)	GND
18	GND	SERR#	GND	3.3 V	PAR	C/BE(1)#	GND
17	GND	3.3 V	SDONE	SBO#	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)[1][3]	STOP#	LOCK#	GND
15	GND	3.3 V	FRAME#	IRDY#	GND[2][3]	TRDY#	GND
12 – 14		KEY AREA					
11	–	AD(18)	AD(17)	AD(16)	GND	C/BE(2)#	GND
10	GND	AD(21)	GND	3.3 V	AD(20)	AD(19)	GND
9	GND	C/BE(3)#	IDSEL	AD(23)	GND	AD(22)	GND
8	GND	AD(26)	GND	V(I/O)	AD(25)	AD(24)	GND
7	GND	AD(30)	AD(29)	AD(28)	GND	AD(27)	GND
6	GND	REQ#	GND	3.3 V	CLK	AD(31)	GND
5	GND	BRSVA5	BRSVB 5	RST#	GND	GNT#	GND
4	GND	BRSVA4	GND	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC	5 V	INTD#	GND
2	GND	TCK	5 V	TMS	TDO	TDI	GND
1	GND	5 V	–12 V	TRST#	+12 V	5 V	GND

The signals printed in bold are only assigned in the system slot
[1] "Early mate" pin [2] "Late mate" pin [3] +3.3 V or 5 V [4] Earthed with system slot [5] GND with 33 MHz backplane, bussed in 66 MHz systems
[6] Each slot may have its own address code (see CPCI specification) [7] Not for daughterboards [8] Not for CPCI boards after Version 1.0
[9] All Rittal standard CPCI backplanes are designed for 64-bit applications on the layout side. With 32-bit versions, the P2/J2 connector is populated on request.

B
3.2
CPCI

Backplanes

1

2

Backplanes, 3.5 U

Number of layers	8
Layer structure	2 GND layers
PCB thickness	3.2 mm
Data transfer rate	132/264 Mbytes/32, 64-bit version
Power inlets	2 – 4 slots: 1 x ATX connector 5 – 7 slots: 2 x ATX connector 8 slots: 3 x ATX connector
Control connector	+3.3 V, +5 V, +12 V, –12 V
CPU slot	on right (left upon request)
Standards	PCI 2.1 (PCI specification) PICMG 2.0 (CompactPCI) PICMG 2.1 (hot swap) IEEE 1101.1/10/11
Installation height	3.5 U (150.9 mm)
Distance between slots	4 HP
Connectors	J1, J2 32 or 64 bit, no rear I/O
Operating temperature range	0° – 70°C
Relative humidity	90 %, non-condensing
Geographic addressing	64-bit versions

Material:
Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes:
Backplane, fully populated.

1 Front view
2 Rear view

Slots	Version	Model No. RP	
		32-bit	64-bit
2	SE	–	3687.864
3	SBE	3687.865	3686.578
4	SBE	3687.863	3686.576
5	SBE	3687.862	3686.575
6	SBME	3687.861	3686.548
7	SBE	3687.860	3686.547
8	S.	3687.859	3686.546

S = Stand alone
B = Beginning segment
M = Middle segment
E = Ending segment

✚ Accessories:

CPCI/CPCI bridge, RP 3686.571,
see page 443.
Accessories for backplane mounting:
Conductive strips, see page 505.
Insulating strips, see page 505.
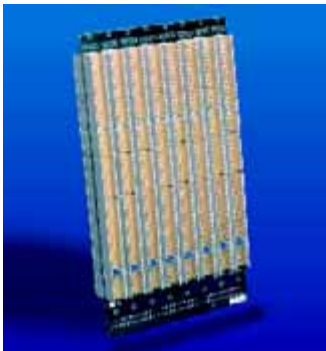
Backplanes, 6.5 U

Number of layers	8
Layer structure	2 GND layers
PCB thickness	3.2 mm
Data transfer rate	132/264 Mbytes/32, 64-bit version
Power inlets	2 – 4 slots: 1 x ATX connector 5 – 7 slots: 2 x ATX connector 8 slots: 3 x ATX connector
Control connector	+3.3 V, +5 V, +12 V, –12 V
CPU slot	on right (left upon request)
Standards	PCI 2.1 (PCI spec) PICMG 2.0 (CompactPCI) PICMG 2.1 (hot swap) IEEE 1101.1/10/11
Installation height	6.5 U (284.3 mm)
Distance between slots	4 HP
Connectors	J1, J2 32 or 64-bit J3, J4, J5 for rear I/O (64-bit only)
Operating temperature range	0° – 70°C
Relative humidity	90 %, non-condensing
Geographic addressing	64-bit versions

Material:
Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes:
Backplane, fully populated.

1 Front view
2 Rear view

Backplanes

Slots	Version	Model No. RP	
		32-bit	64-bit
2	SBE	–	3686.581
3	SBE	3687.871	3686.580
4	SBE	3687.870	3686.579
5	SBE	3687.869	3686.552
6	SBME	3687.868	3686.551
7	SBE	3687.867	3686.550
8	S	3687.866	3686.549

Note:
Cannot be used when rear connection of 80 mm is required.

Backplanes for low profile bridge

Slots	Version	Model No. RP
		64-bit
3	SBE	3689.209
4	SBE	3689.208
5	SBE	3689.207
6	SBME	3689.206
7	SBE	3689.205

Note:
May be used when rear connection of 80 mm is required.

S = Stand alone
B = Beginning segment
M = Middle segment
E = Ending segment

✚ Accessories:

CPCI/CPCI bridge, RP 3686.571, see page 443.
CPCI/CPCI low profile bridge, see page 443.
Accessories for backplane mounting:
Conductive strips, see page 505.
Insulating strips, see page 505.

1

2

1 Front view
2 Rear view

Backplanes 7 U with H.110

Number of layers	8
Layer structure	2 GND layers
PCB thickness	3.2 mm
Data transfer rate	132/264 MBytes/32, 64-bit (for CPCI)
Power inlets	up to 4 slots 1 x ATX connector 5 – 7 slots: 2 x ATX connector 8 slots: 3 x ATX connector
CPU slot	right
Standards	PCI 2.1 (PCI specification) PICMG 2.0 (CompactPCI) PICMG 2.1 (hot swap) PICMG 2.5 (CPCI Computer Telephony) IEEE 1101.1/10/11
Installation height	7 U
Distance between slots	4 HP
Connectors	J1, J2 64 bit J3 rear I/O J4 H.110
Operating temperature range	0° – 70°C
Relative humidity	90 %, non-condensing
Geographic addressing	Yes

Material:
Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes:
Backplane, fully populated.

		Model No. RP	
Slots	Version	H.110 connected to system slot	H.110 not connected to system slot
3	S	3688.508[1]	–
4	SE	3688.507[2]	–
5	SB	3687.875[2]	3688.506[2]
6	SBME	3687.874[2]	3688.505[2]
7	SBE	3687.873[2]	3688.504[2]
8	S	3687.877	9805.494

[1] Extendible with low profile bridges
[2] Extendible with bridges RP 3686.571

S = Stand alone
M = Middle segment
B = Beginning segment
E = Ending segment

➕ Accessories:

CPCI/CPCI bridge, RP 3686.571,
see page 443.
CPCI/CPCI low profile bridge,
see page 443.

B

3.2

CPCI

J4 pin assignment

No.	Row Z	Row A	Row B	Row C	Row D	Row E	Row F
25	NP	SGA4	SGA3	SGA2	SGA1	SGA0	FG
24	NP	GA4	GA3	GA2	GA1	GA0	FG
23	NP	+12 V	/CT reset	/CT EN	−12 V	CT_MC	FG
22	NP	PFSO#	RSVD	RSVD	RSDV	RSDV	FG
21	NP	-SEL Vbat	PFS1#	RSDV	RSDV	SEL VbatRtn	FG
20	NP	NP	NP	NP	NP	NP	NP
19	NP	NP	NP	NP	NP	NP	NP
18	NP	VRG	IN/C	IN/C	IN/C	VRGRtn	NP
17	NP	NP	NP	NP	NP	NP	NP
16	NP	NP	NP	NP	NP	NP	NP
15	NP	-Vbat	IN/C	IN/C	IN/C	Vbat Rtn	NP
14							
13				KEY AREA			
12							
11	NP	CT_D29	CT_D30	CT_D31	V(I/O)	/CT_FRAME	GND
10	NP	CT_D27	+3.3 V	CT_D28	+5 V	/C_FRAME B	GND
9	NP	CT_D24	CT_D25	CT_D26	GND	/FR_COMP	GND
8	NP	CT_D21	CT_D22	CT_D23	+5 V	CT_C8 A	GND
7	NP	CT_D19	+5 V	CT_D20	GND	CT_C8 B	GND
6	NP	CT_D16	CT_D17	CT_D18	GND	CT_NETREF	GND
5	NP	CT_D13	CT_D14	CT_D15	+3.3 V	CT_NETREF	GND
4	NP	CT_D11	+5 V	CT_D12	+3.3 V	SCLK	GND
3	NP	CT_D8	CT_D9	CT_D10	GND	SCLK-D	GND
2	NP	CT_D4	CT_D5	CT_D6	CT_D7	GND	GND
1	NP	CT_D0	+3.3 V	CT_D1	CT_D2	CT_D3	GND

Key to J4 pin assignment

CT_name	=	H.110 TDM bus signals
+5 V	=	+5 V power
+3.3 V	=	+3.3 V power
GND	=	Logic ground
V(I/O)	=	I/O cell power
FG	=	Frame ground
RSVD	=	reserved for future use
NP	=	a pin and pad REQUIRED to be not populated to meet safety regulations
IN/C	=	No connect required for safety agency insulation requirements

-SELVbat	=	short loop battery
SELVbatRtn	=	short loop battery return
-Vbat	=	telecom power distribution bus
VbatRtn	=	return bus pin for -Vbat
SGA0-SGA4	=	shelf enumeration bus signals
GA0-GA4	=	slot ID signals: not bussed
VRG	=	bus for ringing voltage
VRGRtn	=	bus for ringing voltage
PFSO#-PFS1#	=	busses for power fail sense
KEY AREA	=	area utilized for key
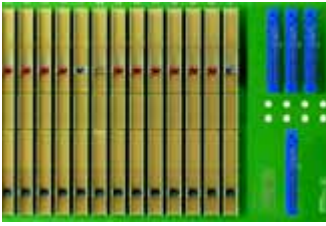
Backplanes 7 U, Switch Fabric to PICMG 2.16

The "Switch Fabric" backplanes comply with PICMG specification 2.16. They support telephony applications and systems with a high level of availability in which CompactPCI is combined with Ethernet for high-speed applications.

Power inlets	Positronic 47-pole, or ATX
CPU slot	right
Standards	PCI 2.1 (PCI specification) PICMG 2.0 (CompactPCI) PICMG 2.1 (hot swap) PICMG 2.5 (CPCI Computer Telephony) IEEE 1101.1/10/11 PICMG 2.16
Installation height	7 U (6 U for RP 3686.396 and RP 3689.186)
Distance between slots	4 HP
Operating temperature range	0° – 70°C
Relative humidity	90 %, non-condensing
Geographic addressing	Yes

Material:
Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes:
Backplane, fully populated.

Technical specifications:
- 7 U, 84 HP/32 HP
- Complies with PICMG 2.1, fully hot swap-compatible
- Selectable voltage V (I/O) (3.3 V or 5 V) where configured for 33 MHz CompactPCI
- Integral Schottky diode bus terminator
- Prepared for up to four backplane reinforcements to avoid bending during card insertion
- H.110 CT bus complies with specification PICMG 2.5 at all node slots.
- Supports 8 HP CPU boards when one node slot is relinquished
- Twin redundant support for Switch Fabric (2 fabric and 12 basic nodes), as specified in PICMG 2.16
- Supports rear transition modules with all board slots
- Configurable for power supply with either two 6 U x 8 HP, three 6 U x 4 HP, three 3 U x 4 HP, three 3 U x 8 HP or four 3 U x 4 HP
- All power supply slots conform to PICMG 2.11
- Power supply connectors for H.110-Vbat, -SELVbat and VRG power signals
- ATX power connector for auxiliary power inlet/outlet
- Two fan power connectors for 12 V and system management support
- System control bus (SMBus) conforms to PICMG 2.9 and supports all boards, power supplies, power entry modules, fans and alarm cards
- Support of I²C bridge function on the alarm card for >19 SMBus nodes

Width	Number of slots	Description of slots	Model No. RP
32 HP	8	1 fabric slot 6 node slots with CPCI and H.110 1 host slot	**3689.188**
		see RP 3689.188, but without H.110	**3686.414**
84 HP	16	1 fabric slot 6 node slots with CPCI and H.110 1 host slot 1 fabric slot 6 node slots with CPCI and H.110 1 host slot 3 slots for power supplies	**3686.396**
		see RP 3686.396, but without H.110	**3689.186**
84 HP	21	7 node slots with CPCI and H.110 1 host slot 1 node slot with H.110, without CPCI 1 fabric slot 7 node slots with CPCI and H.110 1 host slot 1 node slot with H.110, without CPCI 1 fabric slot 1 alarm slot	**3686.397**
		see RP 3686.397, but without H.110	**3689.190**
		see RP 3686.397, but without CPCI	**3689.191**

Front

1	System (CPU) card	12	Node card
2	Node card	13	Node card
3	Node card	14	Node card
4	Node card	15	Node card
5	Node card	16	Fabric card B
6	Node card	17	Blank
7	Node card	18	Power supply 1
8	Fabric card A	19	Power supply 2
9	System (CPU) card	20	Power supply 3
10	Node card	21	Blank
11	Node card		

Rear

1	System RTC	12	Node RTC
2	Node RTC	13	Node RTC
3	Node RTC	14	Node RTC
4	Node RTC	15	Node RTC
5	Node RTC	16	Fabric B RTC
6	Node RTC	17	Alarm card
7	Node RTC	18	PEM 1
8	Fabric A RTC	19	PEM 1
9	System RTC	20	PEM 2
10	Node RTC	21	PEM 2
11	Node RTC		
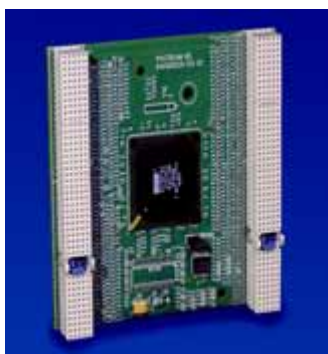
1

2

Modular CPCI bridge

CPCI bridge may be connected to the rear to extend the bus by a maximum of 7 additional slots. The CPCI bridge handles all communications between the individual bus segments. The front slots are freely available for CPCI boards. It supports the 64-bit PCI bus and may be used in conjunction with CPCI backplanes 3.5 U and 6.5 U.

Technical specifications:
- May be connected at the rear on CPCI backplanes
- PCI bridge
- 64 bit "high performance" Intel 21 154
- For use with all Rittal CPCI backplanes (not with low profile backplanes)
- Corresponding to PCI specifications 2.1
- Conforms to CPCI
- CPCI bridge connects CPCI backplanes from right to left (as viewed from the front) – i.e. the "left-hand" connector accommodates the host board

Material:
Fibreglass epoxy to IEC 60 249 (FR4)

Supply includes:
Bridge, fully populated.

1 Front view

2 Rear view

Description	Model No. RP
64-bit CPCI bridge	**3686.571**

Extended delivery times

B

3.2
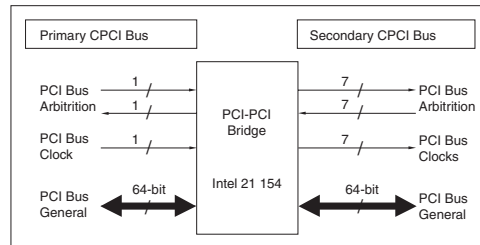
CPCI

Modular low profile bridge

CPCI bridge may be connected to the rear to extend the bus by a maximum of 7 additional slots, **without any loss of slots:** Optionally available as a 32-bit or 64-bit version. Only suitable for use in conjunction with low profile backplanes.

Material:
Fibreglass epoxy to IEC 60 249 (FR4)

Supply includes:
Bridge, fully populated.

1 32-bit version

2 64-bit version

Version	Bits	Model No. RP
left-right	32	**3689.210**
right-left	32	**3689.211**
left-right	64	**9810.637**
right-left	64	**9812.625**

1

2
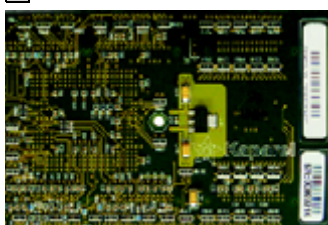
CPCI

Backplanes

Power supply backplane 3.5 U

- Board 3.5 U, 16 HP
- For use in conjunction with Rittal CPCI backplanes
- Accommodation of up to two power supplies with up to 250 W
- AC/DC connection is via two 2 x 3-pole connectors
- Output voltages to supply one or more CPCI backplanes are available at 3 ATX-compatible connectors
- Complies with PICMG 2.0, PICMG 2.11

Technical specifications:
Accommodation of 2 x 3 U, 8 HP CPCI power supplies with up to 250 W.

The second power supply unit may be used for redundancy (with power distribution) or, via parallel connection, to increase the current.

Input voltages:
- AC input via 2 x 3-pole AMP Mate-N-Lock (AMP # 350732-1), connector J12
- Connected via pin 45, 46, 47, type Positronic
- Maximum current load per pin is 25 A, matching counter-connector for cable harness AMP # 350715
- DC input via 2 x 3-pole AMP Mate-N-Lock (AMP # 350732-1), connector J5 connected through pin 46, 47, type Positronic
- Maximum current load per pin is 25 A, matching counter-connector for cable harness AMP # 350715

Output voltage:
- Three 20-pole ATX-compatible connectors for ATX cable harness (connection of power supply board to CPCI backplane)

Description	Model No. RP
Board for plug-in power supply with Positronic connector, 47-pin	**3688.603**
ATX (12″) cable harness	**9810.337**
ATX (16″) cable harness	**3686.570**
ATX (20″) cable harness	**9810.338**

Material:
Fibreglass epoxy to IEC 60 249 (FR4)

Supply includes:
Board, fully populated.

Note:
Plug-in power supplies for CPCI available on request, see page 481.

Connector assignment

Pin		Pin		Pin		Pin	
1	+5 V	13	+3.3 V	25	Not used	37	Not used
2	+5 V	14	+3.3 V	26	Not used	38	DEG#
3	+5 V	15	+3.3 V	27	R/EN	39	INH#
4	+5 V	16	+3.3 V	28	Not used	40	Not used
5	0 V (shared)	17	+3.3 V	29	Not used	41	Not used
6	0 V (shared)	18	+3.3 V	30	+5 V Sense	42	FAL#
7	0 V (shared)	19	0 V (shared)	31	Not used	43	Not used
8	0 V (shared)	20	+12 V	32	Not used	44	Not used
9	0 V (shared)	21	0 V	33	+3.3 V Sense	45	Chassis GND
10	0 V (shared)	22	0 V (shared)	34	0 V Sense	46	AC neutral
11	0 V (shared)	23	Not used	35	Not used	47	AC line
12	0 V (shared)	24	0 V (shared)	36	Not used		

RP 3688.603

HE = U
TE = HP
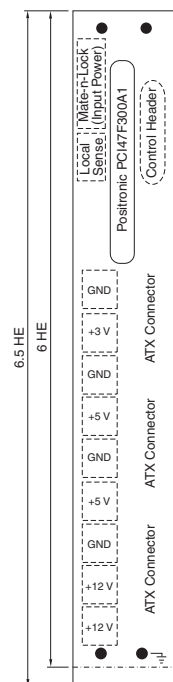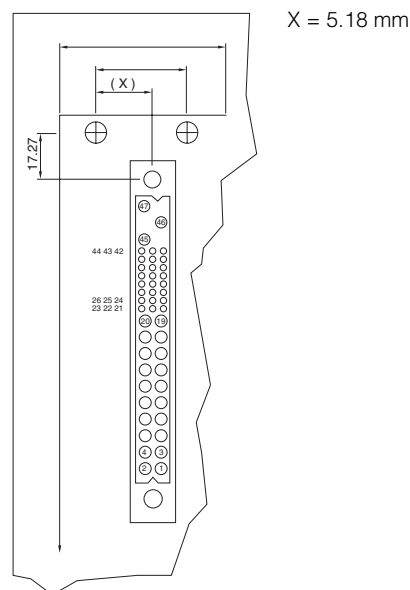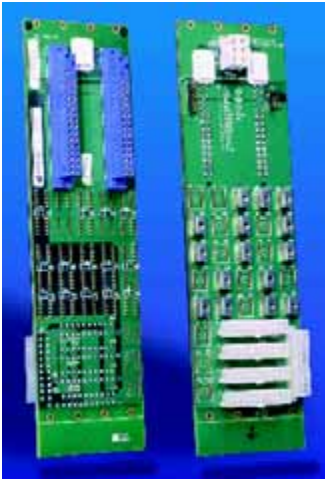
CPCI

Backplanes

Power supply backplane 6.5 U, 16 HP

- Board 6.5 U, 16 HP
- For use in conjunction with Rittal CPCI backplanes 3.5 and 6.5 U
- Accommodation of two power supplies with up to 500 W
- AC/DC connection is via two 2 x 3-pole connectors
- Output voltages to supply one or more CPCI backplanes are available at 5 ATX-compatible connectors or special power terminals

Technical specifications:
Accommodation of 2 x 6 U CPCI power supplies with up to 500 W

Input voltages:
- AC input via 2 x 3-pole AMP Mate-N-Lock connector Max. current load per pin 25 A
- DC input via 2 x 3-pole AMP Mate-N-Lock connector Max. current load per pin 25 A

Output voltage:
- Five 20-pole ATX-compatible connectors for ATX cable harness (connection of power supply board to CPCI backplane) and/or special power terminals

Description	Model No. RP
Board for 2 x plug-in power supplies with Positronic connector, 47-pin	3688.608
ATX (12") cable harness	9810.337
ATX (16") cable harness	3686.570
ATX (20") cable harness	9810.338

Extended delivery times

Material:
Fibreglass epoxy to IEC 60 249 (FR4)

Supply includes:
Board, fully populated.

Note:
Pluggable power supplies, see page 481.

RP 3688.608

X = 5.18 mm

HE = U

B
3.2
CPCI
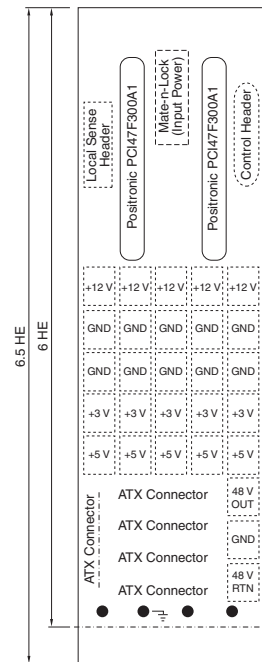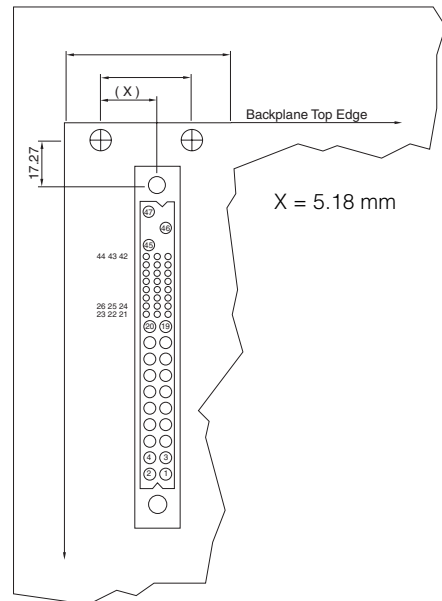
Rack-mount systems, Slim-Box 1 U, 2 U, 3 U, 4 U
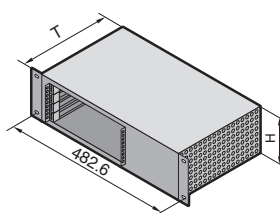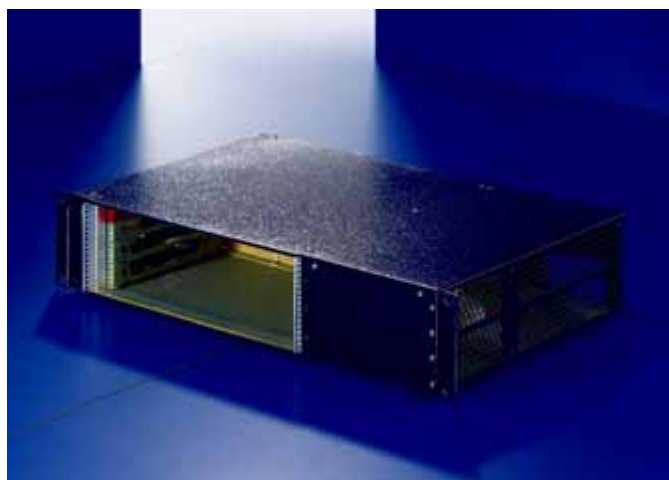
Technical specifications:
- Rack-mount housing 482.6 mm (19″) for the horizontal installation of boards
- Front and rear 2 slots per U for VME boards
- Enclosure cooling from left to right
- EMC and ESD-compatible design

- Including fan:
  for 1 U: 12 V DC, 21 m³/h
  for 2 U: 12 V DC, 74 m³/h
  for 3 U: 12 V DC, 195 m³/h or 74 m³/h,
  for 4 U: 12 V DC, 74 m³/h
- Conforms to IEEE 1101.1/10/11, ANSI/VITA 1014, IEC 821

Material:
Sheet steel, spray-finished

B
3.2
VME

Slim-Box Version 1 **U** (H)	1	1	2	2	3	3	4	4
Depth (T) in mm	360	300	360	300	360	300	360	300
Model No. RP with VME backplane and power supply	9907.467	9907.463	9907.468	9907.464	9907.469	9907.465	9907.470	9907.466
Installation space for boards, mm	160	160	160	160	160	160	160	160
Installation space for rear I/O boards, mm	160	–	160	–	160	–	160	–
Number of front/rear slots	2/2	2	4/4	4	6/6	6	8/8	8
Keyable guide rails	8	4	16	8	24	12	32	16
Power supply unit (ATX)	200 W	200 W	200 W	200 W	300 W	300 W	300 W	300 W
Monolithic VME backplane, passive	1	1	1	1	1	1	1	1
DC fan in the left-hand side panel	3	3	2	2	1	1	4	4

Slim-Box Version 2 **U** (H)	1	2	3	4
Depth (T) in mm	300	300	300	300
Model No. RP without backplane, with power supply	9907.479	9907.480	9907.481	9907.482
Installation space for boards, mm	160	160	160	160
Installation space for rear I/O boards, mm	80	80	80	80
Number of front/rear slots	2	4	6	8
Keyable guide rails	8	16	24	32
Power supply unit (ATX)	200 W	200 W	300 W	300 W
DC fan in the left-hand side panel	3	2	1	4

Accessories		EMC	Page	Non-EMC	Page
Front panels	3 U, 4 HP	3685.178	538	3684.891	537
	3 U, 8 HP	3685.182	538	3684.895	537
	6 U, 4 HP	3685.186	538	3684.913	537
	6 U, 8 HP	3685.190	538	3684.917	537

VME/VME64x

Rack-mount systems, Ripac 3 U, 5 slots/4 U, 7 slots horizontal
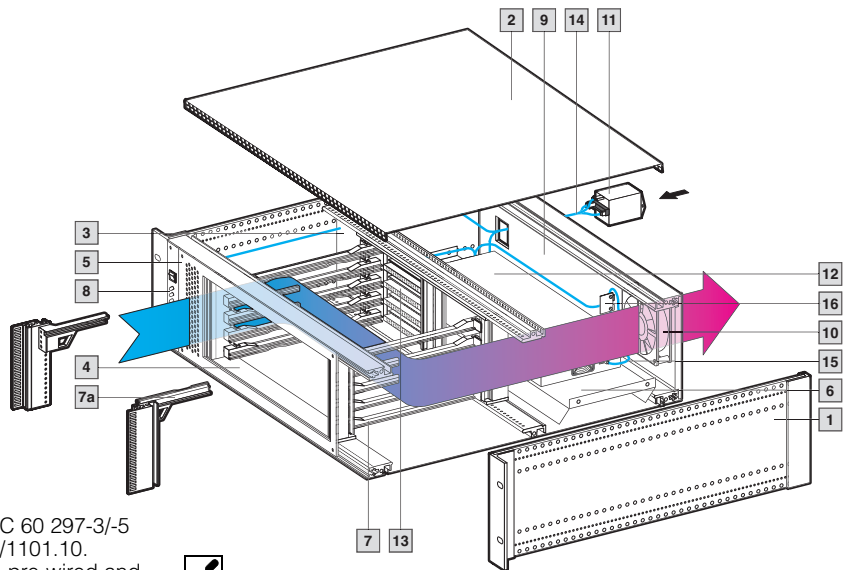
Technical specifications:
Subrack, 405 mm deep, for installation in 482.6 mm (19″) enclosures or cases. Prepared to accommodate VMEbus boards and drives.

Complies with IEC 60 297-3/-5 and IEEE 1101.1/1101.10. Fully assembled, pre-wired and tested.

Rittal service:

Modifications or individual system solutions can be provided at short notice.

Rittal's system specialists will assist you with planning and configuration.

U		3	3	4	4	Page
Side panel depth mm		405	405	405	405	
Wiring space (depth in mm)		210	210	210	210	
For PCB		6 U x 160 mm	6 U x 160 mm	6 U x 160 mm	6 U x 160 mm	
MPS system Model No. RP for VME		**3687.698**	**–**	**3687.700**	**–**	
MPS system Model No. RP for VME64x		**–**	**3687.699**	**–**	**3687.696**	
Mechanical supply includes						
Description	Material	Quantity				
1 Ripac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/ stainless steel	1	1	1	1	–
2 Top and bottom covers, solid	Aluminium, unplated	2	2	2	2	515
3 Air block panel	Aluminium	1	1	1	1	521
4 Horizontal mounting kit	Aluminium, clear-chromated	1	1	1	1	508
5 Trim frame for horizontal mounting kit	2.5 mm aluminium, clear-chromated	1	1	1	1	509
6 Mounting base for power supply unit	2 mm aluminium, anodised	1	1	1	1	485
EMC shielding plate for fan	Aluminium, clear-chromated	1	1	1	1	524
7 Guide rails	Polycarbonate UL 94-V0	10	–	14	–	509
7a Plastic guide rails, keyable	Polycarbonate UL 94-V0	–	10	–	14	510
8 EMC front panel 3 U or 4 U/5 HP, for switch LED	2.5 mm aluminium, clear-chromated	1	1	1	1	–
9 EMC rear panel 3 U/84 HP, with fan and connector cutout	2.5 mm aluminium, clear-chromated	1	1	–	–	–
EMC rear panel 4 U/84 HP, with fan and connector cutout	2.5 mm aluminium, clear-chromated	–	–	1	1	–
Electrical/electronic supply includes						
Description	Technical specifications					
10 DC fan	12 V DC, 48 m³/h per fan (UL, CSA, VDE) optional speed control	1	1	1	1	523
11 IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	1	1	1	458
12 Switch mode power supply unit	250 W, 5 V/35 A, +12 V/8 A, –12 V/8 A (VDE, UL, CSA)	1	1	1	1	479
13 VME backplane	J1, 5 slots, IN-board, passive, ADC	1	–	–	–	456
VME64x backplane	J1/J2, 5 slots (without P0)	–	1	–	–	454
VME backplane	J1, 7 slots, IN-board, passive, ADC	–	–	1	–	456
VME64x backplane	J1/J2, 7 slots	–	–	–	1	454
LED display module with mains switch	for +5 V, ±12 V, fan failure	1	1	1	1	–
14 AC cable harness	–	■	■	■	■	–
15 DC cable harness	–	■	■	■	■	–
16 Filter module for DC fan	Interference voltage filter	1	1	1	1	457

Technical specifications:
Subrack, 405 mm deep,
for installation in 482.6 mm
(19″) enclosures or cases.
Prepared to accommodate
VMEbus boards and drives.
Complies with IEC 60 297-3/-5
and IEEE 1101.1/1101.10.
Fully assembled, pre-wired and
tested.

Rittal service:

Modifications or individual sys-
tem solutions can be provided
at short notice. Rittal's system
specialists will be happy to
assist you with planning and
configuration.

B

3.2

VME/VME64x

U	4 (3 + 1)	7 (6 + 1)	7 (6 + 1)	Page
Side panel depth mm	405	405	405	
Wiring space (depth in mm)	210	210	210	
For PCB	3 U x 160 mm	3 U/6 U x 160 mm		
MPS system Model No. RP for VME	**3687.702**	**3687.703**	**–**	
MPS system Model No. RP for VME64x	**–**	**–**	**3687.704**	

Mechanical supply includes

	Description	Material	Quantity			
1	Ripac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/ stainless steel	1	1	1	–
2	Top and bottom covers, vented	Aluminium, unplated	2	2	2	515
3	Finger guard	polyamide	3	3	3	524
4	EMC front panel, 6 U/4 HP (with 7 U)	Aluminium, clear-chromated	–	1	–	
5	Support, vertical (with 7 U)	Aluminium, clear-chromated	–	1	–	508
6	Fan mounting plate	1 mm aluminium, anodised	1	1	1	520
7	Plastic guide rails	Polycarbonate UL 94-V0	24	24	–	509
7a	Plastic guide rails, keyable	Polycarbonate UL 94-V0	–	–	24	510
8	EMC front panel 1 U/84 HP for switches/LED	2.5 mm aluminium, clear-chromated	1	1	1	–
	Rear panel 4 U/84 HP, horizontally hinged with connector cutout	2.5 mm aluminium, clear-chromated	1	–	–	–
9	EMC rear panel 7 U/84 HP, horizontally hinged with connector cutout	2.5 mm aluminium, clear-chromated	–	1	1	–

Electrical/electronic supply includes

	Description	Technical specifications				
10	DC fan	12 V DC, 140 m³/h per fan (VDE, UL, CSA) optionally speed-controlled	3	3	3	523
11	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	1	1	458
12	Switch mode power supply unit	400 W, 5 V/80 A, +12 V/8 A, –12 V/8 A (VDE, UL, CSA)	1	1	–	479
	Switch mode power supply unit (RP 3687.695)	400 W, 3.3 V/25 A, +5 V/25 A, +12 V/8 A, –12 V/7 A (VDE, UL, CSA)	–	–	1	482
13	VME backplane	J1, 12 slots, IN-board, passive, ADC	1	1	–	456
	VME64x backplane	J1/J2, 12 slots	–	–	1	454
17	LED display module with mains switch	for (3.3 V), +5 V, ±12 V, fan failure	1	1	1	–
14	AC cable harness	–	■	■	■	–
15	DC cable harness	–	■	■	■	–
16	Filter module for DC fan	Interference voltage filter	3	3	3	457

VME/VME64x

Rack-mount systems, Ripac 7 U, 12 slots

Technical specifications:
Subrack, 405 mm deep, for installation in 482.6 mm (19″) enclosures or cases. Prepared to accommodate VMEbus boards and drives. Complies with IEC 60 297-3/-5 and IEEE 1101.1/1101.10. Fully assembled, pre-wired and tested.

Rittal service:

Modifications or individual system solutions can be provided at short notice. Rittal's system specialists will be happy to assist you with planning and configuration.

U		7 (6 + 2 x ^{1}/$_2$)	7 (6 + 2 x ^{1}/$_2$)	Page
Side panel depth mm		405	405	
Wiring space (depth in mm)		210	210	
For PCB		6 U x 160 mm	6 U x 160 mm	
MPS system Model No. RP for VME		**3687.705**	**–**	
MPS system Model No. RP for VME64x		**–**	**3687.706**	
Mechanical supply includes				
Description	Material	Quantity		
1	Ripac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	1	–
2	Cover with ^{1}/$_2$ U edge fold and cutouts for switches/LEDs	Aluminium, unplated	1	1	517
3	Bottom cover with ^{1}/$_2$ U edge fold, ventilated at the front	Aluminium, unplated	1	1	517
4	EMC front panel, 6 U/4 HP	2.5 mm aluminium, clear-chromated	1	–	
	EMC shielding plate for fan	Aluminium, clear-chromated	3	3	524
5	Vertical support	Aluminium, clear-chromated	1	–	508
6	Air baffle plate	1 mm aluminium, anodised	1	1	521
7	Air block panel, ^{1}/$_2$ U	Epoxide	1	1	521
8	Plastic guide rails	Polycarbonate UL 94-V0	24	–	509
8a	Plastic guide rails, keyable	Polycarbonate UL 94-V0	–	24	510
9	EMC rear panel, horizontally hinged, 7 U, with fan and connector cutout	2.5 mm aluminium, clear-chromated	1	1	–
Electrical/electronic supply includes				
Description	Technical specifications			
10	DC fan	12 V DC, 140 m³/h per fan, (UL, CSA, VDE) optional speed control	3	3	523
11	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	1	458
12	Switch mode power supply unit	400 W, 5 V/80 A, +12 V/8 A, –12 V/8 A (VDE, UL,CSA)	1	–	479
	Switch mode power supply unit (RP 3687.695)	400 W, 3.3 V/25 A, 5 V/25 A, 12 V/8 A, –12 V/7 A (VDE, UL, CSA)	–	1	482
13	VME backplane	J1, 12 slots, IN-board passive, ADC	1	–	456
	VME64x backplane	J1/J2, 12 slots (without P0)	–	1	454
14	LED display module with mains switch	for (3.3 V), +5 V, ±12 V, fan failure	1	1	–
15	Filter module for DC fan	Interference voltage filter	3	3	457
16	AC cable harness	–	■	■	–
17	DC cable harness	–	■	■	–

Rack-mount systems, Ripac 9 U, 12 slots, with RiCool radial fan
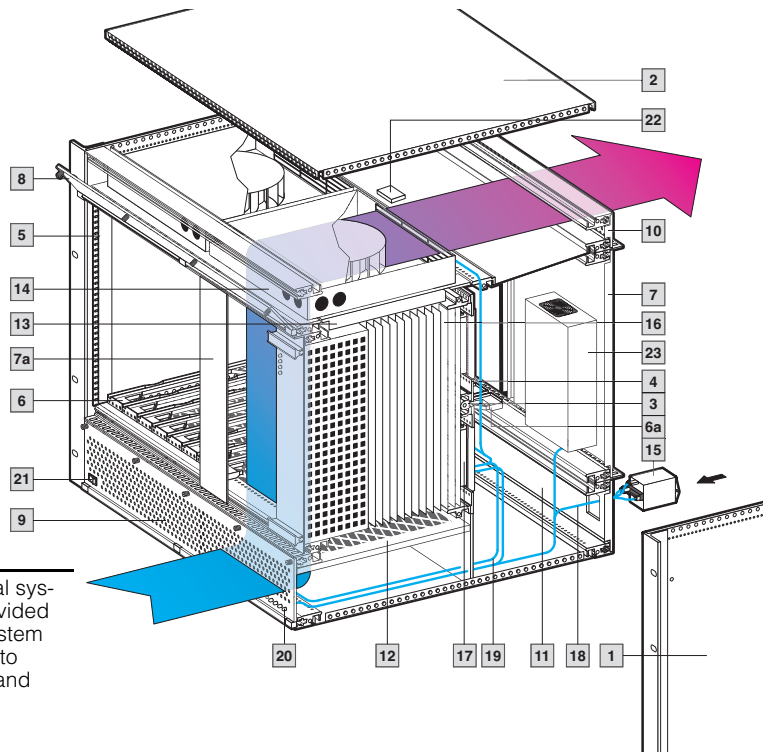
Technical specifications:
Subrack, 290.5 mm deep, for installation in 482.6 mm (19″) enclosures or cases. Prepared to accommodate VMEbus boards and drives. Complies with IEC 60 297-3/-5 and IEEE 1101.1/10/11. Fully assembled, pre-wired and tested.

Rittal service:

Modifications or individual system solutions can be provided at short notice. Rittal's system specialists will be happy to assist you with planning and configuration.

U	9 (6 + 2 x 1$^1/_2$)	Page
Side panel depth mm	290.5	
Wiring space (depth in mm)	85.5	
For PCB	6 U x 160 mm	
MPS system Model No. RP for VME64x	**3687.708**	

Mechanical supply includes

	Description	Material	Quantity	
1	Ripac basic subrack system (side panels, horizontal rails, flanges, EMC gaskets)	Aluminium, clear-chromated/stainless steel	1	–
2	Top and bottom	1 mm aluminium, unplated	2	515
3	Centre horizontal rail 12 HP	1 mm aluminium, clear-chromated	1	–
4	Z rail 12 HP	Aluminium, clear-chromated	4	–
5	EMC contact strip	Aluminium, clear-chromated	2	507
6	Plastic guide rails, keyable	Polycarbonate UL 94-V0	24	510
	Guide rails, keyable, green, for power supply	Polycarbonate UL 94-V0	2	510
6a	Guide rails for I/O transition modules	Polycarbonate UL 94-V0	24	511
7	EMC rear panel 6 U/36 HP	2.5 mm aluminium, clear-chromated	1	–
7a	EMC front panel	2.5 mm aluminium, clear-chromated	1	–
8	Front panel 1$^1/_2$ U/84 HP, horizontally hinged	2.5 mm aluminium, clear-chromated	1	–
9	Front panel 1$^1/_2$ U/84 HP, vented, horizontally hinged for switch/LED	2.5 mm aluminium, clear-chromated	1	–
10	EMC rear panel 1$^1/_2$ U/84 HP, vented	2.5 mm aluminium, clear-chromated	1	–
11	EMC rear panel, 1$^1/_2$ U/84 HP, with connector cutout	2.5 mm aluminium, clear-chromated	1	–
12	Filter mat 160 mm, 84 HP, for slide-in attachment	–	1	–
13	Mounting plate for RiCool	1 mm sheet steel, zinc-plated, passivated	1	–

Electrical/electronic supply includes

	Description	Technical specifications		
14	RiCool DC fan, individually removable. Including fault alarm signal, speed control	24 V DC, 204 m³/h, 48 W	2	–
15	IEC filtered mains inlet	6 A (VDE, UL, CSA)	1	458
16	Power supply, plug-in, 6 U/12 HP	270 W, 5 V/35 A, +12 V/6 A, −12 V/2 A (VDE, IEC)	1	480
	Backplane VME64x, without P0	J1/J2, 12 slots	1	454
17	Female connector for power supply unit	H15	2	–
18	AC cable harness	–	■	–
19	DC cable harness	–	■	–
20	LED display module	for +5 V, ±12 V, fan failure	1	–
21	Mains switch	–	1	–
22	Monitoring module for RiCool and backplane	–	2	–
23	Power supply for RiCool	–	1	–

VMEbus

Backplanes, technical specifications

General technical specifications – VMEbus

The VMEbus, based on standard IEEE 1014 and IEC 821, has become established worldwide as an industry standard.
The VME64 represents an extension of the VME family to ANSI/VITA 1-1994 and supports 64-bit data traffic. The VME64x extends the VME family to ANSI/VITA 1.1-1997 and is available with the optional 133-pole 2 mm connector J0. 160-pole connectors are used with VME64x. This system remains backward compatible, so that assemblies with 96-pole connectors to IEC 60 603-2 may still be used. All Rittal VMEbus boards are of a **HIGHSPEED-DESIGN.** Minimal reflections are achieved, due to even surge impedance of the signal track. Consistent shielding of every signal trace guarantees minimal feedback, and therefore ensures uninterrupted operation even in 64 bit mode with the **2e protocol** (160 Mbyte/s).

Daisy-chain circuit

With the daisy-chain circuit, a distinction is made between manual daisy-chaining and automatic daisy-chaining. Automatic daisy-chaining renders the connection of jumpers superfluous, and users are saved the time-consuming task of insertion and extraction. What is more, possible misconnections are avoided. Automatic daisy-chaining can be achieved in two ways. Rittal VMEbuses are generally supplied with automatic daisy-chaining.

Termination

In order to avoid malfunctions on signal tracks that may arise as a result of reflections on the exposed track end, these must be terminated with the VMEbus. Termination may be either ON-/IN-board (on the backplane) or OFF-board (external). With regard to the type of termination, a distinction is made between passive and active termination. The benefit of active termination lies in the lower closed-circuit current consumption. Passive termination is distinguished by superior frequency response and a broader temperature range.

Pin assignment J1 and J2

Pin assignment J1

Pin assignment for J1 connector VME64x					
	Pin assignment for J1 connector VME				
Pin no.	Row z	Row a	Row b	Row c	Row d
1	MPR	D00	BBSY	D08	VPC
2	GND	D01	BCLR	D09	GND
3	MCLK	D02	ACFAIL	D10	+ V1
4	GND	D03	BG0IN	D11	+ V2
5	MSD	D04	BG0OUT	D12	RsvU
6	GND	D05	BG1IN	D13	– V1
7	MMD	D06	BG1OUT	D14	– V2
8	GND	D07	BG2IN	D15	RsvU
9	MCTL	GND	BG2OUT	GND	GAP
10	GND	SYSCLK	BG3IN	SYSFAIL	GAO
11	RTRY1	GND	BG3OUT	BERR	GA1
12	GND	DS1	BR0	SYSRESET	+3.3 V
13	RsvBus	DS0	BR1	LWORD	GA2
14	GND	WRITE	BR2	AM5	+3.3 V
15	RsvBus	GND	BR3	A23	GA3
16	GND	DTACK	AM0	A22	+3.3 V
17	RsvBus	GND	AM1	A21	GA4
18	GND	AS	AM2	A20	+3.3 V
19	RsvBus	GND	AM3	A19	RsvBus
20	GND	IACK	GND	A18	+3.3 V
21	RsvBus	IACKIN	SERCLK (1)	A17	RsvBus
22	GND	IACKOUT	SERDAT (1)	A16	+3.3 V
23	RsvBus	AM4	GND	A15	RsvBus
24	GND	A07	IRQ7	A14	+3.3 V
25	RsvBus	A06	IRQ6	A13	RsvBus
26	GND	A05	IRQ5	A12	+3.3 V
27	RsvBus	A04	IRQ4	A11	LI/I
28	GND	A03	IRQ3	A10	+3.3 V
29	SBB	A02	IRQ2	A09	LI/O
30	GND	A01	IRQ1	A08	+3.3 V
31	SBA	–12 V	+5 V STDBT	+12 V	GND
32	GND	+5 V	+5 V	+5 V	VPC

Pin assignment J2

Pin assignment for J2 connector VME64x					
	Pin assignment for J2 connector VME				
Pin no.	Row z	Row a	Row b	Row c	Row d
1	UD	User def.	+5 V	User def.	UD
2	GND	User def.	GND	User def.	UD
3	UD	User def.	Retry	User def.	UD
4	GND	User def.	A24	User def.	UD
5	UD	User def.	A25	User def.	UD
6	GND	User def.	A26	User def.	UD
7	UD	User def.	A27	User def.	UD
8	GND	User def.	A28	User def.	UD
9	UD	User def.	A29	User def.	UD
10	GND	User def.	A30	User def.	UD
11	UD	User def.	A31	User def.	UD
12	GND	User def.	GND	User def.	UD
13	UD	User def.	+5 V	User def.	UD
14	GND	User def.	D16	User def.	UD
15	UD	User def.	D17	User def.	UD
16	GND	User def.	D18	User def.	UD
17	UD	User def.	D19	User def.	UD
18	GND	User def.	D20	User def.	UD
19	UD	User def.	D21	User def.	UD
20	GND	User def.	D22	User def.	UD
21	UD	User def.	D23	User def.	UD
22	GND	User def.	GND	User def.	UD
23	UD	User def.	D24	User def.	UD
24	GND	User def.	D25	User def.	UD
25	UD	User def.	D26	User def.	UD
26	GND	User def.	D27	User def.	UD
27	UD	User def.	D28	User def.	UD
28	GND	User def.	D29	User def.	UD
29	UD	User def.	D30	User def.	UD
30	GND	User def.	D31	User def.	UD
31	UD	User def.	GND	User def.	UD
32	GND	User def.	+5 V	User def.	UD

Backplanes, technical specifications

Automatic daisy chaining J1 and J1/J2
Via the use of connectors with integral mechanical switches, the contact is automatically opened when the daughter-board is inserted, and closed again when it is extracted.
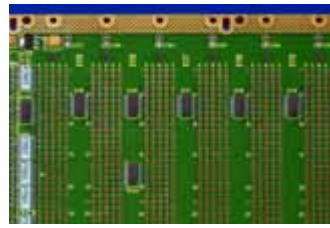
Automatic daisy chaining VME64x
The second option for automatic daisy chaining is achieved here by an "or" logic integrated onto the backplane. If the daughter-board is extracted, the logic closes the daisy chain.
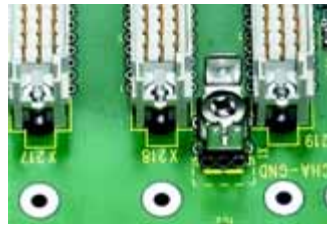
Chassis GND connection
An electrically conductive chassis GND surface is attached to the subracks in the mounting section of the backplane. This facilitates EMC-sealed mounting of the backplane in the subracks. With VME64x, subracks and system earth are linked in RF terms by capacitors (10nF, 200 V on each slot). Static charges are discharged via a resistor (≥ 1 MΩ). A combined connection component (screw M4 and Faston 2.8 or 6.3 x 0.8 mm) is provided for connection of the enclosure earth.
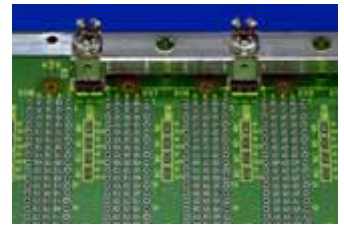
Power connections
Infeed of the main operating voltage +5 V/+3.3 V and GND is provided via busbars with M6 screw terminal. The auxiliary operating voltages are supplied via double Fastons with additional M4 screw thread. Optimum supply of the daughter-boards and hence problem-free operation is ensured, thanks to the arrangement of the infeed modules on the backplane.

B

3.2

VMEbus

Utility connector
The special signals to the power pack and to external LEDs are routed on a separate connector on the backplanes.

Depending on the backplane type, a 7-pole, a 10-pole or a 14-pole connector with 2.54 mm spacing is provided.

Pin assignment, 7 pins

1	GND sense
2	+5 V Sense
3	GND
4	+5 V
5	ACFAIL-
6	SYSFAIL-
7	SYSRESET-

Pin assignment, 10/14 pins

GND	1	2	GND sense (5 V)
+5 V	3	4	+5 V Sense
ACFAIL-	5	6	ACFAIL-
SYSFAIL-	7	8	SYSFAIL-
SYSRESET-	9	10	SYSRESET-
+3.3 V	11	12	+3.3 V Sense
GND	13	14	GND sense (3.3 V)

Geographic address pin assignments (VME64x)

Slot no.	GAP Pin J1-D9	GA4 Pin J1-D17	GA3 Pin J1-D15	GA2 Pin J1-D13	GA1 Pin J1-D11	GA0 Pin J1-D10
1	Open	Open	Open	Open	Open	GND
2	Open	Open	Open	Open	GND	Open
3	GND	Open	Open	Open	GND	GND
4	Open	Open	Open	GND	Open	Open
5	GND	Open	Open	GND	Open	GND
6	GND	Open	Open	GND	GND	Open
7	Open	Open	Open	GND	GND	GND
8	Open	Open	GND	Open	Open	Open
9	GND	Open	GND	Open	Open	GND
10	GND	Open	GND	Open	GND	Open
11	Open	Open	GND	Open	GND	GND
12	GND	Open	GND	GND	Open	Open
13	Open	Open	GND	GND	Open	GND
14	Open	Open	GND	GND	GND	Open
15	GND	Open	GND	GND	GND	GND
16	Open	GND	Open	Open	Open	Open
17	GND	GND	Open	Open	Open	GND
18	GND	GND	Open	Open	GND	Open
19	Open	GND	Open	Open	GND	GND
20	GND	GND	Open	GND	Open	Open
21	Open	GND	Open	GND	Open	GND

Pin assignments J0

Pin no.	ROW Z	ROW A	ROW B	ROW C	ROW D	ROW E	ROW F
1 – 19	GND	User Defined	User Defined	User Defined	User Defined	User Defined	GND

VME

Backplanes

Backplanes VME64x

Technical specifications:

Number of layers	10
Layer structure	Optimised for optimum RF performance. Outer layers designed as shielding surface.
PCB thickness	4.3 mm
Ohmic resistance of the signal tracks	< 1.5 Ohm
Surge impedance Z of the signal tracks	50 Ohm
Basic power consumption, terminated at both ends	Active: < 0.1 A
Power supply: – Busbar with M6 screw terminal – M4 screw terminal and FASTON 6.3 x 0.8 mm – < 5 slots	x x FASTON 6.3 x 0.8 mm
Current carrying capacity of busbar	200 A
Current carrying capacity of a combined Double flat-pin connector/screw terminal	25 A
Current carrying capacity of a FASTON flat connector	10 A
Current carrying capacity of the assembly, per slot	+3.3 V 12.5 A +12 V 9.0 A –12 V 1.5 A +5 VSTDBY 1.5 A +48 V (38 – 75 V) 3.0 A
Termination ON-/IN-board	active
Installation height	6 U/6.5 U
Distance between slots	4 HP
Connectors	Press-fit technique quality class 2, 400 connection cycles 160 pins compatible with C96 Optional J0, style 2 mm, 95/133 pins
Operating temperature range	Active termination 0°... +70°C
Relative humidity	90 %, non-condensing

VME64x 6 U

Slots	Dimensions		Model No. RP	
	Height mm	Width mm	without P0 connector	with P0 connector
5	261.6	100	**3687.608**	**3687.609**
7	261.6	141	**3687.610**	**3687.611**
9	261.6	181.5	**9904.930**	**9904.932**
10	261.6	202	**9904.931**	**9904.933**
12	261.6	242.5	**3686.634**	**3686.473**
21	261.6	425.5	**3686.635**	**3686.474**

VME64x 6.5 U

Slots	Dimensions		Model No. RP	
	Height mm	Width mm	without P0 connector	with P0 connector
5	283.7	100	**9910.012**	**9910.007**
7	283.7	141	**9910.013**	**9910.008**
9	283.7	181.5	**9910.014**	**9910.009**
10	283.7	202	**9904.928**	**9904.929**
12	283.7	242.5	**9910.015**	**9910.010**
21	283.7	425.5	**9910.016**	**9910.011**

Material:
Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes:
Backplane, fully populated.

Accessories:

for backplane mounting:
Conductive strips, see page 505.
Insulating strips, see page 505.

Backplanes VME J1/J2 Monolithic

Technical specifications:

Number of layers	6
Layer structure	Optimised for optimum RF performance. Outer layers designed as shielding surface.
PCB thickness	3.2 – 4.0 mm
Ohmic resistance of the signal tracks	< 1.5 Ohm
Surge impedance Z of the signal tracks	60 Ohm
Basic power consumption, terminated at both ends	Active: < 0.1 A Passive: < 1.4 A
Power supply: – Busbar with M6 screw terminal – M4 screw terminal and FASTON 6.3 x 0.8 mm – < 5 slots	x x FASTON 6.3 x 0.8 mm
Current carrying capacity of busbar	200 A
Current carrying capacity of a combined double flat-pin connector/screw terminal	25 A
Current carrying capacity of a FASTON flat connector	10 A
Current carrying capacity of the assembly, per slot	+5 V 9.0 A +12 V 1.5 A –12 V 1.5 A +5 VSTDBY 1.5 A
Termination ON-/IN-board	Passive or active
Installation height	6 U
Distance between slots	4 HP
Connectors	Press-fit technique quality class 2, 400 connection cycles C96
Operating temperature range	Active termination 0°... +70°C Passive termination –40°...+85°C
Relative humidity	90 %, non-condensing

Slots	Dimensions		Model No. RP	
	Height mm	Width mm	passive	active
2	261.7	39.5	**3686.475**	**3686.495**
3	261.7	59.5	**3686.476**	**3686.496**
4	261.7	80	**3686.477**	**3686.497**
5	261.7	100	**3686.478**	**3686.498**
6	261.7	120.5	**3686.479**	**3686.499**
7	261.7	141	**3686.480**	**3686.500**
8	261.7	161.5	**3686.481**	**3686.501**
9	261.7	181.5	**3686.482**	**3686.502**
10	261.7	202	**3686.483**	**3686.503**
11	261.7	222.5	**3686.484**	**3686.504**
12	261.7	242.5	**3686.485**	**3686.505**
13	261.7	263	**3686.486**	**3686.506**
14	261.7	283	**3686.487**	**3686.507**
15	261.7	303.5	**3686.488**	**3686.508**
16	261.7	324	**3686.489**	**3686.509**
17	261.7	344	**3686.490**	**3686.510**
18	261.7	364.5	**3686.491**	**3686.511**
19	261.7	385	**3686.492**	**3686.512**
20	261.7	405	**3686.493**	**3686.513**
21	261.7	425.5	**3686.494**	**3686.514**

Material:
Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes:
Backplane, fully populated.

⊞ Accessories:

for backplane mounting:
Conductive strips, see page 505.
Insulating strips, see page 505.

B
3.2

VME

VME

Backplanes

VME J1 system bus

Technical specifications:

	VME J1	VME J2
Number of layers	6	2
Layer structure	Optimised for optimum RF performance. Outer layers designed as shielding surface.	
PCB thickness	3.2 mm	3.2 mm
Ohmic resistance of the signal tracks	< 1.5 Ohm	< 1.5 Ohm
Surge impedance Z of the signal tracks	60 Ohm	60 Ohm
Basic power consumption, terminated at both ends	Passive: < 1.0 A	< 0.6 A
Power supply: – M4 screw terminal and FASTON 6.3 x 0.8 mm – < 5 slots	x FASTON 6.3 x 0.8 mm	x FASTON 6.3 x 0.8 mm
Current carrying capacity of a combined double flat-pin connector/screw terminal	25 A	25 A
Current carrying capacity of a FASTON flat connector	10 A	10 A
Current carrying capacity of the assembly per slot	+5 V 4.5 A +12 V 1.5 A –12 V 1.5 A +5 VSTDBY 1.5 A	+5 V 4.5 A
Termination ON-/IN-board	Passive	Passive
Installation height	3 U	3 U
Distance between slots	4 HP	4 HP
Connectors	Press-fit technique, quality class 2, 400 connection cycles C96	Press-fit technique, quality class 2, 400 connection cycles C96
Operating temperature range	Passive termination –40°...+85°C	Passive termination –40°...+85°C
Relative humidity	90 %, non-condensing	90 %, non-condensing

Slots	Dimensions Height mm	Width mm	Model No. RP
3	128.4	59.5	**3686.555**
4	128.4	80	**3686.556**
5	128.4	100	**3686.557**
6	128.4	120.5	**3686.558**
7	128.4	141	**3686.559**
8	128.4	161.5	**3686.560**
9	128.4	181.5	**3686.561**
10	128.4	202	**3686.562**

Slots	Dimensions Height mm	Width mm	Model No. RP
12	128.4	242.5	**3686.563**
13	128.4	263	**3686.564**
14	128.4	283	**3686.565**
15	128.4	303.5	**3686.566**
18	128.4	364.5	**3686.567**
20	128.4	405	**3686.568**
21	128.4	425.5	**3686.569**

Material:
Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes:
Backplane, fully populated.

⊞ Accessories:

for backplane mounting:
Conductive strips, see page 505.
Insulating strips, see page 505.

VME J2 expansion bus

Material:
Fibreglass epoxy to IEC 60 249 (type FR4)

Supply includes:
Backplane, fully populated.

⊞ Accessories:

for backplane mounting:
Conductive strips, see page 505.
Insulating strips, see page 505.

Slots	Dimensions Height mm	Width mm	Model No. RP
3	128.4	59.5	**3686.585**
4	128.4	80	**3686.586**
5	128.4	100	**3686.587**
6	128.4	120.5	**3686.588**
7	128.4	141	**3686.589**
8	128.4	161.5	**3686.590**
9	128.4	181.5	**3686.591**
10	128.4	202	**3686.592**

Slots	Dimensions Height mm	Width mm	Model No. RP
12	128.4	242.5	**3686.593**
13	128.4	263	**3686.594**
14	128.4	283	**3686.595**
15	128.4	303.5	**3686.596**
18	128.4	364.5	**3686.597**
20	128.4	405	**3686.598**
21	128.4	425.5	**3686.599**

Mains switch
- Rocker switch 6 A/250 V, 2-pole,
  FASTON connections (4.7 x 0.8 mm)
- VDE, UL, CSA, TÜV, SEMKO, DEMCO, SEV,
  NEMKO, SETI, BEAB approvals
- Isolation resistance: > 10 MΩ
- Test voltage: 1 kV
- Frame: 21 x 15 mm
- Cutout: 19.2 x 12.9 mm
- Installation depth: 17 mm

Max. current	Packs of	Model No. RP
6 A	1	3687.711

Connection cable
for power supply,
see page 771.

EMC front panel
with LED and mains switch
Front panel with switch module and display board
with LEDs.

Supply includes:
EMC front panel 5 HP,
Rocker switch,
Display board with LEDs:
+3.3 V/+5 V/+12 V/–12 V/fan failure,
assembly parts.

For	LED version	Model No. RP	
		3 U	4 U
CPCI/ VME 64x	+3.3 V +5 V ±12 V Alarm	3687.712	3687.714
VME	+5 V ±12 V Alarm	3687.713	3687.715

Filter module
for DC fan with fault monitoring
The filter module serves to suppress interference
on the +12 V power supply. In addition, a signal
is generated in the event of a fan failure or signifi-
cant drop below the nominal speed (displayed via
the LED display board).

- Max. current of fan:
  700 mA at an operating voltage of 12 V DC.

Supply includes:
Board with 2 screw terminals.

Packs of	Model No. RP
1	3687.716

B
3.2

CPCI/VME

CPCI/VME

Accessories

Filtered IEC mains inlet

Combination module consisting of IEC 320
socket, line filter and 5 x 20 mm
fuse holder to IEC 320 and IEC 950.

Technical specifications:
Metal enclosure for screw mounting
Mains input: via IEC 320 socket
Mains output: via 3 FASTON contacts
(L, N, PE, 6.3 x 0.8)
Versions with or without switches
Temperature range: – 25°C to +85°C

	Model No. RP	
	with switch	without switch
	3687.709	**3687.710**
Mains voltage max.	250 V AC	250 V AC
Leakage current	2 x 0.32 mA	≤ 500 µA
Max. current	6 A	6 A
Mounting holes	40 mm	36 mm
Installation depth	90 mm	56 mm
Cutout	60 x 29 mm	33.9 x 29 mm
Approvals	VDE, SEMKO, SEV, UL, CSA	VDE
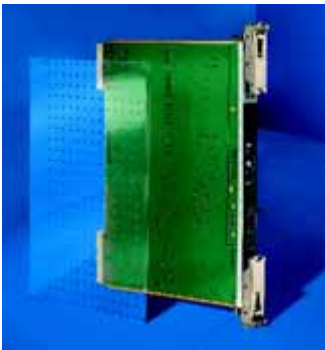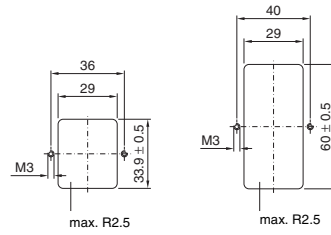
Plastic covers
for PCBs,
see page 531.
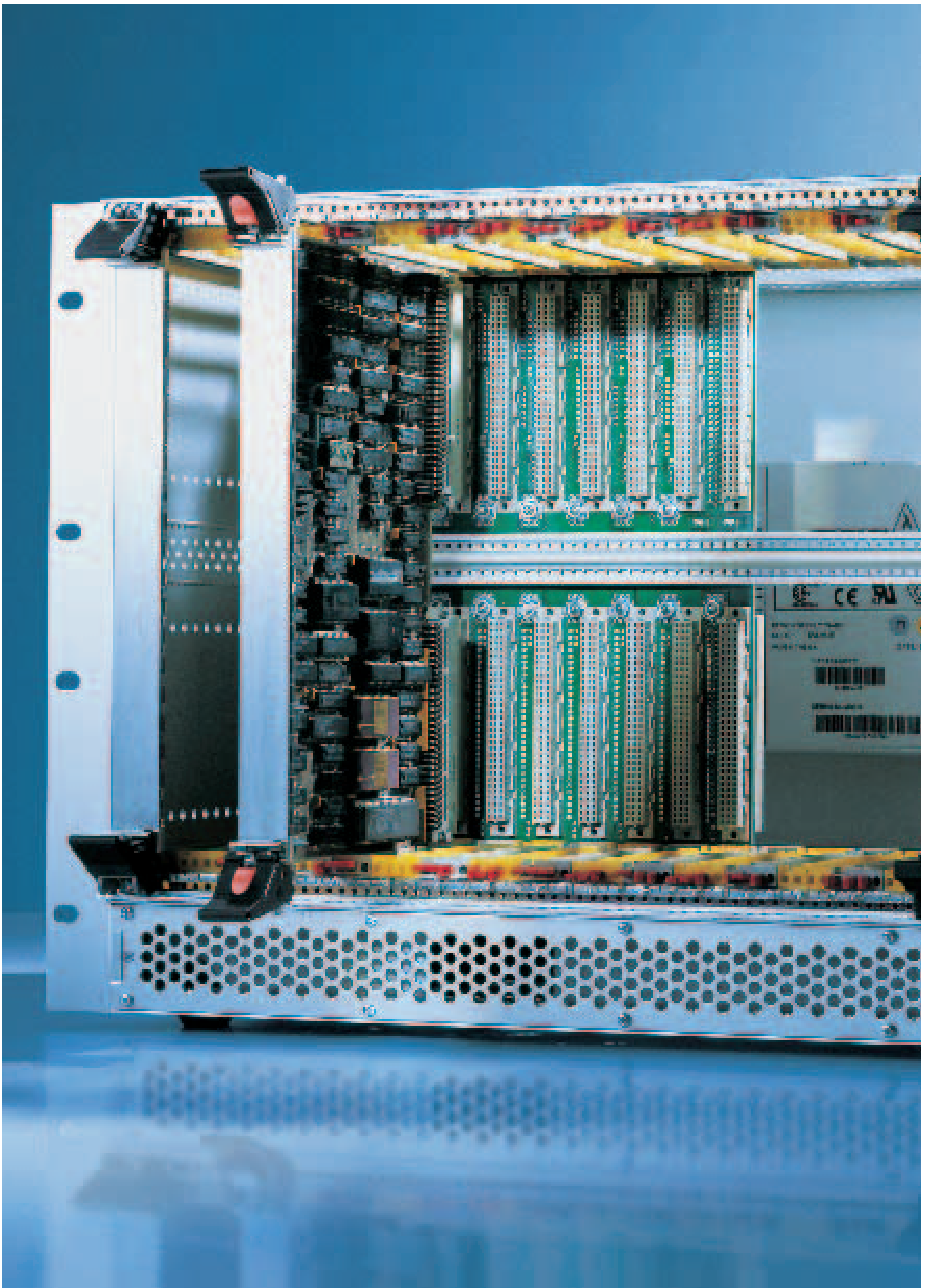
Rack-mount systems for industrial PCs and storage devices

Features
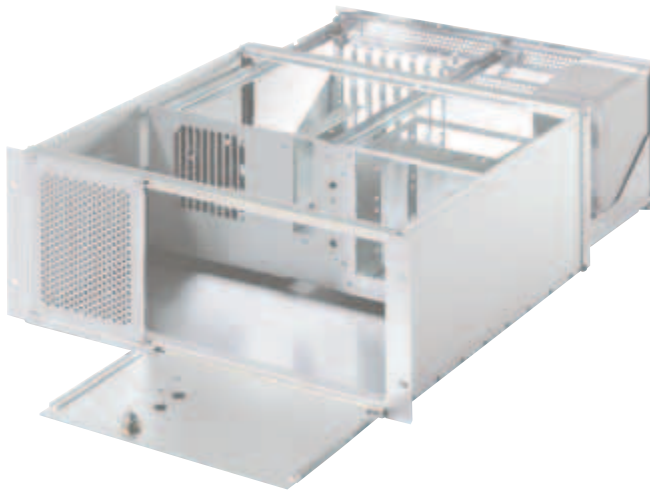
We offer an extensive range of products for industrial PCs to the ATX standard, from 482.6 mm (19″) rack-mount versions in 1, 2 and 4 U, through to solutions for direct mounting on mounting plates.

Shown opposite is a version with pull-out inner housing and electronics for automatic restart following a mains failure.

ATX Ripac, aluminium

The top-of-the-range model with outstanding maintenance-friendliness: The inner housing can be pulled out like a drawer.

Enclosure body of clear chromated aluminium, conductive.

Horizontally hinged, lockable front panel offers rapid access to drives and control components, as well as protecting against unauthorised access.

EMC gaskets – for unused slot covers – and conductive attachment of the motherboard.

Option of externally mounting 3 x 5^1/$_4$″ and 1 x 3^1/$_2$″ drives for internal installation. Drive covers (accessory) for unused positions.

Integral electronics for automatic restart following a mains failure.

ATX 1, 2 U, sheet steel

The space-saving solution, e.g. in the server segment. The neutral design blends in well with other components.

Includes riser card for 1 slot or 2 slots.

Drive installation (1 and 2 U): Installation of 1 x 5^1/$_4$″ and 1 x 3^1/$_2$″ drives.

Rack-mount systems for industrial PCs and storage devices

ATX 4 U, sheet steel

Lockable front panel protects against unauthorised access.

Slide rail mounting with no loss of height, due to reduced side panel height.

Unpainted contact points ensure reliable contact.

AT/ATX (Vario) Economy with front door

ATX Economy: Fully assembled and prewired.
AT/ATX Vario Economy: the basic case for individual installation and self-assembly.

Enclosure made from sheet steel zinc-plated/spray-finished, for demanding requirements in terms of stability and safety.

Easy removal of the drive module for external population.

ATX with front connections

As a 482.6 mm (19″) version for mounting in the enclosure, or for mounting directly onto the **mounting plate**.

I/O connections at the front guarantee access from the front and flexibility, e.g. with minimal space available for connections to other systems.

Rear panel with cutout for PS/2 power pack.

Systems for storage devices

Protection under tough conditions is afforded by Rittal RAID systems, available in three variants. An optional ATX board may be installed.

Fan inside (ATX 9-drive)

Optional **installation** of an ATX board with 6-drive and 9-drive version.

B

3.3

Rack-mount systems for industrial PCs and storage devices

Rack-mount systems for industrial PCs

ATX Ripac 4 U, aluminium
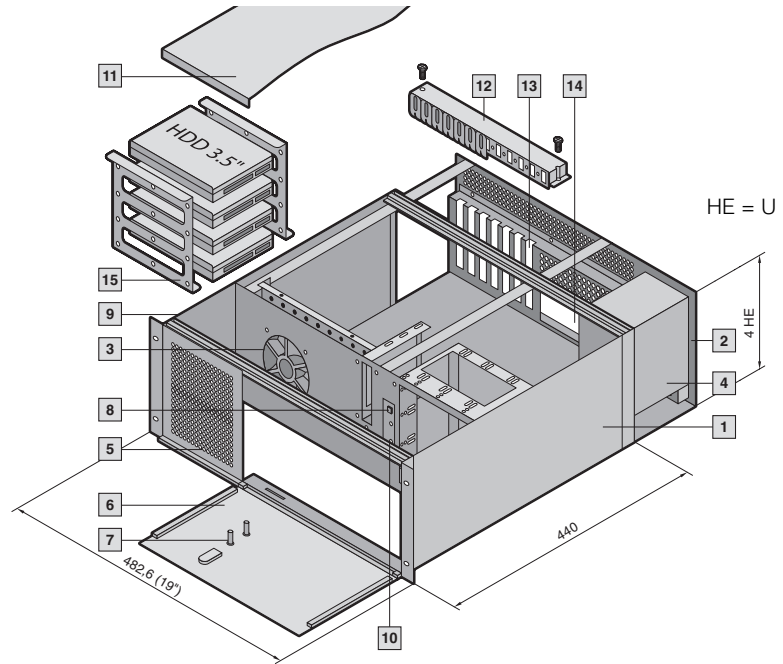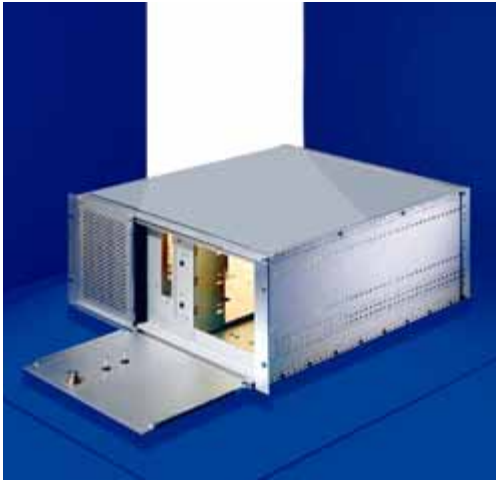
HE = U

Technical specifications:
482.6 mm (19″) rack-mount system for the installation of ATX/ Mini-ATX or Micro-ATX boards and 3 x 5^1/$_4$″ and 1 x 3^1/$_2$″ drives.
Width: 482.6 mm (19″)
Height: 4 U (177.0 mm)
Overall depth: 440 mm.
EMC prepared.

Material/surface finish:
Side panels, front panels: Aluminium, clear-chromated
Cover:
1.0 mm aluminium, clear-chromated
Rack-mounted PC frame: Sheet steel, zinc-plated, passivated

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01

Special designs available on request.

Supply includes:

1	Rack-mount system 4 U, including drive module
2	Rack-mounted PC frame
3	1 fan 120 mm with filter
4	ATX power pack 300 W (Technical specifications, see RP 3688.129, page 483)
5	Front door, horizontally hinged
6	Front door, horizontally hinged, lockable

7	LED displays
8	Reset button
9	EMC gaskets, all round
10	ON/OFF switch with electronics for automatic restart following a mains failure (activation/deactivation of the electronics via jumper)
11	Covers

	Packs of	4	Page
U		**4**	
Width in mm		482.6 (19″)	
Height in mm		177.0	
Depth in mm		440.0	
Model No. RP basic system fully assembled	1	**3659.000**	
Accessories			
12 Card retainer	7	3659.010	476
Mounting bar for card retainer	1	3659.090	476
13 Unused slot cover	5	3659.030	475
Cover for 5^1/$_4$″ drive space	1	3659.050	475
15 Drive support	1 set	3659.060	475
Spare filter mat	1	**3659.070**	–
Uninterruptible power supply Output: 300 VA/180 W	1	3659.080	482
14 **ATX I/O covers, sheet steel**[1]			
Type "Aurora Marl"	1	**3659.040**	–
Type "Tucson"/"Venus"	1	**3659.130**	–
Type "Providence"	1	**3659.140**	–

[1] Other versions available on request; please specify the type of mainboard.

ATX I/O covers:

Type "Aurora Marl"   **Type "Venus"**   **Type "Providence"**   **Type "Tucson"**

Accessories Page 475   **Keyboard rack 482.6 mm (19″)** Page 1050   **TFT display 15″** Page 1050

HE = U

1 HE

482.6 (19″)

530
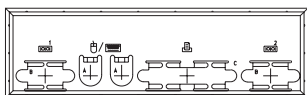
Technical specifications:
482.6 mm (19″) rack-mount system for the installation of ATX/ Mini-ATX or Micro-ATX boards and 1 x 5^1/$_4$″ and 1 x 3^1/$_2$″ drives. Width: 482.6 mm (19″) Height: 1 U (44.0 mm) Overall depth: 532.5 mm. EMC prepared.

Material/surface finish:
Case, cover: 1.2 mm sheet steel, zinc-plated and spray-finished in RAL 7035 Front door: 1.2 mm sheet steel, spray-finished in RAL 7035, unpainted contact points

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01

Special designs available on request.

Supply includes:
1 Rack-mounted system 1 U, including drive module

2 2 x 40 mm fans and filter mat

3 ATX power pack 200 W (Technical specifications, see RP 3688.130, page 484)

4 Front door, horizontal hinge

5 LED displays, speakers

6 Reset button

7 On/off switch

8 Covers

9 Drive support for 1 x 3^1/$_2$″ hard drives

10 19″ flanges

11 Rear panel with integral I/O shield, type Venus

Riser card, 1 x PCI slot, 32 bit

	Packs of	1	Page
U		**1**	
Width in mm		482.6 (19″)	
Height in mm		44.0 (1 U)	
Depth in mm		532.5/530.0	
Model No. RP basic system fully assembled	1	**3659.500**	
Accessories			
Unused slot cover	5	3659.030	475
Cover for 5^1/$_4$″ drive space	1	3659.110	475
Cover for 3^1/$_2$″ drive space	1	3659.410	475
Uninterruptible power supply	1	3659.080	482
Front handles for ATX 1 U	2	3659.540	475

[1] Other versions available on request; please specify the type of mainboard.

B

3.3

Rack-mount systems for industrial PCs

Rack-mount systems for industrial PCs

ATX 2 U, sheet steel
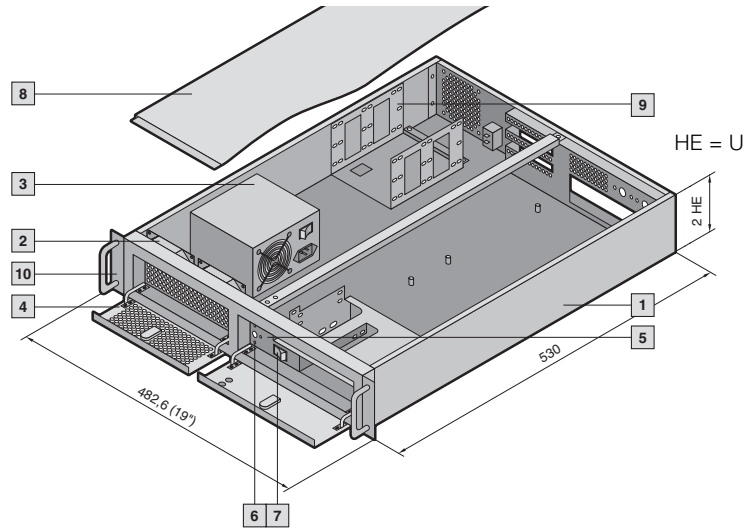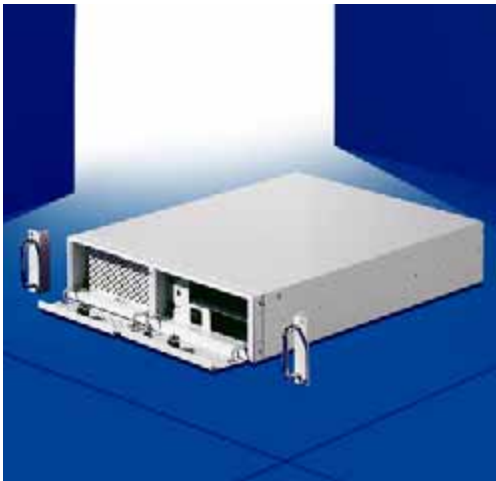
Technical specifications:
482.6 mm (19″) rack-mount system for the installation of ATX/Mini-ATX or Micro-ATX boards and 1 x 5$^{1}/_{4}$″ and 1 x 3$^{1}/_{2}$″ drives.
Width: 482.6 mm (19″)
Height: 2 U (88.0 mm)
Overall depth: 532.5 mm.
EMC prepared.

Material/surface finish:
Case, cover:
1.2 mm sheet steel, zinc-plated and spray-finished in RAL 7035
Front door: 1.2 mm sheet steel, spray-finished in RAL 7035, unpainted contact points

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01

Special designs available on request.

Supply includes:

1 Rack-mount system 2 U, including drive module

2 2 x 80 mm fans and filter mat

3 ATX power pack 300 W with mains cable, PFC active (Technical specifications, see RP 3688.129, page 483)

4 Front door, horizontally hinged, lockable

5 LED displays, speakers

6 Reset button

7 On/off switch

8 Covers

9 Drive support for 3 x 3$^{1}/_{2}$″ hard drives

10 19″ flanges

Bus and data connection cable

Riser card, 2 x PCI slot, 32 bit

	Packs of	2	Page
U		**2**	
Width in mm		482.6 (19″)	
Height of flanges/side panels in mm		88.0 (2 U)	
Depth in mm		532.5/530.0	
Model No. RP basic system fully assembled	1	**3659.600**	
Accessories			
Unused slot cover	5	3659.030	475
Cover for 5$^{1}/_{4}$″ drive space	1	3659.110	475
Cover for 3$^{1}/_{2}$″ drive space	1	3659.410	475
Uninterruptible power supply	1	3659.080	482
Telescopic slides for 600 mm enclosure depth	1 set	3659.180	475
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
Front handles for ATX 2 U	2	3659.020	475
Fan 12 V DC, 60 mm, for the rear panel	2	3659.250	476
ATX I/O covers, sheet steel[1]			
Type "Aurora Marl"	1	**3659.040**	–
Type "Tucson"/"Venus"	1	**3659.130**	–
Type "Providence"	1	**3659.140**	–

[1] Other versions available on request; please specify the type of mainboard.

ATX I/O covers:

Type "Aurora Marl"   **Type "Venus"**   **Type "Providence"**   **Type "Tucson"**

Accessories Page 475 **Keyboard rack 482.6 mm (19″)** Page 1050 **TFT display 15″** Page 1050

ATX 4 U, sheet steel

HE = U

4 HE

482.6 (19″)

440
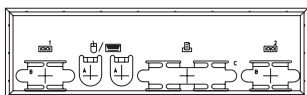
Technical specifications:
482.6 mm (19″) rack-mount system for the installation of ATX/ Mini-ATX or Micro-ATX boards and 3 x 5^1/$_4$″ and 1 x 3^1/$_2$″ drives.
Width: 482.6 mm (19″)
Height: 4 U (177.0 mm)
Side panels: 174.0 mm
Overall depth: 442.5 mm
Suitable for mounting on slide rails.

Material/surface finish:
Case, covers, front panels:
1.2 mm sheet steel, spray-finished in RAL 7035, unpainted contact points

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01

Special designs available on request.

Supply includes:

1 Rack-mount system 4 U, including drive module

2 1 x 120 mm fan and filter mat, exchangeable from the front

3 ATX power pack 300 W (Technical specifications, see RP 3688.129, page 483)

4 Front door, vertically hinged, lockable

5 Front panel with ventilation holes and filter mat

6 LED displays, speakers Reset switch, on/off switch

7 Cover

8 Two 482.6 mm (19″) flanges

9 Drive support for 4 x 3^1/$_2$″ hard drives

B

3.3

Rack-mount systems for industrial PCs

	Packs of	4	Page
U		**4**	
Width in mm		482.6 (19″)	
Height of flanges/side panels in mm		177.0/174.0	
Depth in mm		442.5/440.0	
Model No. RP basic system fully assembled	1	**3659.900**	
Accessories			
Card retainer	7	3659.010	476
Mounting bar for card retainer	1	3659.090	476
Unused slot cover	5	3659.030	475
Cover for 5^1/$_4$″ drive space	1	3659.110	475
Cover for 3^1/$_2$″ drive space	1	3659.410	475
Uninterruptible power supply	1	3659.080	482
Telescopic slides for 600 mm enclosure depth	1 set	3659.180	475
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
10 Front handles for ATX 4 U	2	3659.240	475
ATX I/O covers, sheet steel[1]			
Type "Aurora Marl"	1	**3659.040**	–
Type "Tucson"/"Venus"	1	**3659.130**	–
Type "Providence"	1	**3659.140**	–

[1] Other versions available on request; please specify the type of mainboard.

ATX I/O covers:
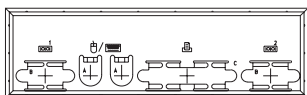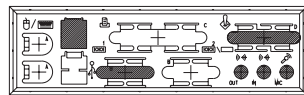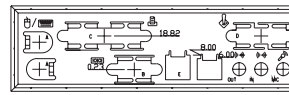
Type "Aurora Marl"   **Type "Venus"**   **Type "Providence"**   **Type "Tucson"**
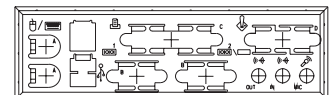
Rack-mount systems for industrial PCs

ATX Economy with front door, 4 U, sheet steel
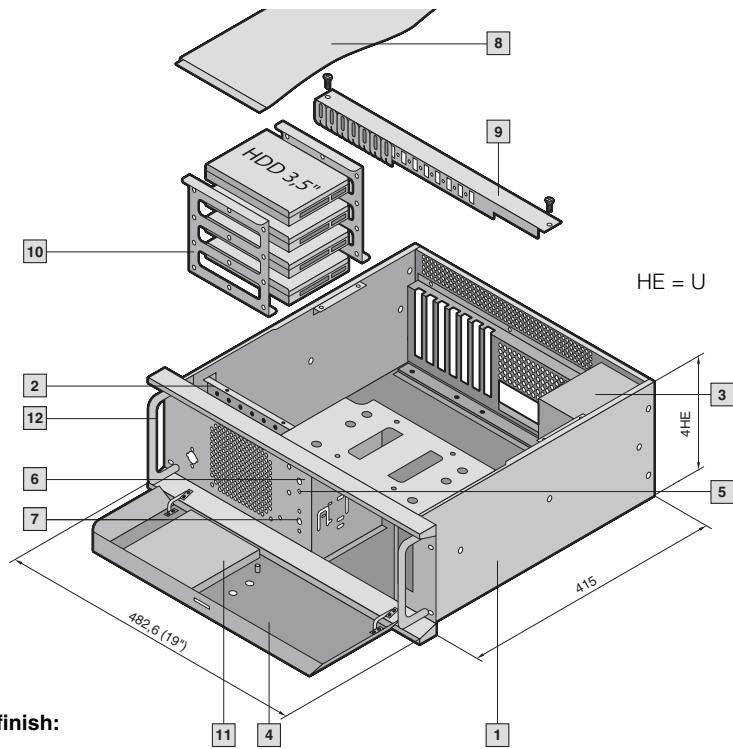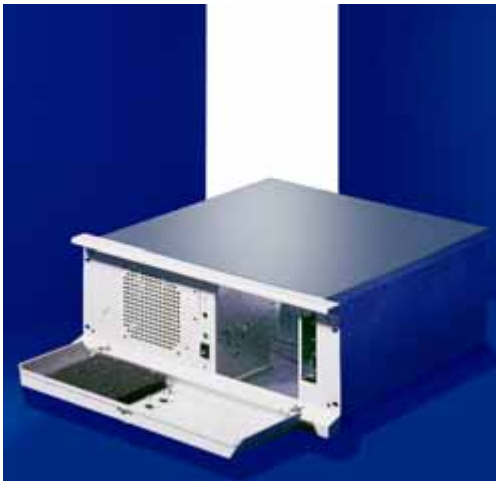
HE = U

Technical specifications:
482.6 mm (19″) rack-mount
system for the installation of ATX/
Mini-ATX or Micro-ATX boards
and 3 x 5$^1/_4$″ and 1 x 3$^1/_2$″ drives.
Width: 482.6 mm (19″)
Height: 4 U (177.0 mm)
Overall depth: 430 mm.
EMC prepared.

Material/surface finish:
Case, cover:
1.2 mm sheet steel, zinc-plated,
passivated
Front door: 1.2 mm sheet steel,
spray-finished in RAL 7035,
unpainted contact points

Standards:
Complies with IEC 60 297-3 and
ATX specification 2.01

**Special designs
available on request.**

Supply includes:

1 Rack-mount system 4 U,
including drive module

2 1 x 120 mm fan and filter mat

3 ATX power pack 300 W
(Technical specifications,
see RP 3688.121, page 483)

4 Front door, horizontally
hinged, lockable

5 LED displays, speakers

6 Reset button

7 On/off switch

8 Cover

	Packs of		Page
U		**4**	
Width in mm		482.6 (19″)	
Height of flanges/side panels in mm		177.0/174.0	
Depth in mm		430.0/415.0	
Model No. RP basic system fully assembled	1	**3659.100**	
Accessories			
9 Card retainer	7	3659.010	476
Mounting bar for card retainer	1	3659.090	476
Unused slot cover	5	3659.030	475
Cover for 5$^1/_4$″ drive space	1	3659.110	475
Cover for 3$^1/_2$″ drive space	1	3659.410	475
10 Drive support for hard disks	1 set	3659.230	475
11 Spare filter mat	1	**3659.120**	–
Uninterruptible power supply	1	3659.080	482
Telescopic slides for 600 mm enclosure depth	1 set	3659.180	475
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
12 Front handles for ATX 4 U	2	3659.240	475
ATX I/O covers, sheet steel[1]			
Type "Aurora Marl"	1	**3659.040**	–
Type "Tucson"/"Venus"	1	**3659.130**	–
Type "Providence"	1	**3659.140**	–

[1] Other versions available on request; please specify the type of mainboard.

ATX I/O covers:

Type "Aurora Marl"   **Type "Venus"**   **Type "Providence"**   **Type "Tucson"**

Accessories Page 475 **Keyboard rack 482.6 mm (19″)** Page 1050 **TFT display 15**″ Page 1050
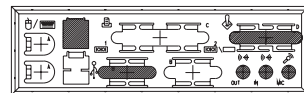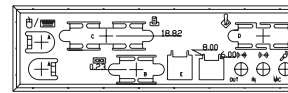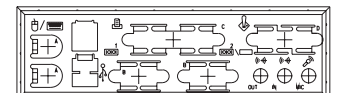
B
3.3
Rack-mount systems for industrial PCs

Modular system AT/ATX Vario Economy with front door, 4 U, sheet steel

HE = U
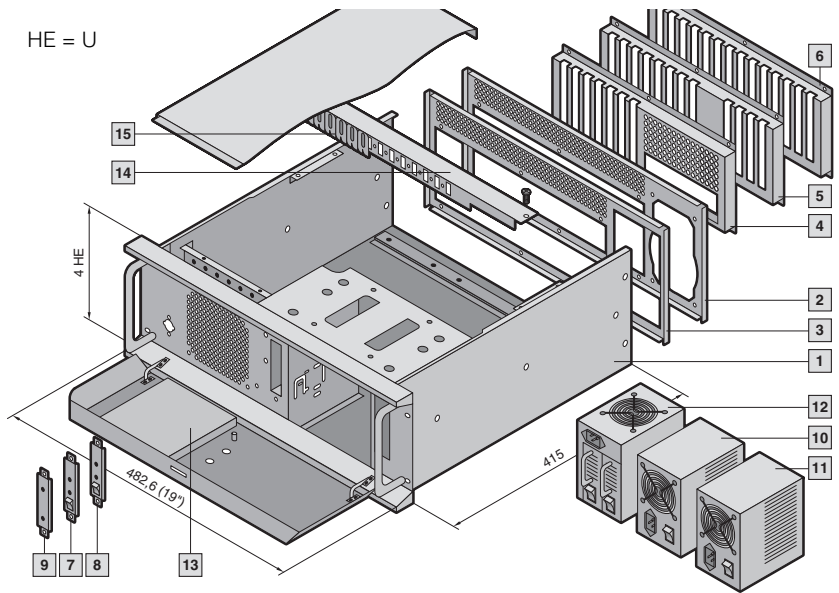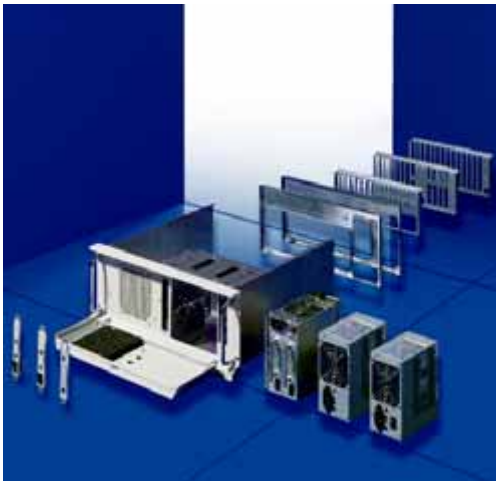
The modular principle of AT/ATX Vario Economy allows installation to accommodate individual requirements. The basic case may be fitted for both AT and ATX applications with the appropriate selection of rear panels, power packs and front trim panels. For self-assembly, or on request fully assembled and wired.

Technical specifications:
19″ rack-mount system for the installation of ATX/Mini-ATX, Micro-ATX boards or AT/Baby-AT boards as well as 3 x 5$^1/_4$″ and 1 x 3$^1/_2$″ drives.
Width: 482.6 mm (19″)
Height: 4 U (177.0/174.0 mm)
Overall depth: 430 mm.

Material/surface finish:
Case, cover:
1.2 mm sheet steel, zinc-plated, passivated
Front door: 1.2 mm sheet steel, spray-finished in RAL 7035, unpainted contact points

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01

Special designs available on request.

Basic enclosure supply includes:
1 Case 4 U, 430 mm deep including assembly parts, covers, drive holder, fan, horizontally hinged front door, and air filter.

Note:
Rear panel, front trim panel and power pack should be ordered separately (for self-assembly).

B
3.3

	Packs of							Page
U		**4**						
		Installation for AT/ATX power pack (PS/2)			Installation for redundant power pack (PS/2)			
		ATX	AT 8 + 4 slots	AT 14 slots	ATX	AT 8 + 4 slots	AT 14 slots	
Model No. RP basic enclosure fitted	1	**3659.400**						
Installation, rear								
2 Rear panel for AT/ATX power pack	1	3659.290	3659.290	3659.290	–	–	–	476
3 Rear panel for redundant power pack	1	–	–	–	3659.310	3659.310	3659.310	476
4 Slotted rear panel for ATX 7 slot	1	3659.320	–	–	3659.320	–	–	476
5 Slotted rear panel 8 + 4 slots for AT	1	–	3659.330	–	–	3659.330	–	476
6 Slotted rear panel 14 slots for AT	1	–	–	3659.340	–	–	3659.340	476
Installation, front								
7 Front trim panel ATX with 2 x LED, reset switch	1	3659.350	–	–	3659.350	–	–	476
8 Front trim panel AT with 2 x LED, reset switch	1	–	3659.360	3659.360	–	3659.360	3659.360	476
9 Front trim panel ATX with automatic restart, 2 x LED, reset, Power On switch	1	3659.370	–	–	3659.370	–	–	476
Power packs								
10 ATX power pack 300 W, PFC passive	1	3688.121	–	–	–	–	–	483
ATX power pack 300 W, PFC active	1	3688.129	–	–	–	–	–	483
ATX power pack 400 W, PFC active	1	3688.128	–	–	–	–	–	483
11 AT power pack 300 W, PFC passive	1	–	3688.118	3688.118	–	–	–	483
12 Redundant power pack (PS/2), 2 x 300 W	1	–	–	–	3688.123	–	–	484
Fan 12 V DC, 60 mm, for the rear panel	2	3659.250	3659.250	3659.250	3659.250	3659.250	3659.250	476
13 Spare filter mat	1	**3659.120**	**3659.120**	**3659.120**	**3659.120**	**3659.120**	**3659.120**	–
Accessories								
14 Mounting bar for card retainer	1	3659.090	3659.090	3659.090	3659.090	3659.090	3659.090	476
15 Card retainer	7	3659.010	3659.010	3659.010	3659.010	3659.010	3659.010	476

Rack-mount systems for industrial PCs

ATX with front connections for 482.6 mm (19″) installation, 4 U
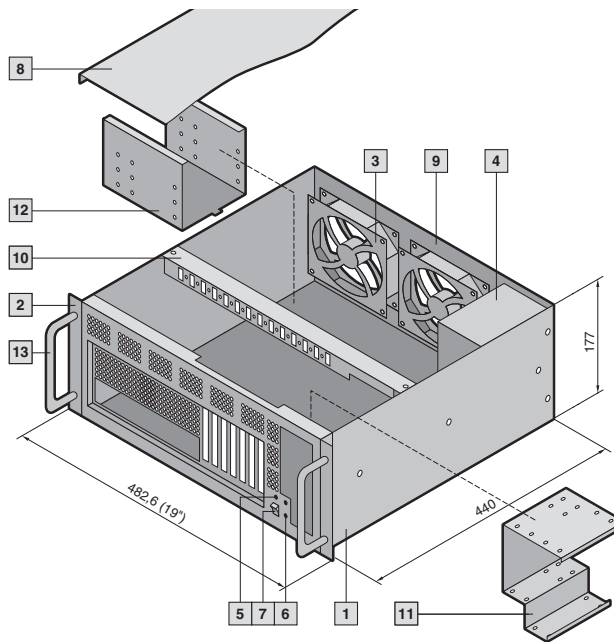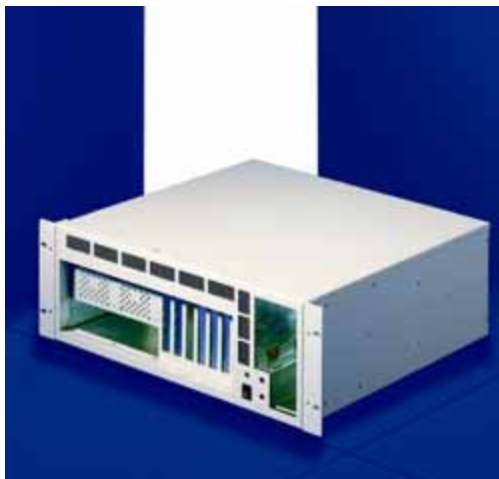
Technical specifications:
482.6 mm (19″) rack-mount
system for the installation of ATX/
Mini-ATX or Micro-ATX boards
and 1 x 5^1/$_4$″ and 1 x 3^1/$_2$″ drives,
vertical.
Width: 482.6 mm (19″)
Height: 4 U
Flanges: 177.0 mm
Side panels: 174.0 mm
Overall depth: 442.5 mm
Connections for I/Os, front
EMC prepared.
Suitable for mounting on slide
rails.

Material/surface finish:
Case, covers:
1.2 mm sheet steel,
spray-finished in RAL 7035,
unpainted contact points

Standards:
Complies with IEC 60 297-3 and
ATX specification 2.01

**Special designs
available on request.**

Supply includes:
1 Rack-mount system 4 U,
including drive holder
2 19″ flanges
3 2 x 120 mm fans
4 ATX power pack 300 W
(Technical specifications,
see RP 3688.129, page 483)
5 LED displays
6 Reset button
7 On/off switch

8 Cover
9 Rear panel with cutout and
connection for power pack
10 Mounting bar for card
retainer
11 Drive support for 1 x 5^1/$_4$″
and 1 x 3^1/$_2$″
12 Drive support for 3 x hard
drive 3^1/$_2$″

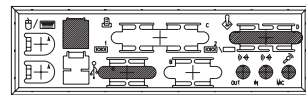|	Packs of	4	Page
U		**4**	
Width in mm		482.6 mm (19″)	
Height of flanges/side panels in mm		177.0/174.0	
Depth in mm		442.5/440.0	
Model No. RP basic system fully assembled	1	**3659.700**	
Accessories			
Card retainer	7	3659.010	476
Unused slot cover	5	3659.030	475
Cover for 5^1/$_4$″ drive space	1	3659.110	475
Cover for 3^1/$_2$″ drive space	1	3659.410	475
Telescopic slides for 600 mm enclosure depth	1 set	3659.180	475
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
13 Front handles for ATX 4 U	2	3659.240	475
ATX I/O covers, sheet steel[1]			
Type "Aurora Marl"	1	**3659.040**	–
Type "Tucson"/"Venus"	1	**3659.130**	–
Type "Providence"	1	**3659.140**	–

[1] Other versions available on request; please specify the type of mainboard.
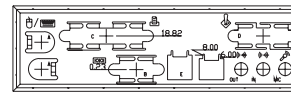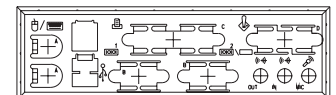
ATX I/O covers:

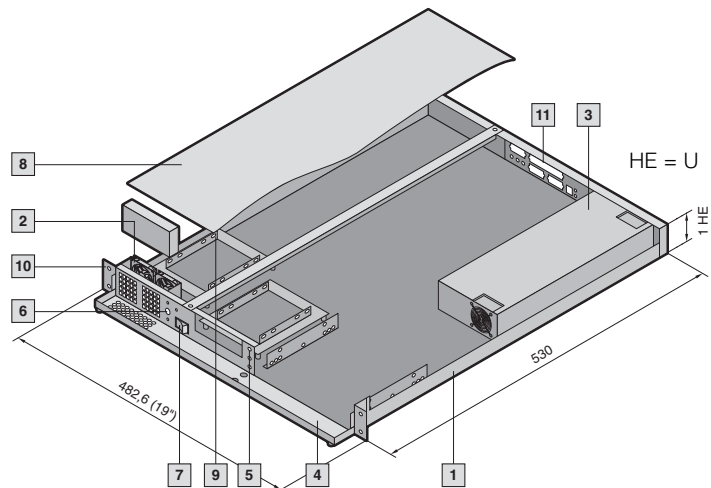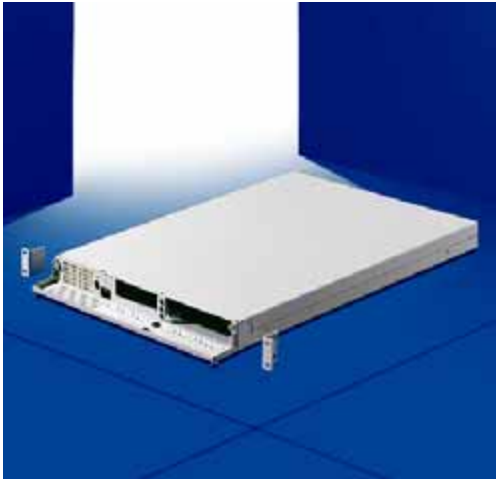**Type "Aurora Marl"**

Type "Venus"

Type "Providence"

Type "Tucson"

Accessories Page 475 **Keyboard rack 482.6 mm (19″)** Page 1050 **TFT display 15″** Page 1050
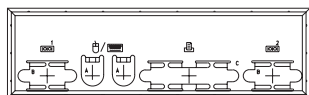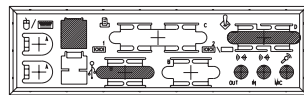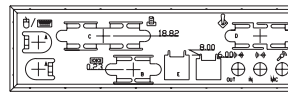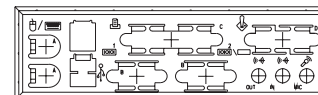
ATX with front connections for wall mounting

Technical specifications:
System for the installation of ATX/Mini-ATX or Micro-ATX boards as well as 3 x 5$^{1}/_{4}$″ and 1 x 3$^{1}/_{2}$″ drives, vertical.
Width: 380 mm
Height: 330 mm
Overall depth: 292.5 mm
Connections for I/Os, front EMC prepared.
Suitable for mounting on mounting plates.

Material/surface finish:
Case, covers:
1.2 mm sheet steel, zinc-plated, passivated, unpainted, unpainted contact points

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01

Special designs available on request.

Supply includes:
1 Rack-mounted system, including drive holder
2 Flanges for wall mounting
3 1 fans 120 mm
4 ATX power pack 300 W (Technical specifications, see RP 3688.129, page 483)
5 LED displays
6 Cover
7 Front panel
8 Drive support for 3 x 5$^{1}/_{4}$″ and 1 x 3$^{1}/_{2}$″ drives

	Packs of		Page
Width in mm		380.0	
Height in mm		330.0	
Depth in mm		292.5/290.0	
Model No. RP basic system fully assembled	1	**3659.710**	
Accessories			
Unused slot cover	5	3659.030	475
Cover for 5$^{1}/_{4}$″ drive space	1	3659.110	475
Cover for 3$^{1}/_{2}$″ drive space	1	3659.410	475
Uninterruptible power supply	1	3659.080	482
ATX I/O covers, sheet steel[1)]			
Type "Aurora Marl"	1	**3659.040**	–
Type "Tucson"/"Venus"	1	**3659.130**	–
Type "Providence"	1	**3659.140**	–

[1)] Other versions available on request; please specify the type of mainboard.

ATX I/O covers:

Type "Aurora Marl"

Type "Venus"

Type "Providence"

Type "Tucson"

Accessories Page 475 **Keyboard rack 482.6 mm (19″)** Page 1050 **TFT display 15″** Page 1050

B

3.3
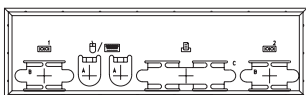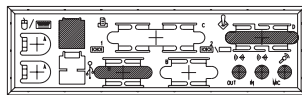
Rack-mount systems for industrial PCs
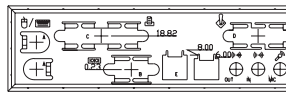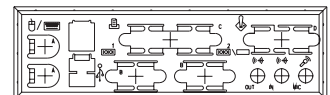
Rack-mount systems for industrial PCs

for PICMG backplane, 4 U, sheet steel

HE = U

426.4

440

4 HE
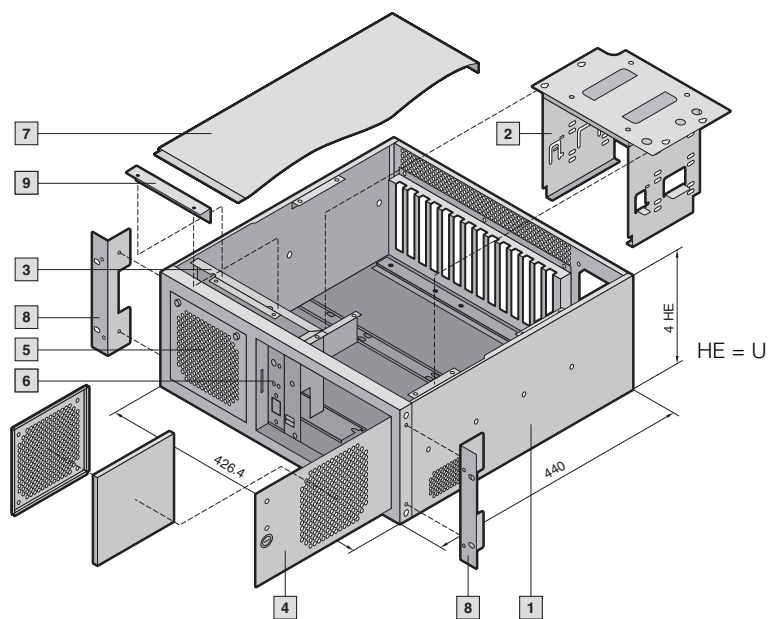
Technical specifications:
19″ rack-mount system for the installation of a PICMG back-plane, max. 14 slots as well as 3 x 5$^1/_4$″ hard disks, and 1 x 3$^1/_2$″ hard disks, internal.
Width: 482.6 mm (19″)
Height: 4 U (177.0 mm)
Overall depth: 442.5 mm
EMC prepared.

Material/surface finish:
Case, cover:
1.2 mm sheet steel,
spray-finished in RAL 7035,
unpainted contact points

Standards:
Complies with IEC 60 297-3

Supply includes:

1 Rack-mount system 4 U, 440 mm deep 482.6 mm (19″) wide, for max 14 slot PICMG backplane (10 full size boards)

2 Drive holder for the installation of 3 x 5$^1/_4$″ drives, externally and 1 x 3$^1/_2$″ drives, internally

3 1 fans 120 mm

4 Front door vented, including filter mat, vertically hinged, lockable.

5 Front panel with ventilation holes and filter mat

6 LED displays, speaker, reset button, 2 x USB 2.0, on/off button

7 Cover

8 19″ flanges

9 Support for full-size boards

Note:
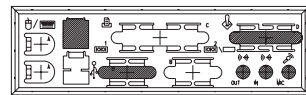Order power pack separately, see page 482 – 485.

	Packs of	4	Page
U		**4**	
Width in mm		482.6 (19″)	
Height of flanges/side panels in mm		177.0/174.0	
Depth in mm		442.5/440.0	
Model No. RP basic system fully assembled	1	**3659.650**	
Accessories			
Card retainer	7	3659.010	476
Mounting bar for card retainer	1	3659.090	476
Unused slot cover	5	3659.030	475
Cover for 5$^1/_4$″ drive space	1	3659.110	475
Adaptor for installation of 3$^1/_2$″ floppy in 5$^1/_4$″ space	1	3659.280	476
Adaptor for installation of 3$^1/_2$″ hard disk in 5$^1/_4$″ space	1	3659.270	476
Uninterruptible power supply	1	3659.080	482
Telescopic slides for 600 mm enclosure depth	1 set	3659.180	475
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
Front handles for ATX 4 U	2	3659.240	475

ATX with horizontally hinged front door, 2 U, sheet steel
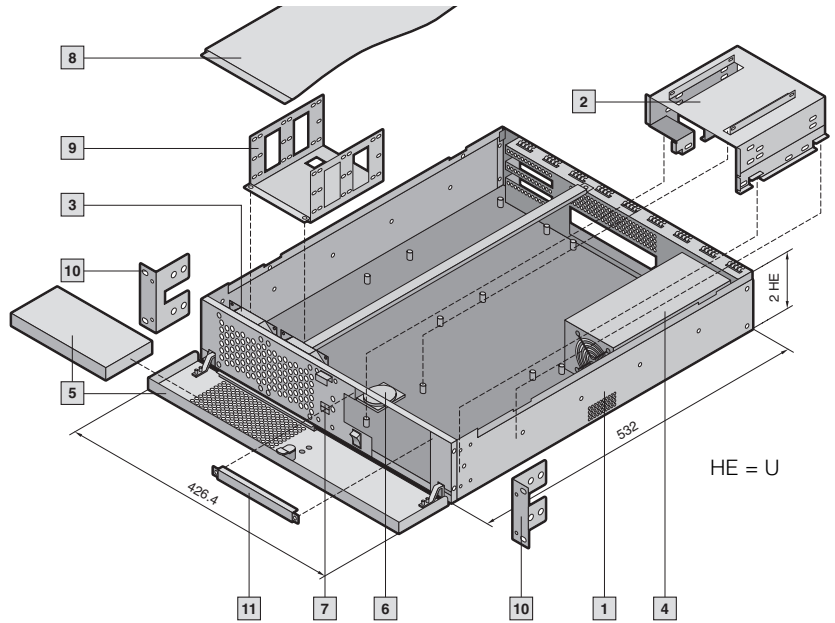
Technical specifications:
19″ rack-mount system for the installation of ATX/Mini-ATX or Micro-ATX boards and 1 x $5^1/_4$″, 1 x $3^1/_2$″ drives.
and 1 x Slim-CD-ROM.
Width: 482.6 mm (19″)
Height: 2 U (88.0 mm)
Overall depth: 532 mm
EMC prepared.

Material/surface finish:
Case, cover:
1.2 mm sheet steel,
spray-finished in RAL 7035,
unpainted contact points

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01

Special designs available on request.

Supply includes:
1 Rack-mount system
2 Disk drive holder for installation of 1 x $5^1/_4$″ and 1 x $3^1/_2$″ drives and 1 x Slim-CD-ROM
3 2 x 80 mm fans
4 ATX power pack 300 W, PFC active
5 Front door, horizontally hinged, lockable, with filter mat
6 Speakers
7 Reset button, LED displays, On/off button, 2 x USB 2.0
8 Covers
9 Drive support for 3 x $3^1/_2$″ hard disk
10 19″ flanges
11 Cover for Slim-CD-ROM
Bus and data connection cable
Riser card, 2 x PCI slot, 32 bit

	Packs of	2	Page
U		**2**	
Width in mm		482.6 (19″)	
Height in mm		88.0	
Depth in mm		532.0/530.0	
Model No. RP basic system fully assembled	1	**3659.640**	
Accessories			
Unused slot cover	5	3659.030	475
Cover for $5^1/_4$″ drive space	1	3659.110	475
Cover for $3^1/_2$″ drive space	1	3659.410	475
Uninterruptible power supply	1	3659.080	482
Telescopic slides for 600 mm enclosure depth	1 set	3659.180	475
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
Front handles for ATX 2 U	2	3659.020	475
ATX I/O covers, sheet steel[1]			
Type "Aurora Marl"	1	**3659.040**	–
Type "Tucson"/"Venus"	1	**3659.130**	–
Type "Providence"	1	**3659.140**	–

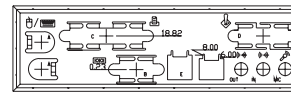[1] Other versions available on request; please specify the type of mainboard.
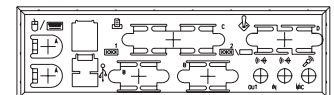
ATX I/O covers:

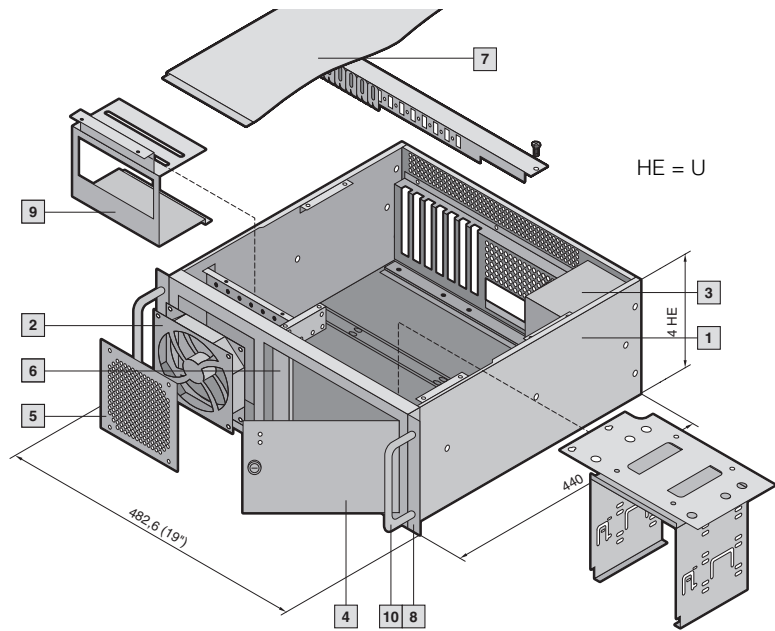**Type "Aurora Marl"**

Type "Venus"

Type "Providence"

Type "Tucson"

B

3.3

Rack-mount systems for industrial PCs
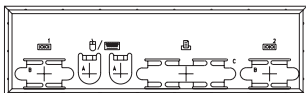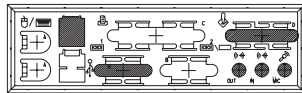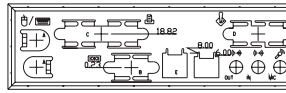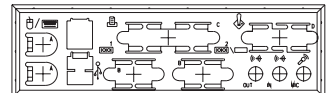
Rack-mount systems for storage devices

19″ RAID subrack

Technical specifications:
19″ rack-mount system for horizontal installation of storage devices $5^1/_4$″ or $3^1/_2$″.
Width: 482.6 mm (19″)
Height: 4 U
Overall depth: 455 mm
EMC prepared.

Material/surface finish:
Case, covers:
1.2 mm sheet steel, zinc-plated passivated and spray-finished in RAL 7035
Front door: Spray-finished in RAL 7035,
unpainted contact points

Standards:
Complies with IEC 60 297-3.

Special designs available on request.

Supply includes:
1 Rack-mount system 4 U, including drive holders
2 2 x 120 mm fans
3 Front door, horizontally hinged, lockable
4 LED displays
5 On/off switch
6 Cover

Note:
Order power pack separately, see page 483.

	Packs of		Page
U		**4**	
Width in mm		482.6 (19″)	
Height in mm		177.0 (4 U)	
Depth in mm		455.0/440.0	
Model No. RP basic system fully assembled	1	**3659.300**	
Accessories			
7 Front handles	2	3659.240	475
Redundant power pack for RAID (2 x 300 W) PFC active	1	3688.125	484
AT power pack for RAID (300 W) PFC passive	1	3688.119	483
Telescopic slides for 600 mm enclosure depth	1 set	3659.180	475
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
Adaptor for installation of $3^1/_2$″ hard disks in $5^1/_4$″ space	1	3659.270	476
Adaptor for installation of $3^1/_2$″ floppy in $5^1/_4$″ space	1	3659.280	476
Cover for $5^1/_4$″ drive space	1	3659.110	475

19″ ATX RAID subrack, 6-drive

HE = U
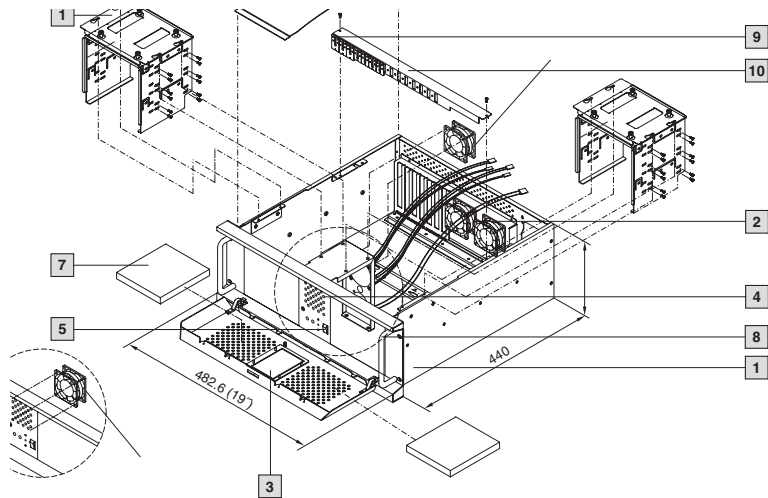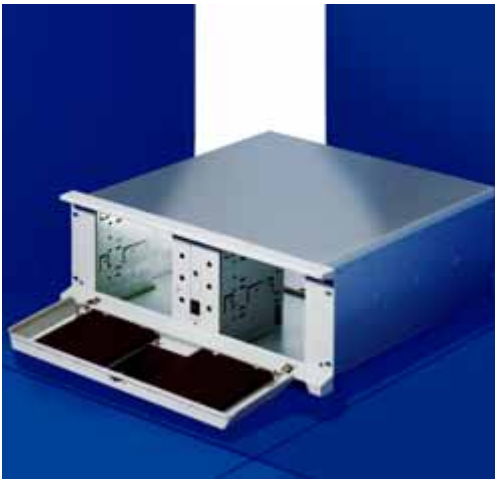
Technical specifications:
19″ rack-mount system for the horizontal installation of 6 storage devices 5^1/$_4$″ or 3^1/$_2$″ horizontally and one ATX board.
Width: 482.6 mm (19″)
Height: 4 U
Overall depth: 455 mm
EMC prepared.

Material/surface finish:
Case, cover:
1.2 mm sheet steel, zinc-plated, passivated, unpainted
Front door: Spray-finished in RAL 7035, unpainted contact points

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01.

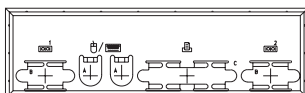**Special designs available on request.**

Supply includes:
1 Rack-mount system 4 U, including drive holders
2 2 fans 60 mm
3 Front door, horizontally hinged, lockable
4 LED displays
5 On/off switch
6 Cover
7 Filter mats
11 Option

Note:
Order power pack separately, see page 483/485.

B
3.3

Rack-mount systems for storage devices

	Packs of	4	Page
U		**4**	
Width in mm		482.6 (19″)	
Height of flanges/side panels in mm		177.0/174.0	
Depth in mm		455.0/440.0	
Model No. RP basic system fully assembled	1	**3659.420**	
Accessories			
8 Front handles 4 U	2	3659.240	475
9 Card retainer	7	3659.010	476
10 Mounting bar for card retainer	1	3659.090	476
AT power pack 300 W, PFC passive	1	3688.118	483
ATX power pack 300 W, PFC passive	1	3688.121	483
ATX power pack 300 W, PFC active	1	3688.129	483
ATX power pack 250 W, PFC active	1	3688.127	483
Redundant power pack (PS/2)	1	3688.120	485
Fan 12 V DC, 60 mm, with 2 connectors	2	3659.250	476
Telescopic slides for 600 mm enclosure depth	1 set	3659.180	475
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
Adaptor for installation of 3^1/$_2$″ hard disks in 5^1/$_4$″ spaces	1	3659.270	476
Adaptor for installation of 3^1/$_2$″ floppy in 5^1/$_4$″ spaces	1	3659.280	476
Cover for 5^1/$_4$″ drive space	1	3659.110	475
Unused slot cover	5	3659.030	475
Front trim panel ATX with automatic restart, 2 x LED, reset, Power On switch	1	3659.370	476
ATX I/O covers, sheet steel[1]			
Type "Aurora Marl"	1	3659.040	471
Type "Tucson"/"Venus"	1	3659.130	471
Type "Providence"	1	3659.140	471

[1] Other versions available on request; please specify the type of mainboard.

Accessories Page 475 **Keyboard rack 482.6 mm (19″)** Page 1050 **TFT display 15″** Page 1050

Rack-mount systems for storage devices

19″ ATX RAID subrack, 9-drive

HE = U
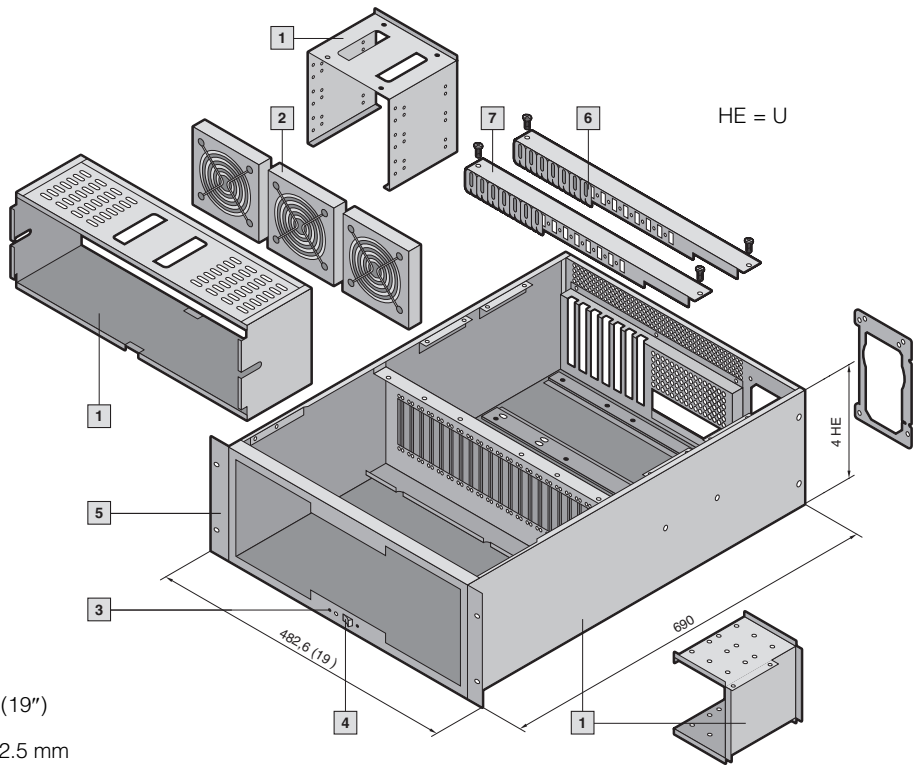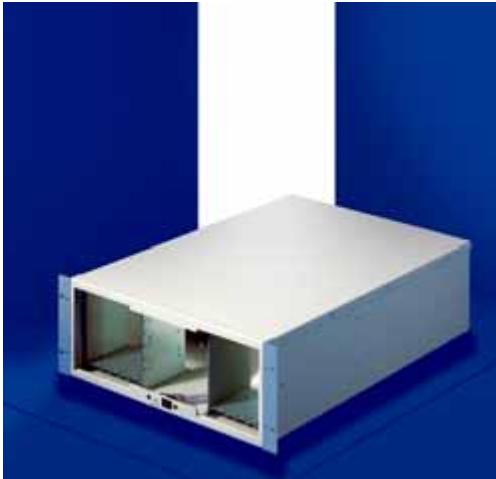
The 9-drive ATX RAID subrack is suitable for the horizontal and vertical installation of 9 storage devices and an ATX board. The rear panel is prepared for the installation of PS/2 or redundant power packs.

Technical specifications:
19″ rack-mount system for the installation of 6 x $5^1/_4$″ storage devices vertically and 3 x $5^1/_4$″ horizontally, plus 3 x $3^1/_2$″ storage devices internally and an ATX board.

Width: 482.6 mm (19″)
Height: 4 U
Overall depth: 692.5 mm
EMC prepared.

Material/surface finish:
Case, cover: 1.2 mm sheet steel, spray-finished RAL 7035
Front trim panel:
Spray-finished in RAL 7035

Standards:
Complies with IEC 60 297-3 and ATX specification 2.01.

Special designs available on request.

Supply includes:
1 Rack-mount system 4 U, including drive modules
2 3 x 120 mm fans
3 LED displays
4 On/off switch
5 Two 482.6 mm (19″) flanges
Cover

Note:
Order power pack separately, see page 483/485.

	Packs of	4	Page
U		**4**	
Width in mm		482.6 (19″)	
Height in mm		177.0 (4 U)	
Depth in mm		692.5/690.0	
Model No. RP basic system fully assembled	1	**3659.430**	
Accessories			
Front handles 4 U	2	3659.240	475
6 Card retainer	7	3659.010	476
7 Mounting bar for card retainer	1	3659.090	476
AT power pack 300 W, PFC passive	1	3688.118	483
ATX power pack 300 W, PFC passive	1	3688.121	483
ATX power pack 300 W, PFC active	1	3688.129	483
ATX power pack 250 W, PFC active	1	3688.127	483
Redundant power pack PS/2	1	3688.120	485
Telescopic slides for 800 mm enclosure depth	1 set	3659.190	475
Adaptor for installation of $3^1/_2$″ hard disks in $5^1/_4$″	1	3659.270	476
Adaptor for installation of $3^1/_2$″ floppy in $5^1/_4$″	1	3659.280	476
Cover for $5^1/_4$″ drive space	1	3659.110	475
Unused slot cover	5	3659.030	475
ATX I/O covers, sheet steel[1]			
Type "Aurora Marl"	1	3659.040	471
Type "Tucson"/"Venus"	1	3659.130	471
Type "Providence"	1	3659.140	471

[1] Other versions available on request; please specify the type of mainboard.

B
3.3

Rack-mount systems for storage devices

Unused slot cover

Screw-on cover to conceal slot cutouts which are not required.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. RP
5	3659.030

Cover for drives

To conceal the $3^1/_2''$ or $5^1/_4''$ drive slots.

Material:
Sheet steel, zinc-plated/spray-finished in RAL 7035

Supply includes:
Assembly parts.

Version	Packs of	Model No. RP
$3^1/_2''$	1	3659.410
$5^1/_4''$	1	3659.110

For ATX Ripac

Version	Packs of	Model No. RP
$5^1/_4''$	1	3659.050

Telescopic slides

Facilitate optimum accessibility to the units, even when built-in.
For up to a maximum enclosure width of 426 mm.

Load capacity:
30 kg

Material:
Sheet steel

Supply includes:
1 set = 2 telescopic slides,
installation kit,
assembly parts.

For enclosure depth mm	Maximum extension mm	Model No. RP
600	511.2	3659.180
800	596.4	3659.190

Note:
May only be fitted in conjunction with L-shaped 482.6 mm (19″) sections!

Front handles

The handles are fitted onto the 482.6 mm (19″) flange. They allow easy withdrawal of the cases from the enclosure.

Material:
Sheet steel, plated

Supply includes:
Assembly parts.

For enclosure height (U)	Packs of	Model No. RP
1	2	3659.540
2	2	3659.020
4	2	3659.240

Drive support

The drive supports will additionally accommodate a maximum of 4 additional $3^1/_2''$ hard disks. They are mounted inside the enclosure behind the fan.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For system	Packs of	Model No. RP
ATX Economy	1 set	3659.230
ATX Ripac	1 set	3659.060

B

3.3

Rack-mount systems for industrial PCs and storage devices

Accessories

Card retainer

For secure attachment and stabilisation of slot cards up to 327 mm depth. The card retainers are height-adjustable so that even cards of different heights may be securely attached.
A mounting bar is needed to fit the card retainer (already included with ATX Ripac).

Material:
Card retainer: Plastic
Mounting bar: Sheet steel, zinc-plated, passivated

Card retainer

Packs of	Model No. RP
7	3659.010

Mounting bar

Packs of	Model No. RP
1	3659.090
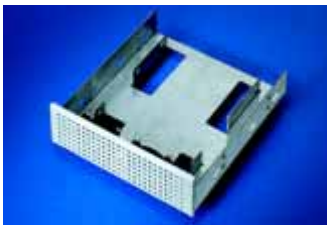
Adaptor

For the installation of $3^1/_2''$ hard disks or floppies in $5^1/_4''$ installation slots.

Material:
Sheet steel, zinc-plated,
Front panel spray-finished in RAL 7035.

Supply includes:
Assembly parts.

Version	Packs of	Model No. RP
for $3^1/_2''$ hard disk	1	3659.270
for $3^1/_2''$ floppy	1	3659.280
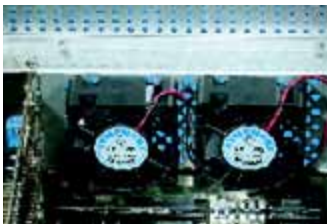
DC fan for rear panel

Fan 12 V DC, 60 mm, for mounting on the rear panel. Including two 4-pole connectors with terminal.

Supply includes:
2 fans with connection cable,
including assembly parts.

Packs of	Model No. RP
2	3659.250
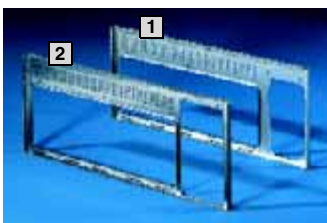
Rear panels

For the installation of AT/ATX Economy. Optionally with cutout for AT/ATX power pack or redundant power pack.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Version	Packs of	Model No. RP
1 for AT/ATX power pack PS/2	1	3659.290
2 for redundant power pack PS/2	1	3659.310
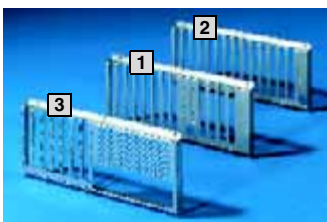
Slotted rear panels

For the installation of AT/ATX Economy. Mounted on the rear panels. Optionally for AT (8 + 4 or 14 slots) or ATX (7 slots).

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Version	Packs of	Model No. RP
1 AT 4 + 8 slots	1	3659.330
2 AT 14 slots	1	3659.340
3 ATX 7 slots	1	3659.320
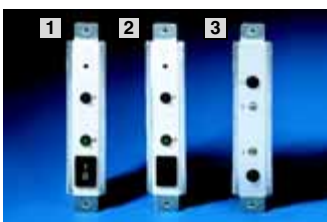
Front trim panels

For the installation of AT/ATX Economy. Mounted in the front of the enclosure.

Optionally for:
● AT (2 x LED, reset button)
● ATX (2 x LED, reset button)
● ATX (2 x LED, reset button), electronics for automatic restart following mains failure

Version	Packs of	Model No. RP
1 AT	1	3659.360
2 ATX	1	3659.350
3 ATX (with electronics)	1	3659.370

Power supply units

Features
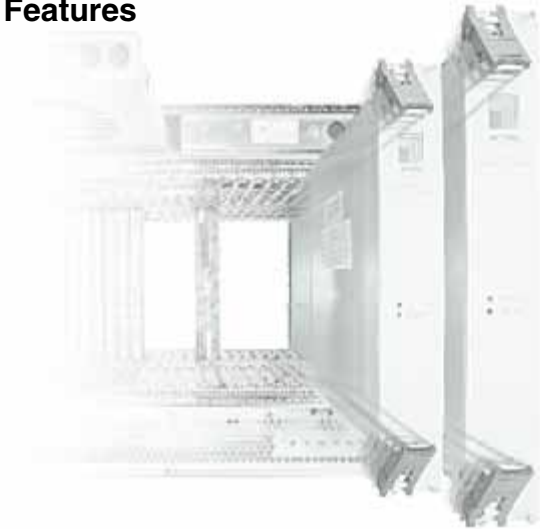
Rittal offers an extensive range of power supply units in various designs.

The range includes 482.6 mm (19″) compatible, as well as Open Frame version or PS/2 variants as well as power supplies to supply DC voltage to controllers, systems and plant in many different areas.

Open Frame (VME)

250/600/400/1000 W

Design features
- Open frame design
- Mounting on mounting base or enclosure rear panel
- Fan cooled
- Wide-range input
- Aluminium enclosure
- 3 outputs

User benefits
- Minimal space requirements with a high power output
- Universal applications
- Approvals: EN 60 950, UL 1950, IEC 950 and CSA 22.2 No. 234

3 U, 6 U (VME)
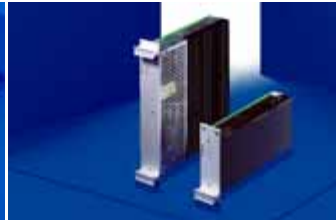
130/160/270 W, plug-in, integral VMEbus signalling

Design features
- 482.6 mm (19″) module to IEC 60 297-3
- Mounting in the subrack with the aid of plastic guide rails
- Connection via connectors H15, IEC 60 603-2 (DIN 41 612)
- 3 outputs

User benefits
- 482.6 mm (19″) compatible
- Hot swappable
- Approvals: EN 60 950, VDE 0805 and IEC 950

3 U, 6 U (CPCI)

175/200/250/350 W, plug-in

Design features
- 482.6 mm (19″) module to IEC 60 297-3
- Mounting in the subrack with the aid of plastic guide rails
- Positronic connector 47-pole PICMG 2.9
- 4 outputs

User benefits
- 482.6 (19″) compatible
- Hot swappable
- Approvals: EN 60 950 A1 – A4, CSA 22.2, UL 1950, C
- PICMG specification

PS/2 (AT/ATX)

250/300/400 W
Power supply units for ATX and CPCI systems

Design features
- Open frame design
- Mounting on a mounting plate or subrack rear panel
- Integral fan
- Sheet steel enclosure
- PFC active or passive
- Optional redundant versions

User benefits
- Universal applications
- Approvals: CSA

UPS

Uninterruptible power supply for installation in a 5$\frac{1}{4}$″ drive bays. Guarantees power supply in the event of a mains failure (6 minutes).

Design features
- Installation in 1 or 2 standard 5$\frac{1}{4}$″ drive holders
- Integral batteries

User benefits
- Minimal space requirements
- Approvals: CE, EN 60 950

Redundant

2 x 300 W power supplies for RAID or ATX.

Design features
- Hot-swap version
- PFC active

User benefits
- Universal applications
- Hot swap-compatible

Ripac power supplies – Open Frame
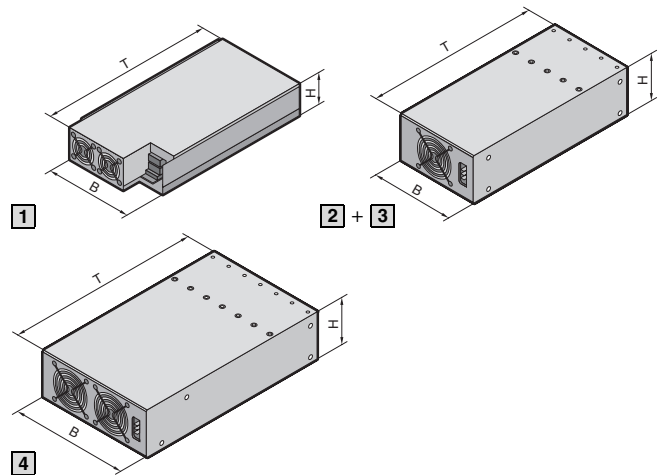
Note:
Power supply 1000 W:
48 V DC input on request.

Detailed drawing,
see page 1151 – 1152.

	1			2			3			4		
	250 W			400 W			600 W			1000 W		
Height (H) in mm	49.5			63.0			63.0			63.0		
Width (B) in mm	126.5			126.5			126.5			175.5		
Depth (T) in mm	259.5			279.0			323.0			283.5		
Model No. RP 35 A	3686.622			–			–			–		
Model No. RP 60 A	–			3686.623			–			–		
Model No. RP 85 A	–			3686.629			3686.624			–		
Model No. RP 110 A	–			–			–			3686.625		
Output sizes												
Output	1	2	3	1	2	3	1	2	3	1	2	3
Output voltage	5 V	+12 V	–12 V	5 V	+12 V	–12 V	5 V	+12 V	–12 V	5 V	+12 V	–12 V
Output current	35 A	8 A		60 A / 85 A	8 A		85 A	8 A		110 A	16 A	8 A
Maximum power output	250 watts			400 watts			600 watts			1000 watts		
Setting range of output voltage	5 – 5.5 V	9 – 15 V		2.5 – 5.7 V	5 – 16 V		± 10 %			4.5 – 5.5 V	9 – 15 V	5 – 15 V
Load compensation (load variation 0 – 100 %)	50 mV	± 3 %		< 0.5 %			< 0.5 %			< 0.5 %		
Line regulation ($U_{e\,min} – U_{e\,max}$)	± 50 mV or ± 3 %			< 25 mV	< 60 mV		< 25 mV	< 60 mV		< 0.5 %		
Base load	10 %	–		–			–			–		
Infeed compensation (Sense)	0.5 V	0.5 V	–	0.5 V	–		0.5 V	–		max. 0.5 V	1 V	
Residual ripple (max.)	1 %			1 %	2 %		1 %	2 %		1 %	2 %	
Temperature coefficient	0.02 %/°C			0.03 %/°C			0.03 %/°C			0.03 %/°C		
Overvoltage protection	Yes											
Overload protection[1]	Yes			Thermal current limiting			Yes					
Overload protection, thermal	–						In case of fan failure or overtemperature					
Overload protection, electronic	–						at 132 % U_{rated} or short-circuit			Yes, each module separately		
Input variables												
Mains voltage U_e	85 – 264 V AC; 120 – 340 V DC			90 – 264 V AC						150 – 264 V AC		
Mains frequency	45 – 65 Hz			47 – 63 Hz						–		
Power factor	EN 61 000-3-2			> 0.95						–		
Start-up current limitation	< 40 A (cold start)			<50 A						–		
Efficiency (typ.)	70 %			75 %						72 %		
General specifications, see page 1151 – 1152												
Accessories: Mounting base for power supply, see page 485												

[1] All outputs short circuit-resistant up to a maximum of 30 sec.

Power supply units

Ripac power supplies for VME, plug-in
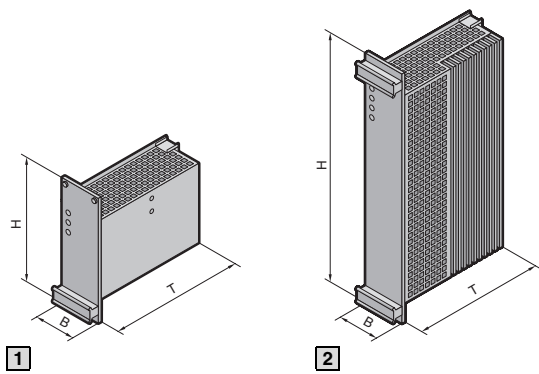
Connector assignment,
see page 1153.

Characteristic curve diagram,
see page 1153.

Detailed drawing,
see page 1153.

	1			2		
Height (H)	3 U			6 U		
Width (B)	10 HP	12 HP		8 HP	12 HP	
Depth (T) in mm	170.0	170.0		170.0	170.0	
Model No. RP power supply	**3686.469**	**3686.470**		**3686.471**	**3685.306**	
Model No. RP front panel	**3685.304**	**3685.305**		**3686.472**	**3685.307**	
Output sizes						
Output	1	2	3	1	2	3
Output voltage	5 V	+12 V	–12 V	5 V	+12 V	–12 V
Output current 3 U, 10 HP/6 U, 8 HP	14 A	5 A	2 A	20 A	5 A	2 A
Output current 3 U, 12 HP/6 U, 12 HP	20 A	5 A	2 A	35 A	6 A	2 A
Maximum power output	130 W (10 HP), 160 W (12 HP)			160 W (8 HP), 270 W (12 HP)		
Setting range of output voltage	± 5 %	–		± 5 %	–	
Load compensation (load variation 0 – 100 %)	< 0.1 %	< 1 %		< 0.1 %	< 1 %	
Line regulation (U$_{e\ min}$ – U$_{e\ max}$)	< 0.2 % at 99 – 138/187 – 264 V AC			< 0.2 % at 230 V AC + 15 % – 19 %		
Base load	–					
Compensation time	< 1 ms at I$_a$ 20 – 80 %					
Infeed compensation (Sense)	± 0.25 V	–		± 0.25 V	–	
Residual ripple (max.)	< 35 mV		< 20 mV	< 45 mVss	< 30 mVss	< 15 mVss
Interference voltage	50 mV typ. (bandwidth 20 MHz)			< 80 mV typ. (bandwidth 20 MHz)		
Temperature coefficient	0.025 %/K					
Overvoltage protection (automatically recovery)	125 % + 5 %	125 % + 10 %		125 % ± 5%	120 % ± 10 %	
Overload protection	typ. 110 % I$_{a\ rated}$, U/I characteristic curve acting on all outputs, outputs short circuit-resistant					
Overtemperature protection	Cuts out if the internal temperature is too high, cuts in again with hysteresis					
AC-FAIL, SYSRESET	TTL signals with 48 mA drive current, active low					
ON delay	< 0.5 s			–		
Ramp-up time	< 30 ms			50 ms		
Input variables						
Mains voltage U$_e$	AC 187 – 264 V, 50/60 Hz with automatic changeover to AC 90 – 138 V (in the range 90 – 94 V AC only 85 % rated load) or 264 – 347 V DC			AC 187 – 264 V, 50/60 Hz with automatic changeover to AC 99 – 138 V		
Mains frequency	47 – 63 Hz					
Efficiency (typ.)	80 %					
Startup current limitation	< 10 A typ. – in cold state < 15 A typ. – in warm state			< 25 A typ. – in cold state < 35 A typ. – in warm state		
Fuse	4 AT			8 AT		
General specifications, see page 1153						

Ripac power supplies for CPCI, plug-in

	1												2			
Height (H)	3 U												6 U			
Width (B)	8 HP												8 HP			
Depth (T) in mm	170.0												170.0			
Model No. RP AC power supply	3688.534				3688.694				3688.695				3688.528			
Model No. RP DC power supply	3688.537				3688.655				3688.696				3688.530			
Output sizes																
Output	U_1	U_2	U_3	U_4	U_1	U_2	U_3	U_4	U_1	U_2	U_3	U_4	U_1	U_2	U_3	U_4
Output voltage	5 V	3.3 V	12 V	−12 V	5 V	3.3 V	12 V	−12 V	5 V	3.3 V	12 V	−12 V	5 V	3.3 V	12 V	−12 V
Output current	25 A	20 A	5 A	0.5 A	30 A	25 A	5 A	0.5 A	33 A	33 A	6 A	1.5 A	40 A	40 A	9 A	1 A
Outpu current U_1 and U_2	30 A max.				38 A max.								80 A max.			
Maximum power output	175 W				200 W				250 W				350 W			
Base load (only U_1)	5 %	–			5 %	–			5 %	–			10 %			
Load compensation (dyn.)	< 3 % at 25 % load variation (1A/µs) 1 % after 300 µs															
Line regulation	< ± 1 % (90 – 264 V AC)												< ± 1 % (90 – 264 V AC) U_1, U_2, U_3			
Infeed compensation (Sense)	0.25 V	0.25 V	0.25 V	–	0.25 V	0.25 V	0.25 V	–	–	–	–	–	0.25 V	0.25 V	0.25 V	–
Residual ripple (PARD)	50 mV or 1 % (bandwidth 20 MHz)															
Temperature coefficient	< ± 0.02 %/K (0° – 50°C) after 20 min. start-up time															
Overvoltage protection	125 % ± 10 %, reset by switching on again															
Overload protection	Current limiting of all outputs, automatic return at normal load															
Overtemperature protection	At overtemperature switches off all outputs, automatic return at normal temperature															
Input variables																
Mains voltage or DC input	90 – 264 V AC, 47 – 63 Hz, 3.2 A max. 36 – 72 V DC, 7.9 A												90 – 264 V AC, 47 – 63 Hz, 7 A 40 – 72 V DC, 14 A			
Power Factor	0.99 at V AC 115 V, full load															
Starting current	15 A (115 V AC) cold start, 30 A (230 V AC) cold start															
Fuse	3.15 A, 250 V AC or 10 A, DC												10 A, 250 V AC or 20 A, DC			
Signals and control cables																
Power Fail (Pin 42)	In the event of a mains failure > 4 ms before output voltages from control range and in the event of failure or undervoltage of any output voltage															
DEG (pin 38)	In case of overtemperature												–			
Remote enable	Use logic "0" (TTL level)															
Remote inhibit	Use logic "1" (TTL level)															
LED displays, two-colour	Green: "Power ON" and output voltages present Red: Error															

General specifications, see page 1154

B

3.4

Power supply units

Power supply units

CPCI power supplies, uninterruptible power supply

CPCI power supply

Open Frame 400 watts
- Wide-range input (90 – 253 V AC)
- Power factor to EN 61 000-3-2
- Radio interference suppression to EN 55 022, curve B
- Immunity to interference to EN 61 000-4-2/4/5 Level 3 (formerly IEC 801-2/4/5)
- Quick installation due to "Fast On" connectors (approx. 30 sec.)
- Tested to EN 60 950, UL 1950 and CSA 22.2 No. 234

Technical specifications:
400 W max.
3.3 V/25 A
5.0 V/25 A
12.0 V/8 A
–12.0 V/7 A

Height mm	Width mm	Depth mm	Model No. RP
126	63	279	**3687.695**

CPCI power supply

Plug-type, 180 watts
- Module, 3 U, 12 HP, plug-in
- Connector M24/8/DIN 41612
- Automatic changeover 120/230 V AC
- All outputs permanently short-circuit resistant
- SELV outputs to EN 60 950
- Overvoltage protection on the primary and secondary circuits
- Overtemperature protection
- Control inputs: ENABLE, INHIBIT
- Signal output: DERATE
- EMC standards EN 50 081-1 and EN 50 082-2
- EN 60 950/VDE 0805-SELV, protection category I, VDE 0100

Technical specifications:
180 W max.
5.1 V/20 A
3.3 V/14 A
12.0 V/2 A
–12.0 V/1 A

Detailed data specification sheet available on request.

Height U	Width HP	Model No. RP	
		Power supply	Front panel for power supply
3	12	**3686.682**	**3685.330**

⊞ **Accessories:**

Female connector type M24/8, see page 485.
Female connector type H15, see page 550.
Guide rails, see page 509 onwards.

Uninterruptible power supply

- Ensures power continuity in the event of a mains failure
- Suitable for installation in a 5^1/$_4$″ drive holder
- Floating contacts (DB-9) for UPS communication: Indicates the operating states: mains ok/mains failure/end of battery capacity/input for UPS deactivation signal
- Integral maintenance-free batteries
- CE certified, EN 60 950 tested (LVD/EMC)

Note:
The UPS does not have an RS-232 interface. Upon request you can obtain an adaptor cable including CD-ROM with shutdown drivers for automatic termination of program routines and shutdown of the system for Windows, Netware and Linux.
Additional battery (5^1/$_4$″) to extend to 500 VA available on request.

Packs of	Model No. RP
1	**3659.080**

Technical specifications:
Output 300 VA/180 W
Input/output voltage: 220, 230, 240 V AC ± 15 %
Input frequency: 50 Hz ± 5 %
Output frequency: 50 Hz ± 1 %
Switch-over time: < 4 ms
Charging time: 6 – 8 hours
(to 90 % capacity)
Operating environment:
Temperature 0°C – 40°C,
Humidity 0 – 90 %
Status displays:
LED for mains operation, back-up, low battery, over-temperature
Acoustic alarms:
Mains interruption (sounds every 5 sec.),
Low battery (sounds every sec.)
Test function:
Test switch on the front panel to check the UPS function
Approvals:
CE, EN 60 950 tested (LVD/EMC)
Hold-up time: 6 min.

ATX power supply unit

for external switches
- PS/2 model
- Built-in fan
- Short circuit-protected
- CSA-approved
- Connection cable for 5$\frac{1}{4}$″ and 3$\frac{1}{2}$″ disk drives, hard drive and motherboard
- PFC passive

Technical specifications:
300 W/230 V AC
+3.3 V, 0.2 A/16.0 A
+5.0 V, 30.0 A/19.5 A
+12.0 V, 11.0 A
–12.0 V, 0.8 A
–5.0 V, 0.3 A
+5.0 VSB, 2.0 A
+3.3 V and +5 V, total max. 150 W
if 3.3 V/0.2 A, target +5 V/30 A
if 3.3 V/16 A, target +5 V/19.5 A

Packs of	Model No. RP
1	**3687.793**

Supply includes:
Connection cable.

+ Accessories:

Front panel for ATX power supply,
see page 483.
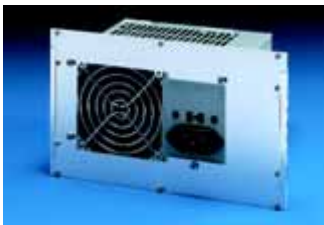
Front panel

for ATX power supply
Front panel with cutouts for mounting the ATX power supply units in the subrack.

Material:
Aluminium, clear-chromated

Supply includes:
1 front panel, assembly parts,
EMC gaskets (with EMC version).

U	HP	Model No. RP	
		EMC	Non-EMC
3	42	**3685.331**	**3685.328**
6	21	**3685.332**	**3685.329**

TE = HP
HE = U
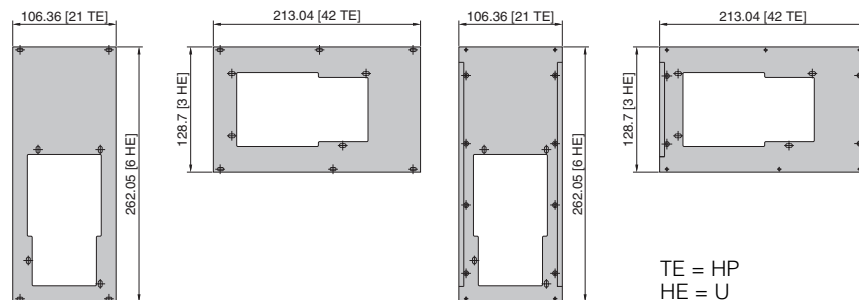
AT/ATX power supply

- PS/2 model
- Built-in fan
- Short circuit-protected
- CSA-approved
- On/off switch
- PFC active/passive
- W x H x D = 86 x 150 x 140 mm
- 47 – 63 Hz

Supply includes:
Connection cable.

Version	Power	Packs of	Model No. RP
AT	300 W	1	**3688.118**
AT for RAID	300 W	1	**3688.119**
ATX	300 W	1	**3688.121**
ATX	250 W	1	**3688.127**
ATX	300 W	1	**3688.129**
ATX	400 W	1	**3688.128**

Technical specifications:

3688.118	3688.119	3688.121	3688.127	3688.129	3688.128
300 W max./ 230 V AC 5.0 V/30.0 A –5.0 V/0.5 A 12.0 V/12.0 A –12.0 V/0.5 A PFC passive	300 W/ 230 V AC 5.0 V/16.0 A –5.0 V/1.0 A 12.0 V/18.0 A –12.0 V/1.0 A PFC passive	300 W max./ 115/230 V AC 3.3 V/15.0 A 5.0 V/30.0 A –5.0 V/0.3 A 12.0 V/15.0 A –12.0 V/0.8 A +5 VSB/2.0 A 3.3 V plus 5 V max. = 200 W 3.3 V, 5 V plus 12 V max. = 280 W PFC passive	250 W max./ 100 – 240 V AC 3.3 V/20.0 A 5.0 V/25.0 A –5.0 V/0.3 A 12.0 V/13.0 A –12.0 V/0.8 A +5 VSB/2.0 A 3.3 V plus 5 V max. = 150 W 3.3 V, 5 V plus 12 V max. = 230 W PFC active	300 W max./ 110 – 240 V AC 3.3 V/28.0 A 5.0 V/30.0 A –5.0 V/0.3 A +5 VSB/2 A 12.0 V/13.0 A –12.0 V/0.8 A 3.3 V plus 5 V max. = 180 W 3.3 V, 5 V plus 12 V max. = 280 W PFC active	400 W max./ 110 – 240 V AC 3.3 V/28.0 A 5.0 V/40.0 A –5.0 V/0.3 A 12.0 V/15.0 A –12.0 V/0.8 A +5 VSB/2.0 A 3.3 V plus 5 V max. = 235 W 3.3 V, 5 V plus 12 V max. = 380 W PFC active

B

3.4

Power supply units

Power supply units

AT/ATX power supplies, redundant power supplies

ATX power supply unit 1 U
- 2 built-in fans
- Short circuit-protected
- On/off switch
- PFC active
- W x H x D = 85 x 40 x 230 mm

Technical specifications:
200 W max./
100 – 240 V AC
47 – 63 Hz
3.3 V/14.0 A
5.0 V/20.0 A
–5.0 V/0.3 A
12.0 V/6.0 A
–12.0 V/0.8 A
+5 VSB/2 A
+3.3 V plus 5 V max. = 120 W
+3.3, 5 V plus 12 V max. = 180 W

Version	Packs of	Model No. RP
ATX	1	**3688.130**

Supply includes:
DC connection cable.

Redundant power supply
for RAID
- Built-in fan
- Hot-swap version
- PFC active
- Individual power pack available (separately)
- W x H x D = 190 x 170 x 183 mm

Technical specifications:
2 x 300 W
90 – 264 V AC
47 – 63 Hz
5.0 V/25.0 A
12.0 V/14.0 A
–5.0 V/0.5 A
–12.0 V/0.5 A

Version	Packs of	Model No. RP
RAID version	1	**3688.125**
Individual power pack (spare)	1	**3688.126**

Supply includes:
DC connection cable.

Redundant power supply
for ATX
- PS/2 model, 2 switches, 1 connector
- Built-in fan
- Hot-swap version
- PFC active
- Individual power pack available (separately)
- W x H x D = 86 x 150 x 185 mm

Technical specifications:
2 x 300 W
90 – 264 V AC
47 – 63 Hz
3.3 V/20.0 A
5.0 V/25.0 A
5 VSB/1.5 V
12.0 V/16.0 A max. 20 A
–12.0 V/0.5 A
5 V, 3.3 V and 12 V plus max. 285 W

Version	Packs of	Model No. RP
ATX version	1	**3688.123**
Individual power pack (spare)	1	**3688.124**

Supply includes:
DC connection cable.

B

3.4

Power supply units

Redundant power supply

for ATX
- PS/2 model, 2 switches, 2 connector
- Built-in fan
- Hot-swap version
- PFC active
- Individual power pack available (separately)
- W x H x D = 86 x 160 x 220 mm

Technical specifications:
2 x 300 W
90 – 264 V AC
47 – 63 Hz
3.3 V/18.0 A
5.0 V/26.0 A
5.0 VSB/1.2 A
12.0 V/16.0 A max. 20 A
–12.0 V/1.0 A
+5 V, 3.3 V plus 12.0 V max. = 285 W

Version	Packs of	Model No. RP
ATX version	1	3688.120
Individual power pack (spare)	1	3688.122

Supply includes:
DC connection cable.
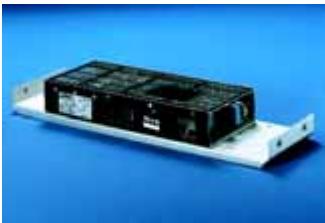
Mounting base for power supplies

- Attaches to the subrack side panel

Material:
2 mm aluminium, clear-chromated

Supply includes:
Assembly parts.

Width (B) mm	Depth (T) mm	Model No. RP
431.8	100	3684.323
431.8	130	3684.324
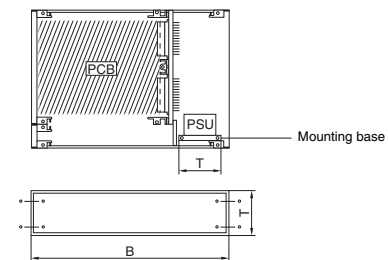
Female connector type M24/8

IEC 60 603-2 (DIN 41 612)
- Female connector for plug-in CPCI power supplies
- Quality level 2 to IEC 60 603-2 (DIN 41 612)
- Optional 20 A high current contacts for straight conductor connection either crimp or solder
- Volume resistance max. 1.5 mΩ
- Max. rated current: 40 A

Supply includes:
5 connection sockets
(crimping or soldering method).

Type of connection	Packs of	Model No. RP
Soldering	1	3687.665
Crimping	1	3687.666

! Also required:

For mounting in the subrack,
a Z rail is required,
see page 504.

**Female connector type H15
IEC 60 603-2 (DIN 41 612)**
for plug-in power supplies,
see page 550.
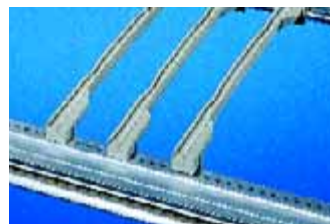
Plastic guide rails
for routing the plug-in power
supply,
see page 509.

Keyable guide rails, plastic,
see page 510/511.

Note:
The CompactPCI specification
prescribes green guide rails with
$1/2$ HP offset for power supply
installation (PICMG 2.11).

B

3.4

Power supply units

Subracks

Features
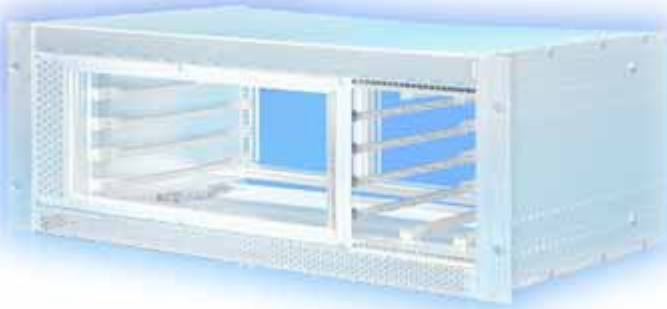
The modular concept of Ripac subracks facilitates a wide range of potential applications with a minimum of components.

All Ripac subracks are based on to common horizontal rails and system components.

The difference lies in the design of the side panels and/or installation variants.

The subracks are shock- and vibration-tested and comply with IEC 60 297-3 as well as IEEE 1101.1/1101.10.

Design features, Ripac Vario and Vario EMC
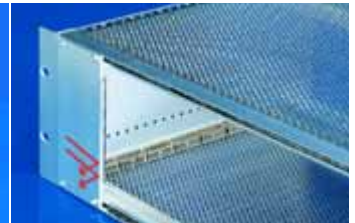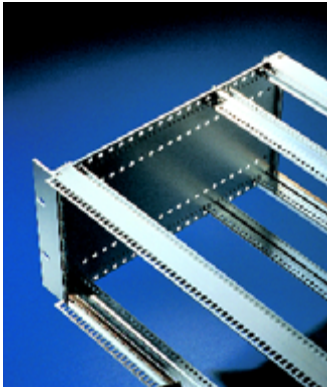
Depth-variable system installation is supported by the 10 mm pitch pattern of holes in the side panels.

Complex applications thanks to numerous size variants and system accessories.

EMC shielding via horizontal and vertical EMC gaskets. May also be retrofitted.

Design features, Ripac Compact
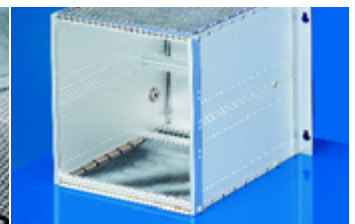
Top-hat rail mounting
Rear adaptors allow simple snap-mounting directly onto the top-hat rail.

Mounting on mounting plates
Machined keyholes for direct mounting on mounting plates.

EMC version optional.

Design features, Ripac Vario Mobil

- The subracks have been tested for use in the German national railway.
Testing was conducted in accordance with standard EN 50 155 (electronic equipment in rail vehicles). The construction of the subracks tested conforms to IEC 60 297.

- Vibration and shock-tested to:
IEC 600-68-2-6, test Fc
IEC 600-68-2-27, test Ea
- Supply includes:
Subrack, fully assembled.

Subracks

Features

Design features, Ripac ECO
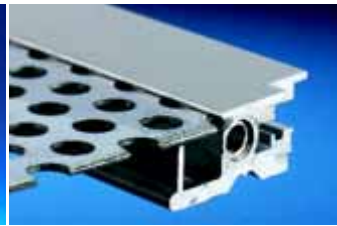
Side panels of sheet steel, zinc-plated. Flanges of aluminium, clear-chromated. Prescribed mounting positions for 160 and 220 mm board formats.

Simple cover mounting: Easily slid into the horizontal rails.

System installation, accessories

Guide rails of plastic or aluminium, also keyable.

Covers vented or solid, snap-fastening or screw-fastening.

ESD contacts for guide rails, to remove electrostatic charges.
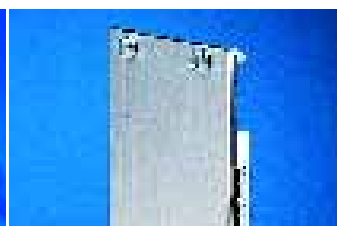
Keys for keying the board-type plug-in units.

Front panels in various versions, e.g. with handles, vented or for EMC applications.

Injector/extractor handles self-latching, of plastic or aluminium.

Connectors IEC 60 603-2 (DIN 41 612) in various designs.

Mounting kits for combined installation of single and double Euroboards, horizontal or vertical.

Subrack

Ripac ECO 3 U, 6 U, sheet steel

B = Width
T = Depth
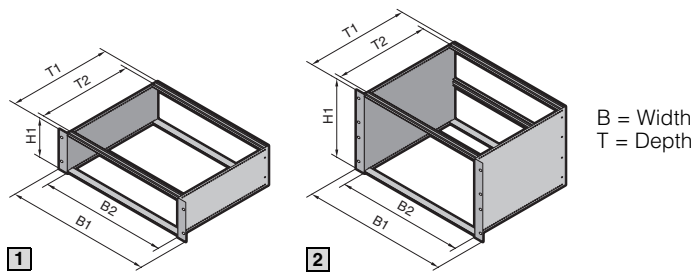
Material/surface finish:
Side panels:
1.5 mm sheet steel, zinc-plated,
passivated
Flanges/horizontal rails:
Extruded aluminium section,
clear-chromated

Supply includes:
Side panels, flanges,
horizontal rails, threaded inserts

Detailed parts lists,
see page 1155.

Tests:
Vibration and shock-tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards:
Ripac subracks are based
on the system dimensions of
IEC 60 297-3/-5.

Detailed drawing,
see page 1155.
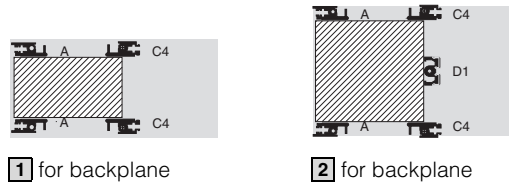
1 for backplane   2 for backplane

					Model No. RP		Page
					1	2	
U (H1)					3	6	
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For backplane	
482.6 (19″)	84	175	150	160	**3688.114**	**3688.116**	
		235	210	220	**3688.115**	**3688.117**	

Accessories		
Trim section rear, 3 U	3688.112	497
Trim section rear, 6 U	3688.113	497
Z (connector) rail	3684.602	504
Insulating strips	3684.611	505
Cover, perforated, for 175 mm depth	3688.105	518
Cover, perforated, for 210 mm depth	3688.106	518
Cover, solid, for 175 mm depth	3688.107	518
Cover, solid, for 210 mm depth	3688.108	518
Mounting clips for covers	3688.109	518
Assembly screw for mounting clips	9902.188	518
Guide rails		509
Horizontal rails		498
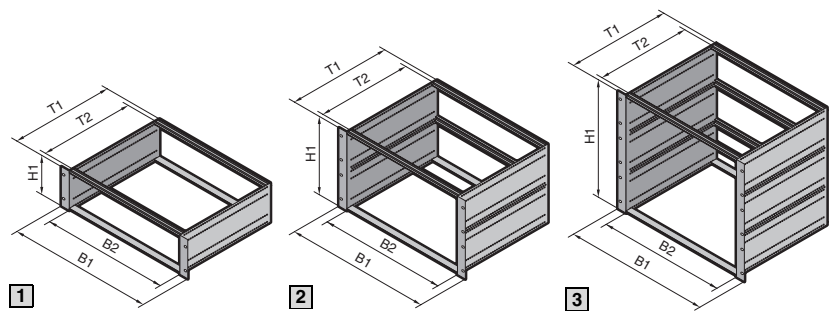
B = Width
T = Depth

Material/surface finish:
Side panels:
2.5 mm aluminium,
clear-chromated
482.6 mm (19″) flanges and
horizontal rails:
Extruded aluminium section,
clear-chromated

Supply includes:
Flanges, side panels,
horizontal rails,
threaded inserts, insulating
strips, fastenings.

Detailed parts lists,
see page 1156.

Tests:
Vibration and shock-tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards:
Ripac subracks are based
on the system dimensions on
IEC 60 297-3/-5.

Detailed drawing,
see page 1155.

B
3.5

Subrack

1 Top: For backplane
Bottom: For connector

2 Top: For backplane
Bottom: For connector

3 Top: For backplane
Bottom: For connector

					Model No. RP					
					1		2		3	
U					3	3	6	6	9	9
Height (H1) in mm					132		265.35		398.70	
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For connectors IEC 60 603-2 (DIN 41 612)	For backplane	For connectors IEC 60 603-2 (DIN 41 612)	For backplane	For connectors IEC 60 603-2 (DIN 41 612)
482.6 (19″)	84	185	160	160	**3684.020**	**3684.034**	**3684.043**	**3684.056**	–	–
		225	200	160	**3684.021**	**3684.035**	**3684.044**	**3684.057**	–	–
		245	220	220	**3684.022**	**3684.036**	**3684.045**	**3684.058**	–	–
		285	260	220	**3684.023**	**3685.281**	**3684.046**	–	–	–
		305	280	280	**3685.231**	**3685.233**	**3685.238**	**3685.240**	–	–
		345	320	280	**3684.024**	–	**3684.047**	–	**3684.051**	**3684.059**
		365	340	340	**3685.232**	**3685.234**	**3685.239**	–	–	–
		405	380	340	**3684.025**	–	**3684.048**	–	**3684.052**	**3684.060**
		465	440	400	**3684.026**	–	**3684.049**	–	**3684.053**	**3684.061**
		525	500	400	**3684.027**	–	**3684.050**	–	**3684.054**	–
		585	560	400	–	–	–	–	**3684.055**	–

Covers Page 515 **Guide rails** Page 509 **Assembly kits** Page 508 **Horizontal rails** Page 498 **EMC accessories** Page 506 **Front panels** Page 525

Subrack

Ripac Vario 4 U, 7 U

B = Width
T = Depth

Material/surface finish:
Side panels:
2.5 mm aluminium,
clear-chromated
482.6 mm (19″) flanges and
horizontal rails:
Extruded aluminium section,
clear-chromated

Supply includes:
Flanges, side panels,
horizontal rails,
threaded inserts, insulating
strips, fastenings.

Detailed parts lists,
see page 1156.

Tests:
Vibration and shock-tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards:
Ripac subracks are based
on the system dimensions of
IEC 60 297-3/-5.

Detailed drawing,
see page 1155.

1 Top: For backplane
Bottom: For connector

2 Top: For backplane
Bottom: For connector

3 Top: For backplane
(6 U + 1 U)

4 Bottom: For backplane
(6 U + 2 x 1/2 U)

						Model No. RP					
						1		**2**		**3**	**4**
U (H1 + H2)						**4** (3 + 1)	**4** (3 + 1)	**4** (3 + 2 x 1/2)	**4** (3 + 2 x 1/2)	**7** (6 + 1)	**7** (6 + 2 x 1/2)
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm		For backplane	For connectors IEC 60 603-2 (DIN 41 612)	For backplane	For connectors IEC 60 603-2 (DIN 41 612)	For backplane	For backplane
482.6 (19″)	84	245	220	220		**3685.235**	–	–	–	–	–
		285	260	220		**3684.028**	**3684.037**	**3684.031**	**3684.040**	–	–
		305	280	280		**3685.236**	–	–	–	–	–
		345	320	280		**3684.029**	**3684.038**	**3684.032**	**3684.041**	–	–
		365	340	340		**3685.237**	–	–	–	–	–
		405	380	340		**3684.030**	**3684.039**	**3684.033**	**3684.042**	**3684.064**	**3684.062**
		465	440	400		–	–	–	–	**3684.065**	**3684.063**
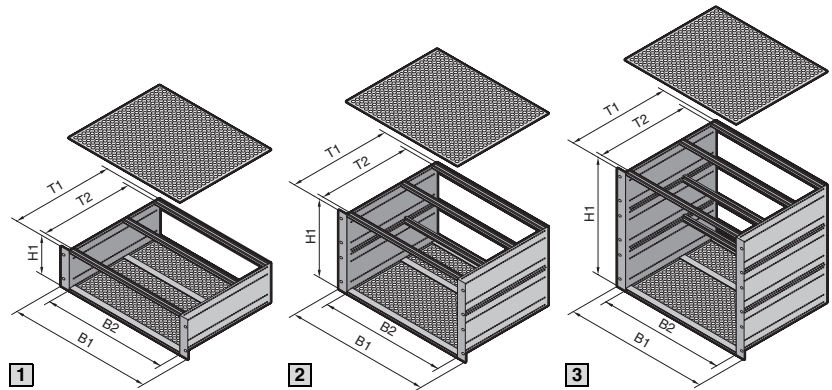
B
3.5
Subrack

B = Width
T = Depth

Material/surface finish:
Side panels:
2.5 mm aluminium,
clear-chromated
Flanges and horizontal rails:
Extruded aluminium section,
clear-chromated
Covers: Aluminium, unplated

Supply includes:
Flanges, rear trim, side panels,
EMC gaskets, covers,
mounting blocks, horizontal
rails, insulating strips.

Detailed parts lists,
see page 1156.

Tests:
Vibration and shock-tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards:
Ripac subracks are based
on the system dimensions of
IEC 60 297-3/-5.

Detailed drawing,
see page 1155.

1
Top: For backplane
Bottom: For backplane/
front horizontal rail with
10 mm extension

2
Top: For backplane
Bottom: For backplane/
front horizontal rail with
10 mm extension

3
Top: For backplane
Bottom: For backplane/
front horizontal rail with
10 mm extension

						Model No. RP					
						1		2		3	
U						3		6		9	
Height (H1) in mm						132		265,35		398,70	
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm		For backplane	For backplane[1]	For backplane	For backplane[1]	For backplane	For backplane[1]
482.6 (19″)	84	245	220	160		**3684.128**	**3684.142**	**3684.156**	**3684.169**	–	–
		285	260	220		**3684.129**	**3684.143**	**3684.157**	**3684.170**	–	–
		305	280	220		**3685.241**	**3685.243**	**3685.242**	**3685.244**	–	–
		345	320	280		**3684.130**	**3684.144**	**3684.158**	**3684.171**	3684.162	3684.175
		405	380	340		**3684.131**	**3684.145**	**3684.159**	**3684.172**	3684.163	3684.176
		465	440	400		**3684.132**	**3684.146**	**3684.160**	**3684.173**	3684.164	3684.177
		525	500	400		**3684.133**	**3684.147**	**3684.161**	**3684.174**	3684.165	3684.178
		585	560	400		–	–	–	–	3684.166	3684.179

[1] Front horizontal rails with 10 mm extension for injector/extractor handles (B)

Guide rails Page 509 **Assembly kits** Page 508 **Horizontal rails** Page 498 **EMC accessories** Page 506 **Front panels** Page 525

Subrack

Ripac Vario EMC 4 U, 7 U

B = Width
T = Depth

Material/surface finish:
Side panels:
2.5 mm aluminium,
clear-chromated
Flanges and horizontal rails:
Extruded aluminium section,
clear-chromated
Covers: Aluminium, unplated

Supply includes:
Flanges, rear trims, side panels,
EMC gaskets, covers, mounting
blocks, horizontal rails,
threaded inserts, insulating
strips.

Detailed parts lists,
see page 1156.

Tests:
Vibration and shock-tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards:
Ripac subracks are based
on the system dimensions of
IEC 60 297-3/-5.

Detailed drawing,
see page 1155.

1
Top: For backplane
Bottom: For back-
plane/front horizontal
rail with 10 mm
extension

2
Top: For backplane
Bottom: For back-
plane/front hoprizontal
rail with 10 mm
extension

3
Top: For backplane
Bottom: For back-
plane/front horizontal
rail with 10 mm
extension

4
Top: For backplane
Bottom: For back-
plane/horizontal rails,
front, with 10 mm
extension

					Model No. RP							
					1		**2**		**3**		**4**	
U (H1 + H2)					4 (3 + 1)	4 (3 + 1)	4 (3 + 2 x ¹/₂)	4 (3 + 2 x ¹/₂)	7 (6 + 1)	7 (6 + 1)	7 (6 + 2 x ¹/₂)	7 (6 + 2 x ¹/₂)
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm	For backplane	For backplane[1]	For backplane	For backplane[1]	For backplane	For backplane[1]	For backplane	For backplane[1]
482.6 (19″)	84	285	260	220	3684.134	3684.148	3684.137	3684.151	3684.187	3684.192	–	–
		345	320	280	3684.135	3684.149	3684.138	3684.152	3684.188	3684.193	3684.189	3684.196
		405	380	340	3684.136	3684.150	3684.139	3684.153	3684.180	3684.194	3684.190	3684.197
		465	440	400	–	–	–	–	3684.181	3684.195	3684.191	3684.198

[1] Front cross rails with 10 mm extension for injector/extractor handles (B)
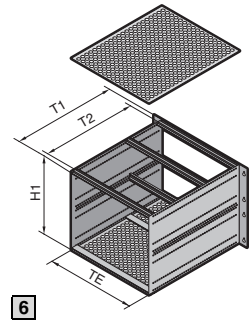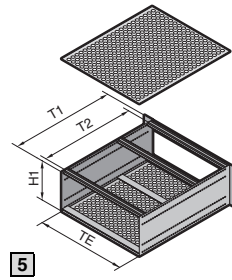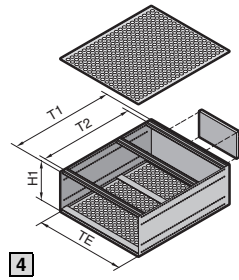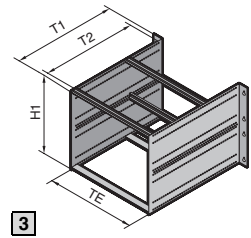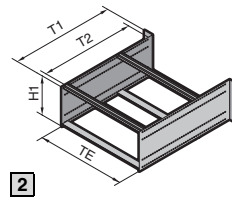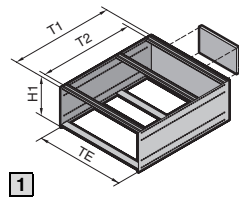
Guide rails Page 509   **Assembly kits** Page 508   **Horizontal rails** Page 498   **EMC accessories** Page 506   **Front panels** Page 525

Ripac Compact 3 U, 6 U

T = Depth
TE = HP

1 4

Ripac Compact 3 U
for top-hat rail

2 3 5 6

Ripac Compact 3 U
for mounting plate

B

3.5

Subrack

Material/surface finish:
Side panels:
2.5 mm aluminium,
clear-chromated
Flanges and horizontal rails:
Extruded aluminium section,
clear-chromated

Supply includes:
Side panels, front trims, flanges
for mounting plates or top-hat
rail adaptors, EMC-front/rear
panels, EMC gaskets, covers,
horizontal rails, threaded
inserts, insulating strips.

Detailed parts lists,
see page 1157.

Tests:
Vibration and shock-tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea

Standards:
Ripac subracks are based
on the system dimensions of
IEC 60 297-3/-5.

Detailed drawing,
see page 1155/1157.

1 Top:
For top-hat rail

2 Bottom:
For mounting plate

3 For mounting plate

4 Top: EMC for
top-hat rail

5 Bottom: EMC for
mounting plate

6 EMC for mounting
plate

				Model No. RP					Model No. RP EMC			
			1	2	1	2	3	4	5	4	5	6
U			3	3	3	3	6	3	3	3	3	6
Height (H1) in mm			132				265.35	132				265.35
HP			21	21	42	42	42	21	21	42	42	42
Mounting			Top hat rail	Mounting plate	Top hat rail	Mounting plate	Mounting plate	Top hat rail	Mounting plate	Top hat rail	Mounting plate	Mounting plate
Side panel (T1) mm	T2 mm	Max. board depth mm	For backplane									
225	200	160	**3687.667**	**3687.669**	**3687.671**	**3687.673**	**3687.680**	**3687.682**	**3687.684**	**3687.686**	**3687.688**	**3687.690**
285	260	220	**3687.668**	**3687.670**	**3687.672**	**3687.674**	**3687.681**	**3687.683**	**3687.685**	**3687.687**	**3687.689**	**3687.691**

Covers Page 515 **Guide rails** Page 509 **Assembly kits** Page 508 **Horizontal rails** Page 498 **EMC accessories** Page 506 **Front panels** Page 525

Subrack

Ripac Vario Mobil 3 U, 6 U, for mobile use

B = Width
T = Depth

Material/surface finish:
Side panels:
2.5 mm aluminium,
clear-chromated
482.6 mm (19″) flanges and
horizontal rails:
Extruded aluminium section,
clear-chromated
Covers: Aluminium, unplated

Supply includes:
Flanges, rear trims, side panels,
EMC gaskets, covers, mounting
blocks, horizontal rails, threaded
inserts, insulating strips, fully
assembled.

Detailed parts lists,
see page 1158.

Tests:
Vibration and shock-tested to:
IEC 600-68-2-6 test Fc
IEC 600-68-2-27 test Ea
The subracks have been tested
for use in the German national
railway. The test was conducted
in accordance with standard
EN 50 155, 1996 (electrical
equipment for rail vehicles).
The configuration of the tested
subracks conforms to IEC 48D.

Standards:
Ripac subracks are based on
the system dimensions of
IEC 60 297-3/-5.

Note:
The subracks are supplied fully
assembled.

Detailed drawing,
see page 1155/1158.
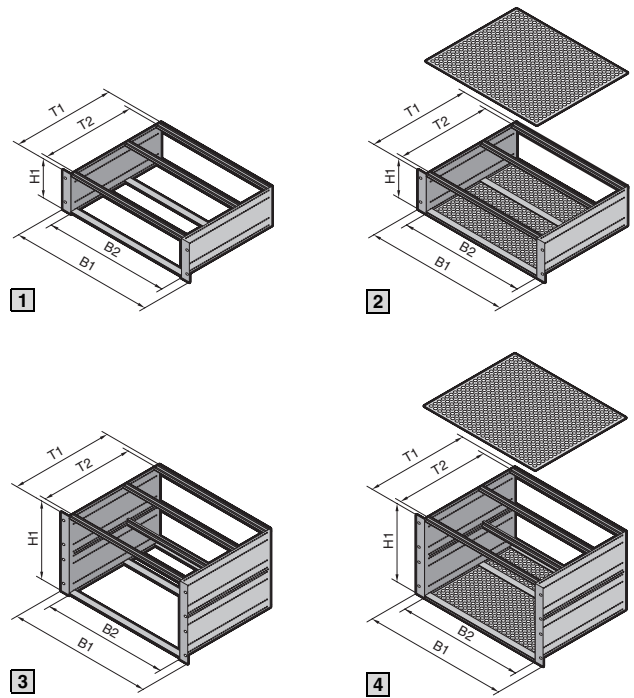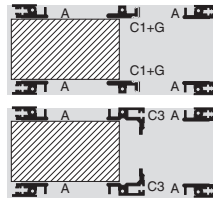
1 Top:
For backplane
Bottom:
For connector
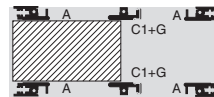
2 EMC for backplane
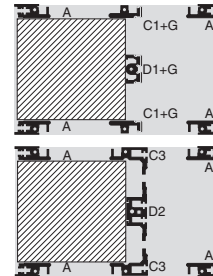
3 Top:
For backplane
Bottom:
For connector

4 EMC for backplane

						Model No. RP 1		**Model No. RP EMC** 2	**Model No. RP** 3		**Model No. RP EMC** 4
U						3	3	3	6	6	6
Height (H1) in mm						132			265.35		
B1 mm	B2 HP	Side panel (T1) mm	T2 mm	Max. PCB depth mm		For backplane	For connectors IEC 60 603-2 (DIN 41 612)	For backplane	For backplane	For connectors IEC 60 603-2 (DIN 41 612)	For backplane
482.6 (19″)	84	245	220	220		**3687.782**	**3687.780**	**3687.784**	**3687.783**	**3687.781**	**3687.785**

B
3.5
Subrack
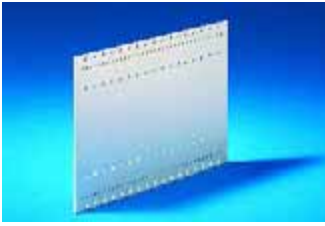
Side panels
**for Ripac Vario, Ripac Vario EMC,
Ripac Compact and Ripac Vario Mobil**
Mounting holes and anti-twist half-shears on a
10 mm pitch pattern.

Material:
2.5 mm aluminium, clear-chromated

			Model No. RP								
U			**3**	**4 (3 + 1)**	**4 (3 + 2 x ¹/₂)**	**6**	**7 (6 + 1)**	**7 (6 + 2 x ¹/₂)**	**9**	**10**	**11**
D (T) mm	a¹⁾ mm	Packs of									
185	160	1	3684.511	–	–	3684.529	–	–	–	–	–
225	200	1	3684.512	3685.793	3685.890	3684.530	3685.896	3685.893	3685.797	–	–
245	220	1	3684.513	3685.850	3685.891	3684.531	3685.897	3685.894	–	–	–
285	260	1	3684.514	3684.523	3684.526	3684.532	3685.743	3685.895	–	–	–
305	280	1	3684.515	3685.794	–	3684.533	–	–	3685.798	–	–
345	320	1	3684.516	3684.524	3684.527	3684.534	3685.744	3685.745	3684.547	–	–
365	340	1	3684.517	3685.795	–	3684.535	–	–	3685.799	–	–
405	380	1	3684.518	3684.525	3684.528	3684.536	3684.541	3684.543	3684.548	3684.545	–
425	400	1	3684.519	–	–	3684.537	–	–	–	–	–
465	440	1	3684.520	3685.796	3685.892	3684.538	3684.542	3684.544	3684.549	3684.546	3684.552
525	500	1	3684.521	–	–	3684.539	3685.898	3685.959	3684.550	3685.899	3684.553
585	560	1	3684.522	–	–	3684.540	–	–	3684.551	–	3684.554

¹⁾ a = Distance between the first and last mounting hole

B
3.5

Subracks, individual components

3 U

4 U (3 U + 1 U)

4 U (3 U + 2 x ¹/₂ U)

6 U

7 U (6 U + 1 U)

7 U (6 U + 2 x ¹/₂ U)

9 U

10 U

11 U
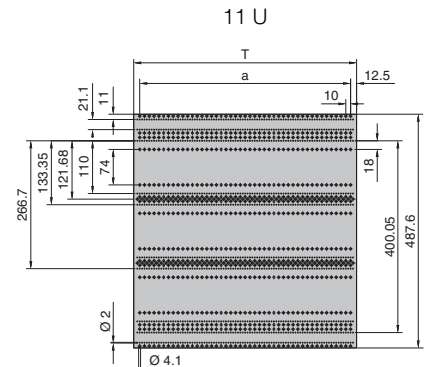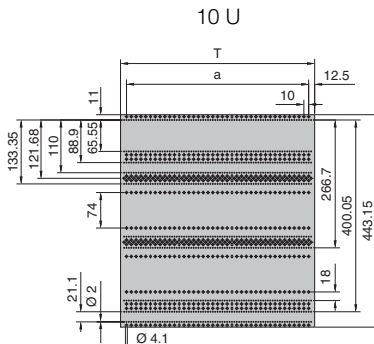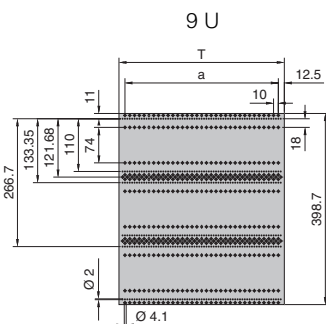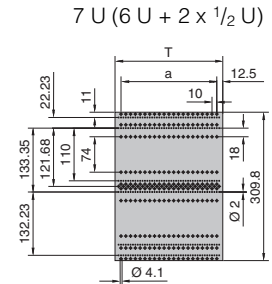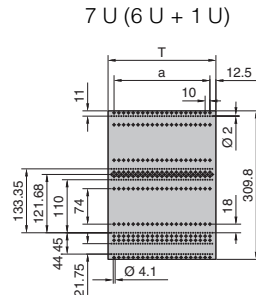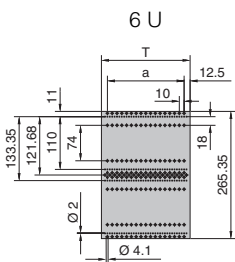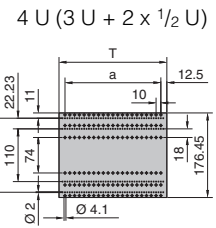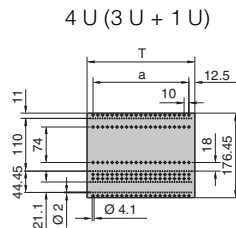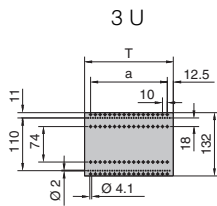
Subracks, individual components

Side panels and flanges

Flange 482.6 mm (19 ″)

To fit all Ripac Vario, Ripac Vario EMC, Ripac Compact and Ripac Vario Mobil subracks. With integral channel to accommodate EMC gaskets.

Material:
Extruded aluminium section

Surface finish:
Clear-chromated
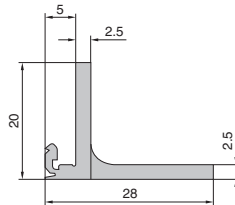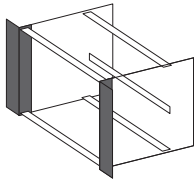
U	Packs of	Model No. RP	
		with handle holes	without handle holes
2	1	–	3684.614
3	1	3684.622	3684.615
4	1	3684.623	3684.616
6	1	3684.624	3684.617
7	1	3684.625	3684.618
9	1	–	3684.619
10	1	–	3684.620
11	1	–	3684.621

Accessories:

EMC gaskets, vertical,
see page 506.

Flange 482.6 mm (19 ″)

set-back
To fit all Ripac Vario, Ripac Vario EMC and Ripac Vario Mobil subracks.

Material:
Extruded aluminium section

Surface finish:
Clear-chromated
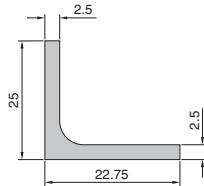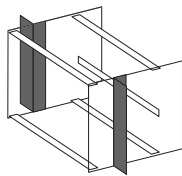
U	Packs of	Model No. RP
3	1	3684.626
4	1	3684.627
6	1	3684.628
7	1	3684.629
9	1	3684.630
10	1	3684.631
11	1	3684.632

! Also required:

Assembly screws, nuts and washers.
Packs of 4 sets, Model No. RP 3687.015,
see page 577.

Side panels

for Ripac ECO
Mounting holes for 160/220 mm PCB installation. Consistent pitch pattern of holes top and bottom for cover attachment.

Material:
1.5 mm sheet steel, zinc-plated, passivated

D (T) mm	a[1] mm	Packs of	Maximum board depth mm	Model No. RP	
				3 U	6 U
175	150	1	160	3688.100	3688.102
235	210	1	220	3688.101	3688.103

[1] a = Distance between the first and last mounting hole
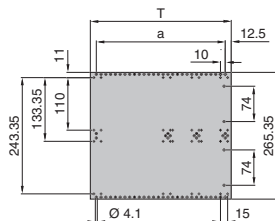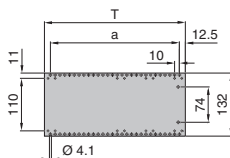
Accessories:

Flange for Ripac ECO,
see page 497.
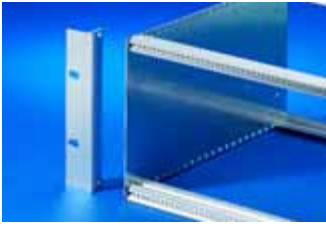
Flange 482.6 mm (19 ″)
for Ripac ECO
With integral channel to accommodate EMC gaskets.

Material:
Extruded aluminium section

Surface finish:
Clear-chromated

U	Packs of	Model No. RP
3	1	3688.110
6	1	3688.111

⊞ **Accessories:**

EMC gaskets, vertical,
see page 506.
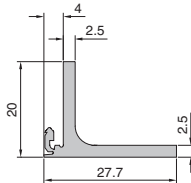
Handles
for subracks and component shelves
For fitting on the subrack flange with handle holes and on all component shelves

Material:
Die-cast zinc

Surface finish:
Spray-finished, silver-grey

Supply includes:
Assembly parts.

For	Packs of	Model No. RP
Subrack 3 U and 4 U	2	3636.010
Component shelves		
Subrack 6 U and 7 U	2	3666.010

Trim section, rear
To fit all subrack versions. Ensures 84 HP fit at the rear of the subrack. With integral channel to accommodate EMC gaskets.

Material:
Extruded aluminium section

Surface finish:
Clear-chromated

Ripac ECO   Ripac Vario

For all Ripac Vario, Ripac Vario EMC, Ripac Compact and Ripac Vario Mobil

U	Model No. RP	
	Packs of 1	Packs of 2
2	3684.633	–
3	3684.634	3685.276
4	3684.635	–
6	3684.636	3685.277
7	3684.637	–
9	3684.638	–
10	3684.639	–
11	3684.640	–
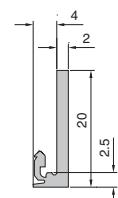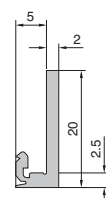
For Ripac ECO subracks only

U	Packs of	Model No. RP
3	1	3688.112
6	1	3688.113

⊞ **Accessories:**

EMC gaskets, vertical,
see page 506.

B

3.5

Subracks, individual components

Table of horizontal rails

Ripac section system: Complete, simple and easy to manage
To fit all subrack systems as well as the Ripac Vario-Module instrument case/system enclosure range

Main sections / Additional extrusions	A Front horizontal rail	B Front horizontal rail, with 10 mm extension, for extractor handle type IV or VII	B1 Double front horizontal rail, with 10 mm extension	C1 Rear horizontal rail	C2 Rear horizontal rail, reinforced version	C3 Rear horizontal rail, with integral Z rail	C4 Rear horizontal rail, with channel, for Ripac ECO	C5 Rear horizontal rail, with integral Z rail, for Ripac ECO	D1 Rear horizontal rail, centre	D2 Rear horizontal rail, centre with integral Z rail
	Page 499	Page 499	Page 500	Page 500	Page 500	Page 501	Page 501	Page 502	Page 502	Page 503
E Rear adaptor rail, centre, to acommodate guide rails Page 503	–	–	–	–	–	–	–	–		
F Z rail for connector Page 504	–	–	–			–		–		–
G Insulating strips[1] Page 505	–	–	–			–		–		
H Conductive strips[1] Page 505	–	–	–			–		–		
I Threaded insert Page 504				–					–	
J Identification strips Page 504									–	–	–
K EMC gaskets, horizontal Page 507				–	–	–			–	–	–

[1] For conductive or insulated attachment of backplanes

All system requirements may be covered with just a few basic types of horizontal rail. A cost-effective, easy-to-manage range.
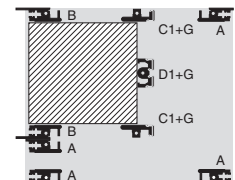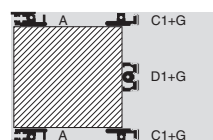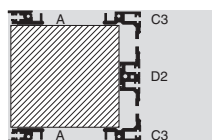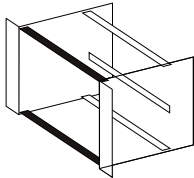
Front horizontal rail (A)

To accommodate guide rails and for the attachment of front panels.

- Front projection 2.5 mm in accordance with IEC 60 297-3.
- HP pitch patterns of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material:
Extruded aluminium section

Surface finish:
Clear-chromated or anodised
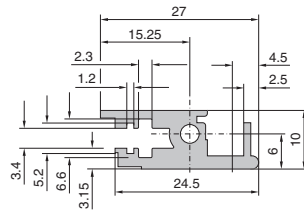
Usable width (HP)	Packs of	Model No. RP
4 (left)	1	3684.592
4 (right)	1	3684.955
8 (left)	1	3684.593
8 (right)	1	3684.956
12	1	3684.594
16	1	3684.595
20	1	3684.596
21	1	3685.985
40	1	3684.960
42	1	3684.560
63	1	3684.561
84	1	3684.562
84	2	3685.267[1]
192	1	3688.000[2]

[1] Including 4 assembly screws
[2] Anodised

⚠ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

✛ Accessories:

Threaded inserts,
see page 504.

B
3.5
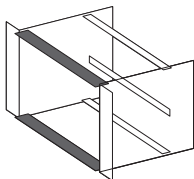
Front horizontal rail, with 10 mm extension (B)

for type IV, IVs and VII injector/extractor handle
To accommodate guide rails and for the attachment of front panels.

- Front projection and pitch pattern of holes based on IEEE 1101.10 and IEC 60 297-5-101, for use of type IV and VII injector/extractor handles
- HP pitch patterns of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material:
Extruded aluminium section

Surface finish:
Clear-chromated or anodised
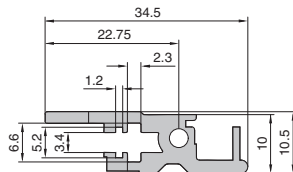
Usable width (HP)	Packs of	Model No. RP
40	1	3684.961
42	1	3684.565
63	1	3684.566
84	1	3684.567
84	2	3685.269[1]
192	1	3688.001[2]

[1] Including 4 assembly screws
[2] Anodised

⚠ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

✛ Accessories:

Threaded inserts,
see page 504.

Subracks, individual components

Subracks, individual components

Horizontal rails

Double front horizontal rail, with 10 mm extension (B1)

To accommodate guide rails and for the attachment of front panels.

- Front projection and pitch pattern of holes based on IEEE 1101.10 and IEC 60 297-5-101, for use of type IV and VII injector/extractor handles
- HP pitch patterns of holes for the precise installation of guide rails
- M4 thread on end face
- Straight-through core hole

Material:
Extruded aluminium section

Surface finish:
Clear-chromated

Usable width (HP)	Packs of	Model No. RP
84	1	3687.724

⚠ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

Rear horizontal rail (C1)

To accommodate guide rails and for the attachment of Z rails, insulating strips or conductive strips and backplanes.

- Tapped holes M2.5 on a 1 HP pitch pattern
- HP pitch patterns of holes for the precise installation of guide rails in the HP pitch pattern
- M2.5 thread for the installation of Z-rails, or backplanes.
- M4 thread on end face
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length

Material:
Extruded aluminium section

Surface finish:
Clear-chromated or anodised

Usable width (HP)	Packs of	Model No. RP
21	1	3685.991
40	1	3684.962
42	1	3684.570
63	1	3684.571
84	1	3684.572
84	2	3685.268[1]
192	1	3688.002[2]

[1] Including 4 assembly screws
[2] Anodised

⚠ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.
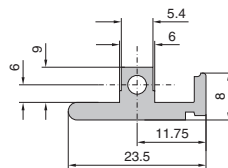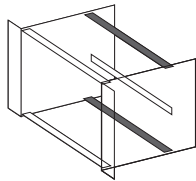
Rear horizontal rail, reinforced version (C2)

For use with high loads.

Material:
Extruded aluminium section

Surface finish:
Clear-chromated

Usable width (HP)	Packs of	Model No. RP
42	1	3687.604
63	1	3687.605
84	1	3687.606

⚠ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

✚ Accessories:

Threaded inserts,
see page 504.
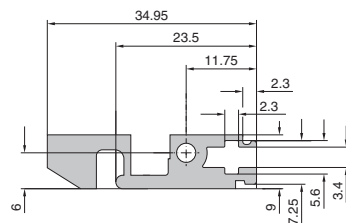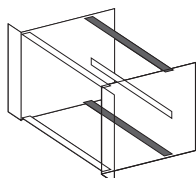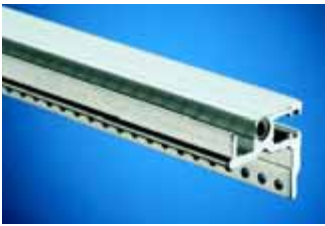
Rear horizontal rail, with integral Z rail (C3)

To accommodate guide rails. Integral Z rail for mounting connectors to IEC 60 603-2.

- HP pitch patterns of holes for the precise installation of guide rails
- 84 tapped holes M2.5 for the mounting of connectors
- M4 thread on end face
- Straight-through core hole

Material:
Extruded aluminium section

Surface finish:
Clear-chromated
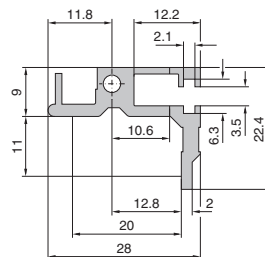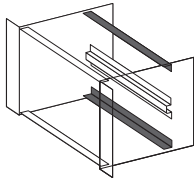
Usable width (HP)	Packs of	Model No. RP
42	1	3686.191
63	1	3686.919
84	1	3686.159

⚠ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

Rear horizontal rail, with channel, for Ripac ECO (C4)

For the accommodation of guide rails and for the attachment of Z rails, insulating strips or conductive strips and backplanes.

- HP pitch patterns of holes for the precise installation of guide rails
- Channel for sliding in covers
- For mounting backplanes/Z rails, threaded inserts (RP 3684.610) are additionally required
- M4 thread on end face
- Straight-through core hole
- Not suitable for mounting under covers

Material:
Extruded aluminium section

Surface finish:
Clear-chromated
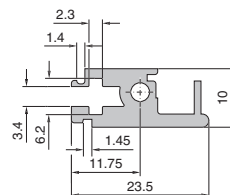
Usable width (HP)	Packs of	Model No. RP
84	1	3688.104

⚠ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

✚ Accessories:

Threaded inserts,
see page 504.

B

3.5

Subracks, individual components

Subracks, individual components
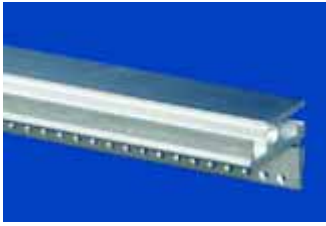
Horizontal rails

Rear horizontal rail, with integral Z rail, for Ripac ECO (C5)

To accommodate guide rails. Integral Z rail for mounting connectors to IEC 60 603-2.

● HP pitch patterns of holes for the precise installation of guide rails
● 84 tapped holes M2.5 for connector mounting
● M4 thread on end face
● Straight-through core hole
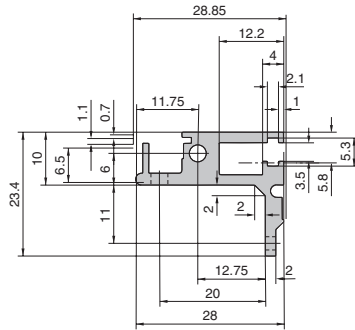
Usable width (HP)	Packs of	Model No. RP
84	1	9901.991

Material:
Extruded aluminium section

Surface finish:
Clear-chromated

! Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.
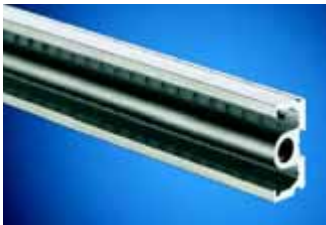
Rear horizontal rail, centre (D1)

When using 6 U PCBs or box-type plug-in units.
Option of attaching Z rails, insulating strips or conductive strips.

● 2 x 84 tapped holes M2.5
● M4 thread on end face
● Straight-through core hole
● Horizontal rail 192 HP for cutting to length

Material:
Extruded aluminium section

Surface finish:
Clear-chromated or anodised
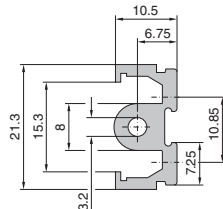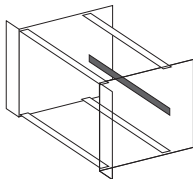
Usable width (HP)	Packs of	Model No. RP
40	1	3684.963
42	1	3684.580
63	1	3684.581
84	1	3684.582
84	1	3685.270[1]
192	1	3688.003[2]

[1] Including 2 assembly screws
[2] Anodised

! Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

B
3.5

Subracks, individual components

Rear horizontal rail, centre, with integral Z rail (D2)

When using 6 U PCBs or box type plug-in units. Integral Z rail for mounting connectors to IEC 60 603-2.

- 2 x 84 tapped holes M2.5
- M4 thread on end face
- Straight-through core hole

Material:
Extruded aluminium section

Surface finish:
Clear-chromated
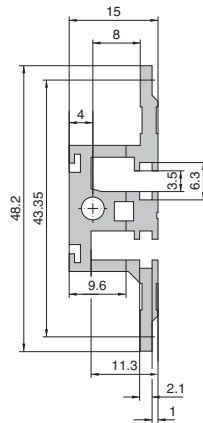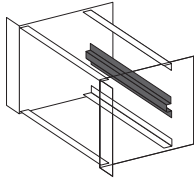
Usable width (HP)	Packs of	Model No. RP
42	1	3687.600
63	1	3687.601
84	1	3687.602

！ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

Rear adaptor rail, centre (E)

When subdividing 6 U into 2 x 3 U, the adaptor rail when fastened to the centre horizontal rail accommodates the guide rails.

- HP pitch patterns of holes for the precise installation of guide rails
- M4 and M2.5 thread on the end face
- Straight-through core hole
- Horizontal rail 192 HP without machining on the end faces. Suitable for cutting to length.

Material:
Extruded aluminium section

Surface finish:
Clear-chromated or anodised
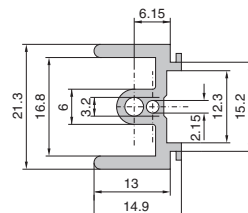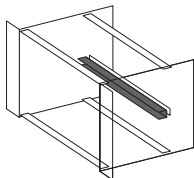
Usable width (HP)	Packs of	Model No. RP
12	1	3684.587
16	1	3684.588
20	1	3684.589
40	1	3684.964
42	1	3684.590
63	1	3686.005
84	1	3684.591
84	1	3685.272[1]
192	1	3688.004[2]

[1] Including 2 assembly screws
[2] Anodised

！ Also required:

Assembly screws M4 x 12,
packs of 100, Model No. RP 3654.300,
see page 576.

B
3.5

Subracks, individual components

Horizontal rails

Z rail for connector IEC 60 603-2 (F)

With 84 x M2.5 thread.

Material:
Extruded aluminium section

Surface finish:
Clear-chromated
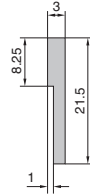
Usable width (HP)	Packs of	Model No. RP
4	1	3684.597
8	1	3684.598
20	1	3684.599
40	1	3684.965
42	1	3684.600
63	1	3684.601
84	1	3684.602
84	2	3685.271

⚠ Also required:

Assembly screws M2.5 x 6,
packs of 100, Model No. RP 3654.340,
see page 576.

Threaded insert (I)

With M2.5 threaded holes on an HP pitch pattern.
To slide into the horizontal rail, type A, B, B1, C3,
C5, D2 and for the rear horizontal rail, reinforced
version, type C2.

Material:
Sheet steel, zinc-plated

Usable Width (HP)	Packs of	Model No. RP for horizontal rails	
		Front Type A, B, B1, C3, C4, C5, D2	Rear Type C2 Reinforced version
4	1	3684.603	–
8	1	3684.604	–
12	1	3684.605	–
16	1	3684.606	–
20	1	3684.607	–
21	1	3686.149	–
40	1	3684.966	–
42	1	3684.608	3687.616
63	1	3684.609	3687.617
84	1	3684.610	–
84	2	–	3604.830

Identification strip (J)

To identify the slots on the subrack, self-adhesive.
The following versions are available.

4 mm wide:
- for horizontal rails
- for rear horizontal rails
2 mm wide:
- for front horizontal rails (channel on front face)

for horizontal rail	Width mm	Label	Packs of	Model No. RP
Front	4	1 ... 84	1	3687.575
Front	4	1 ... 168	1	3687.577
rear	4	84 ... 1	1	3687.574
Front	2	1 ... 84	1	3687.576

EMC gaskets, horizontal (K)

see page 507.

B
3.5

Subracks, individual components

Conductive strip (H)

For conductive mounting of backplanes.

● 84 HP
● Slides onto the rear horizontal rail

Material:
Aluminium, clear-chromated

Usable width (HP)	Packs of	Model No. RP
84	1	**3684.612**
84	2	**3685.273**

Insulating strip (G)

For insulated mounting of backplanes.

● 21 HP
● Slides onto the rear horizontal rail

Material:
Plastic, self-extinguishing to UL 94-V0

Usable width (HP)	Packs of	Model No. RP
21	1	**3684.611**
21	8	**3685.274**

Rear horizontal rail, centre, fitted with insulating strips (top) and conductive strips (bottom).

B

3.5

Subracks, individual components

Punched strip

Material:
Aluminium, clear-chromated

Usable width (HP)	Packs of	Model No. RP
84	2	**3685.275**

Subracks, accessories

Components for EMC installation

1 EMC gaskets, vertical
2 EMC gaskets, horizontal
3 EMC gaskets for covers
4 Mounting blocks
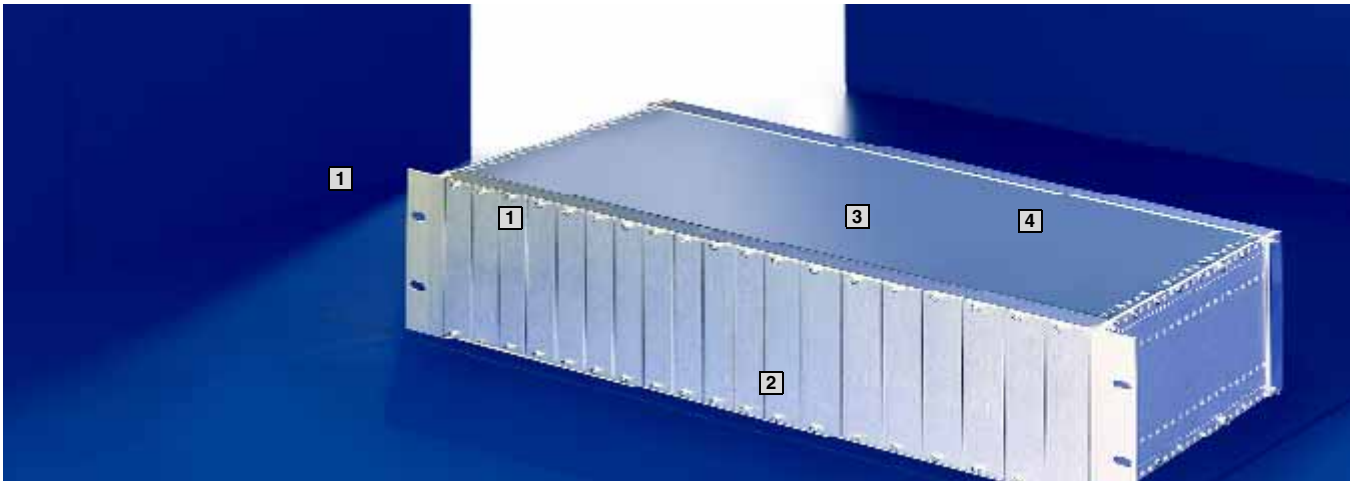
EMC (electromagnetic compatibility), refers to the ability of an electrical device to function satisfactorily in its electromagnetic environment without influencing or being influenced by this environment more than is admissible.

These requirements were taken into account when developing the Rittal subracks. They are made entirely from metal and coated with a conductive surface finish.

Stainless steel EMC gaskets ensure conductive connection of the seperate parts.

EMC gaskets, vertical

To ensure EMC protection between the subrack side panel and the front/rear panels. There are two versions available.

Suitable for mounting on:
● 482.6 mm (19″) flanges for subracks
● Corner trims, rear
● EMC contact strip
● U-shaped front panels
● Trim panels for Ripac Vario-Module
● Flanges for Ripac Vario-Module

Material:
Stainless steel

**German patent
No. 101 15 252 and
No. 198 46 627
US patent no. 6,500,012**

EMC
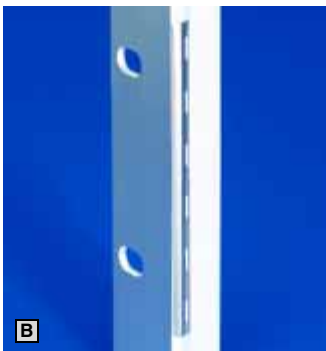
A Version 1: Segmented

U	Model No. RP Packs of 1	Model No. RP Packs of 10
1	**3686.973**	**3684.236**
2	**3686.974**	**3684.237**
3	**3686.975**	**3684.238**
4	**3686.976**	**3684.239**
6	**3686.977**	**3684.240**
7	**3686.978**	**3684.241**
9	**3686.979**	**3684.242**
10	**3686.980**	**3684.243**
11	**3686.981**	**3684.244**

B Version 2: One-piece

U	Model No. RP Packs of 1
2	**3688.610**
3	**3688.611**
4	**3688.612**
5	**3688.613**
6	**3688.614**
7	**3688.615**
8	**3688.634**
9	**3688.616**
10	**3688.609**
11	**3688.633**
12	**3688.606**
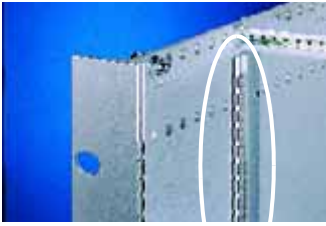
EMC contact strip

To ensure EMC protection horizontal rails are set-back.
Integral channel to accommodate EMC gaskets.

Material:
Extruded aluminium section, clear-chromated

Note:
2 sections are required for each subrack.
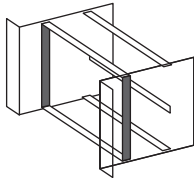
U	Packs of	Model No. RP
3	1	3684.643
6	1	3684.644
9	1	3684.645

⚠ Also required:

EMC gaskets, vertical, see page 506.
Assembly screws M3 x 6, packs of 100,
Model No. RP 3684.233,
see page 576.

EMC
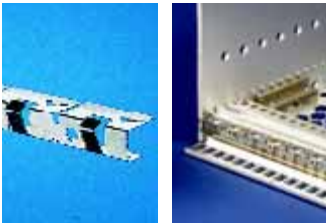
EMC gaskets, horizontal (K)

For horizontal EMC protection. For snap-fastening onto the front horizontal rails.

Material:
Stainless steel

**European patent no. 0 937 375
with validity for DE
US patent no. 6,137,052
Chinese Patent
No. ZL 97 1 98582.0**

EMC

Usable width (HP)	Packs of	Model No. RP
For top/bottom horizontal rail		
40	1	3684.974
84	1	3684.808
84	10	3684.246
For subdivision of 6 U into 2 x 3 U, between 2 horizontal rails		
84	1	3685.789
84	10	3685.229

B
3.5

Subracks, accessories
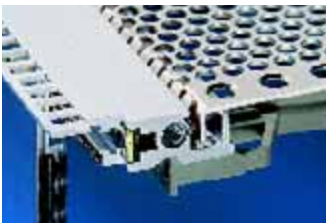
EMC gaskets

for covers
For EMC shielding between the horizontal rails and covers.

Material:
Stainless steel

EMC

HP	Packs of	Model No. RP
84	10	3684.245

Mounting blocks

For mounting covers, versions 1 – 4, on the subrack side panel.

Material:
Die-cast zinc, nickel-plated

Note:
For EMC applications, mounting blocks must be fitted across the entire subrack depth. The table here shows the number of mounting blocks required to install 1 cover with EMC shielding.
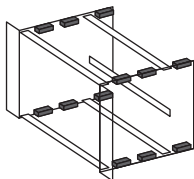
	Packs of	Model No. RP
Mounting blocks 28.5 mm long	10	3684.234

⚠ Also required:

Assembly screws M3 x 6, packs of 100,
Model No. RP 3684.233,
see page 576.

Number of mounting blocks for max. EMC protection	Cover plate depth mm
4	142
8	192
10	212
12	252
14	272
16	312
18	332
20	372
24	432
28	492
32	552

EMC

Subracks, accessories

Mounting kits
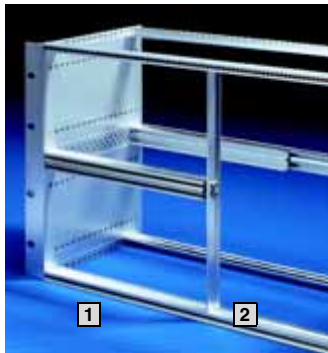
Vertical divider kit

For the combined installation of single and double Euroboards in 6 U and 9 U subracks.

Material:
Aluminium, clear-chromated

Supply includes:
2 horizontal rails, front,
1 adaptor rail,
2 threaded inserts,
1 vertical support (from 12 HP),
assembly parts.

+ Accessories:

Front panel, see page 508.
EMC gaskets, horizontal, see page 507.

6 U (2 x 3 U)

HP	HP	Model No. RP
2 (6 U)	**1** (2 x 3 U)	
68	14	**3684.220**
61	21	**3684.221**
54	28	**3684.222**
42	40	**3684.223**
40	42	**3684.224**

9 U (1 x 6 U + 1 x 3 U)

HP	HP	Model No. RP
(9 U)	(1 x 6 + 1 x 3 U)	
80	4	**3684.225**
76	8	**3684.226**
70	12	**3684.227**
66	16	**3684.228**
62	20	**3684.229**

Vertical support

Required for the combined installation of single, double and triple Euroboards in one subrack.

Material:
Aluminium, extruded

Surface finish:
Clear-chromated

U	Packs of	Model No. RP
6	1	**3684.678**
9	1	**3684.679**
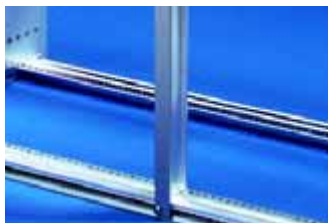
Front panel

To conceal the vertical support of the vertical divider kit.

Material:
Aluminium, anodised

Supply includes:
Mounting parts.

U	HP	Packs of	Model No. RP
6	2	1	**3685.176**
9	2	1	**3685.286**

EMC version,
see page 538.
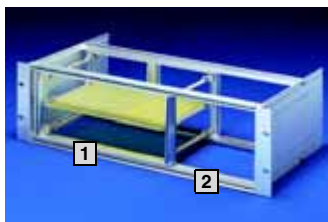
Horizontal divider kit

For the horizontal installation of 6 U/9 U PCBs in 3 U/4 U subracks.

1 Horizontal installation space:
3 U subrack: 20 HP (5 slots)
4 U subrack: 28 HP (7 slots)

2 Vertical installation space:
(with installation of double Euroboards)
31 HP (without trim frame)
28 HP (with trim frame)

Material:
Aluminium, clear-chromated

Supply includes:
2 horizontal rails, front,
2 horizontal rails, rear,
1 or 2 rear horizontal rails, centre
2 threaded inserts,
4 or 6 insulating strips,
4 connection parts,
assembly parts.

For backplane mounting
with standard horizontal rail, front

U horizontal	Model No. RP	
	for 3 U subrack	for 4 U subrack
6	**3684.206**	**3684.208**
9	**3684.207**	**3684.209**

For backplane mounting,
front horizontal rail with 10 mm extension

U horizontal	Model No. RP	
	for 3 U subrack	for 4 U subrack
6	**3684.210**	**3684.212**
9	**3684.211**	**3684.213**

+ Accessories:

Trim frame,
see page 509.
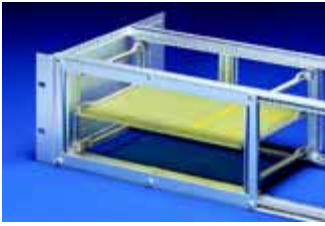
Trim frame

for horizontal mounting kit
To conceal the front sections of the horizontal mounting kit.

Material:
Aluminium, anodised

U horizontal	HP	Model No. RP	
		for 3 U subrack	for 4 U subrack
6	56	**3685.783**	**3685.785**
9	84	**3685.784**	**3685.786**

⚠ Also required:

Collar screws and plastic collars,
packs of 100 sets, Model No. RP 3658.160,
see page 576.
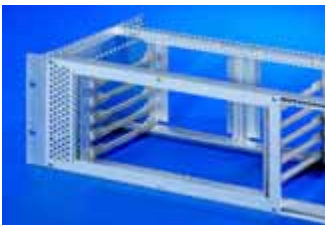
Trim frame, vented

for horizontal mounting kit
To conceal the front sections of the horizontal mounting kit.

Material:
Aluminium

Surface finish:
Anodised,
clear-chromated (EMC version)

Supply includes:
EMC accessories
(for EMC version).

EMC

U horizontal	HP	Model No. RP	
		for 3 U subrack	for 4 U subrack
6	63	**3685.787**	**3685.788**

⚠ Also required:

Collar screws and plastic collars,
packs of 100 sets, Model No. RP 3658.160,
see page 576.

EMC version

U horizontal	HP	Model No. RP	
		for 3 U subrack	for 4 U subrack
6	63	**3685.291**	**3685.292**

⚠ Also required:

Centering screws,
packs of 100, Model No. RP 3687.050,
see page 577.
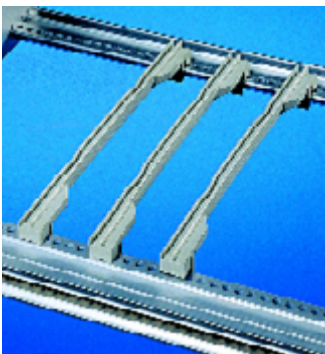
Plastic guide rails

For 160, 220 and 280 mm PCBs up to 2 mm nominal thickness.

2 versions are available:
● Snap-in fastening and screw-fastening
● Snap-in fastening

Material:
Polycarbonate, base material to UL 94-V0

PCB depth mm	Packs of	Model No. RP	
		Snap-in fastening/ screw-fastening[1]	Snap-in fastening
160	1	**3684.657**	**3684.654**
220	1	**3684.658**	**3684.655**
280	1	**3684.659**	**3684.656**

⚠ Also required:

[1] Assembly screws,
packs of 100, Model No. RP 3654.360,
see page 576.

Plastic guide rails

for contact spring fitting
For 160, 220 and 280 mm PCBs up to 2 mm nominal thickness. By installing contact springs, an electrical connection can be made between the PCB and the assembly.

Material:
Polycarbonate, base material to UL 94-V0

PCB depth mm	Packs of	Model No. RP
160	1	**3684.660**
220	1	**3684.661**
280	1	**3684.662**

➕ Accessories:

Contact springs,
see page 510.

B

3.5

Subracks, accessories

Subracks, accessories

Guide rails

Contact springs

For electrical connection between the PCB and the subrack, or to discharge static charges from the PCB.
Suitable for installation in "guide rails for contact spring fitting" and "end pieces for guide rails".

Packs of	Model No. RP
10	3687.726
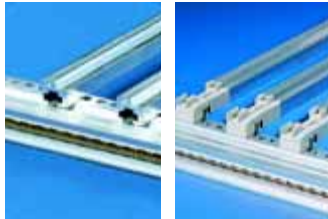
Guide rails, aluminium

For high loads. Suitable for nominal PCB thicknesses from 1.6 mm. A distinction is made between guide rails for and without end pieces. The guide rails without end pieces are screw-fastened directly into the horizontal rail.

Material:
Aluminium

PCB depth mm	Packs of	Model No. RP	
		☐1 Without end piece[1]	☐2 For end pieces
160	1	3687.526	3684.663
220	1	3687.527	3684.664
280	1	3687.528	3684.665
1000	1	3684.666	–

⚠ **Also required:**

[1] Screw M2.5 x 6, packs of 100,
Model No. RP 3654.340, see page 576.
[1] Nut M2.5, packs of 100,
Model No. RP 3654.370, see page 576.
[1] Retaining cage M2.5, packs of 100,
Model No. RP 9901.417, see page 576.

End pieces
for guide rails, aluminium
To discharge static charges, contact springs RP 3687.726 may be used.

Material:
Polycarbonate, base material UL 94-V1

	Packs of	Model No. RP
End piece, front	1	3684.668
End piece, rear	1	3685.759

➕ **Accessories:**

Contact springs,
see page 510.

Keyable guide rails, plastic
Guide rails 4 HP, keyable, to IEEE 1101.10.
● For 1.6 – 2.0 mm nominal thickness
● Chambers for the installation of keys
● Option of installing ESD contact to discharge static charges
● Narrow design for maximum air flow
● Various colour variants to identify the slots:
  – Red for system slot
  – Green for power supply
  – Yellow and grey for board-type plug-in units

Material:
Polycarbonate, base material to UL 94-V0

Note:
For coding use in conjunction with injector/extractor handles type IV, IVs, VII.

➕ **Accessories:**

Keys, see page 514.
ESD contact, see page 513.
Extractor handles type IV, IVs, VII,
see page 528 – 530.

☐1 ESD contact for PCB
☐2 ESD contact for front panel
☐3 Keys
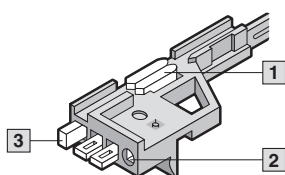
For PCB depth mm	Packs of	Model No. RP			
		Grey	Red	Green	Yellow
160	10	3685.257	–	–	–
220	10	3685.258	–	–	–
280	10	3685.259	–	–	–
160	1	3684.669	3686.063	3688.055	3689.089
220	1	3684.953	–	–	3689.091
280	1	3684.954	–	–	3689.093

B
3.5

Subracks, accessories

Keyable guide rails

with $^1/_2$ HP offset
Guide rails with $^1/_2$ HP offset for use, in telecom applications. This allows PCBs to be populated on both sides. Green guide rails with offset are pre-scribed in the CompactPCI specification (PICMG 2.11) for the installation of power supply units.
● For 1.6 – 2.0 mm PCB thickness
● 4 HP x 160/220 mm
● Narrow design for maximum air flow
● Chambers for the installation of keys
● Option of installing ESD contact to discharge static charges

Material:
Polycarbonate, base material to UL 94-V0

Note:
For coding for use in conjunction with extractor handles type IV, IVs, VII with $^1/_2$ HP offset.

For PCB depth mm	Packs of	Colour	Model No. RP
160	1	Grey	3686.137
		Yellow	3689.090
		Green	3687.832
220	1	Grey	3686.136
		Yellow	3689.092
280	1	Grey	3686.000

+ Accessories:

Keys, see page 514.
ESD contact, see page 513.
Extractor handles type IVs, type VII, with $^1/_2$ HP offset,
see page 529 – 530.

Keyable guide rails

for rear I/O assemblies
Guide rails 4 HP, keyable, to IEEE 1101.10. Prepared to accommodate a ground contact for assembly of a plug-type connection.
● For 1.6 – 2.0 mm nominal thickness
● For 80 mm deep PCBs
● Chambers for the installation of keys
● Option of installing ESD contact to discharge static charges
● Narrow design for maximum air flow
● For CPCI or VME applications

Material:
Polycarbonate, base material to UL 94-V0

Note:
For coding use in conjunction with type IV, IVs, VII injector/extractor handles.

Colour	For PCB depth mm	Packs of	Model No. RP	
			Guide rails	
			Top	Bottom
Grey	80	1	3687.936	3687.937
Yellow	80	1	3689.097	3689.098

+ Accessories:

Keys, see page 514.
ESD contact, see page 513.
Ground contact, see page 511.
Extractor handles type IV, IVs, VII,
see page 528 – 530.

Ground contact

Ensures a plug-in ground connection.
UL-approved.

Material:
Die-cast zinc

Supply includes:
Grounding bush, contact spring.

Note:
Only suitable for use in conjunction with keyable guide rails for rear I/O assemblies.

	Model No. RP	
	1 set	50 sets
Location bush and contact spring	3689.036	3687.951

! Also required:

Assembly screws 3.5 x 12 mm,
packs of 50, Model No. RP 3684.109,
see page 576.

B
3.5

Subracks, accessories

Subracks, accessories

Guide rails

Keyable guide rails, aluminium, three-piece

Keyable guide rails with aluminium centre part, for high mechanical loads.
Suitable for 1.6 – 2.0 mm PCB thickness.

Guide rails comprise of the following individual components:

1 2 end pieces,

2 1 aluminium centre part,

3 Insulating centre part(s)

1 End pieces

for three-piece guide rails
For 1.6 – 2.0 mm PCB thickness.

Material:
Polycarbonate, base material to UL 94-V0

	Packs of	Model No. RP
	10 pairs	3685.265
Front end piece	1	3685.790
Rear end piece	1	3684.670

Note:
A front and a rear end piece is required for each guide rail.

2 Aluminium centre piece

for three-piece guide rails
For 1.6 – 2.0 mm PCB thickness.

Material:
Aluminium, unplated

For PCB depth mm	Model No. RP	
	Packs of 1	Packs of 10
220	3684.673	3685.260
280	3684.674	3685.261
340	3684.675	3685.262
400	3684.676	3685.263
1000	3684.672	–

3 Insulated centre part

for three-piece guide rails
The insulating centre part is pushed onto the aluminium centre piece.
Length: 60 mm.

Material:
Plastic, self-extinguishing to UL 94-V0

Packs of	Model No. RP
1	3684.677
10	3685.264

For PCB depth mm	Number of insulating strips required
160	1
220	2
280	3
340	4
400	5

Plastic guide rails

for box type plug-in units
For PCB depth 1.6 mm.
For insertion into covers with vent slots, see page 545.

Material:
Noryl

For PCB depth mm	Packs of	Model No. RP
160	10	3606.140
220	10	3606.200

3.5

Subracks, accessories

Air block panel

for unused slots

To conceal unused slots and prevent unwanted airflow. The air block panel simply snaps into position on the guide rails.

Material:
Polycarbonate, self-extinguishing UL 94-V0

Colour:
Blue

Note:
Not suitable for use in conjunction with guide rails with $^1/_2$ HP offset.

for guide rail	Packs of	Model No. RP
160 mm	1	**3687.924**
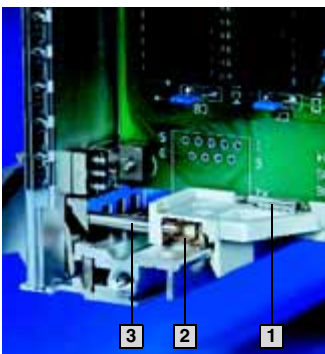
ESD contacts

for installation in keyable guide rails.
To discharge static charges.

1 **ESD contact for plug-in board**
For permanent, direct discharge from the PCB.

2 **ESD clip for front panel**
To discharge static charges in conjunction with the ESD pin. For insertion into the end piece of the guide rail.

3 **ESD pin**

4 **Keys**

Material:

1 Stainless steel

2 Tin bronze

ESD contact for	Packs of	Model No. RP
PCB	50	**3684.204**
Font panel	50	**3684.205**

Note:
Only for use in conjunction with extractor handle with ESD pin (type IV, IVs, VII), see page 528 – 530.

B

3.5

Subracks, accessories
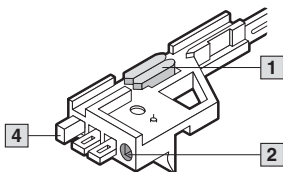
Subracks, accessories

Keying/card ejectors

Keys

Keys are used for coding of board-type plug-in units and prevent their use of assemblies in incorrect slots. The keys are inserted into the chambers of the keyable guide rails and of injector/extractor handles, types IV, IVs and VII (4 positions are possible). This produces 64 keying combinations per guide rail. When keying the top and bottom guide rail, 4096 potential combinations are possible.

Standards:
IEEE 1101.10, IEC 602 97-5-104

Material:
Plastic, PBTP, basic material to UL 94-V0
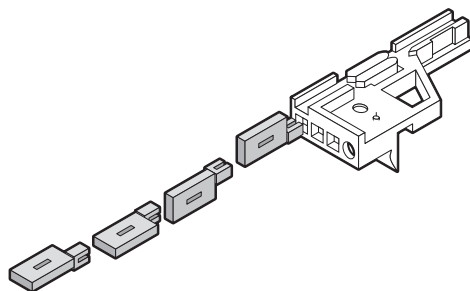
Colour	Packs of	Model No. RP
Grey	100	**3684.325**
Red	100	**3684.326**

Accessories:

Keying tool,
see page 514.

1. 2. 3. 4.
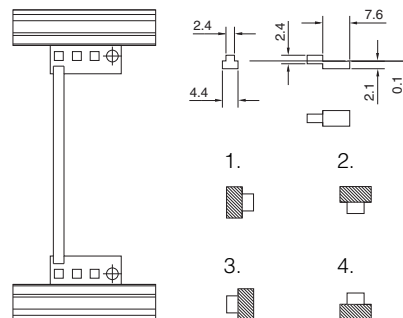
Coding tool

For simple assembly of coding keys. Up to 3 keys may be fitted at the same time. An integral alignment pin makes positioning easier.

Material:
Polycarbonate, base material to UL 94-V0

Packs of	Model No. RP
1	**3687.956**

PCB ejector/retainer

The two-piece board ejector is used for securing and extracting PCBs without front panels. The base section may also be used separately for board retention only.

Material:
Polycarbonate, base material to UL 94-V0

		Packs of	Model No. RP
1	PCB ejector/retainer	10	**3687.014**
2	PCB retainer	10	**3687.052**

B
3.5

Subracks, accessories

Covers version 1

For all Ripac Vario, Ripac Vario EMC, Ripac Compact and Ripac Vario Mobil subracks.
To cover the overall subrack depth.
(EMC application) or for connector protection.

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks.

Material:
1.0 mm aluminium, untreated, hole diameter 4 mm in vented version.

Set includes:
2 covers,
8 mounting blocks 28.5 mm long,
24 assembly screws

Single piece supply includes:
1 cover

Note:
For EMC applications, additional mounting blocks must be fitted across the entire subrack depth.
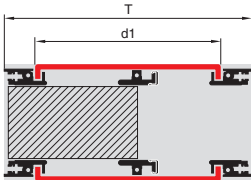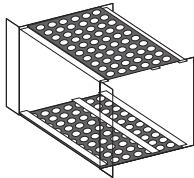
HP	For side panel depth D (T) mm	Cover depth d1 mm	Model No. RP			
			Single piece[1]		Set	
			Perforated	Solid	Perforated	Solid
21	225	192	**3687.618**	**3687.620**	–	–
21	285	252	**3687.619**	**3687.621**	–	–
42	175	142	**3684.957**	**3687.626**	–	–
42	225	192	**3687.623**	**3687.627**	–	–
42	245	212	**3684.958**	**3687.628**	–	–
42	285	252	**3685.642**	**3687.629**	–	–
84	175	142	**3684.681**	**3684.680**	**3685.245**	**3685.250**
84	225	192	**3684.694**	**3684.683**	–	–
84	235	202	**3685.851**	**3685.813**	–	–
84	245	212	**3684.695**	**3684.684**	**3685.246**	**3685.251**
84	285	252	**3684.696**	**3684.685**	–	–
84	295	262	**3685.855**	**3685.814**	–	–
84	305	272	**3685.852**	**3684.686**	**3685.247**	**3685.252**
84	345	312	**3684.698**	**3684.687**	–	–
84	365	332	**3685.853**	**3684.688**	**3685.248**	**3685.253**
84	405	372	**3684.700**	**3684.689**	**3685.249**	**3685.254**
84	465	432	**3684.701**	**3684.691**	–	–
84	525	492	**3684.702**	**3684.692**	–	–
84	585	552	**3684.703**	**3684.693**	–	–

B

3.5

Subracks, accessories

! **Also required:**

[1] Mounting blocks,
see page 507.
[1] EMC gaskets for covers,
see page 507.
[1] Assembly screws,
packs of 100, Model No. RP 3684.233,
see page 576.

Subracks, accessories

Covers

Covers version 2

For all Ripac Vario, Ripac Vario EMC, Ripac Compact and Ripac Vario Mobil subracks.
To cover the PCB depth.

- Flat design for top and bottom
- Optionally solid or perforated
- For mounting on the subrack side panel with the aid of mounting blocks.

Material:
1.0 mm aluminium, untreated, hole diameter 4 mm with vented version.

Set includes:
2 covers,
8 mounting blocks à 28.5 mm,
24 assembly screws

Single piece supply includes:
1 cover
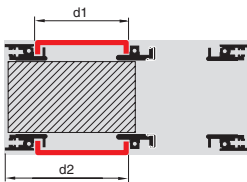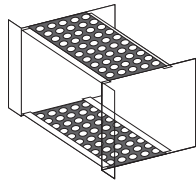
HP	For PCB depth d2 mm	Cover depth d1 mm	Model No. RP			
			Single piece[1]		Set	
			Perforated	Solid	Perforated	Solid
21	160	142	**3687.630**	**3687.634**	–	–
21	220	202	**3687.631**	**3687.635**	–	–
42	160	142	**3684.957**	**3687.626**	–	–
42	220	202	**3687.633**	**3687.637**	–	–
42	280	262	**3687.638**	**3687.639**	–	–
84	160	142	**3684.681**	**3684.680**	**3685.245**	**3685.250**
84	220	202	**3685.851**	**3685.813**	–	–
84	280	262	**3685.855**	**3685.814**	–	–
84	340	322	**3685.856**	–	–	–
84	400	382	**3685.857**	–	–	–

! Also required:

[1] Mounting blocks,
see page 507.
[1] Assembly screws,
packs of 100, Model No. RP 3684.233,
see page 576.

Covers version 3

For all Ripac Vario, Ripac Vario EMC and Ripac Vario Mobil subracks.
To cover the overall subrack depth.
(EMC application).

- Cover with 1 U edge fold (item 1),
  to conceal the 1 U area in the subrack
- In addition, a flat cover version 1 (item 2) is required.
- Optionally perforated or solid on the front
- Suitable for subracks 4 U (3 + 1), 7 U (6 + 1)
- For mounting on the subrack side panel with the aid of mounting blocks.

Material:
1.0 mm aluminium, untreated, hole diameter 4 mm in vented version.

Note:
For EMC applications, mounting blocks must be fitted across the entire subrack depth.
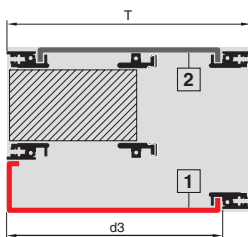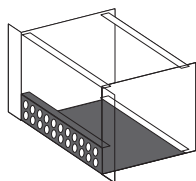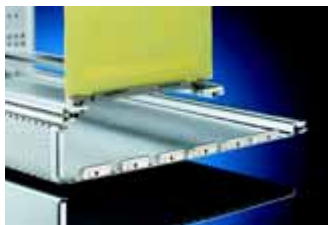
HP	For side panel depth D (T) mm	Cover depth d3 mm	Model No. RP	
			Perforated	Solid
84	285	270	**3684.720**	**3684.714**
84	345	330	**3684.721**	**3684.715**
84	405	390	**3684.722**	**3684.716**
84	465	450	**3684.723**	**3684.717**
84	525	510	**3684.724**	**3684.718**
84	585	570	**3684.725**	**3684.719**

! Also required:

Mounting blocks, see page 507.
EMC gaskets for covers, see page 507.
Assembly screws,
packs of 100, Model No. RP 3684.233,
see page 576.
Cover, version 1, see page 515.
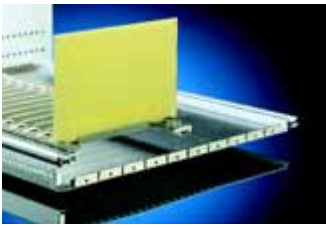
Covers version 4

For all Ripac Vario, Ripac Vario EMC and Ripac Vario Mobil subracks.
To cover the overall subrack depth.
(EMC application).

● Cover top/bottom with $^1/_2$ U edge fold to cover the $^1/_2$ U section in the subrack.
● Optionally perforated or solid on the front.
● Suitable for subracks 4 U (3 + 2 x $^1/_2$), 7 U (6 + 2 x $^1/_2$).
● For mounting on the subrack side panel with the aid of mounting blocks.

Material:
1.0 mm aluminium, untreated, hole diameter 4 mm in vented version.

Note:
For EMC applications, mounting blocks must be fitted across the entire subrack depth.
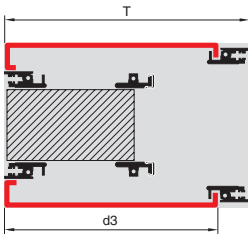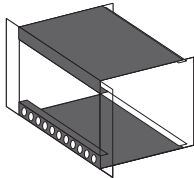
HP	For side panel depth D (T) mm	Cover depth d3 mm	Model No. RP	
			Perforated	Solid
84	285	270	**3684.732**	**3684.726**
84	345	330	**3684.733**	**3684.727**
84	405	390	**3684.734**	**3684.728**
84	465	450	**3684.735**	**3684.729**
84	525	510	**3684.736**	**3684.730**
84	585	570	**3684.737**	**3684.731**

⚠ **Also required:**

Mounting blocks,
see page 507.
EMC gaskets for coves,
see page 507.
Assembly screws,
packs of 100, Model No. RP 3684.233,
see page 576.

B

3.5

Subracks, accessories

Covers version 5

(snap fastening)
For all Ripac Vario, Ripac Vario EMC and Ripac Vario Mobil subracks.
To cover the overall subrack depth or PCB depth.

Simple assembly:
● Side edge fold with half shears facilitates fast assembly (without mounting blocks) by simply snap-fastening.
● Side notches for fitting horizontal rails in 160, 220 or 280 mm depth.
● Optionally solid or perforated.

Material:
1.0 mm aluminium, untreated, hole diameter 4 mm in vented version.

Supply includes:
2 gaskets

EMC
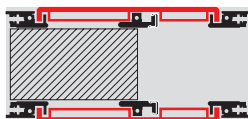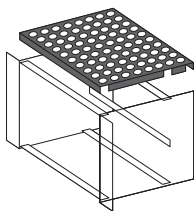
HP	Position Side notches for horizontal rails mm	For side panel depth mm	Model No. RP	
			Perforated	Solid
21	160	175/185	**3687.624**	–
21	160/220	235	**3687.692**	–
42	160	175/185	**3687.625**	–
42	160/220	235	**3687.677**	–
42	160	245	**3687.640**	–
84	160	175/185	**3687.641**	3687.647
84	160	245	**3687.642**	3687.648
84	160/220	235	**3687.643**	3687.649
84	160/220	285	**3687.644**	3687.650
84	160/220	305	**3687.645**	3687.651
84	160/220/280	345	**3687.646**	3687.652
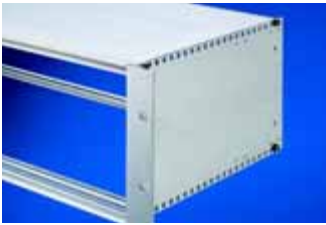
Covers

Covers

For Ripac Eco subracks
To cover the overall subrack depth.

- Optionally perforated or solid.
- The plates slide into the horizontal rails.
- Mounting clips may optionally be used for additional support.

Material:
Sheet steel, zinc-plated, passivated

HP	For side panel depth mm	Model No. RP	
		Perforated	Solid
84	175	**3688.105**	**3688.107**
84	235	**3688.106**	**3688.108**

<kbd>+</kbd> **Accessories:**

Mounting clips

Packs of	Model No. RP
1	**3688.109**

Assembly screws for mounting clips

Packs of	Model No. RP
1	**9902.188**

B

3.5

Subracks, accessories

Features
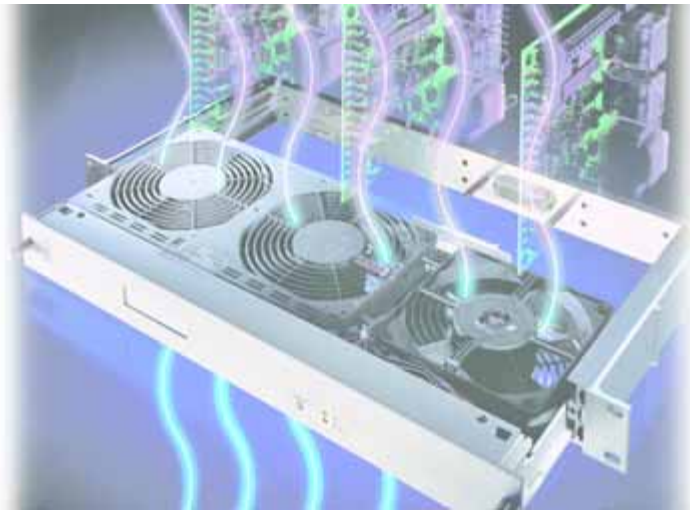
Heat shortens the service life of equipment leading to failure, and also diminishes the electronic high performance.

The problem lies in high heat losses and compact installation spaces. For this reason, effective heat dissipation is vital to ensure long service life and operational reliability.

As well as the components shown below, Rittal system climate control also offers a range of other 482.6 mm (19″) cooling systems and rack-mounted fans.

System climate control, see from page 578.

Vertical cooling
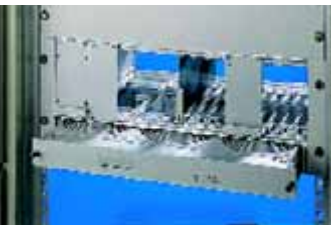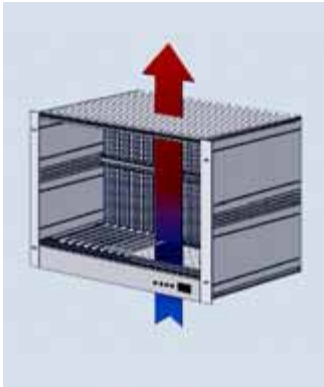
Rack-mounted fans are installed below the subrack in the enclosure. This ensures permanent air circulation to prevent the formation of hot spots.

Fans are installed directly in the subrack, below or above the PCBs, with the aid of fan mounting plates, thereby preventing heat accumulation.

AC and DC fans in various output categories, can be retrofitted.

Diagonal cooling
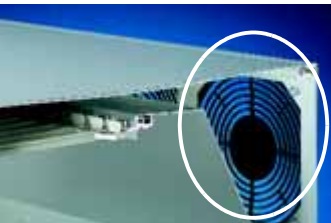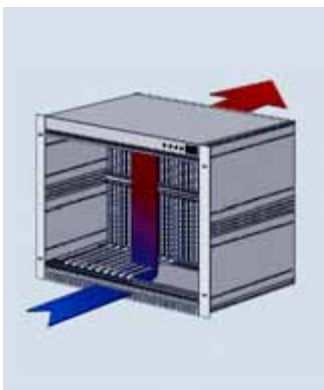
The air baffle plate in combination with . . .

. . . the air block panel ensures targeted air routing inside the subrack.

RiCool high-capacity fan for heat losses of 700 W or more.
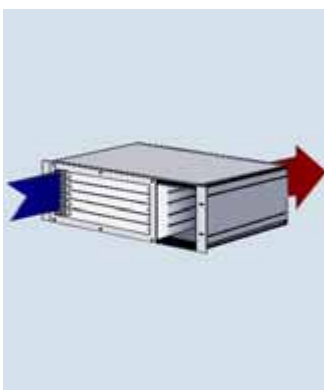
Front and rear panels for ventilation – also available in an EMC version.

Rear panels with cutouts for the installation of 80 or 120 mm fans.

A finger guard or EMC shielding plate may be used to cover the fan cutouts.

B

3.5

Subrack climate control

Subrack climate control
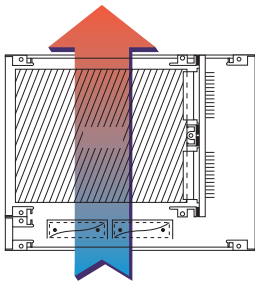
Vertical cooling from bottom to top

- Air flow via normal convection or forced cooling devices in the enclosure or housing outside of the subrack.

- Vertical forced air flow, supported by fans installed at the bottom of the subrack (1 U). For the cooling of enclosures and housings, rack-mounted fans, see page 645 and rack-mounted cooling units, see page 644, are available.

Fan mounting plate

For installing 120 mm fans in 4 U and 7 U subracks.
For mounting on the subrack side panels.

Material:
1.5 mm Aluminium, anodised

Supply includes:
1 fan mounting plate

U	For PCB depth	No. of fan mounting plates required	HP	Model No. RP
1	160 mm	1	84	3684.317
	220 mm	1		
	280 mm	2		
	340 mm	2		
	400 mm	3		

! Also required:

1 terminal block is required for each subrack.

Packs of	Model No. RP
1	3686.805

Terminal block

122 | 1 | 2 | 3

Terminal block

122 | 4 | 5 | 6

122 | 1 | 2 | 3

Terminal block

122 | 7 | 8 | 9

122 | 4 | 5 | 6

122 | 1 | 2 | 3

84 TE
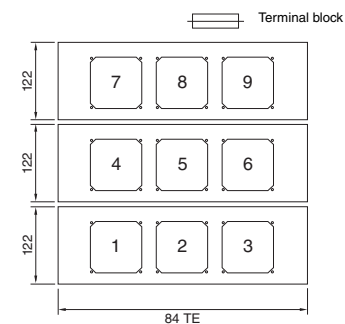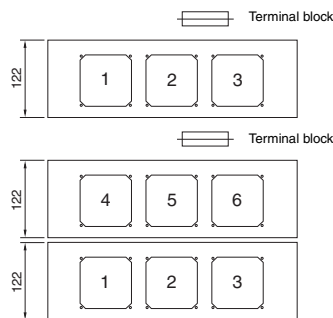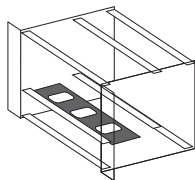
TE = HP
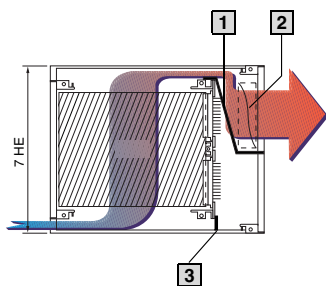
Diagonal cooling from front to back

Diagonal air flow from front to back allows individual cooling of PCBs in vertical installation position. An air baffle and air partition ensure controlled air flow.

1 Air baffle,
see page 521.

2 Fan (mounted on the rear panel),
see page 523.

3 Air partition,
see page 521.

Air baffle

For controlled air flow in 7 U subracks. For mounting on subrack side panels with the aid of mounting blocks.

Material:
1 mm aluminium

Surface finish:
Anodised

Supply includes:
Assembly parts.
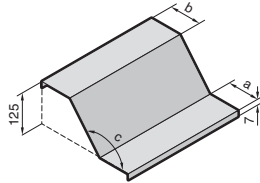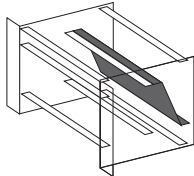
Subrack depth mm	a mm	b mm	c degrees	Model No. RP
285	71	56	90	3685.302
345	48	67	120	3685.303
405	108	67	120	3684.320
465	168	67	120	3684.321
525	228	67	120	3684.322

! Also required:

Mounting blocks,
see page 507.
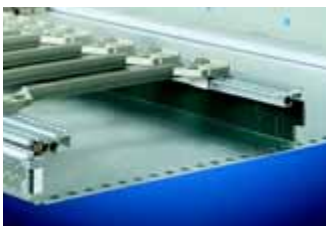
Air partition

For controlled air flow in the subrack. The partitions are mounted on the horizontal rails together with the backplanes.

Material:
Epoxy
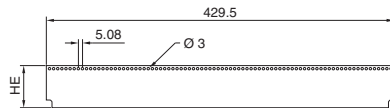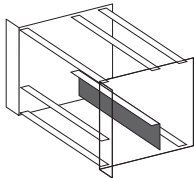
U	Model No. RP
$^1/_2$	3684.870
1	3684.871
3	3684.872

! Also required:

Fastening screws and washers,
packs of 100 sets, Model No. RP 3684.019,
see page 576.

HE = U

B

3.5

Subrack climate control

Front/rear panels for ventilation

Material:
2.5 mm aluminium

Surface finish:
Anodised,
passivated (EMC version)

U	HP	Packs of	Model No. RP
1	84	1	3684.812
2	84	1	3684.813
3	84	1	3684.814

! Also required:

Captive screw,
packs of 100 sets, Model No. RP 3685.097,
see page 577.

EMC version:

U	HP	Packs of	Model No. RP
1	84	1	3684.281
2	84	1	3684.282
3	84	1	3684.283
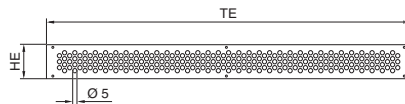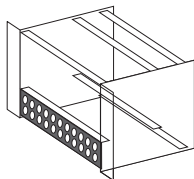
Scope of supply of the EMC version:
1 front panel
1 contact strip
1 gasket strip
1 vertical EMC gasket
assembly parts.

EMC

HE = U
TE = HP

Rear panels for fan installation

Material:
2.5 mm aluminium

Surface finish:
Anodised,
clear-chromated (EMC version)

Scope of supply of the EMC version:
1 rear panel
1 contact strip
1 gasket strip
1 vertical EMC gasket
assembly parts.

EMC

HE = U
TE = HP
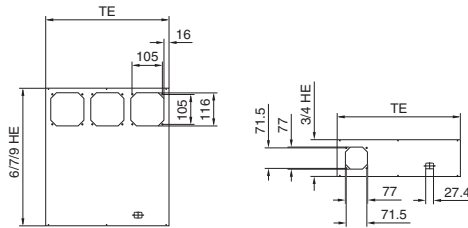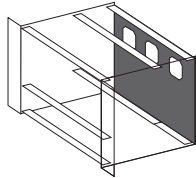
U	HP	for fans	Packs of	Model No. RP
3	85	80 mm	1	**3684.839**
4	85	80 mm	1	**3684.840**
6	85	120 mm	1	**3684.841**
7	85	120 mm	1	**3684.842**
9	85	120 mm	1	**3684.843**

⚠ Also required:

Captive screw,
packs of 100 sets, Model No. RP 3685.097,
see page 577.

EMC version:

U	HP	for fans	Packs of	Model No. RP
3	84	80 mm	1	**3684.284**
4	84	80 mm	1	**3684.285**
6	84	120 mm	1	**3684.286**
7	84	120 mm	1	**3684.287**
9	84	120 mm	1	**3684.288**

⊞ Accessories:

Fan, see page 523.
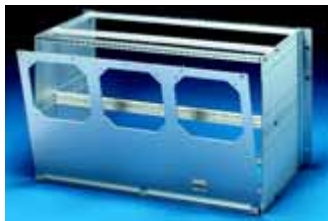
Rear plates, horizontally hinged for fan installation

Material:
2.5 mm aluminium

Surface finish:
Anodised,
clear-chromated (EMC version)

Supply includes:
1 rear panel
1 set of hinges,
incl. assembly parts.

EMC version supply includes:
1 rear panel
1 contact strip
1 gasket strip
1 vertical EMC gasket
1 set of hinges,
incl. assembly parts.

EMC

HE = U
TE = HP
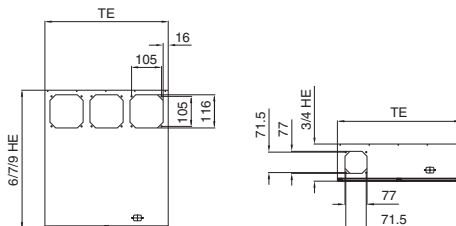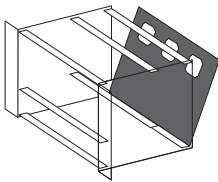
U	HP	for fans	Packs of	Model No. RP
3	85	80 mm	1	**3684.304**
4	85	80 mm	1	**3684.305**
6	85	120 mm	1	**3684.306**
7	85	120 mm	1	**3684.307**
9	85	120 mm	1	**3684.308**

⚠ Also required:

Captive screw,
packs of 100 sets, Model No. RP 3685.097,
see page 577.

EMC version:

U	HP	for fans	Packs of	Model No. RP
3	84	80 mm	1	**3684.311**
4	84	80 mm	1	**3684.312**
6	84	120 mm	1	**3684.313**
7	84	120 mm	1	**3684.314**
9	84	120 mm	1	**3684.315**

⊞ Accessories:

Fan, see page 523.

B
3.5

Subrack climate control

AC fans

For subracks and microcomputer systems.

Supply includes:
1 fan without connection cable.

⚠ Also required:

Assembly screws,
packs of 1 set, Model No. RP 3685.197,
see page 577.
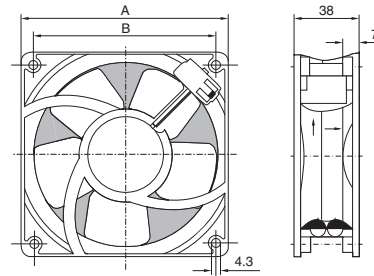
AC fans

Dimensions			Bearing	Rated voltage V/Hz	Power watts	Noise level dB (A)	Temperature range °C	Volume flow m³/h	Model No. RP
Fan mm	A mm	B mm							
80	79.5	71.5	Ball bearing	115/60	11.0	42	−40 to +95	57	**3686.645**
80	79.5	71.5	Ball bearing	230/50	12.0	37	−40 to +90	48	**3686.646**
120	119.0	105.0	Ball bearing	115/60	18.0	51	−40 to +90	180	**3686.643**
120	119.0	105.0	Ball bearing	230/50	19.0	47	−40 to +85	160	**3686.644**

Connection cable

Cable length mm	Packs of	Model No. RP
610	1	**3686.658**
1000	1	**3686.659**

B

3.5

Subrack climate control

DC fans

Optionally available with temperature-dependent speed control via additional temperature sensor.

Supply includes:
1 fan with connection cable (310 mm).

⚠ Also required:

Assembly screws,
packs of 1 set, Model No. RP 3685.197,
see page 577.
Temperature sensor for DC fans with speed control, see page 524.
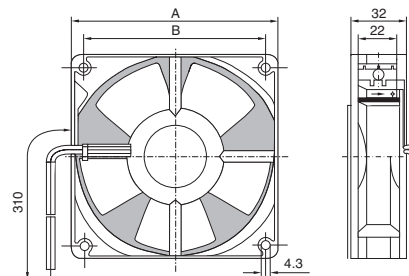
DC fan with speed control and alarm signal

Dimensions			Bearing	Rated voltage V (DC)	Voltage range Volt	Power watts	Noise level dB (A)	Temperature range °C	Temperature max. °C	Volume flow m³/h	Model No. RP
Fan mm	A mm	B mm									
80	79.5	71.5	Ball bearing	12	8.0 – 14.0	2.2	34	−20 to +65	65	48	**3686.649**
80	79.5	71.5	Ball bearing	24	21.6 – 26.4	2.4	36	−20 to +65	65	54	**3686.650**
120	119.0	104.8	Ball bearing	12	8.0 – 12.6	5.4	45	−20 to +65	65	170	**3686.647**
120	119.0	104.8	Ball bearing	24	21.0 – 27.0	5.4	45	−20 to +65	65	170	**3686.648**

DC fan without speed control and, without alarm signal

Dimensions			Bearing	Rated voltage V (DC)	Voltage range Volt	Power watts	Noise level dB (A)	Temperature range °C	Temperature max. °C	Volume flow m³/h	Model No. RP
Fan mm	A mm	B mm									
80	79.5	71.5	Ball bearing	12	6.0 – 15.0	1.8	34	−20 to +75	75	48	**3687.612**
80	79.5	71.5	Ball bearing	24	12.0 – 28.0	2.1	34	−20 to +75	75	48	**3687.613**
120	119.0	104.8	Ball bearing	12	6.0 – 15.0	2.6	39	−20 to +75	75	140	**3687.614**
120	119.0	104.8	Ball bearing	24	12.0 – 28.0	2.6	39	−20 to +75	75	140	**3687.615**

Temperature sensor

For DC fans 12/24 V with speed control.

Voltage	Packs of	Model No. RP
12 V/24 V (DC)	1	**3686.657**
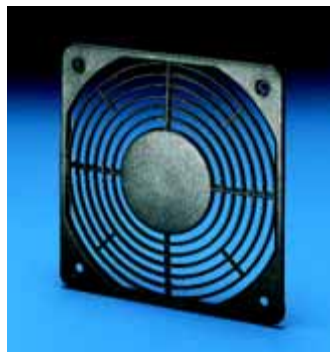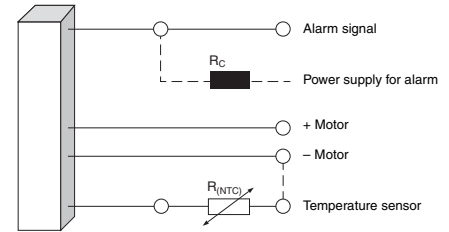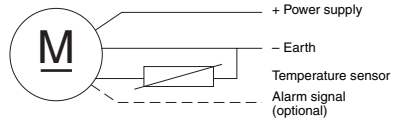
Finger guard

For AC fans and DC fans

Material:
Polyamide, self-extinguishing to UL 94-V0

Colour:
Black

For fans	Packs of	Model No. RP
80 mm	1	**3686.656**
120 mm	1	**3686.655**
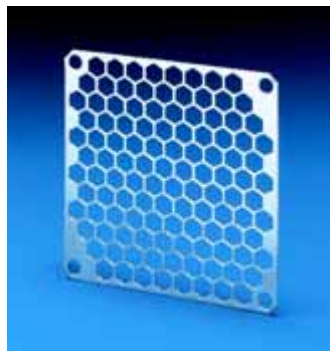
EMC shielding plate

For AC fans and DC fans

Material:
1 mm aluminium, clear-chromated

For fans	Packs of	Model No. RP
80 mm	1	**3686.359**
120 mm	1	**3686.329**
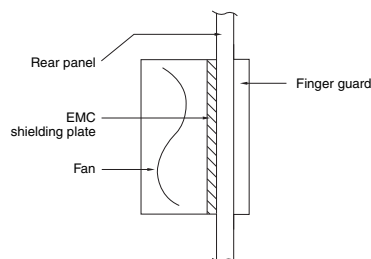
Air block panel
for unused slots
see page 513.

Flat front panels

with type I or II extractor handle
Complete modular systems

Material:
Front panel: 2.5 mm aluminium, anodised
Handle: Plastic, black

Supply includes:
1 front panel,
2 handles (1 for 3 U),
1 set of assembly parts,
1 PCB holder (for 3 U).
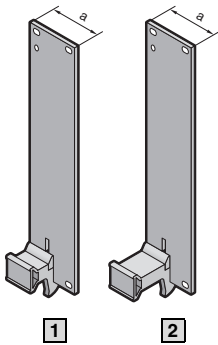
U	HP	a mm	Model No. RP	
			1 Type I	**2** Type II
3	4	20.0	**3684.330**	3684.358
3	5	25.1	**3684.331**	3684.359
3	6	30.2	**3684.332**	3684.360
3	7	35.3	**3684.333**	3684.361
3	8	40.3	**3684.334**	3684.362
3	10	50.5	**3684.335**	3684.363
3	12	60.7	**3684.336**	3684.364
6	4	20.0	**3684.337**	3684.365
6	5	25.1	**3684.338**	3684.366
6	6	30.2	**3684.339**	3684.367
6	7	35.3	**3684.340**	3684.368
6	8	40.3	**3684.341**	3684.369
6	10	50.5	**3684.342**	3684.370
6	12	60.7	**3684.343**	3684.371
9	4	20.0	–	3684.372
9	8	40.3	–	3684.373

Front panels with type I, II or IV, IVs extractor handles

3 U   6 U   9 U

HE = U
TE = HP
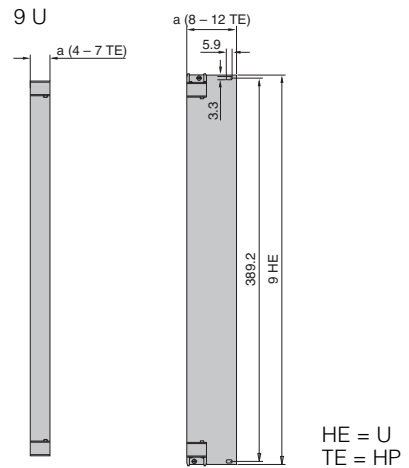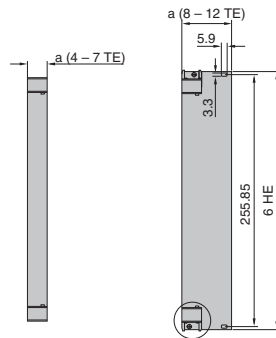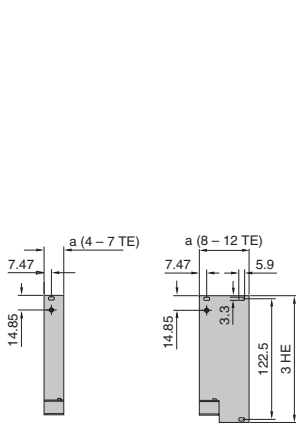
Extractor handles

Type I   Type II   Type IV/IVs
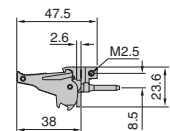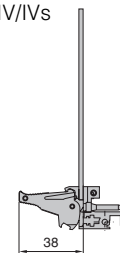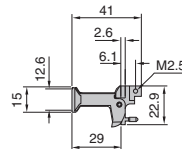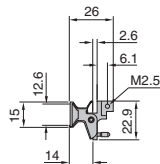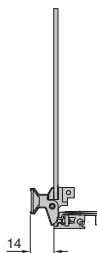
Front panels, handles
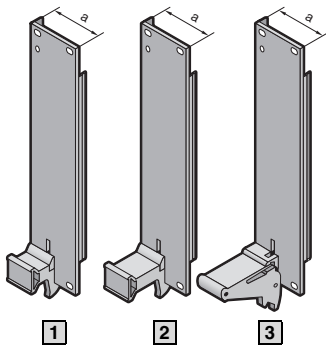
U-channel front panels
with type I, II extractor handle or type IV injector/extractor handle
Complete modular systems

Material:
Front panel: Extruded aluminium section, clear chromated
Handle: Plastic, black

Supply includes:
1 front panel,
2 handles (1 for 3 U),
1 EMC gasket, vertical, version 1,
1 set of assembly parts,
1 PCB holder (for 3 U).

EMC

U	HP	a mm	Model No. RP		
			1	**2**	**3**
			Type I	Type II	Type IV[1]
3	4	20.0	**3684.344**	**3684.374**	**3684.413**
3	5	25.1	**3684.345**	**3684.375**	**3684.414**
3	6	30.2	**3684.346**	**3684.376**	**3684.415**
3	7	35.3	**3684.347**	**3684.377**	**3684.416**
3	8	40.3	**3684.348**	**3684.378**	**3684.417**
3	10	50.5	**3684.349**	**3684.379**	**3684.418**
3	12	60.7	**3684.350**	**3684.380**	**3684.419**
6	4	20.0	**3684.351**	**3684.381**	**3684.420**
6	5	25.1	**3684.352**	**3684.382**	**3684.421**
6	6	30.2	**3684.353**	**3684.383**	**3684.422**
6	7	35.3	**3684.354**	**3684.384**	**3684.423**
6	8	40.3	**3684.355**	**3684.385**	**3684.424**
6	10	50.5	**3684.356**	**3684.386**	**3684.425**
6	12	60.7	**3684.357**	**3684.387**	**3684.426**
9	4	20.0	–	**3684.388**	**3684.427**
9	5	25.1	–	–	**3684.428**
9	6	30.2	–	–	**3684.429**
9	7	35.3	–	–	**3684.430**
9	8	40.3	–	**3684.389**	**3684.431**
9	10	50.5	–	–	**3684.432**
9	12	60.7	–	–	**3684.433**

[1] Insertion only in conjunction with front horizontal rails, with 10 mm extension (B), see page 499.

Detailed drawing,
see page 525.
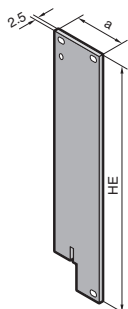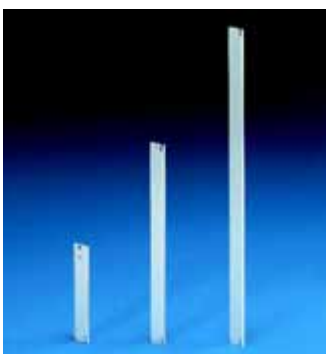
Flat front panels
for type I, II, IV, IVs or VII handles

Material:
2.5 mm aluminium, anodised

HP	a mm	Model No. RP		
		3 U	6 U	9 U
4	20.0	**3685.500**	**3685.508**	**3685.516**
5	25.1	**3685.501**	**3685.509**	**3685.517**
6	30.2	**3685.502**	**3685.510**	**3685.518**
7	35.3	**3685.503**	**3685.511**	**3685.519**
8	40.3	**3685.504**	**3685.512**	**3685.520**
10	50.5	**3685.505**	**3685.513**	**3685.521**
12	60.7	**3685.506**	**3685.514**	**3685.522**

Detailed drawing,
see page 527.

⚠ Also required:

From front panel widths of 4 HP (at 3 U) and 7 HP (at 6 U):
Captive screws and plastic collars,
packs of 100 set, Model No. RP 3658.160,
see page 576.
For 3 U front panels:
PCB holder set, see page 536.

HE = U
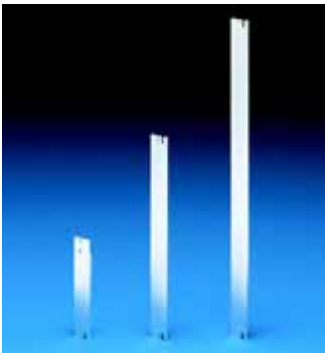
U-channel front panels
for type I, II, IV, IVs or VII handles

Material:
2.5 mm aluminium, clear chromated

EMC

HP	a mm	Model No. RP		
		3 U	6 U	9 U
4	20.0	**3685.524**	**3685.532**	**3685.540**
5	25.1	**3685.525**	**3685.533**	**3685.541**
6	30.2	**3685.526**	**3685.534**	**3685.542**
7	35.3	**3685.527**	**3685.535**	**3685.543**
8	40.3	**3685.528**	**3685.536**	**3685.544**
10	50.5	**3685.529**	**3685.537**	**3685.545**
12	60.7	**3685.530**	**3685.538**	**3685.546**
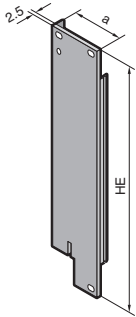
! Also required:

EMC gasket, see page 506.
From front panel widths of 4 HP (at 3 U) and 7 HP (at 6 U):
Centering screw with slot,
packs of 100 sets, Model No. RP 3687.050,
see page 577.
Posidrive centering screw,
packs of 100 sets, Model No. RP 3687.051,
see page 577.
For 3 U front panels:
PCB holder set, see page 536.

B

3.5

Accessories for subracks

Front panels for type I, II, IV, IVs or VII handles

3 U

6 U

9 U
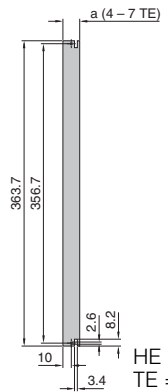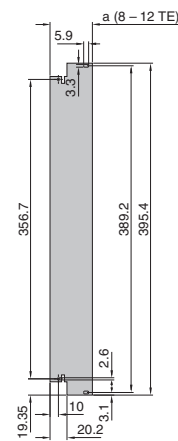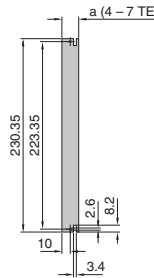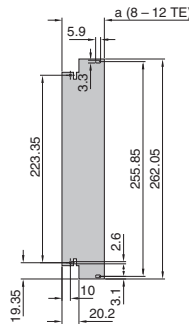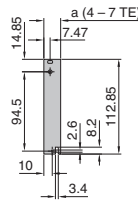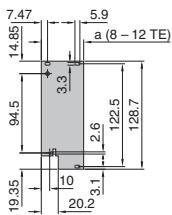
HE = U
TE = HP

Flat front panel

U-channel front panel

Accessories for subracks

Front panels, handles

Extractor handle type I and type II
- Suitable for flat front panels/U-channel front panels
- For PCB removal
- May be used in combination with horizontal rails with 10 mm extension

Supply includes:
Assembly parts.

Note:
With 3 U, only one extractor handle is required.
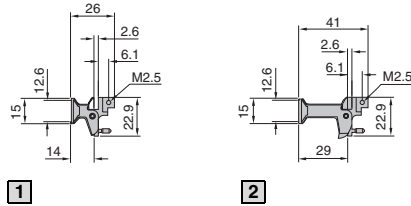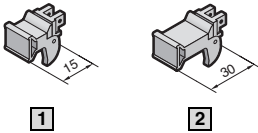
➕ **Accessories:**

Identification strips for extractor handles,
see page 529.

Injector/extractor handle type IV

Handles with micro-switch
For inserting and removing PCB's with a high connector pin-count.
- Insertion/removal function
- Integral microswitch for "live insertion" applications
- Sellf-activation of the micro-switch during insertion/removal
- ESD pin to dissipate static charges prior to making contact with the connectors and for precise positioning of the board type plug-in units
- Codeable
- Integral PCB attachment
- Self-locking
- Bayable

Handle without micro-switch
Description see above. Micro-switch may be retro-fitted.

Supply includes:
1 handle without or with micro-switch, assembly parts.

Note:
- Can only be inserted in conjunction with front horizontal rails, with 10 mm extension (B), see page 499.
- With 3 U, only one extractor handle is required.
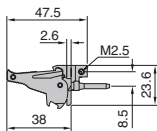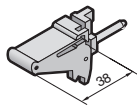
Handles with micro-switch

Colour	Installation	Packs of	Model No. RP
Grey	Top	1	3686.905
Grey	Bottom	1	3686.904
Black	Top	1	3686.907
Black	Bottom	1	3686.906

Handle without micro-switch

Colour	Installation	Packs of	Model No. RP
Grey	Top	1	3686.901
Grey	Bottom	1	3686.900
Black	Top	1	3686.903
Black	Bottom	1	3686.902

➕ **Accessories:**

Keying pins, see page 514.
Keyable guide rails, see page 510.
Micro-switch, see page 530.
Connector pin for baying, see page 529.

Injector/extractor handle type IV

8 HP, bayed
Suitable for 4 HP front panels that must be connected to each other mechanically.

Supply includes:
2 bayed handles,
fully assembled.

Colour	Installation	Packs of	Model No. RP
Black	Bottom	1	3686.908
Black	Top	1	3686.909

➕ **Accessories:**

Connector pin for baying,
see page 529.

B
3.5

Accessories for subracks
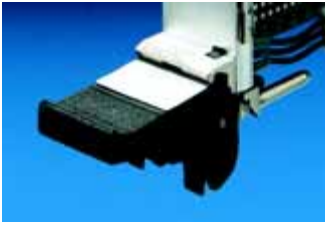
Identification strips

for type I, II extractor handle and type IV injector/extractor handle
Width 4 HP

Packs of	Model No. RP
100	3684.328

Injector/extractor handle type IVs

with push-button
For inserting and removing PCB's with a high pin-count. A metal insert ensures reliable functioning, even at forces of up to 815 N.

- Insertion/removal function
- Push-button for locking and unlocking the board type plug-in unit (cannot be extracted in the locked position)
- Optionally with $1/2$ HP offset PCB attachment, e.g. for component mounting on both sides
- Optional micro-switch for "live insertion" applications
- ESD pin to dissipate static charges prior to making contact with the connectors and for precise positioning of the board type plug-in unit
- Codeable
- Integral PCB attachment
- Bayable
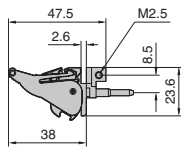
Material:
Plastic/metal

Supply includes:
Assembly parts.

Note:
- Insertion only in conjunction with front horizontal rails, with 10 mm extension (B), see page 499.
- With 3 U, only one extractor handle is required.

Handles without offset

Installation	Packs of	Model No. RP
Top	1	3688.770
Bottom	1	3688.771

Handles with $1/2$ HP offset

Installation	Packs of	Model No. RP
Top	1	3688.772
Bottom	1	3688.773

+ Accessories:

Keys, see page 514.
Keyable guide rails, see page 510.
Keyable guide rails with $1/2$ HP offset, see page 511.
Micro-switch, see page 530.
Connector pin for baying, see page 529.

Connection pin

for injector/extractor handles, types IV, IVs and VII
The connection pin can be used to connect injector/extractor handles, types IV, IVs and VII.

Material:
Steel

Packs of	Model No. RP
20	3685.319

B

3.5

Accessories for subracks

Front panels, handles
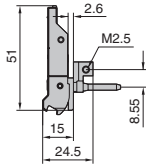
Injector/extractor handle type VII
Plastic (telecom)

For inserting and removing PCB's with a high connector pin-count. This handle was specifically designed for use in telecom applications.

● Insertion/removal function
● Optionally with $1/2$ HP offset PCB attachment, e.g. for component mounting on both sides
● Minimum space requirements, due to fold-up handle
● Codeable
● Optional integral micro-switch for "live insertion" applications
● ESD pin to dissipate static charges prior to making contact with the connectors and for precise positioning of the board type plug-in unit
● Large labelling area on the front

Material:
Plastic

Supply includes:
Assembly parts.

Note:
Insertion only in conjunction with front horizontal rails, with 10 mm extension (B), see page 499.

Handles without offset

Installation	Packs of	Model No. RP
Top	1	3688.784
Bottom	1	3688.785

Handles with $1/2$ HP offset

Installation	Packs of	Model No. RP
Top	1	3688.780
Bottom	1	3688.781

Accessories:

Keys, see page 514.
Keyable guide rails, see page 510.
Keyable guide rails with $1/2$ HP offset, see page 511.
Micro-switch, see page 530.
Connector pin for baying, see page 529.
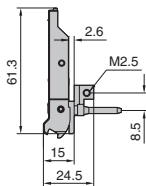
Injector/extractor handle type VII
Metal (telecom)

For inserting and removing PCB's with a high connector pin-count (up to 815 N). This handle was specifically designed for use in telecom applications.

● Insertion/removal function
● Optionally with $1/2$ HP offset PCB attachment, e.g. for component mounting on both sides
● Minimum space requirements, due to fold-up handle
● Codeable
● Optional integral micro-switch for "live insertion" applications
● ESD pin to dissipate static charges prior to making contact with the connectors and for precise positioning of the board type plug-in unit
● Metal design for use in aggressive atmospheres

Material:
Die-cast zinc

Supply includes:
Assembly parts.

Note:
Insertion only in conjunction with front horizontal rails, with 10 mm extension (B), see page 499.

Handles without offset

Installation	Packs of	Model No. RP
Top	1	3688.790
Bottom	1	3688.791

Handles with $1/2$ HP offset

Installation	Packs of	Model No. RP
Top	1	3688.786
Bottom	1	3688.787

Accessories:

Keys, see page 514.
Keyable guide rails, see page 510.
Keyable guide rails with $1/2$ HP offset, see page 511.
Micro-switch, see page 530.
Connector pin for baying, see page 529.

Micro-switch

For "live insertion" applications.
For mounting in type IV, IVs and VII injector/extractor handles.
May also be retro-fitted.

Technical specifications:
Switching load: 50 mA 30 V DC
Service life:
at nominal load: 30,000
mechanical: 50,000

Packs of	Model No. RP
10	3684.410

Also required:

Micro-switch mounting clip, see page 531.

B
3.5

Accessories for subracks

Micro-switch

with cable and connector
For "live insertion" applications.
For mounting in type IV, IVs
and VII injector/extractor handles.

Supply includes:
Micro-switch, connector
Type Molex 51021-0200,
Mounting clips, 3 cables,
25 mm x #32 AWG,
fully assembled.

1 Lever not depressed
2 Lever hinge
3 Lever contact point

1-2 micro-switch depressed
Injector/extractor in latched position
1-3 micro-switch not depressed
Injector/extractor unlatched

Packs of	Model No. RP
1 set	3686.536

! Also required:

Micro-switch mounting clip,
see page 531.
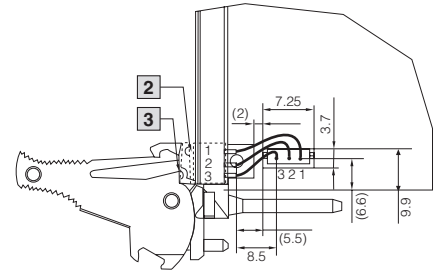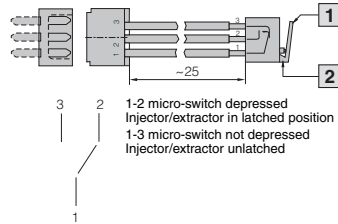
Micro-switch mounting clip

For mounting micro-switches in handles.

Packs of	Model No. RP
10	3684.411

Plastic covers

for PCBs
For mechanical protection of the solder side and
of the EMC gaskets.
Attachment holes as per CPCI or VME-specifica-
tions. Optionally available as perforated or solid
version.

Material:
0.3 mm plastic, antistatic

0.5 mm plastic, antistatic[1],
UL 94-V0

for PCBs	Packs of	Model No. RP			for VME
		for CPCI			
		perforated[1]	solid[1]	solid	solid
3 U x 160 mm	1	3687.932	3686.572	3685.966	3685.626
	5	–	–	–	3685.279
3 U x 220 mm	1	–	–	–	3685.805
	5	–	–	–	3685.266
6 U x 80 mm	1	3687.933	3686.573	3686.037	3685.146
6 U x 160 mm	1	3687.934	3686.574	3685.967	3685.627
	5	–	–	–	3685.280
6 U x 220 mm	1	–	–	–	3685.824
	5	–	–	–	3685.000
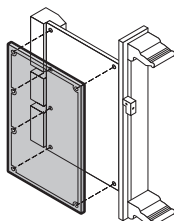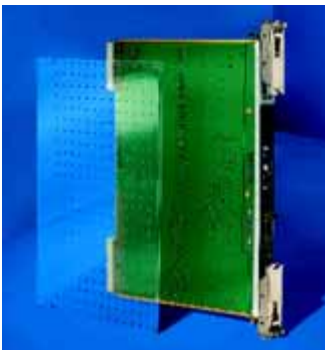
! Also required:

Required for mounting the perforated CPCI
covers:

Mounting clips

Packs of	Model No. RP
100	3687.955

B

3.5

Accessories for subracks

Accessories for subracks

Front panels, handles
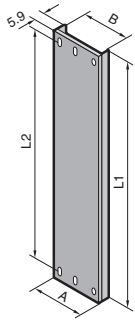
Front panels
for type III extractor handle

Material:
1.0 mm extruded aluminium section

Surface finish:
Untreated

HP	A mm	B mm	C1 mm	C2 mm	Model No. RP		
					3 U	6 U	9 U
3	15.20	12.20	–	–	**3685.548**	**3685.555**	**–**
4	20.22	17.20	–	–	**3685.549**	**3685.556**	**3685.562**
5	25.28	22.28	–	22.68	**3685.550**	**3685.557**	**3685.563**
6	30.36	27.36	–	25.22	**3685.551**	**3685.558**	**3685.564**
8	40.52	37.52	–	30.30	**3685.552**	**3685.559**	**3685.566**
10	50.68	47.68	40.46	25.22	**3685.553**	**3685.560**	**3685.567**
12	60.84	57.84	50.62	30.30	**3685.554**	**3685.561**	**3685.568**
L1 mm					97.00	230.35	363.70
L2 mm					90.00	223.35	356.70
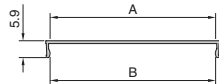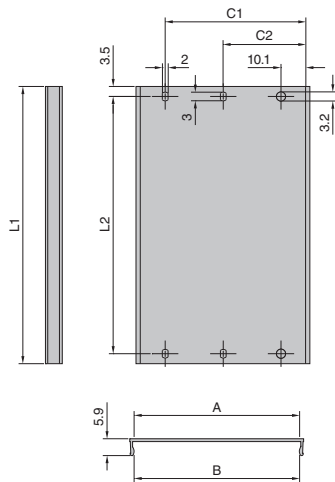
Type III handle, extractor

Material:
Fibreglass-reinforced polycarbonate
Base: nickle-plated ABS

Colour:
Grey

HP	Packs of	Model No. RP
3	1	**3685.591**
4	1	**3685.592**
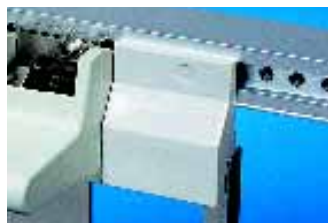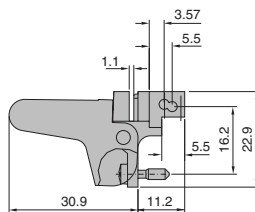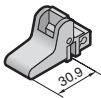
Covers
for the end spaces

Material:
Fibreglass-reinforced polycarbonate

HP	Width mm	Packs of	Model No. RP
1	5	1	**3687.529**
2	10.08	1	**3687.530**
4	20.24	1	**3687.531**

Universal bracket

for front panel support

Material:
Nickel-plated plastic

HP	Packs of	Model No. RP
4	1	**3687.545**

Flat front panels

with type V handle and PCB holder
Complete modular systems

Material:
Front panel: 2.5 mm aluminium, natural anodised.
Handle: Aluminium, natural anodised.
PCB holder: Polycarbonate

Supply includes:
1 front panel,
1 handle (2 for 6 U),
1 PCB holder (2 for 6 U),
assembly parts.

HP	a mm	B mm	Model No. RP	
			3 U H = 128.7	6 U H = 262.05
3	14.9	–	**3652.000**	**3652.200**
4	20.0	–	**3652.010**	**3652.210**
5	25.1	–	**3652.020**	**3652.220**
6	30.1	–	**3652.030**	**3652.230**
7	35.2	–	**3652.040**	**3652.240**
8	40.3	–	**3652.050**	**3652.250**
10	50.5	35.6	**3652.060**	**3652.260**
12	60.6	45.7	**3652.070**	**3652.270**
14	70.8	55.9	**3652.080**	–
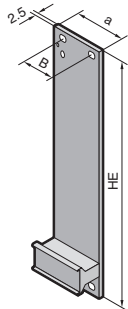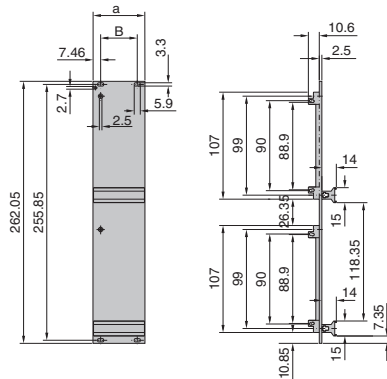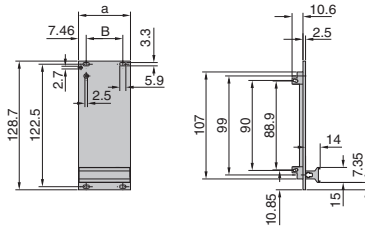
Accessories:

Identification strips for handles,
see page 535.

HE = U

B
3.5

Accessories for subracks

Front panels, handles
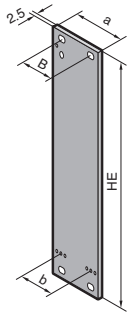
Flat front panels
for type V and VI handle

Material:
2.5 mm aluminium, anodised
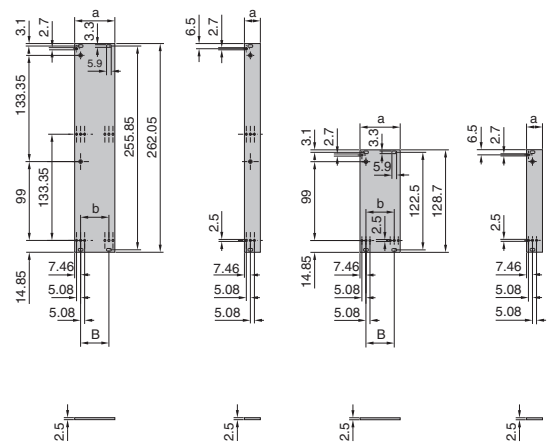
HP	a mm	B mm	b mm	Packs of	Model No. RP 3 U	Model No. RP 6 U
3	14.9	–	–	1	**3685.569**	**3685.578**
4	20.0	–	–	1	**3685.570**	**3685.579**
5	25.1	–	–	1	**3685.571**	**3685.580**
6	30.2	–	15.2	1	**3685.572**	**3685.581**
7	35.2	–	20.3	1	**3685.573**	**3685.582**
8	40.3	–	25.4	1	**3685.574**	**3685.583**
10	50.5	35.6	35.6	1	**3685.575**	**3685.584**
12	60.6	45.7	45.7	1	**3685.576**	**3685.585**
14	70.8	55.9	55.9	1	**3685.577**	**3685.586**

⚠ Also required:

Captive screws and plastic collars,
packs of 100 set, Model No. RP 3658.160,
see page 576.

⊞ Accessories:

Handles type V, see page 535.
Handles type VI, see page 536.
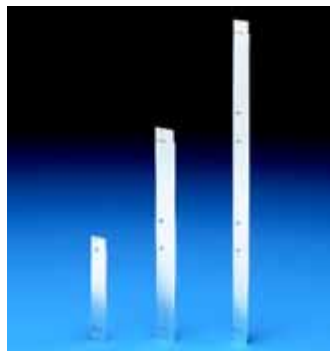
U-channel front panels
for type V and VI handle

Material:
2.5 mm aluminium, clear-chromated

Supply includes:
1 vertical EMC gasket, version 1.

EMC

HP	a mm	B mm	Packs of	Model No. RP 3 U	Model No. RP 6 U
4	20.0	–	1	**3687.655**	**3687.660**
6	30.2	–	1	**3687.656**	**3687.661**
8	40.3	–	1	**3687.657**	**3687.662**
10	50.5	35.6	1	**3687.658**	**3687.663**
12	60.6	45.7	1	**3687.659**	**3687.664**

⚠ Also required:

Centering screw with slot,
packs of 100 sets, Model No. RP 3687.050,
see page 577.

⊞ Accessories:

Handles type V, see page 535.
Handles type VI, see page 536.

Detailed drawing,
see page 534.
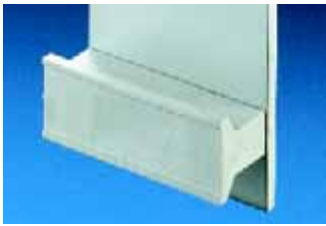
Type V handle
Plastic

Material:
Plastic
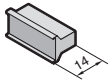
HP	Colour	Packs of	Model No. RP
3	Grey	1	3685.490
4	Grey	1	3685.491
8	Grey	1	3685.492
12	Grey	1	3685.493
20	Grey	1	3685.494
3	Black	1	3685.495
4	Black	1	3685.496
8	Black	1	3685.497
12	Black	1	3685.498
20	Black	1	3685.499

! **Also required:**

Assembly kit,
packs of 1 set, Model No. RP 3687.519,
see page 576.

Identification strips
for type V handle, plastic
self-adhesive

HP	Packs of	Model No. RP
24	1	3687.693

Type V handle
Aluminium

Material:
Aluminium, anodised.
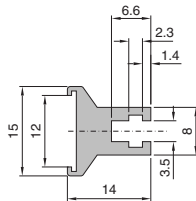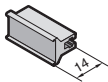
HP	Model No. RP	HP	Model No. RP
3	3685.595	12	3685.602
4	3685.596	14	3685.603
5	3685.597	21	3685.761
6	3685.598	28	3685.762
7	3685.599	42	3685.763
8	3685.600	1 m	3685.604
10	3685.601		

! **Also required:**

Assembly kit,
packs of 1 set, Model No. RP 3687.146,
(for 6 HP and above, 2 packs are required),
see page 577.

Identification strips
for type V handle, aluminium
For individual labelling of the handles.

Material:
0.5 mm aluminium, anodised
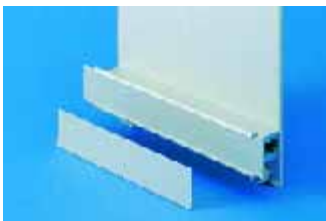
HP	Packs of	Model No. RP
3	1	3685.746
4	1	3685.747
5	1	3685.748
6	1	3685.749
7	1	3685.750
8	1	3685.751
10	1	3685.752
12	1	3685.753
14	1	3685.754
21	1	3685.755
28	1	3685.756
42	1	3685.757
1 m	1	3685.758
0.5 m	5	3606.300

Accessories for subracks

Front panels, handles
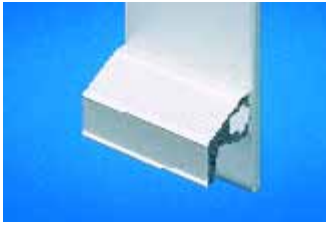
Type VI handle
Aluminium

Material:
Aluminium, anodised.
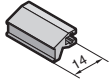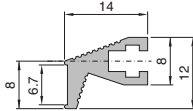
HP	Model No. RP	HP	Model No. RP
3	**3685.605**	12	**3685.612**
4	**3685.606**	14	**3685.613**
5	**3685.607**	21	**3685.614**
6	**3685.608**	28	**3685.615**
7	**3685.609**	42	**3685.616**
8	**3685.610**	84	**3685.617**
10	**3685.611**	1 m	**3685.618**

! Also required:

Assembly kit,
packs of 1 set, Model No. RP 3687.146,
(for 6 HP and above, 2 packs are required),
see page 577.
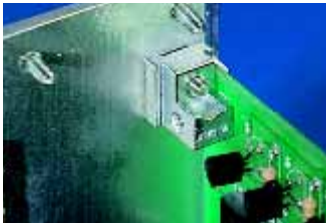
PCB holder kit

For securing PCBs to front panels.

Material:
Die-cast

Note:
Only required at the top with 3 U front panels with
lever handles.

Packs of	Model No. RP
10	**3685.198**

! Also required:

For securing PCBs to PCB holders:
Pan-head screws,
packs of 100 sets, Model No. RP 3654.320,
see page 576.
For securing PCB holders to front panels:
Oval head screws,
packs of 100 sets, Model No. RP 3685.282,
see page 577.

PCB holder

For front panels
For securing PCBs to front panels with type V and
VI handles.

Material:
Noryl

Supply includes:
Assembly parts.

Packs of	Model No. RP
10	**3606.330**
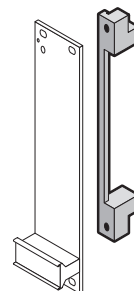
Front panels
as filler panel, flat

Material:
2.5 mm aluminium, natural anodised.
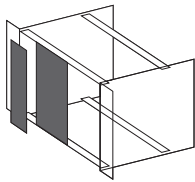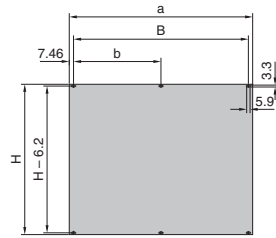
⚠ Also required:

Captive screws and plastic collars,
packs of 100 set, Model No. RP 3658.160,
see page 576.

HP	a mm	B mm	b mm	Model No. RP						
				1 U H = 39.8	2 U H = 84.25	3 U H = 128.7	4 U H = 173.15	6 U H = 262.05	7 U H = 306.5	9 U H = 395.4
2	9.8	–	–	–	–	3684.889	–	3684.911	–	3684.738
3	14.9	–	–	–	–	3684.890	–	3684.912	–	–
4	20.0	–	–	–	–	3684.891	–	3684.913	–	3684.739
5	25.1	–	–	–	–	3684.892	–	3684.914	–	–
6	30.1	–	–	–	–	3684.893	–	3684.915	–	–
7	35.2	–	–	–	–	3684.894	–	3684.916	–	–
8	40.3	–	–	–	–	3684.895	–	3684.917	–	3684.740
10	50.5	35.6	–	–	–	3684.896	–	3684.918	–	–
12	60.6	45.7	–	–	–	3684.897	–	3684.919	–	3684.741
14	70.8	55.9	–	–	–	3684.898	–	3684.920	–	–
20	101.3	86.4	–	–	–	3684.899	–	3684.921	–	–
21	106.4	91.4	–	–	3685.350	3684.900	–	3684.922	–	–
24	121.7	106.7	–	–	3685.429	–	–	–	–	–
27	136.8	121.9	–	–	–	3684.901	–	3684.923	–	–
28	141.9	127.0	–	–	–	3684.902	–	3684.924	–	–
40	202.9	188.0	–	–	–	3684.903	–	3684.976	–	3684.977
42	213.0	198.1	–	3684.885	3684.887	3684.904	3684.908	3684.925	3684.928	3684.742
60	304.5	289.6	–	–	–	3684.905	–	–	–	–
63	319.7	304.8	152.4	–	–	3684.906	3684.909	3684.926	3684.929	–
84	426.4	411.5	203.2	3684.886	3684.888	3684.907	3684.910	3684.927	3684.930	3684.743
85	413.5	411.5	203.2	–	–	3684.744	3684.745	3684.746	3684.747	3684.748

Accessories for subracks

Front panels, handles

Front panels
as filler panels, U-shaped

Material:
2.5 mm aluminium, clear-chromated

Supply includes:
1 one-part front panel (for 2 – 14 HP version)
or three-part (for > 14 HP version),
1 vertical EMC gasket, version 1,
1 contact strip (three-part only),
1 gasket strip (three-part only).

EMC
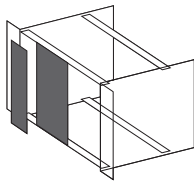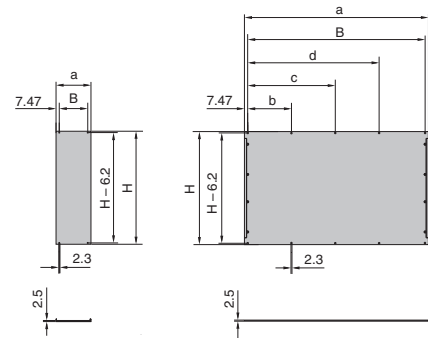
⚠ Also required:
Centering screw with slot,
packs of 100 sets, Model No. RP 3687.050,
see page 577.

HP	a mm	B mm	b mm	c mm	d mm	Model No. RP						
						1 U H = 39.8	2 U H = 84.25	3 U H = 128.7	4 U H = 173.15	6 U H = 262.05	7 U H = 306.5	9 U H = 395.4
2	9.8	–	–	–	–	–	–	3685.177	–	3685.185	–	3685.193
3	14.9	–	–	–	–	–	–	3686.138	–	3686.139	–	3686.140
4	20.0	–	–	–	–	–	–	3685.178	–	3685.186	–	3685.194
5	25.1	–	–	–	–	–	–	3685.179	–	3685.187	–	–
6	30.1	–	–	–	–	–	–	3685.180	–	3685.188	–	–
7	35.2	–	–	–	–	–	–	3685.181	–	3685.189	–	–
8	40.3	25.4	–	–	–	–	–	3685.182	–	3685.190	–	3685.195
10	50.5	35.6	–	–	–	–	–	3685.183	–	3685.191	–	–
12	60.6	45.7	–	–	–	–	–	3685.184	–	3685.192	–	3685.196
14	70.8	55.9	–	–	–	–	–	3684.249	–	3684.258	–	3684.278
16	80.9	66.0	–	–	–	–	–	3685.348	–	3685.349	–	–
20	101.3	86.4	–	–	–	–	–	3684.250	–	3684.259	–	3684.279
21	106.4	91.4	–	–	–	–	–	3684.272	–	3684.275	–	–
28	141.9	127.0	61.0	–	–	–	–	3684.251	–	3684.260	–	–
40	202.9	188.0	91.5	–	–	–	–	3684.273	–	3684.276	–	3684.280
42	213.0	198.1	96.5	–	–	–	–	3684.252	3684.255	3684.261	3684.264	3684.267
60	304.5	289.6	96.5	193.0	–	–	–	3684.274	–	3684.277	–	–
63	319.7	304.8	101.6	203.2	–	–	–	3684.253	3684.256	3684.262	3684.265	3684.268
84	426.4	411.5	101.6	203.2	304.8	3684.247	3684.248	3684.254	3684.257	3684.263	3684.266	3684.269

Front panels
Hinged

Material:
2.5 mm aluminium, anodised

Supply includes:
1 front panel,
1 set of hinges,
assembly parts.
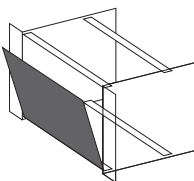
U	HP	Model No. RP	
		vertically hinged	horizontally hinged
3	42[1]	3652.600	3652.500
3	84[1]	3652.610	3652.510
3	85	–	3684.291
4	85	–	3684.292
6	42[1]	3652.620	3652.520
6	84[1]	3652.630	3652.530
6	85	–	3684.293
7	85	–	3684.294
9	85	–	3684.295

⚠ Also required:
[1] With rear mounting of 42 HP and 84 HP front panels, additonal trim sections must be attached at the rear of the subrack.
Trim sections, see page 497.

