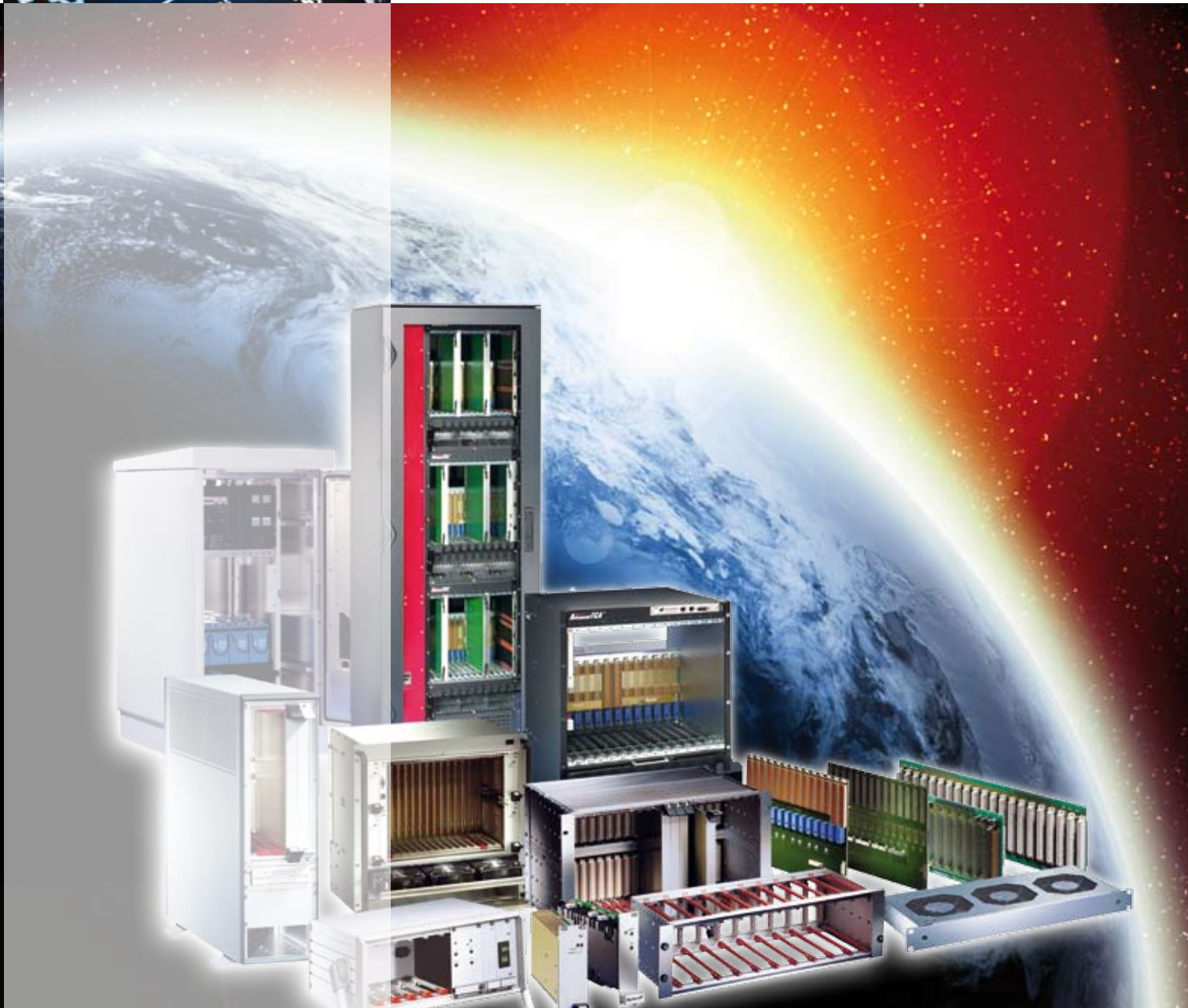


# Main Catalogue

Edition 23

6. Subracks/19" chassis



Cabinets ..... 1

Wall mounted cases ..... 2

Accessories for cabinets and wall mounted cases .... 3

Climate control .... 4

Desk-top cases .... 5

**Subracks/  
19" chassis ..... 6**

Front panels, plug-in units ..... 7

Systems ..... 8

Power supply units ..... 9

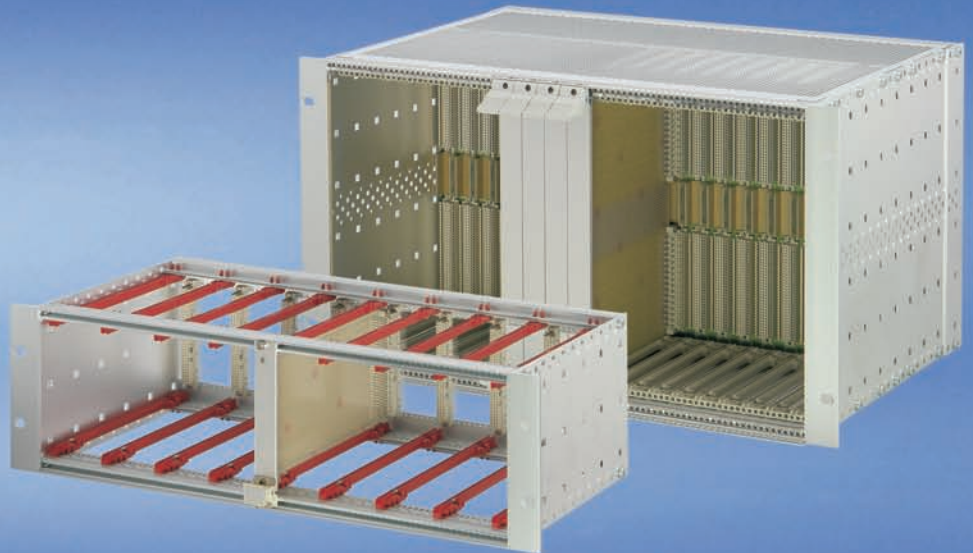
Backplanes ..... 10

Connectors, front panel component system ..... 11

Appendix ..... 12

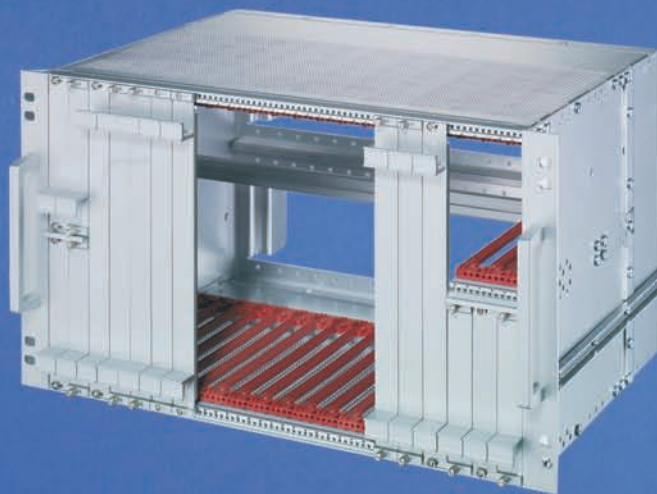
## *europac* PRO

19" subrack with high flexibility  
EMC shielding upgradeable  
Conforms to IEC 60298-3-103 and IEEE 1011.10/11  
Kit from stock or to individual configuration



## *europac* PRO for mobile rail applications

Shock and vibration tested to  
- IEC 61587-1, EN 50155  
- BN 411002 and BN 411003  
- NF F 61-005 / NF F 60-002  
Kit from stock or to individual configuration



36106005 (06109001 06104001)

Main Catalogue

[www.schroff.biz](http://www.schroff.biz)



6.0

E 03/2009



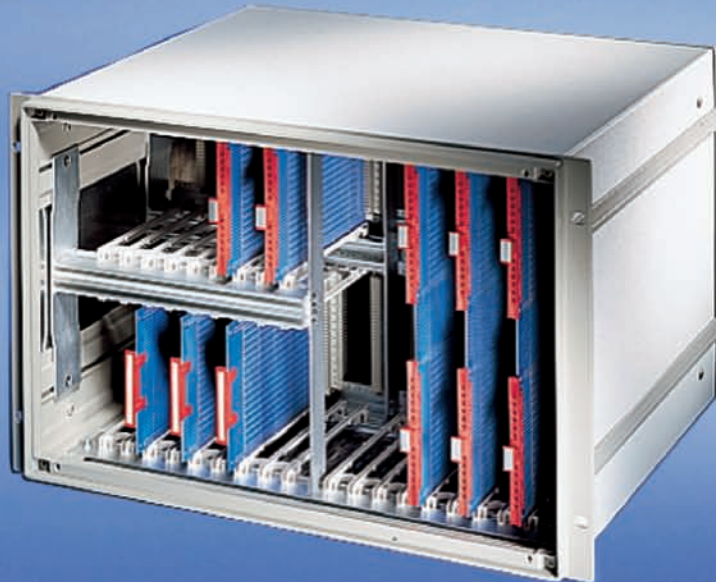
# *multipacPRO*

19" chassis for non-standard components and horizontal board construction  
Version in aluminium and steel plate (AlZn coated)  
Kits from stock or to individual configuration



# *inpac*

19" chassis with high mechanical stability  
Flexible construction for standard board formats or individual solutions  
Can be used as a desk-top enclosure



36106006 (06002001 02192004)



Main Catalogue

[www.schroff.biz](http://www.schroff.biz)

europacPRO . . . 6

Sub racks for mobile rail applications . . 6

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europacPRO . . . . 6  
Sub racks for mobile rail applications . . . . 6  
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Wall mounted cases ..... 2

Accessories for cabinets and wall mounted cases .... 3

Climate control .... 4

Desk-top cases .... 5

**Subracks/  
19" chassis ..... 6**

Front panels,  
plug-in units ..... 7

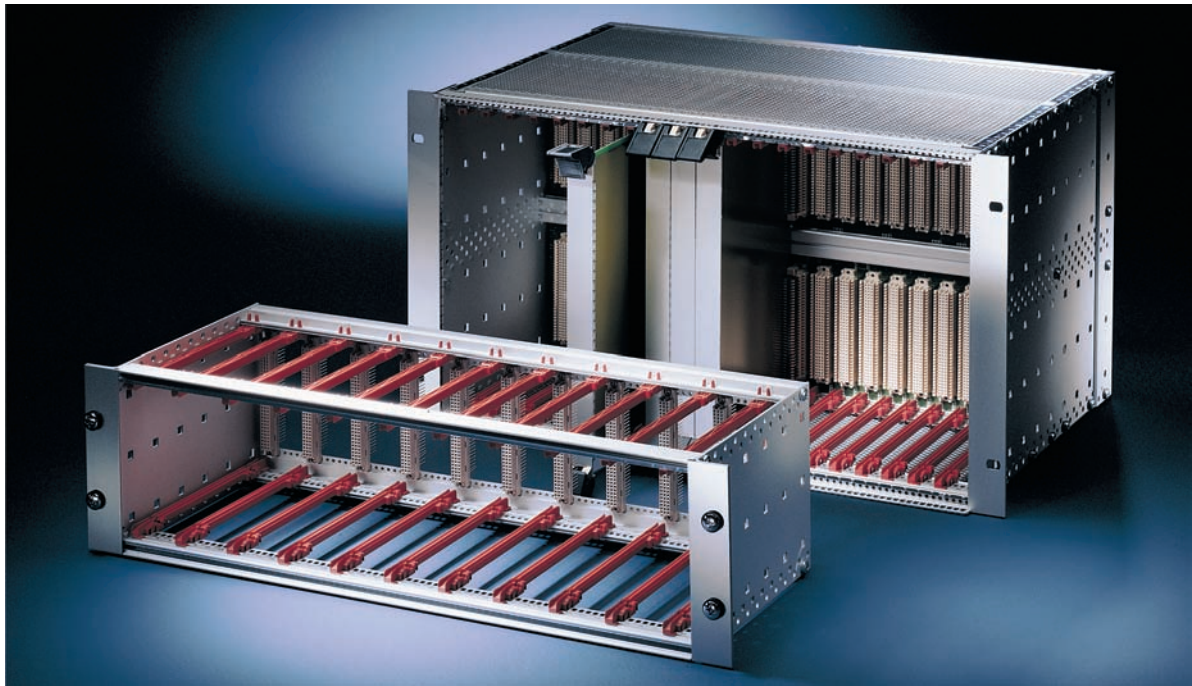
Systems ..... 8

Power supply  
units ..... 9

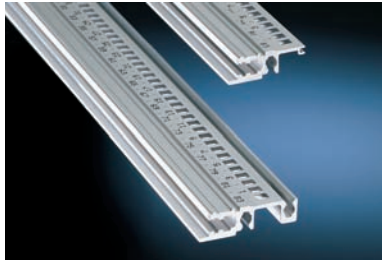
Backplanes ..... 10

Connectors, front  
panel component  
system ..... 11

Appendix ..... 12



06197001



08

Horizontal rails in lightweight ("light") or robust ("heavy") versions



04602002

The IEEE handle and shielded front panels are designed for the construction of CompactPCI and VME64x subrack systems



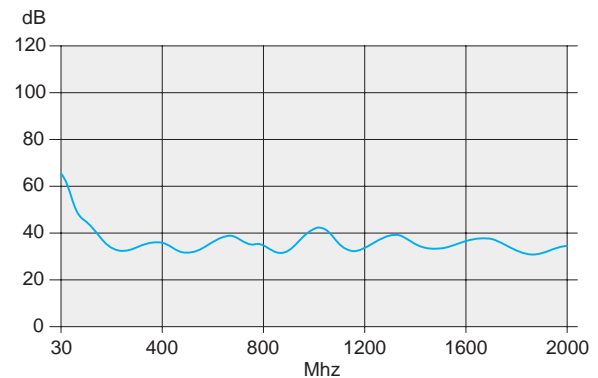
06

Sequential numbering on horizontal rails (> 28 HP) and markings on the guide rails provide quick optical positioning aids.  
ESD clips applicable to front and rear protect the electronics against electrostatic discharge.

### Standards/certifications

- Inner and outer dimensions meet:  
IEC 60297-3-100, -101, -102, -103, -104,  
IEEE 1101.1 and IEEE 1101.10/11
- Type of protection IP 20 in accordance with  
IEC 60529
- EMC testing to IEC 61587-3
- Shock and vibration test report:  
German "Bahn" standards BN 411002, BN 411003;  
NF F 60002, NF F 67012  
IEC 61587-2, EN 50155
- Nuclear plants KTA 1401

### EMC curve



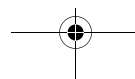
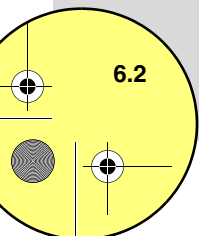
06108081



**Downloads and further important information can be found on the Internet under [www.schroff.biz](http://www.schroff.biz)**

Main Catalogue

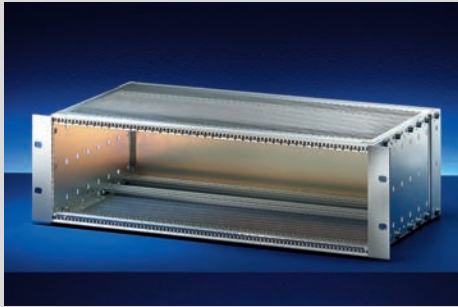
[www.schroff.biz](http://www.schroff.biz)





## 19" sub racks

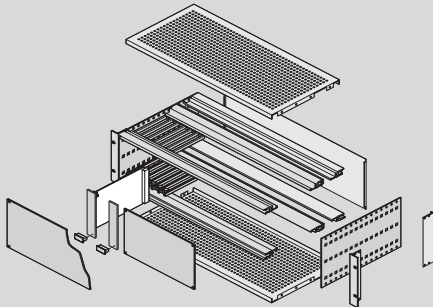
- Kits or individual configuration
- EMC shielding easily retrofittable if needed
- Designed for extractor handles to IEEE 1101.10/11 and IEC 60297-3-103 for CompactPCI and VME 64x application
- IEEE 1101.1 compatible
- Shock and vibration resistant to IEC 61587-2, EN 50155, NF F 67012/NF F 60002, German railway standards BN 411002/411003



06102007

### Kits

- Heights 3, 6 U and depths 175 ... 475 mm
- In "light" and robust "heavy" versions
- Unshielded and shielded versions
- Shielded versions for CompactPCI applications
- Delivered as flatpack



06105058

### ServicePLUS configuration

- Height from 3 to 9 U
- Width from 20 HP to 1 m
- Shielded, unshielded
- Flexible internal mounting/combined mounting
- Other accessories and assembly parts



06104008

### Sub racks for use on rolling stock

- Shielded and unshielded versions
- Certification in accordance with
  - European Railway Standard DIN EN 50155
  - German Railway Standards BN 411002, BN 411003
  - French Railway Standards NF F 61-005, NF F 60-002



30407004

### ServicePLUS from page 6.16

- e.g. individual configuration and assembly
  - e.g. modifications (cut-outs)
  - e.g. downloads (CAD drawings, user manuals, test reports)
  - e.g. custom solutions
- [www.schroff.biz/serviceplus/](http://www.schroff.biz/serviceplus/)

### Kits

- Unshielded . . . . 6
- Shielded . . . . 6
- Shielded, for CompactPCI . . . . 6

### Individual configuration . . . . 6

### ServicePLUS configuration

- Side panels . . . . 6
- Horizontal rails, threaded inserts, perforated strips . . . . 6
- Guide rails . . . . 6
- Cover plates . . . . 6
- EMC shielding . . . . 6
- Internal mounting . . . . 6
- Assembly parts . . . . 6

### Application examples . . . . 6

### Sub racks for use on rolling stock see page . . . . 6

## Platform-based standard solutions for individual requirements

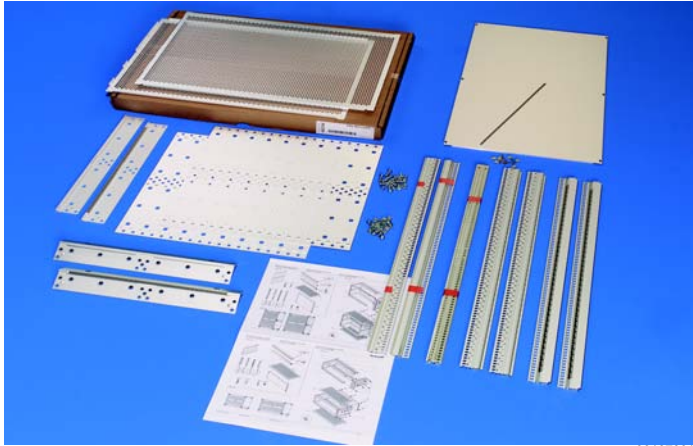
Practical technology without time-consuming assembly. The modular europacPRO product platform can cover a wide range of possible applications with only a few components. The intelligent design of all components results in remarkably simple and fast management in assembly and components.

Two ways of reaching your desired product:

- Kits
- Individual configuration



### Simple assembly with europacPRO kits:



Delivered in space-saving flat packs. Simply unpack the parts and bolt together. The threaded inserts or EMC sealing (depending on selected kit) are already pre-mounted on the horizontal rail.

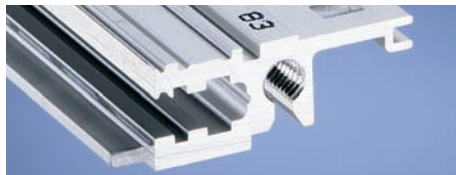
### Individual configuration:

	Side panel type F	19" bracket without handle holes	19" bracket with handle holes	19" bracket depth-adjustable	EMC sealing (St, stainless)	Rear angle	Side panel connection
	without 19" bracket. Al 2 mm, passivated please order 19" bracket and corner profile separately	with lateral grooves for EMC stainless steel gasket, Al extrusion, rear side etched, front anodised	with lateral grooves for EMC stainless steel gasket, Al extrusion, rear side etched, front anodised, please order front handle dies separately, see page 6.25	2 adaptor brackets, Al 2 mm, equipment support rail, height 35 mm, width 84 HP, depth 7.5 mm, mounted laterally in module support or subrack, power	inserted laterally into the slots of the front panel	Al extrusion, surface clear passivated, with lateral grooves for EMC stainless steel sealing, rear hood cannot be mounted simultaneously	Zn die-cast incl. assembly kit for linking two by two side panels (above one another)
Height U							
Depth mm							
	1 piece	PU 1 pair	PU 1 pair	PU 1 pair	PU 10 pieces	PU 1 pair	PU 4 pieces
3	175	<b>34560-185</b>					
3	235	<b>34560-187</b>					
3	275	<b>34579-300</b>					
3	277.75	<b>34579-002</b>	<b>24560-197</b>	<b>24560-198</b>	<b>24560-199</b>	<b>21101-705</b>	<b>24561-198</b>
3	295	<b>34560-189</b>					<b>21101-954</b>
3	355	<b>34560-191</b>					
3	415	<b>34560-193</b>					
3	475	<b>34560-195</b>					

You design your subrack as you wish, then receive it fully assembled with our **ServicePLUS assembly service** (even for orders of just one). We can also carry out individual modifications and cut-outs; and can do so very fast when time is short with ServicePLUS express.

## Horizontal rails for different load-carrying classes

Light



Heavy

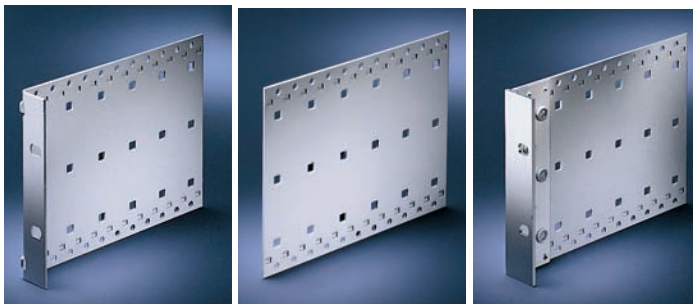


There are horizontal rails for two load-carrying classes, "light" (load up to approx. 7.5 kg) and "heavy" (load > 7.5 kg). The light horizontal rails for optimised airflow or the especially robust version with lateral 2-hole fixing.

There is a consecutive numbering on the horizontal rail (>28 HP), that serves for an easy positioning of the guide rails.

By means of ESD clips a conductive connection between horizontal rail (subrack) and PCB is created.

## Side panels for three different applications



Type L

Type F

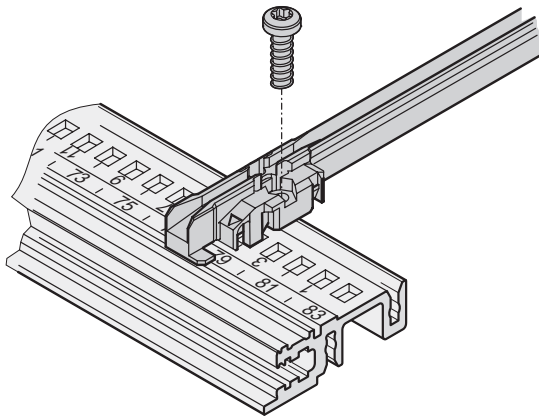
Type H

Side panels for 3 different applications

- Light, low-cost version with integrated 19" mounting bracket (type L, unshielded)
- Flexible with separate 19" mounting bracket (type F, shielded)
- Heavy-duty with integrated (Tox-cold welded) 19" mounting bracket for extreme mechanical loads (type H, shielded), e.g. for applications with high shock and vibration



## Guide rails in plastic and aluminium profiles



Guide rails form the interface between the subrack mechanics and the sub-assemblies (PCBs, plug-in units, frame-type plug-in units, plug-in drive units ...).

Robust snap-in fixings on the plastic rails ensure steadiness, even when vibration occurs. With H-type horizontal rails the guide rails can additionally be bolted on.

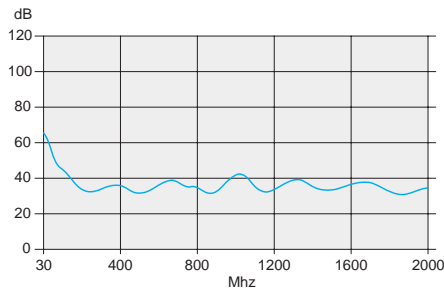
For extreme stresses, guide rails in aluminium profile may be used.

To avoid a wrong sub-assembly being inserted into the wrong place, we offer a mechanical coding to IEEE 1101.10/11, IEC 60297-3-103.

The continuous numbering on the horizontal rail (from 28 HP) and the marking on the guide rails facilitate quick fitting in the correct position.

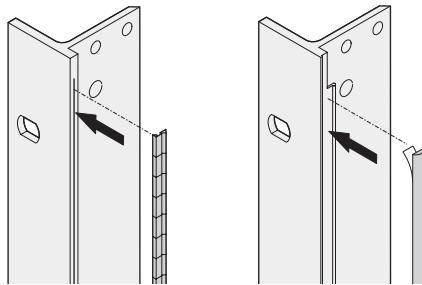
06108084

## Electromagnetic shielding and ESD



The product platform europacPRO offers a variety of off-the-shelf solutions to achieve electromagnetic compatibility (EMC) and to avoid electrostatic discharges (ESD).

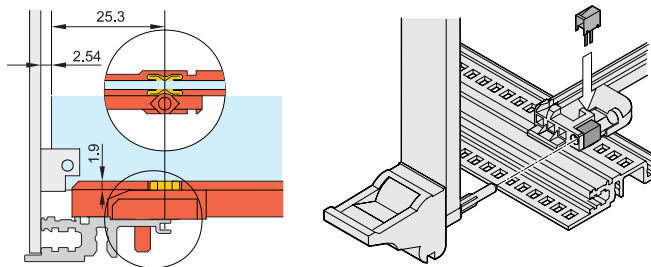
06108081



It can't be more secure! The shielding to the front of the subrack is achieved by EMC stainless steel or textile gaskets.

06108074 06108073

An all-round contact guarantees complete shielding.



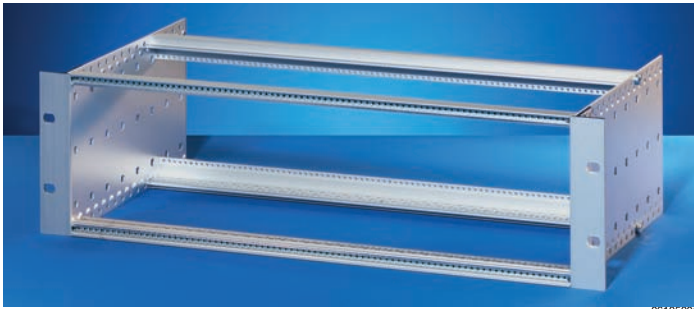
To avoid electrostatic discharges when inserting PCBs, ESD contacts are clipped into the guide rails. These establish a conductive connection between PCB and subrack-earth.

According to IEC 60297-3-101 two ESD areas are defined on the euroboard. The ESD clips on the guide rails of the europacPRO subrack allow the assembly of following variants:

- ESD area (to bottom and top) via the complete board height
- ESD area (to bottom/top) starts at the the front from 70 mm up to the board's end)

04503050 06103052

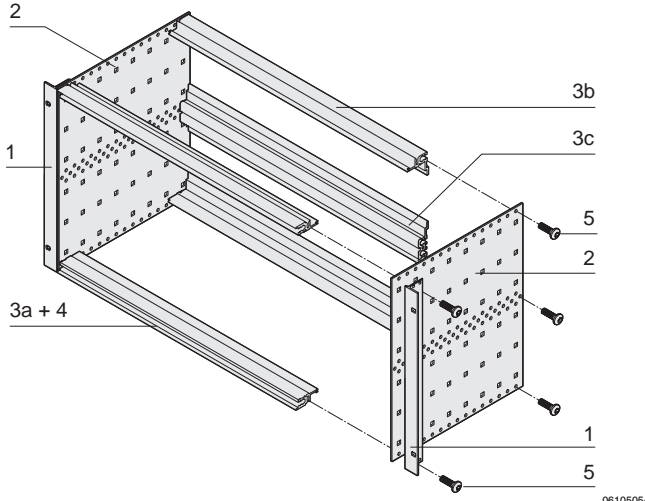
## Kit, unshielded, "light", for fitting of male connector



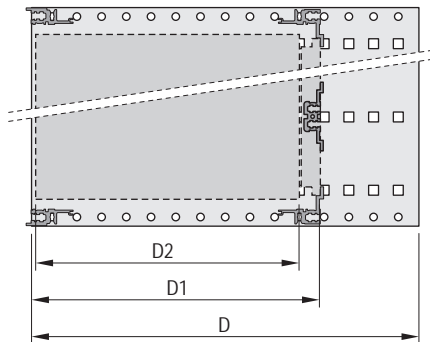
- Subrack in lightweight version ("light")
- Rear horizontal rails for connector mounting (IEC 60603-2/DIN 41612)

### Delivery comprises (kit)

Item	Qty		Description
	3 U	6 U	
1	2	2	19" support bracket for stainless steel EMC gasket
2	2	2	Side panel type F
3a	2	2	Front horizontal rail (L-KD)
3b	2	2	Rear horizontal rail (L-MZ) for connector mounting
3c	-	1	Centre horizontal rail (MZ)
4	2	2	Threaded insert to front (pre-fitted)
5	1	1	Assembly kit
6	1	1	User manual



6 U



D=total depth, D1=insertion depth, D2=board depth



Horizontal rail to rear for connector mounting

### Order Information

Height U	Width HP	Depth D	Depth D1	Depth D2	Part no.
3	84	175	175	160	<b>24563-191</b>
3	84	235	175/235	160/220	<b>24563-192</b>
3	84	295	175/235/295	160/220/280	<b>24563-193</b>
3	84	355	175/235/295/355	160/220/280/340	<b>24563-194</b>
6	84	175	175	160	<b>24563-491</b>
6	84	235	175/235	160/220	<b>24563-492</b>
6	84	295	175/235/295	160/220/280	<b>24563-493</b>
6	84	355	175/235/295/340	160/220/280/340	<b>24563-494</b>

**Assembly kit, PU 8 x screw, washer, nut**  
for assembly of subracks in a 19" case or a cabinet **21100-435**

### Guide rails (standard), ESD clips

Depth D2	Qty/PU	Part no.
mm		
160	10	<b>24560-351</b>
220	10	<b>24560-353</b>
280	10	<b>24560-379</b>
340	10	<b>24560-380</b>

**ESD clip for guide rails PU 50 pieces** **24560-255**

### Note

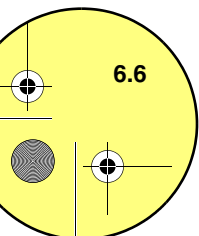
- Cover plates and assembly kit from page 6.9
- Further accessories from page 6.57
- ServicePLUS configuration from page 6.16



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

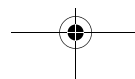


ServicePLUS see page 6.16



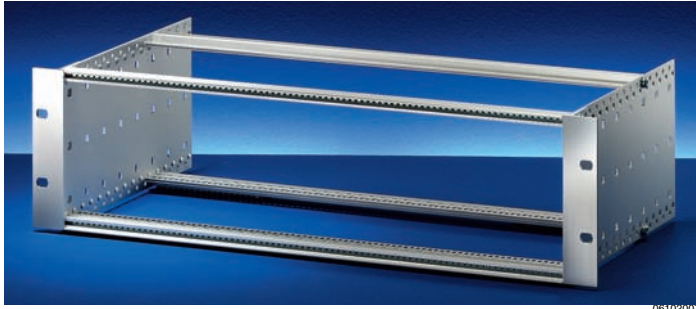
Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days





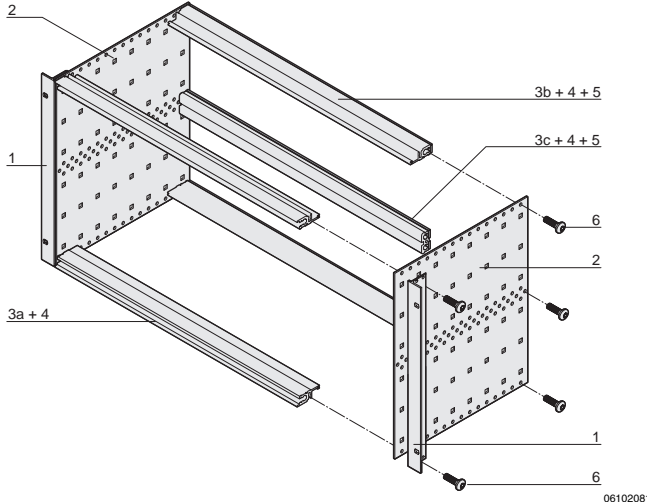
## Kit, unshielded, "light", for backplane mounting



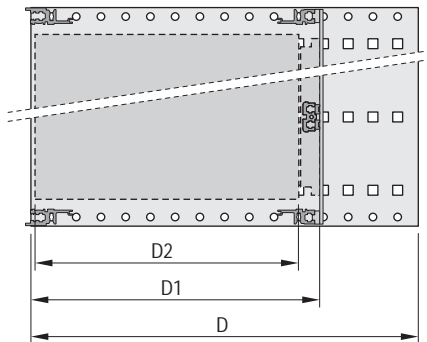
- Subrack in lightweight version ("light")
- Rear horizontal rail with insulation strip for backplane mounting

### Delivery comprises (kit)

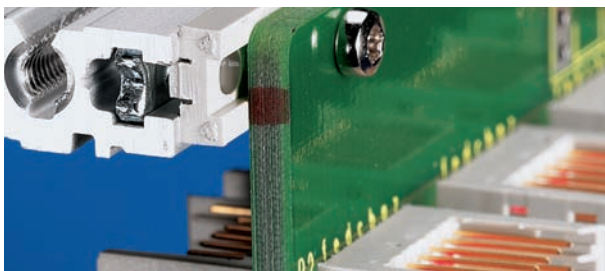
Item	Qty		Description
	3 U	6 U	
1	2	2	19" support bracket for stainless steel EMC gasket
2	2	2	Side panel type F
3a	2	2	Front horizontal rail (L-KD)
3b	2	2	Rear horizontal rail (L-ST) for backplane mounting with insulation strip
3c	-	1	Centre horizontal rail (ST)
4	4	6	Threaded inserts, to front and rear, pre-fitted
5	2	4	Insulation strip (pre-fitted)
6	1	1	Assembly kit
7	1	1	User manual



6 U



D=total depth, D1=insertion depth, D2=board depth



Rear horizontal rail with insulation strip for backplane mounting



ServicePLUS see page 6.16

### Order Information

Height	Width	Depth	Depth D1	Depth D2	Part no.
U	HP	mm	mm	mm	
3	84	175	175	160	<b>24563-13</b>
3	84	235	175/235	160/220	<b>24563-13</b>
3	84	295	175/235/295	160/220/280	<b>24563-13</b>
3	84	355	175/235/295/355	160/220/280/340	<b>24563-13</b>
3	84	415	175/235/295/355	160/220/280/340	<b>24563-13</b>
3	84	475	175/235/295/355	160/220/280/340	<b>24563-13</b>
6	84	175	175	160	<b>24563-43</b>
6	84	235	175/235	160/220	<b>24563-43</b>
6	84	295	175/235/295	160/220/280	<b>24563-43</b>
6	84	355	175/235/295/355	160/220/280/340	<b>24563-43</b>
6	84	415	175/235/295/355	160/220/280/340	<b>24563-43</b>
6	84	475	175/235/295/355	160/220/280/340	<b>24563-43</b>

**Assembly kit, PU 8 x screw, washer, nut**  
for assembly of subracks in a 19" case or a cabinet **21100-43**

### Guide rails (standard), ESD clips

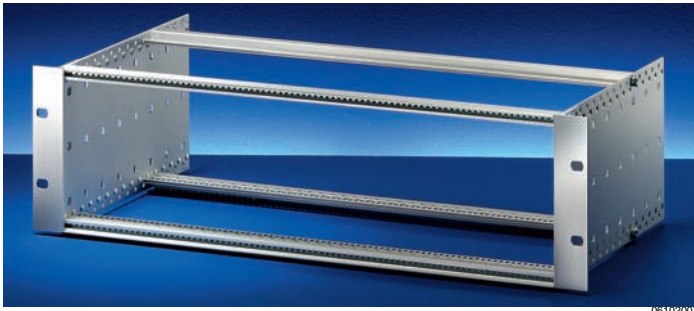
Tiefe D2	Qty/PU	Part no.
mm		
160	10	<b>24560-35</b>
220	10	<b>24560-35</b>
280	10	<b>24560-37</b>
340	10	<b>24560-38</b>

**ESD clip for guide rails PU 50 pieces** **24560-25**

### Note

- Perforated rail, cover plates and assembly kit from page 6.10
- Further accessories from page 6.57
- ServicePLUS configuration from page 6.16

## Kit, unshielded, 'heavy', for backplane mounting

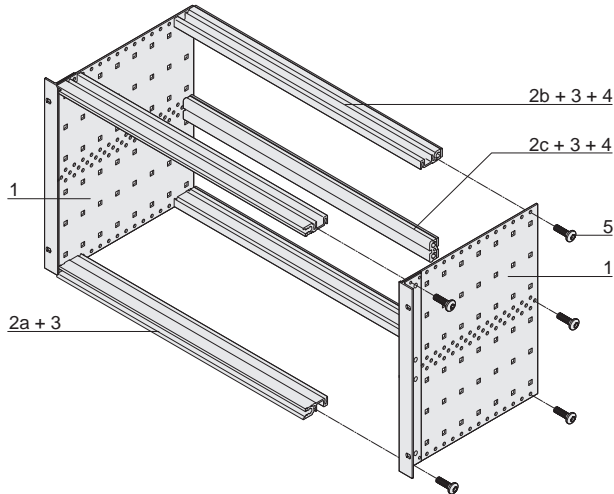


- Subrack in robust version ("heavy"), 19" bracket is firmly joined to side panel (Tox-cold welded)
- Rear horizontal rail with insulation strip for backplane mounting
- Tested in accordance with German railway standard BN 411002, BN 411003

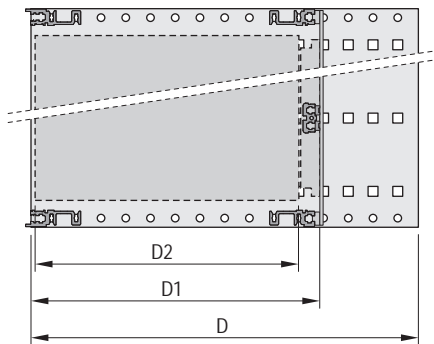
# NEW

### Delivery comprises (Kit)

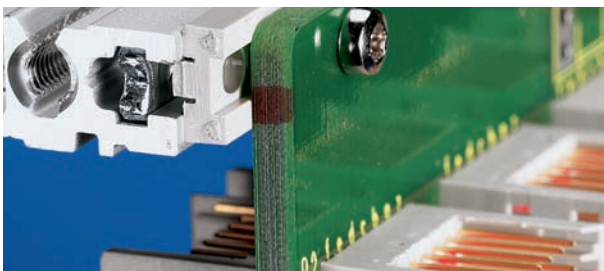
Item	Qty		Description
	3 U	6 U	
1	2	2	Type H (heavy) side panel with 19" support bracket for textile EMC gasket
2a	2	2	Front horizontal rail (H-KD)
2b	2	2	Rear horizontal rail (H-ST) with insulation strip for backplane mounting
2c	-	1	Centre horizontal rail (ST)
3	4	6	Threaded insert (pre-fitted)
4	2	4	Insulation strip (pre-fitted)
5	1	1	Assembly kit
6	1	1	User manual



6 U



D=total depth, D1=insertion depth, D2=board depth



Rear horizontal rail with insulation strip for backplane mounting



ServicePLUS see page 6.16

### Order Information

Height	Width	Depth	Depth D1	Depth D2	Part no.
U	HP	mm	mm	mm	
3	84	175	175	160	<b>24563-161</b>
3	84	235	175/235	160/220	<b>24563-162</b>
3	84	295	175/235/295	160/220/280	<b>24563-163</b>
3	84	355	175/235/295/355	160/220/280/340	<b>24563-164</b>
6	84	175	175	160	<b>24563-461</b>
6	84	235	175/235	160/220	<b>24563-462</b>
6	84	295	175/235/295	160/220/280	<b>24563-463</b>
6	84	355	175/235/295/355	160/220/280/340	<b>24563-464</b>
<b>Assembly kit, PU 8 x screw, washer, nut for assembly of subracks in a 19" case or a cabinet</b>					<b>21100-435</b>

### Guide rails (standard), ESD clips

Depth D2	Qty/PU	Part no.
mm		
160	10	<b>24560-351</b>
220	10	<b>24560-353</b>
280	10	<b>24560-379</b>
340	10	<b>24560-380</b>
<b>ESD clip for guide rails PU 50 pieces</b>		<b>24560-255</b>
Torx panhead screw for extra bolting of the guide rails, 2.5 x 9.3, zinc-plated, PU 100 pieces		<b>24560-141</b>

### Note

- Textile EMC gaskets see page 6.21
- Further accessories from page 6.57
- ServicePLUS configuration from page 6.16

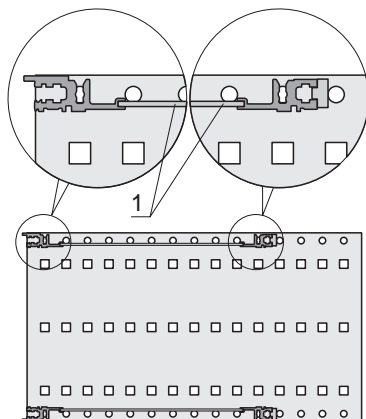
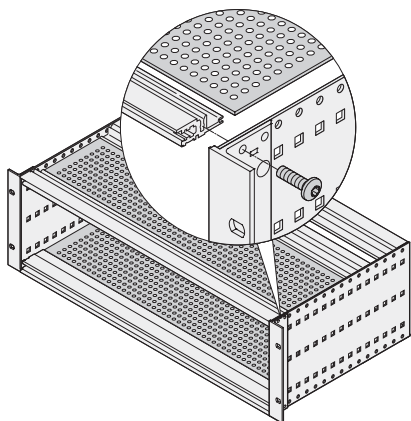


For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## Cover plates for 'light' subrack



- Mechanical cover to push into the groove of the horizontal rail type "light"
- Perforation degree 60 %

### Delivery comprises

Item	Qty	Description
1	2	Cover plate, perforated aluminium plate, 1.2 mm, hole diameter 3.8 mm, untreated

### Order Information

Depth D2 mm	Width HP	Qty/PU	Part no.
160	84	2	<b>24561-051</b>
220	84	2	<b>24561-052</b>

### Note

- Other dimensions available on request

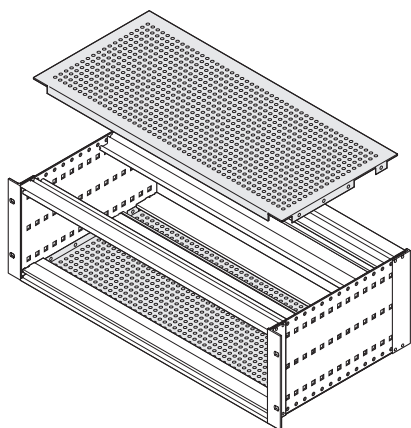


For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

06108077

06108058

## Cover plates for subrack



- Mechanical cover to bolt onto the side panel
- For fitting of 160, 220 or 280 mm deep PCBs
- Suitable for all horizontal rails
- Perforation degree 58 %

### Delivery comprises

Item	Qty	Description
1	2	Cover plate, Al, 1.0 mm, hole diameter 4.0 mm, iridescent green chromated
2	16/20/ 32	Torx screws, 4 x 6, pentaform, self-tapping, St, zinc-plated

### Order Information

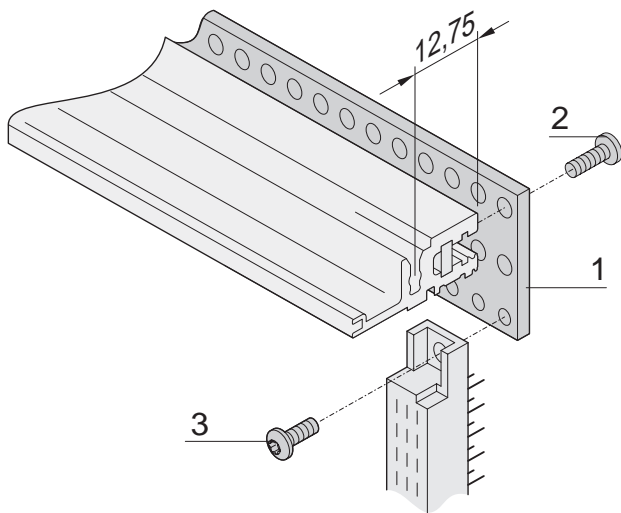
Depth D2 mm	Width HP	Qty/PU	Part no.
160	84	2	<b>24560-078</b>
220	84	2	<b>24560-079</b>
280	84	2	<b>24560-080</b>
340	84	2	<b>24560-081</b>



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

06102084

## Perforated rail for connector EN 60603-2/DIN 41612



- Insulated mounting of connectors (EN 60603-2/DIN 41612) on subracks (e.g. connector for a power supply unit)
- Perforated rails are bolted to the subrack for connector mounting (rear horizontal rail type ST, threaded insert fitted, insulation strip)

### Delivery comprises

Item	Qty	Description
1	4	Perforated rail, 2 mm, Al clear passivated, mounting holes 2.8 mm, fixing for connectors M2.5

### Order Information

Usable length HP	Length mm	Qty/PU	Part no.
28	142.24	4	<b>20822-049</b>
42	213.36	4	<b>20822-050</b>
60	304.8	4	<b>20822-047</b>
84	426.7	4	<b>20822-048</b>

**Item 2** Torx panhead screw for fixing perforated rails to the horizontal rail, M2.5 × 10, PU 100 pieces **24560-148**

**Item 3** Torx panhead screw to fix connector to perforated rail, M2.5 × 7, PU 100 pieces **24560-147**

- Connectors see page 11.4

## Z-rail for connector mounting

- in accordance with EN 60603-2 (DIN 41612)

### Delivery comprises

Item	Qty	Description
1	1	Z-rail, Al extrusion, anodised

### Order Information

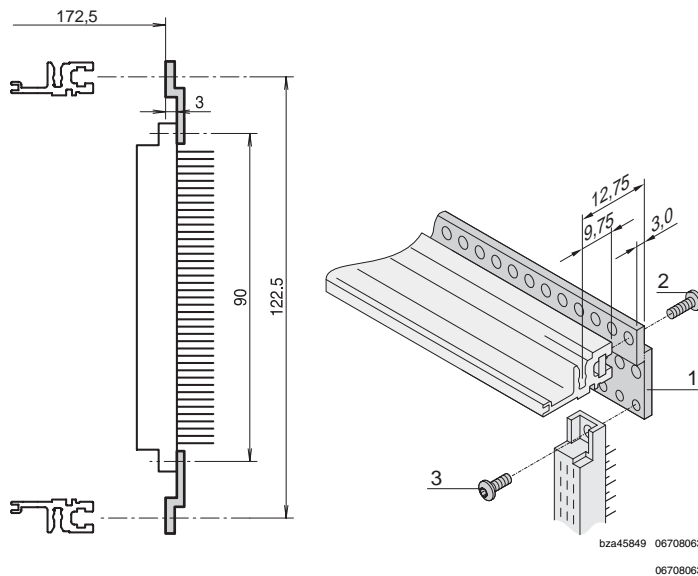
Usable length HP	Length mm	Part no.
28	142.24	<b>30822-033</b>
40	203.2	<b>30822-045</b>
42	213.36	<b>30822-047</b>
60	304.8	<b>30822-065</b>
84	426.7	<b>30822-089</b>

**Item 2** Torx panhead screw, M2.5 × 10, PU 100 pieces **24560-147**

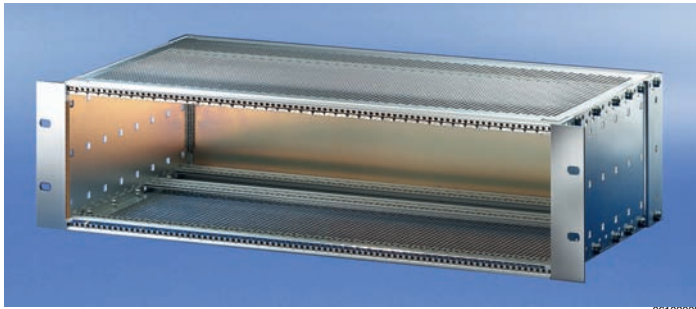
**Item 3** Torx panhead screw, M2.5 × 7, PU 100 pieces **24560-148**

