



19" TiRAX cabinet system

from page 3



19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109



General accessories /
distribution technology

from page 123



You can read more about products from the apra-group at www.apra-norm.com



From IT server cabinet
to industry professional

TiRAX



The modular and fully symmetrical "TiRAX 318" cabinet system is the perfect shell both for structured cabling in the IT and industrial sectors and also for innovative and design-oriented automation engineers in plant construction.

The TiRAX cabinet rack is a sheet metal construction, which, with just one screw per corner, can be easily dismantled. The force and form-locked connection ensures both a very high level of stability and a high degree of protection (IP 54).



In addition to the complete solutions including

- 19" "plug & play" cabinet
- 19" "active/passive" cabinet
- 19" "cool-box" cabinet
- 19" "cool-roof" cabinet
- 19" EMC „60 dB" cabinet
- 19" "heavy-weight" pivot frame cabinet
- 19" computer cabinet
- 19" server cabinet

an extensive range of parts are available for individual configurations.

For use in office areas and in data centre environments, the TiRAX is also available in the IP 20 design as a project cabinet.



TiRAX

completely dismountable,
 modular,
 completely symmetric,
 load capacity up to
 1500 kgs



- **Fully symmetrical cabinet design**

All doors and side panels can be mounted from any direction (e.g.: door hinge reversible).

- **Protection class IP 20 / IP 54**

The cabinet system is suitable for use in IT environments through to industrial applications.

- **Stylish design**

The two-tone design adds "colour" to data environments. In addition, by changing the colours of the vertical design profiles of your cabinet, you can create an individual look.

- **Modular assembly**

Cable entry and fan mounting are possible on the top and bottom frames plus the universal use of shortened trim panels.

- **Modular interior construction**

Symmetrical cabinet rack allows flexible positioning of cable ducts, multi-purpose struts etc.

- **Flexible cabinet dimensions**

The available cabinet heights range from 1200 mm (24 U) to 2200 mm (46 U). Depths start at 600 mm and are also available in 800 mm, 1000 mm and 1200 mm. The two standard cabinet widths of 600 mm and 800 mm are available.

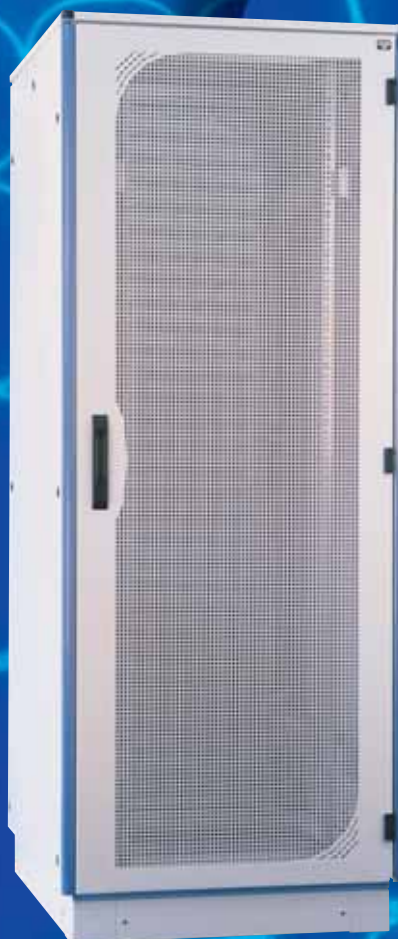
- **"Cabinet mounting" - cost and time savings**

We supply your cabinet **completely pre-assembled** according to your wishes. No more looking after installation materials and no expensive rebuilding of the various cabinet and mounting parts.

The cabinet can be dismantled completely.

- **Stability / conductivity**

The milled and laser-welded vertical profile of the cabinet side rail provides high distortion rigidity and continuous electric conductivity.



(Fig. does not correspond to standard delivery)

TiRAX server cabinets IP 20

- dismantlable steel profile cabinet rack
- two lateral sash doors with quick lock mechanism
- front and rear perforated sheet metal door with three-point lock mechanism (perforated door surface: 80 %)
- installation of a profile half-cylinder possible
- 19" level 42 U, front and rear
- top panel with cable entry and/or fan module option
- base provided
- cover plates in the bottom area can be removed for cable entry
- for W=800 mm: metal cable clamps 66 mm x 125 mm at the front 19" level (10 pieces)
- earthing kit (installed)
- screw set M 5 (50x)

Finish:

Trim parts/base:

RAL 7035 light grey,

Design profile: RAL 5014

pigeon blue (other colours on request)

or

Trim parts/base:

RAL 9005 jet black,

Design profile: RAL 7037

dusty grey (other colours on request)

Delivery:

fully assembled, base provided



Order information

Height mm	Width mm	Depth mm	Colour	Order no.
2000	600	1000	RAL 9005 jet black	318-200-60
2000	800	1000	RAL 9005 jet black	318-200-61
2000	600	1200	RAL 9005 jet black	318-200-62
2000	800	1200	RAL 9005 jet black	318-200-63
2000	600	1000	RAL 7035 light grey	318-200-64
2000	800	1000	RAL 7035 light grey	318-200-65
2000	600	1200	RAL 7035 light grey	318-200-66
2000	800	1200	RAL 7035 light grey	318-200-67

TiRAX IP 20

- dismantlable steel profile cabinet rack
- front viewing door with tinted toughened safety glass
- rear sheet metal door (can also be mounted as side door if basic size is square)
- both doors can accommodate a profile half cylinder
- side panels (connector cabinet: without side panels, includes cabinet connectors)
- 19" level front and rear
- for W=800 mm: metal cable clamps 66 mm × 125 mm at the front 19" level
- top panel with cable entry and/or fan module option
- open bottom plate
- base provided
- earthing kit (installed)
- screw set M 5 (50×)

Finish:

Trim parts/base:

RAL 7035 light grey

Design profile:

RAL 3002 carmine red

(other colours on request)

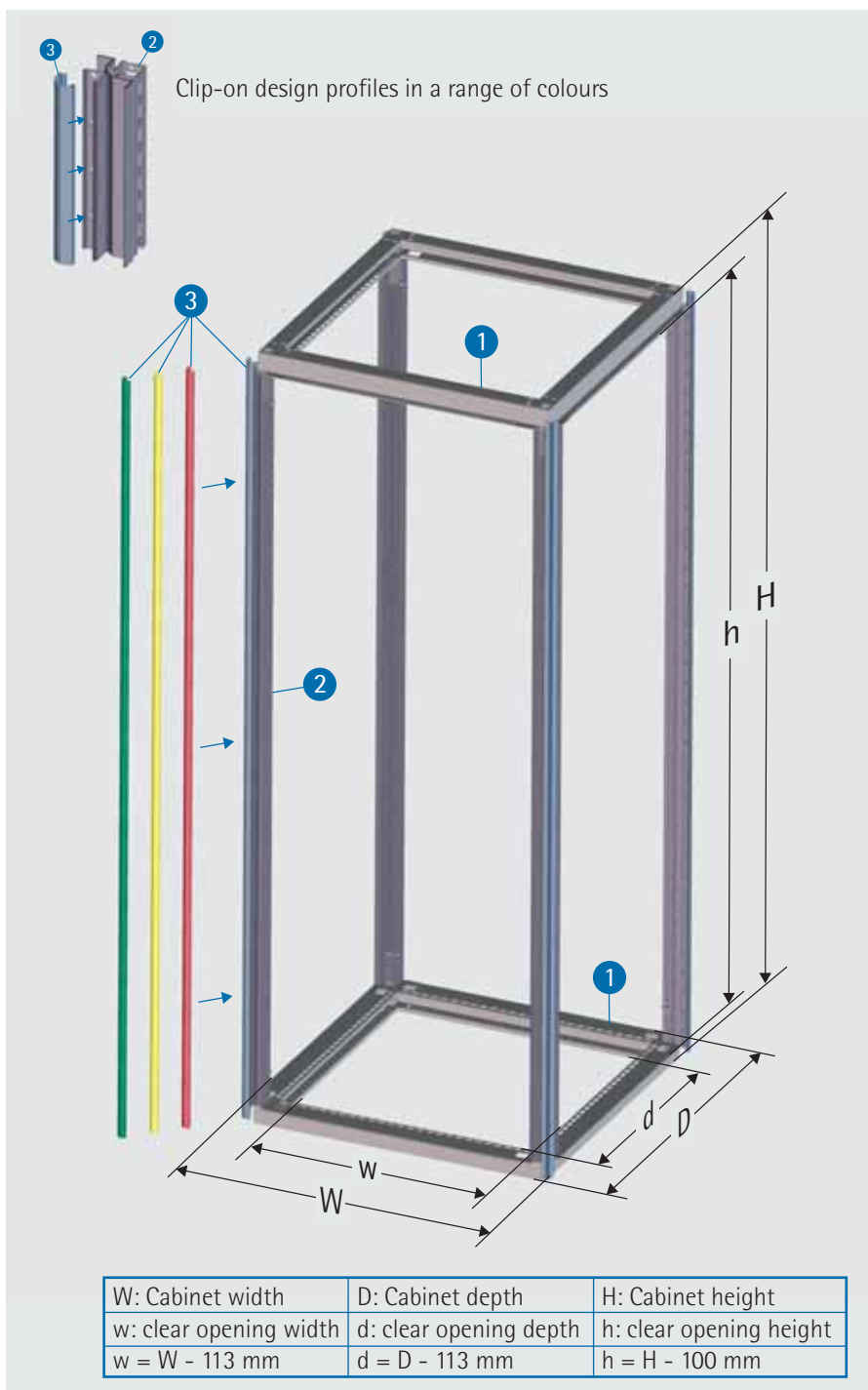
Delivery:

fully assembled, base provided



Order information

Height mm	Width mm	Depth mm	Order no. Basic Cabinet	Order no. Connector Cabinet
1200	600	600	317-200-40	317-200-50
1200	800	600	317-200-41	317-200-51
1200	600	800	317-200-42	317-200-52
1200	800	800	317-200-43	317-200-53
2000	600	600	317-200-44	317-200-54
2000	800	600	317-200-45	317-200-55
2000	600	800	317-200-46	317-200-56
2000	800	800	317-200-47	317-200-57



Dimensions (W × D) mm	Dimensions (H) mm	U	Order no.
600 × 600	1200	24	318-660-02
800 × 600	1200		318-860-02
800 × 800	1200		318-880-02
600 × 1000	1200		318-601-02
800 × 1000	1200		318-810-02
600 × 600	2000	42	318-660-10
800 × 600	2000		318-860-10
800 × 800	2000		318-880-10
600 × 1000	2000		318-610-10
800 × 1000	2000		318-810-10

Cabinet rack, dismantlable

The cabinet rack consists of two identical sheet metal frames **1**, four sheet metal functional profiles **2** and four painted sheet metal design profiles **3** clipped onto the functional profiles.

Finish:

- 1** Top/bottom frame:
RAL 7035 light grey
- 2** Functional profile:
galvanised
- 3** Design profile:
RAL 5014 pigeon blue

Delivery:

fully assembled

The design profile **3** can be matched to your company colour if desired.

The TiRAX "IT" cabinet system can be extended with all the classic TiRAX accessories such as the 19" extension, base, multi-purpose crossbars etc (from page 17).

Other preferred colours:

- RAL 1032 (broom yellow)
- RAL 5010 (gentian blue)
- RAL 3002 (carmine red)
- RAL 6029 (mint green)
- RAL 7037 (dusty grey)

Colour display similar!

Viewing door

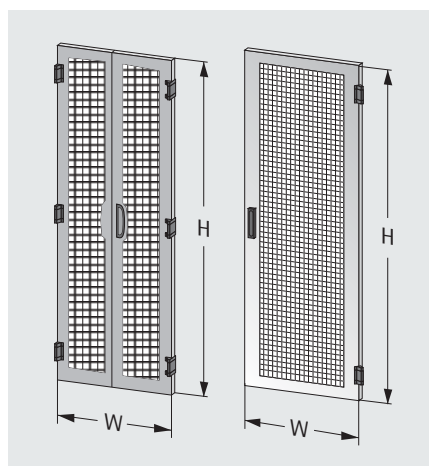


- with turning lever lock for profile half cylinder (with push button opening)

Finish: RAL 7035 light grey

Material: frame: sheet metal,
toughened safety glass:
4 mm, grey

Door, perforated

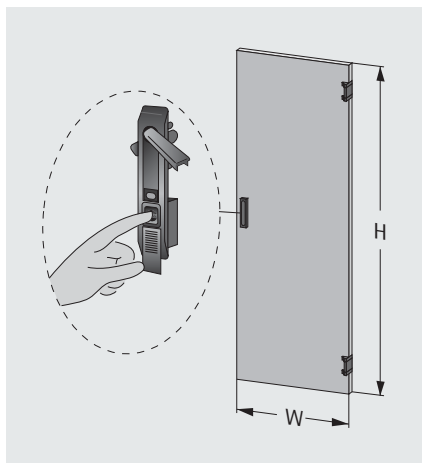


- Perforation 80 %
- with turning lever lock for profile half cylinder (with push button opening)

Finish: RAL 7035 light grey

Material: sheet metal, perforated insert

Door, solid

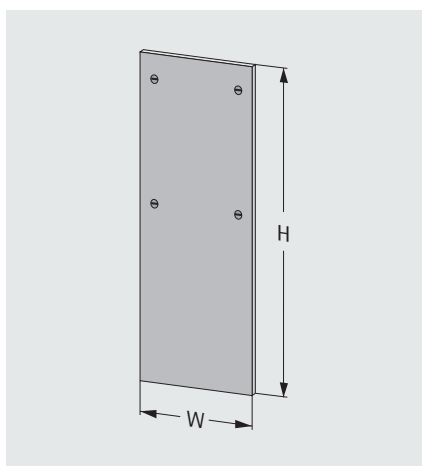


- with turning lever lock for profile half cylinder (with push button opening)

Finish: RAL 7035 light grey

Material: sheet metal

Sash door

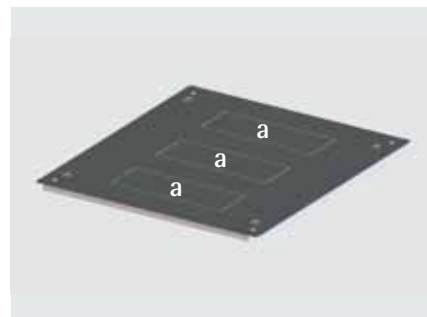


- with 2 or 4 sash fasteners and "double bit key 5 mm" mechanism

Finish: RAL 7035 light grey

Material: sheet metal

Top



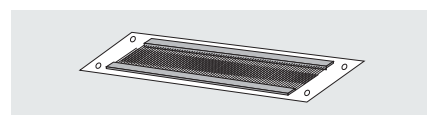
- can be raise mounted with lifting eye bolts (see below)
- for each pre-perforated field "a" extendable with **fan module** (see page 23) or **brush set** (see below)

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (W x D) mm	No. of fields "a"	Order no.
600 x 600	2	317-016-62
600 x 800	2	317-018-62
600 x 1000	2	317-020-64
800 x 600	2	317-018-62
800 x 800	3	317-018-82
800 x 1000	4	317-020-82

Brush set



- matches breakout "a"

Order no.
316-111-10

Lifting eye bolts for top



- The further lifting (H=15 mm) of top panel is possible with additional lifting eye bolts.

Material: steel

Order no. (4 pieces)
316-016-65

Dimensions (H x W) mm	Viewing door	Door, solid	Door, perforated	Split door, perforated	Sash door
1200 x 600	317-612-01	317-612-02	318-612-16	-	317-612-23
1200 x 800	317-812-01	317-812-02	318-812-16	-	317-812-23
1200 x 1000	-	-	-	-	317-012-23
2000 x 600	317-620-01	317-620-02	318-620-16	-	317-620-23
2000 x 800	317-820-01	317-820-02	318-820-16	318-820-25	317-820-23
2000 x 1000	-	-	-	-	317-020-23



TiRAX "plug & play"

- dismountable steel profile cabinet rack
- two lateral sash doors with quick lock mechanism
- front viewing door with three-point locking and tinted toughened safety glass
- rear sheet metal door with three-point locking, installation as side door possible
- both doors can accommodate a profile half cylinder, L=40 mm
- 19" level 42 U/24 U, front and rear
- 10 metal cable clamps at the front 19" mount (6 clamps if H=1200 mm)
- two cable guard rails with integrated cable management bracket
- top plate 2-part, with triple fan module
- 19" power strip 1 U (9-way)
- multi-part bottom plate with

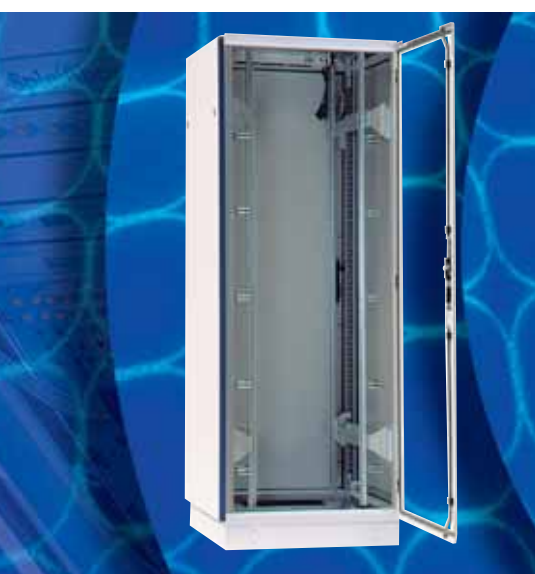
- rubber foam cable entry
- cabinet lamp with power outlet and magnetic holder
- earthing kit (installed)
- cable entry base H=100 mm
- screw set M 5 (50x)

Finish:

Trim parts/base:
RAL 7035 light grey
Design profiles:
RAL 5014 pigeon blue

Delivery: fully assembled, prewired on central socket and tested / base provided

Dimensions H x W x D mm	Order no.
(2000 + 100) x 800 x 800	318-200-01
(1200 + 100) x 800 x 800	318-200-29



TiRAX "active"

- dismountable steel profile cabinet rack
- two lateral sash doors with quick lock mechanism
- front viewing door with three-point locking and tinted toughened safety glass
- rear sheet metal door with three-point locking, installation as side door possible
- both doors can accommodate a profile half cylinder, L=40 mm
- 19" level 42 U/24 U, front and rear
- 10 metal cable clamps at the front 19" level
- 2-part cover plates in top sheet, with 3-way fan module

- 19" power strip 1 U (9-way)
- multi-part bottom plate with rubber foam cable entry
- earthing kit (installed)
- cable entry base H=100 mm
- screw set M 5 (50x)

Finish:

Trim parts/base:
RAL 7035 light grey
Design profiles:
RAL 5014 pigeon blue

Delivery: fully assembled/base provided

Dimensions H x W x D mm	Order no.
(2000 + 100) x 800 x 800	318-200-02
(1200 + 100) x 800 x 800	318-200-09



TiRAX "passive" IP 54

- dismountable steel profile cabinet rack
- two lateral sash doors with quick lock mechanism
- front viewing door with three-point locking and tinted toughened safety glass
- rear sheet metal door with three-point locking, installation as side door possible
- both doors can accommodate a profile half cylinder, L=40 mm
- 19" level 42 U/24 U, front and rear
- 10 metal cable clamps at the front 19" level
- top panel, single-piece, liftable if necessary

- multi-part bottom plate with rubber foam cable entry
- earthing kit (installed)
- cable entry base H=100 mm
- screw set M 5 (50x)

Finish:

Trim parts/base:
RAL 7035 light grey
Design profiles:
RAL 5014 pigeon blue

Delivery: fully assembled / base provided

Dimensions H x W x D mm	Order no.
(2000 + 100) x 800 x 800	318-200-03
(1200 + 100) x 800 x 800	318-200-08



TiRAX "cool-box", IP 54 • TiRAX "cool-roof", IP 54

- dismountable steel profile cabinet rack
- two lateral sash doors with quick lock mechanism
- front viewing door with three-point locking and tinted toughened safety glass
- rear sheet metal door with three-point locking
- both doors can accommodate a profile half cylinder, L=40 mm
- 19" level 42 U, front and back
- 10 metal cable clamps at the front 19" level
- top panel, single-piece
- 19" power strip 1 U (9-way)
- earthing kit (installed)
- door contact switch for shutdown of air conditioning if front door is opened
- cable entry base H=100 mm
- screw set M 5 (50x)
- multi-part bottom plate with rubber foam cable entry

TiRAX "cool-box":

- air conditioning 1050 W (Ta35/Ti35) installed on lateral hinged door (mounted alternatively right or left)

TiRAX "cool-roof":

- air conditioning 1050 W (Ta35/Ti35), installed on the top

Air conditioning units: cooling

capacities of up to 6 KW are possible on request. Contact us to find out more!

Finish: Trim parts/base:

RAL 7035 light grey

Design profiles:

RAL 5014 pigeon blue

Delivery: partially assembled

(air conditioning mountable with 6 screws on lateral hinged door or on top panel)/base provided

Description	Dimensions H x W x D mm	Order no.
TiRAX "cool-box" 24 U	(1200+100) x (800+140) x 800	318-200-55
TiRAX "cool-box" 42 U	(2000+100) x (800+140) x 800	318-200-04
TiRAX "cool-box" server cabinet 24 U	(1200+100) x (800+140) x 1000	318-200-54
TiRAX "cool-box" server cabinet 42 U	(2000+100) x (800+140) x 1000	318-200-11
TiRAX "cool-roof" 42 U	(2000+500) x 800 x 800	318-200-05
TiRAX "cool-roof" server cabinet 42 U	(2000+500) x 800 x 1000	318-200-28



apra cooling system

Cooling units for data centres and server applications are listed on pages 77-84.





(Fig. does not correspond to standard delivery)



Cabinet bottom with pivot frame crossbar and flexible cable entry via foam rubber



19" TiRAX "heavy-weight" pivot frame cabinet

The "heavy-weight" pivot frame cabinet is based on the TiRAX cabinet series and enables a pivot integration of 19" plug-in units with **high loads of up to 250 kg** (e.g. power amplifiers).

- visually stylish cabinet system
- protection class IP 54
- consists of stable cabinet rack and easily detachable trim parts
- good accessibility for plant engineering and on-site installation
- cable entry possible as standard from below, above or from the sides
- optional mounting plate in the rear area enables the installation of connection splitters, cable ducts, c-profiles or top hat rails
- lateral offset mounting possible
- maximum mounting depth: 440 mm
- pivot frame can be hinged on the left as well as on the right side and is equipped with a double-bit key lock
- frame can be pivoted up to 95°

Finish:

RAL 7035 light grey
RAL 5014 pigeon blue

Delivery:

fully assembled/base provided

Further sizes on request!

Dimensions H x W x D mm	Order no.
(2000+100) x 800 x 800	318-200-40

Scope of delivery

Item	Pc.	Description
1	1	Cabinet rack
2	1	Heavy load pivot frame with 19" level 39 U
3	1	Viewing door with turning lever lock
4	1	Rear door with turning lever lock
5	2	lateral sash doors with quick lock mechanisms

Item	Pc.	Description
6	1	Two piece bottom panel with cable entry
7	1	Top, height-adjustable (for passive ventilation)
8	1	Earthing kit, installed
9	1	Base H=100 mm, front side with ventilated cover panel
10	1	Screw set M 5 (50x)

Accessories

Slide rails

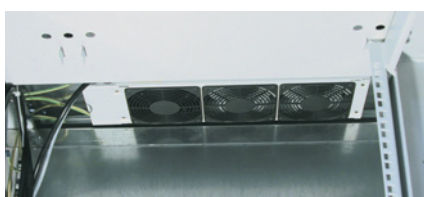


- to support heavy and/or deep plug-in units

Load capacity: 50 kg

Order no. (pair)
318-129

3-way fan module



- air flow rate: unimpeded air flow: 345 m³/h
- complete with Earthing-pin connecting cable, temperature regulation and adapter for cabinet mounting

Order no.
318-100-55

Pivot frame panel



- to cover the lateral area in case of offset installation

Finish: RAL 7035 light grey

Order no.
318-129-22



19" EMC cabinet TiRAX "60 dB"

Based on the TiRAX cabinet series, the EMC cabinet "60 dB" offers a reliable EMC and IP protection even in rough industrial environment conditions.

- fully symmetrical cabinet construction: all doors and lateral sash doors are universally mountable
- protection class IP 54
- stylish design: two-tone look with coloured design profiles
- modular interior construction: symmetrical design of cabinet rack enables cable ducts, multi-purpose struts etc. to be universally mountable
- all enclosure parts are connected to each other conductively via EMC sealings
- double-walled trim parts
- the milled and laser welded profile of the cabinet's galvanised sheet metal side rail ensures high rigidity and permanent electrical conductivity

Finish:

Trim parts/base:

RAL 7035 light grey

Design profiles:

RAL 5014 pigeon blue

Delivery:

fully assembled

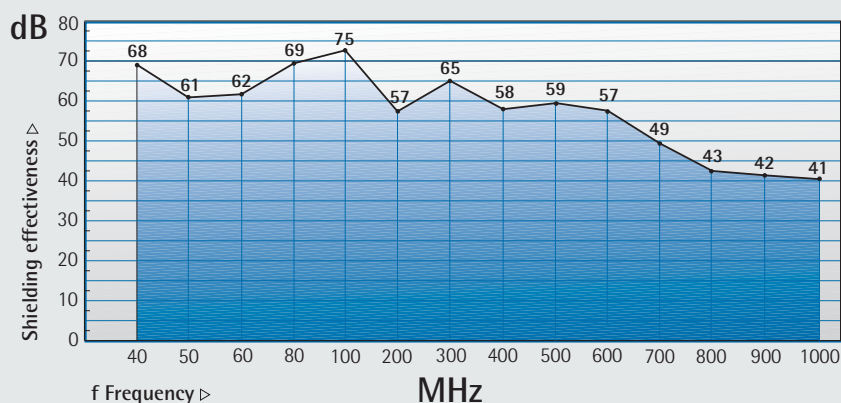


Scope of delivery

Item	Pc.	Description
1	1	Cabinet rack
2	2	19" levels 42 U
3	2	Front and rear door, solid, with turning lever lock
4	2	Sash doors, lateral
5	1	Bottom panel, solid
6	1	Top panel, solid
7	1	Earthing kit, installed
8	1	Base H=100 mm

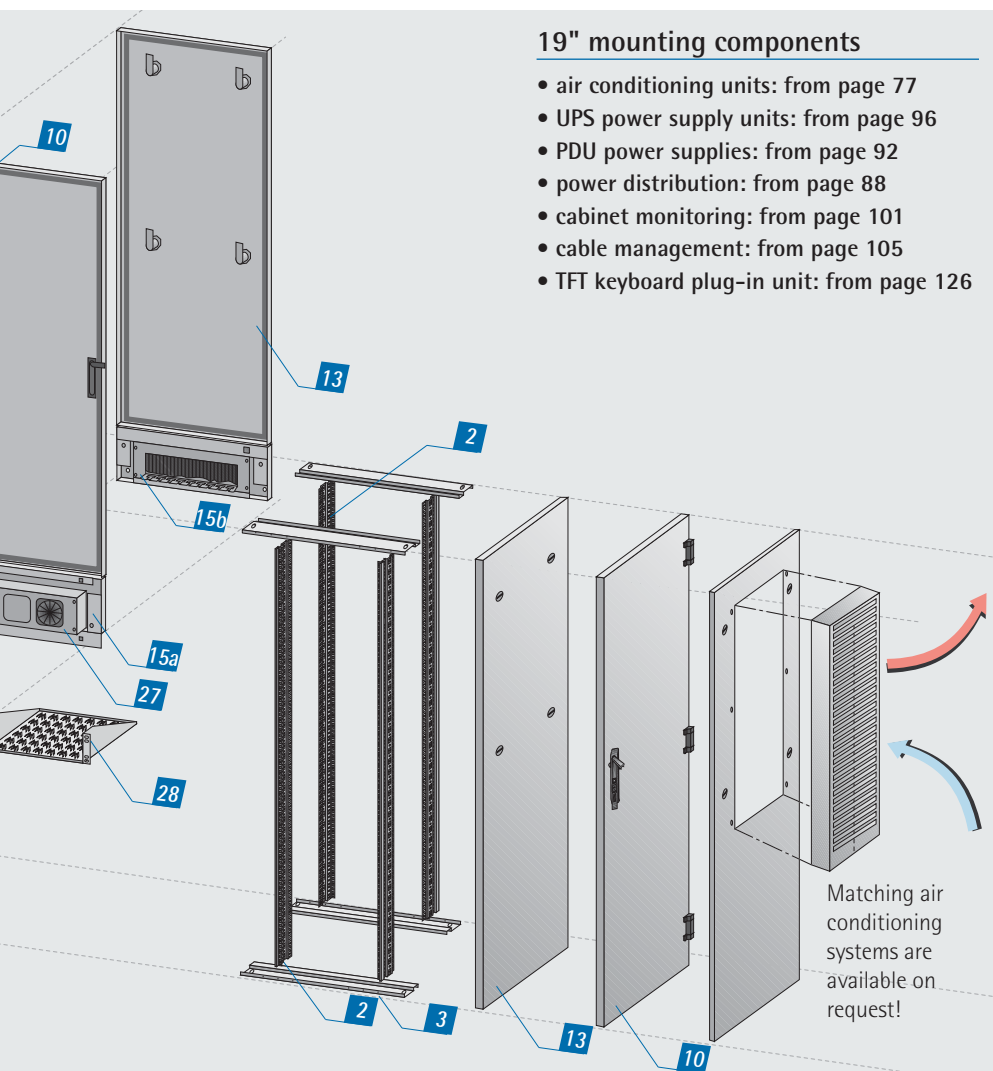
Further sizes on request!

Dimensions H x W x D mm	Order no.
(2000+100) x 600 x 800	318-210-10





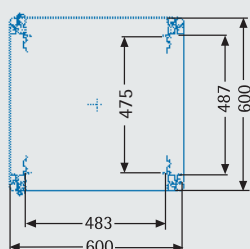
Select step by step the cabinet components you want:



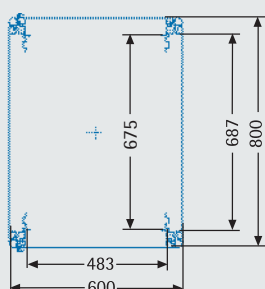
Pos.	Bezeichnung	Seite
1	Cabinet rack with design profiles	16
2	19" vertical mountings	17
3	Crossbar for 19" installation	17
4	Multi-purpose crossbar	17
5	Reduction crossbar	17
6	Cable guard rail	17
7	Cover plates	19
8	Viewing door	20
9	Viewing door, split	20
10	Solid door	20
11	Split door, solid	20
12	Door, perforated	20
13	Sash door	20
14	Locking system for doors	21
15a	Fan installation module	21
15b	Cable entry module	21
16	Top panel, solid	21
17	Cabinet connection set (without fig.)	21
18	Castor base	22
19	Tilt prevention base	22
20	Base covers	22
21	Base corners	22
22	Filter set (without fig.)	23
23	Castor set	22
24	Castor set, tilt prevention	22
25	Adjusting foot	22
26	Earthing kit TiRAX	22
27	Fan base module	23
28	Shelves	24
29	Potential equalisation rail	25

For more extension parts and accessories from page 22!

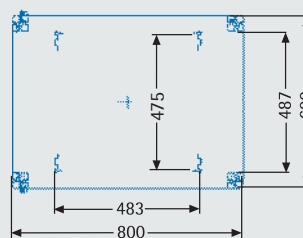
Technical information: max. 19" installation dimension



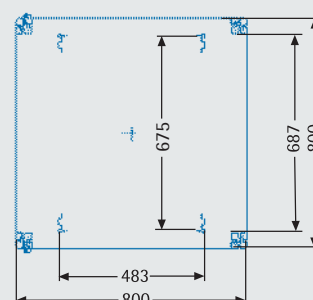
Top view cabinet rack
W x D = 600 x 600 mm



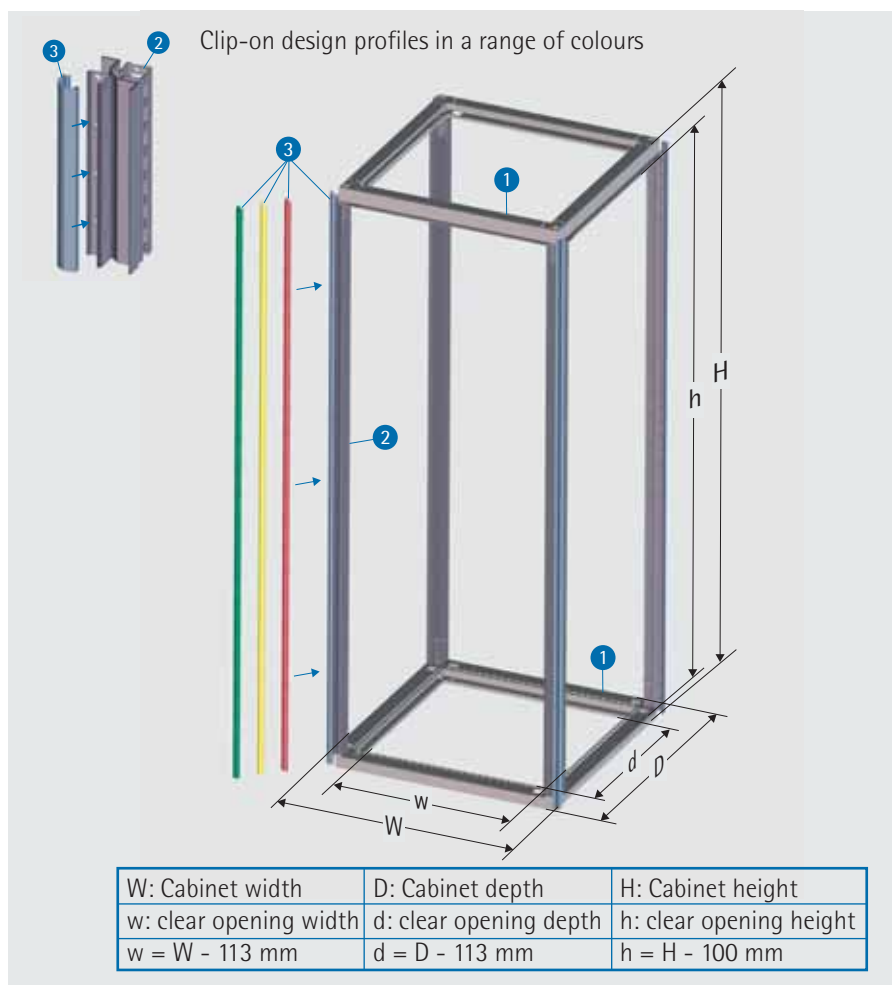
Top view cabinet rack
W x D = 600 x 800 mm



Top view cabinet rack
W x D = 800 x 600 mm



Top view cabinet rack
W x D = 800 x 800 mm



1 Cabinet rack, dismantlable

The cabinet rack consists of two identical sheet metal frames **1**, four sheet metal functional profiles **2** and four painted sheet metal design profiles **3** clipped onto the functional profiles.

Finish:

- 1** Top/bottom frame:
RAL 7035 light grey
- 2** Functional profile:
galvanised
- 3** Design profile:
RAL 5014 pigeon blue

Delivery:

fully assembled

The design profile **3** can be matched to your company colour if desired.

Dimensions (W × D) mm	Dimensions (H) mm	U	Order no.
600 × 600	1200	24	318-660-02
800 × 600	1200		318-860-02
800 × 800	1200		318-880-02
600 × 1000	1200		318-601-02
800 × 1000	1200		318-810-02
600 × 600	1600	33	318-660-06
800 × 600	1600		318-860-06
800 × 800	1600		318-880-06
600 × 600	1800	37	318-660-08
800 × 600	1800		318-860-08
800 × 800	1800		318-880-08
600 × 600	2000	42	318-660-10
800 × 600	2000		318-860-10
800 × 800	2000		318-880-10
600 × 1000	2000		318-610-10
800 × 1000	2000		318-810-10
600 × 1200	2000		318-612-10
800 × 1200	2000	46	318-812-10
600 × 600	2200		318-660-12
800 × 600	2200		318-860-12
800 × 800	2200		318-880-12
600 × 1000	2200		318-610-12
800 × 1000	2200		318-810-12
600 × 1200	2200		318-612-12
800 × 1200	2200		318-812-12

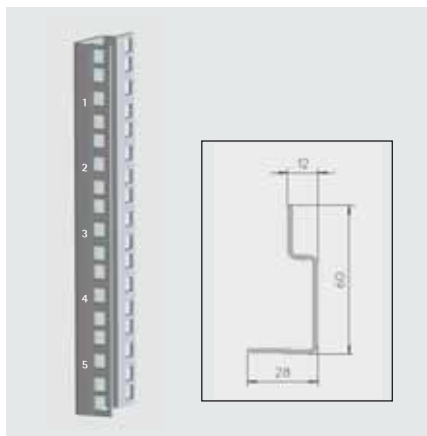
Other preferred colours:

-  RAL 1032 (broom yellow)
-  RAL 5010 (gentian blue)
-  RAL 3002 (carmine red)
-  RAL 6029 (mint green)
-  RAL 7037 (dusty grey)

Colour display similar!



2 19" vertical mounting

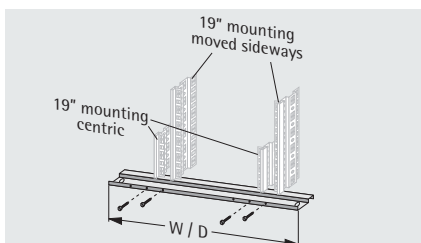


- ASA-perforation (1/2 19" perforation)
- with U-labelling

Material: sheet metal, galvanised

U	Order no.
6	316-120-06
12	316-120-12
15	316-120-15
24	316-120-24
33	316-120-33
37	316-120-37
42	316-120-42
46	316-120-46

3 Crossbar for 19" installation



- to install the 19" vertical mountings two cross bars per 19" level are required
- infinitely depth adjustable
- at W=800 mm the 19" level can be moved laterally
- in case of partial mounting, multi-purpose crossbars **5** are needed

Material: sheet metal, galvanised

U	Order no. W=600 mm	Order no. W=800 mm
6	318-120-00	318-120-04
12	318-120-00	318-120-04
15	318-120-00	318-120-04
24	318-120-00	318-120-04
33	318-120-00	318-120-04
37	318-120-01	318-120-03
42	318-120-00	318-120-04
46	318-120-01	318-120-03

4 Multi-purpose crossbar

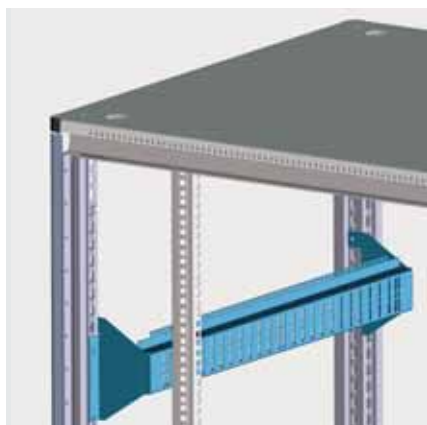


- for 19" partial mounting
- for clean cable entry
- infinitely depth adjustable

Material: sheet metal, galvanised

Depth (D) / Width (W) mm	Order no. (1 piece)
600	318-120-06
800	318-120-08
1000	318-120-19
1200	318-120-23

5 Reduction crossbar

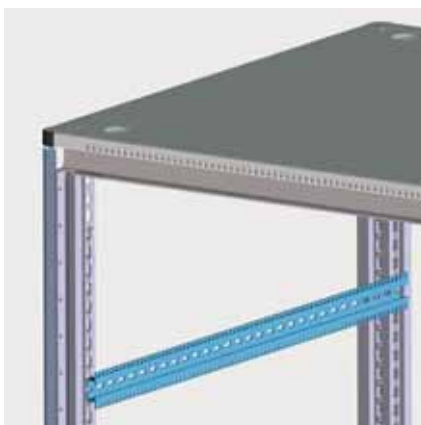


- reduces W=800 mm to 19"
- with integrated cable management bracket
- can be hung up or screwed on

Material: sheet metal, galvanised

Depth (D) / Width (W) mm	Order no. (1 piece)
600	318-120-10
800	318-120-12
1000	318-120-14
1200	318-120-21

6 Cable guard rail



- with integrated cable management bracket
- holds cables in place with cable ties and cable clips

Material: aluminium, anodised

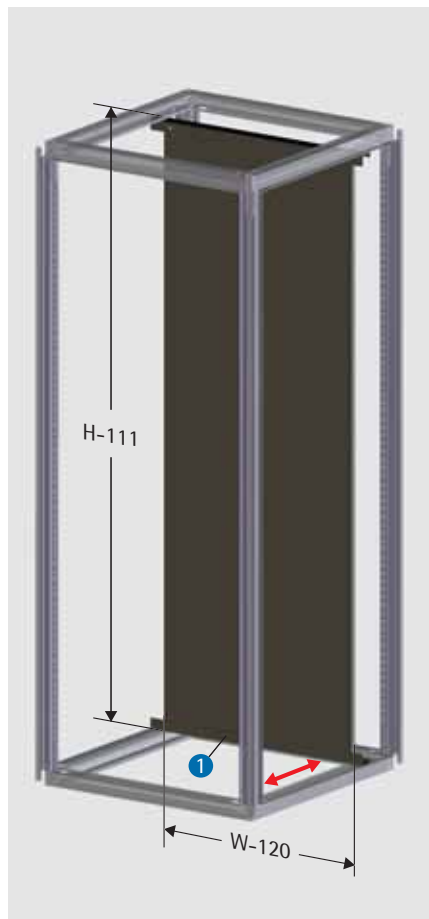
Scope of delivery: incl. mounting material

Cable clamps can be found on page 106.

