

# Cassettes

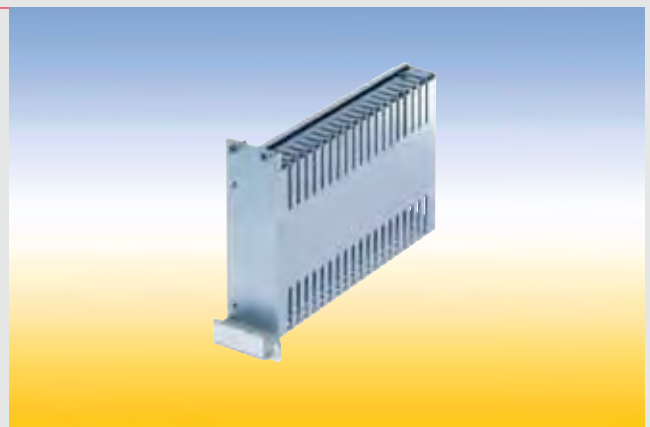
Cassette with Extruded Side Walls



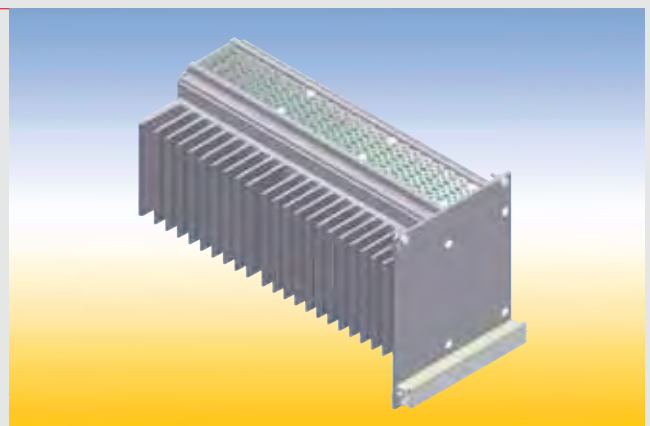
Cassette with four Depth Profiles



Cassette with Cover Hood



Cassette with Heat Sink



# Cassettes



## Description

The cassette has two functions:  
It can be inserted into a subrack just like a PCB and it can accommodate plug-in boards.

Three cassette versions are available:

1. A cassette with extruded side walls  
Extruded side walls in combination with a front panel and a rear panel make up the basic cassette which is then fitted with top and bottom plates.
2. A cassette with four depth profiles  
Four identical depth profiles in combination with a front panel and a rear panel make up the basic cassette which is then fitted with top and bottom plates.  
Two side service apertures are created which make the interior of the cassette easily accessible for inspection purposes. These apertures can be closed off using slide-in panels.
3. Cassette with cover hood  
This version consists of an extruded side wall at the left to which the protective cover with an integrated rear wall is attached. The rear has a 4 HP aperture for installing an IEC 60 603-2 type B, C, D or F connector.

The special design features of the cassettes:

- ✓ The side edges of the front panel are slit for insertion of RFI gaskets which harmonically blend into the front panel grid and which require no additional space.
- ✓ The cassettes fit into all IEC 60 297 subracks.
- ✓ The cassette is fitted in the subrack using PCB guide mounts. For the right side of the cassette the guide mount is installed rotated by 180°.

- ✓ Suitable for accommodating Euroboards (3U, 6U) in accordance with IEC 60 297.
- ✓ The side walls and depth profiles have guide channels for insertion of 3U or 6U boards; only installation at the left is standardized.
- ✓ Additional guide mounts can be snapped into the top and bottom cover panels to accommodate internal boards.
- ✓ When used in a subrack the distance between the cassette and the PCB to the right of it is 2.47 mm.

## Rear panel:

Three different rear panels are available:

1. Cassette „RG“ (rear panel closed):  
This cassette is particularly suitable for any installation.
2. Cassette „RT“ (rear panel with partial aperture):  
The rear panel has a 4HP aperture for installation of a connector.
3. Cassette „RV“ (rear panel with full aperture):  
The rear panel has an aperture across its full width and is perforated for installation of connectors.

## Dimensions

The cassette design is based on the following grid:

- Horizontal pitch 5.08 mm
- Height pitch 44.45 mm
- Depth pitch 10.00 mm

## Technical data

Standards	IEC 60297, Part 3
Material	„RV“ rear panel, top and bottom panels: sheet steel mounting parts: steel handles: plastic other parts: aluminum
Finish	side panel, covers, „RV“ rear panel: untreated front panel: front anodized, rear and edges untreated other parts: colorless chromated
Protection class	IP 30
Utilization category	-25 °C to 70 °C, =< 75 % relative humidity, condensation possible
Electrical requirements	all parts are electrically bonded to one another following assembly in accordance with VDE 100 § 8 Nb.

### RFI shielding of Cassettes.

The Cassettes are manufactured from electrically conductive materials and screwed together.