### Note

- To fix Z-rail onto horizontal rail a threaded insert is needed, see page 6.32



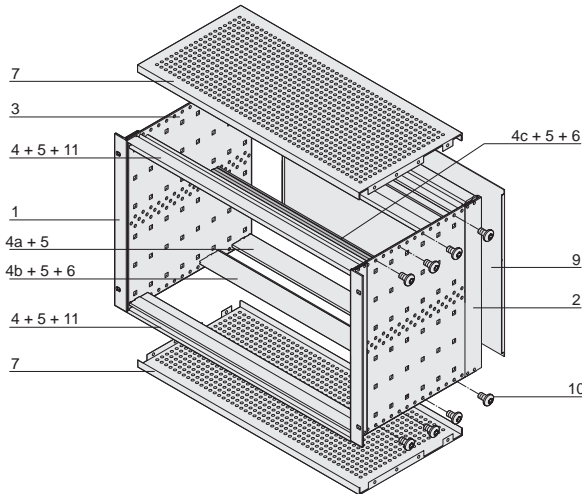
## Kit, shielded, "light", for backplane mounting



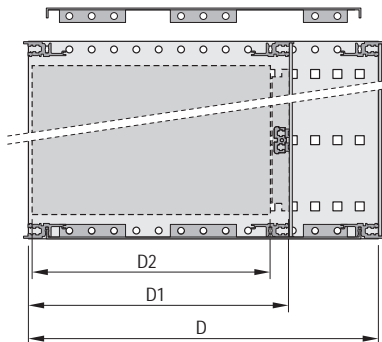
- Subrack in lightweight version ("light")
- Rear horizontal rail with insulation strip for backplane mounting
- Typical shielding 40 dB at 1 GHz, 30 dB at 2 GHz (in accordance with VG 95373, part 15), on condition that the front is sealed with shielded front panels

### Delivery comprises (Kit)

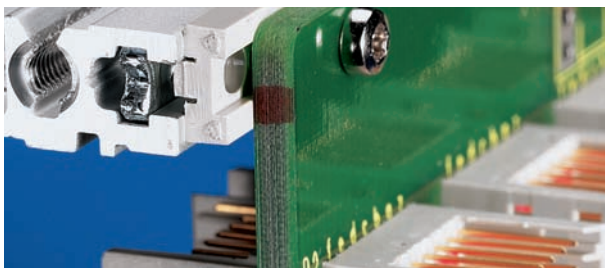
Item	Qty		Description
	3 U	6 U	
1	2	2	19" support bracket for <b>EMC textile gasket</b>
2	2	2	Corner profile to rear for <b>EMC textile gasket</b>
3	2	2	Side panel type F
4	2	2	Front horizontal rail (L-KD)
4 a	2	2	Rear horizontal rail (L-KD)
4 b	2	2	Rear horizontal rail (L-ST) for backplane mounting with insulation strip
4 c	-	1	Centre horizontal rail (ST)
5	6	8	Threaded insert (pre-fitted)
6	2	4	Insulation strip, fixed
7	2	2	EMC cover plate
8	1	1	EMC gasketing material (pre-fitted)
9	1	1	Rear panel
10	1	1	Assembly kit
11	2	2	Perforated strip (pre-fitted)
12	1	1	User manual



6 U



D=total depth, D1=insertion depth, D2=board depth



Rear horizontal rail with insulation strip for backplane mounting



ServicePLUS see page 6.16

### Order Information

Height U	Width HP	Depth D mm	Depth D1 mm	Depth D2 mm	Part no.
3	84	235	175/235	160/220	<b>24563-142</b>
3	84	295	175/235/295	160/220/280	<b>24563-143</b>
3	84	355	175/235/295	160/220/280	<b>24563-144</b>
3	84	415	175/235/295	160/220/280	<b>24563-145</b>
3	84	475	175/235/295	160/220/280	<b>24563-146</b>
6	84	235	175/235	160/220	<b>24563-442</b>
6	84	295	175/235/295	160/220/280	<b>24563-443</b>
6	84	355	175/235/295	160/220/280	<b>24563-444</b>
6	84	415	175/235/295	160/220/280	<b>24563-445</b>
6	84	475	175/235/295	160/220/280	<b>24563-446</b>

**Assembly kit, PU 8 x screw, washer, nut**  
for assembly of subracks in a 19" case or a cabinet **21100-435**

### Guide rails (standard), ESD clips

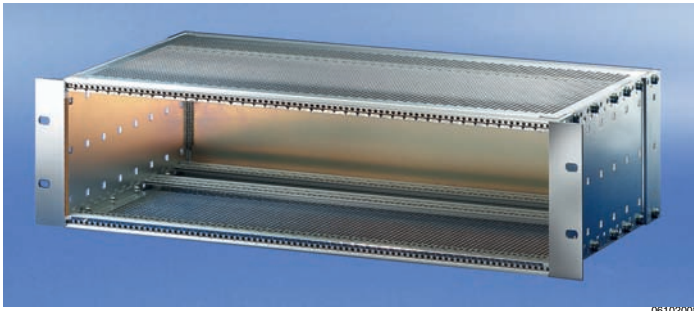
Depth D2 mm	Qty/PU	Part no.
160	10	<b>24560-351</b>
220	10	<b>24560-352</b>
280	10	<b>24560-371</b>
<b>ESD clip for guide rails PU 50 pieces</b>		<b>24560-251</b>

### Note

- Perforated rail for connectors see page 6.33
- Further accessories from page 6.57
- ServicePLUS configuration from page 6.16



## Kit, shielded, "heavy", for backplane mounting

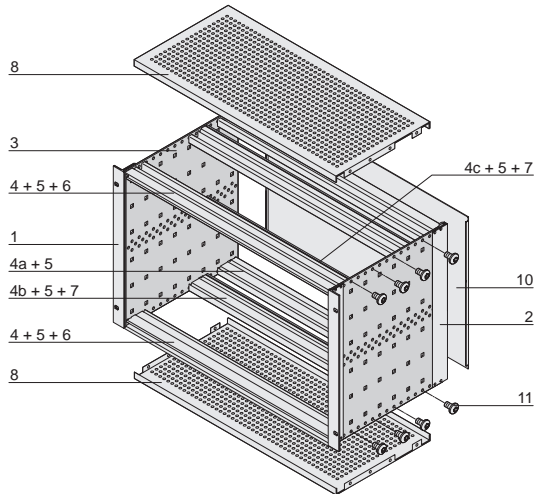


- Subrack in robust version ("heavy"), 19" bracket is firmly joined to side panel (Tox-cold welded)
- Rear horizontal rail with insulation strip for backplane mounting
- Typical shielding 40 dB at 1 GHz, 30 dB at 2 GHz (as to VG 95373, part 15), on condition that the front is sealed with shielded front panels
- Tested to German railway standard BN 411002, BN 411003

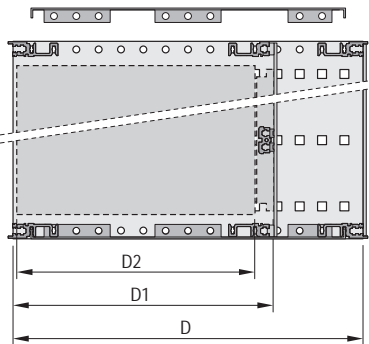
# NEW

### Delivery comprises (Kit)

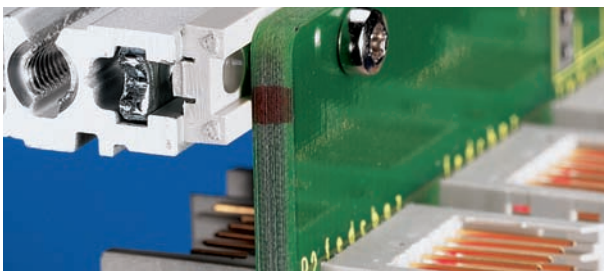
Item	Qty		Description
	3 U	6 U	
1	2	2	19" support bracket for <b>EMC textile gasket</b>
2	2	2	Corner profile to rear for <b>EMC textile gasket</b>
3	2	2	Side panel type H
4	2	2	Front horizontal rail (H-KD)
4 a	2	2	Rear horizontal rail (H-KD)
4 b	2	2	Rear horizontal rail (H-ST) with insulation strip for backplane mounting
4 c	-	1	Centre horizontal rail (ST)
5	6	8	Threaded insert (pre-fitted)
6	2	2	Perforated strip (pre-fitted)
7	2	4	Insulation strip (pre-fitted)
8	2	2	EMC cover plate
9	1	1	EMC gasketing material (pre-fitted)
10	1	1	Rear panel
11	1	1	Assembly kit
12	1	1	User manual



6 U



D=total depth, D1=insertion depth, D2=board depth



Rear horizontal rail with insulation strip for backplane mounting



ServicePLUS see page 6.16

### Order Information

Height U	Width HP	Depth D mm	Depth D1 mm	Depth D2 mm	Part no.
3	84	235	175/235	160/220	<b>24563-172</b>
3	84	295	175/235/295	160/220/280	<b>24563-173</b>
3	84	355	175/235/295	160/220/280	<b>24563-174</b>
6	84	235	175/235	160/220	<b>24563-472</b>
6	84	295	175/235/295	160/220/280	<b>24563-473</b>
6	84	355	175/235/295	160/220/280	<b>24563-474</b>

**Assembly kit, PU 8 x screw, washer, nut**  
for assembly of subracks in a 19" case or a cabinet **21100-435**

### Guide rails (standard), ESD clip

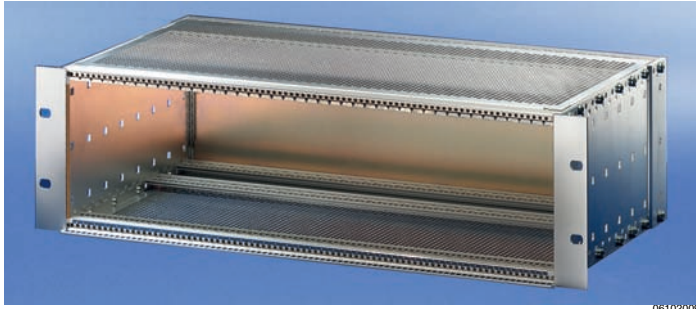
Depth D2 mm	Qty/PU	Part no.
160	10	<b>24560-351</b>
220	10	<b>24560-353</b>
280	10	<b>24560-379</b>

**ESD clip for guide rails PU 50 pieces** **24560-255**

**Torx panhead screw**, for extra bolting of the guide rails, 2.5 x 9.3, zinc-plated, PU 100 pieces **24560-141**

- Perforated rail for connectors see page 6.33
- Further accessories from page 6.57
- ServicePLUS configuration from page 6.16

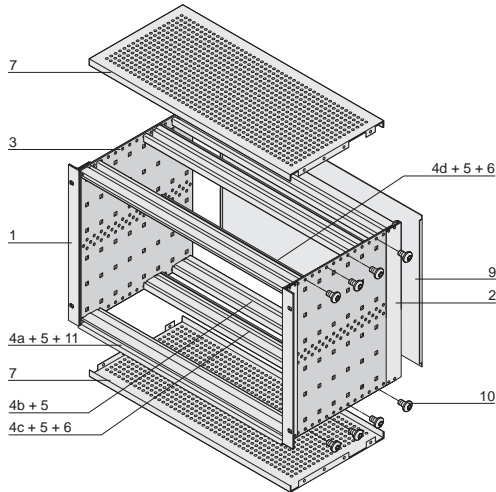
## Kit, shielded, for CompactPCI, for backplane mounting, without rear I/O



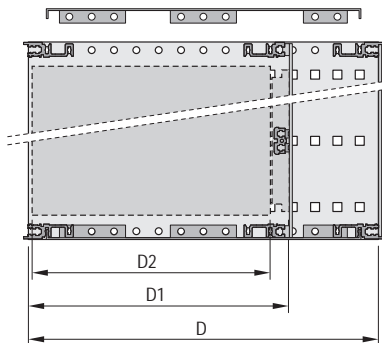
- Subrack in robust version ("heavy") for CompactPCI plug-in units with high insertion and withdrawal forces in accordance with IEEE 1101.10 and IEC 60297-3-103
- Rear horizontal rail with insulation strip for backplane mounting
- Typical shielding 40 dB at 1 GHz, 30 dB at 2 GHz (in accordance with VG 95373, part 15), on condition that the front is sealed with shielded front panels

### Delivery comprises (kit)

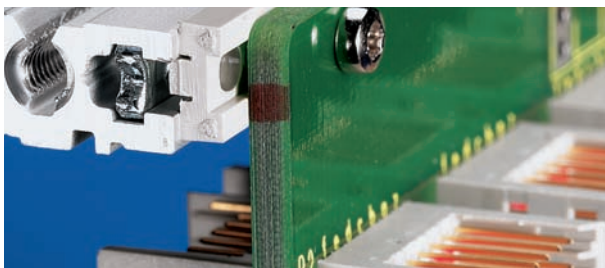
Item	Qty		Description
	3 U	6 U	
1	2	2	19" support bracket for <b>EMC textile gasket</b>
2	2	2	Corner profile to rear for <b>EMC textile gasket</b>
3	2	2	Side panel type F
4	1	-	Front horizontal rail (H-KD)
4 a	1	2	Front horizontal rail IEEE (H-LD)
4 b	2	2	Rear horizontal rail (L-KD)
4 c	2	2	Rear horizontal rail (H-ST) with insulation strip for backplane mounting
4 d	-	1	Centre horizontal rail (ST)
5	6	8	Threaded insert (pre-fitted)
6	2	4	Insulation strip (pre-fitted)
7	2	2	EMC cover plate
8	1	1	EMC gasketing material (pre-fitted)
9	1	1	rear panel
10	1	1	Assembly kit
11	2	2	Perforated strip (pre-fitted in items 4+4a)
12	1	1	User manual



06102078



D=total depth, D1=insertion depth, D2=board depth



Rear horizontal rail with insulation strip for backplane mounting



ServicePLUS see page 6.16

### Order Information

Height U	Width HP	Depth D mm	Depth D1 mm	Depth D2 mm	Part no.
3	84	235	175	160	<b>24563-152</b>
6	84	235	175	160	<b>24563-452</b>
<b>Guide rails with coding, red</b> 160 mm deep, PBT, UL 94 V-0, groove width 2 mm, PU 10 pieces					<b>24560-356</b>
<b>Guide rails with coding, grey</b> 160 mm deep, PBT, UL 94 V-0, groove width 2 mm, PU 10 pieces					<b>24560-358</b>
<b>Guide rails with coding, green, offset</b> 160 mm deep, PBT, UL 94 V-0, groove width 2 mm, PU 10 pieces					<b>24560-359</b>
<b>ESD clip for guide rails</b> PU 50 pieces					<b>24560-255</b>
<b>ESD clip for alignment pin of CPC/VM64x handle</b> PU 50 pieces					<b>24560-256</b>
<b>Tory panhead screw</b> 2.5 x 9.3, zinc-plated, PU 100 pieces					<b>24560-141</b>
<b>Coding peg</b> PC, UL 94 V-0, RAL 7035, PU 100 pieces					<b>20817-501</b>
<b>Assembly set, PU 8 x screw, washer, nut</b> for assembly of subracks in a 19" case or a cabinet					<b>21100-435</b>

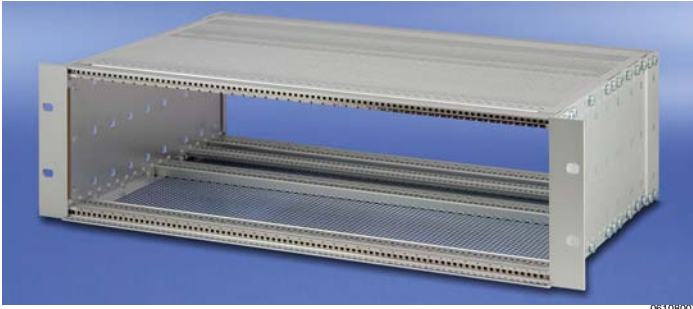
06108060

### Note

- If backplanes and connectors have to be assembled, please order perforated rail for connector separately, see page 6.33
- Further accessories from page 6.57
- ServicePLUS configuration from page 6.16

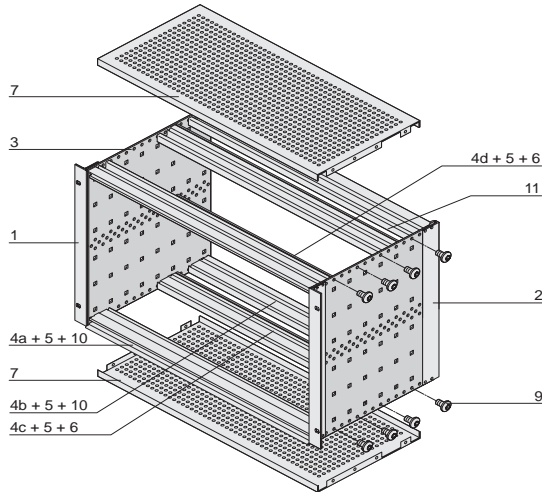
04400001

## Kit, shielded, for CompactPCI, for backplane mounting, rear I/O



06108007

- Subrack in robust version ("heavy") for CompactPCI plug-in units with high insertion and withdrawal forces in accordance with IEEE 1101.10 and IEC 60297-3-103
- For rear I/O boards (depth 80 mm)
- Rear horizontal rail with insulation strip for backplane mounting
- Typical shielding 40 dB at 1 GHz, 30 dB at 2 GHz (in accordance with VG 95373, part 15), on condition that the front is sealed with shielded front panels

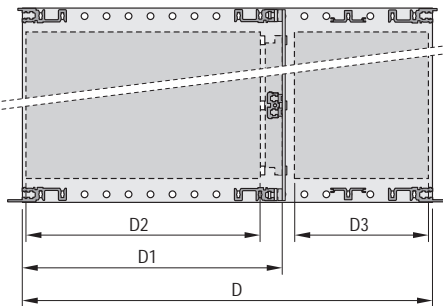


06105076

### Delivery comprises (kit)

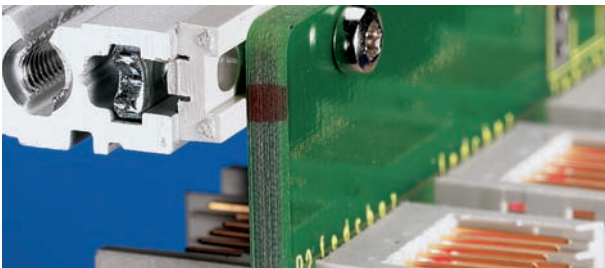
Item	Qty		Description
	3 U	6 U	
1	2	2	19" support bracket for <b>EMC textile gasket</b>
2	2	2	Corner profile to rear for <b>EMC textile gasket</b>
3	2	2	Side panel type F
4	1	-	Front horizontal rail (H-KD)
4 a	1	2	Front horizontal rail IEEE (H-LD)
4 b	2	2	Rear horizontal rail (L-KD)
4 c	2	2	Rear horizontal rail (H-ST) with insulation strip for backplane mounting
4 d	-	1	Centre horizontal rail (ST)
5	6	8	Threaded insert (pre-fitted)
6	2	4	Insulation strip, fixed
7	2	2	EMC cover plate
8	1	1	EMC gasketing material (pre-fitted)
9	1	1	Assembly kit
10	2	2	Perforated strip (pre-fitted)
11	2	2	Horizontal rail type AB
12	1	1	User manual

6 U



06108075

D=Overall depth, D1=insertion depth, D2=board depth  
D3=board depth rear I/O



04400001

Rear horizontal rail with insulation strip for backplane mounting

### Order Information

Height U	Width HP	Depth D mm	Tiefe D1 mm	Tiefe D2 mm	Tiefe D3 mm	Part no.
3	84	275	175	160	80	<b>24563-157</b>
6	84	275	175	160	80	<b>24563-457</b>
Torx panhead screw M2.5 x 9.3, zinc-plated, PU 100 pieces						<b>24560-141</b>
Coding peg PC, UL 94 V-0, RAL 7035, PU 100 pieces						<b>20817-501</b>
Assembly kit, PU 8 x screw, washer, nut for assembly of subracks in a 19" case or a cabinet						<b>21100-435</b>

### Note

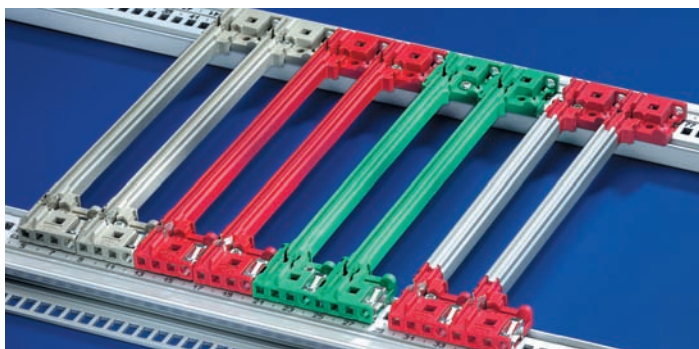
- Please order guide rails and ESD clips separately, see page 6.15
- If backplanes and connectors have to be assembled, please order perforated rail for connector separately, see page 6.33
- Further accessories from page 6.57
- ServicePLUS configuration from page 6.16



ServicePLUS see page 6.16

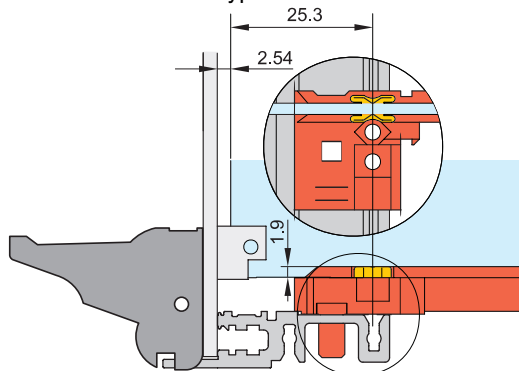


## Guide rails with coding for CompactPCI and VME64x



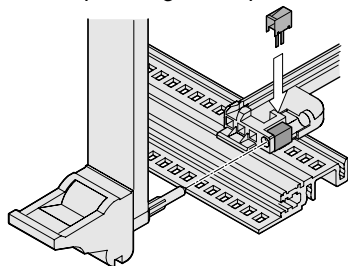
06102003

Guide rails on horizontal rail type H



04505050

ESD clip for alignment pin



- The guide rails conform to IEC 60297-3-100 and IEEE 1101.10/11, are 4 HP wide and can be equipped with coding pegs
- Material PBT UL 94 V-0, groove width 2 mm, for board thickness 1.6 mm
- Colour:
  - red (CPU board)
  - grey (periphery board)
  - green (CompactPCI power supply, 0.1" offset)

### Order Information

Description	Depth mm	Qty/PU	Part no.
Guide rails with coding, red	70	10	<b>24560-355</b>
Guide rails with coding, grey	70	10	<b>24560-360</b>
Guide rails with coding, red	160	10	<b>24560-356</b>
Guide rails with coding, grey	160	10	<b>24560-358</b>
Guide rails with coding, green, offset	160	10	<b>24560-359</b>
<b>ESD clip for guide rails</b> PU 50 pieces			<b>24560-255</b>
<b>ESD clip for alignment pin of CPCI/VME64x handle</b> PU 50 pieces			<b>24560-256</b>
<b>Torx panhead screw 2.5 × 9.3, zinc-plated,</b> PU 100 pieces			<b>24560-141</b>
<b>Coding peg PC, UL 94 V-0, RAL 7035,</b> PU 100 pieces			<b>20817-501</b>

### Note

- Guide rails with a depth of 70 mm are needed for 80 mm deep rear I/O boards
- More guide rails see page 6.34
- IEL/IET handle for CompactPCI/VME64x handles see chapter Sub-assemblies/plug-in units, page 7.18



06103052

For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



## configuration

## Simple. Fast. To the ideal product.

Components can be varied and combined freely

- Configuration tables from page 6.17
- Online configuration: [www.schroff.co.uk/configuration](http://www.schroff.co.uk/configuration)



## assembly

## Assembled by professionals. Double benefit!

Fitting of all mechanical, electrical and electronic components by our specialists

- Professionally and reliable from quantity 1
- Ready for despatch within 5 working days
- Further information: [www.schroff.co.uk/assembly](http://www.schroff.co.uk/assembly)



## modification

## Small changes. Large impact.

Custom drilling, cut-outs and special colours for off-the-shelf products

- Customized modifications from 1 piece
- Ready for despatch within 10 working days
- Further information: [www.schroff.co.uk/modification](http://www.schroff.co.uk/modification)



## solution

## Simple. Fast. From one source.

Integration and custom developments

- Special sizes (depth and width)
- Individual thermal concepts
- Ready for despatch within 10 working days
- Further information: [www.schroff.co.uk/solution](http://www.schroff.co.uk/solution)



## express

## When fast has to be faster.

Delivery time to customer's request

- Express logistics
- Further information: [www.schroff.co.uk/express](http://www.schroff.co.uk/express)

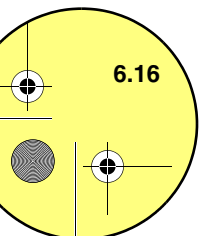


## academy

## Knowledge. Sharing. Partnerships.

Knowledge transfer and partnership

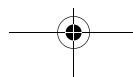
- Seminars, CAD drawings, test reports, user reports
- Further information: [www.schroff.co.uk/academy](http://www.schroff.co.uk/academy)



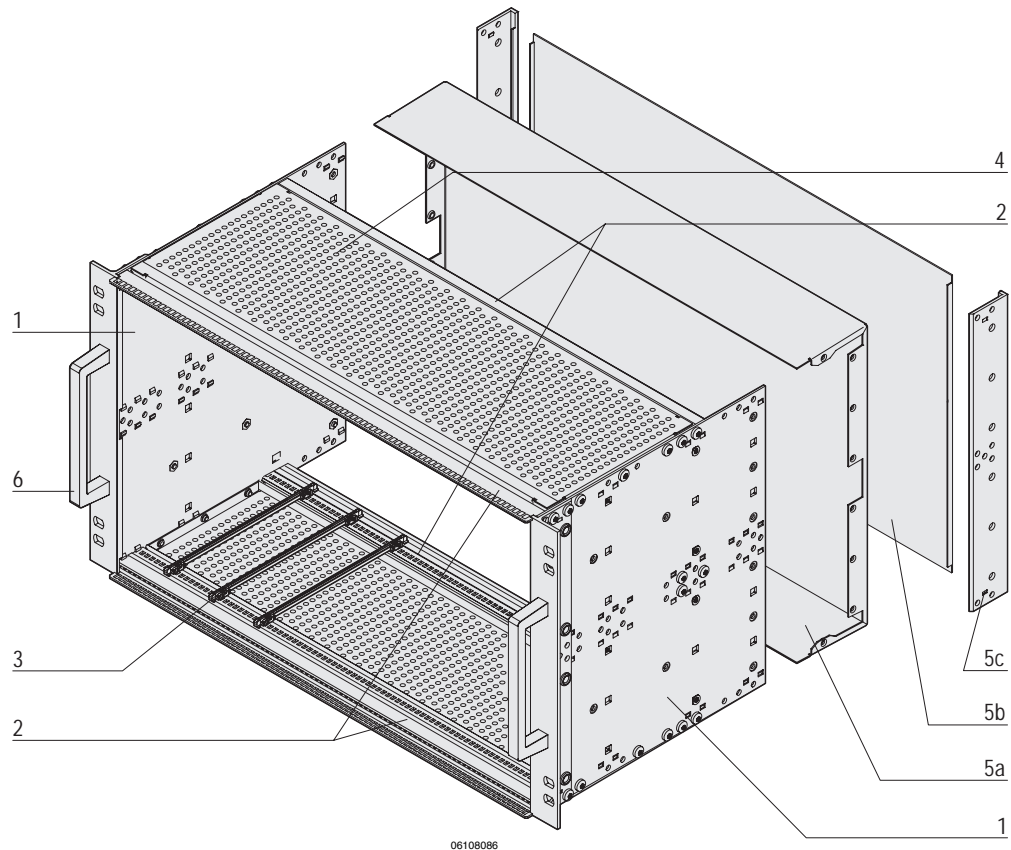
6.16

Main Catalogue  
E 03/2009

Part number in bold face type: ready for despatch within 2 working days  
Part number in normal type: ready for despatch within 10 working days



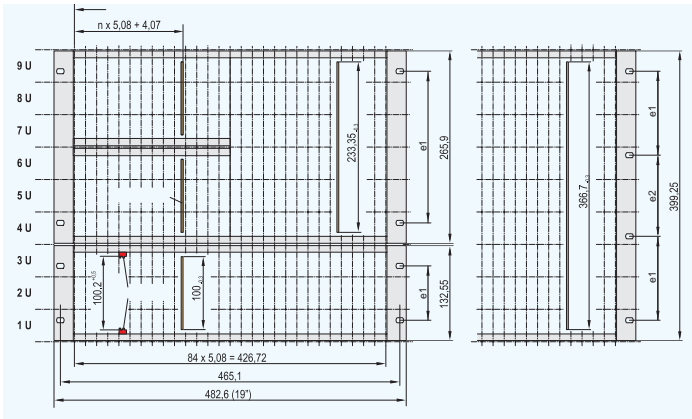
## Overview of individual components for shielded or unshielded sub racks



Item	Description	Description	Page
Item 1	Side panel	Establishes the height and depth of the sub rack; Al, 2 mm, with universal hole positions for assembly of accessories. In three versions: The "flexible" one with separate 19" brackets as well as two others with integrated 19" brackets for "light" and "heavy" applications.	6.19
Item 2	Horizontal rail	Establishes the width of the sub rack; Al extrusion, with defined hole positions for guide rails, grooves for threaded inserts, M4 thread at front, functional rail shapes, basically differing with regard to their mechanical loading capacity: "light" (load up to 7.5 kg) and "heavy" (load > 7.5 kg).	6.26
Item 3	Guide rails	Guide rails serve as interface between sub racks and boards, for different PCB formats, are from plastic or metal, optionally codable and can, also optionally, be assembled with ESD clips to deflect electrostatic discharge.	6.34
Item 4	Cover plates	Provide mechanical protection and/or EMC shielding and are perforated.	6.42
Item 5	Rear/front	Rear hood (5a) or front panel (5b) with corner profiles (5c) as carriers for EMC seals in combination with use of shielded front panels. Note: Rear hood and corner profile cannot be fitted simultaneously.	6.46
Item 6	Handles	Handles can be mounted on the 19" brackets.	6.25
-	EMC shielding (without illustration)	Extensive component range for specific shielding of sub rack according to your application.	6.51
-	Internal mounting (without illustration)	Universal assemblies, e.g. for horizontal and vertical mounting and for mounting plates.	6.57



## Subrack dimensions



20304051

■ Dimensions conform to international standards EC 60297-3-100, IEEE 1101.1/.10/.11; please see the Schroff Standards Summary for details

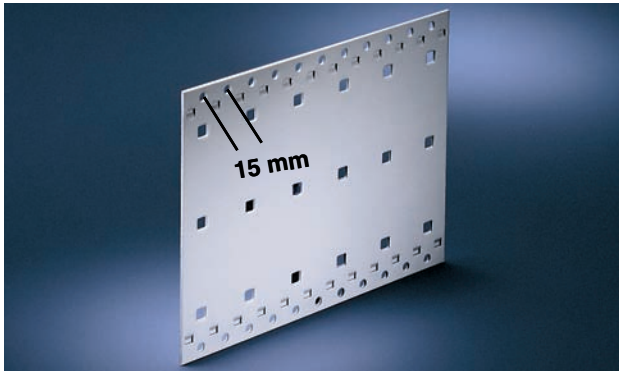
### ■ Side panels

- Aluminium, 2 mm
- Round holes for mounting horizontal rails (depth grid 15 mm)
- Impressions on the inner side of the side panel act as an anti-rotation guard and aid positioning of the horizontal rails
- Square holes (6 x 6 mm) provide universal fixing for components such as backplane shielding; version without square holes available on request

### Description

#### Depth grid

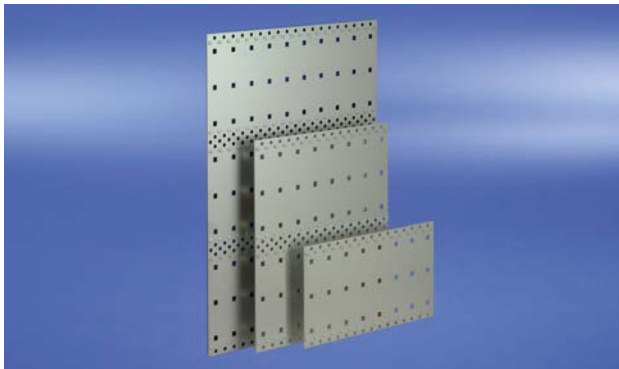
The depth grid is 15 mm, the mounting holes in the side panel are decisive for the configurability of individual components; thus any combinations of various individual parts are possible



06103001

#### Side panel 3 U, 6 U and 9 U

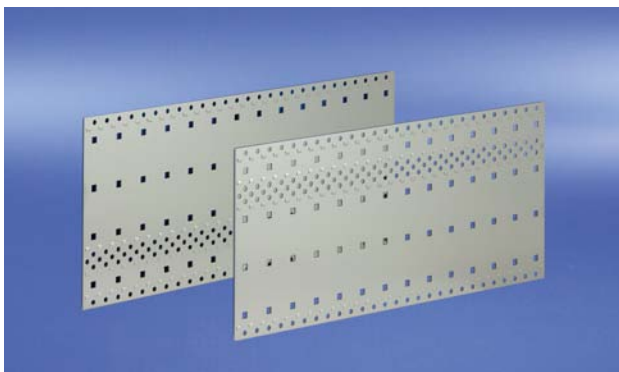
3 and 6 U side panels have the same hole positions (the 6 U is a doubling vertically of the 3 U); thus subdivisions can be made in the vertical dimension (6 U: 2 x 3 U; 9 U: 3 x 3 U)



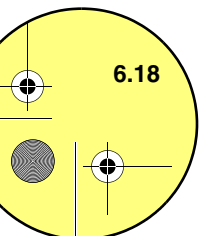
06108008

#### Side panel 4 U

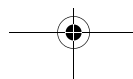
4 U side panels have the same hole positions as 3 U and additionally 1 U (above or beneath the 3 U installation); this height allows the construction of a 3 U unit with 1 U clearance for cabling or airflow



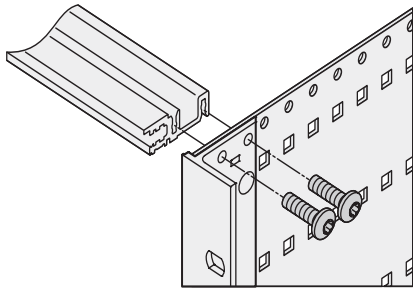
06108011



**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



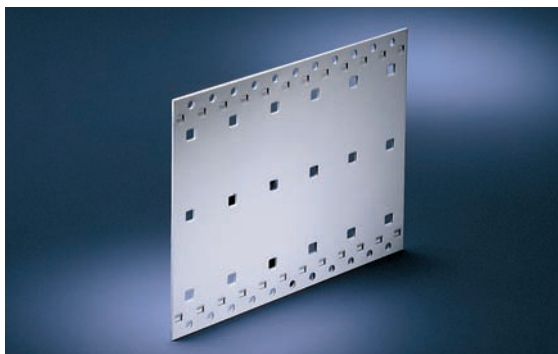
## Side panels



Side panel - horizontal rail assembly

- Aluminium, 2 mm
- Holes for assembly of horizontal rails (depth grid 15 mm)
- The stampings on the internal surface of the side panels serve as anti-rotation guard and to position the horizontal rails
- Square holes (6 x 6 mm) serve for universal fixture of components like backplane shielding; version without square holes available on request
- Only one type of screw driver is needed for the assembly (Torx panhead screw, M4 x 14; torque side panel - horizontal rail 2.4 Nm; torque side panel - cover plate 1.3 Nm)
- 3 versions of the side panel:
  - **Type F = flexible**
  - **Type H = heavy**
  - **Type L = light**

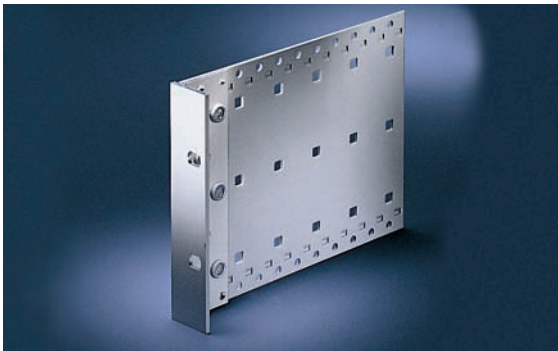
06108062



### Type F (flexible)

- Universal version: 19"-bracket (please order separately) can be fitted variably to front, rear or recessed
- Heights: 3, 4, 6 and 9 U  
depths: 175, 235, 275, 277.75, 295, 355, 415 and 475 mm  
other dimensions available on request
- 2 EMC shielding concepts for front/rear side:  
EMC gasketing (stainless steel or textile gaskets)

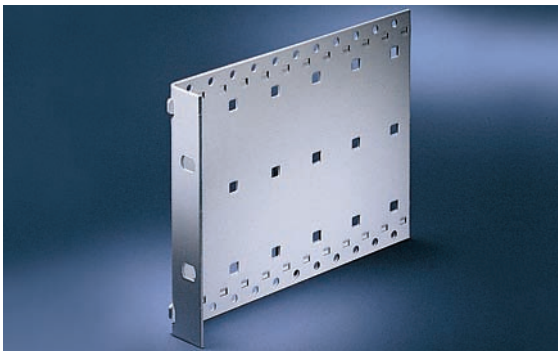
06197003



### Type H (heavy)

- 19" bracket Tox-cold welded to side panel; specifically intended for demanding mechanical conditions (vibration resistance; shock and vibration requirements, e.g. IEC 61587-2)
- Heights: 3 and 6 U  
depths: 175, 235, 295 and 355 mm  
other dimensions available on request
- 2 EMC shielding concepts for front/rear side:  
EMC gasketing (stainless steel or textile gaskets)

06197004



### Type L (light)

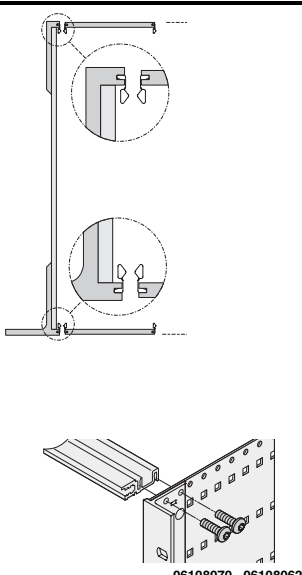

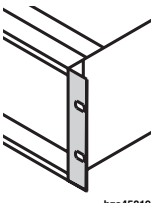
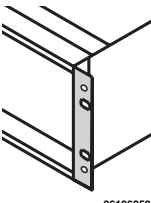
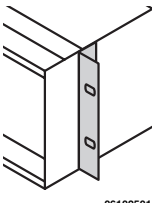
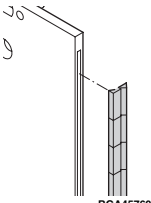
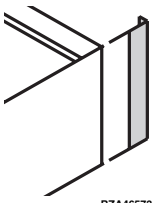
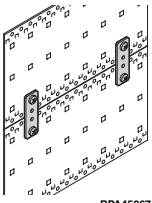
- Side panel with formed 19" brackets, for standard applications, unshielded
- Particularly cost-effective versions (not suited for EMC applications)
- Heights: 3 and 6 U  
depths: 175, 235 and 295 mm  
other dimensions available on request

06197002

## Type F

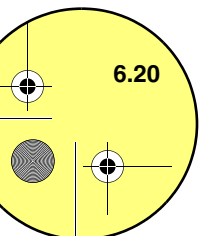
## Side panel type F for stainless steel EMC gasket

### Order Information

		 06197003 without 19" bracket, Al, 2 mm, passivated, please order 19" bracket and corner profile separately	 bza45819 with lateral grooves for EMC stainless steel gasket, Al extrusion, rear side etched, front anodised	 06106050 with lateral grooves for stainless steel EMC gasket, Al extrusion, rear side etched, front anodised, please order front handles separately, see page 6.25	 06102501 Al extrusion, passivated	 BGA45760 inserted laterally into the slots of the front panel, stainless steel	 BZA46573 Al extrusion, surface clear passivated; with lateral grooves for EMC stainless steel gasket; rear hood cannot be mounted simultaneously	 BPA45867 Zn die-cast, incl. assembly kit, for linking two by two side panels (above one another)
Height	Depth	1 piece	PU 1 pair	PU 1 pair	PU 1 pair	PU 10 pieces	PU 1 pair	PU 4 pieces
U	mm							
3	175	<b>34560-185</b>						
3	235	<b>34560-187</b>						
3	275	1) <b>34579-300</b>						
3	277.75	2) <b>34579-002</b>	<b>24560-197</b>	<b>24560-198</b>	<b>24560-199</b>	<b>21101-705</b>	<b>24561-198</b>	<b>21101-954</b>
3	295	<b>34560-189</b>						
3	355	<b>34560-191</b>						
3	415	<b>34560-193</b>						
3	475	<b>34560-195</b>						
4	175	3) <b>34560-285</b>						
4	235	3) <b>34560-287</b>						
4	295	3) <b>34560-289</b>	<b>24560-297</b>	<b>24560-298</b>	<b>24560-299</b>	<b>21101-713</b>	<b>24561-298</b>	<b>21101-954</b>
4	355	3) <b>34560-291</b>						
4	415	3) <b>34560-293</b>						
4	475	3) <b>34560-295</b>						
6	175	<b>34560-485</b>						
6	235	<b>34560-487</b>						
6	275	1) <b>34579-038</b>						
6	277.75	2) <b>34579-012</b>	<b>24560-497</b>	<b>24560-498</b>	<b>24560-499</b>	<b>21101-707</b>	<b>24561-498</b>	<b>21101-954</b>
6	295	<b>34560-489</b>						
6	355	<b>34560-491</b>						
6	415	<b>34560-493</b>						
6	475	<b>34560-495</b>						
6	970	<b>34560-496</b>						
9	175	<b>34560-785</b>						
9	235	<b>34560-787</b>						
9	295	<b>34560-789</b>	<b>24560-797</b>	<b>24560-798</b>	<b>24560-799</b>	<b>21101-709</b>	<b>24561-798</b>	<b>21101-954</b>
9	355	<b>34560-791</b>						
9	415	<b>34560-793</b>						
Screw, M4 x 14, PU 100 pieces for assembly of horizontal rails on side panels		<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>	—	<b>24560-130</b>	—

1) CompactPCI 2) VME64x 3) Grid holes of side panel 3 + 1 U

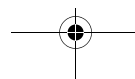
■ View of side panels 3, 4, 6, 9 U see page 6.18



6.20

Main Catalogue  
E 03/2009

Part number in bold face type: ready for despatch within 2 working days  
Part number in normal type: ready for despatch within 10 working days

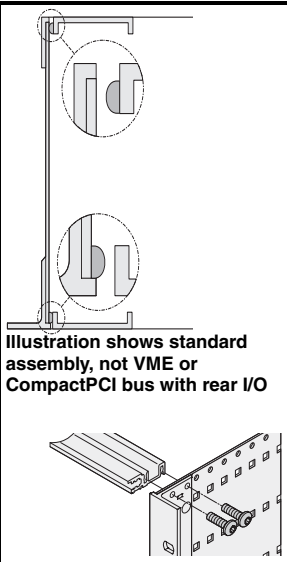

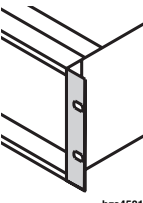
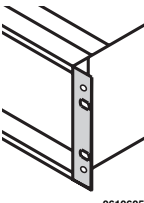
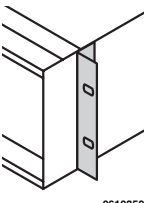
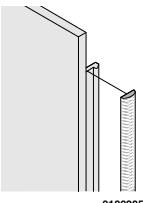
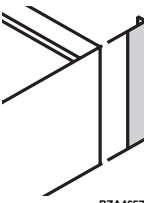
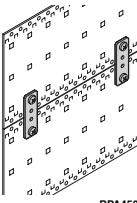




## Type F

## Side panels type F for textile EMC gasket

### Order Information

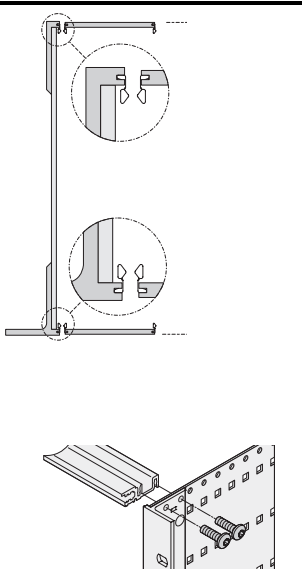


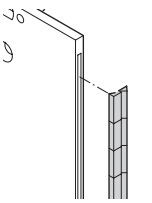
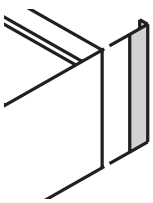
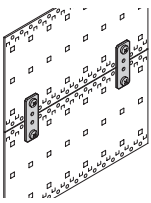
 <p>Illustration shows standard assembly, not VME or CompactPCI bus with rear I/O</p>		 <p>Side panel type F</p>	 <p>19" bracket without handle holes</p>	 <p>19" bracket with handle holes</p>	 <p>19" bracket depth-adjustable</p>	 <p>EMC gasket (textile)</p>	 <p>Rear angle</p>	 <p>Side panel connection</p>
Height U	Depth mm							
3	175	<b>34560-185</b>						
3	235	<b>34560-187</b>						
3	275 1)	<b>34579-300</b>						
3	277.75 2)	<b>34579-002</b>	<b>24564-197</b>	<b>24564-198</b>	<b>24560-199</b>	<b>21101-853</b>	<b>24564-199</b>	<b>21101-954</b>
3	295	<b>34560-189</b>						
3	355	<b>34560-191</b>						
3	415	<b>34560-193</b>						
3	475	<b>34560-195</b>						
4	175 3)	<b>34560-285</b>						
4	235 3)	<b>34560-287</b>						
4	295 3)	<b>34560-289</b>	<b>24564-297</b>	<b>24564-298</b>	<b>24560-299</b>	<b>21101-858</b>	<b>24564-299</b>	<b>21101-954</b>
4	355 3)	<b>34560-291</b>						
4	415 3)	<b>34560-293</b>						
4	475 3)	<b>34560-295</b>						
6	175	<b>34560-485</b>						
6	235	<b>34560-487</b>						
6	275 1)	<b>34579-038</b>						
6	277.75 2)	<b>34579-012</b>						
6	295	<b>34560-489</b>	<b>24564-497</b>	<b>24564-498</b>	<b>24560-499</b>	<b>21101-855</b>	<b>24564-499</b>	<b>21101-954</b>
6	355	<b>34560-491</b>						
6	415	<b>34560-493</b>						
6	475	<b>34560-495</b>						
6	970	<b>34560-496</b>						
9	175	<b>34560-785</b>						
9	235	<b>34560-787</b>						
9	295	<b>34560-789</b>	<b>24564-797</b>	<b>24564-798</b>	<b>24560-799</b>	<b>21101-859</b>	<b>24564-799</b>	<b>21101-954</b>
9	355	<b>34560-791</b>						
9	415	<b>34560-793</b>						
Screw, M4 x 14, PU 100 pieces for assembly of horizontal rails on side panels		<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>	—	<b>24560-130</b>	—