Depth (D) / Width (W) mm	Order no.
600	318-121-10
800	318-121-11



Mounting plate



- for mounting heavy components and top hat rails
- is mounted on the cabinet with mounting rails **1** and can be pushed in laterally
- option to adjust the depth in 25mm steps
- multi-purpose crossbars are needed for partial mounting **2**

Material: sheet metal, galvanised

Height (H) mm	Order no. W=600 mm	Order no. W=800 mm
1200	318-130-12	318-130-32
1600	318-130-16	318-130-36
1800	318-130-18	318-130-38
2000	318-130-20	318-130-40
2200	318-130-22	318-130-42

Multi-purpose crossbar

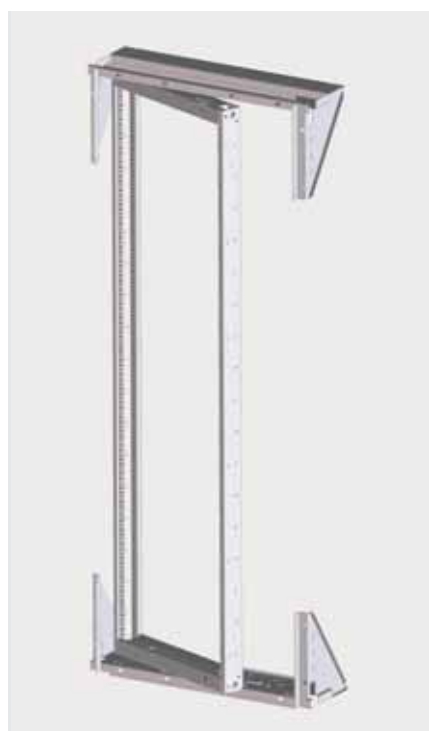


- for 19" partial mounting
- for clean cable entry
- infinitely depth adjustable

Material: sheet metal, galvanised

Depth (D) / Width (W) mm	Order no. (1 piece)
600	318-120-06
800	318-120-08
1000	318-120-19
1200	318-120-23

19" pivot frame



- for cabinet width 800 mm
- pivot angle 95°
- installation centric or asymmetrical

Finish: RAL 7035 light grey

Material: sheet metal

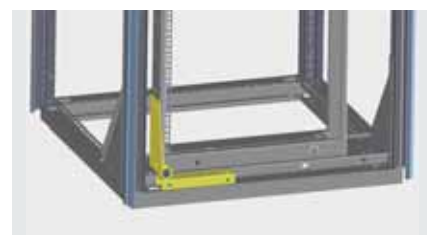
Load capacity: 200 kg

Insert usable depth: centric: 390 mm,
30 mm offset: 440 mm

Scope of delivery: incl. crossbars

for cabinet height (H) mm	U	Order no. (1 piece)
1200	21	318-129-24
2000	39	318-129-30

180° hinge kit for pivot frame



- to increase the pivot angle of the 19" pivot frame to 180°

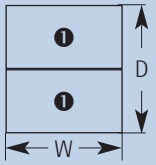
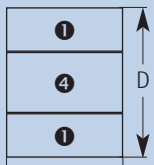
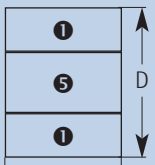
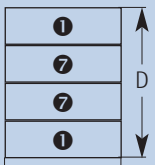
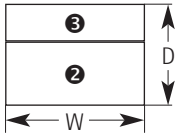
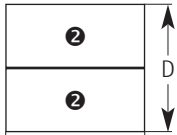
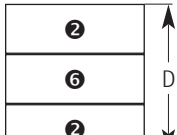
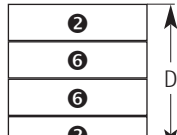
Insert depth: 70 mm, offset: 370 mm

Order no. (set)
318-129-20



7 Cover plates Overview for determining cover plates for top and bottom frame

The cover plates can be mounted directly on the cabinet rack **1** (top or base) according to the layout shown.

	Depth (D) 600 mm	Depth (D) 800 mm	Depth (D) 1000 mm	Depth (D) 1200 mm
(W) 600 mm				
(W) 800 mm				

Order information

Model	Size	Application	Dimensions (w × d) mm	Order no.
solid				
	❶	Cover plate, solid individual break-throughs on request	446 × 222	318-111-01
	❷		646 × 322	318-111-02
	❸		646 × 122	318-111-03
	❹		446 × 202	318-111-04
	❺		446 × 398	318-111-05
	❻		646 × 200	318-111-06
	❼		446 × 301	318-111-07
for fan base module				
	❶	Cover plate for mounting of fan modules 27 (also mountable with filter set 316-100-99)	446 × 222	318-111-21
	❷		646 × 322	318-111-22
perforated				
	❶	Cover plate, perforated (also extendable with filter set 316-100-99)	446 × 222	318-111-23
	❷		646 × 322	318-111-24
for cable entry				
	❶	Cover plate for sealed cable entry (suitable for CEE-plugs)	446 × 222	318-111-25
	❷		646 × 322	318-111-26
	❺		446 × 398	318-111-37
	❻		646 × 200	318-111-38



8 Viewing door

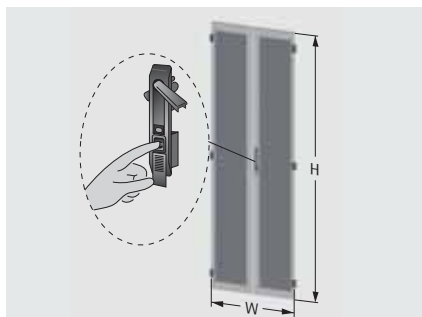


- with turning lever lock for profile half cylinder, L=40 mm (with push button opening)

Finish: RAL 7035 light grey

Material: frame: sheet metal,
glass: toughened safety glass
4 mm, grey

9 Viewing door, split

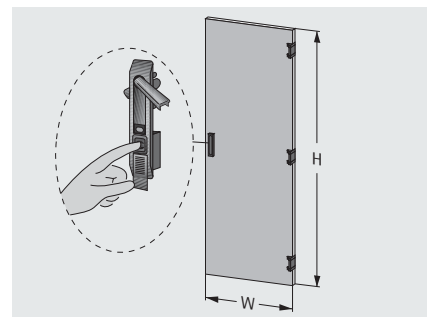


- with turning lever lock for profile half cylinder, L=40 mm (with push button opening)

Finish: RAL 7035 light grey

Material: frame: sheet metal,
glass: toughened safety glass
5 mm, grey

10 Door, solid

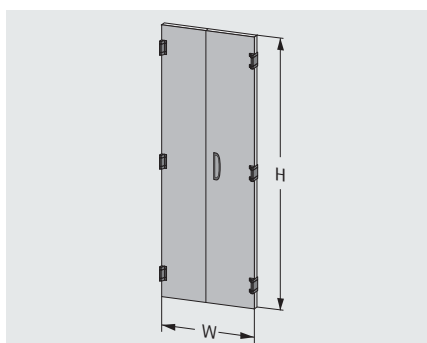


- with turning lever lock for profile half cylinder, L=40 mm (with push button opening)

Finish: RAL 7035 light grey

Material: sheet metal

11 Split door, solid

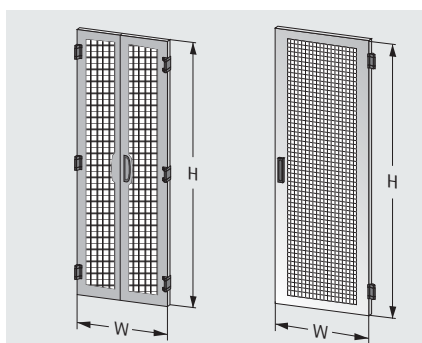


- with turning lever lock for profile half cylinder, L=40 mm (with push button opening)

Finish: RAL 7035 light grey

Material: sheet metal

12 Door, perforated

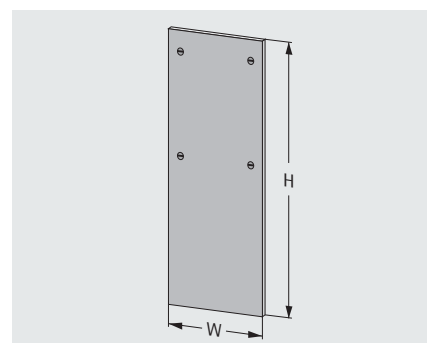


- perforation (80 %)
- with turning lever lock for profile half cylinder, L=40 mm (with push button opening)

Finish: RAL 7035 light grey

Material: sheet metal, perforated insert

13 Sash door



- with 2 or 4 sash fasteners and "double bit key 5 mm" mechanism

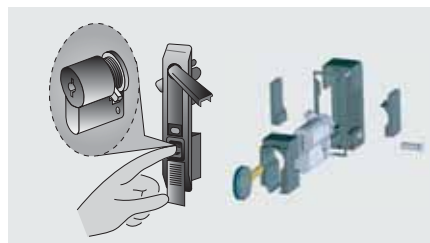
Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W) mm	8 Viewing door	9 Viewing door, split	10 Door, solid	11 Split door, solid	12 Door, perforated	12 Split door, perforated	13 Sash door
1200 x 600	318-612-01	-	318-612-02	-	318-612-16	-	318-612-03
1200 x 800	318-812-01	-	318-812-02	-	318-812-16	-	318-812-03
1200 x 1000	-	-	-	-	-	-	318-012-03
1600 x 600	318-616-01	-	318-616-02	-	318-616-16	-	318-616-03
1600 x 800	318-816-01	-	318-816-02	-	318-816-16	-	318-816-03
1800 x 600	318-618-01	-	318-618-02	-	318-618-16	-	318-618-03
1800 x 800	318-818-01	-	318-818-02	-	318-818-16	-	318-818-03
2000 x 600	318-620-01	-	318-620-02	-	318-620-16	-	318-620-03
2000 x 800	318-820-01	318-820-08	318-820-02	318-820-26	318-820-16	318-820-25	318-820-03
2000 x 1000	-	-	-	-	-	-	318-020-03
2000 x 1200	-	-	-	-	-	-	318-020-48
2200 x 600	318-622-01	-	318-622-02	-	318-622-16	-	318-622-03
2200 x 800	318-822-01	318-822-08	318-822-02	318-822-26	318-822-16	318-822-25	318-822-03
2200 x 1000	-	-	-	-	-	-	318-022-03
2200 x 1200	-	-	-	-	-	-	318-022-48



14 Locking systems for doors



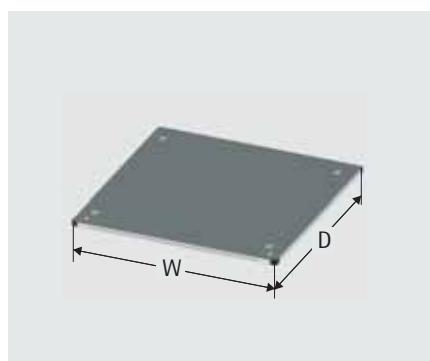
- profile half cylinder with EK333 lock for turning lever lock of doors **8** to **12**



- sash fastener with EK333 lock for locking the sash door **13**
- adapter for installing an individual cylinder (DIN 18252) (without fig.)

Description	Order no.
Profile half cylinder	676-316-00
Sash fastener	676-181
Adapter	676-316-10
Spare key EK333	676-200

16 Top, solid

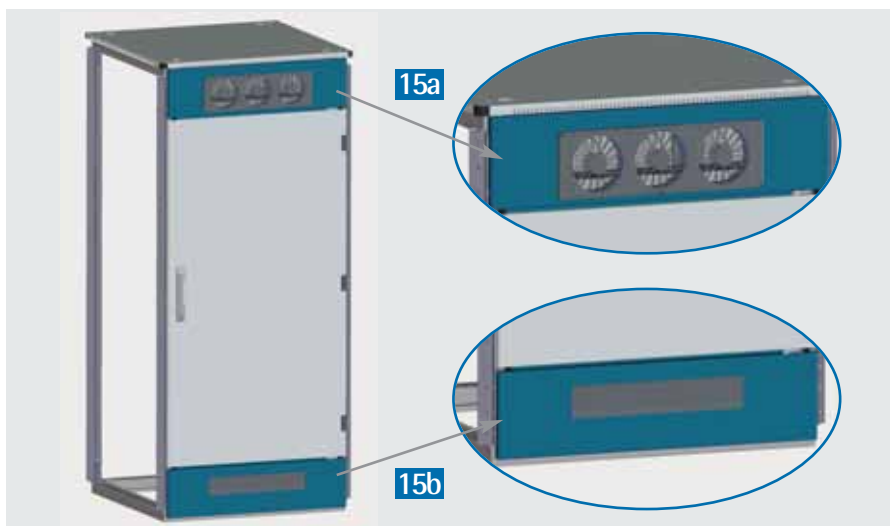


- can be raised up to 11mm for ventilation (using lifting eye bolts, see page 9)
- suitable for IP 54

Finish: RAL 7035 light grey

W × D mm	Order no.
600 × 600	318-016-60
600 × 800	318-016-80
600 × 1000	318-020-60
600 × 1200	318-022-60
800 × 600	318-018-60
800 × 800	318-018-80
800 × 1000	318-020-80
800 × 1200	318-022-80

15 Universal modules



- can be used with shortened doors **8** and **10** or sash doors **13**
- modules can be positioned freely above and/or below the doors shortened by 200 mm
- the fan installation module **15a** is suitable for use with the basic fan module **27**

Description	Width (W)/ Depth (D) mm	Order no.
15a Fan installation module	600 800	318-700-00 318-800-10
15b Cable entry module	600 800	318-600-02 318-800-02

Eye bolt kit

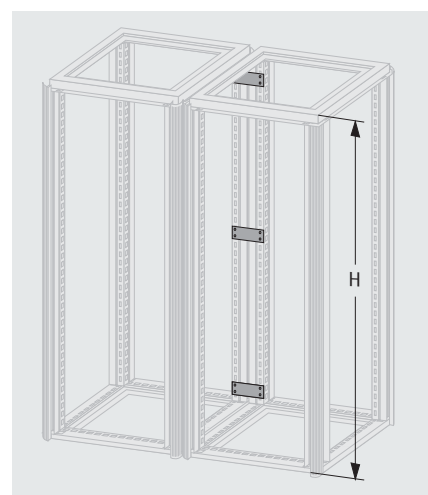


- lifting eye bolts for cabinet relocation
- set = 4 pieces

Load capacity: 500 kg

Order no. (set)
318-026-20

17 Cabinet connection set



- for connecting as many cabinets as required next to or behind each other
- the design profile of the cabinet remains unchanged

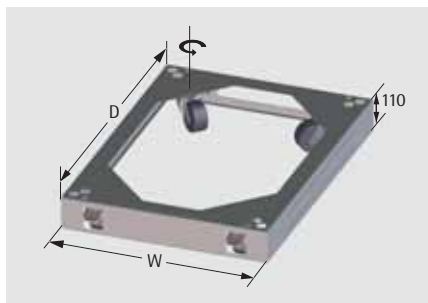
Scope of delivery:

connecting plates, clip-on seals;
mounting material included

Order no. (set)
318-105-10



18 Castor base



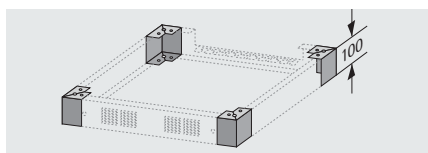
- 4 swivel castors (2 with parking brake)
- cable entry from rear (opening with brush) and side

Load capacity: 450 kg

Finish: RAL 7035 light grey

Width (W) mm	Depth (D) mm	Order no.
600	600	318-126-60
600	800	318-126-80
800	600	318-128-60
800	800	318-128-80

21 Base corner set



- Set = 4 pieces
- includes mounting materials

Material: sheet metal

Finish: RAL 7035 light grey

Height (H) mm	Order no. (set)
100	318-100-00

24 Castor set, tilt prevention base

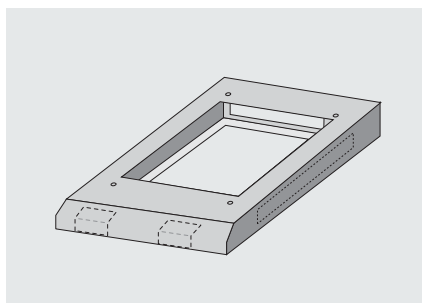


- to be screwed to tilt prevention base **19**
- 4 swivel castors (2 with parking brake)

Load capacity: 450 kg

Order no. (set = 4 pieces)
316-026-50

19 Tilt prevention base



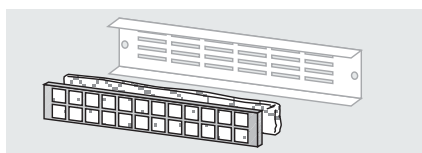
- static base with integrated tilt prevention
- offers secure standing when drawers with heavy equipment are extracted
- rear or lateral cable entry

Finish: RAL 7035 light grey

Material: sheet metal

Width (W) mm	Depth (D) mm	Order no.
600	1000	318-026-11
800	1000	318-028-11

22 Filter set for base covers



- matches base covers "Type **2** ventilated" (see **21**)

Material: sheet metal galv. / filter fleece

Width/Depth mm	Order no. (set)
600	318-100-16
800	318-100-26

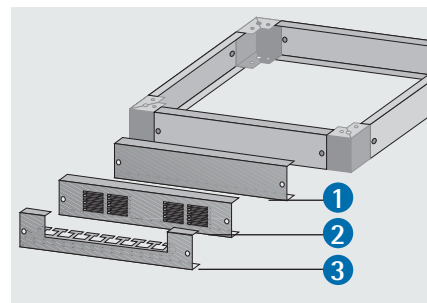
25 Adjusting feet (set = 4 pieces)



- to be screwed onto the rack **1** or to the corners of the base

Description	Order no. (set)
mounting on rack	318-026-00
mounting on base	318-026-02

20 Base covers



- for individual base construction
- four covers are needed to compl. one base

Type **1** : solid

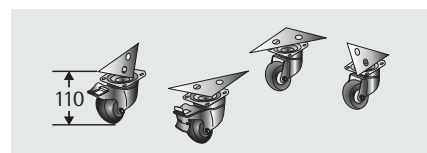
Type **2** : ventilated

Type **3** : with cable entry

Material: sheet steel, RAL 7035 light grey

Type	Width/Depth Cabinet Rack mm	Order no.
1	600	318-100-10
	800	318-100-20
	1000	318-100-30
	1200	318-100-50
2	600	318-100-12
	800	318-100-22
3	600	318-100-14
	800	318-100-24

23 Castor set

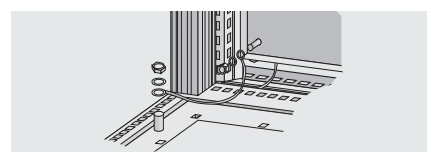


- to be screwed directly onto the cabinet rack **1**
- 4 swivel castors (2 with parking brake)

Load capacity: 450 kg

Order no. (set = 4 pieces)
318-026-10

26 Earthing kit TiRAX



- for earthing according to VDE standards
- for conductive connection of the cabinet's components (cable cross section 2,5 mm²)

Order no. (set)
318-150-00



27 Basic fan module



- fan module, fully pre-wired
- ventilation or extraction, depending on assembly position
- for installation in the top/bottom area of the cabinet
- different power cords available (see right side)

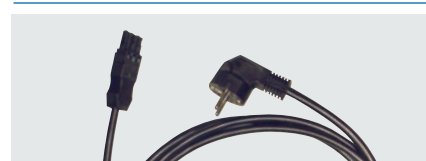
Dimensions (H × W × D):

44 mm × 450 mm × 140 mm

Surface: similar to RAL 9005 jet black

Material: polycarbonate UL 94 V-0

Power cord, standard



Type of connection	Length	Order no.
Earthing-pin	3m	640-044-05
Cooling devices	3m	230-500-15
Without plug for fixed connection	3m	230-500-16

Power cord with thermostat 0-60°C

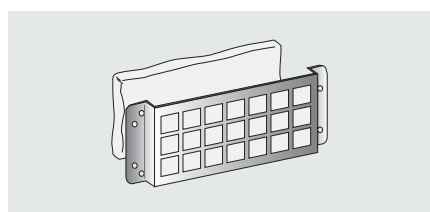


Type of connection	Length	Order no.
Earthing-pin	3m	230-500-04
Cooling devices	3m	230-500-05
Without plug for fixed connection	3m	230-500-06

The fan characteristics and noise levels can be found in the diagrams on page 81.

Description	Unimpeded air flow	Basic module	Extension module
fan module 1-fold	115m³/h	230-500-01	230-500-11
fan module 2-fold	230m³/h	230-500-02	230-500-12
fan module 3-fold	345m³/h	230-500-03	230-500-13
fan module "silent"	240m³/h	230-500-43	-

Filter set for fan module and/or cover plate perforated



Material: aluminium/filter fleece

Filter set	Spare filter (5 pcs.)
316-100-99	671-200-05

Door contact switch

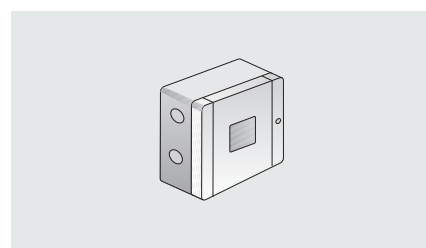


- e.g. for switching control cabinet lamps, etc. on and off

Scope of delivery: inc. mounting material

Order no.
640-071-00

Terminal box



- for use as a cable distribution socket
- simple and quick installation

Order no.
640-059

LED cabinet lamp



- cost-optimised LED technology with a power consumption of 5W (light intensity equivalent to a 75W light bulb)
- internal power supply unit with wide range voltage 100-230V / AC
- long-life and no maintenance (service life at 20 °C = 60,000 h)
- magnetic attachment for individual mounting in the cabinet

Connections must be ordered separately!

Description	Order no.
LED cabinet lamp with on/off switch	640-143-05
LED cabinet lamp with motion detector	640-143-06
Connection with Euro plug, L=2.5 m	640-143-08



Noise absorption foam



- absorbs up to 10 dB/A of sound in enclosures (e.g. fan noise)
- self-adhesive on one side
- thermal conductivity: 0.033 W/mk (to DIN 52612)
- temperature range: -40°C to +100 °C

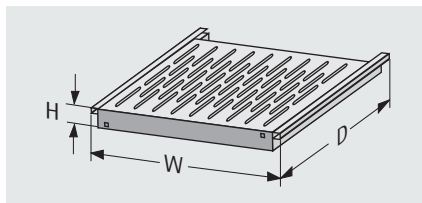
Material: PUR ester foam (10 mm), colour grey, with pattern of indentations, partially compressed (air permeable)

Delivery: unmounted

If required, we will be happy to affix the noise absorption foam for you before delivering your cabinets or enclosures!

Order no. (1 m ²)
671-211

28 Shelf without 19" extension "fixed installation"



- for mounting into cabinet rack without 19" level
- extraction length 500 mm

Finish:

RAL 7035 light grey

Material: sheet metal

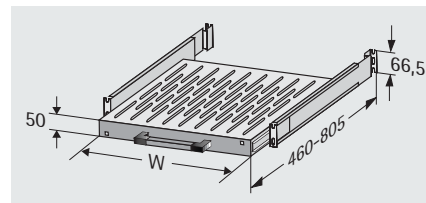
Dimensions (H x W x D):

1.5 U (66,5 mm) x 465 x 410 mm

Load capacity: 80 kg (distributed load)

Cabinet width	Order no.
600 mm	318-141-08
800 mm	318-141-05

28 Shelf without 19" extension "extractable"



- for mounting into cabinet rack without 19" level
- extraction length 500 mm
- simple one-person assembly

Finish:

Shelf: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

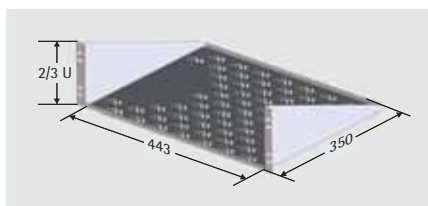
1.5 U (66,5 mm) x 465 x 410 mm

1.5 U (66,5 mm) x 665 x 410 mm

Load capacity: 60 kg (distributed load)

Cabinet width	Order no.
600 mm	318-141-04
800 mm	318-141-06

28 19" shelf, fixed



- simple assembly on a 19" grid (only one 19" level required)
- ventilated

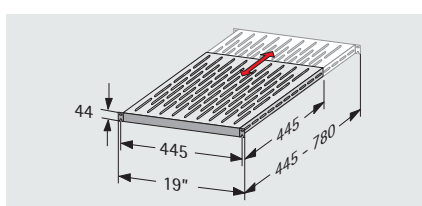
Finish: RAL 7035 light grey

Material: sheet metal

Load capacity: 15 kg (distributed load)

Height	Order no.
2 U	315-810-20
3 U	315-810-00

28 19" shelf 1 U "fixed" VARIplain



- fixed installation
- depth variable due to VARIplain technology
- telescopic: 445 - 780 mm (see fig.)
- simple one-person assembly through open long hole in the 19" front (hook-in)

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

1 U (44 mm) x 19" (482.6 mm) x 445 mm-780 mm

Floor space (w x d):

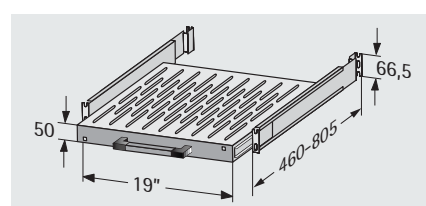
445 mm x (445 mm-780 mm)

Load capacity:

150 kg (distributed load/statisch)

Order no.
316-036-99

28 19" shelf 1.5 U "extractable"



- variable-depth installation
- extraction 500 mm
- simple one-person assembly

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

1.5 U (66.5 mm) x 19" (482.6 mm) x 465 / 665 mm

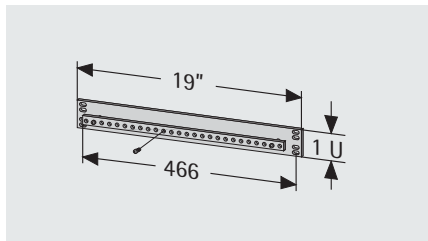
Storage space (w x d): 410 x 465 / 665

Load capacity: 60 kg (distributed load)

Depth	Order no.
465 mm	318-141-00
665 mm	318-141-01



29 19" Potential equalisation rail



- for 19" or cabinet rack installation
- connection options: 27 × M 5
- rail cross-section: 50 mm²

Material: sheet steel/copper

Order no.
640-028-00

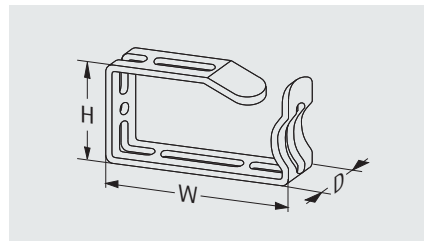
Screw set M 5 / M 6 (50x)



- for positioning 19" components on vertical mountings

Description	Order no. (set)
M 5	630-991
M 6	630-994

Cable clamp set, metal (set)

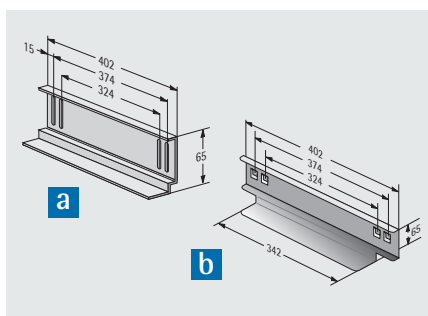


- for securing cables vertically to a 19" rack (for 800 mm wide cabinets)
- set = 10 pieces

Scope of delivery: inc. mounting materials

H × W × D mm	Order no. (set)
44 × 85 × 23	640-036-11
66 × 125 × 23	640-036-12
88 × 125 × 23	640-036-13

Slide rail, screwable / hook-in



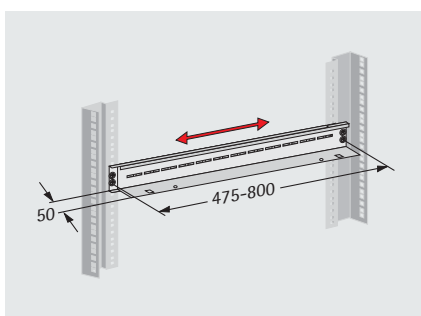
- **screwed/hooked** in onto 19" vertical mountings
- to support heavy 19" plug-in units
- two 19" levels are required for mounting

Material: sheet metal, galvanised

Load capacity: 50 kg

screwable a	hook-in b
312-544	316-544-00

Slide rail, variable depth



- depth-adjustable
- to accommodate 19" plug-in units (e.g. servers) irrespective of the clearance between the first and second 19" level
- for use as of a cabinet depth of 800 mm

Material: sheet steel 1.5 mm, galvanised

Load capacity: 50 kg

Order no. (pair)
316-544-20

TiRAX screw set



- for rotating mounting in TiRAX cabinet racks

Scope of delivery:

- each with 20x special cage nuts M6, lens head screw M6 × 16 and U-glass

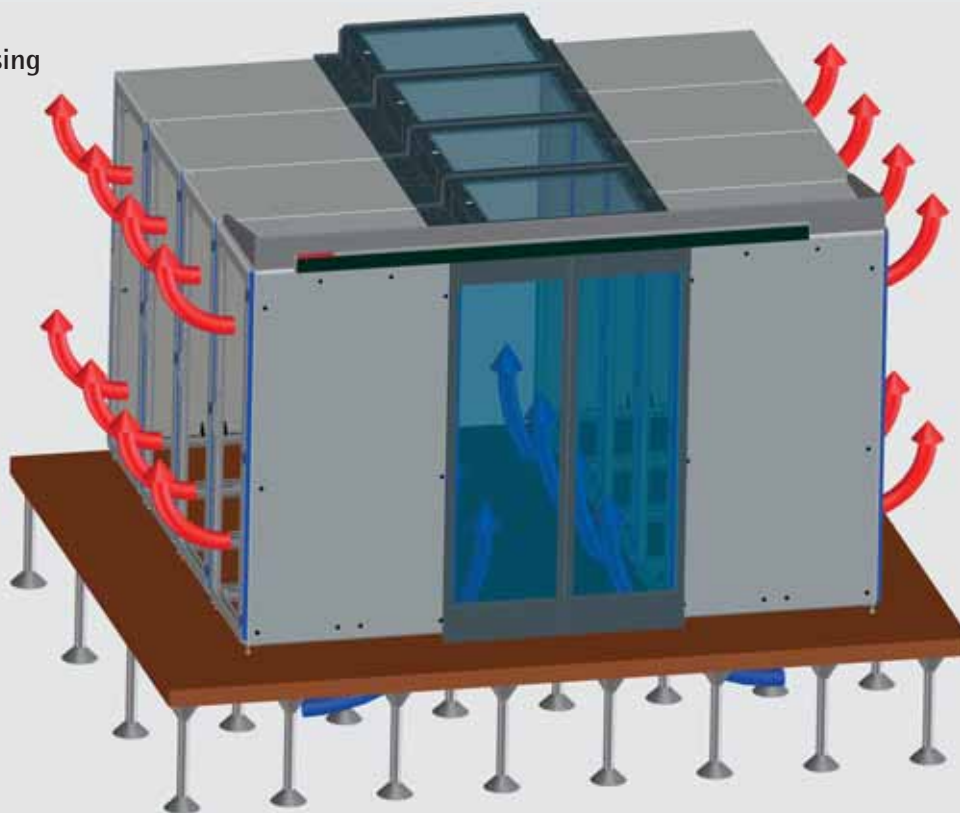
Order no. (set)
630-998



Other accessories can be found in this catalogue in the corresponding sections.

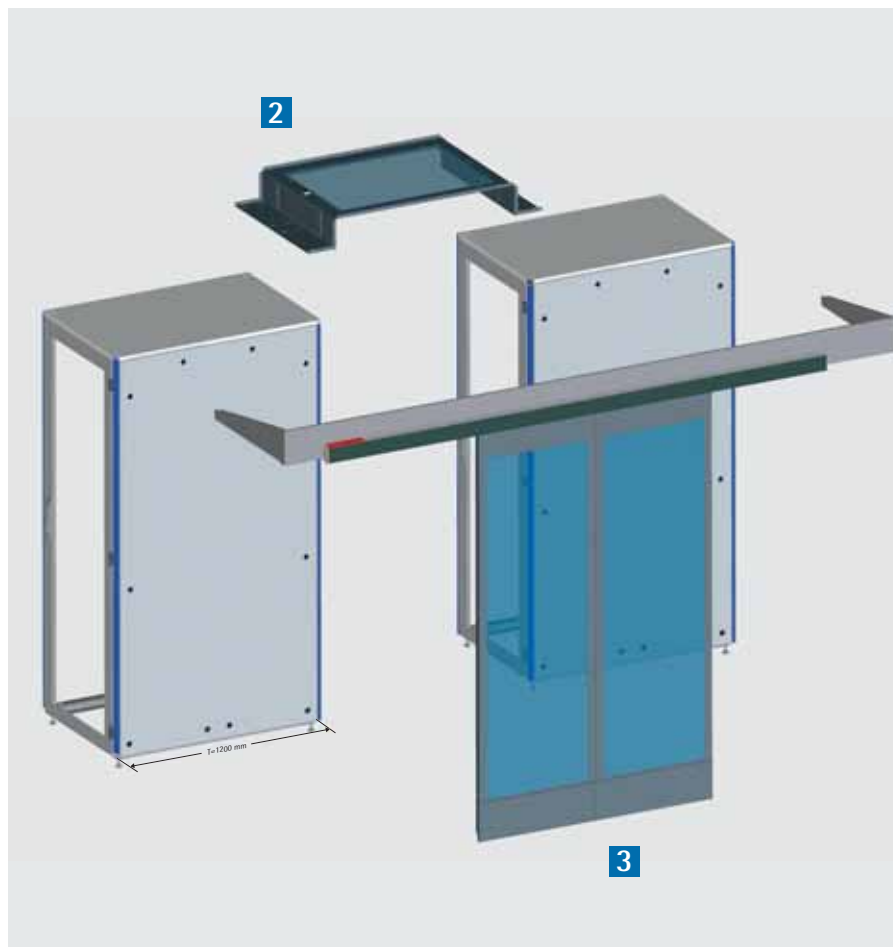


System graphic
cool corridor housing

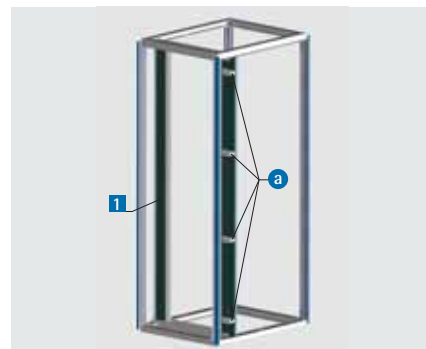


Cooling corridor system
with TiRAX cabinet system





1 Partition panel kit

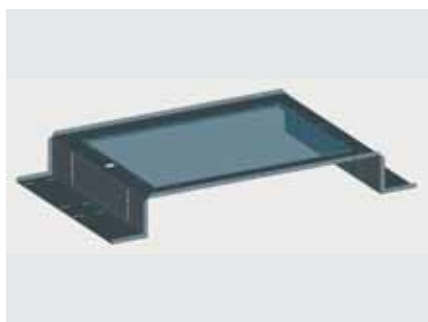


- to partition the lateral movable space for 800 mm wide cabinet between 19" level and side panel
- 3 x 1 U field per panel
- with cable clamps **a** (max. 4 pieces per panel) extendable (see page 25)

Material: sheet metal

Height mm	RAL 7035	RAL 9005
2000	318-121-84	318-121-85
2200	318-121-87	318-121-88

2 Corridor cover for cooling corridor



- for easy mounting on the cabinet system
- with 19" 3 U mounting section for power distributors, light systems etc.
- with toughened safety glass
- for cooling corridor with width 1.2 m

Material: sheet metal,
toughened safety glass

Width mm	Finish	Order no.
600	RAL 7035	318-124-66
600	RAL 9005	318-124-67
800	RAL 7035	318-124-32
800	RAL 9005	318-124-75

3 Sliding door system



- for cabinet depth D=1200 mm
- simple and quick installation
- for cooling corridor with width 1.2m
- height adjustment towards floor is possible

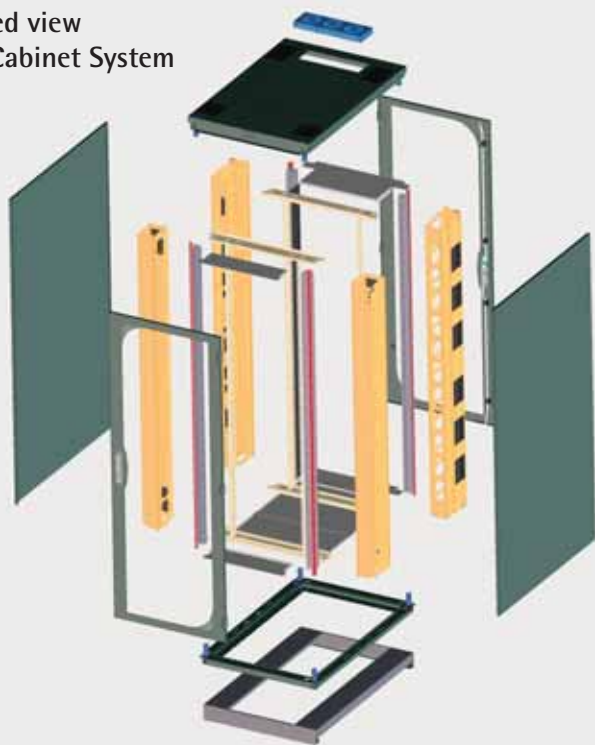
Material: sheet metal,
toughened safety glass

Height mm	Finish	Drive	Order no.
2000	RAL 7035	manual	318-124-70
2000	RAL 9005	manual	318-124-80
2000	RAL 7035	electric	318-125-00
2000	RAL 9005	electric	318-125-05
2200	RAL 7035	manual	318-124-55
2200	RAL 9005	manual	318-124-65
2200	RAL 7035	electric	318-125-10
2200	RAL 9005	electric	318-125-15



From conceptual planning to installation in your

Exploded view
TiRAX Cabinet System



Project:
Data centre



data centre – everything from a single source!





Questions for the sales team:



19" TiRAX cabinet system

from page 3



19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109



General accessories/
distribution technology

from page 123



You can read more about products from the apra-group at www.apra-norm.com



NETcell



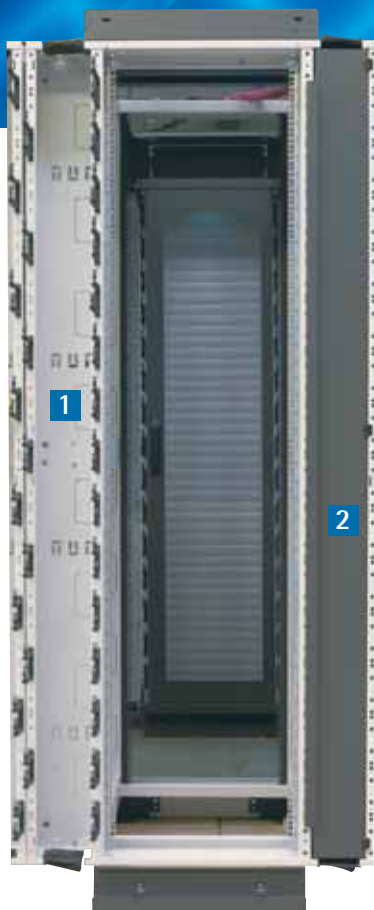
Cable tray for excess length of cable

- with connected rack installation it can also be used as trunking system



Modular cable trays

- for separate routing of data and power cables



Cable duct

- designed for large-volume routing of data and power cables (vertical and horizontal)
- **breakouts** **a** for individual cable routing from front to back and/or sideways
- **with cable clamps** **1**
- for quick installation and to ensure a clear layout
- **with hinged panel** **2**
- with locking of spacious cable ducts (pivorable 180°)





The future-oriented 19" rack system for data centres



NETcell
 completely dismountable,
 flexible cable management,
 load capacity up
 to 1500 kg



Corridor cover

- toughened safety-glass pane is easily dismountable to ensure better accessibility to the cooling corridor
- with 3 U increases mounting section for power supply, light systems etc.