The RFI shielding can be further enhanced by increasing the number of screws used in vulnerable areas to obtain a superior RFI seal:

1. Top and bottom plates/ front panels  
Additional mounting blocks can be used between the top and bottom covers and the front plate.  
The top and bottom covers are pierced every 5.08 mm and by drilling extra holes in the front plane, additional contact points can be made.
2. Top and bottom plates/ rear panels  
Additional mounting blocks can be used between the top and bottom plates and the rear panels.  
The top and bottom plates are pierced every 5.08 mm

and by drilling extra holes in the rear panel types “R” and “RT”, additional contact points can be made. Rear panel type “RV” are pre-punched at 5.08 mm as standard and require no further modification.

#### 3. 6 U Side wall / front panel

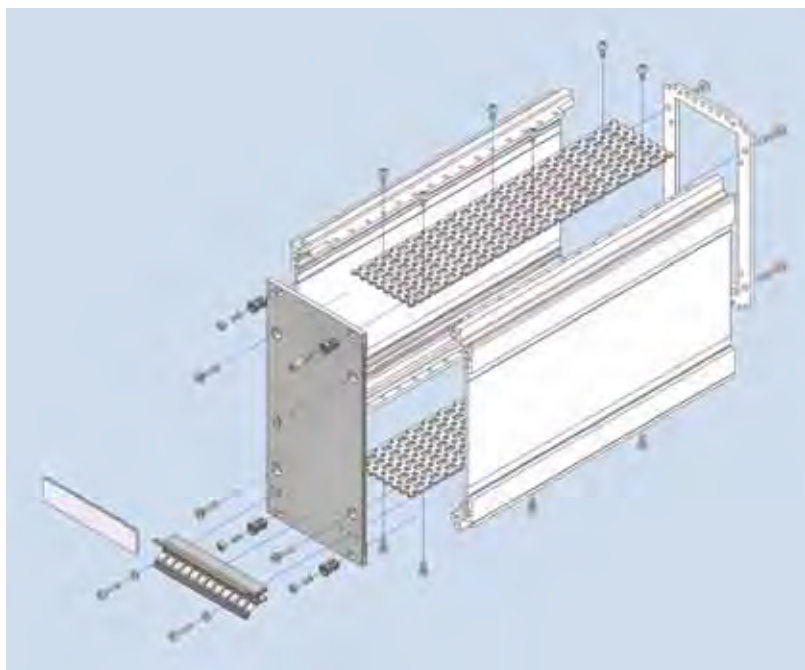
Two additional screws can be used in the front panel (one each side) to gain extra contact points to the side extrusion. Both the front panel and the extrusion require additional drilling.

Intermas Cassettes have excellent RFI Shielding properties as standard.

But should you wish to enhance the RFI shielding, then please contact one of our specialists for further assistance.

Please ask your local representative for your  
**personal assistance.**  
You find your contact person on our homepage:  
**[www.intermas-el.com](http://www.intermas-el.com)**

# Cassette with Extruded Side Walls



## Cassette with Extruded Side Walls

The cassette kits includes following rear panels:

1. Rear panel closed (RG)
2. Rear panel with partical aperture (RT)
3. Rear panel with full aperture (RV).

### Kit consists of:

- 2 extruded side walls
- 1 rear panel
- 2 top/bottom plate
- 1 front panel, with slits in the side edges for insertion of RFI gaskets
- 1 handle
- 1 aluminum ident-plate
- Mounting parts

### Delivery

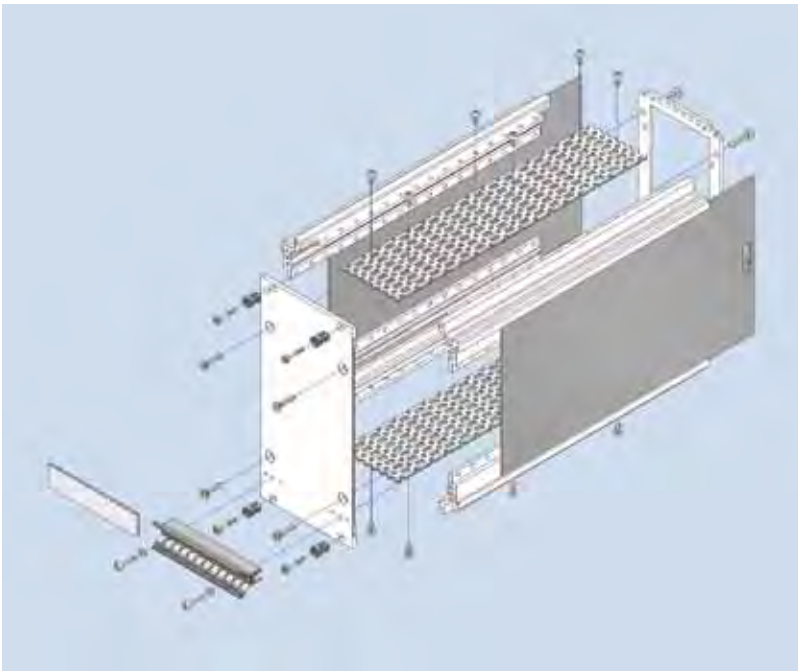
The cassette is delivered unassembled as individual parts or as a kit.