1) CompactPCI 2) VME64x 3) Grid holes of side panel 3 + 1 U

## Type H

## Side panels type H for stainless steel EMC gasket

### Order Information

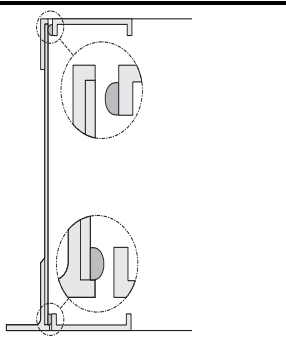


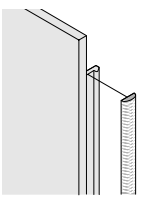
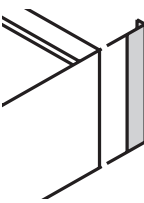
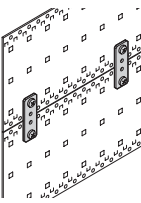
		Side panel type H for EMC gasket			Rear angle	Side panel connection
		without handle holes	with handle holes	EMC gasket (stainless steel)		
		 06107001 for high mechanical demands, 19" bracket Tox-cold welded, Al, 2 mm, clear passivated, front anodised	 06107001 for high mechanical demands, 19" bracket Tox-cold welded, Al, 2 mm, passivated, front anodised, please order front handles separately see page 6.25	 BGA45760 inserted laterally into the slots of the front panel	 BZA46573 Al extrusion, surface clear passivated; with lateral grooves for EMC stainless steel gasket; rear hood cannot be mounted simultaneously	 BPA45867 Zn die-cast, incl. assembly kit, for linking two by two side panels (above one another)
Height	Depth	PU 1 pair	PU 1 pair	PU 10 pieces	PU 1 pair	PU 4 pieces
<b>U</b>	<b>mm</b>					
3	175	<b>24566-125</b>	<b>24567-125</b>			
3	235	<b>24566-127</b>	<b>24567-127</b>			
3	275 1)	–	–			
3	277.75 2)	–	–			
3	295	<b>24566-129</b>	<b>24567-129</b>	<b>21101-705</b>	<b>24561-198</b>	<b>21101-954</b>
3	355	<b>24566-131</b>	<b>24567-131</b>			
3	415	–	–			
3	475	–	–			
4	175 3)					
4	235 3)					
4	295 3)	–	–	–	–	–
4	355 3)					
4	415 3)					
4	475 3)					
6	175	<b>24566-425</b>	<b>24567-425</b>			
6	235	<b>24566-427</b>	<b>24567-427</b>			
6	275 1)	–	–			
6	277.75 2)	–	–			
6	295	<b>24566-429</b>	<b>24567-429</b>	<b>21101-707</b>	<b>24561-498</b>	<b>21101-954</b>
6	355	<b>24566-431</b>	<b>24567-431</b>			
6	415	–	–			
6	475	–	–			
6	970	–	–			
9	175					
9	235					
9	295	–	–	–	–	–
9	355					
9	415					
Screw, M4 x 14, PU 100 pieces for assembly of horizontal rails on side panels		<b>24560-130</b>	<b>24560-130</b>	–	<b>24560-130</b>	–

1) CompactPCI 2) VME64x 3) Grid holes of side panel 3 + 1 U

## Type H

## Side panels type H for textile EMC gasket

### Order Information

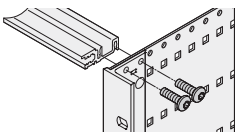

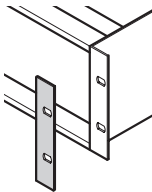
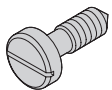
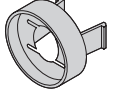
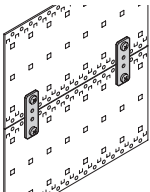
Illustration shows standard assembly, not VME or CompactPCI bus with rear I/O		Side panel type H		EMC gasket (textile)	Rear angle	Side panel connection
		without handle holes	with handle holes			
 <p>06107001 06107001</p>		 <p>06107001</p>	 <p>06107001</p>	 <p>01802056</p>	 <p>BZA46573</p>	 <p>BPA45867</p>
<p>for high mechanical demands, 19" bracket Tox-cold welded, Al, 2 mm, clear passivated, front anodised</p>		<p>for high mechanical demands, 19" bracket Tox-cold welded, Al, 2 mm, passivated, front anodised, please order front handles separately see page 6.25</p>		<p>textile gasket, core: foam, sleeve: textile cladding with CuNi coating, UL 94 V-0, temperature range -40 ... 70 °C</p>	<p>Al extrusion, etched; for EMC textile gasket</p>	<p>Zn die-cast, incl. assembly kit, for linking two by two side panels (above one another)</p>
<b>Height</b>	<b>Depth</b>	<b>PU 1 pair</b>	<b>PU 1 pair</b>	<b>PU 10 pieces</b>	<b>PU 1 pair</b>	<b>PU 4 pieces</b>
<b>U</b>	<b>mm</b>					
3	175	<b>24564-145</b>	<b>24566-145</b>			
3	235	<b>24564-147</b>	<b>24566-147</b>			
3	275 1)	–	–			
3	277.75 2)	–	–			
3	295	<b>24564-149</b>	<b>24566-149</b>	<b>21101-853</b>	<b>24564-199</b>	<b>21101-954</b>
3	355	<b>24564-151</b>	<b>24566-151</b>			
3	415	–	–			
3	475	–	–			
4	175 3)					
4	235 3)					
4	295 3)	–	–			
4	355 3)					
4	415 3)					
4	475 3)					
6	175	<b>24564-445</b>	<b>24566-445</b>			
6	235	<b>24564-447</b>	<b>24566-447</b>			
6	275 1)	–	–			
6	277.75 2)	–	–			
6	295	<b>24564-449</b>	<b>24566-449</b>	<b>21101-855</b>	<b>24564-499</b>	<b>21101-954</b>
6	355	<b>24564-451</b>	<b>24566-451</b>			
6	415	–	–			
6	475	–	–			
6	970	–	–			
9	175					
9	235					
9	295	–	–			
9	355					
9	415					
Screw, M4 x 14, PU 100 pieces for assembly of horizontal rails on side panels		<b>24560-130</b>	<b>24560-130</b>	–	<b>24560-130</b>	–

1) CompactPCI 2) VME64x 3) Grid holes of side panel 3 + 1 U



## Type L Side panels type L

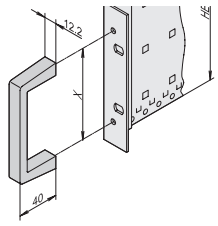
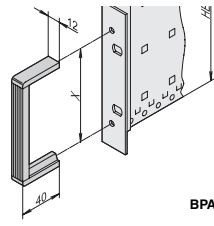
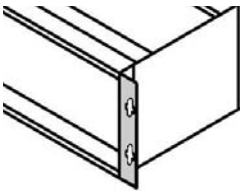
### Order Information

		Side panel type L	Front cover	Collar screw with slot for assembly of front cover	Sleeves for assembly of front cover	Side panel connection
 0610862		 06197002 Al, 2 mm, passivated	 BZA45810 for decorative finish of 19" bracket, Al, 2 mm, anodised	 06708055 M6 x 16, St, nickel-plated	 00508056 PPE, black	 BPA45867 Zn die-cast, incl. assembly kit, for linking two by two side panels (above one another)
Height U	Depth mm	1 piece	1 piece	PU 100 pieces	PU 100 pieces	PU 4 pieces
3	175	<b>34561-185</b>				
3	235	<b>34561-187</b>				
3	275	1)				
3	277.75	2)				
3	295	<b>34561-189</b>	<b>34561-197</b>	<b>21100-565</b>	<b>21100-566</b>	<b>21101-954</b>
3	355	-				
3	415	-				
3	475	-				
4	175	3)				
4	235	3)				
4	295	3)				
4	355	3)				
4	415	3)				
4	475	3)				
6	175	<b>34561-485</b>				
6	235	<b>34561-487</b>				
6	275	1)				
6	277.75	2)				
6	295	<b>34561-489</b>	<b>34561-497</b>	<b>21100-565</b>	<b>21100-566</b>	<b>21101-954</b>
6	355	-				
6	415	-				
6	475	-				
6	970	-				
9	175					
9	235					
9	295					
9	355					
9	415					
Screw, M4 x 14, PU 100 pieces for assembly of horizontal rails on side panels		<b>24560-130</b>	-	-	-	-

1) CompactPCI 2) VME64x 3) Grid holes of side panel 3 + 1 U

## Front handles, wall-mounting bracket

### Order Information

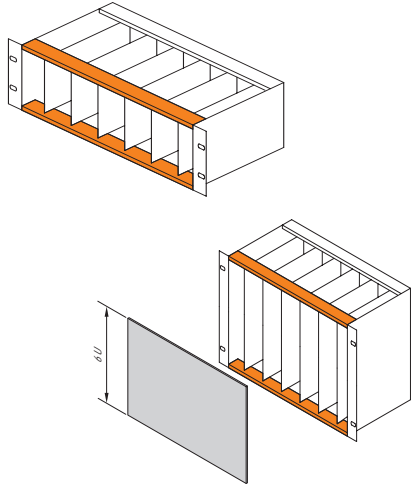
Height U	Depth mm	X mm	Front handle		Universal front handle	Wall-mounting bracket
			clear anodised	black anodised		
						
			<p>BZA42327</p>		<p>BPA45855</p> <p>3 parts: Al extrusion, anodised, 2 end pieces, plastic, PA, black width 12 mm, depth 40 mm</p>	<p>0610406</p> <p>Screw fixed on the subrack instead of the 19" bracket, Al, 2.5 mm, passivated</p>
			1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	PU 1 pair
3	175	88.0	<b>10501-005</b>	<b>10501-026</b>	<b>10502-057</b>	<b>24562-197</b>
3	235	88.0				
3	275	88.0				
3	277.75	88.0				
3	295	88.0				
3	355	88.0				
3	415	88.0				
3	475	88.0				
4	175	133.4	<b>10501-018</b>	-	<b>10502-059</b>	<b>24562-297</b>
4	235	133.4				
4	295	133.4				
4	355	133.4				
4	415	133.4				
4	475	133.4				
6	175	235.0	<b>10501-008</b>	<b>10501-029</b>	<b>10502-065</b>	<b>24562-497</b>
6	235	235.0				
6	275	235.0				
6	277.75	235.0				
6	295	235.0				
6	355	235.0				
6	415	235.0				
6	475	235.0				
6	970	235.0				
9	175	235.0	<b>10501-008</b>	<b>10501-029</b>	<b>10502-065</b>	<b>24562-797</b>
9	235	235.0				
9	295	235.0				
9	355	235.0				
9	415	235.0				
Screw M5 x 12, PU 100 pieces			<b>24560-183</b>	<b>24560-183</b>	<b>24560-183</b>	-
Screw M5 x 12, PU 4 pieces			<b>24560-182</b>	<b>24560-182</b>	<b>24560-182</b>	-
Screw, M4 x 14, PU 100 pieces			-	-	-	<b>24560-130</b>

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

## Front horizontal rail ("light", "heavy")

### Assembly 3 U, 2 x 3 U, 6 U

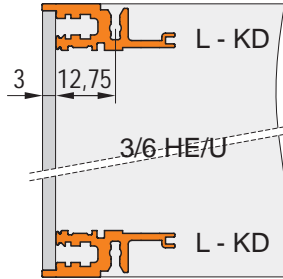
3 U/6 U



bza44980 bza44974

### "light" (L)

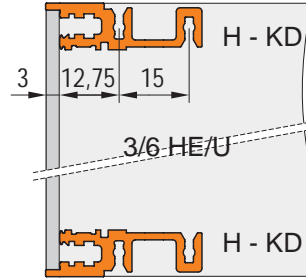
Short lip



06105060

### "heavy" (H)

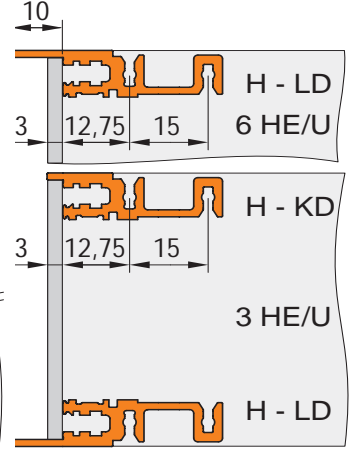
Short lip



06105061

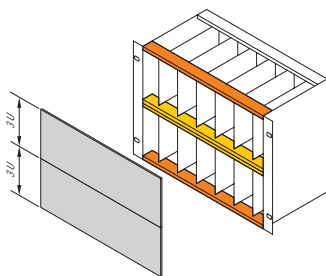
### "heavy" (H)

Long lip

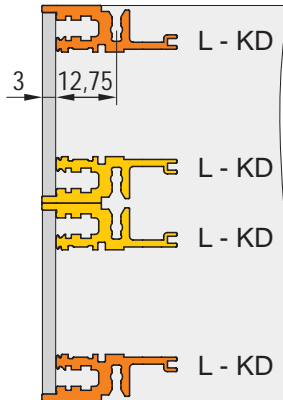


06108063

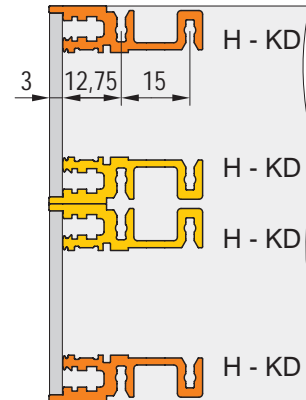
### 2 x 3 U



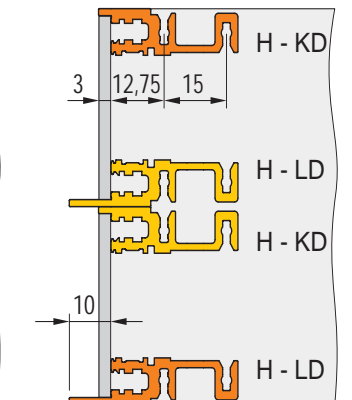
bza44972



06105062

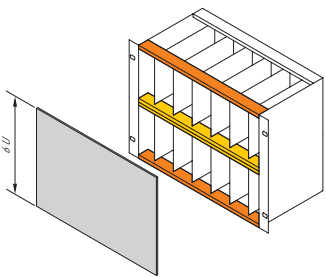


06105063

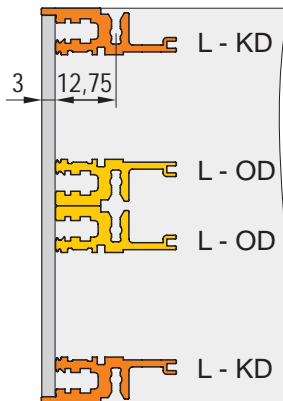


06108064

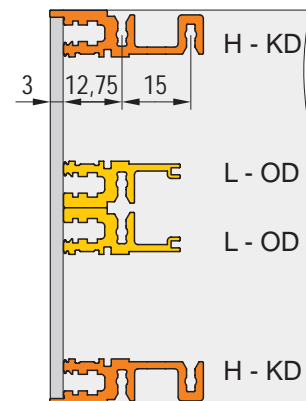
### 2 x 3 U, 6 U



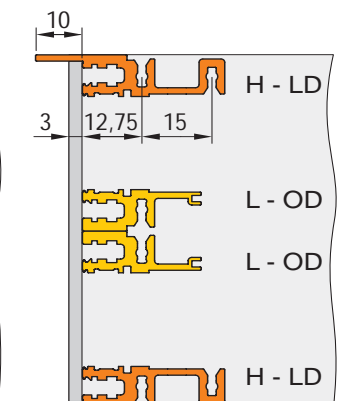
06105059



06105064



06105065



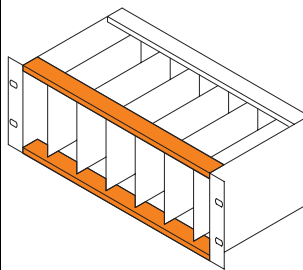




06108065

L-OD = Light - without lip, L-KD = Light - short lip, H-KD = Heavy - short lip, H-LD = Heavy - long lip



## Front horizontal rails

### Order Information

 <p>bza44980</p> <p>with HP markings from 28 HP, Al extrusion, anodised finish, conductive surface</p>		<p><b>"light"</b> Type L-OD without lip</p>  <p>06197006</p> <p>Al extrusion, surface anodised, conductive contact surface</p>	<p><b>"light"</b> Type L-KD short lip</p>  <p>06197007</p> <p>Al extrusion, surface anodised, conductive contact surface</p>	<p><b>"heavy"</b> Type H-KD short lip</p>  <p>06197008</p> <p>Al extrusion, surface anodised, conductive contact surface</p>	<p>With long lip to prise out in CompactPCI, VME64x boards</p> <p><b>"heavy"</b> Type H-LD long lip</p>  <p>06197009</p> <p>Al extrusion, surface anodised, conductive contact surface</p>
		1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>
Usable length HP	Length mm				
20	106.68	<b>34560-020</b>	<b>34560-120</b>	<b>34560-220</b>	<b>34560-320</b>
28	147.32	<b>34560-028</b>	<b>34560-128</b>	<b>34560-228</b>	<b>34560-328</b>
40	208.28	<b>34560-040</b>	<b>34560-140</b>	<b>34560-240</b>	<b>34560-340</b>
42	218.44	<b>34560-042</b>	<b>34560-142</b>	<b>34560-242</b>	<b>34560-342</b>
63	325.12	<b>34560-063</b>	<b>34560-163</b>	<b>34560-263</b>	<b>34560-363</b>
84	431.80	<b>34560-084</b>	<b>34560-184</b>	<b>34560-284</b>	<b>34560-384</b>
–	1000	<b>34560-001</b>	<b>34560-101</b>	<b>34560-201</b>	<b>34560-301</b>
Screw, M4 x 14, PU 100 pieces		<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>
Bolt, M4 x 10, required if guide rails are screwed to slot 1, PU 100 pieces		–	–	<b>24560-155</b>	<b>24560-155</b>
Threaded inserts see page		6.32	6.32	6.32	6.32

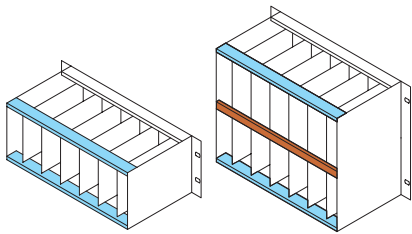
1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

"light": loading capacity up to approx. 7.5 kg; "heavy": loading capacity L 7.5 kg

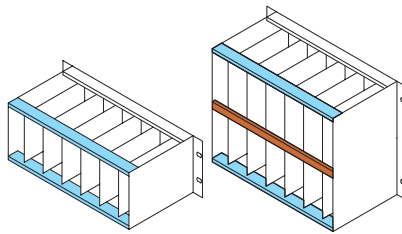
### Note

- 1000 mm version without M4 thread to front, without print and notch for 19" bracket

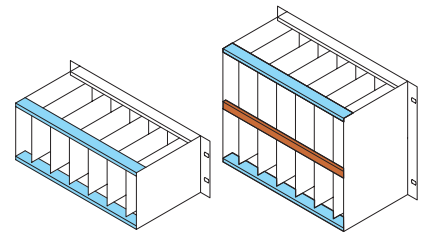
## Rear horizontal rail ("light", "heavy")



Indirect backplane mounting  
(with insulation strips)



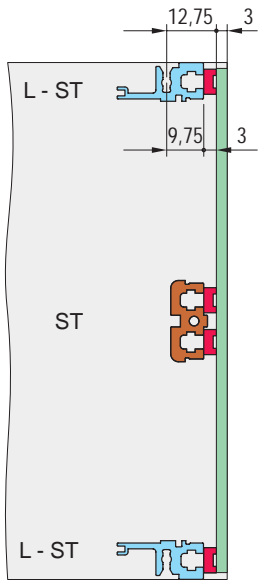
Direct backplane mounting



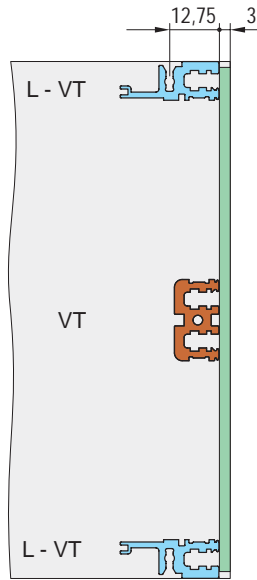
Connector fitting with Z

06105074 bza44981

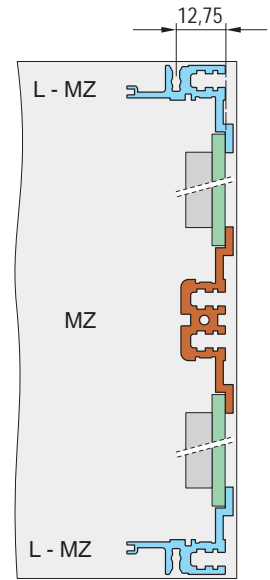
"light"



06105072

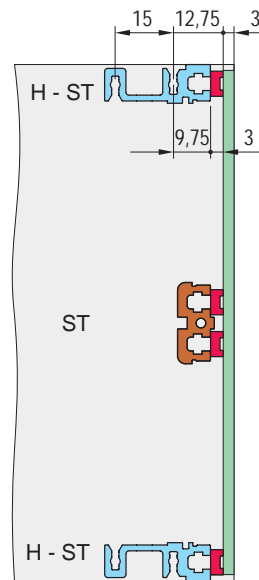


06105073

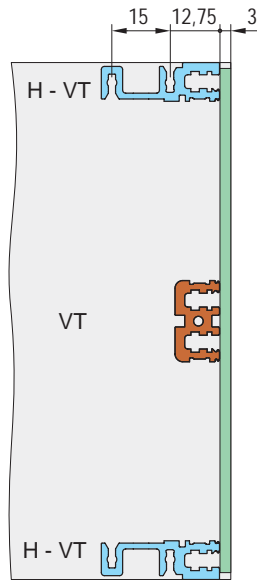


06105071

"heavy"

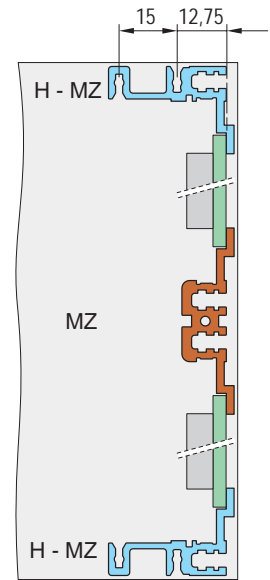


06108066



VT = recessed, L = light, H = "heavy"

06108067



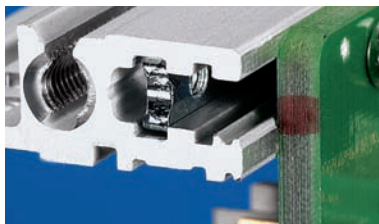
06108068

WZ = with z-rail, L = light, H = "heavy"

ST = standard, L = "light", H = "heavy"



04400001



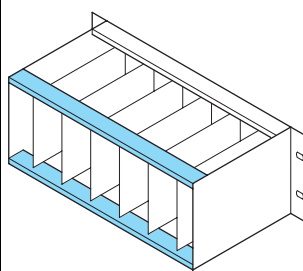
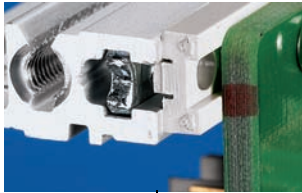
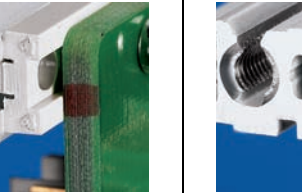
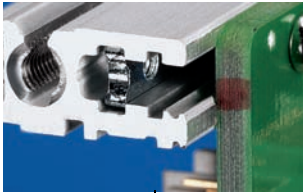
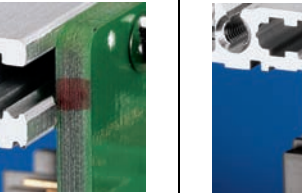


04400002



04400003

## Rear horizontal rails

### Order Information

		For indirect backplane mounting, with insulation strip		For indirect backplane mounting		For direct mounting of connectors to EN 60603-2 (DIN 41612)	
		"light" Type L-ST standard	"heavy" Type H-ST standard	"light" Type L-VT + 3 mm	"heavy" Type H-VT + 3 mm	"light" Type L-MZ with Z-rail	"heavy" Type H-MZ with Z-rail
 <p>06105074</p> <p>With HP markings from 28 HP, Al extrusion, anodised finish, conductive surface</p>		 <p>06197011</p> <p>Al extrusion, surface anodised, conductive contact surface</p>	 <p>06197011</p> <p>Al extrusion, surface anodised, conductive contact surface</p>	 <p>06197011</p> <p>Al extrusion, surface anodised, conductive contact surface</p>	 <p>06197009</p> <p>Al extrusion, surface anodised, conductive contact surface</p>	 <p>06197014</p> <p>Al extrusion, surface anodised, conductive contact surface</p>	 <p>06197014</p> <p>Al extrusion, surface anodised, conductive contact surface</p>
Usable length HP	Length mm	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>
20	106.68	<b>34560-420</b>	<b>34560-520</b>	<b>34560-620</b>	<b>34560-720</b>	<b>34560-820</b>	<b>34560-920</b>
28	147.32	<b>34560-428</b>	<b>34560-528</b>	<b>34560-628</b>	<b>34560-728</b>	<b>34560-828</b>	<b>34560-928</b>
40	208.28	<b>34560-440</b>	<b>34560-540</b>	<b>34560-640</b>	<b>34560-740</b>	<b>34560-840</b>	<b>34560-940</b>
42	218.44	<b>34560-442</b>	<b>34560-542</b>	<b>34560-642</b>	<b>34560-742</b>	<b>34560-842</b>	<b>34560-942</b>
63	325.12	<b>34560-463</b>	<b>34560-563</b>	<b>34560-663</b>	<b>34560-763</b>	<b>34560-863</b>	<b>34560-963</b>
84	431.80	<b>34560-484</b>	<b>34560-584</b>	<b>34560-684</b>	<b>34560-784</b>	<b>34560-884</b>	<b>34560-984</b>
–	1000	<b>34560-401</b>	<b>34560-501</b>	<b>34560-601</b>	<b>34560-701</b>	<b>34560-801</b>	–
Screw, M4 x 14, PU 100 pieces, for assembly of horizontal rails on side panels		<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>
Bolt, M4 x 10, required if guide rails are screwed to slot 1, PU 100 pieces		–	<b>24560-155</b>	–	<b>24560-155</b>	–	<b>24560-155</b>
Perforated rail for connector mounting with insulation strip see page		6.33	6.33	–	–	–	–
Z-rail for connector mounting without insulation strip see page		6.33	6.33	–	–	–	–
Insulation strips see page		–	–	6.32	6.32	–	–
Threaded inserts see page		6.32	6.32	6.32	6.32	6.32	6.32

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

"light": loading capacity up to approx. 7.5 kg; "heavy": loading capacity L 7.5 kg

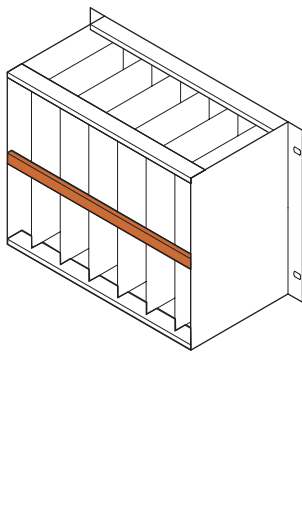
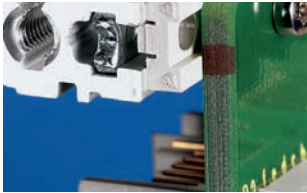

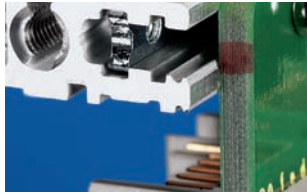



### Note

■ 1000 mm version without M4 thread in end without print



## Horizontal rails rear, middle

### Order Information

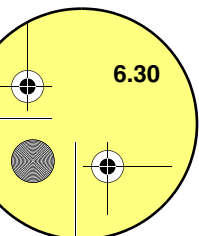
 06108090		For indirect backplane mounting, with insulation strip	For direct backplane mounting	For direct mounting of connectors in accordance with EN 60603-2 (DIN 41612)
		 06197016 <b>Type ST</b>  06197016 Al extrusion, finish anodised, conductive contact surface; without marking 1 piece (SPQ 10) <sup>1)</sup>	 06197017 <b>Type VT</b>  06197017 Al extrusion, finish anodised, conductive contact surface; without marking 1 piece (SPQ 10) <sup>1)</sup>	 06197018 <b>Type MZ</b>  06197018 Al extrusion, finish anodised, conductive contact surface; without marking 1 piece (SPQ 10) <sup>1)</sup>
Usable length HP	Length mm			
20	106.68	<b>34561-020</b>	<b>34561-120</b>	<b>34561-220</b>
28	147.32	<b>34561-028</b>	<b>34561-128</b>	<b>34561-228</b>
40	208.28	<b>34561-040</b>	<b>34561-140</b>	<b>34561-240</b>
42	218.44	<b>34561-042</b>	<b>34561-142</b>	<b>34561-242</b>
63	325.12	<b>34561-063</b>	<b>34561-163</b>	<b>34561-263</b>
84	431.80	<b>34561-084</b>	<b>34561-184</b>	<b>34561-284</b>
–	1000	<b>34561-001</b>	<b>34561-101</b>	<b>34561-201</b>
Screw, M4 x 14, PU 100 pieces, for assembly of horizontal rails on side panels		<b>24560-130</b>	<b>24560-130</b>	<b>24560-130</b>
Insulation strips see page		6.32	–	–
Threaded inserts see page		6.32	6.32	6.32

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

"light": loading capacity up to approx. 7.5 kg; "heavy": loading capacity L 7.5 kg

### Note

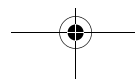
- All horizontal rails without print
- 1000 mm version without M4 thread in end



6.30

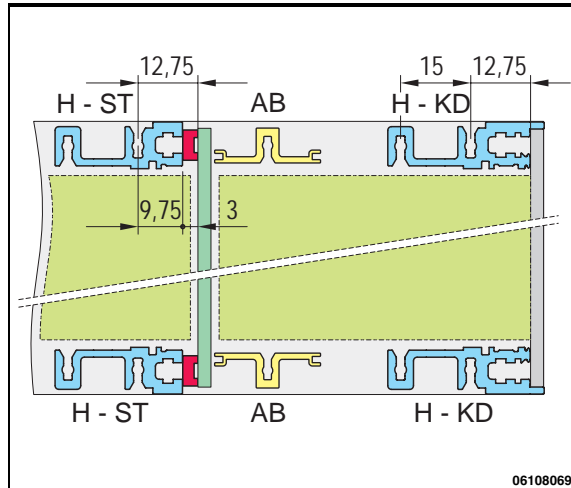
Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days

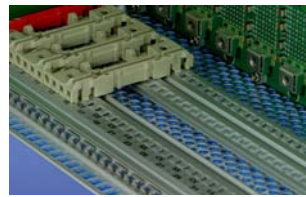


## Horizontal rails (type AB) for rear I/O guide rails

### Order Information



### For CompactPCI in rear I/O area



Type AB



Al extrusion, finish anodised,  
conductive contact surface;  
horizontal rail type AB (AB = bracing)  
is required to fix the guide rails for the  
80 mm rear I/O boards without marking

1 piece (SPQ 10)<sup>1)</sup>

Usable length HP	Length mm	
20	106.68	<b>34561-520</b>
28	147.32	<b>34561-528</b>
40	208.28	<b>34561-540</b>
42	218.44	<b>34561-542</b>
63	325.12	<b>34561-563</b>
84	431.80	<b>34561-584</b>
–	1000	<b>34561-501</b>
Screw, M4 x 14, PU 100 pieces, for assembly of horizontal rails on side panels		<b>24560-130</b>

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

"light": loading capacity up to approx. 7.5 kg; "heavy": loading capacity L 7.5 kg

### Note

- All horizontal rails without print
- 1000 mm version without M4 thread in end

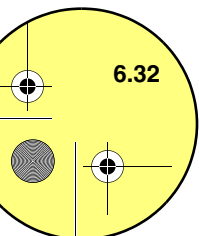
## Threaded inserts, perforated strips, insulation strips

### Order Information

Usable length HP	Threaded insert		Perforated strip		Insulation strip		
	Length mm	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	Length mm	1 piece (SPQ 10) <sup>1)</sup>	PU 10 pieces	
20	106.68	<b>34561-320</b>	–	106.48	<b>30845-189</b>	101.50	<b>24560-820</b>
28	147.32	<b>34561-328</b>	–	147.12	<b>30845-197</b>	144.20	<b>24560-828</b>
40	208.28	<b>34561-340</b>	–	208.08	<b>30845-209</b>	205.12	<b>24560-840</b>
42	218.44	<b>34561-342</b>	–	218.24	<b>30845-211</b>	210.40	<b>24560-842</b>
63	325.12	<b>34561-363</b>	–	324.92	<b>30845-232</b>	316.88	<b>24560-863</b>
84	431.80	<b>34561-384</b>	<b>34561-484</b>	431.60	<b>30845-253</b>	428.64	<b>24560-884</b>
196	1000.00	<b>34565-196</b>	–	1000.00	<b>34565-396</b>	–	–
Grub screw M2.5 x 8, PU 100 pieces		<b>21100-276</b>	–		–		–
Grub screw M2.5 x 9, PU 100 pieces		–	–		<b>21101-359</b>		–
Grub screw M3 x 8, PU 100 pieces		–	<b>21100-646</b>		–		–

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

2) Order no. includes one packing unit (PU); delivery is exclusively made in PU

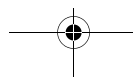


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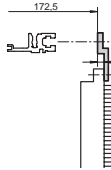
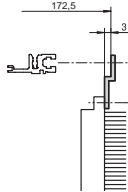
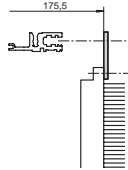
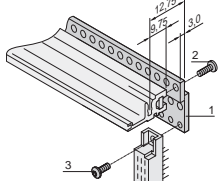
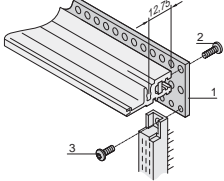
**Part number in bold face type: ready for despatch within 2 working days**

Part number in normal type: ready for despatch within 10 working days



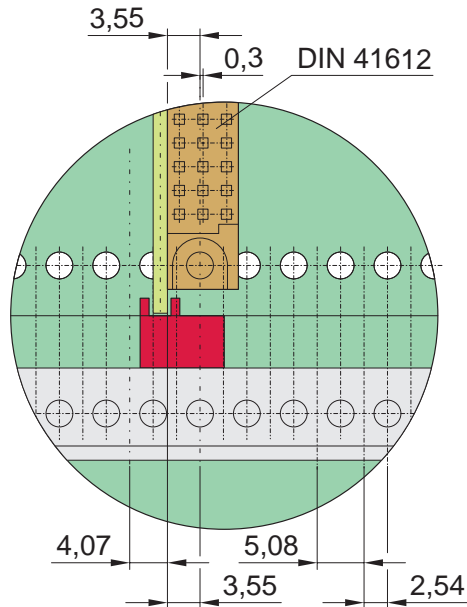
## Z-rails, perforated rails

### Order Information

		Z-rail for connectors		Perforated rail
		IEC 60603-2 DIN EN 41612 item 1	31-pin, DIN 41617	EN 60603-2, DIN 41612 item 1
				
				
		for connector mounting with ST horizontal rails, please order threaded insert and screw separately	for connector mounting with ST horizontal rails, please order threaded insert and screw separately	for connector mounting with VT horizontal rails, please order threaded insert and screw separately
<b>Usable length</b>	<b>Length</b>	<b>1 piece</b>	<b>1 piece</b>	<b>PU 4 pieces</b>
<b>HP</b>	<b>mm</b>			
20	106.68	<b>30822-025</b>	—	<b>20822-051</b>
28	142.24	<b>30822-033</b>	—	<b>20822-049</b>
40	203.20	<b>30822-045</b>	<b>30819-763</b>	<b>20822-046</b>
42	213.36	<b>30822-047</b>	—	<b>20822-050</b>
60	304.80	<b>30822-065</b>	<b>30819-783</b>	<b>20822-047</b>
84	426.70	<b>30822-089</b>	<b>30819-808</b>	<b>20822-048</b>
Item 3, Torx panhead screw to fix connector to perforated rail, M2.5 × 7, PU 100 pieces		<b>24560-147</b>	<b>24560-147</b>	<b>24560-147</b>
Item 2, Torx countersunk screw with, rto fix perforated rails to horizontal rail, M2.5 × 10, PU 100 pieces		<b>24560-148</b>	<b>24560-148</b>	<b>24560-148</b>



## Guide rails



Front view: position of guide rails to connector (EN 60603-2/  
DIN 41612)

06108063

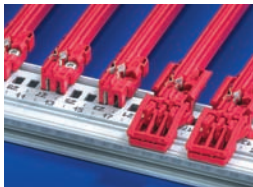
Guide rails form the interface between the subrack mechanics and the sub-assemblies (PCBs, plug-in units, frame-type plug-in units, ...).  
Guide rails for standard applications are 2 HP wide. Guide rails with coding (e.g. for CompactPCI or VME64bus applications) are 4 HP wide. Groove widths are 2 mm and 2.5 mm.  
The guide rails are clipped into the rectangular cut-outs of the horizontal rails. They can be additionally bolted to the horizontal rail (type H only) for higher shock and vibration requirements.  
The HP marking on the horizontal rail (28 HP and above) allows the rails to be simply fitted in the correct position (position of sub-assembly = "number in viewing window" or in front of the arrow marking on the guide rails).

## Applications for guide rails

### Application



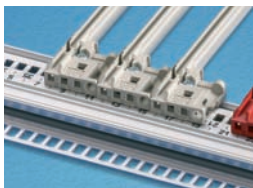
06102001



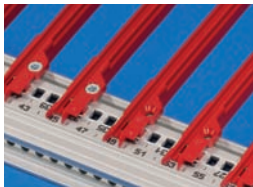
06102002



06102005



06106004



06104009

For plug-in units and frame type plug-in units (with front panels)  
(type: standard)

For boards without own front panel  
(type: accessories or robust version)

For CompactPCI or VME64x plug-in units  
(type: IEEE with coding; frame-type plug-in units may not be installed)

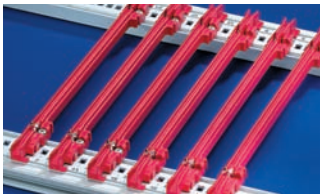
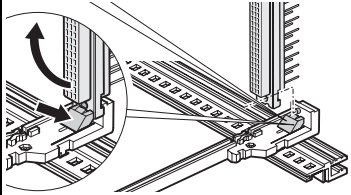
For drive unit plug-in units or boards of 4.4" (111.7 mm) height (type 4.4")

#### Accessories:

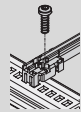
- ESD clips
- Keying/coding pegs
- PCB retainers

## Guide rails for plug-in units and modules, one-piece, groove width 2 mm and 2.5 mm

### Order Information

Assembly			For plug-in units and frame type plug-in units		
- can be clipped into Al extruded horizontal rails - into 1.5 mm thick plates			Standard		
Storage temperature from -40 °C ... 130 °C			DIN connector mounting as standard		
					
					
			up to 220 mm length, PBT, UL 94 V-0; L 280 mm length, multi-part, end piece PBT, UL 94 V-0, middle part Al extrusion		
			PBT, UL 94 V-0		
			PBT, UL 94 V-0, connector is clipped directly onto the guide rails, only suitable for euroboards 100 x 160 mm or 100 x 220 mm		
Board lengths mm	Groove width mm	Colour mm	PU 10 pieces <sup>2)</sup>	1 piece (SPQ 50) <sup>1)</sup>	PU 10 pairs
70	2	red	–	<b>34579-230</b>	–
70	2	grey	–	<b>34579-231</b>	–
160	2	red	<b>24560-351</b>	<b>64560-001</b>	<b>64560-074</b>
220	2	red	<b>24560-353</b>	<b>64560-002</b>	<b>64560-075</b>
280	2	red	<b>24560-379</b>	–	–
340	2	red	<b>24560-380</b>	–	–
160	2.5	red	–	<b>64560-096</b>	–
220	2.5	red	–	<b>64560-098</b>	–

### Accessories

Retention screw, PU 100 pieces		<b>24560-141</b>
ESD clip, PU 50 pieces		<b>24560-255</b>

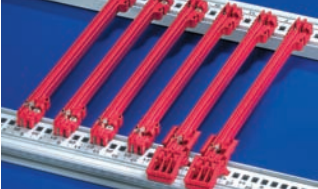
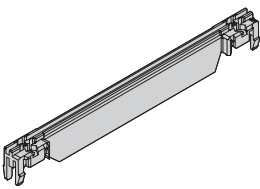
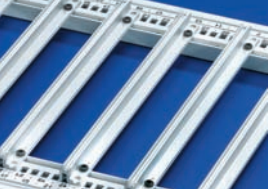
1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

2) Order no. includes one packing unit (PU); delivery is exclusively made in PU


Description of accessories see from page 6.41

## Guide rails type "accessories", one-piece, groove width 2 mm and 2.5 mm

### Order Information

Assembly - can be clipped into Al extruded horizontal rails - into 1.5 mm thick plates			Guide rails type				
			"Accessories"	"Accessories" strengthened	For heavy modules, Al extrusion, silver, robust version		
Storage temperature from -40 °C ... 130 °C			 <p>up to 220 mm length, PBT, UL 94 V-0; L 280 mm length, multi-part, end piece PBT, UL 94V-0, middle part Al extrusion</p>		 <p>PBT, UL 94 V-0; with additional centre materials to strength guide rails</p>		 <p>Al extrusion; is screwed to horizontal rail "heavy" with retention screws</p>
			<p>06102002</p>		<p>06102005</p>		<p>06102005</p>
Board lengths mm	Groove width mm	Colour mm	PU 10 pieces <sup>2)</sup>	1 piece (SPQ 50) <sup>1)</sup>	1 piece (SPQ 50) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	
100	2	red	–	<b>64560-082</b>	–	–	
160	2	red	<b>24560-373</b>	<b>64560-005</b>	<b>64560-076</b>	–	
160	2	grey	–	<b>64560-055</b>	–	<b>34562-881</b>	
220	2	red	<b>24560-374</b>	<b>64560-006</b>	<b>64560-078</b>	–	
220	2	grey	–	<b>64560-166</b>	–	<b>34562-882</b>	
280	2	red/silver	<b>24560-375</b>	–	<b>64560-080</b>	<b>34562-883</b>	
340	2	red/silver	<b>24560-376</b>	–	–	<b>34562-884</b>	
400	2	red/silver	–	–	–	<b>34562-885</b>	
160	2.5	silver	–	–	–	<b>34564-881</b>	
220	2.5	silver	–	–	–	<b>34564-882</b>	
280	2.5	silver	–	–	–	<b>34564-883</b>	
340	2.5	silver	–	–	–	<b>34564-884</b>	
400	2.5	silver	–	–	–	<b>34564-885</b>	

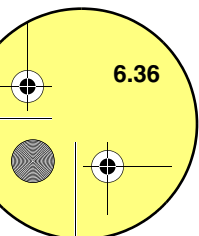
### Accessories

Retention screw, PU 100 pieces		<b>24560-141</b>	<b>24560-141</b>	<b>24560-141</b>	<b>24560-157</b>
ESD clip, PU 50 pieces		<b>24560-255</b>	<b>24560-255</b>	<b>24560-255</b>	–
Board locking, red, PU 10 pieces		<b>24560-377</b>	<b>24560-377</b>	<b>24560-377</b>	–
Board handle, red, PU 10 pieces		<b>24560-378</b>	<b>24560-378</b>	<b>24560-378</b>	–
Identification strips for board handle, red, PU 1 sheet = 438 pieces		<b>60817-228</b>	<b>60817-228</b>	<b>60817-228</b>	–
Keying/coding		see page 6.40			–

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

2) Order no. includes one packing unit (PU); delivery is exclusively made in PU

For description of accessories see from page 6.40

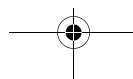


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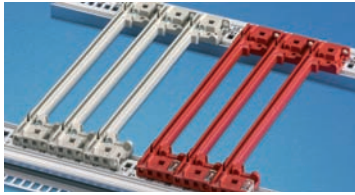
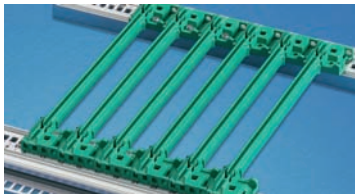
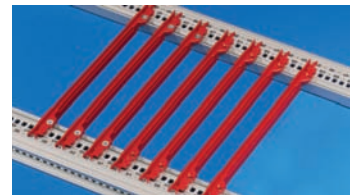
Part number in bold face type: ready for despatch within 2 working days

Part number in normal type: ready for despatch within 10 working days



## Guide rails for CompactPCI, VME64x with coding, 4.4" PCB, groove width 2 mm and 2.5 mm

### Order Information

Assembly - can be clipped into Al extruded horizontal rails - into 1.5 mm thick plates			For CompactPCI, VME64x with coding			For 4.4" PCBs		
			In accordance with IEEE 1101.10 and IEC 60297-3-103		Offset 0.1" for power supplies in accordance with IEEE 1101.10 and IEC 60297-3-103			
Storage temperature from -40 °C ... 130 °C								
			multi-piece, end piece PBT, UL 94 V-0, middle part Al extrusion		PBT, UL 94 V-0	PBT, UL 94 V-0, for installation of power supplies in CompactPCI systems or plug-in units with SMD placement		one-piece, PBT, UL 94 V-0; for 4.4" PCBs or drive units
Board lengths mm	Groove width mm	Colour mm	PU 10 pieces <sup>2)</sup>	1 piece (SPQ 50) <sup>1)</sup>		1 piece (SPQ 50) <sup>1)</sup>	PU 10 pieces	1 piece (SPQ 50) <sup>1)</sup>
70	2	red	<b>24560-355</b>	<b>64560-085</b>	-	-	-	-
70	2	grey	<b>24560-360</b>	<b>64560-086</b>	-	-	-	-
160	2	red	<b>24560-356</b>	<b>64560-089</b>	-	-	<b>24560-361</b>	<b>64560-143</b>
160	2	grey	<b>24560-358</b>	<b>64560-090</b>	-	-	-	-
160	2	green	-	-	<b>24560-359</b>	<b>64560-071</b>	-	-
220	2	red	-	<b>64560-091</b>	-	-	<b>24560-362</b>	<b>64560-144</b>
220	2	grey	-	<b>64560-092</b>	-	-	-	-
220	2	green	-	-	-	<b>64560-072</b>	-	-
160	2.5	red	-	-	-	-	-	<b>64560-145</b>
220	2.5	red	<b>24561-330</b>	-	-	-	-	<b>64560-146</b>
220	2.5	grey	<b>24561-340</b>	-	-	-	-	-
280	2.5	red	<b>24561-331</b>	-	-	-	-	-
280	2.5	grey	<b>24561-341</b>	-	-	-	-	-
340	2.5	red	<b>24561-332</b>	-	-	-	-	-
340	2.5	grey	<b>24561-342</b>	-	-	-	-	-

### Accessories

ESD clip, PU 50 pieces	<b>24560-255</b>	<b>24560-255</b>	-	-	-	-
ESD clip, for alignment pin, PU 50 pieces	<b>24560-256</b>	<b>24560-256</b>	<b>24560-256</b>	<b>24560-256</b>	-	-
Retention screw, PU 100 pieces	<b>24560-141</b>	<b>24560-141</b>	<b>24560-141</b>	<b>24560-141</b>	<b>24560-158</b>	<b>24560-158</b>
Coding peg, PU 100 pieces	<b>20817-501</b>	<b>20817-501</b>	<b>20817-501</b>	<b>20817-501</b>	-	-

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

2) Order no. includes one packing unit (PU); delivery is exclusively made in PU

For description of accessories see from page 6.40




### Note

- Reinforcement for plastic profiles (PVC) > 280 mm depth available on request



## Guide rails, multi-piece, groove width 2 mm

### Order Information

			For plug-in units and frame type plug-in units "Standard"		"Accessories"		For 4.4" PCBs	
<b>PCB:</b> fixed length at 160, 220, 280, 340 mm; length 1000 mm for special dimensions  <b>Assembly:</b> engageable in horizontal rail  <b>Storage temperature:</b> end piece -40 °C ... +130 °C PVC extrusion 0 °C ... +60 °C			 06106004 end piece PBT, UL 94 V-0, middle section Al extrusion		 06106005 end piece PBT, UL 94 V-0, middle section Al extrusion		 06106006 end piece PBT, UL 94 V-0, middle section Al extrusion	
Description	Length mm	Groove width mm	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>	1 piece (SPQ 10) <sup>1)</sup>
End piece, red, 1 pair		2	<b>64560-004</b>	<b>64560-004</b>	<b>64560-008</b>	<b>64560-008</b>	<b>64560-057</b>	<b>64560-008</b>
Profile, for 160 mm board length	95	2	<b>34560-891</b>	<b>34564-891</b>	<b>34560-891</b>	<b>34564-891</b>	<b>34560-891</b>	<b>34564-891</b>
Profile, for 220 mm board length	155	2	<b>34560-892</b>	<b>34564-892</b>	<b>34560-892</b>	<b>34564-892</b>	<b>34560-892</b>	<b>34564-892</b>
Profile, for 280 mm board length	215	2	<b>34560-893</b>	<b>34564-893</b>	<b>34560-893</b>	<b>34564-893</b>	<b>34560-893</b>	<b>34564-893</b>
Profile, for 340 mm board length	275	2	<b>34560-894</b>	–	<b>34560-894</b>	–	<b>34560-894</b>	–
Profile, for any board length	1000	2	<b>34560-900</b>	–	<b>34560-900</b>	–	<b>34560-900</b>	–
Profile, for any board length	1000	2	–	<b>34564-900</b>	–	<b>34564-900</b>	–	<b>34564-900</b>