B
3.5
Accessories for subracks
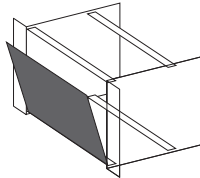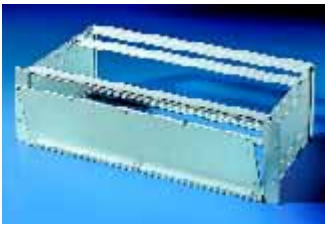
EMC front panels

Hinged

Material:
2.5 mm aluminium, clear-chromated

EMC

Supply includes:
1 front panel,
1 set of hinges,
1 contact strip,
1 gasket strip,
1 vertical EMC gasket, version 1,
assembly parts.

U	HP	Model No. RP horizontally hinged
3	84	**3684.298**
4	84	**3684.299**
6	84	**3684.300**
7	84	**3684.301**
9	84	**3684.302**

Mezzanine front panels

Die-cast zinc
For PCI mezzanine cards (PMC).

Conforms to IEEE 1386

Material:
Die-cast zinc

Packs of	Model No. RP
1	**3688.659**

＋ **Accessories:**

EMC seals,
see page 540.
Assembly screws M2.5 x 6,
packs of 100 sets, Model No. RP 3654.340,
see page 576.

Mezzanine front panels

Extruded aluminium section
For PCI mezzanine cards (PMC).

Conforms to IEEE 1386

Material/surface finish:
Extruded aluminium section, clear-chromated

Packs of	Model No. RP
1	**3688.658**

＋ **Accessories:**

EMC seals,
see page 540.
Assembly screws M2.5 x 6,
packs of 100 sets, Model No. RP 3654.340,
see page 576.

Support spacers

for mezzanine cards
10 mm, for mounting mezzanine cards.

Packs of	Model No. RP
1	**3688.663**

B

3.5

Accessories for subracks

Accessories for subracks

Front panels, handles

Covers

for mezzanine cutouts
To conceal unused mezzanine cutouts. The
covers are simply clipped into the cutouts.

Material:
Stainless steel

Packs of	Model No. RP
1	**3688.660**

EMC seals

for mezzanine front panels
For inserting into the all-round channel of the
mezzanine front panels.

Material/surface finish:
Sealing ring made of conductive carbon filled
silicon, sealing gasket made from stainless steel.

Option	Packs of	Model No. RP
Sealing ring	1	**3688.661**
Sealing gasket	1	**3688.662**

Keying pin

for mezzanine cards
To ensure the the correnct installation of mezza-
nine parent cards. The keying pins are bolted
onto the parent boards.

Packs of	Model No. RP
1	**3688.664**

Door cutout trim

**To conceal the cut-out edges when subracks
are installed in the door.**

Material:
Aluminium

Width	Packs of	Model No. UN
269.2 mm ($^1/_2$ 19″)	2	**3634.060**
482.6 mm (19″)	2	**3634.070**
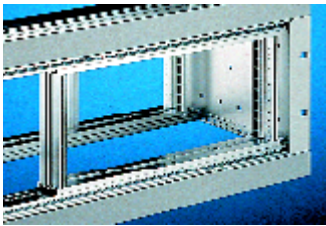
Rear panels,
for fan installation,
see page 522.

Front/rear panels,
for ventilation,
see page 521.

Ripac box type plug-in units, type I

Technical specifications:
Installation depth: 160 and 220 mm
Height: 3 U and 6 U
to IEC 60 297-3,
to accommodate:
individual connectors

Material:
Front panel: 2.5 mm aluminium,
natural anodised
Rear panel: 2 mm aluminium, natural anodised
Side panel sections: Extruded aluminium section,
natural anodised
Handle: Aluminium, natural anodised.
PCB holder: Plastic

Available upon request:
● Box type plug-in units in special sizes or with printing
● EMC box type plug-in units with EMC front panels

⊞ Accessories:

Covers,
see page 545.
Guide rails,
see page 512.
Individual components,
see page 542.

HP	a mm	B mm	b mm	c mm	C mm	d mm	e mm	f mm	Model No. RP		
									3 U	3 U	6 U
Board depth 160 mm											
6	32.2	–	20.3	27.5	–	171.5	122	167	3653.000	–	–
8	40.3	–	30.5	36.0	–	171.5	122	167	–	3653.010	–
10	50.5	35.6	40.6	46.2	–	171.5	122	167	–	3653.020	3653.100
12	60.6	45.7	50.8	56.4	–	171.5	122	167	–	3653.030	3653.110
14	70.8	55.9	60.9	66.5	–	171.5	122	167	–	3653.040	3653.120
21	106.3	91.4	96.4	102.0	86.3	171.5	122	167	–	3653.050	3653.130
28	141.9	127.0	132.0	137.6	121.8	171.5	122	167	–	3653.060	3653.140
42	213.1	198.1	203.2	208.8	193.0	171.5	122	167	–	3653.070	3653.150
Board depth 220 mm											
10	50.5	35.6	40.6	46.2	–	231.5	182	227	–	3653.200	3653.300
12	60.6	45.7	50.8	56.4	–	231.5	182	227	–	3653.210	3653.310
14	70.8	55.9	60.9	66.5	–	231.5	182	227	–	3653.220	3653.320
21	106.3	91.4	96.4	102.0	86.3	231.5	182	227	–	3653.230	3653.330
28	141.9	127.0	132.0	137.6	121.8	231.5	182	227	–	3653.240	3653.340
42	213.1	198.1	203.2	208.8	193.0	231.5	182	227	–	3653.250	3653.350
Supply includes											
Font panel									1	1	1
Handle									1	1	2
Side panels									1	2	2
Cover including rear panel									1	–	–
Rear panel									–	1	2
PCB holder									2	2	2
Assembly parts (set)									1	1	1

Section A – A
Board depth 160 mm
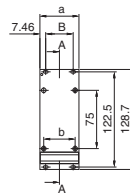
Section B – B
Type I, 3 U
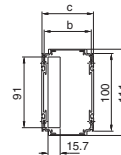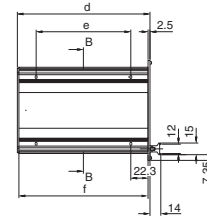
Section A – A
Board depth 160 mm
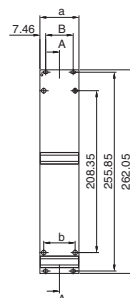
Section B – B
Type I, 6 U
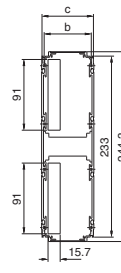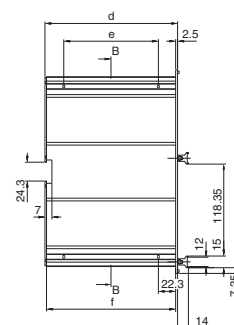
B
3.5

Accessories for subracks

Ripac box type plug-in units individual components
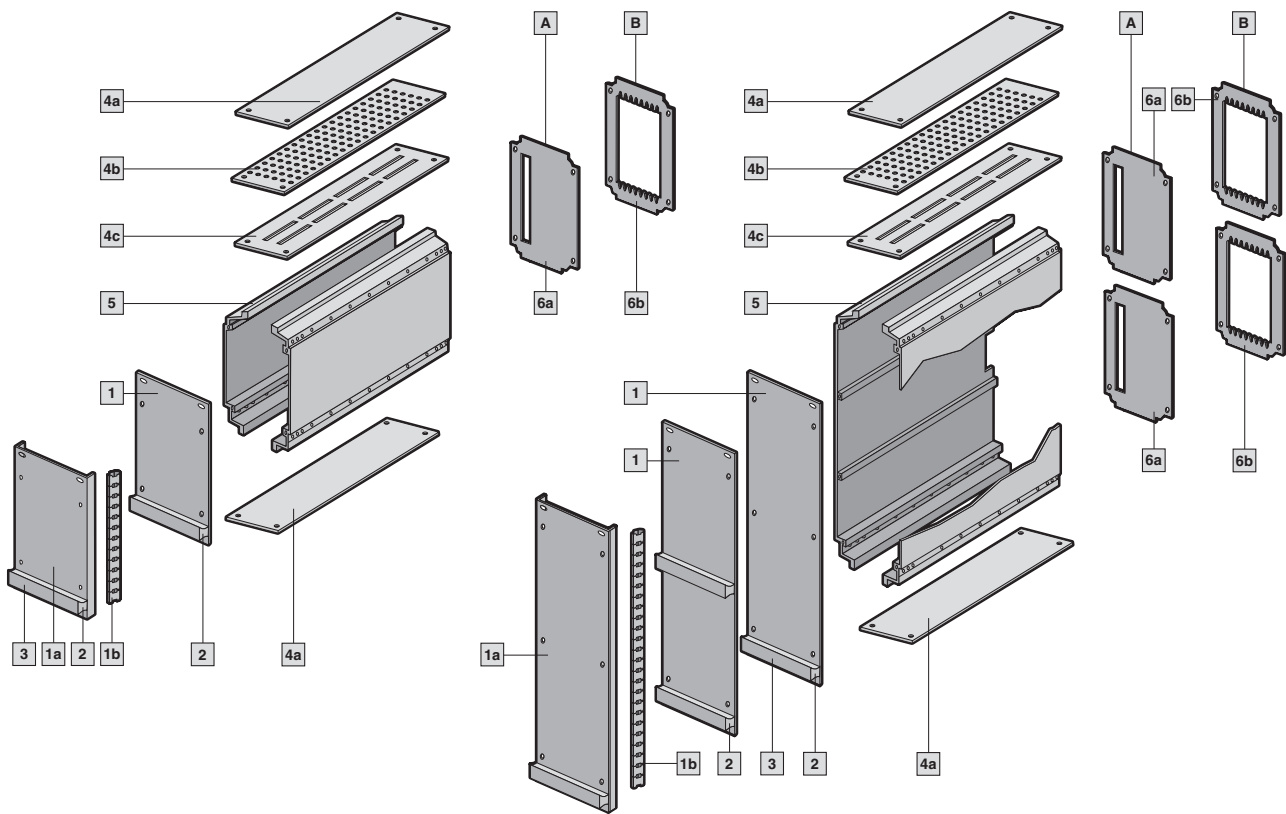
Ripac box type plug-in units, types I and II in 3 U and 6 U, individual components

	Box type plug-in units, individual components	**A** Type I	**B** Type II	Packs of	8 HP	10 HP	12 HP	14 HP	21 HP	28 HP	42 HP	Page
Type I for one connector/type II for several connectors											
	Front panels of 2.5 mm aluminium, anodised surface finish											
1	for 3 U	■	■	1	**3685.769**	**3685.629**	**3685.630**	**3685.631**	**3685.636**	**3685.637**	**3685.638**	–
	for 6 U (for 1 handle)	■	■	1	**3685.767**	**3685.633**	**3685.634**	**3685.635**	**3685.639**	**3685.640**	**3685.641**	–
	for 6 U (for 2 handles)	■	■	1	–	**3687.520**	**3687.521**	**3687.522**	**3687.523**	**3687.524**	**3687.525**	–
	EMC front panels of 2.5 mm aluminium, surface finish clear-chromated (only for use in conjunction with 10 HP box type plug-in unit)											
1a	for 3 U/10 HP box type plug-in units	■	■	1	–	–	**3687.587**	–	–	–	–	–
	for 6 U/10 HP box type plug-in units	■	■	1	–	–	**3687.588**	–	–	–	–	–
	EMC gaskets, vertical, for front panels											
1b	for 3 U	■	■	1	–	–	3686.975	–	–	–	–	506
	for 6 U	■	■	1	–	–	3686.977	–	–	–	–	506
	Handle type V											
2	of aluminium, anodised surface finish	■	■	1	3685.600	3685.601	3685.602	3685.603	3685.761	3685.762	3685.763	535
	of plastic	■	■	1	3685.492	–	3685.493	–	3685.494	–	–	535
	Identification strips											
3	of 0.5 mm aluminium, anodised surface finish	■	■	1	3685.751	3685.752	3685.753	3685.754	3685.755	3685.756	3685.757	535
	Covers 4a 4b of 1 mm aluminium, untreated 4c of 1.2 mm sheet steel, painted, RAL 9006 (with vent slots)											
4a	unvented, for board depth 160 mm	■	■	1	3687.555	3685.689	3685.690	3685.691	3685.692	3685.693	3685.694	545
	unvented, for board depth 220 mm	■	■	1	3687.562	3685.701	3685.702	3685.703	3685.704	3685.705	3685.706	545
4b	vented, for board depth 160 mm	■	■	1	3687.585	3685.683	3685.684	3685.685	3685.686	3685.687	3685.688	545
	vented, for board depth 220 mm	■	■	1	–	3685.695	3685.696	3685.697	3685.698	3685.699	3685.700	545
4c	vent slots for guide rails, for board depth 160 mm	■	■	1	–	3687.556	3687.557	3687.558	3687.559	3687.560	3687.561	545
	vent slots for guide rails, for board depth 220 mm	■	■	1	–	3687.563	3687.564	3687.565	3687.566	3687.567	3687.568	545
	Side panel of extruded aluminium section, anodised surface finish											
5	3 U, for board depth 160 mm	■	■	1	3685.645							–
	6 U, for board depth 160 mm	■	■	1	3685.648							–
	3 U, for board depth 220 mm	■	■	1	3685.646							–
	6 U, for board depth 220 mm	■	■	1	3685.649							–
	Rear panel 6a of 2.0 mm aluminium, untreated 6b of 1.2 mm sheet steel, spray-finished											
6a	for 1 connector	■	–	1	**3687.536**	**3685.707**	**3685.708**	**3685.709**	**3685.710**	**3685.711**	**3685.712**	–
6b	for several connectors	–	■	1	–	–	–	–	**3687.537**	**3687.538**	**3687.539**	–
	Assembly parts for box type plug-in units, see page 543											

B
3.5
Accessories for subracks

Ripac box type plug-in units individual components
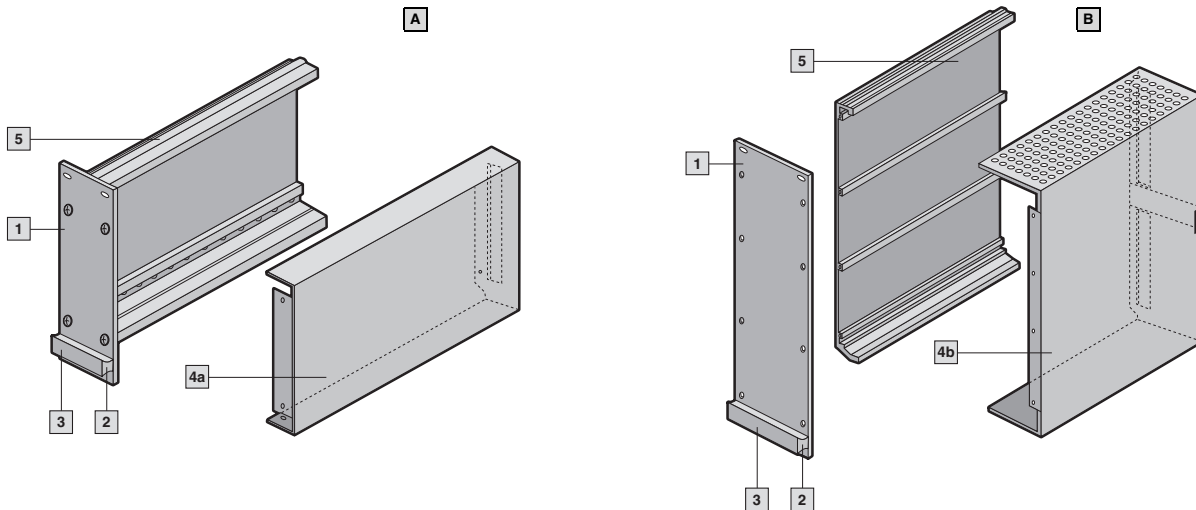
Ripac box type plug-in units, types V and VI in 3 U and 6 U, individual components

Type V with cover (unvented)/type VI with cover (vented)											
Box type plug-in units, individual components		**A** Type V	**B** Type VI	Packs of	6 HP	7 HP	8 HP	10 HP	12 HP	14 HP	Page
Front panels of 2.5 mm aluminium, anodised surface finish											
1	for 3 U	■	■	1	**3685.768**	**3685.628**	**3685.769**	**3685.629**	**3685.630**	**3685.631**	–
	for 6 U	■	■	1	**3685.766**	**3685.632**	**3685.767**	**3685.633**	**3685.634**	**3685.635**	–
Handle type V											
2	of aluminium, anodised surface finish	■	■	1	3685.598	3685.599	3685.600	3685.601	3685.602	3685.603	535
	of plastic	■	■	1	–	–	3685.492	–	3685.493	–	535
Identification strips for 3 U											
3	of 0.5 mm aluminium, anodised surface finish	■	■	1	3685.749	3685.750	3685.751	3685.752	3685.753	3685.754	535
Cover of 1 mm aluminium, clear chromated surface finish											
4a	unvented, 3 U, for board depth 160 mm	■	–	1	**3685.774**	**3685.658**	**3685.776**	**3685.659**	**3685.660**	**3685.661**	–
	unvented, 3 U, for board depth 220 mm	■	–	1	**3685.775**	**3685.674**	**3685.777**	**3685.675**	**3685.676**	**3685.677**	–
	unvented, 6 U, for board depth 160 mm	■	–	1	**3685.717**	**3685.662**	**3685.764**	**3685.663**	**3685.664**	**3685.665**	–
	unvented, 6 U, for board depth 220 mm	■	–	1	**3685.718**	**3685.678**	**3685.765**	**3685.679**	**3685.680**	**3685.681**	–
4b	vented, 3 U, for board depth 160 mm	–	■	1	**3685.770**	**3685.650**	**3685.772**	**3685.651**	**3685.652**	**3685.653**	–
	vented, 3 U, for board depth 220 mm	–	■	1	**3685.771**	**3685.666**	**3685.773**	**3685.667**	**3685.668**	**3685.669**	–
	vented, 6 U, for board depth 160 mm	–	■	1	**3685.713**	**3685.654**	**3685.715**	**3685.655**	**3685.656**	**3685.657**	–
	vented, 6 U, for board depth 220 mm	–	■	1	**3685.714**	**3685.670**	**3685.716**	**3685.671**	**3685.672**	**3685.673**	–
Side panel of extruded aluminium section, anodised surface finish											
5	3 U, for board depth 160 mm	■	■	1	**3685.645**						–
	6 U, for board depth 160 mm	■	■	1	**3685.648**						–
	3 U, for board depth 220 mm	■	■	1	**3685.646**						–
	6 U, for board depth 220 mm	■	■	1	**3685.649**						–

Assembly parts for box type plug-in unit types I, II, V, VI				
Description	for installation of:	Packs of	**Model No. RP**	
Assembly kit for box type plug-in unit I/II, 3 U	Box type plug-in units, type I/II, 3 U	1 set	**3687.589**	–
Assembly kit for box type plug-in unit I/II, 6 U	Box type plug-in units, type I/II, 6 U	1 set	**3687.590**	–
Assembly kit for box type plug-in units type V/VI	Box type plug-in units, type V/VI	1 set	**3685.294**	–
Assembly kit for box type plug-in unit with EMC-front panel	Box type plug-in unit with EMC front panel	1 set	**3687.591**	–
Assembly kit for plastic handles	Plastic handles on box type plug-in units	1 set	3687.519	576

For more screws, see page 576

Accessories for subracks

Ripac box type plug-in units for drives

Vertical drive chassis

For the installation of drives or CD-ROMs.
May be installed in all Ripac subracks.
- Optionally prepared for EMC or non-EMC
- Accomodation for 3$^1/_2$″ or 5$^1/_4$″ drives or CD-ROM, vertical
- Front panel and support plate integrated

Material:
Front panel: 2.5 mm aluminium
Support plate: Aluminium

Surface finish:
Clear-chromated

EMC

Supply includes:
1 front panel with support plate,
1 EMC gasket (with EMC modules),
assembly parts.

Installation drives	Font panel		Depth drive approx. mm	Font panel cutout		Model No. RP	
	U	HP		Height (H) mm	Width (B) mm	EMC	Non-EMC
1 x 3$^1/_2$″	3	8	160	102	26	**3684.469**	**3685.078**
2 x 3$^1/_2$″	6	8	160	102	2 x 26	**3684.478**	**3685.087**
1 x 5$^1/_4$″	6	10	220	147	41.5	**3684.481**	**3685.090**
1 x 3$^1/_2$″	3	8	160	–	–	**–**	**3685.091**
	3	10	160	–	–	**–**	**3685.092**
2 x 3$^1/_2$″	6	8	160	–	–	**–**	**3685.095**
	6	10	160	–	–	**–**	**3685.096**

1 x 5$^1/_4$″   2 x 3$^1/_2$″

1 x 3$^1/_2$″

TE
7.47
H   HE
B
— EMC gasket

HE = U
TE = HP
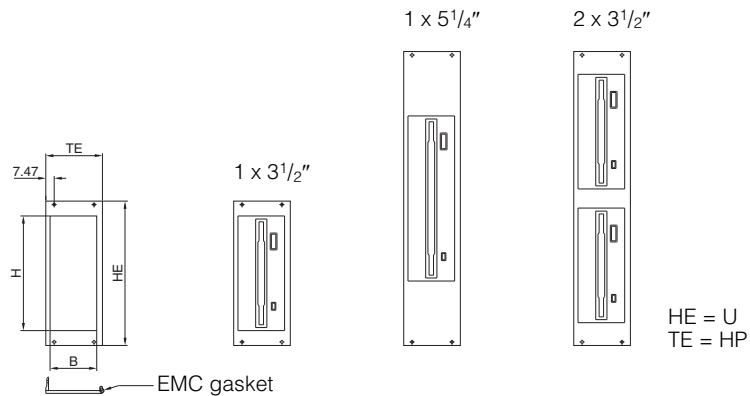
Guide rails
for drive chassis
For routing drive chassis in the subrack.

Material:
Aluminium

Supply includes:
Press-fit pin.

For installation depth mm	Packs of	**Model No. RP**
160	1	**3686.989**

Note:
Two guide rails are required for each drive chassis.

! Also required:

Assembly screws,
packs of = 100, Model No. RP 3654.340,
see page 576.

PCB holder
for box type plug-in units
For fastening PCBs in box type plug-in units.

Material:
PBTP, basic material to UL-94-V0

Supply includes:
Assembly parts.

Packs of	**Model No. RP**
2	**3606.321**

B
3.5
Accessories for subracks

Covers

for type I and II box type plug-in units

Without vent slots
For slide-in fastening.

Material:
1.0 mm aluminium, untreated

With vent slots
For screw fastening.
Suitable for the installation of guide rails.

Material:
1.2 mm sheet steel, spray-finished

Colour:
RAL 9006

Unit width	Packs of	Model No. RP	
		with vent slots[1]	without vent slots
Board depth 160 mm			
8 HP	1	–	3687.555
10 HP	1	**3687.556**	3685.689
12 HP	1	**3687.557**	3685.690
14 HP	1	**3687.558**	3685.691
21 HP	1	**3687.559**	3685.692
28 HP	1	**3687.560**	3685.693
42 HP	1	**3687.561**	3685.694
Board depth 220 mm			
8 HP	1	–	3687.562
10 HP	1	**3687.563**	3685.701
12 HP	1	**3687.564**	3685.702
14 HP	1	**3687.565**	3685.703
21 HP	1	**3687.566**	3685.704
28 HP	1	**3687.567**	3685.705
42 HP	1	**3687.568**	3685.706

! **Also required:**

[1] Assembly screws,
packs of 100 sets, Model No. RP 3685.289,
see page 577.

Covers

for type I und II box type plug-in units
Slide-in, with vent holes (EMC).

Material:
1.0 mm aluminium, untreated

Unit width	Packs of	Model No. RP	
		Board depth	
		160 mm	220 mm
8 HP	1	**3687.585**	–
10 HP	1	**3685.683**	**3685.695**
12 HP	1	**3685.684**	**3685.696**
14 HP	1	**3685.685**	**3685.697**
21 HP	1	**3685.686**	**3685.698**
28 HP	1	**3685.687**	**3685.699**
42 HP	1	**3685.688**	**3685.700**

Guide rails

for box type plug-in units,
see page 512.

B

3.5

Accessories for subracks

Accessories for subracks

Connectors

Specifications of male and female connectors to IEC 60 603-2 (DIN 41 612)

	Version B	Version C
Moulded body	Fibreglass-reinforced polyester, grey, self-exting. (UL 94-V0)	Fibreglass-reinforced polyester, grey, self-exting. (UL 94-V0)
Contacts	Male connector CuZn, female connector CuSn$_6$ or CuSn$_8$ optionally plated 2 μm Ni	Male connector CuZn, female connector CuSn$_6$ or CuSn$_8$ optionally plated 2 μm Ni
Connections	CuNi$_9$Sn$_2$, nickle-plated, optionally tin-plated, Connection zones optionally plated Au/Ni	CuNi$_9$Sn$_2$, nickle-plated, optionally tin-plated, Connection zones optionally plated Au/Ni
Test class	55/125/56 (to DIN 40 045)	55/125/56 (to DIN 40 045)
Temperature range	−55°C to +125°C	− 55°C to +125°C
Total insertion force	32 pin ≤ 30 N, 64 pin ≤ 60 N	32 pin ≤ 30 N, 48 pin ≤ 45 N, 64 pin ≤ 60 N, 96 pin ≤ 90 N
Retention force	≥ 0.15 N with 0.56 mm test blade	≥ 0.15 N with 0.56 mm test blade
Mechanical service life (connection cycles/quality level)	400 ≙ quality level II	400 ≙ quality level II
Assembling force	80 N (max. 150 N)	80 N (max. 150 N)
Pin retention force	min. 30 N	min. 30 N
Operating current according to derating curve	32 pin: 20°C: 3.2 A/70°C: 1.5 A/100°C: 1.0 A 64 pin: 20°C: 2.0 A/70°C: 1.0 A/100°C: 0.5 A	32/48 pin: 20°C: 3.2 A/70°C: 1.5 A/100°C: 1.0 A 64/96 pin: 20°C: 2.0 A/70°C: 1.0 A/100°C: 0.5 A
Dielectric strength	1.0 kV, 50 Hz (with 2.54 mm)	1.0 kV, 50 Hz (with 2.54 mm)
Operating voltage	250 V~ (with 2.54 mm) VDE 0110, insulation category A	250 V~ (with 2.54 mm) VDE 0110, insulation category A
Min. clearance and creepage distances	1.2 mm (row population) 1.3 mm (contact → contact)	2.5 mm (population rows a + c) 1.2 mm (row population) 3.0 mm (population rows a + c) 1.3 mm (contact → contact)
Volume resistance	≤ 20 mΩ (max. 2 mΩ deviation from standard)	≤ 20 mΩ (max. 2 mΩ deviation from standard)
Insulation resistance	≥ 10^{12}Ω (min. 10^9 Ω after climatic stress)	≥ 10^{12}Ω (min. 10^9 Ω after climatic stress)
Capacitance	approx. 0.5 – 1 pF (contact → contact)	approx. 0.5 – 1 pF (contact → contact)

	Version F	Version H	Version R
Moulded body	Fibreglass-reinforced polyester/ polycarbonate, grey, self-exting (UL 94-V0)	Fibreglass-reinforced polyester/ polycarbonate, grey, self-exting (UL 94-V0)	Fibreglass-reinforced polyester, grey, self-extinguishing (UL 94-V0)
Contacts	Male connector CuZn, female connector CuSn$_6$ or CuSn$_8$ optionally plated Au/2μ NI	Male and femal connector copper alloy, hard silver-plated	Male connector CuZn, female connector CuSn$_6$ or CuSn$_8$ optionally plated Au/2μ NI
Connections	CuNi$_9$Sn$_2$, nickle-plated, optionally tin-plated, connection zones optionally Au/Ni	Tin-plated	CuNi$_9$Sn$_2$, nickle-plated, optionally tin-plated, connection zones optionally Au/Ni
Test class	55/125/56 (to DIN 40 045)		55/125/56 (to DIN 40 045)
Temperature range	−55°C to +125°C	−65°C to +125°C	−55°C to +125°C
Total insertion force	32 pin ≤ 50 N, 48 pin ≤ 75 N	max. 90 N	32 pin ≤ 30 N, 48 pin ≤ 45 N; 64 pin ≤ 60 N, 96 pin ≤ 90 N
Retention force	≥ 0.15 N with 0.56 mm test blade		≥ 0.15 N with 0.56 mm test blade
Mechanical service life (connection cycles/quality level)	400 ≙ quality level II		400 ≙ quality level II
Assembling force			80 N (max.150 N)
Pin retention force			min. 30 N
Operating current according to derating curve	32/48 pin: 20°C: 6.0 A/70°C: 4.0 A/100°C: 2.5 A	20°C: 15 A/70°C: 12 A/100°C: 8 A	32/48 pin: 20°C: 3.2 A/70°C: 1.5 A/100°C: 1.0 A 64/96 pin: 20°C: 2.0 A/70°C: 1.0 A/100°C: 0.5 A
Dielectric strength	1.55 kV (with b, z), 3 kV (with d, z)	3.0 kV, 50 Hz	1.0 kV, 50 Hz (with 2.54 mm)
Operating voltage	125 V~ (b, z), 250 V~ (d, z)	500 V, VDE 0110 size C	250 V~ (with 2.54 mm) VDE 0110, insulation category A
Min. clearance and creepage distances	≥ 1.6 mm (≥ 3 mm for population rows d + z); ≥ 3.0 mm (≥ 5 mm for population rows d + z);	≥ 4.5 mm ≥ 8.0 mm	2.5 mm (population rows a + c) 1.2 mm (row population) 3.0 mm (population rows a + c) 1.3 mm (contact → contact)
Volume resistance	≤ 15 mΩ (max. 2 mΩ deviat. from stand.)	≤ 15 mΩ	≤ 20 mΩ (max. 2 mΩ deviat. from stand.)
Insulation resistance	≥ 10^{12}Ω	≥ 10^{12}Ω	≥ 10^{12}Ω (min. 10^9 Ω after climatic stress)
Capacitance	approx. 2.5 pF (1.5 pF for popul. d, z)		approx. 0.5 – 1 pF (contact → contact)

Derating curves

B, C, R

°C = Ambient temperature
A = Operating current
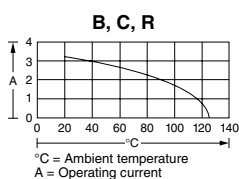
Version B, C, R
20°C – 3.20 A
70°C – 2.45 A
100°C – 1.65 A

F

°C = Ambient temperature
A = Operating current
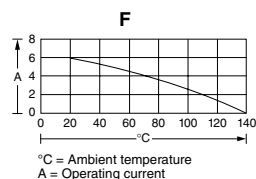
Version F
20°C – 6.0 A
70°C – 4.0 A
100°C – 2.5 A

H11

°C = Ambient temperature
A = Operating current
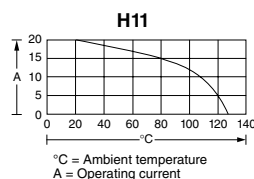
Version H11
20°C – 20.0 A
70°C – 16.0 A
100°C – 12.2 A

H15

°C = Ambient temperature
A = Operating current
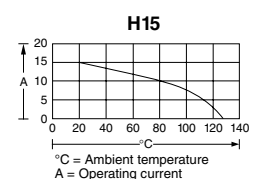
Version H15 R
20°C – 15.0 A
70°C – 11.0 A
100°C – 8.0 A

Female connector version B

IEC 60 603-2 (DIN 41 612)
- 3.2 A/pin (at 20°C ambient temperature)
- Solder or press-fit technology

Type of connection		Model No. RP					
		Solder pin (A)	Solder pin (B)	Solder pin (C)	Press-fit pin (D)	Press-fit pin (E)	No. of contacts
Population	Row a	**3686.700**	**3686.703**	**3686.706**	**3686.709**	**3686.712**	32
	1, 2, 3 ...						
Population	Row a + b	**3686.701**	**3686.704**	**3686.707**	**3686.710**	**3686.713**	32
	Pin 2, 4, 6 ...32						
Population	Row a + b	**3686.702**	**3686.705**	**3686.708**	**3686.711**	**3686.714**	64
	1, 2, 3 ...						
Hole diameter for printed circuit boards		$1^{\pm0.1}$	$1^{\pm0.1}$	$1^{\pm0.1}$	$1^{+0.009}_{-0.006}$	$1^{+0.009}_{-0.006}$	
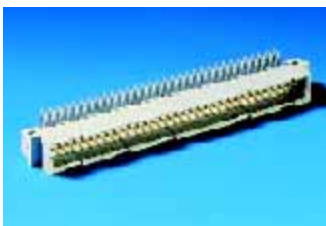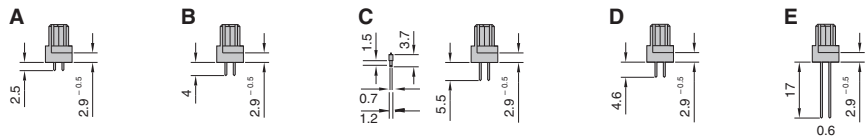
Male connector version B

IEC 60 603-2 (DIN 41 612)
- 3.2 A/pin (at 20°C ambient temperature)
- Solder or press-fit technology

Type of connection		Model No. RP		
		Solder pin (A)	Press-fit pin (B)	No. of contacts
Population	Row a	**3686.715**	**3686.718**	32
	1, 2, 3 ...			
Population	Row a + b	**3686.716**	**3686.719**	32
	Pin 2, 4, 6 ...32			
Population	Row a + b	**3686.717**	**3686.720**	64
	1, 2, 3 ...			
Hole diameter for printed circuit boards		$1^{\pm0.1}$	$1^{+0.009}_{-0.006}$	

Female connector version C

IEC 60 603-2 (DIN 41 612)
- 3.2 A/pin (at 20°C ambient temperature)
- Solder or press-fit technology

Type of connection		Model No. RP						
		Solder pin (A)	Solder pin (B)	Wrap post (C)	Solder pin (D)	Press-fit pin (E)	Press-fit pin (F)	No. of contacts
Population	Row a + b	**3686.721**	**3686.725**	**3686.729**	**3686.733**	**3686.737**	**3686.741**	32
	Pin 2, 4, 6 ...32							
Population	Row a + b + c	**3686.722**	**3686.726**	**3686.730**	**3686.734**	**3686.738**	**3686.742**	48
	Pin 2, 4, 6 ...32							
Population	Row a + c	**3686.723**	**3686.727**	**3686.731**	**3686.735**	**3686.739**	**3686.743**	64
Population	Row a + b + c	**3686.724**	**3686.728**	**3686.732**	**3686.736**	**3686.740**	**3686.744**	96
Hole diameter for printed circuit boards		$1^{\pm0.1}$	$1^{\pm0.1}$	$1^{\pm0.1}$	$1^{\pm0.1}$	$1^{+0.009}_{-0.006}$	$1^{+0.009}_{-0.006}$	
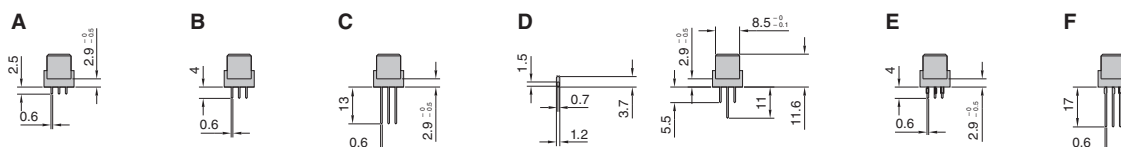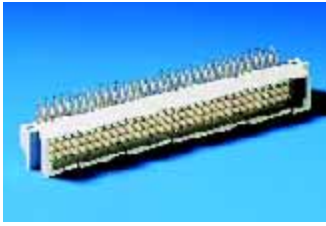
B

3.5

Accessories for subracks

Connectors

Female connector version C

IEC 60 603-2 (DIN 41 612)
- 3.2 A/pin (at 20°C ambient temperature)
- Solder or press-fit technology

		Model No. RP			
Type of connection		Solder pin (A)	Solder pin (B)	Press-fit pin (C)	No. of contacts
Population	Row a + c	**3686.745**	**3686.749**	**3686.753**	32
	Pin 2, 4, 6 ...32				
Population	Row a + b + c	**3686.746**	**3686.750**	**3686.754**	48
	Pin 2, 4, 6 ...32				
Population	Row a + b	**3686.747**	**3686.751**	**3686.755**	64
Population	Row a + b + c	**3686.748**	**3686.752**	**3686.756**	96
Hole diameter for printed circuit boards		$1^{\pm0.1}$	$1^{\pm0.1}$	$1^{+0.009}_{-0.006}$	
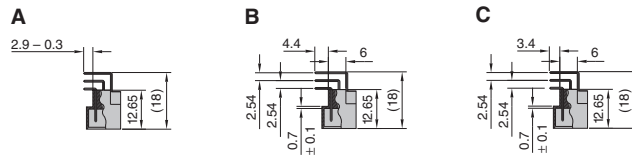
A **B** **C**

Female connector version F

IEC 60 603-2 (DIN 41 612)
- 5.6 A/pin (at 20°C ambient temperature)
- Solder or wire-wrap technology

		Model No. RP		
Type of connection		Solder pin (A)	Wrap post (B)	No. of contacts
Population	Rows b, z	**3686.814**	**3686.820**	32
	Pin 2, 4, 6 ...32			
Population	Rows d, z	**3686.815**	**3686.821**	32
	Pin 2, 4, 6 ...32			
Population	Rows d, b, z	**3686.816**	**3686.822**	48
	Pin 2, 4, 6 ...32			
Hole diameter for printed circuit boards		$1.6^{\pm0.1}$	$1^{+0.009}_{-0.006}$	
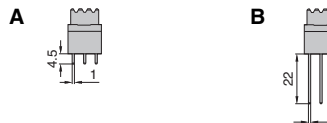
A **B**

Male connector version F

IEC 60 603-2 (DIN 41 612)
- 5.6 A/pin (at 20°C ambient temperature)
- Solder or pins

		Model No. RP	
Type of connection		Solder pin	No. of contacts
Population	Rows b, z	**3686.817**	32
	Pin 2, 4, 6 ...32		
Population	Rows d, z	**3686.818**	32
	Pin 2, 4, 6 ...32		
Population	Rows d, b, z	**3686.819**	48
	Pin 2, 4, 6 ...32		
Hole diameter for printed circuit boards		$1^{\pm0.1}$	

B
3.5

Accessories for subracks

Female connector version R

IEC 60 603-2 (DIN 41 612)
- 3.2 A/pin (at 20°C ambient temperature)
- Solder or press-fit technology

		Model No. RP		
Type of connection		Solder pin (A)	Press-fit (B)	No. of contacts
Population	Row a + c Pin 2, 4, 6 ...32	**3686.757**	–	32
Population	Row a + b + c Pin 2, 4, 6 ...32	**3686.758**	–	48
Population	Row a + c	**3686.759**	**3686.761**	65
Population	Row a + b + c	**3686.760**	**3686.762**	96
Hole diameter for printed circuit boards		$1^{\pm 0.1}$	$1^{+0.009}_{-0.006}$	
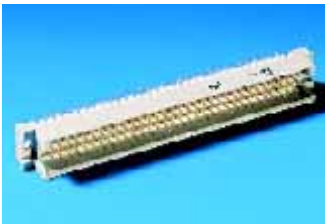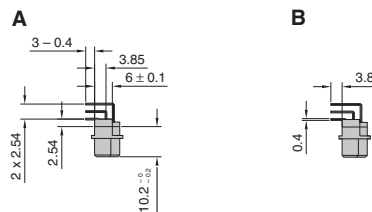
A   **B**

Male connector version R

IEC 60 603-2 (DIN 41 612)
- 3.2 A/pin (at 20°C ambient temperature)
- Solder or press-fit technology

		Model No. RP					
Type of connection		Solder pin (A)	Solder pin (B)	Wrap post (C)	Press-fit pin (D)	Press-fit pin (E)	No. of contacts
Population	Row a + c Pin 2, 4, 6 ...32	**3686.763**	**3686.767**	**3686.771**	**3686.775**	**3686.779**	32
Population	Row a + b + c Pin 2, 4, 6 ...32	**3686.764**	**3686.768**	**3686.772**	**3686.776**	**3686.780**	48
Population	Row a + c	**3686.765**	**3686.769**	**3686.773**	**3686.777**	**3686.781**	64
Population	Row a + b + c	**3686.766**	**3686.770**	**3686.774**	**3686.778**	**3686.782**	96
Hole diameter for printed circuit boards		$1^{\pm 0.1}$	$1^{\pm 0.1}$	$1^{\pm 0.1}$	$1^{+0.009}_{-0.006}$	$1^{+0.009}_{-0.006}$	

A   **B**   **C**   **D**   **E**
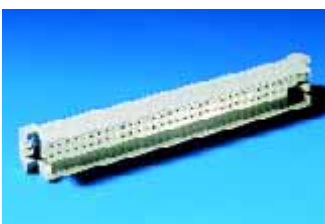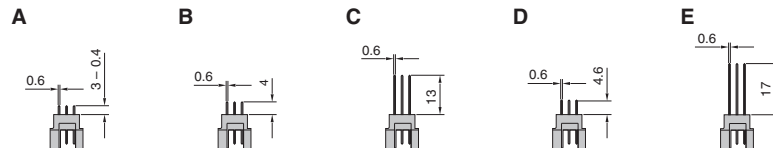
Male connector shroud type R

IEC 60 603-2 (DIN 41 612)
- For adaptor connectors

	Model No. RP			
Type of connection	A	B	C	D
Population 96 pins	**3686.783**	**3686.784**	**3686.807**	**3686.808**
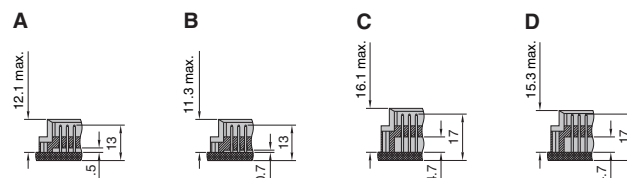
A   **B**   **C**   **D**

B

3.5

Accessories for subracks

Accessories for subracks

Connectors

Female connector version H11

IEC 60 603-2 (DIN 41 612)
- 15 A/pin (at 20°C ambient temperature)
- Flat-pin connector terminal

	Model No. RP
Type of connection	Faston
Population 11 pins	**3686.788**
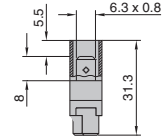
Male connector version H11

IEC 60 603-2 (DIN 41 612)
- 15 A/pin (at 20°C ambient temperature)
- Solder technique
- Optional leading earth (2)

	Model No. RP
Type of connection	Solder pin
Population 11 pins	**3686.785**
Population 10 + 1 pin	**3686.786**
Population 9 + 2 pin	**3686.787**
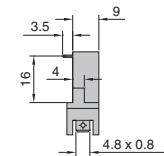
Female connector version H15

IEC 60 603-2 (DIN 41 612)
- 15 A/pin (at 20°C ambient temperature)
- Blade terminals or screw termination

	Model No. RP	
Type of connection	Faston (A)	Screw termination (B)
Population 15 pins	**3686.789**	**3686.790**
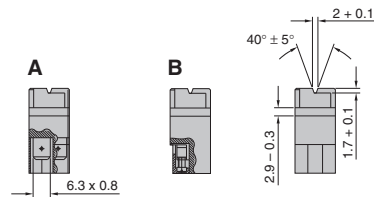
Female connector version H15

IEC 60 603-2 (DIN 41 612)
- 15 A/pin (at 20°C ambient temperature)
- Solder technique

	Model No. RP		
Type of connection	Solder pin (A)	Solder pin (B)	Solder lug (C)
Population 15 pins	**3686.791**	**3686.792**	**3686.793**
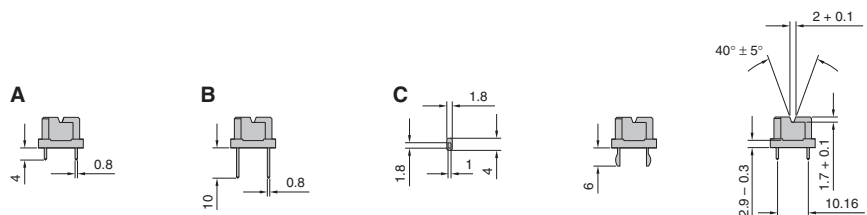
Female connector version H15

IEC 60 603-2 (DIN 41 612)
- 15 A/pin (at 20°C ambient temperature)
- Solder technique

	Model No. RP
Type of connection	Solder pin
Population 15 pins	**3686.794**
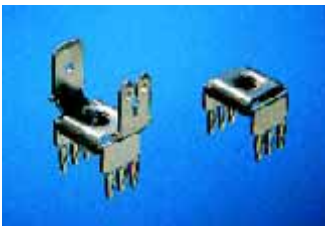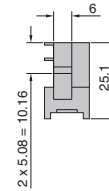
Screw/plug-in connections

Press-fit technique.

- With 6 pins
- 30 A rated current maximum

Type	Pins	Model No. RP
A	6	**3686.801**
B	6	**3686.802**
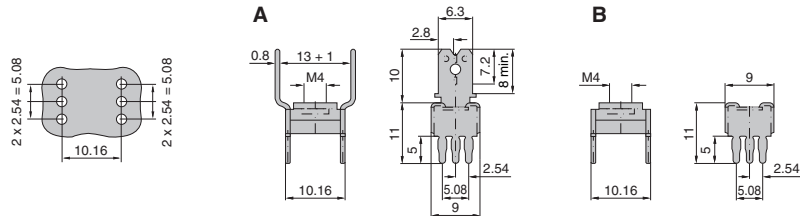
Faston

Press-fit or solder.

Material:
CuSn$_6$

Surface finish:
min. 2 μm SnPb

Technical specifications:
Assembling force: max. 60 kg
Pin retention force: at least 12 kg
Drill bit: 1.75 mm
Hole: 1.6 ± 0.9 mm after plating

Type	Model No. RP	
	Press-fit pin	Solder pin
A	**3686.795**	**3686.798**
B	**3686.796**	**3686.799**
C	**3686.797**	**3686.800**

Press-fit technique
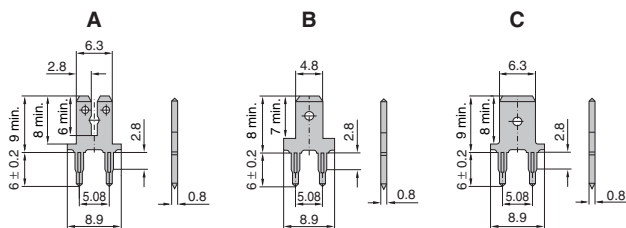
Solder technique
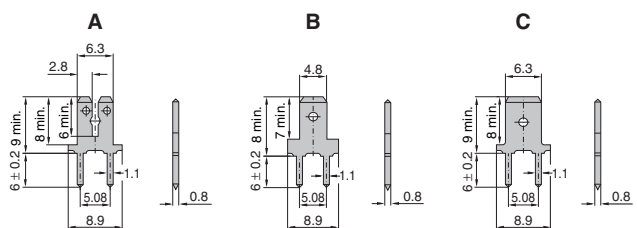
Assembly parts

For fastening	Dimensions	Description	Packs of	**Model No. RP**	Page
Connectors to Z rails	M2.5 x 6	Posidrive screw	100	3654.340	576
Connectors to PCBs	M2.5 x 12	Posidrive screw	100	3654.350	576

B
3.5

Accessories for subracks

Instrument cases/system enclosures

Features

Alongside the Rittal Vario-Case iS, the classic instrument case with its wide range of application-related benefits, the RiCase instrument case stands out with its modern design. Particular features include the numerous colour variants and the all-metal enclosure construction.

The system enclosure (instrument case or rack-mounted enclosure) Ripac Vario-Module is fully compatible with the latest Ripac subrack range, making it ideal for individual configuration and assembly as a microcomputer system.

Instrument cases/system enclosures
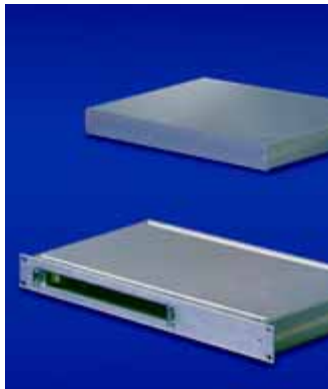
RiBox

System enclosure for horizontal installation of individual boards, hubs, routers and modems.
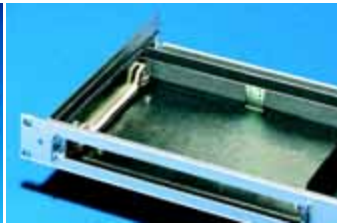
Mounting plate of sheet steel for individual population.

Installation kit for horizontal installation of boards.
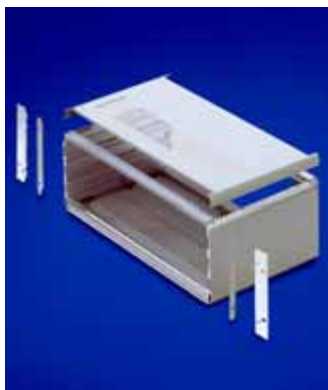
Ripac Vario-Module

System enclosure for direct installation of PCBs or board-type plug-in units.
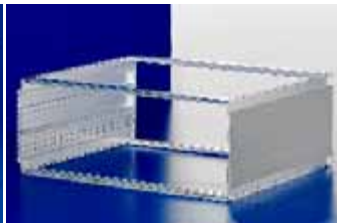
Basic enclosure optionally for EMC or non-EMC applications and . . .
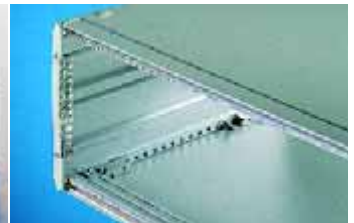
. . . individually configurable with cover plates.

Optionally with **corner trim** for configuration as an instrument case or . . .

. . . with **482.6 mm (19″) flanges** for configuration as a rack-mounted enclosure.

Acrylic glazed front doors, horizontally hinged, to protect built-in control components.

Rittal RiCase
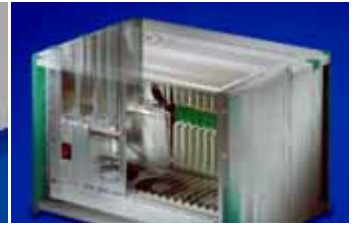
All-metal instrument case for 482.6 mm (19″) slide-in equipment
The perfect "safe" for valuable electronics. Extruded aluminium sections and die-cast elements form an extremely robust yet lightweight enclosure.

Stability and non-slip properties are guaranteed by 10 mm high corner caps. The distance from the desktop or from the lower enclosure offers excellent ventilation conditions.

The styling and colours add **innovative design accents.** This emphasises the high value of the electronic fittings within.

Slide-in strips are simply pushed into a suitable profile channel, and any required attachment is supported.

Natural convection from bottom to top, via optional perforations in the base and cover trays.

Rack-mounted fans provide forced ventilation.
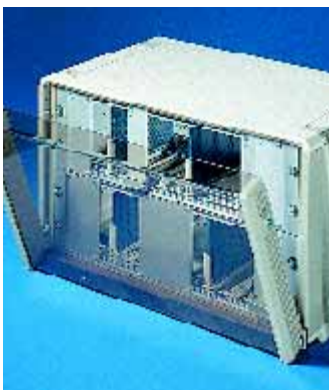
Rittal Vario-Case iS

Instrument cases for the installation of slide-in equipment as well as modular assemblies and PCBs. The pitch pattern of channels in the side panels provides variable support attachments.
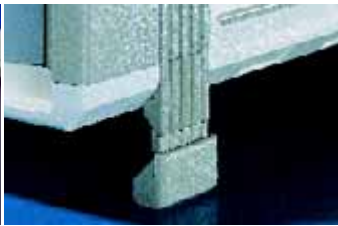
Twin **fold-out enclosure feet** in the base trays enable two different angles of inclination.
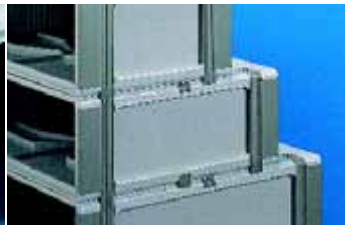
Stackability thanks to integral enclosure feet and recesses, even with different depths.

Versatile **handling options** with support stands, carrying handles and recessed handles.
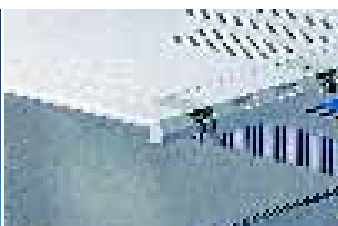
Concealed screw fastenings for an excellent design.

Individual climate control: Front panels with vent slots, vented base/cover trays, rack-mounted fans.

B

3.6

Instrument cases/system enclosures

Instrument cases/system enclosures

RiBox system enclosures 1 U

HE = U

1 Designed as desktop unit

2 Designed as rack
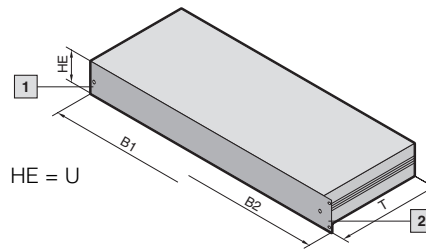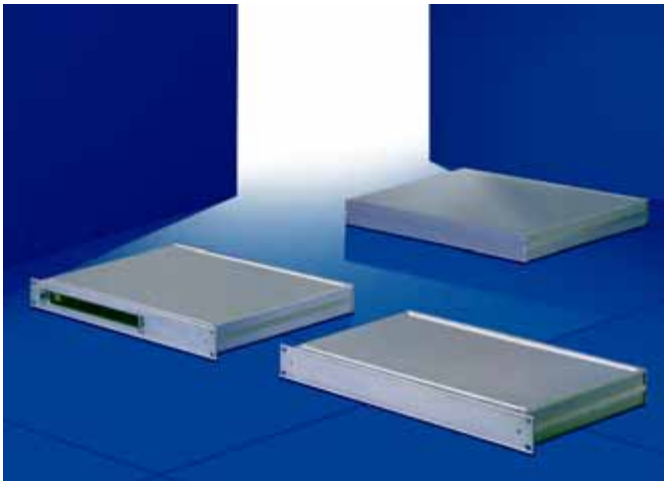
Technical specifications:
System enclosures 1 U, 150, 200, 250, 300, 350 mm deep
Easy to assembly with just 4 screws.
Optionally for use as an instrument case or 19″ rack-mounted enclosure,
Front panel to hold a an overlay to conceal the screws.
Maximum possible useful interior space.
Optional EMC upgrades with additional EMC gaskets.
Option of installing 1 VME or CPCI board horizontally.

Design:
System enclosure 1 U, to IEC 60 297-1.
Optionally available for 19″ rack-mounting in the enclosure or as an instrument case version.

1 **Designed as desktop unit**

2 **Designed as rack**

Material/surface finish:
Side panels:
Extruded aluminium section, untreated
Base/cover trays:
Aluminium, clear-chromated
Front/rear panel:
Extruded aluminium section, clear-chromated
Mounting plate:
Sheet steel

Detailed drawing,
see page 1159.

U	1	1	1	1	1	–	–
Width (B1) in mm	447	447	447	447	447	–	–
Width (B2) in mm	19″ (482.6)	19″ (482.6)	19″ (482.6)	19″ (482.6)	19″ (482.6)	19″ (482.6)	19″ (482.6)
Depth (T) in mm	150	200	250	300	350	250	350
Model No. RP instrument case	**3687.819**	**3687.820**	**3687.821**	**3687.822**	**3687.823**	**–**	**–**
Model No. RP rack	**3687.814**	**3687.815**	**3687.816**	**3687.817**	**3687.818**	**–**	**–**
Model No. RP rack-mount including mounting kit for double Euroboards	**–**	**–**	**–**	**–**	**–**	**3684.072**	**3684.073**
Supply includes							
Side panel	2	2	2	2	2	2	2
Font panel	1	1	1	1	1	1	1
Rear panel	1	1	1	1	1	1	1
Base/cover tray	2	2	2	2	2	2	2
Mounting kit	–	–	–	–	–	1	1
Accessories							
EMC set	**3684.080**	**3684.080**	**3684.080**	**3684.080**	**3684.080**	**3684.080**	**3684.080**
Mounting plate	**3684.074**	**3684.075**	**3684.076**	**3684.077**	**3684.078**	**–**	**–**

B
3.6

Instrument cases/system enclosures

HE = U
TE = HP

Technical specifications:
May be used as a rack-mounted enclosure or instrument case. External dimensions to IEC 60 297-1 for installation in enclosures, 482.6 mm (19″). Installation dimensions for board type plug-in assemblies to IEC 60 297-3 and IEEE 1101.1/1101.10.

Material/Surface finish:
Side panels:
Extruded aluminium section, spray-finished in RAL 7035
Horizontal rails: Extruded aluminium section, clear-chromated
Corner trims: Die-cast zinc, spray-finished in RAL 7035
Side trims: Extruded aluminium section, spray-finished in RAL 7035

Protection category:
IP 40 for non-vented version.

Supply includes:
2 side panels,
4 horizontal rails,
4 threaded inserts,
2 rear corner trim pieces,
assembly parts.

1 Equipped as an instrument case

2 Equipped as a rack-mounted unit

Note:
Corner trim pieces, mounting flanges or top and bottom covers must be ordered separately.

Horizontal rails for further configuration must be ordered separately, see page 498.

Detailed drawing,
see page 1160.

Horizontal rail configuration

3 U

4 U (3 + 1)

B
3.6

Instrument cases/system enclosures

Ripac Vario-Module	Packs of	3 U							4 U (3 + 1)			Page
Installation width (HP)		42	42	63	63	84	84	84	84	84	84	
Width (B1) in mm		235,6	235,6	342,3	342,3	449,0	449,0	449,0	449,0	449,0	449,0	
Width (B2) in mm		251.6	251.6	358.3	358.3	465.1	465.1	465.1	465.1	465.1	465.1	
Depth (T) in mm		250.4	310.4	250.4	310.4	250.4	310.4	370.4	250.4	310.4	370.4	
Model No. VM Basic enclosure	1	**3982.040**	**3982.070**	**3982.050**	**3982.080**	**3982.060**	**3982.090**	**3982.100**	**3982.110**	**3982.120**	**3982.130**	
Also required												
Top covers – with vent holes – without vent holes	1 1	3982.941 3982.901	3982.951 3982.911	3982.942 3982.902	3982.952 3982.912	3982.940 3982.900	3982.950 3982.910	3982.960 3982.920	3982.940 3982.900	3982.950 3982.910	3982.960 3982.920	559 559
Bottom covers – with vent holes – without vent holes	1 1	3982.741 3982.701	3982.751 3982.711	3982.742 3982.702	3982.752 3982.712	3982.740 3982.700	3982.750 3982.710	3982.760 3982.720	3982.740 3982.700	3982.750 3982.710	3982.760 3982.720	559 559
Front corner trim pieces for assembly as instrument case	2	3981.310	3981.310	3981.310	3981.310	3981.310	3981.310	3981.310	3981.320	3981.320	3981.320	560
Flange for configuration as rack mount – without handle holes – with handle holes	2 2	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.220 3981.270	3981.220 3981.270	3981.220 3981.270	560 560
Accessories												
Front/rear panels		see page 525 – 540										
Carrying handles	2	3981.350	3981.360	3981.350	3981.360	3981.350	3981.360	3981.370	3981.350	3981.360	3981.370	560
Front handles[1]	2	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	497
Acrylic front door	1	3981.420	3981.420	3981.430	3981.430	3981.440	3981.440	3981.440	3981.450	3981.450	3981.450	561
Rear adjustable feet	4	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	561

[1] only for use in conjunction with mounting flanges with handle holes.

Accessories Ripac Vario-Module Page 559 **RiBox** Page 554 **RiCase** Page 562 **Vario-Case** Page 569

Ripac Vario-Module 3 U, 4 U EMC

HE = U
TE = HP

EMC

Technical specifications:
May be used as a rack-mounted enclosure or instrument case. External dimensions to IEC 60 297-1, for installation in enclosures, 482.6 mm (19″). Installation dimensions for board type plug-in assemblies to IEC 60 297-3 and IEEE 1101.1/1101.10.

Material/Surface finish:
Side panels:
Extruded aluminium section, spray-finished in RAL 7035
Horizontal rails: Extruded aluminium section, clear-chromated
Corner trims: Die-cast zinc, Spray-finished in RAL 7035

Side trims: Extruded aluminium section, spray-finished in RAL 7035
Contact points: Conductive

Protection category:
IP 40 for non-vented version.

Supply includes:
2 side panels,
4 horizontal rails,
4 threaded inserts,
2 rear corner trim pieces,
assembly parts.

1 Equipped as an instrument case

2 Equipped as a rack-mounted unit

Note:
Corner trim pieces, mounting flanges or top and bottom covers must be ordered separately.

Horizontal rails for further configuration must be ordered separately, see page 498.

Detailed drawing, see page 1160.

Horizontal rail configuration

3 U

4 U (3 + 1)

Ripac Vario-Module	Packs of	3 U							4 U (3 + 1)			Page
Installation width (HP)		42	42	63	63	84	84	84	84	84	84	
Width (B1) in mm		235.6	235.6	342.3	342.3	449.0	449.0	449.0	449.0	449.0	449.0	
Width (B2) in mm		251.6	251.6	358.3	358.3	465.1	465.1	465.1	465.1	465.1	465.1	
Depth (T) in mm		250.4	310.4	250.4	310.4	250.4	310.4	370.4	250.4	310.4	370.4	
Model No. VM Basic enclosure EMC	1	**3983.040**	**3983.070**	**3983.050**	**3983.080**	**3983.060**	**3983.090**	**3983.100**	**3983.110**	**3983.120**	**3983.130**	
Also required												
EMC top covers – with vent holes – without vent holes	1 1	3981.941 3981.901	3981.951 3981.911	3981.942 3981.902	3981.952 3981.912	3981.940 3981.900	3981.950 3981.910	3981.960 3981.920	3981.940 3981.900	3981.950 3981.910	3981.960 3981.920	559 559
EMC bottom covers – with vent holes – without vent holes	1 1	3981.741 3981.701	3981.751 3981.711	3981.742 3981.702	3981.752 3981.712	3981.740 3981.700	3981.750 3981.710	3981.760 3981.720	3981.740 3981.700	3981.750 3981.710	3981.760 3981.720	559 559
Front corner trim pieces for assembly as instrument case	2	3981.310	3981.310	3981.310	3981.310	3981.310	3981.310	3981.310	3981.320	3981.320	3981.320	560
Flange for assembly as rack-mounted unit – without handle holes – with handle holes	2 2	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.210 3981.260	3981.220 3981.270	3981.220 3981.270	3981.220 3981.270	560 560
EMC installation												
EMC gaskets, horizontal – for upper/lower horizontal rail – between covers and horizontal rails	1 10	3684.808 3684.245	3684.808 3684.245	3684.808 3684.245	3684.808 3684.245	3684.808 3684.245	3684.808 3684.245	3684.808 3684.245	3684.808 3684.245	3684.808 3684.245	3684.808 3684.245	507 507
EMC gaskets, vertical	1	3686.975	3686.975	3686.975	3686.975	3686.975	3686.975	3686.975	3686.976	3686.976	3686.976	506
Front/rear panels EMC		see page 525 – 540										
Accessories												
Front/rear panels		see page 525 – 540										
Carrying handles	2	3981.350	3981.360	3981.350	3981.360	3981.350	3981.360	3981.370	3981.350	3981.360	3981.370	560
Front handles[1]	2	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	3636.010	497
Acrylic front door	1	3981.420	3981.420	3981.430	3981.430	3981.440	3981.440	3981.440	3981.450	3981.450	3981.450	561
Rear adjustable feet	4	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	3901.000	561

[1] only in conjunction with mounting flanges with handle holes.

Accessories Ripac Vario-Module Page 559 **RiBox** Page 554 **RiCase** Page 562 **Vario-Case** Page 569

HE = U
TE = HP

Technical specifications:
May be used as a rack-mounted enclosure or instrument case. External dimensions to IEC 60 297-1 for installation in enclosures, 482.6 mm (19″). Installation dimensions for board type plug-in assemblies to IEC 60 297-3 and IEEE 1101.1/1101.10.

Material/surface finish:
Side panels:
Extruded aluminium section, spray-finished in RAL 7035
Horizontal rails:
Extruded aluminium section, clear-chromated
Corner trims: Die-cast zinc, Spray-finished in RAL 7035

Protection category:
IP 40 for non-vented version.

Supply includes:
2 side panels,
4 horizontal rails,
4 threaded inserts,
2 rear corner trim pieces,
2 side trims centre,
assembly parts.

1 **Equipped as an instrument case**

2 **Equipped as a rack-mounted unit**

Note:
Corner trim pieces, mounting flanges or top and bottom covers must be ordered separately.

Horizontal rails for further configuration must be ordered separately,
see page 498.

Detailed drawing,
see page 1160.

Horizontal rail configuration

6 U

7 U (6 + 1)

B

3.6

Instrument cases/system enclosures

Ripac Vario-Module	Packs of	6 U			7 U (6 + 1)		Page
Installation width (HP)		84	84	84	84	84	
Width (B1) in mm		449.0	449.0	449.0	449.0	449.0	
Width (B2) in mm		465.1	465.1	465.1	465.1	465.1	
Depth (T) in mm		310.4	370.4	430.4	310.4	430.4	
Model No. VM Basic enclosure	1	**3982.140**	**3982.150**	**3982.160**	**3982.170**	**3982.190**	
Also required							
Top covers – with vent holes – without vent holes	1 1	3982.950 3982.910	3982.960 3982.920	3982.970 3982.930	3982.950 3982.910	3982.970 3982.930	559 559
Bottom covers – with vent holes – without vent holes	1 1	3982.750 3982.710	3982.760 3982.720	3982.770 3982.730	3982.750 3982.710	3982.790 3982.730	559 559
Corner trim pieces for assembly as instrument case	2	3981.330	3981.330	3981.330	3981.340	3981.340	560
Mounting flanges for assembly as rack-mounted unit – without handle holes – with handle holes	2 2	3981.230 3981.280	3981.230 3981.280	3981.230 3981.280	3981.240 3981.290	3981.240 3981.290	560 560
Accessories							
Front/rear panel		see page 525 – 540					
Carrying handles	2	3981.360	3981.370	3981.380	3981.360	3981.370	560
Front handles[1]	2	3666.010	3666.010	3666.010	3666.010	3666.010	497
Acrylic front door	1	3981.460	3981.460	3981.460	3981.470	3981.470	561
Rear adjustable feet	4	3901.000	3901.000	3901.000	3901.000	3901.000	561

[1] only in conjunction with mounting flanges with handle holes.

Ripac Vario-Module 6 U, 7 U EMC
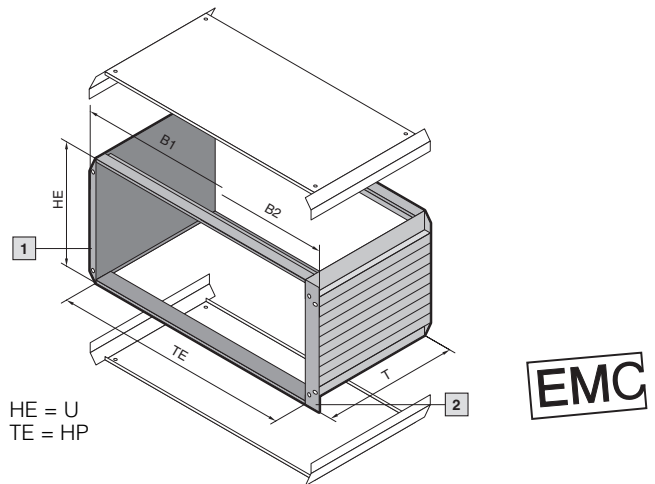
Technical specifications:
May be used as a rack-mounted enclosure or instrument case. External dimensions to IEC 60 297-1 for installation in enclosures, 482.6 mm (19″). Installation dimensions for board type plug-in assemblies to IEC 60 297-3 and IEEE 1101.1/1101.10.

Material/surface finish:
Side panels:
Extruded aluminium section, spray-finished in RAL 7035
Horizontal rails:
Extruded aluminium section, chromated
Corner trims: Die-cast zinc,
Spray-finished in RAL 7035
Contact points: Conductive

Protection category:
IP 40 for non-vented version.

Supply includes:
2 side panels,
4 horizontal rails,
4 threaded inserts,
2 rear corner trim pieces,
2 side trims centre,
assembly parts.

1 **Equipped as an instrument case**

2 **Equipped as a rack-mounted unit**

Note:
Corner trim pieces, mounting flanges or top and bottom covers must be ordered separately.

Horizontal rails for further configuration must be ordered separately,
see page 498.

Detailed drawing,
see page 1160.

Horizontal rail configuration

6 U

7 U (6 + 1)

Ripac Vario-Module	Packs of	6 U			7 U (6 + 1)		Page
Installation width (HP)		84	84	84	84	84	
Width (B1) in mm		449.0	449.0	449.0	449.0	449.0	
Width (B2) in mm		465.1	465.1	465.1	465.1	465.1	
Depth (T) in mm		310.4	370.4	430.4	310.4	430.4	
Model No. VM Basic enclosure EMC	1	**3983.140**	**3983.150**	**3983.160**	**3983.170**	**3983.190**	
Also required							
EMC top covers							
– with vent holes	1	3981.950	3981.960	3981.970	3981.950	3981.970	559
– without vent holes	1	3981.910	3981.920	3981.930	3981.910	3981.930	559
EMC bottom covers							
– with vent holes	1	3981.750	3981.760	3981.770	3981.750	3981.770	559
– without vent holes	1	3981.710	3981.720	3981.730	3981.710	3981.730	559
Front corner trim pieces for assembly as instrument case	2	3981.330	3981.330	3981.330	3981.340	3981.340	560
Mounting flanges for assembly as rack-mounted unit							
– without handle holes	2	3981.230	3981.230	3981.230	3981.240	3981.240	560
– with handle holes	2	3981.280	3981.280	3981.280	3981.290	3981.290	560
EMC installation							
EMC gaskets, horizontal							
– for upper/lower horizontal rail	1	3684.808	3684.808	3684.808	3684.808	3684.808	507
– between covers and horizontal rails	10	3684.245	3684.245	3684.245	3684.245	3684.245	
EMC gaskets, vertical	1	3686.977	3686.977	3686.977	3686.978	3686.978	506
Front/rear panels EMC		see page 525 – 540					
Accessories							
Front/rear panel		see page 525 – 540					
Carrying handles	2	3981.360	3981.370	3981.380	3981.360	3981.370	560
Front handles[1]	2	3666.010	3666.010	3666.010	3666.010	3666.010	497
Acrylic front door	1	3981.460	3981.460	3981.460	3981.470	3981.470	561
Rear adjustable feet	4	3901.000	3901.000	3901.000	3901.000	3901.000	561

[1] only in conjunction with mounting flanges with handle holes.

B
3.6

Instrument cases/system enclosures

Enclosure population

For individual interior installation of the enclosures, system components from the Ripac range may be used (see from page 498).
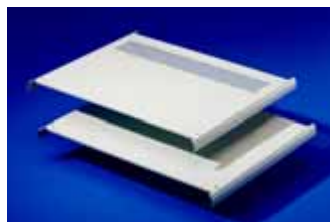
Top covers

For Ripac Vario-Module

Standard version
Material:
Sheet steel, spray-finished

Colour:
RAL 7035

EMC version
Material:
Sheet steel, spray-finished
Contact points: Conductive

Width HP	Depth mm	Model No. VM standard		Model No. VM EMC	
		with vent holes	without vent holes	with vent holes	without vent holes
42	250.4	3982.941	3982.901	3981.941	3981.901
	310.4	3982.951	3982.911	3981.951	3981.911
63	250.4	3982.942	3982.902	3981.942	3981.902
	310.4	3982.952	3982.912	3981.952	3981.912
84	250.4	3982.940	3982.900	3981.940	3981.900
	310.4	3982.950	3982.910	3981.950	3981.910
	370.4	3982.960	3982.920	3981.960	3981.920
	430.4	3982.970	3982.930	3981.970	3981.930

B
3.6

Instrument cases/system enclosures

Bottom covers

For Ripac Vario-Module

Standard version
Material:
Sheet steel, spray-finished

Colour:
RAL 7035

EMC version
Material:
Sheet steel, spray-finished
Contact points: Conductive

Width HP	Depth mm	Model No. VM standard		Model No. VM EMC	
		with vent holes	without vent holes	with vent holes	without vent holes
42	250.4	3982.741	3982.701	3981.741	3981.701
	310.4	3982.751	3982.711	3981.751	3981.711
63	250.4	3982.742	3982.702	3981.742	3981.702
	310.4	3982.752	3982.712	3981.752	3981.712
84	250.4	3982.740	3982.700	3981.740	3981.700
	310.4	3982.750	3982.710	3981.750	3981.710
	370.4	3982.760	3982.720	3981.760	3981.720
	430.4	3982.770	3982.730	3981.770	3981.730

Feet

with fold-out support stand.
Load capacity up to 20 kg.

Material:
Plastic

Colour:
RAL 7035

Packs of	Model No. VM
2	3919.000
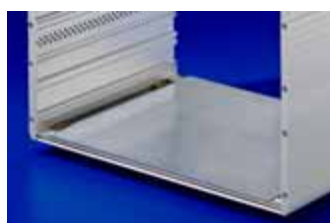
Mounting plate

For mounting heavy components.

Material:
Aluminium

Supply includes:
Assembly parts.

Width HP	Depth mm	Packs of	Model No. VM
42	220	1	3982.370
63	250	1	3982.380
84	250	1	3982.390

Ripac Vario-Module accessories

Front flanges

Required when the Ripac Vario-Module is to be used as a rack-mounted enclosure.
The flanges have a channel to accommodate vertical EMC gaskets.

Material:
Aluminium, clear-chromated

U	Packs of	Model No. VM	
		without handle hole	with handle hole
3	2	**3981.210**	**3981.260**
4	2	**3981.220**	**3981.270**
6	2	**3981.230**	**3981.280**
7	2	**3981.240**	**3981.290**

+ Accessories:

EMC gaskets, vertical,
see page 506.
Front handles for mounting on front flanges,
see page 497.

Front corner trims

Required when the Ripac Vario-Module is to be used as a desk-top case.
The corner trims have a channel to accommodate vertical EMC gaskets.

Material:
Die-cast zinc

Colour:
RAL 7035

U	Packs of	Model No. VM
1	2	**3981.570**
2	2	**3981.300**
3	2	**3981.310**
4	2	**3981.320**
6	2	**3981.330**
7	2	**3981.340**
8	2	**3981.590**

+ Accessories:

Vertical EMC gaskets,
see page 506.
Front handles for mounting on front corner trim
pieces, see page 560.

Front handles

For mounting on front corner trims

Maximum load capacity: 500 N

Material:
Cover: ABS
Handle part: Aluminium, clear-anodised.

Supply includes:
2 handle parts, 4 covers, assembly parts.

U	Packs of	Model No. VM
3	2	**3982.350**
4	2	**3982.360**
6	2	**3982.400**
7	2	**3982.410**

Carrying handles

For ergonomic transportation, even with stacked enclosures.
May also be used as a support stand.

Max. load capacity: 350 N.

Material:
Die-cast zinc and extruded aluminium section

Colour:
RAL 7035

Note:
Only for use with front and rear trims.

For enclosure depth	Packs of	Model No. VM
250.4 mm	2	**3981.350**
310.4 mm	2	**3981.360**
370.4 mm	2	**3981.370**
430.4 mm	2	**3981.380**

B

3.6

Instrument cases/system enclosures

Ripac Vario-Module accessories

Rear feet
For mounting on the rear of the enclosure.
Dual function:
- Mechanical protection of the connection components.
- Also acts as a cable tidy during transportation.

Material:
PA, self-extinguishing to UL 94-V0

Colour:
RAL 7035

Packs of	Model No. VM
4	3901.000

Earthing set
For connecting the cover plates/gland plates to the side panels with PE conductors.

Supply includes:
Conductor cable green/yellow, 1.5 mm^2, with washer, flat-pin connector and assembly parts.

Packs of	Model No. RP
4	3900.000

Support stand/carrying handle
To fit Ripac Vario Module 3 U, 4 U and 6 U, adjustable on a 30° pitch pattern.

Material:
Extruded aluminium section/die-cast

Colour:
RAL 7035

Supply includes:
Assembly parts.

Note:
Corner trim for support stands/carrying handles should be ordered separately.

For Ripac Vario-Module	Packs of	Model No. VM
42 HP	1	3981.390
63 HP	1	3981.400
84 HP	1	3981.410

German patent no. 41 10 873

Corner trim for support stand	Packs of	Model No. VM
3 U	2	3981.310
4 U	2	3981.500
6 U	2	3981.510

Acrylic front doors
horizontally hinged
For protection of built-in control components.

Material:
Side parts:
Aluminium, spray-finished in RAL 7035.
Window: Smoked acrylic

Supply includes:
Assembly parts.

U	For Ripac Vario-Module	Packs of	Model No. VM
3	42 HP	1	3981.420
3	63 HP	1	3981.430
3	84 HP	1	3981.440
4	84 HP	1	3981.450
6	84 HP	1	3981.460
7	84 HP	1	3981.470

German patent no. 41 10 872

Front panels/rear panels
To cover the enclosures front and rear.
Also available as a hinged or EMC version.

B

3.6

Instrument cases/system enclosures

Instrument cases/system enclosures

Rittal RiCase 269.2 mm ($^1/_2$ 19″)

HE = U
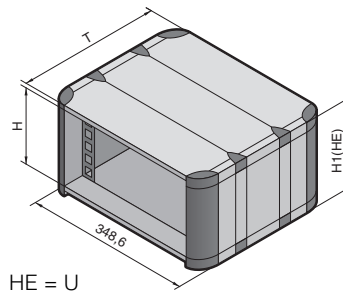
Technical specifications:
Depth:
300 mm, 420 mm, 540 mm
Installation width:
269.2 mm ($^1/_2$ 19″)
Installation options:
269.2 mm ($^1/_2$ 19″) slide-in
equipment and modular assemblies to IEC 60 297-3

Material/surface finish:
Covers: Extruded aluinium
section/die-cast, spray-finished
Side panels: Extruded aluinium
section, spray-finished
Corner caps: Plastic
482.6 mm (19″) mounting
bracket: Extruded aluminium
section, clear-chromated

Colour:
RAL 7035 (pale grey)

Decorative colours and corner caps:
RAL 5018 (turquoise)
RAL 5012 (pale blue)
RAL 7030 (stone grey)

Protection category:
IP 42 for unvented version.

Supply includes:
2 side panels,
2 covers,
8 corner caps,
8/12/16 cover caps
(300/420/540 mm depth),
4 482.6 mm (19″) mounting
brackets,
4 tapped strips,
2 untapped strips,
1 rear wall
Enclosures are supplied partially
assembled.

Special sizes and colours available on request.

Property rights:
German registered design
no. 96 09 457
IR Reg. Design no. DM/039 974
with validity for FR, IT
UK reg. design no. 2064682
US Design Patents
Des. 402,640 and Des. 423,464
Japan. Reg. Designs
No. 1045507 and 1045508

Detailed drawing,
see page 1161.

Enclosures for subrack width 269.2 mm ($^1/_2$ 19″)	Packs of	1 U		2 U		3 U			4 U		Page
Height (H) in mm		77.5	77.5	121.9	121.9	166.4	166.4	166.4	210.8	210.8	
H1 (U) in mm		45.0	45.0	89.4	89.4	133.8	133.8	133.8	178.3	178.3	
Depth (T) in mm		300.0	420.0	300.0	540.0	300.0	420.0	540.0	420.0	540.0	
Unvented											
Model No. RC, RAL 5018[1)]	1	**3750.100**	–	**3750.200**	–	**3750.210**	**3750.300**	–	**3750.400**	–	
Model No. RC, RAL 5012[1)]	1	**3750.102**	–	**3750.202**	–	**3750.212**	**3750.302**	–	**3750.402**	–	
Model No. RC, RAL 7030	1	**3750.104**	–	**3750.204**	–	**3750.214**	**3750.304**	–	**3750.404**	–	
Vented											
Model No. RC, RAL 5018[1)]	1	–	**3750.110**	–	**3750.220**	–	**3750.350**	**3750.360**	–	**3750.450**	
Model No. RC, RAL 5012[1)]	1	–	**3750.112**	–	**3750.222**	–	**3750.352**	**3750.362**	–	**3750.452**	
Model No. RC, RAL 7030	1	–	**3750.114**	–	**3750.224**	–	**3750.354**	**3750.364**	–	**3750.454**	
Weight (kg) — Vented/unvented		3.3 / 3.4	4.2 / 4.4	3.7 / 3.8	5.4 / 6.1	4.1 / 4.2	5.2 / 5.4	6.1 / 6.8	5.8 / 6.0	6.8 / 7.5	
Accessories											
Carrying handles, horizontal	2	3751.250	3751.260	3751.250	3751.270	3751.250	3751.260	3751.270	3751.260	3751.270	565
Support stand/carrying handle — RAL 5018[1)]	1	3751.200	3751.200	3751.200	3751.200	3751.200	3751.200	3751.200	3751.200	3751.200	566
Support stand/carrying handle — RAL 5012[1)]	1	3751.202	3751.202	3751.202	3751.202	3751.202	3751.202	3751.202	3751.202	3751.202	566
Support stand/carrying handle — RAL 7030	1	3751.204	3751.204	3751.204	3751.204	3751.204	3751.204	3751.204	3751.204	3751.204	566
Blanking plates (rear panel)	3	3746.000	3746.000	3747.000	3747.000	3748.000	3748.000	3748.000	3749.000	3749.000	1013
Front door, vertically hinged	1	–	–	–	–	3751.300	3751.300	3751.300	3751.300	3751.300	566
Slide rails	2	3751.500	3751.510	3751.500	3751.520	3751.500	3751.510	3751.520	3751.510	3751.520	565
Mounting bracket 482.6 mm (19″)	2	3751.650	3751.650	3751.660	3751.660	3751.670	3751.670	3751.670	3751.680	3751.680	564
Tapped strips with M4 thread	8	3751.700	3751.700	3751.710	3751.710	3751.720	3751.720	3751.720	3751.730	3751.730	564
End section	2	–	–	–	–	3751.900	3751.900	3751.900	3751.910	3751.910	565

[1)] Extended delivery times.

B

3.6

Instrument cases/system enclosures

HE = U
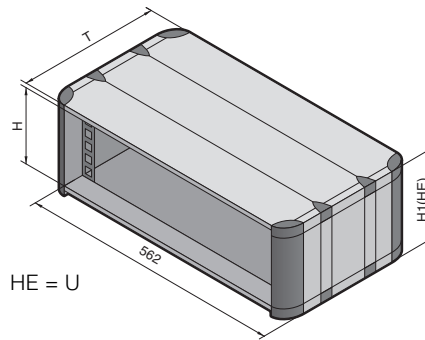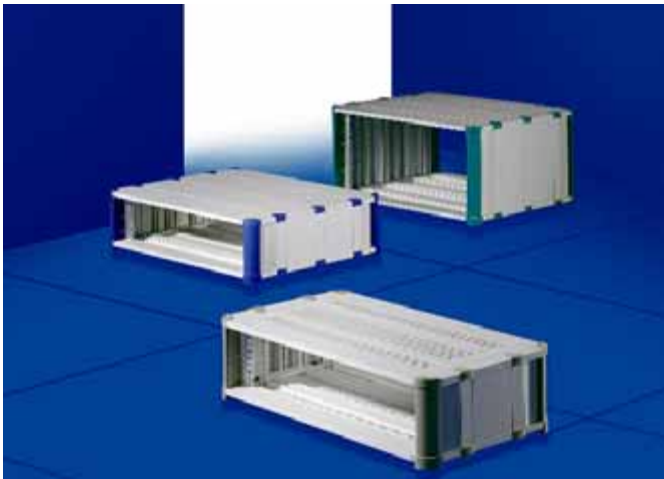
Technical specifications:
Depth:
300 mm, 420 mm, 540 mm
Installation width:
482.6 mm (19″)
Installation options:
482.6 mm (19″) slide-in equipment and modular assemblies to IEC 60 297-3

Material/surface finish:
Covers: Extruded aluinium section/die-cast, spray-finished
Side panels: Extruded aluinium section, spray-finished
Corner caps: Plastic
482.6 mm (19″) mounting bracket: Extruded aluminium section, clear-chromated

Colour:
RAL 7035 (pale grey)

Decorative colours and corner caps:
RAL 5018 (turquoise)
RAL 5012 (pale blue)
RAL 7030 (stone grey)

Protection category:
IP 42 for unvented version.

Supply includes:
2 side panels,
2 covers,
8 corner caps,
8/12/16 cover caps
(300/420/540 mm depth),
2 482.6 mm (19″) mounting brackets,
2 tapped strips,
2 untapped strips,
enclosures are supplied partially assembled.

Note:
For rear installation, order back panel/door separately.

Special sizes and colours available on request.

Detailed drawing,
see page 1161.

B

3.6

Instrument cases/system enclosures

Enclosures for subrack width 482.6 mm (19″)	P. of	3 U		4 U		6 U			7 U		9 U		12 U	Page
Height (H) in mm		166.4	166.4	210.8	210.8	299.7	299.7	299.7	344.2	344.2	433.1	433.1	566.5	
H1 (U) in mm		133.8	133.8	178.3	178.3	267.2	267.2	267.2	311.7	311.7	400.6	400.6	534.0	
Depth (T) in mm		300.0	420.0	300.	420.	300.0	420.0	540.0	420.0	540.0	420.0	540.0	540.0	
Unvented														
Model No. RC, RAL 5018[1]	1	3750.310	3750.320	3750.410	3750.420	3750.600	3750.610	3750.620	3750.700	3750.710	3750.900	3750.910	3750.000	
Model No. RC, RAL 5012[1]	1	3750.312	3750.322	3750.412	3750.422	3750.602	3750.612	3750.622	3750.702	3750.712	3750.902	3750.912	3750.002	
Model No. RC, RAL 7030	1	3750.314	3750.324	3750.414	3750.424	3750.604	3750.614	3750.624	3750.704	3750.714	3750.904	3750.914	3750.004	
Vented														
Model No. RC, RAL 5018[1]	1	3750.330	3750.340	3750.430	3750.440	3750.630	3750.640	3750.650	3750.720	3750.730	3750.920	3750.930	3750.030	
Model No. RC, RAL 5012[1]	1	3750.332	3750.342	3750.432	3750.442	3750.632	3750.642	3750.652	3750.722	3750.732	3750.922	3750.932	3750.032	
Model No. RC, RAL 7030	1	3750.334	3750.344	3750.434	3750.444	3750.634	3750.644	3750.654	3750.724	3750.734	3750.924	3750.934	3750.034	
Weight (kg) Vented/ unvented		5.3 / 5.4	6.9 / 7.1	5.7 / 7.2	7.5 / 7.7	6.5 / 6.6	8.5 / 8.7	10.8 / 12.2	9.1 / 9.3	11.5 / 12.9	10.1 / 10.3	12.9 / 14.3	15.0 / 16.4	
Accessories														
Carrying handles, horizontal	2	3751.250	3751.260	3751.250	3751.260	3751.250	3751.260	3751.270	3751.260	3751.270	3751.260	3751.270	3751.270	565
Support stand/carrying handle RAL 5018[1]	1	3751.210	3751.210	3751.210	3751.210	3751.210	3751.210	3751.210	3751.210	3751.210	3751.210	3751.210	3751.210	566
Support stand/carrying handle RAL 5012[1]	1	3751.212	3751.212	3751.212	3751.212	3751.212	3751.212	3751.212	3751.212	3751.212	3751.212	3751.212	3751.212	566
Support stand/carrying handle RAL 7030	1	3751.214	3751.214	3751.214	3751.214	3751.214	3751.214	3751.214	3751.214	3751.214	3751.214	3751.214	3751.214	566
Back panel, screw-fastened	1	3751.600	3751.600	3751.610	3751.610	3751.620	3751.620	3751.620	3751.630	3751.630	3751.530	3751.530	3751.540	568
Rear door, vertically hinged	1	3751.100	3751.100	3751.110	3751.110	3751.120	3751.120	3751.120	3751.130	3751.130	–	–	–	568
Rear door for fan installation	1	3751.150	3751.150	3751.160	3751.160	3751.170	3751.170	3751.170	3751.180	3751.180	–	–	–	568
Front door, vertically hinged	1	3751.320	3751.320	3751.330	3751.330	3751.340	3751.340	3751.340	3751.350	3751.350	–	–	–	566
Slide rails	2	3751.500	3751.510	3751.500	3751.510	3751.500	3751.510	3751.520	3751.510	3751.520	3751.510	3751.510	3751.520	565
Mounting angles 482.6 mm (19″)	2	3751.670	3751.670	3751.680	3751.680	3751.690	3751.690	3751.690	3751.640	3751.640	3751.780	3751.780	3751.790	564
Slide-in strips with M4 thread	8	3751.720	3751.720	3751.730	3751.730	3751.740	3751.740	3751.740	3751.750	3751.750	3751.760	3751.760	3751.770	564
End section	2	3751.900	3751.900	3751.910	3751.910	3751.920	3751.920	3751.920	3751.930	3751.930	3751.820	3751.820	3751.830	565

[1] Extended delivery times.

Rittal RiCase accessories
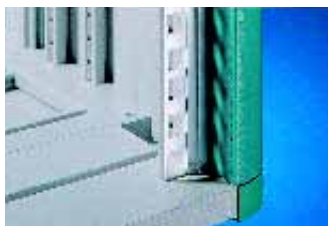
Mounting angles
482.6 mm (19 ″)

For front/rear installation of subracks and blanking plates.

Material:
Extruded aluminium section, clear-chromated

Supply includes:
Assembly parts.

Note:
1 pack of tapped strips and 2 packs of mounting rails and spacers are required for depth-adjustable installation.

For enclosure height	Packs of	Model No. RC
1 U	2	**3751.650**
2 U	2	**3751.660**
3 U	2	**3751.670**
4 U	2	**3751.680**
6 U	2	**3751.690**
7 U	2	**3751.640**
9 U	2	**3751.780**
12 U	2	**3751.790**

⚠ Also required:

Slide-in strips, see page 564.
Mounting rails, see page 564.
Spacers, see page 564.

Threaded inserts

with M4 thread
for RiCase, Vario-Case iS
For the installation of mounting brackets, slide rails, mounting kits, cable ducts etc. Simply slide into the channels in the side panels.

Material:
Extruded aluminium section, clear-chromated

For enclosure height	Packs of	Model No. RC
1 U	8	**3751.700**
2 U	8	**3751.710**
3 U	8	**3751.720**
4 U	8	**3751.730**
6 U	8	**3751.740**
7 U	8	**3751.750**
9 U	8	**3751.760**
12 U	8	**3751.770**

Mounting rails

● For depth-variable installation of mounting angles
● For the installation of component shelves, static or pull-out

Material:
Aluminium, clear-chromated

Supply includes:
Assembly parts.

A Version for depth-variable mounting angles

B Component shelf installation for 482.6 mm/19″ (width 409 mm, also with telescopic slides)

C Direct component shelf installation (width 471 mm)

1 Slide-in strips
2 Short spacers
3 Long spacers
4 Mounting rails
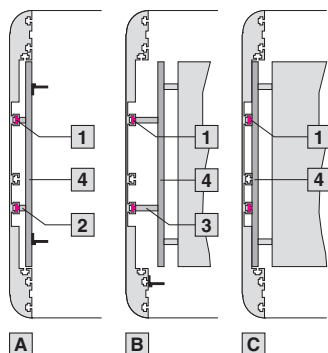
For enclosure depth mm	Packs of	Model No. RC
420	2	**3751.410**
540	2	**3751.420**

⚠ Also required:

Threaded inserts, see page 564.
Spacers, see page 564.

✚ Accessories:

Component shelf, see page 944.
Component shelf, 482.6 mm (19″), see page 939.

Spacers
For the attachment of mounting rails.

Version	Packs of	Model No. RC
Short for depth-variable mounting bracket	4	**3751.450**
Long for component shelf installation (width 409 mm)	4	**3751.460**

B
3.6

Instrument cases/system enclosures

Rittal RiCase accessories

Slide rails

To support heavy installed equipment.

Material:
1.5 mm sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure depth mm	Packs of	Model No. RC
300	2	**3751.500**
420	2	**3751.510**
540	2	**3751.520**

! Also required:

Threaded inserts,
see page 564.

Earthing set

for RiCase, Vario-Case iS
To meet electrical protective measures; fits all
RiCase and Vario-Case iS enclosures.

Supply includes:
Threaded insert, screw, green/yellow connection
cable, serrated washer, nut.

Packs of	Model No. VC
4	**3798.000**
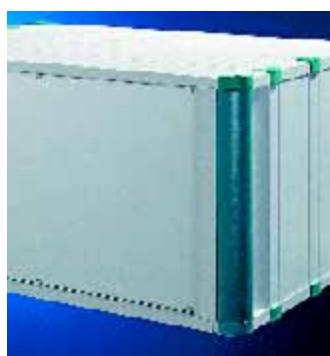
Rear trim

To cover the sides to the left and right of the sub-
rack when no rear door or rear panel is used.

Material:
Extruded aluminium section, spray-finished

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosure height	Packs of	Model No. RC
3 U	2	**3751.900**
4 U	2	**3751.910**
6 U	2	**3751.920**
7 U	2	**3751.930**
9 U	2	**3751.820**
12 U	2	**3751.830**

16.5
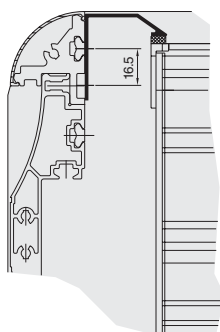
Carrying handles

horizontal
For easy, secure transportation.
● May be retrofitted
● Load capacity 30 kg/pair

Material:
Side parts: Die-cast, spray-finished
Centre part: Extruded aluminium section,
spray-finished

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosure depth mm	Packs of	Model No. RC
300	2	**3751.250**
420	2	**3751.260**
540	2	**3751.270**

B

3.6

Instrument cases/system enclosures

Rittal RiCase accessories

Support stand/carrying handle

- Support stand/carrying handle adjustable on a 30° pitch pattern.
- Suitable for retrofitting with 2 – 7 U.
- For 269.2 mm ($^1/_2$ 19″) and 482.6 mm (19″) wide enclosures
- Load capacity 30 kg

Material:
Hinged part: Die-cast, spray-finished
Centre part: Extruded aluminium section, spray-finished with plastic cover

Colour:
RAL 7035

Decorative colours:

1 RAL 7030 (stone grey)

2 RAL 5018 (turquoise)

3 RAL 5012 (pale blue)

Supply includes:
Assembly parts.

For enclosure width mm	Decorative colour RAL	B mm	Model No. RC
269.2 ($^1/_2$ 19″)	5018[1]	392	**3751.200**
269.2 ($^1/_2$ 19″)	5012[1]	392	**3751.202**
269.2 ($^1/_2$ 19″)	7030	392	**3751.204**
482.6 (19″)	5018[1]	605	**3751.210**
482.6 (19″)	5012[1]	605	**3751.212**
482.6 (19″)	7030	605	**3751.214**

B = Overall width of handle
[1] Extended delivery times.
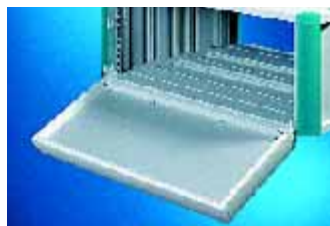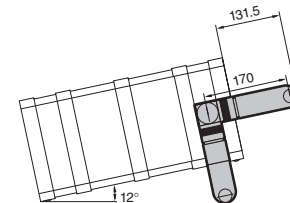
Keyboard lid

Suitable for the installation of 482.6 mm (19″) keyboards.

- Horizontally hinged with security lock
- Removable cover plate

Material:
Frame section: Extruded aluminium section/die-cast, spray-finished
Base and cover plate: Aluminium, spray-finished.

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosure width mm	H (U)	Packs of	Model No. RC
482.6 (19″)	4	1	**3751.800**
482.6 (19″)	6	1	**3751.810**

Note:
Use only in conjunction with support stand/carrying handle.
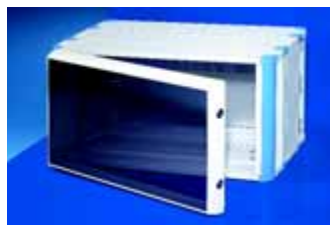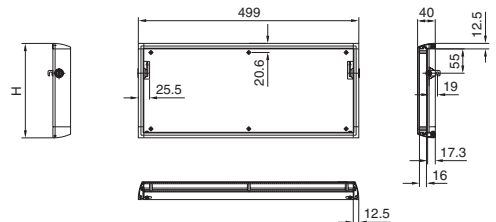
Glazed front door

vertically hinged
For mechanical protection of built-in control components.

- Optionally hinged on the right or left
- With security lock

Material:
Frame section: Extruded aluminium section, spray-finished
Corner pieces: Die-cast aluminium, spray-finished
Glass pane: Smoked acrylic

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosure width mm	B mm	H (U)	Model No. RC
269.2 ($^1/_2$ 19″)	289	3	**3751.300**
269.2 ($^1/_2$ 19″)	289	4	**3751.310**
482.6 (19″)	503	3	**3751.320**
482.6 (19″)	503	4	**3751.330**
482.6 (19″)	503	6	**3751.340**
482.6 (19″)	503	7	**3751.350**

B
3.6

Instrument cases/system enclosures
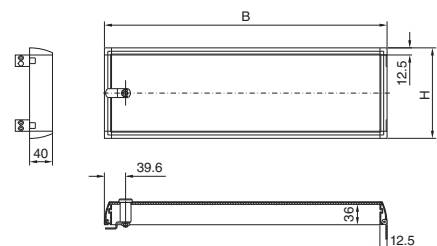
Aluminium front door

vertically hinged
For mechanical protection of built-in control components.
● Optionally hinged on the right or left
● With security lock

Material:
Frame section: Extruded aluminium section, spray-finished
Corner pieces: Die-cast aluminium, spray-finished
Aluminium plate

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosure width mm	B mm	H (U)	Model No. RC
482.6 (19″)	503	3	**3751.360**
482.6 (19″)	503	4	**3751.370**
482.6 (19″)	503	6	**3751.380**
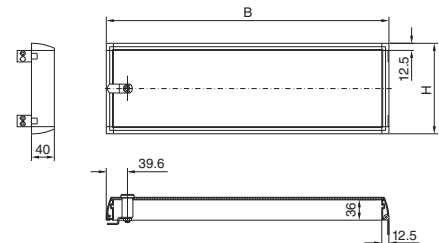
Front door

For tower enclosure
For mechanical protection of built-in control components.
● Optionally hinged on the right or left
● With security lock

Material:
Frame section: Extruded aluminium section, spray-finished
Corner pieces: Die-cast aluminium, spray-finished
Glazed pane: Smoked acrylic

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosure width mm	B mm	H (U)	Model No. RC
482.6 (19″)	503	3	**3751.390**
482.6 (19″)	503	4	**3751.430**

B = Overall width of front door
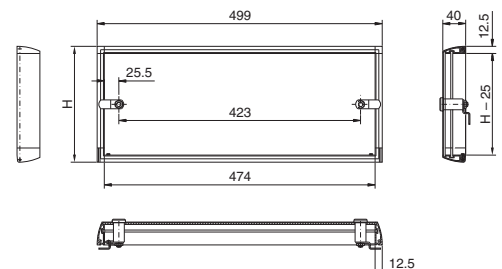
Tower feet

For vertical siting of enclosures.
May be retrofitted.

Material:
Plastic to UL 94-V0,
self-extinguishing

Decorative colours:

1 RAL 7030 (stone grey)

2 RAL 5018 (turquoise)

3 RAL 5012 (pale blue)

Supply includes:
4 tower feet,
assembly parts.

Decorative colour RAL	Packs of	Model No. RC
5018	1 set	**3751.850**
5012	1 set	**3751.852**
7030	1 set	**3751.854**

B

3.6

Instrument cases/system enclosures

Rittal RiCase accessories

Back panel

Screw-fastened
To close off the rear.

Material:
2/3 mm aluminium, natural anodised

Supply includes:
482.6 mm (19″) mounting bracket, assembly parts.
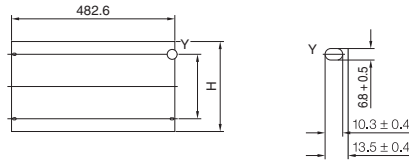
For enclosure width mm	H (U)	Packs of	Model No. RC
482.6 (19″)	3	1	**3751.600**
482.6 (19″)	4	1	**3751.610**
482.6 (19″)	6	1	**3751.620**
482.6 (19″)	7	1	**3751.630**
482.6 (19″)	9	1	**3751.530**
482.6 (19″)	12	1	**3751.540**

Rear door

vertically hinged
To close off the rear.
● Hinged, with security lock
● Optionally hinged on the left or right

Material:
Aluminium, spray-finished

Colour:
RAL 7035

Supply includes:
Assembly parts.

For Enclosure width mm	H (U)	Packs of	Model No. RC
482.6 (19″)	3	1	**3751.100**
482.6 (19″)	4	1	**3751.110**
482.6 (19″)	6	1	**3751.120**
482.6 (19″)	7	1	**3751.130**

i.L. = Clearance width
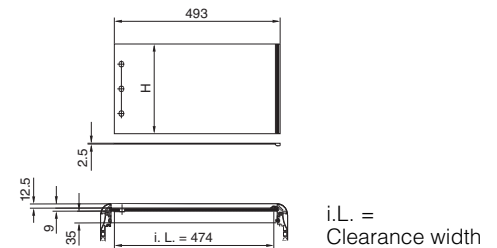
Rear door

for fan installation
To close off the rear.
● With security lock
● Optionally hinged on the left or right
● For the installation of 120 mm fans

Material:
Aluminium, spray-finished

Colour:
RAL 7035

Supply includes:
Assembly parts.

For Enclosure width mm	H (U)	H1 mm	Model No. RC
482.6 (19″)	3	66.65	**3751.150**
482.6 (19″)	4	88.90	**3751.160**
482.6 (19″)	6	83.50	**3751.170**
482.6 (19″)	7	83.50	**3751.180**

➕ **Accessories:**

Fan expansion kit,
see page 649.

HE = U
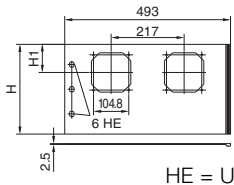
Assembly screws M6,
see page 1019.
Captive nuts M6,
see page 1020.

Fan expansion kit,
see page 649.
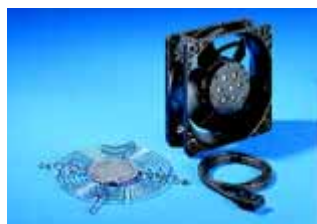
Blanking plates,
see page 1013.
Hinged blanking plates,
see page 1013.
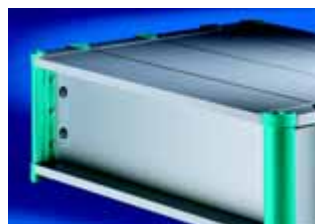
Ventilation front panels,
see page 1013.

B
3.6

Instrument cases/system enclosures

Rittal Vario-Case iS, 269.2 mm ($^1/_2$ 19″) 1 U, 2 U, 3 U, 4 U

HE = U
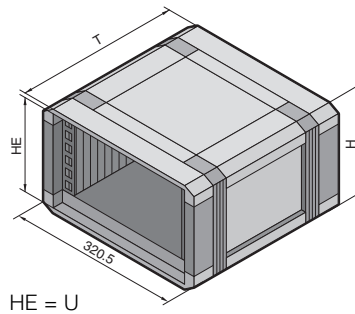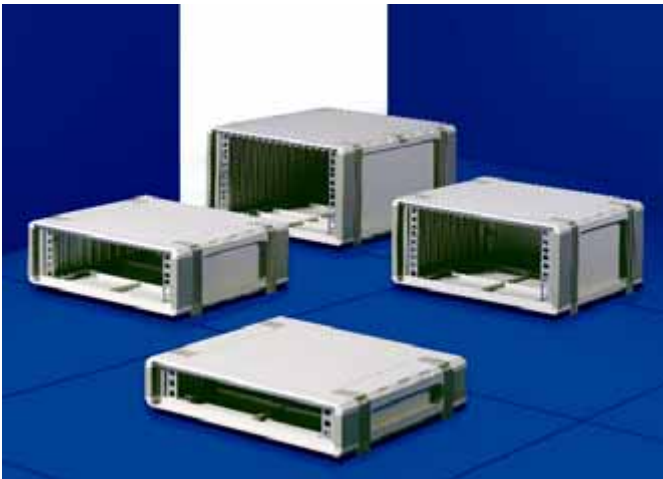
Technical specifications:
Total depth: 300 mm, 400 mm
Installation width:
269.2 mm ($^1/_2$ 19″)
Installation option:
269.2 mm ($^1/_2$ 19″) racks and
modular assemblies to
IEC 60 297-3

Material/surface finish:
Side panels: Extruded alumin-
ium section, spray-finished
similar to RAL 7030/7035
Cover trays: Plastic
UL 94-V0 (self-extinguishing),
colour similar to RAL 7035
Rear panel: 2 mm aluminium,
natural anodised.

Supply includes:
2 plastic covers,
4 (6) enclosure feet and
4 (6) screw covers,
2 side panels,
1 rear panel,
without vent slots,
4 mounting angles,
4 threaded inserts,
4 untapped strips,
assembly parts.
Enclosures are supplied partially
assembled.

EMC version,
see page 292.

**Special sizes and colours
available on request.**

Detailed drawing,
see page 1162.

B

3.6

Instrument cases/system enclosures

Enclosure for subrack width 269.2 mm ($^1/_2$ 19″)	Packs of	1 U	2 U	3 U		4 U		Page
Depth (T) in mm		300	300	300	400	300	400	
Height (H) in mm		74.75	119.20	163.65	163.65	208.10	208.10	
Model No. VC without vent slots	1	**3710.000**	**3720.000**	**3730.000**	**3731.000**	**3740.000**	**3741.000**	
Accessories								
Mounting kit	1	–	–	3780.000	3780.000	–	–	572
Carrying handle, vertical	2	–	–	3785.000	3785.000	–	–	575
Carrying handles, horizontal	2	3787.000	3787.000	3787.000	3788.000	3787.000	3788.000	575
Blanking plate (rear panel)	3	3746.000	3747.000	3748.000	3748.000	3749.000	3749.000	1013
Slide rails	4	3782.000	3782.000	3782.000	3783.000	3782.000	3783.000	573
Front door, vertically hinged (acrylic door)	1	–	–	3700.000	3700.000	3701.000	3701.000	574

Instrument cases/system enclosures

Rittal Vario-Case iS, 482.6 mm (19″)/1 U, 4 U, 7 U
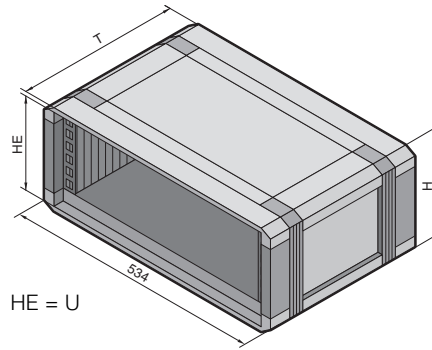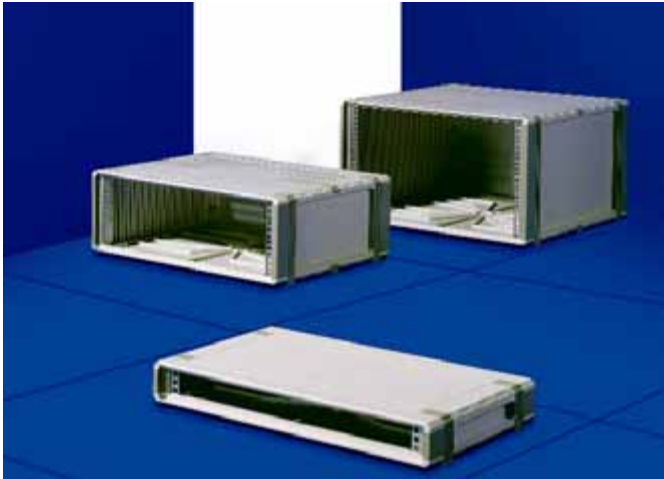
HE = U

Technical specifications:
Total depth: 300 mm, 400 mm, 500 mm
Installation width:
482.6 mm (19″)
Installation option:
482.6 mm (19″) slide-in equipment and modular assemblies to IEC 60 297-3

Material/surface finish:
Side panels: Extruded aluminium section spray-finished similar to RAL 7030/7035
Cover trays: Plastic UL 94-V0 (self-extinguishing), colour similar to RAL 7035
Rear panel: 2 mm aluminium, natural anodised.

Supply includes:
2 plastic covers,
4 (6) enclosure feet and
4 (6) screw covers,
2 side panels,
1 rear panel,
without/with vent slots,
4 mounting angles,
4 threaded inserts,
4 untapped strips,
assembly parts.
Enclosures are supplied partially assembled.

EMC version,
see page 292.

Special sizes and colours available on request.

Detailed drawing,
see page 1163.

Enclosure for subrack width 482.6 mm (19″)	Packs of	1 U		4 U			7 U		Page
Depth (T) in mm		300	400	300	400	500	400	500	
Height (H) in mm		74.75	74.75	208.10	208.10	208.10	341.40	341.40	
Model No. VC without vent slots	1	**3713.000**[1]	**3714.000**	**3743.000**	**3744.000**	**3745.000**[1]	**3774.000**	**3775.000**	
Model No. VC with vent slots	1	**3713.200**[1]	**3714.200**	**3743.200**	**3744.200**	**3745.200**[1]	**3774.200**	**3775.200**	
Accessories									
Carrying handles, horizontal	2	3787.000	3788.000	3787.000	3788.000	3789.000	3788.000	3789.000	575
Support stand/carrying handle	1	3797.000	3797.000	3797.000	3797.000	3797.000	3797.000	3797.000	573
Blanking plate (rear panel)	3	1931.200	1931.200	1934.200	1934.200	1934.200	1935.200	1935.200	1013
Slide rails	4	3782.000	3783.000	3782.000	3783.000	3784.000	3783.000	3784.000	573
Front door, vertically hinged (acrylic door)	1	–	–	3703.000	3703.000	3703.000	3705.000	3705.000	574
Front door, horizontally hinged (acrylic door)	1	–	–	3727.000	3727.000	3727.000	3729.000	3729.000	574
482.6 mm (19″) 1 U drawer	1	–	–	–	–	4541.000	–	4541.000	1015
482.6 mm (19″) 3 U drawer	1	–	–	–	–	4542.000	–	4542.000	1015

[1] Delivery times approx. 4 weeks.

Accessories Vario-Case Page 572 **Subracks** Page 486 **RiBox** Page 554 **Ripac Vario-Module** Page 555 **RiCase** Page 562

Rittal Catalogue 31/Electronic packaging

Rittal Vario-Case iS, 482.6 mm (19″)/3 U, 6 U, 9 U
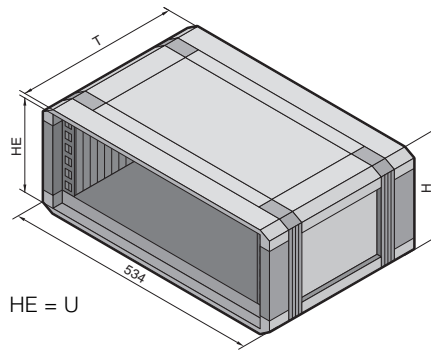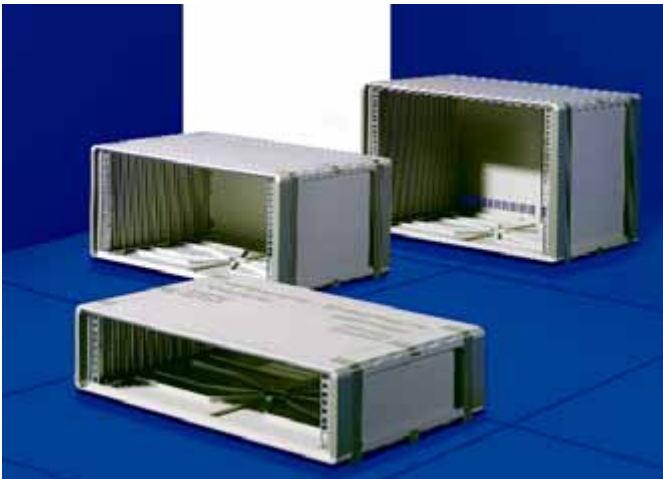
HE = U

Technical specifications:
Total depth: 300 mm, 400 mm,
500 mm
Installation width:
482.6 mm (19″)
Installation option:
482.6 mm (19″) slide-in equip-
ment and modular assemblies to
IEC 60 297-3

Material/surface finish:
Side panels: Extruded alumin-
ium section, spray-finished simi-
lar to RAL 7030/7035
Cover trays: Plastic
UL 94-V0 (self-extinguishing),
colour similar to RAL 7035
Rear panel: Plastic
UL 94-V0 (self-extinguishing),
Colour similar to RAL 7035

Supply includes:
2 plastic covers,
4 (6) enclosure feet and
4 (6) screw covers,
2 side panels,
1 rear panel,
without/with vent slots,
2 mounting angles,
2 threaded inserts,
2 untapped strips,
assembly parts.
Enclosures are supplied partially
assembled.

EMC version,
see page 292.

**Special sizes and colours
available on request.**

Detailed drawing,
see page 1163.

B 3.6

Instrument cases/system enclosures

Enclosure for subrack width 482.6 mm (19″)	Packs of	3 U			6 U			9 U		Page
Depth (T) in mm		300	400	500	300	400	500	400	500	
Height (H) in mm		163.65	163.65	163.65	297.00	297.00	297.00	430.50	430.50	
Model No. VC without vent slots	1	**3733.000**	**3734.000**	**3735.000**	**3763.000**	**3764.000**	**3765.000**	**3794.000**	**3795.000**	
Model No. VC with vent slots	1	**3733.200**	**3734.200**	**3735.200**	**3763.200**	**3764.200**	**3765.200**	**3794.200**	**3795.200**	
Accessories										
Mounting kit	1	3780.000	3780.000	3780.000	3781.000	3781.000	3781.000	–	–	572
Carrying handles, horizontal	2	3787.000	3788.000	3789.000	3787.000	3788.000	3789.000	3788.000	3789.000	575
Carrying handle, vertical	2	3785.000	3785.000	3785.000	3786.000	3786.000	3786.000	–	–	575
Support stand/carrying handle	1	3797.000	3797.000	3797.000	3797.000	3797.000	3797.000	3797.000	3797.000	573
Blanking plate (rear panel)	3	1933.200	1933.200	1933.200	1936.200	1936.200	1936.200	1939.200	1939.200	1013
Slide rails	4	3782.000	3783.000	3784.000	3782.000	3783.000	3784.000	3783.000	3784.000	573
Front door, vertically hinged (acrylic door)	1	3702.000	3702.000	3702.000	3704.000	3704.000	3704.000	–	–	574
Front door, horizontally hinged (acrylic door)	1	3726.000	3726.000	3726.000	3728.000	3728.000	3728.000	–	–	574
482.6 mm (19″) 1 U drawer	1	–	–	4541.000	–	–	4541.000	–	4541.000	1015
482.6 mm (19″) 3 U drawer	1	–	–	4542.000	–	–	4542.000	–	4542.000	1015

Rittal Vario-Case iS accessories

Mounting kit

For direct installation of board type plug-in units without using a subrack.
The vertical rails/adaptors of the mounting kit are used to fasten horizontal rails/horizontal rail sets in Vario-Case iS enclosures.

Material:
Vertical rails: Aluminium, natural anodised.
Adaptor: Plastic

Supply includes:
2 vertical rails, front,
2 vertical rails, rear,
4 threaded inserts,
8 adaptors (12 for 6 U),
assembly parts.

For VC	Model No. VC
3 U	3780.000
6 U	3781.000

⚠ Also required:

Horizontal rail sets,
see page 572.

Horizontal rail sets

To equip Rittal Vario-Case iS enclosures.
For direct installation of board type plug-in units without using a subrack.

	Fitting 3 U, 84 HP		Fitting 6 U, 84 HP	
	Without integrated Z rails for backplanes or female connectors to IEC 60 603-2 (DIN 41 612)	**With integrated Z rails** for female connectors to IEC 60 603-2 (DIN 41 612)	**Without integrated Z rails** for backplanes or female connectors to IEC 60 603-2 (DIN 41 612)	**With integrated Z rails** for female connectors to IEC 60 603-2 (DIN 41 612)
Model No. UV	**3663.301**	**3663.311**	**3663.601**	**3663.611**
Packs of	1 set	1 set	1 set	1 set
Horizontal rails, front	2	2	2	2
Horizontal rails, rear	2	–	2	–
Horizontal rails, rear, with integrated Z rails	–	2	–	2
Centre horizontal rail	–	–	1	–
Centre horizontal rail, with integrated Z rails	–	–	–	1
Threaded inserts	4	2	6	2
HP strips	4	4	4	4
Assembly screws	8	8	12	12

⚠ Also required:

For horizontal rail sets without integral Z rails:
Z rails, see page 504.

✚ Accessories:

		Packs of	Model No. UV
Guide rails	160 mm	10	3606.700
	220 mm	10	3606.720
Insulating strips		2	3604.850

Mounting angle for 482.6 mm (19″)

Depth-adjustable on a 12.5 mm pitch pattern, for fastening slide-in equipment or front plates in Vario-Case iS enclosures.
For depth-variable installation of subracks/slide-in equipment via threaded inserts.

Material:
Aluminium, natural anodised.

Supply includes:
Assembly screws.

U	Packs of	Model No. VC
1	4	3717.000
2	4	3716.000
3	4	3790.000
4	4	3718.000
6	4	3791.000
7	4	3719.000
9	4	3792.000

⚠ Also required:

Threaded inserts M4,
see page 564.

B

3.6

Instrument cases/system enclosures

Slide rails

To support heavy subracks/slide-in equipment.

Material:
1.5 mm sheet steel, passivated

Supply includes:
Assembly screws.

For enclosures mm	Packs of	Model No. VC
300	4	**3782.000**
400	4	**3783.000**
500	4	**3784.000**

! **Also required:**

To secure the slide rails in the enclosure:
Threaded inserts M4, see page 564.
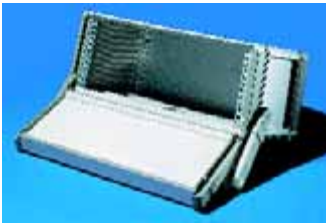
Keyboard lid

Suitable for the installation of 482.6 mm (19″) keyboards. Hinged, with security lock.

Material:
Centre/side parts: Aluminium,
spray-finished similar to RAL 7030/7035
Corner pieces:
Die-cast zinc, spray-finished similar to RAL 7030
Insertion plate:
Aluminium, spray-finished
similar to RAL 7035

Supply includes:
Fitted keyboard lid,
with solid aluminium plate on the inside, assembly parts.

	Model No. VC	
	4 U	6 U
	3722.000	**3723.000**
W (B) mm	534	534
H mm	203	292
a mm	155	244
b mm	193	282
c mm	197	286

3 U on request.

Instrument cases/system enclosures
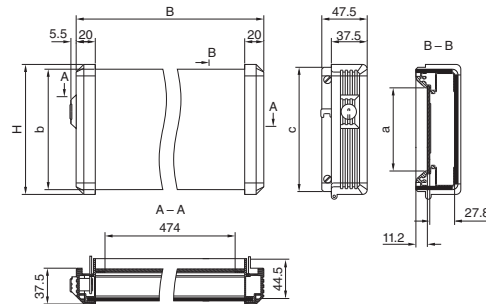
Support stand/carrying handle

- Suitable for retrofitting to 2 U – 6 U enclosures
- Support stand/carrying handle adjustable in 30° increments
- Load capacity up to 30 kg

Material:
End pieces:
Die-cast zinc, spray-finished in RAL 7030
Centre part: Extruded aluminium section with plastic cover, spray-finished in RAL 7030

Supply includes:
Assembly parts.

For VC mm	A mm	Packs of	Model No. VC
269.2 (¹/₂19″)	364.5	1	**3796.000**
482.6 (19″)	578.0	1	**3797.000**
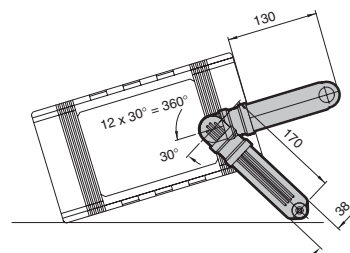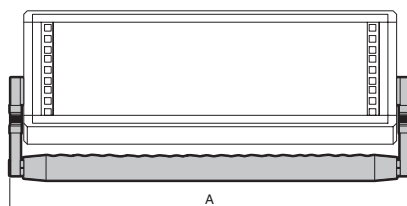
Rittal Vario-Case iS accessories
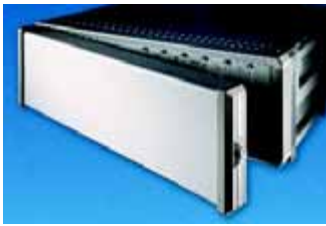
Front doors, vertically hinged
Aluminium or acrylic
- For the protection of the installed control components
- Optional right-hand or left-hand hinge
- Fitted with security lock
- May be used as a front or rear door

Material of the aluminium door:
Side panels: Extruded aluminium section/die-cast, spray-finished in RAL7030
Centre part: Aluminium, spray-finished, similar to RAL 7035

Material of the acrylic door:
Side panels: Extruded aluminium section/die-cast, spray-finished in RAL7030
Window: Smoked acrylic

Supply includes:
1 door, assembly parts.

Aluminium door	U	W (B) mm	H mm	b mm	c mm	Model No. VC
482.6 mm (19″)	3	534	159	149	153	**3707.000**
482.6 mm (19″)	4	534	203	193	197	**3708.000**
482.6 mm (19″)	6	534	292	282	286	**3709.000**

Acrylic door	U	W (B) mm	H mm	b mm	c mm	Model No. VC
269.2 mm (¹/₂ 19″)	3	320.5	157.5	147.0	151.5	**3700.000**
269.2 mm (¹/₂ 19″)	4	320.5	202.0	192.0	196.0	**3701.000**
482.6 mm (19″)	3	534.0	157.5	147.0	151.5	**3702.000**
482.6 mm (19″)	4	534.0	202.0	192.0	196.0	**3703.000**
482.6 mm (19″)	6	534.0	291.0	281.0	285.0	**3704.000**
482.6 mm (19″)	7	534.0	335.3	325.5	329.4	**3705.000**
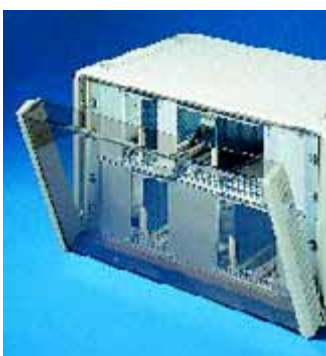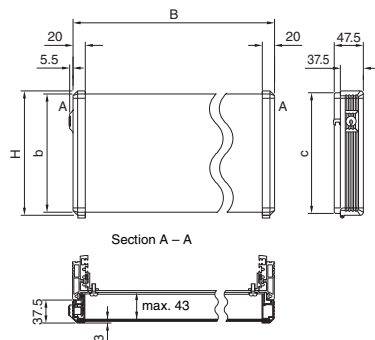
Section A – A

Front doors, horizontally hinged
Acrylic
- For the protection of the installed control components
- Optional bottom or top hinges
- Fitted with security lock

Material:
Side panels: Extruded aluminium section/die-cast, spray-finished in RAL7030
Window: Smoked acrylic

Supply includes:
1 door, assembly parts.

Acrylic door	U	W (B) mm	H mm	b mm	c mm	Model No. VC
269.2 mm (¹/₂ 19″)	3	320.5	157.5	147.0	151.5	**3724.000**
269.2 mm (¹/₂ 19″)	4	320.5	202.0	192.0	196.0	**3725.000**
482.6 mm (19″)	3	534.0	157.5	147.0	151.5	**3726.000**
482.6 mm (19″)	4	534.0	202.0	192.0	196.0	**3727.000**
482.6 mm (19″)	6	534.0	291.0	281.0	285.0	**3728.000**
482.6 mm (19″)	7	534.0	335.3	325.5	329.4	**3729.000**

Section A – A

B

3.6
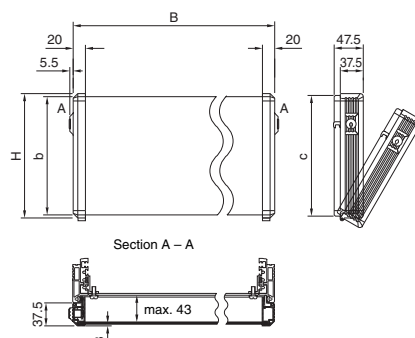
Instrument cases/system enclosures

Carrying handles, vertical

For easy, convenient transportation.

Material:
End pieces: Die-cast zinc,
spray-finished similar to RAL 7035
Centre part: Extruded aluminium section,
spray-finished in RAL 7035

Supply includes:
Assembly parts.

For VC	Packs of	Model No. VC
3 U	2	**3785.000**
6 U	2	**3786.000**

Carrying handles, horizontal

For easy, convenient transportation.

Material:
Side panels: Die-cast zinc,
spray-finished similar to RAL 7035
Centre part: Extruded aluminium section,
spray-finished in RAL 7035

Supply includes:
Assembly parts.

For VC	Packs of	Model No. VC
300 mm deep	2	**3787.000**
400 mm deep	2	**3788.000**
500 mm deep	2	**3789.000**
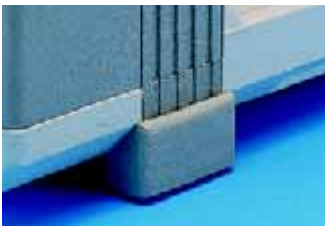
Plastic caps

for VC feet
Designed for retrofitting to the feet of Vario-Case iS enclosures, these soft plastic caps prevent slipping on smooth surfaces.

Material:
Soft PVC, Shore hardness 60°

Colour:
RAL 7030

Packs of	Model No. VC
12	**3736.000**

B
3.6

Instrument cases/system enclosures

Threaded insert M4,
see page 564.

Earthing set,
see page 565.
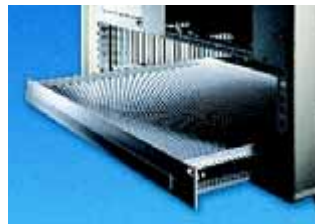
Drawer/utility table
pull-out drawer with base,
see page 1015,
drawer with frame open bottom,
see page 1015.
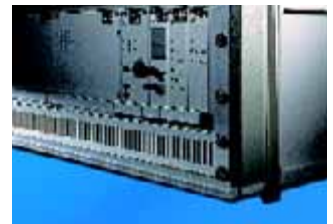
Ventilation front panels,
see page 1013.
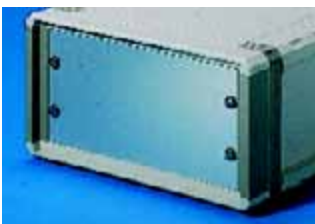
Blanking plates,
see page 1013.

Blanking plate, vertically hinged,
see page 1013.
Horizontally hinged,
see page 1013.
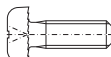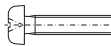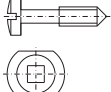
Hinge,
see page 1013.

M6 assembly screws,
see page 1019.

Captive nut M6,
see page 1020.
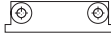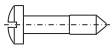
Assembly parts

Assembly parts

For the attachment of	Description	Dimensions		Model No.	Packs of
Front panels to unit side panels	Oval csk-screw ISO 7047-4.8-Z-A2F	M3 x 8		**3606.550**	100
Rear panels to box-type plug-in units	Panhead posidrive screw ISO 7045-4.8-Z-A2F	M3 x 8		**3606.560**	100
PCB holders (plastic) to front panels, top	Oval csk-screw ISO 7047-4.8-Z-A2F	M2.5 x 10		**3606.610**	100
– Horizontal rails to side panels – Divider panels to horizontal rails – Horizontal rails to vertical supports	Panhead self-locking screw similar to DIN ISO 7045-8.8-Z-A2F	M4 x 12		**3654.300**	100
– PCBs to PCB holders (die-cast for 3 U, 6 U), top – PCBs to extractor handles with 6 U	Panhead screw ISO 7045-4.8-Z-A2F	M2.5 x 8		**3654.320**	100
– PCB holder (plastic) to type V/VI handles, bottom – PCBs to PCB holders (plastic) – Backplanes to tapped strips	Panhead screw ISO 7045-4.8-Z-A2F	M2.5 x 10		**3654.330**	100
– Connectors to Z rails – Z rails to horizontal rails – Type V/VI handles to partial front panels, bottom right for ≥ 5 HP – Aluminium guide rails to horizontal rails – Mezzanine front panels	Panhead screw ISO 7045-4.8-Z-A2F	M2.5 x 6		**3654.340**	100
Aluminium guide rails to horizontal rails (fastening of sqare nuts)	Retaining cage	M2.5		**9901.417**	100
Handle type V (plastic) to front panels and box type plug-in units	Mounting kit for type V handle (plastic): Cover black Cover grey Hex nut Screw Screw Square nut DIN 502-11H-A2F	 M2.5 M2.5 x 16 M2.5 x 12 M2.5		**3687.519**	1 set
Connectors to PCBs	Panhead screw ISO 7045-4.8-Z-A2F	M2.5 x 12		**3654.350**	100
Guide rails (plastic) to horizontal rails	Screw for plastic WN 1413	M2.2 x 6		**3654.360**	100
– Flat front panels to handles type V, VI – Aluminium guide rails to horizontal rails	Square nut DIN 562-A2F	M2.5		**3654.370**	100
– Flat front panels to horizontal rails – Trim frame to conceal the front sections of the horizontal mounting kit	Captive screws (cheese-head) and plastic collars	M2.5 x 11		**3658.160**	100 set
Flat front panels	Plastic collars			**3687.021**	100
PCB to type III handle	Screw for plastic WN 1412	M3.0 x 8		**3658.190**	100
– PCBs to PCB holders (plastic) – PCB holders to front panels, top	Hex nut ISO 4032-8	M2.5		**3658.210**	100
– Backplanes to threaded inserts – Air partitions to horizontal rails	Mounting kit for backplanes: Panhead screw ISO 7045-4.8-Z-A2F Washer PE, natural DIN 125	 M2.5 x 6 2.7		**3684.019**	100
– Covers to mounting blocks – EMC contact profiles	Flat csk-screw ISO 7046-1-4.8-Z-A2F	M3 x 6		**3684.233**	100
Covers to side panels	Mounting block			**3684.234**	10
Type V/VI handle to front panels	Bracket			**3684.435**	100
Female connector to PCB attachment	Pop rivet DIN 7340-B-CuZn	2.5 x 0.3 x 10		**3684.482**	100
Ground contact to keyable guide rails	Fastening screw for ground contact	M3.5 x 12		**3684.109**	50

Assembly parts

For the attachment of	Description	Dimensions		Model No.	Packs of
Fans to fan mounting plate	Mounting kit for fans:			**3685.197**	1 set
	Flat csk-screw ISO 7046-1-4.8-Z-A2F	M4 x 12			
	Hex nut ISO 4032-8	M4			
	Serrated washer DIN 6797-A-Fst	4.3			
Covers to side panels	Mounting kit for covers:			**3685.256**	24 sets
	Mounting block				
	Flat csk-screw ISO 7046-1-4.8-Z-A2F	M3 x 6			
PCB holders (die-cast) to front panels, top	Oval csk-screw ISO 7047-4.8-Z-A2F	M2.5 x 8		**3685.282**	100
– Covers/box type plug-in units type I/II – Contact/spring sections for 3-part front panels	Flat csk-screw ISO 7046-1-4.8-Z-A2F	M2.5 x 5		**3685.289**	100
– Handles on front panels for box type plug-in units – Front panels to hinge strip	Flat csk-screw ISO 7046-1-4.8-Z-A2F	M2.5 x 6		**3685.290**	100
Holder (horizontal assembly kit) to horizontal rail	Flat csk-screw similar to ISO 7046-1-4.8-Z-A2F	M2.5 x 5		**3686.916**	100
Holder (horizontal assembly kit) to horizontal rail	Flat csk-screw similar to ISO 7046-1-4.8-Z-A2F	M2.5 x 8		**3686.917**	100
Contact and spring sections on 3-part front panels without countersink	Panhead csk-screw ISO 7046-4.8-Z-A2F	M2.5 x 5		**3686.924**	100
Recessed flanges to side panels	Mounting kit for recessed flanges:			**3687.015**	4 sets
	Panhead self-locking screw similar to DIN ISO 7045-8.8-Z-A2F	M4 x 8			
	Hex nut ISO 4032-8	M4			
	Washer	4.3			
Fastening the threaded inserts in horizontal rails	Grub screw ISO 7434-14H	M2.5 x 8		**3687.020**	100
– EMC front panels to horizontal rails – EMC trim frame to conceal the front sections of the horizontal mounting kit	Centering screw with slotted head	M2.5 x 11		**3687.050**	100
EMC front panels to horizontal rails	Centering screw posidrive	M2.5 x 11		**3687.051**	100
Front panels and rear panels to horizontal rails	Collar screw, cheese-hed slotted	M2.5 x 11		**3685.097**	100
Type V/VI handles (aluminium) to front panels	Mounting kit for type V/VI handles:			**3687.146**	1 set
	Panhead screw ISO 7045-1-4.8-Z-A2F	M2.5 x 6			
	Bracket				
	Square nut DIN 562-11H-A2F	M2.5			
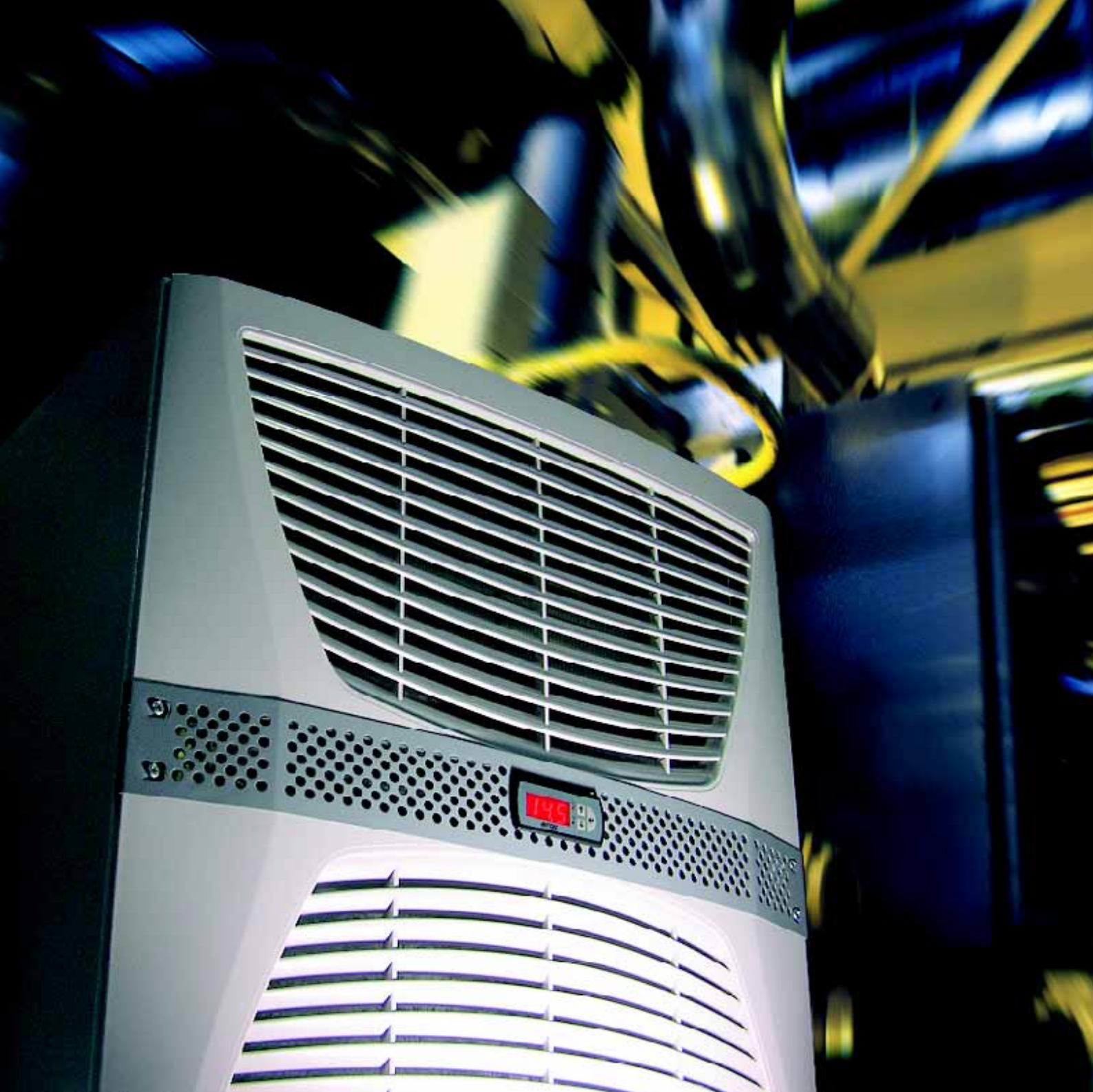
Everyone talks about the future, but Rittal helps shape it – and that includes

the field of climate control.

Development work focuses on the holistic **protection of process control**

with the minimum possible energy consumption.

Modern cooling units with excellent efficiency and perfect interface

technology, together with **liquid cooling concepts,** offer fresh new

perspectives for the correct cooling of electronic components. This is crucial

to the availability and reliability of machinery and IT technology.

For this reason, Rittal collaborates closely with you to develop customised

climate control concepts.

System climate control

B
4.

System climate control

Cooling units

Features

Rittal system climate control offers holistic process protection. This includes the cooling of sensitive electronics in enclosures and cases for industrial process control, as well as server and network technology, regardless of the ambient conditions. But these are not isolated solutions – with Rittal, everything is interconnected. Perfectly linked and controlled cooling technology with eco-friendly, energy-efficient equipment.

Selection criteria
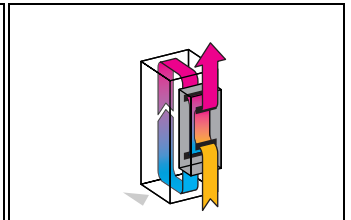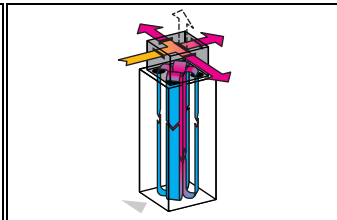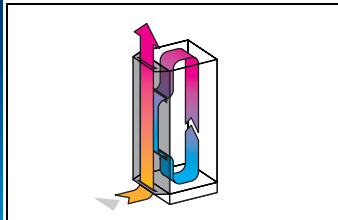
Integral cooling technology
The unity of enclosure and cooling components achieves particularly effective cooling. Assembly time is eliminated. The investment costs for the complete unit offer exceptionally good value for money.

Roof-mounted cooling units
Requirement-oriented routing of cooling air in the internal circuit is possible, with up to four cold air outlet openings and the optional use of ducts. In the external circuit, the heated air is expelled to the rear, left and right, and optionally upwards. This means that there are no obstacles to bayed use and siting close to the wall.

Wall-mounted cooling units
Depending on the space and design requirements, internal mounting, partial internal mounting and external mounting are all possible. Thanks to large distances between the air intake and outlet openings, effective cold air throughput of the enclosure is achieved.

Intelligent control

The two controller variants for operational reliability offer a comprehensive range of functions. Essential control electronics are well protected and cooled in the inner circuit.

Both variants have the following properties:
- Three voltage options: 115 V, 230 V, 400/460 V 3~
- Integral start-up delay and door limit switch function
- Icing protection function
- Monitoring of all motors
- Phase monitoring for three-phase units

Basic controller:
- Visualisation of the operating status via LED display
- Switching hysteresis: 5 K
- Floating fault signal contact in case of overtemperature
- Setpoint adjustable from outside via potentiometer (setting range 20° – 55°C)

Comfort controller
- Switching hysteresis: 2 – 10 K preset to 5 K
- System alarm, individually configurable for 2 floating fault signal contacts
- Visualisation of the current enclosure internal temperature and all system messages on the display
- Storage of all system states in the log file
- Optional extension card for integration into superordinate remote monitoring systems e.g. with CMC

Integral cooling technology

Infinite possibilities
The TS 8 Top enclosure system platform offers full compatibility in terms of baying techniques, lock systems and interior installation.

Fast exchange of the door and side panel
The symmetrical design means that the door hinge can be swapped very quickly to the opposite side, even with the designer climate control door.

Exchangeable in a flash
With all integrated cooling technology models, the cooling module can be very rapidly exchanged in just a few actions for servicing purposes.

RITTAL TOP THERM

Roof-mounted cooling units

Flexible performance
Only 3 mounting cutouts for 6 different output categories in 28 design variants.

Targeted air routing in the enclosure
The internal air circulation is targeted and effective: The heated air is extracted centrally. Air exhaust occurs in the four corners, depending on requirements.

Flexible condensate management
All roof-mounted cooling units with Comfort controller are equipped with condensate warning feature. A condensate pump and condensate evaporation may be integrated.

RITTAL TOP THERM

Wall-mounted cooling units

Wall-mounted cooling units – Practical and stylish
The mounting cutout is selected depending on the mounting variant: external, internal or partial internal mounting. This makes optimum use of the space available.

Effective air routing inside the enclosure
The large distance between the air inlet and outlet in the internal circuit makes wall-mounted cooling units particularly effective. This ensures optimum air throughput inside the enclosure, and air short-circuits are avoided.

Developed for easy servicing, inside and out
The assemblies, their arrangement and the divided internal case construction make all types of maintenance and servicing work much easier.

B
4.1

Cooling units

Benefits:
- Useful cooling output from 225 W to 4000 W
- Extensive control and monitoring features, even with the basic version
- Three-phase cooling units support multiple voltages as standard
- Uniform, output-related, cross-system mounting cutouts, to match TopTherm air/air heat exchangers
- Targeted, individual air routing
- No assembly work and low investment costs, thanks to the complete solution consisting of an enclosure and integral cooling unit[1]
- May be integrated directly into TS 8 bayed enclosure suites[1]

Important:
- Use a base/plinth of at least 100 mm height to ensure uninhibited air entry[1]
- Avoid overloading the roof plate by using stays (see TS 8 system accessories)
- Air inlet and outlet openings in the internal and external circuit must not be obstructed.

[1] Only for integral cooling technology.

Climate controlled enclosures

Enclosures, single-door, useful cooling output 1100/1500 W
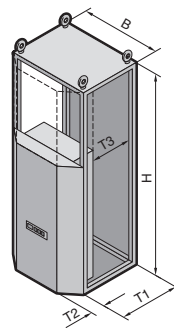
B = Width
T = Depth

Supply includes:
Enclosure frame with rear panel, roof and climate control door, including TS 8 hinges, door opening angle approx. 110°, spray-finished, including pre-assembled cooling module, r/h door hinge, may be swapped to opposite side, 4 eyebolts, pre-fitted, mounting plate, three-part gland plates, depth stay as shipping brace.

! Also required:
For correct functioning of the external circuit:
Base/plinth, 100 or 200 mm high,
see page 835.

⇄ Optionally available:
Microcontroller control with
● digital temperature indicator,
● floating contact for collective fault signal,
● connection for door operated switch for start-up delay.

Automatic condensate evaporation.

Approvals,
see page 66.

Detailed drawing,
see page 1164.

Performance diagrams,
available on the Internet.

Model No. SK[1]		8687.100	8607.100	8687.840	8607.840	8887.150	8807.100	8887.140	8807.140
Rated operating voltage V, Hz		230, 50/60		400, 2~, 50/60		230, 50/60		400, 2~, 50/60	
Dimensions in mm	B	600	600	600	600	800	800	800	800
	H	1800	2000	1800	2000	1800	2000	1800	2000
	T1	600	600	600	600	600	600	600	600
	T2	100	100	100	100	100	100	100	100
Maximum installation depth up to mounting plate	T3	478							
Suitable for baying with TS 8 enclosures mm	T	600							
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	1100 W/1250 W				1500 W/1510 W			
	L 35 L 50	820 W/1000 W				1065 W/1240 W			

Rated current max.		3.2 A/3.8 A		1.9 A/2.2 A		4.0 A/4.5 A		2.3 A/2.6 A	
Start-up current		11.0 A/12.0 A		6.3 A/6.9 A		9.0 A/10.0 A		5.2 A/5.7 A	
Pre-fuse T		10.0 A/10.0 A		6.0 A/6.0 A		10.0 A/10.0 A		6.0 A/6.0 A	
Power consumption P$_{el}$ to DIN 3168	L 35 L 35	525 W/630 W		540 W/650 W		650 W/750 W		670 W/780 W	
	L 35 L 50	605 W/725 W		625 W/750 W		750 W/850 W		780 W/880 W	
Refrigeration factor ε = $\dot{Q}_K$/P$_{el}$	L 35 L 35	2.1				2.3			
Refrigerant		R134a, 675 g				R134a, 700 g			
Permissible operating pressure p. max.		23 bar							
Temperature and setting range		+20°C to +55°C							
Protection category to EN 60 529/10.91	External circuit	IP 24							
	Internal circuit	IP 54							
Duty cycle		100 %							
Type of connection		Terminal strip							
Weight		155 kg	163 kg	158 kg	166 kg	182 kg	192 kg	185 kg	195 kg
Colour		RAL 7035[2]							
Air throughput of fans	External circuit	580 m³/h				600 m³/h			
	Internal circuit	420 m³/h				480 m³/h			
Temperature control		Internal thermostat (factory setting +35°C)							

Also required	Packs of									Page
Base/plinth components front/rear, 100 mm	1 set	8601.600				8601.800				835
Base/plinth trim, side, 100 mm	1 set	8601.060								835
Side panels	2	8186.200	8106.200	8186.200	8106.200	8186.200	8106.200	8186.200	8106.200	853

[1] Delivery times available on request.
[2] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.1
Climate controlled enclosures

Enclosures, two-door, useful cooling output 2000/2500 W
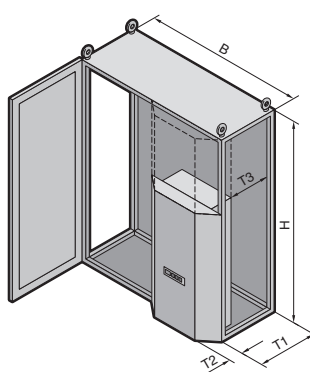
Property rights:
German patent no. 196 09 794
European patent no. 0 886 994
with validity for ES, FR, GB, IT, NL, SE
Taiwanese patent no. N 11 05 287
US patent no. 6,134,109
South Korean patent no. 3 295 093

B = Width
T = Depth

Supply includes:
Enclosure frame with rear panel, roof and climate control door, including TS 8 hinges, door opening angle approx. 110°, lockable door with standard hinges, spray-finished, including pre-assembled cooling module, 4 eyebolts, pre-fitted, mounting plate, three-part gland plates, depth stays as shipping braces.

Also required:
For correct functioning of the external circuit:
Base/plinth, 100 or 200 mm high,
see page 835.

Optionally available:
Microcontroller control with
- digital temperature indicator,
- floating contact for collective fault signal,
- connection for door operated switch for start-up delay.

Automatic condensate evaporation.

Approvals, see page 66.

Detailed drawing, see page 1164.

Performance diagrams, available on the Internet.

Model No. SK[1]		8287.170	8807.180	8207.170	8207.180	8807.260	8807.250
Device position		right	left	right	left	left	
Rated operating voltage V, Hz		230, 50/60				400, 3~, 50/60	
Dimensions in mm	B	1200	1200	1200		1200	1200
	H	1800	1800	2000		1800	2000
	T1	600	600	600		600	600
	T2	100	100	100		100	100
Maximum installation depth up to mounting plate	T3	445	445	445		415	415
Suitable for baying with TS 8 enclosures mm	T	600					
Useful cooling output $\dot{Q}_K$	**L 35 L 35**	**2000 W/2010 W**				**2500 W/2550 W**	
to DIN 3168	**L 35 L 50**	**1420 W/1650 W**				**1650 W/1750 W**	

Rated current max.		5.8 A/6.3 A				3.0 A/3.2 A	
Start-up current		26.0 A/29.0 A				14.0 A/16.0 A	
Pre-fuse T		16.0 A/16.0 A				6.0 A/6.0 A	
Power consumption P_{el}	L 35 L 35	960 W/1070 W				1330 W/1640 W	
to DIN 3168	L 35 L 50	1030 W/1180 W				1580 W/2000 W	
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	2.1				1.9	
Refrigerant		R134a, 925 g				R134a, 975 g	
Permissible operating pressure p. max.		28 bar					
Temperature and setting range		+20°C to +55°C					
Protection category	External circuit	IP 24					
to EN 60 529/10.91	Internal circuit	IP 54					
Duty cycle		100 %					
Type of connection		Terminal strip					
Weight		231 kg	246 kg			231 kg	245 kg
Colour		RAL 7035[2]					
Air throughput of fans	External circuit	630 m³/h				700 m³/h	
	Internal circuit	520 m³/h				620 m³/h	
Temperature control		Internal thermostat (factory setting +35°C)					

Also required	Packs of						Page
Base/plinth components front/rear, 100 mm	1 set	8601.200					835
Base/plinth trim, side, 100 mm	1 set	8601.060					835
Side panels	1 set	8186.200	8106.200			8186.200	8106.200	853

[1] Delivery times available on request.
[2] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.1

Climate controlled enclosures

Climate control doors

Doors, for installing on 600 mm wide TS 8 enclosures, useful cooling output 1100/1500

B = Width
T = Depth

Supply includes:
Climate control door unit with
pre-fitted cooling module,
including TS 8 hinges,
door opening angle approx.
110°.

Note:
Climate control doors for two-
door TS 8 enclosures
see page 587/588.

! **Also required:**
Base/plinth, 100 or 200 mm
high,
see page 835.

⇄ **Optionally available:**
Automatic condensate evapora-
tion.

Approvals,
see page 66/67.

Detailed drawing,
see page 1165.

Performance diagrams,
available on the Internet.

Model No. SK with thermostat		3306.880[1]	3306.800[1]	3306.884[1]	3306.840[1]	3307.880[1]	3307.800[1]	3307.890[1]	3307.840
Model No. SK with microcontroller		**3306.580[1]**	**3306.500[1]**	**3306.590[1]**	**3306.540[1]**	**3307.580[1]**	**3307.500[1]**	**3307.590[1]**	**3307.540[1]**
Rated operating voltage V, Hz		230, 50/60		400, 2~, 50/60		230, 50/60		400, 2~, 50/60	
Dimensions in mm	B1	592	592	592	592	592	592	592	592
	B2	461	461	461	461	461	461	461	461
	H	1777.5	1977.5	1777.5	1977.5	1777.5	1977.5	1777.5	1977.5
	T1	157	157	157	157	190	190	190	190
	T2	57	57	57	57	90	90	90	90
Dimensions to fit TS enclosures mm	B	600	600	600	600	600	600	600	600
	H	1800	2000	1800	2000	1800	2000	1800	2000
Useful cooling output Q̇K to DIN 3168	**L 35 L 35**	**1100 W/1250 W**				**1500 W/1680 W**			
	L 35 L 50	**820 W/1000 W**				**1110 W/1120 W**			

Rated current max.		3.2 A/3.8 A		1.9 A/2.2 A		4.2 A/4.8 A		2.4 A/2.8 A
Start-up current		11.0 A/12.0 A		6.3 A/6.9 A		22.0 A/24.0 A		12.7 A/13.8 A
Pre-fuse T		10.0 A/10.0 A		6.0 A/6.0 A		16.0 A/16.0 A		10.0 A/10.0 A
Power consumption Pel to DIN 3168	L 35 L 35	525 W/630 W		540 W/650 W		560 W/710 W		570 W/725 W
	L 35 L 50	605 W/725 W		625 W/750 W		670 W/840 W		680 W/860 W
Refrigeration factor ε = Q̇K/Pel	L 35 L 35	2.1						
Refrigerant		R134a, 675 g				R134a, 800 g		
Permissible operating pressure p. max.		23 bar				26 bar		
Temperature and setting range		+20°C to +55°C						
Protection category to EN 60 529/10.91	External circuit	IP 24						
	Internal circuit	IP 54						
Duty cycle		100 %						
Type of connection		Terminal strip						
Weight		58 kg	60 kg	61 kg	63 kg	72 kg		75 kg
Colour		RAL 7035[2]						
Air throughput of fans	External circuit	580 m³/h				600 m³/h		
	Internal circuit	420 m³/h				480 m³/h		
Temperature control		Internal thermostat or microcontroller control (factory setting +35°C)						

Accessories	Packs of			Page
Metal filters	1	3284.200		669
Door-operated switch	1	4127.000		956
Temperature indicator	1	3114.100		660
Air diverter	1	3213.300	–	659

[1] Delivery times available on request.
[2] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **TS 8 enclosures** From page 142 **Configuration software** Page 1063

Doors, for installing on 800 mm wide TS 8 enclosures, useful cooling output 1500 W

Property rights:
German patent no. 196 09 794
European patent no. 0 886 994
with validity for ES, FR, GB, IT, NL, SE
Taiwanese patent no. N 11 05 287
US patent no. 6,134,109
South Korean patent no. 0 299 406
Japanese patent no. 3 295 093

B = Width
T = Depth

Supply includes:
Climate control door unit with pre-fitted cooling module, including TS 8 hinges, door opening angle approx. 110°.

! Also required:
Base/plinth, 100 or 200 mm high, see page 835.

⇄ Optionally available:
Automatic condensate evaporation.

Approvals,
see page 66/67.

Detailed drawing,
see page 1165.

Performance diagrams,
available on the Internet.

Model No. SK with thermostat		3308.880[1]	3308.800[1]	3308.884[1]	3308.840[1]
Model No. SK with microcontroller		3308.580[1]	3308.500	3308.590[1]	3308.540
Rated operating voltage V, Hz		230, 50/60	400, 2~, 50/60		
Dimensions in mm	B1	792	792	792	792
	B2	661	661	661	661
	H	1777.5	1977.5	1777.5	1977.5
	T1	157	157	157	157
	T2	57	57	57	57
Dimensions to fit TS enclosures mm	B	800	800	800	800
	H	1800	2000	1800	2000
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	1500 W/1510 W			
	L 35 L 50	1065 W/1240 W			

Rated current max.		4.0 A/4.5 A	2.3 A/2.6 A
Start-up current		9.0 A/10.0 A	5.2 A/5.7 A
Pre-fuse T		10.0 A/10.0 A	6.0 A/6.0 A
Power consumption P_{el} to DIN 3168	L 35 L 35	650 W/750 W	670 W/780 W
	L 35 L 50	750 W/850 W	780 W/880 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	2.3	
Refrigerant		R134a, 700 g	
Permissible operating pressure p. max.		23 bar	
Temperature and setting range		+20°C to +55°C	
Protection category to EN 60 529/10.91	External circuit	IP 24	
	Internal circuit	IP 54	
Duty cycle		100 %	
Type of connection		Terminal strip	
Weight		65 kg · 67 kg · 68 kg · 70 kg	
Colour		RAL 7035[2]	
Air throughput of fans	External circuit	600 m³/h	
	Internal circuit	480 m³/h	
Temperature control		Internal thermostat or microcontroller control (factory setting +35°C)	

Accessories	Packs of		Page
Metal filters	1	3288.200	669
Door-operated switch	1	4127.000	956
Temperature indicator	1	3114.100	660
Air diverter	1	Available on request.	–

[1] Delivery times available on request.
[2] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.1

Climate control doors

Climate control doors

Doors, for installing on 600 mm wide TS 8 enclosures, useful cooling output 2000/2500

B = Width
T = Depth

Supply includes:
Climate control door unit with pre-fitted cooling module, including TS 8 hinges, door opening angle approx. 110°.

Note:
Climate control doors for two-door TS 8 enclosures, see page 587/588.

! Also required:
Base/plinth, 100 or 200 mm high, see page 835.

⇄ Optionally available:
Automatic condensate evaporation.

Approvals,
see page 66/67.

Detailed drawing,
see page 1165.

Performance diagrams,
available on the Internet.

Model No. SK with thermostat		3309.880[1]	3309.800	3309.884[1]	3309.840[1]	3310.880[1]	3310.800
Model No. SK with microcontroller		3309.580[1]	3309.500	3309.590[1]	3309.540	3310.580[1]	3310.500[1]
Rated operating voltage V, Hz		230, 50/60		400, 2~, 50/60		400, 3~, 50/60	
Dimensions in mm	B1	592	592	592	592	592	592
	B2	461	461	461	461	461	461
	H	1777.5	1977.5	1777.5	1977.5	1777.5	1977.5
	T1	190	190	190	190	220	220
	T2	90	90	90	90	120	120
Dimensions to fit TS enclosures mm	B	600	600	600	600	600	600
	H	1800	2000	1800	2000	1800	2000
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	2000 W/2010 W				2500 W/2550 W	
	L 35 L 50	1420 W/1650 W				1650 W/1750 W	

Rated current max.		5.8 A/6.3 A	3.4 A/3.6 A	3.0 A/3.2 A	
Start-up current		26.0 A/29.0 A	15.0 A/16.5 A	14.0 A/16.0 A	
Pre-fuse T		16.0 A/16.0 A	10.0 A/10.0 A	6.0 A/6.0 A	
Power consumption P_{el} to DIN 3168	L 35 L 35	960 W/1070 W	985 W/1100 W	1330 W/1640 W	
	L 35 L 50	1030 W/1180 W	1055 W/1210 W	1580 W/2000 W	
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	2.1		1.9	
Refrigerant		R134a, 925 g		R134a, 975 g	
Permissible operating pressure p. max.		28 bar			
Temperature and setting range		+20°C to +55°C			
Protection category to EN 60 529/10.91	External circuit	IP 24			
	Internal circuit	IP 54			
Duty cycle		100 %			
Type of connection		Terminal strip			
Weight		72 kg	74 kg	75 kg	77 kg	74 kg	76 kg
Colour		RAL 7035[2]			
Air throughput of fans	External circuit	630 m³/h		700 m³/h	
	Internal circuit	520 m³/h		620 m³/h	
Temperature control		Internal thermostat or microcontroller control (factory setting +35°C)			

Accessories	Packs of			Page
Metal filters	1	3284.200		669
Door-operated switch	1	4127.000		956
Temperature indicator	1	3114.100		660

[1] Delivery times available on request.
[2] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.1

Climate control doors

Doors, for installing on 1200 mm wide TS 8 enclosures, useful cooling output 1100/1500

B = Width
T = Depth

Property rights:
German patent no. 196 09 794
European patent no. 0 886 994
with validity for ES, FR, GB, IT, NL, SE
Taiwanese patent no. N 11 05 287
US patent no. 6,134,109
South Korean patent no. 0 299 406
Japanese patent no. 3 295 093

Supply includes:
Climate control door unit with pre-fitted cooling module, including TS 8 hinges, door opening angle approx. 110°.

Note:
With the device positioned on the right, one pack consists of a climate control door for installing in the right-hand half of the enclosure, plus a special lockable door for the left-hand half.

With the device positioned on the left, one pack consists of a climate control door for installing on the left-hand half of the enclosure. The existing lockable door on the right may be used.

Climate control doors for single-door TS 8 enclosures, see page 584 – 588.

! Also required:
Base/plinth, 100 or 200 mm high, see page 835.

⇄ Optionally available:
Automatic condensate evaporation.

Approvals, see page 67.

Detailed drawing, see page 1165.

Performance diagrams, available on the Internet.

Model No. SK with thermostat[1]	left	3306.270	3306.230	3306.470	3306.430	3307.270	3307.230	3307.470	3307.430
	right	3306.250	3306.210	3306.450	3306.410	3307.250	3307.210	3307.450	3307.410
Model No. SK with microcontroller[1]	left	3306.570	3306.530	3306.670	3306.630	3307.570	3307.530	3307.670	3307.630
	right	3306.550	3306.510	3306.650	3306.610	3307.550	3307.510	3307.650	3307.610
Rated operating voltage V, Hz		230, 50/60		400, 2~, 50/60		230, 50/60		400, 2~, 50/60	
Dimensions in mm	B1	592	592	592	592	592	592	592	592
	B2	461	461	461	461	461	461	461	461
	H	1777.5	1977.5	1777.5	1977.5	1777.5	1977.5	1777.5	1977.5
	T1	157	157	157	157	190	190	190	190
	T2	57	57	57	57	90	90	90	90
Dimensions to fit TS enclosures mm	B	1200	1200	1200	1200	1200	1200	1200	1200
	H	1800	2000	1800	2000	1800	2000	1800	2000
Useful cooling output Q̇K to DIN 3168	L 35 L 35	1100 W/1250 W				1500 W/1680 W			
	L 35 L 50	820 W/1000 W				1110 W/1120 W			

Rated current max.		3.2 A/3.8 A	1.9 A/2.2 A	4.2 A/4.8 A	2.4 A/2.8 A
Start-up current		11.0 A/12.0 A	6.3 A/6.9 A	22.0 A/24.0 A	12.7 A/13.8 A
Pre-fuse T		10.0 A/10.0 A	6.0 A/6.0 A	16.0 A/16.0 A	10.0 A/10.0 A
Power consumption P_{el} to DIN 3168	L 35 L 35	525 W/630 W	540 W/650 W	560 W/710 W	570 W/725 W
	L 35 L 50	605 W/725 W	625 W/750 W	670 W/840 W	680 W/860 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	2.1			
Refrigerant		R134a, 675 g		R134a, 800 g	
Permissible operating pressure p. max.		23 bar		26 bar	
Temperature and setting range		+20°C to +55°C			
Protection category to EN 60 529/10.91	External circuit	IP 24			
	Internal circuit	IP 54			
Duty cycle		100 %			
Type of connection		Terminal strip			
Weight		58 kg	60 kg	61 kg	63 kg	72 kg	75 kg
Colour		RAL 7035[2]			
Air throughput of fans	External circuit	580 m³/h		600 m³/h	
	Internal circuit	420 m³/h		480 m³/h	
Temperature control		Internal thermostat or microcontroller control (factory setting +35°C)			

Accessories	Packs of			Page
Metal filters	1	3284.200		669
Door-operated switch	1	4127.000		956
Temperature indicator	1	3114.100		660
Air diverter	1	3213.300	–	659

[1] Delivery times on request. [2] RAL 7032 on request. Special voltages available on request. Technical modifications reserved.

B
4.1
Climate control doors

Climate control doors

Doors, for installing on 1200 mm wide TS 8 enclosures, useful cooling output 2000/2500

B = Width
T = Depth

Supply includes:
Climate control door unit with pre-fitted cooling module, including TS 8 hinges, door opening angle approx. 110°.

Note:
With the device positioned on the right, one pack consists of a climate control door for installing in the right-hand half of the enclosure, plus a special lockable door for the left-hand half.

With the device positioned on the left, one pack consists of a climate control door for installing on the left-hand half of the enclosure. The existing lockable door on the right may be used.

Climate control doors for single-door TS 8 enclosures, see page 584 – 588.

! Also required:
Base/plinth, 100 or 200 mm high,
see page 835.

⇄ Optionally available:
Automatic condensate evaporation.

Approvals, see page 67.

Detailed drawing, see page 1165.

Performance diagrams, available on the Internet.

Model No. SK with thermostat[1]	left	3309.210	3309.140	3309.410	3309.440	3310.150	3310.130
	right	3309.170	3309.120	3309.470	3309.420	3310.250	3310.230
Model No. SK with microcontroller[1]	left	3309.510	3309.530	3309.610	3309.640	3310.550	3310.530
	right	3309.570	3309.520	3309.670	3309.620	3310.650	3310.630
Rated operating voltage V, Hz		230, 50/60		400, 2~, 50/60		400, 3~, 50/60	
Dimensions in mm	B1	592	592	592	592	592	592
	B2	461	461	461	461	461	461
	H	1777.5	1977.5	1777.5	1977.5	1777.5	1977.5
	T1	190	190	190	190	220	220
	T2	90	90	90	90	120	120
Dimensions to fit TS enclosures mm	B	1200	1200	1200	1200	1200	1200
	H	1800	2000	1800	2000	1800	2000
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	2000 W/2010 W				2500 W/2550 W	
	L 35 L 50	1420 W/1650 W				1650 W/1750 W	

Rated current max.		5.8 A/6.3 A	3.4 A/3.6 A	3.0 A/3.2 A	
Start-up current		26.0 A/29.0 A	15.0 A/16.5 A	14.0 A/16.0 A	
Pre-fuse T		16.0 A/16.0 A	10.0 A/10.0 A	6.0 A/6.0 A	
Power consumption P_{el} to DIN 3168	L 35 L 35	960 W/1070 W	985 W/1100 W	1330 W/1640 W	
	L 35 L 50	1030 W/1180 W	1055 W/1210 W	1580 W/2000 W	
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	2.1		1.9	
Refrigerant		R134a, 925 g		R134a, 975 g	
Permissible operating pressure p. max.		28 bar			
Temperature and setting range		+20°C to +55°C			
Protection category to EN 60 529/10.91	External circuit	IP 24			
	Internal circuit	IP 54			
Duty cycle		100 %			
Type of connection		Terminal strip			
Weight		72 kg	74 kg	75 kg	77 kg	74 kg	76 kg
Colour		RAL 7035[2]			
Air throughput of fans	External circuit	630 m³/h		700 m³/h	
	Internal circuit	520 m³/h		620 m³/h	
Temperature control		Internal thermostat or microcontroller control (factory setting +35°C)			

Accessories	Packs of			Page
Metal filters	1	3284.200		669
Door-operated switch	1	4127.000		956
Temperature indicator	1	3114.100		660

[1] Delivery times on request. [2] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **TS 8 enclosures** From page 142 **Configuration software** Page 1063

Panels, for installing on 600 mm deep TS 8 enclosures, useful cooling output 1100/1400
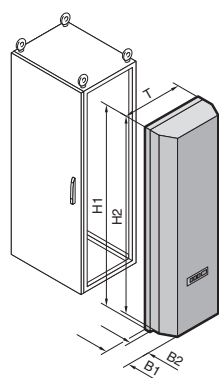
B = Width
T = Depth

Supply includes:
Climate control side panel with pre-fitted cooling module.

! Also required:
Base/plinth, 100 or 200 mm high,
see page 835.

⇄ Optionally available:
Microcontroller control with
● digital temperature indicator,
● floating contact for collective fault signal,
● connection for door operated switch for start-up delay.

Automatic condensate evaporation.

Approvals,
see page 68.

Performance diagrams,
can be found on the Internet.

Model No. SK		3331.116	3331.316	3331.140[1]	3331.340[1]	3331.216[1]	3331.416	3331.240[1]	3331.440[1]
Rated operating voltage V, Hz		230, 50/60		400, 2~, 50/60		230, 50/60		400, 2~, 50/60	
Dimensions in mm	B1	171	171	171	171	171	171	171	171
	B2	157	157	157	157	157	157	157	157
	H1	1797	1997	1797	1997	1797	1997	1797	1997
	H2	1782.5	1982.5	1782.5	1982.5	1782.5	1982.5	1782.5	1982.5
	T	562	562	562	562	562	562	562	562
Dimensions to fit TS enclosures mm	H	1800	2000	1800	2000	1800	2000	1800	2000
	T	600	600	600	600	600	600	600	600
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	**1100 W/1200 W**				**1400 W/1450 W**			
	L 35 L 50	**730 W/830 W**				**1010 W/1060 W**			

Rated current max.		4.0 A/4.6 A	2.3 A/2.7 A	4.0 A/4.6 A	2.3 A/2.7 A
Start-up current		11.0 A/12.0 A	6.4 A/6.9 A	11.0 A/12.0 A	6.4 A/6.9 A
Pre-fuse T		6.0 A/6.0 A		6.0 A/6.0 A	
Power consumption P_{el} to DIN 3168	L 35 L 35	670 W/850 W	690 W/870 W	710 W/910 W	725 W/930 W
	L 35 L 50	800 W/1000 W	820 W/1020 W	810 W/1030 W	830 W/1050 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.6		2.0	1.9
Refrigerant		R134a, 825 g		R134a, 875 g	
Permissible operating pressure p. max.		25 bar		24 bar	
Temperature and setting range		+20°C to +50°C			
Protection category to EN 60 529/10.91	External circuit	IP 34			
	Internal circuit	IP 54			
Duty cycle		100 %			
Type of connection		Terminal strip			
Weight		58 kg	62 kg	58 kg	62 kg
Colour		RAL 7035[2]			
Air throughput of fans	External circuit	550 m³/h			
	Internal circuit	275 m³/h			
Temperature control		Internal thermostat (factory setting +35°C)			

Accessories	Packs of			Page
Metal filters	1	3289.200		669
Door-operated switch	1	4127.000		956
Temperature indicator	1	3114.100		660
Air diverter	1	3213.300		659

[1] Delivery times available on request.
[2] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.1

Climate control side panels

Roof-mounted cooling units

Useful cooling output 500/750 W

Property rights:
German registered design
no. 402 02 324
German registered design
no. 402 02 325

RITTAL TOP THERM

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Note:
Cooling units with Comfort controller may be integrated e.g. into superordinate remote monitoring systems by way of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

Accessories:
Roof plate for TS 8 with mounting cutout, see page 664.

Optionally available:
With automatic condensate evaporation.

Approvals,
see page 68/69.

Detailed drawing,
see page 1166.

Performance diagrams,
available on the Internet.

Model No. SK with Basic controller, RAL 7035		3382.100	3382.110	3359.100	3359.110	3359.140
Model No. SK with Comfort controller, RAL 7035		3382.500	3382.510	3359.500	3359.510	3359.540
Model No. SK with Basic controller, stainless steel[1]		3382.200	3382.210	3359.200	3359.210	3359.240
Model No. SK with Comfort controller, stainless steel[1]		3382.600	3382.610	3359.600	3359.610	3359.640
Rated operating voltage V, Hz		230, 50/60	115, 50/60	230, 50/60	115, 50/60	400, 2~, 50/60
Dimensions in mm WHD		597 x 415 x 375				
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	500 W/510 W		750 W/810 W		
	L 35 L 50	270 W/370 W		545 W/590 W		

Rated current max.		2.7 A/2.9 A	5.5 A/6.0 A	3.0 A/3.9 A	6.0 A/7.8 A	1.7 A/2.2 A
Start-up current		9.2 A/10.2 A	18.4 A/18.4 A	10.0 A/10.7 A	20.0 A/21.4 A	5.8 A/6.2 A
Pre-fuse T		10.0 A/10.0 A	10.0 A/10.0 A	10.0 A/10.0 A	16.0 A/16.0 A	10.0 A/10.0 A
Power consumption P_{el} to DIN 3168	L 35 L 35	360 W/410 W	370 W/420 W	410 W/520 W	420 W/535 W	
	L 35 L 50	410 W/450 W	420 W/470 W	490 W/600 W	500 W/615 W	
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.4		1.8		
Refrigerant		R134a, 250 g		R134a, 300 g		
Permissible operating pressure p. max.		25 bar				
Temperature and setting range		+20°C to +55°C				
Protection category to EN 60 529/10.91	External circuit	IP 34				
	Internal circuit	IP 54				
Duty cycle		100 %				
Type of connection		Plug-in terminal strip				
Weight		30 kg	35 kg	32 kg	37 kg	
Air throughput of fans (unimpeded air flow)	External circuit	910 m³/h				
	Internal circuit	440 m³/h				
Temperature control		Basic or Comfort controller (factory setting +35°C)				

Accessories	Packs of			Page
Filter mats	3	3286.500		668
Metal filters	1	3286.510		669
Quick-change frame	1	3286.700		665
Door-operated switch	1	4127.000		956
SK bus system for Comfort controller	1	3124.100		663
RiDiag II including cables for Comfort controller	1	3159.100		1063
Interface card for Comfort controller	1	3124.200		662
Air ducting system	1	3286.870		658
Cover stoppers for interior air outlet	2	3286.780		658
Condensate hose	1	3301.612		665

[1] Delivery times on request. Special voltages available on request. Technical modifications reserved.

Accessories Page 657 **Configuration software** Page 1063

Useful cooling output 1000 W

Property rights:
German registered design
no. 402 02 324
German registered design
no. 402 02 325

597

415

475

490

390

RITTAL
TOP
THERM

Supply includes:
Fully wired ready for connec-
tion, including drilling template
and assembly parts.

Note:
Integration of the cooling units
with Comfort controller, e.g. into
superordinate remote monitor-
ing systems, can be achieved
by means of an optional inter-
face board **SK 3124.200**
(RS 232, RS 485, RS 422 and
PLC interface).

Accessories:
Roof plate for TS 8 with mount-
ing cutout, see page 664.

Optionally available:
With automatic condensate
evaporation.

Approvals,
see page 68/69.

Detailed drawing,
see page 1166.

Performance diagrams,
available on the Internet.

B
4.1

Roof-mounted cooling units

Model No. SK with Basic controller, RAL 7035		3383.100	3383.110	3383.140
Model No. SK with Comfort controller, RAL 7035		3383.500	3383.510	3383.540
Model No. SK with Basic controller, stainless steel[1]		3383.200	3383.210	3383.240
Model No. SK with Comfort controller, stainless steel[1]		3383.600	3383.610	3383.640
Rated operating voltage V, Hz		230, 50/60	115, 50/60	400, 2~, 50/60
Dimensions in mm	WHD	597 x 415 x 475		
Useful cooling output $\dot{Q}_K$ **to DIN 3168**	**L 35 L 35**	1000 W/1080 W		
	L 35 L 50	760 W/820 W		

Rated current max.		4.3 A/4.5 A	8.3 A/8.7 A	2.4 A/2.4 A
Start-up current		15.5 A/15.5 A	25.3 A/24.3 A	8.0 A/8.8 A
Pre-fuse T		10.0 A/10.0 A	16.0 A/16.0 A	10.0 A/10.0 A
Power consumption P_{el} to DIN 3168	L 35 L 35	550 W/650 W	580 W/660 W	
	L 35 L 50	660 W/750 W	670 W/755 W	
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.8		
Refrigerant		R134a, 500 g		
Permissible operating pressure p. max.		25 bar		
Temperature and setting range		+20°C to +55°C		
Protection category to EN 60 529/10.91	External circuit	IP 34		
	Internal circuit	IP 54		
Duty cycle		100 %		
Type of connection		Plug-in terminal strip		
Weight		40 kg	46 kg	46 kg
Air throughput of fans	External circuit	1760 m³/h		
	Internal circuit	440 m³/h		
Temperature control		Basic or Comfort controller (factory setting +35°C)		

Accessories	Packs of			Page
Filter mats	3	3286.500		668
Metal filters	1	3286.510		669
Quick-change frame	1	3286.800		665
Door-operated switch	1	4127.000		956
SK bus system for Comfort controller	1	3124.100		663
RiDiag II including cables for Comfort controller	1	3159.100		1063
Interface card for Comfort controller	1	3124.200		662
Air ducting system	1	3286.870		658
Cover stoppers for interior air outlet	2	3286.880		658
Condensate hose	1	3301.612		665

[1] Delivery times on request. Special voltages available on request. Technical modifications reserved.

Accessories Page 657 **Configuration software** Page 1063

Useful cooling output 1100 W

Property rights:
German registered design
no. 402 02 324
German registered design
no. 402 02 325

597
415
475
490
390

RITTAL
TOP
THERM

Especially for office applica-tions. Low noise level (consider-ably quieter than cooling units for industrial applications).

Supply includes:
Fully wired ready for connec-tion, including automatic con-densate evaporation, drilling template and assembly parts.

Note:
Integration of the cooling units with Comfort controller, e.g. into superordinate remote monitor-ing systems, can be achieved by means of an optional inter-face board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

✚ Accessories:

Roof plate for TS 8 with mount-ing cutout, see page 664.

Approvals,
see page 68.

Detailed drawing,
see page 1166.

Performance diagrams,
available on the Internet.

Model No. SK with Comfort controller		3273.500	3273.515[1]
Rated operating voltage V, Hz		230, 50/60	115, 50/60
Dimensions in mm	WHD	597 x 415 x 475	
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35 L 35 L 50	1100 W/1200 W 850 W/870 W	

Rated current max.		5.2 A/5.4 A	11.0 A/11.5 A
Start-up current		15.5 A/16.5 A	32.0 A/35.0 A
Pre-fuse T		10.0 A/10.0 A	20.0 A/20.0 A
Power consumption P_{el} to DIN 3168	L 35 L 35 L 35 L 50	890 W/910 W 960 W/1100 W	920 W/940 W 990 W/1140 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.2	
Refrigerant		R134a, 700 g	
Permissible operating pressure p. max.		25 bar	
Temperature and setting range		+20°C to +55°C	
Protection category to EN 60 529/10.91	External circuit	IP 34	
	Internal circuit	IP 54[2]	
Duty cycle		100 %	
Type of connection		Plug-in terminal strip	
Weight		42 kg	47 kg
Colour		RAL 7035	
Air throughput of fans	External circuit	1760 m³/h	
	Internal circuit	440 m³/h	
Temperature control		Basic or Comfort controller (factory setting +35°C)	

Accessories	Packs of		Page
Filter mats	3	3286.100	668
Metal filters	1	3286.210	669
Door-operated switch	1	4127.000	956
SK bus system for Comfort controller	1	3124.100	663
RiDiag II including cables for Comfort controller	1	3159.100	1063
Interface card for Comfort controller	1	3124.200	662
Air ducting system	1	3286.870	658
Cover stoppers for interior air outlet	2	3286.980	658
Condensate hose	1	3301.612	665

[1] Delivery times available on request.
[2] In order to avoid increased condensation, we recommend enclosures with a protection category of at least IP 54.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.1
Roof-mounted cooling units

Useful cooling output 1500/2000 W

Property rights:
German registered design
no. 402 02 324
German registered design
no. 402 02 325

RITTAL TOP THERM

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Note:
Integration of the cooling units with Comfort controller, e. g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

⊞ Accessories:

Roof plate for TS 8 with mounting cutout, see page 664.

⇄ Optionally available:

With automatic condensate evaporation.

Approvals,
see page 68/69.

Detailed drawing,
see page 1166.

Performance diagrams,
available on the Internet.

Model No. SK with Basic controller, RAL 7035		3384.100	3384.110	3384.140	3385.100	3385.110	3385.140
Model No. SK with Comfort controller, RAL 7035		3384.500	3384.510	3384.540	3385.500	3385.510	3385.540
Model No. SK with Basic controller, stainless steel[1]		3384.200	3384.210	3384.240	3385.200	3385.210	3385.240
Model No. SK with Comfort controller, stainless steel[1]		3384.600	3384.610	3384.640	3385.600	3385.610	3385.640
Rated operating voltage V, Hz		230, 50/60	115, 50/60	400, 2~, 50/60	230, 50/60	115, 50/60	400, 2~,50/60
Dimensions in mm	WHD	597 x 415 x 475			597 x 415 x 475		
Useful cooling output $\dot{Q}_K$	**L 35 L 35**	**1500 W/1520 W**			**2000 W/2130 W**		
to DIN 3168	**L 35 L 50**	**1100 W/1210 W**			**1570 W/1670 W**		

Rated current max.		5.7 A/6.8 A	12.5 A/14.1 A	3.4 A/4.0 A	5.7 A/6.6 A	13.0 A/14.2 A	3.3 A/3.8 A
Start-up current		16.6 A/17.1 A	30.7 A/29.1 A	9.8 A/9.6 A	16.8 A/18.4 A	36.0 A/32.0 A	10.0 A/12.0 A
Pre-fuse T		10.0 A/10.0 A	20.0 A/20.0 A	10.0 A/10.0 A	10.0 A/10.0 A	20.0 A/20.0 A	10.0 A/10.0 A
Power consumption P_{el}	L 35 L 35	815 W/930 W	850 W/950 W		1000 W/1175 W	1050 W/1250 W	
to DIN 3168	L 35 L 50	950 W/1090 W	1000 W/1150 W		1100 W/1310 W	1160 W/1380 W	
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.8			2.0		
Refrigerant		R134a, 500 g			R134a, 950 g		
Permissible operating pressure p. max.		25 bar					
Temperature and setting range		+20°C to +55°C					
Protection category	External circuit	IP 34					
to EN 60 529/10.91	Internal circuit	IP 54					
Duty cycle		100 %					
Type of connection		Plug-in terminal strip					
Weight		41 kg	47 kg	47 kg	42 kg	48 kg	48 kg
Air throughput of fans	External circuit	1760 m³/h			1820 m³/h		
	Internal circuit	470 m³/h					
Temperature control		Basic or Comfort controller (factory setting +35°C)					

| Accessories	Packs of			Page
Filter mats	3	3286.500		668
Metal filters	1	3286.510		669
Quick-change frame	1	3286.800		665
Door-operated switch	1	4127.000		956
SK bus system for Comfort controller	1	3124.100		663
RiDiag II including cables for Comfort controller	1	3159.100		1063
Interface card for Comfort controller	1	3124.200		662
Air ducting system	1	3286.870		658
Cover stoppers for interior air outlet	2	3286.880		658
Condensate hose	1	3301.612		665

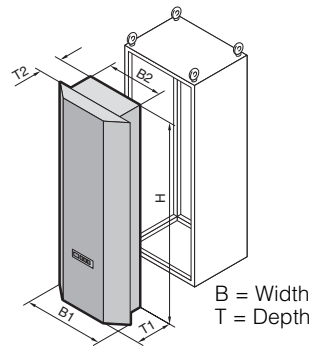[1] Delivery times available on request.
Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **Configuration software** Page 1063

B
4.1

Roof-mounted cooling units

Useful cooling output 3000/4000 W

Supply includes:
Fully wired ready for connection, including drilling template, eyebolt and assembly parts.

Note:
Integration of the cooling units with Comfort controller, e.g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

Accessories:
Roof plate for TS 8 with mounting cutout, see page 664.

Optionally available:
With automatic condensate evaporation.

Approvals,
see page 68/69.

Detailed drawing,
see page 1166.

Performance diagrams,
available on the Internet.

RITTAL
TOP-
THERM

B

4.1

Roof-mounted cooling units

Model No. SK with Basic controller, RAL 7035	3386.140	3387.140
Model No. SK with Comfort controller, RAL 7035	3386.540	3387.540
Model No. SK with Basic controller, stainless steel[1]	3386.240	3387.240
Model No. SK with Comfort controller, stainless steel[1]	3386.640	3387.640
Rated operating voltage V, Hz	400, 50/460, 60, 3~	400, 50/460, 60, 3~
Dimensions in mm WHD	796 x 470 x 580	796 x 470 x 580
Useful cooling output $\dot{Q}_K$ L 35 L 35 to DIN 3168 L 35 L 50	3000 W/3300 W 2460 W/2750 W	4000 W/4200 W 3250 W/3490 W

Rated current max.		3.0 A/3.1 A	3.5 A/3.6 A
Start-up current		8.0 A/9.0 A	17.0 A/19.0 A
Pre-fuse T		Motor circuit breaker 10.0 A/10.0 A	
Power consumption P_{el} L 35 L 35 to DIN 3168 L 35 L 50		1180 W/1490 W 1430 W/1770 W	1620 W/2060 W 1870 W/2340 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$ L 35 L 35		2.5	
Refrigerant		R134a, 1600 g	R134a, 1800 g
Permissible operating pressure p. max.		25 bar	
Temperature and setting range		+20°C to +55°C	
Protection category	External circuit	IP 34	
to EN 60 529/10.91	Internal circuit	IP 54	
Duty cycle		100 %	
Type of connection		Plug-in terminal strip	
Weight		70 kg	77 kg
Air throughput of fans	External circuit	3450 m³/h	3870 m³/h
	Internal circuit	1280 m³/h	1420 m³/h
Temperature control		Basic or Comfort controller (factory setting +35°C)	

Accessories	Packs of		Page
Filter mats	3	3286.600	668
Metal filters	1	3286.610	669
Quick-change frame	1	3286.900	665
Door-operated switch	1	4127.000	956
SK bus system for Comfort controller	1	3124.100	663
RiDiag II including cables for Comfort controller	1	3159.100	1063
Interface card for Comfort controller	1	3124.200	662
Air ducting system	1	3286.970	658
Cover stoppers for interior air outlet	2	3286.980	658
Condensate hose	1	3301.612	665

[1] Delivery times on request. Special voltages available on request. Technical modifications reserved.

Accessories Page 657 **Configuration software** Page 1063

VIP small cooling units, useful cooling output 225 W
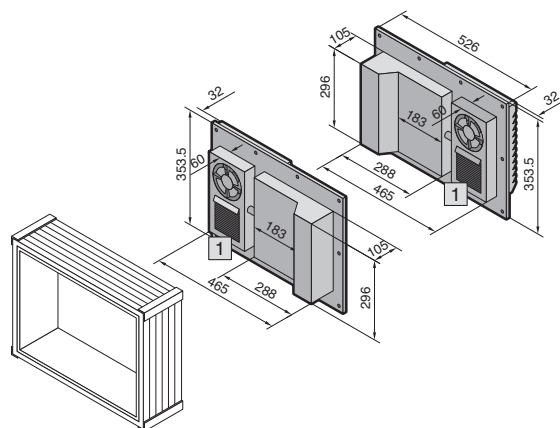
The new VIP small cooling units were developed especially for cooling the VIP 6000 command panel. In addition, VIP small cooling units also offer a space-saving, economical solution for the climate control of small enclosures where small heat loads are generated by the system.

Supply includes:
Fully wired ready for connection and pre-mounted on an aluminium rear panel to fit VIP 6000 operating housing 7 U.

Property rights:
German patent no. 198 17 917

1 **Distance from installed equipment at least 60 mm**

Approvals,
see page 69.

Performance diagrams,
available on the Internet.

Model No. SK		3201.100	3202.100
Condenser version		left	right
Rated operating voltage V, Hz		230, 50/60	
Dimensions in mm	W	526	
	H	353.5	
	D	105	
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	225 W/270 W	
	L 35 L 45	160 W/200 W	

Rated current max.		1.5 A/1.5 A
Start-up current		1.9 A/2.0 A
Pre-fuse T		4.0 A/4.0 A
Power consumption P_{el} to DIN 3168	L 35 L 35	285 W/300 W
	L 35 L 45	315 W/325 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	0.8/0.9
Refrigerant		R134a, 170 g
Permissible operating pressure p. max.		27 bar
Temperature and setting range		+20°C to +45°C
Protection category to EN 60 529/10.91	External circuit	IP 24
	Internal circuit	IP 54
Duty cycle		100 %
Type of connection		Terminal strip
Weight		10.5 kg
Colour		Rear panel aluminium, vent grille RAL 7035
Air throughput of fans	External circuit	235 m³/h / 270 m³/h
	Internal circuit	160 m³/h / 180 m³/h
Temperature control		Electronic control (factory setting +35°C)

Accessories	Packs of		Page
Temperature indicator	1	3114.100	660
Condensate hose	1	3301.608	665

Special voltages available on request. We reserve the right to make technical modifications.

B

4.1

Wall-mounted cooling units

Wall-mounted cooling units

Mini cooling unit in horizontal format, useful cooling output 300 W
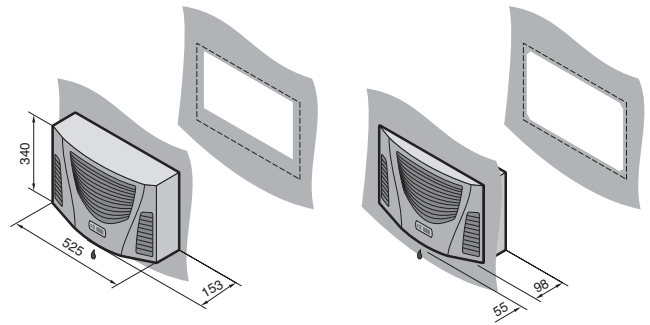
Mini cooling units in horizontal format, ideal for cooling small and operating housings with optimum space utilisation.

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Approvals,
see page 69.

Detailed drawing,
see page 1167.

Performance diagrams,
available on the Internet.

RITTAL
TOP
THERM

B
4.1
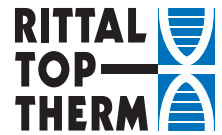
Wall-mounted cooling units

Model No. SK		3302.300	3302.310
Rated operating voltage V, Hz		230, 50/60	115, 60
Dimensions in mm	W	525	
	H	340	
	D	153	
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	300 W/320 W	
	L 35 L 50	150 W/160 W	

Rated current max.		1.6 A/1.7 A	3.3 A
Start-up current		4.3 A/5.3 A	8.0 A
Pre-fuse T		10 A/10 A	10 A
Power consumption P_{el} to DIN 3168	L 35 L 35	285 W/300 W	290 W
	L 35 L 50	320 W/340 W	340 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.1	
Refrigerant		R134a, 100 g	
Permissible operating pressure p. max.		25 bar	
Temperature and setting range		+20°C to +55°C	
Protection category to EN 60 529/10.91	External circuit	IP 34	
	Internal circuit	IP 54	
Duty cycle		100 %	
Type of connection		Plug-in terminal strip	
Weight		13 kg	
Colour		RAL 7035	
Air throughput of fans	External circuit	345 m³/h	
	Internal circuit	310 m³/h	
Temperature control		Basic controller	

Accessories	Packs of		Page
Temperature indicator	1	3114.100	660
Condensate hose	1	3301.608	665
Filter mats	3	3286.110	668
Metal filters	1	3286.120	669

Special voltages available on request. We reserve the right to make technical modifications.

Useful cooling output 300/500 W

B = Width
T = Depth

RITTAL TOP THERM
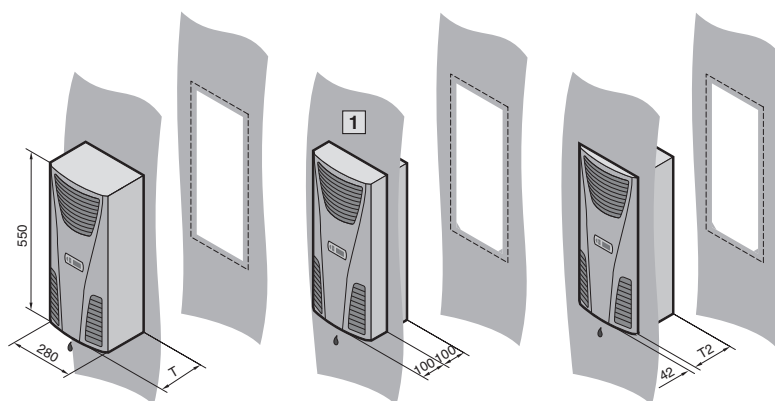
Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Note:
Integration of the cooling units with Comfort controller, e. g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

1 Partial internal mounting possible with 3303.XXX only.

Approvals, see page 69.

Detailed drawing, see page 1167.

Performance diagrams, available on the Internet.

Property rights:
German registered designs no. 402 02 324 and no. 402 02 325
Japanese registered design no. 1 187 896
Indian registered design no. 189 953
US design patent no. D 488,480
IR reg. design no. DM/061 967 with validity for FR, IT, ES

		3302.100	3302.110	3303.100	3303.110
Model No. SK with Basic controller, RAL 7035		3302.100	3302.110	3303.100	3303.110
Model No. SK with Comfort controller, RAL 7035		–	–	3303.500	3303.510
Model No. SK with Basic controller, stainless steel[1]		3302.200	3302.210	3303.200	3303.210
Model No. SK with Comfort controller, stainless steel[1]		–	–	3303.600	3303.610
Rated operating voltage V, Hz		230, 50/60	115, 60	230, 50/60	115, 60
Dimensions in mm	B H T T2	280 550 140 98		280 550 200 158	
Useful cooling output $\dot{Q}_K$	**L 35 L 35**	**300 W/320 W**	**300 W**	**500 W/610 W**	**500 W**
to DIN 3168	**L 35 L 50**	**150 W/170 W**	**150 W**	**280 W/350 W**	**280 W**

Rated current max.		1.6 A/1.7 A	3.3 A	2.6 A/2.6 A	5.7 A
Start-up current		3.0 A/3.4 A	8.0 A	5.1 A/6.4 A	11.5 A
Pre-fuse T		10.0 A/10.0 A	10.0 A	10.0 A/10.0 A	10.0 A
Power consumption P_{el}	L 35 L 35	245 W/255 W	290 W	360 W/380 W	470 W
to DIN 3168	L 35 L 50	255 W/275 W	340 W	420 W/390 W	500 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.2		1.4	
Refrigerant		R134a, 100 g		R134a, 170 g	
Permissible operating pressure p. max.		25 bar		28 bar	
Temperature and setting range		+20°C to +55°C			
Protection category to EN 60 529/10.91	External circuit	IP 34			
	Internal circuit	IP 54			
Duty cycle		100 %			
Type of connection		Plug-in terminal strip			
Weight		13 kg		17 kg	
Air throughput of fans	External circuit	310 m³/h		345 m³/h	
	Internal circuit	345 m³/h		310 m³/h	
Temperature control		Basic or Comfort controller (factory setting +35°C)			

Accessories	Packs of				Page
Filter mats	3	3286.300			668
Metal filters	1	3286.310			669
Door-operated switch	1	4127.000			956
SK bus system for Comfort controller	1	–		3124.100	663
RiDiag II including cables for Comfort controller	1	–		3159.100	1063
Interface card for Comfort controller	1	–		3124.200	662
Condensate hose	1	3301.608		3301.610	665

[1] Delivery times on request. Special voltages available on request. Technical modifications reserved.

Accessories Page 657 **Configuration software** Page 1063

B
4.1

Wall-mounted cooling units

Wall-mounted cooling units

Useful cooling output 750 W

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Note:
Cooling units with Comfort controller may be integrated e.g. into superordinate remote monitoring systems by way of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

Approvals,
see page 70.

Detailed drawing,
see page 1167.

Performance diagrams,
available on the Internet.

Property rights:
German registered designs no. 402 02 324 and no. 402 02 325
Japanese registered design no. 1 187 896
Indian registered design no. 189 953
US design patent no. D 488,480
IR reg. design no. DM/061 967 with validity for FR, IT, ES

Model No. SK with Basic controller, RAL 7035		3361.100	3361.110	3361.140
Model No. SK with Comfort controller, RAL 7035		**3361.500**	**3361.510**	**3361.540**
Model No. SK with Basic controller, stainless steel[1]		**3361.200**	**3361.210**	**3361.240**
Model No. SK with Comfort controller, stainless steel[1]		**3361.600**	**3361.610**	**3361.640**
Rated operating voltage V, Hz		230, 50/60[3]	115, 60[3]	400[2], 2~, 50/60[3]
Dimensions in mm	W	280		
	H	550		
	D	280		
Useful cooling output Q̇K	**L 35 L 35**	**750 W/780 W**	**750 W**	**750 W/780 W**
to DIN 3168	**L 35 L 50**	**510 W/540 W**	**500 W**	**510 W/540 W**

Rated current max.		2.3 A/2.4 A	6.5 A	1.3 A/1.4 A
Start-up current		5.7 A/5.7 A	13.9 A	3.3 A/3.3 A
Pre-fuse T		10 A/10 A	10 A	10 A/10 A
Power consumption P$_{el}$	L 35 L 35	480 W/555 W	560 W	490 W/570 W
to DIN 3168	L 35 L 50	545 W/610 W	650 W	560 W/630 W
Refrigeration factor ε = Q̇$_K$/P$_{el}$	L 35 L 35	1.5		
Refrigerant		R134a, 280 g		
Permissible operating pressure p. max.		28 bar		
Temperature and setting range		+20°C to +55°C		
Protection category	External circuit	IP 34		
to EN 60 529/10.91	Internal circuit	IP 54		
Duty cycle		100 %		
Type of connection		Plug-in terminal strip		
Weight		22 kg		
Air throughput of fans	External circuit	480 m³/h		
(unimpeded air flow)	Internal circuit	600 m³/h		
Temperature control		Basic or Comfort controller (factory setting +35°C)		

Accessories	Packs of			Page
Filter mats	3	3286.300		668
Metal filters	1	3286.310		669
Door-operated switch	1	4127.000		956
SK bus system for Comfort controller	1	3124.100		663
RiDiag II including cables for Comfort controller	1	3159.100		1063
Interface card for Comfort controller	1	3124.200		662
Condensate hose	1	3301.608		665

[1] Delivery times on request. [2] external toroidal core transformer Ø 126 x 65 mm deep for mounting in the enclosure. [3] T$_u$ max. = 52°C/60 Hz.
Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **Configuration software** Page 1063

B

4.1

Wall-mounted cooling units

Useful cooling output 500/1000 W

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Note:
Integration of the cooling units with Comfort controller, e.g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

⇄ **Optionally available:**
With automatic condensate evaporation.

Approvals,
see page 70.

Detailed drawing,
see page 1168.

Performance diagrams,
available on the Internet.

Property rights:
German registered design no. 402 02 325
IR reg. design no. DM/062 557 with validity for FR, IT, ES
Indian registered design no. 190 269
Japanese registered design no. 1 187 905

RITTAL TOP THERM

Model No. SK with Basic controller, RAL 7035		3304.100	3304.110	3304.140	3305.100	3305.110	3305.140
Model No. SK with Comfort controller, RAL 7035		3304.500	3304.510	3304.540	3305.500	3305.510	3305.540
Model No. SK with Basic controller, stainless steel		3304.200	3304.210	3304.240	3305.200	3305.210	3305.240
Model No. SK with Comfort controller, stainless steel		3304.600	3304.610	3304.640	3305.600	3305.610	3305.640
Rated operating voltage V, Hz		230, 50/60	115[1], 50/60	400, 50/460, 60, 3~	230, 50/60	115[1], 50/60	400, 50/460, 60, 3~
Dimensions in mm	W	400			400		
	H	950			950		
	D	260			260		
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35	1000 W/1060 W			1500 W/1510 W		
	L 35 L 50	790 W/840 W			1230 W/1250 W		

Rated current max.		4.8 A/4.4 A	9.5 A/10.0 A	2.5 A/2.6 A	5.4 A/6.0 A	11.0 A/12.5 A	2.3 A/2.6 A
Start-up current		12.0 A/14.0 A	26.0 A/28.0 A	11.5 A/12.7 A	22.0 A/24.0 A	42.0 A/46.0 A	12.2 A/11.3 A
Pre-fuse T		10.0 A/10.0 A	16.0 A/16.0 A	10.0 A/10.0 A[2]	16.0 A/16.0 A	20.0 A/20.0 A	10.0 A/10.0 A[2]
Power consumption P_{el} to DIN 3168	L 35 L 35	700 W/650 W	725 W/680 W	580 W/550 W	850 W/1000 W	880 W/1050 W	800 W/980 W
	L 35 L 50	750 W/710 W	780 W/750 W	660 W/680 W	1000 W/1160 W	1040 W/1200 W	960 W/1150 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.4		1.7	1.8	1.7	1.9
Refrigerant		R134a, 500 g			R134a, 600 g		
Permissible operating pressure p. max.		25 bar					
Temperature and setting range		+20°C to +55°C					
Protection category to EN 60 529/10.91	External circuit	IP 34					
	Internal circuit	IP 54					
Duty cycle		100 %					
Type of connection		Plug-in terminal strip					
Weight		39 kg	44 kg	40 kg	41 kg	46 kg	42 kg
Air throughput of fans	External circuit	900 m³/h					
	Internal circuit	600 m³/h			800 m³/h		
Temperature control		Basic or Comfort controller (factory setting +35°C)					

Accessories	P. of						Page
Filter mats	3	3286.400					668
Metal filters	1	3286.410					669
Door-operated switch	1	4127.000					956
SK bus system for Comfort controller	1	3124.100					663
RiDiag II including cables for Comfort controller	1	3159.100					1063
Interface card for Comfort controller	1	3124.200					662
Condensate hose	1	3301.612					665

[1] Delivery times available on request. [2] Motor circuit-breaker
Optionally available with automatic condesate evaporation. Special voltages available on request. We reserve the right to make technical modifications.

B
4.1

Wall-mounted cooling units

Wall-mounted cooling units

Useful cooling output 2000/2500 W

Supply includes:
Fully wired ready for connection, including drilling template, eyebolt and assembly parts.

Note:
Integration of the cooling units with Comfort controller, e.g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

⇄ **Optionally available:**
With automatic condensate evaporation.

❗ **Also required:**
For installation in the door, the use of a ride-up roller is recommended, see page 898.

Approvals,
see page 70.

Detailed drawing,
see page 1168.

Performance diagrams,
available on the Internet.

RITTAL TOP THERM

Model No. SK with Basic controller, RAL 7035		3328.100	3328.110	3328.140	3329.100	3329.110	3329.140
Model No. SK with Comfort controller, RAL 7035		3328.500	3328.510	3328.540	3329.500	3329.510	3329.540
Model No. SK with Basic contr., stainless steel[1]		3328.200	3328.210	3328.240	3329.200	3329.210	3329.240
Model No. SK with Comfort contr., stainl. steel[1]		3328.600	3328.610	3328.640	3329.600	3329.610	3329.640
Rated operating voltage V, Hz		230, 50/60	115, 50/60	400, 50/460, 60, 3~	230, 50/60	115, 50/60	400, 50/460, 60, 3~
Dimensions in mm	W H D	400 1580 290			400 1580 290		
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35 L 35 L 50	2000 W/2350 W 1450 W/1690 W			2500 W/2750 W 1600 W/1750 W		2500 W/2700 W 1900 W/1950 W

Rated current max.		6.9 A/8.5 A	13.6 A/16.2 A	2.5 A/3.0 A	8.0 A/10.0 A	16.0 A/21.0 A	3.4 A/3.5 A
Start-up current		22.0 A/26.0 A	36.0 A/39.0 A	6.5 A/7.5 A	21.0 A/21.0 A	44.0 A/42.0 A	6.5 A/7.3 A
Pre-fuse T		16.0 A/16.0 A	25.0 A/25.0 A	10.0 A/10.0 A[2]	16.0 A/16.0 A	25.0 A/25.0 A	10.0 A/10.0 A[2]
Power consumption P_{el} to DIN 3168	L 35 L 35 L 35 L 50	900 W/1070 W 1130 W/1220 W	960 W/1130 W 1170 W/1290 W	930 W/1150 W 1150 W/1400 W	1320 W/1550 W 1500 W/1880 W	1380 W/1600 W 1550 W/1940 W	1300 W/1500 W 1550 W/1850 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.7		2.3	1.9		2.0
Refrigerant		R134a, 950 g					
Permissible operating pressure p. max.		28 bar					
Temperature and setting range		+20°C to +55°C					
Protection category to EN 60 529/10.91	External circuit	IP 34					
	Internal circuit	IP 54					
Duty cycle		100 %					
Type of connection		Plug-in terminal strip					
Weight		66 kg	73 kg	67 kg	69 kg	76 kg	70 kg
Air throughput of fans	External circuit	640 m³/h			710 m³/h		
	Internal circuit	550 m³/h			640 m³/h		
Temperature control		Basic or Comfort controller (factory setting +35°C)					

Accessories	Packs of						Page
Filter mats	3	3286.400					668
Metal filters	1	3286.410					669
Door-operated switch	1	4127.000					956
SK bus system for Comfort controller	1	3124.100					663
RiDiag II incl. cables for Comfort contr.	1	3159.100					1063
Interface card for Comfort controller	1	3124.200					662
Condensate hose	1	3301.612					665

[1] Delivery times available on request. [2] Motor circuit-breaker
Optionally available with automatic condesate evaporation. Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **Configuration software** Page 1063

B
4.1

Wall-mounted cooling units

Supply includes:
Fully wired ready for connection, including drilling template, eyebolt and assembly parts.

Note:
Integration of the cooling units with Comfort controller, e.g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

⇄ **Optionally available:**
With automatic condensate evaporation.

❗ **Also required:**
For installation in the door, the use of a ride-up roller is recommended, see page 898.

Approvals, see page 70.

Detailed drawing, see page 1168.

Performance diagrams, available on the Internet.

RITTAL TOP THERM

Model No. SK with Basic controller, RAL 7035	**3332.140**
Model No. SK with Comfort controller, RAL 7035	**3332.540**
Model No. SK with Basic controller, stainless steel[1)]	**3332.240**
Model No. SK with Comfort controller, stainless steel[1)]	**3332.640**
Rated operating voltage V, Hz	400, 50/460, 60, 3~
Dimensions in mm W H D	500 / 1580 / 340
Useful cooling output $\dot{Q}_K$ to DIN 3168 L 35 L 35 / L 35 L 50	**4000 W/4400 W / 3070 W/3570 W**

Rated current max.		3.8 A/3.9 A
Start-up current		9.2 A/11.0 A
Pre-fuse T		Motor circuit breaker 10.0 A/10.0 A
Power consumption P_{el} to DIN 3168	L 35 L 35 / L 35 L 50	1710 W/2110 W / 1980 W/2450 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	2.3
Refrigerant		R134a, 3000 g
Permissible operating pressure p. max.		28 bar
Temperature and setting range		+20°C to +55°C
Protection category to EN 60 529/10.91	External circuit	IP 34
	Internal circuit	IP 54
Duty cycle		100 %
Type of connection		Plug-in terminal strip
Weight		91 kg
Air throughput of fans	External circuit	2000 m³/h
	Internal circuit	1500 m³/h
Temperature control		Basic or Comfort controller (factory setting +35°C)

Accessories	Packs of		Page
Filter mats	3	3286.400	668
Metal filters	1	3286.410	669
Door-operated switch	1	4127.000	956
SK bus system for Comfort controller	1	3124.100	663
RiDiag II including cables for Comfort controller	1	3159.100	1063
Interface card for Comfort controller	1	3124.200	662
Condensate hose	1	3301.612	665

[1)] Delivery times available on request.
Optionally available with automatic condesate evaporation. Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **Configuration software** Page 1063

Wall-mounted cooling units

Slimline, useful cooling output 1500 W
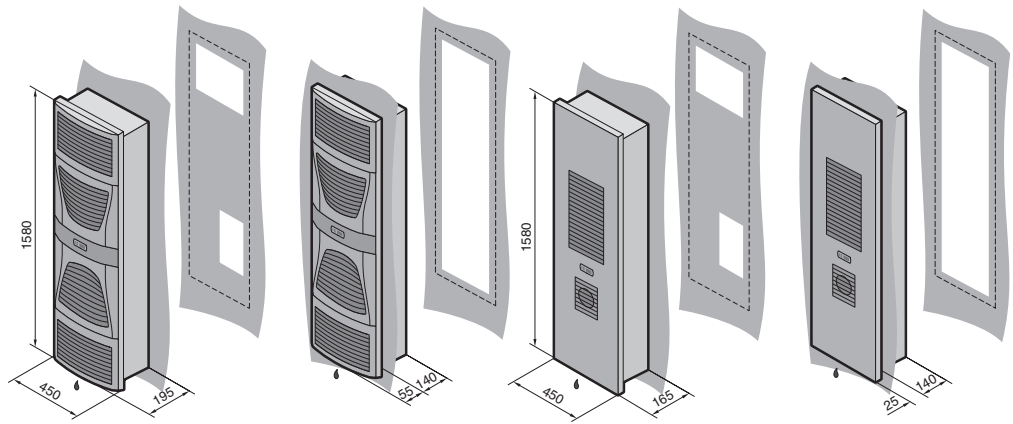
The super-slimline design permits system adaptation for applications where high heat loads are accommodated in a confined space.

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Note:
Cooling units with Comfort controller may be integrated e.g. into superordinate remote monitoring systems by way of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

⇄ **Optionally available:**
With automatic condensate evaporation.

Approvals,
see page 71.

Detailed drawing,
see page 1169.

Performance diagrams,
available on the Internet.

RITTAL TOP THERM

Model No. SK with Basic controller, RAL 7035	3366.100	3377.100[1]	3366.110	3377.110[1]	3366.140	3377.140[1]
Model No. SK with Comfort controller, RAL 7035	3366.500	3377.500[1]	3366.510	3377.510[1]	3366.540	3377.540[1]
Model No. SK with Basic controller, stainless steel	3366.200[1]	3377.200[1]	3366.210[1]	3377.210[1]	3366.240[1]	3377.240[1]
Model No. SK with Comfort controller, stainless steel	3366.600[1]	3377.600[1]	3366.610[1]	3377.610[1]	3366.640[1]	3377.640[1]
Rated operating voltage V, Hz	230, 50/60		115, 50/60		400/460, 3~, 50/60	
Dimensions in mm W	450	450	450	450	450	450
H	1580	1580	1580	1580	1580	1580
D	195	165	195	165	195	165
Useful cooling output $\dot{Q}_K$ L 35 L 35	1500 W/1500 W					
to DIN 3168 L 35 L 50	1050 W/1100 W					

Rated current max.	6.5 A/6.7 A		13.2 A/13.6 A		2.6 A/2.8 A
Start-up current	22.0 A/24.0 A		43.0 A/47.0 A		8.0 A/8.8 A
Pre-fuse T	10.0 A/10.0 A		20.0 A/20.0 A		10.0 A/10.0 A[2]
Power consumption P_{el} L 35 L 35	920 W/1050 W		950 W/1080 W		950 W/1100 W
to DIN 3168 L 35 L 50	1095 W/1210 W		1140 W/1250 W		1120 W/1290 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$ L 35 L 35	1.6				
Refrigerant	R134a, 700 g				
Permissible operating pressure p. max.	28 bar				
Temperature and setting range	+20°C to +55°C				
Protection category External circuit	IP 34				
to EN 60 529/10.91 Internal circuit	IP 54				
Duty cycle	100 %				
Type of connection	Plug-in terminal strip				
Weight	45 kg		50 kg		46 kg
Air throughput of fans External circuit	910 m³/h				
(unimpeded air flow) Internal circuit	860 m³/h				
Temperature control	Basic or Comfort controller (factory setting +35°C)				

Accessories	Packs of						Page
Filter mats	3	3286.400	3253.010	3286.400	3253.010	3286.400 3253.010	668
Metal filters	1	3286.410	3253.220	3286.410	3253.220	3286.410 3253.220	669
Trim frame for external mounting	1	3377.000					664
Door-operated switch	1	4127.000					956
SK bus system for Comfort controller	1	3124.100					663
RiDiag II including cables for Comfort controller	1	3159.100					1063
Interface card for Comfort controller	1	3124.200					662
Condensate hose	1	3301.612					665

[1] Delivery times available on request. [2] Motor circuit-breaker
Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **Configuration software** Page 1063

Design NEMA 4x, useful cooling output 500/1000/1500 W

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Note:
Cooling units with Comfort controller may be integrated e.g. into superordinate remote monitoring systems by way of an optional interface board SK 3124.200 (RS 232, RS 485, RS 422 and PLC interface).

Approvals,
see page 71.

Detailed drawing,
see page 1169.

Performance diagrams,
available on the Internet.

RITTAL TOP THERM

Model No. SK with Basic controller[1]		3303.104	3303.114	3304.104	3304.114	3304.144	3305.104	3305.114	3305.144
Model No. SK with Comfort controller[1]		3303.504	3303.514	3304.504	3304.514	3304.544	3305.504	3305.514	3305.544
Rated operating voltage V, Hz		230, 50/60	115, 60	230, 50/60	115, 50/60	400, 50/460, 60, 3~	230, 50/60	115, 50/60	400, 50/460, 60, 3~
Dimensions in mm	W	285		405			405		
	H	620		1020			1020		
	D	298		358			358		
Useful cooling output $\dot{Q}_K$	L 35 L 35	500 W/610 W	500 W	1000 W/1060 W			1500 W/1510 W		
to DIN 3168	L 35 L 50	280 W/350 W	280 W	790 W/840 W			1230 W/1250 W		

Rated current max.		2.6/2.6 A	5.7 A	4.8/4.4 A	9.5/10.0 A	2.5/2.6 A	5.4/6.0 A	11.0/12.5 A	2.3/2.6 A
Start-up current		5.1/6.4 A	11.5 A	12.0/14.0 A	26.0/28.0 A	11.5/12.7 A	22.0/24.0 A	42.0/46.0 A	12.2/11.3 A
Pre-fuse T		10.0/10.0 A	10.0 A	10.0/10.0 A	16.0/16.0 A	10.0 A[2]	16.0/16.0 A	20.0/20.0 A	10.0 A[2]
Power consumption P_{el}	L 35 L 35	360/380 W	470 W	700/650 W	725/680 W	580/550 W	850/1000 W	880/1050 W	800/980 W
to DIN 3168	L 35 L 50	420/390 W	500 W	750/710 W	780/750 W	660/680 W	1000/1160 W	1040/1200 W	960/1150 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.4				1.7	1.8	1.7	1.9
Refrigerant		R134a, 170 g		R134a, 500 g			R134a, 600 g		
Permissible operating pressure p. max.		28 bar		25 bar			25 bar		
Temperature and setting range		+20°C to +55°C							
Protection category		NEMA 4x							
Duty cycle		100 %							
Type of connection		Plug-in terminal strip							
Weight		25 kg	49 kg	54 kg	50 kg	51 kg	56 kg	52 kg	
Material		Stainless steel 1.4301 (V2A)							
Air throughput of fans	External circuit	345 m³/h		900 m³/h			900 m³/h		
	Internal circuit	310 m³/h		600 m³/h			800 m³/h		
Temperature control		Basic or Comfort controller (factory setting +35°C)							

Accessories	P. of								Page
Door-operated switch	1	4127.000		4127.000					956
SK bus system for Comfort controller	1	3124.100		–			3124.100		663
RiDiag II for Comfort controller, incl. cables	1	3159.100							1063
Interface card for Comfort controller	1	3124.200							662
Condensate hose	1	3301.610		3301.612					665

[1] Delivery times available on request. [2] Motor circuit-breaker
Special voltages and technical modifications available on request.

Accessories Page 657 **Configuration software** Page 1063

Wall-mounted cooling units

Design NEMA 4x, useful cooling output 2000/2500 W

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

Note:
Integration of the cooling units with Comfort controller, e.g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

Approvals,
see page 71.
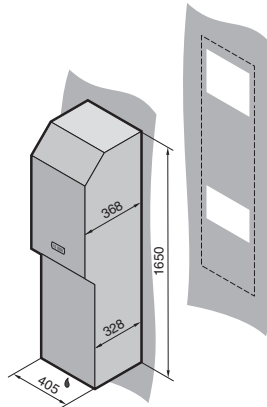
Detailed drawing,
see page 1170.

Performance diagrams,
available on the Internet.

RITTAL
TOP
THERM
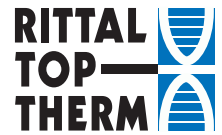
Model No. SK with Basic controller[1]		3328.104	3328.114	3328.144	3329.104	3329.114	3329.144
Model No. SK with Comfort controller[1]		3328.504	3328.514	3328.544	3329.504	3329.514	3329.544
Rated operating voltage V, Hz		230, 50/60	115, 50/60	400, 50/460, 60, 3~	230, 50/60	115, 50/60	400, 50/460, 60, 3~
Dimensions in mm	W H D	405 1650 368					
Useful cooling output $\dot{Q}_K$	**L 35 L 35**	**2000 W/2350 W**			**2500 W/2850 W**		
to DIN 3168	**L 35 L 50**	**1450 W/1690 W**			**1600 W/1750 W**		

Rated current max.		6.9 A/5.0 A	13.6 A/16.2 A	2.5 A/3.0 A	8.0 A/10.0 A	16.0 A/21.0 A	3.4 A/3.5 A
Start-up current		22.0 A/26.0 A	36.0 A/39.0 A	6.5 A/7.5 A	21.0 A/21.0 A	44.0 A/42.0 A	6.5 A/7.3 A
Pre-fuse T		16.0 A/16.0 A	25.0 A/25.0 A	10.0 A/10.0 A[2]	16.0 A/16.0 A	25.0 A/25.0 A	10.0 A/10.0 A[2]
Power consumption P_{el}	L 35 L 35	900/1070 W	960/1130 W	930/1150 W	1320/1550 W	1380/1600 W	1300/1500 W
to DIN 3168	L 35 L 50	1330/1220 W	1170/1290 W	1150/1400 W	1500/1880 W	1550/1980 W	1550/1850 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.7		2.3	1.9		2.0
Refrigerant		R134a, 900 g					
Permissible operating pressure p. max.		28 bar					
Temperature and setting range		+20°C to +55°C					
Protection category		NEMA 4x					
Duty cycle		100 %					
Type of connection		Plug-in terminal strip					
Weight		80 kg	87 kg	80 kg	83 kg	90 kg	83 kg
Material		Stainless steel 1.4301 (V2A)					
Air throughput of fans	External circuit	640 m³/h			710 m³/h		
	Internal circuit	550 m³/h			640 m³/h		
Temperature control		Basic or Comfort controller (factory setting +35°C)					

Accessories	P. of		Page
Door-operated switch	1	4127.000	956
SK bus system for Comfort controller	1	3124.100	663
RiDiag II including cables for Comfort controller	1	3159.100	1063
Interface card for Comfort controller	1	3124.200	662
Condensate hose	1	3301.612	665

[1] Delivery times available on request. [2] Motor circuit-breaker
Special voltages and technical modifications available on request.

Accessories Page 657 **Configuration software** Page 1063

B

4.1

Wall-mounted cooling units

B

4.1

Wall-mounted cooling units

Recooling systems

Features

Recooling systems ensure centralised, efficient cooling and provision of the cooling medium (generally water). For example, all cooling tasks on a system or machine can be solved via a single pipeline system. Spatial separation between cooling production and process cooling can be achieved with recooling systems.

Application diversity of centralised cooling technology

Enclosure cooling
In conjunction with air/water heat exchangers, optimum dissipation of high heat loads is guaranteed, even under extreme environmental temperatures and air pollution.

Cooling of liquid media
Direct and indirect cooling of liquids are the prerequisite for ensuring essential machine precision and speed.

Process cooling
High-quality material processing, such as laser cutting, necessitates high levels of temperature precision with simultaneous cooling of the peripheral technology.

Siting conditions
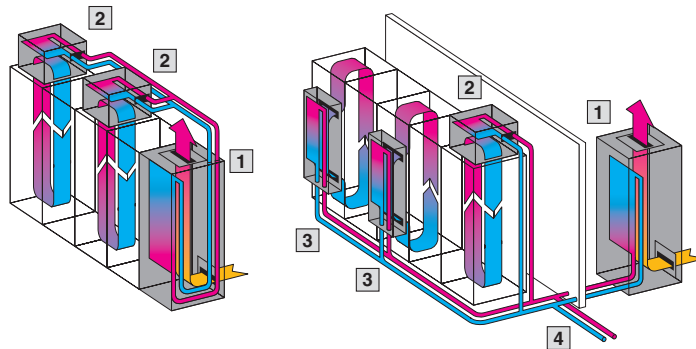
Unity with enclosures
For example, recooling systems may be attached directly to a bayed enclosure suite to provide effective, centralised cooling of all cases and enclosures on a machine or plant.

Spatially separated
High heat loads can even be dissipated in confined and awkward spaces, thanks to the spatial separation of the recooling system from the enclosures and machine. In all cases, as well as enclosure cooling, cooling water may also be produced for process and machine cooling or for cooling liquid media.

1	Recooling system
2	Air/water heat exchanger, roof-mounted
3	Air/water heat exchanger, wall-mounted
4	Further cooling options, e.g. machine cooling

Benefits:
- A single system for enclosure cooling, process and machine cooling, and the cooling of liquid media.
- Integration into bayed enclosure suites
- Individual project planning
- Commissioning and servicing

Important:
- Cooling output calculated at an ambient temperature of 32°C and an inlet temperature of 10°C and 18°C (water)/20°C (oil)

Project planning examples

Example 1

Production line

High-quality material processing requires a high degree of temperature precision with simultaneous cooling of the peripheral technology. This task – the cost-effective cooling of various equipment in the production line – is performed centrally by the recooling system in an industrial enclosure. It supplies the machine and process cooling with the required cooling water, as well as supplying the control enclosures via air/ water heat exchangers.

Example 2

Test laboratory

Every single product is subjected to in-depth functional and quality testing at the inhouse test laboratory. In order to ensure that the test process runs smoothly, the control enclosures are cooled via air/ water heat exchangers, and the three test benches are supplied with the required cooling water in line with requirements. These diverse cooling tasks are performed by the recooling system integrated into the TS 8 Top enclosure system.
Visually, they form a single unit with the TS 8 control enclosures.

Example 3

Control room

In conjunction with air/water heat exchangers, the server and network enclosures installed in the production control room are cooled by a Mini recooling system. To avoid contaminating the room air, and to facilitate optimum dissipation of the heat loss generated by the recooling systems, this is installed outside of the production control room.

Example 4

Tool production

The heat loss generated during tool machining (e.g. by water-cooled motor spindles with high-frequency drives) must be dissipated efficiently. In such cases, this task is performed by a wall-mounted Mini recooling system which at the same time ensures cooling of the control unit, likewise integrated into the machine.

B

4.2
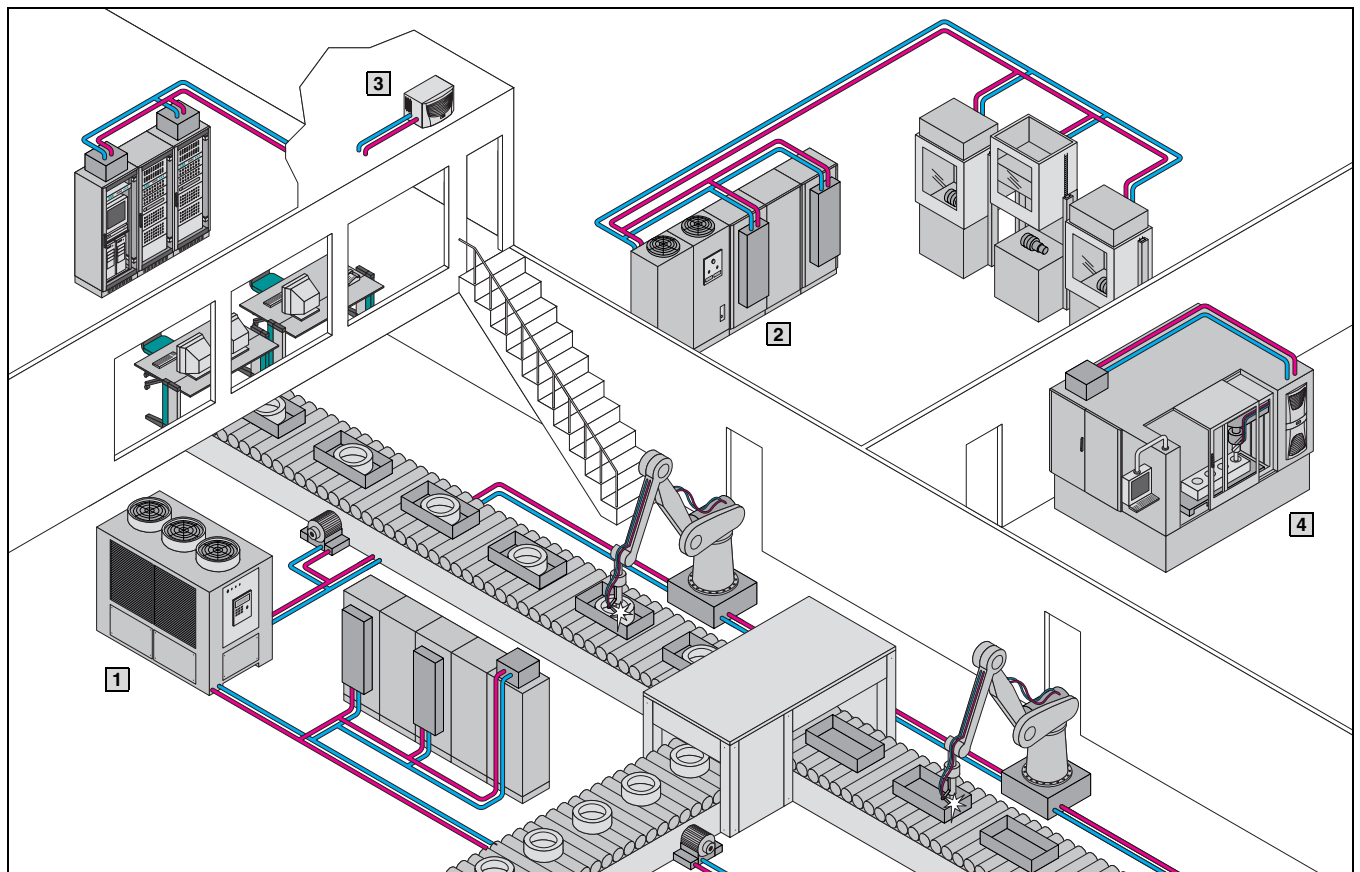
Recooling systems

Recooling systems

Mini, cooling output 960/1490 W
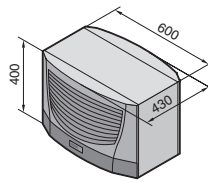
Technical design:
- Compact and modular layout of the cooling components on a base plate which functions as a collecting tray.
- Medium-conveying pumps.
- Precise temperature control, based on microprocessor technology.
- Collective fault signal with floating contact.
- Application-specific special equipment available on request.
- Pressure-sealed system (.600) or open system with tank (.610).

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1173.

Characteristic curves of pump,
see page 1173.

Options,
see page 1171.

Model No. SK		3318.600	3318.610	3319.600	3319.610
Rated operating voltage V, Hz		230, 50/60			
Dimensions in mm	W	600			
	H	400			
	D	430			
Cooling output at $T_w = 10°C/T_u = 32°C$ $T_w = 18°C/T_u = 32°C$		**780 W/870 W** **960 W/1070 W**		**1200 W/1330 W** **1490 W/1660 W**	

Power consumption		630 W/780 W		845 W/1050 W	
Rated current max.		4.2 A		5.4 A	
Refrigerant		R134a			
$P_{max.}$ cooling circuit		25 bar			
Temperature range	Environment	+5°C to +43°C			
	Liquid media	+10°C to +30°C			
Pump capacity		See characteristic curve			
Tank		Pressure-sealed	Made from PP plastic	Pressure-sealed	Made from PP plastic
Tank capacity		–	2.5 l	–	2.5 l
Water connections		2 x $^1/_2''$ IG			
Weight		48 kg		51 kg	
Colour		RAL 7035			
Protection category (electrics)		IP 44			
Air throughput of fans		900 m³/h			
Temperature control		Microcontroller control, setting range +10°C to +30°C (factory setting +18°C)			
Accessories	Packs of				Page
Metal filter mat	1	3286.510			669

Customised solutions and technical modifications available on request.

Air/water heat exchangers From page 626 **Configuration software** Page 1063 **By-pass safety valve** Page 667 **Additives** Page 668

Mini, cooling output 3000/4500 W
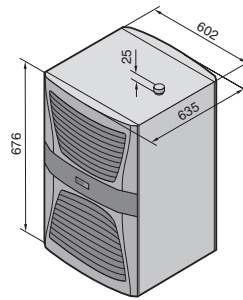
Technical design:
- Compact, modular configuration of the cooling components with integral water tank. Operator display may optionally be mounted on the front or rear.
- Integral tank level display.
- Medium-conveying pumps.
- Precise temperature control, based on microprocessor technology.
- Collective fault signal with floating contact.
- Application-specific special equipment available on request.

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1173.

Characteristic curves of pump,
see page 1173.

Options,
see page 1171.

B

4.2

Recooling systems

Model No. SK		3320.600	3334.600
Rated operating voltage V, Hz		400, 3~, 50/60/460, 3~, 60[1]	
Dimensions in mm	W	602	
	H	676	
	D	635	
Cooling output at $T_w = 10°C/T_u = 32°C$		2650 W/3000 W	3900 W/4700 W
$T_w = 18°C/T_u = 32°C$		3000 W/3400 W	4500 W/5400 W

Power consumption		1716 W/1953 W	2001 W/2505 W
Rated current max.		3.8 A/3.9 A	4.9 A/5.0 A
Refrigerant		R134a	
$P_{max.}$ cooling circuit		25 bar	
Temperature range	Environment	+5°C to +43°C	
	Liquid media	+10°C to +30°C	
Pump capacity		See characteristic curve	
Tank		Made from stainless steel 1.4301	
Tank capacity		30 l	
Water connections		2 x ¹/₂″ IG	
Weight		88 kg	94 kg
Colour		RAL 7035	
Protection category (electrics)		IP 44	
Air throughput of fans		1785 m³/h	
Temperature control		Microcontroller control, setting range +10°C to +30°C (factory setting +18°C)	

Accessories	Packs of		Page
Metal filter mat	1	3286.520	669

[1] Supports multiple voltages without rewiring.
Special voltages and technical modifications available on request.

Air/water heat exchangers From page 626 **Configuration software** Page 1063 **By-pass safety valve** Page 667 **Additives** Page 668

Recooling systems

Mini, for wall mounting, cooling output 1000/2500/4000 W

B = Width
T = Depth
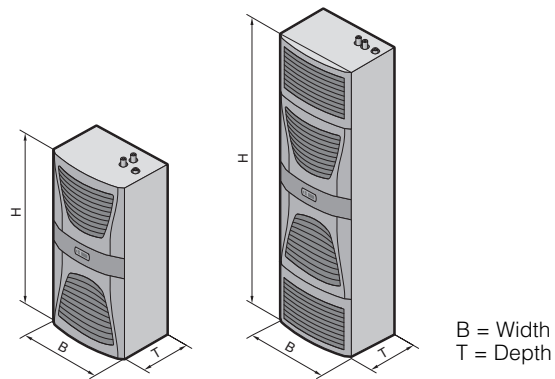
Technical design:
- Compact, modular configuration of the cooling components with integral water tank.
- Application-specific special equipment available on request.
- Open system with tank.

Supply includes:
Recooling system fully wired and plumbed ready for connection,
with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1174.

Characteristic curves of pump,
see page 1174.

Options,
see page 1171.

Model No. SK		3360.100	3360.250	3360.400
Rated operating voltage V, Hz		400, 3~, 50/60/460, 3~, 60[1]		
Dimensions in mm	W	400	400	500
	H	950	1580	1580
	D	310	290	340
Cooling output at $T_w = 10°C/T_u = 32°C$ $T_w = 18°C/T_u = 32°C$		**830 W/930 W** **1000 W/1120 W**	**2100 W/2350 W** **2500 W/2800 W**	**3300 W/3700 W** **4000 W/4500 W**
Power consumption		700 W/760 W	1550 W/2000 W	1980 W/2450 W
Rated current max.		2.7 A/3.0 A	3.7 A/3.8 A	3.9 A/4.2 A
Refrigerant		R134a		
$P_{max.}$ cooling circuit		23 bar		
Temperature range	Environment	+5°C to +43°C		
	Liquid media	+10°C to +30°C		
Pump capacity		See characteristic curve		
Tank		Made from PP plastic		
Tank capacity		5 l	10 l	15 l
Water connections		Quick-release coupling (counterpart included in accessory bag)		
Weight		47 kg	78 kg	99 kg
Colour		RAL 7035		
Protection category (electrics)		IP 44		
Air throughput of fans		500 m³/h	710 m³/h	2000 m³/h
Temperature control		Microcontroller control, setting range +10°C to +30°C (factory setting +18°C)		

Accessories	Packs of			Page
Filter mat	1	3286.400		668
Metal filter mat	1	3286.410		669

[1] Supports multiple voltages without rewiring.
Special voltages and technical modifications available on request.

Air/water heat exchangers From page 626   **Configuration software** Page 1063   **By-pass safety valve** Page 667   **Additives** Page 668

In floor-standing enclosure, cooling output 2100 to 7700 W
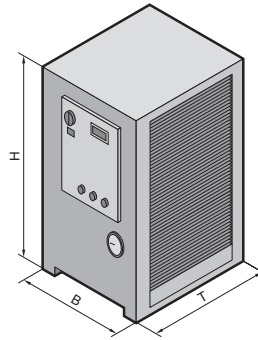
B = Width
T = Depth

Technical design:
- Robust industrial standard in 3 enclosure sizes.
- Identical basic enclosure for oil and water recooling systems.
- Spare space for the integration of special equipment.
- Variable air routing is possible via the l/h or r/h side panel.
- Floating contact for collective fault signal.
- Level monitor.
- Multi-coil vaporiser in the tank.

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

Accessories:
Metal filter mats, castors, eyebolts and safety modules available on request.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1174.

Characteristic curves of pump,
see page 1174.

Options,
see page 1171.

Model No. SK		3336.100	3336.200	3336.300	3336.500	3336.600	3336.650
Rated operating voltage V, Hz		400, 3~, 50					
Dimensions in mm	W	470	485		595		
	H	725	965		1180		
	D	540	650		800		
Cooling output at $T_w = 10°C/T_u = 32°C$		**1700 W**	**2100 W**	**2300 W**	**3550 W**	**4800 W**	**5200 W**
$T_w = 18°C/T_u = 32°C$		**2100 W**	**2580 W**	**3360 W**	**5040 W**	**6160 W**	**7700 W**

Power consumption		1.5 kW		1.8 kW	2.3 kW	2.9 kW	3.6 kW
Rated current max.		2.8 A		3.5 A	4.2 A	4.9 A	5.7 A
Refrigerant		R134a					
$P_{max.}$ cooling circuit		24 bar					
Temperature range	Environment	+15°C to +45°C					
	Liquid media	+10°C to +25°C					
Pump capacity		See characteristic curve					
Tank		Made from stainless steel 1.4301					
Tank capacity		17 l	33 l		57 l		
Water connections		$^3/_4″$ IG			1″ IG		
Weight		75 kg	97 kg	99 kg	141 kg	143 kg	147 kg
Colour		RAL 7035					
Protection category (electrics)		IP 54					
Air throughput of fans		700 m³/h	1250 m³/h	1785 m³/h	3140 m³/h		
Temperature control		Electronic control with digital display, setting range +10°C to +25°C (factory setting +18°C)					

Delivery times available on request.
Special voltages, other frequencies, and technical modifications available on request.

Air/water heat exchangers From page 626   **Configuration software** Page 1063   **By-pass safety valve** Page 667   **Additives** Page 668

B
4.2

Recooling systems

Recooling systems

In floor-standing enclosure, cooling output 10000 to 25200 W

Technical design:
- Robust industrial enclosures in 2 sizes.
- Identical basic enclosure for oil and water recooling systems.
- Integration of application-specific special equipment on request.
- Variable air routing is possible via the l/h or r/h side panel.
- Optimum accessibility for servicing purposes by removing the side panel.
- Floating contact for collective fault signal.
- Bi-frequency version (50/60 Hz).
- Flow monitor.

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

Accessories:
Metal filter mats, castors, lifting eyes and safety modules available on request.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1175.

Characteristic curves of pump,
see page 1175.

Options,
see page 1171.

B = Width
T = Depth

Model No. SK	3336.700	3336.710	3336.720	3336.730	3336.740	3336.750
Rated operating voltage V, Hz	400, 3~, 50/460, 3~, 60					
Dimensions in mm W H D	615 1178 1160			715 1178 1360		
Cooling output at $T_w = 10°C/T_u = 32°C$ $T_w = 18°C/T_u = 32°C$	8250 W/10400 W 10000 W/12600 W	11900 W/15500 W 14350 W/18700 W	13450 W/16550 W 16300 W/20100 W	15000 W/18100 W 18500 W/22350 W	17000 W/20650 W 20900 W/25400 W	20600 W/26350 W 25200 W/32250 W

Power consumption	3800 W/5300 W	4800 W/6500 W	5300 W/7100 W	6400 W/9000 W	7100 W/9900 W	8100 W/11500 W
Rated current max.	10.6 A/10.8 A	13.1 A/13.3 A	14.1 A/14.3 A	16.2 A/18.4 A	18.2 A/20.4 A	19.7 A/22.4 A
Refrigerant	R407C					
$P_{max.}$ cooling circuit	27 bar					
Temperature range Environment	+15°C to +45°C[1]					
Temperature range Liquid media	+10°C to +25°C					
Pump capacity	See characteristic curve					
Tank	Made from stainless steel 1.4301					
Tank capacity	60 l			100 l		
Water connections	1″ IG					
Weight	215 kg	225 kg	235 kg	240 kg	250 kg	260 kg
Colour	RAL 7035					
Protection category (electrics)	IP 54					
Air throughput of fans	6280 m³/h			10880 m³/h		
Temperature control	Electronic control with digital display, setting range +10°C to +25°C (factory setting +18°C)					

[1] SK 3336.720 and SK 3336.750 +15°C to +40°C.
Delivery times available on request.
Special voltages and technical modifications available on request.

Air/water heat exchangers From page 626   **Configuration software** Page 1063   **By-pass safety valve** Page 667   **Additives** Page 668

In floor-standing enclosure for oil, cooling output 2550 to 7900 W
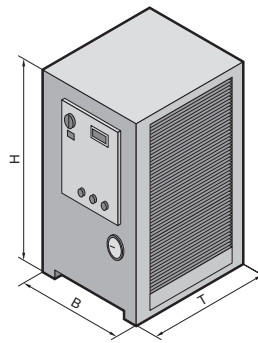
Technical design:
- Robust industrial standard in 2 enclosure sizes.
- Identical basic enclosure for oil and water recooling systems.
- Variable air routing is possible via the l/h or r/h side panel.
- High-capacity gear pump.
- Floating contact for collective fault signal.
- Integration of application-specific special equipment on request.

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

Accessories:

Metal filter mats, castors, lifting eyes available on request.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1175.

Options,
see page 1171.

B = Width
T = Depth

B
4.2

Recooling systems

Model No. SK		3337.200	3337.300	3337.500	3337.600	3337.650
Rated operating voltage V, Hz		400, 3~, 50				
Dimensions in mm	W	485		595		
	H	965		1180		
	D	650		800		
Cooling output with oil ISO VG 32 T_{oil} = 20°C T_u = 32°C		**2550 W**	**3400 W**	**5150 W**	**6700 W**	**7900 W**

		3337.200	3337.300	3337.500	3337.600	3337.650
Power consumption		1.2 kW	1.6 kW	2.3 kW	2.8 kW	3.6 kW
Rated current max.		3.1 A	3.7 A	4.9 A	5.4 A	5.7 A
Refrigerant		R134a				
$P_{max.}$ cooling circuit		24 bar				
Temperature range	Environment	+15°C to +45°C				
	Liquid media	+15°C to +35°C				
Pump capacity at 10 bar		10 l/min		24 l/min		
Optional tank		Made from stainless steel 1.4301				
Optional tank capacity		33 l		57 l		
Connections		³/₄″ IG		1″ IG		
Weight		103 kg	105 kg	148 kg	150 kg	154 kg
Colour		RAL 7035				
Protection category (electrics)		IP 54				
Air throughput of fans		1250 m³/h	1785 m³/h	3140 m³/h		
Temperature control		Electronic control with digital display, setting range +15°C to +35°C (factory setting +20°C)				

Delivery times available on request.
Special voltages, other frequencies, and technical modifications available on request.

Configuration software Page 1063

Recooling systems

In floor-standing enclosure for oil, cooling output 10600 to 26100 W

B = Width
T = Depth

Technical design:
- Robust industrial housing in 2 enclosure sizes.
- Identical basic enclosure for oil and water recooling systems.
- Variable air routing is possible via the l/h or r/h side panel.
- Optimum accessibility for servicing purposes by removing the side panel.
- High-capacity gear pump.
- Floating contact for collective fault signal.
- Integration of application-specific special equipment on request.

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

☐ **Accessories:**

Metal filter mats, castors, lifting eyes available on request.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1176.

Options,
see page 1171.

Model No. SK		3337.700	3337.710	3337.720	3337.730	3337.740	3337.750
Rated operating voltage V, Hz		400, 3~, 50/460, 3~, 60					
Dimensions in mm	W H D	615 1178 1160			715 1178 1360		
Cooling output with oil ISO VG 32 T_{oil} = 20°C T_u = 32°C		**10600 W** **12000 W**	**15150 W** **17500 W**	**17200 W** **20000 W**	**19250 W** **22500 W**	**21600 W** **25000 W**	**26100 W** **30000 W**
Power consumption		5300 W/ 6300 W	6400 W/ 7700 W	7100 W/ 8200 W	8700 W/ 10300 W	9600 W/ 11300 W	10500 W/ 13300 W
Rated current max.		12 A/12 A	15 A/15 A	16 A/16 A	19 A/20 A	21 A/22 A	22 A/24 A
Refrigerant		R407C					
$P_{max.}$ cooling circuit		28 bar					
Temperature range	Environment	+15°C to +45°C[1]					
	Liquid media	+15°C to +35°C					
Pump capacity at 10 bar		45 l/min			68 l/min		
Optional tank		Made from stainless steel 1.4301					
Optional tank capacity		60 l			100 l		
Connections		1″ IG					
Weight		222 kg	232 kg	242 kg	248 kg	258 kg	268 kg
Colour		RAL 7035					
Protection category (electrics)		IP 54					
Air throughput of fans		6280 m³/h			10880 m³/h		
Temperature control		Electronic control with digital display, setting range +15°C to +35°C (factory setting +20°C)					

[1] SK 3337.720 and SK 3337.750 +15°C to +40°C.
Delivery times available on request.
Special voltages, other refrigerants, and technical modifications available on request.

Configuration software Page 1063

In TS 8 Top enclosure system, cooling output 6000/7500 W
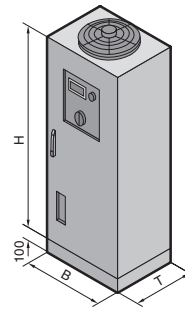
B = Width
T = Depth

Technical design:
- Compact structure with control components in the front and air intake via the rear.
- Suitable for bayed siting.
- Special fittings and options available on request.
- Float-actuated switch as protection against running dry.
- Floating collective fault signal.
- Equipped with Grundfos pumps and Siemens components.
- Service accessibility from all sides.

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

⊞ **Accessories:**

Metal filter mat and safety module available on request.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1176.

Characteristic curves of pump,
see page 1176.

Options,
see page 1171.

B
4.2

Recooling systems

Model No. SK		3335.060	3335.075
Rated operating voltage V, Hz		400, 3~, 50	
Dimensions in mm	W	600	
	H	2000	
	D	600	
Base/plinth height mm		100	
Cooling output at $T_w = 10°C/T_u = 32°C$ $T_w = 18°C/T_u = 32°C$		**4800 W** **6000 W**	**6000 W** **7500 W**

Power consumption		2.4 kW	3.0 kW
Rated current max.		7.6 A	8.1 A
Refrigerant		R407C	
$P_{max.}$ cooling circuit		24 bar	
Temperature range	Environment	+10°C to +43°C	
	Liquid media	+10°C to +30°C	
Pump capacity		See characteristic curve	
Tank		Made from PP plastic	
Tank capacity		80 l	
Water connections		$^3/_4''$ IG	
Weight		180 kg	190 kg
Colour		RAL 7035	
Protection category (electrics)		IP 54	
Air throughput of fans		4000 m³/h	
Temperature control		Electronic control with digital display, setting range +10°C to +30°C (factory setting +18°C)	

Delivery times available on request.
Special voltages, other frequencies and refrigerants, and technical modifications available on request.

Recooling systems

In TS 8 Top enclosure system, cooling output 10000 to 25000 W
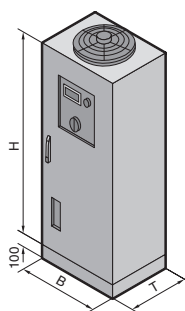
B = Width
T = Depth
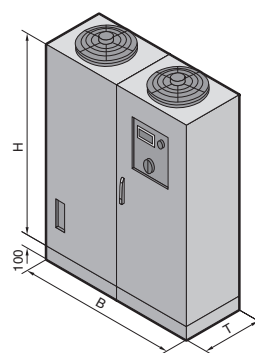
Technical design:
- Compact structure with control components in the front and air intake via the rear.
- Suitable for bayed siting.
- Special fittings and options available on request.
- Float-actuated switch as protection against running dry.
- Floating collective fault signal.
- Magnetic valve in the cooling circuit.
- Equipped with Grundfos pumps and Siemens components.
- Service accessibility from all sides.

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

✛ **Accessories:**

Metal filter mat and safety module available on request.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1176.

Characteristic curves of pump,
see page 1176.

Options,
see page 1171.

SK		3335.100	3335.120	3335.150	3335.200	3335.250
Rated operating voltage V, Hz		400, 3~, 50				
Dimensions in mm	W	800			1200	
	H	2000			2000	
	D	600			600	
Base/plinth height mm		100				
Cooling output at $T_w = 10°C/T_u = 32°C$		**8000 W**	**10000 W**	**11500 W**	**17000 W**	**22000 W**
$T_w = 18°C/T_u = 32°C$		**10000 W**	**12000 W**	**15000 W**	**20000 W**	**25000 W**

Power consumption		4.0 kW	4.8 kW	6.0 kW	8.0 kW	10.0 kW
Rated current max.		12.5 A	17.3 A	18.5 A	23.5 A	27.5 A
Refrigerant		R407C				
$P_{max.}$ cooling circuit		24 bar				
Temperature range	Environment	+10°C to +43°C				
	Liquid media	+10°C to +30°C				
Pump capacity		See characteristic curve				
Tank		Made from PP plastic				
Tank capacity		120 l			240 l	
Water connections		³/₄″ IG			1″ IG	
Weight		250 kg	270 kg	380 kg	530 kg	560 kg
Colour		RAL 7035				
Protection category (electrics)		IP 54				
Air throughput of fans		6000 m³/h			8000 m³/h	
Temperature control		Electronic control with digital display, setting range +10°C to +30°C (factory setting +18°C)				

Delivery times available on request.
Special voltages, other frequencies, and technical modifications available on request.

Air/water heat exchanger From page 626 **TS 8 lock systems** From page 881 **TS 8 baying systems** From page 861 **Configuration software** Page 1063
By-pass safety valve Page 667 **Additives** Page 668

B
4.2

Recooling systems

In industrial enclosure, cooling output 32 kW to 172 kW

B = Width
T = Depth

Technical design:
- Robust industrial enclosure,
- Optimum service accessbility by removing the panels.
- Floating contact for collective fault signal.
- With shell-and-tube evaporator, without tank (SK 3339.300 – .500).
- Integration of application-specific special equipment on request.

Supply includes:
Recooling system wired and plumbed ready for connection, with multilingual documentation including functional diagram and wiring plans.

Note:
The illustration shows units with customer-specific options.

Accessories:
Metal filter mat available on request.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1177.

Characteristic curves of pump,
see page 1177.

Options,
see page 1171.

B

4.2

Recooling systems

Model No. SK		3339.100	3339.200	3339.300	3339.400	3339.500
Rated operating voltage V, Hz		400, 3~, 50/460, 3~, 60		400, 3~, 50		
Dimensions in mm	W	815		1550		1630
	H	1400		2000		2200
	D	1560		2500		3400
Cooling output at $T_w = 10°C/T_u = 32°C$ $T_w = 18°C/T_u = 32°C$		**26150 W/31350 W** **32025 W/38430 W**	**29550 W/35450 W** **36225 W/43480 W**	**54700 W** **66700 W**	**62200 W** **75900 W**	**141000 W** **172200 W**

Power consumption		15900 W	17600 W	27000 W	28300 W	61000 W
Rated current max.		24.4 A	26.9 A	67 A	74 A	108 A
Refrigerant		R407C				
$P_{max.}$ cooling circuit		28 bar				
Temperature range	Environment	+15°C to +45°C				
	Liquid media	+10°C to +25°C				
Pump capacity		See characteristic curve				
Tank		Made from stainless steel 1.4301				
Tank capacity		150 l		Pressure-sealed		
Water connections		$1^1/_4''$ IG		2″ IG		3″ IG
Weight		280 kg	300 kg	800 kg	850 kg	2100 kg
Colour		RAL 7035				
Protection category (electrics)		IP 44				
Air throughput of fans		18000 m³/h		32000 m³/h		48000 m³/h
Temperature control		Electronic control with digital display, setting range +10°C to +25°C (factory setting +18°C)				

Delivery times available on request.
Special voltages, other frequencies and refrigerants, and technical modifications available on request.

Air/water heat exchangers From page 626   **Configuration software** Page 1063   **By-pass safety valve** Page 667   **Additives** Page 668

Immersible recooling systems

for oil, cooling output 2400 to 5600 W

B = Width
T = Depth

Technical design:
- For the cooling of oil
- Robust industrial standard in 3 enclosure sizes
- Flat evaporator coil insensitive to dirt
- Bi-frequency components (50/60 Hz)

Supply includes:
Immersible recooling system wired and plumbed ready for connection, **metal filter, eye-bolts,** with multilingual documentation, including functional diagram and wiring plans.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Model No. SK for oil		3338.020	3338.040	3338.060	3338.080
Rated operating voltage V, Hz		400, 3~, 50/460, 3~, 60			
Cooling output at **T_{oil} = 20°C/T_u = 32°C**		**2400 W/2700 W**	**3200 W/3600 W**	**4600 W/5200 W**	**5600 W/6300 W**
Dimensions in mm	B1 H1 T1	785 1650 785			
Dimensions of immersible part, mm	B2 T2	719 719			
Immersion depth mm	H2	550			
Minimum medium level with flat evaporator coil, mm		205		280	

Power consumption		2.2 kW/2.7 kW	2.5 kW/3.1 kW	3.5 kW/4.3 kW	3.9 kW/4.7 kW
Rated current max.		3.5 A/3.7 A	3.8 A/4.0 A	5.5 A/5.9 A	5.6 A/5.8 A
Refrigerant		R134a			
$P_{max.}$ cooling circuit		24 bar			
Temperature range	Environment	+15°C to +42°C			
	Liquid media	+10°C to +25°C			
Weight		133 kg	143 kg	158 kg	173 kg
Colour		RAL 7035			
Protection category (electrics)		IP 44			
Air throughput of fans		1500/1560 m³/h		2200/2350 m³/h	
Temperature control		Electronic control with digital display, setting range +10°C to +25°C (factory setting +20°C)			

Delivery times available on request.
Special voltages available on request. We reserve the right to make technical modifications.

Configuration software Page 1063

B

4.2

Immersible recooling systems

B = Width
T = Depth

Technical design:
- For the cooling of oil
- Robust industrial standard in 3 enclosure sizes
- Flat evaporator coil insensitive to dirt
- Bi-frequency components (50/60 Hz)

Supply includes:
Immersible recooling system wired and plumbed ready for connection, **metal filter, eye-bolts,** with multilingual documentation, including functional diagram and wiring plans.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Model No. SK for oil		3338.100	3338.120	3338.140	3338.160	3338.180	3338.200
Rated operating voltage V, Hz		400, 3~, 50/460, 3~, 60					
Cooling output at $T_{oil} = 20°C/T_u = 32°C$		8500 W/ 9500 W	10500 W/ 11800 W	12000 W/ 13400 W	13600 W/ 15200 W	15300 W/ 17100 W	17300 W/ 19400 W
Dimensions in mm	B1	785					
	H1	1650					
	T1	785					
Dimensions of immersible part, mm	B2	719					
	T2	719					
Immersion depth mm	H2	550					
Minimum medium level with flat evaporator coil, mm		330	380		430		

Power consumption		6.2 kW/7.4 kW	6.8 kW/8.1 kW	7.6 kW/9.0 kW	8.4 kW/10.0 kW	9.3 kW/11.0 kW	10.4 kW/12.3 kW
Rated current max.		8.4 A/8.6 A	9.2 A/9.3 A	10.1 A/10.5 A	11.1 A/11.5 A	12.1 A/12.4 A	13.3 A/13.7 A
Refrigerant		R407C					
$P_{max.}$ cooling circuit		27 bar					
Temperature range	Environment	+15°C to +42°C					
	Liquid media	+10°C to +25°C					
Weight		183 kg	203 kg	228 kg	248 kg	253 kg	263 kg
Colour		RAL 7035					
Protection category (electrics)		IP 54					
Air throughput of fans		7200/7480 m³/h			7900/8480 m³/h		
Temperature control		Electronic control with digital display, setting range +10°C to +25°C (factory setting +20°C)					

Delivery times available on request.
Special voltages available on request. We reserve the right to make technical modifications.

B

4.2

Immersible recooling systems

Immersible recooling systems

for oil, cooling output 20700 to 77900 W

B = Width
T = Depth

Technical design:
- For the cooling of oil
- Robust industrial standard in 3 enclosure sizes
- Flat evaporator coil insensitive to dirt
- Bi-frequency components (50/60 Hz)

Supply includes:
Immersible recooling system wired and plumbed ready for connection, **metal filter, eye-bolts,** with multilingual documentation, including functional diagram and wiring plans.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1177.

Options,
see page 1171.

B

4.2

Immersible recooling systems

Model No. SK for oil		3338.220	3338.240	3338.260	3338.280	3338.300	3338.320	3338.340	3338.360
Rated operating voltage V, Hz		400, 3~, 50/460, 3~, 60							
Cooling output at T_{oil} = 20°C/T_u = 32°C		**20700 W/ 23200 W**	**30800 W/ 34500 W**	**34900 W/ 39100 W**	**44500 W/ 49800 W**	**48600 W/ 54400 W**	**60600 W/ 67900 W**	**72600 W/ 81300 W**	**77900 W/ 87200 W**
Dimensions in mm	B1	785			1830				
	H1	1650			1650				
	T1	1830			1830				
Dimensions of immersible part, mm	B2	719			1764				
	T2	1764			1764				
Immersion depth mm	H2	550							
Minimum medium level with flat evaporator coil, mm		380	430		380		430		

Power consumption		12.9 kW/ 16.1 kW	18.0 kW/ 22.0 kW	20.1 kW/ 24.8 kW	26.4 kW/ 31.4 kW	28.9 kW/ 34.4 kW	34.4 kW/ 41.1 kW	39.9 kW/ 47.8 kW	42.5 kW/ 50.9 kW
Rated current max.		17.3 A/ 17.8 A	21.6 A/ 23.0 A	24.3 A/ 25.5 A	35.5 A/ 35.2 A	35.4 A/ 35.8 A	42.7 A/ 42.9 A	50.0 A/ 50.0 A	53.0 A/ 53.0 A
Refrigerant		R407C							
$P_{max.}$ cooling circuit		27 bar							
Temperature range	Environment	+15°C to +45°C							
	Liquid media	+10°C to +25°C							
Weight		305 kg	380 kg		425 kg			435 kg	455 kg
Colour		RAL 7035							
Protection category (electrics)		IP 54							
Air throughput of fans		15000/15600 m³/h			30000/31200 m³/h				
Temperature control		Electronic control with digital display, setting range +10°C to +25°C (factory setting +20°C)							

Delivery times available on request.
Special voltages available on request. We reserve the right to make technical modifications.

Configuration software Page 1063

B = Width
T = Depth

Technical design:
- For the cooling of emulsion
- Robust industrial standard in 3 enclosure sizes
- Flat evaporator coil insensitive to dirt
- Bi-frequency components (50/60 Hz)

Supply includes:
Immersible recooling system wired and plumbed ready for connection, **metal filter, eyebolts,** with multilingual documentation, including functional diagram and wiring plans.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1177.

Options,
see page 1171.

Model No. SK for emulsion		3338.500	3338.520	3338.540	3338.560
Rated operating voltage V, Hz		400, 3~, 50/460, 3~, 60			
Cooling output at T_{EM} = 20°C/T_u = 32°C		2400 W/2700 W	3200 W/3600 W	4600 W/5200 W	5600 W/6300 W
Dimensions in mm	B1	785			
	H1	1650			
	T1	785			
Dimensions of immersible part, mm	B2	719			
	T2	719			
Immersion depth mm	H2	550			
Minimum medium level with flat evaporator coil, mm		180		205	

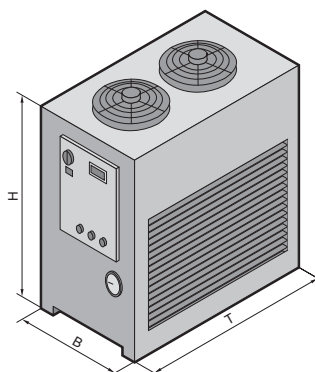| Power consumption		2.4 kW/3.0 kW	2.7 kW/3.4 kW	3.7 kW/4.6 kW	4.1 kW/5.0 kW
Rated current max.		3.8 A/4.0 A	4.1 A/4.3 A	5.9 A/6.3 A	6.0 A/6.3 A
Refrigerant		R134a			
$P_{max.}$ cooling circuit		24 bar			
Temperature range	Environment	+15°C to +42°C			
	Liquid media	+10°C to +25°C			
Weight		130 kg	140 kg	155 kg	170 kg
Colour		RAL 7035			
Protection category (electrics)		IP 44			
Air throughput of fans		1500/1560 m³/h		2200/2350 m³/h	
Temperature control		Electronic control with digital display, setting range +10°C to +25°C (factory setting +20°C)			

Delivery times available on request.
Special voltages available on request. We reserve the right to make technical modifications.

Configuration software Page 1063

B
4.2

Immersible recooling systems

Immersible recooling systems

for emulsion, cooling output 8500 to 17300 W

B = Width
T = Depth

Technical design:
- For the cooling of emulsion
- Robust industrial standard in 3 enclosure sizes
- Flat evaporator coil insensitive to dirt
- Bi-frequency components (50/60 Hz)

Supply includes:
Immersible recooling system wired and plumbed ready for connection, **metal filter, eye-bolts,** with multilingual documentation, including functional diagram and wiring plans.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
see page 1177.

Options,
see page 1171.

<div style="writing-mode: vertical">

B

4.2

Immersible recooling systems

</div>

Model No. SK for emulsion		3338.580	3338.600	3338.620	3338.640	3338.660	3338.680
Rated operating voltage V, Hz		400, 3~, 50/460, 3~, 60					
Cooling output at T_{EM} = 20°C/T_u = 32°C		8500 W/ 9500 W	10500 W/ 11800 W	12000 W/ 13400 W	13600 W/ 15200 W	15300 W/ 17100 W	17300 W/ 19400 W
Dimensions in mm	B1	785					
	H1	1650					
	T1	785					
Dimensions of immersible part, mm	B2	719					
	T2	719					
Immersion depth mm	H2	550					
Minimum medium level with flat evaporator coil, mm		280			330		

Power consumption		6.4 kW/7.6 kW	7.0 kW/8.3 kW	7.8 kW/9.5 kW	8.6 kW/10.2 kW	9.5 kW/11.3 kW	10.6 kW/12.6 kW
Rated current max.		8.9 A/9.0 A	9.6 A/9.9 A	10.6 A/11.2 A	11.5 A/12.0 A	12.5 A/13.2 A	13.7 A/14.1 A
Refrigerant		R407C					
$P_{max.}$ cooling circuit		27 bar					
Temperature range	Environment	+15°C to +42°C					
	Liquid media	+10°C to +25°C					
Weight		180 kg	200 kg	225 kg	245 kg	250 kg	260 kg
Colour		RAL 7035					
Protection category (electrics)		IP 54					
Air throughput of fans		7200/7480 m³/h			7900/8480 m³/h		
Temperature control		Electronic control with digital display, setting range +10°C to +25°C (factory setting +20°C)					

Delivery times available on request.
Special voltages available on request. We reserve the right to make technical modifications.

Configuration software Page 1063

for emulsion, cooling output 20700 to 77900 W

B = Width
T = Depth

Technical design:
- For the cooling of emulsion
- Robust industrial standard in 3 enclosure sizes
- Flat evaporator coil insensitive to dirt
- Bi-frequency components (50/60 Hz)

Supply includes:
Immersible recooling system wired and plumbed ready for connection, **metal filter, eye-bolts,** with multilingual documentation, including functional diagram and wiring plans.

Approvals,
available on the Internet.

Detailed drawing,
available on the Internet.

Layout diagram,
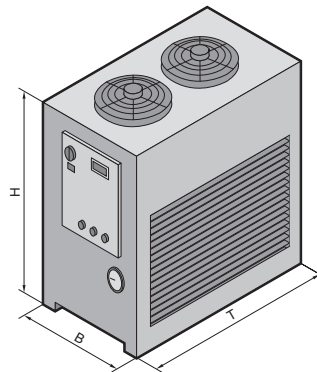see page 1177.

Options,
see page 1171.

B
4.2

Immersible recooling systems

Model No. SK for emulsion		3338.700	3338.720	3338.740	3338.760	3338.780	3338.800	3338.820	3338.840
Rated operating voltage V, Hz		400, 3~, 50/460, 3~, 60							
Cooling output at $T_{EM} = 20°C/T_u = 32°C$		**20700 W/ 23200 W**	**30800 W/ 34500 W**	**34900 W/ 39100 W**	**44500 W/ 49800 W**	**48600 W/ 54400 W**	**60600 W/ 67900 W**	**72600 W/ 81300 W**	**77900 W/ 87200 W**
Dimensions in mm	B1	785			1830				
	H1	1650			1650				
	T1	1830			1830				
Dimensions of immersible part, mm	B1	719			1764				
	T2	1764			1764				
Immersion depth mm	H2	550							
Minimum medium level with flat evaporator coil, mm		280	330		280			330	380

Power consumption		13.3 kW/ 16.6 kW	18.4 kW/ 22.5 kW	20.5 kW/ 25.3 kW	27.1 kW/ 27.8 kW	29.7 kW/ 35.4 kW	35.2 kW/ 42.1 kW	40.7 kW/ 48.8 kW	43.3 kW/ 51.9 kW
Rated current max.		17.9 A/ 18.4 A	22.2 A/ 23.6 A	24.9 A/ 26.1 A	36.7 A/ 36.5 A	36.6 A/ 37.0 A	43.9 A/ 44.1 A	51.2 A/ 51.1 A	54.2 A/ 54.2 A
Refrigerant		R407C							
$P_{max.}$ cooling circuit		27 bar							
Temperature range	Environment	+15°C to +45°C							
	Liquid media	+10°C to +25°C							
Weight		300 kg	375 kg		420 kg		420 kg	430 kg	450 kg
Colour		RAL 7035							
Protection category (electrics)		IP 54							
Air throughput of fans		15000/15600 m³/h			30000/31200 m³/h				
Temperature control		Electronic control with digital display, setting range +10°C to +25°C (factory setting +20°C)							

Delivery times available on request.
Special voltages available on request. We reserve the right to make technical modifications.

Configuration software Page 1063

Heat exchangers

Features of air/air heat exchangers

The requirement for use of **air/air heat exchangers** is that the ambient temperature must be below the enclosure internal temperature. Dust and any aggressive ambient air is unable to ingress the enclosure interior, thanks to the two separate air circuits.

The air of the enclosure interior may also be cooled to below the level of the external temperature by using **air/water heat exchangers** with a central recooling system. Dust is unable to penetrate the enclosure. The waste heat from the enclosure does not raise the temperature of the ambient air, provided the cold water supply system is spatially separated.

Platform strategy/installation

Identical installation cutouts for various output categories.

Easily retro-fitted Thanks to the low weight, simple assembly cutouts and

problem-free attachment of the heat exchangers, a cabinet or enclosure is easily retro-fitted.

Servicing/security

Simple maintenance The heat exchanger module is very easily removed, for effort-

less cleaning. The cleverly thought-out structure enables fast, economical maintenance.

Benefits:
- Specific thermal output from 17.5 W/K to 90 W/K
- External and internal circuit may be controlled separately
- Mounting cutouts and enclosure dimensions identical to TopTherm wall-mounted cooling units
- Suitable for external and internal mounting
- Top design identical to TopTherm wall-mounted cooling units

Important:
- The temperature difference between the room temperature and enclosure internal temperature will have a decisive effect on the heat loss that may be dissipated.

For calculation bases, refer to our website: www.rittal.com

Features of air/water heat exchangers

Even suitable for use in extreme conditions
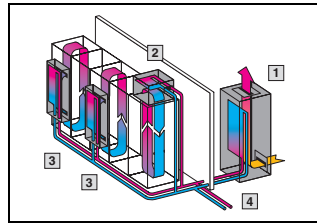
Example: Parallel connection of air/water heat exchangers with cold water supply via a recooling system.

Overflow valves and bypass control should be integrated into the recooling system and the customer's own pipeline system respectively.

1 Recooling system

2 Air/water heat exchanger, roof-mounted

3 Air/water heat exchanger, wall-mounted

4 Additional cooling water circuit for machine cooling

Ideal for any location
If direct dissipation of heat loss to the ambient air is not desired or ineffective due to confined spaces, the air/water heat exchanger may provide the ideal solution. Particularly by spatially separating the exchanger from the recooling system, highly individual and effective solutions for cooling individual enclosures or bayed enclsosure suites can be achieved.

Variants

Roof mounting
Especially for bayed enclosures, where wall-mounted devices would obstruct the door.

Wall mounting
For mounting on the wall or any sufficiently large vertical surface.

Side panel
Economical use: Air/water heat exchanger as a side panel in the TS 8 enclosure system.

Controller

Basic controller:
- Visualisation of the operating status via LED display
- Switching hysteresis: 5 K
- Floating fault signal contact in case of overtemperature
- Setpoint adjustable from outside via potentiometer (setting range 20° – 55°C)

Comfort controller
- Switching hysteresis: 2 – 10 K preset to 5 K
- System alarm, individually configurable for 2 floating fault signal contacts
- Visualisation of the current enclosure internal temperature and all system messages on the display
- Storage of all system states in the log file
- Optional extension card for integration into superordinate remote monitoring systems e.g. with CMC
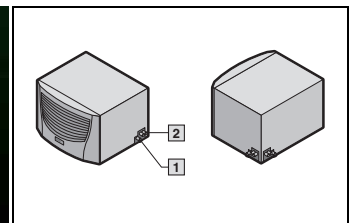
Flexible water logistics and condensate management
Any condensate arising is discharged via one of the two tube connectors ($1/2''$) and a discharge hose, which should be laid with a gradient ensuring that there are no kinks. In order to avoid increased condensation, the cooling water temperature should be adapted to match the required cooling output.

1 Condensate discharge (flexible)

2 Cooling water connection (flexible)

Benefits:
- Useful cooling output from 600 W to 5000 W
- Suitable for use even in extreme conditions and ambient temperatures up to +70°C
- Also available with all water-carrying parts made from V4A
- System for TS 8 integrated into the side panel

Important:
- Air/water heat exchangers should always be used in conjunction with recooling systems or a cooling water circuit

For calculation formulae and requirements regarding water quality, refer to our website: www.rittal.com

B

4.3

Heat exchangers

Air/water heat exchanger

Micro, wall-mounted, useful cooling output 300 W
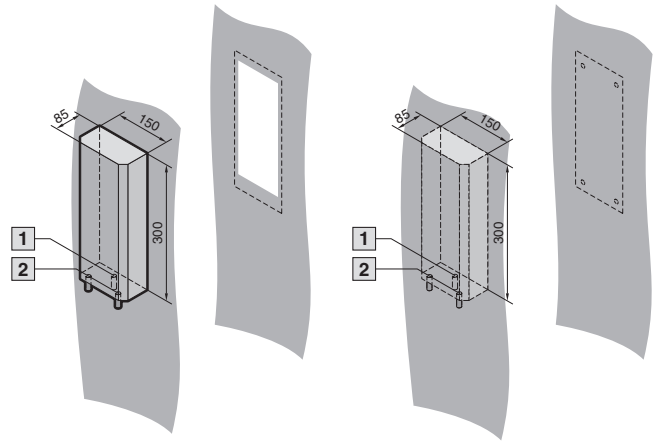
Especially for selective cooling of hotspots in small enclosures.

Supply includes:
Fully wired ready for connection, including drilling template and assembly parts.

[1] Condensate discharge
[2] Cooling water connection (quick-release fastener)

Approvals,
see page 75.

Detailed drawing,
see page 1178.

Performance diagrams,
available on the Internet.

Model No. SK		3212.230	3212.115[1]	3212.024
Rated operating voltage V, Hz		230, 50/60	115, 50/60	24 V (DC)
Dimensions in mm	W	150		
	H	300		
	D	85		
Useful cooling output	L 35 W 10, 200 l/h	300 W		

Accessories				Page
Rated current max.		0.11 A/0.13 A	0.23 A/0.24 A	1.20 A
Pre-fuse T		4.0 A		
Cooling medium		Water (refer to specifications on the Internet; assembly instructions chapter 12)		
Water inlet temperature		> +1°C to +30°C		
Permissible operating pressure p. max.		1 to 10 bar		
Temperature range		+1°C to +70°C		
Protection category to EN 60 529/10.91		IP 55[2]		
Duty cycle		100 %		
Type of connection		Connection clamp		
Weight		3 kg		
Colour		RAL 7035		
Air throughput of fans (unimpeded air flow)		280 m³/h		250 m³/h
Accessories	Packs of			Page
Temperature indicator	1	3114.100		660
Door-operated switch	1	4127.000		956
Condensate hose	1	3301.612		665
Flow regulator valve	1	see accessories		667

[1] Delivery times available on request.
[2] IP 65 available on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.3

Air/water heat exchanger

Wall mounting, useful cooling output 600/1000 W
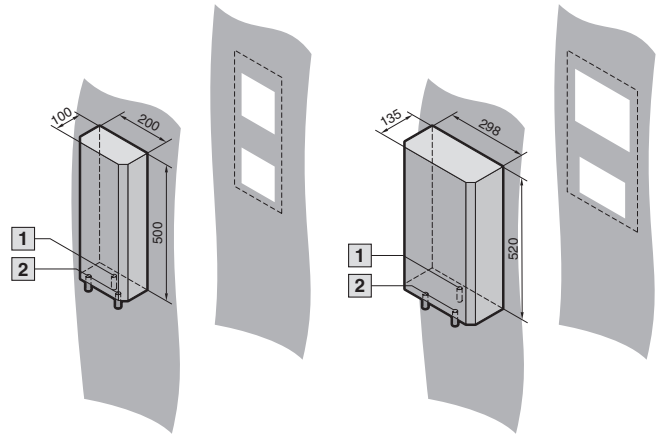
Supply includes:
Fully wired ready for connection with terminal strip, including drilling template, sealing mat and assembly parts.

⚠ Also required:
Cooling water system such as Rittal recooling systems, see page 608 onwards.

1 Condensate discharge 1/2″
2 Cooling water connection 1/2″

Approvals,
see page 76.

Detailed drawing,
see page 1178.

Performance diagrams,
available on the Internet.

Model No. SK		3214.100	3217.100
Rated operating voltage V, Hz		230, 50/60	
Dimensions in mm	W	200	298
	H	500	520
	D	100	135
Useful cooling output	**L 35 W 10, 200 l/h**	**600 W**	**1000 W**
	L 35 W 10, 400 l/h	**650 W**	**1100 W**

Rated current max.	0.17 A/0.18 A	0.6 A/0.55 A
Pre-fuse T	2.0 A	4.0 A
Cooling medium	Water (refer to specifications on the Internet; assembly instructions chapter 12)	
Water inlet temperature	> +1°C to +30°C	
Permissible operating pressure p. max.	1 to 10 bar	
Temperature range	+1°C to +70°C	
Protection category to EN 60 529/10.91	IP 55[1]	
Duty cycle	100 %	
Type of connection	Terminal strip	
Weight	7 kg	9.5 kg
Colour	RAL 7032	
Air throughput of fans	120 m³/h	240 m³/h
Temperature control	Thermostat-controlled magnetic valve	
Temperature monitoring	Internal thermostat, with change-over contact, switching load 16 A, setting range +20°C to +60°C (factory setting +35°C)	

Accessories	Packs of		Page
Temperature indicator	1	3114.100	660
Door-operated switch	1	4127.000	956
Condensate hose	1	3301.612	665
Flow regulator valve	1	see accessories	667

[1] IP 65 available on request.
Special voltages available on request. We reserve the right to make technical modifications.

B

4.3

Air/water heat exchanger

Accessories Page 657 **Recooling systems** From page 606 **Configuration software** Page 1063

Air/water heat exchanger

Wall mounting, useful cooling output 1250/1540 W

Supply includes:
Fully wired ready for connection with terminal strip or connection cable (3 m), including drilling template, sealing mat and assembly parts.

⚠ **Also required:**

Cooling water system such as Rittal recooling systems, see page 608 onwards.

1 Condensate discharge ¹/₂″
2 Cooling water connection ¹/₂″

Approvals,
see page 76.

Detailed drawing,
see page 1179.

Performance diagrams,
available on the Internet.

Model No. SK		3215.100	3247.000
Rated operating voltage V, Hz		230, 50/60	
Dimensions in mm	W	200	380
	H	950	825
	D	100	105
Useful cooling output	L 35 W 10, 200 l/h	1250 W	1540 W
	L 35 W 10, 400 l/h	1300 W	1700 W

Rated current max.	0.38 A/0.4 A	0.43 A/0.5 A
Pre-fuse T	4.0 A	
Cooling medium	Water (refer to specifications on the Internet; assembly instructions chapter 12)	
Water inlet temperature	> +1°C to +30°C	
Permissible operating pressure p. max.	1 to 10 bar	
Temperature range	+1°C to +70°C	
Protection category to EN 60 529/10.91	IP 55[1]	
Duty cycle	100 %	
Type of connection	Terminal strip	Connection cable 3 m
Weight	13 kg	17 kg
Colour	RAL 7032	
Air throughput of fans	200 m³/h	240 m³/h
Temperature control	Thermostat-controlled magnetic valve	
Temperature monitoring	Internal thermostat, with change-over contact, switching load 16 A, setting range +20°C to +60°C (factory setting +35°C)	

Accessories	Packs of		Page
Temperature indicator	1	3114.100	660
Door-operated switch	1	4127.000	956
Condensate hose	1	3301.612	665
Flow regulator valve	1	see accessories	667

[1] IP 65 available on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.3

Air/water heat exchanger

Wall mounted, useful cooling output 2250/3000/4500 W

Supply includes:
Fully wired ready for connection with terminal strip, including drilling template, sealing mat and assembly parts.

! **Also required:**

Cooling water system such as Rittal recooling systems, see page 608 onwards.

1 Condensate discharge 1/2″

2 Cooling water connection 1/2″

Approvals,
see page 76.

Detailed drawing,
see page 1179.

Performance diagrams,
available on the Internet.

Model No. SK		3218.104[1]	3218.100	3216.100
Rated operating voltage V, Hz		230, 50/60		
Dimensions in mm	W	400		450
	H	950		1400
	D	200		250
Useful cooling output	L 35 W 10, 200 l/h	2250 W	3000 W	4500 W
	L 35 W 10, 400 l/h	2650 W	3500 W	5000 W

Rated current max.	0.42 A/0.48 A		1.0 A/1.1 A
Pre-fuse T	4.0 A		
Cooling medium	Water (refer to specifications on the Internet; assembly instructions chapter 12)		
Water inlet temperature	> +1°C to +30°C		
Permissible operating pressure p. max.	1 to 10 bar		
Temperature range	+1°C to +70°C		
Protection category to EN 60 529/10.91	IP 55[2]		
Duty cycle	100 %		
Type of connection	Terminal strip		
Weight	19 kg	21 kg	56 kg
Colour	RAL 7032		
Air throughput of fans	240 m³/h	450 m³/h	1000 m³/h
Temperature control	Thermostat-controlled magnetic valve		

Accessories	Packs of		Page
Temperature indicator	1	3114.100	660
Door-operated switch	1	4127.000	956
Condensate hose	1	3301.612	665
Flow regulator valve	1	see accessories	667

[1] Delivery times available on request, all water-carrying parts V4A 1.4571.
[2] IP 65 available on request.
Special voltages available on request. We reserve the right to make technical modifications.

B

4.3

Air/water heat exchanger

Air/water heat exchanger

Roof-mounted, useful cooling output 2500 W

Supply includes:
Fully wired ready for connection with connector, including drilling template, sealing mat and assembly parts.

⚠ **Also required:**

Cooling water system such as Rittal recooling systems, from page 608.

1 Condensate discharge (flexible)

2 Cooling water connection (flexible)

Approvals,
see page 76.

Detailed drawing,
see page 1180.

Performance diagrams,
available on the Internet.

Property rights:
German registered designs
no. 402 02 324 and
no. 402 02 325
US design patent
no. US D 492,319S
Indian registered design
no. 189 956
Chinese registered design
no. ZL 0330 6415.6

RITTAL TOP THERM

	Water-carrying parts			
Model No. SK Basic controller	CuAL	3209.100	3209.110	3209.140[1]
Model No. SK Comfort controller	CuAL	3209.500	3209.510	3209.540[1]
Useful cooling output CuAL	L 35 W 10, 400 l/h	2500 W		
Model No. SK Basic controller	V4A (stainless steel)	3209.104[1]	3209.114[1]	3209.144[1]
Model No. SK Comfort controller	V4A (stainless steel)	3209.504[1]	3209.514[1]	3209.544[1]
Useful cooling output V4A	L 35 W 10, 400 l/h	1875 W		
Rated operating voltage V, Hz		230, 50/60	115, 50/60	400, 2~, 50/60
Dimensions in mm	W	597		
	H	415		
	D	475		

Rated current max.	0.40 A	0.85 A	0.25 A
Pre-fuse T	4.0 A		
Cooling medium	Water (refer to specifications on the Internet; assembly instructions chapter 13)		
Water inlet temperature	> +1°C to +30°C		
Permissible operating pressure p. max.	1 to 10 bar		
Temperature range	+1°C to +70°C		
Protection category to EN 60 529/10.91	IP 55[2]		
Duty cycle	100 %		
Type of connection	Plug-in terminal strip		
Weight	23.5 kg	27.5 kg	27.5 kg
Colour	RAL 7035		
Air throughput of fans (unimpeded air flow)	1030 m³/h		
Temperature control	Basic or Comfort controller (factory setting +35°C)		

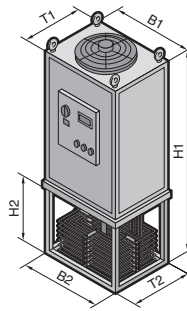| Accessories	Packs of		Page
Door-operated switch	1	4127.000	956
SK bus system for Comfort controller	1	3124.100	663
Interface card for Comfort controller	1	3124.200	662
Air ducting system	1	3286.870	658
Cover stoppers for interior air outlet	1	3286.880	658
Condensate hose	1	3301.612	665
Flow regulator valve	1	see accessories	667

[1] Delivery times available on request.
[2] IP 65 available on request.
Special voltages available on request. We reserve the right to make technical modifications.

Roof-mounted, useful cooling output 4000 W

Supply includes:
Fully wired ready for connection with connector, including drilling template, sealing mat and assembly parts.

⚠ Also required:
Cooling water system such as Rittal recooling systems, from page 608.

1 Condensate discharge (flexible)

2 Cooling water connection (flexible)

Approvals,
see page 76.

Detailed drawing,
see page 1180.

Performance diagrams,
available on the Internet.

Property rights:
German registered designs no. 402 02 324 and no. 402 02 325
US design patent no. US D 492,319S
Indian registered design no. 189 956
Chinese registered design no. ZL 0330 6415.6

RITTAL TOP THERM

	Water-carrying parts			
Model No. SK Basic controller	CuAL	**3210.100**	**3210.110**	**3210.140**[1]
Model No. SK Comfort controller	CuAL	**3210.500**	**3210.510**	**3210.540**[1]
Useful cooling output CuAL	L 35 W 10, 400 l/h	4000 W		
Model No. SK Basic controller	V4A (stainless steel)	**3210.104**[1]	**3210.114**[1]	**3210.144**[1]
Model No. SK Comfort controller	V4A (stainless steel)	**3210.504**[1]	**3210.514**[1]	**3210.544**[1]
Useful cooling output V4A	L 35 W 10, 400 l/h	3000 W		
Rated operating voltage V, Hz		230, 50/60	115, 50/60	400, 2~, 50/60
Dimensions in mm	W	597		
	H	415		
	D	475		

Rated current max.	0.44 A	0.9 A	0.25 A
Pre-fuse T	4.0 A		
Cooling medium	Water (refer to specifications on the Internet; assembly instructions chapter 13)		
Water inlet temperature	> +1°C to +30°C		
Permissible operating pressure p. max.	1 to 10 bar		
Temperature range	+1°C to +70°C		
Protection category to EN 60 529/10.91	IP 55[2]		
Duty cycle	100 %		
Type of connection	Plug-in terminal strip		
Weight	25.5 kg	29.5 kg	29.5 kg
Colour	RAL 7035		
Air throughput of fans (unimpeded air flow)	925 m³/h		
Temperature control	Basic or Comfort controller (factory setting +35°C)		

Accessories	Packs of		Page
Door-operated switch	1	4127.000	956
SK bus system for Comfort controller	1	3124.100	663
Interface card for Comfort controller	1	3124.200	662
Air ducting system	1	3286.870	658
Cover stoppers for interior air outlet	1	3286.880	658
Condensate hose	1	3301.612	665
Flow regulator valve	1	see accessories	667

[1] Delivery times available on request.
[2] IP 65 available on request.
Special voltages available on request. We reserve the right to make technical modifications.

B 4.3

Air/water heat exchanger

Air/water heat exchanger

As a side panel for 600 mm deep TS 8 enclosures, useful cooling output 700 W

Supply includes:
Wired ready for connection, with terminal strip, sealing material and assembly parts.

! Also required:
Cooling water system such as Rittal recooling systems, see page 608 onwards.

1 Water connections
2 Hose 10 mm diameter
3 Condensate discharge

Approvals,
see page 76.

Detailed drawing,
see page 1180.

Performance diagrams,
available on the Internet.

Property rights:
German patent
no. 198 04 901
European patent no. 1 053 582
with validity for ES, FR, GR, IT
Australian patent no. 740 300
US patent no. 6,488,214

Model No. SK		3316.180	3316.200
Rated operating voltage V, Hz		230, 50/60	
Dimensions to fit TS enclosures mm	D	600	600
	H	1800	2000
Useful cooling output	**L 35 W 10, 100 l/h**	**700 W**	

Rated current max.	0.45 A/0.51 A
Pre-fuse T	4.0 A
Cooling medium	Water (refer to specifications on the Internet; assembly instructions chapter 12)
Water inlet temperature	> +1°C to +35°C
Permissible operating pressure p. max.	1 to 10 bar
Temperature range	+1°C to +70°C
Protection category to EN 60 529/10.91	IP 54
Duty cycle	100 %
Type of connection	Terminal strip
Weight	26 kg
Colour	RAL 7035[1]
Air throughput of fans	170 m³/h
Temperature control	Thermostat-controlled magnetic valve
Temperature monitoring	Internal thermostat, with change-over contact, switching load 16 A, setting range +20°C to +60°C (factory setting +35°C)

Accessories	Packs of		Page
Temperature indicator	1	3114.100	660
Door-operated switch	1	4127.000	956
Condensate hose	1	3301.610	665
Flow regulator valve	1	see accessories	667

[1] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

RITTAL TOP THERM

Supply includes:
Fully wired unit ready for connection.

Approvals,
see page 77.

Detailed drawing,
see page 1181.

Performance diagrams,
available on the Internet.

Property rights:
German registered designs
no. 402 02 324 and
no. 402 02 325
IR reg. design no. DM/061 967
and no. DM/062 557
Chinese registered design
no. ZL 0330 8461.1
Indian registered design
no. 190 269 and no. 189 953
Japanese registered design
no. 1 187 905 and
no. 1 187 896
US design patent
no. US D 488,480S

B = Width
T = Depth

Model No. SK		3126.100	3127.100	3128.100	3129.100
Rated operating voltage V, Hz		230, 50/60			
Dimensions in mm	B	280	400	400	
	H	550	950	950	
	T1	150	205	225	
	T2	–	155	175	
Specific thermal output		**17.5 W/K**	**30 W/K**	**45 W/K**	**60 W/K**

Fans		2 per heat exchanger			
Max. rated current per fan		0.11 A/0.13 A	0.28 A/0.34 A	0.3 A/0.4 A	0.38 A/0.4 A
Power per fan		23 W/27 W	60 W/75 W	70 W/90 W	85 W/90 W
Air throughput of fans	External circuit	265 m³/h / 315 m³/h	480 m³/h / 525 m³/h	600 m³/h / 625 m³/h	860 m³/h / 900 m³/h
	Internal circuit	265 m³/h / 315 m³/h	480 m³/h / 525 m³/h	600 m³/h / 625 m³/h	860 m³/h / 900 m³/h
Temperature range		–5°C to +55°C			
Type of connection		Plug-in terminal strip			
Weight		10 kg	18 kg	19 kg	21 kg
Colour		RAL 7035			
Protection category to EN 60 529/10.91	Internal circuit	IP 54			

Accessories	Packs of				Page
Filter mats	3	3286.300	3286.400		668
Metal filters	1	3286.310	3286.410		669
Thermostat	1	3110.000			661
Temperature indicator	1	3114.100			660
Speed control	1	3120.000			662

Special voltages available on request. We reserve the right to make technical modifications.

B
4.3

Air/air heat exchangers

Air/air heat exchangers

Wall mounted, specific thermal output 90 W/K
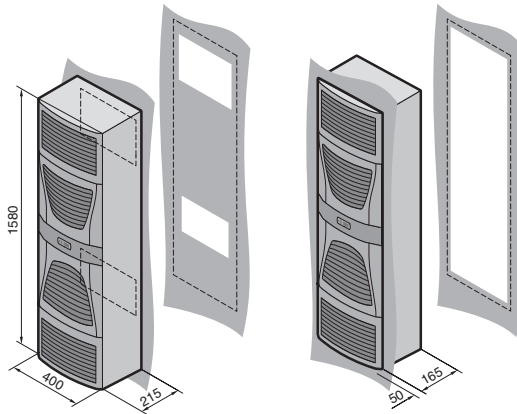
Supply includes:
Fully wired unit ready for connection.

Approvals,
see page 77.

Detailed drawing,
see page 1181.

Performance diagrams,
available on the Internet.

Property rights:
German registered designs
no. 402 02 324 and
no. 402 02 325
IR reg. design no. DM/061 967
and no. DM/062 557
Brazilian registered design
no. DI 6203240-2
Chinese registered design
no. ZL 0330 4386.8
Indian registered designs
nos. 190 270, 189 954, 189 955,
189 958

Japanese registered design
no. 1 187 906 and no. 1 187 897
US design patent
no. US D 492,319S and
US D 492,320S

RITTAL TOP THERM

Model No. SK		3130.100
Rated operating voltage V, Hz		230, 50/60
Dimensions in mm	W	400
	H	1580
	D	215
Specific thermal output		**90 W/K**

Fans		2 per heat exchanger
Max. rated current per fan		0.67 A/0.88 A
Power per fan		150 W/200 W
Air throughput of fans	External circuit	850 m³/h / 945 m³/h
	Internal circuit	850 m³/h / 945 m³/h
Temperature range		–5°C to +55°C
Type of connection		Plug-in terminal strip
Weight		34 kg
Colour		RAL 7035
Protection category to EN 60 529/10.91	Internal circuit	IP 54

Accessories	Packs of			Page
Filter mats	3	3286.400		668
Metal filters	1	3286.410		669
Thermostat	1	3110.000		661
Temperature indicator	1	3114.100		660
Speed control	1	3120.000		662

Special voltages available on request. We reserve the right to make technical modifications.

B
4.3

Air/air heat exchangers

Features

Fan-and-filter units are ideal for dissipating high heat loads cost-effectively. The pre-requisite is that the ambient air must be relatively clean with a temperature below the desired enclosure internal temperature.

The entire range of fan-and-filter units is now also available with EMC shielding and all required rated voltages.

Fast assembly
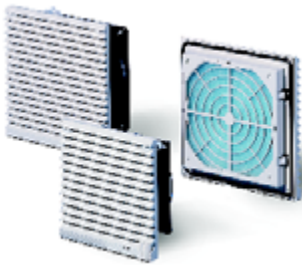
Super-fast clip-on mounting
This guarantees fast, completely secure attachment of the fan-and-filter unit. The pre-requisites for protection category IP 54 are met as standard.

Screws are not required. Removal of the louvred grille, likewise without any screws, means that filter mat changes can be achieved in next to no time.

Blowing or extracting?
The air direction may be quickly reversed from blowing (standard setting) to extracting. Simply rotate the fan through 180°.

Application diversity and functions

Not always full power!
At lower ambient temperatures, the air throughput may be reduced. By adapting the fan-and-filter speed to match the temperature using a controller, noise generation is reduced.

Also available with EMC shielding
All fan-and-filter units and outlet filters are alternatively available with EMC shielding.
The required conductive connection is achieved via a metallic coating on the fan-and-filter unit housing and a special sealing frame.

Hosed water protection
Particularly for applications in the food industry, the hose-proof hood prevents the ingress of damp. The protection category of IP 56 is achieved in conjunction with filter mats.

Benefits:
- Air throughput of 20 m³/h to 700 m³/h
- Super-fast assembly
- IP 54 as standard
- Air flow direction may be reversed from extracting (standard setting) to blowing
- All fans also available with EMC shielding

Important:
- The prescribed heat loss and the maximum anticipated ambient temperature define the required volumetric flow
- Always use the fan-and-filter units and outlet filters together

For calculation formulae refer to our website: www.rittal.com

B
4.4

Fan-and-filter units

Fan-and-filter units

Air throughput 20/55 m^3/h
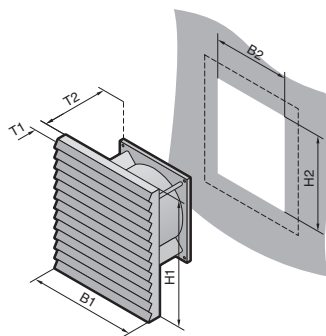
B = Width
T = Depth

Supply includes:
Fan-and-filter unit ready for installation, including filter mats.

German registered design no. M 93 04 846

Approvals, see page 77.

Performance diagrams, available on the Internet.

Fan-and-filter units

Model No. fan-and-filter unit SK		3321.107	3321.117	3321.027	3321.047[1]	3322.107	3322.117	3322.027	3322.047[1]
Rated operating voltage V, Hz		230, 50/60	115, 50/60	24 (DC)	48 (DC)	230, 50/60	115, 50/60	24 (DC)	48 (DC)
Dimensions in mm	B1/H1	116.5				148.5			
	B2/H2	92 + 0.8[2]				124[2]			
	T1	10				10.5			
Max. installation depth mm	T2	42				57			
Air throughput, unimpeded air flow		**20/25 m³/h**		**20 m³/h**		**55/66 m³/h**		**55 m³/h**	
Air throughput with outlet filter including standard filter mat		1 x SK 3321.207: **15/18 m³/h**				1 x SK 3322.207: **43/50 m³/h**			

Axial fan	self-starting shaded pole motor		DC motor		self-starting shaded pole motor		DC motor	
Rated current max.	69 mA 58 mA	138 mA 115 mA	125 mA	90 mA	0.12 A 0.11 A	0.24 A 0.23 A	0.35 A	90 mA
Power	12.5 W/10.3 W		3.0 W	4.1 W	19.0 W/18.0 W		7.7 W	4.4 W
Noise level	41/46 dB (A)		41 dB (A)		46/49 dB (A)		46 dB (A)	
Temperature range	−10°C to +55°C							
Colour	RAL 7035[3]							
Protection category to EN 60 529/10.91	IP 54 standard IP 56 when using a hose-proof hood							
Model No. outlet filter SK	**3321.207**				**3322.207**			

Accessories	Packs of									Page
Spare filter mats	5	3321.700				3322.700				670
Thermostat	1	3110.000								661
Temperature indicator	1	3114.100	3114.115	3114.024	–	3114.100	3114.115	3114.024	–	660
Speed control	1	3120.000	3120.115	–	–	3120.000	3120.115	–	–	662
Hose-proof hood	1	3321.800				3322.800				666

[1] Delivery times available on request.
[2] For metal thickness > 2.5 mm, the cutout B2/H2 must be 1 mm larger.
[3] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **EMC-protected design** Page 640 **Configuration software** Page 1063

B = Width
T = Depth

Supply includes:
Fan-and-filter unit ready for installation, including filter mats.

German registered design no. M 93 04 846

Approvals, see page 77.

Performance diagrams, available on the Internet.

Model No. fan-and-filter unit SK		3323.107	3323.117	3323.027	3323.047[1]	3324.107	3324.117	3324.027	3324.047[1]
Rated operating voltage V, Hz		230, 50/60	115, 50/60	24 (DC)	48 (DC)	230, 50/60	115, 50/60	24 (DC)	48 (DC)
Dimensions in mm	B1/H1	204				255			
	B2/H2	177[2]				224[2]			
	T1	12.5				12.5			
Max. installation depth mm	T2	82.5				105			
Air throughput, unimpeded air flow		**105/120 m³/h**		**105 m³/h**		**180/160 m³/h**		**180 m³/h**	
Air throughput with outlet filter including standard filter mat		1 x SK 3323.207: **71/82 m³/h** 2 x SK 3323.207: **85/98 m³/h** 1 x SK 3325.207: **78/90 m³/h**				1 x SK 3325.207: **115/95 m³/h** 2 x SK 3325.207: **165/140 m³/h** 1 x SK 3326.207: **155/130 m³/h**			

Axial fan	self-starting shaded pole motor		DC motor		self-starting shaded pole motor		DC motor	
Rated current max.	0.12 A 0.11 A	0.24 A 0.23 A	0.35 A	90 mA	0.19 A 0.20 A	0.38 A 0.40 A	0.3 A	0.34 A
Power	19.0 W/18.0 W		8.0 W	4.3 W	30.0 W/35.0 W		7.2 W	14.0 W
Noise level	46/49 dB (A)		46 dB (A)		52/48 dB (A)		52 dB (A)	
Temperature range	−10°C to +55°C							
Colour	RAL 7035[3]							
Protection category to EN 60 529/10.91	IP 54 standard IP 55 when using an additional fine filter mat IP 56 when using an additional fine filter mat and hose-proof hood							
Model No. outlet filter SK	**3323.207**				**3325.207**			

Accessories	Packs of								Page
Spare filter mats	5	3171.100				3172.100			670
Fine filter mats	5	3181.100				3182.100			670
Thermostat	1	3110.000							661
Temperature indicator	1	3114.100	3114.115	3114.024	–	3114.100	3114.115	3114.024	–	660
Speed control	1	3120.000	3120.115	–	–	3120.000	3120.115	–	–	662
Hose-proof hood	1	3323.800				3324.800			666

[1] Delivery times available on request.
[2] For metal thickness > 2.5 mm, the cutout B2/H2 must be 1 mm larger.
[3] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

Fan-and-filter units

Air throughput 230 m^3/h
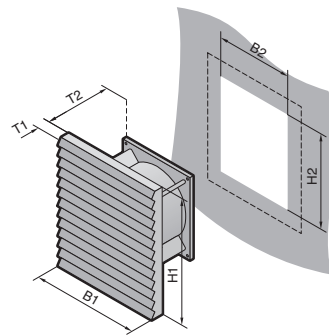
B = Width
T = Depth

Supply includes:
Fan-and-filter unit ready for installation, including filter mats.

German registered design no. M 93 04 846

Approvals,
see page 77.

Performance diagrams,
available on the Internet.

Model No. fan-and-filter unit SK		3325.107	3325.117	3325.027	3325.047[1]
Rated operating voltage V, Hz		230, 50/60	115, 50/60	24 (DC)	48 (DC)
Dimensions in mm	B1/H1	255			
	B2/H2	224[2]			
	T1	12.5			
Max. installation depth mm	T2	105			
Air throughput, unimpeded air flow		**230/265 m^3/h**		**230 m^3/h**	
Air throughput with outlet filter including standard filter mat		1 x SK 3325.207: **170/205 m^3/h** 2 x SK 3325.207: **200/230 m^3/h** 1 x SK 3326.207: **190/215 m^3/h**			

Axial fan	self-starting shaded pole motor		DC motor	
Rated current max.	0.28 A 0.24 A	0.53 A 0.49 A	0.59 A	0.31 A
Power	41.0 W/38.0 W		14.0 W	15.0 W
Noise level	54/56 dB (A)		54 dB (A)	
Temperature range	−10°C to +55°C			
Colour	RAL 7035[3]			
Protection category to EN 60 529/10.91	IP 54 standard IP 55 when using an additional fine filter mat IP 56 when using an additional fine filter mat and hose-proof hood			

Model No. outlet filter SK		3325.207			
Accessories	Packs of				Page
Spare filter mats	5	3172.100			670
Fine filter mats	5	3182.100			670
Thermostat	1	3110.000			661
Temperature indicator	1	3114.100	3114.115	3114.024	–	660
Speed control	1	3120.000	3120.115	–	–	662
Hose-proof hood	1	3324.800			666

[1] Delivery times available on request.
[2] For metal thickness > 2.5 mm, the cutout B2/H2 must be 1 mm larger.
[3] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **EMC-protected design** Page 640 **Configuration software** Page 1063

Air throughput 550/700 m^3/h
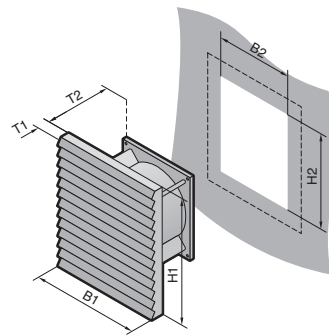
B = Width
T = Depth

Supply includes:
Fan-and-filter unit ready for installation, including filter mats.