## Ordering details kit cassette with extruded side walls



	nom. height [U]	nom. width [HP]	nom. depth <b>160 mm</b> order no. <b>409.</b>	nom. depth <b>220 mm</b> order no. <b>409.</b>
RT	3	08	<b>165 617</b>	<b>165 625</b>
RG	3	10	<b>165 602</b>	<b>165 610</b>
RG	3	12	<b>165 603</b>	<b>165 611</b>
RG	3	14	<b>165 604</b>	<b>165 612</b>
RG	3	21	<b>165 605</b>	<b>165 613</b>
RG	3	28	<b>165 606</b>	<b>165 614</b>
RG	3	42	<b>165 607</b>	<b>165 615</b>
RV	3	10	<b>165 634</b>	<b>165 642</b>
RV	3	12	<b>165 635</b>	<b>165 643</b>
RV	3	14	<b>165 636</b>	<b>165 644</b>
RV	3	21	<b>165 637</b>	<b>165 645</b>
RV	3	28	<b>165 638</b>	<b>165 646</b>
RV	3	42	<b>165 639</b>	<b>165 647</b>

# Cassette with four Depth Profiles



## Cassette with four Depth Profiles

The cassette kits includes following rear panels:

1. Rear panel closed (RG)
2. Rear panel with partial aperture (RT)
3. Rear panel with full aperture (RV).

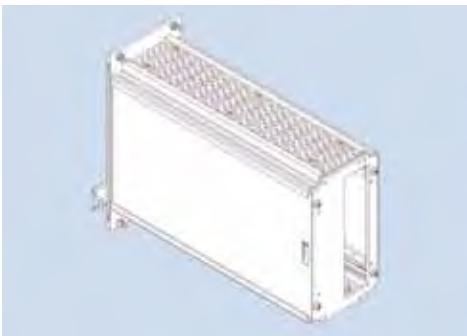
### Kit consists of:

- 4 depth profiles
- 2 struts
- 2 side plates
- 1 rear panel 3 U / 2 rear panels 6 U
- 2 top/bottom plate
- 1 front panel, with slits in the side edges for insertion of RFI gaskets
- 1 handle
- 1 aluminum ident-plate
- Mounting parts

### Delivery

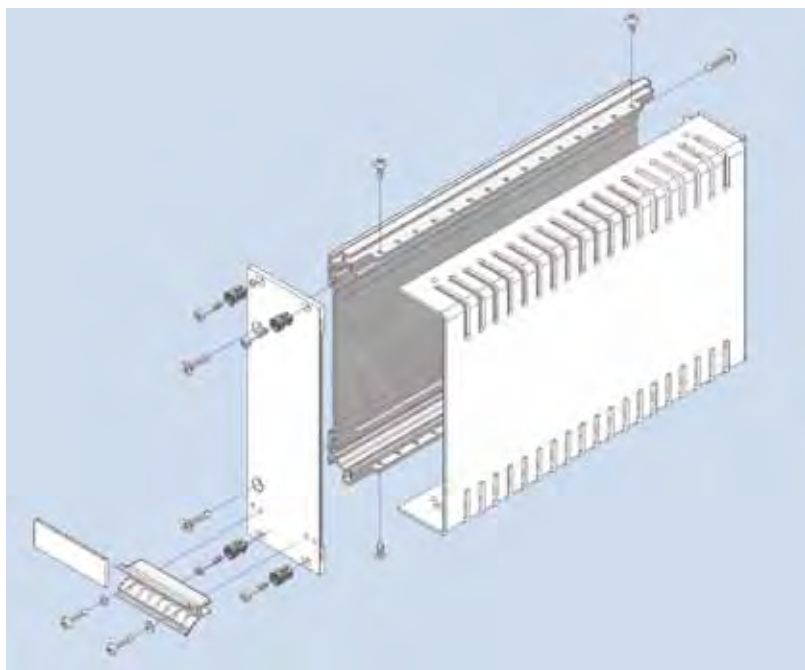
The cassette is delivered unassembled as individual parts or as a kit.