### Accessories

ESD clip, PU 50 pieces	<b>24560-255</b>	<b>24560-255</b>	–
Retention screw, PU 100 pieces	<b>24560-141</b>	<b>24560-141</b>	<b>24560-158</b>
Board locking, red, PU 10 pieces	–	<b>24560-377</b>	–
Board handle, red, PU 10 pieces	–	<b>24560-378</b>	–
Identification strips for board handle, red, PU 1 sheet = 438 pieces	–	<b>60817-228</b>	–
Keying/coding	–	see page 6.41	–

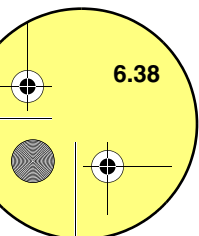
1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

2) Order no. includes one packing unit (PU); delivery is exclusively made in PU

For description of accessories see from page 6.40

### Note

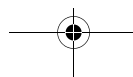
- Strengthening for middle part (plastic extrusion) available on request



6.38

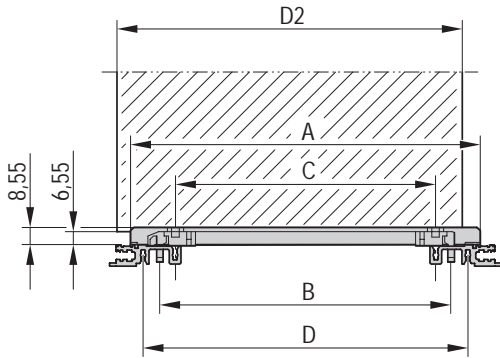
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Part number in bold face type: ready for despatch within 2 working days  
Part number in normal type: ready for despatch within 10 working days

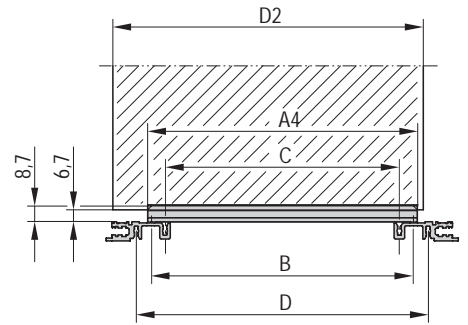


## Dimension drawings of guide rails

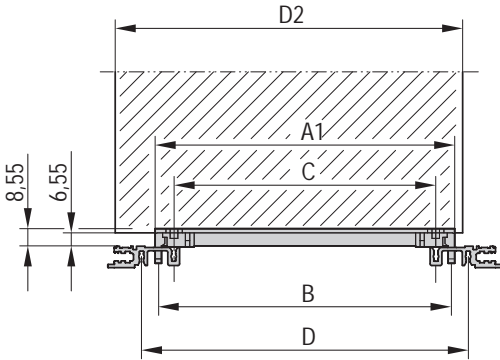
**Standard**



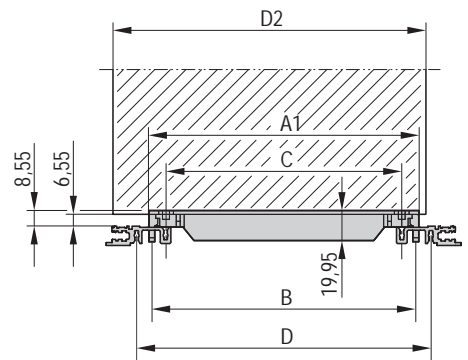
**Robust version**



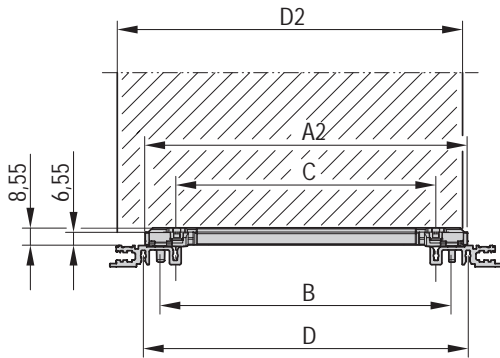
**For accessories**



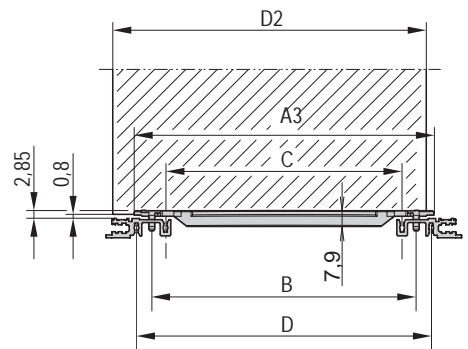
**For accessories, strengthened**



**CompactPCI, VME64x**



**4.4" (111.7 mm)**



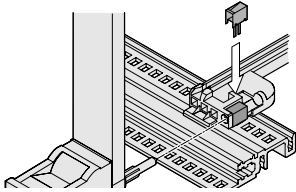
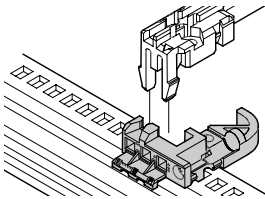
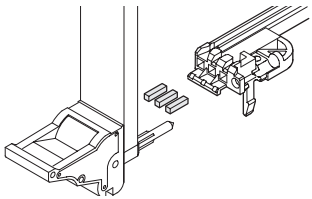
### Dimensions table

Board height L	Dimensions							
	A	A1	A2	A3	A4	B	C	D
mm	mm	mm	mm	mm	mm	mm	mm	mm
70	71.5	47.9	59.39	63	49	45	30	60
100	101.5	77.9	89.39	93	79	75	60	90
160	161.5	137.9	149.39	153	139	135	120	150
220	221.5	197.9	209.39	213	199	195	180	210
280	281.5	257.9	269.39	273	259	255	240	270
340	341.5	317.9	322.39	333	319	315	300	330
400	401.5	377.9	389.39	393	379	375	360	390

- A, A1, A2, A3, A4: length of rail
- B: Pitch of snap-in fixing
- C: Pitch of guide rail retention screws
- D: Pitch of horizontal rail retention screws

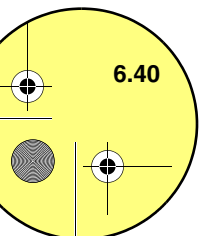
## Guide rail accessories

### Order Information

		ESD clips, CompactPCI/VME 64 alignment pin for guide rails	Coding for sub racks	
		 06103052	Keying/coding block for guide rails "accessories"  06103051	Keying/coding for CompactPCI, VME64x handles to IEEE 1011.10 and IEC 60297-3-103  bga46316
Assembly	Colour	Spring steel, tin-plated, ESD clip, for alignment pin in accordance with IEEE; can be plugged into the guide rails with coding and into the keying/coding block; it ensures conductive contact between the alignment pin of the insertion/extraction handle (IEL or IET handle) and the horizontal rail	PBT, UL 94 V-0, keying/coding block is clipped into the horizontal rail next to the guide rails; please order keying/coding pegs separately	PC, UL 94 V0, RAL 7035; the keying/coding pegs (3 each) are inserted into the coding block or the handle
		PU 50 pieces	1 piece (SPQ 50) <sup>1)</sup>	PU 100 pieces
At the top	red	–	<b>34579-232</b>	–
	grey	–	<b>34579-233</b>	<b>20817-501</b>
	silver	<b>24560-256</b>	–	–
At the bottom	red	–	<b>34579-234</b>	–
	grey	–	<b>34579-235</b>	<b>20817-501</b>
	silver	<b>24560-256</b>	–	–

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

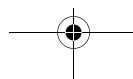
2) Order no. includes one packing unit (PU); delivery is exclusively made in PU



6.40

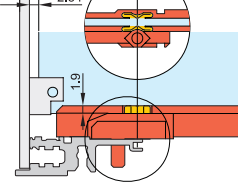
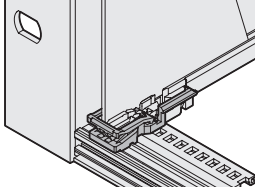
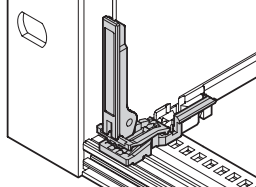
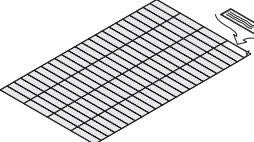
Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## Guide rail accessories

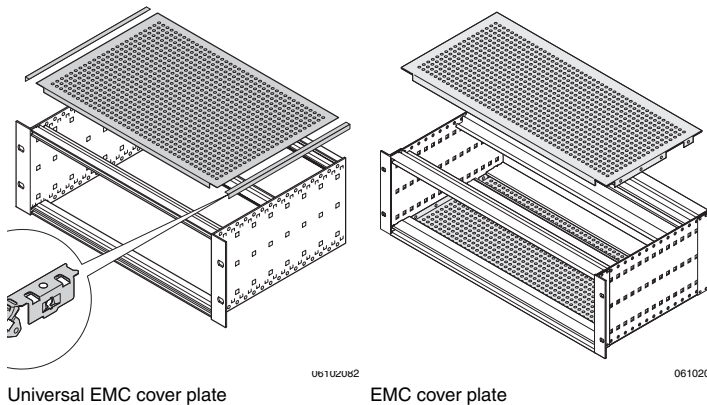
### Order Information

		ESD clip for guide rails	Board retention for PCBs without front panel	Board handle for board locking	Identification strips for board handle
		 <p>04503050</p> <p>Spring steel, tin-plated, ensures conductive contact between circuit board and horizontal rail, on both the solder side and the component side PBT, UL 94 V-0</p>	 <p>04805050</p> <p>PBT, UL 94 V-0, red, to fix the PCB in the subrack (also slot 1), can also be used without board handle, minimum distance 3 HP PBT, UL 94 V-0</p>	 <p>04805051</p> <p>PBT, UL 94 V-0, red, insertion/extraction function with connection to board locking (also slot 1), mounting directly behind front panel (upper and lower), minimum distance 3 HP PBT, UL 94 V-0</p>	 <p>0610807</p> <p>Polyester film, 31 x 4 mm, self-adhesive, white/matt (1 A4 sheet contains 438 pieces) PBT, UL 94 V-0</p>
Assembly mm	Colour mm	PU 50 pieces	PU 10 pieces	PU 10 pieces	1 piece
above/below	red	–	<b>24560-377</b>	<b>24560-378</b>	–
	silver	<b>24560-255</b>	–	–	–
	white/matt	–	–	–	<b>60817-228</b>



## Shielding top, bottom, front, rear, lateral

Cover plates can be used for electromagnetic shielding (with EMC contact springs) or as mechanical protection (without EMC springs)



Universal EMC cover plate

061102082

EMC cover plate

06102084

### Description

#### Universal EMC cover plate for top and bottom

Page

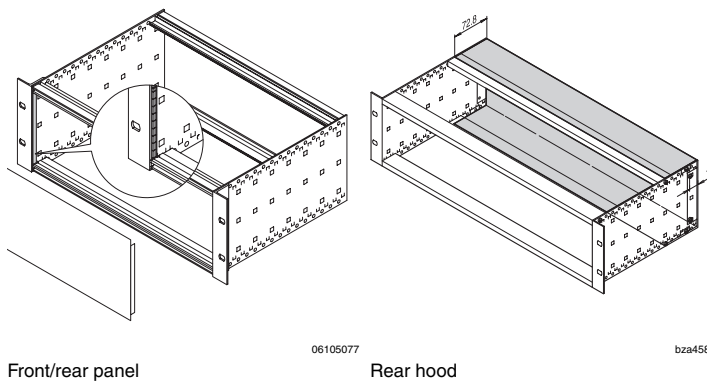
6.45

Inserted in the groove of the front and rear horizontal rails  
Shielding with contact springs, lateral contacting by bolting to the side panel with special contact springs

#### EMC cover plate top and bottom

6.44

Inserted in the groove of the front and rear horizontal rails  
Shielding with contact springs, lateral contacting by bolting the bracket to the side panel



Front/rear panel

06105077

Rear hood

bza45814

#### EMC shielding for front and rear, rear hood

6.47

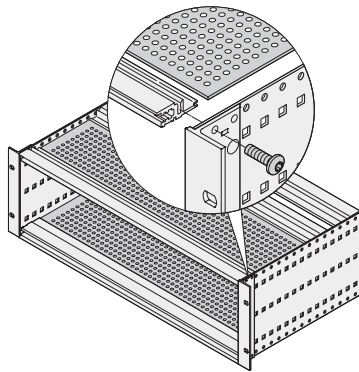
The front and rear of a subrack can be shielded with a front panel and 19" brackets to the front.  
The rear can be shielded with a front panel and a corner profile.

If a rear hood is used, no corner profile may be mounted.

#### Cover plate for insertion in horizontal rail (type L)

6.43

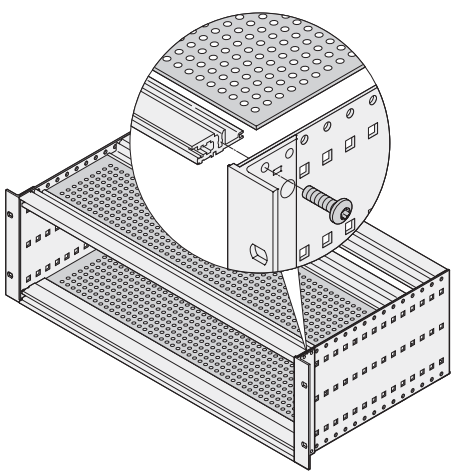
Mechanical protection, inserted between the grooves of the front and rear horizontal rails type L ("light")



06108077

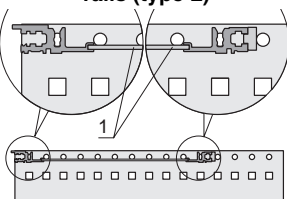
## Cover plates for insertion into horizontal rail (type L), for PCBs 160, 220 mm

### Order Information



06197010

**Cover plate  
for insertion in horizontal  
rails (type L)**



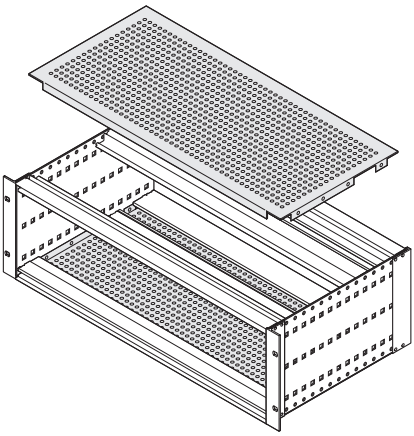
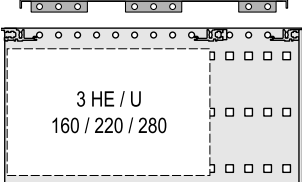
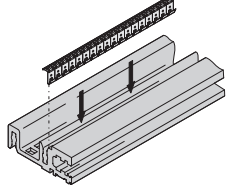
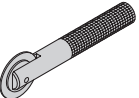
06197003

Al perforated plate 1.2 mm, hole diameter 3.8 mm, Al, untreated, perforation degree 60 %; for insertion into the groove of light horizontal rails (type L)

Width HP	Depth mm	Application	PU 1 pair
42	175	160 mm board depth	<b>24561-031</b>
42	235	160, 220 mm board depth	-
42	295	160, 220 mm board depth	-
63	175	160 mm board depth	<b>24561-041</b>
63	235	160, 220 mm board depth	-
63	295	160, 220 mm board depth	-
84	175	160 mm board depth	<b>24561-051</b>
84	235	160, 220 mm board depth	<b>24561-052</b>
84	295	160, 220 mm board depth	-
84	355	160, 220, 280 mm board depth	-
84	415	160, 220, 280 mm board depth	-
84	475	160, 220, 280 mm board depth	-

## Cover plates for screwing onto the side panel, for board depths 160, 220, 280 mm

### Order Information

		Cover plate cover plate for bolting to side panel	Stainless steel EMC gasket, between cover plate and horizontal rail		
 <p style="text-align: right;">06197010</p>		 <p style="text-align: right;"><small>bza45819</small></p> <p>Al, 1.0 mm, hole diameter, 4.0 mm, passivated, perforation degree 58%, incl. retention screws; for shielding please order 4 stainless steel EMC gaskets per subrack separately</p>	 <p style="text-align: right;"><small>06106052</small></p> <p>Stainless steel EMC gasket, clips into the horizontal rail and forms the contact with the cover plate; suitable for all horizontal rails</p>		
Width HP	Depth mm	Application	PU 1 pair	PU 10 pieces	PU 100 pieces
42	175	160 mm board depth	<b>24560-064</b>	<b>24560-241</b>	-
42	235	160, 220 mm board depth	<b>24560-065</b>		
42	275	160, 220 mm board depth CompactPCI (275 mm)	<b>24560-061</b>		
42	277.75	160, 220 mm board depth VME64x (277.75 mm)	<b>24579-090</b>		
42	295	160, 220 mm board depth	<b>24560-066</b>	<b>24560-243</b>	-
63	175	160 mm board depth	<b>24560-071</b>		
63	235	160, 220 mm board depth	<b>24560-072</b>		
63	275	160, 220 mm board depth CompactPCI (275 mm)	<b>24560-062</b>		
63	295	160, 220 mm board depth	<b>24560-073</b>	<b>24560-245</b>	<b>24560-246</b>
84	175	160 mm board depth	<b>24560-078</b>		
84	235	160, 220 mm board depth	<b>24560-079</b>		
84	275	160, 220 mm board depth CompactPCI (275 mm)	<b>24560-063</b>		
84	277.75	160, 220 mm board depth VME64x (277.75 mm)	<b>24579-092</b>	<b>24560-080</b>	<b>24560-081</b>
84	295	160, 220 mm board depth	<b>24560-080</b>		
84	355	160, 220, 280 mm board depth	<b>24560-081</b>		
84	415	160, 220, 280 mm board depth	<b>24560-082</b>		
84	475	160, 220, 280 mm board depth	<b>24560-083</b>	<b>24560-271</b>	
Assembly tool, for stainless steel EMC gasket (horizontal rails), 1 piece 			-		

## Universal cover plates, for board depths 160, 220, 280 mm

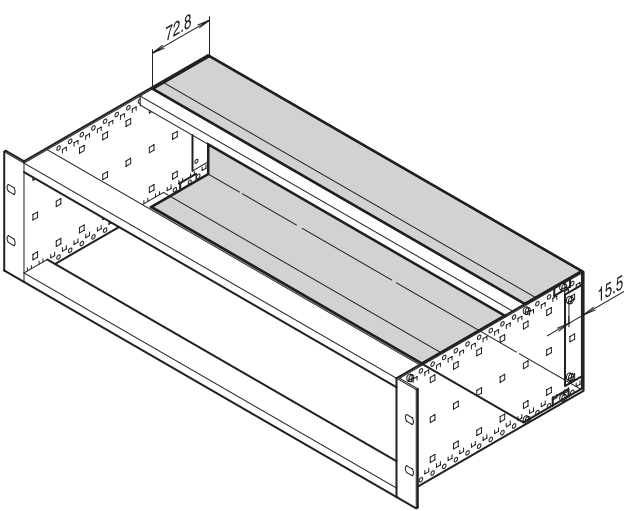
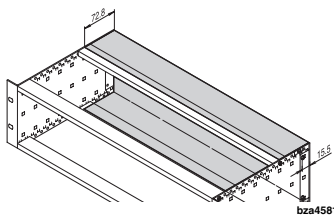
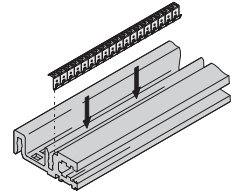
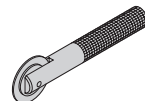
### Order Information

<p style="text-align: right;">06105082</p>			<p style="text-align: center;"><b>Universal cover plate</b></p> <p style="text-align: right;">06108079</p> <p>Al, 1.0 mm, hole diameter 4.0 mm, clear passivated, perforation degree 58 %, incl. lateral EMC sealing, incl. retention screws</p>		<p style="text-align: center;"><b>Stainless steel EMC gasket, between cover plate and horizontal rail</b></p> <p style="text-align: right;">06106000</p> <p>Stainless steel EMC gasket, clips into the horizontal rail and forms the contact with the cover plate; suitable for all horizontal rails</p>	
Width HP	Depth mm	Application	PU 1 pair	PU 10 pieces	PU 100 pieces	
42	175	160 mm board depth	<b>24560-031</b>	<b>24560-241</b>	-	
42	235	160, 220 mm board depth	<b>24560-032</b>			
42	295	160, 220 mm board depth	<b>24560-033</b>			
63	175	160 mm board depth	<b>24560-041</b>	<b>24560-243</b>	-	
63	235	160, 220 mm board depth	<b>24560-042</b>			
63	295	160, 220 mm board depth	<b>24560-043</b>			
84	175	160 mm board depth	<b>24560-051</b>	<b>24560-245</b>	<b>24560-246</b>	
84	235	160, 220 mm board depth	<b>24560-052</b>			
84	295	160, 220 mm board depth	<b>24560-053</b>			
84	355	160, 220, 280 mm board depth	<b>24560-054</b>			
84	415	160, 220, 280 mm board depth	<b>24560-055</b>			
84	475	160, 220, 280 mm board depth	<b>24560-056</b>			
<p>Assembly tool, for stainless steel EMC gasket (horizontal rails), 1 piece</p>			-	<b>24560-271</b>		



## Rear hoods for 3 U and 6 U subracks (for stainless steel EMC gasket)

### Order Information

		<p><b>Rear hood</b></p>  <p>Al, 1 mm, clear passivated; 60 mm additional side panel depth required (board depth + 60 mm); for shielding please order EMC gasket for horizontal rail separately; cannot be used simultaneously with rear corner profile</p>		<p><b>Stainless steel EMC gasket, between cover plate and horizontal rail</b></p>  <p>Stainless steel EMC gasket, clips into the horizontal rail and forms the contact with the cover plate; suitable for all horizontal rails</p>		
<p><b>Height</b></p> <p><b>U</b></p>	<p><b>Width</b></p> <p><b>HP</b></p>	<p><b>1 piece</b></p>	<p><b>PU 10 pieces</b></p>	<p><b>PU 100 pieces</b></p>		
3	42	<b>34561-750</b>	<b>24560-241</b>	-		
3	84	<b>34561-752</b>	<b>24560-245</b>	-		
6	63	<b>34561-763</b>	<b>24560-243</b>	-		
6	84	<b>34561-764</b>	<b>24560-245</b>	<b>24560-246</b>		
<p>Torx panhead screw, M4 x 6, St, zinc-plated, PU 100 pieces</p>		<p><b>24560-135</b></p>	-			
<p>Assembly tool, for stainless steel EMC gasket (horizontal rails), 1 piece</p> 		<p><b>24560-271</b></p>				


### Note

- Other dimensions of rear hood available on request

## Front/rear panels, unshielded

## FRONT PANEL EXPRESS

### Order Information

 04292001			Front panel					
			pre-anodised, cut edges, plain		anodised		front anodised, rear iridescent green chromated	
Height U	Height mm	Width HP	Al, 2.5 mm		Al, 2.5 mm		Al, 2.5 mm	
			1 piece	1 piece (SPQ 5) <sup>1)</sup>	1 piece	1 piece (SPQ 5) <sup>1)</sup>	1 piece	1 piece (SPQ 5) <sup>1)</sup>
1	44.45	28	-	-	-	-	<b>20850-423</b>	-
1	44.45	42	-	-	-	-	<b>20850-424</b>	-
1	44.45	63	-	-	-	-	<b>20850-425</b>	-
1	44.45	84	-	-	-	-	<b>20850-426</b>	-
2	84.0	84	<b>30818-271</b>	-	<b>30807-416</b>	-	<b>30847-461</b>	-
3	128.4	2	-	<b>30810-433</b>	-	<b>30810-432</b>	-	<b>30847-470</b>
3	128.4	3	-	<b>30818-272</b>	-	<b>30807-508</b>	-	<b>30847-471</b>
3	128.4	4	-	<b>30818-273</b>	-	<b>30807-481</b>	-	<b>30838-043</b>
3	128.4	5	-	<b>30818-274</b>	-	<b>30807-510</b>	-	<b>30838-044</b>
3	128.4	6	-	<b>30818-275</b>	-	<b>30807-482</b>	-	<b>30838-045</b>
3	128.4	7	-	<b>30818-276</b>	-	<b>30807-509</b>	-	<b>30838-046</b>
3	128.4	8	-	<b>30818-277</b>	-	<b>30807-484</b>	-	<b>30838-047</b>
3	128.4	10	-	<b>30818-279</b>	-	<b>30807-483</b>	-	<b>30838-049</b>
3	128.4	12	-	<b>30818-281</b>	-	<b>30807-485</b>	-	<b>30838-051</b>
3	128.4	14	-	<b>30818-282</b>	-	<b>30807-501</b>	-	<b>30838-053</b>
3	128.4	21	-	<b>30818-289</b>	-	<b>30807-487</b>	-	<b>30838-060</b>
3	128.4	28	-	<b>30818-296</b>	-	<b>30807-496</b>	-	<b>30838-067</b>
3	128.4	42	<b>30818-310</b>	-	<b>30807-494</b>	-	<b>30838-081</b>	-
3	128.4	63	<b>30818-331</b>	-	<b>30808-067</b>	-	<b>30838-102</b>	-
3	128.4	84	<b>30818-352</b>	-	<b>30807-506</b>	-	<b>30838-123</b>	-
4	172.9	42	-	-	-	-	<b>30847-463</b>	-
4	172.9	63	-	-	-	-	<b>30847-464</b>	-
4	172.9	84	<b>30818-434</b>	-	<b>30807-596</b>	-	<b>30847-465</b>	-
6	261.8	2	-	<b>30818-747</b>	-	<b>30818-741</b>	-	<b>30847-472</b>
6	261.8	4	-	<b>30818-518</b>	-	-	-	<b>30838-124</b>
6	261.8	5	-	-	-	-	-	<b>30838-125</b>
6	261.8	6	-	-	-	-	-	<b>30838-126</b>
6	261.8	7	-	-	-	-	-	<b>30838-127</b>
6	261.8	8	-	<b>30818-522</b>	-	-	-	<b>30838-128</b>
6	261.8	10	-	<b>30818-524</b>	-	<b>30807-753</b>	-	<b>30838-130</b>
6	261.8	12	-	<b>30818-526</b>	-	-	-	<b>30838-132</b>
6	261.8	14	-	<b>30818-528</b>	-	<b>30807-758</b>	-	<b>30838-134</b>
6	261.8	16	-	<b>30818-530</b>	-	-	-	<b>30838-136</b>
6	261.8	21	-	<b>30818-535</b>	-	<b>30807-757</b>	-	<b>30838-141</b>
6	261.8	28	-	<b>30818-542</b>	-	<b>30807-766</b>	-	<b>30838-148</b>
6	261.8	42	<b>30818-556</b>	-	<b>30807-764</b>	-	<b>30838-162</b>	-
6	261.8	63	<b>30818-577</b>	-	<b>30807-771</b>	-	<b>30838-183</b>	-
6	261.8	84	<b>30818-598</b>	-	<b>30807-776</b>	-	<b>30838-204</b>	-
9	395.1	4	-	-	-	-	-	<b>30847-476</b>
9	395.1	8	-	-	-	-	-	<b>30847-480</b>
9	395.1	10	-	-	-	-	-	<b>30847-482</b>
9	395.1	12	-	-	-	-	-	<b>30847-484</b>
9	395.1	84	-	-	-	-	<b>30847-556</b>	-


■ Front panel assembly kits, sleeves, collar screws, quick-release fasteners see page 6.67

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

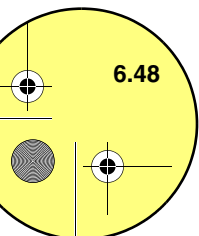
Front/rear panels shieldable with stainless steel EMC gasket

**FRONT PANEL**  
*EXPRESS*

## Order Information

 04292001			Front panel			
			front panel pre-anodised, cut edges, plain  Al, 2.5 mm		EMC sealing (St, stainless)  inserted laterally into the slots of the front panel	
Height U	Height mm	Width HP	1 piece	1 piece (SPQ 5) <sup>1)</sup>	PU 10 pieces	PU 100 pieces
2	84	84	<b>30846-588</b>	–	<b>21101-775</b>	<b>21101-776</b>
3	128.4	2	–	<b>30846-864</b>	<b>21101-705</b>	<b>21101-706</b>
3	128.4	3	–	<b>20846-425</b>		
3	128.4	4	–	<b>20846-426</b>		
3	128.4	5	–	<b>20846-427</b>		
3	128.4	6	–	<b>20846-428</b>		
3	128.4	7	–	<b>20846-429</b>		
3	128.4	8	–	<b>20846-430</b>		
3	128.4	10	–	<b>20846-431</b>		
3	128.4	12	–	<b>20846-432</b>		
3	128.4	14	–	<b>20846-433</b>		
3	128.4	21	–	<b>20846-434</b>		
3	128.4	28	–	<b>20846-436</b>		
3	128.4	42	<b>20846-437</b>	–		
3	128.4	63	<b>20846-438</b>	–		
3	128.4	84	<b>30846-676</b>	–		
4	172.9	42	<b>30846-681</b>	–	<b>21101-713</b>	<b>21101-714</b>
4	172.9	63	<b>30846-682</b>	–		
4	172.9	84	<b>30846-683</b>	–		
6	261.8	2	–	<b>30846-865</b>	<b>21101-707</b>	<b>21101-708</b>
6	261.8	4	–	<b>20846-443</b>		
6	261.8	5	–	<b>20846-444</b>		
6	261.8	6	–	<b>20846-445</b>		
6	261.8	7	–	<b>20846-446</b>		
6	261.8	8	–	<b>20846-447</b>		
6	261.8	10	–	<b>20846-448</b>		
6	261.8	12	–	<b>20846-449</b>		
6	261.8	14	–	<b>20846-450</b>		
6	261.8	16	–	<b>20846-456</b>		
6	261.8	21	–	<b>20846-451</b>		
6	261.8	28	–	<b>20846-452</b>		
6	261.8	42	<b>20846-453</b>	–		
6	261.8	63	<b>20846-454</b>	–		
6	261.8	84	<b>30846-771</b>	–		
9	395.1	84	<b>30846-859</b>	–	<b>21101-709</b>	<b>21101-710</b>
Assembly tools, for mounting the EMC sealing (stainless steel)					<b>24560-270</b>	
■ Front panel assembly kits, sleeves, collar screws, quick-release fasteners see page 6.67						

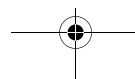
1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple



6.48

Main Catalogue  
E 03/2009


**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## Front/rear panels shieldable with textile EMC gasket

### FRONT PANEL EXPRES

#### Order Information

 04292001			Front panel					
			Front panel shielded with textile EMC gasket		EMC sealing (textile)			
Height U	Height mm	Width HP	1 piece	1 piece (SPQ 5) <sup>1)</sup>	PU 10 pieces	PU 100 pieces		
2	84	84	<b>20848-262</b>	-	-	<b>21101-856</b>		
3	128.4	2	-	<b>30849-001</b>	Textile gasket, core: foam, sleeve: textile cladding with CuNi coating, temperature range -40 ... 70°C; is glued onto the surface of the 19" bracket or the corner profile and forms the conductive connection to the U front panels			
3	128.4	3	-	<b>30849-004</b>				
3	128.4	4	-	<b>30848-354</b>				
3	128.4	5	-	<b>30848-378</b>				
3	128.4	6	-	<b>30848-380</b>				
3	128.4	7	-	<b>30848-382</b>				
3	128.4	8	-	<b>30848-356</b>				
3	128.4	10	-	<b>30848-386</b>			<b>21101-853</b>	<b>21101-854</b>
3	128.4	12	-	<b>30848-358</b>				
3	128.4	14	-	<b>20848-013</b>				
3	128.4	21	-	<b>20848-020</b>				
3	128.4	28	-	<b>20848-027</b>				
3	128.4	42	<b>20848-047</b>	-				
3	128.4	63	<b>20848-068</b>	-				
3	128.4	84	<b>20848-097</b>	-				
4	172.9	28	-	<b>20848-268</b>	<b>21101-858</b>	-		
4	172.9	42	<b>20848-269</b>	-				
4	172.9	63	<b>20848-270</b>	-				
4	172.9	84	<b>20848-271</b>	-				
6	261.8	2	-	<b>30849-002</b>	Textile gasket, core: foam, sleeve: textile cladding with CuNi coating, temperature range -40 ... 70°C; is glued onto the surface of the 19" bracket or the corner profile and forms the conductive connection to the U front panels			
6	261.8	4	-	<b>30848-355</b>				
6	261.8	5	-	<b>30848-379</b>				
6	261.8	6	-	<b>30848-381</b>				
6	261.8	7	-	<b>30848-383</b>				
6	261.8	8	-	<b>30848-357</b>				
6	261.8	10	-	<b>30848-387</b>				
6	261.8	12	-	<b>30848-359</b>			<b>21101-855</b>	<b>21101-856</b>
6	261.8	14	-	<b>20848-106</b>				
6	261.8	16	-	<b>20848-108</b>				
6	261.8	21	-	<b>20848-113</b>				
6	261.8	28	-	<b>20848-120</b>				
6	261.8	42	<b>20848-139</b>	-				
6	261.8	63	<b>20848-160</b>	-				
6	261.8	84	<b>20848-189</b>	-				
9	395.1	84	<b>20848-280</b>	-	<b>21101-859</b>	<b>21101-904</b>		



■ Front panel assembly kits, sleeves, collar screws, quick-release fasteners see page 6.67

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple

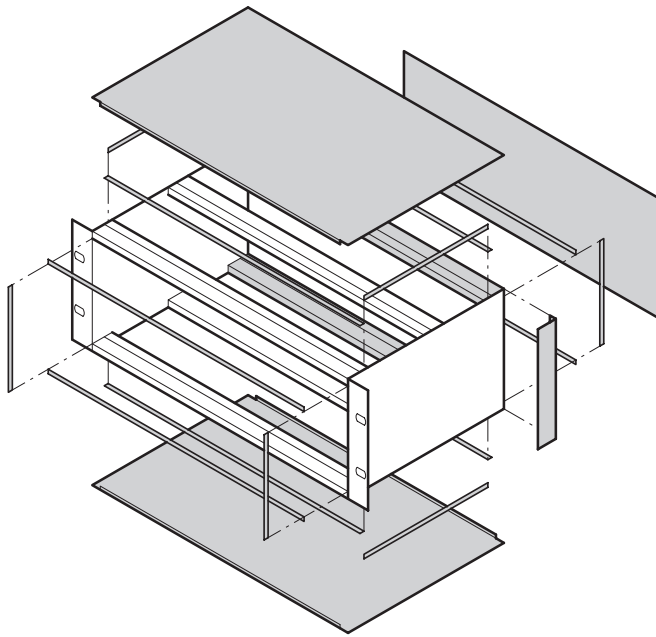


## Front panels hinged and foldable

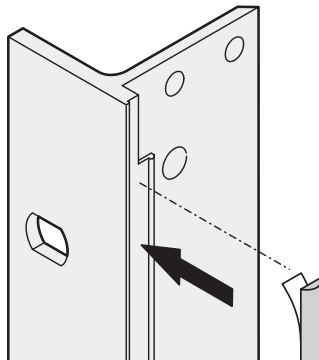
### Order Information

		Front panel, bottom-hinged		Front panel, hinged shielded with textile EMC gasket
		shielded	unshielded	
				
		Al, 2.5 mm, front anodised, rear iridescent green chromated; hinge, Zn die-cast, nickel-plated; sleeve, PA; knurled screw M2.5 x 12.3, St, nickel-plated; EMC sealing (textile)	Al, 2.5 mm, anodised, cut edges plain; hinge, Zn die-cast, nickel-plated; sleeve, PA; knurled screw M2.5 x 12.3, St, nickel-plated	Al, 2.5 mm, front anodised, rear iridescent green chromated; Hinge, die-cast zinc, chrome-plated; EMC sealing (textile)
<b>Height</b>	<b>Width</b>	<b>1 piece</b>	<b>1 piece</b>	<b>1 piece</b>
<b>U</b>	<b>HP</b>			
3	28	<b>20848-608</b>	<b>20838-280</b>	-
3	42	<b>20848-599</b>	<b>20838-271</b>	-
3	63	<b>20848-600</b>	<b>20838-272</b>	-
3	84	<b>20848-601</b>	<b>20838-273</b>	<b>20848-611</b>
4	42	<b>20848-605</b>	<b>20838-277</b>	-
4	63	<b>20848-606</b>	<b>20838-278</b>	-
4	84	<b>20848-607</b>	<b>20838-279</b>	-
6	28	20848-696	-	-
6	42	<b>20848-602</b>	<b>20838-274</b>	-
6	63	<b>20848-603</b>	<b>20838-275</b>	-
6	84	<b>20848-604</b>	<b>20838-276</b>	<b>20848-617</b>

## EMC shielding concepts



- Shielding concepts in accordance with IEEE and IEC
- Shielding effectiveness were established by various measurements in accordance with IEC 61587-3 and can be found on the Internet next to the corresponding off-the-shelf product
- Shielding concepts with EMC gaskets:
  - stainless steel gasket (suited for temperatures above 70°C)
  - textile gasket (-40 ... +70°C)
- The combined use of stainless steel and textile EMC gaskets is functionally possible without any problems



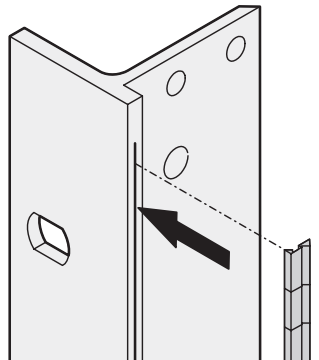
### EMC gasketing concept with textile EMC gaskets

The gasket is glued onto the left side (seen from front) of the subrack or the front panel profile; EMC gasket with CuNi-coating guarantees high shielding for a long time, typically 40dB at 2 GHz; is glued on with temperature-resistant adhesive coating (protected by peel-off film); gasketing to the rear by means of front panels or with a rear hood  
**Note:** rear hood and corner profile cannot be used simultaneously

06108073

### EMC gasketing concept with stainless steel EMC gaskets

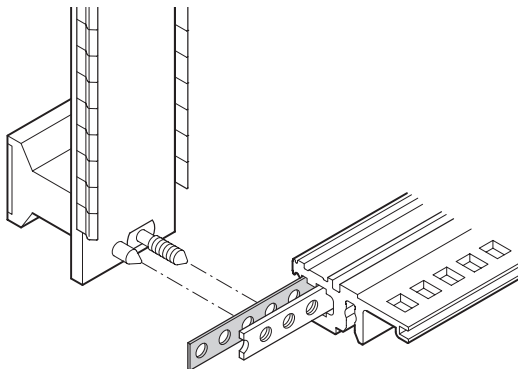
Symmetrical positioning of the EMC gaskets on the left and right side of subrack and front panel; typical shielding 40 dB at 2 GHz  
**Note:** rear hood and corner profile cannot be used simultaneously



06108074

### Front panel shielding concept

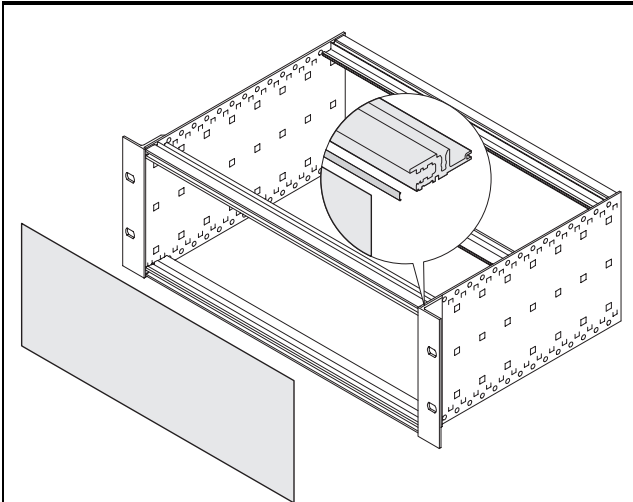
Front panels are available for EMC gaskets (textile and stainless steel); alignment pins are pressed-in into the front panel to secure the position of the gaskets and to compress them evenly



bza45853

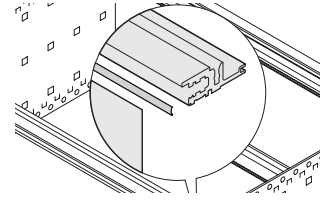
## EMC gaskets between front/rear panel and horizontal rail

### Order Information



06102053

### Stainless steel EMC gasket between front panel/rear panel and horizontal rail



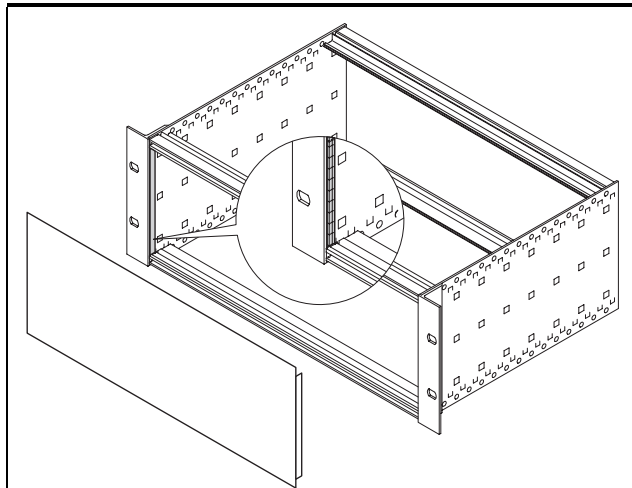
bza45819

stainless steel; for front and rear horizontal rails (type VT)

Width HP	Depth mm	PU 10 pieces	PU 100 pieces
28	131.8	<b>24560-229</b>	—
42	202.9	<b>24560-231</b>	—
63	304.5	<b>24560-233</b>	—
84	416.6	<b>24560-235</b>	<b>24560-236</b>

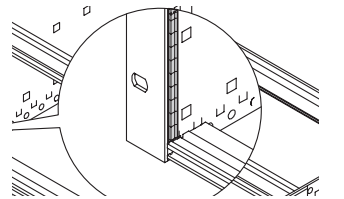
## EMC gaskets between front panel and 19" bracket/corner profile

### Order Information

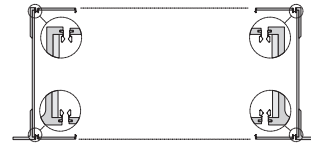


06105077

#### Stainless steel EMC between front panel/rear panel and 19" bracket/corner profile



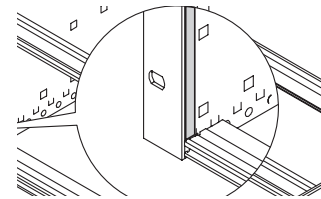
06105077



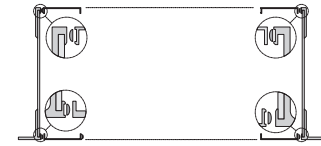
06108070

stainless steel, inserted laterally into the slots of the front panels, 19" brackets or corner profiles, temperature range over 70°C

#### EMC sealing (textile) between front panel/rear panel and 19" bracket/corner profile



06102070



06102070

textile gasket, core: foam; sleeve: textile cladding with CuNi coating; temperature range -40...70°C, is glued onto the contact surface of the 19" bracket or the corner profile and forms the conductive connection to the U front panels

Height

Depth

U

mm

3

97.5

4

142.5

6

232.5

9

365.0

PU 10 pieces

PU 100 pieces

PU 10 pieces

PU 100 pieces

**21101-705**

**21101-706**

**21101-853**

**21101-854**

**21101-713**

**21101-714**

**21101-858**

—

**21101-707**

**21101-708**

**21101-855**

**21101-856**

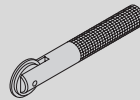
**21101-709**

**21101-710**

**21101-859**

**21101-904**

Assembly tools, for mounting the EMC sealing (steel, stainless)

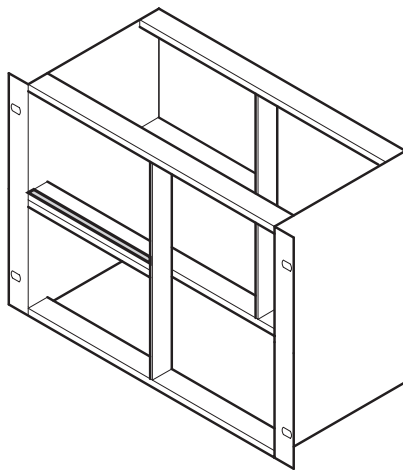


**24560-270**

—

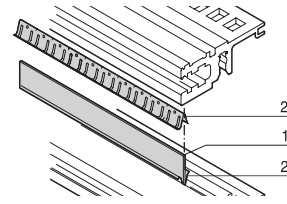
## EMC gaskets between horizontal rail and horizontal rail

### Order Information



bpa46548

### Stainless steel EMC gasket between horizontal rail and horizontal rail



bza45877

Item 1: metal strip, Al, 1 mm, item 2: stainless steel EMC gasket;  
for shielding of 2 horizontal rails positioned  
directly one above the other if assembly area is divided vertically

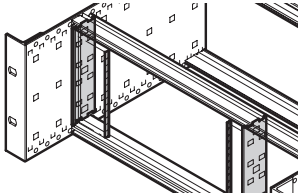
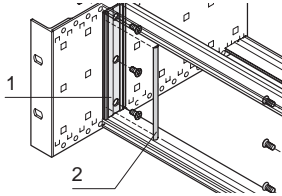
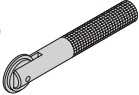
Width HP	Depth mm	PU 1 kit
20	107.0	<b>24562-520</b>
28	147.0	<b>24562-528</b>
40	208.0	<b>24562-540</b>
42	218.0	<b>24562-542</b>
63	325.0	<b>24562-563</b>
84	431.0	<b>24562-584</b>

1) SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple



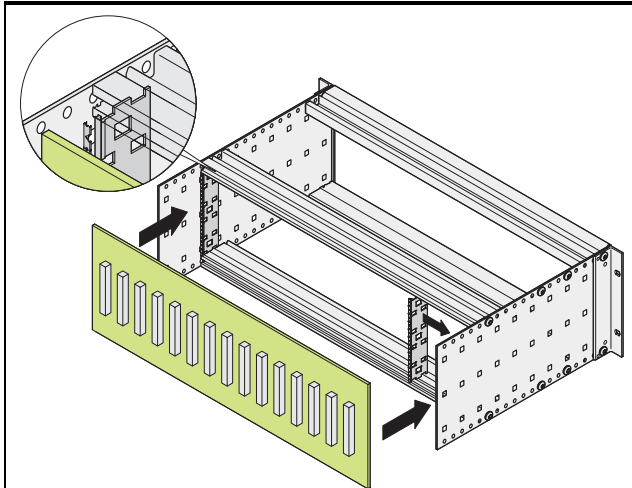
## EMC gaskets between front panel and side panel (recessed installation)

### Order Information

		<b>Stainless steel EMC gasket between front panel and side panel (recessed installation)</b>	<b>Textile EMC gasket between front panel and side panel (recessed installation)</b>
		 <p style="text-align: right; font-size: small;">bpa45884</p>	 <p style="text-align: right; font-size: small;">061020</p>
		2 x support profiles, Al extrusion (1); 2 x EMC gaskets, stainless steel (2); assembly kit; for vertical EMC shielding between depth-offset shielded front panels and side panel	Item 1: 2 x support profiles, Al extrusion; item 2, 1 x textile EMC gasket, assembly kit for vertical EMC shielding between depth-offset shielded front panels and side panel
<b>Height</b>	<b>Depth</b>		
<b>U</b>	<b>mm</b>	<b>PU 1 kit</b>	<b>PU 10 pieces</b>
3	97.5	<b>24562-199</b>	<b>24560-180</b>
4	142.5	<b>24562-299</b>	<b>24560-280</b>
6	187.5	<b>24562-499</b>	<b>24560-480</b>
Assembly tools, for mounting the EM sealing (steel, stainless) 		<b>24560-270</b>	—

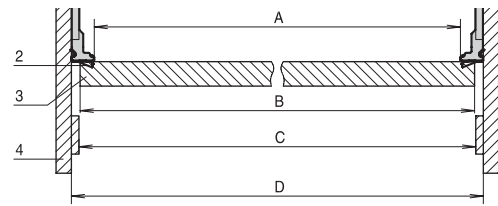
## EMC gaskets between backplane and side panel

