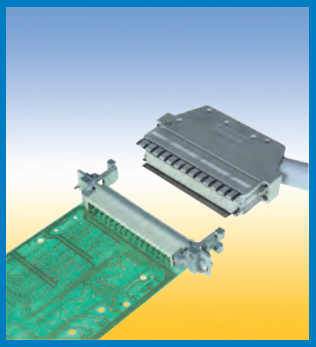
INTERMAS






Modular Assembly Systems






Product Catalog

Cabinets 1



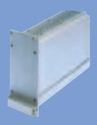
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The ”19-inch-Assembly System“

The so-called 19-inch assembly system consists of a wide range of mechanical and electromechanical components matched to each other in terms of their dimensions and can be regarded as a „mechanical construction kit“ for assembling electronic devices and systems.

The ”19-inch assembly system” was first presented in 1970 at the Hanover Trade Fair by AEG Telefunken (Intermas Modular Assembly Systems). The first application areas of this revolutionary development were industrial electronics followed by power station control engineering and traffic engineering. Today the system is in use worldwide in almost all areas of industrial electronics such as telecommunications, military technology, medical technology, measurement and control technology etc.

The 19 inches originated in the width of equipment front panels in accordance with the USA standard C83-9. In view of the frequent need to combine European and American equipment in a single system the width and the height increments of the 19-inch front panel became the starting point for the DIN 41494 and IEC 60 297-1 standards. Although the 19-inch (482.6 mm) dimension is only used once as the width specification for the front panels of plug-in units and subracks, it has given its name to the modular assembly system. All system dimensions are defined in mm. The correct designation should therefore more correctly be 482.6 mm technology, a term which is also used in DIN 14 494, the German standard for the 19” assembly system.

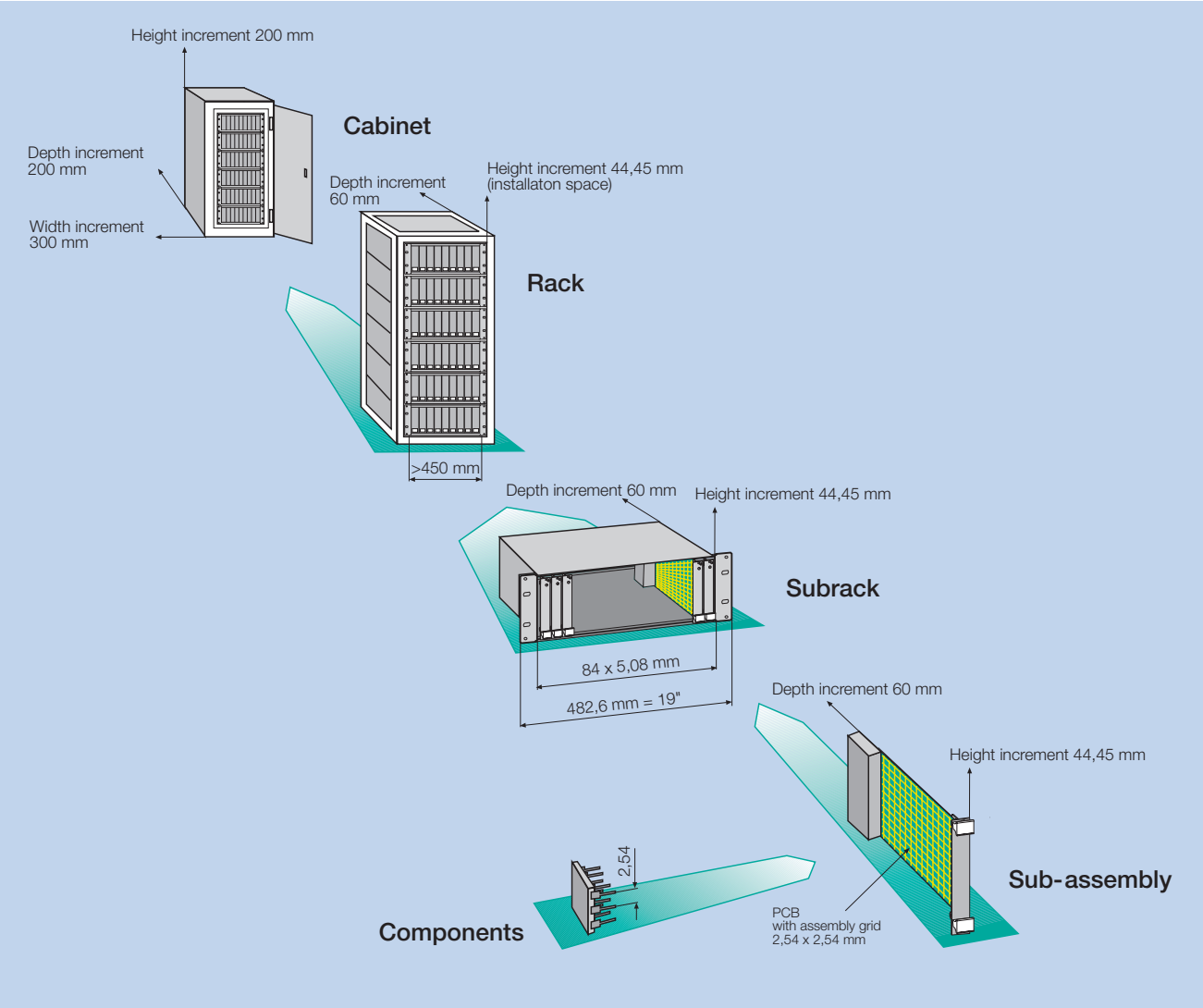
All necessary dimensions were defined in the German DIN 41 494 standard, in IEC Publication 60 297 and in the USA standard ANSI/IEEE 1101.

The aim of the standardization was to make it possible to combine different system components without problems and to ensure compatibility between different devices and modules as the basis for the specialization of individual manufacturers which resulted from global division of labor.

DIN standards and IEC publications

System level	DIN-standards	IEC-publications	DIN-standards	IEC-publications	DIN-standards	IEC-publications
Level 4 Racks	Table Top Housings DIN 41494	IEC 60297-1/2	Racks DIN 41494	IEC 60297-1/2	Cabinets DIN 41494	IEC 60297-1/2
Level 3 19”-Front- and rear pane and subracks	19”-front panel DIN 41494	IEC 60297-3	19”-subracks DIN 41494	IEC 60297-3	19”-rear panel DIN 41494	IEC 60297-3
Level 2 Sub-assembly	PCB DIN 41494	IEC 60297-3	Plug in block DIN 41494	IEC 60297-3	Plug- in unit DIN 41494	IEC 60297-3
Level 1 Components	Sub-assemblys at front panel DIN 41494	IEC 60297-3	Cards DIN 41494	IEC 60297-3	Connectors DIN 41494	IEC 60303-3

(cp.: "The Modular 19"-System“, Hesse, 1991, side 43)



(Cp.: "The Modular 19"-System", Hesse, 1991, side 17)

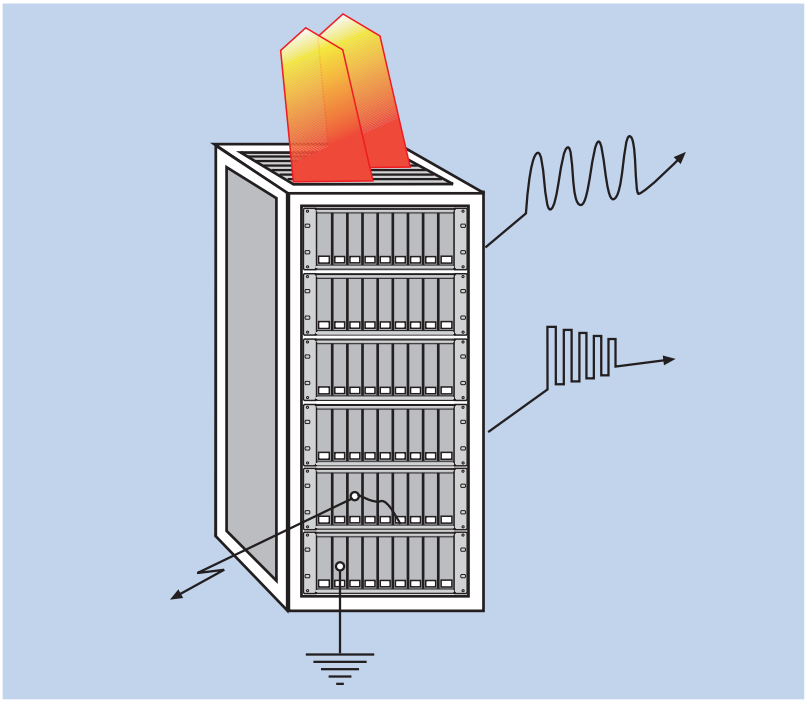
The modular structure

The modular structure of the so-called 19” assembly system allows components of one level to be freely combined with one another without problems and used in assemblies of the next higher level.

In addition to the 19” front panel, the dimensions of the Euroboard (100x160 mm), the component-fitting and wiring grid on the PCB (2.54 mm) and the external dimensions for cabinets formed the initial dimensions for the modular 19” assembly system.

Protection Requirements

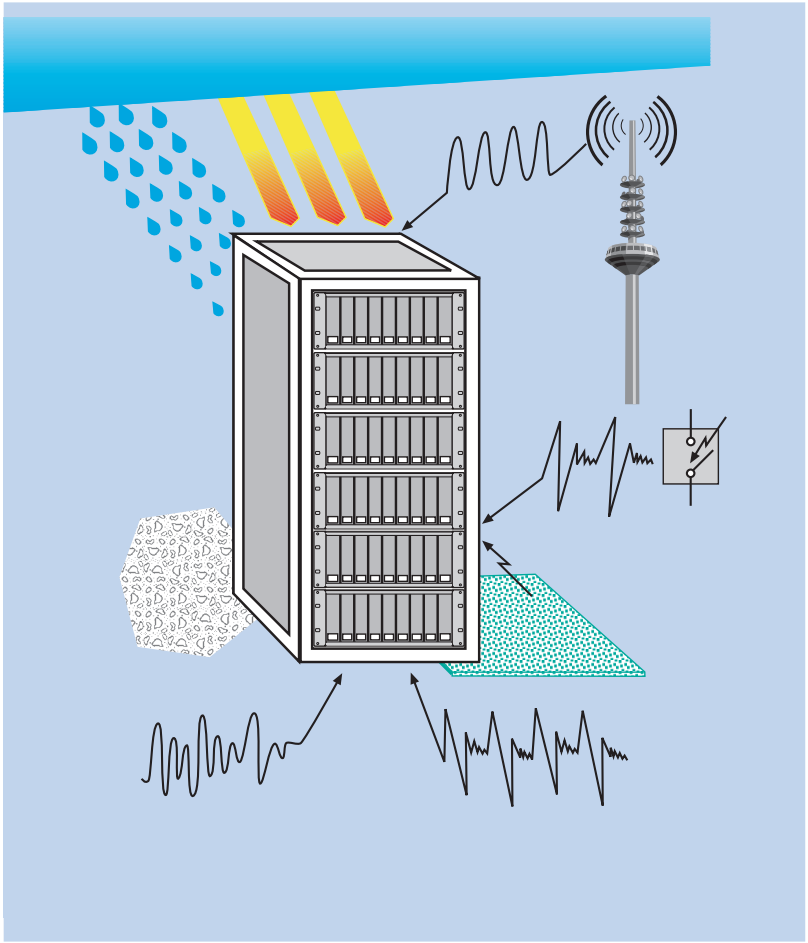
The protection requirements depend on sensitivity of the installed electronics and on the interference levels at the installation location.



(Cp.: "The Modular 19"-System", Hesse, 1991, side 127)

The protection requirements can be divided into:

1. Protection of the surrounding environment against interference, for example RF radiation, emitted by the device or protection against contact with live components.



(Cp.: "The Modular 19"-System", Hesse, 1991, side 127)

2. Protection of the modules against external influences such as mechanical stresses as a result of vibration or shock, or infiltration of foreign bodies and humidity and also highfrequency interference signals.

EMI protection

Electromagnetic interference basically results from three different types of signals:

√ sinusoidal permanent signals of fixed frequency

√ broadband permanent signals (fundamental frequency with harmonics)

√ transient signals (short period impulse)

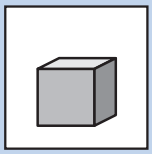
In order to adequately counteract such interference factors the paneling elements are conductively connected to one another or bonded to one another using appropriate RFI gaskets.

IP-Protection Classes (IP-Code) IEC 60 529 / EN 60 529

Protection for contact and foreign bodies

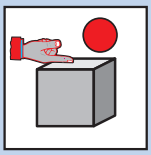
IP **1.** Index

0 no special protection



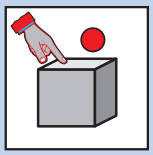
1 against large area bodies

large foreign bodies
ø >50 mm (2")



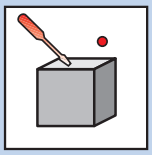
2 against fingers

medium sized foreign bodies
ø > 12 mm (0.48")



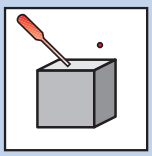
3 against tools, wires > 2,5 mm (0.10")

small foreign bodies
ø > 2,5 mm (0.10")



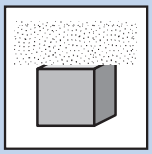
4 against tools, wires > 1 mm (0.04")

granular foreign bodies
ø > 1 mm (0.04")



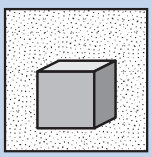
5 complete protection

dust-protected against dust desposits



6 complete protection

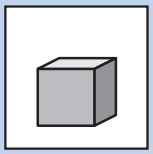
dust-proof



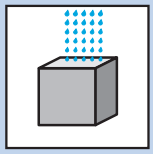
Water protection

IP **2.** Index

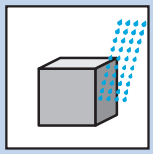
0 no special protection



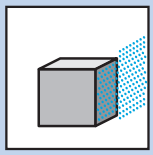
1 against water dripping vertically



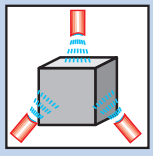
2 against water dripping at an angle up to 15° from the vertical



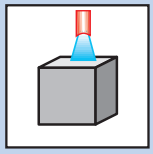
3 against spray water any direction up to 60° from the vertical



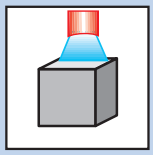
4 against spray water



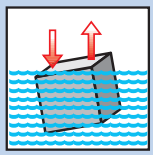
5 against water jets



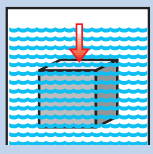
6 against strong water jets



7 against immersion



8 against submersion



DIN EN ISO 9001:2015



Our ultimate goal is achieving a competitive advantage through competent advisory services combined with high quality and environmental awareness of our employees.

Quality policy

Quality and competitiveness of Intermas products and services are driven by customer requirements and expectations as well as international market standards. Therefore, every Intermas emlployee is dedicated to fulfill these requirements constantly and entirely.

Customer orientation and customer satisfaction

In order to improve the customer satisfaction consultation services are offered at any stage of the product life cycle. Our management informs customers about technical innovations.
Intermas offers expertise in developing technical solutions through a dialogue with customers. A certified quality management system according to DIN EN ISO 9001 is in place.

System Cabinet *InterRack*

A sophisticated, systematically constructed cabinet system for electrical engineering applications, e.g. as:

√ a universal 19” cabinet
√ a low-voltage cabinet
√ a data and network cabinet

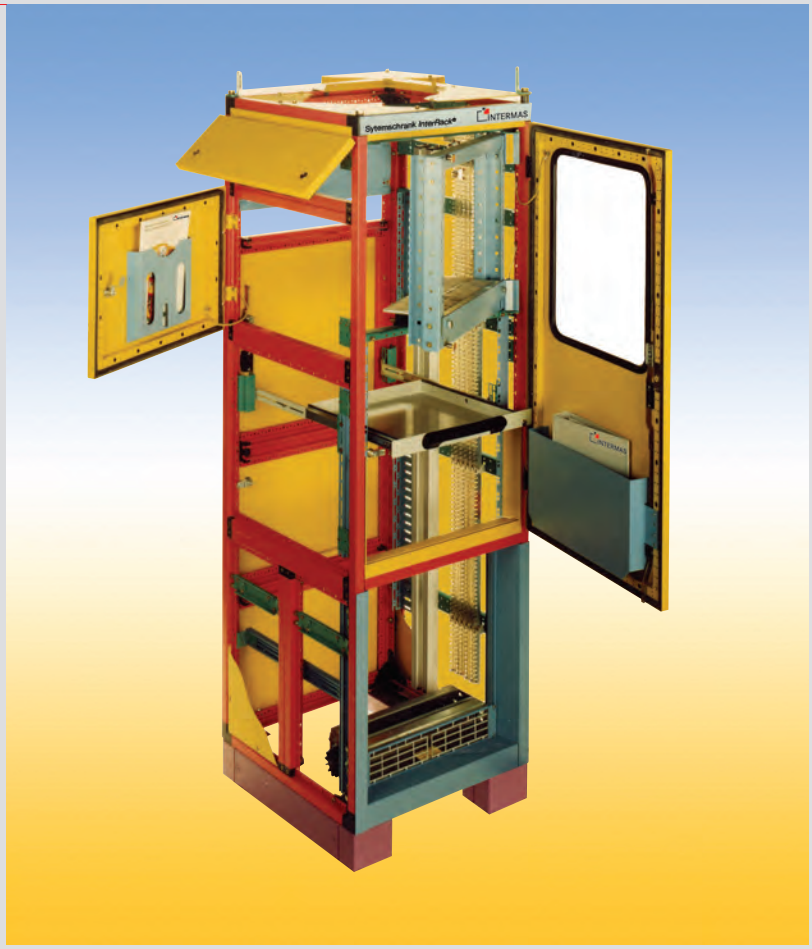
Also excellently suitable for your own designs or special solutions, e.g. as:

√ a training cabinet
√ for patch panels

or in

√ maintenance and control engineering
√ military technology
√ traffic engineering

In short:
This cabinet meets all your requirements and desires.



System Cabinet *InterRack*®



Description

The InterRack system cabinet is made of steel and is easy to assemble using screws. Profiles and paneling elements are galvanized. The customer can choose between two colors of paint finish.
The rack variants and assembly elements provide the capacity for individual configuration.
Protection classes IP 40 and IP 54 are achieved thanks to the use of silicon-free seals.

The cabinet stands out due to its enormous flexibility of the configuration and extension options.

√ Consistent implementation of the system pattern allows interior fittings in 25 mm steps.

√ Easily incorporated into CAE and CAD-supported development projects.

√ Each level can be used for assembly using only a few system elements.

√ Self-tapping screws allow simple and fast assembly and dismantling and ensure tight and electrically conductive connections.

√ Conducting surfaces and the replaceable system elements ensure excellent EMC characteristics.

Delivery

As a completely assemled and painted cabinet.
Unassembled components on request.

Technical Data

Standards	compliant with DIN 41 488, IEC 60 297-1 and 2, IEC 60917
External dimensions	DIN 41 488, p.2
Width grid	interior fittings in a 25 mm grid, external dimensions in a 50 mm grid
Depth grid	interior fittings in a 25 mm grid, external dimensions in a 50 mm grid
Material	loading profiles and corner connectors: aluminum other parts: galvanized steel
Finish	standard: RAL 7032 or as required by the customer
Protection class	compliant with DIN 40050 IP 40 and IP 54 contact protection in accordance with VDE 0160
Utilization category	-25 °C, +70 °C, 75% relative humidity
Protective grounding	all metal parts are electrically bonded to one another following assembly in accordance with VDE 100/12.65, § 6 Nb



Cabinet example

- √ Rack A
- √ Mounting plate
- √ Frontdoor, right opening
- √ Rear panel
- √ Base panel
- √ Top panel closed
- √ Swing handle
- √ 130° hinges
- √ With side panel protection class IP 40

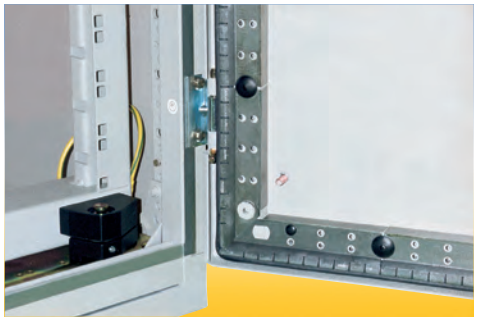


Sealing of the door



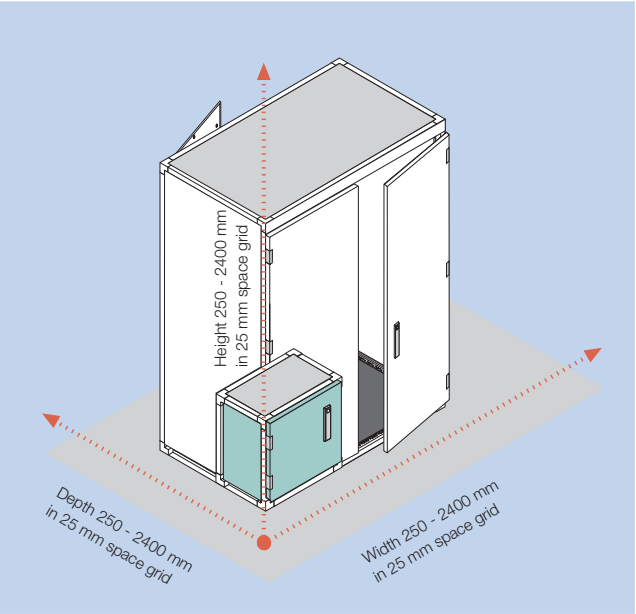
Sealing of the paneling parts

Sealing of the system cabinet *InterRack* to protection class IP 54



RFI-shielding of the door of the system cabinet *InterRack*

Configuration



Configuration System Cabinet *InterRack*

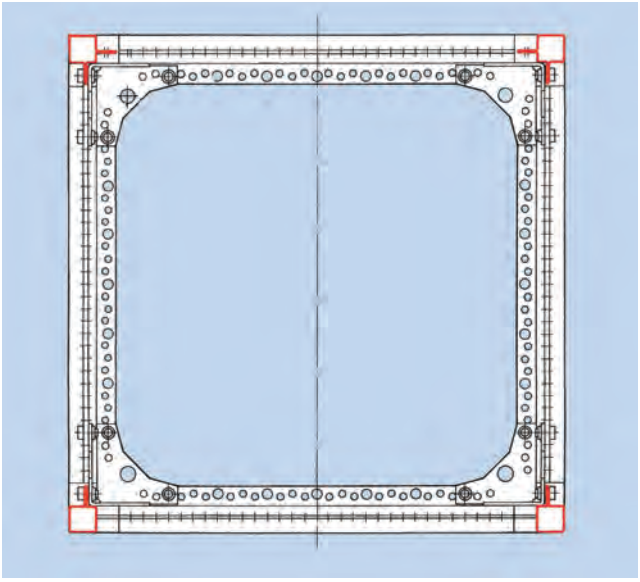
Cabinet	pieces _____			
Rack	❑ version A ❑ version B ❑ version C ❑ version D height: _____ mm width: _____ mm depth: _____ mm			
Color rack **Color paneling parts**	RAL _____ RAL _____			
Side panel	❑	❑ left	❑ right	
	❑ **adding:**	❑ left	❑ right	
Rear panel	❑			
Door	❑ front	❑ left	❑ right	
opening	❑ rear	❑ left	❑ right	
Double door	❑ front	❑ rear		
Hinges	❑ 130 degree	❑ 180 degree		

Door lock	❑ **swing handle** ❑ **key plate**	❑ dummy element ❑ double bit 3 mm ❑ short cylinder keyed alike	❑ square ❑ double bit 5 mm	
Top panel	❑ closed	❑ labyrinth	❑ perforated	❑ raised
Base panel	❑ closed	❑ divided	-	
Mounting plate	❑ galvanized	❑ color RAL _____		
Hinged frame	opening: ❑ left	❑ right		
	❑ 130 degree	❑ 180 degree		
19" unit support	❑ front	❑ rear		
Protection class	❑ IP _____			
RFI-shielded	❑			
Accessories	❑ **Adaptor** ❑ **Document box** ❑ **U-strut** piece_____	❑ **Logo strip** ❑ **Universal angle** piece_____ ❑ **Lifting eye** (kit with 4 pieces)	❑ **Base**	
Notes	_____ _____ _____ _____			

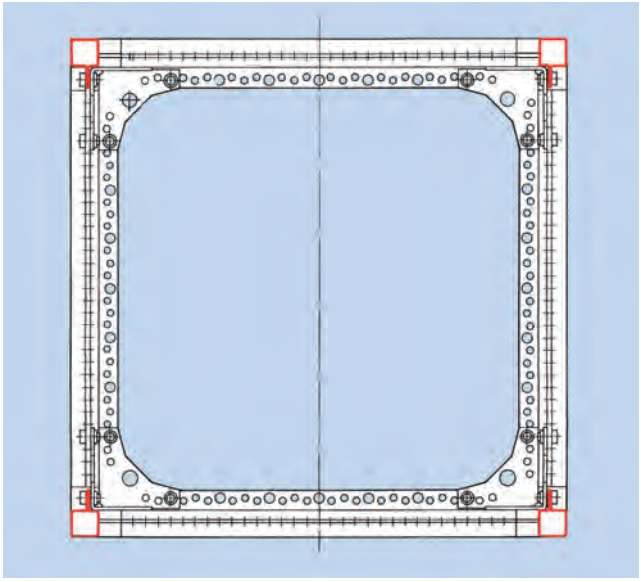
Please ask your local representative for your
individual configuration.
You find your contact person on our homepage:
www.intermas-el.com

Rack construction
The rail profiles are rolled from galvanized sheet steel. This ensures optimal corrosion protection, including the cut edges.
Two versions of rail profiles are available, rail profile W and rail profile V.
Plug-in corner connectors made of die-cast aluminum ensure stable connection in all three axes.
The rail profiles are then screwed to the gusset plate.

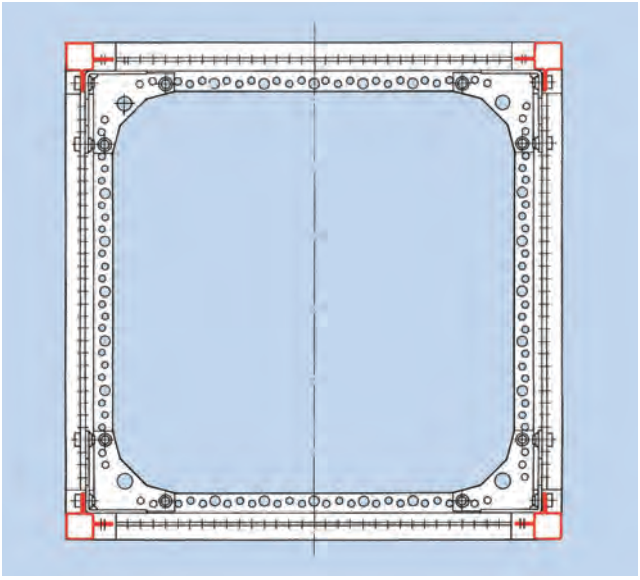
This method of construction allows assembly of any cabinet rack with an edge length of 250 to 2400 mm. Individual switch racks or patch panels can also be constructed just as easily.



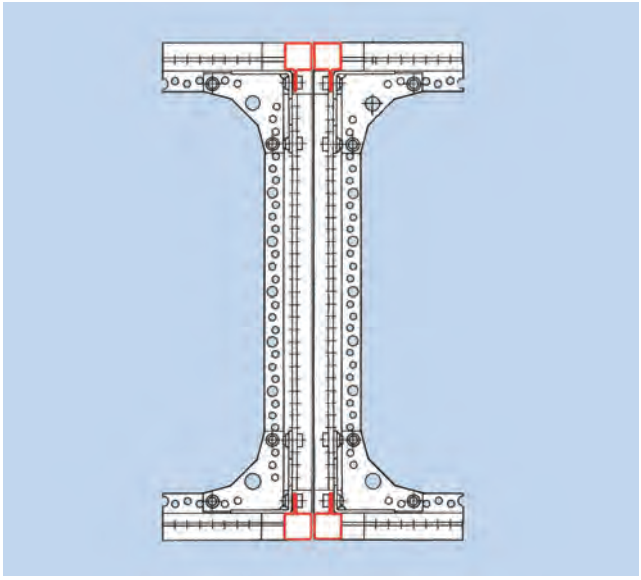
Rack version A
for stand alone cabinets with front door.



Rack version B
for stand alone cabinets with front and rear door.

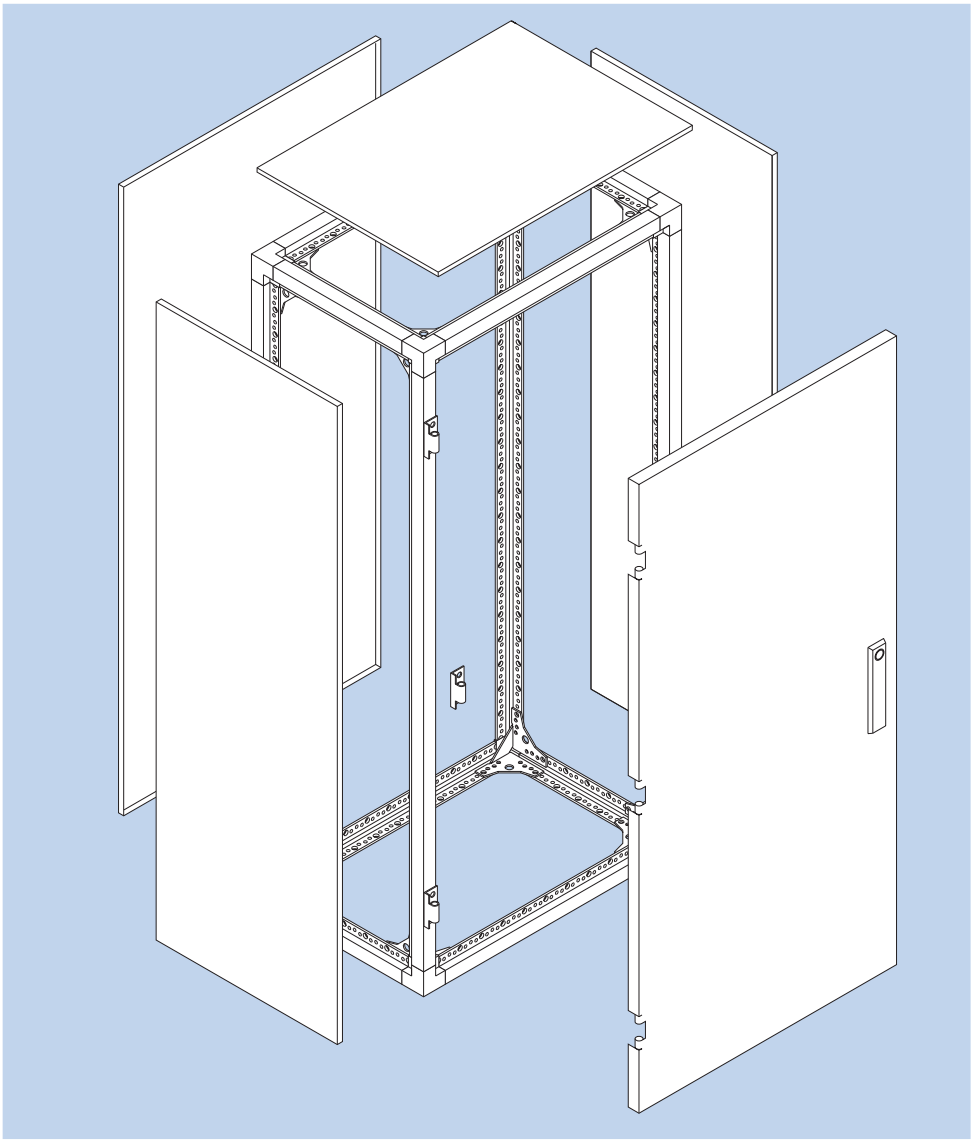


Rack version C
for protected and separated regions, all sides prepared for covering panels.



Rack version D
for frame type switchboards and distribution jumper rings.

System Cabinet *InterRack*®



Ordering details system cabinet

	height [mm]	width [mm]	depth [mm]	1 front door order no. **409**	1 front door 1 rear door order no. **409**	double door order no. **409**
InterRack 1200 x1000 x 400	1200	1000	400	-	-	**166261**
InterRack 2000 x 600 x 500	2000	600	500	**166262**	**166263**	**166264**
InterRack 2200 x 900 x 600	2200	900	600	**166265**	-	**166266**

Delivery

	quantity per kit 1 door	quantity per kit 2 doors	quantity per kit double door
Rack	1	1	1
Door front/rear (130°) Hinges 130°, left opening	1	2	1
Side panels	2	2	2
Rear panel	1	-	1
Top panel closed	1	1	1
Swing handle	1	2	2

This catalog contains stock and standard parts. Other products and sizes on request.

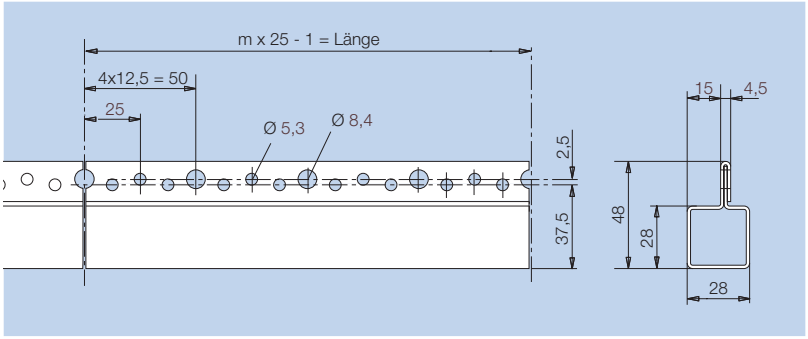
Rail Profiles

The rail profiles are rolled from galvanized sheet steel.
This ensures optimal protection against corrosion including the cut edges. Two Versions of rail profile are available.
Rail profile V
Rail profile W

Material: steel
Finish: galvanized

Finished length for rail profiles

rack-nom. width [mm]	length [mm]	m = number space grid
400	299	12
500	399	16
600	499	20
900	799	32
1000	899	36
1200	1099	44
2000	1899	76
2200	2099	84

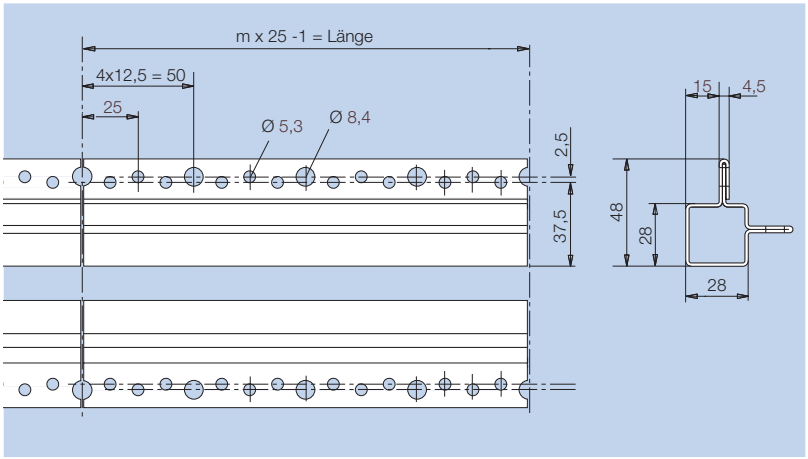


Rail Profile V

For use as height profile and diving profile.

Length: 6360 mm

order no.: **409074056**



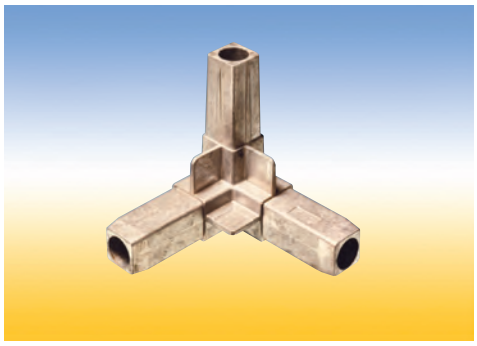
Rail Profile W

For use as height, depth, width profile and dividing profile

Length: 6360 mm

order no.: **409074057**

Corner Connector, Gusset Plate A and B, 19”-Unit Support

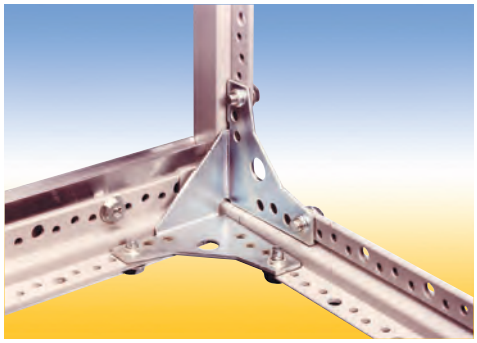


Corner Connector

For connecting the rear profiles.

Material: aluminum die casting
Finish: untreated

order no.: **409050688**



Gusset Plate A

For fastening the rack corner.

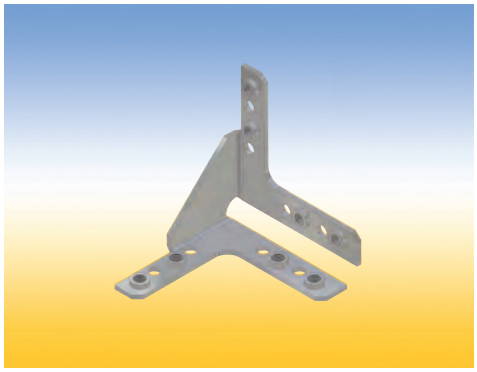
Material: steel
Finish: galvanized, passivated

order no.: **409131354**

Accessories

Cylinder head screw M 8 x 14
(Torx T40) DIN 7500

Minimum order quantity: 10 pieces
order no.: **409132778**

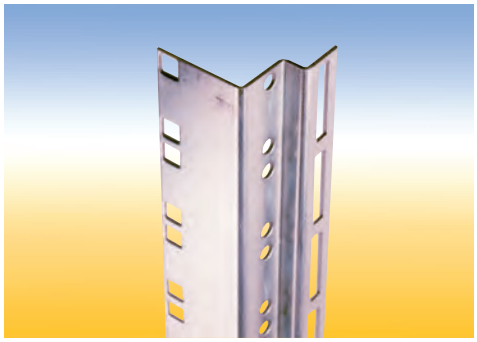


Gusset Plate B

For fastening the rack corner.
To get maximum free space for assemblies and for fastening with screws M 8.

Material: steel
Finish: galvanized, passivated

order no.: **409167416**



19”-Unit Support

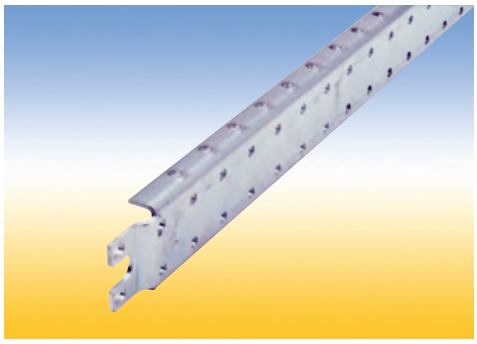
Are mounted vertically, depth variable in 25-mm-space grid.
For mounting of 19”-equipment.

Material: steel
Finish: galvanized, passivated

Ordering details

	for cabinet-height [mm]	length [mm]	order no. **409**
19”-unit support 2000	2000	1866.45	**078641**
19”-unit support 2200	2200	2044.70	**078646**

U-Strut, Universal Angle, Door Hinge 180°



U-Strut

As support for unit support and fixtures in
25-mm-space grid.
2 versions are available:
1. For mounting from outside the cabinet.
2. For mounting from inside the cabinet.
This version is especially suitable for later installations.

Material: steel, 3 mm thick
Finish: galvanized, passivated

Ordering details

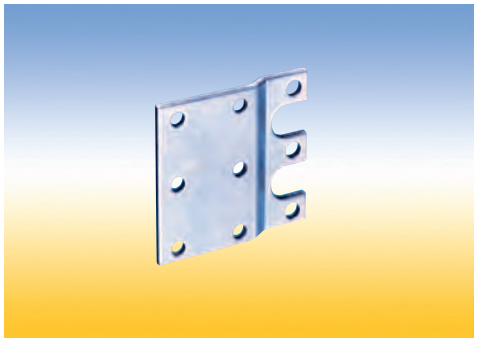
	for cabinet-depth/width [mm]	outside order no. **409**	inside order no. **409**
U-Strut 400	400	**049677**	**132601**
U-Strut 500	500	**049679**	**132603**
U-Strut 600	600	**049680**	**132604**
U-Strut 800	800	**049681**	**132605**
U-Strut 900	900	**049682**	**132606**

Accessories

Hexagon Head Screw M 6 x 12

Minimum order quantity: 10 pieces

order no.: **409131550**



Universal Angle

To fastening of 19”-unit support and accessories.

Material: steel, 3 mm thick
Finish: galvanized, passivated

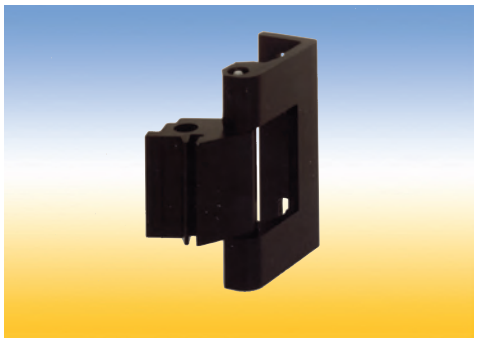
order no.: **409132240**

Accessory

Hexagon Head Screw M 6 x 12

Minimum order quantity: 10 Pieces

order no.: **409131550**



Door Hinge 180°

with a 180° opening angle.

Material: aluminum
Finish: black anodized

Delivery:
3 hinges, 3 hinge pins
Mounting parts

order no.: **409069369**

Standard Adaptor, Lifting Eye, Document Box, Custom Logo Strip for Cabinets



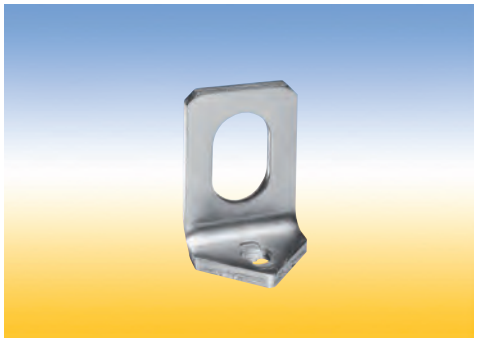
Standard Adaptor Kit

To bolt together additional cabinets.

Material: steel
Finish: galvanized, passivated

Delivery: 8 threaded spacers
Mounting parts

order no.: **409132464**

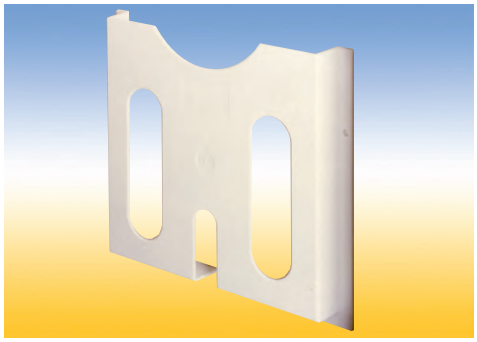


Lifting Eye Kit

Material: steel
Finish: galvanized, passivated

Delivery: 4 lifting eyes
Mounting parts

order no.: **409132735**

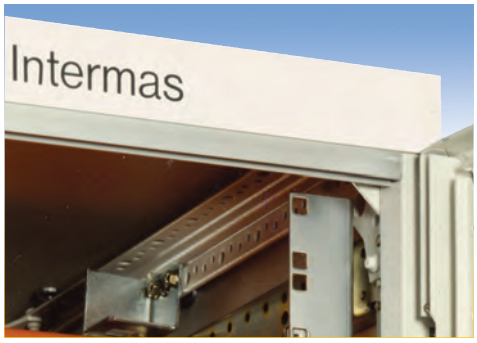


Document Box

DIN A4, upright, self adhesive

Material: Polystyrene, shock resistent
Finish: RAL 9002

order no.: **409068760**



Custom Logo Strip

For the rack above the door.
Self adhesive

Material: aluminum 2 mm thick
Finish: anodized (paintable and printable)

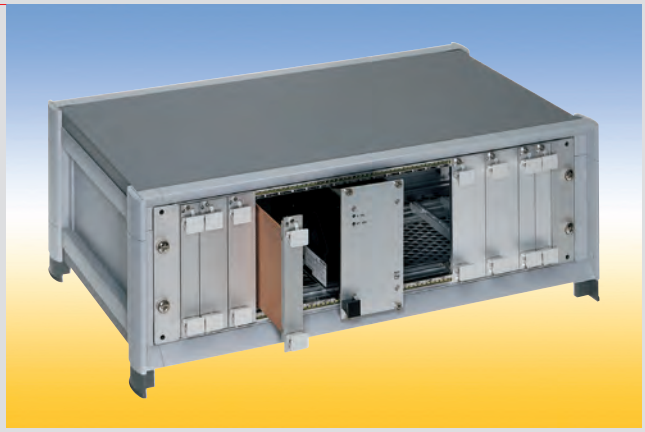
Ordering details

	length [mm]	order no. **409**
Custom logo strip 600	594	**049668**
Custom logo strip 900	894	**049670**
Custom logo strip 1000	994	**069302**

Housings
Desktop Housings

InterMeZo Housing

- √ Design front
- √ Functional front
- √ Variable in three dimensions
- √ Can be RFI-shielded
- √ Mechanical protection up to IP 54



InterCase Desktop Housing

- √ Easy construction
- √ Service friendly
- √ Variable dimensions
- √ Can be RFI-shielded

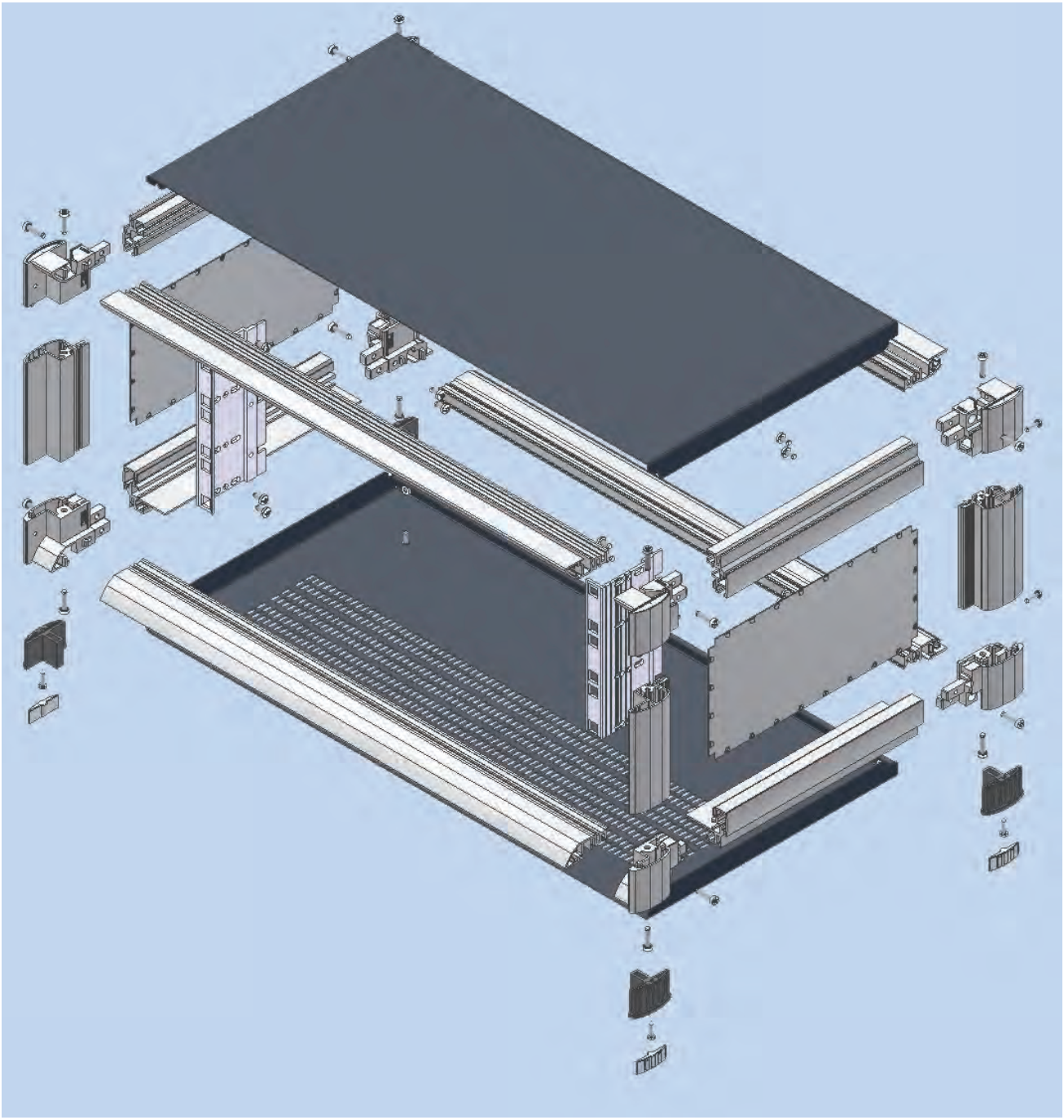


InterLock Housing

- √ Covering of subracks
- √ Easy mounting without screws



InterMeZo Housing



Requirements
A modern housing exible in its applications, with a modular design, can be RFI-shielded and ventilated, in an attractive design and at a reasonable price: InterMeZo

Construction
1. Housing frame
The InterMeZo housing is based on a framework construction consisting of profiles and corner connectors. This flexible design also enables fast and cost-effective assembly of individual housing sizes.

2. Easy to access
For quick access to the installed electronics the cover plates are pressed into profiled grooves and secured with two screws.

3. RFI shielding
The side walls are pressed into profile grooves; contact elements ensure RFI-shielded bonding.
To achieve effective protection of the housing against dust and water the cover panels, the rear wall and the door can all be fitted with seals.
Please state RFI requirement when ordering.

4. Mechanical sealing
To achieve effective protection of the housing against dust and water the cover panels, the rear wall and the door can all be fitted with seals.

5. Recessed grips
Grips for easy transportation are formed by the recessed mounting of the side walls.

6. Equipment supports
Subracks can be installed variably as the housing depth permits.

7. Chassis panels
The depth profiles are provided with grooves in which chassis panels or similar can be fitted at any depth with the aid of spring nuts.

Summary
The InterMeZo housing from Intermas is a modular and cost-effective housing solution for high-quality industrial electronics in a visually attractive design, developed for the highest possible flexibilty and simplest possible assembly, with expansion capabilities for more demanding needs, compliant with stringent EMI/ESD protection specifications, and with extensice configuration options to fulfil application-specific requirements.

Technical data

Materials	casing: aluminum profiles corner connectors: die-cast zinc feet: ABS other parts: 0.8 mm galvanized sheet steel
Finish	standard for rear wall and cover panels: painted dark gray (RAL DS 5500) standard for casing and side walls: painted light gray (RAL DS 7000) feet: dark gray

Versions
The *InterMeZo housings* are available to assembly 19”- or metric subracks. Alternatively, any dimensions for variable applications are possible.
For all versions the possibility exists to choose between the following types.

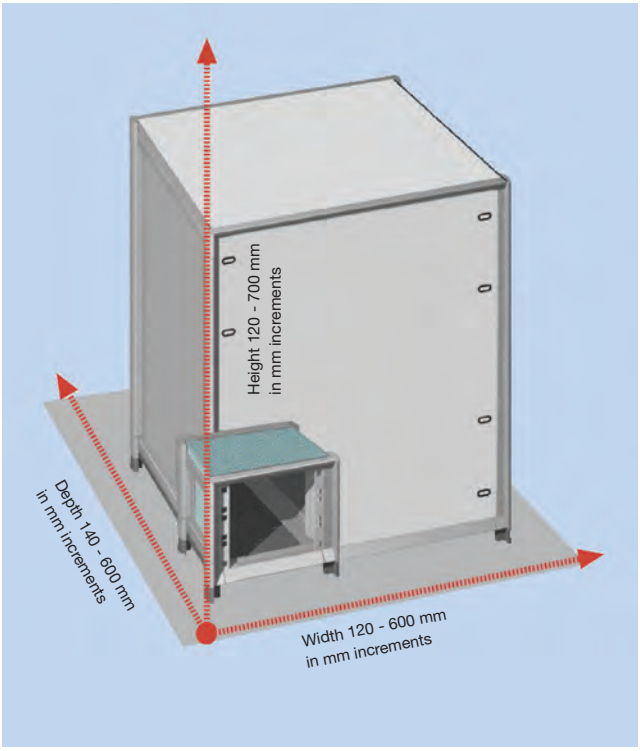


1. Design front
This version has been constructed in terms of a harmonic front design for use with a wide range of applications.



2. Functional front
For higher protection against dust and water as well as EMC shielding.

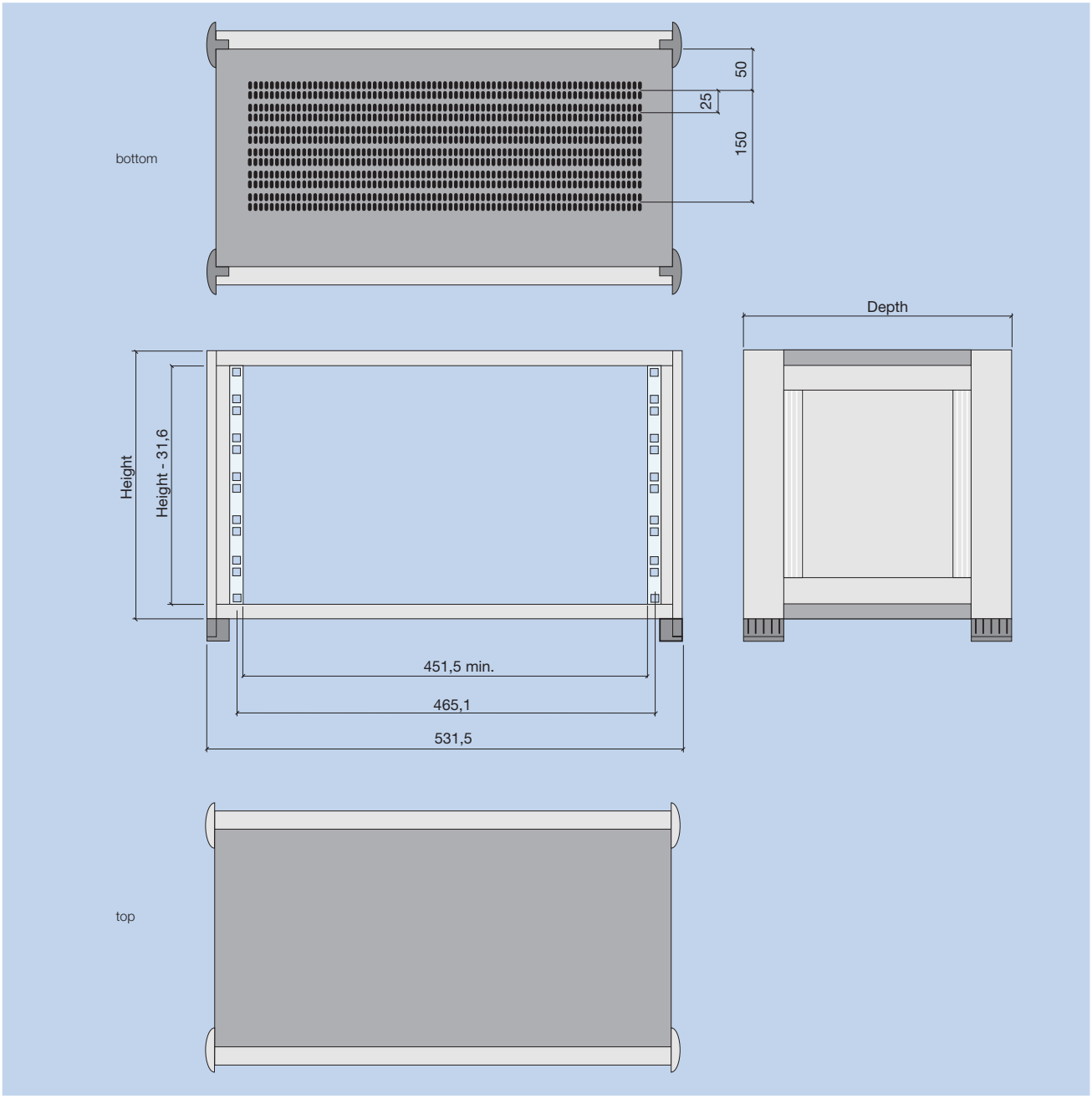
InterMeZo Housing



InterMeZo Housing

Housing	pieces _____
Dimension	height: ❑ 3 U ❑ 6 U width: ❑ 84 HP ❑ 42 HP depth: ❑ 300 mm ❑ 400 mm ❑ 500 mm ❑ other: height: ____ U or _____ mm width: ____ HP or _____ mm depth: _____ mm
Design	❑ design front ❑ front ❑ rear ❑ functional front ❑ front ❑ rear
Color casing, side wall	❑ RAL DS 7000 ❑ RAL_____
Color rear wall, panels	❑ RAL DS 5500 ❑ RAL_____
Louvers in	❑ bottom panel ❑ top panel ❑ rear panel
Front	❑ **Casing door** ❑ **Plexiglass door** ❑ **Front panel** ❑ anodized ❑ RAL _____
19" unit support	❑ front ❑ rear
Protection class	❑ IP _____
RFI-shielding	❑
Accessories	❑ **Rear panel** ❑ **Wheels** ❑ **Side bars** ❑ **Subplate** ❑ **Mounting material for subrack and front panels** kit_____ pieces
Notes	_____ _____ _____ _____

Please ask your local representative for your
individual system configuration
You find your contact person on our homepage:
www.intermas-el.com



Ordering details for assembled *InterMeZo* housings

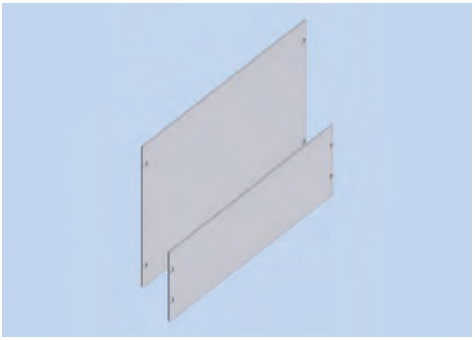
nom. height [U]	height [mm]	width [mm]	depth [mm]	*design-front* order no. **409**	*functional-front* order no. **409**
3	165.60	531.50	300	**166208**	-
3	165.60	531.50	400	**166209**	**166217**
4	210.05	531.50	400	**166210**	-
6	298.95	531.50	400	**166211**	**166218**
6	298.95	531.50	500	**166212**	-
7	343.40	531.50	400	**166213**	-
9	432.30	531.50	400	**166214**	**166219**
9	432.30	531.50	500	**166215**	-
12	565.65	531.50	500	**166216**	**166220**

Delivery:
Housing frame with side panels,
top closed,
bottom panel with louvers
4 feet,
2 unit supports

Delivery:
The housing is delivered assembled and painted.

Please state RFI requirement when ordering.

InterMeZo Housing Accessories

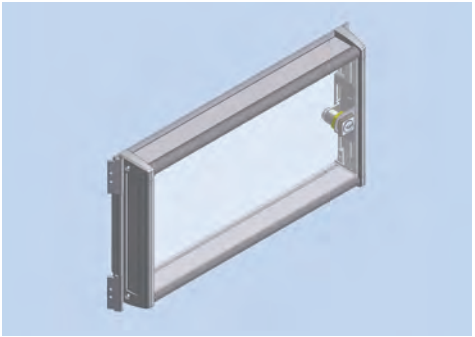


19” Front Panels

Material: aluminum 3 mm thick
Finish: anodized

Ordering details for 19” front panels

nom. height [U]	order no. 409
3	086513
4	086514
6	086516
7	086517
9	086519
12	086522



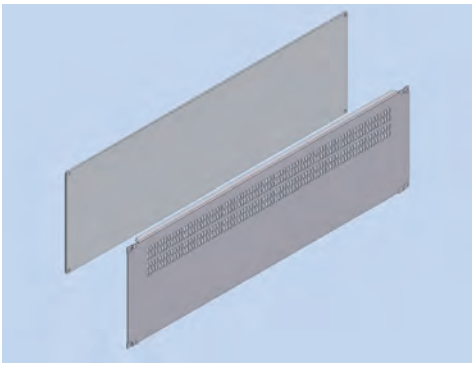
19” Casing Door

Kit consists of:
1 casing door with plexiglass pane
1 lock
2 hinges
Installation hardware

Delivery:
As complete assembled casing door.

Ordering details for 19” casing door

nom. height [U]	order no. 409
3	110452
4	110453
6	110454
7	110455
9	110456
12	110457



Rear Panel, closed

Material:
aluminum 2.5 mm thick

Finish:
front side anodized,
rear side conductive

Rear Panel with Louvers

Material:
steel 0.8 mm thick
Finish:
front side RAL DS 5500,
rear side conductive

Ordering details rear panel

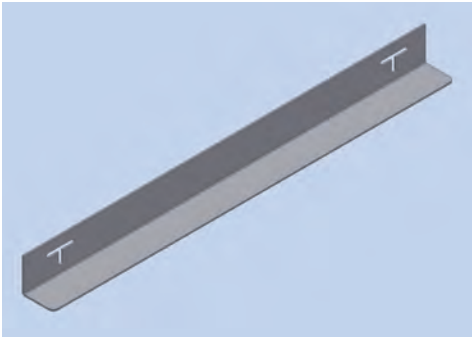
nom. height [U]	closed order no. 409	with louvers order no. 409
3	109984	111556
4	109985	111557
6	109986	111559
7	109987	111560
9	109988	111561
12	110392	111562

Accessories

Taptite screw M4x10

Minimum order quantity 100 pieces

order-no.: **409110395**



Slide Bars

Kit consists of:
2 slide bars
Installation hardware

Material:
1.5 mm galvanized sheet steel

Finish:
passivated

Ordering details kit

	for housing-depth [mm]	order no. 409
slide bar	300	111285
slide bar	400	111286
slide bar	500	111287



RFI-Shielding

Material: stainless steel

Standard housings are not retrofittable. Please state when ordering.

Ordering details RFI-shielding-kit for rear/front panel

nom. height [U]	order no. **409**
3	**110360**
6	**110361**
9	**110366**
12	**110367**

Ordering details RFI-shielding-kit for cover plates

depth [mm]	order no. **409**
300	**110368**
400	**110370**
500	**110372**



Unit Support

Kit consists of:
2 unit supports and
Installation hardware

Ordering details for unit support kit

nom. height [U]	order no. **409**
3	**110375**
4	**110376**
6	**110378**
7	**110379**
9	**110381**
12	**110382**



Mounting material for subracks and front panels in housing

Screw Locking M6
Color: black
Material: POM
Minimum order quantity 10 pieces
order no.: **409074387**

Oval Head Screw
M6 x 16 DIN 7985
steel, nickel plated
Minimum order quantity 10 pieces
order no.: **409013919**

Cage Nut
steel, galvanized
Minimum order quantity 10 pieces
order no.: **409131652**



Castors

Kit consists of:
2 mounting angles
4 castors
Installation hardware

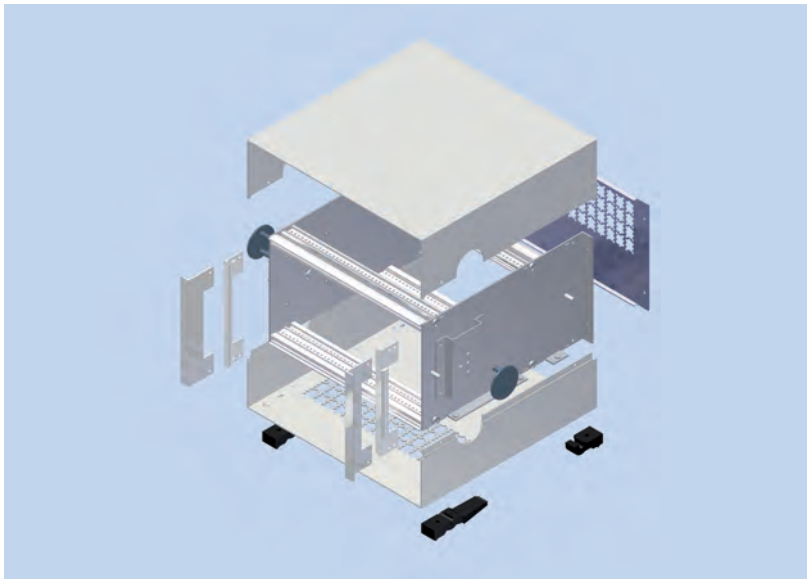
Ordering details for castor kit

	housing-depth [mm]	order no. **409**
castors 300	300	**112092**
castors 400	400	**112093**
castors 500	500	**112094**

Castors are not retrofittable. Please order with housing.

InterCase Desktop Housing





Description

The special design features of the *InterCase* desktop housing:

√ A desktop housing with a simple design for standardized plug-in units and individual assemblies.

√ The easy to access design allows all covering parts to be removed at any time.

√ The bottom cover and the rear panel are provided with louvers.

√ The side plates include perforations for attaching profile rails at different board depths.

√ The comprehensive range of Intermas subrack accessories allows individual

√ Can be RFI-shielded.

Technical Data

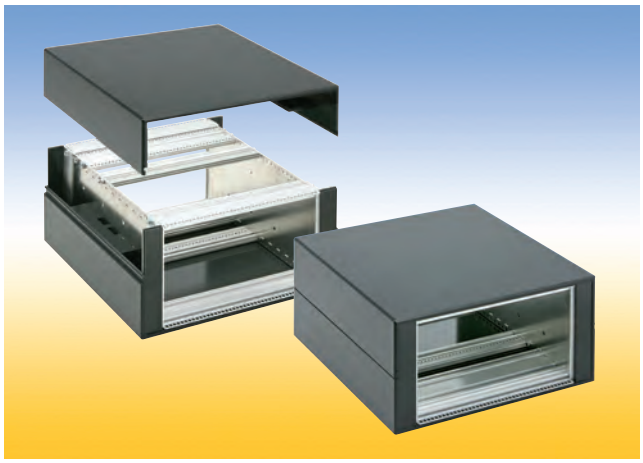
Material	Aluminum feet: plastic
Finish	side plates: blank side panels and rear panel: painted feet: black

Delivery:

2 top/bottom panels
2 side plates
2 side panels
4 pr ont/rear
1 pr ear middle
(only for 6 U)
1 rear panel
2 covers
2 mounting angles
4 threaded strips
(6 for 6 U)
1 foot kit
(1 carrying handle)
Installation hardware

Ordering details *InterCase* desktop housing

nom. height [U]	width [HP]	nom. depth [mm]	total depth [mm]	order no. **409**	with carrying handle-order no. **409**
3	42	160	260	**172610**	**172548**
3	42	220	320	**172620**	**172621**
3	84	160	260	**172630**	**172631**
3	84	220	320	**172640**	**172641**
6	84	160	260	**172650**	**172651**
6	84	220	320	**172660**	**172661**



Material: Polystyrene 6 mm thick
Color: black

Delivery:
The *InterLock* desktop housing is delivered in single parts.

Set consists of:
1 top-shell
1 bottom-shell

Description
The *InterLock* desktop housing has been designed to cover subracks. Also System-Module can be dressed up.

The special design features of the *InterLock* desktop housing:

√ The covering elements are formed from recyclable polystyrene plate-material warmly and the joints are welded together by means of a chlorine carbon solution coldly.

√ Material strength of 4 to 10 mm can be processed according to demand of the device.

√ Easy assembly or disassembly of the case shells. Both case shells are locked by a clamp groove without screws.

√ The case is upgradeable by feet and handles.

√ However, on account of an economic manufacturing technology special dimensions or special colors can be also already realised for small quantities at a reasonable price.

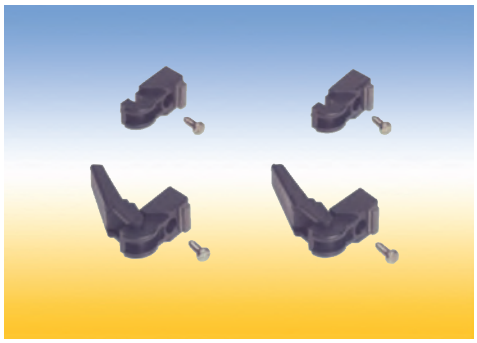
√ Extensive range of accessories is available.

Ordering details kit - *InterLock* desktop housing

nom. height [U]	width [HP]	nom. depth [mm]	order no. **409**
3	42	220	**168935**
3	84	220	**168936**
6	84	220	**168937**

Ordering details for compatible subrack kits

	nom. height [HE]	width [HP]	PCB depth/ nom. depth [mm]	order no. **409**
Subrack *FLEXIBLE Fi-alpha* prepared for RFI	3	42	160/220	**133306**
Subrack *FLEXIBLE Fi-alpha* prepared for RFI	3	84	160/220	**133307**
Subrack *FLEXIBLE Fi-alpha* prepared for RFI	6	84	160/220	**133308**



Accessories *InterLock*
Foot kit:
2 feet without tip-up
2 feet with tip-up
4 lens head screws with nut

Material: PPE+HIPS
Color: black

Foot kit

order-no.: **409133305**

Accessories other housings
Foot kit:
2 feet without tip-up
2 feet with tip-up
4 self-tapping screws

Material: PPE+HIPS
Color: black

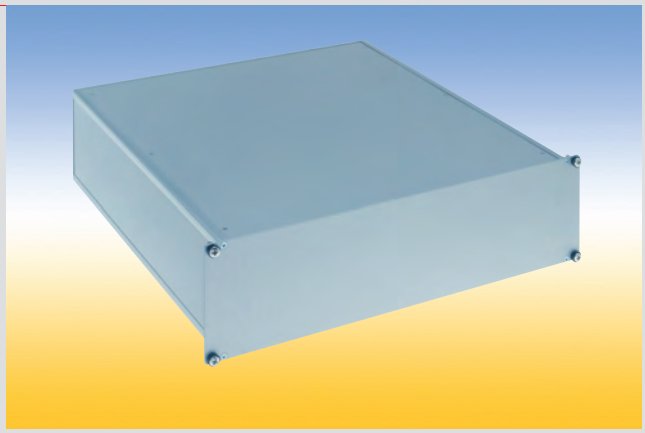
Foot kit

order-no.: **409059640**

Housings for small form factors

DiVar Housing

- √ 19” rack mounted for customized housing
- √ Unrestricted configuration and installation
- √ Cover plates removable



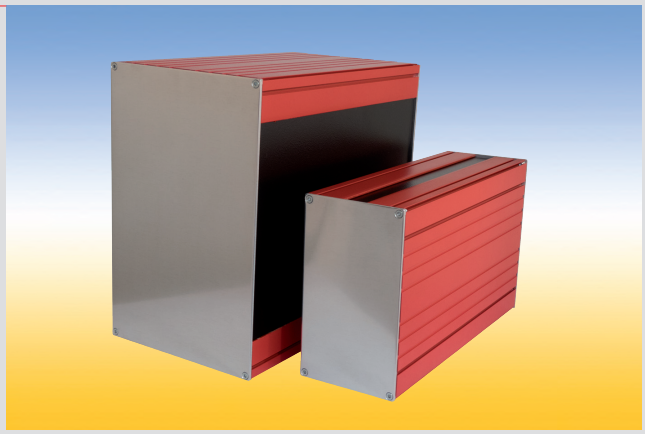
InterShell Housing

- √ Customized adjustments
- √ Quick and uncomplicated installation
- √ Individual color design

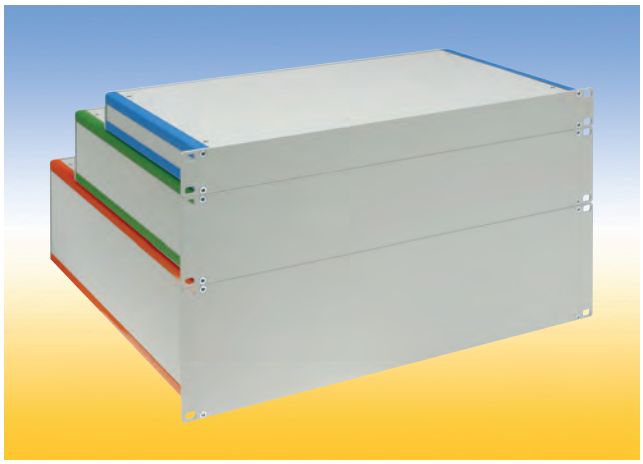


InterShell IP Housing

- √ Custom specific adjustments
- √ Quick and uncomplicated installation
- √ Protection class up to IP 65



DiVar Housing



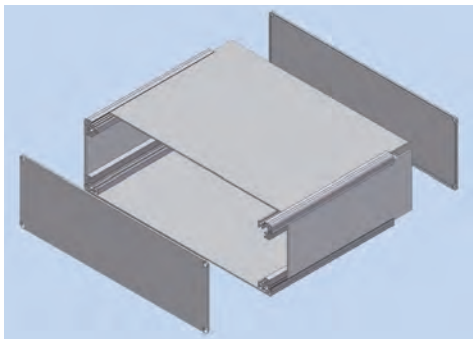
Painting examples of the DiVar housing

Technical Data

Material	aluminum
Finish	profiles: blank cover plates, front panel and side plates: front: anodized, rear: conductive

Delivery

The *DiVar* housing is delivered unassembled as individual parts or as a kit



DiVar housing as individual housing

Description

The special design features of the *DiVar* housing:

√ It consists of profiles into which aluminum, sheet steel, stainless steel or plastic panels with a thickness of 1.5 to 2.5 mm are inserted and, if desired, secured with screws. A wall panel at the rear and a panel at the front are screwed to the profiles.