## Ordering details kit cassette with four depth profiles



	nom. height [U]	nom. width [HP]	nom. depth 160 mm order no. 409.	nom. depth 220 mm order no. 409.
RT	3	08	165 713	165 721
RG	3	10	165 698	165 706
RG	3	12	165 699	165 707
RG	3	14	165 700	165 708
RG	3	21	165 701	165 709
RG	3	28	165 702	165 710
RG	3	42	165 703	165 711
RV	3	10	165 730	165 738
RV	3	12	165 731	165 739
RV	3	14	165 732	165 740
RV	3	21	165 733	165 741
RV	3	28	165 734	165 742
RV	3	42	165 735	165 743
RT	6	08	165 873	165 881
RG	6	10	165 842	165 850
RG	6	12	165 843	165 851
RG	6	14	165 844	165 852
RG	6	21	165 845	165 853
RG	6	28	165 846	165 854
RG	6	42	165 847	165 855
RV	6	10	165 858	165 866
RV	6	12	165 859	165 867
RV	6	14	165 860	165 868
RV	6	21	165 861	165 869
RV	6	28	165 862	165 870
RV	6	42	165 863	165 871

# Cassette with Cover Hood



## Cassette with Cover Hood

### Kit consists of:

- 1 extruded side wall
- 1 cover hood
- 1 front panel, with slits in the side edges for insertion of RFI gaskets
- 1 handle
- 1 aluminum ident-plate
- Mounting parts

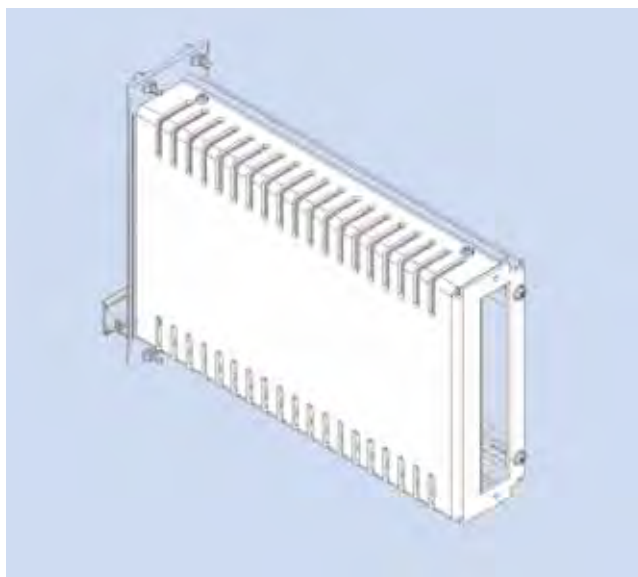
### Delivery

The cassette is delivered unassembled as individual parts or as a kit.

### Ordering details kit cassette with cover hood

nom. height [U]	nom. width [HP]	nom. depth 160 mm order no. 409.	nom. depth 220 mm order no. 409.
3	6	166 112	166 116
3	7	166 113	166 117
3	8	166 114	166 118

### Individual parts of the cassettes



### Cover Hood

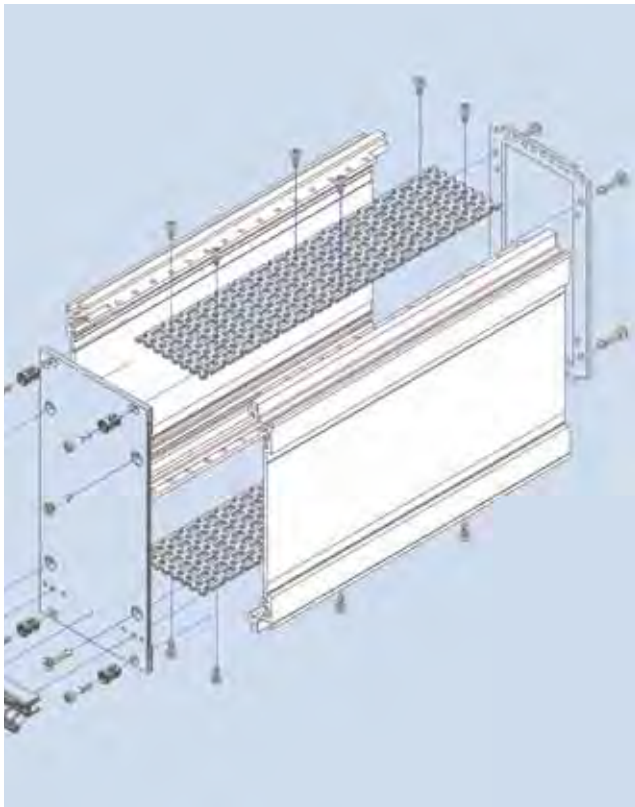
**Material:** aluminum

**Finish:** blank

### Ordering details cover hood

nom. height [U]	nom. width [HP]	nom. depth 160 mm order no. 409.	nom. depth 220 mm order no. 409.
3	6	165 896	166 100
3	7	165 897	166 101
3	8	165 898	166 102