Internal view cooling corridor

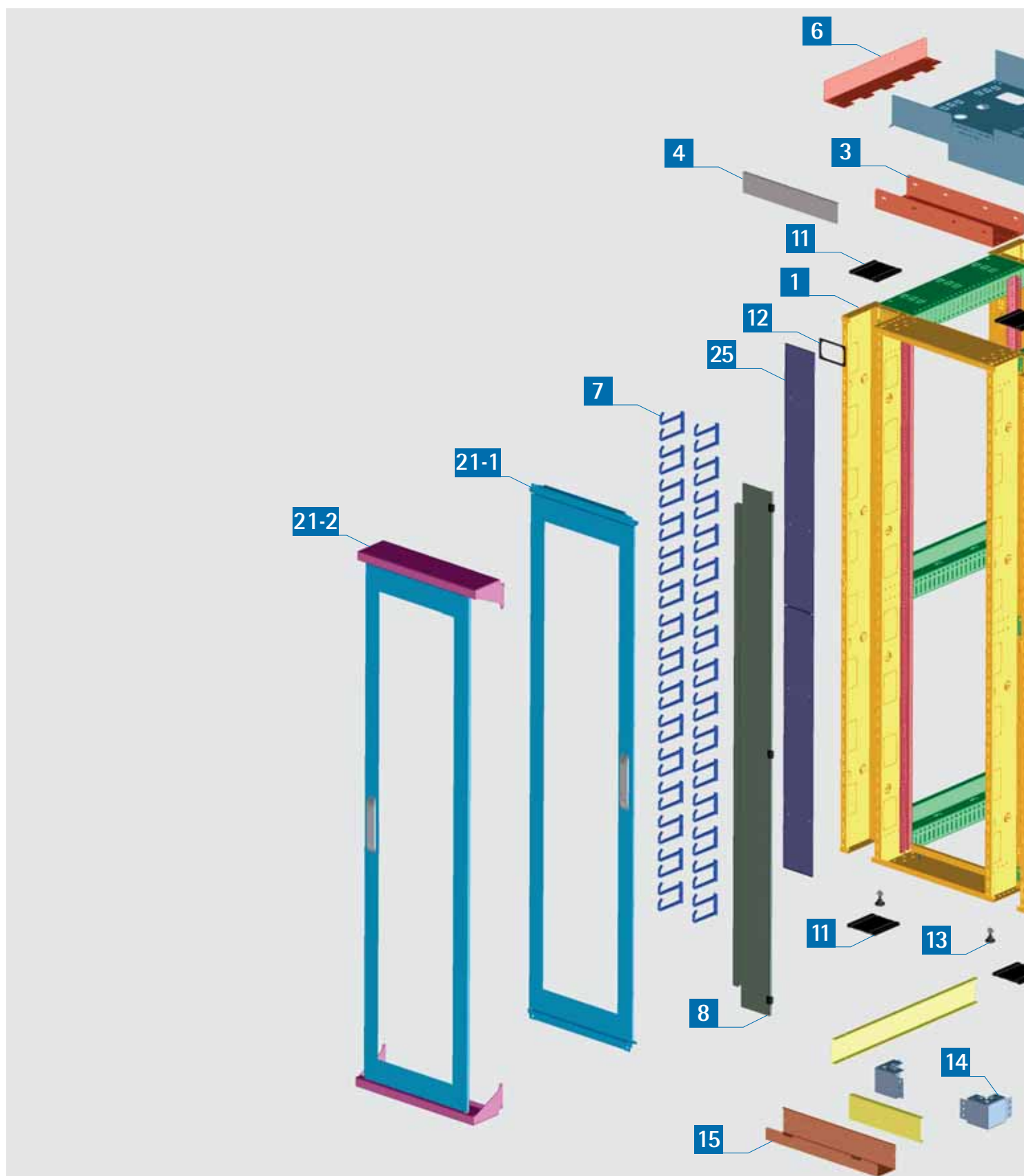


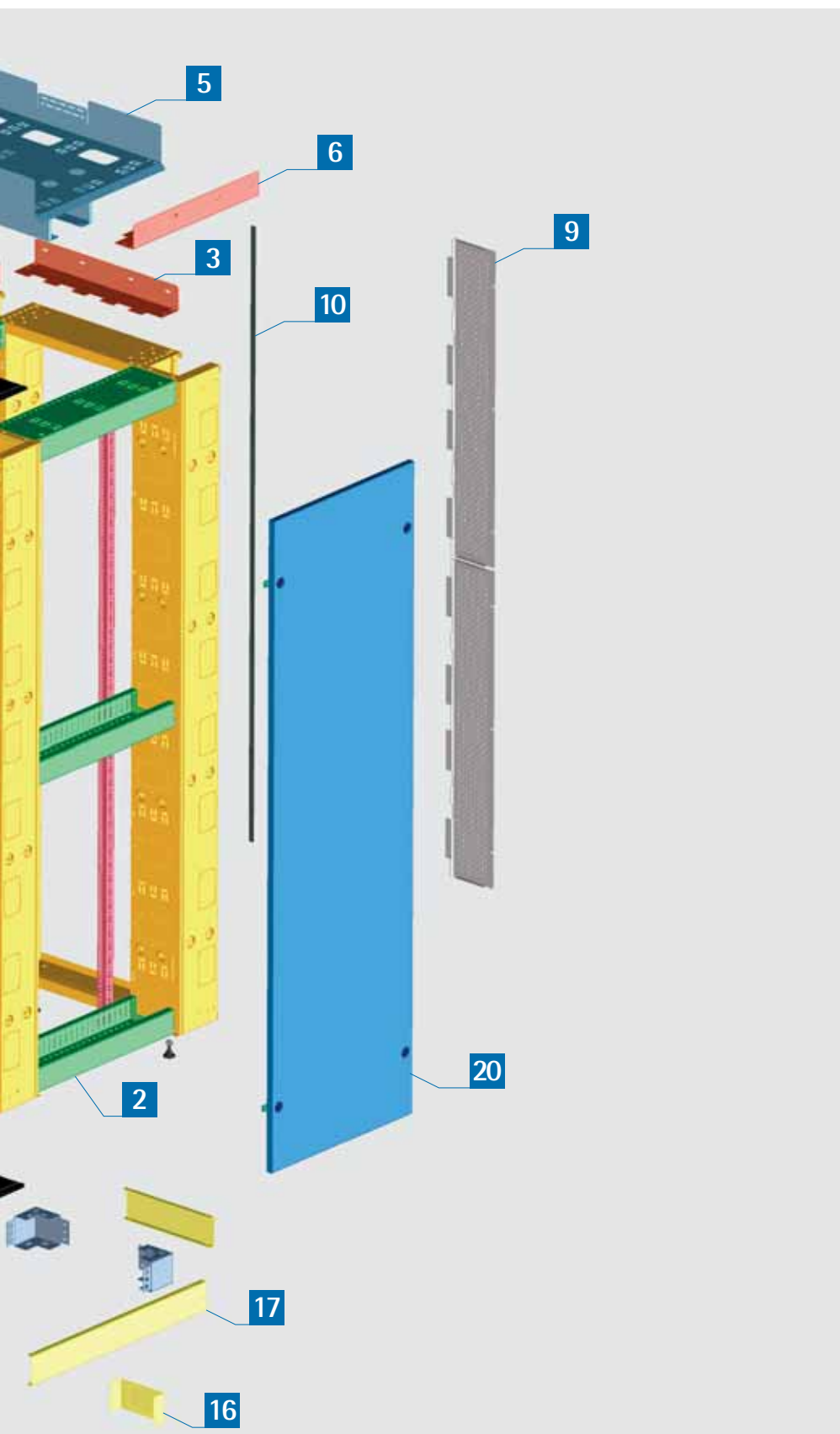
Sliding door, split

- manual or electric design
- can be fitted with lockable cylinders



Individual configuration: Configure your own cabinet system

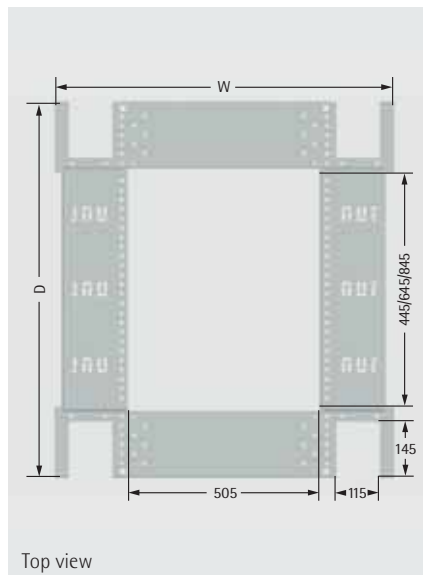
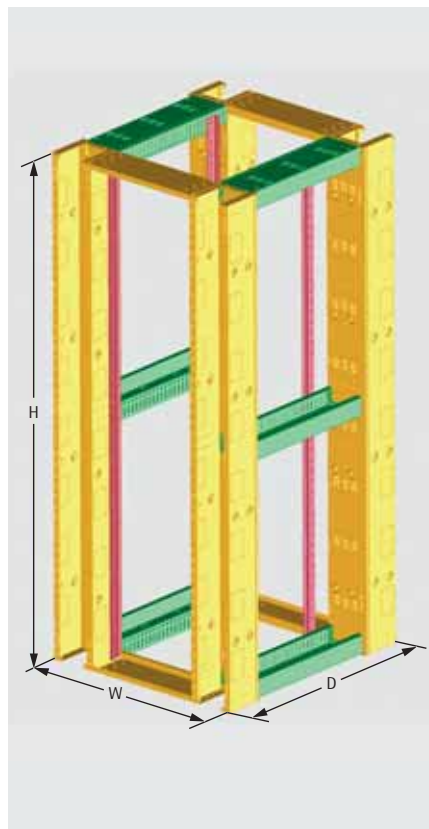




Item	Description	Page
1	Basic system	36
2	Cable tray (cross bar)	37
3	Cable routing angle bracket	37
4	Connecting cover for cable routing angle bracket	37
5	Cable tray for excess length of cable	37
6	End cover for excess cable tray	37
7	Cable clamp set	37
8	Hinged panel	38
9	Mounting plate	38
10	Universal guide rail for cable duct	38
11	Brush set for cable duct	38
12	Edge protection frame	38
13	Adjusting feet set	38
14	Base corner set	39
15	Cable routing tray for mounting on cabinet base	39
16	Socket infill panel	39
17	Base covers	39
18	19" blind panels (without fig.)	39
19	Slide rail, variable depth (without fig.)	39
20	Side panel	40
21-1	Door perforated (80 %) flush-mounted	40
21-2	Door perforated (80 %) for cable clamp set	40
22	Locking system for doors and side panels (without fig.)	40
23	Connector set (without fig.)	40
24	Cable tray (without fig.)	40
25	Locking panel for cable duct	41
26	Corridor covering for cooling corridor (without fig.)	41
27	Sliding door system (without fig.)	41



1a Basic system "900", dismountable



The cabinet system consists of two identical frames with integrated cable ducts, cross bars and a 19" extension level with end covers at the front.

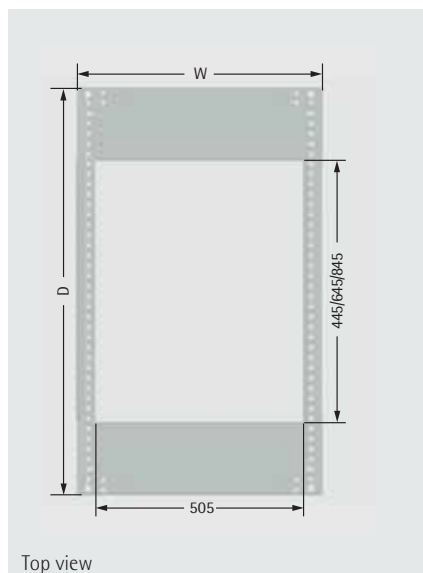
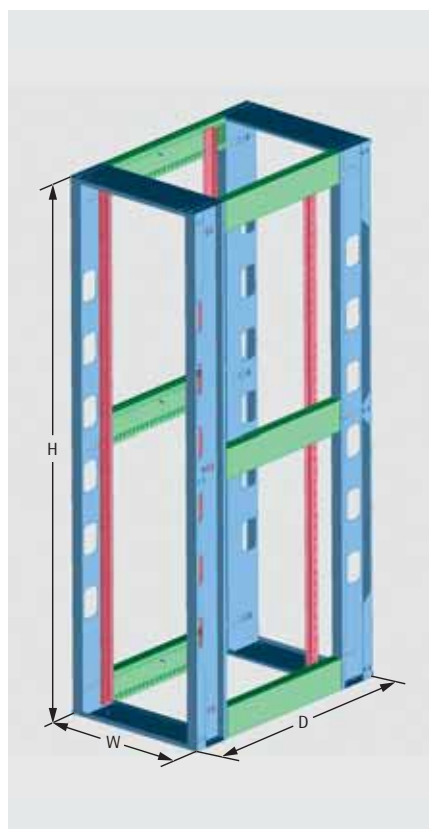
Basic system "900" consists of:

- frame with integrated cable ducts (2 ×)
- cross bars (cable tray) (6 ×)
- 19" extension (2 ×)
- end cover for 19" grid (2 ×)

Ultimate load: 1500 kg (static)

Dimensions (W × H) mm	Dimensions (D) mm	Finish	Order no.
900 × 2130 (46 U)	800	RAL 7035	583-908-12
	1000	RAL 7035	583-910-12
	1200	RAL 7035	583-912-12
900 × 2130 (46 U)	800	RAL 9005	583-908-82
	1000	RAL 9005	583-910-82
	1200	RAL 9005	583-912-82

1b Connector System "600", dismountable



The connector system consists of two identical frames, crossbars and 19" extension with end covers at the front.

Connector System "600" consists of:

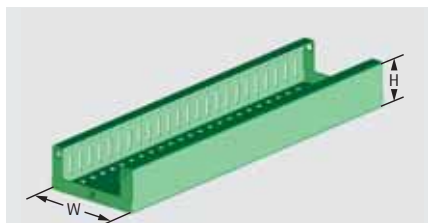
- frame (2 ×)
- crossbars (6 ×)
- 19" extension (2 ×)
- end cover for 19" grid (2 ×)

Ultimate load: 1500 kg (static)

Dimensions (W × H) mm	Dimensions (D) mm	Finish	Order no.
600 × 2130 (46 U)	800	RAL 7035	583-608-12
	1000	RAL 7035	583-610-12
	1200	RAL 7035	583-612-12
600 × 2130 (46 U)	800	RAL 9005	583-608-82
	1000	RAL 9005	583-610-82
	1200	RAL 9005	583-612-82



2 Cable tray

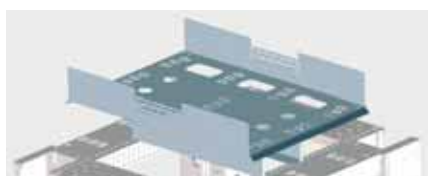
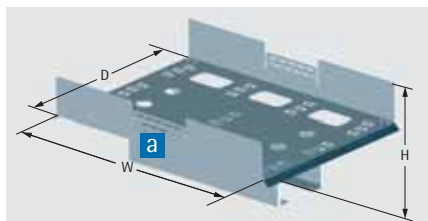


- for basic system
- for cable routing
- for mounting between front and rear frame
- H = 80 mm, W = 175 mm

Material: sheet metal

Finish	Depth mm	Order no.
RAL 7035	800	583-000-01
RAL 9005	800	583-005-01
RAL 7035	1000	583-000-69
RAL 9005	1000	583-005-69
RAL 7035	1200	583-000-02
RAL 9005	1200	583-005-02

5 Cable tray for excess length of cable

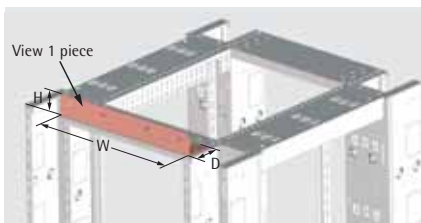


- for basic and connector system
- for storage of excess cable length or as trunking system for row install. of cabinets
- suitable for accommodation of the cable tray **24 a**
- H = 290 mm, D = 580 mm

Material: sheet metal

Finish	Width mm	Order no.
RAL 7035	600	583-000-94
RAL 9005	600	583-005-94
RAL 7035	900	583-000-72
RAL 9005	900	583-005-72

3 Cable routing angle bracket

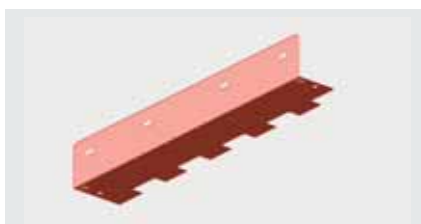


- for basic and connector system
- to set up a cable duct system on the cabinet system
- H x W x D: 80 x 570 x 100 mm

Material: sheet metal

Finish	Order no.
RAL 7035	583-000-73
RAL 9005	583-005-73

6 End cover for excess cable tray

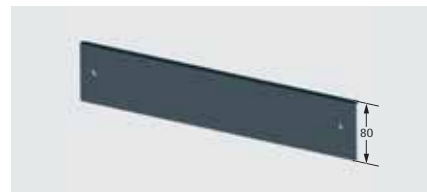


- for covering the excess cable tray on the front ends

Material: sheet metal

Finish	Order no.
RAL 7035	583-000-73
RAL 9005	583-005-73

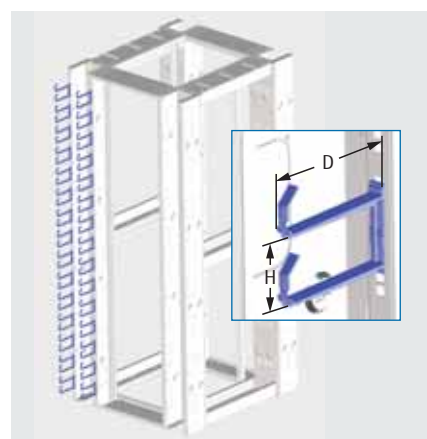
4 Connecting cover for cable routing angle bracket



- for basic and connector system
- for installation in cabinet rows
- conceals space between two cable routing angle brackets on the front end of the system

Finish	Order no.
RAL 7035	583-000-74
RAL 9005	583-005-74

7 Cable clamp set



- for basic system
- to be clipped onto the front of the cable duct
- H = 55 mm, D = 115 mm
- set = 30 pieces (1 cable duct)

Material: plastic

Order no.
583-001-12



8 Hinged panel



- for basic system, W = 900 mm
- for covering the cable duct
- with hinges for quick opening and closing

Material: sheet metal

Finish	Order no.
RAL 7035	583-000-83
RAL 9005	583-005-83

9 Mounting plate



- for basic system
- for the mounting of PDU, radii delimiter, etc.
- mounting in cable duct (rear panel)
- W = 160 mm, H = 880 mm
- up to two mounting plates per cable duct can be mounted

Material: sheet metal

Finish	Order no. (1 pc.)
RAL 7035	583-000-98
RAL 9005	583-005-98

10 Universal guide rail for cable duct



- for basic system
- mounting possible on all sides of the cable duct (max. 2 per side)
- for individual mounting of PDU, cable clamps etc.
- attachment of components with sliding nuts (4 pcs. included in scope of delivery)
- Length: 2m

Material: sheet metal, galvanised

Description	Order no.
Universal guide rail	583-001-11
Sliding nuts M5 (set = 10 pieces)	630-015-11

11 Brush set for cable duct



- for basic system
- to be used on the top and bottom on the cable duct
- set = 8 pieces

Material: plastic

Order no. (set)
583-001-15

12 Edge protection frame



- for basic and connector system
- retrofittable edge guard for use in cable ducts
- set = 10 pieces

Material: plastic

Order no. (set)
583-001-10

13 Adjusting feet set



- for basic and connector system
- to be screwed onto the cabinet frame or to the base corners
- set = 4 pieces

Material: steel, plastic

Description	Order no. (set)
Mounting on rack	500-001-28
Mounting on base	318-026-02



14 Base corner set

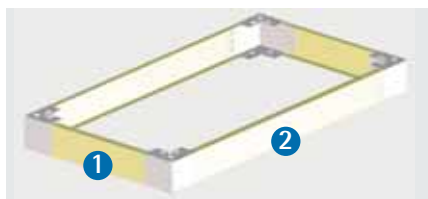


- for basic and connector system
- H = 100 mm
- set = 4 pieces

Material: sheet metal

Finish	Order no. (set)
RAL 7035	318-100-00
RAL 9005	318-200-00

17 Base covers, solid

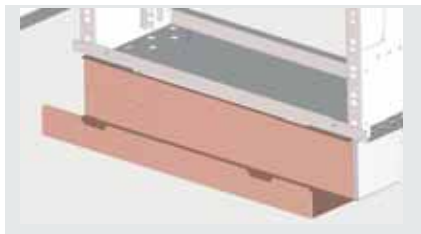


- for basic and connector system
- 4 covers (and four base corners Item 14) complete one base

Material: sheet metal

Type	W/D	Finish	Order no.
1	900	7035	318-100-10
	900	9005	318-100-18
	600	7035	316-100-10
	600	9005	316-200-10
2	800	7035	318-100-20
	800	9005	318-100-23
	1000	7035	318-100-30
	1000	9005	318-100-61
	1200	7035	318-100-50
	1200	9005	318-100-51

15 Cable routing tray



- for basic and connector system
- to be used with base corner set
- two mounting positions possible
- for cable entry

Material: sheet metal

Finish	Order no.
RAL 7035	583-000-70
RAL 9005	583-005-70

18 19" blind panels

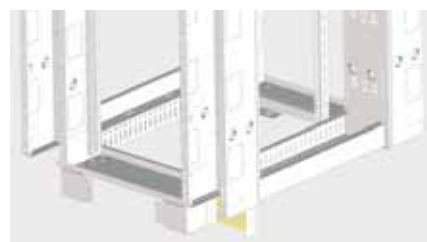
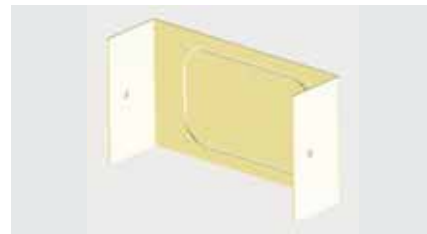


- to be clipped onto the 19" grid
- for quick mounting without tools
- set = 10 pieces

Material: plastic

U	RAL 7035	RAL 7016
1	213-156-30	213-156-25

16 Socket infill panel

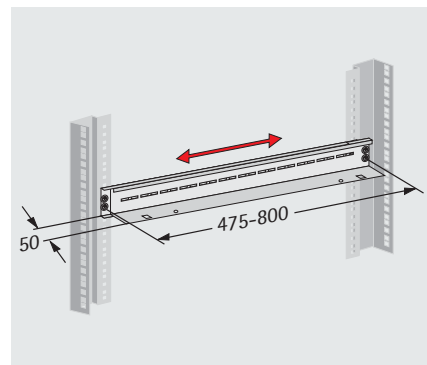


- for basic system
- conceals space between two cabinet frames when mounting on cabinet base

Material: sheet metal

Finish	Order no.
RAL 7035	583-000-71
RAL 9005	583-005-71

19 Slide rail, variable depth



- depth-adjustable
- to accommodate 19" plug-in units (e.g. servers) irrespective of the clearance between the first and second 19" level

Load capacity: 50 kg

Material: sheet metal, galvanised

Order no. (pair)
316-544-20



20 Side panel



- with 4 sash fasteners ("double-bit" 5 mm mechanism)

Material: sheet metal

Finish	Depth	Order no.
RAL 7035	800	583-000-04
RAL 9005	800	583-005-14
RAL 7035	1000	583-000-84
RAL 9005	1000	583-005-84
RAL 7035	1200	583-000-07
RAL 9005	1200	583-005-07

23 Cabinet connector set



- to connect basic or connector cabinets

Order no.
583-000-97

21 Door ventilated (80 % perforated)

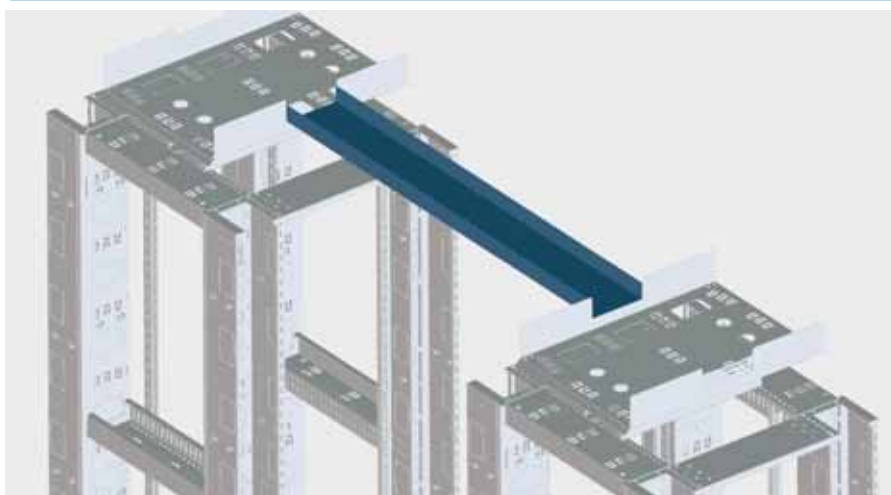


- version **21-1** : flush-mounted with frame
- version **21-2** : flush-mounted with the cable clamp
- with turning lever lock for profile half cylinder, L=40 mm (with push button opening)

Material: sheet metal

Type	W/D	Finish	Order no.
1	900	7035	583-000-76
	900	9005	583-005-76
	600	7035	583-000-76
	600	9005	583-005-76
2	600	7035	583-000-54
	600	9005	583-005-54
	900	7035	583-000-80
	900	9005	583-005-80

24 Cable tray

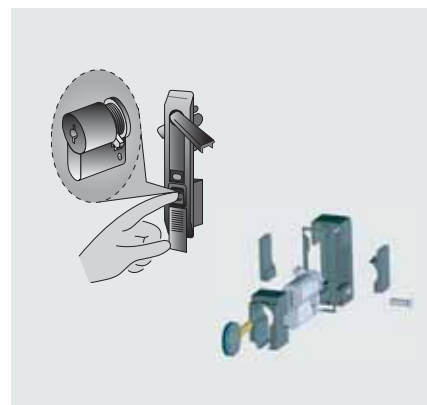


- to guide cables above cooling or heating corridor
- may also be used together with corridor cover (cooling corridor)
- Dimensions (W×H×D): 200 × 60 × 1500 mm

Material: sheet metal, hot dip galvanised

Order no.
583-000-91

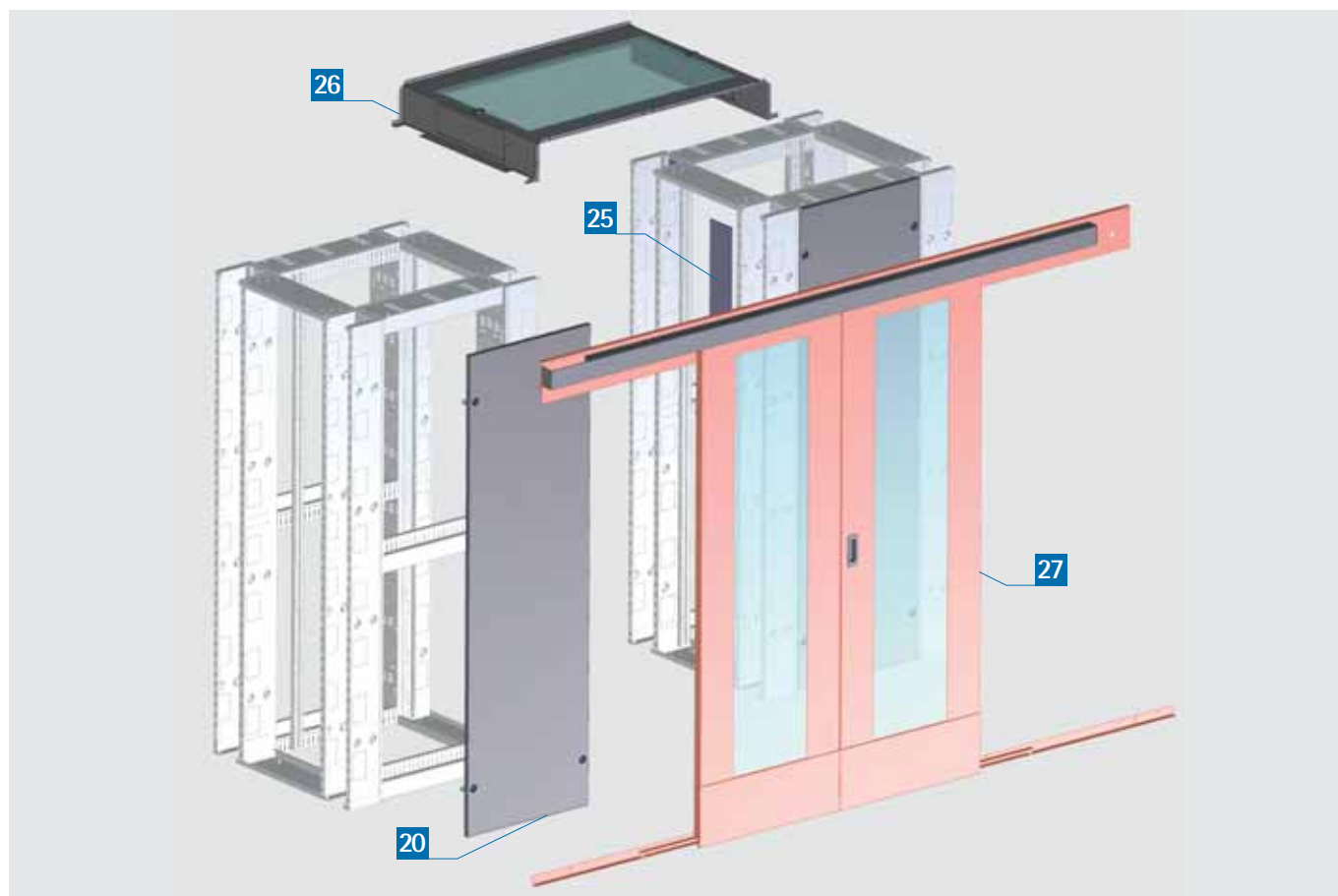
22 Locking systems for doors and side panel



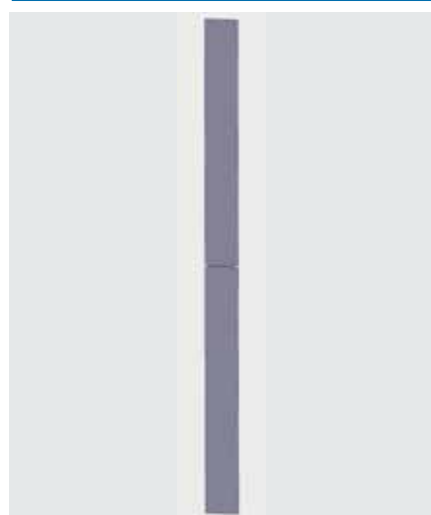
- profile half cylinder, L=40 mm with EK333 lock for turning lever lock of door **21**
- adapter for installing an individual cylinder (DIN 18252) (without fig.)
- sash fastener with EK333 lock for locking the side panel **20**



Description	Order no.
Profile half cylinder	676-316-00
Sash fastener	676-181
Adapter	676-316-10
Spare key EK333	676-200



25 Locking panel for cable duct

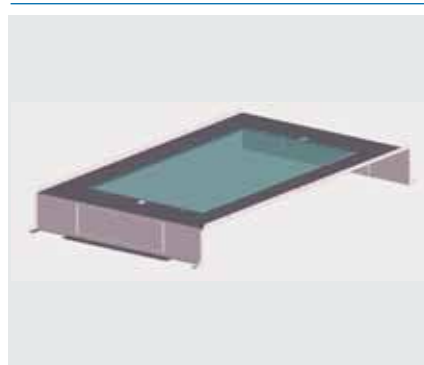


- to partition cooling corridor of cable duct
- mounted on the rear of cable ducts (can only be used for standard assembly of crossbars)
- set = 2 pieces (1 duct)

Material: sheet metal

Finish	Order no.
RAL 7035	583-000-96
RAL 9005	583-005-96

26 Corridor covering for cooling corridor

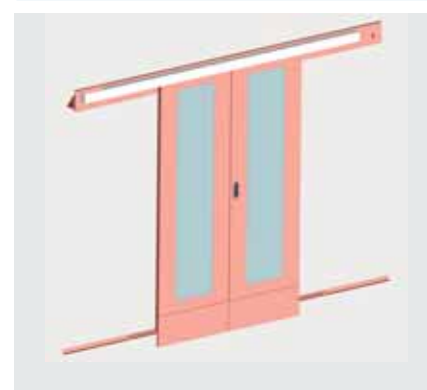


- for easy mounting on the cabinet system
- with 19" 3 U mounting section for power supplies, light systems etc.
- with toughened safety glass
- for cooling corridor with width 1.2m

Material: sheet metal, toughened safety glass

Finish	Width	Order no.
RAL 7035	900	583-000-75
RAL 9005	900	583-005-75
RAL 7035	600	583-000-63
RAL 9005	600	583-005-63

27 Sliding door system



- simple and quick installation
- for cooling corridor with width 1.2m
- height adjustment towards floor is possible

Material: sheet metal, toughened safety glass

Finish	Version	Order no.
RAL 7035	manual	583-000-59
RAL 9005	manual	583-005-59
RAL 7035	electric	583-001-13
RAL 9005	electric	583-001-16



Our service for you

Our service all comes from a single source:

- ✓ take advantage of our expertise ✓ save time and money

Air conditioning, power supply, cable routing solutions, plug-and-play versions and pre-wiring for enclosures and cabinet systems

At the apra Group, we place particular emphasis on individual and flexible system solutions. Our enclosures and 19" cabinet systems are equipped with components such as a power supply/distribution system and air conditioning technology in line with customer requirements and are supplied with full pre-wiring on request. This enables us to fulfil the most challenging of customer requirements.

From development right through to the finished product, you can benefit from our expertise and flexibility!

Additional accessories for your cabinet and enclosure system can be found here:



Multiple socket strips, PDUs and other power supply components can be found in the section "Power distribution" from page 85.



A wide range of ventilation and air conditioning components can be found in the section "Air conditioning technology" from page 77.



Suitable cable routing solutions such as cable clamps, patch bays, etc. can be found in the section "Cable management" from page 105.





19" TiRAX cabinet system

from page 3



19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109

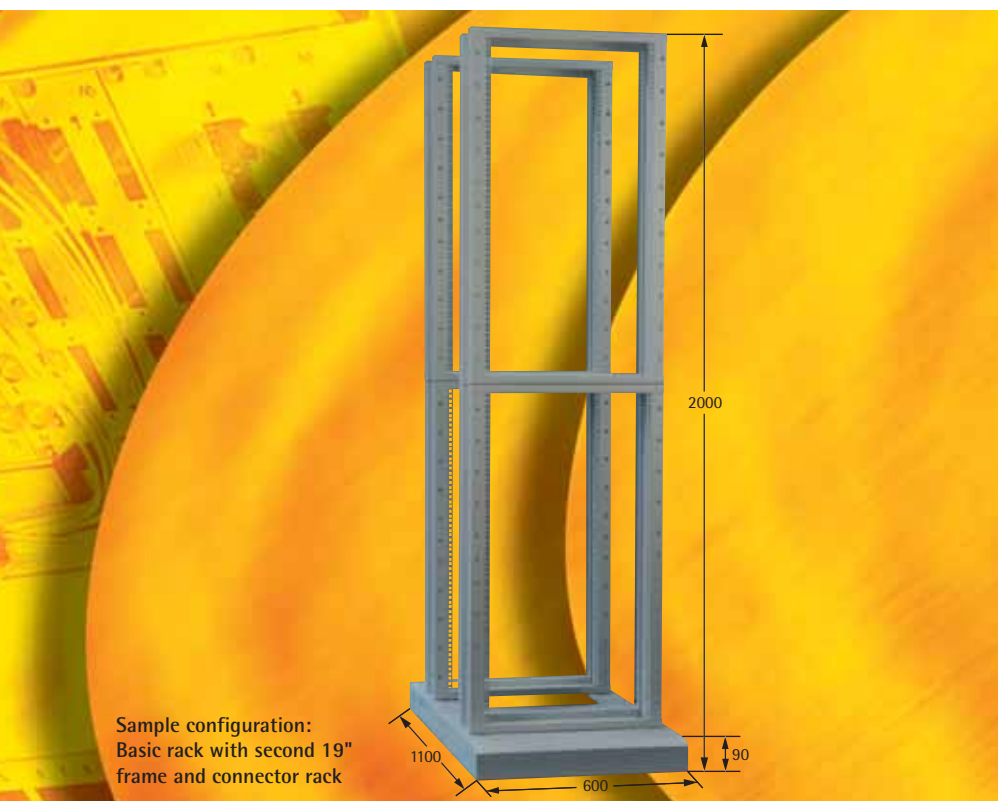


General accessories/
distribution technology

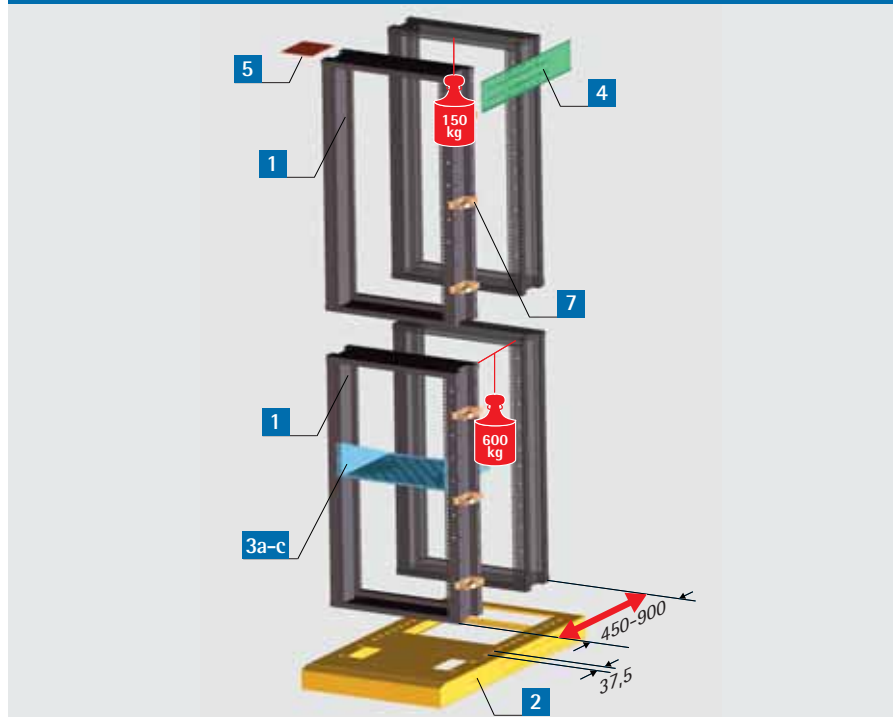
from page 123



You can read more about products from the apra-group at www.apra-norm.com



Configure and install your own distribution rack
Select the components you want step by step.



Order information

Description	H x W x D mm	Order no.
Basic rack	2100 x 600 x 1100	582-101-00
Connector rack	2100 x 600 x 1100	582-101-10
Extension frame	1970 x 600 x 190	582-101-15

Open distribution rack easyVARI

- can be completely dismounted
- easy transport to installation site
- simple assembly and installation of passive and active network components without interfering with cabinet mounts
- easy ventilation and installation, since no trim parts interfere
- 10 metal clamps are attached to every rack for cable entry. Cross-connection between individual racks is realised through the base
- 19" frame, variable depth 450-900 mm in 50 mm jumps

Finish: RAL 7035 light grey

Material: sheet metal

Delivery: unmounted

Components (see drawing left)

Item	Description	Page
1	19" frame 21 U	44
2	Base, H=100 mm	44
3a-c	19" shelves	45
4	Depth struts, variable depth	45
5	Cabinet connector set	45
6a-c	Slide rails (without fig.)	45
7	Cable clamps	45

Scope of delivery **Basic Rack**

Item	Pc.	Description
1	2	19" frame 21 U
2	1	Anti-tip base H = 100 mm, D = 1150 mm Cable inputs/outputs back and side
7	10	Cable clamps 125 x 66 mm

Scope of delivery **Connector rack**

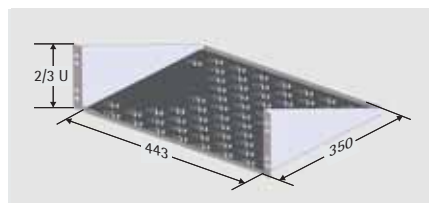
Item	Pc.	Description
1	2	19" frame 21 U
2	1	Anti-tip base H = 100 mm, D = 1150 mm Cable inputs/outputs back and side
5	1	Cabinet connector set
7	10	Cable clamps 125 x 66 mm

Scope of delivery **Extension frame**

Item	Pc.	Description
1	2	19" frame 21 U



3a 19" shelf 1 U / 2 U fixed installation



- simple assembly on a 19" grid (only one 19" level required)
- ventilated

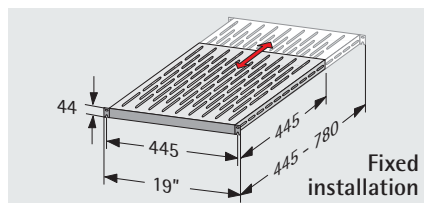
Finish: RAL 7035 light grey

Material: sheet metal

Load capacity: 15 kg (distributed load)

Height	Order no.
2 U	315-810-20
3 U	315-810-00

3b 19" shelf 1 U **VARIplain** fixed installation



- variable depth with VARIplain technology
- telescopic: 445 - 780 mm (see diagram)
- simple one-person assembly through open long hole in the 19" front (hook-in)

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

1 U (44 mm) x 19" (482.6 mm) x 445 mm

Floor space (w x d):

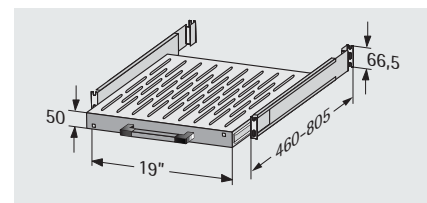
445 mm x (445 mm-780 mm)

Load capacity:

150 kg (distributed load/static)

Order no.
316-036-99

3c 19" shelf 1.5 U extractable



- variable-depth installation
- extraction length 500 mm
- simple one-person assembly

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

1.5 U (66.5 mm) x 19" (482.6 mm) x

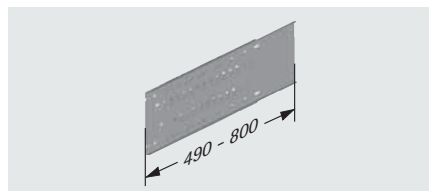
465 / 665 mm

Floor space (w x d): 410 x 465 x 665 mm

Load capacity: 60 kg (distributed load)

Depth	Order no.
465 mm	318-141-00
665 mm	318-141-01

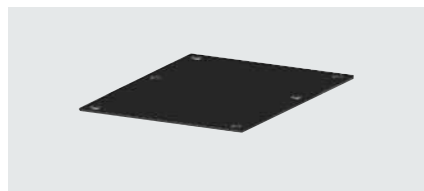
4 Depth struts, variable depth



- to connect two 19" frames installed one behind the other

Order no.
582-101-32

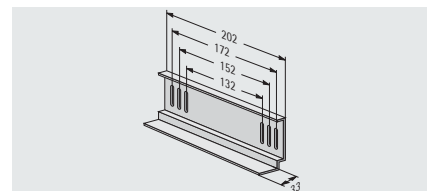
5 Cabinet connector set



- for the lateral connection of other distribution racks

Order no.
582-101-34

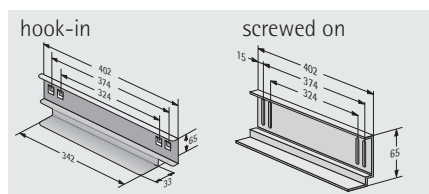
6a Slide rail



- for the installation on one 19" level 21 U

Order no. (pair)
312-543

6b Slide rail, hook-in/screwed on

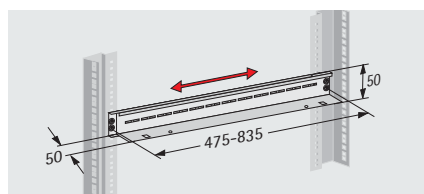


- to support heavy 19" plug-in units
- two 19" levels are required for mounting

Load capacity: 50 kg

Version	Order no. (pair)
hook-in	316-544-00
screwed on	312-544

6c Slide rail, variable depth

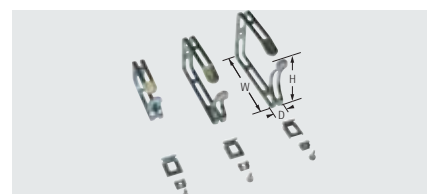


- depth-adjustable
- to support 19" plug-in units (e.g. servers) irrespective of the clearance between the first and second 19" level

Load capacity: 50 kg

Order no. (pair)
316-544-20

7 Cable clamp set



- for positioning cables vertically on the 19" frame
- set = 10 pieces

Material: steel

H x W x D mm	Order no.
66 x 125 x 23	640-036-12
88 x 125 x 23	640-036-13



585 • 19" laboratory rack



Sample configuration

19" laboratory rack 21 U

- for frequent access to 19" equipment, for example in laboratories, development and test departments: this 19" laboratory rack is a cost-effective alternative to a cabinet.