√ The flexible design allows variable configuration of the housing geometry in all three axes, this allowing adaptation of the housing to customer-specific requirements.

√ Different surfaces can be selected for an individual appearance.

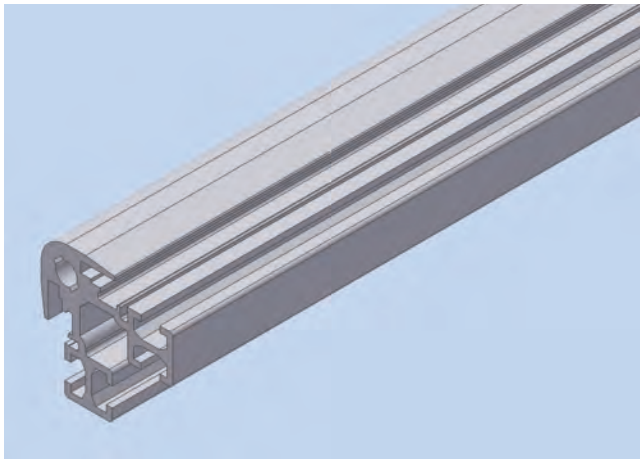
√ The proven RFI contact spring concept ensures optimum RFI shielding.

√ Rails with threaded holes can be pressed into the profile grooves, for example to screw in PCBs or mounting plates.

√ The extensive range of Intermas accessories allows unrestricted configuration and installation of both standardized and non-standard components.

The housing can be supplied in 4 versions:

1. Customized housing
2. 19“ rack mounted
3. Desktop housing with a keyboard area
4. Desktop housing with a continuous slanting surface



Multifunctional Profile *DiVar*

Material: aluminum
Finish: blank

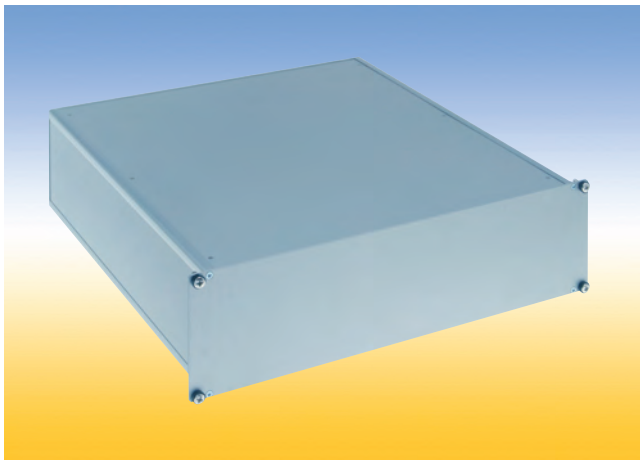
Length: 1000 mm

order no.: **409121808**

Accessories

RFI-spring F3
Length: 399.64 mm

order no.: **409111774**

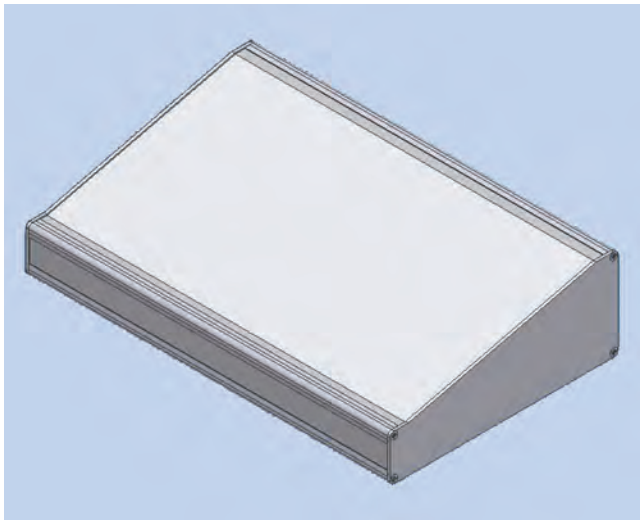


DiVar Housing as rack mounted version

Delivery
4 profiles
4 cover plates
1 19“ front panel
1 rear panel
Assembly hardware

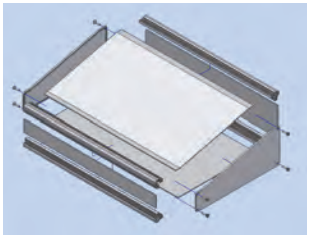
Ordering details
***DiVar* housing as rack mounted version**

nom. height [U]	width [HP]	depth [mm]	order no. **409**
1	84	250	**122356**
2	84	350	**122357**
3	84	450	**122358**



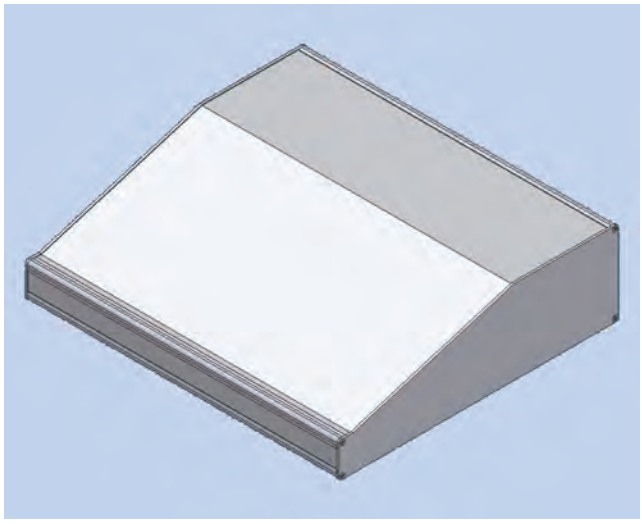
DiVar Desktop Housing

Delivery
4 profiles
4 cover plates
2 side plates
Assembly hardware



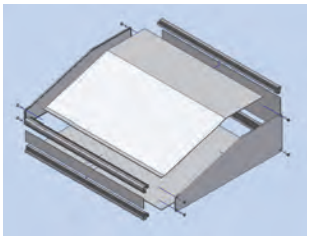
Ordering details
***DiVar* desktop housing**

height [mm]	width [mm]	depth [mm]	order no. **409**
50/100	400	250	**122359**



DiVar Desktop Housing with keyboard area

Delivery
4 profiles
4 cover plates
2 side plates
Assembly hardware



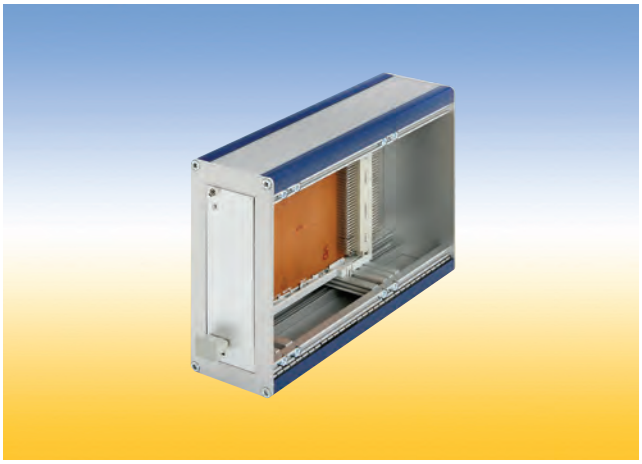
Ordering details
***DiVar* desktop housing with keyboard area**

height [mm]	width [mm]	depth [mm]	order no. **409**
50/120	450	250/150	**122360**

DiVar Housing Examples



DiVar housing as covered subrack 3 U - 84 HP - 160 mm depth



DiVar housing as covered cassette 3 U - 8 HP - 160 mm depth



DiVar housing for instrumentation

Please ask your local representative for your
individual configuration.
You find your contact person on our homepage:
www.intermas-el.com



Painting examples of the *InterShell*

Material: Aluminium

Surface : top-shell and bottom-shell
RAL 9006 white aluminum
front panel RAL 9005 - black

Set consists of:
1 top-shell
1 bottom-shell
2 front panels
4 countersunk screw

Delivery:
The *InterShell* housing will be delivered fully assembled and painted.

Description
The aluminium housing *InterShell* allows individual customer requirements in the context of Small Form Factors and has the following characteristics:

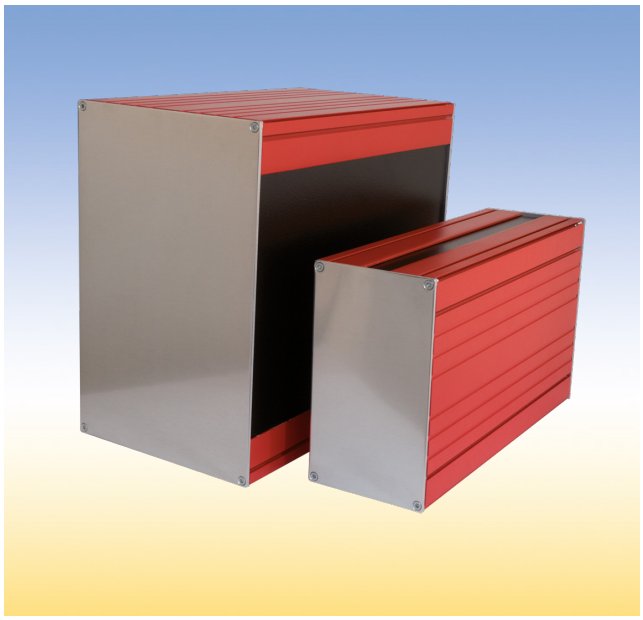
- √ Flexible design in all three axes.
- √ Quick and simple assembly due to its simple setting.
- √ Adapted for packing small electronic units like
  - euroboards in 100 x 160 (mm)
  - customer-specific requirements
  - mITX boards.
- √ Protection classes up to IP 40.
- √ EMC-compatible.
- √ A wide range of surfaces allows individual colour design.
- √ Additional imprints according to customers requirements are available.
- √ Expandable with adhesive mounting feet.

Order details *InterShell* housing

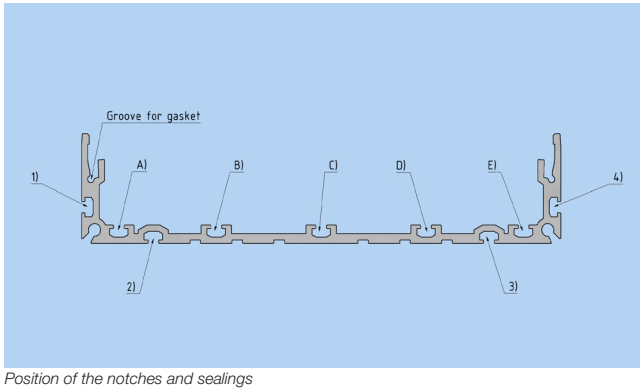
Usage	height [mm]	width [mm]	depth [mm]	order no. **409**
Euroboard 100 x 160 [mm]	40	106,6	168,2	**138020**
Universal	60	150	170	**138021**
mITX board, fastening points included	50	190	190	**138022**

Accessories	order no. **409**
housing foot 12,7 x 12,7 x 3,1[mm] PU, black	**137981**
housing foot 12,7 x 12,7 x 5,8[mm] PU, black	**137982**

Housing *InterShell IP*



Painting examples of the InterShell IP



Position of the notches and sealings

Delivery :
The housings are delivered unassembled as kits. They are packed - depending on quantity - either as kits or same parts packed together.

Upon request, the housings can also be delivered completely assembled and wired according to your requirements.

Description

The *InterShell IP* - perfect heavy duty housing.
For euroboard cards and customised electronic applications.
Due to its robustness and tightness up to IP65 it is particularly suitable for mobile applications in the outdoor area as well as desk housing for
for measuring and test equipment. It is also possible to use the interior for subrack 3HE 42TE.

The small housing *InterShell IP* stands out due to its particular constructive features:

√ The notches outside of the profile can be used for threaded strips (pos. 1-4) or for fittings like clip-angle or stock mounting.

√ The notches internal the profile (5x, pos. A-E) are used for threaded strips and for additional parts like card guides.

√ Alternative surface treatments, e.g. colorless passivation or varnishing of all visible surfaces are possible.

√ Front panel and rear panel are made of 3mm metal sheed. On request, cut-outs for connectors as well as individual printing are possible.

√ Sidewall, front and back panel are made of bright sea water resistant aluminum. Surface treatments are also possible.

√ Front and rear panel are each fitted with 4 countersunk screws.

√ A sealing (ø2mm) can be inserted between the profile and the plugged-in side panel to protect against extraneous particles and splashed water.

√ The use of high-quality silicone sealings provides an optimal protection against foreign particles and moisture.

√ Optionally, two conductive variants of sealings are available in order to obtain an optimal EMC-shielding

- Silicone filled with particles of nickel-plated graphite
- Fluorosilicone filled with conductive particles of silver-plated aluminum

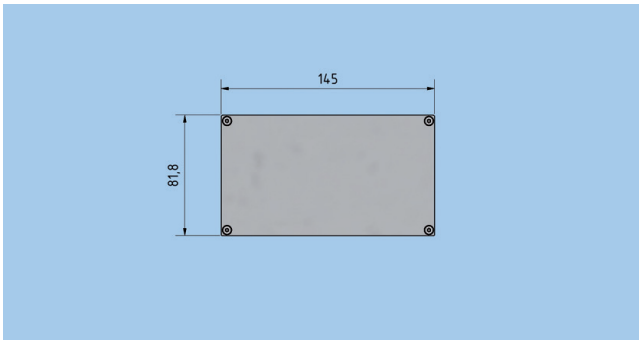
√ Feet-kit is available as an option and can be ordered separately.

Housing *InterShell IP*

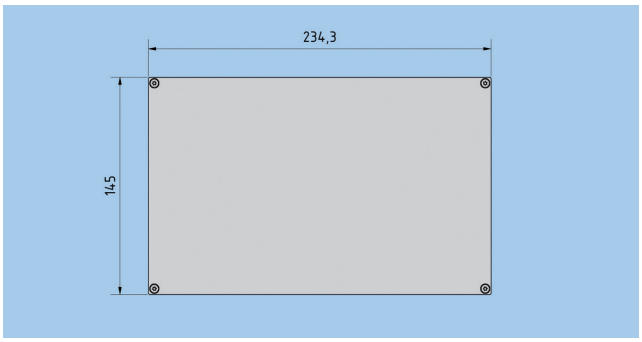
Technical Data

Dimensions	Small housing W 145 mm, H 81,8 mm basic Small housing for subrack 3 U-42 HP, W 234,3 mm, H 145 mm
Usable depth	150, 200, 250 mm (inner dimensions)
Materials	Screws: stainless steel, Assembled and threaded strips: steel or stainless steel profile and side panel: aluminium
Surface	Aluminium parts: blank or colorless passivated Steel parts: galvanized and colourless passivated
Protection class	IP 65 with sealing, otherwise IP43
Temprature range	-35 °C to +80 °C with sealing, otherwise -55 °C to +160 °C
Protective earthing	After assembly all metal parts have an electrically conductive interconnection acc. to VDE 100/12.65, § 6 Nb.

Dimension



Housing InterShell IP basic



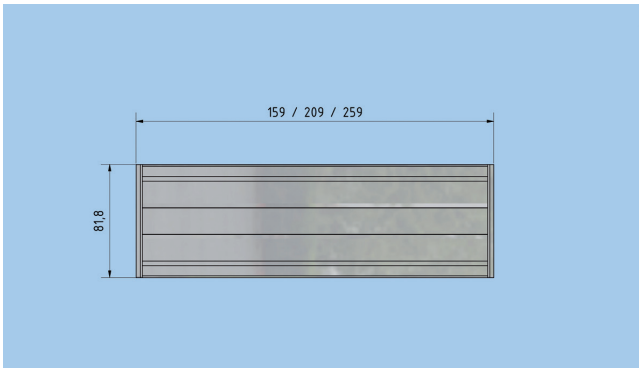
Housing InterShell IP for subrack 3 U 42 HP

Version 1
Housing *InterShell IP* basic

Dimension front panel/rear panel
Width 145 mm
Height 81,8 mm

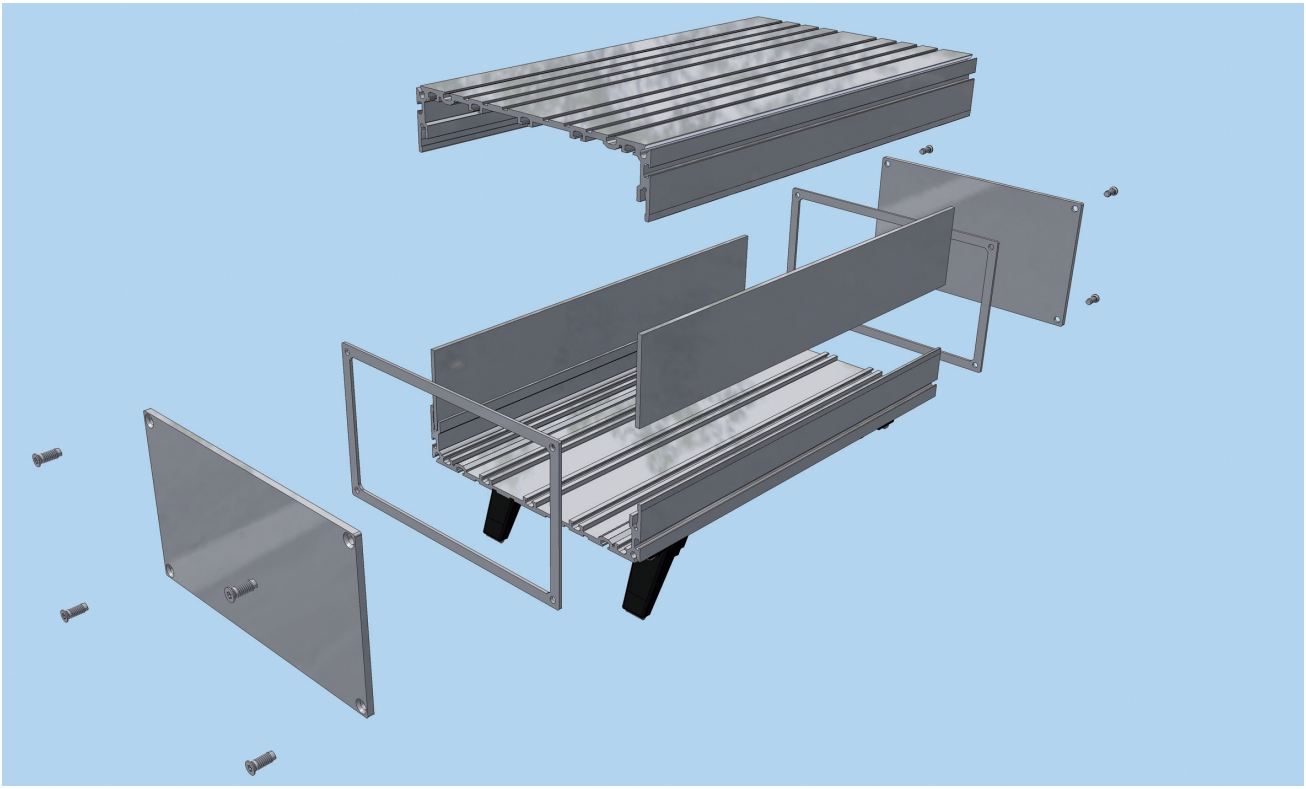
Version 2
Housing *InterShell IP* for subrack 3 U-42 HP

Dimension front panel/rear panel
Width 234,3 mm
Height 145 mm



Housing InterShell IP basic

Housing *InterShell IP*



Version 1
Small housing *InterShell IP* basic

Ordering details

	Order-no. **409**
Depth dimensions 250 mm	**180910**
Depth dimensions 200 mm	**180965**
Depth dimensions 150 mm	**180967**

Scope of delivery

	pieces per kit 250 mm	pieces per kit 200 mm	pieces per kit 150 mm
Half-shell l = 250 mm	2	-	-
Half-shell l = 200 mm	-	2	-
Half-shell l = 150 mm	-	-	2
Countersunk screw M 4 x 10	8	8	8
Cellular rubber Ø 2 mm	1 m	0,8 m	0,6 m
Side panel l = 250 mm	2	-	-
Side panel l = 200 mm	-	2	
Side panel l = 150 mm	-	-	2
Front panel / back panel	2	2	2
Sealing for housing	2	2	2

This catalog contains stock and standard parts. Other products and sizes on request.

Version 2
Housing *InterShell IP* subrack 3 HE-42 TE

Ordering details for kits

	Order-no. **409**
Depth dimensions 250 mm	**180911**
Depth dimensions 200 mm	**180966**
Depth dimensions 150 mm	**180968**

Scope of delivery

	quantity in kit 250 mm	quantity in kit 200 mm	quantity in kit 150 mm
Half-shell l = 250 mm	2	-	-
Half-shell l = 200 mm	-	2	-
Half-shell l = 150 mm	-	-	2
Countersunk screw M 4 x 10	8	8	8
Cellular rubber Ø 2 mm	1 m	0,8 m	0,6 m
Roof panel/floor panel l = 250 mm	2	-	-
Roof panel/floor panel l = 200 mm	-	2	
Roof panel/floor panel l = 150 mm	-	-	2
Front panel/back panel 3 U 19”	2	2	2
Sealing for housing 3 U 42 HP	2	2	2

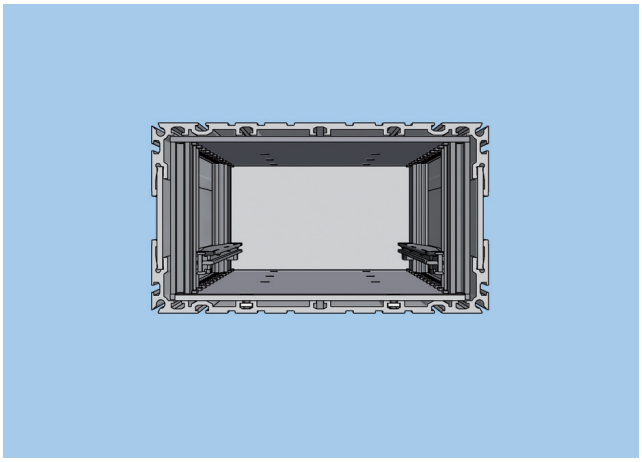
The silicon sealings are included in the basic kit.
Sealings made of conductive material must be ordered separately.

Sealings
Ordering details conductive sealing

	Fluorosilicone filled with conductive particles of silver-plated aluminum. order-no. **409**	Silicone filled with particles of nickel-plated graphite. order-no. **409**
Version 1 Housing *InterShell IP* basic	**180913***	**180914***
Version 2 Housing *InterShell IP* subrack 3 HE-42 TE	**180918***	**180919***

*Remark! Two seals are required per enclosure!

Housing *InterShell IP*
Kit to install 19 inch standard parts

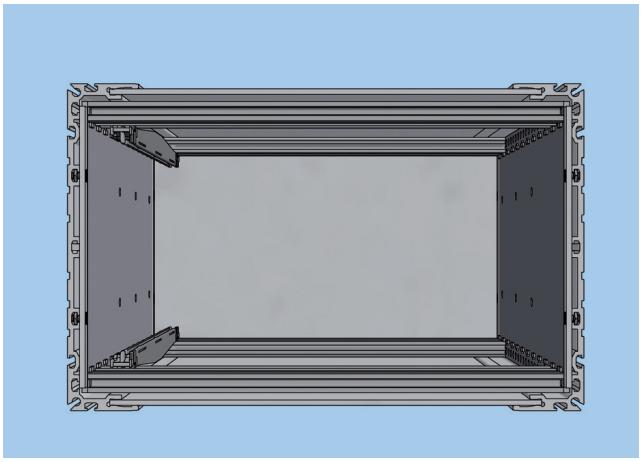


Housing InterShell IP basic

Assembly kit 19 inch standard parts
Housing *InterShell IP*

Scope of delivery

	quantity in kit
side panel 3 U - 220	2
profile rail U 2 13 HP	4
countersunk screw M 4 x 10	8
stop bar	2
threaded strip M 2,5 x 12 HP	4
countersunk screw M 2,5 x 6	4
square nuts M 2,5	4



Housing InterShell IP for subrack 3 U 42 HP

Assembly kit 19 inch standard parts
Housing *InterShell IP for* subrack 3 U-42 HP

Scope of delivery

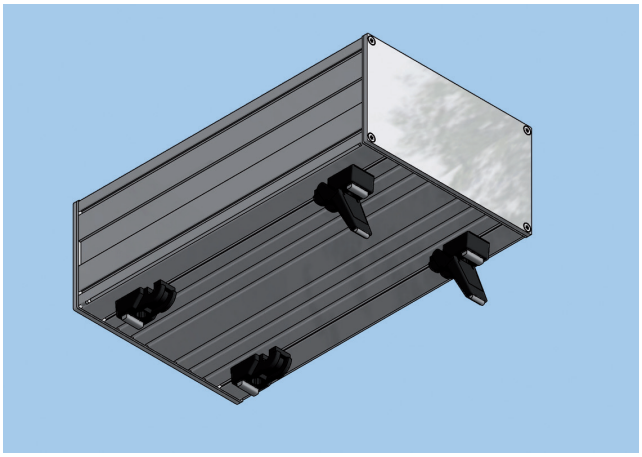
	quantity in kit
side panel 3 U - 220	2
profile rail U 2 13 HP	4
countersunk screw M 4 x 10	8
stop bar	2
threaded strip M 2,5 x 42 HP	4
countersunk screw M 2,5 x 6	4
square nuts M 2,5	4

Ordering details kits

	order-no. **409**
Assembly kit 19 inch standard parts basic *InterShell IP*	**180978**
Assembly kit 19 inch standard parts *InterShell IP for subrack* 3 U-42 HP	**180979**

Both kits are only suitable for housing depths of 250 mm.

Housing *InterShell IP*
Accessories



Housing feet

Foot kit

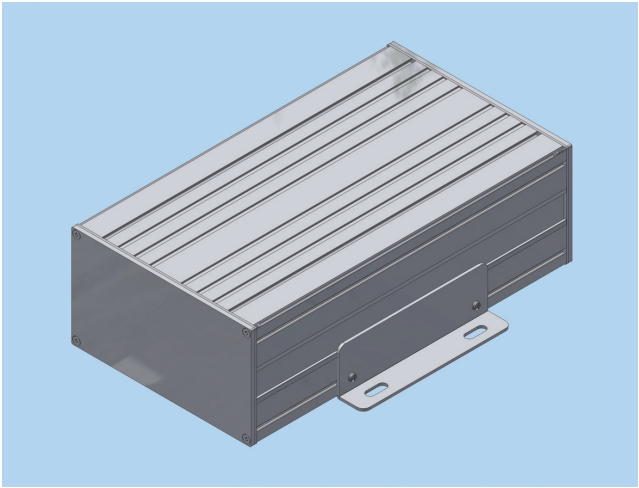
4 Feet without put-up hinge
2 put-up hinge with rubber
4 head screw M 3 x 8
4 washer A 3,2
4 square nut M 3

Material: ultramid
Color: black

Ordering details for kit

	order no. 409
Foot kit	**180982**

Alternative: a kit with 4 adhesive feet is available.



Ground mounting

Version 1: Kit for basic housing

2 mounting angle
4 head screw M 3 x 5
4 square nuts M 3

Version 2: Kit for 3U-42HP

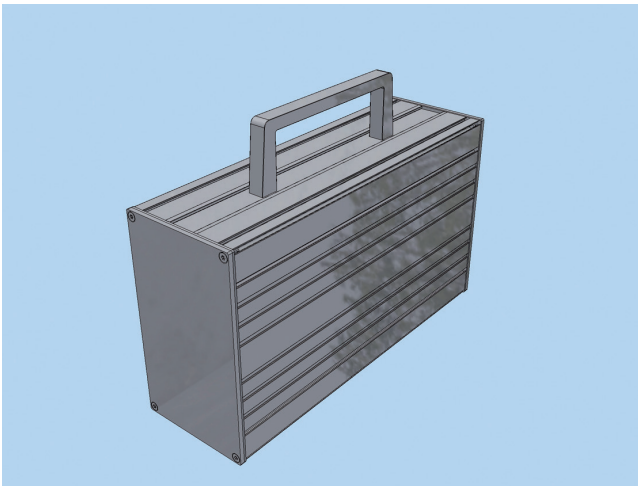
1 mounting angle right 3 U
1 mounting angle left 3 U
4 head screw M 3 x 5
4 square nut M 3

Material: aluminium
Surface: blank

Ordering details for kit

	order no. 409
ground mounting	**180969**
ground mounting 3 U 42 HP	**180970**

Both kits are suitable for housing depths of 250/200/150 mm



Handle

Scope of delivery

2 countersunk screw M 4 x 12
1 handle 3 U

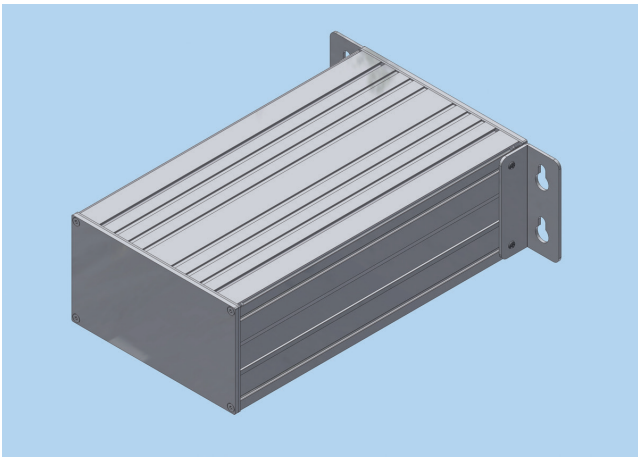
Material: aluminium
Surface: anodized

Ordering details for kit

	order-no. 409
handle kit	**180974**

Kit only for *InterShell IP* basic version available.
Other handles on request.

Housing *InterShell IP*
Accessories



Wall mounting

Version 1: Kit for basic housing

1 mounting angle right
1 mounting angle left
4 head screw M 3 x 5
4 square nut M 3

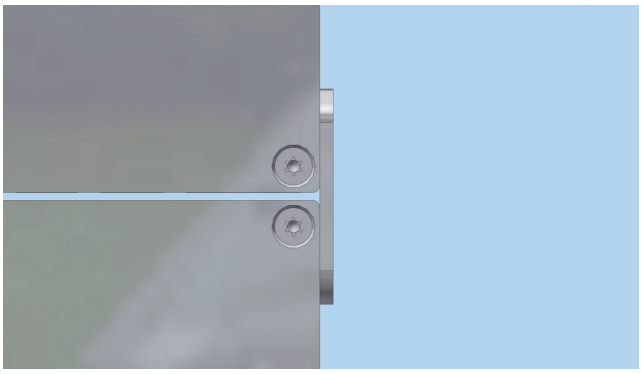
Version 2: Kit for 3 U-42 HP

1 mounting angle right 3 U
1 mounting angle left 3 U
4 head screw M 3 x 4
4 square nut M 3

Material: aluminium
Surface: blank

Ordering details for kit

	order no. 409
wall mounting kit	**180972**
wall mounting kit for 3 U 42 HP	**180973**



Angle for stacking

Stock mounting and stock mounting heavy version

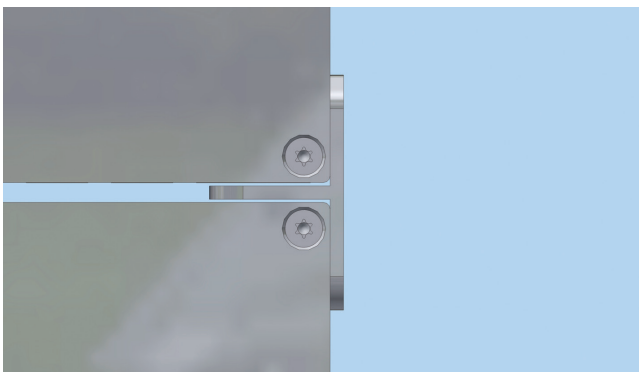
scope of delivery for kit

2 mounting plate
8 head screw M 3 x 5
8 square nut M 3

scope of delivery for kit heavy version

2 mounting plate heavy version
8 head screw M 3 x 5
8 square nut M 3

Material: aluminium
Surface: blank

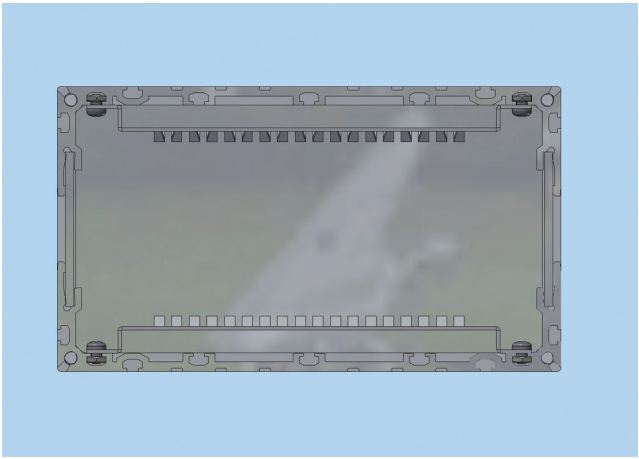


Angle for stacking - heavy version

Ordering details for kit

	order no. 409
mounting angle	**180975**
mounting angle heavy	**180976**

Both kits are suitable for housing depths of 250/200/150 mm
Both kits are only available for InterShell IP basic structure.



Card guide 2 U vertikal

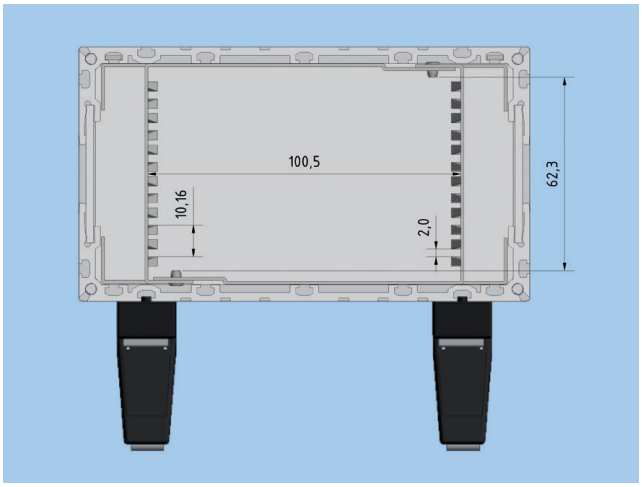
Scope of delivery - depth 250/200 mm
2 card guide vertikal 2 U für depth 250/200 mm
12 head screw M 3 x 4
12 square nut M 3

Scope of delivery - depth 150 mm
2 card guide vertikal 2 U für depth 150 mm
12 head screw M 3 x 4
12 square nut M 3

Material: steel
Surface : galvanised

Ordering details for kit

	order no. 409
Kit card guide 2 U 250/200 mm	**180971**
Kit card guide 2 U 150 mm	**180981**



card cage (horizontal framing for circuit boards as Euro-card format)

Scope of delivery horizontal
1 card cage komplett
6 head screw M 2,5 x 4
2 threaded strip M 2,5 x 39 TE anreihbar

Material: steel
Surface : galvanized

Ordering details for kit

	order no. 409
Kit card cage	**180977**

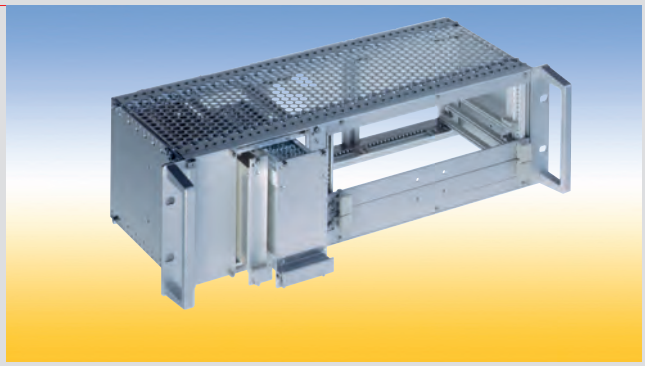
Kit only suitable for housing depths of 250 mm.
Kit only available for *InterShell IP* basic construction.

Technical changes and errors reserved.

Intermas Subracks

Subrack *FLEXIBLE*

- √ Simple and fast assembly
- √ All-purpose
- √ RFI shielding can be added later



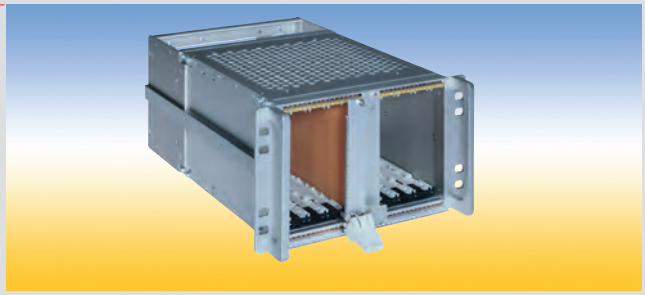
Subrack *RFI-SHIELDED*

- √ High shielding effectiveness
- √ Individual internal layout
- √ Complies with the latest IEEE standards
- √ For VME / VME64x



Subrack *InterRail*®

- √ For tough physical demands
- √ Vibration-proof
- √ For use e.g. in railway engineering, traffic engineering, power station engineering



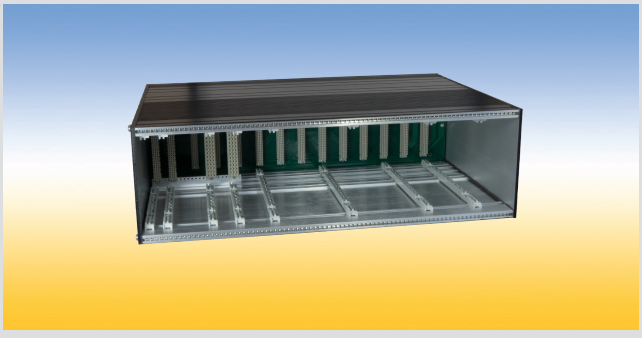
System-Modules CompactPCI

- √ Integrated bus board
- √ Integrated power supply unit
- √ Wired and tested
- √ Optionally with active cooling

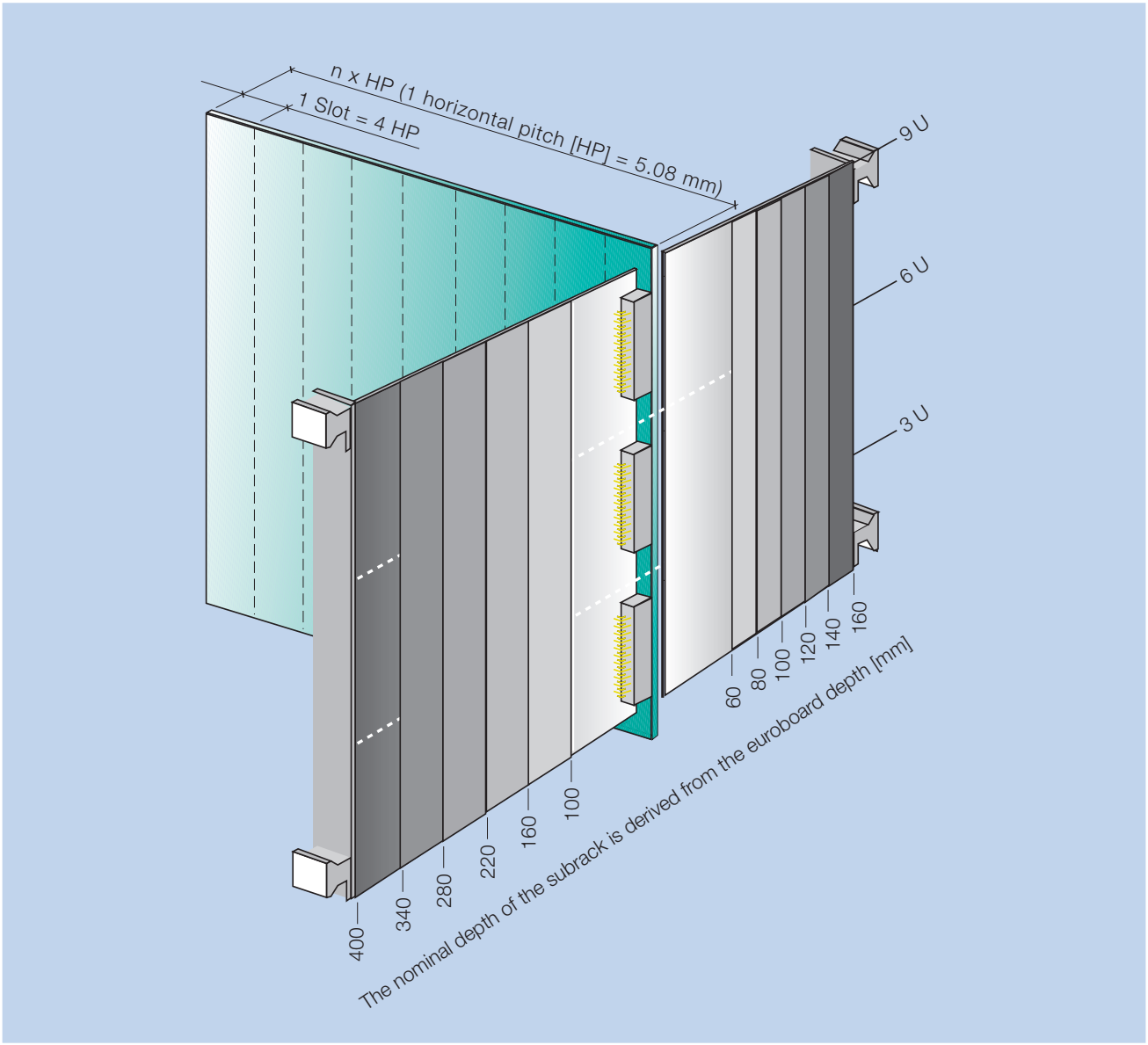


Subrack *InterProtect*®

- √ Shock and vibration resistant
- √ Water and dustproof
- √ Optimal HF-tightness



Systematics of the Intermas Subracks



Systematics

The illustration shows the systematics of the height, depth and width pitches of the Intermas-subracks.

The height of the subracks are in Units [U].
1 U is aquivalent to 44.45 mm.

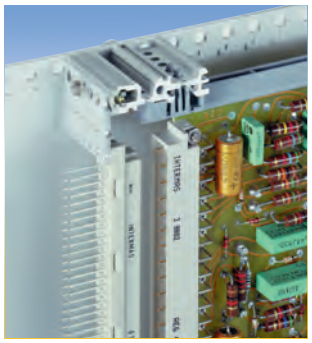
The nominal depth of the subracks is derived from the euroboard depth. Front inserted PCB's are generally specified in 60 mm-steps and for rear stucked PCB's in 20 mm-steps.
For Intermas subracks depths in 10 mm-steps can be realized.

The width pitch is stated in horizontal pitches [HP].
1 HP is aquivalent to 5.08 mm.

Busboards are specified in slots.
1 Slot is aquivalent to 4 HP = 20.32 mm.

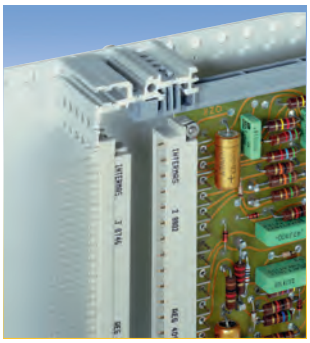
Structual Shapes of Subracks

There are three structural shapes, different in the wiring field.



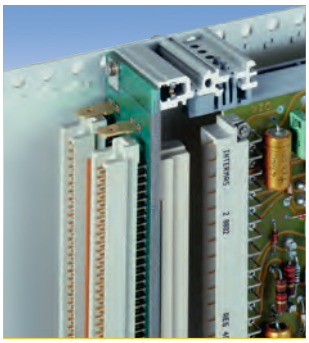
1. Type *alpha*

The rear profiles are suitable for mounting any appropriate wiring carrier, e. g. bus and connector securing devices, used with insulation strips or Z-rails for mounting connectors according to DIN 41 612.



2. Type *beta*

The rear profiles with integral Z-rail are suitable for the direct mounting of connectors to DIN 41 612.

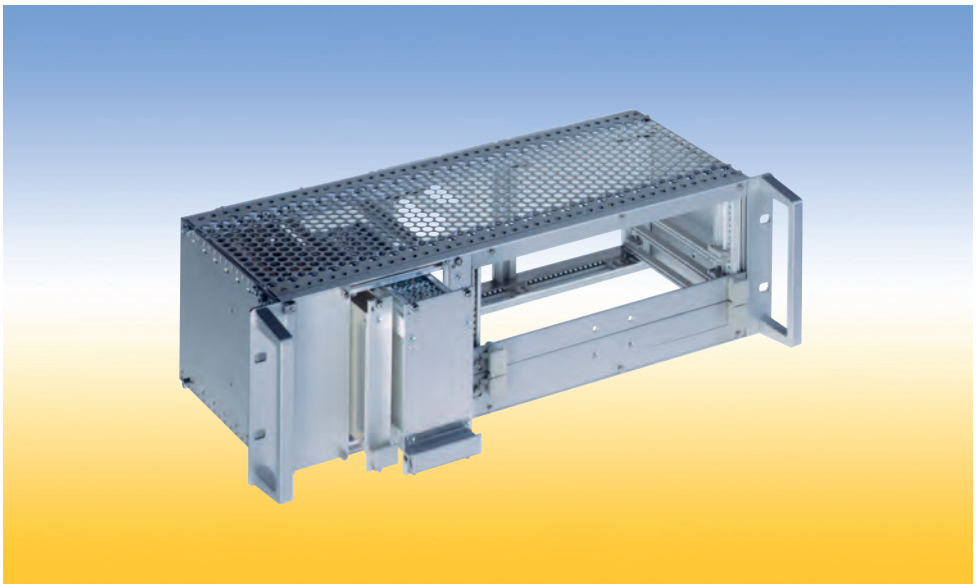


3. Type *delta*

The rear profiles are 2.6 mm deeper than in the type alpha, permitting direct mounting of multilayer backplanes and/or connector securing devices for mounting of DIN-connectors.

Please ask your local representative for your
individual system configuration.
You find your contact person on our homepage:
www.intermas-el.com

Subrack *FLEXIBLE*



Description
The special design features of the subrack *FLEXIBLE*:

√ For mounting of the profile rails the side wall is perforated with a grid of 10 mm to allow installation of modules in depth steps of 10 mm. This results in a flexible amount of free space behind the wiring level or in front of the operating level.

√ The profile rails are connected to the side wall at the front using a special screw which ensures electrical bonding of the parts via a ring cutter under the head.

√ The front and rear profile rails can be interchanged such that the wiring level which is normally at the rear can be implemented at the front of the subrack.

√ The extensive range of accessories allows individual configuration.

√ Fast and simple assembly:
Easy positioning of the profile rails thanks to raised embossing on the side wall.

√ There are 2 versions of this subrack:

1. The *FLEXIBLE Fi* subrack (with an integrated flange)
The combination of the side wall and mounting flange form a single unit. This is the simple and cost-effective version. This standard version can not be shielded.

2. The *FLEXIBLE Fs* subrack (with a separate flange)
The side wall and flange are separate components, so the flange can be screwed to the side panel at the front or the rear.

Advantages:

- Even if the flange is detached and repositioned from the front to the rear the subrack remains a physical unit and is thus also suitable for direct wall mounting.
- This version can be converted to an RFI-shielded subrack with little effort.

Mixed forms
For vertical mounting PCB's of varying heights, divider kits are available.

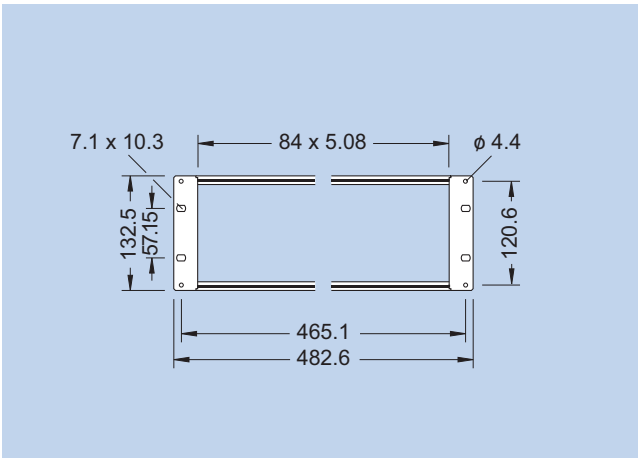
Delivery
Supplied as unassembled kits.
These are either packed as a kit of parts for one unit or as individual components, whereby parts of similar type are packed together.

On request, delivered as assembled and wired subrack according your requirements.

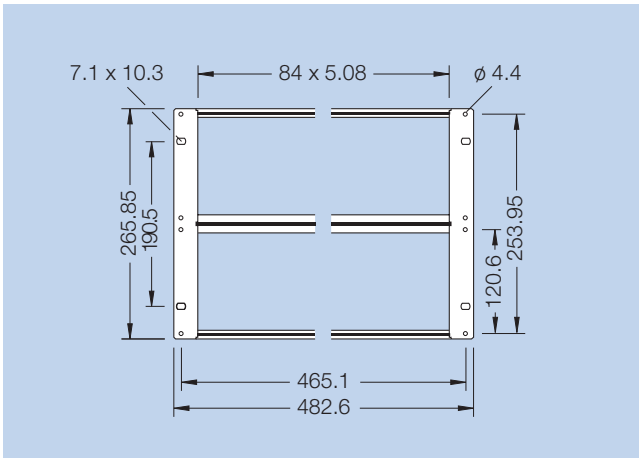
Technical data

Standards	compliant with DIN 41 494 / IEC 60297
width / horizontal pitch	84 usable HP / 5.08 mm
Depth of the inserted board	160, 220, 280 mm (nom. depth)
Depth increment-side panel	10 mm
Connector mounting	M 2.5 in increments of 5.08 mm for DIN 41612, VG 95324 and EC 60603-2 connectors
Materials	screws: steel other parts: aluminum
Finish	screws: galvanized and passivated colorless subrack Fi: anodized; cut areas: blank subrack Fs: passivated
Protection class	DIN 40050 IP 00, IP 20 with cover panels contact protection in accordance with VDE 0160
Utilization category	-25 °C, +70 °C, 75% relative humidity
Protective grounding	all metal parts are electrically bonded to one another following assembly in accordance with VDE 100 D 12.65, § 6 Nb.

Dimensions

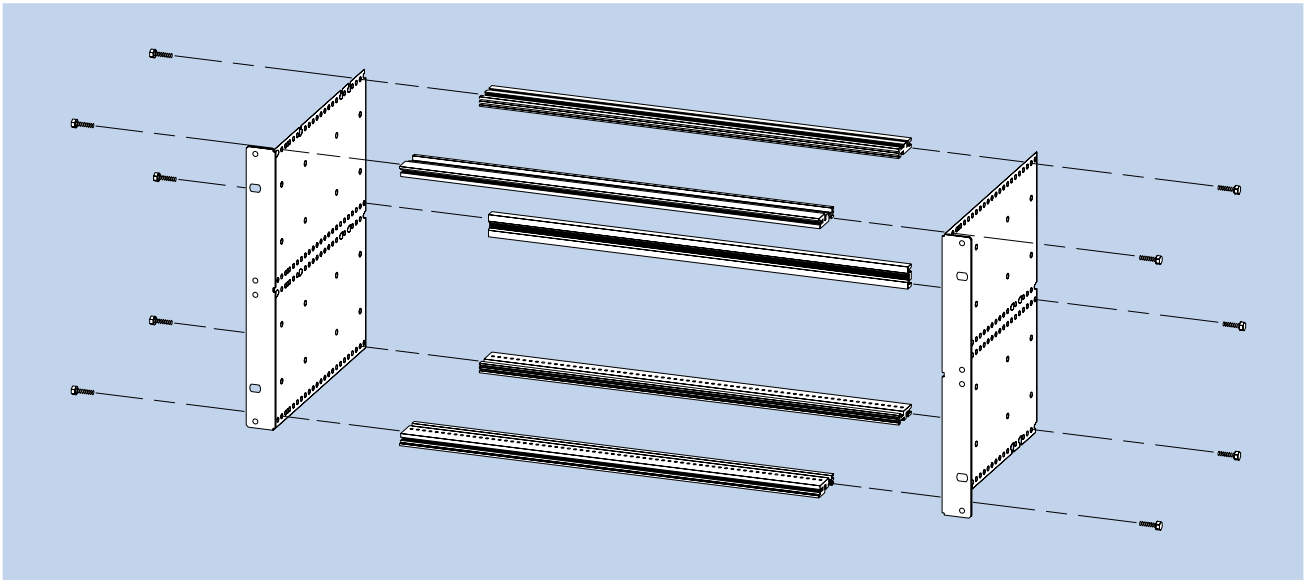


Front of subrack 3 U

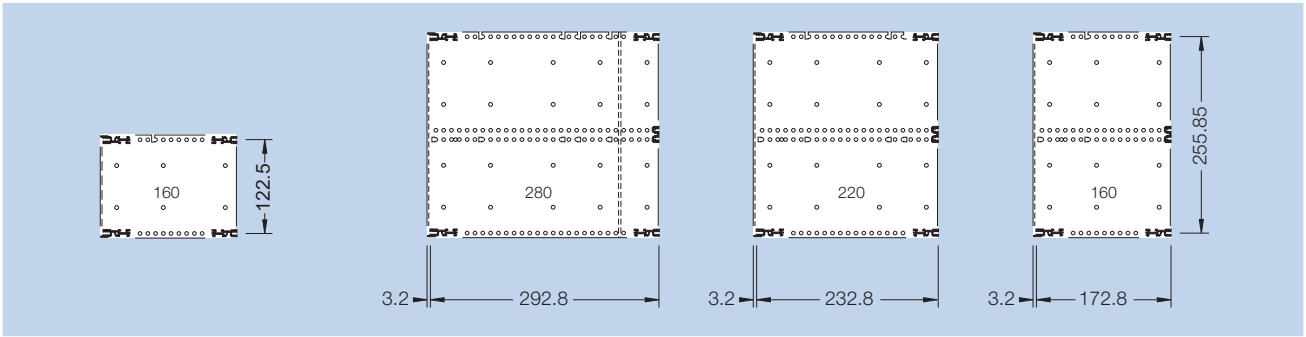


Front of subrack 6 U

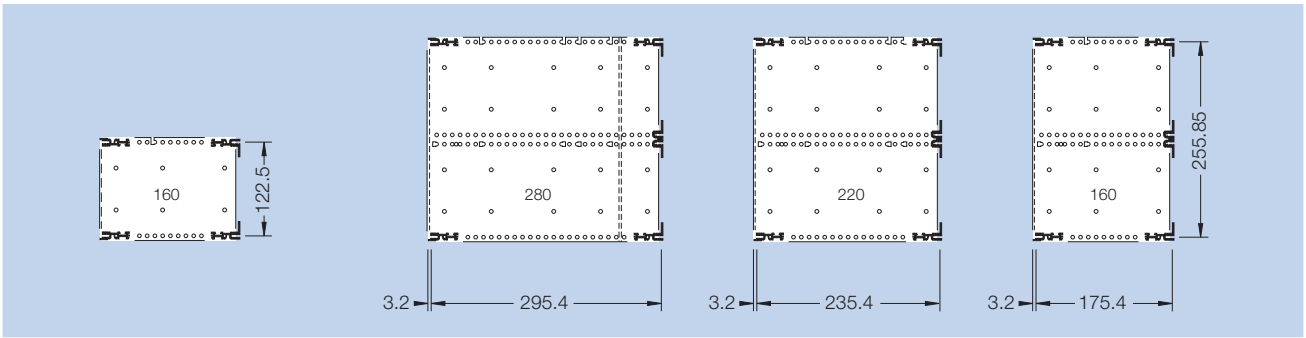
Subrack *FLEXIBLE Fi*



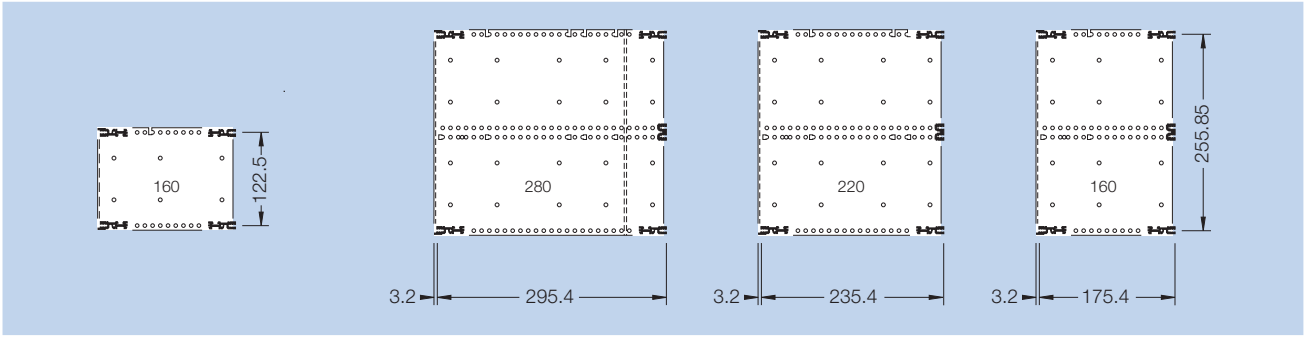
Subrack FLEXIBLE Fi



Depth dimensions type alpha 3 U and 6 U



Depth dimensions type beta 3 U and 6 U



Depth dimensions type delta 3 U and 6 U

This catalog contains stock and standard parts. Other products and sizes on request.

Ordering details for kits

	nom. depth [mm]	type *alpha* order no. **409**	type *beta* order no. **409**	type *delta* order no. **409**
3 U - subrack				
FLEXIBLE Fi - 84-3-160	160	**087340**	**087440**	**087388**
FLEXIBLE Fi - 84-3-220	220	**087341**	**087441**	**087389**
FLEXIBLE Fi - 84-3-280	280	**087342**	**087442**	**087390**
6 U - subrack				
FLEXIBLE Fi - 84-6-160	160	**087364**	**087446**	**087462**
FLEXIBLE Fi - 84-6-220	220	**087365**	**087447**	**087463**
FLEXIBLE Fi - 84-6-280	280	**087366**	**087448**	**087464**

Delivery

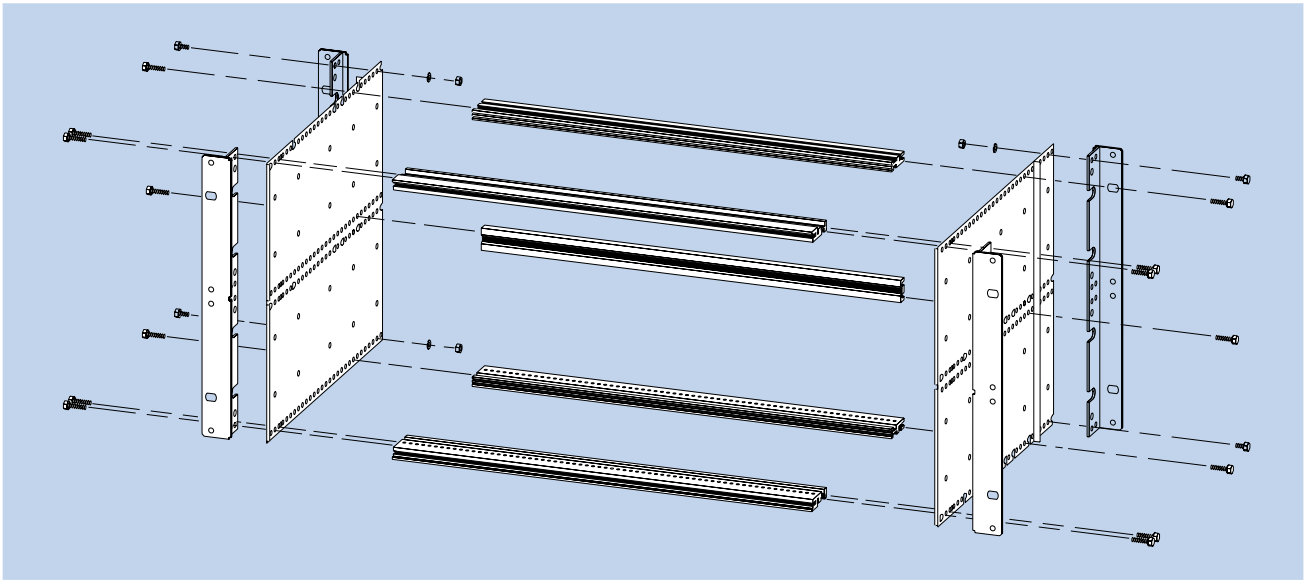
	pieces per kit *alpha* 3 HE	pieces per kit *alpha* 6 HE	pieces per kit *beta* 3 HE	pieces per kit *beta* 6 HE	pieces per kit *delta* 3 HE	pieces per kit *delta* 6 HE
Side panel Fi, anodized	2	2	2	2	2	2
Front pr	2	2	2	2	2	2
Rear pr	2	2	-	-	-	-
Rear pr	-	-	2	2	-	-
Rear pr	-	-	-	-	2	2
Center pr	-	1	-	-	-	-
Center pr	-	-	-	1	-	-
Center pr	-	-	-	-	-	1
Mounting parts kit	1	1	1	1	1	1
Threaded strip	2	2	2	2	2	2

Accessories

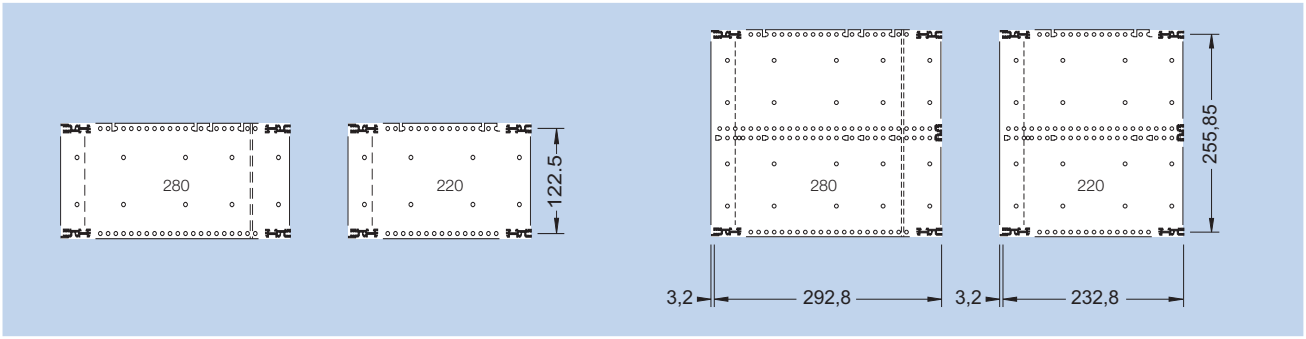
	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**
Kits with 2 cover plate ø 8.5 mm and mounting parts	
Cover plates kit slide-in 160	**162700**
Cover plates kit slide-in 220	**162701**
Cover plates kit screw-on 160	**162703**
Cover plates kit screw-on 220	**162704**
Cover plates kit screw-on 280	**162705**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

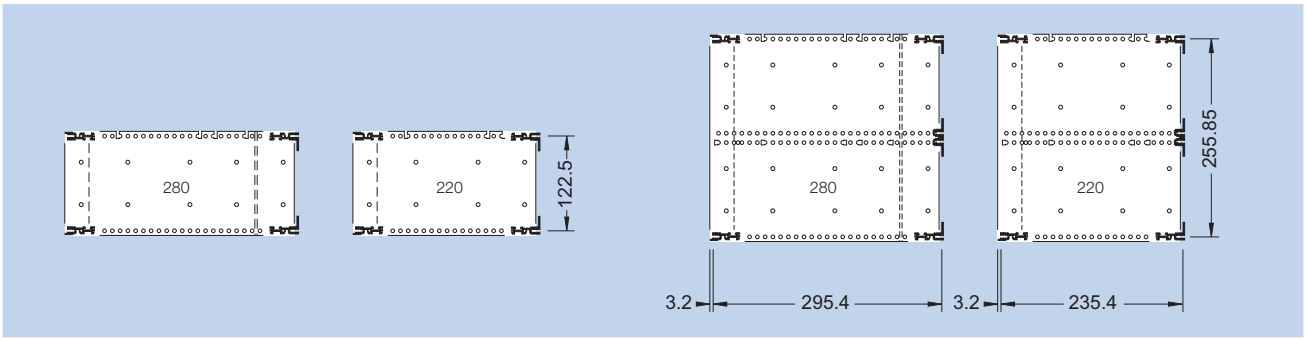
Subrack *FLEXIBLE Fs*



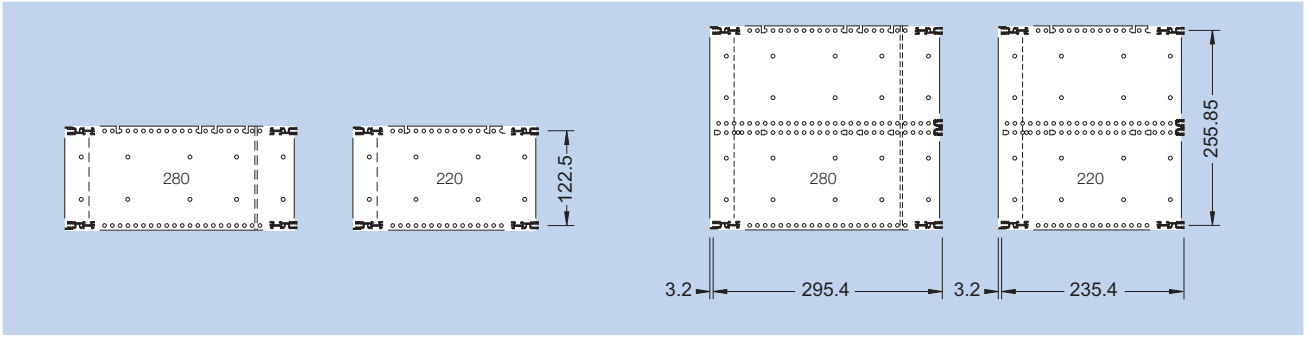
Subrack FLEXIBLE Fs



Depth dimensions Fs type alpha 3 U and 6 U



Depth dimensions Fs type beta 3 U and 6 U



Depth dimensions Fs type delta 3 U and 6 U

Ordering details for kits

	nom. depth [mm]	type *alpha* order no. **409**	type *beta* order no. **409**	type *delta* order no. **409**
3 U - subrack				
FLEXIBLE Fs - 84-3-220	220	**094700**	**094704**	**094708**
FLEXIBLE Fs - 84-3-280	280	**094701**	**094705**	**094709**
6 U - subrack				
FLEXIBLE Fs - 84-6-220	220	**094702**	**094706**	**094710**
FLEXIBLE Fs - 84-6-280	280	**094703**	**094707**	**094711**

Delivery

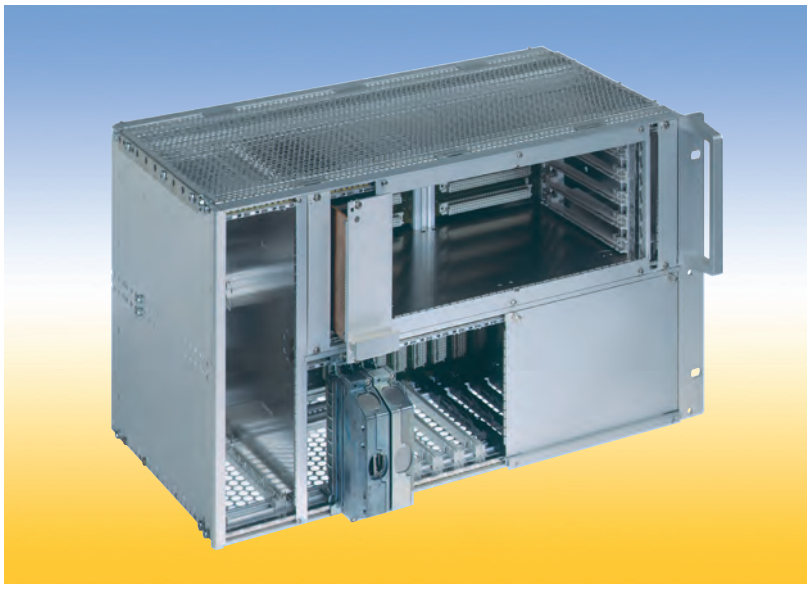
	pieces per kit *alpha* 3 U	pieces per kit *alpha* 6 U	pieces per kit *beta* 3 U	pieces per kit *beta* 6 U	pieces per kit *delta* 3 U	pieces per kit *delta* 6 U
Side panel Fs, passivated	2	2	2	2	2	2
Flange separated, anodized	2	2	2	2	2	2
Front pr	2	2	2	2	2	2
Rear pr	2	2	-	-	-	-
Rear pr	-	-	2	2	-	-
Rear pr	-	-	-	-	2	2
Center pr	-	1	-	-	-	-
Center pr	-	-	-	1	-	-
Center pr	-	-	-	-	-	1
Mounting parts kit	1	1	1	1	1	1
Threaded strip	2	2	2	2	2	2

Accessories

	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**
Kits with 2 cover plates ø 8.5 mm and mounting parts	
Cover plates kit screw-on 220	**162704**
Cover plates kit screw-on 280	**162705**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

Subrack *RFI-SHIELDED*



Description
The system dimensions of the *RFI-SHIELDED* subrack are based on those of the *FLEXIBLE* subrack as a logical further development to produce the perfectly shielded subrack. This allows unrestricted use of the extensive and complete range of accessories.

The special design features of the *RFI-SHIELDED* subrack:

√ The refined RFI shielding concept enables high shielding effectiveness.

√ The stable stainless steel contact springs ensure permanent and reliable bonding, even after a large number of plug-in cycles.

√ The perforated RFI cover plates guarantee optimal air flow for improved heat dissipation.

√ The use of high-quality, seawater-resistant aluminum alloys and stainless steel materials removes, for the most part, the need for unnecessary, environmentally harmful surface treatment.

√ There are three versions of this subrack:

1. Subrack RFI-SHIELDED
The standard RFI-shielded version.

2. Subrack *RFI-SHIELDED IEEE*
The front is in accordance with IEEE 1101.10.
The special profile rail is designed for the use of insertion and removal handles (optionally with a hot-swap function) for overcoming high insertion and removal resistance.
The card guides are fitted with mechanical coding systems and special bonding for electrostatic discharge.

3. Subrack *RFI-SHIELDED IEEE / Rear I/O*
The front and the rear are in accordance with IEEE 1101.10/11. This enables insertion and removal of modules with a front panel from both the front and the rear of the subrack.

Mixed forms
For vertical mounting PCB's of varying heights, divider kits are available.

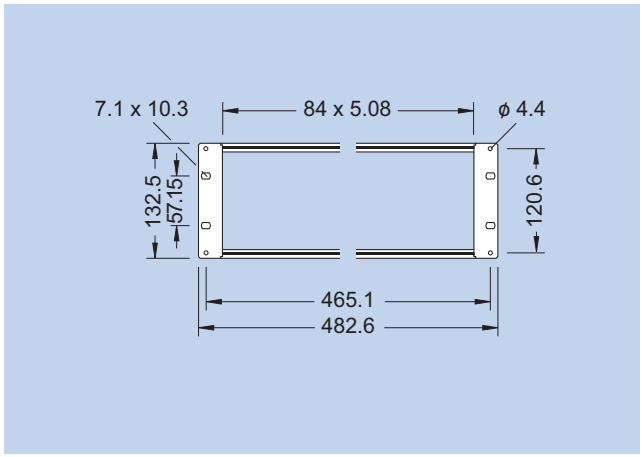
Delivery
Supplied as unassembled kits.
These are either packed as a kit of parts for one unit or as individual components, whereby parts of similar type are packed together.

On request, delivered as assambled and wired subrack according your requirements.