### Order Information



06108078

### Stainless steel EMC gasket between backplane and side panel (recessed installation)



bpa45916

2 x support profile, Al extrusion,  
2 x stainless steel EMC gasket;  
for vertical EMC gasketing between depth-offset shielded backplane  
and side panel:

dimensions for 84 TE

A = 425.8 mm,  
B < 429.9 mm,  
C = 429.8 mm,  
D = 431.8 mm

Height

Depth

U

mm

3

97.5

6

187.5

PU 1 kit

**24561-199**

**24561-499**

Torx Countersunk screw

M4 x 5, St, zinc-plated, PU 100 pieces

**24560-139**

Square nuts

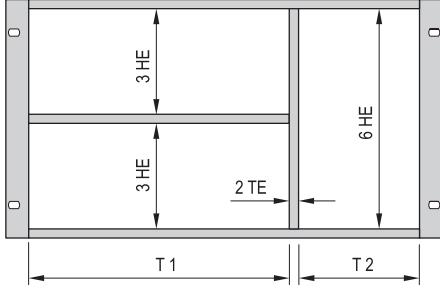
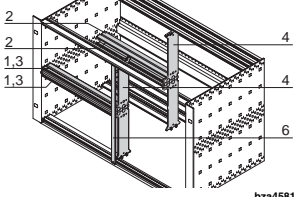
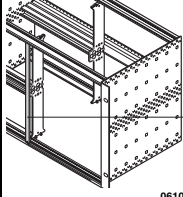
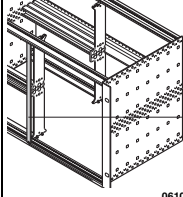
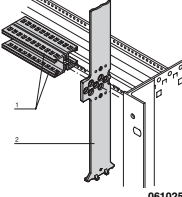
M4, St, zinc-plated, PU 100 piece

**24560-140**

- With an appropriate design the backplane can be used as shielding rear panel; for that purpose a rear horizontal rail (type L-VT or H-VT) for deepened installation must be used, to ensure the horizontal contact
- For vertical contact the support profile is fixed to the europacPRO side panel (depth grid 30 mm)

## Combined mountings (6 U and 2 x 3 U one above the other)

### Order Information

	Combined mounting	Alternative front panels for combined mounting		Splitting extrusion
	Horizontal and vertical subdivision (incl. front panel for stainless steel EMC gasket)	Unshielded front panel, 6 U, 2 HP item 6	Front panel for textile EMC gasket, 6 U, 2 HP item 6	For combined mounting item. 2
	 <p>Item 1: 2 front horizontal rails (H-KD), Al extrusion, anodised;                      item 2: 2 rear horizontal rails (AB), Al extrusion, anodised;                      item 3: threaded insert, St, zinc-plated;                      item 4: Zn die-cast support member;                      item 6: front panel 2 HP, 6 U, shielded; with stainless steel EMC gasket (84:0 without item 4, 6)</p>	 <p>Al, 2.5 mm, front anodised, rear iridescent green chromated</p>	 <p>Al, 2.5 mm, U-profile with notch, 6 U/2 HP</p>	 <p>6 U, die-cast zinc; splitting extrusion is inserted in the grid holes of the horizontal rail; the splitting extrusion can be bolted</p>
<b>Width pitch T1:T2</b>	<b>PU 1 kit</b>	<b>1 piece (SPQ 5)<sup>1)</sup></b>	<b>1 piece (SPQ 5)<sup>1)</sup></b>	<b>1 piece</b>
HP	<b>24562-420</b>			
20:62	<b>24562-440</b>			
40:42	<b>24562-442</b>	<b>30847-472</b>	<b>30849-140</b>	<b>64560-010</b>
42:40	<b>24562-463</b>			
63:19	<b>24562-484</b>			
84:0				
Torx screw M4 x 14, zinc-plated, PU 100 pieces Assembly horizontal rail/strut	–	–	–	<b>24560-145</b>
Panhead screw M2.5 x 10, St, zinc-plated, PU 100 pieces Assembly horizontal rail/strut	–	–	–	<b>24560-179</b>
Pozidrive/slotted collar screw M2.5 x 12.3, St, nickel-plated, PU 100 pieces	–	<b>21101-101</b>	<b>21101-101</b>	–
Collar screw with pozidrive M2.5, black, zinc-plated, PU 100 pieces	–	<b>21101-102</b>	<b>21101-102</b>	–
Plastic washer 2.7 x 5 x 1, PA 6, PU 100 pieces	–	<b>21101-121</b>	<b>21101-121</b>	–
Textile gasket, core: foam, sleeve: textile cladding with CuNi coating, UL 94 V-0 PU 10 pieces	–		<b>21101-855</b>	

- Subdivision of the 6 U assembly area into:

- 2 x 3 U
- 1 x 6 U

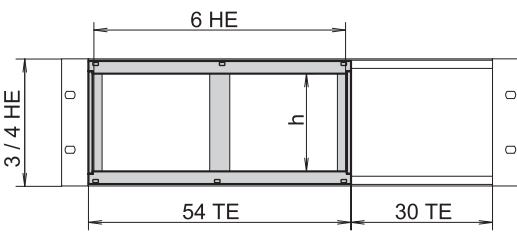
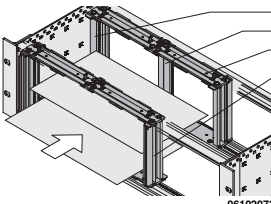
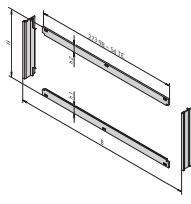
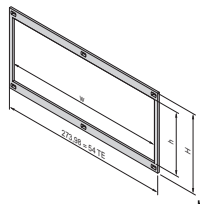



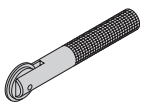
- Designed to accept euroboards (100 mm high) and double euroboards (233.35 mm high)

#### Note

- Please order EMC gasketing kit for horizontal rails separately, see page 6.54
- Please order perforated strips for horizontal rails separately, see page 6.32
- Please order rear centre horizontal rail separately, see page 6.30

## Horizontal boards mounting in 3 or 4 U subrack

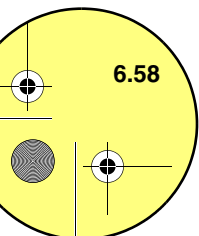
### Order Information

			Horizontal board mounting in 3 or 4 U subrack		
			Complete kit	Front frame for EMC gasketing	Front frame, unshielded
<p>H = usable height (1 TE = 1 HP, 1 HE = 1 U)</p> <p>Height U      Useable height h      Other dimensions and options</p> <p>Horizontal rail, front      Horizontal rail, rear (H-VT)*</p>			 <p>Struts, die-cast zinc; horizontal rails to front and rear; threaded insert; assembly kit; for horizontal assembly of double-height euroboards in 3 or 4 U high subracks/cases; 54 HP space required</p>	 <p>2 horizontal covers, Al 2.5 mm, front anodised, rear iridescent green chromated; 2 vertical trims, Al extrusion, clear passivated; stainless steel EMC gasket; front frame forms the contact between subrack and the sub-assemblies</p>	 <p>Al, 2.5 mm, clear anodised; front frame with cut-out, inside clearance width w=266.35 mm</p>
			PU 1 kit	PU 1 kit	1 piece
3	20		<b>24564-117</b>	<b>24564-109</b>	<b>34564-108</b>
3	20		<b>24564-118</b>	<b>24564-109</b>	<b>34564-109</b>
4	28		<b>24564-217</b>	<b>24564-209</b>	<b>34564-208</b>
<p>Assembly tools, for mounting the EMC sealing (steel, stainless)</p> 			-	<b>24560-270</b>	-

\* For direct backplane mounting

### Note

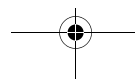
- Please order front frame for EMC shielding separately



6.58

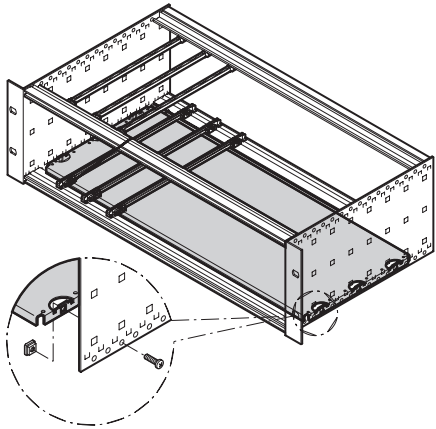
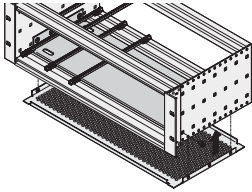
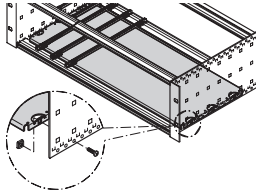
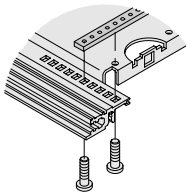
Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## Mounting plates

### Order Information

			Mounting plate can be used in combination with cover plates	Mounting plate for use without cover plate		Mounting plate Assembly strips for partial widths
 <p style="text-align: right;">bpa45875</p>			 <p style="text-align: right;">bza45819</p>	 <p style="text-align: right;">06102501</p>	 <p style="text-align: right;">061025</p>	
			Al, 1.5 mm; mounting is only possible over the entire width between the side panels	Al, 1.5 mm; mounting is over the entire width; for mounting over partial width, please order fixing strips separately		St, 2 mm, zinc-plated; is bolted from front to back onto the with horizontal rails; serves to fix mounting plates
Width HP	W mm	Board lengths mm	1 piece	1 piece	1 piece	1 piece
28	146.88	160	<b>34563-001</b>	<b>34562-745</b>	<b>30840-021</b>	
28	146.88	220	<b>34563-009</b>	<b>34562-749</b>	<b>30840-033</b>	
28	146.88	160	–	<b>34562-753</b>	30840-045	
28	146.88	220	–	<b>34562-757</b>	<b>30840-057</b>	
42	217.99	160	<b>34563-002</b>	<b>34562-746</b>	<b>30840-021</b>	
42	217.99	220	<b>34563-014</b>	<b>34562-750</b>	<b>30840-033</b>	
42	217.99	160	–	<b>34562-754</b>	30840-045	
42	217.99	220	–	<b>34562-758</b>	<b>30840-057</b>	
63	324.67	160	<b>34563-003</b>	<b>34562-747</b>	<b>30840-021</b>	
63	324.67	220	<b>34563-019</b>	<b>34562-751</b>	<b>30840-033</b>	
63	324.67	160	–	<b>34562-755</b>	30840-045	
63	324.67	220	–	<b>34562-759</b>	<b>30840-057</b>	
84	431.35	160	<b>34563-004</b>	<b>34562-748</b>	<b>30840-021</b>	
84	431.35	220	<b>34563-024</b>	<b>34562-752</b>	<b>30840-033</b>	
84	431.35	160	–	<b>34562-756</b>	30840-045	
84	431.35	220	–	<b>34562-760</b>	<b>30840-057</b>	
Assembly kit for mounting plate, PU 1 kit (Torx Countersunk screw M4 x 5, St, zinc-plated, 12 pieces; screw M4 x 6, St, zinc-plated 10 pieces; M4 square nut, St, zinc-plated, 10 pieces)			<b>24560-184</b>	<b>24560-184</b>	–	
Assembly kit for assembly strips of mounting plate Torx screw M2.5 x 5, St, zinc-plated, PU 100 pieces			–	–		<b>24560-146</b>

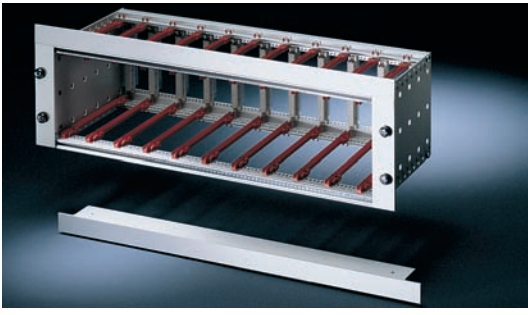
### Note

- For installation and assembly of heavy components
- In addition to the mounting plate also (EMC) cover plates can be fitted to the subrack
- The mounting plate is as wide as the subrack or the system case and is fixed to the side panels
- A guide rail can be fitted in the first and last slot position
- Guide rails 4.4" and "strengthened" cannot be used



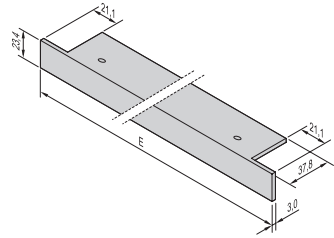
## Panel mounting

### Order Information



06197021

**Trim**  
**19" bracket without handle holes**



06105067

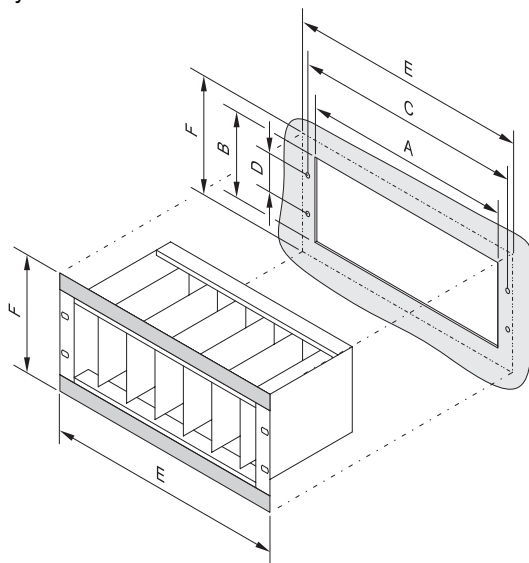
Al extrusion, anodised; for optical closure of the subrack to the front, above and below, when fitting into panels; is bolted to horizontal rail to front; per subrack 2 trims and 4 screws are needed

Usable width	Length	
HP	mm	1 piece
42	269.2	<b>34561-777</b>
84	482.6	<b>34561-779</b>
Torx Panhead screw 2.5 x 9.3, zinc-plated, PU 100 pieces		<b>24560-141</b>

### Note

- Further widths available on request

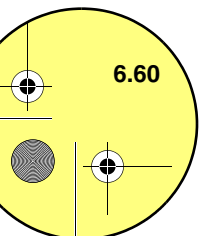
### Assembly cut-out



06105066

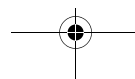
### Dimensions table

U	HP	A	B	C	D	E	F
		mm	mm	mm	mm	mm	mm
3	42	237.0	145.0	252.0	57.15	269.2	179.4
3	63	343.0	145.0	358.5	57.15	375.9	179.4
3	84	450.0	145.0	465.0	57.15	482.6	179.4
6	42	237.0	278.5	252.0	190.5	269.2	312.7
6	63	343.0	278.5	358.5	190.5	375.9	312.7
6	84	450.0	278.5	465.0	190.5	482.6	312.7



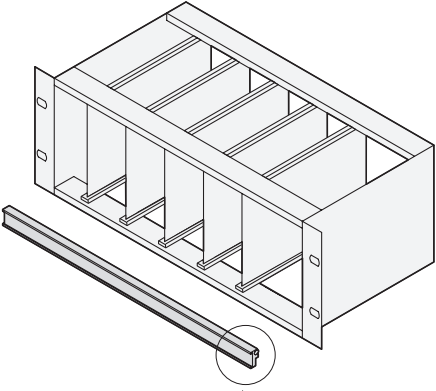
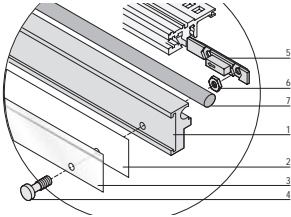
Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## Central locking

### Order Information

		<p style="text-align: center;"><b>Central locking for PCBs without front panels</b></p>  <p style="text-align: right; font-size: small;">bza45819</p> <p>item 1: central rail, Al, anodised;              item 2: ID label, white;              item 3: transparent cover strip, plastic;              item 4: 2 x knurled screw;              item 5: 2 x slide nut;              item 6: 2 x hexagon nut M2.5;              item 7: rubber gasket;              retaining rail allows joint locking of              PCBs and serves as identification plate;              can be fitted to front and rear horizontal rail</p>
<p><b>Width</b> <b>HP</b></p>	<p><b>Length</b> <b>mm</b></p>	<p>06197010</p>
<p>84</p>	<p>482.6</p>	

### Note

- The retaining rail provides common locking of PCBs and acts as the identification plate
- For 84 HP europacPRO subracks only
- Can be fitted to front and rear horizontal rails

## Telescopic slides for assembly of subracks into cabinets

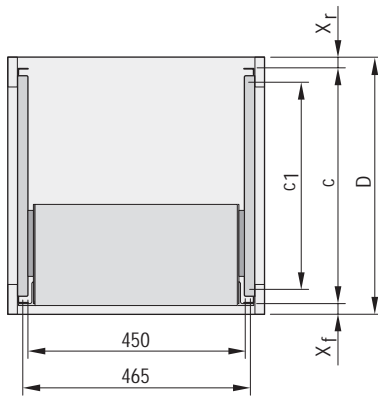


06101006

- For mounting 84 HP wide subracks in the 19" plane
- Loading capacity: 25 kg per pair
- The guiding profile is matched to the fixing dimension in the cabinet (it is bolted to the 19" profile of the cabinet); the adaptor rail is matched to the depth and fixing dimension on the subrack (it is inserted into the guiding profile like a telescopic slide)
- Safety notice:  
no protection against extraction, no stop at full extension

### Order Information

#### Telescopic slides with guiding profile for fitting in cabinets



06108082

Description (1)	Depth D	$x_f$	$x_r$	c	c1	Part no.
	mm	mm	mm	mm	mm	
VARISTAR	600	50	50	500	369	<b>24562-464</b>
VARISTAR	800	50	50	700	569	<b>24562-466</b>
VARISTAR	900	50	50	800	669	<b>24562-467</b>
VARISTAR	1000	50	50	900	769	<b>24562-468</b>
VARISTAR	1100	50	50	1000	869	<b>24562-472</b>
VARISTAR	1200	50	50	1100	969	<b>24562-473</b>
eurorack	600	60	60	480	397	<b>24562-449</b>
eurorack	800	60	60	680	597	<b>24562-451</b>
eurorack	900	60	60	780	697	<b>24562-452</b>
Minirack	500	33	60	407	350	<b>24562-460</b>
Minirack	600	33	60	507	450	<b>24562-461</b>
Minirack	780	33	60	687	630	<b>24562-462</b>
Lab rack	250	0	0	250	162	<b>24562-446</b>

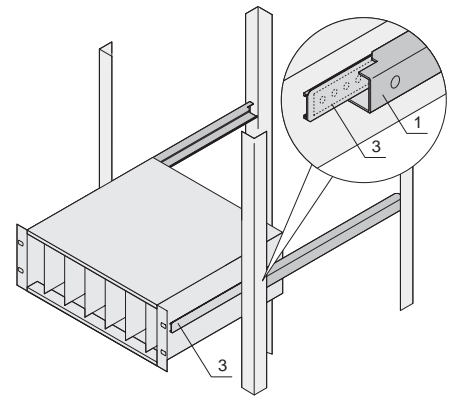
$x_f$ ,  $x_r$ : distance of 19" plane to cabinet edge (front, rear)

c: distance of 19" planes to one another,

c1: assembly dimensions of guiding profile on the 19" panel/slide mounts

### Order Information

#### Telescopic slides with adaptor rail for subracks



06108072

For subrack depth (3)	Part no.
mm	
175	<b>24562-453</b>
235	<b>24562-454</b>
295	<b>24562-455</b>
355	<b>24562-456</b>
415	<b>24562-457</b>
475	<b>24562-458</b>

## Divider plates

### Order Information

**Divider plate**

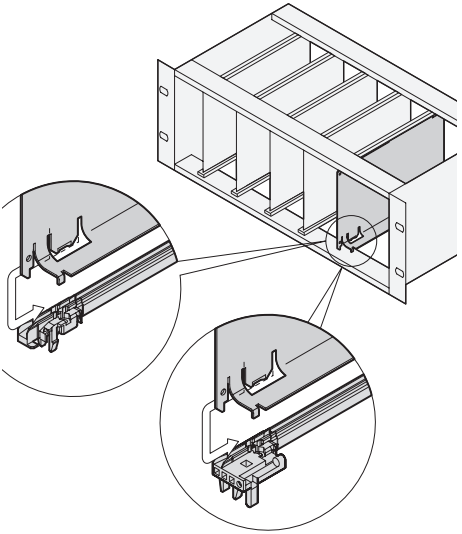
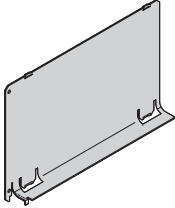
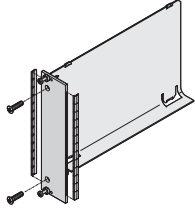
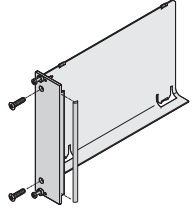
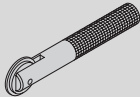
Mounting position for stainless steel EMC gasket	Mounting position for textile EMC gasket
<p style="text-align: center; font-size: small;">bpa45911</p>	<p style="text-align: center; font-size: small;">06105078</p>
Stainless steel, 1 mm, is mounted by clipping into horizontal rail, space requirement on component side 2 mm; assembly position differs in accordance with sealing concept (EMC stainless steel gasket or textile); a subsequent installation of the divider plate in an already assembled subrack required to remove the horizontal rails first	

Height U	Depth mm	A mm	B mm	H mm	
3	160	158.3	135.0	113.6	<b>1 piece</b>
3	220	218.3	195.0	113.6	<b>34562-761</b>
6	160	158.3	135.0	246.9	<b>34562-762</b>
6	220	218.3	195.0	246.9	<b>34562-763</b>

## Air baffle for slots

### Order Information

			Air baffle without front panel	Air baffle with front panel	
				front panel with lateral groove; groove for stainless steel EMC gasket	U front panel for textile EMC gasket
			 <p>Al, 1 mm, incl. assembly kit; prevents an air short circuit in unoccupied slot positions; is pushed into the groove of the guide rails</p>	 <p>Air baffle, Al, 1 mm; front panel, Al, 2.5 mm, front anodised, rear conductive; stainless steel EMC gasket; assembly kit; prevents an air short circuit in unoccupied slot positions; is pushed into the groove of the guide rails</p>	 <p>Air baffle, Al, 1 mm, front panel, Al extrusion, 2.5 mm, front anodised, rear conductive; textile EMC gasket, assembly kit; prevents an air short circuit in unoccupied slot positions; is pushed into the groove of the guide rails</p>
Depth mm	Width HP	Height U	1 piece	1 piece	1 piece
160	4	3	<b>34562-823</b>	20848-712	20848-728
160	4	6	<b>34562-826</b>	20848-720	20848-736
160	8	3	<b>34562-833</b>	20848-714	20848-730
160	8	6	<b>34562-836</b>	20848-722	20848-738
160	12	3	<b>34562-843</b>	20848-716	20848-732
160	12	6	<b>34562-846</b>	20848-724	20848-740
220	4	3	<b>34562-824</b>	20848-713	20848-729
220	4	6	<b>34562-827</b>	20848-721	20848-736
220	8	3	34562-834	20848-715	20848-731
220	8	6	34562-837	20848-723	20848-739
220	12	3	<b>34562-844</b>	20848-717	20848-733
220	12	6	34562-847	20848-725	20848-741
Assembly tool for EMC sealing (steel, stainless), 1 piece 			-	<b>24560-270</b>	-

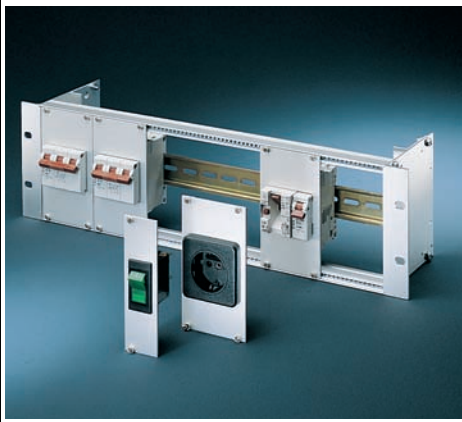
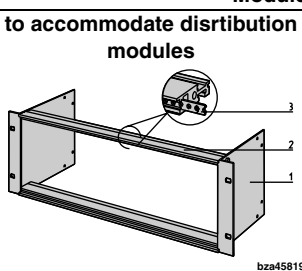
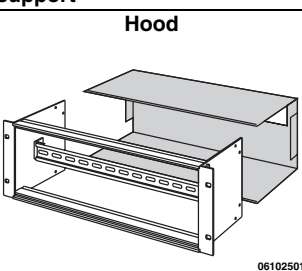
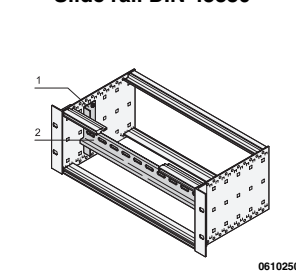
### Note

- Air baffle for 280 mm deep and for 80 mm rear I/O boards available on request



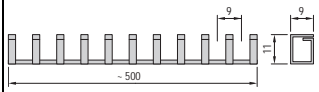
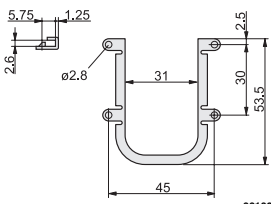
## 19" module support, slide rail DIN 43880

### Order Information

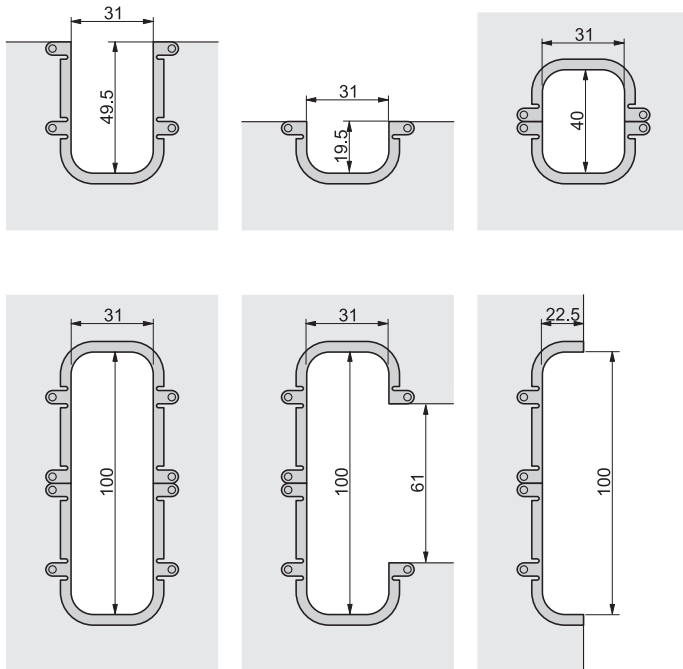
	<b>Module support</b>		<b>Slide rail DIN 43880</b>									
	<p style="text-align: center;"><b>to accommodate distribution modules</b></p>  <p style="text-align: center;"><small>bza45819</small></p> <p>2 side panels, Al, 1.8mm; 2 horizontal rails with: short top, threaded insert, GND/earthing kit, assembly kit; please order slide rails separately</p>	<p style="text-align: center;"><b>Hood</b></p>  <p style="text-align: center;"><small>06102501</small></p> <p>Al, 1mm, with brush stripe, is screwed on rear side of the module support</p>	 <p style="text-align: center;"><small>06102501</small></p> <p>2 adaptor brackets, Al, 2 mm; equipment slide rail, height 35 mm, width 84 HP, depth 7.5 mm; mounted laterally in module support or subrack; power distribution modules see page 3.35</p>									
<small>06197010</small>	<b>1 piece</b>	<b>1 piece</b>	<b>1 piece</b>									
<table border="1"> <thead> <tr> <th>Height</th> <th>Width</th> <th>Depth</th> </tr> <tr> <th>U</th> <th>HP</th> <th>mm</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>84</td> <td>115.5</td> </tr> </tbody> </table>	Height	Width	Depth	U	HP	mm	3	84	115.5	<b>20119-193</b>	<b>20119-374</b>	<b>24560-171</b>
Height	Width	Depth										
U	HP	mm										
3	84	115.5										

## Cable duct, edge protection

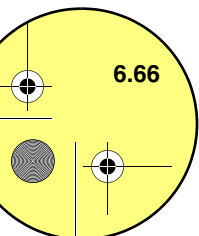
### Order Information

		Cable channel	Edge protection
		 <p>06108089</p> <p>PP, UL 94 V-2, white; length 500 mm, cable opening 11 mm x 15 mm; assembly in front of horizontal rail (is screw-fixed on threaded insert or slide nut)</p>	 <p>06102501</p> <p>ABS, UL 94 V-0, RAL 7035, edge protection curved; for wall thicknesses from 2.0 to 2.5 mm; fixing by means of snap tabs in holes; serves to cover cut-outs e.g. in subrack side panels, thus avoiding damage to cables, etc.</p>
<b>Height</b>	<b>Width</b>	06197010	
<b>U</b>	<b>HP</b>	<b>1 piece</b>	<b>PU 10 pieces</b>
<b>3</b>	<b>84</b>	<b>69000-507</b>	<b>24560-170</b>

### Mounting variants of edge protectors



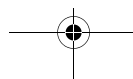
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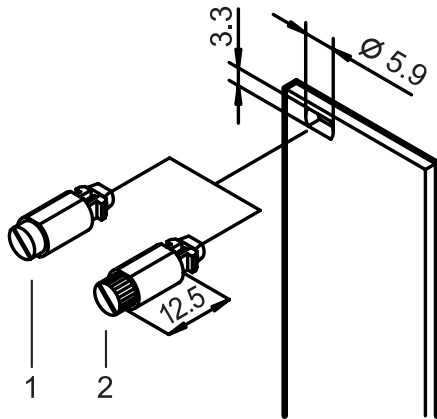
**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## Assembly parts

- Quick-release fastener
- Sleeve
- Screws
- Cage nuts
- Tools

## Quick-release fastener



- Vibration and shock proof
- 1/4 rotary lock with defined stop
- Detection of fastening position through slot position

### Delivery comprises

Qty	Description
1	Locking pin, St, locking, Zn die-cast
1	Press-in sleeve, POM

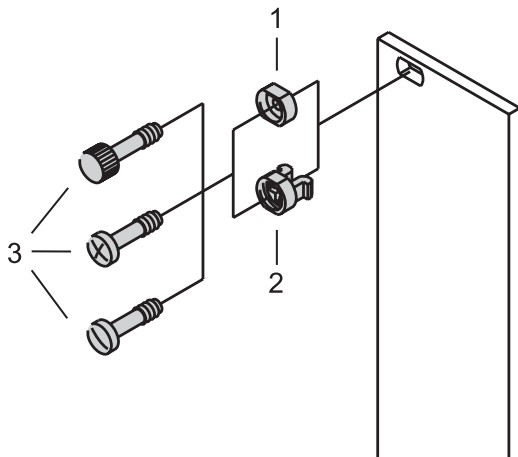
### Order Information

Item	Description	Qty/PU	Part no.
1	With slotted head, grey	100	<b>21101-847</b>
1	With slotted head, black	100	<b>21101-848</b>
2	With knurled head, grey	100	<b>21101-849</b>
2	With knurled head, black	100	<b>21101-850</b>

### Note

Quick-release fastener: mounting without threaded insert

## Sleeve



### Order Information

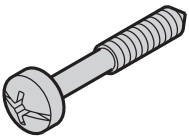
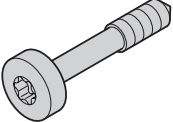
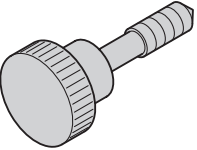
Item	Description	Qty/PU	Part no.
2	Plastic sleeve, PA, grey	100	<b>21100-464</b>
2	Plastic sleeve, PA, black	100	<b>21100-591</b>
1	Metal sleeve, brass, nickel-plated	10	<b>21100-659</b>
1	Metal sleeve, brass, nickel-plated	100	<b>21100-660</b>
1	Metal sleeve, brass, black	100	<b>21100-888</b>
1	Metal sleeves, steel, stainless	10	<b>21100-661</b>
1	Metal sleeves, steel, stainless	100	<b>21100-662</b>

### Note

- Metal sleeves must be pressed-in into front panels
- Sleeve not suitable for front panels 2 HP

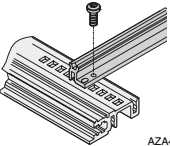
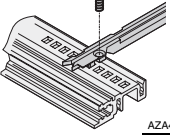
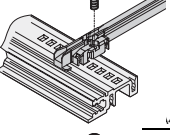
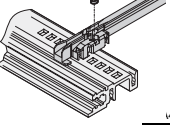
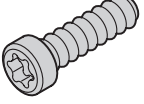
## Collar screw

### Order Information

Description	Application	Material	Dimension	Qty/PU	Part no.
 Collar screw with Pozidrive/slot <small>AZA46586</small>	For mounting of front panels; when using threaded inserts	St, nickel-plated	M2.5 × 12.3	100	<b>21101-101</b>
		St, zinc-plated, black	M2.5 × 12.3	100	<b>21101-102</b>
 Torx Collar screw <small>AZA45941</small>	For mounting of front panels when using threaded inserts	St, nickel-plated	M2.5 × 12.3	100	<b>21101-782</b>
		St, zinc-plated, black	M2.5 × 12.3	100	<b>21101-783</b>
 Collar screw with knurled head <small>aza45929</small>	For mounting of front panels when using threaded inserts	Ms, nickel-plated	M2.5 × 12.3	100	<b>21101-749</b>
	For mounting of front panels when using threaded inserts for horizontal rails with long lip	Ms, nickel-plated	M2.5 × 12.3	100	<b>21101-909</b>


## Torx screw, self-forming

### Order Information

Description	Application	Material	Dimension	Qty/PU	Part no.
 Torx Panhead screw <small>AZA45922</small>	For extra-robust Al guide rails	St, zinc-plated, black	2.5 × 7.3	100	<b>24560-157</b>
 Torx Countersunk screw <small>AZA45922</small>	For 4.4" board height, guide rail on horizontal rail, europacPRO, ratiopacPRO	St, zinc-plated	2.5 × 7.7	100	<b>24560-158</b>
 Torx Panhead screw <small>v45922</small>	For plastic guide rail on horizontal rail for panel bracket on horizontal rail	St, zinc-plated	2.5 × 9.3	100	<b>24560-141</b>
 Torx Panhead screw, self-locking <small>v45922</small>	For plastic-guide rails on horizontal rails	St, zinc-plated	2.5 × 9.3	100	<b>21500-039</b>
 Torx Panhead screw <small>AZA45922</small>	For 6 U splitting extrusion, backplane mounting centre horizontal rail	St, zinc-plated	2.5 × 10	100	<b>24560-179</b>

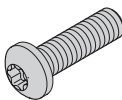
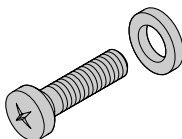
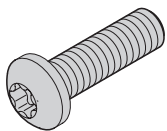
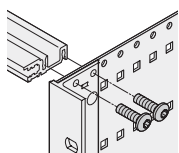
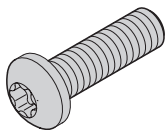
## Countersunk screws

### Order Information

Description	Application	Material	Dimension	Qty/PU	Part no.
 Torx screw <small>AZA46585</small>	For contact strips europacPRO, ratiopacPRO	St, zinc-plated	M4 × 5	100	<b>24560-13</b>
	For mixed board assembly and assembly of shortened horizontal rail on support member, with GND/earthing function	St, zinc-plated	M4 × 14	100	<b>24560-14</b>

## Torx Panhead screws

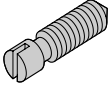
### Order Information

Description	Application	Material	Dimension	Qty/PU	Part no.
 Torx Countersunk screw <small>aza45940</small>	For Z-rails and connector assembly	St, nickel-plated	M2.5 × 7	100	<b>24560-14</b>
	For perforated rail	St, nickel-plated	M2.5 × 10	100	<b>24560-14</b>
	For backplane fixing	St, nickel-plated	M2.5 × 12	100	<b>24560-16</b>
	For backplane fixing	St, nickel-plated	M2.5 × 14	100	<b>24560-16</b>
 Screw + securing washer <small>aza45940</small>	For backplane fixing	St, nickel-plated	M2.5 × 12	100	<b>21100-77</b>
 Torx Panhead screw <small>aza45940</small>	To screw on support bracket, rear hood, rear angle on side panel, extension bracket and adapter bracket	St, zinc-plated	M4 × 6	100	<b>24560-13</b>
	To bolt-on cover plate or mounting plate, with GND/earthing function	St, zinc-plated	M4 × 6	100	<b>24560-15</b>
 Torx Panhead screw <small>AZA45922</small>	To bolt-on cover plate or mounting plate, with GND/earthing function, self-tapping thread	St, zinc-plated	M4 × 6	100	<b>21101-88</b>
	For horizontal rail on side panel if guide rails are bolted to slot 1	St, zinc-plated	M4 × 10	100	<b>24560-15</b>
 Torx Panhead screw <small>aza45940</small>	For horizontal rail on side panel, with GND/earthing function	St, zinc-plated	M4 × 14	10	<b>24560-13</b>
	For horizontal rail on side panel, with GND/earthing function	St, zinc-plated	M4 × 14	100	<b>24560-13</b>



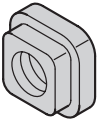
## Grub screws

### Order Information

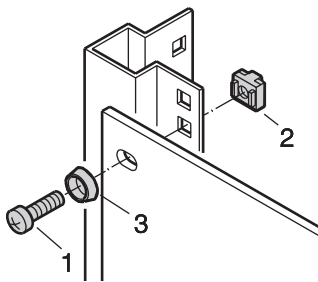
Description	Application	Material	Dimension	Qty/PU	Part no.
 06702053 Grub screw	For threaded inserts M2.5 and perforated strips	Stainless steel	M2.5 × 9	100	<b>21101-359</b>
	For threaded inserts M2.5	St, nickel-plated	M2.5 × 8	100	<b>21100-276</b>
	For threaded inserts M3	St, zinc-plated	M3.0 × 8	100	<b>21100-646</b>

## Square nuts

### Order Information

Description	Application	Material	Dimension	Qty/PU	Part no.
 AZA45921 Square nut	To attach: parts to side panels, support profiles, mounting plates	St, zinc-plated	M4	100	<b>24560-140</b>

## Assembly kits



SC128XXX

- For assembly of subracks in cabinets or 19" cases
- For assembly of desk-top cases in cabinets by means of 19" brackets

### Delivery comprises (kit)

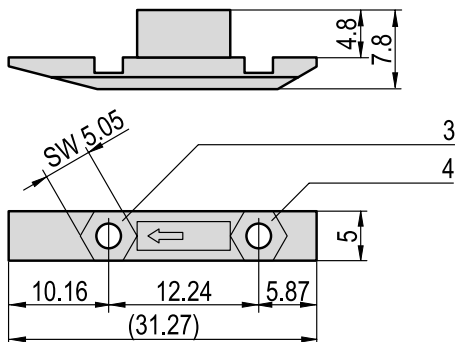
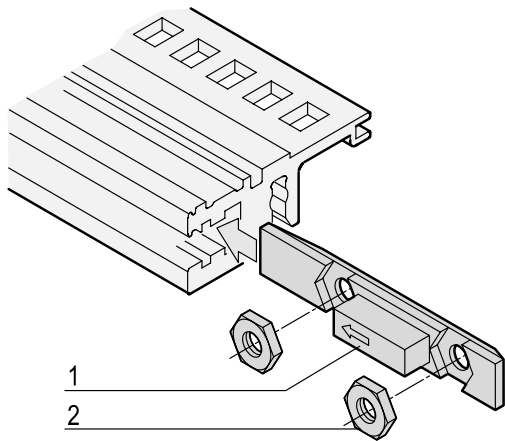
Item	Qty	Description
1	1	Screw M6 × 16, zinc-plated Pozidrive
2	1	Plastic washer, ABS, black
3	1	Cage nut M6, zinc-plated

### Order Information

Description	Part no.
PU = 8 × screw, washer, nut	<b>21100-435</b>
PU = 50 × screw, washer, nut	<b>21101-809</b>
PU = 100 × screw, washer, nut	<b>21101-810</b>

- For 19" brackets with material thickness of 1.5 mm, see assembly kits in chapter Cabinet accessories

## Slide, movable, to accept 2 nuts



- The slide is pushed into the groove of the horizontal rail to front or rear (type VT)

### Delivery comprises (kit)

Item	Qty	Description
1	1	Slide, PBT, red, UL 94 V-0
2	2	Nut, M2.5, St, zinc-plated

### Order Information

Description	Part no.
Slide nut kit 1	100 slides/200 nuts <b>24560-165</b>
Slide nut kit 2	12 slides/24 nuts <b>24560-166</b>

### Note

- Nuts used in item 3, suitable for:
  - hinged front panels, 84 HP
  - front or rear panels, 84 HP
- Nuts used in item 4, suitable for:
  - hinged front panels
- Nuts used in item 3 and 4, suitable for:
  - two front panels

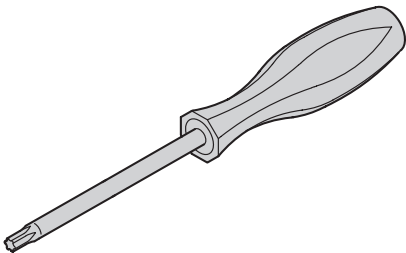
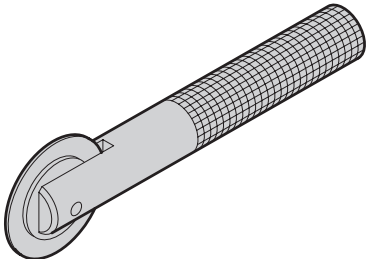
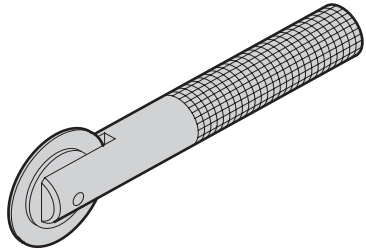


For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

06702060

## Assembly tool

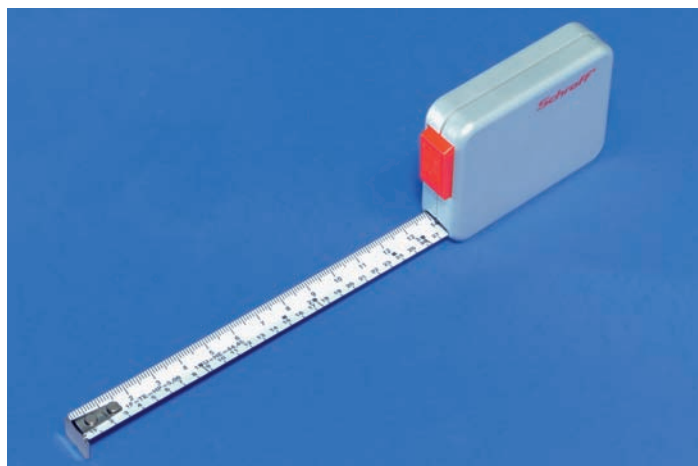
### Order Information

Description	Application	Dimension	Qty/PU	Part no.
 <small>AZA45925</small> Torx screwdriver	For M2.5 screw	T8 × 60	1	<b>64560-026</b>
	For M4 screw	T20 × 100	1	<b>64560-027</b>
 <small>aza45938</small> Assembly tools	Exclusively to fix stainless steel EMC gaskets in horizontal rails	–	1	<b>24560-271</b>
 <small>aza45937</small> Assembly tools	For fitting EMC seals (steel, stainless) in front panels with lateral slot	–	1	<b>24560-270</b>

### Note

- Assembly tool for insertion of keying/coding pegs in board guides is available on request

## Measuring tape



32506001

- Measuring tape with cm, U-, HP-division (length 2 m)
- Plastic cases, metal measuring tape with automatic collection

### Order Information

Description	Qty/PU	Part no.
Measuring tape	1	<b>89009-001</b>

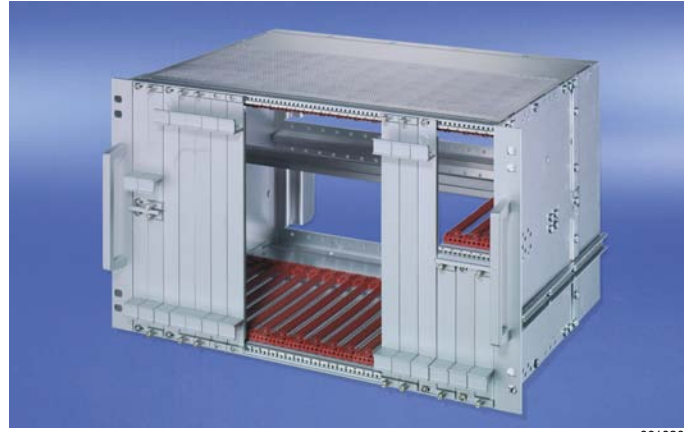
## Application examples

### Application: applications in the transportation/defence sectors



06108006

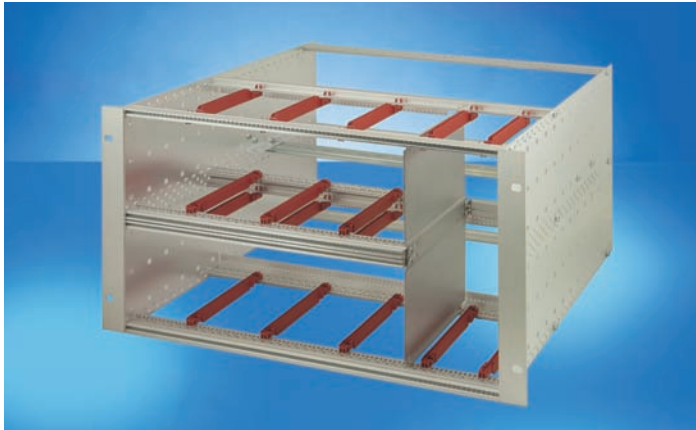
- Mounting frame to accept a 36 HP wide railway subrack, frame in stainless steel



06103000

- Robust mounting with double screw fixing
- Lateral ducting in cabinet
- Combined mounting 6 U + 2 x 3 U

### Application: applications in measurement, control and instrumentation sectors



06108002

- Combined mounting with 2 x 3 U in 6 U
- Divider plate to separate different sections
- Construction with reinforced guide rails



06108000

- Subrack with additional pull-out fan unit
- Adaptation in bottom and top of side panel integrated

### Application: applications in telecom sectors



06108004

- Recessed front panels for cable ducting
- Folding front panel to cover the cables of the recessed plane



06101000

- Subrack with plastic cable ducting for fibre-optic cable/fibres
- Connector insertion area at top



Overview ..... 0

Wall mounted cases ..... 2

Accessories for cabinets and wall mounted cases .... 3

Climate control .... 4

Desk-top cases .... 5

**Sub racks/  
19" chassis ..... 6**

Front panels, plug-in units ..... 7

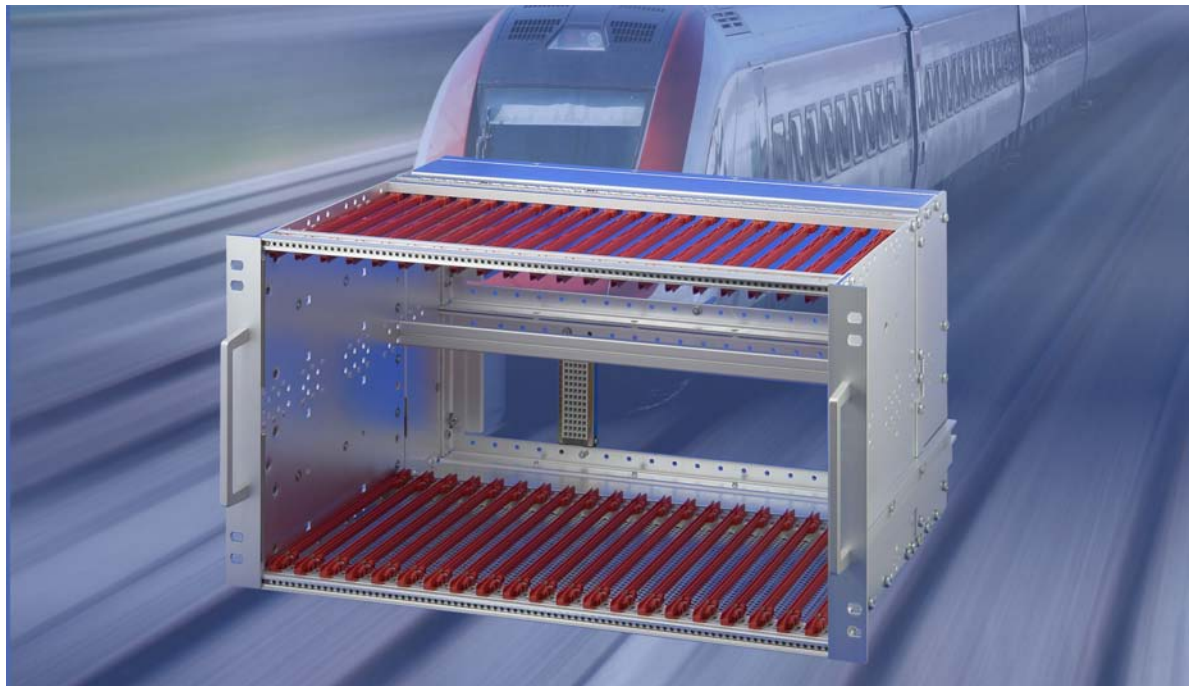
Systems ..... 8

Power supply units ..... 9

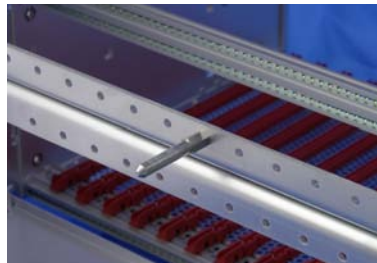
Backplanes ..... 10

Connectors, front panel component system ..... 11

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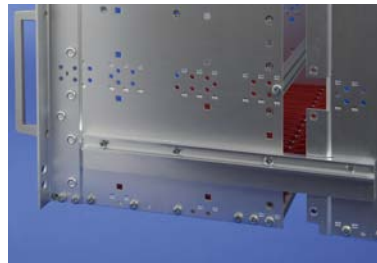


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06108013

An alignment pin (in accordance with the NFF standard) allows the easy installation of the sub racks



06108014

Lateral support bars (in accordance with the NFF standard) facilitate to slide in the sub rack into the (cabinet) frame



06108015

The 19" bracket is firmly fixed to the side panel (Tox-cold welded) and especially suited for high mechanical stresses (vibration resistance)



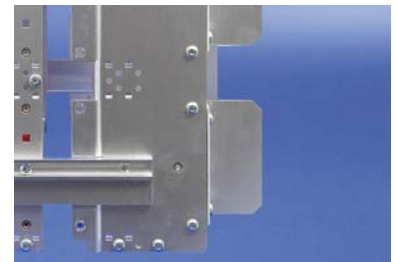
06108016

The double 19" fixing position adds to additional safety (NFF standard)



06108017

The cut-out in the side panel allows to retro-fit the threaded insert, also if the side panels are already assembled



06108015

The rear brackets have two functions:  
- push-in aid and  
- transport protection for the connectors  
The removable rear hood allows a fast cabling between backplane and the connector



**Downloads and further important information can be found on the Internet under [www.schroff.biz](http://www.schroff.biz)**



## 19" subrack for mobile rail applications

- Unshielded and shielded versions
- Shock and vibration resistant to IEC 61587-1, EN 50155, NF F 61-005/NF F 60-002, BN 411002 and BN 411003
- Versions for CompactPCI applications
- Front shielding is provided by EMC sealing (textile)



06102008

### BN 411002, 411003 Subracks

- 3 U and 6 U
- 84 HP
- Unshielded and shielded versions
- Tox-cold welded side panels



**BN 411002/-003 subracks**  
 unshielded . . . . 6  
 shielded . . . . . 6



06104006

### EN 50155 subrack

- 3 U and 6 U
- 84 HP
- Unshielded and shielded versions
- Shielded versions for CompactPCI applications

**EN 50155 subrack**  
 unshielded . . . . 6  
 shielded . . . . . 6  
 shielded, for CompactPCI . . . . 6



06104003

### SNCF subrack

- 3 U and 6 U
- 9 T (36 HP) and 21 T (84 HP)
- Unshielded and shielded versions
- Shielded versions for CompactPCI applications



**SNCF subracks**  
 unshielded . . . . 6  
 shielded . . . . . 6  
 shielded, for CompactPCI . . . . 6



30407004

### ServicePLUS from page 6.88

- e.g. modifications (cut-outs)
- e.g. downloads (CAD drawings, user manuals, test reports)
- e.g. custom solutions (special sizes)
- [www.schroff.biz/serviceplus/](http://www.schroff.biz/serviceplus/)

**Accessories . .**  
 Guide rails . . . . 6  
 Cover plates . . . . 6

**General accessories in europacPRO section . . . . 6**

**ServicePLUS . 6**  
 Application examples . . . . . 6



Main Catalogue

[www.schroff.biz](http://www.schroff.biz)

E 03/2009

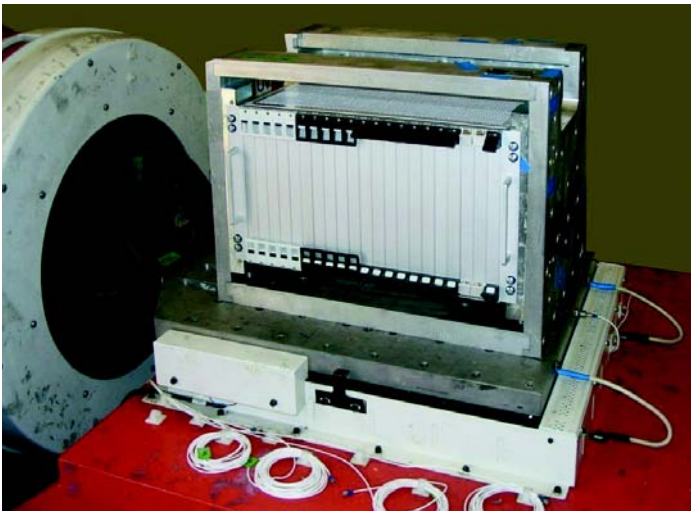


## Subrack for mobile rail applications



### Solid mechanical construction

Electronic systems for mobile applications require robust mechanical construction that can withstand even extreme environmental conditions. Our enclosure solutions protect the electronics within with their high mechanical stability, thus making an important contribution to the secure and trouble-free functioning of the system overall. Only dependability, down to the last detail, can make complex safety tasks achievable - and also economic.



