



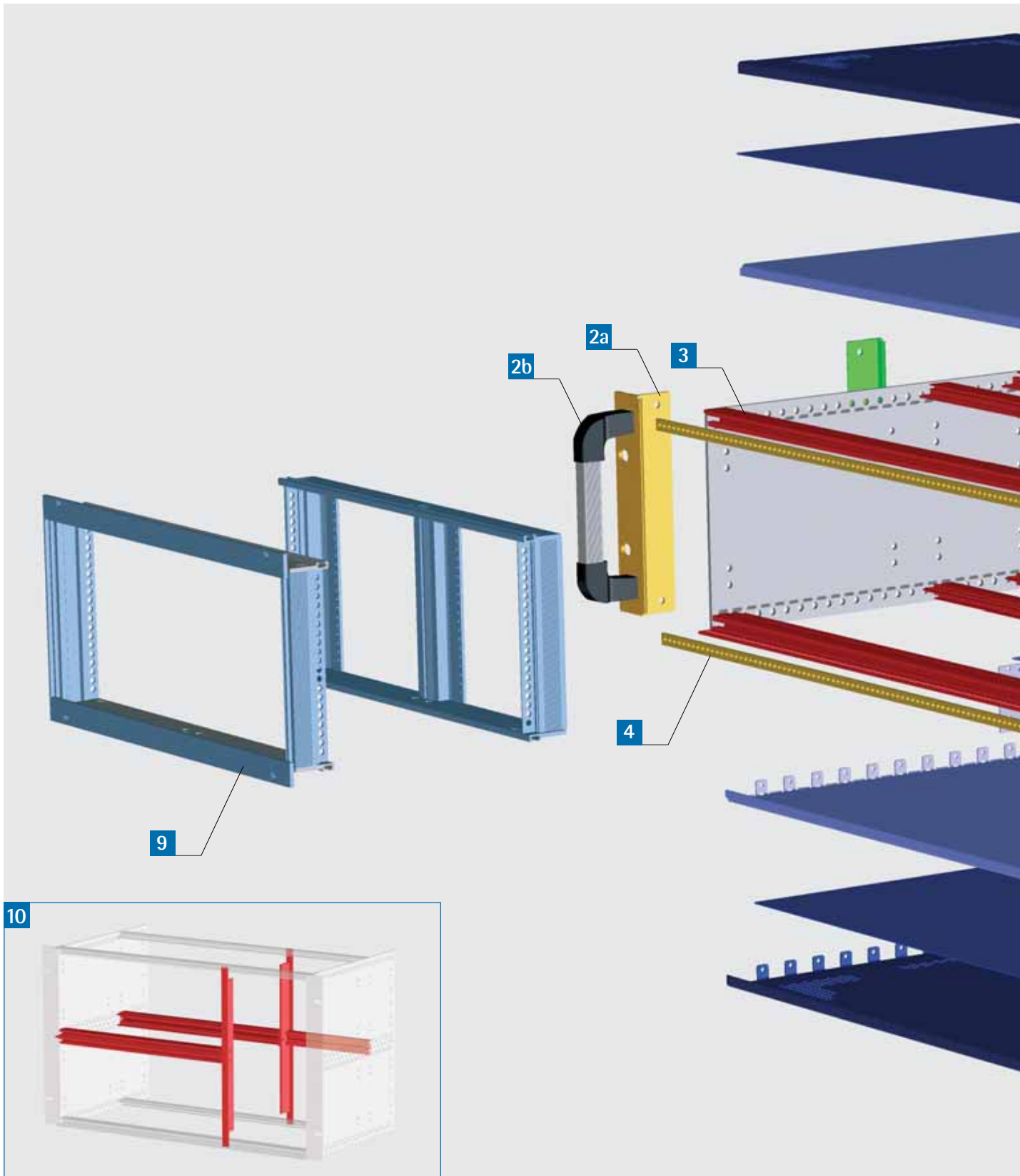
Individual configuration 245

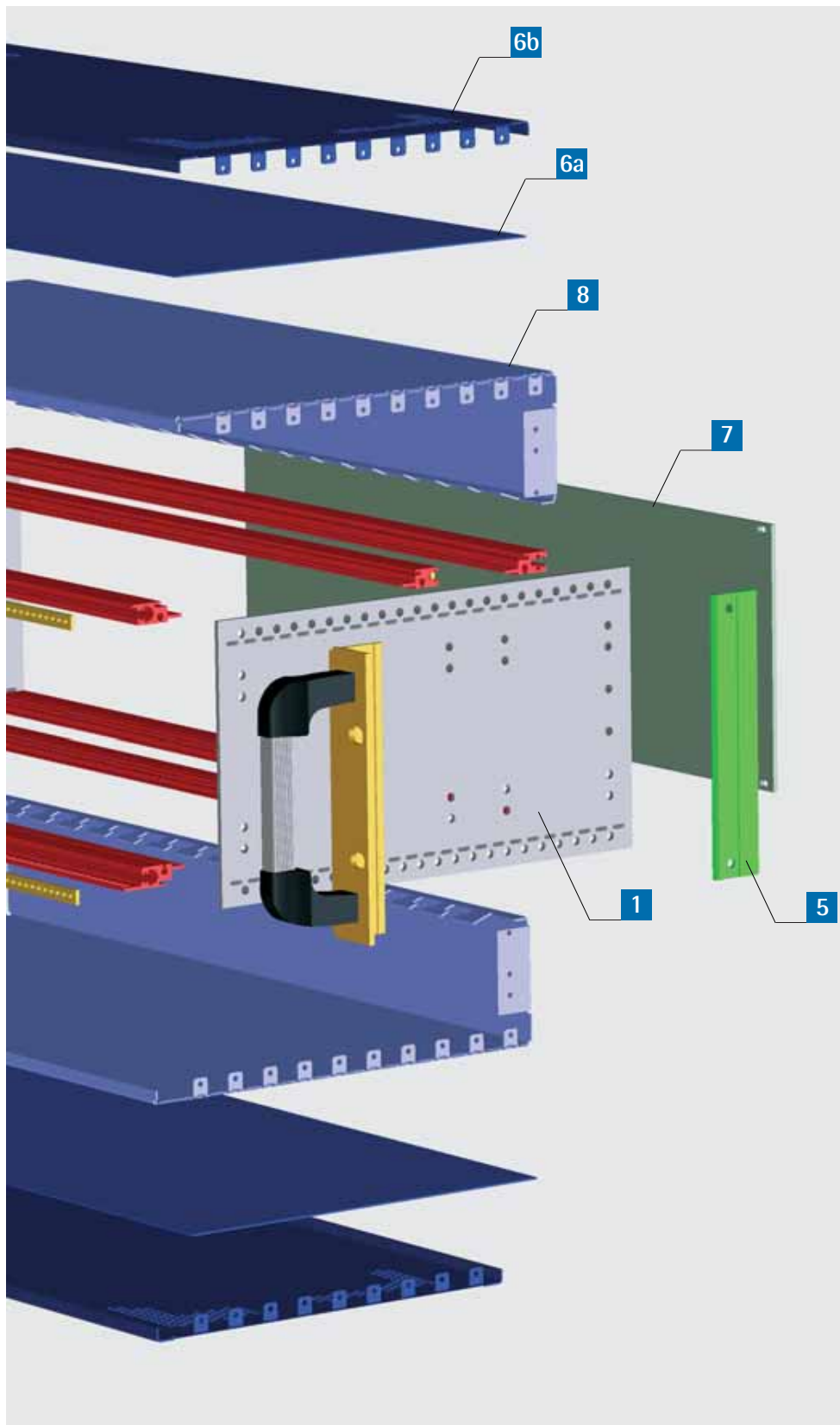


... the perfect shell for valuable electronics



Individual configuration: Design your customized subrack 245.