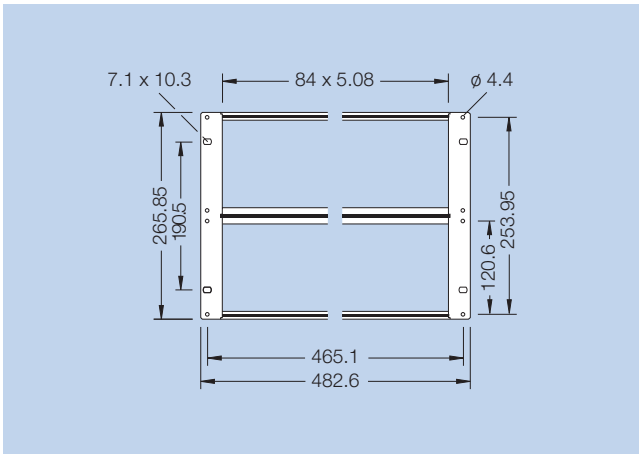
Technical data

Standards	compliant with DIN 41 494 D IEC 60 297-3, IEEE 1101.10
Width / horizontal pitch	84 usable HP / 5.08 mm
Depth of the inserted board	160, 220, 280 mm (nom. depth), 80 mm at the rear
Depth increment-side panel	10 mm
Connector mounting	M 2.5 in increments of 5.08 mm for DIN 41 612, VG 95 324 and EC 60 603-2 connectors
Materials	screws: steel contact springs: stainless steel other parts: aluminum
Finish	screws: galvanized und passivated side panels and cover plates: blank (seawater-resistant) other parts: passivated
Protection class	DIN 40 050 IP 00, IP 20 with cover panels contact protection in accordance with VDE 0160
Utilization category	-25 °C, +70 °C, 75% relative humidity
Protective grounding	all metal parts are electrically bonded to one another following assembly in accordance with VDE 100 D 12.65, § 6 Nb.

Dimensions

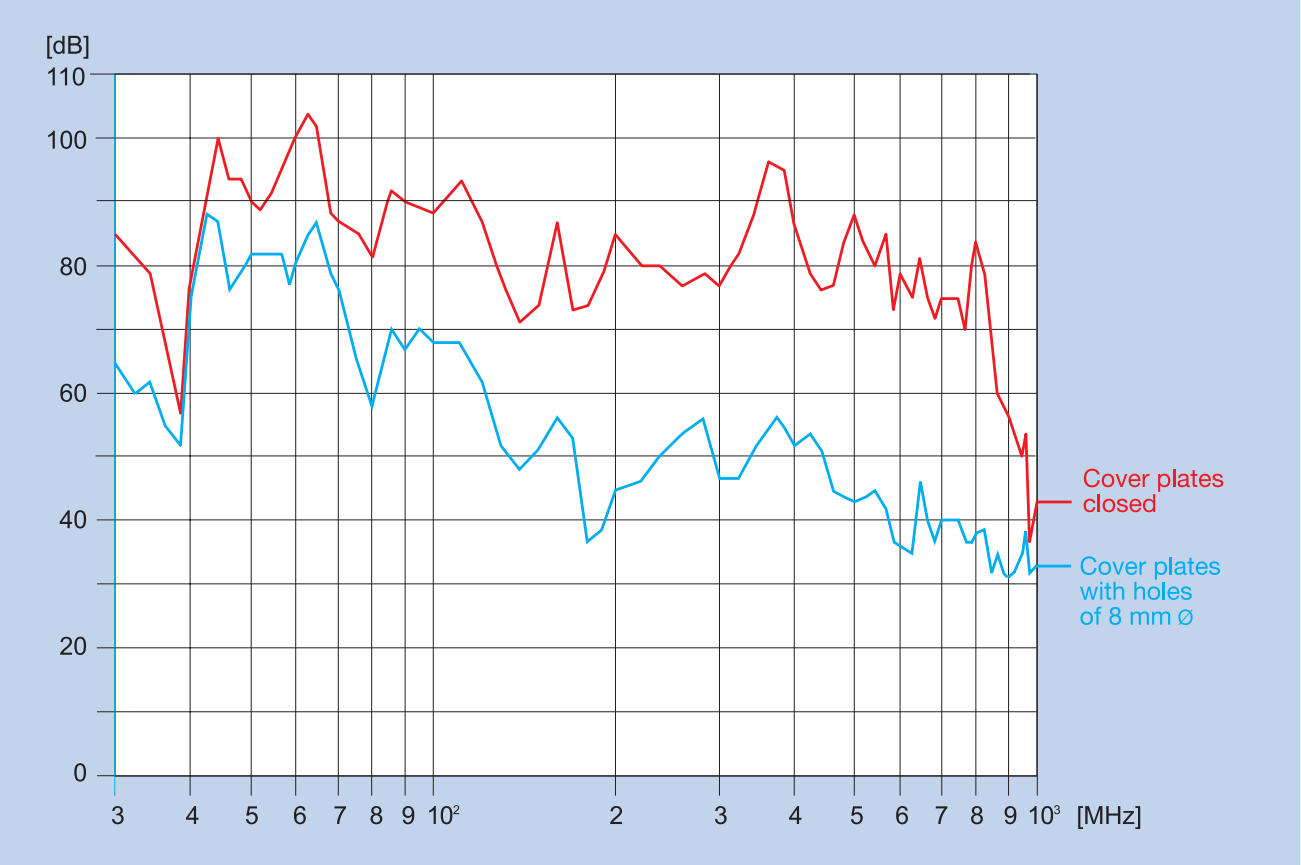


Front of subrack 3 U



Front of subrack 6 U

Measurement Configuration, Tests, Measurement Results



Shielding efficiency as function of grade of perforation of the covers

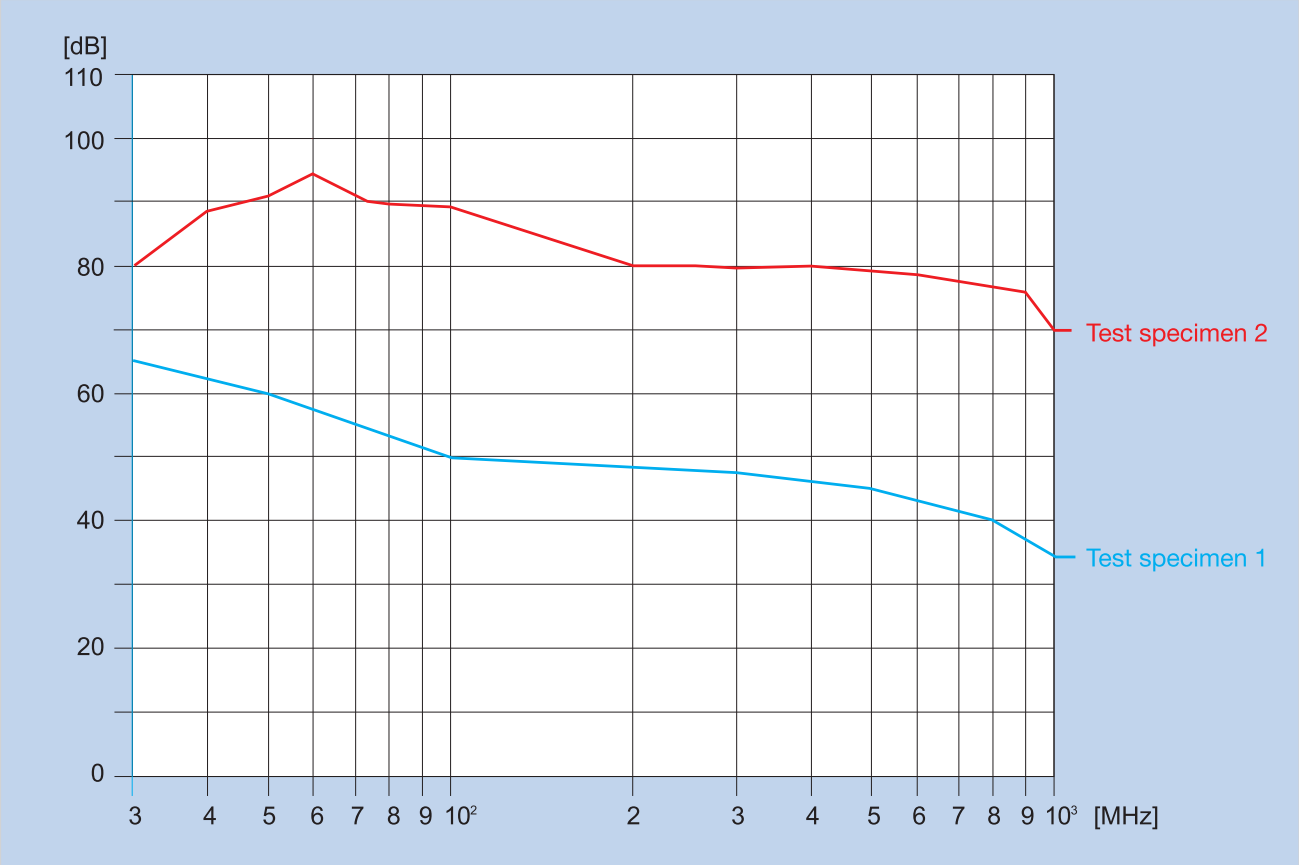
1. Measurement configuration
The measurement configuration fundamentally complies with the requirements of VG 95 373, Part 15, measurement method KS 04 G.
The subrack stood in the middle of a shielded anechoic chamber. The receiver antenna was in the center of the subrack and the transmitter antenna was mounted at a distance of 1 m from it.
The subrack was positioned such that the perforated cover panel faced the transmitter antenna.
The measurement receiver was located inside the measurement chamber, approximately 2 m from the test object; the measurement transmitter and amplifier were outside the chamber.

2. Tests
All measurements were performed at a constant transmitter output of -5dBm at 50V. The series of measurement was performed with a free-standing receiver antenna. The next measurements were then performed with the receiver antenna inside the subrack. The shielding effectiveness SE [dB] is the difference between the measurement levels obtained. Two subrack types were tested, one with a perforated cover panel and one with a solid cover panel. Perforation diameters of 3-8 mm essentially lead to the same result: The two related measurement curves can be seen in the diagram above.

Frequenzy steps

Frequenzy range [MHz]	Measurement step [MHz]
30 - 70	2
70 - 100	5
100 - 200	10
200 - 1000	20

3. Measurement results, summary
Compared to the subrack with a perforated cover panel the subrack with a solid cover panel exhibits a significantly higher level of shielding effectiveness, on average 20 dB higher in the lower frequency range (30 - 180 MHz) and on average 40 dB higher in the upper range (180 MHz - 1 GHz).
Above approximately 800 MHz the shielding effectiveness is determined by the distances between the contact points between the subrack and the front panels.
For subracks in accordance with IEEE P 1101.10 this boundary frequency lies at 1.2 to 1.5 GHz depending on the subrack design.



Shielding effectiveness

Shielding effectiveness
The shielding effectiveness of the empty subrack was determined in accordance with VG 95 373, Part 15.

Testing organisation
The measurements were performed in the Siemens Institute for Quality Engineering, Testing and Certification in Munich, Germany.

Test object
Two subracks with a height of 6 U, a width of 84 HP and a depth of 320 mm were tested:

Test specimen 1
Subrack 1 was closed at the top and bottom with perforated cover panels (Ø 4/5 x 4 mm), at the rear with an 85 HP front panel and at the front with twenty-one 4 HP profile front panels.
The elements were bonded to each other via stainless steel RFI gaskets.

Test specimen 2
Subrack 2 was closed at the top and bottom with solid cover panels and at the front and the rear with an 85 HP front panel. The elements were bonded to each other via stainless steel RFI gaskets.

Advice on use
To achieve optimal shielding the subrack must be closed at all sides using RFI gaskets, i.e. it must be fitted at the front and the rear with front panels or sub-assemblies.

Implementation of the Shielding

The RFI-SHIELDED subrack is fitted with stainless steel springs on all sides for defined bonding of all individual elements to each other. The only exceptions are the transitions of the cover plates to the side panel. In this case the bonding is performed using multiple screw connections at short distances from one another. The use of RFI front panels with bonding points at the side and bonding areas in the case of the extruded profile front panel results in a shielded subrack with shielding effectiveness levels as shown in the diagram below.

The details of the technical implementation using stainless steel springs:

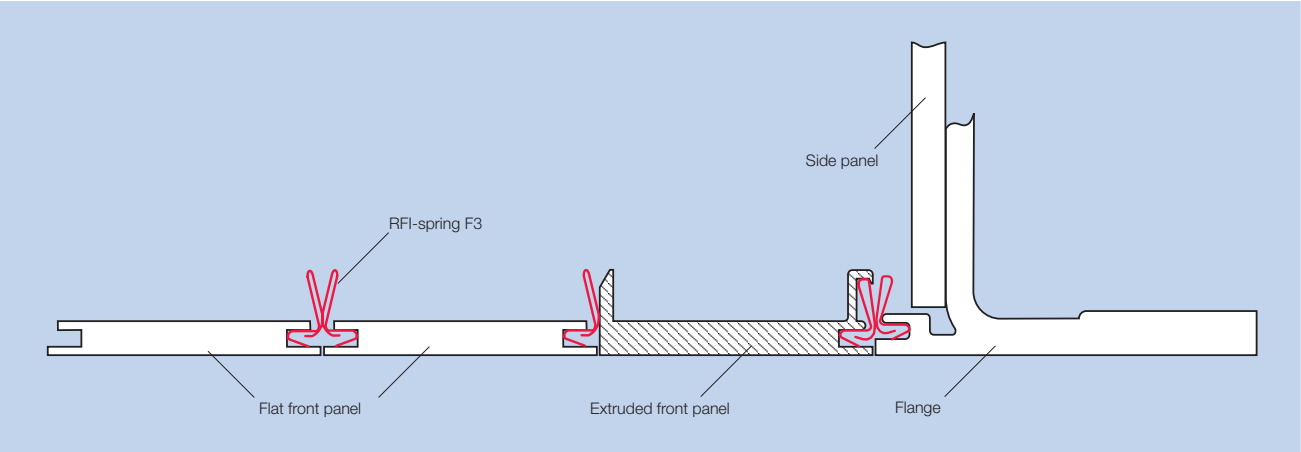
1. Bonding of the cover panel to the profile channel. via the RFI spring A2 which is inserted into the groove of the profile.

2. The RFI spring P2 is snapped onto the profile channel at both the front and the rear and at its front face creates the bonding to the front panels and the rear wall.

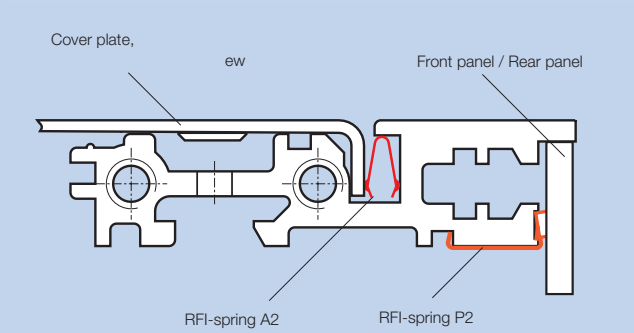
3. The RFI spring F3 is used in the subrack flange. This spring is also used at the sides of the RFI front panels and creates the bonding between the front panels and between the front panel and the flange or side panel.

4. The cover panel is screwed directly to the side panel; springs are thus not necessary here.

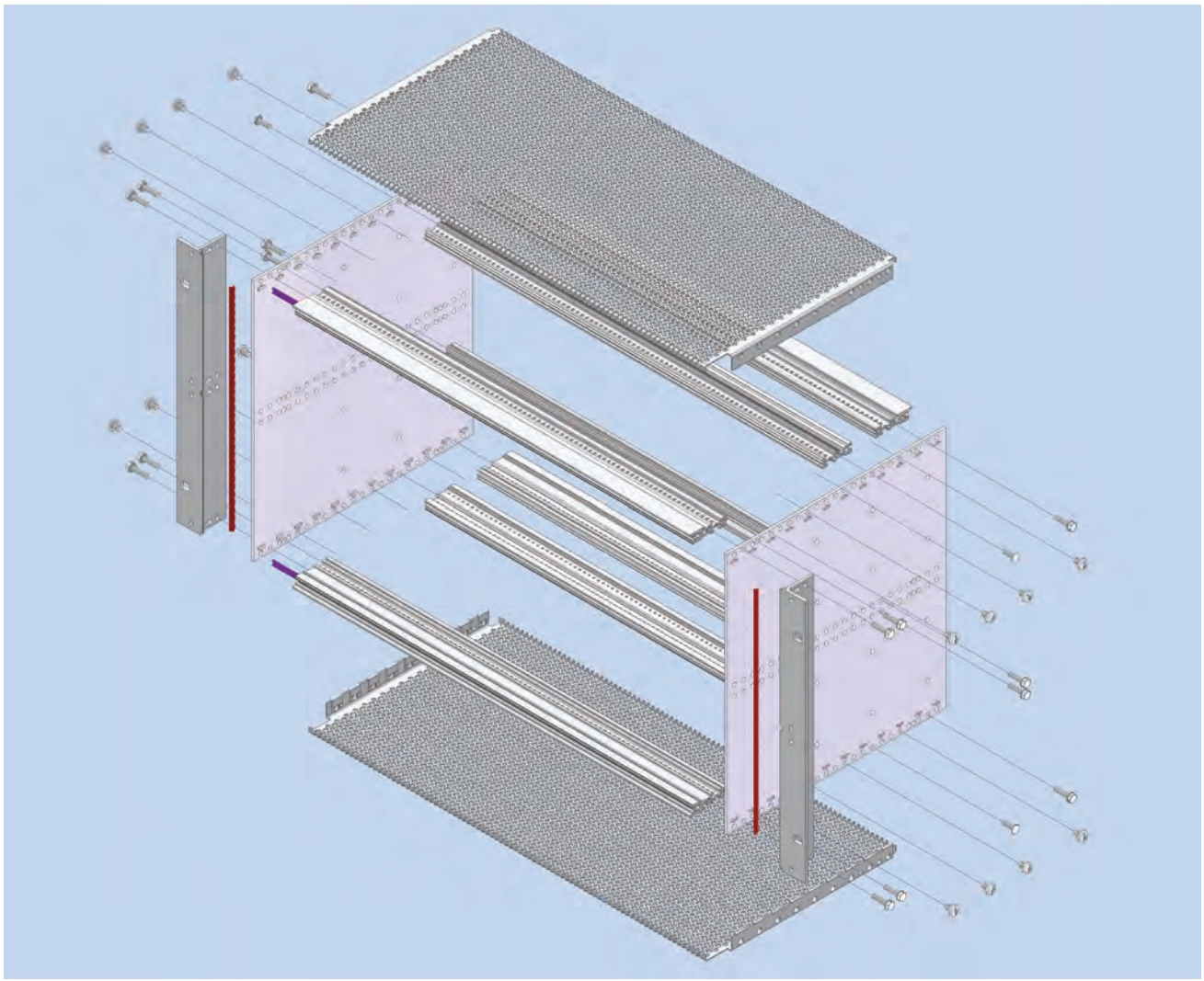
The subrack, its paneling elements and the cover panels are made of high-quality seawater-resistant aluminum alloys.
The spring strips are made of stainless steel.
This well-balanced combination of materials and surface treatment ensures high corrosion and ageing resistance and achievement of the necessary low contact resistance between the individual elements.



Sealing of the vertical splices between the front panels and between front panel und flange



Bonding with RFI-springs

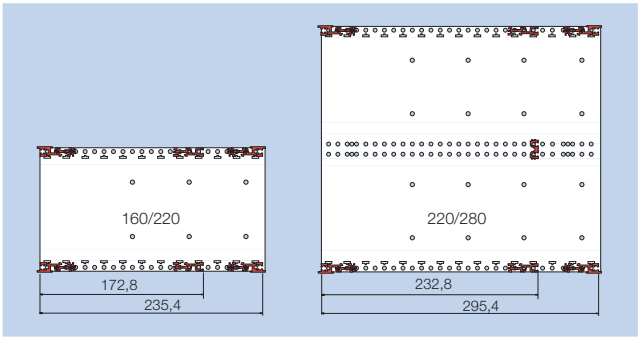


Assembling example

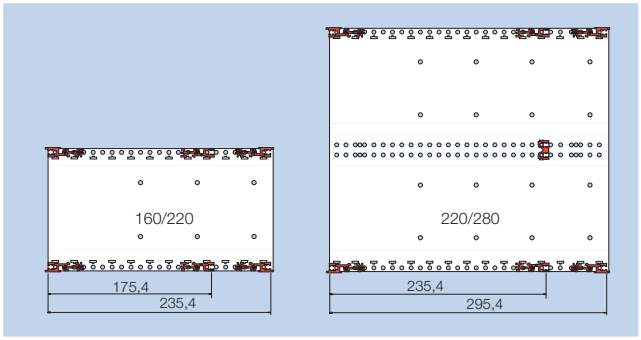
Delivery example

	pieces 6 U
Side panel	2
Flange	2
RFI-spring F3 (flange/front panel)	2
Threaded strip (front only)	2
Cover plates punched holes Ø 4 / 5.2x4 mm	2
RFI-spring A2 (cover plate/profile)	4
Mounting parts	1
Front profile	2
Rear profile	2
Inside profile	2
Center profile	1

Subrack *RFI-SHIELDED*



Depth dimensions type alpha 3 U and 6 U



Depth dimensions type delta 3 U and 6 U

Ordering details for kits

	PCB depth/ nom. depth [mm]	type *alpha* order no. **409**	type *delta* order no. **409**
3 U - subrack			
RFI-SHIELDED - 84-3-220	160/220	**162708**	**162710**
RFI-SHIELDED - 84-3-280	220/280	**162709**	**162711**
6 U - subrack			
RFI-SHIELDED - 84-6-220	160/220	**162712**	**162714**
RFI-SHIELDED - 84-6-280	220/280	**162713**	**162715**

Delivery

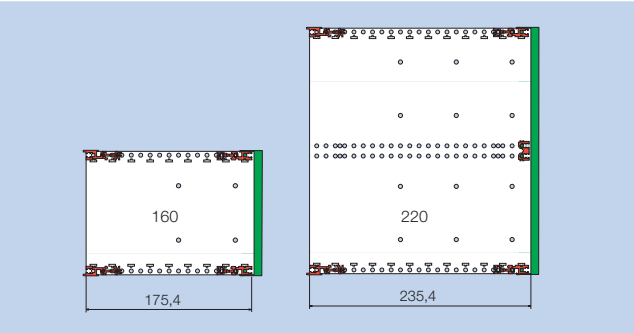
	pieces per kit *alpha* 3 U	pieces per kit *alpha* 6 U	pieces per kit *delta* 3 U	pieces per kit *delta* 6 U
Side panel	2	2	2	2
Flange	2	2	2	2
RFI-spring F3 (flange/front panel)	2	2	2	2
Threaded strip (front only) For your custom subrack please order threaded strips separately.	2	2	2	2
Cover plate punched holes Ø 4 / 5.2 x 4 mm	2	2	2	2
RFI-spring A2 (cover plate/profile)	4	4	4	4
Mounting parts kit	1	1	1	1
Front profile/rear V12-RFI-85	4	4	4	4
Inside profile-HE1-85	2	2	-	-
Center profile-ME1-85	-	1	-	-
Inside profile-HE2-85	-	-	2	2
Center profile-ME2-85	-	-	-	1

Accessories

	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**
RFI-spring P2 - 84 (profile/front panel)	**106547**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

Subrack *RFI-SHIELDED* with Rear Cover



Depth dimensions type delta 3 U and 6 U

Ordering details for kits

	PCB depth [mm]	type *delta* order no. **409**
3 U - subrack		
RFI-SHIELDED - 84-3-160	160	**162716**
RFI-SHIELDED - 84-3-220	220	**162717**
6 U - subrack		
RFI-SHIELDED - 84-6-160	160	**162718**
RFI-SHIELDED - 84-6-220	220	**162719**

Delivery

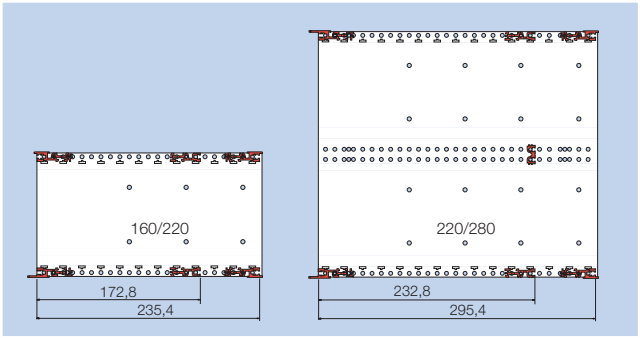
	pieces per kit *delta* 3 U	pieces per kit *delta* 6 U
Side panel	2	2
Flange	2	2
Cover	1	1
RFI-spring F3 (flange/front panel)	2	2
Threaded strip (front only) For your custom subrack please order threaded strips separately.	2	2
Cover plates punched holes Ø 4 / 5.2 x 4 mm	2	2
RFI-spring A2 (cover plate/profile)	4	4
Mounting parts kit	1	1
Front profile V12-RFI-85	2	2
Rear profile H22-RFI-85 for scew on cover	2	2
Center profile ME2-85	-	1

Accessories

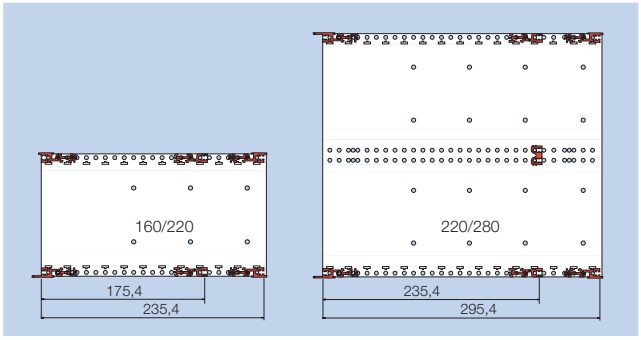
	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**
RFI-spring P2 - 84 (profile/front panel)	**106547**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

Subrack *RFI-SHIELDED IEEE*



Depth dimensions IEEE type alpha 3 U and 6 U



Depth dimensions IEEE type delta 3 U and 6 U

Ordering details for kits

	PCB depth/ nom. depth [mm]	type *alpha* order no. **409**	type *delta* order no. **409**
3 U - subrack			
RFI-SHIELDED - IEEE - 84-3-220	160/220	**162720**	**162722**
RFI-SHIELDED - IEEE - 84-3-280	220/280	**162721**	**162723**
6 U - subrack			
RFI-SHIELDED - IEEE - 84-6-220	160/220	**162724**	**162726**
RFI-SHIELDED - IEEE - 84-6-280	220/280	**162725**	**162727**

Delivery

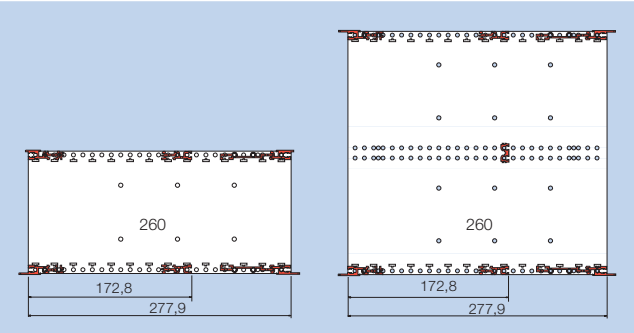
	pieces per kit *alpha* 3 U	pieces per kit *alpha* 6 U	pieces per kit *delta* 3 U	pieces per kit *delta* 6 U
Side panel	2	2	2	2
Flange	2	2	2	2
RFI-spring F3 (flange/front panel)	2	2	2	2
Threaded strip (front only) For your custom subrack please order threaded strips separately.	2	2	2	2
Cover plates punched holes ⌀ 4 / 5.2 x 4mm	2	2	2	2
RFI-spring A2 (cover plate/profile)	4	4	4	4
Mounting parts kit	1	1	1	1
Front profile/rear V12-IEEE-85	1	2	1	2
Front profile/rear V12-RFI-85	3	2	3	2
Inside profile-HE1-85	2	2	-	-
Center profile inside ME1-85	-	1	-	-
Inside profile-HE2-85	-	-	2	2
Center profile inside ME2-85	-	-	-	1

Accessories

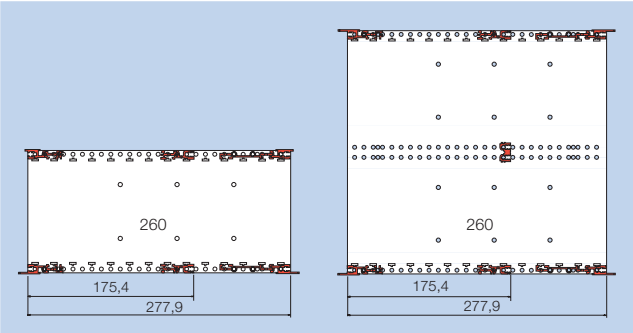
	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**
RFI-spring P2 - 84 (profile/front panel)	**106547**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

This catalog contains stock and standard parts. Other products and sizes on request.



Depth dimensions Rear I/O type alpha 3 U and 6 U



Depth dimensions Rear I/O type delta 3 U and 6 U

Ordering details for kits

	nom. depth [mm]	type *alpha* order no. **409**	type *delta* order no. **409**
3 U - subrack			
RFI-SHIELDED Rear I/O-84-3-160+80	260	**162728**	**162729**
6 U - subrack			
RFI-SHIELDED Rear I/O-84-6-160+80	260	**116484**	**161034**

Delivery

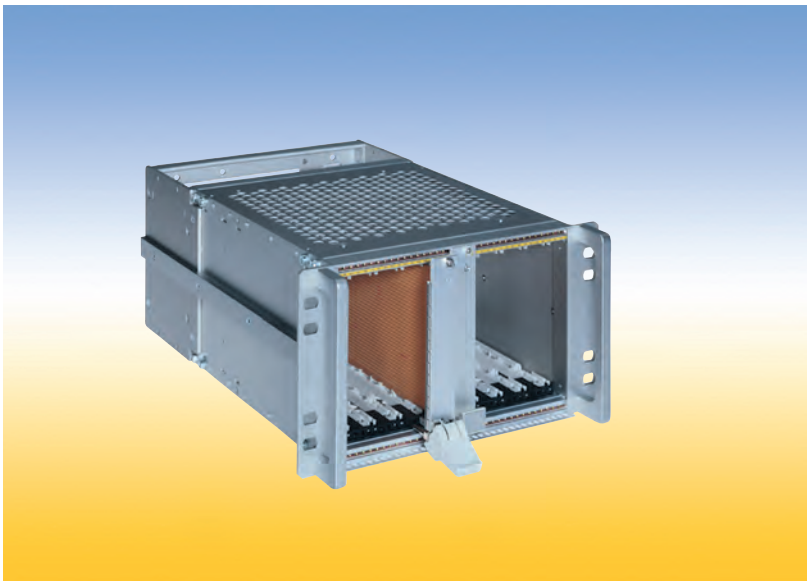
	pieces per kit *alpha* 3 U	pieces per kit *alpha* 6 U	pieces per kit *delta* 3 U	pieces per kit *delta* 6 U
Side panel	2	2	2	2
Flange	2	2	2	2
RFI-spring F3 (flange/front panel)	2	2	2	2
Threaded strip (front only) For your custom subrack please order threaded strips separately.	2	2	2	2
Cover plates punched holes ⌀ 4 / 5.2 x 4mm	2	2	2	2
RFI-spring A2 (cover plate/profile)	4	4	4	4
Mounting parts kit	1	1	1	1
Front profile V12-IEEE-85	1	2	1	2
Front profile V12-RFI-85	1	-	1	-
Rear profile-V1HUCK-IEEE-85	1	2	1	2
Rear profile-V1HUCK-85	1	-	1	-
Inside profile-HE1-85	2	2	-	-
Inside profile-HE2-85	-	-	2	2
Support profile for card guide	2	2	2	2

Accessories

	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**
RFI-spring P2 - 84 (profile/front panel)	**106547**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

Subrack *InterRail*®



Description
The system dimensions of the InterRail subrack are based on those of the *FLEXIBLE Fi* as a logical further development to produce a subrack for heavy-duty use. This allows unrestricted use of the extensive range of accessories.

The special design features of the InterRail subrack:

√ Profile rails with a high section modulus guarantee resistance to vibrations.

√ The refined RFI-shielding concept enables high shielding effectiveness (see the RFI-SHIELDED chapter).

√ There are four versions of this subrack:

1. Subrack *InterRail*
Shielding is not possible for the unsealed version.

2. Subrack *InterRail RFI*
The RFI-shielded version.

3. Subrack *InterRail RFI - IEEE*
The front is in accordance with IEEE 1101.10.
The special profile rail is designed for the use of insertion and removal handles (optionally with a hot-swap function) for overcoming high insertion and removal resistance. The card guides are fitted with mechanical coding systems and special bonding for electrostatic discharge.

4. Subrack *InterRail SNCF*
The special subrack with the certification from the French Railways.

Mixed forms
For vertical mounting PCB's of varying heights, divider kits are available.

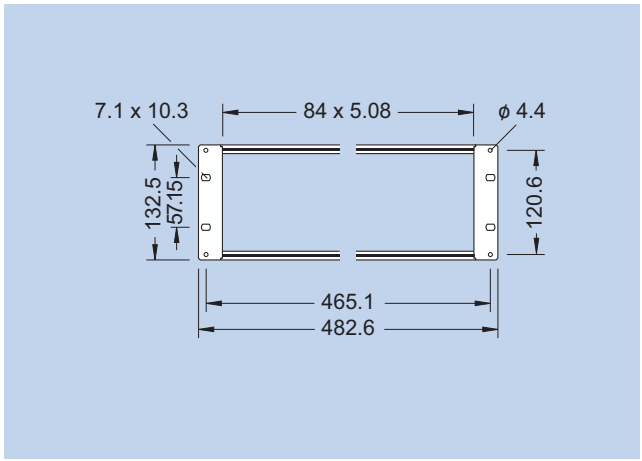
Delivery
Supplied as unassembled kits.
These are either packed as a kit of parts for one unit or as individual components, whereby parts of similar type are packed together.

On request, delivered as assembled and wired subrack according your requirements.

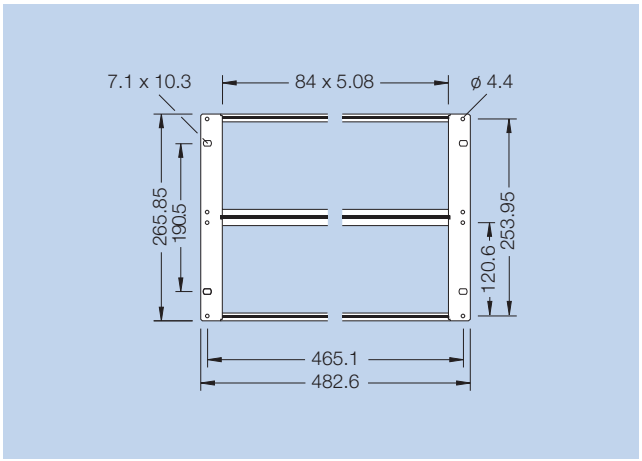
Technical data

Standards	IEC 60297, DIN 41494, IEEE 1101.10, DIN EN 50155 NF F 60-002, NF F 61-012, NF F 67-012
Width / horizontal pitch	84 usable HP / 5.08 mm (36 HP at SNCF)
Depth of the inserted board	160, 220, 280 mm (nom. depth)
Connector mounting	M 2.5 in increments of 5.08 mm for connectors, DIN 41 612, VG 95 324 and EC 60603-2
Materials	screws: steel contact springs: stainless steel or tin-plated other parts: aluminum
Finish	screws: galvanized und passivated other parts: passivated
Protection class	DIN 40 050 IP 20 (with cover plates) contact protection in accordance to VDE 0160
Utilization category	-25 °C, +70 °C, 75% relative humidity
Protective grounding	all metal parts are electrically bonded to one another following assembly in accordance with VDE 100 D 12.65, § 6 Nb.

Dimensions



Front of subrack 3 U

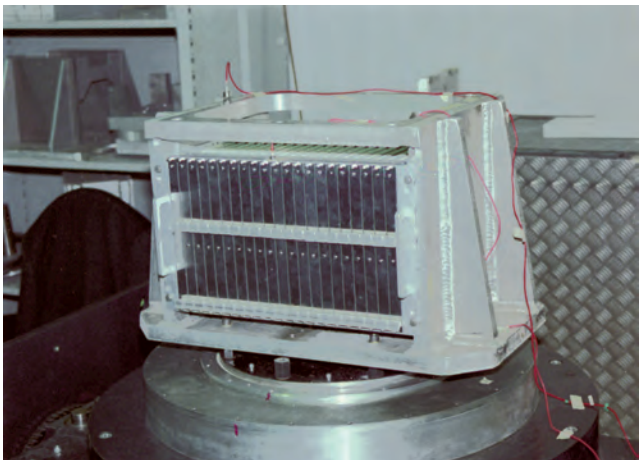


Front of subrack 6 U

Subrack *InterRail*®
Tests in accordance with SNCF NF standards and DIN EN 50155

- **Testing in accordance with DIN EN 50 155**

The tests are passed if no damage or malfunctions are determined.
The tests are performed from 5 to 150 Hz with the assigned accelerations and amplitudes.



- **Tests in accordance with SNCF NF standards**

The tests are passed if the maximum resonance sharpness of ca. 10 g is not exceeded in any axis.

Certification
Based on development and manufacture certified in accordance with DIN ISO 9001 this SNCF-tested subrack complies with the SNCF standards
NF F 60-002 (testing standard),
NF F 61-005 (dimensions standard),
NF F 67-012 (test boards)
and DIN EN 50 155.
In addition to being certified for railway applications the InterRail subrack is also approved for use with the French National Railways.

Test specimen
Subrack with dimensions H = 6 U, W = 84 HP, D = 220 mm

Test sequence
The following tests were performed in the 3 axes X, Y and Z on the subrack with the PCB configuration listed below:
a) Determination of the critical resonance frequency
b) An endurance test at the resonance frequency The vibration excitation was performed between 7 and 70 Hz at a constant acceleration of 1 g in 12 cycles each lasting 10 minutes.
In total the subrack was vibrated for eight hours, 2 hours each with the following alternating board configuration:

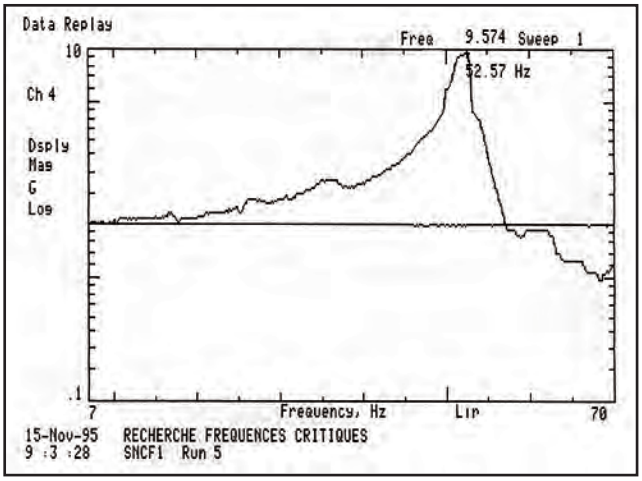
1. In the X-axis
   21 x 420 g boards
2. In the Z-axis
   21 x 420 g boards
3. In the Y-axis
   21 x 240 g boards
4. In the Z-axis
   4 x 420 g boards plus a 6.22 kg cassette installed in the center.

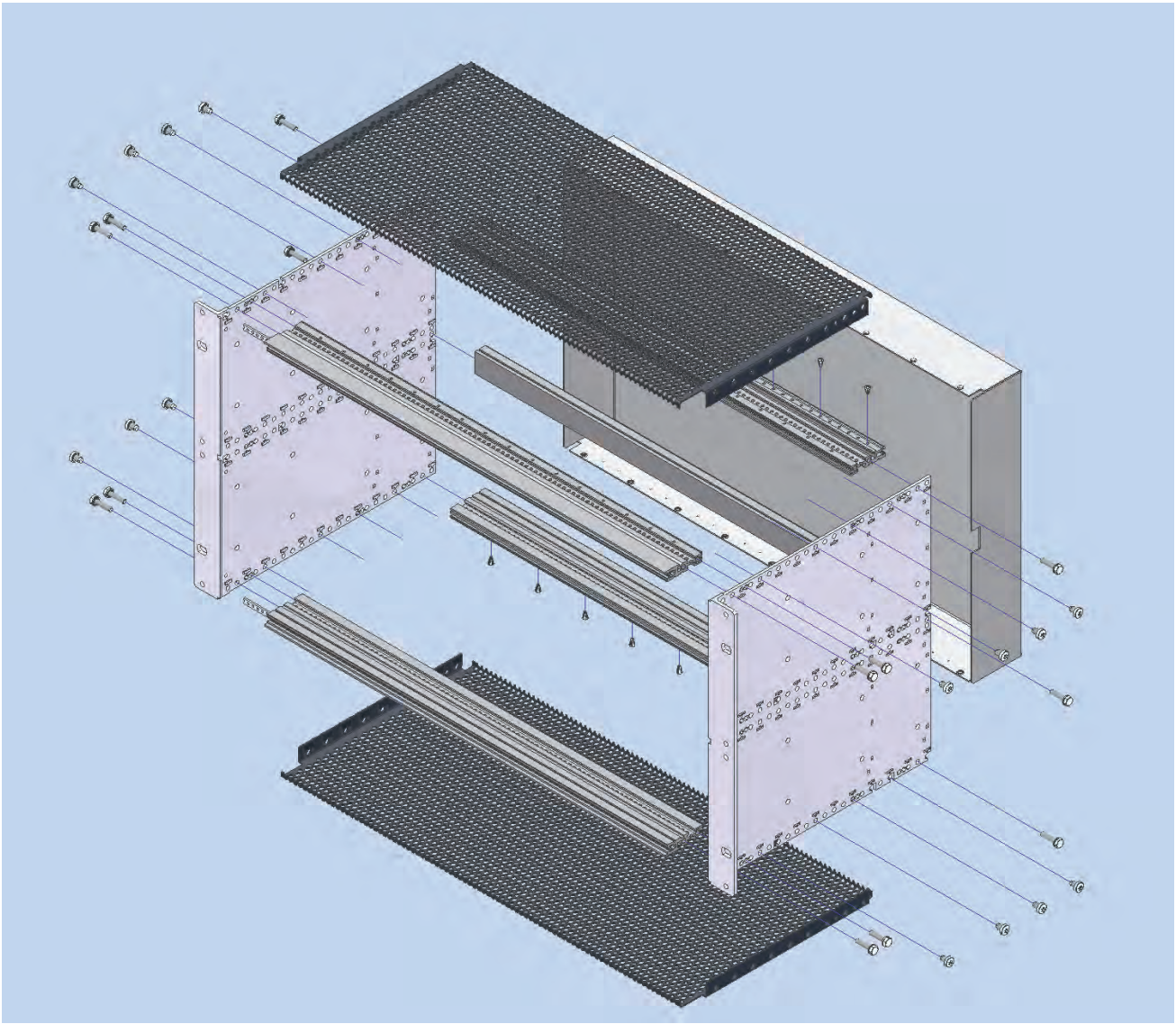
Measurement results with non-stiffened boards
Excerpt from the results of the measurements in the Y-axis, measurement on the front profile rail:
Maximum resonance sharpness 10.8 g at 52.5 Hz.
Measurement at the rear on the side panel extension:
Maximum resonance sharpness 9.6 g at 52.5Hz (see the measurement curve).

Measurement results with stiffened boards
These measurements are not demanded by the testing standard but were nonetheless also performed.
Excerpt from the results of the measurement in the Y-axis, measured on the front profile rail:
Maximum resonance sharpness 7.6 g at 47.1 Hz.

Measurement at the rear on the side panel extension:
Maximum resonance sharpness 6.5 g at 47.1 Hz.

Test result
Following vibration for a total of 8 hours the test specimen showed no signs of damage.

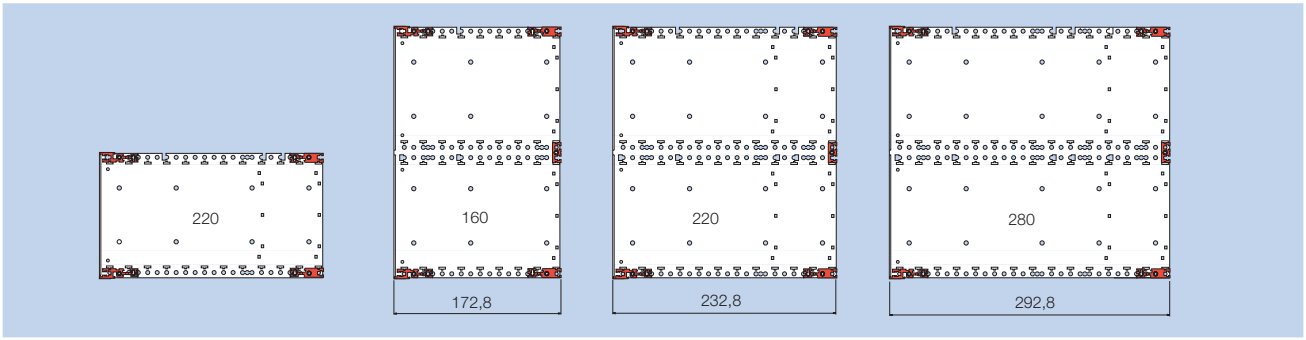




Delivery example

	pieces 6 U
Side panel	2
Cover	1
Threaded strip (front only)	2
Cover plates punched holes Ø 4 / 5.2x4 mm	2
RFI-spring A2 (cover plate/profile)	4
Mounting parts	1
Front profile	2
Rear profile	2
Inside profile	2
Center profile	1

Subrack *InterRail*®



Depth dimensions type alpha 3 U and 6 U

Ordering details for kits

	nom. depth [mm]	type *alpha* order no. **409**
3 U - subrack		
InterRail - 84-3-160	160	**162610**
InterRail - 84-3-220	220	**162611**
InterRail - 84-3-280	280	**162612**
6 U - subrack		
InterRail - 84-6-160	160	**162613**
InterRail - 84-6-220	220	**162614**

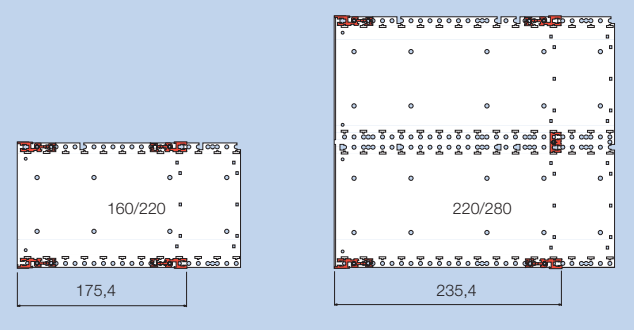
Delivery

	pieces per kit *alpha* 3 U	pieces per kit *alpha* 6 U
Side panel	2	2
Threaded strip (front only) For your custom subrack please order threaded strips separately.	2	2
Mounting parts kit	1	1
Front profile V12S-RFI-85	2	2
Rear profile H12S-85	2	2
Center profile M1S-85	-	1

Accessories

	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.



Depth dimensions type delta 3 U and 6 U

Ordering details for kits

	PCB depth/ nom. depth [mm]	type *delta* order no. **409**
3 U - subrack		
InterRail RFI-84-3-220	160/220	**162730**
InterRail RFI-84-3-280	220/280	**162731**
6 U - subrack		
InterRail RFI - 84-6-220	160/220	**162732**
InterRail RFI - 84-6-280	220/280	**162733**

Delivery

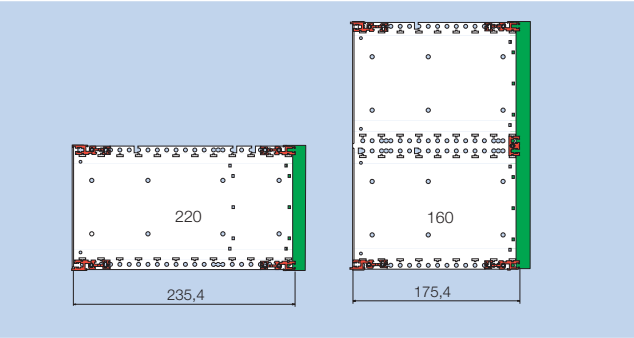
	pieces per kit *delta* 3 U	pieces per kit *delta* 6 U
	2	2
Threaded strip (front only) For your custom subrack please order threaded strips separately.	2	2
Cover plates punched holes ⌀ 4 / 5.2 x 4mm	2	2
RFI-spring A2 (cover plate/profile)	4	4
Mounting parts kit	1	1
Front profile V12S-RFi-85	2	2
Rear profile H22S-RFI-85	2	2
Center profile M2S-85	-	1

Accessories

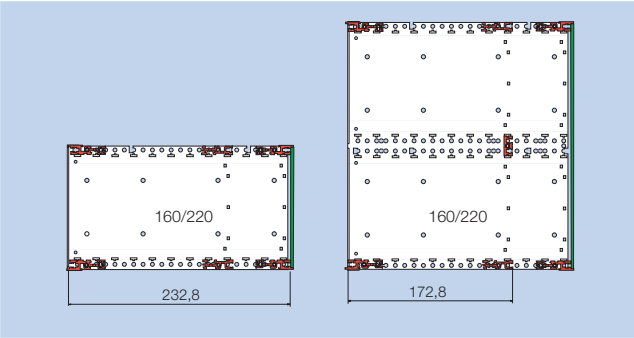
	order no. **409**
Threaded strip 84 x M 2.5	**091255**
RFI-spring P2 - 84 (profile/front panel)	**106547**
Shielding kit F1 3 U (side panel/front panel)	**093605**
Shielding kit F1 6 U (side panel/front panel)	**093606**
Shielding kit 3 U (side panel/backplane)	**108274**
Shielding kit 6 U (side panel/backplane)	**108275**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

Subrack *InterRail® RFI*
with Rear Cover or for Front Panel in the Rear



Depth dimensions type delta 3 U and 6 U with cover



Depth dimensions type alpha 3 U and 6 U for front panel

Ordering details for kits

	nom. depth [mm]	type *delta* with cover order no. **409**	PCB depth/ nom. depth [mm]	type *alpha* f. front panel order no. **409**
3 U - subrack				
InterRail RFI 84-3-160	160	**162734**	-	**-**
InterRail RFI 84-3-220	220	**162735**	160/220	**162738**
6 U - subrack				
InterRail RFI 84-6-160	160	**162736**	-	**-**
InterRail RFI 84-6-220	220	**162737**	160/220	**162739**

Delivery

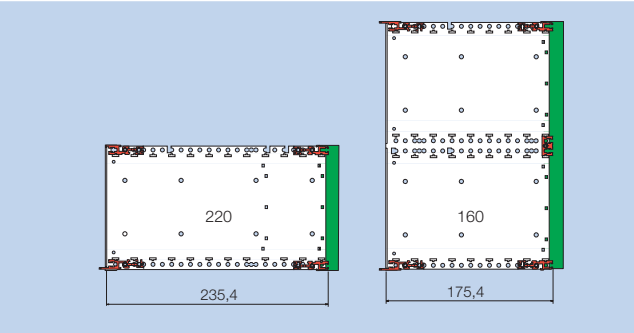
	pieces per kit *alpha* 3 U	pieces per kit *alpha* 6 U	pieces per kit *delta* 3 U	pieces per kit *delta* 6 U
	2	2	2	2
Threaded strip (front only) For your custom subrack please order threaded strips separately.	2	2	2	2
Cover plates punched holes ⌀ 4 / 5.2 x 4mm	2	2	2	2
RFI-spring A2 (cover plate/pr	4	4	4	4
Mounting parts kit	1	1	1	1
Cover	1	1	-	-
Front profile/rear V12S-85	2	2	4	4
Rear profile H22RFI-85 screw on cover	2	2	-	-
Center profile M2S-85	-	1	-	-
Rear profile H12S-85	-	-	2	2
Center profile M1S-85	-	-	-	1

Accessories

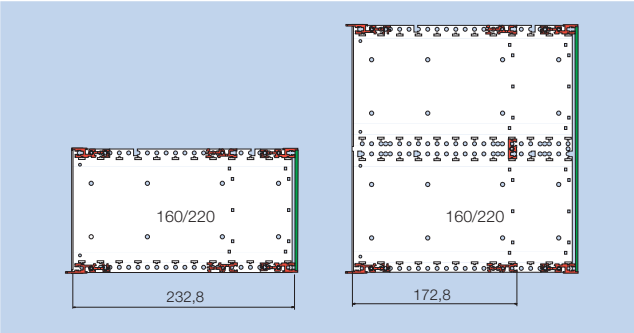
	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**
RFI-spring P2 - 84 (profile/front panel)	**106547**
Shielding kit F1 3 U (side panel/front panel)	**093605**
Shielding kit F1 6 U (side panel/front panel)	**093606**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

This catalog contains stock and standard parts. Other products and sizes on request.



Depth dimensions IEEE type delta 3 U and 6 U with cover



Depth dimensions IEEE type alpha 3 U and 6 U for front panel

Ordering details for kits

	nom. depth [mm]	type *delta* with cover order no. **409**	PCB depth/ nom. depth [mm]	type *alpha* f. front panel order no. **409**
3 U - subrack				
InterRail RFI 84-3-160	160	**162740**	-	**-**
InterRail RFI 84-3-220	220	**162741**	160/220	**162744**
6 U - subrack				
InterRail RFI 84-6-160	160	**162742**	-	**-**
InterRail RFI 84-6-220	220	**162743**	160/220	**162745**

Delivery

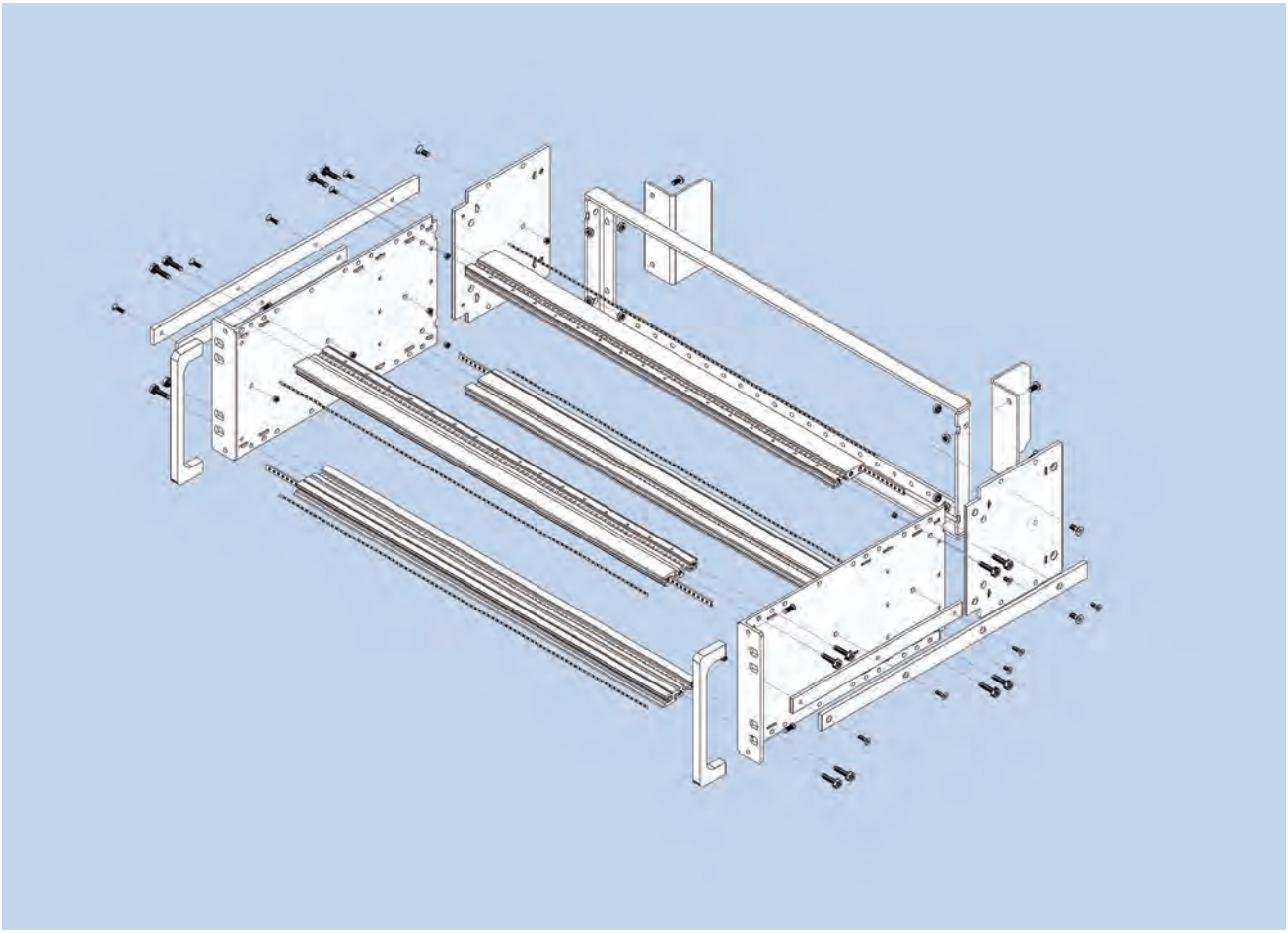
	pieces per kit *with cover* 3 U	pieces per kit *with cover* 6 U	pieces per kit *f. front panel* 3 U	pieces per kit *f. front panel* 6 U
	2	2	2	2
Threaded strip (front only) For your custom subrack please order threaded strips separately.	2	2	2	2
Cover plates punched holes ⌀ 4 / 5.2 x 4mm	2	2	2	2
RFI-spring A2 (cover plate/profile)	4	4	4	4
Mounting parts kit	1	1	1	1
Cover	1	1	-	-
Front profile V12-IEEE-85	1	2	1	2
Front profile/rear V12S-85	1	-	3	2
Rear profile H22-RFI f. Cover 85	2	2	-	-
Center profile M2S-85	-	1	-	-
Inside profile H12S-85	-	-	2	2
Center profile inside M1S-85	-	-	-	1

Accessories

	order no. **409**
Threaded strip 84 x M 2.5	**091255**
Insulating strip 84 HP	**051981**
RFI-spring P2 - 84 (profile/front panel)	**106547**
Shielding kit F1 3 U (side panel/front panel)	**093605**
Shielding kit F1 6 U (side panel/front panel)	**093606**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

Subrack *InterRail*® - *SNCF*



Delivery

	pieces per kit *alpha* 3 U	pieces per kit *alpha* 6 U
	2	2
Side panel extender	2	2
Wiring frame	1	2
Wiring protection angle	2	4
Guide bar short	2	2
Guide bar long	2	2
Front profile V12S	2	2
Rear profile H12S	2	2
Center profile M1S	-	1
Handle	2	2
Label strip	4	4
Mounting parts kit	1	1
Threaded strip	4	6

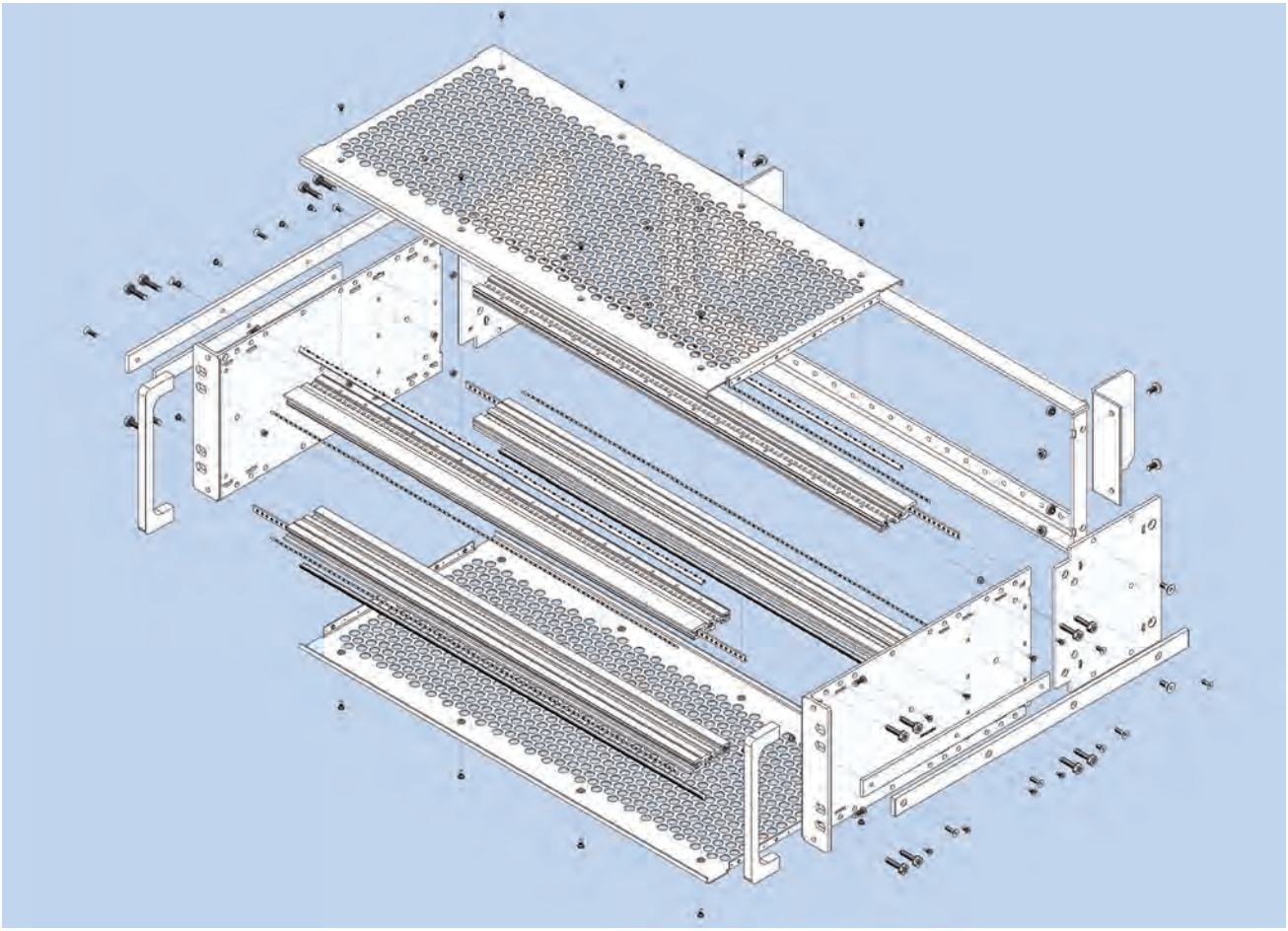
Ordering details for kits

	nom. width/ nom. depth [mm]	type *alpha* order no. **409**
3 U - subrack		
InterRail SNCF-36-3-220	36 - 220	**108251**
InterRail SNCF-84-3-220	84 - 220	**108250**
6 U - subrack		
InterRail SNCF-36-6-220	36 - 220	**107716**
InterRail SNCF-84-6-220	84 - 220	**102822**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

This catalog contains stock and standard parts. Other products and sizes on request.

Subrack *InterRail*® - *SNCF RFI*



Delivery

	pieces per kit *delta* 3 U	pieces per kit *delta* 6 U
	2	2
Side panel extender	2	2
Wiring frame	1	2
Wiring protection angle	2	4
Guide bar short	2	2
Guide bar long	2	2
Front profile V12S	2	2
Rear profile H22S	2	2
Center profile M2S	-	1
Cover plates with punched holes ⌀ 8 mm	2	2
RFI-springn A2 (cover plates/profile)	4	4
Handle	2	2
Label strip	4	4
Mounting parts kit	1	1
Threaded strip	4	6

Ordering details for kits

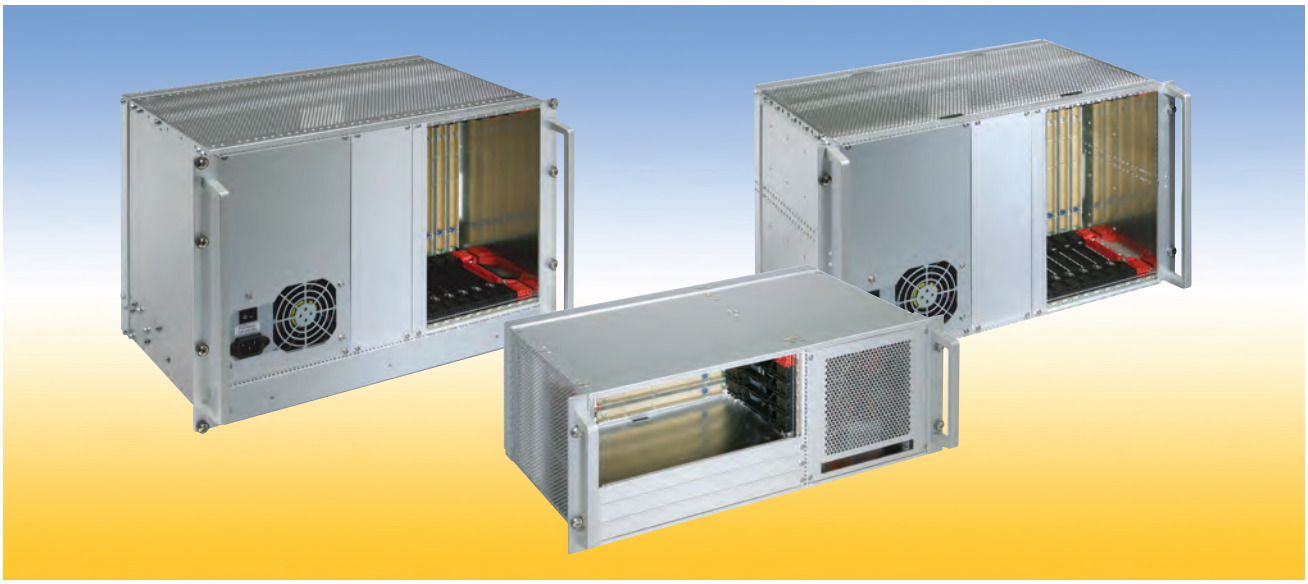
	nom. width/ nom. depth [mm]	type *delta* order no. **409**
3 U - subrack		
InterRail SNCF RFI-36-3-220	36 - 220	**108255**
InterRail SNCF RFI-84-3-220	84 - 220	**108254**
6 U - subrack		
InterRail SNCF RFI-36-6-220	36 - 220	**108253**
InterRail SNCF RFI-84-6-220	84 - 220	**108252**

Accessories

	order no. **409**
Card guide VIB 1.6-220 without nut	**058944**
Screw M 3.2 x 12 for card guide SNCF	**102432**
RFI-spring P2 - 84 (pr ont panel)	**106547**
Shielding kit F1 3 U (side panel/front panel)	**093605**
Shielding kit F1 6 U (side panel/front panel)	**093606**

Further details and possibilities of other applications are in the chapter Subrack-Accessories.

System-Module CompactPCI



Description
The special design features of the CompactPCI system modules:

√ The refined RFI-shielding concept enables high shielding effectiveness (see the RFI-SHIELDED chapter).

√ The construction offers additional space for drives and hard disks.

√ They are fitted with an ATX 300 W power supply unit with a wide-range input and PFC.

√ CPCI backplane in accordance with specification 2.0 Rev. 3.0, with or without rear I/O

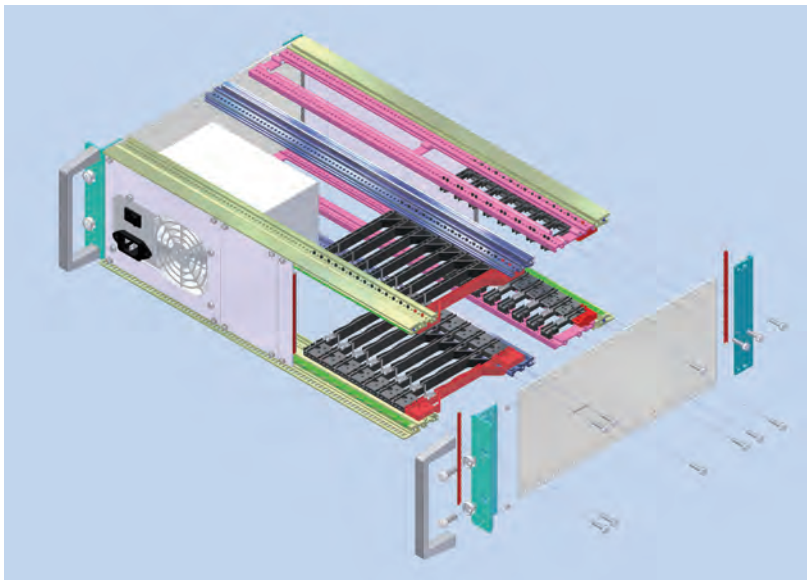
√ Convection or active ventilation

Delivery
The subrack is delivered assembled.

Other systems on request.

Technical data

Standards	compliant with DIN 41 494, IEC 60297-3, IEEE 1101.10 IEC 61 076-4-101, CPCI Specification 2.0, Revision 3.0
Width / horizontal pitch	84 usable HP/ 5.08 mm
Depth of the inserted board	160 mm at the front, 80 mm at the rear
Depth increment side panel	10 mm
Materials	screws: steel contact springs: stainless steel card guide: plastic other parts: aluminum
Finish	screws: galvanized und passivated side panels and cover plates: blank (seawater resistance) other parts: passivated
Protection class	DIN 40 050 IP 20 (with cover plates) contact protection in accordance with VDE 0160
Utilization category	-25 °C, +70 °C, 75% relative humidity
Protective grounding	all metal parts are electrically bonded to one another following assembly in accordance with VDE 100 D 12.65, § 6 Nb.



Consists of:

1 Subrack *RFI-SHIELDED CPCI / REAR I/O* 84 HP,
260 mm nom. depth
(160 mm at the front, 80 mm at the rear)
1 Backplane 8 Slot, 3 U, 32 Bit, system slot right
1 ATX 300W power supply unit with a wide-range input
and PFC, with assembled front panel.
1 Blind front panel 16 HP at the front.
1 Blind front panel 4 HP at the front.
1 Blind front panel 48 HP at the rear.
1 Blind front panel 8 HP at the rear.
1 Pair of card guides red 160 mm (CPU)
including IEEE-coding and ESD-spring in the bottom card guide.
1 Pair of card guides red 80 mm (CPU)
including IEEE-coding and
7 Pair of card guides black 160 mm (CPU)
including IEEE-coding and ESD-spring in the bottom card guide.
7 Pair of card guides black 80 mm (CPU)
including IEEE-coding and ESD-spring in the bottom card guide.

System-Module CompactPCI-3 U-Rear I/O and 6 U-Rear I/O



System-Module CompactPCI-3 U-Rear I/O

order no.: **409122295**

Consists of:

1 Subrack *RFI-SHIELDED CPCI / REAR I/O*
84 HP, 260 mm nom. depth
(160 mm at the front, 80 mm at the rear)
1 Backplane 8 Slot, 3 U, 32 Bit, system slot right
1 ATX 300W power supply unit with a wide-range input and PFC, with assembled front panel.
1 Blind front panel 16 HP at the front.
1 Blind front panel 4 HP at the front.
1 Blind front panel 48 HP at the rear.
1 Blind front panel 8 HP at the rear.
1 Pair of card guides red 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
1 Pair of card guides red 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
7 Pair of card guides black 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
7 Pair of card guides black 80 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.



System-Module CompactPCI-6 U-Rear I/O

order no.: **409122297**

Consists of:

1 Subrack *RFI-SHIELDED CPCI / REAR I/O*
84 HP, 260 mm nom. depth
(160 mm at the front, 80 mm at the rear)
1 Backplane 8 Slot, 6 U, 64 Bit, system slot right
1 ATX 300W power supply unit with a wide-range input and PFC, with assembled front panel.
(optional front panel for a drive over the power supply).
1 Blind front panel 16 HP at the front.
1 Blind front panel 4 HP at the front.
1 Blind front panel 48 HP at the rear.
1 Blind front panel 8 HP at the rear.
1 Pair of card guides red 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
1 Pair of card guides red 80 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
7 Pair of card guides black 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
7 Pair of card guides black 80 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.

System-Module CompactPCI - 6+3 U-Rear I/O and 4 U-Rear I/O



System-Module CompactPCI-6+1U-Rear I/O

order no.: **409122301**

Consists of:

1 subrack *RFI-SHIELDED CPCI / REAR I/O*
84 HP, 260 mm nom. depth
(160 mm at the front, 80 mm at the rear)
1 Backplane 8 Slot, 6 U, 64 Bit, system slot right
1 ATX 300W power supply unit with a wide-range input and PFC, with assembled front panel.
(optional front panel for a drive over the power supply).
1 Blind front panel 16 HP at the front.
1 Blind front panel 4 HP at the front.
1 Blind front panel 48 HP at the rear.
1 Blind front panel 8 HP at the rear.
1 Fan drawer with integrated fan.
1 Pair of card guides red 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
1 Pair of card guides red 80 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
7 Pair of card guides black 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
7 Pair of card guides black 80 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.



