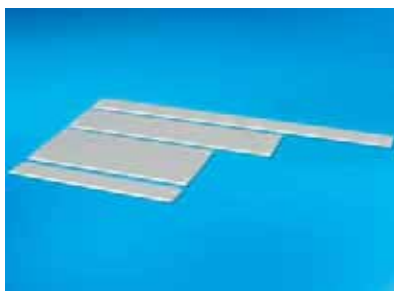
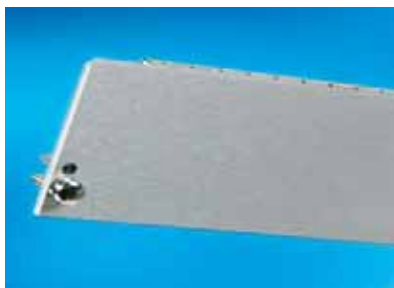


1: Front Panels for Sub Racks and Enclosures



1.1 Flat Front Panels 1_2



1.2 EMC Flat Front Panels 1_3

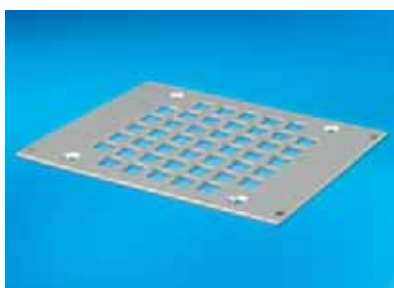
1.2.1 EMC Filler Panel with Gasket 1_4

1.2.2 EMC Filler Panel without Gasket 1_4

1.2.3 Advanced EMC Level 1_5

1.2.4 Superior EMC Level 1_6

1.2.5 Perforated EMC Front Panel Covering Case Width 1_6



1.3 Fan Front Panels 1_7

1.3.1 Fan Front Panel 84 HP for Vertical Ventilation 1_7

1.3.2 Fan Front Panel for Horizontal Ventilation 1_8

1.3.3 Fan Front Panels for Direct Fan Mounting 1_8



1.4 Hinged Front Panels 1_9

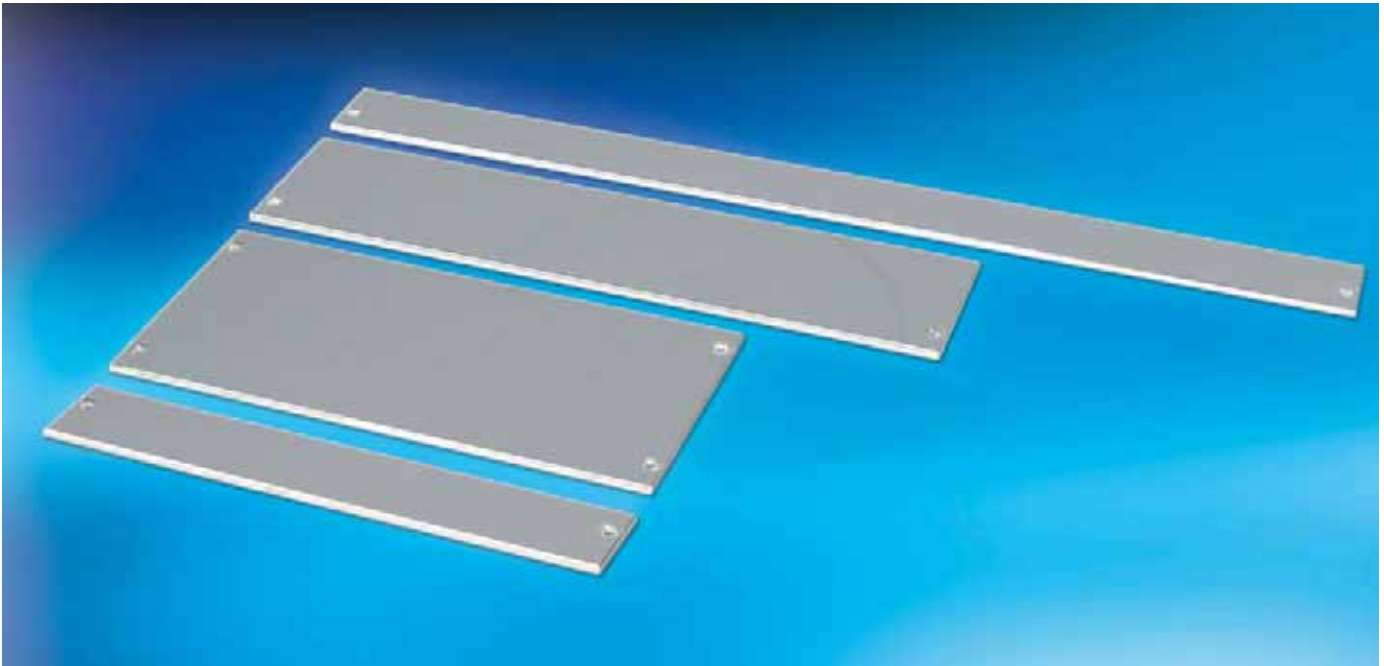
1.4.1 Top/Bottom-Hinged Front Panel 1_9

1.4.2 EMC Top/Bottom-Hinged Front Panel 1_10

1.4.3 Side-Hinged Front Panel 1_10

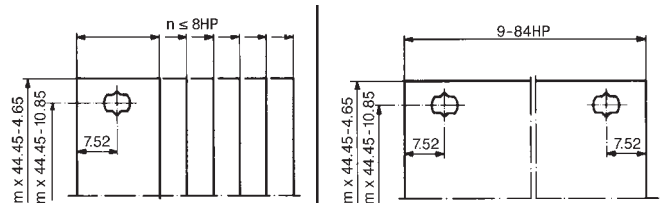
1.4.4 Accessories 1_11

1: Front Panels for Sub Racks and Enclosures



1.1 Flat Front Panels

- For sub racks and enclosures, solid
- Aluminium 2.5 mm, clear anodised (non-conductive)
- **Scope of delivery:**
 - Flat front panel
- Front panel screws, see 1.1.1



1.1 Flat Front Panels for Sub Racks and Enclosures, Solid

Width	B		Part-No.								
	mm	inch	1 U 39.8mm	ca. 1 U* 42.15mm	2 U 84.2mm	3 U 128.7mm	4 U 173.1mm	6 U 262.0mm	7 U 306.5mm	9 U 395.4mm	
1 HP	5.0	0.19				66-115-21		66-115-25		66-115-26	
2 HP	10.0	0.39				66-107-44	66-107-45	66-107-47		66-107-49	
3 HP	15.2	0.59				21N303	21N403	21N603			
4 HP	20.1	0.79				21N304	21N404	21N604		21N904	