German registered design no. M 93 04 846

Approvals, see page 77.

Performance diagrams, available on the Internet.

Model No. fan-and-filter unit SK		3326.107	3326.117	3327.107	3327.117	3327.147
Rated operating voltage V, Hz		230, 50/60	115, 50/60	230, 50/60	115, 50/60	400/460, 3~, 50/60
Dimensions in mm	B1/H1	323				
	B2/H2	292[1]				
	T1	12.5				
Max. installation depth mm	T2	125		145		
Air throughput, unimpeded air flow		**550/600 m³/h**		**700/720 m³/h**		
Air throughput with outlet filter including standard filter mat		1 x SK 3326.207: **360/390 m³/h** 2 x SK 3326.207: **440/495 m³/h**		1 x SK 3326.207: **525/575 m³/h**		

Axial fan	Capacitor motor				Rotary current motor
Rated current max.	0.29 A 0.35 A	0.58 A 0.70 A	0.65 A 0.95 A	1.5 A 2.0 A	0.27 A 0.37 A
Power	64.0 W/80.0 W		115.0 W/212.0 W	167.0 W/230.0 W	146.0 W/220.0 W
Noise level	59/61 dB (A)		75/76 dB (A)		
Temperature range	−10°C to +55°C				
Colour	RAL 7035[2]				
Protection category to EN 60 529/10.91	IP 54 standard IP 55 when using an additional fine filter mat IP 56 when using an additional fine filter mat and hose-proof hood				
Model No. outlet filter SK	**3326.207**				

Accessories	Packs of					Page
Spare filter mats	5	3173.100		3327.700		670
Fine filter mats	5	3183.100				670
Thermostat	1	3110.000			–	661
Temperature indicator	1	3114.100	3114.115	3114.100	3114.115	–	660
Speed control	1	3120.000	3120.115	3120.000	–	–	662
Hose-proof hood	1	3326.800				666

[1] For metal thickness > 2.5 mm, the cutout B2/H2 must be 1 mm larger.
[2] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.4

Fan-and-filter units

Fan-and-filter unit – EMC

Air throughput 20 – 105 m^3/h
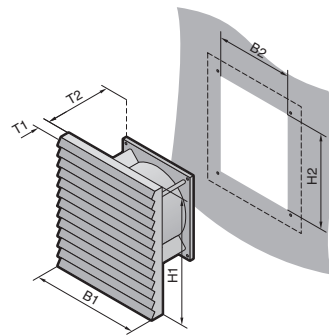
B = Width
T = Depth

Supply includes:
Fan-and-filter unit ready for installation, including drilling template, filter mat and assembly parts.

Approvals,
see page 78.

Performance diagrams,
available on the Internet.

Model No. fan-and-filter unit SK		3321.607	3321.617[1]	3322.607	3322.617[1]	3323.607	3323.617[1]
Rated operating voltage V, Hz		230, 50/60	115, 50/60	230, 50/60	115, 50/60	230, 50/60	115, 50/60
Dimensions in mm	B1/H1	116.5		148.5		204	
	B2/H2	92 + 0.8[2]		124[2]		177[2]	
	T1	10		10.5		12.5	
Max. installation depth mm	T2	42		57		82,5	
Air throughput, unimpeded air flow		**20/25 m^3/h**		**55/66 m^3/h**		**105/120 m^3/h**	
Air throughput with outlet filter including standard filter mat		1 x 3321.267: **15/18 m^3/h**		1 x 3322.267: **43/50 m^3/h** 2 x 3322.267: **48/55 m^3/h** 1 x 3323.267: **48/55 m^3/h**		1 x 3323.267: **71/82 m^3/h** 2 x 3323.267: **85/98 m^3/h** 1 x 3325.267: **78/90 m^3/h**	

Axial fan		self-starting shaded pole motor					
Rated current max.		69 mA/ 58 mA	138 mA/ 115 mA	0.12 A/ 0.11 A	0.24 A/ 0.23 A	0.12 A/ 0.11 A	0.24 A/ 0.23 A
Power		12.5 W/10.3 W		19.0 W/18.0 W			
Noise level		41/46 dB (A)		46/49 dB (A)			
Temperature range		−10°C to +55°C					
Colour		RAL 7035[3]					
Protection category to EN 60 529/10.91		IP 54 standard					
Model No. outlet filter – EMC SK		**3321.267**		**3322.267**		**3323.267**	

Accessories	Packs of						Page
Spare filter mats	5	3321.700		3322.700		3171.100	670
Fine filter mats	5	–				3181.100	670
Thermostat	1	3110.000					661
Temperature indicator	1	3114.100	3114.115	3114.100	3114.115	3114.100	3114.115	660
Speed control	1	3120.000	3120.115	3120.000	3120.115	3120.000	3120.115	662
Hose-proof hood	1	3321.800		3322.800		3323.800	666

[1] Delivery times available on request.
[2] For metal thickness > 2.5 mm, the cutout B2/H2 must be 1 mm larger.
[3] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.
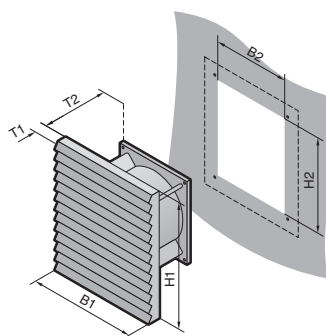
B = Width
T = Depth

Supply includes:
Fan-and-filter unit ready for installation, including drilling template, filter mat and assembly parts.

Approvals,
see page 78.

Performance diagrams,
available on the Internet.

Model No. fan-and-filter unit SK		3324.607	3324.617[1]	3325.607	3325.617	3326.607	3326.617[1]	3327.607	3327.617[1]
Rated operating voltage V, Hz		230, 50/60	115, 50/60	230, 50/60	115, 50/60	230, 50/60	115, 50/60	230, 50/60	115, 50/60
Dimensions in mm	B1/H1	255				323			
	B2/H2	224[2]				292[2]			
	T1	12.5				12.5			
Max. installation depth mm	T2	105				129		145	
Air throughput, unimpeded air flow		**180/160 m³/h**		**230/265 m³/h**		**550/600 m³/h**		**700/720 m³/h**	
Air throughput with outlet filter including standard filter mat		1 x 3325.267: **115/95 m³/h** 2 x 3325.267: **165/140 m³/h** 1 x 3326.267: **155/130 m³/h**		1 x 3325.267: **170/205 m³/h** 2 x 3325.267: **200/230 m³/h** 1 x 3326.267: **190/215 m³/h**		1 x 3325.267: **170/205 m³/h** 2 x 3325.267: **200/230 m³/h** 1 x 3326.267: **360/390 m³/h**		1 x 3326.267: **525/575 m³/h**	

Axial fan		self-starting shaded pole motor				Capacitor motor			
Rated current max.		0.19 A/ 0.20 A	0.38 A/ 0.40 A	0.28 A/ 0.24 A	0.53 A/ 0.49 A	0.29 A/ 0.35 A	0.58 A/ 0.70 A	0.65 A/ 0.95 A	1.50 A/ 2.00 A
Power		30.0 W/ 35.0 W		41.0 W/ 38.0 W		64.0 W/ 80.0 W		155.0 W/ 212.0 W	167.0 W/ 230.0 W
Noise level		52/48 dB (A)		54/56 dB (A)		59/61 dB (A)		75/76 dB (A)	
Temperature range		–10°C to +55°C							
Colour		RAL 7035[3]							
Protection category to EN 60 529/10.91		IP 54 standard							
Model No. outlet filter – EMC SK		**3325.267**				**3326.267**			

Accessories	Packs of									Page
Spare filter mats	5	3172.100				3173.100		3327.700		670
Fine filter mats	5	3182.100				3183.100				670
Thermostat	1	3110.000								661
Temperature indicator	1	3114.100	3114.115	3114.100	3114.115	3114.100	3114.115	3114.100	3114.115	660
Speed control	1	3120.000	3120.115	3120.000	3120.115	3120.000	3120.115	3120.000	3120.115	662
Hose-proof hood	1	3324.800				3326.800				666

[1] Delivery times available on request.
[2] For metal thickness > 2.5 mm, the cutout B2/H2 must be 1 mm larger.
[3] RAL 7032 on request.
Special voltages available on request. We reserve the right to make technical modifications.

B
4.4

Fan-and-filter unit – EMC

Climate control tailored to enclosures

Features

All rack-mounted climate control components are mounted directly on the 482.6 mm (19″) mounting angles. Positioning directly beneath the electronic components ensures effective cooling, and prevents the formation of hot spots.
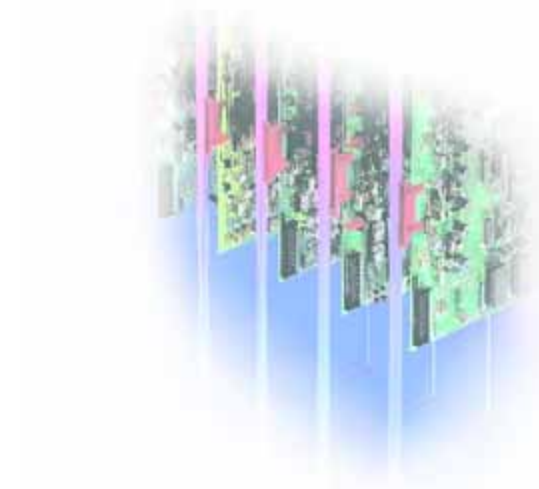
Rack-mounted cooling units
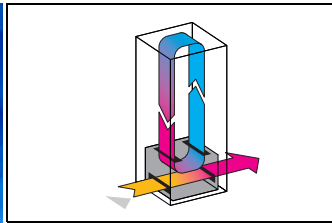
Useful cooling output 1000 W, 6 U
The heated air is drawn in, cooled, and blown out underneath the electronic equipment being cooled.

Simple attachment to the 482.6 mm (19″) mounting angles
Sealed enclosures require a door cutout for the external air circuit.

With open enclosures, a fully equipped front is essential. The setpoint of the temperature controller is set via a service flap.

Rack-mounted fan

Vario rack-mounted fan
The rack-mounted fan slides into the guide frame like a drawer. Connectors on the rear ensure immediate contact.

Installation options for the guide frame: Directly in the subrack, via two mounting brackets on the 482.6 mm (19″) mounting angles.

Ideal for avoiding hot spots in fully populated enclosures.

Centrifugal fan

320 m³/h air throughput, 2 U
The high air throughput means that Rittal centrifugal fans are capable of dissipating large

heat losses from the enclosure. The minimal noise generation of 52 dB creates a pleasant working environment.

Front outlet grille 2 U for hot air outlet to the outside in the upper section of the enclosure.

Climate control tailored to enclosures

Features

Ready-to-use, wired modules equipped with fans for numerous Rittal enclosure system platforms offer effective air throughput and minimal assembly work. Fan roofs, fan cross members for server enclosures (door installation), internal fan mounting panels and enclosure internal fans are all available.

Fan for integration into the door
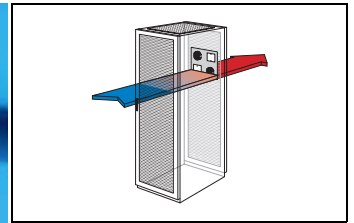
For TS 8: Door mounted fans for server enclosures
Specifically for installation in the tubular door frame of perforated doors.

Door mounted fans for TS 8 server enclosures
Specifically for installing in perforated doors. The growing packaging density in data communications and network enclosures means that active, direct

ventilation of the enclosure has become indispensable. The door-mounted fans, attached to the rear or front door, support horizontal air routing of the servers.

Fans for integration into the roof
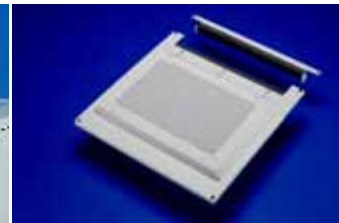
For all enclosures: Roof-mounted fans, passive or active
May be integrated into any enclosure roof area with suitable dimensions for the mounting cutout.

For TS 8: Fan roof, modular
In exchange for the existing roof plate. Fan and cable entry are pre-integrated.

For the office sector: Roof-mounted fan
Low noise generation and high performance for sensitive office areas. Unit consisting of TS roof plate and fan.

Air baffle systems

For TS 8: Internal fan mounting panel
Twin-walled side panel for targeted air routing.

Enclosure internal fan
Supports active climate control components and thereby selectively avoids hot spots.

For TS 8: Air baffle system
Cold air from the hollow base is routed to the twin-walled door and distributed in a targeted manner.

B

4.5

Climate control tailored to enclosures

Rack-mounted cooling units

for 482.6 mm (19″), useful cooling output 1000 W
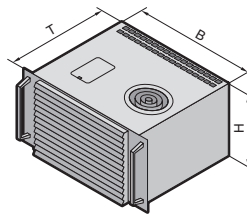
B = Width
T = Depth

Supply includes:
Wired ready for connection with connection cable (3 m), including drilling template.

⚠ Also required:

For installation in a closed enclosure:
Adaptor for front air supply and air duct for waste air, see Accessories.

Approvals,
see page 78.

Detailed drawing,
see page 1182.

Performance diagrams
can be found on the Internet.

Model No. SK		3278.134[1]	3292.134
Rated operating voltage V, Hz		115, 50/60	230, 50/60
Dimensions in mm	W H D	445 265.9 (6 U) 542	
Useful cooling output $\dot{Q}_K$ to DIN 3168	L 35 L 35 L 35 L 50	1000 W/1050 W 660 W/770 W	

Rated current max.		8.4 A/10.8 A	3.8 A/4.5 A
Start-up current		21.0 A/22.0 A	10.0 A/11.8 A
Pre-fuse T		10.0 A/16.0 A	6.0 A/6.0 A
Power consumption P_{el} to DIN 3168	L 35 L 35 L 35 L 50	615 W/710 W 680 W/800 W	585 W/650 W 650 W/720 W
Refrigeration factor $\varepsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.6	1.7
Refrigerant		R134a, 700 g	
Permissible operating pressure p. max.		25 bar	
Temperature and setting range		+20°C to +55°C	
Protection category to EN 60 529/10.91	External circuit	IP 34	
	Internal circuit	IP 54	
Duty cycle		100 %	
Type of connection		Connection cable 3 m	
Weight		38 kg	35 kg
Colour		RAL 7032	
Air throughput of fans	External circuit	620 m³/h	
	Internal circuit	460 m³/h	
Temperature control		Internal thermostat (factory setting +35°C)	

Accessories	Packs of			Page
Filter mats	3	3286.000		668
Adaptor for front air supply	1	3259.000		659
Air duct	10	3220.000		659
Temperature indicator	1	3114.115	3114.100	660
Door-operated switch	1	4127.000		956

[1] Delivery times available on request.
Special voltages available on request. We reserve the right to make technical modifications.

Accessories Page 657 **Configuration software** Page 1063

for 482.6 mm (19″), air throughput 320/480 m³/h

HE = U
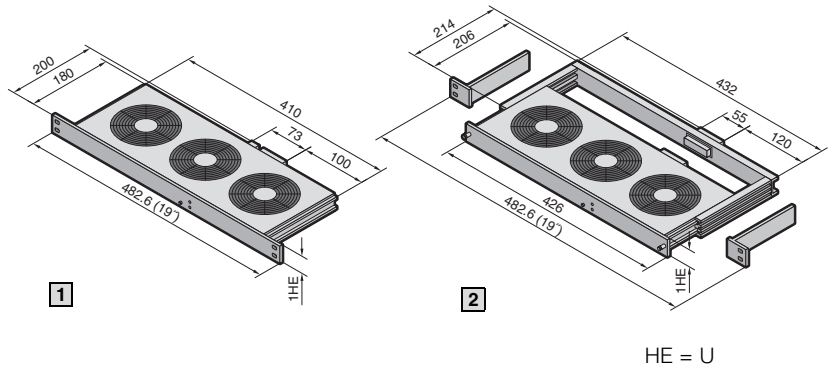
Rack-mounted fan/Vario rack-mounted fan supply includes:
Wired unit ready for connection, including terminal strip and assembly parts.

Guide frame supply includes:
Guide frame including connector and fitted connection cable (3 m), bracket for optional attachment to the 482.6 mm (19″) system, assembly parts.

! Also required:
Remember to order the appropriate guide frame for your chosen application.

Approvals,
see page 78.

Detailed drawing,
see page 1182.

Performance diagrams
can be found on the Internet.

		1 Rack-mounted fans					2 Vario rack-mounted fans			
		Model No. SK					**Model No. SK**			
2 fans Distance between axes 85 mm		**3340.024**[1]	**3340.115**[1]	**3340.230**	–	–	**3350.024**[1]	**3350.115**[1]	**3350.230**	–
3 fans Distance between axes 85 mm		**3341.024**[1]	**3341.115**	**3341.230**	–	**9769.002**[1][2]	**3351.024**[1]	**3351.115**[1]	**3351.230**	–
3 fans Distance between axes 105 mm		**3342.024**	**3342.115**[1]	**3342.230**	**3342.500**[2]	–	**3352.024**[1]	**3352.115**[1]	**3352.230**	**3352.500**[1][3]
Rated operating voltage V		24 V (DC)	115 V (AC)	230 V (AC)	24 V (DC) 115 – 230 V (AC)	36 V (DC) up to 72 V (DC)	24 V (DC)	115 V (AC)	230 V (AC)	24 V (DC) 115 – 230 V (AC)
Model No. SK matching guide frame		–	–	–	–	–	**3356.100**[1]	**3355.100**	**3355.100**	**3357.100**[1]
Accessories	Page									
Temperature indicator 230 V (AC)	660	3114.100	3114.115	3114.100	3114.024	–	3114.100	3114.115	3114.100	3114.024
Thermostat	661	3110.000								
Speed control	662	3120.000	3120.115	3120.000	–	–	3120.000	3120.115	3120.000	–

Technical specifications

Model No. SK/CS	**3340.230 3350.230**	**3340.115 3350.115**	**3340.024 3350.024**	**3341.230 3351.230 3342.230 3352.230**	**3341.115 3351.115 3342.115 3352.115**	**3341.024 3351.024 3342.024 3352.024**	**3342.500**[2] **3352.500**[2]	**9769.002**
Rated operating voltage V, Hz	AC 230 V 50/60 Hz	AC 115 V 50/60 Hz	DC 24 V –	AC 230 V 50/60 Hz	AC 115 V 50/60 Hz	DC 24 V –	DC 24 V AC 115 – 230 V 50/60 Hz	36 V (DC) up to 72 V (DC)
Rated current max.	0.24 A/ 0.22 A	0.46 A/ 0.46 A	0.49 A	0.36 A/ 0.33 A	0.69 A/ 0.69 A	0.74 A	0.85 A	0.28 A
Pre-fuse T	6 A							6 A
Number of fans	2			3				3
Air throughput, unimpeded air flow	320 m³/h			480 m³/h				250 m³/h
Temperature range	–10°C to +55°C							–33°C to +55°C
Noise level	51 dB (A)	52 dB (A)	51 dB (A)	51 dB (A)	52 dB (A)	51 dB (A)		52 dB (A)

[1] Delivery times available on request.
[2] Rack-mounted fan for metric mounting angles available on request.
[3] Version with monitoring.

Accessories Page 657 **Configuration software** Page 1063

Centrifugal fan

Air throughput 320 m^3/h
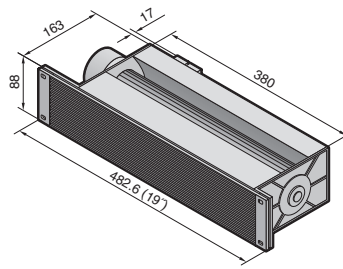
Supply includes:
Fully assembled and wired unit,
ready for connection,
including filter mat.

Approvals,
see page 79.

Detailed drawing,
see page 1182.

Performance diagrams
can be found on the Internet.

Model No. SK		3145.000	3144.000
Rated operating voltage V, Hz		115, 50/60	230, 50/60
Dimensions in mm	W H D	482.6 (19″) 88 (2 U) 158	
Air throughput, unimpeded air flow		320 m³/h	
Rated current max.		0.32 A	0.16 A
Power		37 watts	
Noise level		52 dB (A)	
Speed		2245 rpm⁻¹	
Temperature range		–10°C to +55°C	
Maximum static pressure difference		65 – 70 Pa	

Accessories	Packs of			Page
Temperature indicator	1	3114.115	3114.100	660
Thermostat	1	3110.000		661
Filter mats	5	3177.000		668
Front outlet grille 2 U	1	3176.000		667
Roof vent	1	3148.007		647
Speed control	1	3120.115	3120.000	662

Special voltages available on request. We reserve the right to make technical modifications.

B

4.5

Centrifugal fan
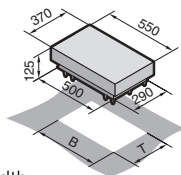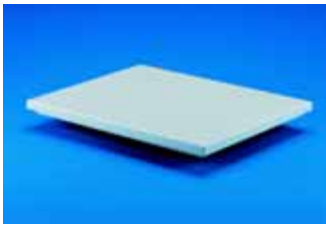
Roof-mounted fan and vent attachment

for TS

The active roof-mounted fan and the passive vent attachment (TS 8801.380) integrate perfectly into the system-wide mounting concept of Rittal system climate control. They fit precisely onto the cutouts of the small and medium performance category of TopTherm roof-mounted cooling units.

Of course, they may also be mounted on any sufficiently large roof surface.

TS roof plates with prepared mounting cutouts are additionally available.

Roof-mounted fan supply includes:
Unit ready to connect with built-in radial fan, sealing material and assembly parts.

Vent attachment:
see page 664.

Protection category:
IP 43 to EN 60 529/10.91

Detailed drawing,
see page 1183.

B = Width
T = Depth

Model No. SK	3149.410	3149.420	3149.440	3149.810	3149.820	3149.840	8801.380	Page
Rated operating voltage V, Hz	115, 50/60	230, 50/60	400, 3~, 50/60 460, 3~, 60	115, 50/60	230, 50/60	400, 3~, 50/60 460, 3~, 60	Roof vent	
Air throughput, unimpeded air flow	**400 m³/h**			**800 m³/h**			**Without motor**	
Required mounting cutout W x D mm	475 x 260						490 x 390	
Power consumption of fan	120 W/170 W		95 W/140 W	170 W/225 W		180 W/310 W		
Rated current of fan	1.1/1.6 A	0.55/0.88 A	0.35/0.35 A	1.5/2.2 A	0.75/1.1 A	0.35/0.55 A		
Temperature range	−10°C to +55°C							
Noise level	68/69 dB (A)			69/70 dB (A)				
Weight	10 kg			11 kg				
Colour shade	RAL 7035							
Accessories								
Roof plate 600 x 600 mm for TS 8 with cutout	8801.300						8801.310	664
Roof plate 600 x 800 mm for TS 8 with cutout	8801.320						8801.330	664
Roof plate 1200 x 600 mm for TS 8 with cutout	–						8801.350	664
Temperature indicator	3114.115	3114.100	–	3114.115	3114.100	–	–	660
Speed control	3120.115	3120.100	–	3120.115	3120.100	–	–	662
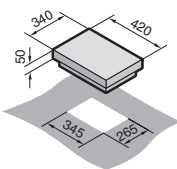
Roof-mounted fan

- The roof-mounted fan is easily installed using 6 screws. The sealing tape supplied can be used to seal it against the enclosure.
- The assembly screws are invisible from the outside.
- The roof-mounted fan casing has a large air outlet surface and labyrinthine air ducting.

Protection category:
IP 43 to EN 60 529/10.91. By additionally installing the filter holder with filter mat SK 3175.000, with roof vent SK 3148.000 a protection category of IP 44 is achieved.

Supply includes:
Fully wired unit ready for connection with built-in radial fan, sealing material and assembly parts, connection cable (3 m), drilling template.

⊞ Accessories:

Filter holder,
see page 667.

Detailed drawing,
see page 1183.

Model No. SK	3149.007	3169.007	3148.007
Rated operating voltage V, Hz	230, 50/60	115, 50/60	Without fan motor
Air throughput	**360 m³/h**		
Rated current max.	0.2 A	0.55 A	
Power consumption	42 W	65 W	
Temperature range	−10°C to +60°C		
Noise level	53 dB (A)		
Weight	7.8 kg		
Colour[1]	RAL 7035, textured enamel		

[1] To order the version in RAL 7032, please add extension .000 to the Model No.
Special voltages available on request. Technical modifications reserved.

B
4.5

Fan systems

Fan systems

for TS/FR(i)

Roof-mounted fan

for TS/FR(i) for the office sector

This new roof ventilation concept offers a wealth of performance, assembly and cost benefits associated with the use of integrated ventilation systems. This roof-mounted fan may be ordered with and without a roof plate. Another outstanding feature is the enormous volumetric flow in proportion to exceptionally low noise levels, making it ideal for use in sensitive office areas.

Technical specifications:
- Fitted onto a roof plate based on TS.
- Easy assembly; the work of creating mounting cutouts has been eliminated altogether.
- Radial fan.

Supply includes:
Fully wired ready for connection, including assembly parts.

Model No. SK		3164.610	3164.620	3164.810	3164.820	3164.115	3164.230	Page
Rated operating voltage V, Hz		115, 50/60	230, 50/60	115, 50/60	230, 50/60	115, 50/60	230, 50/60	
Air throughput (unimpeded air flow)		1500 m³/h[1]						
Version		with roof plate				without roof plate		
Dimensions in mm	W	800		800		511		
	H	240		240		227		
	D	800		900		511		
Power consumption		6.8 W/8.1 W						
Rated current		0.6 A/0.7 A	0.3 A/0.35 A	0.6 A/0.7 A	0.3 A/0.35 A	0.6 A/0.7 A	0.3 A/0.35 A	
Radial fan		–						
Noise level		40 dB (A)						
Temperature range		+20°C to +55°C						
Colour		RAL 7035						
Accessories								
Temperature indicator in 1 U patch panel		7109.035						660
Temperature indicator		3114.115	3114.100	3114.115	3114.100	3114.115	3114.100	660
Thermostat		3110.000						661

[1] 800 m³/h at 40 Pa counterpressure using two integrated louvres, type DK 7580.500, in the enclosure base/plinth.
Special voltages available on request. Technical modifications reserved.
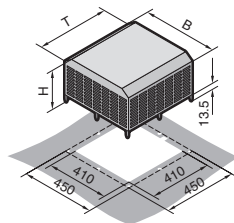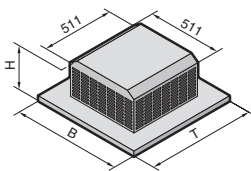
Mounting cutout
only required for fans without roof plate

B = Width
T = Depth
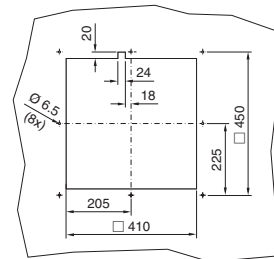
TS 8 air baffle system

The system has an air inlet nozzle in the base frame. In this way, cold air may be drawn in from below. The air is routed into the twin-walled door. The cold air can then be distributed inside the rack with special covers. 15 covers are supplied with every door.

Colour:
RAL 7035

	Packs of	Model No. DK
TS 8 sheet steel door, twin-walled W 600 x H 2000 mm	1	**7766.520**
TS 8 sheet steel door, twin-walled W 600 x H 2200 mm	1	**7766.522**
Air inlet nozzle W 600 mm	1	**7766.500**

B
4.5
Fan systems
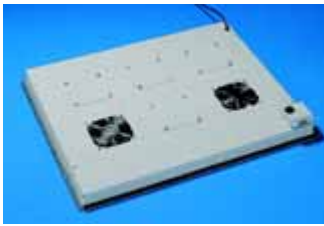
Fan mounting plate

for TS

The fan mounting plate may be retrospectively installed in all TS 8 network enclosures from above. The plate is mounted at the front of the enclosure, whilst the rear section is left free for cable entry. A rubber cable clamp strip is supplied loose for optimum sealing at the rear and sides, to ensure targeted air routing.
Not suitable for crane transportation!
Not suitable for combination with 482.6 mm (19″) mounting frame.

The following combinations are possible:
● Solid roof plate raised with 20 or 50 mm roof spacers.
● Roof plate for cable entry raised with 20 or 50 mm roof spacers.
● Vented roof plate for cable entry.

In conjunction with the large swing frame, usage is only possible from an enclosure depth of 800 mm, in conjunction with a roof plate for cable entry from 900 mm.
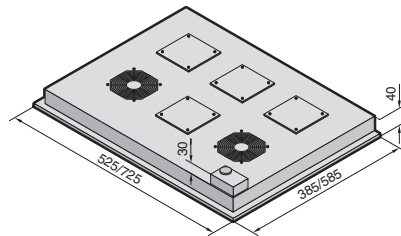
For enclosures		No. of fans	Max. no. of fans	Model No. DK
Width mm	Depth mm			
600	600	2	4	**7966.035**
600	800 900 1000	2	6	**7968.035**
800	600	2	6	**7986.035**
800	800 900 1000	2	6	**7988.035**

The air throughput can be increased with the fan expansion kit DK 7980.000.

Technical specifications for one fan:
Rated operating voltage: 230 V
Power consumption: 15/14 W at 50/60 Hz
Air throughput (unimpeded air flow):
160/180 m³/h, 50/60 Hz
Temperature range: –10°C to +55°C

Technical specifications of thermostat:
Rated operating voltage: 250 V
Temperature range: +5°C to +55°C

Colour:
RAL 7035

Supply includes:
2 fans, 2/4 cutouts to extend to 4/6 fans, thermostat optionally for attachment to the fan mounting plate or to the 25 mm DIN pitch pattern of the enclosure, Rubber cable clamp strip.
Thermostat and fan fully wired to connection cable (2.5 m).

⊞ **Accessories:**

Fan expansion kit,
see below.

B
4.5

Fan systems
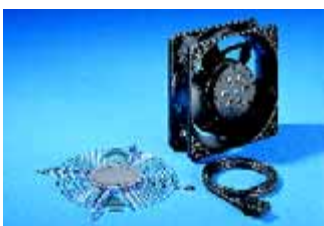
Fan expansion kit

For retro-fitting various fan units or to supplement the fan mounting plate and fan roof, modular.

Technical specifications DK 7980.000:
Rated operating voltage: 230 V~
Power consumption: 15/14 W at 50/60 Hz
Air throughput (unimpeded air flow):
160/180 m³/h, 50/60 Hz
Noise level (unimpeded air flow): 37 dB (A)
Temperature range: –10°C to +55°C

Technical specifications DK 7980.100:
Rated operating voltage: 230 V~
Power consumption: 14/12 W at 50/60 Hz
Air throughput (unimpeded air flow):
108/120 m³/h, 50/60 Hz
Noise level (unimpeded air flow): 34 dB (A)
Temperature range: –20°C to +70°C

Technical specifications DK 7980.148:
Rated operating voltage: 48 V (DC)
Power consumption: 7.7 W
Air throughput (unimpeded air flow): 184 m³/h
Noise level (unimpeded air flow): 42 dB (A)
Temperature range: –20°C to +70°C

Dimensions W x H x D mm	Packs of	Model No. DK
119 x 119 x 38	1 set	**7980.000**
119 x 119 x 25	1 set	**7980.100**
119 x 119 x 25	1 set	**7980.148**

Supply includes:
Fan, including assembly parts and connection cable (0.61 m).

Fan systems

DC fan mounting plate
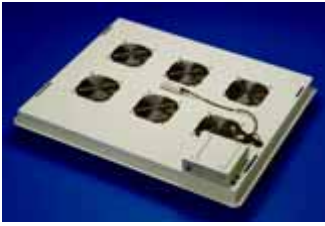
DC fan mounting plate
for TS

Exceptionally low-noise thanks to FCS speed control, fully fitted
Suitable for TS 8 enclosures with a raised roof (> 20 mm) or TS 8 roof plate, vented. The fan mounting plate may be used as an alternative to fan mounting plate 7988.035. It is installed from above. A cable entry is prepared in the rear section of the plate.
Not suitable for combination with 482.6 mm (19″) mounting frame.

Advantages of the DC fan mounting plate with FCS technology:
● Exceptionally low-noise thanks to speed control.
● All fans are individually monitored for failure.
● High air throughput thanks to DC technology (unimpeded air flow 6 x 165 m³/h = 990 m³/h).
● EMC-compatible thanks to DC fan.
● Temperature monitoring and control.
● High level of safety thanks to low safety voltage with 24 V DC power pack.
● Visual and acoustic alarm messages, plus relay alarm output.
● Freely selectable installation location for the FCS control unit (included with the supply of the fan mounting plate, in 482.6 mm (19″) with 7320.440 or on the frame with 7320.450).
● Suitable for international use, thanks to wide-range power pack 100 – 240 V AC and socket to IEC 320.
● Fully pre-configured.
● Network-compatible via CMC-TC processing unit 7320.100 (all relevant data such as temperature etc. are displayed in the web browser, or alarms are sent in the form of an SNMP trap).

For enclosures width mm	For enclosures depth mm	Number of DC fans	Model No. DK
800	800 900 1000	6	**7858.488**

Technical specifications:
Power pack rated voltage:
100 – 240 V AC, 50/60 Hz
Power pack rated current: Max. 1.5 A
Power pack secondary range: 24 V DC, 3 A
Temperature range: +5°C to +40°C
Total air throughput (unimpeded air flow):
6 x 165 m³/h = 990 m³/h

Technical specifications for one fan:
Rated voltage: 24 V DC
Rated current: max. 0.28 A
Rated output: max. 6.72 W
Air throughput (unimpeded air flow): 165 m³/h
Speed: 2650 rpm
Noise level: up to 41.0 dB (A)
at maximum speed activation

⚠ Also required:

Connection cable 230/115 V.
Example D version, Model No. 7200.210,
see page 771.

➕ Accessories:

1 U mounting unit, Model No. 7320.440,
see page 771.
Mounting module, Model No. 7320.450,
see page 772.

Note:
For more information on the FCS system,
see page 786.

B

4.5

Fan systems
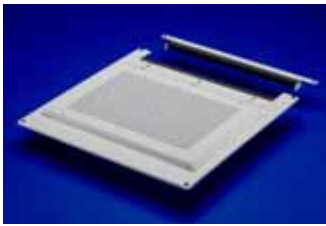
Fan roof, modular, two-piece

for TS/FR(i)

The modular roof plate consists of individual components and can be configured for the ventilation of TS 8 enclosures in line with requirements. The modules:

Roof plate, two-piece with cutout

For fan mounting and cable entry at the rear via a sliding angular bracket with rubber cable clamp strip. In exchange for the existing roof plate. The two-piece design allows convenient retrofitting of cables at any time.

Cover plate

To cover the cutout, optionally solid or vented. The top-mounted cover plate may be raised for extra air throughput using the supplied spacers.

Fan insert

For active ventilation:
A fully pre-wired fan tray including 2.5 m connection cable, with two fan motors and additional cutouts. The air throughput may be increased with a fan expansion kit.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Technical specifications for one fan:
Rated operating voltage: 230 V
Power consumption: 15/14 W at 50/60 Hz
Air throughput (unimpeded air flow):
160/180 m³/h at 50/60 Hz
Temperature range: –10°C to +55°C

Detailed drawing,
see page 1183.

⊞ Accessories:

Fan expansion kit DK 7980.000,
see page 649.
Thermostat SK 3110.000,
see page 661.
Speed control SK 3120.000,
see page 662.
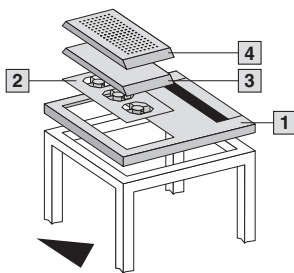
For enclosures		Model No. DK				Fan insert	
		Roof plate	Cover plate				
Width mm	Depth mm	**1** With cutout	**3** Solid	**4** Vented	**2** Fan insert	Fan pre-wired	Maximum no. of fans
600	600	7826.366	2102.180	2102.400	2102.320	2	2
600	800	7826.368	2102.190	2102.410	2102.490	2	6
600	900	7826.369	2102.190	2102.410	2102.490	2	6
600	1000	7826.360	2102.190	2102.410	2102.490	2	6
800	600	7826.486	7885.100	7885.200	7885.000	2	3
800	800	7826.488	7886.100	7886.200	7886.000	2	8
800	900	7826.489	7886.100	7886.200	7886.000	2	8
800	1000	7826.480	7886.100	7886.200	7886.000	2	8

B

4.5

Fan systems

Fan unit, active

for TE

For active ventilation of the TE 7000, a ventilation opening may be broken out of the front area in the standard roof plate and fitted with the fan module. The fan module is pre-wired ready for connection and has 2 fans, 1 thermostat and a connection cable including IEC 320 connector. An additional fan may optionally be integrated.

Supply includes:

Fan unit including assembly parts, 2 fans, thermostat and connection cable.

Technical specifications for one fan:

Fan extension kit, see page 649.

Technical specifications of thermostat:

Rated operating voltage: 250 V
Temperature range: +5°C to +55°C

For enclosures W x D mm	Number of pre-wired fans	Possible number of fans	Model No. TE
All dimensions	2	3	7000.670

⚠ Also required:

Connection cable,
see page 771.

⊞ Accessories:

Fan expansion kit,
see page 649.
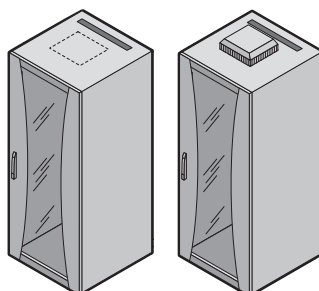
Door mounted fan

for TS 8 server enclosures,
especially for installing in perforated doors.

The growing packaging density in data communications and network enclosures make active, direct ventilation of the enclosure indispensable. The door mounted fan, which is attached to the rear or front door, supports horizontal air routing for the servers and therefore facilitates faster heat dissipation from active components.

Technical specifications:
- Standard cross member with two fans.
- Air throughput, unimpeded air flow 600 m³/h.
- By adding two fan expansion kits, the air throughput may be increased to 1200 m³/h.
- The direction of air flow is easily reversed by rotating the fan.
- Several units may be positioned in a cascade arrangement.
- Simple mounting on the tubular door frame.

Supply includes:
Wired ready for connection with 2.5 m connection cable, including assembly parts.

✛ Accessories:

Fan expansion kit, see below.

Note:
Only for mounting on the tubular door frame!

Door configuration for installation in 2 and 4-door ISP racks available on request.
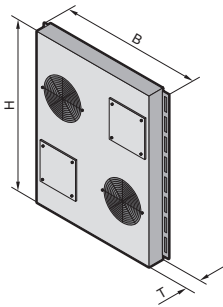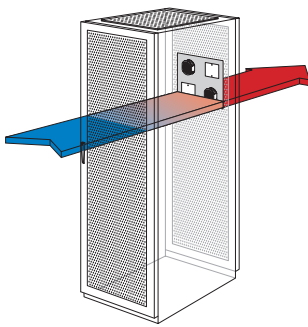
B = Width
T = Depth
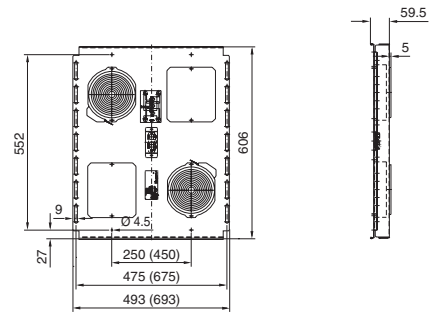
Model No. SK	3165.624[1]	3165.648[1]	3165.615[1]	3165.630[1]	3165.824[1]	3165.848[1]	3165.815[1]	3165.830[1]	Page
Rated operating voltage V, Hz	24 (DC)	48 (DC)	115, 50/60	230, 50/60	24 (DC)	48 (DC)	115, 50/60	230, 50/60	
Air throughput (unimpeded air flow)	**600 m³/h**								
Power consumpion for two fans	40 W	48 W	70 W/64 W	70 W/70 W	40 W	48 W	70 W/64 W	70 W/70 W	
Rated current of fan	1.5 A	1.0 A	0.76 A/0.72 A	0.38 A/0.36 A	1.5 A	1.0 A	0.76 A/0.72 A	0.38 A/0.36 A	
Dimensions in mm W H D	493 606 64.5				693 606 64.5				
For doors with width (mm)	600				800				
Noise level	55 dB (A)								
Temperature range	+20°C to +55°C								
Colour	RAL 7035								
Accessories									
Temperature indicator	3114.024	–	3114.115	3114.100	3114.024	–	3114.115	3114.100	660
Thermostat	3110.000								661

[1] Delivery times available on request.
Special voltages available on request. Technical modifications reserved.
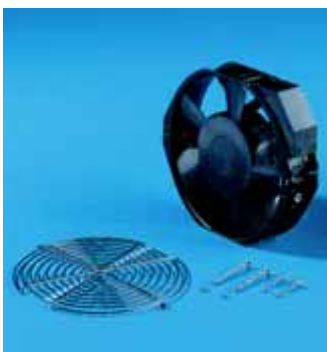
Fan expansion kit

for door mounted fan
To increase the air throughput of the door mounted fan.

To fit door mounted fan	Model No. SK
3165.624, 3165.824	**3165.024**
3165.648, 3165.848	**3165.048**
3165.615, 3165.815	**3165.115**
3165.630, 3165.830	**3165.230**

Internal fan mounting panel

for TS 8

A fan unit integrated into the TS 8 twin wall for targeted air routing in the lower part of the enclosure. A second fan unit may optionally be mounted to reinforce air circulation. Optional air routing design may be achieved retrospectively by simply inserting or exchanging cover plates.

Technical specifications:

- Rated operating voltage:
  230 V, 50/60 Hz
- Air throughput (3 fans):
  200/230 m³/h (unimpeded air flow)
- Power consumption (3 fans): 57/54 W
- Rated current (3 fans) 0.36/0.33 A

Supply includes:

1 pack =
1 internal fan mounting panel,
3 fan cross members,
3 cover plates.

Property rights:

German patent no. 198 04 219
European patent no. 1 053 581
with validity for ES, FR, GB, IT
Australian patent no. 737 950
US patent no. 6,494,779

For TS enclosure		Height of internal panel mm	Model No. SK
Width mm	Height mm		
600	1800	1548	**3347.180**
600	2000	1748	**3347.200**
800	1800	1548	**3348.180**
800	2000	1748	**3348.200**
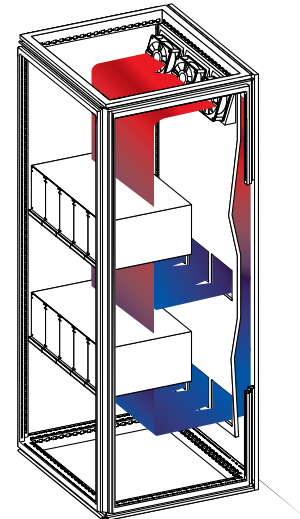
Fan cross member

for internal fan mounting panel

May be additionally installed to increase the air circulation.

Technical specifications:

- Rated operating voltage:
  230 V, 50/60 Hz
- Air throughput (3 fans):
  200/230 m³/h (unimpeded air flow)

Packs of	Model No. SK
3	**3349.100**

Property rights:

German patent no. 198 04 906
European patent no. 1 053 662
with validity for ES, FR, GB, IT
Australian patent no. 737 485
US patent no. 6,315,656
Chinese patent no. ZL 988 13378.4
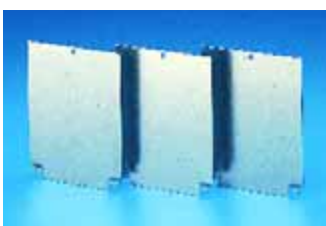
Cover plates

for internal fan mounting panel

For optional design of the air routing.

Packs of	Model No. SK
3	**3349.300**

B

4.5

Fan systems

Enclosure internal fan

for TS

To prevent hot spots and support the air routing of active enclosure climate control components. Adjustable in two axes. Attached to the TS 8 frame section. Several fans may be cascaded using the quick-release clamping strip.

Supply includes:

Fully wired unit ready for connection with radial fan and lockable swivel device, as well as assembly parts.

Air throughput, unimpeded air flow	Power consumption W	Rated current A	Rated voltage V, Hz	Model No. SK
160 m³/h	19.0/18.0	0.12/0.11	230, 50/60	**3108.100**
160 m³/h	19.0/18.0	0.24/0.23	115, 50/60	**3108.115**
160 m³/h	3.5	0.15	24 V (DC)	**3108.024**
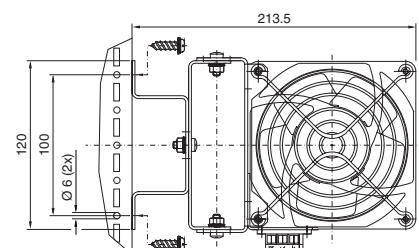
Heaters

Features

Condensation poses a particular risk for control electronics, especially with outdoor siting, but also indoors. Various different output categories ensure that the correct thermal output is always available. In this way, the total required thermal output can be distributed with complete accuracy within an enclosure.

Simple assembly and perfect control
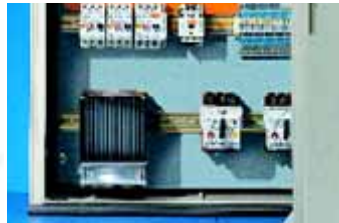
Fast assembly
This is achieved with a screw or snap fastening on the mounting plate or 35 mm EN 50 022 support rails.

No condensation, and always the right temperature
The heater is controlled as required via a hygrostat or enclosure internal thermostat.

Maximum performance in the outdoor sector
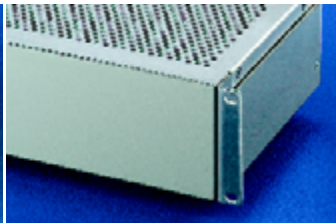
Fully wired unit ready for connection
Compact power with 1000 W thermal output.

19″ rack mount
For seamless integration into the 482.6 mm (19″) structure, with 3 thermal components and 3 fan units. This creates circulation, so that condensation is reliably avoided.

B

4.6

Heaters

Benefits:
- Continuous thermal output of 10 W to 1000 W
- Self-regulating PTC technology
- Quick-assembly system

Important:
- For the correct temperature and to avoid compensation, use a thermostat or hygrostat, see page 661
- The thermal output is increased with fans

- Heaters should always be installed in an upright position. Leave a distance of 50 mm at the top and bottom to allow convection
- Heat is distributed evenly in large enclosures by using several low-output heaters

General remarks and calculation formulae can be found on our website: www.rittal.com

Continuous thermal output 10 – 300 W
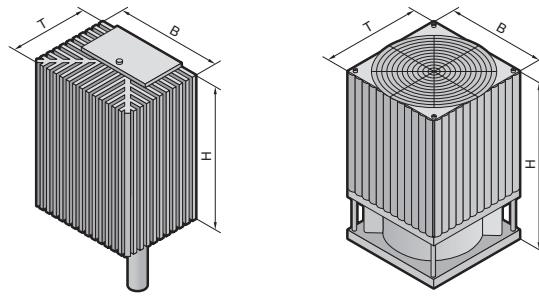
B = Width
T = Depth

Supply includes:
Unit ready to install with permanently attached connection cable (0.3 m). SK 3102.000 with fitted fan including terminal strip.

Note:
● Thermostat SK 3110.000 (see accessories) is recommended for precise temperature control in the enclosure.
● In order to prevent condensation on assemblies, hygrostat SK 3118.000 (see accessories) is recommended to regulate heating.

● In larger enclosures, even heat distribution is best achieved by installing several low-output heaters.
● Installation in the enclosure is generally advisable, even when using heat exchangers and cooling units, in order to prevent condensation.

Approvals,
see page 80.

Detailed drawing,
see page 1183.

Performance diagrams
are available on the Internet.

Model No. SK		3105.000	3106.000	3115.000	3116.000	3107.000	3107.000 + 3108.000	3102.000 (incl. fan)
Dimensions in mm	W	45	45	64	64	80	80	120
	H	75	125	110	185	140	178	168
	D	35	35	45	45	118	118	120
Rated operating voltage V, Hz		110 – 240 V AC/DC					230 V, 50/60	
Continuous thermal output at T_u = 20°C		10 W	20 W	30 W	50 W	130 W	200 W[1]	300 W[1]
Pre-fuse T		2 A		4 A				
Accessories	Packs of							Page
Thermostat	1	3110.000						661
Hygrostat	1	3118.000						661
Temperature indicator	1	3114.000						660

[1] Output with fan
Special voltages available on request. We reserve the right to make technical modifications.

Axial fan
for heater SK 3107.000
Ball bearing
Temperature range: –40°C/+85°C
Rated operating voltage: 230 V, 50/60 Hz
Power consumption: 18 watts
Noise level: 33 dB (A)
Speed: 2800/3300 rpm
Air throughput: 50 m³/h

Packs of	Model No. SK
1	3108.000

Detailed drawing,
see page 1184.

Enclosure heaters

for CS Outdoor enclosures, continuous thermal output 600/1000 W
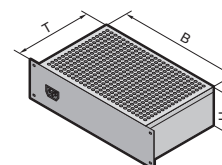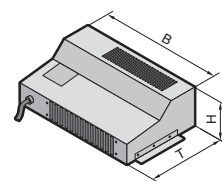
1 Enclosure heater

2 Heater module

B = Width
T = Depth

Material:
Enclosure: Aluminium

Surface finish:
Natural, 9763.023 with spray-finished front panel

Supply includes:

1 Fully wired unit ready for connection with permanently attached connection cable.

2 Fully wired unit ready for connection, designed as a 482.6 mm (19″) rack mount with 3 thermal components and 3 fan units.

Approvals,
see page 80.

Detailed drawing,
are available on the Internet.

Performance diagrams
can be found on the Internet.

Model No. CS		9769.015	9769.023	
Installation		in the enclosure	19″ mounting angles	
Dimensions in mm	W H D	325 82 220	482.6 (19″) 87.2 (2 U) 236	
Rated operating voltage V, Hz		230 V AC, 50/60	230 V AC, 50/60	
Continuous thermal output		**1000 W**	**600 W**	
Rated current max.		5.0 A	2.6 A	
Temperature range		–33°C to +65°C	–33°C to +65°C	
Air throughput, unimpeded air flow		120 m³/h	480 m³/h	
Type of connection		Connection cable with wire end ferrules	Via front IEC connector (3-pole)	
Weight		3.0 kg	3.1 kg	
Accessories	Packs of			Page
Thermostat	1	3110.000	3110.000	661
Hygrostat	1	3118.000	3118.000	661

B
4.6

Enclosure heaters

Accessories for system climate control

Features

Finding the perfect climate control solution is now even easier, with matching system accessories. Perfectly coordinated components adapt the climate control components superbly to your specific requirements. Be it targeted air routing or precise control of the equipment, Rittal has the perfect solution for everything.

Air routing

Air duct system for TopTherm roof-mounted cooling unit and air/water heat exchanger
With the air duct system, cold air may be routed directly to specific areas of the enclosure.

Air diverter
For targeted, downward cold air routing in climate controlled enclosures, climate control doors and TopTherm wall-mounted cooling units.

Adaptor
For unhindered front air infeed when using rack-mounted cooling units in enclosures with front doors.

Controller

Enclosure internal thermostat and hygrostat
Constant temperature and humidity to protect sensitive electronics.

Speed control
Temperature-dependent speed control to minimise noise and save energy in part-load operation.

SK Bus system
SK bus system with master/slave function to enable several cooling units to communicate with one another.

Installation/maintenance

Fast assembly
Easy installation with prepared TS roof plates.

Hose-proof hoods
For protection category IP 55 to EN 60 529/10.91 with fan-and-filter units and outlet filters.

Filter mats
For use in cooling units under exterme conditions.

Accessories for system climate control

Air routing
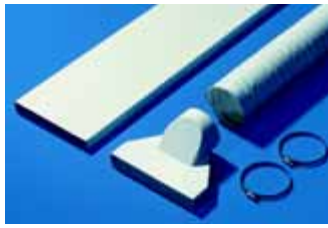
Air duct system

for TopTherm roof-mounted cooling units
The air duct system for Rittal TopTherm roof-mounted cooling units makes it possible to route the cold air directly to specific areas of the enclosure. The risk of "short circuits" in the air circulation due to self-ventilated installed devices is therefore effectively eliminated.
The length of the shallow duct is 1500 mm, and it may be cut to the desired length.

Material:
Flame-resistant plastic to DIN 4102/B1.

Supply includes:
Shallow duct, compensating hose

⊞ **Accessories:**

90° deflector,
see page 658.
Cover bungs,
see page 658.

For cooling unit	Packs of	Model No. Air duct system SK
SK 3382. . . ./SK 3383. . . ./SK 3384. . . ./SK 3385. . . .	1	**3286.870**
SK 3386. . . ./SK 3387. . . .	1	**3286.970**

Note:
Do not direct cold air straight at active components. When using the ducting system, the performance of the cooling unit may be reduced, depending on the application in question.
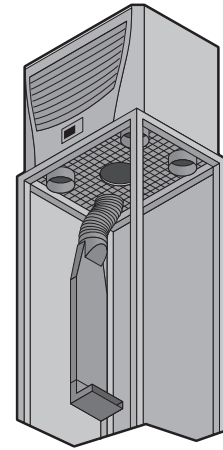
90° deflector

for air duct system
For targeted air deflection at the end of the shallow channel.

Material:
Flame-resistant plastic to DIN 4102/B1.

Packs of	Model No. SK
1	**3286.990**

Cover bungs

for TopTherm roof-mounted cooling units
To cover unneeded cold air outlets in TopTherm roof-mounted cooling units.

Material:
Polyurethane foam

For cooling unit	Packs of	Model No. SK
SK 3382. . . .	2	**3286.780**
SK 3383. . . ./SK 3384. . . ./SK 3385. . . .	2	**3286.880**
SK 3386. . . ./SK 3387. . . .	2	**3286.980**
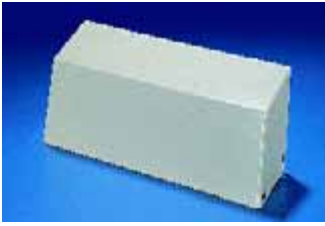
Air diverter

For use in climate controlled enclosures, climate control doors, climate control side panels and TopTherm wall-mounted cooling units.
For targeted air routing of the cold air in a downward direction.
Particularly well-suited for densely-packed electrical components in the lower section of the enclosure.

Material:
Sheet steel

For devices	Model No. SK
SK 8607. . . ./SK 8687. . . . SK 3306. . . ./SK 3331. . . .	**3213.300**
SK 3304. . . ./SK 3305. . . .	**3213.310**
SK 3328. . . ./SK 3329. . . .	**3213.320**
SK 3332. . . .	**3213.330[1)]**

External air circuit

Internal air circuit

65[1)]
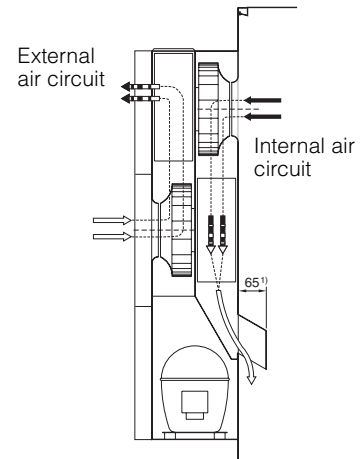
[1)] 115 mm for SK 3213.330

Adaptor

for front air infeed
When using rack-mounted cooling units
SK 3278.134/SK 3292.134 in enclosures with front doors (sheet steel or acrylic), this adaptor must be used. It enables ambient air to be extracted unhindered from outside, which is essential for correct functioning of the cooling unit.

Material:
Sheet steel

Supply includes:
Adaptor, sealing gasket, foamed plastic gasket, assembly parts.
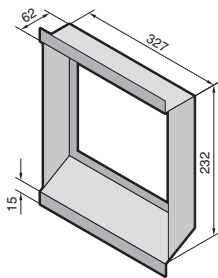
Packs of	Model No. SK
1	**3259.000**

63
62
$b \times 44.45 = c$
190
12.7
31.75
27.5
35
100
50

62
327
232
15

Air duct

for discharge of waste air
For use of rack-mounted cooling units
SK 3292.134/SK 3278.134 in enclosures with a depth > 600 mm.
The heated ambient air is blown backwards out of the enclosure through the air duct. The air duct may be extended as required.

Material:
ABS plastic

Supply includes:
Air duct including attachment clamps.

Packs of	Model No. SK
10	**3220.000**

22
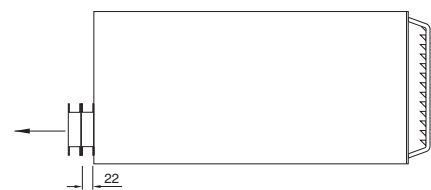
Air duct, may be extended to any length

B

4.7

Accessories for system climate control

Accessories for system climate control

Regulation/control

Digital enclosure internal temperature display and thermostat

For installing on the enclosure door or wall and in a cooling unit or heat exchanger.

Technical specifications:
- Small dimensions.
- Depth: 100 mm.
- The 3-digit 7-segment display is 13 mm high and clearly legible.
- Can be switched from °C/°F.
- The display can be used in a temperature range from +5°C to +70°C.
- With 1500 mm long NTC sensor.
- Two relay outputs as change-over contact and normally open contact (maximum contact load 230 V, 6 A).
- Freely selectable switching difference.
- The freely adjustable setpoint values can be adjusted via the membrane keyboard at the front.
  Setting range: +5°C to +55°C.
- Display and switching accuracy +/– 2 K.
- Mounting cutout 68 x 33 mm.
- Storage of the minimum and maximum recorded temperature until resetting is next carried out.

Rated operating voltage	Model No. SK
230 V (AC)	**3114.100**
115 V (AC)	**3114.115[1]**
24 V (DC)	**3114.024[1]**

[1] Delivery times available on request.
Special requirements available on request.

Digital enclosure internal temperature display and thermostat

Integrated into a patch panel 1 U.
Including cable attachment for connection cable and label holder.

Rated operating voltage:
230 V (AC)
Special voltages available on request.

Technical specifications:
- Small dimensions.
- Depth: 100 mm.
- The 3-digit 7-segment display is 13 mm high and clearly legible.
- Can be switched from °C/°F.
- The display can be used in a temperature range from +5°C to +70°C.
- With 1500 mm long NTC sensor.
- Two relay outputs as change-over contact and normally open contact (maximum contact load 230 V, 6 A).
- Freely selectable switching difference.
- The freely adjustable setpoint values can be adjusted via the membrane keyboard at the front.
  Setting range: +5°C to +55°C.
- Display and switching accuracy +/– 2 K.
- Mounting cutout 68 x 33 mm.
- Storage of the minimum and maximum recorded temperature until resetting is next carried out.

Supply includes:
Panel, temperature indicator and thermostat, identification strip.

Colour	Model No. DK
RAL 7035	**7109.035**

Enclosure internal thermostat

Especially suitable for controlling fan-and-filter units, heaters and heat exchangers, this thermostat can also be used as a signal generator for monitoring the enclosure internal temperature.

Rated operating voltage	Model No. SK
230/115/60/48/24 V (AC)	3110.000
60/48/24 V (DC)	

Technical specifications:
- Bi-metal sensor as a temperature-sensitive element with thermal feedback.
- Contact population: Single-pole change-over contact as a quick-break contact.
- Permissible contact load:
  Category 5 – 3 (heating)
  AC 10 (4)[1] A,
  DC = 30 W
  Category 5 – 4 (cooling)
  AC 5 (4)[1] A,
  DC = 30 W
  ([1]) = Inductive load at cos φ = 0.6
- Setting range +5°C to +60°C
- Weight approx. 105 grams
- Dimensions 71 x 71 x 33.5 mm
- Switching difference approx. 1 K ± 0.8 K.

- A broad voltage spectrum i.e. just one model covers 24 to 230 V.
- Time-saving connection technique using a terminal strip with a screw connection from the outside.
- Flexible mounting on a vertical or horizontal 35 mm support rail to EN 50 022, and snap fastening in the TS/ES enclosure section using the supplied adaptor.

Hygrostat

The hygrostat switches on the heater and/or fan when a preset relative humidity in the enclosure is exceeded.
In this way, the relative humidity is raised above the dew point, and condensation on assemblies or electronic components is avoided.

Rated operating voltage	Model No. SK
24 – 230 V (AC/DC)	3118.000

Technical specifications:
- Contact population: Single-pole change-over contact as a quick-break contact.
- Permissible contact load:
  AC ~ 5 (0.2)[1] A
  DC = max. 20 W
  ([1]) = Inductive load at cos φ = 0.6
- Setting range 50 – 100 % relative humidity
- Weight approx. 100 g
- Dimensions 71 x 71 x 33.5 mm
- Switching difference approx. 4 %

- A broad voltage spectrum i.e. just one model covers 24 to 230 V.
- Time-saving connection technique using a terminal strip with a screw connection from the outside.
- Flexible mounting on a vertical or horizontal 35 mm support rail to EN 50 022, and snap fastening in the TS/ES enclosure section using the supplied adaptor.

Bottom-mounted adaptor

for enclosure internal thermostat SK 3110.000 and hygrostat SK 3118.000
Bottom-mounted adaptor with mounting option for screwed cable glands, for targeted cable infeed from appropriate equipment such as SK fan-and-filter units and enclosure heaters. In conjunction with screwed cable glands, it is also suitable for use as strain relief.

Packs of	Model No. SK
1	3110.200

B
4.7

Accessories for system climate control

Accessories for system climate control

Regulation/control

Speed control

Temperature-dependent speed control for Rittal fan-and-filter units and air/air heat exchangers with a rated operating voltage of 230 V AC, for noise reduction and to save energy in part-load operation.

Technical specifications:
- For mounting on a 35 mm support rail DIN EN 50 022.
- Dimensions (W x H x D): 94 x 57 x 180 mm
- Rated operating voltage: 230 V (AC)/115 V (AC)
- Setting range: +20°C to +55°C
- Phase cross-over with microcontroller
- Maximum fan output 250 W or 1.2 A at 230 V (AC)
- Maximum fan output 100 W or 1.2 A at 115 V (AC)

Rated operating voltage	Model No. SK
230 V (AC)	3120.000
115 V (AC)	3120.115[1]

[1] Delivery times available on request.

Supply includes:
Speed control, built into a PK enclosure 9512.100, NTC sensor, length 1.80 m.

Mounting adaptor
for speed control

The mounting adaptor enables direct attachment of the speed control SK 3120.000/.115 to the vertical frame sections of network enclosures.

Material:
Sheet steel, zinc-plated, passivated.

Packs of	Model No. DK
1 set	7526.964

Supply includes:
Mounting adaptor including assembly parts.

Interface card
for TopTherm cooling units with Comfort controller

The interface card is an extension for TopTherm cooling units with Comfort controller. In this way it is possible, e.g. to monitor a master/slave combination of up to 10 cooling units. Control is achieved via standardised interfaces: RS232 (DB9) or RS 485, one PLC interface (DB9). RS 422 (RJ45 jack) is the connection to the Rittal CMC-TC. Remote monitoring via TCP-IP, graphical interfaces for operation, evaluation and control, documentation, connection to additional sensors for access control, monitoring is therefore possible. The extension card is built into a 1 U plastic housing. A voltage supply of 24 V DC is needed. This may be supplied from the CMC-TC via a wide-range power pack DK 7320.425 (100 to 240 V AC, 50/60 Hz) or externally via a Kycon connector.

Packs of	Model No. SK
1	3124.200

Supply includes:
Interface card integrated into a plastic box W x H x D (mm): 136 x 44 (1 U) x 129.

Serial SUB-D cable, 1.5 m.

B

4.7

Accessories for system climate control
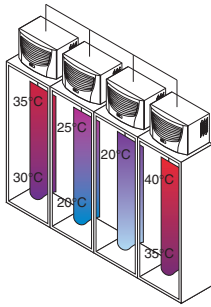
SK bus system

The SK bus system facilitates communications between several enclosure cooling units, version Rittal TopTherm .500/.510/.540, production date 05/02 or later, via a master/slave construction such as that required e.g. in complex bayed enclosure systems for optimum operating results.

Technical specifications:
The master/slave construction facilitates common activation and deactivation via door limit switches, parallel activation and deactivation via a temperature setpoint, and common collective fault signals and temperature logging, thereby eliminating the need for intricate wiring.

For	Model No. SK
TopTherm	3124.100
Climate controlled enclosures	3124.000

Supply includes:
3 m shielded interface cable, including operating manual on programming the cooling units.

Note:
$n_B = n_K - 1$
n_B: Number of order units (SK bus system)
n_K: Number of cooling units to be linked

Property rights:
German patent no. 196 15 469

Cable connection kit
for CS Outdoor cooling units
For simple connection of CS cooling units. All cables preassembled with the corresponding connectors.
Length of cables approx. 2500 mm.

Supply includes:
1 set = 3 cables for AC,
door operated switch and
alarm connection.

Packs of	Model No. CS
1 set	9765.105

Cable connection kit
for CS Outdoor heat exchangers
For simple connection of CS heat exchangers. All cables preassembled with the corresponding connectors.
Length of cables approx. 2500 mm.

Option	Model No. CS
3 cables for AC/DC and alarm connection	9765.110
2 cables for DC and alarm connection	9765.115

Test adaptor
for CS Outdoor climate control equipment
The 9-pole sub-D interface allows testing of all CS climate control equipment. Alternatively supports automatic or manual test procedures.

Supply includes:
1 set = test adaptor
including 2 m connection cable.

Packs of	Model No. CS
1 set	9765.050

B

4.7

Accessories for system climate control

Accessories for system climate control

General
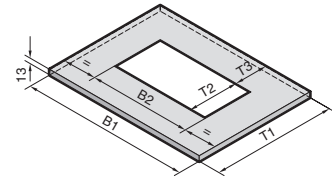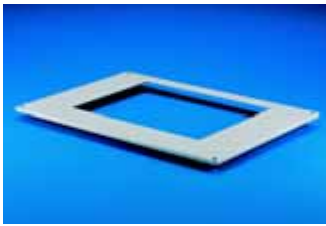
Roof plates TS

For mounting on:
- TopTherm roof-mounted cooling units
- TopTherm roof-mounted fan
- Vent attachment TS

The cutouts in the roof plate are arranged in such a way that the TopTherm roof-mounted cooling units are positioned centrally on the enclosure.

Material:
Sheet steel

Supply includes:
Assembly parts.

Colour:
RAL 7035

B = Width
T = Depth

For enclosures W x D mm	To fit the mounting of TopTherm	Model No. TS
600 x 600	SK 3382. . . .	8801.300[1]
800 x 600		8801.320
600 x 600	SK 3273.5. .	8801.310[1]
800 x 600	SK 3383. . . . SK 3384. . . .	8801.330
1200 x 600	SK 3385. . . .	8801.350
800 x 600	SK 3386. . . .	8801.340[2]
1200 x 600	SK 3387. . . .	8801.360

[1] When mounting the cooling units, there may be a collision with the eyebolts of the enclosure; for this reason roof fastening screws are supplied loose with the roof plates.
[2] Attachment is from the inside using metal brackets and retaining clamps.

For mounting TopTherm	B1	B2	T1	T2	T3	Model No. TS
SK 3382. . . .	567.5	475	567.5	260	129.3	8801.300
SK 3382. . . .	767.5	475	567.5	260	129.3	8801.320
SK 3383. . . ./SK 3384. . . ./SK 3385. . . .	567.5	490	567.5	390	61.3	8801.310
SK 3383. . . ./SK 3384. . . ./SK 3385. . . .	767.5	490	567.5	390	61.3	8801.330
SK 3383. . . ./SK 3384. . . ./SK 3385.XXX	1167.5	490	567.5	390	61.3	8801.350
SK 3386. . . ./SK 3387. . . .	767.5	692	567.5	392	57.8	8801.340
SK 3386. . . ./SK 3387. . . .	1167.5	692	567.5	392	57.8	8801.360
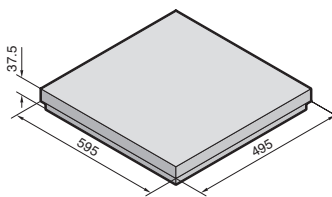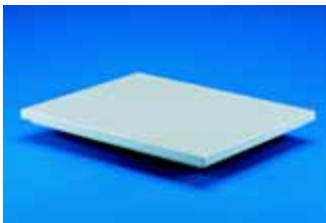
Vent attachment TS

For passive ventilation with labyrinthine air flow routing, to match the roofs for TopTherm roof-mounted cooling units.

Colour:
RAL 7035

Protection category:
IP 43

Supply includes:
Assembly parts.

For roof plates with cutout	Model No. TS
490 x 390 mm	8801.380

Trim frame

for slimline cooling units

Slimline cooling units can be internally or externally mounted on an enclosure door or wall. The trim frame presents a closed front for the cooling unit.

Material:
Sheet steel

Colour:
RAL 7035

For cooling unit	Model No. SK
SK 3366. . . . SK 3377. . . .	3377.000
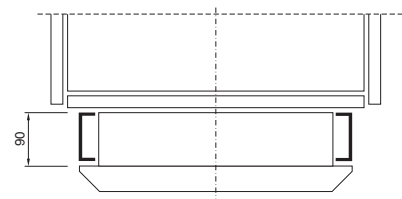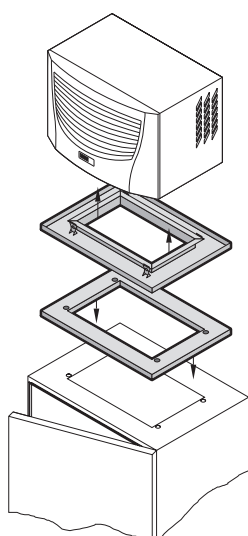
Quick-change frame

for TopTherm roof-mounted cooling units
The quick-change frame is more than just an alternate frame. Together with the seal, the lower part of the frame is screw-fastened to the enclosure, making it possible to attach or remove the plug-in cooling unit to/from the top part of the quick-change frame previously mounted on the cooling unit using quick-release fasteners. In case of servicing, this means minimal assembly times and hence minimal downtime. What is more, the quick-change frame offers effective protection against the ingress of oil into the enclosure in oily atmospheres, thanks to its integral drainage trough.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Quick-change frame, seal,
quick-release fasteners.

For TopTherm cooling unit	Model No. SK
SK 3382. . . .	**3286.700**
SK 3383. . . . SK 3384. . . . SK 3385. . . .	**3286.800**
SK 3386. . . . SK 3387. . . .	**3286.900**

Property rights:
German patent no. 41 10 323
French Patent no. 2 675 317
GB patent no. 2 254 735

Electronic condensate evaporator

For external mounting on enclosures.
For use with all enclosure cooling units and air/water heat exchangers.
Evaporation performance:
[1] 2.4 l/d
[2] 4.2 l/d

Colour:
RAL 7035

Supply includes:
Electronic condensate evaporator,
ready for connection.

Rated operating voltage	Model No. SK	
	For SK 3302/ SK 3303	For 400 mm wide cooling units
230 V, 50/60 Hz	**3301.560[1]**	**3301.570[2]**
115 V, 50/60 Hz	**3301.580[1]**	**3301.590[2]**

Detailed drawing,
see page 1184.

B

4.7
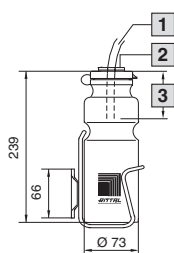
Condensate collecting bottle

For mounting on the enclosure.
For use with all enclosure cooling units and air/water heat exchangers.
Safety overflow at the side.
Capacity approximately 0.75 l.

[1] Condensate discharge tube

[2] Membrane grommet

[3] max. 70 mm

Packs of	Model No. SK
1	**3301.600**

Supply includes:
Condensate collecting bottle, bottle holder including assembly parts.

239

66

Ø 73

Condensate hose

For removing and forwarding condensate. For connecting to enclosure cooling units.

Material:
PVC, transparent

Supply includes:
10 m hose

For devices	Material thickness Ø	Model No. SK
SK 3302. . . ./SK 320. . . .	8 x 1.5 mm	**3301.608**
SK 3303. . . ./SK 3361. . . .	10 x 1.5 mm	**3301.610**
SK 3273. . . ./SK 3304. . . ./ SK 3305. . . ./SK 3328. . . ./ SK 3329. . . ./SK 3332. . . ./ SK 3366. . . ./SK 3359. . . ./ SK 3382. . . ./SK 3383. . . ./ SK 3384. . . ./SK 3385. . . ./ SK 3386. . . ./SK 3387. . . ./ SK 3377. . . .	12 x 2 mm	**3301.612**

Accessories for system climate control

Integrated louvres

For ventilation by convection; easily retro-fitted using 4 screws.

Material:
Sheet steel

Colour:
RAL 7035
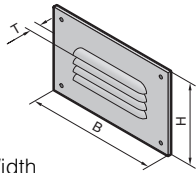
W mm	H mm	D mm	Packs of	Model No. SK
160	110	8	4	**2541.235**
210	100	8	4	**2542.235**
330	110	8	4	**2543.235**

For RAL 7032, use order extension .200; to order primed version, use extension .300. Delivery times available on request.

Detailed drawing,
see page 1184.

B = Width
T = Depth
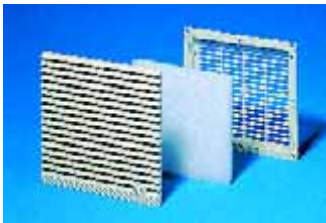
Outlet filter

For ventilation by convection, an outlet filter can be installed in the upper and lower sections of the enclosure.

Material:
ABS,
material resistance to UL 94-V0.

Colour:
RAL 7035

Supply includes:
Outlet filter including filter mat.

Dimensions in mm	Model No. SK
116.5 x 22	**3321.207**
148.5 x 24.5	**3322.207**
204 x 30	**3323.207**
255 x 30	**3325.207**
323 x 30	**3326.207**

For RAL 7032, use order extension .200.

Note:
EMC version,
see page 640.

➕ **Accessories:**

Spare filter mats,
see page 670.
Fine filter mats,
see page 670.

c **UL** us
LISTED

Hose-proof hoods

for fan-and-filter units/outlet filters
When the hose-proof hood is mounted above the fan-and-filter unit and outlet filter in conjunction with a fine filter mat, a protection category of IP 56 to EN 60 529/10.91 is achieved. Particularly suitable for use in the food industry.

Material:
Stainless steel

Protection category:
In conjunction with the fan-and-filter units/outlet filters, NEMA 3R + 12 is met.

For	Dimensions in mm	Model No. SK
SK 3321. . . .	150 x 260 x 40	**3321.800[1]**
SK 3322. . . .	176 x 270 x 55	**3322.800**
SK 3323. . . .	233 x 410 x 55	**3323.800**
SK 3324. . . . SK 3325. . . .	282 x 500 x 85	**3324.800**
SK 3326. . . . SK 3327. . . .	350 x 560 x 110	**3326.800**

[1] Delivery times available on request.

c **UL** us
LISTED

B
4.7

Accessories for system climate control

Front outlet grille 2 U

for centrifugal fans
This front outlet grille is required if a 482.6 mm (19″)
cross-flow blower (SK 3144.000/SK 3145.000)
is used in the lower section of the electronic
enclosure and the hot air is to be expelled to the
outside from the upper section of the enclosure.
The design of the grille matches that of the intake
grille in the cross-flow blower.
These grilles can also be used as simple inflow
and outflow grilles with natural convection.

Packs of	Model No. SK
1	**3176.000**

Accessories:

Filter mat,
see page 668.

Filter holder

for roof ventilation
The use of a filter mat is required in order to
increase the protection category of the roof vent
(SK 3148.000).
Protection category IP 43 to EN 60 529/10.91 is
achieved.

Material:
Sheet steel

Supply includes:
Filter holder including filter mat.

W x H x D mm	Model No. SK
340 x 244 x 15	**3175.000**

Accessories:

Spare filter mat,
see page 670.

Bypass safety valve

For use with recooling systems and air/water heat
exchangers.

Material:
Brass

Option	Packs of	Model No. SK
$^1/_2$″_619_E bypass valve	1	**3301.900**
$^3/_4$″_619_E bypass valve	1	**3301.910**
1″_619_E bypass valve	1	**3301.920**

Flow regulator valve

For use with air/water heat exchangers. Espe-
cially if more than one heat exchanger (n > 1) is
used in the water cooling circuit.

Material:
Brass

Option	Packs of	Model No. SK
$^3/_4$″ x $^1/_2$″ flow regulator valve	1	**3301.930**
$^3/_4$″ x $^3/_4$″ flow regulator valve	1	**3301.940**

B

4.7

Accessories for system climate control

Accessories for system climate control

Filter mats

Additives for recooling systems

Supply includes:
10 l canister

Rifrost	Antifrogen water mixture	Model No. SK
Outdoor	1 : 2	**3301.950**
Standard	1 : 4	**3301.960**

Filter mats

Rittal cooling units are low-maintenance and are supplied without filter mats. Filter mats may be used for extreme conditions.

Material:
Open-celled polyurethane foamed plastic with excellent physical and mechanical properties. Temperature-resistant from –40°C to +80°C. Thickness: 10 mm.

For TopTherm cooling units

For cooling unit	W x H x D mm	Packs of	Model No. SK
SK 3302.300/SK 3302.310	190 x 95 x 10	3	**3286.110**
SK 3302. . . /SK 3303. . . ./SK 3361. . . .	265 x 200 x 10	3	**3286.300**
SK 3304. . . ./SK 3305. . . ./SK 3328. . . ./SK 3329. . . ./ SK 3332. . . /SK 3366. . . .	344 x 268 x 10	3	**3286.400**
SK 3273. . . /SK 3382. . . ./SK 3383. . . ./SK 3384. . . ./ SK 3385. . . /SK 3359. . . .	530 x 255 x 10	3	**3286.500**
SK 3386. . . /SK 3387. . . .	720 x 300 x 10	3	**3286.600**
SK 3377. . . .	205 x 210 x 10	3	**3253.010**

For discontinued cooling units

For cooling unit	W x H x D mm	Packs of	Model No. SK
SK 3296. . . ./SK 3272.100/SK 3290. . . ./SK 3280.100/ SK 3299. . . ./SK 3261. . . .	539 x 332 x 10	3	**3286.100**
SK 3265.100/SK 3266.100	270 x 332 x 10	3	**3267.100**
SK 3256. . . .	395 x 300 x 10	3	**3254.000**
SK 3293. . . ./SK 3281.100/SK 3298. . . ./SK 3279.100/ SK 3260. . . ./SK 3269. . . ./SK 3262.100/SK 3393. . . ./ SK 3381.100/SK 3391. . . .	334 x 313 x 10	3	**3294.100**
SK 3255. . . /SK 3395. . . .	350 x 245 x 10	3	**3253.000**
SK 3394. . . .	315 x 200 x 10	3	**3285.000**
SK 3292.134/SK 3278.134	325 x 250 x 10	3	**3286.000**

Filter mats

Made of chopped-fibre mat with a progressive structure. Temperature-resistant to 100°C, self-extinguishing category F1 to DIN 53 438.
Dust-laden air side: Open structure.
Clean air end: Closed structure.
Reliable filtering of virtually all types of dust from a particle size of 10 μm.

Material:
Chemical fibre

For centrifugal fans/front outlet grilles 2 U

For centrifugal fans/front outlet grilles 2 U	W x H x D mm	Packs of	Model No. SK
SK 3144.000/SK 3145.000/SK 3176.000	425 x 85 x 8	5	**3177.000**
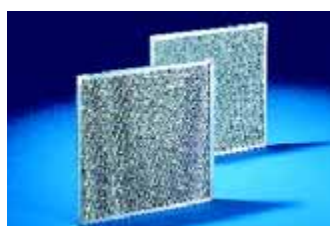
Metal filter

Particularly when cooling units are used in dusty and damp environments, it is advisable to use washable metal filters.

If air or steam condenses on the metal surfaces, any particles that may be present will adhere to the metal and are easily washed out with water or grease-dissolving detergents.

Material:
Aluminium
Thickness: 10 mm

For TopTherm cooling units

For cooling unit	W x H x D mm	Packs of	Model No. SK
SK 3302.300/SK 3302.310	190 x 95 x 10	1	**3286.120**
SK 3302.100/SK 3302.110/SK 3303. . . ./SK 3361. . . .	265 x 200 x 10	1	**3286.310**
SK 3304. . . ./SK 3305. . . ./SK 3328. . . ./SK 3329. . . ./SK 3332. . . ./SK 3366. . . .	344 x 288 x 10	1	**3286.410**
SK 3273. . . ./SK 3382. . . ./SK 3383. . . ./SK 3384. . . ./SK 3385. . . ./SK 3359. . . .	530 x 255 x 10	1	**3286.510**
SK 3386. . . ./SK 3387. . . .	720 x 300 x 10	1	**3286.610**
SK 3377. . . .	205 x 210 x 10	1	**3253.220**

For discontinued cooling units

For cooling unit	W x H x D mm	Packs of	Model No. SK
SK 3296. . . ./SK 3272.100/SK 3290. . . ./SK 3280.100	520 x 290 x 10	1	**3286.210**
SK 3299. . . ./SK 3261. . . .	520 x 315 x 10	1	**3286.200**
SK 3265.100/SK 3266.100	265 x 320 x 10	1	**3267.200**
SK 3256. . . .	315 x 365 x 10	1	**3254.200**
SK 3293. . . ./SK 3281.100/SK 3298. . . ./SK 3279.100/SK 3260. . . ./SK 3269. . . ./SK 3262.100/SK 3393. . . ./SK 3381.100/SK 3391. . . .	300 x 328 x 10	1	**3294.200**
SK 3255. . . ./SK 3395. . . .	348 x 210 x 10	1	**3253.200**
SK 3394. . . .	375 x 415 x 10	1	**3285.200**

For climate control doors

For climate control door	W x H x D mm	Packs of	Model No. SK
SK 3306. . . ./SK 3307. . . ./SK 3309. . . ./SK 3310. . . .	424 x 100 x 10	1	**3284.200**
SK 3308. . . .	624 x 100 x 10	1	**3288.200**
SK 3331. . . .	380 x 150 x 10	1	**3289.200**

For Mini recooling systems

For recooling systems	W x H x D mm	Packs of	Model No. SK
SK 3318.600/SK 3318.610/SK 3319.600/SK 3319.610	530 x 255 x 10	1	**3286.510**
SK 3320.600/SK 3334.600	500 x 558 x 8	1	**3286.520**
SK 3360. . . .	344 x 268 x 10	1	**3286.410**

B

4.7

Accessories for system climate control

Accessories for system climate control

Filter mats

Spare filter mats

Made of chopped-fibre mat with a progressive structure.
Temperature-resistant to 100°C, self-extinguishing category F1 to DIN 53 438.
Dust-laden air side: Open structure.
Clean air end: Closed structure.
Reliable filtering of virtually all types of dust from a particle size of 10 µm.

Material:
Chemical fibre

For fan-and-filter units

For fan-and-filter units	W x H x D mm	Packs of	Model No. SK
SK 3321. . . .	89 x 89 x 10	5	**3321.700**
SK 3322. . . .	120 x 120 x 12	5	**3322.700**
SK 3323. . . .	173 x 173 x 17	5	**3171.100**
SK 3324. . . ./SK 3325. . . .	221 x 221 x 17	5	**3172.100**
SK 3326. . . .	289 x 289 x 17	5	**3173.100**
SK 3327. . . .	289 x 289 x 10	5	**3327.700**

For filter holders

For filter holders	W x H x D mm	Packs of	Model No. SK
SK 3175.000	338 x 242 x 20	3	**3174.000**
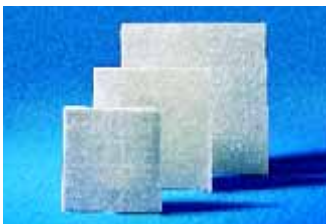
Fine filter mats

Made of chopped-fibre mat with a progressive structure.
Temperature-resistant to 100°C,
self-extinguishing category F1 to DIN 53 438.
Dust-laden air side: Open structure.
Clean air end: Closed structure.
Reliable filtering of virtually all types of dust from a particle size of 10 µm.

Material:
Chemical fibre

For fan-and-filter units/outlet filters

For fan-and-filter units/outlet filters	W x H x D mm	Packs of	Model No. SK
SK 3323. . . .	173 x 173 x 12	5	**3181.100**
SK 3324. . . ./SK 3325. . . .	221 x 221 x 12	5	**3182.100**
SK 3326. . . ./SK 3327. . . .	289 x 289 x 12	5	**3183.100**

Features

From passive air climate control to active liquid cooling of high-performance CPUs, Rittal provides all the required components and systems. They are designed precisely according to your requirements and application spectrum. Software-assisted planning and calculation of requirements, together with modular, rack-compatible technology, help to minimise investment costs, thereby offering a particularly future-safe solution with a high degree of flexibility.

Liquid cooling package
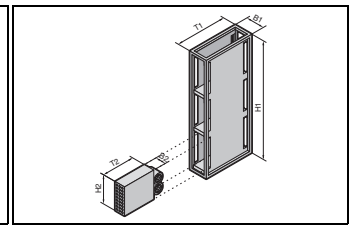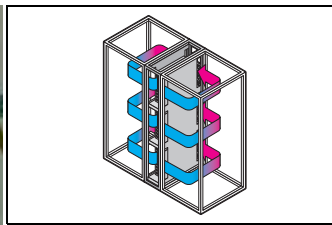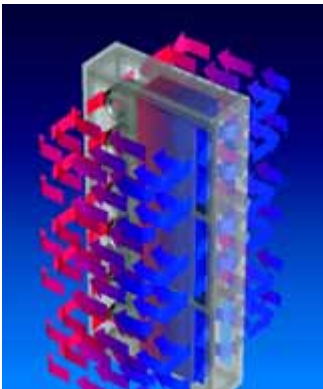
Modular, upgradable and temperature-neutral cooling concept. 12 kW cooling output, with three cooling modules supported per cooling rack.

Optimised air routing
Cold air is blown in at the sides, so that the cold air is evenly distributed in front of the 482.6 mm (19″) level.

Optionally 1 or 2 server racks may be cooled – both stand-alone and bayed siting are possible. Bayable to TS and PS server racks, even retrospectively.

Rack-mounted recooling system
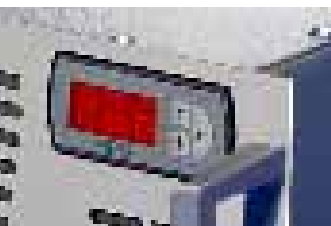
Microcontroller control

Liquid-cooled computers
in a 482.6 mm (19″) server rack are supplied via the shortest route via six cooling circuits, without the need for an additional rising main.

Vibration-free installation

Cooling circuit distributor for processor climate control
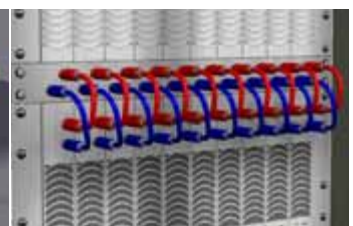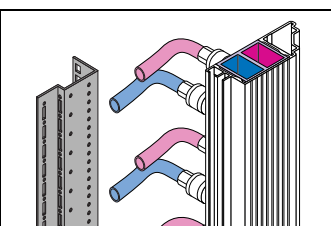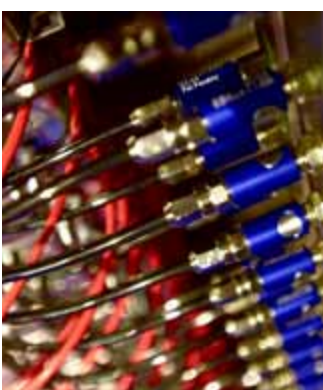
The distributor pipes for inlet and return lines for targeted, reliable liquid cooling may be integrated into all standard rack systems.

Cooling circuit distributor kit Blade server
The 482.6 mm (19″) distributors are connected to the rising main.

Cooling circuit distributor 482.6 mm (19″)
Connections for 10 servers and a main connection to the vertical rising main.

B

4.8

Liquid cooling

Cooling

Rittal liquid cooling package

B = Width
T = Depth
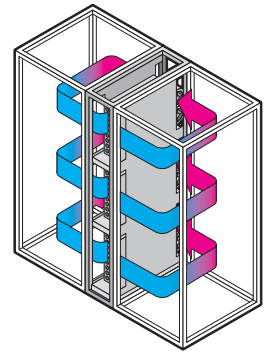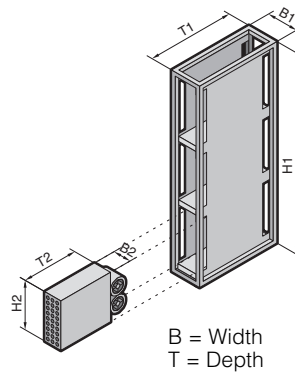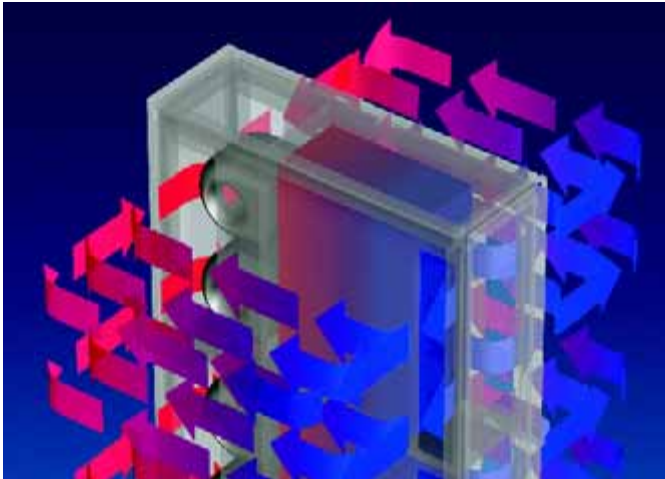
Modular, upgradable and temperature-neutral cooling concept.
- Max. 12 kW cooling output, with three cooling modules possible per cooling rack.
- Approx. 4 kW cooling output per cooling module at 800 m³/h air throughput.
- Optimised air routing: Cold air is blown in at the sides, so that the cold air is evenly distributed in front of the 482.6 mm (19″) level.

- Optionally 1 or 2 server racks may be cooled – stand-alone and bayed siting possible.
- Bayable to TS and PS server racks, even retrospectively.
- Active condensate handling.
- Optional control and monitoring[1] of the cooling rack via Rittal CMC-TC.
- Two-piece modules; for easy installation in narrow passage-ways.

Technical specifications:
- Mounted as a cooling rack on a server rack based on TS 8, with H = 2000 mm, D = 1000 mm.
- Each cooling rack can accommodate a maximum of three air/water heat exchanger cooling modules.
- Standard supply: Cooling rack equipped with one cooling module.
- Individual modules upgrad-able to full installation via quick-release couplings.

- Control via a separate mod-ule which may be connected to the CMC-TC for incorpora-tion into the network (monitor-ing).
- Condensation management: The pump in the condensate tray pumps any condensation into the return section of the cooling circuit.

		Enclosure + 3 modules		Individual module for 230 V/115 V
Model No. SK		**3301.230**	**3301.210**	**3301.250**
Rated operating voltage V, Hz		230, 50/60	115, 50/60	230, 50/60
Dimensions in mm	W	300		250
	H	2000		550
	D	1000		950
Useful cooling output at 15°C water inlet, 15 l/min, 20°C cold air		**4000 W/3500 W**	**4000 W/3500 W**	**4000 W/3500 W**

Rated current max.	1.8 A	
Pre-fuse T	5.0 A	
Cooling medium	Water (specifications may be found on the Internet)	
Water inlet temperature	+5°C to +30°C	
Permissible operating pressure p. max.	2 to 8 bar	
Temperature range	+5°C to +40°C	
Protection category to EN 60 529/10.91	IP 30	–
Duty cycle	100 %	
Type of connection	Current: Connection cable with earthing-pin plug: Water: ³/₄″ quick-release fastener	
Weight	max. 160 kg	approx. 25 kg
Colour	RAL 7035	
Air throughput of fans	max. 2400/2100 m³/h	800/700 m³/h
Temperature control	Electronically controlled magnetic valve and 4-way fan control	

[1] Flow, leakage, inlet/return, intake/exhaust temperature.
The general remarks on air/water heat exchangers (available on the Internet) apply.

For professional installation of the heat exchanger, where possible, the enclosures being cooled should be sealed against the ingress of ambient air:

Description	Dimensions in mm		Packs of	Model No.
Side panel, screw-fastened	H x D	2000 x 1000	2	**8100.235**
Glazed door	W x H	600 x 2000	1	**8610.600**[2]
		800 x 2000	1	**8610.800**[2]
Sheet steel door, solid	W x H	600 x 2000	1	**7824.205**[2]
		800 x 2000	1	**7824.207**[2]
[2] Alternatively: Sealing kit for vented sheet steel doors, size	W x H	600 x 2000	1	**7824.185**
	W x H	800 x 2000	1	**7824.187**

Description	Dimensions in mm		Packs of	Model No.
Divided partitioning plate for retro-spective sealing in the base area	W x D	600 x 1000	1	**7825.300**
		800 x 1000	1	**7825.302**
Divided roof plate for cable entry	W x D	600 x 1000	1	**7826.605**[3]
		800 x 1000	1	**7826.805**[3]
Sealing kit for two-sided cooling when bayed			1 set	**7825.305**

[3] Retrospective installation is not possible.

B
4.8
Cooling

Rack-mounted recooling system
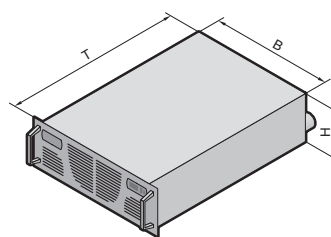
B = Width
T = Depth

Liquid-cooled computers in a 482.6 mm (19″) server rack are supplied via the shortest route via six cooling circuits, without an additional rising main.
- Partial liquid cooling in heterogeneous environments.
- Combination of air and liquid cooling possible.

Technical specifications:
- Installation in the 482.6 mm (19″) level of the enclosure.
- 6 cooling circuit connections for server/CPU cooling on the back of the chiller via drip-free quick-release coupling.
- Vibration-free installation.
- 2 freely programmable alarm outputs.
- Operating pressure display.
- Optional automatic bypass.

⚠ Also required:
- Quick-release couplings
- Heat sink, retaining clamps
- Hose, see page 675.

Model No. SK	3301.260
Rated operating voltage V, Hz	230, 50/60
Dimensions in mm W	442
H	175
D	751 + 100 mm for water connections
Cooling output at $T_w = 25°C$ $T_u = 32°C$, 2 l/h	**1000 W/1070 W**

Power consumption		640/790 W
Rated current max.		4.5 A
Refrigerant		R134a, 550 g
$P_{max.}$ cooling circuit		25 bar
Temperature range	Environment	+10°C to +40°C
	Liquid media	+10°C to +35°C
Pump capacity		4 l/min at 2 bar
Tank		Pressure-sealed
Tank capacity		–
Water connections		Quick-release coupling, drip-free
Weight		45 kg
Colour		Textured RAL 7035.
Protection category (electrics)		IP 20
Air throughput of fans		450 m³/h
Temperature control		Microcontroller, setting range +10°C to +30°C, factory setting +18°C

Delivery times available on request.

B

4.8

Cooling

Cooling

Power Cooling System PCS
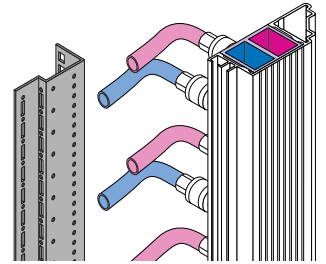
Cooling circuit distributor for racks

Water cooling
High performance for CPUs, power packs and disk drives by cooling directly at the area where heat is generated. The distributor pipes for inlet and return lines for targeted, reliable liquid cooling may be integrated into all standard rack systems.

They are linked to an external, central recooling unit which also controls the inlet temperature. The drip-free quick-release coupling ensures an extremely high level of operational reliability. Monitoring of the system functions is performed by the tried-and-trusted Rittal CMC-TC module.
There are 2 complete basic packages available for retro-fitting for different enclosure heights.

Supply includes:

Package 1
Water infeed:
Connection system, non-return valve and 10 m hose, $^1/_2''$, fittings, filter, vent valve.

Water distribution:
Cooling circuit distributor for 20 CPU cooling circuits, vent valve, 40 bulkhead couplings, 50 m distributor hose, 6 mm.

Package 2
Water infeed:
Connection system, non-return valve and 10 m hose, $^1/_2''$, fittings, filter, vent valve.

Water distribution:
Cooling circuit distributor for 40 CPU cooling circuits, vent valve, 80 bulkhead couplings, 100 m distributor hose, 6 mm.

For enclosure height		Model No. SK	
mm	U	Package 1	Package 2
1200	24	**3301.810**	–
2000	42	–	**3301.820**

! Also required:

Recooling system,
see page 608 onwards.

⊞ Accessories:

Distributor accessories,
see page 675.
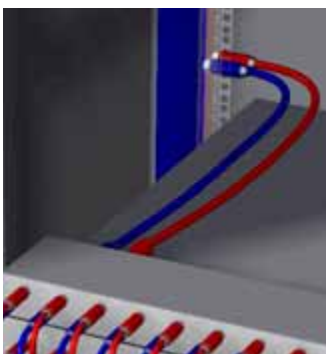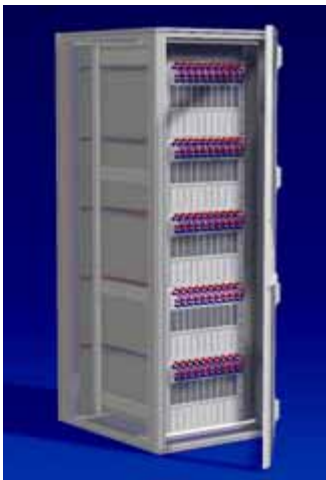
Cooling circuit distributor kit

for Blade server
Our liquid cooling for server racks serves as a basis for this solution. The large number of drip-free taps to the individual computers is now replaced by the connection of horizontal liquid sub-distributors, where the drip-free connectors for connection of the Powerblade are found.
5 units are possible with 7 U per server and 1 per 482.6 mm (19″) distributor. The individual 482.6 mm (19″) distributors are connected to the rising main with drip-free connectors, so that the system is modular and scalable.

Supply includes:
1 vertical rising main with 5 taps,
1 482.6 mm (19″) cooling circuit distributor with 10 inlet and return connections,
1 connection hose (inlet and return) from the 482.6 mm (19″) cooling circuit distributor to the vertical rising main,
1 connection hose (inlet and return) from the vertical rising main to the recooler

Packs of	Model No. SK
1	**3301.280**

! Also required:

Recooling system,
see page 608 onwards.

⊞ Accessories:

482.6 mm (19″) distributor,
distributor accessories,
see page 675.
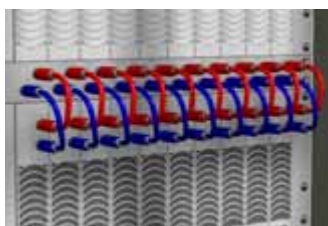
Cooling circuit distributor 19″

For installation in the 482.6 mm (19″) level with drip-free connections for 10 servers and a main connection to the vertical rising main;
0.5 m hose in each case for the inlet and return.

Packs of	Model No. SK
1	**3301.270**

Accessories:

Distributor accessories,
see page 675.

Distributor accessories

Description		Packs of	Model No. SK
Heat sink		1	**3301.000**
Connector for heat sink	6 mm	2	**3301.010**
	4 mm	2	**3301.020**
Retaining clamps	Athlon	1	**3301.030**
	Opteron	1	**3301.040**
	Xeon	1	**3301.050**
	P 4	1	**3301.060**
Connection system for hose (sold by the metre)	4 mm	1	**3301.070**
	6 mm	1	**3301.080**
Screw-in coupling G $^1/_8$″ with seal		10	**3301.090**
Screw-in connector G $^1/_8$″ with seal		10	**3301.130**
Connector sleeve, 6 mm		10	**3301.160**
Connector grommet, 6 mm		10	**3301.170**
Straight screw-in connector G $^1/_8$″, 6 mm		10	**3301.180**
Sealing bung, 6 mm		10	**3301.190**
Y-adaptor, 6 to 2 x 4 mm		10	**3301.700**
Water distribution: 2 x rising main 24 U for TS 8, vent valve, screw-in connector $^1/_2$″, screw-in coupling $^1/_2$″		1	**3301.710**
Water distribution: 2 x rising main 42 U for TS 8, vent valve, screw-in connector $^1/_2$″, screw-in coupling $^1/_2$″		1	**3301.720**
Water infeed: 2 x connector grommet $^1/_2$″, 2 x connector sleeve $^1/_2$″, hose $^1/_2$″ (10 m), non-return valve $^1/_2$″, dirt trap (with 2 x $^1/_2$″ connector sleeve), screw-in connector $^1/_2$″ (on the cooling unit), screw-in coupling $^1/_2$″ (on the cooling unit), 6 x hose clamps $^1/_2$″		1	**3301.730**
Monitoring at the connection to the CMC: Temperature sensor + clamping screw fastening		1	**3301.740**
Accessories/work materials	Hose cutter	1	**3301.750**
	Thermally conductive paste	1	**3301.760**
	Teflon sealing tape	1	**3301.770**
	Sealing bung $^1/_4$″	1	**3301.780**

B

4.8

Cooling

Permanent availability of your IT systems is undoubtedly crucial.

This is your company's heartbeat. For this reason, it is important to ensure

stable conditions for your complex server and software system architecture.

With this in mind, Rittal combines the five key elementary infrastructure

components to create an extremely variable, and above all secure system:

Rack, Power, Cooling, Security, Monitoring & Remote Management.

With Rittal, a high level of IT availability is guaranteed.

IT Solutions

Networking

Server racks

Power

Rittal IT cooling

Monitoring

Terminals

Telecom

IT Solutions

B

5.

RimatriX5

The data centre of the future

New software, rising computer performance, high levels of availability –

these are the new challenges placed on the physical IT infrastructure.

Whether your company is small, medium-sized or large, the requirements on IT performance are growing. Highly complex

applications, faster processors, and round-the-clock information and communication – all this demands a physical infra-

structure which is more than intact. This leads to a number of elementary questions:

- Will the climate control of individual racks, entire server rooms and data centres withstand the rising heat generated?
- Is the energy supply and back-up designed for a high level of availability?
- How can the existing space be used to optimum effect, even with expansion?

- Are the applications and servers protected from physically-induced failures?
- Can all functions be efficiently managed via a perfect monitoring and remote system?
- Is uninterrupted expansion possible at any time?
- Are the costs under control?

The RimatriX5 concept solves all these tasks. The complete solution from Rittal, for the data centre of the future.

Rittal has the solution: RimatriX5 – the holistic, scalable,

efficient system solution for high levels of IT peformance,

with the added benefits and cost advantages of modularity.

RIMATRIX5
DRIVING IT-PERFORMANCE

With the perfectly coordinated components of rack, power, cooling, security and monitoring/remote management, you get an integral, holistic solution for the IT infrastructure. **Added value is provided by RimatriX5 with its globally available, local service:** Configuration and monitoring support via software, precise risk analysis, application-tailored installation and maintenance service and a rapid escalation service.

With RimatriX5, Rittal offers holistic solutions for a reliable, available and cost-saving IT infrastructure.

Be it server room or data centre, high or exceptional availability – the individual modules of RimatriX5 adapt at any time to suit the individual requirements. What's more, they grow along with requirements:

Monitoring & Remote Management

Thanks to simple operation and administration with the "Monitoring & Remote Management" module of RimatriX5, maintenance and operating costs may be permanently reduced in day-to-day operation, whilst overall availability is enhanced. For example, comprehensive monitoring, measurement and control tasks via the CMC module reduce the risk of failure and facilitate preventive intervention.

Security

Due to modules for physical rack security and room protection within RimatriX5, a high level of protection of the IT infrastructure is guaranteed. For example, when it comes to physical rack security, temperature, smoke and vibration sensors coupled with modern access control solutions and tested enclosure extinguisher systems provide reliable protection against external influences.

See page 762.

Power

The Power module within the RimatriX5 concept ensures a constant and consistent energy supply.
From plug & play power distribution in the IT rack, to power distribution within the space, to power supply back-up with requirement-based UPS, the Power module of RimatriX5 offers optimum energy performance for a high level of availability.

See page 742.
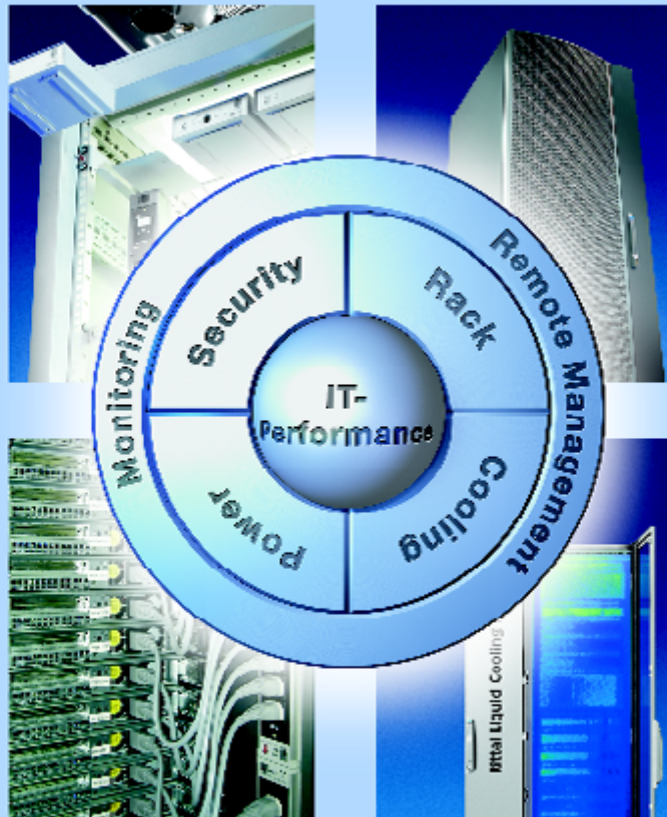
Rack

As one of the world's leading manufacturers of server and network enclosures, Rittal offers an extensive selection with a unique range of accessories.
In this way, you can create the requirements for high-end individual expansion of your IT infrastructure with greater freedom, more flexibility, and enhanced security.

See page 680.

Cooling

With the climate control concepts of RimatriX5, investment costs are minimised, and investment security is maximised. From fans to active liquid cooling, the climate control solutions may be tailored to actual requirements. This helps to cut investment costs and offers adequate scope for future expansions.

See page 758.

RimatriX5

B
5.

The modular principle for the physical IT infrastructure means system solutions rather than piecework – scalable, flexible, and tailored to your application:

RimatriX5 – Driving IT performance

RITTAL

Networking

Features

You define your requirements – Rittal has the solution!

A variety of system platforms will accommodate your

differentiated requirements in the networking sector.

You have the performance for new technologies today.

Consequently, your network grows effortlessly in line with

new tasks.

The flexbility of its systems allows Rittal to offer this excep-

tional future-proofing.

Rittal system comparison	TE 7000	TS 8	FR(i)
One platform for all requirements in the IT market			
Load capacity			
up to 400 kg	■■■	■■■	■■■
up to 1000 kg		■■■	■■■
Baying			
side	■■■	■■■	■■■
in all levels		■■■	
Climate control			
Fan	■■■	■■■	■■■
Climate control device		■■■	■■
Air/water heat exchanger		■■■	
CPU liquid cooling		■■■	■■■
Cabling			
Cable space	■■■	■■	■■
Cable management	■■■	■■■	■■■

Rittal system comparison	TE 7000	TS 8	FR(i)
One platform for all requirements in the IT market			
Lock system			
2-point	■■■	■■■	■■■
4-point		■■■	
Security			
Access control	■■■	■■■	■■■
Climate control	■■■	■■■	■■■
Dismantling	■■■	■	■
Interior installation			
Depth-variable	■	■■■	■■
Partial installation		■■■	
2-level principle		■■■	■
Design	■■	■■	■■■
Standards IEC 60 297-1/2	■■■	■■■	■■■

Note: The more (symbol) the greater the compatibility.

TE 7000

Two 482.6 mm (19″) mounting levels in the multi-functional section create a solid framework. Load capacity 400 kg!

The benefits of this rack without an enclosure frame: Optimum accessibility, maximum use of the interior space, and super-fast assembly.

482.6 mm (19″) distance between levels:
Tailored to Premium accessories in 50 mm increments, or fully depth-variable via the slot attachment.

TS 8

An ingenious symmetrical concept with baying on all sides. With two levels, the frame section affords infinite assembly diversity.

Fully depth-variable interior installation creates flexibility for various installed equipment. Fast assembly by simply locating and securing.

Climate control
For example, a fan unit integrated into the TS 8 twin wall for targeted air routing in the lower part of the enclosure.

B
5.1

flexRack(i)

Cable management
Cables may be routed and system accessories integrated within the hollow chamber of the frame section.

Power management integrated directly into the frame section. Three-phase infeed using the plug & play system, with no loss of enclosure volume.

Liquid cooling
The profile of the flexRack(i) allows integration of the inlet and return lines for targeted, safe liquid cooling.

DataRack
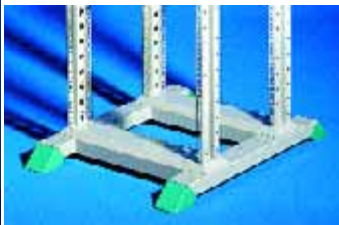
A second mounting level for heavy equipment or double panel assembly. Compatible with Rittal system accessories.

RiLab

Supporting column with two vertical tapped strips for flexible mounting on a 32 mm height pitch pattern. The 6-way socket strip with switch may be integrated into the power column.

Cable management

Gland plate module with brush strip for cable entry in the base area.

Cable clamp rail, depth-variable
The cable clamp rails may be located directly between two mounting frames.

Cable management 482.6 mm (19″)

The surplus cable holder may be attached to all support strips or to punched sections and rails with a 25 mm pitch pattern.
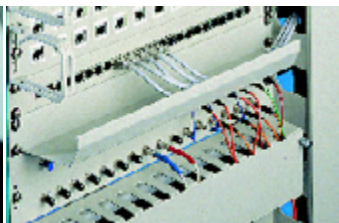
Grooved cable routing panel 482.6 mm (19″)
To hold the patching cables.

Fibre-optic shunting rings
Strain relief and bend radii are guaranteed by the specific design.

Networking

B

5.1

Networking

Network enclosures, based on Rittal TE 7000, width 600

B = Width
T = Depth
HE = U

| A | = Defined mounting distance for Premium accessories, see below.

Benefits:
- Coordinated accessories for fast installation in the delivered state
- No frame structure, optimum accessibility
- Load capacity up to 400 kg.

Material:
Sheet steel

Surface finish:
Mounting frame:
Electrophoretic dipcoat-primed
Enclosure panels:
Powder-coated,
RAL 7035/RAL 9005.

Supply includes:
Self-supporting 482.6 mm (19″) frame structure, glazed door at the front,

two-point locking rod, recessed handle and security lock 3524 E, sheet steel door at rear, two-point locking rod, recessed handle and security lock 3524 E, pluggable side panels with security lock 3524 E, base frame with maximum cutout (for optional population with module plates), roof plate

for cable entry with covered cutout for fan, levelling feet, spacers for raising the cover plate.

Detailed drawing,
available on the Internet.

U	12	12	24	24	42	42	47	47
Width (B) in mm	600	600	600	600	600	600	600	600
Height (H) in mm	600	600	1200	1200	2000	2000	2200	2200
Depth (T1) in mm	600	800	600	800	600	800	600	800
482.6 mm (19″) distance between levels in its delivered state [A]	495	495	495	495	495	495	495	495
Model No. TE	7000.390	7000.410	7000.430	7000.440	7000.500	7000.510	7000.560	7000.570
Model No. TE as a bayed enclosure without side panels, incl. baying kit	–	–	–	–	7000.502	–	7000.562	–
Model No. TE incl. side panels, RAL 9005	–	–	–	–	7000.505	7000.515	–	–

[A] 495 mm – that is the distance between the two 482.6 mm (19″) levels in the delivered state for all enclosure formats. Corresponds to TS 8 nominal size, depth 400 mm, inner level.

[B] Pitch spacing 50 mm. The distance between the two 482.6 mm (19″) levels may be varied in 50 mm increments (445 to 695 mm).

[C] Distance from door:
52.5 mm for depth 600
152.5 mm for depth 800

[D] The mounting distance in a rear mounting frame, horizontal, corresponds to the frame mounting dimensions of a 600 mm wide TS 8 (outer level, 525 mm).

[E] = [A] – 120 mm
The distance between levels is freely selectable via the slot fastening. All key mounting components – punched sections with mounting flanges, divider kits, slide rails, component shelves – are also available in depth-variable format.

German registered design no. 403 07 489

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Rittal Catalogue 31/IT solutions

Network enclosures, based on Rittal TE 7000, width 600

					Page
U	12	12	24	24	Page
Width (B) in mm	600	600	600	600	
Height (H) in mm	600	600	1200	1200	
Depth (T1) in mm	600	800	600	800	
482.6 mm (19″) distance between levels in its delivered state Ⓐ mm	495	495	495	495	
Model No. TE	**7000.390**	**7000.410**	**7000.430**	**7000.440**	
Model No. TE as a bayed enclosure without side panels, including baying kit	–	–	–	–	
Doors					
Glazed front door/sheet steel rear door	■	■	■	■	
Sheet steel front door/sheet steel rear door	On request	On request	On request	On request	
Ergoform-S handle for semi-cylinder, in exchange for the existing lock	2435.000	2435.000	2435.000	2435.000	885
Side panel					
Side panel, plug-type, including security lock 3524 E	■	■	■	■	856
Baying kit	7000.640	7000.640	7000.640	7000.640	867
Roof					
Roof plate with brush strip for cable entry, prepared to accommodate an active fan unit	■	■	■	■	
Fan unit, 2 fans (max. 3) including thermostat	7000.670	7000.670	7000.670	7000.670	651
Fan expansion kit	7980.000	7980.000	7980.000	7980.000	649
Spacers 20 mm to raise the cover plate above the fan cutout	■	■	■	■	
Base/plinth					
Roof frame with maximum cutout for individual population with module plates, levelling feet M10	■	■	■	■	
Module plate variants for individual population	from page 903	from page 903	from page 903	from page 903	
Base/plinth components solid, front and rear	8601.605	8601.605	8601.605	8601.605	835
Base/plinth components, vented, front and rear	7825.601	7825.601	7825.601	7825.601	835
Base/plinth trim, side	8601.065	8601.085	8601.065	8601.085	835
Base/plinth adaptor for levelling feet M12	8800.220	8800.220	8800.220	8800.220	849
Levelling feet M12	4612.000	4612.000	4612.000	4612.000	848
Base/plinth installation accessories	from page 834	from page 834	from page 834	from page 834	
Interior installation/Premium accessories					
482.6 mm (19″) mounting frames front and rear	■	■	■	■	
Punched section with mounting flange 17 x 73 mm, for mounting installation components, attached in the enclosure depth between the 482.6 mm (19″) mounting frames	8612.040	8612.040	8612.040	8612.040	921
Cable clamp rail, depth variable 425 – 725 mm, for cable attachment in the enclosure depth using cable ties	7858.160	7858.160	7858.160	7858.160	984
Cable clamp rail, for cable attachment in the enclosure width via cable ties, on the 482.6 mm (19″) mounting frame at the rear	7828.062	7828.062	7828.062	7828.062	983
C rail, for cable clamping in the enclosure depth via cable clamps	7828.040	7828.040	7828.040	7828.040	928
C rail, for cable clamping in the enclosure width via cable clamps, on the 482.6 mm (19″) mounting frame at the rear	7828.060	7828.060	7828.060	7828.060	928
Earthing kit for TE	7000.675	7000.675	7000.675	7000.675	961
TE socket strip, 8-way, with earthing-pin plug	7000.630	7000.630	7000.630	7000.630	748
Power management	from page 742	from page 742	from page 742	from page 742	
Slide rail for TE, for attachment between the 482.6 mm (19″) mounting frames, length 424 mm	7963.410	7963.410	7963.410	7963.410	1011
482.6 mm (19″) component shelf for fixed installation, for direct screw fastening without an installation kit, 412 mm deep, load capacity 30 kg, static	7000.620	7000.620	7000.620	7000.620	945
Cable management	from page 984	from page 984	from page 984	from page 984	
CMC-TC system monitoring	from page 762	from page 762	from page 762	from page 762	

■ included with the supply

Networking

B

5.1

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Networking

Network enclosures, based on Rittal TE 7000, width 600

					Page
U	42	42	47	47	Page
Width (B) in mm	600	600	600	600	
Height (H) in mm	2000	2000	2200	2200	
Depth (T1) in mm	600	800	600	800	
482.6 mm (19″) distance between levels in its delivered state [A] mm	495	495	495	495	
Model No. TE	**7000.500**	**7000.510**	**7000.560**	**7000.570**	
Model No. TE as a bayed enclosure without side panels, including baying kit	**7000.502**	**–**	**7000.562**	**–**	
Doors					
Glazed front door/sheet steel rear door	■	■	■	■	
Sheet steel front door/sheet steel rear door	On request	On request	On request	On request	
Ergoform-S handle for semi-cylinder, in exchange for the existing lock	2435.000	2435.000	2435.000	2435.000	885
Side panel					
Side panel, plug-type, including security lock 3524 E	■ (7000.500 only)	■	■ (7000.560 only)	■	856
Baying kit	■ (7000.502 only)	7000.640	■ (7000.562 only)	7000.640	867
Roof					
Roof plate with brush strip for cable entry, prepared to accommodate an active fan unit	■	■	■	■	
Fan unit, 2 fans (max. 3) including thermostat	7000.670	7000.670	7000.670	7000.670	651
Fan expansion kit	7980.000	7980.000	7980.000	7980.000	649
Spacers 20 mm to raise the cover plate above the fan cutout	■	■	■	■	904
Base/plinth					
Roof frame with maximum cutout for individual population with module plates, levelling feet M10	■	■	■	■	
Module plate variants for individual population	from page 903	from page 903	from page 903	from page 903	
Base/plinth components solid, front and rear	8601.605	8601.605	8601.605	8601.605	835
Base/plinth components, vented, front and rear	7825.601	7825.601	7825.601	7825.601	835
Base/plinth trim, side	8601.065	8601.085	8601.065	8601.085	835
Base/plinth adaptor for levelling feet M12	8800.220	8800.220	8800.220	8800.220	849
Levelling feet M12	4612.000	4612.000	4612.000	4612.000	848
Base/plinth installation accessories	from page 834	from page 834	from page 834	from page 834	
Interior installation/Premium accessories					
482.6 mm (19″) mounting frames front and rear	■	■	■	■	
Punched section with mounting flange 17 x 73 mm, for mounting installation components, attached in the enclosure depth between the 482.6 mm (19″) mounting frames	8612.040	8612.040	8612.040	8612.040	921
Cable clamp rail, depth variable 425 – 725 mm, for cable attachment in the enclosure depth using cable ties	7858.160	7858.160	7858.160	7858.160	984
Cable clamp rail, for cable attachment in the enclosure width via cable ties, on the 482.6 mm (19″) mounting frame at the rear	7828.062	7828.062	7828.062	7828.062	983
C rail, for cable clamping in the enclosure depth via cable clamps	7828.040	7828.040	7828.040	7828.040	928
C rail, for cable clamping in the enclosure width via cable clamps, on the 482.6 mm (19″) mounting frame at the rear	7828.060	7828.060	7828.060	7828.060	928
Earthing kit for TE	7000.675	7000.675	7000.675	7000.675	961
TE socket strip, 8-way, with earthing-pin plug	7000.630	7000.630	7000.630	7000.630	748
Power management	from page 742	from page 742	from page 742	from page 742	
Slide rail for TE, for attachment between the 482.6 mm (19″) mounting frames, length 424 mm	7963.410	7963.410	7963.410	7963.410	1011
482.6 mm (19″) component shelf for fixed installation, for direct screw fastening without an installation kit, 412 mm deep, load capacity 30 kg, static	7000.620	7000.620	7000.620	7000.620	945
Cable management	from page 984	from page 984	from page 984	from page 984	
CMC-TC system monitoring	from page 762	from page 762	from page 762	from page 762	

■ included with the supply.

Networking

B
5.1

Network enclosures, based on Rittal TE 7000, width 800

B = Width
T = Depth
HE = U

A = Defined mounting distance for Premium accessories, see below.

Benefits:
- Coordinated accessories for fast installation in the delivered state
- No frame structure, optimum accessibility
- Load capacity up to 400 kg.

Material:
Sheet steel

Surface finish:
Mounting frame:
Electrophoretic dipcoat-primed
Enclosure panels:
Powder coated,
RAL 7035/RAL 9005.

Supply includes:
Self-supporting 482.6 mm (19″) frame structure,

glazed door at the front, two-point locking rod, recessed handle and security lock 3524 E, sheet steel door at rear, two-point locking rod, recessed handle and security lock 3524 E, pluggable side panels with security lock 3524 E, base frame with maximum cutout (for optional population

with module plates), roof plate for cable entry with covered cutout for fan, levelling feet, spacers for raising the cover plate.

Detailed drawing,
available on the Internet.

U	24	24	42	42	47	47
Width (B) in mm	800	800	800	800	800	800
Height (H) in mm	1200	1200	2000	2000	2200	2200
Depth (T1) in mm	600	800	600	800	600	800
482.6 mm (19″) distance between levels in its delivered state **A** mm	495	495	495	495	495	495
Model No. TE	**7000.450**	**7000.460**[1]	**7000.520**	**7000.530**[1]	**7000.580**	**7000.590**
Model No. TE as bayed enclosure without side panels, including baying kit	–	–	–	7000.532[1]	–	7000.592
Model No. TE incl. side panels, RAL 9005	–	–	7000.525	7000.535	–	–

[1] **Model No. TE preconfigured with base/plinth, earthing and accessory kit:**
Height 1200 mm: 7000.840. Height 2000 mm: With side panel 7000.850, without side panel 7000.852.

A 495 mm – that is the distance between the two 482.6 mm (19″) level in the delivered state for all enclosure formats. Corresponds to TS 8 nominal size, depth 400 mm, inner level.

B Pitch spacing 50 mm. The distance between the two 482.6 mm (19″) levels may be varied in 50 mm increments (445 to 695 mm).

C Distance from door: 52.5 mm for depth 600 152.5 mm for depth 800

D The mounting distance in a rear mounting frame, horizontal, corresponds to the frame mounting dimensions of a 600 mm wide TS 8 (outer level, 525 mm).

E = **A** – 120 mm

The distance between levels is freely selectable via the slot fastening. All key mounting components – punched sections with mounting flanges, divider kits, slide rails, component shelves – are also available in depth-variable format.

German registered design no. M 403 07 489

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Networking

B

5.1
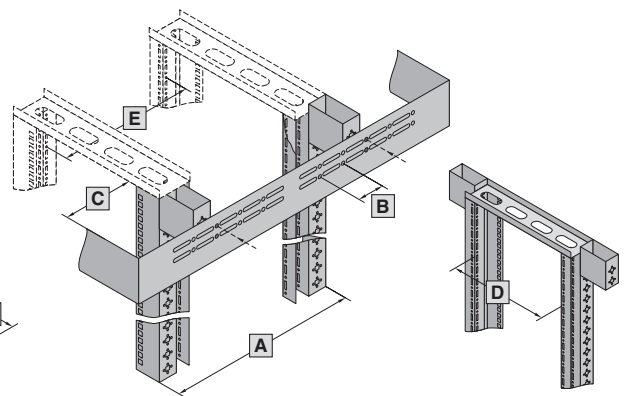
Networking

Network enclosures, based on Rittal TE 7000, width 800

U	24	24	42	42	47	47	Page
Width (B) in mm	800	800	800	800	800	800	
Height (H) in mm	1200	1200	2000	2000	2200	2200	
Depth (T1) in mm	600	800	600	800	600	800	
482.6 mm (19″) distance between levels in its delivered state $\boxed{A}$ mm	495	495	495	495	495	495	
Model No. TE	**7000.450**	**7000.460[1)]**	**7000.520**	**7000.530[1)]**	**7000.580**	**7000.590**	
Model No. TE as a bayed enclosure without side panels, including baying kit	–	–	–	**7000.532[1)]**	–	**7000.592**	
Doors							
Glazed front door/sheet steel rear door	■	■	■	■	■	■	
Sheet steel front door/sheet steel rear door	On request	On request	On request	On request	On request	On request	
Ergoform-S handle for semi-cylinder, in exchange for the existing lock	2435.000	2435.000	2435.000	2435.000	2435.000	2435.000	885
Side panel							
Side panel, plug-type, including security lock 3524 E	■	■	■	■ (7000.530 only)	■	■ (7000.590 only)	856
Baying kit	7000.640	7000.640	7000.640	■ (7000.532 only)	7000.640	■ (7000.592 only)	867
Roof							
Roof plate with brush strip for cable entry, prepared to accommodate an active fan unit	■	■	■	■	■	■	
Fan unit, 2 fans (max. 3) including thermostat	7000.670	7000.670	7000.670	7000.670	7000.670	7000.670	651
Fan expansion kit	7980.000	7980.000	7980.000	7980.000	7980.000	7980.000	649
Spacers 20 mm to raise the cover plate above the fan cutout	■	■	■	■	■	■	904
Base/plinth							
Roof frame with maximum cutout for individual population with module plates, levelling feet M10	■	■	■	■	■	■	
Module plate variants for individual population	from p. 903	from p. 903	from p. 903	from p. 903	from p. 903	from p. 903	
Base/plinth components, solid, front and rear	8601.805	8601.805	8601.805	8601.805	8601.805	8601.805	835
Base/plinth components, vented, front and rear	7825.801	7825.801	7825.801	7825.801	7825.801	7825.801	835
Base/plinth trim, side	8601.065	8601.085	8601.065	8601.085	8601.065	8601.085	835
Base/plinth adaptor for levelling feet M12	8800.220	8800.220	8800.220	8800.220	8800.220	8800.220	849
Levelling feet M12	4612.000	4612.000	4612.000	4612.000	4612.000	4612.000	848
Interior installation/Premium accessories							
482.6 mm (19″) mounting frames front and rear	■	■	■	■	■	■	
Punched section with mounting flange 17 x 73 mm, for mounting installation components, attached in the enclosure depth between the 482.6 mm (19″) mounting frames	8612.040	8612.040	8612.040	8612.040	8612.040	8612.040	921
Cable clamp rail, depth variable 425 – 725 mm, for cable attachment in the enclosure depth using cable ties	7858.160	7858.160	7858.160	7858.160	7858.160	7858.160	984
Cable clamp rail, for cable attachment in the enclosure width via cable ties, on the 482.6 mm (19″) mounting frame at the rear	7828.062	7828.062	7828.062	7828.062	7828.062	7828.062	983
C rail, for cable clamping in the enclosure depth via cable clamps	4943.000	4943.000	4943.000	4943.000	4943.000	4943.000	928
C rail, for cable clamping in the enclosure width via cable clamps, on the 482.6 mm (19″) mounting frame at the rear	7828.060	7828.060	7828.060	7828.060	7828.060	7828.060	928
Earthing kit for TE	7000.675	7000.675	7000.675	7000.675	7000.675	7000.675	961
TE socket strip, 8-way, with earthing-pin plug	7000.630	7000.630	7000.630	7000.630	7000.630	7000.630	748
Power management	from p. 742	from p. 742	from p. 742	from p. 742	from p. 742	from p. 742	
Slide rail for TE, for attachment between the 482.6 mm (19″) mounting frames, length 424 mm	7963.410	7963.410	7963.410	7963.410	7963.410	7963.410	1011
482.6 mm (19″) component shelf for fixed installation, for direct screw fastening without an installation kit, 412 mm deep, load capacity 30 kg, static	7000.620	7000.620	7000.620	7000.620	7000.620	7000.620	945
Cable management	from p. 984	from p. 984	from p. 984	from p. 984	from p. 984	from p. 984	
CMC-TC system monitoring	from p. 762	from p. 762	from p. 762	from p. 762	from p. 762	from p. 762	

■ included with the supply.
[1)] **Model No. TE preconfigured with base/plinth, earthing and accessory kit:**
Height 1200 mm: 7000.840. Height 2000 mm: With side panel 7000.850, without side panel 7000.852.

Networking
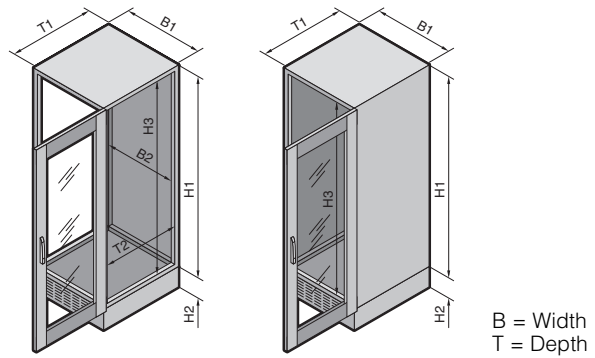
B
5.1

Network enclosures, based on Rittal TS 8, pre-configured

B = Width
T = Depth

Material:
Sheet steel

Surface finish:
Enclosure frame:
Dipcoat-primed
Doors, roof and base/plinth:
Dipcoat-primed,
powder-coated in RAL 7035
Gland plates, punched sections
with mounting flanges and
mounting angles:
Zinc-plated, passivated

Supply includes:
System frame with doors or rear
panel, roof plate, vented base/
plinth 100 mm,
earthing of all enclosure panels;
supplied loose:
Levelling feet incl. base/plinth
adaptor,
4 spacers, for raising the roof,
4 cable clamp rails for the inner
frame level,
10 cable shunting rings
(105 x 70 mm, plastic),
50 captive nuts, M6, conductive,
50 multi-tooth screws M6.

P 1
Glazed door at the front, 180°,
sheet steel door at the rear, 130°.
482.6 mm (19″) mounting
angles, front, fitted approx.
150 mm behind the frame front
edge, screw-fastened to the TS
punched sections with mount-
ing flange as depth stays.
Gland plate, one-piece, vented,
with cable entry.

P 2
Glazed door at the front, 180°,
sheet steel door at the rear, 130°.
482.6 mm (19″) mounting angles
at the front and rear, distance
between levels 498 mm.
Cranked mounting angles
screw-fastened to installation
brackets approx. 150 mm
behind the frame front edge.
Gland plate at the front, fitted as
an infill panel.
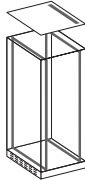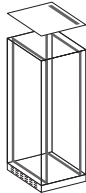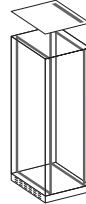
Detailed drawing,
available on the Internet.

	P 1	P 2	P 2	P 2
U	24	38	42	47
Width (B1) in mm	600	800	800	800
Height (H1 + H2) in mm	1200 + 100	1800 + 100	2000 + 100	2200 + 100
Depth (T1) in mm	600	800	800	800
Clearance width (B2) in mm	512	712	712	712
Clearance height (H3) in mm	1112	1712	1912	2112
Clearance depth (T2) in mm	512	712	712	712
Model No. DK including 2 plug-in side panels, with security lock 3524 E	**7830.100**	**7830.800**	**7830.200**	**7830.220**
Model No. DK as a bayed enclosure without side panels, incl. baying kit TS 8800.500	–	**7830.850**	**7830.250**	**7830.270**

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Networking

Network enclosures, based on Rittal TS 8, pre-configured

	P 1	P 2	P 2	P 2	Page
U	24	38	42	47	
Width (B1) in mm	600	800	800	800	
Height (H1 + H2) in mm	1200 + 100	1800 + 100	2000 + 100	2200 + 100	
Depth (T1) in mm	600	800	800	800	
Model No. DK incl. 2 plug-in side panels, with security lock 3524 E	**7830.100**	**7830.800**	**7830.200**	**7830.220**	
Model No. DK as bayed enclosure without side panels, incl. baying kit TS 8800.500	–	**7830.850**	**7830.250**	**7830.270**	
Doors					
Glazed front door/sheet steel rear door	■	■	■	■	
Various door options	from page 869	from page 869	from page 869	from page 869	
180° hinges for sheet steel rear door	8800.190	8800.190	8800.190	8800.190	893
Side panel					
Side panel, plug-in, IP 20	■	■ (7830.800 only)	■ (7830.200 only)	■/– (7830.220 only)	
Lock for side panel, plug-in, 3524 E	■	■	■	■	
Internal latch for side panel, plug-in	7824.510	7824.510	7824.510	7824.510	855
Side panel, screw-fastened, IP 55	8170.235	8188.235	8108.235	8128.235	853
Baying	from page 861	from page 861	from page 861	from page 861	
Roof					
Roof plate for cable entry	■	■	■	■	
Roof plate, vented	7826.766	7826.788	7826.788	7826.788	902
Roof plate, vented, for cable entry	7826.669	7826.889	7826.889	7826.889	902
Fan roof, modular	see page 651	see page 651	see page 651	see page 651	
Fan mounting plate, active, with controller	7966.035	7988.035	7988.035	7988.035	649
DC fan mounting plate with FCS speed control	–	7858.488	7858.488	7858.488	650
Spacers, 50 mm	7967.000	7967.000	7967.000	7967.000	904
Base/plinth					
Base/plinth components, solid, front and rear	8601.605	8601.805	8601.805	8601.805	835
Gland plate, multi-piece	–	7825.382	7825.382	7825.382	852
Gland plate variants	from page 851	from page 851	from page 851	from page 851	
Castors	see page 848	see page 848	see page 848	see page 848	
Interior installation					
482.6 mm (19") mounting angles, cranked (for network technology)	■ (front)	■ (front and rear)	■ (front and rear)	■ (front and rear)	
Punched section with mounting flange, interior installation, rail systems	from page 917	from page 917	from page 917	from page 917	
Cable clamp rails, C rails	see page 980	see page 980	see page 980	see page 980	
Earthing/potential equalisation	■	■	■	■	
Socket strips, power management	from page 742	from page 742	from page 742	from page 742	
Component shelves	from page 939	from page 939	from page 939	from page 939	
482.6 mm (19") installation system	from page 1010	from page 1010	from page 1010	from page 1010	
Cable management	from page 984	from page 984	from page 984	from page 984	
CMC-TC system monitoring	from page 762	from page 762	from page 762	from page 762	

■ included with the supply.

Networking

B

5.1

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Network enclosures, based on Rittal TS 8, pre-configured

B = Width
T = Depth

Material:
Sheet steel

Surface finish:
Enclosure frame:
Dipcoat-primed
Doors, roof and base/plinth:
Dipcoat-primed,
powder-coated in RAL 7035
Gland plates, punched sections
with mounting flanges and
mounting angles:
Zinc-plated, passivated

Supply includes:
System frame with doors or rear
panel, roof plate,
vented base/plinth 100 mm,
earthing of all enclosure panels;
supplied loose:
Levelling feet incl. base/plinth
adaptor,
4 spacers, for raising the roof,
4 cable clamp rails for the inner
frame level,
10 cable shunting rings
(105 x 70 mm, plastic),
50 captive nuts, M6, conductive,
50 multi-tooth screws M6.

P 3
Glazed door, vented, at the front,
180°,
sheet steel door, vented, at the
rear, 180°.
482.6 mm (19″) mounting angles
at the front and rear, distance
between levels 740 mm.
L-shaped mounting angles
screw-fastened to 2 or 3 depth
stays respectively.
Gland plate, one-piece, vented,
with cable entry.
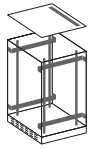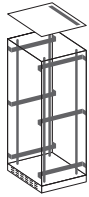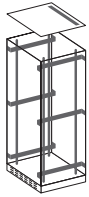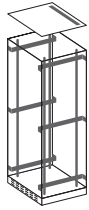
Detailed drawing,
available on the Internet.

		P 3	P 3	P 3	P 3	P 3
U		24	42	42	47	47
Width (B1) in mm		800	800	800	800	800
Height (H1 + H2) in mm		1200 + 100	2000 + 100	2000 + 100	2200 + 100	2200 + 100
Depth (T1) in mm		900	900	1000	900	1000
Clearance width (B2) in mm		712	712	712	712	712
Clearance height (H3) in mm		1112	1912	1912	2112	2112
Clearance depth (T2) in mm		812	812	912	812	912
Model No. DK including 2 plug-in side panels, with security lock 3524 E		7830.120	7830.300	7830.330	7830.320	7830.340
Model No. DK as a bayed enclosure without side panels, incl. baying kit TS 8800.500		–	7830.350	7830.335	7830.370	7830.380

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Networking

B
5.1

Networking

Network enclosures, based on Rittal TS 8, pre-configured

	P 3	P 3	P 3	P 3	P 3	Page
U	24	42	42	47	47	
Width (B1) in mm	800	800	800	800	800	
Height (H1 + H2) in mm	1200 + 100	2000 + 100	2000 + 100	2200 + 100	2200 + 100	
Depth (T1) in mm	900	900	1000	900	1000	
Model No. DK incl. 2 plug-in side panels, with security lock 3524 E	**7830.120**	**7830.300**	**7830.330**	**7830.320**	**7830.340**	
Model No. DK as bayed enclosure without side panels, incl. baying kit TS 8800.500	–	**7830.350**	**7830.335**	**7830.370**	**7830.380**	
Doors						
Glazed front door/sheet steel rear door, vented	■	■	■	■	■	
Various door options	from page 869	from page 869	from page 869	from page 869	from page 869	
Side panel						
Side panel, plug-in, IP 20	■	■ (7830.300 only)	■ (7830.330 only)	■/– (7830.320 only)	■/– (7830.340 only)	
Lock for side panel, plug-in, 3524 E	■	■	■	■	■	
Internal latch for side panel, plug-in	7824.510	7824.510	7824.510	7824.510	7824.510	855
Side panel, screw-fastened, IP 55	–	8109.235	8100.235	8129.235	–	853
Baying	from page 861	from page 861	from page 861	from page 861	from page 861	
Roof						
Roof plate for cable entry	■	■	■	■	■	
Roof plate, vented	7826.789	7826.789	7826.780	7826.789	7826.780	902
Roof plate, vented, for cable entry	7826.899	7826.899	7826.809	7826.899	7826.809	902
Fan roof, modular	see page 651	see page 651	see page 651	see page 651	see page 651	
Fan mounting plate, active, with controller	7988.035	7988.035	7988.035	7988.035	7988.035	649
DC fan mounting plate with FCS speed control	–			–	–	
Spacers, 50 mm	7967.000	7967.000	7967.000	7967.000	7967.000	904
Base/plinth						
Base/plinth components, solid, front and rear	8601.805	8601.805	8601.805	8601.805	8601.805	835
Gland plate variants	from page 851	from page 851	from page 851	from page 851	from page 851	
Castors	see page 848	see page 848	see page 848	see page 848	see page 848	
Interior installation						
482.6 mm (19″) mounting angles, L-shaped (for server technology)	■	■ (front and rear)	■ (front and rear)	■ (front and rear)	■ (front and rear)	
Punched section with mounting flange, interior installation, rail systems	from page 917	from page 917	from page 917	from page 917	from page 917	
Cable clamp rails, C rails	see page 980	see page 980	see page 980	see page 980	see page 980	
Earthing/potential equalisation	■	■	■	■	■	
Socket strips, power management	from page 742	from page 742	from page 742	from page 742	from page 742	
Component shelves	from page 939	from page 939	from page 939	from page 939	from page 939	
482.6 mm (19″) installation system	from page 1010	from page 1010	from page 1010	from page 1010	from page 1010	
Cable management	from page 984	from page 984	from page 984	from page 984	from page 984	
CMC-TC system monitoring	from page 762	from page 762	from page 762	from page 762	from page 762	

■ included with the supply.

Network enclosures, based on Rittal TS 8, pre-configured
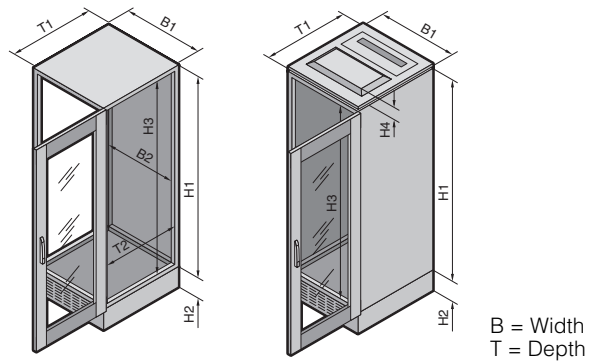
B = Width
T = Depth

Material:
Sheet steel

Surface finish:
Enclosure frame:
Dipcoat-primed
Doors, roof and base/plinth:
Dipcoat-primed,
powder-coated in RAL 7035
Gland plates, punched sections
with mounting flanges and
mounting angles:
Zinc-plated, passivated

Supply includes:
System frame with doors or rear
panel, roof plate,
vented base/plinth 100 mm,
earthing of all enclosure panels;
supplied loose:
Levelling feet incl. base/plinth
adaptor,
4 spacers for raising the roof or
vent panel,
4 cable clamp rails for the inner
frame level,
10 cable shunting rings
(105 x 70 mm, plastic),
50 captive nuts, M6, conductive,
50 multi-tooth screws M6.

P 4
Glazed door at the front, 180°,
sheet steel door at the rear, 180°.
Empty enclosure for individual
configuration, 482.6 mm (19″)/
metric or combined partial
installation of mounting angles/
enclosure frames is possible.
Gland plate at the front, fitted as
an infill panel.

P 5
Glazed door at the front, 180°,
sheet steel door at the rear, 180°.
482.6 mm (19″) mounting angles
at the front and rear, distance
between levels 498 mm.
L-shaped mounting angles
screw-fastened to depth stays
in the centre. Roof plate with
cutout for fan insert with a vent
panel on spacers.
Gland plate at the front, fitted as
an infill panel.

P 6
Glazed door at the front, 180°,
sheet steel rear panel, 180°.
Swing frame, large, with trim
panel for the installation of
482.6 mm (19″) mounting com-
ponents whilst utilising the full
enclosure height. Full installa-
tion at the front, rear panel,
including installation kit for
swing frames SK 1995.825 up to
a total static load capacity of
150 kg. Roof plate with cutout
for fan insert with a vent panel
on spacers. Gland plate, one-
piece, vented, with cable entry.
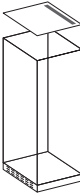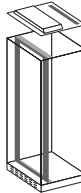
Detailed drawing,
available on the Internet.

Networking

B
5.1

	P 4	P 5	P 6
U	42	42	40
Width (B1) in mm	800	800	800
Height (H1 + H2) in mm, (H1 + H2 + H4) in mm	2000 + 100	2000 + 100 + 25	2000 + 100 + 25
Depth (T1) in mm	800	800	800
Clearance width (B2) in mm	712	712	712
Clearance height (H3) in mm	1912	1912	1912
Clearance depth (T2) in mm	712	712	712
Model No. DK incl. 2 plug-in side panels, with security lock 3524 E	7830.400	7830.500	7830.660
Model No. DK as a bayed enclosure without side panels, incl. baying kit TS 8800.500	–	7830.550	7830.670

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Networking

Network enclosures, based on Rittal TS 8, pre-configured

	P 4	P 5	P 6	Page
U	–	42	40	
Width (B1) in mm	800	800	800	
Height (H1 + H2) in mm, (H1 + H2 + H4) in mm	2000 + 100	2000 + 100 + 25	2000 + 100 + 25	
Depth (T1) in mm	800	800	800	
Model No. DK incl. 2 plug-in side panels, with security lock 3524 E	**7830.400**	**7830.500**	**7830.660**	
Model No. DK as a bayed enclosure without side panels, incl. baying kit TS 8800.500	**–**	**7830.550**	**7830.670**	
Doors				
Various door options	from page 869	from page 869	from page 869	
180° hinges for sheet steel rear door	8800.190	8800.190	–	
Side panel				
Side panel, plug-in, IP 20	■	■ (7830.500 only)	■ (7830.660 only)	
Lock for side panel, plug-in, 3524 E	■	■	■	
Internal latch for side panel, plug-in	7824.510	7824.510	7824.510	855
Side panel, screw-fastened, IP 55	8108.235	8108.235	8108.235	853
Baying	from page 861	from page 861	from page 861	
Roof				
Roof plate for cable entry	■	7826.885	7826.885	901
Roof plate, vented	7826.788	7826.788	7826.788	902
Roof plate, vented, for cable entry	7826.889	7826.889	7826.889	902
Fan roof, modular	see page 651	■ (without fan insert)	■ (without fan insert)	
Fan mounting plate, active, with controller	7988.035	–	–	649
DC fan mounting plate with FCS speed control	7858.488	7858.488	–	650
Spacers, 50 mm	7967.000	–	–	904
Base/plinth				
Base/plinth components, solid, front and rear	8601.805	8601.805	8601.805	835
Gland plate, multi-piece	7825.382	7825.382	–	852
Gland plate variants	from page 851	from page 851	from page 851	
Castors	see page 848	see page 848	see page 848	
Interior installation				
482.6 mm (19″) mounting angles, L-shaped (for server technology)	from page 1004	■ (front and rear)	482.6 mm (19″) large swing frame (40 U)	
Punched section with mounting flange, interior installation, rail systems	from page 917	from page 917	from page 917	
Cable clamp rails, C rails	see page 980	see page 980	see page 980	
Earthing/potential equalisation	■	■	■	
Socket strips, power management	from page 742	from page 742	from page 742	
Component shelves	from page 939	from page 939	from page 939	
482.6 mm (19″) installation system	from page 1010	from page 1010	from page 1010	
Cable management	from page 984	from page 984	from page 984	
CMC-TC system monitoring	from page 762	from page 762	from page 762	

■ included with the supply.

Networking

B
5.1

B = Width
T = Depth

Type 1
Glazed aluminium door at the front (180°),
with 3 mm single-pane safety glass, comfort handle for semi-cylinder and security lock 3524 E;
sheet steel door at the rear (130°) with handle and security lock 3524 E.

Type 2
Sheet steel door at the front (180°), with comfort handle for semi-cylinder and security lock 3524 E; sheet steel door at the rear (130°) with handle and security lock 3524 E.

Material:
Sheet steel

Surface finish:
Enclosure frame:
Dipcoat-primed
Doors and roof: Dipcoat-primed, powder-coated in RAL 7035
Base plates and punched sections with mounting flanges: Zinc-plated, passivated

Supply includes:
Enclsoure frame with doors, roof plate, multi-piece gland plate, 2 punched sections with mounting flanges in the enclosure depth.

Approvals,
see page 82.

Detailed drawing,
available on the Internet.

Networking

B

5.1

U	15	20	20	24	24	24	24	24
Width (B1) in mm	600	600	800	600	800	800	800	800
Height (H1) in mm	800	1000	1000	1200	1200	1200	1200	1200
Depth (T1) in mm	600	600	600	600	600	800	900	1000
Clearance width (B2) in mm	512	512	712	512	712	712	712	712
Clearance height (H2) in mm	712	912	912	1112	1112	1112	1112	1112
Clearance depth (T2) in mm	512	512	512	512	512	712	812	912
Model No. DK, type 1 with glazed door at the front	**7820.100**	**7820.200**	**7820.240**	**7820.300**	**7820.340**	**7820.350**	**7820.355**	**7820.360**
Model No. DK, type 2 with sheet steel door at the front	**7821.100**	**7821.200**	**7821.240**	**7821.300**	**7821.340**	**–**	**7821.355**	**–**

U	29	29	29	33	33	33	38	38
Width (B1) in mm	600	600	800	600	600	800	600	600
Height (H1) in mm	1400	1400	1400	1600	1600	1600	1800	1800
Depth (T1) in mm	600	800	600	600	800	600	600	800
Clearance width (B2) in mm	512	512	712	712	512	712	712	512
Clearance height (H2) in mm	1312	1312	1312	1512	1512	1512	1512	1712
Clearance depth (T2) in mm	512	712	512	512	712	512	512	712
Model No. DK, type 1 with glazed door at the front	**7820.400**	**7820.410**	**7820.440**	**7820.500**	**7820.510**	**7820.540**	**7820.600**	**7820.610**
Model No. DK, type 2 with sheet steel door at the front	**7821.400**	**7821.410**	**7821.440**	**7821.500**	**7821.510**	**7821.540**	**7821.600**	**7821.610**

Network enclosures, based on Rittal TS 8, types 1 and 2

B = Width
T = Depth

Type 1
Glazed aluminium door at the front (180°),
with 3 mm single-pane safety glass, comfort handle for semi-cylinder and security lock 3524 E;
sheet steel door at the rear (130°) with handle and security lock 3524 E.

Type 2
Sheet steel door at the front (180°), with comfort handle for semi-cylinder and security lock 3524 E; sheet steel door at the rear (130°) with handle and security lock 3524 E.

Material:
Sheet steel

Surface finish:
Enclosure frame:
Dipcoat-primed
Doors and roof: Dipcoat-primed, powder-coated in RAL 7035
Base plates and punched sections with mounting flanges:
Zinc-plated, passivated

Supply includes:
Enclosure frame with doors, roof plate, multi-piece gland plate, 2 punched sections with mounting flanges in the enclosure depth.

Approvals,
see page 82.

Detailed drawing,
available on the Internet.

U	38	38	38	38	42	42	42	42
Width (B1) in mm	600	800	800	800	600	600	800	800
Height (H1) in mm	1800	1800	1800	1800	2000	2000	2000	2000
Depth (T1) in mm	900	600	800	1000	600	800	600	800
Clearance width (B2) in mm	512	712	712	712	712	512	512	712
Clearance height (H2) in mm	1712	1712	1712	1712	1912	1912	1912	1912
Clearance depth (T2) in mm	812	512	712	912	512	712	512	712
Model No. DK, type 1 with glazed door at the front	**7820.620**	**7820.640**	**7820.650**	**7820.670**	**7820.700**	**7820.710**	**7820.740**	**7820.750**
Model No. DK, type 2 with sheet steel door at the front	**7821.620**	**7821.640**	**7821.650**	**7821.670**	**7821.700**	**7821.710**	**7821.740**	**7821.750**

U	42	42	47	47	47	47	47	47
Width (B1) in mm	800	800	600	600	800	800	800	800
Height (H1) in mm	2000	2000	2200	2200	2200	2200	2200	2200
Depth (T1) in mm	900	1000	600	800	600	800	900	1000
Clearance width (B2) in mm	712	712	712	512	512	712	712	712
Clearance height (H2) in mm	1912	1912	2112	2112	2112	2112	2112	2112
Clearance depth (T2) in mm	812	912	512	712	512	712	812	912
Model No. DK, type 1 with glazed door at the front	**7820.760**	**7820.770**	**7820.800**	**7820.810**	**7820.840**	**7820.850**	**7820.860**	**7820.870**
Model No. DK, type 2 with sheet steel door at the front	**7821.760**	**7821.770**	**7821.800**	**7821.810**	**7821.840**	**7821.850**	**7821.860**	**7821.870**
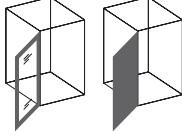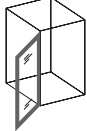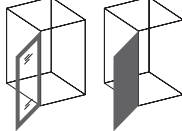
Network enclosures, based on Rittal TS 8, 15 – 20 U

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Page
U	15		20		20		
Width (B1) in mm	600		600		800		
Height (H1) in mm	800		1000		1000		
Depth (T1) in mm	600		600		600		
Model No. DK	**7820.100**	**7821.100**	**7820.200**	**7821.200**	**7820.240**	**7821.240**	
Doors							
Glazed front door/sheet steel rear door	▪	–	▪	–	▪	–	
Sheet steel front door/sheet steel rear door	–	▪	–	▪	–	▪	
Various door options	from page 869		from page 869		from page 869		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		893
Side panel							
Side panel, plug-in, IP 20	7824.086		7824.106		7824.106		855
Lock for side panel, plug-in	7824.500		7824.500		7824.500		855
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		855
Side panel, screw-fastened, IP 55	8173.235		8174.235		8174.235		853
Baying	from page 861		from page 861		from page 861		
Roof							
Roof plate, solid	▪		▪		▪		
Roof plate, vented	7826.766		7826.766		7826.786		902
Roof plate for cable entry	7826.665		7826.665		7826.865		901
Roof plate, vented, for cable entry	7826.669		7826.669		7826.869		902
Fan mounting plate, active, with controller	7966.035		7966.035		7986.035		649
Fan roof, modular	see page 651		see page 651		see page 651		
Spacers, 20 mm	2423.000		2423.000		2423.000		904
Spacers, 50 mm	7967.000		7967.000		7967.000		904
Climate control	see page 579		see page 579		see page 579		
Base/plinth							
Base/plinth components, vented, front and rear, H = 100 mm	7825.601		7825.601		7825.601		835
Base/plinth components, solid, front and rear, H = 100 mm	8601.605		8601.605		8601.805		835
Base/plinth trim panels, side, H = 100 mm	8601.065		8601.065		8601.065		835
Gland plate variants	from page 851		from page 851		from page 851		
Castors	see page 848		see page 848		see page 848		
Interior installation							
482.6 mm (19″) mounting angles, cranked (for network technology)	7827.080		7827.100		7827.100		1004
482.6 mm (19″) mounting angles, L-shaped (for server technology)	7827.081		7827.101		7827.101		1004
Depth stays for mounting angles	8612.060		8612.060		7827.600		1008
Installation brackets for mounting angles	–		–		7827.480		1009
Cable clamp rails	see page 980		see page 980		see page 980		
Earthing/potential equalisation	from page 960		from page 960		from page 960		
Socket strips/power management	from page 742		from page 742		from page 742		
Component shelves	from page 939		from page 939		from page 939		
482.6 mm (19″) installation system	from page 1010		from page 1010		from page 1010		
Cable management	from page 984		from page 984		from page 984		
CMC-TC system monitoring	from page 762		from page 762		from page 762		

▪ included with the supply.

Networking

B

5.1

Accessories Page 832
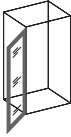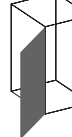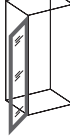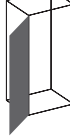
Network enclosures, based on Rittal TS 8, 24 U

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 1	Type 2	Type 1	Page
U	24		24		24	24		24	
Width (B1) in mm	600		800		800	800		800	
Height (H1) in mm	1200		1200		1200	1200		1200	
Depth (T1) in mm	600		600		800	900		1000	
Model No. DK	**7820.300**	**7821.300**	**7820.340**	**7821.340**	**7820.350**	**7820.355**	**7821.355**	**7820.360**	
Doors									
Glazed front door/sheet steel rear door	■	–	■	–	■	■	–	■	
Sheet steel front door/ sheet steel rear door	–	■	–	■	–	–	■	–	
Various door options	from page 869		from page 869		from page 869	from page 869		from page 869	
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190	8800.190		8800.190	893
Side panel									
Side panel, plug-in, IP 20	7824.126		7824.126		7824.128	7824.129		7824.120	855
Lock for side panel, plug-in	7824.500		7824.500		7824.500	7824.500		–	855
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510	7824.510		–	855
Side panel, screw-fastened, IP 55	8170.235		8170.235		8175.235	–		8176.235	853
Baying	from page 861		from page 861		from page 861	from page 861		from page 861	
Roof									
Roof plate, solid	■		■		■	■		■	
Roof plate, vented	7826.766		7826.786		7826.788	7826.789		7826.780	902
Roof plate for cable entry	7826.665		7826.865		7826.885	7826.895		7826.805	901
Roof plate, vented, for cable entry	7826.669		7826.869		7826.889	7826.899		7826.809	902
Fan mounting plate, active, with controller	7966.035		7986.035		7988.035	7988.035		7988.035	649
Fan roof, modular	see page 651		see page 651		see page 651	see page 651		see page 651	
Spacers, 20 mm	2423.000		2423.000		2423.000	2423.000		2423.000	904
Spacers, 50 mm	7967.000		7967.000		7967.000	7967.000		7967.000	904
Climate control	see page 579		see page 579		see page 579	see page 579		see page 579	
Base/plinth									
Base/plinth components, vented, front and rear, H = 100 mm	7825.601		7825.801		7825.801	7825.801		7825.801	835
Base/plinth components, solid, front and rear, H = 100 mm	8601.605		8601.805		8601.805	8601.805		8601.805	835
Base/plinth trim panels, side, H = 100 mm	8601.065		8601.065		8601.085	8601.095		8601.015	835
Gland plate variants	from page 851		from page 851		from page 851	from page 851		from page 851	
Castors	see page 848		see page 848		see page 848	see page 848		see page 848	
Interior installation									
482.6 mm (19″) mounting angles, cranked (for network technology)	7827.120		7827.120		7827.120	7827.120		7827.120	1004
482.6 mm (19″) mounting angles, L-shaped (for server technology)	7827.121		7827.121		7827.121	7827.121		7827.121	1004
Depth stays for mounting angles	8612.060		7827.600		7827.800	7827.900		7827.000	1008
Installation brackets for mounting angles	–		7827.480		7827.480	7827.480		7827.480	1009
Cable clamp rails	see page 980		see page 980		see page 980	see page 980		see page 980	
Earthing/potential equalisation	from page 960		from page 960		from page 960	from page 960		from page 960	
Socket strips/power management	from page 742		from page 742		from page 742	from page 742		from page 742	
Component shelves	from page 939		from page 939		from page 939	from page 939		from page 939	
482.6 mm (19″) installation system	from page 1010		from page 1010		from page 1010	from page 1010		from page 1010	
Cable management	from page 984		from page 984		from page 984	from page 984		from page 984	
CMC-TC system monitoring	from page 762		from page 762		from page 762	from page 762		from page 762	

■ included with the supply.

Accessories Page 832

Networking

B

5.1

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 1	Type 2	Type 1	Page
U	29		29		29		33		
Width (B1) in mm	600		600		800		600		
Height (H1) in mm	1400		1400		1400		1600		
Depth (T1) in mm	600		800		600		600		
Model No. DK	**7820.400**	**7821.400**	**7820.410**	**7821.410**	**7820.440**	**7821.440**	**7820.500**	**7821.500**	
Doors									
Glazed front door/sheet steel rear door	■	–	■	–	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	■	–	■	–	■	
Various door options	from page 869		from page 869		from page 869		from page 869		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		8800.190		893
Side panel									
Side panel, plug-in, IP 20	7824.146		7824.148		7824.146		7824.166		855
Lock for side panel, plug-in	7824.500		7824.500		7824.500		7824.500		855
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		7824.510		855
Side panel, screw-fastened, IP 55	8146.235		8148.235		8146.235		8166.235		853
Baying	from page 861		from page 861		from page 861		from page 861		
Roof									
Roof plate, solid	■		■		■		■		
Roof plate, vented	7826.766		7826.768		7826.786		7826.766		902
Roof plate for cable entry	7826.665		7826.685		7826.865		7826.665		901
Roof plate, vented, for cable entry	7826.669		7826.689		7826.869		7826.669		902
Fan mounting plate, active, with controller	7966.035		7968.035		7986.035		7966.035		649
Fan roof, modular	see page 651		see page 651		see page 651		see page 651		
Spacers, 20 mm	2423.000		2423.000		2423.000		2423.000		904
Spacers, 50 mm	7967.000		7967.000		7967.000		7967.000		904
Climate control	see page 579		see page 579		see page 579		see page 579		
Base/plinth									
Base/plinth components, vented, front and rear, H = 100 mm	7825.601		7825.601		7825.801		7825.601		835
Base/plinth components, solid, front and rear, H = 100 mm	8601.605		8601.605		8601.805		8601.605		835
Base/plinth trim panels, side, H = 100 mm	8601.065		8601.085		8601.065		8601.065		835
Gland plate variants	from page 851		from page 851		from page 851		from page 851		
Castors	see page 848		see page 848		see page 848		see page 848		
Interior installation									
482.6 mm (19″) mounting angles, cranked (for network technology)	7827.140		7827.140		7827.140		7827.160		1004
482.6 mm (19″) mounting angles, L-shaped (for server technology)	7827.141		7827.141		7827.141		7827.161		1004
Depth stays for mounting angles	8612.060		8612.080		7827.600		8612.060		1008
Installation brackets for mounting angles	–		–		7827.480		–		1009
Cable clamp rails	see page 980		see page 980		see page 980		see page 980		
Earthing/potential equalisation	from page 960		from page 960		from page 960		from page 960		
Socket strips/power management	from page 742		from page 742		from page 742		from page 742		
Component shelves	from page 939		from page 939		from page 939		from page 939		
482.6 mm (19″) installation system	from page 1010		from page 1010		from page 1010		from page 1010		
Cable management	from page 984		from page 984		from page 984		from page 984		
CMC-TC system monitoring	from page 762		from page 762		from page 762		from page 762		

■ included with the supply.

Accessories Page 832

Networking

B

5.1

Networking

Network enclosures, based on Rittal TS 8, 33 – 38 U

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Page
U	33		33		38		38		
Width (B1) in mm	600		800		600		600		
Height (H1) in mm	1600		1600		1800		1800		
Depth (T1) in mm	800		600		600		800		
Model No. DK	**7820.510**	**7821.510**	**7820.540**	**7821.540**	**7820.600**	**7821.600**	**7820.610**	**7821.610**	
Doors									
Glazed front door/sheet steel rear door	■	–	■	–	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	■	–	■	–	■	
Various door options	from page 869		from page 869		from page 869		from page 869		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		8800.190		893
Side panel									
Side panel, plug-in, IP 20	7824.168		7824.166		7824.186		7824.188		855
Lock for side panel, plug-in	7824.500		7824.500		7824.500		7824.500		855
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		7824.510		855
Side panel, screw-fastened, IP 55	8168.235		8166.235		8186.235		8188.235		853
Baying	from page 861		from page 861		from page 861		from page 861		
Roof									
Roof plate, solid	■		■		■		■		
Roof plate, vented	7826.768		7826.786		7826.766		7826.768		902
Roof plate for cable entry	7826.685		7826.865		7826.665		7826.685		901
Roof plate, vented, for cable entry	7826.689		7826.869		7826.669		7826.689		902
Fan mounting plate, active, with controller	7968.035		7986.035		7966.035		7968.035		649
Fan roof, modular	see page 651		see page 651		see page 651		see page 651		
Spacers, 20 mm	2423.000		2423.000		2423.000		2423.000		904
Spacers, 50 mm	7967.000		7967.000		7967.000		7967.000		904
Climate control	see page 579		see page 579		see page 579		see page 579		
Base/plinth									
Base/plinth components, vented, front and rear, H = 100 mm	7825.601		7825.801		7825.601		7825.601		835
Base/plinth components, solid, front and rear, H = 100 mm	8601.605		8601.805		8601.605		8601.605		835
Base/plinth trim panels, side, H = 100 mm	8601.085		8601.065		8601.065		8601.085		835
Gland plate variants	from page 851		from page 851		from page 851		from page 851		
Castors	see page 848		see page 848		see page 848		see page 848		
Interior installation									
482.6 mm (19″) mounting angles, cranked (for network technology)	7827.160		7827.160		7827.180		7827.180		1004
482.6 mm (19″) mounting angles, L-shaped (for server technology)	7827.161		7827.161		7827.181		7827.181		1004
Depth stays for mounting angles	8612.080		7827.600		8612.060		8612.080		1008
Installation brackets for mounting angles	–		7827.480		–		–		1009
Cable clamp rails	see page 980		see page 980		see page 980		see page 980		
Earthing/potential equalisation	from page 960		from page 960		from page 960		from page 960		
Socket strips/power management	from page 742		from page 742		from page 742		from page 742		
Component shelves	from page 939		from page 939		from page 939		from page 939		
482.6 mm (19″) installation system	from page 1010		from page 1010		from page 1010		from page 1010		
Cable management	from page 984		from page 984		from page 984		from page 984		
CMC-TC system monitoring	from page 762		from page 762		from page 762		from page 762		

■ included with the supply.

Accessories Page 832

Network enclosures, based on Rittal TS 8, 38 U

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Page
U	38		38		38		38		
Width (B1) in mm	600		800		800		800		
Height (H1) in mm	1800		1800		1800		1800		
Depth (T1) in mm	900		600		800		1000		
Model No. DK	**7820.620**	**7821.620**	**7820.640**	**7821.640**	**7820.650**	**7821.650**	**7820.670**	**7821.670**	
Doors									
Glazed front door/sheet steel rear door	■	–	■	–	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	■	–	■	–	■	
Various door options	from page 869		from page 869		from page 869		from page 869		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		8800.190		893
Side panel									
Side panel, plug-in, IP 20	7824.189		7824.186		7824.188		7824.180		855
Lock for side panel, plug-in	7824.500		7824.500		7824.500		7824.500		855
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		7824.510		855
Side panel, screw-fastened, IP 55	8189.235		8186.235		8188.235		8180.235		853
Baying	from page 861		from page 861		from page 861		from page 861		
Roof									
Roof plate, solid	■		■		■		■		
Roof plate, vented	7826.769		7826.786		7826.788		7826.780		902
Roof plate for cable entry	7826.695		7826.865		7826.885		7826.805		901
Roof plate, vented, for cable entry	7826.699		7826.869		7826.869		7826.809		902
Fan mounting plate, active, with controller	7968.035		7986.035		7988.035		7988.035		649
Fan roof, modular	see page 651		see page 651		see page 651		see page 651		
Spacers, 20 mm	2423.000		2423.000		2423.000		2423.000		904
Spacers, 50 mm	7967.000		7967.000		7967.000		7967.000		904
Climate control	see page 579		see page 579		see page 579		see page 579		
Base/plinth									
Base/plinth components, vented, front and rear, H = 100 mm	7825.601		7825.801		7825.801		7825.801		835
Base/plinth components, solid, front and rear, H = 100 mm	8601.605		8601.805		8601.805		8601.805		835
Base/plinth trim panels, side, H = 100 mm	8601.095		8601.065		8601.085		8601.015		835
Gland plate variants	from page 851		from page 851		from page 851		from page 851		
Castors	see page 848		see page 848		see page 848		see page 848		
Interior installation									
482.6 mm (19″) mounting angles, cranked (for network technology)	7827.180		7827.180		7827.180		7827.180		1004
482.6 mm (19″) mounting angles, L-shaped (for server technology)	7827.181		7827.181		7827.181		7827.181		1004
Depth stays for mounting angles	8612.090		7827.600		7827.800		7827.000		1008
Installation brackets for mounting angles	–		7827.480		7827.480		7827.480		1009
Cable clamp rails	see page 980		see page 980		see page 980		see page 980		
Earthing/potential equalisation	from page 960		from page 960		from page 960		from page 960		
Socket strips/power management	from page 742		from page 742		from page 742		from page 742		
Component shelves	from page 939		from page 939		from page 939		from page 939		
482.6 mm (19″) installation system	from page 1010		from page 1010		from page 1010		from page 1010		
Cable management	from page 984		from page 984		from page 984		from page 984		
CMC-TC system monitoring	from page 762		from page 762		from page 762		from page 762		

■ included with the supply.

Networking

B

5.1
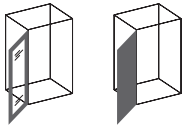
Accessories Page 832

Networking

Network enclosures, based on Rittal TS 8, 42 U

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Page
U	42		42		42		42		
Width (B1) in mm	600		600		800		800		
Height (H1) in mm	2000		2000		2000		2000		
Depth (T1) in mm	600		800		600		800		
Model No. DK	**7820.700**	**7821.700**	**7820.710**	**7821.710**	**7820.740**	**7821.740**	**7820.750**	**7821.750**	
Doors									
Glazed front door/sheet steel rear door	■	–	■	–	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	■	–	■	–	■	
Various door options	from page 869		from page 869		from page 869		from page 869		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		8800.190		893
Side panel									
Side panel, plug-in, IP 20	7824.206		7824.208		7824.206		7824.208		855
Lock for side panel, plug-in	7824.500		7824.500		7824.500		7824.500		855
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		7824.510		855
Side panel, screw-fastened, IP 55	8106.235		8108.235		8106.235		8108.235		853
Baying	from page 861		from page 861		from page 861		from page 861		
Roof									
Roof plate, solid	■		■		■		■		
Roof plate, vented	7826.766		7826.768		7826.786		7826.788		902
Roof plate for cable entry	7826.665		7826.685		7826.865		7826.885		901
Roof plate, vented, for cable entry	7826.669		7826.689		7826.869		7826.889		902
Fan mounting plate, active, with controller	7966.035		7968.035		7986.035		7988.035		649
Fan roof, modular	see page 651		see page 651		see page 651		see page 651		
Spacers, 20 mm	2423.000		2423.000		2423.000		2423.000		904
Spacers, 50 mm	7967.000		7967.000		7967.000		7967.000		904
Climate control	see page 579		see page 579		see page 579		see page 579		
Base/plinth									
Base/plinth components, vented, front and rear, H = 100 mm	7825.601		7825.601		7825.801		7825.801		835
Base/plinth components, solid, front and rear, H = 100 mm	8601.605		8601.605		8601.805		8601.805		835
Base/plinth trim panels, side, H = 100 mm	8601.065		8601.085		8601.065		8601.085		835
Gland plate variants	from page 851		from page 851		from page 851		from page 851		
Castors	see page 848		see page 848		see page 848		see page 848		
Interior installation									
482.6 mm (19″) mounting angles, cranked (for network technology)	7827.200		7827.200		7827.200		7827.200		1004
482.6 mm (19″) mounting angles, L-shaped (for server technology)	7827.201		7827.201		7827.201		7827.201		1004
Depth stays for mounting angles	8612.060		8612.080		7827.600		7827.800		1008
Installation brackets for mounting angles	–		–		7827.480		7827.480		1009
Cable clamp rails	see page 980		see page 980		see page 980		see page 980		
Earthing/potential equalisation	from page 960		from page 960		from page 960		from page 960		
Socket strips/power management	from page 742		from page 742		from page 742		from page 742		
Component shelves	from page 939		from page 939		from page 939		from page 939		
482.6 mm (19″) installation system	from page 1010		from page 1010		from page 1010		from page 1010		
Cable management	from page 984		from page 984		from page 984		from page 984		
CMC-TC system monitoring	from page 762		from page 762		from page 762		from page 762		

■ included with the supply.

Accessories Page 832

Network enclosures, based on Rittal TS 8, 42 – 47 U

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Page
U	42		42		47		47		
Width (B1) in mm	800		800		600		600		
Height (H1) in mm	2000		2000		2200		2200		
Depth (T1) in mm	900		1000		600		800		
Model No. DK	**7820.760**	**7821.760**	**7820.770**	**7821.770**	**7820.800**	**7821.800**	**7820.810**	**7821.810**	
Doors									
Glazed front door/sheet steel rear door	■	–	■	–	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	■	–	■	–	■	
Various door options	from page 869		from page 869		from page 869		from page 869		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		8800.190		893
Side panel									
Side panel, plug-in, IP 20	7824.209		7824.200		7824.226		7824.228		855
Lock for side panel, plug-in	7824.500		7824.500		7824.500		7824.500		855
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		7824.510		855
Side panel, screw-fastened, IP 55	8109.235		8100.235		8126.235		8128.235		853
Baying	from page 861		from page 861		from page 861		from page 861		
Roof									
Roof plate, solid	■		■		■		■		
Roof plate, vented	7826.789		7826.780		7826.766		7826.768		902
Roof plate for cable entry	7826.895		7826.805		7826.665		7826.685		901
Roof plate, vented, for cable entry	7826.899		7826.809		7826.669		7826.689		902
Fan mounting plate, active, with controller	7988.035		7988.035		7966.035		7968.035		649
Fan roof, modular	see page 651		see page 651		see page 651		see page 651		
Spacers, 20 mm	2423.000		2423.000		2423.000		2423.000		904
Spacers, 50 mm	7967.000		7967.000		7967.000		7967.000		904
Climate control	see page 579		see page 579		see page 579		see page 579		
Base/plinth									
Base/plinth components, vented, front and rear, H = 100 mm	7825.801		7825.801		7825.601		7825.601		835
Base/plinth components, solid, front and rear, H = 100 mm	8601.805		8601.805		8601.605		8601.605		835
Base/plinth trim panels, side, H = 100 mm	8601.095		8601.015		8601.065		8601.085		835
Gland plate variants	from page 851		from page 851		from page 851		from page 851		
Castors	see page 848		see page 848		see page 848		see page 848		
Interior installation									
482.6 mm (19″) mounting angles, cranked (for network technology)	7827.200		7827.200		7827.220		7827.220		1004
482.6 mm (19″) mounting angles, L-shaped (for server technology)	7827.201		7827.201		7827.221		7827.221		1004
Depth stays for mounting angles	7827.900		7827.000		8612.060		8612.080		1008
Installation brackets for mounting angles	7827.480		7827.480		–		–		1009
Cable clamp rails	see page 980		see page 980		see page 980		see page 980		
Earthing/potential equalisation	from page 960		from page 960		from page 960		from page 960		
Socket strips/power management	from page 742		from page 742		from page 742		from page 742		
Component shelves	from page 939		from page 939		from page 939		from page 939		
482.6 mm (19″) installation system	from page 1010		from page 1010		from page 1010		from page 1010		
Cable management	from page 984		from page 984		from page 984		from page 984		
CMC-TC system monitoring	from page 762		from page 762		from page 762		from page 762		

■ included with the supply.

Networking

B

5.1
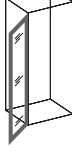
Accessories Page 832

Networking

Network enclosures, based on Rittal TS 8, 47 U

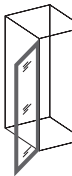|	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Page
U	47		47		47		47		
Width (B1) in mm	800		800		800		800		
Height (H1) in mm	2200		2200		2200		2200		
Depth (T1) in mm	600		800		900		1000		
Model No. DK	**7820.840**	**7821.840**	**7820.850**	**7821.850**	**7820.860**	**7821.860**	**7820.870**	**7821.870**	
Doors									
Glazed front door/sheet steel rear door	■	–	■	–	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	■	–	■	–	■	
Various door options	from page 869		from page 869		from page 869		from page 869		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		8800.190		893
Side panel									
Side panel, plug-in, IP 20	7824.226		7824.228		7824.229		7824.220		855
Lock for side panel, plug-in	7824.500		7824.500		7824.500		7824.500		855
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		7824.510		855
Side panel, screw-fastened, IP 55	8126.235		8128.235		8129.235		–		853
Baying	from page 861		from page 861		from page 861		from page 861		
Roof									
Roof plate, solid	■		■		■		■		
Roof plate, vented	7826.786		7826.788		7826.789		7826.780		902
Roof plate for cable entry	7826.865		7826.885		7826.895		7826.805		901
Roof plate, vented, for cable entry	7826.869		7826.889		7826.899		7826.809		902
Fan mounting plate, active, with controller	7986.035		7988.035		7988.035		7988.035		649
Fan roof, modular	see page 651		see page 651		see page 651		see page 651		
Spacers, 20 mm	2423.000		2423.000		2423.000		2423.000		904
Spacers, 50 mm	7967.000		7967.000		7967.000		7967.000		904
Climate control	see page 579		see page 579		see page 579		see page 579		
Base/plinth									
Base/plinth components, vented, front and rear, H = 100 mm	7825.801		7825.801		7825.801		7825.801		835
Base/plinth components, solid, front and rear, H = 100 mm	8601.805		8601.805		8601.805		8601.805		835
Base/plinth trim panels, side, H = 100 mm	8601.065		8601.085		8601.095		8601.015		835
Gland plate variants	from page 851		from page 851		from page 851		from page 851		
Castors	see page 848		see page 848		see page 848		see page 848		
Interior installation									
482.6 mm (19″) mounting angles, cranked (for network technology)	7827.220		7827.220		7827.220		7827.220		1004
482.6 mm (19″) mounting angles, L-shaped (for server technology)	7827.221		7827.221		7827.221		7827.221		1004
Depth stays for mounting angles	7827.600		7827.800		7827.900		7827.000		1008
Installation brackets for mounting angles	7827.480		7827.480		7827.480		7827.480		1009
Cable clamp rails	see page 980		see page 980		see page 980		see page 980		
Earthing/potential equalisation	from page 960		from page 960		from page 960		from page 960		
Socket strips/power management	from page 742		from page 742		from page 742		from page 742		
Component shelves	from page 939		from page 939		from page 939		from page 939		
482.6 mm (19″) installation system	from page 1010		from page 1010		from page 1010		from page 1010		
Cable management	from page 984		from page 984		from page 984		from page 984		
CMC-TC system monitoring	from page 762		from page 762		from page 762		from page 762		

■ included with the supply.

Accessories Page 832

Network enclosures, based on Rittal flexRack(i), pre-configured

B = Width
T = Depth

Material:
Vertical frame sections:
Extruded aluminium section
Base, roof frame, base/plinth,
panels: Sheet steel.

Surface finish:
Enclosure panels:
Spray-finished in RAL 7035,
frame sections and doors:
RAL 9006,
Lock panels: RAL 7035,
Viewing window:
tinted, parsol grey,
Gland plates, 482.6 mm (19″)
mounting angles:
Zinc-plated, passivated.
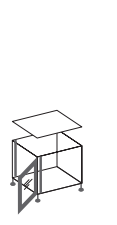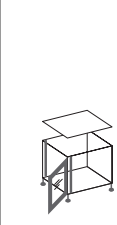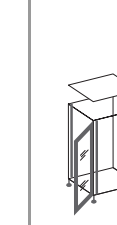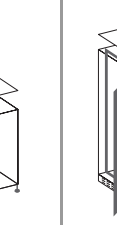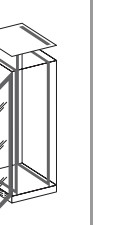
Supply includes:
Multi-platform frame FR(i) with
designer glazed door at front
(130°), sheet steel door at rear
(130°).
Roof plate, side panels, vented
base/plinth, gland plate, interior
installation depending on
design, see table on page 704.
Earthing of all enclosure panels,
comfort handles for semi-cylin-
ders with security lock 12321,
front and rear.

Property rights:
German patent no. 103 11 376
German Registered Design
no. 403 04 312 and 401 03 180
British Registered Design
no. 301 54 31 and 210 49 77
US Design Patent no. 479,241
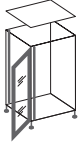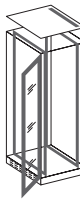
Detailed drawing,
available on the Internet.

U	11	11	25	42	42
Width (B1) in mm	600	600	600	800	800
Height (H1 + H2) in mm	600	600	1200	2000 + 100	2000 + 100
Depth (T1) in mm	805	1005	1005	805	1005
Depth absolute, incl. handles and roof curvature (T1) in mm + 90 mm	895	1095	1095	895	1095
Model No. FR(i) as single enclosure incl. 2 side panels	**7855.480**	**7855.500**	**7855.510**	**7855.550**	**7855.570**
Model No. FR(i) as bayed enclosure without side panels, incl. baying kit	–	–	–	**7855.540**	**7855.560**

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Networking

Network enclosures, based on Rittal flexRack(i), pre-configured

						Page
U	11	11	25	42	42	Page
Width (B1) in mm	600	600	600	800	800	
Height (H1 + H2) in mm	600	600	1200	2000 + 100	2000 + 100	
Depth (T1) in mm	805	1005	1005	805	1005	
Depth absolute, incl. handles and roof curvature (T1) in mm + 90 mm	895	1095	1095	895	1095	
Model No. FR(i) as single enclosure incl. 2 side panels	**7855.480**	**7855.500**	**7855.510**	**7855.550**	**7855.570**	
Model No. FR(i) as bayed enclosure without side panels, incl. baying kit	**–**	**–**	**–**	**7855.540**	**7855.560**	
Doors						
Designer glazed front door/sheet steel rear door	■	■	■	■	■	
Various door variants, based on TS 8, available on request	–	–	–	–	–	
Side panel						
Side panel, plug-type, incl. security lock 12321	■	■	■	■ (7855.550 only)	■ (7855.570 only)	856
Internal latch for side panel, plug-in	■	■	■	■	■	855
Baying	from page 861	from page 861	from page 861	from page 861	from page 861	
Roof						
Designer roof plate, solid	■	■	■	–	–	
Designer roof plate for cable entry, two-piece	–	–	–	■	■	901
Various roof plate variants, based on TS 8	from page 901	from page 901	from page 901	from page 901	from page 901	
Base/plinth						
Base/plinth components solid, front and rear	8601.605	8601.605	8601.605	8601.805	8601.805	835
Base/plinth components, vented, front and rear	7825.601	7825.601	7825.601	■	■	835
Base/plinth trim, side	8601.085	8601.015	8601.015	■	■	835
Base/gland plate, mounted at front as infill panel, rear part open	–	–	–	■	■	
Gland plate, one-piece, vented	■	■	■	–	–	851
Gland plate variants, based on TS 8	from page 851	from page 851	from page 851	from page 851	from page 851	
Interior installation						
482.6 mm (19″) mounting angles, L-shaped at front	■	■	■	–	–	1005
Additional 482.6 mm (19″) mounting angles, L-shaped	7856.800	7856.800	7856.803	7856.809	7856.809	1005
482.6 mm (19″) mounting frames, front and rear	–	–	–	■	■	1007
Additional 482.6 mm (19″) mounting frame	7856.710	7856.710	7856.713	7856.719	7856.719	1007
System punched section, interior installation of rail systems	from page 917	from page 917	from page 917	from page 917	from page 917	
Cable clamp rails	from page 980	from page 980	from page 980	from page 980	from page 980	
Earthing/potential equalisation	from page 960	from page 960	from page 960	from page 960	from page 960	
Socket strips/power management	from page 742	from page 742	from page 742	from page 742	from page 742	
Component shelves	from page 939	from page 939	from page 939	from page 939	from page 939	
482.6 mm (19″) installation system	from page 1010	from page 1010	from page 1010	from page 1010	from page 1010	
4 hammerhead rails incl. system adaptor, supplied loose, for cable clamping in the enclosure depth	–	–	–	■	■	983
10 cable shunting rings 105 x 70 mm, supplied loose	–	–	–	■	■	984
50 cage nuts and hexagon socket screws, supplied loose	–	–	–	■	■	936
Cable management	from page 984	from page 984	from page 984	from page 984	from page 984	
CMC-TC system monitoring	from page 762	from page 762	from page 762	from page 762	from page 762	

■ included with the supply.

Networking

B

5.1

Network enclosures, based on Rittal flexRack(i)

Material:
Vertical frame sections:
Extruded aluminium section
Base, roof frame, panels:
Sheet steel

Surface finish:
Enclosure panels:
Spray-finished in RAL 7035,
Frame sections and doors:
RAL 9006,
Lock panels: RAL 7035,
Viewing window:
Tinted, parsol grey,
Gland plates:
Zinc-plated, passivated

Supply includes:
Multi-platform frame FR(i) with
designer glazed door front
(130°), sheet steel rear door
(130°), solid roof plate, multi-
piece gland plate, levelling feet,
comfort handles for semi-cylin-
der with security lock 12321,
front and rear.

Property rights:
German patent no. 103 11 376
German Registered Design
no. 403 04 312 and 401 03 180
British Registered Design
no. 301 54 31 and 210 49 77
US Design Patent no. 479,241

Detailed drawing,
available on the Internet.

U	11	11	24	24	38	42	42	47
Width (B1) in mm	600	600	600	600	600	600	600	600
Height (H1) in mm	600	600	1200	1200	1800	2000	2000	2200
Depth (T1) in mm	605	1005	605	1005	605	605	1005	1005
Depth absolute, incl. handles and roof curvature (T1) in mm + 90 mm	695	1095	695	1095	695	695	1095	1095
Model No. FR(i)	**7855.610**	**7855.620**	**7855.630**	**7855.640**	**7855.650**	**7855.660**	**7855.670**	**7855.680**

U	24	38	42	42	47	47
Width (B1) in mm	800	800	800	800	800	800
Height (H1) in mm	1200	1800	2000	2000	2200	2200
Depth (T1) in mm	805	805	805	1005	805	1005
Depth absolute, incl. handles and roof curvature (T1) in mm + 90 mm	895	895	895	1095	895	1095
Model No. FR(i)	**7855.690**	**7855.700**	**7855.710**	**7855.720**	**7855.730**	**7855.740**

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Networking

B

5.1

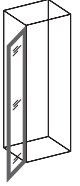# Networking
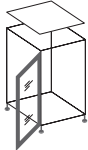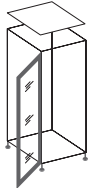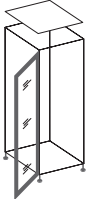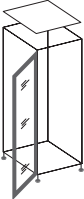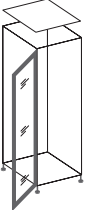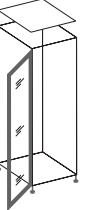
Network enclosures, based on Rittal flexRack(i)

									Page
U	11	11	24	24	38	42	42	47	Page
Width (B1) in mm	600	600	600	600	600	600	600	600	
Height (H1) in mm	600	600	1200	1200	1800	2000	2000	2200	
Depth (T1) in mm	605	1005	605	1005	605	605	1005	1005	
Depth absolute, incl. handles and roof curvature (T1) in mm + 90 mm	695	1095	695	1095	695	695	1095	1095	
Model No. FR(i)	**7855.610**	**7855.620**	**7855.630**	**7855.640**	**7855.650**	**7855.660**	**7855.670**	**7855.680**	
Doors									
Designer glazed front door/ sheet steel rear door	■	■	■	■	■	■	■	■	
Various door variants, based on TS 8, available on request	–	–	–	–	–	–	–	–	
Side panel									
Side panel, plug-type incl. security lock 12321	7856.660	7856.663	7856.666	7856.672	7856.675	7856.681	7856.687	7856.696	856
Internal latch for side panel, plug-in	7856.700	7856.700	7856.700	7856.700	7856.700	7856.700	7856.700	7856.700	855
Baying	from page 861	from page 861	from page 861	from page 861	from page 861	from page 861	from page 861	from page 861	
Roof									
Designer roof plate, solid	■	■	■	■	■	■	■	■	
Various roof plate options, based on TS 8	from page 901	from page 901	from page 901	from page 901	from page 901	from page 901	from page 901	from page 901	
Base/plinth									
Base/plinth components, solid, front and rear	8601.605	8601.605	8601.605	8601.605	8601.605	8601.605	8601.605	8601.605	835
Base/plinth components, vented, front and rear	7825.601	7825.601	7825.601	7825.601	7825.601	7825.601	7825.601	7825.601	835
Base/plinth trim, side	8601.065	8601.015	8601.065	8601.015	8601.065	8601.065	8601.015	8601.015	835
Multi-piece gland plate	■	■	■	■	■	■	■	■	
Gland plate variants, based on TS 8	from page 851	from page 851	from page 851	from page 851	from page 851	from page 851	from page 851	from page 851	
Interior installation									
482.6 mm (19″) mounting angles, L-shaped	7856.800	7856.800	7856.803	7856.803	7856.806	7856.809	7856.809	7856.812	1005
482.6 mm (19″) mounting frame	7856.710	7856.710	7856.713	7856.713	7856.716	7856.719	7856.719	7856.722	1007
Punched sections with mounting flanges, interior installation, rail systems	from page 917	from page 917	from page 917	from page 917	from page 917	from page 917	from page 917	from page 917	
Cable clamp rails	from page 980	from page 980	from page 980	from page 980	from page 980	from page 980	from page 980	from page 980	
Earthing/potential equalisation	from page 960	from page 960	from page 960	from page 960	from page 960	from page 960	from page 960	from page 960	
Socket strips/ power management	from page 742	from page 742	from page 742	from page 742	from page 742	from page 742	from page 742	from page 742	
Component shelves	from page 939	from page 939	from page 939	from page 939	from page 939	from page 939	from page 939	from page 939	
482.6 mm (19″) installation system	from page 1010	from page 1010	from page 1010	from page 1010	from page 1010	from page 1010	from page 1010	from page 1010	
Cable management	from page 984	from page 984	from page 984	from page 984	from page 984	from page 984	from page 984	from page 984	
CMC-TC system monitoring	from page 762	from page 762	from page 762	from page 762	from page 762	from page 762	from page 762	from page 762	

■ included with the supply.

Networking

B

5.1

Rittal Catalogue 31/IT solutions

U	24	38	42	42	47	47	Page
Width (B1) in mm	800	800	800	800	800	800	
Height (H1) in mm	1200	1800	2000	2000	2200	2200	
Depth (T1) in mm	805	805	805	1005	805	1005	
Depth absolute, incl. handles and roof curvature (T1) in mm + 90 mm	895	895	895	1095	895	1095	
Model No. FR(i)	**7855.690**	**7855.700**	**7855.710**	**7855.720**	**7855.730**	**7855.740**	
Doors							
Designer glazed front door/sheet steel rear door	■	■	■	■	■	■	
Various door variants, based on TS 8, available on request	–	–	–	–	–	–	
Side panel							
Side panel, plug-in incl. security lock 12321	7856.669	7856.678	7856.684	7856.687	7856.693	7856.696	856
Internal latch for side panel, plug-in	7856.700	7856.700	7856.700	7856.700	7856.700	7856.700	855
Baying	from page 861	from page 861	from page 861	from page 861	from page 861	from page 861	
Roof							
Designer roof plate, solid	■	■	■	■	■	■	
Various roof plate options, based on TS 8	from page 901	from page 901	from page 901	from page 901	from page 901	from page 901	
Base/plinth							
Base/plinth components solid, front and rear	8601.805	8601.805	8601.805	8601.805	8601.805	8601.805	835
Base/plinth components, vented, front and rear	7825.801	7825.801	7825.801	7825.801	7825.801	7825.801	835
Base/plinth trim, side	8601.085	8601.085	8601.085	8601.015	8601.085	8601.015	835
Multi-piece gland plate	■	■	■	■	■	■	
Gland plate variants, based on TS 8	from page 851	from page 851	from page 851	from page 851	from page 851	from page 851	
Interior installation							
482.6 mm (19″) mounting frame	7856.725	7856.728	7856.731	7856.731	7856.734	7856.734	1007
System punched section, interior installation of rail systems	from page 917	from page 917	from page 917	from page 917	from page 917	from page 917	
Cable clamp rails	from page 980	from page 980	from page 980	from page 980	from page 980	from page 980	
Earthing/potential equalisation	from page 960	from page 960	from page 960	from page 960	from page 960	from page 960	
Socket strips/power management	from page 742	from page 742	from page 742	from page 742	from page 742	from page 742	
Component shelves	from page 939	from page 939	from page 939	from page 939	from page 939	from page 939	
482.6 mm (19″) installation system	from page 1010	from page 1010	from page 1010	from page 1010	from page 1010	from page 1010	
Cable management	from page 984	from page 984	from page 984	from page 984	from page 984	from page 984	
CMC-TC system monitoring	from page 762	from page 762	from page 762	from page 762	from page 762	from page 762	

■ included with the supply.

Networking

B

5.1

Accessories Page 832 **Monitoring** Page 762 **Climate control** Page 578

Networking

Distributor racks, based on Rittal Data Rack
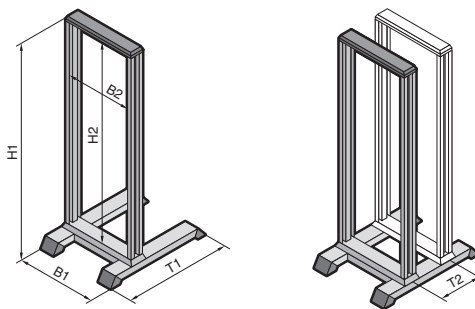
Supply includes:
1 torsionally stiff section frame welded from 2 mm sheet steel with 482.6 mm(19″) punchings, spray finished in RAL 7035, trim in RAL 5018,
1 stable base/plinth of folded sheet steel and integral die-cast zinc feet (RAL 5018) with the option of floor anchoring, including mounting accessories. Alternatively, levelling feet (DK 7493.000) or castors (DK 7495.000) may be fitted.

Available on request:
- Metric (535 mm) version
- Side rails
- Special versions and special sizes

Load capacity:
max. 150 kg/level

Property rights:
German registered design M 9201859
German patent no. 4207282

Detailed drawing,
available on the Internet.

U	Packs of	31	36	40	45	Page
Width (B1) in mm		550	550	550	550	
Height (H1) in mm		1499.5	1721.8	1899.5	2121.8	
Depth (T1) in mm		750	750	750	750	
Clearance width (B2) mm		450	450	450	450	
Clearance height (H2) mm		1381.5	1603.8	1781.5	2003.8	
Distance from the second mounting level (T2) mm[1]		min. 150 – max. 350	min. 150 – max. 350	min. 150 – max. 350	min. 150 – max. 350	
U x 44.45 mm =		1377.95	1600.2	1778	2000.25	
Model No. DK		**7391.000**	**7396.000**	**7400.000**	**7445.000**	
Accessories						
Second mounting level[1]	1	7296.000	7297.000	7298.000	7299.000	709
Baying clamp	3	7494.000	7494.000	7494.000	7494.000	709
Levelling feet	4	7493.000	7493.000	7493.000	7493.000	710
Cable duct	1	7827.333	7827.338	7827.342	7827.347	987
C rails, 482.6 mm (19″)	6	7016.100	7016.100	7016.100	7016.100	992
Cable clamp rail, 482.6 mm (19″)	6	7016.110	7016.110	7016.110	7016.110	992
Cable clamp strap D = 250 mm	6	7016.120	7016.120	7016.120	7016.120	992
Twin castors	4	7495.000	7495.000	7495.000	7495.000	848
Depth stays	2	7401.000	7401.000	7401.000	7401.000	710
Component shelf 2 U for one pair of mounting angles D = 250 mm	1	7119.250	7119.250	7119.250	7119.250	948
Component shelf 2 U for one pair of mounting angles D = 400 mm	1	7119.400	7119.400	7119.400	7119.400	948
Component shelf 2 U for one level D = 300 mm[3]	1	7148.035	7148.035	7148.035	7148.035	946
Drawer 2 U	1	7281.035	7281.035	7281.035	7281.035	1051
Component shelf D = 300 mm[2] [3]	1	7143.035	7143.035	7143.035	7143.035	944
Component shelf D = 400 mm[2] [3]	1	7144.035	7144.035	7144.035	7144.035	944
Component shelf D = 500 mm[2] [3]	1	7145.035	7145.035	7145.035	7145.035	944
Slide rails D max. < 190 mm	10	1962.200	1962.200	1962.200	1962.200	999
Slide rails D max. > 190 mm	10	1963.200	1963.200	1963.200	1963.200	999
Slide rails for pairs of mounting angles[1]	2	7402.000	7402.000	7402.000	7402.000	710

[1] Second mounting level may be positioned on a 50 mm pitch pattern.
[2] A second pair of mounting angles is required for assembly.
[3] Stationary installation or full withdrawal, telescopic slides see page 951.

Second mounting level

In order to accommodate 482.6 mm (19″) network components or for the attachment of component shelves, slide rails and telescopic rails. The mounting level may be positioned on a 50 mm pitch pattern.
Minimum distance between levels 150 mm, Maximum distance between levels 350 mm.

Material:
Sheet steel, 2 mm

Colour:
RAL 7035

Supply includes:
1 torsionally stiff section frame including assembly parts. 482.6 mm (19″) punched profile at the front, hole centre distance 465 (470 mm at the rear), tailored to the attachment of patch panels and cable routing rails.
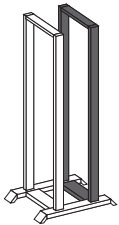
U	Model No. DK
31	**7296.000**
36	**7297.000**
40	**7298.000**
45	**7299.000**

Detailed drawing,
can be found on the Internet.

50 mm pitch pattern
min. 150 – max. 350
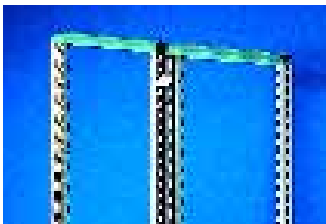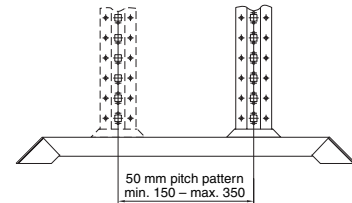
Baying connector

For assembling rows of distributor frames, or for cable routing between data racks.

Technical specifications:
Length: 53 mm

Colour:
RAL 7035

Packs of	Model No. DK
3	**7494.000**

Networking

B

5.₁

Roof plate for cable routing

For optimised use of the Data Rack as a corridor distributor or cable management rack. By moving the guide plates, the individual cableways can be separately sized, thus enabling structured cable routing in data highways, even in the roof area. On all Data Racks, the roof plate can be attached with two mounting levels and a distance between the levels of 350 mm.

Packs of	Model No. DK
1	**7411.000**

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Supply includes:
Roof plate including assembly parts.

Acessories for Rittal Data Rack
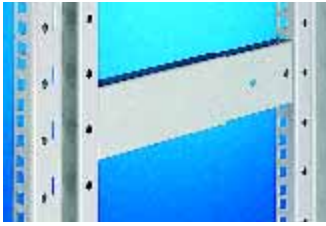
Depth stays

For securing and stabilising two pairs of
482.6 mm (19″) mounting angles in the data rack.
The length of the depth stay is adjustable, and
can accommodate all spacings of mounting
angles.

Colour:
RAL 7035

Depth stays	Packs of	Model No. DK
	2	**7401.000**
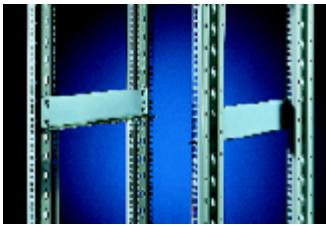
Continuous slide rail

**for two pairs of mounting angles,
482.6 mm (19″)**
The continuous slide rail is used to support heavy
installed equipment in the Data Rack.
The mounting dimensions of the slide rails were
selected to enable them to be combined with
500 mm deep, 482.6 mm (19″) component
shelves. The mounting distance of the 482.6 mm
(19″) mounting angles is 350 mm.

Requirements:
Second pair of mounting angles

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. DK
2	**7402.000**

⊞ **Accessories:**

Component shelf, 500 mm deep, DK 7145.035,
see page 944 .
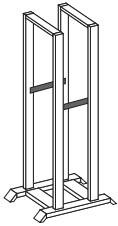
Levelling feet

To compensate for height differences with floor
irregularities.
The levelling feet are attached to the die-cast zinc
feet of the base/plinth.

Supply includes:
4 levelling feet M12,
levelling range 40 mm.

Packs of	Model No. DK
4	**7493.000**

Networking

B

5.1

Mobile workstation, Rittal RiLab

Type 1   Type 2   Type 3
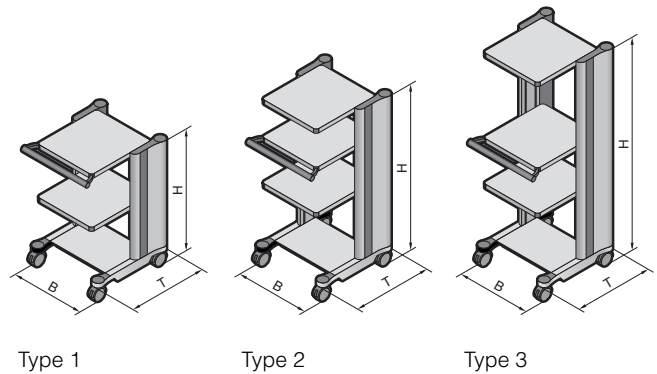
The workstation is ideal for positioning sensitive equipment securely whilst remaining flexible in terms of location. Useful accessories turn the RiLab into a "master of disguise" for the most diverse applications in the networking environment. It can be used as a mobile laboratory or test stand, a flexible measurement station or assembly workstation.

The versatile opportunities are almust unlimited. Particularly designed for the 482.6 mm (19″) systems, the mobile workstation can also be combined with Rittal RiCase enclosures.

Load capacity:
Base frame 225 kg in total, shelves max. 50 kg per shelf.

Material:
Sheet steel, 1.5 mm, spray-finished in RAL 7035, support column of extruded aluminium section, corner pieces and trim panels in ABS, RAL 5018. Special colours available on request.

Supply includes:
Base frame with two integral power columns, shelf with handle rod, additional shelf, twin castors, fully assembled.

Approvals,
see page 83.

Detailed drawing,
available on the Internet.

		Type 1	Type 2	Type 3	Page
Width (B) in mm		714	714	714	
Height (H) in mm		820	1108	1428	
Depth (T) in mm		625	625	625	
Model No. DK		**7600.100**	**7600.200**	**7600.300**	
Accessories					
1 additional shelf, W x D 600 mm x 490 mm	Static surface load 50 kg	7600.500	7600.500	7600.500	712
1 monitor shelf, rotating, tilting, W x D 410 mm x 491 mm	Static surface load 35 kg	7600.530	7600.530	7600.530	712
1 pull-out shelf, with integral mouse pad, W x D 542 mm x 490 mm	Static surface load 20 kg	7600.520	7600.520	7600.520	712
1 pull-out shelf, W x D 542 mm x 490 mm	Static surface load 20 kg	7600.510	7600.510	7600.510	712
1 drawer with integral identification strip, W x H x D 600 mm x 96 mm x 490 mm	Static surface load 20 kg	7600.540	7600.540	7600.540	713
1 adaptor set for installing Rittal RiCase enclosures, tiltable		7600.590	7600.590	7600.590	713
1 6-way socket with switch, 16 A, 250 V, for installation in the power column		7600.600	7600.600	7600.600	713

Networking

B

5.1

Accessories Page 832   **RiCase enclosures** Page 563

Accessories for Rittal RiLab
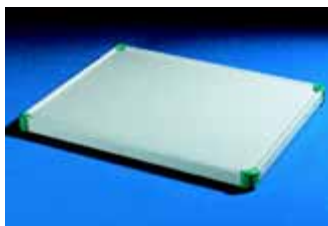
RiLab shelf

With all-round raised safety edge. Reduces the risk of assemblies slipping off.

Technical specifications:
Load capacity 50 kg surface load, static

Material:
Sheet steel, 1.5 mm, RAL 7035,
Decorative trims of ABS, RAL 5018.

W x H x D mm	Packs of	Model No. DK
600 x 32 x 490	1	**7600.500**

Supply includes:
1 shelf,
including assembly parts.

Pull-out RiLab shelf

The pull-out shelf is fastened to the supporting pillars via telescopic slides. It guarantees and extension of up to 300 mm. The shelf can be locked in an inserted and extended position via two locating points.

Technical specifications:
Load capacity 20 kg surface load, static

Material:
Sheet steel, 1.5 mm, RAL 7035,
Decorative trims of ABS, RAL 5018.

W x H x D mm	Packs of	Model No. DK
542 x 48 x 490	1	**7600.510**

Supply includes:
1 shelf with telescopic slides,
including assembly parts.

Pull-out RiLab shelf with mouse pad

The pull-out shelf with integral mouse pad offers ideal accommodation for the mouse and keyboard. The maximum extension is 295 mm.

Technical specifications:
Load capacity 20 kg surface load, static

Material:
Sheet steel, 1.5 mm, RAL 7035,
Decorative trims of ABS, RAL 5018.

W x H x D mm	Packs of	Model No. DK
542 x 64 x 490	1	**7600.520**

Supply includes:
1 shelf with telescopic slides and
integral mouse pad,
including assembly parts.
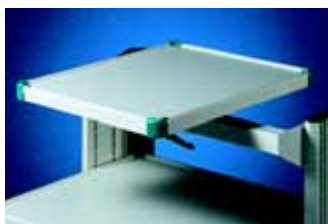
Rotating, tilting monitor shelf

The monitor shelf has got an all-round safety edge. It can be tilted with infinite variation through ±15°. Horizontally, the shelf can be rotated through 70° with infinite variation, and locked.

Technical specifications:
Load capacity 35 kg surface load, static

Material:
Sheet steel, 1.5 mm, RAL 7035,
Decorative trims of ABS, RAL 5018.

W x H x D mm	Packs of	Model No. DK
410 x 32 x 491	1	**7600.530**

Supply includes:
1 monitor shelf with hinge and cable retainer,
including assembly parts.

Networking

B

5.1
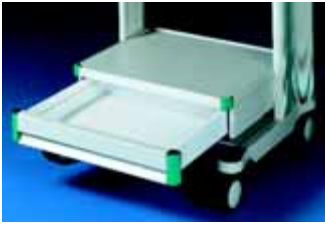
Drawer

The drawer, which is open at the top, offers a practical solution for storing documents and equipment, and also features a front identification strip. The drawer can be closed at the top via a shelf fitted above it.

Technical specifications:
Load capacity 20 kg static surface load

Material:
1.0 mm sheet steel on the outside, polystyrene on the inside, RAL 7035, trim and corner pieces of ABS, RAL 5018.
Telescopic ball bearings slide.

W x H x D mm	Packs of	Model No. DK
600 x 96 x 490	1	7600.540

Supply includes:
1 drawer, including assembly parts.

Adaptor set

for Rittal RiCase enclosures, 600 mm wide
The adaptor set allows RiCase enclosures with a width of 600 mm to be integrated into the base frame. This achieves optimum synergy between the flexibility of the mobile workstation, and the mounting opportunities of the RiCase enclosure. The adaptor set is designed in such a way that the enclosure can be locked in five stages within a tilting range of ±15°.

Technical specifications:
Load capacity max. enclosure weigth 50 kg.

Material:
Sheet steel, 2.0 mm, RAL 7035

Packs of	Model No. DK
1 set	7600.590

Supply includes:
1 adaptor set, consisting of two mounting brackets, including mounting accessories.

6-way socket strip with switch

The socket strip has a 3 m long connection cable, and is conveniently housed in the power column of the mobile workstation. This permits direct on-site power supply over short distances without taking up any additional space.

Technical specifications:
Socket strip with switch, 16 A, 250 V, 3 m connection cable, manufactured to CEI 884-1, tested to VDE.

Material:
Aluminium section with polycarbonate cover, self-extinguishing to UL 94-V0.

Packs of	Model No. DK
1	7600.600

Supply includes:
1 socket strip, including assembly parts.

Networking

B

5.1

Networking

Features

The configuration of decentralised network units is extremely important for small and medium-sized companies. Rittal creates new solutions to accommodate the growing demands.

RNC enclosure

Prepared for the installation of $^1/_2$ 19″ components. 10″ components may also be installed by using an adaptor. 482.6 mm (19″) variant for vertical population.

Plug & play side panels with integral vent slots.

Wall-mounting with frame.

RNC universal enclosure

The universal enclosure, vertical for 482.6 mm (19″) configuration, horizontal for $^1/_2$ 19″ or 10″ configuration.

Bayed for 482.6 mm (19″) configuration, vertical and horizontal.

Passive ventilation
To accommodate a prepared fan, cable entry with brush strip.

Wall-mounted enclosure, based on Rittal QuickBox

Cutouts in the mounting bracket for access to the rear of the patch panels or active components.

Optimum cable clamping on the vertical or horizontal rail using cable ties.

Vent slots for passive ventilation.

Wall-mounted and distribution enclosures

Wall-mounted enclosure based on AE with pull-out frame or depth-adjustable 482.6 mm (19″) level.

Office distributor
Comprehensive cabling for one storey can be achieved with the Office distributor.
The vertical arrangement of the 482.6 mm (19″) level guarantees a very slimline construction.

Small fibre-optic distributors
As a corridor and intermediate distributor of fibre-optic cables.
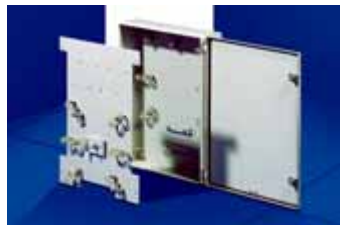
Small fibre-optic distributor, based on AE
The ideal enclosure for break-out applications.

Fibre-optic marshalling enclosure
Two access areas: Separate doors and security locks:
1. For splicing cassette mounting
2. For the patching chamber.

Small fibre-optic distributors, polycarbonate for extreme conditions: The small plastic enclosure with a high protection category of IP 66 to EN 60 529/10.91.

Wall-mounted enclosure, based on Rittal EL, 3-part/2-part

Optimum accessibility, thanks to 3-part or 2-part vertically hinged construction.

Equipped with **Mini comfort handle** (3 – 15 U), **comfort handle** (18 and 21 U) and replaceable **cable gland plates.**

2-part enclosure with swing frame. Facility for installing sub-racks and electronic components.

Networking

B

5.2

Networking
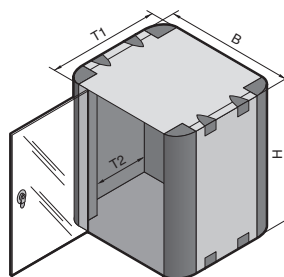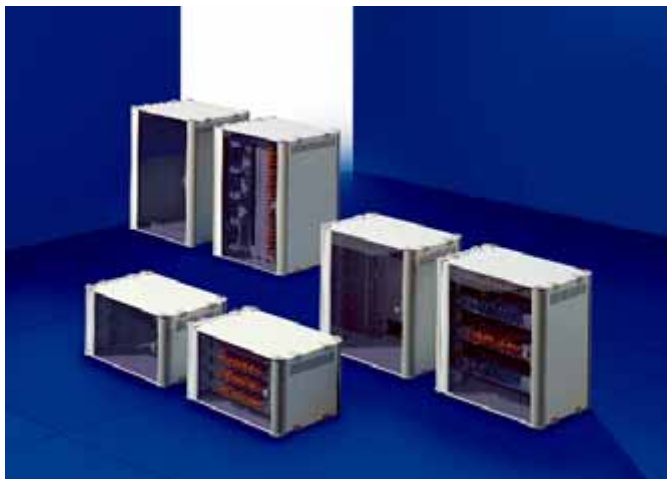
RNC enclosure

Rittal-Net.com is the passive platform for the fast, future-proof assembly of communications networks in the small office sector.
Three designer enclosures, for population with connection cables, patch cables and distributor panels, are tailored to the specific criteria of the SOHO market. Work groups may be set up quickly and easily.

Material:
1.5 mm sheet steel
Smoked grey acrylic glazing
Corner sections of aluminium
Corner feet made from thermo-plastic foam

Colour:
Enclosure panels: RAL 7035
Corner sections: RAL 7030

Further information on the RNC distribution channel may be found at **www.rittal-net.com** (pages in German only)

Detailed drawing, available on the Internet.

U	Packs of	4	8	6
Width (B) in mm		342	342	342
Height (H) in mm		215	390	490
Depth (T1) in mm		280	280	400
Max. installation depth (T2) mm		250	250	335
Model No. DK empty enclosure, individual	1	**7870.100**	**7870.200**	**7870.300**
Model No. DK, bulk pack	24	**7870.500**	–	–
	18	–	**7870.510**	–
	12	–	–	**7870.520**
Version		42 HP (1/2 19″)	42 HP (1/2 19″)	84 HP (19″)
Installation position		horizontal	horizontal	vertical
Accessory kits				
Telephone distributor, including patch cable				
Telephone VF Cat. 3, 10 ports, UTP, LSA, modular, including 8 patch cables with RJ 45 connector, on both sides, extruded insulation, cable design in blue, cable length 0.25 m	Single — 1	7870.802	7870.802	–
	Bulk pack — 6	7870.582	7870.582	–
Telephone VF Cat. 3, 8 ports, UTP, modular, including 8 patch cables with RJ 45 connector, on both sides, extruded insulation, cable design in blue, cable length 0.25 m	Single — 1	7870.800	7870.800	–
	Bulk pack — 6	7870.580	7870.580	–
Telephone VF Cat. 3, 25 ports, UTP, LSA, including 12 patch cables with RJ 45 connector, on both sides, extruded insulation, MegaLine 526 SC flex 4P, cable design in blue, cable length 0.6 m	Single — 1	–	–	7870.810
	Bulk pack — 6	–	–	7870.590
Data distributor, including patch cable				
VF Cat. 5, 8 ports, STP, LSA, including 8 patch cables with RJ 45 connector, on both sides, extruded insulation, cable design in yellow, cable length 0.25 m	Single — 1	7870.882	7870.882	–
	Bulk pack — 6	7870.597	7870.597	–
VF Cat. 5, 8 ports, UTP, modular, including 8 patch cables with RJ 45 connector, on both sides, extruded insulation, cable design in yellow, cable length 0.25 m	Single — 1	7870.820	7870.820	–
	Bulk pack — 6	7870.595	7870.595	–
VF Cat. 6, 24 ports, STP, LSA, including 12 patch cables with RJ 45 connector, on both sides, extruded insulation, cable design in yellow, cable length 0.6 m	Single — 1	–	–	7870.830
	Bulk pack — 6	–	–	7870.600

Accessories Page 832

RNC universal enclosure
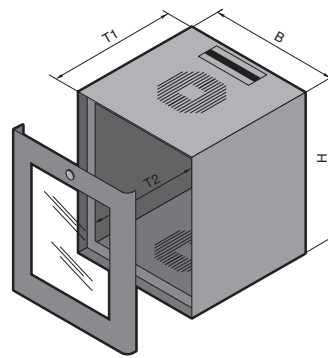
A contemporary design in black, with compact dimensions and a glazed door with tinted safety glass. Central locking with just one lock, the side panels cannot be removed whilst the front door is latched.

Suitable for use both as a stand-alone model and for wall mounting. The plug-in side panels ensure rapid access and plenty of scope when mounting. Optional $^1/_2$ 19″, 10″ or 19″ components may be installed.

Simple baying is supported, both horizontally and vertically, using the connector kit supplied loose.

Passive ventilation via openings in the rear frame and via perforations in the roof and gland plate, prepared to accommodate a fan expansion kit DK 7980.100.
Cable entry optionally via the rear panel, roof or base.
All frame parts and panels are prepared for earthing.

Material:
Sheet steel, ESG

Colour:
Black, similar to RAL 9011

Supply includes:
Enclosure with glazed door,
Baying kit,
Brush strips for cable entry,
482.6 mm (19″) mounting level at front.

Property rights:
German patents
No. 10 210 481
No. 10 210 482

Detailed drawing,
available on the Internet.

269.2 mm	Packs of	10	Page
U 482.6 mm (19 ″)		5	
Width (B) in mm		350	
Height (H) in mm		500	
Depth (T1) in mm		350	
Max. installation depth (T2) mm		270	
Model No. DK	1	**7870.350**	
Model No. DK	12	**7870.530**	
Accessories			
Socket strip 3-way, without switch	1	7240.110	746
Socket strip 7-way, without switch, for 482.6 mm (19″) level	1	7240.210	746
Socket strip 7-way, with switch, for 482.6 mm (19″) level	1	7240.220	746
$^1/_2$ 19″ component shelf	1	7502.600	948
Cable management panel	1	7502.610	989
$^1/_2$ 19″ blanking panel	2	7870.720	1025
$^1/_2$ 19″ cable entry panel	2	7870.730	989
Blanking panel 1 U	2	7151.035	1025
Blanking panel 2 U	2	7152.035	1025
Blanking panel 3 U	2	7153.035	1025
Combination rail, length 200 mm	6	7502.302	980
Adaptor for 10″ system, 1 U	1	7870.760	1019
Adaptor for 10″ system, 4 U	1	7870.765	1019
Phillips-head screw M5, with plastic washer	100	2099.500	1019
Phillips-head screw M6, with plastic washer	100	2089.000	1019
Captive nuts M5, with contact	50	2094.500	1020
Captive nuts M6, with contact	50	2094.200	1020
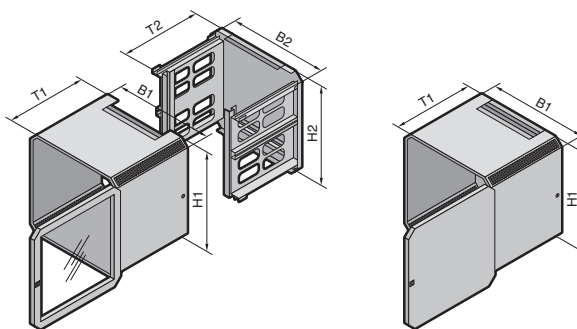
Networking

B

5.2

Data and telephone distributor Page 807

Wall-mounted enclosure, based on Rittal QuickBox, 6 – 12 U

Perfect handling during installation and servicing, thanks to a removable cover.

Material:
Wall mounting plate with mounting brackets:
2.0 mm sheet steel
Enclosure cover:
1.0 mm sheet steel
Door: Sheet steel door or glazed door with sheet steel frame and safety glass ESG 3 mm

Surface finish:
Powder-coated
Enclosure: RAL 7035

Supply includes:
Wall section:
Pre-configured mounting bracket,
brush strip for cable entry at the bottom/top,
cable clamp rail

Enclosure cover:
consisting of base and cover tray with vent slots, brush strip for cable entry at the top/bottom, 2 side security locks, sheet steel door/glazed door with security lock, 482.6 mm (19″) mounting angles, infinitely depth-variable.

Property rights:
German patent
No. 198 11 711
German utility model
No. 298 23 843
European Patent No. 1 064 709
with validity for BE, ES, FR, GB, IT, NL, SE
Taiwanese Patent
No. NI 123 288
Russian Patent No. 2190912
Australian Patent
No. 733078
South Korean patent
No. 10-0375062
US patent no. 6,435,364

Detailed drawing,
available on the Internet.

U/SU		P. of	6/10	6/10	6/10	9/15	9/15	9/15	12/20	12/20	12/20	Page
Enclosure cover	**Width** (B1) in mm		600	600	600	600	600	600	600	600	600	
	Height (H1) in mm		362	362	362	495	495	495	628	628	628	
	Depth (T1) in mm		300	400	600	300	400	600	400	500	600	
Wall section	**Width** (B2) in mm		595	595	595	595	595	595	595	595	595	
	Height (H2) in mm		355	355	355	488	488	488	621	621	621	
	Depth (T2) in mm		230	330	530	230	330	530	330	430	530	
Model No. with glazed door		1	**7502.013**	**7502.014**	**7502.016**	**7502.023**	**7502.024**	**7502.026**	**7502.034**	**7502.035**	**7502.036**	
Model No. with sheet steel door		1	–	**7502.114**	–	**7502.123**	**7502.124**	**7502.126**	**7502.134**	–	**7502.136**	
Accessories												
Mounting angles, 482.6 mm (19")		2	7502.201	7502.201	7502.201	7502.202	7502.202	7502.202	7502.203	7502.203	7502.203	1005
Mounting angles, metric		2	7502.211	7502.211	7502.211	7502.212	7502.212	7502.212	7502.213	7502.213	7502.213	1005
Solid gland plate		2	7502.310	7502.310	7502.310	7502.310	7502.310	7502.310	7502.310	7502.310	7502.310	970
Wall mounting bracket, 10 mm		1	2508.000	2508.000	2508.000	2508.000	2508.000	2508.000	2508.000	2508.000	2508.000	905
Wall mounting bracket, 40 mm		1	2503.000	2503.000	2503.000	2503.000	2503.000	2503.000	2503.000	2503.000	2503.000	905
Combination rails for enclosure width		6	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	980
Combination rails for enclosure depth	300/400 mm	6	7502.302	7502.302	7502.302	7502.302	7502.302	7502.302	7502.302	7502.302	7502.302	980
	500/600 mm		7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	980
Slide rails for enclosure depth	300 mm	2	7063.000	7063.000	7063.000	7063.000	7063.000	7063.000	7063.000	7063.000	7063.000	1011
	400 mm		7063.300	7063.300	7063.300	7063.300	7063.300	7063.300	7063.300	7063.300	7063.300	1011
	500/600 mm		7063.400	7063.400	7063.400	7063.400	7063.400	7063.400	7063.400	7063.400	7063.400	1011
Earthing kit		1	7502.240	7502.240	7502.260	7502.240	7502.240	7502.260	7502.240	7502.260	7502.260	962
Quick-release fastener		2	7502.220	7502.220	7502.220	7502.220	7502.220	7502.220	7502.220	7502.220	7502.220	891

Accessories Page 832

Wall-mounted enclosure, based on Rittal QuickBox, 15 – 21 U
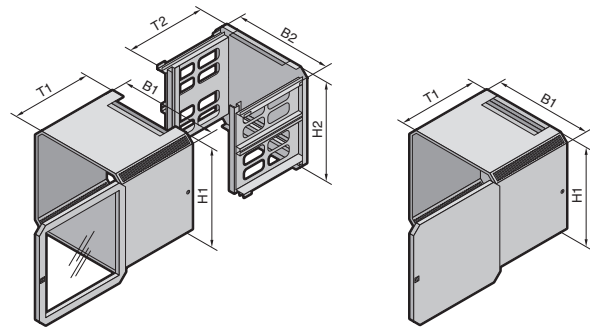
Perfect handling during installation and servicing, thanks to a removable cover.

Material:
Wall mounting plate with mounting brackets:
2.0 mm sheet steel
Enclosure cover:
1.0 mm sheet steel
Door: Sheet steel door or glazed door with sheet steel frame and single-pane safety glass, 3 mm

Surface finish:
Powder-coated
Enclosure: RAL 7035

Supply includes:
Wall section:
Pre-configured mounting bracket,
brush strip for cable entry at the bottom/top,
cable clamp rail

Enclosure cover:
consisting of base and cover tray with vent slots, brush strip for cable entry at the top/bottom, 2 side security locks, sheet steel door/glazed door with security lock, 482.6 mm (19″) mounting angles, infinitely depth-variable.

Property rights:
German patent
No. 198 11 711
German utility model
No. 298 23 843
European Patent No. 1 064 709 with validity for BE, ES, FR, GB, IT, NL, SE
Taiwanese Patent
No. NI 123 288
Russian Patent No. 2190912
Australian Patent
No. 733078
South Korean patent
No. 10-0375062
US patent no. 6,435,364

Detailed drawing,
available on the Internet.

U/SU		P. of	15/26	15/26	15/26	18/31	18/31	18/31	21/36	21/36	Page
Enclosure cover	**Width** (B1) in mm		600	600	600	600	600	600	600	600	
	Height (H1) in mm		762	762	762	895	895	895	1028	1028	
	Depth (T1) in mm		400	500	600	400	500	600	400	600	
Wall section	**Width** (B2) in mm		595	595	595	595	595	595	595	595	
	Height (H2) in mm		755	755	755	888	888	888	1021	1021	
	Depth (T2) in mm		330	430	530	330	430	530	330	530	
Model No. with glazed door		1	**7502.044**	**7502.045**	**7502.046**	**7502.054**	**7502.055**	**7502.056**	**7502.064**	**7502.066**	
Model No. with sheet steel door		1	**7502.144**	**–**	**7502.146**	**–**	**–**	**–**	**–**	**7502.166**	
Accessories											
Mounting angles, 482.6 mm (19″)		2	7502.204	7502.204	7502.204	7502.205	7502.205	7502.205	7502.206	7502.206	1005
Mounting angles, metric		2	7502.214	7502.214	7502.214	7502.215	7502.215	7502.215	7502.216	7502.216	1005
Solid gland plate		2	7502.310	7502.310	7502.310	7502.310	7502.310	7502.310	7502.310	7502.310	970
Wall mounting bracket, 10 mm		1	2508.000	2508.000	2508.000	2508.000	2508.000	2508.000	2508.000	2508.000	905
Wall mounting bracket, 40 mm		1	2503.000	2503.000	2503.000	2503.000	2503.000	2503.000	2503.000	2503.000	905
Combination rails for enclosure width		6	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	980
Combination rails for enclosure depth	300/400 mm	6	7502.302	7502.302	7502.302	7502.302	7502.302	7502.302	7502.302	7502.302	980
	500/600 mm		7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	7502.304	980
Slide rails for enclosure depth	300 mm	2	7063.000	7063.000	7063.000	7063.000	7063.000	7063.000	7063.000	7063.000	1011
	400 mm		7063.300	7063.300	7063.300	7063.300	7063.300	7063.300	7063.300	7063.300	1011
	500/600 mm		7063.400	7063.400	7063.400	7063.400	7063.400	7063.400	7063.400	7063.400	1011
Earthing kit		1	7502.240	7502.260	7502.260	7502.240	7502.260	7502.260	7502.240	7502.260	962
Quick-release fastener		2	7502.220	7502.220	7502.220	7502.220	7502.220	7502.220	7502.220	7502.220	891

Networking

B

5.2

Accessories Page 832

Networking

Wall-mounted enclosure, based on Rittal QuickBox with vertical 482.6 mm (19″) level
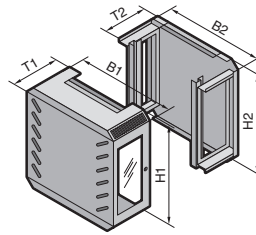
Optimum use of the interior space via side installation of the 482.6 mm (19″) components. Status monitoring via side viewing window.

Material:
Wall mounting plate with mounting brackets:
2.0 mm sheet steel
Enclosure cover:
1.0 mm sheet steel with side single-pane safety glass, 3 mm

Surface finish:
Spray-finished in RAL 7035

Supply includes:
Wall section:
with pre-configured 482.6 mm (19″) mounting brackets for side accommodation of mounting components and brush strip for cable entry from the bottom and top.

Enclosure cover:
with side vent slots to support passive climate control. The enclosure is secured via two security locks positioned at the sides.

Detailed drawing,
available on the Internet.

U vertical		Packs of	3	6	Page
Enclosure cover	**Width** (B1) in mm		600	600	
	Height (H1) in mm		631	631	
	Depth (T1) in mm		210	360	
Wall section	**Width** (B2) in mm		595	595	
	Height (H2) in mm		630.3	630.3	
	Depth (T2) in mm		198	348	
Model No. DK		1	**7502.630**	**7502.660**	
Accessories					
Gland plates, solid		2	7502.310	7502.310	970
Wall mounting bracket, 10 mm		1	2508.000	2508.000	905
Wall mounting bracket, 40 mm		1	2503.000	2503.000	905
Combination rails for vertical mounting on the wall section QB		6	7502.302	7502.302	980
Combination rails for horizontal mounting		6	7502.304	7502.304	980
Mounting and cable management panel for cable routing and the attachment of small equipment		1	7502.270	7502.270	988
Mounting angles, 482.6 mm (19″) for front mounting, 12 U		2	7502.203	7502.203	1005

Accessories Page 832

Wall mounted enclosure, based on Rittal AE, with pull-out frame
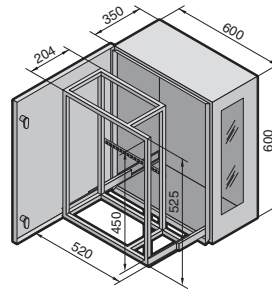
Wall mounted distributor with 482.6 mm (19″) pull-out frame. Side and front installation with 482.6 mm (19″) components in a vertical mounting position. Horizontal installation also optionally supported at the front. Status monitoring via side viewing window. Pull-out frame may be removed for population via snap fastenings. Passive cooling via pre-configured outlet filter, may be upgraded to active. Optional accommodation facilities for earth rail DK 7113.000 in a vertical position on the pull-out frame.

Material:
Sheet steel

Surface finish:
Enclosure spray-finished, RAL 7035
Pull-out frame zinc-plated, passivated.

Supply includes:
1 wall-mounted distributor enclosure with sheet steel door, cam lock and double-bit insert. Pull-out frame attached to telescopic slides. Outlet filter in enclosure base and on left-hand side. Viewing window on right-hand side. Combination rail for cable clamping behind the cable entry. Additional cable clamp rail for mounting on the pull-out frame.

Protection category:
IP 43 to EN 60 529/10.91

Available on request:
- Fully modified wall-mounted distributors.
- Special designs

Detailed drawing,
available on the Internet.

Width in mm	Packs of	600	Page
Height in mm		600	
Depth in mm		350	
Model No. DK	1	**7644.000**	
Side 482.6 mm (19″) level, vertical		4 U	
Front 482.6 mm (19″) level, vertical and horizontal		10 U	
Accessories			
Plastic cable gland plates with prepunched PG holes	5	2563.000	966
Wall mounting bracket, 10 mm	1	2508.000	905
Wall mounting bracket, 40 mm	1	2503.000	905
Shelf	1	7644.400	949
Component shelf, 1 U	1	7119.140	947
Earth rail, horizontal	1	7113.000	962
Fan expension kit 220 V (may only be used at the bottom)	1 set	7980.100	649
Lock systems			
Plastic handle, version B, see page 886.			
Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888.			

Networking

B

5.2

Accessories Page 832

Networking

Wall-mounted enclosure, based on Rittal AE
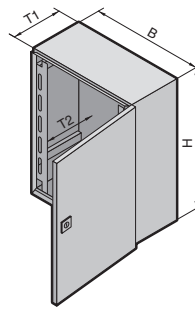
Wall-mounted distributor with infinitely depth-variable 482.6 mm (19″) mounting level at the front. The ideal solution for small networks or corridor distributors.
Max. attainable protection category up to IP 55 (to EN 60 529/10.91) when using the prepunched plastic cable gland plates 2563.000 (optional).

Material:
Sheet steel

Surface finish:
Spray-finished in RAL 7035

Supply includes:
1 wall-mounted distributor enclosure with sheet steel door, cam lock and double-bit insert. Gland plate with brush strip for cable entry at the bottom, 2 mounting angles, 482.6 mm (19″), depth-adjustable
1 C-rail for cable routing,
1 metal bracket for optional accommodation of an earth rail or 482.6 mm (19″) socket strip.

Available on request:
- Fully modified wall-mounted distributors.
- Special designs

Approvals,
see page 85.

Detailed drawing,
available on the Internet.

U	Packs of	8	13	16	Page
Width (B) in mm		600	600	600	
Height (H) in mm		380	600	760	
Depth (T1) in mm		350	350	350	
Max. installation depth (T2) mm		310	310	310	
Model No. DK	1	**7641.000**	**7643.000**	**7645.000**	
Accessories					
Plastic cable gland plates with prepunched PG holes	5	2563.000	2563.000	2563.000	966
Wall mounting bracket, 10 mm	1	2508.000	2508.000	2508.000	905
Wall mounting bracket, 40 mm	1	2503.000	2503.000	2503.000	905
Glazed door, 34 mm profile depth	1	2730.000	2731.000	2732.000	878
Glazed door, 60 mm profile depth	1	2760.000	2761.000	2762.000	878
Rain canopy of sheet steel, RAL 7035	1	2511.500	2511.500	2511.500	899
Component shelf 2 U, fixed installation, 250 mm	1	7119.250	7119.250	7119.250	948
Swing frame, RAL 7035	1	2026.200	2027.200	2034.200	1002
Earth rail	1	7113.000	7113.000	7113.000	962
Lock systems					
Plastic handle, version B, see page 886.					
Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888.					

Accessories Page 832

Office distributor, 2 and 4 U, for fibre-optic and copper cables
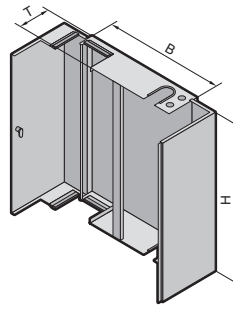
The super-slimline design of this corridor distributor is achieved thanks to the vertical arrangement of the patch level.
The 2 or 4 U mounting level may be populated with patch panels and/or active components. Cable entry is in the left-hand enclosure via brush strips. The right-hand part offers a large opening for cable sections and the option of attaching cable glands.

Material:
Sheet steel, 1.5 mm

Colour:
RAL 7035

Supply includes:
Office distributor, fully assembled, with security lock.

Available on request:
● Other variants
● Separate access authorisation available on request.

Detailed drawing,
available on the Internet.

U	Packs of	2	4
Width (B) in mm		400	400
Height (H) in mm		504	504
Depth (T) in mm		106	195
Model No. DK	1	**7245.000**	**7245.400**

Networking
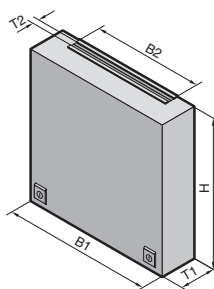
B

5.2

Patch panels for fibre-optic and copper technology see page 1021 to 1025

Networking

Small fibre-optic distributor

Material:
Sheet steel, 1.5 mm

Surface finish:
Powder-coated in RAL 7035

Supply includes:
1 enclosure, two-part, in two
designs to accommodate a
maximum of 48 or 96 optical
fibres respectively,
1 wall section:
with mounting holes for wall
mounting,
11/16 shunting rings:
for patching cables/fibre stock,
1/2 splicing cassette holders:
To accommodate a maximum of
8 splicing cassettes,

2 comb strips:
for cable clamping, and brush
inserts to provide protection
against dust,
1 cover:
with suspension device and two
cam locks.

Note:
When the small fibre-optic dis-
tributor is used without a patch
panel, 1/2 splicing cassette
holders may be retrofitted
(maximum splicing cassette
accommodation 16/32).

Available on request:
● Special designs

Property rights:
German patent no. 44 10 795

Detailed drawing,
available on the Internet.

Width (B1) in mm	Packs of	500	500	Page
Height (H) in mm		500	900	
Depth (T1) in mm		120	120	
Width of cable entry (B2) in mm		395	395	
Depth of cable entry (T2) in mm		29	29	
Model No. DK	1	**7452.035**	**7453.035**	
Number of fibres (when using patch panels)		1 – 48	1 – 96	
Accessories				
Patch panels with 12/24 locations for fibre-optic couplings		Maximum population 2 patch panels	Maximum population 4 patch panels	
F-SMA 6.5 mm, 24 locations	2	**7456.035[1]**	**7456.035[1]**	–
F-SMA 7.5 mm, 24 locations	2	**7457.035[1]**	**7457.035[1]**	–
ST, 24 locations	2	**7458.035**	**7458.035**	–
DIN 47 256, 24 locations	2	**7459.035[1]**	**7459.035[1]**	–
SC-, E-2000-, E-2000-Duplex, 24/12 locations	2	**7460.035[1]**	**7460.035[1]**	–
SC duplex, 12 locations	2	**7460.135[1]**	**7460.135[1]**	–
Splicing cassette holder for retrofitting	1	**7450.035**	**7450.035**	1026
Lock systems				
T handle without lock insert	1	2572.000	2572.000	887
T handle with lock insert no. 3524 E	1	2575.000	2575.000	887
Lock "15" (Zeiß-Ikon)	2	7059.035[1]	7059.035[1]	891
Key "15" (Zeiß-Ikon)	1	7059.100[1]	7059.100[1]	891
Plastic handle with lock no. 3524 E	1	2576.000	2576.000	886
Plastic handle	1	2533.000	2533.000	886

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888.

[1] Extended delivery times.

Accessories Page 832

Small fibre-optic distributors, based on Rittal AE
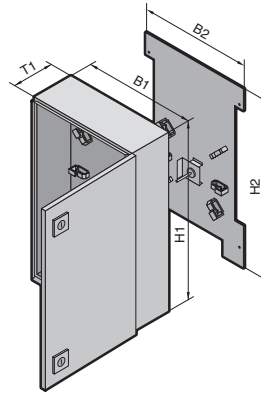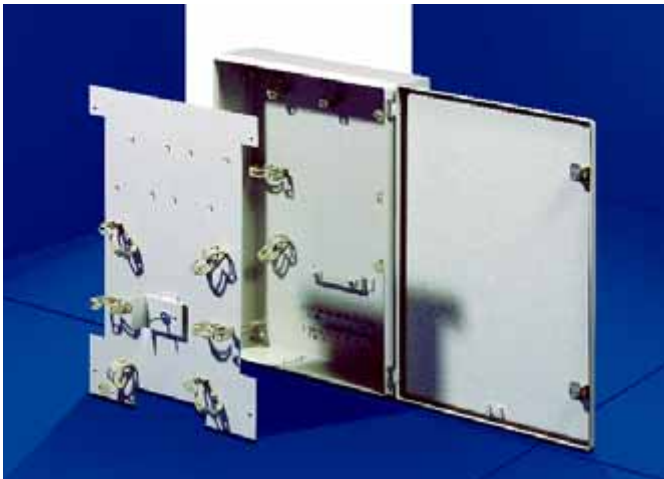
Layout of the small fibre-optic distributor:

Basic enclosure:
With cable shunting rings to accommodate the fibre stock and a strain relief system for incoming and outgoing cables.

Mounting plate:
With accommodation for 4 splicing cassettes and 4 patch panels.

Patch panels:
There are 4 patch panels available with varying cutouts. Other special variants available on request.

Material:
Sheet steel

Surface finish:
Spray-finished in RAL 7035

Colour:
RAL 7035

Protection category:
IP 55 (to EN 60 529/10.91) when using suitable cable gland plates.

Supply includes:
1 enclosure of sheet steel with 2 gland plates of sheet steel, sides,
1 gland plate, bottom
7 cable shunting rings 70 x 44 mm,
2 strain relief clips,
1 cable clamp rail, double,
1 door of sheet steel, with double-bit locks, with 2 hinges on the right,
1 mounting plate of sheet steel with 6 cable shunting rings 70 x 44 mm,
4 recesses for patch panels,
1 splicing cassette holder.

Detailed drawing,
available on the Internet.

Width (B1) in mm		Packs of	400	Page
Height (H1) in mm			500	
Depth (T1) in mm			155	
Mounting plate width (B2) mm			355	
Mounting plate height (H2) mm			455	
Model No. DK		1	**7454.000**	
Number of fibres (when using patch panels)			1 – 48	
Accessories				
Patch panel, maximum population with 4 patch panels	Locations			
Patch panel for 7.5 mm F-SMA couplings	12	2	7461.000	
Patch panel for ST couplings	12	2	7462.000	
Patch panel for SC, E-2000, E-2000 duplex couplings	12/6	2	7463.100	
Patch panel for SC duplex couplings	6	2	7463.200	
Cable gland with 2 half-shells, cable diameter from 8 – 36 mm, for mounting at the bottom, reduced protection category		1	2400.000	974
Plastic cable gland plates, PG size 13.5, for side mounting		5	1581.000	967
Plastic cable gland plates, PG size 13.5/16/21, for side mounting		5	1582.000	967
Wall mounting bracket, 40 mm		1	2503.000	905
Wall mounting bracket, 10 mm		1	2508.000	905
Lock systems				
Plastic handle		1	2533.000	886
Plastic handle with security cylinder insert		1	2576.000	886
Security cylinder insert no. 3524 E		1	2571.000	889
Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888.				

Networking

B

5.2

Accessories Page 832

Networking

Fibre-optic marshalling enclosure
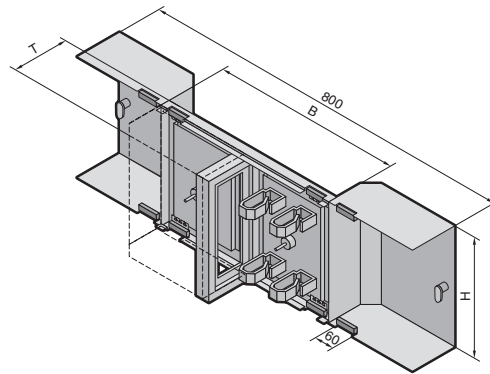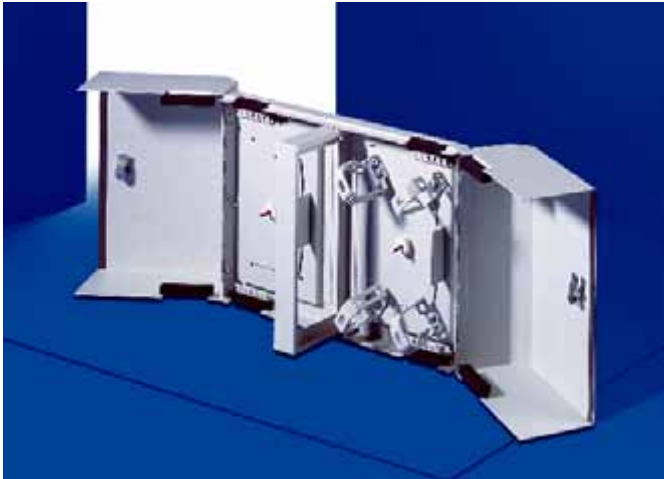
Patch panels are easily fastened to the gap. A door to cover and lock the splicing cassette accommodation, with separate lock. A second door to cover and lock the chamber/splicing cassette accommodation, with separate lock.

Material:
Sheet steel, 1.0 mm

Colour:
RAL 7035

Supply includes:
1 enclosure to accommodate a maximum of 24 optical fibres, wall section with mounting holes for wall mounting,
2 doors with different locks, for separate access,
4 shunting rings, 70 x 44 mm,
2 splicing cassette holders each for 2 splicing cassettes,
4 rubber seals for cable entry,
4 comb strips for cable clamping.

Note:
If the marshalling enclosure is used without patch panels, 4 splicing cassettes, 2 per side, may be integrated.

Property rights:
German patent
No. 195 47 135
European patent no. 0 867 058 with validity for NL
European patent no. 0 867 059 with validity for DE, FR, GB, IT

Available on request:
● Other variants

Detailed drawing,
available on the Internet.

Width (B) in mm	Packs of	400	Page
Height (H) in mm		250	
Depth (T) in mm		120	
Model No. DK	1	**7247.000**	
Number of fibres (when using patch panels)		1 – 24	
Accessories			
Patch panel for 24 ST couplings	1	7247.010	
Patch panel for 24 SC, E -2000 couplings[1]	1	7247.020	
Patch panel for 12 SC duplex couplings	1	7247.030	

[1] 12 E-2000 duplex couplings may be accommodated.

Small fibre-optic distributor, polycarbonate
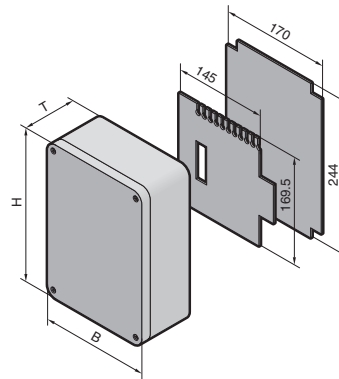
**Configuration
Small fibre-optic distributor:**

Mounting plate:
With accommodation for one or two splicing cassettes, whereby the width of the cassettes may vary from 92 to 120 mm.

Dividing plate:
Serves to cover the splicing cassettes and separates them from the patch cables. Accommodation for patch panels and a cable clamp are also integrated.

Patch panels:
Patch panels for
F-SMA, E-2000-ST couplings,
E-2000 duplex and
SC and SC-duplex couplings
are available.
Other special variants available on request.

Cable entry:
For cable entry, there are prepunchings for PG cable glands integrated into the small fibre-optic distributor.
The cable glands (12 x PG 7 and 1 x PG 16) are included with the supply. Pre-assembled connectors will also fit through the knockout apertures (for diameters, see below). The cable may be held in the prepunched knockouts by a 2-piece cable entry or by cable entry grommets, depending on the diameter. The two-part cable entry and the grommets are not included with the supply, due to the different cable diameters.
Diameter of the prepunched knockouts:
12 x 12.5 mm
2 x 22.5 mm

Colour:
RAL 7035

Protection category:
IP 66 to EN 60 529/10.91.

Supply includes:
1 enclosure and lid of fibreglass-reinforced polycarbonate to accommodate splicing cassettes and patch panels,
1 enclosure lid with 2 hinges, knockouts for PG glands are integrated into the enclosure,
12 x cable glands PG 7,
1 x cable gland PG 16,
1 mounting plate with variable accommodation of 2 splicing cassettes and integral anti-twist guard,
1 dividing plate to cover the splicing cassette, accommodation for 2 patch panels and comb strip for cable clamping,
2 lid screws of polyamide with option of preparing for a lead seal, polyamide insulating bungs for wall mounting screws.
All-round foamed-in PU seal.

Detailed drawing,
available on the Internet.

Width (B) in mm	Packs of	180	Page
Height (H) in mm		254	
Depth (T) in mm		90	
Model No. DK	1	**7451.000**	
Number of fibres (when using patch panels)		1 – 24	

Accessories

	Locations per patch panel	Locations per enclosure			
Patch panel for 7.5 mm F-SMA couplings	12	24	2	7461.000	
Patch panel for ST couplings	12	24	2	7462.000	
Patch panel for SC, E-2000, E-2000 duplex couplings	12/6	24/12	2	7463.100	
Patch panel for SC duplex couplings	6	12	2	7463.200	
Wall mounting brackets			40	9583.000	103

Accessories Page 832

Networking

Wall-mounted enclosure, based on Rittal EL, 3-part, pre-configured, depth 573

B

5.2
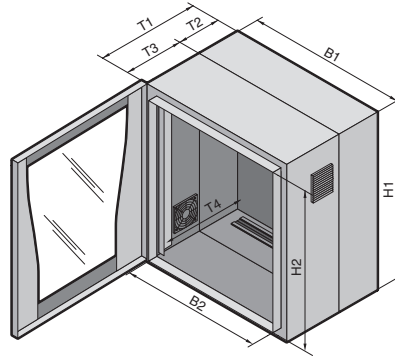
Material:
Wall and hinged part:
Sheet steel, 1.5 mm
Viewing window:
3 mm safety glass.

Colour:
Wall and hinged part spray-finished in RAL 7035,
Glazed door RAL 7035/7015 (slate grey).

Protection category:
IP 43 to EN 60 529/10.91
for 77XX.735

Supply includes:
Wall section:
with vertical punched rails and C rail mounted horizontally for cable clamping, top cable gland plate solid, bottom cable gland plate with brush strips, earthing rail with star earthing, wall mounting bracket 10 mm.

Hinged part:
with 25 mm pitch pattern of holes in the front and rear frame, Two 482.6 mm (19″) mounting angles mounted on C rails, infinitely depth-variable, one outlet filter each on the left and right side.

Designer glazed door:
With 3 mm safety glass or slotted plate, 9 + 15 U with mini comfort handle for lock inserts, 21 U with comfort handle and 2-point locking, including lock 3524 E.

On request, fitted ex works:
- Fully modified wall-mounted distributors.
- Glazed door with aluminium frame[1]
- Sheet steel door, solid[1]

Approvals,
see page 86.

Detailed drawing,
available on the Internet.

U	Packs of	9	15	21	Page
Width (B1) in mm		600	600	600	
Height (H1) in mm		478	746	1012	
Depth (T1) in mm		572.5	572.5	572.5	
Clearance width (B2) mm		451	451	451	
Clearance height (H2) mm		432	699	965	
Depth of wall section (T2) mm		135	135	135	
Depth of hinged part (T3) mm		416	416	416	
Maximum installation depth (T4) mm		520	520	520	
Model No. DK glazed door	1	**7709.735**	**7715.735**	**7721.735**	
Model No. DK slotted metal door[1]	1	**7709.835**	**7715.835**	**7721.835**	
Load capacity, hinged part (kg)		45	75	75	
Accessories					
Solid gland plate	1	2235.135	2235.135	2235.135	970
Gland plate with brush insert	1	7705.035	7705.035	7705.035	970
Gland plate for metric cable glands	1	7705.235	7705.235	7705.235	970
Fan expansion kit, 230 V	1	7980.100	7980.100	7980.100	649
Spare filter mats	5	3322.700	3322.700	3322.700	670
Wall mounting bracket, 40 mm	1	2503.000	2503.000	2503.000	905
Lock inserts		see page 888			
Component shelf 2 U, fixed installation or fully extendible, 300 mm deep	1	7148.035	7148.035	7148.035	946
Component shelf 2 U, static installation, 250 mm	1	7119.250	7119.250	7119.250	948

[1] Extended delivery times.

Accessories Page 832

Wall-mounted enclosure, based on Rittal EL, 3-part, with punched rails, depth 473
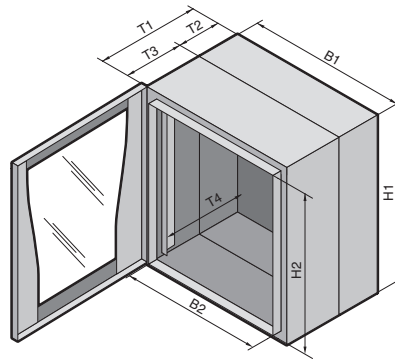
Material:
Wall and hinged part:
Sheet steel, 1.5 mm
Viewing window:
3 mm safety glass.

Colour:
Wall and hinged part spray-finished in RAL 7035,
Glazed door RAL 7035/7015 (slate grey).

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Wall section:
With vertical punched rails and C rail mounted horizontally for cable clamping, solid cable gland plate top and bottom, wall mounting bracket 10 mm.

Hinged part:
with 25 mm pitch pattern of holes in the front and rear frame,
Two 482.6 mm (19″) mounting angles mounted on C rails, infinitely depth-variable.

Designer glazed door:
6 – 15 U with mini comfort handle for lock inserts,
18 – 21 U with comfort handle and 2-point locking, including lock 3524 E.

On request, fitted ex works:
- Fully modified wall-mounted distributors.
- Special sizes[1] (T = 373 mm, 573 mm)
- Glazed door with aluminium frame[1]
- Sheet steel door, solid[1]

Approvals,
see page 86.

Detailed drawing,
available on the Internet.

Networking

B

5.2

U	Packs of	6	9	12	15	18	21	Page
Width (B1) in mm		600	600	600	600	600	600	
Height (H1) in mm		345	478	612	746	878	1012	
Depth (T1) in mm		472.5	472.5	472.5	472.5	472.5	472.5	
Clearance width (B2) mm		451	451	451	451	451	451	
Clearance height (H2) mm		299	432	565	699	832	965	
Depth of wall section (T2) mm		135	135	135	135	135	135	
Depth of hinged part (T3) mm		316	316	316	316	316	316	
Maximum installation depth (T4) mm		420	420	420	420	420	420	
Model No. DK	1	**7706.135**	**7709.135**	**7712.135**	**7715.135**	**7718.135**	**7721.135**	
Load capacity, hinged part (kg)		30	45	60	75	75	75	
Accessories								
Gland plate with brush insert	1	7705.035	7705.035	7705.035	7705.035	7705.035	7705.035	970
Gland plate for metric cable glands	1	7705.235	7705.235	7705.235	7705.235	7705.235	7705.235	970
Wall mounting bracket, 40 mm	1	2503.000	2503.000	2503.000	2503.000	2503.000	2503.000	905
Lock inserts				see page 888				
Earth rail, horizontal	1	7113.000	7113.000	7113.000	7113.000	7113.000	7113.000	962
Component shelf 2 U, static installation and fully extendible	1	7148.035	7148.035	7148.035	7148.035	7148.035	7148.035	946
Component shelf 2 U, static installation	1	7119.250	7119.250	7119.250	7119.250	7119.250	7119.250	948
Component shelf 1 U, static installation, 140 mm	1	7119.140	7119.140	7119.140	7119.140	7119.140	7119.140	947

[1] Extended delivery times.

Accessories Page 832

Networking

Wall-mounted enclosure, based on Rittal EL, 3-part, with mounting plate, depth 373

Material:
Wall and hinged part:
1.5 mm sheet steel
Mounting plate:
2.5 mm sheet steel, zinc-plated, passivated
Viewing window:
3 mm safety glass

Colour:
Wall and hinged part spray-finished in RAL 7035,
Glazed door RAL 7035/7015 (slate grey).

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Wall section:
with 2 cable gland plates,
1 mounting plate supplied loose, assembly parts.

Hinged part:
with 2 mounting angles,
482.6 mm (19″), fitted at the front, assembly parts.

Designer glazed door:
3 – 15 U with mini comfort handle for lock inserts,
18 – 21 U with comfort handle and 2-point locking,
including lock 3524 E.

On request, fitted ex works:
● Special sizes and colours[1]
● Glazed door with aluminium frame[1]
● Sheet steel door, solid[1]

Approvals,
see page 87.

Detailed drawing,
available on the Internet.

U	Packs of	3	6	9	12	15	18	21	Page
Width (B1) in mm		600	600	600	600	600	600	600	
Height (H1) in mm		212	345	478	612	746	878	1012	
Depth (T1) in mm		373	373	373	373	373	373	373	
Clearance width (B2) mm		490	490	490	490	490	490	490	
Clearance height (H2) mm		166	299	432	565	699	832	965	
Depth of wall section (T2) mm		135	135	135	135	135	135	135	
Depth of hinged part (T3) mm		216	216	216	216	216	216	216	
Maximum installation depth (T4) mm		342	342	342	342	342	342	342	
Width of mounting plate (B3) mm		485	485	485	485	485	485	485	
Height of mounting plate (H3) mm		165	299	432	565	699	832	965	
Model No. EL	1	**2243.605**	**2246.605**	**2249.605**	**2252.605**	**2255.605**	**2258.605**	**2261.605**	
Load capacity, hinged part (kg)		15	30	45	60	75	75	75	
Accessories									
Wall mounting bracket – 10 mm – 40 mm	1	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	905
Gland plate – with brush strip – for metric cable glands	1	7705.035 7705.235	7705.035 7705.235	7705.035 7705.235	7705.035 7705.235	7705.035 7705.235	7705.035 7705.235	7705.035 7705.235	970 970
Screwed cable glands					see page 972				
Lock inserts					see page 888				
Slide rails	10	2240.000	2240.000	2240.000	2240.000	2240.000	2240.000	2240.000	1011
C rails	4	2238.000	2238.000	2238.000	2238.000	2238.000	2238.000	2238.000	929
Blanking plates	3				see page 1013				

[1] Extended delivery times.

Accessories Page 832

Wall-mounted enclosure, based on Rittal EL, 3-part, with mounting plate, depth 473
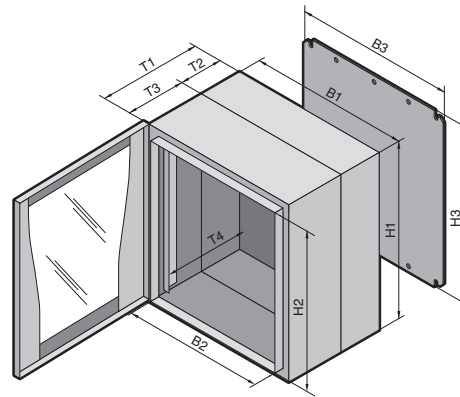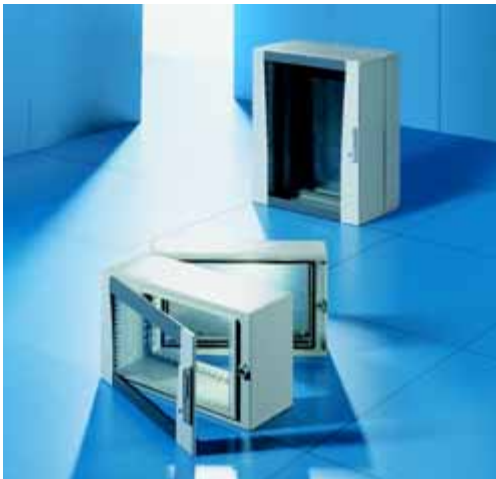
Material:
Wall and hinged part:
1.5 mm sheet steel
Mounting plate:
2.5 mm sheet steel, zinc-plated, passivated
Viewing window:
3 mm safety glass

Colour:
Wall and hinged part spray-finished in RAL 7035,
Glazed door RAL 7035/7015 (slate grey).

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Wall section:
with 2 cable gland plates,
1 mounting plate supplied loose,
assembly parts.

Hinged part:
with 2 mounting angles,
482.6 mm (19″), fitted,
assembly parts.

Designer glazed door:
3 – 15 U with mini comfort handle for lock inserts,
18 – 21 U with comfort handle and 2-point locking,
including lock 3524 E.

On request, fitted ex works:
● Special sizes and colours[1]
● Glazed door with aluminium frame[1]
● Sheet steel door, solid[1]

Approvals,
see page 87.

Detailed drawing,
available on the Internet.

U	Packs of	3	6	9	12	15	18	21	Page
Width (B1) in mm		600	600	600	600	600	600	600	
Height (H1) in mm		212	345	478	612	746	878	1012	
Depth (T1) in mm		473	473	473	473	473	473	473	
Clearance width (B2) mm		490	490	490	490	490	490	490	
Clearance height (H2) mm		166	299	432	565	699	832	965	
Depth of wall section (T2) mm		135	135	135	135	135	135	135	
Depth of hinged part (T3) mm		316	316	316	316	316	316	316	
Maximum installation depth (T4) mm		442	442	442	442	442	442	442	
Width of mounting plate (B3) mm		485	485	485	485	485	485	485	
Height of mounting plate (H3) mm		165	299	432	565	699	832	965	
Model No. EL	1	**2253.605**	**2256.605**	**2259.605**	**2262.605**	**2265.605**	**2268.605**	**2271.605**	
Load capacity, hinged part (kg)		15	30	45	60	75	75	75	
Accessories									
Wall mounting bracket – 10 mm – 40 mm	1	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	2508.000 2503.000	905
Lock inserts		see page 888							
Gland plate – with brush strip – for metric cable glands	1	7705.035 2235.000	7705.035 2235.000	7705.035 2235.000	7705.035 2235.000	7705.035 2235.000	7705.035 2235.000	7705.035 2235.000	970 970
Screwed cable glands		see page 972							
Slide rails	10	2250.000	2250.000	2250.000	2250.000	2250.000	2250.000	2250.000	1011
C rails	4	2239.000	2239.000	2239.000	2239.000	2239.000	2239.000	2239.000	929
Blanking plates	3	see page 1013							

[1] Extended delivery times.

Networking

B

5.2

Accessories Page 832

Networking

Wall-mounted enclosure, based on Rittal EL, 2-part, with swing frame, depth 369
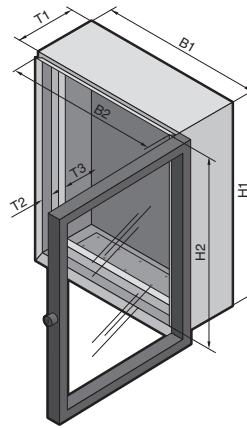
Material:
Enclosure: 1.5 mm sheet steel
Swing frame: Sheet steel
Front door: Extruded aluminium
section, 3 mm glazed acrylic

Surface finish:
Enclosure and swing frame:
Electrophoretic dipcoat-primed
and powder-coated RAL 7035
Front door: Dark brown anodised

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Enclosure, front door, fitted
swing frame, including assembly parts.

Available on request:
● Special sizes and
colours

Approvals,
see page 87.

Detailed drawing,
available on the Internet.

U	Packs of	6	11	14	Page
Width (B1) in mm		600	600	600	
Height (H1) in mm		380	600	760	
Depth (T1) in mm		369	369	369	
Clearance width (B2) mm		537	537	537	
Clearance height (H2) mm		317	537	697	
Distance from glazed door to swing frame (T2) mm		67 – 97	67 – 97	67 – 97	
Maximum installation depth (T3) mm		270	270	270	
Model No. EL	1	**1919.500**	**1920.500**	**1926.500**	
Weight (kg)		20.8	26.7	31.2	
Accessories					
Wall mounting bracket, 10 mm	1	2508.000	2508.000	2508.000	905
Wall mounting bracket, 40 mm	1	2503.000	2503.000	2503.000	905
Gland plates with hole	5	2563.000	2563.000	2563.000	966
Blanking plates	3		see page 1013		
Standard swing frame with double-bit lock insert may be exchanged for 27 mm lock inserts, type A, see page 888.					

Accessories Page 832

Server racks

Features

Each individual rack makes an important contribution to the physical security of your IT infrastructure. Our comprehensive range of benefits is based on more than 40 years of rack expertise, far-ranging experience in energy management, and the development of pioneering climate concepts. For this reason, Rittal server racks offer the ideal conditions to fuse all the relevant technologies into complete IT infrastructure solutions.

Rittal system comparison	TE 7000	TS 8	FR(i)
One platform for all requirements in the IT market			
Load capacity			
up to 400 kg	▪▪▪	▪▪▪	▪▪▪
up to 1000 kg		▪▪▪	▪▪▪
Baying			
side	▪▪▪	▪▪▪	▪▪▪
in all levels		▪▪▪	
Climate control			
Fan	▪▪▪	▪▪▪	▪▪▪
Climate control device		▪▪▪	▪▪
Air/water heat exchanger		▪▪▪	
CPU liquid cooling		▪▪▪	▪▪▪
Cabling			
Cable space	▪▪▪	▪▪	▪▪
Cable management	▪▪▪	▪▪▪	▪▪▪

Rittal system comparison	TE 7000	TS 8	FR(i)
One platform for all requirements in the IT market			
Lock-system			
2-point	▪▪▪	▪▪▪	▪▪▪
4-point		▪▪▪	
Security			
Access control	▪▪▪	▪▪▪	▪▪▪
Climate control	▪▪▪	▪▪▪	▪▪▪
Dismantling	▪▪▪	▪	▪
Interior installation			
Depth-variable	▪	▪▪▪	▪▪
Partial installation		▪▪▪	
2-level principle		▪▪▪	▪
Design	▪▪	▪▪	▪▪▪
Standards IEC 60 297-1/2	▪▪▪	▪▪▪	▪▪▪

Note: The more ▪ the greater the compatibility.

TS 8

Ventilation
Via perforated front and rear door with free surface area of 78 % in the perforated plate part.

Lock system
with comfort handle and 4-point locking.
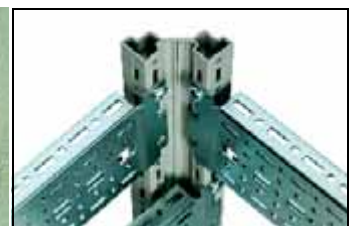
The ingenious symmetrical concept
of the frame offers baying on all sides. With two levels, the frame section affords infinite assembly diversity.

flexRack(i)
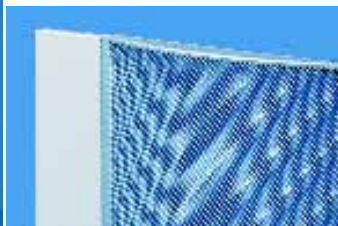
The new designer door
unites functionality with aesthetics.

Robust 482.6 mm (19″) mounting frame. Load capacity 1000 kg.

Optimised stability
for optimum operational reliability.

TE 7000

Fully vented front and rear door.

Two-point locking rod, optionally with Ergoform-S handle system.

Power

Power Distribution Module PDR/PDM
Power sub-distribution in 482.6 mm (19″) format. May be retrofitted whilst the system is operational.

Power System Module PSM
Power management up to 96 A or 48 A with redundant circuit. Shock-hazard protected.
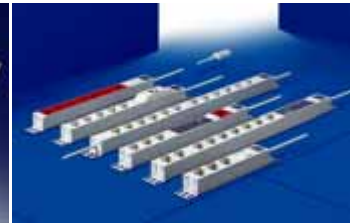
Socket strips
available in various length variants with various functional elements.

Cooling

Processor climate control
Enclosure climate control for heat loss of 13 kW – 22 kW

Rack-mounted recooling system
Liquid-cooled computers are supplied via the shortest route via six cooling circuits.

Server integration

Unversal server installation kit
For integration of the most common server types, using the original installation accessories.

Depth-variable slide rail for flexible adaptation to the existing distance between levels.
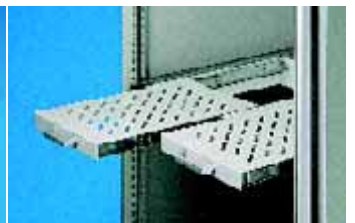
Component shelves, two-part
Two tower format servers may be moved independently of one another.

Server racks

B

5.3

Server racks

Based on Rittal TE 7000, 1000 mm deep
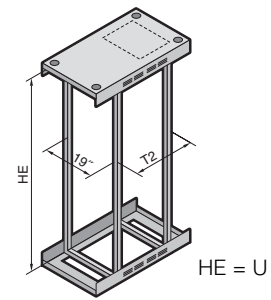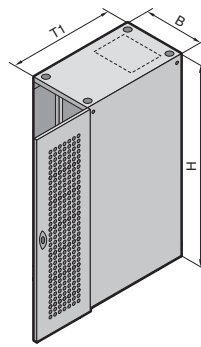
Benefits:
- No frame structure, optimum accessibility

Material:
Sheet steel

Surface finish:
Mounting frame:
Dipcoat-primed
Enclosure panels:
Powder-coated, RAL 7035/9005.

Supply includes:
Self-supporting 482.6 mm (19″) frame structure,
vented sheet steel door front and rear, two-point locking rod, recessed handle (front) and security lock 3524 E, roof plate for cable entry in corners with concealed cut-out for integrating fans, with levelling feet.

Detailed drawing,
available on the Internet.

U		42	42	42	42
Width (B) in mm		600	600	800	800
Height (H) in mm		2000	2000	2000	2000
Depth (T1) in mm		1000	1000	1000	1000
482.6 mm (19″) distance between levels in its delivered state (T2) mm		740	740	740	740
Model No. TE	RAL 7035	**7000.882**	–	**7000.892**	–
as bayed enclosure without side panels, including baying kit	RAL 9005	–	**7000.885**	–	**7000.895**
Doors					
Sheet steel doors, fully vented, front and rear		■	■	■	■
Roof					
Roof plate including including concealed cut-outs for cable entry in corners and for optimum population with active fan units		■	■	■	■
Base					
Base frame with maximum cut-outs for cable entry in corners for optional population with solid modular plates, passively vented, or for cable entry		■	■	■	■
Interior installation					
482.6 mm (19″) mounting frames front and rear		■	■	■	■
Accessories					
Side panels, pluggable, including security lock 3524 E		**7000.653**	**7000.663**	**7000.653**	**7000.663**
Ergoform-S handle for semi-cylinder, in exchange for the existing lock		2435.000	2435.000	2435.000	2435.000
Fan unit, with 2 fans and thermostat, prewired ready for connection		7000.670	7000.670	7000.670	7000.670
Stabiliser		On request.	On request.	On request.	On request.
Transport kit, 4 castors including assembly parts		7000.672	7000.672	7000.672	7000.672
C-rail, for cable clamping in the enclosure width via cable clamps, on the 482.6 mm (19″) mounting frame at the rear		7828.060	7828.060	7828.060	7828.060
Cable clamp rail, depth variable 425 – 725 mm, for cable attachment in the enclosure depth using cable ties		7858.160	7858.160	7858.160	7858.160
Cable clamp rail for cable attachment in the enclosure width via cable ties, on the 482.6 mm (19″) mounting frame at the rear		7828.062	7828.062	7828.062	7828.062
Earthing kit for TE		7000.675	7000.675	7000.675	7000.675
Socket strip, 8-way, earthing-pin plug		7000.630	7000.630	7000.630	7000.630

■ Included with the supply.

Based on Rittal TS 8, pre-configured
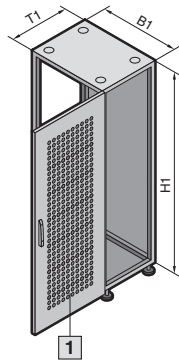
Design features
- Firmly linked frame structure
- Front and rear door fully vented; free vented surface area 78 % in the perforated plate part
- 4-point locking, 2-point locking with multiple door versions
- Door hinge may be swapped to opposite side without any machining
- Cable entry via the roof and base/plinth
- Bayable at all levels
- Load capacity up to 1000 kg

Material:
Sheet steel

Surface finish:
Enclosure frame:
Dipcoat-primed
Enclosure panels:
Dipcoat-primed, powder-coated in RAL 7035 or RAL 9005

Mounting angles and punched sections with mounting flanges: Zinc-plated, passivated

Supply includes:
Enclosure frame TS 8 with sheet steel doors front and rear, vented, with 130° hinges, L-shaped, depth-variable fitted

mounting angles and/or 482.6 mm (19″) mounting frame, levelling feet, comfort handle with security lock and 4-point lock.

Detailed drawing, available on the Internet.

1 Optimised air flow

Server racks

B

5.3

Number of front and rear doors		1	1	1	1	1	1	1	2	2 (vertically divided)	4
U		24	24	42	42	47	47	42	2 x 21	2 x 21	4 x 10
Width (B1) in mm		600	600	600	600	600	600	800	600	600	600
Height (H1) in mm		1200	1200	2000	2000	2200	2200	2000	2200	2200	2200
Depth (T1) in mm		900	1000	900	1000	900	1000	1000	900	900	900
Model No. DK **as bayed enclosure** **without side panels**	RAL 7035	7831.431	7831.433	7831.436	7831.438	7831.440	7831.442	7831.446	7831.450	7831.457	7831.460
	RAL 9005	7831.432	7831.434	7831.437	7831.439	7831.441	7831.443	–	7831.451	7831.458	7831.461
Doors											
Sheet steel doors, vented, front and rear[1]		■	■	■	■	■	■	■	■	■	■
Roof											
with openings for cable entry		■	■	■	■	■	■	■	■	■	■
Base/plinth											
Levelling feet		■	■	■	■	■	■	■	–	–	–
Interior installation											
482.6 mm (19″) levels, front and rear		■	■	■	■	■	■	■	–	–	–
L-shaped mounting angles		■	■	■	■	■	■	–	–	–	–
Mounting angles attached to depth stays		■	■	■	■	■	■	–	■	■	■
482.6 mm (19″) mounting frames front and rear		–	–	–	–	–	–	■	–	–	–
Panel earthing, fitted		■	■	■	■	■	■	■	–	–	–
Individual compartments, partitioned		–	–	–	–	–	–	–	■	■	■
Protected, separate cable routing per compartment		–	–	–	–	–	–	–	■	■	■
Accessories											
Side panels, plug-type, with T lock	RAL 7035	7824.129	7824.120	7824.209	7824.200	7824.229	7824.220	7824.200	7824.229	7824.229	7824.229
	RAL 9005	7816.129	7816.120	7816.209	7816.200	7816.229	7816.220	–	7816.229	7816.229	7816.229
Security lock for side panels		7824.500	7824.500	7824.500	7824.500	7824.500	7824.500	7824.500	7824.500	7824.500	7824.500
Base attachment bracket		8800.210	8800.210	8800.210	8800.210	8800.210	8800.210	8800.210	8800.210	8800.210	8800.210
Depth-variable slide rail, 1 U		7063.880	7063.880	7063.880	7063.880	7063.880	7063.880	7063.880	7063.878	7063.878	7063.878
Stabiliser, pull-out		7825.200	7825.250	7825.200	7825.250	7825.200	7825.250	7825.250	7825.200	7825.200	7825.200

■ Included with the supply   1) Free space in perforated plate part 78 %

Accessories Page 832   **Liquid Cooling** Page 672

Server racks

Based on Rittal flexRack(i), 1000 and 1200 mm deep, pre-configured
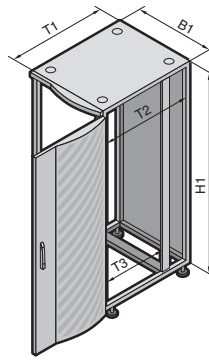
Design features
- Enclosure system may be dis-mantled because the vertical sections are screw-fastened to the roof and base frame.
- Aluminium vertical section with multi-functional system channel
- Vented front and rear door with free surface area of 64 % in the perforated plate part
- 2-point locking
- Cable entry via the roof and base

- Pull-out stabiliser
- Suitable for baying
- Load capacity up to 1000 kg

Material:
Vertical frame sections:
Extruded aluminium section.
Roof frame, panels: Sheet steel

Surface finish:
Enclosure panels/door trim panel:
Spray-finished in RAL 7035,

Frame sections, perforated plate of door: RAL 9006
482.6 mm (19″) mounting angles: Zinc-plated, passivated

Supply includes:
System frame section FR(i)[1] with designer door, vented, sheet steel door at rear, vented, level-ling feet, stabiliser, earthing of all enclosure panels,
comfort handles for semi-cylin-ders with security lock 12321.

Property rights:
German patent
no. 103 11 376
German registered design
no. 403 04 312 and 401 03 180
British Registered Design
no. 301 54 31 and 210 49 77
US Design Patent no. 479,241

Detailed drawing,
available on the Internet.

U	24	42	24	42
Width (B1) in mm	600	600	600	600
Height (H1) in mm	1200	2000	1200	2000
Depth (T1) in mm	1005	1005	1205	1205
Depth absolute, including handles and roof curvature (T1) mm + 90 mm	1095	1095	1295	1295
Maximum distance between levels (T2) mm	829	829	1029	1029
Distance between the 482.6 mm (19″) levels (T3) mm	750	750	850	850
Model No. FR(i) as bayed enclosure without side panels	**7855.310**	**7855.330**	**7855.312**	**7855.332**
Doors				
Designer door, front, vented[2]	■	■	■	■
Sheet steel door, rear, vented[2]	■	■	■	■
Roof				
Solid roof plate	■	–	■	–
Roof plate with cable entry openings	–	■	–	■
Base frame				
Levelling feet	■	■	■	■
Stabiliser	■	■	■	■
Interior installation				
482.6 mm (19″) mounting angles, front	■	■	■	■
482.6 mm (19″) mounting frame, rear	■	■	■	■
Earthing				
Earthing of all enclosure panels on the enclosure frame	■	■	■	■
1 central earthing point fitted at the rear of the base frame	■	■	■	■
Accessories				
2 designer side panels with beading, including security lock 12321	7856.672	7856.687	7856.673	7856.688
Transport kit, 4 castors including assembly parts	7825.900	7825.900	7825.900	7825.900

[1] The system frame FR(i) is generally suitable for the installation of TS 8 accessories. [2] Free space in the perforated plate part 64 %.
■ Included with the supply.

Accessories Page 832 **Liquid Cooling** Page 672

Rittal Catalogue 31/IT solutions

Monitor/keyboard unit, 1 U
with 15″ and 17″ TFT display

This compact 1 U console in a new 2-colour design was developed for secure, space-saving server administration. In order to access other servers, this monitor/keyboard unit is easily combined with the Rittal KVM-Switch SSC view 8 (see page 740). This makes it possible to connect up to 8 servers to one unit in 1 U. The peculiarity of this compact solution is that a 482.6 mm (19″) keyboard including number pad and keypad may be integrated, in spite of its small size. The minimal depth of the unit, at just 490 mm (610 mm with 17″ TFT display, each without SSC extension), makes it suitable for installation in enclosures of depth 700 – 1000 mm. The installation kits supplied allow it to be adapted to an existing difference between levels of 680 – 850 mm for the 482.6 mm (19″) levels.
When closed, the drawer can be locked for protection against unauthorised operation.
In order to prevent heat accummulation when folded, the backlight is deactivated automatically. The illuminated master switch is easily accessbile on the front.

Upon request, it is also possible to integrate a trackball instead of the touchpad and the number pad (international versions). The display may be activated in both analog and digital form via the new standard Digital Visual Interface (DVI), which makes this monitor unit particularly future-proof for forthcoming server generations. The integral active mini-speakers ensure audio feedback in case of error messages or system sounds. The unit has a German keyboard layout. Versions in English and French, as well as country- and customer-specific versions, including USB keyboard connection, available on request.

Supply includes:
Complete monitor/keyboard unit in colour version RAL 7035 (light grey) or RAL 9005 (black) with design components and handle in RAL 9006 (silver) including assembly parts and all the required connection cables (approx. 1.6 m) for:

- Power supply
- VGA (15-pole D-Sub)
- DVI-D
- Audio (2 x jack plugs 3.5 mm, stereo)
- Keyboard connection (PS/2)
- Mouse connection (touchpad or trackball, PS/2).

		15″		17″	
		RAL 7035/ RAL 9006	RAL 9005/ RAL 9006	RAL 7035/ RAL 9006	RAL 9005/ RAL 9006
Touchpad	German	**9050.100**	**9050.200**	**9050.300**	**9050.400**[1]
	English	**9050.102**	**9050.202**	**9050.302**[1]	**9050.402**[1]
	French	**9050.103**[1]	**9050.203**[1]	**9050.303**[1]	**9050.403**[1]
Trackball	German	**9050.150**	**9050.250**	**9050.350**	**9050.450**
	International	**9050.151**[2]	**9050.251**[2]	**9050.351**[2]	**9050.451**[2]
Technical design					
TFT screen with anti-reflection coated security glass		15″ (381 mm)		17″ (432 mm)	
Maximum resolution		1024 x 768		1280 x 1024	
Colours		16.7 million			
Brightness		250 cd/m^2			
Contrast ratio		approx. 400 : 1			
Sound		2 active mini-speakers			
Mains voltage		100 – 240 V AC, 50 – 60 Hz			
Dimensions (W x H x D)		448 mm x 1 U x 490 mm		448 mm x 1 U x 610 mm	
Connections at rear					
Mains voltage		IEC 320 connection			
Video input		Analog (D-SUB 15-pole, jack)			
		Digital (DVI-D, jack)			
Audio		3.5 mm, stereo			
Keyboard		PS/2, jack			
Mouse		PS/2, jack			
Power out		(12 V DC) for SSC view 8/view 32 Cat			

[1] Delivery time approx. 2 weeks. [2] International version only available with trackball and without numeric keypad. Please state the required language on the order.
Versions: French/Spanish/Portuguese/Italian/Danish/Norwegian/Finnish/Swedish/Belgian/
UK English/US English with EURO/Swiss/German. Other country-specific versions available on request.

Server racks

B

5.3

1

2

SSC view 8/SSC view 32 Cat

8 or 32-port KVM switch
for monitor/keyboard unit 9050.XXX
These compact SSC views optionally extend the Rittal monitor/keyboard unit to include the function of an 8- or 32-port KVM switch, without requiring an additional U in the server rack for mounting. The switch may be mounted behind the existing monitor unit, and voltage is supplied via the power pack integrated into the drawer. The SSC has a password-protected OSD menu, but server selection may also be made via hotkeys.

The SSC view 8 may be cascaded with KVM switches from the SSCmulti series if more than the 8 servers are to be administered. In this way, the Rittal SSC switching system is able to grow flexibly in line with requirements. With the SSC view 32 Cat, the computers are connected via CAT cables and SSC converters (PS/2 or USB). In this way, the signals for video, keyboard and mouse are transmitted via a shared cable, considerably reducing the cabling work involved, particularly in fully configured racks. One SSC converter is required for each computer. Processor-controlled keyboard and mouse emulation for each channel ensures fault-free booting and reliable switching between the connected computers.

Rittal SSC	**1** SSC view 8	**2** SSC view 32 Cat
Model No. DK	**7552.000**	**7552.100**
Equipment		
Number of computers in stand-alone mode	8	32
Number of users	1	1
Number of users that may be administered (with allocation of rights)	2	10
Cascading as slave to SSCmulti series	■	–
Integral user/computer administration	■	■
OSD menu with mouse operation (English)	■	■
OSD superimposed on computer screen (may be deactivated)	■	■
OSD display of channels used	■	■
Hotkeys for computer selection	■	■
Autoscan	■	■
Autoskip (skip over unused channels)	■	■
Cable type to computer (view 8) or to SSC converter (view 32)	VGA/HD15, PS/2	Cat 5, 6, 7
Maximum cable length, SSC to computer (depending on cable quality)	4 m	15 m (30 m)
Port and system support	PS/2[1]	PS/2, USB, SUN-USB
Automatic cable alignment (manually readjustable)	–	■[3]
LED displays (rear)	None	Power
Maximum video resolution (depending on cable length)	1280 x 1024@85 Hz	1920 x 1440@75 Hz
Bandwidth	200 MHz	250 MHz
Connections		
Computer	SUB-HD15/PS/2	RJ45
Console	SUB-HD15/PS/2	SUB-HD15/PS/2
Service (for firmware update)	–	Jack 2.5 mm
Power supply 12 V from MTE[3]	Hollow connector	Hollow connector
External power supply	12 V/approx. 0.8 A	12 V/approx. 1.0 A
Power consumption (approx.)	9 W	12 W
Operating temperature	+5 to +45°C	+5 to +45°C
Protection category	IP 40	IP 40
Enclosure	Sheet steel, powder-coated	Sheet steel, powder-coated
Colour	RAL 9006	RAL 9006
Dimensions (excluding projecting parts) approx. W x H x D mm	325 x 44 x 85	325 x 44 x 85
Dimensions (with rack installation) approx. W x H x D	19″ x 1 U x 140 mm	19″ x 1 U x 140 mm
Certifications	CE	CE
Accessories		
3 SSC converter PS/2	–	7552.201
4 SSC converter USB	–	7552.202
SSC converter SUN-USB	–	7552.203
5 CPU cable 2 m (with interlocking PS/2 connectors)	7552.120	–
CPU cable 4 m (with interlocking PS/2 connectors)	7552.140	–
Cat 5 cable 0.5 m	–	7320.470
Cat 5 cable 2 m	–	7320.472
Cat 5 cable 5 m	–	7320.475
Cat 5 cable 10 m	–	7320.481
Cat 5 cable 15 m	–	7320.485

[1] Adaptor for SUN/MAC server available on request.
[2] External long-range power input available on request.
[3] With a cable length of max. 15 m, there is no need for any manual readjustments.
Above and beyond this, the maximum permissible cable length is approximately 30 m (depending on the cable quality).
Here, manual readjustment is needed.

3

4

5

Server racks

B

5.3
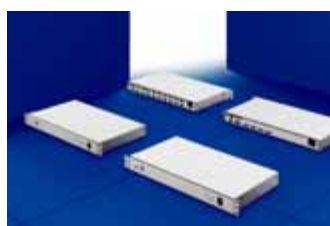
Rittal SSCmini/SSCmulti

By using the Rittal SSC, the number of keyboards, monitors and mice required is reduced to just one. Computer access becomes easier, more effective and more cost-efficient. As the number of computers increases, the SSC easily grows with it by cascading. The basic variant, the SSCmini, offers 4 channels and an integral hotkey function. The SSCmulti, the multi-talented all-rounder, additionally has 4/8/16 channels, an OSD menu, auto scan, auto skip and multi-platform capabilities. The multi-console feature supports a second Cat 5 console on the SSCmulti. As a hardware changeover switch, the Rittal SSC utilises the keyboard, monitor and mouse interfaces of the computer, irrespective of the software and operating system.

The SSCmulti is ideal for use in a heterogeneous server environment with different platforms such as PS/2 and IBM-compatible, HP 9000, sgi, SUN, RS 6000 and laptops.

Dimensions:
(W x H x D) 482.6 x 44 x 245 mm

Material:
Enclosure: Sheet steel

Surface finish:
Spray finished in RAL 7035

Available on request:
● Converter for Apple Mac and USB interface.
● Distance bridging via fibre-optics.
● Global access for remote server maintenance.

Rittal Server Switch Control SSC	SSCmini 4	SSCmulti 4	SSCmulti 8	SSCmulti 16
Model No. DK	**7551.000**	**7551.010**	**7551.020**	**7551.030**
Number of computers in stand-alone mode	4	4	8	16
Number of computers in cascade configuration (identical types/maximum)	–/64	16/64	64/128	256/256
Number of local operating consoles	1	1	1	1
Additional remote consoles (concurrent)	1	1	1	1
Integral remote control booster, Cat 5 port	–	■	■	■
Status displays	LEDs	OSD menu	OSD menu	OSD menu
On-screeen display (OSD)	(■)	■	■	■
Keyboard hotkey operation	■	■	■	■
Auto scan/auto skip	(■)	■	■	■
Free server name allocation	(■)	■	■	■
Password protection	(■)	■	■	■
Allocation of user rights	(■)	■	■	■
Keyboard and mouse emulation by 1 processor in each case	■	■	■	■
Combined operation of various different server platforms is supported	■	■	■	■
Direct connection of Sun servers (MiniDIN 8/SUN-VGA) – no adaptor required	–	■	■	■
Independent from the software and operating system	■	■	■	■
Stay live function in case of power loss	■	■	■	■
Power supply via	Keyboard output	Mains cable	Mains cable	Mains cable
Maximum video resolution (depending on distance) at 85 Hz	1600 x 1200	1600 x 1200	1600 x 1200	1600 x 1200
Bandwidth	250 MHz	250 MHz	250 MHz	250 MHz
Accessories				
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse,[2] 1 m	7551.110	7551.110	7551.110	7551.110
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse,[2] 2 m	7551.120	7551.120	7551.120	7551.120
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse,[2] 4 m	7551.140	7551.140	7551.140	7551.140
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse,[2] 6 m	7551.160	7551.160	7551.160	7551.160
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse,[2] 9 m	7551.190	7551.190	7551.190	7551.190
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 1 m	–	7551.111	7551.111	7551.111
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 2 m	–	7551.121	7551.121	7551.121
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 4 m	–	7551.141	7551.141	7551.141
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 6 m	–	7551.161	7551.161	7551.161
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 9 m	–	7551.191	7551.191	7551.191
230 V connection cable with earthing-pin plug and IEC 320 connector, version D	–	7200.210	7200.210	7200.210
Remote console receiver module, desktop, transmission via 1 x Cat 5, up to 200 m	–	7551.900	7551.900	7551.900
Transmission kit (sender and receiver) up to 200 m (Cat 5)/up to 300 m (coax)	on request	on request	on request	on request
Console cable kit (HD15, 2 x RS/2) for passive extension, 2, 5, 7, 10 m	on request	on request	on request	on request

[2] Adaptor for serial mouse and DIN 5 keyboard enclosed (■) in conjunction with a SSCmulti.

Power

Features
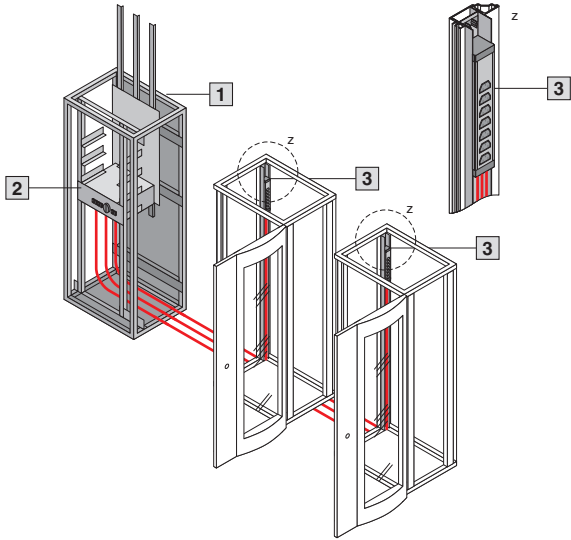
The permanent availability of IT is undoubtedly a crucial consideration for you. For this reason, you need to ensure high availability, stable electric power supply to your complex server and software system architecture. Create the framework conditions to ensure that all business processes operate on schedule with exceptionally high-level security parameters for the physical IT infrastructure.

1 Power Distribution Rack, PDR
2 Power Distribution Module, PDM
3 Power System Module, PSM

Power Distribution PDR/PDM

Power Distribution Rack
to accommodate a maximum of 8 PDMs. A maximum of 32 server racks may be connected.

Power Distribution Module PDM 482.6 mm (19″) subrack for power distribution of 40 kW in server and network enclosures.

Power System Module PSM

Busbar
Fully wired, shock-hazard protected, load capacity up to 96 A or 48 A, with redundant circuit.

Plug-in modules
for busbars, various country versions. May be retrofitted whilst the system is operational.

Active Power System Module PSM
Remote administration of the power supply, editing and monitoring of remote limits, SNMP trap message in case of alarm.

Power Modular Concept PMC – UPS systems

Modularity
High level of flexibility through modular expansion, depending on the UPS capacity requirements.

Redundancy
Multi-server configurations are protected by the redundant Rittal UPS concept.

Scalability
In large output categories, output and autonomy times may be scaled.

Power Distribution Rack PDR
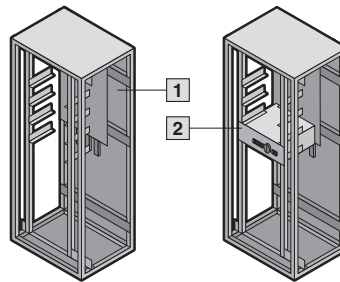
- Power Distribution Rack to accommodate a maximum of 8 PDMs
- Height 1.20 m for 4 PDMs and 2 m height for 8 PDMs
- PDM may be retrofitted whilst operational
- A maximum of 32 racks may be fitted to the sub-distributor
- Fully shock-hazard protected
- Main switch in various options[1]:
  – Isolator switch
  – On-load isolator
  – Power circuit-breakers
  – RC circuit-breaker

- Low-voltage distribution up to 250 A

[1] Depending on the standards of the local power supply company

Note:
Observe the standards of the local power supply companies.

Material:
Sheet steel

Surface finish:
Enclosure frame:
Dipcoat-primed

Doors, roof and base/plinth:
Dipcoat-primed, powder-coated in RAL 7035
Gland plates, punched sections with mounting flanges and mounting angles:
Zinc-plated, passivated

Supply includes:
Enclosure frame with door (without tubular door frame), rear panel, side panels and roof plate, levelling feet including base/plinth adaptor, earthing of all enclosure panels, busbars shock-hazard protected, main switch integrated.

Extended delivery times.

⚠ Also required:
Power Distribution Module PDM, see page 743.

Detailed drawing,
available on the Internet.

VDE

Power Distribution Rack PDR		Packs of	1	1
Possible number of PDM modules			4	8
Dimensions in mm	W H D		800 1200 500	800 2000 500
Model No. DK		1	**7857.310**	**7857.300**
Accessories				
Base/plinth components front and rear	Height 100 mm	1 set	8601.800	8601.800
	Height 200 mm	1 set	8602.800	8602.800
Base/plinth trim side	Height 100 mm	1 set	8601.050	8601.050
	Height 200 mm	1 set	8602.050	8602.050

2 Power Distribution Module PDM

- 482.6 mm (19″) Power Distribution Module mechanically locked in the rack
- Scalable
- Including master switch, optional RC circuit-breaker
- 4 fused 3-phase outlets to the rack
- 3 x 230 V/16 A per outlet
- Connected load 400 V/3 AC, max. 63 A

Supply includes:
482.6 mm (19″) module, 3 U

Version	Model No. DK
PDM 482.6 mm (19″), 4 outlets per 10 kW	**7857.320**
PDM 19″, 4 outlets, project-specific	**7857.350**
Connection cable with 32 A CEEkon connector	**7857.321**

VDE

Plug & play connection cable
to the server enclosures

Length	Packs of	Model No. DK
3 m	1	**7857.130**
5 m	1	**7857.150**
8 m	1	**7857.180**
9 m	1	**7857.190**

Power

B

5.4

Power System Module PSM

assembly

Power System Module PSM

The ever-expanding power requirements of modern IT infrastructures demand refined solutions for power distribution inside the racks. This leads to an associated requirement for additional sockets. The new "intelligent power distribution system" from Rittal significantly reduces cabling and assembly work.

The modular system facilitates basic configuration of the racks, thanks to a vertical support rail with 3-phase infeed. The various insert modules to supply the active components may be snap-fitted into the support rail. This can even be done whilst the system is operational, because the support section is shock-hazard-protected.

The various modules, earthing pins, IEC320 etc. may be inserted into the support rail in any combination. This is easily achieved, even by non-electricians, thanks to the shock-hazard protected plug & play system.

Technical specifications/benefits:
● 3-phase construction with a maximum current of 3 x 16 A
● A redundant three-phase infeed with 3 x 16 A may also be added.
● The redundant circuit is completely separate from the 3 phases of the support rail.
● Each plug-in module picks off a phase on the support rail, either from infeed A or from the redundant infeed B, depending on the direction of connection.

● Modules may be retrofitted whilst the system is operational.
● All plug-in modules are equipped with integral overcurrent protection, so that only the affected module is deactivated in the event of an excessively high current. The other modules remain operational.
● Overvoltage protection may be integrated into the supply line.
● Support rail may be integrated into the vertical frame section of the flexRack(i) without additional equipment.

The vertical support rail allows the slots to be used flexibly across the entire enclosure height, and configured in a redundant manner via separate power infeed to the individual modules.

Supply includes:
Busbar with connection socket and operating instructions. Without cable.

⚠ Also required:
Connection cables, assembly kit and plug-in modules,
see page 744, 745.

⇄ Possible alternative:
Active Power System Module,
see page 775.

VDE **Reg. no. A592**

Busbar
Direct integration into the flexRack(i)
The busbar is supplied fully wired, without fuse, in two variants (infeed):
● EU: 5-pole with neutral conductor, 3 x 16 A
● US: 4-pole without neutral conductor

Busbar	For enclosure height mm	No. of modules	Model No. DK
EU type	1200	4	7856.010
EU type	2000	7	7856.020
US type	1200	4	7856.050[1]
US type	2000	7	7856.060[1]

[1] Delivery times available on request.

Property rights:
German patent no. 101 60 418

Mounting kit, fixed installation
for retrofitting in 600/700/800 mm wide TS 8 enclosure systems

For enclosure height 1200/2000 mm	Model No. DK
For static installation	7856.011
Hinged	7856.012

Plug-in modules

for busbar version EU and US. Length 250 mm.

Plug-in module	IEC320	IEC320	D/NL/A	F/B	USA	UK	CH
Number of sockets	6	4	4	4	4	3	4
Without overcurrent protection	**7856.080**	–	**7856.100**	**7856.120**[1]	**7856.140**[1]	**7856.160**[1]	**7856.190**[1]
With overcurrent protection	**7856.070**	**7856.220**[2]	**7856.090**	**7856.110**[1]	**7856.130**	**7856.150**[1]	**7856.180**[1]

[1] Extended delivery times. Other modules available on request. [2] With individual overcurrent fuse, see page 775.

Overvoltage protection

is connected upstream of the busbar.

Overvoltage protection	**Model No. DK**
With adaptor connector	**7856.170**

Active Power System Module PSM

Detailled information may be found under "Monitoring", on page 775.

Connection cable, three-phase

3 m, fully wired ready for connection with adaptor and mains connector in two variants:
- EU: IEC309 connector
- US: L15-30P Nema connector

Connection cable	**Model No. DK**
EU type	**7856.025**
US type	**7856.055**[1]

[1] Delivery times available on request.

Connection cable, single-phase

The PSM system is easily operated as a single-phase system as well:
- CEE connector 230 V, 2P+E 16 A
- Cable length 3 m

Supply includes:
PVC cable, 3-pole
Connection cable, length 3 m
Contact protection CEE22

Packs of	**Model No. DK**
1	**7856.026**

Connection cable, UPS, single-phase

For connecting to an existing UPS:
- IEC320 C14 connector (non-heating appliances)
- Cable length 3 m

Supply includes:
PVC cable, 3-pole
Connection cable, length 3 m
IEC cable coupler

Packs of	**Model No. DK**
1	**7856.027**

Power

B

5.4

Power

Voltage supply
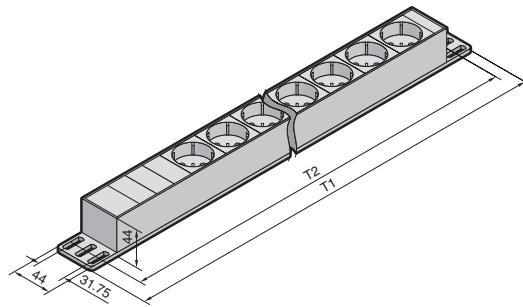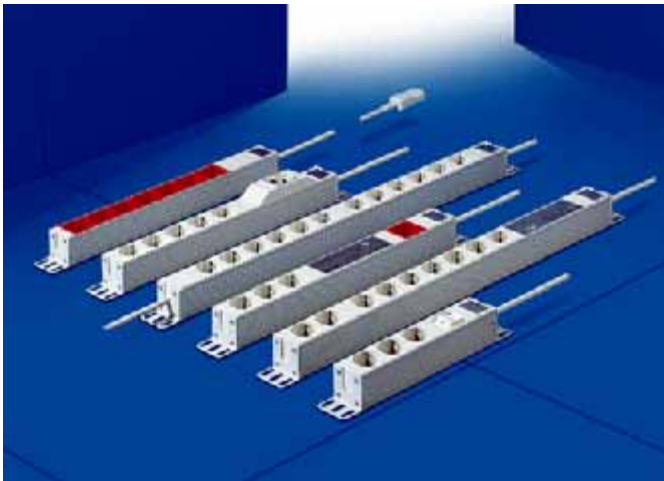
Socket strips

The socket strips in the aluminium channel are available in various lengths with different functional elements. Special attention has been devoted to practical, universal fastening: With a bracket which may be used in four positions, there is a range of attachment options. Hence, for example, the 482 mm long socket strip may optionally be mounted on 482.6 mm (19″) mounting angles, on the enclosure frame, or in the rear section of the wall-mounted distributor. Without additional mounting

accessories. The socket strip may be inserted into all sections with a 25 mm pitch pattern. This makes selection much easier, as well as providing additional flexibility and saving on warehousing.
Provision has also been made for the cable routing of the infeed, and when mounting in the 482.6 mm (19″) section there is adequate space to route the infeed between the socket strip and the mounting angle without kinks.
The arrangement of the sockets at a 45° angle allows unrestricted use of angular connectors.