System-Module CompactPCI-4 U-Rear I/O

order no.: **409122300**

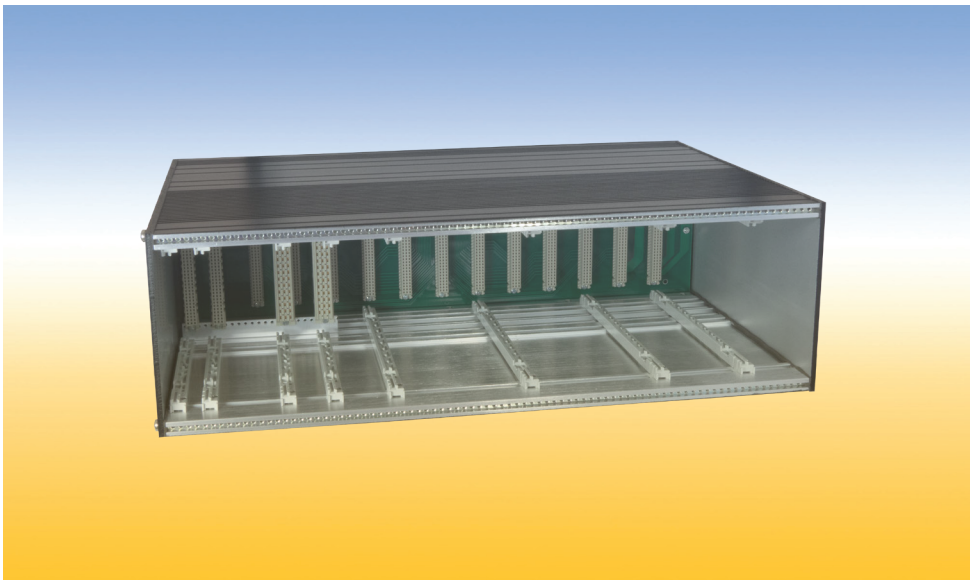
Consists of:

1 subrack *RFI-SHIELDED CPCI / REAR I/O*
84 HP, 260 mm nom. depth
(160 mm at the front, 80 mm at the rear)
for horizontal embedded 6 U PCB's
1 Backplane 4 Slot, 6 U, 64 Bit, system slot right
(1 Slot free e. g. for hard disk or driver)
2 Front panels 6 U - 4 HP (1 at the front, 1 at the rear)
1 ATX 300 W power supply unit with a wide-range input and PFC, with integrated 32 HP Front panel at the front.
1 Fan
1 Pair of card guides red 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
1 Pair of card guides red 80 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
4 Pair of card guides black 160 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.
4 Pair of card guides black 80 mm (CPU) including IEEE-coding and ESD-spring in the bottom card guide.

System-Module

❑ **Housing** ❑ **Subrack**	pieces _____ pieces _____
Dimensions	**height:** ❑ 3 U ❑ 6 U ❑ other _____ U **width:** ❑ 84 HP ❑ 42 HP ❑ other _____ HP **depth:** ❑ 260 mm ❑ other _____ mm
Backplane	❑ **CPU** number of slots _____ ❑ **J1 VME** number of slots _____ ❑ **J1/J2 Monilithic VME** number of slots _____ ❑ **VME64x** number of slots _____ Rear I/O: ❑ 80 mm ❑ other _____ mm ❑ **CPCI** number of slots _____ System slot: ❑ right ❑ left Width system slot: ❑ 4 HP ❑ 8 HP Rear I/O : ❑ 80 mm ❑ other _____ mm
Mounting position PCB	❑ horizontal ❑ vertical
Depth of the PCB	❑ 160 mm ❑ other_____ mm
Power supply / PSU	❑ AC / DC ❑ DC / DC ❑ ATX ❑ 300 Watt ❑ 400 Watt ❑ 19“ ❑ 300 Watt ❑ 400 Watt ❑ other Watt _____ ❑ active ventilation of the system
Accessories	❑ Harddisc ❑ CD-ROM ❑ Keypad
Notes	_____ _____ _____ _____

Please ask your local representative for your
individual system-module-configuration.
You find your contact person on our homepage:
www.intermas-el.com



Description
Special design features of the subrack InterProtect®:

√ Upper and lower cover are made of a solid extruded aluminium profile. The surface is passivated

√ Profiles have 11 screwing points on each side in order to fix the side panels.

√ Profiles are equipped with channels to insert mounting or threaded strips. These strips are designated to fix frontpanel, rear wall, card guides and connectors resp. backplanes.

√ Connector and backplane sections can be realized with nominal depth of 160, 180, 220 und 240 mm.

√ Card guides with a nominal depth of 160 and 220 mm, optionally snap-in or screwable can be used.

√ The side walls, front panel and rear wall are made of seawater resistant aluminium. They have a material thickness of 4 mm and are passivated.

√ Front panel and rear wall are each fixed with 28 (42HP) resp. 52 (84HP) screws on the 3U subrack, and with 36 (42HP) resp. 60 (84HP) screws on the 6U subrack.

√ The usage of high-quality sealing materials guarantees an optimal protection against dirt, dust and the intrusion of water.

√ An optimal shielding is achieved by the usage of conductive sealings.

√ Sealings are made of silicone resp. the conductible variant of silicone, filled with particles of nickel-plated graphite. Upon request it is also possible to use sealings made of fluorine silicone or of conductible par-ticles of silver-plated aluminum.

Delivery form:
Supplied as unassembled kits.
These are either packed as a kit of parts for one unit or as individual components, whereby parts of similar type are packed together.

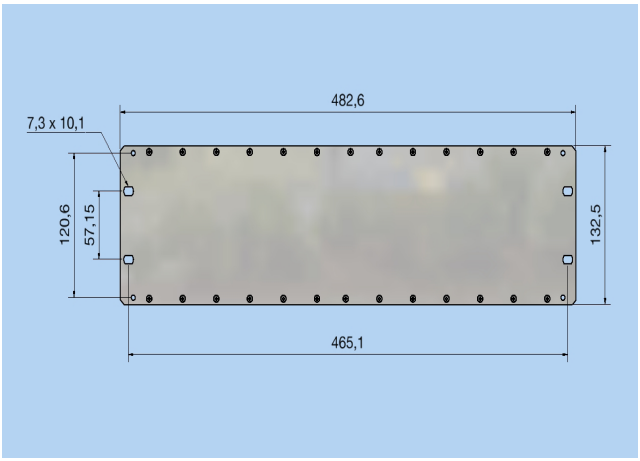
On request, delivered as assembled and wired subrack according your requirements.

Subrack *InterProtect*®

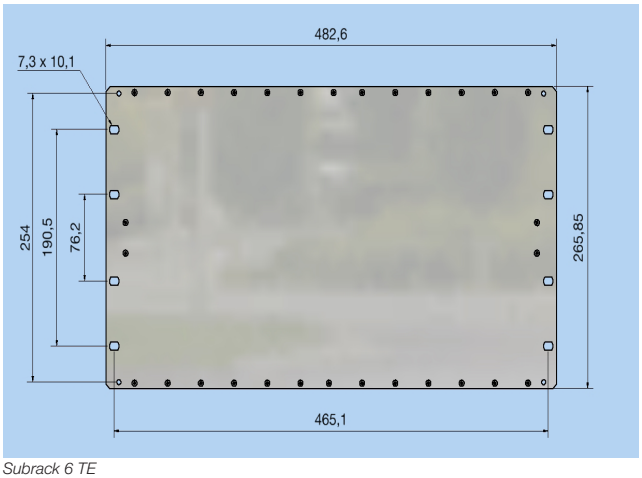
Technical Data

Dimension	Acc. to DIN 41 494/ IEC 60 297
Width / horizontal pitch	84 / 42 usable HP / 5,08
Depth of backplane	160, 180, 220, 240 mm (Nominal depth)
Attachment of plug-in connector	M 2,5 as grid of 5,08 mm for plug-in connectors acc. to DIN 41 612, VG 95 324, IEC 60 603-2
Materials	screws: stainless steel, assembly and threaded strips: steel or stainless steel, other parts: aluminium
Surfaces	aluminium parts: passivated, steel parts zink-cromated and passivated
Protection class	acc. to DIN EN 60529, IP66
Temperature range	-55 to +160 °C
Protective earthing	After assembly all metal parts have an electrically conductive interconnection acc. to VDE 100/12.65, § 6 Nb

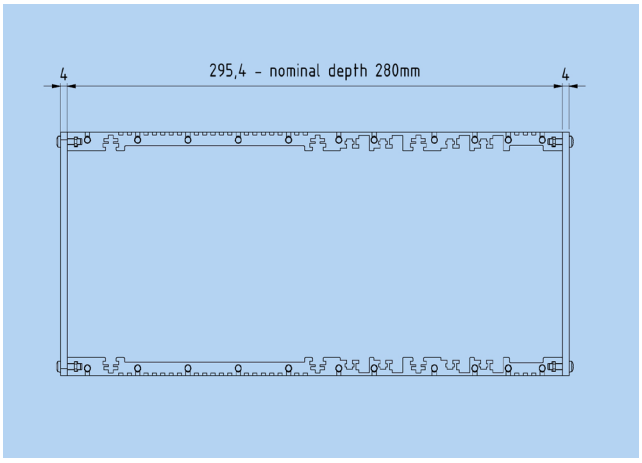
Dimension



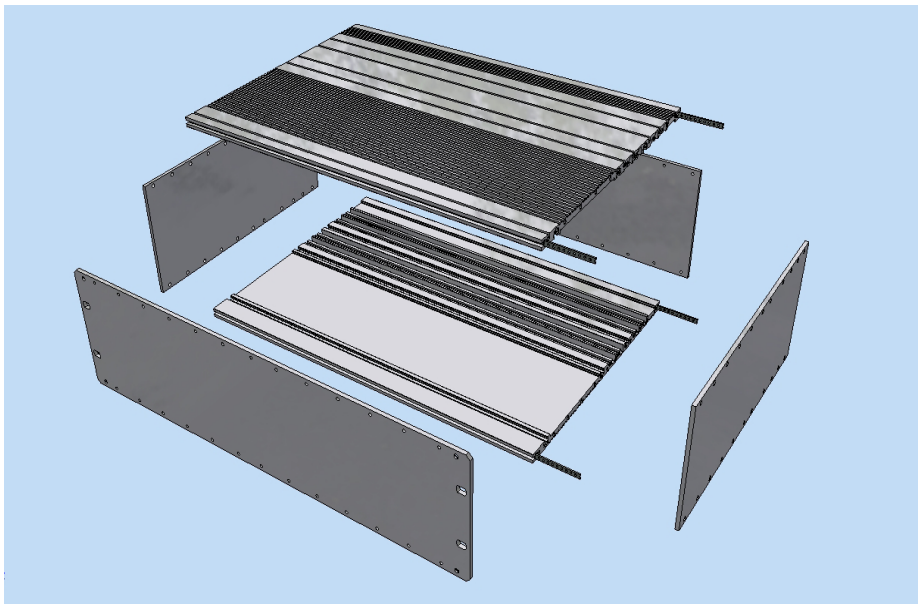
Subrack 3 TE



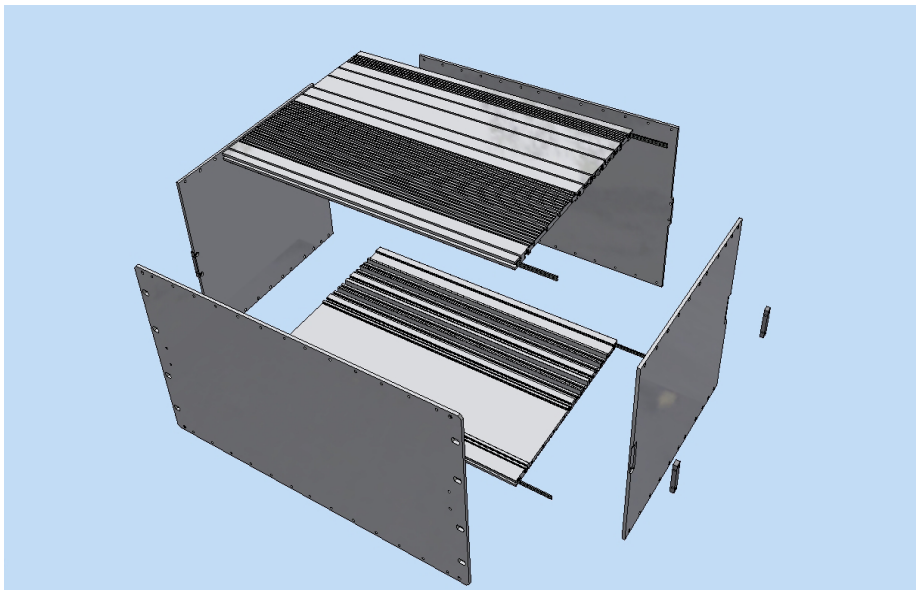
Subrack 6 TE



Depth dimensions of subrack



Subrack 3U



Subrack 6 U

Ordering details for kits

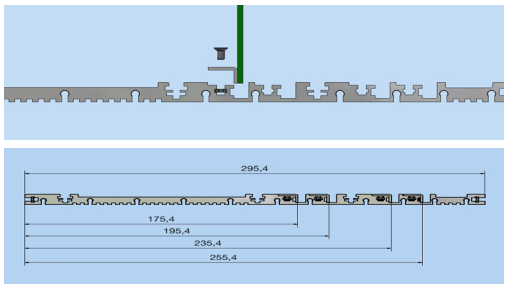
	nom. depth [mm]	order no. **409**
3 U - subrack		
42-3-280	280	**138802**
84-3-280	280	**138803**
6 U - subrack		
42-6-280	280	**138821**
84-6-280	280	**138822**

Subrack *InterProtect*®

Delivery

	pieces per kit 3U-42HP	pieces per kit 3U-84HP	pieces per kit 6U-42HP	pieces per kit 6U-84HP
Subrack profile 280	2	2	2	2
Side panel 280	2	2	2	2
Front panel	1	1	1	1
Rear panel	1	1	1	1
Threaded strip	4	4	4	4
Pan-head screw M3x12	28	52	36	60
Pan-head screw M4x16	44	44	44	44
Connector 6U	-	-	4	4
Countersunk scew M3x6	-	-	8	8

Sealings are not included. They must be ordered in accordance to your application and requirements.
Further details and possibilities of other applications can be found in the chapter Subrack-Accessories

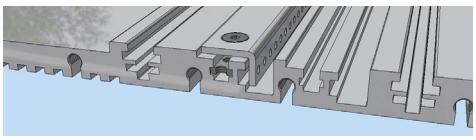


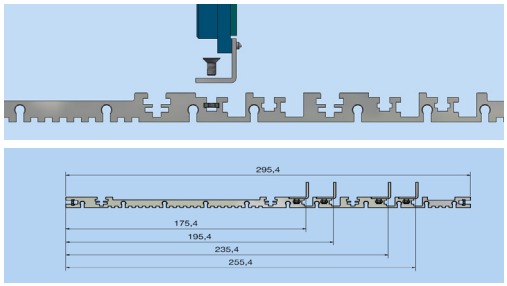
Kit for backplane fixing bar
Material: aluminium
Finish: passivated (TCP)

Scope of delivery:
2 backplane fixing bars
2 treaded strips
Fixing screws

Ordering details for kits

	order no. 409
Backplane-fixing bars 42HP	**138976**
Backplane-fixing bars 84HP	**138977**





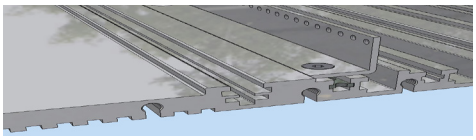
Kit for pin assignment

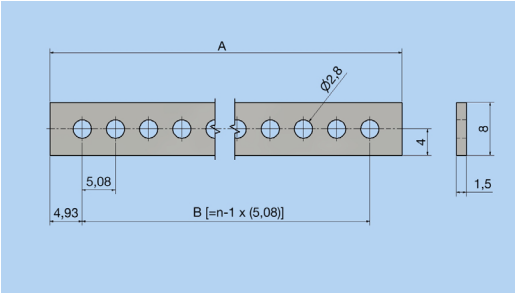
Material: aluminium
Finish: passivated (TCP)

Scope of delivery:
2 connector fixing
2 treaded strips
Fixing screws

Ordering details for kits

	order no. 409
connector fixing 42HP	**138978**
connector fixing 84HP	**138979**





Mounting strip for snap-in card guide

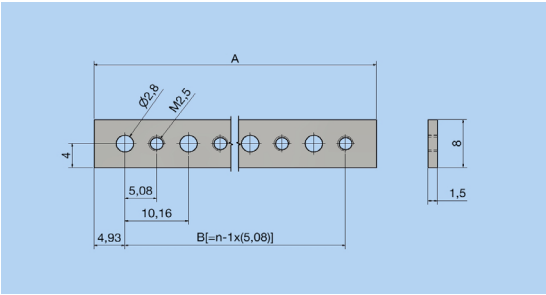
Material: steel or stainless steel
Finish: electrogalvanized, passivated resp. stainless steel blank

Every card guide section requires 4 assembly strips.

Ordering details for kits snap-in

n = number of holes	A [mm].	B [mm]	steel order no. **409**	stainless steel order no. **409**
42	218,14	202,28	**138811**	**138872**
84	431,50	421,64	**138812**	**138873**

Other lengths on request.



Mounting strip for screwable card guide

Material: steel or stainless steel
Finish: electrogalvanized, passivated resp. stainless steel blank

Every card guide section requires 4 assembly strips.

Ordering details for kits screwable

n = number of holes	A [mm].	B [mm]	steel order no. **409**	stainless steel order no. **409**
42	218,14	202,28	**138870**	**138874**
84	431,50	421,64	**138871**	**138875**

Other lengths on request.

Subrack *InterProtect*® Sealing

Ordering details for kits

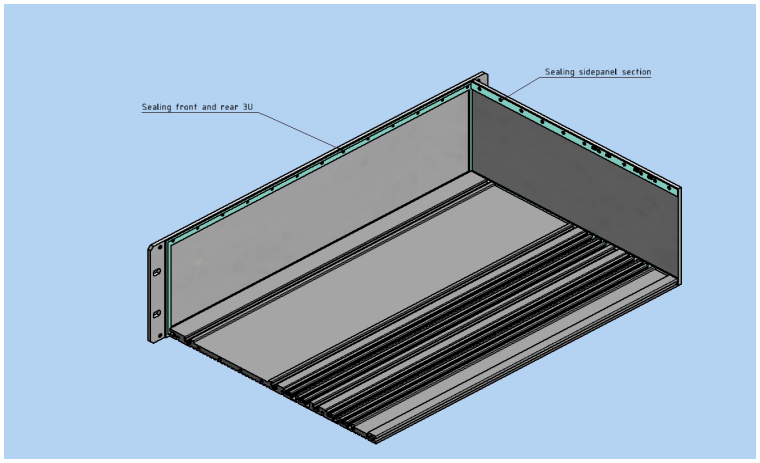
Sealing kit	*Sealing kit* IP * order no. **409**	*Sealing kit* IP/EMV ** order no. **409**
3U-42HP	**138905**	**138906**
3U-84HP	**138908**	**138909**
6U-42HP	**138911**	**138912**
6U-84HP	**138914**	**138915**

* Sealings are made of silicone / ** Sealings are made of silicone filled with particles of nickel-plated graphite.

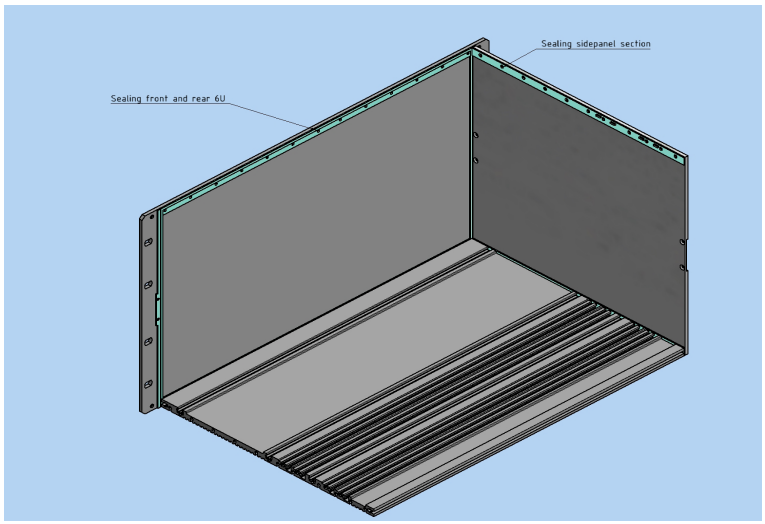
Scope of dedelivery:

2 Sealing right and left
2 Sealing left and right
2 Sealing F/R

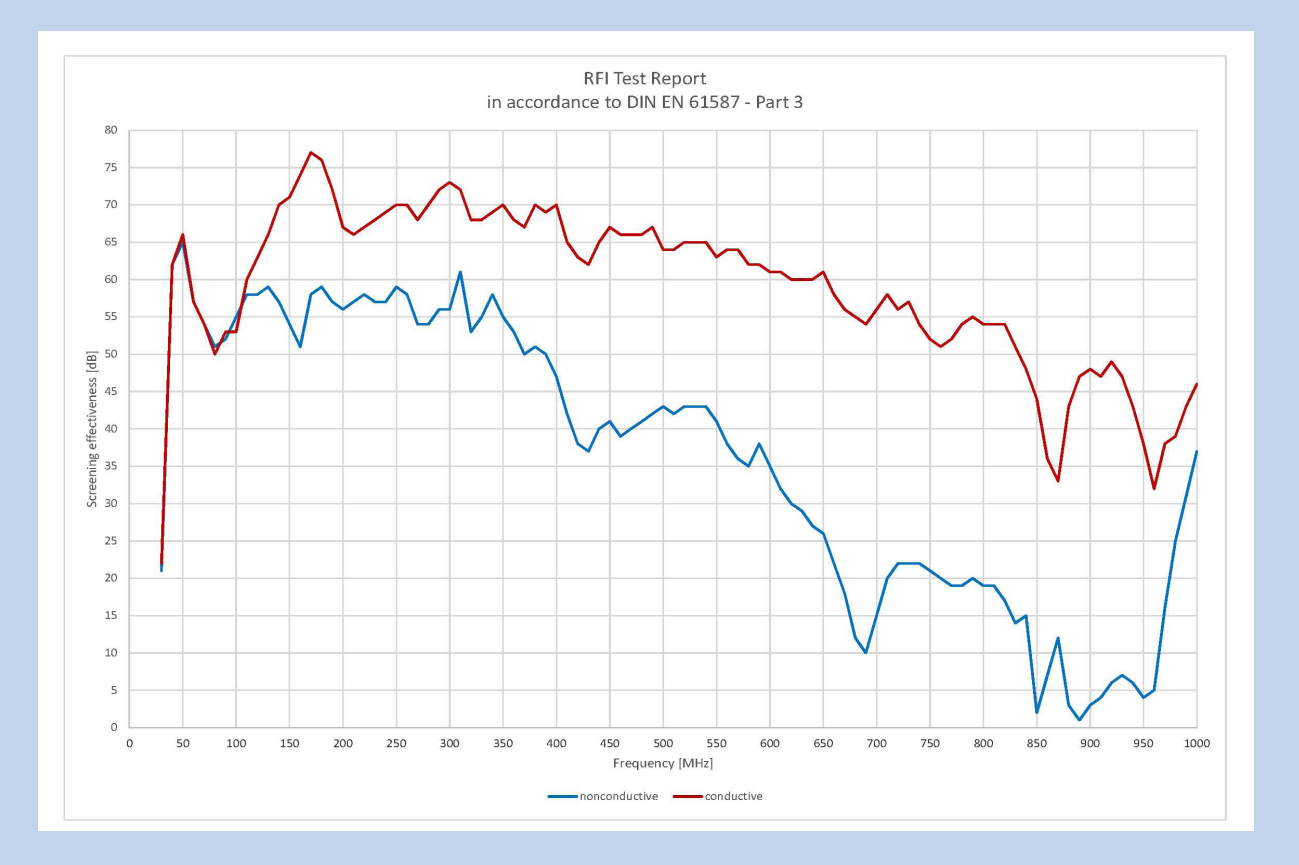
Realisation of the shielding



Subrack 3U



Subrack 6U



Shielding efficienc depends on the material of the used sealing material.

Shielding effectiveness:
The shielding effectiveness of the empty subrack was determined in accordance with DIN EN 61 587-Part 3.

Testing institute:
The measurements were performed at *hummel electronic* in Fellbach, Germany.

Test specimen 1
This subrack was equipped with sealings made of silicone, filled with particles of nickel-plated graphite.

Test specimen 2
This subrack was equipped with sealings made of silicone.

Subrack configuration *InterProtect*®

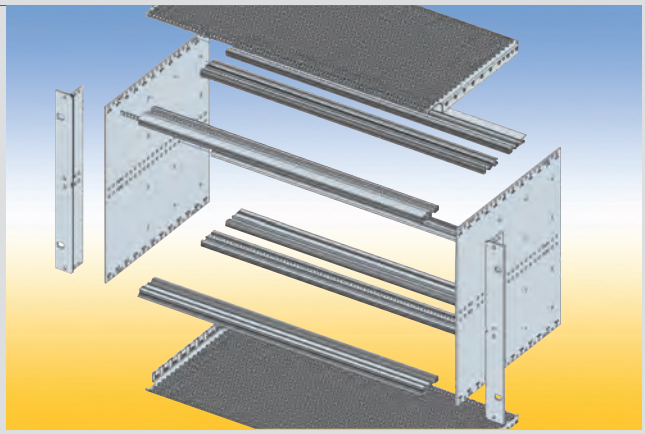
Configuration module

❑ **Subrack**	piece _____
Dimensions	**height:** ❑ 3 U ❑ 6 U ❑ other _____ U **width:** ❑ 84 HP ❑ 42 HP ❑ other _____ HP **depth:** ❑ 280 mm
Backplane	❑ **CPU** number of slots _____ ❑ **J1 VME** number of slots _____ ❑ **J1/J2 Monolithic VME** number of slots _____ ❑ **VME64x** number of slots _____ ❑ **CPCI** number of slots _____ Systemslot: ❑ right ❑ left width Systemslot: ❑ 4 HP ❑ 8 HP
Depth of PCB:	❑ 160 mm ❑ 180 mm ❑ 220 mm ❑ 240 mm
Accessories:	❑ Backplane-mounting bracket ❑ Connector fixing ❑ Installation strip: card strip snap-in ❑ Installation strip: card strip screwable ❑ Sealing: ❑ Silicone ❑ Silicone with particles of nickel-plated graphite
Notes	_____ _____ _____ _____

Subrack Accessories

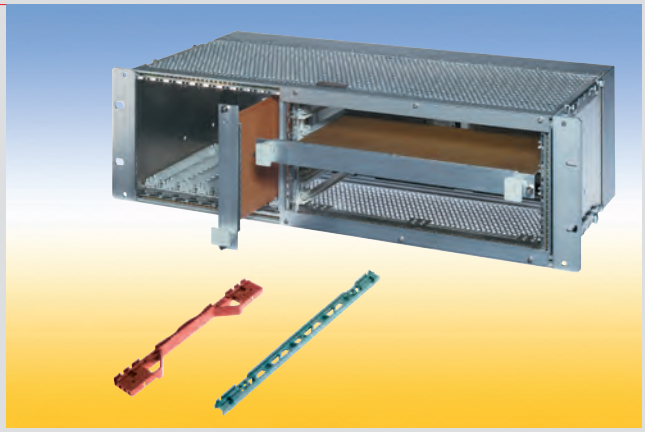
Single Parts

- √ Side Panels
- √ Flanges
- √ Closing Profiles
- √ Handle
- √ Side Panel Extender
- √ Side Panel Connector
- √ Horizontal Rails
- √ Cover Plates
- √ Rear Covers



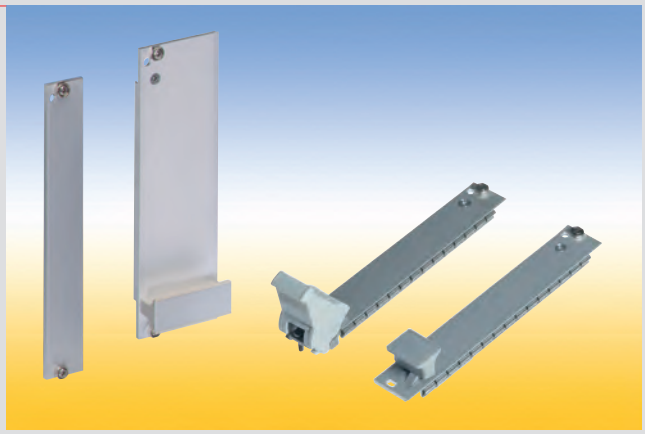
Configurations

- √ Subrack Divider
- √ Partition Wall
- √ Labelling Rail, Locking Rail, Label Strip
- √ Threaded Strips
- √ Z-Rail A, Mounting Rail B
- √ Card Guide and Accessories

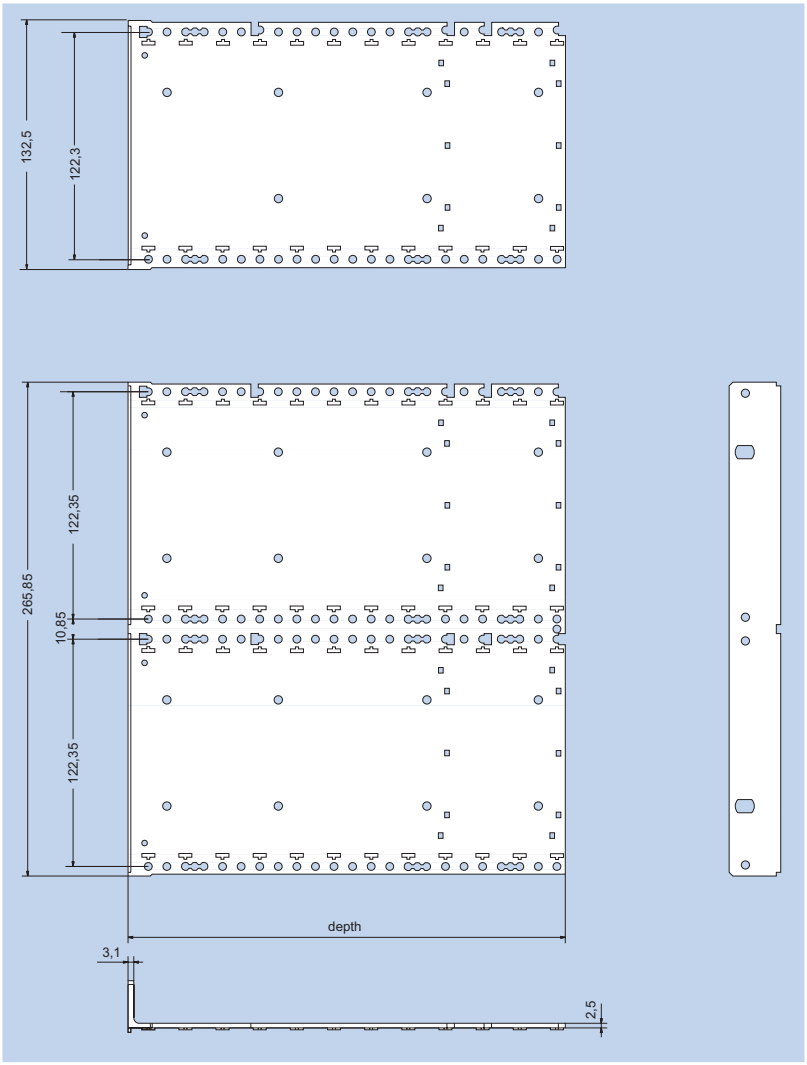


Front Panels and Handles

- √ Blind Front Panels
- √ Front Panels with Handle
- √ Front Panels with Ejector Handle
- √ Front Panels with IEEE-Handle
- √ Plastic Front Panels



Side Panel Fi



for subrack *FLEXIBLE Fi* and *InterRail* (not for *InterRail SNCF*)

Side Panel Fi (flange integrated)
The side panel and the flange are extruded in one piece.

Material: aluminum, extruded
Finish: colorless anodized or passivated

Side Panel Fi TOX (flange clinched)
Side panel made of aluminum sheet is connected to the extruded flange RFI by clinching (toxen®). There is one TOX® point per height unit (U).

Finish: flange passivated / side panel blank, seawater resistant

Ordering details

	nom. height [U]	nom. depth [mm]	depth [mm]	anodized order no. **409**	passivated order no. **409**	passivated/blank order no. **409**
Side panel Fi - 3 - 160	3	160	175.4	**085001**	**110248**	**-**
Side panel Fi - 3 - 220	3	220	235.4	**085002**	**110234**	**-**
Side panel Fi TOX - 3 - 280	3	280	295.4	**-**	**-**	**182910**
Side panel Fi - 6 - 160	6	160	175.4	**085095**	**110201**	**-**
Side panel Fi - 6 - 220	6	220	235.4	**085096**	**110238**	**-**
Side panel Fi TOX - 6 - 280	6	280	295.4	**-**	**-**	**182911**

Accessories

Hexagonal cupped point head screw M 4 x 16, Torx T 20
For assembly of the side panel to the horizontal rails.

Minimumm order quantity 100 pieces

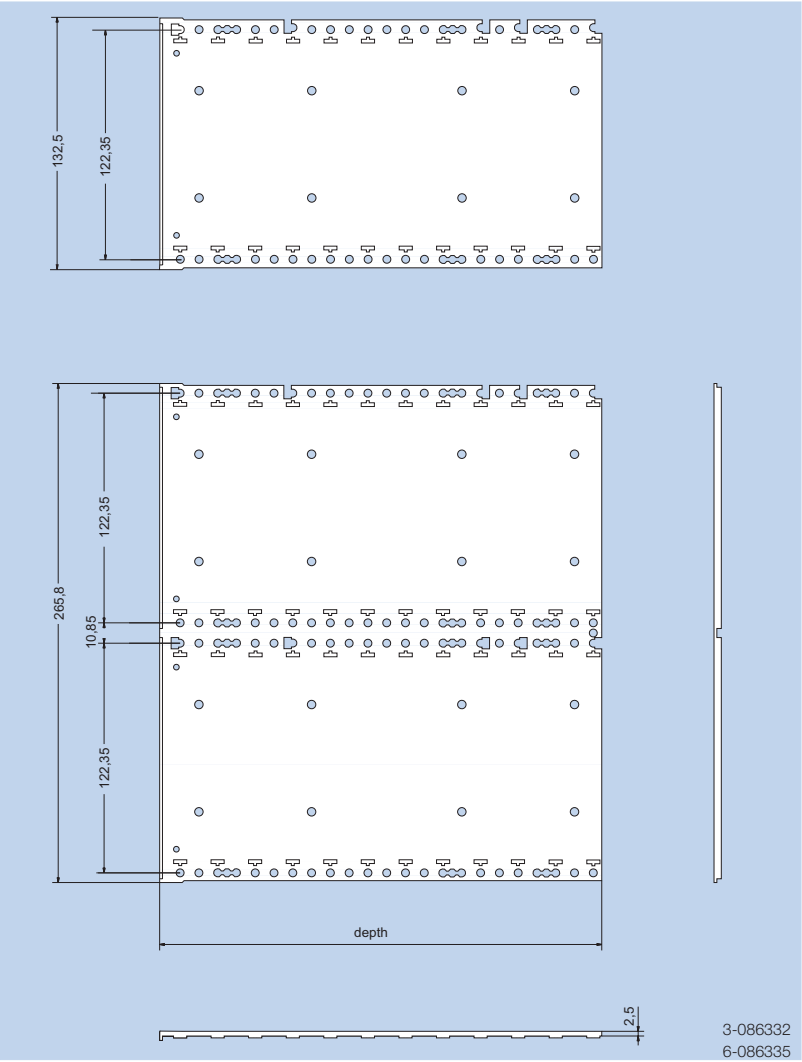
order no.: **409052156**

Accessories

Self tapping hexagonal cupped point head screw M 4 x 16, Torx T 20
For assembly of the side panel to the horizontal rails.

Minimumm order quantity 100 pieces

order no.: **409087639**



for subrack *FLEXIBLE Fs*

Side Panel Fs (flange seperate)

Material: aluminum, extruded
Finish: passivated

Ordering details

	nom. height [U]	nom. depth [mm]	depth [mm]	order no. **409**
Side panel Fs - 3 - 160	3	160	174.2	**106750**
Side panel Fs - 3 - 220	3	220	234.2	**086333**
Side panel Fs - 3 - 280	3	280	294.2	**086334**
Side panel Fs - 6 - 160	6	160	174.2	**097286**
Side panel Fs - 6 - 220	6	220	234.2	**086336**
Side panel Fs - 6 - 280	6	280	294.2	**086337**

Accessories

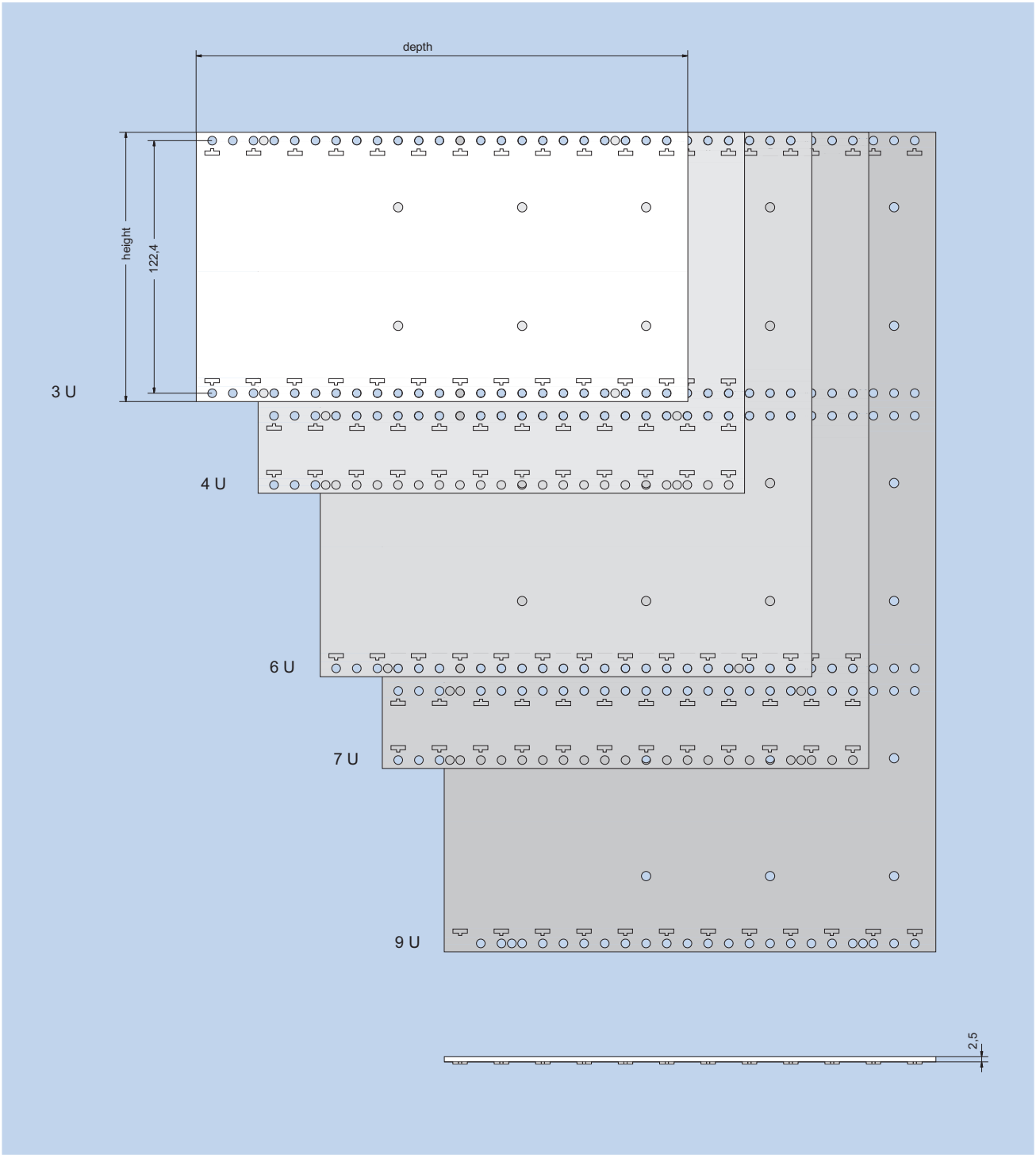
Hexagonal cupped point head screw M 4 x 16, Torx T 20

For assembly of the side panel to the horizontal rails.

Minimumm order quantity 100 pieces

order no.: **409052156**

Side Panel RFI without Flange



for subrack *RFI-SHIELDED*

Side Panel RFI without flange

Material: aluminum, 2.5 mm thick
Finish: blank, seawater resistant

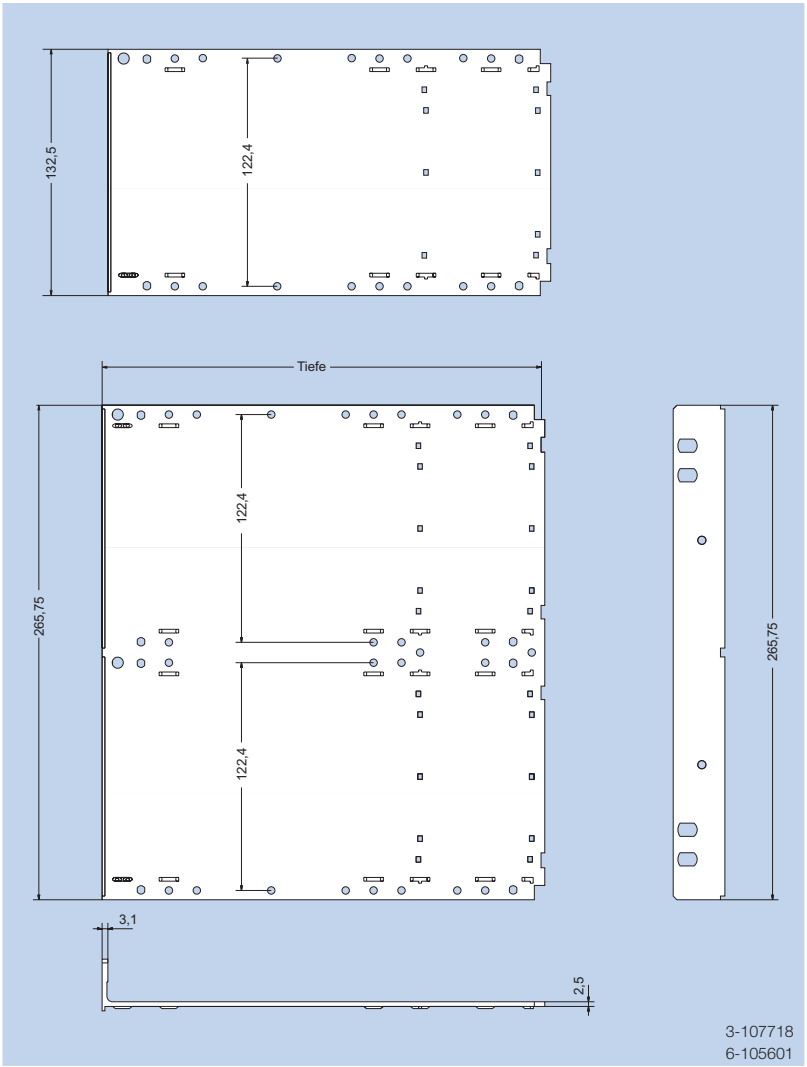
Ordering details

	nom. height [U]	height [mm]	nom. depth [mm]	depth [mm]	order no. **409**
Side panel RFI - 3 - 160	3	130.50	160	177.9	**114240**
Side panel RFI - 3 - 220	3	130.50	220	237.9	**114241**
Side panel RFI - 3 - 240	3	130.50	240	257.9	**161173**
Side panel RFI - 3 - 260	3	130.50	260	277.9	**161174**
Side panel RFI - 3 - 280	3	130.50	280	297.9	**114242**
Side panel RFI - 3 - 340	3	130.50	340	357.9	**114243**
Side panel RFI - 4 - 280	4	174.95	280	297.9	**112872**
Side panel RFI - 4 - 460	4	174.95	460	477.9	**112876**
Side panel RFI - 6 - 160	6	263.85	160	177.9	**114758**
Side panel RFI - 6 - 220	6	263.85	220	237.9	**114759**
Side panel RFI - 6 - 240	6	263.85	240	257.9	**161188**
Side panel RFI - 6 - 260	6	263.85	260	277.9	**161189**
Side panel RFI - 6 - 280	6	263.85	280	297.9	**114760**
Side panel RFI - 6 - 340	6	263.85	340	357.9	**114762**
Side panel RFI - 6 - 460	6	263.85	460	477.9	**114766**
Side panel RFI - 7 - 240	7	308.30	240	257.9	**161193**
Side panel RFI - 9 - 220	9	397.20	220	237.9	**161155**
Side panel RFI - 9 - 280	9	397.20	280	297.9	**161156**
Side panel RFI - 9 - 340	9	397.20	340	357.9	**161157**
Side panel RFI - 9 - 460	9	397.20	460	477.9	**161160**

Accessories

	order no. **409**
For assembly of the side panel to the pr Minimumm order quantity 100 pieces	
Hexagon cupped point head screw M 4 x 16 Torx T 20	**052156**
For assembly of the middle pro led rail by using an outside xed cover plate. Minimum order quantity 10 pieces	
Hexagon head screw	**116769**

Side Panel *InterRail® SNCF*



for subrack *InterRail SNCF*

Side Panel *InterRail SNCF*

Material: aluminum, extruded
Finish: passivated

Ordering details

	nom. height [U]	nom. depth [mm]	depth [mm]	order no. **409**
Side panel *InterRail - SNCF* - 3 - 220	3	220	237.9	**107719**
Side panel *InterRail - SNCF* - 6 - 220	6	220	237.9	**105602**

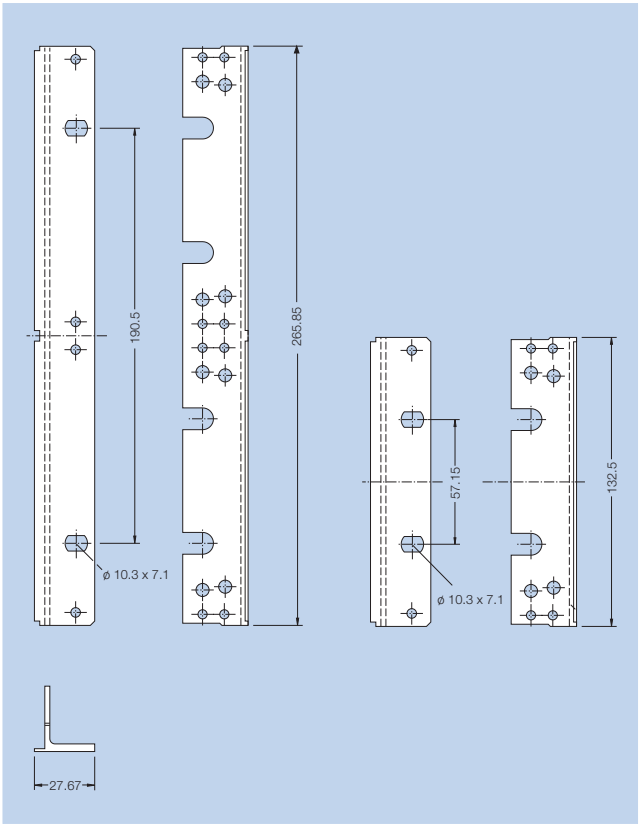
Accessories

Self tapping hexagonal cupped point head screw M 4 x 16, Torx T 20

For assembly of the side panel to the horizontal rails.

Minimumm order quantity 100 pieces

order no.: **409087639**



for subrack *FLEXIBLE Fs*

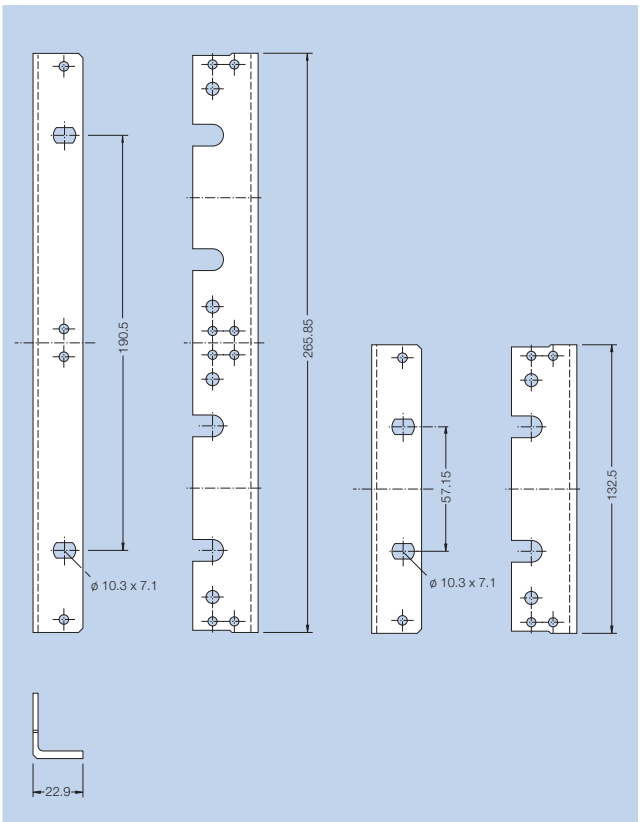
Flange F

The flange can be mounted to the side panel by means of the mounting screws for the horizontal rails.

Material: aluminum, extruded
Finish: anodized

Ordering details

	order no. 409
Flange F - 3 U	**086787**
Flange F - 6 U	**086791**



Flange without Nose

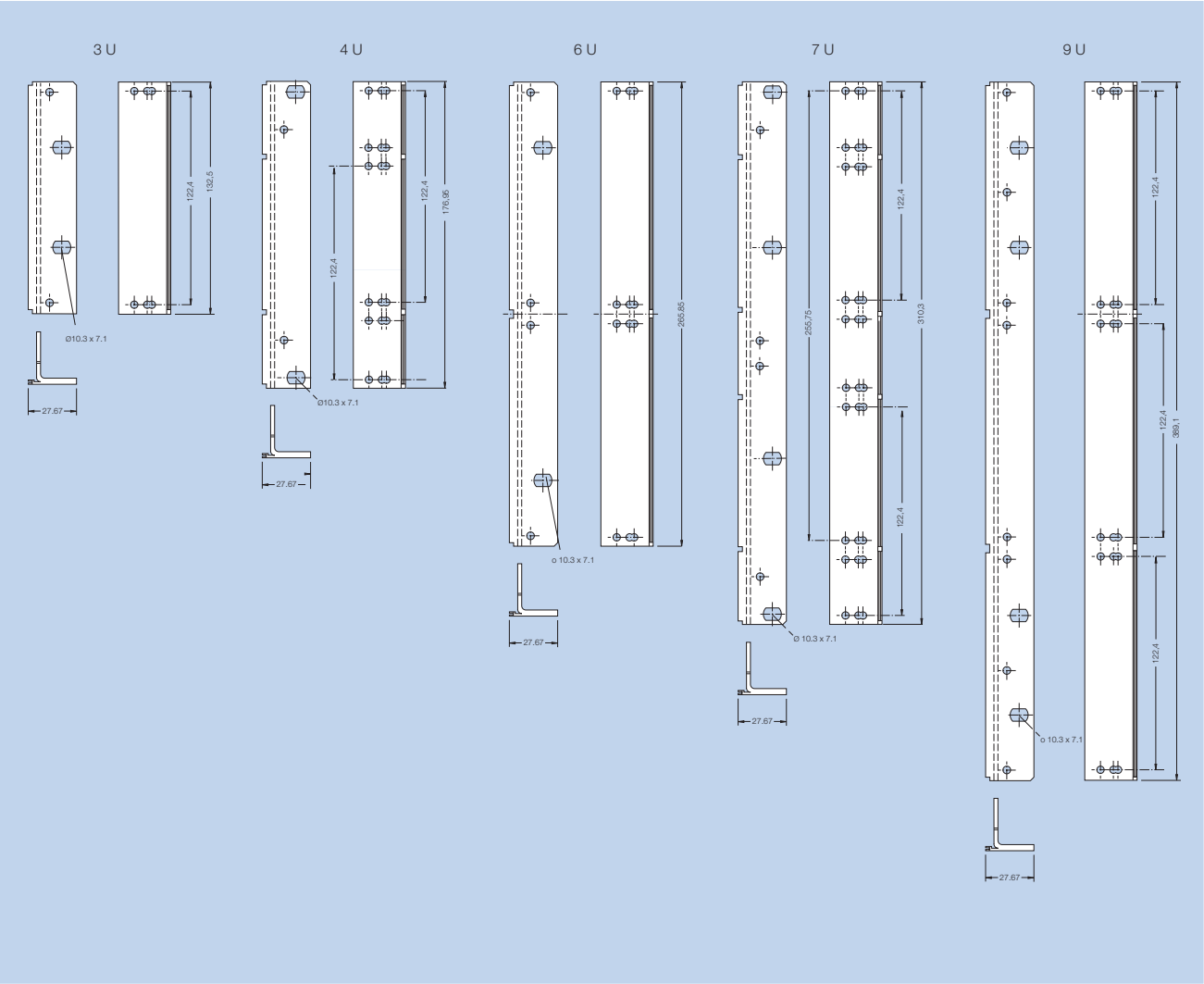
This flange can be mounted at various depth on the side panel grid.

Material: aluminum, extruded
Finish: anodized

Ordering details

	order no. 409
Flange without nose - 3 U	**087802**
Flange without nose - 6 U	**087824**

Flange RFI



for subrack *RFI-SHIELDED*

Flange RFI
The flange can be mounted to the side panel by means of the mounting screws for the horizontal rails.
With slits in the side edges for insertion of RFI springs.

Material: aluminum, extruded
Finish: passivated

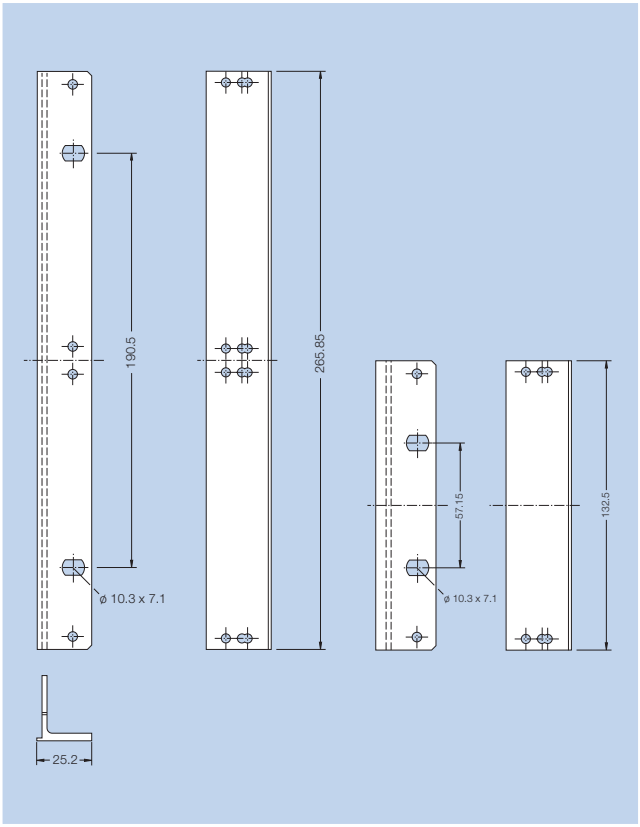
Ordering details

	nom. height [U]	order no. **409**
Flange RFI - 3	3	**112202**
Flange RFI - 4	4	**114612**
Flange RFI - 6	6	**112205**
Flange RFI - 7	7	**114618**
Flange RFI - 9	9	**112234**

Accessories

	order no. **409**
RFI-spring F3 - 2 U	**112386**
RFI-spring F3 - 3 U	**111636**
RFI-spring F3 - 4 U	**112387**
RFI-spring F3 - 6 U	**111637**

Flange RFI - FP,
Flange for Wall Mounting



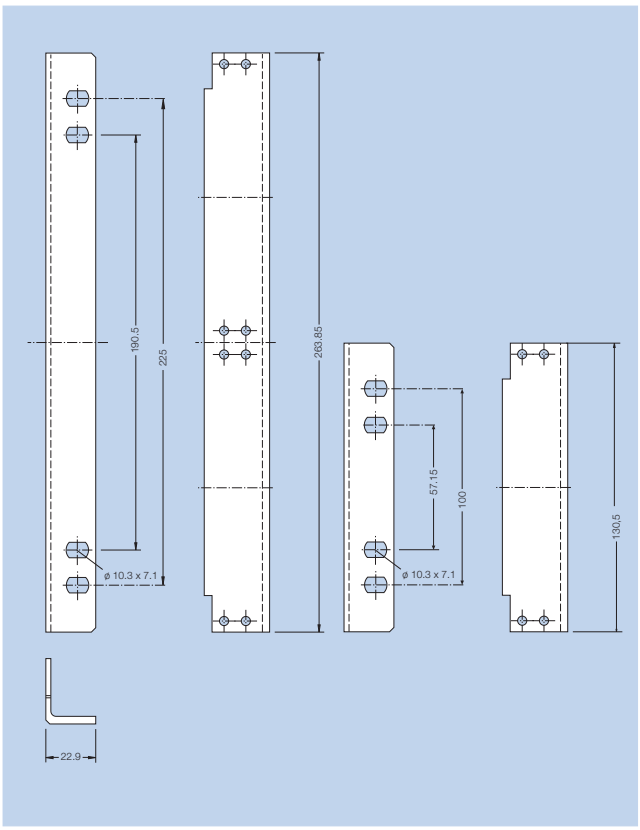
Flange RFI - FP

This flange is suitable for mounting of a continous front panel of 85 HP and a hinged front panel of 85 HP in a subrack. The flange will be mounted to the side panel by means of the mounting screws for the horizontal rails.

Material: aluminum, extruded
Finish: passivated

Ordering details

	order no. 409
Flange RFI - FP - 3 U	**114708**
Flange RFI - FP - 6 U	**114715**



Flange for Wall Mounting

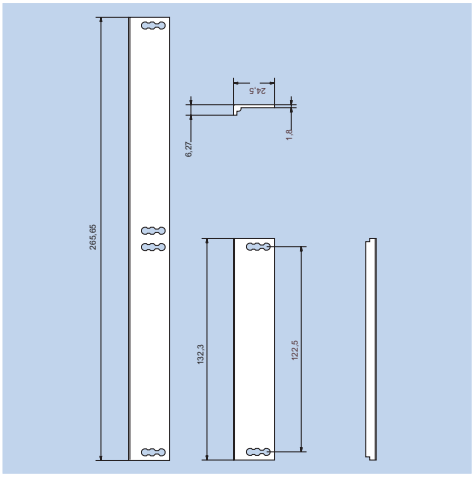
For mounting of a subrack on a wall.

Material: aluminum
Finish: blank, seawater resistant

Ordering details

	order no. 409
Flange for wall mounting - 3 U	**161110**
Flange for wall mounting - 6 U	**161113**

Closing Profiles F and RFI -F3
Handle





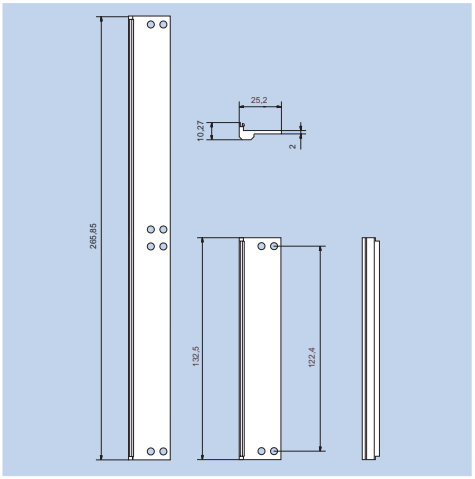
Closing Profile F

For covering the slit between front panel and side panel.
The closing profile will be mounted to the side panel by means of the mounting screws for the horizontal rails.

Material: aluminum, extruded
Finish: anodized

Ordering details

	order no. 409
Closing profile F - 3 U	**085695**
Closing profile F - 6 U	**085696**



Closing Profile RFI -F3

For covering the slit between front panel and side panel.
The closing profile will be mounted to the side panel by means of the mounting screws for the horizontal rails.
With slits for insertion of RFI-springs.

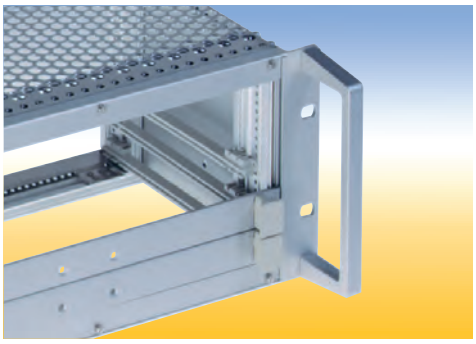
Material: aluminum, extruded
Finish: passivated

Ordering details

	order no. 409
Closing profile RFI - F3 - 3 U	**122131**
Closing profile RFI - F3 - 6 U	**118374**

Accessories

	order no. 409
RFI-spring F3 - 3 U	**111636**
RFI-spring F3 - 6 U	**111637**



Handle

Material: aluminum
Finish: anodized

Ordering details

	order no. 409
Handle -3 U	**040419**
Handle -6 U	**040420**

Accessories
Counter sunk screw M4 x 10, Torx
Minimumm order quantity 100 pieces
order no.: **409105789**

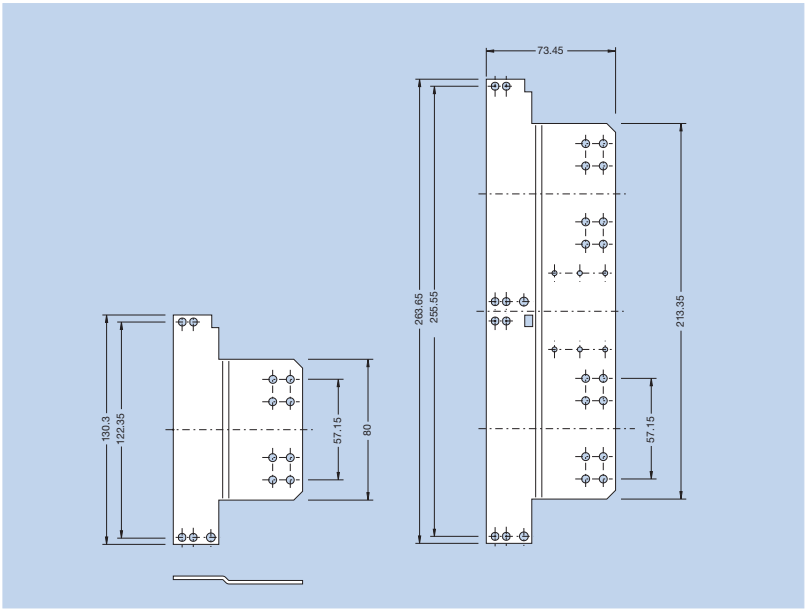


Mounting parts for fastening a subrack into a housing

Screw retrainer M6
Color: black
Material: POM
Minimum order quantity 10 pieces
order no.: **409074387**

Oval head screw
M6 x 16 DIN 7985
steel, nickel plated
Minimum order quantity 10 pieces
order no.: **409013919**

Side Panel Extender, Side Panel Connector



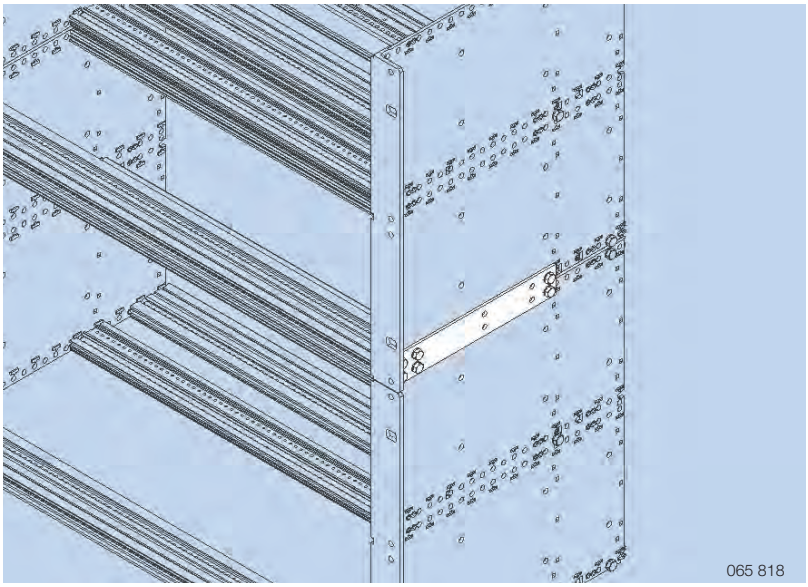
Side Panel Extender

Elongate a side panel about 60 mm to obtain a larger cabling space.
The side panel extender is mounted to the side panel by means of the mounting screws for the horizontal rails.

Material: aluminum, 2 mm thick
Finish: passivated

Ordering details

	order no. 409
Side panel extender 3 U	**087820**
Side panel extender 6 U	**087821**



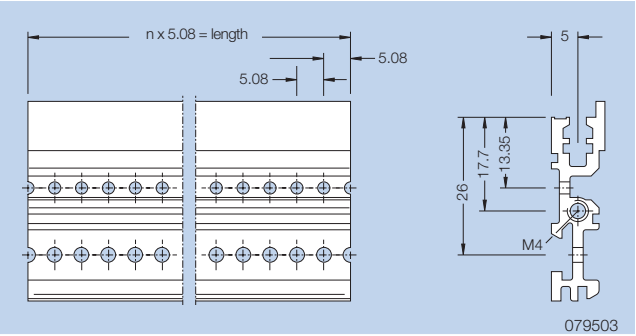
Side Panel Connector

Join two subracks, one above the other. The side panel connector is mounted to the side panels by means of the mounting screws for the horizontal rails. (nom. depth 160 mm).

Material: aluminum, 2 mm thick
Finish: blank

order no.: **409065819**

Horizontal Rails



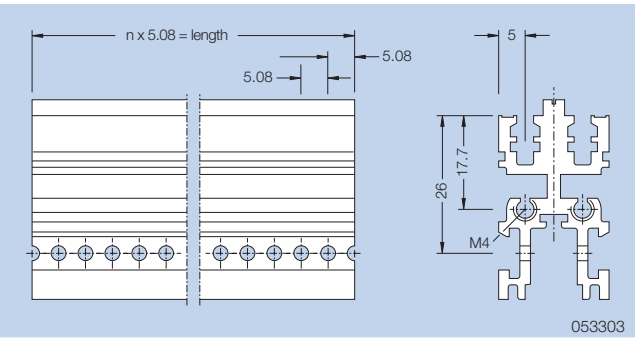
for subrack *FLEXIBLE Fi*

Front Profile VE1
(also rear profile by using a front panel on the rear).

Material: aluminum
Finish: anodized

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile VE1	21	106.68	**079521**
Front profile VE1	43	218.44	**079543**
Front profile VE1	85	431.80	**079585**



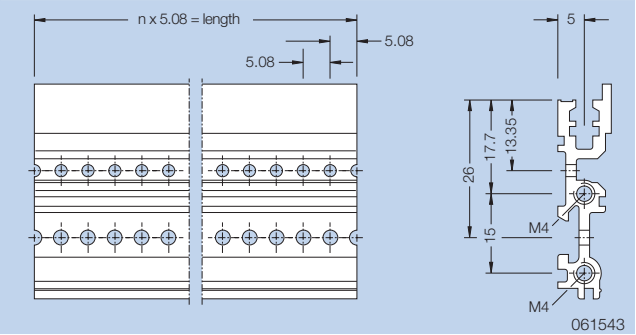
for subrack *FLEXIBLE, RFI-SHIELDED* and *InterRail*

Front Profile 2xVE1
For partition e.g. 6 U subracks into two fields of 3 U.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile 2xVE1	21	106.68	**053321**
Front profile 2xVE1	29	147.32	**053329**
Front profile 2xVE1	43	218.44	**053343**
Front profile 2xVE1	85	431.80	**053385**



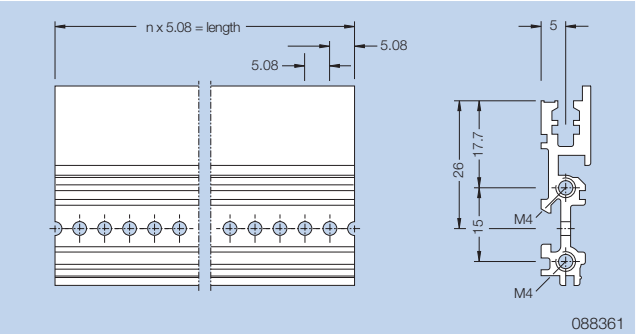
for subrack *FLEXIBLE*

Front Profile VE12
With 2 tapped holes.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile VE12	43	218.44	**062043**
Front profile VE12	85	431.80	**062085**



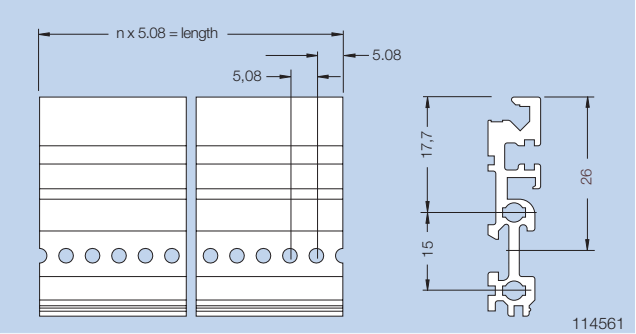
for subrack *RFI-SHIELDED*

Front Profile V12-RFI
(also rear profile by using a front panel on the rear).
With retainer for RFI-spring A2

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile V12-RFI	43	218.44	**090799**
Front profile V12-RFI	85	431.80	**088365**



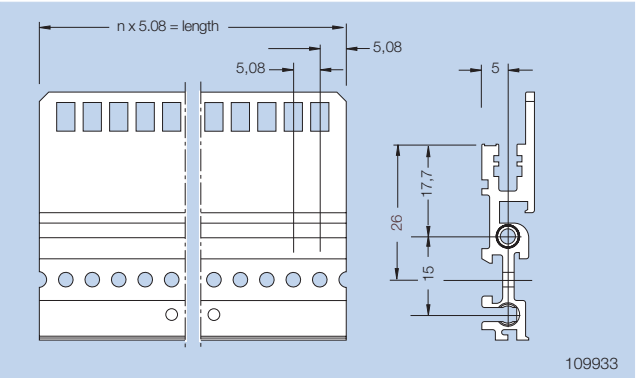
for subrack *RFI-SHIELDED*

Front Profile V12-SFP-RFI
For adapting a plug in front panel.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile V12-SFP-RFI	85	431.80	**114562**



for subrack *RFI-SHIELDED* and *InterRail*

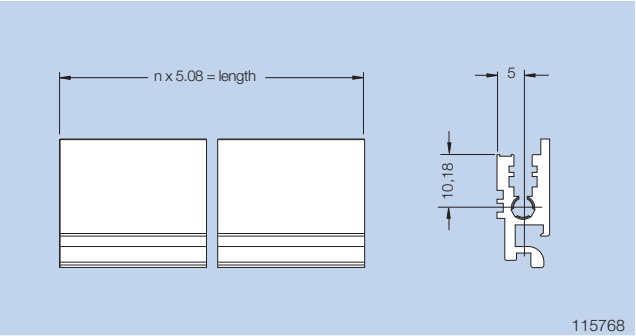
Front Profile V12-IEEE
With grid holes for IEEE handle.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile V12-IEEE-RFI	43	218.44	**111182**
Front profile V12-IEEE-RFI	85	431.80	**109934**

Horizontal Rails



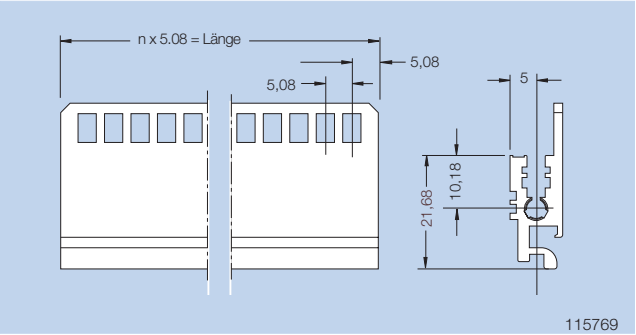
for subrack *InterRail*

Front Profile V1-HUCK
For subrack Rear I/O.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile V1-HUCK	43	218.44	**116588**
Front profile V1-HUCK	85	431.80	**115823**



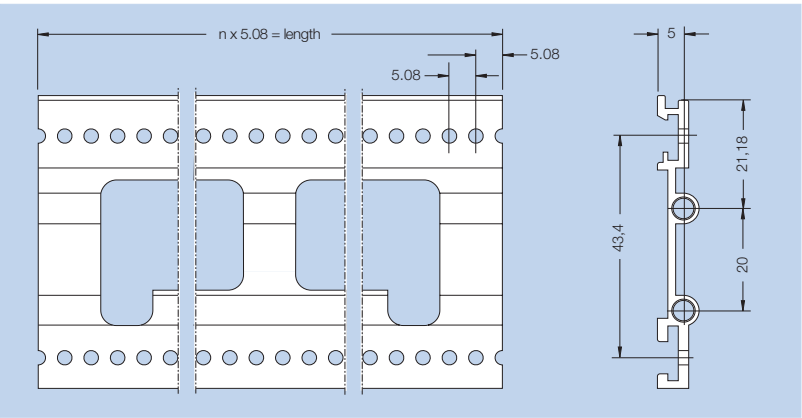
for subrack *RFI-SHIELDED* and *InterRail*

Front Profile V1-HUCK-IEEE
For subrack Rear I/O subrack. With grid holes for IEEE handle. Strengthened version.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile V1-HUCK-IEEE	43	218.44	**116507**
Front profile V1-HUCK-IEEE	85	431.80	**115824**



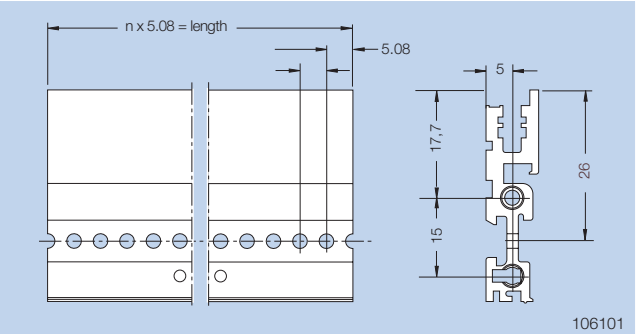
for subrack *RFI-SHIELDED* and *InterRail*

Support Profile
For insertion of card guides in subrack Rear I/O.