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Other dimensions and electromechanical components on request!



Customized front panels including print, foils, input systems or keyboards –

please ask for our front panel express!





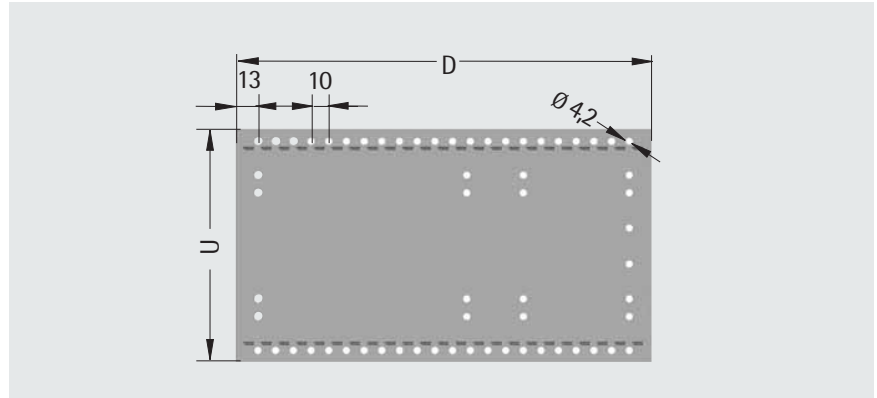
1a Side panel, solid

- Side panels can be expanded by use of the expansion kit (see page 50)

Finish: transparent chromated

Material: aluminium 2,5 mm

Other dimensions on request!



U	H mm	D mm	Part no.
3	132,5	176	24-5301-50
		236	24-5302-50
		296	24-5303-50
		356	24-5304-50
4	177	296	24-5403-50
		356	24-5404-50
6	266	176	24-5601-50
		236	24-5602-50
		296	24-5603-50
		356	24-5604-50
7	310,5	296	24-5703-50
		356	24-5704-50

1b Side panel, perforated

- prepared with ventilation holes and studs for the mounting of fans
- Side panels can be expanded by use of the expansion kit (see page 50)

Finish: transparent chromated

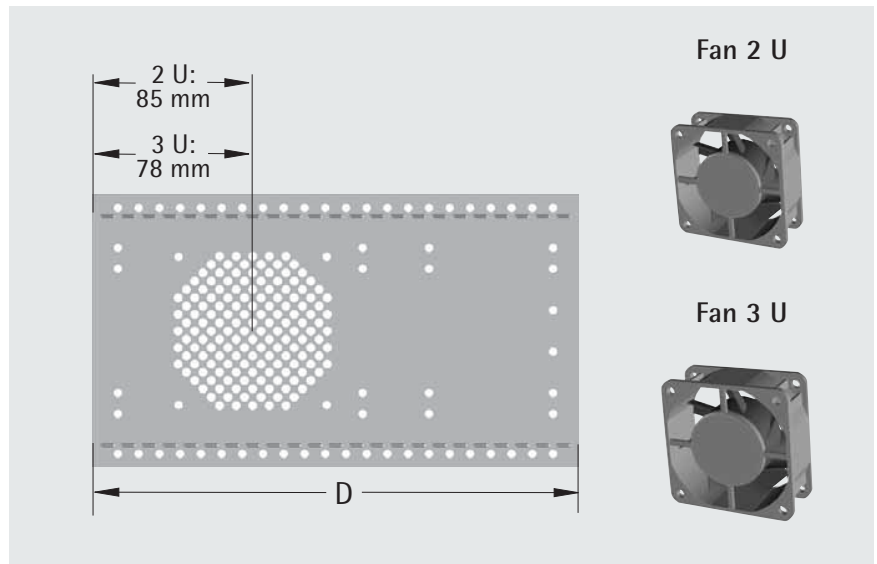
Material: aluminium 2,5 mm

Matching fan, 2 U

- Dimensions: 60 x 60 x 25 mm
- Voltage: 12 V
- Flow rate: 40 m³/h

Matching fan, 3 U

- Dimensions: 80 x 80 x 25 mm
- Voltage: 12 V
- Flow rate: 58 m³/h

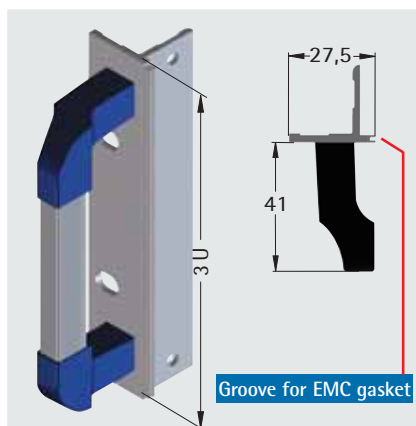


U	H mm	D mm	Side panel perforated	Fan 2 U 60x60x25 mm	Fan 3 U 80x80x25 mm
2	88	236	24-5202-50	230-825	-
		296	24-5203-50	230-825	-
3	132,5	176	24-5301-58	-	230-828
		236	24-5302-58	-	230-828
		296	24-5303-58	-	230-828
		356	24-5304-58	-	230-828



2a/b Front bracket

bracket with handle



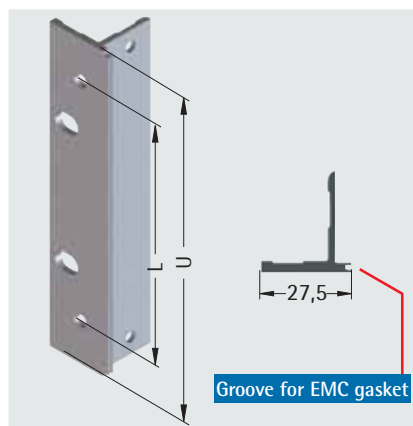
- with integrated groove for inserting EMC contact gaskets **11** (see p. 40)