# Individual Parts of the Cassette

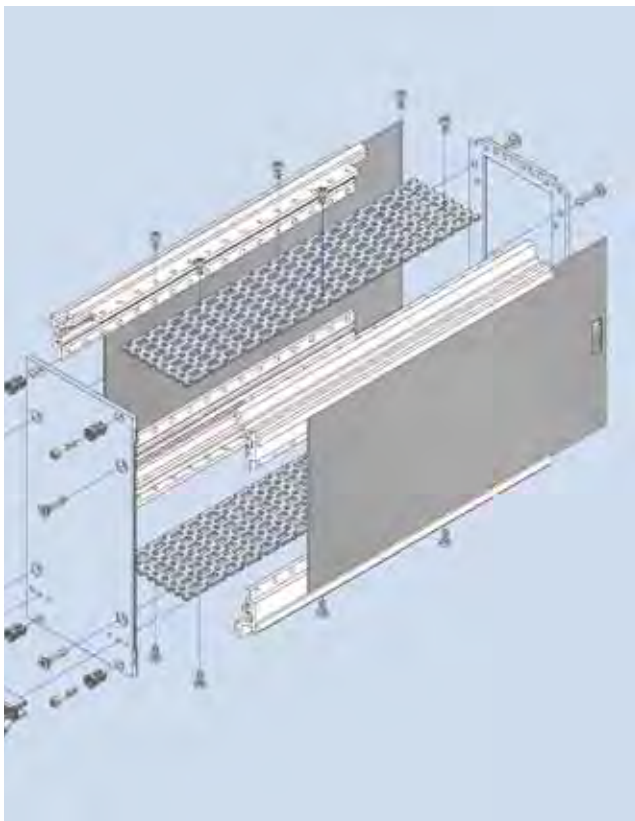


## Extruded Side Wall

**Material:** aluminum  
**Finish:** colorless chromated

### Ordering details extruded side walls

nom. depth [mm]	3 U order no.
160	079 202
220	079 203



## Depth Profiles

**Material:** aluminum  
**Finish:** colorless chromated

### Ordering details depth profiles

nom. depth [mm]	order no.
160	039 603
220	039 604

## Side Plates

**Material:** aluminum  
**Finish:** blank

### Ordering details side plates

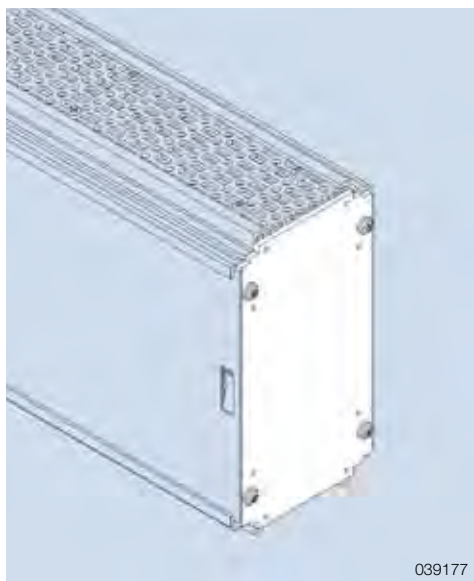
nom. depth [mm]	3 U	6 U
	order no.	order no.
160	039 542	039 546
220	039 543	039 547

## Strut 6 U

**Material:** aluminum  
**Finish:** colorless chromated

order no.:	409. 039 540
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# Individual Parts of the Cassettes



## Rear Panel RG

3 U panel wall closed. 6 U cassettes require two 3 U rear panels.

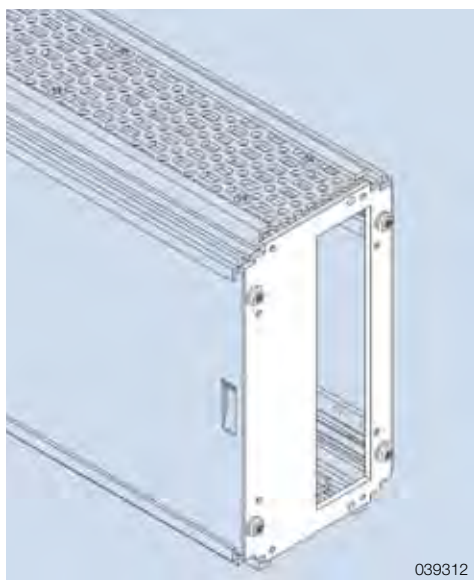
**Material:** aluminum

**Finish:** blank

### Ordering details

#### rear panel RG

nom. width [HP]	order no.
	<b>409.</b>
8	-
10	<b>166 237</b>
12	<b>166 238</b>
14	<b>166 239</b>
21	<b>166 240</b>
28	<b>166 241</b>
42	<b>166 242</b>



## Rear Panel RT

3 U rear panel with partial aperture. 6 U cassettes require two 3 U rear panels.

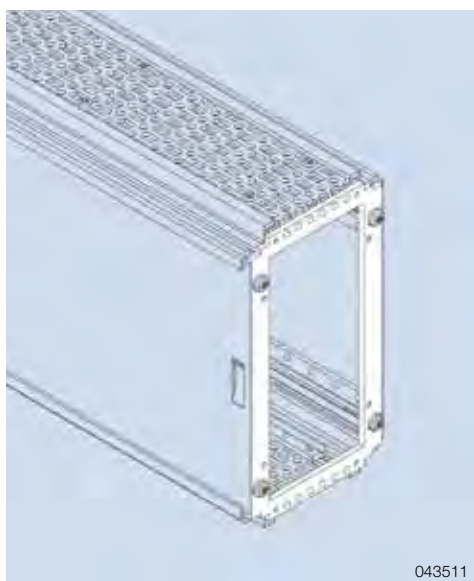
**Material:** aluminum

**Finish:** blank

### Ordering details

#### rear panel RT

nom. width [HP]	order no.
	<b>409.</b>
8	<b>166 243</b>
10	-
12	-
14	-
21	-
28	-
42	-