Material: aluminum
Finish: blank

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Support profile	43	218.44	**122421**
Support profile	85	431.80	**115771**



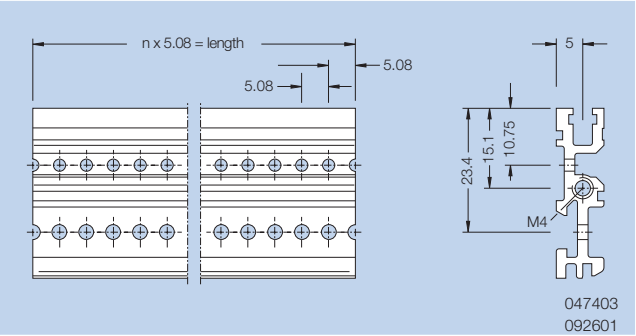
for subrack *RFI-SHIELDED* and *InterRail*

Front Profile V12-S-RFI
(also rear profile by using a front panel on the rear).
Strengthened version.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Front profile V12-S-RFI	37	187.96	**106102**
Front profile V12-S-RFI	43	218.44	**116586**
Front profile V12-S-RFI	85	431.80	**106103**

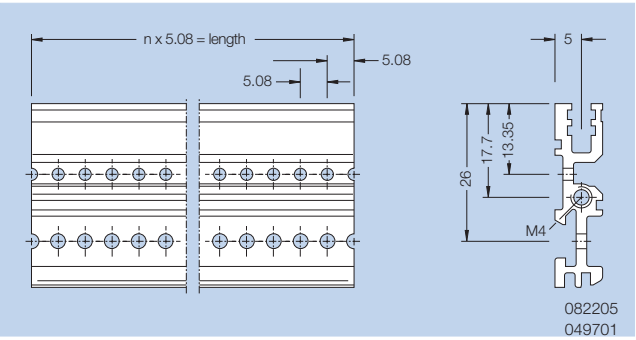


for subrack *FLEXIBLE* and *RFI-SHIELDED*

Rear Profile HE1
(type *alpha*).
Material: aluminum
Finish: anodized or passivated

Ordering details

	nom. width [HP]	length [mm]	anodized order no. **409**	passivated order no. **409**
Rear profile HE1	21	106.68	**047421**	**161245**
Rear profile HE1	43	218.44	**047443**	**104994**
Rear profile HE1	85	431.80	**047485**	**092602**



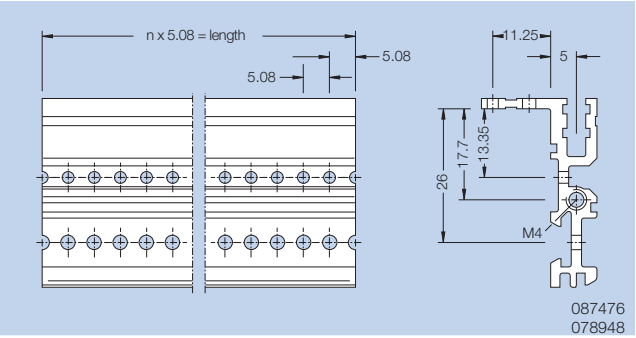
for subrack *FLEXIBLE* and *RFI-SHIELDED*

Rear Profile HE2
(type *delta*).
Material: aluminum
Finish: anodized or passivated

Ordering details

	nom. width [HP]	length [mm]	anodized order no. **409**	passivated order no. **409**
Rear profile HE2	21	106.68	**049721**	**082121**
Rear profile HE2	43	218.44	**049743**	**082143**
Rear profile HE2	85	431.80	**049785**	**082185**

Horizontal Rails



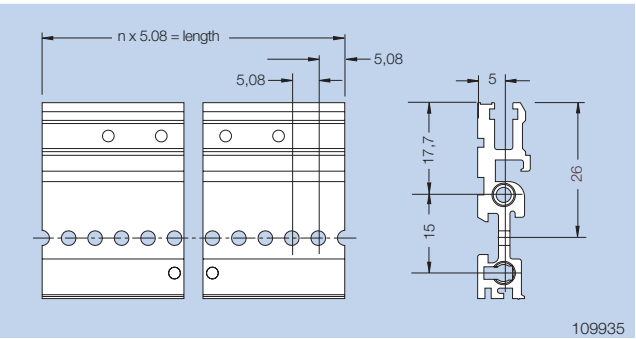
for subrack *FLEXIBLE*

Rear Profile HZE
(type *beta*) with integrated connector attachment.

Material: aluminum
Finish: anodized or passivated

Ordering details

	nom. width [HP]	length [mm]	anodized order no. **409**	passivated order no. **409**
Rear profile HZE	21	106.68	**047221**	**108061**
Rear profile HZE	43	218.44	**047243**	**104030**
Rear profile HZE	85	431.80	**047285**	**087475**



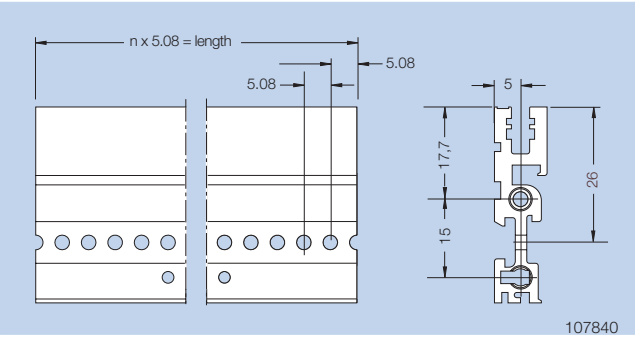
for subrack *RFI-SHIELDED* and *InterRail*

Rear Profile H22-RFI for scew on rear cover
(type *delta*) For use with a rear cover.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Rear profile H22-RFI for screw on rear cover	43	218.44	**109 937**
Rear profile H22-RFI for screw on rear cover	85	431.80	**108 246**



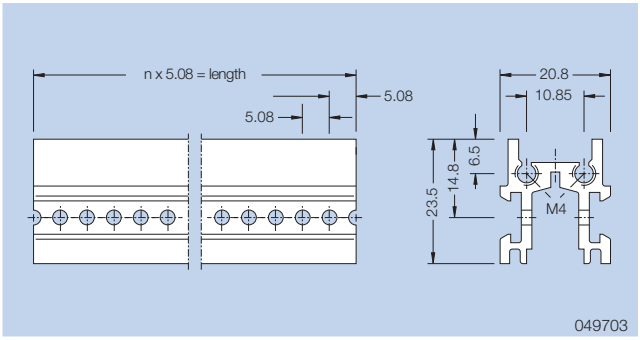
for subrack *InterRail*

Rear Profile H22-S-RFI
(type *delta*). Strengthened version.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Rear profile H22-S-RFI	37	187,95	**107721**
Rear profile H22-S-RFI	43	218.44	**107841**
Rear profile H22-S-RFI	85	431.80	**107842**



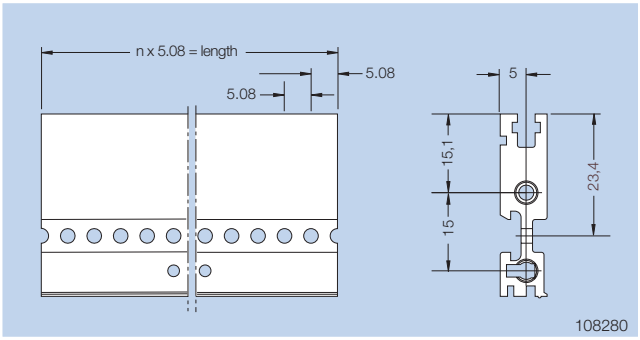
for subrack *FLEXIBLE* and *RFI-SHIELDED*

Rear Profile 2xHK
For partition, e.g. 6 U subracks into two fields of 3 U.

Material: aluminum
Finish: anodized

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Rear profile 2xHK	21	106.68	**050121**
Rear profile 2xHK	29	147,32	**050129**
Rear profile 2xHK	43	218.44	**050143**
Rear profile 2xHK	85	431.80	**050185**



for subrack *InterRail*

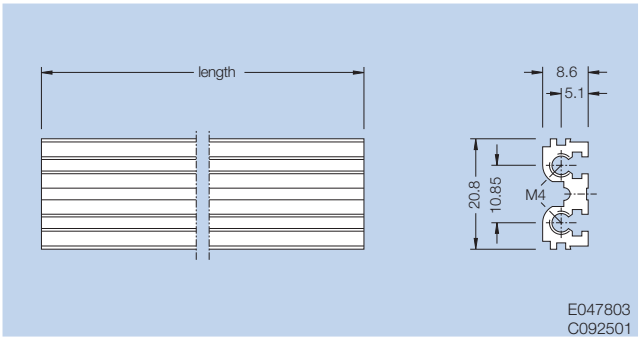
Rear Profile H12-S
(type *alpha*) Strengthened version.

Material: aluminum

Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Rear profile H12-S	37	187.96	**108987**
Rear profile H12-S	43	218.44	**121519**
Rear profile H12-S	85	431.80	**108988**



for subrack *FLEXIBLE* and *RFI-SHIELDED*

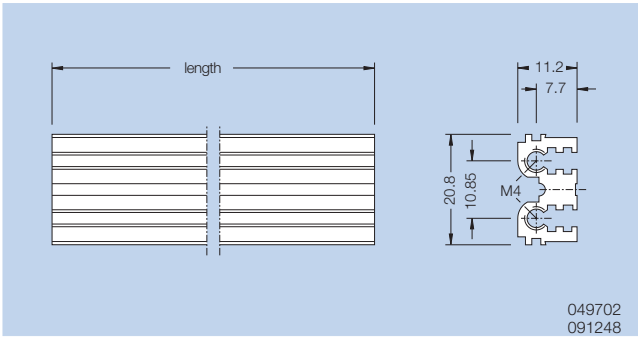
Center Profile ME1
(type alpha) Mounted in the rear of a 6 U subrack .

Material: aluminum
Finish: anodized or passivated

Ordering details

	nom. width [HP]	length [mm]	anodized order no. **409**	passivated order no. **409**
Center profile ME1	21	106.68	**047821**	**161059**
Center profile ME1	43	218.44	**047843**	**115042**
Center profile ME1	85	431.80	**047885**	**092502**

Horizontal Rails



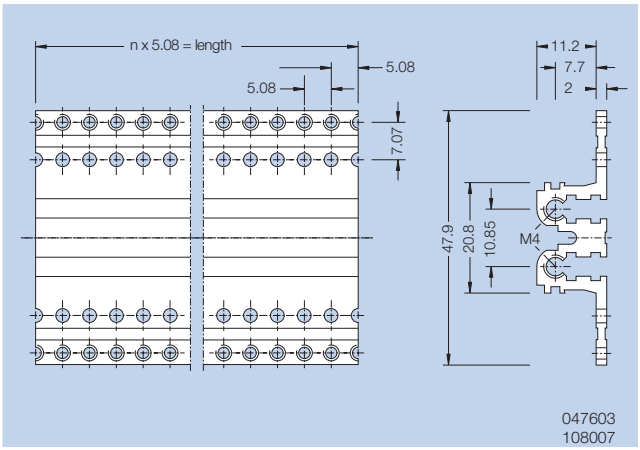
for subrack *FLEXIBLE* and *RFI-SHIELDED*

Center Profile ME2
(type delta) Mounted in the rear of a 6 U subrack.

Material: aluminum
Finish: anodized or passivated

Ordering details

	nom. width [HP]	length [mm]	anodized order no. **409**	passivated order no. **409**
Center profile ME2	21	106.68	**049921**	**115701**
Center profile ME2	43	218.44	**049943**	**111199**
Center profile ME2	85	431.80	**049985**	**093548**



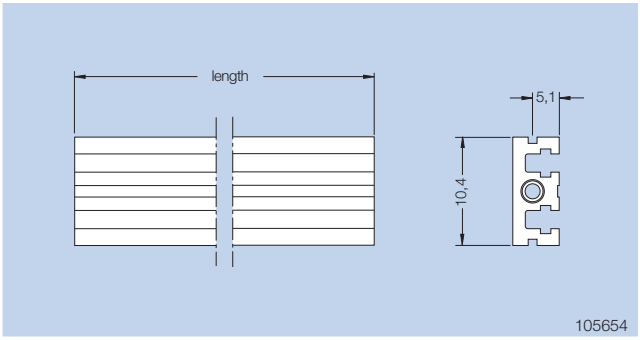
for subrack *FLEXIBLE* and *RFI-SHIELDED*

Center Profile MZE
(type beta) Mounted in the rear of a 6 U subrack, with integrated connector attachment.

Material: aluminum
Finish: anodized or passivated

Ordering details

	nom. width [HP]	length [mm]	anodized order no. **409**	passivated order no. **409**
Center profile MZE	21	106.68	**047621**	**122377**
Center profile MZE	43	218.44	**047643**	**122378**
Center profile MZE	85	431.80	**047685**	**108008**



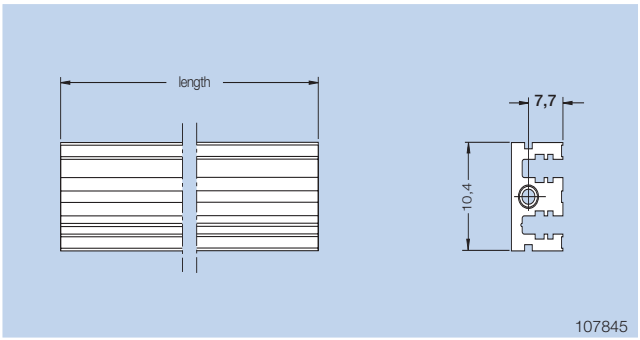
for subrack *InterRail*

Center Profile M1-S
(type alpha) Mounted in the rear of a 6 U subrack.
Strengthened version.

Material: aluminum
Finish: passivated

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Center profile M1-S	37	187.96	**105655**
Center profile M1-S	43	218.44	**122379**
Center profile M1-S	85	431.80	**105656**



for subrack *InterRail*

Center Profile M2-S
(type delta) Mounted in the rear of a 6 U subrack.
Strengthened version.

Material: aluminum
Finish: passivated

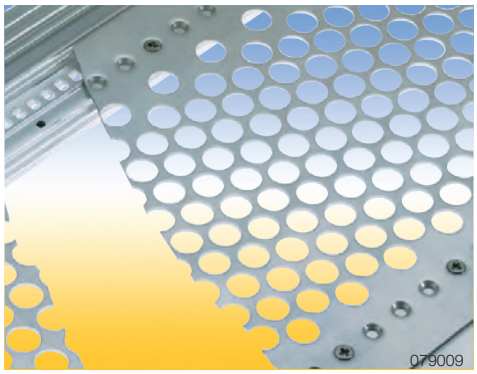
Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Center profile M2-S	37	187.96	**107722**
Center profile M2-S	43	218.44	**107846**
Center profile M2-S	85	431.80	**107847**

Accessories

	order no. **409**
For contact between pr ont panel	
RFI-spring P2 - 42 HP	**106546**
RFI-spring P2 - 84 HP	**106547**
For contact between pr	
RFI-spring A2 - 42 HP	**090800**
RFI-spring A2 - 84 HP	**085011**

Cover Plates



Accessories

Self tapping counter sunk scrrew M 2.5x10

Minimumm order quantity 100 pieces

order no.: **409105790**

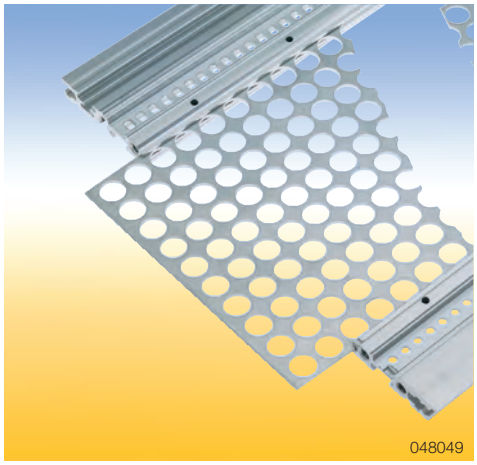
for subrack *FLEXIBLE*

Cover Plate F, screw on
Hole diameter 8.0 mm.
The cover plate is mounted on the horizontal rails with self tapping countersunk screws at special holes

Material: aluminum, 1 mm thick
Finish: blank, seawater resistant

Ordering details

	nom. width [HP]	nom. depth [mm]	order no. **409**
Cover plate F, screw on	84	160	**079184**
Cover plate F, screw on	84	220	**079284**
Cover plate F, screw on	84	280	**079384**



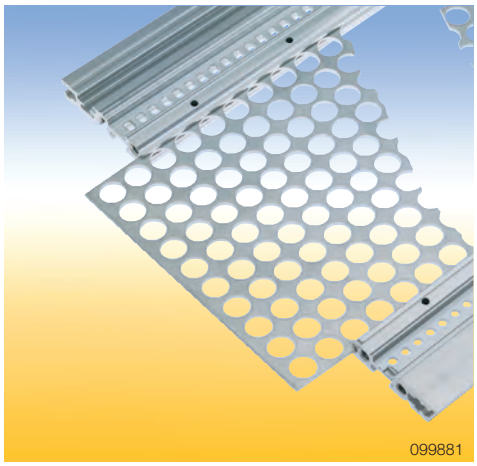
for subrack *FLEXIBLE Fi*

Cover Plate Fi, slide-in
Hole diameter 8.5 mm
The cover plate slides in special slots in the profiles.

Material: aluminum, 1.5 mm thick
Finish: blank, seawater resistant

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Cover plate Fi, slide-in	84	160	**048684**
Cover plate Fi, slide-in	84	220	**048784**



for subrack *FLEXIBLE Fs*

Cover Plate Fs, slide-in
Hole diameter 8.5 mm.
The cover plate slides in special slots in the profiles.

Material: aluminum, 1.5 mm thick
Finish: blank, seawater resistant

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
Cover plate Fs, slide-in	84	160	**099883**



for subrack *RFI-SHIELDED* and *InterRail*

Cover Plate, inside

Hole diameter 4 / 5.2 x 4 mm. The cover plate is mounted with self tapping counter sunk screws on the inside of the side panels. Additionally the cover plate is secured to the horizontal rails by clips.

Material: aluminum, 1 mm thick
Finish: passivated, seawater resistant

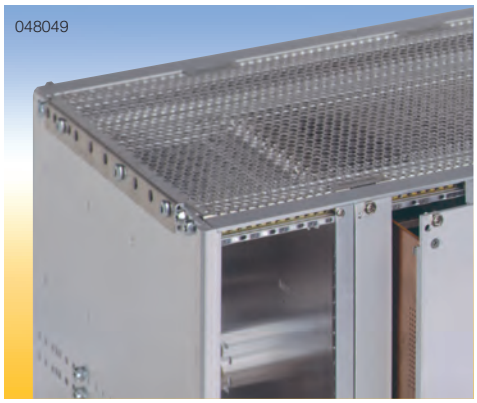
Ordering details

	nom. width [HP]	nom. depth [mm]	order no. **409**
Cover plate, inside	84	160	**115270**
Cover plate, inside	84	220	**116603**

	nom. width [HP]	PCB depth/ nom. depth [mm]	order no. **409**
Cover plate, inside	84	160 / 220	**121329**
Cover plate, inside	84	160 / 280	**122549**
Cover plate, inside	84	220 / 280	**122550**

Accessories

	order no. **409**
For assembling the cover plate to the side panel. Minimum order quantity 100 pieces	
Self tapping counter sunk screw M 2.5 x 6	**067624**
For assembling the cover plate to the horizontal rails. Minimum order quantity 10 pieces	
Clip	**115224**



for subrack *RFI-SHIELDED*

Cover Plate, outside

Hole diameter 4 / 5.2 x 4 mm. The cover plate will be mounted with self tapping counter sunk screws outside of the side panels. Additionally the cover plate is secured to the horizontal rails by clips.

Material: aluminum, 1 mm thick
Finish: blank, seawater resistant

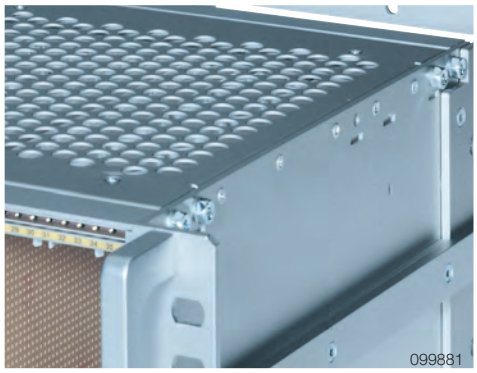
Ordering details

	nom. width [HP]	nom. depth [mm]	order no. **409**
Cover plate, outside	84	240	**161104**
Cover plate, outside	84	260	**161105**
Cover plate, outside	84	340	**115540**
Cover plate, outside	84	460	**115542**

Accessories

	order no. **409**
For assembling the cover plate to the side panel. Minimum order quantity 100 pieces	
Self tapping counter sunk screw M 4.7 x 6.5	**111184**
For assembling the cover plate to the horizontal rails. Minimum order quantity 10 pieces	
Clip	**115224**

Cover Plates, Rear Cover



for subrack *InterRail*

Cover Plate *InterRail*
Hole diameter 8.0 mm.
The cover plate is mounted with self tapping counter sunk screws at the side panels and at the horizontal rails.

Material: aluminum, 1 mm thick
Finish: blank, seawater resistant

Ordering details

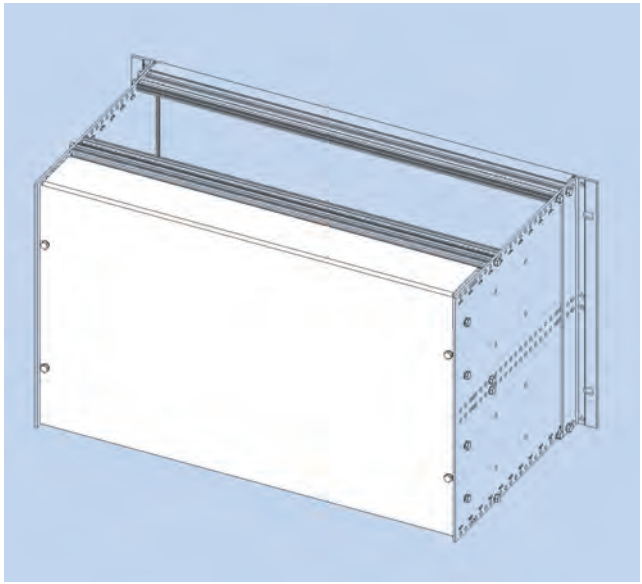
	nom. width [HP]	nom. depth [mm]	order no. **409**
Cover plate *InterRail*	84	160	**107906**
Cover plate *InterRail*	84	220	**107905**
Cover plate *InterRail*	36	220	**107723**

Accessories

Self tapping counter sunk screw M 2.5 x 6

Minimumm order quantity 100 pieces

order no.: **409067624**



for subrack *FLEXIBLE*

Rear Cover F 84 HP

Technische Daten

Material	Rear cover: Holding angle:	aluminum: steel
Finish	Rear cover: Holding angle:	passivated galvanized, passivated

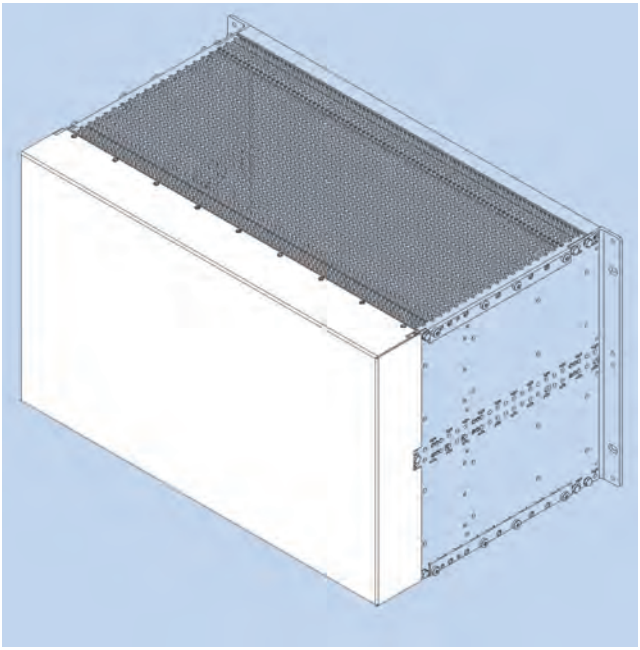
Delivery:
Unassembled as single parts or as kit.

Ordering details

	nom. height [U]	height [mm]	order no. **409**
Rear cover F	3	125.0	**088190**
Rear cover F	6	258.5	**089244**

Delivery kit rear cover F 84 HP

	3 U Stück	6 U Stück
Rear cover 84 HP	1	1
Holding angle	2	4
Mounting parts	1	1



Rear Cover RFI 84 HP
Protective wiring rear cover for RFI shielded enclosure.

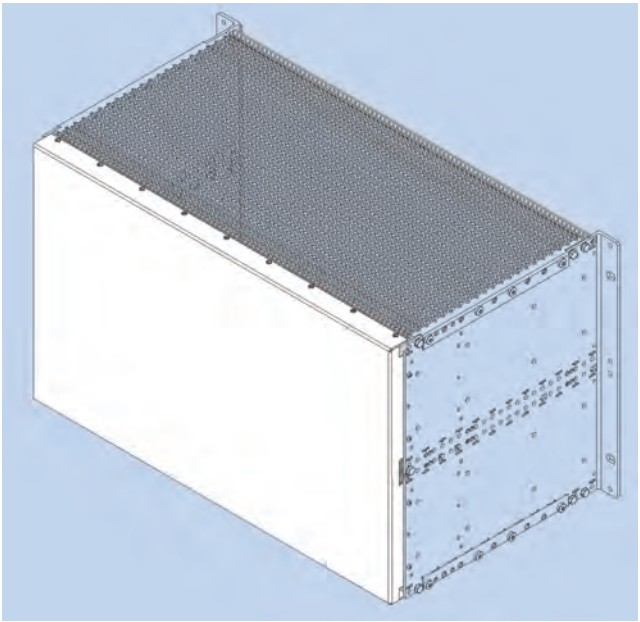
Material: aluminum, 1 mm thick
Finish: passivated

Delivery:
Unassembled as single parts or as kit.

Delivery:
1 rear cover 84 HP
2 RFI-spring U2 (4 for 6 U)
Mounting parts

Ordering details kit rear cover RFI 84 HP

	nom. height [U]	height [mm]	order no. **409**
Rear Cover RFI	3	125.0	**115898**
Rear Cover RFI	6	258.5	**115899**



Rear Cover RFI 84 HP, inside
Protective wiring rear cover for RFI shielded enclosure.

Material: aluminum, 1 mm thick
Finish: passivated

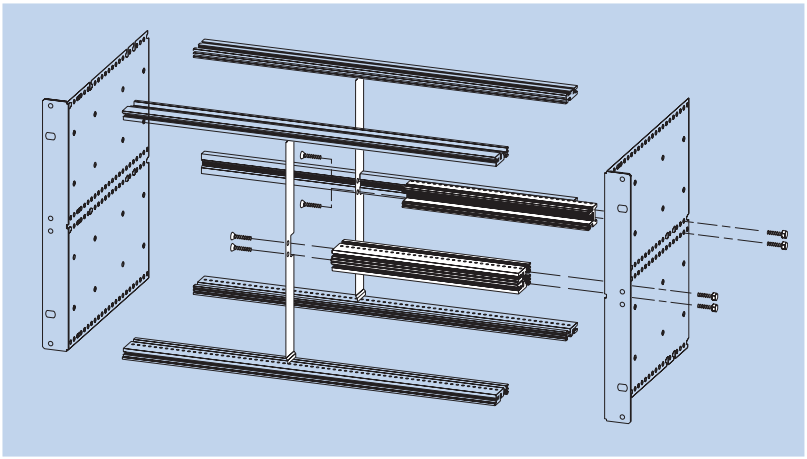
Ordering details rear cover RFI 84 HP, inside

	nom. height [U]	height [mm]	order no. **409**
Rear Cover RFI	3	133.15	**108875**
Rear Cover RFI	6	266.5	**108876**

Accessories

	order no. **409**
For assembling the rear cover to the pr	der quantity 100 pieces
Counter sunk screw M 2.5 x 6	**067624**
For assembling the rear cover to the side panel. Minimumm order quantity 100 pieces	
Self tapping Taptite screw M 2.5 x 6	**082239**

Subrack Divider



Assembly:
The short horizontal rails are assembled to the side panel. The dividing strip is inserted into the horizontal rail groove, fixed with a rotating motion and mounted on the short horizontal rails.

Positioning note:
For optimum use of available space in the subrack, PCB's of 6 U should be mounted left, and the 3 U on the right. In this case the dividing strip requires only 1 HP, otherwise 2 HP for the necessary air and leakage paths.

for subrack *FLEXIBLE* and *RFI-SHIELDED*

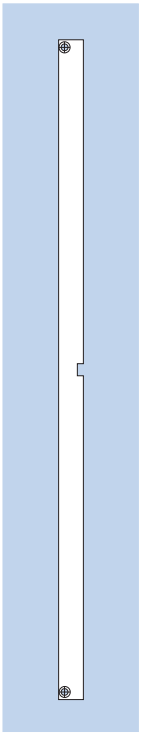
Subrack Divider Kit
2 x 3 U - 42 HP and 6 U - 40 HP
The divider separates a 6 U subrack into a field for 6 U PCB's and 2 fields of 3 U.

Finish: passivated

Delivery:
1 double front profile
2xVE1-43 HP passivated
1 double rear profile
2xHK-43 HP anodized
2 divider strips
Mounting parts

order no.: **409082063**

Single Parts



Blind Front Panel for Subrack Divider
For covering of the divider strip. Optional with RFI-springs for a RFI shielded front.

Material: aluminum
Finish: passivated
Dimensions: 2 HP x 6 U

order no.: **409116319**

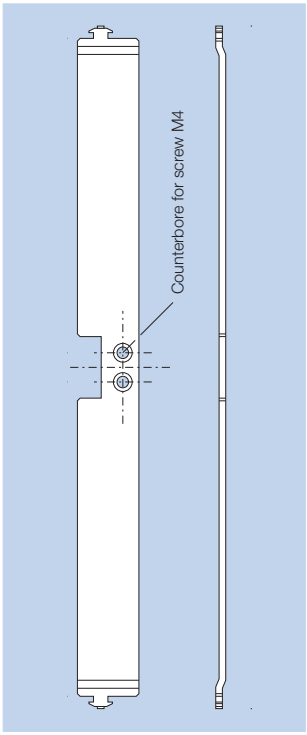
Accessories

	order no. 409
RFI-spring F3 - 3U	**111112**
RFI-spring F3 - 6U	**111116**

Needed 1 x 6 U and 2 x 3 U RFI-springs

For assembly of the front panel to the horizontal rail
Minimum order quantity 100 pieces

Pan head screw M 2.5 x 11.3	**101917**



Divider Strip

Material: aluminum passivated
Dimensions: 6 U

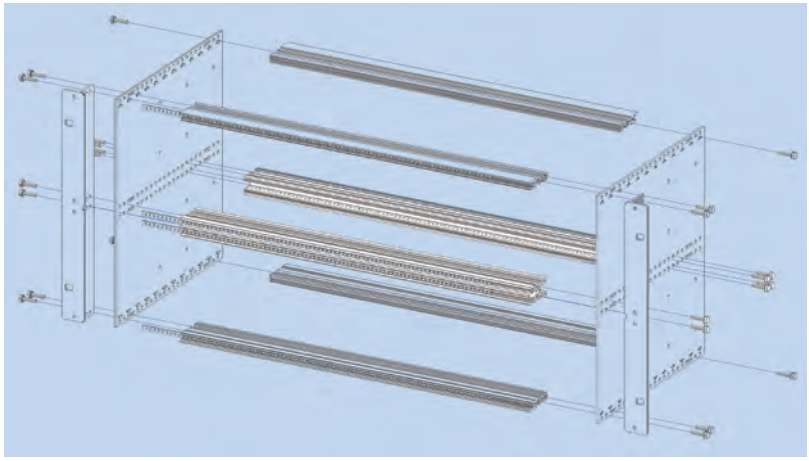
order no.: **409078942**

Accessories
Counter sunk screw M 4 x 16
For assembly of the divider strip to the horizontal rail:

Minimum order quantity 100 pieces

order no.: **409107342**

Subrack Divider, Horizontal Mounting Frame

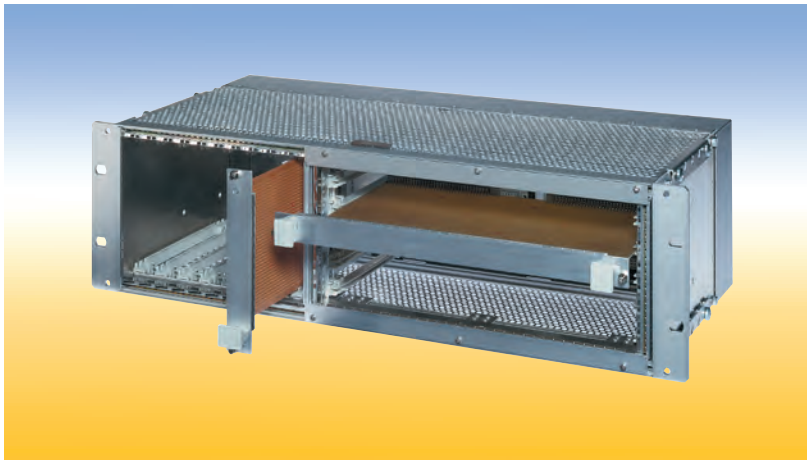


for subrack *FLEXIBLE* and *RFI-SHIELDED*

Subrack Divider Kit 2 x 3 U - 84 HP
For partitioning a 6 U subrack in 2x3U.

Delivery:
1 double front profile
2xVE1 - 85HP colorless passivated 1 double rear profile
2xHK - 85HP anodized
Mounting parts

order no.: **409166270**



Horizontal Mounting Frame
20 HP for horizontal mounting of 6U PCB‘s in 3U subracks.
The horizontal mounting frame needs 52 HP in the width.
For 84 HP subracks are available
Placed right:
52 HP for horizontal mounting frame,
32 HP for 3 U-PCB‘s
Placed left:
52 HP for horizontal mounting frame,
1 HP for air and leakage paths,
31 HP for 3 U-PCB‘s.

Ordering details for horizontal mounting frame kits

		nom. depth [mm]	type *alpha* order no. **409**	type *beta* order no. **409**	type *delta* order no. **409**
6 U	anodized	user-	**069047**	**064947**	**064687**
6 U RFI	passivated	160	**161161**	-	**161165**
6 U RFI	passivated	220	**161162**	-	**161166**

Accessories
Threaded strip 20 x M 2.5

order no.: **409131688**

Partition Wall, Separating Wall
Wall and Door Installation Profiles



Partition Wall

For partitioning of a subrack part.
The partition wall 6 U can also be used as a RFI shielded subrack divider in 6 U and 2x3 U parts.

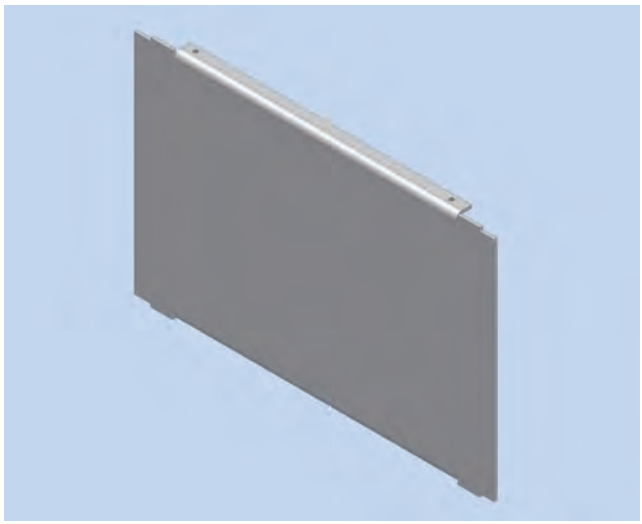
Delivery:
1 partition wall
1 front panel 2 HP
Mounting parts

Accessories

	3 U order no. **409**	6 U order no. **409**
Shielding kit	**116416**	**116418**
consists of:	pieces	pieces
RFI-spring F3 - 3 U	2	2
RFI-spring F3 - 6 U	-	1
RFI-spring M - P1	1	2
Clamping plate	1	2
Mounting parts	1	1

Ordering details kit

	nom. depth 160 mm order no. **409**	nom. depth 220 mm order no. **409**
Partition wall 3 U	**116333**	**116334**
Partition wall 6 U	**116335**	**116336**



Separating Wall

Material: aluminum
Finish: blank

Delivery: 1 separating wall
Mounting parts

Ordering details kit

	nom. depth 160 mm order no. **409**	nom. depth 220 mm order no. **409**
Separating wall 3 U	**122648**	**122649**
Separating wall 6 U	**122650**	**122651**



for subrack *FLEXIBLE Fs*, *RFI-SHIELDED* and *InterRail*

Wall and Door Installation Profile Kit

For mounting subracks in a door, switch panel etc.
The installation profiles are mounted to the side panel by means of the mounting screws to the horizontal rails.

Material: aluminum
Finish: anodized

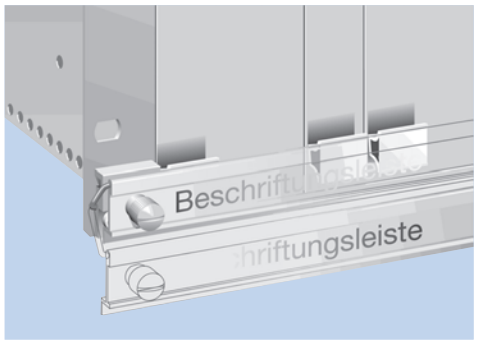
Delivery:
2 wall installation profiles

Ordering details kit

	order no. **409**
Wall installation profile 42 HP	**108045**
Wall installation profile 84 HP	**108012**

This catalog contains stock and standard parts. Other products and sizes on request.

Labelling Rail, Locking Rail
Label Strip



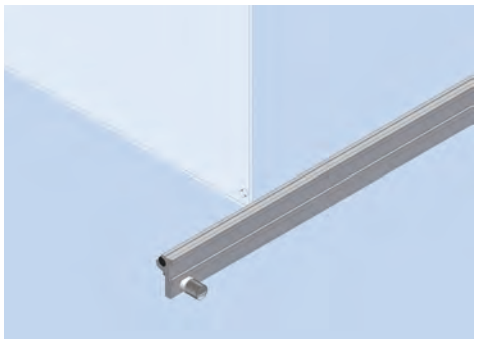
for subrack *FLEXIBLE Fs, RFI-SHIELDED, InterRail*

Labelling Rail 84 HP

This hinged labelling rail is mounted on the subrack flanges. Normally, it is placed in front of the front panels. For ejecting a PCB, the rail is turned down.

order no.: **409121941**

Delivery:
1 labelling rail
2 mounting flanges
2 hinge brackets
Mounting parts

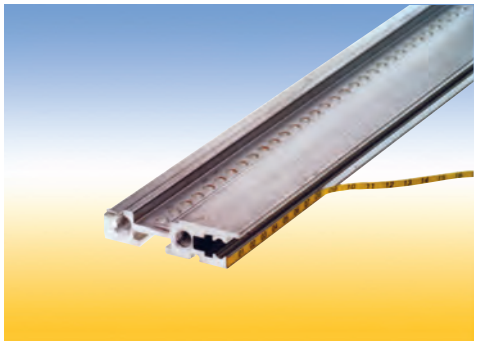


Locking Rail 84 HP

For locking of PCB's without front panels.
The locking rail is mounted at the horizontal rail in front of the PCB's.
A labeling strip can be insert into a groove.

order no.: **409120790**

Delivery:
1 locking rail
1 rubber
Mounting parts



Label Strip

Self adhesive. For identifying PCB slots in the subrack. The PCB slot number can be read through the hole in the front panel.
Note:
The label strip cannot be read while using the RFI spring P2.

Material: PC/PE-foil
Color: yellow/black

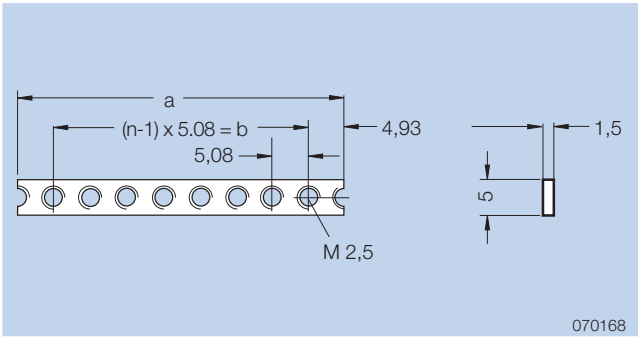
Delivery

Minimum purchase: 18 pieces on a papersheet.

Ordering details kit

	order no. 409
Label strip 01 - 84	**024738**
Label strip 84 - 01	**024740**

Threaded Strips



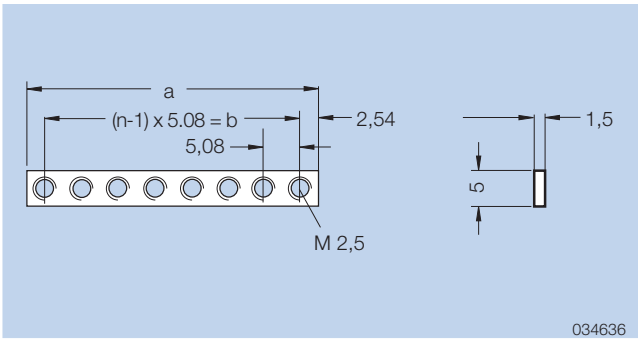
Threaded Strip M 2.5

For attaching the front panels and assembly parts at the wiring field.

Material: steel
Finish: galvanized, passivated

Ordering details threaded strip M 2.5

n = number of threads	a [mm]	b [mm]	order no. **409**
20	106.38	96.52	**131688**
21	111.46	101.60	**130883**
28	147.02	137.16	**131701**
32	167.34	157.48	**131548**
36	187.66	177.80	**103777**
42	218.14	207.28	**100843**
84	431.50	421.64	**091255**



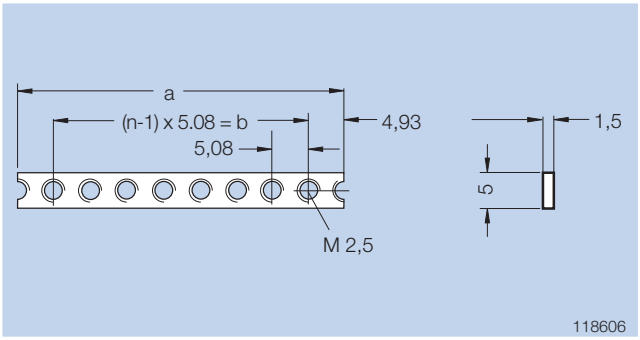
Threaded Strip M 2.5 addable

This threaded strip could be added to other strips and the space between the holes always adds up 5.08 mm.

Material: steel
Finish: galvanized, passivated

Ordering details threaded strip M 2.5 addable

n = number of threads	a [mm]	b [mm]	order no. **409**
10	50.80	45.72	**131836**
20	101.60	96.52	**131845**
28	142.24	137.16	**106751**
42	213.36	207.28	**131813**
84	426.72	421.64	**131478**



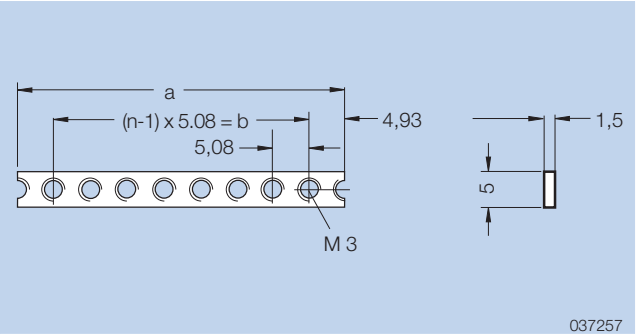
Threaded Strip M 2.5 - stainless steel

For attaching the front panels and assembly parts at the wiring field
This threaded strip is for nonmagnetic applications.

Material: stainless steel
Finish: blank

Ordering details threaded strip M 2.5 - stainless steel

n = number of threads	a [mm]	b [mm]	order no. **409**
84	431.50	421.64	**118608**

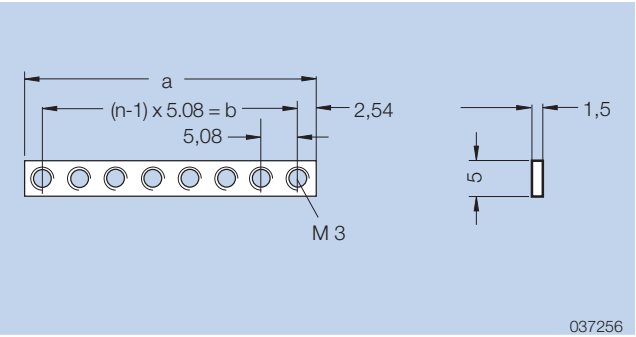


Threaded Strip M 3

Material: steel
Finish: galvanized, passivated

Ordering details threaded strip M 3

n = number of threads	a [mm]	b [mm]	order no. **409**
84	431.50	421.64	**130890**



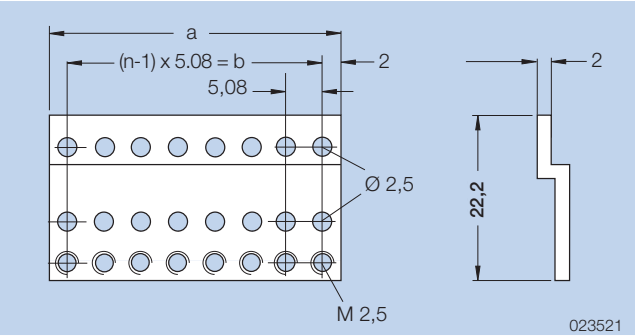
Threaded Strip M 3 addable

Material: steel
Finish: galvanized, passivated

Ordering details threaded strip M 3 addable

n = number of threads	a [mm]	b [mm]	order no. **409**
84	426.72	421.64	**132038**

Z-Rail A,
Mounting Rail B



Z-Rail A tapped M 2.5

For mounting connectors in accordance to IEC 60603/ DIN 41 612 in subracks type *alpha*.
Mounted on the rear profile.

Material: aluminum
Finish: passivated

Ordering details Z-rail A tapped M 2.5

n [HP]	a [mm]	b [mm]	Order no. **409**
22	110.68	106.68	**024361**
42	212.28	208.28	**024380**
84	426.44	421.64	**026586**

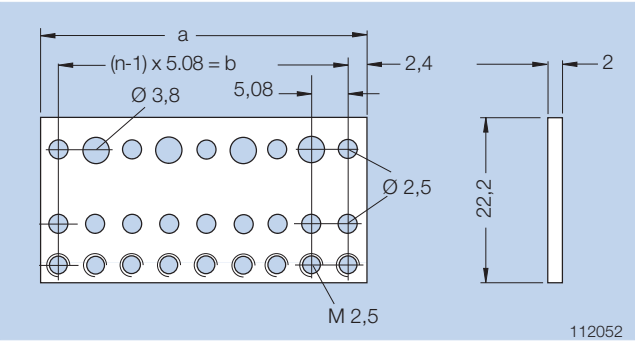
Accessories

Mounting parts for assembling the Z-rail A:

for 84 HP Z-rail, 5 places suggested.

Minimum order quantity 100 pieces

	order no. **409**
Oval head screw M 2.5 x 8 ISO 7045	**094602**
Washer 2.7	**013911**
Fitting bolt M 2.5 x 6.5 (for connectors)	**032708**



Mounting Rail B tapped M 2.5

For mounting connectors in accordance to IEC 60603/ DIN 41 612.

For mounting at the rear profile on subracks *type alpha* with insulating strip and insulating bushings.

For mounting at the rear profile on subracks *type delta.*

Material: aluminum
Finish: blank

Ordering details mounting rail B tapped M 2.5

n [HP]	a [mm]	b [mm]	order no. **409**
42	212.28	208.28	**112054**
84	426.44	421.64	**112055**

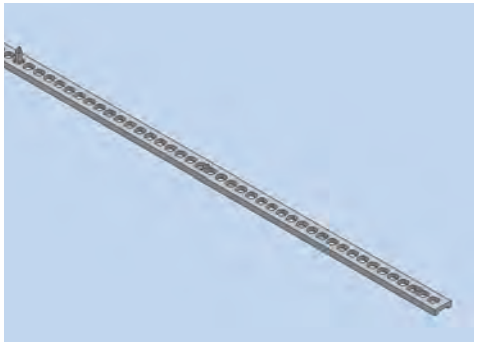
Accessories

Mounting parts for assembling the mounting rail B:

for 84 HP Z-rail, 5 places suggested.

Minimum order quantity 100 pieces

	order no. **409**
Washer 2.7	**013911**
Fitting bolt M 2.5 x 6.5 (for connectors)	**032708**
for type alpha	
Oval head screw M 2.5 x 12 ISO 7045	**094604**
for type delta	
Oval head screw M 2.5 x 8 ISO 7045	**094602**



Insulating Strip

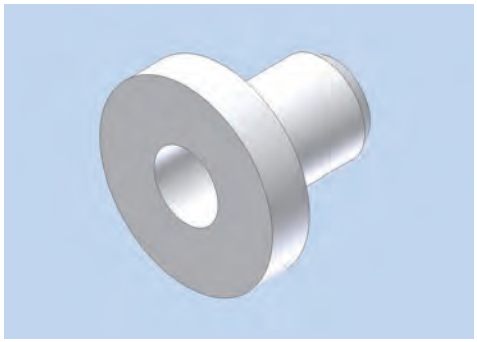
For insulated mounting of wiring supports, e. g. of the mounting rail B.
Mounted between horizontal rail and wiring support.

Technical data

Material	PPO / PC
Continous temperature	– 40 °C up to + 105 °C
Fire protection class	UL 94 V–1
Color	gray

Ordering details

	length [HP]	order no. **409**
Insulating strip-40	40	**061541**
Insulating strip-84	84	**051981**



Insulating Bushing 2.6

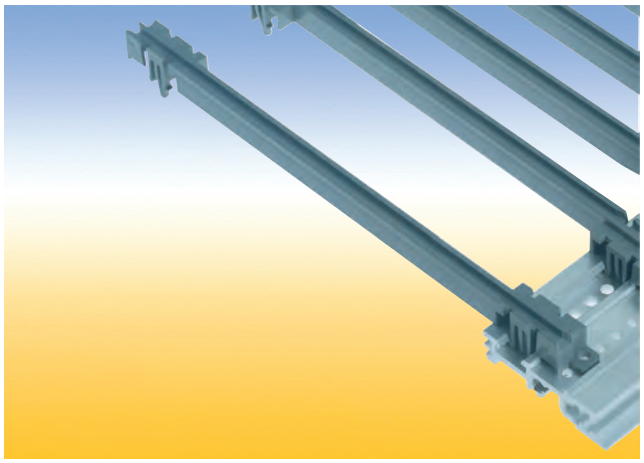
For use together with mounting rail B and insulating strip.

Technical data

Material	PC
Continous temperature	– 40 °C up to + 115 °C
Fire protection class	UL 94 V–0
Color	transparent

order no.: **409018055**

Card Guide ECONOMY



for subrack *FLEXIBLE*

Card Guide ECONOMY

An inexpensive snap-in card guide that can also be secured to the horizontal rails with self tapping screws.

Technical data

Material	PC
Color	gray
Continous temperature	– 40 °C up to + 115 °C
Fire protection class	UL 94 V–0

Ordering details

	nom. length [mm]	PCB thickness [mm]	order no. **409**
Card guide ECONOMY	160	1.6	**108173**
Card guide ECONOMY	220	1.6	**047601**

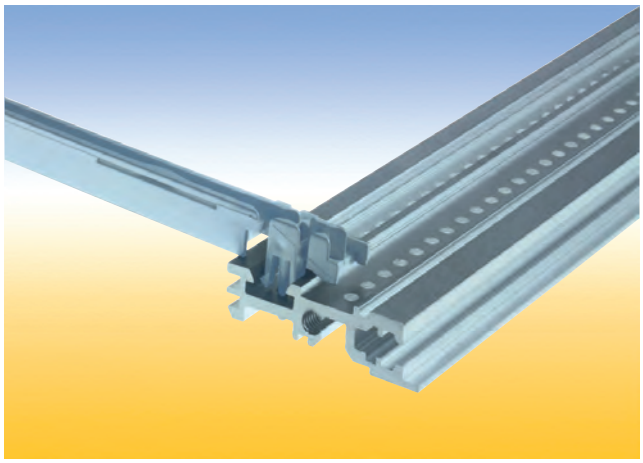
Accessories

Self tapping oval head screw M 2.5 x 5

For assembling the card guides to the horizontal rails

Minimum order quantity 100 pieces

order no.: **409039691**



Card Guide UNIVERSAL
This is an all-purpose card guide with provision for a spring to contact front panels.

Technical data

Material	PC
Color	gray
Continous temperature	– 40 °C up to + 115 °C
Fire protection class	UL 94 V–0

Ordering details

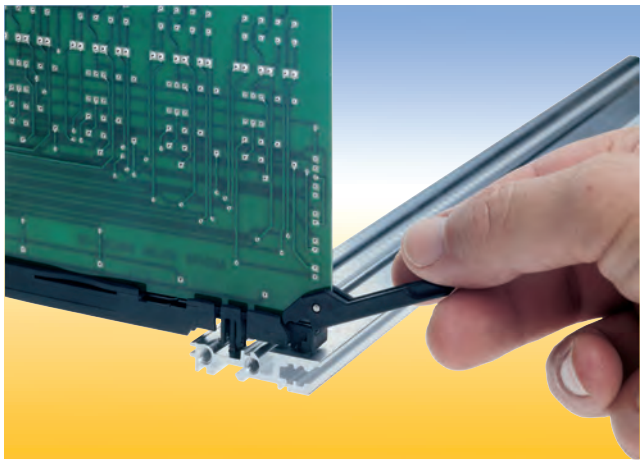
	nom. length [mm]	PCB thickness [mm]	order no. **409**
Card guide UNIVERSAL	160	1.6 - 2.0	**061468**
Card guide UNIVERSAL	220	1.6 - 2.0	**061469**
Card guide UNIVERSAL	280	1.6 - 2.0	**061526**

Accessories

Grounding contact for front panels

order no.: **409058102**

Card Guide
with integrated push and pull assist

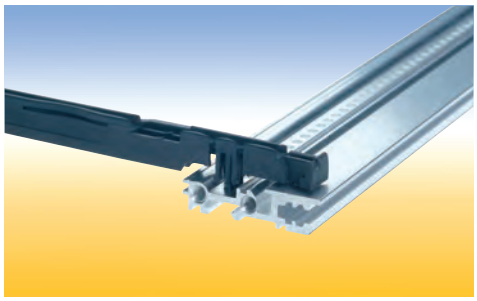


Card Guide with integrated push and pull assist
This special card guide with an integral small lever aids in the handling of PCB's with high pin plug in connectors.
The lever is supported by the walls of a special guide chamber when the board is pulled out or pushed in.
It is suitable for a spring to contact a track near the PCB edge.
This card guides are snap-in and can be secured with screws.

Delivery:
1 card guide top
1 card guide buttom

Technical data

Material	card guide: PBT lever: PPO grooved pin: steel, blank
Color	black
Continous temperature	– 40 °C up to + 130 °C
Fire protection class	UL 94 V–0



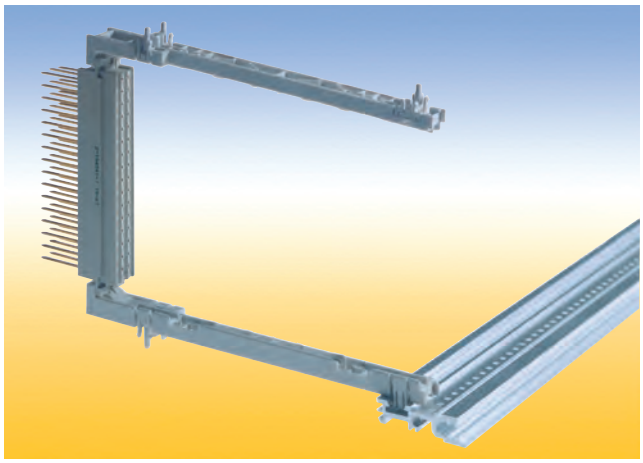
Ordering details kit
card guide with integrated push and pull assist

	nom. length [mm]	PCB thickness [mm]	order no. **409**
Card guide 160	160	1.6	**112453**
Card guide 220	220	1.6	**112454**
Lever with grooved pin	-	1.6	**111157**

For a card guide kit needed 2 levers

Accessories

	Order no. **409**
PCB track contact PROFIL	**103358**
For assembling the card guides to the horizontal rails. Minimum order quantity 100 pieces	
Oval head screw M 2.5 x 12	**094604**
Hexagonal nut M 2.5	**013938**
Washer 2.7	**013911**



Card Guide CONN
For easy screwless snap-on mounting of connectors accordance to IEC 60603/ DIN 41 612.
With a provision for a spring to contact front panels and for contacting a track near the PCB edge.
This snap-in card guides can als be secured with screws.

Delivery:
1 card guide CONN top
1 card guide CONN bottom

Technical data

Material	nom. length 160: PC nom. length 220: PBT
Color	gray
Continous temperature	Lexan: – 40 °C up to + 115 °C PBT: – 40 °C up to + 130 °C
Fire protection class	UL 94 V–0

Ordering details kit card guide CONN

	nom. length [mm]	PCB thickness [mm]	order no. **409**
Card guide CONN	160	1.6	**083091**
Card guide CONN	220	1.6 - 2.4	**116200**

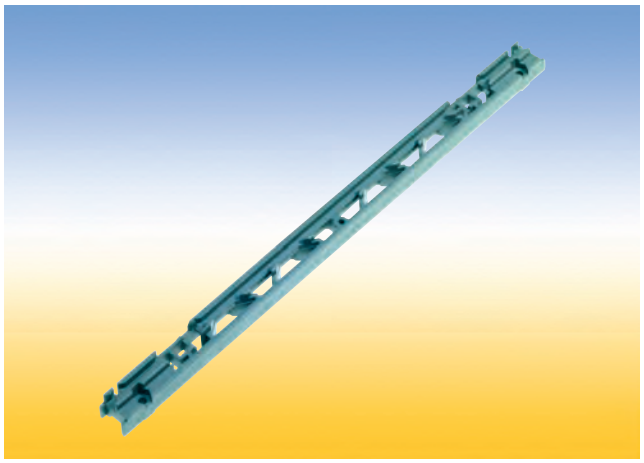
Accessories

	order no. **409**
Grounding contact for front panels	**058102**
PCB track contact PROFIL	**103358**

For assembling the card guides to the horizontal rails. Minimum order quantity 100 pieces

Oval head screw M 2.5 x 12	**094604**
Hexagonal nut M 2.5	**013938**
Washer 2.7	**013911**

Card Guide VIB



Card Guide VIB
New model with improved flammability properties in accordance with EN45545-2 and low halogen content.
Lattice construction for heavy mechanical loads.
With a provision for a spring to contact front panels and for contacting a track near the PCB edge.
Card guides can additionally be fixed with screw and nut for increased shock and vibration requirement. Exception: Nominal length 280 always needs to be fixed by screws.

Technical data

Material	PC glass fiber reinforced
Color	black
Continous temperature	up to + 125 °C
Fire protection class	UL 94 V–0
Halogen content	halogen free (IEC 61249-2-21)
Fire protection on railway vehicles (DIN EN 45545-2) R22, R23, R24	HL3

Two versions:

1. Without nut: Can be added subsequently in the existing hexagonal molding.

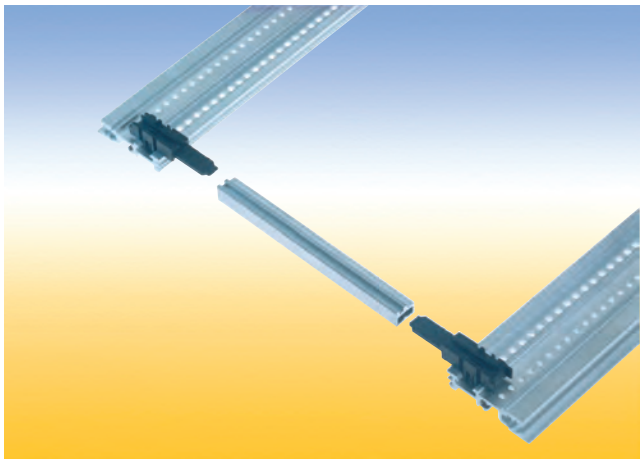
2. With nut: For assembly to the horizontal rail by oval head screws M 2.5 x 12.

Ordering details card guide VIB

			1. without nut	2. with nut
nom. length [mm]	PCB thickness [mm]	snap-in	order no. **409**	order no. **409**
80	1.6 - 2.4	yes	**140967**	-
80	1.6 - 2.4	yes	**140968**	-
100	1.6	yes	**140964**	**140993**
160	1.6	yes	**140986**	**141001**
160	2.0	yes	**140987**	**141002**
160	2.4	yes	**140965**	**140994**
220	1.6	yes	**140969**	**140996**
220	2.4	yes	**140970**	**140997**
280	1.6	-	-	**140998**

Accessories

	order no. **409**
Grounding contact for front panels	**058102**
PCB track contact PROFIL	**103358**
For assembling the card guides to the horizontal rails. Minimum order quantity 100 pieces	
Oval head screw M 2.5 x 12	**094604**
Hexagonal nut M 2.5	**013938**
Washer 2.7	**013911**



Card Guide VARIO
This is a length variable card guide constructed from 3 pieces. The center piece can be cut to any length. With a provision for a spring to contact front panels. These snap-in end pieces can also be secured with screws.

Two versions:
1. With pressed-in nut M 2.5
for assembly to the horizontal rail with oval head screws M 2.5 x 12

2. Without a nut, but one can be added in the existing hexagonal molding.

Technical data

Material	end pieces: PPO center piece: aluminum or PPO
Color	end pieces: black center piece: black, silver
Continous temperature	– 40 °C up to + 105 °C
Fire protection class	UL 94 V–1

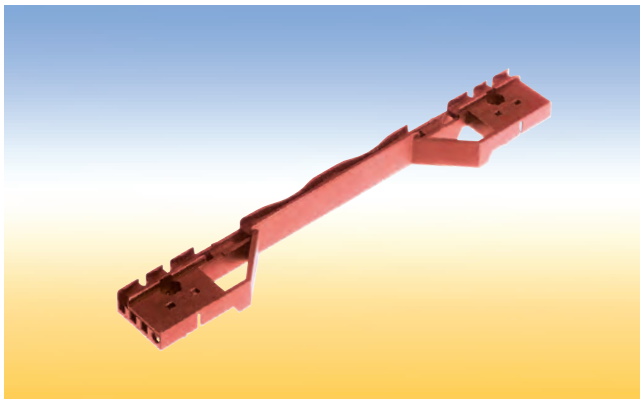
Ordering details card guide VARIO

	length [mm]	PCB thickness [mm]	order no. **409**
Pair of end pieces			
with nut M 2.5	-	1.6	**061086**
without nut	-	1.6	**061051**
with nut M 2.5	-	2.4	**061088**
without nut	-	2.4	**061052**
center piece			
plastic	1000	1.6	**061061**
aluminum	1000	1.6	**061059**
plastic	1000	2.4	**061062**
aluminum	1000	2.4	**061060**

Accessories

	order no. **409**
Grounding contact for front panels	**058102**
For assembling the card guides to the horizontal rails. Minimum order quantity 100 pieces	
Oval head screw M 2.5 x 12	**094604**
Hexagonal nut M 2.5	**013938**
Washer 2.7	**013911**

Card Guide IEEE and Card Guide IEEE with 1/2 HP lateral offset



Card Guide IEEE

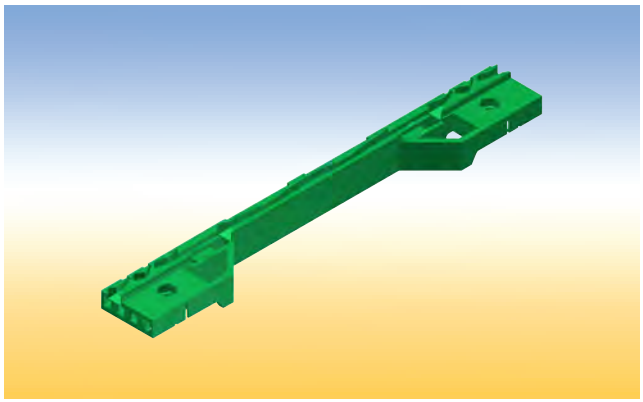
This card guide is in accordance to specification IEEE 1101.10.
The required coding of the IEEE is integrated in the card guide head.
With provision for the IEEE contact spring for grounding of the alignment-pins of the PCB's front panel. Also with a provision for contacting a track near the PCB edge.
This snap-in card guides can be secured with screws.

Technical data

Material	PBT
Color	black or red
Continous temperature	– 40 °C up to + 115 °C
Fire protection class	UL 94 V–0

Ordering details for card guide IEEE

color	nom. length [mm]	PCB thickness [mm]	order no. **409**
black	160	1.6 - 2.4	**113400**
black	220	1.6 - 2.4	**131973**
red	160	1.6 - 2.4	**116440**



Card Guide IEEE with 1/2 HP lateral offset

This card guide is also in accordance to specification IEEE 1101.10.
For CompactPCI-power supplies and for Plug-in units fitted with SMD.
With provision for the IEEE contact spring for grounding of the alignment-pins of the PCB's front panel.
Also with a provision for contacting a track near the PCB edge.
This card guide is secured with screws.

Technical data

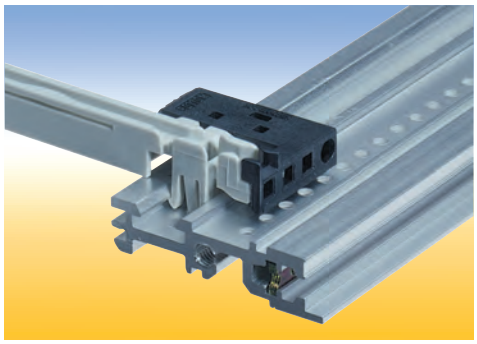
Material	PBT
Color	green
Continous temperature	– 40 °C up to + 115 °C
Fire protection class	UL 94 V–0

Ordering details for card guide IEEE with 1/2 HP lateral offset

color	nom. length [mm]	PCB thickness [mm]	order no. **409**
green	160	1.6 - 2.4	**130889**

Accessories for Card Guide IEEE

	order no. **409**
contact spring IEEE	**113450**
coding pin IEEE gray	**113713**
coding pin IEEE red	**116442**
PCB track contact PROFIL	**103358**
For assembling the card guides to the horizontal rails. Minimum order quantity 100 pieces	
Lens head screw M 2.5 x 12	**094604**
Hexagonal nut M 2.5	**013938**
Washer 2.7	**013911**



for card guide UNIVERSAL, CONN, VIB and VARIO

Coding Head IEEE

Snapped on the head of standard card guides to comply to the requirements of the specification IEEE 1101.10

Functions:

1. Holding the IEEE contact spring for grounding the alignment pins of the front panel.
2. Adapting the IEEE coding pin.
3. Guiding the 1.6 to 2.4 mm thick PCB.

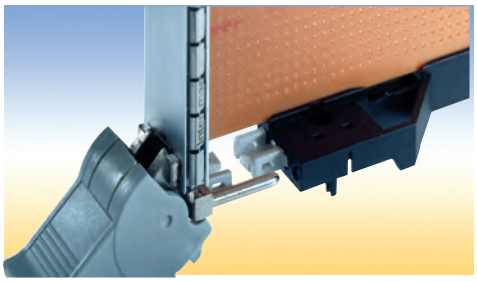
Technical data

Material	PC
Color	black, red
Fire protection class	UL 94 V–0

Ordering details kit

	order no. 409
coding head IEEE - black	**113905**
coding head IEEE - red	**116441**

Delivery:
1 coding head IEEE top
1 coding head IEEE bottom



Contact Spring IEEE

Snapped into the IEEE card guide or IEEE coding head to ground the alignment pin of the front panel.

Material: tin-bronze

order no.: **409113450**

Coding Pin IEEE

Snapped into the IEEE card guide or IEEE coding head.

Technical data

Material	PC
Fire protection class	UL 94 V–0

Ordering details

	order no. 409
coding pin IEEE - gray	**113713**
coding pin IEEE - red	**116442**

Accessories for Card Guides



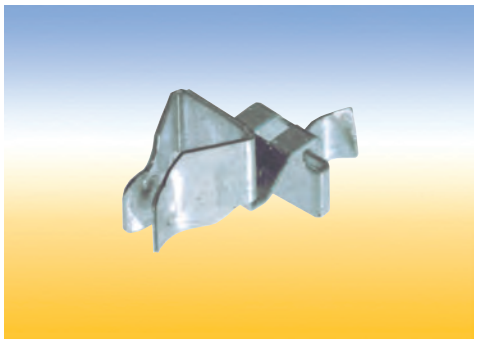
PCB Track Contact PROFIL

Snapped into a card guide, connecting a PCB's edge to the horizontal rail of a subrack.

Technical data

Material	tin-bronze
Finish	tin-plated
Fire protection class	UL 94 V–0

order no.: **409103358**



Grounding Contact for Front Panels

For premating grounding. In connection with front connector with male contact.

Material: tin-bronze
tin-plated

order no.: **409058102**

Accessories

Front connector with male contact

	order no. 409
top	**107728**
bottom	**107727**



Cover for Ventilation Openings

Snapping into the horizontal rails. Covers the ventilation openings between card guides.

Material: plastic
Fire protection class: UL 94 V-0

Ordering details

	nom. length [mm]	order no. 409
Front connector with male contact 4 HP	160	**106530**
Front connector with male contact 4 HP	220	**106531**



PCB Lead-In

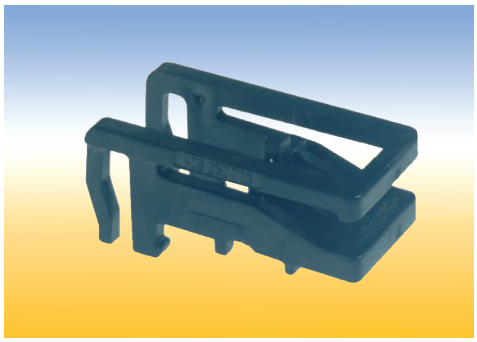
For easy lead-in of the PCB into the card guide.

Technical data

Material	PC, 10% fiber glass reinforced
Color	gray, similar RAL 7044
Fire protection class	UL 94 V–0

Delivery:
1 PCB lead-in top
1 PCB lead-in bottom

order no.: **409092785**



PCB Locking Spring, plastic

Secures PCB without front panels.