Material: aluminium/plastic

Finish: transparent chromated

U	H mm	Part no. (1 piece)
3	132,5	24-1002-23
4	177	-
4 (3+2x 1/2)	177	24-1002-34
6	266	24-1002-26
7	310,5	-
7 (6+2x 1/2)	310,5	24-1002-37

bracket with holes for handle



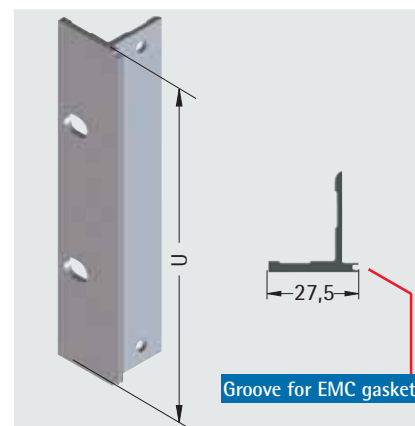
- with integrated groove for inserting EMC contact gaskets **11** (see p. 40)

Material: aluminium/plastic

Finish: transparent chromated

U	H mm	Dist. b/w holes mm	Part no. (1 piece)
3	132,5	98	24-1002-03
4	177	142,5	24-1002-04
4 (3+2x 1/2)	177	142,5	24-1002-44
6	266	231,5	24-1002-06
7	310,5	276	24-1002-07
7 (6+2x 1/2)	310,5	276	24-1002-47

bracket without holes for handle



- with integrated groove for inserting EMC contact gaskets **11** (see p. 40)

Material: aluminium/plastic

Finish: transparent chromated

U	H mm	Part no. (1 piece)
2	2	24-1002-12
3	132,5	24-1002-13
4	177	24-1002-14
4 (3+2x 1/2)	177	24-1002-54
6	266	24-1002-16
7	310,5	24-1002-17
7 (6+2x 1/2)	310,5	24-1002-57

2b Front panel handle

- fits 19" front panels, subracks and 19" plug-in units
- with a combined installation of 19" plug-in units and subracks, the handle has an elegant and smooth profile (see illustration)

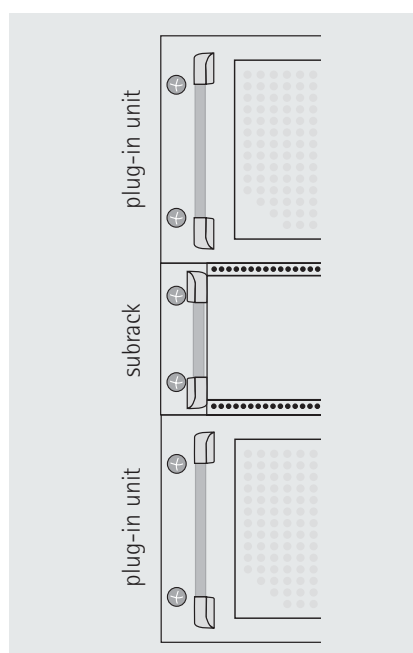
Material:

End pieces: plastic, black

Handle extrusion: anodized aluminium

Included in delivery

Item	Pc.	Description
1	2	End pieces
2	1	Handle extrusion



Size U	Dist. between holes mm	Part no. (1 piece)
3	98	61-1336-00
4	142,5	61-1334-00
6	231,5	61-1337-00
7	276	61-1337-10

Description	Part no.
matching oval head screws M 5 x 12	630-097 (100 pieces)



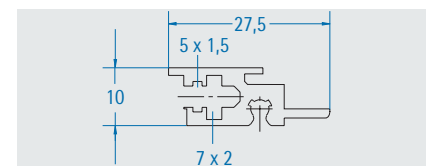
3 Module rails



Standard module rail

- for mounting plug-in units and back panels
- with grooves for threaded inserts / sliding nuts
- printed with HP-division for easy assembly of card guides
- mounting in upper or lower position possible

Finish: transparent chromated



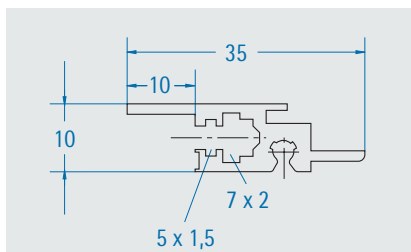
HP	Length mm	Part no.
85	431,9	24-1022-01
64	325,2	24-1022-05
57	289,7	24-1022-02
43	218,5	24-1022-03
29	147,4	24-1022-04

Standard module rail with 10 mm extension

- for plug-in units with IEEE-handle
- with grooves for threaded inserts / sliding nuts
- printed with HP-division for easy assembly of card guides
- mounting in upper or lower position possible

Matching IEEE handles: see page 72!

Finish: transparent chromated



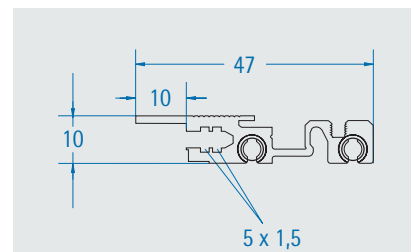
HP	Length mm	Part no.
85	431,9	24-1049-85
64	325,2	24-1049-64
57	289,7	24-1049-57
43	218,5	24-1049-43
29	147,4	24-1049-29

Reinforced module rail with 10 mm extension

- for plug-in units with IEEE-handle
- for higher mechanical loads
- with grooves for threaded inserts / sliding nuts
- printed with HP-division for easy assembly of card guides
- mounting in upper or lower position possible

Matching IEEE handles: see page 72!

Finish: transparent chromated

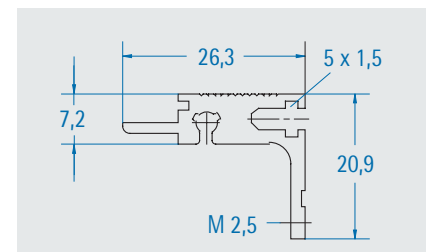


HP	Length mm	Part no.
85	431,9	24-1500-85
64	325,2	24-1500-64
57	289,7	24-1500-57
43	218,5	24-1500-43
29	147,4	24-1500-29

Narrow module rail, integrated

- with integrated mounting rail for connectors according to DIN 41612 and EN 60603
- with grooves for threaded inserts / sliding nuts
- printed with HP-division for easy assembly of card guides
- mounting in upper or lower position possible

Finish: transparent chromated



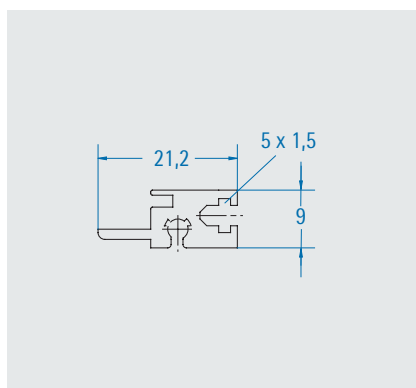
HP	Length mm	Part no.
85	431,9	26-7919-01
64	325,2	26-7919-05
57	289,7	26-7919-02
43	218,5	26-7919-03
29	147,4	26-7919-04