## Rear Panel RV

3 U Rear panel with full aperture. 6 U cassettes require two 3 U rear panels.

**Material:** steel

**Finish:** galvanized und colorless chromated

### Ordering details

#### rear panel RV

nom. width [HP]	order no.
	<b>409.</b>
8	-
10	<b>043 514</b>
12	<b>043 516</b>
14	<b>043 518</b>
21	<b>043 525</b>
28	<b>043 532</b>
42	<b>043 546</b>



# Individual Parts of the Cassettes

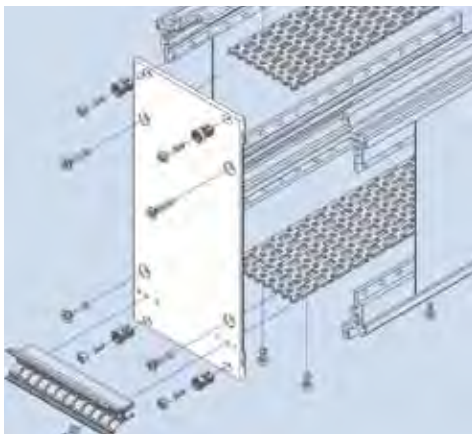


## Top/Bottom Plate

**Material:** steel  
**Finish:** galvanized and colorless chromated

### Ordering details top/bottom plate

nom. width [HP]	nom. depth 160 mm order no. 409.	nom. depth 220 mm order no. 409.
8	038 687	038 763
10	038 689	038 765
12	038 691	038 767
14	038 693	038 769
21	038 700	038 776
28	038 707	038 783
42	038 721	038 797



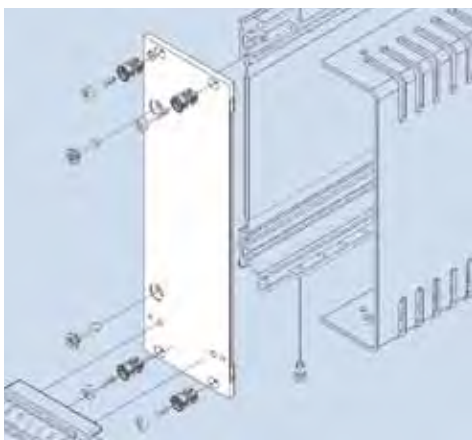
## Front Panel

For cassette with extruded side panel or depth profiles.

**Material:** aluminum  
**Finish:** front anodized, rear and edges blank

### Ordering details front panel for cassette

nom. width [HP]	3 U order no. 409.	6 U order no. 409.
8	115 005	119 024
10	115 007	119 026
12	115 009	119 028
14	115 011	119 030
21	115 018	119 037
28	115 025	119 044
42	115 039	119 058



## Front Panel

For cassette with cover hood.

**Material:** aluminum  
**Finish:** front anodized, rear and edges blank

### Ordering details front panel for cassette cover hood

nom. width [HP]	3 U order no. 409.
6	122 380
7	120 282
8	120 283

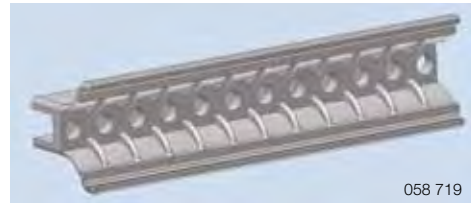
# Individual Parts of the Cassettes

## Handle FP for Front Panels

Assembled with M 2.5 screws and with 1 additional self tapping screw from 6 HP. The handle is held against torsion by means of two nipples.

## Technical data

Material	Polycarbonate, colored 10% fiber-glass reinforced
Color	gray RAL 7032, black
Continuous temperature	- 40 °C to + 100 °C)
Fire protection class	UL 94 V-0



058 719

## Ordering details handle FP

width [HP]	length [mm]	gray order no. 409.	black order no. 409.
6	29.04	<b>103 006</b>	<b>103 206</b>
7	34.12	<b>103 007</b>	<b>103 207</b>
8	39.20	<b>103 008</b>	<b>103 208</b>

## Ordering details handle strip FP

width [HP]	length [mm]	gray order no. 409.	black order no. 409.
10	49.36	<b>103 810</b>	<b>058 910</b>
12	59.52	<b>103 812</b>	<b>058 912</b>
14	69.68	<b>103 814</b>	<b>058 914</b>
21	105.24	<b>103 821</b>	<b>058 921</b>
28	150.80	<b>103 828</b>	<b>058 928</b>
42	211.92	<b>103 842</b>	<b>058 942</b>



022 722

## Ident-Plate

for handle FP.  
The ident-plate is markable and printable, snapped in after mounting the handle to the front panel.