Technical specifications:
Rated voltage: 250 V
Rated current: 10/16 A
Connection cable: 2 m long
H05VV-F3G1.5

Material:
Aluminium section natural anodised,
socket inserts polycarbonate.

Supply includes:
Socket strip,
two mounting brackets,
including assembly parts.

Standards:
Sockets:
E DIN VDE 0620-1/A1
(VDE 0620 part 1/A1): 2003-
E DIN VDE 0620-1/A2
(VDE 0620 part 1/A2): 2004-
Sockets B/F:
UTE NFC 61-303, CEE 7/NV
Overvoltage protection for low voltage:
DIN EN 61 643-11
(VDE 0675 part 6-11): 2002: 12
EMC interference suppression filter: EN 1332000: 1994

Detailed drawing,
available on the Internet.

Version	No. of sockets	Attachment			Length (T1) mm	Mounting dimension (T2) mm[1]	Model No. DK
		Frame	Wall-mounted distributor, horizontal	482.6 mm (19″) level			
Without switch	3	▪			262.6	232.5	**7240.110**
	7	▪	▪	▪	482.6	452.5	**7240.210**
	12	▪			658.6	628.5	**7240.310**
With switch	3	▪	▪		306.6	276.5	**7240.120**
	7	▪	▪	▪	482.6	452.5	**7240.220**
Overvoltage protection and interference suppression filter	5	▪	▪	▪	482.6	452.5	**7240.230**
	9	▪			658.6	628.5	**7240.330**
Overvoltage protection and interference suppression filter, with RJ 11 connector for CMC connection	9	▪			812.6	782.5	**7200.630**
Miniature circuit-breaker	5	▪	▪	▪	482.6	452.5	**7240.240**
Master/slave	1 + 3	▪	▪	▪	482.6	452.5	**7240.250**
UPS strip	7	▪	▪	▪	482.6	452.5	**7240.260**
RCCB	5	▪	▪	▪	482.6	452.5	**7240.280**
RCCB and line protection	5	▪	▪	▪	482.6	452.5	**7240.290**
For IEC 320 connector 10 A	12	▪	▪	▪	482.6	452.5	**7240.200**
For IEC 320 connectors with IEC 320 input, 10 A	9	▪	▪	▪	482.6	452.5	**7240.201**
For IEC 320 connectors with overvoltage protection and interference suppressor filter, 10 A	6	▪	▪	▪	482.6	452.5	**7240.205**
With 2 circuits	6 + 6	▪			720.6	690.5	**7240.370**
B/F sockets (Belgium, France)	7	▪	▪	▪	482.6	452.5	**7240.510**
B/F sockets (Belgium, France)	12	▪			658.6	628.5	**7240.512**

[1] Variable attachment distance within a range of 5 mm, the distance given is hole centre – hole centre of mounting bracket.

Power

B

5.4

Variants:

Rocker switch
Illuminated, 2-pole switch. The safety bars prevent accidental contact.

Master/slave
2-pole electronic automatic switching unit. The operating point may be set from 9 W to 35 W. Equipment which switches to energy-saving or stand-by mode when switched on cannot be used as the master device. In the ON state, the master device must draw 9 W, and must not draw more than 35 W in the OFF state.

Overvoltage protection and interference suppression filter
The connected equipment is protected from voltage peaks in the mains and switching operations by the power suppliers. The EMC interference suppression filter provides protection from high-frequency interference voltage from both directions – the mains and the connected equipment.
The green ready light is extinguished in the event of disconnection or malfunctions. Connected equipment remains disconnected.

Overvoltage protection device (SPD), type 3
Maximum continuous voltage Uc: 280 V AC
Rated load current IL: 16 A
Maximum overvoltage protection at the mains end:
LS:B16A or 16AgL/gG
Protection level Up: 1.5 kV
Combined surge Uco (L-N): 5 kV
Combined surge Uco (L/N-PE): 6 kV
Rated discharge current In (L-N): 3.0 kA
Rated discharge current In (L/N-PE): 6.5 kA
Arrester disconnector: Permanently disconnects SPD and equipment from the mains
Status display: Green ready light is extinguished upon disconnection.

Overvoltage protection and interference suppression filter, with RJ 11 connector for connection to the CMC.
With the relay message contact, undervoltage and any failures caused by overvoltage can be reported via the CMC in the network using an SNMP trap.
Relay alarm output: RJ 11 jack
Load capacity of relay: 50 V DC, 100 mA

Miniature circuit-breaker
Protects cables from short-circuit and overload. 2-pole switching (thermal/magnetic). Tripping characteristic B.

UPS strip
With red socket inserts. These indicate the items of equipment protected by a UPS. Connection cable with IEC 320 connector. Cable: H05VV-F3G1.0/rated current: 10 A

2 circuits
Two circuits with two separate connection cables, 2.5 m.

RCCB
For personal protection. With residual-current circuit-breaker IΔn 30 mA to DIN VDE 0664 part 1/85.

RCCB and line protection
A combination of personal, overload and short-circuit protection. With residual-current circuit-breaker IΔn 30 mA to DIN VDE 0664 part 1/85 and residual-current circuit-breaker to DIN VDE 0641/A 4/11.88 16 A/250 V~.

Version B/F (Belgium/France)
With 7 or 12 sockets to CEE 7-V UTE, with child-proof system.

IEC connector
With connection sockets to IEC 320, connection cable, 2 metres or IEC 320 input in the connector panel.
Cable: H05VV-F3G1.0/rated current: 10 A

DK 7240.110
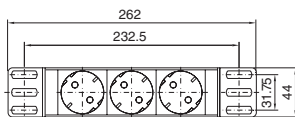
DK 7240.120
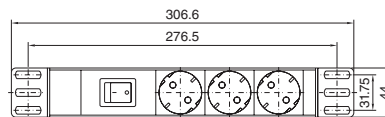
DK 7240.200 – DK 7240.290/DK 7240.510
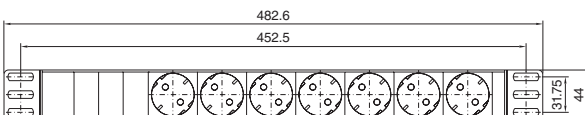
DK 7240.370
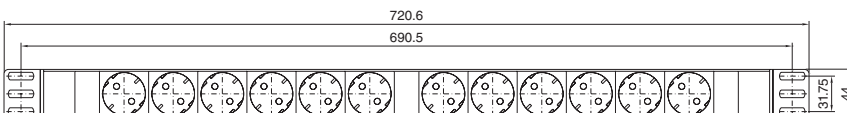
DK 7240.200
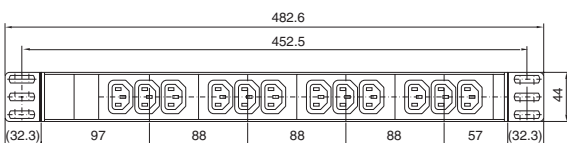
DK 7240.201
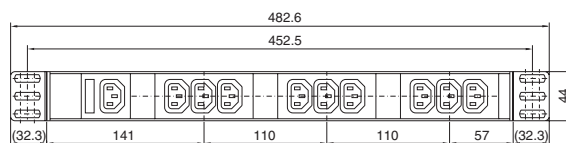
DK 7240.205

DK 7240.510

Power

B

5.4

Power
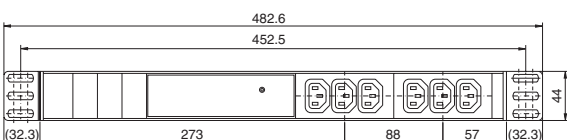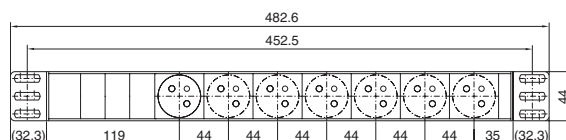
Voltage supply

Socket strips 230 V

Technical specifications:
Rated voltage 250 V AC,
maximum load
CH 10 A,
GB 13 A.

Material:
Plastic, halogen-free
Connection cable, 2 m long, without connector
H05VV-F3G1 (CH)
H05VV-F3G1.5 (GB)
Unrestricted use, including
angular connectors, thanks to the long row
arrangement of plug-type contacts.

UK, CH version			Model No. DK UK version	Model No. DK CH version
No. of sockets	Length mm	With rocker switch		
6	470[1]		**7404.000**	**7604.000[2]**
8	553		**7406.510**	**7606.510[2]**
12	793		**7408.510**	**7608.510[2]**
16	1033		**7409.510[2]**	**7609.510[2]**
18	1153		**7412.510[2]**	**7612.510[2]**
5	470[1]	∎	**7405.000**	**7605.000[2]**

[1] The socket strips can be mounted horizontally at the rear of the DK wall-mounted distributor based on EL/AE.
[2] Extended delivery times.
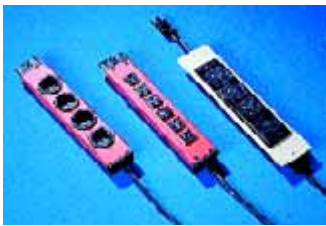
Socket strips

- Loading up to 16 A/max. 250 V AC.
- Plastic, self-extinguishing to UL 94-V0.
- Connection cable without connector, 2 m long.
- Various national versions available.

Versions for	No. of sockets	Model No. VR
D 16 A/250 V	4	**3850.500**
GB 13 A/250 V	4	**3851.500**
F/B 16 A/250 V	4	**3852.500**
CH 10 A/250 V	4	**3853.500**
USA/CDN 15 A/125 V	6	**3854.500**

Socket strips for IEC 320 connectors
see page 746.

TE socket strip

8-way socket strip for earthing-pin plug/version D.
The strip is made of plastic and may be mounted
vertically on the TE frame or in the rear 482.6 mm
(19″) section. In the 482.6 mm (19″) section, more
than 2 U of space is required. The sockets are
arranged at an angle of 45° so that angular con-
nectors are also easily used. The socket strip is
supplied with a 2 m connection cable. The con-
nection cable is contacted in a terminal slot in the
strip. The terminal slot is equipped with a sepa-
rate cover, so that this connection point can
always be quickly and easily accessed. Replace-
ment of the connection cable is likewise simple.
Furthermore, the socket strip has external termi-
nals for separate earthing.

TE socket strip	Model No. DK
8-way, earthing-pin	**7000.630**

Technical specifications:
Rated voltage: 230 Volt AC
Rated current: max. 16 A
Connection cable: Length 2 m, H05VV-F3G
1.5 mm², without connectors with wire end
ferrules

Power

B

5.4

Junction box
with multi-functional bracket

The angle bracket can be installed in all network enclosures in a system-compatible design. The junction box serves as a transfer point for the power supply to all equipment (fans, lamps and socket strips). As well as being used as a junction box or interchange point, the bracket may also accommodate the thermostat (SK 3110.000) or the hygrostat (SK 3118.000) thanks to its integral holes.

Packs of	Model No. DK
1 set	**7280.035**

Material of bracket:
Sheet steel

Colour of bracket:
RAL 7035

Supply includes:
1 bracket, 1 junction box,
6 m connection cable 3 x 1.5 mm² (flexible).

Energy-Box, 482.6 mm (19″)

Technical specifications:
A depth-variable top hat rail for installed equipment to DIN 43 880, sizes 1 – 3 (e.g. to accommodate built-in sockets, miniature circuit-breakers etc.). Cable clamping at the rear, one N and one PE rail on an insulated plinth. Plastic cover including extension cover (UL 94-V0), maximum accommodation of 22 installed devices (width 18 mm). Maximum accommodation capacity = 22 HP (22 x 18 mm = 396 mm).

Packs of	U	Model No. DK
1	3	**7480.035[1]**

[1] To order versions in RAL 7032, please add extension .000 to the Model No.

Colour:
RAL 7035/RAL 7032[1]

Supply includes:
Energy-Box with blanking covers

Note:
Individual population with circuit-breakers at the factory available on request.

German patent no. 42 00 836

Energy-Box, 482.6 mm (19″), pull-out

This Energy-Box is designed to accommodate both DC and AC components. The pull-out component front affords optimum accesss to the wiring space from above and below.

Connection clamps
for DC current:
2 clamps 35 mm²,
9 clamps 16 mm² (per rail)

for AC current:
1 clamp 16 mm² (PE or N),
20 clamps 4 mm² (per rail)

Technical specifications:
Depth-adjustable top hat rail for snap-in attachment of installed equipment to DIN 43 880 in sizes 1 – 3 (e.g. to accommodate built-in sockets, miniature circuit-breakers etc. or entire installation assemblies such as the ABB "smissline" system). Cable clamping at the rear, two power distribution rails with connection clamps on isolated base/plinth. Plastic cover including extension cover, maximum accommodation of 22 installed devices (width 18 mm).
Maximum accommodation capacity = 22 HP (22 x 18 mm = 396 mm).
Depth: 220 mm.

U	Model No. DK
3	**7480.300**

Extended delivery times.

Colour:
RAL 7035

Supply includes:
Energy-Box with plastic blanking covers.

Available on request:
Distribution box for DC distribution in the outdoor enclosure.

Power

B

5.4

UPS systems

Features

Rittal Modular Power Concept PMC – Applications

The modular Rittal UPS concept meets the versatile data center requirements and is easily expanded with additional UPS modules. High initial investments for the first-time installation are avoided thanks to the modular design concept, since UPS capacities may be upgraded at any time as and when required. The modular concept allows customers to invest as their business expands, and avoids unnecessary electrical installation.

Modularity
High level of flexibility through modular expansion, depending on the current/future UPS capacity requirements.

Scalability
In large output categories, output and autonomy times may be scaled, while in small output categories autonomy times may be scaled.

Redundancy
Multi-server configurations are protected by the redundant Rittal UPS concept. This guarantees a high degree of availability and continuous operation.
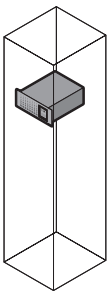
Output range 1 – 6 kVA

2 U UPS with integral battery pack (1/1.5 kVA).
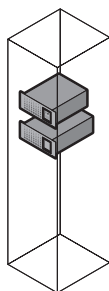
2 U UPS with 2 U battery pack (2/3 kVA).
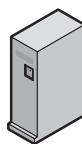
UPS floor standing enclosure with integral battery pack (6/1.5 kVA).

Output range 10 – 120 kVA
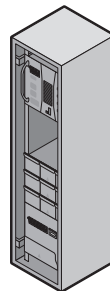
One PMC module 10 – 40 kVA with batteries in a TS 8 enclosure.
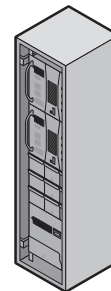
Two PMC modules 10 – 40 kVA each with batteries in a TS 8 enclosure.
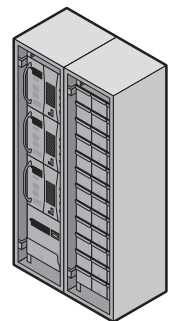
Three PMC modules 10 – 40 kVA each with separate battery enclosure.

UPS application area
The Rittal Modular Power Concept (PMC) covers a broad application area in the IT infrastructure.

UPS systems

B

5.4
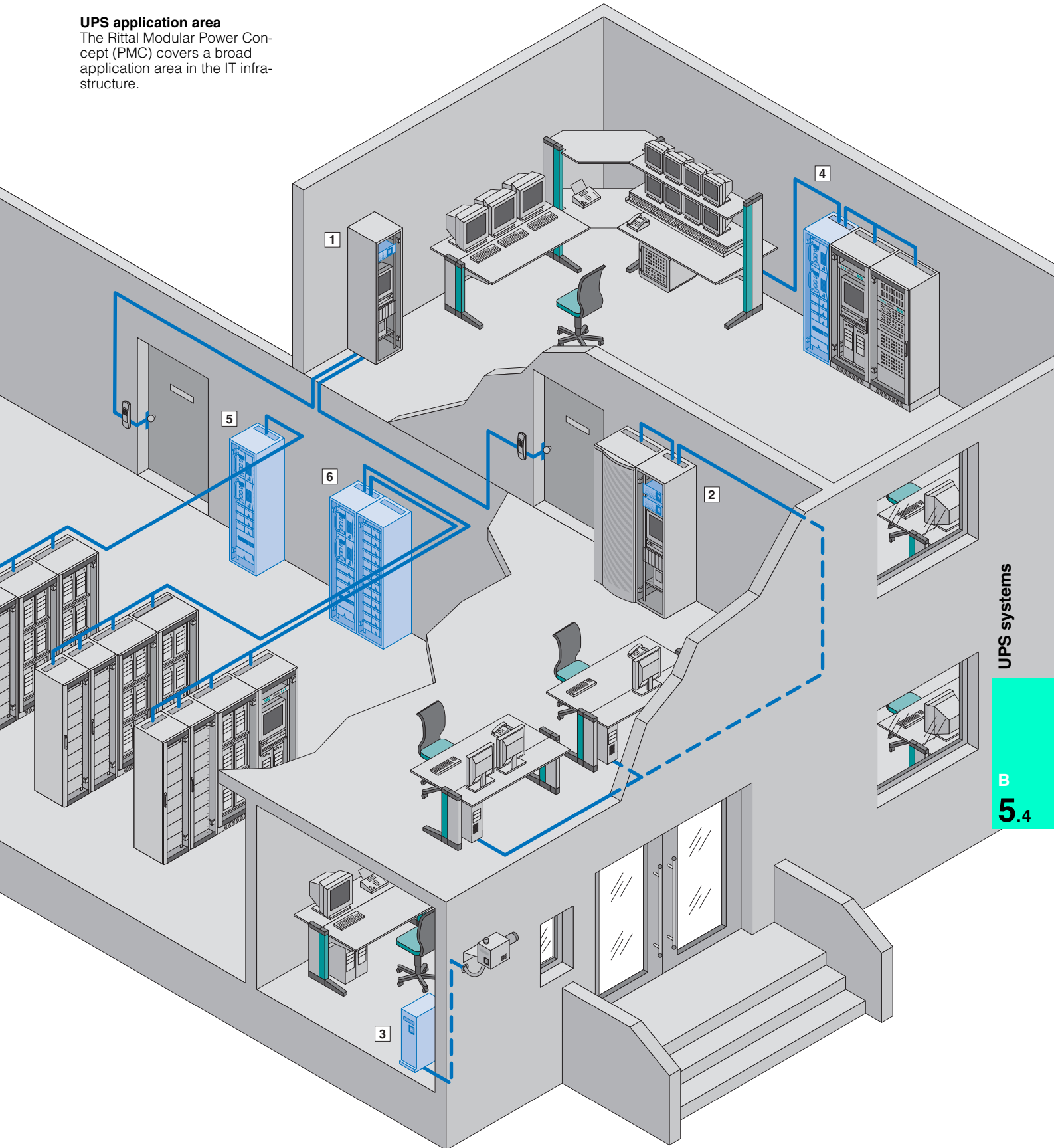
| [1] UPS safeguards the access system to the building. | [2] UPS safeguards the company's CAD system. | [3] UPS for stand-alone applications. | [4] Automatic system shutdown with administration option. | [5] Central back-up of computer centres with redundant UPS functions. | [6] Scalable UPS system for output and autonomy times. |

UPS systems

UPS, single-phase, output range 1 – 6 kVA

The Rittal UPS with double conversion technology protects the IT infrastructure from hardware damage, data loss and operational standstill, triggered by power failures, voltage peaks or similar disruptions. Thanks to the active-power factor generated by the batteries/transformers, terminals are supplied with a constant energy quality. The system conforms to the UPS classification based on operating response in accordance with standard IEC 62 040-3 and VDE 0558 part 530. The Rittal UPS carries the classification code VFI-SS-111. The UPS software included as standard with the supply also facilitates the fully automated shutdown of systems and servers, as well as visualisation of the operating status.

Benefits of the Rittal Modular Power Concept (PMC)

- High-quality double transformer technology with perfect sinusoidal output voltage
- Electronic bypass
- Autonomy time may be extended with battery expansion

- Integral battery management, self-test and fast-charge system
- Sealed, maintenance-free lead gel battery, 5 year service life under Eurobat

- Clear LED display
- Alarm function
- Serial interface (RS-232)
- Optional relay, SNMP or AS 400 slide-in board
- Compatible with the Rittal CMC-TC monitoring system

Technical features

Double-conversion technology
This technology is also known as online technology. The electrics with isolating transformer supplies connected equipment with a perfect sinusoidal output voltage.

Bypass function
The Rittal UPS system is equipped with an internal electronic bypass. This protects the UPS system from damage resulting from overload.

Intelligent battery management
The integral charging control checks the readiness of the battery units and ensures constant system availability. The battery remains protected from overcharging or exhaustive discharge.

Battery pack
All Rittal UPS systems may be equipped with additional battery packs. The battery packs serve to extend the autonomy time.
For UPS output categories 2 kVA and 3 kVA at least one battery pack is needed, since the control unit and battery are divided into separate enclosures here.

Software

The Rittal UPS software is included with the supply of UPS systems. It operates in the background and communicates with the Rittal UPS in an event-oriented manner via a serial interface. As soon as a malfunction is identified, a freely configurable shutdown routine may be used to shut down the systems automatically. All current operating systems are supported. Several network servers may be controlled simultaneously via the software. For each additional server, only an RCCMD (remote control command) licence is needed. The software also contains professional UPS management with the option of sending individual messages via e-mail, fax or mobile phone. A diverse spectrum of information is documented in the event memory.

Software benefits:
- Software compatible with all standard operating systems, included with the supply.
- HPOpenView plug-in for Windows included in the software package.
- If several servers are shut down via RCCMD, permanent polling of the servers is not necessary, which considerably reduces the system load. Each additional server requires an RCCMD licence.
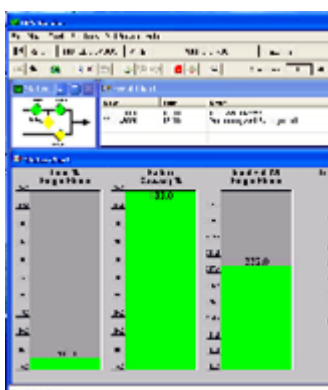
UPS, single-phase, output range 1 – 6 kVA
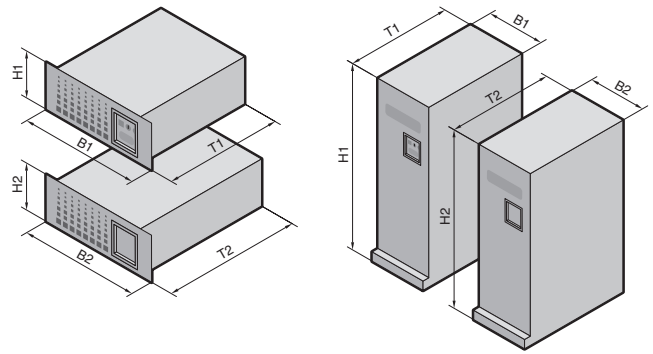
Rittal Modular Power Concept (PMC)

Supply includes:
1-phase UPS systems based on the double-conversion technology with/without battery pack.

Available on request:
Replacement batteries,
AS 400 interface adaptor.

⚠ Also required:

Country-specific connection cables are required to operate the UPS systems.
Model No. see page 771.

Stored energy times (in minutes) in the event of a power failure at 100 %/ 50 % load:

UPS type 230 V	Supplied state Standard version	Additional battery packs				
		1	2	3	4	5
1 kVA	7/16	35/76	53/122	–	–	–
1.5 kVA	5/14	26/67	46/125	–	–	–
2 kVA	0/0	10/22	24/55	45/102	58/141	80/178
3 kVA	0/0	6/15	13/34	25/63	36/86	50/124
6 kVA	8/23	38/88	60/141	–	–	–

		UPS for 482.6 mm (19″) racks				UPS floor-standing enclosure with integral battery
		UPS with integral battery		UPS control unit		
Model No. DK		**7857.401**	**7857.402**	**7857.403[1]**	**7857.404[1]**	**7857.405**
Battery packs required, 2 U		–	–	7857.408	7857.408	–
Max. number of additional battery packs		2	2	5	5	2
Power	VA	1000	1500	2000	3000	6000
	Watts	700	1050	1400	2100	4200
Input	Rated voltage	230 V (160 – 276 V) AC ±3 %				
	Frequency	50/60 Hz ±5 %, automatic selection				
Output	Voltage	220/230/240 ±3 %				
	Frequency, synchronised	50/60 Hz ±0.5 % (sine)				
	Frequency, asynchronous	50/60 Hz ±5 % (sine)				

Rated current (max.)	4 A	5.7 A	7.7 A	12 A	29.6 A
Power factor to IEC 555-2	> 0.95				
Crest factor	3 : 1				
Overload response	110 % – 130 % for 10 sec., > 130 % ±10 % for 1.5 sec.				
Dimensions and weights					
Width (B1) in mm	482.6 (19″)				260
Height (H1) in mm	2 U				710
Depth (T1) in mm	410	493	410	460	555
Weight (kg)	17	20	8	11	91
Input socket-contacts	1 x IEC 320 C 13			1 x IEC 320 C 19	Clamps
Output socket-contacts	4 x IEC 320 C 13			1 x IEC 320 C 19	Clamps
Battery packs					
Model No. DK extension kit for UPS	**7857.406**	**7857.407**	**7857.408**	**7857.408**	**7857.409**
Width (B2) in mm	482.6 (19″)				260
Height (H2) in mm	2 U				705
Depth (T2) in mm	460				555
Weight (kg)	23	29	29	29	125

Accessories	Packs of	
Alarm relay slide-in card	1	**7857.400**
RCCMD licence (Remote Control Command)	1	**7857.421[2]**
SNMP slide-in card Ethernet, FTP, Telnet …	1	**7857.420[2]**

[1] At least one battery pack 2/3 kVA 7857.408 must be ordered at the same time, because the UPS control units do not contain any batteries.
[2] Extended delivery times

Battery:
Maintenance-free lead battery, service life approx. 5 years according to EUROBAT.
Operating environments:
Temperature: 10°C – 40°C to 1500 m NN
Relative humidity: 20 – 90 %, non-condensing

UPS systems

B

5.4

UPS systems

UPS, three-phase, output range 10 – 120 kVA per rack

A modular, 3-phase technology which meets the growing requirements of the business-critical infrastructure. These days, no company can afford to have its business processes interrupted as a result of hardware errors, production failures or a breakdown in communications.

The Rittal UPS concept is more than just an uninterruptible power supply, it is a new concept in voltage protection, offering decisive advantages compared with traditional double-conversion 3-phase UPSs.

Benefits of the Rittal Modular Power Concept (PMC)

Performance/modularity/ redundancy
PMC is a new, 3-phase, modular N+1 redundant UPS technology.
PMC enables simple output expansion to cope with rising output demands.
PMC is more than just a UPS – it is a new concept in power supply (Modular Power Concept – PMC) offering key advantages compared with conventional double-conversion 3-phase UPS technology.
PMC is a flexible protection system consisting of 3-phase UPS modules in the output categories 10, 20, 30 and 40 kVA.

The modules may be extended without restriction in order to increase the overall output or achieve redundancy.

Scalability
Retrofitting of individual modules while the **system is operational** (hot swap) as required. This UPS offers an infrastructure with a permanently high level of availability.

High availability
Each UPS module operates **independently with its own intelligence.**

Monitoring
Simple and proven with **optional SNMP adaptor.**

Service-friendly
Individual modules may be exchanged, leading to **fast response times** in case of a malfunction plus enhanced availability.

Other features

Rittal offers a diverse range of pre-configured variation options for the UPS, embeded in a tried-and-trusted TS 8 enclosure.

Tailored to the requirements of a modern infrastructure in terms of space, performance and availability.

Rittal Modular Power Concept (PMC)

PMC is an innovative power protection system which ensures a high level of availability for critical applications by combining modularity (flexible, unlimited scalability and redundancy) with decentralised parallel architecture or DPA (redundant protection without "single point of failure"). Modularity supports easy

upgrading of the capacity or battery time of the UPS system. The PMC UPS not only protects the critical load, but also the environment. Thanks to the high operating ratios (low power loss), low input distortion factor (low emission of harmonics from the mains end) and low noise generation, the PMC UPS has

proven itself to be an environmentally compatible product.

Key properties of the PMC at a glance:
Modularity, redundancy, scalability, eco-friendliness, serviceability.

Modular Power Concept

The Rittal Modular Power Concept (PMC) allows easy adaptation to customer-specific reuqirements, thanks to its modular character, combined with investment security and a high level of availability.

The modules are integrated into prepared Rittal TS 8 UPS enclosures, where they may be extended whilst the system is operational.

PMC module

- Every individual UPS module contains a rectifier/booster, inverter, a static bypass and a separate CPU which monitors and controls all parts and coordinates parallel communication with the other modules.

- The modules are available in the output sizes 10, 20, 30 and 40 kVA and are prepared for easy 482.6 mm (19″) integration into the Rittal TS 8 UPS enclosure.

- The weight of the modules ranges from 40 kg (10/20 kVA) to 59 kg (40 kVA).

- In conjunction with the batteries, a diverse range of combinations may be quickly and easily compiled.

- Parallel connection occurs within the enclosure, thus facilitating a space-saving configuration of the UPS system.

UPS classification

In order to facilitate comparability of UPS appliances from different manufacturers, a classification has been developed on the basis of operating response.

Modules bearing the code VFI-SS-111[1] under the new IEC 62 040-3 classification are truly outstanding.

These UPS modules are transformerless, genuine online, double-conversion UPSs with static bypass.

[1] New standard of high availability to protect the server environment.

UPS modules

UPS systems

B

5.4
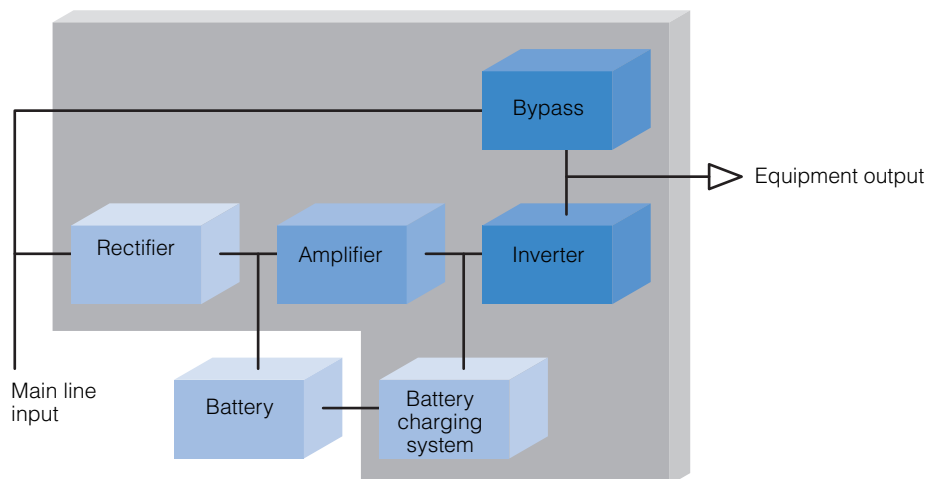
UPS systems

Redundant UPS concept

New standard of high availability to protect the server environment

Parallel connection of UPS systems:

● Increase capacity to enable the system

 to supply a greater load than a single installation.

● Redundancy, to increase UPS availability.

The fault-tolerant DPA (Distributed Parallel Architecture)

design protects against "single point of failure", and, there-

fore, ensures permanent availability.

Rittal PMC (2 modules and battery)

This enclosure has been developed for 2 modules with n+1 redundancy with a battery with a short autonomy time, in order to achieve the smallest possible basic surface area.

Modules are available in 10, 20, 30 and 40 kVA.

What is Distributed Parallel Architecture (DPA)?

The decentralised parallel architecture (DPA) of the modules includes integrated control electronics (CPU) for a rectifier, booster, inverter and static bypass. The CPU of each UPS module also has its own parallel intelligence. The commonalities of a complete UPS system with several modules are confined to control of the parallel bus connection.

DPA guarantees supply of UPS power as long as the UPS power is higher than or equal to the critical load. This occurs without the UPS switching to bypass.

Switching to bypass only occurs if there is an overload or a short-circuit on the load side.

To consistently increase the availability, DPA is an extension of the bypass, so as to protect or ensure the supply of the critical load in the event of a short-circuit or overload.

High availability

Redundancy means that at least two or more modules always share the critical load equally. In the event of failure of a UPS module, the other will assume the entire connected load without interruption.
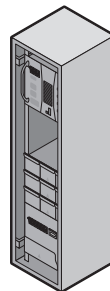
One PMC module 10 – 40 kVA with batteries in a TS 8 enclosure.
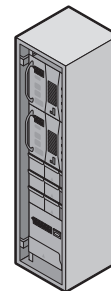
Two PMC modules 10 – 40 kVA each with batteries in a TS 8 enclosure.
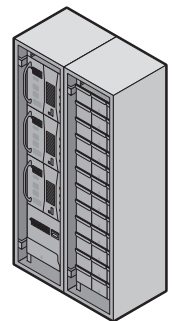
Three PMC modules 10 – 40 kVA each with separate battery enclosure.

Extend your system at the same speed as your business.

The challenges faced by your infrastructure not only include the current circumstances, but also in particular the requirements of the future. Thanks to the scalable concept, your installation is easily extended.

Integration of up to three modules in one enclosure

This achieves maximum flexibility.

Your output may be easily extended by adding a further UPS module.

This can occur as a "hot swap" with the system operational, without needing to switch the system to bypass.

For this configuration, an additional battery enclosure is always required. The autonomy times may be flexibly adapted to your requirements.

Environmentally compatible UPS concept

High level of efficiency
● Thanks to the transformerless technology and the ESIS (Energy Saving Inverter Switching) technology, a 5 % higher efficiency is achieved, on average, than with conventional UPS systems. With efficiencies of up to 96 % operating costs are reduced, as is heat dissipation into the environment.

Low noise levels
● The noise level is dependent on the load; at <70 % of the nominal load the level is significantly reduced. This leads to a pleasant, user-friendly noise level in the environment.

Battery protection and battery management

The batteries are protected from overcharging by ripple-free charging electronics. The electronics regulate the charge current depending on the ambient temperatures. The built-in flexible battery management (FBM) periodically checks the "fitness" of the batteries and automatically generates alarms in case of irregularities.

UPS systems

B

5.4

Rittal IT cooling

Perfect solutions for every application

From passive air climate control to active liquid cooling of high-performance CPUs, Rittal offers the full range of components and systems. They are designed precisely according to your requirements and application spectrum. Allowance is made, not only for the conditions inside the rack, but also for the ambient conditions.

Software-assisted planning helps to minimise investment costs and also offers peace of mind.
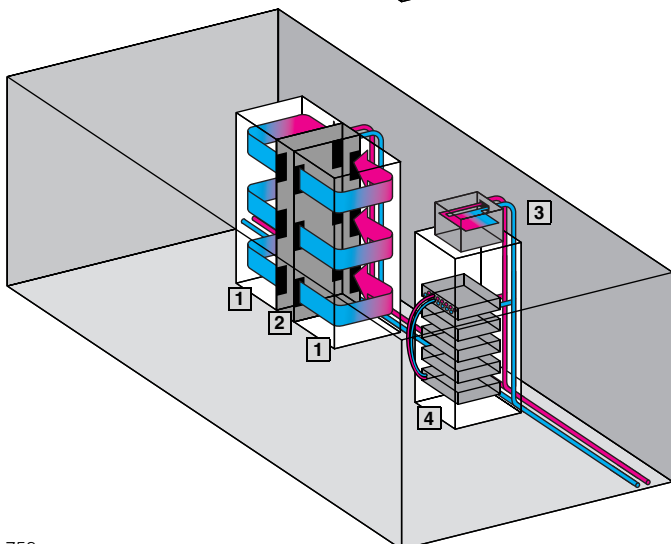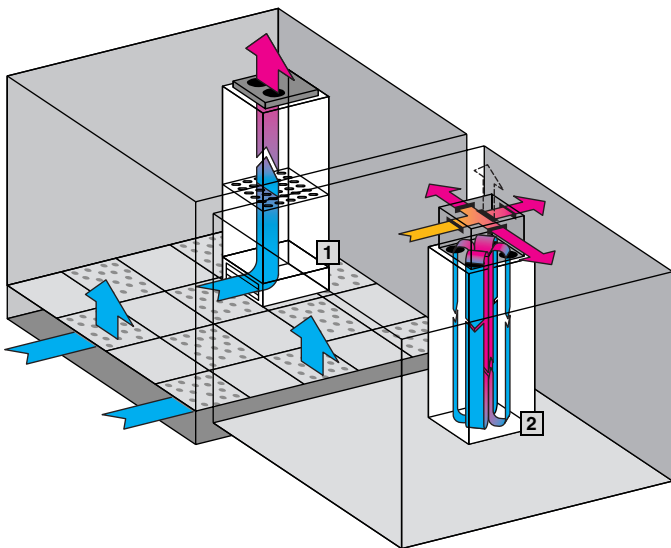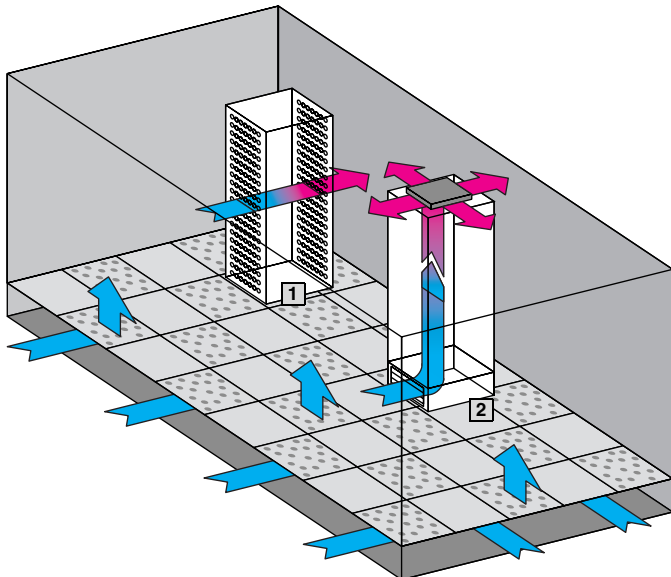
Passive cooling (use of the ambient air)

The air cooled via the regular ambient air or via the building's air-conditioning system is routed into the raised floor for rack cooling.

Doors with 78 % open surface area (diagram 1) or openings in the base/plinth and roof (diagram 2) ensure maximum air throughput via convection in conjunction with the fans.

Diagram **1** Horizontal cooling:
2 doors with high air throughput
(78 % free space per door)

Diagram **2** Vertical cooling:
via vented base/plinth and roof ventilation

See page 759.

Active cooling (use of the ambient air)

Fan systems for active cooling (diagram 1) amplify the air exchange inside the rack and use ambient air for cooling.

Active, rack-related cooling

By contrast, rack-related, active cooling (diagram 2) is capable of reducing the interior temperature of the rack to below the ambient temperature. This cooling technique is very effective with an appropriate room volume and in industrial environments.

Diagram **1** Fan systems,
see page 759.

Diagram **2** Cooling units and rack-mounted recooling system 19″,
see page 760.

High-performance cooling (liquid cooling, independent of the ambient air)

With liquid, under the same volumetric flow, approximately one thousand times as much heat loss may be dissipated as with air. This opens up a brand new dimension in cooling.

Liquid cooling systems for rack cooling
Extremely high heat loads are dissipated via air/water heat exchanger systems (diagram 2) from the racks (diagram 1).

Liquid cooling systems (4) for component cooling
CPUs, as well as power packs, hard disk drives and other electronic components are cooled directly – effectively and quietly.

Diagram **1** Server racks
Diagram **2** LCP (Liquid Cooling Package)
Diagram **3** Air/water heat exchanger
Diagram **4** CPU cooling

See page 760.

Passive cooling (use of the ambient air)
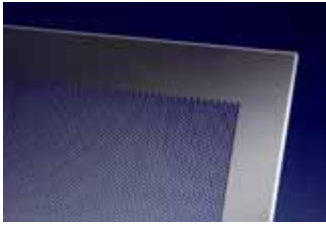
The perforations in the doors or openings in the base/plinth and roof ensure maximum air throughput via convection in conjunction with the equipment fans.
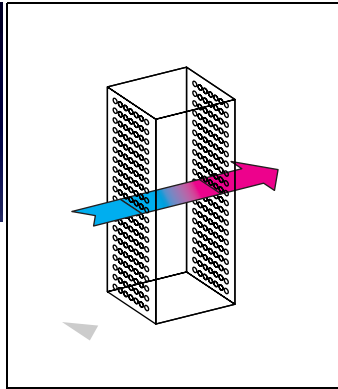
Horizontal ventilation
A high air throughput, stylish design and outstanding security are provided by the doors (with 78 % free surface area per door) of the server racks.
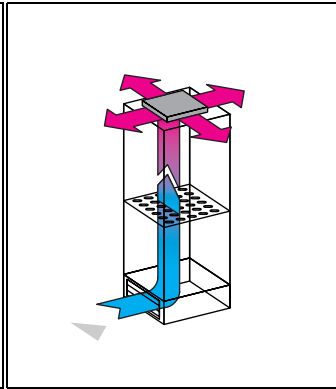
Vertical ventilation
Ventilation base/plinth, roof vent and slotted component shelves ensure heat dissipation.

Air baffle system
Cool air from the hollow base is routed over the base/plinth and distributed via the door in a targeted manner.

Active cooling (use of the ambient air)

Fan systems to reinforce air exchange

Rittal fan and filter units, see page 636.
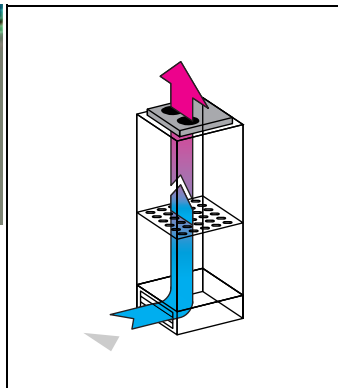
Fan roofs
Various designs and outputs, extendible with fan kits. Fast assembly tailored to racks, see page 647.
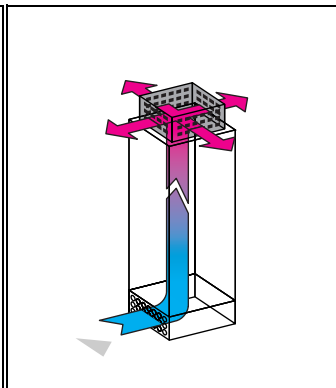
Roof-mounted fans
Quiet performance (1500 m^3/h) for office applications, wired ready for connection, easy assembly, see page 647.
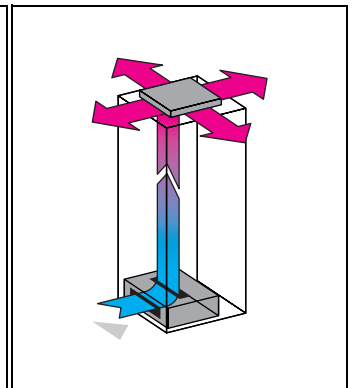
Centrifugal fan/rack-mounted fan
Centrifugal fan,
Rack-mounted fan,
Vario rack-mounted fan,
see page 645.

Fan systems to reinforce air exchange and circulation inside the rack
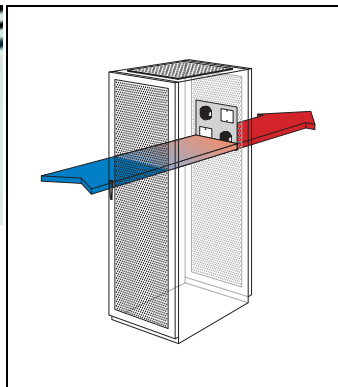
Fan cross member
For the perforated door of TS 8 server racks.
Air throughput up to 1200 m^3/h, see page 652.
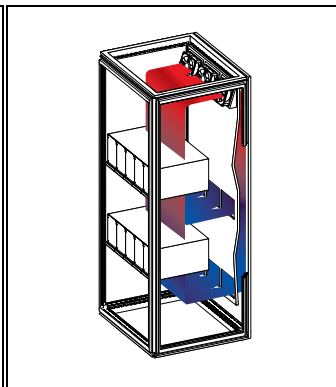
Internal fan mounting panel
for TS 8 enclosures. For improved air blending and heat dissipation, see page 653.

Internal fan
To avoid hot spots and support climate control components, see page 653.

Rittal IT cooling

B
5.5

Active, rack-related cooling

Cooling of the rack interior to below the ambient temperature!
The three systems shown opposite are specifically designed for the cooling of servers, IT and electronic components.

Rittal roof-mounted and wall-mounted cooling units, see page 590.
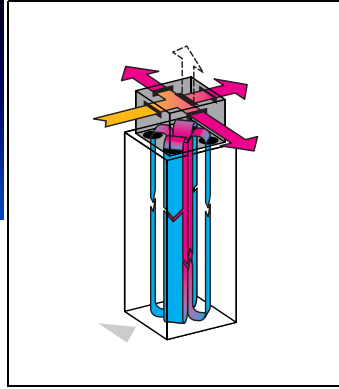
Roof-mounted cooling unit (office application)
Useful cooling output 1100 W at an extremely low noise level, see page 590.
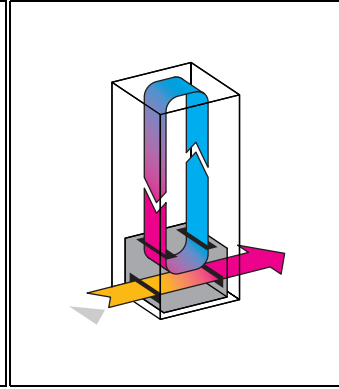
Rack-mounted cooling units 482.6 mm (19″)
Useful cooling output 1000 W, simple installation in the 482.6 mm (19″) level, see page 644.
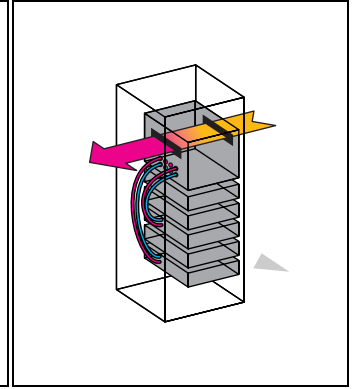
Rack-mounted recooling system 482.6 mm (19″)
Liquid-cooled computers are supplied directly via 6 cooling circuits.
Cooling output 1000 W, see page 673.

High-performance cooling (independent from the ambient air)

Liquid cooling systems to dissipate high heat loads
Also suitable for use in confined rooms without air-conditioning by using external recooling systems.

Recooling systems for liquid cooling, see page 608.
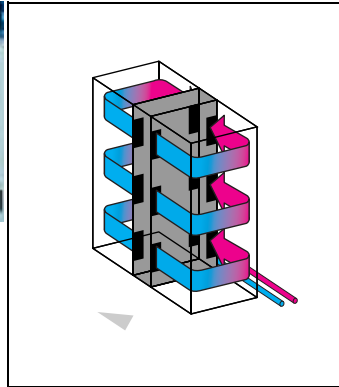
Liquid cooling package
This cooling rack is fitted with up to 3 cooling modules (air/water heat exchangers), see page 672.
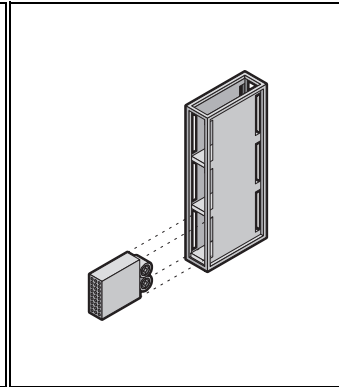
It is bayed with one or two TS 8 server racks (H 2000 x D 1000 mm).
Useful cooling output per module 4000 W (max. 12000 W), see page 672.
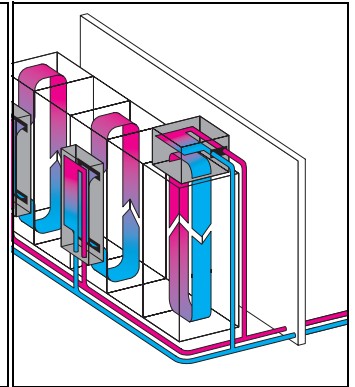
Air/water heat exchanger
Installation: Roof-mounting, wall-mounting and as TS 8 side panel (H 1800 x D 600 mm).
Useful cooling output from 600 to 4000 W, see page 626.

Liquid cooling systems for component cooling
CPUs, as well as power packs, hard disk drives and other electronic components are cooled directly – effectively and quietly.
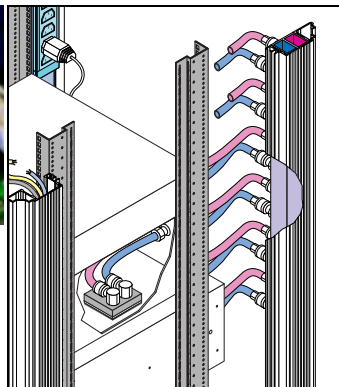
Cooling circuit distributor for racks
Pack 1 for 20, pack 2 for 40 CPU cooling circuits. Enclosure heights 1200 and 2000 mm, see page 674.
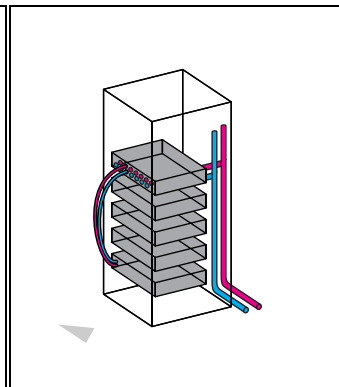
Cooling circuit distributor 482.6 mm (19″)
Complete kit or individual distributors with drip-free connection of up to 10 servers, see page 675.

Rittal IT cooling

B
5.5

Background technology: Recooling systems
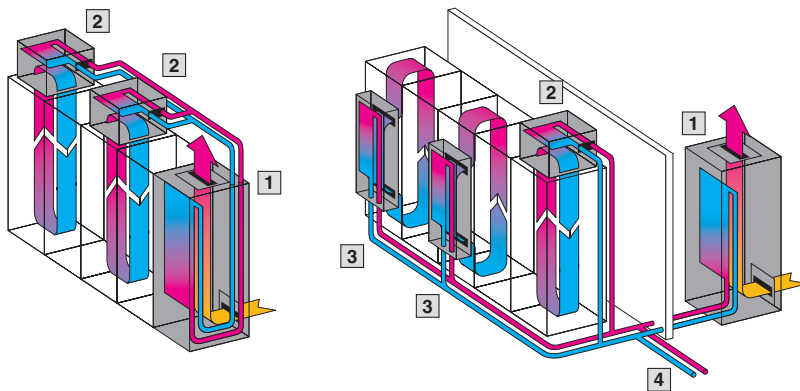
Recooling systems ensure central cooling and supply of the cooling medium for liquid cooling systems. This makes it possible to achieve spatial separation between the generation of cold air and cooling itself, for the temperature-neutral expansion of data centres.

1 Recooling system
2 Air/water heat exchanger, roof-mounted
3 Air/water heat exchanger, wall-mounted
4 Further cooling options

Recooling systems solve all cooling tasks via a system of piping.
As well as IT and electronic components, production processes, machines and systems are also cooled.
A range of products from 960 W to 172 kW meets all required cooling services.

Recooling systems Mini
Smart design,
simple assembly,
cooling output from 960 to 4500 W,
see page 608 – 609.

Recooling systems in the TS 8 Top enclosure system
Compact design,
bayable with TS 8 racks,
cooling output from 6000 to 25000 W,
see page 615 – 616.

Recooling systems in floor-standing and industrial enclosures
Cooling media water or oil,
cooling output from 2100 to 172000 W,
see page 617.

Advice, calculation, planning

- **Software Rittal Therm**
  Simple calculation of heat loss, calculation of dissipation via the surface, device selection.
- **CFD** (Computer Fluid Dynamics) offers system reliability, because the temperature, pressure and flow speed at every point of the calculated space are simulated at the planning phase.

- **Eliminate risks through thermography.** Even with the prototype of your plant or machine, the Rittal thermography service offers precise imaging of the real temperature conditions on site.

- **Support**
  Project planning,
  tests and measurements in the Rittal climate laboratory, commissioning, maintenance

Rittal IT cooling

B
5.5

Monitoring

Rittal CMC-TC – Security management concept

Effective prevention, comprehensive security and central organisation of rack security. The new, modular CMC-TC facilitates the implementation of highly individual security solutions, thanks to its modular plug & play system and, therefore, affords a high level of protection for your investments.

More detailed information can be found at:

www.cmc-tc.com
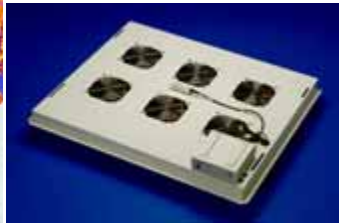
Climate Control

Consistent low temperatures for electronics are a key safety factor in the network and in the production process. Monitoring

of the internal rack temperature and the control of climate technology to reliably dissipate heat loss is provided by the Rittal

CMC-TC security system to minimise operating costs.

Power Management

Power requirements are on the increase, and there is a growing need for maximum availability of modern IT infrastructures.

Rittal addresses the associated additional requirement for redundant power supply with a new, intelligent power distribu-

tion system which may be integrated with no loss of enclosure internal rack volume.

Access Control

Access authorisation is one of the most important security factors in any company. With the CMC-TC, this is registered for

the entire network. In case of an unauthorised access attempt, the system raises the alarm. For example, doors may be opened

by authorised individuals via a numerical code, magnetic card, smartcard, or the latest transponder technology.

Rittal CMC-TC – Security management concept

		Sensor unit	I/O unit	Climate unit			Lock/reader:	Access unit
	Sensors/actuators:							
7320.500	Temperature sensor		■	■	7320.700	Elec.-magn. Ergoform-S FR/PS/TC/TE		■
7320.510	Humidity sensor		■		7320.710	Elec.-magn. Ergoform-S QR		■
7320.520	Analog sensor input module "4 – 20 mA"		■		7320.721	Electro-magnetic TS 8 handle with master key function		■
7320.530	Access sensor[1]		■	■	7320.730	Universal lock		■
7320.540	Vandalism sensor		■		7320.740	Relay output module for room door		■
7320.550	Airflow monitor		■	■	7320.750	Smart card reader		■
7320.560	Smoke alarm		■	■	7320.760	Magnetic card reader		■
7320.570	Motion sensor		■	■	7320.770	Coded lock		■
7320.580	Digital input module		■	■	7320.530	Access sensor[1]		■
7320.590	Digital relay output module		■		7320.580	Digital input module for door release		■
7320.600	Voltage monitor		■	■	7320.900 7320.910 7320.920 7320.930	Lock FR(i)		■
7320.610	Voltage monitor with switch output		■					
7320.620	48 V voltage monitor		■	■				
7320.630	Leakage sensor		■		7320.950	Universal handle		■
7320.811	Fan Alarm System FAS		■					

[1] Up to a maximum of 5 sensors may be connected in series.
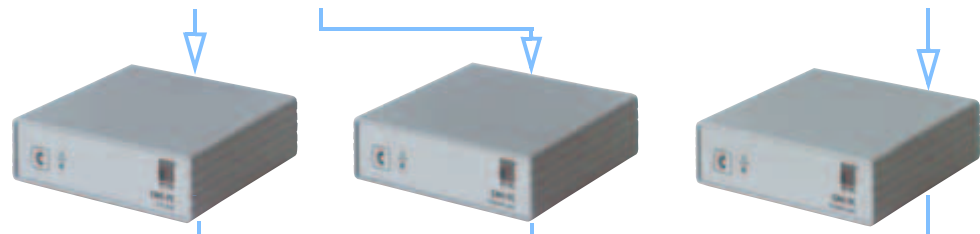
The sensor units (SU)

Universal I/O unit

- The I/O unit is the measurement and alarm module.
- Alarm sensors may be connected (e.g. motion detector).
- Analog measurements can be transmitted and monitored (temperature, humidity, 4 – 20 mA).
- The system is capable of switching relay output modules.
- The unit has 4 universal ports for 4 sensors/actuators.
- The I/O unit must be connected to the PU. Data exchange and energy supply to the electronics are provided in this way.

Climate unit

- The climate unit serves to control the fans and hence regulate the temperature.
- The physical airflow of the fan is monitored with due regard for the controller.
- If no temperature sensor or airflow sensor is used, the two universal ports can also be fitted with other sensors (see table).
- Simple fan connection via IEC socket.
- The unit is designed for one fan system.
- The climate unit must be connected to the PU.

Access unit

- The access unit serves to control door systems.
- The doors can be opened remotely via the network.
- The doors can also be opened by selected individuals via a coded lock, magnetic card or smartcard.
- The doors of enclosures or rooms can be monitored and activated.
- The unit is designed for two separate door systems.
- The access unit must be connected to the PU. Data exchange and power supply to the electronics are provided in this way.

Processing unit (PU)

- The processing unit (PU) forms the basis of the monitoring system.
- The system can be incorporated directly into the user network via the network interface 10BaseT, TCP/IP, SNMP.
- The system has an integral web server, through which the system can be configured.
- The system can optionally be linked to the CMC-TC master via the network interface.

- The monitoring functions are determined by the sensor units or sensors/actuators linked to the PU, and can therefore be flexibly selected.
- Up to 4 sensor units may be connected in any given combination (I/O, access, climate, FCS).

Master unit
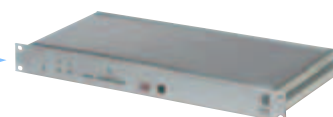
- The CMC-TC master is required in all situations where it is necessary to monitor large numbers of security-relevant factors or where high demands are placed on the system.
- The CMC-TC master offers high performance and conserves IP resources.
- The PU with the sensor units is always required for monitoring.

- Up to 10 processing units (PUs) may be connected to a sub-network as slaves.
- The master offers a 10/100BaseT interface to the user network and comprises all monitoring variables on HTTPS and SNMP.
- The system can be connected and operated directly via the Rittal SSC.

Monitoring

B

5.6

Monitoring

Sensor units

1

2

3

There is a choice of 4 sensor units:

I/O unit:
The alarm and measurement module

Access unit:
For controlling door systems

Climate unit:
For fan control and monitoring

FAN Control System FCS for DC fans

Benefits:
- Choice of functions thanks to 4 sensor units (active PSM, RTT I/O unit, RLCP on request)
- Open to customer-specific sensors/actuators
- Automatic sensor detection
- Simple installation based on the plug & play system
- No additional power pack required
- Choice of mounting on the enclosure frame or 482.6 mm (19″) mounting angles
- I/O unit: Freely selectable sensors/actuators
- Access unit: Personalised access detection
- Climate unit: Fan control with airflow monitoring

1 Interface for the sensor unit and processing unit connection. Used for data communication and power supply.
Cable 7320.470/.472/.481.

2 Just one press of the button, and the system automatically reconfigures itself.

3 Up to 3 systems may be integrated into the 1 U mounting unit: Model No. 7320.440.

Technical specifications:
The sensors/actuators are set up via an automatic electronic ID system. Because it is installed using a flexible plug & play system, there is no need for time-consuming programming and wiring. Power is supplied centrally via the connection cable to the PU.

Technical specifications:
W x H x D: 136 mm x 44 mm (1 U) x 129 mm
Temperature application range: +5°C to +45°C
Humidity application range:
5 % to 95 % relative humidity, non-condensing

Protection category:
IP 40 to EN 60 529

CMC-TC sensor unit I/O unit

This sensor unit allows alarm messages, status messages and measurements to be forwarded or remote actions to be executed via relay output modules.
The I/O unit has 4 universal inputs/outputs. The sensors/actuators listed below can be operated here.
The interface to the user network is via the PU (processing unit), which is always required to operate the system.
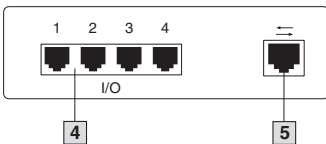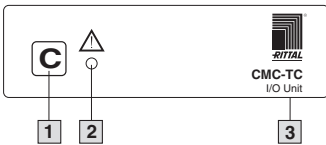
1 **Control key** for detection/set-up of the sensors/actuators

2 **Alarm LED** signals alarms or configuration changes

3 **Mounting fixture** for 7320.440 or 7320.450

4 **RJ 12, 4 inputs for sensors/actuators** (see table)

5 **RJ 45, connection** to PU 7320.100 via connection cable 7320.470/.472/.481
(The unit is also supplied with power via this connection.)

Sensor unit I/O unit	Model No. DK
4 universal inputs or outputs	**7320.210**

! **Also required:**

Sensors/actuators	max.	Model No. DK	Page
Temperature sensor	4	7320.500	773
Humidity sensor	4	7320.510	773
Analog sensor input module "4 – 20 mA"	4	7320.520	779
Access sensor[1]	4 x 5	7320.530	777
Vandalism sensor	4	7320.540	777
Airflow monitor	4	7320.550	774
Smoke alarm	4	7320.560	773
Motion sensor	4	7320.570	778
Digital input module	4	7320.580	779
Digital relay output module	4	7320.590	779
Voltage monitor	4	7320.600	774
Voltage monitor with switch output	2 – 4	7320.610	774
48 V voltage monitor	4	7320.620	775
Leakage sensor	4	7320.630	778
Fan Alarm System FAS	4	7320.811	787

[1] Up to a maximum of 5 sensors may be connected in series.

c **UL** us
LISTED

For selection aid, see page 770.

CMC-TC sensor unit
Access unit

With this sensor unit, one or two doors may be released for access via the network, or personalised opening via a read system (e.g. smartcard reader) may be initiated. The system also monitors the status of the door, handle or latch. Authorised access codes can be set up via HTTP. The sensors/actuators/readers listed below can be operated here.

In order to operate the unit, at least one access sensor and at least one latch (e.g. handle) per door system must always be used.
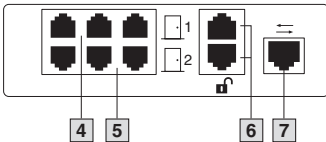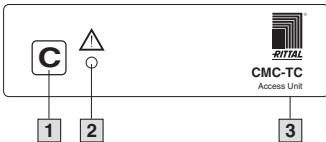
1. **Control key** for detection/set-up of the sensors/actuators

2. **Alarm LED** signals alarms or configuration changes

3. **Mounting fixture** for 7320.440 or 7320.450

4. **Inputs for access sensor, handles** Latch system 1 (see table)

5. **Inputs for access sensor, handles** Latch system 2 (see table)

6. **I²C bus for reader units** Door system 1 and 2 (see table)

7. **RJ 45 connection** to PU 7320.100 via connection cable 7320.470/.472/.481 (The unit is also supplied with power via this connection.)

Sensor unit access unit	Model No. DK
Control of 2 door systems	**7320.220**

! Also required:

Sensors/actuators	max.	Model No. DK	Page
Access sensor[1]	2 x 5	7320.530	777
Digital input module for door release	2	7320.580	779
Latch/reader			
Electromagnetic Ergoform-S FR/PS/TC/TE	2	7320.700	781
Electromagnetic Ergoform-S QR	2	7320.710	781
Electromagnetic TS 8 handle Master key	2	7320.721	781
Universal lock	2	7320.730	783
Digital relay output module for room door	2	7320.740	780
Lock FR(i)	2	7320.900 / .910 / .920 / .930	783
Universal handle	2	7320.950	784
Smartcard reader for door release	2	7320.750	782
Magnetic card reader for door release	2	7320.760	782
Coded lock for door release	2	7320.770	782

[1] Up to a maximum of 5 sensors may be connected in series.

For selection aid, see page 770.

CMC-TC sensor unit
Climate unit

A temperature control circuit is installed with this sensor unit. Temperature setpoints are set via the PU, and these are compared with the actual temperature. Depending on the evaluation, the fan system is activated. The function of the fans can also be monitored with an airflow sensor. Monitoring is only active whilst the fan is operational. Other sensors may optionally be connected to the unit.

In order to operate the unit as a temperature fan control circuit, at least one temperature sensor must always be used.
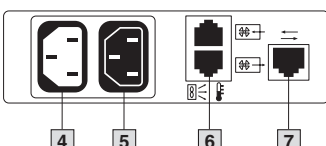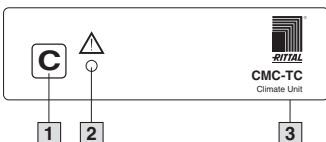
1. **Control key** for detection/set-up of the sensors/actuators

2. **Alarm LED** signals alarms or configuration changes

3. **Mounting fixture** for 7320.440 or 7320.450

4. **Input for fan supply** 115/230 V AC, cable 7200.210 – .215

5. **Output to fan** with cable 7200.215

6. **RJ 12, 2 inputs for sensors/actuators** (see table)

7. **RJ 45 connection** to PU 7320.100 via connection cable 7320.470/.472/.481 (The unit is also supplied with power via this connection.)

Sensor unit climate unit	Model No. DK
Control of a fan system	**7320.230**

! Also required:

Sensors	max.	Model No. DK	Page
Temperature sensor	2	7320.500	773
Access sensor[1]	2 x 5	7320.530	777
Airflow monitor	2	7320.550	774
Smoke alarm	2	7320.560	773
Motion sensor	2	7320.570	778
Digital input module	2	7320.580	779
Voltage monitor	2	7320.600	774
48 V voltage monitor	2	7320.620	775

[1] Up to a maximum of 5 sensors may be connected in series.

For selection aid, see page 770.

Monitoring

B

5.6

Monitoring

Monitoring system processing unit

CMC-TC
Processing Unit
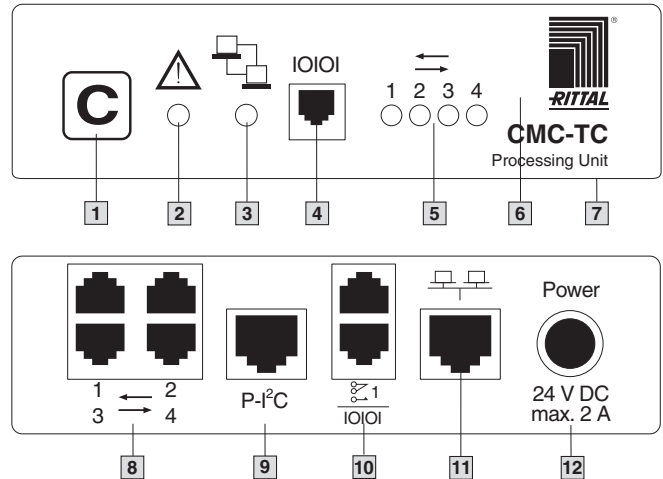
Benefits:
- Freely selectable monitoring functions
- Sensor/actuator ports extendible
- Network connection TCP/IP SNMP
- Integral web server for configuration
- Automatic menu generation
- Simple installation based on the plug & play system
- Alarm continues to record even in the event of a network failure
- Built-in real-time clock
- May be used via power supply unit for 115/230V AC or 48 V DC may be used
- Choice of mounting on the enclosure frame or 482.6 mm (19″) mounting angles
- The protocol for the master/slave system is TCP/IP SNMP
- May be used for large data centres or small individual applications

The processing unit forms the basis of the CMC-TC system. This unit is required for every monitoring application.

Interface to the customer:
The PU can be incorporated directly into the user network via 10BaseT. The PU can also be linked to the master 7320.000 via this interface (TCP/IP, SNMP).

Interface to the sensors/actuators:
The PU provides 4 open ports for sensor units. The sensor units determine the function of the PU. There is a choice of 4 different sensor units (I/O, access, climate, FCS) with varying functions. In this way, the monitoring functions may be freely combined.

Fast, easy programming and installation:
The sensors/actuators are set up via an automatic electronic ID system. Installation is via a flexible plug & play system. This eliminates the need for time-consuming programming and wiring.

Power supply:
Power is supplied centrally via a power pack in the PU. The connected sensor units and all connected sensors are supplied with power in this way. There is a choice of two input voltages (AC power pack 7320.425 and DC power pack 7320.435).

1 **Control key**
The control key is used for sensor/actuator detection, set-up of the system and acknowledgement.

2 **Alarm LED**
The LED signals alarms or configuration changes.

3 **Link/Traffic LED**
The LED indicates the status of the 10BaseT network interface.

4 **RS 232 interface RJ 10**
For programming via a serial PC interface.

5 **LEDs channels of the sensor units**
The LEDs indicate the status of the attached sensor units.

6 **Audio alarm**
There is an audio alarm signalling device integrated into the PU.

7 **Mounting attachment**
For attachment with individual bracket 7320.450 or 1 U mounting units 7320.440.

8 **Inputs for the RJ 45 sensor units**
Up to 4 sensor units may be connected to the PU via the 4 inputs. The sensor units determine the function of the PU.
There is a choice of 4 sensor units:
– I/O unit 7320.210
– Access unit 7320.220
– Climate unit 7320.230
– FCS 7320.810
Connection cable 7320.470/.472/.481.
Other connections available on request:
RTT I/O unit see page 764
active PSM see page 775
RLCP see page 672.

9 **Power I^2C bus RJ 45**
Up to 2 voltage extension units 7200.520 may be connected via the power I^2C Bus.
Up to three AC voltages may be monitored with every extension unit.
Connection cable 7320.470/.472/.481.

10 **Alarm relay RJ 12/ RS 232 RJ 12**
The upper RJ 12 jack provides a change-over contact for the PU alarm relay. Connection cable 7200.430. The lower RJ 12 jack provides a serial interface (display unit/GSM module/ ISDN unit).

11 **Ethernet 10BaseT RJ 45**
Integral Ethernet interface to IEEE 802.3 via 10BaseT half-duplex 10 MBit/s.

12 **Voltage supply**
The rated voltage for the PU is 24 V DC. There is a choice of power packs with varying primary voltages.
AC power pack 7320.425.

Model No. DK	7320.100
W x H x D in mm	136 x 44 (1 U) x 129
Network interface	Ethernet to IEEE 802.3 via 10BaseT half-duplex 10 Mbit/s
Protocols	TCP/IP, SNMP V1.0, TELNET, FTP, HTTP

|	
Rated voltage	24 V DC
Serial interfaces	RS 232
Ports for sensor units	4 jacks RJ 45, shielded
Bus system	Power I^2C for extension unit voltage AC 7200.520
Alarm relay output	Change-over contact max. 24 V DC 1 A
Audio display	Piezo signal generator
Time function	Real-time clock
Temperature application range	+5°C to +45°C
Humidity application range	5 % to 95 % relative humidity, non-condensing
IP protection category	IP 40 to EN 60 529

! **Also required:**
For selection aid, see page 770.

Monitoring

B

5.6

CMC-TC display unit

For the local representation of CMC alarm and status messages on the rack.
The CMC-TC display unit is designed for connection to processing unit 7320.100. It comprises 2 lines each with 20 characters. The character height is 3 mm. The display is illuminated in order to ensure legibility even in poor light conditions. It is mounted in the 1 U component support 7320.440 or with the individual mounting unit 7320.450.
Power supply is via the processing unit.
The display is also ideal for use as a service tool for commissioning.

CMC-TC display unit	**Model No. DK**
Alarm text display	**7320.490**

Technical specifications:
- Plug & play installation via RJ 12 connector
- 2 x 20 characters
- Character height 3 mm
- Illuminated

Supply includes:
CMC-TC display module, connection cable for connection to the processing unit, operating instructions, assembly parts.

Note:
Only one tool, either "Display", "ISDN Unit" or "GSM Unit", may be connected to one PU.

! Also required:

Components	**Model No. DK**
Processing unit	7320.100

1 **LCD display** illuminates 2 x 20 characters

2 **"Change"** for selection

3 **"Enter"** to confirm

4 **"Clear"** to delete/acknowledge
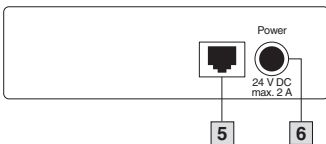
5 **RJ 12 jack for connecting** to the serial interface of the PU

6 The GSM unit may optionally be supplied with **24 V DC,** 150 mA via this input. For applications with the PU, this is not necessary.

CMC-TC GSM unit

In order to configure a redundant transmission channel or if there is no LAN infrastructure available, the unit may be used for alarm forwarding. The alarm signal is designed in SMS format. The GSM unit is linked to the processing unit 7320.100 via a serial interface. The power supply is likewise achieved via the connection cable. The only other thing needed to operate the module is a SIM card. This may either be a "data only" card or a conventional SIM card.
The GSM unit operates in the 900/1800 MHz frequency range – in other words, either D or E network cards may be used. Up to four target call numbers may be set and allocated to the various events.
To activate CMC-TC switch outputs, an SMS message may be sent to the modem via any commercially available mobile phone, and actions executed via this route. The aerial included with the supply has a connection cable of 2.8 m. Voltage supply is achieved via the processing unit.

Other functions, where offered by the provider:
- Voice mail

GSM unit	**Model No. DK**
SMS function	**7320.820**

A commercially available SIM card for D or E networks must be provided by the customer.

Note:
Only one tool, either "GSM Unit", "ISDN Unit" or "Display", may be connected to one PU.

! Also required:

Components	**Model No. DK**
Processing unit	7320.100
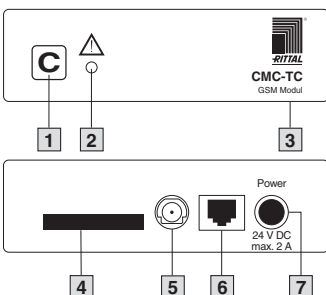
1 **Alarm LED**

2 **GSM LED**

3 **Mounting fixture** for 7320.440 or 7320.450

4 **SIM card rack mount**

5 **Aerial system**

6 **RJ 12 jack for connecting** to the serial interface of the PU

7 The GSM unit may optionally be supplied with **24 V DC, 500 mA** via this input. For applications with the PU, this is not necessary.

Additional units

CMC-TC ISDN unit

In order to configure a redundant transmission channel or if there is no LAN infrastructure available, the unit may be used for alarm forwarding. The alarm signal is designed in SMS format. The ISDN unit is linked to the processing unit 7320.100 via a serial interface. The power supply is likewise achieved via the connection cable. An ISDN connection is required in order to operate the module (the requirements for an ISDN connection). Up to four target call numbers may be set and allocated to the various events.
This variant of alarm reporting may also be used in countries with "SMS in the fixed network". Furthermore, with "SMS in the fixed network", it is also possible to control switch outputs via an SMS.
Power supply is via the processing unit.

Other functions, where offered by the provider:
● Voice mail
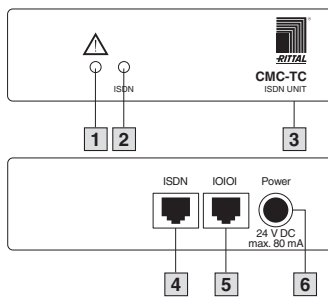
1 **Alarm LED**

2 **Status ISDN-LED**

3 **Mounting fixture** for 7320.440 or 7320.450

4 **RJ 45 ISDN jack**

5 **RJ 12 jack for connecting** to the serial interface of the PU

6 The ISDN unit may optionally be supplied with **24 V DC, 80 mA** via this input. For applications with the PU, this is not necessary.

Components	Model No. DK
ISDN unit	**7320.830**

Requirements for the ISDN connection:
● DSS1 (Euro-ISDN) must also be provided when connecting to the ISDN system.
● Point-to-multi-point configuration.

Note:
Only one tool, either "ISDN Unit", "GSM Unit" or "Display", may be connected to one PU.

! Also required:

Components	Model No. DK
Processing unit	7320.100

Monitoring

B

5.6

Master monitoring system
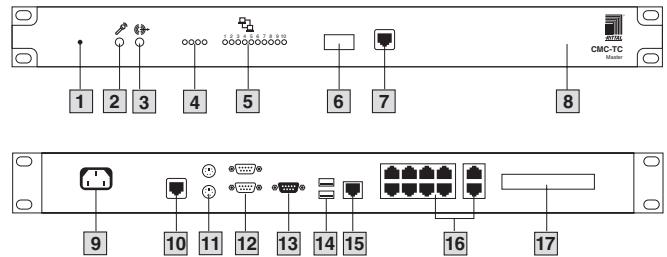
Property rights:
German registered design
no. 402 02 444

Benefits:
- Centralised administration
- Network connection 10/100BaseT
- Central web server for configuration
- Local administration via PS2/VGA console
- Logging function for alarm messages
- Link for USB camera
- Free function selection for monitoring
- Ideal for large data centres
- **Web access via SSL 3.0 128-bit encryption**
- **Remote administration via SSH.**

The master system may be connected between the processing unit and the user network. There are ten 10BaseT network inputs available for the processing units (PU). The PUs transmit all monitoring-related data and messages to the master system via TCP/IP, SNMP. The master has a 10BaseT/100BaseT network interface for the user network.

All monitoring data is provided in a separate MIB via TCP/IP, SNMP. The system may optionally be configured remotely, via the integral web server, or directly, via a local console. Basic settings can also be implemented serially via RS 232 or Telnet. A Telnet routing function to the individual processing units is also pre-installed. This provides the user with a clear central monitoring facility. For example, up to 160 temperature sensors may be accessed or up to 80 enclosure doors may be monitored and activated via one IP address.
Combined applications are also possible, and may be compiled individually from processing units and sensor units. Further functional scope for the CMC-TC master is available on request in the form of a software update. Images may be archived on the hard drive via an optional web camera. USB web camera available on request.

1 Key
Offset system reset key with contact hazard protection.

2 Input for microphone[1]
3.5 mm jack socket.

3 Output for speaker[1]
3.5 mm jack socket.

4 Status LEDs
LED 1 Alarm – Alarm system message.
LED 2 changeover 10/100 Mbit/s, network interface user network.
LED 3 Link/Activity, network interface user network.

5 LEDs
for the 10 network inputs of the processing units 7320.100.

6 IrDA[1]
Infrared interface.

7 RJ 10
RS 232 interface for CMC-TC menu program.

8 Audio alarm
There is an audio alarm signalling device integrated into the master.

9 Voltage supply
The IEC jack supplies the system with power, connection cables 7200.210 to .215.

10 Alarm relays
RJ 12 socket with change-over contact.

11 Keyboard/mouse
PS2 jacks for keyboard and mouse.

12 RS 232
Two serial D-SUB 9 interfaces.

13 VGA interface HD15
Connection for monitor or Rittal SSC.

14 USB interfaces
Standard 1.1, for applications with Rittal camera.

15 Ethernet 10/100BaseT
RJ 45 jack network interface, user network
Ethernet 10BaseT/100BaseT, IEEE 802.3 (10/100 Mbit/s), TCP/IP.

16 Ethernet 10BaseT (internal)
Ten RJ 45 jacks, network inputs for the processing units 7320.100
Ethernet 10BaseT, IEEE 802.3 (10/100 Mbit/s), TCP/IP.

17 PCMCIA[1]
Two PCMCIA ports for applications with the Rittal modem.

[1] These functions are prepared for specific customer application, on request.

Model No. DK	7320.000
W x D in mm	1 U x 200
Network interface	Ethernet to IEEE 802.3 via 10BaseT/100BaseT, 10/100 Mbit/s
Protocols	TCP/IP, SNMP V1.0, TELNET, SSH, TFTP, HTTPS

Rated voltage	100 – 240 Volt AC, 50/60 Hz
Ports for processing unit	10 jacks RJ 45, shielded, 10BaseT, TCP/IP, SNMP
Serial interfaces	RJ 10 jack RS 232 menu program, 2 D-SUB 9 jacks RS 232
USB	Standard 1.1 for Rittal web cameras
Infrared interface[1]	IrDA 1.0 (SIR) on the front
PCMCIA[1]	2 x type I/II or 1x type III for applications with Rittal modem
Relay output module	Change-over contact, max. load capacity 24 V DC, 1 A
Time function	Real-time clock
Temperature application range	+5°C to +40°C
Humidity application range	5 % to 95 % relative humidity, non-condensing
IP protection category	IP 40 to EN 60 529

! Also required:
For selection aid, see page 770.

Camera available on request.

Monitoring

B

5.6

Monitoring

Connection tables

The basic system
The processing unit (PU) is the basis of any CMC-TC application. Connectivity is offered by the network interface (10BaseT, TCP/IP, SNMP) which connects directly into the user network or to the CMC-TC master. The following products are required for each CMC-TC application:

- Processing unit (7320.100)
- Power pack 100 – 240 V 50 – 60 Hz (7320.425) or power pack 48 V DC (7320.435)
- Connection cable for power pack, country-specific (7200.210 – .215)
- Connection cable, sensor unit (7320.470/.472/.481)
- At least one sensor unit (7320.210/.220/.230)
- Programming cable (7200.221)

Processing unit
Programming cable
Connection cable for sensor units
Power pack
Connection cable for power pack
Up to 4 sensor units
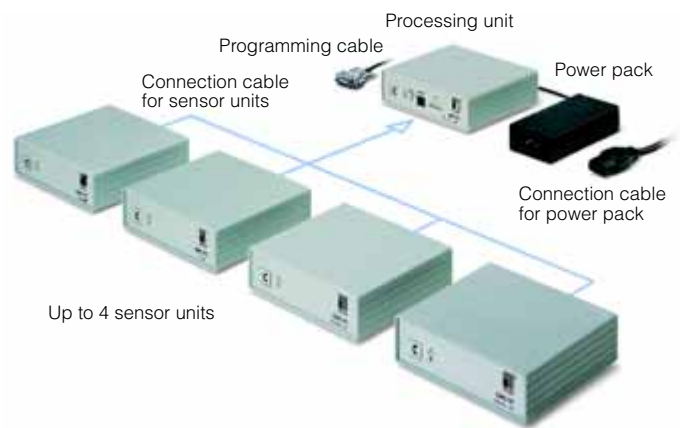
Required accessories		Power pack 24 V DC	IEC connection cable	Programming cable	Connection cable Sensor unit	Mounting unit	Interference suppression capacitor
Model No. DK		**7320.425 7320.435**	**7200.210 7200.211 7200.213 7200.214 7200.215**	**7200.221**	**7320.470 7320.472 7320.481**	**7320.440 7320.450**	**7200.490**
Item selection		Page 771	Page 771	Page 771	Page 772	Page 771	Page 780
7320.000	Master		■	■			
7320.100	Processing unit	■	■ AC	■		□	
7320.210	I/O unit				■	□	
7320.220	Access unit				■	□	
7320.230	Climate unit		■		■	□	□
7320.600/.610	Voltage monitor with IEC jack		■				
7320.700	Electromagnetic Ergoform-S handle for FR, PS, TC and TE						
7320.730	Universal latch						
7320.750	Smart card reader						
7320.760	Magnetic card reader						
7320.770	Coded lock						
7200.630	CMC-TC socket strip						
7200.520	Voltage expansion unit		■ max. 3 x		■ max. 1 x		
2372.000	CMC-TC alarm signal lamp						

Required accessories		Adaptor for reader units	Connection cable RJ 10/12	Extension cable RJ 10/12	Locking bar PS/FR	Attachment for universal latch	Digital sensor input module
Model No. DK		**7200.344 7200.345 7200.346 7200.347**	**7200.420 7200.430**	**7200.440 7200.450 7320.814**	**7200.371 7200.372**	**7200.61X**	**7320.580**
Item selection		Page 782	Page 772	Page 772	Page 781	Page 783	Page 779
7320.000	Master						
7320.100	Processing unit						
7320.210	I/O unit			RJ 12 □[1]			
7320.220	Access unit			RJ 12 □[1]			
7320.230	Climate unit			RJ 12 □[1]			
7320.600/.610	Voltage monitor with IEC jack						
7320.700	Electromagnetic Ergoform-S handle for FR, PS, TC and TE				■		
7320.730	Universal latch					□	
7320.750	Smart card reader	□					
7320.760	Magnetic card reader	□					
7320.770	Coded lock	□					
7200.630	CMC-TC socket strip		RJ 10 ■	RJ 10 □			■
7200.520	Voltage expansion unit						
2372.000	CMC-TC alarm signal lamp		RJ 12 ■	RJ 12 □			

□ = Optional accessories
■ = Required accessories
[1] = In conjunction with CMC-TC accessories (sensors/actuators/handles/readers) type RJ 12

Connection cable/extension

The cable is used to connect to:
- CMC-TC master
- 24 V power pack for PU
- Active fan unit for TE
- Climate unit (connected fan)
- Voltage monitor
- Voltage expansion unit

Technical specifications:
PVC cable, 3-pole, with IEC connector (non-heating appliances) with contact protection CEE22.

Supply includes:
1 connection cable, length 2.5 m.

Country version	Voltage	Model No. DK
D/F/B	230	**7200.210**
GB	230	**7200.211**
CH	230	**7200.213**
USA/CDN	230/115	**7200.214**
IEC 320 extension	230/115	**7200.215**

Power pack for PU, FCS, FAS

A 24 V DC power pack is required to supply the processing unit with power. There are two variants available:
- The 100 – 240 V AC power pack requires an IEC connection cable to supply the voltage.
- An alternative power pack is designed for the telecommunications sector (48 V battery voltages) and is connected at the input end via a terminal block.

Both power packs include an output cable, 1.65 m long.

Technical specifications 7320.425:
Rated voltage: 100 – 240 V AC, 50/60 Hz
Rated current: max. 1.5 A
Secondary range: 24 V DC, 3 A

Technical specifications 7320.435:
Rated voltage: 20 – 72 V DC
Rated current: max. 2.5 A
Secondary range: 24 V DC, 1.3 A

Primary input voltage	Output voltage	Model No. DK
100 – 240 V AC/ 50/60 Hz	24 V DC	**7320.425**
48 V DC	24 V DC	**7320.435**

! Also required:
Connection cable for DK 7320.425 power pack, see page 771.

Programming cable

The interface cable is used to configure the network parameters in the processing unit and the master unit.
The RJ 10 connector is connected to the front jack of the PU/master, whilst the 9-pole SUB-D connector is connected to a serial PC interface.

Packs of	Model No. DK
1	**7200.221**
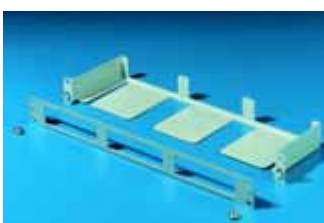
Mounting unit 1 U

The mounting unit can accommodate up to 3 sensor units or processing units in the 482.6 mm (19″) attachment level. Cable clamp straps 7610.000 or 7611.000 can be used for cable clamping.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Packs of	Model No. DK
1	**7320.440**

+ Accessories:
Cable clamp strap, see page 985.

Monitoring

B

5.6

Monitoring

Cables/mounting accessories

Mounting module

The mounting module accommodates individual sensor units or processing units,
for mounting on the frame section.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Packs of	Model No. DK
1	**7320.450**

Connection cable
RJ 45

This cable is for data exchange and power supply to a sensor unit via the processing unit. There is an RJ 45 connector at each end of the shielded cable.

Length m	Packs of	Model No. DK
0.5	4	**7320.470**
2.0	4	**7320.472**
10.0	1	**7320.481**

Connection cable
RJ 10, RJ 12

With the RJ 12 connection cable, the alarm relay output of the processing unit may be used for individual alarm lights/indicators. The RJ 10 connection cable facilitates connection to the CMC socket strip in conjunction with the digital input module. The cable is equipped with an RJ 10/12 connector at one end. The other end is open.

Connector	Length m	Packs of	Model No. DK
RJ 10	5	4	**7200.420**
RJ 12	5	4	**7200.430**

Extension cable
RJ 10, RJ 12

The cable is used to extend the sensor supply cables (RJ 12) and individual actuator cables. The cable is equipped with an RJ 10/12 connector at one end. There is an RJ 10/12 jack at the other end.

Connector/jack	Length m	Packs of	Model No. DK
RJ 10	5	4	**7200.440**
RJ 12	5	4	**7200.450**
RJ 12	1	2	**7320.814**

Example: RJ 12

Monitoring

B
5.6
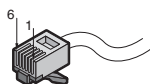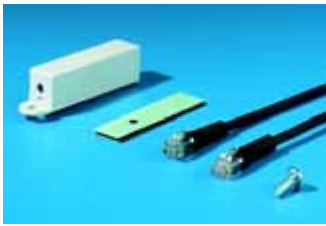
Temperature sensor

The sensor assumes the function of a temperature monitor and contains an ID so that it is automatically detected and set up by the CMC-TC system. It is connected to a sensor unit via the connection cable supplied loose. If required, extension cable RJ 12 may be used. The sensor can also control a fan on the climate unit or fan control system (FCS).

Packs of	Model No. DK
1	7320.500

To fit sensor unit:

I/O unit	Access unit	Climate unit	FCS
■		■	■

Technical specifications:
Type: NTC
Resistance: 10 kOhm at 25°C
Tolerance: ±2°C
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Temperature application range:
+5°C to +45°C

Smoke alarm

The smoke alarm is based on an opto-electronic smoke particle evaluation within a measurement chamber. The alarm contains an ID so that it is automatically detected and set up by the CMC-TC system. The power supply and alarm relay to the sensor unit occurs via the supplied connection cable. If required, extension cable RJ 12 may be used.

Packs of	Model No. DK
1	7320.560

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		■

Technical specifications:
Alarm type: Combustion product alarm (smoke)
Sensor/transmitter: Silicon PIN photodiode/
GaAs infr. LED
Measurement frequency: Once every ten seconds
Power consumption: max. 61 mA
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Dimensions (alarm with base/plinth):
D = 100 mm, H = 50 mm
Temperature application range: +5°C to +45°C

Humidity sensor

The sensor measures relative air humidity and converts it into a frequency signal. It contains an ID so that it is automatically detected and set up by the CMC-TC system. Power supply and data evaluation is performed by the I/O sensor unit via the connection cable supplied loose. If required, extension cable RJ 12 may be used.

Packs of	Model No. DK
1	7320.510

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		

Technical specifications:
Sensor: With humidity/frequency converter
(50 kHz at 76 % rel. humidity)
Sensor measurement range:
Relative humidity 10...90 % rel. humidity ± 3 %
(at 20°C)
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Temperature application range:
+5°C to +45°C

Monitoring

B

5.6

Internal security

Airflow monitor

The airflow monitor determines whether the fan is achieving its full operating capacity.
Storage damage, dirty filter mats or jammed fan blades are promptly detected and reported by the sensor. The sensor contains an ID so that it is automatically detected and set up by the CMC-TC system. Its switch point is adjustable. The power supply and data exchange to the sensor unit occurs via the attached connection cable. If required, extension cable RJ 12 may be used.

Technical specifications:
Connection: RJ 12 jack, 6-pole on the cable
Connection cable: Length 2 m
Temperature application range: +5°C to +45°C

Packs of	Model No. DK
1	**7320.550**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		■

Note:
The sensor can be operated with temperature-controlled fan via the climate unit sensor unit.

⊞ **Accessories:**

Connection cable RJ 12, see page 772.

Voltage monitor

The voltage monitor picks up a mains voltage to be monitored via the mains cable, and reports its status to a sensor unit:
Voltage ON or voltage OFF. The monitor contains an ID so that it is automatically detected and set up by the CMC-TC system. The connection cable, supplied loose, should be used for connection to the sensor unit. If required, extension cable RJ 12 may be used.

Packs of	Model No. DK
1	**7320.600**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		■

Technical specifications:
Monitored rated voltage:
230 V AC 50/60 Hz
Connections:
IEC connector, RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Temperature application range:
+5°C to +45°C

Protection category:
IP 40

⚠ **Also required:**

For selection aid, see page 770.

Voltage monitor with IEC switch output

This sensor is used in conjunction with the CMC-TC to monitor voltage limits. The limits may be set via the WEB interface or SNMP. As an additional option, this voltage may also be switched on and off via the module, in order to reboot connected equipment via Ethernet.
It is connected via standard, commercially available IEC320 connectors as the input signal, and an IEC320 socket to connect the equipment.

Technical specifications:
● Plug & play installation via IEC320 connector
● The switching operation may be initiated in a time or event-based manner or via SNMP or WEB
● The maximum and minimum limits of voltage measurement are freely selectable
● Measurement range 100 – 250 V AC, 50/60 Hz
● Max. switching load 250 V AC and 8 A at cosphi = 1
● Tolerance: ±5 % at 20 – 30°C

Note:
The system has two functions. Each function occupies one input of the I/O unit.
1st function: Voltage measurement
2nd function: Relay switching

Packs of	Model No. DK
1	**7320.610**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		

⚠ **Also required:**

For selection aid, see page 770.

⇄ **Optionally available:**

IEC connection cable 7200.210,
German version,
IEC extension cable 7200.215
for connecting the equipment.

Voltage monitor 48 V DC

The voltage monitor picks off a mains voltage to be monitored via the 3-pole jack, and reports its status to a sensor unit: Voltage ON or voltage OFF. The monitor contains an ID so that it is automatically detected and set up by the CMC-TC system. The connection cable, supplied loose, should be used for connection to the sensor unit. If required, extension cable RJ 12 may be used.

Technical specifications:
Monitored rated voltage:
48 V DC (12 – 60 Volt DC/12 – 25 Volt AC 50/60 Hz)
Connections:
3-pole connector, RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Temperature application range:
+5°C to +45°C

Protection category:
IP 40

Packs of	Model No. DK
1	**7320.620**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		■

Active Power System Module PSM

New active plug-in module for the busbar system PSM. The module has 4 x IEC320 C13 sockets and an integral overload tripping device.

The following active functions are additionally achieved:
● 2-digit local LED 7-segment current display on the module. Legibility is independent from the installation position.
● Measuring and monitoring of the current per module. Min./max. limits may be set. Measurement range 0 – 16 A.
● Alarm indication via a flashing 7-segment display.
● Monitoring of the overload fuse.
● Modules may be combined via the bus system, thereby enabling sequential activation.
● In conjunction with the CMC-TC, the modules may be activated and deactivated via HTTP and SNMP. The 4 jacks are always activated and deactivated together. A special software is required for operating processing unit 7320.100 together with the active PSM (see www.cmc-tc.com). The 4 free channels of PU can be switched with up to 4 active PSM systems in each case. The active PSM does not require any separate powerpack in conjunction with PU.
● Remote administration of the power supply, editing and monitoring of remote limits, SNMP trap message in case of alarm.
● 4 IEC320 C13 sockets per module.

Version	Packs of	Model No. DK
Entire active module with quadruple fuse to IEC320	1	**7856.200**

Material:
Aluminium chassis with plastic cover

Supply includes:
1 module (max. 10 A per module),
10 A integral overload tripping device,
1 bus cable,
1 infeed cable 24 V DC,
1 adaptor for powerpack 24 V DC.

! Also required:

A separate powerpack (100 – 240 V AC/24 V DC) is required for stand-alone operation without CMC-TC (7201.210) and the relevant connection cables, see page 745.

Note:
For more information on the power rail system, see page 744.

CMC-TC socket strip

With integral
● Interference suppressor filter
● Overvoltage protection
● Alarm contact

In the event of interference caused by overvoltage, the connected active network components are protected. With the relay message contact, undervoltage and any malfunctions caused by overvoltage can be reported via the CMC-TC in the network (SNMP trap). A green lamp on the strip indicates that the device is operational. The second protective device is the interference suppressor filter which protects valuable equipment as a passive component.

Packs of	Model No. DK
1	7200.630

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		■

Technical specifications:
Number of sockets: 9
Length of strip: 650 mm
Rated voltage:
230 V AC, 50/60 Hz
Rated current: 16 A
Relay alarm output: RJ 10 jack
Relay load capacity: 50 Volt DC 100 mA

Technical specifications, overvoltage protection:
Arrester application category: D
Surge current resistance per conductor: 2.5 kA
Maximum surge strength: 8 kA

! Also required:

A digital input module and an RJ10 connection cable is needed to link the CMC socket strip to the CMC-TC system.
For selection aid, see page 770.

CMC-TC extension unit

The CMC-TC extension unit picks off three independently monitored mains voltages via network cables and forwards the measurements to the processing unit. It is linked to the PU via the RJ 45 connection cable on the P-I^{2}C port (sep. accessory). Up to two extension units may be connected serially to one PU. A separate power pack is not required. Alarm limits may be preset for all voltages.

Max. number per PU	Packs of	Model No. DK
2	1	7200.520

To fit processing unit, see page 766.

Technical specifications:
Voltage inputs:
3 x 100 – 230 V AC, IEC connector
Interface: I^{2}C, P-I^{2}C,
max. cable length 2 m
Temperature application range:
+5°C to +45°C
Tolerance: ± 5 % at 20 – 30°C

Protection category:
IP 40

! Also required:

For selection aid, see page 770.

+ Accessories:

RJ 45 connection cable, see page 772.

Vandalism sensor

The sensor contains a position-insensitive alarm contact and an ID so that it is automatically detected and set up by the CMC-TC system. It is connected to the I/O sensor unit via the connection cable supplied loose. If required, extension cable RJ 12 may be used.
The sensitivity of the sensor may be set using the PU software.

Packs of	Model No. DK
1	**7320.540**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		

Technical specifications:
Mercury-free contact, position-insensitive
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides

Access sensor

The access sensors monitor doors, side panels or windows in the enclosure. The magnet is secured to the moving part (e.g. side panel), whilst the reed contact is fastened to the immobile part (enclosure frame).
The permanent magnet holds the reed contact in a closed position. When the door is opened or the side panel removed, the reed contact drops off and opens the circuit. This triggers an alarm in the CMC-TC.
The sensor contains an ID so that it is automatically detected and set up by the CMC-TC system. It is connected to a sensor unit via the connection cable supplied loose. Up to five access sensors may be connected in series to one monitoring line, if necessary in conjunction with extension cable RJ 12. The jumper plug forms the end.

Packs of	Model No. DK
2	**7320.530**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■	■	■

Technical specifications:
2 magnets
(mounted on the moving part, directly adjacent)
2 sensors with reed contact
(mounting on the enclosure frame)
Connection 1: RJ 12 jack, 6-pole
(connection to the sensor unit)
Connection 2: RJ 12 socket, 6-pole (series connection with other access sensors, or finished with the jumper plug)
2 jumper plugs RJ 12 at the end
2 connection cables: Length 2 m,
RJ 12 connector 6/6 on both sides

Monitoring

B

5.6

Monitoring

CMC-TC motion detector

The motion detector may be used in enclosures or in rooms. Any modifications to the enclosure, such as opening a door or side panel, are indicated. The motion detector can also detect persons in the room or in front of the data cabinet.
The alarm contains an ID so that it is automatically detected and set up by the CMC-TC system. The power supply and data exchange to the sensor unit occurs via the connection cable, supplied loose. If required, extension cable RJ 12 may be used.

Packs of	Model No. DK
1	**7320.570**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		■

Technical specifications:
Alarm type: Infrared (IR) detector
Range: max. 7 m
Power consumption: max. 30 mA/24 V DC
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Dimensions:
W x H x D: 59 x 102 x 32 mm

Leakage sensor

The leakage sensor is equipped with an optical sensor head. If this sensor head becomes wet with moisture, it reports a leakage alarm. The sensor head may be mounted facing the floor. If water collects there and comes into contact with the sensor head, the alarm is triggered. The sensor contains an ID so that it is automatically detected and set up by the CMC-TC system. The connection cable, supplied loose, should be used for connection to the sensor unit. If required, extension cable RJ 12 may be used.

Packs of	Model No. DK
1	**7320.630**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		

Technical specifications:
Monitoring: Visual
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Temperature application range: +5°C to +45°C

Protection category:
IP 40

Monitoring

B
5.6

Analog sensor input module

The input module facilitates the connection of individual external analog sensors (4 – 20 mA) to the I/O sensor unit. As an adaptor, it performs the function of identification, so that an external sensor is automatically identified and set up by the CMC-TC system.
Sensors with 4 – 20 mA signal output and 24 V DC operating voltage (max. 50 mA) may be connected. The CMC-TC makes its internal power source available.
It is connected to a sensor unit via the connection cable supplied loose. If required, extension cable RJ 12 may be used.

Packs of	Model No. DK
1	**7320.520**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		

Technical specifications:
Analog input: 4 – 20 mA at 24 V DC
Maximum current output of the module: 50 mA
Sensors without GND may also be used.
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Sensor connection:
Pull-off clamping strip, 3-pole

Digital sensor input module

The input module facilitates the connection of individual external digital sensors to a sensor unit. As an adaptor, it performs the function of identification, so that an external sensor is automatically identified and set up by the CMC-TC system.
External sensors or detectors must have a floating contact (normally-closed or normally-open), because the module makes its internal voltage source available.
It is connected to a sensor unit via the connection cable supplied loose. If required, extension cable RJ 12 may be used.
In conjunction with the access unit, any given door release system (e.g. transponder) with a floating relay contact may be connected via the input module.

Packs of	Model No. DK
1	**7320.580**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■	■	■

Technical specifications:
Floating external sensor contact:
Voltage min. 24 V DC load capacity
Current: min. 10 mA load capacity
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Sensor connection:
Pull-off clamping strip, 3-pole

Relay output module

The output module allows individual, external extra-low voltage actuators to be switched via a change-over contact. As an intermediate relay, it performs the function of identification and isolation, so that an actuator is automatically identified and set up by the CMC-TC system.
It is connected to the I/O sensor unit via the connection cable supplied loose. If required, extension cable RJ 12 may be used. At the output end, the module contains a pull-off terminal strip for assignment with actuator cables. Power supply to the actuator must be provided externally.
The output relay may be switched remotely via SNMP or HTTP. Alternatively, alarm links can also be created with alarm inputs.

Packs of	Model No. DK
1	**7320.590**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		

Technical specifications:
Condition of the actuator: cosPhi = 1
Max. load of the switch contact:
1 A, 30 V DC and 0.5 A, 48 V AC
Max. switching voltage: 48 V AC; 48 V DC
Max. switched current: 1 A
Max. switching load: 30 W, 62.5 VA
Min. switched current: 1 mA at 5 V DC
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Sensor connection:
Pull-off clamping strip, 3-pole

Monitoring

B

5.6

Monitoring

Individual security

Room door output module

The room door output module allows external door opener systems to be switched via a change-over contact. As an intermediate relay, it performs the function of identification and isolation, so that a door opener is automatically identified and set up by the CMC-TC system.
It is connected to the access unit via the connection cable supplied loose. If required, extension cable RJ 12 may be used. At the output end, the module contains a pull-off terminal strip for assignment with actuator cables. Power supply to the door opener must be provided externally.

Packs of	Model No. DK
1	**7320.740**

To fit sensor unit:

I/O unit	Access unit	Climate unit
	■	

Technical specifications:
Condition of the actuator: cosPhi = 1
Max. load of the switch contact:
1 A, 30 V DC and 0.5 A, 48 V AC
Max. switching voltage: 48 V AC; 48 V DC
Max. switched current: 1 A
Max. switching load: 30 W; 62.5 VA
Min. switched current: 1 mA at 5 V DC
Connection: RJ 12 jack, 6-pole
Connection cable: Length 2 m,
RJ 12 connector 6/6 on both sides
Sensor connection:
Pull-off clamping strip, 3-pole

Note:
One access sensor 7320.530 is always needed for each output module.

CMC-TC alarm signal lamp

The alarm signal lamp serves as a collective fault signal for all alarms in the CMC-TC.
Example: Temperature exceeded, fan defect, smoke alarm etc. The CMC-TC provides a user-friendly menu allowing the operator to select which message will affect the CMC-TC alarm relay.
The alarm signal lamp is activated via the alarm relay.
The lamp may be attached to the network enclosure or any other desired position, e.g. in the corridor.
The RJ 12 connection cable is required for connection to the PU.

Item	Model No. SZ
LED steady light component 24 V DC, red	**2372.000**
Connection component	**2368.010**

To fit processing unit, see page 766.

Technical specifications:
Rated operating voltage: 24 V DC
Rated current: 60 mA

! **Also required:**

For selection aid, see page 770.

Interference suppression capacitors
for fans

The capacitors are used for the interference suppression of fans with self-starting shaded pole motors. One capacitor should be connected directly parallel to the mains voltage for each fan unit. The capacitors are equipped with a terminal, which means that they are easily fitted to the fan cable.

Version	Packs of	Model No. DK
100 nF	20	**7200.490**

Technical specifications:
Dielectric strength: 275 V AC
Capacity: 100 nF
Type: X2

Monitoring

B
5.6

Comfort handle for TS 8 unit with master key function

The handle assumes the function of a door lock and lever handle monitoring.
The TS 8 handle 7320.721 includes the master key function. This means that the handle can always be opened with the master key, independently of the control system. A semi-cylinder is supplied loose, but a semi-cylinder 40 or 45 mm overall length to DIN 18 254 may also be used. An access sensor (DK 7320.530) must be connected to the corresponding door for each handle.
If the lever handle is closed, the locking mechanism integrated into the handle latches automatically. The handle may be released via the CMC-TC system in the network or via optional add-on systems, such as smartcard readers etc. The handle is locked in a de-energised manner (without electrical connection). The push-button may be depressed following electrical release and then opens the lever automatically. The opening process must be completed within 15 seconds. Opening via the key is always superordinate, i.e. the enclosure may always be opened with the key in the case of electrical locking and in the event of a power failure (emergency opening).

Handle system	Model No. DK
TS 8 comfort handle master key	7320.721

To fit sensor unit:

I/O unit	Access unit	Climate unit
	■	

Technical specifications:
Rated voltage: 24 V DC
Rated current: max. 100 mA
Connection cable: Length 3 m, RJ 12 connector
Connection cable:
Length 2 m, RJ 12/RJ 12 connector
Coupling for extension:
RJ 12/RJ 12 jack
Temperature application range:
+5°C to +40°C

Protection category:
IP 40

⚠ Also required:

For selection aid, see page 770.

Handle systems with electromagnetic lock

The lock unit consists of a Rittal handle system whose handle is electromagnetically locked. It contains an identifier so that it is automatically detected and set up by the CMC-TC system. The power supply and data exchange to the access unit occurs via the attached connection cable. An access sensor (DK 7320.530) is always required for door monitoring. With the door closed and the clip-down handle locked home, latching is activated by switching on the lock magnet. The CMC-TC enables the handle to be pulled out by deactivating the lock magnet, thereby allowing the door to be opened. This deactivation can be initiated via an access unit such as a smartcard reader, magnetic card reader, coded lock and/or network management systems. The handle system likewise contains handle monitoring. The CMC-TC reports an alarm if the handle is not swung in and locked home after closing the door.
The push-button insert supplied can also be exchanged for **lock inserts.**

Note:
When using the Ergoform-S handle, an additional hole is required.

1 Additional hole for electronic lock (PS/FR/QR/VR/TC/TE)
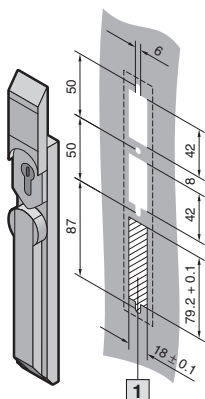
Handle system	Model No. DK
Ergoform-S handle for FR, PS, TC, VR, TE	7320.700
Ergoform-S handle for QR	7320.710

To fit sensor unit:

I/O unit	Access unit	Climate unit
	■	

Note:
For PS and FR glazed doors, the locking bars listed below are required:

Locking bars

Version	Model No. DK
Lower door locking bar for 2000 mm high PS enclosures	7200.371
Lower door locking bar for 2000 mm high FR enclosures	7200.372
Lower door locking bar for TE enclosures	on request

Other sizes available on request.

Technical specifications:
Rated voltage: 24 V DC
Rated current: max. 100 mA
Connection cable: Length 3 m, RJ 12 connector
Connection cable:
Length 2 m, RJ 12/RJ 12 connector
Coupling for extension:
RJ 12/RJ 12 jack
Temperature application range:
+5°C to +40°C

Protection category:
IP 40

⚠ Also required:

For selection aid, see page 770.

Monitoring

B

5.6

Access systems
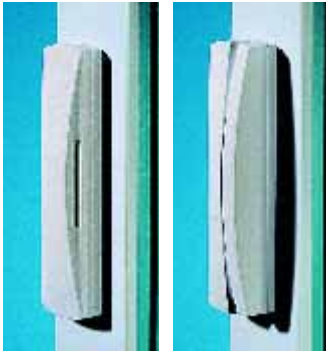
Smartcard reader/ magnetic card reader/ coded lock

The door handle is released to authorised persons who have identified themselves with a smartcard/magnetic card/combination code. Smartcard readers/magnetic readers/coded locks are installed above the enclosure handle and can also function as a central unit for releasing several doors.

The entire access procedure can also be registered with the CMC-TC where there is network connection.

Technical specifications:
Rated voltage: 24 V DC
Rated current: max. 20 mA
Interface: I²C bus
Smartcard type: I²C chip
Magnetic card type:
Magnetic strip card with data on track 2.
The read system is designed for cards with both a high and a low level of magnetism.

Read system	Model No. DK
Smart card reader	**7320.750**
Magnetic card reader	**7320.760**
Coded lock	**7320.770**

To fit sensor unit:

I/O unit	Access unit	Climate unit
	■	

Note:
Smartcard readers/magnetic card readers/coded locks may only be used in conjunction with the CMC-TC and an electric lock. 3 cards are supplied with the smartcard reader/magnetic card reader. Each card contains a four-digit code, which is different on all three cards. All cards are access-authorised. The code may be input directly on the coded lock.

Authorised codes may be set in the CMC-TC via WEB. The input code is transmitted to the CMC-TC and, where applicable, to the network management system, via the I²C bus. A mounting adaptor for a TS aluminium glazed door is supplied loose with every reader.
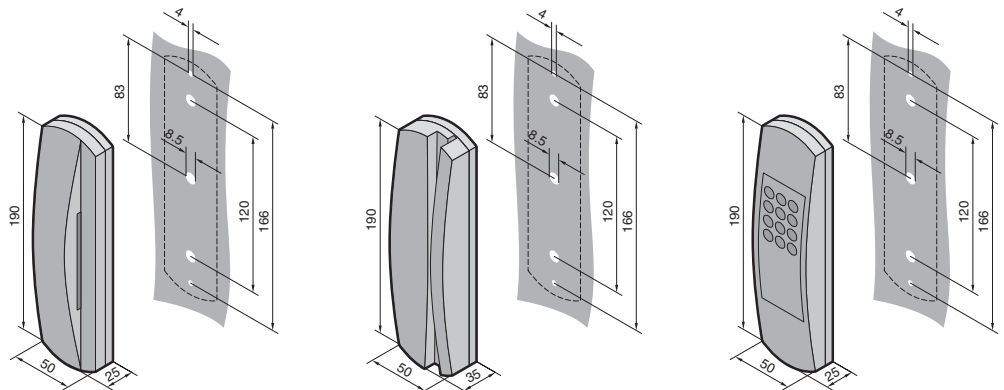
More lock systems

Adaptor for reader units

The adaptors are used to install the reader units. They are screw-fastened between the design section of the door frame and the reader unit. No adaptor is required for shallow mounting levels. For TS aluminium glazed doors, an adaptor is supplied loose with every reader unit. One adaptor is required for each reader unit.

Glazed door enclosure type	Packs of	Model No. DK
VR	10	**7200.344**
PC	10	**7200.345**
PS	10	**7200.346**
TS design	10	**7200.347**

Type PC: For PC glazed doors
Type VR: For VR glazed doors and VR sheet steel doors
Type PS: For PS aluminium glazed door

Access door panels
for FR(i)

The access door panels contain an electromagnetic lock with a security lock. They may be exchanged for the existing trim panel of the FR(i) door. The door panel is easily linked to the CMC-TC monitoring system, allowing the FR(i) door to be remotely opened and monitored via the network. If a door trim panel variant with read system is selected, door release may also be implemented via the CMC-TC using the respective medium (smartcard, magnetic card or numerical code pad).
The standard door panels of FR(i) doors are easily exchanged for access door panels.

Jacks are provided for connection to the CMC-TC. This ensures plug & play exchange. The system may be connected to access unit 7320.220. To operate the system, an access sensor (DK 7320.530) is additionally required. For the door panels with card reader systems, 3 cards are included with the supply.

Technical specifications:
Rated voltage: 24 V DC
Interface: I²C
Smartcard type: I²C chip
Magnetic card type:
Magnetic strip card with data on track 2.
The read system is designed for cards with both a high and a low level of magnetism.

Access door panels to exchange for standard trim panels in FR(i) doors

Access door panels	Enclosure height mm	Electromagnetic lock system	Read system	Model No. DK
FR(i)	2000	■	–	**7320.900**
FR(i)	2000	■	Smart card reader	**7320.910**
FR(i)	2000	■	Magnetic card reader	**7320.920**
FR(i)	2000	■	Coded lock	**7320.930**

■ Comfort handle TS 8 with master key function 7320.721 (see page 781) for the CMC-TC monitoring system is installed. All other height variants (FR(i) enclosure height 600, 1200, 1800 and 2200 mm) are available on request.

To fit sensor unit:

I/O unit	Access unit	Climate unit
	■	

Universal lock unit

The security lock consists of a base unit and a lock counterpart. The base unit is attached to the enclosure frame. The lock counterpart is attached to the door.
A mechanical setting allows you to choose between two states: at zero current when open, or at zero current when closed.
In order to identify the operating mode used, one of the two identifier modules (supplied loose) should be used, so that it is automatically identified and set up by the CMC-TC system. Power supply and data exchange is via the access unit, using the identifier modules and connection cables supplied loose. If required, extension cable RJ 12 may be used.
An access sensor (DK 7320.530) is always required for door monitoring.

Technical specifications:
Rated voltage: 24 V DC
Rated current: 140 mA
Temperature application range:
+10°C to +40°C

Supply includes:
1 base unit with connection cable 0.1 m,
RJ 12 connector
1 lock counterpart
2 identifier modules with RJ 12 jack, 6-pole (connection to access unit),
RJ 12 jack, 6-pole (connection to universal lock),
1 connection cable for identifier modules, 2 m, RJ 12/RJ 12 connector without mounting kit.

Packs of	Model No. DK
1 set	**7320.730**

To fit sensor unit:

I/O unit	Access unit	Climate unit
	■	

Installation kit	Model No. DK
PS steel door	**7200.611**
PS aluminium glazed door	**7200.612**
FR sheet steel door[1]	**7200.613**
FR glazed door[1]	**7200.614**
TS steel door	**7200.615**
TS glazed door	**7200.616**
VR enclosure	**7200.617**

[1] Attachment in 600 mm wide FR enclosures is only possible with recessed mounting of the 482.6 mm (19″) or metric attachment levels.

Note:
Attachment kits for the various different enclosure types and enclosure doors can be taken from the table.

⚠ Also required:

Monitoring

B

5.6

Access systems

Handle system for universal installation
with electromagnetic lock
for the CMC-TC monitoring system

The universal handle is equipped with a pitch pattern of mounting holes which will fit many existing door systems. This handle is ideal for retrofitting to projects with varying enclosure types and variants.

The new handle may be connected to the CMC-TC system via plug & play.

Additionally, an access sensor (DK 7320.530) must always be used to enable polling of the door status. The handle is equipped with a connection cable and an RJ 12 connector, which may be plugged into the access unit 7320.220 of the CMC-TC system. The handle is equipped with a push-button insert which may be depressed when the electromagnetic lock is released.

Technical specifications:
Rated voltage: 24 V DC
Rated current: max. 100 mA
Connection cable: Length 5 m, RJ 12 connector

Note!
The handle only fits into the cut-out shown in the drawing. For other hole patterns, additional adaptors are needed, and/or machining of the door. Solutions provided on request.

	Type	Model No. DK
electro-magnetic handle	CMC-TC	**7320.950**

Extended delivery times.

To fit sensor unit:

I/O unit	Access unit	Climate unit
	■	
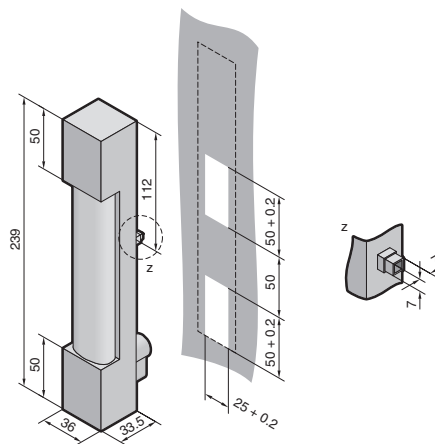
TS 8 transponder handle
with integral transponder release system from Simons & Voss

The electromagnetic TS 8 transponder handle may be retrofitted in the doors of TS 8 enclosures. The handle is equipped with an integral radio transponder. The transponder receiver with battery is integrated into the handle housing. Apart from the transponder transmitter, no additional accessories, such as additional electronics, cables, power pack etc., are required. The handle is easily exchanged without the need for wiring.

If battery servicing is required, this is indicated acoustically.

The handle is supplied in the zero state, so that it may be opened with any transponder transmitter.

Use with hand-held transmitter:
The transponder transmitter is actuated from the handle, as a result of which the latter is unlatched for a specified time window and may be opened by pressing the push-button.

Use with the CMC-TC transmitter:
The transponder transmitter is linked to the CMC-TC system via the room door output 7320.740 and the access unit. The transmitter is placed in the enclosure frame, near the handle. In this way, the door may be released via the CMC-TC system. Additionally, an access sensor (DK 7320.530) should always be used to enable polling of the door status.

Use of the programmable transponder:
The programmable transponder allows the individual transponder transmitters to be allocated to individual handles. Matrix programming is supported.

	Type	Model No. DK
Electromagnetic handle	Transponder, stand-alone application	**7320.960**
Transponder transmitter	Hand-held transmitter	**7320.961**
Transponder transmitter	CMC-TC transmitter	**7320.962**
Programmable transponder	programming	**7320.963**

Extended delivery times.

Benefits:
- No cables on the handle, because the electronics and battery are integrated into the handle.
- Several users may be set for one handle.
- Plug & play installation both mechanical and electrical.
- Individual control of the transponders and the set-up of each transponder is possible for up to 3 locking systems.
- With additional overlay to automatically block the old transponder in the event of reprogramming.
- Counterfeit-proof data communication is achieved via radio using crypto-codes.
- The "challenge response procedure" ensures protection against surveillance.
- The standard interface means that connections to other access and monitoring systems are not a problem.

The lock and organisation sytem is graded in the highest category with respect to unlocking protection to BSI 7500.

Systems with extra electronics and access control from Simons & Voss available on request.

Monitoring

B
5.6

Monitoring of climate control units

Benefits:
- All data for the climate control units via the WEB browser.
- Setpoints may be set via WEB, SNMP, Telnet, RS232.
- Automatic alarm messages in the network via SNMP.
- SMS text messages via GSM (optional).

The "Monitoring of climate control units" set provides all the modules required for monitoring Rittal TopTherm cooling units with comfort control. Temperatures, messages, alarms etc. may be displayed directly on the Web interface in the intranet or Internet. Trap alarms are sent automatically to incorporate SNMP network management systems. SMS text messages are optionally possible via the Rittal GSM module.

Extensions/configuration:
The processing unit PU has 4 channels for 4 interface cards climate control unit RTT I/O unit. An RTT-I/O unit is supplied with the set. Three RTT-I/O may optionally be added. Each RTT-I/O unit is capable of monitoring one master TopTherm cooling unit, each with 9 slave climate control units. The set allows you to monitor up to 10 cooling units, and with extensions up to a maximum of 40 cooling units.
The I/O unit and climate unit may also be connected instead of the interface card. This facilitates additional monitoring of smoke, humidity, air flow etc.

RTT I/O unit
PLC X2   LAN   COM   RS-485   RS-232
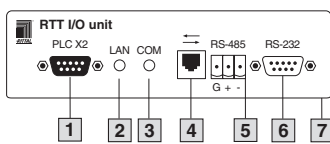
1	**PLC X2** Optocoupler alarm Outputs for SPS
2	**LAN LED** Internal communication
3	**COM LED** Status of serial interfaces
4	**RJ 45** for connecting to processing unit 7320.100
5	**RS-485** Interface
6	**RS-232** For set-up with a serial PC interface (e.g. Hyperterm)
7	**Mounting fixture** for 7320.440 or 7320.450
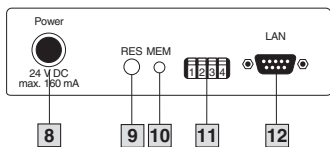
8	The ISDN unit may optionally be supplied with 24 V DC, 160 mA via this input. For applications with the PU, this is not necessary.
9	**RES** Reset key
10	**MEM** Eeprom fault
11	**Changeover switch** Serial interface
12	**LAN** Connection to the master cooling unit with comfort control

Monitoring of climate control unit	Model No. DK
Set	**7320.120**

+ Accessories:

Description	Model No. DK	Page
Programming cable Programming cable for setting up the PU	7200.221	771
CMC-TC 1 U mounting unit	7320.440	771
Interface card RTT-I/O unit (maximum of 3 additioanl cards)	3124.200	662
Connection cable GB 230 V AC	7200.211	771
Connection cable CH 230 V AC	7200.213	771
Connection cable USA/CDN 230/115 V AC	7200.214	771
IEC 320 extension 230 115 V AC	7200.215	771
GSM unit for SMS alarm message for TopTherm cooling units with comfort control	7320.820	767

Functions/settings:
- Setpoint temperature for enclosure
- Alarm temperature value for enclosure
- Warning temperature value for enclosure
- Filter mat monitoring

Warnings/alarms:
- Internal temperature too high
- Icing
- High-pressure sensor
- Leakage
- Condenser/fan defect
- Evaporator coil/fan defect
- Compressor defect
- Sensor failure, internal temperature
- Sensor failure, internal temperature
- Sensor failure, icing sensor
- Sensor failure, condensate level
- Sensor failure, internal temperature
- Phase missing or incorrect
- EEPROM defect

Supply includes:
Processing unit PU with firmware/software for applications with climate control units, interface card, climate control unit RTT-I/O unit (SK 3124.200) power pack 24 V DC, input 100 – 240 V AC (DK 7320.425), connection cable D with IEC320 connector (DK 7200.210), Cat5 connection cable, 2 m, for connecting the RTT-I/O unit to the processing unit PU, data cable RS232, 2 m, for connecting the RTT-I/O unit to the RTT climate control unit with comfort control.

Monitoring

B

5.6

Monitoring

Speed monitored/controlled fan system

Benefits:
- Excellent air throughput at a high operating ratio.
- Monitoring of fan speed.
- Plug and play compatibility system.
- Easily installed in Rittal fan roofs.
- Long service life.
- Noise minimisation/speed control.
- Alarm message via the CMC-TC in the network optionally possible.
- Open supply system 24/48 V DC/100 – 230 V AC.
- EMC compatibility via DC fan systems.

Equipment

Properties	Model No. FCS DK 7320.810	Model No. FAS DK 7320.811
Fan speed monitoring	■	■
Pre-selectable speed	■	
Non-temperature dependent speed	■	
Speed increase in the event of a fan failure	■	
Collective fault signal	■	■
Floating change-over contact	■	■
LAN connection via PU	■	
LAN via I/O unit + PU		■
Configurable via LAN	■	
Alarm output	Beeper, LED, relay, RJ 45 output for PU	Beeper, LED, relay, RJ 12 output for I/O unit

FCS example:
Control system with fan regulation and monitoring

Description	Required packs of	Model No. DK
Fan Control System FCS	1	7320.810
CMC-TC power pack 24 V, input 100 – 230 V AC	1	7320.425
CMC-TC temperature sensor	1	7320.500
Fan 24 V DC (packs of 2) with speed monitoring	3	7320.812
RJ 12 extension for DC fans, 1 m (packs of 2)	3	7320.814
CMC connection cable D 230 V AC	1	7200.210

FAS example:
Control system with fan monitoring

Description	Required packs of	Model No. DK
Fan Alarm System FAS	1	7320.811
CMC-TC power pack 24 V, input 100 – 230 V AC	1	7320.425
Fan 24 V DC (packs of 2) with speed monitoring	3	7320.812
RJ 12 extension for DC fans, 1 m (packs of 2)	3	7320.814
CMC connection cable D 230 V AC	1	7200.210

Fan Control System FCS

Speed-monitored fan system
The Fan Control System regulates and controls the speed of up to 6 fans 7320.812, 24 V DC. This helps to save energy and reduce the noise level of the fans, as well as extending the service life of the fans. The failure of one or more fans is detected and notified in the form of a collective fault signal via LED display, beeper and integral alarm relay (floating change-over contact). Control is temperature-based using an external temperature sensor 7320.500. The temperature setpoint is set via a switch on the front. The system may also optionally be set and monitored via the network (Web/SNMP). It is connected directly to the CMC-TC (processing unit) 7320.100.

FCS	To fit processing unit	Model No. DK
Without fan	■	7320.810

Functions:
- Speed-regulated speed control.
- Fan speed monitoring.
- Optional connection via Web/SNMP.
- Redundant fan control; the air throughput of all fans is automatically increased in the event of a system failure.
- Plug & play installation via RJ 12 connector system.
- 482.6 mm (19″) mounting is possible via 7320.440.

Note:
Supplied pre-configured on request:
The FCS system may be fitted in all Rittal fan roofs.
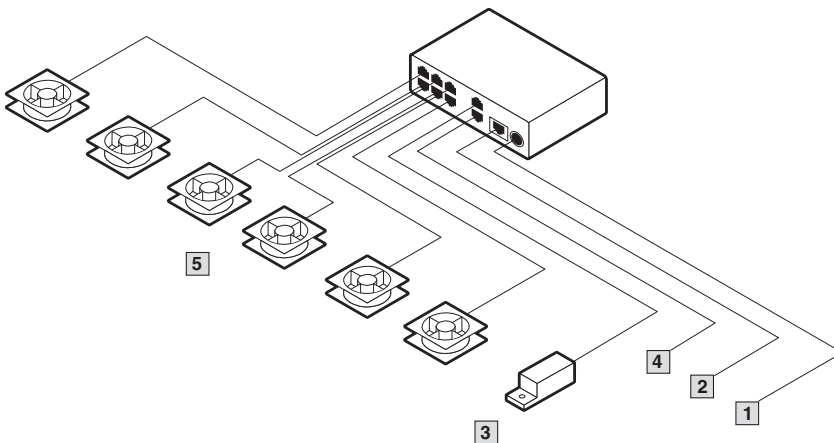
1 Supply with 24 V/48 V DC via
– Supply connection cable direct 7320.813
– CMC 24 V power pack 100 – 230 V AC (input) 7320.425
– CMC 24 V power pack 48 V DC (input) 7320.435
For operation with 48 V DC, fans with 48 V DC must be used.

2 RJ 45 jack for connecting to the processing unit 7320.100 (optional) (Cat5 cable)

3 CMC-TC temperature sensor 7320.500

4 Alarm relay output
24/48 V DC, 1 A (floating change-over contact)

5 Fan with speed monitoring
7320.812 (24V DC). 48 V DC fans may optionally be used.

Speed monitored/controlled fan system

Fan Alarm System FAS

Speed-controlled fan system
The Fan Alarm System monitors the speed of up to 6 fans 7320.812, 24 V DC. The failure of one or more fans is detected and notified in the form of a collective fault signal via LED display, beeper and integral alarm relay (floating change-over contact). The system is designed as a plug & play system. The system may also be optionally monitored via the network (Web/SNMP). It is connected directly to the CMC-TC (the I/O unit) 7320.210.

Functions:
- Fan speed monitoring.
- Optional connection via Web/SNMP.
- Plug & play installation via RJ 12 connector system.
- 482.6 mm (19″) mounting is possible via 7320.440.
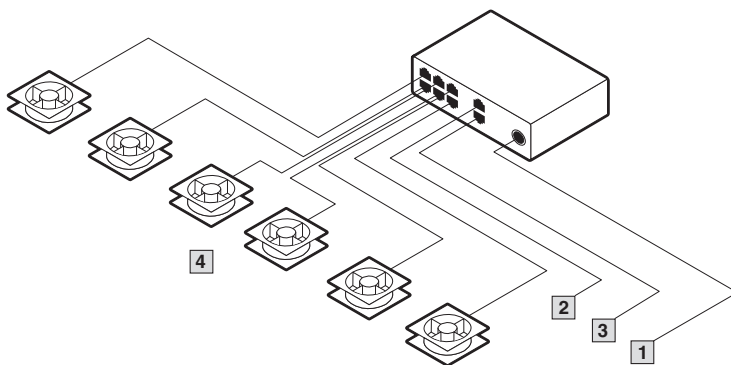
FAS	Model No. DK
Without fan	**7320.811**

To fit sensor unit:

I/O unit	Access unit	Climate unit
■		

Note:
Supplied pre-configured on request:
The FAS system may be supplied fitted in all Rittal fan roofs.

1 **Supply with 24 V/48 V DC** via

- Supply connection cable direct 7320.813
- CMC 24 V power pack 100 – 230 V AC (input) 7320.425
- CMC 24 V power pack 48 V DC (input) 7320.435
  For operation with 48 V DC, fans with 48 V DC must be used.

2 **RJ 12 jack** for connecting to the I/O unit 7320.210 (optional)

3 **Alarm relay output** 48 V DC, 1 A (floating change-over contact)

4 **Fan with speed monitoring**
7320.812 (24 V DC). 48 V DC fans may optionally be used.

Fan 24 V DC

with speed monitoring
Fan with integral speed monitoring with RJ 12 connector/connection cable 0.6 m for connecting to FCS 7320.810 and FAS 7320.811.

Technical specifications:
Rated voltage: 24 V DC
Rated current: 0.28 A (max.)
Rated output: 6.72 W (max.)
Air throughput (unimpeded air flow): 165 m³/h
Speed: 2650 rpm
Noise level: 41 dB (A)

Packs of	Model No. DK
2	**7320.812**

Note:
Fan variant with 48 V DC available on request.

RJ 12 extension

for 24 V DC fan, 1 m
The DC fans DK 7320.812 are equipped with a 0.6 m connection cable. If this length is not sufficient to connect to the FCS or FAS, the cable may be extended by 1 m using the RJ 12 coupling included in the set.

Technical specifications:
Coupling: RJ 12 jacks 6/6 at both ends
Connection cable: Length 1 m,
RJ 12 connector 6/6 on both sides
Temperature application range: +5°C to +45°C

Fan extension	Packs of	Model No. DK
1 m	2	**7320.814**

Supply connection cable

for FCS/FAS
If the customer has access to 24 V or 48 V DC, the FCS/FAS systems may be supplied with power (max. 48 V DC) via the supply connection cable. No power packs are then required for the application.
Length: 2 m

Packs of	Model No. DK
1	**7320.813**

Monitoring

B

5.6

Monitoring

Software

Network management systems

By using SNMP network management systems (NMS) such as HP Open View or Novell Manage Wise, it is possible to incorporate and address the CMC-TC system via SNMP. The required MIB is included with the supply.
The MIB is easily incorporated by simply copying. Standard MIB-II (RFC 1213) is also supported. It is included with the supply of the NMS. The private MIB contains all the required system variables, and is easily linked to the functions of the software HP Open View, Novell Manage Wise etc.

Note:
The MIB is also available from the Internet at **www.rittal.com, www.cmc-tc.com** as a download, and is included with the supply of every CMC-TC system.

Management system Aprisma Spectrum Enterprise Manager

The graphical user interface for the Spectrum Enterprise Manager covers every conceivable requirement. The MIB variables are arranged on the interface in a user-friendly configuration. This professional software package combines the highlights of the CMC-TC monitoring system with the Aprisma product.
The management module for Rittal CMC-TC, developed by DICOS, facilitates the integration of all information sent out by the CMC-TC agent into the Spectrum management platform. It also supports configuration of the threshold values being monitored. The SpectroServer receives all the information from the CMC-TC and provides users with an opportunity to visualise, control and configure Rittal racks direclty via the central Spectrum console. Integration into the enterprise management system supports central processing of alarms, so that these may be forwarded, e.g. via a voice mail system, or used as the basis for the automatic generation of a trouble ticket.

Note:
Further information can be found on the Internet at:
www.dicos.de
or by sending an order by e-mail to **sales@dicos.de**

CMC-TC configurator

The CMC-TC configurator automatically compiles all the modules and accessories required for a CMC project. The user simply enters the monitoring requirements and the ambient conditions. The result is a list containing all the item numbers required for the project. In this way a project can be compiled quickly and effectively. This software requires MS Excel, Version 97 or above.

Note:
The CMC-TC configurator is available on the Internet at
www.rittal.com, www.cmc-tc.com
and may be downloaded free of charge.

Monitoring

B
5.6

CMC-TC Manager

The new CMC-TC Manager allows all Rittal SNMP agents to be managed in a single software package.
- CMC II (7200.100)
- PCU Web sockets (7200.000)
- CMC-TC processing unit (7320.100)

The graphical interface reproduces information from the system and offers the opportunity of configuring systems via SNMP.
Only the Java Runtime Environment JRE 1.3 (or higher version) must be installed on the relevant PC system. Java may be downloaded from the Internet at **www.sun.com**.
The various products (PCU, CMC II, CMC-TC) may be sorted on the basis of type or location. All important alarm messages enter the built-in trap receiver, and can be recorded with the logging function. The alarm messages can be forwarded directly using the e-mail function. The search function is used to distinguish and automatically list the SNMP agents.

Benefits:
- Open to operating systems via Java (Windows/Linux).
- Graphical information and operator interface for:
  - CMC II
  - Web socket strip PCU
  - CMC-TC/processing unit
- Full integration of the management information base (MIB) of Rittal systems.
- Trap receiver with logging function.
- E-mails sent in the event of trap alarm messages.
- User-oriented system listing according to locations.

Note:
The software is available free of charge from the Internet.
www.rittal.com, www.cmc-tc.com

Plug-in for HP Open View

Thanks to its integration into HP Open View NNM, StableNet™ CMC-TC is centrally and permanently available. The management functions of HP Open View have been extended to optimum effect: NNM monitors the traps occurring in CMC-TCs and forwards them to StableNet™ CMC-TC. The MIB of processing unit 7320.100 of the CMC-TC system has been incorporated.

Functions:
- Integral trap manager
- Various alarm functions, e.g. e-mail, SMS etc.
- Integral MIB browser (cf. illustration)
- Graphical display of the monitored values with diagrams and tables
- Individual representation and organisation of the monitoring tools
- Pre-configured graphical interface for the CMC-TC
- Microsoft® Outlook® "look and feel"
- Non-platform-dependent (JAVA).

Other products from the StableNet™ suite with the option of integrating the StableNet™ CMC-TC manager:

StableNet™ ARC
Advanced Router Configuration
- Management of all network components and CMC-TCs from within HP Open View NNM
- Efficient management of routers and switches

StableNet™ PME
Performance Management Engine
- Evaluation of the data obtained with StableNet™ CMC-TCs by means of comprehensive reporting functions
- Diverse opportunities for measuring network performance

Note:
Further information can be found on the Internet at:
www.infosim.net
or by sending an e-mail enquiry to
info@infosim.net
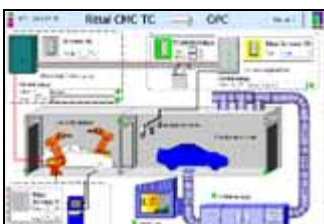
SNMP-OPC Server

The OPC Server allows all variables in the CMC-TC (MIB) to be integrated into control desk interfaces. Be it industrial automation technology or building automation, with OEL Process Control (OPC) "OEL: Object linking and Embedding" you get the ideal interface between your control desk software and the CMC-TC system.
Software available on request.
www.cmc-tc.com

Note:
Further information can be found on the Internet at:
www.obermeier-software.de
or by sending an e-mail enquiry to
info@obermeier-software

Monitoring

B

5.6

Kiosks

Information and service anytime, anywhere

New markets, new application areas, new opportunities! Kiosks are on hand 24 – 7 to provide up-to-the-minute information, attract interest, and receive requests, messages, reservations and orders. Sports, arts, entertainment, administration, transport, industry, trade and hotels – suitable applications are everywhere! Located directly at the point where they are needed, offering a high standard of quality and elegant design, kiosks represent valuable "partners" for information and business.

Arc-Line II
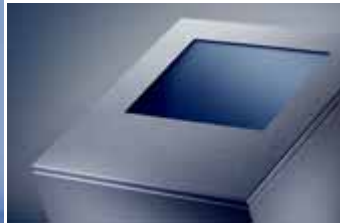
User-friendly TFT touchscreen display or . . .

. . . perfectly integrated into a keyboard recess.

Which design do you prefer? Spray-finished sheet steel or stainless steel?

Opti-Line II

Keyboard: A new design in a smart aluminium cover.

Small door, optimise operation of the built-in PC-technology.

Large lid, easy to service and readily customised.

Opti-Desk

Various keyboard variants may be integrated, e.g. in stainless steel.

Design line A:
The worktop and base plate are harmoniously curved inwards.

Design line B:
The worktop and base plate are curved outwards, adding a dynamic touch.

B
5.7

Information and service anytime, anywhere

Opti-Wall

The optional electronic height adjustment also makes it easy for children and wheelchair users to access the multimedia world.

The speakers are protected by integration into the kiosk.

Compact, low-noise PC technology: The connections are easily accessible.

Alpha-Line

Powerful: The kiosk PC-systems Silent and Pro.
The door makes servicing work easy.
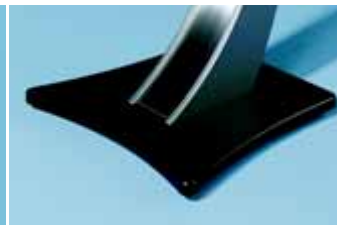
For stability coupled with striking elegance.

Simplicity to inspire you: Alpha-Line keyboard.

Out-Line Wall

The transparent trim panel and rain canopy ensure optimum operation.

Optionally integrated speakers are situated on the lower side, without affecting the protection category.

High-quality materials such as aluminium and stainless steel facilitate semi-outdoor use.

Out-Line Pro

The base/plinth is attached to the ground for stability.

Protection against vandalism also extends to the robust stainless steel keyboard with trackball.

A high protection category of IP 55 is achieved, thanks to a sealing frame and lock system.

Kiosks

B

5.7

Kiosks

Arc-Line II

Modern communications and technology with a new look. The Arc-Line now with TFT technology and with significantly more space for the installation of additional hardware. Thanks to the modified dimensions, the familiar kiosk standard keyboards may be installed in the lid.

Components with 482.6 m (19″) mounting dimensions may be integrated in the interior. All Arc-Line Classic models now have a protection category of IP 55. Additional installation of a sound system is possible, subject to compliance with the protection category.

Touch

Keyboard

B = Width
T = Depth

Material:
Basic:
Sheet steel, spray-finished
Classic:
Stainless steel, brushed

Colour:
Basic:
RAL 9007

Protection category:
Classic:
IP 55

Specifications and the online configurator
can be found on the Internet at
www.terminals-by-rittal.de
or
www.kiosks-uk.com

Arc-Line II		Basic				Classic				Page
		Rear door		Front Door		Rear door		Front Door		
TFT display		17″	17″	17″	17″	17″	17″	17″	17″	
Contact sensor (touchscreen) including controller		■	–	■	–	■	–	■	–	
Keyboard recess for the insertion of ITS keyboards		–	■	–	■	–	■	–	■	
Basic electrical equipment with cabling and power pack for display and sound system (100 – 260 V, 50/60 Hz)		■	■	■	■	■	■	■	■	
Concealed paper slot		■	■	■	■	–	–	–	–	
Door		Hinged, rear		Hinged, front		Hinged, rear		Hinged, front		
Material		Sheet steel		Sheet steel		Stainless steel		Stainless steel		
Surface finish		Spray-finished in RAL 9007 (finely-textured)		Spray-finished in RAL 9007 (finely-textured)		Brushed		Brushed		
Dimen. of terminal enclosure approximately (B x H1 x T mm)		550 x 1180 x 700		550 x 1180 x 700		550 x 1180 x 700		550 x 1180 x 700		
H2 approx. mm		940		940		940		940		
Model No. ITS		**9012.100**	**9012.110**	**9012.200**	**9012.210**	**9012.300**	**9012.310**	**9012.400**	**9012.410**	
Accessories										
Active sound system including 2 speakers, fitted		9010.540	9010.540	9010.540	9010.540	9010.540	9010.540	9010.540	9010.540	–
Long-stroke keyboard with trackball, RAL 9005	German[1]	–	9004.300	–	9004.300	–	–	–	–	800
	US English[1]	–	9004.310	–	9004.310	–	–	–	–	800
Adaptor plate for internal mounting of the long-stroke keyboard, stainless steel		–	9003.160	–	9003.160	–	–	–	–	800
Service keyboard with trackball for touch systems	German	9004.500	–	9004.500	–	9004.500	–	9004.500	–	801
	US English	9004.502	–	9004.502	–	9004.502	–	9004.502	–	801
Membrane keyboard with mouse pad, IP 65	German[1]	–	9010.910	–	9010.910	–	9010.910	–	9010.910	801
	US English[1]	–	9010.912	–	9010.912	–	9010.912	–	9010.912	801
Stainless steel keyboard with trackball, IP 65	German[1]	–	9004.220	–	9004.220	–	9004.220	–	9004.220	800
	US English[1]	–	9004.222	–	9004.222	–	9004.222	–	9004.222	800
Component shelf for mounting on the 482.6 mm (19″) level		7144.035	7144.035	7144.035	7144.035	7144.035	7144.035	7144.035	7144.035	944
Mounting kit for component shelves		7063.858	7063.858	7063.858	7063.858	7063.858	7063.858	7063.858	7063.858	949
Telescopic slide		7061.000	7061.000	7061.000	7061.000	7061.000	7061.000	7061.000	7061.000	951
Slide rail		7963.410	7963.410	7963.410	7963.410	7963.410	7963.410	7963.410	7963.410	1011
Castors for Arc-Line II		7495.000	7495.000	7495.000	7495.000	7495.000	7495.000	7495.000	7495.000	848
ITS PC system "Silent"		9010.110	9010.110	9010.110	9010.110	9010.110	9010.110	9010.110	9010.110	799
ITS PC system "Pro II"		9010.125	9010.125	9010.125	9010.125	9010.125	9010.125	9010.125	9010.125	799
ITS PC system "Basic"		9003.070	9003.070	9003.070	9003.070	9003.070	9003.070	9003.070	9003.070	799
PC operating operating system[2] MS Windows XP Home	German[1]	9030.100	9030.100	9030.100	9030.100	9030.100	9030.100	9030.100	9030.100	–
	English[1]	9030.102	9030.102	9030.102	9030.102	9030.102	9030.102	9030.102	9030.102	–

[1] Other language variants available on request.
[2] Operating system OEM version may only be ordered in conjunction with a PC system; other operating systems available on request.
Other accessories: Thermo-printers, DSL/ISDN modems and card readers, coin checkers etc. available on request.

Kiosks

B

5.7
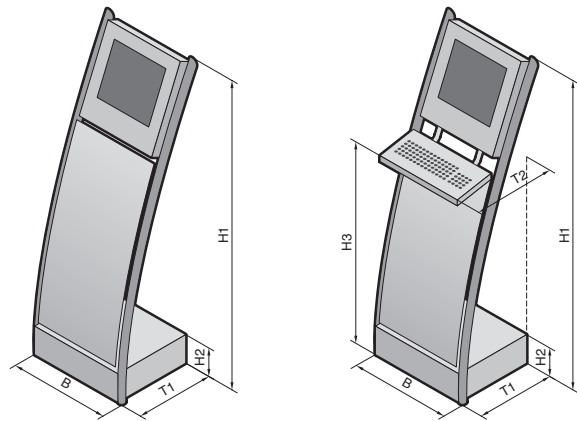
B = Width
T = Depth

The Opti-Line II creates fresh visions with a tactile appeal. Stainless steel and aluminium, simplicity and elegance, function and aesthetics – these are all timeless attributes for successful communication. This is stylish packaging at its most attractive. A keyboard support with new lines, more modularity and a consistent design. A successful innovation from the legendary Opti-Line generation.

This is a modular system that meets all requirements, combining a flexible range of choices for keyboard variants and PC systems, depending on the intended application.

Material:
Display enclosure:
Sheet steel/plastic, grey aluminium (RAL 9007), spray-finished, smooth
Pedestal tubes:
Stainless steel V2A, brushed
PC case:
Sheet steel, grey aluminium (RAL 9007), spray-finished
Keyboard support:
Aluminium.

Property rights:
US design patent no. 478,582
German registered design
no. 400 02 325

Specifications and the online configurator
can be found on the Internet at
www.terminals-by-rittal.de
or
www.kiosks-uk.com

Opti-Line II		Touchscreen		Prepared for keyboard		Page
TFT display		15″	17″	15″	17″	
Basic electrical equipment with cabling and power pack for display and sound system (100 – 260 V, 50/60 Hz)		■	■	■	■	
Dimensions of terminal enclosure approximately (B x H1 x T1 mm)		560 x 1500 x 510	560 x 1500 x 510	560 x 1500 x 580	560 x 1500 x 580	
H2 approx. mm		140	140	140	140	
H3 approx. mm		965	965	965	965	
T2 approx. mm		580	580	580	580	
Model No. ITS		**9006.505**	**9006.705**	**9006.605**	**9006.805**	
Accessories						
Active sound system including 2 speakers, fitted		9010.510	9010.510	9010.510	9010.510	–
Long-stroke keyboard with trackball, RAL 9005	German[1]	–	–	9004.300	9004.300	800
	US English[1]	–	–	9004.310	9004.310	800
Adaptor plate for internal mounting of the long-stroke keyboard, stainless steel		–	–	9003.160	9003.160	800
Service keyboard with trackball for touch systems	German	9004.500	9004.500	–	–	801
	US English	9004.502	9004.502	–	–	801
Stainless steel keyboard with trackball, IP 65	German[1]	–	–	9004.220	9004.220	800
	US English[1]	–	–	9004.222	9004.222	800
Membrane keyboard with mouse pad, IP 65	German[1]	–	–	9010.910	9010.910	801
	US English[1]	–	–	9010.912	9010.912	801
ITS PC system "Silent"		9010.110	9010.110	9010.110	9010.110	799
ITS PC system "Pro II"		9010.125	9010.125	9010.125	9010.125	799
ITS PC system "Basic"		9003.070	9003.070	9003.070	9003.070	799
PC operating system[2] MS Windows XP Home	German[1]	9030.100	9030.100	9030.100	9030.100	–
	English[1]	9030.102	9030.102	9030.102	9030.102	–
WLAN upgrade kit IEEE 802.11 type 1 (USB)		9011.100	9011.100	9011.100	9011.100	–
Base plate for Opti-Line II		9006.150	9006.150	9006.150	9006.150	–

[1] Other language variants available on request.
[2] Operating system OEM version may only be ordered in conjunction with a PC system; other operating systems available on request.
Other accessories: ISDN/DSL modems and card readers, coin checkers, webcams etc. available on request.

Kiosks

B

5.7

Accessories Page 832 **Keyboards** Page 800

Kiosks
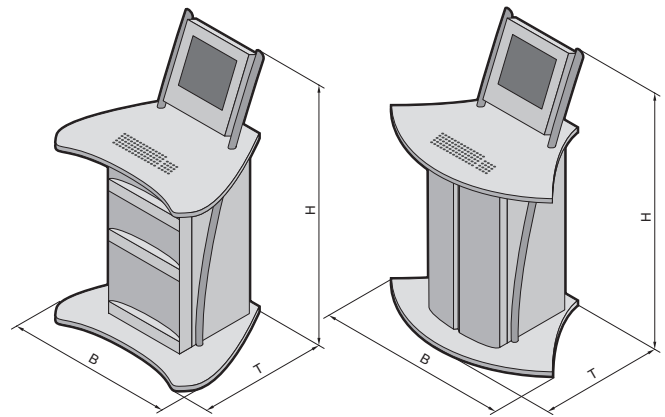
Opti-Desk

B = Width
T = Depth

The Opti-Desk is designed as a stylish free-standing PC work-station for the office environment and for use in the administrative sector.
The generous worktop offers plenty of work space, and its successful design blends harmoniously into any environment where effective advice, information and presentations are needed.

The PC hardware is housed in the lockable lower cupboard, where other equipment such as printers, scanners etc. may also be integrated on additional built-in component shelves. Several workstations may be bayed or sited in groups via optional worktops.

Material:
Display enclosure:
Sheet steel, spray-finished
Stainless steel
Worktop: MDF

Colour:
Body: RAL 9006
Display enclosure: RAL 9007
Worktop/base plate: RAL 9007
Design elements: RAL 9007

Property rights:
German registered design
no. 403 02 344

Specifications and the online configurator
can be found on the Internet at
www.terminals-by-rittal.de
or
www.kiosks-uk.com

Opti-Desk		Worktop curved inwards		Worktop curved outwards		Page
TFT display		15″	17″	15″	17″	
Basic electrical equipment with cabling and power pack for display (100 – 260 V, 50/60 Hz)		■	■	■	■	
Component shelf mounted in the bottom cupboard		■	■	■	■	
Base plate with slides		■	■	■	■	
Dimensions approximately (W x H x D mm)		1000 x 1500 x 800	1000 x 1500 x 800	1000 x 1500 x 800	1000 x 1500 x 800	
Dimensions of bottom cupboard with front door only approximately (W x H x D mm)		435 x 1000 x 530	435 x 1000 x 530	435 x 1000 x 530	435 x 1000 x 530	
Model No. ITS		**9021.250**	**9021.270**	**9021.255**	**9021.275**	
Accessories						
Active sound system including 2 speakers, fitted		9010.510	9010.510	9010.510	9010.510	–
Long-stroke keyboard with trackball, RAL 9005	German[1]	9004.300	9004.300	9004.300	9004.300	800
	US English[1]	9004.310	9004.310	9004.310	9004.310	800
Adaptor plate for long-stroke keyboard with trackball, stainless steel		9003.160	9003.160	9003.160	9003.160	800
Stainless steel keyboard with trackball, IP 65/IP 54	German[1]	9004.220	9004.220	9004.220	9004.220	800
	US English[1]	9004.222	9004.222	9004.222	9004.222	800
Membrane keyboard with mouse pad, IP 65	German[1]	9010.910	9010.910	9010.910	9010.910	801
	US English[1]	9010.912	9010.912	9010.912	9010.912	801
Component shelf for lower cupboard		9021.600	9021.600	9021.600	9021.600	–
Set of castors (2 with locks) to exchange for levelling feet		9021.650	9021.650	9021.650	9021.650	–
ITS PC system "Silent"		9010.110	9010.110	9010.110	9010.110	799
ITS PC system "Pro II"		9010.125	9010.125	9010.125	9010.125	799
ITS PC system "Basic"		9003.070	9003.070	9003.070	9003.070	799
PC operating system[2] MS Windows XP Home	German[1]	9030.100	9030.100	9030.100	9030.100	–
	English[1]	9030.102	9030.102	9030.102	9030.102	–
WLAN upgrade kit IEEE 802.11 type 1 (USB)		9011.100	9011.100	9011.100	9011.100	–

[1] Other language variants available on request.
[2] Operating system OEM version may only be ordered in conjunction with a PC system; other operating systems available on request.
Further accessories such as DSL/ISDN modem, card reader and coin checker, webcam etc. available on request.

Opti-Wall
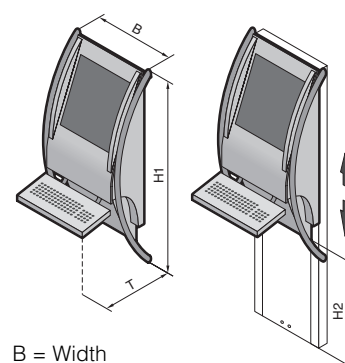
B = Width
H = Height

This new compact kiosk for wall mounting was developed on the basis of the successful Opti-Line design. This wall-mounted kiosk system, designed for representative indoor applications, is sure to impress, not only with its refined design, but with the benefits of internal space utilisation. Despite the minimal dimensions of this kiosk, there are a

range of different configuration variants available. You decide which TFT, PC or keyboard you require for your specific application.
There is a choice of two PC systems, specifically tailored to the intended application in terminal systems. In order to make it easier for children and wheelchair users to use a multimedia

kiosk, the accessories for the Opti-Wall include an electric height adjuster which may be adjusted to the user's requirements via controls.

Material:
Sheet steel, spray-finished
Stainless steel

Colour:
RAL 9007 (display enclosure)
RAL 9006 (basic enclosure)

Property rights:
German registered design
no. 403 02 344

Specifications and the online configurator
can be found on the Internet at
www.terminals-by-rittal.de
or **www.kiosks-uk.com**

Opti-Wall		Touchscreen		Prepared for keyboard		Page
TFT display		15″	17″	15″	17″	
Basic electrical equipment with cabling and power pack for display (100 – 260 V, 50/60 Hz)		■	■	■	■	
Dimensions of terminal enclosure approximately (B x H1 x T mm)		560 x 1000 x 200	560 x 1000 x 200	560 x 1000 x 400	560 x 1000 x 400	
Model No. ITS		**9020.150**	**9020.170**	**9020.250**	**9020.270**	
Accessories						
Active sound system including 2 speakers, fitted		9010.510	9010.510	9010.510	9010.510	–
Long-stroke keyboard with trackball, RAL 9005	German[1]	–	–	9004.300	9004.300	800
	US English[1]	–	–	9004.310	9004.310	800
Adaptor plate for long-stroke keyboard, stainless steel (required for the installation of 9004.300/.310)		–	–	9003.160	9003.160	800
Service keyboard with trackball for touch systems	German	9004.500	9004.500	–	–	801
	US English	9004.502	9004.502	–	–	801
Stainless steel keyboard with trackball, IP 65/IP 54	German[1]	–	–	9004.220	9004.220	800
	US English[1]	–	–	9004.222	9004.222	800
Membrane keyboard with mouse pad, IP 65	German[1]	–	–	9010.910	9010.910	801
	US English[1]	–	–	9010.912	9010.912	801
Electric height adjuster for Opti-Wall kiosk, H2 400 mm		9020.500	9020.500	9020.500	9020.500	–
ITS PC system "Silent"		9010.110	9010.110	9010.110	9010.110	799
ITS PC system "Pro II"		9010.125	9010.125	9010.125	9010.125	799
PC operating system[2] MS Windows XP Home	German[1]	9030.100	9030.100	9030.100	9030.100	–
	English[1]	9030.102	9030.102	9030.102	9030.102	–
WLAN upgrade kit IEEE 802.11 type 1 (USB)		9011.100	9011.100	9011.100	9011.100	–

[1] Other language variants available on request.
[2] Operating system OEM version may only be ordered in conjunction with a PC system; other operating systems available on request.
Further accessories such as DSL/ISDN modem, webcam etc. available on request.

Kiosks

B

5.7

Accessories Page 832 **Keyboards** Page 800

Kiosks

Alpha-Line
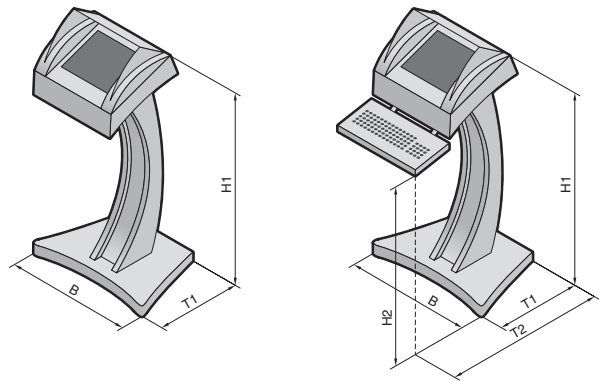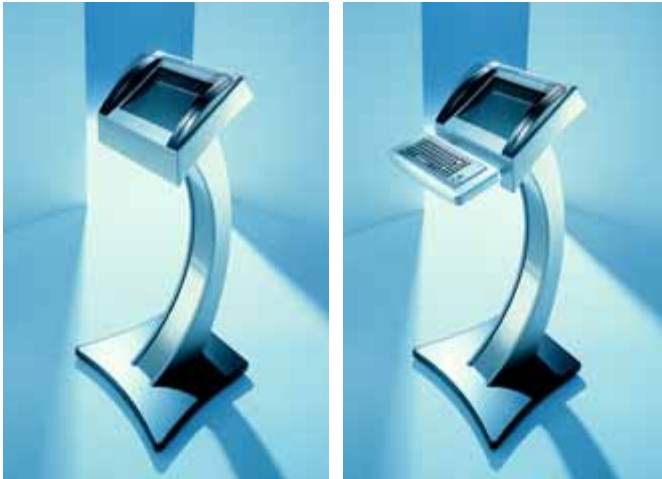
B = Width
T = Depth

The kiosk for tomorrow's world. Here, communication becomes an experience. Two ambitious objectives are united in a single kiosk: The traditional and the mundane have given way to lightness and design. Rounded shapes add rhythm and style, ensuring a powerful impact from any perspective. Eye-catching and out-of-the-ordinary. Simply unusual.

Suitable for the installation of compact and powerful PC systems (Silent and Pro) as well as your choice of keyboard. Navigate your way into the future with a touchscreen or keyboard.

Material:
Monitor housing:
Sheet steel, grey aluminium (RAL 9007), spray-finished
Pedestal:
MDF, grey aluminium (RAL 9007),
spray-finished,
with stainless steel trim
Base plate:
MDF, spray-finished black (RAL 9005)

Keyboard support:
Aluminium
Design-elements:
Spray-finished black (RAL 9005)

Property rights:
German registered design no. 402 06 035
Japanese registered design no. 1181196
Brazilian registered design no. DI6202609
Chinese registered design no. ZL 02338459
GB registered design no. 3006546
IR registered design no. DM/062 638
US design patent no. US D480,731

Specifications and the online configurator
can be found on the Internet at
www.terminals-by-rittal.de
or
www. kiosks-uk.com

Alpha-Line		Touchscreen	Prepared for keyboard	Page
TFT display		15″	15″	
Basic electrical equipment with cabling and power pack for display and sound system (100 – 260 V, 50/60 Hz)		■	■	
Dimensions including base plate and viewing guard approximately (B x H1 x T1 mm)		580 x 1300 x 540	580 x 1300 x 640	
H2 approx. mm		1010	1010	
T2 approx. mm		620	620	
Model No. ITS		**9007.105**	**9007.205**	
Accessories				
Active sound system including 2 speakers, fitted		9010.510	9010.510	–
Long-stroke keyboard with trackball, RAL 9005	German[1]	–	9004.300	800
	US English[1]	–	9004.310	800
Adaptor plate for long-stroke keyboard with trackball, stainless steel		–	9003.160	800
Service keyboard with trackball for touch systems	German	9004.500	–	801
	US English	9004.502	–	801
Stainless steel keyboard with trackball, IP 65/IP 54	German[1]	–	9004.220	800
	US English[1]	–	9004.222	800
Membrane keyboard with mouse pad, IP 65	German[1]	–	9010.910	801
	US English[1]	–	9010.912	801
ITS PC system "Silent"		9010.110	9010.110	799
ITS PC system "Pro II"		9010.125	9010.125	799
PC operating system[2] MS Windows XP Home	German[1]	9030.100	9030.100	–
	English[1]	9030.102	9030.102	–

[1] Other language variants available on request.
[2] Operating system OEM version may only be ordered in conjunction with a PC system; other operating systems available on request.

Rittal Catalogue 31/IT solutions

Out-Line Wall

B = Width
T = Depth

The new Out-Line Wall is a further development of the Opti-Wall kiosk for the semi-outdoor sector (+5 to +40°C). Despite the minimal dimensions of this kiosk, there are a range of different configuration variants available.

Options include, an outdoor-compatible sound system with protection category IP 55. Climate control kits, consisting of a heater and fan-and-filter units, are also available. In addition to the accessories listed here, other variants are also possible, together with various colour variants as customer-specific complete systems.

Colour:
RAL 9007

Various spray-finishes, including anti-grafitti spray finish, available on request.

Protection category:
IP 55

Specifications and the online configurator
can be found on the Internet at
www.terminals-by-rittal.de
or
www.kiosks-uk.com

Kiosks

B

5.7

Out-Line Wall with protection category IP 55		Touchscreen		Prepared for keyboard		Page
		15″	17″	15″	17″	
TFT display (high brightness for outdoor applications)		15″	17″	15″	17″	
Basic electrical equipment with cabling and power pack for display and sound system (100 – 260 V, 50/60 Hz)		■	■	■	■	
Wall bracket		■	■	■	■	
Dimensions of enclosure body approximately (B1 x H1 x T mm)		480 x 1100 x 305	480 x 1100 x 305	480 x 1100 x 365	480 x 1100 x 365	
Enclosure dimensions including all projecting parts approximately (B2 x H2 x T mm)		600 x 1360 x 305	600 x 1360 x 305	600 x 1360 x 365	600 x 1360 x 365	
Model No. ITS		**9023.150**	**9023.170**	**9023.250**	**9023.270**	
Accessories						
Active sound system including 2 speakers, fitted		9010.540	9010.540	9010.540	9010.540	–
Service keyboard with trackball for touch systems	German	9004.500	9004.500	–	–	801
	US English	9004.502	9004.502	–	–	801
Stainless steel keyboard with trackball, IP 65/IP 54	German[1]	–	–	9004.220	9004.220	800
	US English[1]	–	–	9004.222	9004.222	800
Membrane keyboard with mouse pad, IP 65	German[1]	–	–	9010.910	9010.910	801
	US English[1]	–	–	9010.912	9010.912	801
ITS PC system "Pro II"		9010.125	9010.125	9010.125	9010.125	799
ITS PC system "Silent"		9010.110	9010.110	9010.110	9010.110	799
PC operating system[2] MS Windows XP Home	German[1]	9030.100	9030.100	9030.100	9030.100	–
	English[1]	9030.102	9030.102	9030.102	9030.102	–
Climate control kit for Out-Line Wall[3]	Type 1 (mains voltage: 115 V, 50/60 Hz)	9010.331	9010.331	9010.331	9010.331	–
	Type 2 (mains voltage: 230 V, 50/60 Hz)	9010.332	9010.332	9010.332	9010.332	–

[1] Other language variants available on request.
[2] Operating system OEM version may only be ordered in conjunction with a PC system; other operating systems available on request.
[3] Detailed knowledge of the conditions on-site exactly is required to dimension the climate control kit accurately.

Accessories Page 832 **Keyboards** Page 800

Kiosks

Out-Line Pro
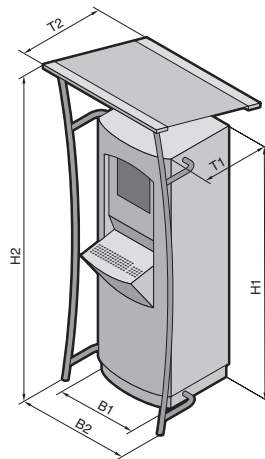
B = Width
T = Depth

This outdoor kiosk is designed for multimedia in an outdoor setting.
Based on Rittal's expertise in the outdoor sector, this twin-walled aluminium kiosk offers a high level of security in terms of protection from a wide variety of climatic and physical conditions, including protection against vandalism.

Internally, the enclosure may be configured with other components from the Rittal range of accessories, such as component shelves etc. Special displays suitable for outdoor use with high levels of light intensity are used in complete systems.

Material:
Aluminium, spray-finished
Tubes: Stainless steel

Colour:
RAL 9007

Various spray-finishes, including anti-grafitti spray-finish, available on request.

Protection category:
IP 55

Property rights:
German registered design
no. 403 02 344

Specifications and the online configurator
can be found on the Internet at
www.terminals-by-rittal.de
or
www.kiosks-uk.com

Out-Line Pro		Touchscreen		Prepared for keyboard		Page
TFT display (suitable for outdoor use with an increased light intensity)		15″	17″	15″	17″	
Basic electrical equipment with cabling and power pack for display and sound system (100 – 260 V, 50/60 Hz)		■	■	■	■	
Base/plinth with stabilisers, may be screw-fastened to the ground.		■	■	■	■	
Dimensions of terminal enclosure approximately (B1 x H1 x T1 mm)		650 x 2000 x 400	650 x 2000 x 400	650 x 2000 x 400	650 x 2000 x 400	
Dimensions of terminal including roof approximately (B2 x H2 x T2 mm)		1000 x 2400 x 1000	1000 x 2400 x 1000	1000 x 2400 x 1000	1000 x 2400 x 1000	
Model No. ITS		**9022.150**	**9022.170**	**9022.250**	**9022.270**	
Accessories						
Active sound system including 2 speakers, fitted		9010.540	9010.540	9010.540	9010.540	–
Service keyboard with trackball for touch systems	German	9004.500	9004.500	–	–	801
	US English	9004.502	9004.502	–	–	801
Stainless steel keyboard with trackball, IP 65	German[1]	–	–	9004.220	9004.220	800
	US English[1]	–	–	9004.222	9004.222	800
Membrane keyboard with mouse pad, IP 65	German[1]	–	–	9010.910	9010.910	801
	US English[1]	–	–	9010.912	9010.912	801
ITS PC system "Silent"		9010.110	9010.110	9010.110	9010.110	799
ITS PC system "Pro II"		9010.125	9010.125	9010.125	9010.125	799
PC operating system[2] MS Windows XP Home	German[1]	9030.100	9030.100	9030.100	9030.100	–
	English[1]	9030.102	9030.102	9030.102	9030.102	–
WLAN upgrade kit IEEE 802.11, type 2 (PCI card with external outdoor aerial for the PC system "Pro" and "Basic")		9011.110	9011.110	9011.110	9011.110	–
Climate control kit for outdoor terminals[3]	Type 1 (mains voltage: 115 V)	9010.311	9010.311	9010.311	9010.311	–
	Type 2 (mains voltage: 230 V)	9010.312	9010.312	9010.312	9010.312	–

[1] Other language variants available on request.
[2] Operating system OEM version may only be ordered in conjunction with a PC system; other operating systems available on request.
[3] Detailed knowledge of the conditions on-site is required to dimension the climate control kit accurately.
Operation at –20 to +40°C in Central Europe is possible under the conditions defined in IEC 68.
Further accessories such as card reader, coin checker as well as climate control units available on request.

PC systems

Kiosks Mini-PC system
Rittal now offers innovative PC technology to match the kiosk systems which is specifically tailored to the requirements of the kiosk sector. There is a choice of three PC systems which are ideally suited for use in all terminal systems in terms of noise emission, system performance and compact design.

With the PC system "Silent", the designers focussed their attention on a noise- and heat loss-reducing design. In this way, we have managed to dispense with the use of active fans for the power pack and for cooling the PCU.

Mini-PC configuration[1]	Silent	Pro II	Basic[4]
Fanless PC (Mini-ITX, VIA Eden CPU), 633 MHz	■	–	–
Intel Pentium M CPU min. 1.6 GHz with active fan	–	■	–
Intel Celeron CPU min. 2.0 GHz with active fan	–	–	■
Main memory	256 MB	256 MB	256 MB
Hard disk (minimum capacity, approx.)	40 GB	40 GB	40 GB
CD-ROM	■	–	■
DVD-ROM	–	■	–
Model No. ITS	**9010.110**	**9010.125**	**9003.070**
Interfaces			
PS/2 (keyboard and mouse)	■	■	■
VGA (onboard)	■	■	■
Sound (onboard, 6-way surround sound 5.1, AC97 codec) connections in/out	2/1	1/1	–
Sound (onboard AC97 codec) connections in/out	–	–	2/1
Ethernet 10 and 100 Mbit/s (RJ 45)	■	■	■
Serial (RS232, D-Sub 9 pin)	1 x	1 x	1 x
Parallel (ECP/EPP, D-Sub 25 pin)	1 x	–	1 x
USB	2 x	2 x	4 x rear/2 x front
Firewire (IEEE 1394)	2 x	–	–
SP-DIF out (RCA, if TV-out is not used)	■	–	–
TV-out (PAL & NTSC) (RCA, if SP-DIF is not used)	■	–	–
Extension slot PCI	–	–	2 x/1 x AGP Low Profile
External power pack (prim.: 100 – 240 V, 50/60 Hz/sec. 12 V, 60 – 80 W)	■	■	–
Internal power pack (100 – 240 V, 50/60 Hz)	–	–	■
Dimensions approximately (W x H x D mm)	300 x 55 x 300	300 x 55 x 300	350 x 95 x 385

Accessories[1]				
PC operating operating system[2] MS Windows XP Home	German[3]	9030.100	9030.100	9030.100
	English[3]	9030.102	9030.102	9030.102
	French[3]	9030.103	9030.103	9030.103
	Spanish[3]	9030.104	9030.104	9030.104

[1] We reserve the right to make configuration changes in line with technical progress.
[2] Operating system OEM version may only be ordered in conjunction with a PC system.
[3] Other language variants available on request.
[4] PC system Basic not for use in: ITS Alpha-Line, ITS Opti-Wall, ITS Out-Line Wall and ITS Out-Line Pro.
Other PC configurations available on request.

Kiosks

B

5.7

Keyboards

Long-stroke keyboard

with trackball
Super-slimline, compact long-stroke keyboard (83/84 keys) with top-quality 16 mm trackball. Available in two different colours and several country layouts.

For independent installation into the keyboard supports or keyboard recesses, an adaptor plate is additionally required.

Mechanical specifications:
Key buttons in an 18 mm pitch pattern
Trackball Ø 16 mm
Weight: 720 g
Storage temperature: –20°C to +60°C
Operating temperature: 0°C to +50°C
Dimensions W x H x D:
370 x 138.5 x 20 mm.

Electrical specifications:
Connections: PS/2 for keyboard and trackball
Operating voltage: 5 V DC type 18 mA

USB version available on request.

Material:
Plastic

Language[1]	Model No. ITS	
	RAL 9005 (black)	RAL 7032 (beige)
German	**9004.300**	**9004.320**
US English	**9004.310**	**9004.330**
French	**9004.303**	**9004.323**
Spanish	**9004.304**	**9004.324**

[1] Other language variants available on request.

	Model No. ITS
Adaptor plate in brushed stainless steel	**9003.160**
Adaptor plate, sheet steel, RAL 9005 (black)	**9003.170**

Stainless steel keyboard

with trackball
The stainless-steel full-stroke keys (86 keys) with a stroke of 3.5 mm are laser-engraved and protected against being twisted out or snapped off. The keyboard conforms to CE requirements.

Mechanical specifications:
Actuator travel: 3.5 mm
Actuator force: 0.56 N, tactile
Service life: > 10 million actuations
Storage temperature: –40°C to +70°C
Operating temperature: –20°C to +60°C
Dimensions W x H x D:
432 x 155 x 34 mm (R = 10 mm).

Electrical specifications:
Connections: PS/2 for keyboard and trackball
Operating voltage: 5 V DC, max. 50 mA

USB version available on request.

Protection category:
Keyboard and trackball
IP 65 (idle)
IP 54 (in motion)

Language[1]	Model No. ITS
German	**9004.220**
US English	**9004.222**
French	**9004.223**
Spanish	**9004.224**
Finnish	**9004.226**
Swedish	**9004.227**

[1] Other language variants available on request.

Kiosks

B
5.7

Service keyboard

with trackball

Compact keyboard with intgral trackball for mobile on-site service use with kiosk systems. This keyboard makes maintenance work and software installation easier for kiosk systems with a touchscreen which do not have their own keyboard. This keyboard is not essential for operation of the terminals, but in many terminals it may remain inside the enclosure, thanks to the minimal dimensions. This keyboard additionally has 18 multimedia keys.

Mechanical specifications:
Actuator travel: 2.2 mm
Trackball: Ø 19 mm
Service life: 1 million actuations
Operating temperature: 0°C to +50°C
Dimensions W x H x D:
316 x 152 x 21 mm.

Electrical specifications:
Connections: PS/2 for keyboard and trackball

USB version available on request.

Language	Model No. ITS
German	**9004.500**
US English	**9004.502**

Material:
Plastic

Protection category:
IP 20

Membrane keyboard

with mouse pad

Membrane keyboard with 86 keys and integrated mouse pad in MF-II/WIN-compatible layout for integration into the keyboard support of all kiosk systems.

Mechanical specifications:
Actuator travel: 0.5 mm
Actuator force: 2.55 N ± 0.65 N
Service life: >1 million actuations
Touchpad: Active area 62 x 47 mm
Dimensions W x H x D:
432 x 155 x 18 mm
Front film: Resistant polyester
Keys: With key edge embossing
Carrier plate: Metal.

Electrical specifications:
Connections: PS/2 for keyboard and trackball

USB version available on request.

Language[1]	Model No. ITS
German	**9010.910**
US English	**9010.912**
French	**9010.913**
Spanish	**9010.914**
Finnish	**9010.916**
Swedish	**9010.917**

[1] Other language variants available on request.

Protection category:
IP 65

Kiosks

B

5.7

Example of a customer-specific terminal solution with 4000-page thermo-printer.

Telecom

Features

Modern telecommunications continuously place new demands on racks and enclosures. Above all, maximum flexibility is crucial to conform with the various standards. Combined with creative scope, you get cost-effective solutions for your individual requirements.

TC rack
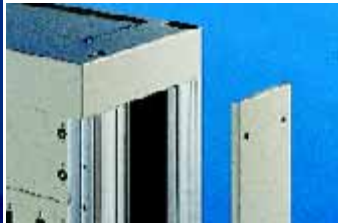
Rear/side panel
to finish off a complete enclosure unit.
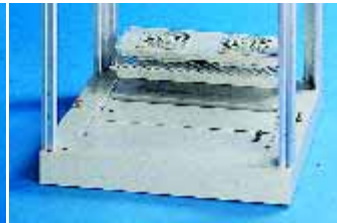
Roof and base/plinth insert
The inserts may be fitted as required in the roof or base/plinth.
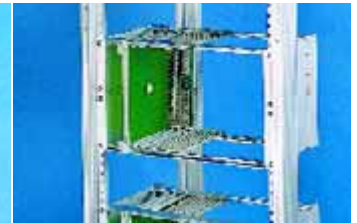
Option of installing all standard **482.6 mm (19″) or metric (535 mm) components.**

Small FM distributors

FM universal mounting brackets for LSA-Plus, VS-Standard and other common connection systems.

Prepared for mounting **LSA cable retainers** or routing troughs.
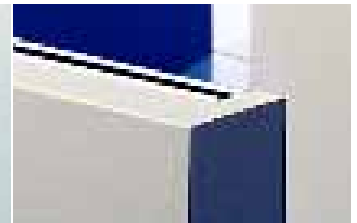
Cable entry
top and bottom. With 2 comb strips for cable clamping.

Modular FM distribution enclosures
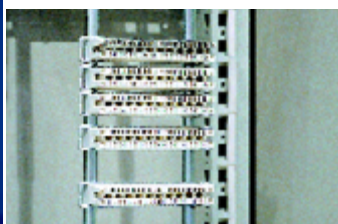
Wall-mounted and bayed enclosures
Rittal diversity, from small distributors, to FM wall-mounted distributors, to two-door bayed enclosures.

FM system strips
for DIN strips, dividing strips 71 and FM universal mounting brackets.
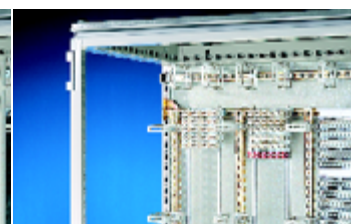
FM system rods
for LSA-Plus-Profil modules 2/10.

Rack system, based on Rittal TC rack
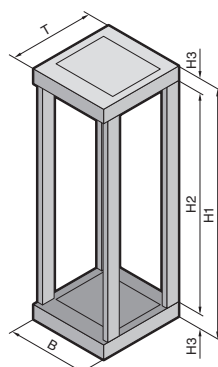
Material:
Roof/base frame:
Sheet steel, 2 mm
Frame:
Aluminium

Surface finish:
Roof/base frame:
Powder-coated in RAL 7035
Frame:
Natural, zinc-plated, passivated

Supply includes:
Frame:
4 supporting aluminium uprights,
the two front uprights are prepared to accommodate doors whilst the two rear uprights are prepared to accommodate a rear panel and a ceiling fastening.

Roof/base frame:
To accommodate roof/base cover modules.
Fitted as standard with cover plate (D = 300 mm) or sliding cover (D = 600 mm),
4 levelling feet.

Property rights:
German patent no. 43 33 027
European patent no. 645 957
with validity for FR, GB, IT, NL
US patent no. 5,513,759
Jap. patent no. 233373/94

Note:
Used in conjunction with metric (535 mm) mounting angles, the Telecommunication Rack meets the requirements of ETS standard 300119-3.

Available on request:
- TC rack fully fitted with all mounting parts
- Divided front doors
- Special sizes

Detailed drawing,
available on the Internet.

	Packs of	600	600	Page
Width (B) in mm		600	600	
Height (H1) in mm		2200	2200	
Depth (T) in mm		300	600	
Height or mounting dimension (H2) in mm		2050 (46 U/82 SU)	2050 (46 U/82 SU)	
Height roof/base frame (H3) in mm		75	75	
Model No. DK	1	**7723.035**	**7726.035**	
Door				
Sheet steel door, front, solid	1	7720.035[2]	7720.035[2]	804
Sheet steel door, front, with vent slots	1	7722.035[2]	7722.035[2]	804
Sheet steel door, front, with safety glass insert	1	7725.035[2]	7725.035[2]	804
Rear/side panel				
Rear panel	1	7729.235[2]	7729.235[2]	804
Side panels	2	7713.235	7716.235	804
Roof				
Ceiling fastening	1 set	7719.000	7719.000	804
Roof insert for cable entry	1	–[1]	7701.035	804
Roof insert with vent slots	1	7702.035	7702.035	804
Active fan insert	1	7703.035	7703.035	804
Base/plinth				
Base insert for cable entry	1	–[1]	7701.035	804
Base insert with vent slots	1	7702.035	7702.035	804
Active fan insert	1	7703.035	7703.035	804
Interior installation				
Component shelves for 482.6 mm (19″) mounting angles	1	7119.250	7119.400	948
Component shelves for metric mounting angles (530 mm)	1	7119.255[2]	7119.455[2]	948
Mounting angles, 482.6 mm (19″), 46 U	2	7758.000	7758.000	805
Metric mounting angles (535 mm), 82 SU	2	7760.000	7760.000	805
Depth stays	6	7128.000	7129.000	805
Cable clamp rails for installation in the enclosure width	4	7101.000	7101.000	805
Cable clamp rails for installation in the enclosure depth	4	7090.000	7107.000	805
Cable clamp straps for 482.6 mm (19″)	6	7875.400	7875.400	805

[1] Special designs available on request. [2] Extended delivery times.

Telecom

B

5.8

Acessories for Rittal TC Rack
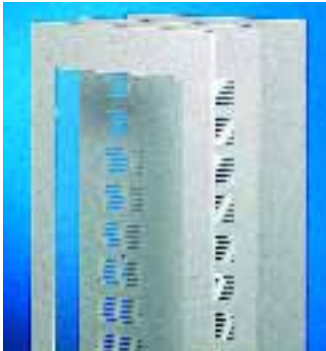
Door

For front mounting, with 180° hinges, locking rod, double-bit lock insert (may be exchanged for Ergoform-S lock system).

Material:
Sheet steel

Colour:
RAL 7035

Sheet steel door at front	Model No. DK
Solid	**7720.035[1]**
With vent slots	**7722.035[1]**
With safety glass insert	**7725.035[1]**

Lock system	Model No. SZ
Ergoform-S handle RAL 7035	2435.000
Lock no. 3524 E	2467.000

[1] Extended delivery times.
Available on request.
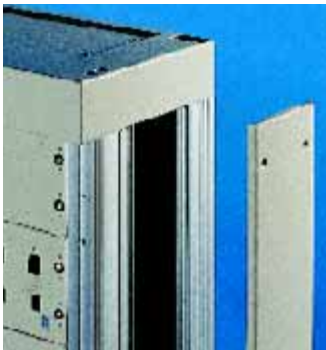
Rear/side panel

To finish off a complete enclosure unit, including assembly material.

Material:
Sheet steel

Colour:
RAL 7035

For side panels DK 7713.235 and DK 7716.235:

German patent no. 43 33 025
US patent no. 5,584,406

	For enclosure depth mm	Packs of	Model No. DK
Side panel	300	2	**7713.235**
Side panel	600	2	**7716.235**

	For enclosure width mm	Model No. DK
Rear panel	600	**7729.235[1]**

[1] Extended delivery times.
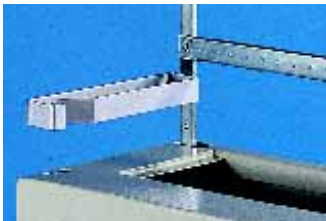
Ceiling fastening

Infinitely height-adjustable for ceiling fastening of free-standing Rittal TC Racks and for cable routing.
Max. mounting height of vertical stays: 550 mm

Material:
Sheet steel, zinc-plated, passivated

Model No. DK	7719.000

Supply includes:
2 vertical stays,
1 horizontal rail,
2 cable shunting rings,
including assembly parts.
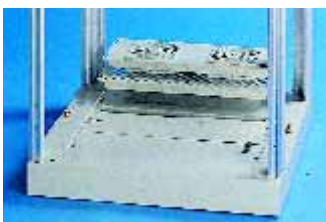
Roof and base/plinth insert

The inserts may be fitted in the roof or base/plinth as required.

Material:
Sheet steel

Colour:
RAL 7035

Roof and base/plinth insert	Model No. DK
For cable entry[1]	**7701.035**
With vent slots	**7702.035**
With active fan insert	**7703.035**

[1] For Rittal TC Rack DK 7726.035.
Special design for DK 7723.035 available on request.

Mounting angles on a U/SU pitch pattern and T channel mounting angles,

482.6 mm (19″)/metric (535 mm)

The mounting angles are simply screwed to the rack upright; a combination of 482.6 mm (19″) and metric (535 mm) mounting angles is also possible. Also available in a T channel version. The mounting angles are depth-adjustable including mounting material.

	Packs of	Model No. DK		
		U pitch pattern mounting angles	SU pitch pattern mounting angles	T channel mounting angles
46 U	2	**7758.000**	–	**7758.100**
82 SU	2	–	**7760.000**	**7760.100**

Material:
Aluminium, clear-chromated

➕ **Accessories:**

Captive nuts M5 /M6, spring nuts, screws M5 /M6, see page 1019.

Depth stays

For infinitely variable adjustment of metric (535 mm) or 482.6 mm (19″) mounting angles across the entire enclosure depth, or for attachment of a second pair of 482.6 mm (19″) mounting angles at the rear.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Depth stays, including assembly parts.

Enclosure depth mm	Packs of	Model No. DK
300	6	**7128.000**
600	6	**7129.000**

Cable clamp rails

For installation in the enclosure width and depth. Fully height-adjustable for cable clamping with rear or side cable routing.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Cable clamp rails, including assembly parts.

Enclosure width mm	Packs of	Model No. DK
600	4	**7101.000**

Enclosure depth mm	Packs of	Model No. DK
300	4	**7090.000**
600	4	**7107.000**

Clip-on nuts

For variable interior installation of TC racks. Simply clip onto one of the two channels, for infinitely variable component mounting.

German patent no. 195 24 648
European patent no. 0 836 679
Japanese patent no. 28 91 779
US patent no. 5,897,276

Packs of	Model No. FR
50	**2102.500**

➕ **Accessories:**

M6 assembly screws, see page 1019.

Cable clamp strap

For system-compatible cable routing in the TC Rack, behind a pair of 482.6 mm (19″) mounting angles.

Material:
Sheet steel, zinc-plated, passivated

Depth mm	Packs of	Model No. DK
100	6	**7875.400**

Telecom

B

5.8

Telecom

Small FM distributors
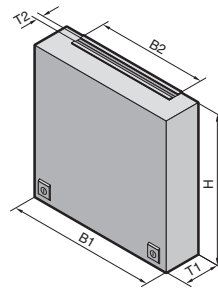
Material:
Sheet steel, 1.5 mm

Surface finish:
Powder-coated in RAL 7035

Supply includes:
Two-part enclosure

Wall section:
With mounting holes for wall mounting, 2 comb strips for cable clamping and brush insert for cable entry, shunting ring for system-compatible routing of telecommunications cables.

Cover:
Retaining device and two cam locks with double-bit lock insert.

Property rights:
German patent
no. 44 10 795

Detailed drawing,
available on the Internet.

	Packs of	300	500	500	900	Page
Width (B1) in mm		300	500	500	900	
Height (H) in mm		500	500	700	700	
Depth (T1) in mm		120	120	120	120	
Width of cable entry (B2) in mm		195	395	395	795	
Depth of cable entry (T2) in mm		29	29	29	29	
Model No. DK	1	**7052.035**	**7053.035**	**7054.035**	**7055.035**	
Max. number of adjacent cable retainers or mounting troughs (LSA)		1	2	2	4	
Max. accommodation when using cable retainers or mounting troughs (LSA)		100 DA	200 DA	400 DA	800 DA	
Shunting ring, plastic, 70 x 44 mm		2	3	3	5	
Accessories						
FM universal mouting brackets type A, L = 275 mm, LSA-Plus	1 set	7031.100	7031.100	7031.100	7031.100	811
FM universal mouting brackets type B, L = 275 mm, VS-Standard	1 set	7031.101	7031.101	7031.101	7031.101	811
Lock systems						
"15" locks (Zeiss-Ikon)	2	7059.035[1]	7059.035[1]	7059.035[1]	7059.035[1]	891
"15" key (Zeiss-Ikon)	1	7059.100[1]	7059.100[1]	7059.100[1]	7059.100[1]	891
T handle without lock insert	1	2572.000	2572.000	2572.000	2572.000	887
T handle with lock insert no. 3524 E	1	2575.000	2575.000	2575.000	2575.000	887
Plastic handle with lock no. Nr. 3524 E	1	2576.000	2576.000	2576.000	2576.000	886
Plastic handle	1	2533.000	2533.000	2533.000	2533.000	886

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, version A, see page 888.

[1] Extended delivery times.

Modular FM wall-mounted distributor
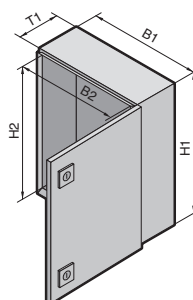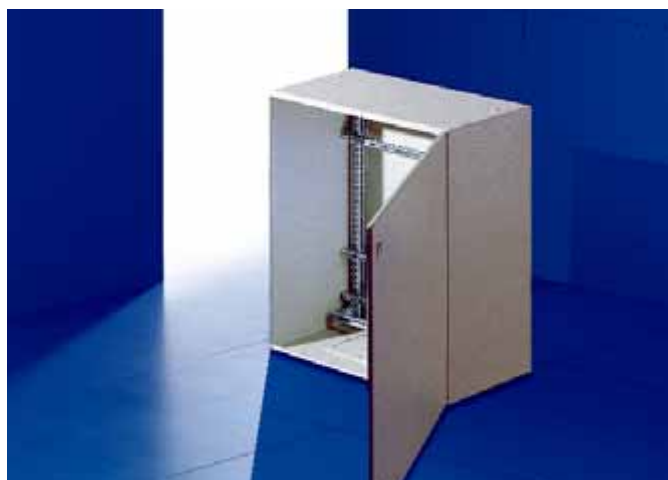
Material:
Sheet steel, 1.5 mm
Door: 2.0 mm

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Enclosure: Based on Rittal AE with gland plate at bottom, swappable door hinge (height 1200 mm with 3-point locking rod and double-bit lock), earth rail, cable clamp rail, 2 punched rails to accommodate FM system strips, FM system rods and FM cable shunting strips. Top horizontal punched rail to accommodate cable shunting rings, double-bit lock inserts.

Available on request:
● FM wall-mounted distributor configured with Rittal standard accessories (FM system strips, FM system rods, FM cable shunting strips etc.) to order.
● Cable routing with brush strips top/bottom.

Approvals,
see page 92.

Detailed drawing,
available on the Internet.

Width (B1) in mm	Packs of	600	760	800	800	Page
Height (H1) in mm		600	760	1000	1200	
Depth (T1) in mm		350	300	300	300	
Clearance width (B2) in mm		560	720	760	760	
Clearance height (H2) in mm		560	720	960	1160	
Model No. DK	1	**7011.535**	**7012.535**	**7013.535**	**7014.535**	
Maximum accommodation when using FM system strips with trays or FM rods		340 paired wires	500 paired wires	990 paired wires	1170 paired wires	
Installation of FM system strips FM system towers FM system rods		2 set	2 set	3 set	3 set	
Accessories						
Plastic handles with lock cylinder insert	1	2439.000	2439.000	2439.000	2439.000	886
Ergoform-S handle	1	–	–	–	2435.000	885
FM system strips[1]	1 set	7032.500	7033.500	7034.500	7035.500	809
FM system rods	1 set	7533.000	7534.000	7535.000	7536.000	810
FM cable shunting strips	1 set	7233.000	7234.000	7235.000	7236.000	810
Plastic cable gland plates	5	2563.000	2563.000	2563.000	2563.000	966
Wall mounting bracket, 10 mm	1	2508.000	2508.000	2508.000	2508.000	905
Wall mounting bracket, 40 mm	1	2503.000	2503.000	2503.000	2503.000	905

[1] FM universal mounting bracket, VS standard, DIN strips, 71 dividing strip and distributor system series 5000 may be fitted.

Telecom

B

5.8

Telecom

Modular FM distributor racks
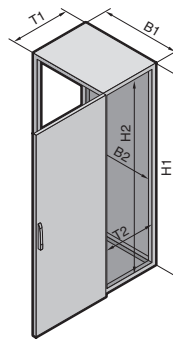
Material:
Sheet steel,
Enclosure frame, roof, rear panel
and gland plates:
1.5 mm
Door: 2 mm

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Enclosure frame with door or
2 doors, without side panels,
comfort handle with security
lock, three-piece gland plate,
rear panel and roof plate,
3 punched rails to accommo-
date FM system strips,
FM system rods, FM cable
shunting strips, 1 top horizontal
punched rail to accommodate
cable shunting rings, cable
clamp rail, earth rail.

Available on request:
● FM distributor racks con-
figured with Rittal standard
accessories (FM system
strips, FM system rods,
FM cable shunting strips etc.)
to order.
● FM distributor racks in special
sizes.

Approvals,
see page 92.

Detailed drawing,
available on the Internet.

Width (B) in mm	Packs of	600	800	1200	Page
Height (H) in mm		2000	2000	2000	
Depth (T) in mm		400	400	400	
Clearance width (B2) in mm		512	712	1112	
Clearance height (H2) in mm		1912	1912	1912	
Clearance depth (T2) in mm		312	312	312	
Model No. DK	1	**7834.060**	**7834.080**	**7834.120**	
Maximum accommodation when using FM system strips with trays or FM rods		1300 paired wires	1950 paired wires	3250 paired wires	
Installation of FM system strips FM system towers FM system rods		2	3	5	
Accessories					
FM system strips[1]	1 set	7038.500	7038.500	7038.500	809
FM system rods	1 set	7538.000	7538.000	7538.000	810
FM cable shunting strips	1	7238.000	7238.000	7238.000	810
Cable shunting ring — 120 x 90 mm	10	7111.900	7111.900	7111.900	810
Cable shunting ring — 120 x 60 mm	10	7111.000	7111.000	7111.000	810
Cable shunting ring — 80 x 40 mm	10	7112.000	7112.000	7112.000	810
Side panels	2	8104.235	8104.235	8104.235	853
Quick-fit baying clamps	6	8800.500	8800.500	8800.500	863
Roof plate for cable entry	1	7826.645[2]	7826.845[2]	7826.245[2]	901
Height 100 mm, base/plinth components front/rear	1 set	8601.600	8601.800	8601.200	835
Height 100 mm, base/plinth components sides 400 mm	1 set	8601.040	8601.040	8601.040	835
Height 200 mm, base/plinth components front/rear	1 set	8602.600	8602.800	8602.200	835
Height 200 mm, base/plinth components sides 400 mm	1 set	8602.040	8602.040	8602.040	835

[1] FM universal mounting bracket, VS standard, DIN strips, 71 dividing strip and distributor system series 5000 may be fitted.
[2] Extended delivery times.

Accessories Page 832
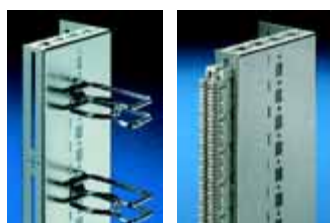
FM system strips

For user-specific solutions or modular FM enclosure assembly. The following connection systems may be mounted on the FM system strips:

- DIN connector strips to DIN 47 614, type B; soldering lugs to DIN 41 499, LSA-Plus connector strips 1/20 to DIN 47 608 with 170 mm mounting dimension, vertical (with 2 FM system strips, horizontal mounting is possible).
- Cable retainers or routing troughs for LSA connection technology.
- Dividing strip 71.
- Corning series 5000 distribution system for professional assembly of modern distributors with plug-type Faston technology.

The FM system strip features a 25 mm DIN pitch pattern (DIN 43 660). Shunting rings of plastic or metal may be fitted here for cable routing. As an alternative to this, however, FM cable shunting strips may also be used.

Design:
Installation height: 120 mm
Installation width: 75 mm

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
1 FM system strip,
2 shunting rings (105 x 70 mm),
including assembly parts.

⊞ **Accessories:**

FM universal mounting bracket,
see page 811.
Shunting ring (plastic) DK 7218.035,
DK 7219.035,
see page 984.
Shunting ring (metal) DK 7111.000, DK 7111.900,
DK 7112.000,
see page 810.
FM cable shunting strips,
see page 810.

Population opportunities for DIN, LSA and dividing strips

	Model No. DK					
FM system strips	7032.500[1]	7033.500[1]	7034.500[1]	7035.500[1]	7038.500	7039.500
Length mm	425	625	825	975	1625	1825
Connection system	Maximum population[1] paired wires					
DIN connector strip	20	60	80	100	160	180
LSA connector strip	170	250	330	390	650	730
Dividing strip 71	100	200	200	300	500	600

[1] Based on the following mounting dimensions:
– DIN connector strip 170 mm
– LSA connector strip 25 mm
– Dividing strip 71: 290 mm

Population opportunities for Corning distributor system series 5000

	Model No. DK					
FM system strips	7032.500[1]	7033.500[1]	7034.500[1]	7035.500[1]	7038.500	7039.500
Length mm	425	625	825	975	1625	1825
	No. of blocks per FM system strip					
Block 128 p. wires, L = 218 mm	1	1	1	2	3	3
Block 100 p. wires, L = 152 mm	1	2	3	2	5	6
Block 384 p. wires, L = 640 mm	–	–	–	–	1	1
Block 600 p. wires, L = 925 mm	–	–	–	–	1	1
Block 104 p. wires, L = 180 mm	2	3	4	5	8	9
Block 128 p. wires, L = 218 mm	1	2	3	4	7	8
Block 200 p. wires, L = 333 mm	1	1	2	2	4	5
Block 1000 p. wires, L = 1,690 mm	–	–	–	–	–	1

Population opportunities for FM universal mounting bracket

		Model No. DK					
FM system strips		7032.500[1]	7033.500[1]	7034.500[1]	7035.500[1]	7038.500	7039.500
Length mm		425	625	825	975	1625	1825
Max. packs of mounting brackets		1	2	2	3	5	6
Vertical bracket distance in mm		–	50	50	50	50	35
Connection system	Pitch pattern distance mm	No. of strips per system strip					
LSA-Plus	22,5	12	24	24	36	60	72
VS-Standard	25	11	22	22	33	55	66
Other connection systems	22.5	12	24	24	36	60	72
	17.5	15	30	30	45	75	90
	16	17	34	34	51	85	102

[1] Extended delivery times.

Telecom

B

5.8

Telecom

Accessories for FM distribution racks
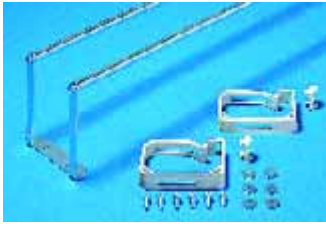
FM system rods

For user-specific solutions or modular FM enclosure assembly. LSA-Plus profile modules 2/10 may be mounted on the FM system rods. The rod diameter is 12 mm and the rod spacing 95 mm. The FM system rods may be supplemented with FM cable shunting strips, to permit the accommodation of patching cables.

Design:
Installation height: 120 mm
Installation width: 110 mm

Material:
Round steel, clear-chromated

Supply includes:
2 rods,
2 rod holders, plus (with 650 paired wires and more) an additional rod spacer,
2 shunting rings (105 x 70 mm),
including assembly parts.
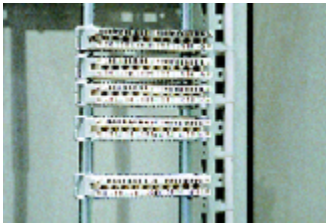
LSA-Plus[1] profile module 2/10	Length mm	Packs of	Model No. DK
170 DA	425	1 set	**7533.000**
250 DA	625	1 set	**7534.000**
330 DA	825	1 set	**7535.000**
390 DA	975	1 set	**7536.000**
650 DA	1625	1 set	**7538.000**
730 DA	1825	1 set	**7539.000**

[1] Refers to LSA strip pitch pattern of 25 mm.

FM cable shunting strips

For user-specific solutions or modular FM enclosure assembly.
FM cable shunting strips allow shunting between the connection systems.
The FM cable shunting strips are supplementary to FM system strips and FM system rods, and are designed for routing patch cables. They are mounted on the sides, next to the FM system strips or FM system rods.

Design:
Installation height: 132 mm
Installation width: 70 mm
Shunting ring: 105 x 70 mm

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
1 punched rail,
shunting rings,
including mounting accessories.

Shunting ring	Length mm	Packs of	Model No. DK
2	425	1 set	**7233.000**[1]
3	625	1 set	**7234.000**[1]
4	825	1 set	**7235.000**[1]
5	975	1 set	**7236.000**[1]
7	1625	1 set	**7238.000**
8	1825	1 set	**7239.000**

[1] Extended delivery times.

Cable shunting ring

For flexible and system-compatible cable routing on FM system strips, FM distribution enclosures or at the sides on 482.6 mm (19″) mounting angles.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Locating plate and assembly parts.

Dimensions mm	Packs of	Model No. DK
120 x 90	10	**7111.900**
120 x 60	10	**7111.000**
80 x 40	10	**7112.000**

German patent no. 38 13 002

Telecom

B
5.8

Accessories for FM distribution racks

FM universal mounting bracket
The universal mounting brackets consist of
2 brackets that can be combined with the
connection systems of other manufacturers,
depending on how they are positioned next to
each other. The brackets may be slid flexibly
against each other so that strips with different
lengths can be used. The mounting brackets can
be mounted in FM distribution enclosures or on
FM system strips.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
2 mounting brackets, support strips,
assembly parts.
Mounting bracket, type A for LSA-Plus strips
(8 or 10 p. wires) and other commercially avail-
able connection systems.
Mounting bracket, type B for VS-Standard and
other commercially available connection systems.

Mounting bracket	Length mm	Connection system	LSA-Plus	VS standard	Other connection systems			Packs of	Model No. DK
		Pitch pattern in mm	22.5	25	22.5	17.5	16		
Type A	275	No. of strips	12	–	–	15	–	1 set	**7031.100**
Type B	275	No. of strips	–	11	12	–	17	1 set	**7031.101[1)**

[1)] Extended delivery times.

B
5.8
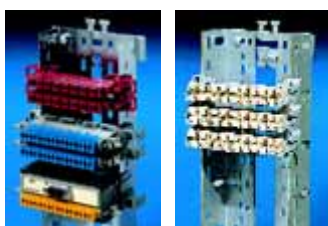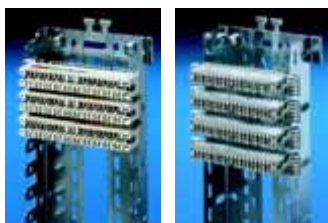
Rittal **outdoor enclosures, outdoor climate control components and remote monitoring systems** will withstand even the toughest conditions. In this respect, we are uncompromising.

From basic requirements such as humidity, temperature fluctuations and sunlight, to **extreme conditions** such as seawater resistance or earthquake resistance, through to protection against vandalism, Rittal has the answer.

In this way, we ensure that there are no limits to our customers' targets.

RITTAL

Communication Systems

B

6.

CS outdoor enclosures

Features

For all requirements in the outdoor sector, Rittal has the ideal enclosure solution, thanks to its platform strategy. With single-walled or twin-walled enclosures of aluminium or coated sheet steel, as well as an extensive range of accessories. With constant interior temperatures and perfect climate, thanks to in-house development and production of cooling units, heat exchangers and heaters.

CS Toptec
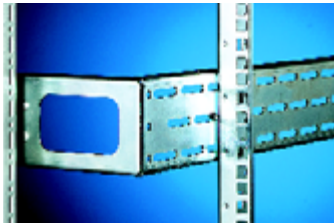
The CS Toptec is based on the **TS 8 frame of stainless steel** 1.4301. Fully symmetrical,

more options for universal interior installation thanks to two all-round mounting levels on

a 25 mm pitch pattern, and **compatibility with system accessories TS 8.**

In the twin-walled enclosure all panels and doors are built up externally. This chimney effect reduces the influence of sunlight on the enclosure.

You are able to utilise the entire interior for your installation.

Bayed enclosure suites and enclosures with doors all round can be achieved thanks to the **combination of assembly components.**

CS wall-mounted enclosures

The **enclosure-within-an-enclosure concept** with the curved designer cover is a characteristic feature.

Security lock on the designer cover and door of the interior enclosure.

Air louvres at the sides and in the rear panel.

Features

CS compact enclosures

Application diversity: The basic dimensions of the compact enclosures correspond to Deutsche Telekom's base/plinth dimensions KVz 83 and 84.

The **rain canopy for optimum weather protection** and to accommodate an air/air heat exchanger.

Ergoform padlock handle system. Security with semi-cylinder.
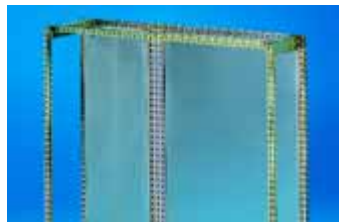
Assembly-friendly: Remove the enclosure cover, interior installation is soon complete on the open mounting frame, slip the cover back over, screw-fasten into position, and voila!

The gland plates ensure a **high degree of flexibility with cable entry.**

With the **roof-mounted heat exchanger** for 1100 mm wide enclosures, the protection category of IP 55 is retained.

CS basic enclosures

Eyebolts, concealed by the rain canopy, for crane transportation of the fully fitted unit.

Ventilation louvres all-round in the hinged rain canopy – with an all-round roof projection of 25 mm.

Width 1200 mm: **With removable centre bar** and two lockable doors with or without centre bar, with overlapping doors.

The open base frame may be covered with **gland plates.**

Individual installation with an **extensive choice of system accessories.**

25 mm system punchings for mounting 482.6 mm (19″) mounting angles, mounting plates or partial mounting plates.

CS outdoor enclosures

B

6.1

CS outdoor enclosures

Features

CS modular enclosures

Protection against vandalism – These features will protect your equipment against unauthorised access:

No point of entry for leverage-type tools, because the double side panel seamlessly conceals the door hinges. The hinged

roof is screw-fastened to the enclosure frame, the base/plinth trim secured with security screws.

Batteries for emergency power back-up are securely housed in the **pull-out drawer** of the battery base/plinth.

High level of stability thanks to **ten-fold profiling** of the enclosure body.

The Rittal system punchings facilitate **highly flexible interior installation** at various levels.

Project business

Particularly in project business, compliance with standards is of vital importance. We meet many of the required standards directly with standard enclosures or with slight modifications.

With Rittal, you get everything from a single source: From the enclosure, to climate control technology, to cable assembly. Within the framework of system integration, the entire AC/DC power supply and customer's system technology are installed.

Examples of some of the tests passed are listed below:
- Toptec without climate control module:
  Protection category testing IP 55 and NEMA 4x, transport tests to IEC 60 271-3-4 class 4M5, temperature cycling and humidity to Bellcore 487-R3-204,
- CS Toptec with climate control module:
  Salt spray fog testing (2 x 7 days) to Bellcore 487-R3-203,
- CS modular enclosures:
  Storage, transportation and operation to IEC 721-2-3.

CS outdoor enclosures

B

6.1
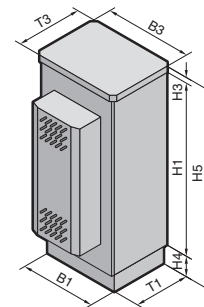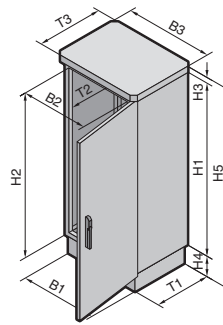
B = Width
T = Depth

Material:
Enclosure frame:
1.5 mm stainless steel 1.4301
Doors, side panels, roof:
2.0 mm aluminium, AlMg3
Base/plinth:
2.0 – 4.0 mm aluminium, AlMg3

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91,
complies with NEMA 3R.

Supply includes:
Twin-walled outdoor enclosure
fully preconfigured.
Door front and rear, side panels
left and right.
Walls and doors doubled on the
outside by 25 mm,
doors hinged on r/h side,
with handle and security lock to
DIN 18 254.
Roof projecting on all sides
screw-fastened with security
screws,
may be exchanged for eyebolts.
Roof additionally protected from
dismantling by the door edge
fold.

Side panels vented, inner side
panel screw-fastened to the
enclosure frame from the out-
side,
base/plinth including two screw-
fastened gland plates for cable
entry, screw-fastened base/
plinth trim panels at the front and
rear.

**Version with
heat exchanger/cooling unit:**
Door with integral climate con-
trol unit.
Climate control unit attached to
the mounting frame in the door.
Supplied state: as a built-in unit
inside the enclosure, minimum
exterior projection.

Note:
The enclosure dimensions corre-
spond to IEC EN 61 969.

Property rights:
German patent
no. 101 13 893
UK Patent no. 2 375 472

⚠ Also required:
For versions with climate control
units, cable connection kit,
see page 663.

⇄ Optionally available:
Size variants, baying variants,
complete system integration up
to Level 4.

Detailed drawing,
available on the Internet.

	Packs of					Page
Width (B1) in mm		650	800	650	800	
Height (H1) in mm		1200	1200	1600	1600	
Depth (T1) in mm		650	650	650	650	
Clearance width (B2) in mm		562	712	562	712	
Clearance height (H2) in mm		1112	1112	1512	1512	
Clearance depth (T2) in mm		562	562	562	562	
Rain canopy width (B3) in mm		744	894	744	894	
Rain canopy height (H3) in mm		45	45	45	45	
Rain canopy depth (T3) in mm		744	744	744	744	
Base/plinth height (H4) in mm		100	100	100	100	
Overall height (H5) in mm		1345	1345	1745	1745	
Model No. CS without climate control module	1	**9774.100**	**9774.200**	**9774.300**	**9774.400**	
Model No. CS with heat exchanger 9776.100[1]	1	–	9774.210	–	9774.410	
Model No. CS with heat exchanger 9776.150[1]	1	–	9774.230[2]	–	9774.430[2]	
Model No. CS with cooling unit 9776.500[1]	1	–	9774.250	–	9774.450	
Model No. CS with cooling unit 9776.550[1]	1	–	9774.270[2]	–	9774.470[2]	
Accessories						
Concrete base/plinth	1	9765.184	9765.185	9765.184	9765.185	842
Mounting angles 482.6 mm (19″), full installation	2	7827.120	7827.120	7827.160	7827.160	1004
Divider kit for mounting angles 482.6 mm (19″)	4	7794.165	7794.280	7794.165	7794.280	1008
Mounting plate, full installation	1	9765.193	9765.193	9765.194	9765.194	916
Metal gland plate, prepunched	1	2562.100	2562.100	2562.100	2562.100	968
Enclosure light 48 V DC	1	9765.100	9765.100	9765.100	9765.100	955
Heater, 1000 W	1	9769.015	9769.015	9769.015	9769.015	656

[1] For technical specifications of climate control unit, refer to page 830.
[2] Delivery times available on request.

CS Outdoor

B

6.1

CS Outdoor

CS wall-mounted enclosures

1

2
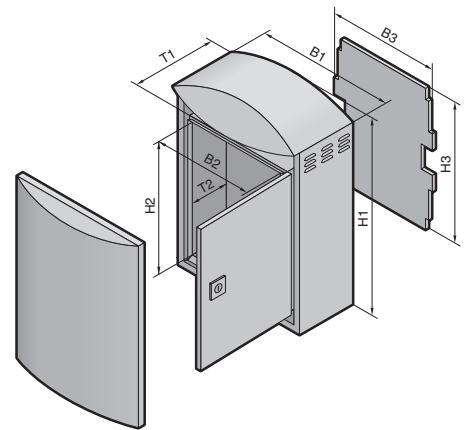
Material:
Aluminium AlMg3
Enclosure:
Exterior: 2.0 mm
Interior: 1.5 mm/2.0 mm
Doors: 2.0 mm
Mounting plate/rotating frame:
2.0 mm clear-chromated

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Inner enclosure with door,
aluminium mounting plate
or rotating frame,
security lock
(CS 9791.045 and CS 9791.145
with 2 security locks),
foamed-in door seals,
gland plate at bottom,
mounting bracket for thermostat,
outer enclosure with integral
vent louvres,
designer cover with security
lock, C rails on the rear panel.

Protection rights for wall-mounted enclosure with mounting plate:
German utility model
no. 297 16 467
German registered design
no. 97 08 625
UK Registered Design
no. 2 072 965
IR reg. design no. DM/044 110
with validity for ES, FR, IT,
Indonesia
US patent no. 6,024,236
European patent no. 0 902 514
with validity for FI, GB, SE
Japan. patent no. 3 189 210

1 Wall-mounted enclosure with mounting plate

2 482.6 mm (19″) rotating frame

Rittal service:

Complete customised interior installation
of the wall-mounted enclosure
up to integration level 4 to the
customer's specifications is
available.

Detailed drawing,
available on the Internet.

Width (B1) in mm	Packs of	370/300	420/350	530/460	630/580	630/580	Page
Height (H1) in mm		522.5/400	560.5/440	700/565	780/580	780/580	
Depth (T1) in mm		210/170	210/170	265/220	380/333	380/333	
Clearance width (B2) in mm		280	330	440	560	560	
Clearance height (H2) in mm		380	420	545	560	560	
Clearance depth (T2) in mm		145	145	195	308	240[2]	
Mounting plate width (B3) in mm		270	320	430	550	–	
Mounting plate height (H3) in mm		380	410	535	550	–	
Model No. CS	1	**9791.015**	**9791.025**	**9791.035**	**9791.045**	**9791.145[1]**	
Accessories							
Wall mounting	4	9765.120	9765.120	9765.120	9765.120	9765.120	906
Pole clamp	1 set	9765.125	9765.125	9765.125	9765.125	9765.125	906
Heater, 30 W	1	3115.000	3115.000	3115.000	3115.000	3115.000	655
Thermostat	1	3110.000	3110.000	3110.000	3110.000	3110.000	661

[1] With 5 U rotating frame instead of mounting plate.
[2] Max. installation depth in the 482.6 mm (19″) level.

CS Outdoor

B

6.1

CS compact enclosures
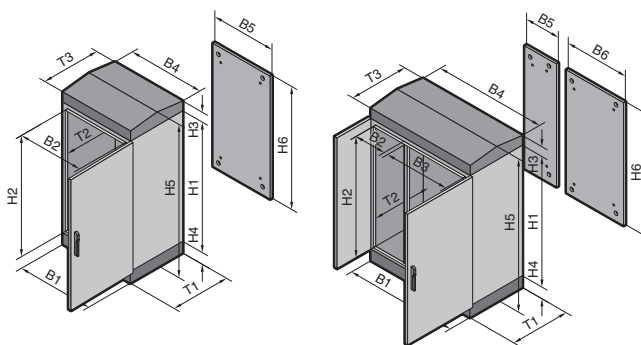
Version
Aluminium AlMg3

Material:
Enclosure, doors and rain canopy:
2.0 mm aluminium AlMg3
Mounting plate:
3.0 mm aluminium AlMg3
Base/plinth:
2.0 mm stainless steel 1.4301

Version
Sheet steel, zinc-plated, passivated

Material:
Enclosure and doors:
2.0 mm sheet steel, zinc-plated, passivated
Mounting plate:
3.0 mm sheet steel, zinc-plated, passivated
Base/plinth:
2.0 mm stainless steel 1.4301
Rain canopy:
2.0 mm aluminium AlMg3

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Single-walled enclosure, one or two doors, door(s) with a 130° hinge with door stay 110°, Ergoform padlock with security lock, 3-point lock, foamed-in door seal, mounting plate(s), mounting frame with 25 mm DIN rows of holes, enclosure basic support, base/plinth, rain canopy.

Detailed drawing,
available on the Internet.

	Packs of	Aluminium AlMg3		Sheet steel, zinc-plated, passivated		Page
Width (B1) in mm		800	1100	800	1100	
Height (H1) in mm		1100	1100	1100	1100	
Depth (T1) in mm		320	320	320	320	
Clearance width (B2/B3) in mm		760/ –	360/660	760/ –	360/660	
Clearance height (H2) in mm		1060	1060	1060	1060	
Clearance depth (T2) in mm		296	296	296	296	
Rain canopy width (B4) in mm		814	1114	814	1114	
Rain canopy height (H3) in mm		60	60	60	60	
Rain canopy depth (T3) in mm		334	334	334	334	
Base/plinth height (H4) in mm		100	100	100	100	
Overall height (H5) in mm		1260	1260	1260	1260	
Mounting plate width (B5/B6) in mm		720/ –	321.5/621.5	720/ –	321.5/621.5	
Mounting plate height (H6) in mm		1020	1020	1020	1020	
Model No. CS	1	**9771.115**	**9772.115**	**9771.111**	**9772.111**	
Door(s)		1	2	1	2	
Accessories						
Roof-mounted heat exchanger, 15 W/K	1	–	9767.012	–	9767.012	828
Rain canopy for roof-mounted heat exchanger	1	–	**9779.053**	–	**9779.004**	–
Plastic gland plate	1	2562.500	2563.500	2562.500	2563.500	967
Metal gland plate	1	2562.100	2563.100	2562.100	2563.100	968

CS Outdoor

B

6.1

Accessories Page 832 **Cable entry** Page 964

CS Outdoor

Compact enclosures, Outdoor

Material:
Optionally
Sheet steel, zinc-plated,
or
Stainless steel 1.4301

Colour:
RAL 7035

Supply includes:
Enclosure, closed back and sides,
interior door(s):
Swing handle prepared for semi-cylinder 40 or 45 mm, overall length to DIN 18 254.

Roof plate:
With bonded insulating plate to prevent the formation of drips, screw-fastened at a distance to prevent condensation.

Protection category:
IP 44 to 60 529/10.91

Detailed drawing,
see page 1185.

Width (B) in mm	Packs of	800	1200	1200	Page
Height (H) in mm		1200	800	1200	
Depth (T) in mm		350	350	350	
Model No. Sheet steel	1	**1620.000**	**1621.000**	**1622.000**	
Model No. Stainless steel	1	**1620.100**	**1621.100**	**1622.100**	
Doors		1	2	2	
Accessories					
Mounting plate sheet steel, 3 mm, zinc-plated, passivated	1	1616.200	1616.210	1616.220	916
Mounting plate MDF, 15 mm	1	1616.230	1616.230	1616.240	916
Concrete base/plinth	1	1616.300[1]	1616.310[1]	1616.310[1]	842
Wiring plan pocket	1	4116.000	4115.000	4115.000	898
Door stay	1	1616.110	1616.110	1616.110	898

[1] Delivery times available on request.

Accessories Page 832

CS Basic enclosures, single-door

Material:
Enclosure, roof and doors:
2.0 mm aluminium AlMg3
Base/plinth:
3.0 mm aluminium AlMg3

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91
in conjunction with the gland
plates available as accessories.

Supply includes:
Single-walled enclosure of
all-round solid construction,
with open base,
3-point locking via Ergoform
padlock and lock cylinder,
base/plinth, rain canopy.

Detailed drawing,
available on the Internet.

	Packs of									Page
Width (B1) in mm		600	600	600	600	800	800	800	800	
Height (H1) in mm		800	1200	1400	1200	800	1200	1400	1200	
Depth (T1) in mm		400	400	400	500	400	400	400	500	
Clearance width (B2) in mm		511.4	511.4	511.4	511.4	711.4	711.4	711.4	711.4	
Clearance height (H2) in mm		711.4	1111.4	1311.4	1111.4	711.4	1111.4	1311.4	1111.4	
Clearance depth (T2) in mm		349	349	349	449	349	349	349	449	
Rain canopy width (B3) in mm		650	650	650	650	850	850	850	850	
Rain canopy height (H3) in mm		75	75	75	75	75	75	75	75	
Rain canopy depth (T3) in mm		450	450	450	550	450	450	450	550	
Base/plinth height (H4) in mm		100	100	100	100	100	100	100	100	
Overall height (H5) in mm		975	1375	1575	1375	975	1375	1575	1375	
Model No. CS	1	**9783.040**	**9783.050**	**9783.060**	**9783.030**	**9783.010**	**9783.020**	**9783.120**	**9783.110**	
Accessories										
Concrete base/plinth	1 set	9765.182	9765.182	9765.182	9765.082	9765.088	9765.088	9765.088	9765.084	842
One-piece gland plate	1 set	9785.017	9785.017	9785.017	9785.020	9785.018	9785.018	9785.018	9785.019	852
Gland plate, divided	1 set	9785.011	9785.011	9785.011	9785.014	9785.012	9785.012	9785.012	9785.013	852
Cable entry plate	1 set	4320.700	4320.700	4320.700	4320.700	4321.700	4321.700	4321.700	4321.700	852
Mounting plate	1	9765.090	9765.092	9765.098	9765.092	9765.097	9765.095	9765.099	9765.095	916
Mounting angles 482.6 mm (19″), full installation	2	7685.000	7688.000	7689.000	7688.000	7685.000	7688.000	7689.000	7688.000	1006
Installation kit for mounting angles	2	7696.000	7696.000	7696.000	7696.000	7698.000	7698.000	7698.000	7698.000	1006
Heater 1000 W	1	9769.015	9769.015	9769.015	9769.015	9769.015	9769.015	9769.015	9769.015	656
Thermostat	1	3110.000	3110.000	3110.000	3110.000	3110.000	3110.000	3110.000	3110.000	661

CS Outdoor

B

6.1

CS Outdoor

CS Basic enclosures, two-door

Material:
Enclosure, roof and doors:
2.0 mm aluminium AlMg3
Base/plinth:
3.0 mm aluminium AlMg3

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91
in conjunction with the gland
plates available as accessories.

Supply includes:
Single-walled enclosure of
all-round solid construction,
with open base,
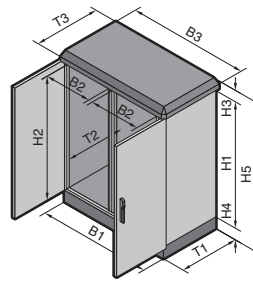3-point locking via Ergoform
padlock and lock cylinder.
Version without centre bar:
overlapping doors,
lockable door with r/h hinge.
Version with with centre bar:
2 lockable doors,
base/plinth, rain canopy.

Detailed drawing,
available on the Internet.

	Packs of					Page
Width (B1) in mm		1200	1200	1200	1200	
Height (H1) in mm		800	1200	1200	1400	
Depth (T1) in mm		400	400	500	400	
Clearance width (B2) in mm		511.4	511.4	511.4	511.4	
Clearance height (H2) in mm		711.4	1111.4	1111.4	1311.4	
Clearance depth (T2) in mm		349	349	449	349	
Rain canopy width (B3) in mm		1250	1250	1250	1250	
Rain canopy height (H3) in mm		75	75	75	75	
Rain canopy depth (T3) in mm		450	450	550	450	
Base/plinth height (H4) in mm		100	100	100	100	
Overall height (H5) in mm		975	1375	1375	1575	
Model No. CS without centre bar	1	**9784.110[1]**	**9784.120**	**9784.140**	**9784.130**	
Model No. CS with centre bar	1	**9784.010[1]**	**9784.020**	**9784.040**	**9784.030**	
Accessories						
Concrete base/plinth	1	9765.089	9765.089	9765.086	9765.089	842
One-piece gland plate	1 set	2 x 9785.017	2 x 9785.017	2 x 9785.020	2 x 9785.017	852
Gland plate, divided	1 set	2 x 9785.011	2 x 9785.011	2 x 9785.014	2 x 9785.011	852
Cable entry plates	1 set	4320.700	4320.700	4320.700	4320.700	852
Mounting plate for one half of the enclosure	1	9765.090	9765.092	9765.092	9765.098	916
Mounting plate	1	9765.190	9765.191	9765.191	9765.192	916
Mounting angles 482.6 mm (19″) for one half of the enclosure	2	7685.000	7688.000	7688.000	7689.000	1006
Divider kit for mounting angles 482.6 mm (19″)	2	7696.000	7696.000	7696.000	7696.000	1006
Heater 1000 W	1	9769.015	9769.015	9769.015	9769.015	656
Thermostat	1	3110.000	3110.000	3110.000	3110.000	661

[1] Extended delivery times.

CS Outdoor

B
6.1

Accessories Page 832   **Rail systems** Page 917   **Cable entry** Page 964   **482.6 mm (19″) installation** Page 993   **Monitoring** Page 762

CS modular enclosures
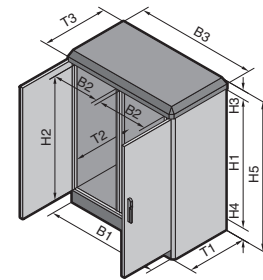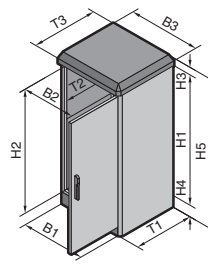
Technical specifications:
Basic module:
Solid top and sides, solid base with 4 gland plates (width 600 mm with 2 gland plates). Double-walled rear panel screw-fastened from the inside. Double-walled door with Ergoform padlock handle with 3-point locking, foamed-in PU seal. Gas pressurised spring as door stay. Double side panel across the enclosure and base/plinth, screw-fastened from the inside, screws not visible from the outside.

Rain canopy, 75 mm high, hinged, 25 mm projection on all sides.
Base/plinth, 100 mm high.

Material:
Enclosure, roof and side panel: 2.0 mm aluminium AlMg3
Base/plinth: 3.0 mm aluminium AlMg3

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91, complies with NEMA 3R.

Supply includes:
Twin-walled, fully assembled enclosure, consisting of basic module, roof, side panels and base/plinth.

Note:
Modular enclosure sheet steel, zinc-plated, on request.

Property rights:
German patents no. 196 09 699 and 196 09 704
German utility model no. 296 23 678
European patents no. 0 886 899 and 0 886 900 with validity for FR, IT, GB, SE
US patents no. 6,109,053 and 5,971,511
South Korean patents no. 0 334 548 and 0 325 930
Japan. patent no. 3 401 015

Detailed drawing,
available on the Internet.

Width (B1) in mm	Packs of	600	800	800	1200	Page
Height (H1) in mm		1200	1200	1600	1200	
Depth (T1) in mm		600	500	600	600	
Clearance width (B2) in mm		511.4	711.4	711.4	511.4	
Clearance height (H2) in mm		1111.4	1111.4	1511.4	1111.4	
Clearance depth (T2) in mm		554	454	554	554	
Rain canopy width (B3) in mm		700	900	900	1300	
Rain canopy height (H3) in mm		75	75	75	75	
Rain canopy depth (T3) in mm		650	550	650	650	
Base/plinth height (H4) in mm		100	100	100	100	
Overall height (H5) in mm		1375	1375	1775	1375	
Model No. CS	1	**9751.125**	**9751.145**	**9751.165**	**9752.125**	
Accessories						
Concrete base/plinth	1	9765.083	9765.084	9765.085	9765.087	842
Mounting plate	1	9765.092	9765.095	9765.096	9765.191	916
Mounting angles, 482.6 mm (19″)	2	7688.000	7688.000	7690.000	7688.000	1006
Divider kit, 482.6 mm (19″)	2	7696.000	7698.000	7698.000	7696.000 + 4371.000	1006
Mounting angles, metric (T-slot)	2	–	7000.240	7000.330	7000.240	1006
Divider kit, metric	1	–	7000.100	7000.100	7000.100 + 4371.000	1006
Plastic gland plates	1	2562.500	2562.500	2562.500	2562.500	967
Metal gland plate, pre-punched	1	2562.100	2562.100	2562.100	2562.100	968
Support rails	4	4396.000	4395.000	4396.000	4396.000	927
Heater 1000 W	1	9769.015	9769.015	9769.015	9769.015	656
Thermostat	1	3110.000	3110.000	3110.000	3110.000	661
Enclosure light 48 V DC	1	9765.100	9765.100	9765.100	9765.100	955

CS Outdoor

B 6.1

CS Outdoor

CS modular enclosures, installation variants
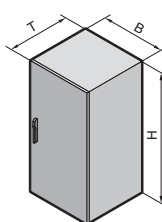
Material:
2.0 mm aluminium AlMg3
Base/plinth, battery plinth:
3.0 mm aluminium AlMg3

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91,
complies with NEMA 3R.

Note:
Modular enclosures sheet steel,
zinc-pl., available on request.

Other climate control devices,
from page 826.
Please note the minimum enclosure dimensions when making your selection.

The enclosures are manufactured to order from individual modules.
Delivery times available on request.

Width (B) in mm	600	600	600	600	800	800	800	800	1200	1200	Page
Height (H) in mm	800	1000	1200	1600	1000	1200	1200	1600	1200	1200	
Depth (T) in mm	600	500	600	600	500	500	600	600	500	600	
Model No. CS	**9751.015**	**9751.075**	**9751.025**	**9751.035**	**9751.085**	**9751.045**	**9751.055**	**9751.065**	**9752.015**	**9752.025**	
Base/plinth											
Battery plinth 350 mm	**9754.025**	**9754.015**	**9754.025**	**9754.025**	**9754.035**	**9754.035**	**9754.045**	**9754.045**	2 x **9754.015**	2 x **9754.025**	
Standard base/plinth 100 mm	**9755.015**	**9755.065**	**9755.015**	**9755.015**	**9755.025**	**9755.025**	**9755.035**	**9755.035**	**9755.045**	**9755.055**	
Roof-mounted climate control											
Cooling unit	9762.012	9762.012	9762.012	9762.012	9762.012	9762.012	9762.012	9762.012	9762.012	9762.012	829
Heat exchangers	9764.012	9764.012	9764.012	9764.012	9764.012	9764.012	9764.012	9764.012	9764.012	9764.012	827
Climate hood	**9756.015**	**9756.065**	**9756.015**	**9756.015**	**9756.025**	**9756.025**	**9756.035**	**9756.035**	**9756.045**	**9756.055**	
Wall-mounted climate control											
Cooling unit	–	–	9761.012	9761.012	–	9761.032	9761.032	9761.032	9761.012	9761.012	829
Heat exchangers	–	–	9763.012	9763.012	–	9763.012	9763.012	9763.012	9763.012	9763.012	827
Roof											
Standard roof	**9757.015**	**9757.065**	**9757.015**	**9757.015**	**9757.025**	**9757.025**	**9757.035**	**9757.035**	**9757.045**	**9757.055**	
Roof for wall-mounted climate control	**–**	**–**	**9758.015**	**9758.015**	**–**	**9758.025**	**9758.035**	**9758.035**	**9758.045**	**9758.055**	
Side panel											
Side panel for 100 mm base/plinth	**9753.015**	**9753.175**	**9753.035**	**9753.045**	**9753.175**	**9753.025**	**9753.035**	**9753.045**	**9753.025**	**9753.035**	
Side panel for 350 mm base/plinth	**9753.055**	**9753.195**	**9753.075**	**9753.085**	**9753.195**	**9753.065**	**9753.075**	**9753.085**	**9753.065**	**9753.075**	
Side panel for 100 mm base/plinth and roof-mounted climate control	**9753.095**	**9753.185**	**9753.115**	**9753.125**	**9753.185**	**9753.105**	**9753.115**	**9753.125**	**9753.105**	**9753.115**	
Side panel for 350 mm base/plinth and roof-mounted climate control	**9753.135**	**9753.205**	**9753.155**	**9753.165**	**9753.205**	**9753.145**	**9753.155**	**9753.165**	**9753.145**	**9753.155**	

Order example:
Enclosure 600 x 800 x 600 mm of aluminium AlMg3 with standard base/plinth and roof-mounted cooling unit.

You will need:

Enclosure:	Basic enclosure 600 x 800 x 600 mm	**CS 9751.015**
Base/plinth:	Standard base/plinth 100 mm	**CS 9755.015**
Roof-mounted climate control:	Roof-mounted cooling unit	**CS 9762.012**
	Climate hood	**CS 9756.015**
Roof:	Standard roof	**CS 9757.015**
Side panel:	Side panel for 100 mm base/plinth and roof-mounted climate control	**CS 9753.095**

Rittal Catalogue 31/Communication systems

CS Indoor Rack
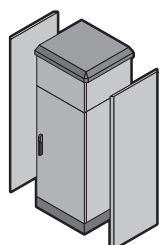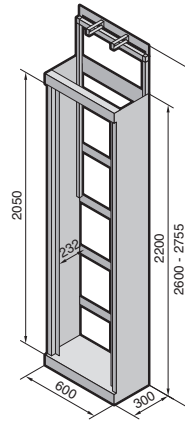
Material:
Side panels, roof and base frame:
Sheet steel, 2.0 mm
Mounting angles:
Extruded aluminium section

Surface finish:
Powder coated in textured RAL 7035
Mounting angles:
Natural aluminium, clear-chromated

Supply includes:
Screw-fastened frame, consisting of
2 side panels,
roof and base frame,
front plinth trim.
2 mounting angles,
ceiling attachment,
4 levelling feet,
4 rear panel struts,
enclosure panels, earthed.

Note:
The screw-fastened rack will accommodate metric or 482.6 mm (19″) installed equipment (to IEC 907 or IEC 297 and DIN 41 494). In addition to the basic rack, which satisfies the requirements of ETSI standard 300119-3, customised solutions can be designed in next to no time and implemented cost-effectively.

The following variants of the Indoor rack are available, amongst others:
● Solid front door
● Vented front door
● Horizontally divided doors
● Folding doors
● Overlapping doors
● Roof modules
● Cutouts in the enclosure panels
● Interior installation with system accessories

Detailed drawing,
available on the Internet.

Width in mm	Packs of	600
Height in mm		2200
Depth in mm		300
Clearance width in mm		500
Clearance height in mm		2050
Clearance depth in mm		232
Model No. CS with mounting angles 482.6 mm (19″)	1	**9790.042**
Model No. CS with mounting angles, metric	1	**9790.043**
Accessories		
Rear panel for screw fastening, sheet steel 2.0 mm	1	**9790.003**

Extended delivery times.

CS Outdoor

B
6.1

Accessories Page 832 **Component shelves** Page 939 **482.6 mm (19″) installation** Page 993

CS Outdoor climate control

Features

Rittal Communication Systems offer everything you need to protect your electronic equipment, from weather-tested enclosure solutions, to a variety of climate control components, through to complete security management systems. Cooling units, heat exchangers, fans and heaters especially designed for outdoor use ensure constant interior temperatures.

The protection category of IP 55 for the system as a whole is retained when using Outdoor heat exchangers and cooling units.

Flexible climate control
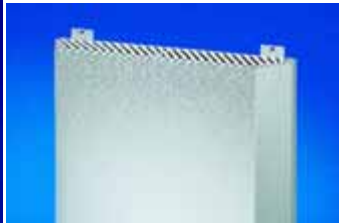
Climate control modules in various different output levels may be variably positioned on the

door, rear panel, side panel or roof of the modular enclosure. For use in a temperature range

from –33°C to +55°C (with cooling unit) or +65°C (with heat exchanger).

Cooling of the sensitive electronics in an outdoor enclosure requires **intelligent climate management.**

Rittal climate control modules keep the interior temperature at a consistently low level.

CS Toptec climate control

The **full 25 mm double wall** ensures heat exchange and minimises the influence of sunlight. The **concept for active**

climate control with fixed cutout dimensions and a depthvariable mounting frame leaves freedom of choice between a

heat exchanger and a cooling unit, depending on the parameters at the installation site.

Heat exchanger for CS modular enclosures

Type 1 for roof mounting
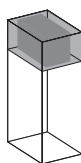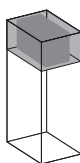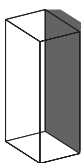Without microcontroller,
without heater.

Type 2 for roof mounting
With microcontroller and heater
as standard.

Mounting frame:
required for CS 9765.051.

Type 3 for wall mounting
With microcontroller and heater
as standard. For external mount-
ing on side panels and rear
panels.
The picture shows the heat
exchanger with designer cover
(not included in the supply).

Property rights for type 1:
German patent no. 196 09 794
US patent no. 6,092,384
European patent no. 0 913 015
with validity for FR, GB, IT, SE
Japan. patent no. 23 279 576
South Korean patent
no. 0 337 973

Model No. CS		9764.040	9764.012	9763.012	Page
Installation		Type 1 Roof-mounted	Type 2 Roof-mounted	Type 3 wall-mounted	
Rated operating voltage	DC (fan/microcontroller)	48 V			
	AC (heater)	–	230 V, 50/60 Hz		
Enclosure dimensions (mm)	W H D	470 158 380	535 390 400	515 1170 151.5	
Minimum enclosure dimensions (mm)	W x H/D x H	–	–	600 x 1200	
	W x D	600 x 500	600 x 500	–	
Specific thermal output		**30 W/K**	**60 W/K**	**60 W/K**	
Heater		–	400 W	400 W	

Rated current max.	DC (fan/microcontroller)	1.3 A	3.1 A	3.2 A	
	AC (heater)	–	1.9 A	1.9 A	
Temperature range		–33°C to +65°C			
Air throughput of fans – unimpeded air flow	internal/external circuit fan	345 m³/h	830 m³/h	830 m³/h	
Temperature control		without[1]	Microcontroller[2]		
Type of connection		Plug panel			
Weight		7 kg	17 kg	31 kg	
Protection category to EN 60 529/10.91		IP 55 (internal circuit to external circuit)			
Material (enclosure)		Aluminium		Sheet steel	
Surface finish		spray-finished in RAL 7035			
CE Declaration of Conformity		■	■	■	
UL/CUL		–	■	■	
Accessories					
Cable connection kit		9765.110	9765.110	9765.110	663
Thermostat		3110.000	–	–	661
Mounting frame		–	**9765.051**	–	–

[1] Customers may fit their own temperature control (SK 3110.000).
[2] With temperature-controlled activation of the components (internal/external circuit, heater).
  Setpoints are preset. Modifications can only be made by arrangement.

CS Outdoor climate control

B

6.2

CS Outdoor climate control
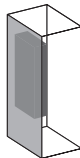
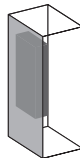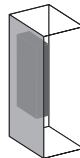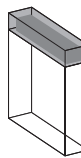## Heat exchanger for CS modular/compact enclosures
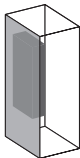
Type 4 for door mounting
With microcontroller and heater as standard.

Type 5 for door mounting
With microcontroller and heater as standard.

Type 6 for roof mounting
For installation in the rain canopy of the 1100 mm wide CS compact enclosure.

Model No. CS		9768.032	9768.012	9768.042	9768.062	9767.012	Page
Installation		Type 4 Door-mounted		Type 5 Door-mounted		Type 6 Roof-mounted[1]	
Rated operating voltage	DC (fan/ microcontroller)	48 V					
	AC (heater)	230 V, 50/60 Hz		–			
Enclosure dimensions (mm)	W H D	480 1005 110	510 1005 150	445 1050 150	575 1050 195	855 95 240	
Minimum enclosure dimensions (mm)	W H	600 1200	650 1200	650 1300	800 1300	1100 –	
Specific thermal output		**40 W/K**	**60 W/K**	**85 W/K**	**120 W/K**	**15 W/K**	
Heater		400 W		–			

Rated current max.	DC (fan/ microcontroller)	2.0 A	3.2 A	6.4 A	7.9 A	1.0 A	
	AC (heater)	1.9 A		–			
Temperature range		–33°C to +65°C					
Air throughput of fans – unimpeded air flow	Internal/external circuit fan	515 m³/h	530 m³/h	1020 m³/h		100 m³/h	
Temperature control		Microcontroller[2]				without[3]	
Type of connection		Plug panel			Sub-D connector 13W3[4]	Sub-D connector 3W3[4]	
Weight		13 kg	15 kg		32 kg	6 kg	
Protection category to EN 60 529/10.91		IP 55 (internal circuit to external circuit)					
Material (enclosure)		Aluminium					
Surface finish		spray finished in RAL 7035					
CE Declaration of Conformity		■	■	■	■	■	
UL/CUL		■	■	■	■	–	
Accessories							
Cable connection kit		9765.110	9765.110	9765.115	–	–	663
Thermostat		–	–	–	–	3110.000	661

[1] For compact enclosures.
[2] With temperature-controlled activation of the components (internal/external circuit, heater). Setpoints are preset. Modifications can only be made by arrangement.
[3] Customers may fit their own temperature control (SK 3110.000).
[4] Special connection cable included in the supply.

CS Outdoor climate control

B

6.2

CS Outdoor climate control

Cooling units for CS modular enclosures

Type 1 for roof mounting
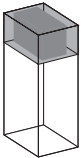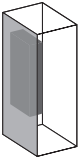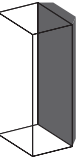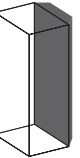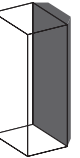With microcontroller and
400 watt heater as standard.

Mounting frame:
required for CS 9765.051.

Type 2 for door mounting
With microcontroller and
400 watt heater as standard.

Type 3 for wall mounting
With microcontroller and
400 watt heater as standard.
Alternative mounting on the rear
panel or side panels is also
possible.
The picture shows the cooling
unit with designer cover (not
included in the supply).

**Type 4 for universal
installation**
With microcontroller and
800 watt heater as standard.

Installation options:
- in the door or rear panel
- in the side panel

Model No. CS		9762.012	9768.100	9761.012	9761.032	9761.042	9768.150	Page
Installation		Type 1 Roof-mounted	Type 2 Door-mounted	Type 3 Wall-mounted			Type 4 Universal	
Rated operating voltage	AC	230 V, 50/60 Hz						
Enclosure dimensions (mm)	W H D	535 390 400	430 1070 210	515 1170 151,5	695 1132 151,5	776 1100 250	400 1050 310	
Minimum enclosure dimensions (mm)	W x H/D x H	–	600 x 1200	600 x 1200	800 x 1200	800 x 1200	600 x 1200	
	W x D	600 x 500	–	–	–	–	–	
Useful cooling output EN 814	**L35 L35 L35 L50**	**900 W 750 W**	**900 W 650 W**	**900 W 750 W**	**1400 W 1050 W**	**2500 W 2000 W**	**1500 W 1250 W**	
Heater		400 W	400 W	400 W	400 W	400 W	800 W	
Rated current max.		4.0 A	4.0 A	3.5 A	5.5 A	10.0 A	5.8 A	
Start-up current max.		10.7 A	11.6 A	10.8 A	15.5 A	32.0 A	19.0 A	
Power consumption	L35 L35 L35 L50	460 W 520 W	470 W 530 W	450 W 520 W	900 W 1000 W	1450 W 1650 W	940 W 1045 W	
Coolant		R134a						
p. max.		26 bar	28 bar	24 bar	24 bar	28 bar	28 bar	
Temperature range		–33°C to +55°C						
Air throughput of fans – unimpeded air flow	Internal circuit fan External circuit fan	570 m³/h 570 m³/h	580 m³/h 430 m³/h	880 m³/h 880 m³/h	850 m³/h 880 m³/h	1450 m³/h 1450 m³/h	850 m³/h 680 m³/h	
Temperature control		Microcontroller[1]						
Type of connection		Plug panel						
Weight		29 kg	31 kg	45 kg	48 kg	52 kg	40 kg	
Protection category to EN 60 529/10.91		IP 55 (internal circuit to external circuit)						
Material (enclosure)		Aluminium		Sheet steel		Aluminium		
Surface finish		spray-finished in RAL 7035						
CE Declaration of Conformity		■	■	■	■	■	■	
UL/CUL		–	–	■	■	–	–	
Accessories								
Cable connection kit		9765.105	9765.105	9765.105	9765.105	9765.105	9765.105	663
Mounting frame		**9765.051**	–	–	–	–	–	–

[1] With temperature-controlled activation of the components (internal/external circuit, heater).
Setpoints are preset. Modifications can only be made by arrangement.

CS modular enclosures Page 823

CS Outdoor climate control

B

6.2

CS Outdoor climate control

Climate control units for CS Toptec

1 **Heat exchanger/cooling unit**
With three mounting positions for internal mounting, partial internal mounting or external mounting plus a choice between cooling via front or rear door.

2 **Heat exchanger/cooling unit**
built into the CS Toptec

B = Width
T = Depth

		Heat exchanger		Cooling units		Page
Model No. CS		**9776.100**	**9776.150**	**9776.500**	**9776.550**	
Installation		Universal		Universal		
Rated operating voltage	DC (fan/microcontroller)	48 V		–		
	AC (heater)	–		230 V, 50/60 Hz		
Enclosure dimensions (mm)	B1 H1 T1	500 1000 150	500 1000 260	500 1000 150	500 1000 260	
Minimum enclosure dimensions mm		800 x 1200		800 x 1200		
Specific thermal output		**85 W/K**	**135 W/K**	**–**	**–**	
Useful cooling output	**L35 L35**	–	–	**1000 W/1020 W**	**1500 W/1425 W**	
EN 814	**L35 L50**			**680 W/555 W**	**1150 W/1060 W**	
Heater		–	–	400 W		

Rated current max.	DC (fan/microcontroller)	4.5 A	8.0 A	–	–	
	AC (heater)	–		2.8 A/3.3 A	22.0 A/20.0 A	
Start-up current max.		–		7.5 A/8.3 A	8.0 A/9.6 A	
Power consumption	L35 L35 L35 L50	–		540 W/670 W 630 W/750 W	900 W 1000 W	
Coolant		–		R134a		
p. max.		–		28 bar	28 bar	
Temperature range		–		–33°C to +55°C		
Air throughput of fans – unimpeded air flow	Internal/external circuit fan	530 m³/h	–	580 m³/h 630 m³/h	880 m³/h 950 m³/h	
Temperature control		Microcontroller[1]				
Type of connection		Plug panel		Female multi-point connector 9-pole		
Weight		25 kg	32 kg	31 kg	45 kg	
Protection category to EN 60 529/10.91		IP 55 (internal circuit to external circuit)				
Material (enclosure)		Aluminium				
Surface finish		spray-finished in RAL 7035				
CE Declaration of Conformity		■	■	■	■	
UL/CUL		–	–	–	–	
Accessories						
Cable connection kit		9765.115	9765.115	–	–	663

[1] With temperature-controlled activation of the components (internal/external circuit, heater).
Setpoints are preset. Modifications can only be made by arrangement.

CS Toptec Page 817

Geothermal heat exchangers, Terravent
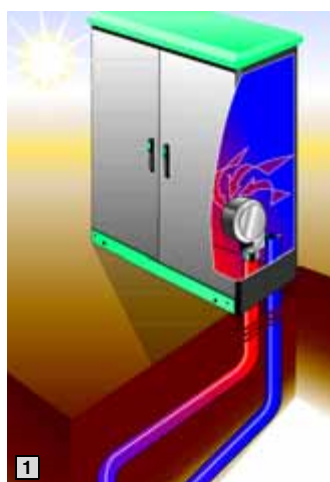
[1]
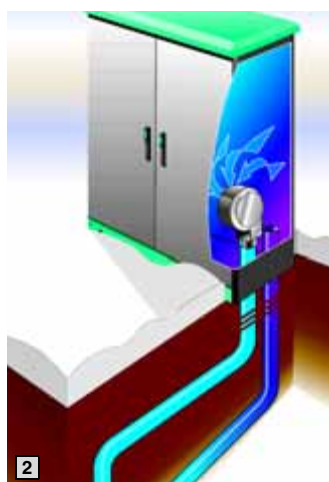
[2]
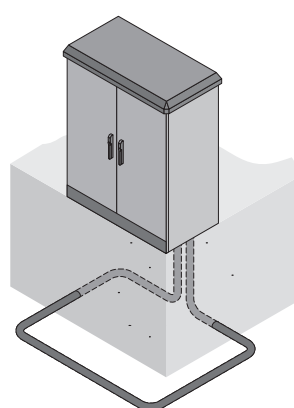
[3]
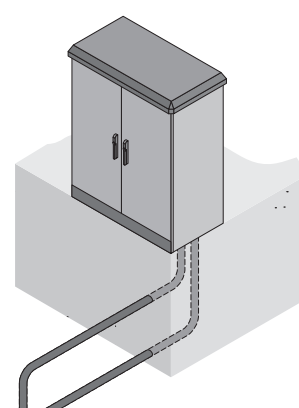
[4]

Rittal Terravent
This ingeniously simple and effective climate control principle, which uses geothermal effects to cool and heat, underscores Rittal's expertise in all aspects of enclosure systems for outdoor siting. The geothermal heat transmitter is suitable for use whenever earthworks are required to install an outdoor enclosure.
Throughout the world, at a certain depth beneath the earth's crust, the temperature is always roughly the same, whatever the season; and this fact is used to cool and heat outdoor enclosures. The hot air from the enclosure is forced into a pipe with a radial or axial fan.

A pipeline system laid in the earth cools the air, which in turn is used to cool the enclosure. In cool external temperatures, the temperature of the air inside the pipeline system rises, and this achieves a heating effect.
The inlet and outlet points of the pipes can be freely positioned to effectively avoid hot spots. Depending on the application, the air discharge and air inlet can be positioned in the base/plinth, in the roof, or at freely selectable positions inside the enclosure.

Benefits of the geothermal heat exchanger
- With the sealed ventilation system, ambient air is unable to penetrate the enclosure, which in turn prevents the ingress of humidity and aggressive pollutants from the air.
- Minimal energy requirements, since only a radial or axial fan is required to generate the air flow. The fan motors are available in various operating voltages.
- Reduction of noise emissions, since there are no active climate control components mounted on the outside of the enclosure.
- Minimal maintenance required for the fan system.
- Control, monitoring and alarm relays can be achieved via the CMC.

US patent no. 6,523,602

[1] With a radial or axial fan, the hot air from the enclosure is forced into a pipe. A pipeline system laid in the earth cools the air, which in turn is used to cool the enclosure.

[2] In cool external temperatures, the temperature of the air inside the pipeline system rises, and this achieves a heating effect.

[3] **With the pipeline system laid horizontally**
Excellent heat dissipation is effected, because the pipeline system is laid horizontally on one level. Major excavation work is, however, required.

[4] **With the pipeline system laid vertically**
The pipeline system to and from the outdoor enclosure is laid in a pit. The effects of heat dissipation are somewhat less pronounced, but the pipes are simply laid in a pit where the supply lines to the enclosure can also be laid.

CS Outdoor climate control

B

6.2

Terravent supply includes
- Calculation of the maximum required and maximum possible thermal output.
- Calculation and dimensioning of the fan, the pipe diameter, the pipe length, and the best way of laying the pipe.
- Determination of the optimum positioning of the air inlet and air outlet on the enclosure.
- Supply of all components, pre-assembly of the fan pipe fixtures in the outdoor enclosure, installation of the fan, insulation of the enclosure (where necessary).

Packs of	Model No. CS
1 set	9767.500

Examples of temperature variation,
see page 1185.

System accessories

Base   from page   834

Walls   from page   853

Baying system   from page   861

Doors/locks   from page   869

Roof/wall mounting   from page   899

System accessories

B

7.

Interior installation

Cable management

482.6 mm (19″) installation

Human/machine interface

Signal pillars

Rittal software service

System accessories

B

7.

Base

Base/plinth TS

One Model No.
for the
**base/plinth compo-
nents**
front and rear.

One Model No.
for the
base/plinth trims
at the sides.

A complete
base/plinth.

Modular base/plinth diversity

Regardless of the enclosure depth:
The base/plinth components at the front and rear,
pre-configured with corner pieces, are always the
same for the chosen width.
Only the side trim panels are selected according
to the enclosure depth and the required base/
plinth configuration. The modular concept pro-
duces exceptional advantages in terms of cost
and function.
Assembly to the enclosure is conveniently carried
out from the outside. The base/plinth interior offers
diverse opportunities for mounting levels for cable
management.

Base/plinth height	Basic form	Cable gland options			Stabilisation of bayed base/plinth	
100 mm						
200 mm						

Function and cost benefits

Fewer parts, more opportunities, lower purchas-
ing, storage and assembly costs – the formula for
the new modular base/plinth system.

The following table shows three bayed base/
plinths in 200 mm height illustrating a wide range
of possible solutions and the potential savings
with trim panels compared with the previous
200 mm base/plinth system each with two trim
panels of 100 mm height at the sides.

Sample solutions	New supply includes	Functional benefits	Savings potential compared with twelve 100 mm trim panels
	3 packs of base/plinth components 1 pack of base plinth trim panels 200 mm high	Continuous cable chamber	2 trim panels 200 mm
	3 packs of base/plinth components 1 pack of base plinth trim panels 200 mm high 1 pack of base plinth trim panels 100 mm high 1 pack of base/plinth baying bracket TS 8601.100 (packs of 20) 4 units are required for this solution	Additional stabilisation for transportation purposes with base/plinth trim rotated through 90°	2 trim panels 200 mm 2 trim panels 100 mm
	3 packs of base/plinth components 2 packs of base plinth trim panels 200 mm high	Shielding of the base/plinths from one another	4 trim panels 200 mm
	3 packs of base/plinth components 1 pack of base plinth trim panels 200 mm high 1 pack of base plinth trim panels 100 mm high	Additional connection of the base/plinth	2 trim panels 200 mm 2 trim panels 100 mm
	Other options: • Cable entry at the side by mounting a 100 mm base/plinth trim panel (top or bottom). • Cable entry from the rear by dismantling one or more trim panels of the base/plinth components. • Cable clamp rail fitted on the 100 mm high trim panel.		

Base/plinth TS

B

7.1

Base/plinth components front and rear

Sheet steel
for TS, CM, CL, PC-TS, IW, FR(i), TE
Base/plinth component consisting of one trim panel and two pre-configured corner pieces.
In 200 mm high base/plinth components, one trim panel is divided into two for cable entry.

Material:
Sheet steel, spray-finished
Cover caps plastic RAL 9005/7035

Supply includes:
1 set =
2 base/plinth components, 4 cover caps,
4 screws and captive nuts M12
for mounting on the enclosure.
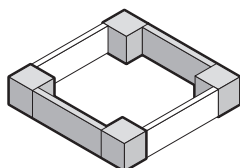
⊞ **Accessories:**

Base assembly plate SO 2817.000,
see page 838.
Filter mat for trim panel, vented,
see page 840.

Detailed drawing,
see page 836.

German patent no. 198 60 408

For enclosure width mm	Version	Colour		Model No. TS	
		RAL 7022	RAL 7035	100 mm high	200 mm high
400	Solid	■	–	8601.400	8602.400
500	Solid	■	–	8601.500	8602.500
600	Solid	■	–	8601.600	8602.600
	Solid	–	■	8601.605[1]	8602.605
	Vented	–	■	7825.601[2]	–
	Vented with designer cover	–	■	7825.603	–
800	Solid	■	–	8601.800	8602.800
	Solid	–	■	8601.805	8602.805
	Vented	–	■	7825.801	–
	Vented with designer cover	–	■	7825.803	–
850	Solid	■	–	8601.850	8602.850
1000	Solid	■	–	8601.000	8602.000
1100	Solid	■	–	8601.300	8602.100
1200	Solid	■	–	8601.200	8602.200

[1] **Version in RAL 9005: TS 8601.602**
[2] **Version in RAL 9005: TS 7825.605**

Base/plinth trim, side

Sheet steel
for TS, CM, CL, PC-TS, IW, FR(i), TE
For mounting between the base/plinth components. At 200 mm height, two 100 mm base/plinth trims may be used. Base/plinth trim panels (100 mm high) may be installed rotated through 90° in order to stabilise bayed base/plinth components.

Material:
Sheet steel, spray-finished

Supply includes:
1 set =
2 base/plinth trim panels, including parts for attaching to the base/plinth components.
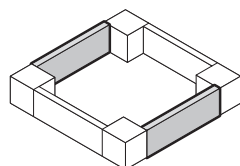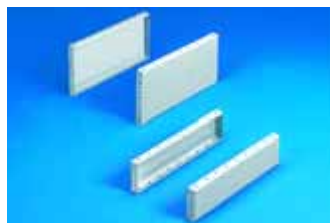
⚠ **Also required:**

Base/plinth baying bracket TS 8601.100,
see page 838,
when base/plinth components are fitted by rotating through 90°.

⊞ **Accessories:**

Assembly bolts for base/plinth,
see page 838.

Detailed drawing,
see page 836.

For enclosure depth mm	Colour		Model No. TS	
	RAL 7022	RAL 7035	100 mm high	200 mm high
300	■	–	8601.030	8602.030
400	■	–	8601.040	8602.040
500	■	–	8601.050	8602.050
600	■	–	8601.060	8602.060
	–	■	8601.065	8602.065
800	■	–	8601.080	8602.080
	–	■	8601.085	8602.085
900	–	■	8601.095[1]	8602.095
1000	–	■	8601.015[2]	8602.015

[1] **Version in RAL 9005: TS 8601.090**
[2] **Version in RAL 9005: TS 8601.010**

Base/plinth TS

B

7.₁

Base

Base/plinth TS

Base/plinth TS
Sheet steel
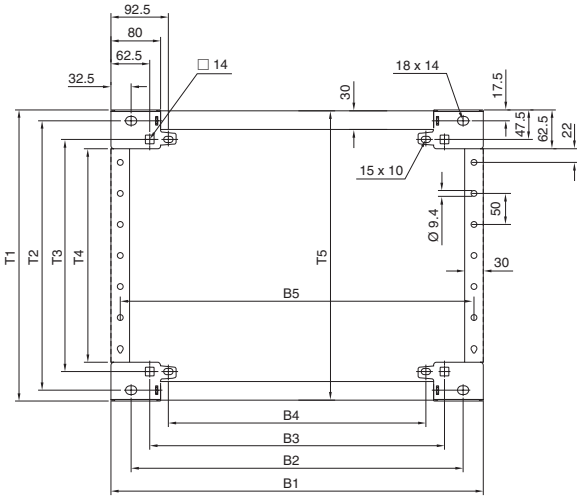
Plinth, 100 mm high

Plinth, 200 mm high
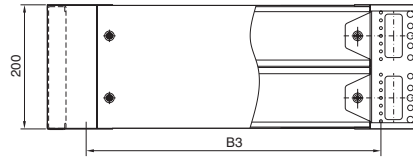
Description of the hole patterns

B1/T1 = External dimensions

B2/T2 = For screw-fastening in the thread of the enclosure corner piece from below

B3/T3 = for screw-fastening with captive nuts to the enclosure base from below or above

All holes (B2 – B4/T2 – T4) may be used for screw-fastening to the base.

Base/plinth components front/rear						Base/plinth trim, side						Page
Width mm	B1	B2	B3	B4	B5	Depth mm	T1	T2	T3	T4	T5	
–	–	–	–	–	–	300	269	235	175	144	268	835
400	400	335	275	215	370	400	369	335	275	244	368	835
500	500	435	375	315	470	500	469	435	375	344	468	835
600	600	535	475	415	570	600	569	535	475	444	568	835
800	800	735	675	615	770	800	769	735	675	644	768	835
850	850	785	725	665	820	–	–	–	–	–	–	835
1000	1000	935	875	815	970	900	869	835	775	744	868	835
1100	1100	1035	975	915	1070	–	–	–	–	–	–	835
1200	1200	1135	1075	1015	1170	1000	969	935	875	844	968	835

Cable chamber
for TS
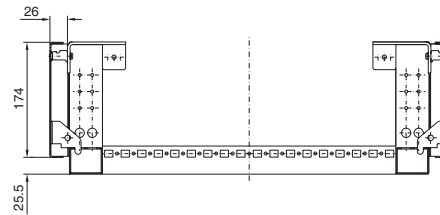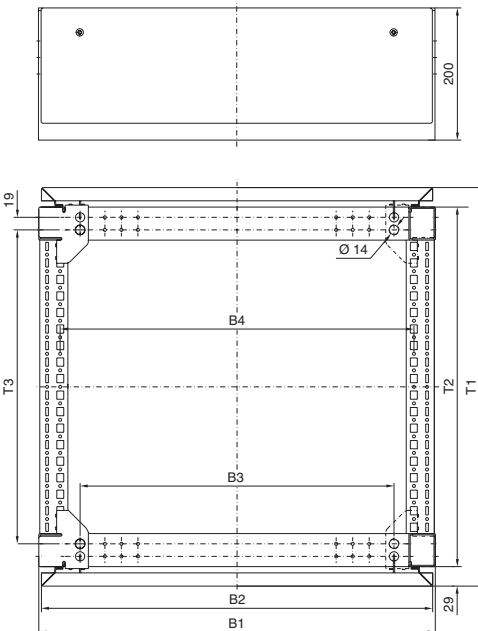
Enclosure width mm	400	600	800	1200
B1	400	600	800	1200
B2	392	592	792	1192
B3	275	475	675	1075
B4	335	535	735	1135

Enclosure depth mm	500	600
T1	502	602
T2	444	544
T3	375	475

B

7.1

Cable chamber

for TS
The front and rear sheet steel trim panels are simply plugged in at the bottom by means of a guide, and are screw-fastened to the frame. Cable chambers can be bayed at the sides if required; they are bayed in the same way as base frames.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts for mounting on the enclosure.

For enclosures		Model No. TS
Width mm	Depth mm	
400	500	**8600.455**
400	600	**8600.465**
600	500	**8600.655**
600	600	**8600.665**
800	500	**8600.855**
800	600	**8600.865**
1200	500	**8600.255**
1200	600	**8600.265**

**To order versions in RAL 7032, please use order number extension .XX0.
For primed version, please add extension .XX1 to the Model No.
Delivery times on request.**

+ Accessories:

Side panels for cable chamber, see page 837.

Detailed drawing, see page 836.

Side panels

for cable chamber
Attachment is achieved by simply plugging in, flipping up and screw-fastening.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosure depth mm	Packs of	Model No. TS
500	2	**8600.510**
600	2	**8600.520**

**To order versions in RAL 7032, please use order number extension .0X0.
For primed version, please add extension .XX1 to the Model No.
Delivery times on request.**

Transport castors

for base/plinth TS
For locating onto the base/plinth corner piece 100 or 200 mm high by raising or tilting.

Load capacity:
Maximum permissible load per twin castor: static: 100 kg

Supply includes:
1 set = 4 twin castors, 2 with, 2 without brakes.

Colour:
RAL 7022

Note:
Base/plinth trims, side, must be fitted in a free-standing position.

Ground clearance mm	Model No. TS
100	**8800.390**

! Also required:

Base/plinth trim, side, see page 835.

Base/plinth TS

B
7.1

Base

Base/plinth TS

Base assembly plate

for base/plinth TS and base/plinth, complete
For fastening the plinth to the floor without moving
the enclosure or the bayed enclosure suite. For
assembly screws up to 12 mm Ø.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. SO
10	**2817.000**

Fastening bolts

For
● **Base/plinth TS**
● **Base/plinth, complete**
● **Base/plinth, stationary**
For mounting on base/plinth trim panels, side.
The lockable assembly bolt allows the installation
of cable clamp rails and standard C rails.

Material:
Hexagon steel, zinc-plated, passivated,
19 mm across flats

Base/plinth trim panel mm high	Packs of	Model No. SZ
100	10	**2819.000**
200	10	**2819.200**

➕ Accessories:

Cable clamp rail,
see page 979.
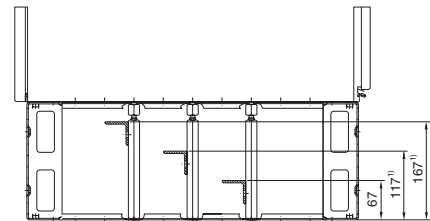
[1] only for height 200 mm

Base/plinth baying brackets

for base/plinth TS
Essential if the trim panels are mounted rotated
through 90° for additional stabilisation during the
transportation of bayed enclosures.
Additionally required for each trim panel: 2 units.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Screws M8 x 16 mm.

Packs of	Model No. TS
20	**8601.100**
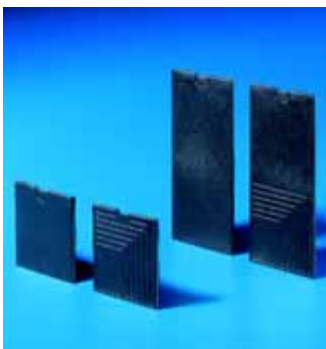
Cover cap

for base/plinth components TS
As a replacement.

Material:
Plastic ABS

Colour:
RAL 9005

For base/plinth height mm	Packs of	Model No. TS
100	4	**8601.130**
200	4	**8601.140**

Base/plinth trim

with brush strip
for TS base/plinth
The supplement to the modular base/plinth concept (see page 834).
May also be exchanged retrospectively for the front or rear trim panel of the base/plinth components 100 or 200 mm high. By rotating the trim panel, the hammer-head strip for cable attachment may optionally be positioned at the top or bottom.

Material:
Sheet steel, spray-finished

Width mm	Height mm	Model No. TS	
		RAL 7022	RAL 7035
600	100	**8601.610**	**8601.615**

⊞ **Accessories:**

Cable tie SZ 2597.000,
see page 982.

Connecting plinth trim

for base/plinth TS
For covering gaps in the case of back to back or corner enclosure suites. Simply push in between the trim panel and the corner piece before tightening the screws.

Material:
Sheet steel

For base/plinth height mm	Colour RAL	Packs of	Model No. TS
100	7022	2	**8601.110**
200	7022	2	**8601.120**
100	7035	2	**8601.115**
200	7035	2	**8601.125**
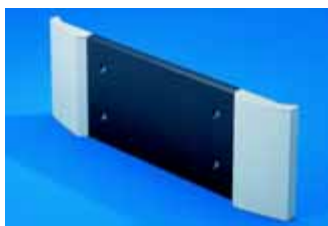
Base/plinth trim

for base/plinth TS
To continue the design of the
● bottom front door of PC enclosures based on TS,
● door of the IW enclosure.
The base/plinth trim is screw-fastened to the corner pieces of the TS base/plinth components from the outside.

Material:
Sheet steel, spray-finished
Designer covers: Extruded aluminium section

Colour:
RAL 7015
Designer covers: RAL 7035

Width mm	Height mm	Model No. PC
600	200	**8360.920**
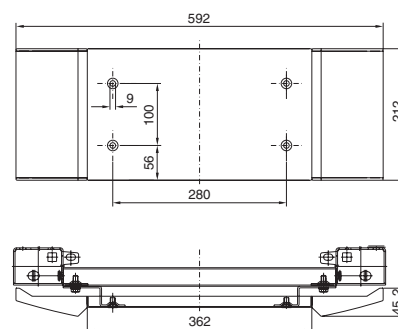
Base

Base/plinth TS

Base/plinth, stationary
for PC-TS, IW
Adapted to the design of the enclosure,
Height 100 mm, front projection.

Material:
Sheet steel, 2.0 mm

Colour:
RAL 7035
design component, front: RAL 7015

Supply includes:
1 design component, front
1 base/plinth component, rear
2 base/plinth trims, side

For depth mm	Model No. PC
600	**8800.920**
800	**8800.930**

➕ **Accessories:**

Attachment opportunities for:
- Twin castors PC 4634.500,
  see page 848,
- Levelling feet PS 4612.000,
  see page 848,
- Fastening bolts for cable clamp rails
  SO 2819.000,
  see page 838,
- Support bracket PS 4183.000,
  see page 933.
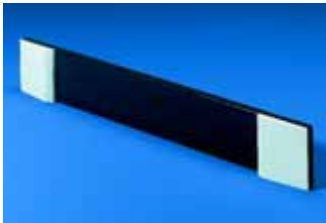
Designer cover
for base/plinth TS
to continue the design of the
- Designer glazed door TS
- Designer sheet steel door TS
The trim panel is simply exchanged for the
existing front trim panel of the base/plinth.

Material:
Sheet steel, spray-finished
design elements: Aluminium, spray-finished

Colour:
RAL 7024,
Design elements: RAL 7035

Supply includes:
Assembly parts.

Enclosure width mm	Version	Model No. DK
800	Solid	**7825.804**
800	Vented	**7825.806**

Filter mat
For
- **Base/plinth component, vented**
- **Base/plinth component, vented with designer trim**

To cover the trim panel in the base/plinth
component.
The mounting frame simply clips into the base/
plinth trim panel from behind.
Filter class G3 to DIN EN 779.

Supply includes:
Assembly frame.

For enclosure width mm	Packs of	Model No. DK
600	1	**7561.500**
800	1	**7581.500**

Spare filter mat
Supply includes:
Filter mat without mounting frames for base/plinth
trim panels up to 800 mm wide.

	Packs of	Model No. DK
Spare filter mats	5	**7582.500**

Base/plinth TS

B

7.1

Base/plinth components front and rear

**Stainless steel
for TS, CM, CL**

Material:
Stainless steel 1.4301

Surface finish:
Brushed

Supply includes:
Assembly parts including 4 screws and captive nuts M12 for mounting on the enclosure.

100 mm high:
2 trim panels front/rear

200 mm high:
2 corner pieces with removable trim panel,
1 trim panel front/rear.

For enclosure width mm	Model No. TS	
	100 mm high	200 mm high
600	**8701.600**	**8702.600**
800	**8701.800**	**8702.800**
1200	**8701.200**	**8702.200**

**To order enclosures in stainless steel 1.4404
(AISI 316L) please add the extension .X05
to the Model No.
Delivery times on request.**

⊞ **Accessories:**

Base/plinth trim, modular (perforated plate),
see page 841.

Base/plinth trim, side

**Stainless steel
for TS, CM, CL**
For mounting between the base/plinth components. At 200 mm height, two 100 mm base/plinth trims may be used.
Base/plinth trim (100 mm high) may be installed rotated through 90° in order to stabilise bayed base/plinth components.

Material:
Stainless steel 1.4301

Surface finish:
Brushed

Supply includes:
2 base/plinth trim panels, including parts for attaching to the base/plinth components.

For enclosure depth mm	Model No. TS	
	100 mm high	200 mm high
400	**8701.040**	**8702.040**
500	**8701.050**	**8702.050**
600	**8701.060**	**8702.060**

**To order enclosures in stainless steel 1.4404
(AISI 316L) please add the extension .0X5
to the Model No.
Delivery times on request.**

⚠ **Also required:**

Base/plinth baying bracket TS 8601.100,
see page 838, when base/plinth components are fitted by rotating through 90°.

⊞ **Accessories:**

Assembly bolts for base/plinth, see page 838.
Levelling feet PS 4612.000, see page 848.

1 Base/plinth comp., front/rear
2 Base/plinth trim panels, side
3 Base/plinth corner piece
4 Trim panel, removable

Description of the hole patterns

B/T =
enclosure dimensions

B1/T1 =
external dimensions

B2/T2 =
for screw-fastening in the thread of the enclosure corner piece from below

B3/T3 =
for screw-fastening with captive nuts to the enclosure base from below or above

All holes (B2 – B4/T2 – T4) may be used for screw-fastening to the base.

100 mm high

200 mm high
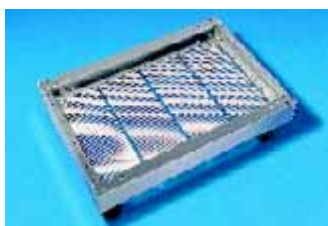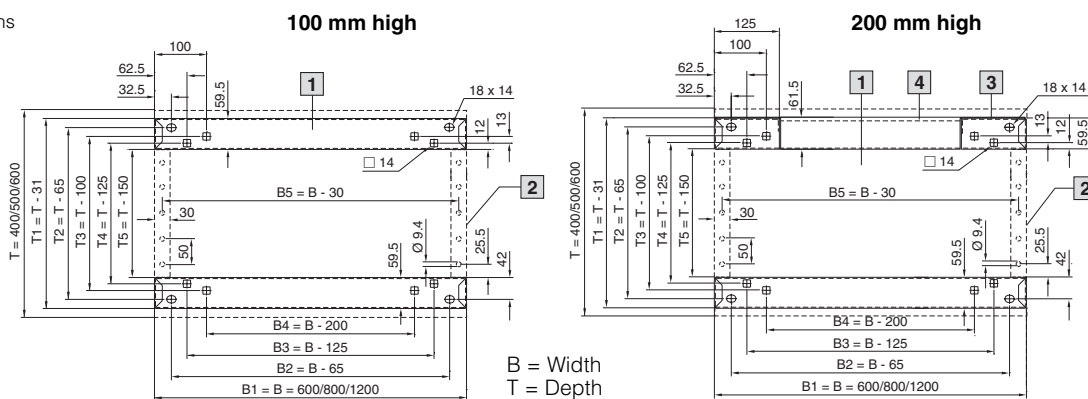
B = Width
T = Depth

Base/plinth trim, modular

**for base/plinth TS and base/plinth,
complete stainless steel**
For cable routing in the stainless steel base/plinth, i.e. if levelling feet SO 2889.000 or SO 2890.000, see page 845, are used.
Width: 175 mm.

Material:
Stainless steel 1.4301

Supply includes:
4 base/plinth trim panels.

For enclosure depth mm	No. of base/plinth trims required for base/plinth width[1]				Model No. SO
	600 mm	800 mm	1000 mm	1200 mm	
400	3	4	5	6	**2907.000**
500	3	4	5	6	**2908.000**
600	3	4	5	6	**2913.000**

[1] If the surface is to be completely sealed.

⊞ **Accessories:**

Cable tie SZ 2597.000,
see page 982.

Base/plinth TS

B

7.1

Base

Base/plinth TS

Transport plinth
for TS
For the transportation of heavy, bayed enclosure suites. Available in 200 mm increments from 2 to 5 m.
Transport plinths can have 2 tubes welded to receive cross-bars for transportation.
Variable punchings to suit all enclosure widths of 600 mm and above.

Surface finish:
Primed in reddish-brown rust-inhibiting paint, optionally spray-finished.

Note:
Please state the required width and depth of the enclosure suite when ordering.
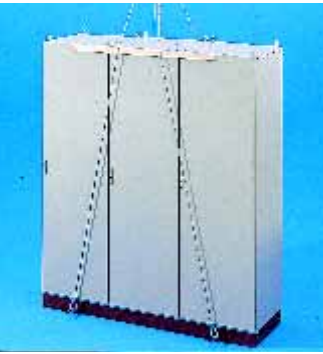
Version with transport tubes

Colour	Packs of	Model No. SO
Primed, reddish-brown rust-inhibiting paint	1	**1228.010**
Similar to RAL 7022	1	**1228.110**
Similar to RAL 7032	1	**1228.210**
Similar to RAL 7035	1	**1228.310**

Delivery times on request.

Version without transport tubes

Colour	Packs of	Model No. SO
Primed, reddish-brown rust-inhibiting paint	1	**1228.000**
Similar to RAL 7022	1	**1228.100**
Similar to RAL 7032	1	**1228.200**
Similar to RAL 7035	1	**1228.300**

Delivery times on request.

A	2000	2200	2400	2600	2800	3000	3200	3400
D	300	300	300	300	300	600	600	600
F	800	1000	1200	1400	1600	1800	2000	2200

A	3600	3800	4000	4200	4400	4600	4800	5000
D	600	600	600	1000	1000	1000	1000	1000
F	2400	2600	2800	3000	3200	3400	3600	3800

Enclosure depth mm	B	C
400	369	275
500	469	375
600	569	475
800	769	675
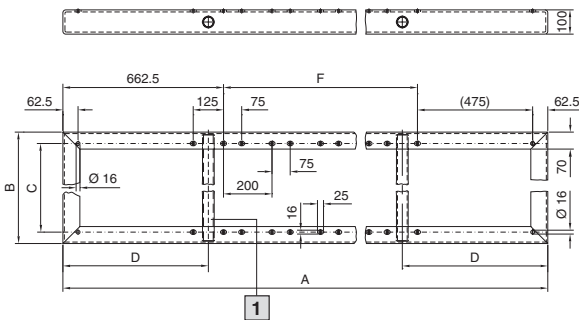
1 Optionally transport tube, internal diameter 40 mm and wall thickness of 3.25 mm

---

Concrete base/plinth
for Outdoor enclosures
The base/plinth is made from pre-cast concrete sections which are easily fitted in situ. Front/rear base/plinth plates may be withdrawn for servicing works.
Total height approx. 1000 mm,
excavation depth approx. 700 mm.

Material/Surface finish:
Light concrete, untreated

Supply includes:
1 base plate,
2 side parts,
two-piece rear and front panel,
assembly parts
and fastening screws for mounting the enclosure.
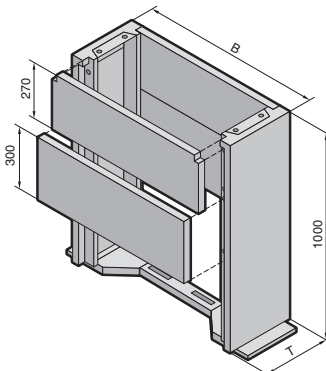
For enclosures/housings		Model No. CS
Width (B) mm	Depth (T) mm	
Outdoor compact enclosures		
800	350	**1616.300**
1200	350	**1616.310**
CS compact enclosures		
800	320	**9765.080**
1100	320	**9765.081**
CS modular and basic enclosures		
600	400	**9765.182**
600	500	**9765.082**
600	600	**9765.083**
800	400	**9765.088**
800	500	**9765.084**
800	600	**9765.085**
1200	400	**9765.089**
1200	500	**9765.086**
1200	600	**9765.087**
CS Toptec		
650	650	**9765.184**
800	650	**9765.185**

Extended delivery times.
Other modules available on request.

Base/plinth TS

B

7.1
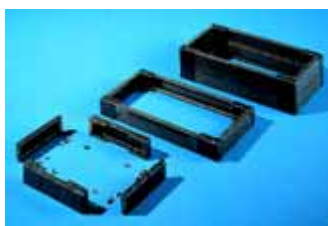
Base/plinth, complete

Sheet steel for
AE, AK, AP, AP universal console, ES, PC-ES
Consisting of:
Trim panels at the front and rear with fitted corner pieces and side trim panels.

Material:
Sheet steel, spray-finished

Colour:
RAL 7022

Supply includes:
Assembly parts including 4 screws and captive nuts M12 for mounting on the enclosure.
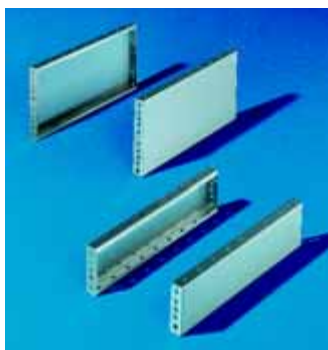
100 mm high:
4 corner pieces, 2 trim panels front/rear,
2 trim panels, side

200 mm high:
4 corner pieces, 1 trim panel front/rear x 200 mm,
2 trim panels front/rear x 100 mm,
4 trim panels, side
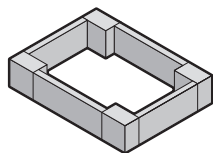
Base/plinth for ES, PC-ES, AP universal console

For enclosures/consoles			Model No. SO	
Width mm	Depth mm	Base/plinth depth (T) mm	100 mm high	200 mm high
600	400	350	**2804.200**	**2805.200**
600	500	450	**2807.200**	**2808.200**
600	600	550	**2813.200**	**2814.200**
600	800	750	**2846.200**	**2847.200**
800	400	350	**2823.200**	**2824.200**
800	500	450	**2829.200**	**2830.200**
1000	400	350	**2909.200**	**2910.200**
1200	400	350	**2836.200**	**2837.200**
1200	500	450	**2839.200**	**2840.200**
1600	400	350	**2905.200**	**2906.200**
1800	500	450	**2903.200**	**2904.200**

Base/plinth for AE, AK, AP

For enclosures/consoles			Model No. SO	
Width mm	Depth mm	Base/plinth depth (T) mm	100 mm high	200 mm high
600	300	279	**2816.200**	**2826.200**
600	400	370	**2911.200**	**2912.200**
800	300	279	**2818.200**	**2828.200**
800	400	370	**2901.200**	**2902.200**
800	500	440	**2841.200**	**2842.200**
1000	300	279	**2801.200**	**2802.200**
1000	400	370	**2891.200**	**2892.200**
1200	400	370	**2921.200**	**2922.200**
1200	500	440	**2851.200**	**2852.200**
1600	400	370	**2961.200**	**2962.200**
1600	500	440	**2863.200**	**2864.200**

⊞ Accessories:

Assembly bolts for base/plinth,
see page 838.
Base assembly plate,
see page 838.

Plinth, 100 mm high
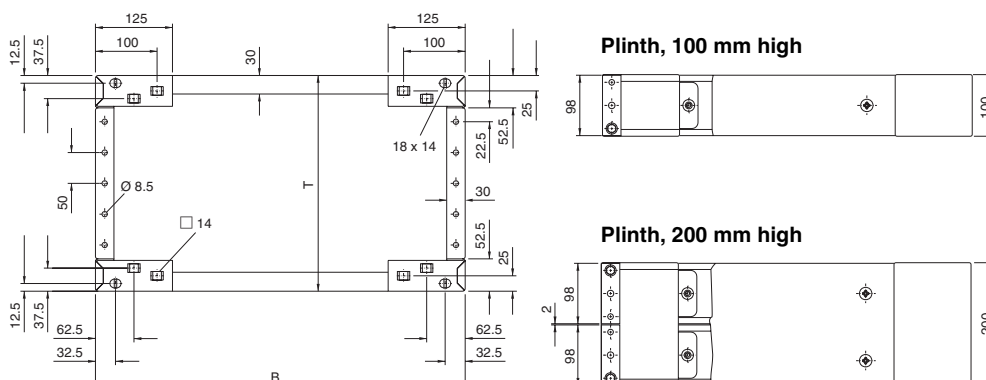
Plinth, 200 mm high
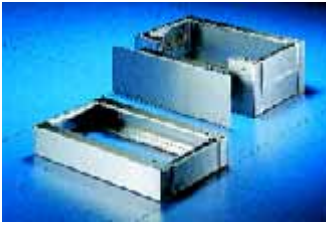
Base

Base/plinth

Base/plinth, complete

Stainless steel
for ES, PC-ES, AP

Material:
Stainless steel 1.4301

Surface finish:
Brushed

Supply includes:
Assembly parts including 4 screws and captive nuts M12 for mounting on the enclosure.

100 mm high:
2 trim panels front/rear,
2 trim panels, side

200 mm high:
2 corner pieces with removable trim panel,
1 trim panel front/rear, 4 trim panels, side.
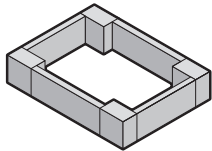
+ Accessories:

Levelling feet,
see page 845.
Base/plinth trim, modular (perforated plate),
see page 841.

Base/plinth for ES, PC, AP

For enclosures/consoles		Model No. SO	
Width mm	Depth mm	100 mm high	200 mm high
600	400	**2865.000**	**2875.000**
600	500	**2868.000**	**2876.000**
600	600	**2855.000**	**2877.000**
800	400	**2869.000**	**2878.000**
800	500	**2866.000**	**2879.000**
800	600	**2856.000**	**2880.000**
1000	400	**2867.000**	**2885.000**
1200	400	**2870.000**	**2886.000**
1200	500	**2860.000**	**2887.000**

To order enclosures in 1.4404 (AISI 316L) please add the extension .500 to the Model No.
Delivery times available on request.

Plinth, 100 mm high
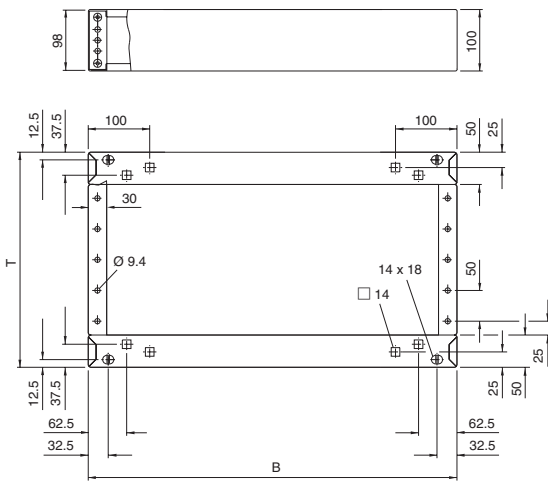
T = Enclosure depth – 50 mm
B = Enclosure width

Plinth, 200 mm high
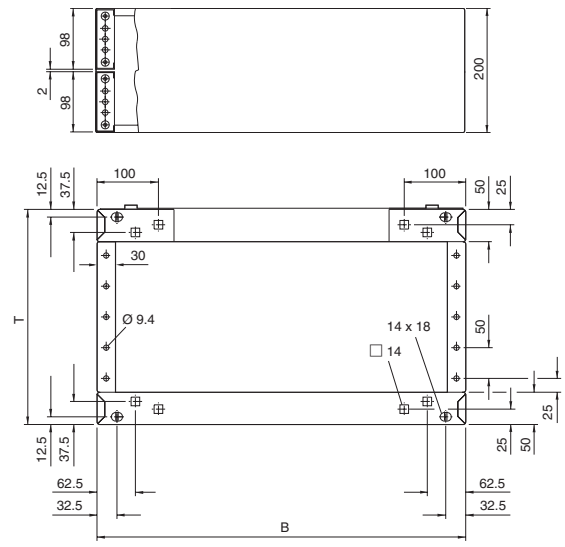
T = Enclosure depth – 50 mm
B = Enclosure width

Transport castors

for base/plinth, complete
For locating onto the base/plinth corner piece 100 or 200 mm high by raising or tilting.

Load capacity:
Maximum permissible static load:
100 kg per twin castor

Supply includes:
1 set =
4 twin castors,
2 with, 2 without brakes.

Colour:
RAL 7022

Ground clearance mm	Model No. PS
60	**4570.000**

Cross-member

**for TS, PC, IW, ES, AP
adjustable**

To increase stability, the cross-member is positioned 138 mm above the base frame of the enclosure at the front and rear. For deeper enclosures, the rear part may be extended and screw-fastened again. For screw-fastening to the floor and enclosure with mounting hole at the sides front and rear. The castors and levelling feet may be secured to the welded nuts M12.

Material:
Sheet steel, spray-finished

Colour:
RAL 7015

Note:
For mobile use, the cross-member must be screw-fastened twice in the corners of the enclosure.

For	Enclosure depth mm	L1	L2	Packs of	Model No. TS/AP
TS, PC, IW, ES	400	644	275	2	8601.450
	500	744	375		
	600	844	475	2	8601.680
	800	1044	675		
AP	400	634	320	2	2697.450
	500	734	390		

➕ Accessories:

Attachment opportunities for
● Twin castors PC 4634.500, see page 848.
● Levelling feet PS 4612.000, see page 848.

TS 8601.450, TS 8601.680
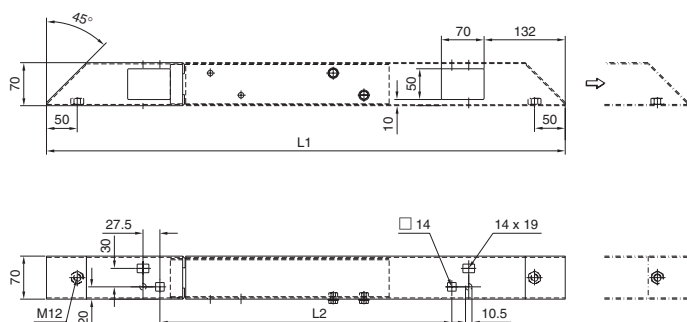
AP 2697.450
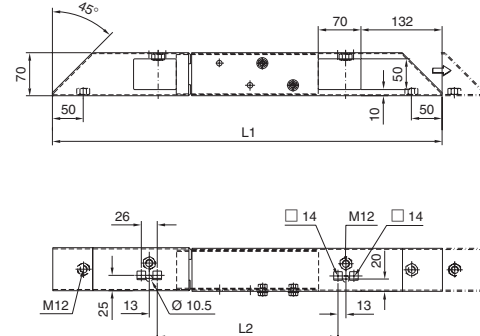
Cast feet

For IW
For secure siting of
● enclosure for tower PC
or
● other own assemblies

Depth 700 mm

Material:
Cast aluminium

Colour:
RAL 7035

Supply includes:
Assembly parts.

Packs of	Model No. IW
2	6902.920

➕ Accessories:

Base mount CP 6147.000, see page 233.
Twin castors, see page 848.

Levelling feet

For direct mounting underneath the base/plinth TS and the base/plinth, complete.
For unhindered access e.g. when cleaning the floor, and to compensate for floor irregularities.

Load capacity:
Maximum permissible static load:
400 kg per levelling foot

Adjustment range:
M12: 55 mm – 125 mm
M16: 45 mm – 120 mm

Material:
Stainless steel 1.4301

Thread	Packs of	Model No. SO
M12	4	2889.000
M16	4	2890.000

German utility model no. G 9406 468

Base/plinth

B

7.1
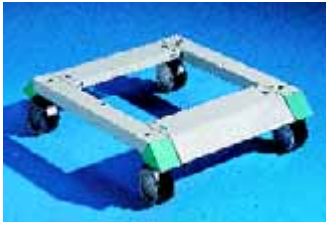
Base

Base/plinth

Base/plinth, mobile

For PC enclosure based on ES
Not assembled

Load capacity per castor:
120 kg static load

Total load:
360 kg static load

Colour:
RAL 7035/RAL 5018

**German registered design
No. M 92 01 858
German patent no. 42 00 315
IR design no. DM/023580
with validity for DE, FR, IT**

For enclosures		Model No. SO
Width mm	Depth mm	
600	600	**2981.235**
600	800	**2982.235**
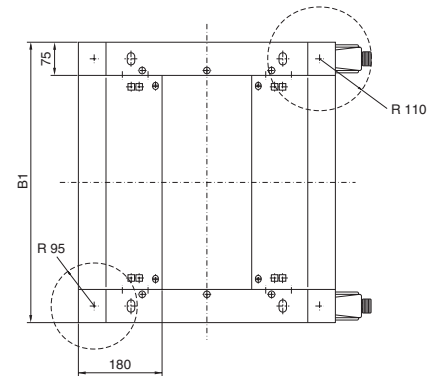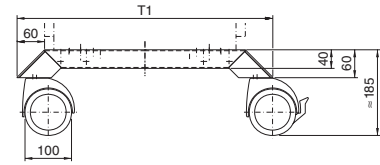
B1 = Enclosure width
T1 = Enclosure depth + 150 mm

Base/plinth

for EL
The base/plinth can be fitted onto all EL enclosures with a centre part depth of 316 or 416 mm. Holes must be made for attaching to the centre part. A drilling template is supplied. These may additionally be fitted with castors for use as a mobile base/plinth.

Material:
Sheet steel

Colour:
RAL 7044

Supply includes:
4 levelling feet and
assembly parts.

For centre part depth mm	Packs of	Height mm	Model No. DK/VR
316	1	50	**7505.300**
416	1	50	**7505.400**
Additional castors for base/plinth	4	50	**3805.500**

Under-floor frame

for DK-TS, FR(i)
For siting the enclosure on a false floor when heavy equipment is installed.

Material:
Sheet steel

Colour:
RAL 7044

Supply includes:
Baying connector and
base attachment plate.

Width mm	Height mm	Depth mm	Model No. DK
600	400	1000	**7855.340**

Base/plinth

B

7.1

Base/plinth

for RNC
To accommodate a maximum of two 3-way socket strips DK 7240.110 and also as storage space for cables.
Height: 60 mm.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
4 levelling feet and 2/4 cable shunting rings.

For RNC enclosures 42 HP (¹/₂ 19″)		Model No. DK
Width mm	Depth mm	
342	280	**7870.710**

For RNC tower enclosures 84 HP (19″) vertical		Model No. DK
Width mm	Depth mm	
342	400	**7870.715**

➕ **Accessories:**

Socket strip,
see page 746.

Stabiliser bracket

for base/plinth TS
The stabiliser bracket may be retrospectively screw-fastened to the outside of the base/plinth corner pieces.

Load capacity:
Up to a maximum of 80 kg static load.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035, warning markings RAL 2002

Supply includes:
Assembly parts.

Packs of	Model No. DK
2	**7825.150**

Stabiliser

for server racks DK-TS, FR(i)
The pull-out stabiliser is quickly and easily retro-fitted to the base frame of an FR(i) or TS 8 server rack and only extended when necessary. It may be used in combination with levelling feet and/or castors.

Load capacity:
Up to a maximum of 150 kg static load.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Enclosure depth mm	Model No. DK
900	**7825.200**
1000	**7825.250**

Note:
The stabiliser cannot be used with gland plates or base/plinths.

Base/plinth

B
7.1
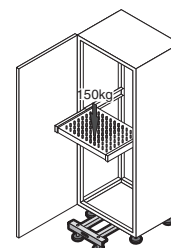
Base

Base

Levelling feet

18 – 43 mm high
To compensate for height differences with floor irregularities. Thread length 40 mm. Assembly thread M12.

Maximum permissible static load: approx. 300 kg per levelling foot.

For:
- Baying system TS 8
- PC enclosure system
- Pedestal base plate CP 6137.035 – CP 6137.535
- Pedestal CP 6141.XXX
- Industrial workstations
- flexRack(i)

Packs of	Model No. PS
4	4612.000

! Also required:

For mounting on the TS base/plinth: Base/plinth adaptor TS 8800.220, see page 849.
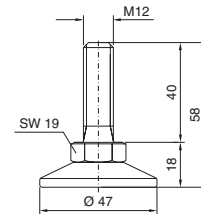
Levelling feet

85 – 115 mm high
For mounting on TS, ES and PC enclosures, for easier floor cleaning and to compensate for floor irregularities.
Height 100 mm.

Maximum permissible static load: 350 kg per levelling foot.

Packs of	Model No. SO
4	2859.000

Material:
Feet: Brass, nickel-plated
Threaded bolts and mounting plates: Stainless steel 1.4301

Supply includes:
Assembly parts to the enclosure.

Twin castors

Mounting thread M12 x 20.

Maximum permissible static load (per castor) kg	Ground clearance mm	Lock	Packs of		Colour	Model No.
40	50	4 without	1 set	1	Black	4611.000
75	85	2 with, 2 without	1 set	2	Black with grey running surface	6148.000
120	125	2 with, 2 without	1 set	3	Black	4634.500
				4		7495.000

For:
- Baying system TS 8
- PC enclosure system
- Pedestal base plate CP 6137.035 – CP 6137.535
- Pedestal CP 6141.XXX
- Industrial workstations
- flexRack(i)
- Data Rack

! Also required:

For mounting on the TS base/plinth: Base/plinth adaptor for twin castors TS 8800.290, see page 849.

Base

B

7.1

Transport castors

for TE
For easy transportation between sites.
The castors may additionally be screw-fastened to
the levelling feet in the corner areas within the
base frame.
Ground clearance: 58 mm

Permissible static load:
300 kg per enclosure

Supply includes:
1 set = 4 castors
including assembly parts.

Packs of	Model No. TE
1 set	**7000.672**

Transport kit

for DK-TS
For convenient movement of the network enclo-
sures or as a mobile rack. Ground clearance
approx. 40 mm.

Permissible static load:
750 kg per enclosure

Supply includes:
1 set = 4 castors (2 steerable ones)
including assembly parts.

Packs of	Model No. DK
1 set	**7825.900**

Note:
Only for enclosures without gland plates or gland
plate frames.

Base/plinth adaptor

for levelling feet
Connection component for fastening M12 levelling
feet PS 4612.000 to the TS base/plinth.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. TS
4	**8800.220**

⚠ **Also required:**

Levelling feet, PS 4612.000,
see page 848.

Base/plinth adaptor

for twin castors
Connection component for mounting twin castors
to the TS base/plinth.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. TS
4	**8800.290**

⚠ **Also required:**

Base/plinth trim, side,
see page 835,
in all situations where a twin castor is mounted.

Base

B

7.₁

Base

Base

Width divider

Divides 1200 mm wide TS enclosure into two halves.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
1 set =
1 bracket each for right/left,
2 compensation plates for the top,
assembly parts.

Packs of	Model No. TS
1 set	**8800.200**

⚠ Also required:

Depending on the installation situation:
TS punched rail 18 x 38 mm,
see page 923.
PS punched section without mounting flange,
see page 925.

1st mounting situation:
Two mounting plates side by side.
Two mounting plates (from 600 mm wide enclosures) in a 1200 mm wide enclosure permit independent positioning and easy handling.

⚠ Also required:

In accordance with the enclosure depth:
4 TS punched rails 18 x 38 mm at the bottom,
see page 923,
1 PS punched section without mounting flange
23 x 73 mm at the top,
see page 925.

2nd mounting situation:
System support rails, fitted on the left.
Whilst heavy installed equipment rests on the system support rails, the remaining floor space is left free, e.g. for unhindered cable entry.

⚠ Also required:

2 system support rails PS 4361.000,
see page 926.
1 TS punched rail 18 x 38 mm
in accordance with the enclosure depth
(included with the supply of the standard enclosure).
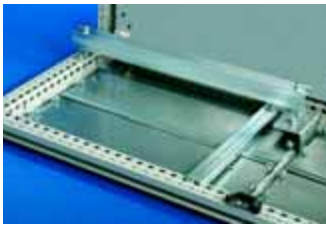
3rd mounting situation:
Cable clamp rail, installed on the left.
With 1200 mm wide enclosures, the width divider allows cable entry and cable clamping to be arranged differently on the left and right of the enclosure.

⚠ Also required:

1 cable clamp rail PS 4191.000,
see page 979.
1 TS punched rail 18 x 38 mm
in accordance with the enclosure depth
(included with the supply of the standard enclosure).

Base assembly bracket

for TS, ES, AP universal console
For anchoring the enclosure at any position of the base frame, particularly in cases where the existing holes in the frame or base tray cannot be used due to the installed equipment or because the substructure prevents them from being used.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. TS
4	**8800.210**

Note:
Additional holes in the base are required for mounting.

Base

Reinforcement bracket

for TS, ES, AP universal console
For use as an additional stabiliser to the clamping straps when populated enclosures are screw-fastened via the base tray to the base/plinth or pallet for transportation purposes.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts

Packs of	Model No. TS
4	**8800.830**
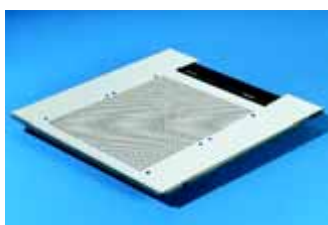
One-piece gland plate

vented, for DK-TS, FR(i)
The slotted gland plate has a cutout in the rear for cable entry, which is concealed with brush strips. The gland plate can be mounted or removed even when installation is already completed.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts

For enclosures		Model No. DK
Width mm	Depth mm	
600	600	**7825.660**
600	800	**7825.680**
600	900	**7825.690**
600	1000	**7825.610**
800	600	**7825.860**
800	800	**7825.880**
800	900	**7825.890**
800	1000	**7825.810**

➕ **Accessories:**

Filter mat for gland plate,
see page 851.
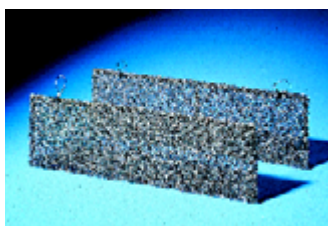
Filter mat

for one-piece gland plate
To conceal the slots in the gland plate. Depending on the enclosure depth, several filter mats may be required for complete concealment.

Enclosure depth mm	Filter mats required for complete concealment	Packs of	Model No. VR
600	1		
800	2	1	**3804.000**
900	2		
1000	3		
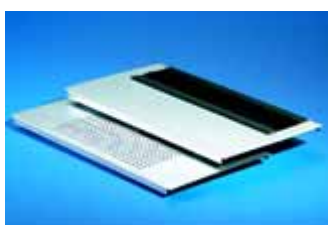
Gland plate modules

for DK-TS
For use in the base frame of the network enclosure. Used in exchange for an existing gland plate of the same depth or in conjunction with a multi-piece gland plate for pre-configuered TS 8 enclosures, see page 852.

Gland plate depth:
237.5 mm

Design for cable entry:
With brush strip

Vented design:
With filter mat for concealing the holes and nylon tape for securing from the inside or outside.

For enclosure width mm	Model No. DK	
	Design	
	for cable entry	Vented
600	**7825.361**	**7825.360**
800	**7825.381**	**7825.380**

Material:
Sheet steel, zinc-plated, passivated.

Base

B

7.1

Base

Base
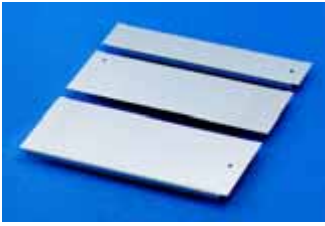
Gland plate, multi-piece

for DK-TS, pre-configured
Gland plates including sliding panel with foam rubber cable clamp strip for cable entry.