5 HP	25.2	0.99				21N305	21N405	21N605			
6 HP	30.3	1.19				21N306	21N406	21N606			
7 HP	35.3	1.38				21N307	21N407	21N607			
8 HP	40.4	1.59				21N308	21N408	21N608			
10 HP	50.6	1.99				21N310	21N410	21N610			
11 HP	55.7	2.19				21N311					
12 HP	60.7	2.38				21N312	21N412	21N612			
14 HP	70.9	2.79				21N314	21N414	21N614			
16 HP	81.1	3.19				21N316	21N416	21N616			
20 HP	101.4	3.59				21N320	21N420	21N620			
21 HP	106.5	4.19				21N321	21N421	21N621			
28 HP	142.0	5.59				21N328		21N628			
32 HP	162.3	6.38				21N332	21N432				
42 HP	213.1	8.38			21N242	21N342	21N442	21N642			
52 HP	263.9	10.38				21N352	21N452	21N652			
63 HP	319.8	12.59			21N263	21N363	21N463	21N663			
81 HP	411.3	16.19			21N281	21N381	21N481	21N681			
84 HP	426.5	16.79	21N184	21N084*	21N284	21N384	21N484	21N684	21N784	21N984	

* Coverplates for 1 U fan opening

1.1.1 Front Panel Screws

- Set of 10 screws, M2.5 x 11.3, with screw retainer

Description	Part-no. 10 pcs.
Milled edge screws recessed with plastic screw retainer	63-159

1: Front Panels for Sub Racks and Enclosures



1.2 EMC Flat Front Panels

"Electromagnetic compatibility is the ability of a system to operate in the intended environment without causing or suffering unacceptable degradation of performance due to unintentional electromagnetic radiation or response." The EMC characteristics of a system therefore consist of an appropriate immunity from interference (noise immunity) and a limited emission of interference (noise emission).