Finish:

RAL 7035 light grey

Pedestal RAL 7037 (dusty grey)

Material: sheet metal, die cast

Load capacity: 120 kg

Delivery: unmounted

Options:

- expandable with set of rollers (see below)
- cable entry either at front or rear (see "Accessories" page 123)

Scope of delivery **Laboratory rack**

Pc.	Description
1	19" sheet metal frame 21 U with grid in front and rear
2	Pedestal with integrated adjusting feet
1	Mounting material

Scope of delivery **Extension module**

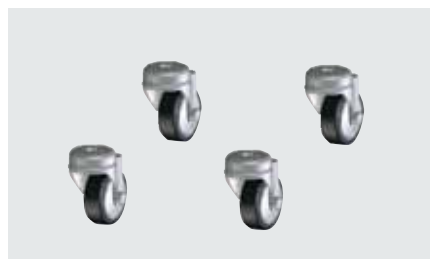
Pc.	Description
1	19" sheet steel frame 21 U with front and rear grid
1	Mounting material

The following can be used as accessories: Shelves 1 U / 2 U **3a** and cable clamp set **7** (for both see page 45).

Order information

Description	H × W × D mm	Order no.
Laboratory rack 21 U	1044 × 561 × 770	585-010-20
Extension module 21 U a	984 × 561 × 190	585-010-22

Castor set for laboratory rack



- for installation on the pedestal set
- H = 100 mm

Load capacity: 225 kg

Order no.
582-101-30



19" networking rack 4 U

- the small 19" frame is ideal for space-saving yet secure mounting of 19" components
- can be mounted both horizontally and vertically
- with two extra drill holes in the bottom panel, it can also be mounted under a desktop or as simple wall rack
- includes raised floor shelf to accommodate excess cable lengths
- fast time-saving assembly
- cost-saving solution for small networks
- designed as simple assembly stands for 19" components in laboratories or test rooms

Material: sheet metal

Finish: RAL 7035 light grey

Dimensions (H x W x D):

190 mm x 502 mm x 250 mm

Delivery: unmounted

Scope of delivery

Item	Pc.	Description
1	1	Basic plate
2	1	Side part left
3	1	Side part right
	16	Screws M 5 x 12
	16	Decorative washers M 5
	16	with collar
		Cage nuts M 5 - 8
	1	Mounting material

Order no.
582-004-00

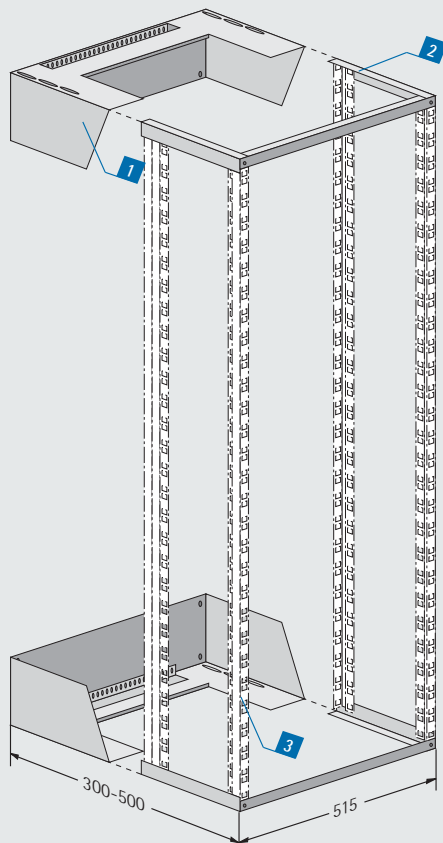




582 • 19" wall rack



Sample configuration



19" wall rack

The 19" level can be depth adjusted from 300 mm up to a maximum of 500 mm providing enough space for cable routing even for deep plug-in units.

A second 19" level at the rear of the rack allows the assembly of sliding rails to accept heavy plug-in units. The cable feed above and below is fitted with an integrated strain-relief strip.

The 19" wall rack is simple to mount since the fixing holes can be marked to the wall by using the mounted 19" rack and subsequently be drilled and screwed.

Construction:

The 19" wall rack comprises two wall brackets **1**, upper and lower extraction rails **2** and a front and/or rear 19" level **3**.

The 19" wall rack represents a flexible, effective and cost-effective 19" alternative in the wall distribution sector.

Finish:

Wall bracket RAL 7035 light grey
Extraction rails /19" level: galvanised

Load capacity:

19" level front: 60 kg
19" level front and rear 100 kg

Delivery: unmounted

Scope of delivery

Item	Pc.	Description
1	2	Wall bracket
2	2	Mounting material

Order information

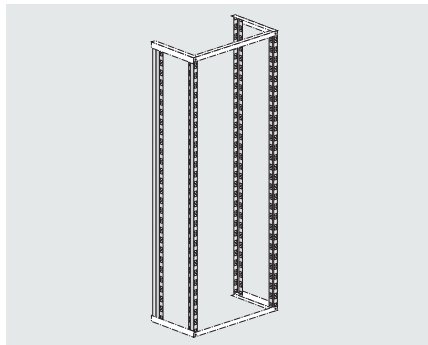
Order no.
582-010-00

A maximum of 4 vertical mountings can be integrated into the open wall rack. 19" vertical mountings **3** please order separately based on your U requirements (see page 49).



www.apranet.de

3 19" vertical mountings for wall rack

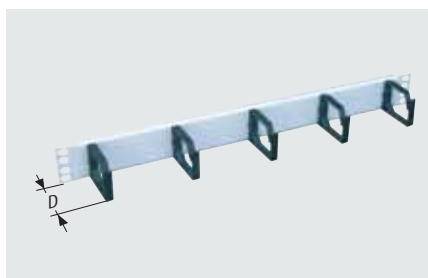


Finish: galvanised

A maximum of 4 vertical mountings can be incorporated into the open wall rack.

U	Order no. (piece)
9	500-309
12	500-312
15	500-315
18	500-318
24	500-324

19" cable entry panel 1 U with plastic clips



- for clear, neat horizontal cable entry in the 19" level
- incl. 5 cable clips and mounting material

Finish:

RAL 7035 light grey or
RAL 9005 jet black

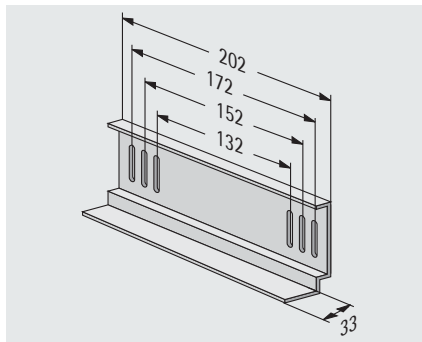
Dimensions (H x W x D):

44 mm x 482.6 mm x 60 mm

Scope of delivery: with mounting material

U	RAL 7035	RAL 9005
1	213-145-00	213-145-30

Slide rail for 19" vertical mounting



- to support heavy plug-in units
- includes mounting material

Finish: galvanised

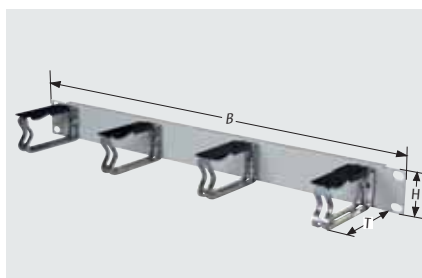
Material: sheet metal

Scope of delivery: with mounting material

Four 19" vertical mountings are required for mounting

Order no. (pair)
312-543

19" cable entry panel 1 U / 2 U with metal clips



- for controlled and clearly arranged horizontal cable guiding at the 19" level
- including 4 cable hoops and lockings

Finish: painted/chrome-plated

RAL 7035 light grey or
RAL 9005 jet black

Dimensions (H x W x D):

for 1 U: 44 mm x 482.6 mm x 90 mm

for 2 U: 88 mm x 482.6 mm x 130 mm

U	RAL 7035	RAL 9005
1	213-145-41	213-145-42
2	213-145-43	213-145-44

Cable clamp set

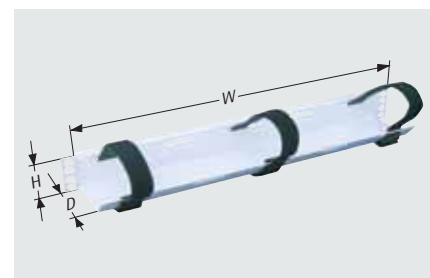


- for positioning cables vertically on the 19" frame
- set = 10 pieces

Material: steel

H x W x D mm	Order no. (set)
66 x 125 x 23	640-036-12
88 x 125 x 23	640-036-13

19" cable entry panel 1 U with Velcro fasteners



- for clear and neat horizontal cable entry at the 19" level with Velcro fastener
- incl. 3 Velcro strips and mounting material

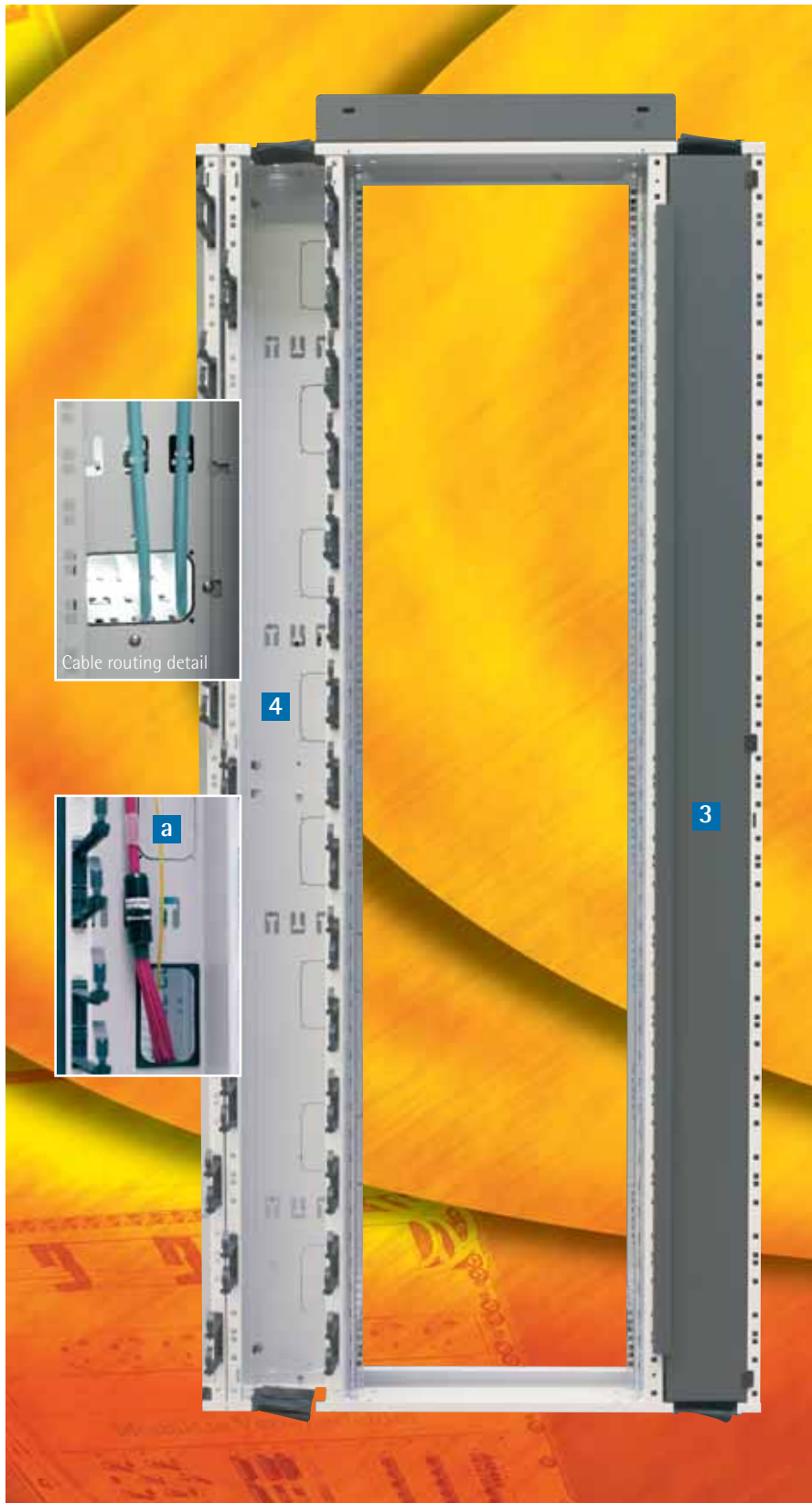
Finish:

RAL 7035 light grey or
RAL 9005 jet black

Dimensions (H x W x D):

44 mm x 482.6 mm x 90 mm

U	RAL 7035	RAL 9005
1	213-161-00	213-161-10



1 NETcell "easy" 46 U

- 19" frame rack with surrounding cable ducts
- the rack can be closed with perforated doors **2**

Material: sheet metal

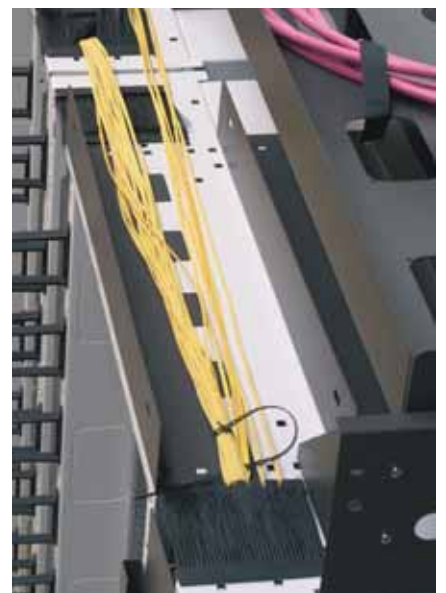
Finish: RAL 7035 light grey

Cable duct

- designed for easy routing of high volume of data and power cables (vertical and horizontal)
- with self-locking cable duct door **3** to cover the spacious cable channels (pivot 180°)
- with cable clamps **4** for quick installation and to ensure a clear layout
- breakouts **a** for individual cable management from front to back and/or sideways

modular cable trays

- for separate routing of data and power cables

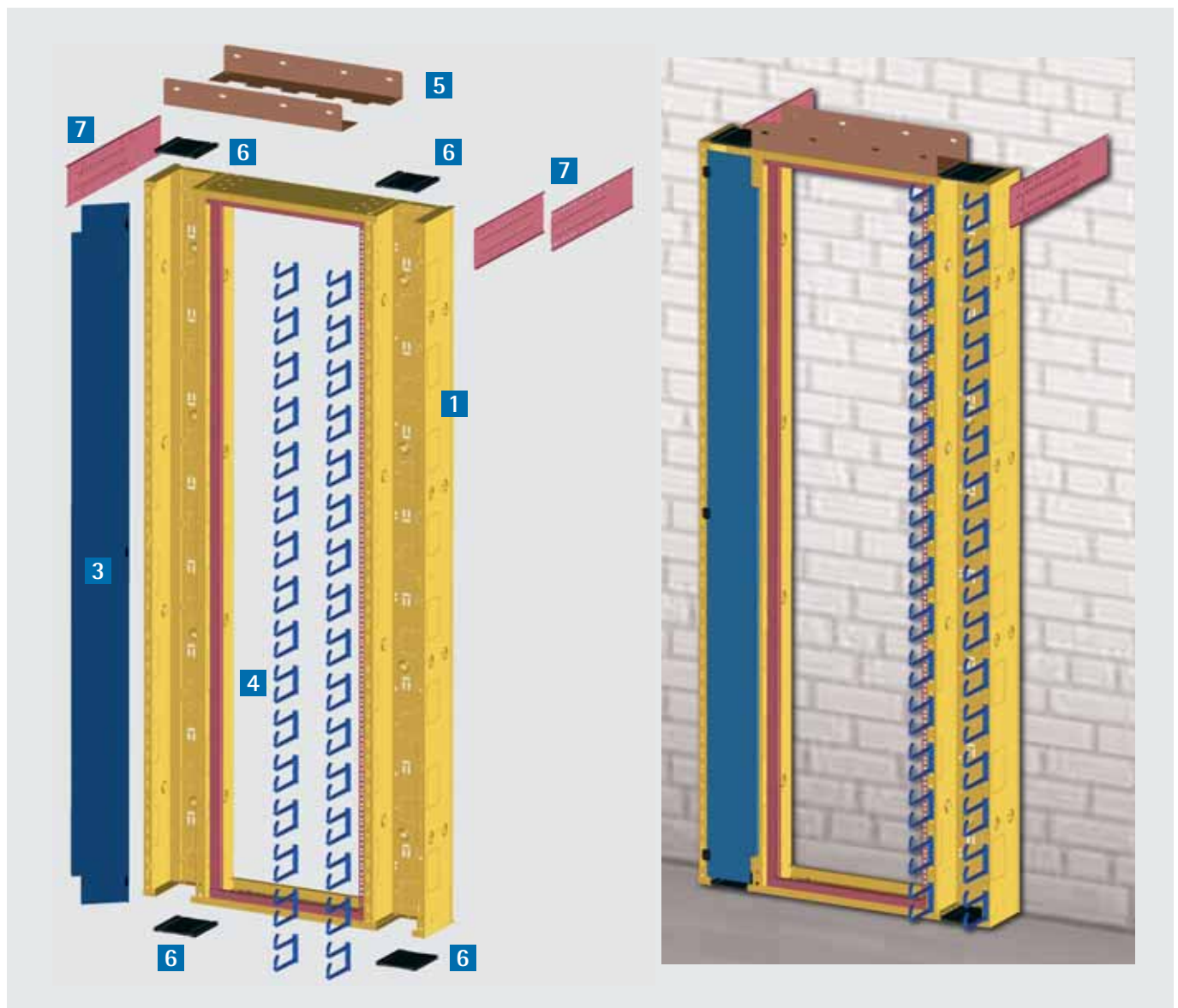


Scope of delivery

Pc.	Description
1	Frame with integrated cable ducts
1	19" extension (46 U)

Order information

Description	H × W × D mm	Order no.
NETcell "easy" 46 U	2130 × 900 × 190 (46 U)	583-002-00



Item	Description
1	Basic system
2	Door ventilated
3	Hinged panel
4	Cable clamp set
5	Cable routing angle
6	Brush set for cable duct
7	Wall bracket set, variable depth
8	Universal guide rail for cable duct (without fig.)

2 Door ventilated (80 % perforated)



- for mounting on the frame of the basic system
- Version **2a**: flush-mounted with the frame
- Version **2b**: flush-mounted with the cable clamp **4**
- with turning lever lock for profile half cylinder (with push button opening on delivery)

Material: sheet metal

Finish: RAL 7035 light grey

Load capacity: 300 kg (static)

Version	W/D mm	Order no.
2a	900	583-000-76
2b	900	583-000-80



3 Hinged panel



- for covering the cable duct
- with hinges for quick opening and closing

Material: sheet metal

Finish: RAL 7035 light grey

Order no.
583-000-83

4 Cable clamp set

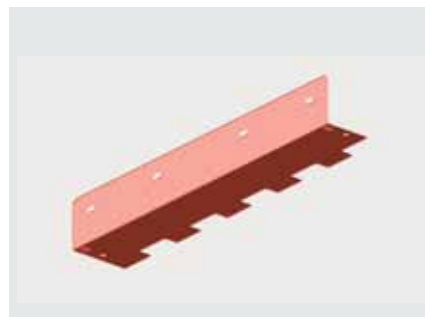


- to be clipped onto the front of the cable duct
- set = 30 pieces (1 cable duct)

Material: plastic, black

Order no. (set)
583-001-12

5 Cable routing angle bracket



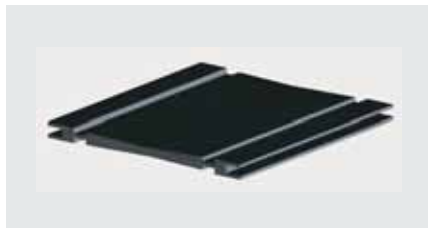
- to set up a cable duct system on the cabinet system

Material: sheet metal

Finish: RAL 7035 light grey

Order no. (1 piece)
583-000-73

6 Brush set for cable duct

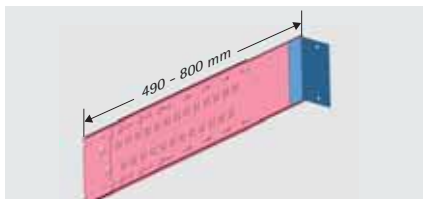


- set = 8 pieces

Material: plastic, black

Order no. (set)
583-001-15

7 Wall bracket system, variable depth



- to connect the NETcell "easy" system to the building wall
- set = depth-variable guide rails + wall-mounting bracket and screw set (for above-mentioned items)

NOTE:

without wall screws and rawl plugs

Material: sheet metal, hot dip galvanised

Order no. (set)
583-001-09

8 Universal guide rail for cable duct



- mounting possible on all sides of the cable duct (max. 2 per side)
- for individual mounting of e.g. PDU, cable clips etc.
- fastening of components with sliding nuts (4 included in scope of delivery)
- Length: 2 m

Material: steel

Order no. (set)
583-001-11

Adjusting feet set



- to screw onto the NETcell "easy"
- set = 2 pieces

Material: steel / plastic

Order no. (set)
583-001-07

Velcro strip "Universal"



- for quickly securing **non 19"-compatible** components
- Length: 300 mm, Width: 20 mm
- back to back mounting
- set = 10 pieces

Material: velcro, black

Order no. (set)
671-122-08

Edge protection frame



- retrofittable edge guard for use in cable ducts

- set = 10 pieces

Material: plastic, black

Order no. (set)
583-001-10



19" TiRAX cabinet system

from page 3



19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109



General accessories/
distribution technology

from page 123



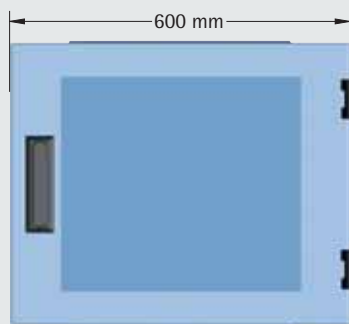
You can read more about products from the apra-group at www.apra-norm.com



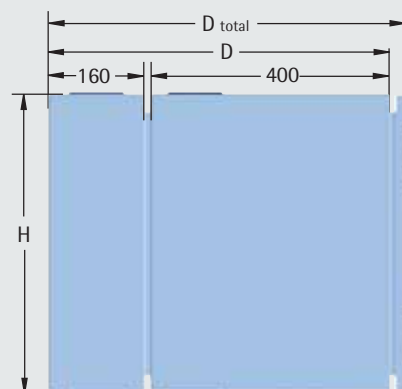
500 • 19" wall-mounting enclosure **VARI 500**

Technical information

3-piece wall-mounting pivot enclosure, unventilated



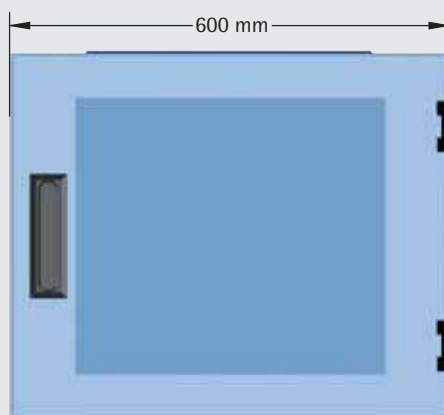
Front view



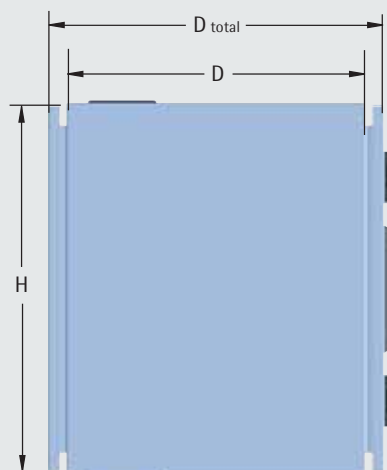
Side view

Installation depth: up to 400 mm
Load: up to 40 kg

2-piece wall-mounting enclosure, unventilated



Front view



Side view

Installation depth: for 400 mm up to 360 mm
for 600 mm up to 560 mm
Load: up to 50 kg

D: Nominal dimensions of enclosure depth
D_{tot}: Total depth (without lock)
H: Enclosure height

Application:

Variable use as wall, stand-alone and pivot enclosure for industrial use and in network areas

Material:

sheet metal

Finish:

RAL 7035 light grey

Delivery:

mounted as single unit



Complete solutions:

19" wall-mounting pivot enclosure, VARI 500, 3-part

- wall-mounting distribution enclosure with pivotable central part and internal lock for wall-mounting enclosure (ventilated from H=750 mm)
- 19" level front
- viewing door with toughened safety glass turning lever lock for profile half cylinder
- four breakouts for individual cable flange plate mounting

Please order cable flange plates separately (see page 59).

Dimensions (H x W x D):

H x 600 mm x 590 mm

Finish: RAL 7035 light grey

Delivery: mounted as single unit

H mm	U	D _{tot} mm	D mm	Order no.
350	6	590	570	500-201-06
500	9	590	570	500-201-09
600	12	590	570	500-201-12
750	15	590	570	500-201-15
900	18	590	570	500-201-18
1150	24	590	570	500-201-24

19" wall-mounting enclosure, VARI 500, 2-part

- basic enclosure (from H=750 mm ventil.)
- 19" level front
- viewing door with toughened safety glass turning lever lock for profile half cylinder
- detachable rear wall
- two breakouts for cable flange plates

Please order cable flange plates separately (see page 59).

Dimensions (H x W x D):

H x 600 mm x 400 mm

Finish: RAL 7035 light grey

Delivery: mounted as single unit

H mm	U	D _{tot} mm	D mm	Order no.
350	6	450	400	500-202-06
500	9	450	400	500-202-09
600	12	450	400	500-202-12
750	15	450	400	500-202-15
900	18	450	400	500-202-18
1150	24	450	400	500-202-24



19" wall-mounting enclosure, 3-part

Scope of delivery

Item	Pc.	Description
1	1	Wall-mounting encl. D=160 mm
2	1	Basic enclosure D=400 mm
3	1	Viewing door with turning lever lock

Item	Pc.	Description
4	2	Vertical mountings
5	1/2*	Locking system "Vari 500"
6	1	Screw set M 5 (50x)
7	1	Earthing kit

* From height H = 600 mm, 2 pcs in scope of delivery!



19" wall-mounting enclosure, 2-part

Scope of delivery

Item	Pc.	Description
1	1	Basic enclosure D=400 mm
2	1	Viewing door with turning lever lock
3	1	Rear wall

Item	Pc.	Description
4	1	Wall bracket set
5	2	Vertical mountings
6	1	Screw set M 5 (50x)
7	1	Earthing kit



500 • 19" wall-mounting enclosure **VARI 500**



Sample configuration

19" stand-alone distribution system 24 U

- front viewing door with turning lever lock for profile half cylinder
- rear door, solid
- cables can be entered from top and bottom
- 19" level front, 24 U, depth-adjustable
- cable entry base H = 100 mm with totally detachable panels

Please order cable flange plates separately (see page 59).

Dimensions (H x W x D):

1150 + 100 mm x 600 mm x 600 mm

Finish: RAL 7035 light grey

Delivery: assembled

Scope of delivery

Item	Pc.	Description
1	1	Basic enclosure, ventilated, H=1150 mm
2	1	Door, solid
3	1	Viewing door with turning lever pivot lock
4	2	19" vertical mountings 24 U
5	1	Base H=100 mm
6	1	Screw set M 5 (50x)
7	1	Earthing kit

Order no.

500-000-60

VARI 500 "cool-box" 24 U

- basic enclosure, ventilated, H=1150 mm
*incl. cover plates for the perforated area
- front viewing door with turning lever lock for profile half cylinder
- rear door, solid
- break-out in the floor with covered foam rubber panel for cable entry
- 19" level front and back, 24 U, depth-adjustable
- cable entry base H = 100 mm with totally detachable panels
- top mounted cooling unit (output 410 W)

Please order cable flange plates separately (see page 59).

Dimensions (H x W x D):

1700 mm x 600 mm x 800 mm

Finish: RAL 7035 light grey

Delivery: assembled

Order no.

500-000-89

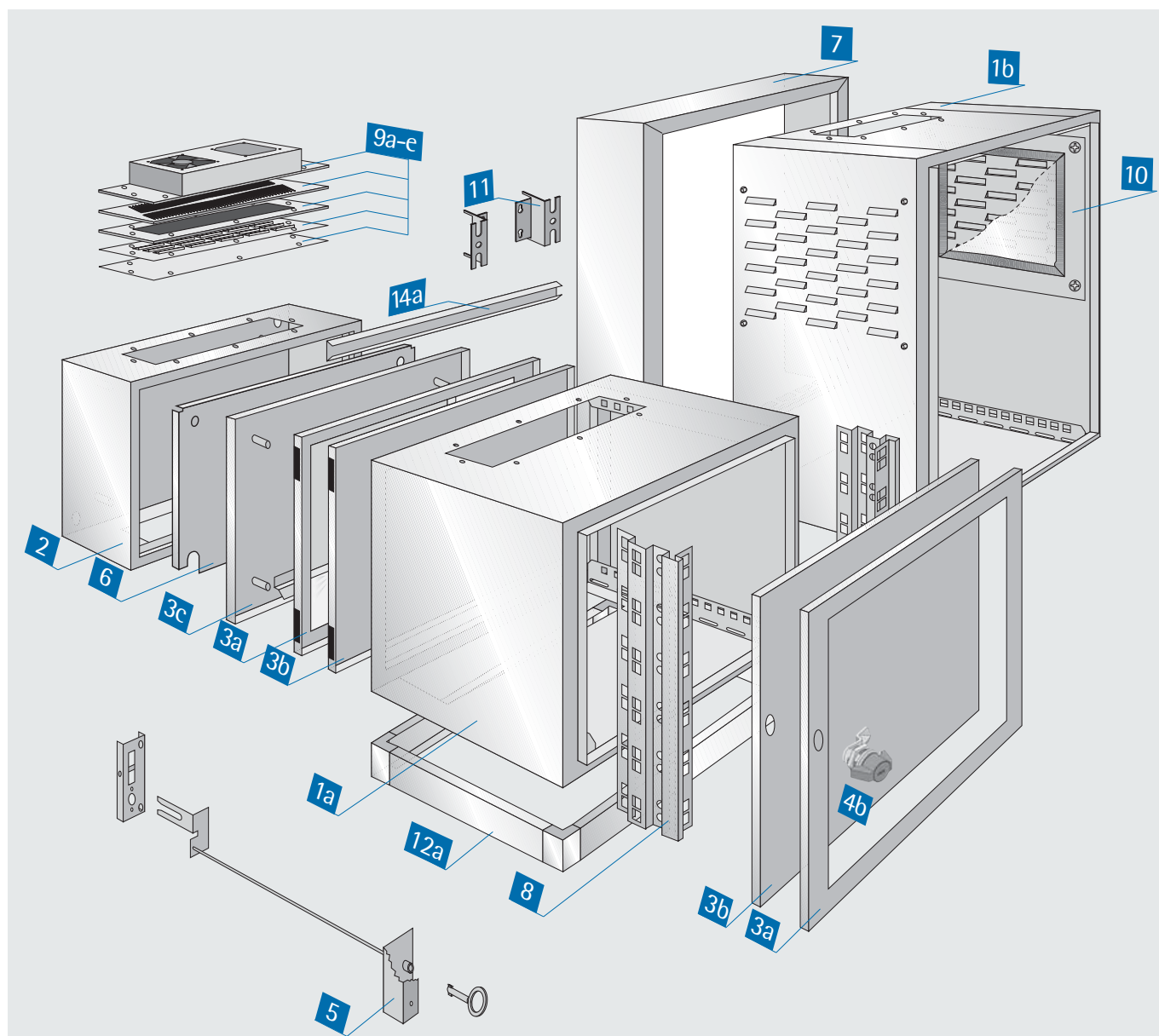


Sample configuration



Individual configuration:

Configure your own wall-mounting enclosure.
Select the enclosure components you want step by step:



Item	Description	Page
1a	Basic enclosure, solid	58
1b	Basic enclosure, ventilated	58
2	Wall-mounting enclosure	58
3a	Viewing door with toughend safety glass	58
3b	Door, solid	58
3c	Rear wall for basic enclosure	58
4a	Lock: Profile half cylinder	58
4b	Lock: pivoting lever lock	58
5	Locking system "VARI 500"	58
6	Mounting plate	59
7	Stacking frame	59
8	19" vertical mounting	59

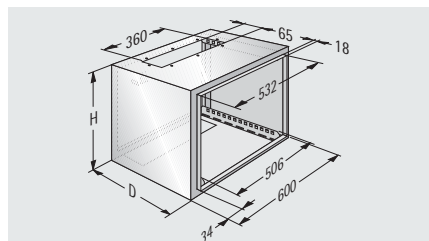
Item	Description	Page
9a	Ventilation unit	59
9b	Brush set	59
9c	Cable flange plate, solid	59
9d	Cable flange plate, ventilated	59
9e	Cable plate with rubber inset	59
10a	Cover pl. for the perfor. area	60
10b	Filter set for perforated area	60
11	Wall bracket set	60
12a	Base	60
12b	Castor set	60
12c	Adjusting feet set	60
13	Cable management bracket	60

Item	Description	Page
14a	Cable guard rail	60
14b	Cable clamp	60
15	Vertical support	61
16	Slide rail for basic enclosure	61
17a	19" shelf, fixed	61
17b	19" shelf "VARIplain"	61
17c	19" shelf, extractable	61
18	19" screw set M 5 / M 6	61
19	Earthing kit	61

The maximum vertical mounting clearance between two levels is D=40 mm.
Please note this measurement when selecting your distribution system.



1a Basic enclosure, solid

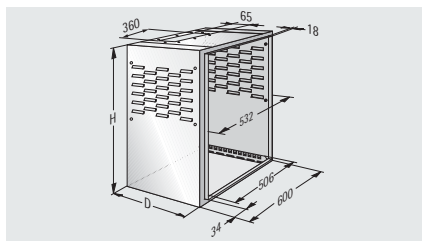


- cables can be routed from top and bottom

Finish: RAL 7035 light grey

Depth (D) mm	Height (H) mm	Order no.
400	350	500-062-00
	500	500-092-00
	600	500-122-00
600	350	500-063-00
	500	500-093-00
	600	500-123-00

1b Basic enclosure, ventilated

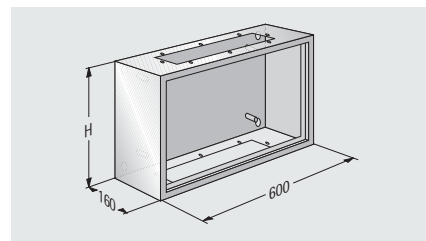


- cables can be routed from top and bottom

Finish: RAL 7035 light grey

Depth (D) mm	Height (H) mm	Order no.
400	750	500-152-00
	900	500-182-00
	1150	500-242-00
	1150	500-243-00
600	750	500-153-00
	900	500-183-00
	1150	500-243-00
	1150	500-243-00

2 Wall-mounting enclosure



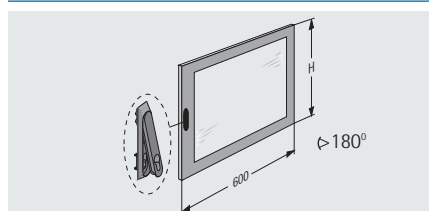
- 160 mm deep to build a 3-piece wall-mounting pivot enclosure

Finish: RAL 7035 light grey

The wall-mounted enclosure can only be combined with a 400 mm deep basic enclosure!

Height (H) mm	Order no.
350	500-060-00
500	500-090-00
600	500-120-00
750	500-150-00
900	500-180-00
1150	500-240-00

3a Viewing door with toughened safety glass

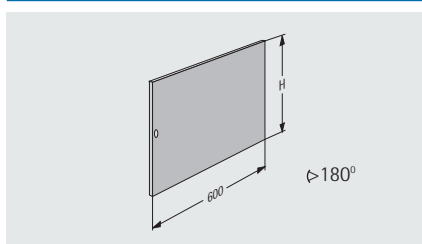


- Turning lever lock for profile half cylinder
- incl. profile half cylinder with "double-bit 5 mm" operation

Finish: RAL 7035 light grey

Height (H) mm	Order no.
350	500-005-00
500	500-008-00
600	500-011-00
750	500-014-00
900	500-017-00
1150	500-023-00

3b Door, solid

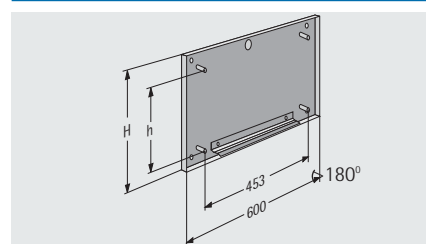


- incl. cam lock with "double-bit 5 mm" operation
- from H = 600 mm 2 locks

Finish: RAL 7035 light grey

Height (H) mm	Order no.
350	500-007-00
500	500-010-00
600	500-013-00
750	500-016-00
900	500-019-00
1150	500-025-00

3c Rear wall

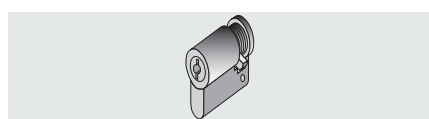


- for rear covering of the basic enclosure **1a**

Finish: RAL 7035 light grey

Height (H) mm	(h) mm	Order no.
350	200	500-226-00
500	350	500-229-00
600	450	500-232-00
750	600	500-235-00
900	750	500-238-00
1150	1000	500-244-00

4a Profile half cylinder



- Lock EK333
- for retrofitting in the turning lever lock of the viewing door **3a**

Order no.
676-062

4b Pivoting lever lock



- Lock EK333
- suitable for door, closed **3b** and rear wall **3c**

Order no.
676-197

4c Spare key

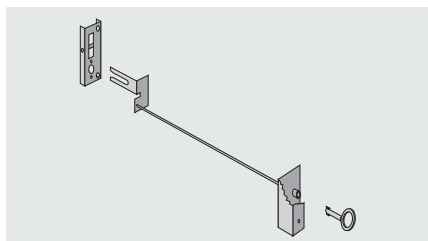


- Lock EK333
- for profile half cylinder or pivoting lever lock

Order no.
676-200



5 Locking system "Vari 500"



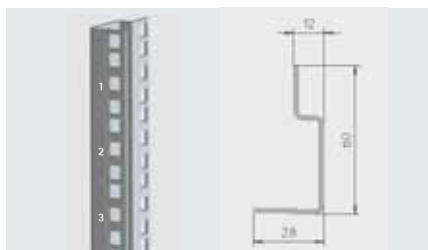
- for 3-piece wall-mounting pivot enclosure, (consisting of basic enclosure D = 400 mm and wall-mounting enclosure)

Finish: galvanised and blue passivated

From height H = 600 mm 2 locking systems required!

Order no.
676-362

8 19" vertical mounting

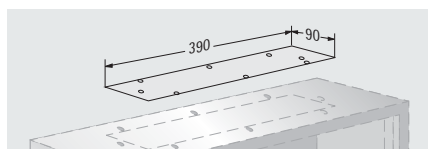


- in 25 mm grid step, adjustable back-wards
- 1/2 19" punching (ASA)
- includes mounting material

Finish: galvanised

Height (H) mm	U	Order no.
350	6	500-306
500	9	500-309
600	12	500-312
750	15	500-315
900	18	500-318
1150	24	500-324

9c Cable flange plate, closed

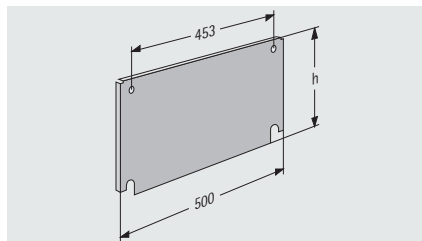


- for mounting on the cable entry opening
- individual break-throughs on request

Finish: RAL 7035 light grey

Order no.
500-131-00

6 Mounting plate

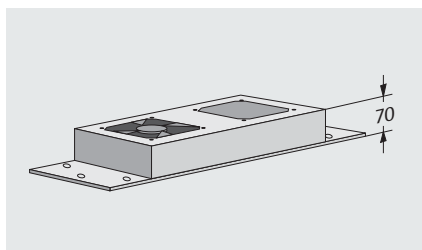


- for mounting on rear wall

Finish: galvanised

Height (H) mm	(h) mm	Order no.
350	230	500-106
500	380	500-109
600	480	500-112
750	630	500-115
900	780	500-118
1150	1030	500-124

9a Ventilation unit

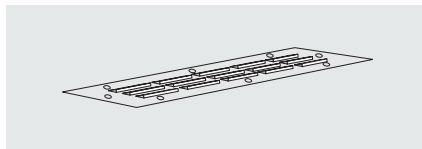


- for mounting on the cable entry opening
- ready to connect with fan on a pre-wired connecting terminal
- integrated thermostat
- protective grille on one side
- volume flow: 160 m³/h

Finish: RAL 7035 light grey

Description	Order no.
Ventilation unit	500-698-10
Expansion fan for self-mounting	230-803

9d Cable flange plate, ventilated

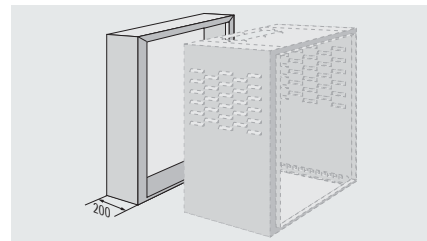


- for mounting on the cable entry opening
- with stamped ventilation slots

Finish: RAL 7035 light grey

Order no.
500-132-00

7 Stacking frame

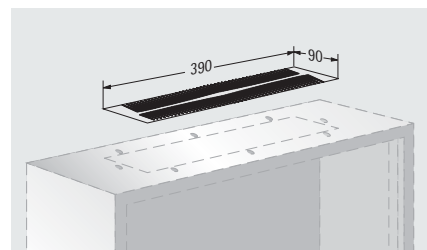


- used for deepening the basic enclosures to D=600 mm or 800 mm

Finish: RAL 7035 light grey

Height (H) mm	Order no.
350	500-061-00
500	500-091-00
600	500-121-00
750	500-151-00
900	500-181-00
1150	500-241-00

9b Brush set

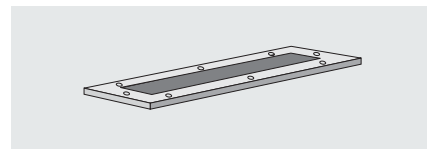


- for mounting on the cable entry opening

Material: plastic, black

Order no.
500-133-00

9e Cable plate with rubber inset



- for mounting on the cable entry opening

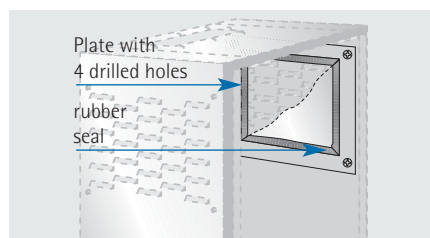
Finish: RAL 7035 light grey

Order no.
500-095-00



500 • 19" wall-mounting enclosure **VARI 500**

10a Cover plates for the perforated area

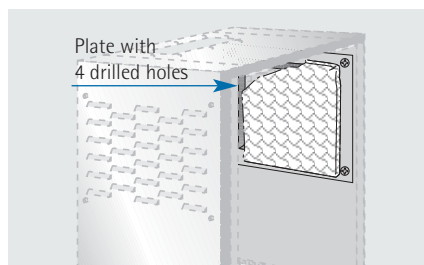


- suitable for basic enclosure, ventilated **1b**
- set consists of 2 cover plates and self-adhesive seal

Finish: galvanised

Order no. (set)
500-024-10

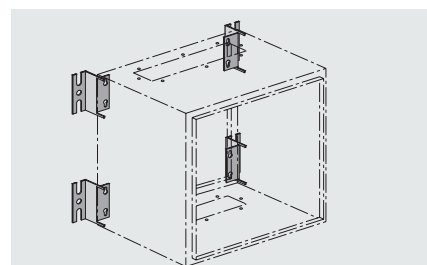
10b Filter set for perforated area



- suitable for basic enclosure, ventilated **1b**
- set consists of 2 filter covers

Order no. (set)
500-822-00

11 Wall bracket set



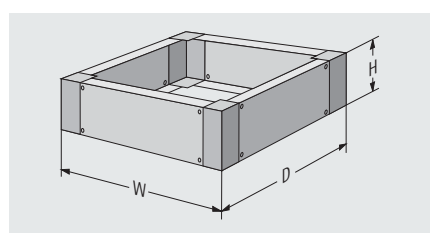
- enables wall-mounting of the basic enclosure **1** and the wall-mounted enclosure **2**
- set consists of 4 brackets and mounting hardware

Finish: galvanised

Cannot be combined with rear door!