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
Assembly parts.

Note:
For the size variant 800 x 800 mm, the gland plate included with the supply for pre-configured network enclosures should be additionally used. Also suitable for combined use with vented gland plate modules and those for cable entry.

For enclosures		Packs of	Model No. DK
Width mm	Depth mm		
800	800	1 set	**7825.382**
800	900	1 set	**7825.383**
800	1000	1 set	**7825.384**

➕ **Accessories:**

Gland plate modules,
see page 851.
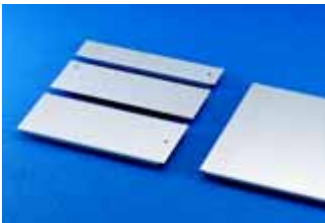
Gland plates

for CS basic enclosures
For sealing the base opening and for cable entry.

Material:
Aluminium, 2 mm.

Supply includes:
Assembly parts.

For enclosure dimensions		Packs of	Model No. CS	
Width mm	Depth mm		One-piece	Divided
600	400	1 set	**9785.017**	**9785.011**
600	500	1 set	**9785.020**	**9785.014**
800	400	1 set	**9785.018**	**9785.012**
800	500	1 set	**9785.019**	**9785.013**
1200	400	1 set	**2 x 9785.017**	**2 x 9785.011**
1200	500	1 set	**2 x 9785.020**	**2 x 9785.014**

Cable entry plates

for CS basic enclosures
For simple, fast cable entry and sealing in conjunction with cable entry grommets.
To replace individual modules in the divided gland plates.

German patent no. 42 07 281
European patent no. 0 560 119
with validity for FR, GB, IT, NL
Japan. Patent no. 2 533 052
US patent no. 5,422,436

Enclosure width mm	Cutouts per plate	Packs of	Model No. PS
600	5	2	**4320.700**
800	8	2	**4321.700**
1200	5	2	**2 x 4320.700**

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
Assembly parts.

➕ **Accessories:**

Cable entry grommets,
see page 965.

Condensate discharge

For reliable discharge from the inside and protection against splashes from the outside (labyrinth effect).
A hole diameter of 16 mm is required.
(With AE sheet steel, the holes are already provided in the base.)

Material:
Polyamide

Colour:
Similar to RAL 7035

Packs of	Model No. SZ
6	**2459.000**
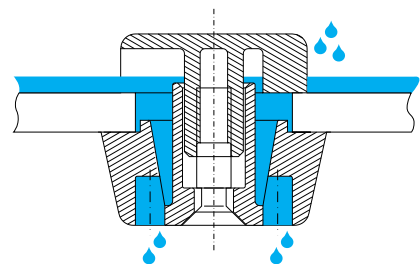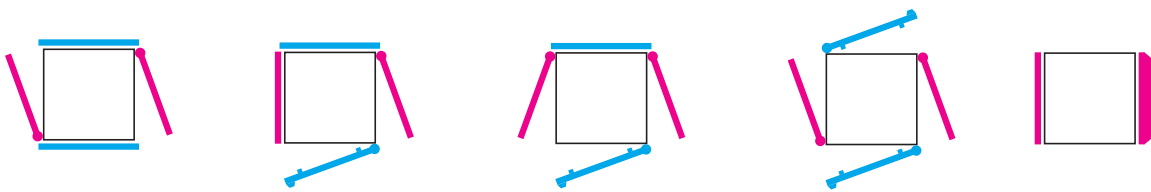
Side panels

The TS side panel provides new dimensions in convenient access to the TS interior, thanks to the option of hinging.

Important:
Red areas (side panels), hinged and unhinged, must always be opposite one another. Blue areas (doors/rear panels) must always be opposite one another.

Only one surface on each vertical enclosure section may be hinged.

Note:
Climate control side panels with integral cooling module may be retrofitted instead of an enclosure side panel, see page 589.

Side panels, screw-fastened, sheet steel

for TS
Easy positioning on the frame with the location aid. Six or eight enclosure panel holders with earthing insert ensure automatic potential equalisation and higher EMC protection. Earthing bolts with contact surface are pre-integrated.

Material:
1.5 mm sheet steel

Surface finish:
Dipcoat-primed,
powder-coated in textured RAL 7035 on the outside.

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Assembly parts.

Note:
Enclosure panel holders may optionally be fitted from the inside or outside of the enclosure.
Area available for population:
External dimension – 100 mm.

Automatic potential equalisation

➕ **Accessories:**

Earth straps,
see page 960.

German patent no. 198 01 720

For enclosures		Packs of	Model No. TS
Height mm	Depth mm		
800	600	2	**8173.235**
1000	600	2	**8174.235**
1200	600	2	**8170.235**
1200	800	2	**8175.235**
1200	1000	2	**8176.235**
1400	500	2	**8145.235**
1400	600	2	**8146.235**
1400	800	2	**8148.235**
1600	500	2	**8165.235**
1600	600	2	**8166.235**
1600	800	2	**8168.235**
1800	400	2	**8184.235**
1800	500	2	**8185.235**
1800	600	2	**8186.235**
1800	800	2	**8188.235**
1800	900	2	**8189.235**
1800	1000	2	**8180.235**
2000	400	2	**8104.235**
2000	500	2	**8105.235**
2000	600	2	**8106.235**
2000	800	2	**8108.235**
2000	900	2	**8109.235**
2000	1000	2	**8100.235**
2200	600	2	**8126.235**
2200	800	2	**8128.235**
2200	900	2	**8129.235**

**For RAL 7032 version, use order extension .200;
to order primed version, use extension .300.
Delivery times on request.**

Side panels, screw-fastened, sheet steel

for TS
To finish a complete enclosure. Easy attachment on the inside vertical enclosure frame member. Earthing inserts ensure automatic potential equalisation and a higher degree of EMC protection. Earth studs with contact surfaces are already included.

Material:
Stainless steel 1.4301, 1.5 mm

Surface finish:
Brushed, grain 240

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Assembly parts.

For enclosures		Packs of	Model No. TS
Height mm	Depth mm		
1800	400	2	**8700.840**
1800	500	2	**8700.850**
2000	600	2	**8700.060**

**To order enclosures in stainless steel 1.4404 (AISI 316L), use Model No. 8705.XXX.
Delivery times on request.**

Detailed drawing,
see side panels for modular front design, page 876.

Side panels

B

7.2

Side panels

Side panels, asymmetrical
for TS
The alternative to the standard side panel for improved visual appearance in the event of back to back, back to side or corner baying. The gap (A) which occurs with standard side panels is reduced to a standard dimension (B), see technical drawing.

In the case of the TS 8 corner enclosure, an asymmetrical side panel is included in the supply. The number of additionally required asymmetrical side panels depends on the baying variant which is selected.

Material:
Sheet steel, 1.5 mm

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Assembly parts.

For enclosures		Packs of	Model No. TS
Height mm	Depth mm		
1800	400	2	**8184.500**
1800	500	2	**8185.500**
1800	600	2	**8186.500**
2000	400	2	**8104.500**
2000	500	2	**8105.500**
2000	600	2	**8106.500**
2000	800	2	**8108.500**
2200	600	2	**8126.500**

For RAL 7032 version, use order extension .400; to order primed version, use extension .450. Delivery times on request.

Asymmetrical side panel

Side panel

Rear panel

Door
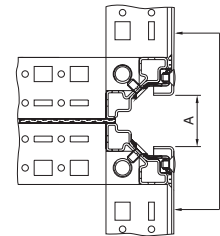
Side panel Standard

Corner baying
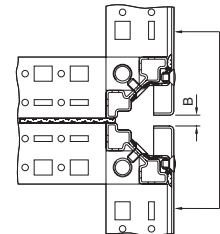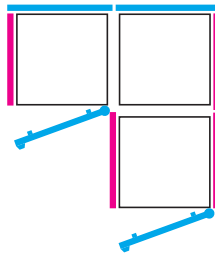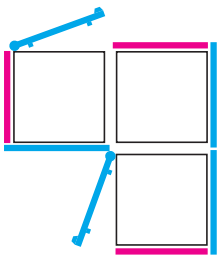
Side panel asymmetrical

Back-to-back baying

Side-to-back baying
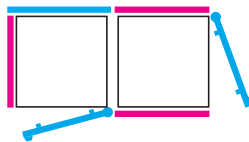
Hinges
for
TS side panels, screw-fastened, sheet steel
TS side panels, asymmetrical
The 180° opening angle allows unhindered access. May be installed optionally from the inside or outside of the enclosure: Simply replace 3 enclosure panel holders with hinges. Despite the hinge, the protection category of the enclosure is retained.

Material:
Die-cast zinc

Supply includes:
Assembly screws.

Version	Packs of	Model No. TS
RAL 7035	6	**8800.110**
RAL 7032	6	**8800.010**

German utility model no. 298 20 604
US patent no. 6,238,027

Note:
Side panel and door hinges may only be installed on the same enclosure section when using a 180° door hinge (see page 893).

Side panels

B

7.2

Side panel, plug-type

for TS
Side panel, lockable with 3 options:
- With lock
- Internal latch

Plug-and-play compatibility system: insert side panel into the base, press upwards into the recessed handle, and rotate the two toggle locks – there is no faster way of finishing off an entire enclosure suite at the side.
In addition, the Rittal cable routing components may be attached to the integral top hat rail.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035/RAL 9005

Protection category:
IP 20/NEMA 1

Supply includes:
2 side panels with toggle locks.

Note:
The punched section (with mounting flanges) must be notched for use on the outer level.

For enclosures		Model No. DK	
Height mm	Depth mm	RAL 7035	RAL 9005
800	600	**7824.086**	–
1000	600	**7824.106**	–
1200	600	**7824.126**	–
1200	800	**7824.128**	–
1200	900	**7824.129**	**7816.129**
1200	1000	**7824.120**	**7816.120**
1400	600	**7824.146**	–
1400	800	**7824.148**	–
1600	600	**7824.166**	–
1600	800	**7824.168**	–
1800	600	**7824.186**	–
1800	800	**7824.188**	–
1800	900	**7824.189**	**7816.189**
1800	1000	**7824.180**	–
2000	600	**7824.206**	–
2000	800	**7824.208**	–
2000	900	**7824.209**	**7816.209**
2000	1000	**7824.200**	**7816.200**
2200	600	**7824.226**	–
2200	800	**7824.228**	–
2200	900	**7824.229**	**7816.229**
2200	1000	**7824.220**	**7816.220**

Accessories:

TS punched section with mounting flange, 17 x 73 mm, notched, see page 921.
Internal latch DK 7824.510, see page 855.

Lock

for side panel, plug-type
With security lock insert no. 3524 E, in exchange for the existing toggle locks.

Supply includes:
4 locks, 2 keys.

Packs of	Model No. DK
4	**7824.500**

Internal latch

for side panel, plug-type
Additional security is achieved via the option of latching the side panel from the inside.
The side panels on the frame section are screw-fastened from the inside with latching brackets.

Supply includes:
Assembly parts.

For enclosure system	Packs of	Model No. DK	Model No. FR
TS	4	**7824.510**	–
FR(i)	4	–	**7856.700**

Side panels

B

7.2

Side panels
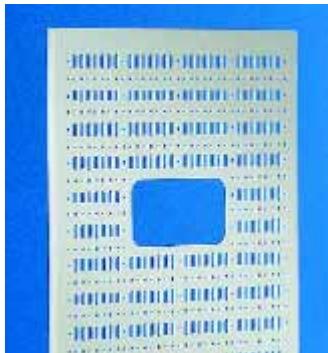
Cable management panel
for DK-TS

The ideal, universal routing aid for network enclo-sures where large quantities of cables and lines are managed. Cutouts for for the attachment of cable shunting rings and nylon loop fasteners. Cable ties are available from the accessories range. With bayed enclosures, the panel may also be used as a partition with cable management facilities.

By attaching to the inner level, cables may be secured inside and out, and may also be used when a single panel is fitted.

The panel is secured to the inner mounting level of TS 8 enclosures using the assembly parts supplied. The cable management panel may be screwed to the outer mounting level on punched sections with mounting flanges.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosures		Model No. DK
Width/depth mm	Height mm	
600	2000	**7824.560**
800	2000	**7824.580**
900	2000	**7824.590**

Further dimensions available on request.

German patent no. 100 07 470

➕ **Accessories:**

Nylon loops,
see page 982.

Side panel, plug-type
for FR(i)

The lockable side panel is simply plugged in and secured via two security locks. The integral beading gives the side panels a special touch. Additional security is achieved via the option of latching the side panel from the inside. The side panels may be screw-fastened to the frame section from the inside using locking brackets FR 7856.700.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Protection category:
IP 20

Supply includes:
Safety lock 12321.

For enclosures		Packs of	Model No. FR
Height mm	Depth mm		
600	600	2	**7856.660**
600	1000	2	**7856.663**
1200	600	2	**7856.666**
1200	800	2	**7856.669**
1200	1000	2	**7856.672**
1800	600	2	**7856.675**
1800	800	2	**7856.678**
2000	600	2	7856.681
2000	800	2	7856.684
2000	1000	2	7856.687
2200	800	2	**7856.693**
2200	1000	2	**7856.696**

➕ **Accessories:**

Internal latch FR 7856.700,
see page 855.

Side panels
for TE

To finish of individual racks or entire bayed suites of racks at the sides.

The side panels are simply located and secured with the integral padlock.

The super-lightweight design means that it is easily handled by one person.

Material:
Sheet steel, powder-coated

Colour:
RAL 7035

Protection category:
IP 20

Supply includes:
Security lock 3524 E.

For enclosures		Packs of	Model No. TE
Height mm	Depth mm		
1200	600	2	**7000.642**
1200	800	2	**7000.644**
2000	600	2	**7000.650**
2000	800	2	**7000.652**
2200	600	2	**7000.654**
2200	800	2	**7000.656**

Side panels

B

7.2
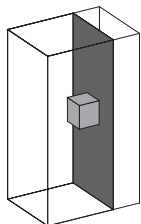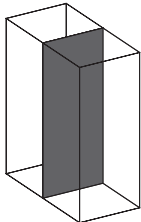
Divider panel

for TS

For shielding individual enclosure cells. Thanks to the symmetry of the frame system, the divider panel can also be used at the rear. All-round, double fold for stability and to hold the seal. Notches in the corners and half-way up the sides permit the use of angular baying brackets and baying brackets, even with a divider panel fitted. For mounting on the outer mounting level. This leaves the inner level free for further population.

Material:
Sheet steel, 1.5 mm, zinc-plated, passivated

Protection category:
IP 54 to EN 60 529/10.91

Supply includes:
Assembly parts.

⊞ Accessories:

Cover with door,
see page 860.
Baying bracket TS 8800.470 for enclosures with fitted divider panel.
see page 866.

Note:
The divider panel may also be fitted to the rear. This allows, e.g. frequency converters for heat dissipation to be installed in a divider panel with the cooling units facing outwards and protected/finished off with a cover (see page 860).

For enclosures		Model No. TS
Height mm	Depth mm	
1400	500	**8609.450**
1600	500	**8609.650**
1800	400	**8609.840**
1800	500	**8609.850**
1800	600	**8609.860**
2000	400	**8609.040**
2000	500	**8609.050**
2000	600	**8609.060**
2000	800	**8609.080**
2200	600	**8609.260**
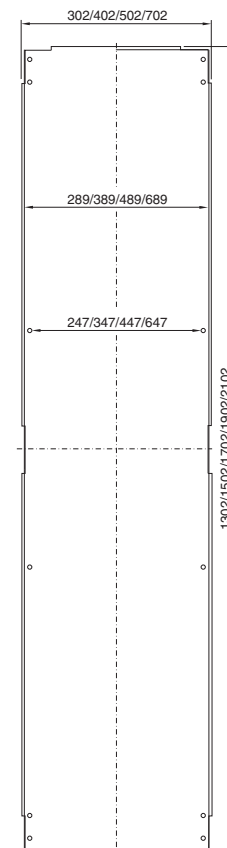
Divider panel

for TS

Solid partition for rack mounting, suspended between two TS 8 enclosures.

Material:
Sheet steel, zinc-plated, passivated

Note:
Baying connector TS 8800.490, for external use. Not suitable for use in conjunction with a baying seal. A seal that may be present must be removed prior to installation.

For enclosures		Model No. DK
Height mm	Depth mm	
2000	900	**7831.720**
2000	1000	**7831.722**

⊞ Accessories:

Baying connector TS 8800.490,
see page 864.

Divider panels

B

7.2

Walls

Divider panels for module plates
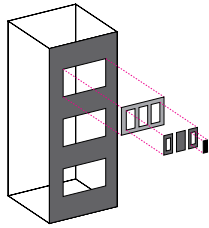
The divider panel and module plate system

More options:
The cutouts of a divider panel are individually equipped with module plates for 16-pole or 24-pole connectors, with module plates for cable entry and with solid module plates.

Faster assembly:
Usually only part of the total number of connector cutouts are used. Thanks to the new divider panel technique the cutouts do not need to be covered individually. The solid module plate is used instead.
The benefits: Less plates, less screws, less assembly work.

Divider panel

for module plates TS
With cutouts for the installation of module plates for connectors or for cable entry, and also for the entry of busbar systems and other installed equipment. All-round, double fold for stability and to hold the seal. Thanks to the symmetry of the enclosure frame, divider panels may also be fitted at the rear, dimenions permitting.
For mounting on the outer mounting level. This leaves the inner level free for further population.

Material:
Sheet steel, 2 mm, zinc-plated, passivated

Supply includes:
Assembly parts and multi-tooth screws M5 x 12 mm for mounting the module plates.

Note:
Notches in the corners and half-way up the sides permit the use of angular baying brackets and baying brackets, even with a divider panel fitted.

➕ **Accessories:**

Module plates,
see page 859.
Cover with door,
see page 860.
Baying bracket TS 8800.470 for enclosures with fitted divider panel,
see page 866.
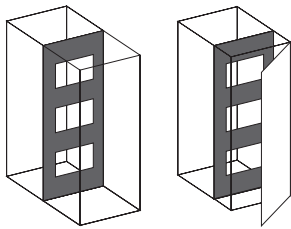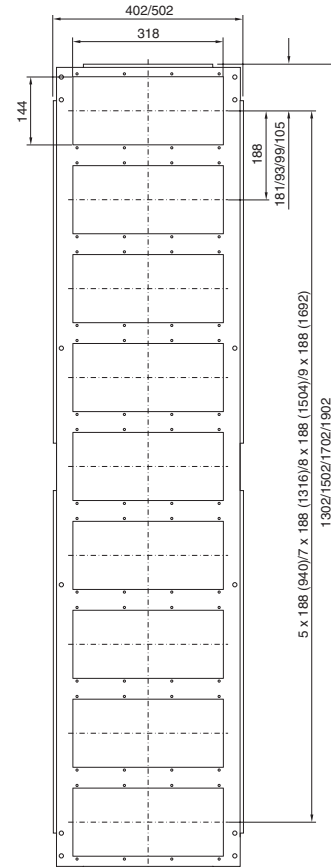
For enclosures		Number of cutouts	Model No. TS
Height mm	Depth mm		
1400	500	6	**8609.180**
1600	500	8	**8609.165**
1800	500	9	**8609.100**
1800	600	9	**8609.110**
2000	500	10	**8609.120**
2000	600	10	**8609.130**

Primer/paint

For touching up and repairing powder-coated and wet-painted surfaces, air-drying.

Colour RAL	Model No. SZ		
	Touch-up pen 12 ml	Spray can 150 ml	Spray can 1000 ml
7022	–	**2581.000**	–
7032	**2436.732**	**2437.000**	**2438.000**
7035	**2436.735**	**2440.735**	**2438.735**

Divider panels for module plates

B

7.2

Module plates

Material:
Sheet steel, 2 mm, zinc-plated, passivated

Supply includes:
Seal

Version	Cutouts	Packs of	Model No. TS
Solid	–	1	**8609.160**
For 16-pole connectors	4	1	**8609.150**
For 24-pole connectors	4	1	**8609.140**
For cable entry	1	1	**8609.170**
For cable entry grommets	4	1	**8609.190**
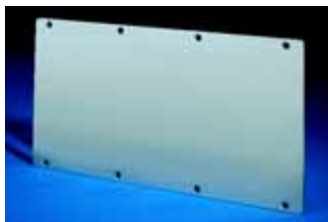
Solid
For sealing unused cutouts. Easily machined for individual cutouts.

⊞ **Accessories:**

Adaptor, cover,
see page 860.
Cable gland for connector cutouts,
see page 860.

For 16/24-pole connectors
With cutouts to accommodate connectors. In addition to mounting on divider panels, module plates may also be attached to the 25 mm pitch pattern of the enclosure and to the rails of the TS/PS system.
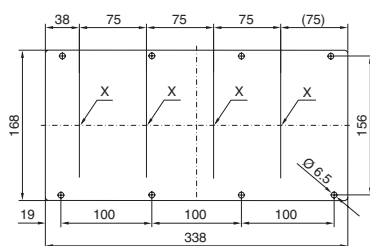
⊞ **Accessories:**

Adaptor, cover,
see page 860.
Cable gland for connector cutouts,
see page 860.
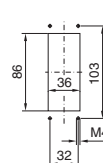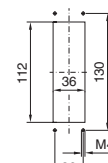
X 16-pole   X 24-pole

For cable entry
For the entry of pre-assemble cables. Sealed, routing is achieved via adjustable angle brackets with inserted foam cable clamp strip. Attachment bracket, punched, for cable clamping.

⊞ **Accessories:**

Cable tie for quick assembly SZ 2597.000,
see page 982.
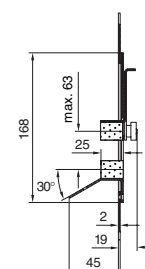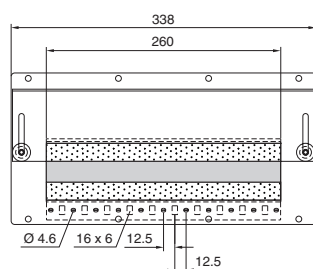
For cable entry grommets
For mounting on the divider panel for module plates TS. Slide the grommets into the cutouts, slide the clamp plate with seal down over them, and screw-fasten.

⚠ **Also required:**

Cable entry grommets,
see page 965
or connector grommets,
see page 965.

Module plates

B

7.2

Walls
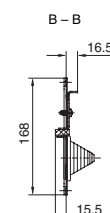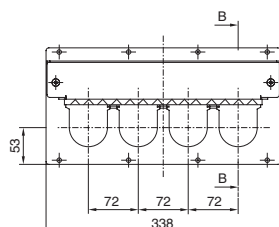
Module plates

Adaptor

for connector cutouts
For using connectors with varying numbers of poles.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Seal for adaptor and
assembly parts.

For reduction	Packs of	Model No. SZ
From 24 to 16 poles	5	**2479.000**
From 24 to 10 poles	5	**2480.000**
From 24 to 6 poles	5	**2481.000**
From 16 to 10 poles	5	**2401.000**
From 16 to 6 poles	5	**2402.000**

Cover plate

for connector cutouts
For unused cutouts.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Seal and assembly parts.

For	Packs of	Model No. SZ
24-pole cutouts	20	**2477.000**
16-pole cutouts	20	**2478.000**

Note:
Connector grommet,
see page 974.

Partition

for DK-TS
For side partitioning of bayed TS server enclosures.
Up to 8 cable glands to the adjacent rack are possible, covered with blanking plates.

Material:
Sheet steel, zinc-plated, passivated

For enclosures		Packs of	Model No. DK
Height mm	Depth mm		
2200	900	1	**7831.715**

Note:
Only available on request for direct mounting on the enclosure.

Cover with door

for TS
To protect and finish off connectors or other installed equipment. 200 mm wide cover, with opening at the top or bottom for cable entry including a cover plate for unused opening.

Material:
Sheet steel
Cover: 1.5 mm
Door: 2.0 mm

Colour:
In textured RAL 7032

Supply includes:
Cover, door with locking rod and double-bit lock insert, 1 cover plate for the top or bottom.

Note:
May also be fitted at the rear to extend the enclosure depth. To cover the resultant gap, we recommend asymmetrical side panels (see page 854). In this way, for example, frequency converters to dissipate heat can be installed in a divider panel (see page 857) with the heat sinks facing outwards and protected/concealed with a cover.

For enclosures		Model No. TS	
Height mm	Depth mm	RAL 7032	RAL 7035
2000	500	**8609.000[1]**	**8609.020**
2000	600	**8609.010[1]**	**8609.030**

[1] Delivery times available on request.
For primed version, please add extension .XX1 to the Model No.
Delivery times on request.

➕ **Accessories:**

Lock inserts,
see page 881.
Comfort handle,
see page 881.
180° hinge,
see page 893.
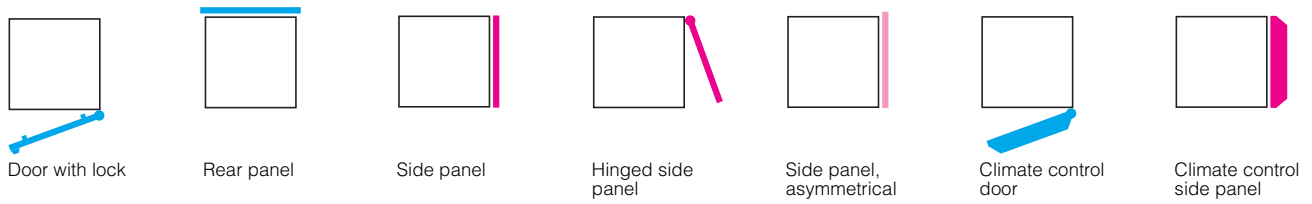
Module plates

B

7.2

Versatile door and side panel concept

Door with lock   Rear panel   Side panel   Hinged side panel   Side panel, asymmetrical   Climate control door   Climate control side panel

Adjacent door

Important:
- Red areas (side panels, hinged and unhinged) must always be opposite one another.
- Blue areas (doors/rear panels) must always be opposite one another.
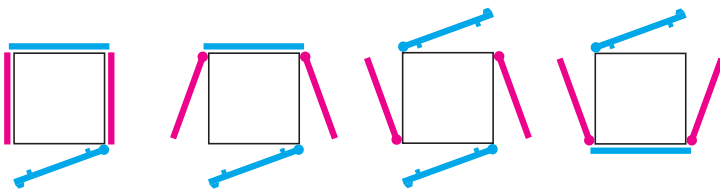
The versatile door and side panel concept also applies to the following baying variants:

. . . infinite possibilities

TS 8 standard enclosure   TS climate control enclosure   TS 8 corner enclosure

for TS 8

B

7.3
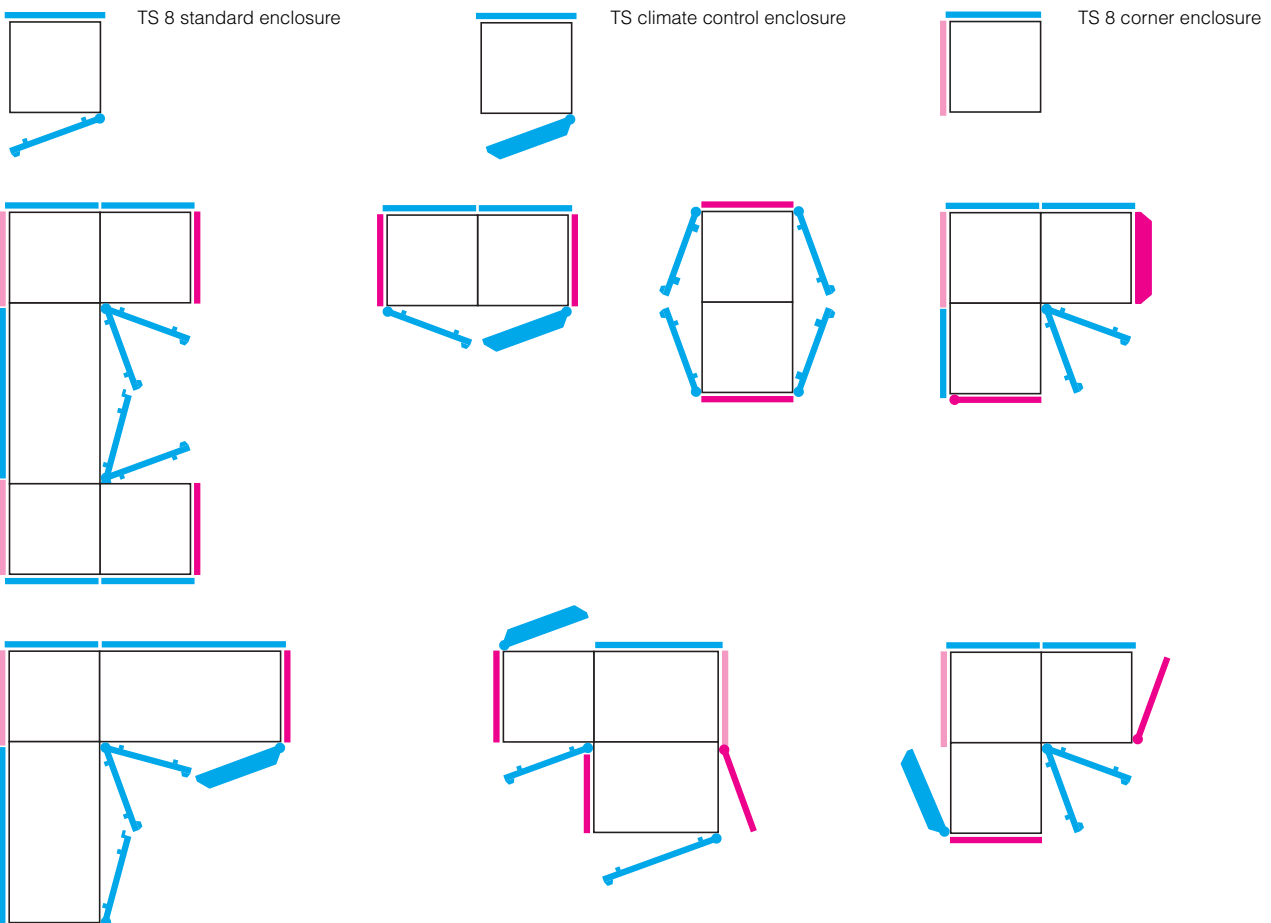
Baying system

Baying at the installation site
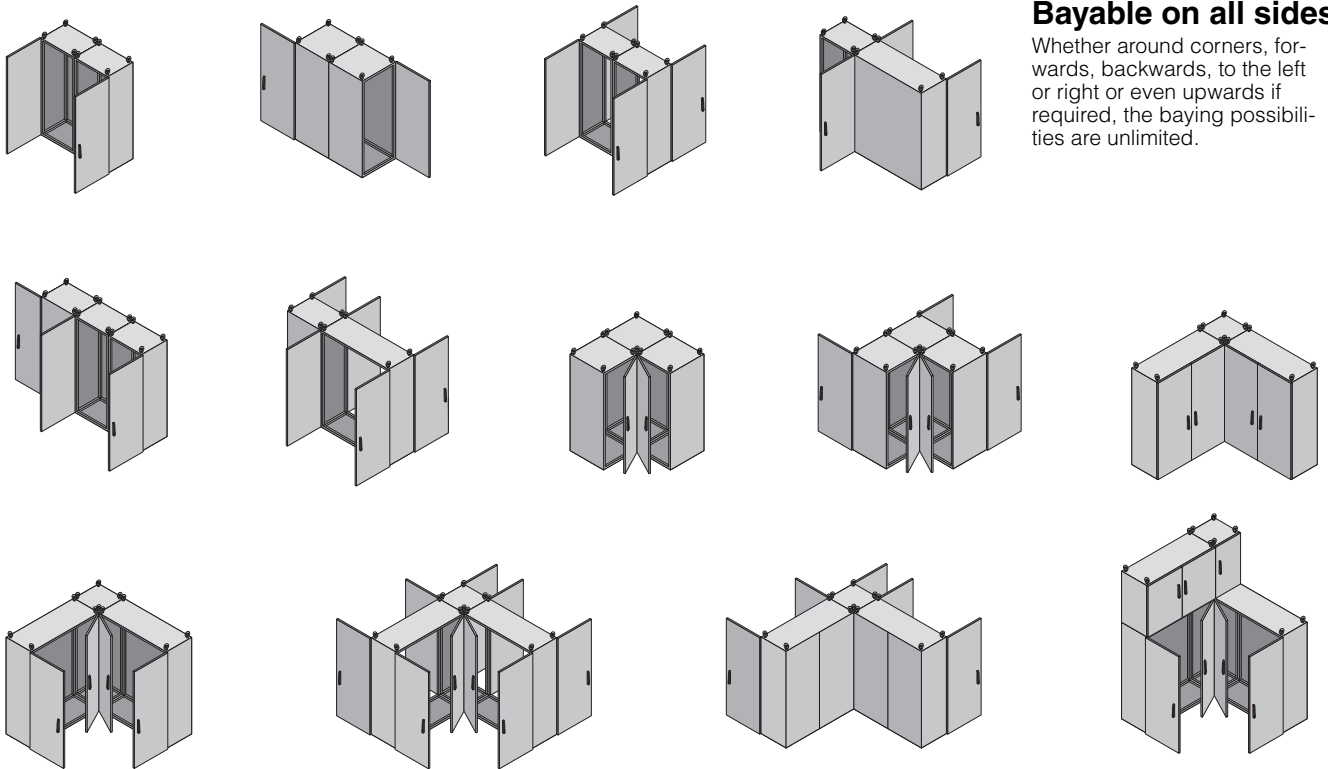
Bayable on all sides

Whether around corners, forwards, backwards, to the left or right or even upwards if required, the baying possibilities are unlimited.
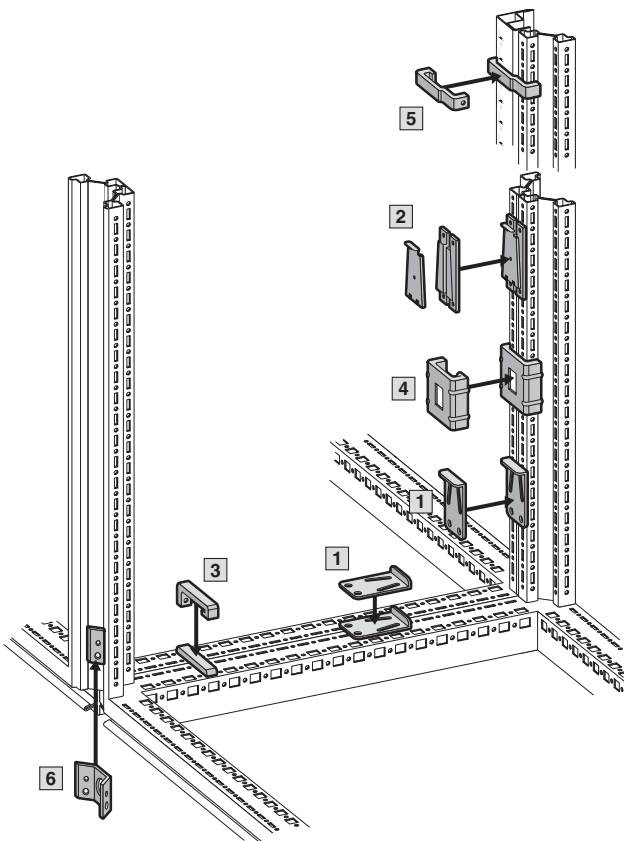
For baying at the installation site or for provisional siting in the workshop

1	Quick-fit baying clamps, one-piece
2	Quick-fit baying clamps, three-piece
3	Baying clamp, horizontal
4	Baying clamp, vertical for TS/TS
5	Baying clamp, vertical for TS/PS
6	Baying connector, external

Notes on the transport of bayed enclosures,
see page 864.
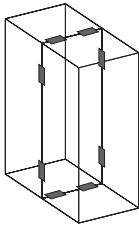
1 Quick-fit baying clamps, one-piece

for TS/TS and FR(i)/FR(i)
Simply attach the screws, insert the quick-fit baying clamp, tap in with a hammer and lock.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
6	8800.500

Note:
Only for monting on vertical enclosure sections of FR(i).
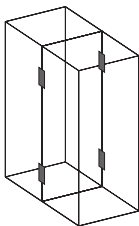
2 Quick-fit baying clamps, three-piece

for TS/TS
Simply locate, connect with the lock plate, and secure.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
6	8800.590
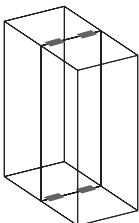
3 Baying clamp, horizontal

for TS/TS, TS/PS and FR(i)/FR(i)
For mounting on the horizontal enclosure sections.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
4	8800.400

German patent no. 197 35 251
French patent no. 98 104 58
Jap. patent no. 2 965 975
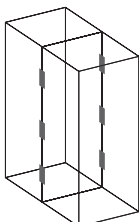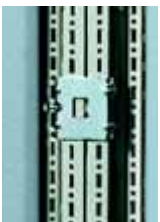
4 Baying clamp, vertical

for TS/TS
For mounting on the vertical enclosure sections.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
6	8800.410

German patent no. 197 35 251
French patent no. 98 104 58
Jap. patent no. 2 965 975

Baying at the installation site

B

7.3

Baying system

Baying at the installation site
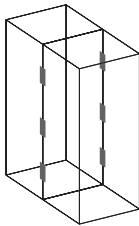
5 Baying clamp, vertical
for TS/PS
For mounting on the vertical enclosure sections.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
6	8800.420

German patent no. 198 01 185
US patent no. 6,435,759
European patent no. 104 8098
with validity for FR, GB, IT

6 Baying connector, external
for TS/TS
For mounting on the vertical enclosure sections.

Simply position on the outside and screw-fasten either from the inside or outside.

Material:
Sheet steel, zinc-plated, passivated
or stainless steel 1.4301

Supply includes:
Assembly parts.

Version	Packs of	Model No. TS
Sheet steel	6	8800.490
Stainless steel	6	8700.000

German patent no. 197 37 668
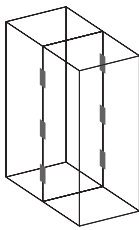
Note on the transport of bayed enclosures
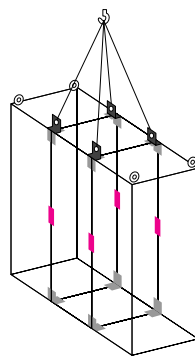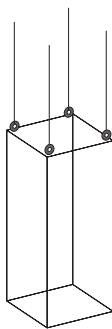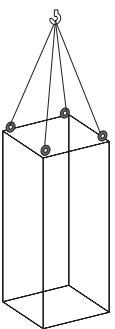
Individual enclosures are reliably transported using the eyebolts included with the supply.
For symmetrical loads, the following maximum permissible loads apply:
at 45° sling angle 4,800 N,
at 60° sling angle 6,400 N,
at 90° sling angle 13,600 N.

For the enclosure combination with angular baying brackets, quick-fit baying clamps and combination angles shown here, the load capacity with a sling angle of 60° is as follows:
for the left enclosure: 7,000 N,
for the middle enclosure: 14,000 N,
for the right enclosure: 7,000 N.

The sling angle between the roof plate and the sling has a significant influence on the total permissible load.
The sling angle must not be less than 45°, and where possible, should be less than 60°.

Note:
For larger baying combinations, we recommend the use of a transport base/plinth, see page 842.

When transporting bayed enclosures

7 Baying bracket for TS/TS

8 Baying bracket for TS/TS and for TS/PS

Note:
- In addition, the outer baying connector (see page 864), can be used.
- When transporting large, heavy enclosure combinations by crane, we additionally recommend the use of combination angles TS 4540.000, see page 866.

⚠ **Also required:**

For protection category IP 55: One connector/clamp is required half-way up the enclosure height, see page 863. Baying clamp, see page 863 – 864.

Notes on the transport of bayed enclosures, see page 864.
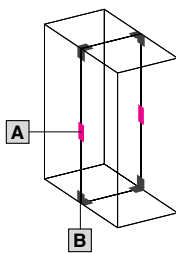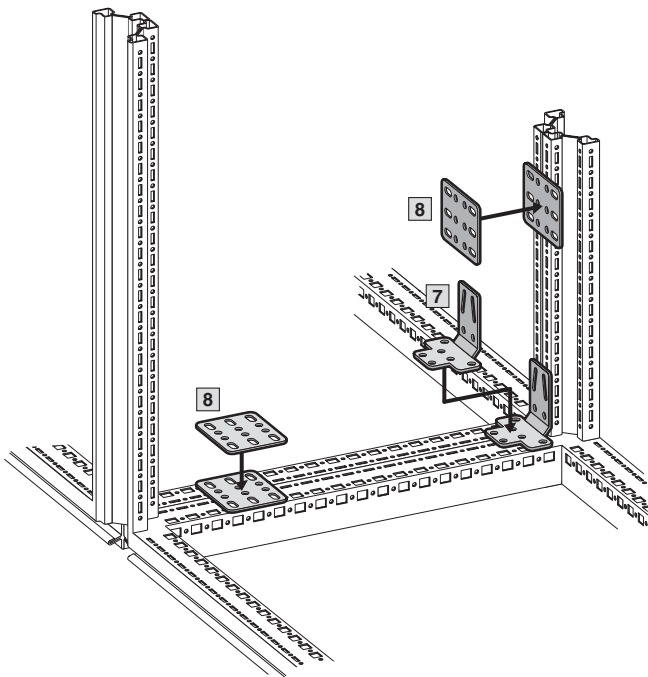
A 2 quick-fit baying clamps **TS 8800.500** (see page 863).

B 4 baying brackets **TS 8800.430** (see page 865).
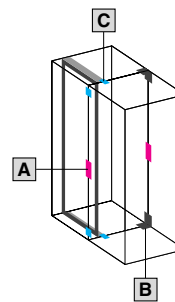
A 2 quick-fit baying clamps **TS 8800.500** (see page 863).

B 2 baying brackets **TS 8800.430** (see page 865).

C 4 baying brackets **TS 4582.500** (see page 865) if the angular baying brackets cannot be fitted in the foremost installation position due to installed equipment such as large swing frames.
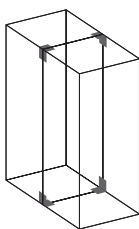
7 Angular baying brackets
for TS/TS
The robust connection when transporting bayed enclosure suites.

Screw-fastening may be optionally
- Horizontally and vertically with 8 screws
- Horizontally with 2 screws and M8 threaded blocks, vertically with 4 screws.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
4	8800.430
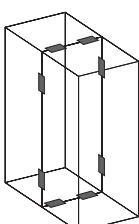
8 Baying brackets
for TS/TS and TS/PS
For additional stabilisation, or in cases where:
- Mounting plate brackets
- Swing frames
- Busbar supports
prevent the installation of angular baying brackets.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
4	4582.500

✚ **Accessories:**

For mounting on the vertical TS enclosure section: Snap-on nut M8, TS 8800.808, see page 931.

Baying for transport

B

7.3

Baying system
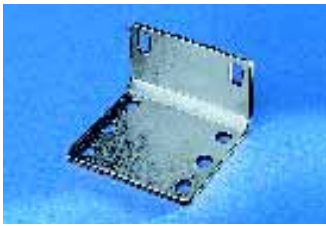
Baying

Angular baying brackets

The alternative to baying bracket TS 4582.500 and for individual interior installations.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Screws M8 x 16 mm.

Packs of	Model No. PS
4	**4582.000**

! **Also required:**

For mounting on:
horizontal TS enclosure section
Captive nut/threaded block M8, see page 936,
vertical TS enclosure section
Snap-on nut M8, TS 8800.808, see page 931.

Combination angle

For optimum distribution of tensile forces during transportation of bayed enclosures by crane.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
4	**4540.000**

+ **Accessories:**

Baying cover,
see page 867.

Notes on the transport of bayed enclosures,
see page 864.
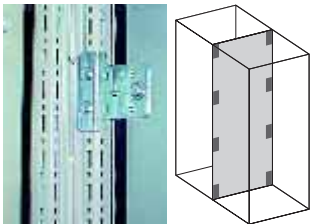
Baying attachment, vertical
for TS/TS with divider panel

Only suitable for mounting in conjunction with the angle brackets of the divider panel (included with the supply).

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
8	**8800.470**

Note:
May also be used for side or wall attachment/ fastening of enclosures. In such cases, additional holes must be drilled in the side or rear panel.
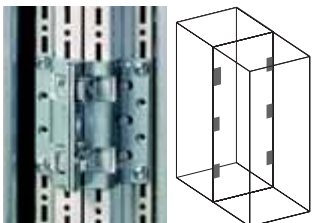
Baying attachment, vertical
for TS/TS

For baying two populated enclosures on the vertical enclosure section.
Simply locate into the vertical TS punchings, secure and connect both brackets by using the hex screws (supplied loose).
Using the fastening bolts, the enclosure is pulled into a defined end position, with a height or side offset of up to ±2 mm.

Packs of	Model No. TS
6	**8800.670**

Material:
Sheet steel 3 mm, zinc-plated, passivated.

Supply includes:
Assembly parts.

Baying clamp, horizontal
for back-to-back mounting

Two-piece, for in situ assembly of enclosures with mounting plate in the rearmost installation position.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
4	**8800.170**

German patent no. 10 157 979

Baying

B

7.3
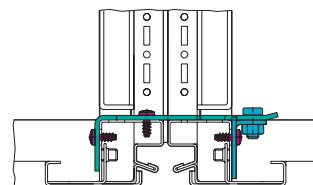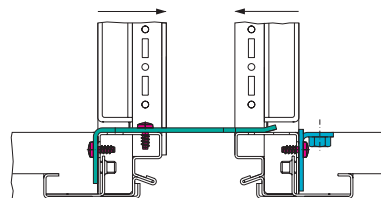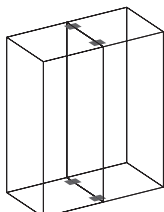
Baying cover, top

A cover with two end caps may additionally be clipped over the seal between the two enclosures. This prevents dirt and liquid from collecting on the baying seal.

Material:
Cover section: Sheet steel, spray-finished or stainless steel 1.4301
End caps: Plastic

For enclosure depth mm	Packs of	Model No. TS		
		RAL 7032	RAL 7035	Stainless steel
400	1	8800.440	8800.840	8700.140
500	1	8800.450	8800.850	8700.150
600	1	8800.460	8800.860	8700.160
800	1	8800.480	8800.880	–

German patent no. 197 37 667
US patent no. 6,312,068
European patent no. 10 12,935
with validity for FR, IT

Note:
May also be fitted in the width with enclosure suites bayed back-to-back.

May also be used in conjunction with dust guard trim, see page 900.
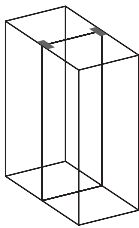
Baying connector, external

for DK-TS/DK-TS with side panels
For retrospective baying of enclosures with side panels.

Material:
Sheet steel

Colour:
RAL 7035

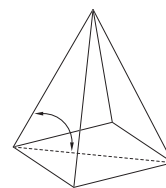**Supply includes:**
Assembly parts.

Packs of	Model No. DK
4	7824.540

Compensating panel

for TS
The panel is screw-fastened to the outside of the enclosure frame and serves as an infill panel when baying 2000 mm high enclosures of varying depths.
No seal between the enclosures.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Depth difference mm	Model No. DK
100	7067.100
200	7067.200

Baying kit

for FR(i)/FR(i) and FR(i)/FR
For mounting on the vertical enclosure sections.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Baying of/to	Packs of	Model No. FR(i)
FR(i)/FR(i)	1	7856.752
FR(i)/FR	1	7856.750

Baying kit

for TE
For connecting individual enclosures into bayed suites at the sides. The enclosures are connected between the base and roof frame.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. TE
1 set	7000.640

Baying

B

7.3

Baying system

TS 8 corner enclosures

TS 8 corner enclosures

The corner enclosure and the supplied components will accommodate the various baying options of the TS 8 frame on all outer surfaces. Fitted with a rear panel and an asymmetrical side panel (see page 854, mounted on the l/h (left hand) side), the corner enclosure also permits the option of baying in both the width and depth. The gland plates are aligned parallel to the rear panel. In TS 8 enclosures with a footprint outline, the gland plates may also be rotated through 90°. The baying system is identical to all other TS 8 enclosures.

Material:
Sheet steel, 1.5 mm

Surface finish:
Dip-coat primed, powder-coated on the outside in textured RAL 7035
Gland plates: Zinc-plated

Supply includes:
Enclosure frame with roof, rear panel (on the longest side), asymmetrical side panel, gland plates (divided lengthwise).

Width mm	Height mm	Depth mm	Model No. TS
400	1800	400	**8484.300**
500	1800	400	**8584.300**
600	1800	400	**8684.300**
500	1800	500	**8585.300**
600	1800	500	**8685.300**
600	1800	600	**8686.300**
400	2000	400	**8404.300**
500	2000	400	**8504.300**
600	2000	400	**8604.300**
800	2000	400	**8804.300**
500	2000	500	**8505.300**
600	2000	500	**8605.300**
800	2000	500	**8805.300**
600	2000	600	**8606.300**
800	2000	600	**8806.300**
600	2200	600	**8626.300**

Extended delivery times.
To order versions in RAL 7032, please use order number extension .400.
Delivery times on request.

Baying examples
TS 8 corner enclosures

B = Width
T = Depth

TS 8 corner enclosures

B
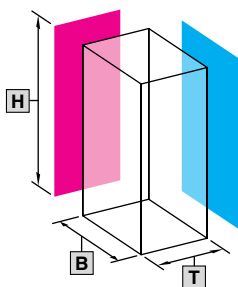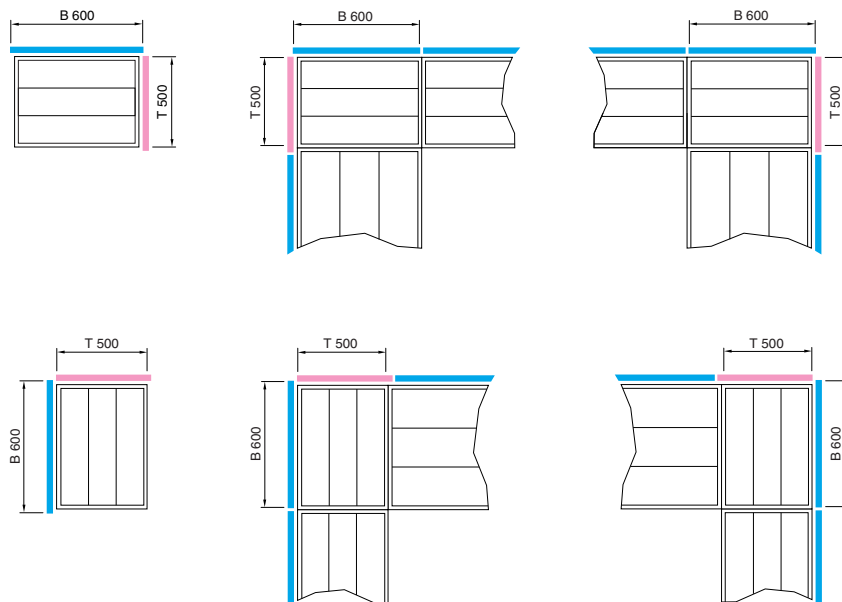
7.3

Glazed door

for TS, CL
Instead of a sheet steel door or rear panel.

Design:
Frame:
Extruded aluminium section,
die-cast zinc corner pieces,
powder-coated in RAL 7035
Single-pane safety glass,
3 mm thick,
printed mask on the inside
RAL 7015
Locking rod with double-bit insert
180° hinges (4)
Visible area:
W – 140 mm,
H – 160 mm.

Protection category:
IP 55 to EN 60 529/10.91

German registered design
No. M 98 03 844
IR reg. design no. DM/045 440
with validity for BE, FR, NL, HU, LU
UK reg. design no. 2 076 673
South Korean reg. design no. 0 240 621
Russian reg. design no. 46 300
Japanese reg. design no. 1 056 165
US design patent no. 418 608

For enclosures		Model No. TS
Width mm	Height mm	
600	1800	**8610.680**
800	1800	**8610.880**
600	2000	**8610.600**
800	2000	**8610.800**
600	2200	**8610.620**
800	2200	**8610.820**

⚠ Also required:

When mounting instead of the rear panel:
Lock components for frame TS 8800.040,
see page 869.

⊞ Accessories:

Lock inserts,
see page 881.
Comfort handle,
see page 881.

Handle adaptor

The handle adaptor compensates for the design
chamfer in the door profile to enable installation of
the comfort handle.

Material:
Plastic

Supply includes:
1 adaptor plate,
1 extension for drive,
2 assembly screws.

for glazed door TS, CL

Colour	Model No. TS
RAL 7035	**8611.080**
RAL 8019	**8611.090**

for designer door IW and PC-TS, bottom door

Colour	Model No. PC
RAL 7035	**8611.300**

for glazed door IW

Colour	Model No. IW
RAL 7035	**6903.170**

Lock components

for frame TS
For retrofitting a glazed door or sheet steel door in
place of a rear panel.

Material:
Die-cast zinc

Supply includes:
Assembly screws.

Packs of	Model No. TS
4	**8800.040**

Door variants

B

7.4

Doors/locks

Door variants

Sheet steel door

for DK-TS
To replace existing doors. With 180° hinges and swivel handle with security lock no. 3524 E, in exchange for comfort handle.

Material:
Sheet steel

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Assembly parts.

For enclosures		Model No. DK
Width mm	Height mm	
600	2000	**7824.205**
800	2000	**7824.207**
600	2200	**7824.225**
800	2200	**7824.227**

+ Accessories:

Comfort handle,
see page 881.
180° hinge for bayed TS enclosure suites with comfort handle, see page 893.

Sheet steel door, vented

for DK-TS
With 180° hinges and swivel handle with security lock no. 3524 E, in exchange for comfort handle. For optimum air throughput in network enclosures with a high proportion of active equipment. Slotted surface (SWG-6.7 hexagon) with air inlet opening >78 %.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosures		Model No. DK
Width mm	Height mm	
600	1200	**7824.123**
600	1800	**7824.183**
800	1800	**7824.184**
600	2000	**7824.203**
800	2000	**7824.204**
600	2200	**7824.223**
800	2200	**7824.224**

+ Accessories:

Comfort handle,
see page 881.
180° hinge for bayed TS enclosure suites with comfort handle, see page 893.

Glazed door, vented

for DK-TS
With 180° hinges and comfort handle with security lock no. 3524 E. For optimum air throughput in network enclosures with a low proportion of active equipment.

Material:
Sheet steel, spray-finished
Viewing window of 3 mm single-pane safety glass, side slotted surfaces (SWG-6.7 hexagon) for air inlet.

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosures		Model No. DK
Width mm	Height mm	
600	1200	**7824.121**
600	1800	**7824.181**
800	1800	**7824.182**
600	2000	**7824.201**
800	2000	**7824.202**
600	2200	**7824.221**
800	2200	**7824.222**

+ Accessories:

180° hinge for bayed TS enclosure suites with comfort handle, see page 893.

Door variants

B

7.4

Adaptor door

for DK-TS

With 180° hinges and comfort handle with security lock no. 3524 E. To extend the enclosure depth by 100 mm. This creates the necessary free space at the rear for retro-fitting deep-build active components or space for system-compatible cabling at the front. Retro-fitting with deeper components is therefore easily achieved whilst in operation. The adaptor door is vented across the surface. Slotted surface (Ø 3 mm), air inlet opening > 60 %.
Simple cable routing via brush strips top and bottom.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.
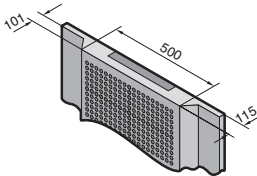
For enclosures		Model No. DK
Width mm	Height mm	
600	2000	**7824.760**
600	2200	**7824.762**
800	2000	**7824.780**

Note:
Other sizes and side adaptor available on request.

Designer sheet steel door, vented

for TS

With 130° hinges and comfort handle with security lock no. 3524 E. For increased air throughput when installing active components. Slotted surface with air inlet opening > 78 %.

Material:
Sheet steel,
Design components of plastic

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosures		Model No. DK
Width mm	Height mm	
600	1200	**7816.612**
600	2000	**7816.620**
600	2200	**7816.622**
800	2000	**7816.820**
800	2200	**7816.822**

Note:
Non-interchangeable door hinge.
180° hinges not supported.

Designer glazed door

for TS

With 130° hinges and comfort handle with security lock no. 3524 E. For visual monitoring of the installed equipment.

Material:
Frame: Sheet steel, spray-finished
Design components of plastic
Window of 4 mm single-pane safety glass

Colour:
Frame elements, RAL 7035
Viewing window tinted, parsol grey

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
Assembly parts.

For enclosures		Model No. DK
Width mm	Height mm	
600	1200	**7824.612**
600	1800	**7824.618**
600	2000	**7824.620**
600	2200	**7824.622**
800	1800	**7824.818**
800	2000	**7824.820**
800	2200	**7824.822**

German registered design no. 401 03 180
UK reg. design no. 2104977
US design patent no. 479 241

Note:
Non-interchangeable door hinge.
180° hinges not supported.

Door variants

B

7.4

Doors/locks

Door variants

Sheet steel door, vertically divided

for TS

With 130° hinges and locking rod including comfort handle for semi-cylinder with security lock no. 3524 E. Thanks to the minimal rotation radius of the individual doors, the distance between individual bayed enclosure suites may be reduced. The extensive door perforations additionally support climate control of the installed equipment. Slotted surface with air inlet opening > 78 %.

Material:
Sheet steel

Protection category:
IP 55 to EN 60 529/10.91 (unvented)
IP 20 to EN 60 529/10.91 (vented)

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosures		Model No. DK	
Width mm	Height mm	Vented	Unvented
600	2000	**7824.360**	**7816.360**
600	2200	**7824.362**	**7816.362**
800	2000	**7824.380**	**7816.380**
800	2200	**7824.382**	**7816.382**

➕ **Accessories:**

180° hinge TS 8800.190,
see page 893.

All-glass door, vertically divided

for TS

With 130°/180° hinges and locking rod including comfort handle for semi-cylinder with security lock no. 3524 E. Thanks to the minimal rotation radius of the individual doors, the distance between individual bayed enclosure suites may be reduced. When baying, an external 180° hinge is required.

Material:
5 mm single-pane safety glass, frame of aluminium frame elements.

Colour:
Frame elements, RAL 7035
Viewing windows tinted, parsol grey.

Supply includes:
Assembly parts.

For enclosures		Rotation range[1]	Model No. DK
Width mm	Height mm		
800	2000	130°	**7824.480**
800	2000	180°	**7824.490**

[1] Stand-alone siting

Note:
Not to be used in conjunction with a swing frame.

Lockable and adjacent door

for TS, CL

For example, if two 400 mm doors instead of one 800 mm wide door are used to comply with escape routes.

Material:
Sheet steel

Surface finish:
Dipcoat-primed,
powder-coated on the outside.

Supply includes:
2 doors
including hinges and lock parts.

For enclosures		Colour RAL	Model No. TS
Width mm	Height mm		
800	2000	7035	**8801.450**
800	2000	7032[1]	**8801.400**

[1] Delivery times available on request.

Note:
Enclosure without door (TS 8806.512),
see page 149.

➕ **Accessories:**

Lock system,
see page 881.

Variable door concept

Instead of an enclosure door in a 600 mm/
800 mm wide and 1800 mm/2000 mm high
TS enclosure, climate control doors with integral
cooling module may be retrofitted without major
assembly work.

⇄ **Possible alternative:**

Climate control doors,
see page 584.

Trim frame

for TS

To conceal the TS 8 front frame in enclosures
without a door.

Possible application areas include, for example:
● Studio technology
● Electronic configuration

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosures		Model No. DK
Width mm	Height mm	
600	2000	**7824.130**
800	2000	**7824.132**

Note:
The trim frame conceals the system punchings
in the inner mounting level. The TS punched
sections with mounting flange 23 x 73 mm
(see page 922) may be used for installation.

Profile blanking frame

for TS

On request, all enclosures in the TS 8 series
(see page 138) may be manufactured with a fitted
profile blanking frame (design to match the
TS glazed door) instead of door(s). For optimum
access to installed equipment, trim frame hinged
on the right, held by a mechanical snap fastener
on the left.

Material:
Extruded aluminium section,
die-cast zinc corner pieces,
powder-coated

Colour:
RAL 7035

Packs of	Model No. TS
1	**xxxx.590**

Delivery times available on request.

Order example:
Baying system TS 8,
W x H x D: 800 x 2000 x 600 mm
● Standard TS 8806.500
● with profile blanking frame TS 8806.590

Interior door

with mounting frame
for compact enclosure AE IP 69K

For the installation of control and display compo-
nents. Mounting frame, depth-adjustable for a
distance between the outer surface and the inside
of the outer door of 35 to 85 mm (80 mm with
AE 1101.010).

Material:
Sheet steel, 1.5 mm

Colour:
RAL 7035

Supply includes:
Mounting frame, door with cam lock and
screwdriver insert,
including assembly parts.

For AE enclosure	W (B) mm	H mm	Model No. AE
1101.010	160	260	**1101.910**
1101.020	330	330	**1101.920**
1101.030	330	580	**1101.930**
1101.040	580	580	**1101.940**

Door variants

B

7.4
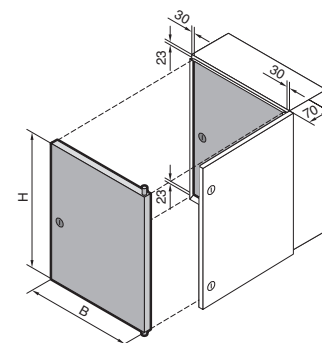
Door/lock systems

Modular front design for TS 8
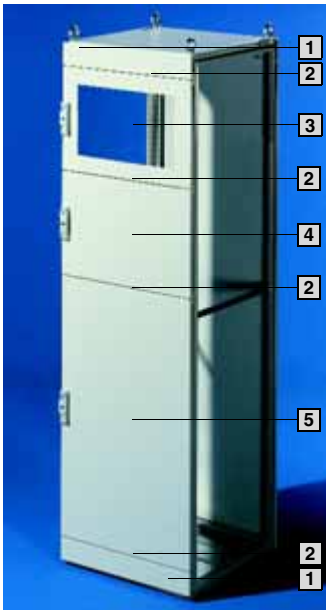
Modular front design

for TS 8606.512
WHD 600 x 2000 x 600 mm,
for TS 8806.512
WHD 800 x 2000 x 600 mm
(see page 149)
and all other 600 and 800 mm wide TS 8 enclosures instead of a door or rear panel, insofar as the modular front is positioned in a suite between two enclosures with normal doors. If positioned as a free-standing enclosure or at the end of an enclosure suite, special side panels such as TS 8106.512 (see page 876) are required.
The partial doors with and without viewing panels can be arbitrarily combined with cross members. A trim panel and a cross member are each required a the top and bottom.
The requirements for you individual front design and the considerations which must be taken into account are illustrated on the sample configuration opposite.

Protection category:
With a completed enclosure
IP 55 to EN 60 529/10.91, NEMA 12 is met.

! **Also required:**

| 1 | Trim panels, height 100 mm or trim panel, hinged at the top, height 300 mm |
| 2 | Cross member |

+ **Accessories:**

3	Partial door with viewing window, height 400 mm
4	Partial door without viewing window, height 400 mm
5	Partial door without viewing window, height 1000 mm

---

1 Trim piece, hinged at the top
for TS
For the installation of control and display components.

Material:
Sheet steel, 2 mm

Supply includes:
Hinges, cam locks with double-bit insert and assembly parts.

Note:
Not in combination with top-mounted module for TS (see page 900).

Width mm	Height mm	Colour RAL	Model No. TS
600			**8801.230**
800		7035	**8801.240**
1200			**8801.250**
600	300		**8801.200**[1]
800		7032	**8801.210**[1]
1200			**8801.220**[1]

[1] Delivery times available on request.

+ **Accessories:**

Support stay for trim piece, hinged at the top see page 876.
Lock inserts, version A,
see page 888.

Rittal service:

Combination with shortened door, enclosure with already mounted trim instead of door, cutouts for operator and display components on request.
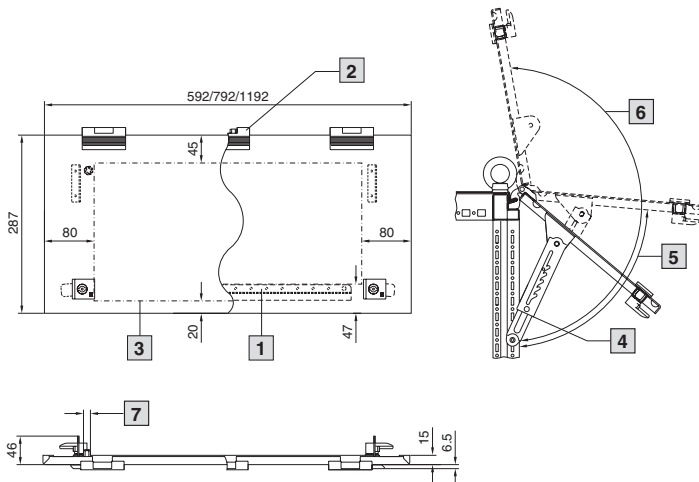
1	Only for width 800 mm and 1200 mm
2	Only for width 1200 mm
3	Usable interior area
4	Optional: Stay TS 8801.260
5	Maximum opening with support stay approx. 85°
6	Maximum opening without stay approx. 190°
7	Earthing bolt M8

B

7.4

1 Trim panels

for TS
Required as upper and lower height trim.

Material:
Sheet steel, 2 mm, textured

Supply includes:
2 trim panels, assembly parts.

Height mm	Colour RAL	Model No. TS	
		Width 600 mm	Width 800 mm
100	7035	**8801.510**	**8801.110**
100	7032	**8801.610**[1]	**8801.810**[1]

[1] Delivery times available on request.

❗ Also required:

Cross member,
see page 875.

2 Cross member

for TS
As sealing member between:
● Trim panels
● Partial doors
● Trim piece, hinged at the top

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Packs of	Model No. TS	
	Width 600 mm	Width 800 mm
5	**8801.630**	**8801.830**

3 4 5 Partial doors

for TS
Door can be optionally hinged on the right or left side.
In the case of doors without viewing panel (height 600 – 1000 mm) the installation of monitor frame SZ 2305.000 is possible.
Standard double-bit lock insert may be exchanged for TS lock inserts, and from 600 mm height, for comfort handle.

Material:
Sheet steel, 2 mm

Supply includes:
Hinges and lock.

❗ Also required:

Cross member,
see page 875.

✛ Accessories:

Monitor frame SZ 2305.000,
see page 879.
TS lock inserts,
see page 881.
Comfort handle,
see page 881.

Solid

Height mm	Model No. TS			
	Width 600 mm		Width 800 mm	
	RAL 7035	RAL 7032[1]	RAL 7035	RAL 7032[1]
200	**8801.520**	**8801.620**	**8801.120**	**8801.820**
400	**8801.540**	**8801.640**	**8801.140**	**8801.840**
600	**8801.560**	**8801.660**	**8801.160**	**8801.860**
800	**8801.580**	**8801.680**	**8801.180**	**8801.880**
1000	**8801.500**	**8801.600**	**8801.100**	**8801.800**

[1] Delivery times available on request.

With 3 mm single-pane safety glass

Height mm	Model No. TS			
	Width 600 mm		Width 800 mm	
	RAL 7035	RAL 7032[1]	RAL 7035	RAL 7032[1]
400	**8801.550**	**8801.650**	**8801.150**	**8801.850**
600	**8801.570**	**8801.670**	**8801.170**	**8801.870**
800	**8801.590**	**8801.690**	**8801.190**	**8801.890**

[1] Delivery times available on request.

1 Height – 2 mm
2 Usable interior area
3 M6 bolt only for width 600 mm
4 Perforated strip only for width 800 mm
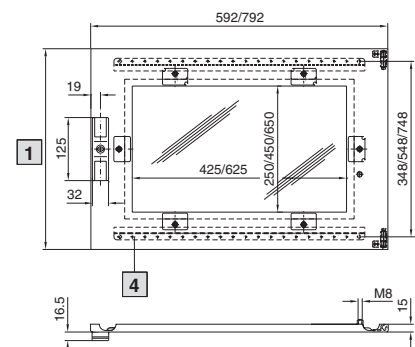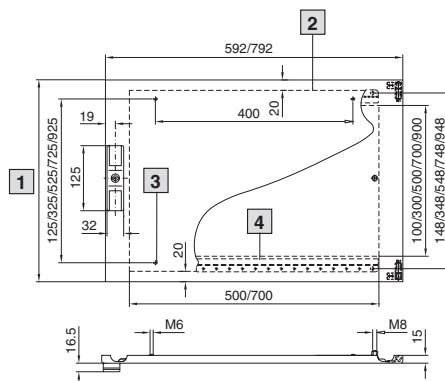
Door/lock systems

Modular front design for TS 8

Drawer
for TS
Height 200 mm.
For mouse and keyboard with a maximum width of 500/700 mm.
A high level of protection is retained, even with the flap open.
Standard double-bit lock insert may be exchanged for 27 mm lock inserts, version A, plastic handles, type B and T handles, type B.

Material:
Sheet steel

Supply includes:
Flap and assembly parts.

Colour	Model No. TS	
	Width 600 mm	Width 800 mm
RAL 7035	**8801.715**	**8801.915**
RAL 7032	**8801.710**[1]	**8801.910**[1]

[1] Delivery times available on request.

⚠ Also required:

Cross member,
see page 875.

➕ Accessories:

27 mm lock inserts, type A,
see page 888.
Plastic handles, type B,
see page 886.
T handles, type B,
see page 887.

Desk section
for TS
Height 200 mm.
For installing
● Keyboard, IP 67 mouse and mousepad
● Display and control elements
with screw-fastened cover plates top and bottom.

Material:
Sheet steel

Supply includes:
Assembly parts.

Colour	Model No. TS	
	Width 600 mm	Width 800 mm
RAL 7035	**8801.705**	**8801.905**
RAL 7032	**8801.700**[1]	**8801.900**[1]

[1] Delivery times available on request.

⚠ Also required:

Cross member,
see page 875.

Side panels for Modular front design
for TS
Attachment on the inside vertical enclosure frame member.
The TS 8106.235 side panel retainers (page 853) could conflict with the partial door fasteners.

Material:
1.5 mm sheet steel

Surface finish:
Dip-coat primed, powder-coated on the outside
Textured RAL 7035.

Protection category:
IP 55 to EN 60 529/10.91

Supply includes:
2 side panels,
16 retainers with automatic potential equalisation.

Note:
Can also be used in enclosures without modular front design!

1 Usable interior area

For enclosure		Model No. TS
Height mm	Depth mm	
2000	600	**8106.512**
2000	800	**8108.512**

**For RAL 7032 design, use order extension .212.
Delivery times on request.**
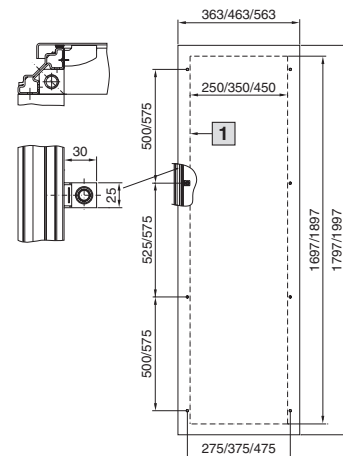
Support stay
for trim panel, hinged at the top
5 pitch pattern positions up to a maximum opening of approx. 85°.

Material:
Sheet steel, zinc-plated, passivated.

Packs of	Model No. TS
2	**8801.260**

Modular front design for TS 8

B

7.4

System windows

To conceal display and operating instruments or cutouts, and to protect against dirt and liquids as well as unauthorised access.

Consisting of the following components:

1. Base frame:
- Easily screw-fastened to the door thanks to modified dimensions (tubular door frame may be used as a drilling template).
- Readily height-adjustable.
- Stabilises the door cutout.
- Conceals the cut edge.
- The rain canopy
  - prevents dirt from landing on the seal,
  - protects the glass from being lifted out,
  - prevents the ingress of dirt and moisture when opening the window.

2. Viewing window:
- Made from single-pane safety glass:
  - high level of resistance to solvents and scratches,
  - anti-static,
  - reduced risk of injury if broken.
- Integral cam lock with double-bit insert, easily exchanged for all standard lock inserts and semi-cylinders in the Ergoform-S lock system (not with FT 2735.500 and .560).
- Hinge with 180° opening angle, easily inserted.

Material:
System windows:
Extruded aluminium sections with die-cast zinc corner pieces and single-pane safety glass.

Surface finish:
Base frame:
powder-coated in RAL 7035.
Hinge and lock section:
natural anodised.

Protection category:
IP 54 to EN 60 529/10.91.

To fit TS, ES, IW with width mm	Window size (mm)				Model No. FT 30 section	Model No. FT 60 section
	exterior		internal			
	B	H	b	h		
600	500	270	430	200	**2735.500**	–
		370		300	**2735.510**	**2736.510**
		470		400	**2735.520**	**2736.520**
		570		500	**2735.530**	**2736.530**
		670		600	**2735.540**	**2736.540**
800	700	270	630	200	**2735.560**	–
		370		300	**2735.570**	–
		470		400	**2735.580**	**2736.580**
		570		500	**2735.590**	**2736.590**
		670		600	**2735.250**	**2736.500**
Other sizes[1]					**2735.509**	**2736.509**

Lock systems

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, version A, see page 888 and Ergoform-S lock system (except H = 270 mm), see page 885.

[1] Please also specify the external dimensions of the viewing window. Delivery times available on request.

Example:
System window (30 profile) to fit door width 500 mm
with width B = 400 mm x height H = 480 mm (b x h = 330 mm x 410 mm)
Model No. FT 2735.509/W x H = 400 x 480 mm.

Viewing area (W – 137) offset by 16.5 mm towards the hinge side.

View X
for profile height 30

View Y
for profile height 60

Viewing panels/operating panels

B

7.4
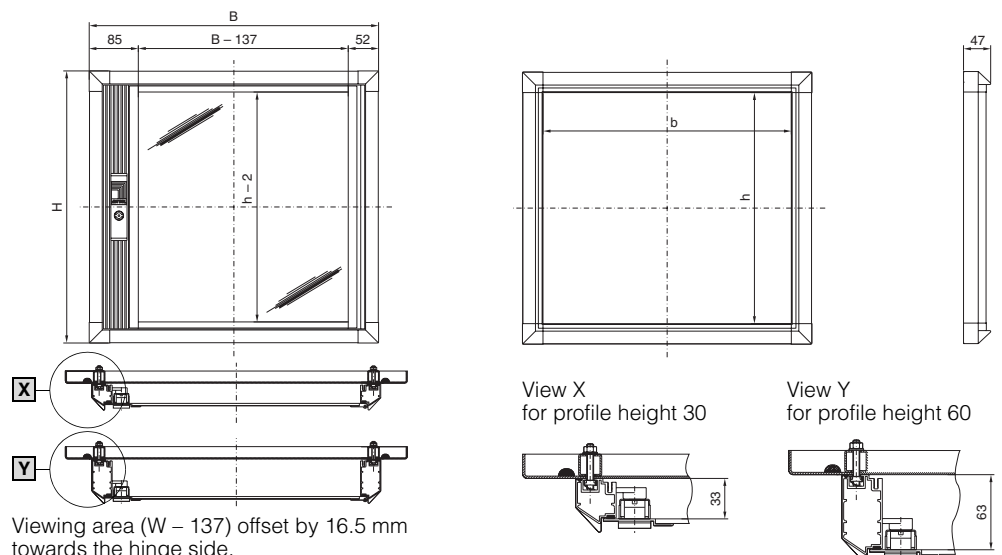
Doors/locks

Viewing panels/operating panels

Viewing window

For mounting on
- AE instead of door
- Surfaces

Material:
Frame: Aluminium, natural anodised.
Glass panel: Acrylic

Protection category:
IP 54 to EN 60 529/10.91

Supply includes:
Plastic handle with lock insert no. 3524 E.

For use as door variant with AE	Width mm	Height mm	Model No. FT	
			Depth = 34 mm	Depth = 60 mm
1039.500 1339.500 1009.500	599	377	**2730.000**	**2760.000**
1050.500 1350.500 1007.500	499	497	**2733.000**	**2763.000**
1010.500 1060.500 1360.500	599	597	**2731.000**	**2761.000**
1012.500 1076.500 1376.500	599	757	**2732.000**	**2762.000**
for 3 U subrack	599	197	**2734.000**	–

Max. installation depth: (depth – 4 mm)
Visible area:
(width – 60 mm) x (height – 60 mm)

Note:
Other sizes available on request.

Horizontally hinged FT stay

A gas pressurised spring holds the viewing window securely open (top or side).
When the viewing window is closed, the gas pressurised spring disappears into the frame section.

Packs of	Model No. FT
2	**2772.000**

Acrylic glazed cover

With security lock, lock no. 3524 E

Material:
Frame:
Extruded aluminium sections with die-cast corner pieces
Glass panel: Smoked acrylic

Protection category:
IP 54 to EN 60 529/10.91

Acrylic glazed covers, 482.6 mm (19″)

U	Width mm	Height mm	Depth mm	Model No. FT
3	320	158	47.5	**2780.000**
3	534	158	47.5	**2781.000**
6	534	291.5	47.5	**2782.000**
9	534	425	47.5	**2796.000**

Max. installation depth: 43 mm
Visible area:
(width – 40 mm) x (height – 20.5 mm)

Metric acrylic glazed covers

Width mm	Height mm	Depth mm	Model No. FT
400	200	47.5	**2784.000**
400	400	47.5	**2785.000**
500	200	47.5	**2786.000**
500	400	47.5	**2787.000**
600	200	47.5	**2788.000**
600	400	47.5	**2789.000**

Max. installation depth: 43 mm
Visible area:
(width – 40 mm) x (height – 20.5 mm)

Viewing panels/operating panels

B

7.4

Viewing panel

Stainless steel
Fitted as standard with internal 130° hinges and all-round seal.
Standard double-bit lock insert may be exchanged for 27 mm lock inserts, type A and Ergoform-S handle SZ 2452.000.

Material:
Stainless steel 1.4301
Single-pane safety glass

Protection category:
IP 54 to EN 60 529/10.91

Supply includes:
Assembly parts.

Width (B) mm	Height mm	Depth mm	B1 mm	Model No. FT
522	600	38	408	**2793.560**
722	600	38	608	**2793.760**

Note:
Other sizes available on request.

+ Accessories:

Lock inserts 27 mm, version A,
see page 888.
Ergoform-S handle SZ 2452.000,
see page 885.
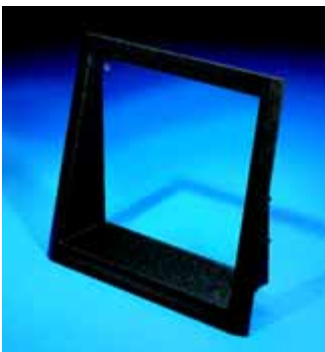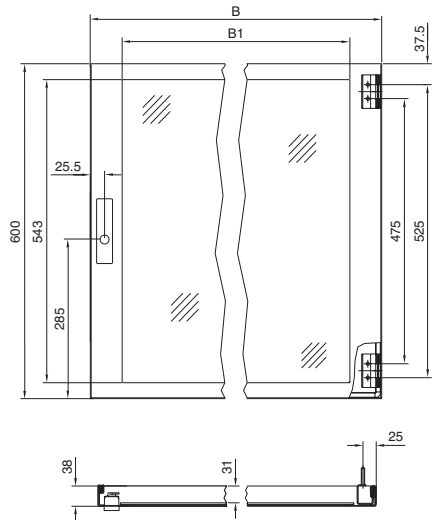
Monitor frame

For door width 600 and 800 mm
For covering a door cutout, for all standard monitors up to 482.6 mm (19″).

Protection category:
IP 54 to EN 60 529/10.91

Supply includes:
Security glass pane.

Monitor frame	Model No. SZ	
	2305.000	
Dimensions	Width mm	Height mm
External dimensions	470	430
Viewing area	375	325
Cutout required	415	375

**German registered design
No. M 93 03 143**

Identification strips

For individual field identifiers on the door, including transparent cover and assembly parts.
For labels:
Width: Enclosure width minus 150 mm
Height: 29 mm
Thickness: 0.75 mm.

Colour:
RAL 7033

For enclosure width mm	Model No. SZ
600	**2403.000**
800	**2404.000**

**German registered design
No. M 92 02 456
IR reg. design no. DM/023 581
with validity for DE, FR, IT**

Doors/locks

Viewing panels/operating panels
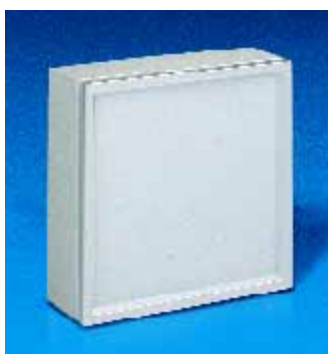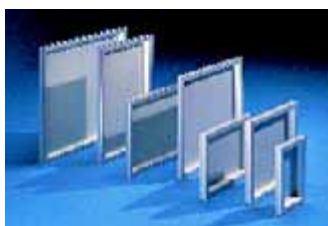
Operating panel

For mounting on:
- AE instead of door
- Surfaces

Frame construction with corner connectors on the inside, 3 mm aluminium plate secured from the inside and sealed against the frame

Material:
Aluminium, natural anodised.

Protection category:
IP 54 to EN 60 529/10.91

Supply includes:
Aluminium frame, display panel, hinges, brackets.

German patent no. 28 47 994
European patent no. 0 010 763
with validity for AT, BE, CH, FR, GB, NL, SE

For use as door variant for AE	Width mm	Height mm	Depth mm	Model No. FT
1002.500 1032.500 1035.500	199	297	34	2740.000[1]
1004.500 1030.500 1031.500	379	297	34	2741.000
1006.500 1380.500	379	377	34	2742.000
1008.500 1038.500 1338.500	379	597	34	2743.000
1007.500 1013.500 1050.500 1350.500	499	497	34	2745.000
1009.500 1039.500 1339.500	599	377	34	2744.000
1010.500 1060.500 1360.500	599	597	34	2746.000

[1] With AE, only for use on the rear panel

Area available for population:
(width – 70 mm) x (height – 70 mm)

Dimensions of aluminium plate:
(width – 54 mm) x (height – 54 mm)

Note:
Other sizes available on request.

＋ Accessories:

Cam lock FT 2749.000,
see page 880.
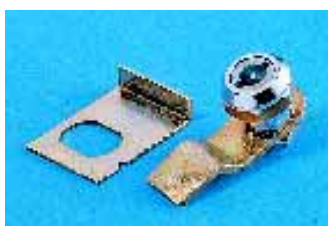
Cam lock

May be retrofitted to the operating area or enclosure panel of operating panels.
Standard double-bit lock insert may be exchanged for type C lock inserts and type C plastic handle.

Packs of	Model No. FT
1	2749.000

＋ Accessories:

Lock inserts, type C,
see page 888.
and plastic handle, type C,
see page 886.
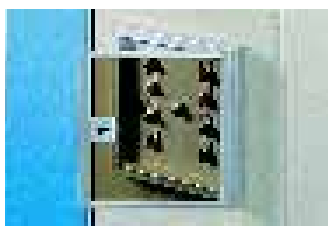
Viewing window
for operating panel
For the protection of display and control components. With a build height of max. 35 mm.

Material:
Frame: Aluminium, natural anodised.
Glass panel: Smoked acrylic.

Supply includes:
Lock insert no. 3524 E.

For operating panel	Model No. FT
FT 2741.000	2791.000
FT 2742.000	2792.000

Note:
Other sizes available on request.

The Rittal comfort handle

The door area can be used to optimum effect for installed equipment, because the handle does not take up any of the swivel area, thanks to its folding action.

Material:
Die-cast zinc

Surface finish:
Powder-coated

German patent no. 198 01 720
German registered design
no. M98 00 539
IR reg. design no. DM/045 065
with validity for BE, CH, ES, FR, IT, NL, HU, LU
Austrian design
no. 32290
Czech design no. 28278
UK reg. design no. 2 075 910

Swedish design no. 64 750
South Korean design no. 241,505
Israel. design no. 30 123
Slovenian design no. 98 500 73
Russian design no. 46307
South African design
no. 98/0865
Finnish design no. 20461
Chinese design no. 983 03439
Australian design no. 13887
US design patent no. 428,322
Brazilian design no. DI 5801235-4
Jap. design no. 1 081 561
Taiwanese design no. 68683
European patent no. 1 049 842
with validity for FR, GB, IT
Jap. patent no. 3 485 892
US patent no. 6,418,762

Comfort handle

for lock inserts
Prepared for the installation of lock inserts, safety and push-button inserts, see page 881.
Length: 295 mm.

Design	Model No. TS
RAL 7032	**8611.010**
RAL 7035	**8611.020**
RAL 8019	**8611.250**
RAL 9005	**8611.350**
Matt nickel-plated	**8611.330**

Also required:

Handle adaptor for mounting on a TS glazed door, PC-TS bottom door, IW designer door see page 869.

Comfort handle

for padlock and lock inserts
Prepared for the installation of lock inserts, safety and push-button inserts, and with additional shackle (hole diameter 8 mm) for a padlock.
Length: 295 mm.

Design	Model No. TS
RAL 7032	**8611.030**
RAL 7035	**8611.290**
RAL 8019	**8611.260**

Also required:

Handle adaptor for mounting on a TS glazed door, PC-TS bottom door, IW designer door, see page 869.

Lock inserts

For comfort handles and standard TS lock (in exchange for the standard double-bit lock insert).

Design	Model No. TS
7 mm square	**8611.100**
8 mm square	**8611.110**
6.5 mm triangular	**8611.220**
7 mm triangular	**8611.120**
8 mm triangular	**8611.130**
Screwdriver	**8611.140**
Daimler	**8611.150**
3 mm double-bit	**8611.160**
Fiat	**8611.170**

Lock and push-button inserts

For installation in the comfort handles for lock inserts.

Design	Model No. TS
Security lock insert no. 3524 E	**8611.180**[1]
Push-button insert	**8611.190**
Push-button and lock inserts Lock no. 12321; No other lock is possible	**8611.200**[1]

[1] with 2 keys

Lock systems

B 7.4

Door/locks

Lock systems

Comfort handle

With security lock insert E1
Only for use with **VW, Audi,
SEAT, SkodaAuto.**
Supplied without key.
Length: 295 mm.
Other VW locks available on request.

Design	Model No. TS
RAL 7032	**8611.040**
RAL 7035	**8611.045**

⚠ **Also required:**

Handle adaptor for mounting
on a TS glazed door, PC-TS bottom door,
IW designer door,
see page 869.

Comfort handle

for semi-cylinder
Prepared for the installation of commercially
available semi-cylinders, 40 or 45 mm total length,
to DIN 18 254, and lock and push-button inserts,
see page 882.
Length: 302 mm.

Design	Model No. TS
RAL 7032	**8611.060**
RAL 7035	**8611.070**
RAL 8019	**8611.270**
RAL 9005	**8611.360**
Matt nickel-plated	**8611.340**

⚠ **Also required:**

Handle adaptor for mounting
on a TS glazed door, PC-TS bottom door,
IW designer door,
see page 869.

Lock and push-button inserts

For installation in
- comfort handle for semi-cylinder,
  see above,
- Ergoform-S standard
  see page 885,
- CM hinged handle

Design	Model No. SZ
Security lock insert no. 3524 E	**2467.000[1]**
Push-button insert	**2468.000**
Lock and puch-button inserts, Lock no. 2123 E; No other lock is possible	**2469.000[1]**

[1] with 2 keys

Comfort handle

Prepared for ASSA lock system.
Length: 302 mm.

Design	Model No. TS
RAL 7032	**8611.050**
RAL 7035	**8611.280**

⚠ **Also required:**

Handle adaptor for mounting
on a TS glazed door, PC-TS bottom door,
IW designer door,
see page 869.

Lock systems

B

7.4

Security handle

with code
Flexible access opportunities with
- individual 3-digit code without key
  or
- with the master key function via an additional semi-cylinder of 40 or 45 mm to DIN 18 254, irrespective of the code.

Design with	Model No. DK
Comfort handle TS, FR(i)	**7200.800**
Ergoform-S handle	**7200.810**

⊞ **Accessories:**

Lock and push-button inserts,
see page 882.

Adjacent door locking

for TS, CL
For optimum operation of the adjacent door from the outside if the handle on the inside is difficult to access due to swing frames or 482.6 mm (19″) installed equipment. Retrospective conversion of the adjacent door is easily achieved using the supplied drilling template.
The handle on the inside is no longer required.

Supply includes:
Assembly parts.

Packs of	Model No. TS
1	**8611.370**

⊞ **Accessories:**

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, version A, see page 888.

Swivel handle

for sheet steel door TS, CL
With lock insert, lock no. 3524 E.
The use of semi-cylinders is not possible.
Length: 150 mm.

Note:
When used in a bayed enclosure suite, the hinges must be on the same side.

Design	Model No. DK
RAL 7035	**7829.300**

65 mm

Lock systems

B

7.4

Door/locks
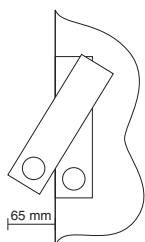
Lock systems

Locking bar latch to CNOMO[1]

To fit all locking bars in TS doors and glazed doors with standard lock or comfort handle.
The latch prevents the locking bars from moving when the door is open.
For mounting on the bolt of the bar guide.

[1] CNOMO is a specification by the French automobile industry. For safety reasons, it must not be possible to lock the handle whilst the door is open.

Packs of	Model No. TS
10	**8611.210**

! Also required:

For CNOMO[1]
6.5 mm triangular insert TS 8611.220,
see page 881.

Spring washer

When dismantling the TS or CL locking rods the spring washers cannot be used again.

Material:
Spring steel, zinc-plated, passivated

Packs of	Model No. TS
100	**8800.070**

Assembly tool

for spring washers
For simple pressing-on of the spring washers via inlet ring magnets.

Packs of	Model No. TS
1	**8800.270**

Mini-comfort handle

for use in all 3-part EL enclosures
Prepared for the installation of lock inserts and for the installation of commercially available 40 or 45 mm semi-cylinders, and of lock and push-button inserts.

Material:
Die-cast zinc

Colour:
RAL 7035

Design	Model No. DK
For lock inserts[1]	**7705.110**
For semi-cylinder[2]	**7705.120**

+ Accessories:

[1] Lock inserts,
see page 881.
[2] Lock and push-button inserts,
see page 882.

The Ergoform S lock system

The unlocked handle folds down forwards and is swivelled to open the lock.

Material:
Die-cast zinc

Surface finish:
Powder-coated

Ergoform standard

Prepared for the installation of semi-cylinders with a total length of 40 or 45 mm (to DIN 18 254) and all 27 mm lock inserts, version A, see page 888.

Design	Model No. SZ
RAL 7032 With brown handle	2450.000
Brown	2451.000
Matt nickel-plated	2452.000
RAL 7032	2454.000
RAL 7035	2435.000
RAL 7032[1] With brown handle and bracket	2455.000

[1] Hole diameter = 7 mm for padlock

To fit **KS plastic enclosures.** Prepared for the installation of semi-cylinders with a total length of 40 mm (to DIN 18 254), all 27 mm lock inserts, version A, and lock and push-button inserts, see page 882.

Design	Model No. KS
RAL 7032 With brown handle	1490.000

Ergoform special

1 **With lock insert, lock E1.**
Only for use with **VW, Audi, SEAT, SkodaAuto.**
Supplied without key.
Other lock systems available on request.

E1	Model No. SZ
RAL 7035 With brown handle	2456.500

2 **Prepared for ASSA lock system.**

ASSA	Model No. SZ
Completely brown	2453.000[1]

[1] to fit plastic enclosures KS on request.

3 **To fit all ES enclosures with CNOMO lock, 6.5 mm.**
Triangular lock insert. The handle can only be locked if the door is completely closed **(French motor car industry).** Not suitable for glazed doors.

CNOMO	Model No. SZ
RAL 7035 With brown handle	2421.500

Ergoform padlock handle system

for CS Outdoor
With an additional shackle for a padlock.
Hole diameter of shackle: 9 mm.
Prepared for the installation of 40 mm semi-cylinders (length: 10/30 mm).

Packs of	Model No. CS
1	9785.030

Lock systems

B

7.4

Door/locks

Lock systems

Plastic handles

with cylinder insert.
Lock no. 3524 E including assembly parts,
seal and 2 keys.

Note:
The universal lock systems allows the installation of a suitable handle to suit almost any application or customer specification. The relevant product ordering page shows which handles can be fitted into each particular assembly.

Version B

Colour	Model No. SZ
RAL 9011	**2576.000**
RAL 7030	**2439.000**

Version B,
but without cylinder insert.

Colour	Model No. SZ
RAL 9011	**2533.000**

Version G

Colour	Model No. SZ
RAL 9011	**2599.000**

Version C

Colour	Model No. SZ
RAL 9011	**2485.000**

Version C,
but without cylinder insert.

Colour	Model No. SZ
RAL 9011	**2485.100**

Version E

Colour	Model No. KS
RAL 9011	**1484.000**

Lock systems

B

7.4

T handles

Material:
Die-cast zinc, chrome-plated

Supply includes:
Seal and 2 keys.

Version B

Design	Model No. SZ
With lock insert, lock no. 3524 E	**2575.000**
Without lock insert	**2572.000**

Version C

Design	Model No. SZ
With lock insert, lock no. 3524 E	**2535.000**
Without lock insert	**2536.000**

Cam locks

Housing made of die-cast zinc, nickel-plated

	Model No. SZ
With double-bit insert[1]	**2520.000**
With lock insert, lock no. 3524 E	**2530.000**

[1] exchangeable for lock inserts,
Version C, see page 888.

Housing of fibre-glass reinforced polyamide, also as a replacement for compact enclosures AE.

	Model No. SZ
With double-bit insert[1]	**2420.000**
With lock insert, lock no. 3524 E	**2430.000**

[1] exchangeable for cylinder inserts,
Version B, see page 889 and 27 mm lock inserts,
version A, see page 888.

Housing of fibre-glass reinforced polyamide, also as a replacement for compact enclosures AE.

With lock no. E1.
Only for use with **VW, SEAT, Audi, Skoda Auto.**
Supplied without key.
Other lock systems available on request.

Colour	Model No. SZ
RAL 7032	**2540.000**
RAL 7035	**2540.500**

Entirely of stainless steel 1.4301.
For AE compact enclosures, stainless steel (with cam lock).

	Model No. SZ
With double-bit insert	**2304.000**

Stainless steel design 1.4404 (AISI 316L) available on request.

Lock systems

B

7.4

Door/locks

Lock systems

Lock inserts

Note:
The universal lock systems allows the installation of a suitable handle to suit almost any application or customer specification. The relevant product ordering page shows which handles can be fitted into each particular assembly.

Version A

Material:
Die-cast zinc

Length 27 mm	Model No. SZ
7 mm square	**2460.000**
8 mm square	**2461.000**
7 mm triangular	**2462.000**
8 mm triangular	**2463.000**
Screwdriver	**2464.000**
Daimler insert	**2465.000**
3 mm double-bit	**2466.000**
Fiat	**2307.000**
6.5 mm triangular (CNOMO)	**2460.650**

Version C

Material:
Die-cast zinc

Length 41 mm	Model No. SZ
7 mm triangular	**2527.000**
8 mm triangular	**2528.000**
7 mm square	**2523.000**
8 mm square	**2526.000**
Daimler insert	**2522.000**
3 mm double-bit	**2483.000**

Version D

Material:
Die-cast zinc

Length 47 mm	Model No. SZ
7 mm triangular	**2555.000**
8 mm triangular	**2556.000**
7 mm square	**2557.000**
8 mm square	**2558.000**
Daimler insert	**2554.000**
3 mm double-bit	**2484.000**

Version E

Material:
Plastic

	Model No. KS
7 mm triangular	**1485.000**
8 mm triangular	**1486.000**
7 mm square	**1487.000**
8 mm square	**1488.000**
Screwdriver	**1489.000**
Double-bit	**1492.000**

Cylinder inserts

Material:
Die-cast zinc

Version B

Lock no. 3524 E with 2 keys.

Packs of	Model No. SZ
1	**2571.000**

Version C

Lock no. 3524 E with 2 keys.

Packs of	Model No. SZ
1	**2525.000**

Semi-cylinder lock

for compact enclosures AE
For retro-fitting to single-door enclosures with
cam lock.
The cover plate is locked by semi-cylinders
40/45 mm total length (to DIN 18 254). An addi-
tional cover protects the cylinder against dirt.
The protection category of the enclosure is not
impaired.
Supplied without semi-cylinder.

Material:
Die-cast zinc

Design	Model No. SZ
RAL 7035	**2534.100**
RAL 7032	**2534.000**
Nickel-plated (matt)	**2534.500**

German patent no. 195 12 280
European patent no. 0778 913
with validity for GB, FR, IT
US patent no. 5,916,282
Jap. patent no. 3.088.465

Lock systems

B

7.4
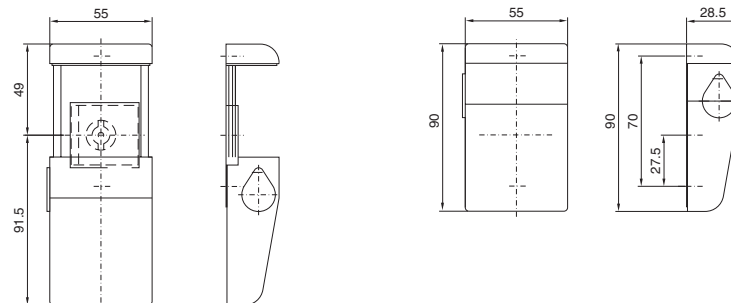
Door/locks

Lock systems

Lock cover

for padlocks or multiple locks
For retrospective mounting on all compact enclosures AE, of sheet steel and with cam lock.

Material:
Die-cast zinc, nickel-plated, passivated

Packs of	Model No. SZ
1	2493.000

Multiple lock

for 6 cam locks
The the ideal solution in cases where individual access for several persons is required for mainte-nance and repair purposes.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. SZ
2	2493.500

Lock cover

prepared for lead seal
For all enclosure types with Rittal-specific locks, such as AE, EB and AP.

Material:
Polyamide

Colour	Packs of	Model No. SZ
RAL 7035	2	2476.000

German registered design no. M 92 07 062

Security lock

Fitted to doors, to protect against contact with live electrical equipment whilst the main switch is ON.

Function:
● Locks the door when the main switch is ON.
● Mains power (voltage) is only enabled whilst the door is closed.
● Monitoring of the lock magnet via an additional closing contact.

Supply includes:
Lock, actuator, angle bracket, assembly parts.

Connection voltage for lock magnet	Model No. SZ
230 V AC 11 VA	2416.000
24 V DC 8 W	2418.000
120 V AC 8 VA	2419.000

! Also required:

For twin-door enclosures (for the overlapping door, for the message "enclosure door closed"), Rittal door-operated switch PS 4127.000, see page 956.

Lock systems

B

7.4

Enclosure key

For lock inserts (one double-bit key is supplied with every enclosure).

Design	Model No. SZ
Double-bit key no. 5	**2531.000**
Security key no. 3524 E	**2532.000**
7 mm triangular	**2545.000**
8 mm triangular	**2546.000**
7 mm square	**2547.000**
8 mm square	**2548.000**
Daimler key	**2521.000**
Fiat key	**2308.000**

Universal enclosure key

Double-bit, 8 mm square, 8 mm triangular (also for 7 mm inserts), with integral screwdriver.

Packs of	Model No. SZ
1	**2549.000**

Spare key
for QuickBox/FR(i)
Spare key for standard lock no. 12321.

Packs of	Model No. QB
2	**7526.050**

Quick-release fastener
for QuickBox
The quick-release fastener provides optimum access, even when used in problem areas. To facilitate locking, the quick-release fastener is screw-fastened to the mounting bracket at the front. This enables the QuickBox to be locked even when the fasteners of the sides are opened, allowing the enclosure cover to be attached and removed easily.

Packs of	Model No. QB
2	**7502.220**

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Supply includes:
2 mounting brackets, mounting material and quick-release fasteners

Lock "15"

For retro-fitting in all FM/fibre-optic small distributors (Zeiss-Ikon "15").
For cross-bit keys.

Colour:
RAL 7035

Lock	Packs of	Model No. DK
"15"	2	**7059.035**

Extended delivery times.

Key "15"

Cross-bit key for security lock
(Zeiss Ikon "15").
Two keys are required for a small distributor.

Key	Packs of	Model No. DK
"15"	1	**7059.100**

Extended delivery times.

Lock systems

B

7.4

Door/locks

Lock systems

Door locking for bayed suites

For extending the door locking of **commercially available main switches** to bayed suites TS. Adjacent door cannot be opened until the main door has been opened.

The main switch can be positioned anywhere in the suite; its function is independent from the door hinge position.
Subsequent locking of the adjacent doors in the suite is possible: they are thus automatically included in locking operation.

1 Operating mechanism
(Fitted in the enclosure with main switch and additionally in every fourth adjacent enclosure)

	Model No. TS
Operating mechanism	**4912.000**

2 Adjacent door locking
(Installation in adjacent enclosure)

	Model No. TS
Adjacent door locking	**4911.000**

3 Interconnecting rods
To extend locking from the main enclosure to the adjacent enclosures of a bayed suite.
An interconnecting rod corresponding to the width of the enclosure is required for each adjacent enclosure.

For enclosure width mm	Packs of	Model No. TS
600	10	**4916.000**
800	10	**4918.000**
1200	10	**4920.000**

Isolator door locking (USA version)

Main door locking	Model No. TS
for TS	**8611.310**

For safety locking of enclosures and bayed suites according to USA specifications, only in conjunction with **the following types of main switches:**

- Allen Bradley 1494 V-H1 (actuating lever)
- Square D 9422 A1
- ITE Siemens Max-Flex series/FHOH (only available in the USA)
- General Electric TDA Typ 1 and 2.

For assembly, a main door lock plus adjacent cubicle latch mechanisms are required, together with interconnecting rods to match the bayed enclosures.

Note!
On configuration of bayed suites, it must be noted that the isolator main enclosures can only be attached to the right side (USA version).

Cutout for main switch

Lock systems

Door locking for TS bayed suites (commercially available main switches)

Isolator door locking (USA version)
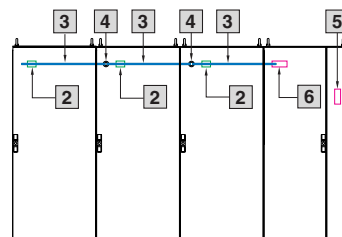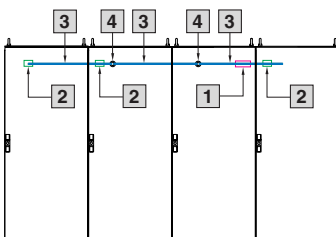
1 Operating mechanism, installation in enclosure with main switch

2 Adjacent door locking, installation in adjacent enclosure

3 Interconnecting rod

4 Connection component (included in the supply of interconnecting rod)

5 Main door lock (for isolator door locking, USA version)

6 Operating mechanism, installation in the main enclosure (included in the supply of the main door lock pos. 5)

Hinges 130°

for ES
For retrofitting a sheet steel door instead of the rear panel.

Material:
Die-cast zinc

Supply includes:
Assembly screws.

Packs of	Model No. PS
6	4190.000

Note:
Lock components for frame should be ordered separately:

Packs of	Model No. ES
8 sets	4167.000

Hinges 130°

for TS
For retrofitting a sheet steel door instead of the rear panel.

Material:
Die-cast zinc

Supply includes:
Assembly screws.

Packs of	Model No. TS
4	8800.020

⚠ Also required:

Lock components for frame TS 8800.040, see page 869.

Hinges 180°

for TS, CL
For retrospective conversion of sheet steel doors with 130° hinges.

One-man assembly:
- Exchange the hinge parts on the frame side for 180° hinges (4 screws).
- Drill the door at the pre-marked points.
- Screw-fasten the hinge parts onto the door.
- Locate the door.
- Press in the captive hinge pins.

Material:
Die-cast zinc

Supply includes:
Assembly screws.

Version	Packs of	Model No. TS
RAL 7035	4	8800.190
RAL 7032	4	8800.030
RAL 8019	4	8800.230
Matt nickel-plated	4	8701.180

Note:
Door assemblies such as the comfort handle may restrict the door opening angle.

The hinge pins may only be actuated and the door removed with the door open.
The hinge cannot be dismantled from the outside with the door closed (access protection).

Hinges 180°

for TS bayed enclosure suites with comfort handle
In TS bayed enclosure suites with comfort handle for semi-cylinder, the following door opening angles may be achieved:
Sheet steel door: max. 180°
Glazed door: max. 140°

Material:
Die-cast zinc

Colour:
RAL 7035/RAL 9005

Supply includes:
Assembly screws.

Version for	Packs of	Model No. TS	
		RAL 7035	RAL 9005
Sheet steel door	4	7824.520	7824.522
Glazed door	4	7824.525	–

Note:
- The protection category of the enclosure may be reduced.
- Not for divided doors.
- Door hinge remains the same within a bayed enclosure suite.
- Not suitable for use with TS designer glazed doors.

Rear panel bracket

For:
- Premium Panel
- Premium Line KL, from height 200 mm
For fitting on the inside, so that there are no exterior surfaces where substances could accumulate and pose a potential threat to hygiene. Holds the rear panel against the enclosure when it is flipped down; easily removed if required.

Packs of	Model No. CP
1 set	6682.000

Material:
Stainless steel 1.4301

Supply includes:
Assembly parts.

Hinges

B

7.4

Doors/locks

Hinges

Hinges 180°
For retrospective conversion of standard doors
with 130° hinges.
Including assembly parts.

For ES, TE

Material:
Aluminium

Surface finish:
Powder-coated in RAL 8019

Packs of	Model No. PS
6	4189.000

For ES

Material:
Stainless steel 1.4301

Packs of	Model No. PS
6	4156.000

For AK, AP

Material:
Sheet steel

Packs of	Model No. SZ
6	2579.000

For AE

Material:
Die-cast zinc

Packs of	Model No. SZ
2	2449.000

For CM

Packs of	Model No. CM
2	5001.000

Cover hinge
for KL cover
The cover hinge is simply screwed to the box
protection channel and to the edge fold.

Packs of	Model No. KL
6	1592.000

Hinge pin remover
For safe and easy removal of hinge pins.

For enclosure	Model No. SM
AP/AK	2431.000
AE/FM	2432.000

Support strips

For attachment of
- Cable ducts
- Cable conduit holders
- Contact hazard protection covers
- Equipment installed on the door
- Cable clamping and attachment

4.5 mm diameter hole on a 25 mm DIN pitch pattern.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Packs of 20,
including screws

➕ **Accessories:**

Screws and self-tapping screws M5,
see page 937.

For TS, CM, CL, ES

For door width mm	Model No. SZ
400	**4594.000**
500	**4309.000**
600	**4596.000**
800	**4598.000**
900	**4579.000**
1000	**4599.000**
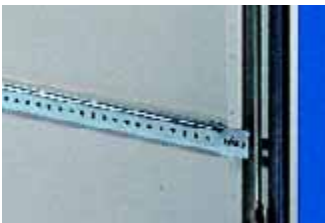
For AE

For enclosures AE	Model No. SZ
1007.500[2], 1013.500[2] 1018.500[2], 1019.500[2] 1050.500[1], 1057.500 1100.500, 1110.500 1114.500[1], 1130.500 1213.500[1], 1350.500[1]	**2325.000**
1009.500[2], 1010.500[2] 1012.500[2], 1039.500 1058.500, 1060.500 1076.500, 1090.500 1260.500[1], 1339.500 1360.500, 1376.500	**2326.000**
1014.500[2], 1073.500 1077.500,	**2327.000**
1016.500[2], 1017.500[2] 1180.500, 1280.500[1]	**2328.000**

[1] For these AE models, the door rails should be cut to length.
[2] Only in conjunction with perforated mounting strips. (see page 896).

Cross brace

for TS, CM, CL, ES doors
To stabilise heavy equipment installed on and in the door.
With slots for enclosure duct connector, see page 1035.
Frame connector, adjustable, see page 907 and enclosure surface connector, see page 1034.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts for screw-fastening to the tubular door frame.

For door width mm	Model No. TS
600	**8800.960**
800	**8800.980**

Door, internal

B

7.4

Door, internal

Perforated mounting strip

For AE stainless steel, AP universal console[1]
For vertical mounting on the threaded bolts of the door, for attaching
- Door rails AE
- Door stays SZ 2519.000, see page 898.

3.7 mm diameter hole on a 25 mm DIN pitch pattern.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Packs of 20,
including nuts and serrated washers.

To match AE	Length mm	Model No. SZ
1005.500, 1006.500 1009.500	318	2310.038[1]
1012.500, 1014.500	698	2310.076
1016.500, 1018.500	938	2310.100
1017.500, 1019.500	1138	2310.120

[1] for door at top

➕ **Accessories:**

Screws,
see page 937.

Utility lectern

For programming units etc. Prepared for mounting on the tubular door frame of TS, CM, CL, ES, PC or on any sufficiently large surface.
When required for servicing, it folds down quickly with a maximum support area, and after use is stowed between the tubular door frames in a space-saving design.
Load capacity: max. 30 kg.

Material:
Sheet steel

Colour:
RAL 7035

Support area mm		For door width mm	Model No. TS
Width	Depth		
413	400	600	4638.600
613	400	800	4638.800

Wiring plan lectern

Holds wiring plans during fault finding and maintenance work.
The wiring plan lecterns can be bayed according to the door width.
For mounting on the tubular door frame.

Material:
Utility lectern: Polypropylene
Mounting bracket: Die-cast zinc

Colour:
Similar to RAL 7035

Supply includes:
Wiring plan lectern (width 210 mm).
Assembly parts.

For enclosures	Packs of	Model No. TS
For TS, CM, CL, ES, PC	1	4120.000

For door width mm	Required/possible number of wiring plan lecterns	
	min.	max.
400	1	1
500	1	1
600	2	2
800	2	3
1000	3	3

CD/disk box

For fixing to all flat, clean surfaces with double-sided adhesive tape.

Capacity:
max. 10 CDs/DVDs,
or 18 (3 $\frac{1}{2}$″) disks.

Material:
Polyamide

Colour:
RAL 7033

Packs of	Model No. SZ
1	2446.000

**German registered design
No. M 92 07 061
U.K. reg. des. no. 2 029 365
IR reg. design no. DM/025 474
with validity for FR, IT**

Door, internal

B

7.4
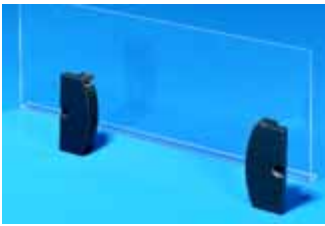
Wiring plan pocket
made of plastic

for AE
For installation options, refer to table
- B = Screw-fastened to the perforated door strip on both sides
- E = Screw-fastened on one side, other side stuck with adhesive

or stuck entirely with adhesive

Supply includes:
2 holders with double-sided adhesive tape,
plexiglass pane,
assembly parts.

Note:
The plexiglass pane may be shortened to any required size for shorter doors.

Model No. SZ		2514.500	2514.600	2514.800
Usable width mm		340	415	615
Usable depth mm		18	18	18
Height of plexiglass panel mm		167	167	167
Installation options				
For Model No. AE	Width mm			
1050.500	500	B	–	–
1057.500	500	B	–	–
1058.500	600	E	E	–
1060.500	600	E	E	–
1073.500	760	E	E	–
1076.500	600	E	E	–
1077.500	760	E	E	–
1090.500	600	E	E	–
1100.500	1000	B	–	–
1110.500	1000	B	–	–
1114.500	1000	B[1]	–	–
1130.500	1000	B	–	–
1180.500	800	E	E	E
1213.500	1000	B[1]	–	–
1260.500	600	E	B	–
1280.500	800	E	E	B
1350.500	500	B	–	–
1360.500	600	E	E	–
1376.500	600	E	E	–

[1] Prepared for the installation in the l/h side door; for installation in the r/h side door, the acrylic glazed pane can be shortened.

Wiring plan pockets
made of plastic

For affixing to the inside surfaces of doors.

Material:
Polystyrene with self-adhesive fastening strips.

Colour:
Similar to RAL 7035

For Format	Clearance openings mm			Model No. SZ
	W (B)	H	D	
A3 landscape	438	287	45	**2513.000**
A4 portrait	228	256	17	**2514.000**
A5 landscape	228	176	17	**2515.000**
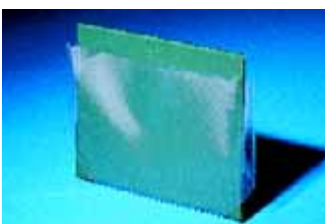
Wiring plan pockets
with transparent pouch

With welded-on transparent pouch and self-adhesive backing.

For format	Model No. SZ
DIN A4	**2510.000**
DIN A3	**2512.000**

Door, internal

B

7.4

Door/locks

Door, internal
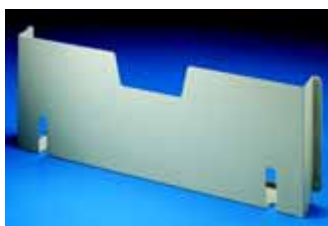
Wiring plan pockets of sheet steel

for TS, CM, CL, ES, PC
For fastening to tubular door frames at any height.

Colour:
RAL 7035

Supply includes:
Assembly screws

To fit door width mm	Clearance openings mm			Model No. TS
	W (B)	H	D	
400	255	260	90	**4114.000**
500	355	260	90	**4115.000**
600	455	260	90	**4116.000**
800	655	260	90	**4118.000**
900	755	260	90	**4123.000**
1000	855	260	90	**4124.000**

Wiring plan pockets of sheet steel

for AK
For screw-fastening on the left or right of the perforated door strip in any height.
The opposite side is fastened with adhesive tape.

Colour:
RAL 7035

For format	Clearance openings mm			Model No. SZ
	W (B)	H	D	
DIN A4	298	260	58	**2516.000**
A3 landscape	434	260	58	**2517.000[1]**

[1] Not for AK 1647.XXX, AK 1650.XXX

Door stay

To secure the door in the open position.

For	Packs of	Model No.
TS, CL, ES, PC	5	**4583.000**
AK, AP pedestals (not illustrated)	5	**2518.000**
AE (except AE 1032.500 and AE 1035.500) and all AE stainless steel enclosures[1] can only be mounted at the top (not illustrated)	5	**2519.000**
AE IP 69K	1	**1101.800**
Outdoor compact enclosures	1	**1616.110**

[1] With AE stainless steel, only in conjunction with perforated mounting strip, see page 896.

Ride-up roller

for TS, ES, PC
Lifts the door with heavy installed equipment (e.g. cooling unit) as a closing aid. For attaching to the tubular door frame.

Packs of	Model No. TS
10	**4538.000**

Transport and mounting handle

for TS, CL, ES doors
For secure attachment and dismantling of the door and for movement into the workshop. The matching hinge pin removal tool for 130° hinges is pre-integrated, and supplied loose for 180° hinges.

Packs of	Model No. SM
1	**2415.100**

Door, internal

B

7.4

Rain canopies

for AE
Reliable protection for outside siting – with water run-off to the rear. Easily retro-fitted.

Supply includes:
Assembly parts.

Note:
For outdoor siting, we generally recommend a rain canopy above the enclosure or the gap between the door or screw-fastened rear panel and the enclosure, in order to protect against water and UV radiation.
The tests of IP protection categories for water protection (2nd code number to EN 60 529) cannot be compared with an enclosure sited outdoors or under similar conditions.
Upon request, rain canopies of sheet steel, stainless steel or aluminium can also be produced for other enclosures.
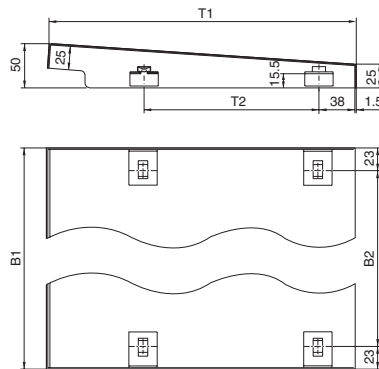
Sheet steel version

For AE enclosures	B1	B2	T1	T2	Model No. SZ
1031.500 1038.500 1380.500	391	340	235	120	**2501.500**
1039.500 1060.500 1076.500	611	560	235	95	**2502.500**
1339.500 1360.500 1376.500	611	560	375	235	**2511.500**

Stainless steel version

For AE enclosures	B1	B2	T1	T2	Model No. SZ
1002.600 1035.500	211	160	180	65	**2470.000**
1005.600 1033.500 1034.500	311	260	235	120	**2361.000**
1004.600 1030.500	391	340	180	65	**2471.000**
1006.600 1008.600 1031.500 1038.500 1380.500	391	340	235	120	**2472.000**
1007.600 1050.500	511	460	235	120	**2362.000**
1009.600 1010.600 1012.600 1039.500 1060.500 1076.500	611	560	235	95	**2473.000**
1014.600 1073.500	771	720	325	185	**2474.000**
1016.600 1017.600 1180.500 1280.500	811	760	325	185	**2475.000**
1018.600 1019.600 1110.500 1114.500 1130.500 1213.500	1011	960	325	185	**2363.000**

B = Width
T = Depth

+ Accessories:

Condensate discharge,
see page 852.

Dust guard trim

for AE, AK, EB, KL and BG
To protect against deposits on the upper edge of the door and between the enclosure and the door/lid. Cut the door protection strip to length according to the enclosure width. Drill the enclosure and mount the strip using the adhesive strips and screws.
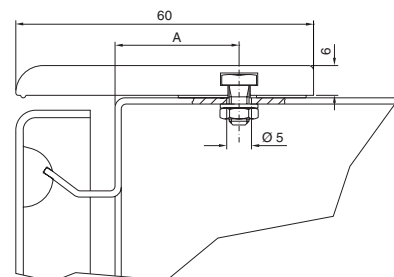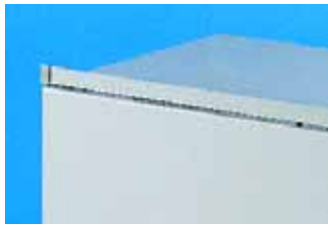
Material:
Plastic, UV-resistant

Colour:
Similar to RAL 7024

For enclosure	Length mm	A mm	Model No. SZ
AE	1200	25	**2426.500**
AK		15	
KL, EB, BG		20.5	

Roof

B
7.5

Roof

Dust guard trim

for TS, ES, FR(i)
To protect against dust deposits on the upper edge of the door and between the door and upper horizontal enclosure section. The dust guard trim provides space to accommodate texts or company logos.

Colour:
RAL 7035

Supply includes:
Clear plastic strip for text labels
(Height 29.5 mm).

Length mm	Model No. SZ
600	**2424.100**
800	**2425.100**
1000	**2427.100**
1200	**2426.100**

Note:
Also suitable for use in conjunction with baying cover top,
see page 867.
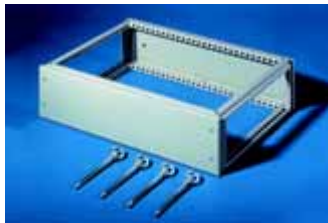
Top mounting module

for TS, FR(i)
As a cable chamber for cable infeed from above or for power distribution with busbar systems across bayed enclosures. The TS cover plate is used as standard to finish off at the top. The enclosure height is increased by 200 mm with the top mounting module fitted.
The top baying cover cannot be fitted. Installation accessories for top and bottom, see diagram and explanations below.

Material:
Sheet steel, 1.5 mm

Surface finish:
Spray-finished in textured RAL 7035/RAL 7032

Protection category:
IP 55 to EN 60 529/10.91
Complies with NEMA 12
(in conjunction with side panel for top mounting module, see page 901).

For enclosures		Model No. TS	
Width (B) mm	Depth mm	RAL 7032	RAL 7035
400	600	**8801.720[1]**	**8801.725**
600	600	**8801.730[1]**	**8801.735**
800	600	**8801.740[1]**	**8801.745**
1000	600	**8801.750[1]**	**8801.755**
1200	600	**8801.760[1]**	**8801.765**

[1] Delivery times available on request.

Supply includes:
1 frame module,
2 trim panels (front and rear),
8 holders
with automatic potential equalisation,
4 tapped rods with eyebolts.
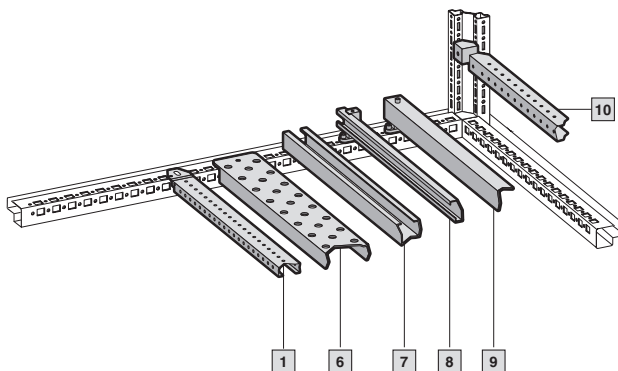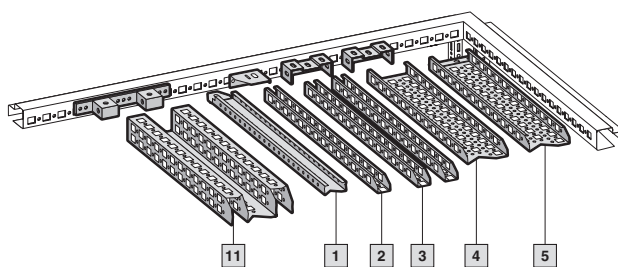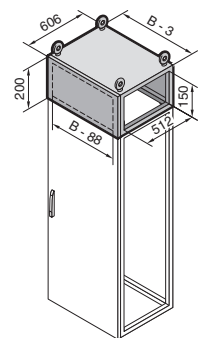
! Accessories:

Description	Page
1 TS punched rail 18 x 38 mm	923
2 PS punched rail 23 x 23 mm with angle bracket	925
3 PS punched rail 23 x 23 mm with support bracket PS	925
4 PS punched section without mounting flange, 23 x 73 mm with support bracket PS	925
5 PS punched section with mounting flange 23 x 73 mm	926
6 Support rail	927
7 System support rails	926
8 C rail 30/15 with support bracket or spacer	928
9 Cable clamp rail	979
10 TS punched rail 25 x 38 mm	923
11 TS punched section without mounting flanges, 45 x 88 mm	922

Roof

B

7.5

Side panel

for top mounting module
To finish off the side of a top mounting module or bayed suite.

Material:
Sheet steel, 1.5 mm

Surface finish:
Spray-finished in textured RAL 7035/RAL 7032

Supply includes:
2 side panels,
8 holders
with automatic potential equalisation.

Version	Packs of	Model No. TS
RAL 7035	2	**8801.775**
RAL 7032	2	**8801.770[1]**

[1] Delivery times available on request.
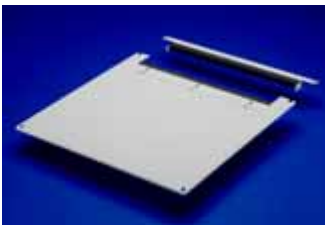
Roof plate

for cable entry, two-piece
for TS, FR(i)
In exchange for the standard roof. Equipped with a sliding angular bracket in the rear section. Rubber cable clamp strip on both sides for attaching cable bundles and bunched cables.
Thanks to the symmetrical design of the TS 8 frame, side cable entry can also be achieved by rotating the roof plate.
The two-piece design additionally allows easy retro-fitting, by simply removing the front part of the plate for retrospective cable entry.
For active ventilation, a fan mounting plate may be fitted in the front section of the enclosure (only for TS, not in conjunction with the 482.6 mm (19″) mounting frame). To this end, the roof plate must be raised by at least 20 mm with spacers.

Material:
Sheet steel

Colour:
RAL 7035

For enclosures		Model No. DK
Width mm	Depth mm	
600	400	**7826.645**
600	600	**7826.665**
600	800	**7826.685**
600	900	**7826.695**
600	1000	**7826.605**
800	400	**7826.845**
800	600	**7826.865**
800	800	**7826.885**
800	900	**7826.895**
800	1000	**7826.805**
1200	400	**7826.245**

+ **Accessories:**

Fan mounting plate,
see page 649.
Spacers,
see page 904.

Detailed drawing,
available on the Internet.
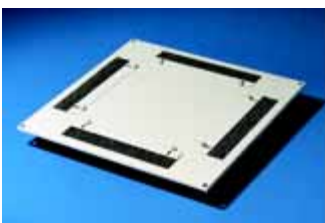
Roof plate

for cable entry on all sides
for TS, FR(i)
The roof plate has sliding plates for cable entry on all four sides, and therefore allows individual selection of cable routing tailored to the specific requirements. After cable entry, the sliding plate is closed again as far as possible, and the rubber cable clamp strips supplied loose then seal the cable entry area.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosures		Model No. DK
Width mm	Depth mm	
800	800	**7826.588**
800	900	**7826.589**

Detailed drawing,
available on the Internet.

Roof

B

7.5
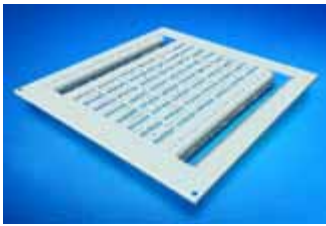
Cable management roof plate

for TS, FR(i)
In exchange for the standard roof plate. Thanks to the rounded side cutouts, large quantities of cables may be routed into the rack whilst preserving the bend radii. The roof has system punchings for the attachment of cables with nylon tape or cable ties.

Material:
Sheet steel

Colour:
RAL 7035

For enclosures		Model No. DK
Width mm	Depth mm	
800	600	**7826.864**
800	800	**7826.884**
800	900	**7826.894**

Other sizes available on request.

Detailed drawing,
available on the Internet.
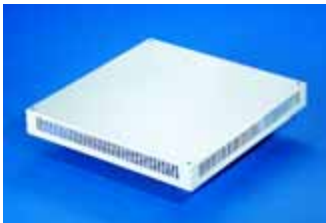
Roof plate, vented

for TS, FR(i)
In exchange for the standard roof.

Variant 1:
72 mm high roof plate, all-round vent slots, optionally with clamp strip for cable entry. The two-piece design with cable entry allows easy retro-fitting, by simply removing the front part of the plate. The cables are held in position via a guide at the side.

Material:
Sheet steel

Colour:
RAL 7035
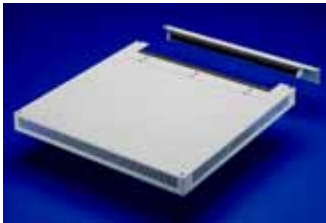
For enclosures		Model No. DK	
Width mm	Depth mm	One-piece without cable entry	Two-piece with cable entry
600	600	**7826.766**	7826.669
600	800	**7826.768**	7826.689
600	900	**7826.769**	7826.699
600	1000	**7826.760**	7826.609
800	600	**7826.786**	7826.869
800	800	**7826.788**	7826.889
800	900	**7826.789**	7826.899
800	1000	**7826.780**	7826.809

Variant 2:
Ventilation holes (Ø 3 mm) are incorporated all-round into the 97 mm high roof plate. In conjunction with the vented glazed and sheet steel door, the roof plate matches the door design to perfection.

Material:
Sheet steel

Colour:
RAL 7035
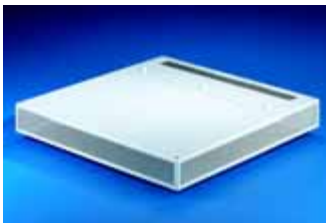
For enclosures		Model No. DK
Width mm	Depth mm	
800	600	**7826.866**
800	800	**7826.886**
800	900	**7826.896**
800	1000	**7826.806**

➕ Accessories:

Fan mounting plate for active ventilation.
see page 649.

Detailed drawing,
available on the Internet.

Roof-mounted fans

for TS, FR(i)
For the office sector,
see page 648.
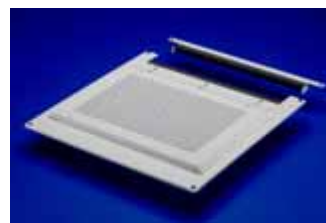
Fan roof, modular, two-piece

for TS, FR(i)
see page 651.

Roof

B

7.5
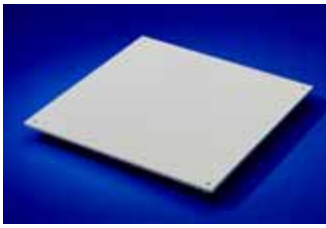
Roof/gland plate, solid

for TE
To conceal the entire roof or base area.
The roof/gland plate may be raised with spacers
to support passive climate control.

Material:
Sheet steel

Colour:
RAL 7035, on request in RAL 9005

Supply includes:
Assembly parts.
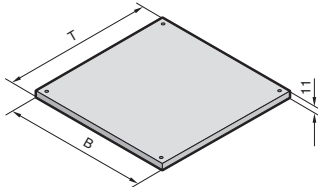
Width (B) mm	Depth (T) mm	Model No. TE
450	450	**7526.770**
450	650	**7526.780**
650	450	
650	650	**7526.820**

➕ **Accessories:**

Spacers,
see page 904.
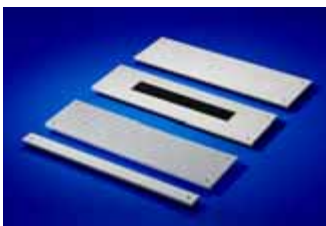
Module plates

for TE
The module plates allow the roof or base area of
the TE 7000, in exchange for the existing roof
plate, to be varied as required.
The module plates may be raised with spacers to
support passive climate control.

Material:
Sheet steel

Colour:
RAL 7035, on request in RAL 9005.

Supply includes:
Assembly parts.

Note:
Configuration details,
see below.

Version	Width mm	Depth mm	Model No. TE
Solid	450	200	**7526.760**
	650	200	**7526.800**
With brush strip	450	200	**7526.850**
	650	200	**7526.860**
Vented	450	200	**7526.829**
	650	200	**7526.834**
Compensating plate	450	50	**7526.750**
	650	50	**7526.790**

⚠ **Also required:**

For a completely sealed roof/base assembly, a
compensating plate is required.

➕ **Accessories:**

Spacers,
see page 904.

Configuration: Roof frame, base frame, TE 7000 network enclosures

Enclosure dimensions mm	W (B)	600	600	800	800
	D (T)	600	800	600	800
Installation position/ enclosure		2 x module plates in the width or depth plus 1 x compensating plate each	3 x module plates in the width or 2 x module plates in the depth plus 1 x compensating plate each	2 x module plates in the width or 3 x module plates in the depth plus 1 x compensating plate each	3 x module plates in the width or depth plus 1 x compensating plate each

Roof

B

7.5
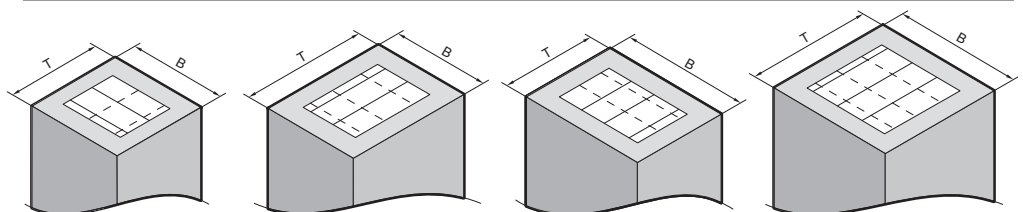
Roof/wall mounting

Roof
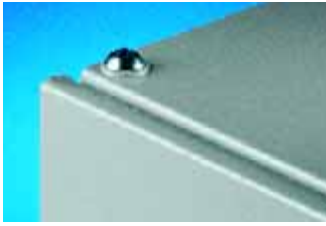
Roof mounting screw

For screw-fastening the roof plate instead of eye-bolts. With the TS 8, the contact washers for potential equalisation may be taken from the eye-bolts included with the supply of the enclosures.

Material:
Sheet steel, zinc plated, passivated

Packs of	Model No. PS
20	**4198.000**

Spacers

for roof plate
To raise the TS 8 roof for ventilation purposes, in three different heights.
Not suitable for crane transportation!

Height mm	Packs of	Model No. SZ/DK
10	4	**2422.000**
20	4	**2423.000**
50	4	**7967.000**

Spacers

for module plates TE
To assist passive ventilation, spacers may be used to raise the module plates.

Material:
Hexagonal sectional steel, zinc plated, passivated.

Supply includes:
Assembly parts.

Height mm	Packs of	Model No. TE
20	4	**7526.963**

Eyebolts

for TS, ES
For crane transportation of enclosures, may already be included in the supply.
Thread: M12

Packs of	Model No. PS
4	**4568.000**

Eyebolts

for AE, AK
For crane transportation of enclosures, with reinforcement plate to be inserted underneath.
Thread: M12

Supply includes:
Eyebolts, reinforcement plates.

Packs of	Model No. SZ
4	**2509.000**

Roof

B
7.5

Wall mounting bracket

For the attachment of KL, EB, BG and EL enclosures as well as DK and FM wall-mounted distributors.

Supply includes:
Assembly parts for mounting on the enclosure.

Note:
For hygiene reasons, and in view of the protection category, the stainless steel enclosures do not have any drilled holes for the wall mounting brackets.

Material	Wall distance mm	Packs of	Model No. KL
Brass nickel-plated	8	4	**1580.000**
Sheet steel zinc-plated, passivated	8	4	**1590.000**
Stainless steel 1.4301	8	4	**1594.000**
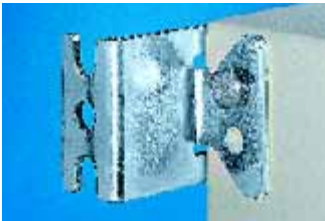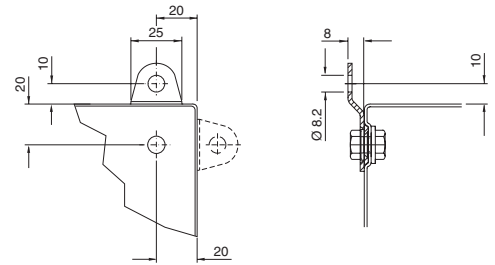
Wall mounting bracket

For the attachment of KL, EB, BG, AE, CM and EL enclosures as well as DK and FM wall-mounted distributors.

Supply includes:
Assembly parts for mounting on the enclosure.

Note:
For hygiene reasons, and in view of the protection category, the stainless steel enclosures do not have any drilled holes for the wall mounting brackets.

Material	Wall distance (A) mm	Packs of	Model No. SZ [1]
Sheet steel zinc-plated, passivated	40	1	**2503.000** [1]
	40	4	**2503.010**
	10	1	**2508.000** [1]
	10	4	**2508.010**
Stainless steel 1.4301	10	4	**2433.000**

[1] Without assembly parts.
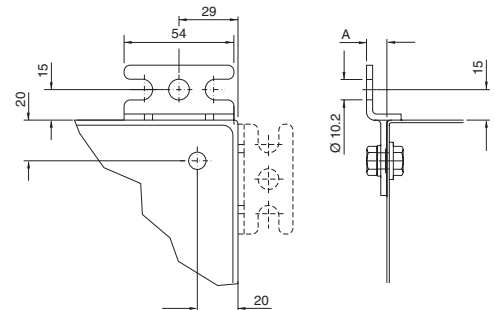
Wall mounting bracket

for KS
For attachment to the wall, only possible from the outside of the enclosure.

Material:
Fibreglass-reinforced polyamide[1]

Supply includes:
Assembly parts for mounting on the enclosure.

Colour	Packs of	Model No. KS/KE
Sim. to RAL 7032	4	**1483.000**
Sim. to RAL 9011	4	**9266.000** [1]

[1] With graphite additive for Ex applications.

Wall mounting

B

7.5
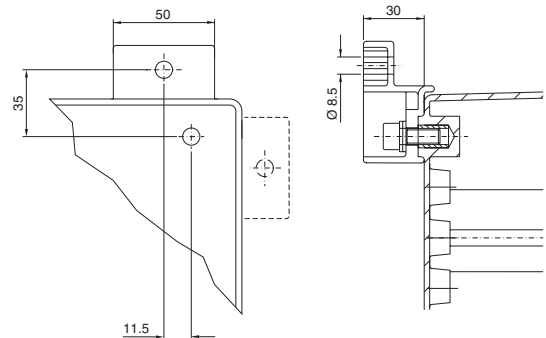
Roof/wall mounting

Wall mounting

Wall angle

For compact enclosures (additional holes required in the enclosure).

Material	Colour	Packs of	Model No. SZ
Sheet steel	RAL 7035	1	**2505.500**
	RAL 7032	1	**2505.200**
Stainless steel 1.4301	–	1	**2583.000**
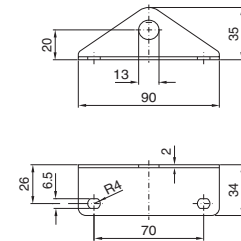
Wall bracket

For wall attachment of TS and ES enclosures at the roof, e.g. with heavy components on the door.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. PS
4	**4595.000**

Possible alternative:

With TS 8 inside the enclosure (without mounting plate), baying bracket TS 8800.470, see page 866.

Wall mounting bracket

for CS wall-mounted enclosures
For mounting on a wall or panel.

Material:
Stainless steel 1.4301

Packs of	Model No. CS
4	**9765.120**
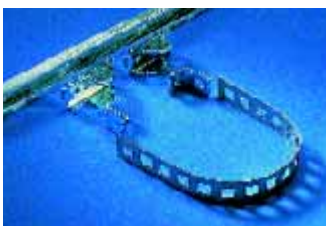
Pole clamp

For reliable, convenient fastening to round or square poles.

For pole diameter/size:
Ø from 40 to 190 mm
□ from 50 to 150 mm

Material:
Mounting angles, clamping section:
Sheet steel, zinc-plated, passivated
Clamping strap: Stainless steel 1.4301

For KL, EB, BG, AE, KS

Supply includes:
2 mounting angles, 600 mm long,
4 clamping sections,
2 clamping straps,
4 clamping brackets,
4 screws and nuts M8
for attachment to the enclosure.

Packs of	Model No. SZ
1 set	**2584.000**

For CS wall-mounted enclosures

Supply includes:
4 clamping sections,
2 clamping straps,
4 clamping brackets.

Packs of	Model No. CS
1 set	**9765.125**

Wall mounting

B

7.5

Rittal Catalogue 31/System accessories

Enclosure connectors

adjustable
Between Command Panels, terminal boxes, compact enclosures
and
horizontal or vertical surfaces.
Pre-mount the connector halves on both sides, screw together and secure with a locking screw, and/or adjust the angle of rotation.

Rotation range:
±105° with 7.5° stepped increments.

Material:
Die-cast zinc, powder-coated

Colour:
RAL 7035

Supply includes:
Assembly parts for both sides.

Packs of	Model No. CP
1 set	**6016.200**

Note:
The locking screws may be exchanged for standard, commercially available clamping levers (M10 x 50 mm).

! Also required:

Cross-brace for door,
see page 895.
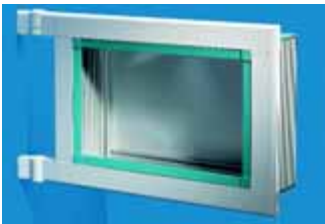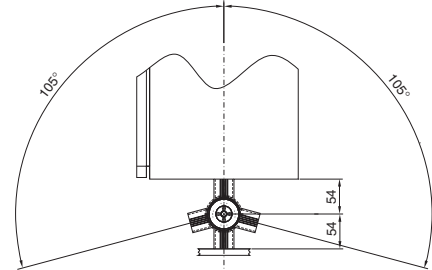
Frame connector

adjustable
Between the Command Panel VIP 6000 with wide front frame
and
horizontal or vertical surfaces.
Pre-mount the connector halves on both sides, screw together and secure with a locking screw, and/or adjust the angle of rotation.

Rotation range:
±105° with 7.5° stepped increments.

Material:
Die-cast zinc, powder-coated

Colour:
RAL 7035

Supply includes:
Assembly parts for both sides.

Packs of	Model No. CP
1 set	**6016.100**

Note:
The locking screws may be exchanged for standard, commercially available clamping levers (M10 x 50 mm).

! Also required:

Cross-brace for door,
see page 895.

Wall mounting

B
7.5
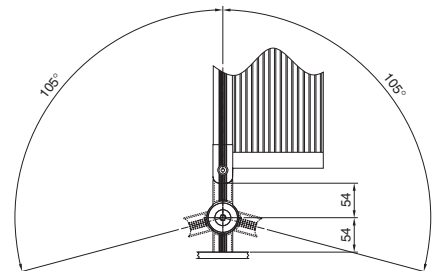
Roof/wall mounting

Wall mounting

Wall mounting bracket
vertically hinged
Between the Compact Panel
and
horizontal or vertical surfaces.

Rotation range:
180° adjustable on a 7.2° pitch pattern.

Material:
Wall mounting bracket: Sheet steel
Locking screw: Steel with plastic knurled handle

Supply includes:
Locking screw and assembly parts for mounting
on the Compact Panel.

Packs of	Model No. CP
1 set	**6341.000**

Console
for wall mounting, for RNC
With space for optimum cable routing in the wall
area.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts

For RNC enclosures 42 HP ($^1/_2$ 19″)		Model No. DK
Width mm	Depth mm	
342	280	**7870.700**

For RNC tower enclosures 84 HP (19″) vertical		Model No. DK
Width mm	Depth mm	
342	400	**7870.705**

Angle bracket
for RNC
With space for optimum cable routing in the wall
area.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts

For RNC enclosures 42 HP ($^1/_2$ 19″)		Packs of	Model No. DK
Width mm	Depth mm		
342	280	2	**7870.701**

For RNC tower enclosures 84 HP (19″) vertical		Packs of	Model No. DK
Width mm	Depth mm		
342	400	2	**7870.706**

Mounting plates

for KL
For component installation outside of the enclosure. Assembly screws included as accessories with the enclosure.

Material:
Sheet steel, 2 mm, zinc-plated, passivated

Accessories:
Self-tapping screws SZ 2487.000, see page 937.

Possible alternative:
Support rails, see page 927.

For size mm	For Model No. KL	Dimensions in mm			Model No. KL
		G1	F1	F2	
150 x 150	1500.510, 1514.510, 1521.010	135	125	–	**1560.700**
200 x 150	1528.510, 1529.510	185	125	–	**1575.700**
300 x 150	1501.510, 1515.510, 1522.010, 1530.510	285	125	–	**1561.700**
400 x 150	1589.510	385	125	–	**1576.700**
200 x 200	1502.510, 1516.510, 1523.010	185	175	50	**1562.700**
300 x 200	1503.510, 1517.510, 1524.010, 1531.510	285	175	50	**1563.700**
400 x 200	1504.510, 1518.510, 1525.010, 1532.510	385	175	50	**1564.700**
500 x 200	1505.510, 1533.510	485	175	50	**1565.700**
600 x 200	1506.510, 1519.510, 1534.510	585	175	50	**1566.700**
800 x 200	1527.510, 1542.510	785	175	50	**1574.700**
300 x 300	1507.510, 1526.010, 1535.510	285	275	50	**1567.700**
400 x 300	1508.510, 1536.510	385	275	50	**1568.700**
500 x 300	1509.510, 1537.510	485	275	50	**1569.700**
600 x 300	1510.510, 1538.510	585	275	50	**1570.700**
400 x 400	1511.510, 1539.510	385	375	62.5	**1571.700**
600 x 400	1512.510, 1540.510	585	375	62.5	**1572.700**
800 x 400	1513.510, 1541.510	785	375	62.5	**1573.700**

1 Attachment in the centre only for 125 mm wide plates

Mounting plate

for Premium KL
For installing at a distance from the rear panel.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Spacer bolts and assembly parts.

For KL enclosures	W (B) mm	H mm	Packs of	Model No. KL
1024.010 1024.020	100	100	1	**1024.910**
1024.030	250	150	1	**1024.920**
1024.040	350	250	1	**1024.930**

Mounting plate attachment
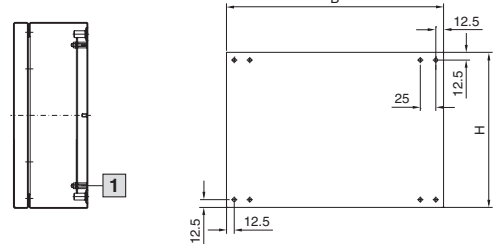
1 Spacer bolts M5 x 15

Mounting bracket

for Premium KL
For variable attachment of support rails on a 12.5 mm pitch pattern.

Material:
Stainless steel 1.4301

Supply includes:
Assembly parts.

For KL enclosures	L	N	Packs of	Model No. KL
1024.010 1024.020	85	6	2	**1024.810**
1024.030	135	10	2	**1024.820**
1024.040	235	18	2	**1024.830**
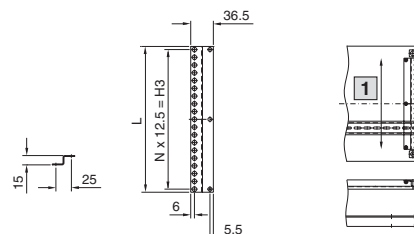
1 Variable to mounting bracket

N x 12.5 = H3

Mounting plates

B

7.6

Interior installation

Mounting plates

Mounting plate attachment

For additional clamping and to reduce potential vibration of the mounting plate. Select according to mounting position, installation type and enclosure.

Material:
Sheet steel, zinc plated, passivated

Supply includes:
Assembly parts.

For TS
Installation options:
● Side, at half height in conjunction with mounting plate infill
● In the penultimate position
● Set forward (supplied state)

Advantage:
No impairment to the mounting surface, but mounting is only possible from the enclosure rear.

Packs of	Model No. TS
10	**8800.630**

➕ **Accessories:**

Mounting plate infill,
see page 912.

For TS
Installation options:
● Side
● Rear, flush with enclosure frame

Advantage:
No impairment to the mounting surface, but mounting is only possible from the enclosure rear.

Packs of	Model No. TS
10	**8800.610**

For TS
Installation options:
● Side
● Rear, flush with enclosure frame
● Set forward on a 25 mm pitch pattern

Advantage:
No impairment to the mounting surface.
May optionally used for attachment or screw fastening.

Packs of	Model No. TS
10	**8800.090**

⚠️ **Also required:**

Punched section with mounting flange
17 x 73 mm for the inner mounting level,
see page 921 (with Fig. 3).
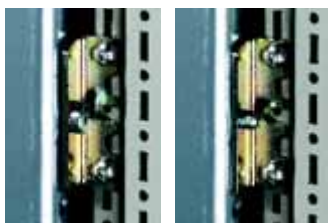
1 Mounting plate screw-fastened in the rearmost installation position.

2 Mounting plate screw-fastened from the rear in the rearmost installation position.

3 Mounting plate in a set forward position, either attached or screw-fastened (not shown).

1   **2**

3
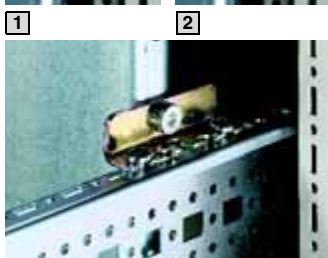
For TS
Installation options:
● Side
● Rear, flush with enclosure frame

Slide over the plate at the side and secure with screws. Additionally, the mounting plate may be drilled and screw-fastened at the rear C-edge.

Packs of	Model No. TS
10	**8800.050**

Mounting plates

B
7.6

Mounting plate attachment

For additional clamping and to reduce potential vibration of the mounting plate. Select according to mounting position, installation type and enclosure.

Material:
Sheet steel, zinc plated, passivated

Supply includes:
Assembly parts.

For TS, ES
Installation options:
● All-round
● Set forward on a 25 mm pitch pattern

Slide in between the bar and plate from below or above or from the side, and secure with screws.

Packs of	Model No. TS
10	**4593.000**

! Also required:

Support strip (with TS for inner level),
see page 924 or
punched section with mounting flange
(with TS for inner level),
illustration see page 921 or
punched rails and punched sections,
see page 925.

For TS, ES
Installation options:
● On the top and bottom of the mounting plate (with ES all-round)
● Rear, flush with enclosure frame

Screw in the clip behind the plate and secure with screws.

Packs of	Model No. TS
10	**4576.000**

Installation kit

For mounting plates TS, back-to-back
Thanks to a minimum distance between the two mounting plates, a maximum installation depth is achieved for installed equipment on both sides.

Material:
Sheet steel, zinc-plated, passivated

Note:
Build height front and rear
with central installation =
(enclosure depth minus 48 mm) : 2
Example:
TS 8806.521 = Depth 600 mm
Build depth = 2 x 276 mm

Packs of	Model No. TS
1 set	**8800.280**

✎ Rittal service:

Enclosures with 2 mounting plates (mounted in the centre unless otherwise specified) and door(s) on both sides may be ordered as complete units.
Model No.: TS 8xxx.521

Hinge attachment

for mounting plate TS, ES

In enclosures with width 600 and 800 mm.
Hinge pin with adjusting screws
– May be unlatched by hand for installation/removal
– Secured via a screw

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.
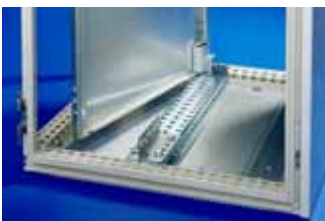
Packs of	Model No. TS
1 set	**8800.810**

! Also required:

Two PS support rails according to the enclosure width, see page 927.

Mounting plates

B

7.6

Interior installation

Mounting plates

Mounting plate infill

for TS

For a continuous mounting surface in bayed suites where the mounting plate is set forward.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure height mm	Model No. TS
1800	**4590.700**
2000	**4591.700**
2200	**4592.700**

Mounting plate adjustment bracket

for KS

Infinitely adjustable.
Other equipment can also be installed in this way, instead of the mounting plate.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

B Enclosure width:
  – 76 mm (KS 1481.000)
  – 104 mm (KS 1491.000)

H Enclosure height:
  – 150 mm

For enclosures KS	Packs of	Model No. KS
1423.600, 1432.600 1434.600, 1444.600 1446.600, 1448.600 1449.600, 1466.600 1467.600	4	**1481.000**
1453.600, 1454.600 1468.600, 1469.600 1479.600, 1480.600 1400.600	4	**1491.000**

M8 x 15
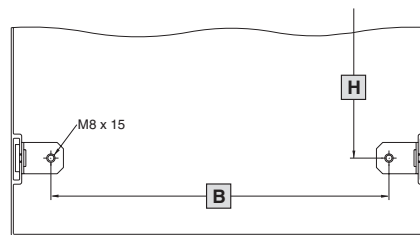
B = Width

Cross-brace for mounting plates

for TS, CL, ES

Additional horizontal rigidity for vibration resistance and/or stabilisation of wide mounting plates. This brace may also be used as an attachment aid for heavy components.

Material:
Sheet steel, zinc plated, passivated

Supply includes:
2 sections,
4 clamps,
4 grub screws M10 x 16 mm.

For enclosure width mm	Model No. TS
1200	**4333.120**
1600	**4333.160**
1800	**4333.180**

Other widths available on request.

Transport handles for mounting plates

for TS, CL, ES

Suitable for use in any position of the side C-fold.
Benefits include:
● Can be used by people of different heights
● Optimised force transmission
● Easy handling

Packs of	Model No. SZ
2	**2415.500**

Mounting plates

B

7.6

Partial mounting plates

for TS, CL, CS Toptec

For
- Universal interior installation, also in conjunction with punched sections with mounting flanges and support strips. Defective assemblies are quickly and easily replaced
- Additional mounting levels

Partial mounting plates are fastened directly onto the vertical enclosure sections with the inner mounting level using the assembly parts supplied loose. In this mounting position (in both the width and the depth) they form one level with TS punched sections with mounting flanges 17 x 73 mm and TS support strips for the inner mounting level.

Material:
Sheet steel, 2.5 mm, zinc-plated, passivated

Supply includes:
Assembly parts.

✚ **Accessories:**

TS punched section with mounting flange 17 x 73 mm for the outer mounting level, see page 921.
TS support strip, see page 924.
Hinge attachment, see page 914.
Self-tapping screws, SZ 2487.000, see page 937.
Adaptor for CS Toptec, width 650 mm, see page 916.

For installation in									Size mm	Packs of	Model No. TS
Enclosure width mm					Enclosure depth (side) mm						
400	600	800	1000	1200	400	500	600	800			
■	■				■		■		500 x 300	1	**8614.640**[2]
	■					■	■		500 x 400	1	**8614.650**[2]
	■						■		500 x 500	1	**8614.660**[2]
	■						■	■	500 x 700	1	**8614.680**[2]
	■						■		500 x 775	1	**8614.675**[1][2]
■		■			■			■	700 x 300	1	**8614.840**
		■				■		■	700 x 400	1	**8614.850**
		■						■	700 x 700	1	**8614.880**
■			■		■				900 x 300	1	**8614.040**
			■			■			900 x 400	1	**8614.050**
	■						■		900 x 500	1	**8614.060**[2]
■			■		■				1100 x 300	1	**8614.240**
			■			■			1100 x 400	1	**8614.250**
	■		■				■		1100 x 500	1	**8614.260**[2]

[1] Also suitable for installing in
- PC enclosures based on TS behind the lower front door
- IW enclosures, height 900 and 1000 mm

[2] In conjunction with adaptor CS 9765.195 may also be installed in 650 mm wide/deep CS Toptec, see page 916.
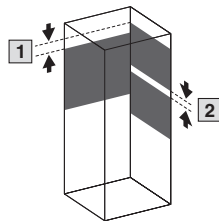
When **installing around corners** due to collision between the assembly components

1 At least 75 mm (adjustable on a 25 mm pitch pattern).

Maximum space utilisation

2 1 mm (adjustable on a 25 mm pitch pattern).

Set forward installation position
Quickly and easily achieved wtih four TS punched sections with mounting flanges 17 x 73 mm for the outer mounting level, see page 921.
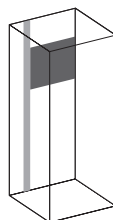
Partial installation
Partial utilisation of the enclosure depth or width is also possible. In this example, using a PS punched section without mounting flange 23 x 73 mm, see page 925.
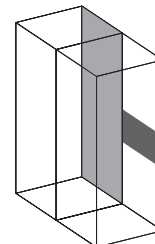
Continuously flush
In bayed enclosures, the partial mounting plate is in the rearmost position flush with the standard mounting plate. This facilitates continuous component mounting.

Mounting plates

B
7.6

Interior installation

Mounting plates

Hinge attachment
for partial mounting plate TS

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
1 set	**8614.100**

! Also required:

Depending on the installation position
1 Divider kit for swing frame, small,
for enclosure width
600 mm, Model No. SR 2377.860,
800 mm, Model No. SR 2377.880,
see page 994.
2 PS punched section without mounting flange
23 x 73 mm according to the enclosure depth,
see page 925.
Support brackets TS 8800.330,
see page 933.

Side installation:
In conjunction with hinge, for side panel,
see page 854, for an enclosure depth of
600 or 800 mm, side installation is identical to
installation parallel to the front.

Examples

In the highest or lowest position

Front   Set back
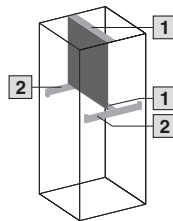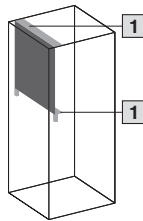
In a central position

Front   Set back
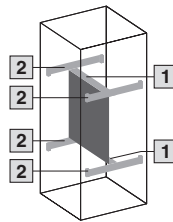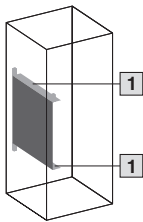
Side installation
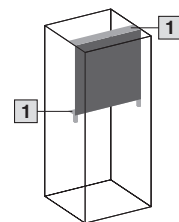
Partial mounting plates
for ES, CS Basic and modular enclosures
For additional mounting levels.

Material:
Sheet steel 2.5 mm, zinc-plated

Supply includes:
Assembly parts.

For enclosure width mm	Width x height mm	Packs of	Model No. PS
600	492 x 173	2	**4130.700**
600	492 x 373	2	**4131.700**
600	492 x 573	2	**4132.700**
800	692 x 173	2	**4135.700**
800	692 x 373	2	**4136.700**
800	692 x 573	2	**4137.700**
1200	1092 x 373	2	**4141.700**
1200	1092 x 573	2	**4142.700**

+ Accessories:

Self-tapping screws, SZ 2487.000,
see page 937.

Mounting plates

B

7.6
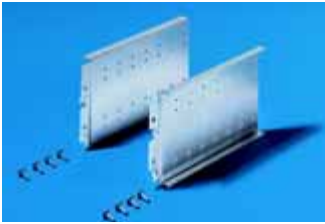
Support rail, locatable

for TS, CM, CL, PC-TS
To fit:
- Internal mounting behind the mounting compartment, small, of the PC enclosure,
- Mounting on the vertical TS enclosure section,
- Mounting in CM, CL on a rail for internal installation.

Integral 25 mm pitch pattern of holes
To accommodate:
– Mounting plate, small
– PS punched section without mounting flange via support brackets PS
as a second mounting level if due to an installed:
– Mounting plate infill
– Cable duct, vertical
no punched sections or other assemblies can be mounted in the depth.

Static load: max. 15 kg

Material:
Sheet steel, 2.0 mm,
Zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. TS
1 set	**8612.200**

Accessories:

PS punched section without mounting flange, see page 925.
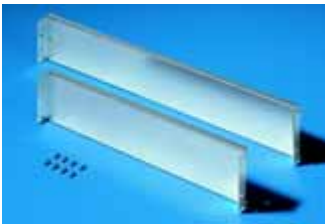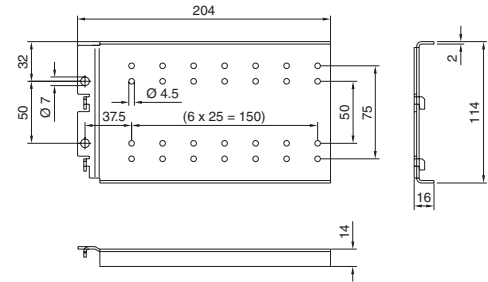
Mounting plate, small

For external mounting on:
- Support rail TS, locatable, depth-adjustable on a 25 mm pitch pattern,
- Punched sections with mounting flanges, attached to the outer mounting level.

Material:
Sheet steel, 1.5 mm,
Zinc-plated, passivated

Supply includes:
Assembly parts.

Enclosure width mm	Packs of	Model No. TS
600	1	**8612.600**
800	1	**8612.800**

Accessories:

TS punched section with mounting flange, see page 921.
Self-tapping screws, SZ 2487.000, see page 937.
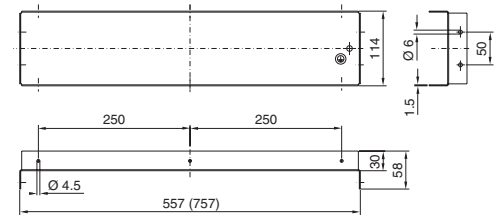
Mounting plate

for RNC, RiCase
Slotted, for the attachment of cables or small equipment.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

W x H mm	Model No. DK
178 x 178	**7870.740**

Mounting plates

B
7.6

Interior installation

Mounting plates

Mounting plate
for compact enclosures, Outdoor
In two versions:
- Sheet steel, 3 mm, zinc-plated
  – for contacted (EMC) assemblies
  – including assembly screws
- MDF, 15 mm
  – for insulated assembly
  – including 2 mounting brackets and assembly screws

For compact enclosures, Outdoor	Model No.	
	Sheet steel	MDF
1620.000, 1620.100	**1616.200**	**1616.230**
1621.000, 1621.100	**1616.210**	
1622.000, 1622.100	**1616.220**	**1616.240**

Mounting plates
for CS Toptec, Basic and modular enclosures
For the configuration of mounting levels.
The mounting plates are depth-adjustable on a 25 mm pitch pattern.

Material:
Aluminium, 3 mm

Supply includes:
Assembly parts.

Note:
For an enclosure depth of 1200 mm partial installation with one or two 600 mm wide mounting plates is possible.
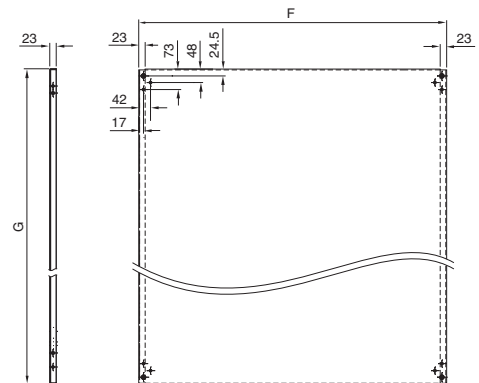
For enclosure		F	G	Model No. CS
Width mm	Height mm			
600	800	499	696	**9765.090**
600	1000	499	896	**9765.091[1]**
600	1200	499	1096	**9765.092**
600	1400	499	1296	**9765.098**
600	1600	499	1496	**9765.093**
650	1200	549	1096	**9765.193**
650	1600	549	1496	**9765.194**
800	800	699	696	**9765.097**
800	1000	699	896	**9765.094[1]**
800	1200	699	1096	**9765.095**
800	1400	699	1296	**9765.099**
800	1600	699	1496	**9765.096**
1200	800	1099	696	**9765.190[1]**
1200	1200	1099	1096	**9765.191**
1200	1400	1099	1296	**9765.192**

[1] Delivery times available on request.

Adaptor
for the attachment of partial mounting plates
In CS Toptec, width or depth 650 mm.

Packs of	Model No. CS
4	**9765.195**

Self-tapping screws
Order information may be found on page 937.

Overview of TS installation systems

Clearance width
Depending on attachment, the following values apply to the clearance between the mounting levels:
- Outer mounting level =
  Enclosure width and depth minus 42 mm
- Inner mounting level =
  Enclosure width and depth minus 88 mm
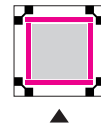
External level   Internal level   External and internal level   PS-compatible installation

Cover installation
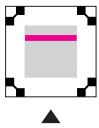
Installation with:
- PS punched section with mounting flange
- PS punched section without mounting flange
- PS punched rail in three mounting variants
- TS punched rails
- TS punched sections without mounting flanges
- TS punched sections with mounting flanges
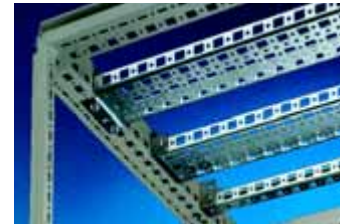
TS 8 rails
for the outer level

- TS punched sections with mounting flanges
- TS mounting bar
- TS punched rail

Benefits:
- Largest clearance width
- May be installed directly, on one level all round

TS 8 rails, PS rail
for the inner level
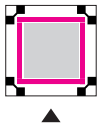
- TS punched sections with mounting flanges
- TS mounting bar
- PS punched section without mounting flange, with support bracket TS

Benefits:
- Use of a second level
- Height-offset mounting all-round

With adaptor rail
for PS compatibility
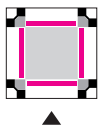
On one level all round with:
- PS punched section without mounting flange, with support bracket PS
- PS punched rail with angle bracket, mounting bracket or support bracket PS

With adaptor rail
for PS compatibility
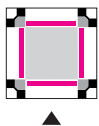
Height-offset in the width and depth with:
- PS punched section with mounting flange
- PS punched rail with mounting bracket
- TS punched rail

Base installation
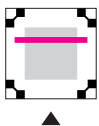
Installation with:
- Cable clamp rails
- C rails 30/15 with bracket/spacer
- System support rails
- Support rail
- TS punched rails

Rail systems

B

7.6
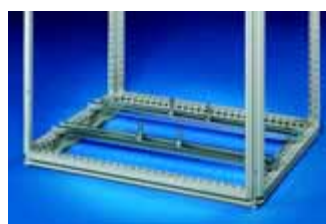
Interior installation
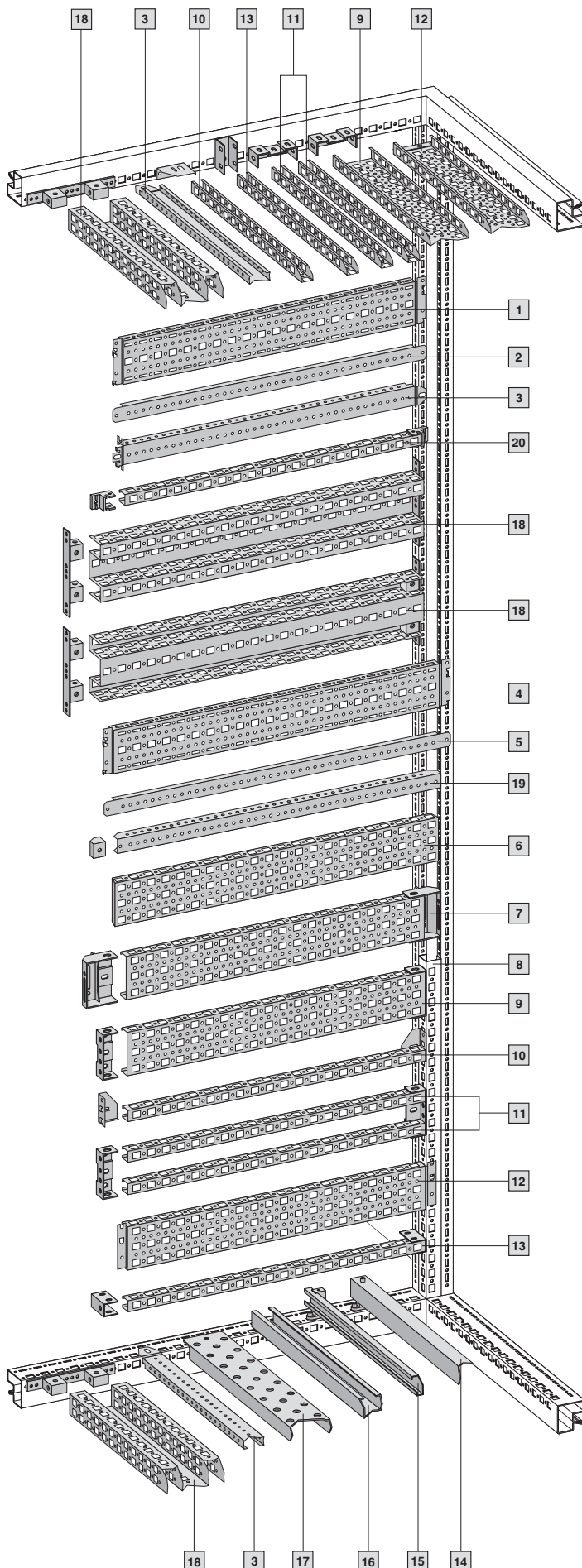
Rail systems

Cover installation

Punched sections and rails may be mounted on the horizontal enclosure sections in both the width and depth.

Installation accessories	Page
1 TS punched section with mounting flange, 17 x 73 mm for the outer level	921
2 TS support strip for the outer level	924
3 TS punched rail 18 x 38 mm[1] for the ● outer level ● horizontal enclosure sections ● adaptor rail for PS compatibility	923
4 TS punched section with mounting flange, 17 x 73 mm for the inner level	921
5 TS support strip for the inner level	924
6 TS punched section with mounting flange, 23 x 73 mm for the inner level	922
7 PS punched section without mounting flange 23 x 73 mm with support bracket TS (alternatively with one or two punched rails 23 x 23 mm)	925
8 Adaptor rail for PS compatibility	924
9 PS punched section without mounting flange, 23 x 73 mm with support bracket PS	925
10 PS punched rail 23 x 23 mm with angle bracket	925
11 PS punched rails 23 x 23 mm with support bracket PS (alternatively with one or two punched rails 23 x 23 mm)	925
12 PS punched section with mounting flange 23 x 73 mm	926
13 PS punched rail 23 x 23 mm with mounting bracket PS	925
14 Cable clamp rail	979
15 C rails 30/15 with support bracket or spacer	928
16 System support rails	926
17 Support rail	927
18 TS punched sections without mounting flanges, 45 x 88 mm	922
19 TS punched rail 25 x 38 mm with snap-on nut	923
20 PS punched rail 23 x 23 mm with mounting bracket TS	925

[1] Two TS punched rails 18 x 38 mm are included in the supply of enclosures with a mounting plate. After installing the mounting plate, the TS punched rail may be inserted, as shown here.

Base installation

Punched sections and rails may be mounted on the horizontal enclosure sections in both the width and depth.

Rail systems

B

7.6

Attachment may be made at any point in the TS 8 enclosure space. Not only with horizontal rail installations directly between the TS sections, but by combining vertical and horizontal rails, any given mounting level in the width, height and depth may be achieved.
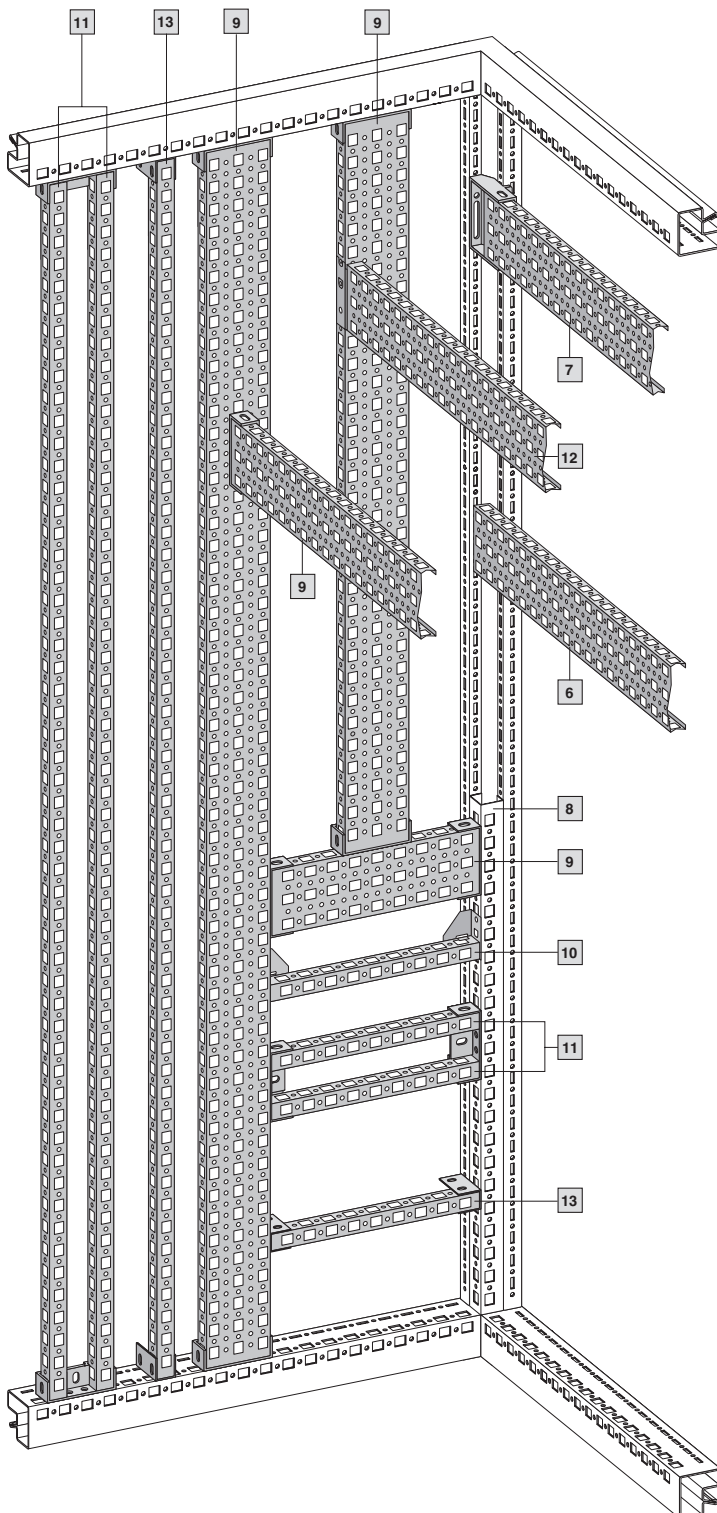
Vertical mounting levels – PS-compatible
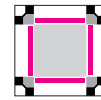
The basis for a second mounting level across the entire enclosure height is quickly achieved, e.g. with two PS punched sections without mounting flanges 23 x 73 mm **9.** Between these two sections, configuration may be achieved with PS punched rails **10, 11** and **13,** with PS punched sections without mounting flanges **9** and PS punched sections with mounting flanges **12.** When using the adaptor rail for PS compatibility **8,** installation is easily achieved across a suitable sub-height, or with suitable enclosure dimensions, across a sub-width or sub-depth.

Installation accessories (Consecutive numbering in accordance with diagram on page 918)	Page
6 TS punched section with mounting flange, 23 x 73 mm for the inner level	921
7 PS punched section without mounting flange, 23 x 73 mm with support bracket TS (alternatively with one or two punched rails 23 x 23 mm)	925
8 Adaptor rail for PS compatibility	924
9 PS punched section without mounting flange, 23 x 73 mm with support bracket PS	925
10 PS punched rail 23 x 23 mm with angle bracket	925
11 PS punched rails 23 x 23 mm with support bracket PS (alternatively with one or two punched rails 23 x 23 mm)	925
12 PS punched section with mounting flange 23 x 73 mm	926
13 PS punched rail 23 x 23 mm with mounting bracket PS	925

If PS punched rails or PS punched sections without mounting flanges are installed vertically on roof or base frames, a PS rail is also required for horizontal sub-division.

Rail systems

B

7.6

Interior installation

Rail systems
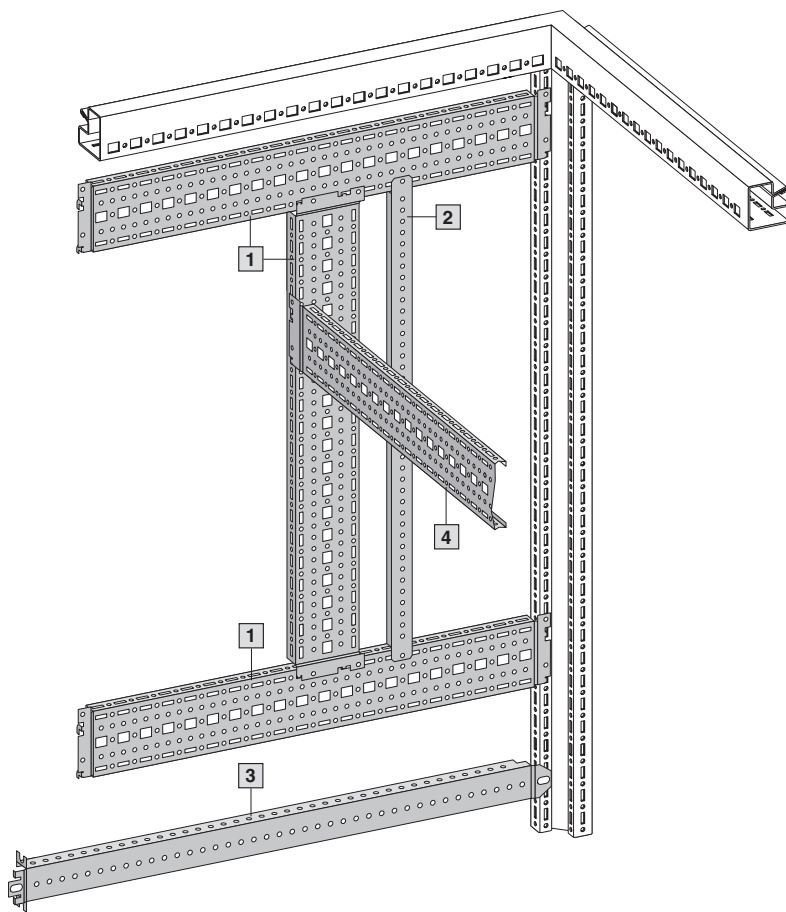
Vertical outer mounting level

Optimum space utilisation and super-fast assembly by mounting the TS punched section with mounting flange directly onto the outer level of the TS 8 vertical section. Simply snap into position and secure!

Installation accessories (Consecutive numbering in accordance with diagram on page 918)	Page
1 TS punched section with mounting flange, 17 x 73 mm for the outer level	921
2 TS support strip for the outer level	924
3 TS punched rail 18 x 38 mm[1] for the ● outer level ● horizontal enclosure sections ● adaptor rail for PS compatibility	923
4 TS punched section with mounting flange, 17 x 73 mm for the inner level	921

[1] Two TS punched rails 18 x 38 mm are included in the supply of enclosures with a mounting plate. After installing the mounting plate, the TS punched rail may be inserted, as shown here.

German patent no. 196 47 802
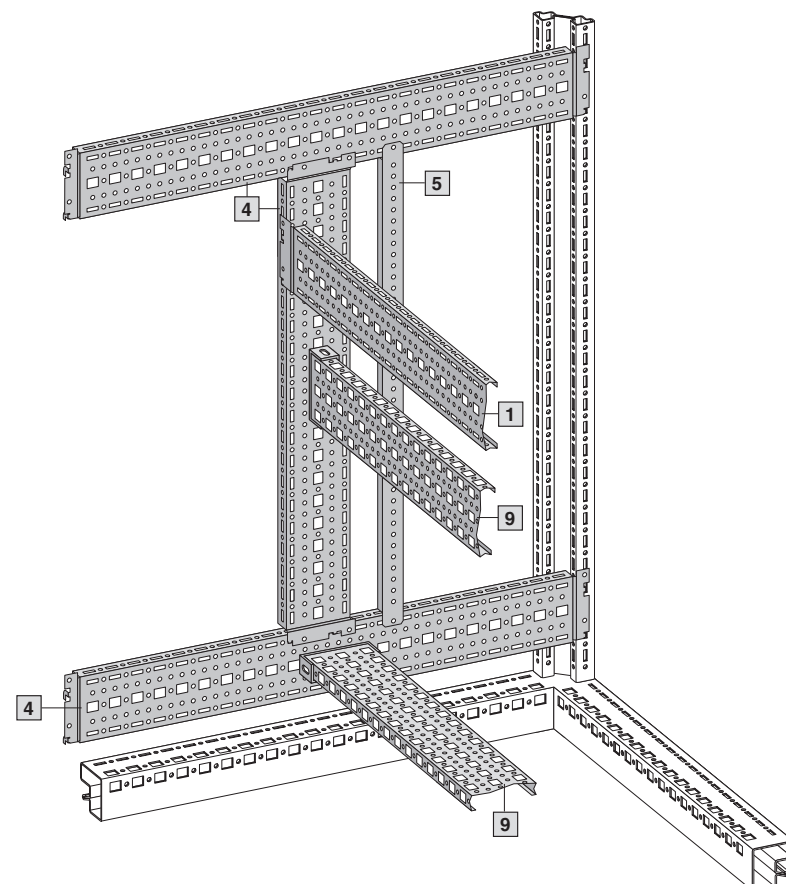
Vertical inner mounting level
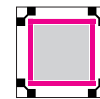
Separate utilisation of the inner level of the TS 8 vertical section, irrespective of the outer level, creates additional opportunities. Even in one enclosure, all installation systems may complement one another perfectly for brand new, customer-specific solutions. Endless possibilities! Simply snap into position, secure, and voila! Super-fast assembly by mounting the TS punched section with mounting flange directly onto the inner level of the TS 8 vertical section.

Installation accessories (Consecutive numbering in accordance with diagram on page 918)	Page
1 TS punched section with mounting flange, 17 x 73 mm for the outer level	921
4 TS punched section with mounting flange, 17 x 23 mm for the inner level	921
5 TS support strip for the inner level	924
9 Punched section without mounting flange, 23 x 73 mm with support bracket PS	925

German patent no. 196 47 802

Rail systems

B

7.6
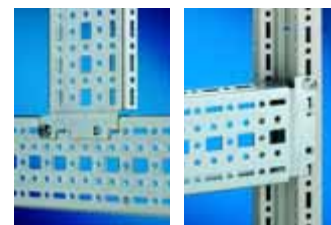
TS punched section with mounting flange, 17 x 73 mm

Variable, with 5 rows of holes for universal skeleton structures or partial assembly. Simply locate into the TS punchings and secure.

Installation options:
- On the vertical TS enclosure section
  - On the outer mounting level, all-round, at the same height
  - On the inner mounting level, all-round, height-offset
- In CM, CL via rail for interior installation
  - In the depth, for outer mounting level
  - In the width, for innner mounting level

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

German patent no. 196 47 802

⚠ Also required:

For installation in CM, CL:
Rail for interior installation,
see page 133.

✚ Accessories:

Screws,
see page 937.
Cable tie for quick assembly SZ 2597.000,
see page 982.
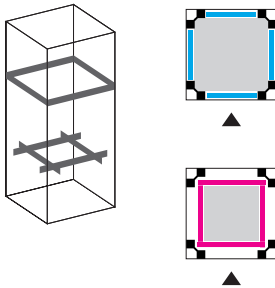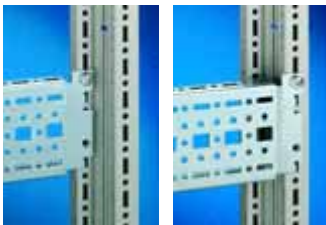
For the outer mounting level[1)]

For enclosure width/depth mm	Packs of	Model No. TS
300	4	**8612.130**
400	4	**8612.140**
500	4	**8612.150**
600	4	**8612.160**
650	4	**8612.165**
800	4	**8612.180**
1000	4	**8612.100**
1200	4	**8612.120**

[1)] Note:
In conjunction with plug-in side panels, notched punched sections are required.

For the inner mounting level

For enclosure width/depth mm	Packs of	Model No. TS
400	4	**8612.040**
500	4	**8612.050**
600	4	**8612.060**
650	4	**8612.065**
800	4	**8612.080**
900	4	**8612.090**
1000	4	**8612.000**
1200	4	**8612.020**

TS punched section with mounting flange, 17 x 73 mm

Notched version
For enclosures with plug-in side panels.
Variable, with 5 rows of holes for universal skeleton structures or partial assembly. Simply locate into the TS punchings and secure.

Installation options:
- On the vertical TS enclosure section
  - On the outer mounting level, all-round, at the same height

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

For the outer mounting level; Notched version

For enclosure width/depth mm	Packs of	Model No. TS
600	4	**7828.064**
800	4	**7828.084**
900	4	**7828.094**
1000	4	**7828.104**

✚ Accessories:

Screws, see page 937.
Cable tie for quick assembly SZ 2597.000,
see page 982.

German patent no. 196 47 802

TS punched section with mounting flange, 17 x 73 mm

depth-variable for mounting frames for DK-TS, FR(i), TE
For designing flexible interior installation, and/or to accommodate additional built-in components. The punched sections with mounting flanges may be located in the enclosure depth between two mounting frames. An additional screw fastening secures the unit.
The depth variability of the rails facilitates flexible adaptation of their length to the existing attachment distance between the two 482.6 mm (19″) mounting frames. An additional punched section centre piece may be slid flexibly along the rail in the depth and secured to slots. This facilitates flexible attachment at any point between the mounting frames in the enclosure depth.

19″ distance between levels mm	Packs of	Model No. TE
420 – 590	2	**7000.676**
650 – 820	2	**7000.678**

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
2 variable punched sections with mounting flanges,
including one sliding centre part each,
including assembly parts.

Rail systems

B

7.6

Interior installation

Rail systems
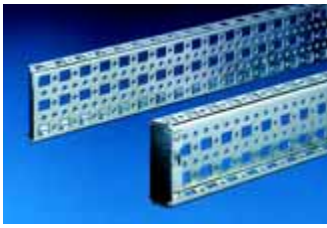
TS punched section with mounting flange, 23 x 73 mm

The alternative to the TS punched section with mounting flange 17 x 73 mm, see page 921, with punchings for captive nuts/threaded blocks instead of the slotted holes top and bottom. Simply locate and secure.

Installation options:
● On the vertical TS enclosure section

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.
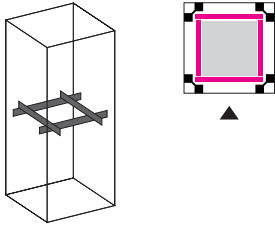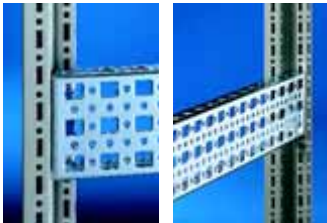
For the inner mounting level

For enclosure width/depth mm	Packs of	Model No. TS
500	4	**8612.550**
600	4	**8612.560**
800	4	**8612.580**
900	4	**8612.590**
1000	4	**8612.500**
1200	4	**8612.520**

➕ **Accessories:**

Screws,
see page 937.
Threaded blocks, captive nuts,
see page 936.

TS punched section without mounting flange, 45 x 88 mm

Heavy top-mounted equipment mounted directly on the internal surfaces (e.g. roof) is supported. Mounted on the side or rear, the enclosure can then be screw-fastened securely to the machine. The twin profile with 11 rows of holes offers numerous additional opportunities for interior installation.

Installation options:
● On the vertical and horizontal TS enclosure section

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
Assembly parts.
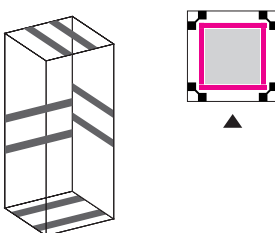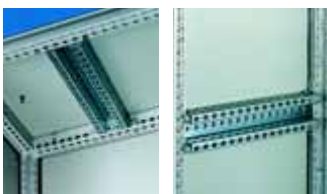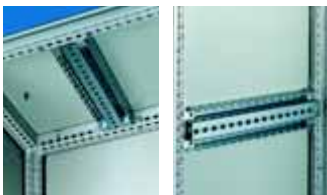
For enclosure width/depth mm	Packs of	Model No. TS
500	2	**8612.650**
600	2	**8612.660**
800	2	**8612.680**

Side punchings
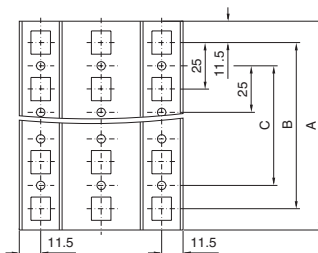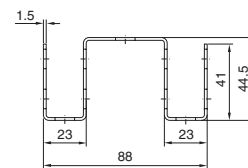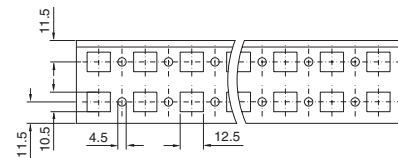
For enclosure width/depth mm	A	B	C
500	398	375	350
600	498	475	450
800	698	675	650

Rail systems

B

7.6

TS punched rail 25 x 38 mm

For heavy installations, with attachment holes.

Installation options:
- On the vertical TS enclosure section

With 9 mm round holes all round on a 25 mm pitch pattern, for the configuration of:
- Support rails, see page 927
- System support rails, see page 926
- C rails 30/15, see page 928
- Cable clamp rails (right angle section), see page 979
- Own assemblies

Material:
Sheet steel 3.0 mm, zinc-plated, passivated

Supply includes:
Assembly screws.
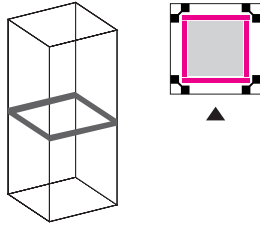
For enclosure width/depth mm	Packs of	Model No. TS
400	2	**8612.740**
500	2	**8612.750**
600	2	**8612.760**
800	2	**8612.780**

⚠ Also required:

Snap-on nut M8, TS 8800.808, see page 931.

Note:
In conjunction with the snap-on nut, particularly well-suited for dynamic connections.

TS punched rail 18 x 38 mm

Simply locate and secure with a screw. The location system makes assembly and dismantling easier. It only needs to be secured on one side, but may be secured on both sides if required.

Installation options:
- On the vertical TS enclosure section
  – On the outer mounting level
- On the horizontal TS enclosure section

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

Note:
In enclosures with a mounting plate, 2 punched rails are already included with the supply.
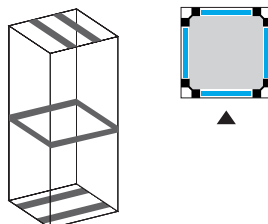
For enclosure width/depth mm	Packs of	Model No. TS
400	4	**8612.240**
500	4	**8612.250**
600	4	**8612.260**
800	4	**8612.280**

German patent no. 197 37 673
European patent no. 0 940 067
with validity for FR, GB, IT, SE
US patent no. 6,145,943
Chinese patent no. ZL 971 995 32.X
Australian patent no. 725 979

➕ Accessories:

Screws, see page 937.
Cable tie for quick assembly SZ 2597.000, see page 982.
Cable clamps, see page 981.

Rail systems

B
7.6

Interior installation

Rail systems

TS support strips

Installation options:
- On the vertical and horizontal TS enclosure section
  - On the outer mounting level, all-round, at the same height
  - On the inner mounting level, all-round, height-offset
- On the tubular door frame TS, CL, ES
- On the perforated door strip CM
- On the ES system punchings, in the enclosure depth

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

For the outer mounting level

For enclosure width/depth mm	Length mm	Packs of	Model No. TS
400	340	20	**4694.000**
500	440	20	**4695.000**
600	540	20	**4696.000**
800	740	20	**4697.000**

⊞ Accessories:

Screws,
see page 937.
Cable tie for quick assembly SZ 2597.000,
see page 982.
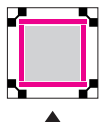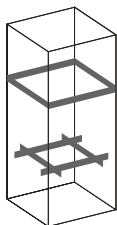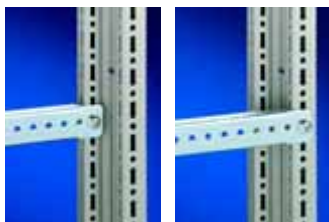
For the inner mounting level and for mounting on doors

For enclosure width/depth mm	For door width mm	Length mm	Packs of	Model No. TS
–	400	290	20	**4594.000**
400	500	390	20	**4309.000**
500	600	490	20	**4596.000**
600	–	590	20	**8800.130**
–	800	690	20	**4598.000**
800	900	790	20	**4579.000**
–	1000	890	20	**4599.000**
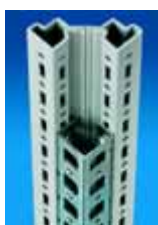
Adaptor rail

for PS compatibility
Installation in the vertical TS enclosure sections (across the entire enclosure height or in sub-sections) to create compatibility with:
- PS punched rail 23 x 23 mm
- Punched section without mounting flange, 23 x 73 mm
- PS punched section with mounting flange, 23 x 73 mm

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

**German patent no. 19 647 781
European patent no. 0 939 990
with validity for FR, GB, IT, SE
US patent no. 6,206,494
Australian patent no. 727 880
Chinese patent no. ZL 971 997 31.4**

For enclosure height mm	Packs of	Model No. TS
1800	4	**8800.380**
2000	4	**8800.300**
2200	4	**8800.320**

⊞ Accessories:

Screws,
see page 937.

⇄ Possible alternative:

Snap-on nut,
see page 931.
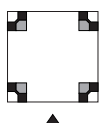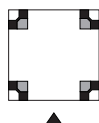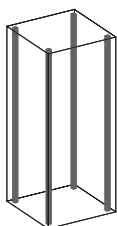
TS assembly block

Installation in the vertical TS enclosure sections for mounting PS-compatible individual components.

Material:
Die-cast zinc

Supply includes:
Assembly screws.

Packs of	Model No. TS
4	**8800.310**

⇄ Possible alternative:

Snap-on nut,
see page 931.

Rail systems

B

7.6

TS punched rails 23 x 23 mm

Installation options:
- On the vertical enclosure section
  - Directly via support brackets TS
  - Via adaptor rail for PS compatibility in con-junction with angle brackets, mounting brackets or support brackets PS
- On the horizontal enclosure section
  - Directly via angle brackets, mounting brackets or support brackets PS

Material:
Sheet steel, zinc-plated, passivated
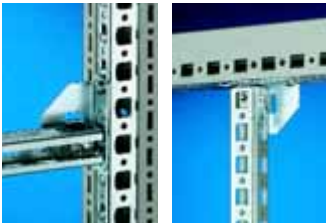
Length mm	For WHD mm	Packs of	Model No. PS
295	400	12	**4169.000**
395	500	12	**4170.000**
495	600	12	**4171.000**
695	800	12	**4172.000**
895	1000	12	**4173.000**
1095	1200	6	**4174.000**
1295	1400	6	**4393.000**
1495	1600	6	**4175.000**
1695	1800	6	**4176.000**
1895	2000	6	**4177.000**
2095	2200	6	**4178.000**

Also required:

U nuts,
see page 936.
Mounting brackets TS/PS,
see page 932
or
Angle brackets, support brackets TS/PS,
see page 933.

Accessories:

Cable attachment,
see page 982.
Screws,
see page 937.
Cable tie for quick assembly SZ 2597.000,
see page 982.

PS punched section without mounting flange, 23 x 73 mm

Installation options:
- On the vertical enclosure section
  - Directly via support brackets TS
  - Via adaptor rail for PS compatibility in conjunction with support brackets PS
- On the horizontal enclosure section
  - Directly via support brackets PS

Material:
Sheet steel, zinc-plated, passivated

Length mm	For WHD mm	Packs of	Model No. PS
295	400	4	**4374.000**
395	500	4	**4375.000**
495	600	4	**4376.000**
695	800	4	**4377.000**
895	1000	4	**4382.000**
1095	1200	4	**4378.000**
1695	1800	4	**4379.000**
1895	2000	4	**4380.000**
2095	2200	4	**4381.000**

Also required:

Support brackets PS/TS,
see page 933.

Accessories:

Screws,
see page 937.
Cable tie for quick assembly SZ 2597.000,
see page 982.
U nuts,
see page 936.

Rail systems

B

7.6

Rail systems

PS punched section with mounting flange, 23 x 73 mm

Variable, with 5 rows of holes for universal skeleton structures or partial assembly. Simply locate into the system punchings and secure.

Installation options:
- On the vertical TS enclosure section
  – Via adaptor rail for PS compatibility
- On the horizontal TS enclosure section
- On the ES system punchings, in the enclosure depth

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

Installation in enclosure width/depth TS mm	Packs of	Model No. PS
400	4	8800.640
500	4	8800.650
600	4	4364.000
800	4	4365.000
1000	4	4373.000
1200	4	4367.000

Installation in enclosure depth ES, AP universal console, CS modular enclosures mm	Packs of	Model No. PS
400	4	4369.000
500	4	4370.000
600	4	4371.000
800	4	4372.000

! Also required:

Adaptor rail for PS compatibility
(when mounting on the vertical TS enclosure section), see page 924.
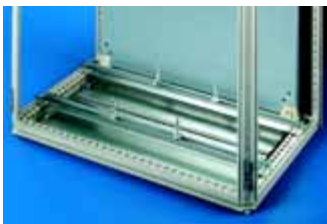
System support rails

For heavy installed equipment such as transformers. T-head screw and slot in the support rail for any mounting position.

Installation options:
- On the vertical TS enclosure section
  – Via snap-on nut TS 8800.808 (Fig. left)
  – Via adaptor rail for PS compatibility
  – Offset in the height, via TS punched rail 25 x 38 mm (Fig. right)
- On the horizontal TS enclosure section
  – In the width
  – In the depth (without mounting plate)
- On the ES system punchings, in the enclosure depth

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
2 system support rails (45 x 25 mm),
4 T-head screws M12 x 60 mm,
and assembly parts.
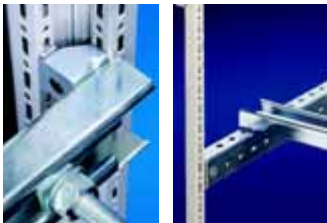
For enclosure width mm	Packs of	Model No. PS
600	2	4361.000
800	2	4362.000
1000	2	4347.000
1200	2	4363.000

⊞ Accessories:

Width divider e.g. for the installation of
2 system support rails (for 600 mm width) in
1200 mm wide enclosures,
see page 850.
Snap-on nut M8, TS 8800.808,
see page 931.
Adaptor rail,
see page 924.
TS punched rail 25 x 38 mm
see page 923.

Rail systems

B

7.6
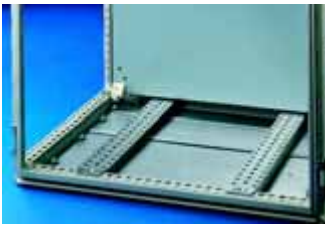
Support rails

For heavy installations, with attachment holes. Particularly suitable for the installation of base isolators.

Installation options:
- On the vertical TS enclosure section
  - Via snap-on nut TS 8800.808 (Fig. left)
  - Via adaptor rail for PS compatibility
  - Offset in the height, via TS punched rail 25 x 38 mm (Fig. right)
- On the horizontal TS enclosure section
  - In the width
  - In the depth
- On the ES system punchings, in the enclosure depth

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure width/depth mm	Packs of	Model No. PS
400	4	**4394.000**
500	4	**4395.000**
600	4	**4396.000**
800	4	**4398.000**

⊞ Accessories:

Snap-on nut M8, TS 8800.808, see page 931.
Adaptor rail, see page 924.
TS punched rail 25 x 38 mm see page 923.
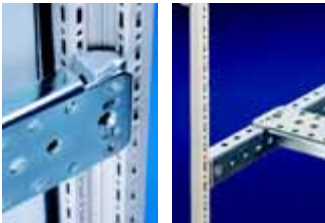
Support rails TS 35/15
to EN 50 022
for TS, ES

Mounting on the TS vertical section via snap-on nut M8, TS 8800.808, see page 931, assembly block see page 924 or adaptor rail, see page 924.

For enclosure width/depth mm	Support rails length mm	Packs of	Model No. PS
500	455	6	**4933.000**
600	555	6	**4934.000**
800	755	6	**4935.000**
1200	1155	6	**4937.000**

Support rails TS 35/7.5 and TS 35/15
to EN 50 022
for KL, AE

Length sized to the enclosure width

For enclosure width mm	Support rails length mm	Version	Packs of	Model No. SZ
150	137	TS 35/7.5	10	**2314.000**
200	187		10	**2315.000**
300	287		10	**2316.000**
400	387		10	**2317.000**
500	487	TS 35/15	10	**2318.000**
600	587		10	**2319.000**

Support rails
to EN 50 022
for AE

Fixed length 2 m

Version	Length	Packs of	Model No. SZ
TS 35/15	2 m	6	**2313.150**
TS 35/7.5	2 m	6	**2313.750**

Mounting clip
for support rails
For fast, secure attachment of:
- Cable trunking
- Mounting plates
- Mounting angles
on support rail TS 35/7.5 and TS 35/15 to EN 50 022.
Simply pre-assemble the mounting clip on the part to be installed, then snap into position on the support rail.

Packs of	Model No. SZ
30	**2309.000**

German patent no. 195 44 083
European patent no. 0 776 077
with validity for ES, FR, IT, SE

Rail systems

B

7.6

Interior installation
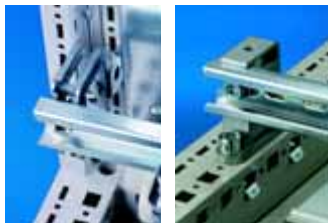
Rail systems

C rails 30/15

to EN 60 715
for TS, ES

Installation options:
- On the vertical TS enclosure section
  – Via snap-on nut TS 8800.808 (Fig. left)
  – Via adaptor rail for PS compatibility
- On the horizontal TS enclosure section
  (Fig. right)
- On the ES system punchings

Material:
Sheet steel, zinc-plated, passivated

For enclosure width/depth mm	Length mm	Packs of	Model No. PS
500	455	6	4943.000
600	555	6	4944.000
800	755	6	4945.000
1000	955	6	4946.000
1200	1155	6	4947.000

⊞ Accessories:

Cable clamps, see page 981.
Support bracket or spacer, see page 934.
Quick-assembly block, see page 934.
Snap-on nut M8, TS 8800.808, see page 931.
Adaptor rail, see page 924.

⇄ Possible alternative:

Rail for EMC shielding bracket and strain relief,
see page 957.

C rails

for DK-TS, CS Toptec
For direct mounting on the vertical enclosure
section.
Thanks to the universally designed attachment
piece, the C rails may optionally be attached to
the inner or outer level of the TS 8 frame.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure width/depth mm	Length mm	Packs of	Model No. DK
400	298	4	7828.040
500	398	4	7828.050
600	498	4	7828.060
650	548	4	7794.120
800	698	4	7828.080
900	798	4	7828.090
1000	898	4	7828.100

⊞ Accessories:
Cable clamps,
see page 981.

C rails

for TS, ES

Installation options:
- On the horizontal enclosure sections
- On the vertical TS enclosure section via
  adaptor rail for PS compatibility

Material:
Sheet steel, zinc-plated, passivated
Bracket: Die-cast zinc

Supply includes:
Assembly parts.

For enclosure width/depth mm	Length mm	Packs of	Model No. DK
400	290	6	7091.000
500	390	6	7092.000
600	490	6	7095.000
800	690	6	7096.000
1000	900	6	7100.000
1200	1100	6	7102.000

German patent no. 39 30 161
US patent no. 5,052,565
GB patent no. 2 236 374
French patent no. 2 651 954
Italian patent no. 0 124 3002

⚠ Also required:

Adaptor rail for PS compatibility
(when mounting on the vertical TS enclosure
section), see page 924.

⊞ Accessories:

Cable clamps,
see page 981.

Rail systems

B
7.6
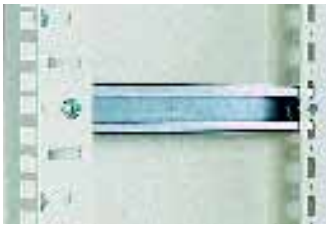
C rails

for EL
For infinite adjustment of the mounting angles in the depth.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For centre part depth mm	Packs of	Model No. EL
216	4	**2238.000**
316	4	**2239.000**
416	4	**2237.000**

German patent no. 39 30 161

⊞ **Accessories:**

Cable clamps,
see page 981.
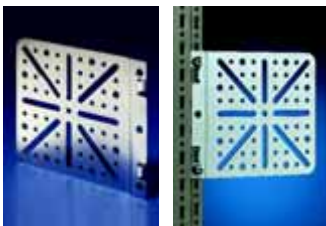
Mounting plates

Locatable
On the vertical TS enclosure section or
TS punched section with mounting flange
17 x 73 mm on the inner and outer mounting level.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

Packs of	Model No. TS
4	**8612.400**
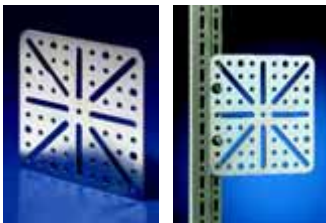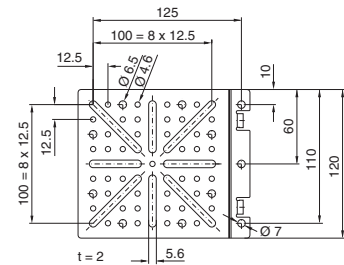
Mounting plates

Screw-fastened, large
On all enclosures and mounting parts with system punchings on a 25mm pitch pattern.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

Packs of	Model No. TS
4	**8612.410**
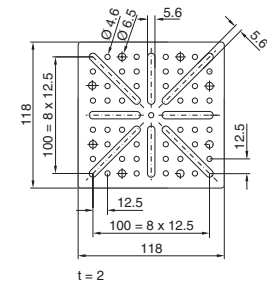
Mounting plates

Screw-fastened, small

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

Packs of	Model No. PS
4	**4532.000**

Rail systems

B

7.6
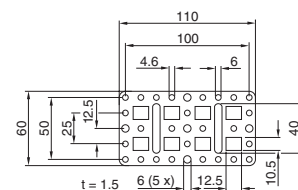
Interior installation

Rail systems

Mounting bracket

Screw-fastened on all enclosures and mounting parts with system punchings on a 25 mm pitch pattern.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly screws.

Packs of	Model No. PS
4	**4597.000**

✛ Accessories:

Screws,
see page 937.
Cable tie for quick assembly SZ 2597.000,
see page 982.
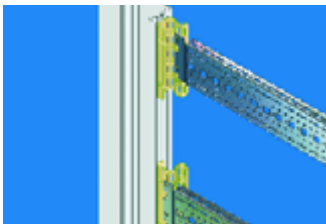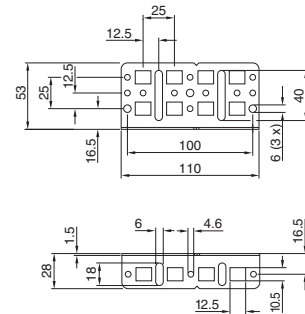
System adaptor

for FR(i)

By using the system adaptor, the principle of two TS 8 attachment levels within this enclosure system is easily achieved. This supports the integration of all rail systems which are attached to the outer enclosure level, and therefore offers a diverse choice of installation options. The inner attachment level may be emulated by simply rotating the system adaptor, and therefore creates the requirements for perfect cable management and completely flexible interior installation. Rail systems attached between the front and rear frame section must be 200 mm shorter than the external enclosure dimensions.

1 Installation position, outer level

2 Installation position, inner level
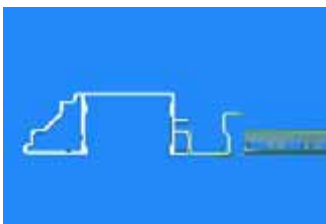
Packs of	Model No. FR(i)
8	**7856.760**

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Rail systems

B

7.6

Snap-on nut TS

Metric thread for vertical TS enclosure section.
To install, insert into slot and clip into position. The
snap-on nut is then secure. By tightening the
screw, it is securely tightened against the section,
and potential equalisation is automatically cre-
ated.

Installation options:
- On the vertical TS enclosure section
  - with metric thread M6 or M8
  - the alternative to metal screws
  - particularly well-suited for dynamically loaded
    connections.

Material:
Precision-cast stainless steel

Thread	Packs of	Model No. TS
M6	20	**8800.806**
M8	20	**8800.808**

German patent no. 101 49 599

➕ **Accessories:**

Allen screw M6 x 12 or M8 x 12,
see page 937.

1

2

3

4

5
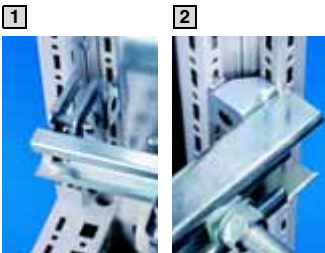
Accessories for interior installation

1 Support rails,
see page 927

2 Cable clamp rails,
see page 979

3 C rails 30/15,
see page 928

4 System support rails,
see page 926

5 TS punched rail 25 x 38 mm,
see page 923

Adaptor bracket TS

For external mounting of
- System lights
- Cable duct
on the vertical TS enclosure section.

Material:
Sheet steel, zinc plated, passivated

Supply includes:
Assembly screws.

Packs of	Model No. TS
6	**8800.360**

Assembly components

B

7.6

Interior installation

Assembly components

Mounting bracket TS

Offers variable mounting opportunities for the mounting angle 23 x 23 mm.
E.g. for supporting external surfaces or creating an additional internal level.

Material:
Die-cast zinc

Supply includes:
24 metal screws BZ 5.5 x 13 mm.

Packs of	Model No. TS
24	**8800.370**

Accessories:

U nuts for punched rails (recommended: M6), see page 936.

Installation options:
- On the vertical TS enclosure section
  – flush with the outer edge of the enclosure or
  – flush with the enclosure clearance width.
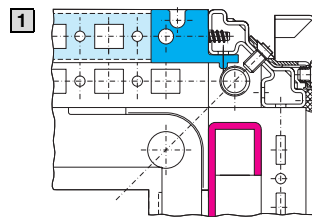
1 Support of the external surfaces with two mounting options:
- Without mounting plate (photo)
- With mounting plate (drawing)
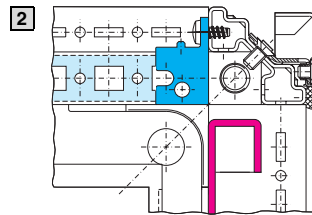
Two installation options for the inner mounting level:

2 If there is no divider panel fitted.
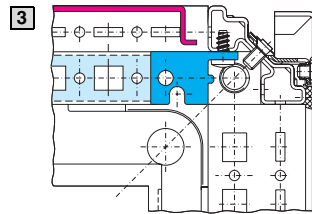
3 With a divider panel fitted, with or without mounting plate in a set forward position.
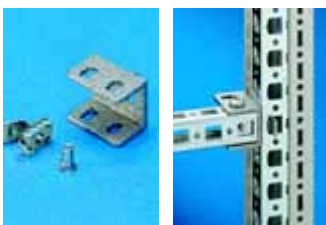
Mounting bracket PS

For variable attachment of punched rails 23 x 23 mm.

Installation options:
- Optionally flush with:
  – Outer enclosure edge or
  – Enclosure clearance width
- On the vertical TS enclosure section via
  – Adaptor rail for PS compatibility
    see page 924
- On the horizontal TS enclosure section
- On enclosures and rails with square system punchings 12.5 x 10.5 mm.

Material:
Die-cast zinc

Supply includes:
1 set =
1 mounting bracket,
1 screw M6 x 12 mm,
1 cage nut M6.

Packs of	Model No. PS
24 sets	**4182.000**

Also required:

U nuts for punched rails (recommended): M6, see page 936.
Multi-tooth screws M6 x 12 mm, see page 937.

Assembly components

B

7.6

Angle bracket PS

For quick attachment of punched rails
23 x 23 mm.

Installation options:
● On the vertical TS enclosure section via
  – Adaptor rail for PS compatibility
    see page 924
● On the horizontal TS enclosure section
● On enclosures and rails with square
  system punchings 12.5 x 10.5 mm.

Material:
Sheet steel, zinc plated, passivated

Supply includes:
1 set =
1 angle bracket, left,
1 angle bracket, right,
2 screws BZ 5.5 x 13 mm.

Packs of	Model No. PS
12 sets	**4181.000**

! Also required:

U nuts for punched rails (recommended): M6,
see page 936.
Multi-tooth screws M6 x 12 mm,
see page 937.

Support bracket TS

For fastening
punched sections without mounting flanges
23 x 73 mm or
punched rails 23 x 23 mm.

Installation options:
● On the vertical and horizontal TS enclosure
  section
  – on a 25 mm pitch pattern
  – in 2 mm increments

Material:
Die-cast zinc

Supply includes:
1 set =
1 support bracket,
1 stay,
3 screws BZ 5.5 x 13 mm.

Packs of	Model No. TS
6 sets	**8800.330**

German patent no. 199 37 892

! Also required:

U nuts for punched rails (recommended): M6,
see page 936.
Multi-tooth screws M6 x 12 mm,
see page 937.

Support bracket PS

For fastening
punched sections without mounting flanges
23 x 73 mm or punched rails 23 x 23 mm.

Installation options:
● On the vertical TS enclosure section via
  – Snap-on nut TS 8800.806,
    see page 931, or
  – Adaptor rail for PS compatibility
    see page 924
● On the horizontal TS enclosure section
● On enclosures and rails with square
  system punchings 12.5 x 10.5 mm.

Material:
Die-cast zinc

Supply includes:
1 set =
1 support bracket,
2 countersunk screws,
2 serrated lock washers.

Packs of	Model No. PS
24 sets	**4183.000**

! Also required:

U nuts for punched rails (recommended): M6,
see page 936.
Multi-tooth screws M6 x 12 mm,
see page 937.
Adaptor rail for PS compatibility (when mounting
on the vertical enclosure section),
see page 924.

Assembly components

B
7.6

Interior installation

Assembly components

Support bracket or spacer

For fastening C rails, punched rails or cable clamp rails (angle section). On the sides, to accommodate square sections or tubes (Ø 20 mm).
Attachment points with M8 thread.

Installation options:
- On the vertical TS enclosure section via
  – Snap-on nut TS 8800.808,
    see page 931, or
  – Adaptor rail for PS compatibility
    see page 924
- On the horizontal TS enclosure section
- On enclosures and rails with square system punchings 12.5 x 10.5 mm.

Material:
Die-cast zinc

Supply includes:
1 set =
1 bracket or spacer,
2 screws M8 x 16 mm,
2 spring lock washers,
2 captive nuts M8,
2 serrated lock washers,
2 screws.

Packs of	Model No. TS
6 sets	**4199.000**

✛ Accessories:

Angle piece TS 4134.000,
see page 934.

Quick-assembly block

For a variety of installation options.

Installation options:
- On the vertical TS enclosure section via
  – Snap-on nut TS 8800.808,
    see page 931, or
  – Adaptor rail for PS compatibility
    see page 924
- On the horizontal TS enclosure section
- On enclosures and rails with square system punchings 12.5 x 10.5 mm.

Material:
Die-cast zinc

Supply includes:
12 quick-assembly blocks,
12 threaded blocks M8,
24 screws M8 x 12 mm,
24 square nuts M8.

Packs of	Model No. TS
12	**4133.000**

German patent no. 42 33 205

Angle piece

For assembling punched rails and mounting surfaces with a 45° incline.

Installation options:
- On the vertical TS enclosure section via
  – Snap-on nut TS 8800.806,
    see page 931, or
  – Adaptor rail for PS compatibility
    see page 924
- On the horizontal TS enclosure section
- On enclosures and rails with square system punchings 12.5 x 10.5 mm.

Material:
Angle pieces: Die-cast zinc
Insulating pieces: Plastic

Supply includes:
1 set =
1 angle piece,
1 insulating piece,
1 insulating screw and
2 assembly screws,
1 threaded block M6.

Packs of	Model No. TS
12 sets	**4134.000**

Assembly components

B

7.6

Universal bracket

For installing
- Enclosure lights in
  – Compact enclosures AE and AK
  – Console systems AP
- Door-operated switches in
  – Compact enclosures AE
  – Console systems AP
- Cable conduit holder SZ 2593.000 and SZ 2591.000 in
  – Compact enclosures AE
  – Console systems AP
- Support rails for terminals in
  – Operating housings and command panel housings with door.

Mounting screws are concealed when the door is closed. Existing holes for mounting blocks or hinges may be used with AE.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. SZ
6	2373.000
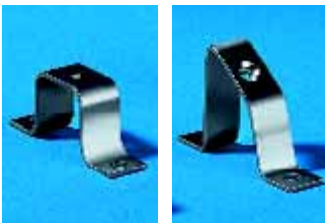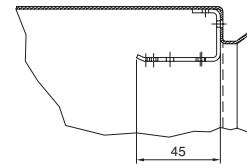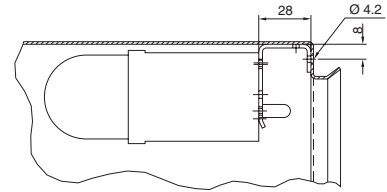
Rail mounting bracket

for individual rail mounting.

Material:
Sheet steel, zinc-plated, passivated
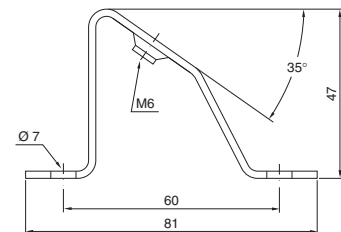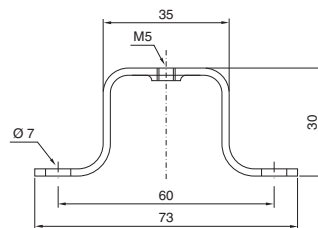
Mounting bracket	Packs of	Model No. SZ
Flat	20	2365.000
Inclined	20	2366.000

Mounting block

for AE

As an accessory for additional interior installation, e.g. mounting of cable ties, PS punched rails, top hat rails and C rails (e.g. for a second pair of mounting angles).

Supply includes:
Assembly parts.

Packs of	Model No. SZ
20	2574.000

Assembly components

B

7.6

Interior installation

Assembly components
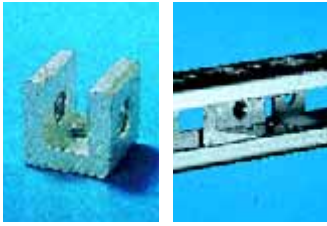
U nuts

For
- Punched rail 23 x 23 mm
- Punched section without mounting flange, 23 x 73 mm
- Punched section without mounting flange, 45 x 88 mm
- Punched section with mounting flange, 23 x 73 mm

For mounting punched rails and punched sections without mounting flanges on angle brackets, mounting brackets and support brackets, we recommend U nuts with M6 thread (PS 4179.000).

Thread	Packs of	Model No. PS
M4	20	**4119.000**
M5	20	**4157.000**
M6	20	**4179.000**
M8	20	**4180.000**

⊞ Accessories:

Multi-tooth screws M6 x 12 mm,
(for PS 4179.000),
see page 937.

Cage nuts/threaded blocks

Installation options:
On enclosures and rails with square system punchings 12.5 x 10.5 mm,
for example on:
- TS enclosure section
  – vertical, via adaptor rail for PS compatibility
  – horizontal, direct
- ES enclosure body, all-round
- Punched rails 23 x 23 mm
- Punched sections without mounting flanges, 23 x 73 mm
- Punched sections without mounting flanges, 45 x 88 mm
- Punched sections with mounting flanges, 23 x 73 mm

⇄ Possible alternative:

On the vertical TS enclosure section
TS snap-on nut,
see page 931.

Cage nuts
The compression spring designed as an insertion aid ensures reliable, mechanical and electrical connection in the system punchings.

Thread	Packs of	Model No. TS
M6	50	**4164.000**
M8	50	**4165.000**
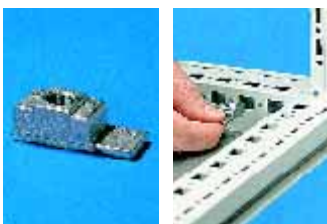
Threaded blocks
With snap-off insertion aid, die-cast zinc.

Thread	Packs of	Model No. TS
M6	50	**4162.000**
M8	50	**4163.000**

Cage nuts
The nuts are inserted from the same side as screw-fastening takes place. Consequently, attachment points in the same height or width may also be used around corners.
The spring cage also ensures electrical connection in the system punchings.

Thread	Packs of	Model No. TS
M6	50	**8800.340**
M8	50	**8800.350**

German patent no. 198 60 434

B

7.6

Assembly components

Spring nut M5

For
- Optipanel from an installation depth of 100 mm
- VIP 6000 from an installation depth of 185 mm

The spring ensures reliable protection against unintentional displacement.
Other interior installation, e.g. with mounting bracket PS 4597.000 (see page 930).

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. CP
50	**6108.000**

Threaded inserts M6

for KS
For securing installed equipment to the moulded bosses in the door and in the enclosure rear panel.
Screw length available for insertion: 8 mm.

Packs of	Model No. KS
20	**1482.000**

Multi-tooth screws

M6 x 12 to fit:
- Snap-on nut (TS 8800.806)
- U nuts for punched rails (PS 4179.000)
- Cage nuts (PS 4164.000)
- Threaded blocks (TS 4162.000)

M6 x 12 to fit:
- Snap-on nut (TS 8800.808)

Multi-tooth screws

For the round holes 4.5 mm diameter in the enclosure section, punched rails and punched sections without mounting flanges.

Self-tapping screws

For the round holes 4.5 mm diameter in the enclosure section, punched rails and punched sections without mounting flanges.

Self-tapping screws

Mark, drill and tighten in a single operation using electric or pneumatic tools.

For metal thickness: 0.8 – 3 mm
Length: 16 mm
Usable length: 9.5 mm
Width across flats: 8 mm

Multi-tooth drive for optimum transmission of torques, an extended tool life and increased safety and reliability when tightening and loosening screw connections.

Type of screw	Dimensions mm	Packs of	Model No. SZ
Multi-tooth screws	M6 x 12 M8 x 12	300 300	**2504.500** **2504.800**
Multi-tooth screws	BZ 5.5 x 13	300	**2486.500**
Multi-tooth screws for stainless steel	BZ 5.5 x 13	300	**2486.300**
Self-tapping screws:			
● Hex screws	M5 x 10	500	**2504.000**
● Posidrive raised countersunk screws	M5 x 12	500	**2488.000**
● Pan head screws, posidrive	M5 x 12	500	**2489.000**
● Pan-head screws, multi-tooth	M5 x 12	500	**2489.500**
Self-tapping screws	ST 4.8 x 16	300	**2487.000**

Assembly components

B

7.6

Interior installation

Assembly components

TS adaptor
for wiring systems

**Adaptior rail
for the Lütze LSC wiring system.**

Supply includes:
1 set =
6 adaptor rails,
24 spring lock washers,
24 screws BZ 5.5 x 13 mm.

Note:
Mounting parts for the LCS wiring system not
included with the supply.

For enclosure depth mm	Packs of	Model No. TS
400		**8800.140**
500	1 sets	**8800.150**
600		**8800.160**
800		**8800.180**

**Installation kit
for the Moeller MR 25 wiring system.**

Supply includes:
1 set =
2 mounting brackets,
4 mounting rails,
including assembly parts.

For enclosure depth mm	Packs of	Model No. TS
400		**8800.240**
500	1 sets	**8800.250**
600		**8800.260**

Kit

for separate frame TS
Every TS 8 frame is easily converted to a rack
suitable for dismantling. To this end, the frame
sections in the roof and base frame are sepa-
rated, optionally in the width or depth. The four
connection components are inserted into the
frame section and screw-fastened. The external
dimensions of the frame remain unchanged.

Supply includes:
Assembly parts.

Note:
The IP water protection of the enclosure system is
lost once the frame is separated.

Packs of	Model No. DK
4	**7829.400**

Assembly components

B

7.6
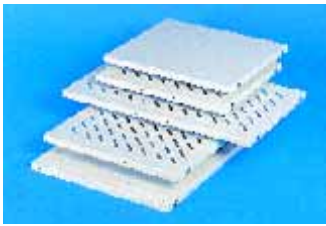
Component shelf for frame attachment

**Enclosure width 600 mm
or between two 482.6 mm (19″) mounting frames**

Maximum depth of component shelves with enclosure frame attachment = Enclosure depth minus 100 mm.

Technical specifications:
Mounting bolts or mounting rails may be installed on a 25 mm pitch pattern in the enclosure depth. Mounting hole for handles provided.

Load capacity:
50 kg/100 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

1	Fastening bolts
2	Mounting rails
3	Divider kit
4	Telescopic slides

! Also required:
TS punched section with mounting flange, 17 x 73 mm, as divider kit for component shelves, see page 949.
For FR(i) plus system adaptor, see page 930.

Load capacity kg		50				100			
Component shelf depth mm		400	500	600	700	400	500	600	700
Component shelf height mm		29				45			
Model No. DK, slotted		**7164.035**	**7165.035**	**7166.035**	**7166.735**	**7464.035**	**7465.035**	**7466.035**	**7466.735**
Model No. DK, unslotted		**7264.035**	**7265.035**	**7266.035**	–	–	–	–	–

Mounting on a 600 mm wide enclosure frame

! Additionally required:

For TS TS punched sections with mounting flanges 17 x 73 mm as divider kit for enclosure depth mm	600	8612.060	
	800	8612.080	
	900	8612.090	
	1000	8612.000	
For FR(i) TS punched sections with mounting flanges 17 x 73 mm as divider kit for enclosure depth mm	600	8612.140	
	800	8612.160	
	1000	8612.180	
	1200	8612.100	
	System adaptor	7856.760	

➕ Accessories:

Telescopic slides see page 951	7061.000	7081.000	7161.000	7161.700	7064.000	7065.000	7066.000	7066.700
Handles for component shelves see page 953	3636.010							

Mounting on the 482.6 mm (19″) mounting frame[1]
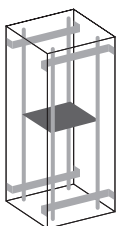
482.6 mm (19″) distance between levels, minimal	495	595	695	895	495	595	695	895

! Additionally required:

TS punched sections with mounting flanges 17 x 73 mm as divider kit in the enclosure depth between the 482.6 mm (19″) mounting frames	8612.040	8612.050	8612.060	8612.080	8612.040	8612.050	8612.060	8612.080

[1] Note:
Combination with telescopic slides is not possible.

Component shelves for frame attachment

B

7.6

Interior installation

Component shelves for frame attachment
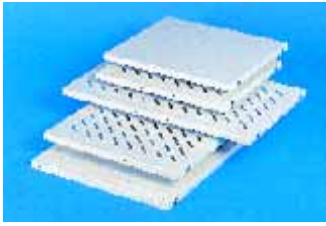
Component shelf
for frame attachment
Enclosure width 800 mm

For installation in enclosures **without** 482.6 mm (19″) accommodation.

Maximum depth of component shelves with enclosure frame attachment = Enclosure depth minus 100 mm.

Technical specifications:
Mounting bolts or mounting rails may be installed on a 25 mm pitch pattern in the enclosure depth. Mounting hole for handles provided.

Load capacity:
50 kg/100 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

1 Fastening bolts
2 Mounting rails
3 Divider kit
4 Telescopic slides

! **Also required:**

TS punched section with mounting flange, 17 x 73 mm, as divider kit for component shelves, see page 949.
For FR(i) plus system adaptor, see page 930.

Component shelves for frame attachment

Load capacity kg	50				100			
Component shelf depth mm	400	500	600	700	400	500	600	700
Component shelf height mm	29				45			
Model No. DK, slotted	**7184.035**	**7185.035**	**7186.035**	**7186.735**	**7484.035**	**7485.035**	**7486.035**	**7486.735**

! **Additionally required:**

For TS TS punched section with mounting flange, 17 x 73 mm as divider kit for enclosure depth mm	600	8612.060
	800	8612.080
	900	8612.090
	1000	8612.000
For FR(i) TS punched section with mounting flange, 17 x 73 mm as divider kit for enclosure depth mm	600	8612.140
	800	8612.160
	1000	8612.180
	1200	8612.100
	System adaptor	7856.760

+ **Accessories:**

Telescopic slides see page 951	7061.000	7081.000	7161.000	7161.700	7064.000	7065.000	7066.000	7066.700
Handles for component shelves see page 953	3636.010							

B

7.6

Component shelves for frame attachment

Component shelf, static installation

for TS, CS Toptec
Locate the mounting pieces in the frame and attach the component shelf. Attachment in the TS enclosure section offers the greatest possible support surface.

Dimensions:
Height: 25 mm
Width: Enclosure width – 44 mm
Depth: Enclosure depth – 44 mm

Load capacity:
75 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.
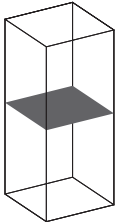
For enclosures		Model No. DK
Width mm	Depth mm	
600	600	**7828.660**
600	800	**7828.680**
600	900	**7828.690**
600	1000	**7828.600**
650	650	**7794.210**
800	600	**7828.680**
800	650	**7794.220**
800	800	**7828.880**
800	900	**7828.890**
800	1000	**7828.800**

Note:
Combined use with vertically divided doors is not possible.
Not suitable for combination with telescopic slides.
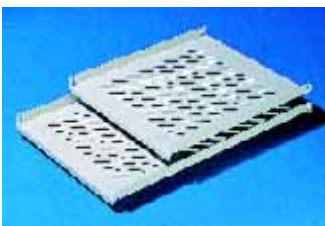
Component shelf, static installation

for PC-ES
For direct mounting on the enclosure frame.
Simply locate into the 4 screws, tighten, and voilà!

Load capacity:
40 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.
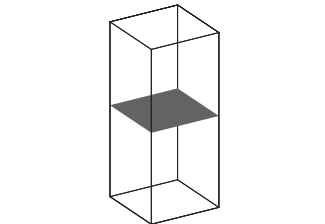
For enclosures		Support area		Model No. PC
Width mm	Depth mm	Width mm	Depth mm	
600	650	510	555	**4619.660**
600	850	510	755	**4619.680**

➕ **Accessories:**

Mounting bolts for slotted component shelves DK 7115.000,
see page 953.

Component shelf, two-piece

with telescopic extension and handles for TS, FR(i)
For attaching to the enclosure frame. The component shelves can be pulled out independently of one another on telescopic slides.

Load capacity:
25 kg surface load per shelf, static

Material:
Sheet steel

Colour:
RAL 7035
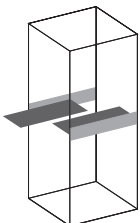
For enclosure width mm	Dimensions of component shelf			Packs of	Model No. DK
	Width mm	Depth mm	Height mm		
600	220	500	35	2	**7183.205**
800	320	500	35	2	**7183.215**

⚠ **Also required:**

TS punched section with mounting flange 17 x 73 mm for the inner mounting level, see page 949.
For FR(i): TS punched section with mounting flange for the outer mounting level plus system adaptor FR(i), see page 930, as divider kit for component shelves.

Component shelves for frame attachment

B

7.6

Interior installation

Component shelves for frame attachment
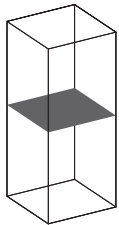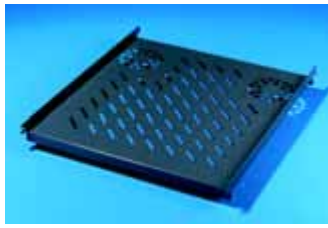
Component shelf, static installation

for TS, PC-TS, IW
prepared for fan expansion kit
For direct mounting on the vertical TS enclosure
section. Simply located into 4 pre-fitted screws
and secure.

Load capacity:
40 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7015

Supply includes:
Assembly parts.

For enclosures		Support area		Model No. PC
Width mm	Depth mm	Width mm	Depth mm	
600	600	507	550	**8800.900**
600	800	507	750	**8800.910**

[1] For enclosures without a mounting plate.

➕ **Accessories:**

Fan expansion kit DK 7980.000,
see page 652.
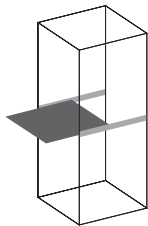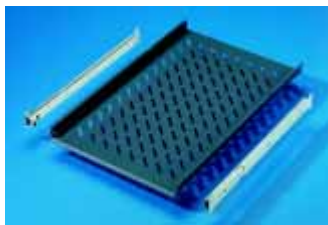
Component shelf, pull-out

for TS, PC-TS, IW
For direct mounting on the vertical TS enclosure
section.

Load capacity:
40 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7015

Supply includes:
2 telescopic slides.

For enclosures[1]		Support area		Model No. IW
Width mm	Depth mm	Width mm	Depth mm	
600	600	465	545	**6902.960[2]**
600	800	465	745	**6902.980**

[1] For enclosures without a mounting plate.
[2] May also be installed in 800 mm deep enclosures
based on TS (pull-out rear attachment).

❗ **Also required:**

When installing more than one pull-out compo-
nent shelf/drawer tray, we recommend that for rea-
sons of work safety to DIN EN 349, a drawer
extension lock should be used, see page 952.
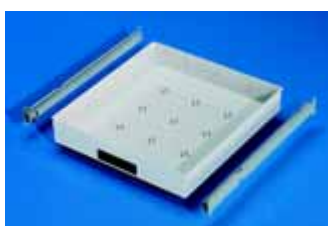
Drawer tray

pull-out
For enclosures with TS frame construction in
series IW, PC-TS, DK.
Width 600 mm and depth 600 – 800 mm.
Individual sub-division is possible via the use of
cross members.
Tray height: 83 mm

Load capacity:
40 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
2 telescopic slides.

Note:
Suitable for installation in all enclosures, without
mounting plate, with W x D 600 x 600/800 mm
based on TS (rear attachment of telescopic slides
extendible).

When sub-dividing the drawer tray, one cross
member is always needed for the entire width
(IW 6902.710).

Packs of	Model No. IW
1	**6902.700**

❗ **Also required:**

When installing more than one pull-out compo-
nent shelf/drawer tray, we recommend that for rea-
sons of work safety to DIN EN 349 a drawer exten-
sion lock should be used, see page 952.

➕ **Accessories:**

Cross members,
see page 943.

IW 6902.710

B

7.6
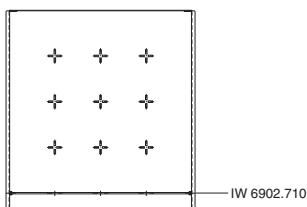
Component shelves for frame attachment
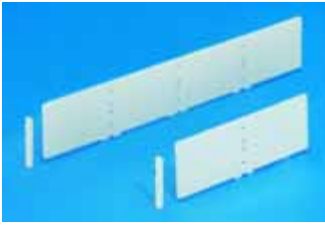
Cross members

for drawer tray
For individual sub-division.

Material:
Aluminium, 3 mm

Colour:
RAL 7035

Supply includes:
Plastic holder.

For subdivision in	Packs of	Model No. IW
the full width	4	**6902.710**
half the width	6	**6902.720**

Note:
When sub-dividing the drawer tray, one cross member is always needed for the entire width (IW 6902.710).

Telescopic slides

For location into the vertical TS frame section. Additional punched sections are not required. Fully extendible.

Load capacity:
40 kg per pair

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. IW
2	**6902.800**

Note:
Suitable for installation in all enclosures, without mounting plate, with W x D 600 x 600/800 mm based on TS (rear attachment of telescopic slides extendible).

Component shelves for frame attachment

B

7.6

Interior installation

Component shelves for attachment to the 482.6 mm (19″) frame
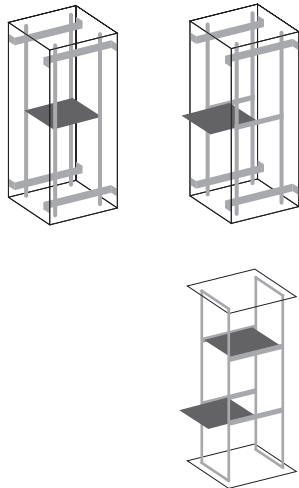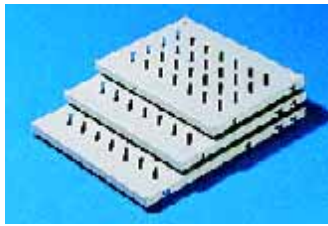
Component shelf, 482.6 mm (19″) installation

For enclosures with two 482.6 mm (19″) mounting levels.

Depending on their depth, the component shelves have several attachment points, so the distance between the 482.6 mm (19″) mounting angles is variable within certain limits. Each component shelf secured in this way can be retrospectively upgraded to full withdrawal using telescopic slides. For this purpose, the telescopic slides are screw-fastened in place of the spacers.

Load capacity:
50 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Note:
For installation in one 482.6 mm (19″) level:
In conjunction with 3 U side parts, mounting on only one 482.6 mm (19″) level is possible.
30 kg surface load, static.

! Also required:

Adaptor for L-shaped mounting angles TS, see page 950.
Divider kit, depth-variable, for installation on mounting frames and L-shaped mouning angles, see page 949.

✛ Accessories:

Telescopic slides, see page 951.
Cable support, hinged, see page 951.
Side parts 3 U, see page 950.

⇄ Possible alternative:

Component shelf, heavy duty, for 482.6 mm (19″) population, see page 945 – 946.
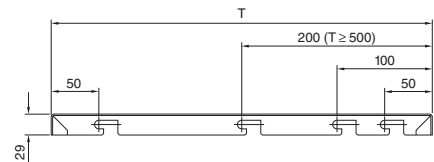
T = Depth

Component shelf width mm	409					Page
Component shelf depth mm	300	400	500	600	700	
Distance between levels (X)	298	348/398	348/448/498	448/548/598	548/648/698	
Model No. DK	**7143.035**	**7144.035**	**7145.035**	**7145.635**	**7145.735**	

✛ Accessories:

Telescopic slides for 50 kg	7051.000	7061.000	7081.000	7161.000	7161.700	951
Handles for component shelf	3636.010	3636.010	3636.010	3636.010	3636.010	953

Component shelf version in RAL 7032 available on request.

1 Spacers
2 Telescopic slides
3 Adaptor
4 Divider kit, depth-variable
X Distance between levels

Note for installation in network enclosures based on TS, cranked mounting angle:
The component shelves are mounted on the sides of the 482.6 mm (19″) cranked mounting angle with spacers on a U pitch pattern.
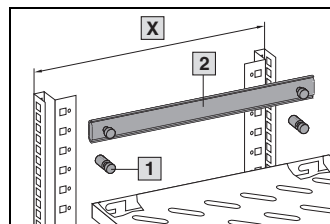
Note for installation in network enclosures based on TS, L-shaped mounting angle:
If L-shaped mounting angles are used, adaptor DK 7827.300 is required.
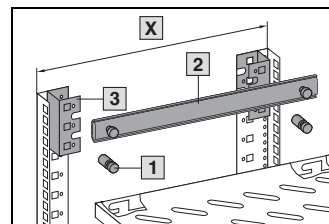
Note for installation between two mounting frames or L-shaped mounting angles:
May be mounted directly on the 482.6 mm (19″) system punchings using the depth-variable divider kit.
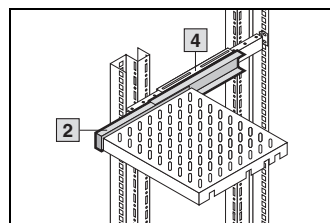
Note for installation between mounting angles and mounting frames:
May be mounted directly on the 482.6 mm (19″) system punchings using the depth-variable divider kit.

B
7.6
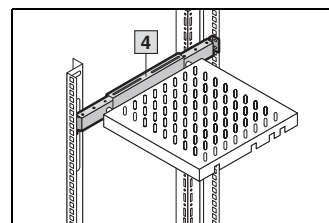
Component shelves for attachment to the 482.6 mm (19″) frame
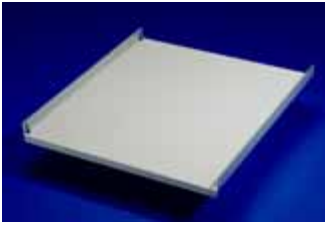
Component shelf, static installation

on the 482.6 mm (19″) mounting frame
The component shelf is attached directly to the front and rear 482.6 mm (19″) mounting frame.

Load capacity:
30 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.
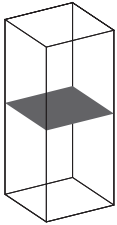
Width mm	Height mm	Depth mm	19″ distance between levels mm	Model No. DK
512	22	412	495	**7000.620**

Note:
Combination with telescopic slides is not possible.
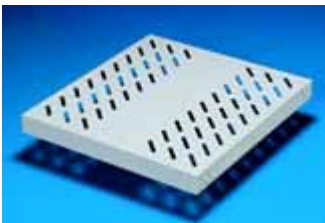
Component shelf, heavy duty

for network enclosures TS with cranked mounting angles
For static installation between two 482.6 mm (19″) mounting levels.
The component shelf is located directly onto the **cranked** mounting angles.

Zinc-plated version:
Load capacity:
75 kg surface load, static

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Spray-finished version:
Load capacity:
100 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.
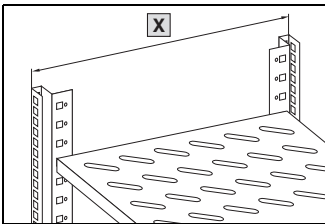
Zinc-plated version:

Dimensions			Distance between levels (X) mm	Model No. DK
Width mm	Height mm	Depth mm		
452.5	20	478	498	**7828.950**
452.5	20	578	598	**7828.960**
452.5	20	678	698	**7828.970**

Spray-finished version:

Dimensions			Distance between levels (X) mm	Model No. DK
Width mm	Height mm	Depth mm		
453	44	470	498	**7145.535**

Note:
Not suitable for combination with telescopic slides.

⇄ Possible alternative:

Component shelf, heavy duty, for 482.6 mm (19″) population, may be combined with telescopic slides, see page 946.

Component shelves for attachment to the 482.6 mm (19″) frame

B

7.6

Interior installation

Component shelves for attachment to the 482.6 mm (19″) frame/system punchings
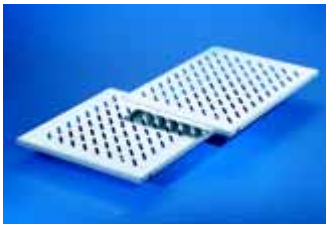
Component shelf, heavy duty

for network enclosures TS with L-shaped mounting angles
For static installation between two 482.6 mm (19″) mounting levels.
The component shelf is located directly onto the **L-shaped** mountin angles (not with TS server enclosures DK 7831.xxx).

Load capacity:
75 kg surface load, static

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Note:
Not suitable for combination with telescopic slides.
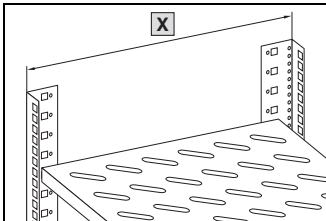
Dimensions			Distance between levels (X) mm	Model No. DK
Width mm	Height mm	Depth mm		
507.5	20	478	498	**7828.951**
507.5	20	578	598	**7828.961**
507.5	20	678	698	**7828.971**

⇄ **Possible alternative:**

Component shelf, heavy duty, for 482.6 mm (19″) population, may be combined with telescopic slides, see page 946.
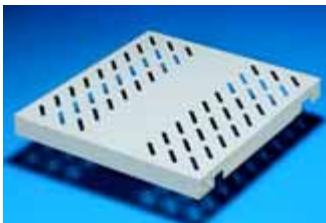
Component shelf, heavy duty

482.6 mm (19″)
For
● L-shaped mounting angles
● Mounting frame 482.6 mm (19″)

Load capacity:
100 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035/RAL 9005

Supply includes:
Assembly parts.
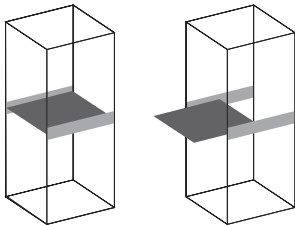
Component shelf depth mm	Model No. DK	
	RAL 7035	RAL 9005
500	**7063.895**	**7063.835**
700	**7063.897**	**7063.837**

! **Also required:**

Divider kit, depth-variable DK 7063.890, see page 949.

+ **Accessories:**

Telescopic slides (100 kg) for 482.6 mm (19″) component shelf, see page 951.

Component shelf 2 U

482.6 mm (19″)
Suitable for installation in all enclosures with only one 482.6 mm (19″) mounting level and all swing frames with flange mounting, 482.6 mm (19″).

Load capacity:
25 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.
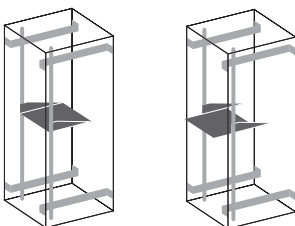
Width mm	Depth mm	Model No. DK
390	300	**7148.035**

To order the version in RAL 7032, please add extension .000 to the Model No.
Delivery times available on request.

+ **Accessories:**

Telescopic slides for component shelves, see page 951.
Handles, see page 953.

B
7.6

Component shelves for attachment to the 482.6 mm (19″) system punchings
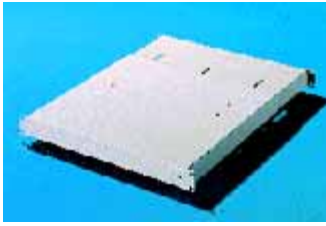
Component shelf, 1 U, depth-variable

482.6 mm (19″)
For mounting between the front and rear 482.6 mm (19″) levels. The component shelf is infinitely depth-adjustable from 488 mm to 750 mm.

Load capacity:
50 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035
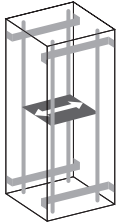
Distance between levels mm	Model No. VR
488 – 750	**3861.580**

Note:
Not suitable for combination with telescopic slides.

Component shelf, $1/2$ U, depth-variable

482.6 mm (19″)
This space-saving component shelf is screw-fastened to the front and rear 482.6 mm (19″) mounting angles. It is infinitely depth-adjustable and may be fitted independently from the enclosure.

Load capacity:
50 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.
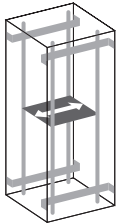
Distance between levels mm	Model No. DK
400 – 600	**7063.710**
600 – 900	**7063.720**

Note:
Not suitable for combination with telescopic slides.

Component shelf 1 U, static installation

482.6 mm (19″)/535 mm (metric)
The ideal support surface for small active components such as modems or mini-hubs in 482.6 mm (19″) or metric levels.

Load capacity:
10 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035
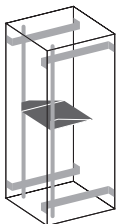
Component shelf depth mm	Model No. DK	
	482.6 mm (19″)	Metric
140	**7119.140**	**7119.155**

Also required:

Cage nuts,
see page 1020.
Screws,
see page 1019.

Interior installation

Component shelves for attachment to the 482.6 mm (19″) system punchings

Component shelf 1 U, static installation

42 HP (¹/₂ 19″)
The ideal support surface for small active components such as modems or mini-hubs.

Material:
Sheet steel

Colour:
RAL 7035

Note:
Combination with telescopic slides is not possible.

Component shelf depth mm	Model No. DK
140	**7502.600**

! Also required:

Cage nuts,
see page 1020.
Screws,
see page 1019.
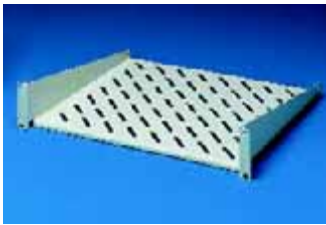
Component shelf 2 U, static installation

482.6 mm (19″)/535 mm (metric)
If only one 482.6 mm (19″) or metric mounting level is available for mounting a component shelf, this variant offers a particularly cost-effective solution.

Load capacity:
25 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Note:
Combination with telescopic slides is not possible.

Component shelf depth mm	Model No. DK	
	482.6 mm (19″)	Metric
250	**7119.250**	**7119.255**
400	**7119.400**	**7119.455**

! Also required:

Cage nuts,
see page 1020.
Screws,
see page 1019.
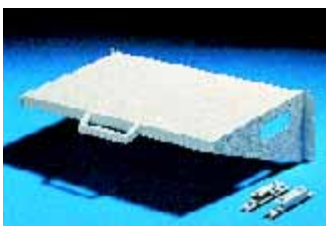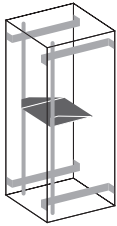
Utility table

for location in the 482.6 mm (19″) level
The utility table may be attached directly between the 482.6 mm (19″) mounting angles without any additional assembly work. The utility table has a height of 3 U and a support area of 450 x 295 mm; it can be used as a support for measuring devices or splicing equipment during maintenance and wiring work.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Support surface mm	Model No. DK
450 x 295	**7183.100**

B

7.6
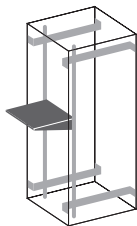
Component shelves for attachment to the 482.6 mm (19″) system punchings/divider kits
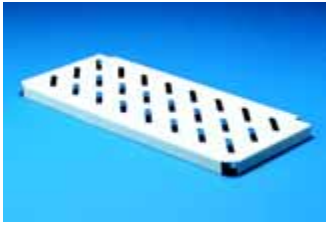
Shelf

for AE with pull-out frame
The vented shelf is inserted into the pull-out frame of wall-mounted distributor DK 7644.000 and may additionally be screw-fastened. In this way, an additional support surface can be created with very little effort. Cage nuts may be clipped into the punchings of the frame, even after the shelf has been inserted.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.
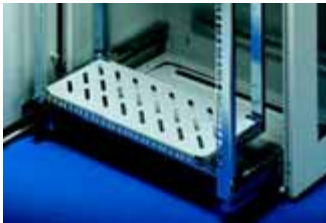
Width mm	Depth mm	Model No. DK
430	195	**7644.400**

TS punched section with mounting flange, 17 x 73 mm

as divider kit for component shelves
Simply locate and secure. One pack is sufficient for 2 component shelves.

Load capacity:
100 kg surface load, static

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Installation in enclosure depth mm	Packs of	Model No. TS	
		for TS	for FR(i)
500	4	**8612.050**	–
600	4	**8612.060**	8612.140
800	4	**8612.080**	8612.160
900	4	**8612.090**	–
1000	4	**8612.000**	8612.180
1200	4	–	8612.100

Installation kit, depth-variable

for 482.6 mm (19″) component shelf
In conjunction with
● L-shaped mounting angles or
● Mounting frame 482.6 mm (19″)
Infinitely adjustable to the spacing between the two 482.6 mm (19″) levels.
Suitable for all 482.6 mm (19″) component shelves in 409 mm width.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
1 set =
2 mounting rails including assembly parts.

Length mm	Load capacity	Model No. DK
400 – 600	50 kg	**7063.858**
600 – 850	50 kg	**7063.860**
610 – 900	100 kg	**7063.891**[1]
710 – 1000	100 kg	**7063.890**

[1] Only in conjunction with 500 mm deep component shelves

➕ **Accessories:**

Telescopic slides,
see page 951.

Component shelves for attachment to the 482.6 mm (19″) system punchings/divider kits

B
7.6

Interior installation

Divider kits for component shelves

Adaptor for L-shaped mounting angles
for TS network enclosures
For mounting component shelves and slide rails on L-shaped mounting angles.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. DK
4	**7827.300**

Side parts 3 U
for static installation of component shelves, 482.6 mm (19″)
For the attachment of component shelves to a single pair of 482.6 mm (19″) mounting angles. The component shelves are screw-fastened to the 3 U side part.
Either one or two component shelves may be secured.

Load capacity:
30 kg surface load, static

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
2 side parts.

Note:
Combination with telescopic slides is not possible.

Depth of side parts mm	For component shelves DK	Component shelf depth mm	Model No. DK
300	7143.035	300	**7146.035**
400	7143.035	300	
400	7144.035	400	**7147.035**
400	7145.035	500	

To order the version in RAL 7032, please add extension .000 to the Model No.
Delivery times available on request.

➕ **Accessories:**

Component shelves, 482.6 mm (19″),
see page 944.
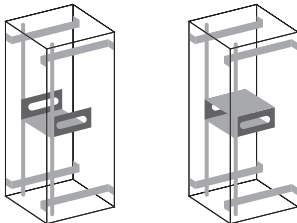
Divider kit
for component shelves and drawers, 482.6 mm (19″) installation in TS
For installation between the front and rear adaptor sections or adaptor pieces, 482.6 mm (19″) in 600 mm wide enclosures.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure depth mm	Packs of	Model No. TS
500	1 set	**8800.550**
600	1 set	**8800.560**
800	1 set	**8800.580**

Max. depth of component shelves =
Enclosure depth – 100 mm

⚠ **Also required:**

Mounting angles, 482.6 mm (19″),
see page 1003.
Adaptor pieces 482.6 mm (19″),
see page 1004.

Divider kits for component shelves

B
7.6
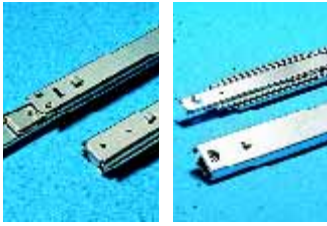
Telescopic slides

for component shelves
Fixed component shelves are easily retro-converted to full withdrawal. For this purpose, the existing fastening bolts or mounting rails (heavy-duty version) are exchanged for the telescopic slides.

Technical specifications:
For installation and locking on a 25 mm pitch pattern in the enclosure depth.

Load capacity:
50 kg/100 kg per set

Material:
Sheet steel, zinc-plated, passivated

For component shelf depth mm	Packs of	Model No. DK	
		50 kg	100 kg
300	2	**7051.000**	–
400	2	**7061.000**	**7064.000**
500	2	**7081.000**	**7065.000**
600	2	**7161.000**	**7066.000**
700	2	**7161.700**	**7066.700**
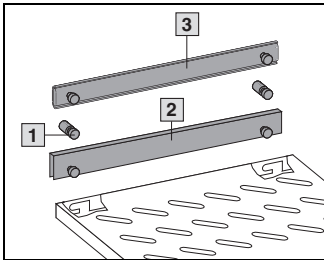
1 Fastening bolts
2 Mounting rails
3 Telescopic slides

Bracket, locatable

for shelves
Simply locate into the vertical TS section. May be additionally secured with screws.
Support surface for shelves: 200 mm.

Material:
Sheet steel

Colour:
RAL 7035

Packs of	Model No. IW
3 pairs	**6902.690**

Cable support

hinged, with clamp
For secure routing of connection cables from the component shelf to the clamping point.
The attachment may be released on both sides thanks to clamps.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure depth mm	Model No. DK
< 600	**7163.500**
> 600	**7163.550**

Accessories for component shelves

B
7.6

Interior installation

Accessories for component shelves
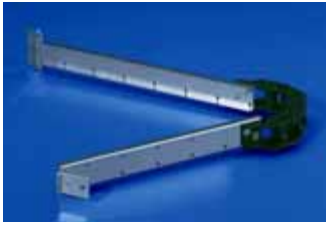
Cable support

hinged, with anti-kink device and clamp
For secure routing of connection cables from the component shelf to the clamping point. Kink-free cable routing in the central part via mobile chain links. The attachment may be released on both sides, thanks to clamps.

Material:
Sheet steel, zinc-plated, passivated; plastic.

Supply includes:
Assembly parts.

For enclosure depth mm	Model No. DK
< 600	**7163.560**
> 600	**7163.565**

Drawer extension lock

for 600 mm wide enclosures based on TS 8
To increase work safety.
In conjunction with the stay, prevents simultaneous extension of up to 5 drawer trays or pull-out component shelves and thereby ensures stability.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
PS punched section with mounting flange
23 x 73 mm (to match the enclosure height) and assembly parts.

For enclosure height mm	Packs of	Model No. IW
900	1 set	**6902.730**
1000	1 set	**6902.740**

Note:
When installing more than one extendible component shelf/drawer tray, we recommend using the drawer extension lock for work safety reasons. For installation in taller enclosures, one PS punched section with mounting flange 23 x 73 mm (to match the enclosure height) is required.

➕ **Accessories:**

Stay for drawer extension lock.

Stay

for drawer extension lock

For	Packs of	Model No. IW
Drawers	5	**6902.750**
Component shelves	5	**6902.760**

Monitor shelf mounting kit

for ES
For inclined installation of a component shelf in the enclosure when used as a monitor shelf.

Supply includes:
2 holders for inclined installation,
2 wire clamps for monitor base,
2 fastening bolts for positioning the monitor base.

	Model No. SZ
Monitor shelf mounting kit	**2306.000**

Handles

for component shelves
All component shelves are prepared for the attachment of handles.

Material:
Die-cast zinc

Surface finish:
Spray-finished, silver-grey

Supply includes:
Assembly parts.

Packs of	Model No. RP
2	**3636.010**

Fastening bolts

for slotted component shelves
For non-slip attachment of your components. The bolts are screwed into the slots of the component shelf support surface. Consequently, they are infinitely adjustable and can be adapted to suit any appliance.

Packs of	Model No. DK
4	**7115.000**

Accessories for component shelves

B
7.6

Interior installation

System lights

System lights

With assembly parts for mounting:
- On the enclosure profile:
  For TS, horizontally (directly), or vertically in conjunction with an adaptor angle
- directly onto rail systems with 25 mm system punchings
- in AE, AK and AP using universal bracket SZ 2373.000.

Light:
Universal white

Protection category:
IP 20 to EN 60 529/10.91

! Also required:

Connection accessories,
see page 956.

+ Accessories:

Adaptor bracket,
see page 931.
Universal bracket,
see page 935.

Components	Standard light	Courtesy light	Universal light	System light
Sockets and connectors for:				
– Power supply	■	■	■	■
– Through-wiring	■	■	■	■
– Facility for connecting a door-operated switch	■	■		■
Jack for normally open contact			■	■
Motion sensor			■	
Interference suppression via:				
– Radio interference suppression capacitor	■			
– Full-electronic ballast		■	■	
Additional manual switching with rocker or slide switch	■	■	■	■
Light cover		■	■	
Light cone adjustment			■	
Individual voltage supply 110 – 240 V		■	■	

Standard light

Technical specifications	Socket	Width mm	Height mm	Depth mm	Model No. SZ	Approvals
14 W, 230 V, 50 Hz	Yes	452	117	50	**4138.140**	ENEC
					4138.150[1]	
18 W, 230 V, 50 Hz	Yes	682	117	50	**4138.180**	ENEC
					4138.190[1]	
30 W, 230 V, 50 Hz	Yes	987	117	50	**4138.300**	ENEC
					4138.350[1]	

With fluorescent lamp, socket G 13, length 375/604/908 mm
[1] with door operated switch

Courtex light

Technical specifications	Socket	Width mm	Height mm	Depth mm	Model No. SZ	Approvals
14 W, 100 – 240 V, 50/60 Hz	Yes	452	117	50	**4139.140**	ENEC
					4139.150[1]	
18 W, 100 – 240 V, 50/60 Hz	Yes	682	117	50	**4139.180**	ENEC
					4139.190[1]	
30 W, 230 V, 50 Hz[2]	Yes	987	117	50	**4139.300**	ENEC
					4139.350[1]	

With fluorescent lamp, socket G 13, length 375/604/908 mm
[1] with door operated switch
[2] from April 2005 on: 100 – 240 V, 50/60 Hz

Universal light

Technical specifications	Socket	W mm	H mm	D mm	Model No. SZ	Approvals
26 W, 110 – 240 V, 50/-60 Hz	Yes	345	95	55	4155.100	VDE
	No	345	95	55	4155.000	VDE
	No	345	95	55	4155.500	UL

with compact fluorescent lamp, base G24q-3, length 174 mm

System light with filament tube (Linestra)

Technical specifications	Socket	W mm	H mm	D mm	Model No. SZ
35 W, 230 V AC/DC	No	380	59	41	4103.350[1]
60 W, 230 V AC/DC	No	580	59	41	4103.600[2]

with filament tube.
[1] base 35 S14s, length 300 mm
[2] base 60 S14s, length 500 mm

Enclosure light 48 V DC

Specifically designed for use in telecommunication when built-in equipment may require a battery back-up. For mounting on the 25 mm system punchings.

Technical specifications:
14 W, 48 V DC, rated current: 0.38 A

Width mm	Height mm	Depth mm	Model No. CS
452	117	50	9765.100

Connection cables
for enclosure light 48 V DC

For	Cable length m	Packs of	Model No. CS
Power supply	3	1	9765.137
Through-wiring	1	1	9765.138

Light 1 U

Complete ready-to-connect light for installation in the 482.6 mm (19″) mounting angles. The slot attachment additionally allows it to be fastened to the 25 mm system punchings.

Technical specifications:
8 W, 230 V, 50 Hz.
With mains switch and 2.5 m connection cable with fitted earthing-pin plug.

Material:
Aluminium, anodised,
plastic

Packs of	Model No. DK
1	7109.200

System lights

B

7.6

Interior installation

System lights

Connection accessories

The following components can be used for time-saving and simple installation of the lights:

✚ Accessories:

Cable ties for quick assembly, see page 982.

Connection cable for	UL	Length mm	Packs of	Model No. SZ		
				orange	yellow	grey
Power supply (with socket, without connector)		3000	5	**4315.100**	**4315.110**	–
Power supply (with socket and strain relief, without connector)	■	3000	1	–	–	**4315.150**
Through-wiring (with socket and connector)	■	600	1	–	–	**4315.450**
Power supply via connection component/ through-wiring (with socket and connector)		600	5	**4315.400**	**4315.410**	–
		1000		**4315.200**	**4315.210**	–
		4000	1	**4315.600**	**4315.610**	–

Door-operated switch With mounting accessories	UL	Length mm	Packs of	Model No. SZ	
				orange	yellow
With connection cable		600	1	**4315.500**	**4315.510**
		1000		**4315.300**	**4315.310**
Without connection cable	■	–		**4127.000**	

Door-operated switch With toggle	Technical specifications	Packs of	Model No. SZ
Without connection cable, for TS enclosures with installed large swing frame. The toggle is actuated via the tubular door frame of the sheet steel door, or in the case of glazed doors, via an adaptor included with the supply.	230 V AC, 6 A 24 V DC, 10 A	1	**4127.200**

Connection component with circuit-breaker 10 A	Packs of	Model No. SZ
Reduce assembly costs: Power is supplied rapidly and reliably to system lights and workstation via connection cables. For independently configured cables, connector SZ 2507.200 must be used. Connection component to be snapped onto the top hat rail.	1	**2507.500**

For self-assembly	Packs of	Model No. SZ
Sockets for power supply Through-wiring		**2507.100**
Connectors for connection component Through-wiring	5	**2507.200**
T distributor with 2 sockets, 1 connector		**2507.300**
Connector for door operated switch cable		**2507.400**
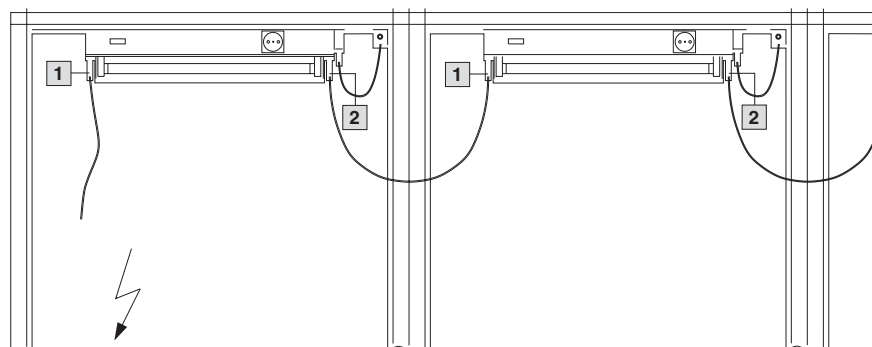
1 Connector
2 Socket

B
7.6

Rail

for EMC shielding bracket and strain relief
Combined rail for strain relief and EMC contact-ing of inserted cables.

Mounting options:
- On the horizontal/vertical TS, PC, ES enclosure section
- On a mounting plate

May also be fitted without a retaining bracket.
Additional contacting on the left or right of the rail via existing holes (9 mm diameter).

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Width mm	Packs of	Model No. SZ
600	1	**2388.600**
800	1	**2388.800**

! Also required:

EMC shielding bracket,
see page 957.
Cable clamps for strain relief,
see page 957.

+ Accessories:

Earth straps,
see page 960.
Earthing strap,
see page 960.

Rail
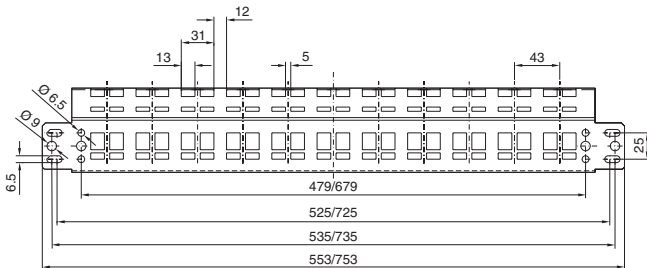
Retaining bracket
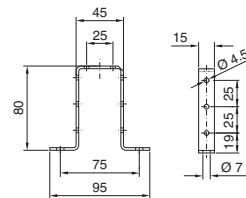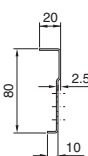
Mounting position
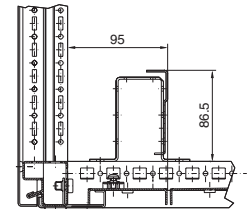
EMC shielding bracket

Diameter changes are compensated in full by the spring of the EMC shielding bracket.
Attachment without the use of tools:
Press the EMC shielding bracket against the cable shield and clip into the rail.

Material:
Sheet steel, zinc-plated, passivated

For shield diameter mm	Packs of	Model No. SZ
3 – 10	10	**2388.100**
4 – 15	10	**2388.150**
10 – 20	10	**2388.200**
15 – 28	10	**2388.280**

Cable clamps

Simply locate into the bottom of the rail and tighten the pressure plate for strain relief.

Material:
Sheet steel, zinc-plated, passivated

For cable diameter mm	Packs of	Model No. SZ
6 – 14	10	**2388.140**
12 – 18	10	**2388.180**
18 – 22	10	**2388.220**
22 – 26	10	**2388.260**
26 – 30	10	**2388.300**
30 – 34	10	**2388.340**

EMC

B

7.6

EMC
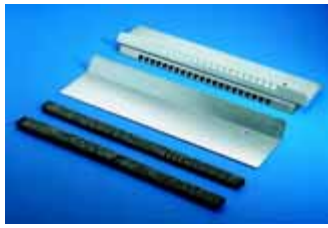
EMC gland plates

For shielded cables with a maximum diameter of 20 mm.
Combined EMC/IP seal provides low-resistance contact between cable shield and gland plate. For all 400, 500, 600 and 800 mm deep enclosure in conjunction with standard gland plates.

Supply includes:
1 gland plate with twin hammer-head punching,
1 sliding gland plate,
2 IP/EMC gaskets.

Width mm	Packs of	Model No. TS
600	1 set	**8800.660**
800	1 set	**8800.680**
1000	1 set	**8800.600[1]**
1200	1 set	**8800.620[1]**

[1] For one enclosure half only

German patent no. 196 04 219

Metal cable ties

For 360° contact of shielded cables on the EMC gland plate. The cable ties are not toothed, thereby eliminating the risk of damage to insulation and braided screens.

Material:
Stainless steel, anti-magnetic and rust-proof

Length mm	Width mm	Packs of	Model No. SZ
125	4.6	50	**2598.125**
200	4.6	50	**2598.200**

Tightening tool

For simple tightening of the metal cable ties.

Packs of	Model No. SM
1	**2585.000**

EMC cable glands

The cable sheathing may optionally be interrupted at the contact point or removed completely inside the enclosure.
The cable shield in the enclosure is retained.
The supplied lock nut cuts automatically into the paint when screwed down, thus creating a conductive connection.

Protection category:
IP 68 to EN 60 529/10.91

Cable glands, metric

Size	Cable diameter mm	Minimum [1] shield diameter mm	Packs of	Model No. SZ
M16	4.5 – 10	3	5	**2843.160**
M20	6 – 12	5	5	**2843.200**
M25	11 – 17	8	5	**2843.250**
M32	15 – 21	10	1	**2843.320**
M40	19 – 28	15	1	**2843.400**
M50	27 – 38	19	1	**2843.500**
M63	34 – 44	30	1	**2843.630**

Cable glands, PG

PG size	Cable diameter mm	Minimum[1] shield diameter mm	Packs of	Model No. SZ
9	4 – 8	3	5	**2411.090**
11	5 – 10	4	5	**2411.110**
13.5	6 – 12	5	5	**2411.140**
16	10 – 14	8	5	**2411.160**
21	13 – 18	10	1	**2411.210**
29	18 – 25	15	1	**2411.290**

[1] Minimum shield diameter =
Cable diameter minus cable sheathing.

EMC

B

7.6

EMC shield bus

Made of yellow passivated steel strip, 75 mm² cross section, for cable shield contact.

Supply includes:
Assembly parts.

Rail length mm	Connections	Packs of	Model No. SZ
375	10	1	**2413.375**
550	16	1	**2413.550**

EMC earth clamps

The clamps may be used directly on the consumer or operating equipment on the mounting plate for cable shield contact.

Material:
Sheet steel, zinc-plated, passivated

Size mm	Packs of	Model No. SZ
4	50	**2367.040**
6	50	**2367.060**
8	50	**2367.080**
12	50	**2367.120**
16	50	**2367.160**
20	25	**2367.200**[1]
25	25	**2367.250**[1]

[1] 2 assembly brackets
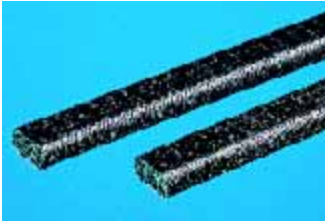
EMC baying seal

for TS
For baying enclosure systems.
Seal with all-round, electrically conductive sheathing.

Cross-section mm	Model No. TS
6.3 x 6.3	**8800.690**

Packs of 1 set consisting of 3 units,
Length 2 m each

EMC divider panel seal

This seal ensures optimum contact in bayed EMC enclosure systems and when using a zinc-plated divider panel.

Material:
PU foam with electrically conductive sheathing.

Supply includes:
1 roll (12.7 x 12.7 x 5300 mm)

Packs of	Model No. SZ
1	**4348.000**
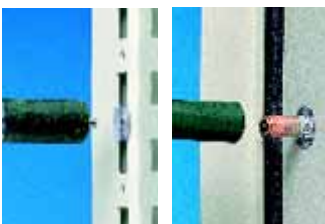
Contact cutter

The contact cutter enables EMC-compatible preparation of the contact point e.g. for earthing straps.
Plastic-bound abrasive with guide pin for round system punchings.
With location point for drill, grinder etc.

	Model No. SM
For frame section	**2414.000**
For earthing bolts[1]	**2414.500**

[1] not necessary with TS 8

Contact paint

Contact paint prevents the corrosion of conductive, unprotected contact points.

Contents:
12 ml

Packs of	Model No. SZ
1	**2415.000**

EMC

B

7.6

Interior installation

Earthing

Earth straps

For configuring a reliable earthing connection with perfect contact.
- With ring terminals in M6 and M8 to match the earthing screw
- Length-optimised and ready to install

For	Door/lid	Enclosures
KL, EB, AE 1032.XXX, AE 1035.XXX	M6	M6
AE, AP	M6	M8
TS, ES, PC, AP universal console, KE	M8	M8

Connection	Cross-section mm²	Length mm	Packs of	Model No. SZ
M8 – M8	4	170	5	**2564.000**
M8 – M8	16	170	5	**2565.000**
M8 – M8	25	170	5	**2566.000**
M6 – M6	10	200	5	**2565.100**
M8 – M8	4	300	5	**2567.000**
M6 – M8	10	300	5	**2565.110**
M8 – M8	10	300	5	**2565.120**
M8 – M8	16	300	5	**2568.000**
M8 – M8	25	300	5	**2569.000**

Earthing strap

Tin-plated copper, in various lengths and cross-sections with press-fitted contact rings. Earthing straps counteract the current displacement effect at high frequencies, whilst at the same time offering highly flexible connection opportunities.

For	Cross-section mm²	Length mm	Packs of	Model No. SZ
M6	10	200	10	**2412.210**
M8	16	200	10	**2412.216**
M8	25	200	10	**2412.225**
M6	10	300	10	**2412.310**
M8	16	300	10	**2412.316**
M8	25	300	10	**2412.325**

Assembly parts

For fastening the earth straps and earthing braids to:
- Horizontal TS enclosure sections
- RS rail system
- ES system punchings

Size	Packs of	Model No. SZ
M6	10 set	**2570.000**
M8	10 set	**2559.000**

! **Also required:**

For mounting on the horizontal TS enclosure section:
Captive nut,
see page 936.

Contact washers

Toothed contact washers facilitate secure PE conductor connection. As a result, there is no need to manually strip paint in the connection area.

Size	Packs of	Model No. SZ
M5	100	**2343.000**
M6	100	**2334.000**
M8	100	**2335.000**

Earthing

B

7.6

Central earthing point

For connecting
● Earth straps
● Earthing braids
to the vertical and horizontal enclosure profile.
The connection bracket is connected to the enclo-
sure frame with 2 screws and is securely con-
tacted.
Earth connection is carried out via the threaded
bolt M8 x 20 mm.

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
1 connection bracket,
2 screws BZ 5.5 x 13 mm,
2 serrated washers,
1 nut M8,
1 contact washer M8,
1 washer.

Packs of	Model No. DK
1	7829.200

Earthing plate

For installation in:
● Command Panel
● VIP 6000
● Optipanel
● TS
● ES

One earthing cable can be screw-fastened to the
threaded bolt and can be distributed to up to 8
components via 6.3 mm flat-pin connectors.

Supply includes:
Assembly parts.

Packs of	Model No. SZ
1	2570.500

Complete earthing kit
for DK-TS
To DIN EN 60 950/VDE 0805, Ø 4 mm²,
$I_{max.}$ 40 A.
For system-compatible earthing of all enclosure
parts on the enclosure frame according to VDE.
The earth conductors are pre-assembled ready
for connection with connectors and cut to the right
length.

Supply includes:
Assembly parts.

Packs of	Model No. DK
1 set	7829.150
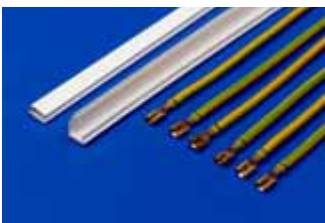
Complete earthing kit
for TE
To DIN EN 60 950/VDE 0805, Ø 4 mm²,
$I_{max.}$ 40 A.
For system-compatible earthing of all enclosure
parts on the enclosure frame according to VDE.
The earth conductors are pre-assembled ready
for connection with connectors and cut to the right
length.

Supply includes:
Assembly parts.

Packs of	Model No. TE
1 set	7000.675

Earthing

B

7.6

Interior installation

Earthing

Earthing kit
for TC Rack
For star earthing. With the pre-assembled earth conductors, star potential equalisation is easily integrated.

Supply includes:
Earthing cables 4 mm², to DIN EN 60 950/VDE 0805, $I_{max.}$ 40 A.
Assembly parts for earthing leads, earth rail.

Packs of	Model No. DK
1 set	**7277.000**

Earthing kit
for QuickBox
Earth straps in the appropriate lengths to match the enclosure depth are included in the earthin set, for earthing all enclosuore panels on the wall mounting part. The earth strap is a fast-end connector which is quickly disconnected and conveniently accessible when the door is open.
In this way, the enclosure cover can be removed completely.

Supply includes:
Assembly parts.

For enclosure depth mm	Packs of	Model No. QB
300/400	5	**7502.240**
500/600	5	**7502.260**

PE busbar
695 mm long PE busbar with pre-fitted screws, including terminal clamps up to 6 mm² (fine wire conductors), 10 mm² (single wire or multi-wire conductors) and main terminal clamp up to 35 mm².

Packs of	Model No. SZ
1	**2364.000**

+ **Accessories:**

Rail mounting bracket, see page 935.

Earth rail, horizontal
Potential equalisation rail
Current carrying capacity approx. 200 A.

Supply includes:
Earth rail made from E-Cu 57 to DIN 1759, DIN 40 500, 15 x 5 mm,
20 connection points with M5 screws,
2 earth connections 25 mm²,
2 isolators, including assembly parts.

Length mm	Packs of	Model No. DK
450	1	**7113.000**

Earthing set, pre-assembled
for DK-TS
For star earthing. With the pre-assembled earth conductors on a potential equalisation rail, star potential equalisation is easily integrated into network enclosures.

Supply includes:
Earthing leads 6 mm²,
2 isolators, including assembly parts.

For TS enclosures up to W x H x D mm	Packs of	Model No. DK
800 x 2000 x 800	1 set	**7829.100**
800 x 2200 x 1000	1 set	**7829.110**

Earthing

B

7.6
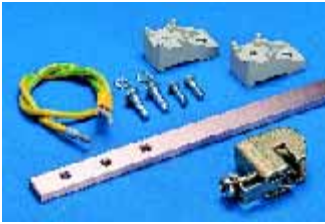
Earth rail, vertical

Potential equalisation rails
for network enclosures. Easily fitted to the 25 mm
DIN pitch pattern of distributors or to the
482.6 mm (19″) mounting angles. The supplied
earth conductors facilitate star earthing of the
cable clamp straps in the patch panels.
The earth terminals are fully adjustable.
Current carrying capacity of rail approx. 200 A.

Supply includes:
Earth rail made from E-Cu 57 to
DIN 1759, DIN 40 500, 15 x 5 mm,
16 conductor connection clamps 2.5 – 16 mm^2,
15 earthing leads 6 mm^2, L = 500 mm,
including assembly parts.
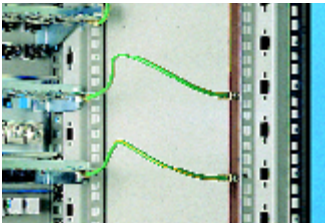
For enclosure height mm	Length mm	Packs of	Model No. DK
800	600	1 set	**7541.000**
1000	800	1 set	**7542.000**
1200	1000	1 set	**7543.000**
1400	1200	1 set	**7544.000**
1600	1400	1 set	**7545.000**
1800	1600	1 set	**7546.000**
2000	1800	1 set	**7547.000**
2200	2000	1 set	**7548.000**

Expansion kit

for earth rail, vertical
For system-compatible expansion of the star
earthing on the vertical potential equalisation rail.

Supply includes:
Earthing leads 6 mm^2, pre-configured,
with ring terminals and wire end ferrules.
L = 500 mm, with earth terminals
2.5 – 16 mm^2, including assembly parts.

Packs of	Model No. DK
10	**7549.000**
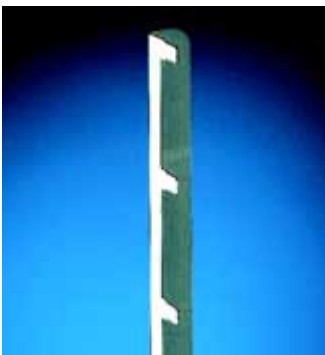
Vertical potential equalisation rail

with 6.3 mm flat-pin connector
Rail for mounting parallel to the mounting angle.
With a short cable connection, any 482.6 mm
(19″) device (e.g. patch panel) may be held at
the same potential by connecting the flat-pin
connector.

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
Potential equalisation rail,
pre-assembled connection cable 350 mm,
connection cable with 6.3 mm flat-pin connector
and lugs with 6 mm drilled hole,
including assembly parts.

For enclosure height mm	Packs of	Model No. DK
1800	1 set	**7548.200**

ESD connection point

During maintenance or conversion work on the
enclosure, dangerously high potential differences
can occur. To protect sensitive electronic compo-
nents, this standardised connection point (push-
button) provides potential equalisation. The con-
nection point is directly conductively connected to
the enclosure frame via two screws.

Material:
Sheet steel

Supply includes:
Assembly parts.

Packs of	Model No. DK
1	**7752.950**

Earthing

B

7.6

Cable management

Cable entry

Cable entry plates

for
- Cable entry grommets
- Connector grommets

instead of segments of the standard divided gland plates.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Suitable for installation in TS, CM, CL and PC enclosures based on TS

Enclosure width mm	Cutouts per plate	Packs of	Model No. TS
600	5	2	**8800.060**
800	8	2	**8800.080**
850	9	2	**8800.085**
1000	4	4	**8800.100**
1200	6	4	**8800.120**

Suitable for installation in ES, PC enclosures based on ES and in AP universal console, CS basic enclosure

Enclosure width mm	Cutouts per plate	Packs of[1]	Model No. TS
600	5	2	**4320.700**
800	8	2	**4321.700**
1000	10	2	**4323.700**
1200[2]	6	4	**4325.700**

[1] incl. compensating plate
[2] for CS basic enclosures, two TS 4320.700 are required.

for TS stainless steel

Material:
Stainless steel 1.4301

For installation in TS, stainless steel

Enclosure width mm	Cutouts per plate	Packs of	Model No. TS
600	5	2	**8700.600**
800	8	2	**8700.800**
1200	6	4	**8700.120**

Three examples from a wide range of possibilities

The diagrams show three TS examples for the positioning of cable entry plates instead of segments of the three-piece gland plates supplied as standard. This facilitates positioning to fit the mounting plate.

Thanks to the enclosure symmetry, where dimensions permit, cable entry plates may also be inserted in the enclosure depth, right and left, analogous to the gland plates.

Cable entry

B

7.7
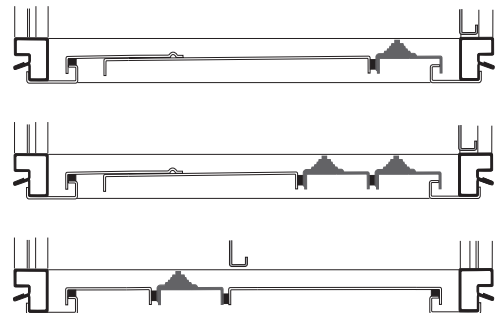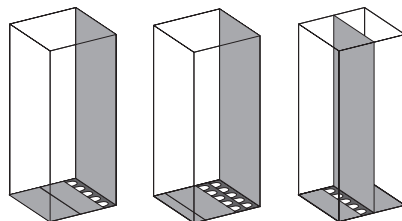
Cable entry grommets

In conjunction with the cable entry plate, simple and fast sealing of cables inserted in the base area of enclosures.

Material:
Body: Polypropylene
Cover: Thermoplastic elastomer

Protection category:
IP 55 subject to correct mounting.

Cables per grommet	max. Ø mm	Packs of	Model No. PS
8	13	25	**4316.000**
3	21	25	**4317.000**
1	47	25	**4318.000**

German patent no. 42 07 281
European patent no. 0560119
with validity for FR, GB, IT, NL
Japanese paten no. 2533052
US patent no. 5,422,436

Connector grommets

Suitable for cable diameters from 8 to 36 mm.

Material:
Outer cover: Polypropylene covered with thermoplastic elastomer
Seal: Cellular rubber

Protection category:
IP 55 subject to correct mounting.

Packs of	Model No. PS
10	**4311.000**

German patent no. 44 05 328
Italian patent no. 0 127 3503
French patent no. 2 716 583

Section for cable entry

for TS, CM, CL

For mounting on top of the gland plates already in the enclosure. The better alternative to the foam rubber cable clamp strip, thanks to:
● Easier mounting
● Full-surface support
● High level of sealing of cables inserted into the enclosure.

Material:
Extruded aluminium section,
seal PU foam,
cross-section: 30 x 25 mm

Protection category:
IP 55 subject to correct mounting.

For Enclosure width mm	Packs of	Model No. TS
600	2	**8802.060**
800	2	**8802.080**
1000	4	**8802.100**
1200	4	**8802.120**
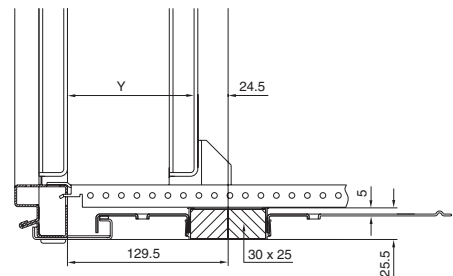
Y = Mounting plate depth-adjustable
on a 25 mm pitch pattern (final pitch 30 mm).

Foam rubber cable clamp strip

For sealing the cable entry between the gland plates. Particularly suitable for identical cable cross-sections.

Material:
Seal PU foam,
cross-section: 30 x 30 mm

Protection category:
IP 55 subject to correct mounting.

Packs of	Model No. SZ
3 m	**2573.000**

Cable entry
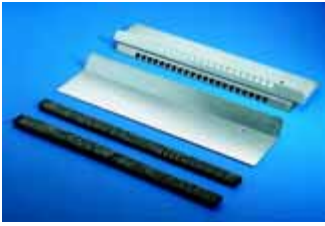
B

7.7

Cable management

Gland plates

EMC gland plates

Plastic cable gland plates

With prepunched PG holes for cable glands.
Used for sealing standard gland plates.
Temperature range:
suitable for use from –40°C to +70°C.

Material:
SZ 2560.000, SZ 2561.000 = PS
SZ 2562.000 = ABS
SZ 2563.000 = Polyamide, glass bead reinforced

Colour:
RAL 7035

Size	For	Packs of	Model No. SZ
1	AE 1032.500, AE 1035.500	10	**2560.000**
3	AE 1030.500, AE 1031.500, AE 1380.500, AE 1038.500	10	**2561.000**
4	AE 1110.500, AE 1114.500, AE 1338.500, AE 1100.500, AE 1045.500, AE 1057.500, AE 1050.500, AE 1130.500, AE 1213.500, AE 1350.500, CS 9771.111, CS 9771.115, CS 9751.145, CS 9751.165, CS 9774.200, CS 9774.210, CS 9774.250, CS 9774.400, CS 9774.410, CS 9774.450,	5	**2562.000**
5	AE 1039.500, AE 1339.500, AE 1060.500, AE 1076.500, AE 1077.500, AE 1180.500, AE 1058.500, AE 1090.500, AE 1360.500, AE 1376.500, AE 1073.500, AE 1260.500, AE 1280.500, AE 1919.200, EL 1920.200, EL 1926.200, DK 7011.535, DK 7012.535, DK 7013.535, DK 7014.535, DK 7644.000, DK 7641.000, DK 7643.000, DK 7645.000, CS 9772.111, CS 9772.115,	5	**2563.000**

Size 1

- Pg 11
- Pg 13.5
- Pg 16
- Pg 21
- Pg 29
- Pg 36

Size 3

Size 4

Size 5

Gland plates

B

7.7

Plastic gland plates

for KL and small fibre-optic distributors based on AE.
With prepunched PG holes for cable glands.
Used for sealing standard gland plates.
Temperature range:
suitable for use from –40°C to +70°C.

Material:
ABS

Colour:
RAL 7035

Size	PG	Number of	Packs of	Model No. KL
2	13.5	12	5	1581.000
	13.5	6		
	16	2	5	1582.000
	21	2		

KL 1581.000
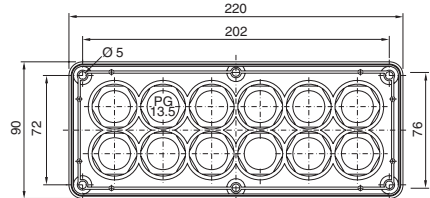
KL 1582.000
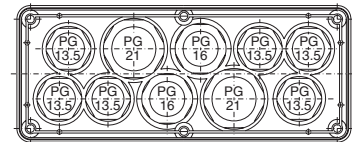
Plastic gland plates

with membranes
for AE, EL, DK, CS
Simply pierce the plastic with a sharp object, and pull through the cable.

Material:
Plastic to UL 94-V2

Colour:
Similar to RAL 7035

Protection category:
IP 65 with careful cable entry.

Size	For	Packs of	Model No. SZ
3	AE 1030.500, AE 1031.500, AE 1038.500, AE 1380.500	1	2561.500
4	AE 1045.500, AE 1050.500, AE 1057.500, AE 1100.500, AE 1110.500, AE 1114.500, AE 1130.500, AE 1213.500, AE 1338.500, AE 1350.500, CS 9771.111, CS 9771.115, CS 9751.145, CS 9751.165, CS 9774.200, CS 9774.210, CS 9774.250, CS 9774.400, CS 9774.410, CS 9774.450,	1	2562.500
5	AE 1039.500, AE 1058.500, AE 1060.500, AE 1073.500, AE 1076.500, AE 1077.500, AE 1090.500, AE 1180.500, AE 1260.500, AE 1280.500, AE 1339.500, AE 1360.500, AE 1376.500, EL 1919.200, EL 1920.200, EL 1926.200, DK 7011.535, DK 7012.535, DK 7013.535, DK 7014.535, DK 7641.000, DK 7643.000, DK 7644.000, DK 7645.000, CS 9772.111, CS 9772.115	1	2563.500
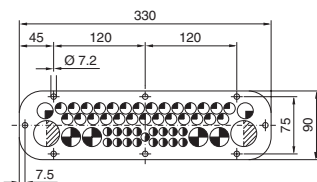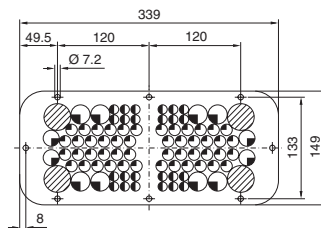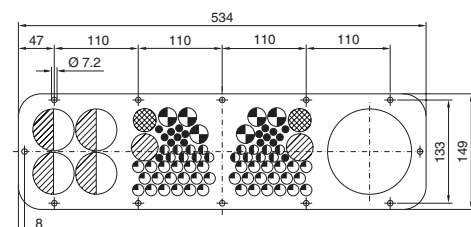
	Diameter mm	Number of cable entries for Model No. SZ		
		2561.500	2562.500	2563.500
●	5 – 9	–	–	18
◑	6 – 11	17	–	–
◐	7 – 12	–	24	16
◕	10 – 15	27	48	36
◔	15 – 21	2	4	–
◕	15 – 24	–	–	6
◑	15 – 25	–	8	–
◕	16 – 25	4	–	–
◍	19 – 34	2	–	–
▨	23 – 30	–	–	2
◫	26 – 35	–	4	2
◪	26 – 54	–	–	4
○	50 – 110	–	–	1

Size 3

Size 4

Size 5

Gland plates

B

7.7

Cable management

Gland plates

Metal gland plates
pre-punched
for AE, EL, DK, CS
Simply knock out the holes for the cable glands using a screwdriver.

Material:
Sheet steel

Colour:
RAL 7035

Protection category:
IP 66 when mounting in the usual position, bottom.

Size	For	Packs of	Model No. SZ
2	KL 1530.510, KL 1531.510, KL 1532.510, KL 1533.510, KL 1534.510, KL 1535.510, KL 1536.510, KL 1537.510, KL 1538.510, KL 1539.510, KL 1540.510, KL 1541.510, KL 1542.510	1	**1581.100**
3	AE 1030.500, AE 1031.500, AE 1038.500, AE 1380.500	1	**2561.100**
4	AE 1045.500, AE 1050.500, AE 1057.500, AE 1100.500, AE 1110.500, AE 1114.500, AE 1130.500, AE 1213.500, AE 1338.500, AE 1350.500, CS 9771.111, CS 9771.115, CS 9751.145, CS 9751.165, CS 9774.200, CS 9774.210, CS 9774.250, CS 9774.400, CS 9774.410, CS 9774.450	1 St.	**2562.100**
5	AE 1039.500, AE 1058.500, AE 1060.500, AE 1073.500, AE 1076.500, AE 1077.500, AE 1090.500, AE 1180.500, AE 1260.500, AE 1280.500, AE 1339.500, AE 1360.500, AE 1376.500, EL 1919.200, EL 1920.200, EL 1926.200, DK 7011.535, DK 7012.535, DK 7013.535, DK 7014.535, DK 7641.000, DK 7643.000, DK 7644.000, DK 7645.000, CS 9772.111, CS 9772.115	1	**2563.100**

➕ **Accessories:**

Cable glands made from polyamide or brass, see page 972.

Size 2
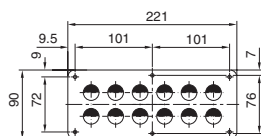
Size 3
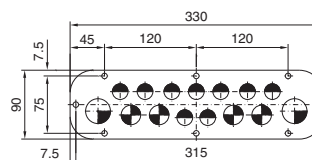
Size 4
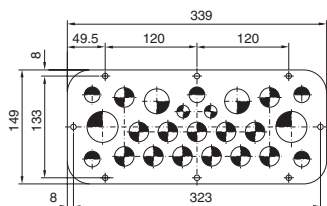
Size 5
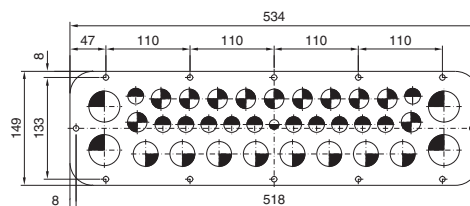
	Diameter	Number of cable entries for Model No. SZ			
		1581.100	**2561.100**	**2562.100**	**2563.100**
◓	M12	–	–	–	1
◓	M16	–	–	2	–
◓	M20	12	9	5	12
◓	M25	–	4	13	11
⊕	M32	–	2	2	8
◓	M40	–	–	2	4
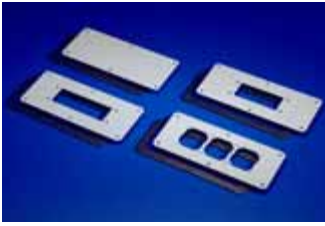
Metal gland plates

for
- KL terminal boxes, see page 109,
- CP pillar, see page 236,
- IW enclosures, see page 240 – 255.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Cutout	Packs of	Model No. KL
Without	6	**1158.500**
1 x connector, 16-pole	6	**1158.560**
1 x connector, 24-pole	6	**1158.540**
3 x module plates	6	**1158.530**

➕ **Accessories:**

Module plates for individual cable entry, see page 969.

KL 1158.500

| 1 | 86 | 16-pole |
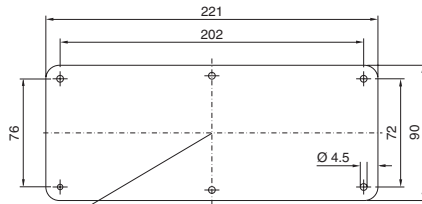
KL 1158.530

| 1 | KL 1158.560 |
| 2 | KL 1158.540 |

| 2 | 112 | 24-pole |
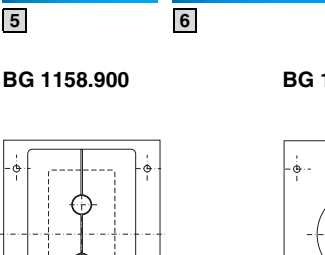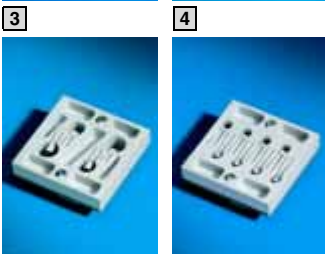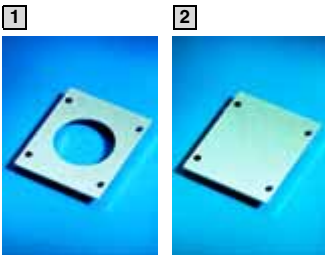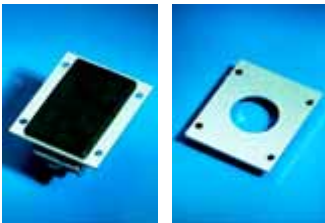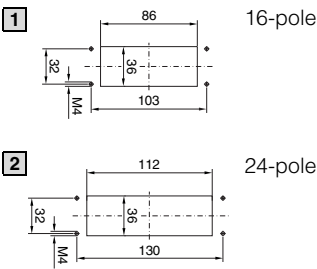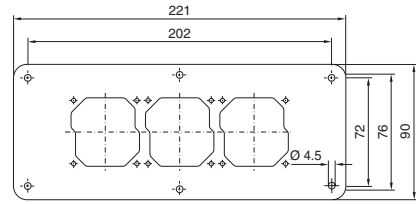
Module plates

for individual cable entry

Fig.	Design		Material	Packs of	Model No. BG
1	With connector grommet for 2 cables with connectors up to d = 8.5 mm		Module plate: Sheet steel, zinc-plated, passivated Connector gland: (For details, see SZ 2400.300, page 975)	1	**1158.900**
2	Perforated for metric Cable gland	M25	Sheet steel, zinc-plated, passivated	10	1158.910
3		M32			1158.920
4	Solid				1158.930
5	For direct, IP-protected insertion of sensor/actuator cables	2 + 2[1]	Plastic module plate with strain relief and flexible sealing membrane, including stoppers for any unused openings	1	1158.940
6		8[2]			1158.950

To fit Ø
[1] 2 cables from 6.8 to 8.8 mm and
2 cables from 7.8 to 10.7 mm
[2] 8 cables from 3.8 to 6.3 mm

BG 1158.900
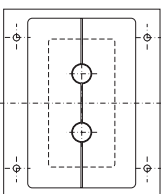
BG 1158.910 /.920
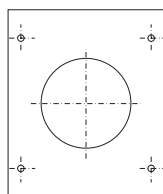
BG 1158.930
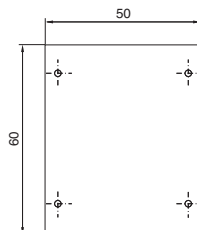
BG 1158.940

BG 1158.950

Gland plates

B

7.7
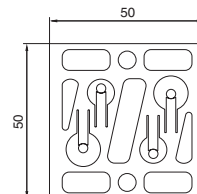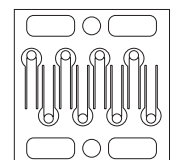
Cable management

Gland plates

Gland plate

solid, for QuickBox
To conceal the cable entry openings. In exchange for the brush strip at the top and bottom that is used as standard.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Packs of	Model No. QB
2	7502.310

Gland plate

for metric cable glands, for EL
Multi-folded and welded gland plate with foamed-in seal and pre-punched, knock-out holes for metric cable glands M12, M20, M25, M32, M40.

Material:
1.5 mm sheet steel

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91

Packs of	Model No. DK
1	7705.235
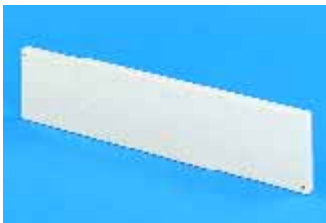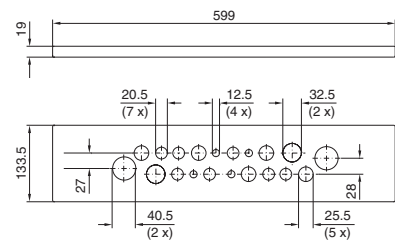
Gland plate

solid, for EL
Multi-fold and welded gland plate for the basic box, with foamed-in seal.

Material:
1.5 mm sheet steel

Colour:
RAL 7035

Packs of	Model No. EL
1	2235.135
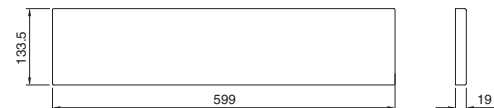
Gland plate

with brush insert, for EL
Multi-folded and welded gland plate with foamed-in seal and plastic brush inserts for simple cable entry.