**Material:** aluminum  
**Finish:** anodized

## Ordering details ident-plate

width [HP]	length [mm]	order no. 409.
6	29.04	<b>022 792</b>
7	34.12	<b>022 793</b>
8	39.20	<b>022 794</b>
10	49.36	<b>022 796</b>
12	59.52	<b>022 798</b>
14	69.86	<b>022 800</b>
21	105.24	<b>022 807</b>
28	150.80	<b>022 814</b>
42	211.92	<b>040 652</b>

## Mounting parts of the cassette

Minimum order quantity each 100 pieces

	order no. 409.
To assemble the strut and the top/bottom plates to the profiles <b>Oval head screw M 2.5 x 5</b>	<b>039 691</b>
To assemble the rear plate to the profiles <b>Oval head screw M 3 x 12</b> <b>Spring washer A 3</b>	<b>108 963</b> <b>040 969</b>
To assemble the front panel to the profiles <b>Counter sunk screw M 3 x 12</b>	<b>108 962</b>
To assemble the cassette into the subrack <b>Screw retainer 2.5, gray</b> <b>Screw M 2.5 x 11.3</b>	<b>100 539</b> <b>101 917</b>

## Mounting parts for handles:

Minimum order quantity each 100 pieces

	order no. 409.
<b>Washer 2.7</b>	<b>013 911</b>
<b>Self tapping screw M 2.5 x 10</b>	<b>040 401</b>



## Accessories

### Pan head screw M2,2 x 6,5

Minimum order quantity 100 pieces

order no.: 409. 022 672

### Card Guide for Cassette

This card guide is snap-in and screw-on type.

#### Technical data

Material	Noryl
Color	RAL 7035
Continuous temperature	- 40 °C to + 115 °C
Fire protection class	UL 94 V-0

#### Ordering details

	nom. length [mm]	PCB thickness [mm]	order no.
Card guide for cassette	100	1.6	<b>041 012</b>
Card guide for cassette	160	1.6	<b>041 008</b>



### PCB Retainer

To secure PCB's inside the cassette.  
Assembled together with the card guide.

#### Technical data

Material	Noryl
Color	RAL 7035
Continuous temperature	- 40 °C to + 115 °C
Fire protection class	UL 94 V-0

order no.: **409. 043 488**



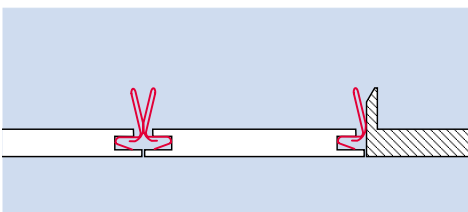
### Male Connector Assembly Kit

To assemble male connectors of type B, C, D, E, F, G, or H reg. DIN EN 60603 in rear panels.

**Material:** steel  
**Finish:** galvanized und colorless chromated

**Delivery:** 1 male connector bracket top  
1 male connector bracket bottom  
Mounting parts

order no.: **409. 046 098**



### RFI-Spring F3

The RFI-contact spring for inserting into the side edges of the front panel.

#### Ordering details

	order no.
	<b>409.</b>
<i>For one flat front panel 2 RFI-springs are needed.</i>	
RFI spring F3 - 3U	<b>111 112</b>
RFI spring F3 - 6U	<b>111 116</b>
For assemble the RFI spring F3	
Roller cutter	<b>118 433</b>

# Accessories for Cassettes



## Mounting Block

To connect top/bottom plate with rear panel.  
The mounting block can also be used to enhance RFI shielding in conjunction with blank rear panel RG. The rear panel can be additionally drilled for extra contact points.

order no.: **409. 044 090**

## Backplane Holder

To assemble backplanes on top/bottom plate.

order no.: **409. 119 013**

## Accessories

Minimum order quantity each 100 pieces

	order no. 409.
To assemble the rear plate and the backplane holder at the top/bottom plates	
Oval head screw M 2.5 x 6	046 999
To assemble the backplane or the rear panel at the mounting block or backplane holder	
Oval head screw Taptite M 2.5 x 10	040 401
Spring washer 2.7	013 911



## Cassette Angle

To assembly a free wiring level inside of the cassette.  
Mounted on the top/bottom plate.

**Material:** steel  
**Finish:** galvanized and colorless chromated

## Ordering details cassette angle

length [mm]	for cassette nom. width [HP]	order no. <b>409.</b>
9.18	8	<b>039 851</b>
19.34	10	<b>039 853</b>
29.50	12	<b>039 855</b>
39.66	14	<b>039 857</b>
75.22	21	<b>039 864</b>
110.78	28	<b>039 954</b>
181.90	42	<b>039 968</b>

## Accessories

Minimum order quantity each 100 pieces

	order no. 409.
To assemble the cassette angle at the top/bottom plates	
Oval head screw M 2.5 x 5	039 691
To assemble the connectors at the cassette angle	
Tapered screw M 2.5 x 6.5	032 708

# Accessories for Cassettes



040346

## Shell

To cover the open space between the top and bottom rear panels for 6-U-cassette. The shell is assembled at the strut.