Elma's EMC concept describes three levels of electromagnetic shielding performance (Performance Level). The attenuation levels will simplify the selection of sub racks and accessories for the user.

Test-set-up: The first measurement E1 will be without the enclosure. The next measurement E2 will be made with the transmitting antenna installed inside the enclosure. The difference between the received signal without and with the enclosure represents the shielding effectiveness in dB.

Performance Level	30-230 MHz	230-1000 MHz	1000-2000 MHz
1 / Elma: basic level	20 dB	10 dB	0 dB
2 / Elma: advanced level	40 dB	30 dB	20 dB
3 / Elma: superior level	60 dB	50 dB	40 dB

Note: Throughout the catalogue we put all EMC parts in a yellow table.

1: Front Panels for Sub Racks and Enclosures

1.2.1 EMC Filler Panel with EMC Gasket

- High stability (U-profile)
- Extruded aluminium
- Pressed-in centring pin and bushes M2.5
- Front side clear anodised, rear side conductive
- **Scope of delivery:**
 - EMC front panel incl. pressed-in centering pin and bushes M2.5
- EMC-gasket see 1.2.1.1 (included on these panels*)
- Front panel screw see 1.2.1.2



1.2.1 EMC Front Panel

Width	Part-No. 3 U	Part-No. 4 U	Part-No. 6 U
4 HP	CAE010398*	66-514-74	CAE010401*
5 HP	66-515-73		66-515-76
6 HP	66-516-73	66-516-74	66-516-76
8 HP	CAE010399*	66-518-74	CAE010402*
9 HP	66-519-73		66-519-76
10 HP	66-520-73		66-520-76
12 HP	CAE010400*	66-522-74	CAE010403*
14 HP	66-534-73		66-534-76

1.2.1.1 EMC Gasket (Stainless Steel)

Height	Part-No. 1 pc.		
3U	CAE005765		
4U	CAE005766		
6U	CAE005767		

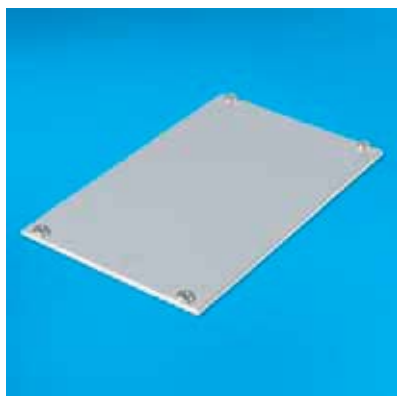
1.2.1.2 Front Panel Screws

- Front panel width up to 9 HP = 2 screws; 10 HP = 4 screws

Description	Part-No. 1 pc.	Part-No. 100 pcs.
Round head screw, cross recessed M2.5 x 12.7	61-287	1904-41

1.2.2 EMC Filler Panel without EMC-Gasket

- Front panel standard, solid
- Front clear anodised
- Rear conductive
- Basic level EMC
- **Scope of delivery:**
 - 1 front panel incl. pressed-in bushes M2.5 (pressed-in)
- Front panel screws, see 1.2.2.1
- Spacer see 1.2.2.2



1.2.2 EMC Filler Panel without Gasket

Width	Part-No. 3 U	Part-No. 4 U	Part-No. 6 U
4 HP	21B304		
10 HP	21B310		
12 HP	21B312		
16 HP	21B316	21B416	
21 HP	21B321	21B421	21B621
42 HP	21B342	21B442	21B642
63 HP	21B363	21B463	21B663
84 HP	21B384	21B484	21B684

1.2.2.1 Front Panel Screws

- Front panel width up to 9 HP = 2 screws; 10 HP = 4 screws

Description	Part-No. 1 pc.	Part-No. 100 pcs.
Round head screw, cross recessed M2.5 x 12.7	61-287	1904-41