Order no. (set)
500-099

12a Base



- stable screw construction
- panels can be individually detached, resulting in slight looping of cables
- stackable

Finish: RAL 7035 light grey

Height (H) mm	Depth (D) mm	Order no.
100	400	500-327-10
100	600	500-327-00
100	800	500-327-20

12b Castor set

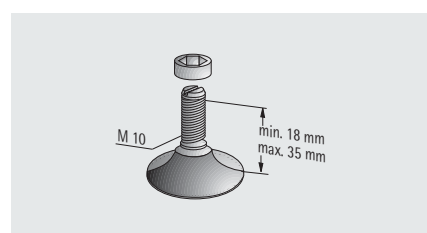


- to screw onto the basic enclosure **1**
- set consists of 4 steering rollers with bolt hole, of which 2 with parking brake
- height of rollers: 105 mm

Load capacity: 225 kg

Order no. (set)
500-330-10

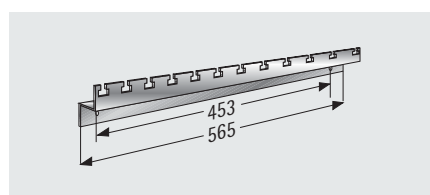
12c Adjusting feet set



- to screw onto the basic enclosure **1**
- set consists of 4 adjusting feet
- adjustment range: ca. 20 mm
- includes mounting material

Order no. (set)
500-550-00

13 Cable management bracket

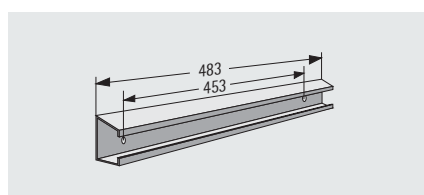


- for collating and strain relief of cables with cable clips
- for transverse mounting, rear
- includes mounting material

Finish: RAL 7035 light grey

Order no.
500-800-00

14a Cable guard rail



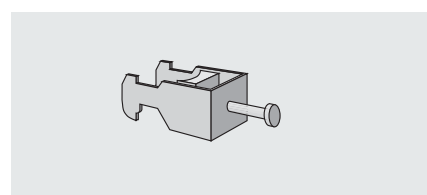
- for transverse mounting, rear
- for insertion of cable clamps

Finish: galvanised

Please order cable clamps separately

Order no.
500-100

14b Cable clamp

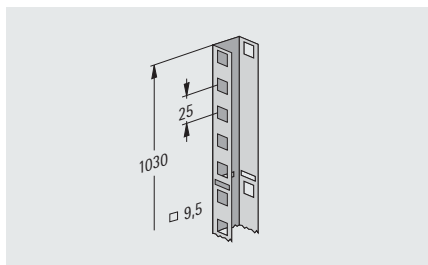


- to fit the cable guard rail **14a**

for cable diameter mm	Order no.
8-12	640-132
12-16	640-133
16-22	640-134



15 Vertical support



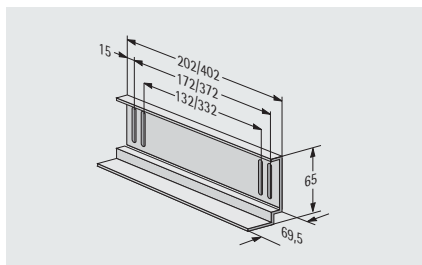
- for wall-mounted enclosure **2** or rear wall **3c**
- for height-adjustable fixing of cable guard rails

Finish: galvanised

The vertical support is to be cut to the length of the corresponding enclosure height.

Order no.
500-100-03

16 Slide rail for basic enclosure



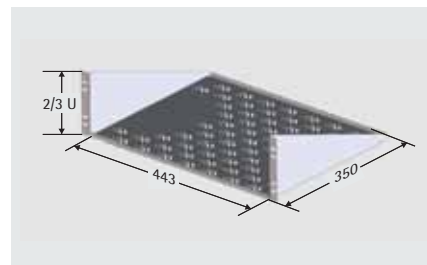
- slide rails are mounted to the 19" vertical mounts
- to support heavy plug-in units
- two 19" levels are required for mounting

Finish: galvanised

Load capacity: 50 kg/pair

For enclosure depth (D) mm	Order no. (pair)
400	312-543
600	312-544

17a 19" shelf, fixed



- simple assembly on a 19" grid (only one 19" level required)
- ventilated

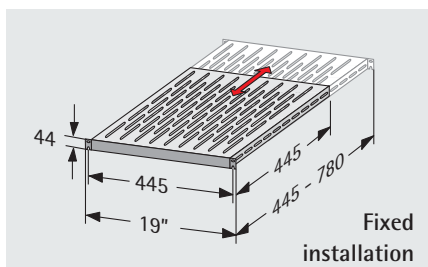
Finish: RAL 7035 light grey

Material: sheet metal

Load capacity: 15 kg (distributed load)

Height	Order no.
2 U	315-810-20
3 U	315-810-00

17b 19" shelf 1 U "fixed" **VARIplain**



- variable depth due to VARIplain technology
- telescopic: 445 - 780 mm (see diagram)
- simple one-person assembly through open long hole in the 19" front (hook-in)
- **only suitable for enclosures with a depth of at least 600 mm**

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

1 U (44 mm) x 19" (482.6 mm) x 445 mm

Floor space (w x d):

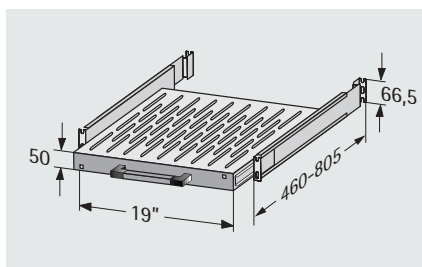
445 mm x (445 mm-780 mm)

Load capacity:

150 kg (distributed load/static)

Order no.
316-036-99

17c 19" shelf 1.5 U "extractable"



- variable-depth installation
- extraction length 500 mm
- simple one-person assembly
- two 19" levels are required
- **only suitable for enclosures with a depth of at least 600 mm**

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

1.5 U (66.5 mm) x 19" (482.6 mm) x 465 mm

Floor space (w x d):

410 x 465 mm

Load capacity: 60 kg (distributed load)

Order no.
318-141-00

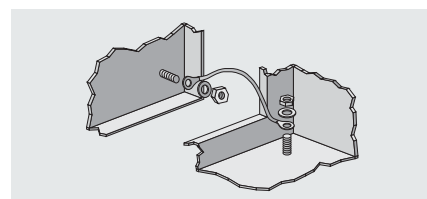
18 19" screw set M 5 / M 6 (50x)



- 50 cage nuts M 5/M 6
- 50 decorative washers M 5/M6 with collar
- 50 oval head screws M 5 x 12/M 6 x 16

Description	Order no.
Screw set M 5	630-991
Screw set M 6	630-994

19 Earthing kit



- the set enables VDE-compliant earthing of enclosure components
- cable cross-section $\varnothing$ 2,5 mm²

Order no. (set)
500-840-00



Visions become reality...



Standard cabinet combination

- based on the VARI 500 enclosure system



**Movable server cabinet
depth 900 mm**



**control cabinet for industry
applications**



19" TiRAX cabinet system

from page 3



19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109



General accessories/
distribution technology

from page 123



You can read more about products from the apra-group at www.apra-norm.com



Wall-mounting enclosure systems



VARI 2000

from page 65

- the space-saving wonder
- patented enclosure system
- optimum accessibility



VARI industry

from page 68

- protection class IP 54
- the space-saving wonder for industrial use
- optimum assembly and installation conditions
- also supplied with cooling device



optiRACK

from page 71

- low-cost solution
- quick installation



FO splice case

from page 74

- modular space saving small enclosure
- internal components installed easily due to detachable door



LAN small distribution cabinet

from page 75

- two-part enclosure (patch area/cable entry area)
- for FO and copper use



The revolution in wall-mounting enclosure technology

The patented wall-mounting enclosure provides you with a stylish, space-saving enclosure solution for your network cabling.

VARI 2000



vertical 19" level



space-saving with single-leaf door (4 U/ 6 U)



optimum access through split door solution (6 U/12 U)



180° opening angle with apra-norm hinges



Sample configurations

19" wall-mounting enclosures VARI 2000

- stylish enclosure solution
- space-saving
- optimum assembly and installation conditions
- combined folding away of front and side door (from 6 U)
- separate access privileges for front and side doors (from 6 U)
- simple air-conditioning options
- can also be installed in a corner or wall recess while allowing full access to the interior of the enclosure
- cable entry with integrated strain relief from above and/or below (also from the side in 12 U enclosures), covered by a sealing brush
- installation dimensions to IEC 60297-3-100

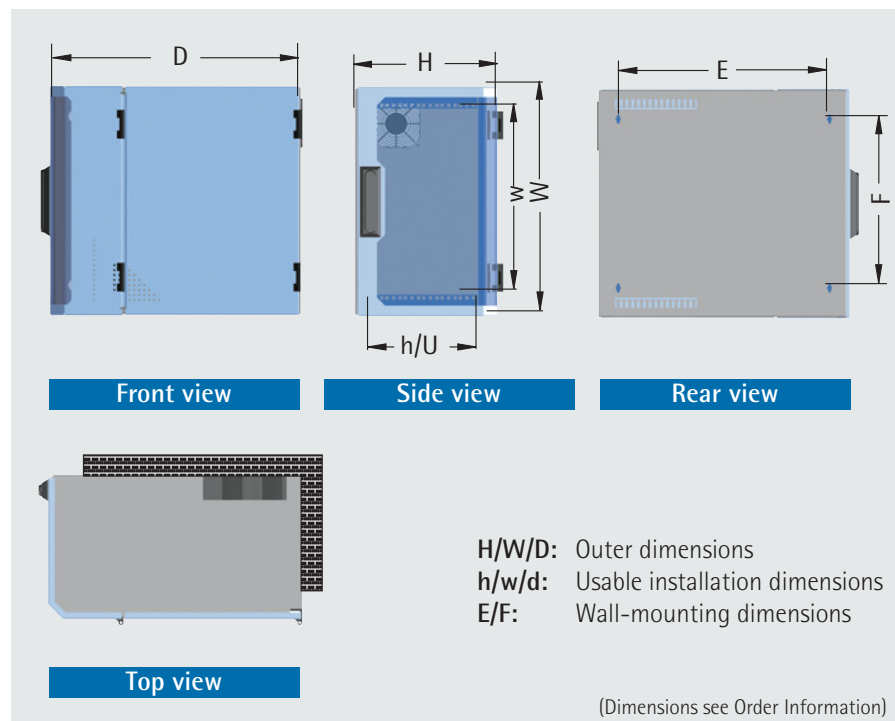
The precision of these enclosures is due to the design. The 19" levels are attached vertically to the wall so that the installation area of the equipment does not protrude into the room.

The door of the VARI 2000 enclosure series ensures full access from two open sides, without pivoting the 19" level. The door of VARI 2000 4 U wall-mounting enclosures is a single piece with a window. Sizes 6 and 12 U have double doors. You first open the glass door to access the area in front of the 19" level and then the second door to access the entire rear cabling area. The combined front and side door can be equipped with different locking systems so that defined access privileges can be assigned.

The apra-norm 180° hinge even allows VARI 2000 enclosures to be installed in corners while still providing a complete 90° opening angle.



Technical information



Application:

space-saving, wall-mounting enclosure for network cabling

Construction:

sturdy spot-welded and powder-coated sheet metal construction

Finish: RAL 7035 light grey

Material: sheet metal/plastic

Standards: Installation dimensions to IEC 60297-3-100

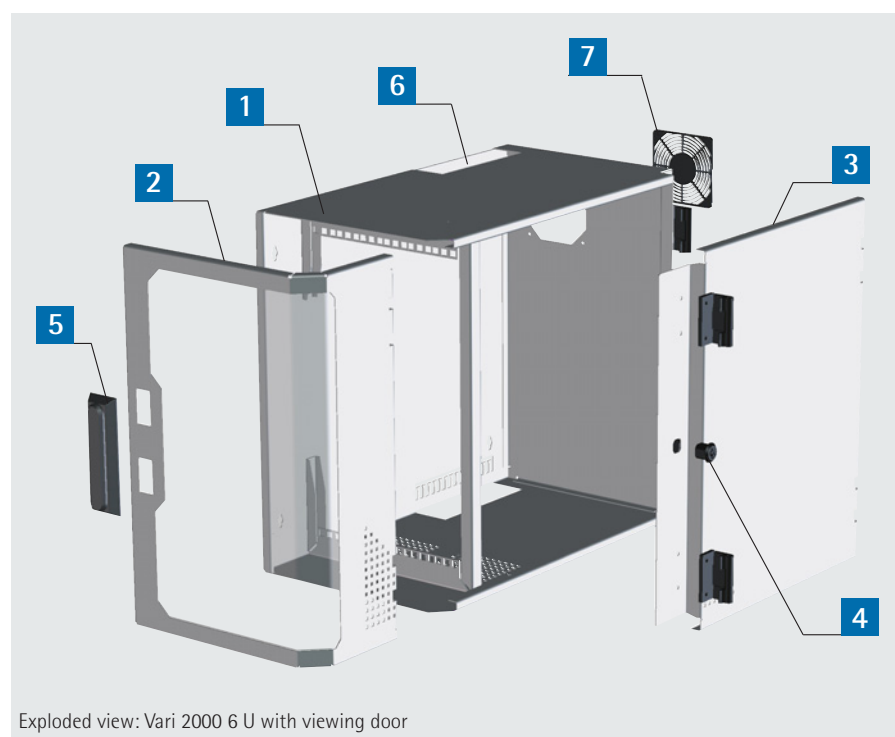
Delivery:

assembled (complete with earthing)

The 12 U wall mounting enclosure is based on two 6 U 19" fastening levels which are stacked under each other. The enclosure height H therefore remains low.

Scope of delivery

Item	4 U	6 U	12 U	Description
1	1	1	1	Enclosure chassis
2	1	1	1	Door with acrylic glass pane / steel metal door
3	-	1	1	Door, solid
4	1	1	2	Polyamide sash lock with hook tongue
5				Turning lever lock
6	-	1	1	Sealing brush, W=210 mm
7	2	2	4	Protective grille, clippable, for 119 x 119 mm fans
8	1	1	1	Mounting material



Exploded view: Vari 2000 6 U with viewing door

Order information

Description	Outer dimensions (H x W x D) mm	Usable installation dimensions (h x w x d) mm	Wall mounting dimensions (E x F) mm	Order no. Enclosure with single-leaf door	Order no. Enclosure with split door
VARI 2000 4 U	230 x 506 x 536	177 x 450 x 383	410 x 360	213-031-00	-
VARI 2000 6 U	360 x 557 x 636	267 x 450 x 475	510.5 x 408.5	213-032-60	213-032-00
VARI 2000 12 U	360 x 1103 x 636	267 x 2x450 x 475	510.5 x 954.5	-	213-034-00



Mounting plate



- mounting plate for rear wall
- for mounting outlets/terminal boxes or other accessories

Finish: galvanised

Order no.
213-030-20

Power strip (3-way)



- with overvoltage protection
- power cord (2.5m) with Earthing-pin plug
- attach to the rear wall of the enclosure
- length 335 mm

Order no.
591-200-00

plug & play module



- temperature-controlled fan
- power strip, 3 sockets with overvoltage protection
- junction box
- power cord (2.5m) with Earthing-pin plug
- protective earthing kit

Order no.
213-030-41

Shelf 1 U, vertical

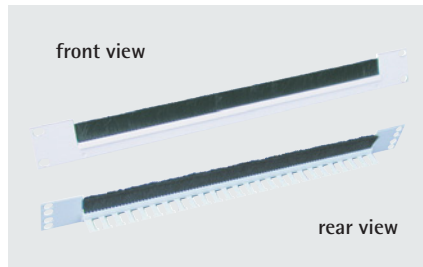


- for installation of **non-19"-compatible** components
- depth 250 mm

Finish: RAL 7035 light grey

Order no.
213-030-22

19" cable feed 1 U

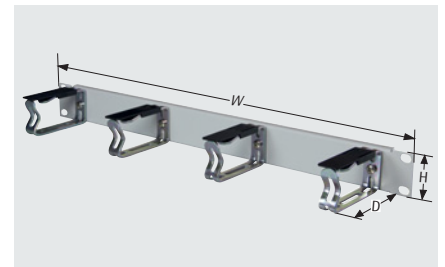


- for cable entry behind the 19" level
- with brush and strain relief rail
- brush height: 25 mm

Finish: RAL 7035 light grey

Order no.
213-146-00

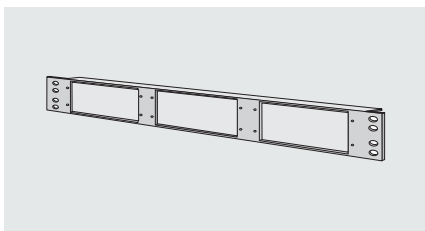
19" cable routing panel 1 U



- with 4 cable entry clamps made of metal
 - for clear, neat and horizontal cable entry at the 19" level
 - includes mounting material
- Finish:** RAL 7035 light grey

Order no.
213-145-41

19" front panel 1U

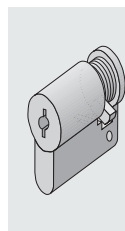


- to accommodate 3 modules or front plates 3 U, 8 UP

Finish: RAL 7035 light grey

Order no.
213-029-00

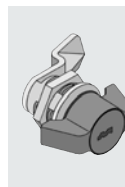
Profile half cylinder



- for 6 U and 12 U enclosures
- for retrofitting to lockable doors with keys

Order no.
676-062

Pivoting lever lock



- for profile key locking for **single-leaf** door design
- 3 U / 4 U / 6 U variants

Order no.
676-197

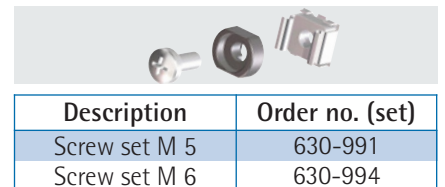
"Universal" velcro strip



- for quickly securing **non-19"-compatible** components
- L x W: 400 x 20 mm
- back-to-back mounting

Order no. (set=10 pieces)
671-122-08

19" screw set M 5 / M 6 (50x)



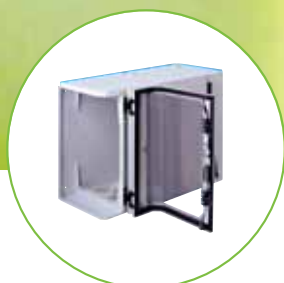


The wall-mounting enclosure solution for rough industrial use

VARiindustry



Sample configuration



three-point lock



optimum accessibility
from both sides



detachable front cover



VARi Industry

- protection class IP 54
- visually stylish enclosure
- space-saving design
- stable basic construction
- 2 doors with turning lever lock and three-point locking system
- one side with integrated glass pane
- detachable front cover
- doors with 180° hinges for optimum accessibility
- profile half-cylinder lock: double bit key 5 mm
- integrated cable flange plates
- installation dimensions to IEC 60297-3-100
- integrated outlet filter (IP 54) for fan installation

The visually striking and stylish enclosure is ideal for use as a compact switch cabinet solution or for network cabling in tougher environments. The high degree of protection (IP 54) and the stable structure of the enclosure protect your installations to optimum effect against dust, moisture and mechanical influences.

Enclosure height remains low due to vertical layout of 19" attachment level. The front and rear doors plus detachable front cover ensure optimum accessibility. Upper and lower cable flange plates enable the cable entry into the enclosure.

Technical information

Application:

Use as wall-mounting enclosure for tight spaces and unfavourable environmental conditions such as high humidity and dust

Construction:

sturdy spot-welded and powder-coated sheet metal construction

Finish:

RAL 7035 light grey

Protection class:

IP 54

Load capacity:

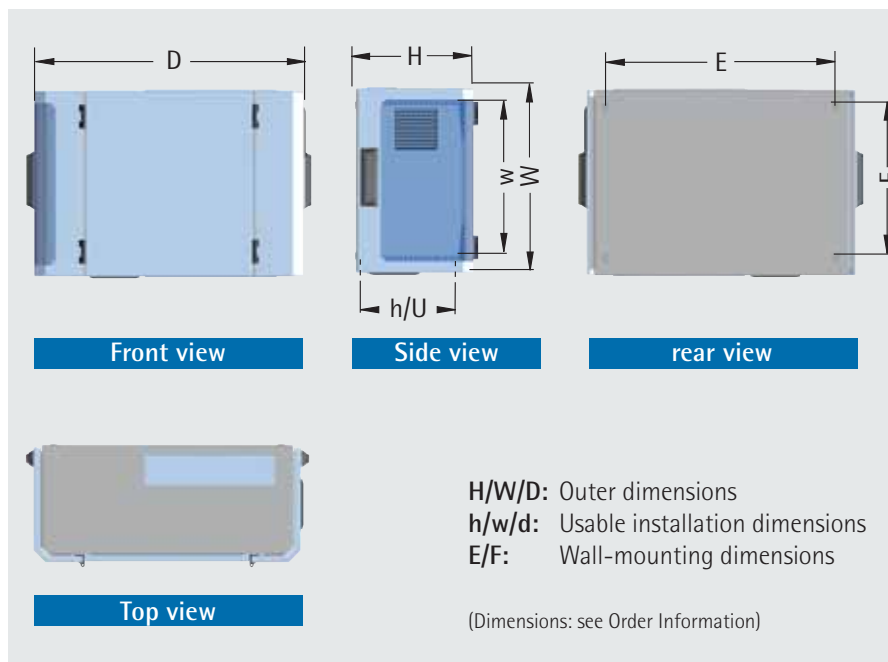
70 kg (static)

Standards:

Installation dimensions to
IEC 60297-3-100

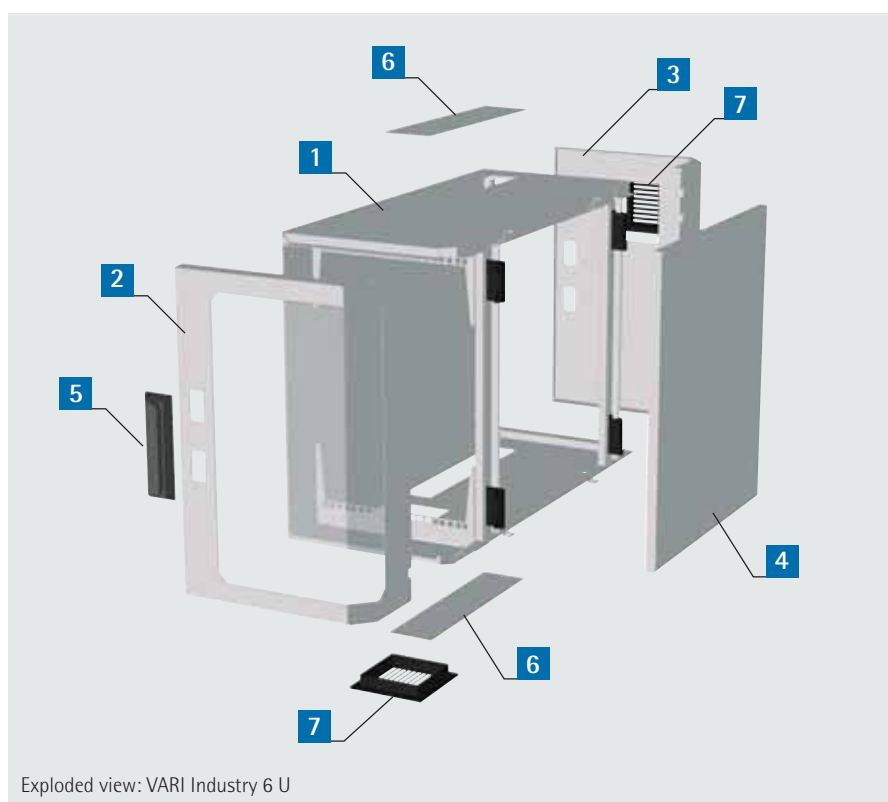
Delivery:

assembled



Scope of delivery

Item	Pc.	Description
1	1	Enclosure chassis
2	1	Door with plexiglass pane
3	1	Door with cutout for fans
4	1	Front cover, detachable
5	2	Turning lever locks with 3-point locking system and double-bit mechanism (5 mm)
6	2	Cable flange plates
7	2	Outlet filter, IP 54, for 119 × 119mm fans
	1	Mounting material



Order information

Description	Outer dimensions (H × W × D) mm	Usable installation dimensions (h × w × d) mm	Wall mounting dimensions (E × F) mm	Order no.
VARi Industry 4 U	275 × 560 × 840	177 × 449 × 650	680 × 450	306-040-00
VARi Industry 6 U	365 × 560 × 840	267 × 449 × 650	680 × 450	306-060-00



Sample configuration



VARI Industry "cool-box" 6 U

- air-conditioned wall-mounting enclosure for industrial environments
- 380 W cooling unit can be assembled on the detachable front cover

Dimensions (H × W × D):

522 mm × 560 mm × 840 mm

Finish:

RAL 7035 light grey

Protection class:

IP 54

Delivery:

prepared for mounting of cooling unit
(cooling unit included in delivery)

Order no.

306-060-20

Accessories VARI Industry and VARI Industry "cool-box"

"Universal" velcro strip



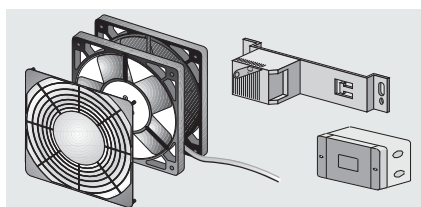
- for quickly securing **non 19"-compatible** components
- length: 300 mm, Width: 20 mm
- back to back mounting
- set = 10 pieces

Material: velcro, black

Order no. (set)

671-122-08

Fan set



Fan set consisting of:

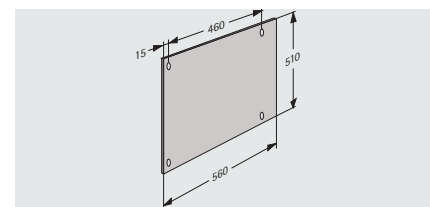
- fan, 230V, 160m³/h, 41dB(A)
- fan guard
- outlet
- thermostat, 0-60°C

Delivery: assembly set with mounting mat.

Order no.

306-060-15

Mounting plate



- for mounting of heavy components
- includes mounting material

Finish: galvanised

Order no.

306-060-70

19" screw set M 5/M 6 (50x)



Description

Order no. (set)

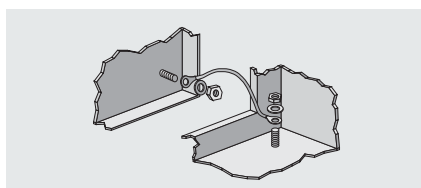
Screw set M 5

630-991

Screw set M 6

630-994

Earthing kit

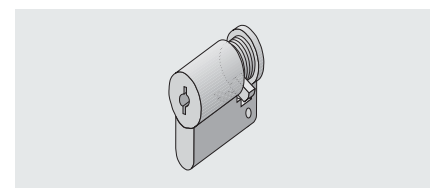


- for VDE-compliant protective earthing connection

Order no. (set)

306-060-50

Profile half cylinder



- for retrofitting to lockable doors with keys
- incl. 2 keys

Order no.

676-062



optiRACK



figure shows standard colours: design profile in RAL 5014 pigeon blue



design profiles are available in different RAL-colours

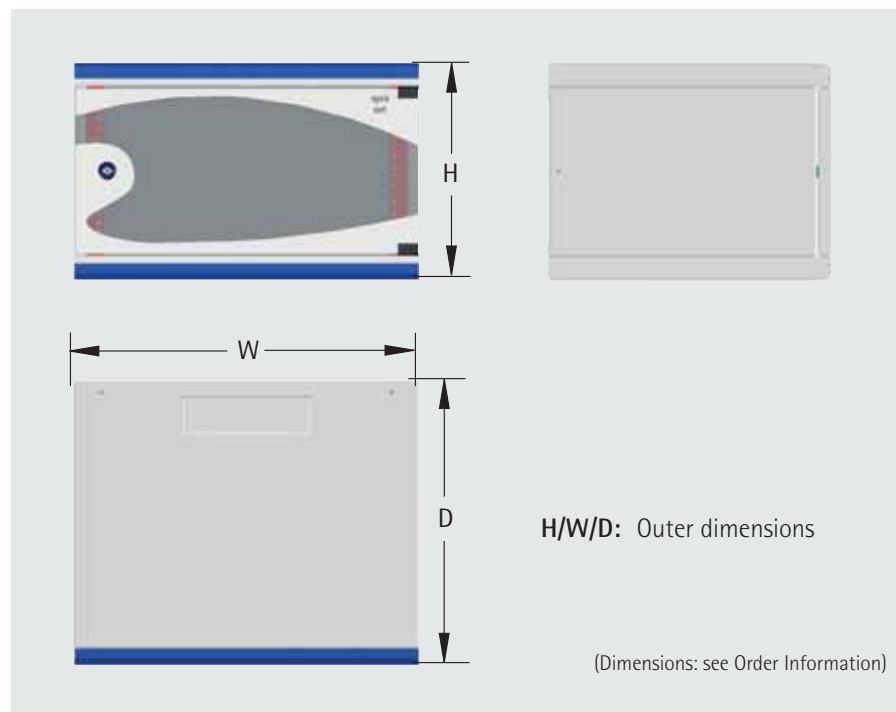
optiRACK

- protection class IP 20
- stylish enclosure solution
- optimum accessibility
- installation in just a few steps
- the coloured profile may be used as thematic coding. Through the use of coloured profiles in corporate colours, corporate identity can also be expressed in the network installation.

The new optiRACK wall mounting/stand-alone enclosure makes networking installations simple, since the detachable door and side panels enable optimum accessibility inside the enclosure. Cabling can therefore be performed in the open rack. The two-coloured design and the chamfered front upgrade its appearance significantly. The standard colour of the design profile is RAL 5014 (pigeon blue); other colours may be supplied on request.



Technical information



Application:

space-saving wall-mounting enclosure for network cabling

Finish:

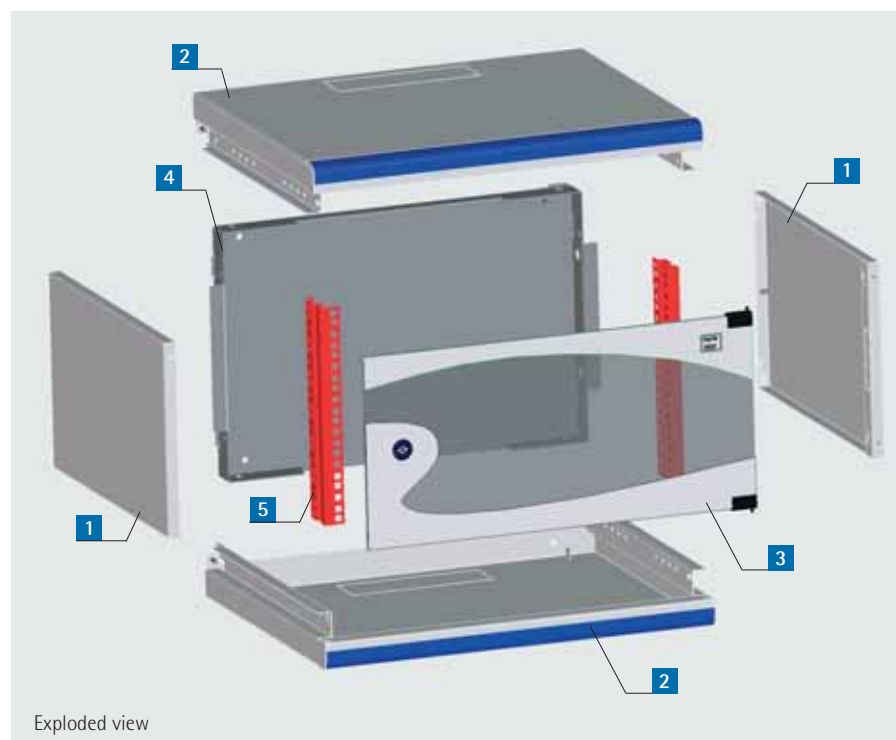
Enclosure: painted RAL 7035 light grey
Design profile: painted in RAL 5014 pigeon blue

Material:

sheet steel

Delivery:

assembled



Scope of delivery

Item	Pc.	Description
1	2	Side panels
2	2	Top/bottom plate with precut openings for cable entry
3	1	Viewing door with 180° hinge (Profil-Schließung EK333)
4	1	Rear wall
5	2	Individually depth adjustable 19" vertical mountings
	1	Earthing kit
	1	Kabeleinführungsbürste

Order information

Description	Outer dimensions (H x W x D) mm	Order no.
optiRack 6 U	345 x 550 x 450	350-001-06
optiRack 9 U	480 x 550 x 450	350-001-09
optiRack 12 U	612 x 550 x 450	350-001-12
optiRack 15 U	745 x 550 x 450	350-001-15



optiRACK "silent" underbench cabinet

- sound-insulating enclosure with viewing door
- detachable side panels
- 19" expansion 12 U variable depth

Available in two versions:

Version 1 "passive":

with ventilation grille (prepared without fan for passive ventilation of the enclosure)

Version 2 "active":

prepared with speed-controlled fan for active ventilation of the enclosure (fan: 12 V DC, 150 m³/h free-blowing, 37 DB(A))

Outer dimensions (H × W × D):

12 U (615 mm) × 550 × 600 mm

Material: sheet steel

Finish:

Enclosure: RAL 7035 light grey
Profile: RAL 5014 pigeon blue (other colours on request)

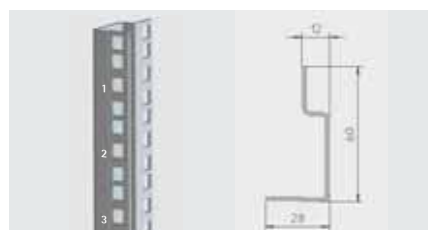
Delivery:

assembled



Description	Order no.
Version 1 "passive"	350-001-60
Version 2 "active"	350-001-61

19" vertical mounting

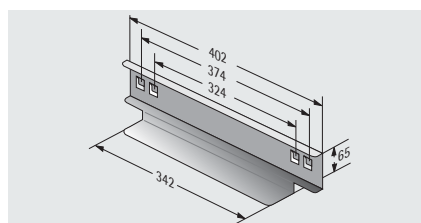


- with U-labelling
- height: 12 U

Material: sheet metal, galvanised

Order no.
316-120-12

Slide rail, hook-in



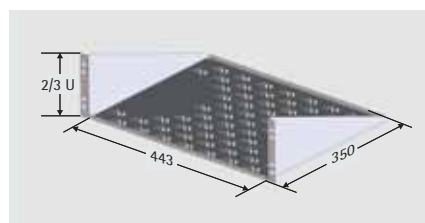
- hooked in the 19" vertical mountings
- to support heavy 19" plug-in units
- two 19" levels are required

Material: sheet metal 1.5 mm, galvanised

Load capacity: 50 kg

Order no. (pair)
316-544-00

19" shelf, fixed



- simple assembly on a 19" grid (only one 19" level required)
- ventilated
- height: 2 U

Finish: RAL 7035 light grey

Material: sheet metal

Load capacity: 15 kg

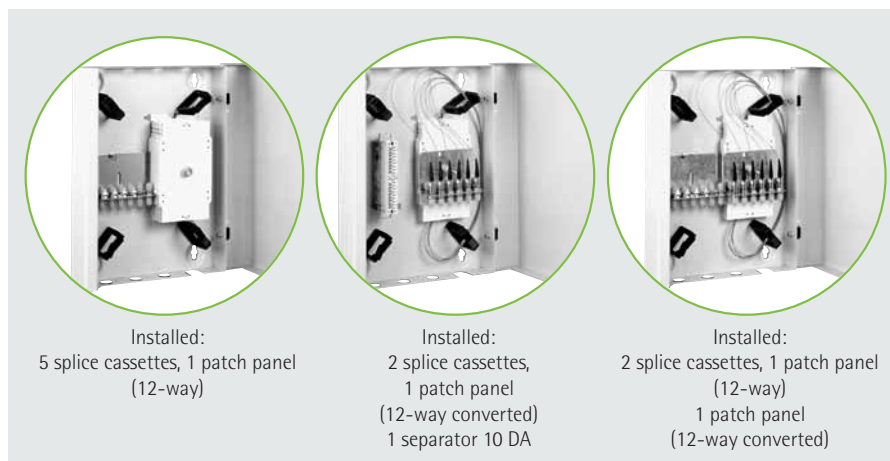
Order no.
315-810-20



FO splice distribution case

- modular and space saving mini-enclosure
- up to 10 splice cassettes may be integrated
- easy interior assembly due to detachable door
- clean and controlled FO storage by using four integrated cable routing clamps
- 3 versions available
- additional components may be integrated: two 10 DA separator strips or 12-way FO patch panel or additional splice cassette holder
- also available pre-configured

Sample configurations



Technical information

Application:

to accommodate a maximum of 10 splice cassettes, two 10 DA separators or 12-way FO patch panels.

Finish: RAL 7035 light grey

Dimensions (H x W x D):
335 x 265 x 70 mm

Material: sheet metal

Delivery: mounted

Matching CU and FO components are available on request!

Order information

Description	Description	Order no.
FO splice distrib. version 1	Cable entry from below via 3 PG11 and 1 open PG16, from above via 4 PG11 holes	213-021-00
FO splice distrib. version 2	Cable entry from below via 50 mm wide, covered opening	213-021-10
FO splice distrib. IP 54	Cable entry from below via 5 PG11 holes/protection class IP 54 (with foamed seal)	213-021-50

Scope of delivery

Item	Pc.	Description
1	1	Enclosure chassis
2	1	Door
3	2	Hinges
4	1	Sash fastener
5	4	Cable routing clamps
6	1	FO splice cassette holder for max. 5 FO splice cassettes



LAN small distribution cabinet

- small size enclosure
- patch space and cable entry area are separated by two lockable and detachable doors with different locking systems
- modular patch panel can take four part front panels 3 U / 8 HP and is suitable for mixed data connectors (FO/copper hybrid equipment)
- active components such as mini-hubs can easily be integrated
- cable entry with brush seal above and below
- cable entry in patch space through max. 4 PG16 screws (M 20)
- also available pre-configured



Technical information

Application:

The enclosure is designed for internal wall mounting and is suitable for small copper and fibre-optic data and telecommunication networks.

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

405 mm x 100 mm x 330 mm

(max. installation depth d: 250 mm)

Delivery: mounted

Scope of delivery

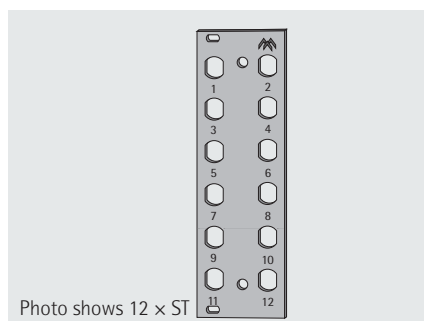
Item	Pc.	Description
1	1	Enclosure chassis
2	2	Doors with different locking systems
3	2	Brush seals
4	1	Distribution panel

Customised front panels are available on request!

Order no.
213-020-15

Accessories

FO front panels 3 U, 8 HP



- for assembly of the non-configured FO small distribution cabinet
- front panels are numbered consecutively
- a maximum of 4 part front panels can be integrated into the LAN small distribution cabinet

Finish: anodised

Material: aluminium 2.5 mm

Front panels for other plug-in connectors on request!