Technical data

Material	PC
Color	black
Fire protection class	UL 94 V–0

order no.: **409052720**



PCB Locking Device Kit

Secures PCB's without front panels. Used for easy locking and ejecting of PCB's

Technical data

Material	handle: PBT pin: steel
Color	black
Fire protection class	UL 94 V–0

Delivery

Kit, unassembled

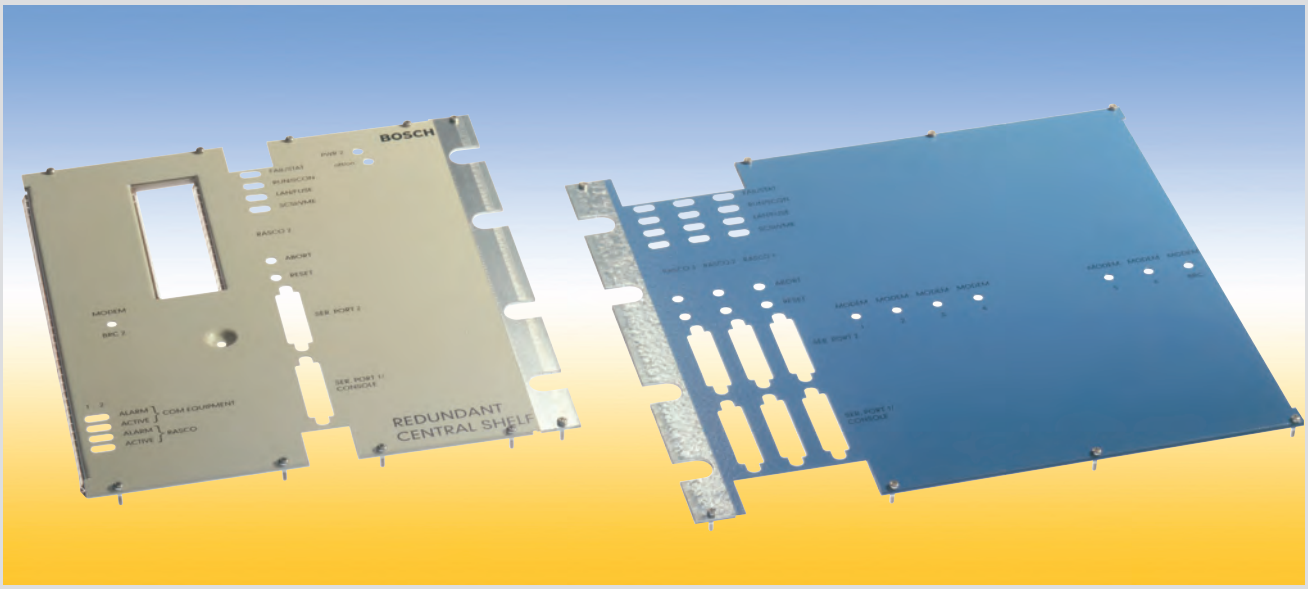
Delivery:

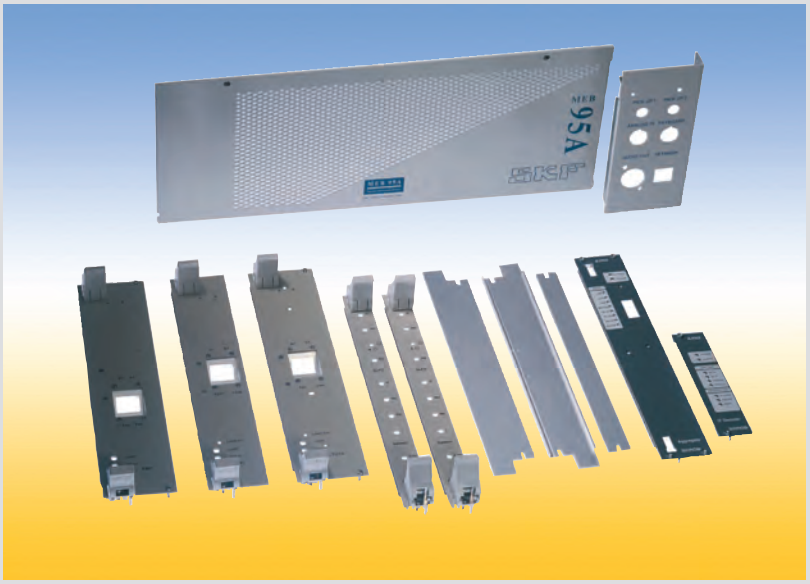
2 handles
2 pins
2 PCB locking springs

Ordering details kit

	order no. **409**
PCB locking device 1.6	**068698**
PCB locking device 2.4	**102297**

Front Panels

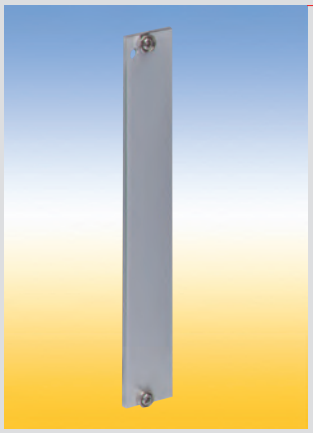




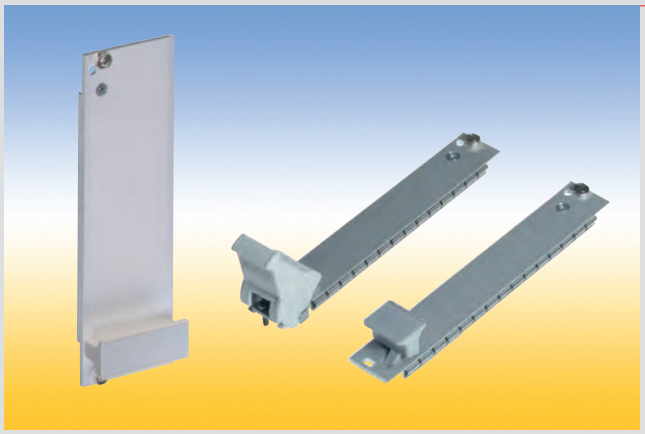
In addition to the wide range of standard front panels we also provide on request individual customer specific front panels with punching, surface finish and silk screening.
Textured or smooth painted in all revelant RAL-colors, abrasion-resistant silk-screen printing as well as color coordinated engraving give your front panel an individual appearance.

Please ask your local representative for your
individual front panel design.
You find your contact person on our homepage:
www.intermas-el.com

Front Panels and Handles



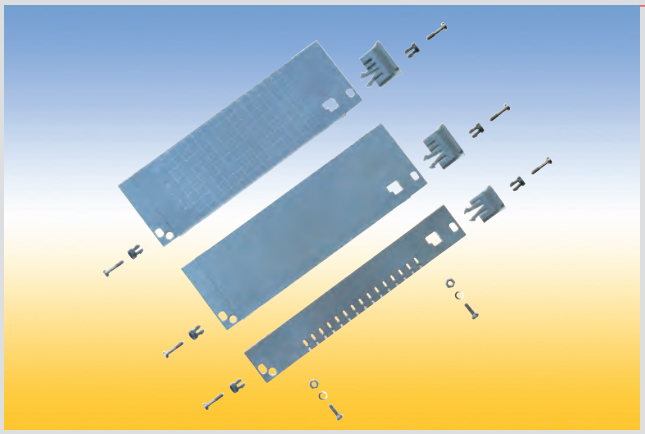
√ Blind Front Panels



√ Front Panels with Handle
√ Handles

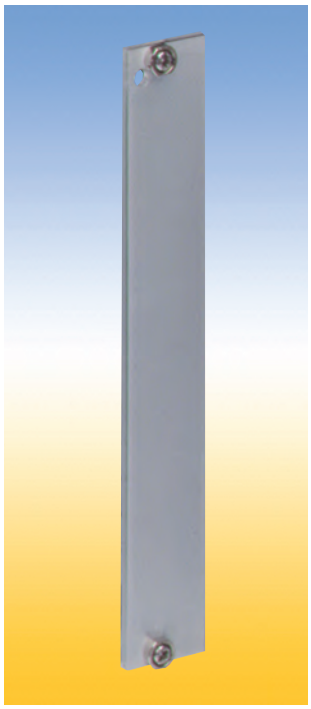
√ Front Panels with Ejector Handle
√ Ejector Handles

√ Front Panels with IEEE Handle
√ IEEE-Handles



√ Plastic Front Panels

Blind Front Panels



Blind Front Panels
For covering empty sections or to carry various components in subracks.

Four versions are available:

1. Flat front panel blank
The front side is covered with a removable transparent foil.

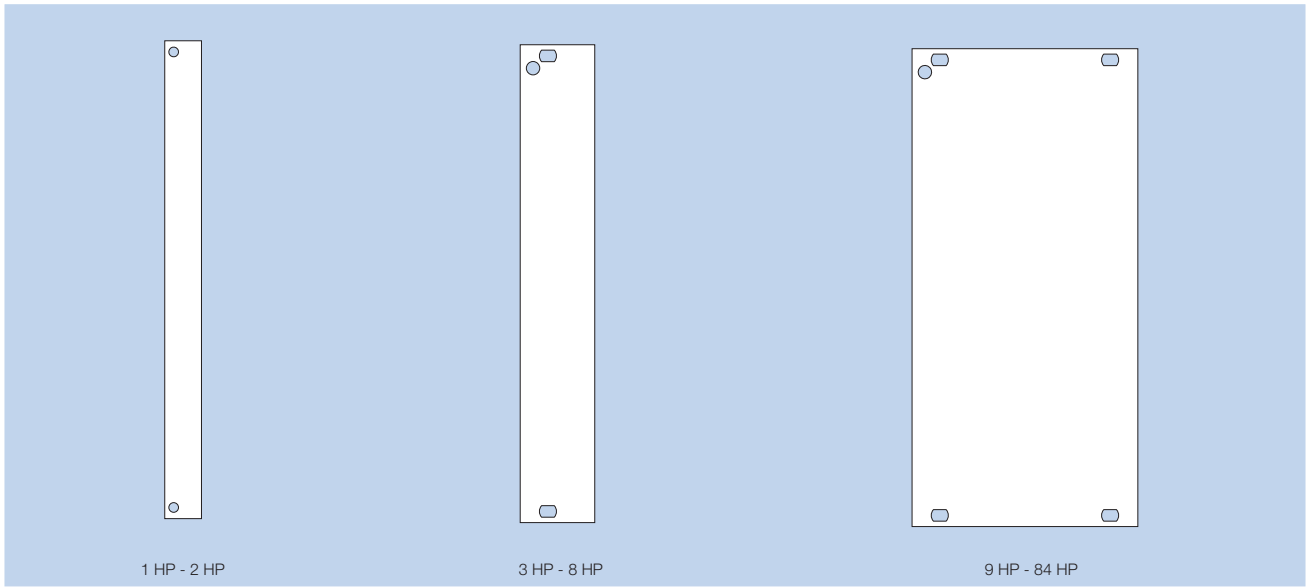
2. Flat front panel anodized
Front anodized, rear conductive.

3. Flat front panel RFI
Front anodized, rear conductive, with slits in the side edges for insertion of RFI springs.

4. Extruded front panel RFI
Made of extruded aluminum alloy, with slits in the side edges for insertion of RFI springs for contact.
Surface finish is passivated.

Material
Flat front panel: aluminum 2.5 mm thick
Extruded front panel: aluminum

Delivery
Front panels are delivered unassembled as single parts or as a kit.



Ordering details blind front panels (flat front panel)

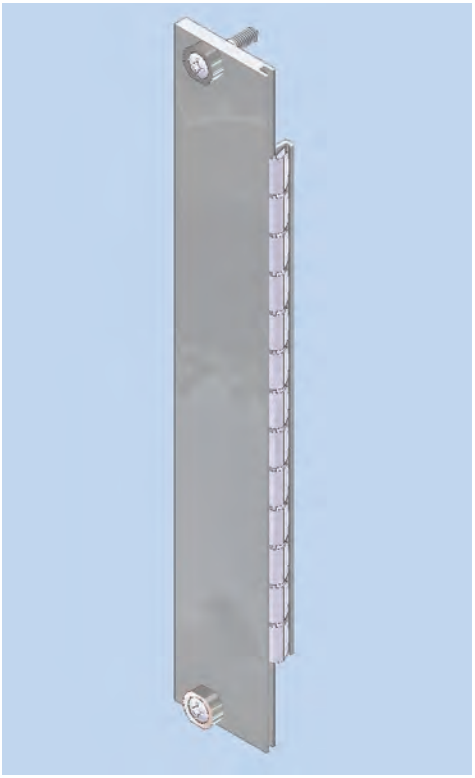
	nom. width [HP]	3 U blank order no. **409**	3 U anodized/ conductive order no. **409**	6 U blank order no. **409**	6 U anodized/ conductive order no. **409**
Blind front panel	1	**097201**	-	**097601**	-
Blind front panel	2	**097202**	-	**097602**	-
Blind front panel	3	**097203**	-	**097603**	-
Blind front panel	4	**097204**	**097404**	**097604**	**097804**
Blind front panel	5	**097205**	-	**097605**	-
Blind front panel	6	**097206**	**097406**	**097606**	**097806**
Blind front panel	7	**097207**	-	**097607**	-
Blind front panel	8	**097208**	**097408**	**097608**	**097808**
Blind front panel	10	**097210**	-	**097610**	-
Blind front panel	12	**097212**	**097412**	**097612**	**097812**
Blind front panel	14	**097214**	**097414**	**097614**	**097814**
Blind front panel	21	**097221**	**097421**	**097621**	**097821**
Blind front panel	28	**097228**	**097428**	**097628**	**097828**
Blind front panel	42	**097242**	**097442**	**097642**	**097842**
Blind front panel	84	**097284**	**097484**	**097684**	**097884**

Accessories

Minimum order quantity 100 pieces

	pieces for 1-2 HP	pieces for 3-8 HP	pieces for 9-85 HP	order no. **409**
Screw retainer M2.5 gray	-	2	4	**100539**
Screw retainer M2.5 black	-	2	4	**100538**
Pan Head Screw M 2.5 x 11.3	2	2	4	**101917**

Blind Front Panels RFI



Ordering details kit - blind front panel RFI

nom. width [HP]	3 U extruded order no. **409**	3 U order no. **409**	6 U extruded order no. **409**	6 U order no. **409**
1	**114453**	-	**114464**	-
2	**114454**	-	**114465**	-
3	**114455**	-	**114466**	-
4	**114361**	**113583**	**114387**	-
5	**114362**	-	**114388**	-
6	**114363**	**113586**	**114389**	-
7	**114365**	-	**114390**	-
8	**114366**	-	**114391**	-
9	**114367**	-	**114392**	-
10	**114368**	-	**114393**	-
12	-	**113589**	-	**113608**
14	-	**113590**	-	**113609**
21	-	**113592**	-	**113611**
28	-	**113593**	-	**113612**
42	-	**113594**	-	**113613**
43	-	**114487**	-	-
84	-	**113595**	-	**113614**
85	-	**113596**	-	-

Finish: flat front panel: front side anodized, rear side conductive
extruded front panel: passivated

Delivery kit - blind front panel RFI:

	pieces for 1-2 HP	pieces for 3-8 HP	pieces for 9-43 HP	pieces for 44-85 HP
Front panel	1	1	1	1
	1 / 2	1 / 2	1 / 2	1 / 2
Press-fit bushing M2.5	-	2	4	6
Mounting parts-kit	1	1	1	1

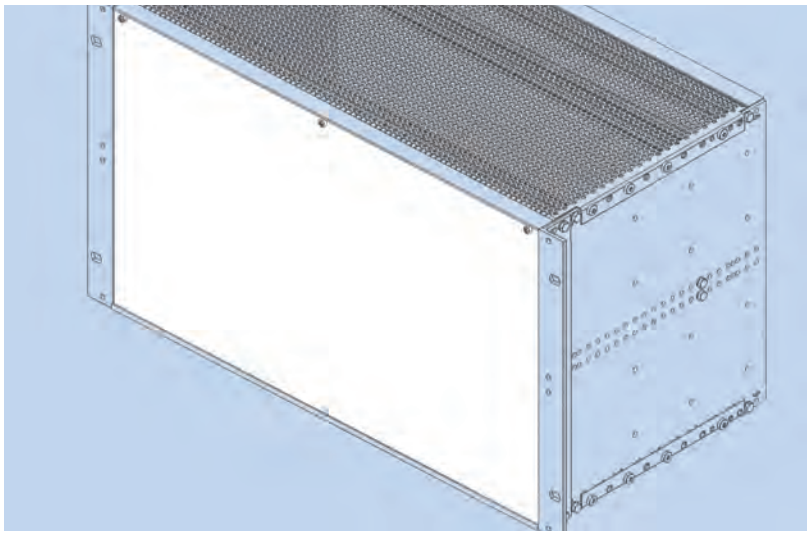
Accessories

Roller cutter to assemble the RFI spring F3

order no.: **409118433**

Ordering details single part blind front panel RFI

nom. width [HP]	3 U extruded order no. **409**	3 U order no. **409**	6 U extruded order no. **409**	6 U order no. **409**
1	**114458**	-	**114469**	-
2	**114459**	-	**114470**	-
3	**113027**	-	**114476**	-
4	**111608**	**112252**	**111618**	-
5	**113028**	-	**114384**	-
6	**111609**	**112258**	**111619**	-
7	**111610**	-	**111620**	-
8	**111611**	-	**111621**	-
9	**113029**	-	**114385**	-
10	**113030**	-	**114386**	-
12	-	**112551**	-	**112611**
14	-	**112557**	-	**112617**
21	-	**112578**	-	**112638**
28	-	**112821**	-	**112943**
42	-	**112581**	-	**112641**
43	-	**114082**	-	-
84	-	**113598**	-	**113617**
85	-	**113599**	-	-



Plug-in Front Panel 85 HP

The front panel bottom edge is inserted in the groove of a specially profiled rail. With slits in the side edges for insertion of RFI springs.
To be used in combination with below mentioned flanges only.

Finish:
front side anodized, rear side conductive

Delivery:
1 front panel
3 press-fit bushing M 2.5
3 cross-head screw M 2.5 x 11.3

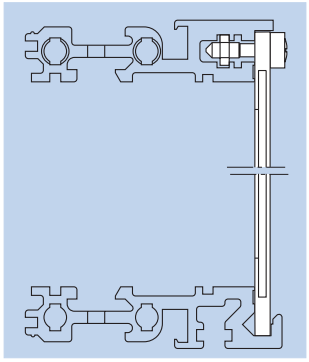
Ordering details for kit

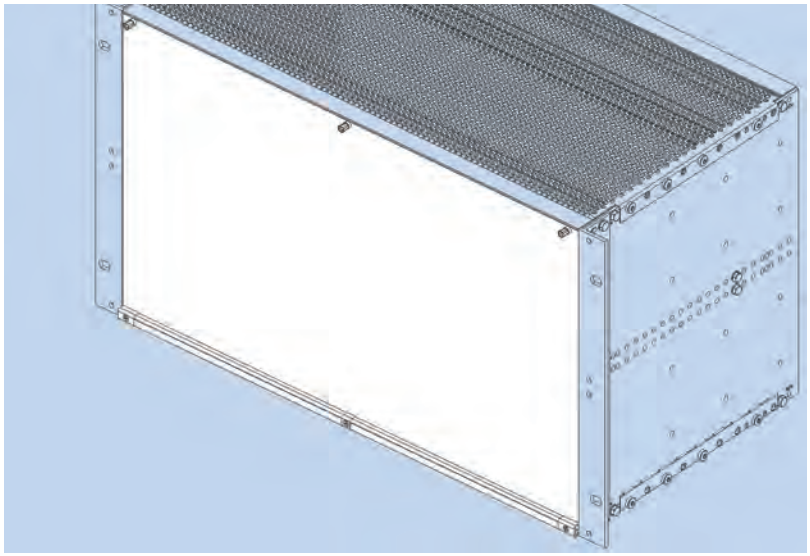
	order no. **409**
Plug-in front panel 3 U	**113948**
Plug-in front panel 6 U	**113950**

Accessories

	order no. **409**
Pr rail VE12SFP-RFI-85	**114562**
Flange RFI - FP - 3 U	**114708**
Flange RFI - FP - 6 U	**114715**
RFI spring F3 - 3 U	**111112**
RFI spring F3 - 6 U	**111116**

For one front panel 2 RFI springs are needed.





Hinged Front Panel 85 HP

With slits in the side edges for insertion of RFI springs. The hinge is screwed to the prprofiled rail of the subrack. An 84 HP threaded strip is needed.
To be used in combination with below mentioned flanges only.

Finish:
front side anodized, rear side conductive

Delivery:
1 front panel
1 hinge
3 press-fit bushings
Mounting parts

Delivery: as unassembled kit.
Assembled kits on request.

Ordering details for kit

	order no. **409**
Hinged front panel 3 U	**113705**
Hinged front panel 6 U	**113706**

Accessories

	order no. **409**
Threaded strip 84 HP	**131478**
Flange RFI - FP - 3 U	**114708**
Flange RFI - FP - 6 U	**114715**
RFI spring F3 - 3 U	**111112**
RFI spring F3 - 6 U	**111116**

For one front panel 2 RFI springs are needed.

Front Panels with Handle



Front Panels with Handle
For assembly on a PCB.
Handle and front connector are screwed on the front panel.
The plain front panel is easy to modify.

Four versions are available:

1. Flat front panel blank
The front side is covered with a removable transparent foil.

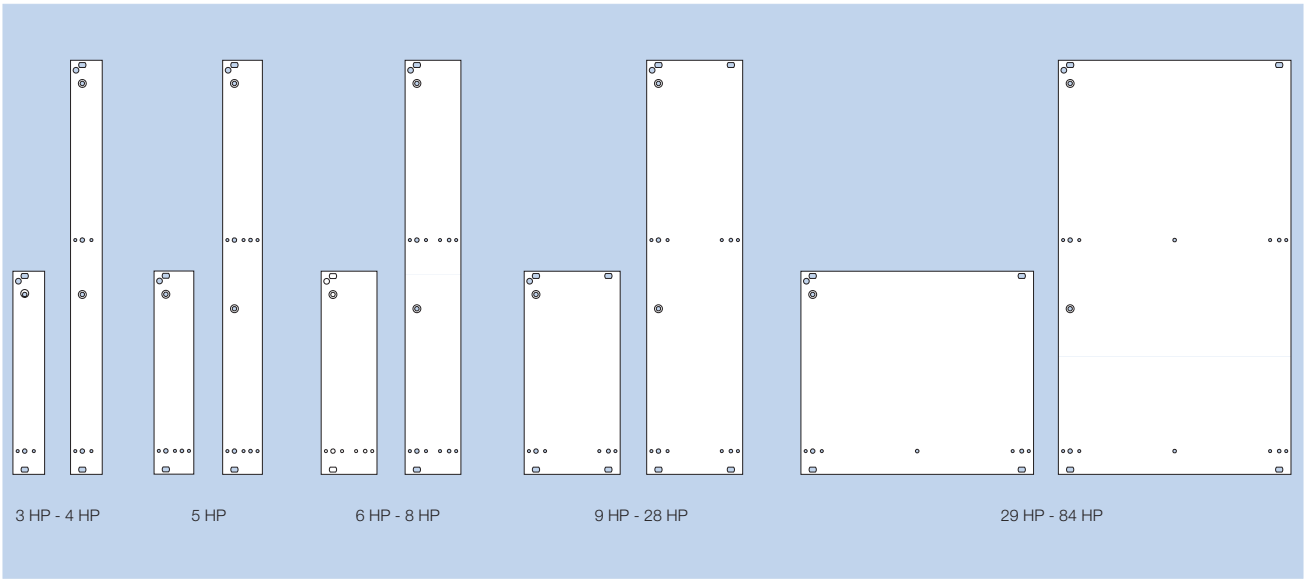
2. Flat front panel anodized
Front anodized, rear conductive.

3. Flat front panel RFI
Front anodized, rear conductive.
With slits in the side edges for insertion of RFI springs.

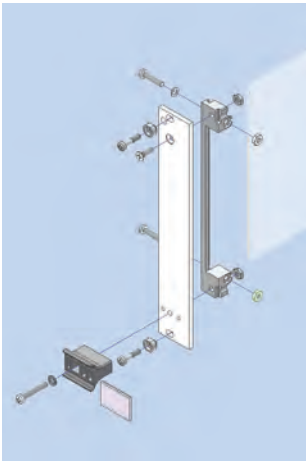
4. Extruded front panel RFI
Made of extruded aluminum alloy, with slits in the side edges for insertion of RFI springs for contact.
Surface finish is passivated.

Material
Flat front panel: aluminum 2.5 mm thick
Extruded front panel: aluminum

Delivery
Front panels are delivered unassembled as single parts or as a kit.

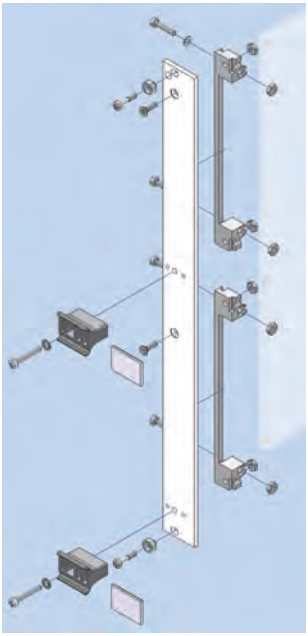


Hole pattern of the front panels



Ordering details kit - front panel with handle (flat front panels)

nom. width [HP]	3 U anodized/ conductive order no. **409**	6 U anodized/ conductive order no. **409**
4	**107518**	**122624**
6	**122622**	**122625**
8	**107520**	**122626**
10	**107521**	**122627**
12	**107522**	**122628**



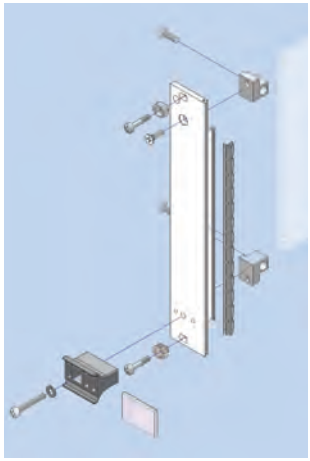
Delivery kit - front panel with handle

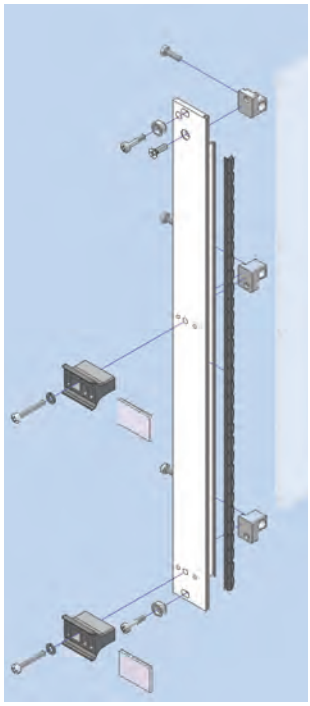
	3 U pieces for 3-8 HP	3 U pieces for 9-12 HP	6 U pieces for 3-8 HP	6 U pieces for 9-12 HP
Front panel	1	1	1	1
Handle gray	1	1	2	2
Ident-plate aluminum	1	1	2	2
Front connector FEE	1	1	2	2
Screw retainer M 2.5	2	4	2	4
Mounting parts	1	1	1	1

Ordering details - single part front panel for handle (flat front panel)

nom. width [HP]	3 U blank order no. **409**	3 U anodized/ conductive order no. **409**	6 U blank order no. **409**	6 U anodized/ conductive order no. **409**
3	**096403**	-	**096703**	-
4	**096404**	**096604**	**096704**	**096904**
5	**096405**	**096605**	**096705**	**096905**
6	**096406**	**096606**	**096706**	**096906**
7	**096407**	-	**096707**	-
8	**096408**	**096608**	**096708**	**096908**
10	**096410**	**096610**	**096710**	**096910**
12	**096412**	**096612**	**096712**	**096912**
16	**096416**	-	**096716**	-
21	**096 421**	-	**096721**	-

Front Panels RFI with Handle





Ordering details kit - front panel RFI with handle

nom. width [HP]	3 U extruded order no. **409**	3 U order no. **409**	6 U extruded order no. **409**	6 U order no. **409**
3	**114537**	-	**114541**	-
4	**114377**	-	**114404**	-
5	**114378**	-	**114405**	-
6	**114379**	-	**114406**	-
7	**114380**	-	**114407**	-
8	**114381**	-	**114408**	-
10	**114383**	-	**114410**	-
12	-	**113685**	-	**113693**

Finish:

Flat front panel: front side anodized, rear side conductive
Extruded front panel: passivated

Delivery kit - front panel RFI with handle

	3 U pieces for 3-8 HP	3 U pieces for 9-12 HP	6 U pieces for 3-8 HP	6 U pieces for 9-12 HP
Front panel	1	1	1	1
Handle gray	1	1	2	2
Ident-plate aluminum	1	1	2	2
Front connector metal	2	2	3	3
Press-fit bushing M 2.5	2	4	2	4
Mounting parts	1	1	1	1

Accessories

	order no. **409**
For one flat front panel 2 RFI-springs are needed.	
RFI spring F3 - 3 U	**111112**
RFI spring F3 - 6 U	**111116**
For assemble the RFI spring F3	
Roller cutter	**118433**

Ordering details single part front panel RFI for handle

nom. width [HP]	3 U extruded order no. **409**	3 U order no. **409**	6 U extruded order no. **409**	6 U order no. **409**
3	**114538**	-	**114540**	-
4	**114370**	**113711**	**114396**	-
5	**114371**	-	**114397**	-
6	**114372**	**113723**	**114399**	-
7	**114373**	-	**114400**	-
8	**114374**	**113725**	**114401**	-
10	**114376**	-	**114403**	-
12	-	**113729**	-	**113762**

This catalog contains stock and standard parts. Other products and sizes on request.

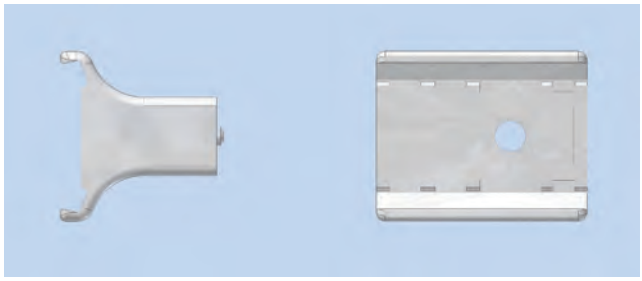


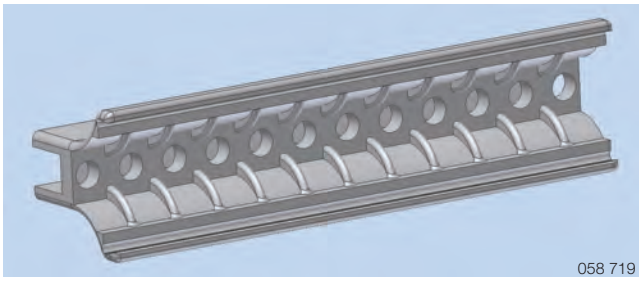
Handle FP

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, 10% fiber-glass reinforced
Color	gray RAL 7032, black
Continous temperature	– 40 °C to + 100 °C
Fire protection class	UL 94 V–0





Ordering details handle FP

width [HP]	length [mm]	gray order no. **409**	black order no. **409**
3	13.80	**102115**	**041657**
4	18.88	**102114**	**100667**
5	23.96	**103005**	**103205**
6	29.04	**103006**	**103206**
7	34.12	**103007**	**103207**
8	39.20	**103008**	**103208**

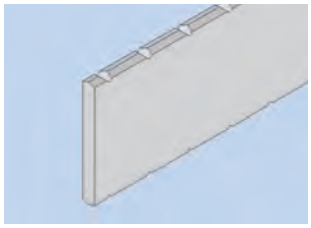
Ordering details handle strip FP

width [HP]	length [mm]	gray order no. **409**	black order no. **409**
10	49.36	**103810**	**058910**
12	59.52	**103812**	**058912**
16	79.84	**103816**	**058916**
21	105.24	**103821**	**058921**
42	211.92	**103842**	**058942**

Accessories handles:

Minimum order quantity each 100 pieces

	order no. **409**
Pan head screw M 2.5 x 16	**094605**
Washer 2.7	**013911**
Hexagonal nut M 2.5 DIN 439	**013938**
Self tapping screw M 2.5 x 10	**040401**



Ident Plate

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

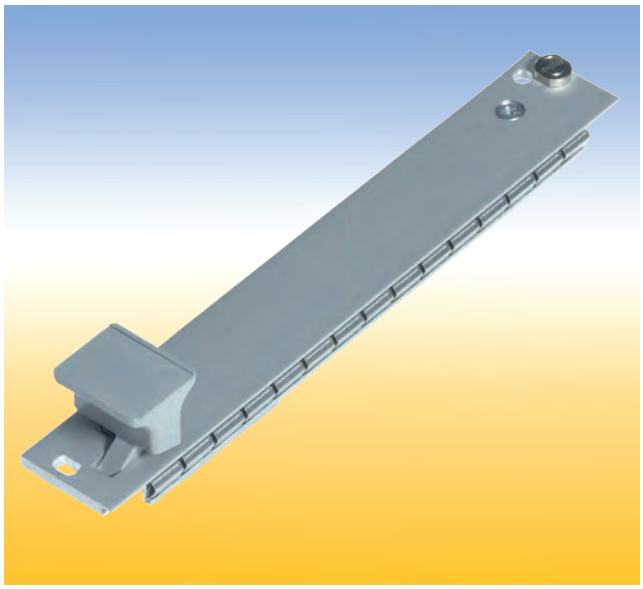
Technical data

Material	aluminum or Polycarbonate, crystal clear
Finish	Alu: silver silk-anodized
Continous temperature	PC: – 40 °C to + 115 °C
Fire protection class	PC: UL 94 V-2

Ordering details ident-plate

width [HP]	length [mm]	aluminum order no. **409**	crystal clear order no. **409**
3	13.80	**017929**	**089238**
4	18.88	**017956**	**089240**
5	23.96	**022791**	-
6	29.04	**022792**	-
7	34.12	**022793**	-
8	39.20	**022794**	-
10	49.36	**022796**	-
12	59.52	**022798**	-
16	79.84	**022802**	-
21	105.24	**022807**	-
42	211.92	**040652**	-

Front Panels with Ejector Handle



Front Panels with Ejector Handle
For easy release of PCB's with high pin connections. The ejector handle is extends through the front panel and is screwed together with the bearing bushing at the front connector.

Four versions are available:

1. Flat front panel blank.
The front side is covered with a removable transparent foil.

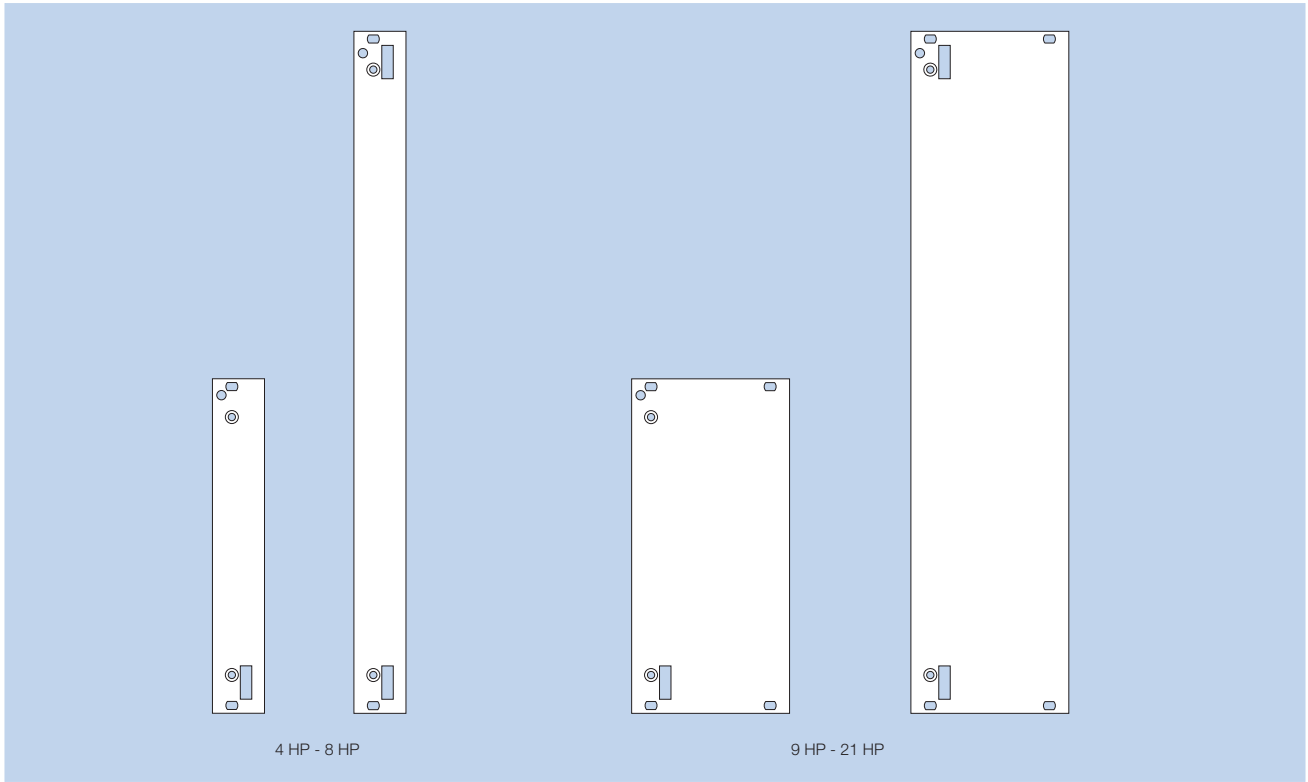
2. Flat front panel anodized.
Front anodized, rear conductive.

3. Flat front panel RFI
Front anodized, rear conductive. With slits in the side edges for insertion of RFI springs.

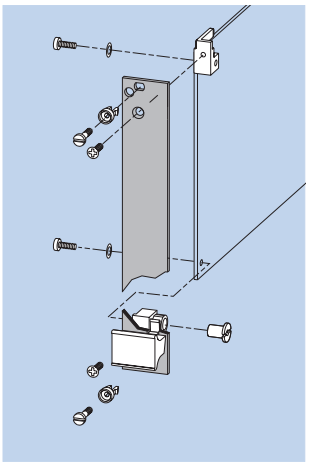
4. Extruded front panel RFI
Made of extruded aluminum alloy, with slits in the side edges for insertion of RFI springs for contact. Surface finish is passivated.

Material
Flat front panel: aluminum 2.5 mm thick
Extruded front panel: aluminum

Delivery
Front panels are delivered unassembled as single parts or as a kit.

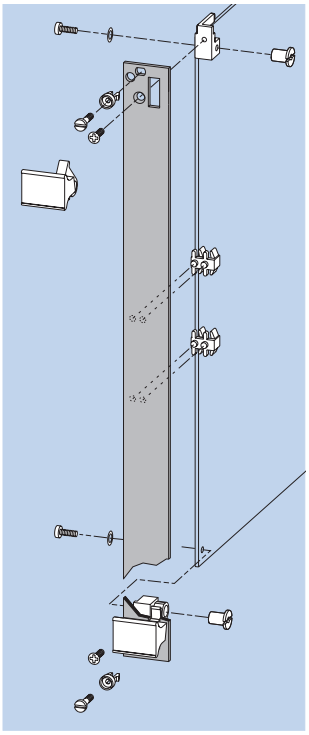


Hole pattern of the front panels



Ordering details kit - front panel with ejector handle (flat front panels)

nom. width [HP]	3 U blank order no. **409**	3 U anodized/ conductive order no. **409**	6 U blank order no. **409**	6 U anodized/ conductive order no. **409**
4	**168913**	**168919**	**122639**	**122645**
5	**168914**	-	**122640**	-
6	**168915**	-	**122641**	-
8	**168916**	**168920**	**122642**	**122646**
10	**168917**	-	**122643**	-
12	**168918**	**168921**	**122644**	**122647**



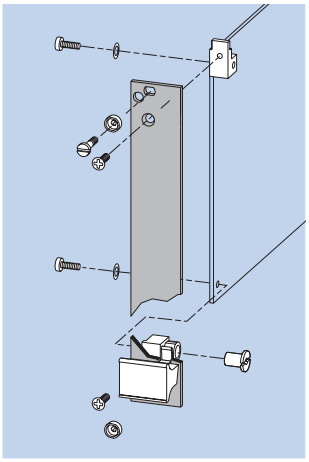
Delivery kit - front panel with ejector handle

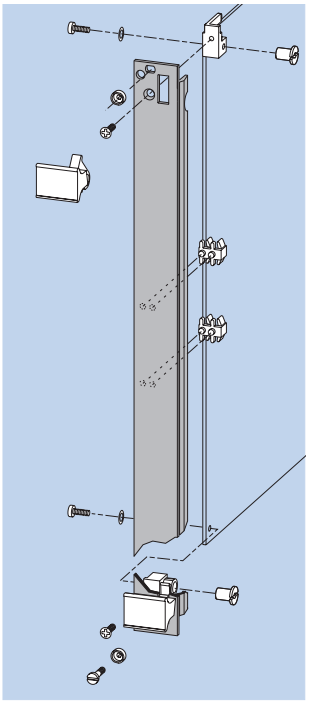
	3 U pieces for 4-8 HP	3 U pieces for 9-12 HP	6 U pieces for 4-8 HP	6 U pieces for 9-12 HP
Front panel	1	1	1	1
Ejector handle top, gray	-	-	1	1
Ejector handle bottom, gray	1	1	1	1
Bearing bushing	1	1	2	2
Front connector metal	2	2	2	2
Front panel support plug-in	-	-	2	2
Screw retainer M 2.5	2	4	2	4
Mounting parts	1	1	1	1

Ordering details single part front panel for ejector handle (flat front panels)

nom. width [HP]	3 U blank order no. **409**	3 U anodized/ conductive order no. **409**	6 U for support pluged-in blank order no. **409**	6 U for support pluged-in anodized/ conductive order no. **409**	6 U for support screwed blank order no. **409**	6 U for support screwed anodized/ conductive order no. **409**
4	**168900**	**168908**	**102404**	**102344**	**102454**	**102384**
5	**168901**	-	**102405**	-	-	-
6	**168902**	-	**102406**	-	-	-
8	**168903**	**168909**	**102408**	**102348**	**102458**	**102388**
10	**168904**	-	**102410**	-	-	-
12	**168905**	**168910**	**102412**	**102352**	**102462**	**102392**
16	**168906**	**168911**	**102416**	**102356**	-	-
21	**168907**	**168912**	**102421**	**102361**	-	-

Front Panels RFI with Ejector Handle





Ordering details - kit front panel RFI with ejector handle

nom. width [HP]	3 U extruded order no. **409**	3 U order no. **409**	6 U extruded order no. **409**	6 U order no. **409**
4	**113655**	**113620**	**113662**	-
5	**113656**	-	**113663**	-
6	**113657**	**113622**	**113665**	-
7	**113658**	-	**113667**	-
8	**113659**	-	**113668**	-
9	**113660**	-	**113669**	-
10	**113661**	-	**113670**	-
12	-	**113626**	-	**113640**

Finish:

Flat front panel: front side anodized, rear side conductive
Extruded front panel: passivated

Delivery kit - front panel RFI with ejector handle

	3 U pieces for 4-8 HP	3 U pieces for 9-12 HP	6 U pieces for 4-8 HP	6 U pieces for 9-12 HP
Front panel	1	1	1	1
ejector handle top, gray	-	-	1	1
ejector handle bottom, gray	1	1	1	1
Bearing bushing	1	1	2	2
Front connector metal	2	2	2	2
Front panel support plug-in	-	-	2	2
Press-fit bushing M 2.5	2	4	2	4
Mounting parts	1	1	1	1

Accessories

	order no. **409**
For one flat front panel 2 RFI-springs are needed.	
RFI spring F3 - 3 U	**111112**
RFI spring F3 - 6 U	**111116**
For assemble the RFI spring F3	
Roller cutter	**118433**

Ordering details single part front panel RFI for ejector handle

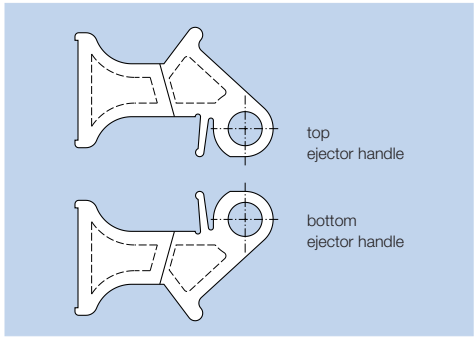
nom. width [HP]	3 U extruded order no. **409**	3 U order no. **409**	6 U extruded order no. **409**	6 U order no. **409**
4	**111847**	**112644**	**111613**	-
5	**113170**	-	**113147**	-
6	**111604**	**112650**	**111614**	-
7	**111605**	-	**111615**	-
8	**111606**	-	**111616**	-
9	**113171**	-	**113148**	-
10	**113172**	-	**113149**	-
12	-	**112668**	-	**112725**



Ejector Handle
The ejector handle extends through the front panel and is screwed together with the bearing bushing at the front connector.

Technical data

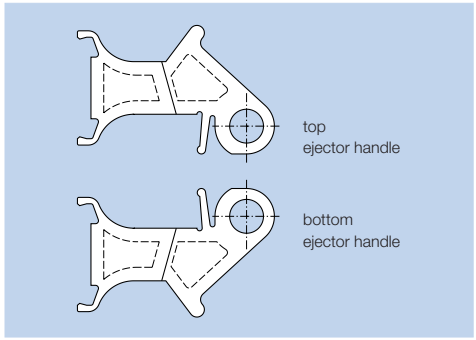
Material	Polycarbonate, 10% fiber-glass reinforced
Color	gray, black
Continous temperature	– 40 °C to + 100 °C
Fire protection class	UL 94 V–0



Ordering details ejector handle 4 HP

version	gray order no. 409	black order no. 409
top	101923	094458
bottom	101924	094459

Mounting parts see front connectors

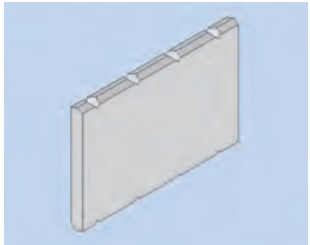


Ejector handle 4 HP
Front side open, for assembly with an ident-plate.

Ordering details ejector handle 4 HP

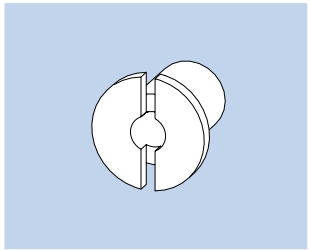
version	gray order no. 409	black order no. 409
top	102117	101843
bottom	102118	101844

Mounting parts see front connectors



Ident-plate 4 HP
The ident-plate is markable and printable. Snapped in after mounting the handle at the front panel.
Material: aluminum
Finish: silver silk-matt anodized

order no.: **409017956**

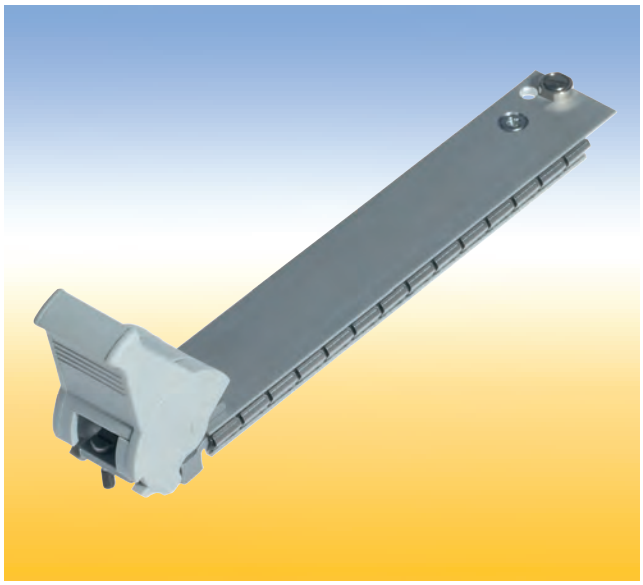


Bearing Bushing 4
for handle 4 HP

Material: steel, galvanized
Finish: passivated

order no.: **409065888**

Front Panels RFI with IEEE Handle



Front Panels with IEEE Handle

For easy pull of PCB's with high density connectors in accorordance to specification IEEE 1101.10.
The assembled handle kit is stuck in the milled space of the front panel and is secured with a clamped spring. Afterwards the PCB are screwed on the inter-grated front connector.

Two versions with IEEE handle are available:

1. Flat front panel RFI
Front anodized, rear conductive. With slits in the side edges for insertion of RFI springs.

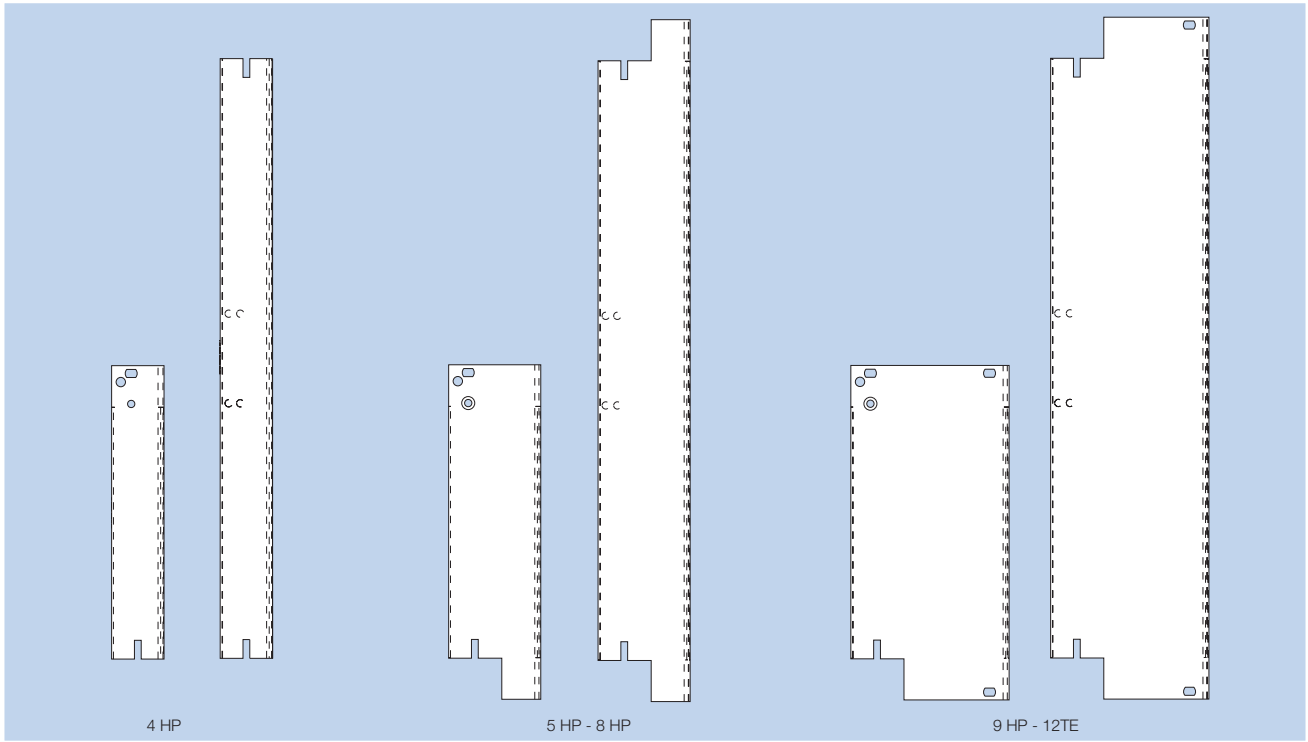
2. Extruded front panel RFI
Made of extruded aluminum alloy, with slits in the side edges for insertion of RFI springs or for contacting. Surface finish is passivated.

Delivery

Front panels are delivered with the assambled IEEE handle as single parts or as a kit.

Technical data

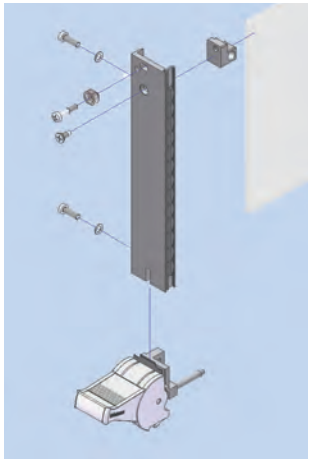
Material	Front panel: aluminum Handle: Polycarbonate
Finish	Front panel: *flat:* front side anodized, rear side conductive *extruded:* passivated
Color	handle: RAL 7035 or black
Continous temperature	– 40 °C to + 100 °C
Fire protection class	UL 94 V–0

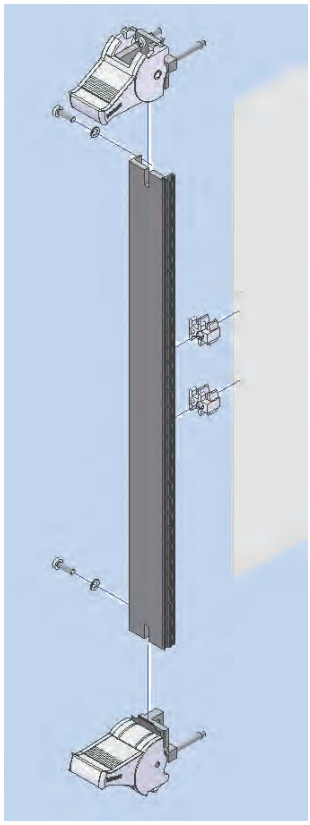


Hole pattern of the front panels

This catalog contains stock and standard parts. Other products and sizes on request.

Front Panels RFI with IEEE Handle gray without hot-swap





Ordering details kit - front panel RFI with IEEE-handle, gray, without hot-swap

nom. width [HP]	3 U extruded order no. **409**	3 U order no. **409**	6 U extruded order no. **409**	6 U order no. **409**
4	**113671**	**113641**	**113674**	-
6	**113672**	-	**113675**	-
8	**113673**	-	**113676**	-
10	**114463**	-	**114475**	-
12	-	**113647**	-	**113654**

Delivery kit front panel RFI with IEEE-Handle without hot-swap

	3 U pieces for 4-8 HP	3 U pieces for 9-12 HP	6 U pieces for 4-8 HP	6 U pieces for 9-12 HP
Front panel	1	1	1	1
IEEE-handle top gray	-	-	1	1
IEEE-handle bottom gray	1	1	1	1
Front connector metal	1	1	-	-
Front panel support plug-in	-	-	2	2
Press-fit bushing M 2.5	1	3	-	2
Mounting parts	1	1	1	1

Accessories

	order no. **409**
For one flat front panel 2 RFI-springs are needed.	
RFI spring F3 - 3 U	**111112**
RFI spring F3 - 6 U	**111116**
For assemble the RFI spring F3	
Roller cutter	**118433**

Ordering details single part front panel RFI for IEEE handle

nom. width [HP]	3 U extruded order no. **409**	3 U order no. **409**	6 U extruded order no. **409**	6 U order no. **409**
4	**112152**	**113079**	**112154**	-
5	**112408**	-	**112400**	-
6	**112409**	**112778**	**112401**	-
7	**112410**	-	**112402**	-
8	**112411**	-	**112403**	-
9	**112412**	-	**112404**	-
10	**112413**	-	**112405**	-
12	-	**112790**	-	**112773**



IEEE Handle 4 HP without hot-swap

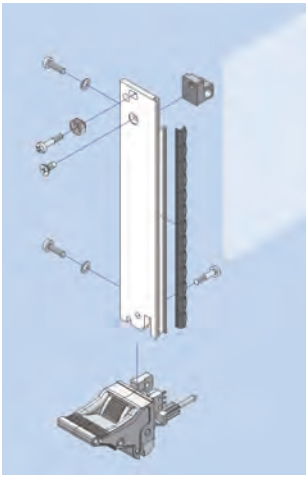
Color: gray, RAL 7035

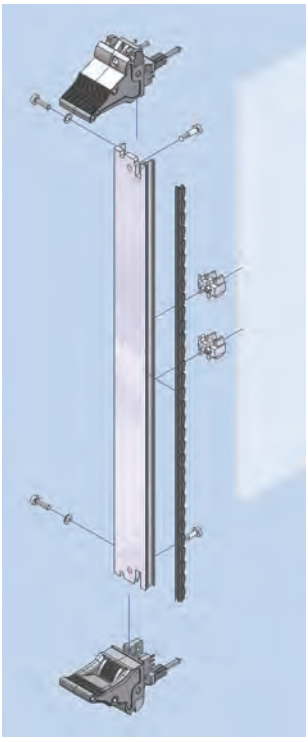
Delivery:
Assembled handle with mounting parts.

Ordering details

	order no. **409**
IEEE handle 4HP bottom	**114413**
IEEE handle 4HP top	**114415**

Front Panels RFI with IEEE Handle black with hot-swap





Ordering details kit - extruded front panel RFI with IEEE handle, black, hot-swap in the bottom handle

nom. width [HP]	3 U order no. **409**	6 U order no. **409**
4	**122607**	**122610**
6	**122608**	**122611**
8	**122609**	**122612**

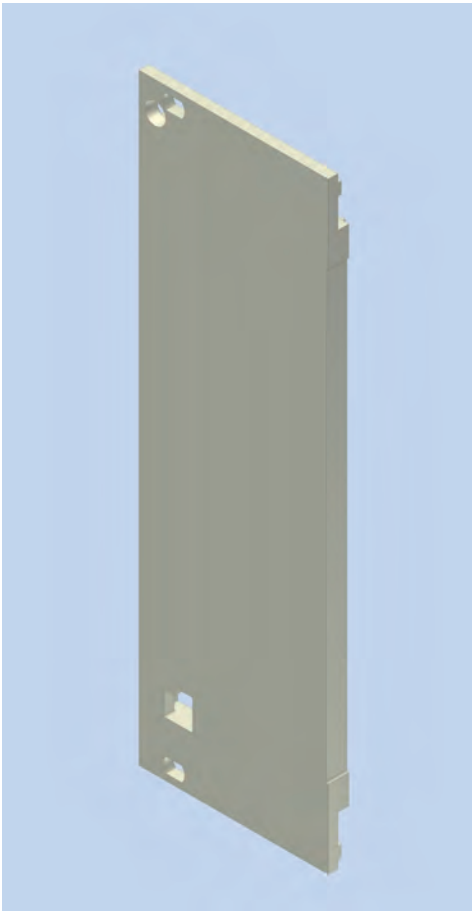
Delivery kit

	3 U pieces for 4-8 HP	6 U pieces for 4-8 HP
Front panel	1	1
IEEE handle top black	-	1
IEEE handle bottom black	1	1
Micro switch	1	1
Front connector metal	1	-
Front panel support plug-in	-	2
Press-fit bushing M 2.5	1	-
Mounting parts	1	1

Accessories

	order no. **409**
For one flat front panel 2 RFI-springs are needed.	
RFI spring F3 - 3 U	**111112**
RFI spring F3 - 6 U	**111116**
For assemble the RFI spring F3	
Roller cutter	**118433**

Plastic Front Panel, Snap-in Handle



Plastic Front Panels

On the rear side of the 2 mm thick front panel is an integrated front connector for attaching 1.6 mm thickness 3 U PCBs.
The handle snappes in into the front panel, therefore the front panel can be modified easily.

Delivery

As single part

Technical data

Material	Polycarbonate, 10% fiber-glass reinforced
Color	RAL 7032, pearl gray or black
Continous temperature	– 40 °C to + 115 °C
Fire protection class	UL 94 V–0

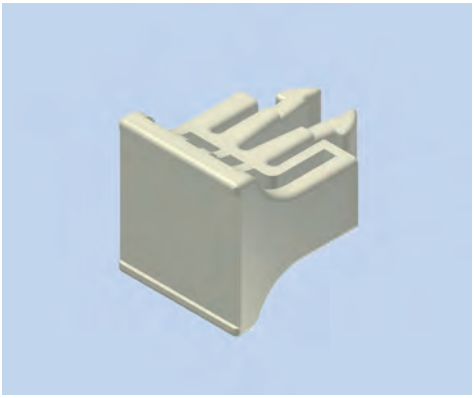
Ordering details plastic front panel

nom. width [HP]	3 U pearl gray order no. **409**	3 U black order no. **409**
3	**035004**	**-**
4	**-**	**-**
8	**035665**	**040387**

Accessories

Minimum order quantity 100 pieces

	order no. **409**
Screw retainer 2 - M 2.5, gray	**085689**
Cross-head screw M 2.5 x 10. 8	**056135**



Snap-in Handle

For use with 2 mm thick front panels of plastic. The handle snappes in into the front panel.
Front panels aluminum on request

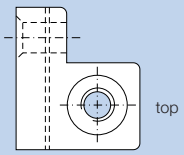
Technical data

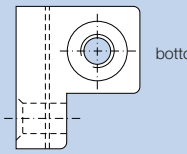
Material	Polycarbonate, 10% fiber-glass reinforced
Color	RAL 7032, pearl gray or black
Continous temperature	– 40 °C to + 105 °C
Fire protection class	UL 94 V–0

Ordering details snap-in handle

nom. width [HP]	RAL 7032 order no. **409**	pearl gray order no. **409**	black order no. **409**
3	**043035**	**035528**	**040385**
4	**043036**	**035529**	**040386**

Front Connector





Front Connector

Material: zinc die-cast
Finish: untreated

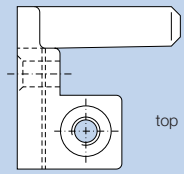
Ordering details

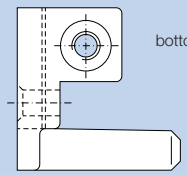
	order no. 409
Front connector top	**099731**
Front connector bottom	**099730**

Accessories

Counter sunk screw M 2.5 x 6
self tapping
Minimum order quantity 100 pieces

order no.: **409067624**





Front Connector with Male Contact

For premating front panel grounding.

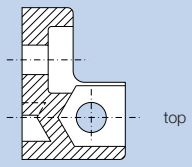
Material: zinc die-cast
Finish: tin-plated

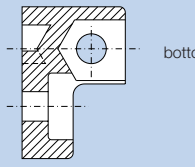
Ordering details

	order no. 409
Front connector top	**107728**
Front connector bottom	**107727**

Accessories

	order no. 409
Front panel grounding contact	**058102**
Minimum order quantity 100 pieces	
Self tapping counter sunk screw M 2.5 x 6	**067624**





Plastic Front Connector

Technical data

Material	Polycarbonate, 10% fiber-glass reinforced
Color	gray
Continous temperature	– 40 °C to + 100 °C
Fire protection class	UL 94 V–0

Ordering details

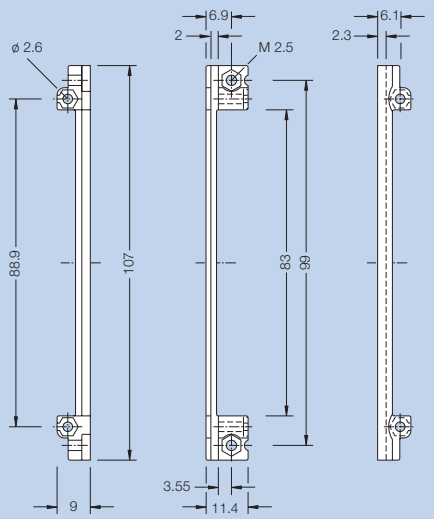
	order no. 409
Front connector top	**065883**
Front connector bottom	**065882**

Accessories

Minimum order quantity 100 pieces

	order no. 409
Hexagonal nut M 2.5	**013938**
Counter sunk screw M 2.5 x 6	**067624**

Front Connector FEE, Front Panel Support



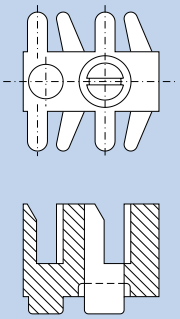
Front Connector FEE

With inserted nut M 2.5 for fastening to the front panel.
Also for use with front mounted Elements (FEE).

Technical data

Material	Polycarbonate, 10% fiber-glass reinforced nut: steel, galvanized and passivated
Color	gray
Continous temperature	– 40 °C to + 115 °C
Fire protection class	UL 94 V–0

order no.: **409024830**



Front Panel Support

For PCB's with a height over 3 U used with two-piece front connector.
Prevents deflection of the front panel when inserting the PCB.

Technical data

Material	Polycarbonate, 10% fiber-glass reinforced
Color	gray
Continous temperature	– 40 °C to + 100 °C
Fire protection class	UL 94 V–0

order no.: **409092786**

Screw Retainer, Press-fit Bushing, Quick Lock E



Screw retainer, press-fit bushing and Screw

Screw Retainer 2.5 - M 2.5

For 2.5 mm thick front panels, for pluging in the screw

Technical data

Material	POM
Color	gray or black
Continous temperature	– 40 °C to + 100 °C

Ordering details

Minimum order quantity 100 pieces

	Color	order no. 409
Screw retainer 2.5 - M 2.5	gray	**100539**
Screw retainer 2.5 - M 2.5	black	**100538**

Press-fit bushing M 2.5

Pressed into the front panel. Secures the screw M 2.5 and provides electrical bounding between the screw and front panel and subrack; even when the front panel is anodized.

Material: brass (lead-free), nickel plated

Minimum order quantity 10 pieces

order no.: **409140266**

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. 409
Cylinder head screw	sloted	**100540**
Pan head screw M 2.5 x 11.3	cross slot	**101917**
Knurled head screw	knurled	**101918**



Quick Lock E

for 2.5 mm thick front panels.
Slot head.

Minimum order quantity 10 pieces

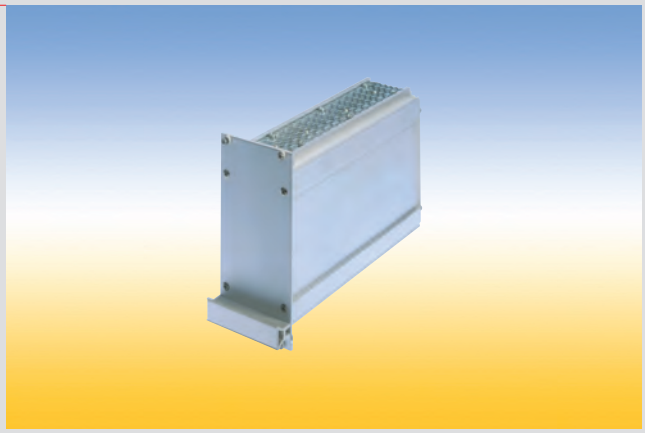
order no.: **409097957**

Technical data

Material	sleeve: POM bolt: steel, galvanized
Color	gray
Continous temperature	– 40 °C to + 100 °C

Cassettes

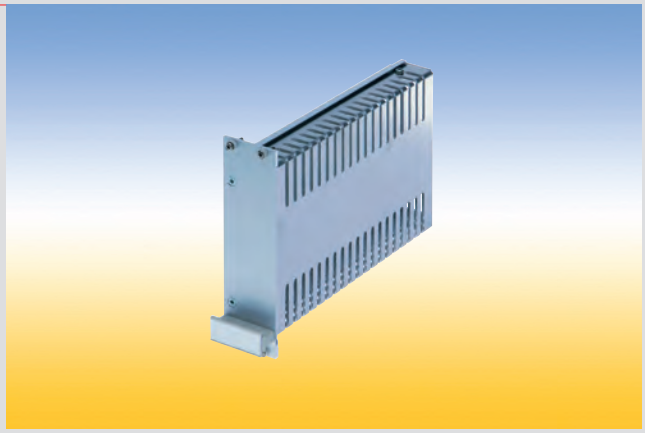
Cassette with Extruded Side Walls



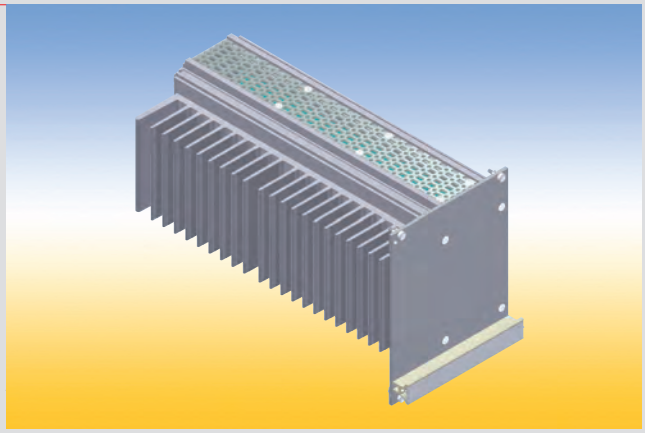
Cassette with four Depth Profiles



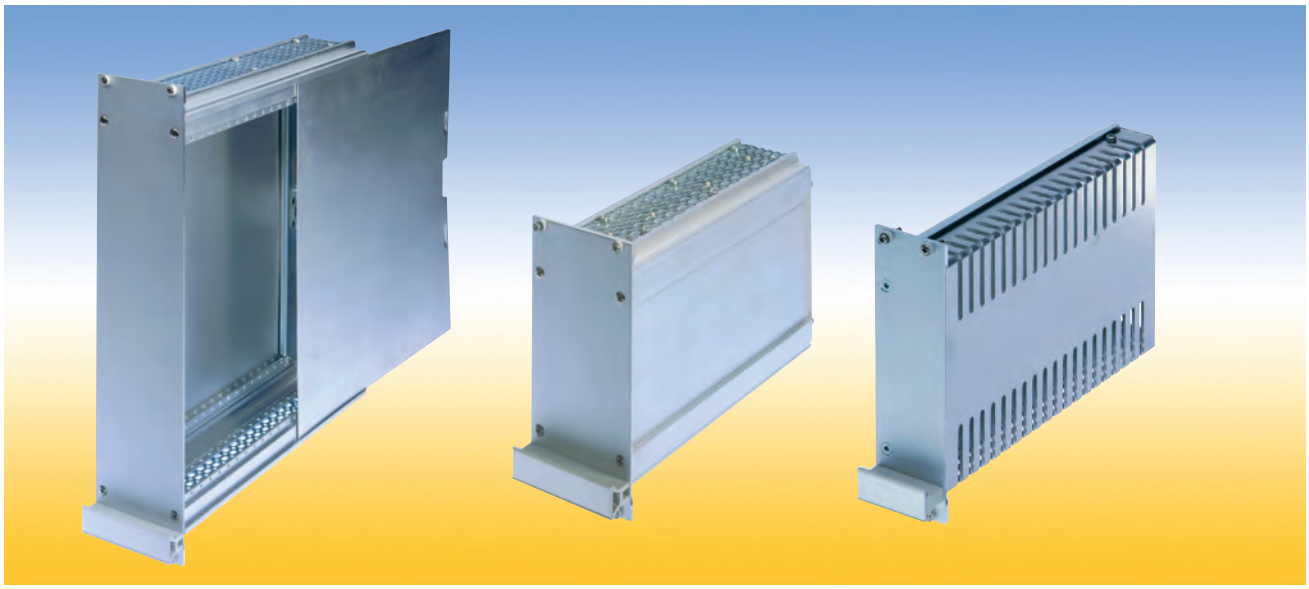
Cassette with Cover Hood



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 a 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 profiels 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 60 297, 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: passivated
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.

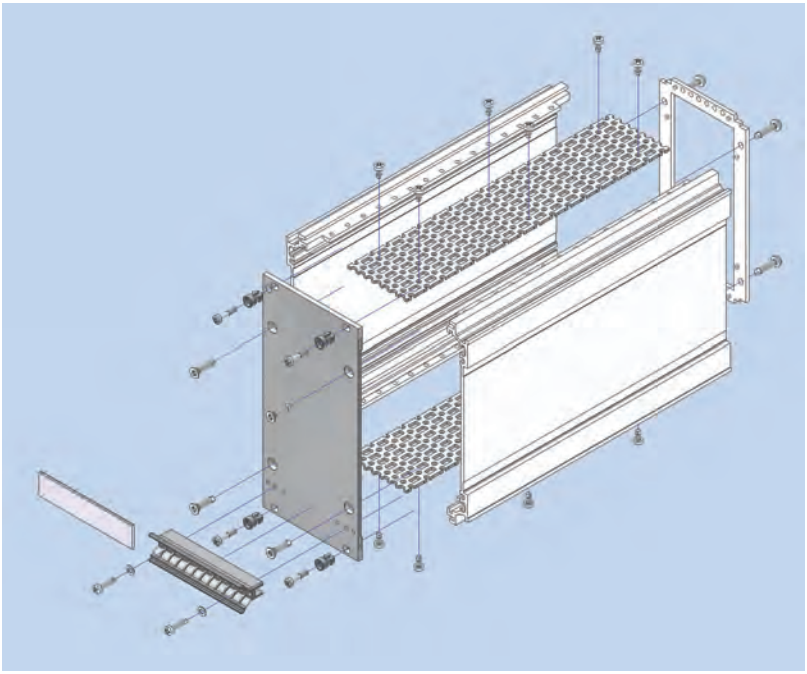
2. Top and bottom plates / rear panels
Additional mounting blocks can be used between the top and bottom plates and the rear panels.
The top and bottom plates are pierced every 5.08 mm and by drilling extra holes in the rear panel types “R” and “RT“, additional contact points can be made. Rear panel 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

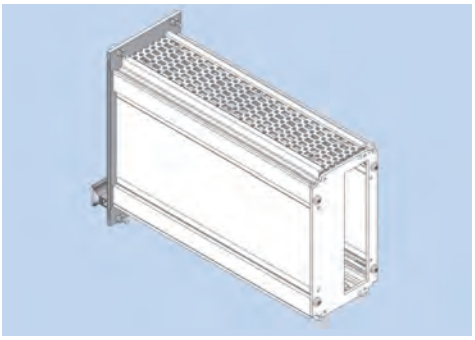
Cassette with Extruded Side Walls

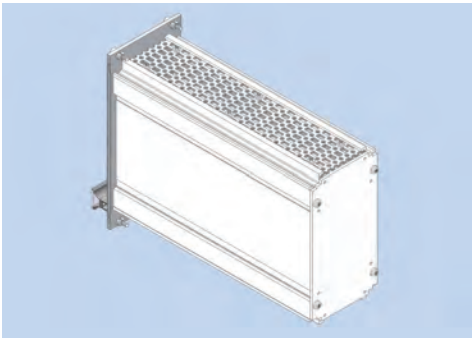


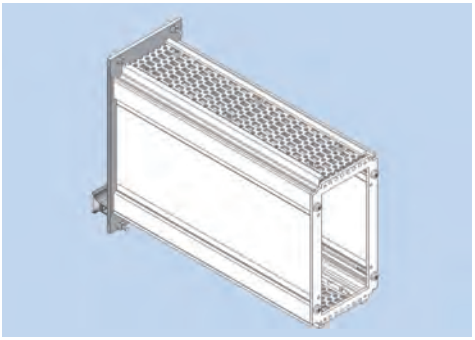
Cassette with Extruded Side Walls
The cassette kits includes following rear panels:
1. Rear panel with partical aperture (RT)
2. Rear panel closed (RG)
3. Rear panel with full aperture (RV).