1: Front Panels for Sub Racks and Enclosures



1.2.2.2 Spacer for EMC Front Panel Flat

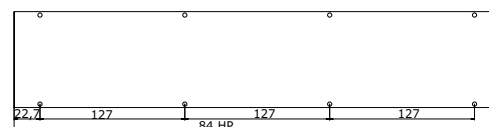
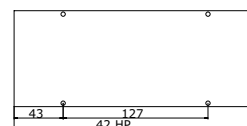
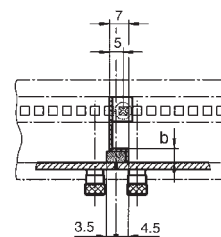
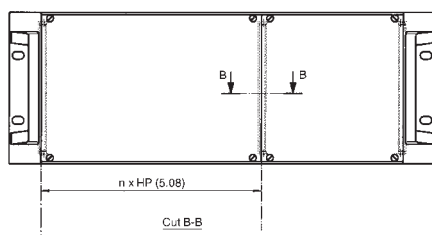
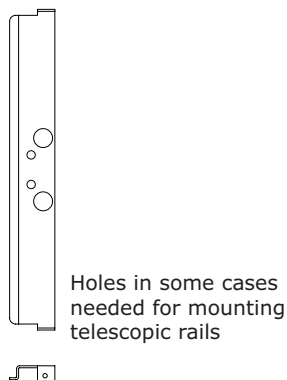
- EMC-Level: Advanced
- **Scope of delivery:**
 - 1 spacer incl. gasket
 - 2 Torx sheet metal screws 2.9 x 6.5; size T 10

Height	Part-No.
3 U	81K023
4 U	81K024
6 U	81K026
7 U	81K027

Optional Cross Recessed Screws for Spacer

(Torx round head screws as standard included)

Description	Part-No.
1 set (2 screws)	63-607



1.2.3 EMC Flat Front Panels

- Aluminium 2.5 mm (conductive)
- Closes the front or rear of the sub rack with very high shielding effectiveness
- Contact between the flat front panel and the case is made via EMC gaskets

1.2.3 Advanced EMC Level

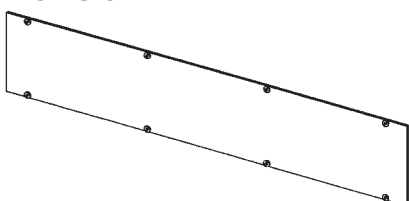
- **Scope of delivery:**
 - EMC flat front panel
 - Contact angle, incl. screws (4 + 6 U version only)
 - EMC gasket for contact angle (4 + 6 U version only)
- Front panel screws see 1.2.3.1
 - Front panel width 42 HP = 4 screws
 - Front panel width 63 HP = 6 screws
 - Front panel width 84 HP = 8 screws

Width	Part-No. 1 U	Part-No. 2 U	Part-No. 3 U	Part-No. 4 U	Part-No. 6 U
42 HP		21C242	21C342		
63 HP		21C263	21C363	21C463	
84 HP	21C184	21C284	21C384	21C484	21C684

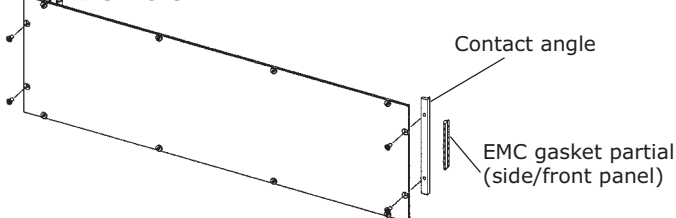
1.2.3.1 Front Panel Screws

Description	Part-No. 10 pcs.
Screw recessed M2.5 x 11.3, with press-fit bush	63-444
Screw cross recessed M2.5 x 12.7, with press-fit bush	63-480

1 U - 3 U



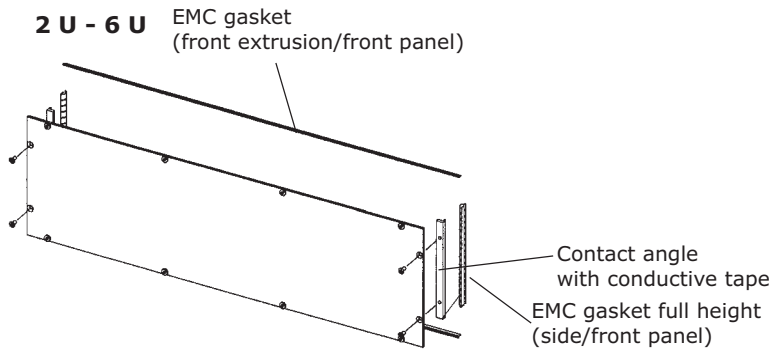
4 U - 6 U



1: Front Panels for Sub Racks and Enclosures

1.2.4 Superior EMC Level

- **Scope of delivery:**
 - EMC flat front panel
 - Contact angle, incl. screws
 - EMC gasket for contact angle
 - EMC gasket for front extrusion/front panel
- Front panel screws, see 1.2.4.1
 - Front panel width 42 HP = 4 screws
 - Front panel width 63 HP = 6 screws
 - Front panel width 84 HP = 8 screws