Material:
1.5 mm sheet steel

Colour:
RAL 7035

Packs of	Model No. DK
1	7705.035
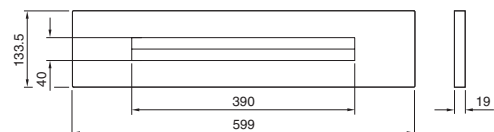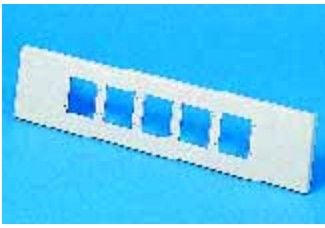
Gland plate

for PG segments, for EL
Multi-fold and welded gland plate with foamed-in seal and cut-outs for PG segments.

Material:
1.5 mm sheet steel

Colour:
RAL 7035

Packs of	Model No. EL
1	2235.005
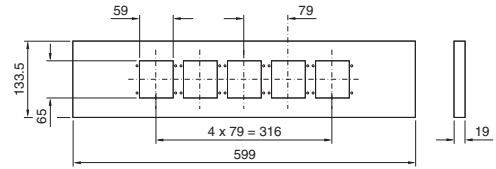
PG segments

for EL
Plastic segments with pre-punched, knock-out holes for cable glands.
Suitable for retrospective screw-fastening to gland plate EL 2235.005.

Material:
ABS, self-extinguishing to UL 94-V0

Colour:
RAL 7035

PG sizes	Packs of	Model No. EL
29	5	2235.015
21	5	2235.025
21/11	5	2235.035
16	5	2235.045
16/13.5	5	2235.055
13.5	5	2235.065
11	5	2235.075
neutral	5	2235.085

EL 2235.015	EL 2235.025	EL 2235.035	EL 2235.045	EL 2235.055	EL 2235.065	EL 2235.075	EL 2235.085

Brush strip

For individual instalation of enclosure panels, gland plates and panels. Cut-outs for cable routing at any given positions in the side panel, rear panel, doors, roof and gland plate may be finished off attractively by simply attaching the brush strip.

Packs of	Model No. DK
2 m	7072.200

Technical specifications:
Bristle length: 30 mm
Plastic sheathing: 18 mm
Snap-on surface: 10 mm
Maximum cut-out height: 38 mm

Edge protector

For covering sharp edges of cut-outs. Provides protection from injuries and prevents damage to inserted cables. The edge protector is suitable for material thicknesses of approx. 1.0 – 2.0 mm, and may be cut to length individually.

Material:
Plastic PVC

Colour:
Black

Packs of	Model No. DK
10 m	7072.100

Gland plates

B

7.7

Cable management

Cable gland

Cable gland, brass

Benefits:
- Because the gland and lock nut are sold together in a single pack, this saves additional ordering work and storage locations.
- Clamping membranes for even tightening and strain relief which protects the cables.
- Insulation thanks to plastic insert.
- Optimum seal on the connection thread, thanks to O-ring.
- The lock nut cuts automatically into the spray-finish, thereby creating a conductive connection.
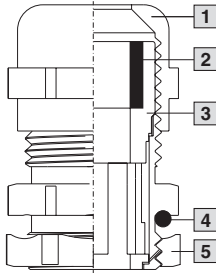
1 Top-hat nut

2 Neoprene seal

3 Plastic insert

4 O-ring

5 Lock nut

Size	Cable diameter mm	Packs of	Model No. SZ
M12 x 1.5	3 – 6.5	15	**2411.800**
M16 x 1.5	4.5 – 10	15	**2411.810**
M20 x 1.5	6 – 12	10	**2411.820**
M25 x 1.5	11 – 17	10	**2411.830**
M32 x 1.5	15 – 21	5	**2411.840**
M40 x 1.5	19 – 28	4	**2411.850**
M50 x 1.5	27 – 38	2	**2411.860**
M63 x 1.5	34 – 44	1	**2411.870**

Material:
Nickel-plated brass, neoprene seal

Protection category:
IP 68 (5 bar, 30 min.) to EN 60 529/10.91

Approval:
VDE tested to EN 50 262

Cable gland, polyamide

Benefits:
- Because the gland and lock nut are sold together in a single pack, this saves additional ordering work and storage locations.
- Clamping membranes for even tightening and strain relief which protects the cables.
- Spray-moulded sealing lip ensures an optimum seal against the enclosure.
- Trapezoid thread for secure screw-fastening of the top-hat nut.
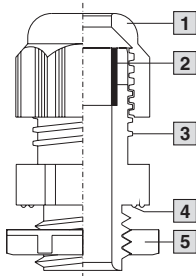
1 Top-hat nut

2 Neoprene seal

3 Trapezoid thread

4 Sealing lip

5 Lock nut

Size	Cable diameter mm	Packs of	Model No. SZ
M12 x 1.5	3 – 6.5	50	**2411.600**
M16 x 1.5	4.5 – 10	50	**2411.610**
M20 x 1.5	6 – 12	50	**2411.620**
M25 x 1.5	11 – 17	25	**2411.630**
M32 x 1.5	15 – 21	15	**2411.640**
M40 x 1.5	19 – 28	5	**2411.650**
M50 x 1.5	27 – 38	5	**2411.660**
M63 x 1.5	34 – 44	3	**2411.670**

Material:
Polyamide 6, neoprene seal

Colour:
RAL 7035

Protection category:
IP 68 (5 bar, 30 min.) to EN 60 529/10.91

Approval:
VDE tested to EN 50 262

Cable gland

B

7.7
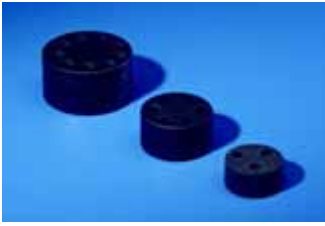
Multi-seal inserts

For the secure entry of several individual cables into a single cable gland.

Material:
Neoprene

Size	Cable diameter mm	Number of cables	Packs of	Model No. SZ
M20	3	4	25	**2411.500**
	4	3	25	**2411.501**
	5	3	25	**2411.502**
	6	2	25	**2411.503**
M25	3	7	25	**2411.504**
	4	6	25	**2411.505**
	5	4	25	**2411.506**
	6	3	25	**2411.507**
M32	3	9	25	**2411.508**
	4	9	25	**2411.509**
	5	6	25	**2411.510**
	6	6	25	**2411.511**

Stoppers

For the reliable sealing of unused cable entries. Simply insert into the multi-seal inserts instead of a cable, and clamp via the cable gland. Length 14 mm.

Material:
Polyamide 6

Diameter mm	Packs of	Model No. SZ
3	25	**2411.520**
4	25	**2411.521**
5	25	**2411.522**
6	25	**2411.523**

Double-membrane gland

for wall thicknesses from 1.5 to 4.5 mm
A high protection category can be achieved with cable entry, thanks to the double seal.

Material:
Plastic to UL 94-HB

Protection category:
IP 66 with careful cable entry.

For hole	Sealing range mm	Packs of	Model No. SZ
M16	5 – 9	50	**2898.160**
M20	7 – 12	50	**2898.200**
M25	9 – 16	50	**2898.250**
M32	14 – 21	25	**2898.320**

Stepped collar

for wall thicknesses from 1.5 to 4.5 mm
For cable entry, simply cut off at the required level to match the cable diameter.

Material:
Plastic to UL 94-HB

Protection category:
IP 54 with careful cable entry.

For hole	Sealing range mm	Packs of	Model No. SZ
M20	5 – 16	100	**2899.200**
M25	5 – 21	50	**2899.250**
M32	13 – 26.5	25	**2899.320**
M40	13 – 34	20	**2899.400**

Cable gland

B

7.7

Cable management

Cable gland

Connector gland

modular

For pre-assembled cables with connectors.
For mounting on 24-pole or 16-pole connector
cutouts in:
● Module plates for TS divider panel
● Metal gland plates

Material:
Plastic to UL 94-V0

Protection category:
IP 54, provided the correct connector grommet is
selected.

Supply includes:
Assembly parts.

Note:
Temperature range: –40°C to +120°C
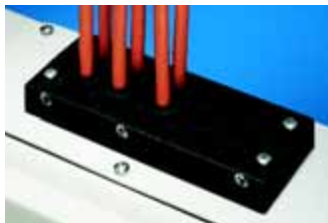
For Cutouts	For number of connector grommets	Model No. SZ
24-pole	10	**2400.700**
16-pole	8	**2400.710**

+ Accessories:

Module plates for TS divider panel,
see page 859.
Metal gland plates,
see page 969.
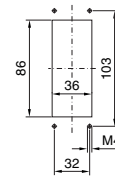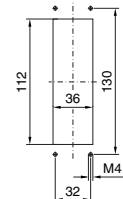
16-pole   24-pole

Connector grommets

To seal cables in conjunction with the connector
gland and option of strain relief via cable ties.

Material:
Thermoplastic rubber

Protection category:
IP 54, provided the correct connector grommet is
selected.

For cable diameter	Packs of	Model No. SZ
5 – 6 mm	10	**2400.720**
6 – 7 mm	10	**2400.730**
7 – 8 mm	10	**2400.740**
8 – 9 mm	10	**2400.750**
9 – 10 mm	10	**2400.760**
10 – 11 mm	10	**2400.770**
11 – 12 mm	10	**2400.780**
12 – 13 mm	10	**2400.790**
Solid	10	**2400.800**

Connector gland

for connector cutouts (24-pole)
For the entry of 2 pre-assembled cables in the
connector cutout, without dismantling the
connector.
For cable diameter from 8 – 36 mm.

Material:
Plastic
Clamp terminals: Sheet steel, zinc-plated,
passivated

Supply includes:
1 set =
2 half-shells, including seals,
with fastening clamp.

Packs of	Model No. SZ
1 set	**2400.000**

Cable gland

B

7.7

Connector gland

For pre-assembled cables with connectors.
- For material thickness of up to 4 mm.
- Strain relief of the pre-assembled cables can be achieved with cable ties.

Material:
Plastic

Colour:
RAL 9005

Protection category:
IP 65 subject to correct mounting.

Supply includes:
Assembly parts.

To fit	Packs of	Model No. SZ
2 cables up to Ø 8 mm	1	**2400.300**
3 cables up to Ø 6 mm	5	**2400.500**

German patent no. 199 08 657

Rittal service:

The cutouts may be made by our service centres.
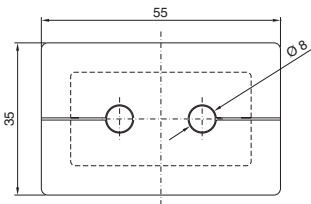
SZ 2400.300
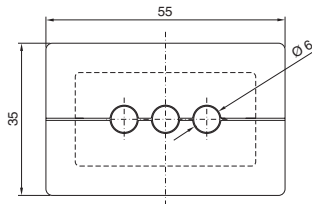
SZ 2400.500
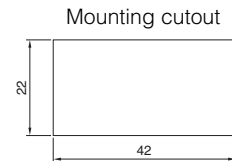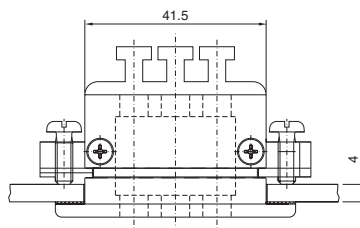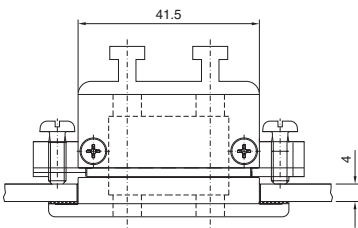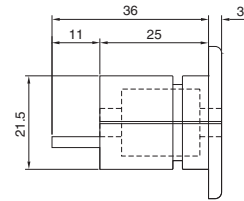
Mounting cutout

Adaptor plate

for connector entry
To fit
- IW worktop, prepared for turntable or enclosure attachment
- Operating housing with mounting cutout CPL, round
- Surfaces.
With 4 studs M6 x 45 mm.

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
Seal and assembly parts.

Packs of	Model No. IW
1	**6902.660**

Also required:

Connector gland
SZ 2400.300 or SZ 2400.500,
see page 975.

Cable gland

B

7.7

Cable management

Cable gland

Cable gland
for IW worktops
To fit drilled holes 60 mm. For the entry of cables with pre-assembled connectors, the rotating flap and cover are easily removed.

Material:
Plastic

Colour:
RAL 7035

Packs of	Model No. IW
1	6902.770
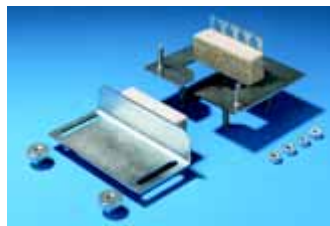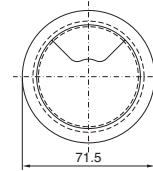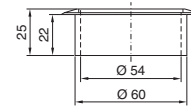
Cable gland module
CP-L, Ø 130 mm
Use with the support arm cutout CP-L, round, only with enclosures mounted on the wall, for sealed cable entry. May also be mounted retrospectively with the cables already inserted.
Fitted with T-heads for cable clamping. Particularly well-suited to cables with identical cross-sections.

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
Assembly parts.

Packs of	Model No. CP
1 unit	6052.500

Note:
Mounting cutout CP-L, Ø 130 mm,
see page 190.

Cable gland

B
7.7
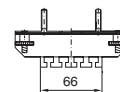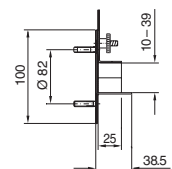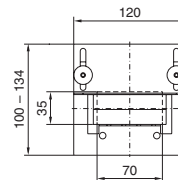
Cable duct
for vertical TS profile

For direct mounting on the vertical enclosure section.

Width 50 mm,
for assembly on a vertical enclosure section in the area of the side panel.

Width 100 mm,
for assembly on two bayed enclosure profiles in the baying area. Baying brackets and baying clamps which have already been fitted can be covered over with the cable duct.

The nominal break points of the members are also oriented towards combination with the cable ducts for mounting plates; in addition a further nominal break at the level of the mounting plate enables direct insertion into the cable duct.

The cable duct fastening points are co-ordinated with the TS system hole pattern; elaborate drilling, as in the case of DIN ducts, is dispensed with.
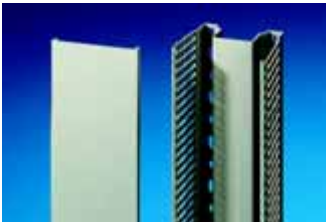
Width mm	Height mm	Packs of	Model No. TS
50	1600	8 sets	**8800.570**
50	1800	8 sets	**8800.520**
100	1600	4 sets	**8800.540**
100	1800	4 sets	**8800.510**

Technical specifications:
Depth: 80 mm
Length:
● 1,600 mm (for enclosure height 1,800 mm)
● 1,800 mm (for enclosure height 2,000 mm)
can be shortened for other enclosure sizes.
Member width: 5.5 mm
Slot width: 4.5 mm

Material:
Hard PVC, hardly inflammable,
self-extinguishing,
temperature-resistant to +60°C.

Colour:
Similar to RAL 7030

Supply includes:
1 set =
1 cable duct with cover.

✛ Accessories:

Plastic rivet for attachment,
see page 978.
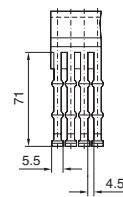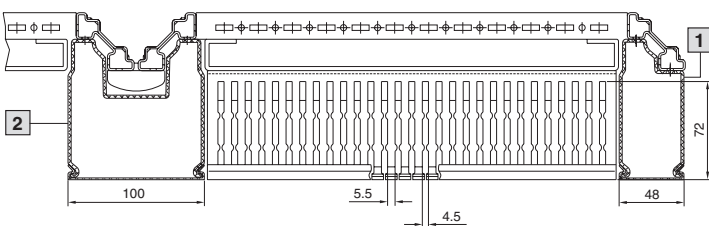
1 TS 8800.570/TS 8800.520
2 TS 8800.540/TS 8800.510
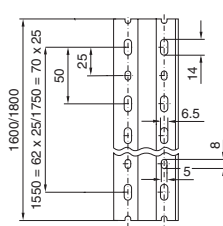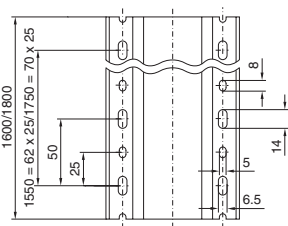
Length (L) mm	1600	1800
Width mm	**Model No. TS**	
48	**8800.570**	**8800.520**
100	**8800.540**	**8800.510**

Cable management

B

7.7

Cable management

Cable duct
for mounting plate

- To fit the cable ducts for vertical TS profiles. If the TS mounting plate is installed in the rearmost position, the horizontally mounted cable ducts are flush with the vertical ones.
- For external mounting on surfaces

Technical specifications:
Depth 80 mm
Length:
- Sized to the width of the TS, CL and ES mounting plates
- 2,000 mm
Bar width: 5.5 mm
Slot width: 4.5 mm

Material:
Hard PVC, hardly inflammable,
self-extinguishing,
temperature-resistant to +60°C

Colour:
Similar to RAL 7030

Supply includes:
1 set =
1 cable duct with cover.

+ Accessories:

Plastic rivet for attachment,
see page 978.

For enclosure width mm		600	800	1000	1200	Length 2,000 mm
Length (L) mm		499	699	899	1099	
Width mm	Packs of	Model No. TS				
30	24 sets	8800.730	8800.735	8800.740	8800.745	8800.750
40	20 sets	8800.731	8800.736	8800.741	8800.746	8800.751
60	18 sets	8800.732	8800.737	8800.742	8800.747	8800.752
80	12 sets	8800.733	8800.738	8800.743	8800.748	8800.753
100	12 sets	8800.734	8800.739	8800.744	8800.749	8800.754
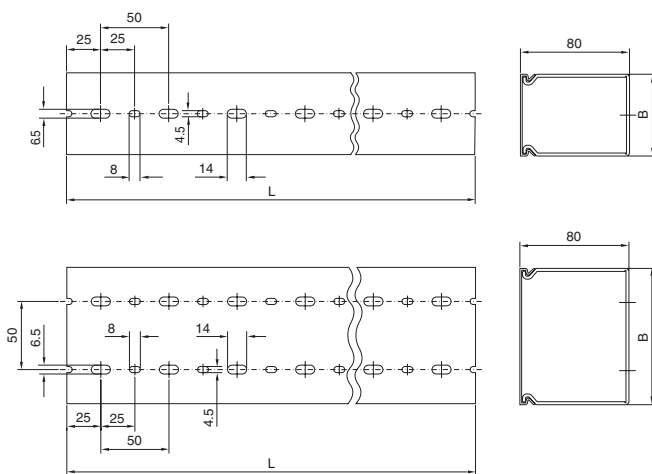
Plastic rivet

Easily mounted with a standard commercially available blind rivet tool.
For fastening the cable ducts in the
- TS system hole pattern
- Drilled hole Ø 4.5 mm

Packs of	Model No. TS
100	8800.530
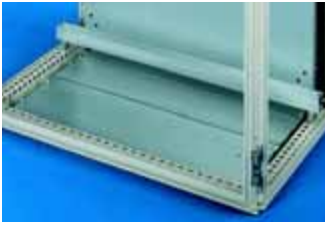
Cable clamp rails

Right angle section
For strain relief with cable entry. Depth-variable mounting on a 25 mm pitch pattern on the horizontal enclosure section or in side base/plinth trim panels with assembly bolts.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For TS, ES, PC, AP universal console, base/plinths

Enclosure width mm	Length mm	Packs of	Model No. PS
400	385	2	**4193.000**
600	585	2	**4191.000**
800	785	2	**4192.000**
850	835	2	**4195.000**
1000	985	2	**4336.000**
1200	1185	2	**4196.000**
1600	1585	2	**4338.000**
1800	1785	2	**4339.000**

(may also be used for AP, AK and AE base/plinths)

+ Accessories:

Fastening bolts for baying base/plinth trim, see page 838.
Cable clamp, see page 979.

Cable clamps,

for cable clamp rails
For fastening the cables to the cable clamp rails.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Plastic insert.

For Cable diameter mm	Packs of	Model No. SZ
6 – 12	25	**2350.000**
12 – 16	25	**2351.000**
14 – 18	25	**2352.000**
18 – 22	25	**2353.000**
22 – 26	25	**2354.000**
26 – 30	25	**2355.000**
30 – 34	25	**2356.000**
34 – 38	25	**2357.000**
38 – 42	25	**2358.000**
42 – 46	25	**2359.000**
46 – 50	25	**2360.000**

⇄ Possible alternative:

Rail for EMC shielding bracket and strain relief, see page 957.

Cable management

B
7.7

Cable management

Cable management

Cable clamping bracket

For installing in the operating housing with
mounting cutout CP-L and CP-XL.
Cable clamping optionally via:
● Cable clamps
  or
● Cable tie SZ 2597.000
● Commercially available cable ties.

Bracket height = 25 mm with fitted
C rail 40 mm.

Material:
Sheet steel, zinc-plated, passivated.

Supply includes:
C rail
and screws.

Packs of	Model No. CP
1 set	**6052.000**

⊞ **Accessories:**

Cable clamps,
see page 981.
Cable ties,
see page 982.

C rails

may be found under rail systems
from page 928.

Cable clamp rails

see page 983.

Combination rails

For cable clamping and routing.
Cables and leads can be fastened to the hammer
heads top and bottom with cable ties. In addition,
the C section of the combination rail will accom-
modate cable clamps with inserts.

Material:
Aluminium

Supply includes:
Assembly parts.

For Enclosure depth mm	Length mm	Packs of	Model No. QB
300/400	200	6	**7502.302**
500/600	400	6	**7502.304**

For Enclosure width mm	Length mm	Packs of	Model No. QB
600	400	6	**7502.304**

⊞ **Accessories:**

Cable ties,
see page 982.
Cable clamps,
see page 981.

Cable management

B

7.7

Cascade cable routing

for frame attachent
for DK-TS, FR(i)
Professional cable routing system for cascading of cables in several levels of the enclosure depth. The cables are attached to the C rail by means of clamps. Suitable for installation on the inner enclosure level.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
6 mounting brackets and 3 C rails, including assembly parts.

For Enclosure width mm	Packs of	Model No. DK
600	3	7831.570
800	3	7831.571

+ **Accessories:**

TS punched section with mounting flange for the inner or outer attachment level,
see page 921.
PS punched section without mounting flange for vertical mounting in the enclosure frame,
see page 925.
Cable clamps,
see page 981.

Cable clamps

for C rails
For attaching the cables to the C rails.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Plastic insert.

For Cable diameter mm	Packs of	Model No. DK
6 – 14	25	7077.000
12 – 18	25	7078.000
18 – 22	25	7097.000
22 – 26	25	7097.220
26 – 30	25	7097.260
30 – 34	25	7097.300
34 – 38	25	7097.340
38 – 42	25	7098.000
42 – 56	25	7098.100
56 – 64	25	7099.000

Cable conduit and cable conduit holder

For secure cable routing e.g. from the enclosure or mounting plate to the door. Option of attaching the cable conduit holder tailored to system punchings TS and to 482.6 mm (19″) pitch pattern with no drilling required.
Attachment facility for standard commercially available cable ties is provided on the cable conduit holder, so that cables may be attached upon entry to/exit from the cable conduit.

Material:
Cable conduit: Polythene
Cable conduit holder: Polyamide

Cable conduit holder:
German patent no. 37 60 110
European patent no. 0 257 367
with validity for DE, ES, FR, GB, IT
US patent no. 4,779,828

Cable conduit

Internal Ø mm	Packs of	Model No. SZ
16	25 m	2595.000
29	25 m	2589.000
36	25 m	2596.000
48	25 m	2590.000

Cable conduit holder

For cable conduit Ø mm	Packs of	Model No. SZ
16	20	2593.000[1]
29	20	2591.000[1]
36	20	2594.000
48	20	2592.000

[1] Installation in compact enclosures AE with universal bracket SZ 2373.000, see page 935.

Cable management

B
7.7

Cable management

Cable management

Cable fastening

For professional, secure fastening of cables and conduits.

For fastening:
- Slide into the mounting rail 23 x 23 mm
- screw-fasten onto the round punchings of the enclosures, as well as all punched rails and punched sections.

As the fastening attachments are bayable, several fastening attachments, even those of different sizes, can be assembled using just 2 screws.

Material:
Polyamide

For Cable diameter from – to mm	Packs of	Model No. PS
6 – 9	50	**4319.090**
9 – 12	50	**4319.120**
12 – 16	50	**4319.160**
16 – 20	50	**4319.200**

⚠ Also required:

Posidrive raised countersunk screw M5 x 12 mm, SZ 2488.000, for screw-fastening to the round system punchings,
see page 937.

➕ Accessories:

Punched rail 23 x 23 mm,
see page 925.

Cable ties

The super-fast solution for fastening cables to the enclosure profile or mounting system parts. Simply clip into the round system punchings.

Length mm	Packs of	Model No. SZ
150	100	**2597.000**
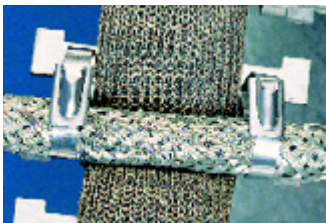
Metal cable ties

see page 958.

Nylon loop

With the nylon loop, secured cables are easily released, allowing individual cables to be added or removed. Ideal for sensitive data cables (fibre-optic/Cu), as it avoids indentations on the cable sheathing.
In addition, the nylon loop may be screw-fastened to the round system punchings.

Colour:
Black

Width mm	Length mm	Max. cable diameter mm	Packs of	Model No. DK
16	130	30	10	**7072.220**
16	200	50	10	**7072.230**
16	300	90	10	**7072.240**

⚠ Also required:

Screw SZ 2486.500 for screw-fastening to the round system punchings,
see page 937.

Cable management

B

7.7

Cable tie fastener

for round system punchings and VIP 6000

For all commercially available cable ties up to a tie width of 4.8 mm.

Simply insert into the round system punchings or into the screw channel, and secure by hammering down the split rivet.

Material:
Polyamide 6.6
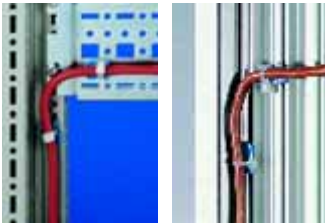
Packs of	Model No. CP
100	**6059.000**

Cable tie fastener

for Optipanel

For secure cable routing of all standard commercially available cable ties up to a tie width of 4.0 mm.

Secured in the T channel by rotating through 45°.

Material:
Polyamide 6.6

Packs of	Model No. CP
100	**6059.500**

Cable clamp rails

for TS and 482.6 mm (19″) mounting frames
The cables may be attached to the cable clamp rails with cable ties or nylon tapes. The cable clamp rails are simply located onto the frame section and may be additionally secured with a screw.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

⊞ **Accessories:**

Cable ties, see page 982.
Nylon loop, see page 982.

For the inner mounting level

For enclosures		Packs of	Model No. DK
Width mm	Depth mm		
600	600	4	**7828.061**
800	800	4	**7828.081**
900	900	4	**7828.091**
1000	1000	4	**7828.101**

For the outer mounting level

For enclosures		Packs of	Model No. DK
Width mm	Depth mm		
600	600	4	**7828.062**
800	800	4	**7828.082**
900	900	4	**7828.092**
1000	1000	4	**7828.102**

Cable management

B

7.7

Cable management

Cable management

Cable clamp rails, depth-variable

for TS and 482.6 mm (19″) mounting frames
For strain relief of the routed cables. The cables may be attached to the cable clamp rails with cable ties or nylon tapes.
The cable clamp rails may be located directly on a 482.6 mm (19″) mounting frame horizontally at the rear or in the enclosure depth between two mounting frames. An additional screw-fastening secures the unit.
The depth variability of the rails facilitates flexible adaptation of their length to the existing attachment distance between the two 482.6 mm (19″) mounting frames.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

19″ distance between levels mm	Packs of	Model No. DK
445 – 695	4	**7858.160**
620 – 1015	4	**7858.162**

+ **Accessories:**

Cable ties,
see page 982.
Nylon loop,
see page 982.

Shunting ring, plastic

For flexible cable routing, in two materials and three size variants.
Option of mounting to the 482.6 mm (19″) enclosure and swing frame profile of the data distributor, to the system strips of FM distribution enclosures, to all patch panels, to the Rittal Data Rack and all components on a 25 mm DIN pitch pattern.

Polyamide version:
Infinitely variable mounting thanks to a longitudinal slot. The shunting ring DK 7218.035 may also be used on 1 U patch panels.

Colour:
RAL 7035

Material	Dimensions mm	Packs of	Model No. DK
Polyamide	70 x 44	10	**7218.035**[1]
Polyamide	105 x 70	10	**7219.035**[1]
Polycarbonate	95 x 50	10	**7228.035**

[1] German patent no. 44 13 124

Polycarbonate version:
Variable mounting. With 45° attachment the cable shunting ring may be attached to a 1 U panel.

Colour:
RAL 7035

⇄ **Possible alternative:**

Cable management panel, 482.6 mm (19″), 1 U,
see page 989.

Cable shunting ring

For flexible, system-compatible cable routing at the side of the 482.6 mm (19″) mounting frame.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Dimensions mm	Packs of	Model No. DK
120 x 80	10	**7111.900**
120 x 60	10	**7111.000**
80 x 37	10	**7112.000**

German patent no. 38 13 002

Shunting ring

To accommodate large quantities of cables. Shunting ring for side attachment to 482.6 mm (19″) sections and 482.6 mm (19″) mounting frames in 800 mm wide network enclosures. The ring is attached asymmetrically, with $1/3$ in front and $2/3$ behind the 482.6 mm (19″) front mounting angle. In this way, even large quantities of cables can be effectively managed.

Material:
Round steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Dimensions mm	Packs of	Model No. DK
300 x 90	4	**7220.600**
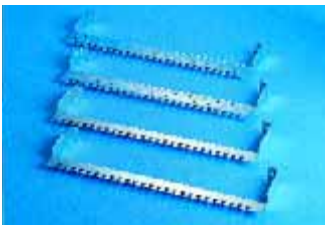
Cable clamp straps

for patch panels

To provide strain relief of incoming or outgoing data cables. Optionally available with spring brackets for accommodating and contacting the cable screen. Connection to the patch panel is by means of bolts on the panel itself.

Material:
Sheet steel 2 mm, zinc-plated, passivated

Supply includes:
Assembly parts.

Design	Model No. DK
Without cable screen contact	**7610.000**
With spring clips for contacting the cable screen	**7611.000**

Rail spacing brackets

for patch panels

For fastening punched rails PS 4170.000 with 2 U nuts PS 4179.000, as cable clamps or cable routing directly behind the panel.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. DK
12	**7110.000**

Extended delivery times.

⊞ **Accessories:**

Mounting rails,
see page 925.
Sliding nut M6,
see page 936.

Cable management

B

7.7

Cable management

Cable management

Fibre-optic shunting rings

The inner body is grooved, and fibre-optic shunting or jumper cables can be inserted into these. A rubber ring holds different fibre-optic cables with diameters of up to 4.5 mm. Strain relief and bending radius are ensured. Length: 120 mm.

Material:
Plastic

Colour:
Outside: RAL 7035
Inner body: Black

Supply includes:
2 shunting rings,
2 rubber rings,
baying kit,
including mounting accessories.

Assembly:
The supplied mouting brackts are suitable for universal use; the fibre-optic cables can be routed to the patch panel in all directions in various mounting positions:

1 At the side, directly on the patch panel

2 In front of the patch panel

3 At the side next to the patch panel

4 Behind the patch panel
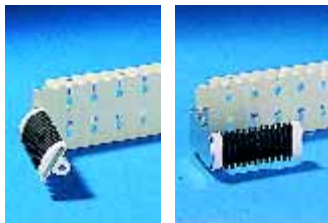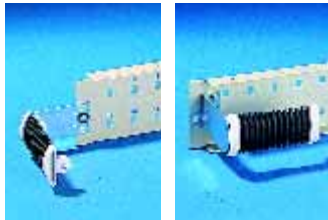
Packs of	Model No. DK
2	**7116.500**

German patent no. 196 48 489
German patent no. 196 48 490

⇄ **Possible alternative:**

Fibre-optic cable management panel
482.6 mm (19″) 1 U,
see page 992.

Cable route

For cable routing between two 482.6 mm (19″) mounting angles in bayed enclosure suites (enclosure width 800 mm, mounting angles fitted centrally). Suitable for L-shaped and cranked mounting angles.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Packs of	Model No. DK
1	**7827.050**

Surplus cable holder

For fastening at the rear area of the enclosure, or at the side of network enclosures. The surplus cable holder can be attached to all depth stays or to punched sections and rails with a 25 mm pitch pattern – mounting dimension 150 mm. Units may also be fastened to each other.

Material:
Sheet steel

Colour:
RAL 7035

W x H x D mm	Model No. DK
280 x 151 x 75	**7220.500**

Cable management

B

7.7

Cable management duct

for TS

For side cable routing. The cable management duct is attached to 482.6 mm (19″) mounting angles at the sides of the 800 mm wide TS network enclosure. For this purpose, the mounting angles must be mounted on installation brackets. Thanks to the removable front trim panel equipped with quick-release fasteners, cables can also be retrospectively removed or added.

Dimensions:
W x D: 95 x 94 mm

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Supply includes:
Assembly parts.

U	For enclosure height mm	Model No. DK
31	1600	**7827.333**
36	1800	**7827.338**
40	2000	**7827.342**
45	2200	**7827.347**

! Also required:

Installation brackets TS for mounting angles, see page 1009.

Cable routing components

for FR(i)

For snap-fastening into the vertical frame channel.

Type 1:
With horizontal bar for attaching the cables in the frame channel.

Type	Packs of	Model No. DK
1	10	**7218.100**
2	10	**7218.105**

Material:
Polycarbonate

Colour:
RAL 7035

Type 2:
Additionally with semi-circular bead for kink-free cable entry and exit.

Expansion kit

horizontal cable management
for FR(i)

Allows the enclosure frame to be extended in the depth by approximately 100 mm. The space thereby acquired may be used for horizontal cable management between bayed enclosures.

Expansion kit

Packs of	Model No. FR
1 set	**7856.740**

Note:
Combination of the extension kit with divided doors is not possible.

Material:
Sheet steel, spray-finished

Colour:
RAL 7035

Supply includes:
1 set =
8 spacer supports, including assembly parts.

Trim panels

Enclosure height mm	Packs of	Model No. FR
2000	2	**7856.743**
2200	2	**7856.746**

Note:
Upon request, trim panels may be inserted on the outer sides of the bayed enclosure suites to protect the enclosures against unauthorised access.

Cable management

B

7.7

Cable management

Cable management

Mounting/cable management panel

for QB 3 U, 6 U with vertical 482.6 mm (19″) level

For structured cable routing or for mounting small components or distributors (such as hubs, switches etc.). The cable management panel is easily fitted in the front of the rear panel from the front.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Packs of	Model No. QB
1	**7502.270**

➕ **Accessories:**

Nylon loop, see page 982.
Cable ties, see page 982.
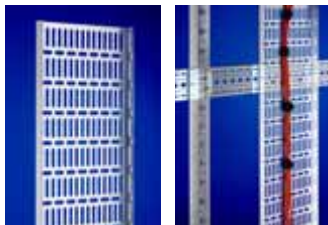
Cable route

Universal cable tray. Ideal for network enclosures with large quantities of cable.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Width mm	Length mm	Packs of	Model No. DK
150	1700	1	**7858.150**
200	1700	1	**7858.152**
300	1700	1	**7858.154**

➕ **Accessories:**

Nylon loop, see page 982.
Cable ties, see page 982.

Cable glands

for fibre-optic technology

The standard sizes PG 7 and PG 13.5 have a slotted inner seal. This allows super-easy cable entry. Ideal for routing break-out cables, as this eliminates unnecessary bending of the fibre-optic cables.

Material:
Cable gland: Brass, nickle-plated
Inner seal: Soft PVC insert

Fibre-optic cable glands	Packs of	Model No. DK
PG 7	12	**7455.010**
PG 13.5	12	**7455.030**

Cable management

B

7.7

Cable management panel 1 U

42 HP (¹/₂ 19″)
for RNC, RiCase
For horizontal cable routing.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Tray and 5 shunting rings.

U	Model No. DK
1	7502.610

Entry panel 1 U

42 HP (¹/₂ 19″)
for RNC, RiCase
For system-compatible entry of patch cables
which complies with the minimum bending radii.
Cutout approximately 227 x 30 mm.

Material:
Sheet steel

Colour:
RAL 7035

Packs of	Model No. DK
2	7870.730

Cable management panel, 482.6 mm (19″), 1 U

482.6 mm (19″)
For horizontal management of the patching
cables with 5 cable shunting rings, supplied
loose.

Material:
Panel: Sheet steel
Ring: Polyamide

Colour:
RAL 7035

U	Ring size mm	Model No. DK
1	70 x 44	7159.035

Material:
Panel: Sheet steel
Ring: Polycarbonate

Colour:
RAL 7035

U	Ring size mm	Model No. DK
1	95 x 50	7255.035

Material:
Panel: Sheet steel
Ring: Sheet steel, zinc-plated, passivated

Colour:
RAL 7035

U	Ring size mm	Model No. DK
1	100 x 37	7257.035
2	120 x 80	7257.100

Cable routing 482.6 mm (19″)

B

7.7

Cable management

Cable management panel, 2 U

482.6 mm (19″)
The cable routing chamber has cutouts from above, into which the patch cables can be inserted. The cable management panel is equipped with a flap and quick-release fasteners at the front, for optimum access to the cables. From the rear, the cables can be inserted via a cutout with brush strips. With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Depth mm	Model No. DK
2	85	**7158.035**

⊞ **Accessories:**

Cable clamp straps,
see page 985.
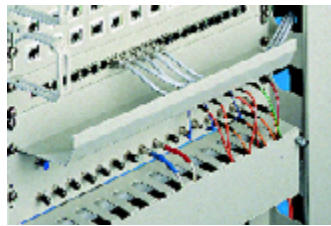
Cable routing channel

482.6 mm (19″)
To hold the patching cables.

Material:
Sheet steel

Colour:
RAL 7035

U	Depth mm	Model No. DK
1	85	**7149.135**
3	100	**7149.035**

Other versions available on request.

Cable management panel, 2 U

To accommodated fibre-optic and copper cables. Fibres from the patch panels are placed into the tray via openings and may be distributed at the sides. Rounded openings protect the cable sheathing.

Material:
Sheet steel

Colour:
RAL 7035

U	Model No. DK
2	**7269.135**

Cable management duct, horizontal

482.6 mm (19″)
The duct facilitates concealed, simple cable routing of large quantities of cables to equipment within the 482.6 mm (19″) attachment level. Large cutouts ensure convenient, kink-free cable routing to the cables top and bottom.
For simple handling, the entire front panel may be removed via quick-release fasteners. After attaching the cables, these are held in position via nylon ties, whilst the duct may be resealed.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
5 nylon loops.

U	Model No. DK
2	7158.100
3	7158.150

Cable tray, 2 U

For side routing and distribution of fibre-optic and copper cables. In this way, cables inserted into the roof area may be routed at the side of the mounting angles in the upper section of the rack. Depth 85 mm.

Material:
Sheet steel

Colour:
RAL 7035

U	Model No. DK
2	7269.235

Copper and fibre-optic cable management panel

The panel is attached between the cranked 482.6 mm (19″) mounting angles. The fibres are routed via the panel; minimum bend radii are maintained.
The hammer heads provide strain relief for individual cables.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

U	Model No. DK
2	7269.335

Other versions available on request.

Fibre-optic cable management panel, 2 U

482.6 mm (19″)
This panel supports routing of the fibre-optics whilst observing the minimum bend radii within horizontal and vertical cable management.

Material:
Sheet steel

Colour:
RAL 7035

U	Model No. DK
2	7116.560

Cable routing 482.6 mm (19″)

B

7.7

Cable management

Cable routing 482.6 mm (19″)

Fibre-optic cable management panel, 1 U

482.6 mm (19″)
The four fibre-optic cable shunting rings integrated into the front permit optimum management of up to 48 fibres.

Material:
Panel: Sheet steel
Ring: Plastic

Colour:
Panel: RAL 7035
Cable shunting rings on the outside: RAL 7035
Black interior

U	Model No. DK
1	**7256.035**

⇄ **Possible alternative:**

Fibre-optic support guide DK 7116.500,
see page 986.
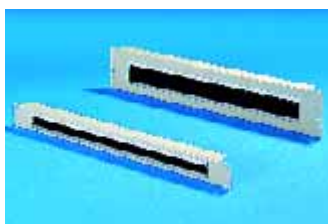
Cable entry panel

482.6 mm (19″)
Cutout 390 x 40 mm (2 U) or 390 x 20 mm (1 U) with brush insert. With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Model No. DK
1	**7140.535**
2	**7150.535**

Other versions available on request.

➕ **Accessories:**

Cable clamp straps,
see page 985.

Cable routing across the 482.6 mm (19″) mounting level

There is a choice of five different cable clamping systems for system-compatible cable routing in 482.6 mm (19″) systems with one or two pairs of mounting angles:

C rail
for fastening across all 482.6 mm (19″) mounting angles.

Cable clamp rails
for fastening across all 482.6 mm (19″) mounting angles, for cable ties.

Cable clamp straps for large swing frames, and Data Rack,
the cable clamp straps are mounted on the frame at the rear, whilst the cables are clamped 250 mm behind the 482.6 mm (19″) mounting angles.

Cable clamp straps for DK-TS mounting angles,
with side lugs suspending from the cranked 482.6 mm (19″) mounting angles. Cable clamping is via cable ties.

Cable clamp strap for Rittal TC Rack,
for fastening across all 482.6 mm (19″) mounting angles, for cable ties.

Material:
Sheet steel, zinc-plated, passivated

C rail	Depth in mm	Model No. DK
482.6 mm (19″) mounting angles	–	**7016.100**

Cable clamp rail	Depth in mm	Model No. DK
482.6 mm (19″) mounting angles	–	**7016.110**

Cable clamp strap for	Depth in mm	Model No. DK/FR
Data Rack, and large swing frame	250	**7016.120**
DK-TS mounting angles	100	**7016.130**
TC rack mounting angles	100	**7875.400**[1]

Packs of 6
[1] Extended delivery times.

❗ **Also required:**

With L-shaped TS mounting angles,
adaptor DK 7827.300 is additionally required,
see page 950.

Swing frame, small

for 600 mm and 800 mm wide TS enclosures
For mounting 482.6 mm (19″) equipment.
The front mounting situation, at the top or bottom of the enclosure frame, is achieved with the divider kit. The installation accessories required for other installation variants are described separately (see page 994).
With 800 mm wide enclosures, central or side-off-set installation is possible.

Technical specifications:
Torsionally stiff frame, welded from rectangular tube and triple folded support section.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Cam with double-bit lock insert and parts for attaching to the divider kit.

! Also required:

Divider kit for swing frame, small,
see page 994.

+ Accessories:

PS punched section without mounting flange
see page 925.
Support bracket TS,
see page 933.
Lock inserts, type D,
see page 888.
Plastic handle, type C,
see page 886.
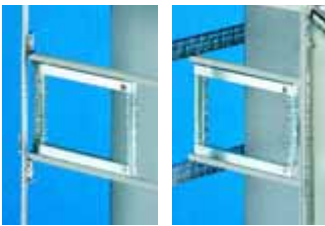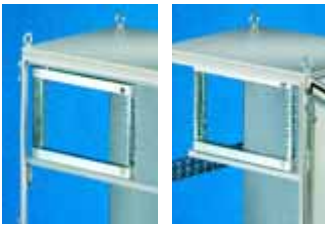
Height units	3 U	6 U	9 U	12 U	15 U	18 U
Model No. SR	**2377.030**	**2377.060**	**2377.090**	**2377.120**	**2377.150**	**2377.180**
H1 mm	275	408	541	675	808	941
H2 mm	217	350	483	617	750	883
H3 mm	137	270	403	537	670	803

Installation depth T max. = mm with dimension D[1] of at least 45 mm

Enclosure width mm	600	800	800
Installation	central	side	central
Enclosure depth mm	T max.	T max.	T max.
400	185	310	310
500	185	410	370
≥ = 600	185	500	370

[1] D = Distance from the inner edge of the door to the front edge of the swing frame may be installed deeper on a 25 mm pitch pattern.

For 600 mm wide enclosures
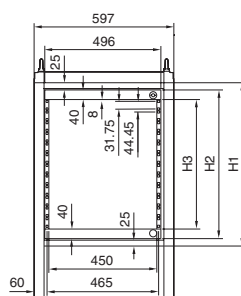
For 800 mm wide enclosures
optionally side or central
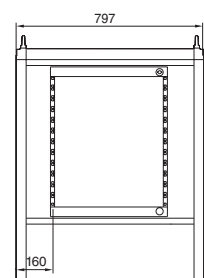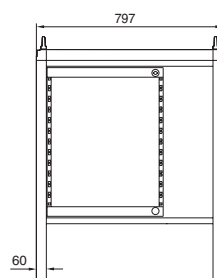
Swing frame

5 examples for TS

Partial installation in 600 and 800 mm wide enclosures,
in the foremost or rearmost position.
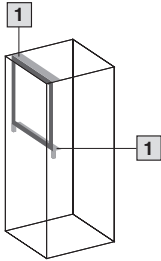
Front
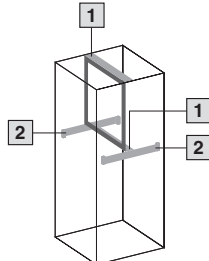
Set back

Partial installation, centre
in 600 and 800 mm wide enclosures.
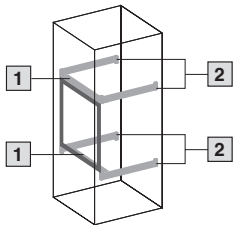
Front
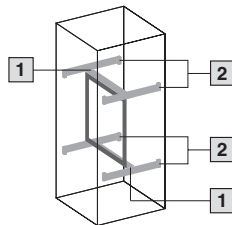
Set back

Also required:

Depending on the installation position:

1 Divider kit for swing frame, small.

2 PS punched section without mounting flange
23 x 73 mm according to the enclosure depth
in conjunction with 4 support brackets
TS 8800.330 (2 included with the supply of the
divider kit).

Note:
Height compensation between the 25 mm pitch
pattern of holes in the enclosure and the height
units of the swing frame is achieved by the sup-
port brackets TS (two are included with the sup-
ply of the divider kit).

Side installation
With an enclosure depth of 600 or 800 mm, side
installation of a small swing frame is identical to
installation parallel to the front.
For access to the swing frame we recommend the
hinges for the TS side panel,
see page 854.
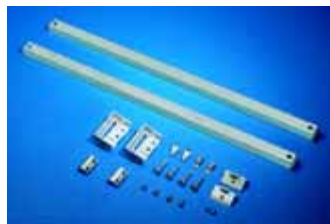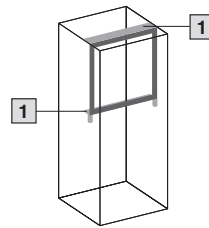
Divider kit

**for swing frame, small, or hinge attachment for
partial mounting plate
in TS 8.**

Material:
Cross member: Sheet steel, passivated
Support bracket TS: Die-cast zinc

Supply includes:
2 cross members,
including assembly parts.

Enclosure width mm	Model No. SR
600	**2377.860**
800	**2377.880**

Accessories:

Depending on the installation position
(see above):
Support brackets TS 8800.330,
see page 933,
and PS punched sections without mounting
flanges to match the enclosure depth,
see page 925.

Divider kit

**for swing frame, small
in ES, AP universal console**

Enclosure width mm	Packs of	Model No. SR
600	1 sets	**2377.460**

Accessories:

Depending on the installation position:
Support brackets PS 4183.000,
see page 933,
and PS punched sections without mounting
flanges to match the enclosure depth,
see page 925.

Swing frame

B

7.8

Swing frame, large

without trim panel
for TS, ES, AK, AP universal console
For mounting 482.6 mm (19″) equipment.
The installation accessories required for other
installation variants are described separately
(see page 996).

Technical specifications:
Torsionally stiff frame, welded from rectangular
tube and triple folded support section.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
2 cams with double-bit lock insert and parts for
attaching to the divider kit.

Note:
If the enclosure height is not fully utilised by the
swing frame, additional mounting accessories –
see page 996 – will be required.

! Also required:

Divider kit for swing frame, large,
see page 996.

+ Accessories:

Depending on the installation position:
TS punched section with mounting flange,
23 x 73 mm,
see page 922.
TS punched rail 18 x 38 mm,
see page 923.
Punched sections with mounting flanges,
see page 926.
Width divider,
see page 850.
Lock inserts, type D,
see page 888.

Height units	22 U	31 U	36 U	40 U	45 U
Model No. SR	**2322.700**	**2331.700**	**2336.700**	**2340.700**	**2345.700**
for enclosure height mm (or higher)	1200	1600	1800	2000	2200
H1 mm	1061.5	1461.5	1684.5	1861.5	2084.0
H2 mm	981.5	1381.5	1604.0	1781.5	2004.0

Installation depth T max. = mm with dimension D[1] of at least 49 mm

Enclosure width mm	600	1200	1200
Installation	central	left or right	left and right
Enclosure depth mm	T max.	T max.	T max.
400	185	295	295
500	185	395	365
600	185	495	365
800	185	695	365

[1] D = Distance from the inner edge of the door to the front edge of the swing frame may be installed deeper on a 25 mm pitch pattern.
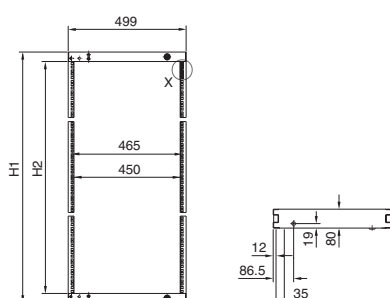
Cutout "X"
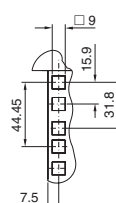
Swing frame

13 examples for TS

Full installation

600 mm
front

1200 mm
front

1200 mm
front with width
divider

1200 mm
set back with
width divider

Partial installation, top

600 mm front

600 mm
set back

1200 mm
front

1200 mm
set back

Partial installation, centre

600 mm
front

600 mm
set back

1200 mm
front
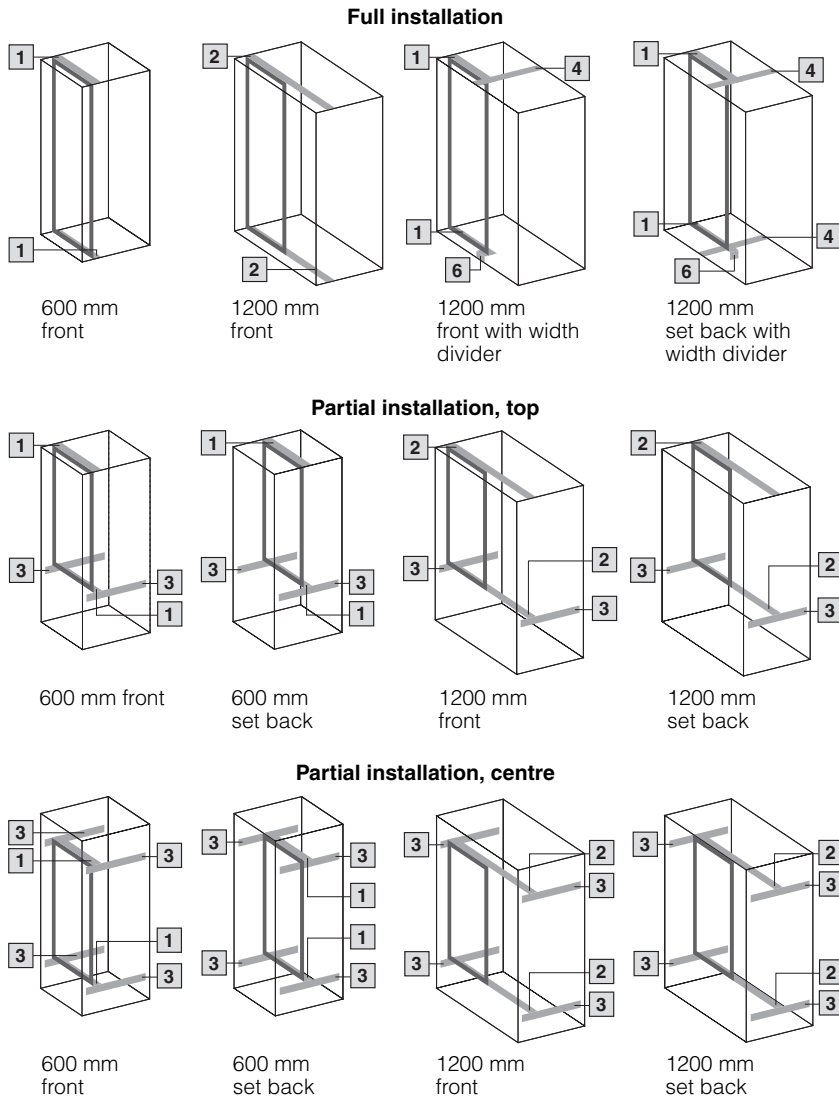
1200 mm
set back

⚠ Also required:

Depending on the installation position:

1 Installation kit for 600 mm wide enclosures

2 Installation kit for 1200 mm wide enclosures

3 TS punched section with mounting flange 23 x 73 mm for the inner mounting level in the respective enclosure depth, for installation in ES = PS punched sections with mounting flanges

4 PS punched section without mounting flange in the respective enclosure depth in conjunction with support bracket PS

5 TS punched rail 18 x 38 mm in the corresponding enclosure depth[1]

6 Width divider (left-hand or right-hand angle)[1]

[1] Not possible with ES, AK.

Notes:
- Height compensation between the 25 mm pitch pattern of holes in the enclosure and the height units of the swing frame is achieved by the upper divider kit.
- Partial installation at the bottom matches partial installation at the top.
- Only full installation at the front possible with AK.

Side installation
With an enclosure depth of 600 mm, side installation of a large swing frame is identical to installation parallel to the front.
For access to the swing frame we recommend the hinges for the TS side panel, see page 854.
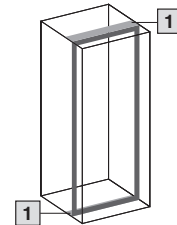
Divider kits
for swing frame, large
With for 800 mm wide enclosures, the swing frame may also be installed in the centre or offset to the side.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Parts for attaching to the enclosure.

✛ Accessories:

Swing frame stay,
see page 999.

Swing frame

B

7.8

Divider kits for swing frame, large without trim panel

For enclosure width mm	For enclosures			With 130° hinge			With 180° hinge		
				Mounting plate slide rail[1]			Mounting plate slide rail[1]		
				without < 800 N	with < 1500 N	without < 1500 N	without < 800 N	with < 1200 N	without < 1200 N
	TS	ES, AP Universal console	AK	Model No. SR	Model No. SR	Model No. SR	Model No. SR	Model No. SR	Model No. SR
600	■			1994.835	1994.835	1994.635	–	–	–
		■		1994.835	1994.835	–	–	–	–
			■	1985.235	–	–	–	–	–
800	■			1995.235	1995.235	1995.835	1997.235	1997.235	1997.835
		■		1995.235	1995.235	–	1997.235	1997.235	–
			■	1986.235	–	–	–	–	–
1200	■			–	–	1996.535	–	–	–
		■		1996.835	1996.835	–	–	–	–

[1] For: TS screw-fastened, removable/ES welded/AK not possible.

Swing frame, large

with trim panel
for TS, ES, AK
For mounting 482.6 mm (19″) equipment.
The installation accessories required for other installation variants are described separately (see page 994).

Technical specifications:
Torsionally stiff frame, welded from rectangular tube and six-folded support section. The side trim panels are screw-fastened to the frame. The right-hand trim panel has a handle strip at the side and is equipped with a locking rod system.

Material:
Sheet steel

Surface finish:
Frame, zinc-plated, passivated
Trim panels spray-finished

Colour:
RAL 7035

Supply includes:
Locking rod system with double-bit lock insert and parts for attaching to the divider kit.

Note:
If the enclosure height is not fully utilised by the swing frame, additional mounting accessories – see page 998 – will be required.
For two-door enclosures with height 1800 and 2200 mm the next-smallest swing frame must be installed, due to collision with the lock.

Also required:
Divider kit for swing frame, large,
see page 998.

Accessories:
TS punched section with mounting flange,
23 x 73 mm,
see page 922.
Punched sections with mounting flanges,
see page 926.
Lock inserts, version A,
see page 888.
Ergoform S lock system,
see page 885.

Height units		22 U		31 U		36 U		40 U		45 U	
Trim panel		side	central	side	central	side	central	side	central	side	central
Model No. SR	**RAL 7035**	**2323.235**	**2324.235**	**2332.235**	**2333.235**	**2337.235**	**2338.235**	**2341.235**	**2342.235**	**2346.235**	**2347.235**
for enclosure height mm (or higher)		1200		1600		1800		2000		2200	
H1 mm		1061.5		1461.5		1684.5		1861.5		2084.0	
H2 mm		981.5		1381.5		1604.0		1781.5		2004.0	

Installation depth T max. = mm with dimension D[1] of at least 49 mm with 130° hinge, 95 mm with 180° hinge		
Enclosure width mm	800	
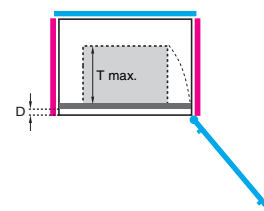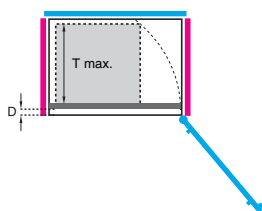
Installation	side		central
Hinge	130°	180°	180°
Enclosure depth mm	T max.	T max.	T max.
400	295	252	252
500	395	352	345
600	470	428	345
800	470	428	345

[1] D = Distance from the inner edge of the door to the front edge of the swing frame may be installed deeper on a 25 mm pitch pattern.

Installation components
side
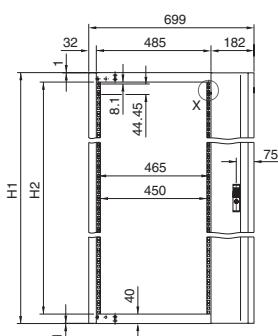
Cutout "X"
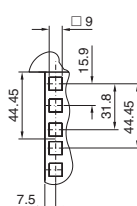
Installation components
centre

Swing frame

B

7.8
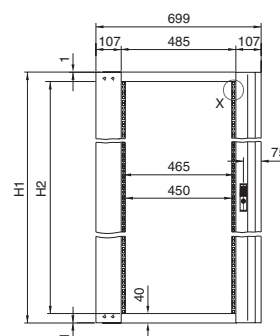
Swing frame

7 examples for TS

Full installation
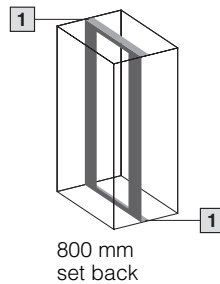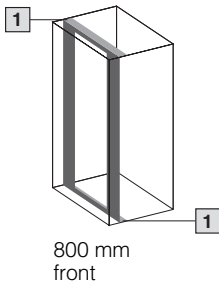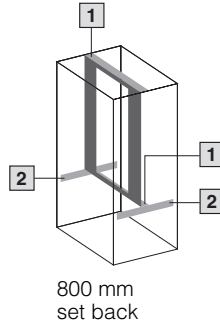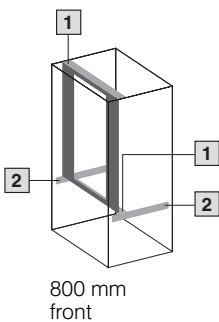
800 mm
front

800 mm
set back

Partial installation, top

800 mm
front

800 mm
set back

Partial installation, centre

800 mm
front
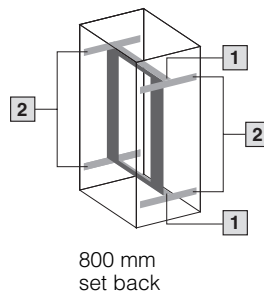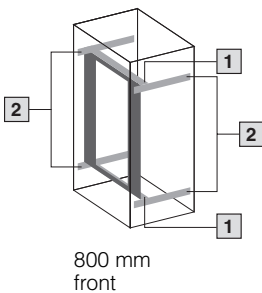
800 mm
set back

⚠ Also required:

Depending on the installation position:

1 Divider kit for 800 mm wide enclosures

2 TS punched section with mounting flange
23 x 73 mm for the inner mounting level corre-
sponding to the enclosure depth, for installa-
tion in ES = PS punched sections with mount-
ing flanges

Notes:
● Height compensation between the 25 mm pitch
pattern of holes in the enclosure and the height
units of the swing frame is achieved by the
upper divider kit.
● Partial installation at the bottom matches partial
installation at the top.
● Only full installation at the front is possible
with AK.

Side installation
With an enclosure depth of 800 mm, side installa-
tion of a large swing frame is identical to installa-
tion parallel to the front.
For access to the swing frame we recommend the
hinges for the TS side panel,
see page 854.

German patent no. 38 13 004
Swedish patent no. 505 069
Dutch patent no. 193 708
(Patents do not apply to
SR 1986.235/SR 19878.235)
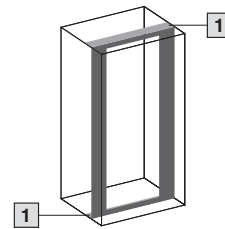
Divider kits
for swing frame, large

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Parts for attaching to the enclosure.

⊞ Accessories:

Swing frame stay,
see page 999.

Divider kits for swing frame, large with trim panel

For enclosure width mm	For enclosures			With 130° hinge			With 180° hinge		
				Mounting plate slide rail[1]			Mounting plate slide rail[1]		
				without < 800 N	with < 1500 N	without < 1500 N	without < 800 N	with < 1200 N	without < 1200 N
	TS	ES, AP Universal console	AK	Model No. SR	Model No. SR	Model No. SR	Model No. SR	Model No. SR	Model No. SR
800	■			1995.235	1995.235	1995.835	1997.235	1997.235	1997.835
		■		1995.235	1995.235	–	1997.235	1997.235	–
			■	1986.235	–	–	1986.235 + 1978.200	–	–

[1] For: TS screw-fastened, removable/ES welded/AK not possible.

Swing frame, 482.6 mm (19″)

Heavy-duty version
for 800 mm wide enclosures, based on TS 8
The swing frame facilitates the accommodation of a wide range of 482.6 mm (19″) components up to a weight load of 350 kg. By swinging it out, access may be gained to the rear of the equipment and its cabling at any time.
At the side, the swing frame has a trim panel with integral handle strip and two-point locking bar. A semi-cylinder lock can be achieved by using the Ergoform-S handle system.
Several openings in the trim panel permit convenient cable routing from the rear of the swing frame in the front section. The openings may also be optionally top-mounted with standard commercially available plastic cable ducts.
An additional vertical row of holes integrated into the trim panel facilitates vertical and horizontal cable routing via cable shunting rings.
Installation is only possible in the form of full enclosure installation. The installation position may be varied in the enclosure depth.

U	For enclosure height mm	Model No. DK
40	2000	**7858.100**

Load capacity:
350 kg

Material:
Swing frame: Sheet steel, zinc-plated, passivated
Trim panel and divider kit: Sheet steel, spray-finished, RAL 7035

Supply includes:
Locking rod with double-bit lock insert, heavy-duty divider kit and assembly parts.
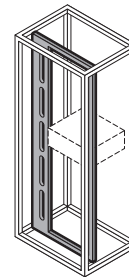
Swing frame stay

Holds the swing frame in the open position.

For mounting on:
Swing frame, large
● SR 1979.200, at the top of the enclosure
● SR 1980.200, at the bottom of the enclosure (with safety catch at 160°)
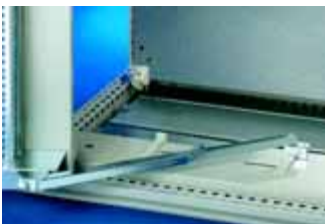
For mounting on:
Swing frame, small
● SR 1979.200, may be mounted at the top or bottom of the divider kit.

	Packs of	Model No. SR
With 130° hinge	5	**1979.200**
With 180° hinge	1	**1980.200**

Slide rails

To support heavy slide-in electronic equipment, 482.6 mm (19″) in the swing frame.

Material:
Sheet steel, zinc-plated, passivated

For equipment with a max. installation depth	Packs of	Model No. SR
T max. < 190 mm	10	**1962.200**
T max. > 190 mm	10	**1963.200**

Swing frame

B
7.8

Swing frame

Pull-out frame, 482.6 mm (19″)

For the installation of a pull-out 482.6 mm (19″) front. For 600 and 800 mm wide TS enclosures, from a depth of 800 mm.

Overall depth: 525 mm
Extension piece: 500 mm
Distance: 300 mm

Load capacity: 50 kg

Colour:
RAL 7035

Supply includes:
Telescopic slides and assembly parts.

German patent no. 39 07 471

For U	Height mm	Model No. DK
12	637	**7124.035**
18	903	**7125.035**
21	1037	**7126.035**

⚠ **Also required:**

Divider kit according to the enclosure width.
As divider kit for enclosure width 600 mm:
TS punched section with mounting flange,
17 x 73 mm,
see page 1000.
As divider kit for enclosure width 800 mm:
Depth stays,
see page 1000.

TS punched section with mounting flange as divider kit
for pull-out frame

Installation in enclosure width 600 mm.
The divider kit comprises 4 TS punched sections with mounting flanges 17 x 73 mm.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosures		Packs of	Model No. TS
Width mm	Depth mm		
600	800	4	**8612.080**
600	900	4	**8612.090**
600	1000	4	**8612.000**

Depth stays as divider kit
for pull-out frame

Installation in enclosure width 800 mm.
The divider kit consists of 4 depth stays.

Material:
Sheet steel, zinc-plated, passivated

For enclosures		Packs of	Model No. TS
Width mm	Depth mm		
800	800	4	**7827.800**
800	900	4	**7827.900**
800	1000	4	**7827.000**

Swing frame

B
7.8
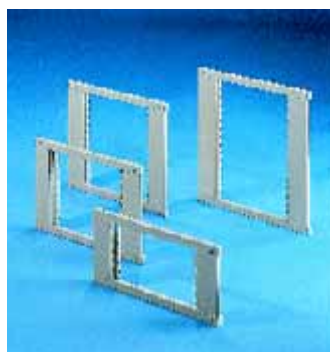
Vario swing frames

for ES, width 800 mm
For the installation of 482.6 mm (19″) equipment.

Technical specifications:
Torsionally stiff frame, welded from rectangular tube and triple-folded support section. Firmly linked extension panels on the left and right.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Double-bit lock insert and assembly parts.

⊞ Accessories:

Lock insert 47 mm, type D, see page 888.

1) at D 41.5 mm
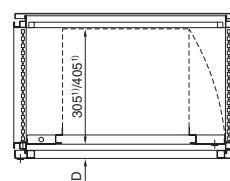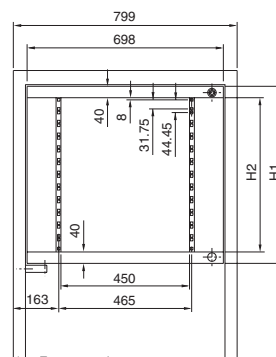
For 800 mm wide enclosures

Height units		6 U	9 U	12 U	15 U	18 U
Model No. SR		**2004.235**	**2007.235**	**2008.235**	**2010.235**	**2011.235**
H1 mm		350	483	616,5	750	883
H2 mm		270	403	536,5	670	803
Max. installation depth for enclosure depth	400 mm	305 mm				
	500 mm	405 mm				
Dimension D mm		41.5 – 59.5 – 77.5 – 116.5 – 134.5 – 141.5 – 159.5				

Installation examples

Mounting accessories according to the installation position (swing frame in topmost position)

Front   Set back

Mounting accessories according to the installation position (swing frame offset downwards)
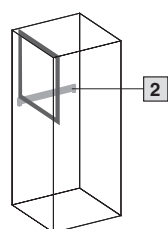
Front   Set back
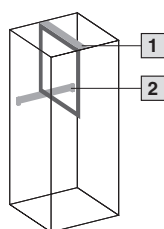
⚠ Also required:

Depending on the installation position:

1 PS punched section with mounting flange for enclosure width 800 mm, see page 926.

2 PS punched section with mounting flange to match the enclosure depth, see page 926.

Swing frame

B
7.8
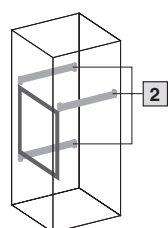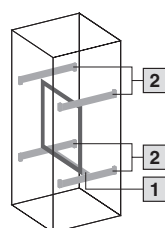
Compact swing frame

for AE, AP
For the installation of electronic equipment,
482.6 mm (19″) across the entire height.

Technical specifications:
Torsionally stiff frame, welded from rectangular
tube and triple-folded support section.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Double-bit lock insert and assembly parts.

Accessories:

41 mm lock insert, type C,
see page 888.
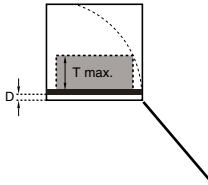
For AE

For compact enclosure AE			Height units	6 U	11 U	14 U
Enclosure		Max. installation depth (T max.) mm	**Model No. SR**	**2026.200**	**2027.200**	**2034.200**
Width mm	Depth mm		For enclosure height mm	380	600	760
			H1 (mm)	320	542	676
			H2 (mm)	270	492	626
600	210	145	Spray-finished	1039.500	1060.500	1076.500
			Stainless steel	1009.500	1010.500	1012.500
600	350	265	Spray-finished	1339.500	1360.500	1376.500
760	210	145	Spray-finished	–	–	1077.500
760	300	235	Spray-finished	–	–	1073.500
			Stainless steel	–	–	1014.500

For AP

Height units	11 U
Model No. SR	**2027.200**
H1 mm	542
H2 mm	492

For pedestals AP	Max. installation depth (T max.) mm
2600.500 2610.500 2620.500 2640.500 2630.500 2650.500	315 (at D min. 38 mm)

For one-piece consoles AP	Max. installation depth (T max.) mm
2668.500	315
2672.500	315
2684.500	295[1]
2686.500	295[1]

[1] When fitting 2 swing frames
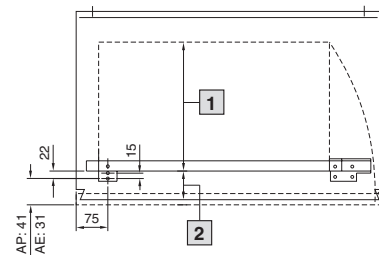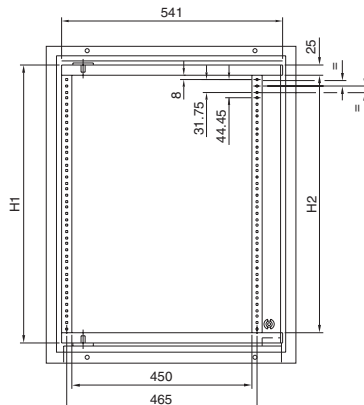
1 T = max. installation depth (see table)
2 D min. = 38 (53, 68, 83)

Mounting angles, 482.6 mm (19″)

For the installation of subracks and other equipment.
Mounting angles are easily shortened for partial assemblies.

Surface finish:
Conductive, corrosion-protected coating.

Supply includes:
Assembly parts.

Note:
Assembly example,
see page 1003.

➕ **Accessories:**

Infill panels,
see page 1014.
Captive nuts,
see page 1020.
Assembly screws,
see page 1019.
Slide rails with one-sided mounting,
see page 1010,
Slide rails with two-sided mounting,
see page 1010.

For enclosure height mm	Packs of	For enclosure system TS[1]		For enclosure system ES			
		U	Aluminium Extruded section	U	Aluminium Extruded section	Sheet steel, spray-finished RAL 7035	Sheet steel, zinc-plated, passivated
			Model No. TS		**Model No. PS**		
1600	4	33	**8613.060**	33	**4389.000**	–	–
1800	4	38	**8613.080**	37	–	–	–
2000	4	42	**8613.000**	42	**4391.000**	**4358.200**	–
2200	4	47	**8613.020**	46	–	–	**4358.700**
For PC enclosure[2]	4	17	**8613.070**	17	**4632.000**	–	–

[1] For the rear of electronic enclosures, see page 1004.
[2] behind bottom door.

Assembly examples of TS:

Drawing 1
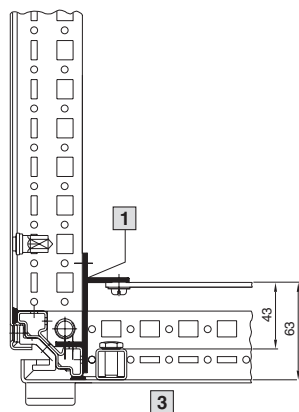
Drawing 2
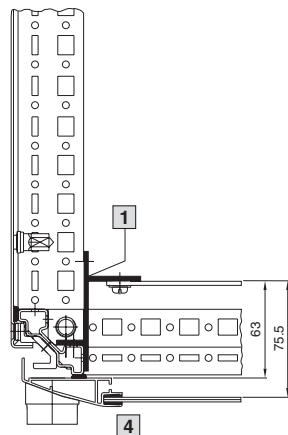
Drawing 3
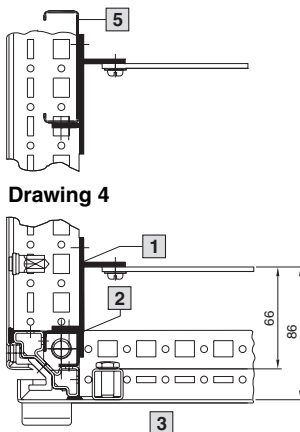
Drawing 5
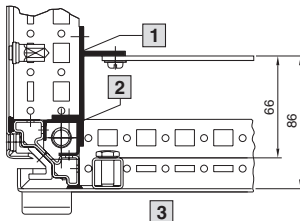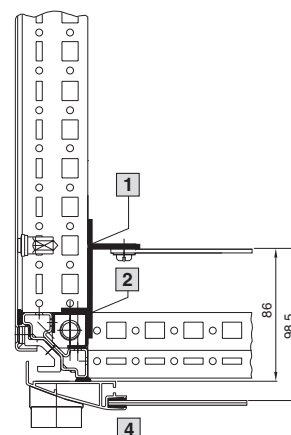
Drawing 4

Drawing 1 and 2:
Mounting angle or adaptor piece fitted in the foremost installation position, directly on the vertical section.
When installing slide rails with two-sided mounting (see page 1010), the same mounting angles or adaptor pieces must also be mounted on the vertical section at the rear.

1 Mounting angles/piece

2 Adaptor rail

3 TS sheet steel door

4 TS glazed door

5 Punched section without mounting flange

Drawing 3:
Mounting on two vertically installed PS punched sections permits fully flexible use of the enclosure depths,

Drawing 4 and 5:
Greater distance from the door is achieved by mounting on adaptor rails for PS compatibility.
In this position, the slide rails can be fitted with one-sided mounting.

Mounting angles

B

7.8
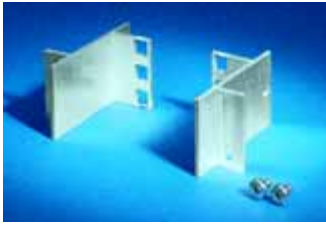
Mounting angles

Adaptor pieces, 482.6 mm (19″)

The "1 U" sub-section of mounting angles.
For the installation of individual subracks and
other equipment.

Supply includes:
Assembly parts.

For	U	Packs of	Model No. TS	Model No. PS
TS	1	4	**8613.010**	–
ES	1	8	–	**4547.000**

Note:
Assembly example,
see page 1003.

 Accessories:

Captive nuts,
see page 1020.
Assembly screws,
see page 1019.
Slide rails with one-sided mounting,
see page 1010.

Mounting angles, 482.6 mm (19″)

for rear installation in TS electronic enclosures
For installing subracks at the front and back,
and for attaching the slide rails TS 8613.150,
TS 8613.160 and TS 8613.180 (see page 1010).
Assembly is carried out on the inner mounting
level.
The outer mounting level can, e.g. still be used
for cable routing on depth-mounted TS punched
sections with mounting flange.

Material:
Extruded aluminium section

Surface finish:
Conductive, corrosion-protected
coating.

Supply includes:
Assembly parts.

For enclosure height mm	U	Packs of	Model No. TS
1600	33	2	**8613.360**
2000	42	2	**8613.300**

Note:
Design similar to mounting angles, 482.6 mm
(19″) (see page 1003), but asymmetrical height,
suitable for TS electronic enclosure.

 Possible alternative:

Adaptor pieces, 482.6 mm (19″),
see above.

Mounting angles, 482.6 mm (19″)

for TS, CS Toptec

In two versions:

Cranked
The integral U markings in the front facilitate
systematic assembly within the 482.6 mm (19″)
attachment level.

L-shaped
The L-shaped mounting angles accommodate the
installation kits of server systems. The integral U
markings in the front facilitate systematic assem-
bly within the 482.6 mm (19″) attachment level.

Technical specifications:
2 mm sheet steel, with integral 482.6 mm (19″)
punchings and side round and square holes.
Zinc-plated, passivated for conductive connec-
tion of the 482.6 mm (19″) installed equipment.

Supply includes:
Assembly parts.

**Explanation of the fastening measurements
for interior installations,** see page 1020.

Full installation Rack height mm	U	Packs of	Model No. DK Cranked	Model No. DK L-shaped
600	11	2	–	7827.061
800	15	2	**7827.080**	7827.081
1000	20	2	**7827.100**	7827.101
1200	24	2	**7827.120**	7827.121
1400	29	2	**7827.140**	7827.141
1600	33	2	**7827.160**	7827.161
1800	38	2	**7827.180**	7827.181
2000	42	2	**7827.200**	7827.201
2200	47	2	**7827.220**	7827.221

Note:
The mounting angles can also be used to accom-
modate 21″, 23″ and 24″ attachment dimensions.

 Also required:

Punched sections without mounting flanges or
depth stays for TS as installation kit for mounting
angles,
see page 1008 – 1009.
For L-shaped mounting angle variant:
for mounting slide rails or component shelves:
adaptor DK 7827.300,
see page 950.

Mounting angles

B

7.8

Mounting angles, 482.6 mm (19″)

for TS server enclosures
For front and rear mounting of 482.6 mm (19″) components.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Explanation of the fastening measurements for interior installations, see page 1020.

U	Packs of	Model No. DK
10	2	7831.630[1]
21	2	7831.635[1]
42	2	7831.642
47	2	7831.647

[1] Delivery times available on request.

Mounting angles, 482.6 mm (19″)

for FR(i), width 600 mm
For the installation of 482.6 mm (19″) components in the foremost mounting position.
The mounting angle may be rotated through 180°, so as to create additional free space for cable routing in the front section. Side openings allow the hollow section of the enclosure frame to continue being used for cable routing.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Explanation of the fastening measurements for interior installations, see page 1020.

Enclosure height mm	Usable U with full installation	Packs of	Model No. FR(i)
600	11	2	7856.800
1200	24	2	7856.803
1800	38	2	7856.806
2000	42	2	7856.809
2200	47	2	7856.812

Mounting angles

for QuickBox
For installing 482.6 mm (19″)/metric 485 mm or 535 mm equipment.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Explanation of the fastening measurements for interior installations, see page 1020.

For Enclosure		Packs of	Model No. QB	
U	SU	2	482.6 mm (19″)	Metric
6	10	2	7502.201	7502.211
9	15	2	7502.202	7502.212
12	20	2	7502.203	7502.213
15	26	2	7502.204	7502.214
18	31	2	7502.205	7502.215
21	36	2	7502.206	7502.216

Mounting angle kit

for DK-EL
This mounting angle kit allows you to integrate a second 482.6 mm (19″) level into EL enclosures.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Explanation of the fastening measurements for interior installations, see page 1020.

U	Packs of	Model No. DK
6	2	7705.706
9	2	7705.709
12	2	7705.712
15	2	7705.715
18	2	7705.718
21	2	7705.721

Mounting angles

B

7.8

Mounting angles

T-slot mounting angles, 482.6 mm (19″)/metric

for TS, FR(i)
With integral T-slot for U nuts. Holes on a U pitch pattern are integrated into the rear section of the T-slot. Round and square holes on a 25 mm DIN 43 660 pitch pattern of holes are provided for side attachment. The mounting angle may optionally be integrated using PS metric or 482.6 mm (19″) installation brackets. The surface finish is chromated for conductive connection to the metric/482.6 mm (19″) mounting components.

Material:
Extruded aluminium section, chromated

Supply includes:
Assembly parts.

Explanation of the fastening measurements for interior installations, see page 1020.

Full installation Rack height mm	U	SU	Packs of	Model No. DK
800	15	26	2	**7000.150**
1000	20	35	2	**7000.200**
1200	24	42	2	**7000.240**
1400	29	51	2	**7000.290**
1600	33	58	2	**7000.330**
1800	38	67	2	**7000.380**
2000	42	74	2	**7000.420**
2200	47	83	2	**7000.470**

Note:
In 600 mm wide enclosures, mounting angles may be alternatively depth-mounted on TS punched sections with mounting flanges.

⚠ Also required:

Punched secion with mounting flange as installation kit for mounting angles,
see page 1008,
or
depth stay for PS,
see page 1006.

Mounting angles, 482.6 mm (19″)

for CS modular and basic enclosures
For mounting 482.6 mm (19″) components in Outdoor enclosures. The mounting angles are depth-adjustable on a 25 mm pitch pattern. An installation bracket is required to attach the mounting angles.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Explanation of the fastening measurements for interior installations, see page 1020.

Enclosure height mm	U	Packs of	Model No. DK
800	15	2	**7685.000**
1200	24	2	**7688.000**
1400	29	2	**7689.000**
1600	33	2	**7690.000**

⚠ Also required:

Depth stay for PS,
see page 1006.

Depth stay for PS

For
● T-slot mounting angles
● Mounting angles for CS modular and basic enclosures.

Material:
Sheet steel, zinc-plated, passivated

Enclosure width mm		600/1200[1]	800		
Standards		482.6 mm (19″)	482.6 mm (19″)/metric (465 mm)		metric (515 mm)
Installation position		central	central	side	central
Model No. DK	2	**7696.000**	**7698.000**	**7697.000**	**7000.100**

[1] 1200 mm wide CS modular and basic enclosures are divided in two fields of 600 mm.

Mounting angles

B

7.8

Mounting angles, 482.6 mm (19″)

for CS modular and basic enclosures
For mounting 482.6 mm (19″) components. Mounting position on the front frame section, not depth adjustable. Easily retro-fitted.

Material:
Sheet steel

Supply includes:
Assembly parts.

Explanation of the fastening measurements for interior installations, see page 1020.

For enclosure dimensions		U	Packs of	Model No. CS	
Width mm	Height mm			spray-finished in RAL 7035	zinc-plated, passivated
600	800	15	4	**9785.001**	**9785.002**
600	1200	24	4	**9785.003**	**9785.004**
600	1400	29	4	**9785.005**	**9785.006**

Mounting frame, 482.6 mm (19″)

for TS, FR(i)
The welded 482.6 mm (19″) mounting frame may be attached with complete depth variability and is used to structure the front and rear 482.6 mm (19″) level.
The mounting frame has the same system punchings as the TS 8 enclosure section at the sides and rear, and therefore supports the mounting of various TS 8 system accessories such as cable clamp rails, cable shunting rings etc.

Load capacity:
Up to 1,000 kg static load, with even load distribution on two 482.6 mm (19″) mounting frames, with full installation.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Note:
A combination of 482.6 mm (19″) mounting frame plus fan mounting plate is not possible. For active ventilation, we recommend use with modular fan roof.

Explanation of the fastening measurements in interior installations, see page 1020.

For enclosures		U	Model No. FR(i)
Width mm	Height mm		
600	600	11	**7856.710**
600	1200	24	**7856.713**
600	1800	38	**7856.716**
600	2000	42	**7856.719**
600	2200	47	**7856.722**
800	1200	24	**7856.725**
800	1800	38	**7856.728**
800	2000	42	**7856.731**
800	2200	47	**7856.734**

✛ Accessories:

Captive nuts,
see page 1020.
Assembly screws,
see page 1019.
Cable clamp rails TS,
see page 983.
C rails,
see page 928.
Slide rails, depth-variable,
see page 1010.
Component shelves,
see page 939 and page 944.
Fan roof, modular,
see page 651.
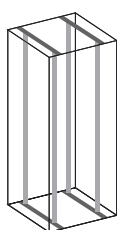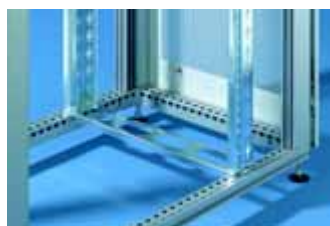
Mounting angles, metric

for TS
The L-shaped mounting angles accommodate metric assemblies and components. Depending on the installation kit, mounting dimensions 465 mm and 515 mm can be configured.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Explanation of the fastening measurements for interior installations, see page 1020.

Full installation Rack height mm	SU	Packs of	Model No. DK
–	17	2	**7831.611**
1000	37	2	**7831.621**
1200	42	2	**7794.420**
1600	58	2	**7794.740**
2000	76	2	**7831.631**
2200	84	2	**7831.641**

⚠ Also required:

Punched sections with mounting flange or depth stays for TS as installation kit for mounting angles,
see page 1008 – 1009.

Mounting angles

B

7.8

Mounting kits for mounting angles

Mounting angles centre fastening attachment

for 800 mm wide TS network enclosures
The centre fastening attachment counteracts bending of the mounting angles mounted on installation brackets in case of unevenly distributed loads. It is attached directly to 482.6 mm (19″) mounting angles and to the punched section with mounting flange fitted in the depth (inner mounting level).

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. DK
2	7284.135

! Also required:

TS punched section with mounting flange, see page 921 – 922.

TS punched section with mounting flange as installation kit

for
- **Mounting angles, 482.6 mm (19″)**
- **Mounting angles, metric, Mounting dimension 465 mm**

Installation in enclosure width 600 mm

The installation kit consists of 4 TS punched sections with mounting flange 17 x 73 to accommodate mounting angles. One pack is sufficient for installing one or two 482.6 mm (19″) attachment levels. For exceptionally heavy installed equipment, we recommend the installation of additional punched sections.

For enclosures		Packs of	Model No. TS
Width mm	Depth mm		
600	600	4	8612.060
600	800	4	8612.080
600	900	4	8612.090
600	1000	4	8612.000

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Depth stays as installation kit

for
- **Mounting angles, 482.6 mm (19″)**

Installation in enclosure width 650 mm
Installation in enclosure width 800 mm

One installation kit consists of 4 depths stays to accommodated mounting angles. One pack is sufficient for installing one or two 482.6 mm (19″) attachment levels. For exceptionally heavy installed equipment, we recommend the installation of an additional depth stay in the centre. The front cutout makes cable routing easier with full configuration (cutout only at a width of 800 mm).

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosures		Packs of	Model No. DK
Width mm	Depth mm		
650	650	4	7794.165
800	600	4	7827.600
800	650	4	7794.280
800	800	4	7827.800
800	900	4	7827.900
800	1000	4	7827.000

⇄ Possible alternative:

Installation brackets TS for mounting angles, see page 1009.

Mounting kits for mounting angles

B

7.8
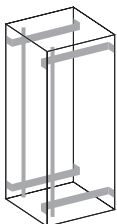
Depth stay for TS

for
● **Mounting angles, 482.6 mm (19″)**

Installation in enclosure width 800 mm

Installation brackets are screw-fastened to the
enclosure frame in the enclosure width.
The mounting angle is attached to the bracket at
the top and bottom. The bracket ensures opti-
mum clearance at the sides for cable routing. For
partial enclosure configuration, the installation
brackets may be attached to the TS punched
sections with mounting flanges 17 x 73 mm on the
outer attachment level of the enclosure frame.
Fully depth-variable attachment is facilitated by
the attachment slots. Either cranked or L-shaped
mounting angles may be used.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. DK
2	7827.480

⊞ **Accessories:**

For partial installation,
TS punched section with mounting flange,
17 x 73 mm,
see page 921 – 922.
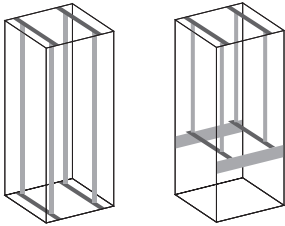
Depth stays as installation kit

for
● **Mounting angles, metric,
Mounting dimension 515 mm**
● **Mounting angles, 482.6 mm (19″),
Mounting dimension 21″**

Installation in enclosure width 650 mm
Installation in enclosure width 800 mm

One installation kit consists of 4 depths stays to
accommodated mounting angles. One pack is
sufficient for installing one or two 482.6 mm (19″)
attachment levels. For exceptionally heavy
installed equipment, we recommend the installa-
tion of an additional depth stay at the centre. The
front cutout makes cable routing easier with full
configuration (cutout only at a width of 800 mm).

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosures		Packs of	Model No. DK
Width mm	Depth mm		
650	650	4	7794.300
800	650	4	7794.320
800	800	4	7794.330
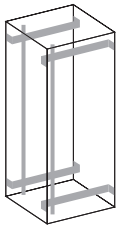
Depth stays as installation kit

for
● **Mounting angles, 482.6 mm (19″),
Mounting dimensions 23″ and 24″**

Installation in enclosure width 800 mm

When using depth stays in 800 mm wide enclo-
sures, attachment spacings of 23″ and 24″ are
achieved. Either cranked or L-shaped, 482.6 mm
(19″) mounting angles may be used.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosures		Model No. DK	
Width mm	Depth mm	Design	
		23″	24″
800	800	7827.823	7827.824
800	900	7827.923	7827.924
800	1000	7827.023	7827.024

Mounting kits for mounting angles

B
7.8
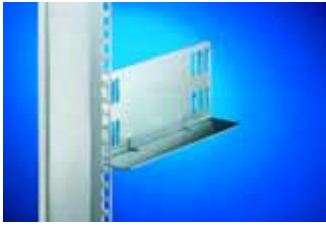
Slide rails

Slide rails

With one-sided mounting on the 482.6 mm (19″) mounting angles.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Length mm	Packs of	Model No. PS
185	10	**4530.000**
270	10	**4531.000**

! **Also required:**

Mounting angles, 482.6 mm (19″),
see page 1003.

Slide rails

With two-sided mounting between the 482.6 mm (19″) front and rear mounting angles or 482.6 mm (19″) adaptor pieces.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure depth mm	Packs of	Model No. TS	Model No. PS
500	10	**8613.150**	–
600	10	**8613.160**	**4546.000**
800	10	**8613.180**	**4549.000**

! **Also required:**

Mounting angles, 482.6 mm (19″),
see page 1003.
Adaptor pieces, 482.6 mm (19″),
see page 1004.
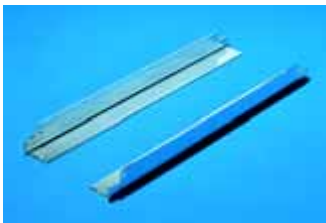
Slide rails, heavy-duty

**for TS network enclosures
with two mounting levels**
To support extremely heavy installed equipment. The slide rails are simply located into the cranked mounting angles and secured with screws. We recommend combined use with additional depth stays or, in case of 800 mm wide enclosures, the mounting angle centre attachment.

Load capacity:
80 kg, static load

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Distance between 19″ levels mm	Contact surface Width mm	Contact surface Depth mm	Packs of	Model No. DK
298	40	261	2	**7492.300**
398	40	361	2	**7492.400**
498	40	461	2	**7492.500**

Note:
Not suitable for use in 482.6 mm (19″) mounting frames.

! **Also required:**

For fastening to L-shaped TS mounting angles:
Adaptor DK 7827.300,
see page 950.

Depth-variable slide rails 1 U

**for TS, FR(i), TE
with L-shaped mounting angles or 482.6 mm (19″) mounting frame**
The slide rail facilitates integration of 482.6 mm (19″) components without loss of installation height.
Installation of the slide rail is independent from the chosen distance between levels, since the installation length may be flexibly adapted.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Length mm	Load capacity	Contact surface Width mm	Contact surface Depth mm	Packs of	Model No. DK
390 – 600	80 kg	50	330	2	**7063.878**
590 – 930	80 kg	50	525	2	**7063.880**
590 – 930	150 kg	50	525	2	**7063.884**

Slide rails

B

7.8

Slide rails, vented

**for TS network enclosures
with two 482.6 mm (19″) levels**
To support heavy 482.6 mm (19″) network compo-
nents. The slide rails are simply located into the
cranked mounting angles and secured with
screws. Thanks to the option of side ventilation,
hot spots with active equipment are avoided with
the side climate control concept.

Load capacity:
50 kg, static load

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Distance between 19″ levels mm	Contact surface		Packs of	Model No. DK
	Width mm	Depth mm		
–	50	152[1]	2	**7063.000**
298	50	261	2	**7063.300**
398	50	361	2	**7063.400**
498	50	461	2	**7063.500**
598	50	561	2	**7063.600**
698	50	661	2	**7063.700**

[1] Only fasten to the front or rear mounting angles.

! Also required:
For fastening to L-shaped TS mounting angles:
Adaptor DK 7827.300,
see page 950.

Possible alternative:
If the depth of the 482.6 mm (19″) mounting levels
is variable, we recommend the use of slide rail,
depth-variable, see page 1010.
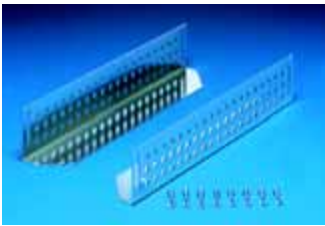
Slide rails

for FR(i), TE
For mounting between a front and a rear pair of
mounting angles. The slide rails can be used to
support heavy 482.6 mm (19″) components.

Load capacity:
80 kg, static load

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Distance between 19″ levels mm	Contact surface		Packs of	Model No. DK
	Width mm	Depth mm		
395	85	324	2	**7963.310**
495	85	424	2	**7963.410**
595	85	524	2	**7963.510**
695	85	624	2	**7963.610**

Possible alternative:
Slide rail, depth-variable,
see page 1010.

Slide rails

for EL
For the installation of heavy slide-in equipment.

Material:
Sheet steel, zinc-plated, passivated

For centre part depth mm	Packs of	Model No. EL
216	10	**2240.000**
316	10	**2250.000**
416	10	**2260.000**

Server integration

Universal server installation kit, 482.6 mm (19″)

for TS, FR(i)
The universal server installation kit is ideally suited for integrating most standard server types into Rittal enclosures with L-shaped mounting angles and a minimum enclosure depth of 900 mm. The installation kit is specially designed to ensure free access to the 482.6 mm (19″) level, for securing the individual servers in the retracted position using the screws (M5) provided.
Distance between angles: 750 mm

For	Packs of	Model No. DK
all common server types	1 kit	**7063.100**

Load capacity:
80 kg, static load

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

! Also required:

Mounting adaptor depending on the server type.
For FR(i) and enclosures with two 482.6 mm (19″) mounting frames:
Installation kit DK 7063.102,
see page 1012.

Mounting adaptor

The adaptors (additionally required) allow servers to be secured to the universal installation kit using the original installation kits supplied by the server manufacturers. The adaptor should be chosen according to the server type being installed. This specific mounting adaptor allows problem-free configuration of combined systems and facilitates flexible use of the individual enclosures in future.

For server types	Packs of	Model No. DK
With front 482.6 mm (19″) server attachment	1 set	**7063.110**
With side attachment (SUN)	1 set	**7063.120**
With side attachment (HP rack system/E)	1 set	**7063.130**

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
1 set of mounting adaptors, sufficient for integration of an individual server,
including assembly parts.

Installation kit

for FR(i) and 482.6 mm (19″) mounting frames
This installation kit makes it possible to mount the universal server installation kit DK 7063.100 both in FR(i) server racks and on two 482.6 mm (19″) mounting frames.

Material:
Sheet steel, zinc-plated, passivated

Packs of	Model No. DK
1 set	**7063.102**

Server rails, 482.6 mm (19″)

for TS network enclosures
with two 482.6 mm (19″) levels
Mounting is infinitely adjustable
Allows servers or active network components to slide into the enclosures, which can be screwed to the server rail via telescopic rails. The length of the server rails is fully adjustable between 550 to 850 mm.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Note:
Alternatively, the server rail may also be used as a depth-variable installation kit for 409 mm wide, 482.6 mm (19″) component shelves on both L-shaped and cranked mounting angles.

Distance between 19″ levels mm	Packs of	Model No. DK
550 – 850	2	**7063.850**

German patent no. 197 10 023

Server integration

B
7.8
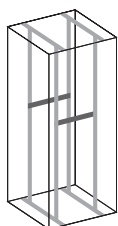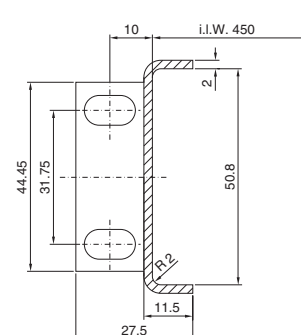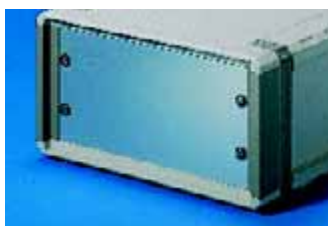
Blanking plate, 482.6 mm (19″)

For the installation in electronic enclosures or housings.

Material:
Aluminium, natural anodised.

U	Packs of	Model No. VC	
		269.2 mm (1/2 19″)	482.6 mm (19″)
1	3	**3746.000**	**1931.200**
2	3	**3747.000**	**1932.200**
3	3	**3748.000**	**1933.200**
4	3	**3749.000**	**1934.200**
6	3	–	**1936.200**
7	3	–	**1935.200**
9	3	–	**1939.200**
12	3	–	**1937.200**

Horizontally hinged blanking plate

For the installation in electronic enclosures or housings.

Material:
3 mm aluminium, natural anodised.
Hinge: Die-cast zinc, zinc-plated

Supply includes:
Assembly parts.

Width	U	Packs of	Model No. EL
482.6 mm (19″)	3	2	**1944.000**
482.6 mm (19″)	6	2	**1945.000**

Vertically hinged blanking plate

For the installation in electronic enclosures or housings.

Material:
3 mm aluminium, natural anodised.
Hinge: Die-cast zinc, zinc-plated

Supply includes:
Assembly parts.

Width	U	Packs of	Model No. EL
482.6 mm (19″)	3	2	**1940.000**
482.6 mm (19″)	6	2	**1941.000**

Hinge
for blanking plates

Material:
Die-cast zinc, zinc-plated

Supply includes:
Assembly parts.

Packs of	Model No. EL
2	**1950.000**

German patent no. 40 04 264

Ventilation front panels

For venting enclosures and cases.

Material:
Aluminium, natural anodised.

Width	U	Packs of	Model No. EL
482.6 mm (19″)	1	3	**2231.000**
482.6 mm (19″)	2	3	**2232.000**
482.6 mm (19″)	3	3	**2233.000**

482.6 mm (19″)/metric installation

B
7.8

482.6 mm (19″)/metric installation

Infill panels, 482.6 mm (19″), horizontal

for TS electronic enclosure
To infill between installed 482.6 mm (19″) equipment positioned in the full enclosure height and the enclosure clearance height.

Material:
Extruded aluminium section

Surface finish:
Conductive, corrosion-protected coating

Supply includes:
Assembly parts.

For enclosure height mm	Packs of	Model No. TS
1600/2000	2	**8613.040**
1800/2200	2	**8613.030**
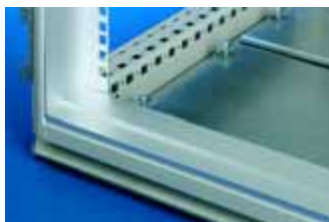
Aluminium cross rail

for TS electronic enclosure
for sub-division of the front.

Material:
Extruded aluminium section

Colour:
RAL 7035

Supply includes:
Assembly parts.

Height	Model No. TS
1 U	**8613.240**

Infill panel, hinged

for 800 mm wide TS network enclosures
To conceal the side cable chamber.
In order to off-set the infill panel in the enclosure depth, it may be alternatively fastened to the side of TS punched section with mounting flange. Cable routing from the enclosure sides to the front is easily achieved.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

For enclosure height mm	Packs of	Model No. DK
1800	2	**7827.518**
2000	2	**7827.520**
2200	2	**7827.522**

✚ Accessories:

TS punched section with mounting flange, see page 921 – 922.

482.6 mm (19″)/metric installation

B

7.8
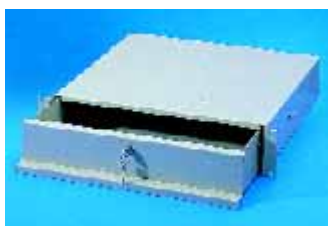
Drawer, 2 U, 3 U

for a 482.6 mm (19″) attachment level
For front attachment to mounting angles,
482.6 mm (19″). With cover and telescopic slides
to accommodate assignment lists, operating
manuals and small parts. The small version of the
2 U variant is also suitable for mounting inside a
swing frame.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Fully assembled,
assembly parts.
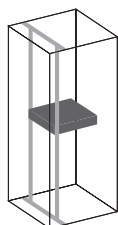
Height	Clearance openings		Installed components mm	Model No. DK
	Width mm	Depth mm		
2 U	411	250	427	**7282.135**
2 U	411	419	427	**7282.035**
3 U	411	419	427	**7283.035**

Drawer for 482.6 mm (19″)

with shelf
For keyboards, operating manuals etc. The
perforated plate in the base helps air to circulate
in the enclosure. Load capacity 50 kg. The
1 U drawer can be istalled rotated through 180° ,
allowing it to be used as
a utility table.

Material:
Drawer: Aluminium, anodised.
Telescopic slides:
Sheet steel, zinc-plated, passivated

Supply includes:
Telescopic slides.

U	Model No. PS
1	**4541.000**
3	**4542.000**

! Also required:

Drawer assembly kit, corresponding to the chosen
enclosure system,
see page 1016.

Drawer for 482.6 mm (19″)

Frame open at the bottom
For keyboards up to 440 mm width and maximum
350 mm depth.

Material:
Drawer: Aluminium
Telescopic slides:
Sheet steel, zinc-plated, passivated

Supply includes:
Telescopic slides.

U	Model No. PS
2	**4548.000**

! Also required:

Drawer assembly kit, corresponding to the chosen
enclosure system,
see page 1016.

482.6 mm (19″)/metric installation

B

7.8

482.6 mm (19″)/metric installation

Drawer assembly kit

for TS with mounting angles
For the installation between the front and rear 482.6 mm (19″) mounting angles or 482.6 mm (19″) adaptor pieces.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

For enclosure depth mm	Packs of	For enclosure system	
		TS	ES
		Model No. TS	**Model No. PS**
500	1	**8800.550**	–
600	1	**8800.560**	**4544.000**
800	1	**8800.580**	–

! **Also required:**

Mounting angles, 482.6 mm (19″),
or adaptor pieces, 482.6 mm (19″),
see page 1004.

Drawer assembly kit

for TS with mounting angles
Depending on the distance between the two 482.6 mm (19″) mounting levels, the assembly kit is screw-fastened in the depth between the cranked mounting angles.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Length mm	Distance between angles mm	Packs of	**Model No. DK**
255	298	2	**7229.200[1)]**
355	398	2	**7229.300[1)]**
455	498	2	**7229.400**

[1)] Delivery time approx. 4 weeks.

! **Also required:**

In conjunction with L-shaped TS mounting angles:
Adaptor DK 7827.300,
see page 950.
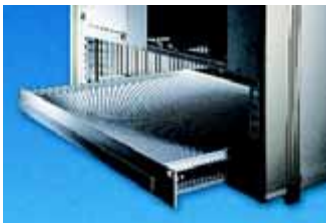
Drawer assembly kit

for Vario-Case iS
Minimum depth of Vario-Case iS enclosures:
500 mm

Packs of	**Model No. VC**
4	**3793.000**

! **Also required:**

Threaded inserts,
see page 564.

Adaptor, 3 U

Depth offset 100 mm
This adaptor is used to recess 482.6 mm (19″) mounting of equipment inside enclosures with 19″ installation in the foremost position, such as server or electronic enclosures. In this way, sufficient space can be gained in front of the mounting equipment to integrate patch panels or switches, whilst at the same time exploiting the maximum enclosure depth.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	**Model No. DK**
2	**7246.400**

482.6 mm (19″)/metric installation

B

7.8

Mounting kit, 2 U

For 482.6 mm (19″) equipment
Facilitates fast, simple integration of additional
2 U mounting space within an enclosure by
attaching to the enclosure frame or to the existing
mounting angles at the sides. The flexible slot
fastening of the brackets means that the distance
between the two installation brackets may be
freely selected, so that other 482.6 mm (19″)
attachment dimensions may be implemented.
The second row of holes is used for the optional
configuration of additional mounting surfaces.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. DK
2	7246.420

Adaptor, metric/482.6 mm (19″) 21″/19″

With this adaptor, 482.6 mm (19″) assemblies may
be fastened to metric (535 mm) mounting angles,
or combined systems may be configured.

Material:
Extruded aluminium section

Supply includes:
Assembly parts.

SU	U	Packs of	Model No. DK
2	1	2	7246.010
6	3	2	7246.030
11	6	2	7246.060

Adaptor kit 3 U/5 SU

for 800 mm wide TS enclosures
For fastening individual 482.6 mm (19″) or metric
(535 mm) components, or as an additional mount-
ing facility at the rear of the enclosure. The mount-
ing level in the adaptor angle can be adjusted by
100 mm in the depth, leaving sufficient space for
baying where patch panels or splicing boxes are
used.

Material:
Sheet steel

Height	Mounting position	Model No. DK	
		Spray-finished RAL 7035	Zinc-plated, passivated
3 U	482.6 mm (19″), centre	7246.100	7246.150[1]
3 U	482.6 mm (19″), side	7246.200[1]	7246.250[1]
5 SU	Metric, centre	7246.300[1]	7246.350[1]

[1] Delivery time approx. 2 weeks.

⚠ **Also required:**

Adaptor rail,
see page 924 or
Assembly block,
see page 924.

482.6 mm (19″)/metric installation

B
7.8

482.6 mm (19″)/metric installation

Mounting frame 54 U
for TS, FR(i)
The mounting frame allows configuration of a side-offset 482.6 mm (19″) level with 42 U useful installation space plus the additional integration of a further 12 U for vertical installation. The additional side extension is divided into three installation levels arranged on top of one another, each with 4 U.
The mounting frame may be installed at either the front or rear.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
12 U mounting trim at the side .

For enclosures		Additional vertical installation area	Model No. DK
Width mm	Height mm		
800	2000	12 U	**7827.554**

! Also required:

2 mounting angles, 482.6 mm (19″),
see page 1004.
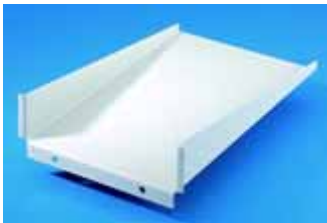
Component shelf
for mounting frame 54 U
For alternative attachment of small equipment, component shelves may optionally be attached within the individual 4 U wide mounting surfaces.

Load capacity:
10 kg

Material:
Sheet steel

Colour:
RAL 7035

Contact surface		Model No. DK
Width mm	Depth mm	
175	300	**7827.555**

Mounting aid
For simple handling when installing network components or subracks. May be fitted to any 482.6 mm (19″) level using quick-release screws.
Mounting equipment can securely be inserted and screw-fastened to the 482.6 mm (19″) mounting angles.
Mounting aids can still be easily removed.
It is advisable to commence component mounting from the top.

Material:
Sheet steel, zinc-plated, passivated

Build height	Packs of	Model No. DK
1 U	2	**7094.900**

German patent no. 199 17 290

482.6 mm (19″)/metric installation

B

7.8

Adaptor

for RNC
For installing 10″ components in 296.2 mm
(¹/₂ 19″) enclosures.

Material:
Sheet steel

Colour:
RAL 7035

U	Model No. DK
1	**7870.760**
4	**7870.765**

Spring nuts with screws

M5 x 10 mm/M6 x 10 mm for T-slot mounting angle
The spring nuts ensure flexible, secure mounting of accessory components on the T-slot of the FR(i) frame and on the T-slot mounting angles.

Supply includes:
50 spring nuts,
50 spring nuts, 10 mm, self-locking.

Design	Packs of	Model No. DK
Phillips-head, M6	50	**7000.990**
Multi-tooth 25, M5	50	**7856.755**

Assembly screws

M5 x 16 mm/M6 x 16 mm
For electronic equipment, 482.6 mm (19″) installed components and blanking plates.

Supply includes:
Plastic washers.

Design	Packs of	Model No. EL
Phillips-head screw M5	100	**2099.500**
Cheese-head screw M6	100	**2093.200**
Phillips-head screw M6	100	**2089.000**

Multi-tooth screw

M5 x 16 mm/M6 x 16 mm
For optimum transmission of torques, an extended tool life and increased safety and reliability when tightening and loosening screw connections.

Supply includes:
Plastic washers.

	Bit size	Packs of	Model No. DK
M5	Multi-tooth 25	100	**7094.500**
M6	Multi-tooth 30	100	**7094.600**

482.6 mm (19″)/metric installation

B

7.8

482.6 mm (19″)/metric installation

Captive nuts M5/M6

For the attachment of rack-mounted electronic equipment, 482.6 mm (19″) installed equipment and blanking plates to mounting angles, 482.6 mm (19″).

For use with metal thickness from 0.8 – 2.0 mm. In areas of narrow tolerance, captive nuts for metal thicknesses of 1.2 – 1.5 mm should be used. Optionally with or without contact of the installed equipment to the 482.6 mm (19″) section/enclosure.

Captive nut M5

Design	For metal thicknesses mm	Packs of	Model No. EL
With contact	0.8 – 2.0	50	**2094.500**
Without contact	0.8 – 2.0	50	**2092.500**

Captive nut M6

Design	For metal thicknesses mm	Packs of	Model No. EL
With contact	0.8 – 2.0	50	**2094.200**
Without contact	0.8 – 2.0	50	**2092.200**
With contact	1.2 – 1.5	50	**2094.300**
Without contact	1.2 – 1.5	50	**2092.300**

Explanation of the fastening dimensions in interior installations
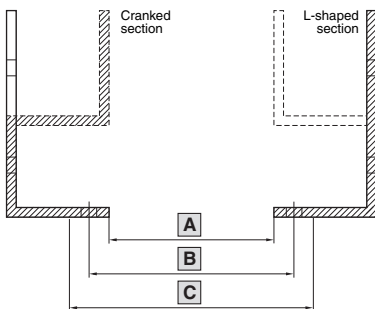
A = Clearance width

B = Mounting dimension

C = External dimension of the rack-mounted equipment or of the front panels

Installation width	A mm	B mm	C mm
19″	450	465	482.6
21″	500	515	533.4
23″	552	567	584.2
24″	577	592	609.6
10″/39 HP	221.4	236	254
1/2 19″/42 HP	236.6	251.2	269.2
9.5″	208.7	223.3	241.3
18 SU	450	465	485
20 SU	500	515	535

482.6 mm (19″)/metric installation

B

7.8

Telephone and data distributor

1 U (¹/₂ 19″) 42 HP
Modular system
Mini patch panels, fitted with RJ 45 snap-in trhough-connectors (for top-hat rails to DIN 50 002) with earth connection.

Version	Cat.	Packs of	Model No. DK
8 ports, UTP, modular, 2 x RJ 45, including 8 patch cables 0.25 m, blue	3	1	7870.800
		6	7870.580
8 ports, UTP, modular, 2 x RJ 45, including 8 patch cables 0.25 m, yellow	5	1	7870.820
		6	7870.595

LSA-plus system
Telephone distributor:
10 x RJ 45 jacks, unshielded, without cover, suitable for 4-pole assignment, with strain relief and earth connection.

Data distributor:
8 x RJ 45 jacks, shielded, cover with quick-release fastener, suitable for 4-pole assignment, with strain relief and earth connection.

Version	Cat.	Packs of	Model No. DK
10 ports, UTP, RJ 45/LSA, including 8 patch cables 0.25 m, blue	3	1	7870.802
		6	7870.582
8 ports, UTP, RJ 45/LSA, including 8 patch cables 0.25 m, yellow	5	1	7870.822
		6	7870.597

Telephone and data distributor

1 U (19″) 84 HP
LSA-plus system
Telephone distributor:
25 x RJ 45 jacks, unshielded, without cover, suitable for 4-pole assignment, with strain relief and earth connection.

Data distributor:
24 x RJ 45 jacks, shielded, cover with quick-release fastener, with strain relief and earth connection.

Version	Cat.	Packs of	Model No. DK
25 ports, UTP, RJ 45/LSA, including 12 patch cables 0.6 m, blue	3	1	7870.810
		6	7870.590

Version	Cat.	Packs of	Model No. DK
24 ports, STP, RJ 45/LSA, including 12 patch cables 0.6 m, yellow	6	1	7870.830
		6	7870.600

Top-hat rail module

Top-hat rail module with mounting clip for top-hat rails to DIN 50 002, robust metal housing, with strain relief.
Cat. 6, 2 x RJ 45, System Corning Future Com S 250 (cables are attached without the use of tools).

Version	Cat.	Packs of	Model No. DK
2 x Corning Future Com S 250	6	3	7870.614
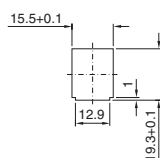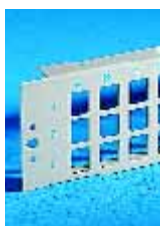
To accommodate 48 RJ 11 – 45 (modular jacks)

With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

15.5+0.1
12.9
1
19.3+0.1

U	Number locations	Model No. DK
2	48	7194.535

Other versions available on request.

✚ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.

Patch panels for copper technology

B

7.8

Patch panels for copper technology
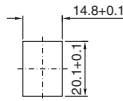
For shielded RJ 45 modular jacks

To accommodate screened RJ 45 jacks. Cutouts and rear of patch panels electrically conductive to contact the fitted jacks with the patch panel and the zinc-plated, passivated 482.6 mm (19″) mounting angles.
With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel, zinc-plated, passivated

Colour:
Front: RAL 7035
Rear: zinc-plated, passivated.

U	Number locations	Model No. DK
1	16	**7394.035**
2	32	**7395.035**
3	48	**7300.435**[1]

[1] Extended delivery times.
Other designs available on request.

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
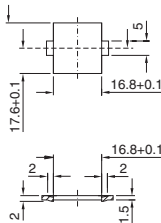
For RJ 45 Brand AT&T/Lucent

To accommodate 16 or 32 RJ 45 built-in jacks and with accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Number locations	Model No. DK
1	16	**7397.535**
2	32	**7398.535**[1]

[1] Extended delivery times.
Other designs available on request.

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
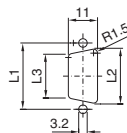
For 24 V interfaces

For the installation of 16 sub-D (trapezoid) jacks and connectors.
With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

L1 mm	L2 mm	L3 mm	
25	21	16.5	9-pole
33.3	29.2	24.7	15-pole
47	43	38.5	25-pole

Material:
Sheet steel

Colour:
RAL 7035

U	For no. of poles	No. of locations	Model No. DK
2	9	16	**7087.535**
2	15	16	**7086.535**
2	25	16	**7089.535**

Other versions available on request.

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
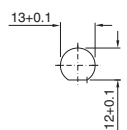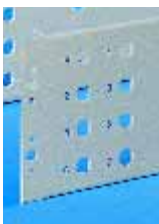
To accommodate BNC jacks (version E)

With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	No. of locations	Model No. DK
3	32	**7069.535**

Other versions available on request.

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.

B

7.8
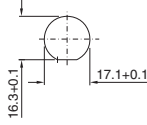
To accommodate BNC jacks (version F)

With accommodation for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Number of locations	Model No. DK
3	32	7071.535[1]

[1] Extended delivery times.
Other designs available on request.

✚ Accessories:

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.

To accommodate the AT & T Connector System 110

For the attachment of 2 wiring blocks each with 100 paired wires and accommodation facility for 2 cable holders (backboards). With rear accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
12 quick-release fasteners for wiring blocks and cable holders.

U	Paired wires (DA)	Model No. DK
4	200	7049.035

✚ Accessories:

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
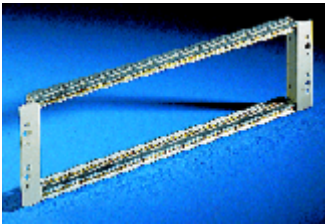
Module panel, 482.6 mm (19″) 3 U/84 HP

To accommodate various partial front plates and hence for individual assembly of a patch panel with any given combination of data connectors and couplings. The useful width is 84 HP.

Material:
Aluminium

Colour:
RAL 7035

Supply includes:
Two 482.6 mm (19″) flanges,
2 horizontal rails,
including 2 tapped strips.

Packs of	Model No. DK
1	7330.035

! Also required:

Partial front plates,
see page 1023.

Partial front plates

To accommodate various data connectors and couplings in the module panel DK 7330.035.

Material:
Sheet steel

Colour:
RAL 7035

For socket/ coupling	No. of locations	HP	Packs of	Model No. DK
ST	4	4	2	7334.035
SC, E-2000	6	6	2	7336.105[1]
E-2000 duplex	3	6	2	
SC duplex	2	4	2	7336.115[1]
BNC-E	4	6	2	7339.035
D-Sub 9-pole	3	4	2	7342.035
D-Sub 15-pole	2	4	2	7343.035
D-Sub 25-pole	1	4	2	7344.035
RJ 11 – 45	4	8	2	7349.035
Blanking plate	–	4	2	7355.035
Blanking plate	–	6	2	7356.035
Blanking plate	–	8	2	7357.035
Blanking plate	–	24	1	7359.035
Blanking plate	–	42	1	7360.035

Other versions available on request.
[1] Extended delivery times

Note:
For drawings of the cutouts,
see page 1021 – 1025.

Patch panels for copper technology

B

7.8

Patch panels for fibre-optic technology

To accommodate F-SMA 6.5 mm fibre-optic couplings

With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Number locations	Model No. DK
2	32	**7632.035**

Extended delivery times.
Other designs available on request.

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
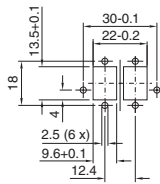
To accommodate E-2000, E-2000 duplex or SC fibre-optic couplings

For 1 U with accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Number locations single/duplex	Model No. DK
1	16/8	**7433.035**
2	48/24	**7133.248**

Other versions available on request.

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
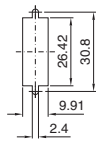
To accommodate SC duplex fibre-optic couplings

With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Number locations	Model No. DK
1	12	**7154.035**
2	24	**7155.035**

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
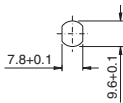
To accommodate ST fibre-optic couplings

With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Number locations	Model No. DK
1	16	**7437.035**
2	24	**7137.535**
2	32	**7637.035**[1]

[1] Extended delivery times.
Other designs available on request.

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
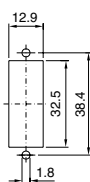
To accommodate ST duplex fibre-optic couplings

With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Number locations	Model No. DK
2	12	**7142.535**

Other versions available on request.

➕ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
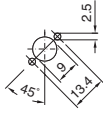
To accommodate FC-PC fibre-optic couplings

With accommodation facility for cable clamp straps DK 7610.000 or DK 7611.000.

Material:
Sheet steel

Colour:
RAL 7035

U	Number locations	Model No. DK
1	16	**7439.035**

Extended delivery times.
Other designs available on request.

⊞ **Accessories:**

Cable clamp strap DK 7610.000 or DK 7611.000, see page 985.
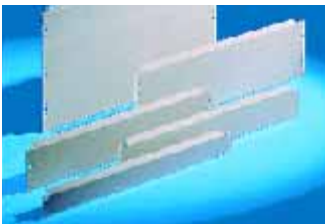
Blanking panel, 482.6 mm (19″)

As an extension cover or for population as required.

Material:
Sheet steel

Colour:
RAL 7035

U	Installation height mm	Packs of	Model No. DK
1	44	2	**7151.035**
1.5	66	2	**7157.035**
2	88	2	**7152.035**
3	132.5	2	**7153.035**
6	266	2	**7156.035**

Blanking panel 1 U, 42 HP ($^1/_2$ 19″)

for RNC and RiCase
As an extension cover.

Material:
Sheet steel

Colour:
RAL 7035

Packs of	Model No. DK
2	**7870.720**

Panel 1 U, 482.6 mm (19″)

with solid tray
For the stroage of fibre-optic coupling covers or assembly parts.
Depth: 100 mm

Material:
Sheet steel

Colour:
RAL 7035

U	Model No. DK
1	**7300.335**

Identification strips

for patch panels
For individual labelling of different slots, self-adhesive.
Length: 210 mm, height: 10 mm.

Packs of	Model No. DK
32	**7167.000**

Patch panels for fibre-optic technology

B

7.8

Splicing boxes

Splicing cassette holder

To accommodate differently sized splicing cassettes with variable cassette accommodation. Up to 8 splicing cassettes may be fitted in one holder. The splicing cassette holder can be flexibly secured to any mounting surface, and is particularly suitable for retro-fitting tor small fibre-optic distributors without patch panels.
One extra holder may be fitted in small fibre-optic distributor DK 7452.035
→ max.: 16 splicing cassettes.
Two extra holders may be fitted in small fibre-optic distributor DK 7453.035
→ max.: 32 splicing cassettes.

Height		Model No. DK
Overall height mm	Threaded bolts mm	
93	85	**7450.035**

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Holder with threaded bolts, variable angle bracket, cassette cover, knurled nut and assembly parts.
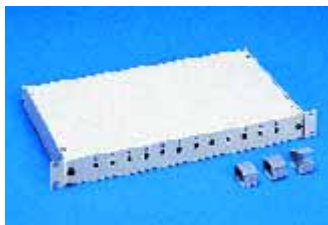
Fibre-optic splicing box, depth-variable

The 482.6 mm (19″) splicing box is designed to accommodate splicing cassettes and can be installed in any network distributor with 482.6 mm (19″) accommodation and used as a fibre-optic termination or distributor. The variable cassette fixture permits twist-proof installation of all standard splicing cassettes. The rear section of the splicing box is completely open for cable entry; a rubber cable clamp strip provides protection against dust. The fibre-optic cables can be secured with cable ties or cable clamps.
The splicing box is infinitely depth-adjustable up to 100 mm within the 482.6 mm (19″) flanges. In addition, the splicing box may be fully withdrawn from the 482.6 mm (19″) flanges. Two strain relief clips and cable routing clips for the fibre stock provide a solution to suit any fibre-optic wiring system.

U	Maximum no. of splicing cassettes	Model No. DK
1	2	**7241.005**
2	4	**7242.005**

Other versions available on request.

German patent no. 196 08 385

Installation depth:
302 mm

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Splicing box, cable routing clips and cassette cover and assembly parts for patch panel.

Note:
Supplied without patch panel and splicing cassettes.
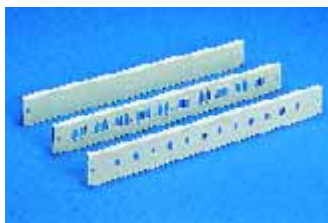
Patch panels

for fibre-optic splicing box, depth-variable
There is a choice of 9 panels with appropriate cutouts for the installation of various fibre-optic couplings, together with 2 blanking panels for individual population or as a cover.
The patch panels are fastened to the splicing box with quick-release fasteners.

Material:
Sheet steel

Colour:
RAL 7035

For coupling	No. of installation positions	Model No. DK 1 U	No. of installation positions	Model No. DK 2 U
ST	12	**7241.015**	24	**7242.015**
	16	**7241.065**		
E-2000, E-2000 Duplex[2] or SC	24	**7241.024**	48	**7242.024**
FDDI	6	**7241.035**	12	**7242.035[1]**
SC duplex	12	**7241.045**	24	**7242.045[1]**
Blanking panel	–	**7241.055[1]**	–	**7242.055[1]**

Other versions available on request.
[1] Delivery time approx. 2 weeks.
[2] For E-2000 Duplex only half of the locations are available.

Splicing boxes

B

7.8

Fibre-optic splicing box with telescopic pull-out

lockable

The 482.6 mm (19″) splicing box is designed to accommodate splicing cassettes and can be installed in any network distributor with 482.6 mm (19″) accommodation and used as a fibre-optic termination or distributor. The telescopic pull-out provides optimum access to the splicing cassettes and cable clamp. The variable cassette fixture permits twist-proof installation of all standard splicing cassettes. The security lock fitted at the front protects against unauthorised access. The rear section of the splicing box is completely open for cable entry; a rubber cable clamp strip provides protection against dust. The fibre-optic cables can be secured with cable ties or cable clamps; two strain relief clips and cable routing clips for the fibre stock provide a solution to suit any fibre-optic wiring system.

U	Maximum no. of Splicing cassettes	Model No. DK
1	2	**7170.535**
2	4	**7470.535**
3	6	**7570.535[1)]**

Other versions available on request.
[1)] German patent no. 44 13 136

Installation depth:
363 mm

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Splicing box, cable routing clips, security lock and cassette cover,
incl. assembly parts for patch panel.

Note:
Supplied without patch panel and splicing cassettes.

Patch panels

for fibre-optic splicing box, lockable
There is a choice of 20 panels with appropriate cutouts for the installation of various fibre-optic couplings, together with 3 blanking panels for individual population or as a cover.

Material:
Sheet steel

Colour:
RAL 7035

For coupling	No. of installation positions	Model No. DK 1 U	No. of installation positions	Model No. DK 2 U	No. of installation positions	Model No. DK 3 U
F-SMA 6.5 mm	12	**7171.535[1)]**	24	**7471.535[1)]**	48	**7571.535[1)]**
DIN 47 256	12	**7173.535**	24	**7473.535[1)]**	48	**7573.535[1)]**
ST	12	**7174.535**	24	**7474.535**	48	**7574.535**
	16	**7174.135**				
FC-PC	12	**7175.535[1)]**	24	**7475.535[1)]**	48	**7575.535[1)]**
E-2000, E-2000 Duplex[2)] or SC	20	**7178.535**	24	**7478.535**	48	**7578.535**
			40	**7491.535[1)]**		
SC duplex	12	**7169.535**	24	**7469.535**	36	**7569.535**
Blanking panel	–	**7179.535**	–	**7479.535[1)]**	–	**7579.535[1)]**

Other versions available on request.
[1)] Delivery time approx. 2 weeks.
[2)] For E-2000 Duplex only half of the locations are available.

Cover panel

for fibre-optic cutouts
To cover unused cutouts in patch panels.

Material:
Nylon

Colour:
Black

	Packs of	Model No. DK
SC, E-2000	20	**7300.230**
E-2000 Duplex	20	
SC duplex	20	**7300.240**
ST	20	**7300.250**

Splicing boxes

B

7.8

Splicing boxes
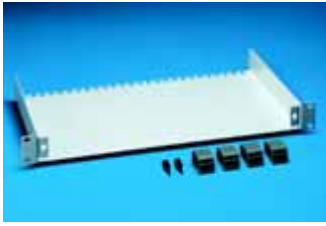
Fibre-optic breakout box 1 U

For splice-free cabling of fibre-optic breakout cables.
Cable bundles may be clamped on the hammer heads at the rear. 4 self-adhesive cable clips are are supplied loose for cable clamping and for storing excess lengths inside the box.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Breakout box,
cable routing clips,
assembly parts for patch panel.

Installation depth	Model No. DK
250 mm	**7241.500**
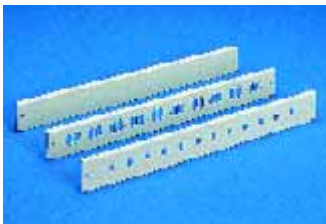
Patch panels

for fibre-optic breakout box 1 U
There is a choice of 5 panels for the breakout box with appropriate cutouts for the installation of various fibre-optic couplings, together with 1 blanking panel for individual population or as a cover.

Material:
Sheet steel

Colour:
RAL 7035

For Coupling	No. of installation positions	Model No. DK
ST	12	**7241.015**
ST	16	**7241.065**
E-2000, E-2000 Duplex[2] or SC	24	**7241.024**
FDDI	6	**7241.035**
SC duplex	12	**7241.045**
Blanking panel	–	**7241.055[1]**

Other versions available on request.
[1] Delivery time approx. 1 week.
[2] 10 installation positions are available for E-2000 Duplex.

Fibre-optic splicing distributor

Unlike the splicing box, the splicing distributor may optionally be installed inside or outside of network distribution enclosures.
The splicing distributor is designed to accommodate fibre-optic splicing cassettes. These are mounted individually between mounting trays which can be stacked on top of one another as required. Strain relief for the cables and individual fibres is provided by cable ties.
The basic unit can accommodated a total of 2 packs of 4 extension units DK 7381.035.

Dimensions:
W x H x D: 190 x 250 x 90 mm

Threaded bolts:
75 mm

	Model No. DK
Fibre-optic splicing distributor	**7380.035**

German patent no. 40 08 840

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Base including one pair of mounting trays, lid and assembly parts.
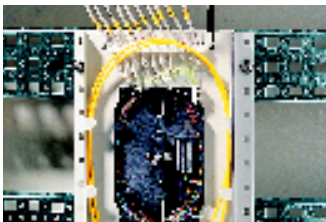
Fibre-optic splicing distributor extension unit

Additional pairs of mounting trays, each of which can accommodate one splicing cassette and the fibre stock, are used to extend the splicing distributor.

Material:
Sheet steel

Colour:
RAL 7035

Packs of	Model No. DK
2	**7381.035**

Splicing boxes

B

7.8
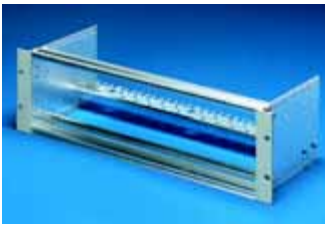
Fixture with rods, 3 U

for LSA strips
To accommodate
15 LSA profile dividing strips 2/10 on
2 rods, Ø 12 mm.
The fixture unit may be integrated in all 482.6 mm
(19″) mounting levels. With cable clamp rail at the
rear.

Dimensions:
W x H x D:
482.6 mm (19″) x 132.5 mm (3 U) x 175 mm

U	Model No. DK
3	**7050.200**

Material:
Side panels: Aluminium plates
482.6 mm (19″) side panels/cross rail:
Extruded aluminium section

Supply includes:
Fixture with rods as modular system.

3 U support unit

for LSA-Plus strips, max. 150 paired wires
To accommodate a maximum of 15 LSA-Plus
strips (each with 10 paired wires). 3 x 5 LSA-Plus
connection strips 2/10, series 2, may be installed
horizontally. Strip length 124 mm, height pitch
pattern 22.5 mm. The support unit may be inte-
grated in all 482.6 mm (19″) mounting levels. The
mounting level is recessed 100 mm behind the
482.6 mm (19″) flanges. Integral shunting rings
enable tidy routing and distribution of the telecom-
munication cables.

U	Model No. DK
3	**7050.100**

Material:
Stainless steel

Supply includes:
Support unit, 8 shunting rings.
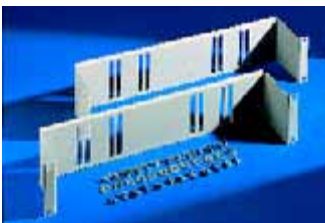
2 U accommodation system

for LSA installation kit
To accommodate LSA mounting troughs/cable
retainers on the 482.6 mm (19″) mounting angle.

Dimensions:
Total depth: 98.5 mm
Height: 2 U

Material:
Sheet steel

Colour:
RAL 7035

U	Packs of	Model No. DK
2	2	**7050.035**

Accessories:

FM universal mounting bracket,
see page 811.

LSA connection system

B
7.8
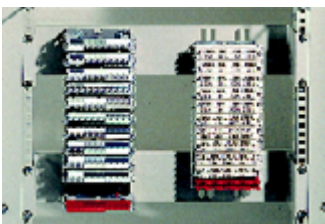
Human/machine interface

Handles, external mounting accessories

Clipboard

For securing operating instructions or plans (A4 size) at eye level.
Prepared for mounting on the right-hand side; mounting on the left is also possible by unscrewing and moving the clip part.
For mounting purposes, a straight tube length of ≥ 200 mm, 25 mm dia. is required.

Material:
Sheet steel, RAL 7035
Clip part: Aluminium, natural anodised.

Width mm	Height mm	Model No. CP
225	315	**6013.000**

Clipboard in conjunction with command panel VIP 6000:
European patent no. 0 839 093 with validity for DE, FR, GB, IT

！ Also required:

Handle set SZ 2389.000, see page 1030
or
Handle set VIP 6000, see page 1033
or
Handle set for Optipanel, see page 1031
or
U handle CP 6107.200, see page 1032.

Ring board

The alternative for attaching paper or plastic covers in A4 format, in either landscape or portrait format.
Board folded over on three sides and punched for mounting the assembly parts on the handle tube (length ≥ 200 mm, Ø 25 mm).

Material:
Sheet steel, RAL 7035
Ring strip, 16 mm: Sheet steel, plated

Width mm	Height mm	Model No. CP
225	315	**6013.500**

！ Also required:

Handle set SZ 2389.000, see page 1030
or
Handle set VIP 6000, see page 1033
or
Handle set for Optipanel, see page 1031
or
U handle CP 6107.200, see page 1032.

Display board with wall bracket

To accommodate test plans, documents etc. in A4 format.

Assembly:
- on surfaces,
- on a 25 mm pitch pattern of the TS frame or rail system,
- on the handle set.

Packs of	Model No. CP
1	**6013.100**

Supply includes:
10 display boards,
wall brackets and assembly parts.

＋ Accessories:

Handle set SZ 2389.000, see page 1030
or
Handle set VIP 6000, see page 1033
or
Handle set for Optipanel, see page 1031
or
U handle CP 6107.200, see page 1032.

Handle set

For vertical and horizontal mounting on all surfaces.
Overall length: 420 mm.

Material:
Handle tube: Aluminium, natural anodised.
Conduit holder: Die-cast zinc, RAL 7035

Supply includes:
1 set =
4 rail holders,
2 handle tubes.

Packs of	Model No. SZ
1 set	**2389.000**

＋ Accessories:

Clipboard, ringboard, display board,
see page 1030.

Handles, external mounting accessories

B

7.9
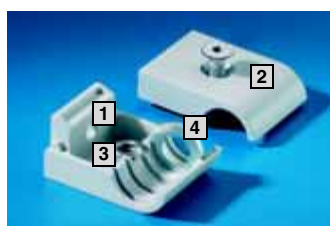
Rail holder

For mounting on surfaces, horizontal or vertical, also suitable for height-adjustable and/or swivel mounting of enclosures.
For 25 mm dia. sections made from
- Steel, seamless DIN 2448
- Aluminium to DIN 1795
as a handle or for limiting support surfaces.

Consisting of:

1 Assembly tray with one drilled hole and M8 screw and two pins as anti-twist guard.

2 Clamping tray with tolerance compensation and screw for tightening the rails.

3 Washer, small, prevents tensioning of the rails e.g. should it become necessary to remove the fitted ring board.

4 Washer, large, secures the uninhibited, rotating rail between the two trays to prevent it from falling out.

Material:
Die-cast zinc

Colour:
RAL 7035

Packs of	Model No. SZ
2	2389.100

Handle set

for Optipanel
For external mounting on corner pieces, also suitable for retro-fitting.

Material:
Handle tube: Aluminium, natural anodised.
Handle holder: Die-cast zinc,
powder-coated in RAL 7035
Covers: Polyamide, RAL 7024

Note:
Shorter heights and widths can be achieved by cutting the handle tube to length.

For enclosures with 100 mm depth, cannot be mounted on the same side as the
- Support arm connection
- Interface flap
  (SZ 2482.200, see page 1059)

+ Accessories:

Clipboard, ringboard, display board
see page 1030.

For horizontal mounting

With front panel width	Packs of	Model No. CP
482.6 mm (19″)	1 set	6385.010
As specified	1 set	6385.019[2]

Supply includes:
Handle tube, Ø 25 mm,
2 handle holders,
2 covers.

For vertical mounting

With front panel height	Packs of	Model No. CP
7 U	1 set	6385.020
7 U + 2 x 3.5 U[1]	1 set	6385.030
As specified	1 set	6385.029[2]

[1] Divided by 2 cross members for Optipanel.

[2] Please additionally state when ordering:
– Number/dimensions of front panels
– Number of cross members/sealing bars or
– Model Number of enclosure

Supply includes:
2 handle tubes, Ø 25 mm,
4 handle holders,
4 covers.

Handles, external mounting accessories

B

7.9

Handles, external mounting accessories

Handles

For horizontal or vertical attachment to the enclosure panel of:
- VIP 6000 with combined or narrow front frame,
- Optipanel,
- other enclosures or
- surfaces.

Mounting holes and surfaces without fins are required for assembly purposes. For VIP 6000 version with fins, corresponding milling work can be carried out. With the operating/keyboard housing, please specify "Prepared for handle set CP 6107.XXX".

Material:
Handle holder: Die-cast zinc, RAL 7035
Cover bungs: Plastic, similar to RAL 7035
Handle tube: Aluminium, powder-coated similar to RAL 9006.

German patent no. 19 937 966
French patent no. 2 797 555
Italian patent no. 0 131 8210
US patent no. 6,507,978

Corner handle

Supply includes:
4 handle holders,
2 handle tubes,
assembly parts.

Packs of	Model No. CP
1 set	6107.000

Mounting on enclosure corner

Mounting on straight surfaces
(90° rotation of handle holder)

U handle

Supply includes:
2 handle holders,
1 handle tube,
assembly parts.
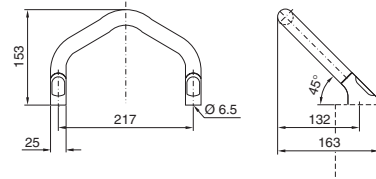
For front panel size	Packs of	Model No. CP
≥ 7 U	1 set	6107.100
482.6 mm (19″)	1 set	6107.200
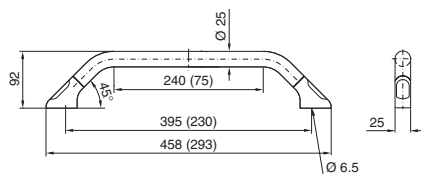
➕ **Accessories:**

For CP 6107.200:
Clipboard, ringboard, display board,
see page 1030.

Note:
Dimensions in brackets for CP 7 U.

Display board with wall bracket
see page 1030.

Handles, external mounting accessories

B

7.9

Handle set VIP

for VIP 6000 with wide frame
For mounting on the corner connectors of the
enclosure frame.

Material:
Handle tube: Extruded aluminium section,
natural anodised
Handle holder: Die-cast zinc,
powder-coated in RAL 7035

For horizontal mounting

With front panel width	Packs of	Model No. CP
482.6 mm (19″)	1 set	**6101.000**
As specified	1 set	**6101.009**[2]

Supply includes:
2 handle holders,
1 handle tube,
2 screws.

Note:
Shorter heights and widths can be achieved by
cutting the handle tube to length.

⊞ **Accessories:**

Clipboard, ringboard, display board,
see page 1030.

For vertical mounting

With front panel height	Packs of	Model No. CP
7 U	1 set	**6102.000**
7 + 3.5 U[1]	1 set	**6103.000**
As specified	1 set	**6102.009**[2]

[1] Divided by cross member for VIP 6000.

[2] Please additionally state when ordering:
  – Number/dimensions of front panels
  – Number of cross members/sealing bars or
  – Model Number of enclosure

Supply includes:
4 handle holders,
2 handle tubes,
4 screws.

Handle frame

for operating housing with display panel front

For operating housing with display panel front	CP 6442.500 CP 6462.500	CP 6552.500	CP 6662.500
Model No. CP	**6191.000**	**6192.000**	**6190.000**
Operating housing width (B1) mm	380	500	600
Width of the horizontal rectangular tube (B2 = B1 + 48) mm	428	548	648
Height of the vertical rectangular tube (H1) mm	345	465	299
Hole distance between the assembly holes (H2) mm	295	415	249

Colour:
RAL 8019

Supply includes:
Square aluminium tube,
plastic corner bracket,
end caps,
assembly parts.

Handles, external mounting accessories

B

7.9
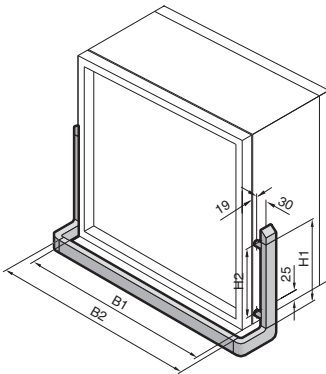
Human/machine interface

Connection components

Connector

for compact enclosures
Between
- Compact enclosure AE from depth 210 mm
  (see page 118)
- Operating housings from depth 210 mm
  (see page 185)

and
- Terminal boxes from depth 80 mm
  (see page 108)
- E-Boxes EB from depth 80 mm
  (see page 110)

Material:
Sheet steel

Colour:
RAL 7024

Supply includes:
Assembly parts.

Packs of	Model No. CP
1 set	**6005.100**

Note:
During retrofitting, appropriate mounting holes are required for assembly purposes.

Rittal service:

Terminal box, E-Box and compact enclosure available on request with front panel and handle strips mounted on the rear panel.

Drilling pattern for attaching the connector to both enclosures

1 e.g. AE

2 e.g. KL/EB

2 B = Width
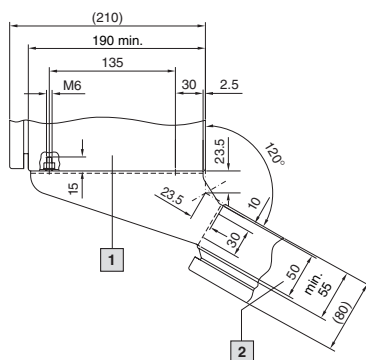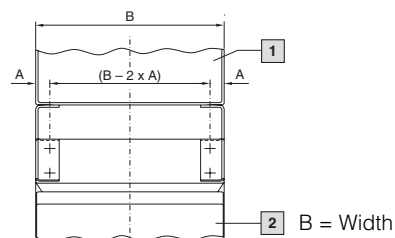
Handle strips	min. dimension A mm
Without	15
With	35

Enclosure surface connector

To accommodate:
- Support for keyboards (SM 2383.000)
- Optipanel keyboard housing for front panel
  width = 482.6 mm (19″) CP 6384.009. Please
  state front panel height and installation depth
  (50 or 100 mm) in addition to Model No.

Material:
Extruded aluminium section, natural anodised
Side cover, sheet steel RAL 7024.

Supply includes:
Assembly parts.

Packs of	Model No. SM
1 set	**2383.010**

Note:
Other widths available on request.

Also required:

Cross-brace for door,
see page 895.

Mounting on surfaces

Mounting underneath surfaces

Connection components

B

7.9
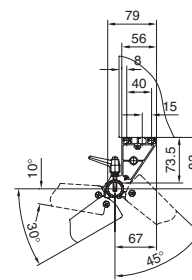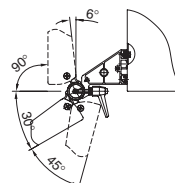
Enclosure duct connector

for VIP 6000
To fit narrow and combined frames in conjunction with the keyboard housing 105 mm deep.
● The angle between the operating and keyboard housing is 120°.
● At the same time, the duct connector is used for cable routing from the operating housing to the keyboard housing.

Material:
Aluminium

Colour:
RAL 7035

Supply includes:
Assembly parts.

Weight kg	Packs of	Model No. CP
2.0	1 set	**6006.000**

Delivery times on request.

Note:
When retro-fitting, appropriate mounting holes and cutouts must be made in the operating and keyboard housings for assembly purposes.

! Also required:
Cross-brace for door,
see page 895.

Cable tube, flexible

for VIP 6000
Suitable for cable routing from the operating housing to the keyboard housing.
Suitable for use with
● Frame connector, adjustable
● Hinged frame connector
● Frame connector, rigid
● Enclosure bar connector

May be mounted on the following keyboard housings:
● Keyboard housing: 105 mm
● Keyboard housing: 44 mm
● Keyboard housing: 27 mm
with connection for flexible cable conduit (design 4.1, see page 166).

Corresponding cutouts are required for connecting the cable tube in the operating and keyboard housing.

A cable tube is included with the supply to selection 4.5, see page 169.

Colour:
RAL 7035

Supply includes:
Assembly parts.

for keyboard housings	Model No. CP
CP 6351.009 Designs **4.1, 2 and 4**	**6017.100**
Others	**6017.000**

Front panels

for VIP 6000 and Optipanel

Material:
3 mm aluminium, natural anodised

Note:
If more than one front panel is used a cross member is required,
see page 1037.

Width mm	Height mm	Model No. CP	
		with mounting holes	with threaded bolts M5
482.6 (19″)	155.0 (3.5 U)	**6027.000**	**6027.010**
482.6 (19″)	177.0 (4 U)	**6019.000**	–
482.6 (19″)	310.3 (7 U)	**6028.000**	**6028.010**
482.6 (19″)	493.8[1]	**6029.000**	–

[1] For VIP 6000, this corresponds to the height of two front panels (7 + 3.5 U) and of one cross member (285 mm).

! Also required:
Mounting kit CP 6053.000 or CP 6053.500,
see page 1037.

✎ Rittal service:
Other sizes and versions with threaded bolts, cutouts and engravings available on request.

Connection components, front assembly

B

7.9

Human/machine interface

Front assembly
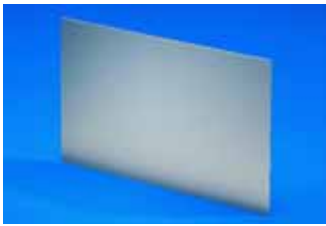
Front panels
for Optipanel CP 6380.100
With threaded bolts M5.

Dimensions:
270 x 234 mm

Material:
3 mm aluminium, natural anodised

Supply includes:
Mounting kit.
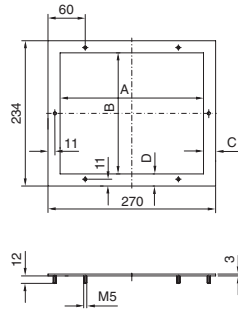
Mounting cutout	Packs of	Model No. CP
Without	1	6027.500
For Siemens Simatic OP 17	1	6027.510
For Siemens Simatic TP 170 A/B	1	6027.520
Acc. to specifications	1	6027.509

Model No. CP	A	B	C	D
6027.510	231.0	195.0	19.5	19.5
6027.520	197.5	141.5	36.25	46.25
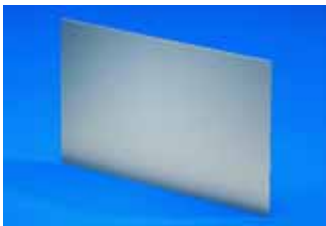
Front panels
for Compact Panel

Material:
3 mm aluminium, natural anodised

Size W x H mm	To fit Compact Panel	Model No. CP
178 x 200	CP 6340.0X0	6028.500
178 x 350	CP 6340.1X0	6028.510
178 x 482.6	CP 6340.2X0	6028.520
252 x 200	CP 6340.3X0	6028.530
252 x 350	CP 6340.4X0	6028.540

Front panels, hinged
for VIP 6000 and Optipanel

Dimensions:
19″ x 7 U
(482.6 x 310.3 mm)

Opening angle:
Optipanel: 125°
VIP 6000: 95°

Material:
Front panel: 3 mm aluminium, natural anodised
Extruded aluminium section: Natural anodised

Supply includes:
Hinge section, hinge strip,
2 end trims and assembly parts.
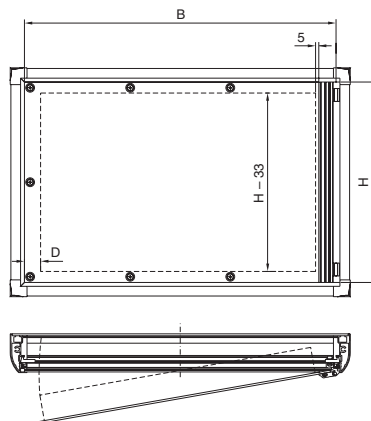
Front panel for	Design	Model No. CP
Optipanel	Screw-fastened from the outside	6027.100
	Screw-fastened from the inside	6027.110
	With cam	6027.120
VIP 6000	Screw-fastened from the outside[1]	6027.200
	Screw-fastened from the inside[1]	6027.210
	With cam[1]	6027.220

Delivery times on request.
For other sizes, please add the extension .XX9 to the Model No.
[1] When ordering, please specify the colour of the required end trim (see page 163).

Required distance from edge "D" to avoid collisions

Installation depth	Dimension "D"
Optipanel 50 mm	25 mm
Optipanel 100 mm	34 mm
Optipanel 150 mm	48 mm
VIP 6000 44 mm	25 mm
VIP 6000 105 mm	36 mm
VIP 6000 155 mm	52 mm

Mounting position Optipanel
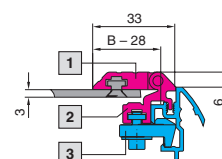
Mounting position VIP 6000
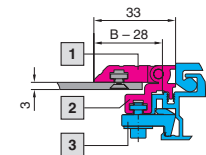
1 Hinge strip
2 Hinge section
3 Retaining claw

B = Width

Front assembly

B
7.9
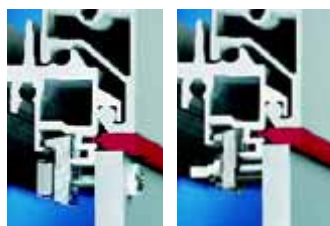
Mounting kit

for VIP 6000 and Optipanel
For installing
- Aluminium front plates
- Command panels
- Keyboards

For holes

For Front panels	Thread	Model No. CP
Others	M4	**6058.000**
Rittal and others	M5	**6053.000**

Supply includes:
Packs of
30 retaining claws, captive nuts, screws and sealing washers.

For bolts

Thread	Model No. CP
M4	**6058.500**
M5	**6053.500**

Supply includes:
Packs of
10 retaining claws and cap screws.

For screw clamp

For direct installation of	Model No. CP
Siemens Sinumerik OP010, OP010C, OP012, OP015, MCP, PP012, Querty 19″	
Siemens Simatic Panel PC 670: 12″-Touch, 15″-Touch, 10″ keys, 12″ keys, 15″ keys Panel PC 870: 12″-Touch, 15″-Touch, 10″ keys, 15″ keys	**6053.210**

The mounting set can only be installed vertically.
Mounting in VIP 6000 is only possible in conjunction with end trim.

Supply includes:
Packs of
4 pressure plates,
4 attachment strips.

Sealing bar

for VIP 6000 and Optipanel
For horizontal and/or vertical division of operating housings.
The "slot-free" division produces a height gain of 28 mm (VIP 6000) or 22 mm (Optipanel) respectively.

Material:
Aluminium section 8 x 20 mm

Supply includes:
Assembly parts.

Note:
Sealing bar may not be used in conjunction with spacer trim.

For front panel width mm	Model No. CP
482.6 (19″)	**6015.500**
As specified[1]	**6015.509**

[1] Please specify width of front panel.

Detailed drawing,

Cross member

for VIP 6000 and Optipanel
For horizontal and/or vertical division of the command panel front.
With mounting channel on both sides to accommodate mounting kits.

Material:
Extruded aluminium section

Supply includes:
2 retainig claws,
2 screws with washers,
2 trim sections.

For front panel width mm	Model No. CP	
	for VIP 6000[2]	for Optipanel
482.6 (19″)	**6015.000**	**6386.000**
As specified[1]	**6015.009**	**6386.009**

[1] Please specify width/height of front panel.
[2] Trim type and trim colour, see page 163. Please state on the order.

⊞ **Accessories:**

Mounting kit,

Detailed drawing,

Front assembly

B
7.9

Front assembly

Spacer panel and built-in trim panel

for VIP 6000 and Optipanel
For additional space with cable entry and for installing
- Switches/indicator lamps
- Emergency-off switches/key switches
- CD-ROM/disk drives
- Interfaces

etc.

For mounting (horizontally or vertically) on the enclosure, snap into position and screw-fasten from behind.
Other spacer panels and built-in trim panels, front panels and operator panels may be installed without an additional cross member.

Material:
Extruded aluminium section, natural anodised

Supply includes:
Assembly parts and end trim (VIP 6000), spacer trim (Optipanel).

For VIP 6000

For front panel width mm	Model No. CP[2]
482.6 (19″)	**6015.300**
As specified[1]	**6015.309**

Height corresponding to a front panel height of 103 mm.
[1] Please specify width of front panel.
[2] Trim colour see page 163.
    Please state on the order.

For Optipanel

For front panel width mm	Model No. CP
482.6 (19″)	**6386.300**
As specified[1]	**6386.309**

Height corresponding to a front panel height of 96 mm.
[1] Please specify width of front panel.

VIP 6000
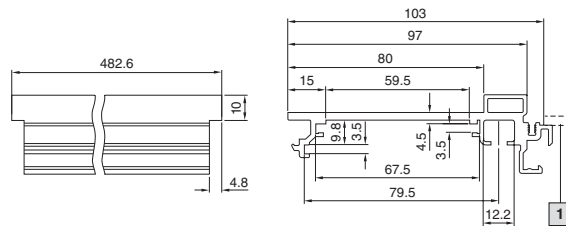
Optipanel
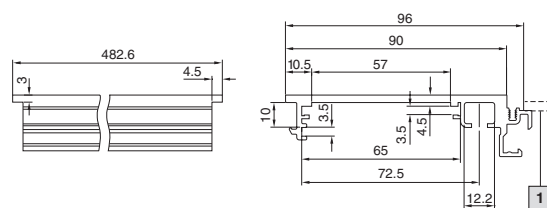
1 Another spacer panel and built-in trim panel, front plate or operator panel

Desk section
for AP universal console
Solid sides and front, removable plates for top
and bottom. May optionally be attached with the
inclined or straight edge on top, by rotating
through 180°

Material:
Sheet steel

Colour:
RAL 7035,
design strip RAL 5018

Protection category:
IP 55 to EN 60 529/10.91,
Complies with NEMA 12.

Supply includes:
Assembly parts.
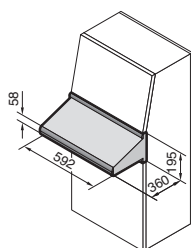
Packs of	Model No. AP
1	2696.500

**To order versions in RAL 7032, please use order
number extension .200.
Delivery times on request.**

Utility shelf
screw-fastened

With support mat for:
Measuring tools, writing equipment, mouse,
scanner, small parts etc.

For mounting
- Underneath:
  – VIP 6000
  – Optipanel
  – Command panel housings with door
  – Operating housings
  – IW worktop
    For visual reasons, not drilled for assembly.
- On surfaces (doors, rear panels) via rear
  assembly holes
- To TS punched section with mounting flange
  17 x 73 mm, locatable, without screw-fastening,
  – for servicing work on the enclosure.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Width (B) mm	Model No. CP
220	6514.110
450	6514.100
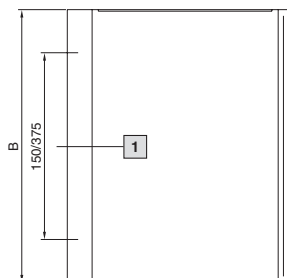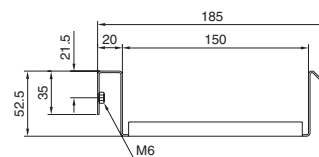
1 Additional central thread
only for CP 6514.100

Front assembly

B

7.9

Human/machine interface

General accessories

Cover plate

for support arm connection
For secure sealing of a support arm connection in the enclosure which is not required.

Material:
Sheet steel

Supply includes:
Seal and assembly parts.

Note:
If with
- VIP 6000
- Optipanel
- Compact panel

command panels there are already 2 support arm cutouts provided, a cover plate is included with the supply of the enclosure.

Support arm connection	Surface finish	Model No. CP
CP-S	Spray-finished 7024	**6505.200**
CP-L, Ø 130 mm	Zinc-plated, passivated	**6505.500**
CP-L, 120 x 65 mm	Zinc-plated, passivated	**6505.100**

Worktop attachment

for pedestal and support arm system
For mounting worktops on:
- Lifting pillar, electric
- Enclosure attachment CP-L, round
- Housing coupling CP-L, round
- Enclosure attachment CP-XL, round
- Housing coupling CP-XL

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Packs of	Model No. IW
1	**6902.780**

➕ **Accessories:**

Accessories	Model No. CP	see page
Lifting pillar, electric	6142.000	229
Enclosure attachment, CP-L, Ø 130 mm	6525.5X0	206
Housing coupling, CP-L, Ø 130 mm	6525.0X0	212
Enclosure attachment, CP-XL, round	6130.600	222
Housing coupling, CP-XL	6130.000	223
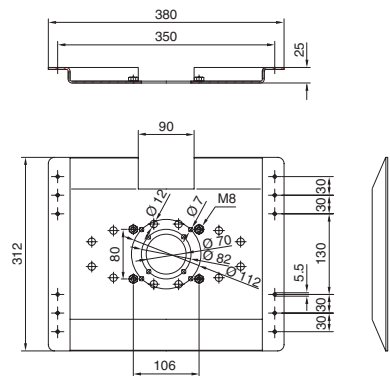
Aluminium strip

for
- AP
- Surfaces
Prevents wiring plans etc. from slipping.

For console	Length mm	Packs of	Model No. AP
AP 2611.500 AP 2613.500 AP 2668.500	783	3	**2678.000**
AP 2641.500 AP 2643.500 AP 2672.500	1183	3	**2682.000**
AP 2666.500	583	3	**2676.000**

May be cut to length for other dimensions.

General accessories

B
7.9

Signal pillar, LED compact

red, yellow, green

Benefits:
- Complete, ready-to-connect solution
- Minimal build height of just 177 mm
- Extremely long service life of the LEDs
  (at least 70,000 h) – therefore maintenance-free
- Minimal assembly work and warehousing costs

Technical specifications:
Operating voltage: 24 V AC/DC
Electrical connection: Screw terminals
Light: LED
Transmission angle: 3 x 120°
Operating temperature: –20 to +70°C
Flashing function: Controllable via SPC
Cable entry: Metric cable gland
M12 x 1.5 for cable diameter 3.0 – 6.5 mm

Packs of	Model No. SG
1	**2372.100**

Protection category:
IP 65 to EN 60 529/10.91

Note:
- Design with acoustic component
- 1 to 4-stage version in various colour combinations
- Version with magnetic base
available upon request.

! Also required:

For wall/base mounting:
Bracket for wall mounting,
see page 1044.
For conduit mounting/support arm systems:
Busbar connection adaptor,
see page 1041.
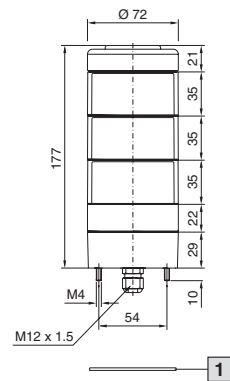
Mounting cutout
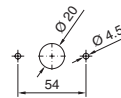
1 Seal

Busbar connection adaptor

for signal pillar, LED compact
For conduit mounting and mounting on support arm systems.

Material:
Plastic

Colour:
Black

Packs of	Model No. SG
1	**2372.120**

+ Accessories:

Mounting components for conduit mounting,
see page 1045.
Mounting components for support arm systems,
see page 1045.

LED compact

B

7.9
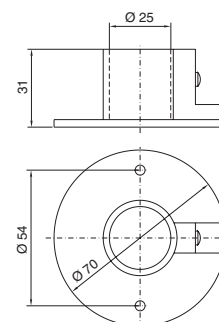
Signal pillars

Modular

Signal pillars, modular

Benefits:
- Simple assembly and contact via bayonet fastener.
- Configuration of up to five components with the same voltage.
- The incandescent lamps are replaced in seconds – no need for tools.
- Components are available in a range of colours and voltages.

For modular configuration from:
- Connection components
- Optical components
- Incandescent lamps/LED lamps
- Acoustic components
- Label panel

Connection component

for signal pillars, modular
Optionally for conduit or wall/base mounting. Screw terminals in the connection component. With cover for optical components. Contact hazard protection to VDE.

Material:
Enclosure of polyamide

Colour:
Black

Protection category:
IP 54

Connection component	Model No. SG
For conduit mounting	**2368.000**
For wall/base mounting	**2368.010**

Accessories:

Mounting components for wall/base mounting, see page 1044.
Mounting components for conduit mounting, see page 1045.
Mounting components for support arm systems, see page 1045.

Connection component for conduit mounting
SG 2368.000
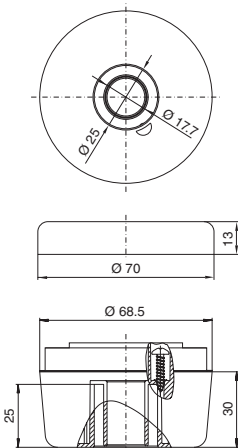
Connection component for wall/base mounting
SG 2368.010
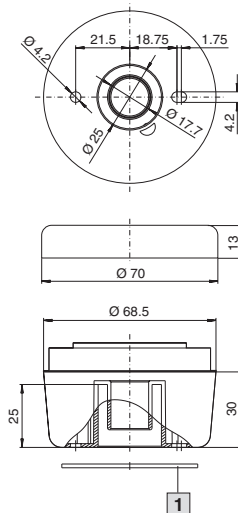
1 Seal

Optical components

for signal pillars, modular
With 360° signal transmission thanks to optimised prism system.
Possible number of levels =
5 components, with the same voltage.
115 V components available on request.

Material:
Enclosure: polyamide
Cap: transparent polycarbonate

Protection category:
IP 54 if a cover or acoustic component is fitted at the top.

⚠ Also required:

Incandescent or LED lamps for steady and flashing light component,
see page 1043.

Optical components	Model No. SG				
Colour	Red	Green	Yellow	Clear	Blue
1 Steady light component[1] 12 – 240 V AC/DC	**2369.000**	**2369.010**	**2369.020**	**2369.030**	**2369.040**
2 Flashing light component[1] 24 V AC/DC, 125 mA/225 mA	**2370.000**	**2370.010**	**2370.020**	**2370.030**	**2370.040**
2 Flashing light component[1] 230 V AC/DC, 15 mA	**2370.050**	**2370.060**	**2370.070**	**2370.080**	**2370.090**
3 Stroboscopic light component 24 V DC, 125 mA/225 mA	**2371.000**	**2371.010**	**2371.020**	**2371.030**	**2371.040**
3 Stroboscopic light component 230 V AC, 15 mA	**2371.050**	**2371.060**	**2371.070**	**2371.080**	**2371.090**
4 LED steady light component 24 V AC/DC, 60 mA	**2372.000**	**2372.010**	**2372.020**	**2372.030**	**2372.040**

[1] Incandescent or LED lamps not included with the supply.

Connection diagram

Shared conductor

Stage 5 · Stage 1 · Stage 2 · Stage 3 · Stage 4

1 Preconfigured seal

Ø 70
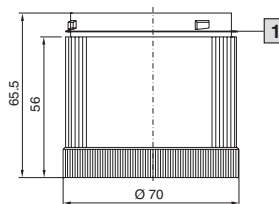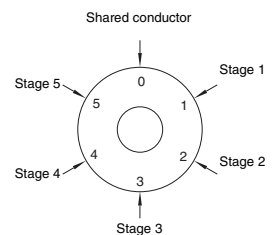
Incandescent lamps

for steady and flashing light components
With BA 15d base/plinth.
For new orders or replacements.

Incandescent lamp	Packs of	Model No. SG
24 V, 5 W	3	**2374.060**
230 V, 5 W	3	**2374.070**

LED lamp

for steady and flashing light components
The energy-saving alternative with a long service life.
The LEDs have a trasnmission angle of 2 x 180°.

LED lamp	Packs of	Model No. SG				
Colour		Red	Green	Yellow	Clear	Blue
24 V AC/DC	1	**2374.200**	**2374.210**	**2374.220**	**2374.230**	**2374.240**
		For steady and flashing light components from SG 2369.000 to SG 2370.040				
230 V AC	1	**2374.300**	**2374.310**	**2374.320**	**2374.330**	**2374.340**
		For steady light components SG 2369.000 to SG 2369.040				

Modular

B

7.9

Signal pillars

Mounting components

Acoustic components

for signal pillars, modular
To indicate warnings or malfunctions. The sound pressure is 85 dB/100 dB. Mounting only on the upper end of the optical components or directly on the connection component.

Material:
Enclosure: polyamide

Colour:
Black

Acoustic components	Model No. SG	
	24 V AC/DC	230 V AC
85 dB[1] max. 25 mA	**2376.000**	**2376.020**
100 dB[2] max. 25 mA	**2376.010**	**2376.030**

[1] Continuous tone or pulsating
[2] Volume and 8 tones may be set

Label panel

for signal pillars, modular
For text additions for a maximum of 5 optical components, with break point for any fields that are not required (50 x 150 mm), including clamping section for base or tube with a diameter of 25 mm.

Material:
Acrylic, transparent

Label panel	Model No. SG
For 5 optical components	**2374.150**

Mounting components

For wall/base mounting

Fig.	Mounting component	Colour	Suitable for signal pillar		Model No. SG
			LED compact	modular	
1	Bracket for wall mounting, including rubber gland for concealed cable routing	Black	■		**2372.110**
2	Bracket for connection component	Black		■[1]	**2374.040**
3	For side cable outlet	Black		■[1]	**2374.080**

⚠ Also required:

[1] Connection component SG 2368.010, see page 1042.

Bracket for connection component
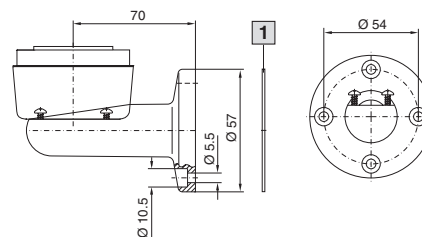
1 Seal
2 Flat seal

For side cable outlet
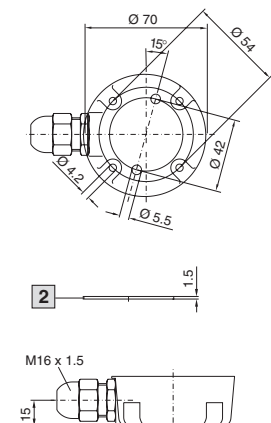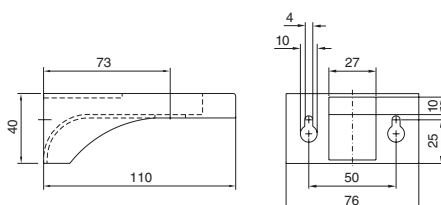
M16 x 1.5

Bracket for wall mounting

B
7.9

Mounting components

Mounting components
for conduit mounting
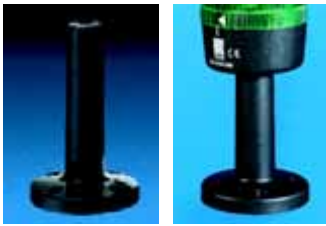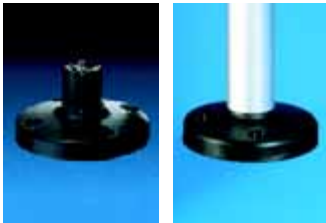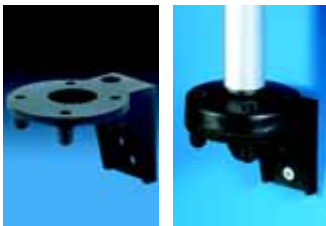
Fig.	Mounting component	Colour	Suitable for signal pillar		Model No. SG
			LED compact	modular	
4	Base with integral conduit, Ø 25 mm, 110 mm long	Black	■[1]	■[2]	**2374.000**
5	Individual base	Black	■	■	**2374.010**
6	Single conduit, 250 mm long	Aluminium	■[1]	■[2]	**2374.020**
	Single conduit, 400 mm long	Aluminium	■[1]	■[2]	**2374.030**
7	Angle bracket for conduit mounting	Black	■	■	**2374.050**

! Also required:

[1] Busbar connection adaptor SG 2372.120, see page 1041.
[2] Connection component SG 2368.000, see page 1042.

Base with integral conduit

Single conduit

1 Seal

Individual base

Angle bracket for conduit mounting

1 Seal

Mounting components
for support arm systems

Fig.	Mounting component	Colour	Suitable for signal pillar		Model No. SG
			LED compact	modular	
8	for support arm system CP-L – Angle piece CP 6524.0X0 – Angle coupling CP 6526.0X0	RAL 9017 (traffic black)	■[1]	■[2]	**2375.000**
9	for support arm system CP-L – Intermediate hinge CP 6523.0X0 – Wall mounted hinge CP 6521.0X0 – Top mounted joint CP 6522.0X0	RAL 9017 (traffic black)	■[1]	■[2]	**2375.020**
10	for support arm system CP-S – Angle piece 90° CP 6501.140	RAL 7024 (graphite grey)	■[1]	■[2]	**2375.030**

! Also required:

[1] Busbar connection adaptor SG 2372.120, see page 1041.
[2] Connection component SG 2368.000, see page 1042.

Mounting components

B

7.9

Human/machine interface

Monitors, keyboards

Premium TFT 17″, IP 69K

This high pressure cleaner-resistant complete solution is particularly well-suited for use in the food and hygiene sectors.

Technical specifications:
Resolution max.:
17″: 1280 x 1024 pixels,
VGA + SXGA non-interlaced
Colours: 16.7 million
Brightness: 250 cd/m^2
Reading angle: 130° horizontal, 110° vertical
Contrast ratio: 300 : 1
MTBF backlight: 50,000 h
Voltage: 12 V DC
On Screen Display (OSD) at rear
VGA input: 15 pin D-Sub
Operating temperature: 0°C to +50°C

Material:
Stainless steel 1.4301

Surface finish:
Brushed, grain 240

Protection category:
IP 69K to DIN 40 050-9/5.93
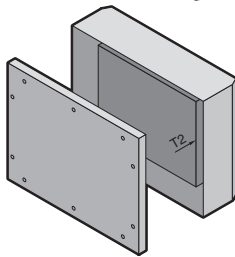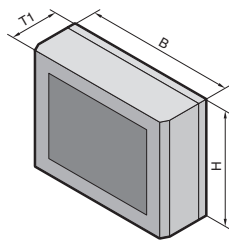
Support arm connection	W (B) mm	H mm	D (T1) mm	D (T2) mm	Model No. SM
Bottom	530	360	120	70	**6450.100**
Top	530	360	120	70	**6450.110**

To order version in stainless steel 1.4404 (AISI 316L) please use Model No. SM 6450.5XX. Delivery times on request.

⊞ Accessories:

Rear panel holder CP 6682.000,
see page 893.
Power pack SM 6450.050 and
connection cable SM 6450.060,
see page 1047,
if an operating voltage of 100 – 240 V AC is only available instead of 12 V DC.
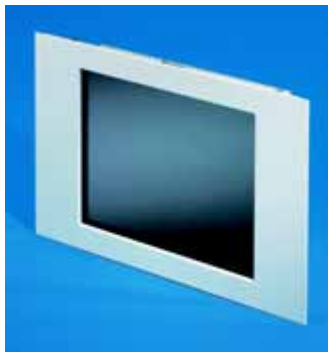
TFT monitor

Installation variant for surfaces and command panels.
Particular benefits:
● High-quality industrial design
● Reduced installation work thanks to integral front frame
● No additional ventilation required
● Very small installation depth (73 mm).
Resistive touchscreen for operation with a pen, finger and glove.

Technical specifications:
Resolution max.:
15″: 1024 x 768 pixels, VGA + XGA non-interlaced
17″: 1280 x 1024 pixels, VGA + SXGA non-interlaced
Colours: 16.7 million
Brightness: 250 cd/m^2
Reading angle: 130° horizontal, 110° vertical
Contrast ratio: 300 : 1
MTBF backlight: 50,000 h
Voltage: 12 V DC
On Screen Display (OSD) at rear
VGA input: 15 pin D-Sub
Operating temperature: 0°C to +50°C

Front frame:
Dimensions:
15″: W/H 430 x 343 mm
17″: W/H 482.6 x 354.8 mm
Aluminium, powder-coated in RAL 7035
Rear threaded bolts M5 (14 units)

Protection category:
IP 65 to EN 60 529/10.91, front

Supply includes:
Seal and hex nuts (for installation in surfaces) and VGA cables. Touchscreen with additional 5 V adaptor cable and driver CD-ROM.

	Model No. SM
Monitor 15″ [1]	**6450.010**
Monitor 17″ [1]	**6450.020**
Touchscreen 15″	**6450.030**
Touchscreen 17″	**6450.040**

[1] With anti-reflection coated safety glass screen

⚠ Also required:

Mounting kit CP 6053.500
(for installation in VIP 6000 and Optipanel),
see page 1037.
Power pack SM 6450.050 and
connection cable SM 6450.060,
see page 1047,
if an operating voltage of 100 – 240 V AC is only available instead of 12 V DC.

✎ Rittal service:

Matching Optipanel operating hounsings,
see page 178.
Mounted in command panels,
see page 173.

⇄ Possible alternative:

Unit consisting of TFT monitor and Premium Panel, specificly designed for the food industry, see page 1046.

Power pack

for TFT monitor and touchscreen
- With IEC 320 socket,
- With connection cable (1.5 m) and connector for connecting to the TFT monitor.

Dimension: 107 x 30 x 59 mm.

Technical specifications:
Input voltage: 100 – 240 V AC
Output voltage: 12 V DC

Packs of	Model No. SM
1	**6450.050**

Material:
Enclosure: Plastic

Connection cable

for power pack
With IEC connector at one end,
length: 1.5 m.

Packs of	Model No. SM
1	**6450.060**
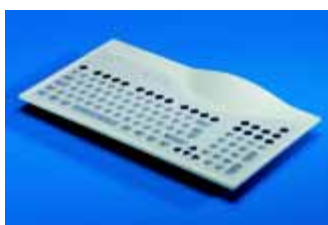
Desktop keyboard IP 65

Particularly well-suited to all areas with dusty or damp industrial atmospheres and places where hygiene is particularly crucial, such as in the food industry or medical technology.

- Sealed, wipeable surface finish.
- High level of mechanical and chemical resistance to DIN 42 115.
- Lenticular key caps and minimal typing force for optimum finger guidance and fast operation.
This makes it ideally suited for workstations where it is necessary to input large quantities of data.

Supply includes:
Connection cable with PS/2 connector,
length 1.8 m.

	Model No. SM
Desktop keyboard	**6446.000**

Technical specifications:
Dimensions: 410 x 220 x 25 mm
105 keys
Actuation travel/force: 0.4 mm/2 N
Service life: ≥ 1 million switching cycles
Operating temperature: –20°C to +70°C
German layout

🖉 **Rittal service:**

Country-specific layout and USB connection available on request.

Stainless steel keyboard 19″/4 U

based on the piezo system.
With this innovative technology, merely tapping lightly with your finger is sufficent to initiate switching. There are no edges, cracks or hollows, as with conventional keyboards. This makes it particularly suitable for use in the food industry.

Technical specifications:
Dimensions of front panel:
482.6 x 177 x 3.7 mm
Installation depth 25 mm
105 keys
Actuation travel/force: 0 mm/0.7 N
Service life: ≥ 10 million switching cycles
Keypad: Abrasion-resistant electrolyte lettering
Operating temperature: –25°C to +75°C
PS/2 and USB connection
German layout

Material:
Stainless steel 1.4301

Protection category:
IP 69K to DIN 40 050/5.93

Supply includes:
1 connection cable, length 1.8 m,
with PS/2 connector and hex nuts.
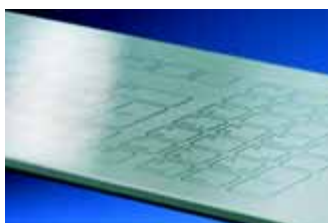
	Model No. SM
Stainless steel keyboard	**6446.010**

🖉 **Rittal service:**

Country-specific layout available on request.
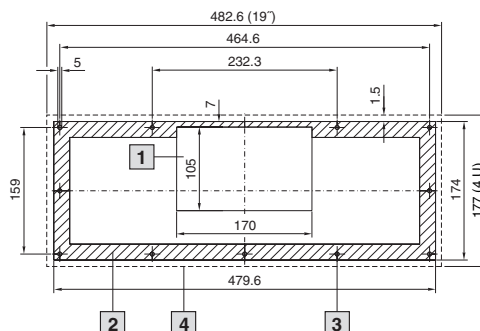
1 Front panel cutout
2 Seal
3 Holes for fastening bolts
4 Contact surface

Monitors, keyboards

B

7.10
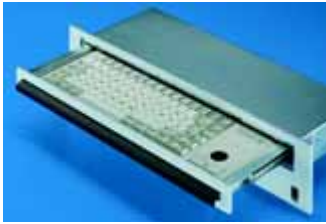
Keyboard, pull-out

with integral trackball
Super-slimline keyboard with cursor keys and trackball.

For installation in:
● Command panels VIP 6000
   (see page 161) and
   Optipanel (see page 173)
   from installation depth 150 mm
● 482.6 mm (19″) systems
● Any sufficiently large surface
   (e.g. door, side panel)

Technical specifications:
● Keyboard:
   – 84 short-stroke keys, IBM-AT compatible
     (MF2), including cursor keys
   – With integral 16 mm trackball
   – German layout
   – Interface:
     2 x 6-pole PS/2 DIN connector
   – Operating temperature: +5°C to +50°C
   – Storage temperature: –10°C to +60°C
   – Humidity: max. 95 %
     (no condensation)
● Front panel made from aluminium, with film
   similar to RAL 7035

Protection category:
IP 65 (at the front, closed)
to EN 60 529/10.91

	Packs of	Model No. CP
Without lock	1	**6002.100**
With lock	1	**6002.110**

Note:
For sub-division of the operating front, a cross member is required for:
● VIP 6000 (see page 162, version 3.2).
   At the same time, the end trim (see page 163, version 3.4) must be selected.
● Optipanel (see page 174, version 2.2).

⊞ Accessories:

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, version A, see page 888, and lock cylinders, version B, see page 889.

482.6 (19″) / 88

1 Optional lock (CP 6002.110)

420 / 465 / 155 / 2 / 3.5

22.5 / 150 / 7.5 / 43 / 73 / M4 / 7.5 / 10

Mounting cutout

155 / Ø 5 / 62 / 73 / 450 / 465
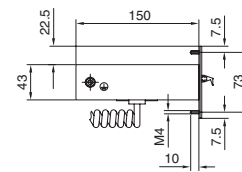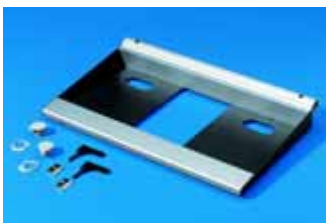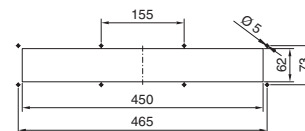
Support

for keyboards
for max. 473 x 210 mm.
Prepared for
● Cable gland
● Support for mousepad, vertically hinged
   (SM 2383.020)

Material/surface finish:
Side parts: Sheet steel, RAL 7024
Front and rear:
Extruded aluminium section, natural anodised

Supply includes:
2 clamping screws, end stoppers, cover plate, cable entry grommet and nylon loop tape.

🖉 Rittal service:

Other widths available on request.
Fully mounted on the VIP 6000
(see page 160) or the Optipanel
(see page 173) via the design code number.

	Packs of	Model No. SM
	1 set	**2383.000**

⚠ Also required:

For mounting on surfaces:
enclosure surface connector,
see page 1034.

⊞ Accessories:

Support for mousepad, vertically hinged,
see page 1055.

Detailed drawing
for VIP 6000,
see page 1100,
for Optipanel,
see page 1102.

Utility bars, vertically hinged

To support standard keyboards during programming and servicing work:
● min. width 300 mm
● max. depth 210 mm

For mounting beneath:
● VIP 6000 with narrow or combined frame
● Optipanel
● Command panel
● Command panel housing with door
● Adequately large surfaces
  (e.g. worktops IW)

to:
● Vertical services (doors/side panels)

After use, the utility bars fit securely and neatly under the mounting surface, thus giving the operator more space to move around.

Packs of	Model No. CP
1 set	**6514.200**

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Fold-out tray

for keyboard and mouse
For installation in
● 600 and 800 mm wide doors
● 482.6 mm (19″) swing frames and enclosures

Standard double-bit lock insert which may be exchanged for lock inserts 27 mm, version A, see page 888 and for lock cylinder SZ 2571.000, see page 889.

Material:
Cover: Sheet steel
Side parts: Cast aluminium
Tray: Extruded aluminium section

Surface finish:
Cover, side parts: RAL 7035
Tray: Natural anodised

Protection category:
IP 55 to EN 60 529/10.91

+	**Accessories:**

Mousepad support, pull-out,
see page 1056.

🖊	**Rittal service:**

Other widths available on request.

Mounting cutout

482.6 (682.6)
454 (654)
32
195 (295) 195 (295)
305
324
355 (8 U)
⌀ 5.5 (6x)
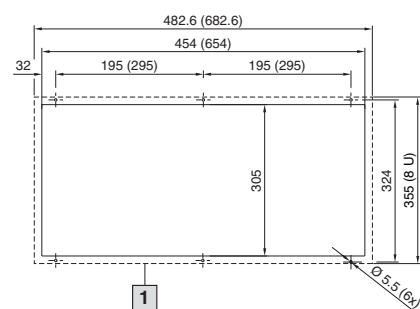
1 Contact surface

For door width mm	External dimensions WHD mm	Installation depth mm	Max. keyboard size WHD mm	Model No. SZ
600	482.6 (19″) x 355 (8 U) x 126	93	405 x 50 x 250 405 x 50 x 195[1]	**2379.600**
800	682.6 x 355 (8 U) x 126	93	605 x 50 x 250 605 x 50 x 195[1] 475[1] x 50 x 250	**2379.800**

[1] Maximum keyboard size with holder for mouse.

Panel for monitors

for monitors with screen diagonals of up to 17″
For mounting between 482.6 mm (19″) mounting angles. Fitted with safety glass.

Material:
Sheet steel

Colour:
RAL 7035

U	Model No. DK
9	**7300.135**

Extended delivery times.

Monitors, keyboards

B
7.10

Human/machine interface

Monitors, keyboards

Keyboard rack, 482.6 mm (19″)
- 482.6 mm (19″) rack-mounted chassis 1 U, 430 mm deep
- Prepared for the installation of 482.6 mm (19″) keyboards with touchpad or trackball with the following dimensions:
  max. height: 39 mm,
  max. width: 417 mm,
  max. depth: 210 mm
- Solid, lockable front
- Telescopic slides with integral clamp
- Prepared for installation of a mousepad

Material:
Sheet steel

Packs of	Model No. RP
1	**3659.520**

Colour:
RAL 7035

Supply includes:
482.6 mm (19″) chassis **excluding keyboard,**
connection cable,
mounting bracket for 800 and 900 mm enclosure depth,
assembly parts.

Mousepad
for keyboard drawer
- For optional mounting on the left, right or front of the keyboard drawer (fold-away design)
- Maybe folded into the keyboard drawer after use
- Only suitable for use in conjunction with 482.6 mm (19″) keyboards with a total height of max. 39 mm (Model No. RP 3659.590)

Material:
Sheet steel

Packs of	Assembly	Model No. RP
1	right/left	**3659.620**
1	front	**3659.630**

Colour:
RAL 7035

Supply includes:
Assembly parts.

Keyboard, 482.6 mm (19″)
- Keyboard for installation in the 482.6 mm (19″) keyboard drawer in conjunction with the touch-pad mouse
- German keyboard layout
- 38.9 mm high keys facilitate installation in 1 U keyboard drawers
- PS/2 connector
- IP 20
- Touch-sensitive technology
- W x H x D = 405 x 38.9 x 180 mm
- 105 keys (including WIN 95 keys)
- Actuating force 0.6 N/4.0 mm
- Operating temperature: 0°C to 50°C

Packs of	Model No. RP
1	**3659.590**

Supply includes:
Connection cable.
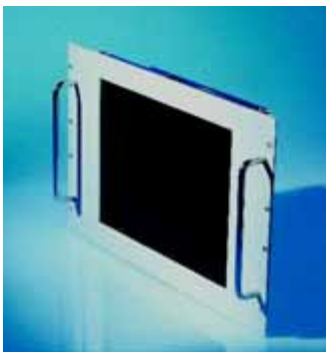
TFT display, 15″
- 482.6 mm (19″) front panel 7 U, RAL 7035
- TFT LCD 15.1″
- Automatic brightness control depending on the ambient light
- Anti-reflection coated safety glass screen
- Brightness: 250 cd/m^2
- On-screen display
- Colours: 16.7 million
- Power pack: Input voltage: 100 – 240 V AC, output: 12 V DC/3.75 A
- OSD membrane keyboard and infrared sensor
- VGA + SVGA, non-interlaced
- Maximum resolution 1024 x 768 pixels
- Contrast ratio: 300 : 1
- Viewing angle: 160° (H+V)
- Video input 15-pin D-SUB (analog RGB)
- RS 232 monitor interface

Packs of	Model No. RP
1	**3659.530**

Material:
Front panel: Aluminium, powder-coated

Colour:
RAL 7035

Protection category:
Tested to EN 60 950 and
EMC directive 89/336/EEC.

Note:
Depth varies according to the display design (protective glass, touchscreen etc.).
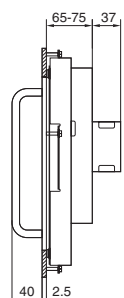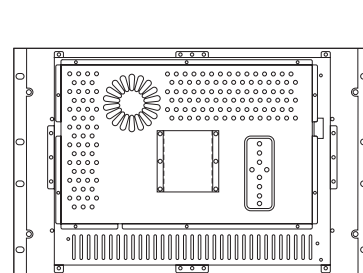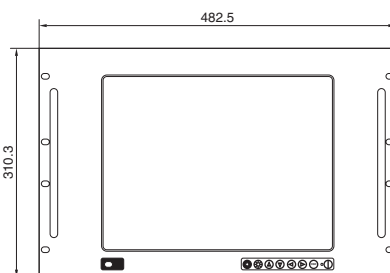
Keyboard drawer 2 U

for one 482.6 mm (19″) attachment level
For keyboards up to 430 mm wide and 250 mm
deep with the front panel folded over.

Material:
Sheet steel with aluminium front

Colour:
RAL 7035

Supply includes:
Lockable drawer with handles,
folding front,
pull-out mousepad,
mouse support,
practical cable entry
and strain relief.
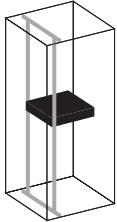
Height	Model No. DK
2 U	**7281.035**

**To order in RAL 7032, please add the extension .000
to the Model No.
Delivery times available on request.**
Installation depth: 390 mm.
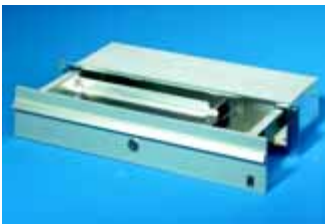
Drawer 482.6 mm (19″)/2 U

for keyboard and mouse

For installation in:
● VIP 6000 command panel[1] (all installation
  depths **1** to **9**, see page 161).
● Optipanel Command Panel[1] (installation
  depth **3** = 150 mm, see page 173).
● Any sufficiently large surface.
  (e.g. door, side panel).
● 482.6 mm (19″) systems.

Suitable for
● Accommodation of keyboards up to a maxi-
  mum of 390 x 32 x 139 mm.
● Support of standard commercially available
  mouse or trackball.

Design:
● Drawer:
  – with stay
● Font panel
  – with security lock (lock no. 12321)
  – with handle strip

Width mm	Height	Depth mm	Model No. CP
482.6 (19″)	2 U	150	**6002.000**

Material:
Drawer housing:
Sheet steel, zinc-plated, passivated
Drawer and front panel:
Aluminium, natural anodised.

Supply includes:
Assembly parts for installation in
VIP 6000/Optipanel command panels.

⚠ Also required:

[1] For sub-division of the operating front:
● With VIP 6000, a cross member
  (recommended) or sealing bar is required
  (see page 162, version 3.2).
  At the same time, the end trim
  (see page 163, version 3.4) must be selected.
● With Optipanel, a cross member
  (see page 174, version 2.2) is required.
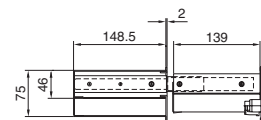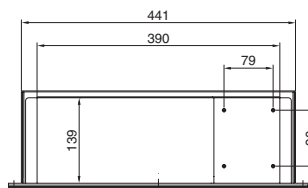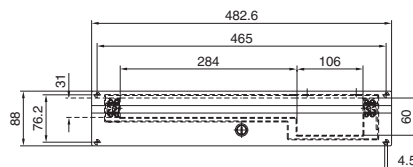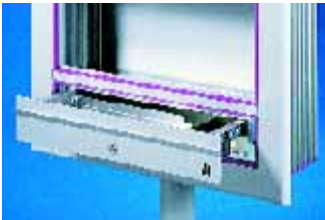
Mounting cutout
(for installation in surfaces)

Drawers for keyboards

B
7.10
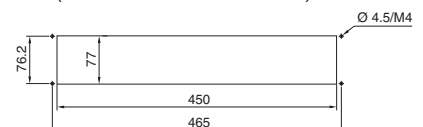
Drawers for keyboards
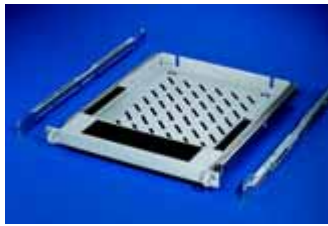
Drawer 482.6 mm (19″)

for keyboard
For attaching to the 482.6 mm (19″) mounting angles front and rear. Suitable for standard keyboards larger than 482.6 mm (19″). Keyboard support with non-slip base, plus wrist support. Depth-variable installation from 610 – 950 mm. Clearance opening W x H x D: 408 x 40 x 550 mm.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts, excluding keyboard..

Packs of	Model No. DK
1	7063.888

Keyboard drawer 1 U

for 482.6 mm (19″) attachment level
This space-saving keyboard drawer is screw-fastened to the front and rear 482.6 mm (19″) attachment level. The installation spacing is infinitely adjustable from 460 – 800 mm.
It is fully extendible, lockable, with strain relief and hinged cable support.
The drawer is suitable to accommodate 482.6 mm (19″) keyboards.

Interior dimensions:
W x H x D approx. 420 x 40 x 220 mm

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts, excluding keyboard.

Distance between levels mm	Model No. DK
460 – 800	7281.200

+ **Accessories:**

482.6 mm (19″) long-stroke keyboard with numeric keypad and touchpad, connection cable (approx. 1.15 m) and PS/2 connector, colour RAL 7035.

W x H x D mm	Keyboard layout	Model No. DK
	German	9004.400
	US English	9004.402
415 x 37 x 193	French	9004.403
	Spanish	9004.404
	Finnish	9004.406
	Swedish	9004.407

Drawer for keyboard

For a max. keyboard width of 500 mm.
Drawer with mousepad at the front.
A high level of protection is retained, even with the flap open.

Material:
Sheet steel

Colour:
RAL 7035

Protection category:
IP 55 to EN 60 529/10.91,
Complies with NEMA 12.

Supply includes:
Assembly parts.

Note:
Only suitable for installation without mounting plate.

For universal console AP 2694.500	Model No. AP
	4757.500

+ **Accessories:**

Standard double-bit lock insert may be exchanged for 27 mm lock inserts, version A, see page 888.
Plastic handles, version B, see page 886.

Drawers for keyboards

B

7.10
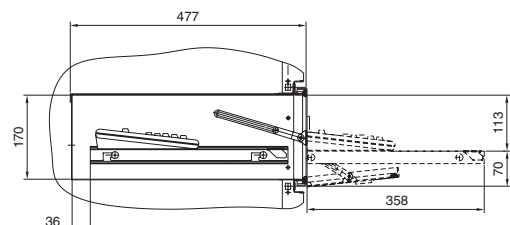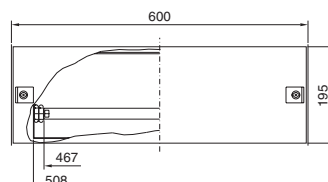
Drawer for keyboard and mouse

with mousepad support

For installation in:
- VIP 6000 Command Panel[1] (installation depth **4**, **6** or **8**, see page 161, 3.1)
- Any sufficiently large surface (e.g. door, side panel)

Suitable for accommodating
- Keyboards up to a maximum of 460 x 42 x 170 mm
- IP 67 mouse and mousepad
- Standard mouse and mousepad

Design:
- Drawer and enclosure
  – with side pull-out mousepad support and tray
- Font panel
  – with 3 mm double-bit lock insert
  – folds out as a wrist support

Width mm	Height	Depth mm	Model No. CP
482.6 (19″)	3.5 U	261	**6003.000**

Material:
Keyboard and drawer: Sheet steel
Front panel: Aluminium, natural anodised.

Supply includes:
Assembly parts for installation in VIP 6000 Command Panel.

⚠ Also required:

[1] For sub-division of the operating front a cross member (see page 162, version 3.2) is required. At the same time, the end trim (see page 163, version 3.4) must be selected.

✚ Accessories:

Mouse, mousepad IP 67, see page 1054.
Standard double-bit lock insert may be exchanged for 27 mm lock insert, version A, see page 888.
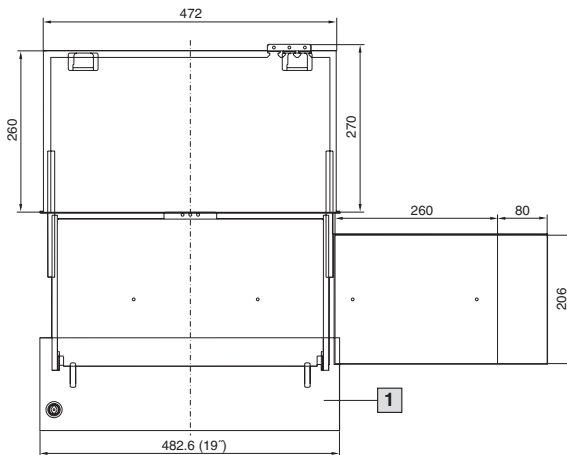
1 Front trim panel

Mounting cutout
for installation in surfaces
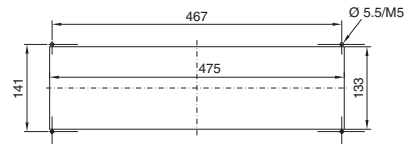
Drawer for keyboard and mouse

Bottom-mounting
Lockable with mousepad support, may be extended to the left and right, and hinged cable support for safe, pinch-free cable routing. Sealed cable entry for 3 cables (up to Ø 6 mm).

For mounting beneath
- Worktop
- Sufficiently large surfaces

Material:
Drawer housing:
Sheet steel, spray-finished in RAL 7035.
Drawer trim panel:
Plastic to UL 94-V0
in RAL 7035, 7015, 9006.

Protection category:
IP 55 to EN 60 529/10.91,
complies with NEMA 12.

Packs of	Model No. IW
1	**6902.910**

Drawers for keyboards

B
7.10

Human/machine interface

Mouse, mousepad

Mouse, mousepad IP 67

An ideal input device for all areas where heavy contamination is unavoidable, or where exceptional standards of hygiene are required, for example in the food industry or medical technology.

Because the mouse detects positions inductively, there is no need for a trackball, and the housing can be completely sealed with a protective film. This achieves a high protection category of IP 67. The mouse will only work in conjunction with the inductive mousepad IP 67.

Technical specifications:
PS/2 connection
Temperature range: 0°C to +55°C
Power consumption: < 20 mA
Cable lengths: 2000 mm

Material:
Mousepad: Plastic PBT
Mouse: Plastic ABS 9006.

⊞ Accessories:

Connector gland (SZ 2400.500),
see page 975.
Support for mousepad,
see page 1054.

	W x H x D mm	Colour RAL	Model No. SM
Inductive mousepad IP 67 PS/2 interface	250 x 205 x 15	similar to 7035	**6444.500[1]**
Mouse IP 67 for mousepad SM 6444.500	–	similar to 7032	**6445.000**

[1] German patent no. 198 51 619
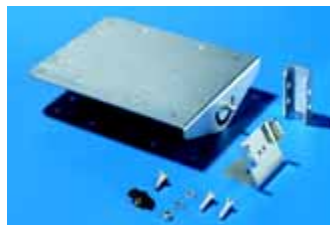
Support for mousepad
for command panels and surfaces
To fit IP 67 mousepad SM 6444.500.
The angle of the mousepad support is individually adjustable.
Two holes are needed on the enclosure for attachment purposes.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Weight kg	Model No. SM
1.0	**2381.000**

[!] Also required:

Vertical handle set for wide frame (for mounting on VIP 6000 with wide front frame),
see page 1033.

⊞ Accessories:

Holder for mouse,
see page 1055.
Mouse, mousepad IP 67,
see page 1054.

Mouse, mousepad

B

7.10
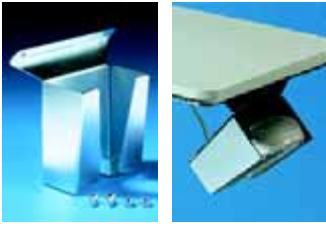
Holder for mouse

To match the mousepad support and for secure accommodation of a standard mouse or the IP 67 mouse SM 6445.000.

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Weight kg	Model No. SM
0.3	**2382.000**

! Also required:

Support for mousepad,
see page 1054.

Mousepad, passive

For installing in PC enclosures based on ES. Pulls out to the front or on the left or right.

For folding keyboard of PC enclosure/case	Model No. PC
4603.920 4617.920	**4613.000**

German patent no. 43 30 926

For drawer of PC enclosure/case	Model No. PC
4603.603 4603.913 4609.703 4617.703	**4614.000**

Support for mousepad, vertically hinged

For mounting on the left/right, beneath support for keyboards. Latches home automatically, both when retracted and extended.
With attachment holes for:
● Mousepad IP 67 (SM 6444.500)
● Mouse holder (SM 2382.000) to accommodate the IP 67 mouse.
With cutouts for cable routing and holes for attachment via cable ties, for fast assembly (SZ 2597.000).

Material:
Sheet steel, zinc-plated, passivated

Supply includes:
Assembly parts.

Packs of	Model No. SM
1	**2383.020**

⊞ Accessories:

Mouse, mousepad IP 67,
see page 1054.
Holder for mouse,
see page 1055.
Cable ties,
see page 982.

Mouse, mousepad

B

7.10
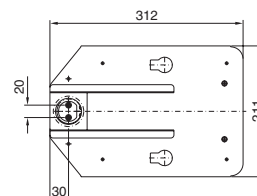
Human/machine interface

Mobile workstation

Support for mousepad, pull-out
with mouse holder
For screw-fastening into the fold-out tray
SZ 2379.600/SZ 2379.800. To fit all standard
mousepads up to 250 x 205 mm.

Note:
When installing the fold-out tray into the swing
frame, the swing frame must be open in order to
pull the mousepad out of the fold-out tray.

Packs of	Model No. SZ
1 set	**2379.900**

⊞ **Accessories:**

Mouse, mousepad IP 67,
see page 1054.

Printer rack
For installation in enclosures with
● 600 mm width
● 600 and 800 mm depth

Load capacity: 25 kg
Surface for printer (A4) 375 x 471 mm.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Shelf for printer with telescopic slides,
paper tray and paper guide,
base for paper supply,
hinged cable support.

Packs of	Model No. PS
1	**4635.000**

German patent no. 41 08 379
IR reg. design no. DM/016 439
with validity for BE, CH, DE, ES, FR, IT, LU, NL
French patent no. 2 660 534
GB patent no. 2 243 069

⚠ **Also required:**

For enclosure depth mm	For installation in TS, PC based on TS, 2 punched sections with mounting flanges, see page 921	ES, PC based on ES, 2 punched sections without mounting flanges, see page 925
600	TS 8612.060	PS 4376.000
800	TS 8612.080	PS 4377.000

Mobile workstation

B
7.10
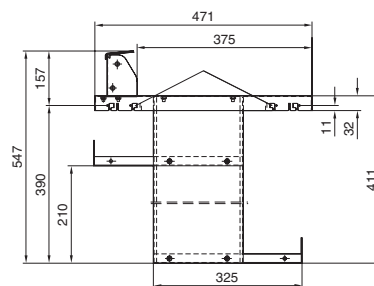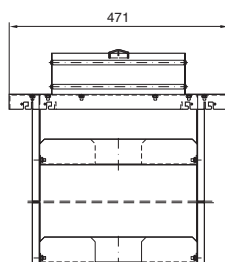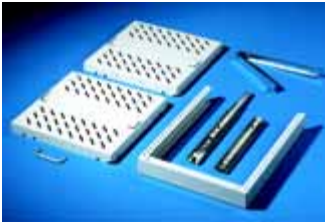
Mobile workstation

for tower PCs, printers, UPS, servers etc.

Load capacity: 75 kg

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
1 mounting frame,
2 shelves, top/bottom,
1 set of telescopic slides,
1 handle,
1 cable support, hinged,
assembly parts.

Packs of	Model No. PC
1	**4641.000**

! Also required:

For enclosure depth mm	For installation in	
	TS, PC based on TS, IW 2 punched sections with mounting flanges, see page 921	ES, PC based on ES 2 punched sections without mounting flanges[1], see page 925
600	TS 8612.060	PS 4376.000
800	TS 8612.080	PS 4377.000

[1] plus:
4 support brackets, PS 4183.000, see page 933,
8 threaded blocks M6, PS 4162.000, see page 936,
8 screws M6, PS 2504.500, see page 937.

➕ Accessories:

Fastening bolts DK 7115.000,
see page 953.
Shelf,
see page 1057.
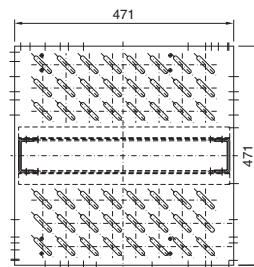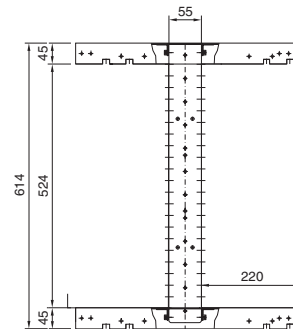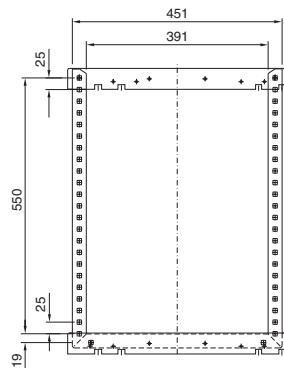
Shelf

for mobile workstation
For additional equipment such as modems, power packs etc. or simply as a paper tray.
Installation heigth-adjustable on a 25 mm pitch pattern.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Packs of	Model No. PC
1	**4642.000**

➕ Accessories:

Fastening bolts DK 7115.000,
see page 953.

Mobile workstation

B
7.10

Human/machine interface

Printer accessories
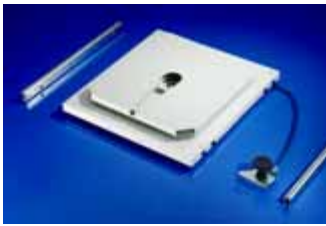
Printer base, swivel

Operation of the printer for servicing purposes is possible, even in enclosures which are only accessible from the front.

Load capacity: 20 kg.
Surface for printer 340 x 360 mm.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Component shelf,
turntable with cable routing
and stay,
telescopic slides.

To fit TS width x depth mm	Model No. IW
600 x 600	**6902.990**

⚠ **Also required:**

2 TS punched sections with mounting flages for enclosure depth of 600 mm,
see page 921.

➕ **Accessories:**

Paper tray,
see page 1058.

Paper tray
for laser printers with rear output.
Printed pages are routed to the outside and collated. The door only needs to be opened for servicing purposes. This protects the printer against dust, humidity and theft. The paper tray may be mounted on surfaces with a width of 600 mm or more (e.g. door, side panel) and accommodates up to 20 pages of standard A4 paper.

Material:
Sheet steel

Colour:
RAL 7035

Supply includes:
Assembly parts.

Width x height x depth mm	Model No. IW
270 x 390 x 122	**6903.000**

➕ **Accessories:**

Printer base, swivel,
see page 1058.

✎ **Rittal service:**

Installation in doors and side panels on request.

Base
for tubular door frame
The space-saving alternative instead of component shelves to accommodate tower PCs (maximum 40 kg).
For screw-fastening to the tubular door frame of 600 mm wide enclosures based on TS.

Load capacity: 40 kg.

Material:
Sheet steel, spray-finished

Colour:
RAL 7015

Supply includes:
Retaining strap and assembly parts.

Width x height x depth mm	Model No. IW
495 x 159 x 230	**6902.950**

⚠ **Also required:**

Support strips for direct screw-fastening to the tubular door frame, see page 924.

Printer accessories

B

7.10

Interface box

For secure accommodation for all common computer ports, 3$^1/_2$″ disk drives and sockets. The lockable metal cover provides a high mechanical load-bearing capacity, protects against unauthorised access and ensures an increased shielding effect for the installed equipment.

Modifications such as
● Other sizes
● Acrylic covers
● Cutouts for connectors etc.
are possible.

Material:
Frame:
Extruded aluminium section, powder-coated
Mounting tray:
Sheet steel, 1.5 mm, powder-coated
Flap:
Aluminium, 3.0 mm, natural anodised

Colour:
RAL 7035

Supply includes:
Frame with hinged flap,
cam with security lock (No. 12321).
Mounting tray including seal and assembly parts.

Earthing-pin socket	Weight kg	Model No. SZ
Without	0.8	**2482.000**
With	0.8	**2482.100**

Rittal service:

Upon request, the interface box can be supplied with customer-specific cutouts, pre-installed in the operating housing. If required, please specify the desired treatment and installation position.

Mounting example in the VIP 6000:
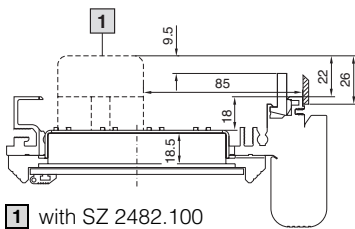
Mounting cutout

1 with SZ 2482.100
2 max. R3
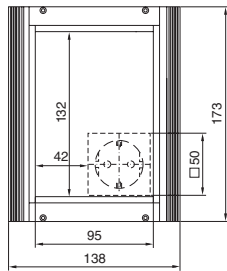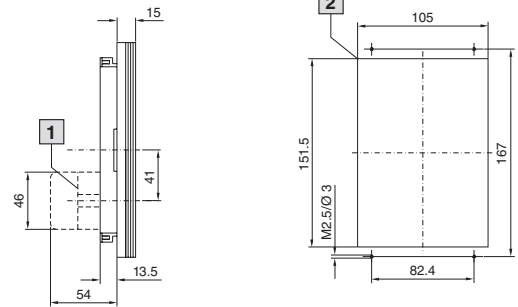
Interface flap

The compact alternative to the interface box. For secure accommodation of all standard sockets, computer ports, 3$^1/_2$″ or CD-ROM drives. The cast aluminium flap ensures a high mechanical load-bearing capacity, and guards against unauthorised access.

For:
● Optipanel from D = 100 mm
● Any sufficiently large surface.

Standard double-bit insert may be exchanged for lock inserts, see page 881.

Material:
Flap: Cast aluminium, finely textured
Cover plate: Sheet steel 2 mm, zinc-plated, passivated

Colour:
RAL 7035

Protection category:
IP 65 to EN 60 529/10.91

Supply includes:
Seal and assembly parts.

Packs of	Model No. SZ
1	**2482.200**

Note:
For side mounting in 100 mm deep Optipanels, a handle set (CP 6385.0XX, see page 1031), may be mounted, although not in the same place.

Rittal service:

Cutouts are possible in the cover plate and enclosure.
Available without cover plate on request.

View without flap   View with flap
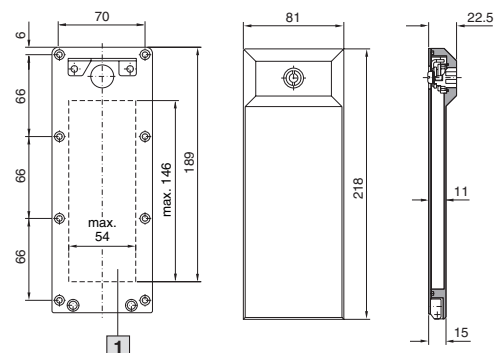
1 Surface for interface cutouts

Interface accessories

B

7.10

Rittal software service

Planning/project management/selection

Rittal on the Internet

With innovations, product summaries, jobs and many other topics available on our homepage, Rittal's customers always have access to the very latest information. Product data, contract tender texts, dimensions and assembly instructions in Acrobat Reader format and demo versions of the Rittal software are available at any time for downloading from www.rittal.com. Want to order brochures via the Internet? No problem, with our special brochure request feature on our home-page. Rittal can also be contacted by e-mail.

New Internet services:
- Online college
- Online PDF of our product pages
- FAQs on our products
Extensive product search facilities

More detailed information can be found on the Internet.
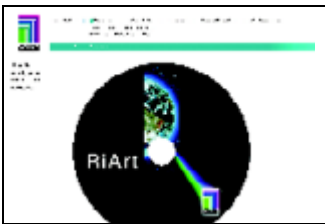
RiArt

The electronic price list with product catalogue offers you:
- Data sheets in HTML, text and PDF format
- Excel price list
- DATANORM/ELDANORM component database
- Catalogues to eCl@ss/ETIM/BMEcat
- Shopping basket with Excel interface
- Component data for SV-Plan and EPLAN
- Contract tender texts
- DWG catalogue drawings
- Assembly instructions
- Quick climate calculation
- Software demo
- PDF pages from our latest brochures
- Accessory assignment

System requirements (minimum):
- Processor Pentium 233
- Internet Browser Version 4 or higher
- Adobe Acrobat Reader version 4 or above

Installation:
- Installation is not necessary.
  The program launches automatically when the CD is inserted.
- For a manual launch, click on the file microweb.exe.

Note:
Please order your free copy from
www.rittal.de

German language only.

PlanIT 1.0

From Rittal's extensive range of products and solutions, we have compiled the information that is specifically relevant for the planning of IT enclosures, IT infrastructure and data centres.

The following applications are contained on this CD:
- Product overview
- Product search
- Documentation
- Enclosure monitoring software
- Drawings (VISIO)
- Brochures
- Contract tender texts
  (TXT, DOC, PDF, GAEB format)
- Contacts and contact deatils
- Lists of materials

In order to help you find your way around the CD, we have adapted the interface of the planning software to our website.

System requirements (minimum):
- Windows 98/NT/2000/XP
- Adobe Acrobat Reader version 4.x or above
- Visio

Note:
The software PlanIT 1.0 is sent free of charge on CD. Request from **info@rittal.de**

German language only.

Rittal software service

B

Rittal SV-Plan

Rittal SV-Plan is an innovative tool for simple, time-saving project planning of Rittal SV busbar systems.

The network-compatible, multi-lingual software package includes the following functions:

- Planning certainty, thanks to logical allocation e.g. of standard commercially available power circuit-breakers to Rittal component adaptors.
- Detailed system and product information in the form of tender texts, product information, assembly instructions, CAD drawings etc.
- Integration of Rittal Power-Plan.
- Integration of a CAD interface based on Eplan View.
- Project documentation with calculations, parts lists and CAD system assembly drawing.
- Interfaces to all standard Windows applications such as Microsoft Word.
- Compatible with Eplan 5.

Supply includes	
CD-ROM	
Operating manual	
Language: German/English	
Model No. SV	**3020.100**

System requirements (minimum):
- Windows 95/98/NT/2000/XP
- RAM: 128 MB
- Hard disk capacity: at least 125 MB
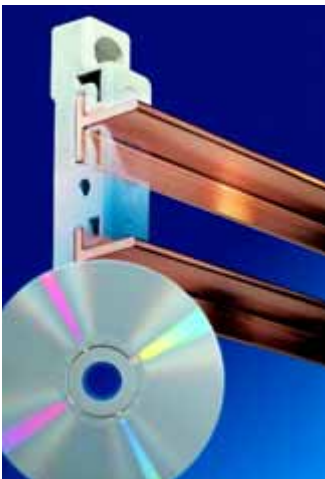
Rittal Power-Plan

Rittal Power-Plan supports the calculation and documentation of busbar system assemblies with reference to the valid international test provisions. The network-compatible software provides a comprehensive database of power circuit-breakers.

The following calculations may be performed with Rittal Power-Plan:

- Testing the short-circuit resistance of the entire system assembly to IEC 60 865-1 or DIN VDE 0103.
- Testing the rated current load limit of the busbar system to DIN 43 671.
- Testing the heat loss of the entire system assembly, for D/NH fuse inserts to VDE 0636.
- Testing all data inputs for plausibility with corresponding, clear error messages.
- Calculations/documentation in accordance with IEC 60 439-1/EN 60 439 and DIN VDE 0660 part 500.

Supply includes	
CD-ROM	
Operating manual	
Language: German/English	
Model No. SV	**3020.000**

System requirements (minimum):
- Windows 95/98 or NT
- RAM: 8 MB
- Memory space required: 20 MB
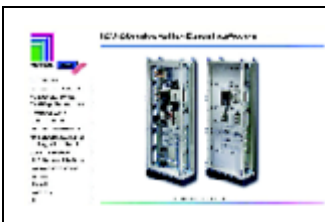
ISV order software

for distribution enclosures

The ISV order software gives peace of mind when preparing a bill of materials, thanks to its logic. Specifically, this means that all the essential and optional accessory components are available to choose from a broad selection, and can be added to your shopping basket with a click of the mouse. Drawings support the user when selecting components.

System requirements (minimum):
- Windows 98/ME/NT/2000/XP
- Pentium 90
- RAM: 16 MB
- Memory space required: 11 MB
- Resolution 800 x 600 pixels or higher
- Internet Explorer 4.0 or higher
- For the use of all functions, MS Excel and a CAD program with DXF import function are also required.

Language: German/English

Note:
Please download free of charge from
www.rittal.com/Service/Downloads/Software

Rittal software service

B

Rittal software service

Planning/project management/selection
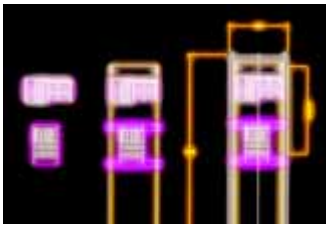
RiGeo

From the design into the CNC machine
With the RiGeo CD-ROM, Rittal offers an extensive library of geometry data for virtually all Rittal products in a variety of views and data formats. The files on the CD-ROM are divided into directories based on individual product groups to simplify the search process. It also supports a database search function.
Installation on the hard disk is not necessary, since the data may be read directly from the CD-ROM into your CAD system.

Features in brief:
- No unnecessary, memory-consuming storage on the hard disk.
- Simple positioning of accessory components.
- The correct format to suit every application.
- Representation to scale, suitable for CNC machining.

Supply includes	
CD-ROM	
Language: German/English/French/Dutch	
Model No. SZ	**2406.100**

System requirements (minimum):
- AutoCAD from Release 12 or LT for DOS or Windows or CAD with DXF interface
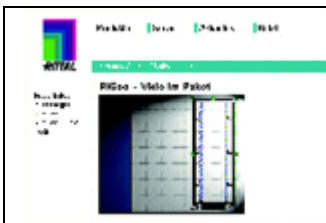
RiGeo + Visio package

The benefit to you:
The combination of the Visio program and the drawing library RiGeo offers perfect documentation of your projects in the shortest possible time.

Features in brief:
- Carry out design and project planning work quickly and easily.
- No lengthy training needed.
- All Visio and DXF drawings are readily integrated.

Supply includes:
The package comprises:

- Several thousand DWG and DXF drawings of Rittal components.
- Visio drawings of TS network enclosures and accessories.
- The CAD drawing program "Visio 2000 Technical International Edition (English)".

Drawing library and program for the preparation of precise technical drawings
With the drawing program "Visio 2000 Technical Edition", technicians and engineers have at their disposal all the drawing tools needed to produce precise two-dimensional drawings and diagrams. Existing CAD drawings may be inserted into Visio 2000 Technical Edition drawings. You can cut and move the drawings, and show or mask out individual layers.

Supply includes	
CD-ROM	
Language: German/English	
Model No. SZ	**7700.200**

System requirements (minimum):
- Pentium 166 MHz, 64 MB RAM
- 125 MB free memory on the hard disk for Visio
- 400 MB free space for RiGeo
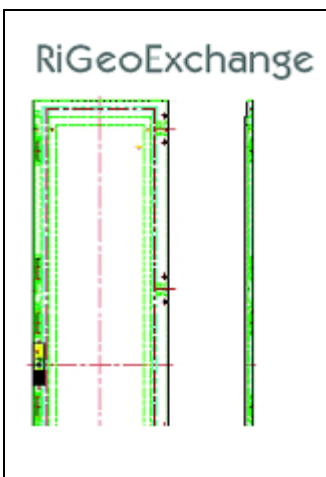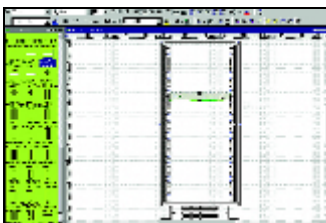
RiGeo Exchange

CAD components library for data exchange
The software offers significant benefits for all designers and technicians when preparing technical drawings of the Rittal enclosure and case systems AE, KL and TS.
- Rapid access to all essential drawings. RiGeo Exchange will immediately make the required detailed drawings available in the CAD file formats DWG and DXF for all standard CAD programs.
- Perfect generation of individual designs. Our customers receive all the necessary details to position cutouts and holes correctly on the electronic drawing board.
- Shorter delivery times. Depending on the type of modifications, drawing data may be forwarded directly into our machines for laser-cutting, nibbling and punching.

Note:
The software RiGeo Exchange is sent free of charge on CD.
Order your copy at **info@rittal.com**

Rittal software service

B

RiDiag II

RiDiag II is a tool for diagnosing the operating behaviour of Comfort controller-regulated cooling units. By connecting a PC, it is possible to retrieve error messages, temperatures and capacity utilisation levels of the cooling units which are stored in the Comfort controller. The system includes integrated temperature measurement from four sensors in the cooling unit, and also features graphical representation of the temperature development over time.

Supply includes	
CD-ROM	
Connection cable	
Language: German/English/Italian	
Model No. SZ	**3159.100**

System requirements (minimum):
● Windows 95/98/2000/NT

CMC-TC Manager

For detailed information,
see page 789.

Note:
The CMC-TC Manager may be downloaded free of charge from the Internet at **www.rittal.com, www.cmc-tc.com**.

CMC-TC Configurator

For detailed information,
see page 788.

Note:
The CMC-TC Configurator may be downloaded free of charge from the Internet at **www.rittal.com, www.cmc-tc.com**.

Therm Software

Rittal Therm is a calculation program for climate control of enclosures.
All electrical and electronic components have a certain power loss which is dissipated to the environment in the form of heat. Because an increasing number of components are now being housed in ever smaller spaces, the heat produced can soon reach levels which are harmful to electronic components and may severely curtail their useful lives.
The Therm software package takes care of the complex calculation of climate control requirements. A user-friendly interface guides the operator to the most suitable, correctly dimensioned climate control component. All evaluations are closely based on the requirements of IEC/TR 60 890 AMD 1/02.95 and DIN3168 for enclosure cooling units.
Rittal Therm contains 15 languages.

Supply includes	
CD-ROM	
Model No. SK	**3121.000**

System requirements (minimum):
● Windows 95/98/ME/NT/2000/XP
● Adobe Acrobat Reader version 4.x or above

Note:
Your 30-day trial version may be downloaded free of charge from **www.rittal.com**

Rittal software service

B

System integration

Rittal IT solutions – a broad spectrum of services for individual, complete packages.

Thanks to **modular, mass-produced system components,** Rittal is able to achieve the optimum individual solution for every client, **quickly and cost-effectively.** Complete solutions, with no ifs or buts.

The extensive Rittal range, including climate control components, control and monitoring technology, system accessories and hardware components such as monitors and keyboards, is available for the configuration of individual solutions. **The benefits of system integration are as follows:** Only one project partner, significantly reduced planning and assembly work, and minimal logistics and procurement input. Rittal IT solutions – Simple and complete.

Rittal system integration up to Level 4

This is the cumulative result of extensive in-depth consultations and precision planning. For example, with climate control, power supply and security management through to Level 4 system integration.

Level 5: Level 4 with I/O and application software, tested

Level 4: Level 3 with integral boards, tested

Level 3: Integration, wiring of various components (e.g. MPS systems including backplane, power pack)

Level 2: Pre-configuration, population (e.g. subracks, back-planes, front panels)

Level 1: Components (e.g. guide rails, connectors, etc.)
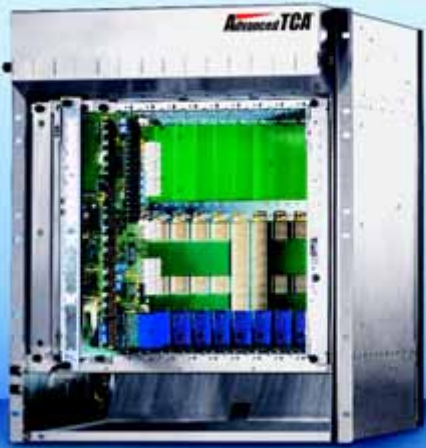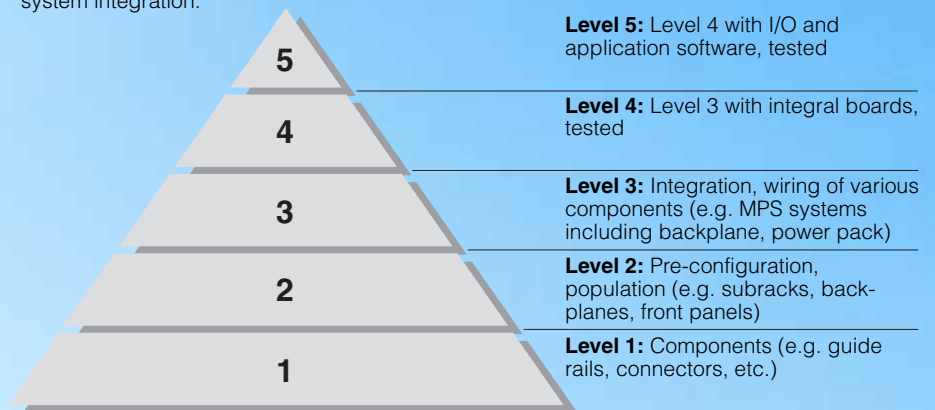
The complete Rittal IT solutions know-how for products and services is a coordinated, integrative system. It comprises advice, planning, proto-type construction, individual produc-tion and assembly, as well as distribu-tion tailored to customer requirements.
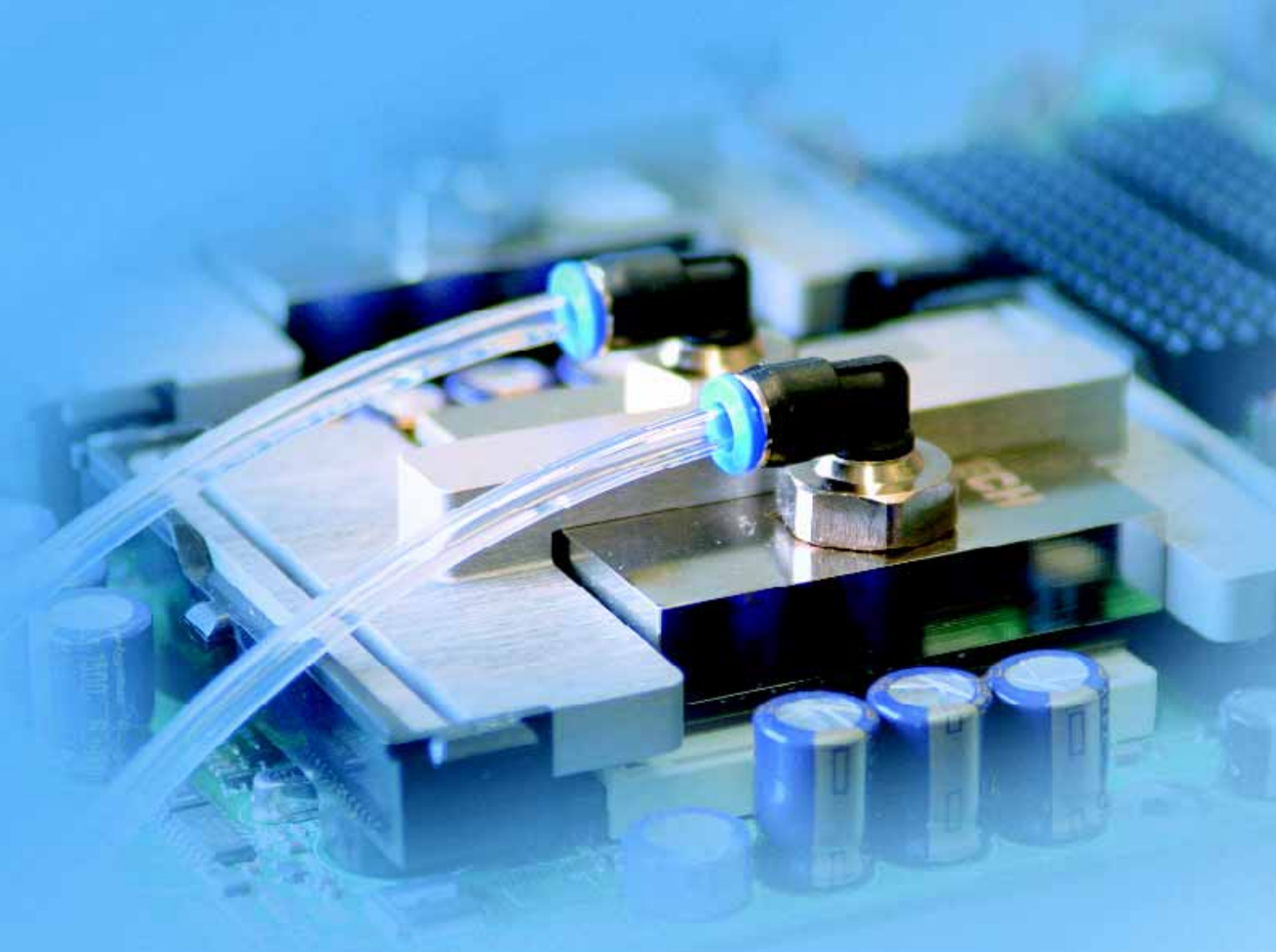
To suit your applications

Rittal views every customer requirement as a challenge.

The **extensive product portfolio** with the matching

system accessories and the **comprehensive range of**

services ensures that your requirements are met.

Top quality ex-works

Rittal combines mass production with customisation in a variety of ways, to your benefit.

1 **Mass-produced individuality**
Cutouts and holes are made in the factory, prior to surface coating.
The advantage: Unrestricted corrosion resistance.

2 Modified **dimensions**
With the Optipanel command panel, individual sizes come as standard.
Special sizes can also be produced for our other product series.

3 **Mounting of accessories**
The comprehensive range of Rittal system accessories and assembly ex-works offer cost advantages.

4 **Project-specific production**
...such as this rack for mobile railway technology.

1
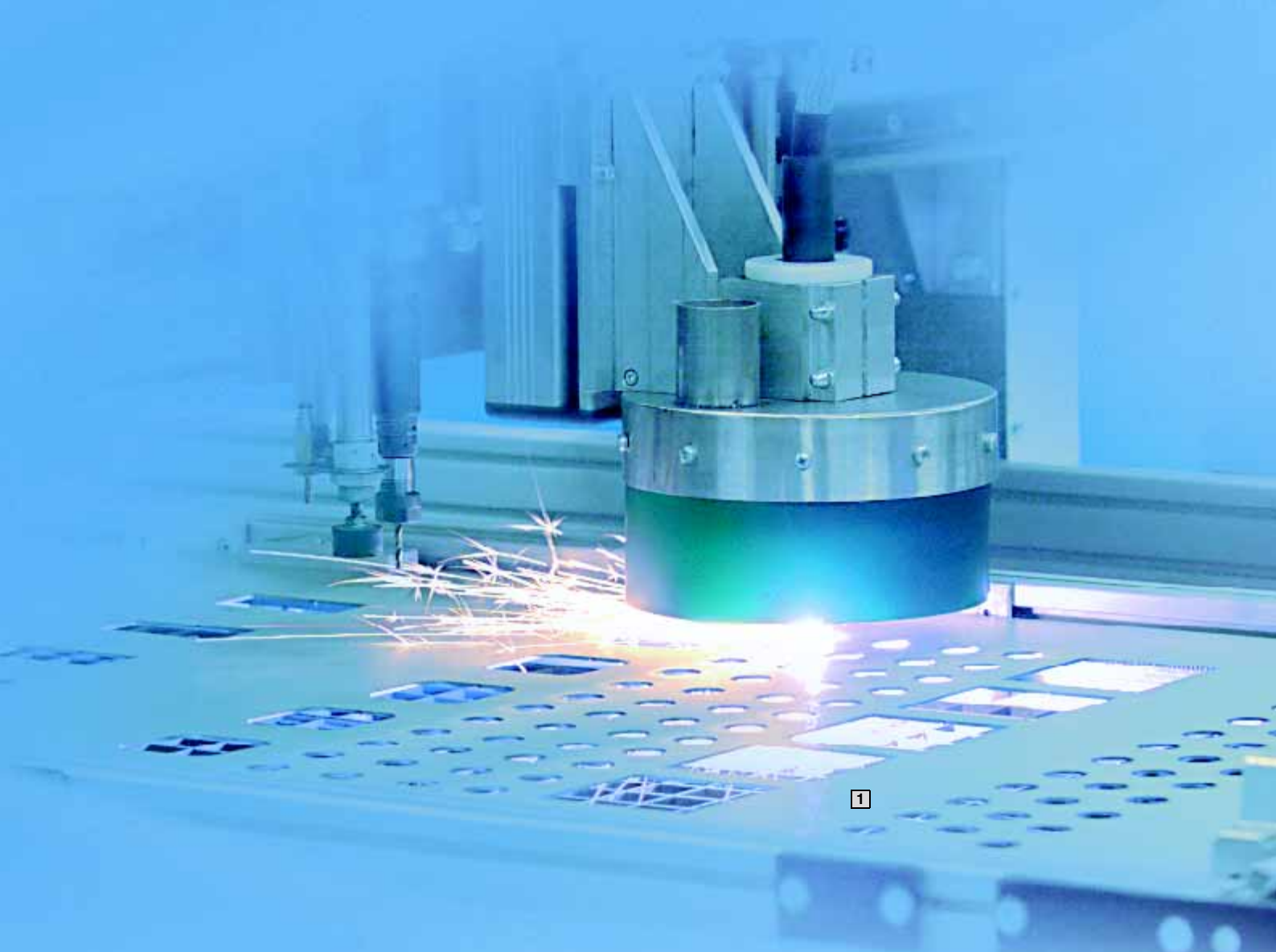
Your requirements can also be resolved on site

We put our good advice into practice. Impressive solutions, achieved with partners in your proximity. Availability and service combine to create convincing results. Fast and cost-effective.

5 **Advice, exhibitions, training**
Get your product information hands-on! Discover new routes to practical, inexpensive solutions.

6 **Preparing cutouts**
Cutouts and drilled holes for climate control components, switches, instruments and monitors. Take the easy option.

7 **Plug and play**
with system accessories
Opt for the ready-made solution. Opt to install base/plinths, side panels, fan-and-filter units, lights, punched sections, earth rails, CMC monitoring systems and many other modules from our extensive range of accessories.

This service offers substantial time and money savings.

5

6

7
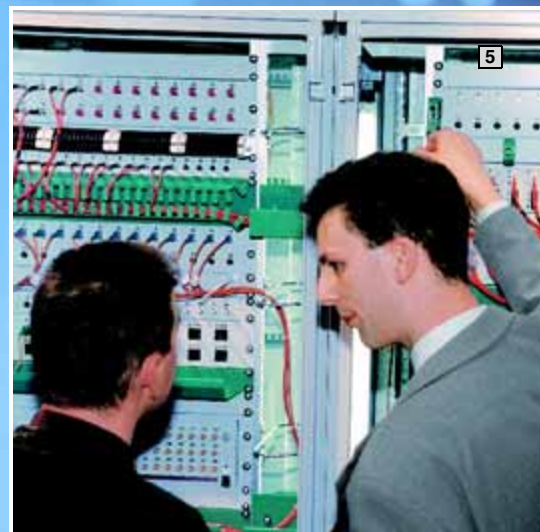
1 **Herborn** is the collation point for outstanding ideas from all the world's markets, as well as being our research and development site.
Compact enclosures are also produced in Herborn.

2 **Rittershausen –** Rittal's birthplace, and the production site for all large enclosure systems. New techniques have been developed here for manufacturing the "ri-volutionary" profile of the new Top enclosure system TS 8, the system platform for a broad, future-oriented application range.

3 The factory in **Burbach** concentrates on the production of large enclosures (free-standing enclosures and bayed systems) and accessory components.

Rittal in Germany

Rittal draws on the technological expertise of entire regions. At the heart of Rittal's success are innovations consistently tailored to market requirements, encompassing the product range, the production techniques and our services. Specialist expertise is concentrated at each of our sites, using state-of-the-art production techniques. Each day, we produced thousands of products whose quality and perfection are a constant source of delight to our customers worldwide.

4 Climate control is a decisive safety factor in modern factory automation. In order to meet these growing requirements, the Rittal climate control factory in **Rennerod** has been fitted according to the very latest criteria.

5 Rittal **Wissenbach** specialises in the production of stainless steel enclosures and cases. The requirement profiles are corrosion protection and hygiene – particularly for the chemicals and food production industries.

6 Rittal **Bad Köstritz** utilises its knowledge of steel processing for the versatile components of enclosure interior installation. Customer-specific solutions are also realised here.

7 The new Rittal logistics centre in **Haiger** boasts an ideal location, with excellent motorway and rail links. CS Outdoor enclosures, with an emphasis on mobile communications applications, are developed and produced here.

Rittal in Asia and Australia

China is a key market for Rittal. The domestic market is booming, the regional proximity to Japan also offers a host of benefits, and the presence of multinational companies is constantly growing. For this reason, we also manufacture in China according to popular international standards, in one of the most modern enclosure and case production plants in the world.

The Indian economy is likewise showing impressive growth rates. In order to ensure that products are available within the shortest possible time, we have been producing enclosures and climate control components to international standards in India since 1997, for distribution throughout Asia and Australia.

3 Since 1998, a Rittal subsidiary in **Japan** has been offering customised solution diversity. The modification centre with state-of-the-art machinery and a flexible assembly team achieves customised requirements with speed and perfection, as well as offering integration of system accessories. Four locations with more than 6000 m^2 of storage space ensure market proximity and availability.

4 At the modification centre in Rittal **Australia**, mechanical modifications are carried out, and special panels and spray finishes are produced. These services are a perfect representation of the Rittal concept, "individual solutions on the basis of standard modules".

1 Since November 2000, Rittal **Shanghai, China** has supplied the Chinese market, which already has a successfully established distribution network. Apart from industrial enclosures and cases, the focus is also on products for the IT market.

2 At the Rittal production site in **Doddaballapur, India** standardised enclosures and cases are mass-produced for the large Asian market. Here too, Rittal offers its renowned international customer service, as well as local advice and expertise.

Rittal in Europe and the USA

Europe: In Plymouth, England, the main focus is on enclosure technologies for electronics. Effective cooling is the theme of our plant in Valeggio, Italy. There, recooling systems with cooling outputs of up to 172 kW leave the factory, either as standard products or manufactured to individual specifications. With its favourable location, the Ertop plant in France supplies high-tech application sectors with packaging products. Meanwhile, in the USA: State-of-the-art, sales-oriented production plants in Urbana and Springfield serve the markets on the American continent. Here, the emphasis is on speed and meeting customer-specific requirements.

1 Rittal products for modern electronic packaging leave the Rittal plant in **Plymouth,** England for distribution around the world.

2 System climate control is the theme of the Rittal plant in **Valeggio,** Italy.
In 2003 a brand new production line commenced operation, producing recooling systems, cooling units, heat exchangers and fan-and-filter units on an area of 9500 m^2. One particular strength is the production of customised recooling systems.

3 On a production and administration site of 8700 m^2, products for discerning applications are manufactured, as well as providing a comprehensive customer service. Integral 482.6 mm (19″) solutions and enclosures for the aviation and aerospace industries are just some of the specialities of the Rittal plant in **Ertop,** France.

4 The Rittal production and distribution centre at **Springfield,** USA serves the entire American market with modern, sales-oriented production and distribution control.

5 Rittal's largest distribution and production site outside of Europe is the plant in **Urbana,** USA. Here, predominantly large enclosures, PC enclosure systems and Top-Therm cooling units are produced on a site of around 20000 m^2. The affiliated logistics centre serves the entire US market.

1

2

3
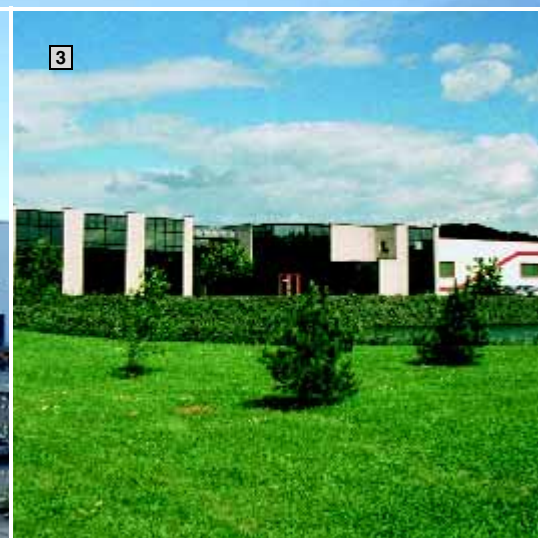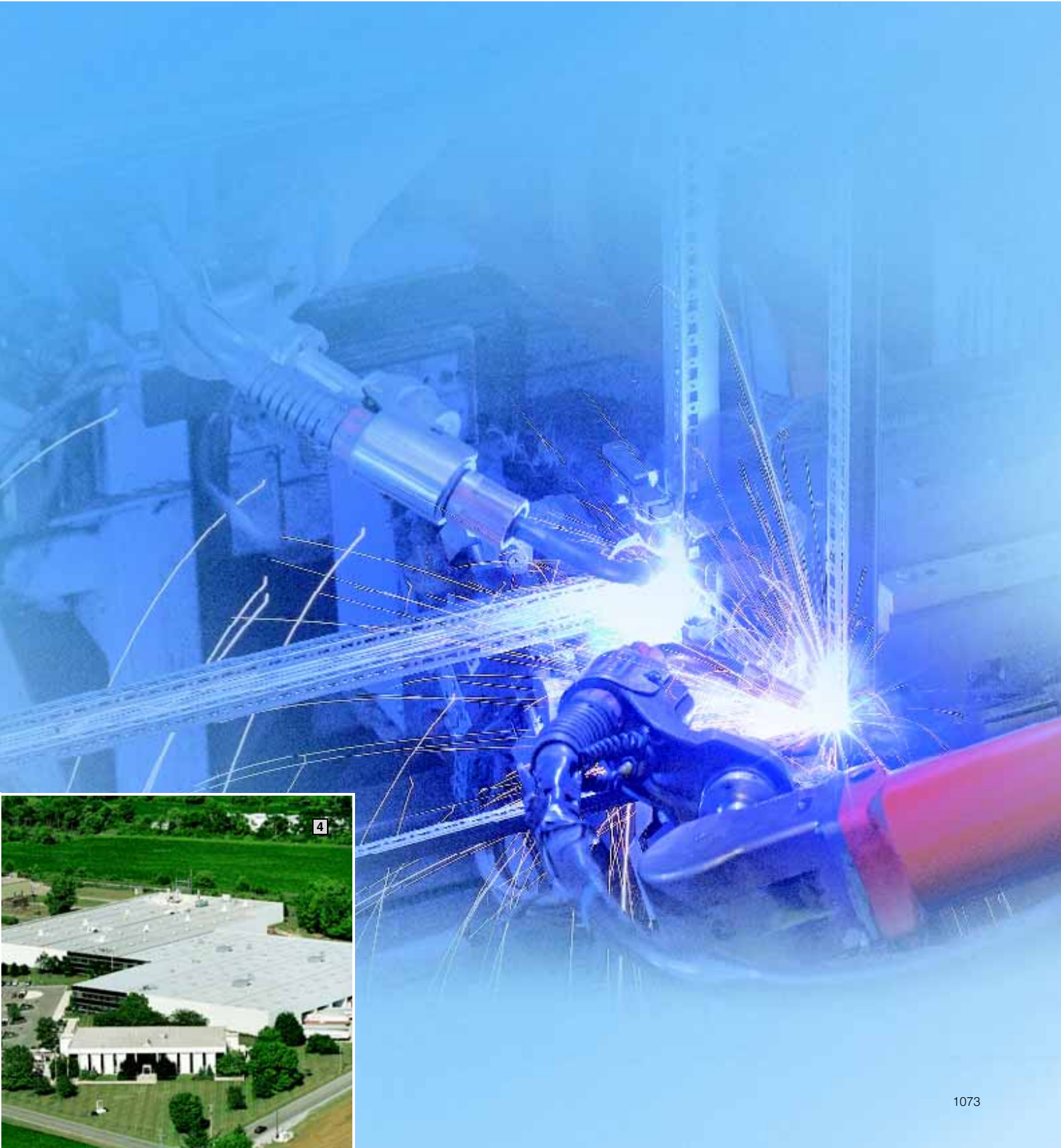
To ensure a perfect solution, the final element needed is **technical background information.** Here, we supplement the order information with detailed drawings, load curves, parts lists and performance diagrams. Additional **information and download options** such as approvals, CAD drawings or assembly instructions are available from **www.rittal.com.**

The CD-ROM has the same content as the Catalogue – with added user-friendliness. Cross-references help you to arrive quickly at the desired solution.

What is more, whilst online, any Model Number will take you directly to further information in the Rittal database on the Internet.

Technical details

Technical information

Industrial enclosures

Power distribution

Electronic packaging

System climate control

Communication systems

C

Surface protection

The triple treatment of outer surfaces – phosphating, electro-phoretic dipcoat-priming and textured powder-coating – provides optimum corrosion protection for enclosures such as TS, AE, KL. In order to ensure optimum corrosion protection in all climatic zones, the materials aluminium or zinc-plated metal with subsequent zinc phosphating and powder-coating are used for outdoor enclosures.

The standard coating is resistant to:
● Mineral oils
● Lubricants
● Machining emulsions
● Solvent (briefly e.g. for cleaning)
● Weak acids and alkalines.

This has been tested and confirmed by various independent test institutes.

Quality is ensured by continuous process monitoring.

Priming or powder coating suitable for overpainting

After careful cleaning of the surface, the standard coating may be overpainted with:
● DD gloss paints
● Single and dual-component gloss paints
● Car repair paints
● Powder paints
● Water-based paints
If in doubt, perform a compatibility test. Always follow the paint manufacturer's instructions. When overpainting, take care not to exceed 180°C and a baking time of 15 minutes.

Special coatings

Tropical coating:
For high corrosion resistance in warm, damp climates, also suitable for outdoor and long-term use.

Chemical paint:
For the best possible resistance to organic and anorganic substances that can be achieved with paint.

Outdoor use of enclosures

In order to guarantee satisfactory long-term function of enclosures in outdoor use, the relevant environmental factors need to be taken into account.

These include:
● UV radiation, the corrosive action of air pollution, rain, icing, snow, wind or other factors in special climatic conditions.

Influence of weather conditions on the outer coating
It is necessary to ensure the UV and corrosion resistance of components exposed to the weather. A special 3-phase paint finish is suitable for outdoor siting in European climates. For outdoor siting of an enclosure, a rain canopy should be provided to protect the seal against permanent humidity and UV radiation.

Condensation inside the enclosure
Condensation needs to be prevented by means of appropriate measures, e.g. by venting or heating the enclosure.

Protection category
The enclosure is exposed to extreme weather conditions during outdoor use.
Long periods of rain, snow, ice, high winds and temperature fluctuations place particularly high demands on the enclosure sealing. Often, the protection category for outdoor weather exposure prescribed in DIN VDE 0100, part 737, point 5.2, IP X3 is insufficient to provide permanent protection of electrical installations.

Standard IEC 60 529 offers the option of labelling with the supplementary letter "W". Enclosures thus labelled are suitable for use in weather conditions agreed between the manufacturer and the user, and are equipped with additional protective features or techniques (e.g.: rain canopy, special spray finish, special colour shade).

The three-phase coating process for enclosures

Coating procedures	Technical properties	Technical specifications	
Degreasing, iron phosphating, rinsing	Used for passivation, as a temporary corrosion protection, and to improve paint adhesion.		
Anodic dipcoat priming	Even layer formation on all surfaces, edges and in cavities, which produces a high level of corrosion protection even at the assembly stage.	Coat thickness	approx. 20 µm
		Erichsen cupping DIN EN ISO 20 482	≥ 4 mm
		Buchholz hardness DIN EN ISO 2815	≥ 80
		Cross cutting DIN EN ISO 2409	Gt 0
	The primer is readily overpainted and free from heavy metals, chromate and silicone.		
Stove enamelling			
Textured powder coating	Powder coating is distinguished by a high level of mechanical resistance, excellent corrosion protection, good resistance to chemicals, temperature and weather, and its facility for decontamination.	Outer coating thickness	60 µm . . . 110 µm
		Erichsen cupping DIN EN ISO 20 482	≥ 4 mm
		Buchholz hardness DIN EN ISO 2815	≥ 80
		Cross cutting DIN EN ISO 2409	Gt 0
	The powder coating is readily overpainted and is free from heavy metals, chromate and silicone.		
Stove enamelling		Overall outer coating thickness	Ø 80 µm . . . 135 µm

Protection categories to IEC 60 529

The IP protection category is characterised by 2 numbers.

Example of protection category: e.g. IP 43:

Code letters

`IP`

First characteristic numeral	Second characteristic numeral
`4`	`3`

Degrees of protection for protection against contact and foreign bodies: First characteristic numeral			Degrees of protection for protection against water: Second characteristic numeral		
First characteristic numeral	Degree of protection		Second characteristic numeral	Degree of protection	
	Description	Definition		Description	Definition
`1`	Protected against solid foreign objects with a diameter of 50 mm and greater	The object probe, a sphere 50 mm in diameter, must not penetrate fully[1].	`1`	Protected against vertically falling water drops	Vertically falling drops shall have no harmful effects.
`2`	Protected against solid foreign objects with a diameter of 12.5 mm and greater	The object probe, a sphere 12.5 mm in diameter, must not penetrate fully[1]. The articulated test finger may penetrate up to its length of 80 mm, but adequate distance must be adhered to.	`2`	Protected against vertically falling water drops when the enclosure is tilted up to 15°	Vertically falling drops must not have any harmful effects when the enclosure is tilted up to 15° in both directions from the vertical.
`3`	Protected against solid foreign objects with a diameter of 2.5 mm and greater	The object probe, a sphere 2.5 mm in diameter, must not penetrate at all[1].	`3`	Protected against spraying water	Water sprayed at an angle of up to 60° on either side of the vertical must have no harmful effects.
`4`	Protected against solid foreign objects with a diameter of 1.0 mm and greater	The object probe, a sphere 1.0 mm in diameter, must not penetrate at all[1].	`4`	Protected against splashing water	Water splashed on the enclosure from every direction must not have any adverse effects.
`5`	Dust-protected	The ingress of dust is not fully prevented, but dust may not enter to such an extent as to impair satisfactory operation of the device or safety.	`5`	Protected against water jets	Water splashed on the enclosure from every direction must not have any adverse effects.
`6`	Dust-tight	No ingress of dust at a partial vacuum of 20 mbar inside the enclosure.	`6`	Protected against powerful water jets	Water splashed on the enclosure from every direction in a powerful jet must not have any adverse effects.
			`7`	Protected against the effects of temporary immersion in water	Water must not ingress to such an extent as to cause harmful effects when the enclosure is temporarily immersed in water under standardised pressure and time conditions.
			`9K`[2]	Water with high-pressure/steam-jet cleaning[2]	Water directed at the enclosure from every direction under greatly increased pressure must not have any adverse effects.

[1] The full diameter of the object probe must not pass through an opening of the enclosure.
[2] This test is not regulated by EN 60 529, but by DIN EN 40 050, part 9.
Extracts from BS EN 60 259: 1991 are reproduced with the permission of BSI. Complete editions of the standards can be obtained by post from BSI Customer Services, 889 Chiswick High Road, London W4 4AL

NEMA

The **N**ational **E**lectrical **M**anufacturers **A**ssociation (NEMA) is a standards organisation in Washington, USA, which publishes a number of technical standards but does not test or certify products itself.

The following NEMA classification outlines the protection of individuals from unintentional contact with equipment and the protection of an enclosure from external factors.

Further information on protection categories may be found on the Internet at:
www.rittal.com

UL/NEMA Type	Intended use and description
1	Enclosures for use predominantly inside. Protection against the penetration of foreign bodies.
3	Enclosures for use predominantly inside. Protection against the penetration of solid bodies, protection against the ingress of rain and dust and damage caused by icing.
3R	Enclosures for use predominantly inside. Protection against the penetration of solid bodies, protection against the ingress of rain and dust and damage caused by icing.
3S	Enclosures for use predominantly inside. Protection against rain, snow and foreign bodies. External mechanisms remain usable despite being coated in ice.
4	Enclosures for indoor or outdoor use. Protection against rain, foreign bodies, splashed water and hosed water and against damage caused by icing on the exterior of the enclosure.
4x	Enclosures for indoor or outdoor use. Protection against rain, foreign bodies, splashed water and hosed water and against damage caused by icing on the exterior of the enclosure.
12, 12K	Enclosures for use predominantly inside. Protection against dust deposits, foreign bodies and non-corrosive dripping liquids.
13	Enclosures for use predominantly inside. Protection against dust deposits, sprayed water, oil, and non-corrosive coolants.

The UL classifications are not directly comparable with IP protection categories, since both the test conditions and the evaluation of the test results are different.

Approvals and permits

Product certifications and approvals are key requirements for the global acceptance of industrial products.

Rittal products meet the highest internationally recognised quality yardsticks. All components are subjected to the most stringent testing in accordance with international standards and regulations.

The consistently high product quality is ensured by a comprehensive quality management system. Regular production inspections by external test institutes also guarantee compliance with global standards.

A precise allocation of products to marks of conformity can be found on our product and service pages on the Internet.
www.rittal.com

Enclosure designs guaranteeing hygiene and effective cleaning

Special applications require special solutions – in terms of materials, design and security.

This is all the more true for applications in the foods and hygiene sector and in sensitive fields such as medical technology and pharmaceuticals.

Consequently, Rittal has been looking intensively at the quality standards in these branches and has subjected its products to stringent testing.

The CE symbol

All Rittal products subject to an EU Directive which envisages labelling are labelled CE.

Up-to-date manufacturer declarations for the respective products are available on the Internet at: **www.rittal.com**

Note:
The CE symbol is not a quality symbol. Conformity is certified by the manufacturer on an independent basis. This distinguishes CE labelling from approvals, which are issued by independent bodies.

Earthing

The earthing must be designed by the manufacturer of switchgear in accordance with the relevant VDE provisions or local regulations.

The enclosure packs generally contain earthing materials (screws, nuts, washers). The assembly instructions contain recommendations on installing a protective earth.

The pre-assembled earth straps available in various cross-sections and lengths, are intended to make assembly of a PE conductor easier.

Further information can be found in our technical documentation "PE conductor connection, current carrying capacity".

1.1 Polycarbonate enclosures PK

with cable gland Page 100

Model No. PK with cable gland	H1	H2	H3	H4	H5
9530.000	52	47	40	39.4	30.4
9531.000	65	60	53	52.4	43.4
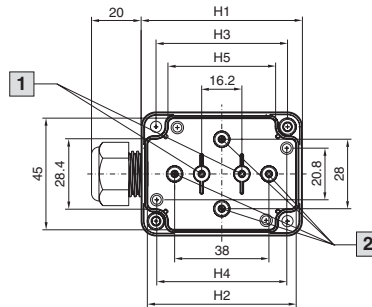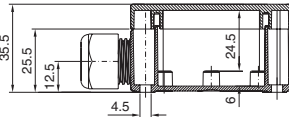
1 does not apply to PK 9531.000

2 does not apply to PK 9530.000

1.1 Polycarbonate enclosures PK

Page 100 – 101

Version A

Version B

Version C
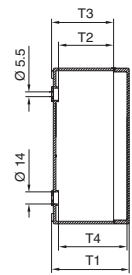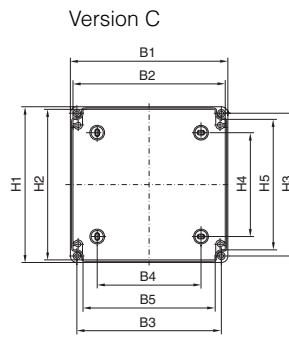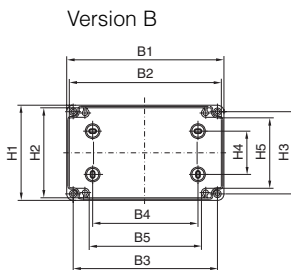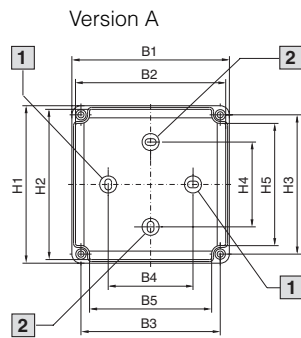
1 Does not apply to PK 9500.000, PK 9501.000

2 Does not apply to PK 9502.000, PK 9503.000

B1 = Enclosure width
B2 = Usable width
B3 = Centre/centre wall attachment outside the seal
B4 = Centre/centre wall attachment in the enclosure
B5 = Clearance width

H1 = Enclosure height
H2 = Usable height
H3 = Centre/centre wall attachment outside the seal
H4 = Centre/centre wall attachment in the enclosure
H5 = Clearance height

T1 = Overall depth
T2 = Usable enclosure depth
T3 = Enclosure depth
T4 = Clearance height available for installation

Model No. PK			Width dimensions mm					Height dimensions mm					Depth dimensions mm			
Grey lids	Transparent lids	Version	B1	B2	B3	B4	B5	H1	H2	H3	H4	H5	T1	T2	T3	T4
9500.000	–	A	65	59	50	–	36	65	59	50	25	36	57	33	41	45
9501.000	–	A	65	59	50	–	36	65	59	50	25	36	81	33	41	69
9502.000	–	A	94	88	79	50	64	65	59	50	–	36	57	33	41	45
9503.000	–	A	94	88	79	50	64	65	59	50	–	36	81	33	41	69
9504.000	9504.100	A	94	88	79	50	64	94	88	79	50	64	57	33	41	45
9505.000	–	A	94	88	79	50	64	94	88	79	50	64	81	33	41	69
9506.000	9506.100	A	110	104	95	65	80	110	104	95	65	80	66	42	50	53
9507.000	9507.100	A	110	104	95	65	80	110	104	95	65	80	90	42	50	77
9508.000	9508.100	A	130	124	115	90	101	94	88	79	50	64	57	33	41	45
9509.000	9509.100	A	130	124	115	90	101	94	88	79	50	64	81	33	41	69
9510.000	9510.100	A	130	124	115	70	101	130	124	115	70	101	75	51	59	63
9511.000	9511.100	A	130	124	115	70	101	130	124	115	70	101	99	51	59	87
9512.000	9512.100	A	180	174	165	120	150	94	88	79	50	64	57	33	41	45
9513.000	9513.100	A	180	174	165	120	150	94	88	79	50	64	81	33	41	69
9514.000	9514.100	B	180	173	165	120	128	110	103	95	50	80	90	63	71	75
9515.000	9515.100	B	180	173	165	120	128	110	103	95	50	80	111	63	71	97
9516.000[1]	9516.100	B	180	173	165	120	128	110	103	95	50	80	165	63	71	150
9517.000	9517.100	C	182	175	167	120	152	180	173	165	120	128	90	63	71	75
9518.000	9518.100	C	182	175	167	120	152	180	173	165	120	128	111	63	71	97
9519.000[1]	9519.100	C	182	175	167	120	152	180	173	165	120	128	165	63	71	150
9520.000	9520.100	C	254	247	239	190	224	180	173	165	120	128	90	63	71	75
9521.000	9521.100	C	254	247	239	190	224	180	173	165	120	128	111	63	71	97
9522.000[1]	9522.100	C	254	247	239	190	224	180	173	165	120	128	165	63	71	150
9523.000	9523.100	B	360	355	346	240	309	254	248	239	190	224	111	63	71	97
9524.000[1]	9524.100	B	360	355	346	240	309	254	248	239	190	224	165	63	71	150

[1] with slanted lid

Industrial enclosures

Small enclosures

1.1 Cast aluminium enclosures GA
Page 104

Version A
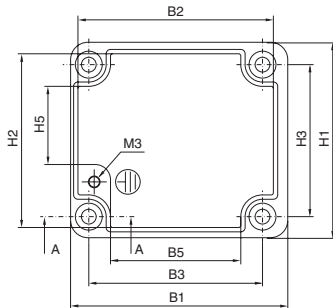
Version B
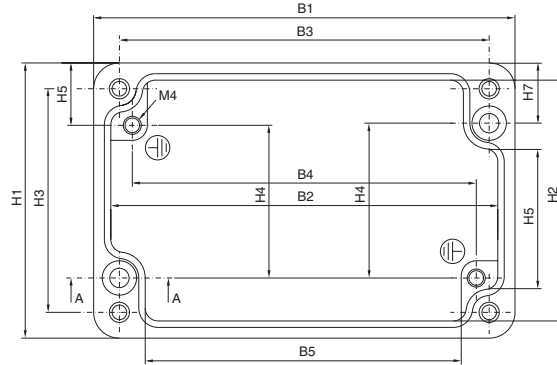
Section A – A
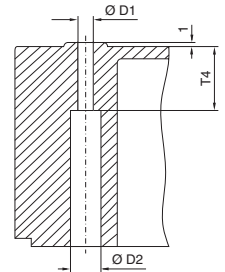
Version C
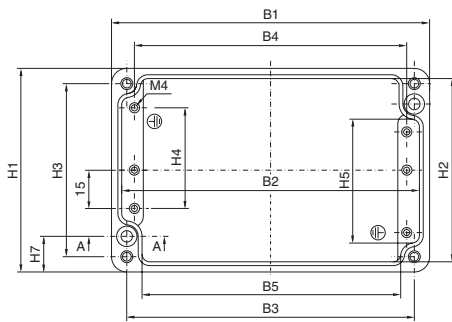
Version D
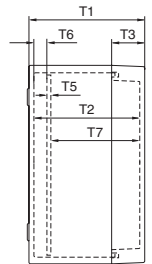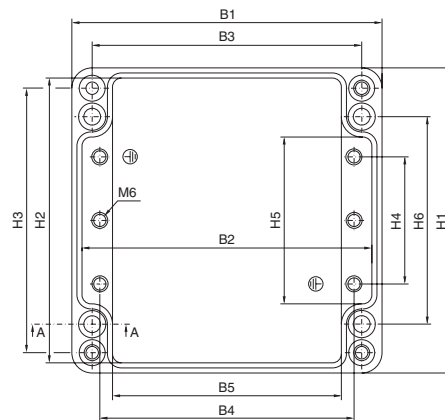
Note:
For installations manufactured by the customer, the width and height dimensions of the mounting plate (see page 105) must not be exceeded.
For enclosures where no mounting plate is available, the following dimensions shall apply analogously:

Model No. GA	Width (B) mm	Height mm
9100.210	43	38
9101.210	48	54
9102.210	88	54
9103.210	140	54
9104.210	64	69

Model No. GA	Version	Width dimensions mm					Height dimensions mm							Depth dimensions mm							Diameter mm	
		B1	B2	B3	B4	B5	H1	H2	H3	H4	H5	H6	H7	T1	T2	T3	T4	T5	T6	T7	D1	D2
9100.210	A	50	45	40	–	30	45	40	35	–	18	–	–	30	25	6	5.5	–	–	–	4.2	7.5
9101.210	B	58	50	46	40	34	64	56	52	35	32	–	14	36	29	10	9	–	–	–	4.5	8
9102.210	B	98	90	86	80	75	64	56	52	35	32	–	14	36	29	10	8	–	–	–	4.5	8
9103.210	B	150	142	138	132	126	64	56	52	35	32	–	14	36	29	10	9	–	–	–	4.5	8
9104.210	C	75	67	63	57	52	80	72	68	39	48	–	14	57	50	15	11.5	–	–	–	4.5	9
9105.210	C	125	117	113	106	99	80	72	68	39	48	–	14	57	50	15	10	1.5	7	41.5	4.5	8.5
9106.210	C	175	167	163	156	152	80	72	68	39	48	–	14	57	50	15	10.5	1.5	6	42.5	4.5	9
9107.210	C	250	242	238	231	226	80	72	68	39	48	–	14	57	50	15	10	1.5	6	42.5	4.5	8
9108.210	D	122	113	106	95	90	120	111	104	52	64	82	–	80	72	20	18	1.5	9	61.5	6.5	10.8
9110.210	D	220	211	204	195	183	120	111	104	50	64	82	–	90	82	30	15	1.5	9	69.5	6.8	11
9111.210	D	360	349	344	333	326	120	111	106	52	64	82	–	80	72	20	19	2	9	61	7	10.8
9112.210	D	160	151	140	130	120	160	151	140	76	90	110	–	90	82	20	20.5	2	9	71	6.2	12.5
9113.210	D	260	251	240	230	220	160	151	140	76	90	110	–	90	82	20	18	2	9	71	6.3	14
9114.210	D	360	351	340	330	316	160	151	140	74	84	110	–	90	82	20	19	2	9	71	7.1	14
9116.210	D	200	191	180	170	160	230	221	210	144	160	180	–	110	102	20	19	2	9	91	7.3	14
9117.210	D	280	271	260	250	240	230	221	210	144	160	180	–	110	102	20	24	2	9	91	6.2	14.2
9118.210	D	330	321	310	300	290	230	221	210	144	160	180	–	110	102	20	24.5	2	9	91	6.2	14.2
9119.210	D	330	321	310	300	290	230	221	210	144	160	180	–	180	172	20	14	2	10	160	7.5	12.5

1.1 Terminal boxes KL

Spray-finished Page 107 – 109

Stainless steel Page 270
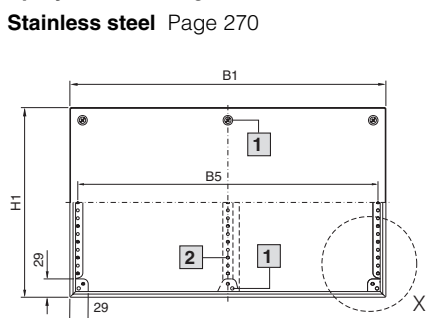
without gland plate
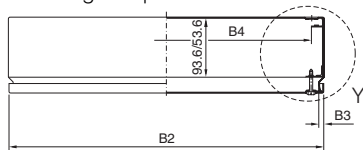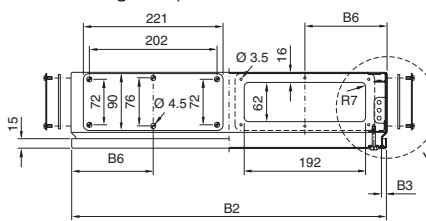
with gland plate

Detail X

without gland plate
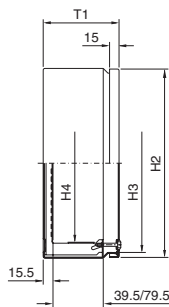
with gland plate
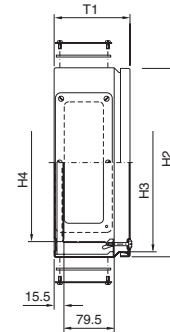
Detail Y
T1 = 80

Detail Y
T1 = 120
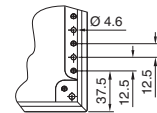
B1 = Overall width
B2 = Cover width
B3 = Clearance width of enclosure
B4 = Clearance frame/width between profile strips
B5 = Distance between axes of the mounting holes in the profile strips
B6 = Distance from outer edge of enclosure to centre of gland plate

H1 = Overall height
H2 = Cover height
H3 = Clearance height of enclosure
H4 = Clearance frame/height between profile strips

T1 = Overall depth

1 Only with B ≥ 600 mm

2 Only with B = 800 mm

Model No. KL			Width dimensions mm						Height dimensions mm				Depth dimensions mm
Without gland plate	With gland plate	Stainless steel without gland plate	B1	B2	B3	B4	B5	B6	H1	H2	H3	H4	T1
1514.510	–	**1521.010**	150	148	132	109	125	–	150	148	132	–	80
1528.510	–	–	200	198	182	159	175	–	150	148	132	–	80
1516.510	–	**1523.010**	200	198	182	159	175	–	200	198	182	–	80
1515.510	–	**1522.010**	300	298	282	259	275	–	150	148	132	–	80
1517.510	–	**1524.010**	300	298	282	259	275	–	200	198	182	–	80
1518.510	–	–	400	398	382	359	375	–	200	198	182	–	80
1519.510	–	–	600	598	582	559	575	–	200	198	182	–	80
1500.510	–	–	150	148	132	109	125	–	150	148	132	100	120
1529.510	–	–	200	198	182	159	175	–	150	148	132	100	120
1502.510	–	–	200	198	182	159	175	–	200	198	182	150	120
1501.510	**1530.510**	–	300	298	282	259	275	150	150	148	132	100	120
1503.510	**1531.510**	–	300	298	282	259	275	150	200	198	182	150	120
1507.510	**1535.510**	**1526.010**	300	298	282	259	275	150	300	298	282	250	120
1589.510	–	–	400	398	382	359	375	–	150	148	132	100	120
1504.510	**1532.510**	**1525.010**	400	398	382	359	375	200	200	198	182	150	120
1508.510	**1536.510**	–	400	398	382	359	375	200	300	298	282	250	120
1511.510	**1539.510**	–	400	398	382	359	375	200	400	398	382	350	120
1505.510	**1533.510**	–	500	498	482	459	475	130	200	198	182	150	120
1509.510	**1537.510**	–	500	498	482	459	475	130	300	298	282	250	120
1506.510	**1534.510**	–	600	598	582	559	575	150	200	198	182	150	120
1510.510	**1538.510**	–	600	598	582	559	575	150	300	298	282	250	120
1512.510	**1540.510**	–	600	598	582	559	575	150	400	398	382	350	120
1527.510	**1542.510**	–	800	798	782	759	775	150	200	198	182	150	120
1513.510	**1541.510**	–	800	798	782	759	775	150	400	398	382	350	120

Industrial enclosures

Small enclosures

1.1 E-Box EB
Page 110
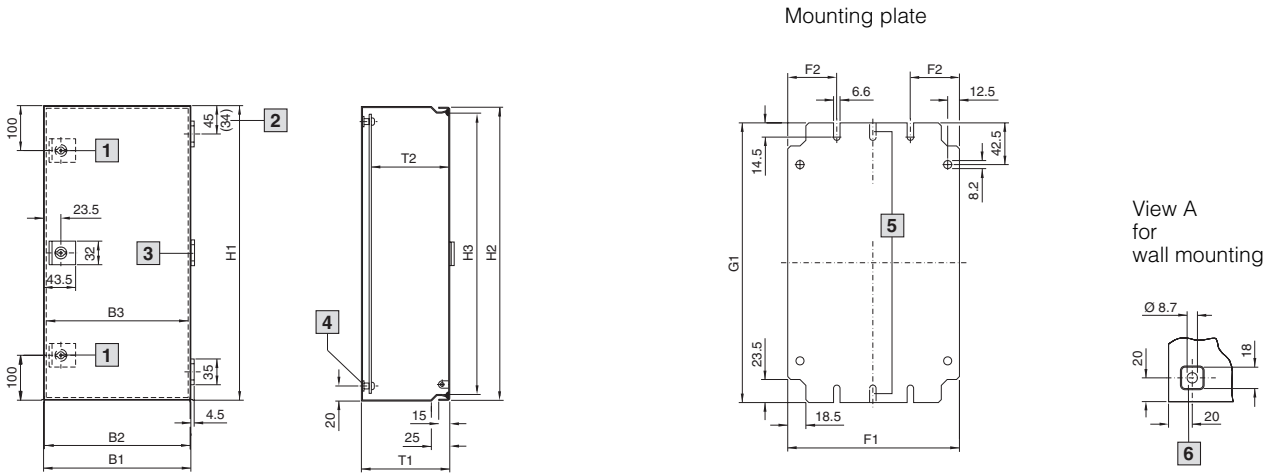
Mounting plate

1 For EB 1557.500/
EB 1578.500/EB 1579.500
two locks

2 For EB 1551.500 and
EB 1553.500

3 Only for EB 1579.500

4 View A

5 For 125 mm wide mounting
plates, attachment is in the
centre only

6 2 mm recessed

B1 = Overall width
B2 = Door width
B3 = Clearance width

H1 = Overall height
H2 = Door height
H3 = Clearance height

T1 = Overall depth
T2 = Clearance depth available
for installation

F1 = Mounting plate width
F2 = Outer edge to centre of
mounting holes

G1 = Mounting plate height

Model No. EB	Width dimensions mm			Height dimensions mm			Depth dimensions mm		Mounting plate dimensions mm		
	B1	B2	B3	H1	H2	H3	T1	T2	F1	F2	G1
1551.500	150	148	132	150	148	132	80	65	125	62.5	135
1545.500	150	148	132	300	298	282	80	65	125	62.5	285
1546.500	200	198	182	200	198	182	80	65	175	50	185
1552.500	200	198	182	300	298	282	80	65	175	50	285
1547.500	200	198	182	400	398	382	80	65	175	50	385
1553.500	150	148	132	150	148	132	120	105	125	62.5	135
1548.500	150	148	132	300	298	282	120	105	125	62.5	285
1549.500	200	198	182	200	198	182	120	105	175	50	185
1554.500	200	198	182	300	298	282	120	105	175	50	285
1550.500	200	198	182	400	398	382	120	105	175	50	385
1555.500	300	298	282	300	298	282	120	105	275	50	285
1556.500	300	298	282	400	398	382	120	105	275	50	385
1557.500	200	198	182	500	498	482	120	105	175	50	485
1577.500	300	298	282	400	398	382	155	140	275	50	385
1578.500	300	298	282	600	598	582	155	140	275	50	585
1579.500	300	298	282	800	798	782	155	140	275	50	785

1.2 Compact enclosures AE

Spray-finished Page 118 – 119

AE 1032.500 (AE 1035.500)

Mounting plate

Mounting plate

i.L. = Clearance width
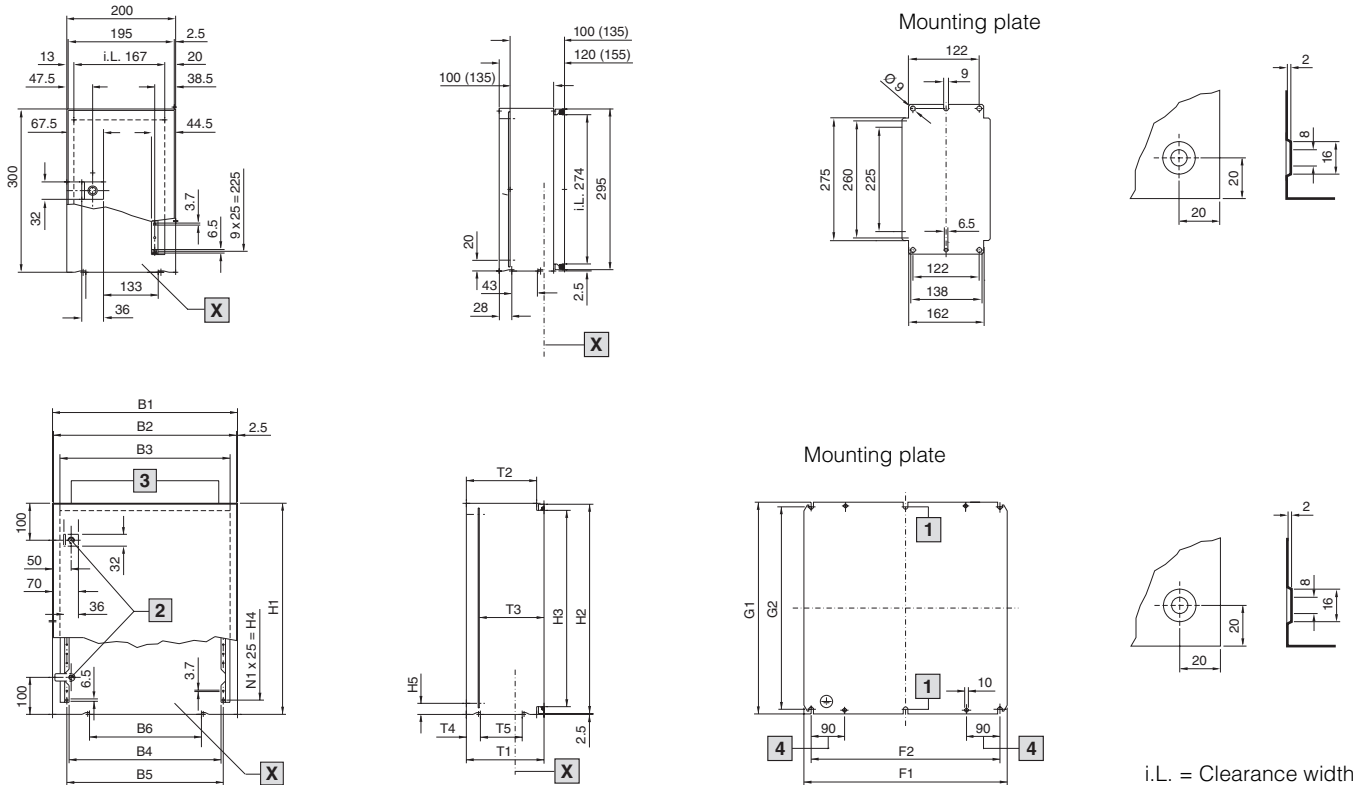
X Door interior view

1 Only for AE 1180.500

2 From 500 mm high with 2 cam locks, less than 500 mm with 1 cam lock in the centre

3 AE 1090.500 and AE 1180.500 with holes for eyebolts, see page 1084.

4 (50) for AE 1033.500 and AE 1034.500

Model No. AE	Width dimensions mm						Height dimensions mm						Depth dimensions mm					Mounting plates mm			
Spray-finished	B1	B2	B3	B4	B5	B6	H1	H2	H3	H4	H5	N1	T1	T2	T3	T4	T5	F1	F2	G1	G2
1033.500	300	295	260	211	223	233	300	295	260	225	27,5	9	210	190	168 – 184	33	45	254	215	275	250
1034.500	300	295	260	211	223	233	400	395	360	325	27,5	13	210	190	168 – 184	33	45	254	215	375	350
1030.500	380	375	340	291	303	303	300	295	260	225	27,5	9	155	132	113 – 129	33	63	334	295	275	250
1031.500	380	375	340	291	303	303	300	295	260	225	27,5	9	210	190	168 – 184	33	63	334	295	275	250
1380.500	380	375	340	291	303	303	380	375	340	275	27,5	11	210	190	168 – 184	33	63	334	295	355	330
1039.500	600	595	560	511	523	500	380	375	340	275	27,5	11	210	190	168 – 184	38	113	549	510	355	330
1339.500	600	595	560	511	523	500	380	375	340	275	27,5	11	350	330	308 – 324	38	113	549	510	355	330
1038.500	380	375	340	291	303	303	600	595	560	525	30	21	210	190	168 – 184	33	63	334	295	570	545
1338.500	380	375	340	291	303	303	600	595	560	525	30	21	350	330	308 – 324	84	113	334	295	570	545
1045.500	400	395	360	311	323	303	500	495	460	425	30	17	210	190	168 – 184	38	113	354	315	475	450
1050.500	500	495	460	411	423	303	500	495	460	425	30	17	210	190	168 – 184	38	113	449	410	470	445
1350.500	500	495	460	411	423	303	500	495	460	425	30	17	300	280	258 – 274	38	113	449	410	470	445
1057.500	500	495	460	411	423	303	700	695	660	625	30	25	250	230	208 – 224	38	113	449	410	670	645
1060.500	600	595	560	511	523	500	600	595	560	525	30	21	210	190	168 – 184	38	113	549	510	570	545
1360.500	600	595	560	511	523	500	600	595	560	525	30	21	350	330	308 – 324	38	113	549	510	570	545
1076.500	600	595	560	511	523	500	760	755	720	675	30	27	210	190	168 – 184	38	113	549	510	730	705
1376.500	600	595	560	511	523	500	760	755	720	675	30	27	350	330	308 – 324	38	113	549	510	730	705
1058.500	600	595	560	511	523	500	800	795	760	725	30	29	250	230	208 – 224	38	113	549	510	770	745
1090.500	600	595	560	511	523	500	1000	995	960	925	35	37	250	230	208 – 224	38	113	539	500	955	930
1077.500	760	755	720	671	683	500	760	755	720	675	30	27	210	190	168 – 184	38	113	704	665	730	705
1073.500	760	755	720	671	683	500	760	755	720	675	30	27	300	280	258 – 274	38	113	704	665	730	705
1180.500	800	795	760	711	723	500	1000	995	960	925	35	37	300	280	258 – 274	70	113	739	700	955	930

Compact enclosures

1.2 Compact enclosures AE
Spray-finished Page 120
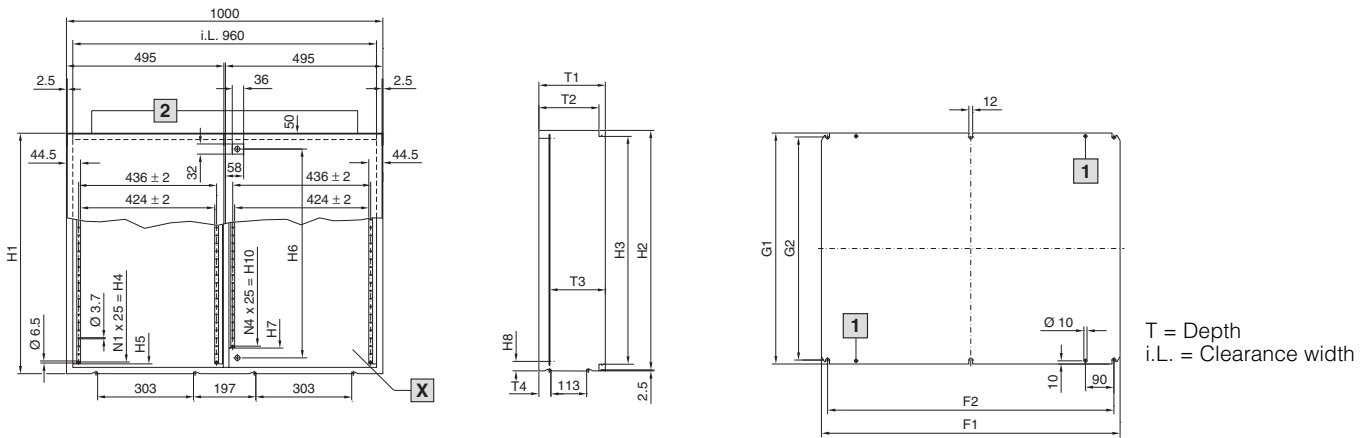
X Door interior view

1 Only for AE 1100.500

2 AE 1110.500 with holes for eyebolts, see page 1084.

Model No. AE Spray-finished	H1	H2	H3	H4	H5	H6	H7	H8	H10	N1	N4	T1	T2	T3	T4	F1	F2	G1	G2
1100.500	760	755	720	675	698	660	598	30	575	27	23	210	190	168 – 184	38	944	905	730	705
1130.500	760	755	720	675	698	660	598	30	575	27	23	300	280	258 – 274	70	944	905	730	705
1110.500	1000	995	960	925	938	900	838	35	825	37	33	300	280	258 – 274	70	939	900	955	930

Spray-finished Page 120
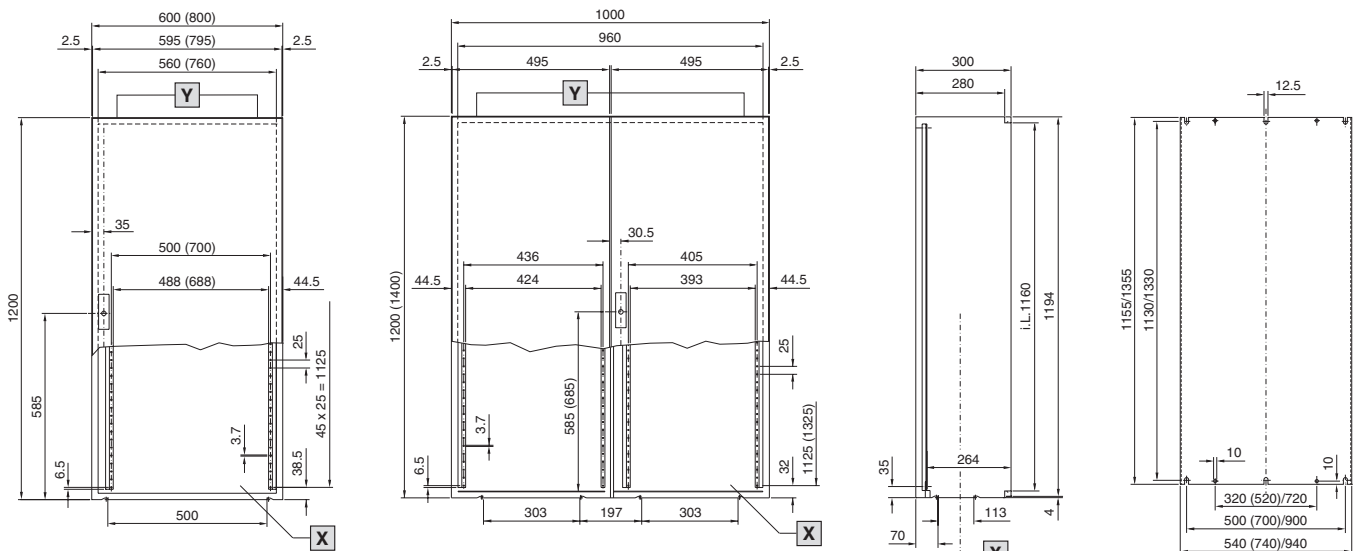
Detail Y
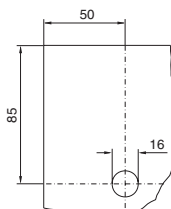
X Door interior view

Y Hole for eyebolts

Model No. AE Spray-finished	W	H	D	Door(s)
1260.500	600	1200	300	1
1280.500	800	1200	300	1
1213.500	1000	1200	300	2
1114.500	1000	1400	300	2

i.L. = Clearance width

1.2 Compact enclosures AE
Width: 200 – 1000, height: 300 – 1200, stainless steel Page 273

Mounting plates

AE 1002.600, AE 1016.600

AE 1002.600

AE 1004.600 –
AE 1016.600

Installation position of the mounting plate
is rotated through 90° for AE 1005.600.
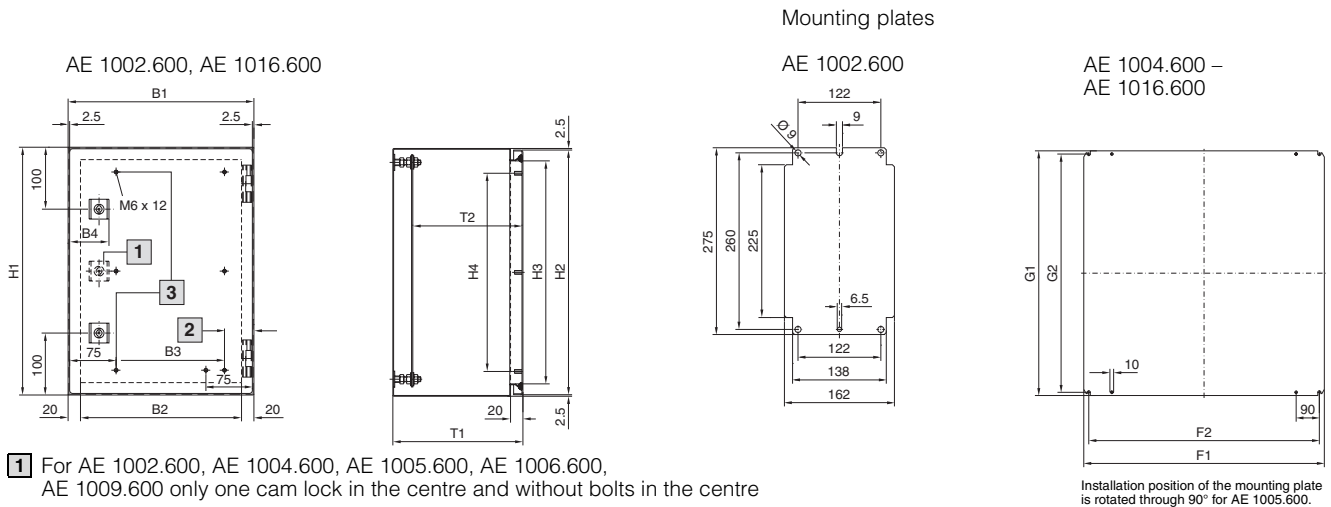
1 For AE 1002.600, AE 1004.600, AE 1005.600, AE 1006.600,
AE 1009.600 only one cam lock in the centre and without bolts in the centre

2 50 for AE 1002.600

3 Does not apply to AE 1002.600

AE 1017.600

AE 1018.600/AE 1019.600

Mounting plates
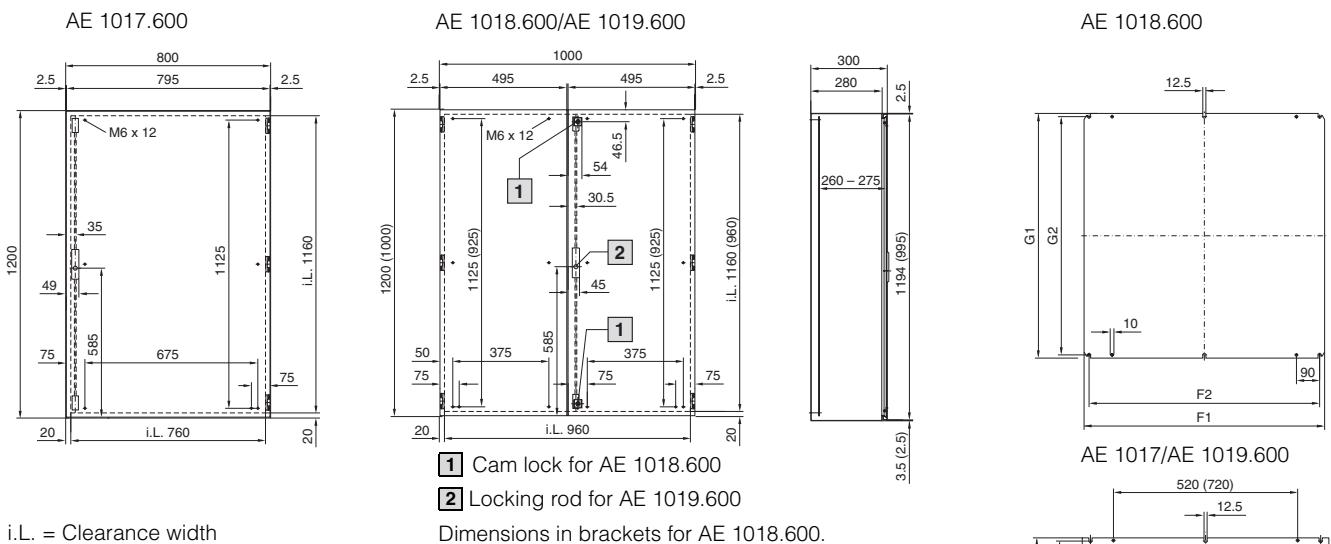
AE 1018.600

i.L. = Clearance width

1 Cam lock for AE 1018.600

2 Locking rod for AE 1019.600

Dimensions in brackets for AE 1018.600.

AE 1017/AE 1019.600

Dimensions in brackets for AE 1019.600.

Model No. AE	Width dimensions mm				Height dimensions mm				Depth dimensions mm		Mounting plates mm				Material thickness mm		
Stainless steel	B1	B2	B3	B4	H1	H2	H3	H4	T1	T2	G1	G2	F1	F2	Enclosures	Door	Mounting plate
1002.600	200	167	–	56	300	295	274	225	155	135	–	–	–	–	1.25	1.5	2.0
1004.600	380	340	250	66	300	295	260	225	155	113 – 129	275	250	334	295	1.38	1.5	2.0
1005.600	300	260	175	66	380	375	340	275	210	168 – 184	275	250	334	295	1.38	1.5	2.0
1006.600	380	340	250	66	380	375	340	275	210	168 – 184	355	330	334	295	1.38	1.5	2.5
1007.600	500	460	375	66	500	495	460	425	210	168 – 184	470	445	449	410	1.38	1.5	2.5
1013.600	500	460	375	66	500	495	460	425	300	258 – 274	470	445	449	410	1.50	1.5	2.5
1008.600	380	340	250	66	600	595	560	525	210	168 – 184	570	545	334	295	1.38	1.5	2.5
1009.600	600	560	475	66	380	375	340	275	210	168 – 184	355	330	549	510	1.38	1.5	2.5
1010.600	600	560	475	66	600	595	560	525	210	168 – 184	570	545	549	510	1.38	2.0	2.5
1012.600	600	560	475	66	760	755	720	675	210	168 – 184	730	705	549	510	1.38	2.0	3.0
1014.600	760	720	625	66	760	755	720	675	300	258 – 274	730	705	704	665	1.50	2.0	3.0
1016.600	800	760	675	66	1000	955	960	925	300	258 – 274	955	930	739	700	1.50	2.0	3.0
1017.600	800	–	–	–	1200	–	–	–	300	–	–	–	–	–	1.50	2.0	3.0
1018.600	1000	–	–	–	1000	–	–	–	300	–	955	930	939	900	1.50	2.0	3.0
1019.600	1000	–	–	–	1200	–	–	–	300	–	–	–	–	–	1.50	2.0	3.0

Industrial enclosures

Compact enclosures

1.2 Compact enclosures AE
Protection category IP 69K Page 121
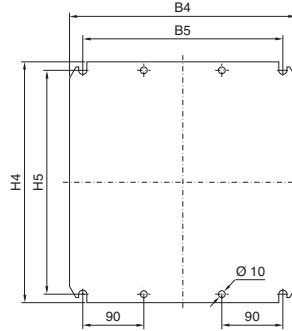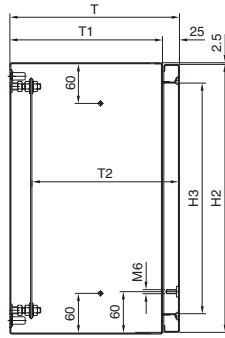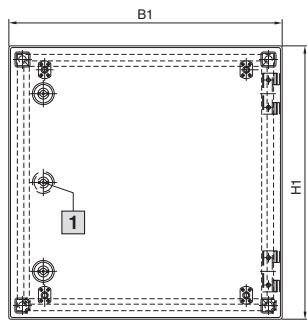
Mounting plate
AE 1101.010
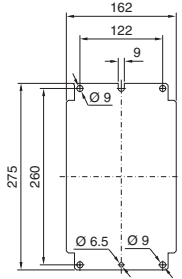
1 With AE 1101.010 one cam lock
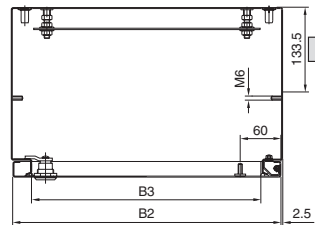
1 58.5 for AE 1101.010

Model No. AE	1101.010	1101.020	1101.030	1101.040
Width (B1) mm	230	400	400	650
Height (H1) mm	330	400	650	650
Depth (T) mm	155	250	250	250
Door width (B2) mm	225	395	395	645
Door height (H2) mm	325	395	645	645
Clearance width (B3) mm	170	340	340	590
Clearance height (H3) mm	270	340	590	590
Enclosure depth (T1) mm	130	225	225	225
Installation depth (T2) mm	135	208 – 224	208 – 224	208 – 224
Mounting plate width (B4) mm	–	334	334	549
Centre-to-centre spacing of the attachment holes (B5) mm	–	295	295	510
Mounting plate height (H4) in mm	–	355	570	570
Centre-to-centre spacing of the attachment holes (H5) mm	–	330	545	545
Mounting plate thickness mm	2	2	2.5	2.5

1.2 Compact enclosures AK
Page 122

AK 1646.500
AK 1648.500

AK 1652.500
AK 1650.500

AK 1647.500

Mounting plate
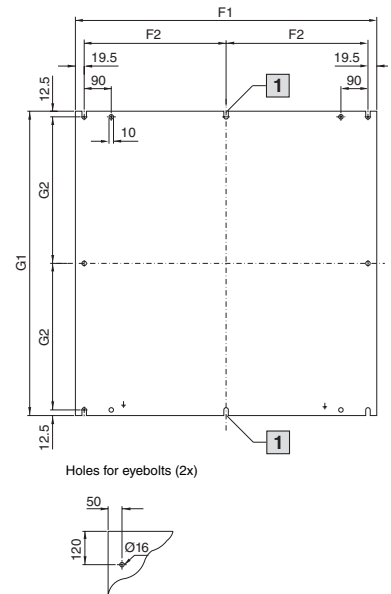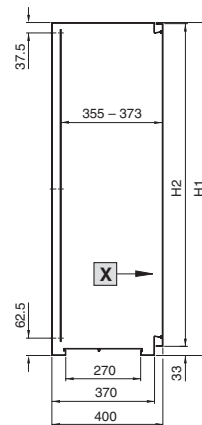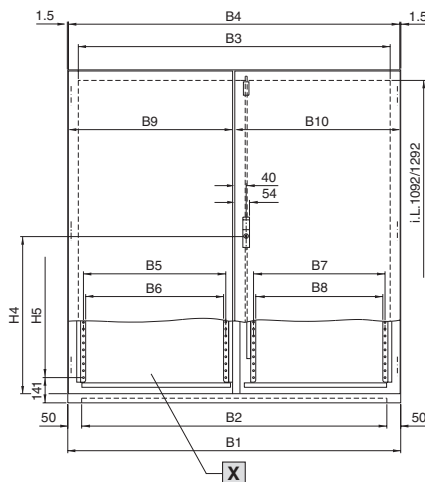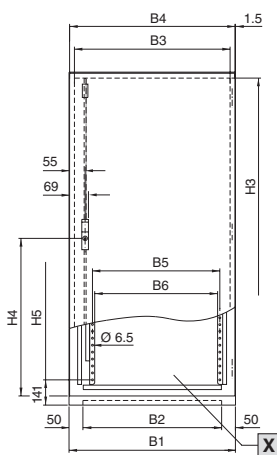
X Door interior view

1 Only for 1647.500/1650.500/
1652.500

i.L. = Clearance width

Holes for eyebolts (2x)

Model No. AK	Width dimensions mm										Height dimensions mm					Mounting plates mm			
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	H1	H2	H3	H4	H5	F1	F2	G1	G2
1646.500	600	500	524	597	459	443	–	–	–	–	1200	1166	1092	568	38 x 25 = 950	514	–	1125	550
1648.500	800	700	724	797	659	643	–	–	–	–	1200	1166	1092	568	38 x 25 = 950	714	–	1125	550
1652.500	1200	1100	1124	1197	513	497	477	461	595	597	1200	1166	1092	568	38 x 25 = 950	1114	537.5	1125	550
1650.500	1000	900	924	997	413	397	377	361	495	497	1200	1166	1092	568	38 x 25 = 950	914	437.5	1125	550
1647.500	1000	900	924	997	413	397	377	361	495	497	1400	1366	1292	668	46 x 25 = 1150	914	437.5	1325	650

1.2 Plastic enclosures KS
Page 123

KS 1423.600 and KS 1432.600 with only
one cam lock in the centre

Mounting plate
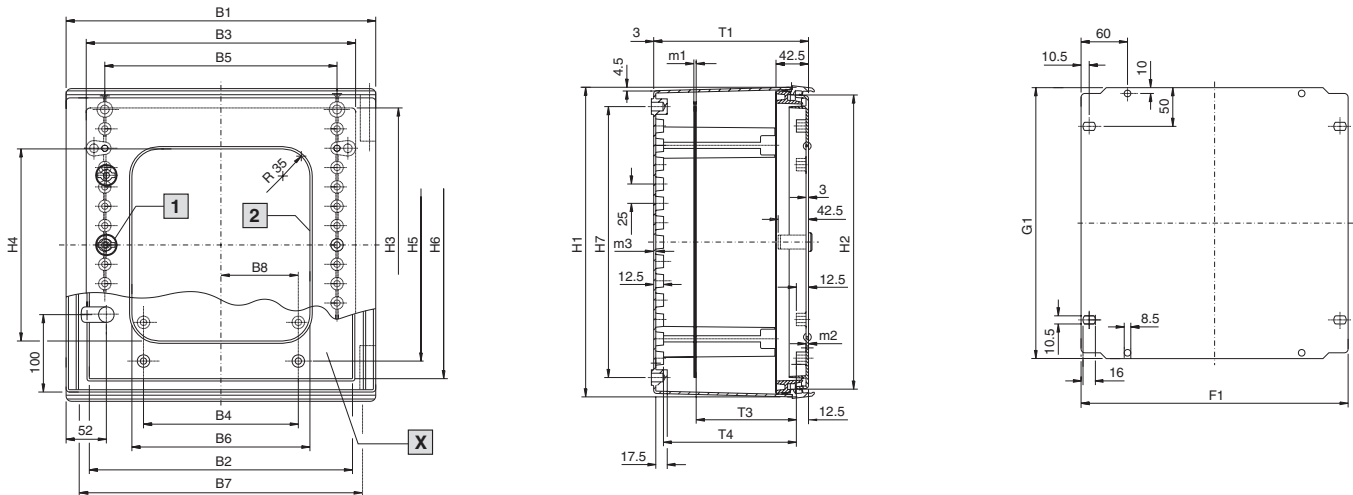
B7 = Separation width for wall mounting hole

H7 = Separation height for wall mounting hole

1 Only for KS 1423.600 and KS 1432.600

2 Viewing window only with KS 1448.600, KS 1449.600, KS 1454.600, KS 1467.600

X Door interior view

Model No. KS	Width dimensions mm								Height dimensions mm							Depth dimensions mm			Mounting plates mm				
	B1	B2	B3	B4	B5	B6[1]	B7	B8	H1	H2	H3	H4[1]	H5	H6	H7	T1	T3	T4	m1	m2	m3	F1	G1
1423.600	200	140	150	–	100	–	150	25	300	280	256	–	200	245	250	150	80 – 110/117	119	2.0	3.0	3.0	145	250
1432.600	250	190	200	75	150	–	200	50	350	330	306	–	250	295	300	150	80 – 110/117	119	2.0	3.0	3.0	195	300
1434.600	300	240	249	100	200	–	250	50	400	380	355	–	300	345	350	200	80 – 160/167	169	2.0	3.0	3.0	245	350
1444.600/ 1448.600	400	340	348	200	300	230	350	100	400	380	354	250	300	345	350	200	80 – 159/166	168.5	2.5	3.2	3.2	345	350
1446.600/ 1449.600	400	340	348	200	300	230	350	100	600	580	554	450	500	545	550	200	80 – 158/165	168	2.5	3.5	3.5	345	550
1466.600/ 1467.600	600	540	548	400	500	430	550	200	600	580	554	450	500	545	550	200	80 – 158/165	168	2.5	3.5	3.5	545	550
1453.600/ 1454.600	500	440	434	300	400	330	450	150	500	480	454	350	400	445	450	300	80 – 258/265	268	2.5	3.5	3.5	417	450

[1] Only in enclosures with viewing window.