### Shock and vibration resistance

Schrack products assure shock and vibration resistance in mobile situations, e.g. with appropriate material thicknesses and fixing elements. Tested with typical installed loads, they offer the best conditions for a secure and dependable presence in individual applications and projects.

### Certification of mechanics

High-quality, robust and durable products are an important component for the certification of a complete application in accordance with the European Railway Standard DIN EN 50155, the German Railway Standards BN 411002 and BN 411003 and the French Railway Standards NF F 61-005 and NF F 60-002.

### Note

fer = ferroviaire (French) = railway  
1 T = 4 HP = 20.32 mm



### Railway Technology brochure

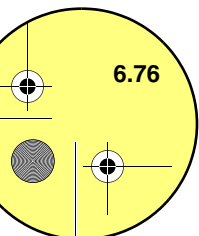
You will find extensive general information on our solutions for rail traffic at [www.schrack.co.uk/railway/](http://www.schrack.co.uk/railway/) and in our Railway Technology brochure.



TÜV test report



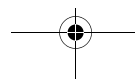
30608002



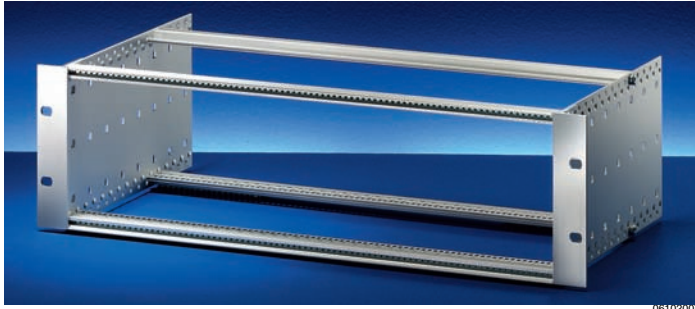
6.76

Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## Kit, unshielded, 'heavy', for backplane mounting



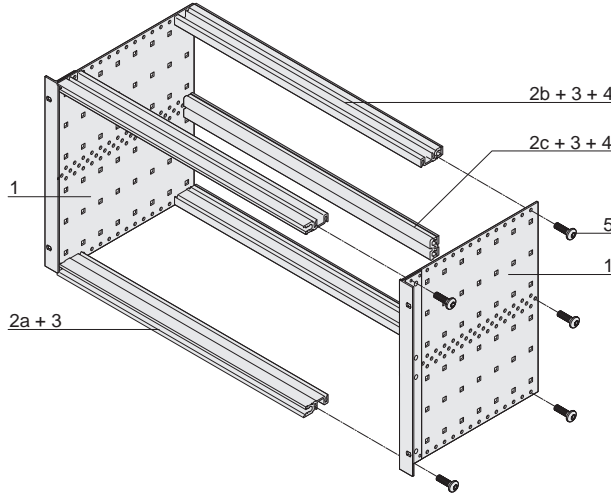
- Subrack in robust version ("heavy"), 19" bracket is firmly joined to side panel (Tox-cold welded)
- Rear horizontal rail with insulation strip for backplane mounting
- Tested to German railway standard BN 411002, BN 411003



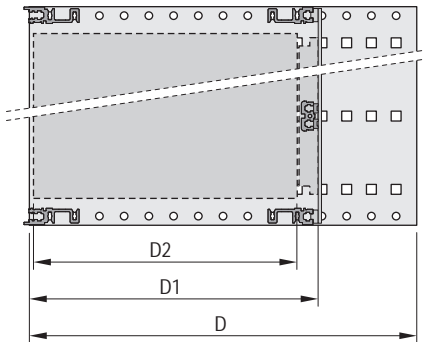
# NEW

### Delivery comprises (Kit)

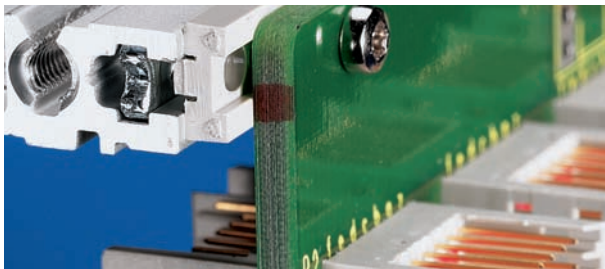
Item	Qty	Description	
3 U		6 U	
1	2	2	Type H (heavy) side panel with 19" support bracket for EMC textile gasket
2a	2	2	Front horizontal rail (H-KD)
2b	2	2	Rear horizontal rail (H-ST) with insulation strip for backplane mounting
2c	-	1	Centre horizontal rail (ST)
3	4	6	Threaded insert (pre-fitted)
4	2	4	Insulation strip (pre-fitted)
5	1	1	Assembly kit
6	1	1	User manual



6 U



D=total depth, D1=insertion depth, D2=board depth



Rear horizontal rail with insulation strip for backplane mounting

### Order Information

Height	Width	Depth	Depth D1	Depth D2	Part no.
		D			
U	HP	mm	mm	mm	
3	84	175	175	160	<b>24563-16</b>
3	84	235	175/235	160/220	<b>24563-16</b>
3	84	295	175/235/295	160/220/280	<b>24563-16</b>
3	84	355	175/235/295/355	160/220/280/340	<b>24563-16</b>
6	84	175	175	160	<b>24563-46</b>
6	84	235	175/235	160/220	<b>24563-46</b>
6	84	295	175/235/295	160/220/280	<b>24563-46</b>
6	84	355	175/235/295/355	160/220/280/340	<b>24563-46</b>

**Assembly kit, PU 8 x screw, washer, nut** **21100-43**  
for assembly of subracks in a 19" case or a cabinet

### Guide rails (standard), ESD clip

Depth D2	Qty/PU	Part no.
mm		
160	10	<b>24560-35</b>
220	10	<b>24560-35</b>
280	10	<b>24560-37</b>
340	10	<b>24560-38</b>

**ESD clip for guide rails PU 50 pieces** **24560-25**

Pan head screw with Torx, for extra bolting of the guide rails, 2.5 x 9.3, zinc-plated, PU 100 pieces **24560-14**

### Note

- EMC textile gaskets see page 6.23
- Further accessories see from page 6.17
- ServicePLUS configuration from page 6.88

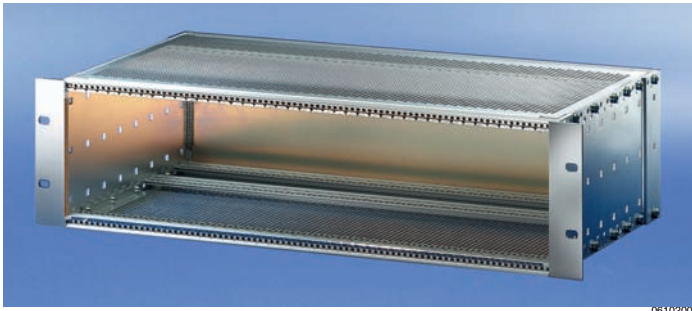


ServicePLUS see page 6.88



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

## Kit, shielded, "heavy", for backplane mounting



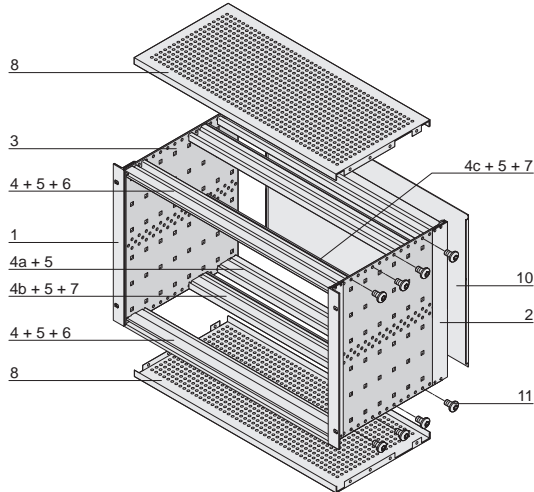
- Subrack in robust version ("heavy"), 19" bracket is firmly joined to side panel (Tox-cold welded)
- Rear horizontal rail with insulation strip for backplane mounting
- Typical shielding 40 dB at 1 GHz, 30 dB at 2 GHz (in accordance with VG 95373, part 15), on condition that the front is sealed with shielded front panels
- Tested to German railway standard BN 411002, BN 411003



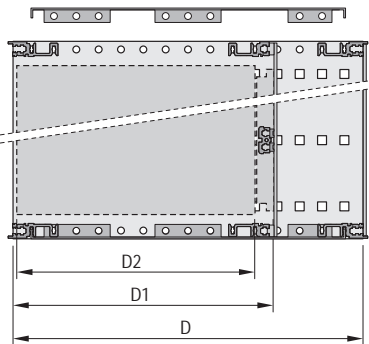
# NEW

### Delivery comprises (Kit)

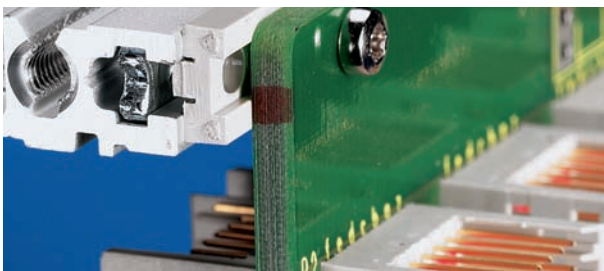
Item	Qty		Description
	3 U	6 U	
1	2	2	19" support bracket for <b>EMC textile gasket</b>
2	2	2	Corner profile to rear for <b>EMC textile gasket</b>
3	2	2	Side panel type H
4	2	2	Front horizontal rail (H-KD)
4 a	2	2	Rear horizontal rail (H-KD)
4 b	2	2	Rear horizontal rail (H-ST) with insulation strip for backplane mounting
4 c	-	1	Centre horizontal rail (ST)
5	6	8	Threaded insert (pre-fitted)
6	2	2	Perforated strip (pre-fitted)
7	2	4	Insulation strip (pre-fitted)
8	2	2	EMC cover plate
9	1	1	EMC gasketing material (pre-fitted)
10	1	1	Rear panel
11	1	1	Assembly kit
12	1	1	User manual



6 U



D=total depth, D1=insertion depth, D2=board depth



Rear horizontal rail with insulation strip for backplane mounting

### Order Information

Height U	Width HP	Depth D mm	Depth D1 mm	Depth D2 mm	Part no.
3	84	235	175/235	160/220	<b>24563-172</b>
3	84	295	175/235/295	160/220/280	<b>24563-173</b>
3	84	355	175/235/295	160/220/280	<b>24563-174</b>
6	84	235	175/235	160/220	<b>24563-472</b>
6	84	295	175/235/295	160/220/280	<b>24563-473</b>
6	84	355	175/235/295	160/220/280	<b>24563-474</b>
<b>Assembly kit, PU 8 x screw, washer, nut for assembly of subracks in a 19" case or a cabinet</b>					<b>21100-435</b>

### Guide rails (standard), ESD clip

Depth D2 mm	Qty/PU	Part no.
160	10	<b>24560-351</b>
220	10	<b>24560-353</b>
280	10	<b>24560-379</b>

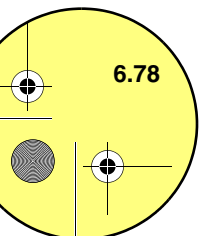
**ESD clip for guide rails PU 50 pieces** **24560-255**

**Pan head screw with Torx , for extra bolting of the guide rails, 2.5 x 9.3, zinc-plated, PU 100 pieces** **24560-141**

- Perforated rail for connectors see page 6.33
- Further accessories see from page 6.17
- ServicePLUS configuration from page 6.88

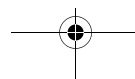


ServicePLUS see page 6.88



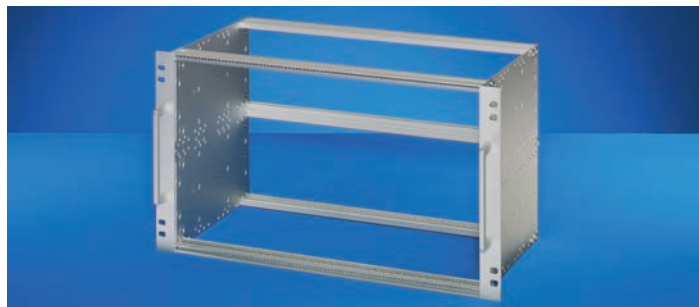
Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days

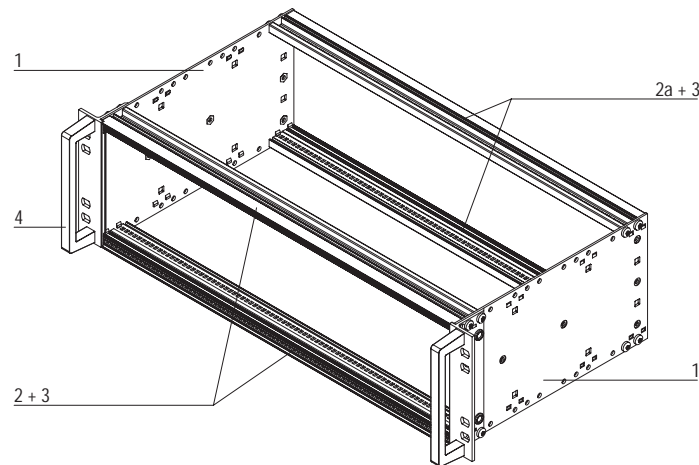




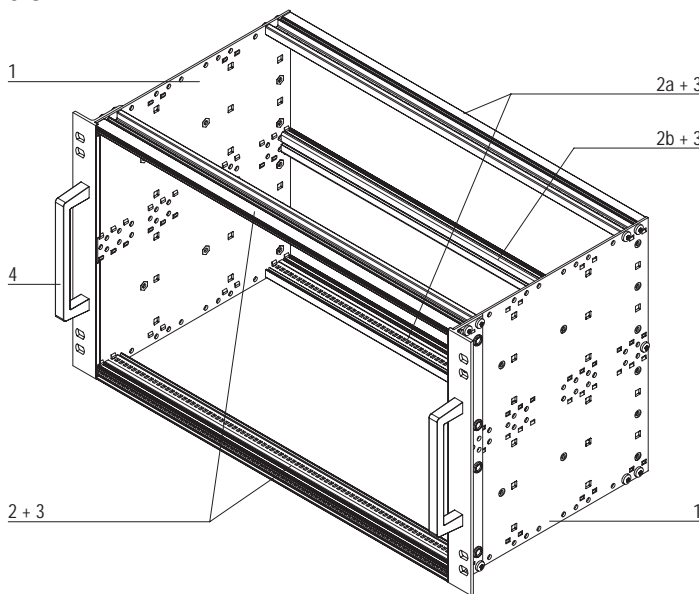
## Kit, EN 50155, unshielded



3 U



6 U



- For mobile railway applications
- Tested in accordance with EN 50155
- 3 U and 6 U, 84 HP, 235 mm deep, for board depths of 220 mm

### Delivery comprises (kit)

Item	Qty		Description
	3 U	6 U	
1	2	2	Side panel type H incl. 19" support bracket prepared for EMC textile gasket
2	2	2	Front horizontal rail (H-KD)
2 a	2	2	Rear horizontal rail (H-VT)
2 b	-	1	Rear centre horizontal rail (VT)
3	4	6	Threaded inserts
4	2	2	Handles
5	1	1	Assembly kit with self-locking screws
6	1	1	User manual

### Order Information

Height U	Width HP	Depth mm	Part no.
3	84	235	<b>21500-077</b>
6	84	235	<b>21500-078</b>

**Guide rail, standard, 220 mm deep**  
PBT, UL 94 V-0, red, groove width 2 mm, PU 10 pieces, see page 6.34 **24560-353**

**Pan head screw with Torx**  
2.5 x 9.3, zinc-plated, PU 100 pieces **24560-141**

**ESD clip for guide rails** PU 50 pieces **24560-255**

**Cover plate for screw-fixing onto side panel**  
width 84 HP, depth 220 mm, PU 1 kit **21500-037**

**Assembly kit, PU 8 x screw, washer, nut**  
for assembly of sub racks in a 19" case or a cabinet **21100-435**

### Note

- Test reports online
- ServicePLUS configuration, see from page 6.88
- Further accessories see from page 6.17



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

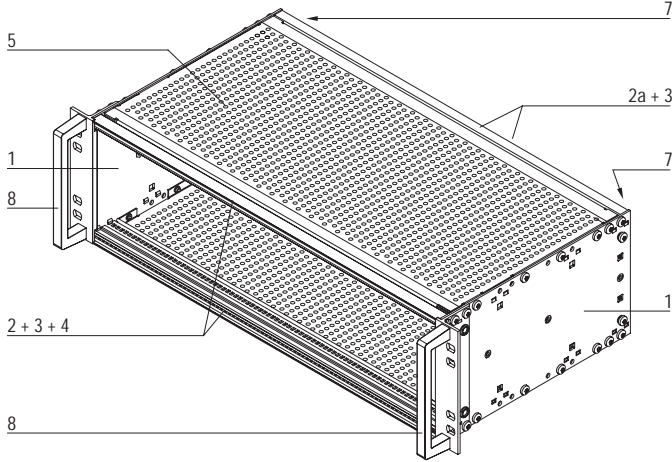


ServicePLUS see page 6.88

## Kit, EN 50155, shielded

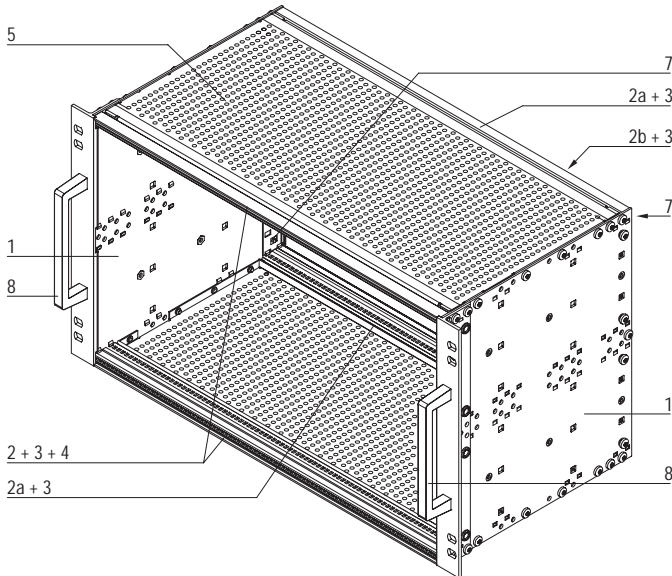


3 U



06104006

6 U



06104058

06104059

- For mobile railway applications
- Tested in accordance with EN 50155
- 3 U and 6 U, 84 HP, 235 mm deep, for board depths of 220 mm

### Delivery comprises (kit)

Item	Qty		Description
	3 U	6 U	
1	2	2	Side panel type H incl. 19" support bracket with textile EMC gasket
2	2	2	Front horizontal rail (H-KD)
2 a	2	2	Rear horizontal rail (H-VT)
2 b	-	1	Rear centre horizontal rail (VT)
3	4	6	Threaded inserts
4	2	2	Perforated strip
5	2	2	EMC cover plate 235 T
6	1	1	EMC gasketing kit
7	1	2	EMC gasketing kit for backplanes
8	2	2	Handles
9	1	1	Assembly kit with self-locking screws
10	1	1	User manual

### Order Information

Height U	Width HP	Depth mm	Part no.
3	84	235	<b>21500-079</b>
6	84	235	<b>21500-080</b>
<b>Guide rail, standard, 220 mm deep</b> PBT, UL 94 V-0, red, groove width 2 mm, PU 10 pieces, see page 6.34			<b>24560-353</b>
<b>Pan head screw with Torx</b> 2.5 x 9.3, zinc-plated, PU 100 pieces			<b>24560-141</b>
<b>ESD clip for guide rails</b> PU 50 pieces			<b>24560-255</b>
<b>Assembly kit, PU 8 x screw, washer, nut</b> for assembly of subracks in a 19" case or a cabinet			<b>21100-435</b>

### Note

- Test reports online
- ServicePLUS configuration, see from page 6.88
- Further accessories see from page 6.17



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



ServicePLUS see page 6.88

6.80

Main Catalogue  
E 03/2009

Part number in bold face type: ready for despatch within 2 working days  
Part number in normal type: ready for despatch within 10 working days

## Kit, EN 50155, shielded, for CompactPCI applications

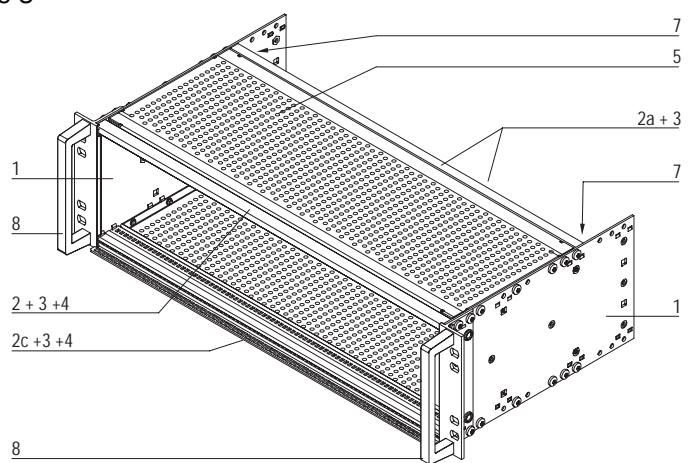


- For mobile railway applications
- Tested in accordance with EN 50155
- 3 U and 6 U, 84 HP, 235 mm deep, for board depths of 160 mm
- Subrack in accordance with IEEE 1101.10

### Delivery comprises (kit)

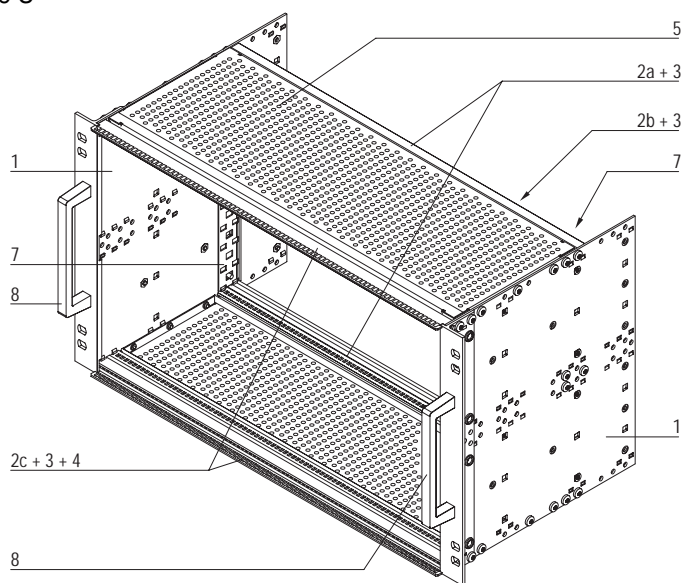
Item	Qty		Description
	3 U	6 U	
1	2	2	Side panel type H incl. 19" support bracket with textile EMC gasket
2	1	-	Front horizontal rail (H-KD)
2 a	2	2	Rear horizontal rail (H-VT)
2 b	-	1	Rear centre horizontal rail (VT)
2 c	1	2	Front horizontal rail (H-LD)
3	4	6	Threaded inserts
4	2	2	Perforated strip
5	2	2	EMC cover plate 175 T
6	1	1	EMC gasketing kit
7	1	2	EMC gasketing kit for backplanes
8	2	2	Handles
9	1	1	Assembly kit with self-locking screws
10	1	1	User manual

3 U



06104007

6 U



06104060

06104061

### Order Information

Height	Width	Depth	Part no.
U	HP	mm	
3	84	235	<b>21500-081</b>
6	84	235	<b>21500-082</b>
<b>Assembly kit, PU 8 x screw, washer, nut for assembly of subracks in a 19" case or a cabinet</b>			<b>21100-435</b>

### Note

- Please order guide rails and ESD clips separately, see page 6.85
- Test reports online
- Rear hood see page 6.87
- ServicePLUS configuration, see from page 6.88
- Further accessories see from page 6.17



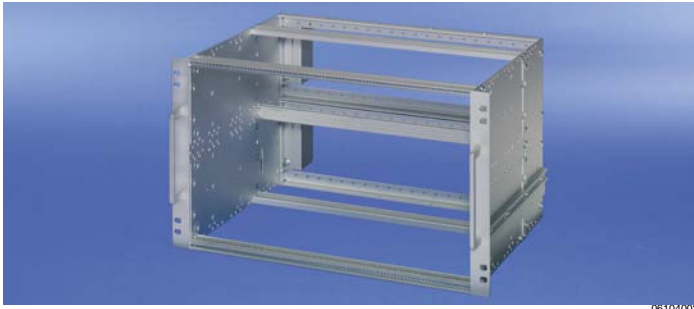
For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



ServicePLUS see page 6.88



## Kit SNCF, unshielded



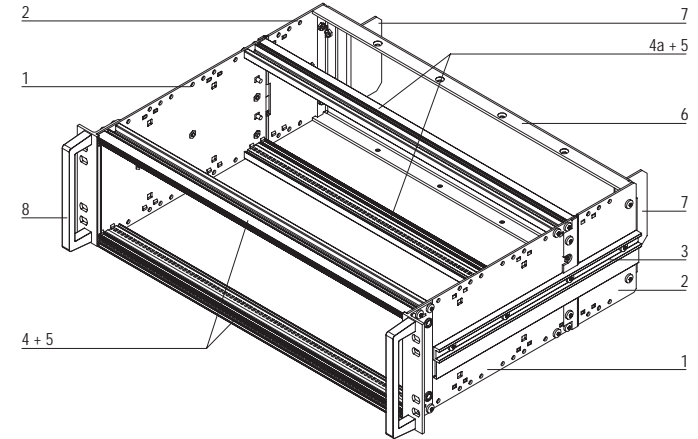
- For mobile railway applications
- SNCF listed, europacPRO-fer, tested to NF F 61-005 and NF F 60-002
- 3 U and 6 U, 9 T and 21 T, 320 mm deep, for board depths of 220 mm



### Delivery comprises (kit)

Item	Qty		Description
	3 U	6 U	
1	2	2	Side panel type H incl. 19" support bracket prepared for EMC textile gasket
2	2	2	Side panel extension
3	2	2	Guide rail on the outside
4	2	2	Front horizontal rail (H-KD)
4 a	2	2	Rear horizontal rail (H-VT)
4 b	-	1	Rear centre horizontal rail (VT)
5	4	6	Threaded inserts
6	1	2	Rear frame 3 U, 21 T
7	2	4	Protective bracket SNCF
8	2	2	Handle
9	1	1	Assembly kit with self-locking screws
10	1	1	User manual

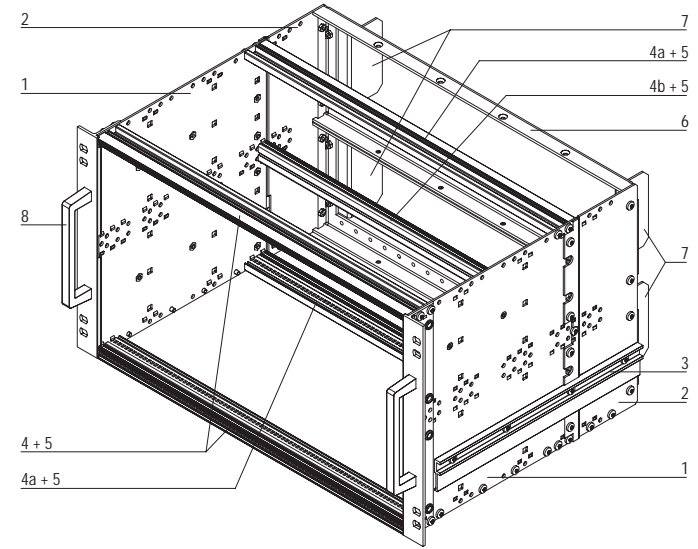
3 U



06104002

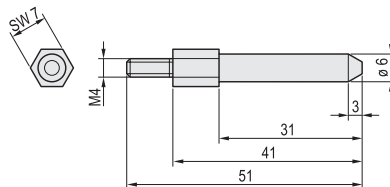
06104050

6 U



06104051

Coding pin



06104062

### Order Information

Width mm	Height U	Depth mm	Part no.
36 HP (9 T)	3	320	21500-067
36 HP (9 T)	6	320	21500-070
84 HP (21 T)	3	320	<b>21500-029</b>
84 HP (21 T)	6	320	<b>21500-027</b>
<b>Guide rail, standard, 220 mm deep</b> PBT, UL 94 V-0, red, groove width 2 mm, PU 10 pieces, see page 6.85			<b>24560-353</b>
<b>Pan head screw with Torx</b> 2.5 x 9.3, zinc-plated, PU 100 pieces			<b>24560-141</b>
<b>ESD clip for guide rails</b> PU 50 pieces			<b>24560-255</b>
<b>Coding pin for rear frame</b> , St, white zinc-plated, 1 piece			<b>60895-018</b>
<b>Assembly kit, PU 8 x screw, washer, nut</b> for assembly of sub racks in a 19" case or a cabinet			<b>21100-435</b>

### Note

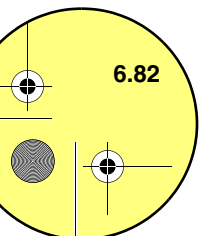
- fer = ferroviaire = French railways, 1 T = 4 HP = 20.32 mm
- Subrack receptacle/mounting frame in stainless steel 9 T or 21 T available on request
- Test reports online
- Cover plates for screw-fixing onto side panel see page 6.86
- ServicePLUS configuration, see from page 6.88
- Further accessories see from page 6.17



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



ServicePLUS see page 6.88



6.82

Main Catalogue  
E 03/2009

Part number in bold face type: ready for despatch within 2 working days  
Part number in normal type: ready for despatch within 10 working days

## Kit SNCF, shielded

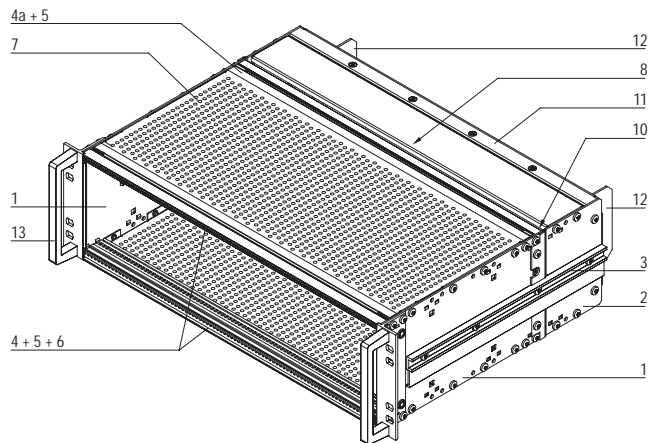


- For mobile railway applications
- SNCF listed, europacPRO-fer, tested to NF F 61-005 and NF F 60-002
- 3 U and 6 U, 9 T and 21 T, 320 mm deep, for board depths of 220 mm

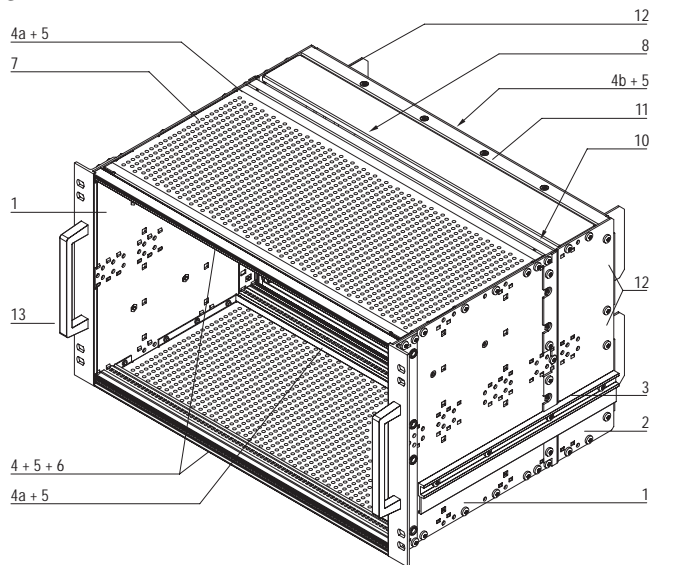
### Delivery comprises (kit)

Item	Qty		Description
	3 U	6 U	
1	2	2	Side panel type H incl. 19" support bracket with textile EMC gasket
2	2	2	Side panel extension
3	2	2	Guide rail on the outside
4	2	2	Front horizontal rail (H-KD)
4 a	2	2	Rear horizontal rail (H-VT)
4 b	-	1	Rear centre horizontal rail (VT)
5	4	6	Threaded inserts
6	2	2	Perforated strips
7	2	2	EMC cover plate 235 T
8	2	2	Rear cover plate 55 T
9	1	1	EMC gasketing kit
10	1	2	EMC gasketing kit for backplanes
11	1	2	Rear frame, 3 U, 21 T
12	2	4	Protective bracket SNCF
13	2	2	Handles
14	1	1	Assembly kit with self-locking screws
15	1	1	User manual

### 3 U

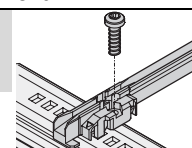


### 6 U

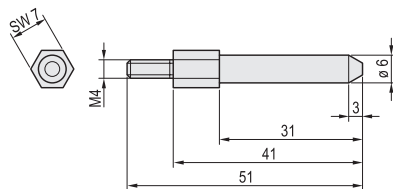


### Order Information

Width	Height U	Depth mm	Part no.
36 HP (9 T)	3	320	21500-068
36 HP (9 T)	6	320	21500-071
84 HP (21 T)	3	320	<b>21500-030</b>
84 HP (21 T)	6	320	<b>21500-028</b>

<b>Guide rail, standard, 220 mm deep</b> PBT, UL 94 V-0, red, groove width 2 mm, PU 10 pieces, see page 6.85		<b>24560-353</b>
<b>Pan head screw with Torx</b> 2.5 x 9.3, zinc-plated, PU 100 pieces		<b>24560-141</b>
<b>ESD clip for guide rails</b> PU 50 pieces		<b>24560-255</b>
<b>Coding pin for rear frame, St, white zinc-plated, 1 piece</b>		<b>60895-018</b>
<b>Assembly kit, PU 8 x screw, washer, nut</b> for assembly of subracks in a 19" case or a cabinet		<b>21100-435</b>

### Coding pin



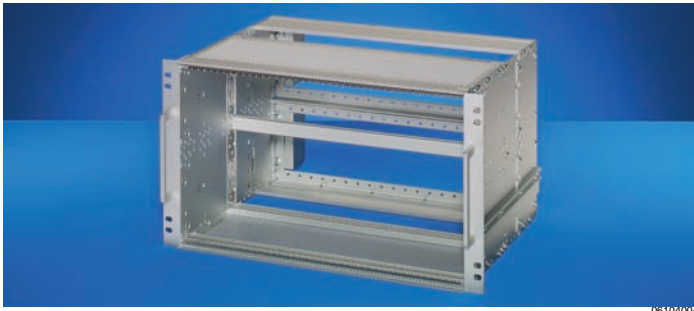
### Note

- fer = ferroviaire (French) = railway, 1 T = 4 HP = 20.32 mm
- Subrack receptacle/mounting frame in stainless steel 9 T or 21 T available on request
- Test reports online
- ServicePLUS configuration, see from page 6.88
- Further accessories see from page 6.17



ServicePLUS see page 6.88

## Kit, SNCF, shielded, for CompactPCI applications



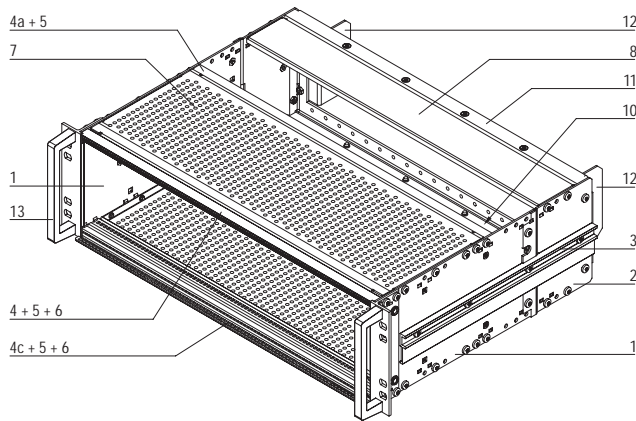
- For mobile railway applications
- SNCF listed, europacPRO-fer, tested to NF F 61-005 and NF F 60-002
- 3 U and 6 U, 9 T and 21 T, 320 mm deep, for board depths of 160 mm
- CompactPCI subrack in accordance with IEEE 1101.10



### Delivery comprises (kit)

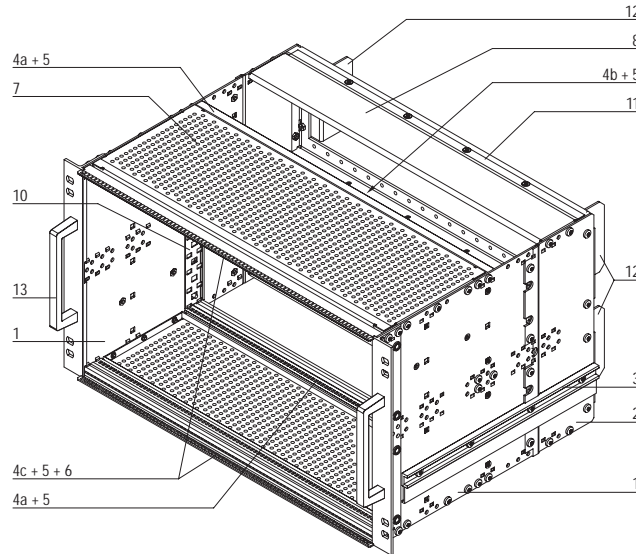
Item	Qty		Description
	3 U	6 U	
1	2	2	Side panel typy H incl. 19" support bracket with textile EMC gasket
2	2	2	Side panel extension
3	2	2	Guide rail on the outside
4	1	-	Front horizontal rail (H-KD)
4 a	2	2	Rear horizontal rail (H-VT)
4 b	-	1	Rear centre horizontal rail (VT)
4 c	1	2	Front horizontal rail (H-LD)
5	4	6	Threaded inserts
6	2	2	Perforated strip
7	2	2	EMC cover plate 175 T
8	2	2	Rear cover plate 55 T
9	1	1	EMC gasketing kit
10	1	2	EMC gasketing kit for backplanes
11	1	2	Rear frame, 3 U, 21 T
12	2	4	Protective bracket SNCF
13	2	2	Handles
14	1	1	Assembly kit with self-locking screws
15	1	1	User manual

3 U



06104004

6 U



06104054

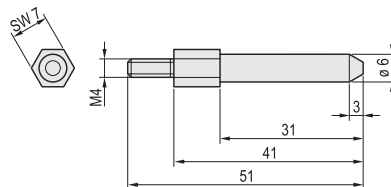
### Order Information

Width	Height U	Depth mm	Part no.
36 HP (9 T)	3	320	21500-069
36 HP (9 T)	6	320	21500-072
84 HP (21 T)	3	320	<b>21500-047</b>
84 HP (21 T)	6	320	<b>21500-046</b>
<b>Coding pin</b> for rear frame, St, white zinc-plated, 1 piece			<b>60895-018</b>
<b>Assembly kit, PU 8 x screw, washer, nut</b> for assembly of subracks in a 19" case or a cabinet			<b>21100-435</b>

### Note

- fer = ferroviaire (French) = railway, 1 T = 4 HP = 20.32 mm
- Subrack receptacle/mounting frame in stainless steel 9 T or 21 T available on request
- Please order guide rails and ESD clips separately, see page 6.85
- Test reports online
- ServicePLUS configuration, see from page 6.88
- Further accessories see from page 6.17

Coding pin



06104055

06104062



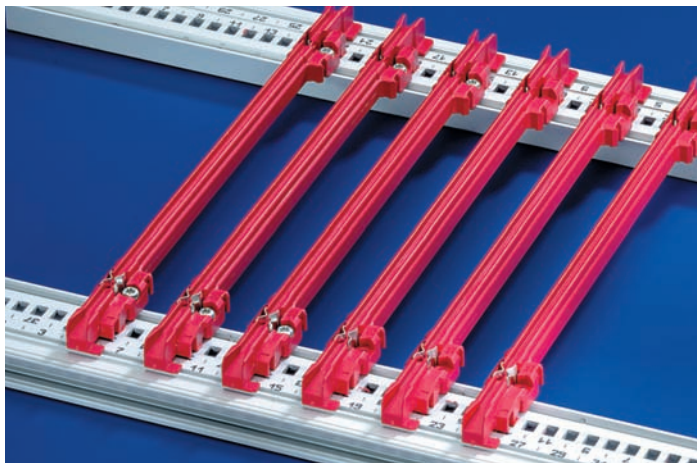
ServicePLUS see page 6.88



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



## Guide rails



- Material PBT UL 94 V-0, red, groove width 2 mm, for printed board thickness of 1.6 mm

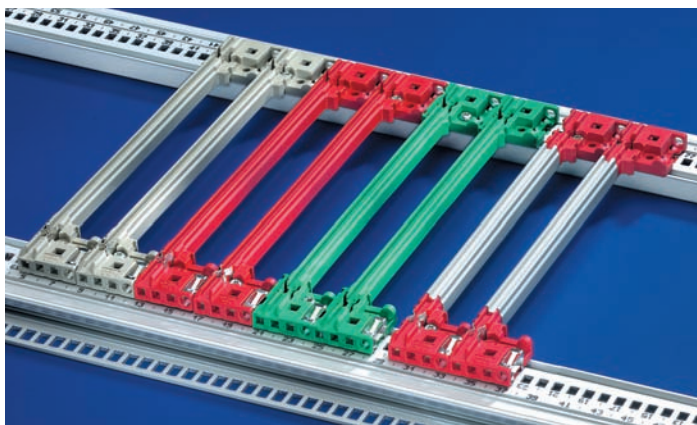
### Order Information

Description	Depth mm	Qty/PU	Part no.
Guide rail, standard, 160 mm deep	160	10	<b>24560-35</b>
Guide rail, standard, 220 mm deep	220	10	<b>24560-35</b>
<b>ESD clip for guide rails</b> PU 50 pieces			<b>24560-25</b>



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

## Guide rails with coding for CompactPCI and VME64x

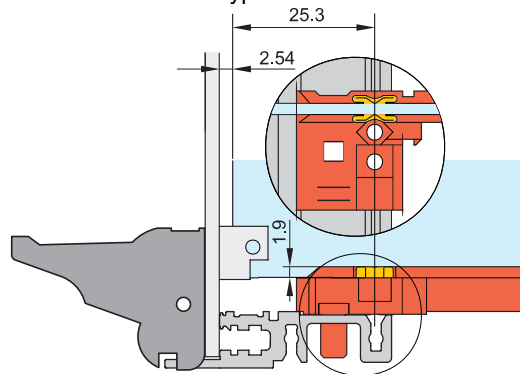


- The guide rails conform to IEC 60297-3-100 and IEEE 1101.10/11, are 4 HP wide and can be equipped with coding pins
- Material PBT UL 94 V-0, groove width 2 mm, for board thickness 1.6 mm
- Colour:
  - red (CPU board)
  - grey (periphery board)
  - green (CompactPCI power supply, 0.1" offset)