Description	Order no.
Front panel 12 x ST	213-308-01
Front panel 12 x SC (6 x SC-Duplex)	213-308-02
Blind panel 3 U. 8 HP	243-308-00

CAT.6A, 6-way/12-way



- shielded CAT.6A distribution panel
- 6-way RJ 45 (3 U / 8 HP) or 12-way RJ 45 (3 U / 10 HP)
- metal enclosure with large low-impedance galvanised surfaces
- LSA Plus connecting system
- labelled aluminium front panel

Finish:

Front panel: anodised

Enclosure: galvanised

Description	Order no.
6-way distribution panel	213-503-10
12-way distrib. panel	213-503-30



Custom wall-mounting enclosure

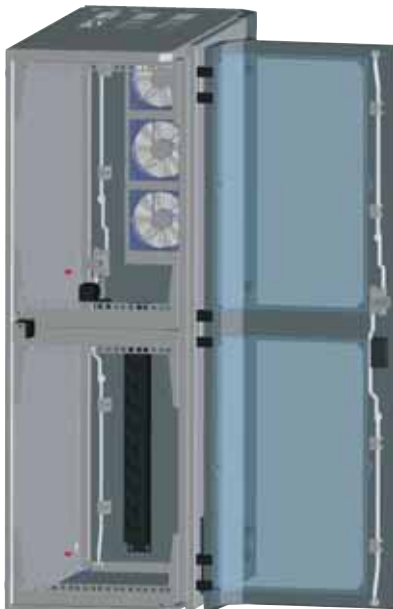


Enclosure for Small Office / Home Office

- can be used as wall-mounting/stand-alone and mobile enclosure
- base: VARI 2000, 4 U (see page 65)
- expandable with active ventilation - plug & play



Wall-mounting enclosure for industrial environments (IP 54)



- base: VARI Industry 12 U (2 x 6 U) (see page 68)
- modified for accommodation of active and passive network technology
- delivered as plug & play solution



19" TiRAX cabinet system

from page 3



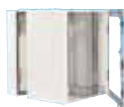
19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109



General accessories/
distribution technology

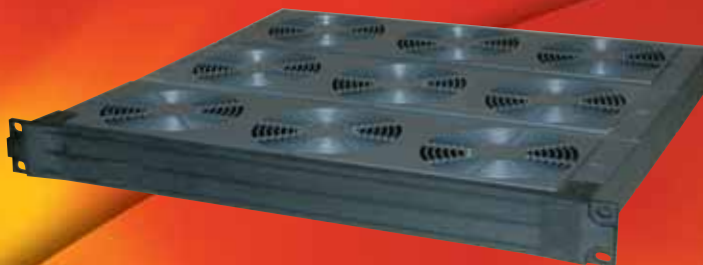
from page 123



You can read more about products from the apra-group at www.apra-norm.com



Air conditioning technology



Air conditioning units

from page 79

- standard applications and individual solutions for all our cabinets and wall-mounting enclosures with protection class IP 54
- low servicing costs thanks to filterless technology
- extremely compact unit sizes with high efficiency

Plastic fan module

from page 80

- for high-volume ventilation of enclosures or cabinets
- compact dimensions
- easy assembly
- sophisticated modularity protected by a utility patent
- also available as speed-controlled variants
- 19"-compatible



apra cooling system

from page 82

- air/water heat exchanger
- optimum cooling for server racks with a high packing density
- up to 56 KW
- precision air conditioning for data centres

Air conditioning units

- optimum temperature for maximum efficiency
- standard applications and individual solutions for virtually all our cabinets and wall-mounting enclosures with protection class IP 54
- subsequent installation of cooling devices: the units are supplied ready to use (drilling template and mounting material included in the scope of delivery).
- low servicing costs thanks to filterless technology
- extremely compact unit sizes with high efficiency
- heat build-up inside the cabinet is prevented by the continual circulation of cabinet air.
- all units use CFC-free refrigerant
- Cooling capacity acc. to EN814 Ta35Ti35
- integrated electronic control unit and thermostat

Finish: RAL 7035 light grey

Material:

enclosure: sheet metal
front panels: plastic

Scope of delivery:

- operating instructions
- mounting materials including drilling template
- connector plug

Cooling units with higher specifications and systems with a water recool unit are also available on request.



Cooling system order information

Cooling units for wall mounting/installation				
Cooling capacity W	Voltage / frequency V/Hz	Dimensions H x W x D mm	Noise level dB(A)*	Order no.
380	230 / 50-60	460 x 285 x 180	60	235-200-08
1050	230 / 50-60	950 x 400 x 233	65	235-200-07
2050	230 / 50-60	1265 x 400 x 236	65	235-200-05
2900	230 / 50-60	1270 x 500 x 336	70	235-200-18
3850	230 / 50-60	1270 x 500 x 336	70	235-200-19
Top mounted cooling units				
410	230 / 50-60	264 x 259 x 486	60	235-200-10
1550	230 / 50-60	415 x 401 x 567	65	235-200-12
2050	230 / 50-60	415 x 401 x 567	65	235-200-14
3850	230 / 50-60	496 x 492 x 797	75	235-200-22

The noise level of the cooling units is measured acc. to EN ISO 3744, but it does not take into account the installation conditions of the units on the rack. Therefore the noise level can be considerably higher due to the operating environment and installation conditions.

Heating system order information

Cabinet heating systems (excl. thermostat)			
Heat capacity W	Voltage/frequency V / Hz	Dimensions (H x W x D) mm	Order no.
100	230 / 50 - 60	182 x 70 x 50	235-200-09
150	230 / 50 - 60	262 x 70 x 50	235-200-06
Heater fan (incl. thermostat)			
350	230 / 50 - 60	165 x 100 x 128	235-200-27
Thermostat for cabinet heating 0-60 °C			640-104-03



230 • Plastic fan module



(Fig. shows basic module with two extension modules)

Plastic fan module

- incomparably light
- low-cost
- easy assembly
- sophisticated modularity protected by a utility patent
- suitable for all applications relating to enclosure and cabinet technology
- can be installed in just a few steps in a 19" grid using the 19" mounting kit.
- long service life and high system reliability due to high-quality fans
- integrated fan cover
- by using state-of-the-art plastics of class UL94 V-0, the new system meets the highest fire safety requirements.

The **basic module 1** is available as a 1, 2 or 3-fan unit and has 8 fixing points, which enable installation for any application and location. Power is supplied via a plug contact at the back of the enclosure. This plug contact enables preconfigured cables and thermometers to be used (see accessories) and of course also provides you with an interface to your own cable configuration.

The **extension module 2** is also available as a 1, 2 or 3-way unit and is a pluggable multi-way extension for the basic fan module. The mechanical connection of the modules is realised via aluminium guide pins (included in the scope of delivery). The extension module has a plug connector on the front and a socket on the back. Series linking in this way enables the electrical connection between the modules to be established automatically.

Finish: black (similar to RAL 9005 jet black)

Material: plastic, fire class to UL 94 V-0

Fan module "standard"

Description	Dimensions (H x W x D) mm	Air flow rate, unimpeded	Order no.	
			Basic module 1	Extension module 2
1-way	44 x 450 x 140	115m³/h	230-500-01	230-500-11
2-way	44 x 450 x 140	230m³/h	230-500-02	230-500-12
3-way	44 x 450 x 140	345m³/h	230-500-03	230-500-13

Fan module „silent“

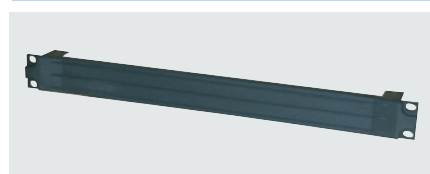


(cannot be combined with extension module!)

Description	Dimensions (H x W x D) mm	Air flow rate, unimpeded	Noise Level	Order no. 2
3-way	44 x 450 x 140	340 m³/h	45,5 dB(A)/20µPa	230-500-43

Accessories

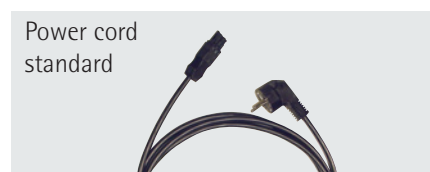
19" installation kit, 1 U 4



Material: plastic
Finish: RAL 9005 jet black
Dimens. (H x W x D): 44 x 450 x 146 mm

Order no.
 230-500-70

Power cord cables 5



Power cord standard

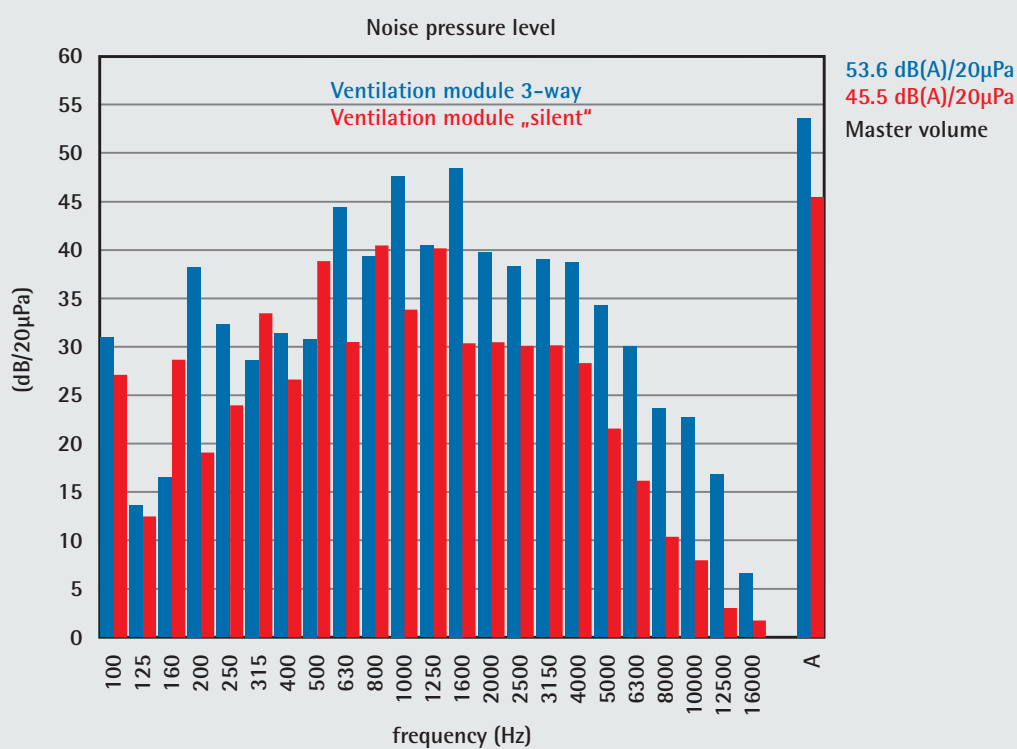
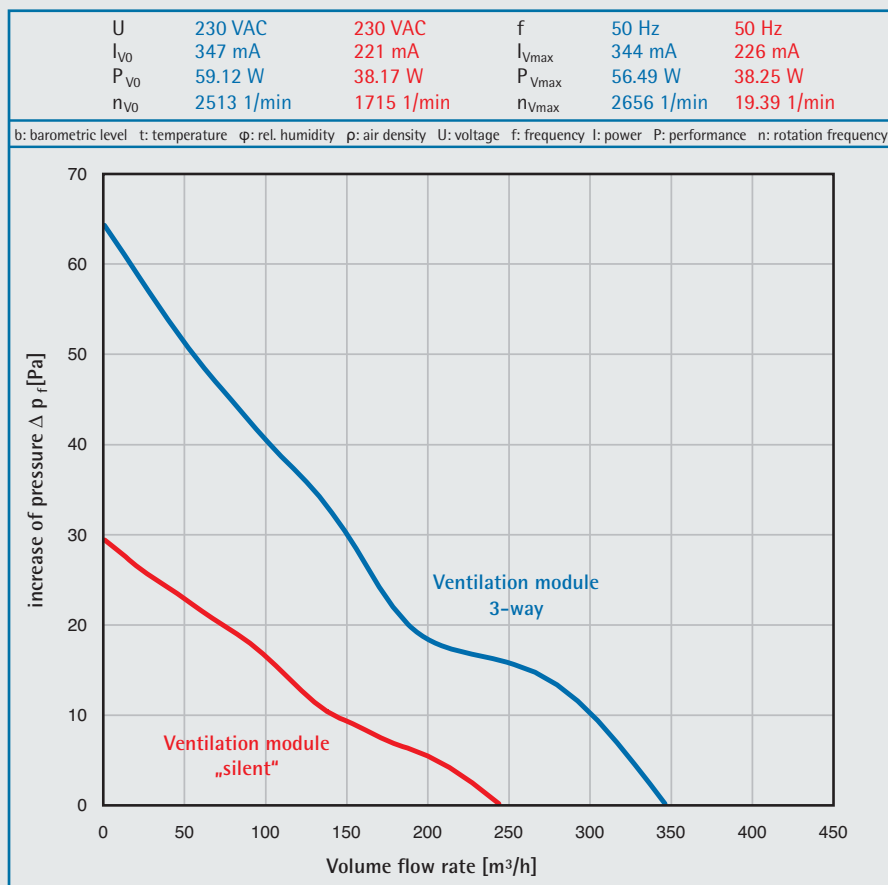


Power cord with thermostat

Type of connection	Length	Power cord, standard	Power cord with thermostat 0-60 °C
Earthing-pin plug	3 m	640-044-05	230-500-04
IEC connector	3 m	230-500-15	230-500-05
Without plug for fixed connection	3 m	230-500-16	230-500-06



Fan characteristics





235 • Air/water heat exchanger "Cyber Row"



apra cooling system "Cyber Row"

Optimum air conditioning of the server racks in conjunction with a cooling/heating corridor system

- horizontal air routing in front of the racks: cold air reaches the rack by the shortest route
- electronic control: controls and monitors all components inside and outside of the air conditioning device which are required for cooling generation
- three EC-fans independent from each other and with infinite numbers of settings ensure maximum possible efficiency
- targeted cooling of high-density racks
- optimum air conditioning of a cooling/heating corridor system
- for data centres with and without raised floors
- complete system separation between IT rack and air conditioning technology
- cooling capacities up to 56 kW
- cold water cooling: The device requires separate cold water generation. The indoor air transported by the fans flows through the direct cooler which emits the heat to the cool water. The heat is then removed from the cooling water by a cold water unit. The air conditioning device and the cold water unit are connected by a closed cooling water circuit.

Also available as compressor cooling!



Order information

Model	CRS210CW	CRS320CW	CRS560CW
Height mm	1950	1950	1950
Depth mm	1200	1175	1175
Width mm	300	400	600
Cooling capacity kW	20,9	32,2	56,0
Air flow rate m ³ /h	4500	6000	10.800
Water volume flow m ³ /h	3,6	5,5	9,6
Order no.	235-200-73	235-200-60	235-200-65



apra cooling system "Sidecooler"

- the „Sidecooler“ was especially developed for cooling server racks with high packing densities and through the targeted air routing inside the cabinet ensures the reliable cooling of all servers
- high cooling capacity, even at high flow temperatures
- horizontal air routing throughout the entire height of the cabinet works to optimum effect and is extremely effective in conjunction with servers in a 19" design
- very space-saving due to compact design
- all water-carrying components are located outside the server cabinet.
- the system works with a closed air circuit in the rack and is therefore independent of its environment
- the air routing can be either via one or both sides, if there is mounting between two racks



Order information

Model	Sidecooler 1000	Sidecooler 1200
Height mm	2000	2000
Depth mm	800 (1000)	800 (1200)
Width mm	300	300
Cooling capacity k/W	19.3	19.3
Air flow rate m³/h	3600	3600
Water volume flow m³/h	3.3	3.3
Order no.	235-200-70	235-200-75



230 • Mounted fan



1 Mounted fan

- for high-volume ventilation of enclosures or cabinets
- compact dimensions
- setup height just 73 mm
- easy assembly
- connection via terminal strip
- protection class IP 44

Finish: RAL 7032 pebble grey
Material: plastic, fire class to UL 94 V-0

Order no.

230-855-00

2 Filter unit

- as an add-on to the mounted fan
- used to clean the supply air

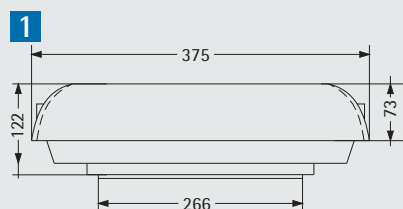
Finish: RAL 7032 pebble grey
Material: plastic, fire class to UL 94 V-0

Order no.

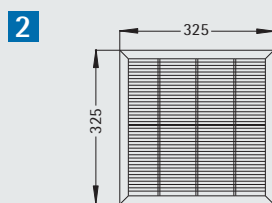
230-855-10

Technical information

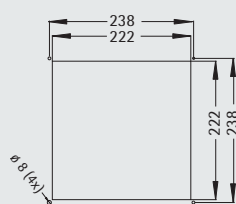
Parameters	Mounted fan
Air flow rate	1050 m ³ /h (at 50 Hz) / 1085 m ³ /h (at 60 Hz)
Operating voltage/frequency	230 V / 50 - 60 Hz
Dimensions (H × W × D)	106 × 375 × 375 mm
Rated output	120 W (at 50 Hz) / 155 W (at 60 Hz)
Rated consumption	0.52 A (at 50 Hz) / 0.65 A (at 60 Hz)
Winding protection	Inside the motor
Electrical connection	Terminal strip
On time	100 %
Area of application	-20 to +60 °C
Protection class to EN 60529	IP 44
Noise level	72 dB(A)
Air flow rate with below filter unit	700 m ³ /h (at 50 Hz) / 730 m ³ /h (at 60 Hz)
Direction of flow	From inside to outside



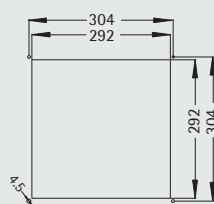
Mounted fan



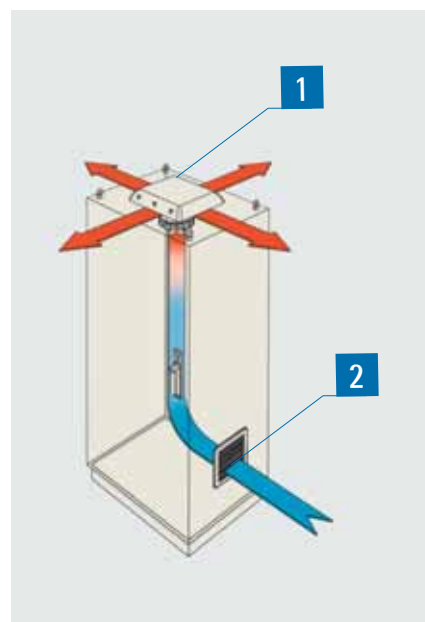
Filter unit



Mounting hole pattern for mounted fan



Mounting hole pattern for filter unit





19" TiRAX cabinet system

from page 3



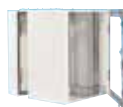
19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109



General accessories/
distribution technology

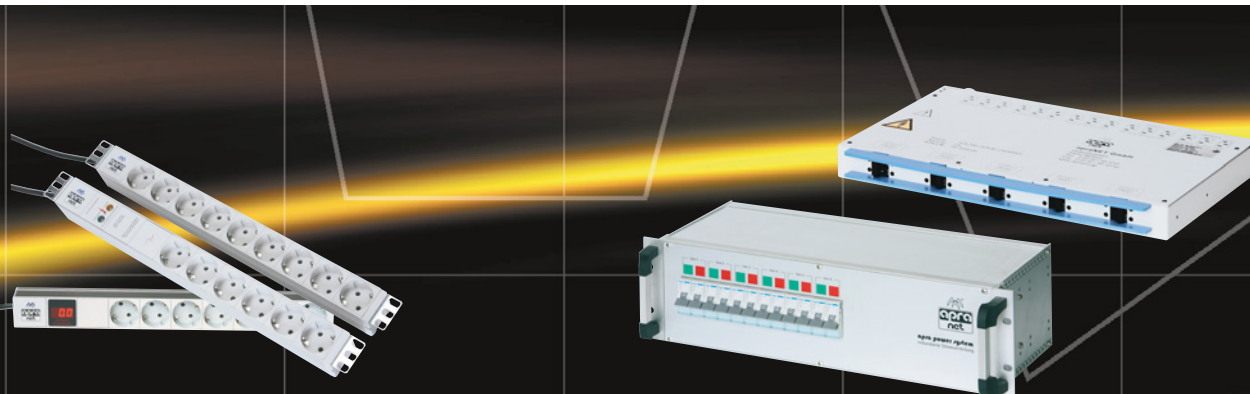
from page 123



You can read more about products from the apra-group at www.apra-norm.com



Power distribution system



Multiple socket strips

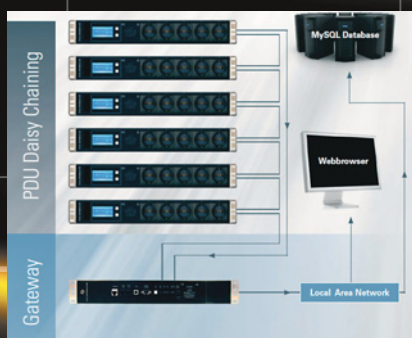
Page 88

- Earthing-pin
- UTE (France)
- IEC connectors IEC-C13

19" power distribution units

from page 89

- modular 19" power distribution systems



Intelligent power distribution systems for computer centres

from page 92

- networked systems
- stand-alone systems



UPS systems, 19" devices

from page 96

- 19" line interactive VI-SS-211
- 19" online continuous transducer FI-SS-111



Our service for you: Pre-wiring, power supplies, plug-and-play versions in enclosures and cabinet systems

✓ take advantage of our expertise ✓ save time and money

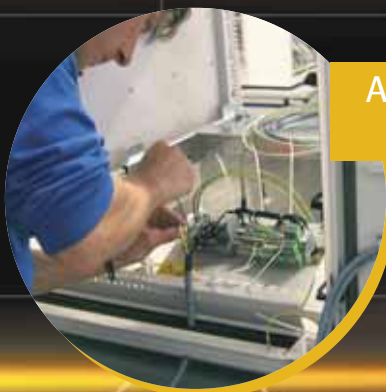
The apra Group places particular emphasis on individual and flexible system solutions. Our enclosures and 19" cabinet systems are equipped with components such as a power supply and power distribution system in line with customer requirements and are supplied with full pre-wiring. This enables us to fulfil a wide range of customer requirements.

From development right through to the finished product, you can benefit from our expertise and flexibility!



Customised cables and connections

- stripping and cutting cables and wires to length by machine
- connecting wires with a crimp machine
- labelling and marking the cables, wires and connectors



Assembly and pre-wiring at installation locations



Quality and safety checks in accordance with VDE regulations

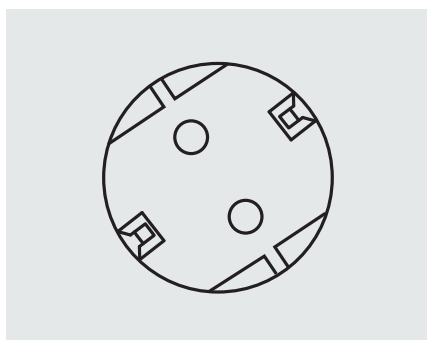
- testing electrical devices with the specified test process (aside from electrical measurements, e.g. protective earth conductor resistance, leakage current, insulation and high-voltage measurements (AC/DC), quality tests can also be carried out in the form of text or image test points.)
- workstation for continuity checks on configured cables and backplanes in subracks



Multiple socket strips

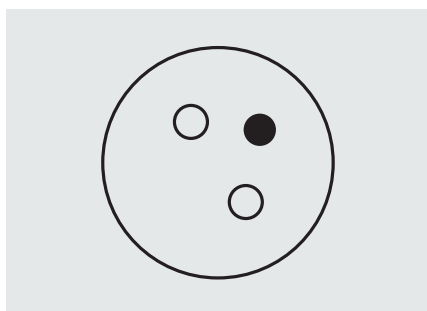
- space-saving design
- stable aluminium enclosure
- suitable for 19" mounting in 1 U division (L = 440 mm) and/or cabinet rack mounting
- connection: 3 × 1.5 mm²
- standard cable length: 2.0 m
- Earthing-pin and UTE standard sockets: twisted 35°
- incl. mounting bracket

Earthing-pin 230 V AC, 16 A



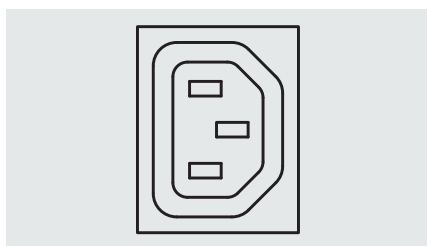
No. of sockets	Switch	Surge protection	Mains filter	Amp. meter	19" install.-compatible 1 U	Length L mm	Colour	Order no.
9	-	-	-	-	x	440	light grey	591-400-00
12	-	-	-	-	-	610	black	591-412-00
8	x	-	-	-	x	440	light grey	591-401-00
8	-	x	-	-	x	440	light grey	591-402-00
6	-	x	x	-	x	440	light grey	591-403-00
7	x	x	-	-	x	440	light grey	591-404-00
7	-	-	-	x	x	440	light grey	591-400-15

UTE (France), 230 V AC, 16 A



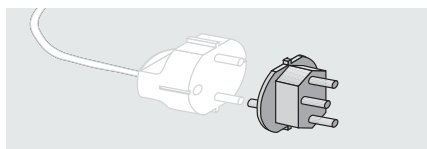
No. of sockets	Switch	Surge protection	Mains filter	Amp. meter	19" install.-compatible 1 U	Length L mm	Colour	Order no.
9	-	-	-	-	x	440	light grey	591-405-60
12	-	-	-	-	-	610	black	591-412-60
8	x	-	-	-	x	440	light grey	591-406-60
8	-	x	-	-	x	440	light grey	591-402-60
6	-	x	x	-	x	440	light grey	591-403-60
7	x	x	-	-	x	440	light grey	591-404-60

IEC connectors IEC-C13, 230 V AC, 10 A



No. of sockets	Switch	Surge protection	Mains filter	Amp. meter	19" install.-compatible 1 U	Length L mm	Colour	Order no.
9	-	-	-	-	x	440	light grey	591-414-00
12	-	-	-	-	x	440	black	591-414-10
8	-	-	-	x	x	440	light grey	591-400-17

"Swiss Earthing-pin" adapter



- connector pin side: Swiss
- jack side: Earthing-pin connector

Material: plastic, black

Order no.
640-230-00

Additional multiple socket strips such as C-19, monitorable or switchable socket strips available on request!



19" power distribution units 1 U

This power distribution system is specially designed to supply power to servers easily and safely in a 19" cabinet. In the PDU, the supply line can be connected simply to a terminal in the device (cross-section up to 10 mm²)

High level of safety thanks to surge protection and distribution of the mains supply over 5 fuse-protected circuits (10 A) each with 3 IEC sockets at the output.

Considerable time and cost savings, as there is no need for costly installations for power supplies.

- input: 1 × 32 A / 230 V / 50 Hz
- output: 15 × IEC socket with surge protection, 3 pieces in each case with 10 A fuse protection (see figure below right)
- remote signalling contact (in each case 1 × zero-volt NOC and 1 × NCC)
- individual mounting in the cabinet using the mounting bracket included in the scope of delivery
- mounting on the 19" level using additional adapter brackets
- high-quality surge protection (class II to IEC 61643-1) with remote signalling output (see figure below left)

Finish:

RAL 7035 light grey

Material:

enclosure: sheet metal

Dimensions (H × W × D):

1 U (44 mm) × 482.6 mm × 300 mm

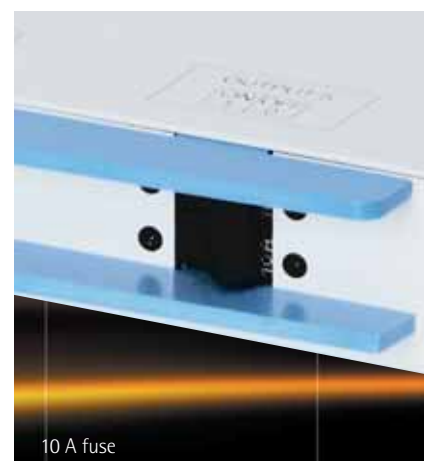
Order no.
591-910-00

Mounting set for 19" installation (1 U)

Order no. (set)
591-910-01



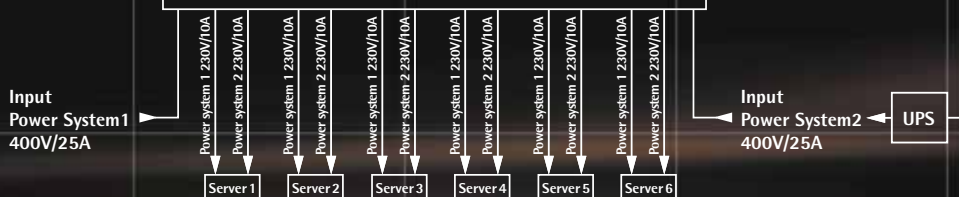
Surge protection with remote signalling output



10 A fuse



apra power system redundant power distribution



19" power distribution units 3 U, redundant

This power distribution system is ideal for the safe supply of power to servers with redundant power supply units.

It enables two separate power supplies (each 400 V / 3 × 25 A) to be fed in. The supplies are distributed over 6 outputs (each 2 × 230 V / 10 A) and each output is protected with a B10 A automatic circuit breaker. Clear colour identification of the outputs and automatic circuit breakers divides the device into six lines and enables a redundant supply to six servers from a single point.

The mains supply lines are connected easily with a connector included in the scope of delivery without any additional tools or material costs via clamp spring contacts and are inserted and locked at one of the two inputs.

Various conductor types with various cross-sections (0.5 to 4 mm²) can be connected here.

At the outputs, power can also be picked up by lockable C14 IEC connectors or by connectors included in the scope of delivery (design similar to power input connector).

Advantages:

- redundant power supply to 6 servers with just one device
- only 3 U space required thanks to compact design
- simple power feed via cables to up to 5 × 4 mm² max. 3 × 25 A
- simple connection of servers either via IEC sockets or with the connector system included in the scope of delivery
- fuse protection of the outputs each with a B10 A automatic circuit breaker

Finish: anodised

Material: enclosure: aluminium
inserts: plastic

Dimensions (H × W × D):

3 U (132.5 mm) × 482.6 mm × 170 mm

Order no.

591-910-10



19" power distribution unit 3 U for automatic circuit breakers

- for the installation of automatic circuit breakers
- fast access to the wiring space
- stable accommodation of components to DIN 43 880 in build sizes 1-3
- strain relief of the rear-side cable via cable guard rail

Material:

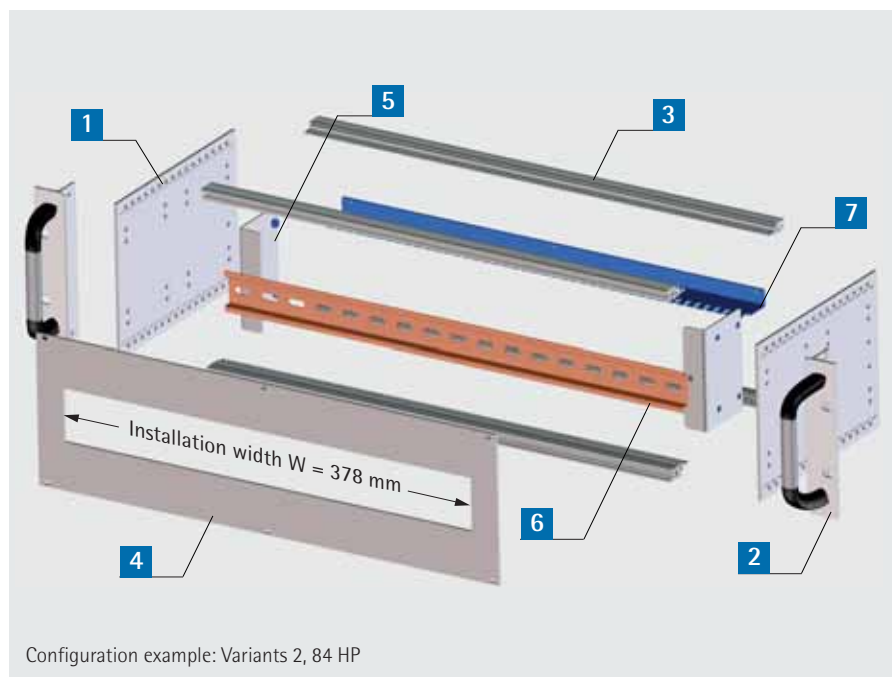
side panels: aluminium 2.5 mm
module rail: aluminium profile
front bracket: aluminium profile

Finish: transparent, chromated

Delivery: assembly set



Technical information



Scope of delivery

Item	Pc.	Description
1	2	Side panels
2	2	Front bracket with handles
3	4	Module rails
4	1	Front panel
5	2	Angle bracket
6	1	Top hat rail TS 35
7	1	Cable guard rail
8	1	Mounting hardware

Order information

Description	Order no.
19" subrack 3 U / 84 HP	245-311-80

Accessories

Cover sheet closed

- for floor and cover mounting

Material: aluminium

Order no.
240-662-85

Cover strip S 35 G

- to conceal the front panel openings

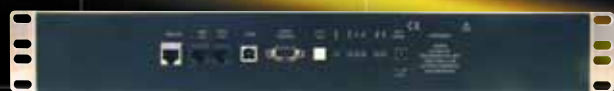
Material: plastic

Length mm	Order no.
219	640-222-00



Intelligent PDUs for computer centres

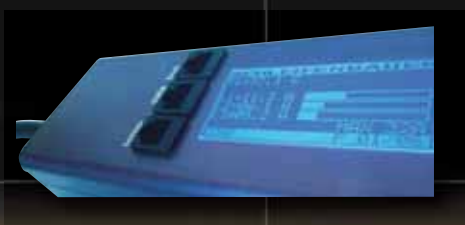
- The electrical energy supply is the most expensive item of all variable costs in the data centre. For this reason alone, one should obtain an overview of consumption using an intelligent PDU. A detailed measurement of energy flows optimises the administration of your data centre and prevents outages due to overload.
- Power Distribution Units (PDUs) are connector strips for installation in server racks. The main task of a PDU is the power distribution within a cabinet. In order to meet the high requirements of data centres, we ensure our products provide maximum quality and high system reliability.



19" Gateway



19" PDU



Product features

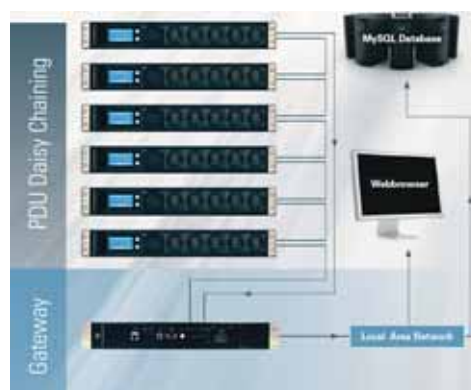
- inputs: one-phase or three-phase, 16A or 32A via CEE-plug
- thermal fuses against overload
- measurement of outbound electric circuits if required
- switching of individual outputs if required
- measurement of power, voltage, output and consumption as well as the internal temperature of the strip and as an option the external temperature in the rack
- illuminated LCD-display on the PDU with the display of all measurement values
- all strips are fitted with a socket for the connection of an external temperature sensor.
- high quality and the use of oversized cabling, adjusted electronics and bistable relays use extremely low amounts of energy. This leads to considerable savings during the life cycle.
- the use of a data bus ensures easy and fast installation. The simple IP connection saves maintenance costs and makes operation much easier and safer.

PDU - vertical installation

Monitoring

- all strips are connected to a data bus for management purposes and "remote monitoring".
- the gateway is the interface between the data bus and a TCP/IP network. This means that you have access to all your PDUs via one single IP-address.

This reduces costs for infrastructure and for security measures.





Design	Input	Phases Input	Current per phase	Outputs	Measure- ment input	Measurement per port	Switched outputs	Oder no.
Gateway								591-920-00
Horizontal (19")	400V 16A	3	16	3 x Earthing-pin	X			591-920-01
Vertical	230V 16A	1	16	18 x C13	X			591-920-02
Vertical	230V 16A	1	16	18 x C13	X	X		591-920-03
Vertical	230V 16A	1	16	18 x C13	X		X	591-920-04
Vertical	230V 16A	1	16	18 x C13	X	X	X	591-920-05
Horizontal (19")	230V 16A	1	16	4 x C13, 5 x C19	X			591-920-06
Horizontal (19")	230V 16A	1	16	4 x C13, 5 x C19	X	X		591-920-07
Horizontal (19")	230V 16A	1	16	4 x C13, 5 x C19	X		X	591-920-08
Horizontal (19")	230V 16A	1	16	4 x C13, 5 x C19	X	X	X	591-920-09
Vertical	230V 32A	1	32	4 x Earthing-pin, 12 x C13, 2 x C19	X			591-920-10
Vertical	230V 32A	1	32	4 x Earthing-pin, 12 x C13, 2 x C19	X	X		591-920-11
Vertical	230V 32A	1	32	4 x Earthing-pin, 12 x C13, 2 x C19	X		X	591-920-12
Vertical	230V 32A	1	32	4 x Earthing-pin, 12 x C13, 2 x C19	X	X	X	591-920-13
Vertical	400V 16A	3	16	3 x Earthing-pin, 18 x C13	X			591-920-14
Vertical	400V 16A	3	16	3 x Earthing-pin, 15 x C13	X	X		591-920-15
Vertical	400V 16A	3	16	3 x Earthing-pin, 15 x C13	X		X	591-920-16
Vertical	400V 16A	3	16	3 x Earthing-pin, 15 x C13	X	X	X	591-920-17
Vertical	400V 16A	3	16	1 x Earthing-pin, 8 x C19	X			591-920-18
Vertical	400V 16A	3	16	1 x Earthing-pin, 8 x C19	X	X		591-920-19
Vertical	400V 16A	3	16	1 x Earthing-pin, 8 x C19	X		X	591-920-20
Vertical	400V 16A	3	16	1 x Earthing-pin, 8 x C19	X	X	X	591-920-21
Vertical	400V 16A	3	16	3 x Earthing-pin, 3 x C19, 21 x C13	X			591-920-22
Vertical	400V 16A	3	16	3 x Earthing-pin, 3 x C19, 21 x C13	X	X		591-920-23
Vertical	400V 16A	3	16	3 x Earthing-pin, 3 x C19, 21 x C13	X		X	591-920-24
Vertical	400V 16A	3	16	3 x Earthing-pin, 3 x C19, 21 x C13	X	X	X	591-920-25
Vertical	400V 32A	3	32	3 x Earthing-pin, 24 x C13	X			591-920-26
Vertical	400V 32A	3	32	3 x Earthing-pin, 24 x C13	X	X		591-920-27
Vertical	400V 32A	3	32	3 x Earthing-pin, 24 x C13	X		X	591-920-28
Vertical	400V 32A	3	32	3 x Earthing-pin, 24 x C13	X	X	X	591-920-29
Vertical	400V 32A	3	32	1 x Earthing-pin, 2 x C13, 15 x C19	X			591-920-30
Vertical	400V 32A	3	32	1 x Earthing-pin, 2 x C13, 15 x C19	X	X		591-920-31
Vertical	400V 32A	3	32	1 x Earthing-pin, 2 x C13, 15 x C19	X		X	591-920-32
Vertical	400V 32A	3	32	1 x Earthing-pin, 2 x C13, 15 x C19	X	X	X	591-920-33
Temperature sensor								591-920-34

Further configurations available on request!





apra power system network-enabled PDUs

Professional high-quality multiple socket strips

The strips measure electrical parameters and the on/off switching of the individual outputs via an integrated ethernet connection.

Material: aluminium

Dimensions (H x W x D):
44.4 (1U) x 438 x 130 mm

Scope of delivery:
PDU, 19" mounting bracket,
supply line: 3 metre H05VV-F
3G2,5 mm² with Earthing-pin plug 16A



Example with 19" mounting bracket

Switchable metered PDU

Individually switchable sockets with switching in the zero passage and additional switching status control. The PDU has an integrated ethernet connection and can therefore be easily operated via a web browser.

The following protocols are supported, amongst others: HTTP, HTTPS, SNMP, SMTP, NTP, SSH, SNMP V2 und V3, Modbus TCP, IPv4 und IPv6

Description	Order no.
8-way IEC 320 C13	591-920-41



Monitored PDU

Integrated measurement of: power, active power, voltage, frequency, $\cos \phi$ and energy.

All values can be read on the integrated, illuminated OLED display.

The PDU has an integrated ethernet connection and can therefore be easily operated via a web browser.

The following protocols are supported, amongst others: HTTP, HTTPS, SNMP, SMTP, NTP, SSH, SNMP V2 und V3, Modbus TCP, IPv4 und IPv6

Description	Order no.
8-way Earthing-pin	591-920-42
8-way IEC 320 C13	591-920-43



Retrofit module for existing systems

In order to also exploit all the benefits of a monitored power distribution on existing racks, the retrofit module offers the option of integrating an intelligent component into an existing system. The installation work and costs are greatly minimised by the pluggable system.

Integrated measurement of: power, active power, voltage, frequency, $\cos \phi$ and energy.

All values can be read on the integrated, illuminated OLED display.

The PDU has an integrated ethernet connection and can therefore be easily operated via a web browser.

The following protocols are supported, amongst others: HTTP, HTTPS, SNMP, SMTP, NTP, SSH, SNMP V2 und V3, Modbus TCP, IPv4 und IPv6



Description	Connection mm	Order no.
400V / 16A	CEE plug-socket	591-920-47
400V / 32A	CEE plug-socket	591-920-48

Further models available on request!



19"-Line Interactive VFI-SS-3111 1000, 1500, 2000, 3000 VA

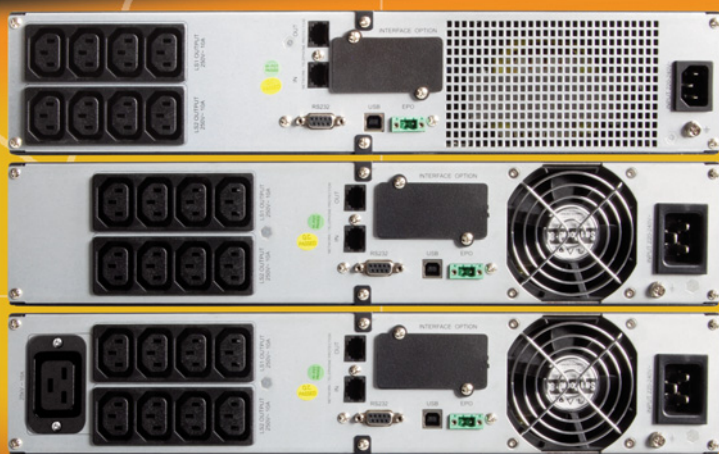
Its RackTower housing and the rotating LCD display allow both the use as a tower unit as well as installation in 19" cabinets.

The series is equipped with RS-232, USB and emergency contacts as standard. The card slot can be equipped with additional communications cards like a SNMP adapter or a relay card.

All models offer at least 8 IEC C13 (10A) Consumer outputs.