BUS module rail

- for mounting BUS boards and back-planes using EMC gaskets, mounting rails or insulating strips (see section beginning on p. 42)
- with grooves for threaded inserts / sliding nuts
- printed with HP-division for easy assembly of card guides
- mounting in upper or lower position

Finish: transparent chromated

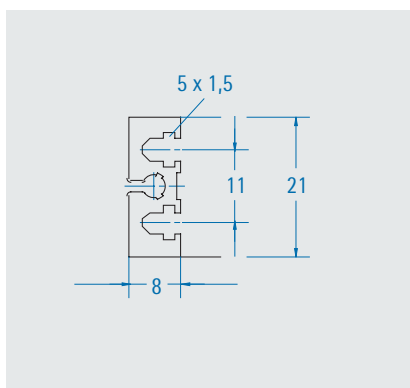


HP	Length mm	Part no.
85	431,9	24-1013-01
64	325,2	24-1013-05
57	289,7	24-1013-02
43	218,5	24-1013-03
29	147,4	24-1013-04

BUS support rail

- for mounting BUS boards and back-planes using EMC gaskets, mounting rails or insulating strips (see section beginning on p. 42)
- with grooves for threaded inserts / sliding nuts
- mounting in middle position

Finish: transparent chromated

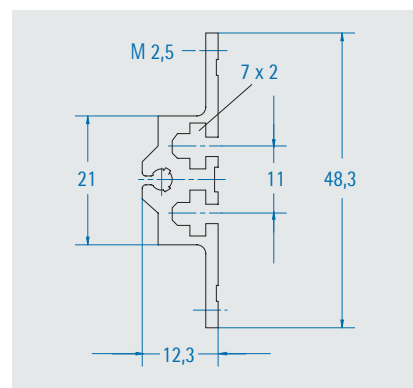


HP	Length mm	Part no.
85	431,9	24-1020-01
64	325,2	24-1020-64
57	289,7	24-1020-57
43	218,5	24-1020-43
29	147,4	24-1020-29

Support rail connectors

- with integrated mounting rail for plug-in connections in compliance with DIN 41612 and EN 60603
- with grooves for threaded inserts / sliding nuts
- mounting in middle position

Finish: transparent chromated



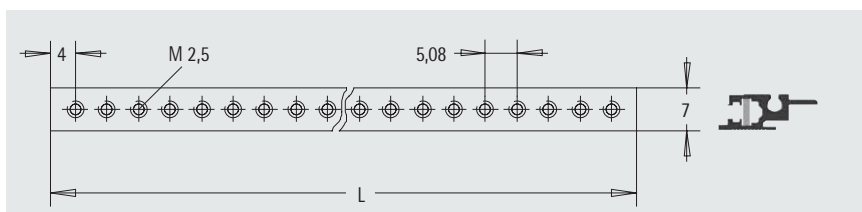
HP	Length mm	Part no.
85	431,9	24-1108-85
64	325,2	24-1108-64
57	289,7	24-1108-57
43	218,5	24-1108-43
29	147,4	24-1108-29

Note: Module rails are 1 HP longer than the subrack's nominal width. Other lengths available on request.

4 Threaded inserts M 2.5

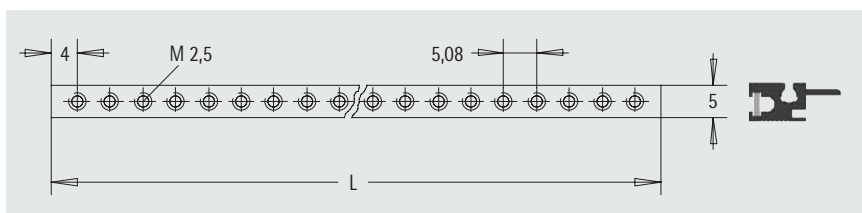
M 2.5 Threaded inserts 7 x 2 mm (for standard module rails)

HP	Length L mm	Part no.
85	429,9	240-051
64	323,2	240-055
57	287,7	240-052
43	216,5	240-053
29	145,4	240-054



M 2.5 Threaded inserts 5 x 1,5 mm (for bus module rails and support rails)

HP	Length L mm	Part no.
85	429,9	240-061
64	323,2	240-065
57	287,7	240-062
43	216,5	240-063
29	145,4	240-064

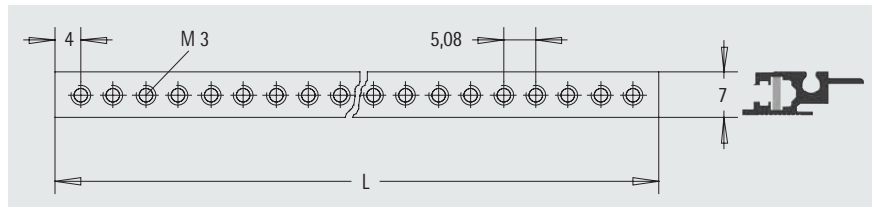




4 Threaded inserts M 3

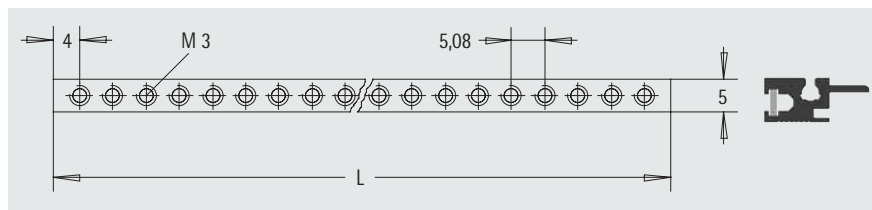
M 3 Threaded inserts 7 x 2 mm (for standard module rails)

HP	Length L mm	Part no.
85	429,9	24-0059-85
64	323,2	24-0059-64
57	287,7	24-0059-57
43	216,5	24-0059-43
29	145,4	24-0059-29

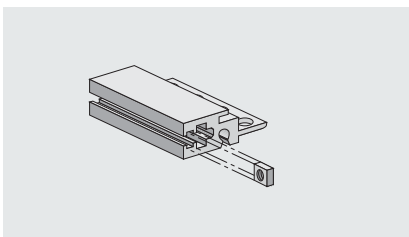


M 3 Threaded inserts 5 x 1,5 mm (for bus module rails and support rails)

HP	Length L mm	Part no.
85	429,9	24-0069-85
64	323,2	24-0069-64
57	287,7	24-0069-57
43	216,5	24-0069-43
29	145,4	24-0069-29