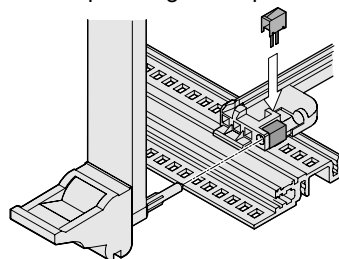
### Order Information

Description	Depth mm	Qty/PU	Part no.
Guide rails with coding, red	160	10	<b>24560-35</b>
Guide rails with coding, grey	160	10	<b>24560-35</b>
Guide rails with coding, green, offset	160	10	<b>24560-35</b>

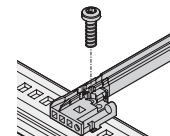
Guide rails on horizontal rail type H



ESD clip for alignment pin



Pan head screw with Torx 2.5 x 9.3, zinc-plated, PU 100 pieces



**24560-14**

**ESD clip for guide rails** PU 50 pieces

**24560-25**

**ESD clip for alignment pin of CPCI/VME64x handle**  
PU 50 pieces

**24560-25**

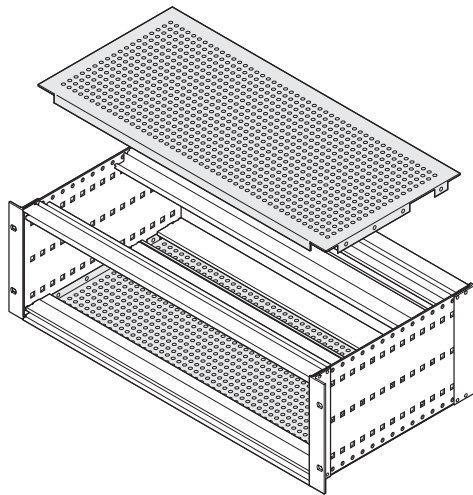
**Coding pin** PC, UL 94 V-0, RAL 7035, PU 100 pieces

**20817-50**

■ More guide rails see page 6.34

■ IEL/IET handle for CompactPCI/VME64x handles see chapter Sub-assemblies/plug-in units, page 7.18

## Cover plate for screw-fixing onto side panel



- Suitable for all horizontal rails
- Cover plate for assembly of 160 mm, 220 mm or 280 mm deep boards
- Lateral notch to mount the horizontal rails in depths of 160 mm or 220 mm
- Shielding by optional EMC stainless steel gaskets, between cover plate and horizontal rail

### Delivery comprises

Item	Qty	Description
1	2	Cover plate, Al, 1.0 mm, clear chromated, hole diameter 4.0 mm, (no perforation at 55 mm depth)
2	16/32	Torx screws 4 x 6 pentaform, St, zinc-plated

06102084

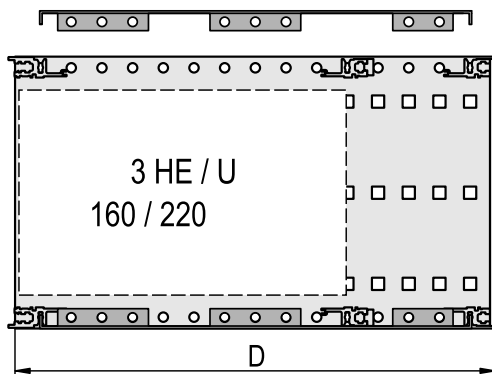
### Order Information

Width HP	Depth D mm	Application	Part no.
84	55	–	<b>21500-038</b>
84	175	160	<b>21500-048</b>
84	235	160, 220	<b>21500-037</b>
36	55	–	<b>21500-123</b>
36	175	160	<b>21500-124</b>
36	220	160, 220	<b>21500-122</b>

### Note

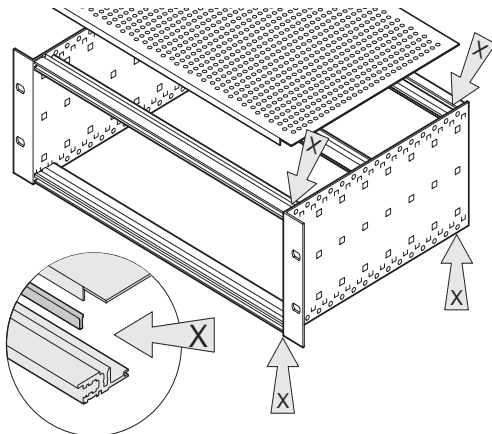
- 4 stainless steel EMC gaskets are necessary per subrack, see page 6.86

06102082



Side view for 175 mm and 235 mm depths

## Stainless steel gasket between cover plate and horizontal rail



Assembly tools

- Stainless steel gasket is clipped into horizontal rail and forms the contact cover plate
- Fits all horizontal rails

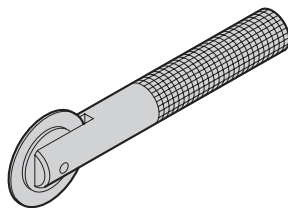
### Order Information

Width HP	Length mm	Qty/PU	Part no.
42	182.4	10	<b>24560-241</b>
63	284.0	10	<b>24560-243</b>
84	395.7	10	<b>24560-245</b>
84	395.7	100	<b>24560-246</b>
<b>Assembly tool for stainless steel EMC gasket (horizontal rails), 1 piece</b>			<b>24560-271</b>


06102052

### Note

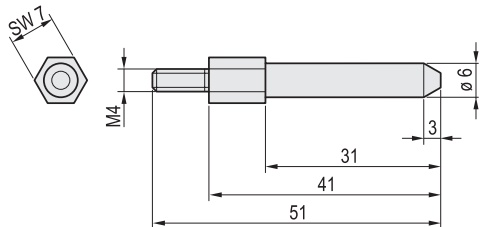
- When a rear hood is used, the EMC stainless steel gasket ensures the conductive connection between horizontal rail and rear hood



aza45938

 For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

## Coding pin for rear frame (NFF standard)



### Order Information

Description	Qty/PU	Part no.
Coding pin, St, white zinc-plated	1	<b>60895-018</b>

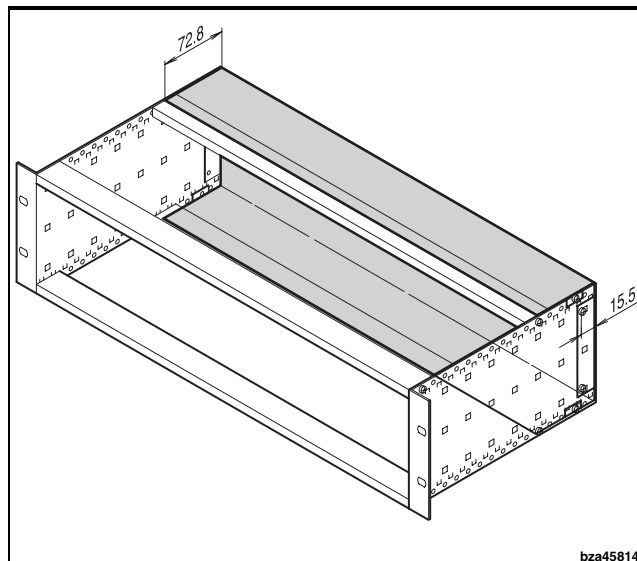


For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

06104062

## Rear hood for 3 U and 6 U subracks (for stainless steel EMC gasket)

### Order Information

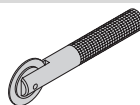


bza45814

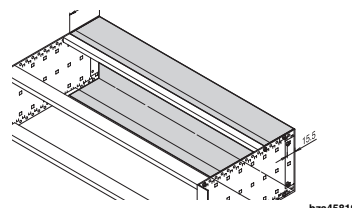
Height U	Width HP
3	42
3	84
6	63
6	84

Torx pan head screw, M4 x 6, St, zinc-plated, PU 100 pieces

Assembly tool, for stainless steel EMC gasket (horizontal rails), 1 piece



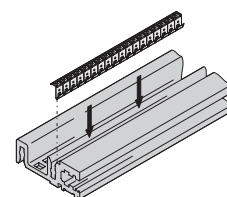
### Rear hood



bza45819

Al, 1 mm, clear passivated;  
60 mm additional side panel depth required (board depth + 60 mm);  
for shielding please order EMC gasket for horizontal rail separately;  
cannot be used simultaneously with rear corner profile

### EMC stainless steel gasket, between cover plate and horizontal rail



0610605

Stainless steel EMC gasket, clips into the horizontal rail and forms the contact with the cover plate; suitable for all horizontal rails

1 piece

**34561-750**

**34561-752**

**34561-763**

**34561-764**

**24560-135**

PU 10 pieces

**24560-241**

**24560-245**

**24560-243**

**24560-245**

—

**24560-271**

### Note

■ Other dimensions of rear hood available on request





## configuration

### Simple. Fast. For the product you want.

Components can be varied and combined freely

- Configuration tables from page 6.17
- Online configuration: [www.schroff.co.uk/configuration](http://www.schroff.co.uk/configuration)



## assembly

### Assembled by professionals. Twice the benefit!

Fitting of all mechanical, electrical and electronic components by our specialists

- Professional and reliable from 1 piece
- Ready for despatch within 5 working days
- Further information: [www.schroff.co.uk/assembly](http://www.schroff.co.uk/assembly)



## modification

### Small changes. Large impact.

Custom drillings, cut-outs and special colours for standard products

- Custom modifications from 1 piece
- Ready for despatch within 10 working days
- Further information: [www.schroff.co.uk/modification](http://www.schroff.co.uk/modification)



## solution

### Simple. Fast. From one source.

Integration and custom developments

- Special sizes (depth and width)
- Individual thermal concepts
- Ready for despatch within 10 working days
- Further information: [www.schroff.co.uk/solution](http://www.schroff.co.uk/solution)



## express

### When fast has to be faster.

Delivery time to customer's request

- Express logistics
- Further information: [www.schroff.co.uk/express](http://www.schroff.co.uk/express)

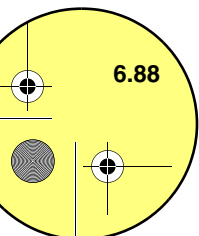


## academy

### Knowledge. Sharing. Partnerships.

Knowledge transfer and partnership

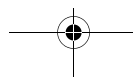
- Seminars, CAD drawings, test reports, user reports
- Further information: [www.schroff.de/academy](http://www.schroff.de/academy)



6.88

Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## Application examples



Application: Subrack receptacle/mounting frame

06108006



Application: Electronic signal box

06108002



Application: Automatic train control system

41108002



Application: Mobile telephony system

41108002



Application: Control system

Csee\_DSCN2296



Application: Signalling control systems

01004002

Overview ..... 0

Wall mounted cases ..... 2

Accessories for cabinets and wall mounted cases .... 3

Climate control .... 4

Desk-top cases .... 5

**Subracks/  
19" chassis ..... 6**

Front panels, plug-in units ..... 7

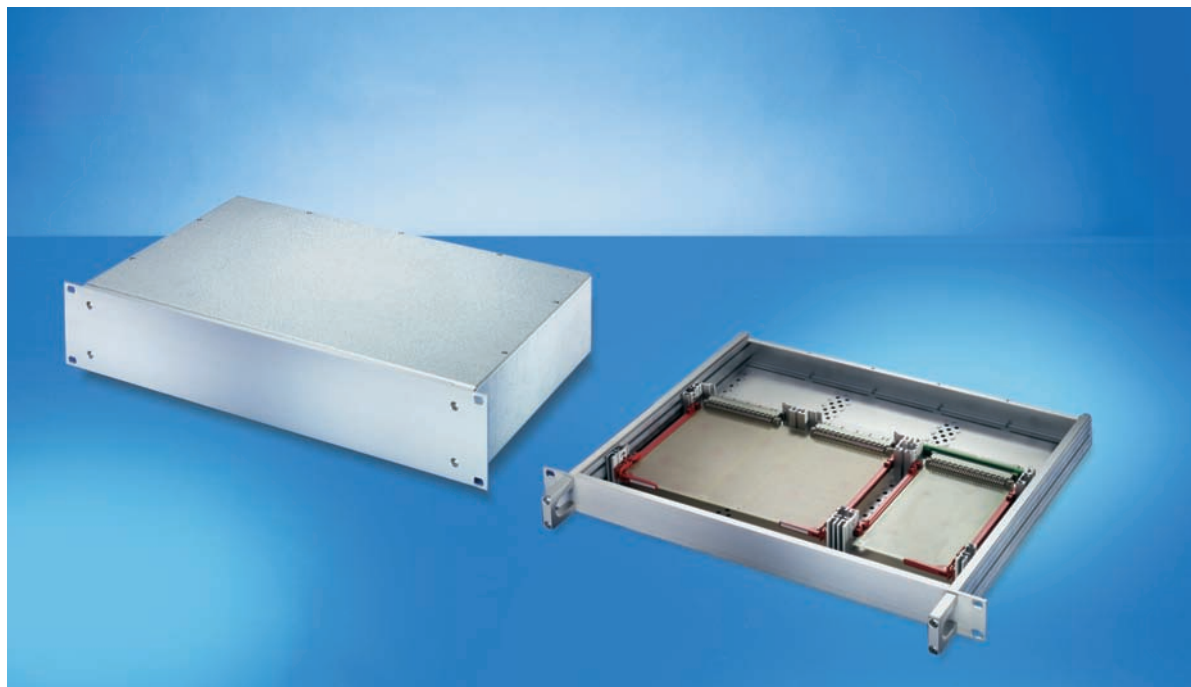
Systems ..... 8

Power supply units ..... 9

Backplanes ..... 10

Connectors, front panel component system ..... 11

Appendix ..... 12



06005001

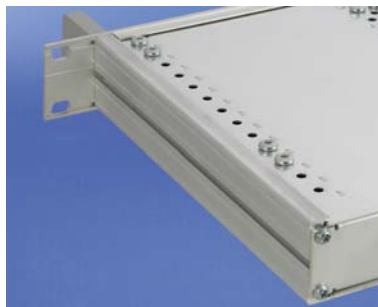
### Standards/certifications

- External dimensions in accordance with: IEC 60297-3-100, -101, -105
- Type of protection IP 20 in accordance with IEC 60529
- EMC test in accordance with VG 95373 part 15 or IEC 61587 T3



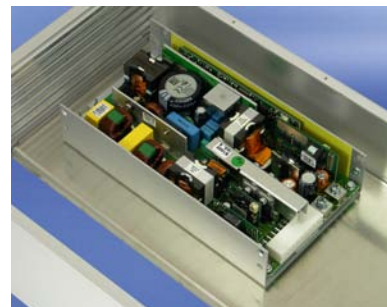
06008009

Handles can be bolted on from front



06008010

High stability through aluminium profile side panel



06008011

Mounting plate for installation of heavy components

### Top cover and base plate in 3 versions



06008003

Plain



06008005

Perforated



06008004

For standardised board mounting



Downloads and further important information can be found on the Internet under [www.schroff.biz](http://www.schroff.biz)



## 19" chassis

- Aluminium or steel (AlZn coated) designs
- For standardised 19" board mounting or for installation of non-standardised components
- The ideal solution for electronic devices in the most compact dimensions
- EMC shielding upgradable
- Mounting service and customized machining with ServicePLUS



06002003

### 19" complete chassis (steel)

- 1, 2 U
- Steel chassis (AlZn coated), Al front panel
- Plain top cover and base plate



06008004

### 19" complete chassis (aluminium)

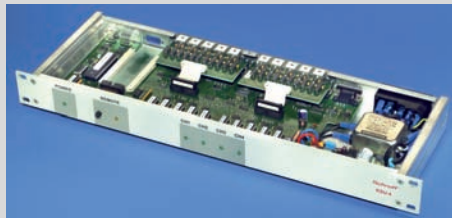
- 1, 2, 3, 4, 5 U
- Entirely from aluminium
- Versions:
  - Plain top cover and base plate
  - Perforated top cover and base plate
  - Top cover and base plate for standardised boards

**NEW**

### Configure 19" chassis with ServicePLUS (aluminium)

#### 19" chassis for non-standardised assembly

- For the assembly of power supplies with mounting plates, boards...
- Heights 1, 2, 3, 4, 5 U



#### For standardised board mounting (IEC 60297-3-101)

- For the assembly of connectors (EN 60603) or insulated backplanes
- Heights 1, 2 U



06006001 06002002

### ServicePLUS from page 6.96

- e.g. individual configuration and assembly
  - e.g. modifications (cut-outs)
  - e.g. downloads (CAD drawings, user manuals, test reports)
  - e.g. custom solutions (special sizes)
- [www.schroff.biz/serviceplus/](http://www.schroff.biz/serviceplus/)



30407004

### multipacPRO

- 19" complete chassis (St) . . . . . 6.
- 19" complete chassis (Al) . . . . . 6.

### How to configure 19" chassis?

- 19" chassis for non-standardised assembly . . . . . 6. (basic frame, mounting plate, cover plate, front handles, assembly of telescopic slides)

- 19" chassis for standardised assembly . . . . . 6. (basic frame, base plate, cover plate, front handles, assembly of telescopic slides).

### Accessories

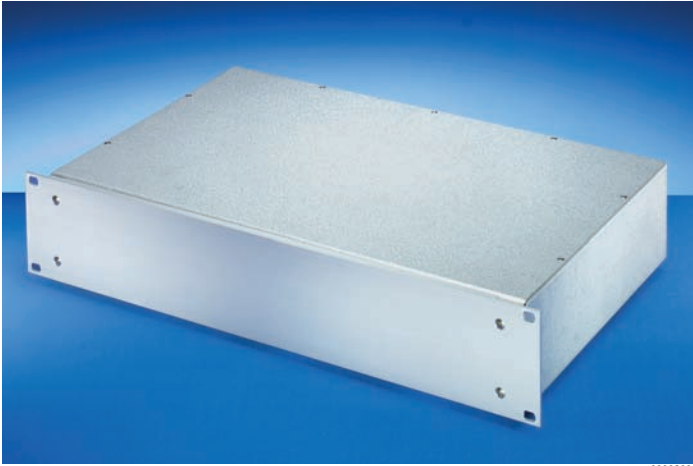
- Guide rails . . . . . 6.
- EMC gasketing kit . . . . . 6.
- Telescopic slides 1 U . . . . . 6.
- Telescopic slides 2 U . . . . . 6.

### ServicePLUS . . 6

- Application examples . . . . . 6.



## 19" complete chassis from steel, plain top cover and base plate

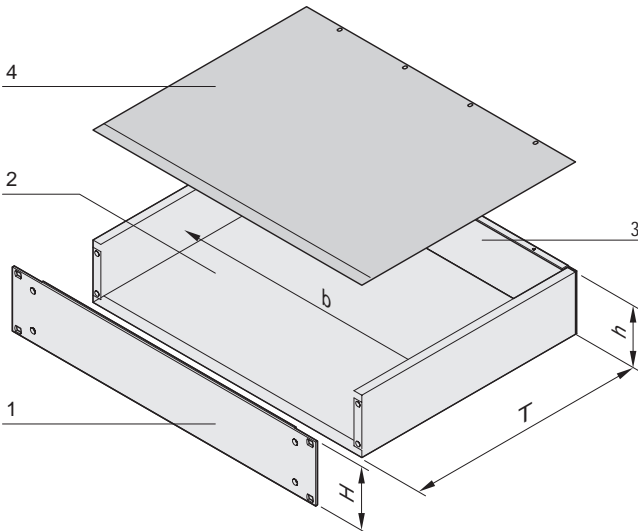


06002003

- Complete chassis, St (AlZn coated) with Al extrusion front panel
- Detachable rear panel for easy machining
- In the 1 U version 19" and ATX power supplies can be assembled up to a clearance of 40 mm
- EMC shielding of approx. 30 dB(A) at 1 GHz (without additional shielding material)
- In accordance with standard IEC 60297-3-101

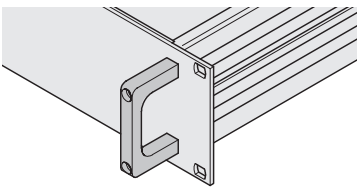
### Delivery comprises (kit)

Item	Qty	Description
1	1	Front panel, Al extrusion, 3 mm; at 1 U: front anodised, rear etched; from 2 U: front and rear side of front panels clear passivated
2	1	Base body plain, St, 1 mm, (AlZn coated)
3	1	Rear panel, St, 1 mm (AlZn coated)
4	1	Cover plain, St, 1 mm (AlZn coated)
5	1	Assembly kit



06002051

h = clear height (overall) (H - 3.0 mm)  
b = clear installation width = 447 mm



Front handle

06002052

### Order Information

Height U	Height H mm	Depth T mm	Part no.
1	43.7	220	<b>20860-120</b>
1	43.7	280	<b>20860-121</b>
1	43.7	340	<b>20860-122</b>
2	88.1	280	<b>20860-126</b>
2	88.1	340	<b>20860-127</b>

**Front handles** incl. assembly kit for 1 U, Al extrusion, anodised, PU 2 pieces **20860-256**

**Front handles** incl. assembly kit for 2 U, Al extrusion, anodised, PU 2 pieces **20860-257**

### Note

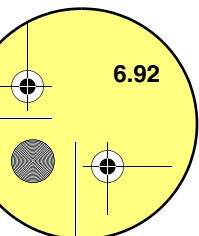
- Further versions with steel front panel (pizza box) available on request
- Use of telescopic slides not possible
- No special EMC version available
- Standardised internal mounting kits cannot be used



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



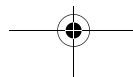
ServicePLUS see page 6.96



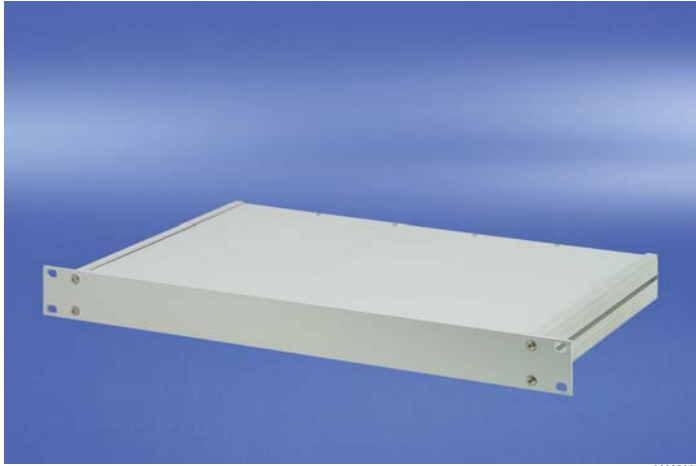
6.92

Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## 19" complete chassis from aluminium, plain top cover and base plate

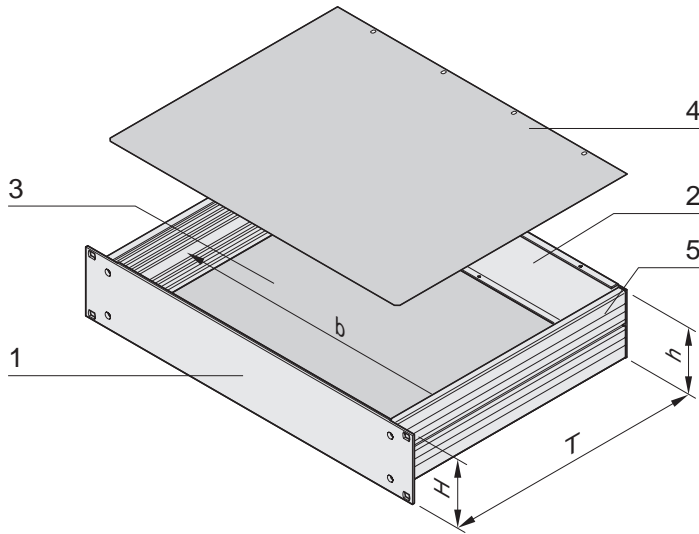


- Complete chassis from aluminium
- Detachable rear panel for easy machining
- 19" and ATX power supplies can be assembled in the 1 U case height up to a clearance of 35 mm
- EMC shielding of approx. 30 dB(A) at 1 GHz (without additional shielding material)
- In accordance with standard IEC 60297-3-100, -101, -105

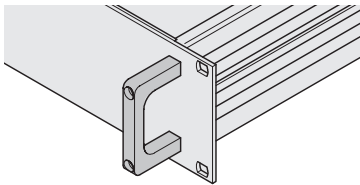
**NEW**

### Delivery comprises (Kit)

Item	Qty	Description
1	1	Front panel, Al extrusion, 3 mm; at 1 U: front anodised, rear etched; from 2 U: front and rear side of front panels clear passivated
2	1	Rear panel, Al, 1 mm, etched
3	1	Base plate, plain, Al, 1 mm
4	1	Cover plate, plain, Al, 1 mm
5	2	Side panel, Al extrusion, untreated; with groove for threaded insert (2 x 7); 5 U two-piece, 3+2 U; EMC sealing
6	1	Assembly kit



h = clear height (overall) (H - 8.1 mm)  
b = clear installation width = 403 mm



Front handle



ServicePLUS see page 6.96

### Order Information

Height U	Height H mm	Depth T mm	Part no. Kit
1	43.7	220	20860-601
1	43.7	280	20860-602
2	88.1	280	20860-605
2	88.1	340	20860-606
3	132.6	280	20860-607
3	132.6	340	20860-608
3	132.6	400	20860-609
4	177.0	340	20860-612
4	177.0	400	20860-613
4	177.0	460	20860-614
5	221.5	460	20860-615

**EMC gasketing kit** Silicone/nickel gasket 2100 mm for contacting side panel/cover plate; stainless steel gasket for front panel/cover plate **20860-130**

**Front handles** incl. assembly kit for 1 U, Al extrusion, anodised, PU 2 piece **20860-250**

**Front handles** incl. assembly kit for 2 U, Al extrusion, anodised, PU 2 piece **20860-251**

**Front handles** incl. assembly kit for 3 U, Al extrusion, anodised, PU 2 pieces **20860-252**

**Front handles** incl. assembly kit for 4 U, Al extrusion, anodised, PU 2 pieces **20860-253**

**Front handles** incl. assembly kit for 5 U, Al extrusion, anodised, PU 2 pieces **20860-260**

### Note

- Threaded inserts to push into the side panel see page 6.99
- Telescopic slides to mount into cabinet see page 6.104



## 19" complete chassis from aluminium, plain top cover and base plate



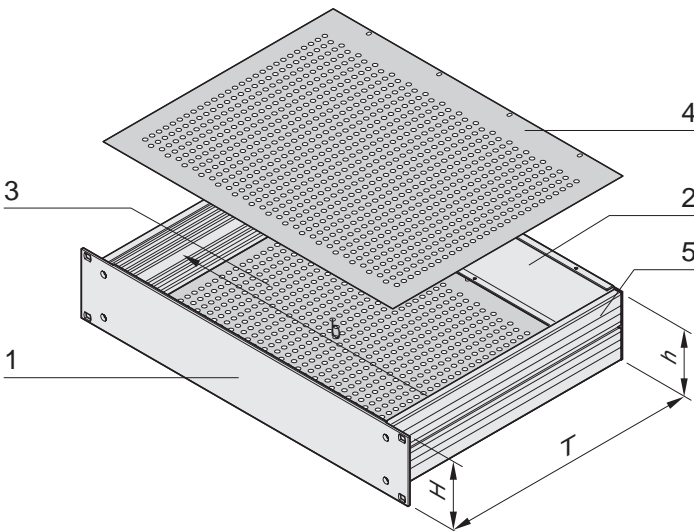
06008005

- Complete chassis from aluminium
- Detachable rear panel for easy machining
- 19" and ATX power supplies can be assembled in the 1 U case height up to a clearance of 35 mm
- EMC shielding of approx. 30 dB(A) at 1 GHz (without additional shielding material)
- In accordance with standard IEC 60297-3-100, -101, -105

# NEW

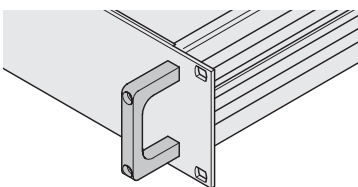
### Delivery comprises (Kit)

Item	Qty	Description
1	1	Front panel, Al extrusion, 3 mm; at 1 U: front anodised, rear etched; from 2 U: front and rear side of front panels clear passivated
2	1	Rear panel, Al, 1 mm, etched
3	1	Base plate, perforated, Al, 1 mm
4	1	Cover plate, perforated, Al, 1 mm
5	2	Side panel, Al extrusion, untreated; with groove for threaded insert (2 x 7); 5 U two-piece, 3+2 U; incl. EMC sealing
6	1	Assembly kit



06008051

h = clear height (overall) (H - 8.1 mm)  
b = clear installation width = 403 mm



Front handle

06002052



ServicePLUS see page 6.96

### Order Information

Height U	Height H mm	Depth T mm	Part no.
1	43.7	220	20860-621
1	43.7	280	20860-622
2	88.1	280	20860-625
2	88.1	340	20860-626
3	132.6	280	20860-627
3	132.6	340	20860-628
3	132.6	400	20860-629
4	177.0	340	20860-632
4	177.0	400	20860-633
4	177.0	460	20860-634
5	221.5	460	20860-635

**EMC gasketing kit** Silicone/nickel gasket 2100 mm for contacting side panel/cover plate; stainless steel gasket for front panel/cover plate **20860-130**

**Front handles** incl. assembly kit for 1 U, Al extrusion, anodised, PU 2 piece **20860-256**

**Front handles** incl. assembly kit for 2 U, Al extrusion, anodised, PU 2 piece **20860-257**

**Front handles** incl. assembly kit for 3 U, Al extrusion, anodised, PU 2 pieces **20860-258**

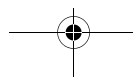
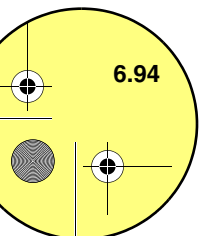
**Front handles** incl. assembly kit for 4 U, Al extrusion, anodised, PU 2 pieces **20860-259**

**Front handles** incl. assembly kit for 5 U, Al extrusion, anodised, PU 2 pieces **20860-260**

### Note

- Threaded inserts to push into the side panel see page 6.99
- Telescopic slides to mount into cabinet see page 6.104

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## 19" complete chassis from aluminium, for assembly of euroboards

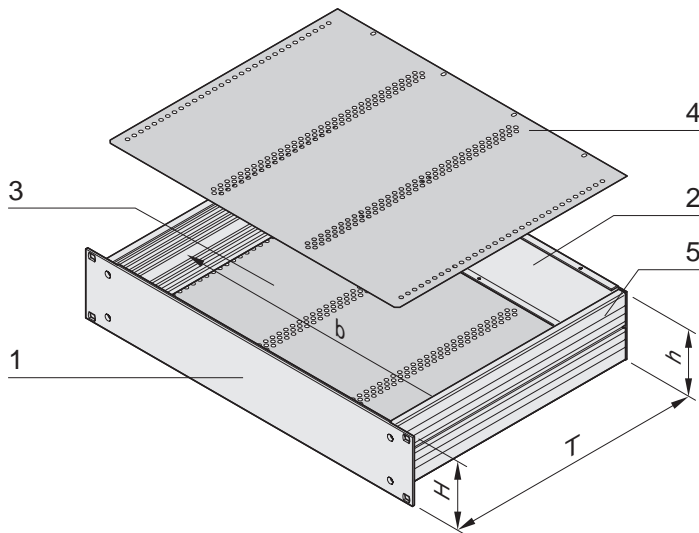


- Complete chassis from aluminium
- Detachable rear panel for easy machining
- 19" and ATX power supplies can be assembled in the 1 U case height up to a clearance of 35 mm
- EMC shielding of approx. 30 dB(A) at 1 GHz (without additional shielding material)
- In accordance with standard IEC 60297-3-100, -101, -105

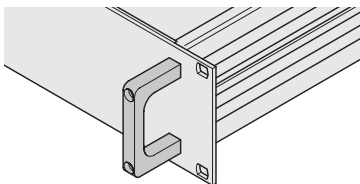
**NEW**

### Delivery comprises (Kit)

Item	Qty	Description
1	1	Front panel, Al extrusion, 3 mm; at 1 U: front anodised, rear etched; from 2 U: front and rear side of front panels clear passivated
2	1	Rear panel, Al, 1 mm, etched
3	1	Base plate, Al, 1 mm; with drill holes for horizontal assembly with euroboards
4	1	Cover plate, Al, 1 mm; with drill holes for den horizontal assembly with euroboards
5	2	Side panel, Al extrusion, untreated; with grooves for threaded inserts (2 x 7)
6	1	Assembly kit



h = clear height (overall) (H - 8.1 mm)  
b = clear installation width = 403 mm



Front handle



ServicePLUS see page 6.96

### Order Information

Height U	Height H mm	Depth T mm	Part no.
1	43.7	220	20860-641
1	43.7	280	20860-642
2	88.1	280	20860-645

**EMC gasketing kit** Silicone/nickel gasket 2100 mm for contacting side panel/cover plate; stainless steel gasket for front panel/cover plate **20860-130**

**Front handles** incl. assembly kit for 1 U, Al extrusion, anodised, PU 2 piece **20860-256**

**Front handles** incl. assembly kit for 2 U, Al extrusion, anodised, PU 2 piece **20860-257**

### Note

- Threaded inserts to push into the side panel see page 6.99
- Guide rails see page 6.102
- Telescopic slides to mount into cabinet see page 6.104



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



## configuration

Components can be varied and combined freely

## Simple. Fast. To the ideal product.

- Configuration tables from page 6.97
- Online configuration: [www.schroff.co.uk/configuration](http://www.schroff.co.uk/configuration)



## assembly

Fitting of all mechanical, electrical and electronic components by our specialists

## Assembled by professionals. Double benefit!

- Professionally and reliable from quantity 1
- Ready for despatch within 5 working days
- Further information: [www.schroff.co.uk/assembly](http://www.schroff.co.uk/assembly)



## modification

Custom drilling, cut-outs and special colours for off-the-shelf products

## Small changes. Large impact.

- Customised modifications from 1 piece
- Ready for despatch within 10 working days
- Further information: [www.schroff.co.uk/modification](http://www.schroff.co.uk/modification)

**FRONT PANEL**  
*EXPRESS*



## solution

Integration and custom developments

## Simple. Fast. From one source.

- Special sizes (depth and width)
- Individual thermal concepts
- Ready for despatch within 10 working days
- Further information: [www.schroff.co.uk/solution](http://www.schroff.co.uk/solution)



## express

Delivery time to customer's request

## When fast has to be faster.

- Express logistics
- Further information: [www.schroff.co.uk/express](http://www.schroff.co.uk/express)

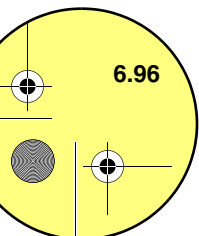


## academy

Knowledge transfer and partnership

## Knowledge. Sharing. Partnerships.

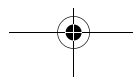
- Seminars, CAD drawings, test reports, user reports
- Further information: [www.schroff.co.uk/academy](http://www.schroff.co.uk/academy)



6.96

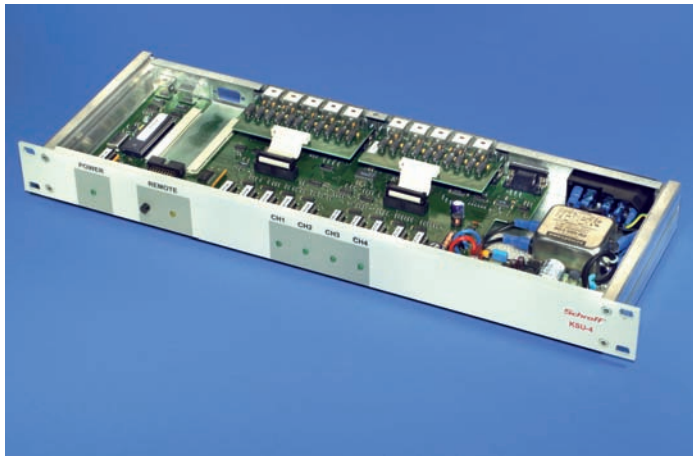
Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



## How to configure 19" chassis

- Select height and depth of the basic kit
- Select further components

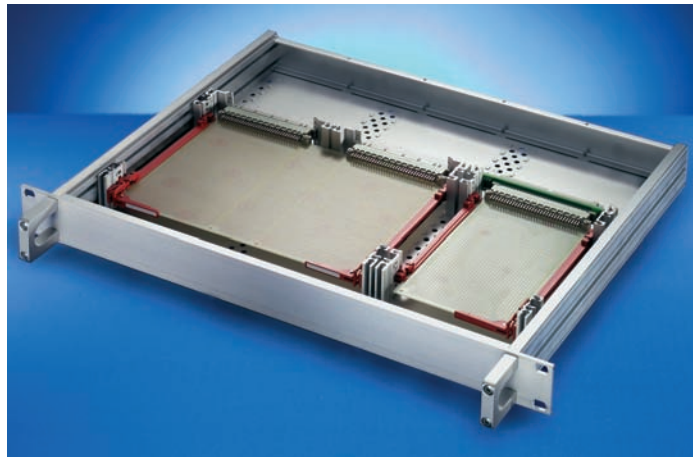


### For non-standardised assemblies (1, 2 U) in accordance with IEC 60297-3-105

- Mounting plate
- Top cover/base plate
- Front handles
- EMC gasketing kit
- Telescopic slide

#### Note

- Non-standardised assemblies from page 6.98



### For non-standardised assemblies (1, 2 U) in accordance with IEC 60297-3-100, -101, -105

- Top cover/base plate for horizontal boards
- Interior mounting for connector or backplane assembly
- front handles
- EMC gasketing kit
- Telescopic slides

#### Note

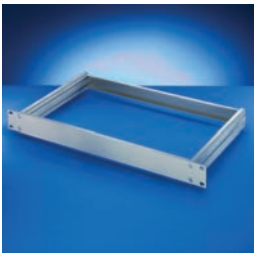
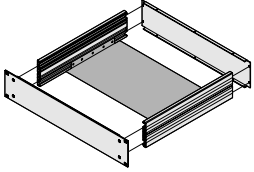
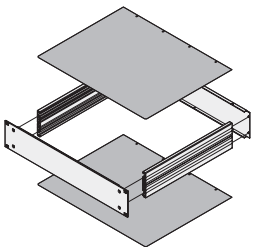
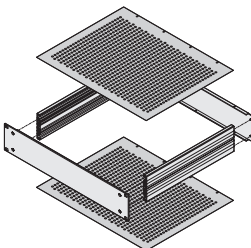
- Standardised assemblies from page 6.100

## Individual components 19" chassis for non-standardised assemblies

- Please select:
  - Height and depth of basic kit (1 ... 5 U)
  - Mounting plate
  - Top cover/base plate
  - Front handles
  - EMC gasketing kit
  - Telescopic slides

■ In accordance with standard 60297-3-105

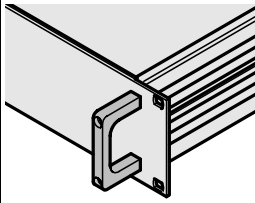
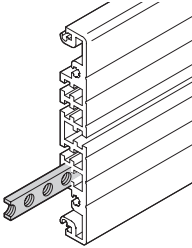
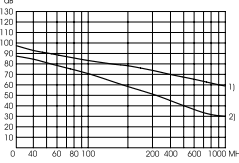

### Order Information

Height U	Height mm	Width HP	Depth D mm	Basic kit	Mounting plate	Top cover/base plate	
						plain	perforated
				 <p>06002004</p> <p>1 x Al front panel, 3 mm; 2 x Al profile side panel; 1 x Al rear panel incl. assembly kit</p>	 <p>06002058</p> <p>Al, 2 mm, depth = D - 70 mm; for heavy equipment</p>	 <p>06002053</p> <p>is pushed into basic kit, Al, 1 mm, clear passivated, please order EMC gasketing kit separately</p>	 <p>06007050</p> <p>Pushed into basic frame, Al, 1 mm, clear chromated, hole diameter 4 mm, degree of perforation 58 %</p>
				<b>PU 1 kit</b>	<b>1 piece</b>	<b>1 piece</b>	<b>1 piece</b>
1	43.7	84	220	<b>20860-201</b>	<b>20860-107</b>	<b>30860-501</b>	<b>30860-510</b>
1	43.7	84	280	<b>20860-202</b>	<b>20860-108</b>	<b>30860-502</b>	<b>30860-511</b>
1	43.7	84	340	<b>20860-203</b>	<b>20860-109</b>	<b>30860-503</b>	<b>30860-512</b>
2	88.1	84	220	<b>20860-210</b>	<b>20860-107</b>	<b>30860-501</b>	<b>30860-510</b>
2	88.1	84	280	<b>20860-211</b>	<b>20860-108</b>	<b>30860-502</b>	<b>30860-511</b>
2	88.1	84	340	<b>20860-212</b>	<b>20860-109</b>	<b>30860-503</b>	<b>30860-512</b>
3	132.6	84	280	<b>20860-219</b>	<b>20860-108</b>	<b>30860-502</b>	<b>30860-511</b>
3	132.6	84	340	<b>20860-220</b>	<b>20860-109</b>	<b>30860-503</b>	<b>30860-512</b>
3	132.6	84	400	<b>20860-221</b>	<b>20860-110</b>	<b>30860-504</b>	<b>30860-513</b>
3	132.6	84	460	<b>20860-222</b>	<b>20860-111</b>	<b>30860-505</b>	<b>30860-514</b>
4	177.0	84	280	<b>20860-228</b>	<b>20860-108</b>	<b>30860-502</b>	<b>30860-511</b>
4	177.0	84	340	<b>20860-229</b>	<b>20860-109</b>	<b>30860-503</b>	<b>30860-512</b>
4	177.0	84	400	<b>20860-230</b>	<b>20860-110</b>	<b>30860-504</b>	<b>30860-513</b>
4	177.0	84	460	<b>20860-231</b>	<b>20860-111</b>	<b>30860-505</b>	<b>30860-514</b>
5	221.5	84	460	<b>20860-240</b>	<b>20860-111</b>	<b>30860-505</b>	<b>30860-514</b>



## Individual components 19" chassis for non-standardised assemblies

### Order Information

				Front handles	Threaded insert M3 for extruded side panel	EMC gasketing kit	Assembly kit for telescopic slides
							
				06002052	06007051	esa44237	0609400
				Al extrusion, anodised, incl. assembly kit	St, 2 mm, zinc-plated, height 7 mm, length 431.3 mm, M3 hole threaded 1 HP = 5.08 mm	to increase EMC shielding see page 6.103	Assembly kit and adaptor bracket for the cabinets VARISTAR, eurorack, minirack; for assembly of 19" chassis on telescopic slides, please order telescopic slides separately see page 6.104
Height U	Height mm	Width HP	Depth D mm	PU 2 pieces	1 piece	PU 1 kit	PU 1 kit
1	43.7	84	220	<b>20860-256</b>	<b>30821-589</b>	<b>20860-130</b>	<b>20860-131</b>
1	43.7	84	280				
1	43.7	84	340				
2	88.1	84	220	<b>20860-257</b>			
2	88.1	84	280				
2	88.1	84	340				
3	132.6	84	280	<b>20860-258</b>			
3	132.6	84	340				
3	132.6	84	400				
3	132.6	84	460				
4	177.0	84	280	<b>20860-259</b>			
4	177.0	84	340				
4	177.0	84	400				
4	177.0	84	460				
5	221.5	84	460	<b>20860-260</b>			

### Note

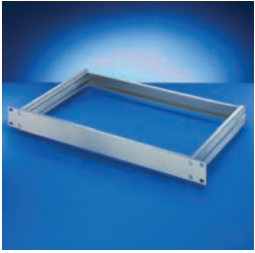
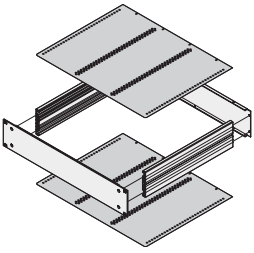
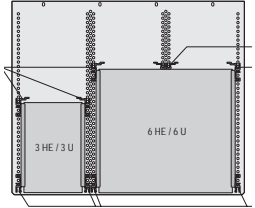
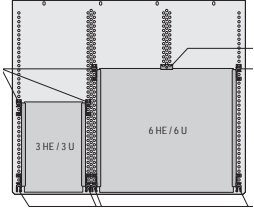
- Further sizes available on request
- Al extrusion side panels up to 1000 mm length available on request
- Telescopic slides see page 6.104

## Individual components 19" chassis for standardised 19" assemblies

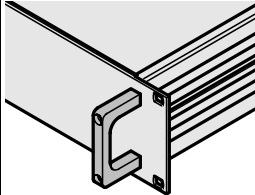
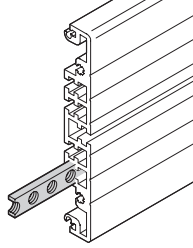
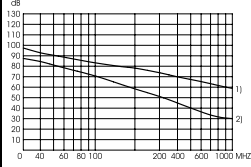

- Please select:
  - Height and depth of basic kit (1, 2 U)
  - Top cover/base plate for horizontal boards
  - Interior mounting for connector or backplane assembly
  - Front handles
  - EMC gasketing kit
  - Telescopic slides

■ In accordance with standard 60297-3-100, -101, -105

### Order Information

Height U	Height mm	Width HP	Depth D mm	Basic kit	top cover/base plate	Mounting of euroboards for connector EN 60603	for insulated backplane assembly
				 06002004 1 x Al front panel, 3 mm; 2 x Al profile side panel; 1 x Al rear panel, incl. assembly kit	 06008053 Al, 1 mm; with drill hole for horizontal assembly with euroboards	 06003050 2 x front horizontal rails; 2 x rear horizontal rails Z sufficient for one 3 U board as well as one 6 U board (for 1 U: 6 HP for 2 U: 15 HP)	 06003051 2 x front horizontal rails; 2 x rear horizontal rails for insulated backplane assembly, threaded inserts and insulation strips sufficient for one 3 U board as well as one 6 U board (for 1 U: 6 HP for 2 U: 15 HP)
				PU 1 kit	1 piece	PU 1 kit	PU 1 kit
1	43.7	84	220	<b>20860-201</b>	<b>30860-519</b>	<b>20860-115</b>	<b>20860-116</b>
1	43.7	84	280	<b>20860-202</b>	<b>30860-520</b>	<b>20860-115</b>	<b>20860-116</b>
1	43.7	84	340	<b>20860-203</b>	<b>30860-521</b>	<b>20860-115</b>	<b>20860-116</b>
2	88.1	84	220	<b>20860-210</b>	<b>30860-519</b>	<b>20860-117</b>	<b>20860-118</b>
2	88.1	84	280	<b>20860-211</b>	<b>30860-520</b>	<b>20860-117</b>	<b>20860-118</b>
2	88.1	84	340	<b>20860-212</b>	<b>30860-521</b>	<b>20860-117</b>	<b>20860-118</b>

### Order Information



				Front handles	Threaded insert M3 for extruded side panel	EMC gasketing kit	Assembly kit for telescopic slides
							
				06002052	06007051	esa44237	0609400
				Al extrusion, anodised, incl. assembly kit	St, 2 mm, zinc-plated, height 7 mm, length 431.3 mm, M3 hole clearance 1 HP = 5.08 mm	to increase EMC shielding see page 6.103	Assembly kit and adaptor bracket for the cabinets VARISTAR, eurorack, minirack; for assembly of 19" chassis on telescopic slides, please order telescopic slides separately see page 6.104
Height U	Height mm	Width HP	Depth D mm	PU 2 pieces	1 piece	PU 1 kit	PU 1 kit
1	43.7	84	220	<b>20860-256</b>	<b>30821-589</b>	<b>20860-130</b>	<b>20860-131</b>
1	43.7	84	280				
1	43.7	84	340				
2	88.1	84	220	<b>20860-257</b>	<b>30821-589</b>	<b>20860-130</b>	<b>20860-131</b>
2	88.1	84	280				
2	88.1	84	340				

#### Note

- Further sizes available on request
- Al extrusion side panels up to 1000 mm length available on request
- Telescopic slides see page 6.104

## Guide rails for boards without front panels, one-piece, groove width 2 mm

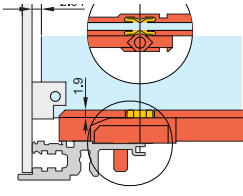
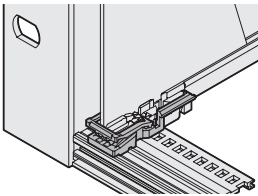
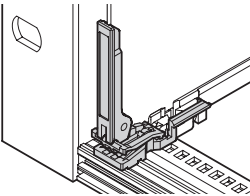
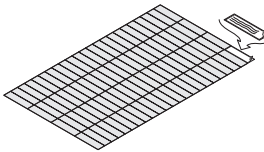
### Order Information

<b>Assembly</b> - can be clipped into Al extruded horizontal rails - can be clipped into 1.5 mm thick plates  <b>storage temperature</b> from -40 °C ... 130 °C			<b>For PCBs without front panels</b> <b>"Accessories"</b>   up to 220 mm length PBT, UL 94 V-0; from 280 mm length, multi-piece, end piece PBT, UL 94 V-0, middle section Al extrusion	
<b>Board lengths</b>	<b>Groove width</b>	<b>Colour</b>	<b>PU 10 pieces<sup>2)</sup></b>	
<b>mm</b>	<b>mm</b>	<b>mm</b>		
160	2	red		<b>24560-373</b>
220	2	red		<b>24560-374</b>
280	2	red		<b>24560-375</b>
340	2	red	<b>24560-376</b>	
Retention screw, PU 100 pieces			<b>24560-141</b>	

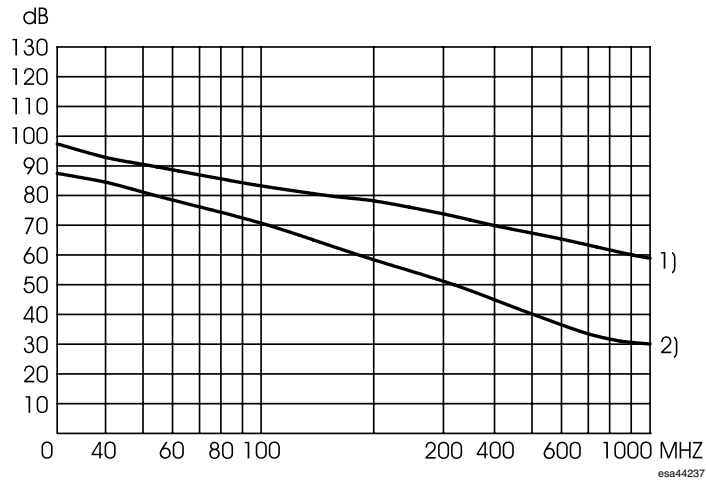
2) Part no. includes one packing unit (PU); delivery is exclusively made in PU

## Guide rail accessories

### Order Information

	<b>ESD clip for guide rails</b>  04503050 Spring steel, tin-plated, ensures conductive contact between circuit board and horizontal rail, on both the solder side and the component side.	<b>Board retention for PCBs without front panel</b>  04805050 PBT, UL 94 V-0, red, to fix the PCB in the subrack (also slot 1), can also be used without board handle, minimum distance 3 HP	<b>Board handle for board locking</b>  04805051 PBT, UL 94 V-0, red, insertion/extraction function with connection to board locking (also slot 1), mounting directly behind front panel (upper and lower), minimum distance 3 HP	<b>Identification strips for board handle</b>  06108076 Polyester film, 31 x 4 mm, self-adhesive, white/matt (1 A4 sheet contains 438 pieces)
<b>Assembly</b>	<b>Colour</b>	PU 50 pieces	PU 10 pieces	PU 10 pieces
mm	mm			
above/below	red	—	<b>24560-377</b>	<b>24560-378</b>
	silver	<b>24560-255</b>	—	—
	white/matt	—	—	—
				—
				<b>60817-228</b>
				<b>60817-228</b>

## EMC gasketing kit



- 1) with EMC gasketing material  
2) without EMC gasketing material

■ The EMC gasket kit and the cover plates increase the shielding of the chassis from approx. 30 dB(A) to approx. 60 dB(A)

### Delivery comprises (kit)

Item	Qty	Description
1	1	Gasket 2100 mm; silicone/nickel, contacting side panel/top cover and base plate
2	2	Saw tooth gasket 400 mm; stainless steel; contacting front panel/top cover and base plate

### Order Information

Description	Part no.
EMC gasketing kit	<b>20860-130</b>

### Note

■ EMC test report: please enter part number under [www.schroff.biz/oneclick/](http://www.schroff.biz/oneclick/)



For further information [www.schroff.biz/oneclick/](http://www.schroff.biz/oneclick/)  
oneClick search code = Part no.