Industrial enclosures

Compact enclosures

1.2 Plastic enclosures KS
Page 124

KS 1469.600/KS 1479.600
KS 1468.600/KS 1480.600 without viewing window
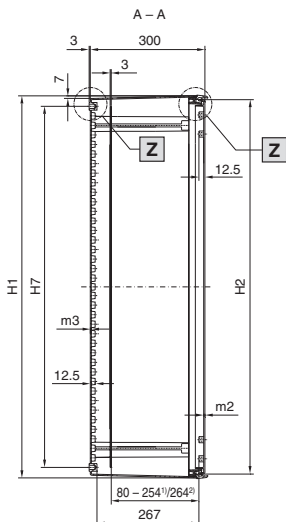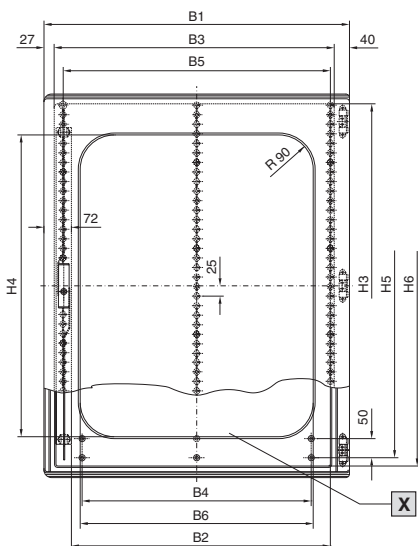
Mounting plate
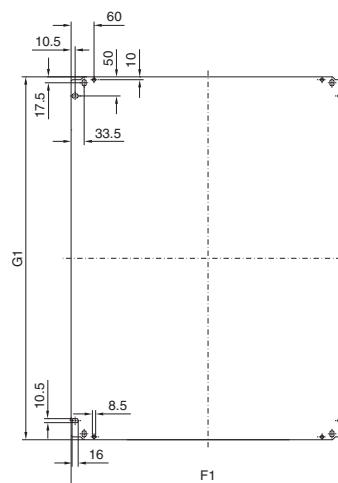
KS 1400.600
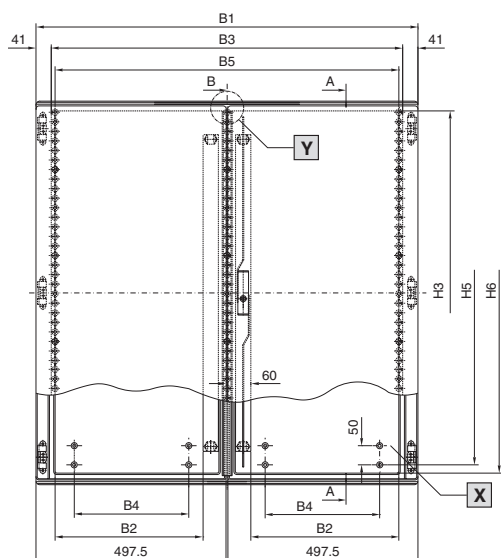
[1] Infinitely variable with mounting plate depth adjuster KS 1491.000

[2] When mounting on studs directly on the threaded insert

B7 = Separation width for wall mounting hole

H7 = Separation height for wall mounting hole

X Door interior view

Y Screw-fastened centre bar for KS 1400.000

Z Distance from mounting insert to centre bar
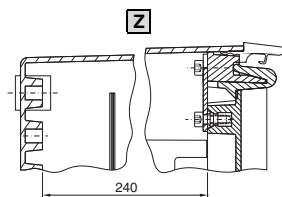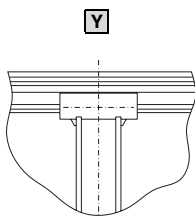
Model No. KS	Width dimensions mm							Height dimensions mm							Mounting plates mm			
	B1	B2	B3	B4	B5	B6[1]	B7	H1	H2	H3	H4[1]	H5	H6	H7	m2	m3	G1	F1
1468.600/1469.600	600	485	533	400	500	410	550	780	753	590	700	740	750	600	3.7	3.7	750	517
1479.600/1480.600	800	685	733	600	700	610	750	980	953	790	900	940	950	800	3.7	4.0	950	717
1400.600	1000	387	918	300	900	–	950	980	952	–	900	940	950	1000	3.5	4.0	950	917

[1] Only in enclosures with viewing window.

1.4 Free-standing enclosure ES 5000

Spray-finished Page 136, 137

Stainless steel Page 285

i.L. = Clearance width
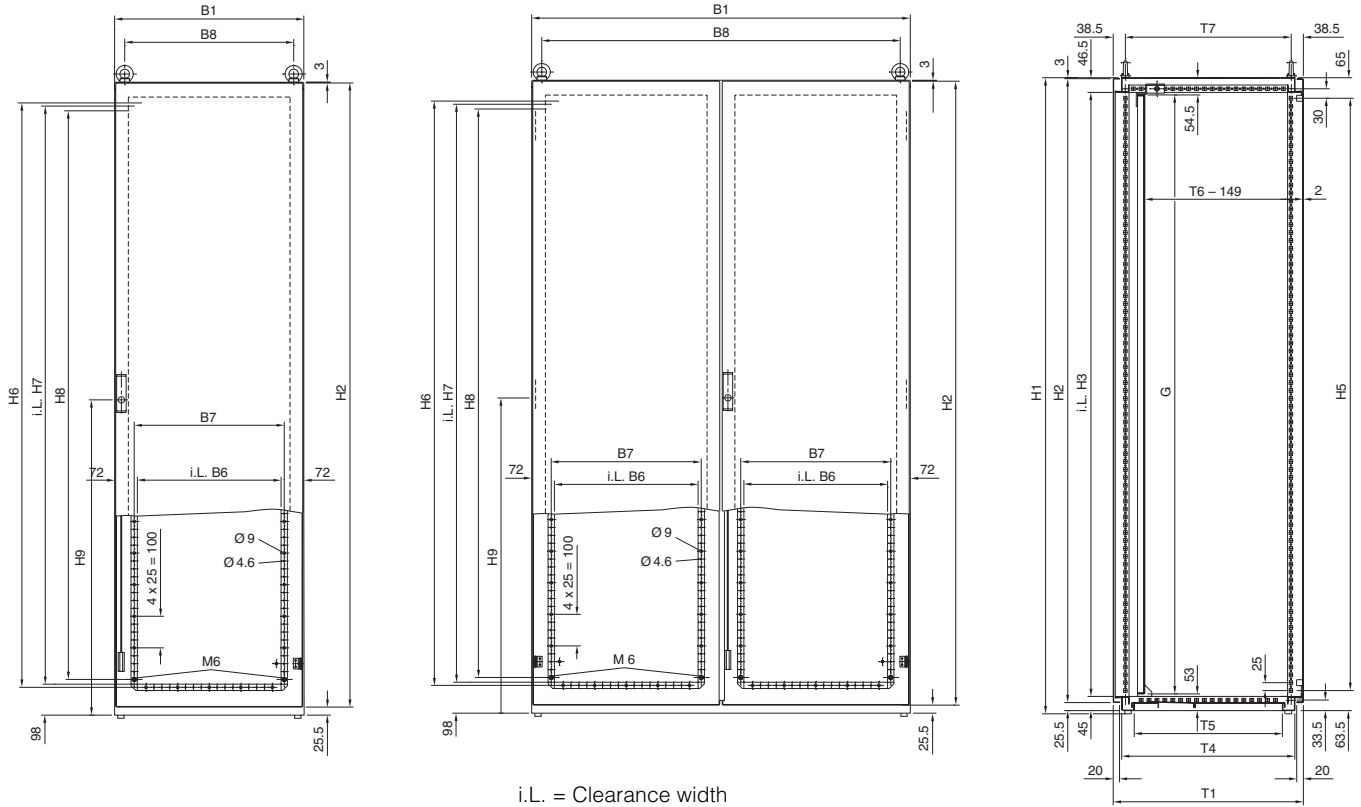
Detail Y
(only with ES 5784.500
and ES 5905.500)

Double-door

Model No. ES		Width dimensions mm								Height dimensions mm								Depth dimensions mm						Mounting plates mm	
Spray-finished	Stainless steel	B1	B2	B3	B5	B6	B7	B8	B9	H1	H2	H3	H5	H6	H7	H8	H9	T1	T2	T4	T5	T6	T7	F	G
5080.500	**–**	999	492	912	875	355	375	935	801	1810	1775	1712	1675	1650	1630	1600	898	402	275	349	269	349	325	899	1696
5265.500	**–**	1199	592	1112	1075	455	475	1135	481	1610	1575	1512	1475	1450	1430	1400	798	502	375	449	369	449	425	1099	1496
5284.500	**–**	1199	592	1112	1075	455	475	1135	481	1810	1775	1712	1675	1650	1630	1600	898	402	275	349	269	349	325	1099	1696
5205.500	**5455.600**	1199	592	1112	1075	455	475	1135	481	2010	1975	1912	1875	1850	1830	1800	998	502	375	449	369	449	425	1099	1896
5784.500	**–**	1599	792	1512	1475	655	675	1535	681	1810	1775	1712	1675	1650	1630	1600	898	402	275	349	269	349	325	1499	1696
5905.500	**–**	1799	892	1712	1675	755	775	1735	781	2010	1975	1912	1875	1850	1830	1800	998	502	375	449	369	449	425	1699	1896

Industrial enclosures

Large enclosures

1.4 Free-standing enclosure ES 5000
Spray-finished Page 136, 137
Stainless steel Page 285

Mounting plate
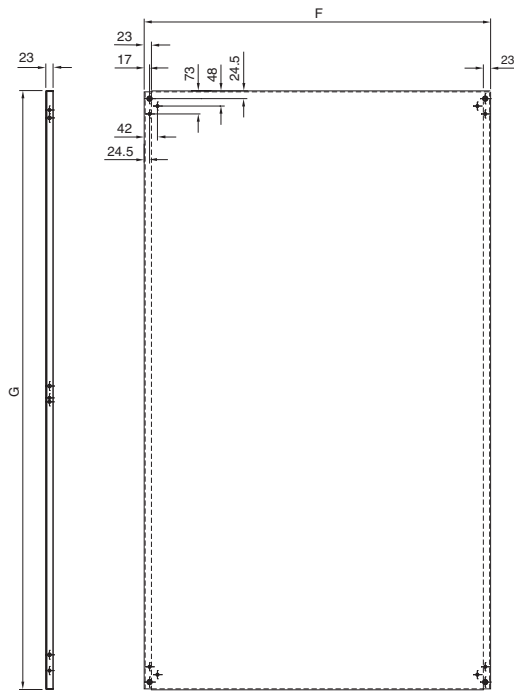
Enclosure

B1 = Overall width
B2 = Width of door
B3 = Clearance between enclosure frame sections
B5 = Section length of system punchings/hole distance of base and plinth attachment
B6 = Clearance between the tubular door frame sections
B7 = Distance between the rows of tubular door frame holes
B8 = Spacing between eyebolts
B9 = Clearance in base aperture

H1 = Overall height
H2 = Height of rear panel and door
H3 = Clearance between enclosure frame sections
H5 = Section length of system punchings
H6 = Distance between the rows of tubular door frame holes
H7 = Clearance between the tubular door frame sections
H8 = Spacing of tubular door frame fastening bolts
H9 = Distance from base to centre of lock

T1 = Overall depth
T2 = Section length of system punchings/hole distance of base and plinth attachment
T4 = Depth of base frame
T5 = Clearance in base aperture
T6 = Possible mounting depth (mounting plate assembly) up to 149 mm, depth-adjustable on a 25 mm pitch pattern
T7 = Centre-to-centre distance between eyebolts

Mounting plate

F = Overall width
G = Overall height

Cross-section

Pitch pattern of holes

Single-door

Model No. ES		Width dimensions mm								Height dimensions mm								Depth dimensions mm						Mounting plates mm	
Spray-finished	Stainless steel	B1	B2	B3	B5	B6	B7	B8	B9	H1	H2	H3	H5	H6	H7	H8	H9	T1	T2	T4	T5	T6	T7	F	G
–	**5450.600**	599	592	512	475	455	475	535	401	1610	1575	1512	1475	1450	1430	1400	798	402	275	349	269	349	325	499	1496
5665.500	–	599	592	512	475	455	475	535	401	1610	1575	1512	1475	1450	1430	1400	798	502	375	449	369	449	425	499	1496
5684.500	–	599	592	512	475	455	475	535	401	1810	1775	1712	1675	1650	1630	1600	898	402	275	349	269	349	325	499	1696
–	**5451.600**	599	592	512	475	455	475	535	401	1810	1775	1712	1675	1650	1630	1600	898	502	375	449	369	449	425	499	1696
5605.500	–	599	592	512	475	455	475	535	401	2010	1975	1912	1875	1850	1830	1800	998	502	375	449	369	449	425	499	1896
5865.500	–	799	792	712	675	655	675	735	601	1610	1575	1512	1475	1450	1430	1400	798	502	375	449	369	449	425	699	1496
5884.500	–	799	792	712	675	655	675	735	601	1810	1775	1712	1675	1650	1630	1600	898	402	275	349	269	349	325	699	1696
5805.500	–	799	792	712	675	655	675	735	601	2010	1975	1912	1875	1850	1830	1800	998	502	375	449	369	449	425	699	1896
5084.500	**5454.600**	999	992	912	875	855	875	935	801	1810	1775	1712	1675	1650	1630	1600	898	402	275	349	269	349	325	899	1696
–	**5452.600**	799	792	712	675	655	675	735	601	1810	1775	1712	1675	1650	1630	1600	898	502	375	449	369	449	425	699	1696
–	**5453.600**	799	792	712	675	655	675	735	601	2010	1975	1912	1875	1850	1830	1800	998	602	475	549	469	549	525	699	1896

1.4 Baying system TS 8

Spray-finished Page 138 – 147

Stainless steel Page 284

Base/plinth mounting: B4 x T2

Base/plinth mounting: B4 x T2
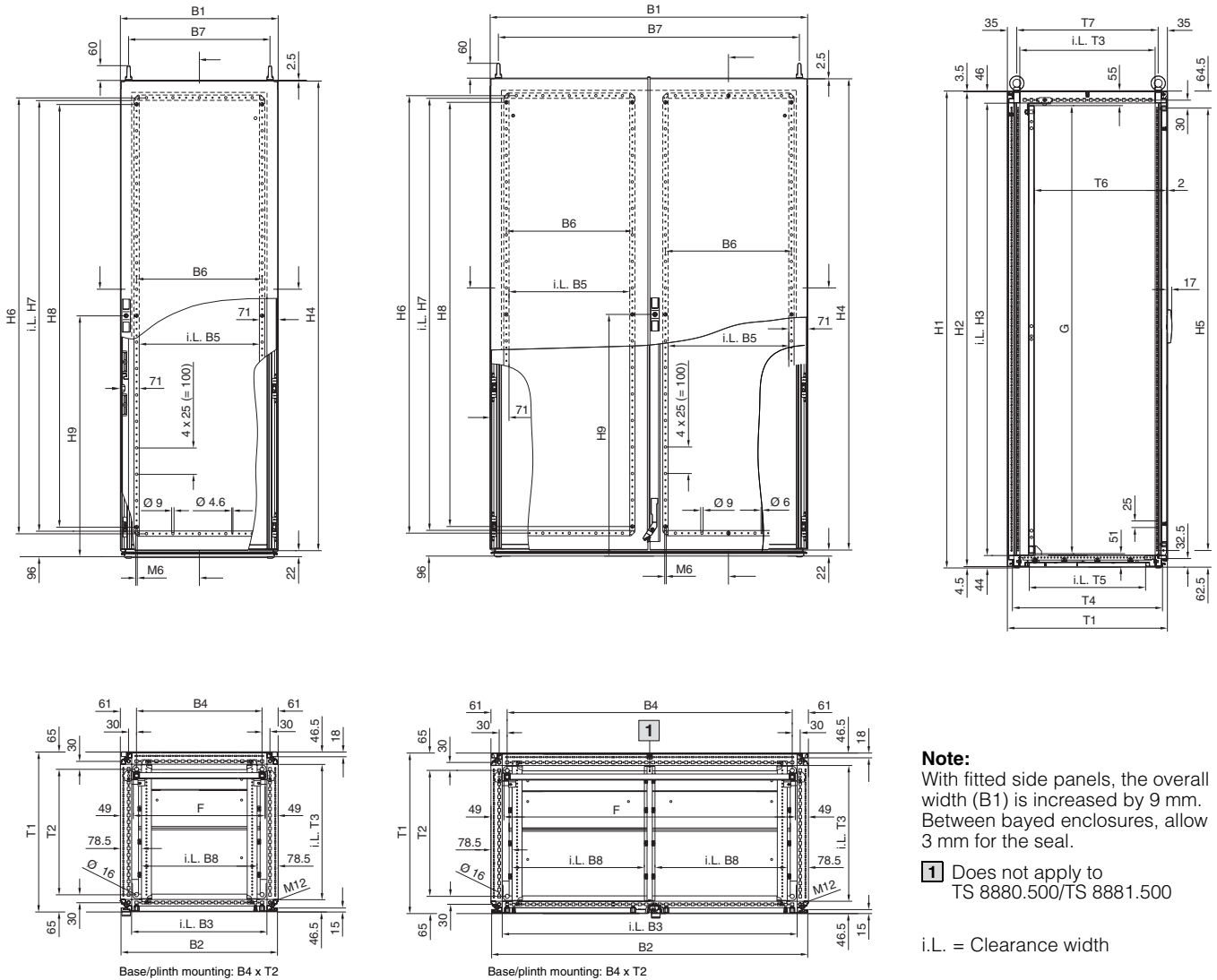
Note:
With fitted side panels, the overall width (B1) is increased by 9 mm. Between bayed enclosures, allow 3 mm for the seal.

[1] Does not apply to TS 8880.500/TS 8881.500

i.L. = Clearance width

Double-door

Model No. TS		Width dimensions mm								Height dimensions mm									Depth dimensions mm							Mounting plates mm	
Spray-finished	Stainless steel	B1	B2	B3	B4	B5	B6	B7	B8	H1	H2	H3	H4	H5	H6	H7	H8	H9	T1	T2	T3	T4	T5	T6	T7	F	G
8245.500	–	1197	1192	1112	1075	455	475	1135	500	1405	1397	1312	1377.5	1275	1250	1230	1200	711	505	375	412	468	340	130 – 455	435	1099	1296
8080.500	–	997	992	912	875	355	375	935	400	1805	1797	1712	1777.5	1675	1650	1630	1600	911	405	275	312	368	240	130 – 355	335	899	1696
8284.500	**8456.600**	1197	1192	1112	1075	455	475	1135	500	1805	1797	1712	1777.5	1675	1650	1630	1600	911	405	275	312	368	240	130 – 355	335	1099	1696
8880.500	–	797	792	712	675	255	275	735	640	1805	1797	1712	1777.5	1675	1650	1630	1600	911	505	375	412	468	340	130 – 455	435	699	1696
8285.500	**8453.600**	1197	1192	1112	1075	455	475	1135	500	1805	1797	1712	1777.5	1675	1650	1630	1600	911	505	375	412	468	340	130 – 455	435	1099	1696
8881.500	–	797	792	712	675	255	275	735	640	1805	1797	1712	1777.5	1675	1650	1630	1600	911	605	475	512	568	440	130 – 555	535	699	1696
8286.500	–	1197	1192	1112	1075	455	475	1135	500	1805	1797	1712	1777.5	1675	1650	1630	1600	911	605	475	512	568	440	130 – 555	535	1099	1696
8204.500	–	1197	1192	1112	1075	455	475	1135	500	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	405	275	312	368	240	130 – 355	335	1099	1896
8005.500	–	997	992	912	875	355	375	935	400	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	505	375	412	468	340	130 – 455	435	899	1896
8205.500	–	1197	1192	1112	1075	455	475	1135	500	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	505	375	412	468	340	130 – 455	435	1099	1896
8006.500	–	997	992	912	875	355	375	935	400	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	605	475	512	568	440	130 – 555	535	899	1896
8206.500	**8451.600**	1197	1192	1112	1075	455	475	1135	500	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	605	475	512	568	440	130 – 555	535	1099	1896
8208.500	–	1197	1192	1112	1075	455	475	1135	500	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	805	675	712	768	640	130 – 755	735	1099	1896
8226.500	–	1197	1192	1112	1075	455	475	1135	500	2205	2197	2112	2177.5	2075	2050	2030	2000	1111	605	475	512	568	440	130 – 555	535	1099	2096
8265.500	–	1197	1192	1112	1075	455	475	1135	500	1605	1597	1512	1577.5	1475	1450	1430	1400	–	505	375	412	468	340	130 – 455	435	1099	1496

Large enclosures

C

1.

Industrial enclosures

Mounting plate
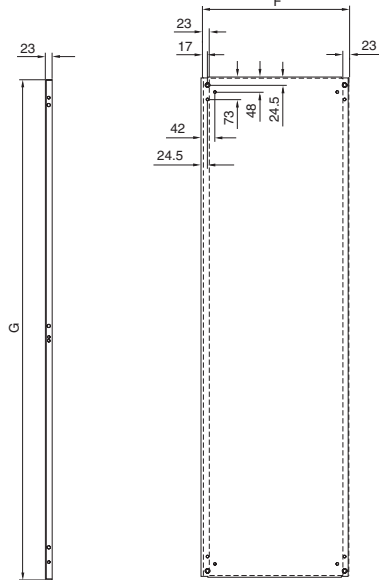
Cross-sections
vertical
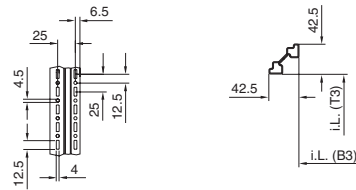
horizontal
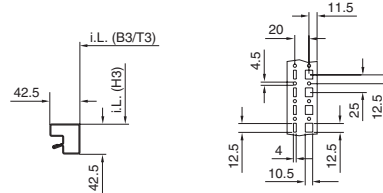
i.L. = Clearance width

Enclosure

B1 = Overall width
B2 = Width of door
B3 = Clearance between enclosure frame sections
B4 = Section length of system punchings/hole distance of base and plinth attachment
B5 = Clearance between the tubular door frame sections
B6 = Distance between the rows of tubular door frame holes
B7 = Spacing between eyebolts
B8 = Clearance in base aperture

H1 = Overall height
H2 = Height of rear panel
H3 = Clearance between enclosure frame sections
H4 = Height of door
H5 = Section length of system punchings
H6 = Distance between the rows of tubular door frame holes
H7 = Clearance between the tubular door frame sections
H8 = Spacing of tubular door frame fastening bolts
H9 = Distance from base to centre of lock

T1 = Overall depth
T2 = Section length of system punchings/hole distance of base and plinth attachment
T3 = Clearance between enclosure frame sections
T4 = Depth of base frame
T5 = Clearance in base aperture
T6 = Possible mounting depth (mounting plate assembl), depth-adjustable on a 25 mm pitch pattern
T7 = Centre-to-centre distance between eyebolts

Mounting plate

F = Overall width
G = Overall height

Single-door

Model No. TS		Width dimensions mm								Height dimensions mm									Depth dimensions mm							Mounting plates mm	
Spray-finished	Stainless steel	B1	B2	B3	B4	B5	B6	B7	B8	H1	H2	H3	H4	H5	H6	H7	H8	H9	T1	T2	T3	T4	T5	T6	T7	F	G
8645.500	–	597	592	512	475	455	475	535	440	1405	1397	1312	1377.5	1275	1250	1230	1200	711	505	375	412	468	340	130 – 455	435	499	1296
8845.500	–	797	792	712	675	655	675	735	640	1405	1397	1312	1377.5	1275	1250	1230	1200	711	505	375	412	468	340	130 – 455	435	499	1296
8684.500	–	597	592	512	475	455	475	535	440	1805	1797	1712	1777.5	1675	1650	1630	1600	911	405	275	312	368	240	130 – 355	335	499	1696
8884.500	8454.600	797	792	712	675	655	675	735	640	1805	1797	1712	1777.5	1675	1650	1630	1600	911	405	275	312	368	240	130 – 355	335	699	1696
8084.500	–	997	992	912	875	855	875	935	840	1805	1797	1712	1777.5	1675	1650	1630	1600	911	405	275	312	368	240	130 – 355	335	899	1696
8485.510	–	397	392	312	275	255	275	335	240	1805	1797	1712	1777.5	1675	1650	1630	1600	911	505	375	412	468	340	130 – 455	435	–	–
8685.500	8457.600	597	592	512	475	455	475	535	440	1805	1797	1712	1777.5	1675	1650	1630	1600	911	505	375	412	468	340	130 – 455	435	499	1696
8885.500	8455.600	797	792	712	675	655	675	735	640	1805	1797	1712	1777.5	1675	1650	1630	1600	911	505	375	412	468	340	130 – 455	435	699	1696
8486.510	–	397	392	312	275	255	275	335	240	1805	1797	1712	1777.5	1675	1650	1630	1600	911	605	475	512	568	440	130 – 555	535	–	–
8686.500	–	597	592	512	475	455	475	535	440	1805	1797	1712	1777.5	1675	1650	1630	1600	911	605	475	512	568	440	130 – 555	535	499	1696
8886.500	–	797	792	712	675	655	675	735	640	1805	1797	1712	1777.5	1675	1650	1630	1600	911	605	475	512	568	440	130 – 555	535	699	1696
8604.500	–	597	592	512	475	455	475	535	440	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	405	275	312	368	240	130 – 355	335	499	1896
8804.500	–	797	792	712	675	655	675	735	640	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	405	275	312	368	240	130 – 355	335	699	1896
8405.510	–	397	392	312	275	255	275	335	240	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	505	375	412	468	340	130 – 455	435	–	–
8605.500	–	597	592	512	475	455	475	535	440	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	505	375	412	468	340	130 – 455	435	499	1896
8805.500	–	797	792	712	675	655	675	735	640	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	505	375	412	468	340	130 – 455	435	699	1896
8406.510	–	397	392	312	275	255	275	335	240	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	605	475	512	568	440	130 – 555	535	–	–
8606.500	8452.600	597	592	512	475	455	475	535	440	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	605	475	512	568	440	130 – 555	535	499	1896
8806.500	8450.600	797	792	712	675	655	675	735	640	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	605	475	512	568	440	130 – 555	535	699	1896
8608.500	–	597	592	512	475	455	475	535	440	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	805	675	712	768	640	130 – 755	735	499	1896
8808.500	–	797	792	712	675	655	675	735	640	2005	1997	1912	1977.5	1875	1850	1830	1800	1011	805	675	712	768	640	130 – 755	735	699	1896
8626.500	–	597	592	512	475	455	475	535	440	2205	2197	2112	2177.5	2075	2050	2030	2000	1111	605	475	512	568	440	130 – 555	535	499	2096
8826.500	–	797	792	712	675	655	675	735	640	2205	2197	2112	2177.5	2075	2050	2030	2000	1111	605	475	512	568	440	130 – 555	535	699	2096
8665.500	–	597	592	512	475	455	475	535	440	1605	1597	1512	1577.5	1475	1450	1430	1400	–	505	375	412	468	340	130 – 455	435	499	1496
8865.500	–	797	792	712	675	655	675	735	640	1605	1597	1512	1577.5	1475	1450	1430	1400	–	505	375	412	468	340	130 – 455	435	699	1696

1.4 Baying system TS 8
For isolator door locking Page 150
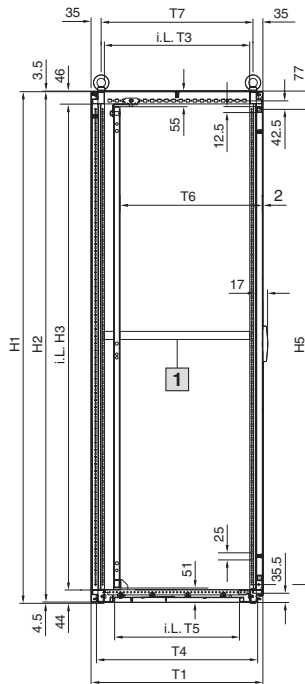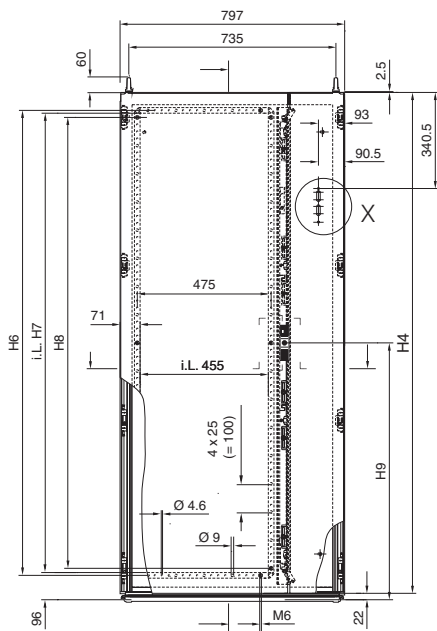
Detail X
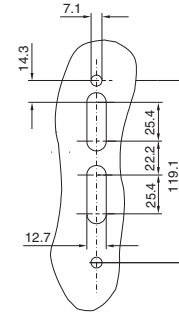
1 Only for TS 8906.500

i.L. = Clearance width
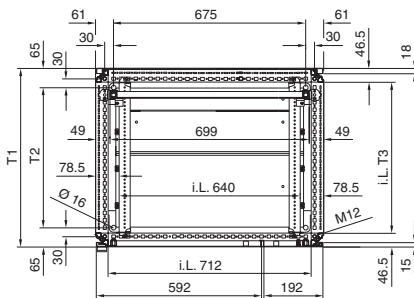
Enclosure

H1 = Overall height
H2 = Height of rear panel
H3 = Clearance between enclosure frame sections
H4 = Height of door and trim panel
H5 = Section length of system punchings
H6 = Distance between the rows of tubular door frame holes
H7 = Clearance between the tubular door frame sections
H8 = Spacing of tubular door frame fastening bolts
H9 = Distance from base to centre of lock

T1 = Overall depth
T2 = Section length of system punchings/ hole distance of base and plinth attachment
T3 = Clearance between enclosure frame sections
T4 = Depth of base frame
T5 = Clearance in base aperture
T6 = Possible mounting depth (mounting plate assembly)
T7 = Centre-to-centre distance between eyebolts

Note:
The cutouts in the right trim piece are suitable for the following isolator actuators: Allen Bradley 1494 V-H11, Square D9422A1, ITE Siemens[1] Max-Flex Serie/F HOH, General Electric TDA Type 1 and 2.

[1] Available in USA only.

Model No. TS	Height dimensions mm									Depth dimensions mm						
	H1	H2	H3	H4	H5	H6	H7	H8	H9	T1	T2	T3	T4	T5	T6	T7
8984.500	1805	1797	1712	1778	1650	1650	1630	1600	911	405	275	312	368	240	130 – 355	335
8985.500	1805	1797	1712	1778	1650	1650	1630	1600	911	505	375	412	468	340	130 – 455	435
8905.500	2005	1997	1912	1978	1850	1850	1830	1800	1011	505	375	412	468	340	130 – 455	435
8906.500	2005	1997	1912	1978	1850	1850	1830	1800	1011	605	475	512	568	440	130 – 555	535

Large enclosures

1.4 Baying system TS 8
Electronic enclosures Page 148

HE = U
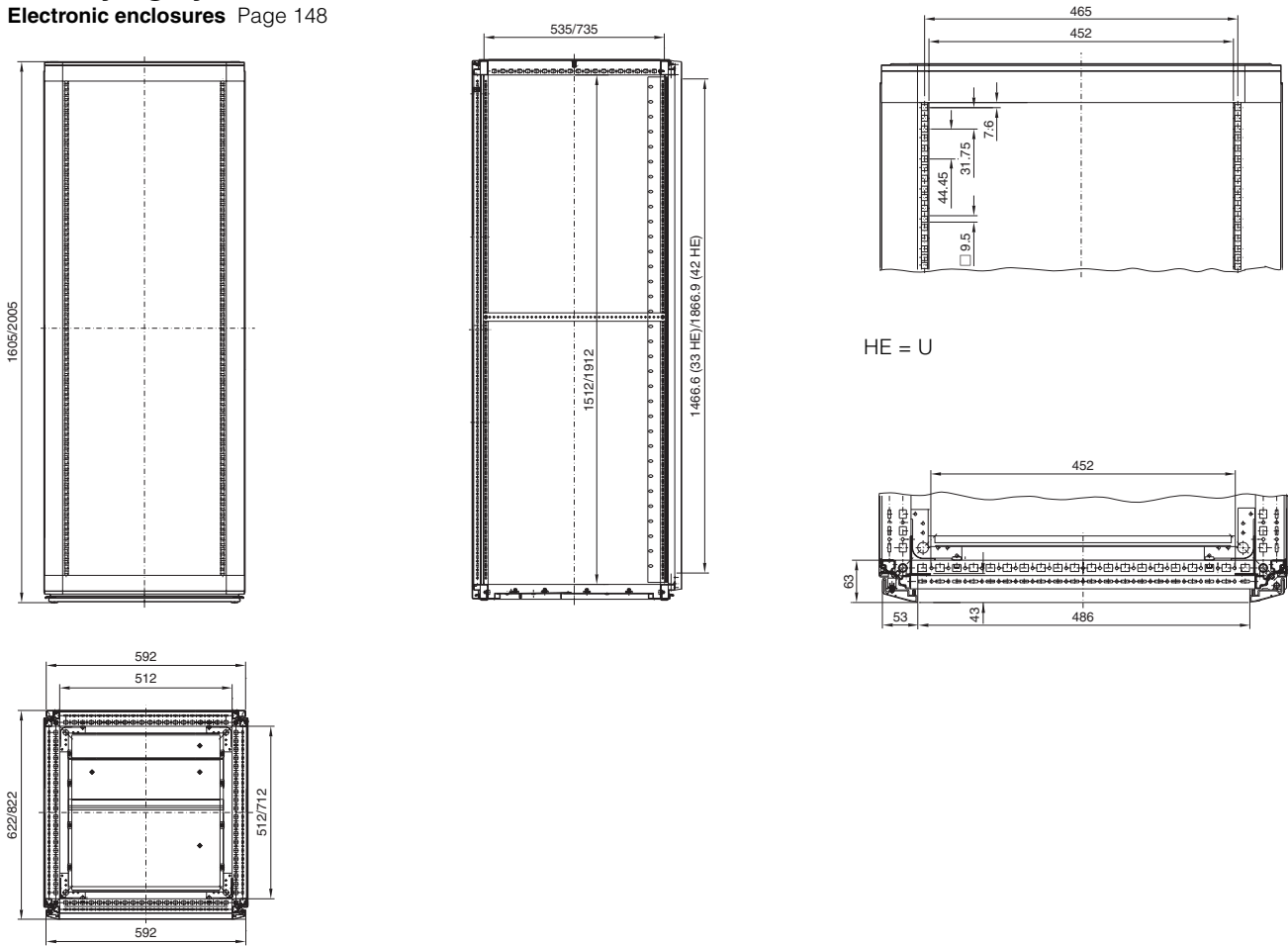
1.4 Baying system TS 8
For modular front design Page 149

Cross-sections

vertical   horizontal

i.L. = Clearance width
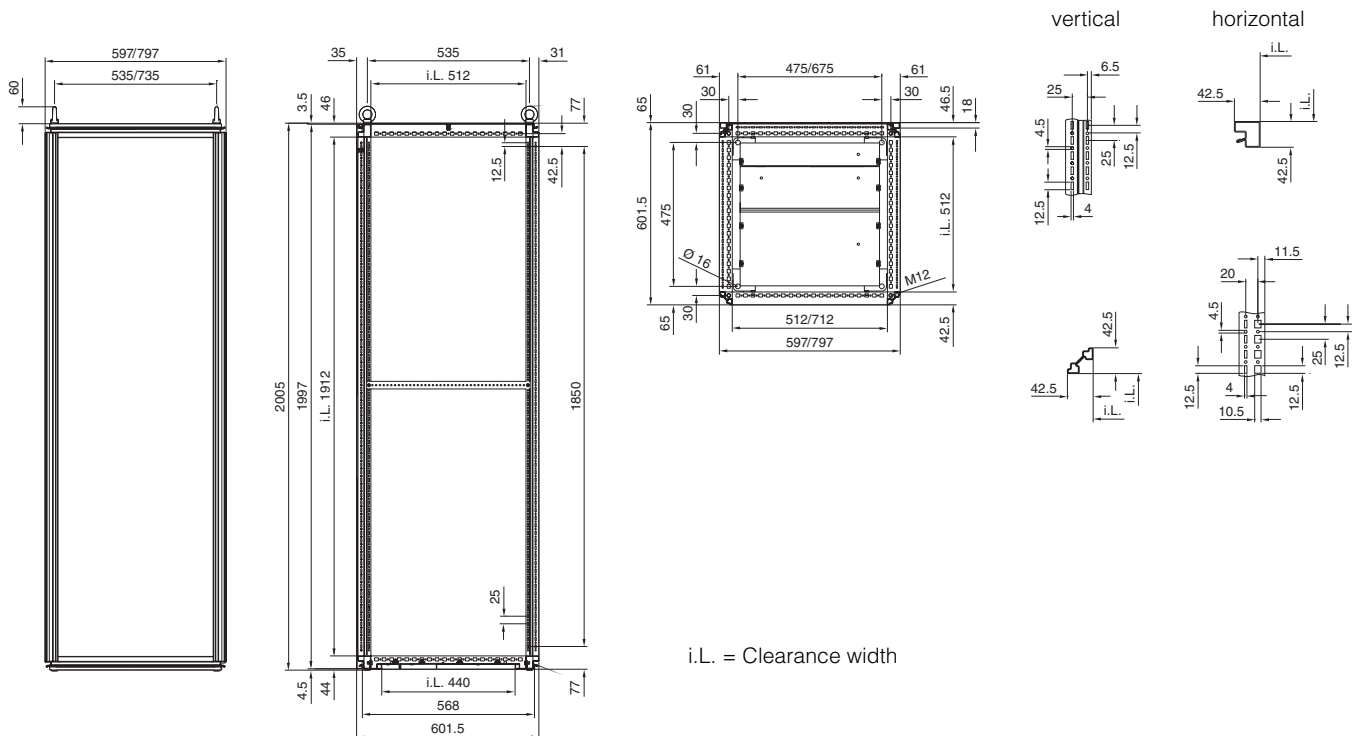
1.5 Rittal Command Panel VIP 6000

3.1 Installation depth Page 161

Front frame, wide
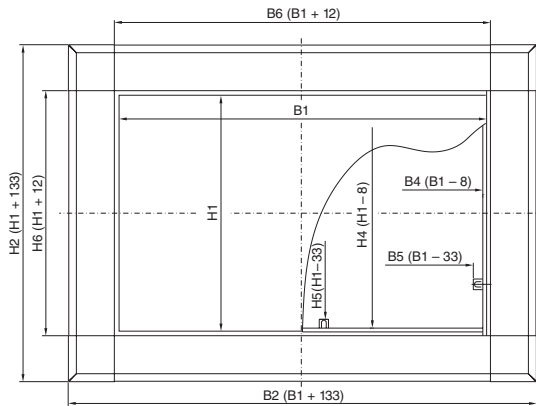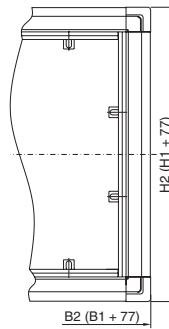
Narrow   **Combined**
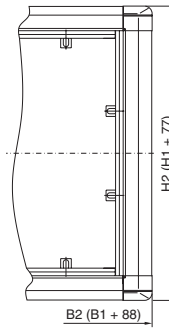
1 155 mm
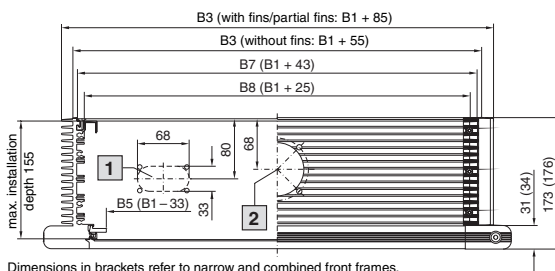
Dimensions in brackets refer to narrow and combined front frames.

1 Cross section of the cable duct

2 Support arm cutout for CP-L system, Ø 130 mm

Support arm connections

CP-L, Ø 130 mm   **CP-XL**

2 185 mm, screw-fastened
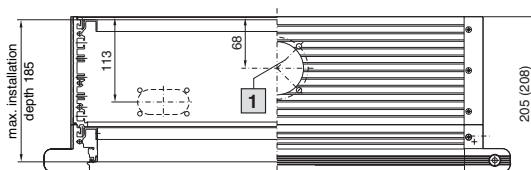
Dimensions in brackets refer to narrow and combined front frames.

1 Support arm connection for system Ø 130 mm
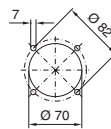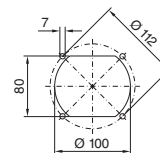
3 185 mm, hinged
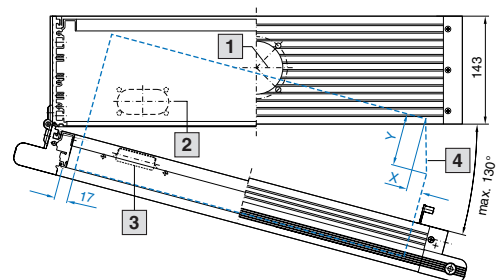
1 Support arm connection for CP-L system, Ø 130 mm

2 Only for CP 6392.109, CP 6392.209

3 Only for CP 6392.009

4 Max. installation space for hinged enclosures

5 Collision zone

Width dimensions:

B1 = Width of the front panel

B2 = Overall width

B3 = Enclosure width

B4 = Clearance width between enclosure sections

B5 = Clearance width between retaining claws of the mounting kit

B6 = Clearance width between the front frames

B7 = Width of the rear panel

B8 = Internal clearance of enclosure, width

Height dimensions:

H1 = Height of the front panel

H2 = Overall height

H3 = Enclosure height (with fins: H1 + 85, without fins: H1 + 55)

H4 = Clearance height between enclosure sections

H5 = Clearance height between retaining claws

H6 = Clearance height between front frames

H7 = Height of the rear panel (H1 + 43)

H8 = Internal clearance of enclosure, height (H1 + 25)
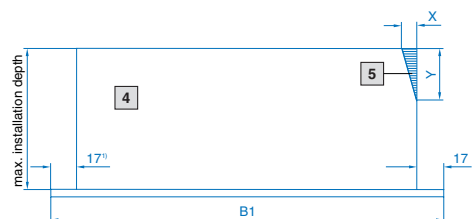
1) see page 160.

Operating housings

1.5. Command Panel VIP 6000
3.1 Installation depth Page 161

4 **295 mm, screw-fastened**
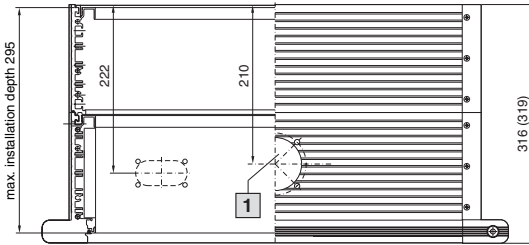
Dimensions in brackets refer to narrow and combined front frames.

5 **295 mm, hinged**
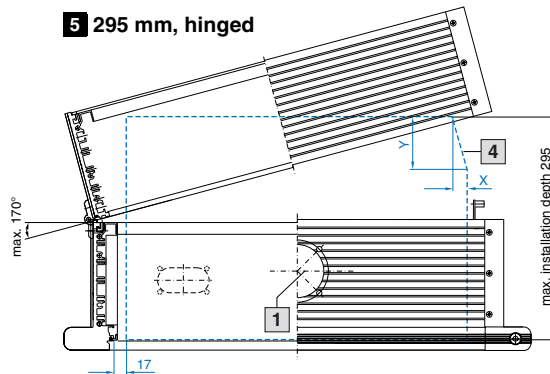
6 **328 mm, screw-fastened**
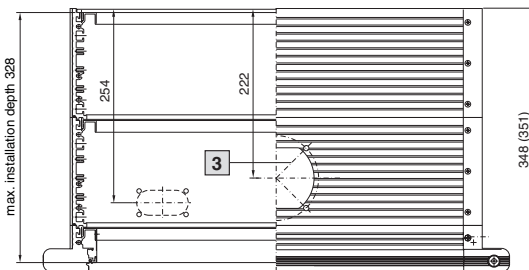
Dimensions in brackets refer to narrow and combined front frames.

7 **328 mm, hinged**
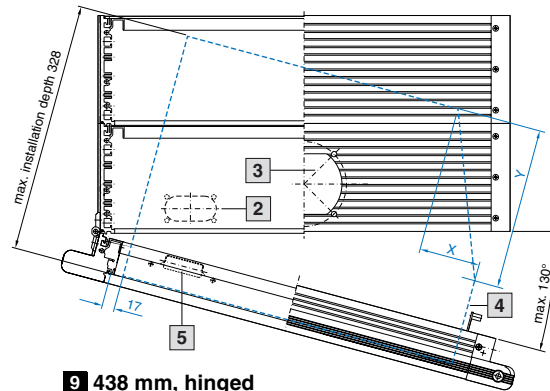
8 **438 mm, screw-fastened**
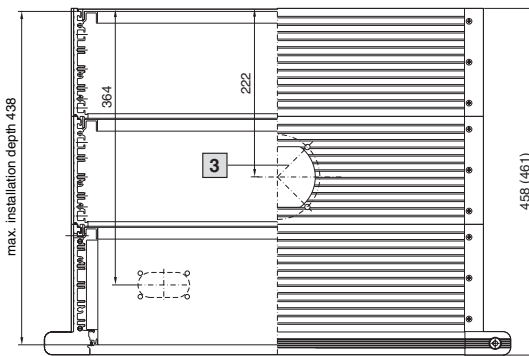
Dimensions in brackets refer to narrow and combined front frames.

9 **438 mm, hinged**
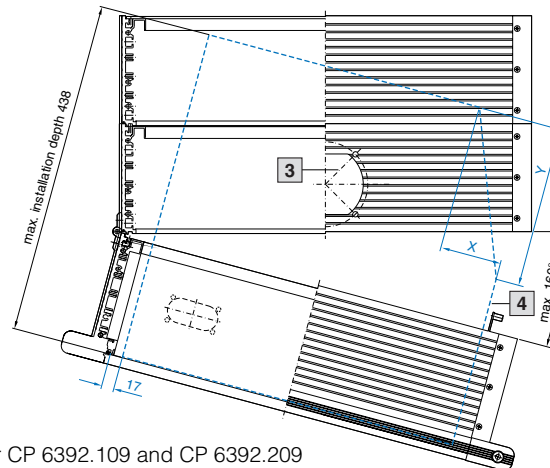
1 Support arm cutout for CP-L system, Ø 130 mm

4 Max. installation space for hinged enclosures

3 Support arm connection for system CP-XL

2 Only for CP 6392.109 and CP 6392.209

5 Only for CP 6392.009

Calculating the swivel mounting space
(for installation depth 185 mm und 295 mm, hinged)
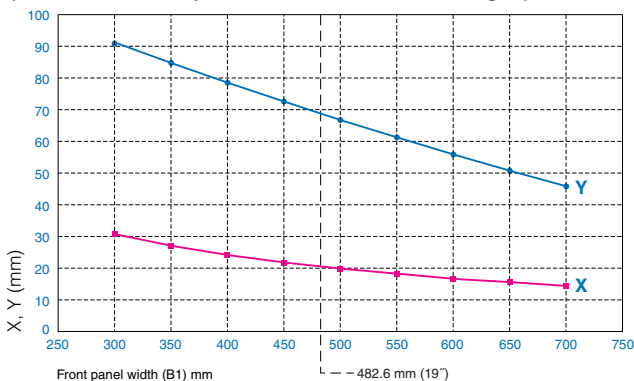
Calculating the swivel mounting space
(for installation depth 328 mm und 438 mm, hinged)
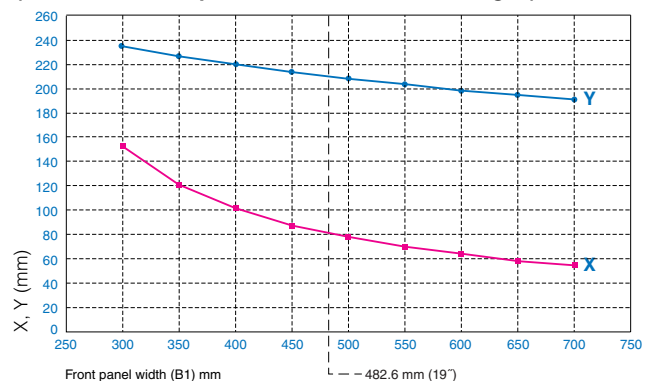
1.5 Rittal Command Panel VIP 6000

3.2 Front design Page 162

1 3 5 Cross member
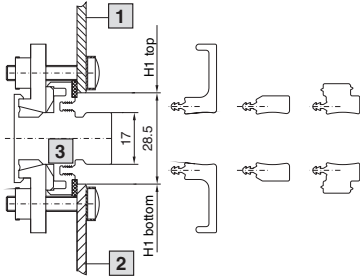
2 4 5 Sealing bar
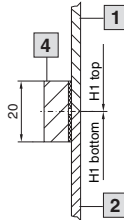
1	Front panel 1
2	Front panel 2
3	Cross member
4	Sealing bar

Minimum front panel width (B1)
Depending on the
● Installation depth of the operating housing
● Connection between the operating housing/keyboard housing
● Position of the support arm connection

Dimensions in mm		Installation depth of operating housing (see page 161)				
		155	185	295	328	438
Prepared for the external mounting of keyboard housing (see design code number 3.7, page 164)	Support arm/ wall-mounted and pedestal connection (see design code number 3.6, page 164)	**1**	**2** Screw-fastened	**4** Screw-fastened	**6** Screw-fastened	**8** Screw-fastened
			3 Hinged	**5** Hinged	**7** Hinged	**9** Hinged
0 None	**0** to **3** top or bottom	Minimum front panel width				
		169	265	169	265	
1 Frame connector or **4** hinged frame connector	**1** top	169	265	169	265	
	2 and **3** bottom	339[1]	445[1]	339[1]	445[1]	
2 Enclosure duct connector	**1** top	189	265	189	265	265
	2 and **3** bottom	339	445	339	445	
3 Enclosure bar connector	**1** top	169	265	169	265	
	2 and **3** bottom	397[1]	445[1]	397[1]	445[1]	

[1] Smaller front panel widths for asymmetrical support arm connection available on request.

3.4 Trim types Page 163

1 Cover trim
Front panel recessed, screws concealed
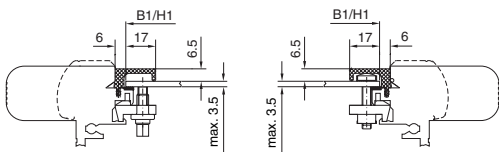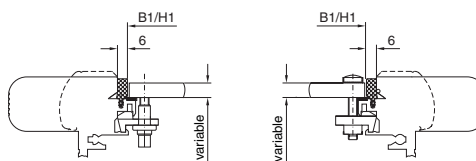
3 Spacer trim
Front panel flush

2 End trim
Front panel recessed
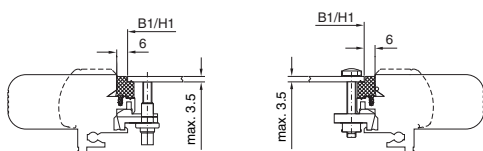
Mounting kit for threaded bolts:
M5: CP 6053.500
M4: CP 6058.500

Mounting kit for screw clamp:
CP 6053.210

Mounting kits,
see page 1037.

Assembly kit for holes:
M5: CP 6053.000
M4: CP 6058.000
M6: CP 6053.000/6058.000
+ EL 2092.200
+ screws M6 x 25

Industrial enclosures

Keyboard housing

1.5 Rittal Command Panel VIP 6000
4.1 Keyboard housing Page 166

1 **Installation depth 105 mm**

Front frames
Wide
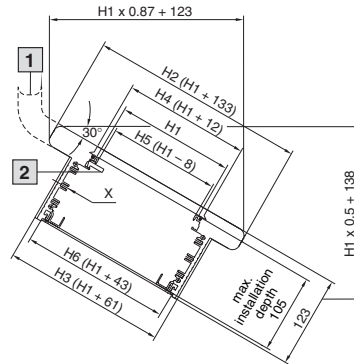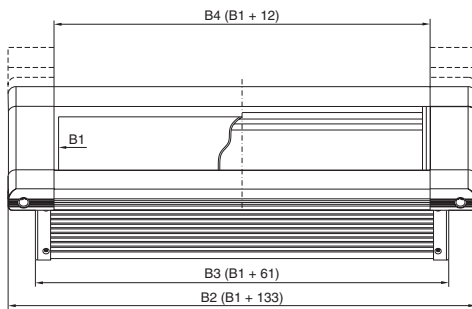
B4 (B1 + 12)

B1

B3 (B1 + 61)

B2 (B1 + 133)

H1 x 0.87 + 123

H2 (H1 + 133)
H4 (H1 + 12)
H5 (H1 – 8)
H1
30°
X
H6 (H1 + 43)
H3 (H1 + 61)
max. installation depth 105
123
H1 x 0.5 + 138

1 Frame connector, rigid/adjustable
2 CP 6058.XXX: M4
CP 6053.XXX: M5

Narrow

B2 (B1 + 77)
92
B1

H1 x 0.87 + 74
87
22
H2 (H1 + 77)
H4 (H1 + 12)
H1
H5 (H1 – 8)
30°
X
H6 (H1 + 43)
H3 (H1 + 61)
max. installation depth 105
126
H1 x 0.5 + 138

1 Enclosure duct connector
2 CP 6058.XXX: M4
CP 6053.XXX: M5

Combined

B2 (B1 + 88)
92
B1

H1 x 0.87 + 74
87
22
H2 (H1 + 77)
H4 (H1 + 12)
H1
H5 (H1 – 8)
30°
X
H6 (H1 + 43)
H3 (H1 + 61)
max. installation depth 105
126
H1 x 0.5 + 138
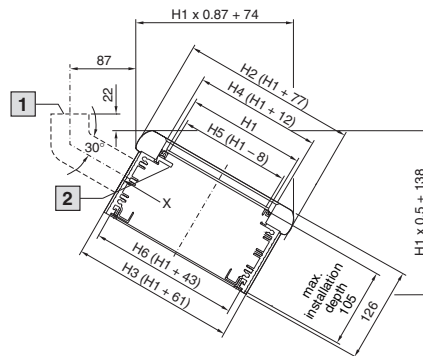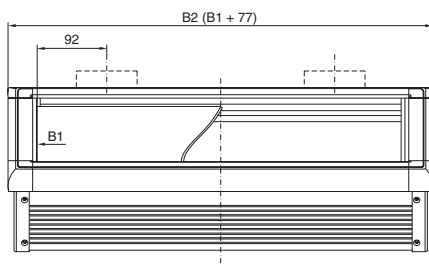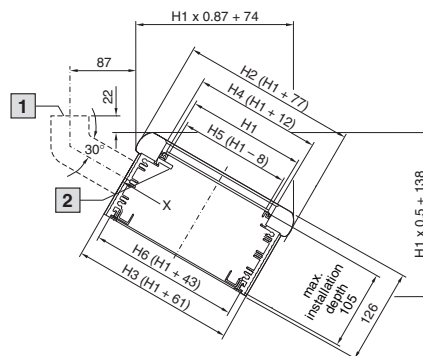
1 Enclosure duct connector
2 CP 6058.XXX: M4
CP 6053.XXX: M5

B = Width

1.5 Command Panel VIP 6000
4.1 Keyboard housing Page 166

2 Installation depth 44 mm

Front frames
Wide
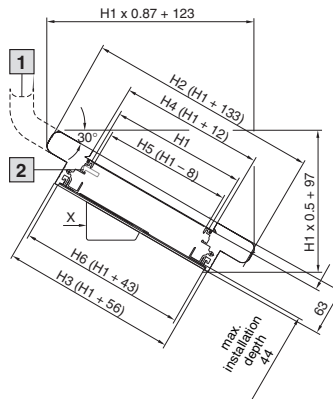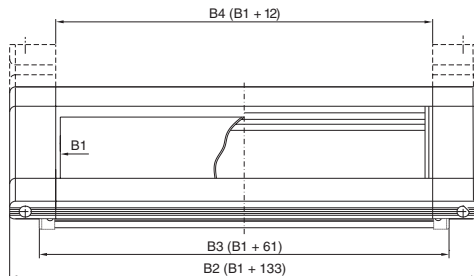
B4 (B1 + 12)

B1

B3 (B1 + 61)

B2 (B1 + 133)

H1 x 0.87 + 123

1

H2 (H1 + 133)

H4 (H1 + 12)

2

30°

H5 (H1 – 8)

H1

H1 x 0.5 + 97

X

H6 (H1 + 43)

H3 (H1 + 56)

63

max. installation depth 44

1 Frame connector, rigid/adjustable
2 CP 6058.XXX: M4
CP 6053.XXX: M5

Narrow

B2 (B1 + 77)

B1 – 27

B1

B4 (B1 + 12)

H1 x 0.87 + 74

131

66

1

H2 (H1 + 77)

H4 (H1 + 12)

H5 (H1 – 8)

H1

19

H1 x 0.5 + 86

2

X

30°

H6 (H1 + 43)

H3 (H1 + 56)

max. installation depth 44

1 Enclosure bar connector
2 CP 6058.XXX: M4
CP 6053.XXX: M5

Combined

B2 (B1 + 88)

B1 – 27

B1

B4 (B1 + 12)

H1 x 0.87 + 74

131

66

1

H2 (H1 + 77)

H4 (H1 + 12)

H5

H1

19

H1 x 0.5 + 86

2

X

30°

H6 (H1 + 43)

H3 (H1 + 56)

max. installation depth 44
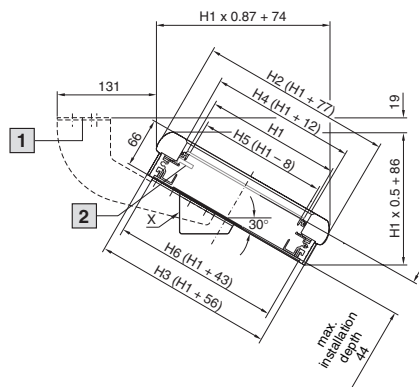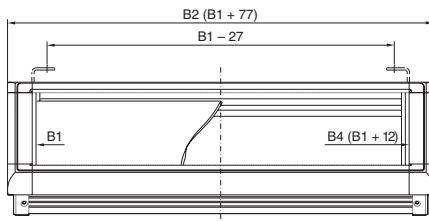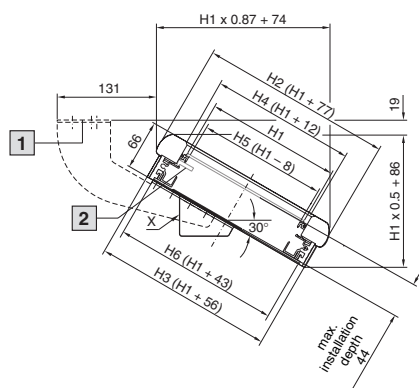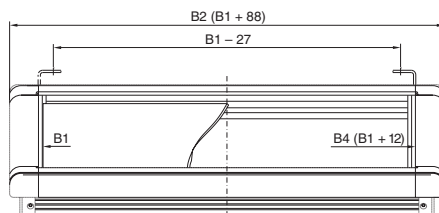
1 Enclosure bar connector
2 CP 6058.XXX: M4
CP 6053.XXX: M5

Width dimensions:

B1 = Width of the front panel
B2 = Overall width
B3 = Enclosure width
B4 = Clearance width between front frames
B6 = Width of the rear panel
B7 = Distance between rear panel holes, width

Height dimensions:

H1 = Height of the front panel
H2 = Overall height
H3 = Enclosure height
H4 = Clearance height between front frames
H5 = Clearance height between enclosure sections
H6 = Height of rear panel
H7 = Distance between rear panel holes, width

X = Cross-section of cable tube connection

68

33

Keyboard housing

1.5. Command Panel VIP 6000

4.1 Keyboard housing Page 166

3 **Depth 27 mm**

Front frame, wide,
with cable entry grommet

B4 (B1 + 12)

Ø 29

B7 (B1 + 21)
B6 (B1 + 54)
B2 (B1 + 133)

1

30°

H2 (H4 + 121)
H6 (H4 + 42)
H7 (H4 + 9)
H4

$H1 \times 0.5 + 80$

27

$H1 \times 0.87 + 112$

1 Frame connector,
rigid/adjustable

4 **Depth 27 mm**

Front frame, wide,
for cable tube, flexible

B4 (B1 + 12)

B7 (B1 + 21)
B6 (B1 + 54)
B2 (B1 + 133)

1

30°

H2 (H4 + 121)
H6 (H4 + 42)
H7 (H4 + 9)
H4

$H1 \times 0.5 + 80$

X

27

$H1 \times 0.87 + 112$

1 Frame connector,
rigid/adjustable

5 **Support for keyboards**

Narrow front frame and
combined with cable entry grommet

87

31.5

31.5

1

494.5
498.5

1 Prepared for the support for mousepad,
vertically hinged SM 2383.020

1

45

43

290
210
19

1 Hinged frame connector

Rotation range

10°

30°

60°

Width dimensions:

B1 = Width of the front panel
B2 = Overall width
B3 = Enclosure width
B4 = Clearance width between
front frames
B6 = Width of the rear panel
B7 = Distance between rear panel holes,
width

Height dimensions:

H1 = Height of the front panel
H2 = Overall height
H3 = Enclosure height
H4 = Clearance height between
front frames
H5 = Clearance height between
enclosure sections
H6 = Height of rear panel
H7 = Distance between rear panel holes,
width

X = Cross-section of cable tube connection

68

33

1.5 Optipanel
2.1 Installation depth Page 173

1 50 mm
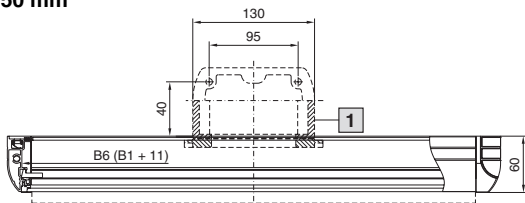
2 100 mm
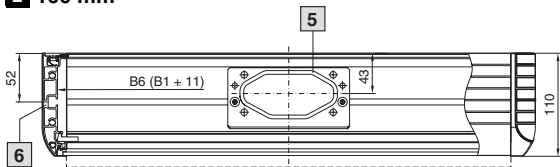
3 150 mm
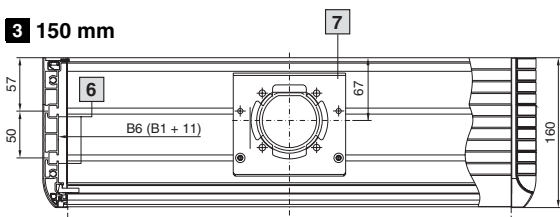
1	When preparing for rear support arm connection CP-L, ☐ 120 x 65 mm
2	Hinge
3	Cable tube
4	When preparing for keyboard housings
5	Prepared for CP-L, ☐ 120 x 65 mm
6	Channels for inserting the spring nuts M5
7	Prepared for CP-L, Ø 130 mm

Width dimensions:

B1 = Width of the front panel
B2 = Overall width
B3 = Clearance width between enclosure sections
B4 = Clearance width between the retaining claws of the mounting kit
B5 = Width of rear panel (B1 + 36)
B6 = Clearance width for assembly

Height dimensions:

H1 = Height of the front panel
H2 = Overall height
H3 = Clearance height between enclosure sections
H4 = Clearance height between the retaining claws of the mounting kit
H5 = Height of rear panel
H6 = Clearance height for assembly

1.5 Optipanel
2.2 Front design Page 174

Front panel screw-fastened from the inside
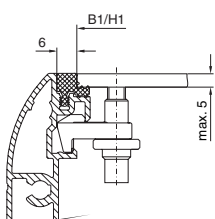
Front panel screw-fastened from the outside
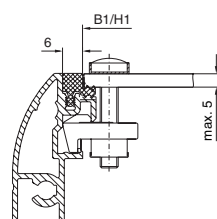
Cross member
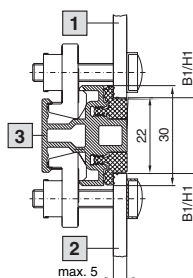
Sealing bar
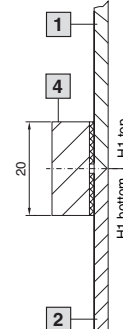
1	Front panel 1
2	Front panel 2
3	Cross member
4	Sealing bar

Industrial enclosures

Operating housing/keyboard housing

1.5 Command Panel VIP 6000/Optipanel

3.6/2.3 Support arm/wall and pedestal connection Page 164/175

CP-S
For installation depths 100/150 mm
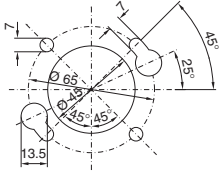
External mounting of support arm connections, see page 192.

CP-L, ☐ 120 x 65 mm
For installation depths 100/150 mm
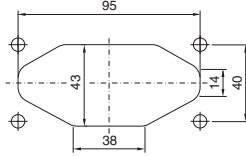
External mounting of support arm connections, see page 200.

CP-L, Ø 130 mm
For installation depth 150 mm
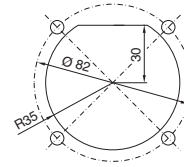
External mounting of support arm connections, see page 200.

1.5 Optipanel

2.5 Keyboard housing Page 177

1 Installation depth 50 mm
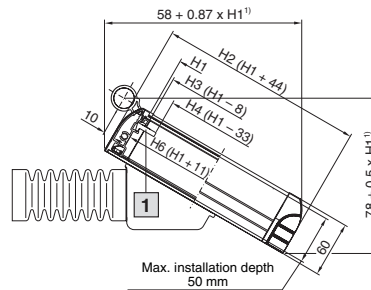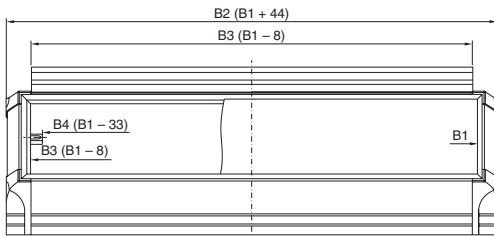
1 CP 6053.XXX: M5
  CP 6058.XXX: M4

[1] Applies to a tilting angle of 30° to the horizontal.

2 Installation depth 100 mm
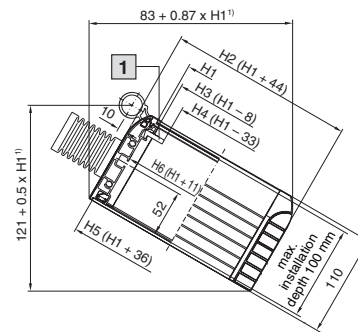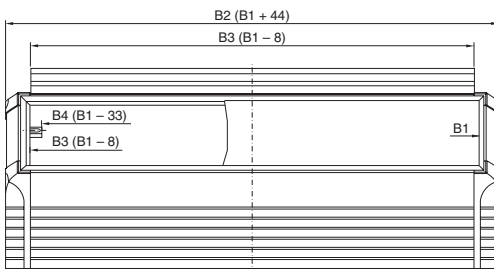
Cross-section
Cable duct connection

3 Support for keyboards
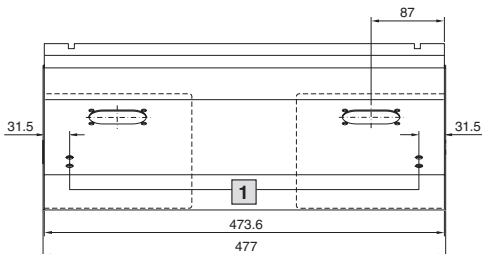
Narrow front frame and combined with cable entry grommet

1 Hinged frame connector

Rotation range

1 Prepared for the support for mousepad, vertically hinged SM 2383.020

Width dimensions:
B1 = Width of the front panel
B2 = Overall width
B3 = Clearance width between enclosure sections
B4 = Clearance width between the retaining claws of the mounting kit

B5 = Width of rear panel (B1 + 36)
B6 = Clearance width for assembly

Height dimensions:
H1 = Height of the front panel
H2 = Overall height
H3 = Clearance height between enclosure sections

H4 = Clearance height between the retaining claws of the mounting kit
H5 = Height of rear panel
H6 = Clearance height for assembly

1.5 Command Panel VIP 6000/Optipanel

Rear cooling panel Page 165/176

VIP 6000   **Optipanel**   **VIP 6000**   **Optipanel**
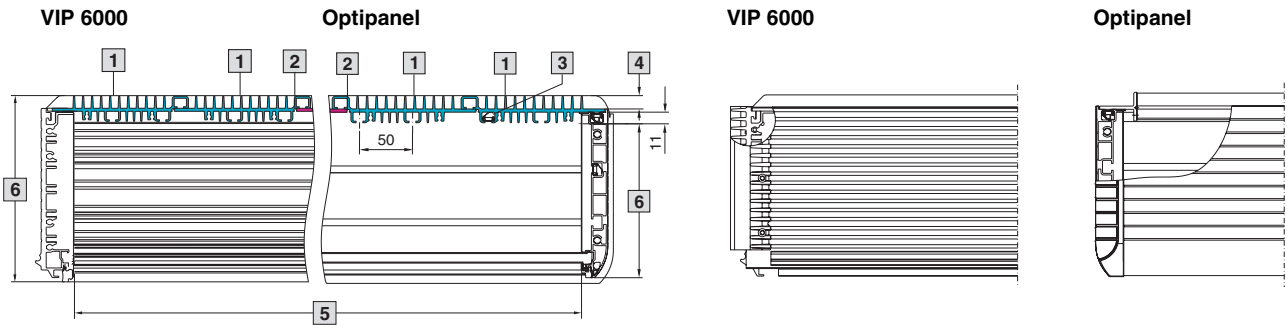
1 Rear cooling panel section, unless otherwise specified the cooling fins are arranged vertically.

2 Width compensating panel, mounted in the centre with an even number of heat sinks, or on the right with an uneven number. By rotating the entire rear panel through 180°, this position may be modified individually.

3 Spring nut M5, CP 6108.000 for interior installation on screw channels.

4 The total depth of the enclosure is increased by 13 mm.

5 Front panel width for determining the cooling modules and compensating panel.

6 Installation depth is reduced by 11 mm.

Recommendation:
The minimum front panel width for the installation of at least 2 heat sink sections is 240 mm and should not be undercut, if possible.

1.5 Optipanel

Keyboard housing connection Page 168

1 2 Hinged frame connector with Optipanel keyboard housing
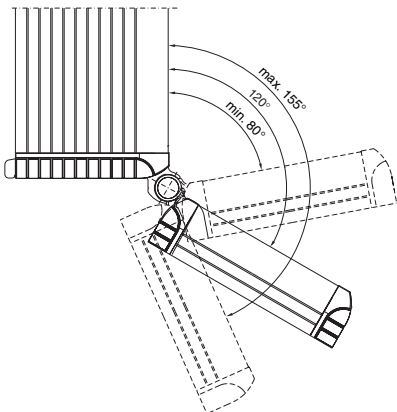
Tilting angle infinitely ajustable from 80° to 155°.

3 Hinged frame connector with support for keyboards
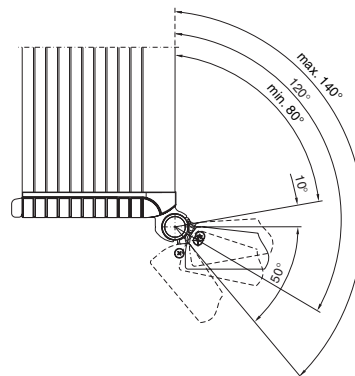
Tilting angle infinitely ajustable from 80° to 140°.

Minimum front panel width (B1):
Depending on the
● Installation depth of the operating housing
● With or without keyboard housing
● Position of the support arm connection

Keyboard housing (see page 177)	Position of the support arm connection (see page 175)	Installation depth of operating housing (see page 173)		
		50 mm	100 mm	150 mm
		Minimum front panel width (mm)		
0 without	**0** to **8** top, bottom or rear	160 (265)	150	150
1 and **2** with	**1, 4, 7, 8** top or rear			
	2, 3, 5, 6 at bottom	378[1]	339[1]	339[1]

( ) Figures in brackets:
Only with the hinged rear panel combination (see page 176)
version **2** and **4** with connection rear panel (see page 175) version **7** and **8.**

[1] Smaller front panel widths for asymmetrical support arm connection available on request.

Industrial enclosures

Operating housings

1.5 Optipanel

Standard sizes Page 178

Prepared for CP-L, ▭ 120 x 65 mm
for CP 6380.000
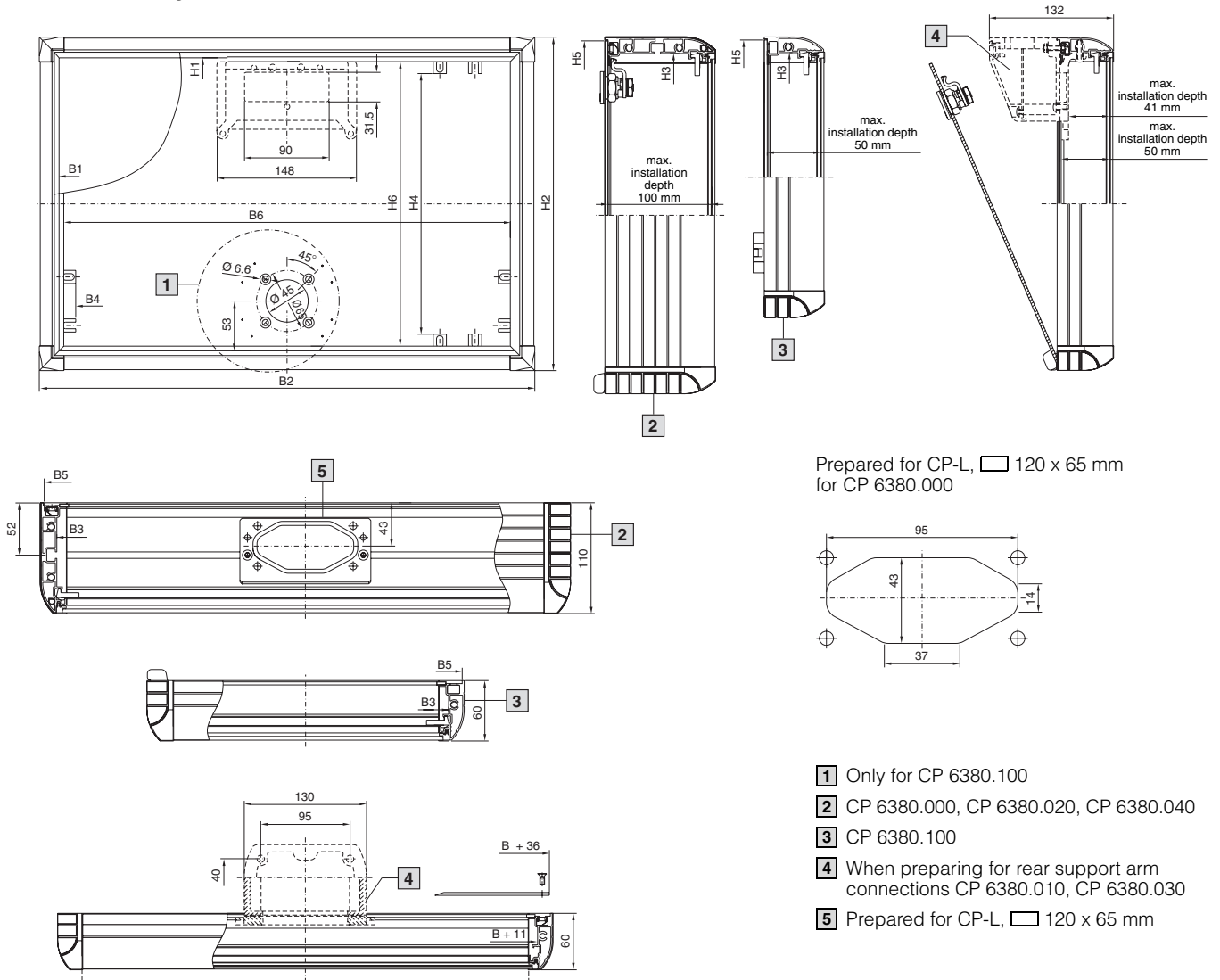
1 Only for CP 6380.100

2 CP 6380.000, CP 6380.020, CP 6380.040

3 CP 6380.100

4 When preparing for rear support arm
connections CP 6380.010, CP 6380.030

5 Prepared for CP-L, ▭ 120 x 65 mm

Model No. CP	6380.100	6380.000	6380.010	6380.020	6380.030	6380.040
B1 = Width of front panel mm	270	482.6	430	430	482.6	482.6
H1 = Height of front panel mm	234	310.3	343	343	354.8	354.8
Max. installation depth mm	50	100	50	100	50	100
Overall depth mm	60	110	60	110	60	110
B2 = Overall width mm	314	527	475	475	527	527
B3 = Clearance width between enclosure sections mm	281	494	441	441	494	494
B4 = Clearance width between the retaining claws of the mounting kit mm	237	450	397	397	450	450
B5 = Width of rear panel mm	306	519	466	466	519	519
B6 = Clearance width for assembly mm	262	475	422	422	475	475
H2 = Overall height mm	278	354	387	387	399	399
H3 = Clearance height between enclosure sections mm	245	321	354	354	365	365
H4 = Clearance height between the retaining claws of the mounting kit mm	201	277	310	310	321	321
H5 = Height of rear panel mm	270	346	379	379	391	391
H6 = Clearance height for assembly mm	226	302	335	335	347	347

1.5 Compact Panel
Page 183

Mounting cutouts

CP-L, ☐ 120 x 65 mm   CP-S

[1] Channels for M5 spring nuts

[2] Alternative max. Ø 55
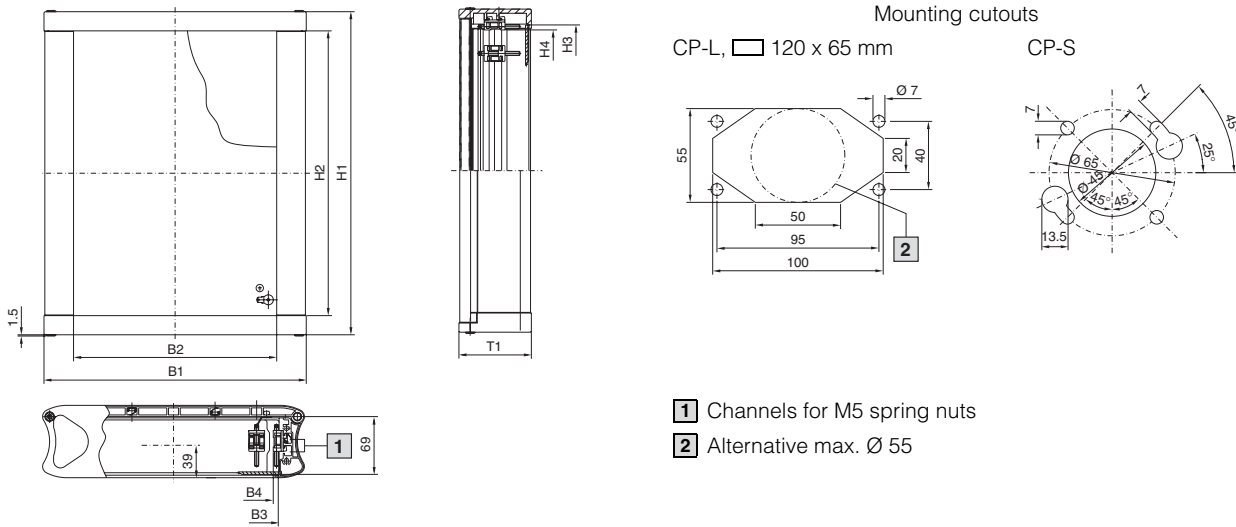
Model No. CP (with support arm connection CP-S)	6340.000	6340.100	6340.200	6340.300	6340.400
Model No. CP[1] (with support arm connection CP-L, ☐ 120 x 65 mm)	6340.010	6340.110	6340.210	6340.310	6340.410
Model No. CP[1] (without support arm connection)	6340.020	6340.120	6340.220	6340.320	6340.420
Width (B1) in mm	241	241	241	315	315
Height (H1) in mm	238	388	521	238	388
Depth (T1) in mm	87	87	87	87	87
B2 = Enclosure clearance width	170	170	170	244	244
B3 = Front panel width	178	178	178/4 U	252	252
B4 = Clearance width between screw clamps	164	164	164	238	238
H2 = Enclosure clearance height	192	342	475	192	342
H3 = Front panel height	200	350	482.6/19″	200	350
H4 = Clearance height between screw clamps	186	336	469	186	336

[1] Delivery time approx. 2 weeks.

1.5 Command panel housing with door
based on AE Page 184

Top view

[1] Welded nut M8 for the attachment of mounting plates or support rails
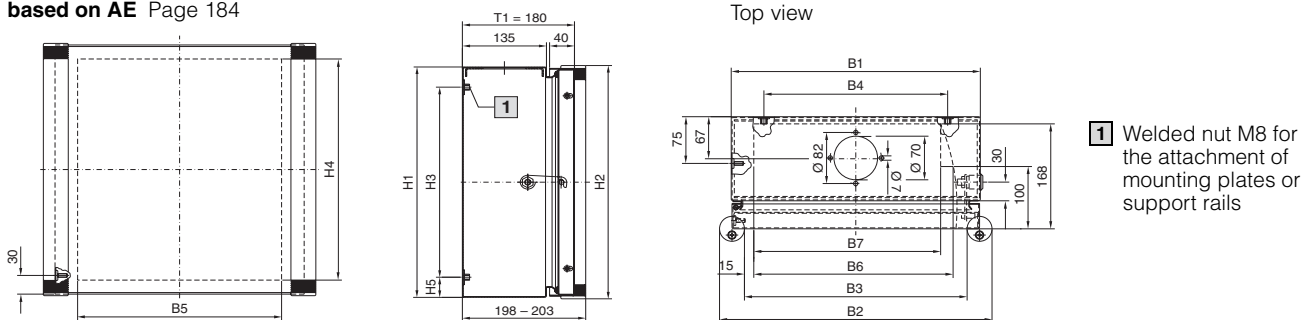
Model No. CP	1	6534.000	6535.000	6537.000	6536.000	6538.000	6544.000
Width (B1) in mm	Packs of	300	300	300	400	400	500
Height (H1) in mm		200	300	400	300	400	500
Depth (T1) in mm		180	180	180	180	180	180
B2 = Enclosure width with handle strips		338	338	338	438	438	538
B3 = Clearance opening, front		258	258	258	358	358	458
B4 = Spacing of mounting plate attachment		260	215	215	295	295	410
B5 = Max. front cutout, width		227	227	227	327	327	427
B6 = Hinged width for depth 100 mm		220	220	220	320	320	420
B7 = Hinged width for depth 168 mm		200	200	200	300	300	400
H2 = Enclosure height with handle strips		205	305	405	305	405	505
H3 = Spacing of mounting plate attachment		122	250	350	250	330	445
H4 = Max. front cutout, height		155	255	355	255	355	455
H5 = Distance from base – mounting plate attachment		39	25	25	25	35	27.5

Industrial enclosures

Operating housings

1.5 Operating housings
based on AE Page 185

Top view
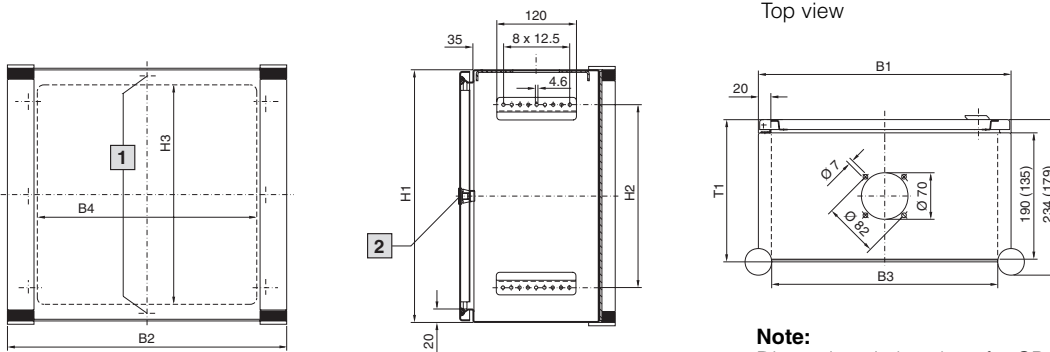
1 Only for CP 6532.200 and CP 6533.200

2 For CP 6532.200 2 cams

Note:
Dimensions in brackets for CP 6540.200.

Model No. CP	1	6540.200[1]	6531.200	6530.200	6532.200	6533.200
Width (B1) in mm	Packs of	300	380	380	500	600
Height (H1) in mm		200	300	380	500	380
Depth (T1) in mm		155	210	210	210	210
B2 = Enclosure width with handle strips		340	420	420	540	640
B3 = Clearance opening, front		260	340	340	460	560
B4 = Cutout, in enclosure		250	330	330	450	550
H2 = Hole distance of side mounting angles		75	175	275	375	275
H3 = Cutout, in enclosure		150	250	330	450	330

[1] Support arm connection and door hinge at the bottom.

1.5 Operating housing
based on AE with display panel front Page 186

Section A – A

Section B - B
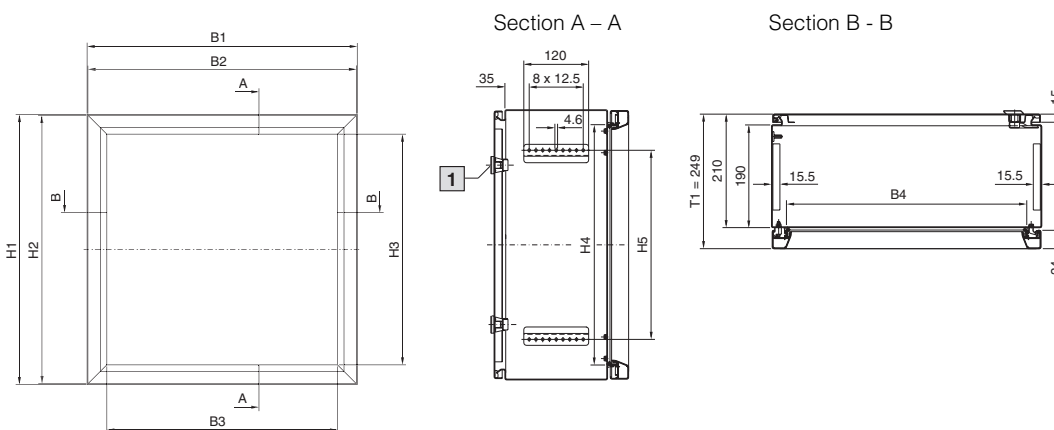
1 For CP 6442.500 only 1 cam in the centre.

Model No. CP	1	6442.500	6462.500	6552.500	6662.500
Width (B1) in mm	Packs of	380	380	500	600
Height (H1) in mm		380	600	500	600
Depth (T1) in mm		249	249	249	249
B2 = Width of display panel front		379	379	499	599
B3 = Clearance opening, front		309	309	429	529
B4 = Width of front panel		323	323	443	543
H2 = Height of display panel front		377	597	497	597
H3 = Clearance opening, front		307	527	427	527
H4 = Height of front panel		321	541	441	541
H5 = Hole distance of side mounting angles		250	450	350	450

1.5 Pedestal
Page 232

for Command Panel

for IW worktops

B – B

Cover for cable entry
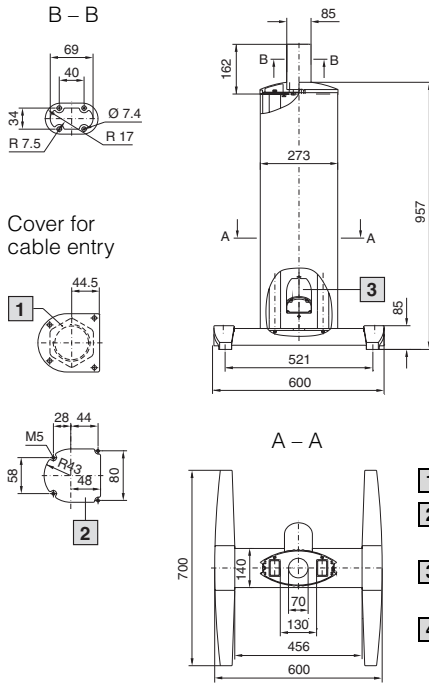
1 Max. PG 48/M50

2 Cross-section cable entry

3 Cutout only for CP 6141.100

4 Cable conduit adaptor only for CP 6141.100
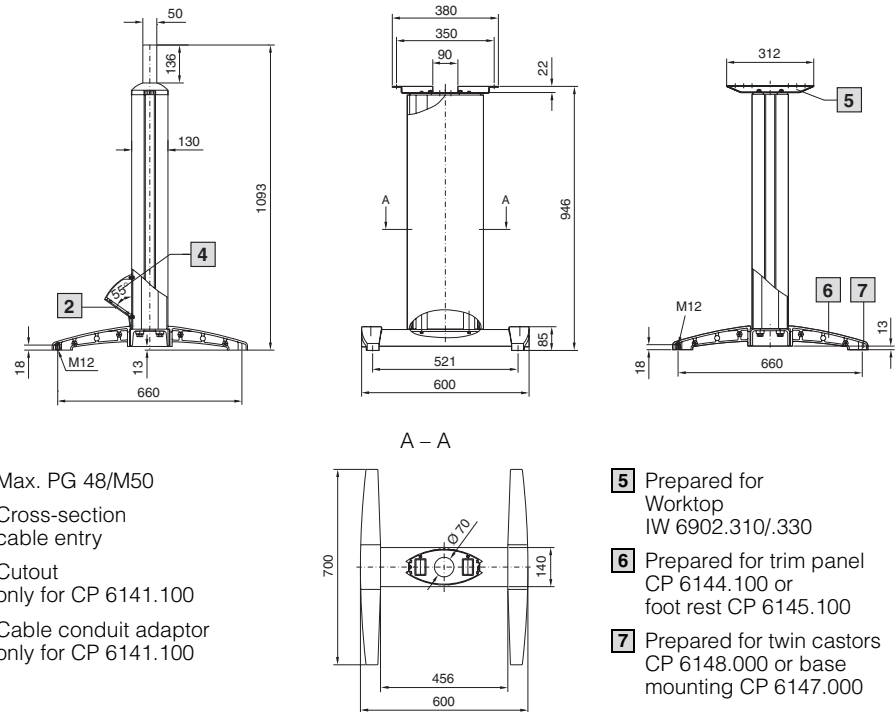
5 Prepared for Worktop IW 6902.310/.330

6 Prepared for trim panel CP 6144.100 or foot rest CP 6145.100

7 Prepared for twin castors CP 6148.000 or base mounting CP 6147.000

A – A

A – A

1.5 Pedestal mobile
Page 235

View A

CP 6136.500

CP 6136.000

View A

C 30/15 x 100 lg

1.5 Pillar, small
Page 235

View A

Industrial enclosures

Stand systems
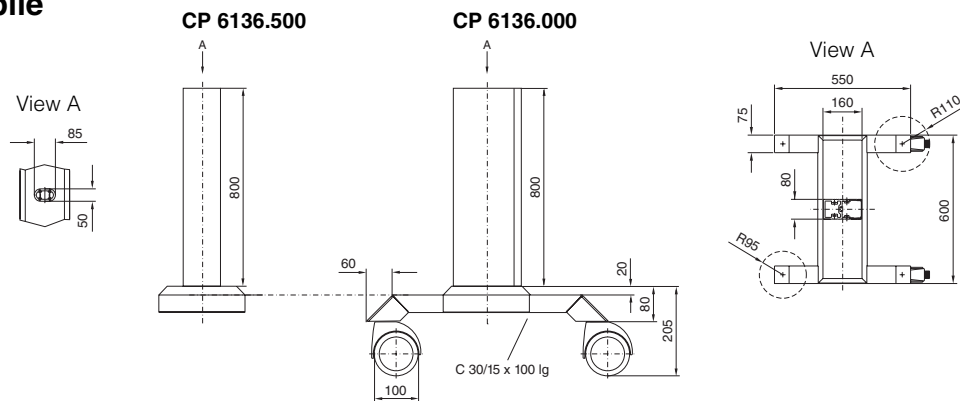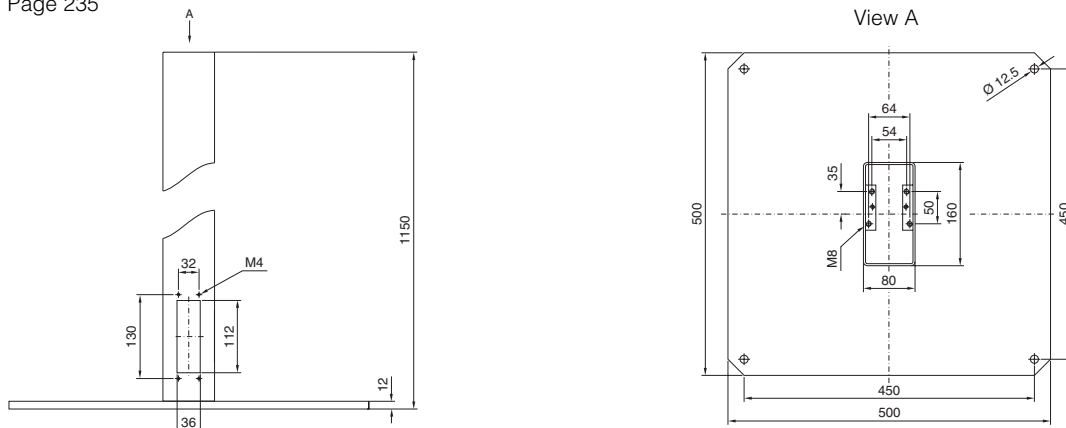
1.5 Cross member/base plate
Page 233/234

Cross member with cast feet

Pedestal base plate, large

| 1 | 2 |
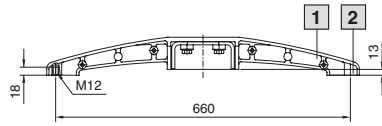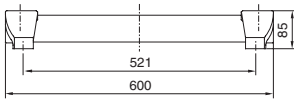
1 Prepared for
trim panel CP 6144.100 or
foot rest CP 6145.100

2 Prepared for
twin castors CP 6148.000
or base mounting CP 6147.000
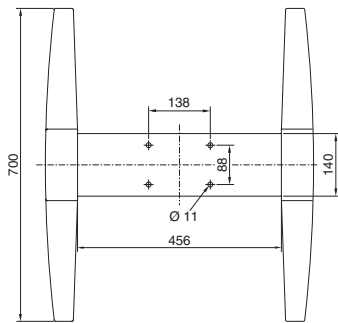
View A

View B

1 510 for floor anchoring
with KL 1580.000, KL 1590.000

400 for floor anchoring
with KL 1580.000, KL 1590.000

3 Cutout for CP 6137.035

4 Cutout for CP 6137.535
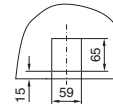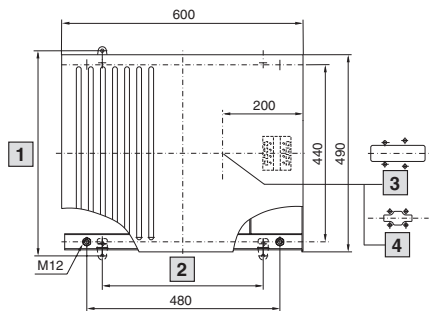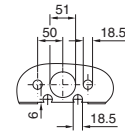
1.5 Pillar
Page 236

Model No. CP	A	B	C	D
6214.XX0	140	200	280	120
6220.XX0	200	300	400	180

CP 6170.000   CP 6522.0X0   CP 6501.110   CP 6501.160

CP 6520.0X0   CP 6501.110   CP 6110.000   CP 6160.000   CP 6521.0X0   CP 6501.150
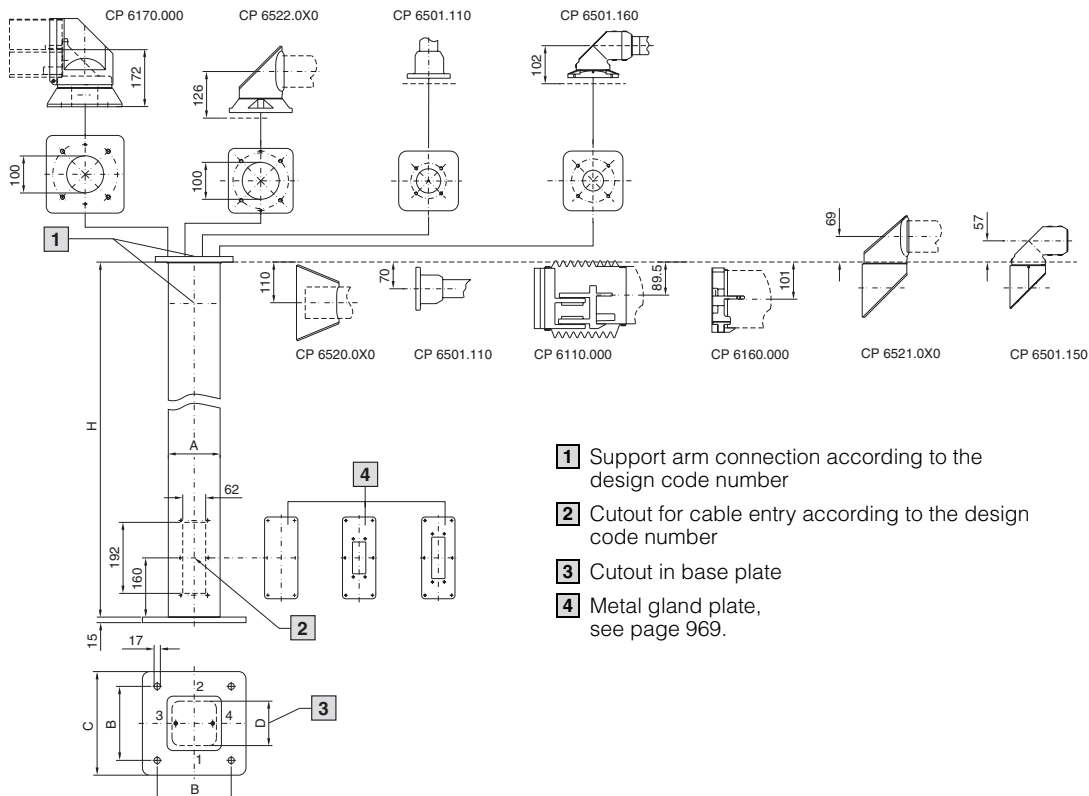
1 Support arm connection according to the
design code number

2 Cutout for cable entry according to the design
code number

3 Cutout in base plate

4 Metal gland plate,
see page 969.

1.5 Enclosures
Page 245

Supply includes	Version	Material	Colour RAL	Model No. IW 6900.000 / H mm 900	6900.100 / 900	6900.200 / 900	6900.400 / 900	6900.410 / 900	6900.600 / 900	6901.000 / 1000	6901.100 / 1000	6901.200 / 1000
Enclosures	Frame construction with side panels, screw-fastened from the inside	Sheet steel, 1.5 mm	7035 textured									
	Base with gland plate for cable entry			■	■	■	■	■	■	■	■	■
	Levelling feet to compensate for floor irregularities											
Trim panel, top	To finish off the enclosure at the top	Plastic to UL 94-V0	7035/7015						■		■	■
Keyboard drawer	Drawer housing	1.5 mm sheet steel	7035									
	Extension piece with cable support, hinged, plus pull-out mouse-pad and keyboard cradle										■	■
	Trim panel with recessed handle, folded as handrest, with lock no. 3524 E	Plastic to UL 94-V0	7035/7015/9006									
Drawer section	Drawer tray, fitted with drawer trim panel and telescopic slides	Sheet steel, 1.5 mm	7035				■					
	Extension piece with cable support, hinged, plus pull-out mouse-pad	Sheet steel, 1.5 mm	7035					■				
	Drawer trim panel with handle recess, with lock no. 3524 E	Plastic to UL 94-V0	7035/7015/9006				■	■				
Designer door	Vertical bars with locking rod and double-bit insert, hinged on right-hand side	Aluminium section	7035	■	■		■	■		■	■	■
	Door or installation plate, folded	Sheet steel, 1.5 mm	7015									
Glazed door	Vertical decorative trim panels	Plastic to UL 94-V0	7035									
	Pane with screen-printed mask	Safety glass 4.0 mm	7015			■						
Drawer front	Drawer tray, slotted all round for cross member retainers, 1x with low trim piece, 2x with high trim piece, each with handle recess, telescopic slides	Sheet steel, 1.5 mm	7035/7015/9006						■			
Worktop	Solid	Chipboard, plastic-laminated on both sides, with edge strip	similar to 7035 Edge strip: similar to 7015								■	
Roof	Edged, screw-fastened from the inside	Sheet steel, 1.5 mm	7035 textured									■
Rear panel	Screw-fastened from the inside	Sheet steel, 1.5 mm	7035 textured	■					■			
	Screw-fastened from the outside									■		
Rear door	With locking rod and double-bit, insert, r/h hinge	Sheet steel, 1.5 mm	7035 textured		■	■	■	■			■	■

Industrial enclosures

Industrial workstations

1.5 Enclosures
Page 245/246/250

Enclosure
IW 6901.100
IW 6901.200
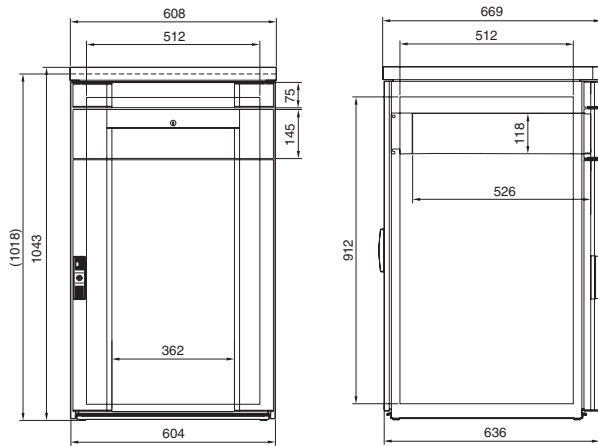
Dimensions in brackets for IW 6901.200.

Enclosure
IW 6900.000
IW 6901.000
IW 6900.100
IW 6900.200
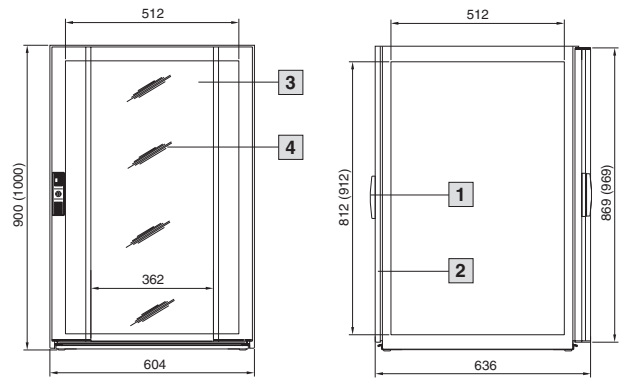
Dimensions in brackets for IW 6901.000.

	Rear panel for IW 6900.100 and IW 6900.200		Design door for IW 6900.000, IW 6901.000 and IW 6900.100
1		**3**	
2	Rear panel for IW 6900.000 and IW 6901.000	**4**	Glazed door for IW 6900.200

Enclosure
IW 6900.400
IW 6900.410
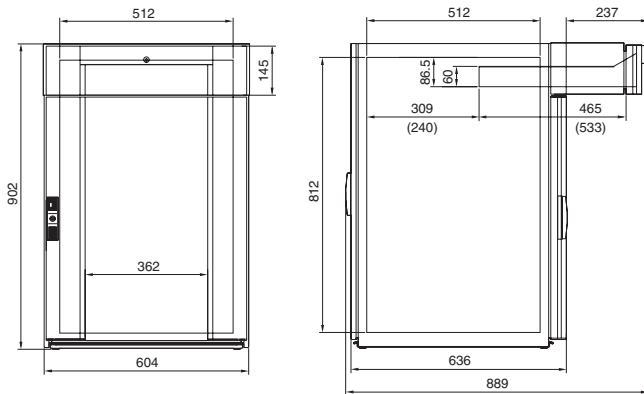
Dimensions in brackets for IW 6900.410.

Enclosure
IW 6900.600
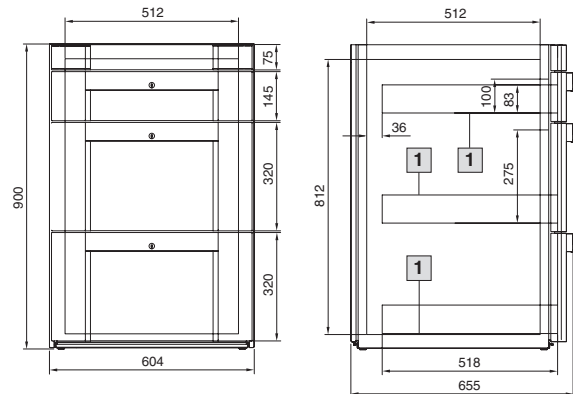
1 Shelves with punchings for cross members

Monitor housing
IW 6902.500
IW 6902.510
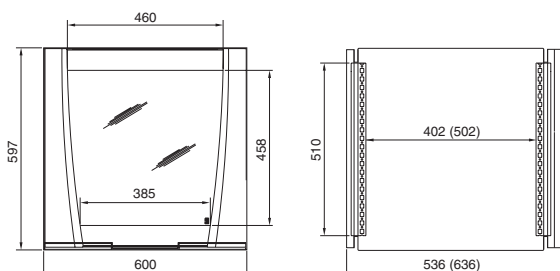
Dimensions in brackets only for IW 6902.XXX.

1.5 Worktops
Page 247 – 249

Roof
IW 6902.400
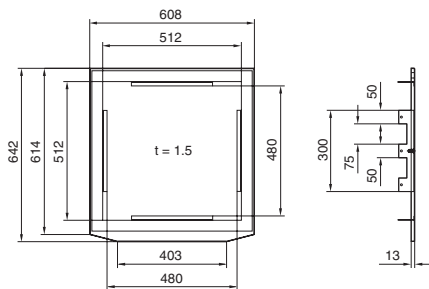
Worktop, without handle,
IW 6902.100
IW 6902.110
IW 6902.120
IW 6902.130
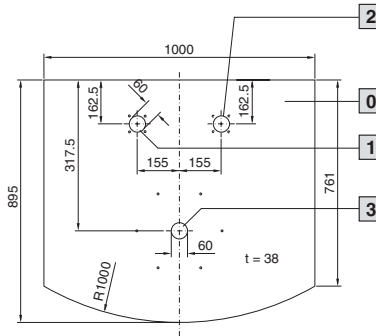
Worktop, with handle,
IW 6902.000
IW 6902.010
IW 6902.020
IW 6902.030
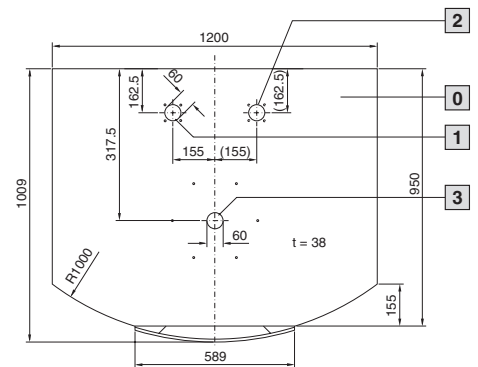
Worktop
IW 6902.300
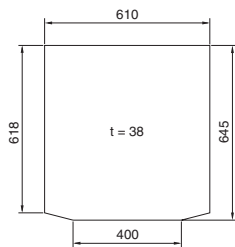
0 Without mounting cutout for IW 6902.100

1 Mounting cutout, l/h (left hand) side, for enclosure attachment, only for CP 6902.120

2 Mounting cutout, r/h (right hand) side, for enclosure attachment, only for CP 6902.130

3 Mounting cutout prepared for turntable, only for CP 6902.110

0 Without mounting cutout for IW 6902.000

1 Mounting cutout, l/h side, for enclosure attachment, only for CP 6902.020

2 Mounting cutout, r/h side, for enclosure attachment, only for CP 6902.030

3 Mounting cutout prepared for turntable, only for CP 6902.010

Worktop
IW 6902.310
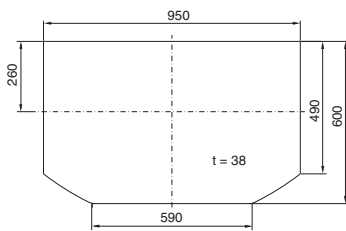
Worktop
IW 6902.320
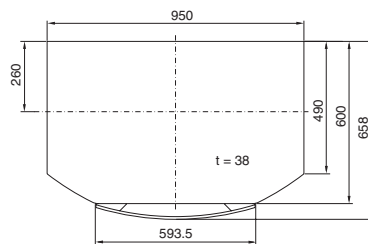
Worktop
IW 6902.200
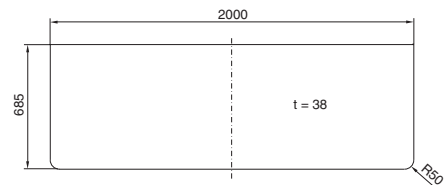
Worktop
IW 6902.210
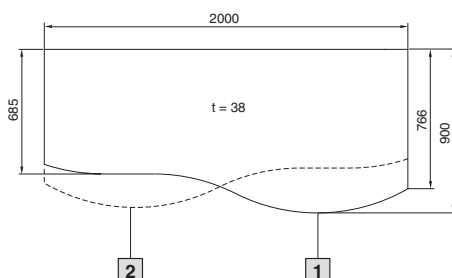
1 IW 6902.210
2 IW 6902.220 (arranged as mirror)

C

1.

Industrial enclosures

PC enclosure systems

1.5 Based on TS 8
with keyboard drawer Page 257

With drawer
PC 8366.000, PC 8368.000
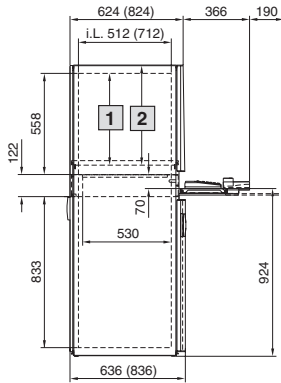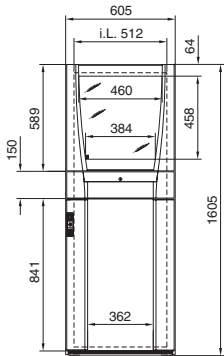
With mounting compartment, small and drawer
PC 8366.300
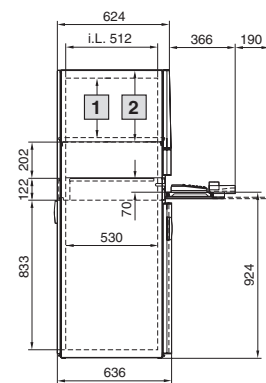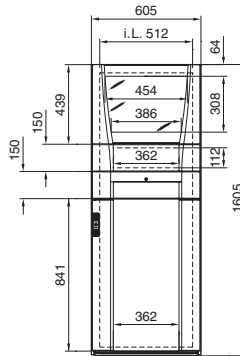
1 max. 505, adjustable on a 25 mm pitch pattern

2 max. 549, adjustable on a 25 mm pitch pattern

1 max. 355,
adjustable on a
25 mm pitch pattern

2 max. 397,
adjustable on a
25 mm pitch pattern

With mounting compartment, large and drawer
PC 8366.400
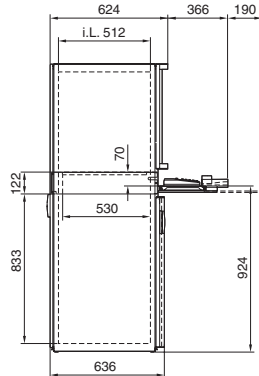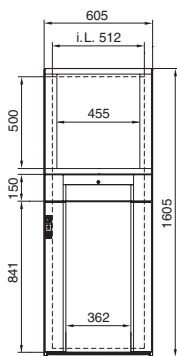
i.L. = Clearance width

				Model No. PC		
	Depth 636 mm			**8366.000**	**8366.300**	**8366.400**
	Depth 836 mm			**8368.000**	–	–
Supply includes	**Design**	**Material**	**Colour RAL**			
Enclosure	Frame construction with side panels and roof secured from the inside	Sheet steel 1.5 mm	7035 textured	▪	▪	▪
	Gland plates, three-part	Sheet steel 1.5 mm	Zinc-plated			
Rear door	With locking rod and double-bit insert, hinged on the right-hand side	Sheet steel 2.0 mm	7035 textured	▪	▪	▪
Glazed door, top	With support frame latched from the inside[1], r/h hinge	Sheet steel 1.5 mm	7015	▪	▪	
	Vertical decorative trim panels	Plastic to UL 94-V0	7035			
	Pane with screen-printed mask	Safety glass 4.0 mm	7015			
Mounting compartment, large, top	Vertical bars, latched from the inside[1], r/h hinge	Aluminium section	7035			▪
	Installation plate	Sheet steel 1.5 mm	7015			
	Trim strip top/bottom	Plastic to UL 94-V0	7035			
Component shelf for monitor	Slotted, permanently installed	Sheet steel 1.5 mm	7015	▪	▪	
Drawer for keyboard	Enclosure	Sheet steel 1.5 mm	7035	▪	▪	▪
	Keyboard extension piece with cable support, hinged mousepad extension piece and keyboard cradle	Sheet steel 1.5 mm	7035			
	Trim panel with recessed handle, folded as handrest, with lock no. 3524 E	Plastic to UL 94-V0	7035/7015/9006			
Mounting compartment, small	R/h hinge, screw-fastened from the inside on left, folded installation plate	Sheet steel 1.5 mm	7015		▪	
	Decorative side trim panels	Plastic to UL 94-V0	7035			
Bottom door	Vertical bars with locking rod and double-bit insert, hinged on right-hand side	Aluminium section	7035	▪	▪	▪
	Door or installation plate folded	Sheet steel 1.5 mm	7015			

[1] With unlatching for glazed door, top.

1.5 Based on TS 8
with folding keyboard or desk section Page 258

With fold-out tray
PC 8366.100, PC 8368.100
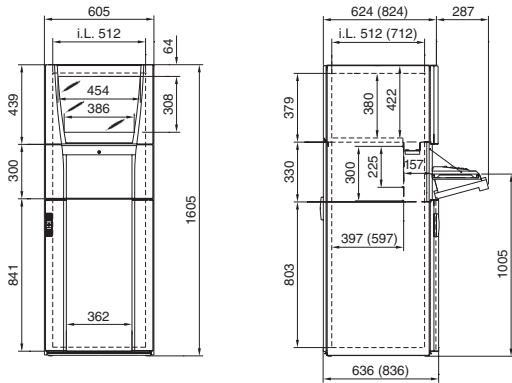
With desk section
PC 8366.200
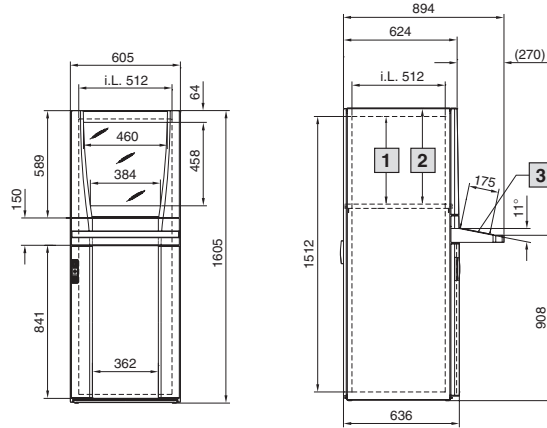
1 max. 505, adjustable on a 25 mm pitch pattern

2 max. 549, adjustable on a 25 mm pitch pattern

3 max. installation area 540 x 175 mm

i.L. = Clearance width

Supply includes	Design	Material	Colour RAL	Model No. PC	
				Depth 636 mm **8366.100**	**8366.200**
				Depth 836 mm **8368.100**	**–**
Enclosure	Frame construction with side panels and roof secured from the inside	Sheet steel 1.5 mm	7035 textured	▪	▪
	Gland plates, three-part	Sheet steel 1.5 mm	Zinc-plated		
Rear door	With locking rod and double-bit insert, r/h hinge	Sheet steel 2.0 mm	7035 textured	▪	▪
Glazed door, top	With support frame latched from the inside[1], r/h hinge	Sheet steel 1.5 mm	7015	▪	▪
	Vertical decorative trim panels	Plastic to UL 94-V0	7035		
	Pane with screen-printed mask	Safety glass 4.0 mm	7015		
Component shelf for monitor	Slotted, permanently installed	Sheet steel 1.5 mm	7015	▪	▪
Fold-out tray for keyboard	Enclosure with mouse holder and cutout in the rear panel, width 482.6 mm (19″) x height 4 U, for rear attachment	Sheet steel 1.5 mm	7035	▪	
	Trim panel hinged at the bottom, with 2 retaining cords, with lock no. 3524 E	Plastic to UL 94-V0	7035/7015/9006		
	Keyboard support with mousepad extension piece and 2 nylon bands for keyboard	Sheet steel 1.5 mm	7035		
Desk section	Enclosure with removable cover top and bottom	Sheet steel 1.5 mm/2.0 mm	7035		▪
	Trim strip, top and handle strip	Plastic to UL 94-V0	7035/7015/9006		
Bottom door	Vertical bars with locking rod and double-bit insert, r/h hinge	Aluminium section	7035	▪	▪
	Door or installation plate folded	Sheet steel 1.5 mm	7015		

[1] With unlatching for top glazed door.

Industrial enclosures

PC enclosure systems

1.5 Based on ES
with keyboard drawer Page 259

With mounting compartment, large and drawer
PC 4603.603
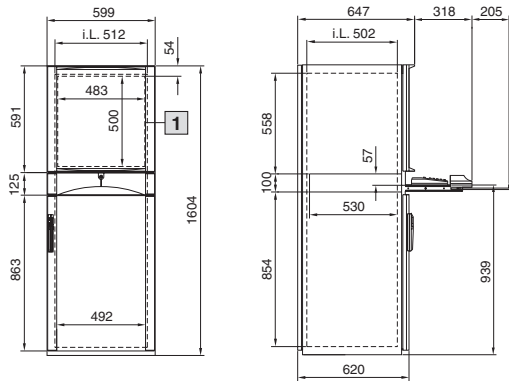
1 External surface
available for population

i.L. = Clearance width

With drawer
PC 4603.703, PC 4609.703
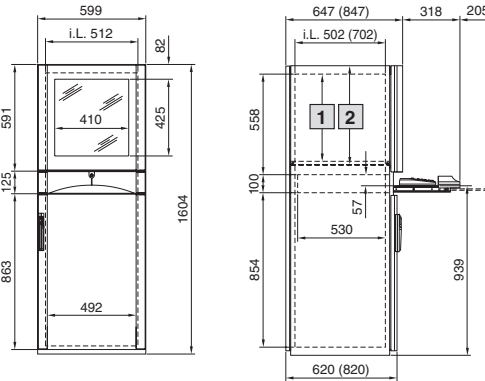
1 max. 505,
adjustable
on a 25 mm
pitch pattern

2 max. 547,
adjustable
on a 25 mm
pitch pattern

With mounting compartment, small and drawer
PC 4603.913
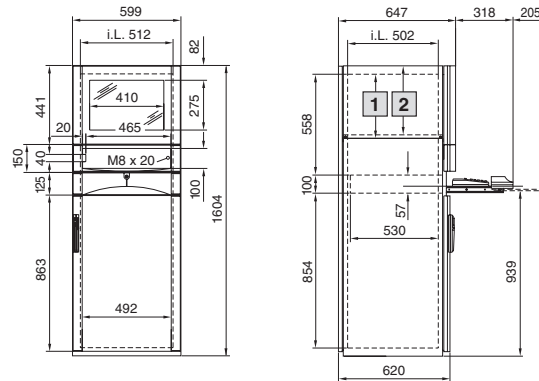
1 max. 355,
adjustable
on a 25 mm
pitch pattern

2 max. 397,
adjustable
on a 25 mm
pitch pattern

Supply includes	Design	Material	Colour RAL	PC 4603.603	PC 4603.703 PC 4609.703	PC 4603.913
Enclosure	Solid, open at bottom	Sheet steel 1.5 mm	7035 textured	■	■	■
	Gland plates, three-part	Sheet steel 1.5 mm	Zinc-plated			
Rear door	With locking rod and double-bit insert, r/h hinge	Sheet steel 2.0 mm	7035 textured	■	■	■
Mounting compartment, large, top	Vertical bars, latched from the inside[1], hinged on right-hand side	Aluminium section	5018	■		
	Folded installation plate	Sheet steel 1.5 mm	7035			
	Trim strip top/bottom	Plastic to UL 94-V0	7035			
Glazed door top	Vertical bars, latched from the inside[2], r/h hinge	Aluminium section	5018		■	■
	Trim strip top/bottom	Plastic to UL 94-V0	7035			
	Pane with screen-printed mask	Safety glass 4.0 mm	7015			
Component shelf for monitor	Slotted, permanently installed	Sheet steel 1.5 mm	7035		■	■
Drawer for keyboard	Enclosure	Sheet steel 1.5 mm	7035	■	■	■
	Keyboard extension piece with 1 pair of telescopic slides	Sheet steel 1.5 mm	7035			
	Trim panel with recessed handle, folded as handrest, with lock no. 3524 E	Plastic to UL 94-V0	7035			
	Decorative side trim panels	Aluminium section	5018			
	2 spacers for slimline keyboards	Cellular rubber				
	[1] With unlatching for top glazed door					
Mounting compartment, small	R/h hinge, screw-fastened from the inside on left, folded installation plate	Sheet steel 1.5 mm	7035			■
	Trim strip at the bottom	Plastic to UL 94-V0	7035			
	Vertical bars	Aluminium section	5018			
Bottom door	Vertical bars with locking rod, Ergoform-S handle and double-bit insert, r/h hinge	Aluminium section	5018	■	■	■
	Door or installation plate folded	Sheet steel 1.5 mm	7035			
	[2] With unlatching for top glazed door with desk section					

1.5 Based on ES
with folding keyboard or desk section Page 260

With fold-out tray
PC 4603.920, PC 4609.920
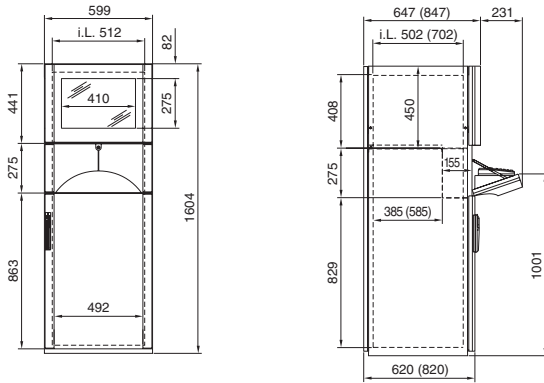
With desk section
PC 4603.704
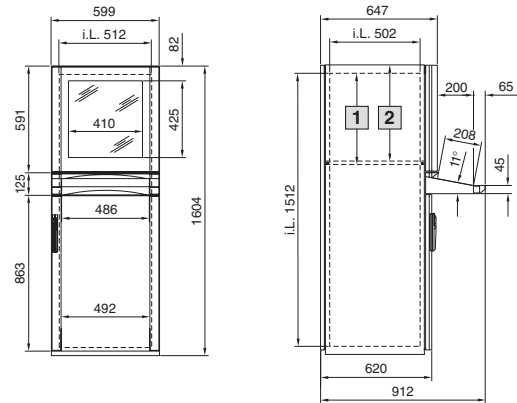
i.L. = Clearance width

1 max. 505, adjustable on a 25 mm pitch pattern

2 max. 547, adjustable on a 25 mm pitch pattern

Supply includes	Design	Material	Colour RAL	PC 4603.920 PC 4609.920	PC 4603.704
Enclosure	Solid, open at bottom	Sheet steel 1.5 mm	7035 textured	■	■
	Gland plates, three-part	Sheet steel 1.5 mm	Zinc-plated		
Rear door	With locking rod and double-bit insert, r/h hinge	Sheet steel 2.0 mm	7035 textured	■	■
Glazed door, top	Curved outwards, vertical bars, latched on the inside[1], r/h hinge	Aluminium section	5018	■	■
	Trim strip top/bottom	Plastic to UL 94-V0	7035		
	Pane with screen-printed mask	Safety glass 4.0 mm	7015		
Component shelf for monitor	Slotted, permanently installed	Sheet steel 1.5 mm	7035	■	■
Fold-out tray for keyboard	Enclosure with cutout in rear panel, width 19″ x height 4 U, with screw-fastened lid	Sheet steel 1.5 mm	7035	■	
	Trim panel hinged at the bottom with 2 retaining shears, with lock no. 3524 E	Plastic to UL 94-V0	7035		
	Decorative side trim panels	Aluminium section	5018		
	Keyboard support, with 2 nylon loops for keyboard	Sheet steel	7035		
	[1] With unlatching for top glazed door				
Desk section	Enclosure with removable lid top and bottom.	Sheet steel 1.5 mm/2.0 mm	7035		■
	Trim strip, top and handle	Plastic to UL 94-V0	7035		
	Decorative side trim panels	Aluminium section	5018		
Bottom door	Vertical bars with locking rod, Ergoform-S handle and double-bit insert, r/h hinge	Aluminium section	5018	■	■
	Door or installation plate folded	Sheet steel 1.5 mm	7035		
	[1] With unlatching for top glazed door with desk section				

Industrial enclosures

Console systems AP

1.5 Pedestals
Page 265

W x H 800 x 670 mm
AP 2600.500, AP 2610.500
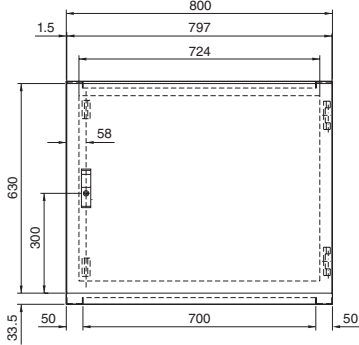
D 400 mm
AP 2600.500, AP 2620.500,
AP 2630.500
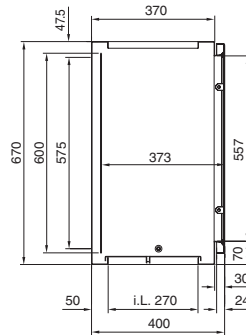
D 500 mm
AP 2610.500, AP 2640.500,
AP 2650.500
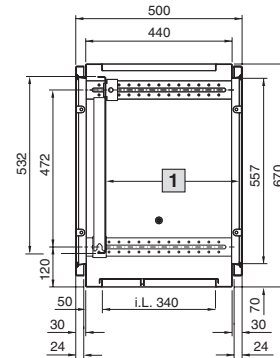
1 max. 407

i.L. = Clearance width

W x H 1200/1600 x 670 mm
AP 2620.500, AP 2630.500, AP 2640.500, AP 2650.500
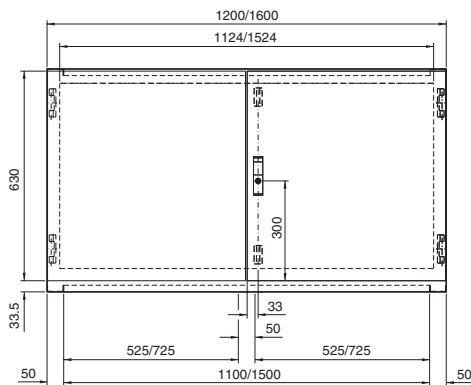
Mounting plate for D 400 mm
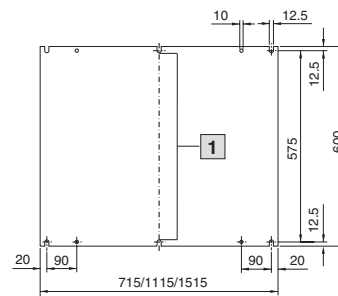
1 Does not
apply to
AP 2600.500
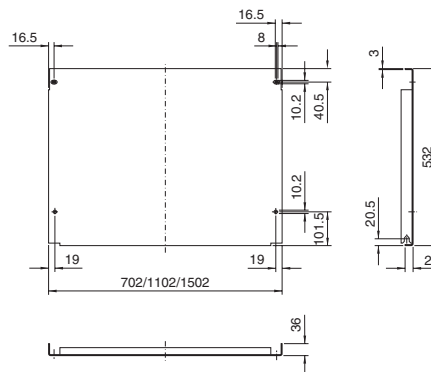
D 400 mm
without rear door AP 2600.500,
AP 2620.500, AP 2630.500

Mounting plate for D 500 mm
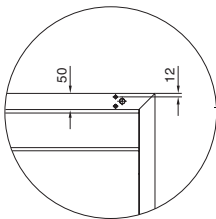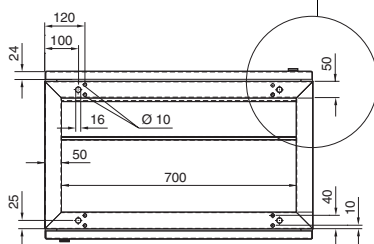
D 500 mm
AP 2610.500

D 500 mm
AP 2640.500, AP 2650.500
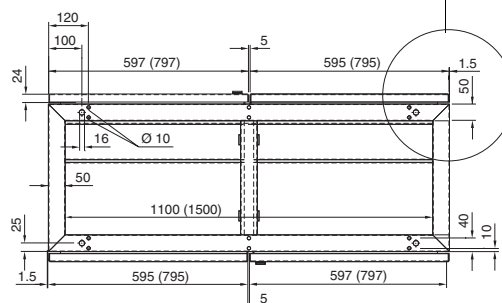
1.5 Desk units

Page 264

H x D 200 x 850 mm
AP 2611.500, AP 2641.500,
AP 2651.500

H x D 200 x 950 mm
AP 2613.500, AP 2643.500,
AP 2653.500
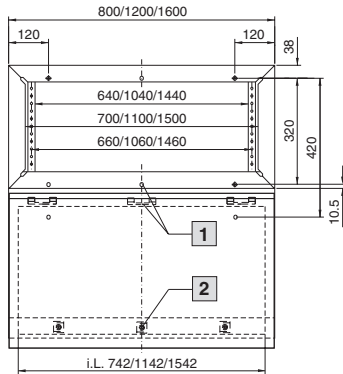
Side view

1 Does not apply to AP 2611.500

2 Does not apply to AP 2611.500, AP 2641.500
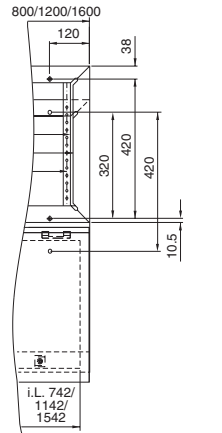
i.L. = Clearance width
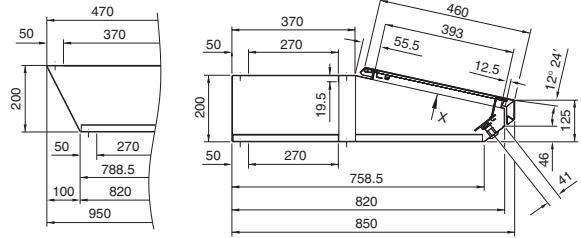
View in X direction
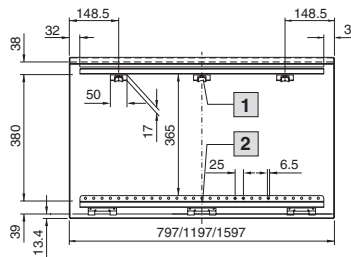
1 Does not apply to AP 2611.500, AP 2613.500, AP 2641.500, AP 2643.500

2 Does not apply to AP 2611.500, AP 2613.500

1.5 Consoles

Page 264

H x D 430 x 400 mm
AP 2612.500, AP 2642.500, AP 2652.500
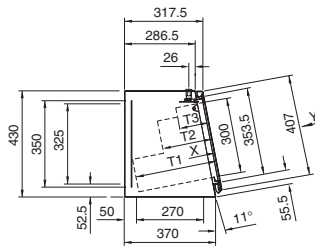
H x D 430 x 500 mm
AP 2614.500, AP 2644.500, AP 2654.500
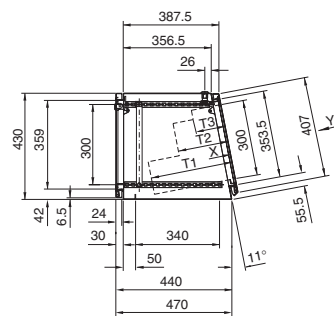
H x D 630 x 500 mm with deep rear door
AP 2647.500, AP 2648.500, AP 2649.500
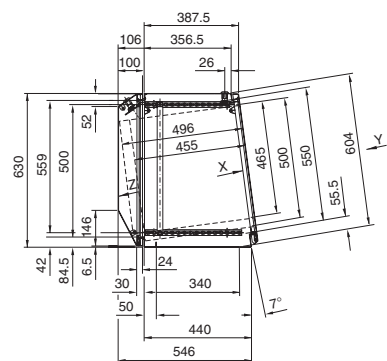
View in Y direction
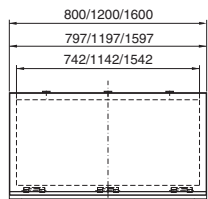
View in X direction
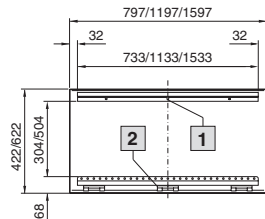
1 Only for AP 2649.500, AP 2652.500, AP 2654.500, AP 2664.500

2 Does not apply to AP 2612.500, AP 2614.500, AP 2647.500, AP 2662.500

View in Z direction
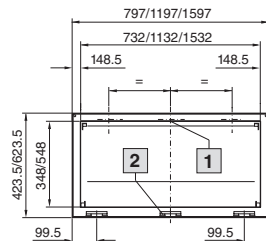
1 Only for AP 2649.500

2 Only for AP 2648.500/ AP 2649.500

	Depth 400	Depth 500
T1 = vertically hinged 3 U	300	
T2 = vertically hinged 6 U	195	
T3 = vertically hinged, max.	110	
T1 = static, max.	300	400

Mounting plate for D 400 mm
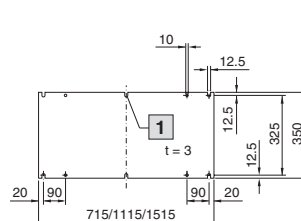
1 Does not apply to AP 2612.500

Mounting plate for D 500 mm
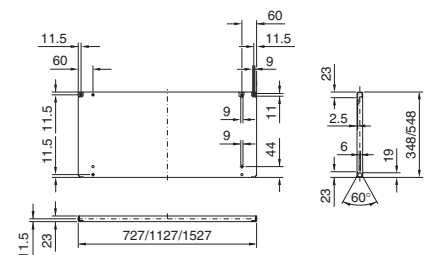
Consoles AP

1.5 One-piece consoles AP
Sheet steel Page 266

Stainless steel Page 282
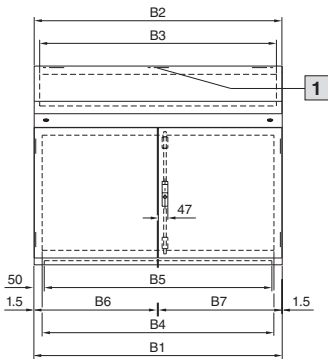
Sheet steel – view in X direction
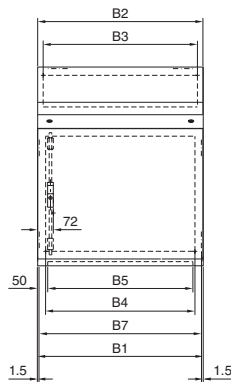
Stainless steel – view in X direction
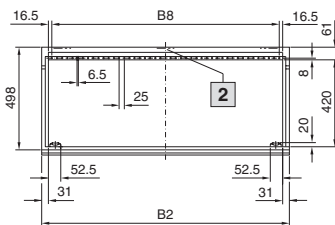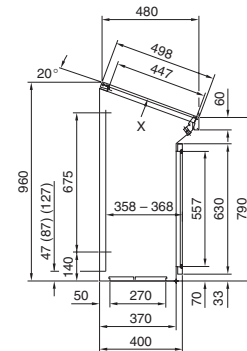
1 Hinge does not apply to AP 2670.500, 2685.600

2 Hinge does not apply to AP 2666.500, 2668.500
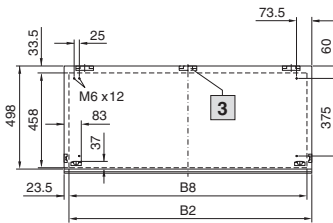
3 Hinge does not apply to AP 2683.600, 2684.600
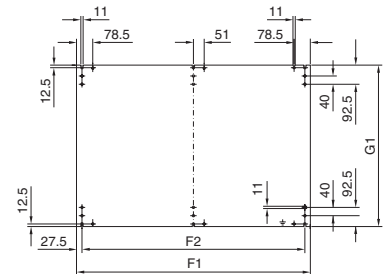
Model No. AP, sheet steel	2666.500	2668.500	2670.500	2672.500
Model No. AP, stainless steel	**2683.600**	**2684.600**	**2685.600**	**2686.600**
Width (B1) in mm	600	800	1000	1200
Height in mm	960			
Depth in mm	400/480			
B2 = Width	597	797	997	1197
B3 = Clearance width	544	744	944	1144
B4 = Clearance width, front	524	724	924	1124
B5 = Clearance width, bottom	500	700	900	1100
B6 = Wide adjacent door	–	–	495	595
B7 = Wide lockable door	597	797	497	597
B8 = Punched length	500	700	900	1100
F1 = Mounting plate width	530	730	930	1130
F2 = Distance between mounting holes	475	675	875	1075
G1 = Mounting plate height	780	780	780	780

1.5 Universal consoles AP
Sheet steel Page 267

with short front door
AP 2694.500
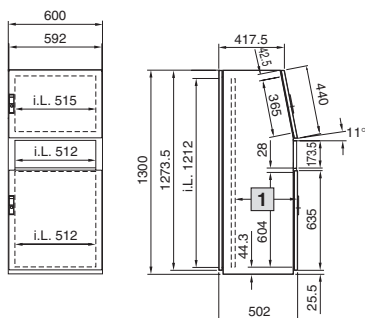
with tall front door
AP 2695.500
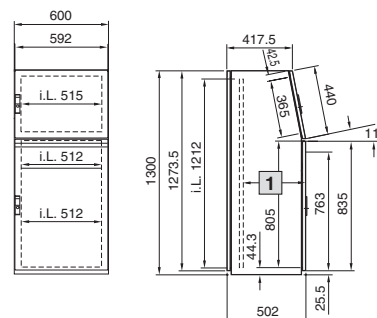
Mounting plate
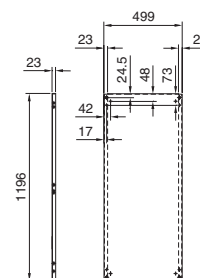
1 Adjustable from 200 to 400 mm on a 25 mm pitch pattern.

i.L. = Clearance width

1.6 Terminal boxes KL/Ex enclosures KEL with screw-fastened lid

Page 270/287

T1 = 120

T1 = 80

Detail X, T1 = 120

Detail Y, T1 = 80

X T1 = 120

Y T1 = 80

i.L. = B2

i.L. = Clearance width

With internal thread M8 x 10

1 Only for KEL
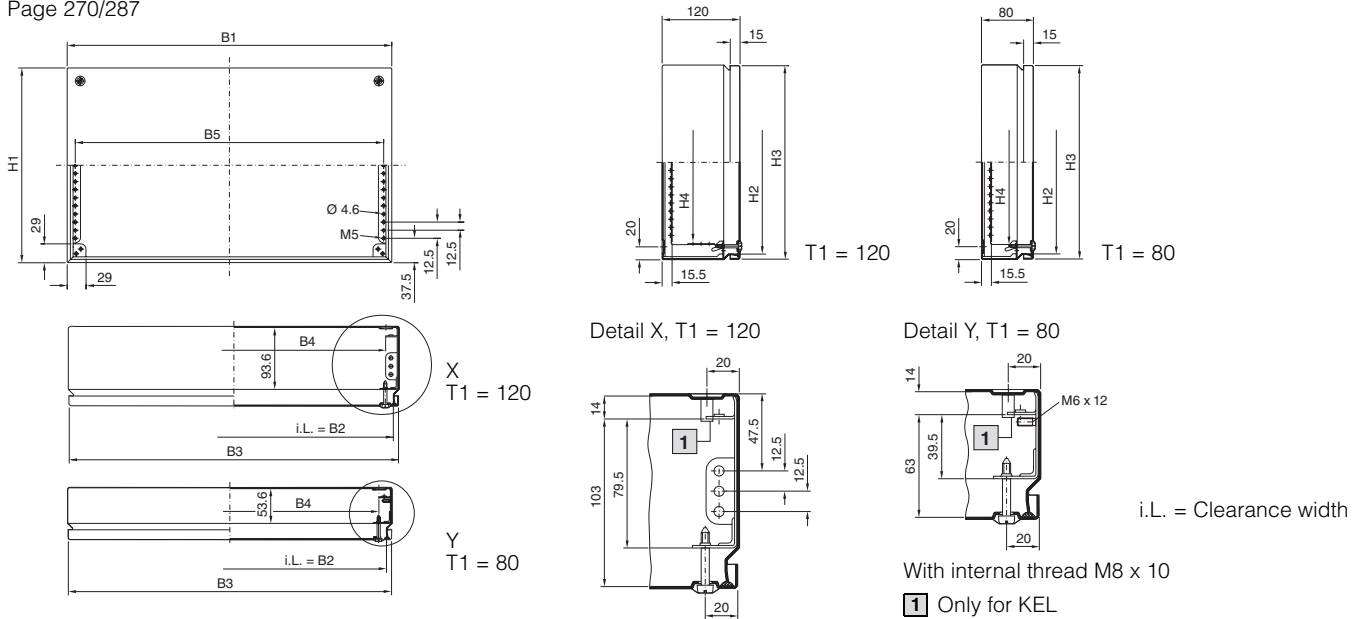
Model No. KL	1521.010	1522.010	1523.010	1524.010	1525.010	1526.010
Model No. KEL	9301.000	9302.000	9303.000	9304.000	9305.000	9306.000
Width (B1) in mm	150	300	200	300	400	300
Height (H1) in mm	150	150	200	200	200	300
Depth (T1) in mm	80	80	80	80	120	120
B2 = Clearance opening width	132	282	182	282	382	282
B3 = Cover width	148	298	198	298	398	298
B4 = Clearance width between profile strips	109	259	159	259	359	259
B5 = Hole-centre distance of profile strips	125	275	175	275	375	275
H2 = Clearance opening height	132	132	182	182	182	282
H3 = Cover height	148	148	198	198	198	298
H4 = Clearance height between profile strips	100	100	150	150	150	250

1.6 Premium Line KL

Page 271
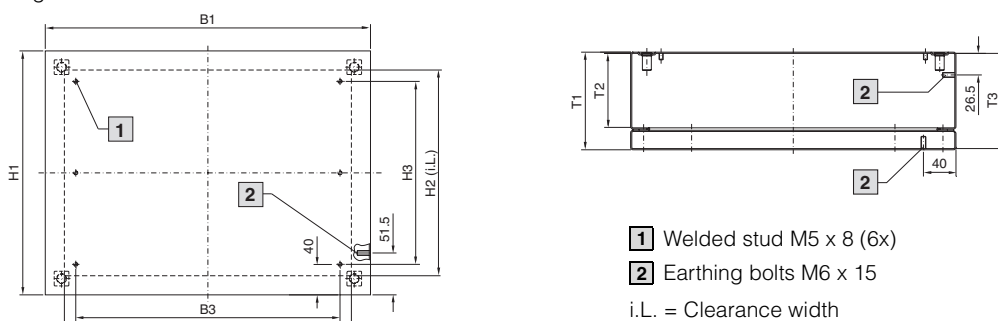
1 Welded stud M5 x 8 (6x)

2 Earthing bolts M6 x 15

i.L. = Clearance width

Model No. KL	1024.010	1024.020	1024.030	1024.040
B1 = Overall width in mm	150	150	300	400
H1 = Overall height in mm	150	150	200	300
T1 = Overall depth in mm	80	120	120	120
B2 = Clearance width of enclosure	103	103	253	353
B3 = Distance between axes of bolts	75	75	225	325
H2 = Clearance height of enclosure	103	103	153	253
H3 = Distance between axes of bolts	75	75	125	225
T2 = Clearance depth, enclosure only	51.5	91.5	91.5	91.5
T3 = Clearance depth	77	117	117	117
Possible mounting depth: T4 = Mounting plate configuration, see mounting plate	60	100	100	100
T5 = Support rail configuration, see mounting bracket	69.5/54.5	109.5/94.5	109.5/94.5	109.5/94.5

Industrial enclosures

Stainless steel

1.6 Compact AE/Ex enclosures KEL with hinged door

Page 273/287   **Mounting plates**

AE 1002.600 – AE 1016.600
KEL 9401.600 – KEL 9409.600
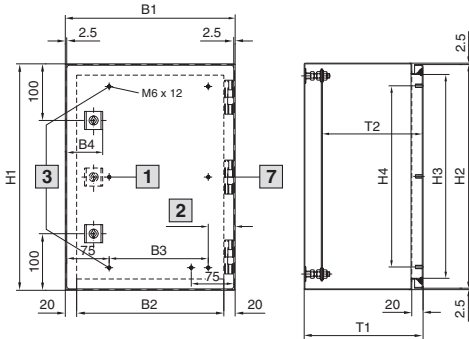
AE 1002.600
KEL 9401.600
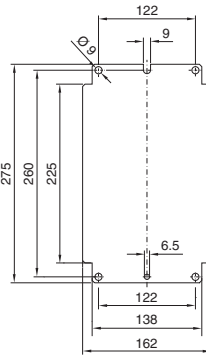
AE 1004.600 –
AE 1016.600, AE 1018.600
KEL 9402.600 –
KEL 9409.600
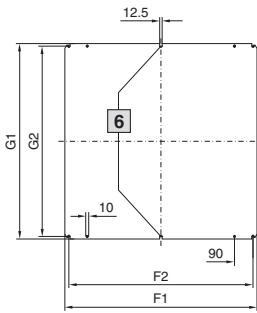
AE 1017.600,
AE 1019.600
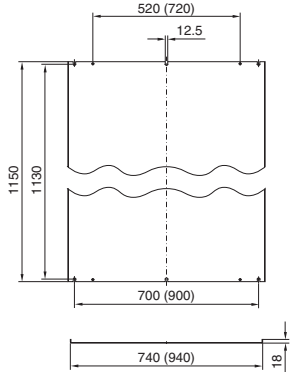
Installation position of the
mounting plate is rotated
through 90° for AE 1005.600,
KEL 9409.600.

Dimensions
in brackets
for AE 1019.600.
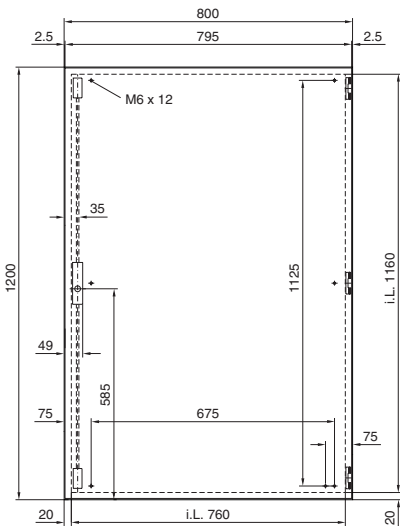
AE 1017.600   **AE 1018.600, AE 1019.600**
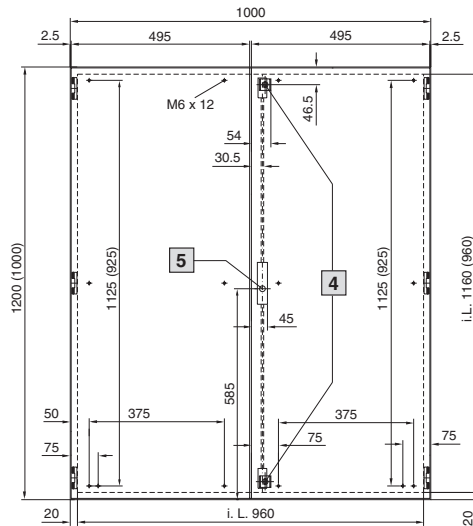
Dimensions in brackets for AE 1018.600.
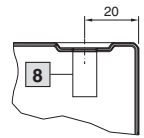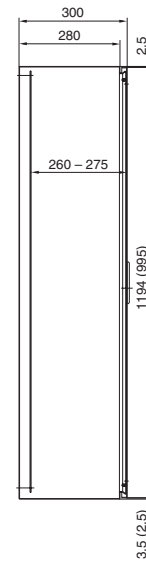
With internal
thread
M8 x 20

8 Only for
KEL

1 For H1 = 300/380 only one cam in
the centre and without central bolt

2 50 for AE 1002.600

3 Does not apply to AE 1002.600

4 Cam lock for AE 1018.600

5 Locking rod for AE 1019.600

6 Only AE 1018.600

7 Only KEL 9408.600

i.L. = Clearance width

Compact AE stainless steel/Ex enclosures KEL with hinged door

Model No.		Dimensions of enclosures										Dimensions of mounting plate				Material thicknesses in mm		
AE	KEL	B1	B2	B3	B4	H1	H2	H3	H4	T1	T2	G1	G2	F1	F2	Enclosure	Door	Mounting plate
1002.600	9401.600	200	167	–	56	300	295	274	225	155	135	–	–	–	–	1.25	1.5	2.0
1004.600	9402.600	380	340	250	66	300	295	260	225	155	113 – 129	275	250	334	295	1.38	1.5	2.0
1005.600	9409.600	300	260	175	66	380	375	340	275	210	168 – 184	275	250	334	295	1.38	1.5	2.0
1006.600	9403.600	380	340	250	66	380	375	340	275	210	168 – 184	355	330	334	295	1.38	1.5	2.5
1007.600	–	500	460	375	66	500	495	460	425	210	168 – 184	470	445	449	410	1.38	1.5	2.5
1013.600	–	500	460	375	66	500	495	460	425	300	258 – 274	470	445	449	410	1.50	1.5	2.5
1008.600	9404.600	380	340	250	66	600	595	560	525	210	168 – 184	570	545	334	295	1.38	1.5	2.5
1009.600	–	600	560	475	66	380	375	340	275	210	168 – 184	355	330	549	510	1.38	1.5	2.5
1010.600	9405.600	600	560	475	66	600	595	560	525	210	168 – 184	570	545	549	510	1.38	2.0	2.5
1012.600	9406.600	600	560	475	66	760	755	720	675	210	168 – 184	730	705	549	510	1.38	2.0	3.0
1014.600	9407.600	760	720	625	66	760	755	720	675	300	258 – 274	730	705	704	665	1.50	2.0	3.0
1016.600	9408.600	800	760	675	66	1000	955	960	925	300	258 – 274	955	930	739	700	1.50	2.0	3.0
1017.600	–	800	–	–	–	1200	–	–	–	300	–	–	–	–	–	1.50	2.0	3.0
1018.600	–	1000	–	–	–	1000	–	–	–	300	–	955	930	939	900	1.50	2.0	3.0
1019.600	–	1000	–	–	–	1200	–	–	–	300	–	–	–	–	–	1.50	2.0	3.0

1.6 Premium Panel

Protection category IP 69K Page 274

Operating housing
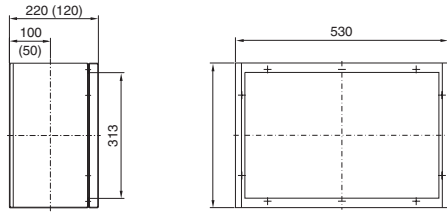
Hex screws,
exposed
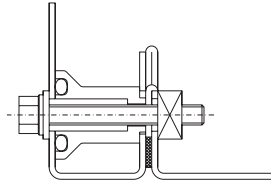
Internal screw with
plastic stoppers
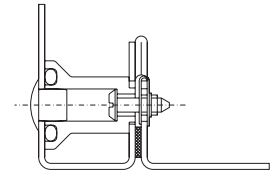
Support arm connec-
tion at the bottom, by
rotating the enclosure.
Dimensions in
brackets for
CP 6681.000.
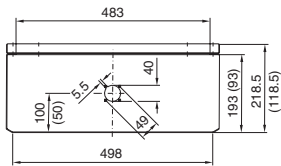
Operating and keyboard housing
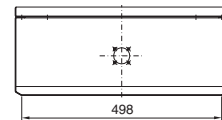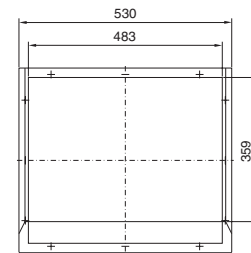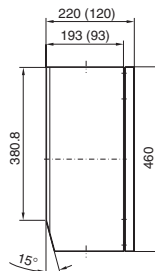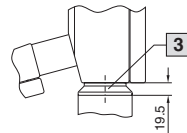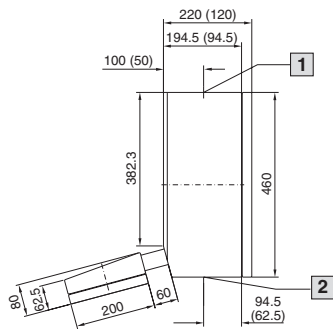
1 Support arm connection at the top
only for CP 6680.000, CP 6680.100

2 Support arm connection at the bottom
only for CP 6680.010 (see **3**),
CP 6680.110

Dimensions in brackets for CP 6680.010.

3 Connector pieces for
CP 6680.010
included in the supply.

Keyboard housing
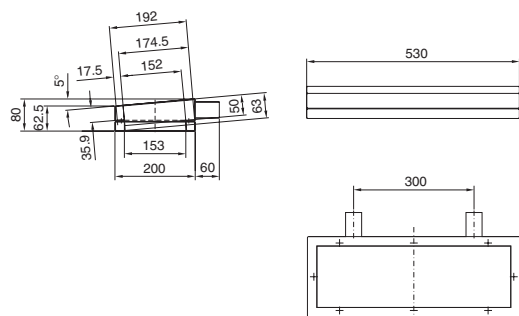
Top view
Depth 120 mm
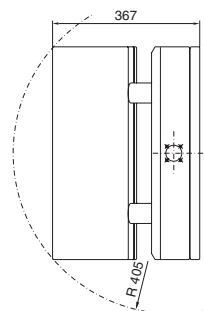
Top view
Depth 220 mm
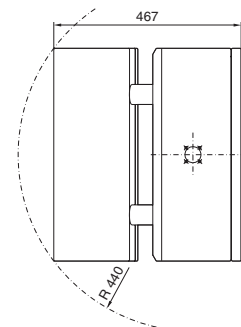
Industrial enclosures

Stainless steel

1.6 Command panel
Page 275
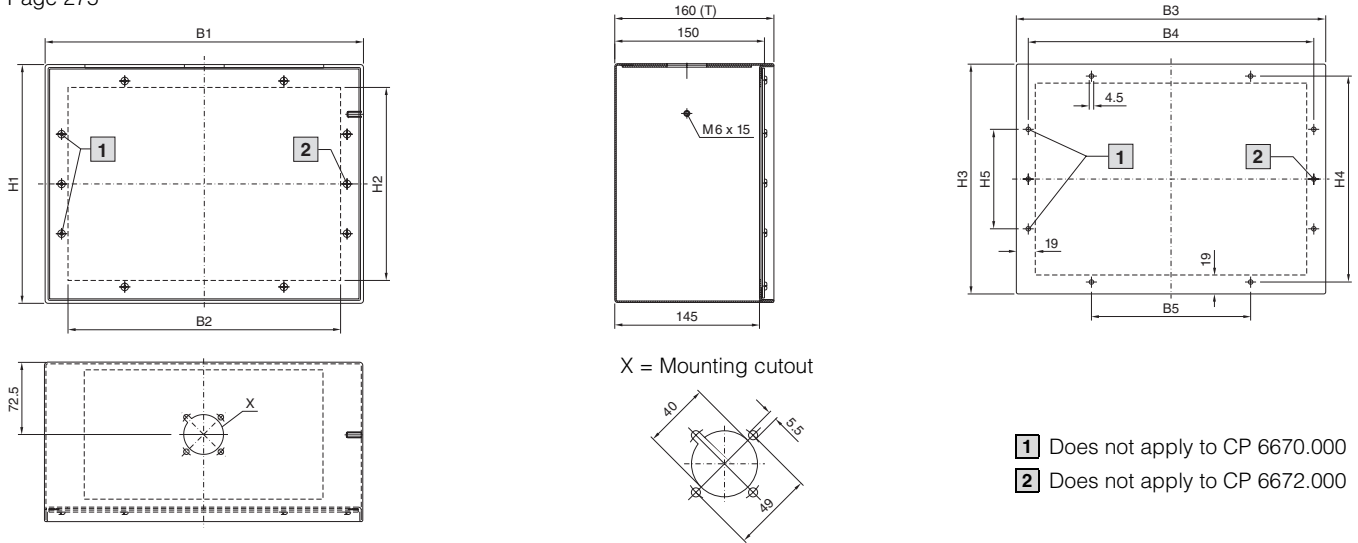
X = Mounting cutout

1 Does not apply to CP 6670.000
2 Does not apply to CP 6672.000

Model No. CP	6670.000	6672.000
Width (B1) in mm	320	400
Height (H1) in mm	240	320
Depth (T) in mm	160	
B2 = Clearance in width	275	355
B3[1] = Width of front panel	313	393
B4 = Hole spacing	288	368
B5 = Hole spacing	180	220
H2 = Clearance in height	195	275
H3[1] = Height of front panel	233	313
H4 = Hole spacing	208	288
H5 = Hole spacing	–	180

[1] Other sizes and machining of the front panel available on request.

1.6 Command panel housing with door
Page 276
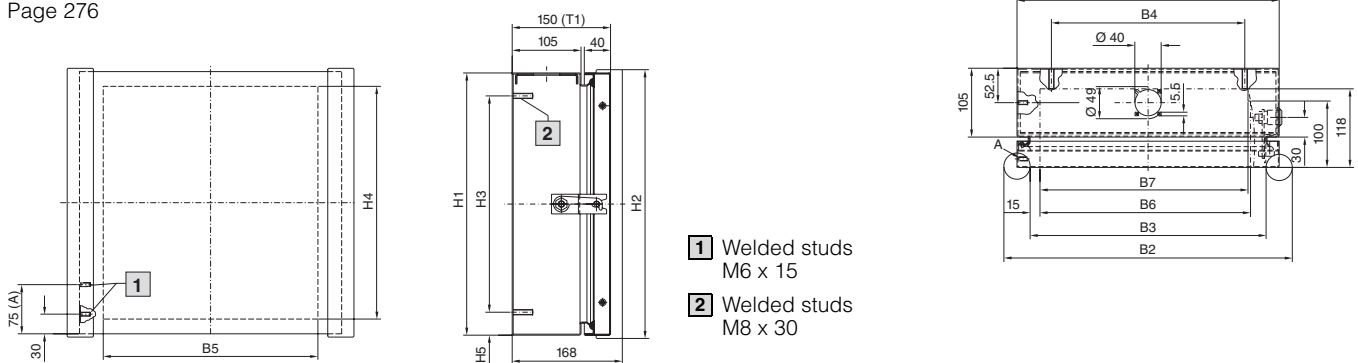
1 Welded studs M6 x 15
2 Welded studs M8 x 30

Model No. CP	6535.010	6536.010	6538.010	6539.010
Width (B1) in mm	300	400	400	600
Height (H1) in mm	300	300	400	400
Depth (T1) in mm	150	150	150	150
B2 = Enclosure width with handle strips	340	440	440	640
B3 = Clearance opening, front	260	360	360	560
B4 = Spacing of mounting plate attachment	215	295	295	510
B5 = Max. front cutout, width	225	325	325	525
B6 = Hinged width for depth 100 mm	220	320	320	520
B7 = Hinged width for depth 118 mm	212	317	317	519
H2 = Enclosure height with handle strips	310	310	410	410
H3 = Spacing of mounting plate attachment	250	250	330	330
H4 = Max. front cutout, height	255	255	355	355
H5 = Distance from base – mounting plate attachment	25	25	35	35

1.6 Modular pedestal CP-S
Page 281
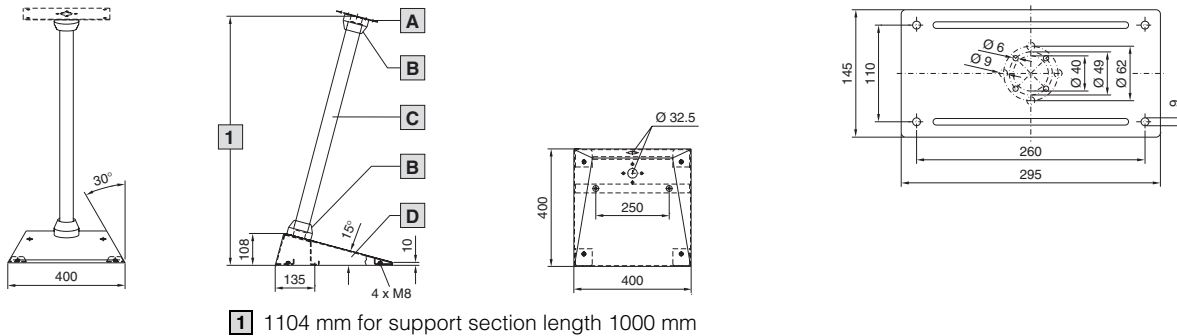
1 1104 mm for support section length 1000 mm

1.6 PC enclosure system
Page 283

With keyboard drawer
PC 4650.000

With desk section
PC 4650.704

1 Max. 505, adjustable on a 25 mm pitch pattern.

2 Max. 547, adjustable on a 25 mm pitch pattern.

i.L. = Clearance width

				Model No. PC	
				4650.000[1]	**4650.704[2]**
		Width in mm		600	
		Height in mm		1600	
		Depth in mm		620	620/820
Supply includes	**Design**	**Material**	**Surface finish/Colour**		
Enclosure	Solid top and sides, open at the bottom	Stainless steel 1.4301, 1.8 mm	Brushed, grain size 240	▪	▪
	Gland plates, three-part	Stainless steel 1.4301, 1.5 mm			
Rear door	With locking rod and double-bit insert, hinged on the right-hand side	Stainless steel 1.4301, 2.0 mm	Brushed, grain size 240	▪	▪
Glazed door, top	Latched from the inside[3], r/h hinge	Stainless steel 1.4301, 1.5 mm	Brushed, grain size 240	▪	▪
	Viewing window	Safety glass 4.0 mm			
Component shelf	Slotted, permanently installed	Sheet steel ST 1203, 1.5 mm	RAL 7035	▪	▪
Drawer	Enclosure	Sheet steel ST 1203, 1.25 mm	RAL 7035		
	Keyboard extension piece with cable support, hinged, plus pull-out mousepad and keyboard cradle	Sheet steel ST 1203, 1.5 mm	RAL 7035	▪	
	Trim panel, folded as handrest, with fastener, lock no. 3524 E	Stainless steel 1.4301, 1.25 mm	Brushed, grain size 240		
	[3] With unlatching for top glazed door			▪	
Desk section	Enclosure with cover plate top and bottom	Stainless steel 1.4301, 1.5 mm	Brushed, grain size 240		▪
	Design strip	Plastic approved for use with foodstuffs	RAL 5002		
Bottom door	With locking rod and double-bit insert, r/h hinge	Stainless steel 1.4301, 1.5 mm	Brushed, grain size 240	▪	▪
	[3] With unlatching for glazed door with desk section				▪

[1] Enclosures in stainless steel 1.4404 (AISI 316L) please add the extension .500 to the Model No. Delivery times on request.
[2] Enclosures in stainless steel 1.4404 (AISI 316L) please add the extension .504 to the Model No. Delivery times available on request.

Power distribution

Short-circuit resistance diagrams

2.1 Mini-PLS busbar support

up to 250 A, 3-pole Page 302

Model No.: SV 9600.000

40 mm bar centre distance.
Rated current up to 250 A,
rated operating voltage up
to 690 V AC,
50/60 Hz to VDE 0660.

Basis of test:
VDE 0660, part 500/IEC 60 439.

Test implemented:
Dynamic short-circuit resistance
to IEC 60 439.
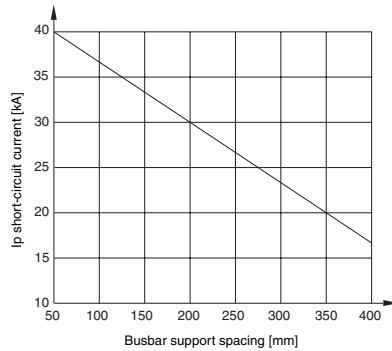
2.1 Busbar support

up to 360 A, 3-pole Page 308

Model No.: SV 9350.000

40 mm bar centre distance.
Rated current up to 360 A,
rated operating voltage up
to 690 V AC,
50/60 Hz to VDE 0660.

Calculation basis:
VDE 0103/IEC 60 865.
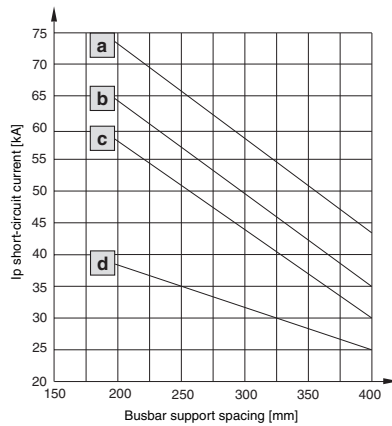
Busbar E-Cu (mm)	Rated curent up to (A)	Curve
12 x 5	210	d
12 x 10	340	b
15 x 5	260	c
15 x 10	360	a

2.2 Busbar supports

up to 450 A, 3-pole Page 318

Model No.: SV 3066.000

60 mm bar centre distance.
Rated current up to 450 A,
rated operating voltage up
to 1000 V AC,
50/60 Hz to VDE 0660.
Bar accommodation 30 x 5 mm.

Basis of test:
VDE 0660, part 500/IEC 60 439.

Test implemented:
Dynamic short-circuit resistance
to IEC 60 439.
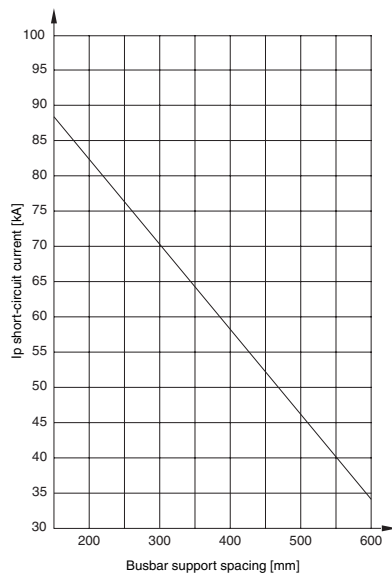
2.2 Busbar supports

up to 800 A Page 318

Model No.: SV 3000.000 (3-pole), SV 3050.000 (2-pole), SV 3064.000 (4-pole)

60 mm bar centre distance.
Rated current up to 800 A,
rated operating voltage up
to 1000 V AC,
50/60 Hz to VDE 0660.

Basis of test:
VDE 0660, part 500/IEC 60 439.

Test implemented:
Dynamic short-circuit resistance
to IEC 60 439.
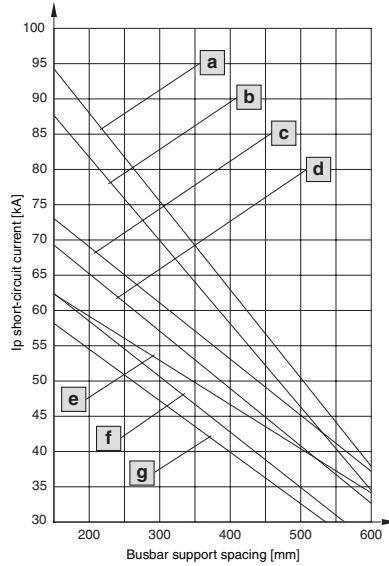
Busbar E-Cu (mm)	Rated curent up to (A)	Curve
12 x 5	210	g
12 x 10	340	f
15 x 3	187	f
15 x 4	210	f
15 x 5	260	f
16 x 3	198	f
16 x 4	225	f
16 x 5	280	f
16 x 8	397	e
20 x 5	319	e
20 x 10	497	c
25 x 5	384	d
30 x 5	447	b
30 x 10	800	a

Busbar E-Cu mm (inches)	Rated current up to (A)	Curve
9.53 x 25.40 ($3/8$ x 1″)	599	a
6.35 x 25.40 ($1/4$ x 1″)	449	d
4.76 x 25.40 ($3/16$ x 1″)	349	d
3.18 x 25.40 ($1/8$ x 1″)	299	d
9.53 x 19.05 ($3/8$ x $3/4$″)	449	a
6.35 x 12.70 ($1/4$ x $1/4$″)	249	f

2.2 PLS busbar supports

up to 800 A/1600 A, 3-pole Page 320

Model No.: SV 3500.000
Rated current up to 800 A
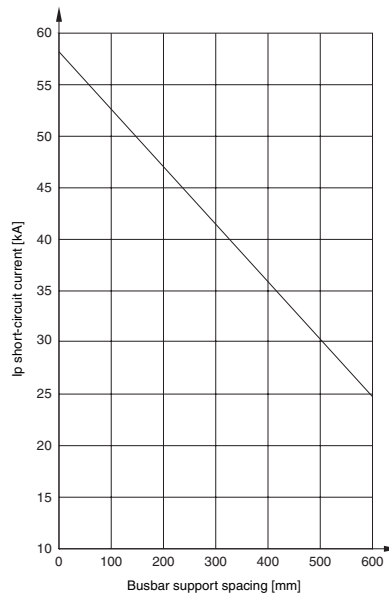
Model No.: SV 3510.000
Rated current up to 1600 A

60 mm bar centre distance.
Rated operating voltage up
to 1000 V~,
50/60 Hz to VDE 0660.

Basis of test:
VDE 0660, part 500/IEC 60 439.

Test implemented:
Dynamic short-circuit resistance
to IEC 60 439.
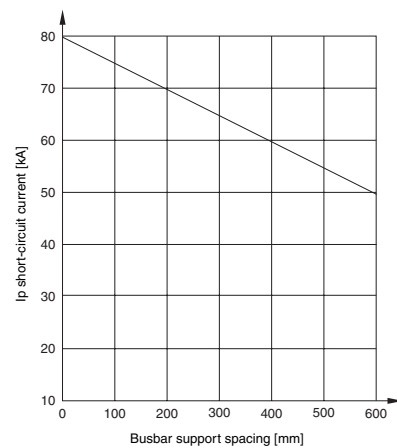
Power distribution

Short-circuit resistance diagrams

2.3 Busbar supports
up to 1250 A, 3-pole Page 343

Model No.: SV 3073.000

100 mm bar centre distance.
Rated current up to 1250 A,
rated operating voltage up
to 1000 V AC,
50/60 Hz to VDE 0660.

Basis of test:
VDE 0660, part 500/IEC 60 439.

Test implemented:
Dynamic short-circuit resistance
to IEC 60 439.
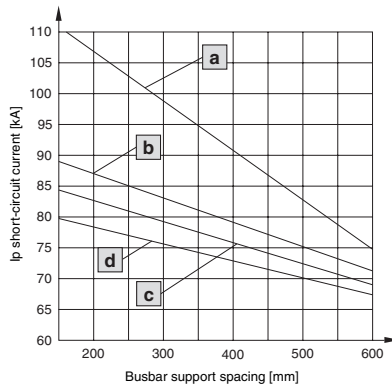
Busbar E-Cu (mm)	Rated curent up to (A)	Curve
30 x 10	800	**d**
40 x 10	850	**c**
50 x 10	1000	**b**
60 x 10	1250	**a**

2.4 Busbar supports
up to 1600 A, 3-pole Page 351

Model No.: SV 3052.000

185 mm bar centre distance.
Rated current up to 1600 A,
rated operating voltage up
to 1000 V AC,
50/60 Hz to VDE 0660.

Basis of test:
VDE 0660, part 500/IEC 60 439.

Test implemented:
Dynamic short-circuit resistance
to IEC 60 439.
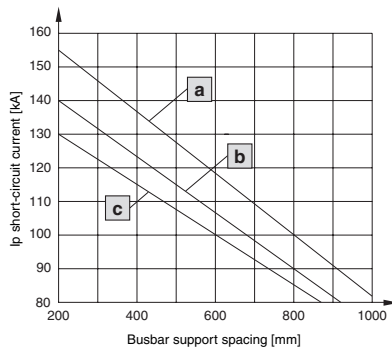
Busbar E-Cu (mm)	Rated curent up to (A)	Curve
50 x 10	1000	**c**
60 x 10	1250	**b**
80 x 10	1600	**a**

2.5 Busbar supports
up to 2500 A/3000 A, 3-pole Page 355

Model No.: SV 3055.000
Rated current up to 2500 A,
busbar accommodation
3 x 2 x 80 x 10 mm.

Model No.: SV 3057.000
Rated current up to 3000 A,
busbar accommodation
3 x 2 x 100 x 10 mm.

150 mm bar centre distance.
Rated operating voltage up
to 1000 V AC,
50/60 Hz to VDE 0660.

Basis of test:
VDE 0660, part 500/IEC 60 439.

Test implemented:
Dynamic short-circuit resistance
to IEC 60 439.
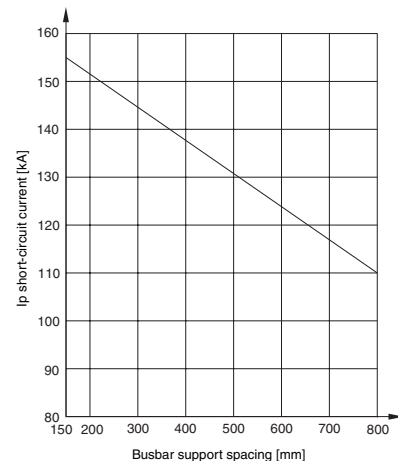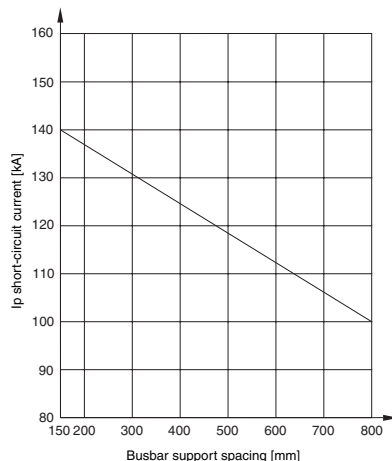
2.7 Laminated copper bars Rittal Flexibar "S"

Page 361

Configuration[1] mm	I_n for 50 K[2]	I_n for 30 K[2]	I_n for 10 K[2]	Curve (short-circuit resistance)	Installation type	Model No. SV
6 x 9.0 x 0.8	250 A	220 A	120 A	–	–	3565.000
6 x 13.0 x 0.5	200 A	150 A	110 A	–	–	3566.000
4 x 15.5 x 0.8	300 A	210 A	140 A	–	–	3567.000
6 x 15.5 x 0.8	350 A	290 A	170 A	a	1	3568.000
10 x 15.5 x 0.8	450 A	350 A	190 A	a	1	3569.000
5 x 20.0 x 1.0	400 A	300 A	180 A	a	1	3570.000
5 x 24.0 x 1.0	450 A	370 A	230 A	a	1	3571.000
10 x 24.0 x 1.0	800 A	600 A	340 A	b	1	3572.000
5 x 32.0 x 1.0	550 A	470 A	280 A	b	2/3	3573.000
10 x 32.0 x 1.0	1000 A	800 A	460 A	c	2/3	3574.000
5 x 40.0 x 1.0	800 A	600 A	340 A	b	2/3	3575.000
10 x 40.0 x 1.0	1200 A	950 A	500 A	c	2/3	3576.000
5 x 50.0 x 1.0	900 A	700 A	400 A	b	2/3	3577.000
10 x 50.0 x 1.0	1400 A	1000 A	600 A	c	2/3	3578.000
10 x 63.0 x 1.0	1600 A	1240 A	715 A	d	2/3	3579.000

[1] Number of lamina x lamina width x lamina thickness
[2] The conductor temperature of the laminated copper bar is derived from the sum total of the ambient temperature and the temperature increase.

Example:
SV 3565.000 loaded with 220 A, i.e. the temperature increases by 30 K. At an ambient temperature of 35°C, this produces a resultant conductor temperature of 35°C + 30 K = 65°C.

Short-circuit resistance diagrams

Basis of test:
VDE 0660, part 500/IEC 60 439-1.
Test implemented:
Dynamic short-circuit resistance
to IEC 60 439-1.

The dimensions for the support spacing (I) and for the centre-to-centre spacing (a) must be within the specified min./max. limits. The quotients of I/a can be used to determine the permissible short-circuit current I_p by using curves a to d. The prescribed installation type must be taken into account.

$$x = \frac{\text{Support spacing (I)}}{\text{Centre-to-centre spacing [a]}}$$
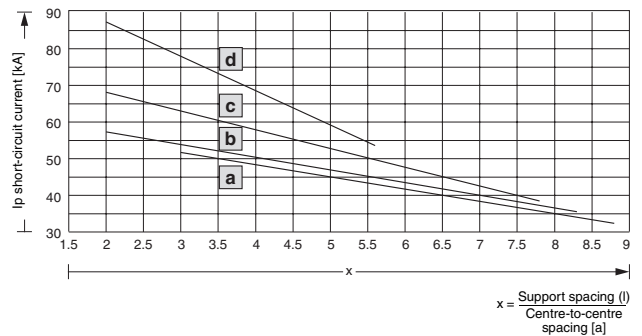
Curve	Support spacing (I) mm		Centre-to-centre spacing (a) mm	
	min.	max.	min.	max.
a	150	300	34	60
b	150	350	42	85
c	200	400	51	85
d	200	450	81	100

Type of assembly with universal support SV 3079.000
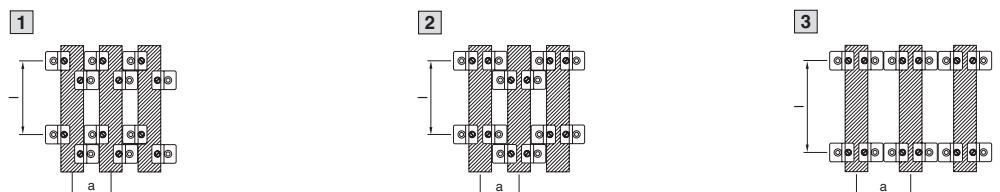
Power distribution

Overview of power circuit-breakers/starter combinations

Current carrying capacity of connection cables
Page 304 and 306, 312 – 315, 325 – 332

Current carrying capacity of insulated PVC cables at an ambient temperature of +40°C, installation type E (DIN EN 60 204-1:1998-11)		Conversion factors for the load capacity of cables (DIN EN 60 204-1:1998-11)	
Nominal cross-section (mm²)	Current capacity (A)	Ambient temperature (°C)	Factor
1.5	16	30	1.15
2.5	22	35	1.08
4	30	40	1.00
6	37	45	0.91
10	52	50	0.82
16	70	55	0.71
25	88	60	0.58
35	114		

2.1 Busbar systems up to 250 A (40 mm)
Mini-PLS component adaptors 12 A/25 A Page 304

Make/model	Model No. SV	
ABB		
MS25-TM-..	9614.000	9615.000
MS116-..	9614.100	9615.100
MS225-..	9614.000	9615.000
MS325-..	9614.000	9615.000
MS450-..		
(max. 25 A)	9615.000	–
MS451-..		
(max. 25 A)	9615.000	–
AEG		
Mbs25	9614.100	9615.100
Mbs28	9614.000	9615.000
Allen Bradley		
103-...R	9614.100	9615.100
107-...R	9629.010	–
140M-...-...	9614.100	9615.100
140-MN-...	9614.100	9615.100
190-M1-...	9615.100[1]	–
190-M2-...	9615.100[1]	–
Moeller Electric		
PKM0...	9614.100	9615.100
PKZM0-...	9614.100	9615.100
PKZM0-...T	9614.100	9615.100
PKZM0-../E-10-D	9614.100	9615.100
PKZM0-../0-.	9614.100	9615.100
PKZM0-../S00-11	9614.100	9615.100
PKZM0-../SE00-11	9614.100	9615.100
PKZ2/ZM-...		
(max. 25 A)	9625.000	9626.000
PKZ2/ZM-...-8		
(max. 25 A)	9625.000	9626.000
PKZM0-.../E01-G-W	9629.010	–
PKZM0-.../.-.-W	9629.010	–
PKZM0-.../.-..WMF	9629.030	–
PKZM4-...		
(max. 25 A)	9615.000	–

Make/model	Model No. SV	
Siemens		
S0		
3RA11 20...2.-0...	9614.100[1]	–
3RA12 20-....-...	9629.020	–
3RV1. 21-...1.	9614.100	9615.100
3RW30 2.-1AB..	9614.100	9615.100
S00		
3RA11 10..0.1.-1...	9614.100[1]	–
3RA12 10-...-...	9629.010	–
3RV10 11-..A1.	9614.100	9615.100
3RW30 1.-1CB.4	9614.100	9615.100
S00 Cage Clamp		
RV10 11-..A20	9614.110	–
S2		
3RV1. 31-4..10		
(max. 25 A)	9615.000	–
3RW30 3.-1AB..		
(max. 25 A)	9615.000	–
Telemecanique		
GK3-EF..		
(max. 25 A)	9626.000	–
GV2-....	9614.100	9615.100
GV2-M..K1..	9614.100	9615.100
GV2-M..K2..	9629.010	–
GV2-P..D2..	9629.030	–
GV2-P..D1..	9615.100[1]	–
GV3-M...	9626.000	–
LD1-L.030		
(max. 25 A)	9615.100	–
LH4-N1....7	9614.100	9615.100
LH4-N2....7	9629.010	–

[1] Support rail must be offset

Mini-PLS quick-fit component adaptors 25 A (32 A) Page 305

Make/model	Model No. SV
ABB	
MS25-TM-..	9622.000
AEG	
Mbs25	9618.000
Allen Bradley	
140M-...-...	9620.000
General Electric	
SFKO1	9618.000
Moeller Electric	
PKM0...	9619.000
PKZM0-...	9619.000
PKZM0-...T	9619.000
PKZM0-../S00-11	9620.000
PKZM0-../SE00-11	9620.000

Make/model	Model No. SV
Schiele	
MSU-K	9618.000
Siemens	
S0	
3RA11 20...2.-0...	9622.000
3RV1. 21-...1.	9622.000
Telemecanique	
GV2-LE	9621.000
GV2-M	9621.000
GV2-P	9622.000

2.1 Busbar systems up to 250 A (40 mm)

Mini-PLS component adaptors 40 A/100 A Page 306

Make/model	Model No. SV		Accessories Model No. SV
ABB			
MS450-.. (max. 40 A)	9617.000	–	–
MS450-..	9629.000	–	9320.120
MS451-.. (max. 40 A)	9617.000	–	–
MS451-..	9629.000	–	9320.120
MS495-..	9629.000	–	9320.120
MS496-..	9629.000	–	9320.120
MS497-..	9629.000	–	9320.120
LNA 32	9629.000	–	–
LNA 63	9629.000	–	–
LNA 100	9629.000	–	–
Tmax			
T1	9629.000	–	–
T2	9629.000	–	–
AEG			
Mbs100	9629.000	–	9320.120
Allen Bradley			
140M-F8.-... (max. 40 A)	9616.000	9617.000	–
140-CMN-....	9629.000	–	9320.120
Merlin Gerin			
Compact NS 80H-MA	9629.000	–	–

Make/model	Model No. SV		Accessories Model No. SV
Moeller Electric			
NZM 1	9629.000	–	–
PKZ2/ZM-...	9627.000	9628.000	–
PKZ2/ZM-...-8	9627.000	9628.000	–
PKZ2/ZM-.../SE1A/11	9628.000	–	–
PKZ2/ZM-.../S	9628.000	–	–
PKZ2/SE1A/11	9628.000	–	–
PKZ2/S	9628.000	–	–
PKZM4-... (max. 40 A)	9617.000	–	–
PKZM4-...	9629.000	–	9320.120
Siemens			
S2			
3RV1. 31-4..10 (max. 40 A)	9617.000	–	–
3RV1. 31-4..10	9629.000	–	9320.120
3RW30 3.-1AB.. (max. 40 A)	9617.000	–	–
3RW30 3.-1AB..	9629.000	–	9320.120
S3			
3RV1. 4.-4..10	9629.000	–	9320.120
3RW30 4.-1AB..	9629.000	–	9320.120
Telemecanique			
GK3-EF.. (max. 40 A)	9628.000	–	–
GK3-EF..	9629.000	–	9320.120
GV3-M... (max. 40 A)	9628.000	–	–
GV3-M...	9629.000	–	9320.120

2.1 Busbar systems up to 360 A (40 mm)

Multi-functional component adaptor 12 A/25 A Page 312 and 313

Make/model	SV 3431.000		Accessories
	5 mm Model No. SV	10 mm Model No. SV	Model No. SV
ABB			
MS116-..	9350.100	9350.110	–
AEG			
Mbs25	9350.100	9350.110	–
Allen Bradley			
103-...R	9350.100	9350.110	–
107-...R	9350.280	9350.290	–
140M-...-...	9350.100	9350.110	–
140-MN-...	9350.100	9350.110	–
190-M1-...	9350.260	9350.270	–
190-M2-...	9350.260	9350.270	–
Moeller Electric			
PKM0...	9350.100	9350.110	–
PKZM0-...	9350.100	9350.110	–
PKZM0-...T	9350.100	9350.110	–
PKZM0-../0.-.	9350.100	9350.110	–
PKM0.../E01-G-W	9350.280	9350.290	–
PKZM0-../E-10-D	9350.100	9350.110	–
PKZM0-../S00-11	9350.100	9350.110	9320.140
PKZM0-../SE00-11	9350.100	9350.110	9320.140
PKZM0-.../.-..-W	9350.280	9350.290	–
PKZM0-.../.-..-WMF	9350.320[1]	9350.330[1]	–

Make/model	SV 3431.000		Accessories
	5 mm Model No. SV	10 mm Model No. SV	Model No. SV
Siemens			
S0			
3RA11 20-...2.-0...	9350.100	9350.110	9320.140
3RA12 20-....-...	9350.300	9350.310	–
3RV1. 21-...1.	9350.100	9350.110	–
3RW30 2.-1AB..	9350.100	9350.110	–
S00			
3RA11 10..0.1.-1...	9350.100	9350.110	9320.140
3RA12 10-....-...	9350.280[2]	9350.290[2]	9320.140
3RV10 11-..A1.	9350.100	9350.110	–
3RW30 1.-1CB.4	9350.100	9350.110	–
S00 Cage Clamp			
3RV10 11-..A20	9350.080	9350.090	–
Telemecanique			
GV2-....	9350.100	9350.110	–
GV2-M..K1..	9350.100	9350.110	–
GV2-M..K2..	9350.280	9350.290	–
GV2-P..D1..	9350.260	9350.270	–
GV2-P..D2..	9350.320[1]	9350.330[1]	–
LD1-L.030 (max. 25 A)	9350.100	9350.110	–
LH4-N1....7	9350.100	9350.110	–
LH4-N2....7	9350.280	9350.290	–

[1] Moeller: The bottom support rail is eliminated
 Telemecanique: The upper support rail is offset at a distance
 of 125 mm from the lower support rail (support rail centre-to-centre spacing)
[2] Support rail must be offset

Power distribution

Overview of power circuit-breakers/starter combinations

2.1 Busbar systems up to 360 A (40 mm)

Multi-functional component adaptor 40 A Page 315

Component adaptor 100 A Page 315

Make/model	SV 3431.000	
	5 mm Model No. SV	10 mm Model No. SV
ABB		
DLA..-30	9350.200[1]	9350.210[1]
MS25-TM-..	9350.200[2]	9350.210[2]
MS225-..	9350.200[2]	9350.210[2]
MS325-..	9350.200[2]	9350.210[2]
MS450-.. (max. 40 A)	9350.340	9350.350
MS450-..	9350.420	9350.430
MS451-.. (max. 40 A)	9350.340	9350.350
MS451-..	9350.420	9350.430
MS495-..	9350.420	9350.430
MS496-..	9350.420	9350.430
MS497-..	9350.420	9350.430
LNA 32/63/100	9350.420	9350.430
AEG		
Mbs28	9350.200[2]	9350.210[2]
Mbs100	9350.420	9350.430
Allen Bradley		
140M-F8.-... (max. 40 A)	9350.200[2]	9350.210[2]
140-CMN-...	9350.420	9350.430
Merlin Gerin		
Compact NS 80H-MA	9350.420	9350.430

Make/model	SV 3431.000	
	5 mm Model No. SV	10 mm Model No. SV
Moeller Electric		
NZM 1	9350.420	9350.430
PKZM4-... (max. 40 A)	9350.340	9350.350
PKZM4-...	9350.420	9350.430
Siemens		
S2		
3RV1. 31-4..10 (max. 40 A)	9350.340	9350.350
3RV1. 31-4..10	9350.420	9350.430
3RW30 3.-1AB.. (max. 40 A)	9350.340	9350.350
3RW30 3.-1AB..	9350.420	9350.430
S3		
3RV1. 4.-4..10	9350.420	9350.430
3RW30 4.-1AB..	9350.420	9350.430
Telemecanique		
GK3-EF..	9350.420	9350.430
GV3-M...	9350.420	9350.430

[1] The top support rail is eliminated
[2] The bottom support rail is eliminated

2.2 Busbar systems up to 800 A/1600 A (60 mm)

Multi-functional component adaptor 12 A/25 A Page 325 and 326

Make/model	SV 3431.000		Accessories
	5 mm Model No. SV	10 mm Model No. SV	Model No. SV
ABB			
MS116-..	9320.180	9320.190	–
AEG			
Mbs25	9320.180	9320.190	–
Allen Bradley			
103-...R	9320.180	9320.190	–
107-...R	9320.380	9320.390	–
140M-...-...	9320.180	9320.190	–
140-MN-...	9320.180	9320.190	–
190-M1-...	9320.440	9320.450	–
190-M2-...	9320.440	9320.450	–
Moeller Electric			
PKM0...	9320.180	9320.190	–
PKZM0-...	9320.180	9320.190	–
PKZM0-...T	9320.180	9320.190	–
PKZM0-.../0.-.	9320.180	9320.190	–
PKZM0-.../E01-G-W	9320.380	9320.390	–
PKZM0-.../E-10-D	9320.180	9320.190	–
PKZM0-.../S00-11	9320.180	9320.190	9320.140
PKZM0-.../SE00-11	9320.200	9320.210	–
PKZM0-.../.-..-W	9320.380	9320.390	–
PKZM0-.../.-..WMF	9320.420[1]	9320.430[1]	–

Make/model	SV 3431.000		Accessories
	5 mm Model No. SV	10 mm Model No. SV	Model No. SV
Siemens			
S0			
3RA11 20-...2.-0...	9320.180	9320.190	9320.140
3RA12 20-....-...	9320.400	9320.410	–
3RV1. 21-...1.	9320.180	9320.190	–
3RW30 2.-1AB..	9320.180	9320.190	–
S00			
3RA11 10..0.1.-1...	9320.180	9320.190	9320.140
3RA12 10-....-...	9320.380[1]	9320.390[1]	9320.140
3RV10 11-..A1.	9320.180	9320.190	–
3RW30 1.-1CB.4	9320.180	9320.190	–
S00 Cage Clamp			
3RV10 11-..A20	9320.160	9320.170	–
Telemecanique			
GV2-....	9320.180	9320.190	–
GV2-M..K1..	9320.180	9320.190	–
GV2-M..K2..	9320.380	9320.390	–
GV2-P..D1..	9320.440	9320.450	–
GV2-P..D2..	9320.420[2]	9320.430[2]	–
LD1-L.030 (max. 25 A)	9320.180	9320.190	–
LH4-N1....7	9320.180	9320.190	–
LH4-N2....7	9320.380	9320.390	–

[1] The bottom support rail is eliminated
[2] The upper support rail is offset at a distance of 125 mm from the lower support rail (support rail centre-to-centre spacing)

2.2 Busbar systems up to 800 A/1600 A (60 mm)

Multi-functional component adaptor 40 A Page 327

Make/model	SV 3431.000	
	5 mm **Model No. SV**	10 mm **Model No. SV**
ABB		
MS25-TM-..	9320.300[1]	9320.310[1]
MS225-..	9320.300[1]	9320.310[1]
MS325-..	9320.300[1]	9320.310[1]
MS450-..		
(max. 40 A)	9320.460	9320.470
MS451-..		
(max. 40 A)	9320.460	9320.470
DLA..-30	9320.300[2]	9320.310[2]
AEG		
Mbs28	9320.300[1]	9320.310[1]
Allen Bradley		
140M-F8.-...		
(max. 40 A)	9320.300[1]	9320.310[1]

Make/model	SV 3431.000	
	5 mm **Model No. SV**	10 mm **Model No. SV**
Moeller Electric		
PKZM4-...		
(max. 40 A)	9320.460	9320.470
Siemens		
S2		
3RV1. 31-4..10		
(max. 40 A)	9320.460	9320.470
3RW30 3.-1AB..		
(max. 40 A)	9320.460	9320.470

[1] The bottom support rail is eliminated
[2] The top support rail is eliminated

Component adaptor 50 A Page 328 and 329

Make/model	SV 3431.000	
	5 mm **Model No. SV**	10 mm **Model No. SV**
ABB		
MS25-TM-..	3540.000	3541.000
MS225-..	3540.000	3541.000
MS325-..	3540.000	3541.000
AEG		
Mbs28	3540.000	3541.000
Allen Bradley		
140M-F8.-...	3540.000	3541.000
Moeller Electric		
PKZ2/ZM-...	3544.000	3545.000
PKZ2/ZM-...-8	3544.000	3545.000
PKZM0-.../.-..WMF	3042.000[1]	3043.000[1]

Make/model	SV 3431.000	
	5 mm **Model No. SV**	10 mm **Model No. SV**
Siemens		
S2		
3RA11 30-..0.3.-0...	3040.000[2]	3041.000[2]
3RV10 31-....	3069.000	3070.000
Telemecanique		
GV2-P..D2..	3042.000[2]	3043.000[2]

[1] The bottom support rail must be offset
[2] One support rail must be offset

Component adaptor 63 A Page 330 and 331

Make/model	SV 3431.000	
	5 mm **Model No. SV**	10 mm **Model No. SV**
ABB		
MS25-TM-..	3445.000	3445.000
MS25-TM-..	3446.000	3446.000
MS225-..	3445.000	3445.000
MS225-..	3446.000	3446.000
MS325-..	3445.000	3445.000
MS325-..	3446.000	3446.000
MS450-..	3036.000	3037.000
MS450-..	3445.000	3445.000
MS451-..	3036.000	3037.000
MS451-..	3445.000	3445.000
MS495-.. (max. 63 A)	3067.000	3068.000
MS496-.. (max. 63 A)	3067.000	3068.000
MS497-.. (max. 63 A)	3067.000	3068.000
AEG		
Mbs28	3445.000	3445.000
Mbs28	3446.000	3446.000
Allen Bradley		
140M-F8.-...	3445.000	3445.000
140M-F8.-...	3446.000	3446.000

Make/model	SV 3431.000	
	5 mm **Model No. SV**	10 mm **Model No. SV**
Moeller Electric		
PKZ2/S	3046.000	3047.000
PKZ2/SE1A/11	3046.000	3047.000
PKZ2/ZM-.../S	3046.000	3047.000
PKZ2/ZM-.../SE1A/11	3046.000	3047.000
PKZM0-../0-SD	3048.000[1]	3049.000[1]
PKZM0../00(A)-SD	3048.000[1]	3049.000[1]
PKZM0-../E-10-SD	3048.000[1]	3049.000[1]
PKZM0-../E-10-G-SD	3048.000[1]	3049.000[1]
PKZM4-...	3036.000	3037.000
PKZM4-...	3445.000	3445.000
Siemens		
S2		
3RV1. 31-4..10	3036.000	3037.000
3RV1. 31-4..10	3445.000	3445.000
3RW30 3.-1AB..	3036.000	3037.000
3RW30 3.-1AB..	3445.000	3445.000
S3		
3RV1. 4-4..10 (max. 63 A)	3067.000	3068.000
3RW30 4.-1AB.. (max. 63 A)	3067.000	3068.000
Telemecanique		
GK3-EF.. (max. 63 A)	3067.000	3068.000
GV3-M... (max. 63 A)	3067.000	3068.000
LD1-L.030	3067.000	3068.000
LD4-L..30	3067.000	3068.000

[1] One support rail is eliminated

Power distribution

Technical information

NH isolators, size 000

- Thanks to a specially developed locking mechanism, the fuse inserts are easily and quickly installed.
- A special switching aid pre-stresses the lyre contact when the isolator lid is closed. This means that the fuse insert slides reliably into its final position without damaging the contact.
- Microswitches for monitoring the lid position are readily integrated on the right and left.

- The unit can be protected from unauthorised switching via the readily accessible sealing device on the front of the unit.
- The spaciously designed viewing window of the isolator lid allows easy monitoring of the fuse insert indicators.
- Test holes drilled in the viewing window allow direct measurement access to the contact parts of the fuse inserts.

NH isolator, sizes 00 to 3

- Easy assembly with removable push-in isolator lid and top mounted contact hazard protection cover.
- Two-part contact hazard protection cover plate with service-friendly central unlocking facility allows connection in accordance with BGV-A2 (VBG 4), even whilst the supply end is live.
- Apart from its protective function, the design of the NH on-load isolator facilitates the activation and deactivation of electrical equipment and system components.
- The units may be actuated whilst live (see table below).

- Microswitches to indicate the switching position of the isolator lid are easily installed via snap-mounting on the left and right.
- The viewing window integrated into the lid unit has test holes which can be opened by sliding the viewing window, for direct measurement access to the contact parts of the fuse inserts (see photograph).

Technical specifications to VDE 0660, part 107/IEC 60 947-3						
Size (NH fuse inserts to DIN 43 620)		000	000/00	1	2	3
Rated operating current I_e Conventional thermal current I_{th}		100 A 160 A[1]	160 A 160 A	250 A 250 A	400 A 400 A	630 A 630 A
Rated operating voltage U_e		AC 690 V	AC 690 V			
Rated insulation voltage U_i		690 V	800 V			
Rated surge voltage resistance U_{imp}		6 kV	8 kV			
Conditional rated short-circuit current when protected with fuses		80 kA	50 kA	50 kA	50 kA	50 kA
Rated breaking capacity to VDE 0660, part 107/IEC 60 947-3 (utilisation category)	400 V	AC-22B I_e = 100 A	AC-22B I_e = 160 A	AC-22B I_e = 250 A	AC-22B I_e = 400 A	AC-22B I_e = 630 A
	690 V	AC-21B I_e = 100 A	AC-22B I_e = 160 A	AC-21B I_e = 250 A	AC-21B I_e = 400 A	AC-21B I_e = 630 A
	440 V[2]	DC-21B I_e = 100 A	DC-21B I_e = 160 A	DC-21B I_e = 250 A	DC-21B I_e = 400 A	DC-21B I_e = 630 A
Mechanical life (switching cycles)		2000	1600	1000	600	600
Permissible ambient temperature		−25°C to +55°C				
Fire protection corresponding to		UL 94-V0				
$P_{v\,max}$/fuse insert		7.5 W (9 W[1])	12 W	23 W	34 W	48 W

[1] For 95 mm² connection cross-section (95 mm² connection pieces available on request)
[2] With population of phases L_1 and L_3.

Electronic fuse monitoring

- No separate auxiliary voltage required.
- Automatic activation following fault rectification.
- Reliable functioning, thanks to surge-proof microelectronics.
- Readily accessible connector facilitates service-friendly connection of the signal tracks.
- Rapid response behaviour in the event of a fault.

Electronic fuse monitoring may be used in 50/60 Hz three-phase circuits ranging from 400 V AC to 690 V AC (max. +5 %). The auxiliary voltage required for operation is obtained from the mains voltage (supply end) via live puller lugs.

Consequently, this function is only available with the mains voltage connected and the isolator lid closed. If one or more of the NH fuse inserts is switched due to a malfunction, an error signal is generated. Evaluation is achieved by comparing the voltage on the puller lugs with the NH fuse inserts used (differential voltage ≥ 75 V). In the event of a fault, a corresponding signal message for further processing is provided via the separate relay contacts. Additionally, malfunctions are visually indicated by a red LED display, whilst a green LED indicates that the sytem is operational.
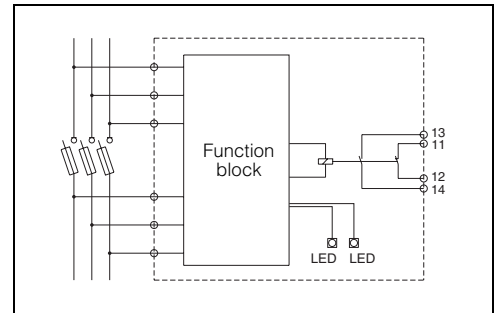
Electromechanical fuse monitoring

The connection clamps of the floating switch contacts which serve as indicators are arranged on the top of the isolator base. This arrangement guarantees extremely simple installation.

The isolator lids can be removed without disconnecting any pilot wires, in the same way as NH isolators without fuse monitoring. Unlike an electronic monitor, this system operates without auxiliary power, yet still performs the same functions.

Wiring diagram
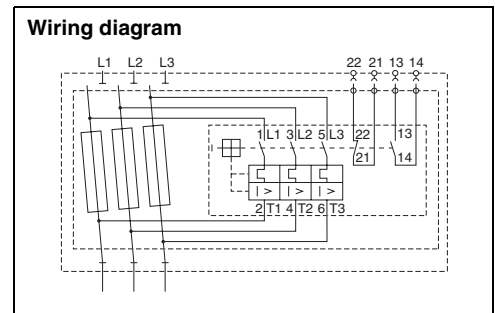
Technical specifications	Electromechanical fuse monitoring	Electronic fuse monitoring
Rated operating voltage U_e	AC 24 V to AC 690 V (50/60 Hz) DC 24 V to DC 250 V	AC 400 V to AC 690 V (50/60 Hz)
Rated surge voltage resistance U_{imp}	6 kV	6 kV
Response time	< 2 s	< 0.5 s
Auxiliary contacts	1 normally closed contact, 1 normally open contact	1 normally closed contact, 1 normally open contact, bounce-free
Load capacity of auxiliary contacts	1.5 A	2 A
Permissible ambient temperature	−25°C to +55°C	−25°C to +55°C
Displays	"I" switch dial position (operational) "0" switch dial position (error message)	1 green LED (operational) 1 red LED (error message)
Connection of auxiliary contacts	Terminal up to 1.5 mm^2	4-pole rack connector up to 1.5 mm^2
NH fuse inserts	with contacted, live puller lugs	

Power distribution

Technical information

NH fused isolators, sizes 00 to 3

- The cable outlet – top or bottom – is selected directly during assembly on the same device. The switch cover unit is simply rotated through 180° (sizes 1 to 3).
- Reliable isolated or off-load position of the switch cover unit, thanks to the integral multi-function key.
- Switch locking can be achieved via the installation of padlocks in the closed and isolated position.
- For inspection purposes, there are viewing windows with integral holes in the switch cover unit or sliding viewing windows.
- Simple external/internal mounting of microswitches to indicate the switch position of the NH unit (lid unit).

Technical specifications to VDE 0660, part 107/IEC 60 947-3		00	1	2	3
Size (NH fuse inserts to DIN 43 620)		00	1	2	3
Rated operating current I_e Conventional thermal current I_{th}		160 A 160 A	250 A 250 A	400 A 400 A	630 A 630 A
Rated operating voltage U_e		AC 690 V			
Rated insulation voltage U_i		800 V			
Rated surge voltage resistance U_{imp}		8 kV			
Conditional rated short-circuit current when protected with fuses		50 kA	50 kA	50 kA	50 kA
Rated breaking capacity to VDE 0660, part 107/IEC 60 947-3 (utilisation category)	400 V	AC-22B I_e = 160 A	AC-22B I_e = 250 A	AC-22B I_e = 400 A	AC-22B I_e = 630 A
	690 V	AC-21B I_e = 160 A	AC-21B I_e = 250 A	AC-21B I_e = 400 A	AC-21B I_e = 630 A
Mechanical life (switching cycles)		1600	1000	1000	1000
Permissible ambient temperature		−25°C to +55°C			
Fire protection corresponding to		UL 94-V0			
$P_{v\,max.}$/fuse insert		12 W	23 W	34 W	48 W

Use of semi-conductor fuses in Rittal NH switchgear

The overload and short-circuit protection of semi-conductor components places very high demands on the fuse inserts, due to the time pattern for effective protection of the defective or damaged sub-circuit. Because semi-conductor components have a low thermal capacity, the integral disconnect value (I^2t-value) of the semi-conductor fuse inserts type aR, gR or gRL must match the integral limit value of the semi-conductor cell being protected. Consequently, the tripping characteristic of the fuse inserts must be very fast, and overvoltage during the disconnection process (switching or arc voltage) must be as minimal as possible. Compared with fuse inserts for cable and line protection and transformer protection, the particular features of semi-conductor fuse inserts produce a comparatively high heat loss. The high heat loss is dissipated to the environment in the form of thermal energy. Because NH switchgear only has a limited capacity to dissipate thermal energy to the environment, the maximum heat loss ($P_{v\,max.}$/fuse insert) is listed in the technical specifications of the NH switchgear. If the values exceed the heat loss specified by the manufacturer, the rated current should be reduced in accordance with the table opposite, or the minimum connection cross-section increased accordingly to encourage heat dissipation.

Semi-conductor fuses type aR/gR/gRL				Minimum cross-section (Cu) [mm²]	Reduction factor for rated current
Size	I_N [A]	Operating category	Heat loss [W]		
00	25	gR	6	4	1.00
00	35	gR	9	6	1.00
00	50	gR	12	10	0.87
00	63	gR	15	16	0.87
00	80	aR	19	25	0.85
00	100	aR	21	35	0.85
00	125	aR	26	50	0.80
00	160	aR	34	70	0.75
1	160	gR	24	70	1.00
1	200	gR	27	95	1.00
1	250	gR	30	120	1.00
2	250	aR	105	120	0.77
2	315	aR	120	185	0.75
2	450	aR	140	2 x (30 x 5)	0.75
3	150	gR	40	70	0.90
3	200	gR	55	95	0.90
3	250	gR	72	120	0.88
3	350	gR	95	240	0.81
3	500	gR	130	2 x 150	0.76

NH bus-mounting on-load isolator, size 2

Page 340

SV 3415.020
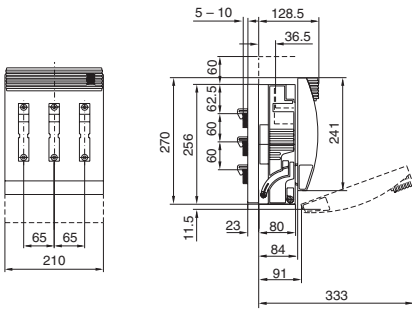
SV 3415.030
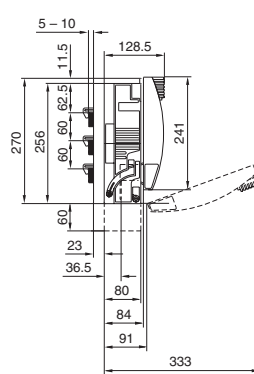
SV 3415.120
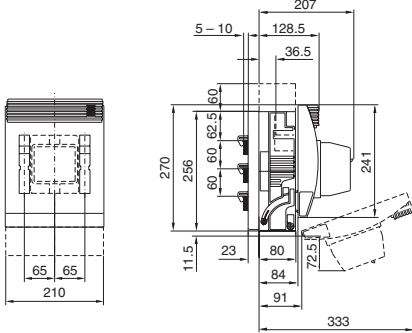
SV 3415.130
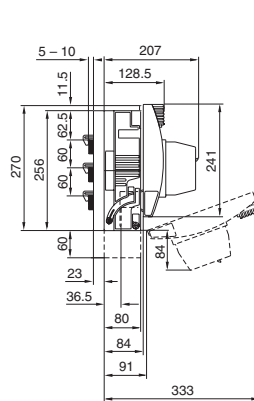
SV 3415.210
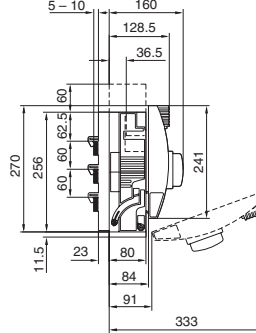
SV 3415.230
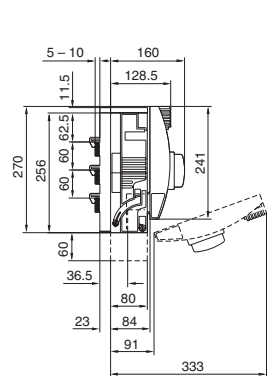
NH bus-mounting on-load isolator, size 3

Page 341

SV 3095.020
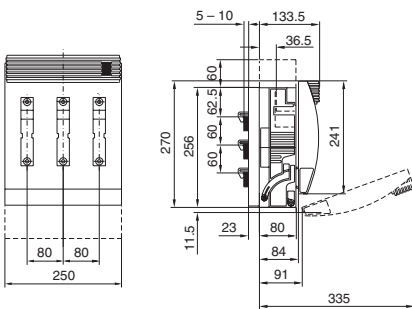
SV 3095.030
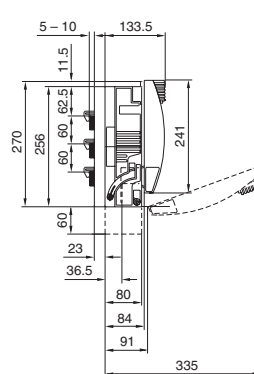
SV 3095.120
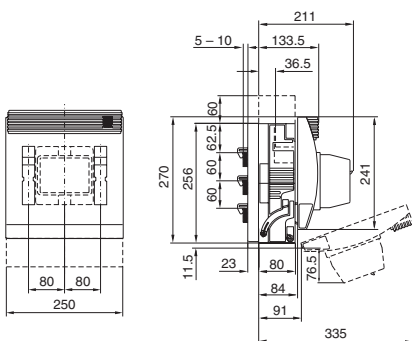
SV 3095.130
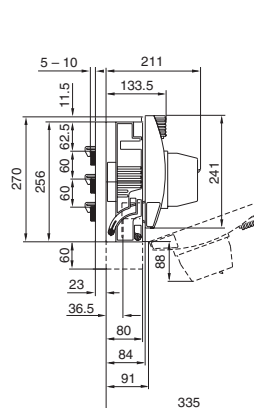
SV 3095.210
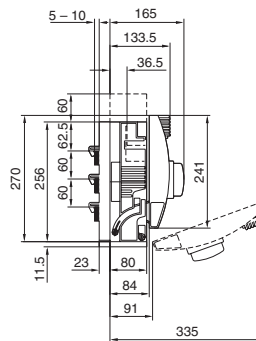
SV 3095.230
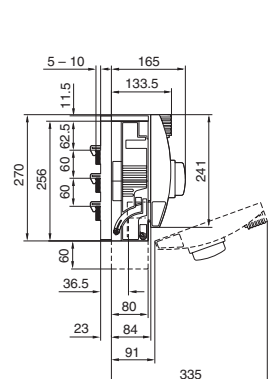
Power distribution

Technical information

NH on-load isolator, size 2
Page 347 and 359

SV 3415.010
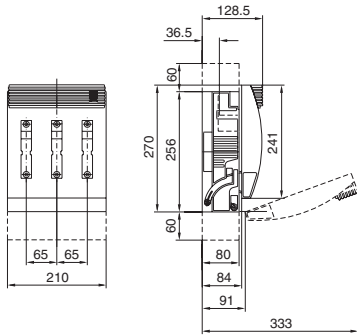
SV 3415.110
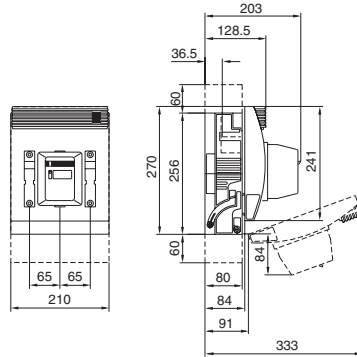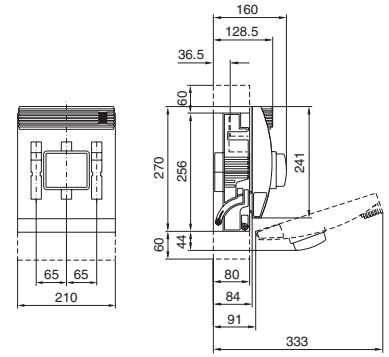
SV 3415.310

NH on-load isolator, size 3
Page 348 and 359

SV 3095.010
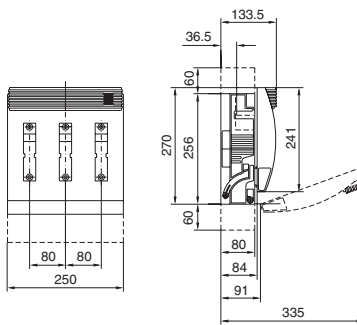
SV 3095.110
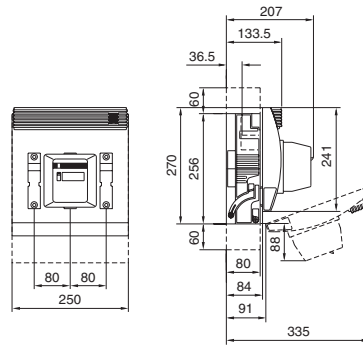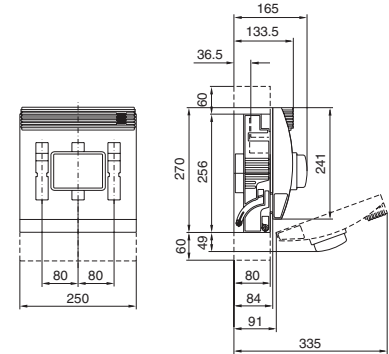
SV 3095.310

NH on-load isolator, size 000 to 3
Hole size Page 358 and 359

SV 3431.000
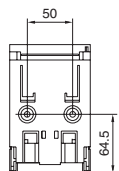
SV 3488.000, SV 3488.310,
SV 3489.000, SV 3489.310
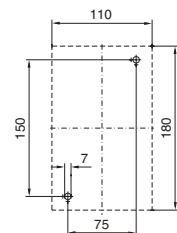
SV 3409.000,
SV 3409.310
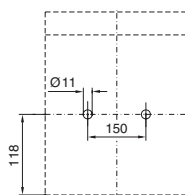
SV 3415.010
SV 3415.110
SV 3415.310
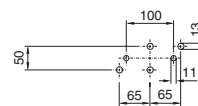
SV 3095.010
SV 3095.110
SV 3095.310
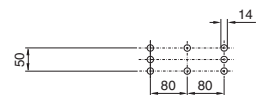
Rated currents of busbars E-Cu (DIN 43 671)

DIN 43 671 specifies the continuous currents of busbars at an ambient temperature of 35°C and an average busbar temperature of 65°C. The continuous currents specified in the following table may be adjusted to alternative operating temperatures using a correction factor (k₂).

For safe operation with thermal reserve, it is desirable to limit the busbar temperature to a maximum of 85°C. However, the decisive factor is the lowest permissible continuous temperature of the components which directly contact the busbar system (fuse bases, outgoing cables etc.). The ambient air temperature of the busbars or the busbar system should not be more than 40°C; an average of 35°C maximum is recommended.

For the continuous temperatures specified in the table, an emission level of 0.4 applies, equivalent to an oxidating copper bar. In modern busbar systems – built into enclosures with a protection category of IP 54 and above – a more favourable emission level can be assumed. The lower emission level facilitates an additional increase in continuous currents compared with the figures in DIN 43 671, irrespective of the specified air and busbar temperature. Experience has shown an increase in the continuous current of 6 – 10 % compared with the table figures for bare copper bars, and 60 % for surface-oxidised copper bars.

Example:
For a Cu bar 30 x 10 mm (E-Cu F30), DIN 43 671 specifies a continuous current of $I_{N65} = 573$ A.
The correction factor diagram for square cross-sections indicates a correction factor $k_2 = 1.29$ at an air temperature of 35°C and a busbar temperature of 85°C. Thanks to the favourable emission level, the continuous current is increased by a further 6 – 10 %. In this example, a mean value of 8 % is used. Compared with the table figure from DIN 43 671, the Rittal rated current specification for a Cu bar 30 x 10 mm is:

$$I_{N85} = I_{N65} \cdot k_2 + 8\,\%$$
$$= 573\ A \cdot 1.29 \cdot 1.08$$
$$I_{N85} = 800\ A$$

Continuous currents for busbars
Made from E-Cu with square cross-section in indoor locations at 35°C air temperature and 65°C bar temperature, vertical position or horizontal position of the bar width.

Width x Thickness mm	Cross-section mm²	Weight[1]	Material[2]	Continuous current in A			
				AC current up to 60 Hz		DC current + AC current 16 Hz	
				Bare bar	Coated bar	Bare bar	Coated bar
12 x 2	23.5	0.209		108	123	108	123
15 x 2	29.5	0.262		128	148	128	148
15 x 3	44.5	0.396		162	187	162	187
20 x 2	39.5	0.351		162	189	162	189
20 x 3	59.5	0.529		204	237	204	237
20 x 5	99.1	0.882		274	319	274	320
20 x 10	199.0	1.770		427	497	428	499
25 x 3	74.5	0.663		245	287	245	287
25 x 5	124.0	1.110		327	384	327	384
30 x 3	89.5	0.796		285	337	286	337
30 x 5	149.0	1.330	E-Cu F30	379	447	380	448
30 x 10	299.0	2.660		573	676	579	683
40 x 3	119.0	1.060		366	435	367	436
40 x 5	199.0	1.770		482	573	484	576
40 x 10	399.0	3.550		715	850	728	865
50 x 5	249.0	2.220		583	697	588	703
50 x 10	499.0	4.440		852	1020	875	1050
60 x 5	299.0	2.660		688	826	696	836
60 x 10	599.0	5.330		985	1180	1020	1230
80 x 5	399.0	3.550		885	1070	902	1090
80 x 10	799.0	7.110		1240	1500	1310	1590

[1] Calculated with a density of 8.9 kg/dm³
[2] Reference basis for the continuous current levels (figures taken from DIN 43 671)

Rittal PLS current load
According to DIN 43 671, the correction factor k₂ (correction factor diagram) is used to correct the basic rated current with reference to the existing temperatures of the ambient air and the busbar.
In accordance with DIN 43 671, the load figures of the Rittal PLS special bars have been determined on the basis of measurement trials, as follows:

PLS special busbars	Basic rated current WS 50/60 Hz	
	for 35/75°C	for 35/65°C
E-Cu 800 A	800 A	684 A
E-Cu 1600 A	1600 A	1368 A

Correction factor diagram to DIN 43 671
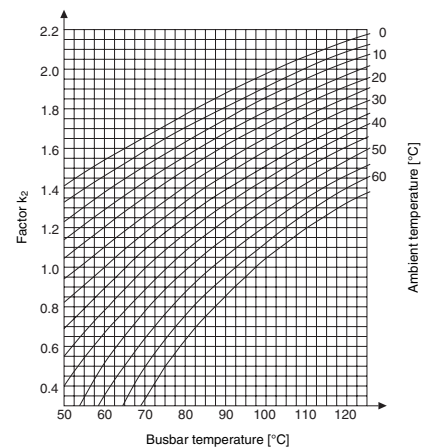
Correction factor diagram for PLS
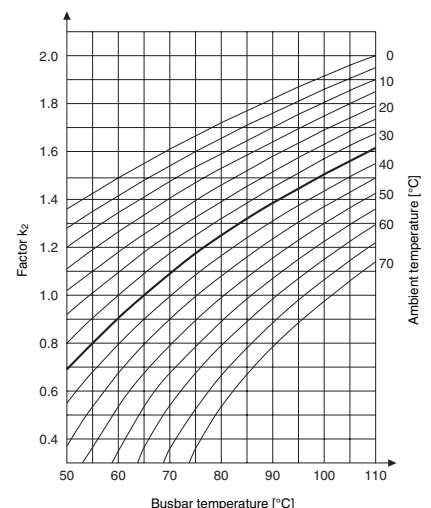
Power distribution

Rittal Maxi-PLS

2.8 System components

Maxi-PLS 2000 A Page 376

Busbar supports
Model No. SV 9640.000, SV 9649.000
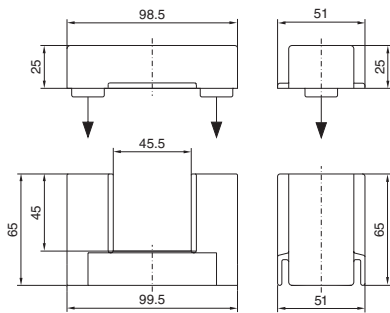
Busbar support, suitable for top mounting
Model No. SV 9640.160
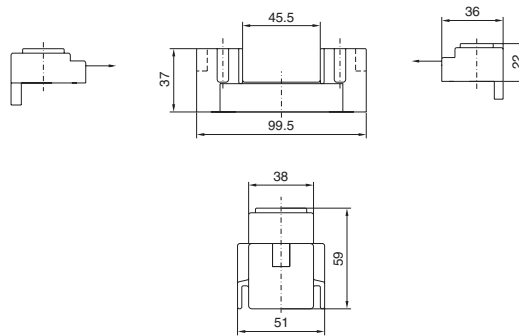
End supports
Model No. SV 9640.010, SV 9649.010
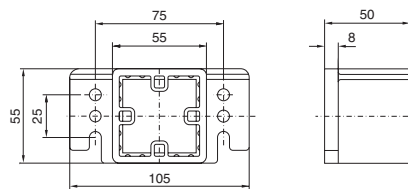
Maxi-PLS 3200 A Page 390

Busbar supports
Model No. SV 9650.000, SV 9659.000
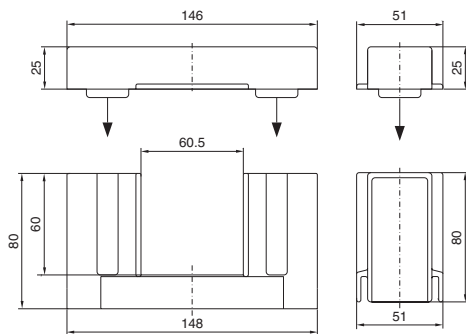
Busbar support, suitable for top mounting
Model No. SV 9650.160
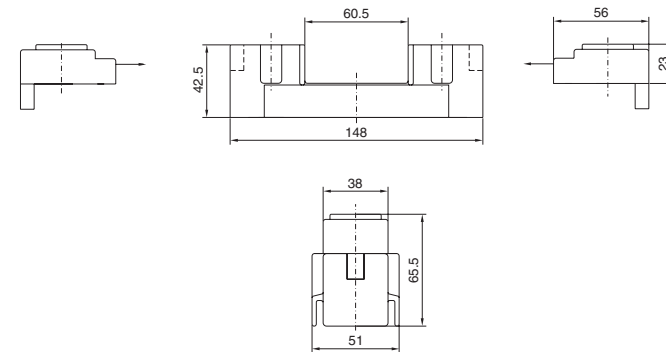
End supports
Model No. SV 9650.010, SV 9659.010
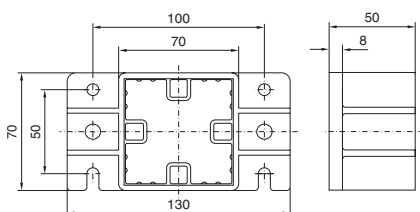
Stabiliser
Model No. SV 9650.140
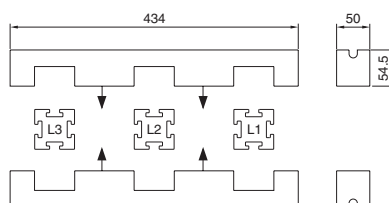
2.8 Connection components

Maxi-PLS 2000 A Page 377

Maxi-PLS 3200 A Page 391

Isolator chassis
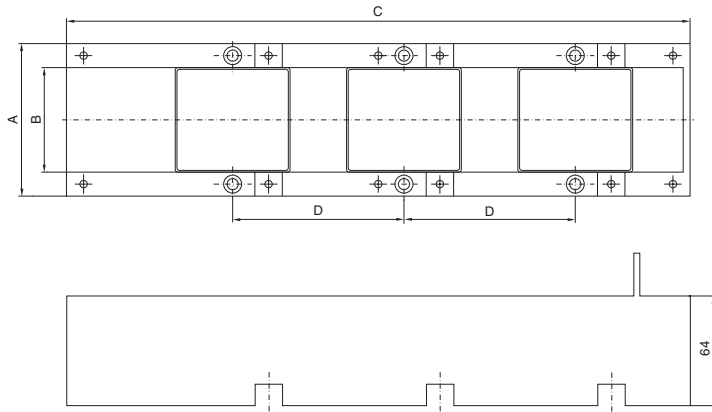
Connection clamp
Model No. SV 9640.320,
SV 9650.320
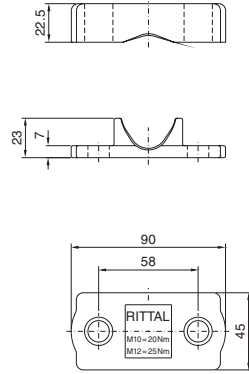
Model No. SV	A	B	C	D	E
9640.020	89	61	346	100	89
9650.020	89	61	479	150	94
9650.030	129	101	479	150	94

Connection plates

Terminal studs (2000 A)

Terminal studs (3200 A)

Sliding nuts (2000 A)

Sliding nuts (3200 A)
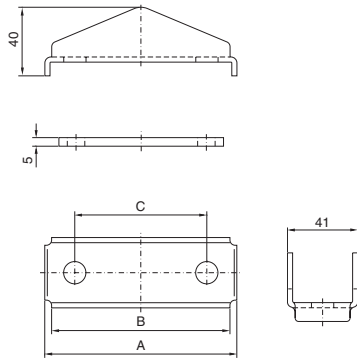
Model No. SV	Size	A	B	C	T-head screws	Tightening torque
9640.330	1	81	73	46	M10	20 Nm
9640.340	2	112	104	77	M10	25 Nm
9640.350	3	149	141	114	M10	30 Nm
9650.330	1	81	73	46	M12	25 Nm
9650.340	2	112	104	77	M12	30 Nm
9650.350	3	149	141	114	M12	35 Nm
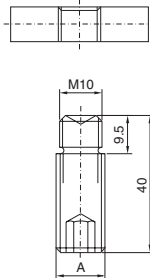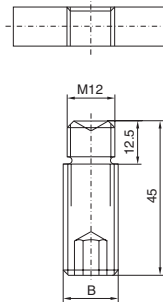
Model No. SV	A	B
9640.370	M12	–
9640.380	M16	–
9650.370	–	M12
9650.380	–	M16
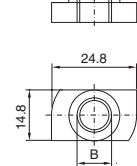
Model No. SV	A	B
9640.900	M6	–
9640.910	M8	–
9640.920	M10	–
9650.900	–	M6
9650.910	–	M10
9650.920	–	M12

Power distribution

Rittal Maxi-PLS

2.8 SV-TS 8 enclosures

for incoming/outgoing circuit 3-pole, page 392, 4-pole, page 393

3-pole
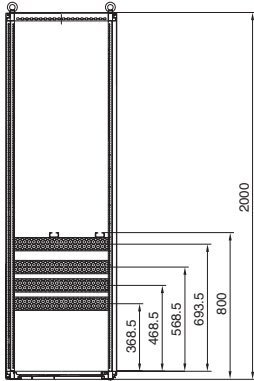
4-pole
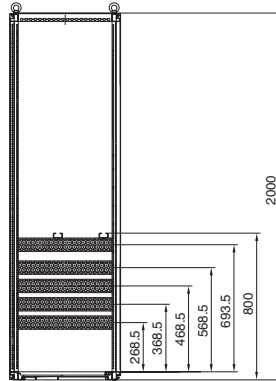
Model No. SV	Width mm	Depth mm	Door(s)
9660.665	600	600	1
9660.675	600	600	3
9660.865	800	600	1
9660.875	800	600	3

Model No. SV	Width mm	Depth mm	Door(s)
9649.625	800	600	1
9649.635	800	600	3
9659.625	800	800	1
9659.635	800	800	3

for NH fused isolators 3-pole, page 396
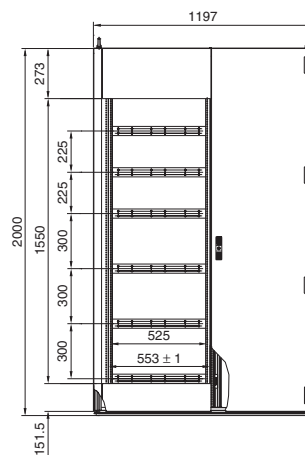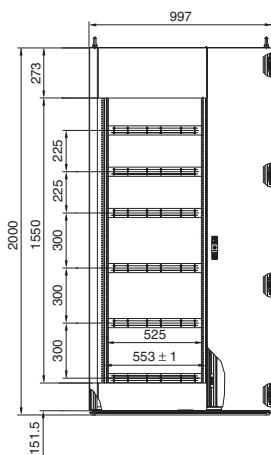
Model No. SV	Depth mm	For[1]
9660.515	600	A
9660.415	600	B

Model No. SV	Depth mm	For[1]
9660.545	600	A
9660.445	600	B

[1] NH fused isolators brand
A = ABB SlimLine
B = Jean Müller SASIL

2.8 SV-TS 8 enclosures

for NH fused isolators 4-pole, page 397
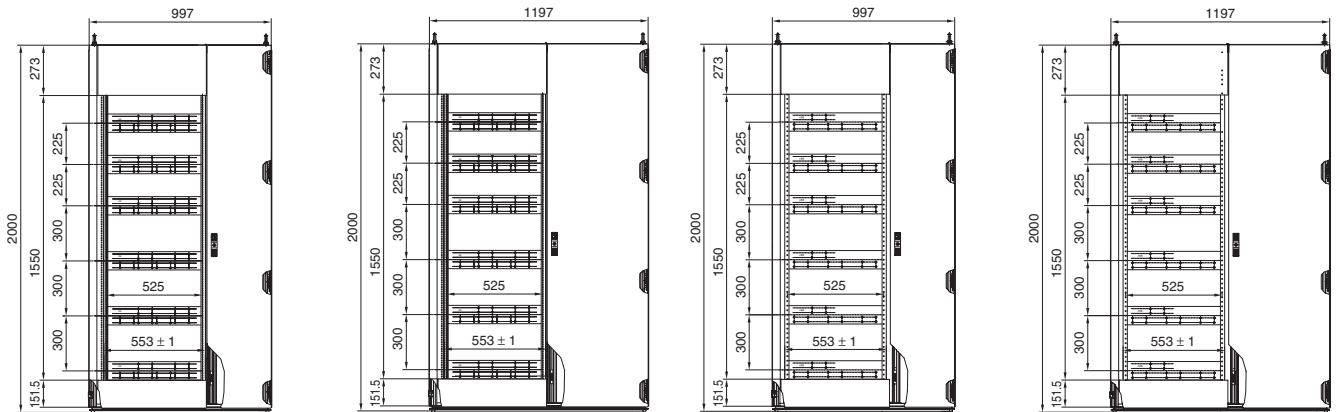
Model No. SV	Depth mm	For[1]
9649.645	600	B
9659.645	800	B

Model No. SV	Depth mm	For[1]
9649.655	600	B
9659.655	800	B

Model No. SV	Depth mm	For[1]
9649.665	600	A
9659.665	800	A

Model No. SV	Depth mm	For[1]
9649.675	600	A
9659.675	800	A

[1] NH-fused isolators brand A = ABB SlimLine, B = Jean Müller SASIL

for coupling sets Page 399

Model No. SV	Depth mm	A mm	B mm
9660.305	600	418.5	418.5

Model No. SV	Depth mm	A mm	B mm
9660.355	600	443.5	468.5
9649.685	600	418.5	418.5
9659.695	800	443.5	468.5

System components for NH fused isolators panels Page 398

T-bar supports up to 800 A
Model No. SV 9660.000/.010,
SV 9649.100/.110
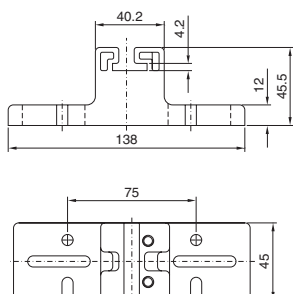
T-bar supports up to 1600 A
Model No. SV 9660.100/.110,
SV 9659.100/.110
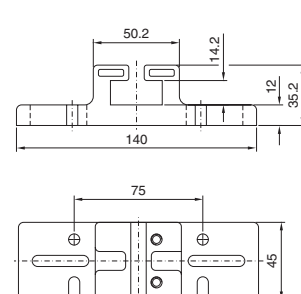
T-busbars E-Cu up to 800 A
Model No. SV 9660.020/.030,
SV 9649.120/.130
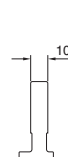
T-busbars E-Cu
up to 1600 A
Model No. SV 9660.120/.130
SV 9659.120/.130
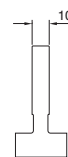
Rittal Maxi-PLS – Technical information

2.8 SV-TS 8 enclosures
for incoming/outgoing circuit Page 392

Maxi-PLS 2000 A (incoming panel)

Electrical characteristics	Rated voltage	Rated insulation voltage U_i	1000 V	EN 60 439-1
		Rated operating voltage U_e	690 V	
		Rated surge voltage resistence U_{imp}	8 kV	
		Overvoltage category	IV	
		Level of contamination	3	
		Rated frequency	50 Hz	
	Rated current (main busbar)	Rated operating current I_e	1700 A	For IP 54
			2000 A	For IP 2X[1]
		Rated surge current resistance I_{pk}	110 kA	
		Rated short-time current resistance I_{cw}	50 kA	
Mechanical characteristics	Dimensions	Enclosure width: 600 and 800 mm, enclosure height: 2000 mm[2], enclosure depth: 600 mm[2]		EN 50 298
		Pitch pattern	25 mm	
	Protection category		Max. IP 54	
	Design		1	EN 60 439-1
	Surface protection/ Material	Enclosure frame	Dipcoat-primed	
		Panels (roof plate, rear panel)	Dipcoat-primed, powder-coated in RAL 7035 on the outside	
		System attachment	Stainless steel	
		System rails and punched sections with mounting flanges	Sheet steel, zinc-plated, passivated	
	Busbar	Material	E-Cu, bare	
		External dimensions (cross-section)	45 x 45 mm (1380 mm²)	
Operating and ambient conditions	Ambient temperature	Short-term peak	+40°C	EN 60 439-1
		Maximum on a 24 h average	+35°C	
		Low	–5°C	
	Atmospheric conditions	Normal climatic stress		EN 60 439-1
		Relative humidity	50 % at 40°C	
			Operation up to 1000 m above sea level	

[1] Using outlet filter SK 3326.207 and roof plate SV 9660.235/.245
[2] Other sizes available on request.

Maxi-PLS 3200 A (incoming panel)

Electrical characteristics	Rated voltage	Rated insulation voltage U_i	1000 V	EN 60 439-1
		Rated operating voltage U_e	690 V	
		Rated surge voltage resistence U_{imp}	8 kV	
		Overvoltage category	IV	
		Level of contamination	3	
		Rated frequency	50 Hz	
	Rated current (main busbar)	Rated operating current I_e	2100 A	For IP 54
			2600 A	For IP 2X[1]
			3000 A	For IP 2X[2]
			3200 A	[3]
		Rated surge current resistance I_{pk}	165 kA (264 kA)[4]	
		Rated short-time current resistance I_{cw}	70 kA (124 kA)[4]	
Mechanical characteristics	Dimensions	Enclosure width: 600 and 800 mm, enclosure height: 2000 mm[5], enclosure depth: 600 mm[5]		EN 50 298
		Pitch pattern	25 mm	
	Protection category		Max. IP 54	
	Design		1	EN 60 439-1
	Surface protection/ Material	Enclosure frame	Dipcoat-primed	
		Panels (roof plate, rear panel)	Dipcoat-primed, powder-coated in RAL 7035 on the outside	
		System attachment	Stainless steel	
		System rails and punched sections with mounting flanges	Sheet steel, zinc-plated, passivated	
	Busbar	Material	E-Cu, bare	
		External dimensions (cross-section)	60 x 60 mm (2700 mm²)	
Operating and ambient conditions	Ambient temperature	Short-term peak	+40°C	EN 60 439-1
		Maximum on a 24 h average	+35°C	
		Low	–5°C	
	Atmospheric conditions	Normal climatic stress		EN 60 439-1
		Relative humidity	50 % at 40°C	
			Operation up to 1000 m above sea level	

[1] Using outlet filter SK 3326.207 and roof plate SV 9660.235/.245   [2] Using fan-and-filter unit SK 3327.107 (700 m³/h) and roof plate SV 9660.235/.245
[3] Busbars in open frame (free air convection) or special climate control measures to maintain the enclosure internal temperature
[4] Using stabiliser SV 9650.140 [5] Other sizes available on request

c

2.

Power distribution

2.8 SV-TS 8 enclosures
for NH fused isolators Page 394

Maxi-PLS 2000 A (185 mm busbar system in the rear section of the enclosure)

Electrical characteristics	Rated voltage	Rated insulation voltage U_i	1000 V	EN 60 439-1
		Rated operating voltage U_e	690 V	
		Rated surge voltage resistence U_{imp}	8 kV	
		Overvoltage category	IV	
		Level of contamination	3	
		Rated frequency	50 Hz	
	Rated current (main busbar)	Rated operating current I_e	1700 A	For IP 54
			2000 A	For IP 2X[1]
		Rated surge current resistance I_{pk}	143 kA[2]	
		Rated short-time current resistance I_{cw}	65 kA[2]	
Mechanical characteristics	Dimensions	Enclosure width: 600, 800, 1000 and 1200 mm, enclosure height: 2000 mm[3], enclosure depth: 500, 600 und 800 mm		EN 50 298
		Pitch pattern	25 mm	
	Protection category		Max. IP 54	
	Design		1	EN 60 439-1
	Surface protection/ Material	Enclosure frame	Dipcoat-primed	
		Panels (roof plate, rear panel)	Dipcoat-primed, powder-coated in RAL 7035 on the outside	
		System attachment	Stainless steel	
		System rails and punched sections with mounting flanges	Sheet steel, zinc-plated, passivated	
	Busbar	Material	E-Cu, bare	
		External dimensions (cross-section)	45 x 45 mm (1380 mm²)	
Operating and ambient conditions	Ambient temperature	Short-term peak	+40°C	EN 60 439-1
		Maximum on a 24 h average	+35°C	
		Low	–5°C	
	Atmospheric conditions	Normal climatic stress		EN 60 439-1
		Relative humidity	50 % at 40°C	
			Operation up to 1000 m above sea level	

Maxi-PLS 3200 A (185 mm busbar system in the rear section of the enclosure)

Electrical characteristics	Rated voltage	Rated insulation voltage U_i	1000 V	EN 60 439-1
		Rated operating voltage U_e	690 V	
		Rated surge voltage resistence U_{imp}	8 kV	
		Overvoltage category	IV	
		Level of contamination	3	
		Rated frequency	50 Hz	
	Rated current (main busbar)	Rated operating current I_e	2100 A	For IP 54
			2600 A	For IP 2X[1]
			3000 A	For IP 2X[4]
			3200 A	[5]
		Rated surge current resistance I_{pk}	176 kA[6]	
		Rated short-time current resistance I_{cw}	80 kA[6]	
Mechanical characteristics	Dimensions	Enclosure width: 600, 800, 1000 and 1200 mm, enclosure height: 2000 mm[3], enclosure depth: 500, 600 und 800 mm		EN 50 298
		Pitch pattern	25 mm	
	Protection category		Max. IP 54	
	Design		1	EN 60 439-1
	Surface protection/ Material	Enclosure frame	Dipcoat-primed	
		Panels (roof plate, rear panel)	Dipcoat-primed, powder-coated in RAL 7035 on the outside	
		System attachment	Stainless steel	
		System rails and punched sections with mounting flanges	Sheet steel, zinc-plated, passivated	
	Busbar	Material	E-Cu, bare	
		External dimensions (cross-section)	60 x 60 mm (2,700 mm²)	
Operating and ambient conditions	Ambient temperature	Short-term peak	+40°C	EN 60 439-1
		Maximum on a 24 h average	+35°C	
		Low	–5°C	
	Atmospheric conditions	Normal climatic stress		EN 60 439-1
		Relative humidity	50 % at 40°C	
			Operation up to 1000 m above sea level	

[1] Using outlet filter SK 3326.207 and roof plate SV 9660.235/.245/.255/.265 [2] Using busbar support, suitable for top mounting SV 9640.160
[3] Enclosure height 1800 and 2200 mm available on request [4] Using fan-and-filter unit SK 3327.107 (700 m³/h) and roof plate SV 9660.235/.245/.255/.265
[5] Busbars in open frame (free air convection) or special climate control measures to maintain the enclosure internal temperature
[6] Using busbar support, suitable for top mounting SV 9650.160

C

2.

Power distribution

Power distribution

Rittal Maxi-PLS – Technical information

2.8 SV-TS 8 enclosures
for NH fused isolators Page 396

T-bar system 800 A

Electrical characteristics	Rated voltage	Rated insulation voltage U_i	1000 V	EN 60 439-1
		Rated operating voltage U_e	690 V	
		Rated surge voltage resistence U_{imp}	8 kV	
		Overvoltage category	IV	
		Level of contamination	3	
		Rated frequency	50 Hz	
	Rated current (main busbar)	Rated operating current I_e	1000 A	For IP 3X
		Rated surge current resistance I_{pk}	110 kA	
		Rated short-time current resistance I_{cw}	50 kA	
Mechanical characteristics	Dimensions	Enclosure width: 1000 and 1200 mm, enclosure height: 2000 mm[1], enclosure depth: 600 mm[1]		EN 50 298
		Pitch pattern	25 mm	
	Protection category		IP 3X	
	Design		1	EN 60 439-1
	Surface protection/ Material	Enclosure frame	Dipcoat-primed	
		Panels (roof plate, rear panel)	Dipcoat-primed, powder-coated in RAL 7035 on the outside	
		System rails and punched sections with mounting flanges	Sheet steel, zinc-plated, passivated	
		System attachment	Stainless steel	
	Busbar	Material	E-Cu, bare	
		Width contact strip	10 mm	
		Cross-section	470 mm²	
Operating and ambient conditions	Ambient temperature	Short-term peak	+40°C	EN 60 439-1
		Maximum on a 24 h average	+35°C	
		Low	–5°C	
	Atmospheric conditions	Normal climatic stress		EN 60 439-1
		Relative humidity	50 % at 40°C	
			Operation up to 1000 m above sea level	

[1] Other sizes available on request

T-bar system 1600 A

Electrical characteristics	Rated voltage	Rated insulation voltage U_i	1000 V	EN 60 439-1
		Rated operating voltage U_e	690 V	
		Rated surge voltage resistence U_{imp}	8 kV	
		Overvoltage category	IV	
		Level of contamination	3	
		Rated frequency	50 Hz	
	Rated current (main busbar)	Rated operating current I_e	1600 A	For IP 3X
		Rated surge current resistance I_{pk}	110 kA	
		Rated short-time current resistance I_{cw}	50 kA	
Mechanical characteristics	Dimensions	Enclosure width: 1000 and 1200 mm, enclosure height: 2000 mm[1], enclosure depth: 600 mm[1]		EN 50 298
		Pitch pattern	25 mm	
	Protection category		IP 3X	
	Design		1	EN 60 439-1
	Surface protection/ Material	Enclosure frame	Dipcoat-primed	
		Panels (roof plate, rear panel)	Dipcoat-primed, powder-coated in RAL 7035 on the outside	
		System rails and punched sections with mounting flanges	Sheet steel, zinc-plated, passivated	
		System attachment	Stainless steel	
	Busbar	Material	E-Cu, bare	
		Width contact strip	10 mm	
		Cross-section	910 mm²	
Operating and ambient conditions	Ambient temperature	Short-term peak	+40°C	EN 60 439-1
		Maximum on a 24 h average	+35°C	
		Low	–5°C	
	Atmospheric conditions	Normal climatic stress		EN 60 439-1
		Relative humidity	50 % at 40°C	
			Operation up to 1000 m above sea level	

[1] Other sizes available on request

2.8 SV-TS 8 enclosures

for coupling sets Page 399

Maxi-PLS 2000 A (coupling section)

Electrical characteristics	Rated voltage	Rated insulation voltage U_i	1000 V	EN 60 439-1
		Rated operating voltage U_e	690 V	
		Rated surge voltage resistence U_{imp}	8 kV	
		Overvoltage category	IV	
		Level of contamination	3	
		Rated frequency	50 Hz	
	Rated current (main busbar)	Rated operating current I_e	1700 A	For IP 54
			2000 A	For IP 2X[1]
		Rated surge current resistance I_{pk}	110 kA	
		Rated short-time current resistance I_{cw}	50 kA	
Mechanical characteristics	Dimensions	Enclosure width: 800 mm[2], enclosure height: 2000 mm[2], enclosure depth: 600 mm[2]		EN 50 298
		Pitch pattern	25 mm	
	Protection category		Max. IP 54	
	Design		1	EN 60 439-1
	Surface protection/ Material	Enclosure frame	Dipcoat-primed	
		Panels (roof plate, rear panel)	Dipcoat-primed, powder-coated in RAL 7035 on the outside	
		System attachment	Stainless steel	
		System rails and punched sections with mounting flanges	Sheet steel, zinc-plated, passivated	
	Busbar	Material	E-Cu, bare	
		External dimensions (cross-section)	45 x 45 mm (1380 mm[2])	
Operating and ambient conditions	Ambient temperature	Short-term peak	+40°C	EN 60 439-1
		Maximum on a 24 h average	+35°C	
		Low	–5°C	
	Atmospheric conditions	Normal climatic stress		EN 60 439-1
		Relative humidity	50 % at 40°C	
			Operation up to 1000 m above sea level	

[1] Using outlet filter SK 3326.207 and roof plate SV 9660.245
[2] Other sizes available on request

Maxi-PLS 3200 A (coupling section)

Electrical characteristics	Rated voltage	Rated insulation voltage U_i	1000 V	EN 60 439-1
		Rated operating voltage U_e	690 V	
		Rated surge voltage resistence U_{imp}	8 kV	
		Overvoltage category	IV	
		Level of contamination	3	
		Rated frequency	50 Hz	
	Rated current (main busbar)	Rated operating current I_e	2100 A	For IP 54
			2600 A	For IP 2X[1]
			3000 A	For IP 2X[2]
			3200 A	[3]
		Rated surge current resistance I_{pk}	110 kA	
		Rated short-time current resistance I_{cw}	50 kA	
Mechanical characteristics	Dimensions	Enclosure width: 1000 mm[4], enclosure height: 2000 mm[4], enclosure depth: 600 mm[4]		EN 50 298
		Pitch pattern	25 mm	
	Protection category		Max. IP 54	
	Design		1	EN 60 439-1
	Surface protection/ Material	Enclosure frame	Dipcoat-primed	
		Panels (roof plate, rear panel)	Dipcoat-primed, powder-coated in RAL 7035 on the outside	
		System attachment	Stainless steel	
		System rails and punched sections with mounting flanges	Sheet steel, zinc-plated, passivated	
	Busbar	Material	E-Cu, bare	
		External dimensions (cross-section)	60 x 60 mm (2700 mm[2])	
Operating and ambient conditions	Ambient temperature	Short-term peak	+40°C	EN 60 439-1
		Maximum on a 24 h average	+35°C	
		Low	–5°C	
	Atmospheric conditions	Normal climatic stress		EN 60 439-1
		Relative humidity	50 % at 40°C	
			Operation up to 1000 m above sea level	

[1] Using outlet filter SK 3326.207 and roof plate SV 9660.255 [2] Using fan-and-filter unit SK 3327.107 (700 m³/h) and roof plate SV 9660.255
[3] Busbars in open frame (free air convection) or special climate control measures to maintain the enclosure internal temperature
[4] Other sizes available on request

C

2.

Power distribution

Power distribution

Rittal Maxi-PLS – Technical information

Planning and project management in line with regulations

As a general principle, low-voltage switchgear and distributors should be planned to meet the operating conditions of their final installation site. To this end, the operator of the plant, in collaboration with the manufacturer, should stipulate the operating and ambient conditions. Moreover, as a general rule, the operator or planning office should also supply the manufacturer with full electrical specifications of both the mains supply end and the distributor outlet end. This makes it possible to plan and manufacture a cost-effective system with optimum adaptation to the technical requirements.

Important operating and ambient conditions

- Rated operating voltage U_e
- Mains frequency f_N
- Rated insulation voltage U_i
- Busbar rated current I_{sas}
- Rated current for the supply end I_{zu}
- Rated surge current resistance I_{pk}
- Rated short-time current resistance I_{cw}
- Ambient temperature condition ϑ
- Atmospheric climatic stress, specifying the relative humidity and temperature
- Protection category of the overall system IP . . .
- Specification to DIN EN 60 529
- Protection category

Important basic data for planning and project management

- Applicable regulations and standards, both regional and international
- Electricity supply company conditions
- Operator-specific regulations
- Mains-specific protective measures/mains type
- Rated voltage and frequency
- Rated current with due regard for the number of conductors (infeed and busbars)
- Rated insulation voltage
- Short-circuit current at the point of installation
- Location of incoming cables, from above or below
- Number of incoming cables and wires, specifying the type and cross-section
- Number of outlets, specifying the operating load and the envisaged outgoing cables with type and cross-section
- For the outlet side, specification of the simultaneity factor and rated load factor of the relevant equipment items

Rated load factor

The rated load factor of a switchgear enclosure or part thereof (e.g. a field) comprising several main circuits refers to the ratio between the largest sum total of all currents anticipated at any given time in the affected main circuits and the sum total of the rated currents of all main circuits of the switchgear enclosure or observed part thereof.

Number of main circuits	Load factor
2 and 3	0.9
4 and 5	0.8
6 and 7	0.7
10 or more	0.6

Rated currents and short-circuit currents of standard transformers

Rated voltage $U_N = 400$ V	400 V		
Short-circuit voltage U_k		4 %[1]	6 %[2]
Power consumption S_{NT} [kVA]	Rated current I_N [A]	Short-circuit current $I_{k''}$[3] [kA]	
50	72	1.89	1.20
100	144	3.61	2.41
160	230	5.77	3.85
200	288	7.22	4.81
250	360	9.02	6.01
315	455	11.36	7.58
400	589	14.43	9.62
500	722	18.04	12.03
630	910	22.73	15.15
800	1156	28.86	19.24
1000	1444	36.08	24.05
1250	1805	45.09	30.06
1600	2312	57.72	38.48
2000	2882	72.15	48,10

[1] U_k = 4 % standardised to DIN 42 503 for S_{NT} = 50 . . . 630 kVA
[2] U_k = 6 % standardised to DIN 42 511 for S_{NT} = 100 . . . 1600 kVA
[3] $I_{k''}$ = Initial symmetrical short-circuit current of transformer when connecting to a mains supply with unlimited short-circuit lead

C

2.

Power distribution

Design differences between TTA and PTTA

The following regulation applies to the manufacture of low-voltage switchgear and distributors with Rittal SV technology: **DIN EN 60 439-1 (DIN VDE 0660 part 500)** Low-voltage switchgear enclosures – requirements for type-tested and partially type-tested enclosures.

This standard makes a distinction between
● type-tested switchgear enclosures (TTA) and
● partially type-tested switchgear enclosures (PTTA).

This refers to the following:
Type-tested switchgear enclosures (TTA) are switchgear enclosures or parts thereof (e.g. functional units, assemblies) which match the switchgear enclosure type-tested under the standard, without any major deviations from the original type or system.

Partially type-tested switchgear enclosures (PTTA) are switchgear enclosures which are manufactured individually or in small quantities for specific application conditions and which contain both type-tested and non-type-tested assemblies, provided the latter are derived from type-tested assemblies (e.g. by means of calculation) which have passed the appropriate tests.

There are no quality differences defined between the two design variants TTA and PTTA. In other words, they are deemed to be of equal value.
However, both design variants require different proof and tests.

The following proof and tests must be provided for system configuration in line with regulations and evidence of CE conformity:

TTA/PTTA to DIN EN 60 439-1
● Compliance with the limit overtemperature
● Dielectric strength
● Short-circuit resistance
● Effectiveness of the PE conductor
● Creepage distances and clearance
● Mechanical function
● IP protection categories
● Wiring, electrical function
● Insulation
● Protective measures

Amongst type-tested switchgear enclosures TTA, this evidence is provided by one-off type testing and unit testing following assembly.

In the case of partially type-tested switchgear enclosures PTTA, complete evidence must be provided for each system installed, either by means of testing or by means of calculation based on the tests performed.

For details of the scope of testing for both design variants, please refer to table 7 in DIN EN 60 439-1 which contains references to the standard section number.

This standard specifies that random variation e.g. of switchgear and protective devices of different makes or models within a switchgear installation is no longer possible without evidence of testing or calculation. This evidence can only be supplied by the manufacturer/workshop.

Special consideration must be made for this fact, both when planning and when purchasing switchgear and distributors.

Difference between TTA and PTTA
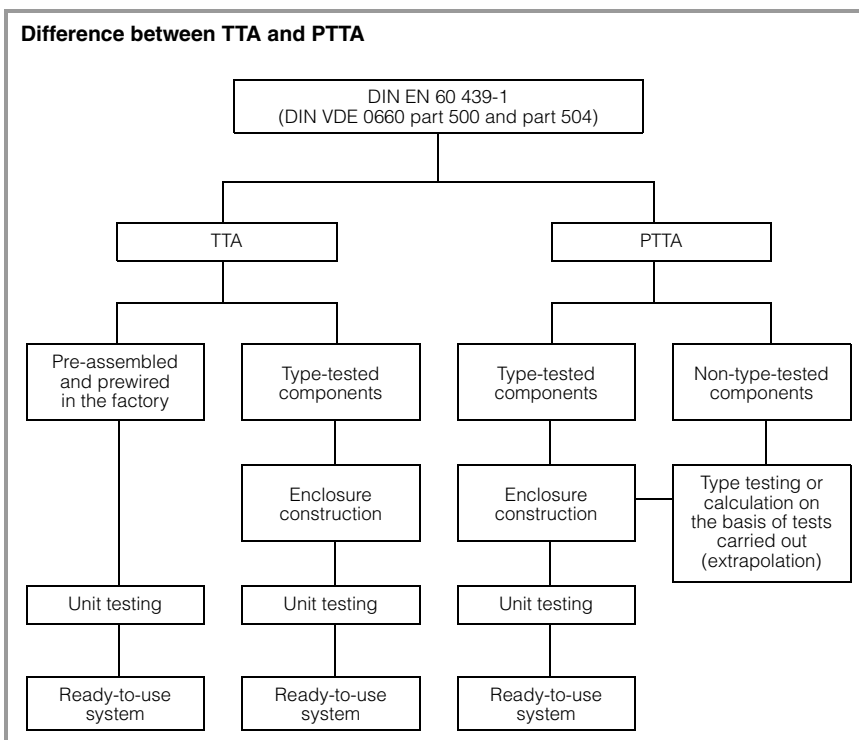
Unit testing (final inspection of installations)

According to DIN VDE 0100 part 610 (original inspection), low-voltage installations, including switchgear and distributors, should be subjected to an original inspection prior to commissioning and handover to the customer.

On-site inspection of the customer's system is not necessary for switchgear and distributors, provided an inspection record from the manufacturer/workshop is available.

This cost-saving variant should be the norm in all cases where no retrospective modifications have been implemented on site.

Power distribution

ISV distribution enclosure

2.9 ISV-TS 8 enclosures
for ISV installation distribution enclosure up to 630 A Page 409

Technical specifications		
Rated current up to	400 A	630 A
Rated surge current resistance I$_{pk}$ at a maximum busbar support centre distance of 300 mm	30 kA	45 kA
Rated insulation voltage U$_i$ to VDE 0110	690 V AC	
cos phi	0.3	
Cross-section of phase conductor L1 – L3	30 x 5 mm	30 x 10 mm
Cross-section of neutral conductor N	25 x 10 mm	25 x 10 mm
Cross-section of PE conductor	12 x 10 mm	12 x 10 mm
Protective measures	Protection category 1 (with PE conductor)	
Overvoltage category	3	3
IP protection category	IP 20 without door, IP 55 with door	
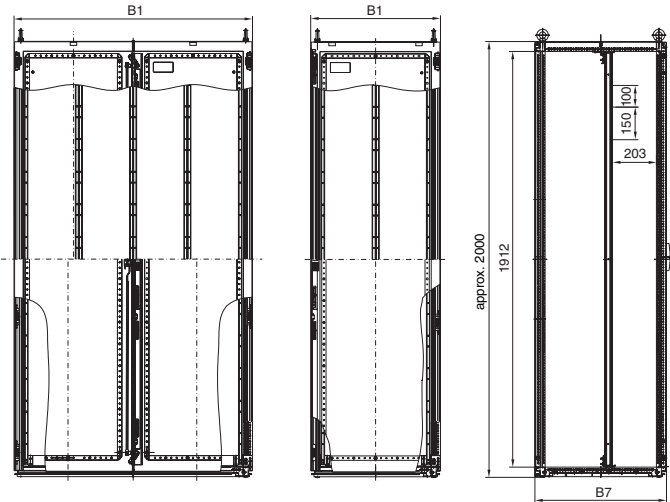
Width measurements									Model No. SV
B1	B2	B3	B4	B5	B6	B7	B8	B9	
597	592	512	606	475	455	605	512	440	**9665.905**
847	842	762	856	725	705	605	512	690	**9665.915**
1097	1092	1012	1106	975	955	605	512	940	**9665.925**
597	592	512	606	475	455	405	312	440	**9665.945**
847	842	762	856	725	705	405	312	690	**9665.955**
1097	1092	1012	1106	975	955	405	312	940	**9665.965**

Top view with side panels shown (B4).
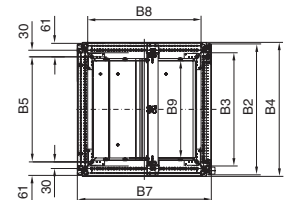
for ISV distribution enclosures up to 1600 A Page 410

SV 9665.975   SV 9665.985
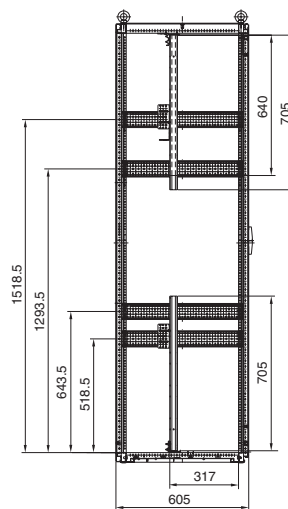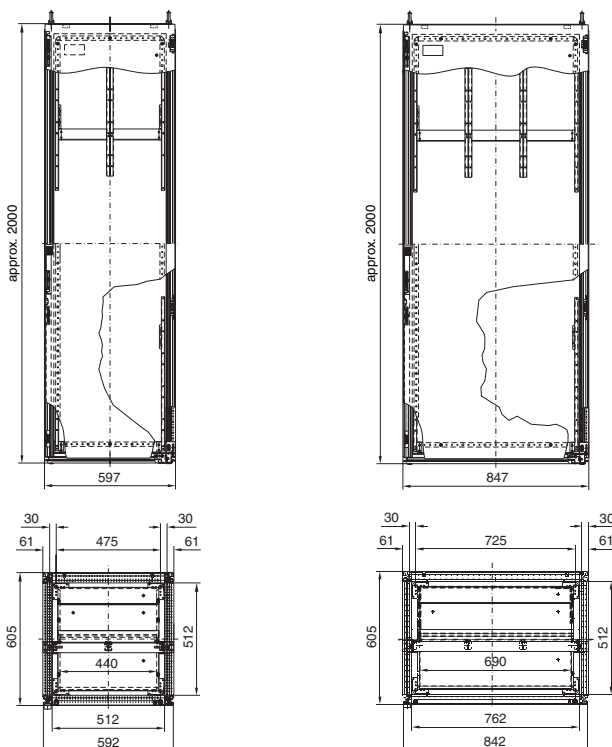
3.1 ATCA

AdvancedTCA Shelf Page 426/427

Front view, version VA
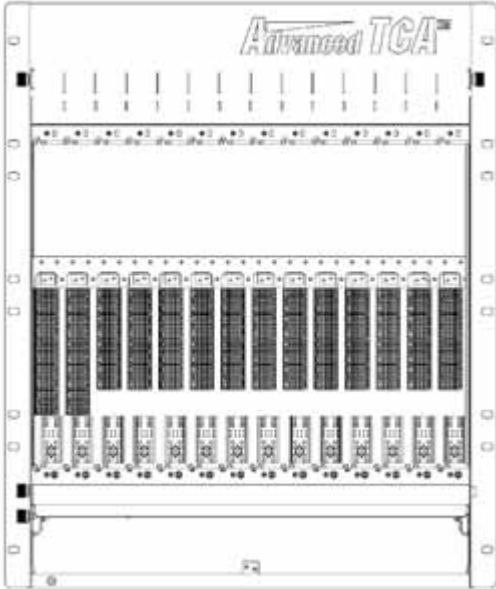
Rear view, version VA/VB
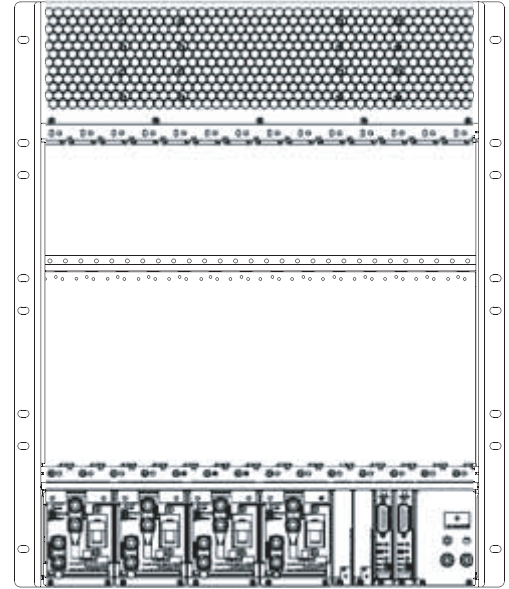
Air routing, version VA/VB

AIR EXIT

ZONE 3 AIRFLOW SEAL PANELS

AIR IN
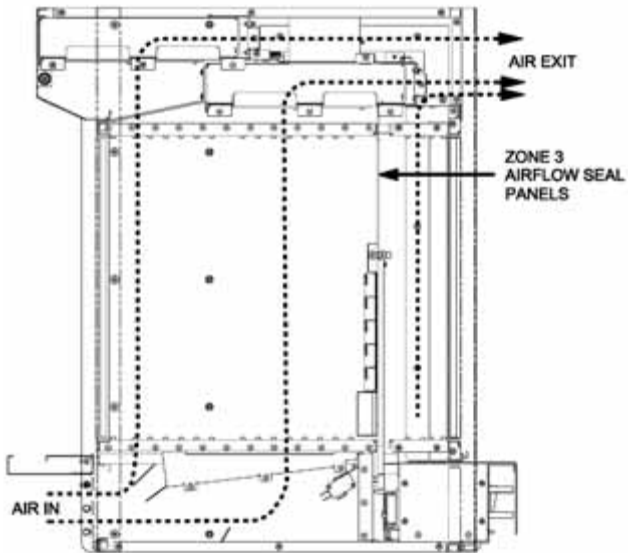
EMC provision, version VA/VB

FRONT BOARD (8U x 2800 x 6 HP)

EMI CAGE

RTM (8 U x 700 x 6 HP)

Electronic packaging
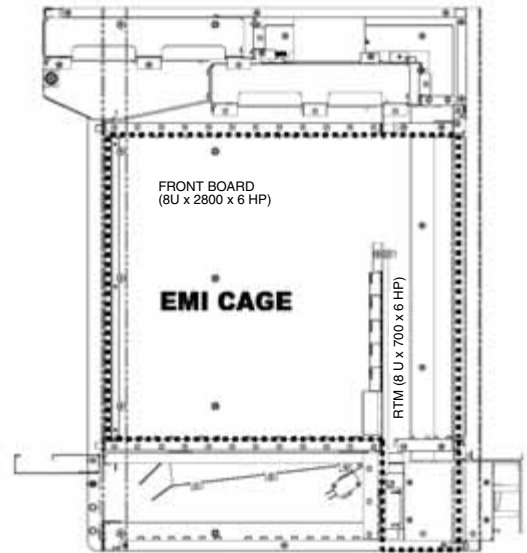
3.1 ATCA

AdvancedTCA Shelf Page 426/427

Subrack side view
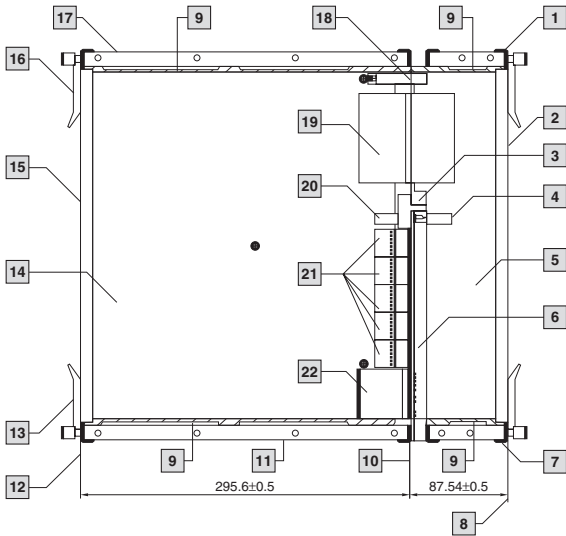
1 RTM upper support member	**15** Front board face plate
2 RTM panel	**16** Top handle
3 Backplane support bar	**17** Front board upper support member
4 RTM alignment feature	**18** Zone 3 air flow seal
5 RTM	**19** Zone 3 connector
6 Backplane	**20** Zone 1 and 2 alignment and keying feature
7 RTM lower support member	**21** Zone 2 fabric and data connectors
8 RTM attachment plane	**22** Zone 1 power connector
9 Guide rail	
10 Backplane datum	
11 Front board lower support member	
12 Front board attachment plane	
13 Bottom handle	
14 Front board	

Dimensions: 295.6±0.5   87.54±0.5

Face plate Page 428

Dimensions: 350, 241.5, 336.3, 6.85, 9.9, 54.25, 1.5, 24.00, 2.5, 24.00, 2.5, 1.2, 28.95 ± 0.38
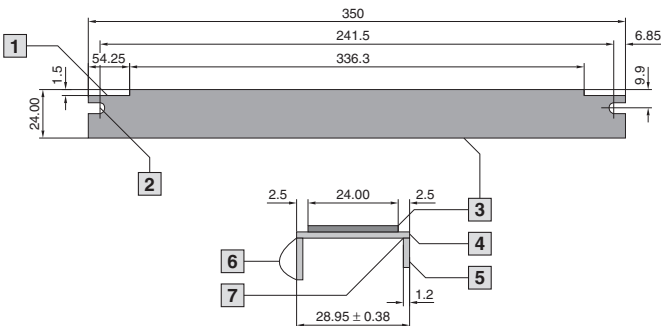
1 Handle clearance	
2 7.00 dia 2 x screw positions	
3 Overlay	
4 External R 2.2	
5 Contact face	
6 EMI gasket	
7 Internal R 1.0	

Handle/microswitch Page 429

Dimensions: 5.19, 4.00, 25.41, 5.45, 4.00, 5.45, 15.00, 1.20, 6.11
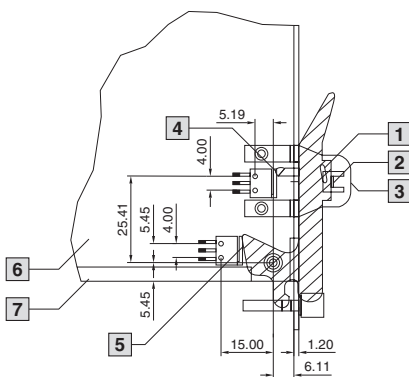
1 Stage 2 "RCSI"	
2 Stage 1 "Locking"	
3 Locking latch	
4 Switch actuates between 1° – 2° handle rotation	
5 Switch actuates between 3° – 4° handle rotation	
6 Side 2 cover	
7 PCB	

Electronic packaging

C
3.

3.4 Power supply units

Ripac power supply units – Open Frame 250 and 400 W Page 479

General specifications

	250 watts	400 watts
Model No. RP 35 A	**3686.622**	**–**
Model No. RP 60 A	**–**	**3686.623**
Model No. RP 85 A	**–**	**3686.629**
Operating temperature range	0°C to +70°C (derating from 50°C)	0°C to +70°C (derating from 50°C, 2.5 %/K)
Storage temperature	–40°C to +85°C	–40°C to +85°C
Mains buffering time (min. at 90 V AC)	16 ms minimum	15 ms minimum
Cooling	Fan-cooled	Fan-cooled
Isolation voltages	Input – output: 4350 V DC Input – enclosure: 2350 V DC Output – enclosure: 100 V DC	Input – output: 3000 V AC Input – enclosure: 1500 V AC Output – enclosure: 500 V DC
Radio interference suppression	EN 55 022 curve B	EN 55 022 curve B
Immunity to interference/emmission	EN 61 000-4-2 (level 4) EN 61 000-4-3 (level 3) EN 61 000-4-4 (level 4) EN 61 000-4-5 (level 3) EN 61 000-4-6 (level 3) EN 61 000-4-11 compliant	EN 61 000-4-2 (level 4) EN 61 000-4-3 (level 3) EN 61 000-4-4 (level 4) EN 61 000-4-5 (level 3) EN 61 000-4-6 (level 3) EN 61 000-4-11 compliant
Approvals	UL 1950, VDE 0805, EN 60 950, CSA 22.2, CE	EN 60 950, UL 1950, CSA 22.2 no. 234, CE

[1] All outputs short-circuit resistant to a maximum of 30 seconds.

**Ripac power supply unit
Open Frame 250 W**
- On/off controller with three outputs
- Design: Solid
- 85 – 265 V AC/120 – 340 V DC
- Radio interference suppressed to EN 55 022 curve B, FCC curve B
- Approvals: EN 60 950, UL 1950, VDE 0805, CSA 22.2/CE
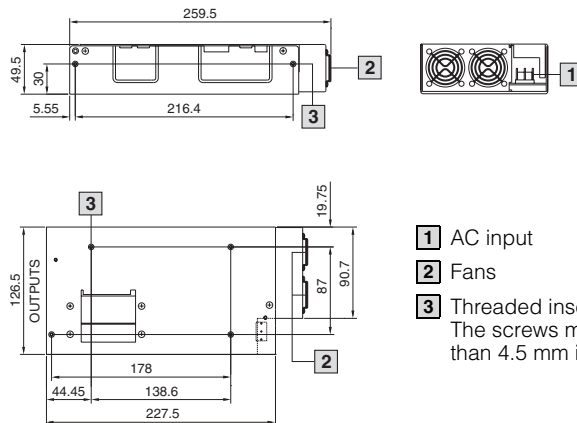
1 AC input

2 Fans

3 Threaded inserts M4 for fastening. The screws must not protrude more than 4.5 mm into the unit.

**Ripac power supply unit
Open Frame 400 W**
- Modular power supply unit
- 3 outputs
- Wide-range input (85 – 253 V AC)
- Power factor in accordance EN 61 000-3-2
- Radio interference suppressed to EN 55 022 curve B
- Immunity to interference in acccordance with EN 61 000-4-3, -5, -6 (level 3) EN 61 000-4-2, -4 (level 4) EN 61 000-4-11 compliant
- FASTON connectors mean faster installation in the terminal equipment
- Tested to EN 60 950, UL 1950 and CSA 22.2 no. 234

1 AC input

2 DC outputs

3 Fans

4 Threaded inserts M4 for fastening. The screws must not protrude more than 4.5 mm into the unit.

C

3.

Electronic packaging

Electronic packaging
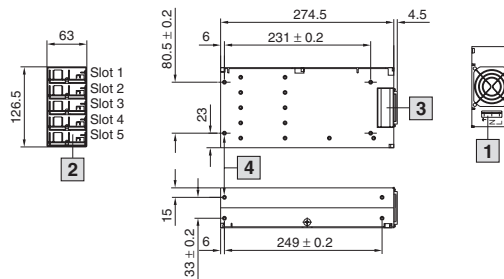
3.4 Power supplies

Ripac power supply units – Open Frame 600 and 1000 W Page 479

General specifications

	600 watts	1000 watts
Model No. RP 85 A	**3686.624**	**–**
Model No. RP 110 A	**–**	**3686.625**
Operating temperature range	0°C to +70°C (derating from 50°C, 2.5 %/K)	0°C to +70°C (derating from 50°C, 2.5 %/K)
Storage temperature	–40°C to +85°C	–40°C to +85°C
Mains buffering time (min. at 90 V AC)	15 ms minimum	13 ms minimum
Cooling	Fan-cooled	Fan-cooled
Isolation voltages	Input – output: 3000 V AC Input – enclosure: 1500 V AC Output – enclosure: 500 V DC	Input – output: 3000 V AC Input – enclosure: 1500 V AC Output – enclosure: 500 V DC
Radio interference suppression	EN 55 022 curve B	EN 55 022 curve A
Immunity to interference/emmission	EN 61 000-4-2 (level 4) EN 61 000-4-3 (level 3) EN 61 000-4-4 (level 4) EN 61 000-4-5 (level 3) EN 61 000-4-6 (level 3) EN 61 000-4-11 compliant	EN 61 000-4-2 (level 4) EN 61 000-4-3 (level 3) EN 61 000-4-4 (level 4) EN 61 000-4-5 (level 3) EN 61 000-4-6 (level 3) EN 61 000-4-11 compliant
Approvals	EN 60 950, UL 1950, CSA 22.2 no. 234, CE	EN 60 950, UL 1950, CSA 22.2 no. 234, CE

Ripac power supply unit Open Frame 600 W
- Modul power supply unit
- 3 outputs
- Long-range input (85 – 253 V AC)
- Power factor in accordance EN 61 000-3-2
- Radio interference suppressed to EN 55 022 curve B
- Immunity to interference in acccordance with
  EN 61 000-4-2, -5, -6 (level 3)
  EN 61 000-4-2, -4 (level 4)
  EN 61 000-4-11 compliant
- FASTON connectors mean faster installation in the terminal equipment
- Tested to EN 60 950, UL 1950 and CSA 22.2 no. 234
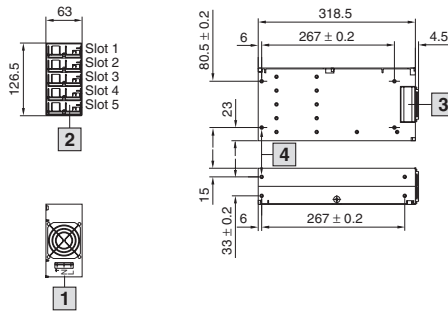
1 AC input

2 DC outputs

3 Fans

4 Threaded inserts M4 for fastening. The screws must not protrude moe than 4.5 mm into the unit.

Ripac power supply unit Open Frame 1000 W
- Ultra-compact units with 3 outputs
- Suitable for universal applications, as the outputs can be set with in a broad range
- No base load required
- Peak current may be loaded for start-up operation of drives (up to 3 times the rated current for 10 seconds)
- Immunity to interference in acccordance with
  EN 61 000-4-2, -5, -6 (level 3)
  EN 61 000-4-2, -4 (level 4)
  EN 61 000-4-11 compliant
- Power factor correction to EN 61 000-3-2
- Long-range input: 85 – 265 V AC
- Radio interference suppressed to EN 55 022 curve A
- EN 60 950, EN 41 003, IEC 950, UL 1950, CSA 234 M 90, BS 6301
- SELV (all models < 48 V U_A)
- 48 V DC input for telecom applications available on request
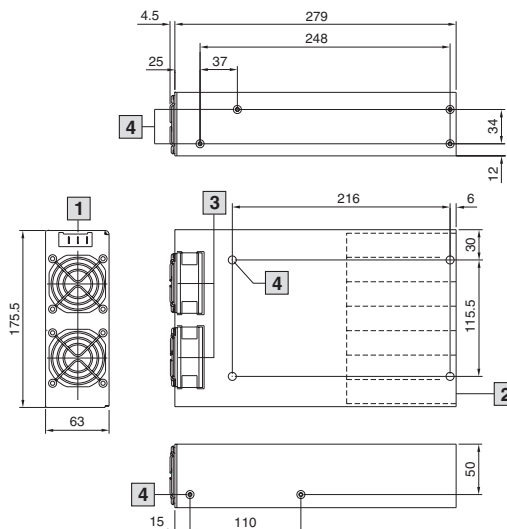
1 AC input

2 DC outputs

3 Fans

4 Threaded inserts M4 for fastening. The screws must not protrude more than 4.5 mm into the unit.

Electronic packaging

3.4 Power supply units
Ripac power supply units for VME, plug-in Page 480

General specifications

Height	3 U		6 U	
Width (HP)	10	12	8	12
Model No. RP power supply	**3686.469**	**3686.470**	**3686.471**	**3685.306**
Model No. RP front panel	**3685.304**	**3685.305**	**3686.472**	**3685.307**
Operating temperature range	0°C to +70°C with free convection		0°C to +70°C with free convection	
Storage temperature	−20°C to +85°C		0°C to +85°C	
Output reduction	3 %/K from +50°C		3 %/K from +50°C	
Size/weight	10 HP: 0.7 kg, 12 HP: 0.8 kg		8 HP: 1.2 kg, 12 HP: 2 kg	
Mains buffering	> 20 ms at 100 % load		> 20 ms at 100 % load	
Radio interference suppression	EN 50 081-1, EN 55 011/EN 55 022 curve B Interfering radiation depending on installation		EN 50 081-1, EN 55 011/EN 55 022 curve B Interfering radiation depending on installation	
Immunity to interference/emmission	EN 50 082-2 EN 61 000-4-2 level 4 EN 61 000-4-3 EN 61 000-4-4 level 4 EN 61 000-4-5 level 4 EN 61 000-4-11 compliant		EN 50 082-2 EN 61 000-4-2 level 4 EN 61 000-4-3 EN 61 000-4-4 level 4 EN 61 000-4-5 level 4 EN 61 000-4-11 compliant	
Connection	Connector H15, IEC 60 603-2 keyable		2 connectors H15, IEC 60 603-2 keyable	
Approvals LGA design-tested	IEC 950/EN 60 950/VDE 0805 Protection category I/VDE 0100 EN 61 000-4-3 interference level 10 V/m EN 61 000-4-11		IEC 950/EN 60 950/VDE 0805 Protection category I/VDE 0100 EN 61 000-4-3 interference level 10 V/m EN 61 000-4-11	

- 482.6 mm (19″) module to IEC 60 297-3.
- Automatice changeover 115/230 V AC.
- All outputs are continuously short-circuit resistant.
- Overtemperature protection.
- AC-FAIL and SYSRESET signals.
- Integrated VME bus signals (AC-FAIL, SYSRESET).
- Design-tested: EN 60 950/VDE 0805 protection category I, VDE 0100.
- EMC standards EN 50 081-1 and 50 082-2.
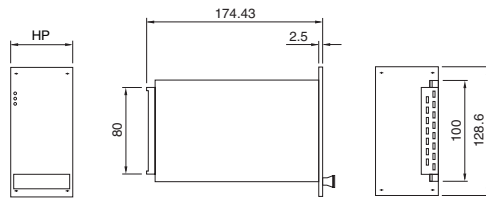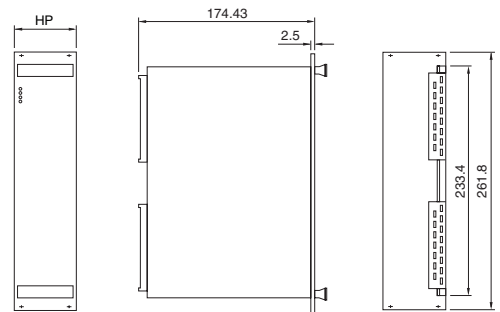
PE earthing contact:
Must be connected to the PE conductor of the mains supply network!
L1/N: Mains conductors
L: Load connection
F: Sensor connection (sense)
0 VL: Common ground for outputs 1 – 3.

With sensor lead operation (5 V only):
Max. voltage compensation per lead 0.25 V.
The sensor lead must be connected to the load.

Without sensor lead operation:
For safe operation of the unit, +5 VL must be connected to +5 VF and 0 VL to 0 VF.

Caution:
Fire protection must be provided via the superordinate enclosure system!

3 U

6 U

Connector assignment H15, IEC 60 603-2 (DIN 41 612)

	3 U	6 U	
Pin	Function	Function (P1)	Function (P2)
4	+5 VF	+5 VL	AC-FAIL
6	0 VF	+5 VL	SYSRESET
8	+5 VF	+5 VL	assigned internally
10	0 VF	+5 VL	assigned internally
12	+5 VF	+5 VF	assigned internally
14	0 VL	+5 VF	assigned internally
16	SYSRESET	−12 VL	assigned internally
18	0 VL	0 VL	mains-related
20	+12 VL	0 VL	mains-related
22	−12 VL	0 VL	mains-related
24	AC-FAIL	0 VL	mains-related
26	assigned internally (mains-related)	0 VL	mains-related
28	L1	+12 VL	L1
30	N	+12 VL	N
32	PE	0 VF	PE

Current limiting characteristic

Temperature-dependent power reduction

Rittal Catalogue 31/Electronic packaging 1153

Electronic packaging
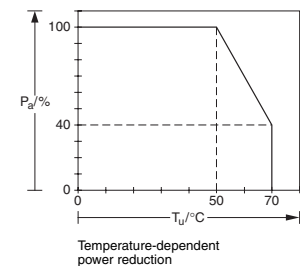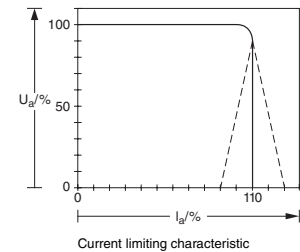
3.4 Power supply units
Ripac power supply units for CPCI, plug-in Page 481

General specifications

Height	3 U			6 U
Width (HP)	8 HP			8 HP
Model No. RP AC power supply	**3688.534**	**3688.694**	**3688.695**	**3688.528**
Model No. RP DC power supply	**3688.537**	**3688.655**	**3688.696**	**3688.530**
Current splitting/N+1 with parallel connection (redundancy)	U_1, U_2 and U_3, internal diodes, "hotswap"-compatible			
Operating temperature range	0° to 70°C (0° – 50°C full load) 50° to 70°C, linear derating			
Cooling	Min. 15 cfm for full load			Min. 90 cfm for full load
Storage temperature	–40°C to +85°C			
Rel. humidity	< 90 % non-condensed			
Weight	approx. 1 kg			approx. 2.4 kg
MTBF	150,000 h at an ambient temperature of 25°C			
Handle	Type VII, Model No. RP 3686.135			
Guide rail	2.54 mm offset, Model No. RP 3687.832			
EMC	FCC Level B, EN 55 022 Level B (conducted)			FCC Level A, EN 55 022 Level A
Connector	Positronic 47-pin, PICMG 2.11			
Approvals	EN 60 950 A1 – A4, CSA 22.2, UL 1950, CE			

3 U

6 U

1 LED display

2 Injector/extractor handle IEEE 1101.10-compatible

3 For 160 mm insertion depth

4 Power supply connector Positronic

1 OPT. (4), Guide rail offset: STD. PSU – 6.60 mm, STD. CPCI – 4.06 mm
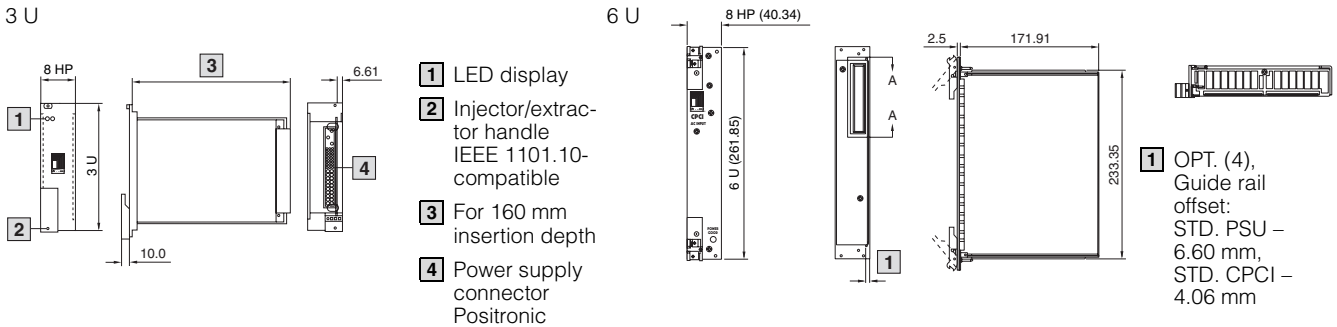
Connector assignment 3 U

Pin#	SEQ[1]		FUNCTION
01 – 04	2	+5.0 V	V 1 Output
05 – 12	2	GND	V 1 + V 2 Return
13 – 18	2	+3.3 V	V 2 Output
19	2	GND	V 3 Return
20	2	+12.0 V	V 3 Output
21	2	–12.0 V	V 4 Output
22	2	RTN	Signal Return
23	2	N/C	No Connection (Reserved)
24	2	GND	V 4 Return
25, 26	2	N/C	No Connection (Reserved)
27	3	R/EN	Remote Enable, Close circuit to GND
28, 29	2	N/C	No Connection (Reserved)
30	2	+ S 1	+5.0 V (V 1) Remote Sense
31, 32	2	N/C	No Connection (Reserved)
33	2	+ S 2	+3.3 V (V 2) Remote Sense
34	2	S-RTN	Sense Return for V 1, V 2, V 3
35	3	N/C	No Connection (Reserved)
36	2	+ S 3	+12.0 V (V 3) Remote Sense
37	2	N/C	No Connection (Reserved)
38	2	DEG	Overtemperature
39	2	R/INH	Remote Inhibit, Close circuit to GND
40	2	N/C	No Connection (Reserved)
41	3	N/C	No Connection (Reserved)
42	2	PF	Power Fail Signal
43	2	N/C	No Connection (Reserved)
44	3	N/C	No Connection (Reserved)
45	1	PE	Protective Earth (chassis) Safety Ground
46	2	ACC	Neutral (N) AC Power Input[3]
47	2	AC	Line (L) AC Power Input[3]

[1] Contact mating sequence
1 = First to make/Last to break
[3] DC to DC version

Connector assignment 6 U

Pin#	SEQ[1]		FUNCTION
01 – 04	2	+5.0 V	V 1 Output
05 – 12	2	GND	V 1 + V 2 Return
13 – 18	2	+3.3 V	V 2 Output
19	2	GND	V 3 Return
20	2	+12.0 V	V 3 Output
21	2	–12.0 V	V 4 Output
22	2	RTN	Signal Return
23	2	N/C	No Connection (Reserved)
24	2	GND	V 4 Return
25, 26	2	N/C	No Connection (Reserved)
27	3	R/EN	Remote Enable, Close circuit to GND
28	2	N/C	No Connection (Reserved)
29	2	V 1-ADJ	+5.0 V Remote Voltage Adjust
30	2	+ S 1	+5.0 V (V 1) Remote Sense
31	2	N/C	No Connection (Reserved)
32	2	V 2-ADJ	+3.3 V Remote Voltage Adjust
33	2	+ S 2	+3.3 V (V 2) Remote Sense
34	2	S-RTN	Sense Return for V 1, V 2, V 3
35	3	ISHR-1	+5.0 V (V 1) Current Share
36	2	+ S 3	+12.0 V (V 3) Remote Sense
37	2	N/C	No Connection (Reserved)
38	2	DEG	Overtemperature
39	2	R/INH	Remote Inhibit, Close circuit to GND
40	2	N/C	No Connection (Reserved)
41	3	ISHR-2	+3.3 V (V 2) Current Share
42	2	PF	Power Fail Signal
43	2	N/C	No Connection (Reserved)
44	3	ISHR-3	+12.0 V (V 3) Current Share
45	1	PE	Protective Earth (chassis) Safety Ground
46	2	ACC	Neutral AC Power Input[3]
47	2	AC	Line AC Power Input[3]

[3] DC to DC version

3.5 Subracks

Key to all Ripac subrack drawings Page 488 – 494

HE = U
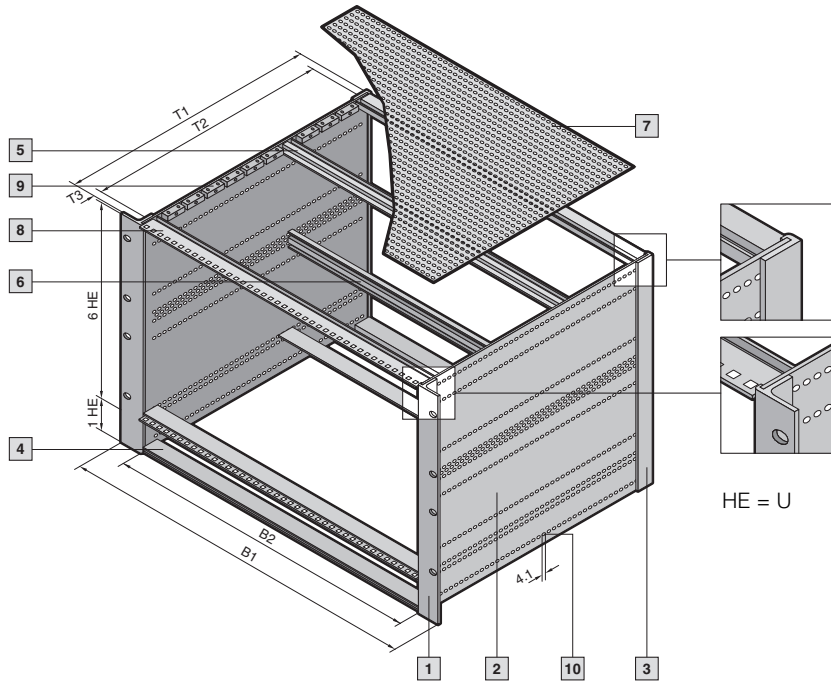
Ripac Vario EMC 7 U
taken as an example

B1	482.6 mm (19″)
B2	HP horizontal pitch (with 19″: 84 HP)
T1	Side panel depth
T2	Mounting position depth
T3	12.5 mm (position of the front horizontal rail)
10	Attachment holes ∅ 4.1 mm for screws M4 x 12

Ripac ECO 3 U, 6 U – supply includes Page 488

Height units U			D (T1) mm	D (T2) mm	Packs of	3	6	Page
2	Side panels		175	150	1	3688.100	3688.102	496
			235	210	1	3688.101	3688.103	
1		Flanges 3 U		3688.110	1	2	–	497
		Flanges 6 U		3688.111	1	–	2	
2		Side panels		see above	1	2	2	496
4	A	Horizontal rails, front		3684.562	1	2	2	499
	I	Threaded inserts		3684.610	1	4	4	504
5	C4	Horizontal rails, rear		3688.104	1	2	2	501
6	D1	Horizontal rails, rear, centre		3684.582	1	–	1	502
10		Assembly screws M4 x 12		3684.881	1	8	10	–
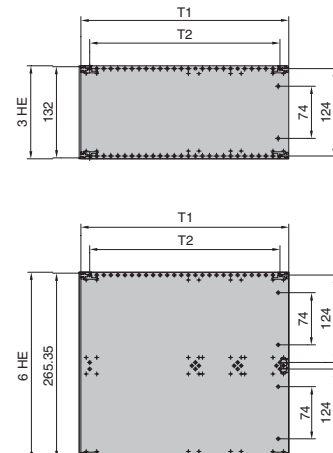
Ripac Vario, Ripac Vario EMC Page 489 – 492

3 U
4 U (3 + 2 x ¹/₂)
4 U (3 + 1)
9 U

6 U
7 U (8 + 2 x ¹/₂)
7 U (6 + 1)

C
3.