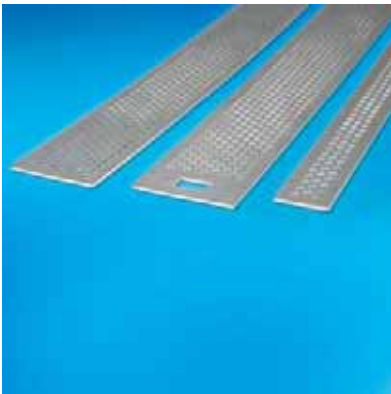
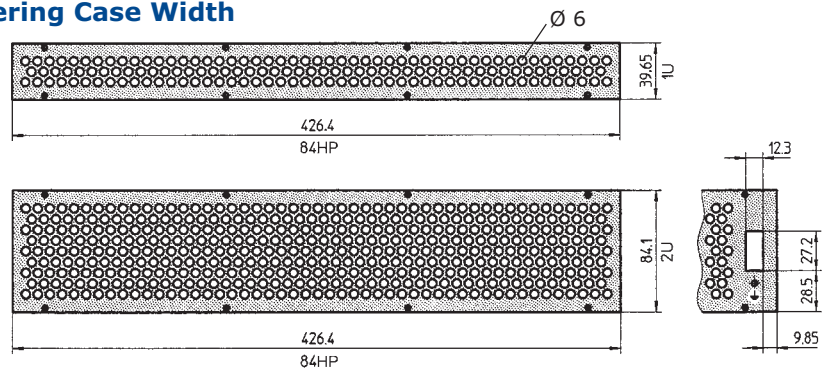
Width	Part-No. 2 U	Part-No. 3 U	Part-No. 4 U	Part-No. 6 U
42 HP	21D242	21D342		
63 HP	21D263	21D363	21D463	
84 HP	21D284	21D384	21D484	21D684

1.2.4.1 Front Panel Screws

Description	Part-No. 10 pcs.
Screw recessed M2.5 x 11.3, with press-fit bush	63-444
Screw cross recessed M2.5 x 12.7, with press-fit bush	63-480

1.2.5 Perforated EMC Front Panel Covering Case Width

- Front anodised, rear conductive
- Advanced EMC level
- Width: 84 HP
- **Scope of delivery:**
 - Perforated flat front panel
- Front panel screws see 1.2.5.1
- On-off switch see 1.2.5.2



1.2.5 Perforated EMC Front Panel Covering Case Width

Height	Air Passage		Switch Opening	
	Part-No. with	Part-No. without	Part-No. with	Part-No. without
1 U	39.65 mm 1.56"	41 cm ²	21C184-01	
2 U	84.1 mm 3.31"	123/117 cm ²	21C284-01	21C284-02

1.2.5.1 Front Panel Screws

Description	Part-No. 10 pcs.
Screws recessed M2.5 x 11.3, with press-fit bush	63-444
Screws cross recessed M2.5 x 12.7, with press-fit bush	63-480

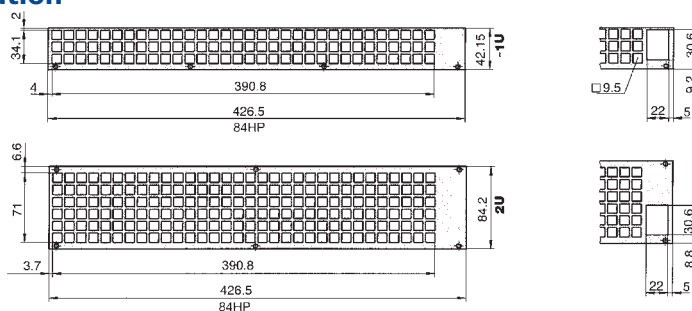
1: Front Panels for Sub Racks and Enclosures