The 3000 VA model additionally provides a 16 ampere IEC C19 output.

- UPS-classification VI-SS-311 (IEC 62040-3)
- Line-interactive-technology
- Excellent power factor of 0.9
- High efficiency (> 97%)
- Expandable external battery packs
- "RackTower" can be used both as a standalone unit, as well in a 19" rack mount cabinet
- Huge input voltage range
- User-friendly LCD display with back-light depending on the operating condition
- Sine wave output
- Automatic frequency detection
- Equipped with RS-232 and USB port as standard
- Slot for optional adapters: relay-card or SNMP
- Software-Suite for UPS Management in almost all current operating systems
- 36 months' warranty



top: rear side APS 1000 / 1500 LI
middle: rear side APS 2000 LI
bottom: rear side APS 3000 LI



	APS 1000 LI	APS 1500 LI	APS 2000 LI	APS 3000 LI
Power VA / Watt	1000 / 900	1500 / 1350	2000 / 1800	3000 / 2700
Power failure bridging time Load 100% / 50%	4,5 min / 10 min	3 min / 7 min	4,5 min / 10 min	3 min / 7 min
Input				
- Nominal voltage / voltage range	230 VAC / 161 ~ 276 VAC			
- Input frequency range	50/60 Hz normal operation / 40-70 Hz generator operation			
- Boost threshold	207 VAC ± 4% / 215 VAC ± 4% (setup 230 VAC Wide Range)			
- Undervoltage threshold	161 VAC ± 4% / 171 VAC ± 4% (setup 230 VAC Wide Range)			
- Voltage return threshold	243 VAC ± 4% / 236 VAC ± 4% (setup 230 VAC Wide Range)			
- Overvoltage threshold	276 VAC ± 4% / 266 VAC ± 4% (setup 230 VAC Wide Range)			
Output				
- Output voltage	220, 230, 240 VAC			
- Voltage tolerance (Battery Mode)	± 5% RMS			
- THD(i) typical linear/non-linear load	< 3% THD / < 6% THD			
- Frequency tolerance synchronization range	45-55 Hz / 55-65 Hz			
- Frequency tolerance Battery Mode	50 / 60 ± 0,1 Hz			
- Power factor	0,9			
- Voltage waveform	sinusoidal			
- Efficiency	> 97 % (normal operation, loaded batteries)			
DC Start	black start			
Switch time	typical, 2 ~ 6 ms			
Batteries				
- Nominal voltage	36 VDC	72 VDC		
- Type	closed, maintenance-free lead-mat battery			
- Charging time	approx. 3 h to 90%			
Display				
- LCD	rotary LCD display			
- LCD backlight	Normal (blue) / Fault (red)			
Interface	RS232, USB, EPO, Card slot for optional SNMP / relay card			
Audible alarm				
- Battery mode / Battery Low	Beeping every 4 seconds / Beeping every second			
- USV fault / overload	Beep continuously / Beeping every second			
Environment				
- Temperature	0°C - 40°C			
- Humidity	0-95% non-condensing			
- Acoustic noise	< 50 dB(A) @ 1 Meter			
Mechanic				
- Dimensions (H x W x D in mm)	86,5 (2U) x 438 (19") x 430	86,5 (2U) x 438 (19") x 600		
- Weight	16 kg	29,5 kg		
- Degree of protection	IP 20			
Terminals				
- Input	1 x IEC (10A)	1 x IEC (16A)		
- Output	8 x IEC C13 (10A)			8 x IEC C13 (10A) + 1 x IEC C19 (16A)
Regulations / standards	CE / EN 62040-1 / EMC: EN 62040-2 class C1			
Order no.	235-300-02	235-300-03	235-300-04	235-300-05



19" online continuous transducer VFI-SS-111

700, 1000, 1500, 2000, 3000 VA

High-end USV model in the field of high-quality microprocessor-based on-line double conversion UPS's for your IT environment or metrology and industrial plants. The Racktower USV is already equipped with extensive and specific features, which are usually provided in the UPS market by most expensive special UPSs. The programmable switch contacts, or the adjustable restart function are just two of countless examples. .

The series can be used as 19" rack mount 2U device in any standard 19" rack after attaching the included 19" mounting angles. To make this possible, the clear LCD display can be rotated by 90°.

With existing standard RS232 and USB interface as well as standard emergency contact (EPO) and individually programmable dry contacts (DRY IN / OUT DRY) the series provides extraordinarily extensive communication and control. And yet even this can be extended by additional optional adapter slot (SNMP, relay card).

- UPS Classification VFI-SS-111 (IEC 62040-3)
- Online double conversion with sinusoidal output switchable to ECO mode (line interactive)
- Excellent power factor of 0.9
- Can be used as tower as well as 19"-unit
- User-friendly swivel LCD display
- XL models available with expandable batteries
- Wide input voltage range (120-276VAC)
- Microprocessor controlled
- Automatic frequency detection
- Output frequency preset (frequency converter function)
- RS-232 as standard
- USB as standard
- Programmable switch contacts as standard
- Emergency power-off as standard
- Slot for another optional adapter: Relay board or SNMP
- Management software for all popular OS
- 36 months' warranty



top: rear side APS 1000 - 2000 OD

bottom: rear side APS 3000 OD



	APS 1000 OD	APS 1500 OD	APS 2000 OD	APS 3000 OD
Power VA / Watt	1000 / 900	1500 / 1350	2000 / 1800	3000 / 2700
Power failure bridging time 100% / 50 % load (pf0,7)	7 min / 15 min	5 min / 15 min	5 min / 15 min	7 min / 20 min
Input				
- Cold start	yes, preset frequency = 50 Hz			
- Acceptable voltage range	120 VAC - 276 VAC			
- THDi	< 5 % full load			
- Input Power Factor	≥ 0,99 (Full RCD LOAD)			
- Input frequency range	45 - 55 Hz / 54 - 66 Hz			
Output				
- Output voltage				
- Voltage waveform	Sinus			
- Nominal voltage	208 VAC / 220 VAC / 230 VAC / 240 VAC / ± 1 %			
- Transient recovery	100 ms (IEC 62040-3 non-linear load			
- Distortion factor	< 2% THD, linear load / < 5 % THD, non-linear load			
- Output frequency				
- Synchronization range	45 - 55 Hz / 54 - 66 Hz (adjustable)			
- Battery operation	50 / 60 ± 0,2 Hz			
Power Factor	0,9			
Efficiency at full load				
- Line mode	> 89 % with loaded batteries			
- Battery mode	> 84 % @ 12 VDC / Battery			
- ECO mode	> 95 %			
Overload (Normal/Battery)	102 % ~ 130 % : 12s / 130 % ~ 150 % : 1,5s / > 150 % :100 ms			
Battery				
- Battery type	12 VDC / 7 Ah (closed, maintenance-free lead-mat battery)		12 VDC / 9 Ah (closed, maintenance-free lead-mat battery)	
- Number of blocks	3	4	4	6
- DC voltage	36 VDC	48 VDC	48 VDC	72 VDC
- Charging time	< 3 h for 90%			
- Maximum charge current	1,5 A			
Communication integrated / Optional cards	RS 232, USB, switch contacts, EPO / Intelligent Slot for AS 400, SNMP			
Indicator / Alarm	rotary LCD display / acoustic alarm			
Ambient conditions				
- Temperature (operating)	0°C - 40°C			
- Humidity	0-95% non-condensing			
- Noise level	ca. 52 dB(A) @ 1 Meter			
Mechanical				
- Dimensions (H x W x D in mm)	(2U) x (19") x 435			(2U) x (19") x 604
- Weight	13,2 kg	19,7 kg	19,7 kg	27,8 kg
- Degree of protection	IP 20			
Connection input	1 x IEC (10A)			1 x IEC (16A)
Connection output	8 x IEC 13 (10A)			8 x IEC 13 (10A) + 1 x IEC 19 (16A)
Standards	CE / EN 62040-1 / EMV: EN 62040-2 class C1			
Order no.	235-300-07	235-300-08	235-300-09	235-300-10



Service

Guarantee success with a unique combination
of our individual products!

Contact us and we will be happy to advise you.



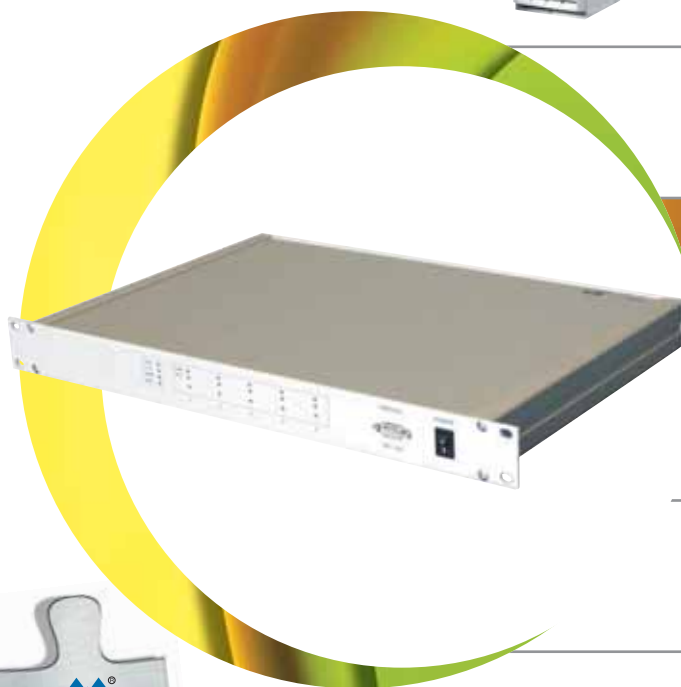
Cooling technology

Cabinet technology

Power distribution system

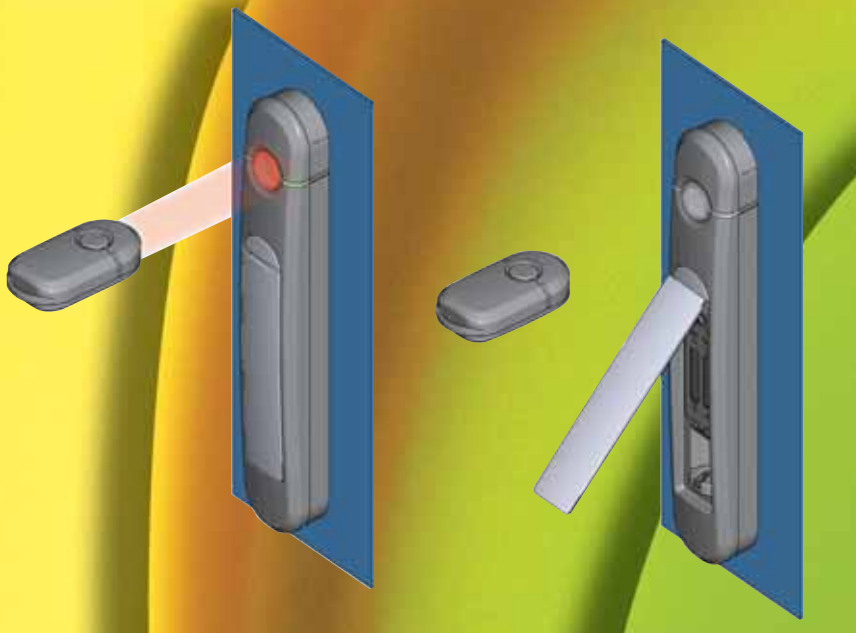


	19" TiRAX cabinet system	from page 3	
	19" NETcell cabinet system	from page 31	
	Open 19" racks	from page 43	
	Wall-mounting/stand-alone distribution systems	from page 53	
	Wall-mounting enclosure systems	from page 63	
	Air conditioning technology	from page 77	
	Power distribution system	from page 85	
	Cabinet monitoring	from page 101	
	Cable management	from page 105	
	Workstation systems	from page 109	
	General accessories/ distribution technology	from page 123	





235 • Cabinet monitoring and shutdown via network



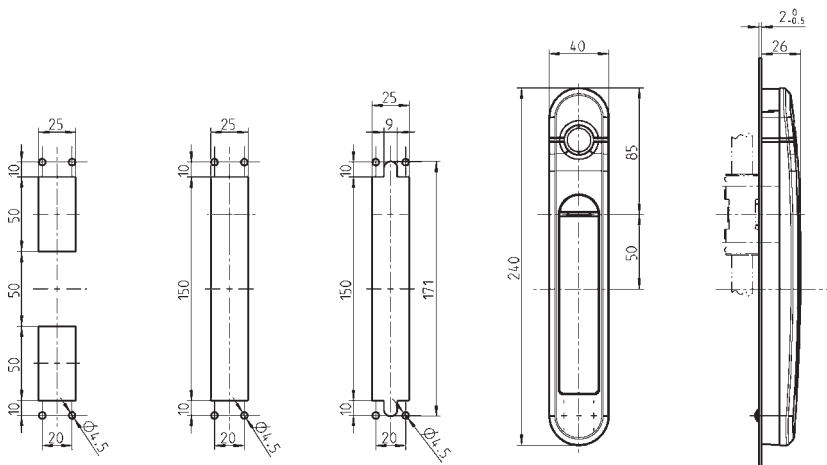
AGENT E

This lock consists of a combination of electronic swivel handles AGENT E and TAGs (handheld transmitters). AGENT E is opened by a TAG from the type user. Only authorised user TAGs can open swivel handles.

LEDs are switched on via the button on the TAG.

The light beam must be directed to the photo cell of the swivel handle. The light of the diodes is modulated several times. Each TAG has an individual identifier. There are also master TAGs (identifiable on the red button), with which access privileges for specific user TAGs can be set on one swivel handle.

- wireless assembly on the cabinet (plug & play, battery power supply)
- easy conversion of existing racks
- easy assembly in nearly all common finger hole sizes possible
- easy learning of the TAG (handheld transmitter) directly on the respective swivel handle.
- max. 32 user TAGs and up to 5 master TAGs per swivel handle
- emergency power supply in the event of energy supply outage possible via the USB interface
- no software required
- batteries included in the scope of delivery



User TAG and master TAG



Emergency power supply via USB - USB Micro B



Battery change



Description	Order no.
Handle AGENT E	235-100-24
Master TAG	235-100-14
User TAG	235-100-23

Also available as a wireless version (centrally managed via Access Point)



"Box" design

Cabinet monitoring and shutdown via network

- modular system assembly via CAN-BUS
- connecting cables between the modules (BUS) up to 1000 metres
- all activities can be tracked and controlled online using ethernet or SNMP
- up to 100 extension modules can be managed with one communication module.
- software is free and is included in the scope of delivery.

Material:

enclosure: sheet metal

Finish:

RAL 7035 light grey

Dimensions (H x W x D):

32 mm x 135 mm x 229 mm

Communication module

Order no.
235-100-41

Modules for extension

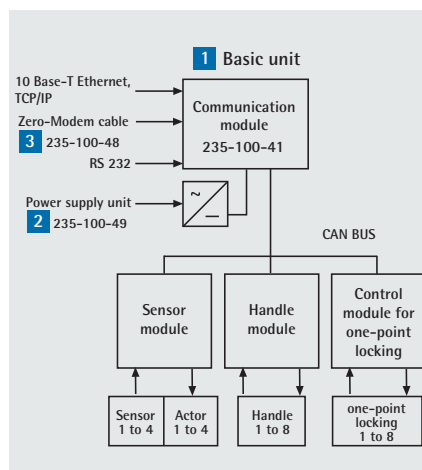
Sensor module (box)

This module is designed to record and evaluate various environmental conditions such as temperature, humidity, ground motion, etc. Up to four sensors can be connected to the analogue inputs.

The four relay outputs can be switched depending on the sensor input values.

Different limit values can be programmed for each sensor and the required countermeasures or alarm functions can be activated with the relay outputs.

Order no.
235-100-42



Handle module for 8 handles (box)

This module can drive up to 8 handle systems with a triggering magnet component and read in the 8 handle contacts. This module has a special voltage conditioning unit to provide the energy required to spring open the locking mechanisms.

Order no.
235-100-52

Control module for 8 one-point lockings (box)

This module can drive up to 8 one-point lockings and read in the 8 status contacts.

Order no.
235-100-53

2 Connected power supply unit



- 12V/DC 500 mA

Order no.
235-100-49

Handle module for 2 handles (box)

This module can drive up to 2 handle systems with a triggering magnet component and read in the 2 handle contacts. This module has a special voltage conditioning unit to provide the energy required to spring open the locking mechanisms.

Order no.
235-100-43

Control module for 2 one-point lockings (box)

This module can drive up to 2 one-point lockings and read in the 2 status contacts.

Order no.
235-100-54



235 • Cabinet monitoring and shutdown via network

Sensors and operating modules for 19" and box system

Keypad operating unit with RJ11 connector



- used to address a door in the system and to open it with an access code

Order no.
235-100-76

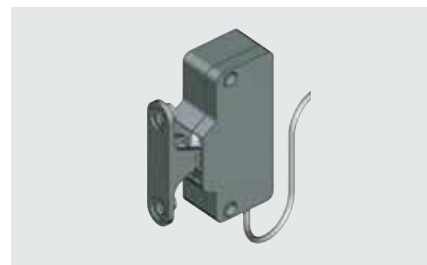
Locking mechanism with reed contact for integration of turning lever lock



- magnet component for integration in handle systems
 - the handle is opened and its status (open or closed) is passed on
- Standard wire length: 3 m**

Order no.
235-100-78

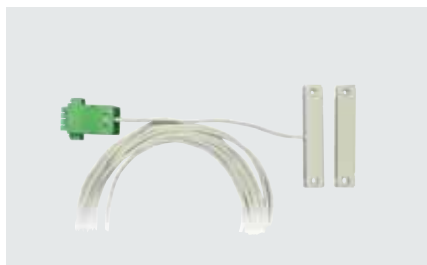
One-point locking with reed contact



- for individual use in virtually all enclosures
- the door is opened and its status (open or closed) is passed on

Order no.
235-100-80

Door switch as flat reed contact



- status of doors can be monitored

Standard wire length: 3 m

Order no.
235-100-82

Air conditioning sensor



- measures both the humidity and the temperature of the environment
 - **humidity measurement range:** 0-100 % relative humidity
 - **temperature measurement range:** -20 °C to +80 °C
- Standard wire length: 2 m**

Order no.
235-100-86

Temperature sensor



- **temperature measurement range:** -50 °C to +150 °C

Order no.
235-100-87

Optical smoke detector



- VdS recognition G29219
- Standard wire length: 3 m**

Order no.
235-100-84

3 Zero-modem cable



- dataline for configuring the system

Order no.
235-100-48



19" TiRAX cabinet system

from page 3



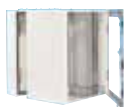
19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109



General accessories/
distribution technology

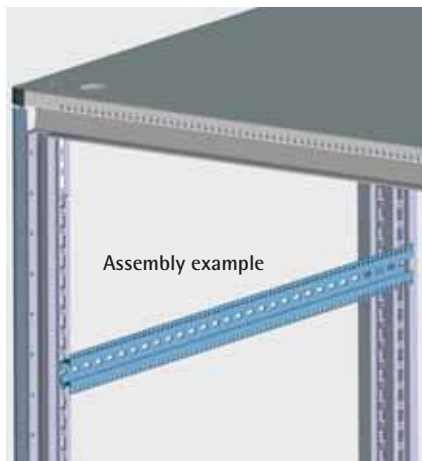
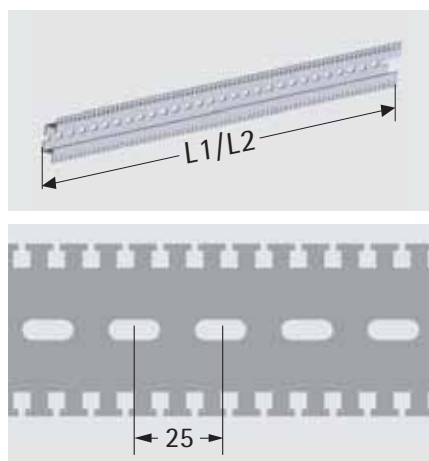
from page 123



You can read more about products from the apra-group at www.apra-norm.com



"Universal" cable guard rail



- with integrated cable management bracket
- holds cable ties and cable clips in place

Material: aluminium, anodised
Scope of delivery: includes mounting material

Version	Order no.
L1 (520 mm)	318-121-10
L2 (720 mm)	318-121-11

Cable clamps



- to mount cables on the "Universal" cable guard rail

Size for cable Ø mm	Order no.
8-12	640-132
12-16	640-133
16-22	640-134
28-34	640-134-10

"Universal" velcro strip



- for quickly securing **non 19"-compatible** components
 - Length: 400 mm, width: 20 mm
 - back to back mounting
 - set = 10 pieces
- Material:** velcro, black

Order no. (set)
671-122-04

"Universal" velcro mount

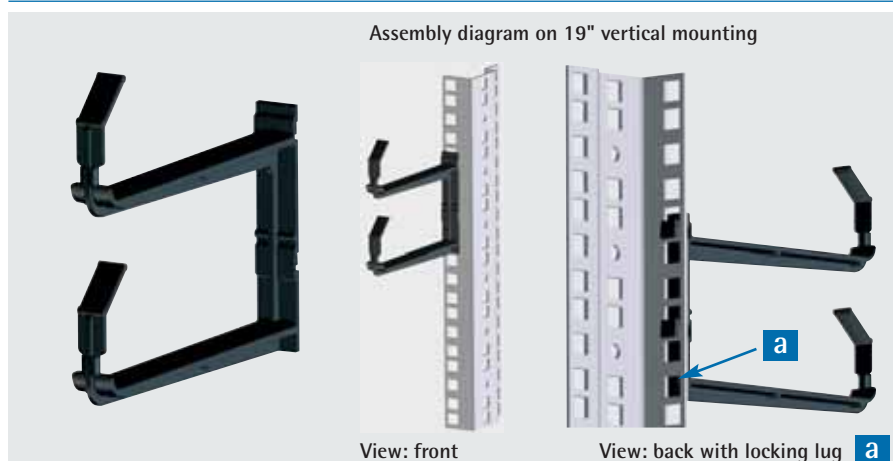


- velcro mount used to accommodate velcro up to w=20 mm
- set = 10 pieces

Material: plastic

Order no. (set)
583-001-08

"Universal" cable clip set



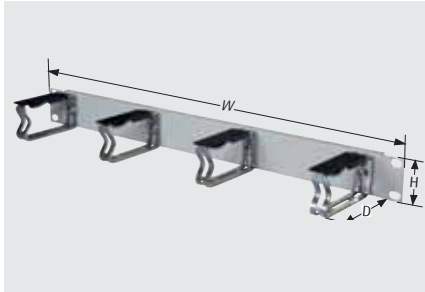
- to clip into 19" standard vertical mounting
- set = 10 pieces

Material: plastic

Order no. (set)
640-030-35



19" cable routing panel with metal clamps 1 U/2 U



- for clear and neat horizontal cable routing in the 19" level
- including 4 cable hoops and lockings

Finish: painted/chrome-plated

RAL 7035 light grey

RAL 9005 jet black

Material: sheet metal/metal

Dimensions (H x W x D):

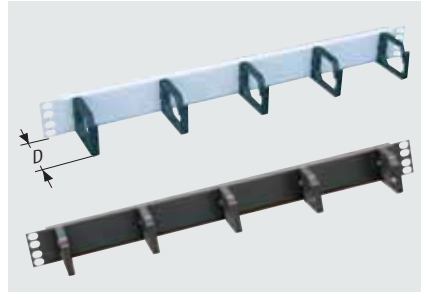
44/88 x 482,6 x 90/130 mm

Scope of delivery:

complete with mounting material

U	RAL 7035	RAL 9005
1	213-145-41	213-145-42
2	213-145-43	213-145-44

19" cable routing panel with plastic clamps 1 U



- for clear and neat horizontal cable routing in the 19" level
- clips: Version, narrow

Finish:

RAL 7035 light grey

RAL 9005 jet black

Material: sheet metal/plastic

Dimensions (H x W x D):

44 x 482.6 x 60 mm

Scope of delivery:

complete with mounting material

U	RAL 7035	RAL 9005
1	213-145-00	213-145-30

19" switch panel, plastic 1 U



- for clear and neat horizontal cable routing in the 19" level
- weight-saving in comparison to traditional metal panels
- fire protection classification to UL94 V-0

Finish: black (similar to RAL 9005)

Material: plastic (polyamide)

Dimensions (H x W x D):

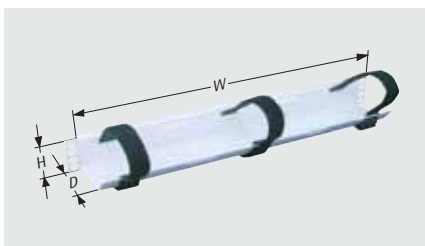
44 x 482.6 x 60 mm

Scope of delivery:

complete with mounting material

Order no.
213-145-80

19" cable routing panel 1 U with Velcro fasteners



- for clear and neat horizontal cable routing in the 19" level with Velcro fastener

Finish:

RAL 7035 light grey

RAL 9005 jet black

Material: sheet metal/plastic

Dimensions (H x W x D):

44 x 482.6 x 90 mm

Scope of delivery:

complete with 3 x Velcro strip and mounting material

U	RAL 7035	RAL 9005
1	213-161-00	213-161-10

19" cable routing panel with cover panels 1 U / 2 U



- for clear and neat covered cable routing in the 19" level
- with adjustment options
- removable front panel

Finish:

RAL 7035 light grey

RAL 9005 jet black

Material: sheet steel

Dimensions (H x W x D):

44/88 x 482.6 x 100 mm

Scope of delivery:

complete with mounting material

U	RAL 7035	RAL 9005
1	213-145-65	213-145-95
2	213-145-68	213-145-98

19" cable duct 1 U with brush and strain-relief comb



- for cable entry with brush

Finish:

RAL 7035 light grey

RAL 9005 jet black

Material: sheet metal/plastic

Dimensions (H x W x D):

44 x 482.6 x 12 mm

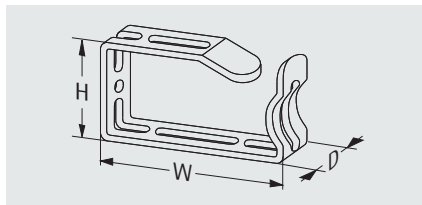
Scope of delivery:

complete with brush and mounting material

U	RAL 7035	RAL 9005
1	213-146-00	213-146-10



Cable clips, metal

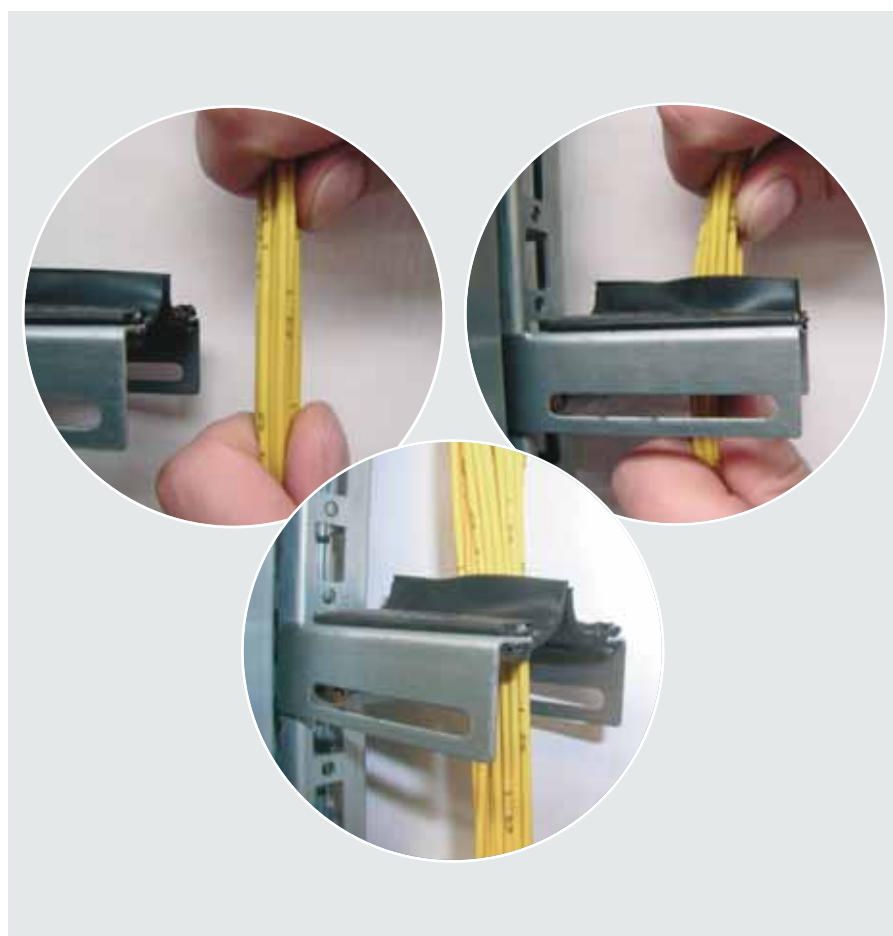


- for securing cables vertically to a 19" rack (for 800 mm wide cabinets)
- set = 10 pieces

Scope of delivery: includes mounting material

Design	Dimensions (H x W x D) mm	Order no. (set)
Size 1	44 x 85 x 23	640-036-11
Size 2	66 x 125 x 23	640-036-12
Size 3	88 x 125 x 23	640-036-13

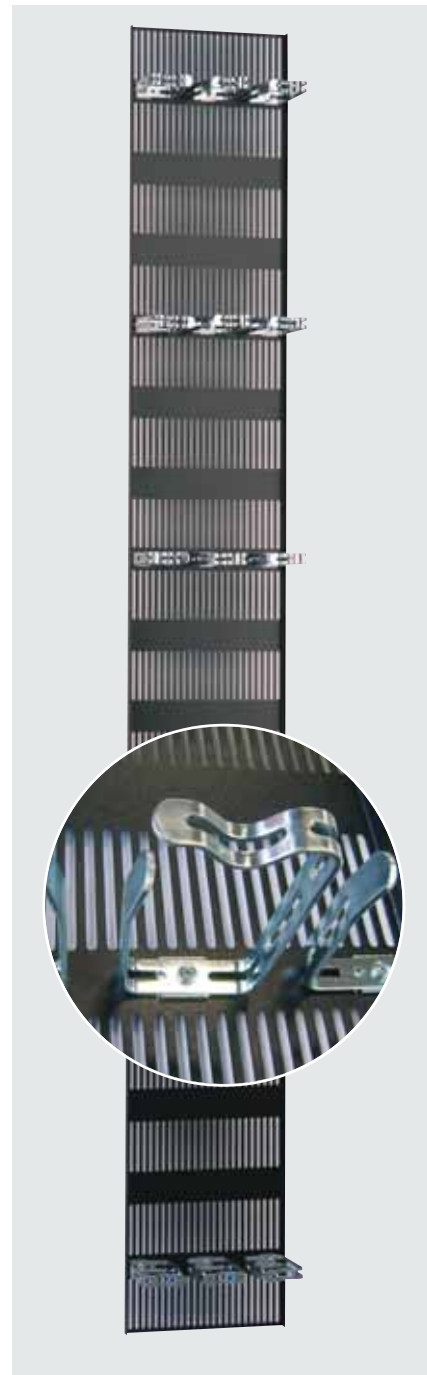
"Easyfix" cable holder



- quick, clear and protective holders for vertical cabling in the rack
- preferred application for fibre optic cables

Order no.
640-036-15

Cable tray



- for vertical cable routing in racks
- fixing option for cable clamps, sizes 1, 2 and 3
- three cable bundles can be routed separately, e.g. power cords, patch cables and fibre optic cables

Finish: RAL 9005 jet black

Dimensions (H x W): 2 m x 250 mm

Order no.
318-101-26



19" TiRAX cabinet system

from page 3



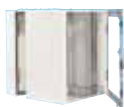
19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



Workstation systems

from page 109



General accessories/
distribution technology

from page 123



You can read more about products from the
apra-group at www.apra-norm.com



Workstation systems



LAN-Office

from page 111

- ergonomics at the workstation
- optimised cable management
- optional 19" modules
- individually configurable
- extendable as required



Standing workstation

Page 117

- elegant design
- work surface 712 × 800 mm
- rear cable entry point
- also supplied as 19" stand-alone distribution system



Computer cabinet TiRAX

Page 118

- practical features
- flexible internal structure (e.g. 19" extension)
- protection class IP 54



"Silent" underbench cabinet

Page 120

- sound-insulating enclosure with viewing door
- detachable side panels
- 19" extension 12 U variable depth



Customer-specific workstation systems and enclosures

Page 122

- we develop optimum workstation system solutions to suit your requirements
- or we manufacture in accordance with your existing drawings





Ergonomics at the workstation



Sample configuration example in standard colour

Versatile shelves

The shelves of the LAN Office workstation system are versatile in their use:

- for horizontal storage



- as a tilted storage shelf



- as a footprint for devices such as Tower PCs etc.



Features

LAN-Office - the convincing programme for ergonomics at the workstation offers you individual solutions for your specific requirements.



Optimised cable management

not visible from the front
direct rear access



Sophisticated additional components

retractable keyboard plug-in unit
and much more



19" modules

ensure the accommodation of the
19" technology elements

LAN Office Workstation System

- integrated cable entry
- optional 19" modules
- versatile accessories
- unlimited extension

Material:

Rack: sheet metal
Desktop: chipboard "E1" with
HPL plastic coating

Finish:

desktop and shelves
RAL 7035 light grey
vertical mountings:
RAL 7037 dusty grey

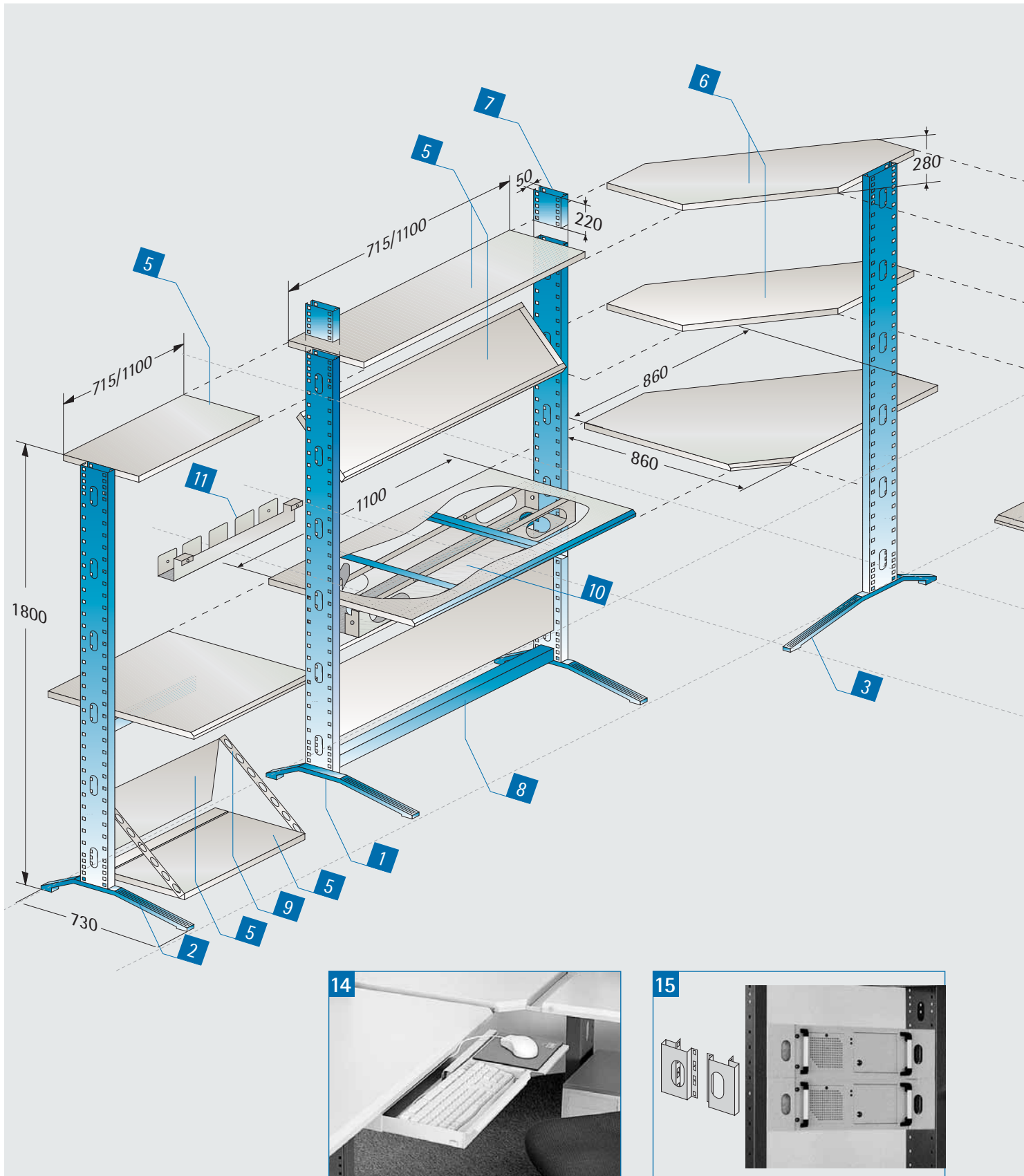
Delivery:

unassembled, includes mounting
instructions



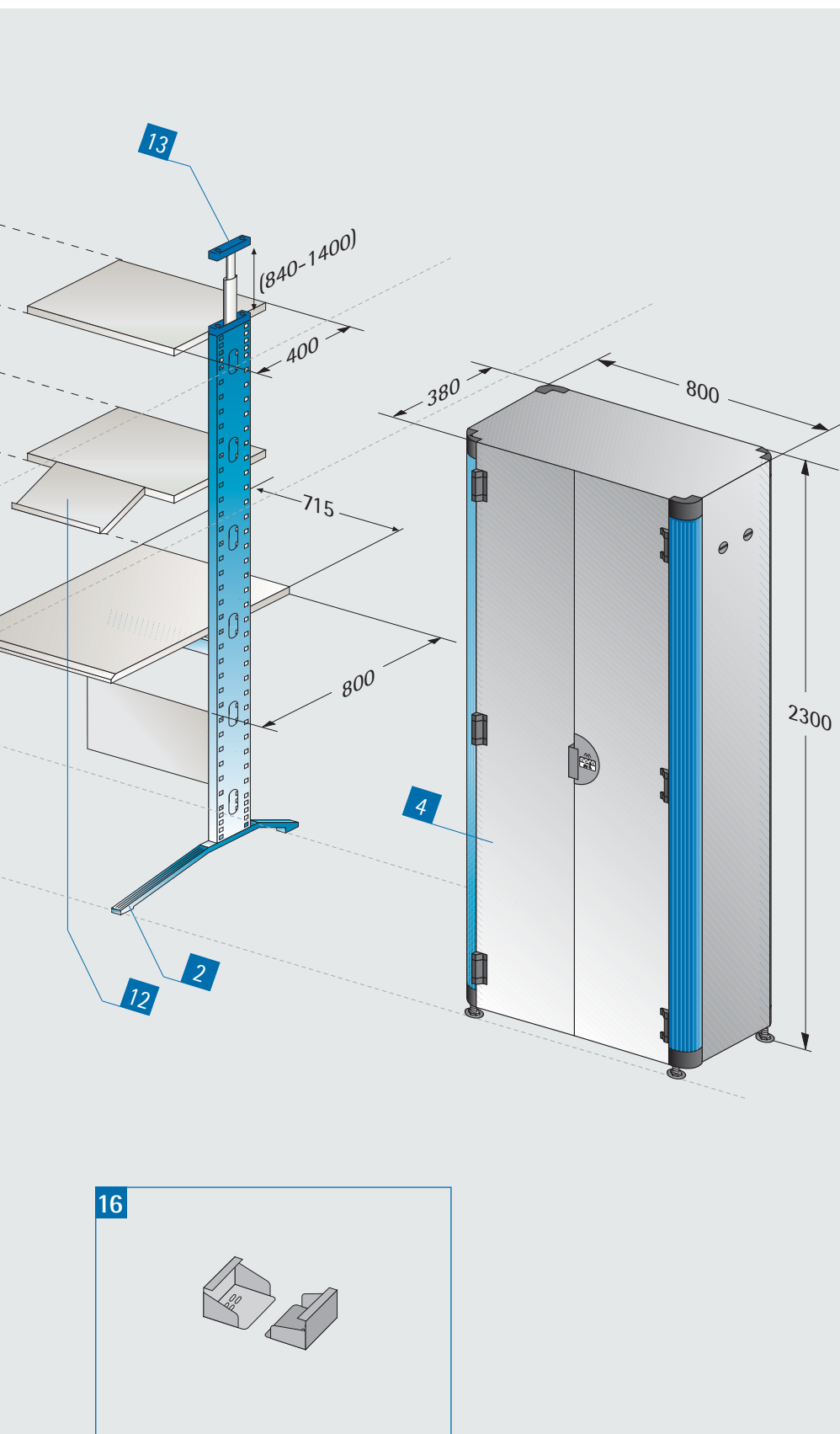
• 585 LAN Office Workstation System

Individual configuration: Configure your own individual workstation system





Select the LAN Office components you want step by step:



Item	Description	Page
1	Basic rack	114
2	Connector rack	114
3	Corner rack	115
4	Office/filing cabinet	115
5	Shelves	116
6	Shelves for corner rack	116
7	Shelf set	116
8	Footrest	116
9	Shelf bracket	116
10	Cable duct under the desktop (in the scope of delivery)	
11	Cable duct, hook-in (in the scope of delivery)	
12	Keyboard storage, hook-in	116
13	Telescopic cover bracket	116
14	Keyboard plug-in unit	116
15	19" module for 4 U	116
16	Slide rails for 19" module	116

Finish:

desktop and shelves,
 sash doors, cover panels
 and floor panels:
 RAL 7035 light grey
 vertical struts:
 RAL 7037 dusty grey