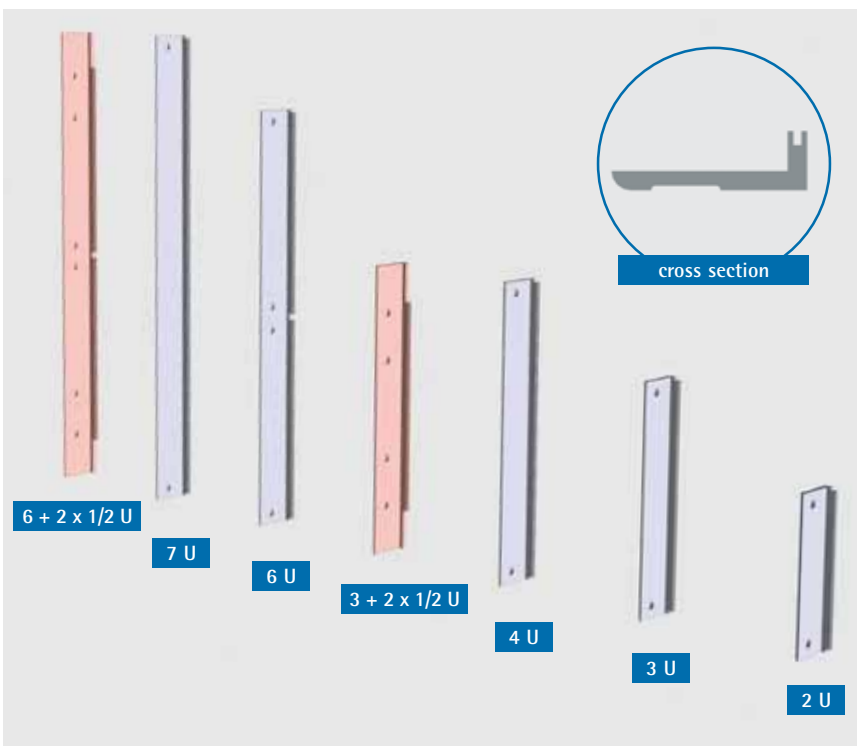
Sliding nut M 2,5



- Sliding nuts are alternatively usable instead of threaded inserts.
- Nuts can be inserted in the grooves of the module rail.

groove	Description	Part no. (100 pieces)
5 x 1,5	sliding nut M 2.5	630-192
7 x 2	nut holder with nut M 2.5	250-704

5 Rear bracket



- for covering the gap between the side panel and the rear panels
- with groove for EMC contact gaskets **11** (see p. 40) for EMC protection of the rear side

Finish: transparent chromated

Material: aluminium

Note:
Please order contact gaskets separately (see p. 40).

U	H mm	Part no. (1 pc.)
2	88	24-1037-02
3	132,5	24-1037-03
4	177	24-1037-04
4	177	24-1037-54
3 + 2 x 1/2	177	24-1037-54
6	266	24-1037-06
7	310,5	24-1037-07
7	310,5	24-1037-57
6 + 2 x 1/2	310,5	24-1037-57



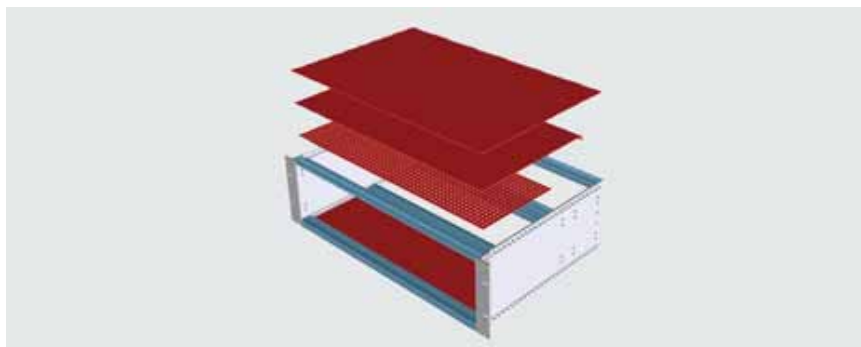
6a Cover panel

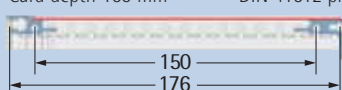
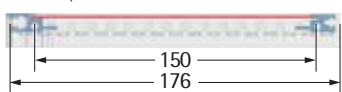
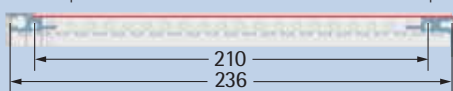
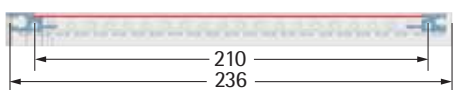
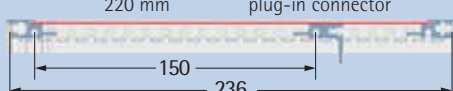
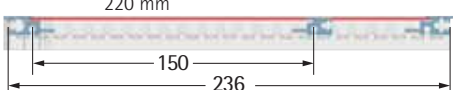
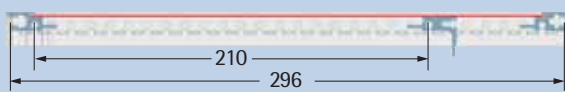
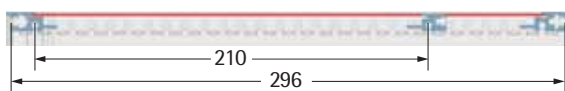
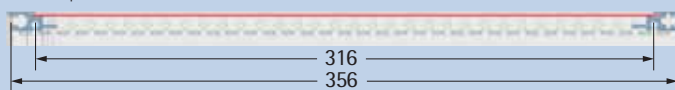
- for mechanical shielding of subracks
- perforated or solid

Finish: transparent chromated

Material: perforated aluminium panel
or aluminium panel

Degree of protection: IP 30: solid
IP 20: perforated



Application	84 HP		42 HP	
	solid	perforated	solid	perforated
Card depth 160 mm DIN 41612 plug-in connector 	24-5011-10	24-5011-18	24-5031-10	24-5031-18
Card depth 160 mm BUS 	24-0662-85	24-0468-85	24-0662-43	24-0468-43
Card depth 220 mm DIN 41612 plug-in connector 	24-5012-10	24-5012-18	24-5032-10	24-5032-18
Card depth 220 mm BUS 	24-0672-85	24-0478-85	24-0672-43	24-0478-43
Card depth 160 mm / 220 mm DIN 41612 plug-in connector Standard 	24-0671-85	24-0475-85	24-0671-43	24-0475-43
Card depth 160 mm / 220 mm BUS Standard 	24-0671-85	24-0475-85	24-0671-43	24-0475-43
Card depth 220 mm DIN 41612 plug-in connector Standard 	24-5013-10	24-5013-18	24-5033-10	24-5033-18
Card depth 220 mm BUS Standard 	24-5013-10	24-5013-18	24-5033-10	24-5033-18
Card depth > 220 mm Standard 	24-5014-10	24-5014-18	-	-