1.3 Fan Front Panels

1.3.1 Fan Front Panel 84 HP for Vertical Ventilation

- Fan front panels are flat, perforated and designed to ensure an optimum air flow rate
- Available with or without switch cut-out (switch opening 22 x 30.6 mm)
- Aluminium 2.5 mm, clear anodised (non-conductive)
- **Scope of delivery:**
 - 1 perforated fan front panel
- Front panel screws see 1.3.1.1
- On-off switch see 1.3.1.2



1.3.1 Fan Front Panel 84 HP for Vertical Ventilation

Description	Height	Air passage		Part-No.
		mm ²	sq. in.	
Without switch opening	~ 1 U	8664	13.42	21N084-01
With switch opening	~ 1 U	8664	13.42	21N084-02
Without switch opening	2 U	17328	26.85	21N284-01
With switch opening	2 U	17328	26.85	21N284-02

1.3.1.1 Front Panel Screws

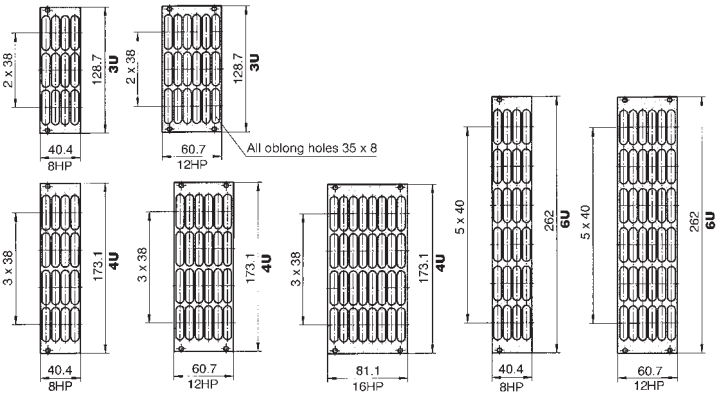
- Set of 10 screws, M2.5 x 11.3
- With screw retainer
- Fan front panel ~1 U = 4 screws; 2 U= 6 screws

Description	Part-No. 10 pcs.
Milled edge screws recessed, with plastic screw retainer	63-159

1: Front Panels for Sub Racks and Enclosures

1.3.2 Fan Front Panel for Horizontal Ventilation

- Aluminium 2.5 mm, clear anodised (non-conductive)
- Scope of delivery:**
 - 1 perforated fan front panel
- Front panel screws 1.3.2.1



1.3.2 Fan Front Panel for Horizontal Ventilation

Height	Width	Air passage		Part-No.
		mm ²	sq. in.	
3 U	8 HP	3195	4.95	21N308-01
	12 HP	4793	7.42	21N312-01
4 U	8 HP	4260	6.60	21N408-01
	12 HP	6390	9.90	21N412-01
	16 HP	8520	13.20	21N416-01
6 U	8 HP	6390	9.90	21N608-01
	12 HP	9586	14.85	21N612-01

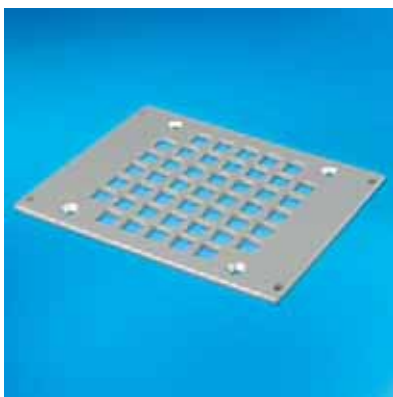
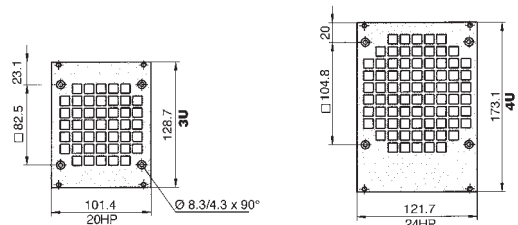
1.3.2.1 Front Panel Screws

- Set of 10 screws, M2.5 x 11.3
- With screw retainer
- Fan front panel width up to 8 HP = 2 screws; ≥ 12HP = 4 screws

Description	Part-No.
	10 pcs.
Milled edge screws recessed with plastic screw retainer	63-159

1.3.3 Fan Front Panels for Direct Fan Mounting

- Aluminium 2.5 mm, clear anodised (non-conductive)
- Scope of delivery:**
 - 1 perforated fan front panel
- Front panel screws 1.3.3.1
- Assembly material for fan mounting has to be ordered separately