Kit constists 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.



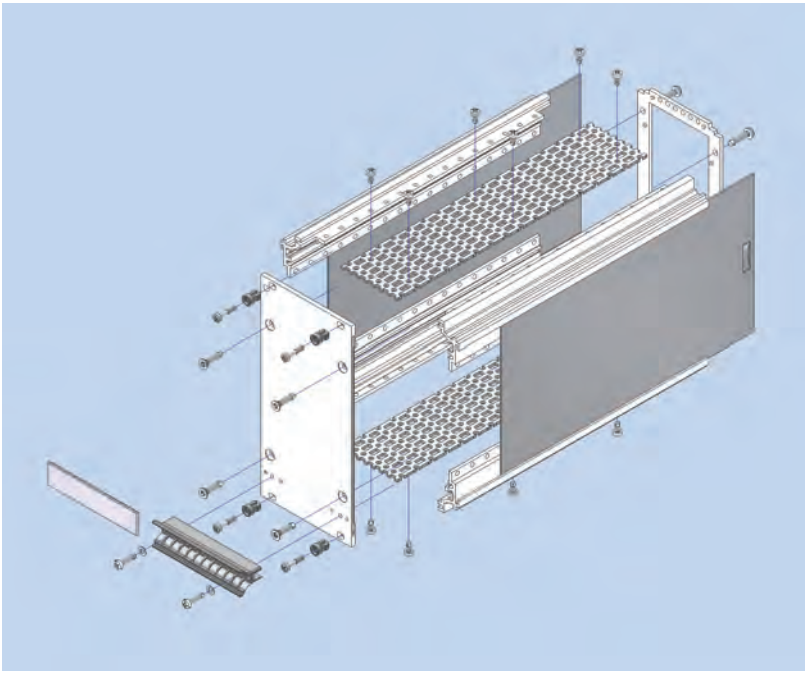




Ordering details kit cassette with extruded side walls

	nom. height [U]	nom. width [HP]	nom. depth **160 mm** order no. **409**	nom. depth **220 mm** order no. **409**
RT	3	08	**165617**	**165625**
RG	3	10	**165602**	**165610**
RG	3	12	**165603**	**165611**
RG	3	14	**165604**	**165612**
RG	3	21	**165605**	**165613**
RG	3	28	**165606**	**165614**
RG	3	42	**165607**	**165615**
RV	3	10	**165634**	**165642**
RV	3	12	**165635**	**165643**
RV	3	14	**165636**	**165644**
RV	3	21	**165637**	**165645**
RV	3	28	**165638**	**165646**
RV	3	42	**165639**	**165647**

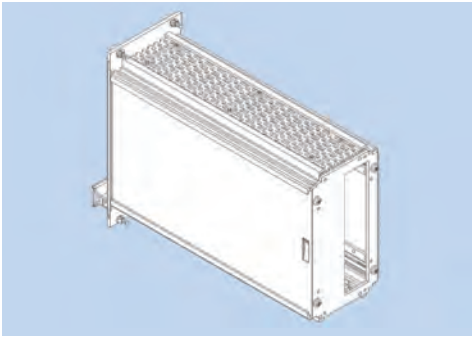
Cassette with four Depth Profiles

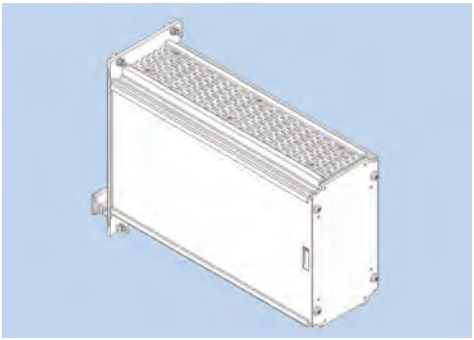


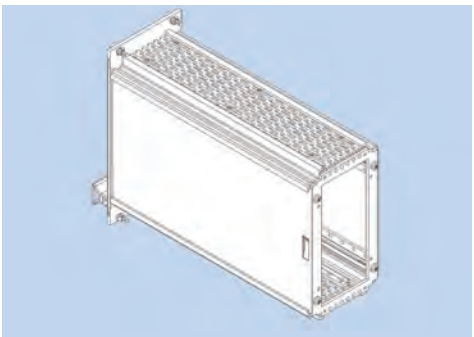
Cassette with four Depth Profiles
The cassette kits includes following rear panels:
1. Rear panel with partical aperture (RT)
2. Rear panel closed (RG)
3. Rear panel with full aperture (RV).

Kit constists 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.



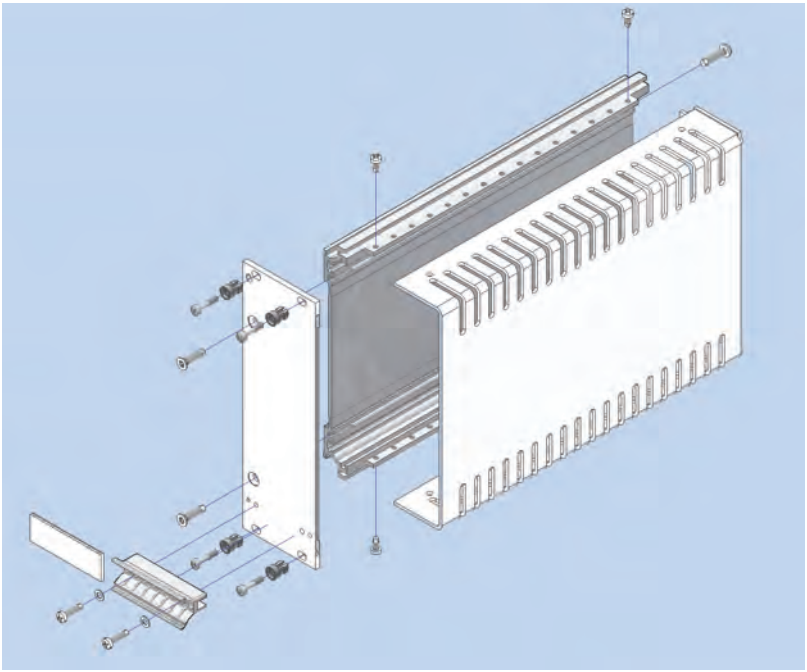




Ordering details kit cassette with four depth profiles

	nom. height [U]	nom. width [HP]	nom. depth **160 mm** order no. **409**	nom. depth **220 mm** order no. **409**
RT	3	08	**165713**	**165721**
RG	3	10	**165698**	**165706**
RG	3	12	**165699**	**165707**
RG	3	14	**165700**	**165708**
RG	3	21	**165701**	**165709**
RG	3	28	**165702**	**165710**
RG	3	42	**165703**	**165711**
RV	3	10	**165730**	**165738**
RV	3	12	**165731**	**165739**
RV	3	14	**165732**	**165740**
RV	3	21	**165733**	**165741**
RV	3	28	**165734**	**165742**
RV	3	42	**165735**	**165743**
RT	6	08	**165873**	**165881**
RG	6	10	**165842**	**165850**
RG	6	12	**165843**	**165851**
RG	6	14	**165844**	**165852**
RG	6	21	**165845**	**165853**
RG	6	28	**165846**	**165854**
RG	6	42	**165847**	**165855**
RV	6	10	**165858**	**165866**
RV	6	12	**165859**	**165867**
RV	6	14	**165860**	**165868**
RV	6	21	**165861**	**165869**
RV	6	28	**165862**	**165870**
RV	6	42	**165863**	**165871**

Cassette with Cover Hood



Cassette with Cover Hood

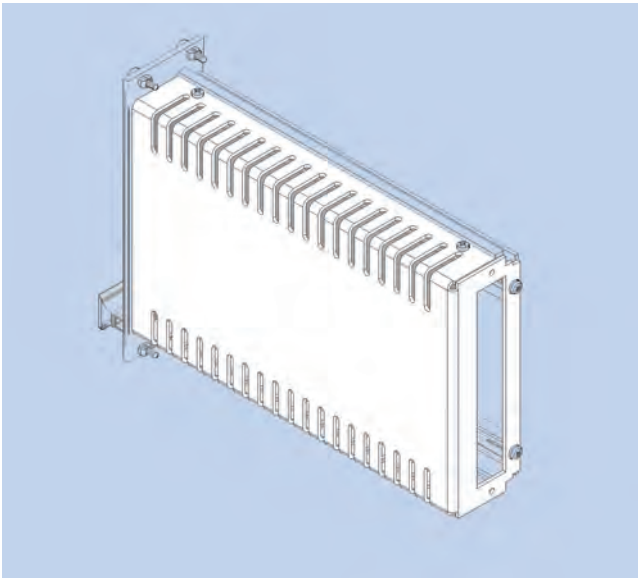
Kit constists of:
1 extruded side wall
1 cover hood
1 front panel, with slits in the side edges for insertion of RFI gaskets
1 handle
1 aluminum ident-plate
Mounting parts

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	**166112**	**166116**
3	7	**166113**	**166117**
3	8	**166114**	**166118**

Individual parts of the cassettes

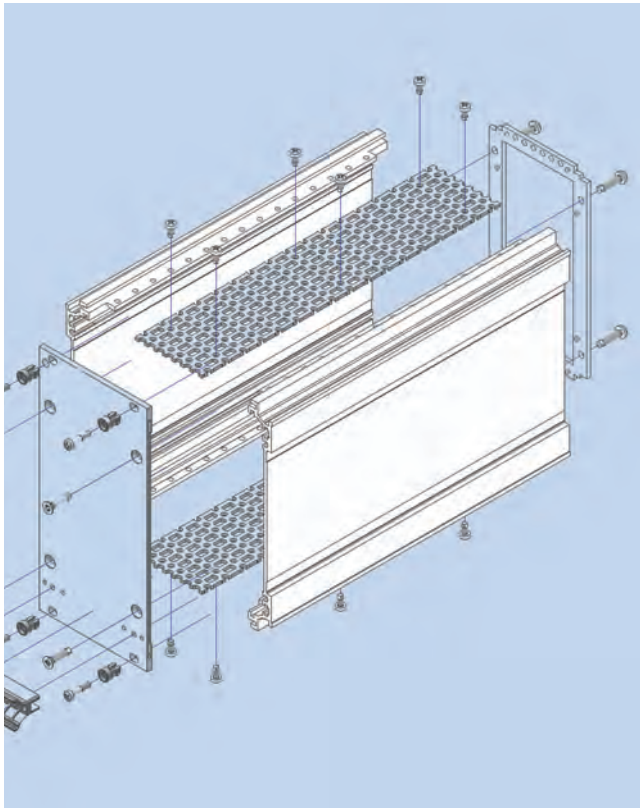


Cover Hood

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	**165896**	**166100**
3	7	**165897**	**166101**
3	8	**165898**	**166102**

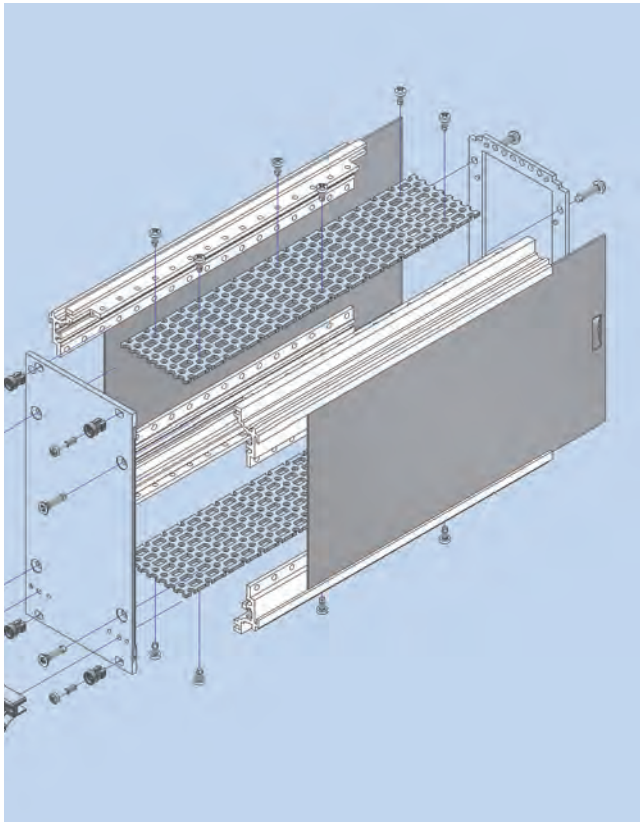


Extruded Side Wall

Material: aluminum
Finish: passivated

Ordering details extruded side walls

nom. depth [mm]	3 U order no. 409
160	079202
220	079203



Depth Profiles

Material: aluminum
Finish: passivated

Ordering details depth profiles

nom. depth [mm]	order no. 409
160	039603
220	039604

Side Plates

Material: aluminum
Finish: blank

Ordering details side plates

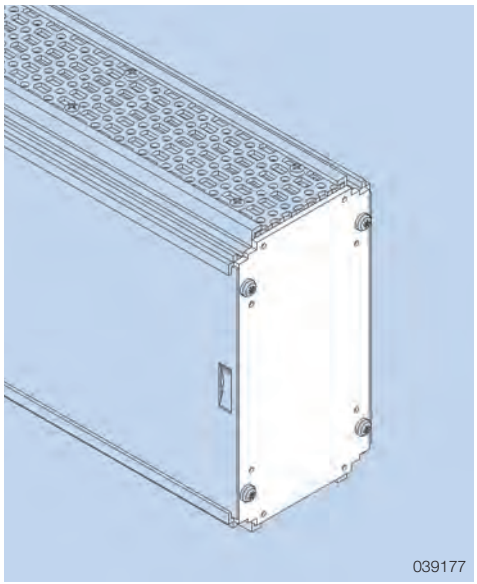
nom. depth [mm]	3 U order no. 409	6 U order no. 409
160	039542	039546
220	039543	039547

Strut 6 U

Material: aluminum
Finish: passivated

order no.: **409039540**

Individual Parts of the Cassettes



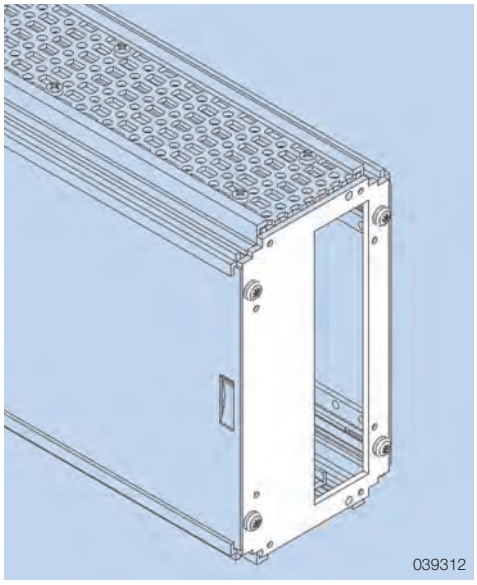
Rear Panel RG

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. **409**
8	-
10	**166237**
12	**166238**
14	**166239**
21	**166240**
28	**166241**
42	**166242**



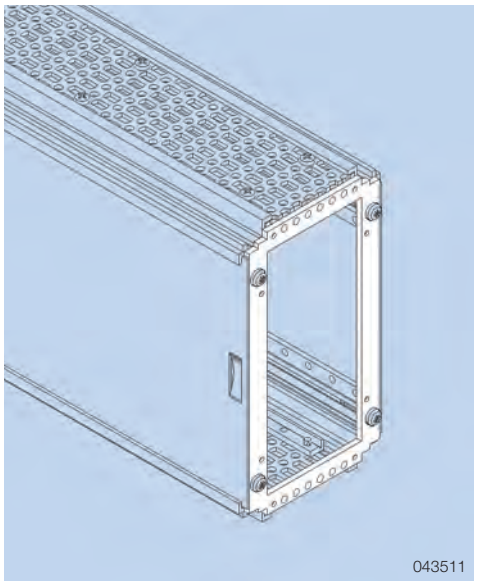
Rear Panel RT

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

Material: aluminum
Finish: blank

Ordering details rear panel RT

nom. width [HP]	order no. **409**
8	**166243**
10	-
12	-
14	-
21	-
28	-
42	-



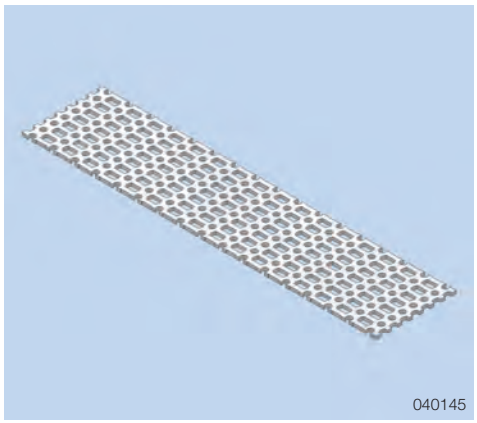
Rear Panel RV

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

Material: steel
Finish: galvanized und passivated

Ordering details rear panel RV

nom. width [HP]	order no. **409**
8	-
10	**043514**
12	**043516**
14	**043518**
21	**043525**
28	**043532**
42	**043546**

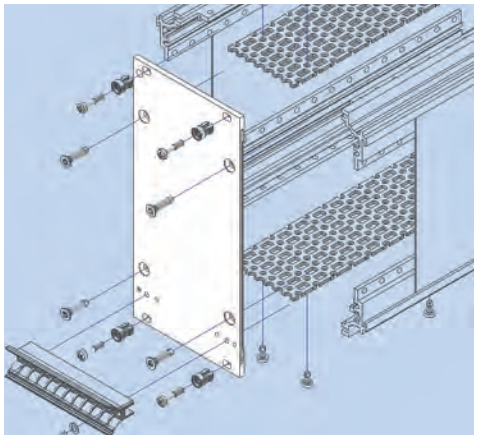


Top/Bottom Plate

Material: steel
Finish: galvanized and passivated

Ordering details top/bottom plate

nom. width [HP]	nom. depth **160 mm** order no. **409**	nom. depth **220 mm** order no. **409**
8	**038687**	**038763**
10	**038689**	**038765**
12	**038691**	**038767**
14	**038693**	**038769**
21	**038700**	**038776**
28	**038707**	**038783**
42	**038721**	**038797**



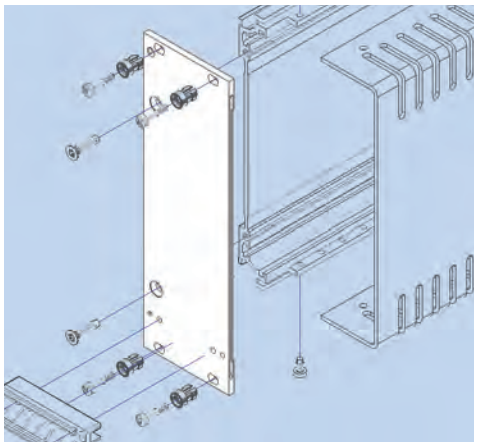
Front Panel

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	**115005**	**119024**
10	**115007**	**119026**
12	**115009**	**119028**
14	**115011**	**119030**
21	**115018**	**119037**
28	**115025**	**119044**
42	**115039**	**119058**



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	**122380**
7	**120282**
8	**120283**

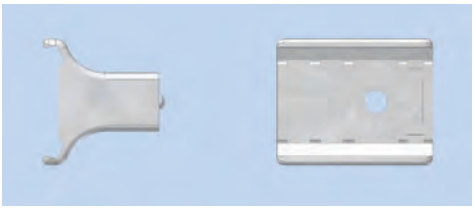
Individual Parts of the Cassettes

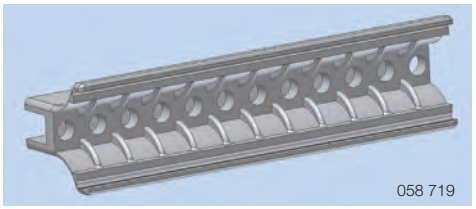
Handle FP for Front Panels

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
Continous temperature	– 40 °C to + 100 °C)
Fire protection class	UL 94 V–0



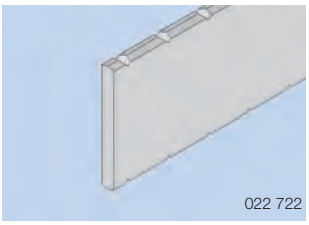


Ordering details handle FP

width [HP]	length [mm]	gray order no. **409**	black order no. **409**
6	29.04	**103006**	**103206**
7	34.12	**103007**	**103207**
8	39.20	**103008**	**103208**

Ordering details handle strip FP

width [HP]	length [mm]	gray order no. **409**	black order no. **409**
10	49.36	**103810**	**058910**
12	59.52	**103812**	**058912**
14	69.68	**103814**	**058914**
21	105.24	**103821**	**058921**
28	150.80	**103828**	**058928**
42	211.92	**103842**	**058942**



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	**022792**
7	34.12	**022793**
8	39.20	**022794**
10	49.36	**022796**
12	59.52	**022798**
14	69.86	**022800**
21	105.24	**022807**
28	150.80	**022814**
42	211.92	**040652**

Mounting parts of the cassette

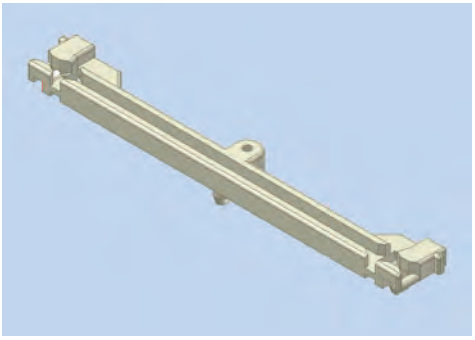
Minimum order quantity each 100 pieces

	order no. **409**
To assemble the strut and the top/bottom plates to the pr	
Oval head screw M 2.5 x 5	**039691**
To assemble the rear plate to the pr	
Oval head screw M 3 x 12	**108963**
Spring washer A 3	**040969**
To assemble the front panel to the pr	
Counter sunk screw M 3 x 12	**108962**
To assemble the cassette into the subrack	
Screw retainer 2.5, gray	**100539**
Pan Head Screw M 2.5 x 11.3	**101917**

Mounting parts for handles:

Minimum order quantity each 100 pieces

	order no. **409**
Washer 2.7	**013911**
Self tapping screw M 2.5 x 10	**040401**



Accessories
Pan head screw M2,2 x 6,5
Minimum order quantity 100 pieces

order no.: **409022672**

Card Guide for Cassette

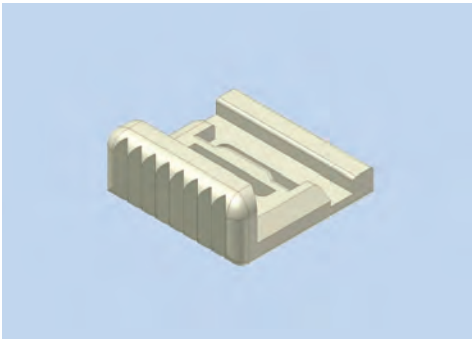
This card guide is snap-in and screw-on type.

Technical data

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

Ordering details

	nom. length [mm]	PCB thickness [mm]	order no. **409**
Card guide for cassette	100	1.6	**041012**
Card guide for cassette	160	1.6	**041008**



PCB Retainer

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

Technical data

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

order no.: **409043488**



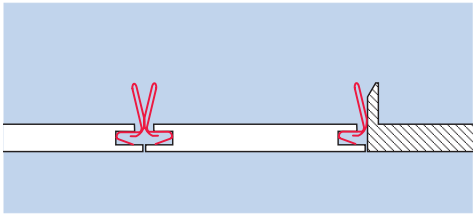
Male Connector Assembly Kit

To assemble male connectors of type B, C, D, E, F, G, or H reg. DIN EN 60 603 in rear panels.

Material: steel
Finish: galvanized und passivated

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

order no.: **409046098**



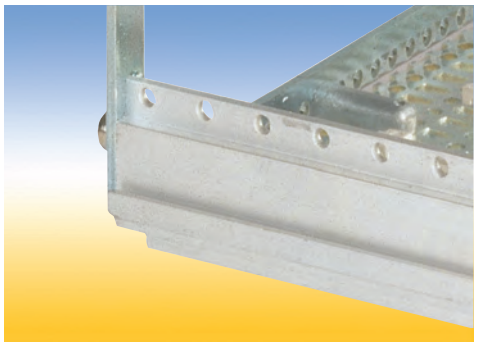
RFI-Spring F3

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

Ordering details

	order no. **409**
ont panel 2 RFI-springs are needed.	
RFI spring F3 - 3 U	**111112**
RFI spring F3 - 6 U	**111116**
For assemble the RFI spring F3	
Roller cutter	**118433**

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.: **409044090**

Backplane Holder

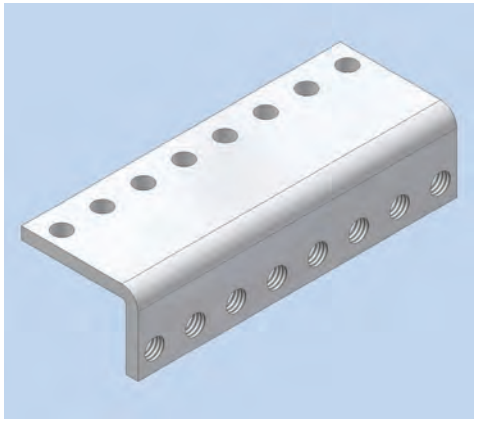
To assemble backplanes on top/bottom plate.

order no.: **409119013**

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	**046999**
To assemble the backplane or the rear panel at the mounting block or backplane holder	
Oval head screw Taptite M 2.5 x 10	**040401**
Spring washer 2.7	**013911**



Cassette Angle

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

Material: steel
Finish: galvanized and passivated

Ordering details cassette angle

length [mm]	for cassette nom. width [HP]	order no. 409
9.18	8	**039851**
19.34	10	**039853**
29.50	12	**039855**
39.66	14	**039857**
75.22	21	**039864**
110.78	28	**039954**
181.90	42	**039968**

Accessories

Minimum order quantity each 100 pieces

	order no. 409
To assemble the casssette angle at the top/bottom plates	
Oval head screw M 2.5 x 5	**039691**
To assemble the connectors at the cassette angle	
Tapered screw M 2.5 x 6.5	**032708**



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: passivated

Ordering details

	nom. width [HP]	order no. **409**
Shell 08	8	**040348**
Shell 10	10	**040350**
Shell 12	12	**040352**
Shell 14	14	**040354**
Shell 21	21	**040361**
Shell 28	28	**040368**
Shell 42	42	**040382**

Accessories

Oval head screw M 3 x 12

Minimum order quantity 100 pieces

order no.: **409108963**



Screw retainer, press-fit 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
Continous temperature	– 40 °C to + 100 °C

Ordering details

Minimum order quantity 100 pieces

	Color	order no. **409**
Screw retainer 2.5 - M 2.5	gray	**100539**
Screw retainer 2.5 - M 2.5	black	**100538**

Press-fit 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 (lead-free), nickel plated

Minimum order quantity 10 pieces

order no.: **409140266**

Screw M 2.5 x 11.3

for 2.5 mm thick Front panels

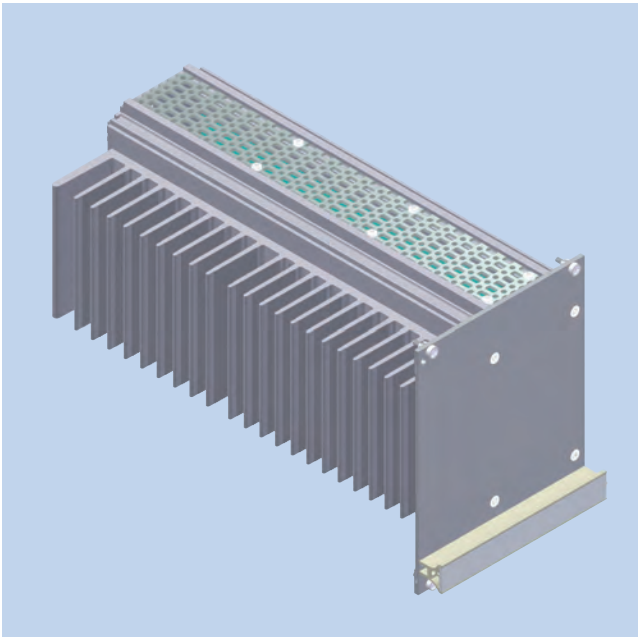
Material: Knurled head screw: steel nickel plated
Others: stainless steel

Ordering details

Minimum order quantity 100 pieces

	head form	order no. **409**
Cylinder head screw	sloted	**100540**
Pan head screw M 2.5 x 11.3	cross slot	**101917**
Knurled head screw	knurled	**101918**

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	**168938**
3	160	28 + 8	**168939**
3	220	12 + 8	**168940**
3	220	28 + 8	**168941**

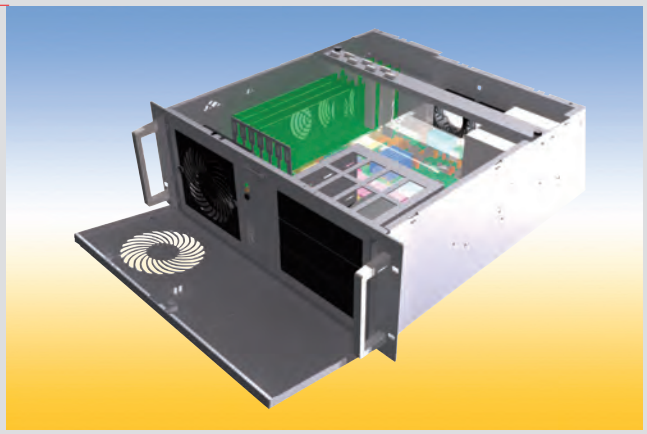
Accessories

	order no. **409**
For one flat front panel 2 RFI-springs are needed.	
RFI spring F3 - 3U	**111112**
For assemble the RFI spring F3	
Roller cutter	**118433**

Electronic Systems

Customer specific electronic systems

- √ Electronic products according to your requirements
- √ Consulting service and development for mechanics, electronics and wiring
- √ Professional electronic integration and wiring
- √ Certifications (CE, UL, shock, vibration, etc.) on request



Customer specific electronic systems

System consulting
- √ Project planning combining your specifications and our know-how

Development
- √ Mechanics, customer specific electronics, prototype construction
- √ Consider environmental conditions like shock, vibration, temperature and RF-signals

Production

Metal processing, surface refinement, assembly

√ Elektronics and wiring
- √ ESD compliant electronic assembly and wiring

Quality assurance
- √ Electrical safety tests, component test, system test, Burn-In



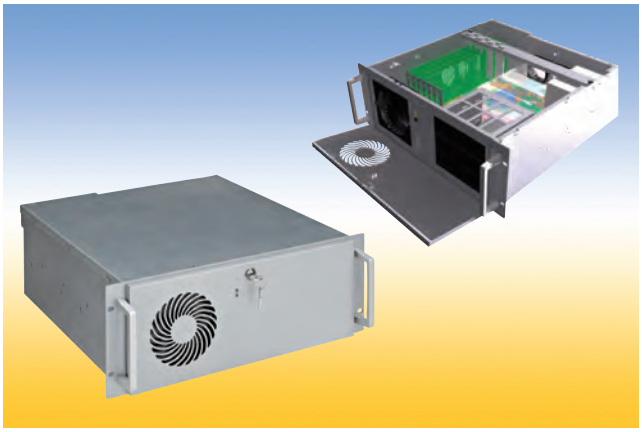
Application examples

High speed data acquisition system
- Customer specific design with PCI slots at front side
- High EMI requirements because of high frequency clocking
- Optimized cooling for high-quality components

Control system with touch operation
- 2,5 U height and only 6 cm depth
- High performance in a small housing
- Development of a cooling concept
- Reliable touch operation



Highly available Industrial PC
- Lockable front door to prevent unauthorized access
- System with shock and vibration dampers
- High reliability by using RAID and redundant power supply



Please ask your local representative for your
individual system configuration.
You find your contact person on our homepage:
www.intermas-el.com

AC/DC converters

- √ PK MONOVOLT
- √ PK BIVOLT
- √ PK TRIVOLT
- √ VP 40
- √ VP 50



AC/DC converters with active PFC

- √ VP 80
- √ VP 150



AC/DC converters economy

- √ EC MONOVOLT
- √ EC TRIVOLT



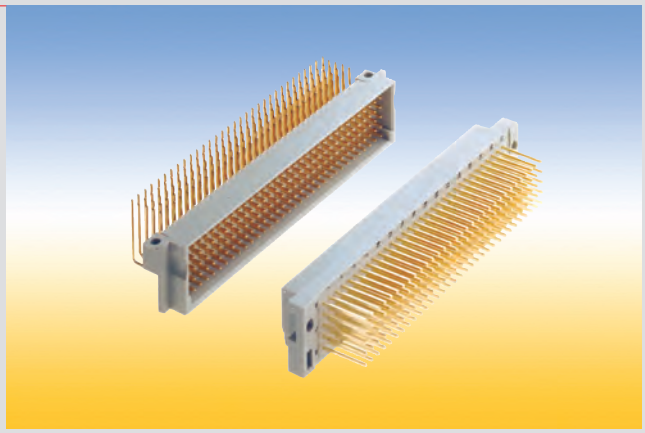
DC/DC converters

- √ GK TRIVOLT



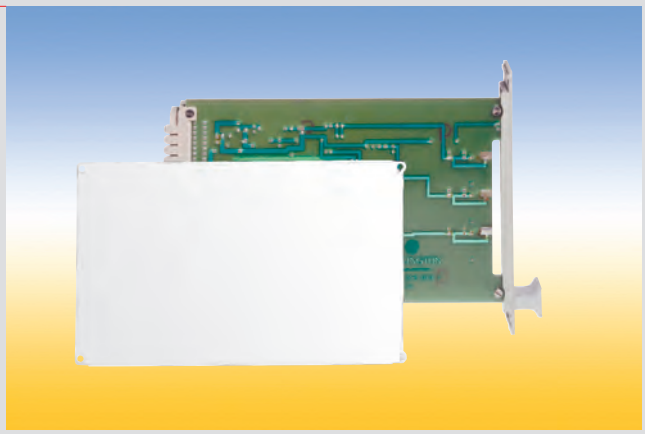
Connectors and Accessories

√ In accordance with IEC 60 603-2 / DIN 41 612
√ Designs supplementing the standards



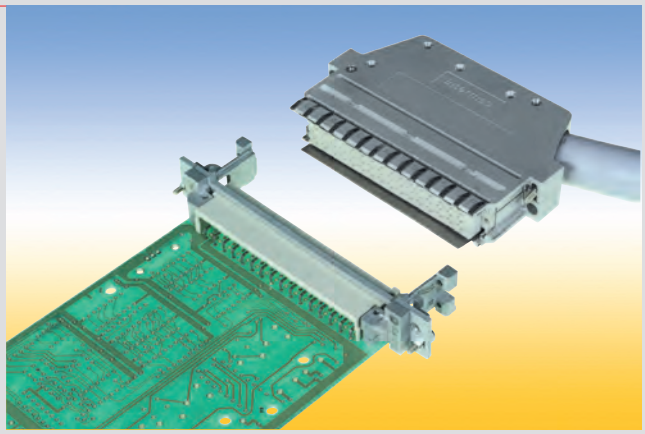
Cover for Euroboards

√ Self-extinguishing in accordance with UL 94-V0
√ For use with or without a coding strip



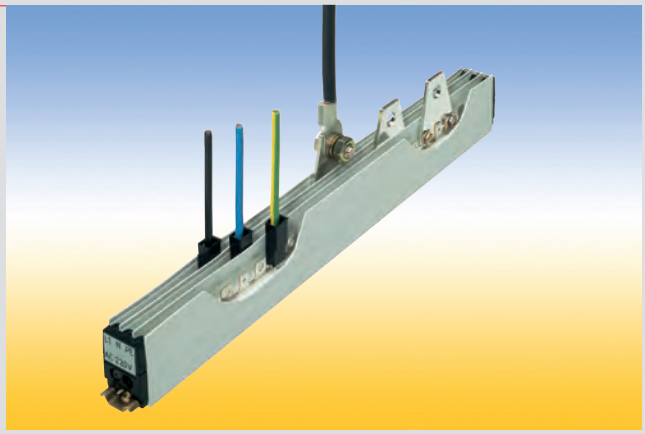
Interface Housings for IEC 60 603-2 / DIN 41 612 Connectors

√ Plastic version
√ Metal version
√ Shielding concept
√ Also for railway applications in accordance with BN 74 016



SE Bus Bars

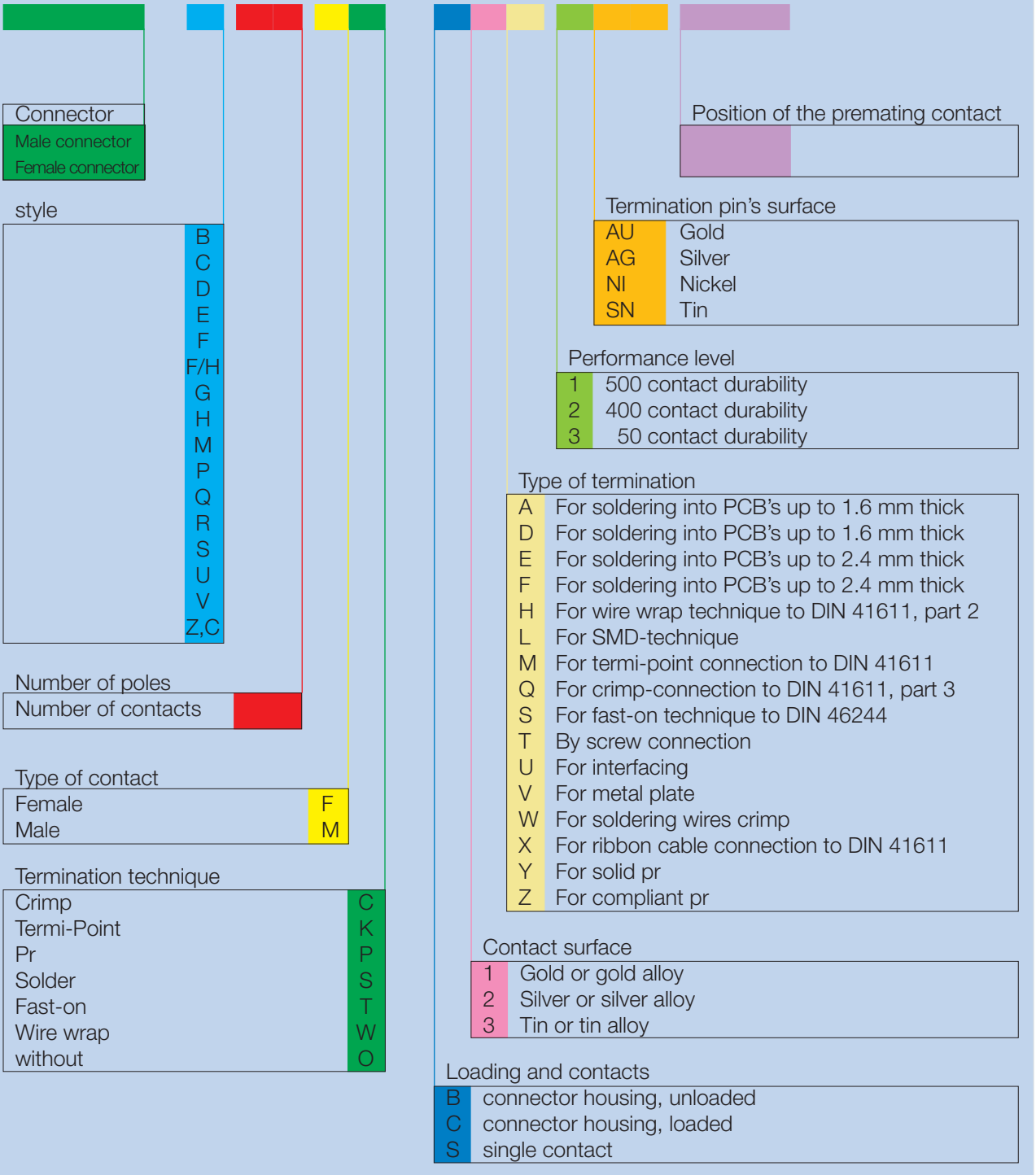
√ High current capacity up to 120 A
√ Two connection types
√ 2 or 3-pole



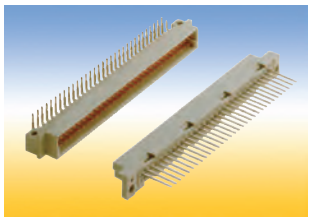
Coding key for IEC 60 603-2 / DIN 41 612 connectors
Since this catalog not only contains DIN 41612 connectors but also connectors which supplement the standard, the coding key has been extended accordingly.

Ordering example

Female connector C 064 MS - C 1 A - 1 AU - A01



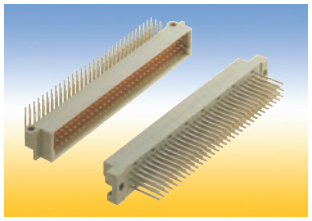
This catalog contains stock and standard parts. Other products and sizes on request.



Connectors style B

Ordering details

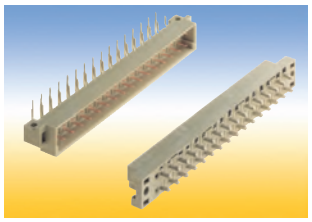
	no.poles: assignment:	064 ab 1...32
	terminations [mm]	order no. **409**
Male connector B		
MS - C1A - 2 SN	0.6 x 0.6 x 2.9	**043586**
Female connector B		
FS - C1D - 2 SN	0.25 x 0.7 x 2.5	**105380**



Connectors style C

Ordering details

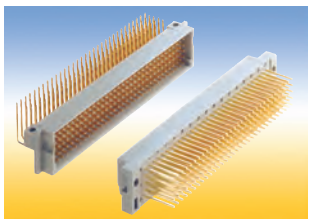
	no.poles: assignment:	032 ac 2...32	064 ac 1...32	096 abc 1...32
	terminations [mm]	order no. **409**	order no. **409**	order no. **409**
Male connector C				
MS - C1A - 2 SN	0.6 x 0.6 x 2.9	**043598**	**043606**	**043610**
Female connector C				
FS - C1E - 2 SN	0.25 x 0.7 x 4	-	**068108**	**068089**
FW - C1H - 2 SN	0.6 x 0.6 x 13	**045891**	**045894**	**045897**



Connectors style D

Ordering details

	no.poles: assignment:	032 ac 2...32
	terminations [mm]	order no. **409**
Male connector D		
MS - C1A - 2 SN	0.6 x 0.6 x 2.9	**043622**
Female connector D		
FW - C1H - 2 SN	1 x 1 x 20	**070323**
FC - B	f. male 0.6 x 0.6	**031022**
FC - B	f. male 0.6 x 1/1.5	**031031**

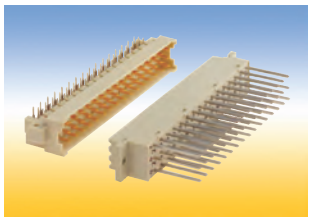


Connectors style E

Ordering details

	no.poles: assignment:	048 row separation 5,08 ace 2...32	048 row separation 2.54 ace 2...32
	terminations [mm]	order no. **409**	order no. **409**
Male connector E			
MS - C1A - 2 SN	0.6 x 0.6 x 2.9	**045210**	**045235**
Female connector E			
FW - C1H - 1 SN	1 x 1 x 20	**025919**	-
FW - C1H - 2 SN	0.6 x 0.6 x 13	-	-
FC - B	f. male 1 x 1	**031030**	-
FC - B	f. male 0.6x1/1.5	**031021**	-

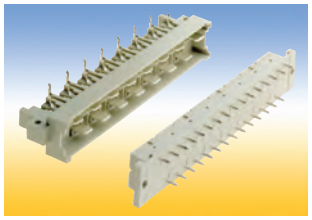
Connectors Styles F, H and R



Connectors style F

Ordering details

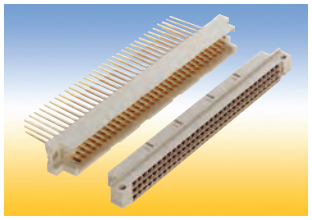
	no.poles: assignment:	032 zb 2...32	048 zbd 2...32
	terminations [mm]	order no. **409**	order no. **409**
Male connector F			
MS - C1A - 2 SN	0.6 x 0.6 x 2.9	**022622**	**041660**
Female connector F			
FW - C1E - 2 SN	1 x 1 x 4.5	**070969**	**024567**
FW - C1H - 2 SN	1 x 1 x 22	**042219**	**042218**
FC - B	f. male 0.6x1/1.5	**-**	**031015**



Connectors style H

Ordering details

	no.poles: assignment:	011 b 2.5,8...32	015 dz 4...32
	terminations [mm]	order no. **409**	order no. **409**
Male connector H			
MS -C2A - 1 AG z32 at 3.5 mm premating	1.2 x 0.8 x 3.5	**098989**	**-**
MS - C2A - 1 SN z32 at 1.5 mm premating	1.2 x 0.8 x 2.9	-	**101385**
MT - C2S - 1 AG b32 at 3.5 mm premating	6.3 x 0.8 x 8	**098986**	-
MT - C2S - 1 AG z32 at 1.5 mm premating	6.3 x 0.8 x 8	-	**094628**
Female connector H			
FT - C2S - 1 AG	6.3 x 0.8 x 8	**098991**	-
FT - C2S - 2 AG	6.3 x 0.8 x 8	-	**071015**

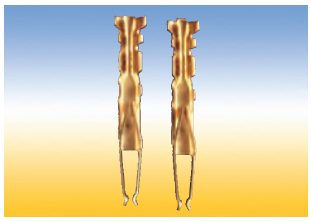


Connectors style R

Ordering details

	no.poles: assignment:	032 ac 2...32	064 ac 1...32	096 abc 1...32
	terminations [mm]	order no. **409**	order no. **409**	order no. **409**
Male connector R				
C1E - 2 SN	0.6 x 0.6 x 4	**077051**	**077055**	**077058**
C1H - 2 SN	0.6 x 0.6 x 13	**077045**	**074202**	**077048**
Female connector R				
C1A - 2 SN	0.6 x 0.6 x 6	**077038**	**074203**	**077042**

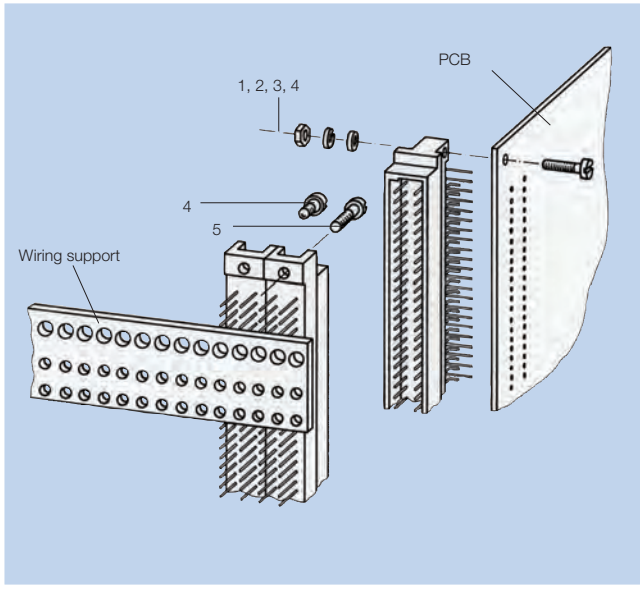
This catalog contains stock and standard parts. Other products and sizes on request.



Crimp-Snap-In-Contacts for Connectors style C, D, E, and F, Pliers and Unlocking Tool

Ordering details

	for connector style	conductor cross section [AWG]	order no. **409**	**Pliers** order no. **409**
Crimp-snap-in-male MC - S1Q - 2 NI	F	16 - 18	**077112**	**035630**
MC - S1Q - 2 NI	F	20 - 24	**077111**	**035630**
Crimp-snap-in-female for male contact 0.6x1/0.6x1.5				
FC - S1Q - 1 SN	D, E, F	16 - 18	**031019**	**035630**
FC - S1Q - 1 SN	D, E, F	20 - 26	**031018**	**035630**
FC - S1Q - 1 SN	D, E, F	26 - 28	**031020**	**031120**
Crimp-snap-in-female for male contact 1 x 1				
MC - S3Q - 3 SN	D, E, F	16 - 18	**031024**	**035630**
MC - S3Q - 3 SN	D, E, F	20 - 26	**031023**	**035630**
unlocking tool			**031123**	-



Mounting of Connectors

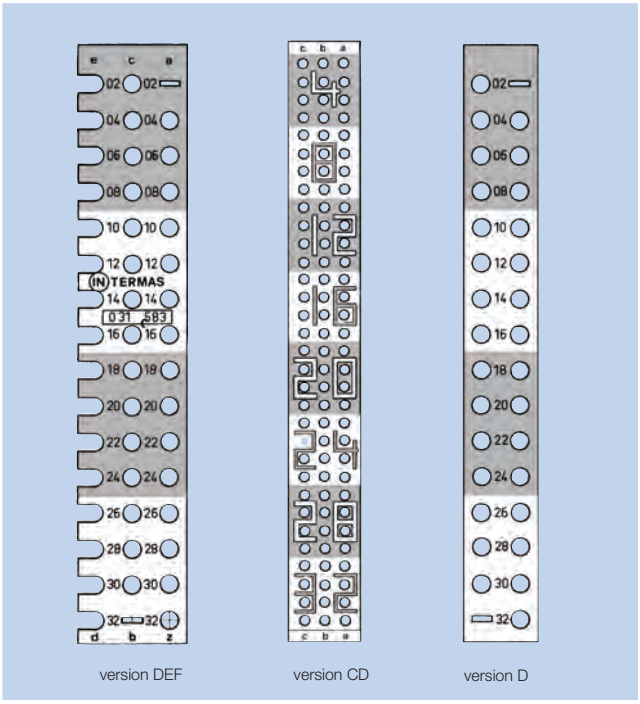
Connectors in accordance to DIN 41612 can be mounted with commercial DIN screws.
Using tapered screw, the connectors can be mounted in correct position without any adjustment or alignment.

Ordering details

Minimum order quantity each 100 pieces

	position	order no. **409**
Hexagonal nut M 2.5 DIN439	1	**013938**
Spring washer 2.5 DIN 127	2	**118506**
Washer 2.7 DIN 433	3	**111089**
Pan head screw M 2.5x12 DIN 84	4	**013904**
Tapered screw M 2.5 x 6.5	5	**032708**
Tapered screw M 2.5 x 9	5	**070476**

Accessories for Connectors



Marking Strips

IEC 60603-2 / DIN 41612 provides labeling for connectors on their wiring side.
Marking strips, made of thin plastic foil (Astralon), ensure the perfect designation of pin positions.

1. Type *DEF*
for connectors styles D, E and F with pin cross section 1,0 x 1,0 and 0.8 x 1.6 and 0.8 x 2.4 mm and for connectors with the type of termination V.

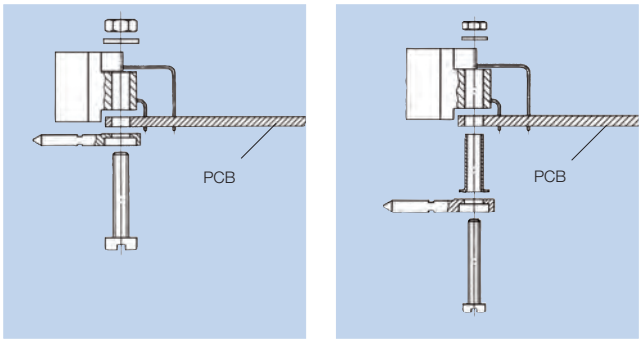
order no.: **409031583**

2. Type *CD*
for connectors styles C and D with pin cross section 0.6 x 0.6 u.1,0 x 1,0 mm and for connectors with the type of termination V.

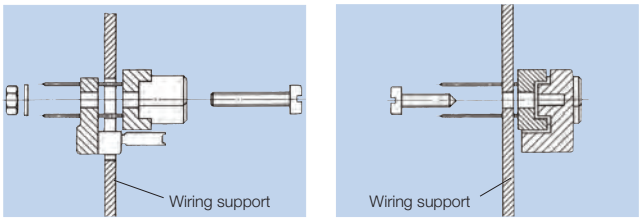
order no.: **409022714**

3. Typ *D*
for connectors style D

order no.: **409044214**



Coding strip M, mounted together with the male connector



Coding strip F, mounted together with the female connector

Coding Strips

The coding strip is designed for attachment to connectors in accordance with IEC 60603-2 / DIN 41612 and is to be mounted together with the connector to the PCB. Also the mating coding part is mounted together with the connector to the wiring support. Each coding strip has 16 coding teeth, that can be broken off as necessary

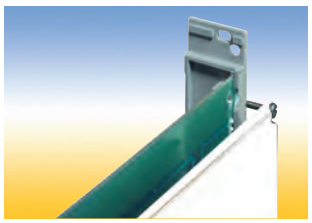
Ordering details

	order no. 409
Coding strip M [1]	**033188**
Coding strip F [1]	**033189**
Coding strip F-plate [1] [2]	**070617**
Coding strip F-plate 2 [1] [3]	**064740**

1) one functional unit comprises 1 coding strip M and one coding strip F
2) for attaching with self tapping screws
3) attaching at through hole

Description

This PCB cover protect the soldered side against dirt and contact. Two versions are available:
A standard PCB cover and a PCB cover for use with a coding strip.
The coding strip PCB cover can be used in connection with a coding strip on the connector.



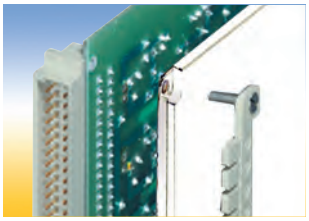
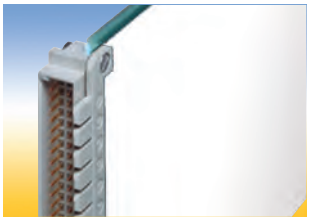

Mounting of PCB cover standard at the front panel

Technical data

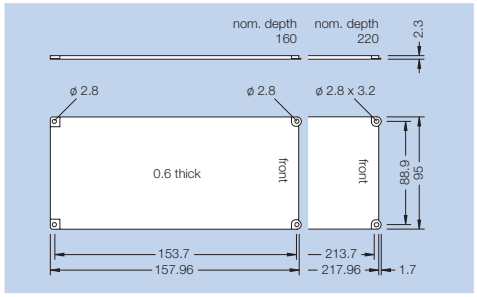
Material	PBT (Polyester)
Continous temperature	-40 °C to <+60 °C
Fire protection class	UL 94 V-0 at 0.8 mm
Color	white



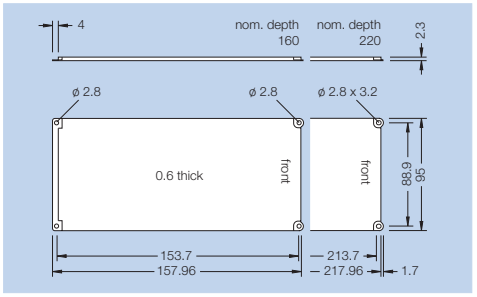

Mounting of PCB cover standard at side of the connector

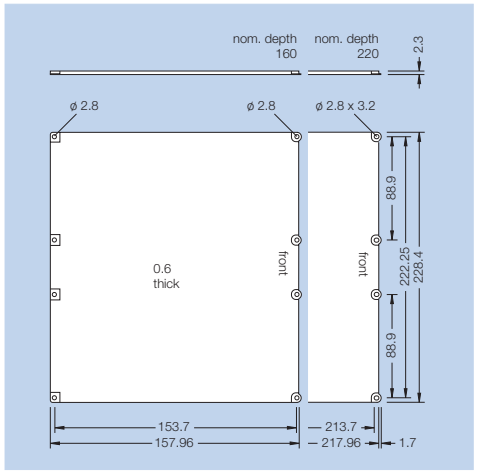
Mounting of PCB cover for coding strip jammed under the recess of the coding strip



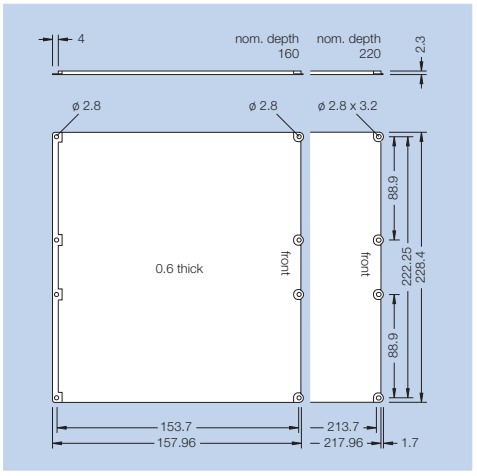
PCB cover standard 3U



PCB cover for coding strip 3U



PCB cover standard 6U



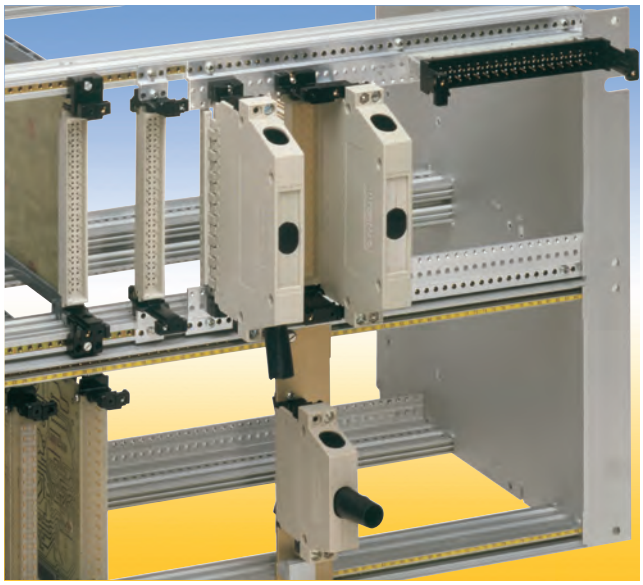
PCB cover for coding strip 6U

Ordering details

	PCB height [mm]	standard order no. **409**	coding strip order no. **409**
Cover for Euroboards			
3-160	100	**100652**	**100650**
3-220	100	**100662**	**100660**
6-160	233.35	**102110**	**102109**
6-220	233.35	**102113**	**102112**

Metallized PCB cover on request.

Plastic Interface Housings



Description

This compact and insulating interface housing is designed to accommodate DIN 41 612 / IEC 60 603-2 connectors. It is physically clamped into position between guide elements. The interface housings have the following advantages:

√ Accommodation of either female or male connectors of any type of connection technology.
√ Protects the connector during insertion and operation.
√ Lifting screws ease insertion and removal.
√ Three cable feed apertures.
√ Strain relief.
√ Allows installation of display and operating elements.
√ Codable.

Metallized plastic interface housing for RFI-shielding available.

Technical data

Dimensions	IEC 60297 / DIN 41494
Material	interface housing: PC, pebble gray guide components: PC, black
Fire characteristics:	UL 94 V-1
Utilization category:	-25 °C, 100 °C, 90% relative humidity

Delivery kit interface housing

	pieces per kit *style B*	pieces per kit *style C, E, F1, F*	pieces per kit *style C1, F2*
Interface housing shells	2	2	2
Cover strip	1	-	-
Cable clamp	2	2	-
Blind plug	2	2	-
Strain relief kit	1	1	-
Mounting parts	1	1	1

Delivery

Interface housings:
As a kit of unassembled components, without guide components.

Guide components:
As an assembled kit.

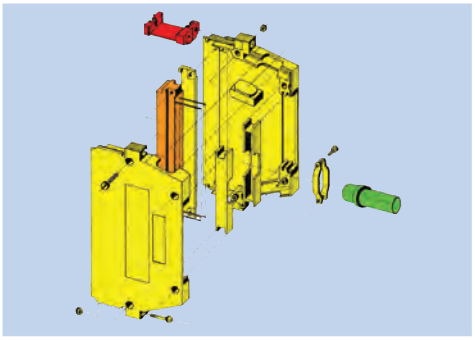
Delivery kit guide elements

	pieces per kit
Guide element top	1
Guide element bottom	1
Mounting parts	1

Color code:

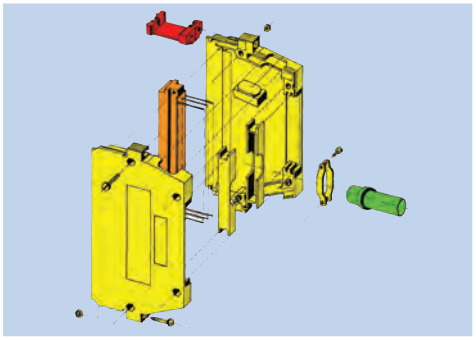
yellow:	interface housing
orange:	male connector
blue:	female connector
red:	guide components
green:	accessories

Ordering details for interface housing kits (yellow: interface housing kit)



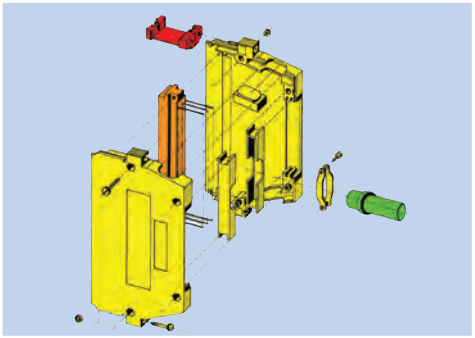
Interface Housing B

order no.: **409077516**



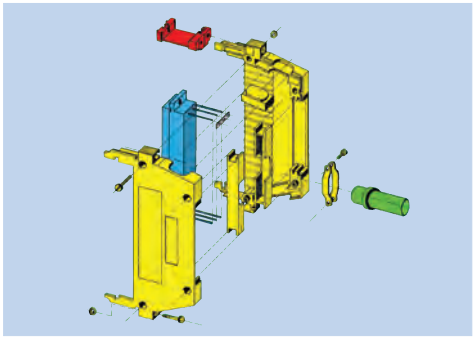
Interface Housing C

order no.: **409031124**



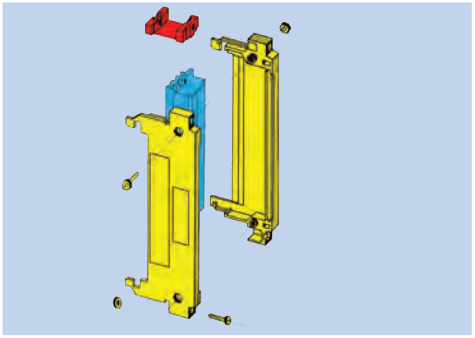
Interface Housing E

order no.: **409031125**



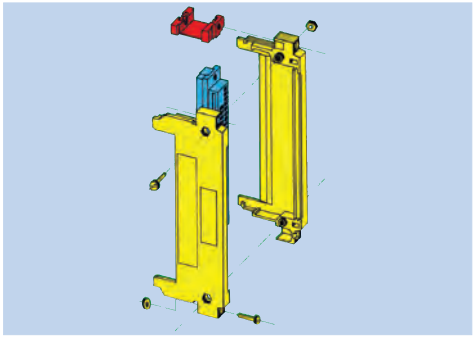
Interface Housing F

order no.: **409070620**



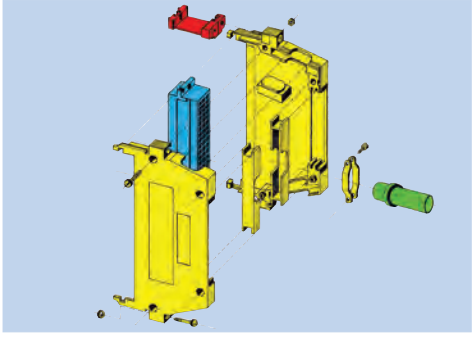
Interface Housing F2
for termination technique with ribbon cable

order no.: **409073659**



Interface Housing C1
for termination technique with ribbon cable

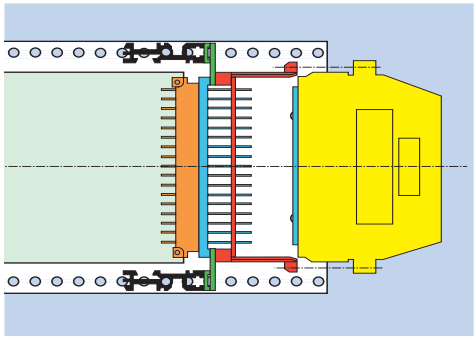
order no.: **409070621**



Interface Housing F1
for crimp-snap-in termination technique

order no.: **409071876**

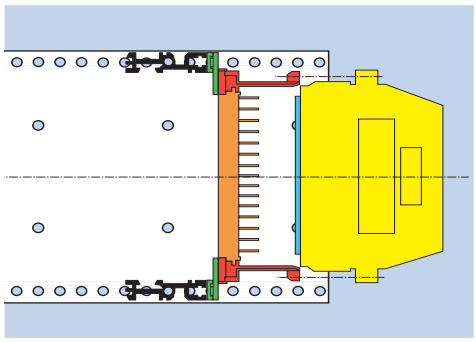
Plastic Guide Components



Application
For interface housings with female connector, to attach on the connecting pins of a female connector subrack.

Ordering details for kits

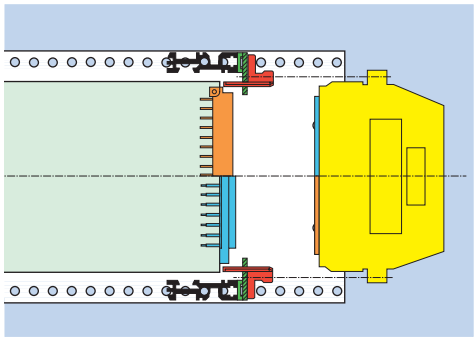
	length spacer	for interface housings	order no. **409**
Guide component C-Huk 13	6	C, C1	**032563**
Guide component C-Huk 17	9	C, C1	**032564**
Guide component D-Huk 20	11	D	**032565**
Guide component D-Huk 26	17.5	D	**032566**
Guide component E-Huk 20	11	E	**032567**
Guide component E-Huk 26	17.5	E	**032568**
Guide component F-Huk 22	22	E	**032569**



Application
For interface housings with female connector, to attach on the connecting pins of a *U-element* rack.

Ordering details for kits

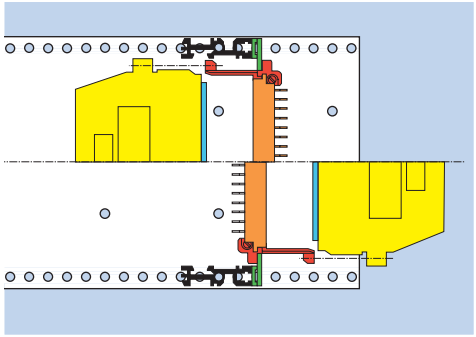
	for interface housings	order no. **409**
Guide component U-element	F, F1, F2	**035207**



Application
For interface housings with female or male connector, for mating directly to the PCB (LP) connector subrack.

Ordering details for kits

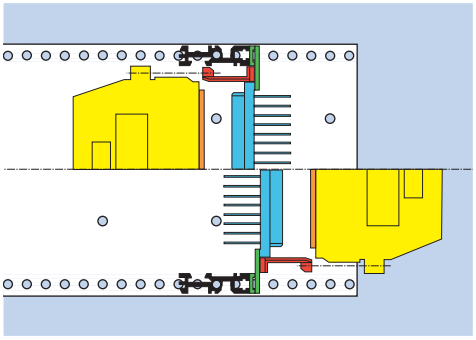
	for interface housings and connectors	order no. **409**
Guide component CDFHR-LP	C, C1, D, M, F, F1, F2, H, R	**032553**
Guide component E-LP	E	**032554**



Application
For interface housings with female connector, for mating with a male connector, who is installed on the *connector attachment* (SB).

Ordering details for kits

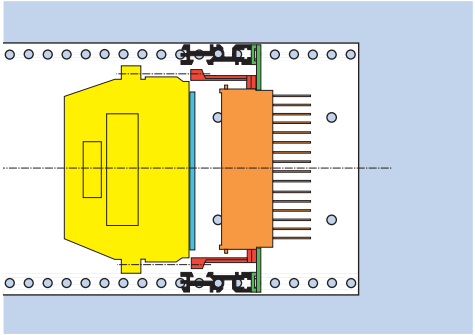
	for interface housings and connectors	order no. **409**
Guide component CDR-M-SB/FP	B, Q, C, C1, R, D, M	**032520**
Guide component E-M-SB/FP	E	**032551**
Guide component F-M-SB/FP	F, F1, F2, U, H	**032575**



Application
For interface housings with male connector, for mating with a male connector, that is installed on the *connector attachment* (SB).

Ordering details for kits

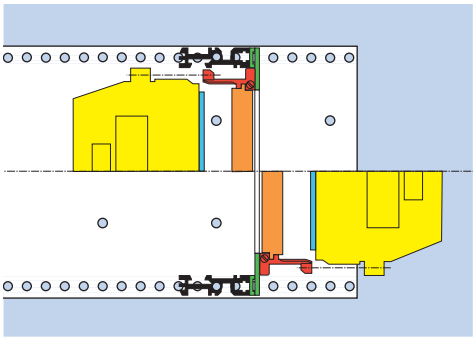
	for interface housings and connectors	order no. **409**
Guide component CDHR-F-SB	C, C1, R, D, M, H, B, Q	**032555**
Guide component E-M-F-SB	M	**032556**



Application
For interface housings with female connector, for mating with an *I-element*. Installation in the wiring field of the subrack.

Ordering details for kits

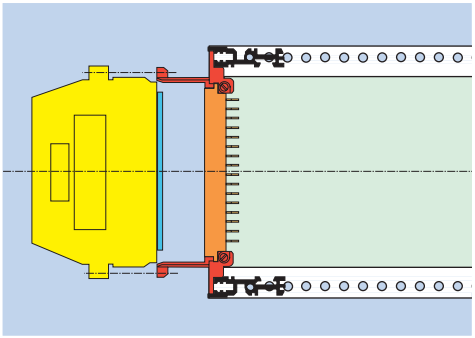
	for interface housings and connectors	order no. **409**
Guide component I-unit	F, F1, F2	**035206**



Application
For interface housings with female connector, for mating with a male connector, on *Backplane* (BP).

Ordering details for kits

	order no. **409**
Guide component CDHR-M-BP	**072620**
Guide component E-M-BP	**072619**



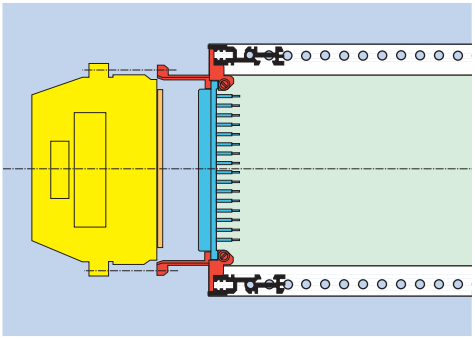
Application
For interface housings with female connector, for mating with a male connector, serves as a handle *(GL)*, mounted on the service side of the subracks.

Ordering details for kits

	for interface housings and connectors	order no. **409**
Guide component CDR-M-GL	B, C, C1, R, Q, D, M	**032518**
Guide component E-M-GL	E	**032549**
Guide component F-M-GL	F, F1, F2, U, H	**032574**

Color code:
yellow: interface housing
orange: male connector
blue: female connector
red: guide components
green: accessories

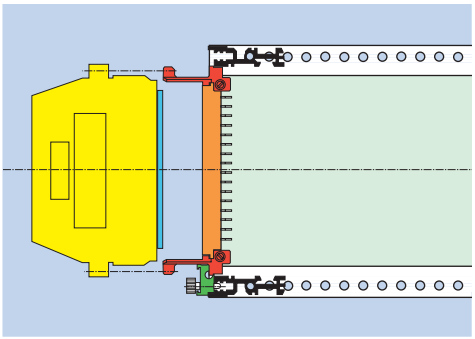
Plastic Guide Components



Application
For interface housings with male connector, for mating with a female connector, serves as a handle *(GL)*, mounted on the service side of the subracks.