Electronic packaging
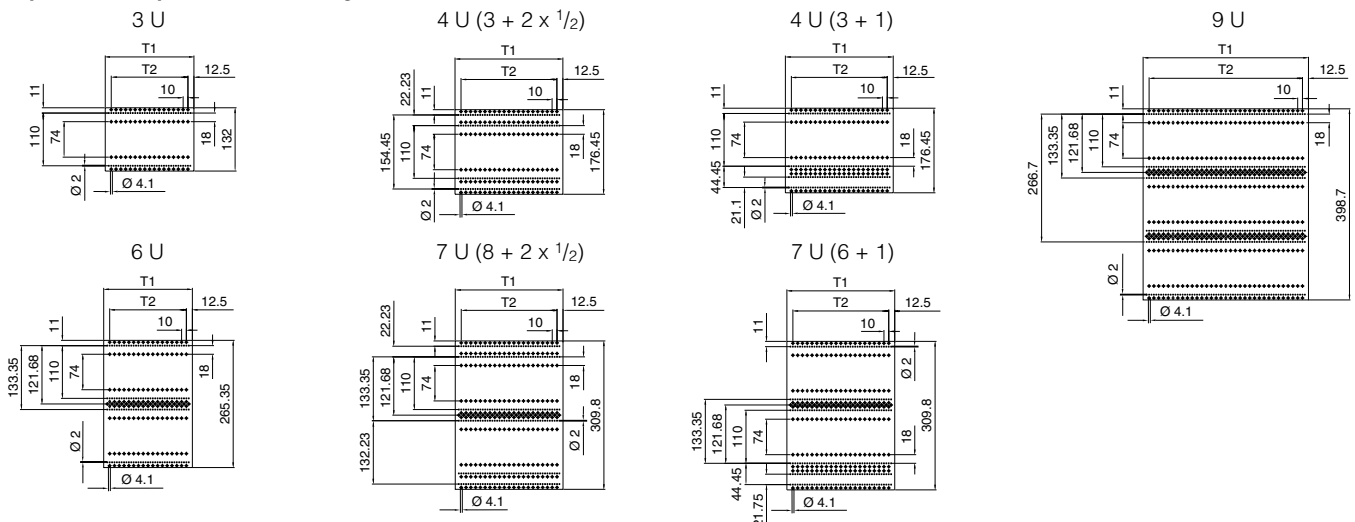
3.5 Subracks

Ripac Vario, Ripac Vario EMC 3 U, 4 U, 6 U, 7 U, 9 U – supply includes Page 489 – 492

Height units U		D (T1) mm	D (T2) mm	Packs of	3	6	9	4 (3 + 1)	4 (3 + 2 x ½)	7 (6 + 1)	7 (6 + 2 x ½)	Page
2	Side panels	185	160	1	3684.511	3684.529	–	–	–	–	–	495
		225	200	1	3684.512	3684.530	3685.797	3685.793	3685.890	3685.896	3685.893	
		245	220	1	3684.513	3684.531	–	3685.850	3685.891	3685.897	3685.894	
		285	260	1	3684.514	3684.532	–	3684.523	3684.526	3685.743	3685.895	
		305	280	1	3684.515	3684.533	3685.798	3685.794	–	–	–	
		345	320	1	3684.516	3684.534	3684.547	3684.524	3684.527	3685.744	3685.745	
		365	340	1	3684.517	3684.535	3685.799	3685.795	–	–	–	
		405	380	1	3684.518	3684.536	3684.548	3684.525	3684.528	3684.541	3684.543	
		425	400	1	3684.519	3684.537	–	–	–	–	–	
		465	440	1	3684.520	3684.538	3684.549	3685.796	3685.892	3684.542	3684.544	
		525	500	1	3684.521	3684.539	3684.550	–	–	3685.898	3685.959	
		585	560	1	3684.522	3684.540	3684.551	–	–	–	–	

Subrack Ripac Vario

	PT		Model No.	P. of	3 BP	3 C	6 BP	6 C	9 BP	9 C	4 (3+1) BP	4 (3+1) C	4 (3+2x½) BP	4 (3+2x½) C	7 (6+1) BP	7 (6+2x½) C	Page
1		Flanges	–	1	3684.615 → 2	2	3684.617 → 2	2	3684.619 → 2	2	3684.616 → 2	2	2	2	3684.618 → 2	2	496
2		Side panels	see above	1	2	2	2	2	2	2	2	2	2	2	2	2	495
4	A	Horizontal rails, front	3684.562	1	2	2	2	2	2	2	2	2	2	2	2	2	499
	I	Threaded inserts	3684.610	1	2	2	2	2	2	2	2	2	2	2	2	2	504
5	C1	Horizontal rails, rear	3684.572	1	2	–	2	–	2	–	2	–	2	–	2	2	500
6	D1	Horizontal rails, rear, centre	3684.582	1	–	–	1	–	2	–	–	–	–	–	1	1	502
	G	Insulating strips 21 HP	3684.611	1	8	–	16	–	24	–	8	–	8	–	16	16	505
	C3	Horizontal rails, rear, with Z rails	3686.159	1	–	2	–	2	–	2	–	2	–	2	–	–	501
	D2	Horizontal rails, rear, centre, with integral Z rails	3687.602	1	–	–	–	1	–	2	–	–	–	–	–	–	503
10		Assembly screws M4 x 12	3684.881	1	8	8	10	10	12	12	8	8	8	8	10	10	–

Subrack Ripac Vario EMC

	PT		Model No.	P. of	3 BP	3 BP1)	6 BP	6 BP1)	9 BP	9 BP1)	4 (3+1) BP	4 (3+1) BP1)	4 (3+2x½) BP	4 (3+2x½) BP1)	7 (6+1) BP	7 (6+1) BP1)	7 (6+2x½) BP	7 (6+2x½) BP1)	Page
1		Flanges	–	1	3684.615 → 2	2	3684.617 → 2	2	3684.619 → 2	2	3684.616 → 2	2	2	2	3684.618 → 2	2	2	2	496
3		Trim sections, rear	–	1	3684.634 → 2	2	3684.636 → 2	2	3684.638 → 2	2	3684.635 → 2	2	2	2	3684.637 → 2	2	2	2	497
2		Side panels	see above	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	495
		EMC gaskets, vertical	–	1	3686.975 → 4	4	3686.977 → 4	4	3686.979 → 4	4	3686.976 → 4	4	3	3	3686.978 → 4	4	3	3	506
7		Covers, vented	see below	1	2	2	2	2	2	2	2	2	–	–	2	2	–	–	515
		Covers, L-shaped, 1/2 U, top solid/bottom vented at front	see below	1	–	–	–	–	–	–	–	–	1/1	1/1	–	–	1/1	1/1	517
9		Mounting blocks	3684.234	10	Depending on depth														507
	K	EMC gaskets for covers	3684.245	10	4	4	4	4	4	4	4	4	2	2	4	4	2	2	507
4	A	Horizontal rails, front	3684.562	1	4	3	4	2	4	2	6	5	4	3	6	4	4	2	499
	I	Threaded inserts	3684.610	1	4	4	4	4	4	4	6	6	4	4	6	6	4	4	504
8	B	Front horizontal rails with 10 mm extension	3684.567	1	–	1	–	2	–	2	–	1	–	1	–	2	–	2	499
5	C1	Horizontal rails, rear	3684.572	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	500
6	D1	Horizontal rails, rear, centre	3684.582	1	–	–	1	1	2	2	–	–	–	–	1	1	1	1	502
	G	Insulating strips 21 HP	3684.611	1	8	8	16	16	24	24	8	8	8	8	16	16	16	16	505
10		Assembly screws M4 x 12	3684.881	1	12	12	14	14	16	16	16	16	12	12	18	18	14	14	–

Covers for Ripac Vario EMC

Height units U		D (T1) mm	Packs of	3	6	9	4 (3 + 1)	4 (3 + 2 x ½)	7 (6 + 1)	7 (6 + 2 x ½)	Page
7	Covers	245	1	3684.695			–	–	–	–	515 – 517
		285	1	3684.696			3684.696	3684.732/ 3684.726 2)	3684.696	3684.732/ 3684.726 2)	
		305	1	3685.852			–	–	–	–	
		345	1	3684.698			3684.698	3684.733/ 3684.727 2)	3684.698	3684.733/ 3684.727 2)	
		405	1	3684.700			3684.700	3684.734/ 3684.728 2)	3684.700	3684.734/ 3684.728 2)	
		465	1	3684.701			–	–	3684.701	3684.735/ 3684.729 2)	
		525	1	3684.702			–	–	–	–	
		585	1	3684.703			–	–	–	–	

BP = for backplane C = for DIN connector PT = rail type
1) Front horizontal rails with 10 mm extension for injector/extractor handles (B)   2) vented/not vented

3.5 Subracks

Ripac Compact, 3 U, 6 U – supply includes Page 493

			D (T1) mm	D (T2) mm	Packs of	3	3	3	3	6	EMC version 3	3	3	3	6	Page
Height units U						3	3	3	3	6	3	3	3	3	6	
Horizontal pitch HP						21	21	42	42	42	21	21	42	42	42	
						HS	MP	HS	MP	MP	HS	MP	HS	MP	MP	
2		Side panels	225	200	x		3684.512			3684.530		3684.512			3684.530	495
			285	260	x		3684.514			3684.532		3684.514			3684.532	

	PT	Attachment			Packs of	For backplane										Page
2		Side panels		see above	x	2	2	2	2	2	1	1	1	1	1	495
		Side panels for cable entry			x	–	–	–	–	–	1	1	1	1	1	–
		EMC PG cable gland			x	–	–	–	–	–	1	1	1	1	1	–
3		Trim sections, rear			x	4	2	4	2	2	4	2	4	2	2	497
1		Flanges with keyhole			x	–	2	–	2	2	–	2	–	2	2	–
		EMC front/rear panels			x	–	–	–	–	–	–	1	–	1	1	–
		EMC rear panel for rail adaptor			x	–	–	–	–	–	1	–	1	–	–	–
		Rear panel for rail adaptor			x	1	–	1	–	–	–	–	–	–	–	–
		Rail adaptor			x	1	–	1	–	–	1	–	1	–	–	–
		EMC gaskets, vertical			x	–	–	–	–	–	3	3	3	3	3	506
7		Covers, vented		see below	x	–	–	–	–	–	2	2	2	2	2	517
4	A	Horizontal rails, front			x	4	2	4	2	2	4	4	4	4	4	499
5	C1	Horizontal rails, rear			x	2	2	2	2	2	2	2	2	2	2	500
	I	Threaded inserts			x	4	2	4	2	2	4	4	4	4	4	504
	G	Insulating strips 21 HP			x	2	2	4	4	8	2	2	4	4	8	505
6	D1	Horizontal rails, rear, centre			x	–	–	–	–	1	–	–	–	–	1	502

Covers for Ripac Compact

			LP mm	Packs of	3	3	3	3	6	3	3	3	3	6	Page
7		Covers, vented	160	1	3687.624		3687.625			3687.624[1]		3687.625[1]			517
		Covers, vented	220	1	3687.692		3687.677			3687.692[1]		3687.677[1]			517
	F	Z rails IEC 60 603-2 (DIN 41 612)		1	3684.599		3684.600			3684.599		3684.600			504

HS = top hat rail MP = mounting plate PT = rail type LP = PCB depth
[1] Included with the supply
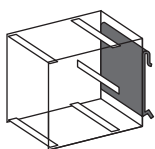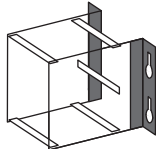
For top hat rail   For mounting plate

HE = U
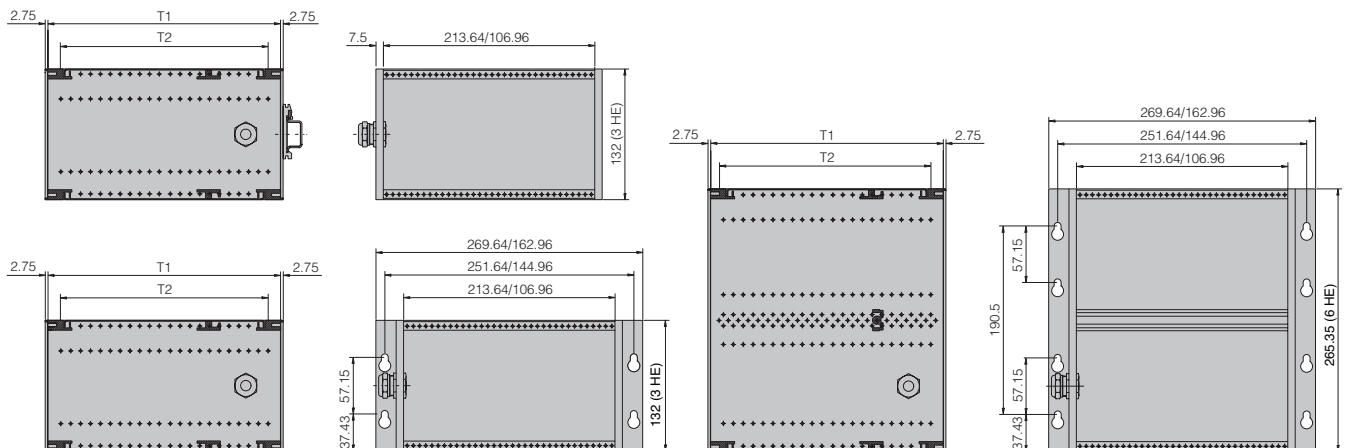
3.5 Subracks

Ripac Vario Mobil 3 U, 6 U – supply includes Page 494

								EMC			EMC	Page
Height units U						3	3	3	6	6	6	
			D (T1) mm	D (T2) mm	Packs of	BP	C	BP	BP	C	BP	
2		Side panels	245	220	1		3684.513			3684.531		495
	PT			Model No.	Packs of							
1		Flanges		–	1	2	3684.615 2	2	2	3684.617 2	2	496
3		Trim sections, rear		–	1	–	–	2 3684.634	–	–	2 3684.636	497
2		Side panels		see above	1	2	2	2	2	2	2	495
		EMC gaskets, vertical		–	1	–	–	2 3686.975	–	–	2 3686.977	506
7		Covers, vented		3684.695	1	–	–	2	–	–	2	515
9		Mounting blocks		3684.234	10	–	–	20	–	–	20	507
	K	EMC gaskets for covers		3684.245	10	–	–	4	–	–	4	507
4	A	Horizontal rails, front		3684.562	1	4	4	4	4	4	4	499
	I	Threaded inserts		3684.610	1	4	4	4	4	4	4	504
5	C1	Horizontal rails, rear		3684.572	1	2	–	2	2	–	2	500
6	D1	Horizontal rails, rear, centre		3684.582	1	–	–		1	–	1	502
	G	Insulating strips 21 HP		3684.611	1	8	–	8	16	–	16	505
	C3	Horizontal rails, rear, with integral Z rails		3686.159	1	–	2	–	–	2	–	501
	D2	Horizontal rails, rear, centre, with integral Z rails		3687.602	1	–	–	–	1	–	–	503
		Assembly screws M4 x 12		3684.881	1	12	12	12	14	14	14	–
		Assembly screws M3 x 6		3684.883	1	–	–	60	–	–	60	–

BP = for backplane C = for DIN connector PT = rail type
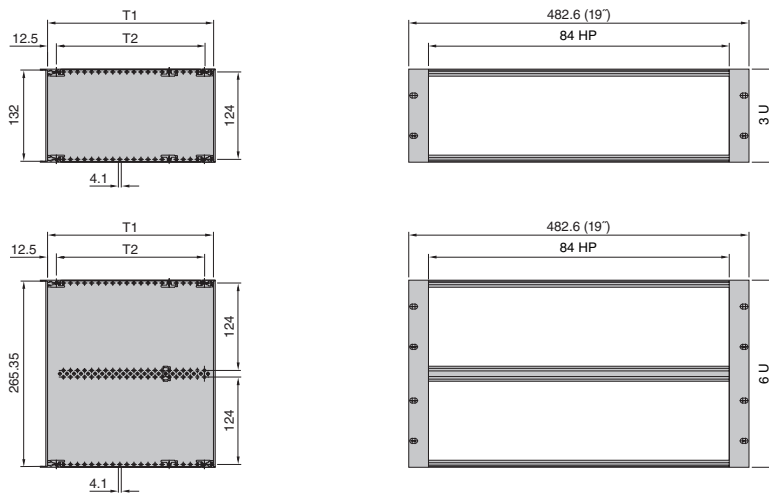
3.6 Instrument cases/system enclosures

RiBox system enclosures 1 U Page 554

482.6 mm (19″) rack mount
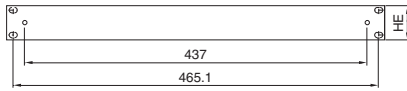
HE = U
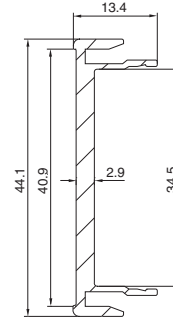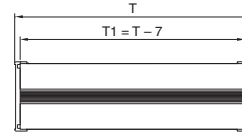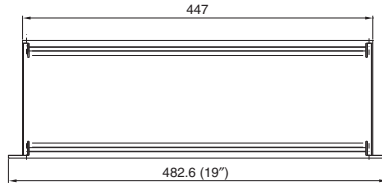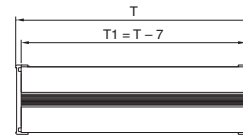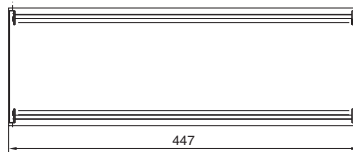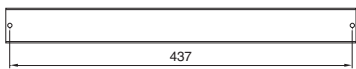
Instrument cases

Model No. RP			D (T) mm
Instrument cases	19″ rack mount	19″ rack mount[1]	
3687.819	**3687.814**	–	150
3687.820	**3687.815**	–	200
3687.821	**3687.816**	**3684.072**	250
3687.822	**3687.817**	–	300
3687.823	**3687.818**	**3684.073**	350

[1] including assembly kit for double Euroboards

Electronic packaging

3.6 Instrument cases/system enclosures

Ripac Vario-Module Page 555 – 558

3 U
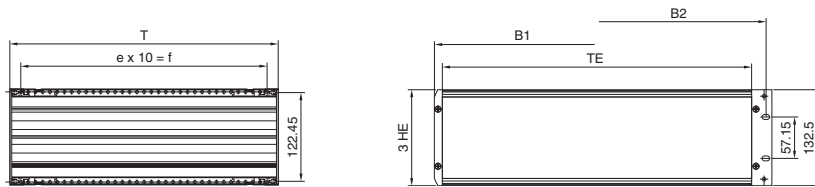
4 U
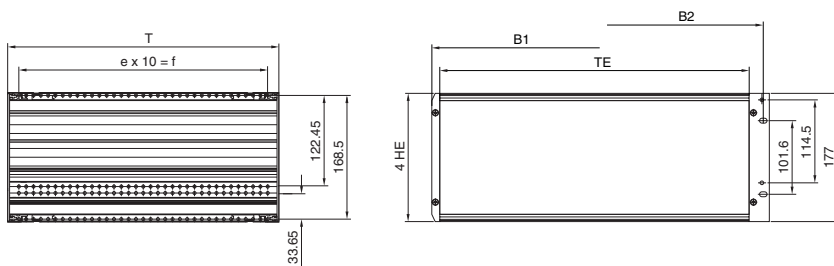
6 U
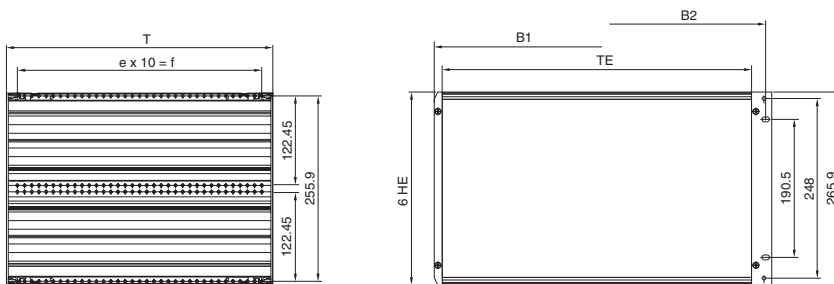
7 U
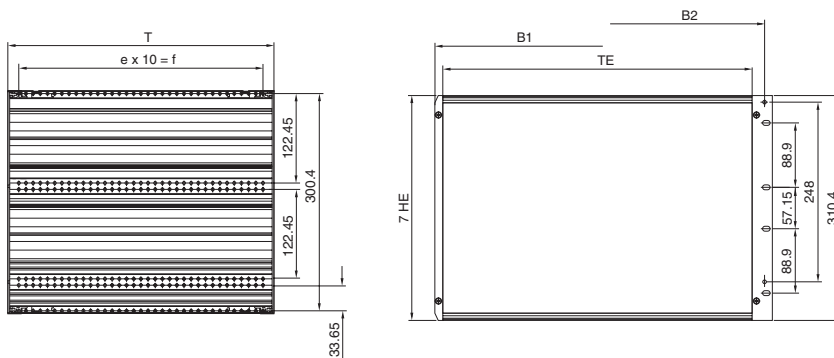
Model No. VM	U (HE)	HP (TE)	D (T) mm	e	W (B1) mm	W (B2) mm
3982.040	3	42	250.4	22	235.6	251.6
3982.070	3	42	310.4	28	235.6	251.6
3982.050	3	63	250.4	22	342.3	358.3
3982.080	3	63	310.4	28	342.3	358.3
3982.060	3	84	250.4	22	449.0	465.1
3982.090	3	84	310.4	28	449.0	465.1
3982.100	3	84	370.4	34	449.0	465.1
3982.110	4	84	250.4	22	449.0	465.1
3982.120	4	84	310.4	28	449.0	465.1
3982.130	4	84	370.4	34	449.0	465.1
3982.140	6	84	310.4	28	449.0	465.1
3982.150	6	84	370.4	34	449.0	465.1
3982.160	6	84	430.4	40	449.0	465.1
3982.170	7	84	310.4	28	449.0	465.1
3982.190	7	84	430.4	40	449.0	465.1

Model No. VM (EMC)	U (HE)	HP (TE)	D (T) mm	e	W (B1) mm	W (B2) mm
3983.040	3	42	250.4	22	235.6	251.6
3983.070	3	42	310.4	28	235.6	251.6
3983.050	3	63	250.4	22	342.3	358.3
3983.080	3	63	310.4	28	342.3	358.3
3983.060	3	84	250.4	22	449.0	465.1
3983.090	3	84	310.4	28	449.0	465.1
3983.100	3	84	370.4	34	449.0	465.1
3983.110	4	84	250.4	22	449.0	465.1
3983.120	4	84	310.4	28	449.0	465.1
3983.130	4	84	370.4	34	449.0	465.1
3983.140	6	84	310.4	28	449.0	465.1
3983.150	6	84	370.4	34	449.0	465.1
3983.160	6	84	430.4	40	449.0	465.1
3983.170	7	84	310.4	28	449.0	465.1
3983.190	7	84	430.4	40	449.0	465.1

3.6 Instrument cases/system enclosures

Rittal RiCase 269.2 mm (¹/₂ 19″)

Rittal RiCase 482.6 mm (19″)

Section B – B

Detail X

HE = U
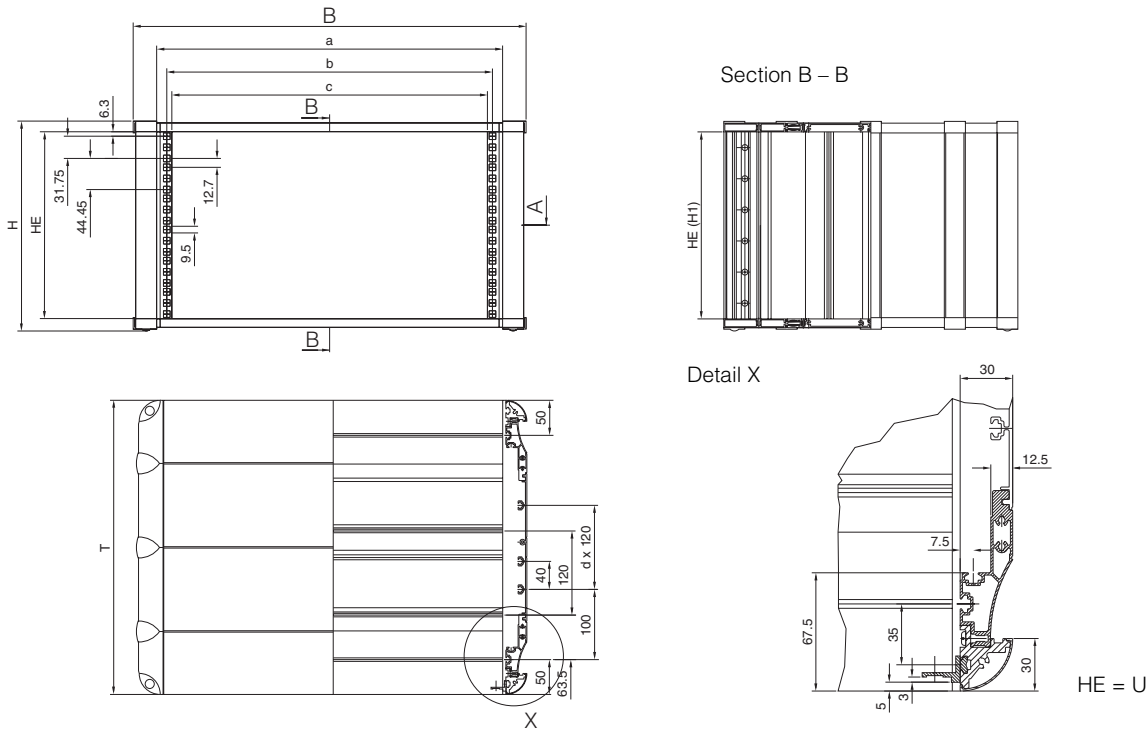
Rittal RiCase 269.2 mm (¹/₂ 19″)

Not vented									
Model No. RC, RAL 5018	3750.100	–	3750.200	–	3750.210	3750.300	–	3750.400	–
Model No. RC, RAL 5012	3750.102	–	3750.202	–	3750.212	3750.302	–	3750.402	–
Model No. RC, RAL 7030	3750.104	–	3750.204	–	3750.214	3750.304	–	3750.404	–
Vented									
Model No. RC, RAL 5018	–	3750.110	–	3750.220	–	3750.350	3750.360	–	3750.450
Model No. RC, RAL 5012	–	3750.112	–	3750.222	–	3750.352	3750.362	–	3750.452
Model No. RC, RAL 7030	–	3750.114	–	3750.224	–	3750.354	3750.364	–	3750.454
U	1		2		3			4	
Width (B) mm	348.6	348.6	348.6	348.6	348.6	348.6	348.6	348.6	348.6
Height (H) mm	77.5	77.5	121.9	121.9	166.4	166.4	166.4	210.8	210.8
H1 (HE) mm	45.0	45.0	89.4	89.4	133.8	133.8	133.8	178.3	178.3
Depth (T) mm	300.0	420.0	300.0	540.0	300.0	420.0	540.0	420.0	540.0
a	280.6	280.6	280.6	280.6	280.6	280.6	280.6	280.6	280.6
b	251.6	251.6	251.6	251.6	251.6	251.6	251.6	251.6	251.6
c	237.2	237.2	237.2	237.2	237.2	237.2	237.2	237.2	237.2
d	–	1	–	2	–	1	2	1	2

Rittal RiCase 482.6 mm (19″)

Not vented												
Model No. RC, RAL 5018	3750.310	3750.320	3750.410	3750.420	3750.600	3750.610	3750.620	3750.700	3750.710	3750.900	3750.910	3750.000
Model No. RC, RAL 5012	3750.312	3750.322	3750.412	3750.422	3750.602	3750.612	3750.622	3750.702	3750.712	3750.902	3750.912	3750.002
Model No. RC, RAL 7030	3750.314	3750.324	3750.414	3750.424	3750.604	3750.614	3750.624	3750.704	3750.714	3750.904	3750.914	3750.004
Vented												
Model No. RC, RAL 5018	3750.330	3750.340	3750.430	3750.440	3750.630	3750.640	3750.650	3750.720	3750.730	3750.920	3750.930	3750.030
Model No. RC, RAL 5012	3750.332	3750.342	3750.432	3750.442	3750.632	3750.642	3750.652	3750.722	3750.732	3750.922	3750.932	3750.032
Model No. RC, RAL 7030	3750.334	3750.344	3750.434	3750.444	3750.634	3750.644	3750.654	3750.724	3750.734	3750.924	3750.934	3750.034
U	3		4		6			7		9		12
Width (B) mm	562.0	562.0	562.0	562.0	562.0	562.0	562.0	562.0	562.0	562.0	562.0	562.0
Height (H) mm	166.4	166.4	210.8	210.8	299.7	299.7	299.7	344.2	344.2	433.1	433.1	566.5
H1 (HE) mm	133.8	133.8	178.3	178.3	267.2	267.2	267.2	311.7	311.7	400.6	400.6	534.0
Depth (T) mm	300.0	420.0	300.0	420.0	300.0	420.0	540.0	420.0	540.0	420.0	540.0	540.0
a	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0	494.0
b	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0	465.0
c	450.6	450.6	450.6	450.6	450.6	450.6	450.6	450.6	450.6	450.6	450.6	450.6
d	–	1	–	1	–	1	2	1	2	1	2	2

c

3.

Electronic packaging

3.6 Instrument cases/system enclosures

Rittal Vario-Case iS 269.2 mm (¹/₂ 19″) Page 569

Section B – B

Section A – A

Detail Y

Detail Z

HE = U
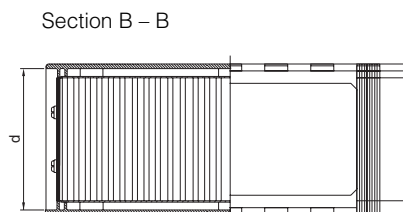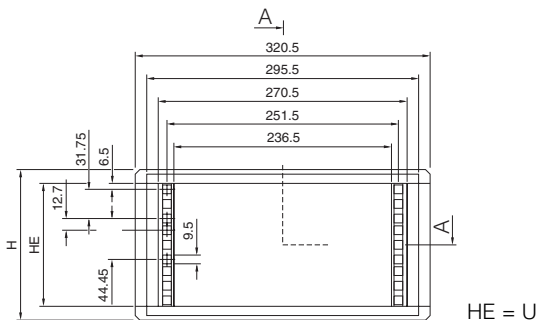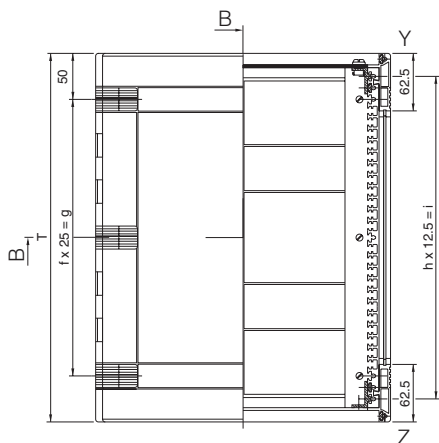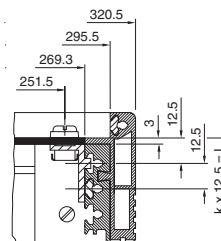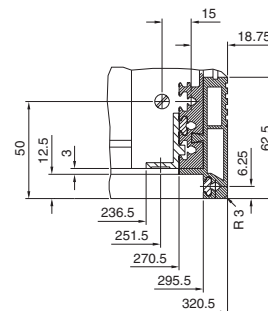
Model No. VC without vent slots	3710.000	3720.000	3730.000	3731.000	3740.000	3741.000
U	1	2	3		4	
Depth (T) mm	300	300	300	400	300	400
Height (H) mm	74.75	119.20	163.65	163.65	208.10	208.10
d	64.75	109.20	153.65	153.65	198.10	198.10
f	8	8	8	12	8	12
g	200	200	200	300	200	300
h	20	20	20	28	20	28
i	250	250	250	350	250	350
k	22	22	22	30	22	30
l	275	275	275	375	275	375

3.6 Instrument cases/system enclosures

Rittal Vario-Case iS 482.6 mm (19″) Page 570 – 571.

Section B – B

Section A – A

Detail Y

Detail Z

HE = U
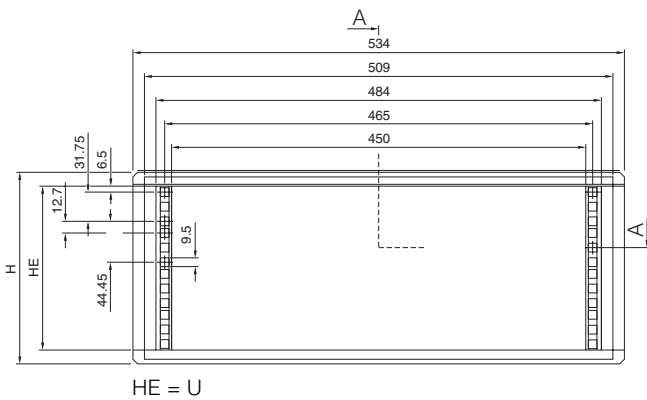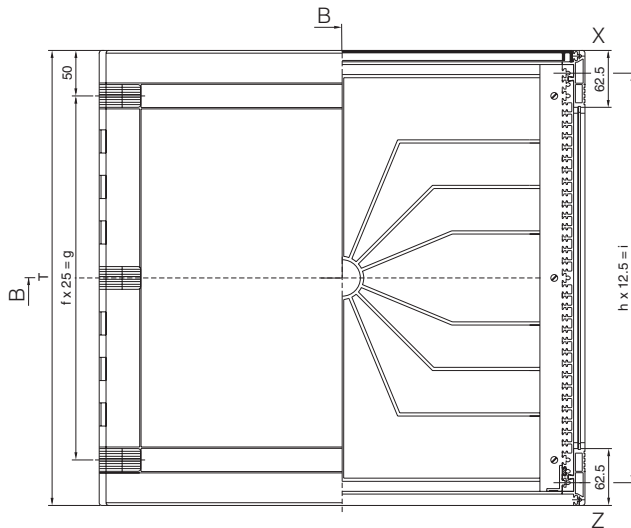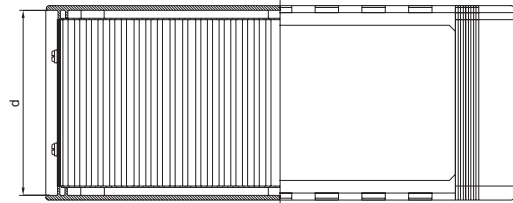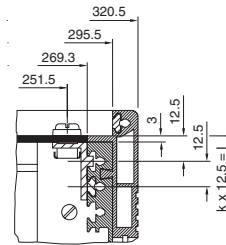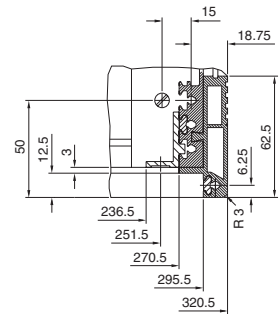
Model No. VC without vent slots	3713.000	3714.000	3743.000	3744.000	3745.000	3774.000	3775.000
Model No. VC with vent slots	**3713.200**	**3714.200**	**3743.200**	**3744.200**	**3745.200**	**3774.200**	**3775.200**
U	1		4			7	
Depth (T) mm	300	400	300	400	500	400	500
Height (H) mm	74.75	74.75	208.10	208.10	208.10	341.40	341.40
d	64.75	64.75	198.10	198.10	198.10	331.40	331.40
f	8	12	8	12	16	12	16
g	200	300	200	300	400	300	400
h	20	28	20	28	36	28	36
i	250	350	250	350	450	350	450
k	22	30	22	30	38	30	38
l	275	375	275	375	475	375	475

Model No. VC without vent slots	3733.000	3734.000	3735.000	3763.000	3764.000	3765.000	3794.000	3795.000
Model No. VC with vent slots	**3733.200**	**3734.200**	**3735.200**	**3763.200**	**3764.200**	**3765.200**	**3794.200**	**3795.200**
U	3			6			9	
Depth (T) mm	300	400	500	300	400	500	400	500
Height (H) mm	163.65	163.65	163.65	297.00	297.00	297.00	430.50	430.50
d	153.65	153.65	153.65	287.00	287.00	287.00	420.50	420.50
f	8	12	16	8	12	16	12	16
g	200	300	400	200	300	400	300	400
h	20	28	36	20	28	36	28	36
i	250	350	450	250	350	450	350	450
k	22	30	38	22	30	38	30	38
l	275	375	475	275	375	475	375	475

System climate control

Climate controlled enclosures

4.1 Climate controlled enclosures
single-door, useful cooling output 1100/1500 W Page 582

1100 W

1500 W
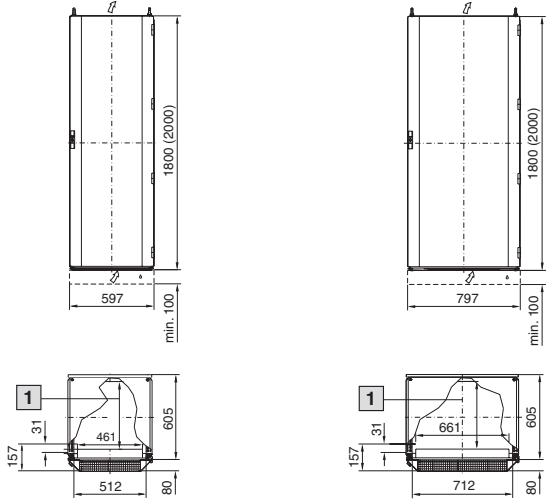
1 max. installation depth = 478   1 max. installation depth = 478

Device position
left

Device position
right
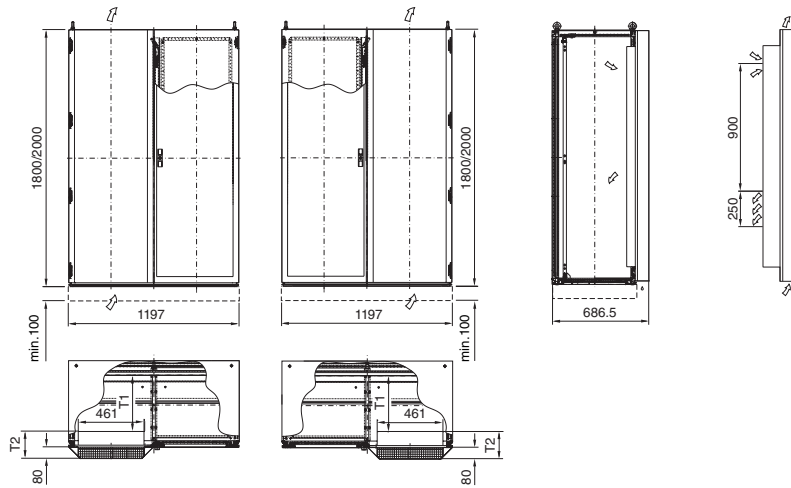
	2000 W	2500 W
D (T1) max.	445	415
D (T2)	190	220

4.1 Climate control doors

for installing in 600 mm wide TS 8 enclosures, useful cooling output 1100/1500 W Page 584
for installing in 600 mm wide TS 8 enclosures, useful cooling output 2000/2500 W Page 586

1100 W
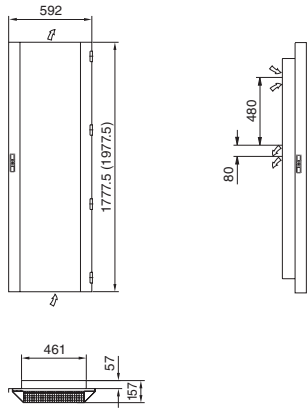
1500 W
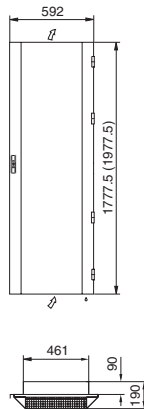
2000 W
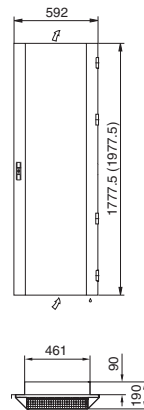
2500 W
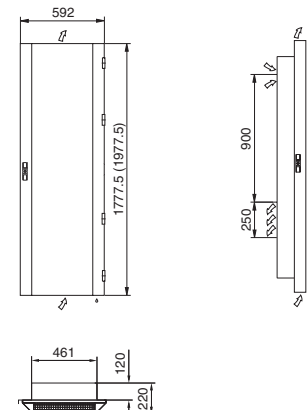
for installing in 800 mm wide TS 8 enclosures, useful cooling output 1500 W Page 585
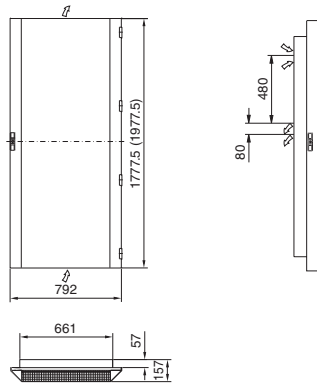
for installing in 1200 mm wide TS 8 enclosures, useful cooling output 1100/1500 W Page 587
for installing in 1200 mm wide TS 8 enclosures, useful cooling output 2000/2500 W Page 588

1100 W
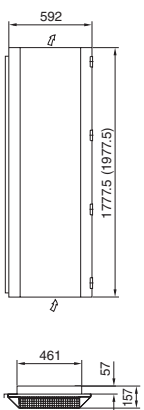
1500 W
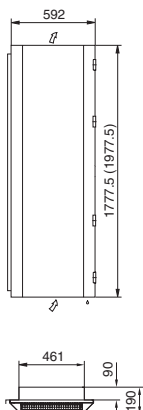
2000 W

2500 W

System climate control

C

4.
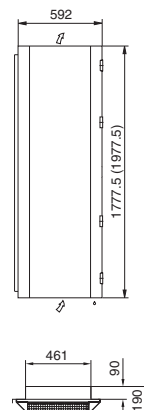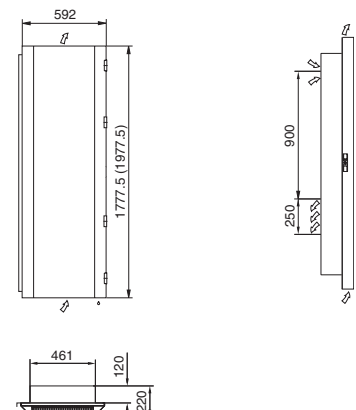
System climate control

Roof-mounted cooling units

4.1 Roof-mounted cooling units

Useful cooling output 500/750 W Page 590

Mounting cutout
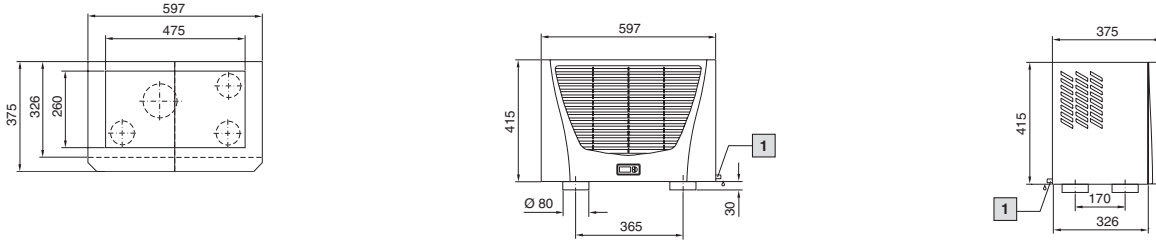
1 Condensate discharge $^1/_2''$, flexible

Useful cooling output 1000 W Page 591
Useful cooling output 1100 W Page 592
Useful cooling output 1500/2000 W Page 593

Mounting cutout
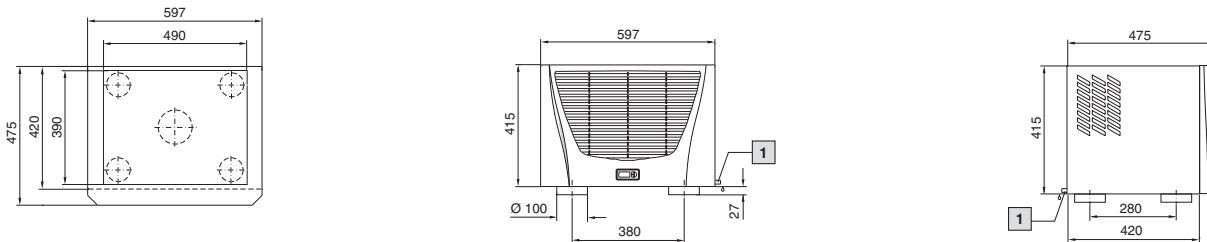
1 Condensate discharge $^1/_2''$, flexible

Useful cooling output 3000/4000 W Page 594

Mounting cutout

1 Condensate discharge $^1/_2''$, flexible

C

4.

System climate control
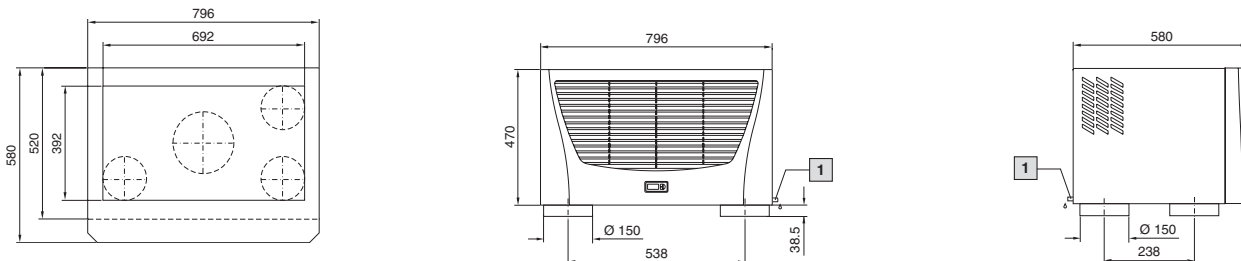
4.1 Wall-mounted cooling units

Mini in horizontal format, useful cooling output 300 W Page 596
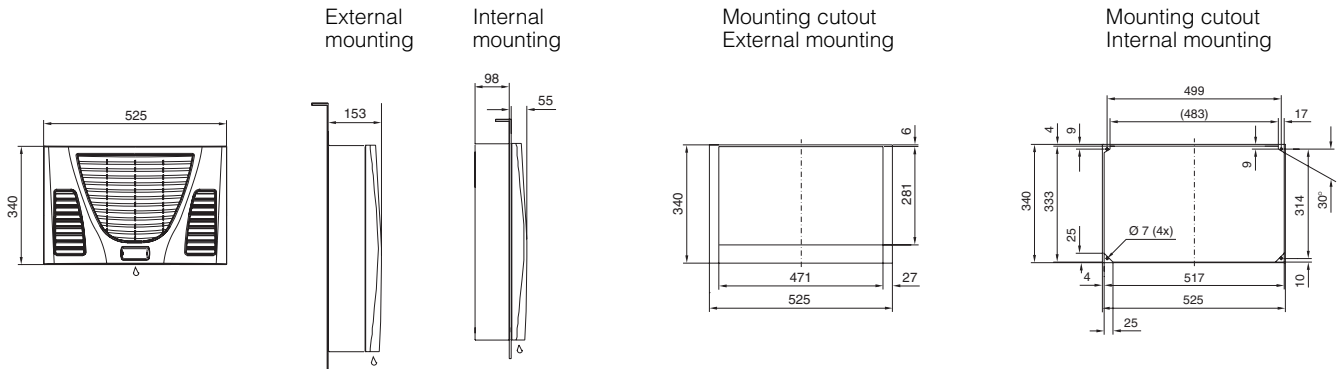
Useful cooling output 300 W Page 597
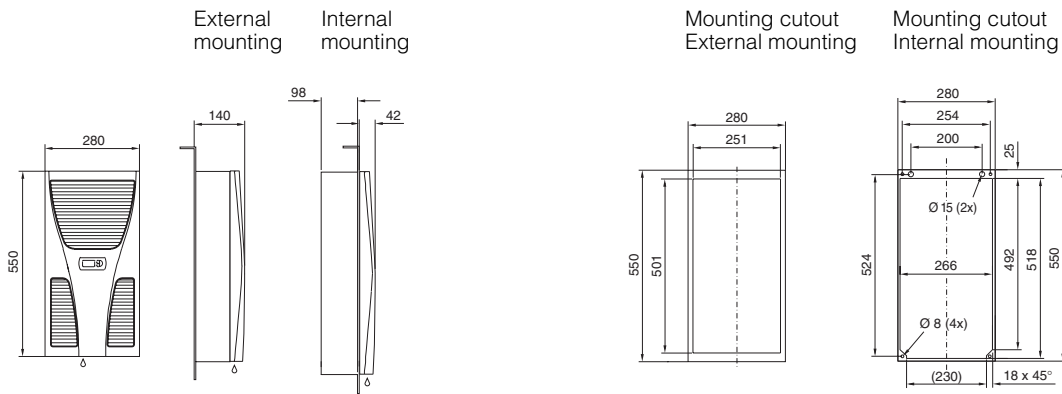
Useful cooling output 500 W Page 597
Useful cooling output 750 W Page 598
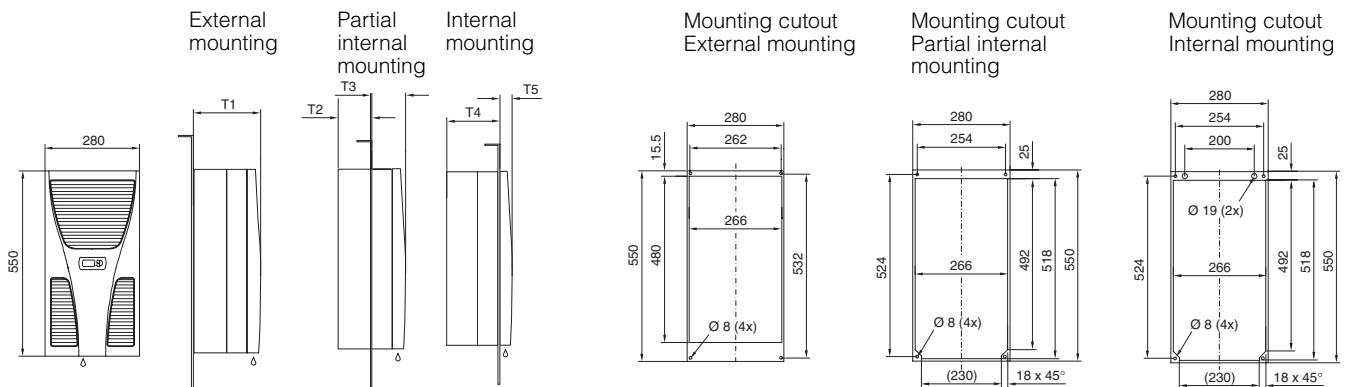
	D (T1)	D (T2)	D (T3)	D (T4)	D (T5)
500 W	200	100	100	158	42
750 W	280	125	155	235	45

C

4.

System climate control

System climate control

Wall-mounted cooling units

4.1 Wall-mounted cooling units

Useful cooling output 1500/2000 W Page 599

External mounting — Partial internal mounting — Internal mounting — Mounting cutout External mounting — Mounting cutout Partial internal mounting — Mounting cutout Internal mounting

Useful cooling output 1500/2000 W Page 600

External mounting — Partial internal mounting — Internal mounting[1] — Mounting cutout External mounting — Mounting cutout Partial internal mounting, internal mounting
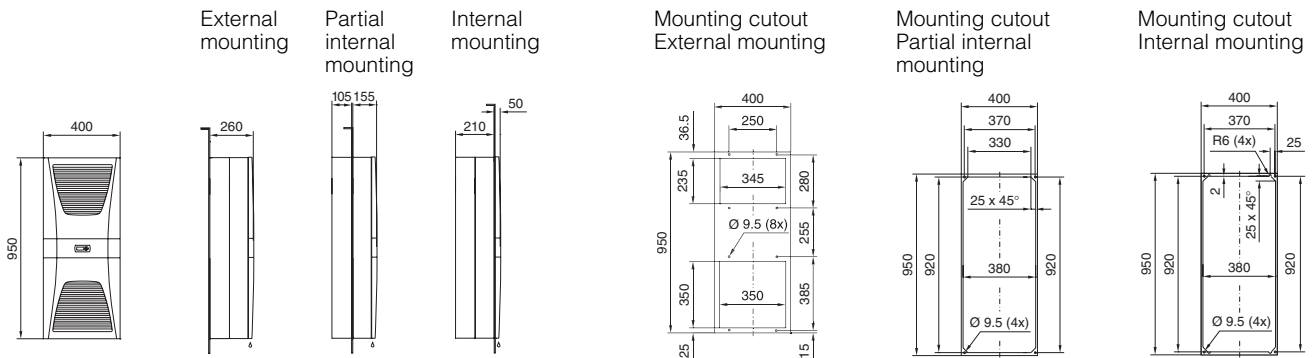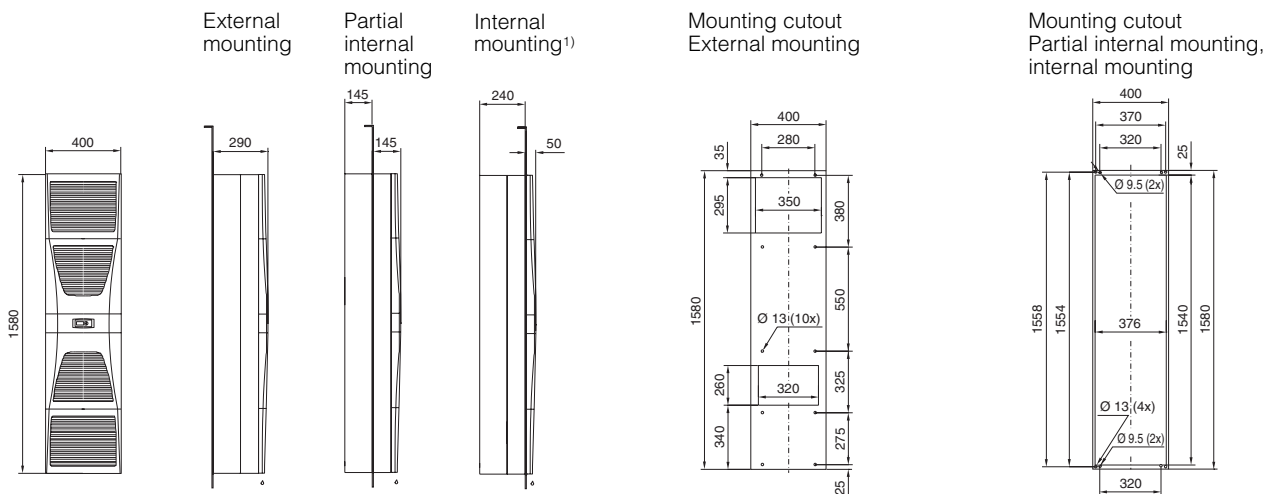
[1] For installation in 600 mm wide doors, move the mounting cutout from the centre of the door to the hinged side by at least 10 mm.

Useful cooling output 4000 W Page 601

External mounting — Partial internal mounting — Mounting cutout External mounting — Mounting cutout Partial internal mounting
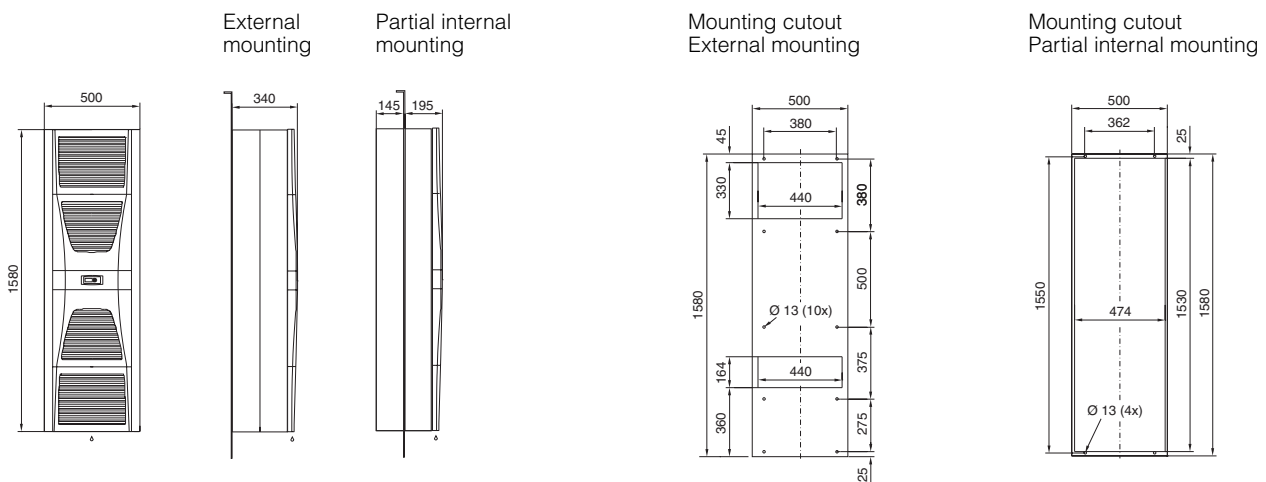
4.1 Wall-mounted cooling units

Useful cooling output 1500 W Page 602
(SK 3366.XXX and SK 3377.XXX)
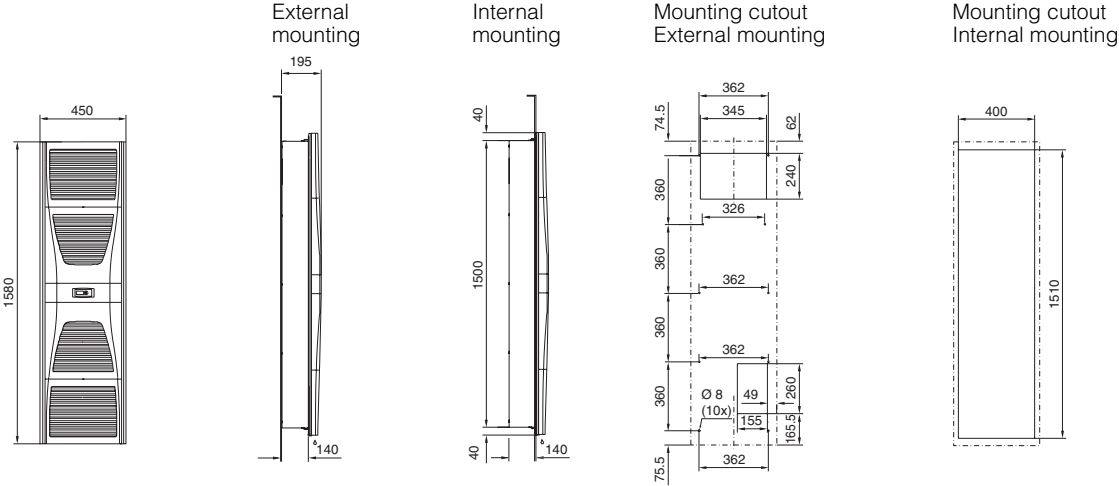
External mounting

Internal mounting

Mounting cutout
External mounting

Mounting cutout
Internal mounting

Design NEMA 4x, useful cooling output 500 W Page 603

External mounting

Mounting cutout
External mounting
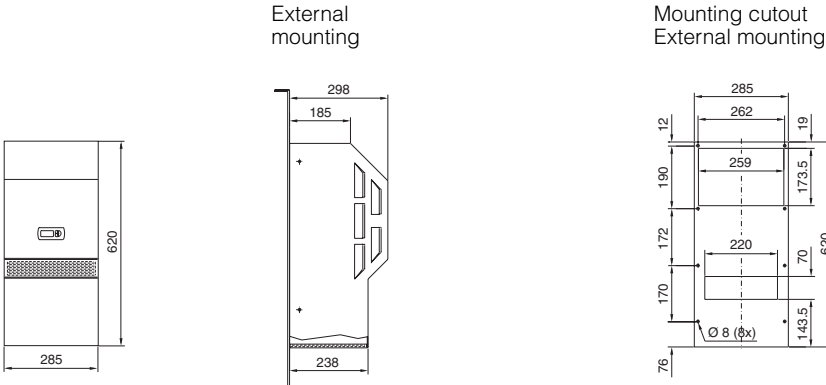
Design NEMA 4x, useful cooling output 1000/1500 W Page 603
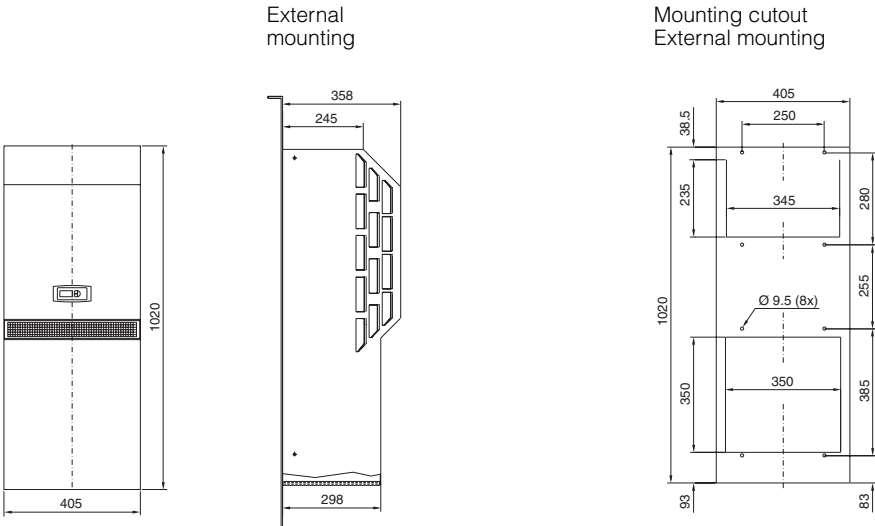
External mounting

Mounting cutout
External mounting

C

4.

System climate control

System climate control

Wall-mounted cooling units

4.1 Wall-mounted cooling units
Design NEMA 4x, useful cooling output 2000/2500 W Page 604

External mounting
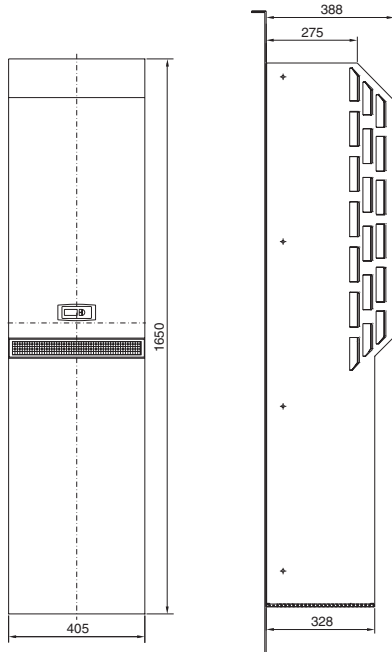
Mounting cutout
External mounting
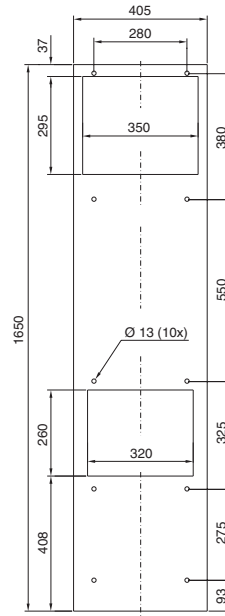
4.2 Options for recooling systems

	Pressure-sealed system	Open system with tank	Designed as a once-through cooler without tank	Hot gas bypass control in the cooling circuit	More powerful pump(s)	Heater in the tank (1000 W)	Water level switch	Flow monitor	Water filter/oil filter	Water-cooled condenser	Upstream pipework, free from non-ferrous metals	Automatic tank filling	Fault signal with individual messages	Ambient temperature control	Automatic bypass	Manual bypass	Harting connector	Outdoor siting	Special spray finish	Special voltage	Metal filter mat	Castors	Refrigerant R134a	Double pump unit	Filter mat monitoring	Base tray	Tank (stainless steel 1.4301)	Additional medium connections
Recooling systems Mini and Mini for wall mounting																												
SK 3318.600	■	–	■	–	□	–	–	■	–	□	□	–	–	□	–	□	□	□	□	□	□	□	■	–	■	–	–	–
SK 3318.610	–	■	–	–	□	–	–	■	–	□	□	–	–	□	–	□	□	□	□	□	□	□	■	–	■	–	–	–
SK 3319.600	■	–	■	–	□	–	–	■	–	□	□	–	–	□	–	□	□	□	□	□	□	□	■	–	■	–	–	–
SK 3319.610	–	■	–	–	□	–	–	■	–	□	□	–	–	□	–	□	□	□	□	□	□	□	■	–	■	–	–	–
SK 3320.600	–	■	–	□	□	□	–	■	–	□	□	–	–	□	–	□	□	□	□	□	□	□	■	–	■	–	■	–
SK 3334.600	–	■	–	□	□	□	–	■	–	□	□	–	–	□	–	□	□	□	□	□	□	□	■	–	■	–	■	–
SK 3360.100	–	■	–	–	□	–	–	■	–	□	□	–	–	□	–	□	□	–	□	□	□	–	■	–	■	–	–	–
SK 3360.250	–	■	–	–	□	–	–	■	–	□	□	–	–	□	–	□	□	–	□	□	□	–	■	–	■	–	–	–
SK 3360.400	–	■	–	–	□	–	–	■	–	□	□	–	–	□	–	□	□	–	□	□	□	–	■	–	■	–	–	–
Recooling systems in floor-standing enclosure and industrial enclosure																												
SK 3336.100	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	■	–	–	–	■	□
SK 3336.200	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	■	–	–	–	■	□
SK 3336.300	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	■	–	–	–	■	□
SK 3336.500	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	■	–	–	–	■	□
SK 3336.600	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	■	–	–	–	■	□
SK 3336.650	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	■	–	–	–	■	□
SK 3336.700	–	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	■	□
SK 3336.710	–	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	■	□
SK 3336.720	–	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	■	□
SK 3336.730	–	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	■	□
SK 3336.740	–	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	■	□
SK 3336.750	–	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	■	□
SK 3339.100	–	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	■	□
SK 3339.200	–	■	□	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	■	□
SK 3339.300	■	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	–	□
SK 3339.400	■	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	–	□
SK 3339.500	■	–	■	□	□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–	–	–	–	–	□
Recooling systems in a floor standing enclosure for oil																												
SK 3337.200	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.300	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.500	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.600	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.650	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.700	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.710	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.720	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.730	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.740	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
SK 3337.750	■	□	■	□	□	□	–	□	□	–	–	–	□	□	–	–	□	□	□	□	□	□	–	–	–	–	□	□
Recooling systems in the TS 8 Top enclosure system																												
SK 3335.060	–	■	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–
SK 3335.075	–	■	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–
SK 3335.100	–	■	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–
SK 3335.120	–	■	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–
SK 3335.150	–	■	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–
SK 3335.200	–	■	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–
SK 3335.250	–	■	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	–

■ Standard
□ Optional

C

4.

System climate control

System climate control

Recooling systems

4.2 Options for recooling systems

	Water-cooled condenser	Radial fan	Hot gas bypass control in the cooling circuit	Harting connector	Special spray finish	Special voltage	Ambient temperature control	Control voltage 24 V DC	Liquid injection valve	Fault signal "Filter mat dirty"	Immersion depth 650 mm	Immersion depth 750 mm	Immersion depth 850 mm	Immersion depth 1000 mm
Immersible recooling systems														
SK 3338.020	□	□	□	□	□	□	□	■	□	□	□	□	□	□
SK 3338.040	□	□	□	□	□	□	□	■	□	□	□	□	□	□
SK 3338.060	□	□	□	□	□	□	□	■	□	□	□	□	□	□
SK 3338.080	□	□	□	□	□	□	□	■	□	□	□	□	□	□
SK 3338.100	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.120	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.140	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.160	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.180	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.200	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.220	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.220	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.240	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.260	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.280	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.300	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.320	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.340	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.360	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.500	□	□	□	□	□	□	□	■	□	□	□	□	□	□
SK 3338.520	□	□	□	□	□	□	□	■	□	□	□	□	□	□
SK 3338.540	□	□	□	□	□	□	□	■	□	□	□	□	□	□
SK 3338.560	□	□	□	□	□	□	□	■	□	□	□	□	□	□
SK 3338.580	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.600	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.620	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.640	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.660	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.680	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.700	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.720	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.740	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.760	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.780	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.800	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.800	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.820	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SK 3338.840	□	□	□	□	□	□	□	□	□	□	□	□	□	□

■ Standard
□ Optional

4.2 Recooling systems

Mini, cooling output 960/1490 W Page 608

Key to the adjacent drawing:

1	Compressor
5	Condenser
10	Condenser fan
15	Evaporator coil
20	Expansion valve
25	Filter dryer
35	Filling
45	Vent valve
50	Temperature sensor
55	Pump
60	Flow monitor
61	Overpressure valve
65	Pressure relief valve
70	High-pressure switch
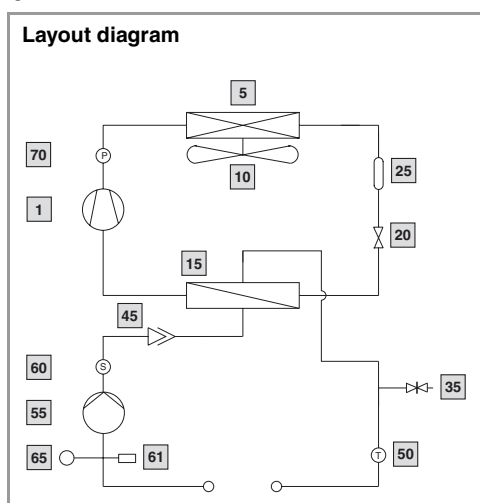
Layout diagram

Note:
With a lockable external cooling cycle, a bypass (overpressure valve) should be provided in the external water pipes.

Characteristic curves of pump
Model No. SK
3318.600/3318.610/
3319.600/3319.610

50 Hz

60 Hz
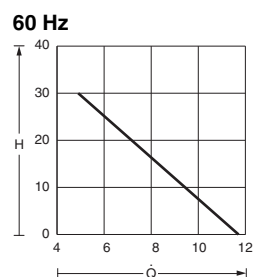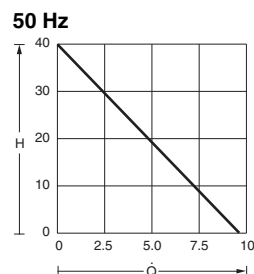
H = Delivery head H [m]
Q̇ = Delivery flow Q [l/min]

Mini, cooling output 3000/4500 W Page 609

Key to the adjacent drawing:

1	Compressor
5	Condenser
10	Condenser fan
15	Evaporator coil
20	Expansion valve
25	Filter dryer
30	Tank
35	Filling
40	Tank drain
46	Water level switch, optional
50	Temperature sensor
55	Pump
60	Flow monitor
70	High-pressure switch

Layout diagram

Note:
With a lockable external cooling cycle, a bypass (overpressure valve) should be provided in the external water pipes.

Characteristic curves of pump
Model No. SK
3320.600/3334.600
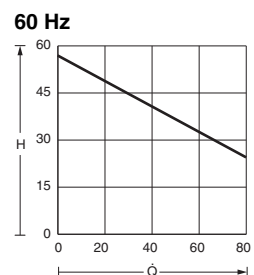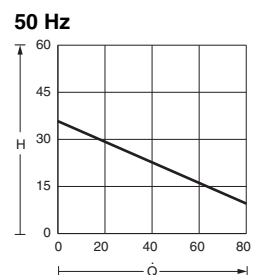
50 Hz

60 Hz

H = Delivery head H [m]
Q̇ = Delivery flow Q [l/min]

C

4.

System climate control

System climate control

Recooling systems

4.2 Recooling systems

Mini, for wall mounting, cooling output 1000/2500/4000 W Page 610

Key to the adjacent drawing:

1 Compressor
5 Condenser
10 Condenser fan
15 Evaporator coil
20 Expansion valve
25 Filter dryer
30 Tank
35 Filling
40 Tank drain
46 Water level switch, optional
50 Temperature sensor
55 Pump
60 Flow monitor
70 High-pressure switch

Layout diagram
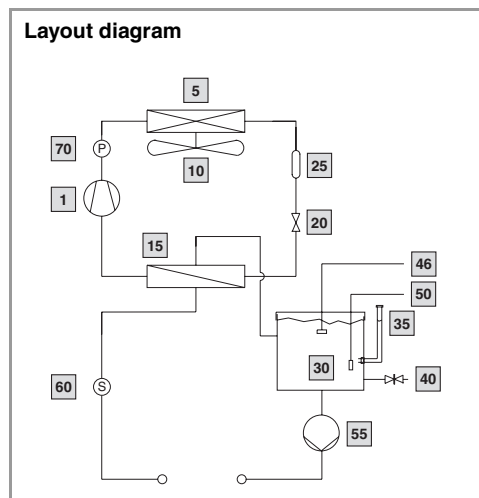
Note:
With a lockable external cooling cycle, a bypass (overpressure valve) should be provided in the external water pipes.

Characteristic curves of pump
Model No. SK 3360.100/3360.250/3360.400

50 Hz
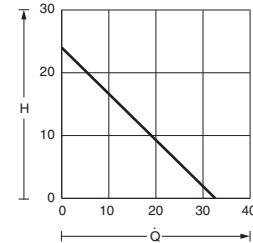
60 Hz
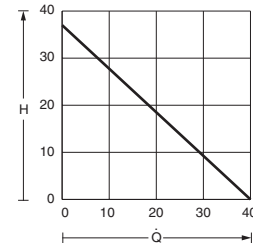
H = Delivery head H [m]
Q̇ = Delivery flow Q [l/min]

In floor-standing enclosure, cooling output 2100 to 7700 W Page 611

Key to the adjacent drawing:

1 Compressor
5 Condenser
10 Condenser fan
16 Multi-coil vaporiser
19 Capillary tube/expansion valve[1]
25 Filter dryer
30 Tank
31 Manometer
35 Filling
40 Tank drain
48 Level indicator
55 Pump
70 High-pressure switch
80 Thermostat

[1] from SK 3336.500
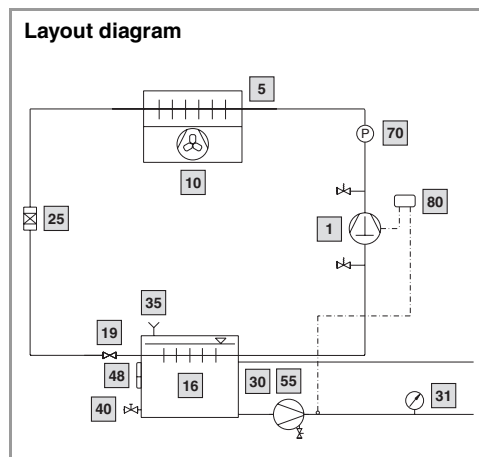
Layout diagram

Note:
With a lockable external cooling cycle, a bypass (overpressure valve) should be provided in the external water pipes.

Characteristic curves of pump
Model No. SK 3336.100/3336.200/3336.300/3336.500/3336.600/3336.650

50 Hz
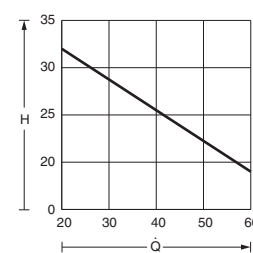
H = Delivery head H [m]
Q̇ = Delivery flow Q [l/min]

C
4.
System climate control

4.2 Recooling systems

In floor-standing enclosure, cooling output 10000 to 25200 W Page 612

Key to the adjacent drawing:

1	Compressor
5	Condenser
10	Condenser fan
15	Evaporator coil
20	Expansion valve
21	Inspection glass
22	Magnetic valve
23	Liquid collector
25	Filter dryer
30	Tank
31	Manometer
35	Filling
40	Tank drain
48	Level indicator
55	Pump
60	Flow monitor
70	High-pressure switch
71	Low-pressure switch
73	Shut-off valve
80	Thermostat

Layout diagram
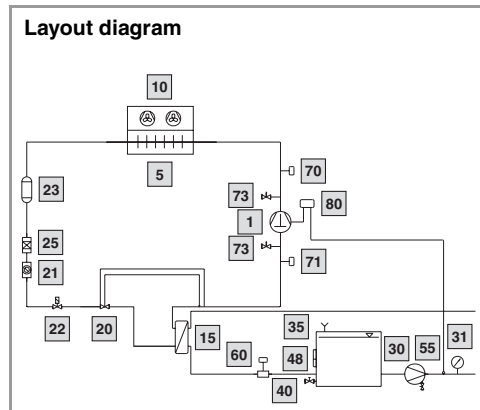
Note:
With a lockable external cooling cycle, a bypass (overpressure valve) should be provided in the external water pipes.

Characteristic curves of pump
Model No. SK
3336.700/3336.710/3336.720

50 Hz
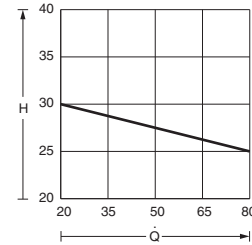
60 Hz
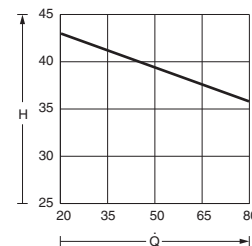
Model No. SK
3336.730/3336.740/3336.750

50 Hz
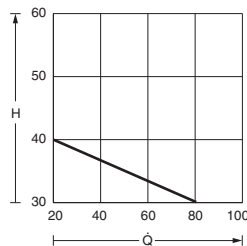
60 Hz
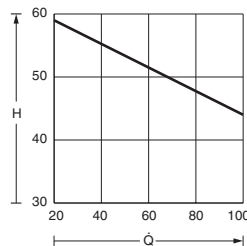
H = Delivery head H [m]
Q̇ = Delivery flow Q [l/min]

In floor-standing enclosure for oil, cooling output 2550 to 7900 W Page 613

Key to the adjacent drawing:

1	Compressor
5	Condenser
10	Condenser fan
15	Evaporator coil
19	Capillary tube/expansion valve[1]
25	Filter dryer
31	Manometer
32	Automatic bypass valve
56	Oil pump
57	Motor for oil pump
70	High-pressure switch
80	Thermostat
81	Anti-frost thermostat

[1] from SK 3337.500
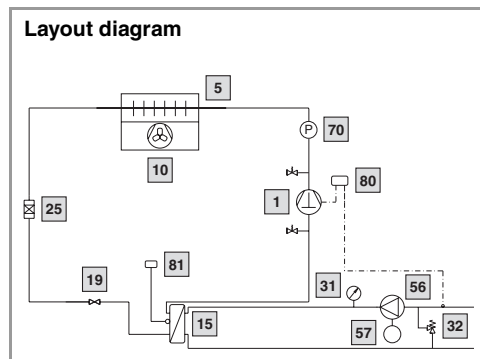
Layout diagram

System climate control

C

4.

System climate control

Recooling systems

4.2 Recooling systems

In floor-standing enclosure for oil, cooling output 10600 to 26100 W Page 614

Key to the adjacent drawing:

1	Compressor	31	Manometer
5	Condenser	32	Automatic bypass valve
10	Condenser fan	56	Oil pump
15	Evaporator coil	57	Motor for oil pump
20	Expansion valve	70	High-pressure switch
21	Inspection glass	71	Low-pressure switch
22	Magnetic valve	73	Shut-off valve
23	Liquid collector	80	Thermostat
25	Filter dryer	81	Anti-frost thermostat

Layout diagram
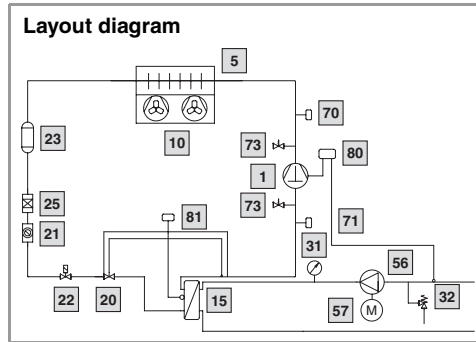
In TS 8 Top enclosure system, cooling output 6000/7500 W Page 615

Key to the adjacent drawing:

1	Compressor
5	Condenser
10	Condenser fan
16	Multi-coil vaporiser
20	Expansion valve
21	Inspection glass
23	Liquid collector
25	Filter dryer
30	Tank
31	Manometer
33	Fixed pump bypass
35	Filling
40	Tank drain
47	Level switch
55	Pump
70	High-pressure switch
80	Thermostat

Layout diagram
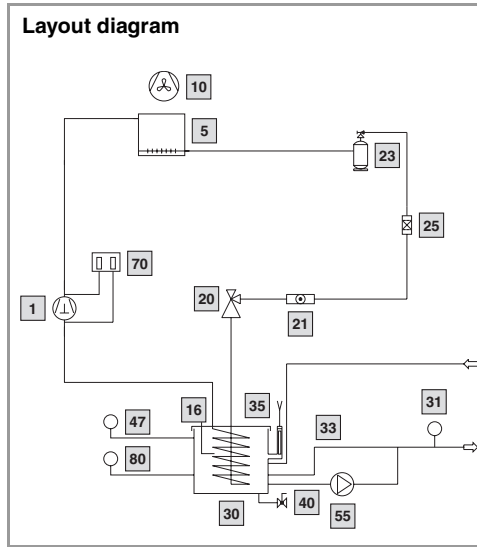
Characteristic curves of pump
Model No. SK
3335.060/3335.075

50 Hz
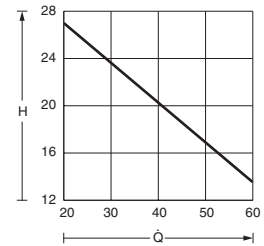
H = Delivery head H [m]
Q = Delivery flow Q [l/min]

In TS 8 Top enclosure system, cooling output 10000 to 25000 W Page 616

Key to the adjacent drawing:

1	Compressor
5	Condenser
10	Condenser fan
16	Multi-coil vaporiser
20	Expansion valve
21	Inspection glass
23	Liquid collector
25	Filter dryer
30	Tank
31	Manometer
33	Fixed pump bypass
35	Filling
40	Tank drain
47	Level switch
55	Pump
70	High-pressure switch
80	Thermostat

Layout diagram
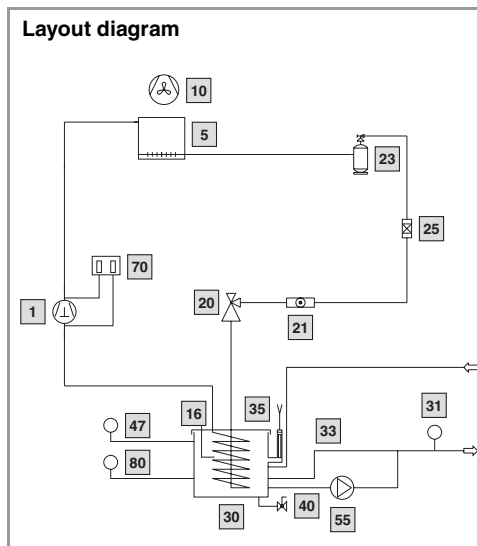
Characteristic curves of pump
Model No. SK

50 Hz 3335.100/3335.120/3335.150
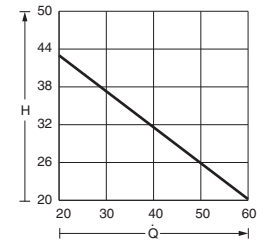
50 Hz 3335.200/3335.250
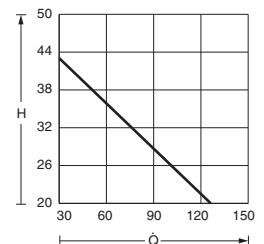
H = Delivery head H [m]
Q̇ = Delivery flow Q̇ [l/min]

4.2 Recooling systems

In industrial enclosure, cooling output 32 kW to 172 kW Page 617

Key to the adjacent drawing:

1	Compressor
5	Condenser
10	Condenser fan
15	Evaporator coil
20	Expansion valve
21	Inspection glass
22	Magnetic valve
23	Liquid collector
25	Filter dryer
30	Tank
31	Manometer
35	Filling
40	Tank drain
48	Level indicator
55	Pump
60	Flow monitor
70	High-pressure switch
71	Low-pressure switch
73	Shut-off valve
80	Thermostat

Layout diagram SK 3339.100/200[1]
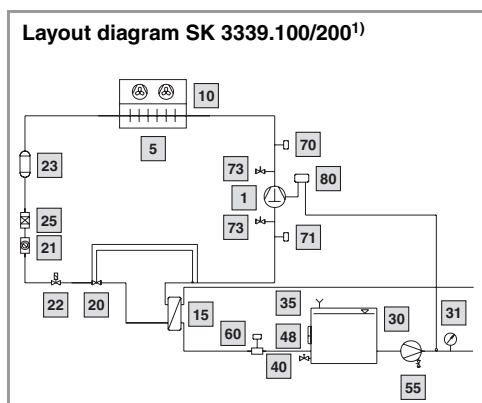
Characteristic curves of pump
Model No. SK

50 Hz 3339.100/3339.200
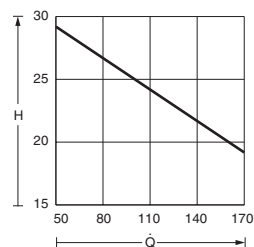
60 Hz 3339.100/3339.200
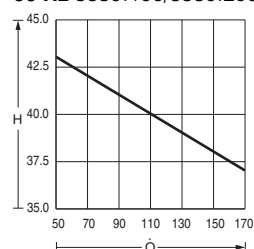
[1] Layout diagram SK 3339.300 – .500 available on request.

50 Hz 3339.300/3339.400
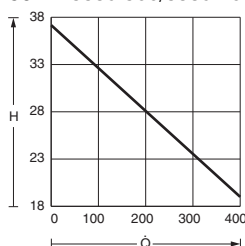
50 Hz 3339.500
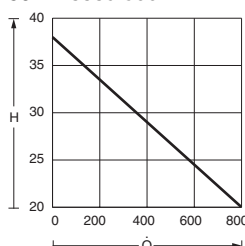
H = Delivery head H [m]
Q̇ = Delivery flow Q [l/min]

4.2 Immersible recooling systems

Useful cooling output 2400 to 77900 W Page 618 – 623

Key to the adjacent drawing:

1	Compressor
5	Condenser
10	Condenser fan
15	Evaporator coil
20	Expansion valve
21	Inspection glass
22	Magnetic valve
23	Liquid collector
25	Filter dryer
30	Tank, to be supplied by the customer
50	Temperature sensor
70	High-pressure switch
71	Low-pressure switch
80	Thermostat
82	Stirrer
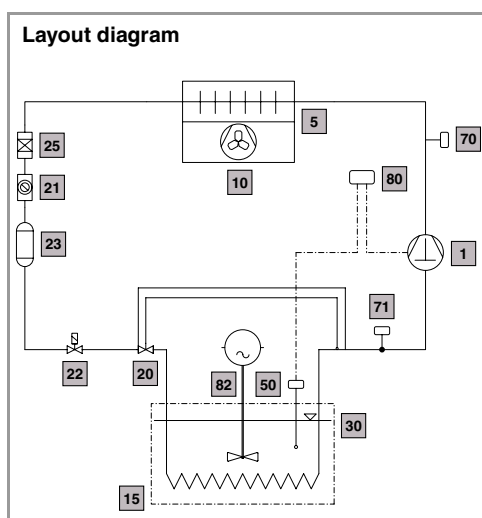
Layout diagram

C

4.

System climate control

System climate control

Air/water heat exchangers

4.3 Air/water heat exchanger

Micro, wall-mounted, useful cooling output 300 W Page 626

Mounting holes
for internal mounting

Mounting cutout
for external mounting

1 Cooling water connection

2 Condensate discharge
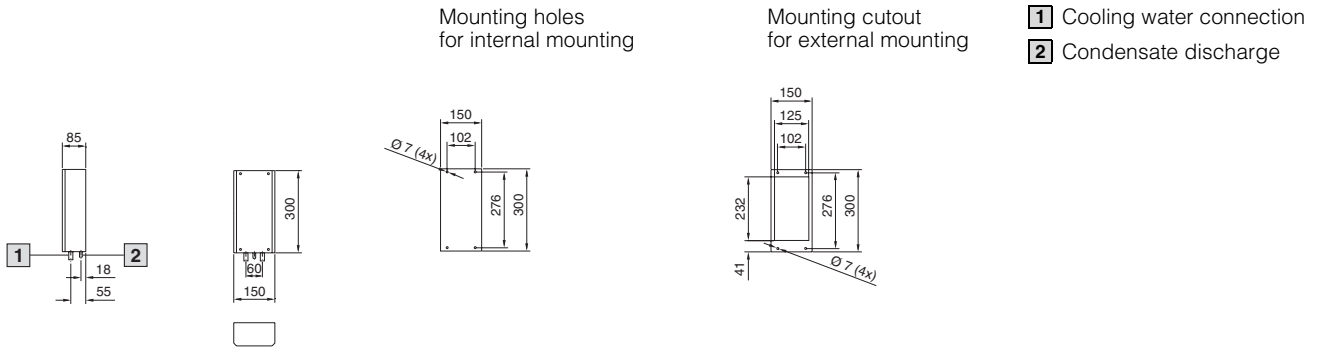
Wall mounting, useful cooling output 600 W Page 627
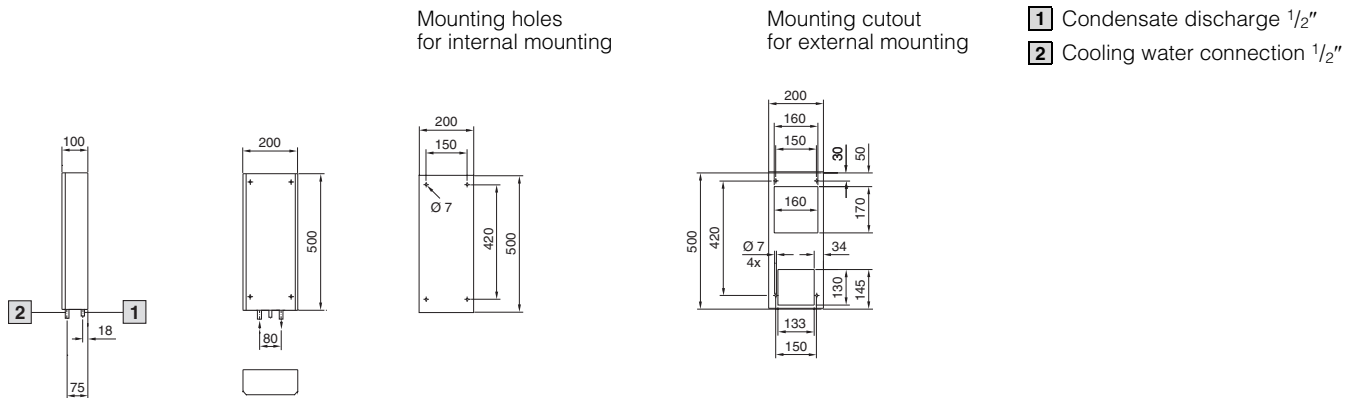
Mounting holes
for internal mounting

Mounting cutout
for external mounting

1 Condensate discharge $1/2''$

2 Cooling water connection $1/2''$

Wall mounting, useful cooling output 1000 W Page 627

Mounting holes
for internal mounting

Mounting cutout
for external mounting

1 Condensate discharge $1/2''$

2 Cooling water connection $1/2''$

C

4.

System climate control
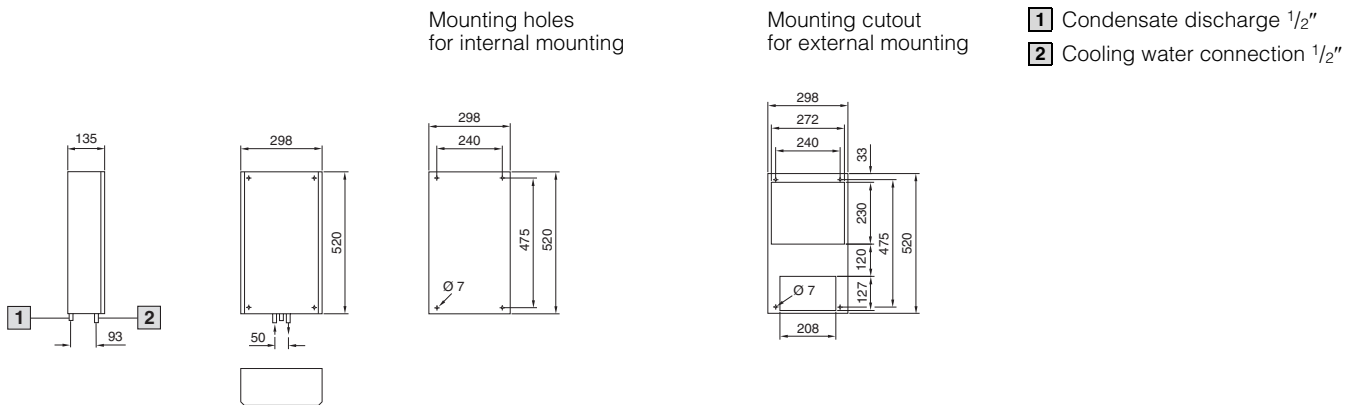
4.3 Air/water heat exchanger

Wall mounting, useful cooling output 1250 W Page 628

Mounting holes
for internal mounting

Mounting cutout
for external mounting

1 Condensate discharge $1/2''$

2 Cooling water connection $1/2''$
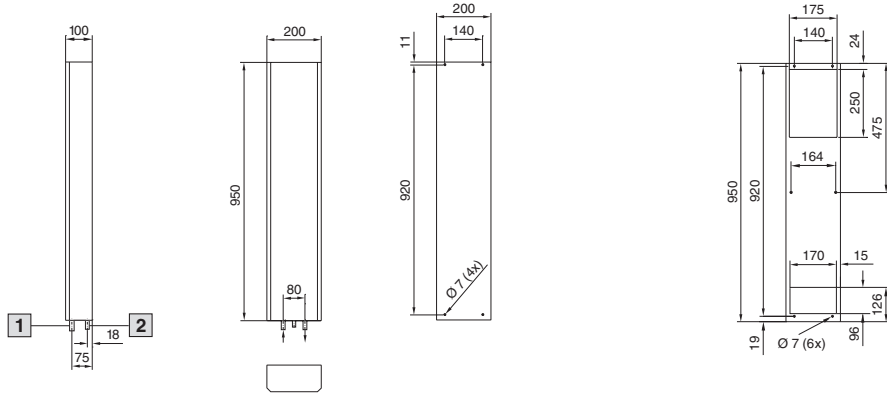
Wall mounting, useful cooling output 1540 W Page 628

Mounting holes
for internal mounting

Mounting cutout
for external mounting

1 Condensate discharge $1/2''$

2 Cooling water connection $1/2''$
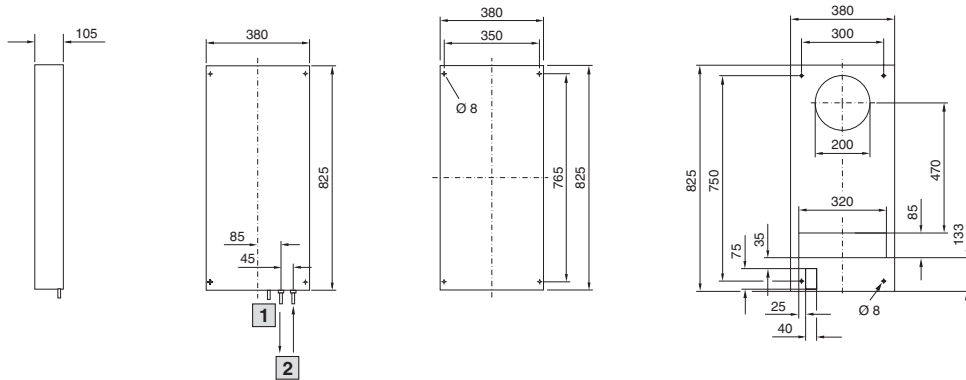
Wall mounting, useful cooling output 2250/3000 W Page 629

Mounting cutout
for external/internal mounting
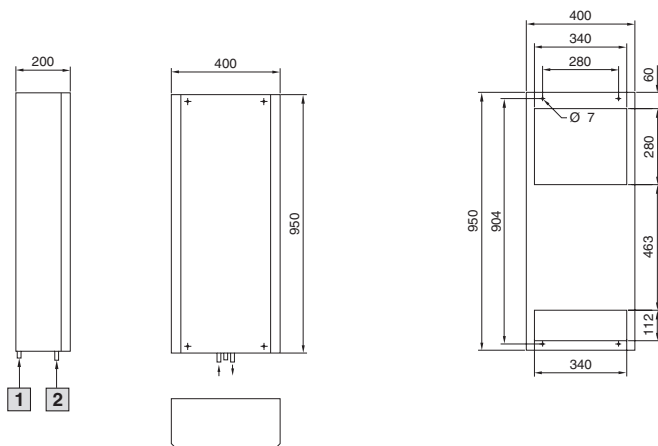
Only the 4 mounting holes,
7 mm diameter, are required
for internal mounting.

1 Condensate discharge $1/2''$

2 Cooling water connection $1/2''$

C

4.

System climate control

System climate control

Air/water heat exchangers

4.3 Air/water heat exchangers

Wall mounting, useful cooling output 4500 W Page 629

Mounting cutout
for external mounting

1 Condensate discharge $^1/_2''$
2 Cooling water connection $^1/_2''$
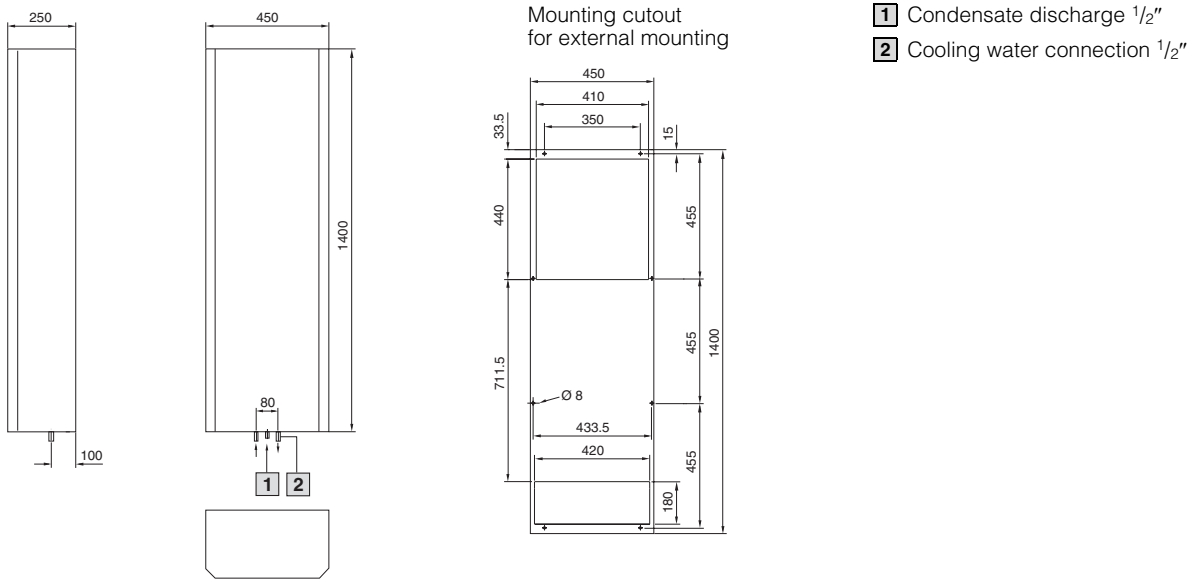
Roof-mounted, useful cooling output 2500 W Page 630
Roof-mounted, useful cooling output 4000 W Page 631

1 Condensate discharge $^1/_2''$
2 Cooling water connection $^1/_2''$
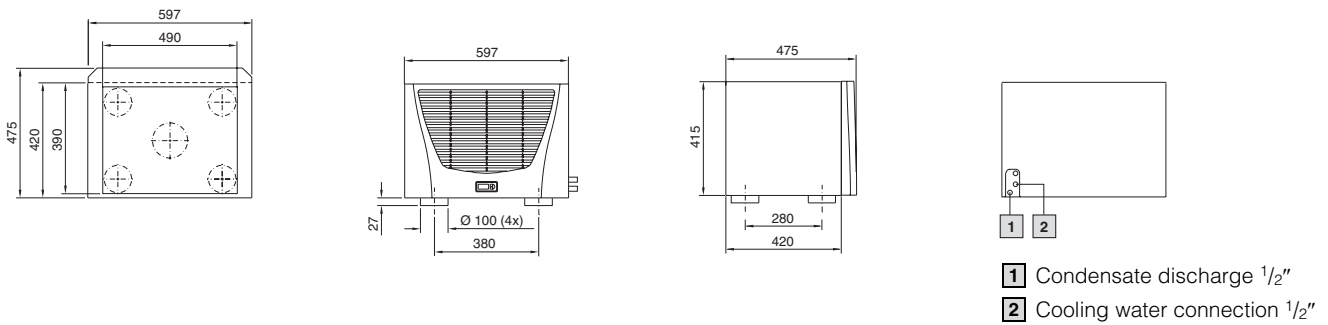
As a side panel for 600 mm deep TS 8 enclosures, useful cooling output 700 W Page 632

SK 3316.180

SK 3316.200
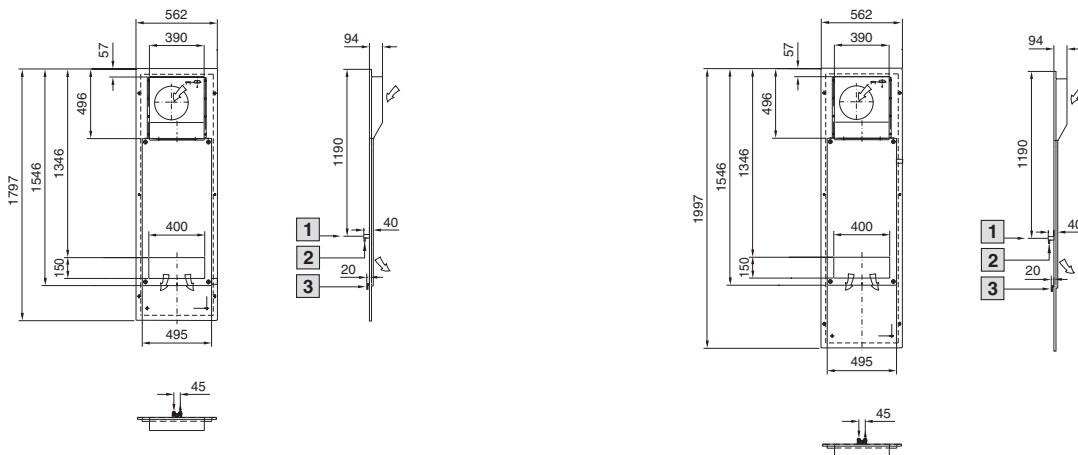
1 Water connections
2 Hose 10 mm diameter
3 Condensate discharge

4.3 TopTherm air/air heat exchanger

Wall mounted, specific thermal output 17.5 W/K Page 633

External mounting Internal mounting Mounting cutout for external mounting Mounting cutout for internal mounting
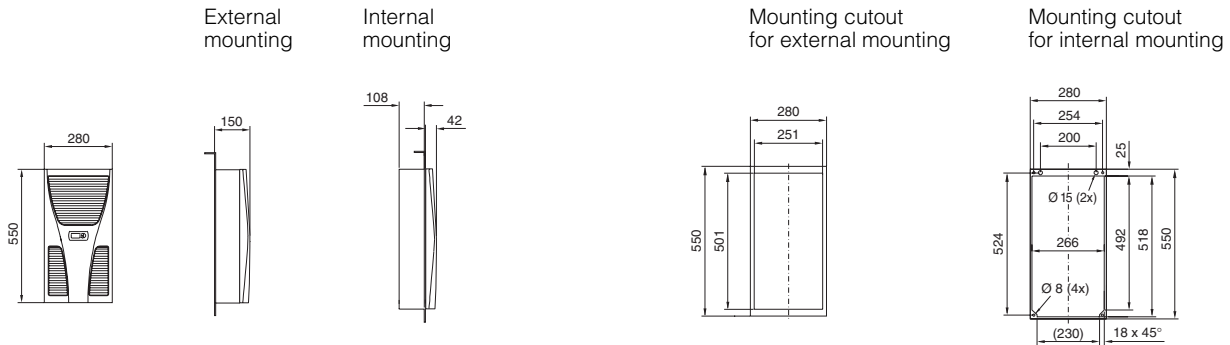
Wall mounting, specific thermal output 30 – 60 W/K Page 633

External mounting Internal mounting Mounting cutout for external mounting Mounting cutout for internal mounting
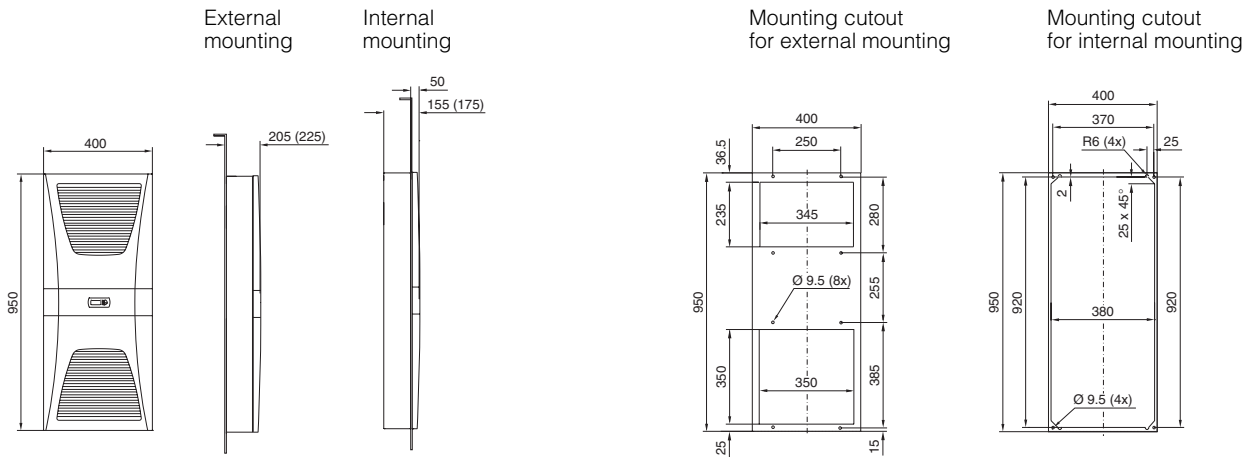
Dimensions in brackets for 45 W/K and 60 W/K

Wall mounted, specific thermal output 90 W/K Page 634

External mounting Internal mounting Mounting cutout for external mounting Mounting cutout for internal mounting

System climate control

C

4.
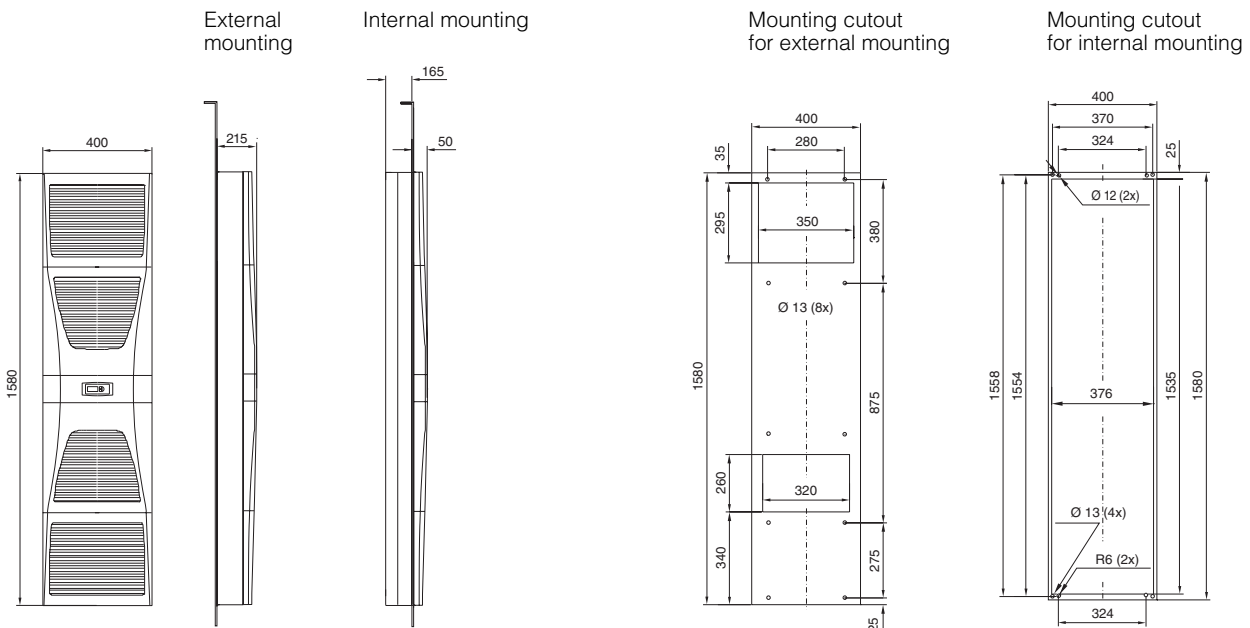
System climate control

Rack-mounted climate control

4.5 Rack-mounted cooling unit
for 482.6 mm (19″), useful cooling output 1000 W Page 644

482.6 (19″)

190.5

6 HE = 265.9

6.8 x 10.3

HE = U

Air duct, extendible to any length

445

1

542

3

38

View of the rear of the unit

80

220

32

1 Service flap (thermostat)
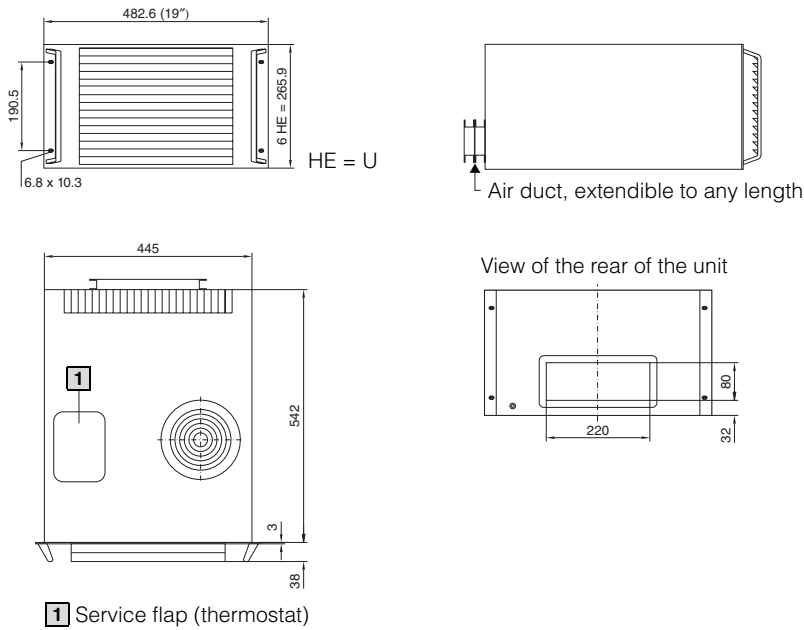
4.5 Rack-mounted fan
for 482.6 mm (19″), air throughput 320/480 m³/h Page 645

Rack-mounted fan mounted between a pair of 482.6 mm (19″) mounting angles

Vario rack-mounted fan mounted in subracks 84 HP

Vario rack-mounted fan mounted between a pair of 482.6 mm (19″) mounting angles
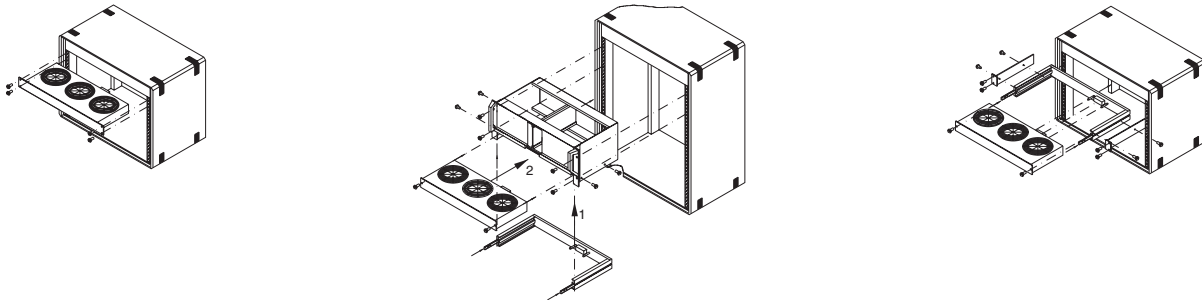
4.5 Centrifugal fan
Air throughput 320 m³/h Page 646

76.2
88

465.1
482.6 (19″)

17

60
163
75

380

Front grille

C
4.

System climate control
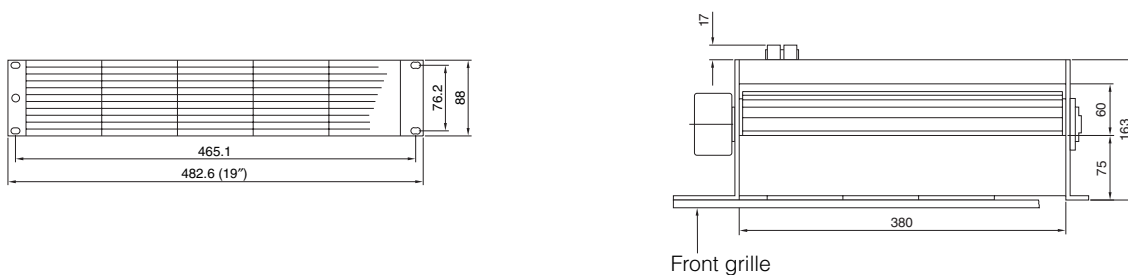
4.5 Roof-mounted fan
Air throughput 360 m³/h Page 647

Without fan   With fan

Mounting cutout

□ 260 x 340

420

340

360

265
280

Ø 8
250
345
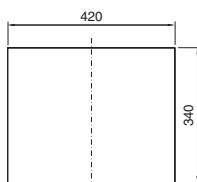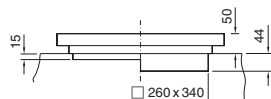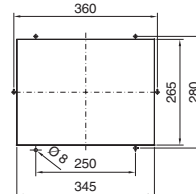
4.5 Roof-mounted fan and vent attachment
Air throughput (unimpeded air flow) 400/800 m³/h Page 647

Mounting cutout

550
99
125
500
20

370
290

475 + 1
260 + 1
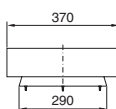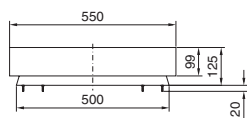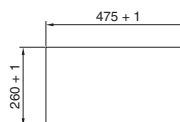
4.5 Fan roof, modular, two-piece for TS/FR(i)
Air throughput per fan (unimpeded air flow) 160/180 mm³/h at 50/60 Hz Page 651

B1
B2
3
133
223.5
36.5
T1
D
C
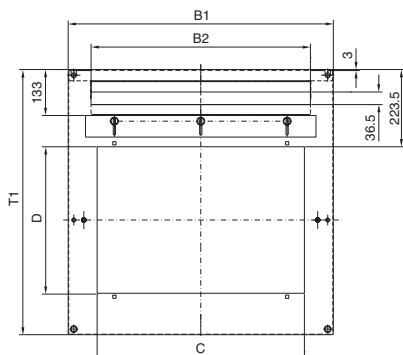
For enclosures		Cover plate		Roof dimensions			C	D	Model No. TS
W (B) mm	D (T) mm	Solid	Vented	W (B1) mm	W (B2) mm	D (T1) mm			
600	600	2102.180	2102.400	567.5	435	567.5	400	224	**7826.366**
600	800	2102.190	2102.410	567.5	435	767.5	400	424	**7826.368**
600	900	2102.190	2102.410	567.5	435	867.5	400	424	**7826.369**
600	1000	2102.190	2102.410	567.5	435	967.5	400	424	**7826.360**
800	600	7885.100	7885.200	767.5	635	567.5	600	224	**7826.486**
800	800	7886.100	7886.200	767.5	635	767.5	600	424	**7826.488**
800	900	7886.100	7886.200	767.5	635	867.5	600	424	**7826.489**
800	1000	7886.100	7886.200	767.5	635	967.5	600	424	**7826.480**

4.6 Enclosure heaters
Continuous thermal output 10 – 300 W Page 655

SK 3102.000
including fan

SK 3105.000

SK 3106.000

SK 3107.000

SK 3115.000

SK 3116.000

□ 120
168

35 45
80 75

35 45
130 125

100
118
80
8.25
162
25
5.2
140

45 64
45 110

45 64
185

C
4.

System climate control
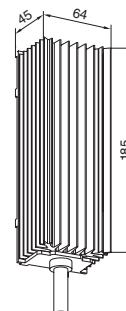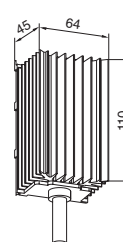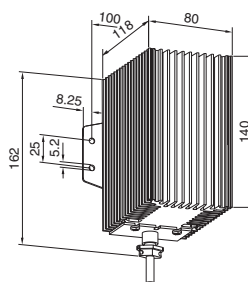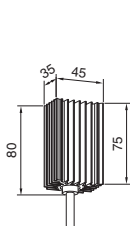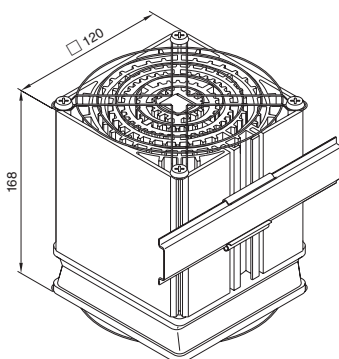
System climate control

Accessories for system climate control

4.6 Axial fan
for heater SK 3107.000 Page 655
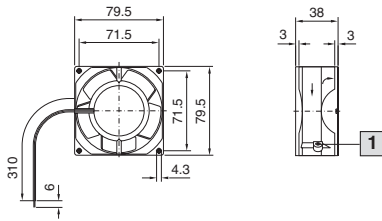
1 Earthing lug for M4
or 8 – 32 UNC

4.7 Electronic condensate evaporator
Page 665

SK 3301.560/.580
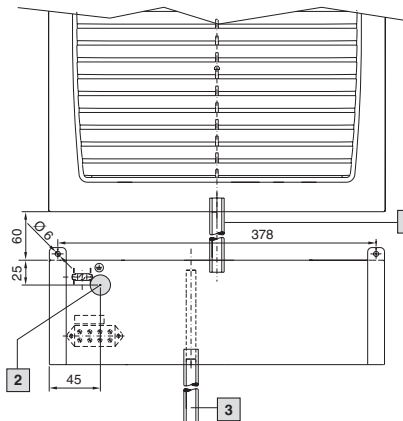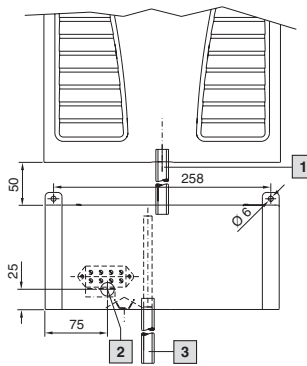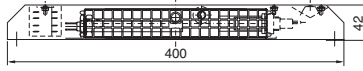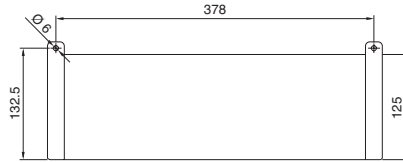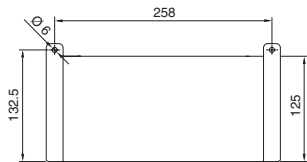
1 Condensate hose
SK 3301.608 for SK 3302.XXX
SK 3301.610 for SK 3303.XXX

2 Suggestion for position of cable entry

3 Hose
Length as required

SK 3301.570/.590

1 Condensate hose SK 3301.612

2 Suggestion for position of cable entry

3 Hose
Length as required

4.7 Integrated louvres
Page 666

SK 2541.235

SK 2542.235

SK 2543.235
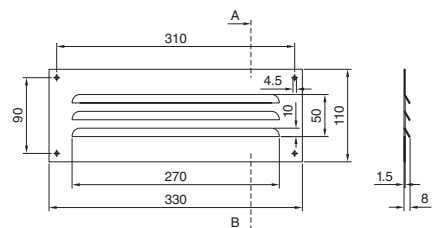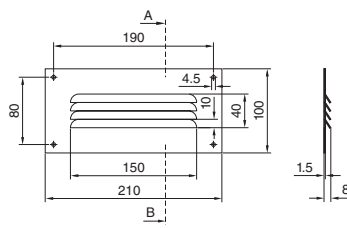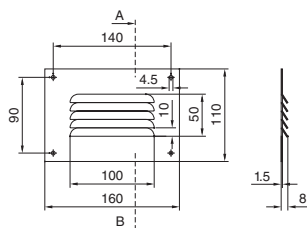
6.1 Compact enclosures, Outdoor

Page 820

1620.000, 1620.100   1621.000, 1621.100   1622.000, 1622.100

Mounting plate
Sheet steel

Detail X

Mounting plate
Hard masonite

Model No.	A	B	C	D
1616.200	1133	670	1103	534
1616.210	733	1070	703	934
1616.220	1133	1070	1103	934
1616.230	1070 ±1	670 ±1	–	–
1616.240	1070 ±1	1070 ±1	–	–
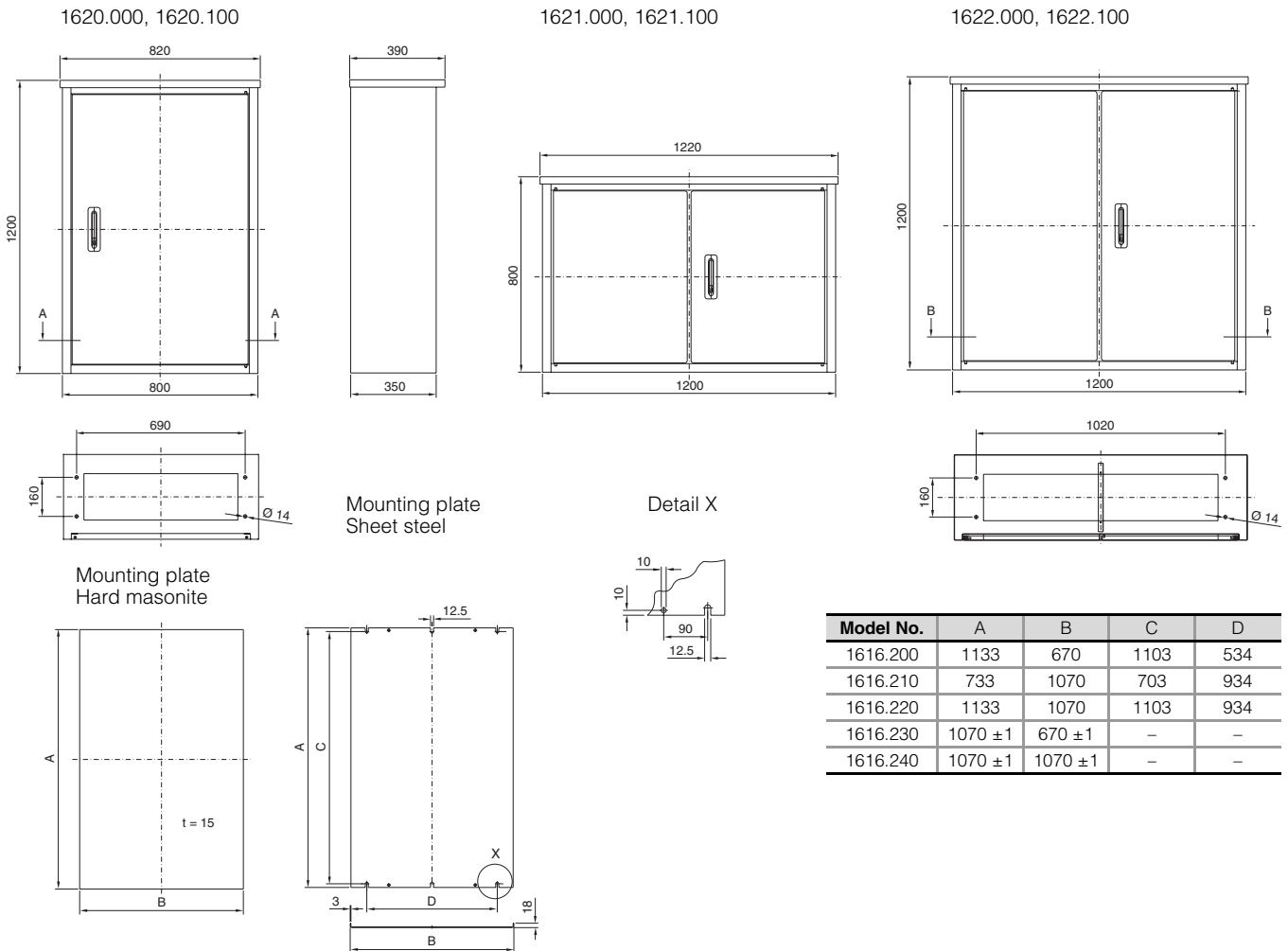
6.2 Geothermal heat exchanger

Terravent Page 831
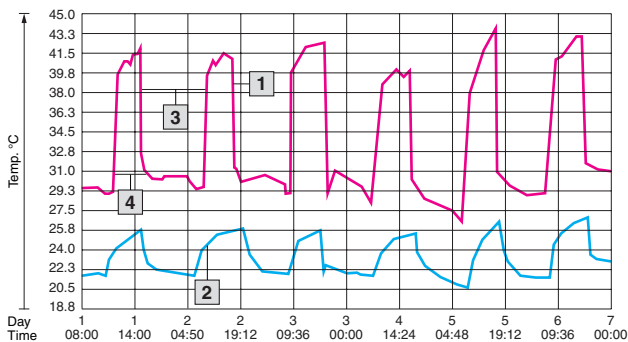
1 Internal temperature
= Terravent inlet temperature

2 Terravent outlet temperature

3 Night-time operation

4 Day-time operation

1 Internal temperature
= Enclosure internal temperature

2 External temperature

Operating status – cooling:
1300 W heat loss from 8 am – 4 pm
800 W heat loss from 4 pm – 8 am
CS Outdoor modular enclosure, thermally insulated
Enclosure size: W x H x D = 800 x 1200 x 500 mm

Operating status – heating:
No heat loss installed in the enclosure
External temperature below –10°C
CS Outdoor modular enclosure, not thermally insulated
Enclosure size: W x H x D = 800 x 1200 x 500 mm

Communication systems

C

6.

Command panels

1.5 Command Panel VIP 6000
Load specifications for installed equipment Page 160

F2 500 N — F1 = 500 N

F2 450 N — F1 = 500 N — F5 50 N

F3 180 N (150 N) — F2 320 N — F1 = 500 N (470)

F3 130 N (100 N) — F2 320 N — F1 = 500 N (470 N) — F5 50 N

F2 350 N — F4 150 N (120 N) — F1 = 500 N (470 N)

F2 300 N — F4 150 N (120 N) — F1 = 500 N (470 N) — F5 50 N

F3 180 N (150 N) — F2 300 N — F4 120 N — F1 = 600 N (570 N)

F3 130 N (100 N) — F2 300 N — F4 120 N — F1 = 600 N (570 N) — F5 50 N

F3 180 N (150 N) — F2 300 N — F4 120 N — F1 = 600 N (570 N)

F3 130 N (100 N) — F2 300 N — F4 120 N — F1 = 600 N (570 N) — F5 50 N
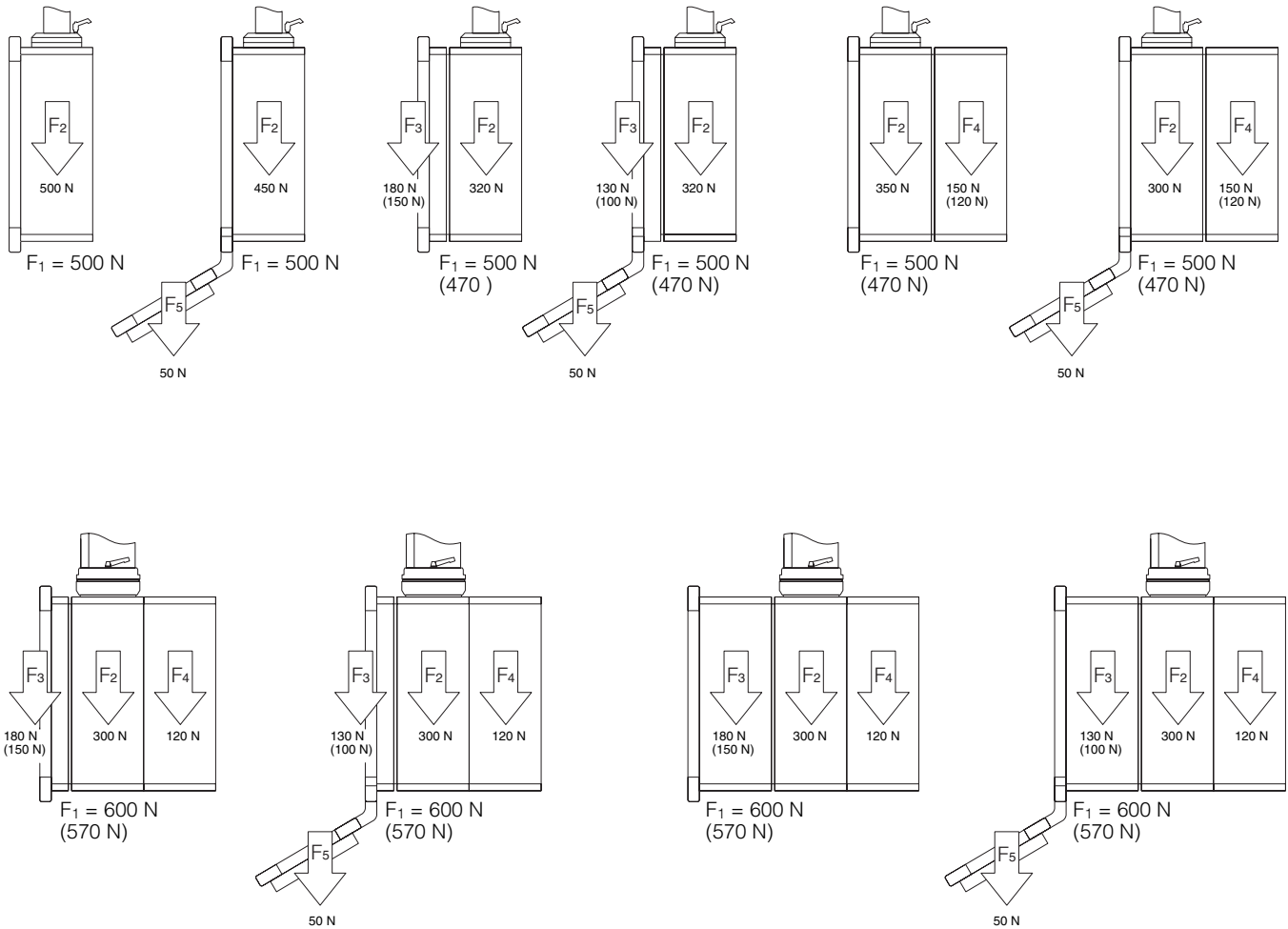
Permissible installed weight

F_1 = Total

F_2 = Enclosure part
(with support arm connection)

F_3 = Front part

F_4 = Rear part

F_5 = Keyboard housing

Figures in brackets are for hinged version
(see 3.1 installation depth, page 161).
Enclosures for larger weights available on request.

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
1000		1114.100	295	1491.000	912	1568.700	909	1940.000	1013	2253.605	731
1002.600	273	1114.500	120	1492.000	888	1569.700	909	1941.000	1013	2255.605	730
1004.600	273	1130.100	295	1500.510	108	1570.700	909	1944.000	1013	2256.605	731
1005.600	273	1130.500	120	1501.510	108	1571.700	909	1945.000	1013	2256.705	292
1006.600	273	1158.500	969	1502.510	108	1572.700	909	1950.000	1013	2258.605	730
1007.600	273	1158.530	969	1503.510	108	1573.700	909	1962.200	999	2259.605	731
1008.600	273	1158.540	969	1504.510	108	1574.700	909	1963.200	999	2259.705	292
1009.600	273	1158.560	969	1505.510	108	1575.700	909	1978.200	998	2260.000	1011
1010.600	273	1158.900	969	1506.510	108	1576.700	909	1979.200	999	2261.605	730
1012.600	273	1158.910	969	1507.510	108	1577.500	110, 113	1980.200	999	2262.605	731
1013.600	273	1158.920	969	1507.750	290	1578.500	110, 113	1985.235	996	2265.605	731
1014.600	273	1158.930	969	1508.510	108	1579.500	110, 113	1986.235	996, 998	2265.705	292
1016.600	273	1158.940	969	1509.510	108	1580.000	905	1994.635	996	2268.605	731
1017.600	273	1158.950	969	1510.510	108	1581.000	967	1994.835	996	2271.605	731
1018.600	273	1180.100	295	1511.510	108	1581.100	968	1995.235	996, 998	2271.705	292
1019.600	273	1180.500	119	1512.510	108	1582.000	967	1995.835	996, 998	2304.000	887
1024.010	271	1180.750	290	1513.510	108	1583.010	272	1996.535	996	2305.000	879
1024.020	271	1213.100	295	1514.510	107	1583.510	111	1996.835	996	2306.000	953
1024.030	271	1213.500	120	1515.510	107	1583.520	111	1997.235	996, 998	2307.000	888
1024.040	271	1228.000	842	1516.510	107	1584.010	272	1997.835	996, 998	2308.000	891
1024.810	909	1228.010	842	1517.510	107	1584.510	111	**2000**		2309.000	927
1024.820	909	1228.100	842	1518.510	107	1584.520	111	2004.235	1001	2310.038	896
1024.830	909	1228.110	842	1519.510	107	1585.010	272	2007.235	1001	2310.076	896
1024.910	909	1228.200	842	1521.010	270	1585.510	111	2008.235	1001	2310.100	896
1024.920	909	1228.210	842	1522.010	270	1585.520	111	2010.235	1001	2310.120	896
1024.930	909	1228.300	842	1523.010	270	1586.510	111	2011.235	1001	2313.150	927
1030.500	118	1228.310	842	1524.010	270	1586.520	111	2026.200	1002	2313.750	927
1031.500	118	1260.100	295	1525.010	270	1589.510	108	2027.200	1002	2314.000	927
1032.500	118	1260.500	120	1526.010	270	1591.000	107, 108, 109	2034.200	1002	2315.000	927
1033.500	118	1280.100	295	1527.510	108			2089.000	1019	2316.000	927
1034.500	118	1280.500	120	1528.510	107	1592.000	894	2092.200	1020	2317.000	927
1035.500	118	1338.100	295	1529.510	108	1594.000	905	2092.300	1020	2318.000	927
1038.100	295	1338.500	119	1530.510	109	1605.510	112	2092.500	1020	2319.000	927
1038.500	119	1339.100	295	1531.510	109	1605.520	112	2093.200	1019	2322.700	995
1039.100	295	1339.500	118	1532.510	109	1606.510	112	2094.200	1020	2323.235	997
1039.500	118	1350.100	295	1533.510	109	1606.520	112	2094.300	1020	2324.235	997
1039.750	290	1350.500	119	1534.510	109	1609.510	114	2094.500	1020	2325.000	895
1045.100	295	1360.100	295	1535.510	109	1611.510	113	2099.500	1019	2326.000	895
1045.500	119	1360.500	119	1536.510	109	1616.110	898	2102.180	651	2327.000	895
1050.100	295	1376.100	295	1537.510	109	1616.200	916	2102.190	651	2328.000	895
1050.500	119	1376.500	119	1538.510	109	1616.210	916	2102.320	651	2331.700	995
1050.900	114	1380.100	295	1539.510	109	1616.220	916	2102.400	651	2332.235	997
1057.100	295	1380.500	118	1540.510	109	1616.230	916	2102.410	651	2333.235	997
1057.500	119	1380.750	290	1541.510	109	1616.240	916	2102.490	651	2334.000	960
1058.100	295	1400.600	124	1542.510	109	1616.300	842	2102.500	805	2335.000	960
1058.500	119	1423.600	123	1545.500	110	1616.310	842	2231.000	1013	2336.700	995
1060.100	295	1432.600	123	1546.500	110	1620.000	125, 820	2232.000	1013	2337.235	997
1060.500	119	1434.600	123	1547.500	110	1620.100	125, 820	2233.000	1013	2338.235	997
1060.750	290	1444.600	123	1548.500	110	1621.000	125, 820	2235.005	971	2340.700	995
1073.100	295	1446.600	123	1549.500	110	1621.100	125, 820	2235.015	971	2341.235	997
1073.500	119	1448.600	123	1550.500	110	1622.000	125, 820	2235.025	971	2342.235	997
1076.100	295	1449.600	123	1551.500	110	1622.100	125, 820	2235.035	971	2343.000	960
1076.500	119	1453.600	123	1552.500	110	1646.500	122	2235.045	971	2345.700	995
1077.100	295	1454.600	123	1553.500	110	1647.500	122	2235.055	971	2346.235	997
1077.500	119	1466.600	123	1554.500	110	1648.500	122	2235.065	971	2347.235	997
1090.100	295	1467.600	123	1555.500	110	1650.500	122	2235.075	971	2350.000	979
1090.500	119	1468.600	124	1556.500	110	1652.500	122	2235.085	971	2351.000	979
1100.100	295	1469.600	124	1557.500	110	1919.500	732	2235.135	970	2352.000	979
1100.500	120	1479.600	124	1558.010	272	1920.500	732	2237.000	929	2353.000	979
1101.010	121	1480.600	124	1558.500	112	1926.500	732	2238.000	929	2354.000	979
1101.020	121	1481.000	912	1559.010	272	1931.200	1013	2239.000	929	2355.000	979
1101.030	121	1482.000	937	1559.510	112	1932.200	1013	2240.000	1011	2356.000	979
1101.040	121	1483.000	905	1560.700	909	1933.200	1013	2243.605	730	2357.000	979
1101.800	898	1484.000	886	1561.700	909	1934.200	1013	2243.705	292	2358.000	979
1101.910	873	1485.000	888	1562.700	909	1935.200	1013	2246.605	730	2359.000	979
1101.920	873	1486.000	888	1563.700	909	1936.200	1013	2246.705	292	2360.000	979
1101.930	873	1487.000	888	1564.700	909	1937.200	1013	2249.605	730	2361.000	899
1101.940	873	1488.000	888	1565.700	909	1939.200	1013	2249.705	292	2362.000	899
1110.100	295	1489.000	888	1566.700	909			2250.000	1011	2363.000	899
1110.500	120	1490.000	885	1567.700	909			2252.605	730	2364.000	962

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
2365.000	935	2376.020	1044	2411.520	973	2462.000	888	2526.000	888	2598.200	958
2366.000	935	2376.030	1044	2411.521	973	2463.000	888	2527.000	888	2599.000	886
2367.040	959	2377.030	993	2411.522	973	2464.000	888	2528.000	888	2600.500	265
2367.060	959	2377.060	993	2411.523	973	2465.000	888	2530.000	887	2610.500	265
2367.080	959	2377.090	993	2411.600	972	2466.000	888	2531.000	891	2611.500	264
2367.120	959	2377.120	993	2411.610	972	2467.000	882	2532.000	891	2612.500	264
2367.160	959	2377.150	993	2411.620	972	2468.000	882	2533.000	886	2613.500	264
2367.200	959	2377.180	993	2411.630	972	2469.000	882	2534.000	889	2614.500	264
2367.250	959	2377.460	994	2411.640	972	2470.000	899	2534.100	889	2615.500	265
2368.000	1042	2377.860	994	2411.650	972	2471.000	899	2534.500	889	2616.500	265
2368.010	1042	2377.880	994	2411.660	972	2472.000	899	2535.000	887	2620.500	265
2369.000	1043	2379.600	1049	2411.670	972	2473.000	899	2536.000	887	2630.500	265
2369.010	1043	2379.800	1049	2411.800	972	2474.000	899	2540.000	887	2640.500	265
2369.020	1043	2379.900	1056	2411.810	972	2475.000	899	2540.500	887	2641.500	264
2369.030	1043	2381.000	1054	2411.820	972	2476.000	890	2541.235	666	2642.500	264
2369.040	1043	2382.000	1055	2411.830	972	2477.000	860	2542.235	666	2643.500	264
2370.000	1043	2383.000	1048	2411.840	972	2478.000	860	2543.235	666	2644.500	264
2370.010	1043	2383.010	1034	2411.850	972	2479.000	860	2545.000	891	2645.500	265
2370.020	1043	2383.020	1055	2411.860	972	2480.000	860	2546.000	891	2646.500	265
2370.030	1043	2388.100	957	2411.870	972	2481.000	860	2547.000	891	2647.500	264
2370.040	1043	2388.140	957	2412.210	960	2482.000	1059	2548.000	891	2648.500	264
2370.050	1043	2388.150	957	2412.216	960	2482.100	1059	2549.000	891	2649.500	264
2370.060	1043	2388.180	957	2412.225	960	2482.200	1059	2554.000	888	2650.500	265
2370.070	1043	2388.200	957	2412.310	960	2483.000	888	2555.000	888	2651.500	264
2370.080	1043	2388.220	957	2412.316	960	2484.000	888	2556.000	888	2652.500	264
2370.090	1043	2388.260	957	2412.325	960	2485.000	886	2557.000	888	2653.500	264
2371.000	1043	2388.280	957	2413.375	959	2485.100	886	2558.000	888	2654.500	264
2371.010	1043	2388.300	957	2413.550	959	2486.300	937	2559.000	960	2655.500	265
2371.020	1043	2388.340	957	2414.000	959	2486.500	937	2560.000	966	2656.500	265
2371.030	1043	2388.600	957	2414.500	959	2487.000	937	2561.000	966	2666.500	266
2371.040	1043	2388.800	957	2415.000	959	2488.000	937	2561.100	968	2668.500	266
2371.050	1043	2389.000	1030	2415.100	898	2489.000	937	2561.500	967	2670.500	266
2371.060	1043	2389.100	1031	2415.500	912	2489.500	937	2562.000	966	2672.500	266
2371.070	1043	2400.000	974	2416.000	890	2493.000	890	2562.100	968	2676.000	1040
2371.080	1043	2400.300	975	2418.000	890	2493.500	890	2562.500	967	2678.000	1040
2371.090	1043	2400.500	975	2419.000	890	2501.500	899	2563.000	966	2682.000	1040
2372.000	1043	2400.700	974	2420.000	887	2502.500	899	2563.100	968	2683.600	282
2372.010	1043	2400.710	974	2421.500	885	2503.000	905	2563.500	967	2684.600	282
2372.020	1043	2400.720	974	2422.000	904	2503.010	905	2564.000	960	2685.600	282
2372.030	1043	2400.730	974	2423.000	904	2504.000	937	2565.000	960	2686.600	282
2372.040	1043	2400.740	974	2424.100	900	2504.500	937	2565.100	960	2694.500	267
2372.100	1041	2400.750	974	2425.100	900	2504.800	937	2565.110	960	2695.500	267
2372.110	1044	2400.760	974	2426.100	900	2505.200	906	2565.120	960	2696.500	1039
2372.120	1041	2400.770	974	2426.500	899	2505.500	906	2566.000	960	2697.450	845
2373.000	935	2400.780	974	2427.100	900	2507.100	956	2567.000	960	2730.000	878
2374.000	1045	2400.790	974	2430.000	887	2507.200	956	2568.000	960	2731.000	878
2374.010	1045	2400.800	974	2431.000	894	2507.300	956	2569.000	960	2732.000	878
2374.020	1045	2401.000	860	2432.000	894	2507.400	956	2570.000	960	2733.000	878
2374.030	1045	2402.000	860	2433.000	905	2507.500	956	2570.500	961	2734.000	878
2374.040	1044	2403.000	879	2435.000	885	2508.000	905	2571.000	889	2735.250	877
2374.050	1045	2404.000	879	2436.732	858	2508.010	905	2572.000	887	2735.500	877
2374.060	1043	2406.100	1062	2436.735	858	2509.000	904	2573.000	965	2735.509	877
2374.070	1043	2411.090	958	2437.000	858	2510.000	897	2574.000	935	2735.510	877
2374.080	1044	2411.110	958	2438.000	858	2511.500	899	2575.000	887	2735.520	877
2374.150	1044	2411.140	958	2438.735	858	2512.000	897	2576.000	886	2735.530	877
2374.200	1043	2411.160	958	2439.000	886	2513.000	897	2579.000	894	2735.540	877
2374.210	1043	2411.210	958	2440.735	858	2514.000	897	2581.000	858	2735.560	877
2374.220	1043	2411.290	958	2446.000	896	2514.500	897	2583.000	906	2735.570	877
2374.230	1043	2411.500	973	2449.000	894	2514.600	897	2584.000	906	2735.580	877
2374.240	1043	2411.501	973	2450.000	885	2514.800	897	2585.000	958	2735.590	877
2374.300	1043	2411.502	973	2451.000	885	2515.000	897	2589.000	981	2736.500	877
2374.310	1043	2411.503	973	2452.000	885	2516.000	898	2590.000	981	2736.509	877
2374.320	1043	2411.504	973	2453.000	885	2517.000	898	2591.000	981	2736.510	877
2374.330	1043	2411.505	973	2454.000	885	2518.000	898	2592.000	981	2736.520	877
2374.340	1043	2411.506	973	2455.000	885	2519.000	898	2593.000	981	2736.530	877
2375.000	1045	2411.507	973	2456.500	885	2520.000	887	2594.000	981	2736.540	877
2375.020	1045	2411.508	973	2459.000	852	2521.000	891	2595.000	981	2736.580	877
2375.030	1045	2411.509	973	2460.000	888	2522.000	888	2596.000	981	2736.590	877
2376.000	1044	2411.510	973	2460.650	888	2523.000	888	2597.000	982	2740.000	880
2376.010	1044	2411.511	973	2461.000	888	2525.000	889	2598.125	958	2741.000	880

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
2742.000	880	2868.000	844	3040.000	328	3116.000	655	3210.114	631	3301.020	675
2743.000	880	2869.000	844	3041.000	328	3118.000	661	3210.140	631	3301.030	675
2744.000	880	2870.000	844	3042.000	329	3120.000	662	3210.144	631	3301.040	675
2745.000	880	2875.000	844	3043.000	329	3120.115	662	3210.500	631	3301.050	675
2746.000	880	2876.000	844	3044.000	329	3121.000	1063	3210.504	631	3301.060	675
2749.000	880	2877.000	844	3045.000	329	3124.000	663	3210.510	631	3301.070	675
2760.000	878	2878.000	844	3046.000	330	3124.100	663	3210.514	631	3301.080	675
2761.000	878	2879.000	844	3047.000	330	3124.200	662	3210.540	631	3301.090	675
2762.000	878	2880.000	844	3048.000	330	3126.100	633	3210.544	631	3301.130	675
2763.000	878	2885.000	844	3049.000	330	3127.100	633	3212.024	626	3301.160	675
2772.000	878	2886.000	844	3050.000	318	3128.100	633	3212.115	626	3301.170	675
2780.000	878	2887.000	844	3052.000	351	3129.100	633	3212.230	626	3301.180	675
2781.000	878	2889.000	845	3055.000	355	3130.100	634	3213.300	659	3301.190	675
2782.000	878	2890.000	845	3056.000	355	3144.000	646	3213.310	659	3301.210	672
2784.000	878	2891.200	843	3057.000	355	3145.000	646	3213.320	659	3301.230	672
2785.000	878	2892.200	843	3058.000	356	3148.007	647	3213.330	659	3301.250	672
2786.000	878	2898.160	973	3059.000	356	3149.007	647	3214.100	627	3301.260	673
2787.000	878	2898.200	973	3060.000	356	3149.410	647	3215.100	628	3301.270	675
2788.000	878	2898.250	973	3061.000	356	3149.420	647	3216.100	629	3301.280	674
2789.000	878	2898.320	973	3063.000	333	3149.440	647	3217.100	627	3301.560	665
2791.000	880	2899.200	973	3064.000	318	3149.810	647	3218.100	629	3301.570	665
2792.000	880	2899.250	973	3066.000	318	3149.820	647	3218.104	629	3301.580	665
2793.560	879	2899.320	973	3067.000	330	3149.840	647	3220.000	659	3301.590	665
2793.760	879	2899.400	973	3068.000	330	3159.100	1063	3247.000	628	3301.600	665
2796.000	878	2901.200	843	3069.000	329	3164.115	648	3253.000	668	3301.608	665
2801.200	843	2902.200	843	3070.000	329	3164.230	648	3253.010	668	3301.610	665
2802.200	843	2903.200	843	3071.000	363	3164.610	648	3253.200	669	3301.612	665
2804.200	843	2904.200	843	3073.000	343	3164.620	648	3253.220	669	3301.700	675
2805.200	843	2905.200	843	3074.000	343, 351	3164.810	648	3254.000	668	3301.710	675
2807.200	843	2906.200	843	3075.000	343, 351	3164.820	648	3254.200	669	3301.720	675
2808.200	843	2907.000	841	3076.000	343	3165.024	652	3259.000	659	3301.730	675
2813.200	843	2908.000	841	3078.000	318	3165.048	652	3267.100	668	3301.740	675
2814.200	843	2909.200	843	3079.000	361	3165.115	652	3267.200	669	3301.750	675
2816.200	843	2910.200	843	3079.010	361	3165.230	652	3273.500	592	3301.760	675
2817.000	838	2911.200	843	3080.000	319	3165.615	652	3273.515	592	3301.770	675
2818.200	843	2912.200	843	3083.000	343	3165.624	652	3278.134	644	3301.780	675
2819.000	838	2913.000	841	3084.000	319	3165.630	652	3284.200	669	3301.810	674
2819.200	838	2921.200	843	3085.000	343, 351	3165.648	652	3285.000	668	3301.820	674
2823.200	843	2922.200	843	3086.000	324, 344	3165.815	652	3285.200	669	3301.900	667
2824.200	843	2961.200	843	3087.000	324, 344	3165.824	652	3286.000	668	3301.910	667
2826.200	843	2962.200	843	3088.000	324, 344	3165.830	652	3286.100	668	3301.920	667
2828.200	843	2981.235	846	3089.000	319	3165.848	652	3286.110	668	3301.930	667
2829.200	843	2982.235	846	3090.000	324, 344	3169.007	647	3286.120	669	3301.940	667
2830.200	843	**3000**		3091.000	324, 344	3171.100	670	3286.200	669	3301.950	668
2836.200	843	3000.000	318	3092.000	319, 343	3172.100	670	3286.210	669	3301.960	668
2837.200	843	3001.000	319	3093.000	334, 335	3173.100	670	3286.300	668	3302.100	597
2839.200	843	3002.000	319	3095.010	348, 359	3174.000	670	3286.310	669	3302.110	597
2840.200	843	3003.000	319	3095.020	341	3175.000	667	3286.400	668	3302.200	597
2841.200	843	3004.000	319	3095.030	341	3176.000	667	3286.410	669	3302.210	597
2842.200	843	3005.000	319	3095.110	348, 359	3177.000	668	3286.500	668	3302.300	596
2843.160	958	3006.000	319	3095.120	341	3181.100	670	3286.510	669	3302.310	596
2843.200	958	3007.000	319	3095.130	341	3182.100	670	3286.520	669	3303.100	597
2843.250	958	3008.000	319	3095.210	341	3183.100	670	3286.600	668	3303.104	603
2843.320	958	3009.000	319	3095.230	341	3201.100	595	3286.610	669	3303.110	597
2843.400	958	3012.000	319	3095.310	348, 359	3202.100	595	3286.700	665	3303.114	603
2843.500	958	3013.000	319	3099.000	364	3209.100	630	3286.780	658	3303.200	597
2843.630	958	3014.000	319	3102.000	655	3209.104	630	3286.800	665	3303.210	597
2846.200	843	3015.000	319	3105.000	655	3209.110	630	3286.870	658	3303.500	597
2847.200	843	3016.000	319	3106.000	655	3209.114	630	3286.880	658	3303.504	603
2851.200	843	3017.000	319	3107.000	655	3209.140	630	3286.900	665	3303.510	597
2852.200	843	3018.000	333	3108.000	655	3209.144	630	3286.970	658	3303.514	603
2855.000	844	3019.000	333	3108.024	653	3209.500	630	3286.980	658	3303.600	597
2856.000	844	3020.000	1061	3108.100	653	3209.504	630	3286.990	658	3303.610	597
2859.000	848	3020.100	1061	3108.115	653	3209.510	630	3288.200	669	3304.100	599
2860.000	844	3031.000	360	3110.000	661	3209.514	630	3289.200	669	3304.104	603
2863.200	843	3032.000	360	3110.200	661	3209.540	630	3292.134	644	3304.110	599
2864.200	843	3036.000	330	3114.024	660	3209.544	630	3294.100	668	3304.114	603
2865.000	844	3037.000	330	3114.100	660	3210.100	631	3294.200	669	3304.140	599
2866.000	844	3038.000	330	3114.115	660	3210.104	631	3301.000	675	3304.144	603
2867.000	844	3039.000	330	3115.000	655	3210.110	631	3301.010	675	3304.200	599

3304.210 to 3385.110

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
3304.210	599	3307.630	587	3322.107	636	3329.210	600	3338.340	620	3361.110	598
3304.240	599	3307.650	587	3322.117	636	3329.240	600	3338.360	620	3361.140	598
3304.500	599	3307.670	587	3322.207	666	3329.500	600	3338.500	621	3361.200	598
3304.504	603	3307.800	584	3322.267	640	3329.504	604	3338.520	621	3361.210	598
3304.510	599	3307.840	584	3322.607	640	3329.510	600	3338.540	621	3361.240	598
3304.514	603	3307.880	584	3322.617	640	3329.514	604	3338.560	621	3361.500	598
3304.540	599	3307.890	584	3322.700	670	3329.540	600	3338.580	622	3361.510	598
3304.544	603	3308.500	585	3322.800	666	3329.544	604	3338.600	622	3361.540	598
3304.600	599	3308.540	585	3323.027	637	3329.600	600	3338.620	622	3361.600	598
3304.610	599	3308.580	585	3323.047	637	3329.610	600	3338.640	622	3361.610	598
3304.640	599	3308.590	585	3323.107	637	3329.640	600	3338.660	622	3361.640	598
3305.100	599	3308.800	585	3323.117	637	3331.116	589	3338.680	622	3366.100	602
3305.104	603	3308.840	585	3323.207	666	3331.140	589	3338.700	623	3366.110	602
3305.110	599	3308.880	585	3323.267	640	3331.216	589	3338.720	623	3366.140	602
3305.114	603	3308.884	585	3323.607	640	3331.240	589	3338.740	623	3366.200	602
3305.140	599	3309.120	588	3323.617	640	3331.316	589	3338.760	623	3366.210	602
3305.144	603	3309.140	588	3323.800	666	3331.340	589	3338.780	623	3366.240	602
3305.200	599	3309.170	588	3324.027	637	3331.416	589	3338.800	623	3366.500	602
3305.210	599	3309.210	588	3324.047	637	3331.440	589	3338.820	623	3366.510	602
3305.240	599	3309.410	588	3324.107	637	3332.140	601	3338.840	623	3366.540	602
3305.500	599	3309.420	588	3324.117	637	3332.240	601	3339.100	617	3366.600	602
3305.504	603	3309.440	588	3324.607	641	3332.540	601	3339.200	617	3366.610	602
3305.510	599	3309.470	588	3324.617	641	3332.640	601	3339.300	617	3366.640	602
3305.514	603	3309.500	586	3324.800	666	3334.600	609	3339.400	617	3377.000	664
3305.540	599	3309.510	588	3325.027	638	3335.060	615	3339.500	617	3377.100	602
3305.544	603	3309.520	588	3325.047	638	3335.075	615	3340.024	645	3377.110	602
3305.600	599	3309.530	588	3325.107	638	3335.100	616	3340.115	645	3377.140	602
3305.610	599	3309.540	586	3325.117	638	3335.120	616	3340.230	645	3377.200	602
3305.640	599	3309.570	588	3325.207	666	3335.150	616	3341.024	645	3377.210	602
3306.210	587	3309.580	586	3325.267	641	3335.200	616	3341.115	645	3377.240	602
3306.230	587	3309.590	586	3325.607	641	3335.250	616	3341.230	645	3377.500	602
3306.250	587	3309.610	588	3325.617	641	3336.100	611	3342.024	645	3377.510	602
3306.270	587	3309.620	588	3326.107	639	3336.200	611	3342.115	645	3377.540	602
3306.410	587	3309.640	588	3326.117	639	3336.300	611	3342.230	645	3377.600	602
3306.430	587	3309.670	588	3326.207	666	3336.500	611	3342.500	645	3377.610	602
3306.450	587	3309.800	586	3326.267	641	3336.600	611	3347.180	653	3377.640	602
3306.470	587	3309.840	586	3326.607	641	3336.650	611	3347.200	653	3382.100	590
3306.500	584	3309.880	586	3326.617	641	3336.700	612	3348.180	653	3382.110	590
3306.510	587	3309.884	586	3326.800	666	3336.710	612	3348.200	653	3382.200	590
3306.530	587	3310.130	588	3327.107	639	3336.720	612	3349.100	653	3382.210	590
3306.540	584	3310.150	588	3327.117	639	3336.730	612	3349.300	653	3382.500	590
3306.550	587	3310.230	588	3327.147	639	3336.740	612	3350.024	645	3382.510	590
3306.570	587	3310.250	588	3327.607	641	3336.750	612	3350.115	645	3382.600	590
3306.580	584	3310.500	586	3327.617	641	3337.200	613	3350.230	645	3382.610	590
3306.590	584	3310.530	588	3327.700	670	3337.300	613	3351.024	645	3383.100	591
3306.610	587	3310.550	588	3328.100	600	3337.500	613	3351.115	645	3383.110	591
3306.630	587	3310.580	586	3328.104	604	3337.600	613	3351.230	645	3383.140	591
3306.650	587	3310.630	588	3328.110	600	3337.650	613	3352.024	645	3383.200	591
3306.670	587	3310.650	588	3328.114	604	3337.700	614	3352.115	645	3383.210	591
3306.800	584	3310.800	586	3328.140	600	3337.710	614	3352.230	645	3383.240	591
3306.840	584	3310.880	586	3328.144	604	3337.720	614	3352.500	645	3383.500	591
3306.880	584	3316.180	632	3328.200	600	3337.730	614	3355.100	645	3383.510	591
3306.884	584	3316.200	632	3328.210	600	3337.740	614	3356.100	645	3383.540	591
3307.210	587	3318.600	608	3328.240	600	3337.750	614	3357.100	645	3383.600	591
3307.230	587	3318.610	608	3328.500	600	3338.020	618	3359.100	590	3383.610	591
3307.250	587	3319.600	608	3328.504	604	3338.040	618	3359.110	590	3383.640	591
3307.270	587	3319.610	608	3328.510	600	3338.060	618	3359.140	590	3384.100	593
3307.410	587	3320.600	609	3328.514	604	3338.080	618	3359.200	590	3384.110	593
3307.430	587	3321.027	636	3328.540	600	3338.100	619	3359.210	590	3384.140	593
3307.450	587	3321.047	636	3328.544	604	3338.120	619	3359.240	590	3384.200	593
3307.470	587	3321.107	636	3328.600	600	3338.140	619	3359.500	590	3384.210	593
3307.500	584	3321.117	636	3328.610	600	3338.160	619	3359.510	590	3384.240	593
3307.510	587	3321.207	666	3328.640	600	3338.180	619	3359.540	590	3384.500	593
3307.530	587	3321.267	640	3329.100	600	3338.200	619	3359.600	590	3384.510	593
3307.540	584	3321.607	640	3329.104	604	3338.220	620	3359.610	590	3384.540	593
3307.550	587	3321.617	640	3329.110	600	3338.240	620	3359.640	590	3384.600	593
3307.570	587	3321.700	670	3329.114	604	3338.260	620	3360.100	610	3384.610	593
3307.580	584	3321.800	666	3329.140	600	3338.280	620	3360.250	610	3384.640	593
3307.590	584	3322.027	636	3329.144	604	3338.300	620	3360.400	610	3385.100	593
3307.610	587	3322.047	636	3329.200	600	3338.320	620	3361.100	598	3385.110	593

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
3385.140	593	3442.000	322	3525.000	320	3606.140	512	3654.370	576	3684.032	490
3385.200	593	3443.000	322	3526.000	320	3606.200	512	3658.160	576	3684.033	490
3385.210	593	3444.000	322	3527.000	320	3606.300	535	3658.190	576	3684.034	489
3385.240	593	3445.000	331	3528.000	320	3606.321	544	3658.210	576	3684.035	489
3385.500	593	3446.000	331	3529.000	320	3606.330	536	3659.000	462	3684.036	489
3385.510	593	3447.000	362	3530.000	335	3606.550	576	3659.010	476	3684.037	490
3385.540	593	3448.000	362	3531.000	335	3606.560	576	3659.020	475	3684.038	490
3385.600	593	3450.500	324	3532.000	335	3606.610	576	3659.030	475	3684.039	490
3385.610	593	3451.500	324	3533.000	321	3606.700	572	3659.040	462, 464	3684.040	490
3385.640	593	3452.500	324	3536.000	363	3606.720	572	3659.050	475	3684.041	490
3386.140	594	3453.500	324	3537.000	363	3634.060	540	3659.060	475	3684.042	490
3386.240	594	3454.500	324	3538.000	362	3634.070	540	3659.070	462	3684.043	489
3386.540	594	3455.500	324	3539.000	332	3636.010	497, 953	3659.080	482	3684.044	489
3386.640	594	3456.500	324	3540.000	328	3652.000	533	3659.090	476	3684.045	489
3387.140	594	3457.500	324	3541.000	328	3652.010	533	3659.100	466	3684.046	489
3387.240	594	3458.500	324	3542.000	333	3652.020	533	3659.110	475	3684.047	489
3387.540	594	3459.500	324	3543.000	333	3652.030	533	3659.120	466, 467	3684.048	489
3387.640	594	3460.500	352	3544.000	328	3652.040	533	3659.130	462, 464	3684.049	489
3400.000	338, 345	3485.000	353	3545.000	328	3652.050	533	3659.140	462, 464	3684.050	489
3401.000	338, 345	3486.000	353	3546.000	333	3652.060	533	3659.180	475	3684.051	489
3402.000	338, 345	3487.000	353	3547.000	333	3652.070	533	3659.190	475	3684.052	489
3403.000	338, 345	3488.000	358	3548.000	362	3652.080	533	3659.230	475	3684.053	489
3404.000	338	3488.310	358	3549.000	362	3652.200	533	3659.240	475	3684.054	489
3405.000	338	3489.000	358	3550.000	324	3652.210	533	3659.250	476	3684.055	489
3406.000	338	3489.310	358	3554.000	324, 344	3652.220	533	3659.270	476	3684.056	489
3407.000	338	3490.000	338, 345	3555.000	324	3652.230	533	3659.280	476	3684.057	489
3408.000	364	3490.210	338, 345	3559.000	344	3652.240	533	3659.290	476	3684.058	489
3409.000	358	3491.000	338, 345	3560.000	344, 352	3652.250	533	3659.300	472	3684.059	489
3409.310	358	3491.210	338, 345	3561.000	344, 352	3652.260	533	3659.310	476	3684.060	489
3410.000	339, 346	3492.000	338, 345	3562.000	344, 352	3652.270	533	3659.320	476	3684.061	489
3411.000	339, 346	3492.210	338, 345	3563.000	344, 352	3652.500	538	3659.330	476	3684.062	490
3412.000	345, 346	3493.000	338, 345	3565.000	361	3652.510	538	3659.340	476	3684.063	490
3413.000	345, 346	3493.210	338, 345	3566.000	361	3652.520	538	3659.350	476	3684.064	490
3414.000	365	3494.000	339, 346	3567.000	361	3652.530	538	3659.360	476	3684.065	490
3415.010	347, 359	3494.210	339, 346	3568.000	361	3652.600	538	3659.370	476	3684.072	554
3415.020	340	3495.000	339, 346	3569.000	361	3652.610	538	3659.400	467	3684.073	554
3415.030	340	3495.210	339, 346	3570.000	361	3652.620	538	3659.410	475	3684.074	554
3415.110	347, 359	3496.000	362	3571.000	361	3652.630	538	3659.420	473	3684.075	554
3415.120	340	3499.000	365	3572.000	361	3653.000	541	3659.430	474	3684.076	554
3415.130	340	3499.010	365	3573.000	361	3653.010	541	3659.500	463	3684.077	554
3415.210	340	3499.020	347	3574.000	361	3653.020	541	3659.520	1050	3684.078	554
3415.230	340	3499.030	348	3575.000	361	3653.030	541	3659.530	1050	3684.080	554
3415.310	347, 359	3499.040	364	3576.000	361	3653.040	541	3659.540	475	3684.109	576
3418.000	334	3499.050	364	3577.000	361	3653.050	541	3659.590	1050	3684.128	491
3419.000	334	3499.070	364	3578.000	361	3653.060	541	3659.600	464	3684.129	491
3420.000	334	3500.000	320	3579.000	361	3653.070	541	3659.620	1050	3684.130	491
3421.000	334	3501.000	320	3580.000	360	3653.100	541	3659.630	1050	3684.131	491
3422.000	335	3502.000	321	3580.100	360	3653.110	541	3659.640	471	3684.132	491
3423.000	335	3503.000	321	3581.000	360	3653.120	541	3659.650	470	3684.133	491
3424.000	335	3504.000	321	3581.100	360	3653.130	541	3659.700	468	3684.134	492
3425.000	335	3505.000	321	3582.000	360	3653.140	541	3659.710	469	3684.135	492
3427.000	334	3506.000	321	3583.000	360	3653.150	541	3659.900	465	3684.136	492
3428.000	334	3507.000	321	3584.000	360	3653.200	541	3663.301	572	3684.137	492
3429.000	334, 335	3508.000	321	3585.000	360	3653.210	541	3663.311	572	3684.138	492
3430.000	334, 335	3509.000	320	3586.000	360	3653.220	541	3663.601	572	3684.139	492
		3510.000	320	3587.000	360	3653.230	541	3663.611	572	3684.142	491
3431.000	307, 311, 337, 358	3511.000	320	3588.000	360	3653.240	541	3666.010	497	3684.143	491
		3512.000	321	3589.000	351, 360	3653.250	541	3684.019	576	3684.144	491
3432.000	364	3513.000	321	3590.000	360	3653.300	541	3684.020	489	3684.145	491
3433.000	334	3514.000	321	3591.010	349	3653.310	541	3684.021	489	3684.146	491
3434.000	334	3515.000	321	3591.020	336	3653.320	541	3684.022	489	3684.147	491
3435.000	334, 335	3516.000	320	3591.030	336	3653.330	541	3684.023	489	3684.148	492
3436.000	334, 335	3517.000	323	3591.040	353	3653.340	541	3684.024	489	3684.149	492
3437.000	333	3518.000	321	3591.050	353	3653.350	541	3684.025	489	3684.150	492
3437.010	333	3519.000	321	3591.060	353	3654.300	576	3684.026	489	3684.151	492
3438.000	332	3520.000	335	3592.010	365	3654.320	576	3684.027	489	3684.152	492
3439.000	323	3521.000	335	3592.020	365	3654.330	576	3684.028	490	3684.153	492
3439.010	323	3522.000	335	3595.010	363	3654.340	576	3684.029	490	3684.156	491
3440.000	322	3523.000	321	3604.830	504	3654.350	576	3684.030	490	3684.157	491
3441.000	322	3524.000	320	3604.850	572	3654.360	576	3684.031	490	3684.158	491

3684.159 to 3684.840

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
3684.159	491	3684.251	538	3684.335	525	3684.426	526	3684.588	503	3684.670	512
3684.160	491	3684.252	538	3684.336	525	3684.427	526	3684.589	503	3684.672	512
3684.161	491	3684.253	538	3684.337	525	3684.428	526	3684.590	503	3684.673	512
3684.162	491	3684.254	538	3684.338	525	3684.429	526	3684.591	503	3684.674	512
3684.163	491	3684.255	538	3684.339	525	3684.430	526	3684.592	499	3684.675	512
3684.164	491	3684.256	538	3684.340	525	3684.431	526	3684.593	499	3684.676	512
3684.165	491	3684.257	538	3684.341	525	3684.432	526	3684.594	499	3684.677	512
3684.166	491	3684.258	538	3684.342	525	3684.433	526	3684.595	499	3684.678	508
3684.169	491	3684.259	538	3684.343	525	3684.435	576	3684.596	499	3684.679	508
3684.170	491	3684.260	538	3684.344	526	3684.469	544	3684.597	504	3684.680	515, 516
3684.171	491	3684.261	538	3684.345	526	3684.478	544	3684.598	504	3684.681	515, 516
3684.172	491	3684.262	538	3684.346	526	3684.481	544	3684.599	504	3684.683	515
3684.173	491	3684.263	538	3684.347	526	3684.482	576	3684.600	504	3684.684	515
3684.174	491	3684.264	538	3684.348	526	3684.511	495	3684.601	504	3684.685	515
3684.175	491	3684.265	538	3684.349	526	3684.512	495	3684.602	504	3684.686	515
3684.176	491	3684.266	538	3684.350	526	3684.513	495	3684.603	504	3684.687	515
3684.177	491	3684.267	538	3684.351	526	3684.514	495	3684.604	504	3684.688	515
3684.178	491	3684.268	538	3684.352	526	3684.515	495	3684.605	504	3684.689	515
3684.179	491	3684.269	538	3684.353	526	3684.516	495	3684.606	504	3684.691	515
3684.180	492	3684.272	538	3684.354	526	3684.517	495	3684.607	504	3684.692	515
3684.181	492	3684.273	538	3684.355	526	3684.518	495	3684.608	504	3684.693	515
3684.187	492	3684.274	538	3684.356	526	3684.519	495	3684.609	504	3684.694	515
3684.188	492	3684.275	538	3684.357	526	3684.520	495	3684.610	504	3684.695	515
3684.189	492	3684.276	538	3684.358	525	3684.521	495	3684.611	505	3684.696	515
3684.190	492	3684.277	538	3684.359	525	3684.522	495	3684.612	505	3684.698	515
3684.191	492	3684.278	538	3684.360	525	3684.523	495	3684.614	496	3684.700	515
3684.192	492	3684.279	538	3684.361	525	3684.524	495	3684.615	496	3684.701	515
3684.193	492	3684.280	538	3684.362	525	3684.525	495	3684.616	496	3684.702	515
3684.194	492	3684.281	521	3684.363	525	3684.526	495	3684.617	496	3684.703	515
3684.195	492	3684.282	521	3684.364	525	3684.527	495	3684.618	496	3684.714	516
3684.196	492	3684.283	521	3684.365	525	3684.528	495	3684.619	496	3684.715	516
3684.197	492	3684.284	522	3684.366	525	3684.529	495	3684.620	496	3684.716	516
3684.198	492	3684.285	522	3684.367	525	3684.530	495	3684.621	496	3684.717	516
3684.204	513	3684.286	522	3684.368	525	3684.531	495	3684.622	496	3684.718	516
3684.205	513	3684.287	522	3684.369	525	3684.532	495	3684.623	496	3684.719	516
3684.206	508	3684.288	522	3684.370	525	3684.533	495	3684.624	496	3684.720	516
3684.207	508	3684.291	538	3684.371	525	3684.534	495	3684.625	496	3684.721	516
3684.208	508	3684.292	538	3684.372	525	3684.535	495	3684.626	496	3684.722	516
3684.209	508	3684.293	538	3684.373	525	3684.536	495	3684.627	496	3684.723	516
3684.210	508	3684.294	538	3684.374	526	3684.537	495	3684.628	496	3684.724	516
3684.211	508	3684.295	538	3684.375	526	3684.538	495	3684.629	496	3684.725	516
3684.212	508	3684.298	539	3684.376	526	3684.539	495	3684.630	496	3684.726	517
3684.213	508	3684.299	539	3684.377	526	3684.540	495	3684.631	496	3684.727	517
3684.220	508	3684.300	539	3684.378	526	3684.541	495	3684.632	496	3684.728	517
3684.221	508	3684.301	539	3684.379	526	3684.542	495	3684.633	497	3684.729	517
3684.222	508	3684.302	539	3684.380	526	3684.543	495	3684.634	497	3684.730	517
3684.223	508	3684.304	522	3684.381	526	3684.544	495	3684.635	497	3684.731	517
3684.224	508	3684.305	522	3684.382	526	3684.545	495	3684.636	497	3684.732	517
3684.225	508	3684.306	522	3684.383	526	3684.546	495	3684.637	497	3684.733	517
3684.226	508	3684.307	522	3684.384	526	3684.547	495	3684.638	497	3684.734	517
3684.227	508	3684.308	522	3684.385	526	3684.548	495	3684.639	497	3684.735	517
3684.228	508	3684.311	522	3684.386	526	3684.549	495	3684.640	497	3684.736	517
3684.229	508	3684.312	522	3684.387	526	3684.550	495	3684.643	507	3684.737	517
3684.233	576	3684.313	522	3684.388	526	3684.551	495	3684.644	507	3684.738	537
3684.234	507, 576	3684.314	522	3684.389	526	3684.552	495	3684.645	507	3684.739	537
3684.236	506	3684.315	522	3684.410	530	3684.553	495	3684.654	509	3684.740	537
3684.237	506	3684.317	520	3684.411	531	3684.554	495	3684.655	509	3684.741	537
3684.238	506	3684.320	521	3684.413	526	3684.560	499	3684.656	509	3684.742	537
3684.239	506	3684.321	521	3684.414	526	3684.561	499	3684.657	509	3684.743	537
3684.240	506	3684.322	521	3684.415	526	3684.562	499	3684.658	509	3684.744	537
3684.241	506	3684.323	485	3684.416	526	3684.565	499	3684.659	509	3684.745	537
3684.242	506	3684.324	485	3684.417	526	3684.566	499	3684.660	509	3684.746	537
3684.243	506	3684.325	514	3684.418	526	3684.567	499	3684.661	509	3684.747	537
3684.244	506	3684.326	514	3684.419	526	3684.570	500	3684.662	509	3684.748	537
3684.245	507	3684.328	529	3684.420	526	3684.571	500	3684.663	510	3684.808	507
3684.246	507	3684.330	525	3684.421	526	3684.572	500	3684.664	510	3684.812	521
3684.247	538	3684.331	525	3684.422	526	3684.580	502	3684.665	510	3684.813	521
3684.248	538	3684.332	525	3684.423	526	3684.581	502	3684.666	510	3684.814	521
3684.249	538	3684.333	525	3684.424	526	3684.582	502	3684.668	510	3684.839	522
3684.250	538	3684.334	525	3684.425	526	3684.587	503	3684.669	510	3684.840	522

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
3684.841	522	3685.087	544	3685.270	502	3685.529	527	3685.605	536	3685.686	545
3684.842	522	3685.090	544	3685.271	504	3685.530	527	3685.606	536	3685.687	545
3684.843	522	3685.091	544	3685.272	503	3685.532	527	3685.607	536	3685.688	545
3684.870	521	3685.092	544	3685.273	505	3685.533	527	3685.608	536	3685.689	545
3684.871	521	3685.095	544	3685.274	505	3685.534	527	3685.609	536	3685.690	545
3684.872	521	3685.096	544	3685.275	505	3685.535	527	3685.610	536	3685.691	545
3684.885	537	3685.097	577	3685.276	497	3685.536	527	3685.611	536	3685.692	545
3684.886	537	3685.146	531	3685.277	497	3685.537	527	3685.612	536	3685.693	545
3684.887	537	3685.176	508	3685.279	531	3685.538	527	3685.613	536	3685.694	545
3684.888	537	3685.177	538	3685.280	531	3685.540	527	3685.614	536	3685.695	545
3684.889	537	3685.178	538	3685.281	489	3685.541	527	3685.615	536	3685.696	545
3684.890	537	3685.179	538	3685.282	577	3685.542	527	3685.616	536	3685.697	545
3684.891	537	3685.180	538	3685.286	508	3685.543	527	3685.617	536	3685.698	545
3684.892	537	3685.181	538	3685.289	577	3685.544	527	3685.618	536	3685.699	545
3684.893	537	3685.182	538	3685.290	577	3685.545	527	3685.626	531	3685.700	545
3684.894	537	3685.183	538	3685.291	509	3685.546	527	3685.627	531	3685.701	545
3684.895	537	3685.184	538	3685.292	509	3685.548	532	3685.628	543	3685.702	545
3684.896	537	3685.185	538	3685.294	543	3685.549	532	3685.629	542, 543	3685.703	545
3684.897	537	3685.186	538	3685.302	521	3685.550	532	3685.630	542, 543	3685.704	545
3684.898	537	3685.187	538	3685.303	521	3685.551	532	3685.631	542, 543	3685.705	545
3684.899	537	3685.188	538	3685.304	480	3685.552	532	3685.632	543	3685.706	545
3684.900	537	3685.189	538	3685.305	480	3685.553	532	3685.633	542, 543	3685.707	542
3684.901	537	3685.190	538	3685.306	480	3685.554	532	3685.634	542, 543	3685.708	542
3684.902	537	3685.191	538	3685.307	480	3685.555	532	3685.635	542, 543	3685.709	542
3684.903	537	3685.192	538	3685.319	529	3685.556	532	3685.636	542	3685.710	542
3684.904	537	3685.193	538	3685.328	483	3685.557	532	3685.637	542	3685.711	542
3684.905	537	3685.194	538	3685.329	483	3685.558	532	3685.638	542	3685.712	542
3684.906	537	3685.195	538	3685.330	482	3685.559	532	3685.639	542	3685.713	543
3684.907	537	3685.196	538	3685.331	483	3685.560	532	3685.640	542	3685.714	543
3684.908	537	3685.197	577	3685.332	483	3685.561	532	3685.641	542	3685.715	543
3684.909	537	3685.198	536	3685.348	538	3685.562	532	3685.642	515	3685.716	543
3684.910	537	3685.229	507	3685.349	538	3685.563	532	3685.645	542, 543	3685.717	543
3684.911	537	3685.231	489	3685.350	537	3685.564	532	3685.646	542, 543	3685.718	543
3684.912	537	3685.232	489	3685.429	537	3685.566	532	3685.648	542, 543	3685.743	495
3684.913	537	3685.233	489	3685.490	535	3685.567	532	3685.649	542, 543	3685.744	495
3684.914	537	3685.234	489	3685.491	535	3685.568	532	3685.650	543	3685.745	495
3684.915	537	3685.235	490	3685.492	535	3685.569	534	3685.651	543	3685.746	535
3684.916	537	3685.236	490	3685.493	535	3685.570	534	3685.652	543	3685.747	535
3684.917	537	3685.237	490	3685.494	535	3685.571	534	3685.653	543	3685.748	535
3684.918	537	3685.238	489	3685.495	535	3685.572	534	3685.654	543	3685.749	535
3684.919	537	3685.239	489	3685.496	535	3685.573	534	3685.655	543	3685.750	535
3684.920	537	3685.240	489	3685.497	535	3685.574	534	3685.656	543	3685.751	535
3684.921	537	3685.241	491	3685.498	535	3685.575	534	3685.657	543	3685.752	535
3684.922	537	3685.242	491	3685.499	535	3685.576	534	3685.658	543	3685.753	535
3684.923	537	3685.243	491	3685.500	526	3685.577	534	3685.659	543	3685.754	535
3684.924	537	3685.244	491	3685.501	526	3685.578	534	3685.660	543	3685.755	535
3684.925	537	3685.245	515, 516	3685.502	526	3685.579	534	3685.661	543	3685.756	535
3684.926	537	3685.246	515	3685.503	526	3685.580	534	3685.662	543	3685.757	535
3684.927	537	3685.247	515	3685.504	526	3685.581	534	3685.663	543	3685.758	535
3684.928	537	3685.248	515	3685.505	526	3685.582	534	3685.664	543	3685.759	510
3684.929	537	3685.249	515	3685.506	526	3685.583	534	3685.665	543	3685.761	535
3684.930	537	3685.250	515, 516	3685.508	526	3685.584	534	3685.666	543	3685.762	535
3684.953	510	3685.251	515	3685.509	526	3685.585	534	3685.667	543	3685.763	535
3684.954	510	3685.252	515	3685.510	526	3685.586	534	3685.668	543	3685.764	543
3684.955	499	3685.253	515	3685.511	526	3685.587	528	3685.669	543	3685.765	543
3684.956	499	3685.254	515	3685.512	526	3685.588	528	3685.670	543	3685.766	543
3684.957	515, 516	3685.256	577	3685.513	526	3685.589	528	3685.671	543	3685.767	542, 543
3684.958	515	3685.257	510	3685.514	526	3685.590	528	3685.672	543	3685.768	543
3684.960	499	3685.258	510	3685.516	526	3685.591	532	3685.673	543	3685.769	542, 543
3684.961	499	3685.259	510	3685.517	526	3685.592	532	3685.674	543	3685.770	543
3684.962	500	3685.260	512	3685.518	526	3685.595	535	3685.675	543	3685.771	543
3684.963	502	3685.261	512	3685.519	526	3685.596	535	3685.676	543	3685.772	543
3684.964	503	3685.262	512	3685.520	526	3685.597	535	3685.677	543	3685.773	543
3684.965	504	3685.263	512	3685.521	526	3685.598	535	3685.678	543	3685.774	543
3684.966	504	3685.264	512	3685.522	526	3685.599	535	3685.679	543	3685.775	543
3684.974	507	3685.265	512	3685.524	527	3685.600	535	3685.680	543	3685.776	543
3684.976	537	3685.266	531	3685.525	527	3685.601	535	3685.681	543	3685.777	543
3684.977	537	3685.267	499	3685.526	527	3685.602	535	3685.683	545	3685.783	509
3685.000	531	3685.268	500	3685.527	527	3685.603	535	3685.684	545	3685.784	509
3685.078	544	3685.269	499	3685.528	527	3685.604	535	3685.685	545	3685.785	509

List of model numbers

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
3685.786	509	3686.484	455	3686.590	456	3686.739	547	3686.817	548	3687.574	504
3685.787	509	3686.485	455	3686.591	456	3686.740	547	3686.818	548	3687.575	504
3685.788	509	3686.486	455	3686.592	456	3686.741	547	3686.819	548	3687.576	504
3685.789	507	3686.487	455	3686.593	456	3686.742	547	3686.820	548	3687.577	504
3685.790	512	3686.488	455	3686.594	456	3686.743	547	3686.821	548	3687.585	545
3685.793	495	3686.489	455	3686.595	456	3686.744	547	3686.822	548	3687.587	542
3685.794	495	3686.490	455	3686.596	456	3686.745	548	3686.900	528	3687.588	542
3685.795	495	3686.491	455	3686.597	456	3686.746	548	3686.901	528	3687.589	543
3685.796	495	3686.492	455	3686.598	456	3686.747	548	3686.902	528	3687.590	543
3685.797	495	3686.493	455	3686.599	456	3686.748	548	3686.903	528	3687.591	543
3685.798	495	3686.494	455	3686.622	479	3686.749	548	3686.904	528	3687.600	503
3685.799	495	3686.495	455	3686.623	479	3686.750	548	3686.905	528	3687.601	503
3685.805	531	3686.496	455	3686.624	479	3686.751	548	3686.906	528	3687.602	503
3685.813	515, 516	3686.497	455	3686.625	479	3686.752	548	3686.907	528	3687.604	500
3685.814	515, 516	3686.498	455	3686.629	479	3686.753	548	3686.908	528	3687.605	500
3685.824	531	3686.499	455	3686.634	454	3686.754	548	3686.909	528	3687.606	500
3685.850	495	3686.500	455	3686.635	454	3686.755	548	3686.916	577	3687.608	454
3685.851	515, 516	3686.501	455	3686.643	523	3686.756	548	3686.917	577	3687.609	454
3685.852	515	3686.502	455	3686.644	523	3686.757	549	3686.919	501	3687.610	454
3685.853	515	3686.503	455	3686.645	523	3686.758	549	3686.973	506	3687.611	454
3685.855	515, 516	3686.504	455	3686.646	523	3686.759	549	3686.974	506	3687.612	523
3685.856	516	3686.505	455	3686.647	523	3686.760	549	3686.975	506	3687.613	523
3685.857	516	3686.506	455	3686.648	523	3686.761	549	3686.976	506	3687.614	523
3685.890	495	3686.507	455	3686.649	523	3686.762	549	3686.977	506	3687.615	523
3685.891	495	3686.508	455	3686.650	523	3686.763	549	3686.978	506	3687.616	504
3685.892	495	3686.509	455	3686.655	524	3686.764	549	3686.979	506	3687.617	504
3685.893	495	3686.510	455	3686.656	524	3686.765	549	3686.980	506	3687.618	515
3685.894	495	3686.511	455	3686.657	524	3686.766	549	3686.981	506	3687.619	515
3685.895	495	3686.512	455	3686.658	523	3686.767	549	3686.989	544	3687.620	515
3685.896	495	3686.513	455	3686.659	523	3686.768	549	3687.014	514	3687.621	515
3685.897	495	3686.514	455	3686.682	482	3686.769	549	3687.015	577	3687.623	515
3685.898	495	3686.536	531	3686.700	547	3686.770	549	3687.020	577	3687.624	517
3685.899	495	3686.546	440	3686.701	547	3686.771	549	3687.021	576	3687.625	517
3685.959	495	3686.547	440	3686.702	547	3686.772	549	3687.050	577	3687.626	515, 516
3685.966	531	3686.548	440	3686.703	547	3686.773	549	3687.051	577	3687.627	515
3685.967	531	3686.549	440	3686.704	547	3686.774	549	3687.052	514	3687.628	515
3685.985	499	3686.550	440	3686.705	547	3686.775	549	3687.146	577	3687.629	515
3685.991	500	3686.551	440	3686.706	547	3686.776	549	3687.519	576	3687.630	516
3686.000	511	3686.552	440	3686.707	547	3686.777	549	3687.520	542	3687.631	516
3686.005	503	3686.555	456	3686.708	547	3686.778	549	3687.521	542	3687.633	516
3686.037	531	3686.556	456	3686.709	547	3686.779	549	3687.522	542	3687.634	516
3686.063	510	3686.557	456	3686.710	547	3686.780	549	3687.523	542	3687.635	516
3686.136	511	3686.558	456	3686.711	547	3686.781	549	3687.524	542	3687.637	516
3686.137	511	3686.559	456	3686.712	547	3686.782	549	3687.525	542	3687.638	516
3686.138	538	3686.560	456	3686.713	547	3686.783	549	3687.526	510	3687.639	516
3686.139	538	3686.561	456	3686.714	547	3686.784	549	3687.527	510	3687.640	517
3686.140	538	3686.562	456	3686.715	547	3686.785	550	3687.528	510	3687.641	517
3686.149	504	3686.563	456	3686.716	547	3686.786	550	3687.529	532	3687.642	517
3686.159	501	3686.564	456	3686.717	547	3686.787	550	3687.530	532	3687.643	517
3686.191	501	3686.565	456	3686.718	547	3686.788	550	3687.531	532	3687.644	517
3686.329	524	3686.566	456	3686.719	547	3686.789	550	3687.536	542	3687.645	517
3686.359	524	3686.567	456	3686.720	547	3686.790	550	3687.537	542	3687.646	517
3686.396	442	3686.568	456	3686.721	547	3686.791	550	3687.538	542	3687.647	517
3686.397	442	3686.569	456	3686.722	547	3686.792	550	3687.539	542	3687.648	517
3686.414	442	3686.570	444	3686.723	547	3686.793	550	3687.545	533	3687.649	517
3686.469	480	3686.571	443	3686.724	547	3686.794	551	3687.555	545	3687.650	517
3686.470	480	3686.572	531	3686.725	547	3686.795	551	3687.556	545	3687.651	517
3686.471	480	3686.573	531	3686.726	547	3686.796	551	3687.557	545	3687.652	517
3686.472	480	3686.574	531	3686.727	547	3686.797	551	3687.558	545	3687.655	534
3686.473	454	3686.575	440	3686.728	547	3686.798	551	3687.559	545	3687.656	534
3686.474	454	3686.576	440	3686.729	523	3686.799	551	3687.560	545	3687.657	534
3686.475	455	3686.578	440	3686.730	547	3686.800	551	3687.561	545	3687.658	534
3686.476	455	3686.579	440	3686.731	547	3686.801	551	3687.562	545	3687.659	534
3686.477	455	3686.580	440	3686.732	547	3686.802	551	3687.563	545	3687.660	534
3686.478	455	3686.581	440	3686.733	547	3686.805	520	3687.564	545	3687.661	534
3686.479	455	3686.585	456	3686.734	547	3686.807	549	3687.565	545	3687.662	534
3686.480	455	3686.586	456	3686.735	547	3686.808	549	3687.566	545	3687.663	534
3686.481	455	3686.587	456	3686.736	547	3686.814	548	3687.567	545	3687.664	534
3686.482	455	3686.588	456	3686.737	547	3686.815	548	3687.568	545	3687.665	485
3686.483	455	3686.589	456	3686.738	547	3686.816	548			3687.666	485

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
3687.667	493	3687.861	440	3688.305	426	3688.781	530	3743.000	570	3750.454	562
3687.668	493	3687.862	440	3688.306	426	3688.784	530	3743.200	570	3750.600	563
3687.669	493	3687.863	440	3688.307	428	3688.785	530	3743.700	292	3750.602	563
3687.670	493	3687.864	440	3688.317	428	3688.786	530	3744.000	570	3750.604	563
3687.671	493	3687.865	440	3688.320	427	3688.787	530	3744.200	570	3750.610	563
3687.672	493	3687.866	440	3688.322	427	3688.790	530	3745.000	570	3750.612	563
3687.673	493	3687.867	440	3688.323	426	3688.791	530	3745.200	570	3750.614	563
3687.674	493	3687.868	440	3688.324	427	3689.036	511	3746.000	1013	3750.620	563
3687.677	517	3687.869	440	3688.326	426	3689.089	510	3747.000	1013	3750.622	563
3687.680	493	3687.870	440	3688.338	427	3689.090	511	3748.000	1013	3750.624	563
3687.681	493	3687.871	440	3688.342	429	3689.091	510	3749.000	1013	3750.630	563
3687.682	493	3687.873	441	3688.378	427	3689.092	511	3750.000	563	3750.632	563
3687.683	493	3687.874	441	3688.385	426	3689.093	510	3750.002	563	3750.634	563
3687.684	493	3687.875	441	3688.386	429	3689.097	511	3750.004	563	3750.640	563
3687.685	493	3687.877	441	3688.387	426	3689.098	511	3750.030	563	3750.642	563
3687.686	493	3687.924	513	3688.388	427	3689.177	433	3750.032	563	3750.644	563
3687.687	493	3687.932	531	3688.397	429	3689.178	433	3750.034	563	3750.650	563
3687.688	493	3687.933	531	3688.429	428	3689.179	433	3750.100	562	3750.652	563
3687.689	493	3687.934	531	3688.463	426	3689.180	433	3750.102	562	3750.654	563
3687.690	493	3687.936	511	3688.464	426	3689.186	442	3750.104	562	3750.700	563
3687.691	493	3687.937	511	3688.465	426	3689.188	442	3750.110	562	3750.702	563
3687.692	517	3687.951	511	3688.466	427	3689.190	442	3750.112	562	3750.704	563
3687.693	535	3687.955	531	3688.467	427	3689.191	442	3750.114	562	3750.710	563
3687.695	482	3687.956	514	3688.468	427	3689.205	440	3750.200	562	3750.712	563
3687.696	448	3688.000	499	3688.469	427	3689.206	440	3750.202	562	3750.714	563
3687.698	448	3688.001	499	3688.470	427	3689.207	440	3750.204	562	3750.720	563
3687.699	448	3688.002	500	3688.471	427	3689.208	440	3750.210	562	3750.722	563
3687.700	448	3688.003	502	3688.472	427	3689.209	440	3750.212	562	3750.724	563
3687.702	449	3688.004	503	3688.504	441	3689.210	443	3750.214	562	3750.730	563
3687.703	449	3688.055	510	3688.505	441	3689.211	443	3750.220	562	3750.732	563
3687.704	449	3688.100	496	3688.506	441	3700.000	574	3750.222	562	3750.734	563
3687.705	450	3688.101	496	3688.507	441	3701.000	574	3750.224	562	3750.900	563
3687.706	450	3688.102	496	3688.508	441	3702.000	574	3750.300	562	3750.902	563
3687.708	451	3688.103	496	3688.528	481	3703.000	574	3750.302	562	3750.904	563
3687.709	458	3688.104	501	3688.530	481	3704.000	574	3750.304	562	3750.910	563
3687.710	458	3688.105	518	3688.534	481	3705.000	574	3750.310	563	3750.912	563
3687.711	457	3688.106	518	3688.537	481	3707.000	574	3750.312	563	3750.914	563
3687.712	457	3688.107	518	3688.603	444	3708.000	574	3750.314	563	3750.920	563
3687.713	457	3688.108	518	3688.606	506	3709.000	574	3750.320	563	3750.922	563
3687.714	457	3688.109	518	3688.607	445	3710.000	569	3750.322	563	3750.924	563
3687.715	457	3688.110	497	3688.608	446	3713.000	570	3750.324	563	3750.930	563
3687.716	457	3688.111	497	3688.609	506	3713.200	570	3750.330	563	3750.932	563
3687.717	434	3688.112	497	3688.610	506	3714.000	570	3750.332	563	3750.934	563
3687.718	434	3688.113	497	3688.611	506	3714.200	570	3750.334	563	3751.100	568
3687.719	435	3688.114	488	3688.612	506	3716.000	572	3750.340	563	3751.110	568
3687.720	435	3688.115	488	3688.613	506	3717.000	572	3750.342	563	3751.120	568
3687.721	436	3688.116	488	3688.614	506	3718.000	572	3750.344	563	3751.130	568
3687.723	437	3688.117	488	3688.615	506	3719.000	572	3750.350	562	3751.150	568
3687.724	500	3688.118	483	3688.616	506	3720.000	569	3750.352	562	3751.160	568
3687.726	510	3688.119	483	3688.633	506	3722.000	573	3750.354	562	3751.170	568
3687.780	494	3688.120	485	3688.634	506	3723.000	573	3750.360	562	3751.180	568
3687.781	494	3688.121	483	3688.655	481	3724.000	574	3750.362	562	3751.200	566
3687.782	494	3688.122	485	3688.658	539	3725.000	574	3750.364	562	3751.202	566
3687.783	494	3688.123	484	3688.659	539	3726.000	574	3750.400	562	3751.204	566
3687.784	494	3688.124	484	3688.660	540	3727.000	574	3750.402	562	3751.210	566
3687.785	494	3688.125	484	3688.661	540	3728.000	574	3750.404	562	3751.212	566
3687.793	483	3688.126	484	3688.662	540	3729.000	574	3750.410	563	3751.214	566
3687.814	554	3688.127	483	3688.663	539	3730.000	569	3750.412	563	3751.250	565
3687.815	554	3688.128	483	3688.664	540	3731.000	569	3750.414	563	3751.260	565
3687.816	554	3688.129	483	3688.694	481	3733.000	571	3750.420	563	3751.270	565
3687.817	554	3688.130	484	3688.695	481	3733.200	571	3750.422	563	3751.300	566
3687.818	554	3688.266	429	3688.696	481	3733.700	292	3750.424	563	3751.310	566
3687.819	554	3688.267	429	3688.697	433	3734.000	571	3750.430	563	3751.320	566
3687.820	554	3688.268	429	3688.760	428	3734.200	571	3750.432	563	3751.330	566
3687.821	554	3688.290	426	3688.763	428	3734.700	292	3750.434	563	3751.340	566
3687.822	554	3688.297	426	3688.770	529	3735.000	571	3750.440	563	3751.350	566
3687.823	554	3688.301	427	3688.771	529	3735.200	571	3750.442	563	3751.360	567
3687.832	511	3688.302	427	3688.772	529	3736.000	575	3750.444	563	3751.370	567
3687.859	440	3688.303	427	3688.773	529	3740.000	569	3750.450	562	3751.380	567
3687.860	440	3688.304	427	3688.780	530	3741.000	569	3750.452	562	3751.390	567

List of model numbers

3751.410 to 4946.000

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
3751.410	564	3795.000	571	3981.930	559	3983.110	556	4191.000	979	4398.000	927
3751.420	564	3795.200	571	3981.940	559	3983.120	556	4192.000	979	4530.000	1010
3751.430	567	3795.700	292	3981.941	559	3983.130	556	4193.000	979	4531.000	1010
3751.450	564	3796.000	573	3981.942	559	3983.140	558	4195.000	979	4532.000	929
3751.460	564	3797.000	573	3981.950	559	3983.150	558	4196.000	979	4538.000	898
3751.500	565	3798.000	565	3981.951	559	3983.160	558	4198.000	904	4540.000	866
3751.510	565	3804.000	851	3981.952	559	3983.170	558	4199.000	934	4541.000	1015
3751.520	565	3805.500	846	3981.960	559	3983.190	558	4309.000	895, 924	4542.000	1015
3751.530	568	3850.500	748	3981.970	559			4311.000	965	4544.000	1016
3751.540	568	3851.500	748	3982.040	555	**4000**		4315.100	956	4546.000	1010
3751.600	568	3852.500	748	3982.050	555	4103.350	955	4315.110	956	4547.000	1004
3751.610	568	3853.500	748	3982.060	555	4103.600	955	4315.150	956	4548.000	1015
3751.620	568	3854.500	748	3982.070	555	4114.000	898	4315.200	956	4549.000	1010
3751.630	568	3861.580	947	3982.080	555	4115.000	898	4315.210	956	4568.000	904
3751.640	564	3900.000	561	3982.090	555	4116.000	898	4315.300	956	4570.000	844
3751.650	564	3901.000	561	3982.100	555	4118.000	898	4315.310	956	4576.000	911
3751.660	564	3919.000	559	3982.110	555	4119.000	936	4315.400	956	4579.000	895, 924
3751.670	564	3981.210	560	3982.120	555	4120.000	896	4315.410	956	4582.000	866
3751.680	564	3981.220	560	3982.130	555	4123.000	898	4315.450	956	4582.500	865
3751.690	564	3981.230	560	3982.140	557	4124.000	898	4315.500	956	4583.000	898
3751.700	564	3981.240	560	3982.150	557	4127.000	956	4315.510	956	4590.700	912
3751.710	564	3981.260	560	3982.160	557	4127.200	956	4315.600	956	4591.700	912
3751.720	564	3981.270	560	3982.170	557	4130.700	914	4315.610	956	4592.700	912
3751.730	564	3981.280	560	3982.190	557	4131.700	914	4316.000	965	4593.000	911
3751.740	564	3981.290	560	3982.350	560	4132.700	914	4317.000	965	4594.000	895, 924
3751.750	564	3981.300	560	3982.360	560	4133.000	934	4318.000	965	4595.000	906
3751.760	564	3981.310	560, 561	3982.370	559	4134.000	934	4319.090	982	4596.000	895, 924
3751.770	564	3981.320	560	3982.380	559	4135.700	914	4319.120	982	4597.000	930
3751.780	564	3981.330	560	3982.390	559	4136.700	914	4319.160	982	4598.000	895, 924
3751.790	564	3981.340	560	3982.400	560	4137.700	914	4319.200	982	4599.000	895, 924
3751.800	566	3981.350	560	3982.410	560	4138.140	954	4320.700	964	4603.603	259
3751.810	566	3981.360	560	3982.700	559	4138.150	954	4321.700	964	4603.703	259
3751.820	565	3981.370	560	3982.701	559	4138.180	954	4323.700	964	4603.704	260
3751.830	565	3981.380	560	3982.702	559	4138.190	954	4325.700	964	4603.913	259
3751.850	567	3981.390	561	3982.710	559	4138.300	954	4333.120	912	4603.920	260
3751.852	567	3981.400	561	3982.711	559	4138.350	954	4333.160	912	4609.703	259
3751.854	567	3981.410	561	3982.712	559	4139.140	954	4333.180	912	4609.920	260
3751.900	565	3981.420	561	3982.720	559	4139.150	954	4336.000	979	4611.000	848
3751.910	565	3981.430	561	3982.730	559	4139.180	954	4338.000	979	4612.000	848
3751.920	565	3981.440	561	3982.740	559	4139.190	954	4339.000	979	4613.000	1055
3751.930	565	3981.450	561	3982.741	559	4139.300	954	4347.000	926	4614.000	1055
3763.000	571	3981.460	561	3982.742	559	4139.350	954	4348.000	959	4619.660	941
3763.200	571	3981.470	561	3982.750	559	4141.700	914	4358.200	1003	4619.680	941
3764.000	571	3981.500	561	3982.751	559	4142.700	914	4358.700	1003	4632.000	1003
3764.200	571	3981.510	561	3982.752	559	4155.000	955	4361.000	926	4634.500	848
3764.700	292	3981.570	560	3982.760	559	4155.100	955	4362.000	926	4635.000	1056
3765.000	571	3981.590	560	3982.770	559	4155.500	955	4363.000	926	4638.600	896
3765.200	571	3981.700	559	3982.900	559	4156.000	894	4364.000	926	4638.800	896
3765.700	292	3981.701	559	3982.901	559	4157.000	936	4365.000	926	4641.000	1057
3774.000	570	3981.702	559	3982.902	559	4162.000	936	4367.000	926	4642.000	1057
3774.200	570	3981.710	559	3982.910	559	4163.000	936	4369.000	926	4650.000	283
3774.700	292	3981.711	559	3982.911	559	4164.000	936	4370.000	926	4650.704	283
3775.000	570	3981.712	559	3982.912	559	4165.000	936	4371.000	926	4694.000	924
3775.200	570	3981.720	559	3982.920	559	4167.000	893	4372.000	926	4695.000	924
3780.000	572	3981.730	559	3982.930	559	4169.000	925	4373.000	926	4696.000	924
3781.000	572	3981.740	559	3982.940	559	4170.000	925	4374.000	925	4697.000	924
3782.000	573	3981.741	559	3982.941	559	4171.000	925	4375.000	925	4757.500	1052
3783.000	573	3981.742	559	3982.942	559	4172.000	925	4376.000	925	4911.000	892
3784.000	573	3981.750	559	3982.950	559	4173.000	925	4377.000	925	4912.000	892
3785.000	575	3981.751	559	3982.951	559	4174.000	925	4378.000	925	4916.000	892
3786.000	575	3981.752	559	3982.952	559	4175.000	925	4379.000	925	4918.000	892
3787.000	575	3981.760	559	3982.960	559	4176.000	925	4380.000	925	4920.000	892
3788.000	575	3981.770	559	3982.970	559	4177.000	925	4381.000	925	4933.000	927
3789.000	575	3981.900	559	3983.040	556	4178.000	925	4382.000	925	4934.000	927
3790.000	572	3981.901	559	3983.050	556	4179.000	936	4389.000	1003	4935.000	927
3791.000	572	3981.902	559	3983.060	556	4180.000	936	4391.000	1003	4937.000	927
3792.000	572	3981.910	559	3983.070	556	4181.000	933	4393.000	925	4943.000	928
3793.000	1016	3981.911	559	3983.080	556	4182.000	932	4394.000	927	4944.000	928
3794.000	571	3981.912	559	3983.090	556	4183.000	933	4395.000	927	4945.000	928
3794.200	571	3981.920	559	3983.100	556	4189.000	894	4396.000	927	4946.000	928
						4190.000	893				

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
4947.000	928	5865.500	136	6120.000	225	6386.300	1038	6525.500	206	6900.510	251
5000		5884.500	136	6130.000	223	6386.309	1038	6525.510	206	6900.600	246
5001.000	894	5905.500	137	6130.500	223	6442.500	186	6525.600	207	6901.000	245
5001.010	132	**6000**		6130.600	222	6444.500	1054	6525.610	207	6901.100	246
5001.011	132	6002.000	1051	6135.000	235	6445.000	1054	6526.000	213	6901.200	246
5001.012	132	6002.100	1048	6136.000	235	6446.000	1047	6526.010	213	6902.000	248
5001.013	132	6002.110	1048	6136.500	235	6446.010	1047	6527.000	205	6902.010	248
5001.014	132	6003.000	1053	6137.035	234	6450.010	1046	6527.010	205	6902.020	249
5001.015	132	6005.100	1034	6137.535	234	6450.020	1046	6527.100	206	6902.030	249
5001.016	132	6006.000	1035	6140.000	225	6450.030	1046	6527.110	206	6902.100	248
5001.017	132	6013.000	1030	6141.000	232	6450.040	1046	6528.000	208	6902.110	248
5001.018	132	6013.100	1030	6141.100	232	6450.050	1047	6528.100	214	6902.120	249
5001.019	132	6013.500	1030	6141.200	232	6450.060	1047	6528.200	209	6902.130	249
5001.020	132	6015.000	1037	6142.000	229	6450.100	1046	6528.210	209	6902.200	248
5001.021	132	6015.009	1037	6142.010	229	6450.110	1046	6528.300	209	6902.210	248
5001.022	132	6015.300	1038	6142.020	229	6462.500	186	6528.500	208	6902.220	248
5001.023	132	6015.309	1038	6142.030	229	6501.010	193	6529.000	205	6902.300	248
5001.024	132	6015.500	1037	6142.100	233	6501.030	193	6529.010	205	6902.310	249
5001.025	132	6015.509	1037	6143.200	234	6501.050	195	6530.200	185	6902.320	249
5001.050	133	6016.100	907	6143.210	237	6501.070	194	6531.200	185	6902.400	247
5001.051	133	6016.200	907	6143.300	281	6501.090	214	6532.200	185	6902.500	250
5001.052	133	6017.000	1035	6143.310	237, 281	6501.110	198	6533.200	185	6902.510	250
5001.053	133	6017.100	1035	6144.100	233	6501.120	196	6534.000	184	6902.610	251
5001.054	133	6019.000	1035	6145.100	233	6501.130	195	6535.000	184	6902.620	253
5001.055	133	6023.000	221	6146.100	231	6501.140	197	6535.010	276	6902.630	252
5001.056	133	6027.000	1035	6146.200	230	6501.150	199	6536.000	184	6902.640	207
5001.057	133	6027.010	1035	6146.300	231	6501.160	198	6536.010	276	6902.650	252
5001.060	133	6027.100	1036	6146.400	230	6501.340	193	6537.000	184	6902.660	975
5001.061	133	6027.110	1036	6147.000	233	6503.000	237	6538.000	184	6902.670	193
5080.500	136	6027.120	1036	6148.000	848	6505.100	1040	6538.010	276	6902.690	951
5084.500	136	6027.200	1036	6150.000	222	6505.200	1040	6539.010	276	6902.700	942
5110.500	128	6027.210	1036	6160.000	227	6505.500	1040	6540.200	185	6902.710	943
5111.500	128	6027.220	1036	6170.000	227	6508.000	211	6541.009	187	6902.720	943
5112.500	128	6027.500	1036	6180.000	225	6508.010	211	6544.000	184	6902.730	952
5113.500	128	6027.509	1036	6190.000	1033	6508.100	212	6552.500	186	6902.740	952
5114.500	128	6027.510	1036	6191.000	1033	6509.000	204	6660.000	277	6902.750	952
5115.500	128	6027.520	1036	6192.000	1033	6509.010	204	6660.010	277	6902.760	952
5116.500	128	6028.000	1035	6200.000	220	6510.210	202	6660.020	277	6902.770	976
5117.500	128	6028.010	1035	6200.500	220	6510.310	202	6660.050	277	6902.780	1040
5118.500	129	6028.500	1036	6205.000	221	6511.000	204	6660.100	277	6902.800	943
5119.500	129	6028.510	1036	6214.500	235	6511.010	204	6660.110	277	6902.900	254
5120.500	129	6028.520	1036	6340.000	183	6513.000	204	6660.120	277	6902.910	254, 1053
5121.500	129	6028.530	1036	6340.010	183	6513.010	204	6660.200	277	6902.920	845
5122.500	129	6028.540	1036	6340.020	183	6514.100	1039	6660.210	277	6902.950	1058
5123.500	129	6029.000	1035	6340.100	183	6514.110	1039	6660.220	277	6902.960	942
5150.500	130	6040.000	224	6340.110	183	6514.200	1049	6662.500	186	6902.980	942
5151.500	130	6050.000	220	6340.120	183	6515.000	204	6663.000	279	6902.990	1058
5152.500	130	6050.500	220	6340.200	183	6515.010	204	6663.400	279	6903.000	1058
5153.500	130	6052.000	980	6340.210	183	6519.000	204	6663.500	279	6903.010	253
5154.500	130	6052.500	976	6340.220	183	6519.010	204	6664.000	278	6903.080	255
5155.500	130	6053.000	1037	6340.300	183	6520.000	216	6664.100	278	6903.100	254
5156.500	130	6053.210	1037	6340.310	183	6520.010	216	6664.500	278	6903.110	254
5157.500	131	6053.500	1037	6340.320	183	6520.500	215	6665.000	280	6903.120	254
5158.500	131	6058.000	1037	6340.400	183	6520.510	215	6665.500	280	6903.130	254
5159.500	131	6058.500	1037	6340.410	183	6521.000	217	6670.000	275	6903.140	254
5160.500	131	6059.000	983	6340.420	183	6521.010	217	6672.000	275	6903.150	254
5205.500	137	6059.500	983	6341.000	908	6522.000	216	6680.000	274	6903.160	254
5265.500	137	6100.000	220	6380.000	178	6522.010	216	6680.010	274	6903.170	869
5284.500	137	6100.500	220	6380.010	178	6523.000	215	6680.100	274	6903.700	251
5450.600	285	6101.000	1033	6380.020	178	6523.010	215	6680.110	274	6920.100	243
5451.600	285	6101.009	1033	6380.030	178	6524.000	213	6681.000	274	6920.110	250
5452.600	285	6102.000	1033	6380.040	178	6524.010	213	6681.100	274	6920.200	243
5453.600	285	6102.009	1033	6380.100	178	6524.200	214	6682.000	893	6920.210	250
5454.600	285	6103.000	1033	6385.010	1031	6524.210	214	6900.000	245	**7000**	
5455.600	285	6107.000	1032	6385.019	1031	6525.000	212	6900.100	245	7000.100	1006
5605.500	136	6107.100	1032	6385.020	1031	6525.010	212	6900.200	245	7000.150	1006
5665.500	136	6107.200	1032	6385.029	1031	6525.100	212	6900.300	244	7000.200	1006
5684.500	136	6108.000	937	6385.030	1031	6525.110	212	6900.400	246	7000.240	1006
5784.500	137	6110.000	226	6386.000	1037	6525.200	210	6900.410	246	7000.290	1006
5805.500	136	6110.100	226	6386.009	1037	6525.210	210	6900.500	251	7000.330	1006

List of model numbers

7000.380 to 7412.510

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
7000.380	1006	7054.035	806	7109.035	660	7183.215	941	7241.024	1026, 1028	7320.490	767
7000.390	682	7055.035	806	7109.200	955	7184.035	940	7241.035	1026, 1028	7320.500	773
7000.410	682	7059.035	891	7110.000	985	7185.035	940	7241.045	1026, 1028	7320.510	773
7000.420	1006	7059.100	891	7111.000	810, 984	7186.035	940	7241.055	1026, 1028	7320.520	779
7000.430	682	7061.000	951	7111.900	810, 984	7186.735	940	7241.065	1026, 1028	7320.530	777
7000.440	682	7063.000	1011	7112.000	810, 984	7194.535	1021	7241.500	1028	7320.540	777
7000.450	685	7063.100	1012	7113.000	962	7200.210	771	7242.005	1026	7320.550	774
7000.460	685	7063.102	1012	7115.000	953	7200.211	771	7242.015	1026	7320.560	773
7000.470	1006	7063.110	1012	7116.500	986	7200.213	771	7242.024	1026	7320.570	778
7000.500	682	7063.120	1012	7116.560	991	7200.214	771	7242.035	1026	7320.580	779
7000.502	682	7063.130	1012	7119.140	947	7200.215	771	7242.045	1026	7320.590	779
7000.505	682	7063.300	1011	7119.155	947	7200.221	771	7242.055	1026	7320.600	774
7000.510	682	7063.400	1011	7119.250	948	7200.344	782	7245.000	723	7320.610	774
7000.515	682	7063.500	1011	7119.255	948	7200.345	782	7245.400	723	7320.620	775
7000.520	685	7063.600	1011	7119.400	948	7200.346	782	7246.010	1017	7320.630	778
7000.525	685	7063.700	1011	7119.455	948	7200.347	782	7246.030	1017	7320.700	781
7000.530	685	7063.710	947	7124.035	1000	7200.371	781	7246.060	1017	7320.710	781
7000.532	685	7063.720	947	7125.035	1000	7200.372	781	7246.100	1017	7320.721	781
7000.535	685	7063.835	946	7126.035	1000	7200.420	772	7246.150	1017	7320.730	783
7000.560	682	7063.837	946	7128.000	805	7200.430	772	7246.200	1017	7320.740	780
7000.562	682	7063.850	1012	7129.000	805	7200.440	772	7246.250	1017	7320.750	782
7000.570	682	7063.858	949	7133.248	1024	7200.450	772	7246.300	1017	7320.760	782
7000.580	685	7063.860	949	7137.535	1024	7200.490	780	7246.350	1017	7320.770	782
7000.590	685	7063.878	1010	7140.535	992	7200.520	776	7246.400	1016	7320.810	786
7000.592	685	7063.880	1010	7142.535	1024	7200.611	783	7246.420	1017	7320.811	787
7000.620	945	7063.884	1010	7143.035	944	7200.612	783	7247.000	726	7320.812	787
7000.630	748	7063.888	1052	7144.035	944	7200.613	783	7247.010	726	7320.813	787
7000.640	867	7063.890	949	7145.035	944	7200.614	783	7247.020	726	7320.820	767
7000.642	856	7063.891	949	7145.535	945	7200.615	783	7247.030	726	7320.830	768
7000.644	856	7063.895	946	7145.635	944	7200.616	783	7255.035	989	7320.900	783
7000.650	856	7063.897	946	7145.735	944	7200.617	783	7256.035	992	7320.910	783
7000.652	856	7064.000	951	7146.035	950	7200.630	746, 776	7257.035	989	7320.920	783
7000.654	856	7065.000	951	7147.035	950	7200.800	883	7257.100	989	7320.930	783
7000.656	856	7066.000	951	7148.035	946	7200.810	883	7264.035	939	7320.950	784
7000.670	651	7066.700	951	7149.035	990	7218.035	984	7265.035	939	7320.960	784
7000.672	849	7067.100	867	7149.135	990	7218.100	987	7266.035	939	7320.961	784
7000.675	961	7067.200	867	7150.535	992	7218.105	987	7269.135	990	7320.962	784
7000.676	921	7069.535	1022	7151.035	1025	7219.035	984	7269.235	991	7320.963	784
7000.678	921	7071.535	1023	7152.035	1025	7220.500	986	7269.335	991	7330.035	1023
7000.840	685	7072.100	971	7153.035	1025	7220.600	985	7277.000	962	7334.035	1023
7000.850	685	7072.200	971	7154.035	1024	7228.035	984	7280.035	749	7336.105	1023
7000.852	685	7072.220	982	7155.035	1024	7229.200	1016	7281.035	1051	7336.115	1023
7000.882	736	7072.230	982	7156.035	1025	7229.300	1016	7281.200	1052	7339.035	1023
7000.885	736	7072.240	982	7157.035	1025	7229.400	1016	7282.035	1015	7342.035	1023
7000.892	736	7077.000	981	7158.035	990	7233.000	810	7282.135	1015	7343.035	1023
7000.895	736	7078.000	981	7158.100	991	7234.000	810	7283.035	1015	7344.035	1023
7000.990	1019	7081.000	951	7158.150	991	7235.000	810	7284.135	1008	7349.035	1023
7011.535	807	7086.535	1022	7159.035	989	7236.000	810	7296.000	709	7355.035	1023
7012.535	807	7087.535	1022	7161.000	951	7238.000	810	7297.000	709	7356.035	1023
7013.535	807	7089.535	1022	7161.700	951	7239.000	810	7298.000	709	7357.035	1023
7014.535	807	7090.000	805	7163.500	951	7240.110	746	7299.000	709	7359.035	1023
7016.100	992	7091.000	928	7163.550	951	7240.120	746	7300.135	1049	7360.035	1023
7016.110	992	7092.000	928	7163.560	952	7240.200	746	7300.230	1027	7380.035	1028
7016.120	992	7094.500	1019	7163.565	952	7240.201	746	7300.240	1027	7381.035	1028
7016.130	992	7094.600	1019	7164.035	939	7240.205	746	7300.250	1027	7391.000	708
7031.100	811	7094.900	1018	7165.035	939	7240.210	746	7300.335	1025	7394.035	1022
7031.101	811	7095.000	928	7166.035	939	7240.220	746	7300.435	1022	7395.035	1022
7032.500	809	7096.000	928	7166.735	939	7240.230	746	7320.000	769	7396.000	708
7033.500	809	7097.000	981	7167.000	1025	7240.240	746	7320.100	766	7397.535	1022
7034.500	809	7097.220	981	7169.535	1027	7240.250	746	7320.120	785	7398.535	1022
7035.500	809	7097.260	981	7170.535	1027	7240.260	746	7320.210	764	7400.000	708
7038.500	809	7097.300	981	7171.535	1027	7240.280	746	7320.220	765	7401.000	710
7039.500	809	7097.340	981	7173.535	1027	7240.290	746	7320.230	765	7402.000	710
7049.035	1023	7098.000	981	7174.135	1027	7240.310	746	7320.425	771	7404.000	748
7050.035	1029	7098.100	981	7174.535	1027	7240.330	746	7320.435	771	7405.000	748
7050.100	1029	7099.000	981	7175.535	1027	7240.370	746	7320.440	771	7406.510	748
7050.200	1029	7100.000	928	7178.535	1027	7240.510	746	7320.450	772	7408.510	748
7051.000	951	7101.000	805	7179.535	1027	7240.512	746	7320.470	772	7409.510	748
7052.035	806	7102.000	928	7183.100	948	7241.005	1026	7320.472	772	7411.000	709
7053.035	806	7107.000	805	7183.205	941	7241.015	1026, 1028	7320.481	772	7412.510	748

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
7433.035	1024	7502.166	719	7551.900	741	7718.135	729	7820.770	694	7824.209	855
7437.035	1024	7502.201	1005	7552.000	740	7719.000	804	7820.800	694	7824.220	855
7439.035	1025	7502.202	1005	7552.100	740	7720.035	804	7820.810	694	7824.221	870
7445.000	708	7502.203	1005	7561.500	840	7721.135	729	7820.840	694	7824.222	870
7450.035	1026	7502.204	1005	7569.535	1027	7721.735	728	7820.850	694	7824.223	870
7451.000	727	7502.205	1005	7570.535	1027	7721.835	728	7820.860	694	7824.224	870
7452.035	724	7502.206	1005	7571.535	1027	7722.035	804	7820.870	694	7824.225	870
7453.035	724	7502.211	1005	7573.535	1027	7723.035	803	7821.100	693	7824.226	855
7454.000	725	7502.212	1005	7574.535	1027	7725.035	804	7821.200	693	7824.227	870
7455.010	988	7502.213	1005	7575.535	1027	7726.035	803	7821.240	693	7824.228	855
7455.030	988	7502.214	1005	7578.535	1027	7729.235	804	7821.300	693	7824.229	855
7456.035	724	7502.215	1005	7579.535	1027	7752.950	963	7821.340	693	7824.360	872
7457.035	724	7502.216	1005	7581.500	840	7758.000	805	7821.355	693	7824.362	872
7458.035	724	7502.220	891	7582.500	840	7758.100	805	7821.400	693	7824.380	872
7459.035	724	7502.240	962	7600.100	711	7760.000	805	7821.410	693	7824.382	872
7460.035	724	7502.260	962	7600.200	711	7760.100	805	7821.440	693	7824.480	872
7460.135	724	7502.270	988	7600.300	711	7766.500	648	7821.500	693	7824.490	872
7461.000	725	7502.302	980	7600.500	712	7766.520	648	7821.510	693	7824.500	855
7462.000	725	7502.304	980	7600.510	712	7766.522	648	7821.540	693	7824.510	855
7463.100	725	7502.310	970	7600.520	712	7794.120	928	7821.600	693	7824.520	893
7463.200	725	7502.600	948	7600.530	712	7794.165	1008	7821.610	693	7824.522	893
7464.035	939	7502.610	989	7600.540	713	7794.210	941	7821.620	694	7824.525	893
7465.035	939	7502.630	720	7600.590	713	7794.220	941	7821.640	694	7824.540	867
7466.035	939	7502.660	720	7600.600	713	7794.280	1008	7821.650	694	7824.560	856
7466.735	939	7505.300	846	7604.000	748	7794.300	1009	7821.670	694	7824.580	856
7469.535	1027	7505.400	846	7605.000	748	7794.320	1009	7821.700	694	7824.590	856
7470.535	1027	7526.050	891	7606.510	748	7794.330	1009	7821.710	694	7824.612	871
7471.535	1027	7526.750	903	7608.510	748	7794.420	1007	7821.740	694	7824.618	871
7473.535	1027	7526.760	903	7609.510	748	7794.740	1007	7821.750	694	7824.620	871
7474.535	1027	7526.770	903	7610.000	985	7816.120	855	7821.760	694	7824.622	871
7475.535	1027	7526.780	903	7611.000	985	7816.129	855	7821.770	694	7824.760	871
7478.535	1027	7526.790	903	7612.510	748	7816.189	855	7821.800	694	7824.762	871
7479.535	1027	7526.800	903	7632.035	1024	7816.200	855	7821.810	694	7824.780	871
7480.035	749	7526.820	903	7637.035	1024	7816.209	855	7821.840	694	7824.818	871
7480.300	749	7526.829	903	7641.000	722	7816.220	855	7821.850	694	7824.820	871
7484.035	940	7526.834	903	7643.000	722	7816.229	855	7821.860	694	7824.822	871
7485.035	940	7526.850	903	7644.000	721	7816.360	872	7821.870	694	7825.150	847
7486.035	940	7526.860	903	7644.400	949	7816.362	872	7824.086	855	7825.200	847
7486.735	940	7526.963	904	7645.000	722	7816.380	872	7824.106	855	7825.250	847
7491.535	1027	7526.964	662	7685.000	1006	7816.382	872	7824.120	855	7825.300	672
7492.300	1010	7533.000	810	7688.000	1006	7816.612	871	7824.121	870	7825.302	672
7492.400	1010	7534.000	810	7689.000	1006	7816.620	871	7824.123	870	7825.305	672
7492.500	1010	7535.000	810	7690.000	1006	7816.622	871	7824.126	855	7825.360	851
7493.000	710	7536.000	810	7696.000	1006	7816.820	871	7824.128	855	7825.361	851
7494.000	709	7538.000	810	7697.000	1006	7816.822	871	7824.129	855	7825.380	851
7495.000	848	7539.000	810	7698.000	1006	7820.100	693	7824.130	873	7825.381	851
7502.013	718	7541.000	963	7700.200	1062	7820.200	693	7824.132	873	7825.382	852
7502.014	718	7542.000	963	7701.035	804	7820.240	693	7824.146	855	7825.383	852
7502.016	718	7543.000	963	7702.035	804	7820.300	693	7824.148	855	7825.384	852
7502.023	718	7544.000	963	7703.035	804	7820.340	693	7824.166	855	7825.601	835
7502.024	718	7545.000	963	7705.035	970	7820.350	693	7824.168	855	7825.603	835
7502.026	718	7546.000	963	7705.110	884	7820.355	693	7824.180	855	7825.610	851
7502.034	718	7547.000	963	7705.120	884	7820.360	693	7824.181	870	7825.660	851
7502.035	718	7548.000	963	7705.235	970	7820.400	693	7824.182	870	7825.680	851
7502.036	718	7548.200	963	7705.706	1005	7820.410	693	7824.183	870	7825.690	851
7502.044	719	7549.000	963	7705.709	1005	7820.440	693	7824.184	870	7825.801	835
7502.045	719	7551.000	741	7705.712	1005	7820.500	693	7824.185	672	7825.803	835
7502.046	719	7551.010	741	7705.715	1005	7820.510	693	7824.186	855	7825.804	840
7502.054	719	7551.020	741	7705.718	1005	7820.540	693	7824.187	672	7825.806	840
7502.055	719	7551.030	741	7705.721	1005	7820.600	693	7824.188	855	7825.810	851
7502.056	719	7551.110	741	7706.135	729	7820.610	693	7824.189	855	7825.860	851
7502.064	719	7551.111	741	7709.135	729	7820.620	694	7824.200	855	7825.880	851
7502.066	719	7551.120	741	7709.735	728	7820.640	694	7824.201	870	7825.890	851
7502.114	718	7551.121	741	7709.835	728	7820.650	694	7824.202	870	7825.900	849
7502.123	718	7551.140	741	7712.135	729	7820.670	694	7824.203	870	7826.245	901
7502.124	718	7551.141	741	7713.235	804	7820.700	694	7824.204	870	7826.360	651
7502.126	718	7551.160	741	7715.135	729	7820.710	694	7824.205	672, 870	7826.366	651
7502.134	718	7551.161	741	7715.735	728	7820.740	694	7824.206	855	7826.368	651
7502.144	719	7551.190	741	7715.835	728	7820.750	694	7824.207	672, 870	7826.369	651
7502.146	719	7551.191	741	7716.235	804	7820.760	694	7824.208	855	7826.480	651

List of model numbers

7826.486 to 8450.600

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
7826.486	651	7827.600	1008	7831.437	737	7856.110	745	7858.160	984	8106.235	853
7826.488	651	7827.800	1000, 1008	7831.438	737	7856.120	745	7858.162	984	8106.500	854
7826.489	651	7827.823	1009	7831.439	737	7856.130	745	7858.488	650	8106.512	876
7826.588	901	7827.824	1009	7831.440	737	7856.140	745	7870.100	716	8108.235	853
7826.589	901	7827.900	1000, 1008	7831.441	737	7856.150	745	7870.200	716	8108.500	854
7826.605	672, 901	7827.923	1009	7831.442	737	7856.160	745	7870.300	716	8108.512	876
7826.609	902	7827.924	1009	7831.443	737	7856.170	745	7870.350	717	8109.235	853
7826.645	901	7828.040	928	7831.446	737	7856.180	745	7870.500	716	8126.235	853
7826.665	901	7828.050	928	7831.450	737	7856.190	745	7870.510	716	8126.500	854
7826.669	902	7828.060	928	7831.451	737	7856.200	775	7870.520	716	8128.235	853
7826.685	901	7828.061	983	7831.457	737	7856.220	745	7870.530	717	8129.235	853
7826.689	902	7828.062	983	7831.458	737	7856.660	856	7870.580	1021	8145.235	853
7826.695	901	7828.064	921	7831.460	737	7856.663	856	7870.582	1021	8146.235	853
7826.699	902	7828.080	928	7831.461	737	7856.666	856	7870.590	1021	8148.235	853
7826.760	902	7828.081	983	7831.570	981	7856.669	856	7870.595	1021	8165.235	853
7826.766	902	7828.082	983	7831.571	981	7856.672	856	7870.597	1021	8166.235	853
7826.768	902	7828.084	921	7831.611	1007	7856.675	856	7870.600	1021	8168.235	853
7826.769	902	7828.090	928	7831.621	1007	7856.678	856	7870.614	1021	8170.235	853
7826.780	902	7828.091	983	7831.630	1005	7856.681	856	7870.700	908	8173.235	853
7826.786	902	7828.092	983	7831.631	1007	7856.684	856	7870.701	908	8174.235	853
7826.788	902	7828.094	921	7831.635	1005	7856.687	856	7870.705	908	8175.235	853
7826.789	902	7828.100	928	7831.641	1007	7856.693	856	7870.706	908	8176.235	853
7826.805	672, 901	7828.101	983	7831.642	1005	7856.696	856	7870.710	847	8180.235	853
7826.806	902	7828.102	983	7831.647	1005	7856.700	855	7870.715	847	8184.235	853
7826.809	902	7828.104	921	7831.715	860	7856.710	1007	7870.720	1025	8184.500	854
7826.845	901	7828.600	941	7831.720	857	7856.713	1007	7870.730	989	8185.235	853
7826.864	902	7828.660	941	7831.722	857	7856.716	1007	7870.740	915	8185.500	854
7826.865	901	7828.680	941	7834.060	808	7856.719	1007	7870.760	1019	8186.235	853
7826.866	902	7828.690	941	7834.080	808	7856.722	1007	7870.765	1019	8186.500	854
7826.869	902	7828.800	941	7834.120	808	7856.725	1007	7870.800	1021	8188.235	853
7826.884	902	7828.880	941	7855.310	738	7856.728	1007	7870.802	1021	8189.235	853
7826.885	901	7828.890	941	7855.312	738	7856.731	1007	7870.810	1021	8204.100	295
7826.886	902	7828.950	945	7855.330	738	7856.734	1007	7870.820	1021	8204.500	143
7826.889	902	7828.951	946	7855.332	738	7856.740	987	7870.822	1021	8205.100	295
7826.894	902	7828.960	945	7855.340	846	7856.743	987	7870.830	1021	8205.500	144
7826.895	901	7828.961	946	7855.480	703	7856.746	987	7870.882	716	8206.100	295
7826.896	902	7828.970	945	7855.500	703	7856.750	867	7875.400	805, 992	8206.500	145
7826.899	902	7828.971	946	7855.510	703	7856.752	867	7885.000	651	8207.170	583
7827.000	1000, 1008	7829.100	962	7855.540	703	7856.755	1019	7885.100	651	8207.180	583
7827.023	1009	7829.110	962	7855.550	703	7856.760	930	7885.200	651	8208.100	295
7827.024	1009	7829.150	961	7855.560	703	7856.800	1005	7886.000	651	8208.500	146
7827.050	986	7829.200	961	7855.570	703	7856.803	1005	7886.100	651	8226.100	295
7827.061	1004	7829.300	883	7855.610	705	7856.806	1005	7886.200	651	8226.500	147
7827.080	1004	7829.400	938	7855.620	705	7856.809	1005	7963.310	1011	8245.100	295
7827.081	1004	7830.100	687	7855.630	705	7856.812	1005	7963.410	1011	8245.500	138
7827.100	1004	7830.120	689	7855.640	705	7857.130	743	7963.510	1011	8265.100	295
7827.101	1004	7830.200	687	7855.650	705	7857.150	743	7963.610	1011	8265.500	139
7827.120	1004	7830.220	687	7855.660	705	7857.180	743	7966.035	649	8284.100	295
7827.121	1004	7830.250	687	7855.670	705	7857.190	743	7967.000	904	8284.500	140
7827.140	1004	7830.270	687	7855.680	705	7857.300	743	7968.035	649	8285.100	295
7827.141	1004	7830.300	689	7855.690	705	7857.310	743	7980.000	649	8285.500	141
7827.160	1004	7830.320	689	7855.700	705	7857.320	743	7980.100	649	8286.100	295
7827.161	1004	7830.330	689	7855.710	705	7857.321	743	7980.148	649	8286.500	142
7827.180	1004	7830.335	689	7855.720	705	7857.350	743	7986.035	649	8287.170	583
7827.181	1004	7830.340	689	7855.730	705	7857.400	753	7988.035	649	8360.920	839
7827.200	1004	7830.350	689	7855.740	705	7857.401	753	**8000**		8366.000	257
7827.201	1004	7830.370	689	7856.010	744	7857.402	753	8005.100	295	8366.100	258
7827.220	1004	7830.380	689	7856.011	744	7857.403	753	8005.500	144	8366.200	258
7827.221	1004	7830.400	691	7856.012	744	7857.404	753	8006.100	295	8366.300	257
7827.300	950	7830.500	691	7856.020	744	7857.405	753	8006.500	145	8366.400	257
7827.333	987	7830.550	691	7856.025	745	7857.406	753	8080.100	295	8368.000	257
7827.338	987	7830.660	691	7856.026	745	7857.407	753	8080.500	140	8368.100	258
7827.342	987	7830.670	691	7856.027	745	7857.408	753	8084.100	295	8404.300	868
7827.347	987	7830.800	687	7856.050	744	7857.409	753	8084.500	140	8405.510	144
7827.480	1009	7830.850	687	7856.055	745	7857.420	753	8084.560	152	8406.510	145
7827.518	1014	7831.431	737	7856.060	744	7857.421	753	8100.235	672, 853	8410.510	148
7827.520	1014	7831.432	737	7856.070	745	7858.100	999	8104.235	853	8418.510	148
7827.522	1014	7831.433	737	7856.080	745	7858.150	988	8104.500	854	8430.510	148
7827.554	1018	7831.434	737	7856.090	745	7858.152	988	8105.235	853	8438.510	148
7827.555	1018	7831.436	737	7856.100	745	7858.154	988	8105.500	854	8450.600	284

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
8450.640	151	8602.040	835	8611.040	882	8613.000	1003	8701.200	841	8800.610	910
8450.660	152	8602.050	835	8611.045	882	8613.010	1004	8701.600	841	8800.620	958
8451.600	284	8602.060	835	8611.050	882	8613.020	1003	8701.800	841	8800.630	910
8452.600	284	8602.065	835	8611.060	882	8613.030	1014	8702.040	841	8800.640	926
8452.640	151	8602.080	835	8611.070	882	8613.040	1014	8702.050	841	8800.650	926
8452.660	152	8602.085	835	8611.080	869	8613.060	1003	8702.060	841	8800.660	958
8453.600	284	8602.095	835	8611.090	869	8613.070	1003	8702.200	841	8800.670	866
8454.600	284	8602.100	835	8611.100	881	8613.080	1003	8702.600	841	8800.680	958
8454.660	152	8602.200	835	8611.110	881	8613.150	1010	8702.800	841	8800.690	959
8455.600	284	8602.400	835	8611.120	881	8613.160	1010	8800.010	854	8800.730	978
8455.660	152	8602.500	835	8611.130	881	8613.180	1010	8800.020	893	8800.731	978
8456.600	284	8602.600	835	8611.140	881	8613.240	1014	8800.030	893	8800.732	978
8457.600	284	8602.605	835	8611.150	881	8613.300	1004	8800.040	869	8800.733	978
8457.660	152	8602.800	835	8611.160	881	8613.360	1004	8800.050	910	8800.734	978
8458.640	151	8602.805	835	8611.170	881	8613.860	153	8800.060	964	8800.735	978
8458.660	152	8602.850	835	8611.180	881	8614.040	913	8800.070	884	8800.736	978
8459.640	151	8604.100	295	8611.190	881	8614.050	913	8800.080	964	8800.737	978
8460.660	152	8604.300	868	8611.200	881	8614.060	913	8800.085	964	8800.738	978
8461.660	152	8604.500	143	8611.210	884	8614.100	914	8800.090	910	8800.739	978
8484.300	868	8604.560	152	8611.220	881	8614.240	913	8800.100	964	8800.740	978
8485.510	141	8605.100	295	8611.250	881	8614.250	913	8800.110	854	8800.741	978
8486.510	142	8605.300	868	8611.260	881	8614.260	913	8800.120	964	8800.742	978
8504.300	868	8605.500	144	8611.270	882	8614.640	913	8800.130	924	8800.743	978
8505.300	868	8605.560	152	8611.280	882	8614.650	913	8800.140	938	8800.744	978
8584.300	868	8606.100	295	8611.290	881	8614.660	913	8800.150	938	8800.745	978
8585.300	868	8606.300	868	8611.300	869	8614.675	913	8800.160	938	8800.746	978
8600.255	837	8606.500	145	8611.310	892	8614.680	913	8800.170	866	8800.747	978
8600.265	837	8606.512	149	8611.330	881	8614.840	913	8800.180	938	8800.748	978
8600.455	837	8606.540	151	8611.340	882	8614.850	913	8800.190	893	8800.749	978
8600.465	837	8606.560	152	8611.350	881	8614.880	913	8800.200	850	8800.750	978
8600.510	837	8606.640	151	8611.360	882	8626.100	295	8800.210	850	8800.751	978
8600.520	837	8607.100	582	8611.370	883	8626.300	868	8800.220	849	8800.752	978
8600.655	837	8607.840	582	8612.000	921, 949	8626.500	147	8800.230	893	8800.753	978
8600.665	837	8608.100	295	8612.020	921	8626.560	152	8800.240	938	8800.754	978
8600.855	837	8608.500	146	8612.040	921	8645.100	295	8800.250	938	8800.806	931
8600.865	837	8608.560	152	8612.050	921, 949	8645.500	138	8800.260	938	8800.808	931
8601.000	835	8609.000	860	8612.060	921, 949	8645.560	152	8800.270	884	8800.810	911
8601.015	835	8609.010	860	8612.065	921	8665.100	295	8800.280	911	8800.830	851
8601.030	835	8609.020	860	8612.080	921, 949	8665.500	139	8800.290	849	8800.840	867
8601.040	835	8609.030	860	8612.090	921, 949	8665.560	152	8800.300	924	8800.850	867
8601.050	835	8609.040	857	8612.100	921, 949	8684.100	295	8800.310	924	8800.860	867
8601.060	835	8609.050	857	8612.120	921	8684.300	868	8800.320	924	8800.880	867
8601.065	835	8609.060	857	8612.130	921	8684.500	140	8800.330	933	8800.900	942
8601.080	835	8609.080	857	8612.140	921, 949	8684.560	152	8800.340	936	8800.910	942
8601.085	835	8609.100	858	8612.150	921	8685.100	295	8800.350	936	8800.920	840
8601.095	835	8609.110	858	8612.160	921, 949	8685.300	868	8800.360	931	8800.930	840
8601.100	838	8609.120	858	8612.165	921	8685.500	141	8800.370	932	8800.960	895
8601.110	839	8609.130	858	8612.180	921, 949	8685.560	152	8800.380	924	8800.980	895
8601.115	839	8609.140	859	8612.200	915	8686.100	295	8800.390	837	8801.100	875
8601.120	839	8609.150	859	8612.240	923	8686.300	868	8800.400	863	8801.110	875
8601.125	839	8609.160	859	8612.250	923	8686.500	142	8800.410	863	8801.120	875
8601.130	838	8609.165	858	8612.260	923	8686.540	151	8800.420	864	8801.140	875
8601.140	838	8609.170	859	8612.280	923	8686.560	152	8800.430	865	8801.150	875
8601.200	835	8609.180	858	8612.400	929	8686.640	151	8800.440	867	8801.160	875
8601.300	835	8609.190	859	8612.410	929	8687.100	582	8800.450	867	8801.170	875
8601.400	835	8609.260	857	8612.500	922	8687.840	582	8800.460	867	8801.180	875
8601.450	845	8609.450	857	8612.520	922	8700.000	864	8800.470	866	8801.190	875
8601.500	835	8609.650	857	8612.550	922	8700.060	853	8800.480	867	8801.200	874
8601.600	835	8609.840	857	8612.560	922	8700.120	964	8800.490	864	8801.210	874
8601.605	835	8609.850	857	8612.580	922	8700.140	867	8800.500	863	8801.220	874
8601.610	839	8609.860	857	8612.590	922	8700.150	867	8800.510	977	8801.230	874
8601.615	839	8610.600	869	8612.600	915	8700.160	867	8800.520	977	8801.240	874
8601.680	845	8610.620	869	8612.650	922	8700.600	964	8800.530	978	8801.250	874
8601.800	835	8610.680	869	8612.660	922	8700.800	964	8800.540	977	8801.260	876
8601.805	835	8610.800	869	8612.680	922	8700.840	853	8800.550	950, 1016	8801.300	664
8601.850	835	8610.820	869	8612.740	923	8700.850	853	8800.560	950, 1016	8801.310	664
8601.860	153	8610.880	869	8612.750	923	8701.040	841	8800.570	977	8801.320	664
8602.000	835	8611.010	881	8612.760	923	8701.050	841	8800.580	950, 1016	8801.330	664
8602.015	835	8611.020	881	8612.780	923	8701.060	841	8800.590	863	8801.340	664
8602.030	835	8611.030	881	8612.800	915	8701.180	893	8800.600	958	8801.350	664

List of model numbers

8801.360 to 9541.000

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
8801.360	664	8806.560	152	9006.805	793	9100.210	104	9320.070	321	9350.290	313
8801.380	647, 664	8806.640	151	9007.105	796	9101.210	104			9350.300	313
8801.400	872	8807.100	582	9007.205	796	9102.210	104	9320.080	334, 335, 363	9350.310	313
8801.450	872	8807.140	582	9010.110	799	9103.210	104			9350.320	313
8801.500	875	8807.180	583	9010.125	799	9104.210	104	9320.090	362	9350.330	313
8801.510	875	8807.250	583	9010.311	798	9105.150	105	9320.100	362	9350.340	315
8801.520	875	8807.260	583	9010.312	798	9105.210	104	9320.110	362	9350.350	315
8801.540	875	8808.100	295	9010.331	797	9105.700	105	9320.120	362	9350.400	311
8801.550	875	8808.500	146	9010.332	797	9106.150	105	9320.140	363	9350.410	311
8801.560	875	8808.560	152	9010.510	793	9106.210	104	9320.150	362	9350.420	315
8801.570	875	8826.100	295	9010.540	792	9106.700	105	9320.160	325	9350.430	315
8801.580	875	8826.500	147	9010.910	801	9107.150	105	9320.170	325	9350.500	311
8801.590	875	8826.560	152	9010.912	801	9107.210	104	9320.180	325	9401.600	287
8801.600	875	8845.100	295	9010.913	801	9107.700	105	9320.190	325	9402.600	287
8801.610	875	8845.500	138	9010.914	801	9108.210	104	9320.200	325	9403.600	287
8801.620	875	8845.560	152	9010.916	801	9108.350	105	9320.210	325	9404.600	287
8801.630	875	8865.100	295	9010.917	801	9108.700	105	9320.220	325	9405.600	287
8801.640	875	8865.500	139	9011.100	793	9110.210	104	9320.230	325	9406.600	287
8801.650	875	8865.560	152	9011.110	798	9110.350	105	9320.240	325	9407.600	287
8801.660	875	8880.100	295	9012.100	792	9110.700	105	9320.250	325	9408.600	287
8801.670	875	8880.500	141	9012.110	792	9111.210	104	9320.260	326	9409.600	287
8801.680	875	8881.100	295	9012.200	792	9111.350	105	9320.270	326	9500.000	100
8801.690	875	8881.500	142	9012.210	792	9111.700	105	9320.280	326	9501.000	100
8801.700	876	8884.100	295	9012.300	792	9112.210	104	9320.290	326	9502.000	100
8801.705	876	8884.500	140	9012.310	792	9112.350	105	9320.300	327	9503.000	100
8801.710	876	8884.560	152	9012.400	792	9112.700	105	9320.310	327	9504.000	100
8801.715	876	8885.100	295	9012.410	792	9113.210	104	9320.320	327	9504.100	100
8801.720	900	8885.500	141	9020.150	795	9113.350	105	9320.330	327	9505.000	100
8801.725	900	8885.560	152	9020.170	795	9113.700	105	9320.340	327	9506.000	100
8801.730	900	8886.100	295	9020.250	795	9114.210	104	9320.350	327	9506.100	100
8801.735	900	8886.500	142	9020.270	795	9114.700	105	9320.360	327	9507.000	100
8801.740	900	8886.540	151	9020.500	795	9116.210	104	9320.370	327	9507.100	100
8801.745	900	8886.560	152	9021.250	794	9116.350	105	9320.380	326	9508.000	100
8801.750	900	8886.640	151	9021.255	794	9116.700	105	9320.390	326	9508.100	100
8801.755	900	8887.140	582	9021.270	794	9117.210	104	9320.400	326	9509.000	100
8801.760	900	8887.150	582	9021.275	794	9117.350	105	9320.410	326	9509.100	100
8801.765	900	8905.500	150	9021.600	794	9117.700	105	9320.420	326	9510.000	100
8801.770	901	8906.500	150	9021.650	794	9118.210	104	9320.430	326	9510.100	100
8801.775	901	8984.500	150	9022.150	798	9118.350	105	9320.440	325	9511.000	100
8801.800	875	8985.500	150	9022.170	798	9118.700	105	9320.450	325	9511.100	100
8801.810	875	**9000**		9022.250	798	9119.210	104	9320.460	327	9512.000	100
8801.820	875	9003.070	799	9022.270	798	9121.122	106	9320.470	327	9512.100	100
8801.830	875	9003.160	800	9023.150	797	9121.160	106	9350.000	308	9513.000	100
8801.840	875	9003.170	800	9023.170	797	9121.230	106	9350.010	309	9513.100	100
8801.850	875	9004.220	800	9023.250	797	9122.424	106	9350.020	310	9514.000	101
8801.860	875	9004.222	800	9023.270	797	9123.000	106	9350.030	310	9514.100	101
8801.870	875	9004.223	800	9030.100	792	9123.100	106	9350.050	311	9515.000	101
8801.880	875	9004.224	800	9030.102	792	9201.600	288	9350.060	309	9515.100	101
8801.890	875	9004.226	800	9030.103	799	9202.600	288	9350.070	360	9516.000	101
8801.900	876	9004.227	800	9030.104	799	9203.600	288	9350.080	312	9516.100	101
8801.905	876	9004.300	800	9050.100	739	9204.600	288	9350.090	312	9517.000	101
8801.910	876	9004.303	800	9050.102	739	9205.600	288	9350.100	312	9517.100	101
8801.915	876	9004.304	800	9050.103	739	9206.600	288	9350.110	312	9518.000	101
8802.060	965	9004.310	800	9050.150	739	9207.600	288	9350.120	312	9518.100	101
8802.080	965	9004.320	800	9050.151	739	9208.600	288	9350.130	312	9519.000	101
8802.100	965	9004.323	800	9050.200	739	9209.600	288	9350.140	312	9519.100	101
8802.120	965	9004.324	800	9050.202	739	9266.000	905	9350.150	312	9520.000	101
8804.100	295	9004.330	800	9050.203	739	9301.000	287	9350.160	314	9520.100	101
8804.300	868	9004.400	1052	9050.250	739	9302.000	287	9350.170	314	9521.000	101
8804.500	143	9004.402	1052	9050.251	739	9303.000	287	9350.180	314	9521.100	101
8804.560	152	9004.403	1052	9050.300	739	9304.000	287	9350.190	314	9522.000	101
8805.100	295	9004.404	1052	9050.302	739	9305.000	287	9350.200	315	9522.100	101
8805.300	868	9004.406	1052	9050.303	739	9306.000	287	9350.210	315	9523.000	101
8805.500	144	9004.407	1052	9050.350	739	9320.000	332	9350.220	314	9523.100	101
8805.560	152	9004.500	801	9050.351	739	9320.010	332	9350.230	314	9524.000	101
8806.100	295	9004.502	801	9050.400	739	9320.020	360	9350.240	314	9524.100	101
8806.300	868	9006.150	793	9050.402	739	9320.030	360	9350.250	314	9530.000	100
8806.500	145	9006.505	793	9050.403	739	9320.040	337	9350.260	312	9531.000	100
8806.512	149	9006.605	793	9050.450	739	9320.050	337	9350.270	312	9540.000	102
8806.540	151	9006.705	793	9050.451	739	9320.060	321	9350.280	313	9541.000	102

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
9542.000	102	9640.080	376	9641.100	368	9642.010	369	9642.400	369	9643.310	369
9543.000	102	9640.090	376	9641.103	372	9642.013	373	9642.403	373	9643.313	373
9544.000	102	9640.100	376	9641.110	368	9642.020	369	9642.410	369	9643.320	369
9545.000	102	9640.110	376	9641.113	372	9642.023	373	9642.413	373	9643.323	373
9546.000	102	9640.120	376	9641.120	368	9642.030	369	9642.420	369	9643.330	369
9547.000	102	9640.130	376	9641.123	372	9642.033	373	9642.423	373	9643.333	373
9548.000	102	9640.140	376	9641.130	368	9642.040	369	9642.424	375	9643.340	369
9549.000	102	9640.150	376	9641.133	372	9642.043	373	9642.425	371	9643.343	373
9550.000	102	9640.160	376	9641.140	368	9642.050	369	9642.430	369	9643.350	369
9551.000	102	9640.170	377	9641.143	372	9642.053	373	9642.433	373	9643.353	373
9552.000	102	9640.180	377	9641.150	368	9642.060	369	9642.440	369	9643.360	369
9553.000	102	9640.190	376	9641.153	372	9642.063	373	9642.443	373	9643.363	373
9560.000	103	9640.200	376	9641.160	368	9642.070	369	9642.444	375	9643.370	369
9561.000	103	9640.210	376	9641.163	372	9642.073	373	9642.445	371	9643.373	373
9562.000	103	9640.220	376	9641.170	368	9642.080	369	9642.450	369	9643.380	369
9563.000	103	9640.230	376	9641.173	372	9642.083	373	9642.453	373	9643.383	373
9564.000	103	9640.240	376	9641.180	368	9642.090	369	9642.460	369	9643.384	375
9565.000	103	9640.250	376	9641.183	372	9642.093	373	9642.463	373	9643.385	371
9566.000	103	9640.260	376	9641.184	374	9642.100	369	9642.464	375	9643.390	369
9567.000	103	9640.270	376	9641.185	370	9642.103	373	9642.465	371	9643.393	373
9568.000	103	9640.280	376	9641.190	368	9642.110	369	9642.470	369	9643.400	369
9580.000	102	9640.290	376	9641.193	372	9642.113	373	9642.473	373	9643.403	373
9581.000	102	9640.300	376	9641.200	368	9642.120	369	9642.480	369	9643.404	375
9582.000	102	9640.310	376	9641.203	372	9642.123	373	9642.483	373	9643.405	371
9583.000	103	9640.320	377	9641.204	374	9642.130	369	9642.484	375	9643.410	369
9600.000	302	9640.330	377	9641.205	370	9642.133	373	9642.485	371	9643.413	373
9601.000	302	9640.340	377	9641.330	368	9642.140	369	9643.010	369	9643.420	369
9602.000	302	9640.350	377	9641.333	372	9642.143	373	9643.013	373	9643.423	373
9603.000	302	9640.360	376	9641.340	368	9642.144	375	9643.020	369	9643.424	375
9604.000	302, 309	9640.370	377	9641.343	372	9642.145	371	9643.023	373	9643.425	371
9605.000	302, 309	9640.380	377	9641.350	368	9642.150	369	9643.030	369	9643.430	369
9606.000	302, 309	9640.390	405	9641.353	372	9642.153	373	9643.033	373	9643.433	373
9607.000	302, 309	9640.400	377	9641.360	368	9642.160	369	9643.040	369	9643.440	369
9608.000	302, 309	9640.410	377	9641.363	372	9642.163	373	9643.043	373	9643.443	373
9609.000	302, 309	9640.420	377	9641.370	368	9642.164	375	9643.050	369	9643.444	375
9610.000	302, 308	9640.430	377	9641.373	372	9642.165	371	9643.053	373	9643.445	371
9611.000	302	9640.440	377	9641.380	368	9642.170	369	9643.060	369	9644.010	368
9612.000	303	9640.450	377	9641.383	372	9642.173	373	9643.063	373	9644.013	372
9613.000	303	9640.600	407	9641.390	368	9642.180	369	9643.070	369	9644.020	368
9614.000	304	9640.610	407	9641.393	372	9642.183	373	9643.073	373	9644.023	372
9614.100	304	9640.620	407	9641.400	368	9642.184	375	9643.080	369	9644.030	368
9614.110	304	9640.630	407	9641.403	372	9642.185	371	9643.083	373	9644.033	372
9615.000	304	9640.640	407	9641.410	368	9642.190	369	9643.090	369	9644.040	368
9615.100	304	9640.650	407	9641.413	372	9642.193	373	9643.093	373	9644.043	372
9616.000	306	9640.900	377	9641.420	368	9642.200	369	9643.100	369	9644.050	368
9617.000	306	9640.910	377	9641.423	372	9642.203	373	9643.103	373	9644.053	372
9618.000	305	9640.920	377	9641.430	368	9642.204	375	9643.104	375	9644.060	368
9619.000	305	9640.930	377	9641.433	372	9642.205	371	9643.105	371	9644.063	372
9620.000	305	9640.940	377	9641.440	368	9642.290	369	9643.110	369	9644.070	368
9621.000	305	9640.960	377	9641.443	372	9642.293	373	9643.113	373	9644.073	372
9622.000	305	9640.970	377	9641.450	368	9642.300	369	9643.120	369	9644.080	368
9623.000	362	9640.980	377	9641.453	372	9642.303	373	9643.123	373	9644.083	372
9623.100	362	9641.010	368	9641.460	368	9642.310	369	9643.124	375	9644.090	368
9624.000	302	9641.013	372	9641.463	372	9642.313	373	9643.125	371	9644.093	372
9625.000	304	9641.020	368	9641.470	368	9642.320	369	9643.130	369	9644.100	368
9626.000	304	9641.023	372	9641.473	372	9642.323	373	9643.133	373	9644.103	372
9627.000	306	9641.030	368	9641.480	368	9642.330	369	9643.140	369	9644.110	368
9628.000	306	9641.033	372	9641.483	372	9642.333	373	9643.143	373	9644.113	372
9629.000	306	9641.040	368	9641.490	368	9642.340	369	9643.144	375	9644.120	368
9629.010	304	9641.043	372	9641.493	372	9642.343	373	9643.145	371	9644.123	372
9629.020	304	9641.050	368	9641.500	368	9642.350	369	9643.150	369	9644.130	368
9629.030	304	9641.053	372	9641.503	372	9642.353	373	9643.153	373	9644.133	372
9629.100	307	9641.060	368	9641.504	374	9642.360	369	9643.160	369	9644.140	368
9630.000	307	9641.063	372	9641.505	370	9642.363	373	9643.163	373	9644.143	372
9640.000	376	9641.070	368	9641.510	368	9642.370	369	9643.164	375	9644.150	368
9640.010	376	9641.073	372	9641.513	372	9642.373	373	9643.165	371	9644.153	372
9640.020	377	9641.080	368	9641.520	368	9642.380	369	9643.290	369	9644.160	368
9640.050	376	9641.083	372	9641.523	372	9642.383	373	9643.293	373	9644.163	372
9640.060	376	9641.090	368	9641.524	374	9642.390	369	9643.300	369	9644.170	368
9640.070	400	9641.093	372	9641.525	370	9642.393	373	9643.303	373	9644.173	372

List of model numbers

9644.180 to 9651.633

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
9644.180	368	9644.544	374	9645.430	369	9650.120	390	9651.090	378	9651.360	378
9644.183	372	9644.545	370	9645.433	373	9650.130	390	9651.093	384	9651.363	384
9644.184	374	9644.550	368	9645.440	369	9650.140	390	9651.100	378	9651.370	378
9644.185	370	9644.553	372	9645.443	373	9650.150	390	9651.103	384	9651.373	384
9644.190	368	9644.560	368	9645.444	375	9650.160	390	9651.110	378	9651.380	378
9644.193	372	9644.563	372	9645.445	371	9650.170	391	9651.113	384	9651.383	384
9644.200	368	9644.564	374	9645.450	369	9650.180	391	9651.120	378	9651.390	378
9644.203	372	9644.565	370	9645.453	373	9650.190	390	9651.123	384	9651.393	384
9644.204	374	9645.010	369	9645.460	369	9650.200	390	9651.130	378	9651.400	378
9644.205	370	9645.013	373	9645.463	373	9650.210	390	9651.133	384	9651.403	384
9644.290	368	9645.020	369	9645.464	375	9650.220	390	9651.140	378	9651.410	378
9644.293	372	9645.023	373	9645.465	371	9650.230	390	9651.143	384	9651.413	384
9644.300	368	9645.030	369	9645.470	369	9650.240	390	9651.150	378	9651.420	378
9644.303	372	9645.033	373	9645.473	373	9650.250	390	9651.153	384	9651.423	384
9644.310	368	9645.040	369	9645.480	369	9650.260	390	9651.160	378	9651.430	378
9644.313	372	9645.043	373	9645.483	373	9650.270	390	9651.163	384	9651.433	384
9644.320	368	9645.050	369	9645.484	375	9650.280	390	9651.170	378	9651.440	378
9644.323	372	9645.053	373	9645.485	371	9650.290	390	9651.173	384	9651.443	384
9644.330	368	9645.060	369	9649.000	376	9650.300	390	9651.180	378	9651.450	378
9644.333	372	9645.063	373	9649.010	376	9650.310	390	9651.183	384	9651.453	384
9644.340	368	9645.070	369	9649.020	377	9650.320	391	9651.184	388	9651.460	378
9644.343	372	9645.073	373	9649.060	376	9650.330	391	9651.185	382	9651.463	384
9644.350	368	9645.080	369	9649.070	400	9650.340	391	9651.190	378	9651.470	378
9644.353	372	9645.083	373	9649.080	398	9650.350	391	9651.193	384	9651.473	384
9644.360	368	9645.090	369	9649.090	398	9650.360	390	9651.200	378	9651.480	378
9644.363	372	9645.093	373	9649.100	398	9650.370	391	9651.203	384	9651.483	384
9644.370	368	9645.100	369	9649.110	398	9650.380	391	9651.204	388	9651.490	378
9644.373	372	9645.103	373	9649.120	398	9650.390	405	9651.205	382	9651.493	384
9644.380	368	9645.104	375	9649.130	398	9650.400	391	9651.210	380	9651.500	378
9644.383	372	9645.105	371	9649.140	398	9650.410	391	9651.213	386	9651.503	384
9644.390	368	9645.110	369	9649.150	398	9650.420	391	9651.220	380	9651.504	388
9644.393	372	9645.113	373	9649.170	377	9650.430	391	9651.223	386	9651.505	382
9644.400	368	9645.120	369	9649.190	376	9650.440	391	9651.224	388	9651.510	378
9644.403	372	9645.123	373	9649.200	376	9650.450	391	9651.225	382	9651.513	384
9644.410	368	9645.124	375	9649.210	376	9650.460	391	9651.230	380	9651.520	378
9644.413	372	9645.125	371	9649.220	376	9650.470	391	9651.233	386	9651.523	384
9644.420	368	9645.130	369	9649.230	376	9650.480	391	9651.240	380	9651.524	388
9644.423	372	9645.133	373	9649.240	376	9650.490	391	9651.243	386	9651.525	382
9644.430	368	9645.140	369	9649.250	376	9650.500	391	9651.244	388	9651.530	380
9644.433	372	9645.143	373	9649.260	376	9650.510	391	9651.245	382	9651.533	386
9644.440	368	9645.144	375	9649.270	376	9650.600	407	9651.250	380	9651.540	380
9644.443	372	9645.145	371	9649.280	376	9650.610	407	9651.253	386	9651.543	386
9644.450	368	9645.150	369	9649.290	376	9650.620	407	9651.260	380	9651.544	388
9644.453	372	9645.153	373	9649.300	376	9650.630	407	9651.263	386	9651.545	382
9644.460	368	9645.160	369	9649.310	376	9650.640	407	9651.264	388	9651.550	380
9644.463	372	9645.163	373	9649.360	376	9650.650	407	9651.265	382	9651.553	386
9644.464	374	9645.164	375	9649.430	377	9650.900	391	9651.270	380	9651.560	380
9644.465	370	9645.165	371	9649.440	377	9650.910	391	9651.273	386	9651.563	386
9644.470	368	9645.330	369	9649.450	377	9650.920	391	9651.280	380	9651.564	388
9644.473	372	9645.333	373	9649.600	407	9650.930	391	9651.283	386	9651.565	382
9644.480	368	9645.340	369	9649.610	407	9650.940	391	9651.284	388	9651.570	380
9644.483	372	9645.343	373	9649.625	393	9650.960	391	9651.285	382	9651.573	386
9644.484	374	9645.350	369	9649.635	393	9650.980	391	9651.290	380	9651.580	380
9644.485	370	9645.353	373	9649.645	397	9650.990	391	9651.293	386	9651.583	386
9644.490	368	9645.360	369	9649.655	397	9651.010	378	9651.300	380	9651.584	388
9644.493	372	9645.363	373	9649.665	397	9651.013	384	9651.303	386	9651.585	382
9644.500	368	9645.370	369	9649.675	397	9651.020	378	9651.304	388	9651.590	380
9644.503	372	9645.373	373	9649.685	399	9651.023	384	9651.305	382	9651.593	386
9644.504	374	9645.380	369	9649.700	400	9651.030	378	9651.310	380	9651.600	380
9644.505	370	9645.383	373	9650.000	390	9651.033	384	9651.313	386	9651.603	386
9644.510	368	9645.390	369	9650.010	390	9651.040	378	9651.320	380	9651.604	388
9644.513	372	9645.393	373	9650.020	377, 391	9651.043	384	9651.323	386	9651.605	382
9644.520	368	9645.400	369	9650.030	377, 391	9651.050	378	9651.324	388	9651.610	380
9644.523	372	9645.403	373	9650.050	390	9651.053	384	9651.325	382	9651.613	386
9644.524	374	9645.410	369	9650.060	390	9651.060	378	9651.330	378	9651.620	380
9644.525	370	9645.413	373	9650.070	400	9651.063	384	9651.333	384	9651.623	386
9644.530	368	9645.420	369	9650.080	390	9651.070	378	9651.340	378	9651.624	388
9644.533	372	9645.423	373	9650.090	390	9651.073	384	9651.343	384	9651.625	382
9644.540	368	9645.424	375	9650.100	390	9651.080	378	9651.350	378	9651.630	380
9644.543	372	9645.425	371	9650.110	390	9651.083	384	9651.353	384	9651.633	386

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
9651.640	380	9652.270	381	9652.544	389	9653.244	389	9653.504	389	9654.270	380
9651.643	386	9652.273	387	9652.545	383	9653.245	383	9653.505	383	9654.273	386
9651.644	388	9652.280	381	9652.550	381	9653.250	381	9653.510	381	9654.280	380
9651.645	382	9652.283	387	9652.553	387	9653.253	387	9653.513	387	9654.283	386
9652.010	379	9652.284	389	9652.560	381	9653.260	381	9653.520	381	9654.284	388
9652.013	385	9652.285	383	9652.563	387	9653.263	387	9653.523	387	9654.285	382
9652.020	379	9652.290	379	9652.564	389	9653.264	389	9653.524	389	9654.290	380
9652.023	385	9652.293	385	9652.565	383	9653.265	383	9653.525	383	9654.293	386
9652.030	379	9652.300	379	9653.010	379	9653.270	381	9653.530	381	9654.300	380
9652.033	385	9652.303	385	9653.013	385	9653.273	387	9653.533	387	9654.303	386
9652.040	379	9652.310	379	9653.020	379	9653.280	381	9653.540	381	9654.304	388
9652.043	385	9652.313	385	9653.023	385	9653.283	387	9653.543	387	9654.305	382
9652.050	379	9652.320	379	9653.030	379	9653.284	389	9653.544	389	9654.310	380
9652.053	385	9652.323	385	9653.033	385	9653.285	383	9653.545	383	9654.313	386
9652.060	379	9652.330	379	9653.040	379	9653.290	379	9653.550	381	9654.320	380
9652.063	385	9652.333	385	9653.043	385	9653.293	385	9653.553	387	9654.323	386
9652.070	379	9652.340	379	9653.050	379	9653.300	379	9653.560	381	9654.324	388
9652.073	385	9652.343	385	9653.053	385	9653.303	385	9653.563	387	9654.325	382
9652.080	379	9652.350	379	9653.060	379	9653.310	379	9653.564	389	9654.330	378
9652.083	385	9652.353	385	9653.063	385	9653.313	385	9653.565	383	9654.333	384
9652.090	379	9652.360	379	9653.070	379	9653.320	379	9654.010	378	9654.340	378
9652.093	385	9652.363	385	9653.073	385	9653.323	385	9654.013	384	9654.343	384
9652.100	379	9652.370	379	9653.080	379	9653.330	379	9654.020	378	9654.350	378
9652.103	385	9652.373	385	9653.083	385	9653.333	385	9654.023	384	9654.353	384
9652.110	379	9652.380	379	9653.090	379	9653.340	379	9654.030	378	9654.360	378
9652.113	385	9652.383	385	9653.093	385	9653.343	385	9654.033	384	9654.363	384
9652.120	379	9652.390	379	9653.100	379	9653.350	379	9654.040	378	9654.370	378
9652.123	385	9652.393	385	9653.103	385	9653.353	385	9654.043	384	9654.373	384
9652.130	379	9652.400	379	9653.104	389	9653.360	379	9654.050	378	9654.380	378
9652.133	385	9652.403	385	9653.105	383	9653.363	385	9654.053	384	9654.383	384
9652.140	379	9652.410	379	9653.110	379	9653.370	379	9654.060	378	9654.390	378
9652.143	385	9652.413	385	9653.113	385	9653.373	385	9654.063	384	9654.393	384
9652.144	389	9652.420	379	9653.120	379	9653.380	379	9654.070	378	9654.400	378
9652.145	383	9652.423	385	9653.123	385	9653.383	385	9654.073	384	9654.403	384
9652.150	379	9652.424	389	9653.124	389	9653.384	389	9654.080	378	9654.410	378
9652.153	385	9652.425	383	9653.125	383	9653.385	383	9654.083	384	9654.413	384
9652.160	379	9652.430	379	9653.130	379	9653.390	379	9654.090	378	9654.420	378
9652.163	385	9652.433	385	9653.133	385	9653.393	385	9654.093	384	9654.423	384
9652.164	389	9652.440	379	9653.140	379	9653.400	379	9654.100	378	9654.430	378
9652.165	383	9652.443	385	9653.143	385	9653.403	385	9654.103	384	9654.433	384
9652.170	381	9652.444	389	9653.144	389	9653.404	389	9654.110	378	9654.440	378
9652.173	387	9652.445	383	9653.145	383	9653.405	383	9654.113	384	9654.443	384
9652.180	381	9652.450	381	9653.150	379	9653.410	379	9654.120	378	9654.450	378
9652.183	387	9652.453	387	9653.153	385	9653.413	385	9654.123	384	9654.453	384
9652.184	389	9652.460	381	9653.160	379	9653.420	379	9654.130	378	9654.460	378
9652.185	383	9652.463	387	9653.163	385	9653.423	385	9654.133	384	9654.463	384
9652.190	381	9652.464	389	9653.164	389	9653.424	389	9654.140	378	9654.470	378
9652.193	387	9652.465	383	9653.165	383	9653.425	383	9654.143	384	9654.473	384
9652.200	381	9652.470	381	9653.170	381	9653.430	379	9654.150	378	9654.480	378
9652.203	387	9652.473	387	9653.173	387	9653.433	385	9654.153	384	9654.483	384
9652.204	389	9652.480	381	9653.180	381	9653.440	379	9654.160	378	9654.490	378
9652.205	383	9652.483	387	9653.183	387	9653.443	385	9654.163	384	9654.493	384
9652.210	381	9652.484	389	9653.184	389	9653.444	389	9654.170	378	9654.500	378
9652.213	387	9652.485	383	9653.185	383	9653.445	383	9654.173	384	9654.503	384
9652.220	381	9652.490	381	9653.190	381	9653.450	381	9654.180	378	9654.504	388
9652.223	387	9652.493	387	9653.193	387	9653.453	387	9654.183	384	9654.505	382
9652.224	389	9652.500	381	9653.200	381	9653.460	381	9654.184	388	9654.510	378
9652.225	383	9652.503	387	9653.203	387	9653.463	387	9654.185	382	9654.513	384
9652.230	381	9652.504	389	9653.204	389	9653.464	389	9654.190	378	9654.520	378
9652.233	387	9652.505	383	9653.205	383	9653.465	383	9654.193	384	9654.523	384
9652.240	381	9652.510	381	9653.210	381	9653.470	381	9654.200	378	9654.524	388
9652.243	387	9652.513	387	9653.213	387	9653.473	387	9654.203	384	9654.525	382
9652.244	389	9652.520	381	9653.220	381	9653.480	381	9654.204	388	9654.570	380
9652.245	383	9652.523	387	9653.223	387	9653.483	387	9654.205	382	9654.573	386
9652.250	381	9652.524	389	9653.224	389	9653.484	389	9654.250	380	9654.580	380
9652.253	387	9652.525	383	9653.225	383	9653.485	383	9654.253	386	9654.583	386
9652.260	381	9652.530	381	9653.230	381	9653.490	381	9654.260	380	9654.584	388
9652.263	387	9652.533	387	9653.233	387	9653.493	387	9654.263	386	9654.585	382
9652.264	389	9652.540	381	9653.240	381	9653.500	381	9654.264	388	9654.590	380
9652.265	383	9652.543	387	9653.243	387	9653.503	387	9654.265	382	9654.593	386

List of model numbers

9654.600 to 9753.045

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
9654.600	380	9655.140	379	9655.410	379	9659.290	390	9660.515	396	9665.350	413
9654.603	386	9655.143	385	9655.413	385	9659.300	390	9660.535	394	9665.360	412
9654.604	388	9655.150	379	9655.420	379	9659.310	390	9660.545	396	9665.370	412
9654.605	382	9655.153	385	9655.423	385	9659.360	390	9660.555	395	9665.380	414
9654.610	380	9655.160	379	9655.430	379	9659.400	391	9660.595	395	9665.390	414
9654.613	386	9655.163	385	9655.433	385	9659.410	391	9660.605	394	9665.400	414
9654.620	380	9655.170	381	9655.440	379	9659.420	391	9660.610	407	9665.410	414
9654.623	386	9655.173	387	9655.443	385	9659.460	391	9660.620	407	9665.420	414
9654.624	388	9655.180	381	9655.450	381	9659.470	391	9660.635	394	9665.430	414
9654.625	382	9655.183	387	9655.453	387	9659.480	391	9660.655	395	9665.440	414
9654.630	380	9655.184	389	9655.460	381	9659.525	406	9660.665	392	9665.450	414
9654.633	386	9655.185	383	9655.463	387	9659.535	406	9660.675	392	9665.460	414
9654.640	380	9655.190	381	9655.464	389	9659.545	406	9660.680	404	9665.470	414
9654.643	386	9655.193	387	9655.465	383	9659.555	406	9660.695	395	9665.480	414
9654.644	388	9655.200	381	9655.470	381	9659.580	407	9660.700	401	9665.490	415
9654.645	382	9655.203	387	9655.473	387	9659.590	407	9660.710	401	9665.500	413
9654.650	378, 380	9655.204	389	9655.480	381	9659.600	407	9660.720	401	9665.510	411
9654.653	384, 386	9655.205	383	9655.483	387	9659.610	407	9660.730	401	9665.520	416
9654.660	378, 380	9655.210	381	9655.484	389	9659.625	393	9660.740	401	9665.530	416
9654.663	384, 386	9655.213	387	9655.485	383	9659.635	393	9660.750	401	9665.540	416
9654.664	388	9655.220	381	9655.490	381	9659.645	397	9660.760	401	9665.550	416
9654.665	382	9655.223	387	9655.493	387	9659.655	397	9660.770	401	9665.560	416
9654.670	378, 380	9655.224	389	9655.500	381	9659.665	397	9660.780	402	9665.570	417
9654.673	384, 386	9655.225	383	9655.503	387	9659.675	397	9660.790	402	9665.580	417
9654.680	378, 380	9655.230	381	9655.504	389	9659.695	399	9660.805	394	9665.590	418
9654.683	384, 386	9655.233	387	9655.505	383	9659.700	400	9660.835	394	9665.600	418
9654.684	388	9655.240	381	9655.510	381	9660.000	398	9660.855	395	9665.610	418
9654.685	382	9655.243	387	9655.513	387	9660.010	398	9660.865	392	9665.620	417
9654.690	378, 380	9655.244	389	9655.520	381	9660.020	398	9660.875	392	9665.630	417
9654.693	384, 386	9655.245	383	9655.523	387	9660.030	398	9660.880	402	9665.640	419
9654.700	378, 380	9655.250	381	9655.524	389	9660.040	398	9660.890	402	9665.650	419
9654.703	384, 386	9655.253	387	9655.525	383	9660.050	398	9660.935	406	9665.660	419
9654.704	388	9655.260	381	9655.530	381	9660.060	398	9660.945	406	9665.670	419
9654.705	382	9655.263	387	9655.533	387	9660.070	398	9660.955	406	9665.680	419
9654.710	378, 380	9655.264	389	9655.540	381	9660.080	398	9660.965	406	9665.690	420
9654.713	384, 386	9655.265	383	9655.543	387	9660.090	402, 404	9665.000	411	9665.700	420
9654.720	378, 380	9655.270	381	9655.544	389	9660.100	398	9665.010	411	9665.710	420
9654.723	384, 386	9655.273	387	9655.545	383	9660.110	398	9665.020	411	9665.720	420
9654.724	388	9655.280	381	9655.550	381	9660.120	398	9665.030	411	9665.730	420
9654.725	382	9655.283	387	9655.553	387	9660.130	398	9665.040	411	9665.750	420
9655.010	379	9655.284	389	9655.560	381	9660.140	398	9665.050	411	9665.760	420
9655.013	385	9655.285	383	9655.563	387	9660.150	398	9665.060	411	9665.770	420
9655.020	379	9655.290	379	9655.564	389	9660.160	398	9665.070	411	9665.780	420
9655.023	385	9655.293	385	9655.565	383	9660.170	398	9665.080	411	9665.790	418
9655.030	379	9655.300	379	9659.000	390	9660.180	404	9665.090	411	9665.905	409
9655.033	385	9655.303	385	9659.010	390	9660.190	404	9665.100	411	9665.915	409
9655.040	379	9655.310	379	9659.020	391	9660.200	405	9665.110	411	9665.925	409
9655.043	385	9655.313	385	9659.030	391	9660.210	405	9665.120	411	9665.945	409
9655.050	379	9655.320	379	9659.060	390	9660.220	405	9665.130	411	9665.955	409
9655.053	385	9655.323	385	9659.070	400	9660.235	406	9665.140	411	9665.965	409
9655.060	379	9655.330	379	9659.080	398	9660.245	406	9665.150	411	9665.975	410
9655.063	385	9655.333	385	9659.090	398	9660.255	406	9665.160	412	9665.985	410
9655.070	379	9655.340	379	9659.100	398	9660.265	406	9665.170	412	9751.015	824
9655.073	385	9655.343	385	9659.110	398	9660.280	402	9665.180	412	9751.025	824
9655.080	379	9655.350	379	9659.120	398	9660.290	402	9665.190	412	9751.035	824
9655.083	385	9655.353	385	9659.130	398	9660.305	399	9665.200	412	9751.045	824
9655.090	379	9655.360	379	9659.140	398	9660.310	400	9665.210	412	9751.055	824
9655.093	385	9655.363	385	9659.150	398	9660.320	400	9665.220	412	9751.065	824
9655.100	379	9655.370	379	9659.170	391	9660.355	399	9665.230	412	9751.075	824
9655.103	385	9655.373	385	9659.180	391	9660.360	400	9665.240	413	9751.085	824
9655.104	389	9655.380	379	9659.190	390	9660.370	400	9665.250	413	9751.125	823
9655.105	383	9655.383	385	9659.200	390	9660.380	402	9665.260	413	9751.145	823
9655.110	379	9655.384	389	9659.210	390	9660.390	402	9665.270	413	9751.165	823
9655.113	385	9655.385	383	9659.220	390	9660.415	396	9665.280	413	9752.015	824
9655.120	379	9655.390	379	9659.230	390	9660.445	396	9665.290	413	9752.025	824
9655.123	385	9655.393	385	9659.240	390	9660.460	403	9665.300	413	9752.125	823
9655.124	389	9655.400	379	9659.250	390	9660.470	403	9665.310	413	9753.015	824
9655.125	383	9655.403	385	9659.260	390	9660.480	403	9665.320	413	9753.025	824
9655.130	379	9655.404	389	9659.270	390	9660.490	403	9665.330	413	9753.035	824
9655.133	385	9655.405	383	9659.280	390	9660.505	394	9665.340	413	9753.045	824

Model No.	Page	Model No.	Page	Model No.	Page	Model No.	Page
9753.055	824	9765.098	916	9785.003	1007	9910.014	454
9753.065	824	9765.099	916	9785.004	1007	9910.015	454
9753.075	824	9765.100	955	9785.005	1007	9910.016	454
9753.085	824	9765.105	663	9785.006	1007		
9753.095	824	9765.110	663	9785.011	852		
9753.105	824	9765.115	663	9785.012	852		
9753.115	824	9765.120	906	9785.013	852		
9753.125	824	9765.125	906	9785.014	852		
9753.135	824	9765.137	955	9785.017	852		
9753.145	824	9765.138	955	9785.018	852		
9753.155	824	9765.182	842	9785.019	852		
9753.165	824	9765.184	842	9785.020	852		
9753.175	824	9765.185	842	9785.030	885		
9753.185	824	9765.190	916	9790.003	825		
9753.195	824	9765.191	916	9790.042	825		
9753.205	824	9765.192	916	9790.043	825		
9754.015	824	9765.193	916	9791.015	818		
9754.025	824	9765.194	916	9791.025	818		
9754.035	824	9765.195	916	9791.035	818		
9754.045	824	9767.012	828	9791.045	818		
9755.015	824	9767.500	831	9791.145	818		
9755.025	824	9768.012	828	9805.160	429		
9755.035	824	9768.032	828	9805.161	429		
9755.045	824	9768.042	828	9805.172	428		
9755.055	824	9768.062	828	9805.174	428		
9755.065	824	9768.100	829	9805.494	441		
9756.015	824	9768.150	829	9808.691	429		
9756.025	824	9769.002	645	9808.692	429		
9756.035	824	9769.015	656	9808.693	429		
9756.045	824	9769.023	656	9808.764	428		
9756.055	824	9771.111	819	9810.337	444		
9756.065	824	9771.115	819	9810.338	444		
9757.015	824	9772.111	819	9810.637	443		
9757.025	824	9772.115	819	9812.625	443		
9757.035	824	9774.100	817	9901.417	576		
9757.045	824	9774.200	817	9901.991	502		
9757.055	824	9774.210	817	9902.188	518		
9757.065	824	9774.230	817	9904.928	454		
9758.015	824	9774.250	817	9904.929	454		
9758.025	824	9774.270	817	9904.930	454		
9758.035	824	9774.300	817	9904.931	454		
9758.045	824	9774.400	817	9904.932	454		
9758.055	824	9774.410	817	9904.933	454		
9761.012	829	9774.430	817	9907.463	447		
9761.032	829	9774.450	817	9907.464	447		
9761.042	829	9774.470	817	9907.465	447		
9762.012	829	9776.100	830	9907.466	447		
9763.012	827	9776.150	830	9907.467	447		
9764.012	827	9776.500	830	9907.468	447		
9764.040	827	9776.550	830	9907.469	447		
9765.050	663	9779.004	819	9907.470	447		
9765.051	827, 829	9779.053	819	9907.471	433		
9765.080	842	9783.010	821	9907.472	433		
9765.081	842	9783.020	821	9907.473	433		
9765.082	842	9783.030	821	9907.474	433		
9765.083	842	9783.040	821	9907.475	433		
9765.084	842	9783.050	821	9907.476	433		
9765.085	842	9783.060	821	9907.477	433		
9765.086	842	9783.110	821	9907.478	433		
9765.087	842	9783.120	821	9907.479	433, 447		
9765.088	842	9784.010	822	9907.480	433, 447		
9765.089	842	9784.020	822	9907.481	433, 447		
9765.090	916	9784.030	822	9907.482	433, 447		
9765.091	916	9784.040	822	9910.007	454		
9765.092	916	9784.110	822	9910.008	454		
9765.093	916	9784.120	822	9910.009	454		
9765.094	916	9784.130	822	9910.010	454		
9765.095	916	9784.140	822	9910.011	454		
9765.096	916	9785.001	1007	9910.012	454		
9765.097	916	9785.002	1007	9910.013	454		

Index

A

Index

Index

Index

S

Index

W

Z

RAL colours

	Colour RAL	Designation
	3001	signal red
	5002	ultramarine blue
	5005	signal blue
	5018	turquoise blue
	7015	slate grey
	7022	umbra grey
	7024	graphite grey
	7030	stone grey
	7032	pebble grey
	7033	cement grey
	7035	pale grey
	7044	silky grey
	8019	grey brown
	9005	jet black
	9006	white aluminium
	9011	graphite black
	9017	traffic black

Rittal international

Agencies worldwide

Germany
Rittal GmbH & Co. KG
Postfach 16 62
D-35726 Herborn
Tel.: +49 (27 72) 5 05-0
Fax: +49 (27 72) 5 05-23 19
email: info@rittal.de
www.rittal.com

Argentina
Racklatina S.A.
Av. Pedro B.
Palacios 81 – 85
1704, Ramos Mejía
Buenos Aires
Tel.: +54(11) 46 56-32 31
Fax: +54(11) 46 56-23 23
email:
info@racklatina.com.ar

Australia
Rittal Pty. Ltd.
130 – 140 Parraweena Rd.
Taren Point NSW 2229
Tel.: +61(2) 95 25 27 66
Fax: +61(2) 95 25 28 88
Free Call 1800 350 665
email: info@rittal.com.au

Austria
Rittal-Schaltschränke
Ges.m.b.H.
Laxenburger Straße 246a
A-1239 Wien
Tel.: +43(1) 6 10 09-0
Fax: +43(1) 6 10 09-21
email: info@rittal.at

Bahrain
Please contact
Rittal Middle East FZE
Dubai/U.A.E.

Belarus
Netexpert
Volocha Str. 1 of 310
220036 Minsk
Tel.: +3 75 (172) 86 20 03
Fax: +3 75 (172) 56 65 15

Belgium
Rittal nv/sa
Industrieterrein E17/3
Stokkelaar 8
B-9160 Lokeren
Tel.: +32(9) 3 53 91 11
Fax: +32(9) 3 55 68 62
email: info@rittal.be

Bosnia-Herzegovina
SYS Company d.o.o.
Sibenska b.b.
BiH-71000 Sarajevo
Tel.: +3 87/33/27 70 90
Fax: +3 87/33/27 70 92
email: sys@sys.ba

Brazil
Rittal Sist. Eletrom. Ltda.
Av. Cândido Portinari,
nr. 1.174
VI Jaguara
05114-001 São Paulo-SP
Tel.: +55(11) 36 22 23 77
Fax: +55(11) 36 22 23 99
email: info@rittal.com.br

Bulgaria
RITTBUL Ltd.
56 Gorski patnik Str. Office 5
BG-1421 Sofia
Tel.: +359(2) 65 10 66
Fax: +359(2) 96 32 516
email: bojkov@rittbul.bg

Canada
Rittal Systems Ltd.
7320 Pacific Circle
Mississauga, Ontario
L5T 1V1
Tel.: +1(9 05) 7 95 07 77
Fax: +1(9 05) 7 95 95 48
rittal.systems@rittal.ca

Chile
Rittal
Electromecánicos Ltda.
Avenida 11 de Septiembre
1881, of. 720
Providencia,
Santiago de Chile
Tel.: +56 2 3769205
Fax: +56 2 2318204
email: info@rittal.cl

China
Rittal Electro-Mechanical
Technology (Shanghai)
Co. Ltd.
No. 1658 Minyi Road
Songjiang District
Shanghai, 201612
Tel.: (021) 5115 7799
Fax: (021) 5115 7788
email:
marketing@rittal.cn

Colombia
COLSEIN Ltda.
Medición y Automatización
Calle 82 No. 5 – 48
Apartado Aereo 55479
Santafé de Bogotá,
D.C. Columbia
Tel.: +57(1) 6 10 26 74
Fax: +57(1) 6 10 78 68
email: info@colsein.com.co

Costa Rica
Elvatron
400 metros norte
de la agencia del
Banco de Costa Rica
San José
Tel.: +5 06 (2 96) 10 60
Fax: +5 06 (2 32) 60 71

Croatia
Technoshell D.O.O.
Jankomir, Josipa Loncara bb
HR-10020 Zagreb
Tel./Fax:
+3 85/1/34 55 256
email:
technoshell@zg.htnet.hr

Czech Republic
Rittal Czech, s.r.o.
Ke Zdibsku 182
250 66 Zdiby u Prahy
Tel.: +420 234 099 000
Fax: +420 234 099 099
email: info@rittal.cz

Denmark
Rittal a/s
Holtvej 8 – 10
Høruphav
6400 Sønderborg
Tel.: +45 70 25 59 00
Fax: +45 74 25 59 01
email: info@rittal.dk

Dubai/U.A.E.
Rittal Middle East FZE
Warehouse GC2
P.O. Box 17 599
Jebel Ali Free Zone – Dubai
U.A.E.
Tel.: +971(4) 8 83 41 31
Fax: +971(4) 8 83 42 44
email:
info@rittal-middle-east.com

Egypt
Rittal Egypt S.A.E.
45, Gamiat El Dewal
Al Arabia St.
Mohandesine, Giza
Tel.: +2(012) 74 28 012
Fax: +2(02) 74 82 276
email: info@rittal-egypt.com

Finland
Rittal Oy
Valimotie 35
PL 134
01510 Vantaa
Tel.: +3 58 9 4 13 44 00
Fax: +3 58 9 4 13 44 410
email: info.keskus@rittal.fi

France
Rittal France SAS
Z.A. des Grands Godets
880, rue Marcel Paul
94507 Champigny
sur Marne Cedex
Tel.: +33(1) 49 83 60 00
Fax: +33(1) 49 83 82 06
N° Azur: 0801 Rittal
(0801 748 825)
email: info@rittal.fr

France-East
Sermes S.A.
14, rue des Frères Eberts
Boîte Postale 177
67025 Strasbourg-Cedex
Tel.: +33(3) 88 40 72 00
Fax: +33(3) 88 40 72 49
email:
appareillage@sermes.fr

Great Britain
Rittal Limited
Braithwell Way
Hellaby Industrial Estate
Hellaby
Rotherham
S Yorks
S66 8QY
Tel.: +44(17 09) 70 40 00
Fax: +44(17 09) 70 12 17
email:
information@rittal.co.uk

Greece
RITTAL EPE
Thessalonikis 98
14342 Nea Philadelphia,
Athen
Tel.: +30/210/27 17 950
Fax: +30/210/27 12 398
email: info@rittal.gr

Guatemala
INTEK
Ingeniería y Tecnología
Via 5 y Ruta 3,
Zona 4 Esquina
01004 Guatemala, C. A.
Tel.: +50(2) 332 1489
332 4336
Fax: +50(2) 334 4338
email:
jmguzman@intek-ca.com

Hong Kong
Ranger
Enterprise Co. Ltd.
Units A-B, 8/F, Block 1
Tai Ping Industrial Center
57 Ting Kok Road
Tai Po, N. T.
Hong Kong
Tel.: +8 52 24 20 89 28
Fax: +8 52 24 94 92 28
email:
sales@ranger.com.hk

Hungary
Rittal Kereskedelmi Kft.
Ipari Park u. 1.
1044-Budapest
Tel.: +36(1) 399 8000
Fax: +36(1) 399 8009
email: rittal@rittal.hu

Iceland
Smith & Norland h/f
Nóatúni 4
P.O. Box 519
121 Reykjávík
Tel.: +354 520 3000
Fax: +354 520 3011
email: sminor@sminor.is

India
Rittal India Pvt. Ltd.
Nos. 23 & 24 Kiadb
Industrial Area
Veerapura
Doddaballapur
Bangalore 561 203
Tel.: +91(80) 76 22 335
76 23 075
Fax: +91(80) 76 23 343
email: info@rittal-india.com

Indonesia
PT Zuellig Services
Indonesia
Wisma Budi, 2/F Suite 202
J.I. H.R. Rasuna Said
Kav. C-6
Jakarta 12940
Tel.:
+62(21) 5296 1448 /58 /68
Fax:
+62(21) 5296 1450 /60 /70
email: electrical@zi-id.com

Ireland
Rittal Ltd.
Sleaty Road
Graiguecullen
Carlow
Ireland
Tel.: +353(599) 182 100
Fax: +353(599) 132 090
email: sales@rittal.ie

Israel
Rittal Enclosure Systems Ltd.
15, Hatarshish St. Zone 29
P.O. Box 3597
Industrial Park
Caesarea 38900
Tel.: +9 72(4) 6 27 55 05
Fax: +9 72(4) 6 27 55 35

Italy
Rittal S.p.A.
S.P. n.14 Rivoltana-Km 9,5
20060 Vignate (MI)
Tel.: +39(02) 95 93 01
Fax: +39(02) 95 36 02 09
email: info@rittal.it

Japan
Rittal K.K.
1438-1 Shimonohara
Nishi-izumida
Sakai-machi, Sashima-gun
Ibaraki 306-0431
Tel.: +81(280) 87 51 20
Fax: +81(280) 87 51 08
email: hotline@rittal.co.jp

Jordan
Please contact
Rittal Middle East FZE
Dubai/U.A.E.

Kuwait
Please contact
Rittal Middle East FZE
Dubai/U.A.E.

Lebanon
Please contact
Rittal Middle East FZE
Dubai/U.A.E.

Lithuania
Rittal UAB
Meistru 8
02189 Vilnius
Tel.: +370/5 2105 720
2306 669
Fax: +370/5 2306 665
email: info@rittal.lt

Luxembourg
D.M.E. s.a.r.l.
Distribution de matériel
électrique
Z.A.R.E. Ouest
4384 Ehlerange
Tel.: +3 52-57 43 44
Fax: +3 52-57 43 57
email: dme@dme.lu

Macedonia
Siskon System Engineering
Taskenska 4A
MK-91000 Skopje
Tel.: +389/2/3062 423
Fax: +389/2/3061 250
email: siskon@mt.net.mk

Malaysia
Rittal Systems Sdn Bhd
No. 7, Jalan TPP 1/1A
Taman Industry Puchong
Batu 12, Jalan Puchong
47100 Puchong
Selangor Darul Ehsan
Tel.: +60 (3) 8060 9955
Fax: +60 (3) 8060 0678

Mexico
Rittal S.A. de C.V.
Dr. Roberto Gayol
No. 1219-1B
Co. Del Valle 03104
México D.F.
Tel.: +52 (55) 5559.5369/170
Fax: +52 (55) 5559.4887

Morocco
S.M.R.I.
Société marocaine de
réalisations industrielles
109, Rue Abou Ishak
El Marouni
20110 Casablanca
Tel.: +212-2 25 94 90
Fax: +212-2 23 77 08
email: smri@elan.net.ma

Netherlands
Rittal bv
Hengelder 56
Postbus 246
6900 AE Zevenaar
Tel.: +31(3 16) 59 19 11
Fax: +31(3 16) 52 51 45
eMail: sales@rittal.nl

New Zealand
Rittal Ltd.
5 Pretoria Street
P.O. Box 30-453
Lower Hutt
Wellington
Tel.: +64(4) 5 66 76 30
Fax: +64(4) 5 66 92 19

Norway
Rittal AS
Postboks 79 Stovner
Luhrtoppen 2
0913 Oslo
Tel.: +47-67 91 23 00
Fax: +47-67 91 23 23
email: rittal@rittal.no

Oman
Please contact
Rittal Middle East FZE
Dubai/U.A.E.

Peru
CE-YE-SA
Ingeniería Electrica
Av. Enrique Meiggs
255 – 257
Parque Internacional
de Industria y Comercio
Callao
Tel.: +51(1) 4 51 79 36
Fax: +51(1) 4 51 72 72
email:
ceyesacomercial@
millicom.com.pe

Philippines
Enclosure Systems
Specialist Incorporated
G/F, GE Phils Building
2291 Pasong Tamo
Extension
Makati City 1231
Philippines
Tel.: +63(2) 8 13 85 80
Fax: +63(2) 8 13 85 96
email: gardex@ibm.net

Poland
Rittal Sp. z o.o.
Ul. Królewska 6
05-825 Grodzisk Maz.
k/Warszawy
Tel.: +48(22) 724 27 84
Fax: +48(22) 724 08 52
email: rittal@rittal.pl

Portugal
Rittalsis-Sistemas
Eléctricos e Electrónicos,
Unipessoal Lda.
Z. I. de Rio Meão
Rua 8, 228 e 238
4520-907 Rio Meão
Stª Maria da Feira
Tel. +351 808 202 505
Fax. +351 808 222 505
email: info@rittal.pt

Qatar
Please contact
Rittal Middle East FZE
Dubai/U.A.E.

Republic of Slovakia
Rittal s.r.o.
Plynárenská 1
SK-82109 Bratislava
Tel.: +421(2) 5363 0651
Fax: +421(2) 5363 0951
email: rittal@rittalsro.sk

Romania
Cubrit s.r.l.
Sos. Chitilei, no. 114
Sector 1 – Bucharest
Romania
Tel.: +402/1/312 94 98
Fax: +402/1/312 94 97
email: office@cubrit.ro

Russia
Rittal OOO
Russian Federation
Moscow, 123007
4-th Magistralnaya st. 11,
bld. 1
Tel.: +7 (095) 775 02 30
Fax: +7 (095) 775 02 39
email: info@rittal.ru

Saudi Arabia
A. Abunayyan Electric
Corp.
King Abdulaziz Street
P.O. Box 321
Riyadh 11411
Kingdom of Saudi Arabia
Tel.: +966(1) 477 91 11
Fax: +966(1) 479 33 12
email:
aec-salesmarketing@
abunayyangroup.com

Singapore
Rittal Pte. Ltd.
7 Loyang Street
Loyang Industrial Estate
Singapore 508842
Tel.: +65-65 42 68 18
Fax: +65-65 42 68 33
email: sales@rittal.com.sg

Slovenia
Rittal d.o.o.
Smartinska 152
SLO-1533 Ljubljana
Tel.: +386/1/5466370
Fax.: +386/1/5411710
email: info@rittal.si

South Africa
Rittal Pty. Ltd.
123, Terrace Road
Sebenza
P.O. Box 462
Edenvale, 1610
Johannesburg
Tel.: +27(11) 6 09-82 94
Fax: +27(11) 4 52-58 16
email: info@rittal.co.za

South Korea
Rittal Co. Ltd.
Seoul Head Office
3rd Floor
Asan Venture Tower B/D
315-6 Yangjae-Dong,
Seocho-Gu,
Seoul 137-896 Korea
Tel.: +82 (0)2-577-6525
Fax: +82 (0)2-577-6526
email: rittal@rittal.co.kr

Spain
Rittal Disprel S.A.
Mas Baiona, 40
Polígono Industrial
Can Roqueta
08202 Sabadell
(Barcelona)
Tel.: +34(93) 700 13 00
Fax: +34(93) 700 13 01
email: info@rittal.es

S. R. Vietnam
ESACO Ltd.
15 – 17 Tran Quoc
Thao Street
District 3
Hochiminh City
Socialist Republic
of Vietnam
Tel.: +84(8) 9 30 50 80
Fax: +84(8) 9 30 31 93
email: esaco@hcm.vnn.vn

Sweden
Rittal Scandinavian ab
26273 Ängelholm
Tel.: +46(4 31) 44 26 00
Fax: +46(4 31) 44 26 37
email: info@rittal.se

Switzerland
Rittal AG
Ringstrasse 1
5432 Neuenhof
Tel.: +41 (0) 56 416 06 00
Fax: +41 (0) 56 416 06 66
email: rittal@rittal.ch

Syria
Please contact
Rittal Middle East FZE
Dubai/U.A.E.

Taiwan
Rittal Systems Taiwan Ltd.
13 – 1 Fl., No. 87,
Wen Hua 3rd Rd.
Kuei Shan
Taoyuan Hsien
Taiwan
Tel.: +8 86 (3) 397-1745
(3) 327-8871
Fax: +8 86 (3) 397-2019
email:
sales.inform@rittal.com.tw

Thailand
Rittal Ltd.
No. 6 Soi Pattanakarn 20
Yaek 7
Pattanakarn Road
Kwaeng Suanluang
Khet Suanluang
Bangkok 10250
Tel.: +66 (2) 369 2896-99
Fax: +66 (2) 369 2883
email: info@rittal.co.th

Turkey
Rittal Pano Sistemleri
Ticaret Ltd. Sti.
Yunus Emre
mah. Barbaros
Bulvari No: 58
34791 Yenidogan Ümraniye
Istanbul
Tel.:
+90 (0) 216 430 86 06 /07 /08
Fax:
+90 (0) 216 430 88 61
email: info@rittal.com.tr

Ukraine
Advanced Network
Technology
Scherbakova Str. 37
04111 Kiev
Tel.: +38(44) 495 11 36
Fax: +38(44) 443 95 22

USA
Rittal Corporation
One Rittal Place
Springfield, OH 45504
Tel.: +1(9 37) 3 99-05 00
Fax: +1(9 37) 3 90-55 99
email: rittal@rittal-corp.com

Uzbekistan
Naytov Ltd.
Ul. Matbuotschilar 32
700047 Taschkent
Tel.: +9 98/71-132 08 56
Fax: +9 98/71-132 08 59

Venezuela
EMI
Equipos y Sistemas C. A.
Edificio Centro Cyanamid,
P.B.
Calle 1 – 2, La Urbina
1073 Caracas
Tel.: +58(212) 243 6401
5072
Fax: +58(212) 243 6401

Yugoslavia
Vesimpex d.o.o.
Petra Konjovica 12 v
11090 Belgrade
Tel./Fax:
+3 81/11/35 10 683
email:
info@vesimpex.co.yu

04/05 · E950

Switch to perfection **RITTAL**®