1.3.3 Fan Front Panels for Direct Fan Mounting

Description	Height	Width	Air passage		Part-No.
			mm ²	sq. in.	
Without switch opening	3 U	20 HP	4051	6.27	21N320-04
	4 U	24 HP	7022	10.88	21N424-03

1.3.3.1 Front Panel Screws

- Set of 10 screws, M2.5 x 11.3
- With screw retainer
- Per front panel 4 screws are needed

Description	Part-No.
	10 pcs.
Milled edge screws recessed, with plastic screw retainer	63-159

1.3.3.2 Assembly Material for Fan Mounting

Description	Part-No.
	100 pcs.
Countersunk screw, recessed M4 x 10	1906-24
Hexagonal nut M4, 0.8D	1907-20

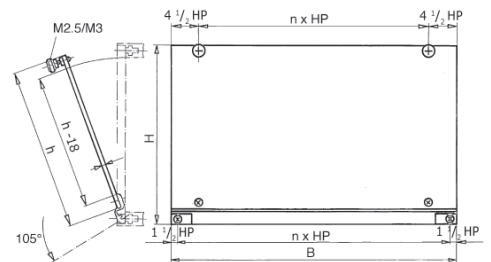
1: Front Panels for Sub Racks and Enclosures



1.4 Hinged Front Panels

1.4.1 Top/Bottom-Hinged Front Panel

- Hinges are attached to the front extrusions of the sub rack or case
- Aluminium 2.5 mm, clear anodised (non-conductive)
- **Scope of delivery:**
 - Front panel
 - Hinge extrusion
 - Assembly material M2.5, incl. hinges



1.4.1 Top/Bottom-Hinged Front Panel

Width	Part-No. 3 U	Part-No. 4 U	Part-No. 6 U	Part-No. 7 U
63 HP	25N363-19	25N463-19		
84 HP	25N384-19	25N484-19	25N684-19	25N784-19

Dimensions

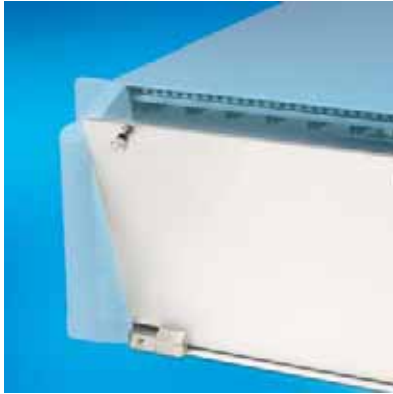
HP	Nominal Width		Width B	
	mm	inch	mm	inch
63 HP	320.04	12.60	319.8	12.59
84 HP	426.72	16.80	426.5	16.79

Nominal Height U	Height H		Height h	
	mm	inch	mm	inch
3 U	128.7	5.07	117	4.61
4 U	173.15	6.81	161.4	6.35
6 U	262.05	10.31	250.3	9.85
7 U	306.5	12.07	294.8	11.60

1: Front Panels for Sub Racks and Enclosures

1.4.2 EMC Top/Bottom-Hinged Front Panel

- Width: 84 HP
- Offers optimum protection from electromagnetic interference
- Aluminium 2.5 mm, front anodised, rear conductive
- **Scope of delivery:**
 - EMC front panel
 - Hinge extrusions
 - Assembly material M2.5, incl. hinges
 - EMC gaskets



1.4.2 EMC Top/Bottom-Hinged Front Panel

EMC Level	Part-No. 3 U	Part-No. 4 U	Part-No. 6 U
Advanced	25C384-11	25C484-11	25C684-11
Superior	25D384-11	25D484-11	25D684-11

1.4.3 Side-Hinged Front Panel

- Aluminium 2.5 mm, clear anodised (non-conductive)
- **Scope of delivery:**
 - Front panel
 - Hinge extrusion
 - Assembly material M2.5, incl. hinges