Ordering details for kits

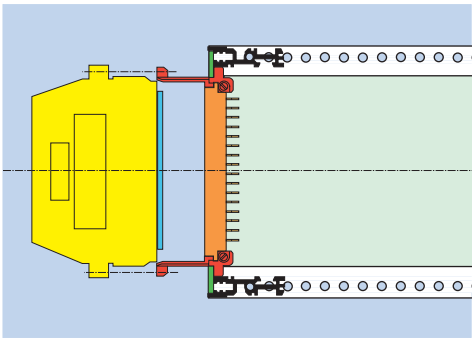
	for interface housings and connectors	order no. **409**
Guide component CDHR-F-GL	B, Q, C, C1, R, D, M	**032519**
Guide component E-F-GL	E	**032550**



Application
For interface housings with female connector, for mating with a male connector, serves as a handle *(GL)*
the subrack.

Ordering details for kits

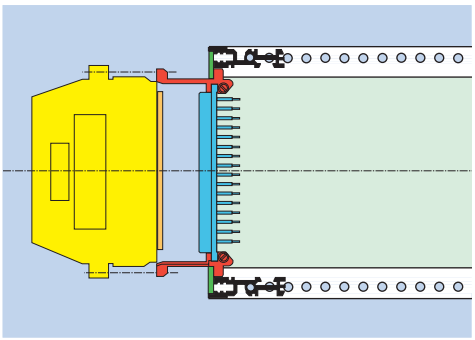
	for interface housings and connectors	order no. **409**
Guide component F-M-GL	F, H15, U	**035316**



Application
For interface housings with female connector, for mating with a male connector, that is mounted on a *front panel (FP)*.

Ordering details for kits

	for interface housings and connectors	order no. **409**
Guide component CDR-M-SB/FP	B, Q, C, C1, R, D, M	**032520**
Guide component E-M-SB/FP	E	**032551**
Guide component F-M-SB/FP	F, F1, F2, H, U	**032575**



Application
For interface housings with male connector, for mating with a female connector, that is mounted on a *front panel (FP)*.

Ordering details for kits

	for interface housings and connectors	order no. **409**
Guide component CDFHR-FP	B, C, C1, D, M, H11, Q, R	**032523**
Guide component E-FP	E	**032552**

Color code:
yellow: interface housing
orange: male connector
blue: female connector
red: guide components
green: accessories

Accessories for Plastic Interface Housings

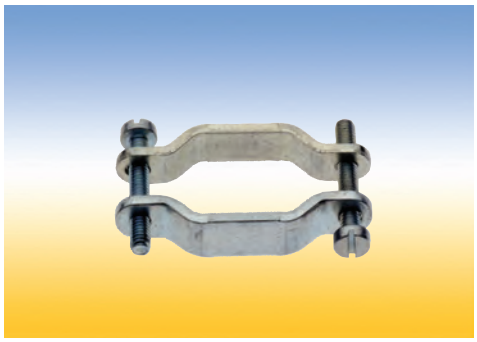


Cable Sleeve

Material: black rubber

for housing styles C, F, B
order no.: **409032766**

for housing style E
order no.: **409032767**

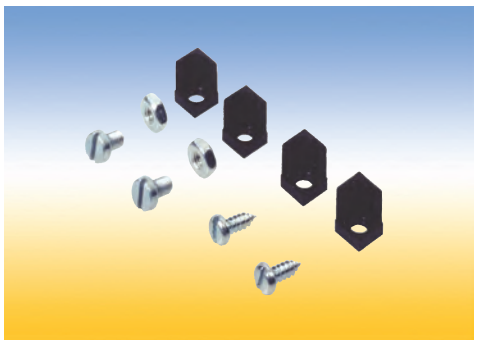


Cable Clamp Kit
consists of:
2 brackets and mounting parts

Material: metal

for housing styles C,D, F, H
order no.: **409034532**

for housing style E
order no.: **409034533**



Coding Kit
with 16 possibilities
consists of:
4 coding elements and mounting parts

Material: plastic

order no.: **409141930**

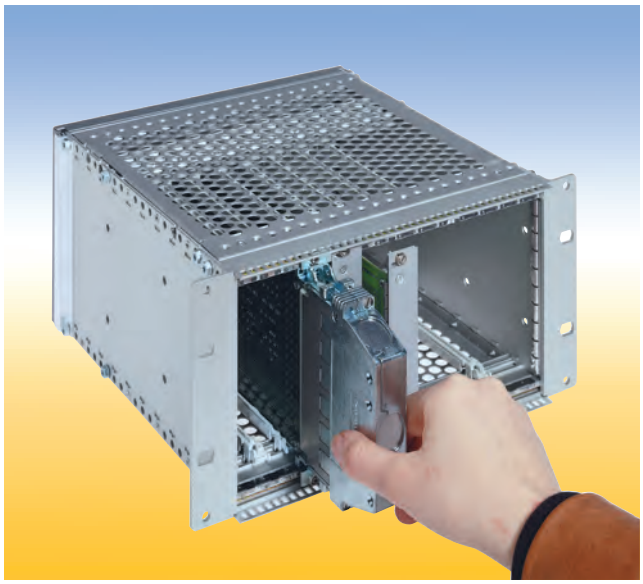


Coding Kit
with 32 possibilities
consists of:
4 coding elements and mounting parts

Material: metal

order no.: **409034724**

Metal Interface Housings



Description

The metal interface housing was developed on the basis of the plastic interface housing design as a totally metal housing with metal guide elements for heavy-duty use. It has the following advantages:

√ Suitable for all 19" front panels in accordance with IEC 60 297-3 and IEEE fronts in accordance with P1101.10.
√ For shielding between the interface housing and the front panel, in the E and F1 style RFI shielding panels can be added at the transfer side
√ Coding already integrated or can be added, depending on the style
√ Three cable feed apertures
√ For cable diameters up to 17 mm
√ For heavy-duty applications such as railway engineering, power station engineering etc.

Technical data

Dimensions	IEC 60297 / DIN 41494
Material	housing shells: die-cast zinc guide components: die-cast zinc or metallized plastic other parts: stainless steel, steel, brass
Finish:	housing shells: drum-polished or galvanized and passivated or or nickel plated other parts: galvanized, nickel-plated

Delivery kit interface housings metal

	pieces per kit standard	pieces per kit shielded
Interface housing shells	2	2
Cable clamps	1	1
Blind plug	2	2
Shielding plate	-	1
RFI-spring	-	1
Mounting parts	1	1

Delivery kit guide element

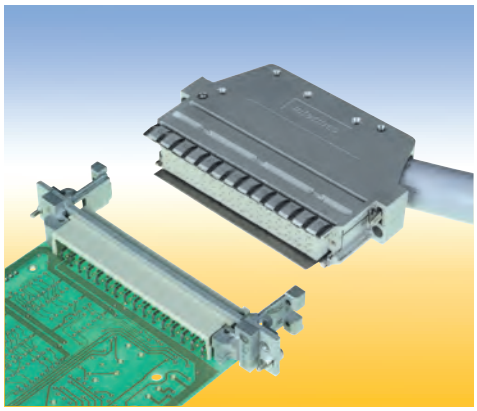
	pieces per kit
Guide component top	1
Guide component bottom	1
Mounting parts	1

Delivery

Interface housings:
As a kit of unassembled components, without guide components.

Guide components:
As an assembled kit.

This catalog contains stock and standard parts. Other products and sizes on request.



Metal interface housings metal RFI

Metal Interface Housings RFI E

For connectors styles E 48 and E 160.

Ordering details for kits

	width [HP]	drum-polished order no. **409**	galvanized+ passivated order no. **409**
Metal interface housings			
RFI E-standard	4	**113860**	**113824**
RFI E-shielded	4	-	**113849**

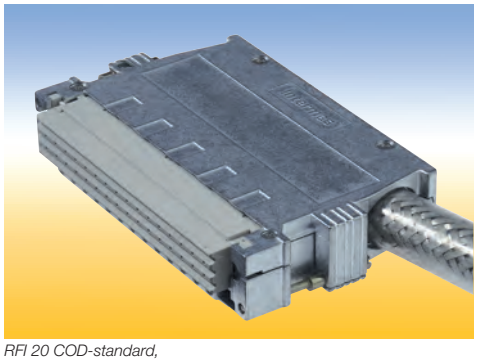
Metal Interface Housings RFI F1

For connector styles F 48, C96, H11, H15, and F24/H7.

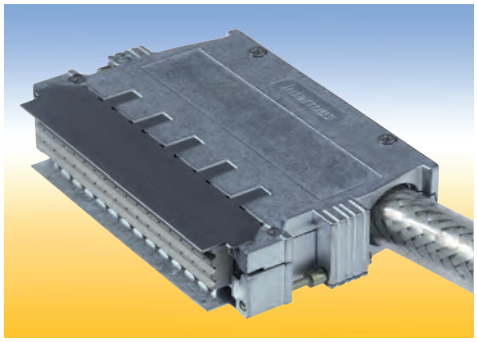
Ordering details for kits

	width [HP]	drum-polished order no. **409**	galvanized+ passivated order no. **409**
Metal interface housings			
RFI F1-standard	3	**113838**	**111775**
RFI F1-standard	4	**113840**	**111245**
RFI F1-shielded	4	-	**113841**

Nickel plated metal interface housings RFI F1 on request.



RFI 20 COD-standard,
codable with marketables coding elements



RFI 20 COD-shielded, codable

Metal Interface Housings RFI 20 COD

With integrated coding,
for connector styles F 48, H15 and F24/H7

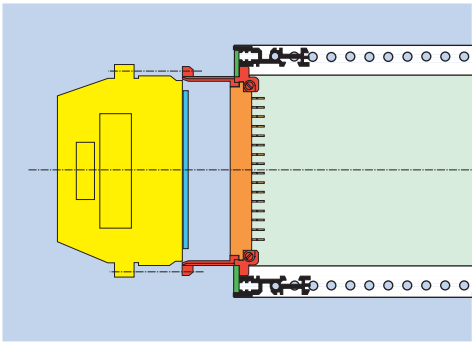
The Metal interface housings RFI 20 - standard are *not* supplied with RFI springs.

Ordering details for kits

	width [HP]	drum-polished order no. **409**	galvanized+ passivated order no. **409**
Metal interface housings			
HF20COD-standard	4	**114775**	**112321**
HF20COD-shielded	4	-	**114255**

Nickel plated metal interface housings RFI 20 COD - standard on request.

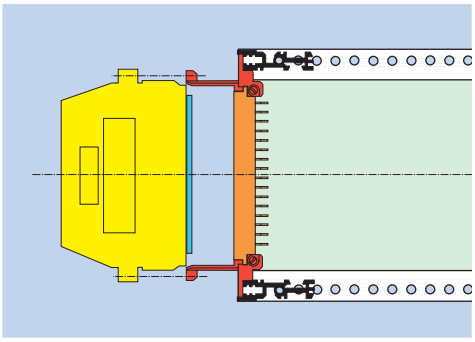
Metallized Guide Components



Application
Guide component F for mounting of a 3 HP metal interface housing in any position of the mounting area.

Ordering details for kits

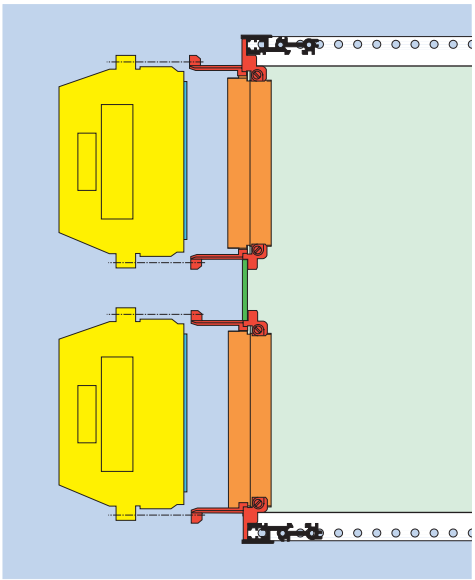
	for metal interface housing RFI	order no. **409**
Guide component F metal-lized	F1- 3 HP	**114122**



Application
Guide component F with integrated front panel for mounting of a 3 HP metal interface housing RFI in a 3 U subrack..

Ordering details for kits

	for metal interface housing RFI	order no. **409**
Guide component F metal-lized	F1- 3 HP	**114121**

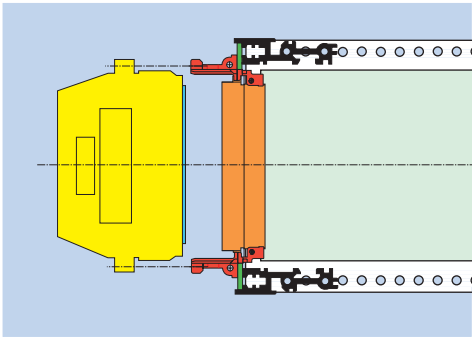


Application
Guide component F for mounting of a 3 HP metal interface housing RFI in the upper or lower area of 6 U subracks.gers.

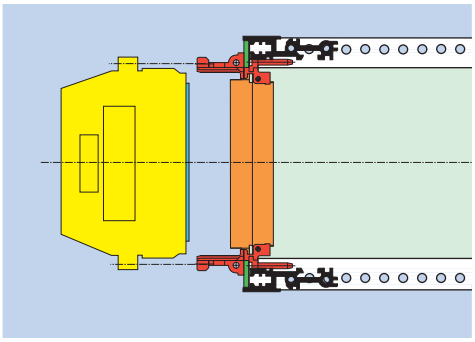
Ordering details

	for metal interface housing RFI	order no. **409**
Guide component F metal-lized	top - F1- 3 HP	**114119**
Guide component F metal-lized	bottom - F1- 3 HP	**114120**

Color code:
yellow: interface housing
orange: male connector
blue: female connector
red: guide components
green: accessories



without coding



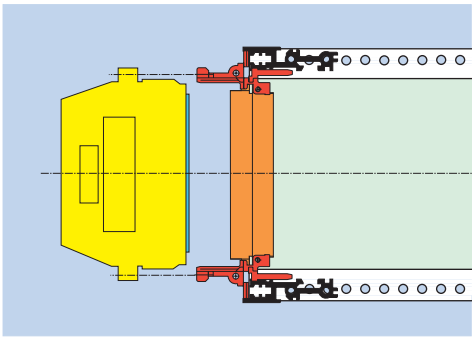
with coding

Application

Guide component F/E for mounting of a 4 HP metal interface housing RFI in any position of the mounting area.

Ordering details for kits

	for metal interface housing RFI	order no. **409**
Guide component F/E metal	E, F1- 4 HP	**114933**
Guide component F/E metal with coding	E, F1- 4 HP	**114007**

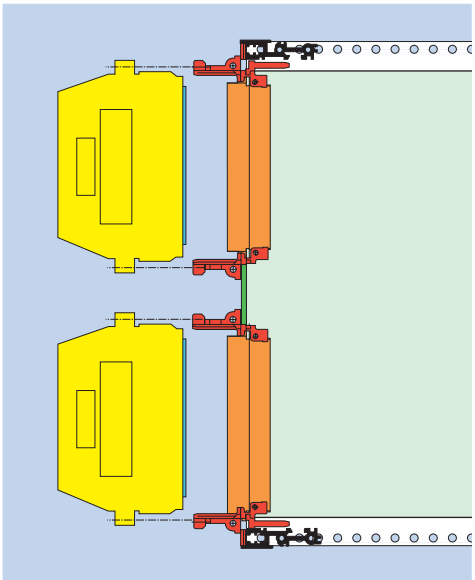


Application

Guide component F/E with integrated front panel for mounting of a 4 HP metal interface housing RFI in a 3 U subrack.

Ordering details for kits

	for metal interface housing RFI	order no. **409**
Guide component F/E metal	F1- 4 HP	**113826**



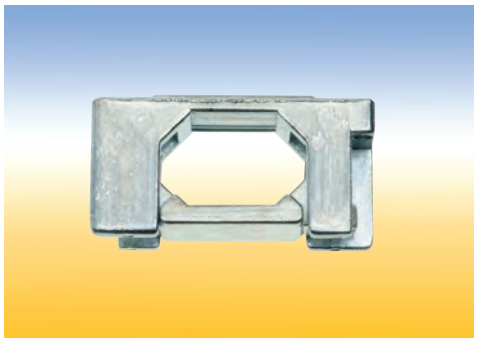
Application

Guide component F/E for mounting of a 4 HP metal interface housing RFI in the upper or lower area of 6 U subracks.

Ordering details for kits

	for metal interface housing RFI	order no. **409**
Guide component F/E metal	top - F1- 4 HP	**113830**
Guide component F/E metal	bottom - F1- 4 HP	**113828**

Accessories for Metal Interface Housings RFI E and F



Cable Clamp Kit
consists of:
2 brackets and mounting parts

Material: zink die-cast
Finish : galvanized

Ordering details for kits

	order no. **409**
Cable clamp 3 HP	**113788**
Cable clamp 4 HP	**112279**

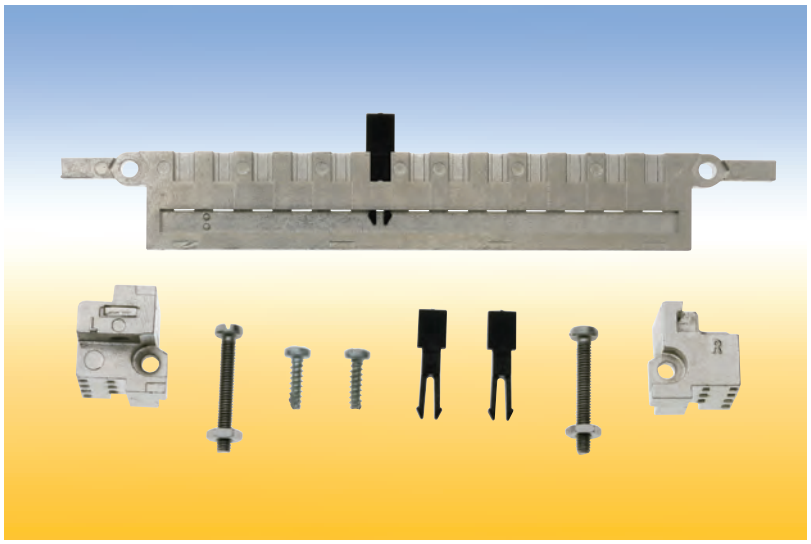


Coding Kit
with 32 possibilities
consists of:
4 coding elements and mounting parts

Material: metal

order no.: **409034724**

Accessories for Metal Interface Housings RFI 20 COD



Retaining Parts Kit
for mounting in subrack

Material: plastic
Finish: metallized

order no.: **409114983**

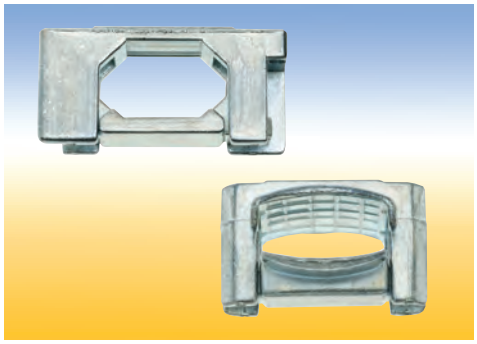
Coding Strip RFI 20
for the male connector

Material: plastic
Finish: metallized

order no.: **409114985**

Coding Pin RFI 20
Material: plastic

Packing unit: 100 pieces
order no.: **409115095**



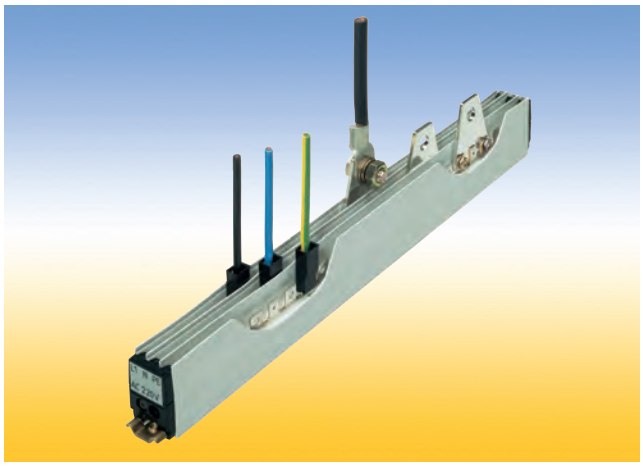
Cable Clamp Kit
4 HP - RFI 20
consists of:
2 brackets and mounting parts

Material: zinc die-cast
Finish: metallized

Ordering details for kits

	order no. 409
Cable clamp smal	**114982**
Cable clamp wide	**118544**

Insulated Bus Bar



Two connection versions are available:

1. Connection version A:
Alternating terminal lugs for A 6.3 x 0.3 flat push-on connectors and screw attachment.

Description

Insulated bus bar kit for the power supply in housings and cabinets.

The features of the bus bars:
√ High current capacity up to 120 A.
√ Safe against accidental hand contact up to 500 V in accordance with VDE 0106.
√ The protective profile makes the bus bar safe against accidental finger contact up to 220 V in accordance with VDE 0470.
√ Deliverable in any desired length.
√ With a width of 25 mm, 3-pole use is possible.
√ Insulating materials in accordance with the stipulations of VDE 0606.

2. Connection version B:
Alternating terminal lugs for A 6.3 x 0.3 flat push-on connectors and double terminal lugs for A 2.8 x 0.8 flat push-on connectors or one A 6.3 x 0.8 flat push-on connector. Intermediate lengths can be produced by simply sawing.

Technical data

Number of poles	2- or 3-pole
Connection version A	A 6.3 x 0.8 DIN 46244/connection Ø 4.2 mm
Connection version B	A 6.3 x 0.8 / 2 x A 2.8 x 0.8 DIN 46244
Utilization category	-25 °C, +70°C, no condensation
Phase current	120 A at an ambient temperature of 20 °C; 80 A at 55 °C; 70 A at 70 °C
Max. operating voltage	500 V
Insulation class	group C in accordance with DIN/VDE 0110
Test voltage	3.1 kV
Amp capacity at 20°C	25 A per pin connection A 6.3 x 0.8
Material	bus bar: SE-Cu F37, hot-dip tinned insulating body: PP end cap: PC, black mounting parts: steel, galvanized, passivated
Fire protection class	insulating UL 94 V-0

Delivery

assembled

Kit consists of:

Rails
1 Plastic body
2 End caps
Mounting parts

Accessories

	order no. **409**
Mounting parts 401 (2 position points)	**065430**
Mounting parts from 1600 mm (4 position points)	**059270**
Connection lug 100 A	**057680**

Ordering details for kits

	nom. length [mm]	for cabinet height	A 2poles order no. **409**	A 3poles order no. **409**	B 2poles order no. **409**	B 3poles order no. **409**
Bus bar 100 A-	401	-	-	**061443**	-	**080695**
Bus bar 100 A-	1600	1800	**062093**	**058447**	-	**080939**
Bus bar 100 A-	1800	2000	**062094**	**058449**	**080696**	**080941**
Bus bar 100 A-	2000	2200	**062095**	**058451**	**080697**	**080943**

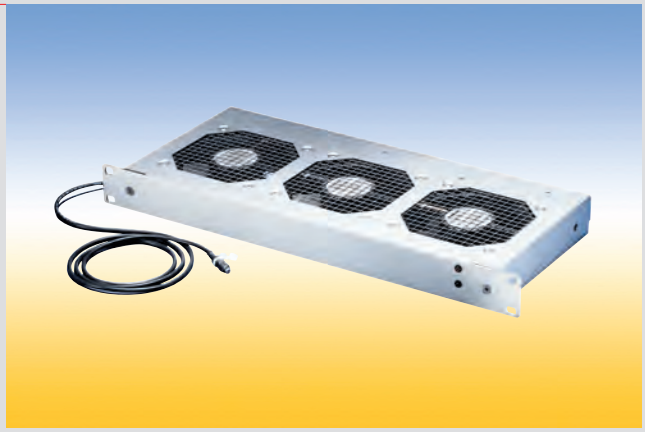
This catalog contains stock and standard parts. Other products and sizes on request.

Accessories

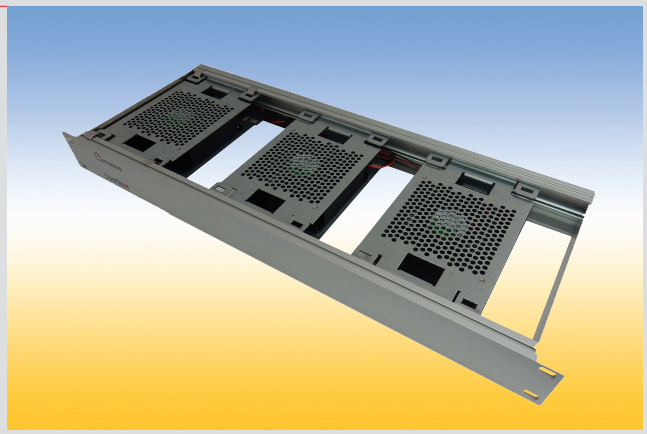
19” Cross-Flow Fan



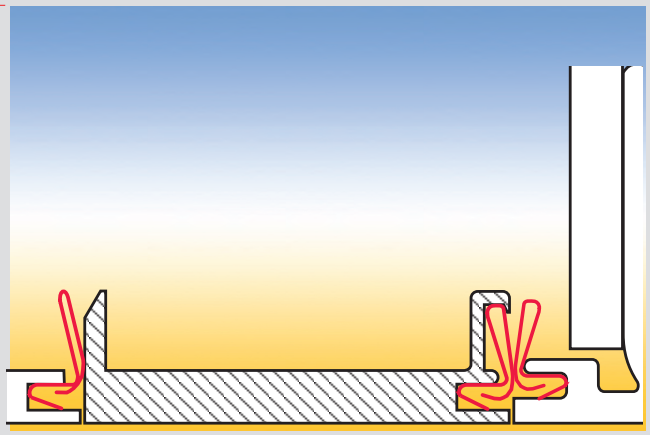
19” Fan Unit 1 U



CoolSpot



RFI Springs



19” Cross-Flow Fan



19” Cross-Flow Fan

For cooling of 160 mm deep modules.

Fan for cooling of 220 mm deep modules on request.

Delivery:
Cross-flow fan
Filter mat
Support grille for filter mat

Technical data

Power plant	current: squirrel-cage motor direct current: non commutator DC motor
Ambient temperature	current: -25 to +65 °C direct current: -25 to +55 °C
Bearings	groved ball bearing
Life Expectancy	20.000 h
Protection class	IP 10 accordance to DIN 40050
Filter mat	Viledon PSB 145-S
Electrical connection	terminal strip on the back
Material	ventilator housing: steel side panel, flange, support grille, front grille: plastic
Finish	housing: galvanized and passivated

Ordering details 19” Cross-Flow Fan

	nom. depth [mm]	voltage [V]	frequency [Hz]	airflow [m³/h]	order no. **409**
for mounting into a cabinet					
EQR -160 KS	160	AC 230	50/60	260	**091833**
GQR - 160 KS 24 VG	160	DC 24	-	260	**091844**
for mounting into a housing					
EQR - 160 KG	160	AC 230	50/60	235	**091834**

Accessories

	order no. **409**
Protection grille	**091836**
Plastic motor protection hood	**091835**
per pack 10 pieces	
Filter mat for EQR and GQR	**026519**
Filter mat for EQR -160 KG	**026520**



19” Fan Unit 1 U

For cooling of modules in cabinets or housings.

Delivery:
1 front panel
1 housing with grille
3 fans
1 power connector
1 strain-relief

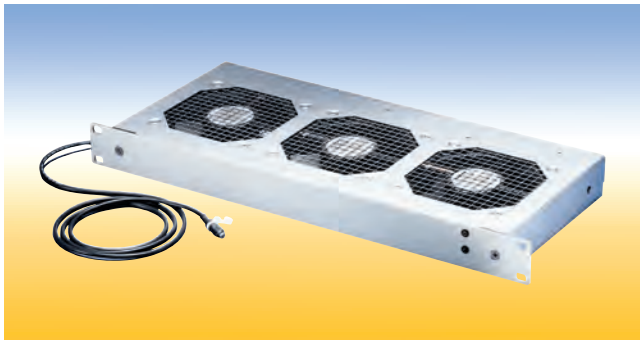
Fan unit with 6 fans and other voltages on request.

Technical data

Ambient temperature	max. 70 °C
Max. static pressure	73 - 88 Pa
Noise level	56.5 - 60.2 dB (A)
Power consumption	45 / 42 W
Materials	front panel: 3 mm aluminum anodized, housing: 1 mm steel, al-zinc

Ordering details

	depth [mm]	voltage [V]	frequency [Hz]	airflow [m³/h]	order no. **409**
Fan unit 1U	193	AC 230	50/60	440-520	**166274**



19” Fan Unit 1 U with speed monitoring and control

For cooling of modules in cabinets or housings.

Delivery:
1 front panel
1 housing with grille
3 fans
1 connection cable, cable length 2.5 m, open end
1 temperature sensor external, NTC resistor, cable length 1.5 m

Technical data

Ambient temperature	max. 65 °C
Max. static pressure	70 Pa
Noise level	63.5 dB (A)
Power consumption	15.9 W
Materials	front panel: 3 mm aluminum anodized, housing: 1 mm steel, al-zinc

Technical Data, Control & Monitoring

Switching control range	20 - 40 °C to 30 - 50 °C
Sensor connection	rear connector for temperature sensor
Signal for	speed < 20 % of the nom. speed; switch-on delay < 4 s, signal delay < 1 s
Signaling	display via LEDs floating contact switching capacity 20 W switching voltage max. 100 V

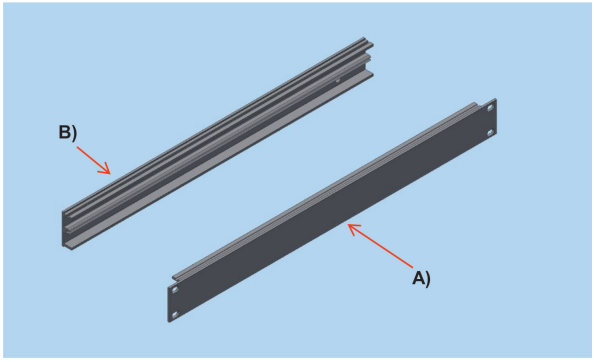
Ordering details

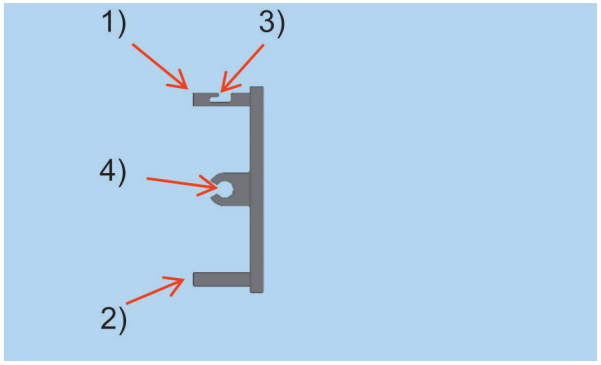
	depth [mm]	voltage [V]	airflow [m³/h]	order no. **409**
Fan unit 1 U with speed monitoring and control	193	DC 24	467	**166276**

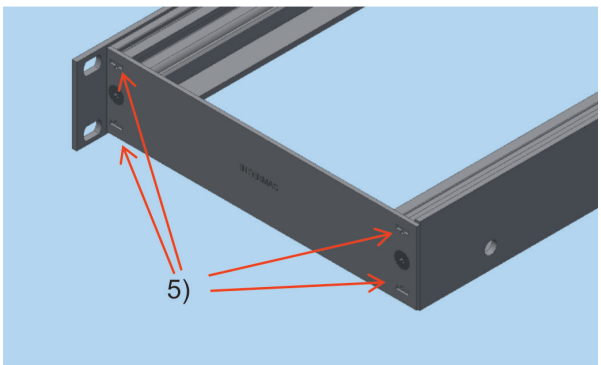
CoolSpot - 19'' 1 U Fan Tray with infinitely variable Fan Modules



CoolSpot is a 19‘‘ 1U fan tray with the possibility to vary the number and position of fans according to the current heat load. It is designed for an economical but highly effective and precise cooling of electronic components within 19‘‘ cabinets and housings. Cooling air is directly supplied at the hot spots due to the infinitely variable positioning of the fans.



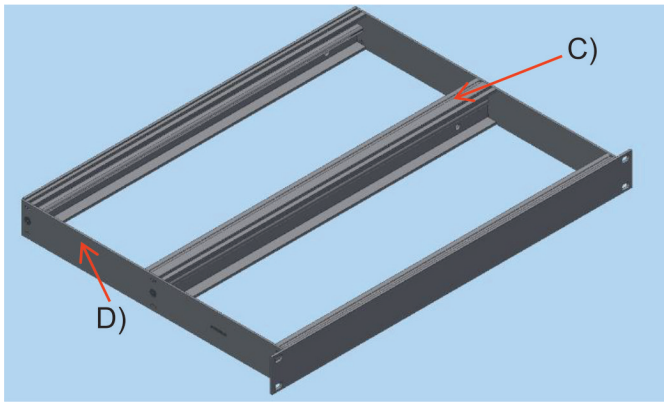


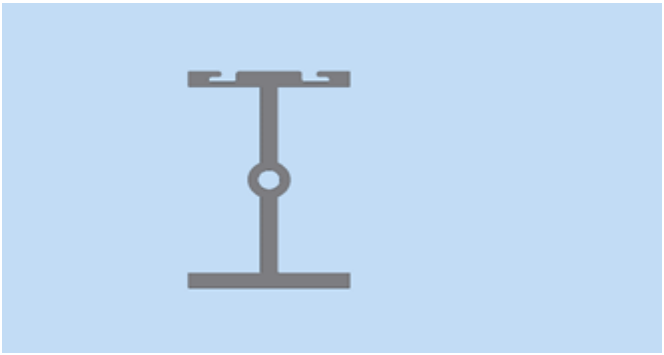


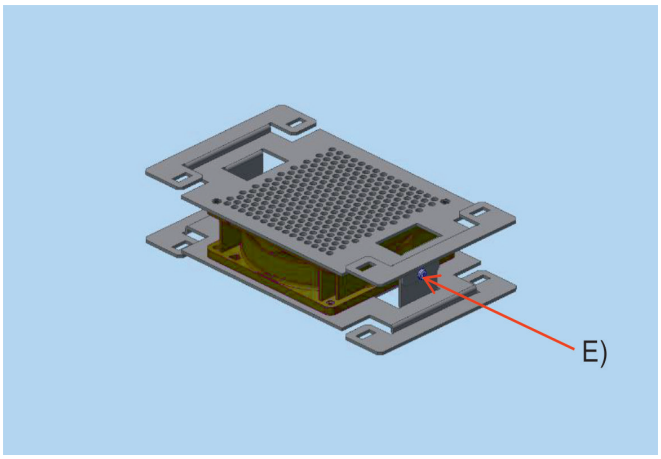
Specification CoolSpot basic frame
The CoolSpot fan tray is characterized by the following constructive features:

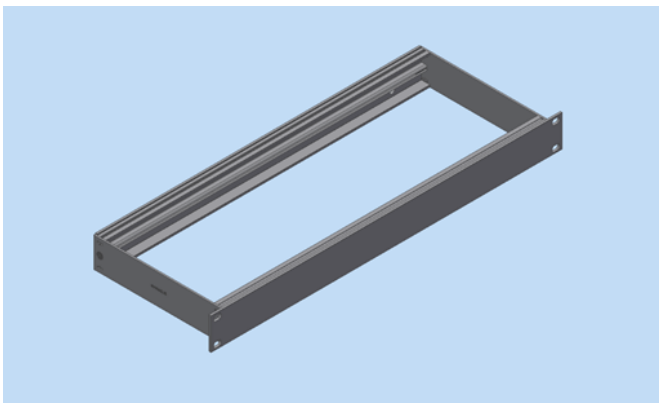
- √ The fan tray's basic frame consists of a front panel, two side stripes and an end profile.
- √ The side stripes are made of colorless pre-anodized aluminum. The cutting edges, which are a result of processing, are blank. Front panel and end profile are also colorlessly anodized.
- √ Front panel A as well as end profile B are manufactured from the same source profile in order to keep the construction as cost-effective as possible. The cutting edges are blank due to the necessary machining.
- √ There are two wings (pos. 1 & 2) on the profiles' inside to enable a linear guidance of the fan modules.
- √ The upper wing has a groove (pos. 3) to include retaining clips. These retaining clips secure the fan modules against unintended shifting.
- √ There is a srew channel in the centre (pos. 4) which enables the assembly of thread-forming screws to the side strips.
- √ Each side strip has four stamped nubs (pos. 5). These guarantee a sufficient protection against twisting during the basic frame's assembly, even though the entire basic frame is put together installation-friendly with only four srcews.

CoolSpot - 19'' 1 U Fan Tray with infinitely variable Fan Modules









Specification CoolSpot extension kit
An extension kit is available as the CoolSpot basic frame only allows an installation of a maximum of four fan modules in a single-row arrangement.

- √ The extension kit uses the already existing basic frame's front panel and end profile and adds an intermediate profile C.
- √ The basic frame's both side panels are replaced by longer side panels D.
- √ These reconstruction measures enable the installation of a maximum of eight fan modules in a two-row arrangement.

Specification CoolSpot fan module

- √ The CoolSpot fan module is characterized by its easy assembly.
- √ The fan module either consists of a fan in the standard measures of 92x92x25 mm and two mounting plates or of a fan in the standard measures of 120x120x32 mm and the corresponding mounting plates.
- √ Each of both mounting plates has two pins. These pins are used for positioning the fan and act as protection against twisting when assembling the fan module.
- √ Both mounting plates are connected with two thread-forming screws E. Thus the fan is clamped between both mounting plates. There is no additional screw connection necessary for the fan itself.
- √ Any desired fan up until a height of 32 mm can be inserted by exchanging the mounting plates.
- √ Every fan module's construction kit contains four retaining clips in order to secure the fan modules against unintended shifting within the fan tray.
- √ We use either SEPA oder EBM-Papst fans in our fan trays to satisfy all demands regarding long service life and cost-benefit ratio. Other fan types can be delivered on request.

CoolSpot - 19'' 1 U Fan Tray with infinitely variable Fan Modules

Specification CoolSpot wiring kit

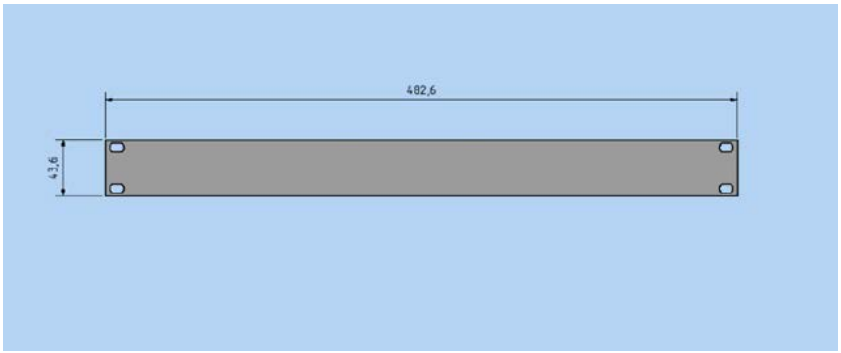
√ By default the wiring kit contains a 2-pole Phoenix plug for the fan tray's power connector.
√ Different connectors can be ordered optionally.
√ Small parts such as cable holders, cable ties, cable glands etc. are also part of the wiring kit.

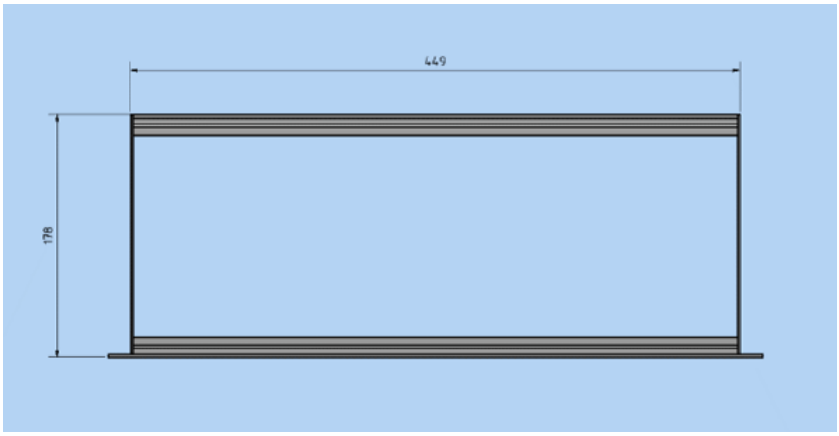
Technical data

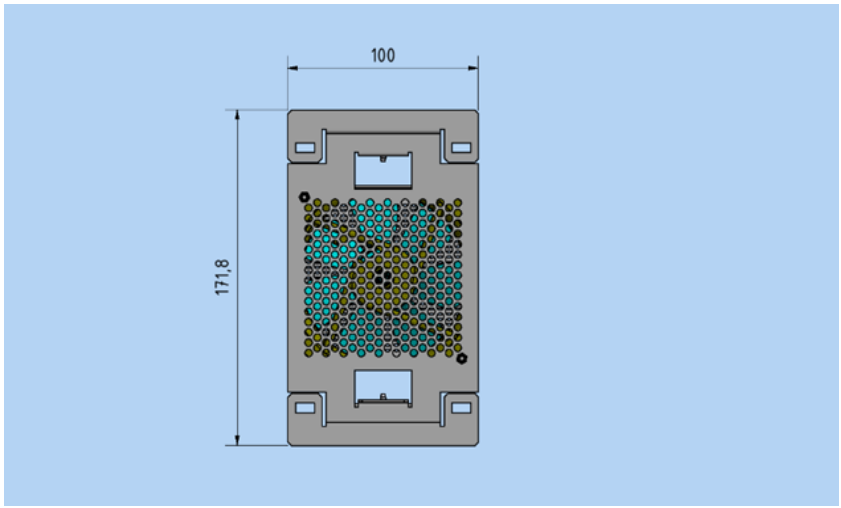
Dimensions of front panel	Width: 19“ (482,6 mm) Heigth: 1 U (43,6 mm)
Housing depth basic frame	single row 92 fan size: 178 mm single row 120 fan size: 205 mm
Housing depth incl. assembled extension kit	two-rowed 92 fan size: 353,2 mm two-rowed 120 fan size: 407,2 mm
Materials	Screws: steel, galvanized with user-friendly torx drive Retaining clips: stainless steel Mounting plates: galvanized steel sheet All other parts: aluminum
Surfaces	Aluminum parts anodized natural Steelparts galvanized and passivated
Rated voltage	12 VDC (other voltages on request)
Rated output	dependent upon fan module
Protection class	IP20
Operating temperature	-10°C … +70°C
Storage temperature	-40°C … +70°C
Level above mean sea level	until 2000 m
volume flow	dependent upon fan module

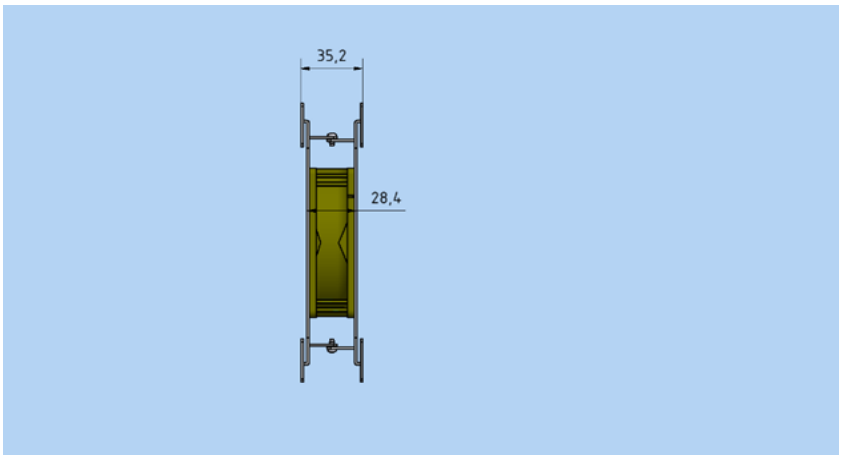
CoolSpot - 19'' 1 U Fan Tray with infinitely variable Fan Modules

Dimensions









CoolSpot - 19'' 1 U Fan Tray with infinitely variable Fan Modules

Ordering details assembly kit

CoolSpot basic frame	order no. **409**
92 fan size	**208590**
120 fan size	**146533**

Delivery basic frame

1 front panel
2 side stripes
1 end profile
4 countersunk screws Taptite M4x16 Torx

Ordering details assembly kit

CoolSpot extension kit	order no. **409**
92 fan size	**208380**
120 fan size	**146534**

Delivery extension kit

1 intermediate profile
2 side stripes long
2 countersunk screws Taptite M4x16 Torx

Ordering details assembly kit

	order no. **409**
CoolSpot wiring kit	**208591**

Delivery wiring kit

1 cable gland
1,5 m 2-wire cable flexible
3 mini cable holder
3 cable ties
2 ferrules
1 Phoenix Combicon connector, 2-pole, grid 5,08 mm
0,1 m heat-shrink tubing
2 connecting clamps

Ordering details assembly kit

CoolSpot fan module 92 fan size	order no. **409**
with SEPA fan	**208592**
with EBM-Papst fan	**146537**

CoolSpot fan module 120 fan size	order no. **409**
with SEPA fan	**146538**
with EBM-Papst fan	**146539**

Delivery fan module 92

2 mounting plates
1 fan 92x92x25 mm
2 oval-head screws Taptite M2,5x5 Torx
4 retaining clips

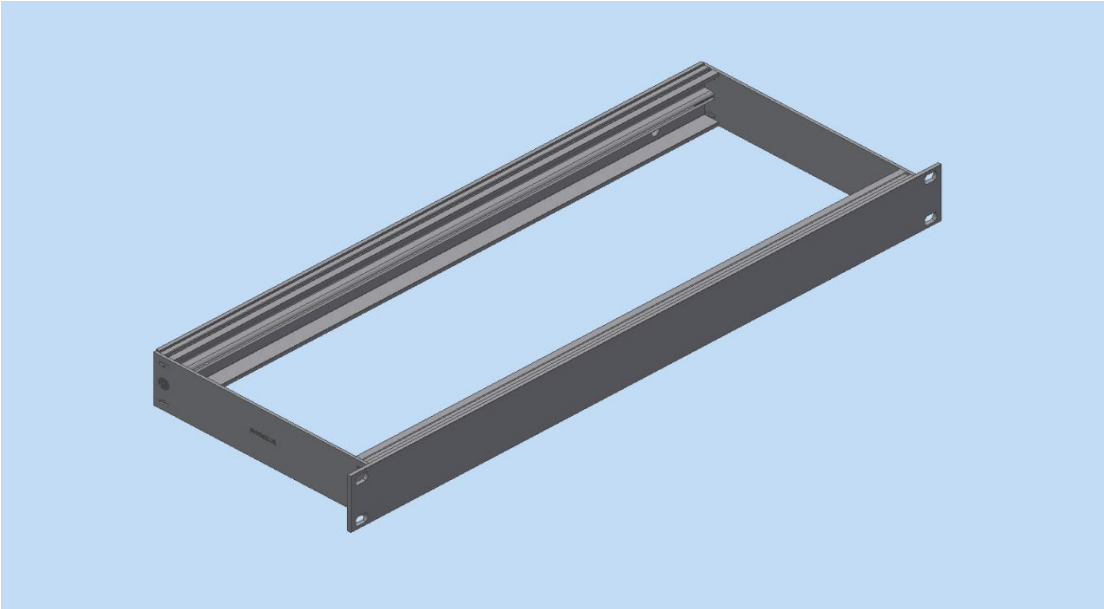
Delivery fan module 120

2 mounting plates
1 fan 92x92x25 mm
2 oval-head screws Taptite M2,5x5 Torx
4 retaining clips

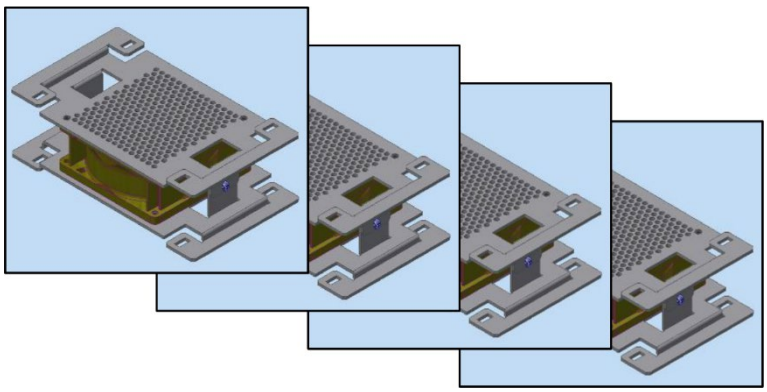
CoolSpot - 19'' 1 U Fan Tray with infinitely variable Fan Modules

Configuration example

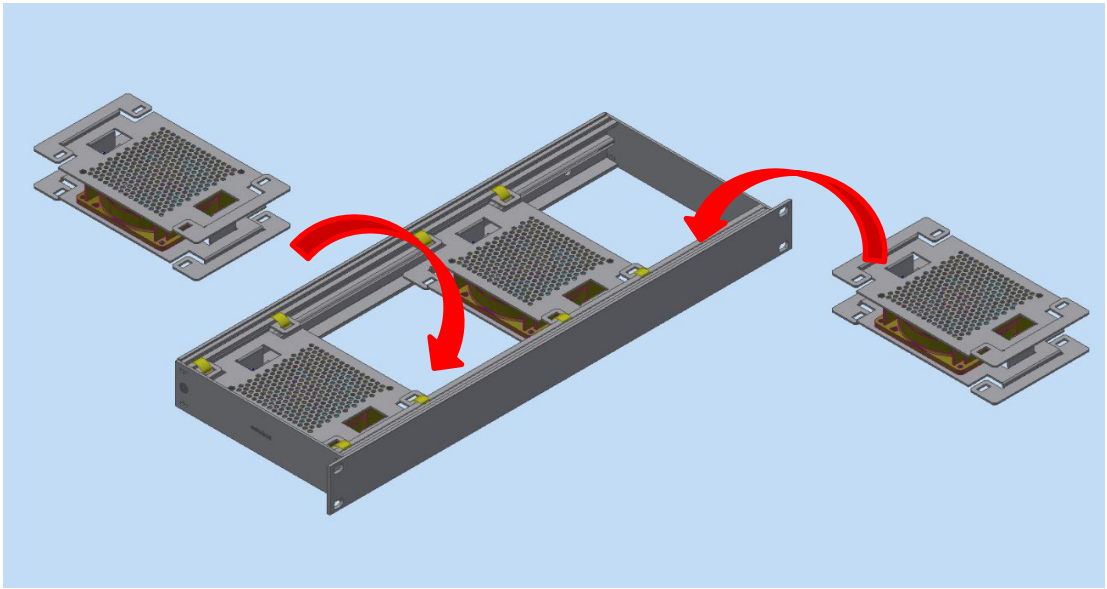
Step 1: Selection of required CoolSpot basic frame.
In this example:simple basic frame 409 208 590 for a fan size of 92 mm.



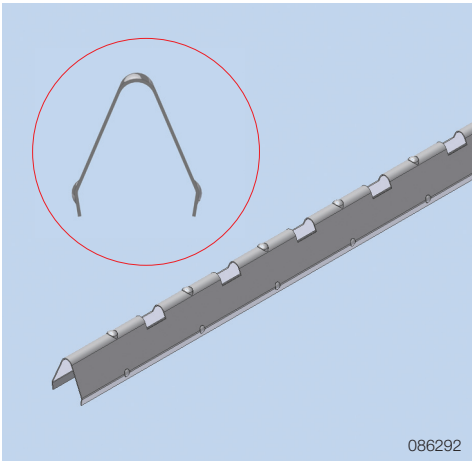
Step 2: Selection of required CoolSpot fan module in desired quantity (maximum of 4).
In this example: fan module 409 208 592 with SEPA fan in size 92 mm.

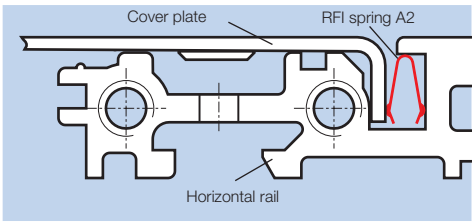


The configurated fan of choice can also be delivered as an assembled version.



RFI Spring A2 and F3





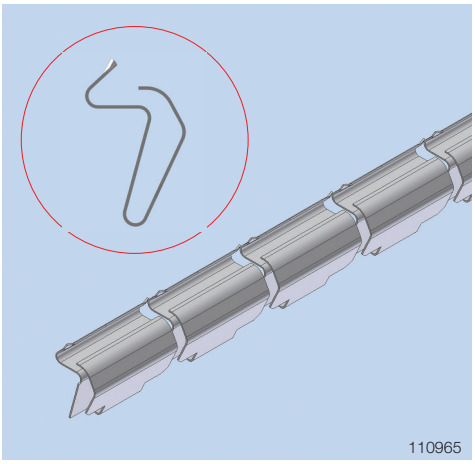
RFI Spring A2

Shielding between the cover plates and the subrack. The spring is snapped into the profile channel at the horizontal rail.
It can be cut in 10 mm lengths.

Material: stainless steel, 0.1 mm thick

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
RFI spring A2	36	182	**107724**
RFI spring A2	42	217	**090800**
RFI spring A2	84	427	**085011**



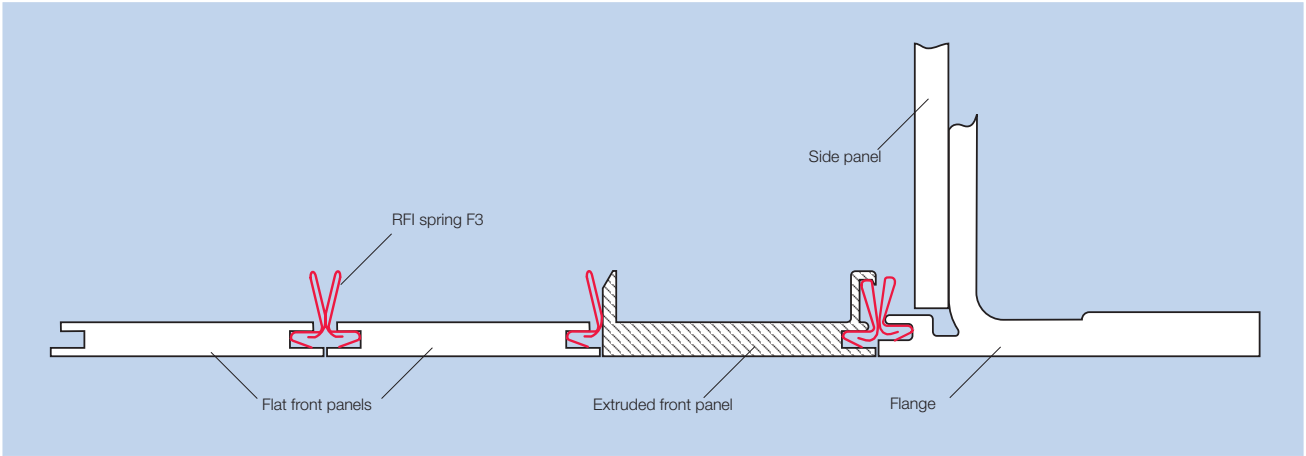
RFI Spring F3

Shielding between the front panels and between front panel and flange as well as shielding the cover plates of the *DiVar* housing.
It can be cut in 7.41 mm lengths.

Material: stainless steel, 0.08 mm thick

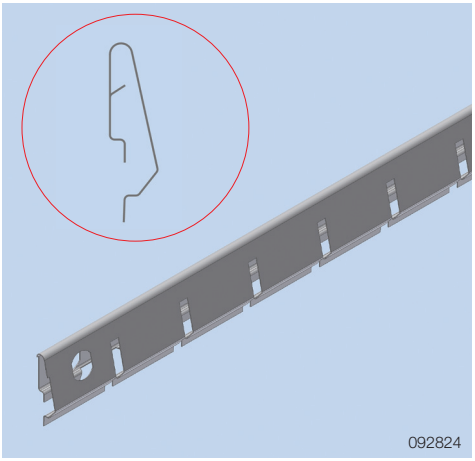
Ordering details

	nom. height [U]	height [mm]	order no. **409**
RFI spring F3-2	2	51.37	**112386**
RFI spring F3-3-IEEE	3	95.83	**111112**
RFI spring F3-3	3	110.65	**111636**
RFI spring F3-4	4	155.11	**112387**
RFI spring F3-6-IEEE	6	229.21	**111116**
RFI spring F3-6	6	244.03	**111637**



Shielding between the front panel and between front panel and flange

RFI Spring F1, Contact Profile and RFI Spring P2



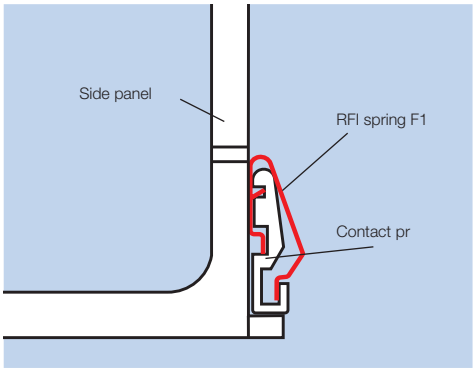
RFI Spring F1

Shielding between the front panel and side panel with the contact profile of the *InterRail* subrack.

Material: CuSn 0.1 mm thick

Ordering details

	nom. height [U]	height [mm]	order no. **409**
RFI spring F1-3	3	106.9	**093400**
RFI spring F1-6	6	240.25	**093401**



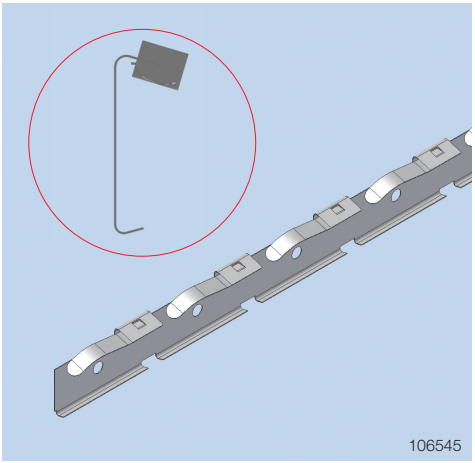
Contact Pr

Shielding between front panel and side panel with the RFI spring F1 of the *InterRail* subrack.

Material: aluminum
Finish: passivated

Ordering details

	nom. height [U]	height [mm]	order no. **409**
Contact pr -3	3	107.5	**092923**
Contact pr -6	6	240.85	**092924**



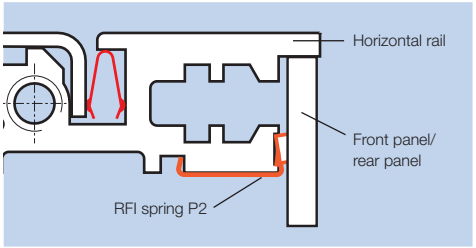
RFI Spring P2

Shielding front panels and rear panel to the horizontal rail.
The spring is snapped into the pr
It can be cut in 15.24 mm lengths.

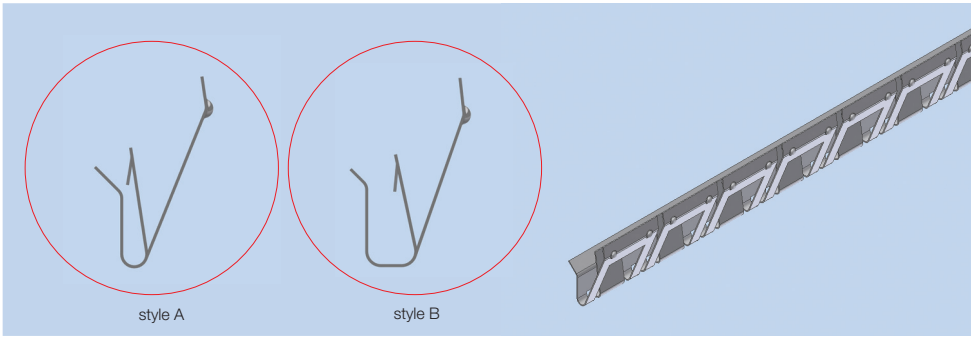
Material: stainless steel, 0.08 mm thick

Ordering details

	nom. width [HP]	length [mm]	order no. **409**
RFI spring P2	42	212.36	**106546**
RFI spring P2	84	425.72	**106547**



RFI Spring U1 and U2

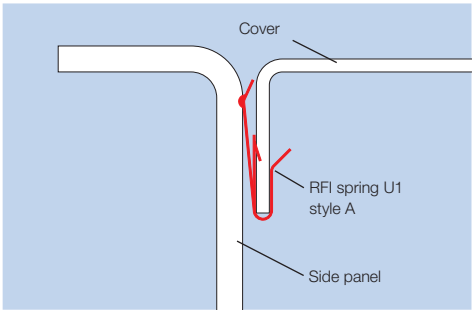


RFI Spring U1
Multiple applications. Shielding subracks, housings and cabinets with 1 mm - 2.5 mm sheet thickness.
The spring can be cut in 10 mm lengths.

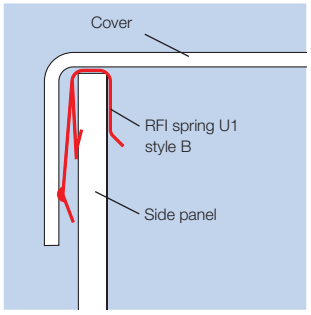
Material:
stainless steel, 0.1 mm thick

Ordering details

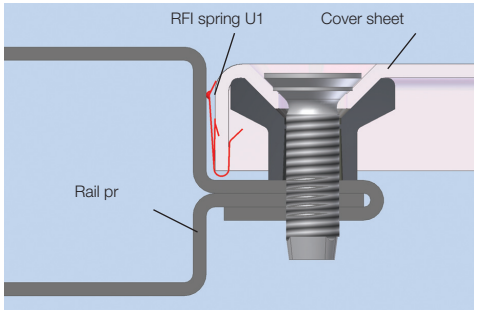
	style	sheet thick-ness [mm]	length [mm]	order no. **409**
RFI spring U1-1,0-230	A	1.0	229	**114840**
RFI spring U1-1,5-400	A	1.5	399	**101830**
RFI spring U1-2,0-270	B	2.0	269	**107323**



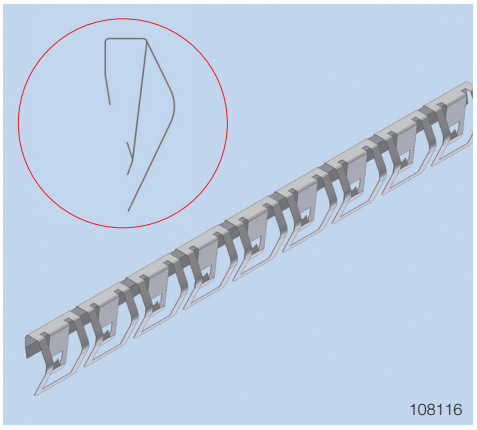
Subrack example of use



Subrack example of use



System cabinet example of use

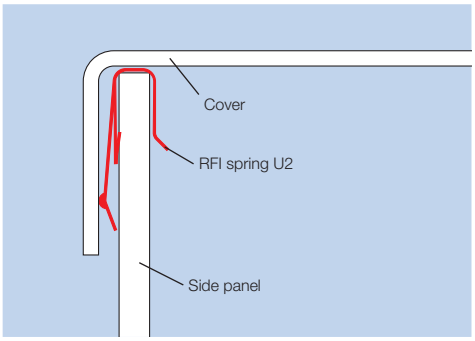


RFI Spring U2
Multiple applications. Shielding subracks, housings and cabinets with 2.5 mm sheet thickness.
The spring can be cut in 10 mm lengths.

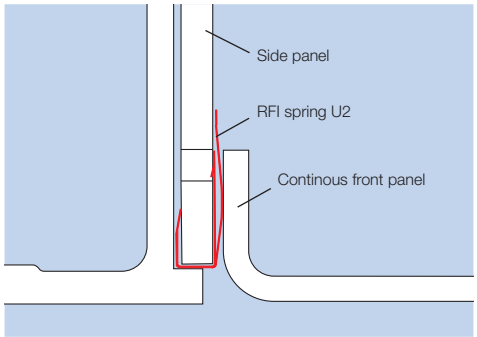
Material: stainless steel, 0.08 mm thick

Ordering details

	sheet thick-ness [mm]	length [mm]	order no. **409**
RFI spring U2	2.5	98.79	**108107**
RFI spring U2	2.5	232.14	**108108**
RFI spring U2	2.5	632.19	**109537**

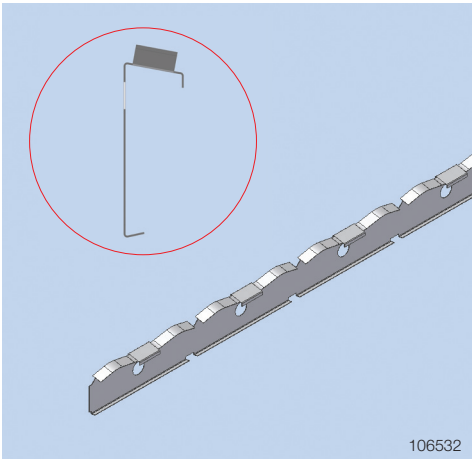


Subrack example of use



Subrack example of use

RFI Spring M-P2, G-A2, G-P2 and RFI Fabric Gasket



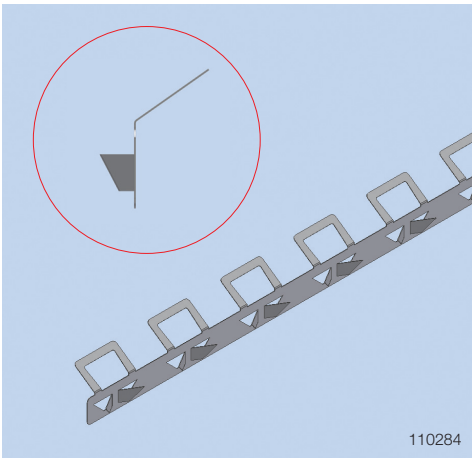
RFI Spring M-P2
Shielding between side panel and backplane with a mounting strip.
The spring can be cut in 25 mm lengths.

Material: stainless steel, 0.08 mm thick
Dimensions: 85 x 5 mm
Length: 424 mm

order no.: **409106533**

Accessories

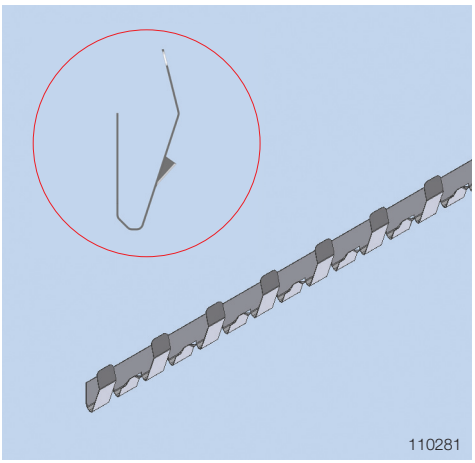
Mounting strip
order no.: **409111691**



RFI Spring G-A2
Shielding between the profiles and the cover plates of the *InterMeZo* housing.
The spring can be cut in 25 mm lengths.

Material: stainless steel, 0.15 mm thick
Length: 469 mm

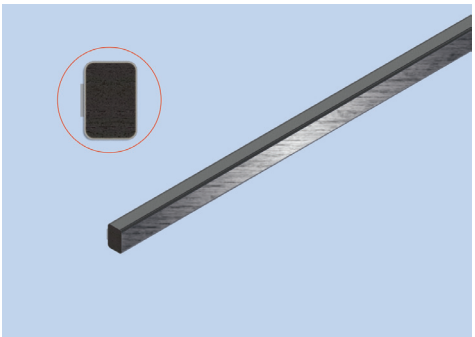
order no.: **409110960**



RFI Spring G-P2
Shielding between the door/rear panel and the profile of the *InterMeZo* housing.
The spring can be cut in 14.815 mm lengths.

Material: stainless steel, 0.15 mm thick
Length: 471.83 mm

order no.: **409111534**



RFI Fabric Gasket, self-adhesive
Shielding between the door/rear panel and the profile of the housing.

Material: polyurethane foam core covered with copper-nickel (CuNi) metal fabric
Dimensions: height 9.5 x width 6.4 x length 1000 mm
Fire protection class: UL 94 V-0

order no.: **409175397**

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013911	3.72, 3.76
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013919	3.52, 2.7
013938	3.76, 3.78
	3.79, 3.80
	3.93, 3.102
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017929	3.93
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018055	3.73
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022622	7.4
022672	4.11
022714	7.6
022791	3.93
022792	3.93, 4.10
022793	3.93, 4.10
022794	3.93, 4.10
022796	3.93, 4.10
022798	3.93, 4.10
022800	4.10
022802	3.93
022807	3.93, 4.10
022814	4.10
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024361	3.72
024380	3.72
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024738	3.69
024740	3.69
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026520	8.2
026586	3.72

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031018	7.5
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031020	7.5
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031023	7.5
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031030	7.3
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032550	7.12
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032552	7.12
032553	7.10
032554	7.10
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032556	7.11
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032566	7.10
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032569	7.10
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035529	3.101
035630	7.5
035665	3.101
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038691	4.9
038693	4.9
038700	4.9
038707	4.9
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038763	4.9
038765	4.9
038767	4.9
038769	4.9
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038783	4.9
038797	4.9
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039853	4.12
039855	4.12
039857	4.12
039864	4.12
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040352	4.13
040354	4.13
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040382	4.13
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042218	7.4
042219	7.4
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043035	3.101
043036	3.101
043488	4.11
043514	4.8
043516	4.8
043518	4.8
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043586	7.3
043598	7.3
043606	7.3
043610	7.3
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045210	7.3
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046098	4.11
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047443	3.57
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047621	3.60
047643	3.60
047685	3.60
047821	3.59
047843	3.59
047885	3.59
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048684	3.62
048784	3.62
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049668	1.10
049670	1.10
049677	1.9
049679	1.9
049680	1.9
049681	1.9
049682	1.9
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049743	3.57
049785	3.57
049921	3.60
049943	3.60
049985	3.60
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058449	7.20
058451	7.20
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058914	4.10
058916	3.93
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058928	4.10
058942	3.93, 4.10
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059270	7.20
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061052	3.79
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061060	3.79
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061062	3.79
061086	3.79
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068108	7.3
068698	3.83
068760	1.10
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069047	3.67
069302	1.10
069369	1.9
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070323	7.3
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071015	7.4
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077042	7.4
077045	7.4
077048	7.4
077051	7.4
077055	7.4
077058	7.4
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077112	7.5
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078646	1.8
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079184	3.62
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085696	3.52
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086333	3.45
086334	3.45
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086337	3.45
086513	2.6
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086516	2.6
086517	2.6
086519	2.6
086522	2.6
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086791	3.49
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087340	3.7
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087342	3.7
087364	3.7
087365	3.7
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091835	8.2
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092602	3.57
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092786	3.103
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093605	3.25, 3.26
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096404	3.91
096405	3.91
096406	3.91
096407	3.91
096408	3.91
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096604	3.91
096605	3.91
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096608	3.91
096610	3.91
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096703	3.91
096704	3.91
096705	3.91
096706	3.91
096707	3.91
096708	3.91
096710	3.91
096712	3.91
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097210	3.87
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097214	3.87
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097242	3.87
097284	3.87
097286	3.45
097404	3.87
097406	3.87
097408	3.87
097412	3.87
097414	3.87
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097428	3.87
097442	3.87
097484	3.87
097601	3.87
097602	3.87
097603	3.87
097604	3.87
097605	3.87
097606	3.87
097607	3.87
097608	3.87
097610	3.87
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097621	3.87
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100660	7.7
100662	7.7
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100843	3.80
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101830	8.12
101843	3.97
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105656	3.61
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106102	3.57
106103	3.57
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106531	3.82
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106750	3.45
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107342	3.66
107518	3.91
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107521	3.91
107522	3.91
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107721	3.58
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107724	8.10
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107846	3.61
107847	3.61
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108876	3.65
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109934	3.55
109937	3.58
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109986	2.6
109987	2.6
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110361	2.7
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111182	3.55
111184	3.73
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111286	2.6
111287	2.6
111534	8.13
111556	2.6
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111559	2.6
111560	2.6
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111562	2.6
111604	3.96
111605	3.96
111606	3.96
111608	3.88
111609	3.88
111610	3.88
111611	3.88
111613	3.96
111614	3.96
111615	3.96
111616	3.96
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111619	3.88
111620	3.88
111621	3.88
111636	3.50, 3.52
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111637	3.50, 3.52
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111691	8.13
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112055	3.72
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112093	2.7
112094	2.7
112152	3.99
112154	3.99
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112205	3.50
112234	3.50
112252	3.88
112258	3.88
112279	7.18
112321	7.15
112386	3.50, 8.10
112387	3.50, 8.10
112400	3.99
112401	3.99
112402	3.99
112403	3.99
112404	3.99
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112408	3.99
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112410	3.99
112411	3.99
112412	3.99
112413	3.99
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112454	3.76
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112557	3.88
112578	3.88
112581	3.88
112611	3.88
112617	3.88
112638	3.88
112641	3.88
112644	3.96
112650	3.96
112668	3.96
112725	3.96
112773	3.99
112778	3.99
112790	3.99
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113148	3.96
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113170	3.96
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409166282 / 0523 · Subject to change · Printed in Germany