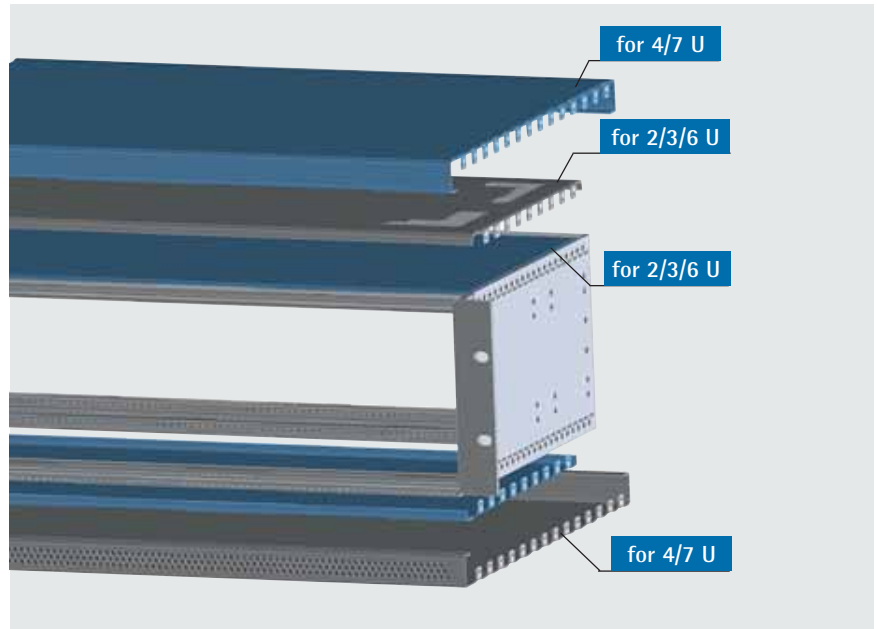
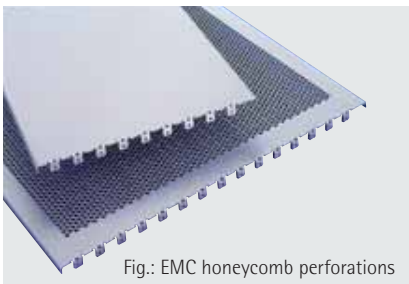


6b EMC cover panel

- perforated/solid
- with honeycomb perforations for optimum air flow (approx. 63%)
- EMC-compliant design
- incl. assembly material

Finish: transparent chromated

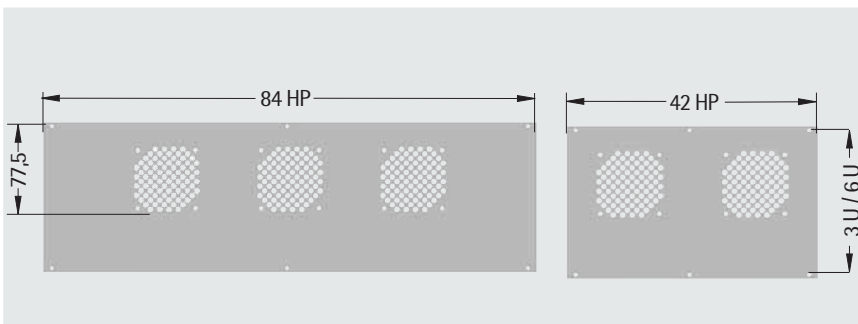
Material: aluminium



Order information

Depth Height	Part no. 84 HP				Part no. 42 HP		
	D=176 mm	D=236 mm	D=296 mm	D=356 mm	D=176 mm	D=236 mm	D=296 mm
2, 3, 6 U perforated	24-5011-48	24-5012-48	24-5013-48	24-5014-48	24-5031-48	24-5032-48	24-5033-48
solid	24-5011-40	24-5012-40	24-5013-40	24-5014-40	24-5031-40	24-5032-40	24-5033-40
4 U, 7 U perforated	-	-	24-5413-48	-	-	-	-
solid	-	-	24-5413-40	-	-	-	-

7 Rear panel

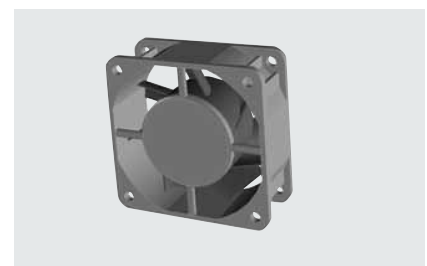


- up to 3 fans can be installed in 84 HP subracks and 2 fans in 42 HP
- incl. assembly material

Finish:
Front side: anodized
Rear side: transparent chromated

Material: aluminium, 2.5mm

Matching fan, 12V



- for installation in the rear panel
- high-power **PAPST** fan
- flow rate: 40m³/h
- noise level: 40dB(A)
- W x H x D: 60 mm x 60 mm x 25 mm
- incl. assembly material

HP	Rear panel perforated		Rear panel solid	
	3 U	6 U	3 U	6 U
84	24-3803-01	24-3806-01	24-3084-45	24-3684-45
42	24-3803-02	24-3806-02	24-3042-45	24-3642-45

Description	Part no.
Fan 12 V	230-825

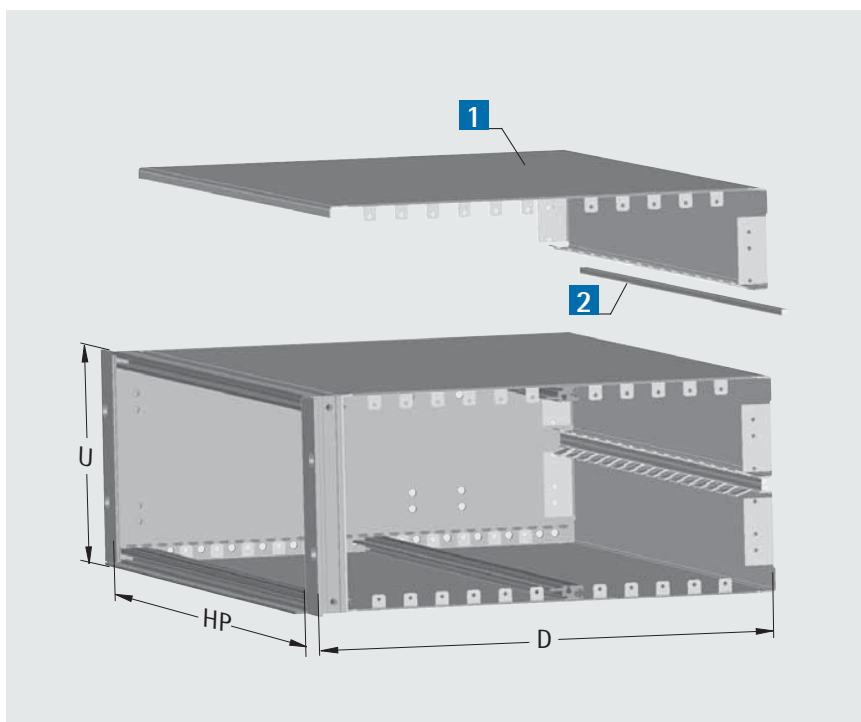


8 Combination cover

- top/bottom cover with integrated rear panel
- no rear module rails required
- integrated cable management bar with straps (see fig. 1)
- customized, shielded cable access opening due to flexible EMC textile seal (see fig. 2)
- entry for cables up to 10 mm in diameter
- incl. assembly material