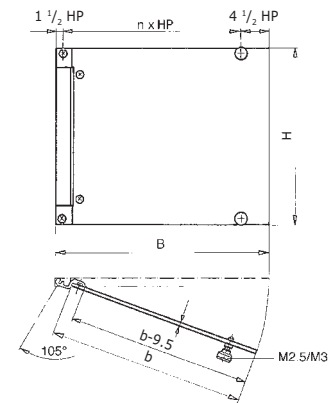
1.4.3 Side-Hinged Front Panel

Width	Part-No. 3 U	Part-No. 4 U	Part-No. 6 U	Part-No. 7 U
42 HP	25N342-29	25N442-29	25N642-29	
63 HP	25N363-29	25N463-29	25N663-29	
84 HP	25N384-29	25N484-29	25N684-29	25N784-29

Dimensions

HP	Nominal Width		Width B		Width b	
	mm	inch	mm	inch	mm	inch
42 HP	213.36	8.40	213.1	8.39	201	7.91
63 HP	320.04	12.60	319.8	12.59	307.7	12.11
84 HP	426.72	16.80	426.5	16.79	414.3	16.31

Nominal Height U	Height H	
	mm	inch
3 U	128.7	5.06
4 U	173.15	6.81
6 U	262.05	10.31
7 U	306.5	12.07

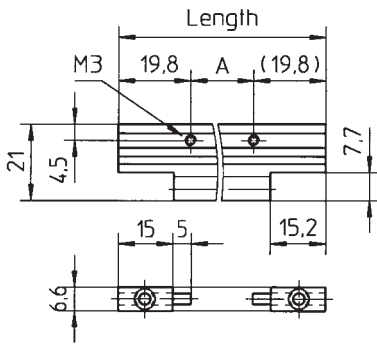
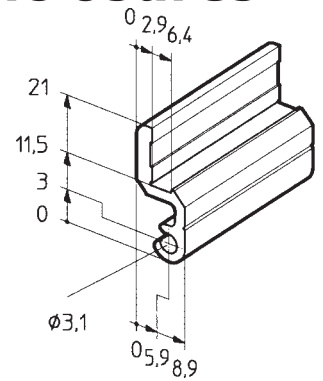


Use ELMA's front panel service for machining and screen printing of your panels!

1: Front Panels for Sub Racks and Enclosures

1.4.4 Accessories

- To build up customised hinged front panels

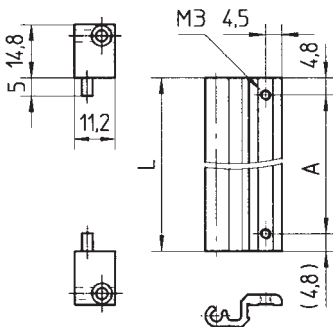


1.4.4.1 Hinge Extrusions for Top/Bottom-Hinged Front Panels

Width	A mm	A Inch	L mm	L Inch	Part-No.
42 HP	172.9	6.80	212.5	8.36	66-230-27
63 HP	279.5	11.00	319.1	12.56	66-230-28
84 HP	386.2	15.20	425.8	16.76	66-230-26

1.4.4.2 Assembly Material incl. Hinge Parts for Top/Bottom-Hinged Front-Panels

Description	Part-No.
Incl. screws, tapped strips, nuts in thread M2.5	81-124
Incl. screws, tapped strips, nuts in thread M3	81-128

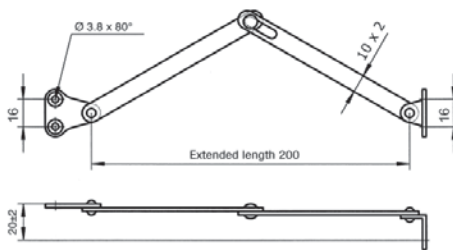


1.4.4.3 Hinge Extrusions for Side-Hinged Front Panels

Height	A mm	A inch	L mm	L inch	Part-No.
3 U	89.1	3.50	98.7	3.88	66-230-33
4 U	133.6	5.26	143.2	5.63	66-230-34
6 U	222.5	8.76	232.1	9.13	66-230-36
7 U	266.9	10.50	276.5	10.88	66-230-37

1.4.4.4 Assembly Material incl. Hinge Parts for Side-Hinged Front-Panels

Description	Part-No.
Incl. screws, tapped strips, nuts in thread M2.5	81-125
Incl. screws, tapped strips, nuts in thread M3	81-129



1.4.4.5 Panel Stay

- Scope of delivery:
 - 2 pcs. panel stay
 - Assembly material

Description	Part-No.
Set of panel stay complete	63-242