## Universal 1 U telescopic slide



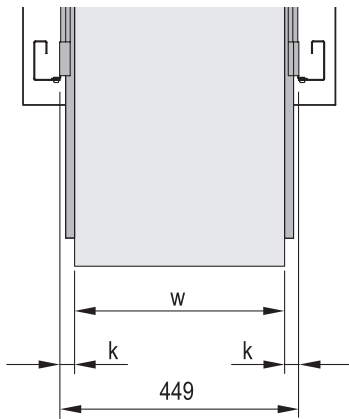
- Load-carrying capacity 23 - 39 kg per pair
- Lateral assembly on the 19" uprights (19" plane remains free for assembly of shelf/extraction drawer)
- Hinged
- Extension length > 100 %
- Rail width  $k = 9.7$  mm,  
max. installation width of shelf/extraction drawer  $w = 429$  mm

### Delivery comprises

Item	Qty	Description
1	2	Telescopic slide, St, zinc-plated

### Order Information

Length L	Extension length Y	Load-carrying capacity P	Part no.
mm	mm	kg	
356	381	39	<b>20110-090</b>
406	432	36	<b>20110-091</b>
457	483	34	<b>20110-092</b>
508	533	32	<b>20110-093</b>
559	584	29	<b>20110-094</b>
610	635	27	<b>20110-095</b>
660	686	23	<b>20110-096</b>
711	737	23	<b>20110-097</b>



$k$  = rail width,  $w$  = max. installation width

### Dimensions table

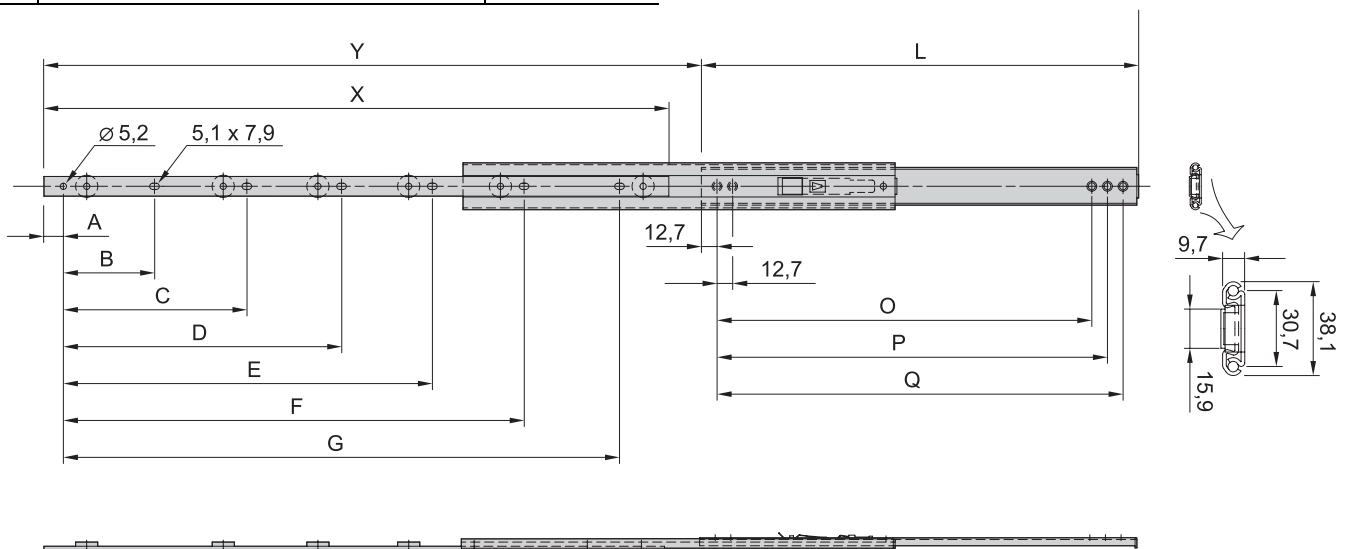
Length L	Internal part								External part		
	A	B	C	D	E	F	G	X	O	P	Q
356	29.5	92.1	184.2	276.2	-	-	-	349.3	304.6	317.3	330.0
406	29.5	92.1	184.2	276.2	-	-	-	349.3	355.4	368.1	380.8
457	29.5	92.1	184.2	276.2	-	-	-	349.3	406.4	419.1	431.8
508	89.9	92.1	184.2	276.2	368.3	-	-	501.7	457.4	470.1	482.8
559	89.9	92.1	184.2	276.2	368.3	-	-	501.7	508.1	520.8	533.5
610	89.9	92.1	184.2	276.2	368.3	-	-	501.7	558.6	571.3	584.0
660	7.4	92.1	184.2	276.2	368.3	460.4	552.4	603.3	609.4	622.1	634.8
711	7.4	92.1	184.2	276.2	368.3	460.4	552.4	603.3	660.2	672.9	685.6

### Note

- For mounting into Schroff cabinets please order assembly kit separately, see page 6.101



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

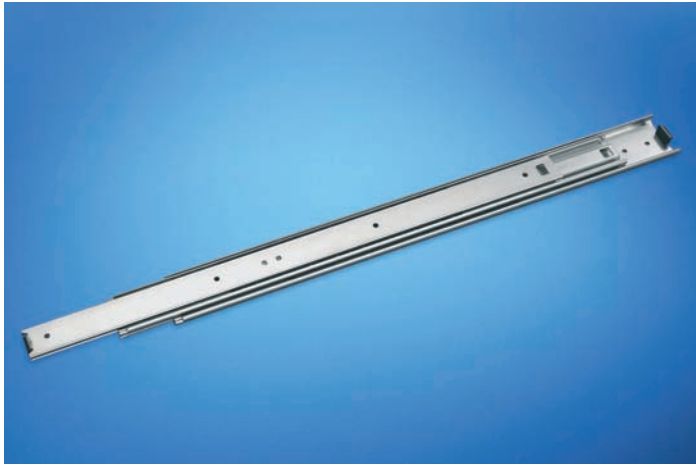


6.104

Main Catalogue  
E 03/2009

Part number in bold face type: ready for despatch within 2 working days  
Part number in normal type: ready for despatch within 10 working days

## Universal 2 U telescopic slide



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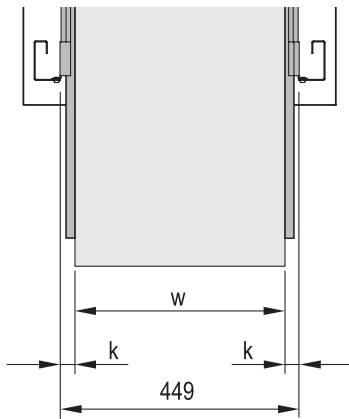
- Load-carrying capacity 46 - 61 kg per pair
- Lateral assembly on the 19" uprights (19" plane remains free for assembly of shelf/extraction drawer)
- Locks at full extension
- Extension length > 100 %
- Rail width  $k = 16$  mm, max. installation width of shelf/extraction drawer  $w = 417$  mm

### Delivery comprises

Item	Qty	Description
1	2	Telescopic slide, St, zinc-plated

### Order Information

Length L	Extension length Y	Load-carrying capacity P	Part no.
mm	mm	kg	
305	330	61	<b>20110-100</b>
356	381	60	<b>20110-101</b>
406	432	58	<b>20110-102</b>
457	483	57	<b>20110-103</b>
508	533	55	<b>20110-104</b>
559	584	52	<b>20110-105</b>
610	635	50	<b>20110-106</b>
660	686	48	<b>20110-107</b>
711	737	46	<b>20110-108</b>



00505060

$k$  = rail width,  $w$  = max. installation width

### Dimensions table

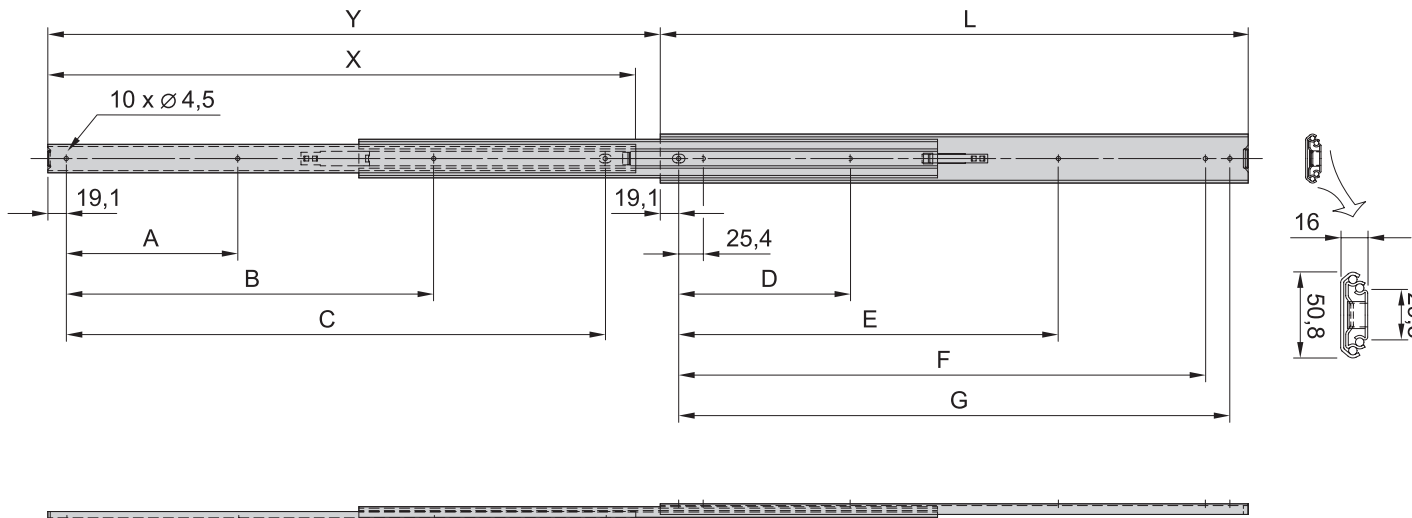
Length L	Internal part				External part			
	A	B	C	X	D	E	F	G
305	76.2	177.8	254.0	305.0	76.2	190.5	241.3	266.7
356	101.6	203.2	304.8	356.0	88.9	215.9	292.1	317.5
406	127.0	228.6	355.6	406.0	127.0	241.3	342.9	368.3
457	127.0	279.4	406.4	457.0	127.0	292.1	393.7	419.1
508	152.4	304.8	457.2	508.0	152.4	317.5	444.5	469.9
559	177.8	330.2	508.0	559.0	177.8	342.9	495.3	520.7
610	177.8	381.0	558.8	610.0	177.8	393.7	546.1	571.5
660	203.2	406.4	609.6	660.0	203.2	419.1	596.9	622.3
711	228.6	431.8	660.4	711.0	228.6	444.5	647.7	673.1

### Note

- For mounting into Schroff cabinets please order assembly kit separately, see page 6.101



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
OneClick search code = Part no.

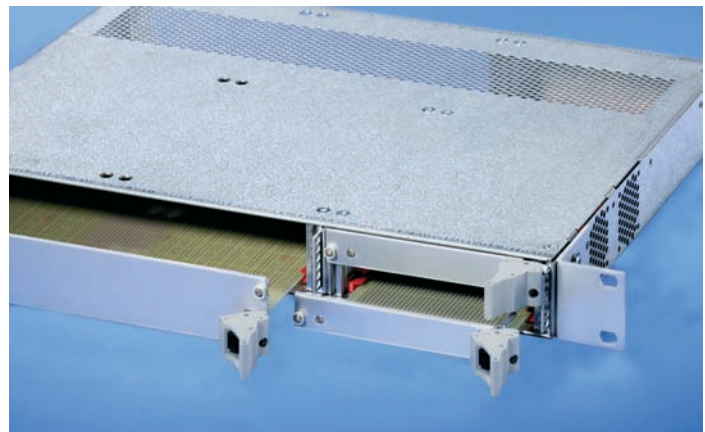


## Application examples



Application: Different cut-outs

06002006



Application: Combined 3 U and 6 U assembly

06002007



Application: 2 U version with 2 x 3 U assembly

06002005



Application: 1 U multipacPRO (pizza box) complete in steel plate; 19" brackets can be removed if required

06108006



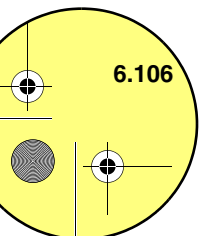
Application: 1 U multipacPRO complete in steel plate; Front panel in aluminium with cut-outs

06108007



Application: 1 U multipacPRO complete in steel plate; printed 19" front panel in aluminium with cut-outs

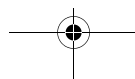
06101008

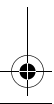


6.106

Main Catalogue  
E 03/2009

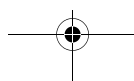
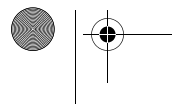
**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days





**Main Catalogue**  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days



Cabinets ..... 1

Wall mounted cases ..... 2

Accessories for cabinets and wall mounted cases .... 3

Climate control .... 4

Desk-top cases .... 5

**Subracks/  
19" chassis ..... 6**

Front panels,  
plug-in units ..... 7

Systems ..... 8

Power supply  
units ..... 9

Backplanes ..... 10

Connectors, front  
panel component  
system ..... 11

Appendix ..... 12



02192001



02192005

Robust 19" chassis, also for board assembly

### Standards

- External dimensions in accordance with IEC 60297-3-101
- Protection class IP 20 as per IEC 60529
- Protective GND/earth connections according to:  
DIN EN 50178 / VDE 0160  
DIN EN 60950 / VDE 0805  
DIN EN 61010-1 / VDE 0411 part 1  
DIN EN 61010-1A2 / VDE 0411 part 1/A1



Downloads and further important information can be found on the Internet under [www.schroff.biz](http://www.schroff.biz)





## 19" chassis with high mechanical stability

- Also usable as desk-top case
- Robust cases from aluminium die-cast frames to front and rear
- Flexible assembly for standardised board formats or individually, e.g. for mounting plates
- Cost benefit with mounting service and custom processing in ServicePLUS



02192002

### 19" chassis/desk-top enclosure

- 2 U, 3 U, 4 U and 6 U heights



02192003

### inpac built into 19" cabinet



30407004

### ServicePLUS from page 6.96

- e.g. individual configuration and assembly from 1 piece
- e.g. printing
- e.g. cut-outs in front or rear panels or cover plates
- e.g. modifications (special colours)
- e.g. customised solutions (special depths, electromagnetically shielded applications)

[www.schroff.biz/serviceplus/](http://www.schroff.biz/serviceplus/)

### inpac

19" chassis . . . . 6

### Accessories

Full-width front panels . . . . .	6
Full-width rear panels . . . . .	6
Support rails . . . . .	6
Horizontal rails . . . . .	6
Guide rails . . . . .	6
Front handles . . . . .	6
GND/earthing kit . . . . .	6
Dimensions . . . . .	6

ServicePLUS . 6



## 19" chassis

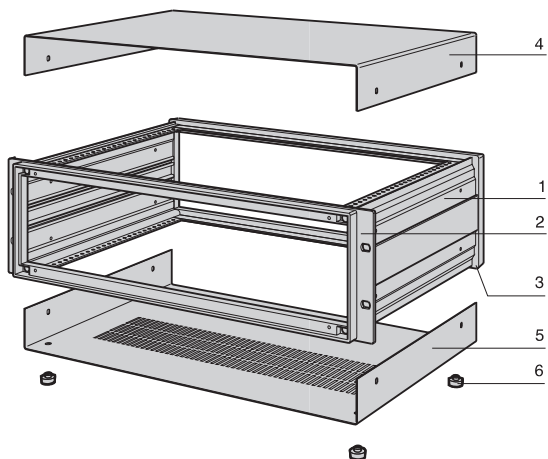


02192006

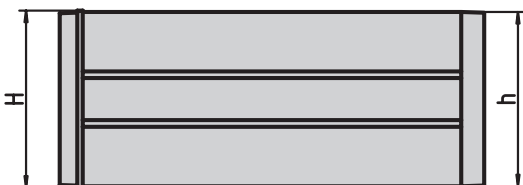
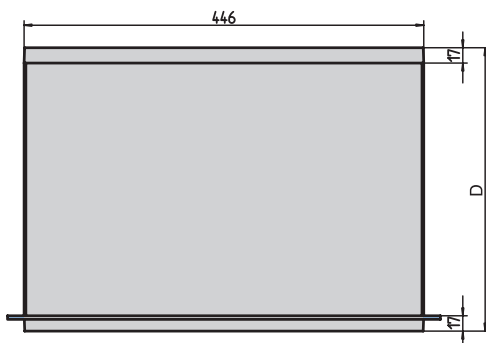
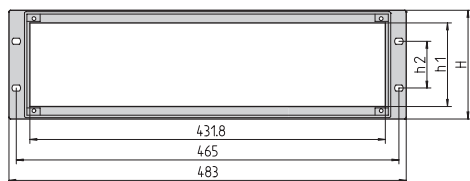
- For assembly with 19" components or individually with mounting plate
- Three rows ventilation slots in base for air inlet

**Delivery comprises** (Kit, Pos. 1, 2 and 3 assembled)

Item	Qty	Description
1	2	Side panel, Al extrusion, RAL 7030 at 6 U: 2 Al corner profiles 1 divider plate (steel plate)
2	1	Front frame, Al die-cast, RAL 7030, rear side with counterbores for drill holes to mount handles and front panels
3	1	Rear frame, Al die-cast, RAL 7030
4	1	Cover plate, St, 1 mm, RAL 7035, plastic-coated, with GND/earthing connection
5	1	Base plate, St, 1 mm, RAL 7035, plastic-coated, with GND/earthing connection
6	4	Case foot with anti-slip protection, PC, UL 94 V-0
7	1	Assembly kit



ipa30632



IPA30635

### Order Information

Height H	Height H	h	h1	h2	Depth D	Part no.
U	mm	mm	mm	mm	mm	
2	88.0	86.0	57.5	76.2	254.5	<b>10828-071</b>
2	88.0	86.0	57.5	76.2	314.5	<b>10828-072</b>
2	88.0	86.0	57.5	76.2	374.5	<b>10828-073</b>
3	132.5	130.5	102.0	57.2	254.5	<b>10828-051</b>
3	132.5	130.5	102.0	57.2	314.5	<b>10828-052</b>
3	132.5	130.5	102.0	57.2	374.5	<b>10828-053</b>
3	132.5	130.5	102.0	57.2	434.5	<b>10828-054</b>
4	177.0	174.5	146.5	101.6	254.5	<b>10828-056</b>
4	177.0	174.5	146.5	101.6	314.5	<b>10828-057</b>
4	177.0	174.5	146.5	101.6	374.5	<b>10828-058</b>
4	177.0	174.5	146.5	101.6	434.5	<b>10828-059</b>
6	265.9	263.5	235.4	190.5	374.5	<b>10828-068</b>
6	265.9	263.5	235.4	190.5	434.5	<b>10828-069</b>

### Note

- Extent of delivery includes screws for fixing rear panel and front panel



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



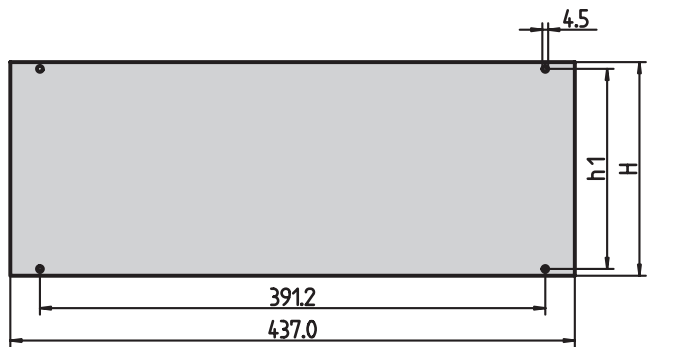
ServicePLUS see page 6.96

6.110

Main Catalogue  
E 03/2009

**Part number in bold face type: ready for despatch within 2 working days**  
Part number in normal type: ready for despatch within 10 working days

## Front panels



### Delivery comprises

Item	Qty	Description
1	1	Front panel, Al, 2.5 mm, anodised, cut edges untreated

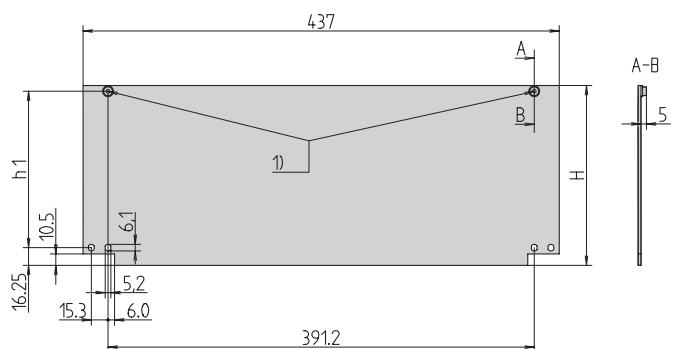
### Order Information

Height U	Height H mm	h1 mm	Part no.
2	76.0	65.6	<b>30828-055</b>
3	120.5	110.0	<b>30828-058</b>
4	165.0	154.5	<b>30828-061</b>
6	253.8	243.4	<b>30828-067</b>

### Note

- Delivery of the 19" chassis comprises assembly kit for the front panel

## Front panels, bottom-hinged



1) Sleeve pressed-in

### Delivery comprises

Item	Qty	Description
1	1	Full-width front panel, hinged, Al, 2.5 mm, anodised, cut edges plain; steel sleeve pressed-in

### Order Information

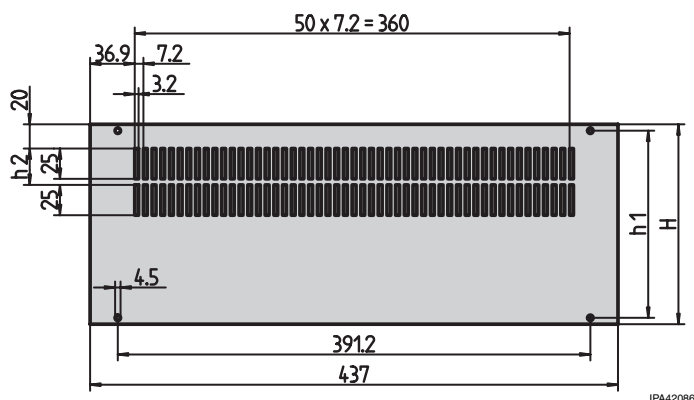
Height U	Height H mm	h1 mm	Part no.
2	76.0	54.5	<b>30828-085</b>
3	120.5	99.0	<b>30828-088</b>
4	165.0	143.5	<b>30828-091</b>
6	253.8	232.3	<b>30828-097</b>

**Hinge for front panel PPE, UL 94 V-0, 1 kit** **20828-028**

### Note

- Please order hinge for front panel separately

## Rear panels



### Delivery comprises (kit)

Item	Qty	Description
1	1	Rear panel, including assembly kit, Al 2.5 mm, anodised cut edges untreated

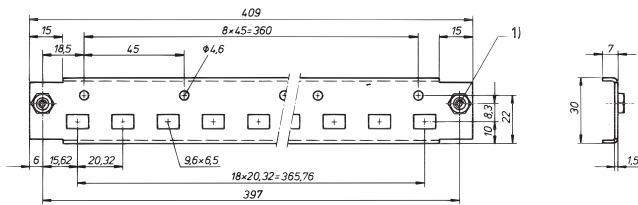
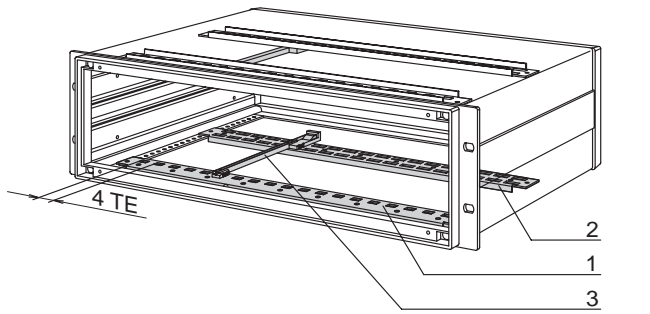
### Order Information

Height U	Height H mm	h1 mm	h2 mm	Part no.
2	76.0	65.6	—	<b>30828-070</b>
3	120.5	110.0	—	<b>30828-073</b>
4	165.0	154.5	—	<b>30828-076</b>
6	253.8	243.4	30	<b>30828-082</b>

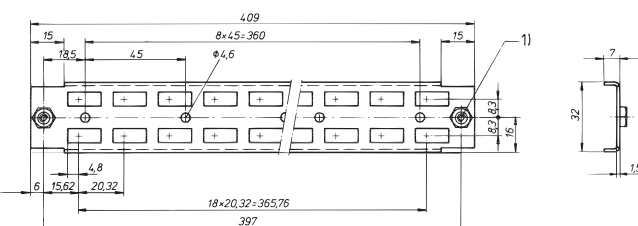
### Note

- Delivery of the 19" chassis comprises assembly kit for the front panel

## Support rails



IPA30639



a3-308xx

1) Press-in insert M4

- Guide rails for PCBs 100 × 160 mm or 100 × 220 mm can be fitted

### Order Information

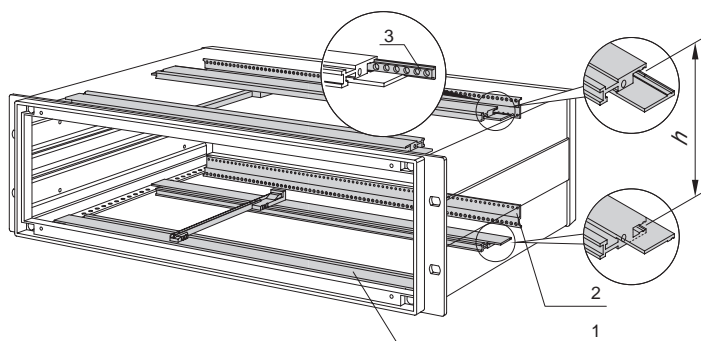
Item	Description	Part no.
1	Front support rail, St, 1.5 mm, blue-passivated, 1 piece	<b>30828-165</b>
2	Rear support rail, St, 1.5 mm, blue-passivated, 1 piece	<b>30828-174</b>
3	Guide rail 160 mm, PBT, UL 94 V-0, with integrated fixture for connector to EN 60603 (DIN 41612), PU 1 pair	<b>60817-078</b>
3	Guide rail 220 mm, PBT, UL 94 V-0, with integrated fixture for connector to EN 60603 (DIN 41612), PU 1 pair	<b>60817-079</b>
<b>Screw</b> For horizontal rail assembly, M4 × 8, flat head Pozidrive, PU 100 pieces		<b>21100-677</b>

- More guide rails see page 6.113



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

## Horizontal rails



IPA30640

- For assembly with PCB
- Usable width 75 HP

### Delivery comprises (components)

Item	Qty	Description
1	1	Horizontal rail, Al extrusion, anodised
2	1	Z-rail, Al extrusion, anodised
3	1	Threaded insert, St, zinc-plated (blue)

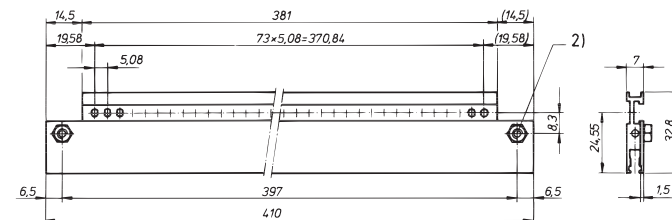
### Order Information

Item	Description	Qty/PU	Part no.
1	Horizontal rail 75 HP	1	<b>30828-128</b>
2	Z-rail 75 HP, for DIN 41 612	1	<b>30814-513</b>
3	Threaded insert 75 HP	1	<b>30819-604</b>
<b>Screw</b> For horizontal rail assembly, M4 × 8, flat head Pozidrive, PU 100 pieces			<b>21100-677</b>
<b>Cheesehead screw with slot</b> M2.5 × 6, DIN 84, PU 100 pieces			<b>21100-146</b>
<b>Guide rail 160 mm</b> PBT, UL 94 V-0, with integrated fixture for connector to EN 60603 (DIN 41612), PU 1 pair			<b>60817-078</b>
<b>Guide rail 220 mm</b> PBT, UL 94 V-0, with integrated fixture for connector to EN 60603 (DIN 41612), PU 1 pair			<b>60817-079</b>

### Note

- Threaded insert may not be used to front

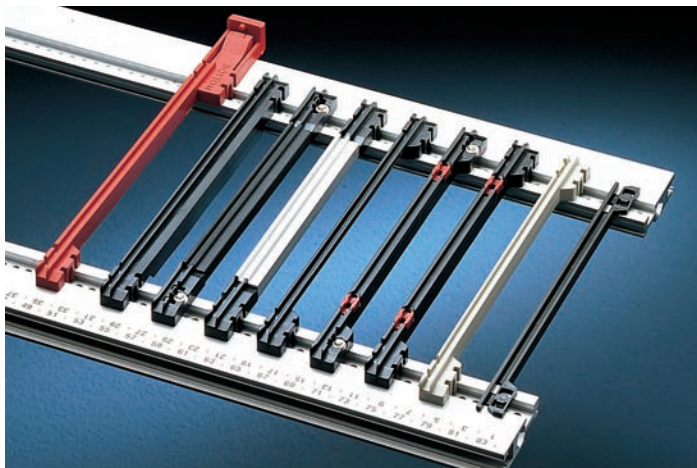
h	Bolt-on dimensions of backplane
U	mm
2	75.40
3	119.80
4	164.30
6	252.90



A4-587

2) Press-in insert M4

## Guide rails



04292012

### Order Information

Board lengths mm mm	Groove width mm mm	A42744		A42744		A42744		A42744	
		Light version, snap-in Part no. 1 piece (SPQ 50) <sup>1)</sup>	Standard version, snap-in Part no. 1 piece (SPQ 50) <sup>1)</sup>	Version with board securing, snap-in Part no. 1 piece (SPQ 50) <sup>1)</sup>	Version with board securing, bolt-on Part no. 1 piece (SPQ 50) <sup>1)</sup>	Version for heavy load carrying capacity, snap-in Part no. 1 piece (SPQ 50) <sup>1)</sup>	Version with ESD clip Part no. Qty/PU 1 piece	Universal version with A middle section bolt-on Part no. Qty/PU 1 piece	
100	2	-	<b>60817-015</b>	-	-	-	-	-	-
160	2	<b>60817-064</b>	<b>60817-103</b>	<b>60817-001</b>	<b>60817-053</b>	<b>60817-102</b>	<b>20817-368</b>	-	-
160	2.5	-	<b>60817-076</b>	-	-	-	-	-	-
180	2	-	-	<b>60817-026</b>	-	-	-	-	-
220	2	-	<b>60817-149</b>	<b>60817-016</b>	<b>60817-083</b>	<b>60817-085</b>	<b>20817-369</b>	-	-
220	2.5	-	-	-	-	<b>60817-098</b>	-	-	-
280	2	-	-	-	-	<b>60817-080</b>	-	-	-
340	2	-	-	-	-	-	-	-	<b>20825-120</b>
400	2	-	-	-	-	-	-	-	<b>20825-121</b>

1) SPQ (Standard Pack Quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple thereof

### Note

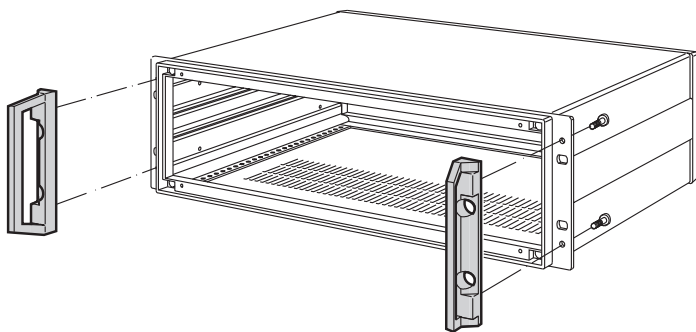
- For a detailed description of the guide rails see our website; if using oneClick, enter part number



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.



## Front handles



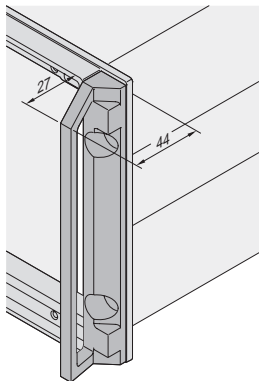
- Load-carrying capacity 35 kg per pair

### Delivery comprises (kit)

Item	Qty	Description
1	2	Front handle, Al die-cast, powder-coated, RAL 7030 , incl. assembly kit

### Order Information

Height	Part no.
U	
3	<b>20828-127</b>
4	<b>20828-128</b>
6	<b>20828-129</b>



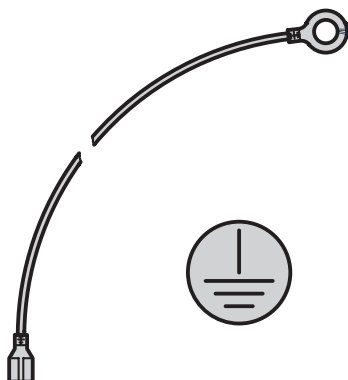
IPA30636

02108050



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

## Earthing kit



- The earthing kit ensures VDE compliant earthing of the cases in accordance with
  - DIN EN 50178/VDE 0160
  - DIN EN 60950/VDE 0805
  - DIN EN 61010-1/VDE 0411 part 1
  - DIN EN 61010-1A2/VDE 0411 part 1/A

- VDE inspection carried out

### Order Information

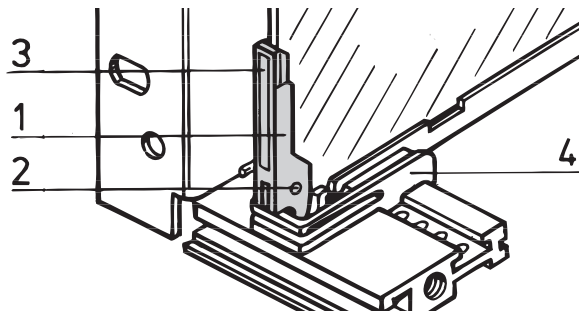
Description	Qty/PU	Part no.
GND/earthing kit, Cu wire, 1.5 mm <sup>2</sup> , PVC sheathing, green/yellow, connects side panels, top and base plate and rear panel	1	<b>21100-814</b>

aza43284



For further information [www.schroff.biz/oneclick](http://www.schroff.biz/oneclick)  
oneClick search code = Part no.

**PCB handle A**

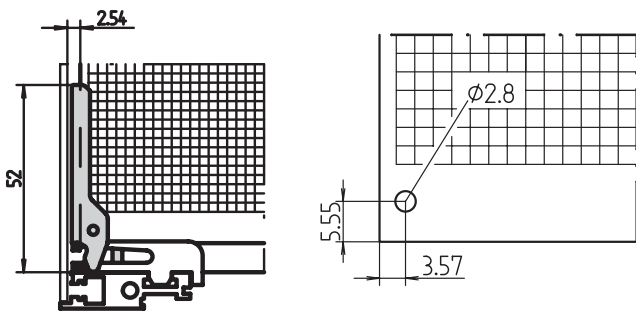


- To be mounted behind front panel, for PCB thickness 1.6 mm
- Insertion and extraction function
- Can be labelled

**Order Information**

Item	Description	Material	Colour	Qty/PU	Part no.
1	PCB handle A	PBT, UL 94 V-0	red	1 piece (SPQ 10)	<b>60817-092</b>
2	Pivot pin	Stainless steel	-	100	<b>21100-671</b>
3	Identification strip	Polyester film, self-adhesive	mat-silver	100	<b>21100-672</b>

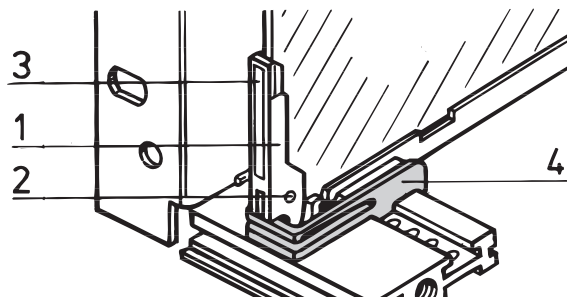
SPQ (Standard Pack Quantity): Order number includes 1 piece, but delivery is exclusively made in Standard Pack Quantity: Therefore please order at least 10 pieces PCB handles or a multiple thereof



B4-2728

BZA42727 BZA42724

**PCB retainer A**



- Can be used on upper and lower horizontal rail, groove width 2 mm
- Minimum distance of guide rail 3 HP
- Can also be used without PCB handle

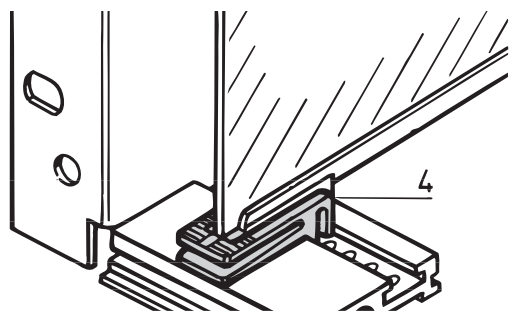
**Order Information**

Item	Description	Material	Colour	Qty	Part no.
4	PCB retainer A for top and bottom	PPE, UL 94 V-0	red	1 piece (SPQ 10)	<b>60817-092</b>

1) Order number includes 1 piece, but delivery is exclusively made in Standard Pack Quantity: Therefore please order at least 10 pieces PCB retainers or a multiple thereof

C4-2728

**PCB retainer B**



- Can be used on upper and lower horizontal rail, for PCB thickness 1.6 mm
- Can also be used without PCB handle
- Can also be used with guide blocks

**Order Information**

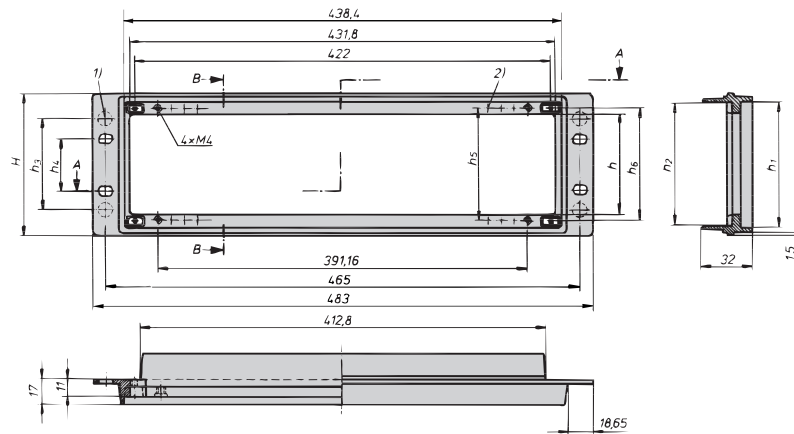
Item	Description	Material	Colour	Qty	Part no.
4	PCB retainer, bottom	PPE, UL 94 V-0	red	1 piece (SPQ 10)	<b>60817-054</b>
4a	PCB retainer, top	PPE, UL 94 V-0	black	1 piece (SPQ 10)	<b>60817-071</b>

SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity: Therefore please order at least 10 pieces PCB retainers or a multiple thereof

BZA46428

## Dimensions

### 19" front frame



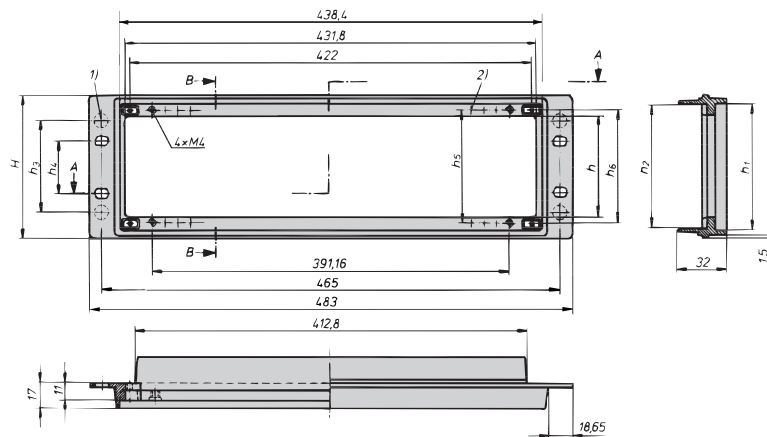
A3-306

### Section A-A

There are counterbores on the rear side of the front frame which can be drilled if required:

- 1) For handle assembly
- 2) For front panel assembly (grid 5.08 mm)

### 19" rear frame



A3-305

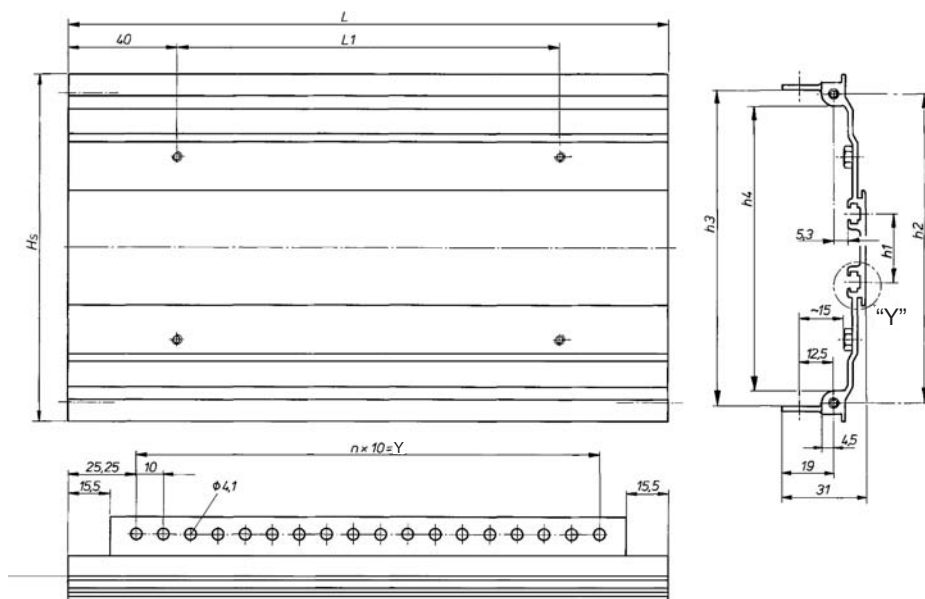
### Section A-A

## Dimensions table

Height										
in U	H	H <sub>R</sub>	h	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	h <sub>5</sub>	h <sub>6</sub>	h <sub>7</sub>
2	88.0	86.0	57.5	77.3	69.8	25.0	76.2	65.5	68.0	68.4
3	132.5	130.5	102.5	121.8	114.3	90.0	57.1	110.0	112.5	112.8
4	177.0	175.0	146.5	166.3	158.8	134.5	101.6	154.5	157.0	157.3
6	265.9	263.9	235.4	255.2	247.7	233.4	190.4	243.4	245.9	245.9

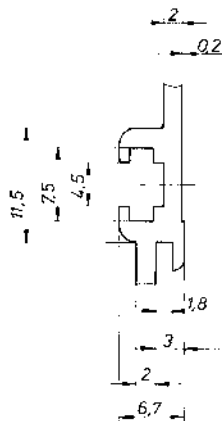
## Dimensions

### Side panel



A3-304a

### Detail "Y"



A3-304b

### Dimensions table

#### Height

in U	H	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	L	L <sub>1</sub>	(n)	Y	t
2	82.6	—	68.0	71.4	59.0	220.5	140.5	17.0	170	254.5
2	82.6	—	68.0	71.4	59.0	280.5	200.5	23.0	230	314.5
2	82.6	—	68.0	71.4	59.0	340.5	260.5	29.0	290	374.5
3	127.0	24.0	112.5	115.8	103.5	220.5	140.5	17.0	170	254.5
3	127.0	24.0	112.5	115.8	103.5	280.5	200.5	23.0	230	314.5
3	127.0	24.0	112.5	115.8	103.5	340.5	260.5	29.0	290	374.5
4	171.0	68.5	157.0	160.3	148.0	220.5	140.5	17.0	170	254.5
4	171.0	68.5	157.0	160.3	148.0	280.5	200.5	23.0	230	314.5
4	171.0	68.5	157.0	160.3	148.0	340.5	260.5	29.0	290	374.5
6	260.4	157.1	245.9	248.9	236.5	220.5	140.5	17.0	170	254.5
6	260.4	157.1	245.9	248.9	236.5	280.5	200.5	23.0	230	314.5
6	260.4	157.1	245.9	248.9	236.5	340.5	260.5	29.0	290	374.5

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