Finish: transparent chromated

Material: aluminium



Included in delivery

Item	Pc.	Description
1	1	Combination cover
2	1	EMC textile gasket
3		Assembly material



Fig. 1: integrated cable management bar with straps



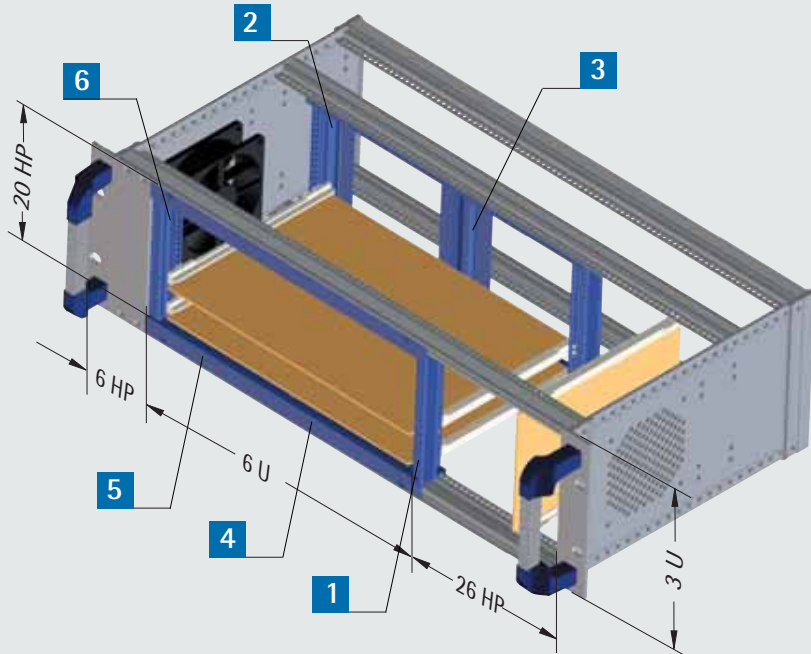
Fig. 2: cable entry opening with EMC gasket

Order information

Depth \ Height	Part no. 84 HP		Part no. 42 HP		
	D=236 mm	D=296 mm	D=236 mm	D=296 mm	
3 U	perforated	24-5312-48	24-5313-48	24-5332-48	24-5333-48
	solid	24-5312-40	24-5313-40	24-5332-40	24-5333-40
6 U	perforated	24-5612-48	24-5613-48	24-5632-48	24-5633-48
	solid	24-5612-40	24-5613-40	24-5632-40	24-5633-40



9 Horizontal expansion kit 6 U/20 HP



Sample configuration: 6 U expansion kit

- for installation in 3 U subracks with BUS module rail
- for installing double Euroboards horizontally
- PCB's cooled optimally when installed in a subrack with perforated side panels (see fig.)

Application:

for plug-in modules in compliance with IEC 60297-3-101/-102/-103 and IEEE 1101.10/1101.11

Finish:

Module rails, support rails and flat rails: transparent chromated

Panels:

anodized exterior
transparent chromated interior

Delivery: kit

Order information

Model 1	Model 2
front standard module rails profile no. 241-022	front standard module rails profile no. 241-022
rear narrow module rails with integrated mounting rails profile no. 241-019 and support rail with integrated mounting rail, pro- file no. 241-008 for plug-in connections in compliance with DIN 41612	rear BUS module rails profile no. 241-013 and BUS support rail profile no. 241-020
Depth 236 mm	Depth 236 mm
Part no. 24-5620-61	Part no. 24-5620-62

Included in delivery

Item	Pc.	Description
1	2	Module rails, front
2	2	Module rails, rear
3	1	Support rail, rear
4	4	Flat rails, chromated
5	2	Panels, anodized exterior chromated interior
6	2	Threaded inserts M 2,5 7 mm x 2 mm
7	4	Threaded inserts M 2,5 5 mm x 1,5 mm (Model 2)
8		Assembly material