**Material:** aluminum  
**Finish:** colorless chromated

## Ordering details

	nom. width [HP]	order no.
		<b>409.</b>
Shell 08	8	<b>040 348</b>
Shell 10	10	<b>040 350</b>
Shell 12	12	<b>040 352</b>
Shell 14	14	<b>040 354</b>
Shell 21	21	<b>040 361</b>
Shell 28	28	<b>040 368</b>
Shell 42	42	<b>040 382</b>

## Accessories

### Oval head screw M 3 x 12

Minimum order quantity 100 pieces

order no.: 409. 108 963



Screw retainer, grounding bushing and screw

### Screw retainer 2.5 - M 2.5

To 2.5 mm thickness front panels, for pushing in the screw

## Technical data

Material	POM
Color	gray or black
Continuous temperature	- 40 °C to + 100 °C

## Ordering details

Minimum order quantity 100 pieces

	Color	order no.
		<b>409.</b>
Screw retainer 2.5 - M 2.5	gray	<b>100 539</b>
Screw retainer 2.5 - M 2.5	black	<b>100 538</b>

### Grounding Bushing M 2.5

To press in to the front panel in order to get electrical bounding to the cassette even when the front panel is anodized.

**Material:** brass, nickel plated

Minimum order quantity 10 pieces

order no.: **409. 082 594**

### Screw M 2.5 x 11.3

for 2.5 mm thick Front panels

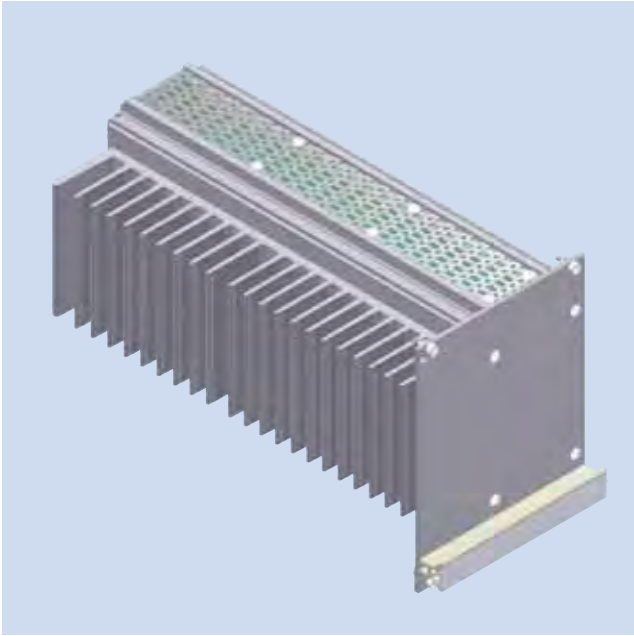
**Material:** Knurled head screw:  
steel nickel plated  
Others: stainless steel

## Ordering details

Minimum order quantity 100 pieces

	head form	order no.
		<b>409.</b>
Pan head screw	slotted	<b>100 540</b>
Oval head screw	cross slot	<b>101 917</b>
Knurled head screw	knurled	<b>101 918</b>

# Cassette with Heat Sink



## Cassette with Heat Sink

This cassette is designed for passive cooling of electronic sub assemblies and systems. The thermal power loss which is generated in the 19" cassette is dissipated by a heat sink which also serves as sidewall. The heat sink is covered by an asymmetric front panel. Euroboards are being fitted into card guides which can be snapped in every possible position in the cassette. A wide range of accessories, for example rear cover, handle and handle strip in different colors and types are available. The front panel can be fitted with RFI springs to realize RFI shielding of the front of the subrack. Optionally the complete cassette can be RFI shielded.

### Delivery

- 4 depth profiles
- 1 side plates
- 1 heat sink, aluminum blank
- 1 rear panel 3 U
- 2 top/bottom plate
- 1 front panel, with slits in the side edges for insertion of RFI gaskets
- 1 handle
- 1 aluminum ident-plate
- Mounting parts

### Delivery

The cassette is delivered unassembled as individual parts or as a kit.

## Ordering details cassette with heat sink

height [U]	depth [mm]	cassette + heat sink-width [HP]	order no. 409.
3	160	12 + 8	<b>168 938</b>
3	160	28 + 8	<b>168 939</b>
3	220	12 + 8	<b>168 940</b>
3	220	28 + 8	<b>168 941</b>

## Accessories

	order no. 409.
RFI spring F3 - 3U	111 112
Roller cutter	118 433

For one flat front panel 2 RFI-springs are needed.

For assemble the RFI spring F3