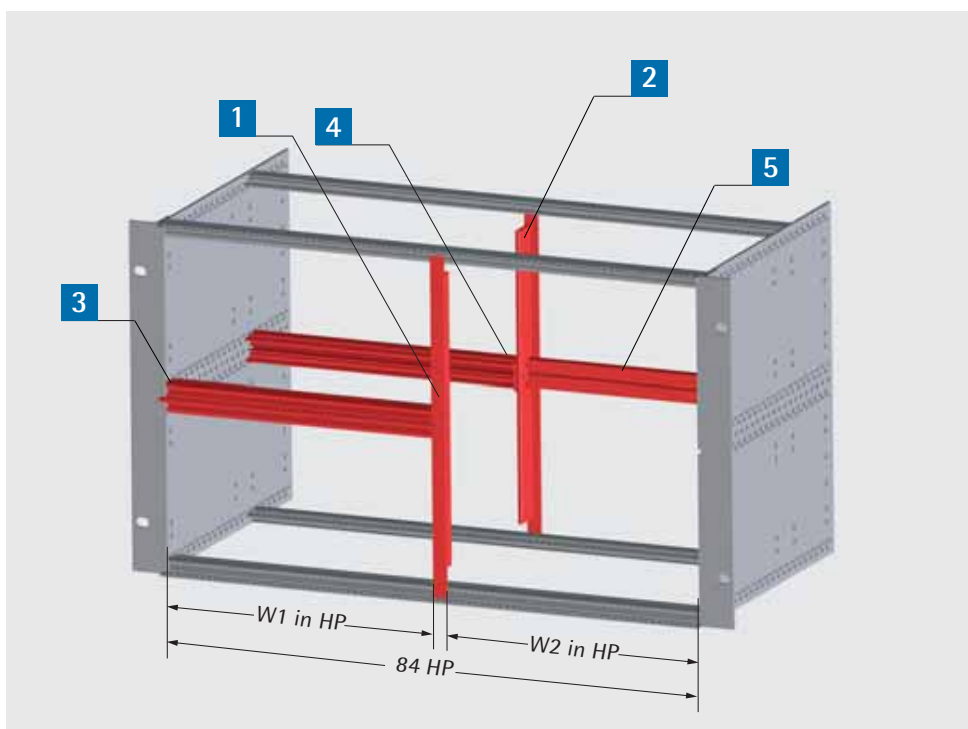


10 Vertical expansion kit 2 x 3 U

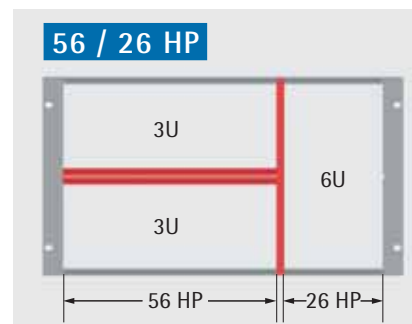
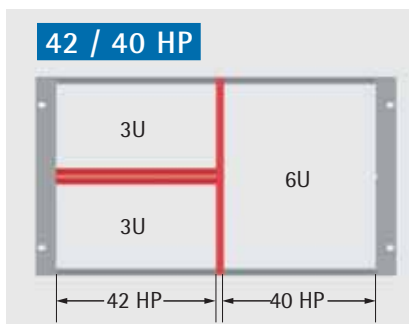
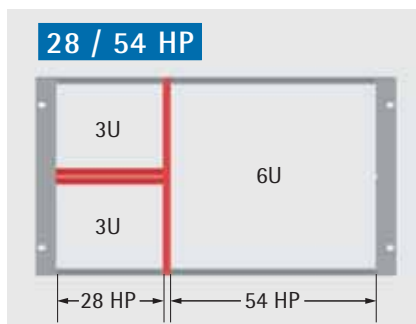
- for the separation of the 6 U installation space into 2 x 3 U and 1x 6 U

Application:

for plug-in modules in compliance with IEC 60297-3-101/-102/-103 and IEEE 1101.10/1101.11



Versions



Mounting struts

Item		Part no.
1	front mounting strut	241-087
2	rear mounting strut for narrow module rail with integrated mounting rail	241-088
	rear mounting strut for BUS module rail	241-089

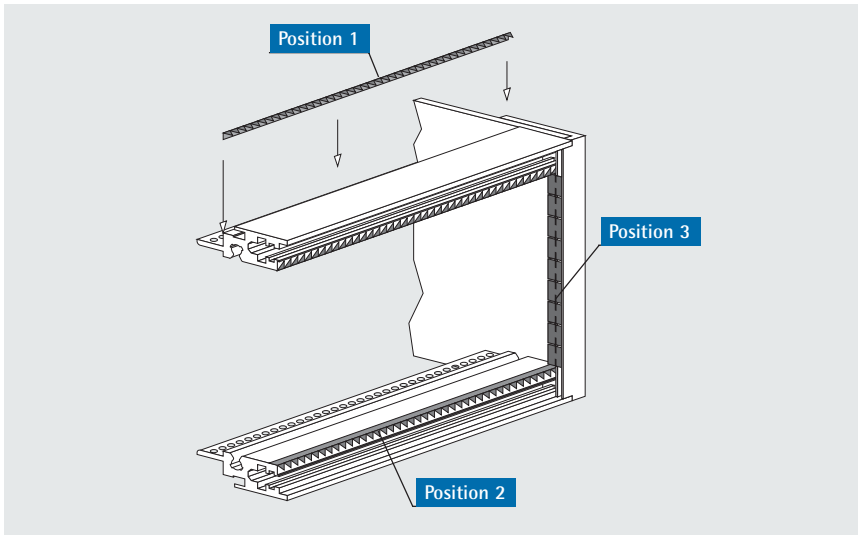
Module rails

Installation space B1	Installation space B2	Standard module rail	Threaded insert M 2,5	Narrow module rail with integrated mounting rail	BUS Module rail	Threaded insert M 2,5	Mounting rail integrated	support rail BUS	Threaded insert M2.5
2x 3 U	6 U	Item 3			Item 4		Item 5		
28 HP	54 HP	24-1022-04	240-054	26-7919-04	24-1013-04	240-064	24-1108-02	24-1020-02	25-0060-54
42 HP	40 HP	24-1022-03	240-053	26-7919-03	24-1013-03	240-063	24-1108-03	24-1020-03	25-0060-40
56 HP	26 HP	24-1022-02	240-052	26-7919-02	24-1013-02	240-062	24-1108-04	24-1020-04	25-0060-26

Note: By use of the mounting rails, the usable installation space will be reduced to 82 HP.



11 EMC contact gaskets



High-quality EMC contact gaskets increase shield attenuation by bringing individual components into continuous contact with each other.

Material:
Copper Beryllium

Finish:
tin-plated

Position 1

Horizontal EMC contact gasket 1 contacts module rail and cover panel.

HP	Length mm	Part no.
84	427	671-182
63	318	671-163
42	210,3	671-142

Position 2

Horizontal EMC contact gasket 2 contacts module rail and front panel or rear panel.

HP	Length mm	Part no.
84	427	671-183
63	318	671-164
42	204	671-143

Position 3

Vertical EMC contact gasket for connecting all front panels with each other and with the front or rear brackets.

U	Length mm	Part no.
3	97,0	671-184
6	232,0	671-185

EMC contact gasket set

- for fitting a complete 3 U or 6 U single-row subrack

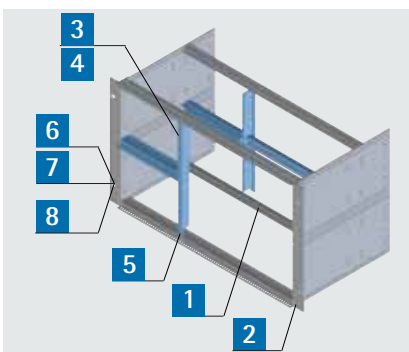
Description	HP	Part no.
Set for 19" subrack 3 U	84	671-190
	63	671-191
	42	671-192
Set for 19" subrack 6 U	84	671-193
	63	671-194
	42	671-195

Included in delivery

Pc.	Description
4	Position 1
4	Position 2
4	Position 3

Note: For EMC front panels, see 65.

12 Mounting screws for subracks



Item	Description	Part no. (100 pc.)
1	Oval-head screw, M 4 x 12, self-locking	630-096
2	Countersunk screw, M 5 x 12 (for mounting handle)	630-121
3	Oval-head screw, M 2.5 x 10	630-094
4	Washer, 2.6 diameter	630-152
5	Countersunk screw, M 4 x 10	630-119
6	Oval-head screw, M 5 x 16	630-098
7	Decorative washer with collar	610-095
8	Captive nut, M 5 for increasing the mounting bracket thickness 0.7 mm - 1.7 mm	630-359
8	Captive nut, M 5 for increasing the mounting bracket thickness 1.8 mm - 2.6 mm	630-362

Note: For your custom subrack design, you will find additional components and parts at page 41