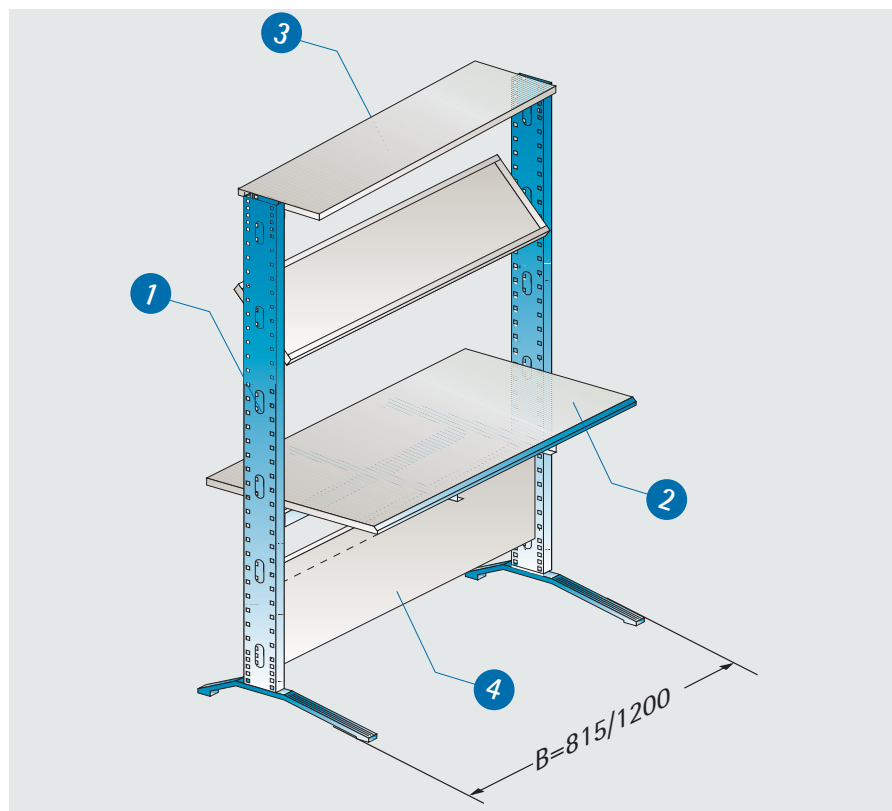
Delivery:

unassembled, includes assembly
 instructions



• 585 LAN Office Workstation System

1 LAN-Office Basic Rack



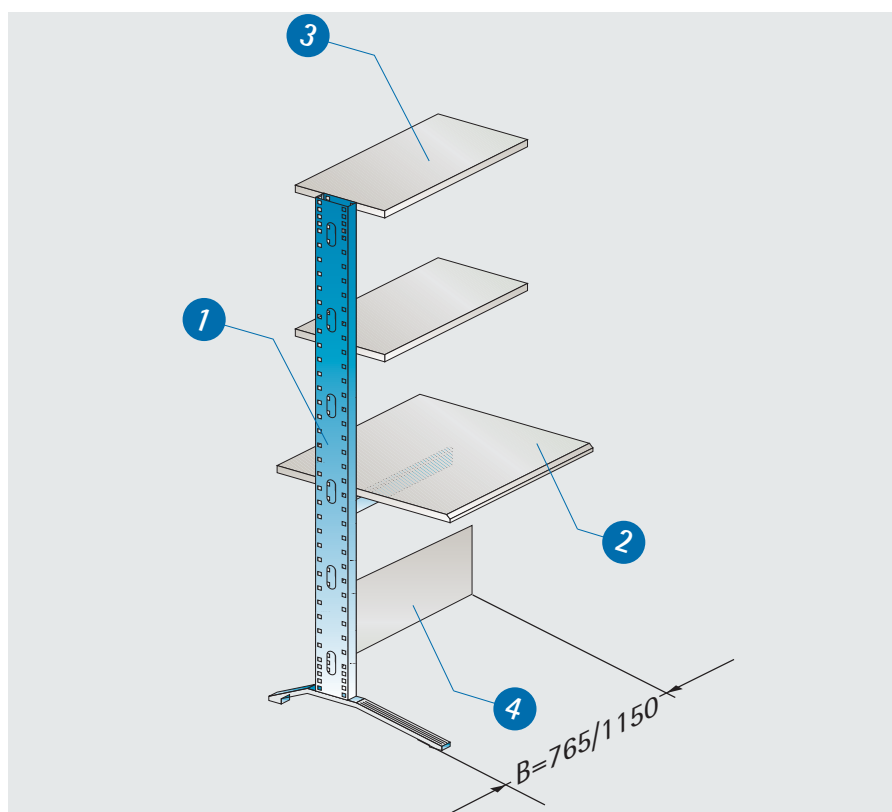
Scope of delivery

Item	Pc.	Description
1	2	Vert. mounting with feet
2	1	Desktop 800 mm deep
3	2	Shelves 400 mm deep
4	1	Shelf underneath mounted vertically
5	1	Cable duct under the desktop (without fig.)
6	1	Cable duct, hook-in (without fig.)
7	1	Mounting material

Order information

Dimensions (H x W x D) mm	Order no.
1800 x 1200 x 800	585-001-50
1800 x 815 x 800	585-002-50

2 LAN-Office Connector Rack



Scope of delivery

Item	Pc.	Description
1	1	Vert. mounting with feet
2	1	Desktop 800 mm deep
3	2	Shelves 400 mm deep
4	1	Shelf underneath mounted vertically
5	1	Cable duct under the desktop (without fig.)
6	1	Cable duct, hook-in (without fig.)
7	1	Mounting material

Order information

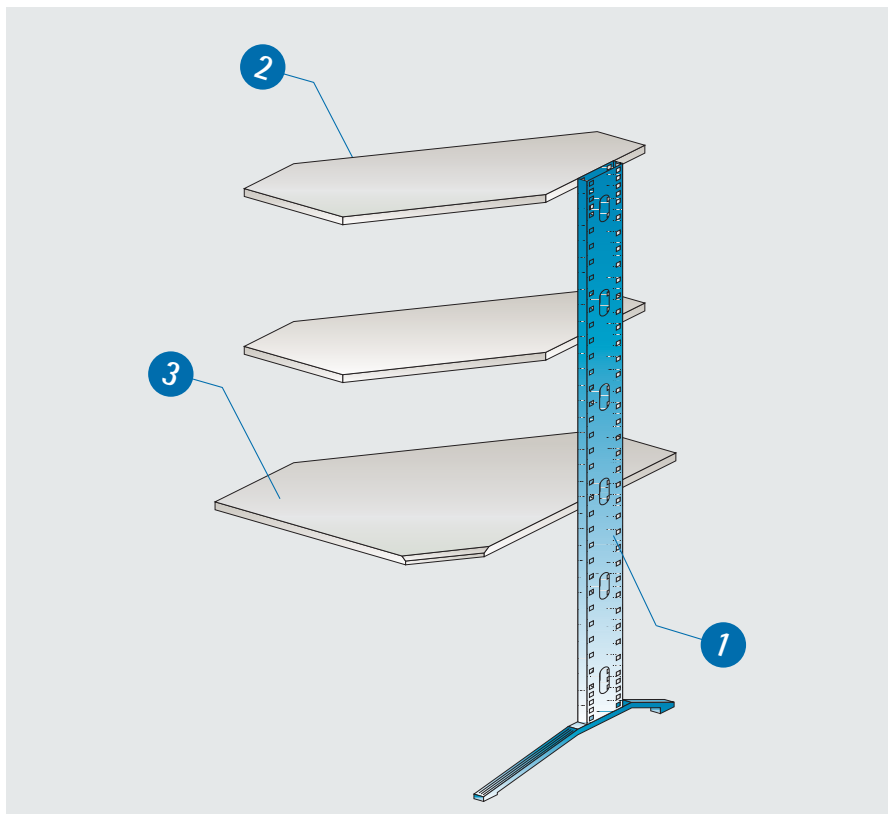
Dimensions (H x W x D) mm	Order no.
1800 x 1150 x 800	585-003-50
1800 x 765 x 800	585-004-50



3 LAN-Office Corner Rack

Scope of delivery

Item	Pc.	Description
1	1	Vert. mounting with feet
2	2	Shelves for corner rack
3	1	Corner desktop
4	1	Cable duct under the corner desktop (without fig.)
5	1	Mounting material



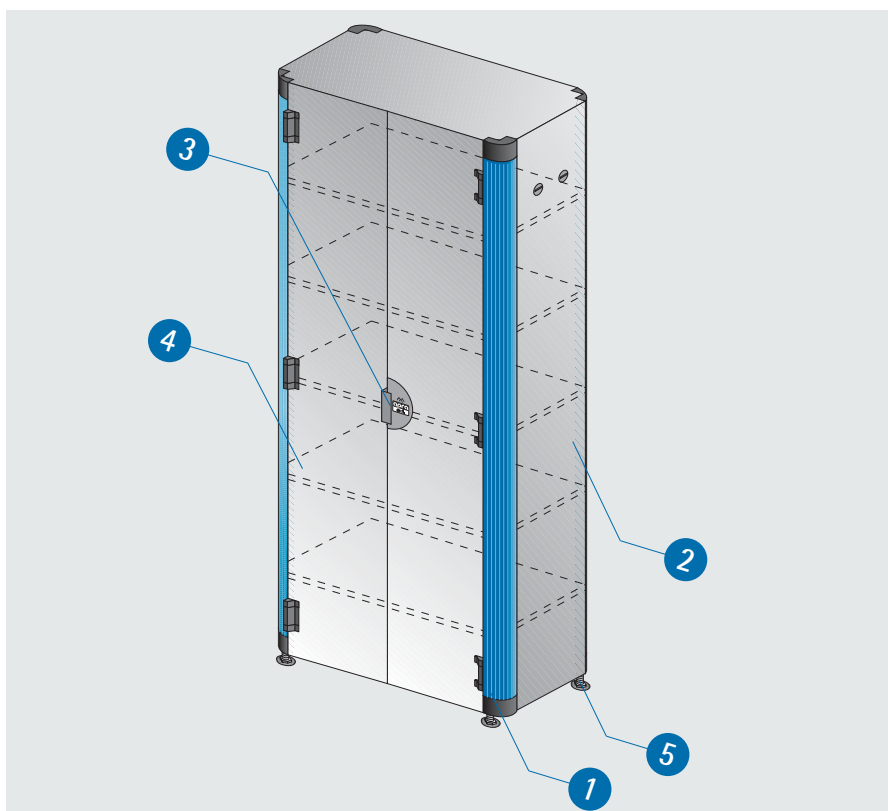
Order information

Dimensions	Order no.
H mm	
1800	585-005-50

4 Office/filing cabinet

Scope of delivery

Item	Pc.	Description
1	1	Cabinet rack with cover and floor panels
2	3	Sash doors
3	1	Front door, split in two, with magnetic catch
4	5	Shelves, height-adjustable
5	4	Adjusting feet
6	1	Mounting material



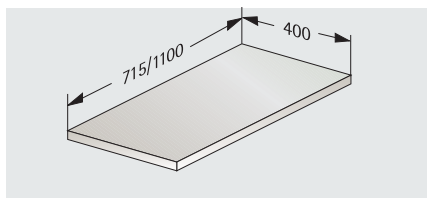
Order information

Dimensions	Order no.
(H x W x D) mm	
2300 x 800 x 380	316-585-50



Accessories

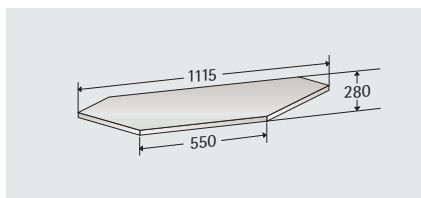
5 Shelf



- assembly with different tilt angles
 - vertical cover of the foot area possible
- Finish:** RAL 7035 light grey
Load capacity: 80 kg

Description mm	Order no.
for W=1200/1150	585-001-10
for W=815/765	585-002-10

6 Shelf for corner rack

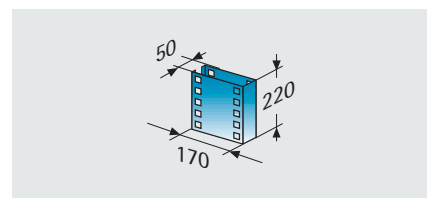


Finish:
RAL 7035 light grey

Load capacity: 80 kg

Order no.
585-005-10

7 Shelf set

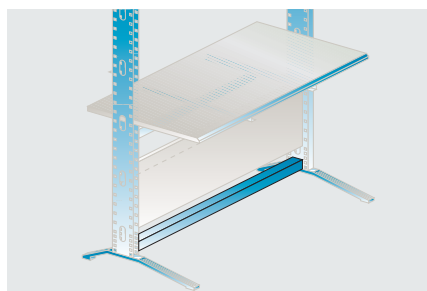


- for individual extension of the vertical mountings

Finish: RAL 7037 dusty grey

Order no.
585-001-57

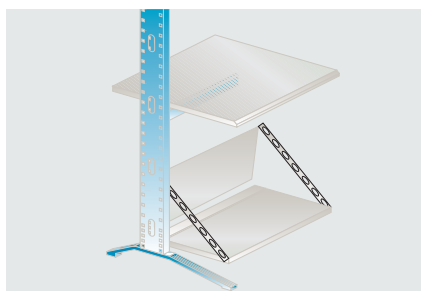
8 Footrest for W=1200 mm



Finish: RAL 7035 light grey

Order no.
585-001-16

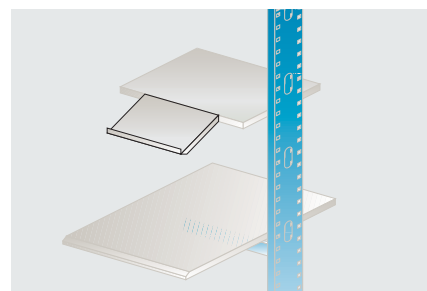
9 Shelf floor bracket



- per shelf 2 pieces required
- Finish:** RAL 7035 light grey

Order no. (1 piece)
585-001-14

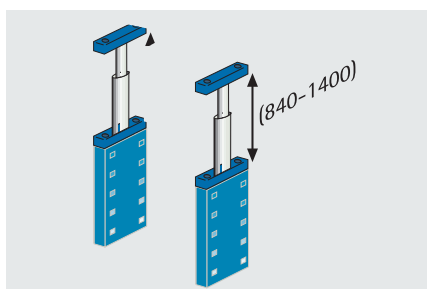
12 Keyboard storage, hook-in



Finish: RAL 7035 light grey

Order no.
585-001-12

13 Telescopic cover bracket



- for additional stabilisation of the LAN-Office Rack on the room ceiling
- the ceiling bracket is telescopic and can bridge spaces between 840 mm up to 1400 mm (max. room clearance 3200 mm)

Order no. (1 piece)
585-001-35

14 Keyboard plug-in unit

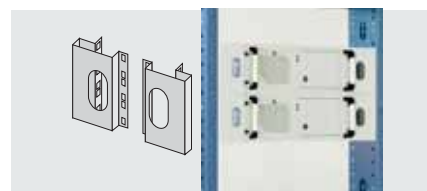


- for underbench assembly
- integrated mouse rest

Finish: RAL 7035 light grey

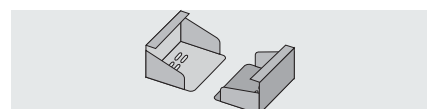
Description	Order no.
without keyboard	202-870-70
with keyboard	202-870-80

15 19" module for 4 U



Order no. (pair)
585-002-12

16 Slide rails for 19" modules



- two 19" modules **15** required

Order no. (pair)
585-002-14



19" standing workstation/ 19" stand-alone distribution system

A 19" standing workstation with wooden desktop

work surface of the desktop
(W × D = 712 mm × 800 mm)

B 19" stand-alone distribution system with a single-piece top panel of sheet metal

- dismountable aluminium cabinet rack
- front-side tinted viewing door with turning lever lock (profile half cylinder accommodation possible)
- 19" level 19 U, front and back
- 4 crossbars for depth adjustment of 19" levels
- rear cable entry point with brush, top-mounted for feeding through screen and keyboard cables (see fig. 2), for the 19" stand-alone distribution system bottom-mounted for cable entry.
- levelling feet to align the workstation

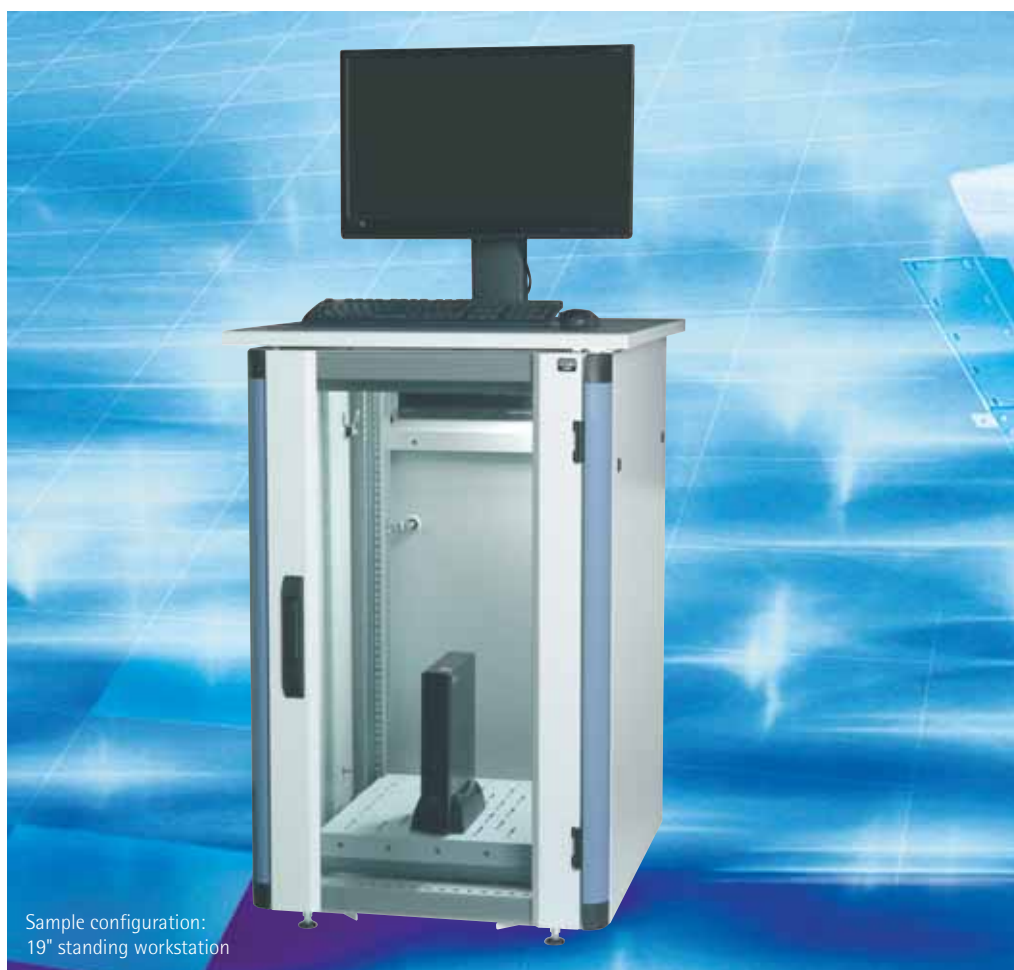
Finish:

Trim parts desktop:

RAL 7035 light grey

Design profile: RAL 5014 pigeon blue

Delivery: fully assembled



Scope of delivery

Item	Pc.	Description
1	1	Alu-cabinet rack, dismount.
2	1	Tinted viewing door with turning lever lock
3	3	Sash doors (back/side)
4	4	Vertical mountings 19 U
5	4	Depth crossbars
6	1	Two piece bottom panel
7	1	Desktop (only for 19" standing workstation) Top panel (only for 19" stand-alone distribution system)
8	1	Rear cable entry point with brush seal top-mounted (for 19" standing workstation) bottom-mounted (for 19" stand-alone distrib. system)
9	4	Levelling feet
10	1	Earthing kit (only for 19" stand-alone distrib. system)
11	1	19" screw set M 5 (50 x)

Other preferred colours:

-  **RAL 1032 (broom yellow)**
-  **RAL 5010 (gentian blue)**
-  **RAL 3002 (carmine red)**
-  **RAL 6029 (mint green)**
-  **RAL 7037 (dusty grey)**

Colour display similar!



Order information

	Description	Dimensions (H × W × D) mm	Order no.
A	19" standing workstation	1100 × 712 × 800	318-202-75
B	19" stand-alone distribution system	1100 × 600 × 800	318-202-30



TiRAX Computer Cabinet

- enables the installation of a reliable, user-friendly and also visually stylish computer workstation in adverse environmental conditions in industrial fields
- protection class IP 54
- own cooling system can be integrated
- can be fitted with 19" components or be built as complete tower solution
- cables entry from underneath as standard, but top or lateral cable entry also possible
- three-part bottom panel with cable entry through foam rubber pad
- a profile half cylinder locks the keyboard cover
- doors with turning lever lock (concealed) for profile half cylinder

Design examples

Practical features for more comfort at the workstation



- writing utensils, calculator and much more find their place in the folding compartment of the TiRAX computer cabinet.
- integrated stackers **1** and the pivotable mouse pad **2** help to keep the workstation tidy
- the built-in foam hand rest **3** ensures ergonomic keyboard use.



- a multipurpose shelf **4** for paperwork, files, telephone etc can be mounted to the cabinet at any height and the tilt can be adjusted.
- a practical mug holder is also included in the standard scope of delivery.

Scope of delivery

Item	Pc.	Description
1	1	Cabinet rack
2	1	Three-part front, consisting of viewing door, operating unit, solid door
3	1	Rear door with turning lever lock
4	2	Side panels
5	(1)	Two part bottom panel with cable entry (with D=600 mm)
	(1)	Three part bottom panel with cable entry (with D=800 mm)
6	1	Top panel, detachable
7	1	Earthing kit, installed
8	1	Base, H=100 mm

Order information

Dimens. (H x W x D) mm	Order No.
(1800 + 100) x 600 x 600	318-202-65
(1800 + 100) x 600 x 800	318-202-85



Technical information

Finish:

RAL 7035 light grey
RAL 5014 pigeon blue

Material:

sheet metal, galvanised

protection class:

IP 54

Delivery:

fully assembled



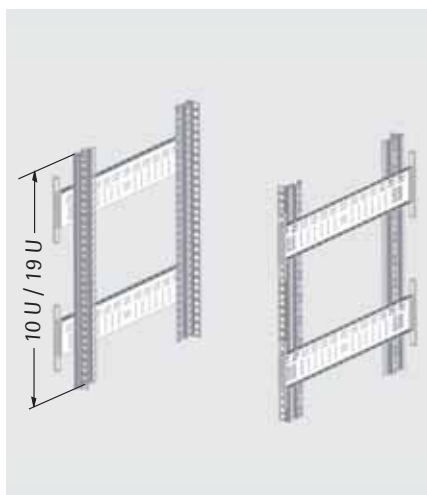
Dimensions design example

A wide range of ventilation and air conditioning components can be found in the section "Air conditioning technology" from page 77. We will be pleased to put your system together!



Accessories

19" extension set



- 19" vertical mountings with crossbars for individual installation (each 4 pieces)

Installation behind the top viewing door (10 U-area)

Description	Cabinet depth D mm	Order no. (Set)
Extension set 10 U	600	318-201-81
	800	318-201-82

Installation behind the lower solid door (19 U-area)

Description	Cabinet depth D mm	Order no. (Set)
Extension set 19 U	600	318-201-83
	800	318-201-84

Multipurpose storage



- infinite number of tilt angle adjustments

Finish: RAL 7035 light grey

Order no.
318-201-74

Additional accessories for your workstation system can be found in the section "TiRAX" cabinet system from page 3 and in the section "Accessories" from page 123.





350 • optiRACK "silent" stand-alone enclosure



Fig: Version 2 "active"

optiRACK "silent" underbench cabinet

- sound-insulating enclosure with viewing door
- detachable side panels
- 19" expansion 12 U variable depth

Available in two versions:

Version 1 "passive": with ventilation grille (prepared without fan for passive ventilation of the enclosure)

Version 2 "active": prepared with speed-controlled fan for active ventilation of the enclosure (fan: 12 V DC, 180 m³/h, 42 DB)

Outer dimensions (H × W × D):
12 U (615 mm) × 550 × 600 mm

Material: sheet metal

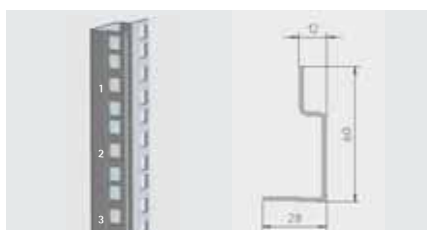
Finish:
enclosure: RAL 7035 light grey
design profiles: RAL 5014 pigeon blue
(other colours on request)

Delivery:
assembled



Description	Order no.
Version 1 "passive"	350-001-60
Version 2 "active"	350-001-61

19" vertical mounting

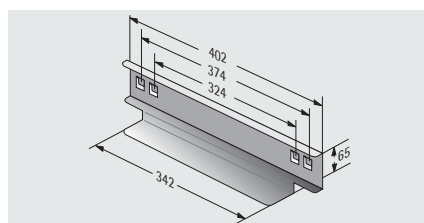


- with U-labelling
- Height: 12 U

Material: sheet metal, galvanised

Order no.
316-120-12

Slide rail, hook-in

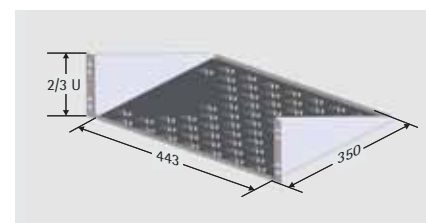


- hooked in 19" vertical mountings
- to support heavy 19" plug-in units
- two 19" levels are required

Material: sheet metal 1.5 mm, galvanised
Load capacity: 50 kg

Order no. (pair)
316-544-00

19" shelf, fixed



- simple assembly on a 19" grid (only one 19" level required)
- ventilated
- Height: 2 U

Finish: RAL 7035 light grey
Material: sheet metal
Load capacity: 15 kg

Order no.
315-810-20



Our service all comes from a single source:

- ✓ take advantage of our expertise
- ✓ save time and money

Air conditioning, power supply, cable entry solutions, plug-and-play versions and pre-wiring for enclosures and cabinet systems

At the apra Group, we place particular emphasis on individual and flexible system solutions. Our enclosures and 19" cabinet systems are equipped with components such as a power supply/distribution system and air conditioning technology in line with customer requirements and are supplied with full pre-wiring on request. This enables us to fulfil the most challenging of customer requirements.

From development right through to the finished product, you can benefit from our expertise and flexibility!

Additional accessories for your cabinet and enclosure system can be found here:



Multiple socket strips and other power supply components can be found in the section "Power distribution" from page 85.



A wide range of ventilation and air conditioning components can be found in the section "Air conditioning technology" from page 77.



Suitable cable routing solutions such as cable clamps, patch bays, etc. can be found in the section "Cable management" from page 105.



Test workstations

- created in cooperation with an external designer
- rollable



...from planning right through to the finished product:
everything from a single source!





19" TiRAX cabinet system

from page 3



19" NETcell cabinet system

from page 31



Open 19" racks

from page 43



Wall-mounting/stand-alone
distribution systems

from page 53



Wall-mounting enclosure
systems

from page 63



Air conditioning technology

from page 77



Power distribution system

from page 85



Cabinet monitoring

from page 101



Cable management

from page 105



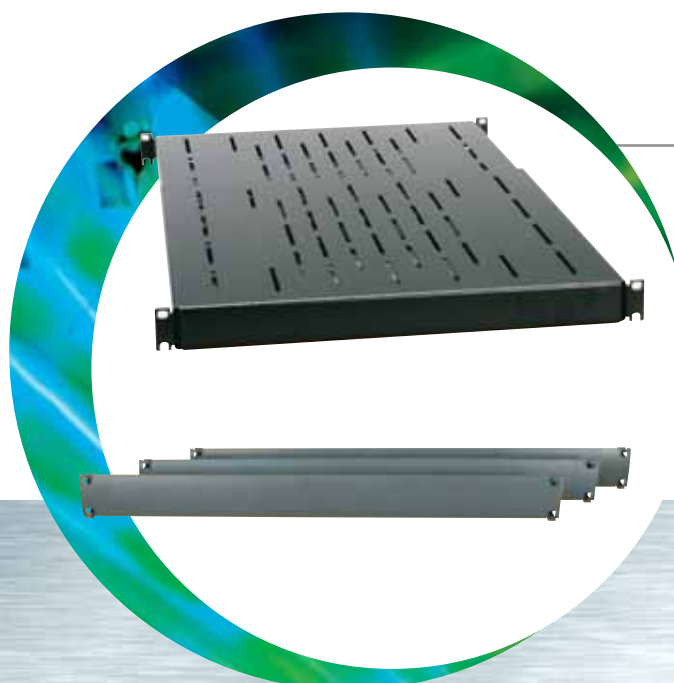
Workstation systems

from page 109



General accessories/
distribution technology

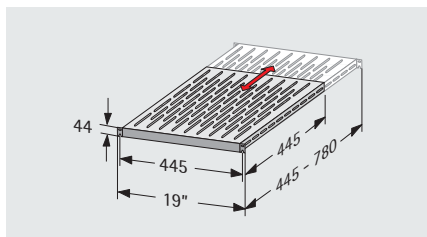
from page 123



You can read more about products from the
apra-group at www.apra-norm.com



19" shelf 1 U "fixed installation" **VARiplain**



- fixed installation
- variable depth thanks to VARiplain technology
- telescopic: 445 - 780 mm (see graphic)
- simple one-person assembly: open long hole in the 19" front (hook-in)

Finish: RAL 7035 light grey or RAL 9005 jet black

Material: sheet metal

Dimensions (H x W x D): 1 U (44 mm) x 19" (482.6 mm) x 445 - 780 mm

Floor space (w x d):

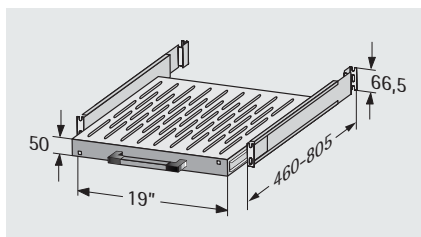
445 mm x (445 mm-780 mm)

Load capacity:

150 kg (distributed load/static)

U	RAL 7035	RAL 9005
1	316-036-99	316-036-69

19" shelf 1.5 U "extractable"



- variable-depth installation
- extraction length 500 mm
- simple one-person assembly

Finish: RAL 7035 light grey or RAL 9005 jet black

Material: sheet metal

Dimensions (H x W x D):

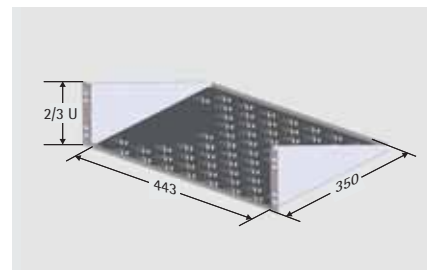
1.5 U (66.5 mm) x 19" (482.6 mm) x 465/665 mm

Floor space (w x d): 410 x 465 / 665

Load capacity: 60 kg (distributed load)

Depth	RAL 7035	RAL 9005
465 mm	318-141-00	318-141-50
665 mm	318-141-01	318-141-51

19" shelf 2/3 U



- simple assembly on the 19" grid (only one 19" level required)
 - ventilated
 - includes mounting materials
- Finish:** RAL 7035 light grey or RAL 9005 jet black

Material: sheet metal

Dimensions (H x W x D):

88/132 mm x 482.6 x 350 mm

Floor space (w x d): 443 mm x 350 mm

Scope of delivery: with mounting material

Load capacity: 15 kg (distributed load)

U	RAL 7035	RAL 9005
2	315-810-20	315-810-25
3	315-810-00	315-810-35

19" blind panel, plastic, 1 U



- air separation function: cost-saving and very effective option for reducing energy costs in data centres
- visual upgrade of the rack by concealing free 19" surfaces
- stylish design due to rounded front surface of the panel
- short assembly time: the blind panel is easily and without tools clipped into the 19" grid.
- can be removed and reinserted at any time without wear and tear and without tools

- protection against dust entry
- fire protection classification to UL94 V-0
- weight-saving in comparison to traditional metal panels

Finish:

RAL 7016 anthracite grey

RAL 7035 light grey

Material: Lexan 920, fire class to UL94 V-0, ROHS-compliant

Delivery:

Set = 10 pieces

Set = 136 pieces

RAL 7016 anthracite grey		RAL 7035 light grey	
Set = 10 pieces	Set = 136 pieces	Set = 10 pieces	Set = 136 pieces
213-156-25	213-156-40	213-156-30	213-156-45

19" blind panels, sheet metal



Finish:

RAL 7035 light grey

RAL 9005 jet black

Material: sheet metal, 1.5 mm

Dimensions (H x W x D):

1-4 U x 482.6 x 10 mm

Scope of delivery: with mounting mat.

U	RAL 7035	RAL 9005
1	213-156-00	213-156-10
2	213-158-00	213-158-10
3	213-159-00	213-159-10
4	213-160-00	213-160-10

Shelves for installation in cabinets without 19" installation frame can be found in the cabinet section "TIRAX" (from page 24).



19" drawers

- extractable
- optionally available with lock
- 19" installation dimensions to IEC 60297-3-100



Technical information

Application:

for secure storage of documents in 19" cabinets or enclosures

Finish:

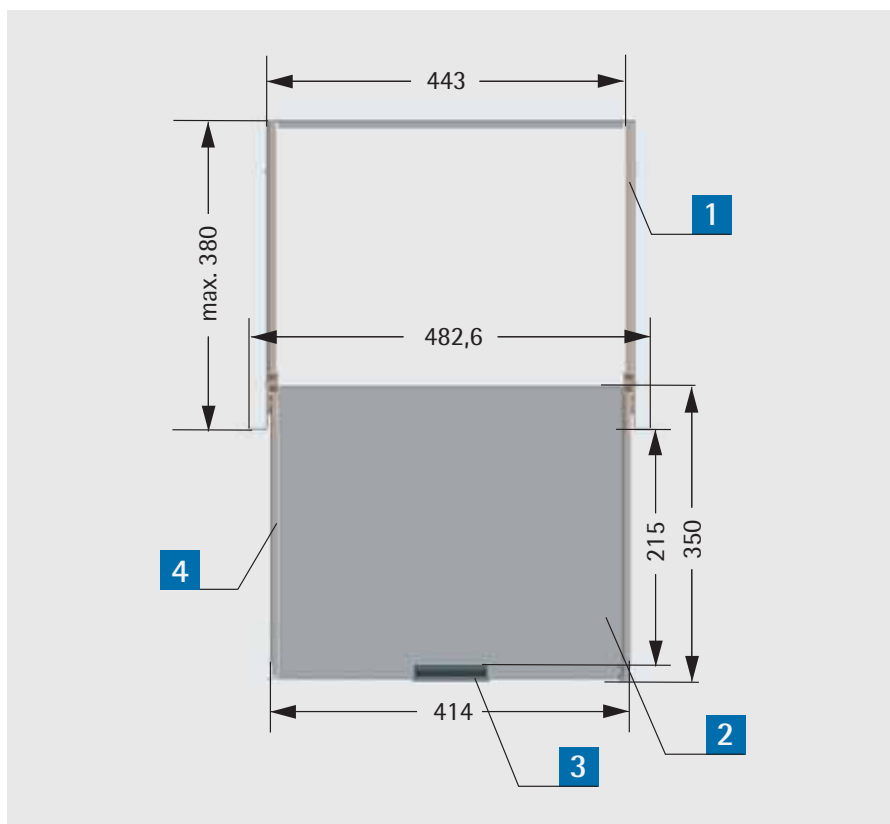
RAL 7035 light grey

Material:

sheet metal

Delivery:

assembled, includes mounting material



Scope of delivery

Item	Pc.	Description
1	1	Installation frame
2	1	Drawer with front panel
3	1	Recess handle, black
4	1 pair	Single sliding mechanisms
5	1	Mounting material

Order information

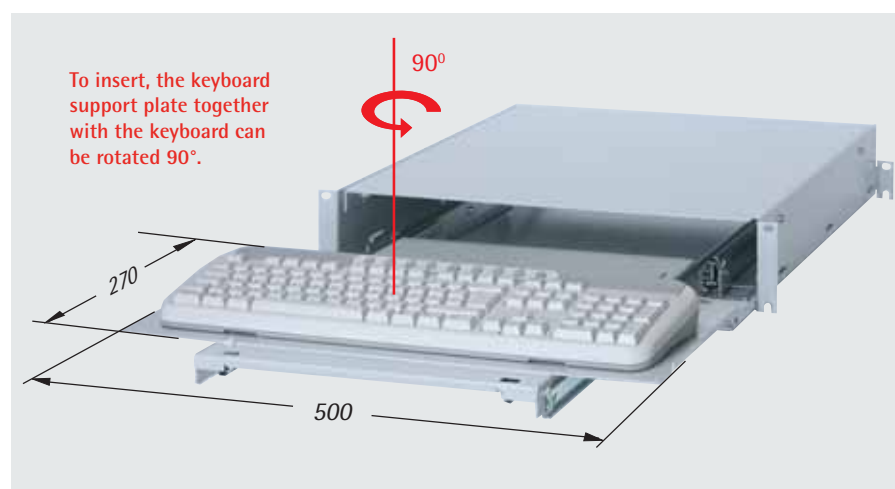
Installation height		Usable install. dimen. h x w x d mm	Order no.	
U	H mm		without lock	with lock
1	44	42 x 410 x 380	202-219-50	202-219-60
2	88	84 x 410 x 370	202-219-53	202-219-63
3	132.5	128 x 410 x 370	202-219-56	202-219-66



19" keyboard plug-in unit 2 U for standard keyboards

- keyboard plug-in unit with fold-down front panel
- accommodates all standard keyboards
- existing keyboards can be integrated in to the 19" rack, even if they are not 19"-compatible
- front-mounted, large, extractable mouse rest
- mounting on front and rear 19" level, whereby the clearance to the front/rear level can be individually adjusted from 445 mm up to 845 mm.
- 19" installation dimensions to IEC 60297-3-100
- from a cabinet depth of 800 mm

Technical information



Application:

for use as an input console in 19" cabinets or user desks

Finish: RAL 7035 light grey

Material: sheet metal

Dimensions (H x W x D):

2 U (88 mm) x 19" (482.6 mm) x 550 mm

Delivery: assembled

- Keyboard is not included in the scope of delivery.
- The maximum height of the keyboard/mouse is 36 mm.
- Please refer to page 116 for a keyboard plug-in unit for mounting on the underside of the table.

Scope of delivery

Item	Pc.	Description
1	1	Chassis top cover
2	1	Drawer
3	1	Keyboard support plate, rotat.
4	1	Mouse rest
5	2	Telescopic rails
6	1	Front panel
7	1	Mounting material

Order information

Description	Order no.
19" keyboard plug-in unit 2 U	202-868-00

Description	Dimensions (H x W x D)	Order no.
Keyboard German, type QWERTZ, USB	433 x 170 x 30 mm	202-870-09
Keyboard English, Type QWERTY, USB	433 x 170 x 30 mm	202-870-14



19" keyboard plug-in unit 1 U

- low total height
- extractable
- with integrated, fold-down mousepad
- mousepad can be added on the left or right
- keyboards up to a width of 433 mm and a height of 36 mm can be used
- 19" installation dimensions to IEC 60297-3-100



Technical information

Application:

for use as an input console in 19" cabinets or user desks

Finish:

RAL 7035 light grey/
RAL 9005 jet black

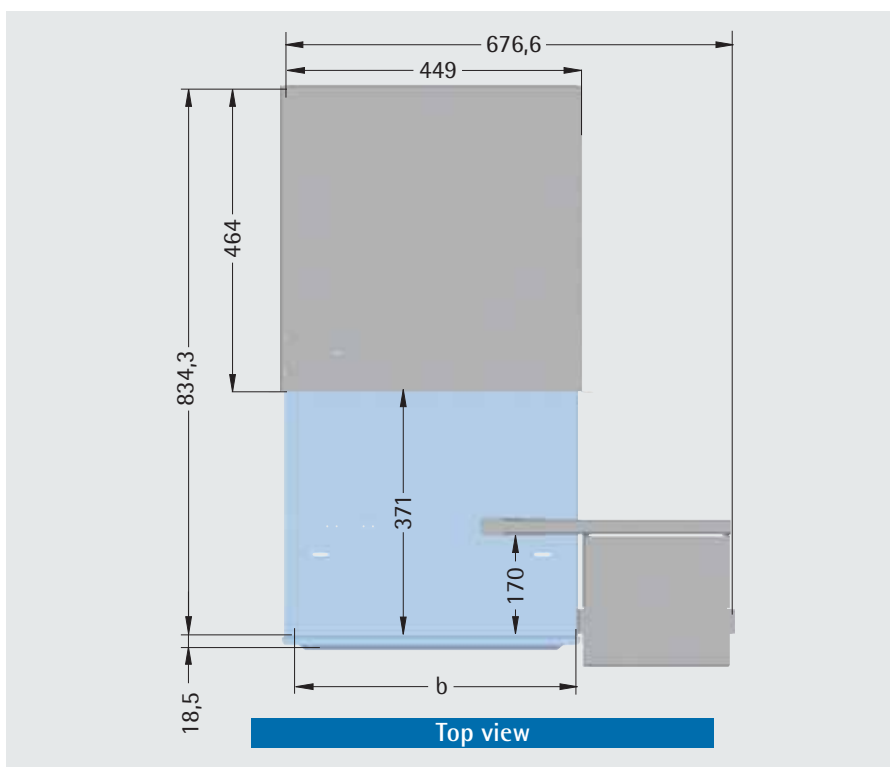
Material: sheet metal

Dimensions (H x W x D):

44 x 482.6 x 470 mm

Delivery: assembled

- Mouse and keyboard is not included in the scope of delivery.
- The maximum height of the keyboard/mouse is 36 mm.
- Integration on slide rails is recommended.
- Please refer to page 116 for a keyboard plug-in unit for mounting on the underside of the table.



Scope of delivery

Item	Pc.	Description
1	1	Chassis
2	1	Drawer
3	1	Mouse rest
4	1	Mouse pad
5	1	Keyboard
6	1	Mounting material

Order information

Description	Order no. RAL 7035	Order-no. RAL 9005
Plug-in unit without keyboard	202-870-50	202-870-55
Plug-in unit keyboard German, type QWERTZ	202-870-00	-
Plug-in unit keyboard French, type AZERTY	202-870-20	-

Description	Order no.
Keyboard German, type QWERTZ, USB	202-870-09
Keyboard English, Type QWERTY, USB	202-870-14



Similar representation



Rear view: TFT plug-in unit with KVM switch

19" TFT keyboard plug-in unit 1 U with 17" display

The TFT keyboard plug-in unit includes all operating functions such as 17" LCD monitor, keyboard and touchpad in only one height unit. The server, PC and KVM-switch are connected via an adapter cable with a PS/2 interface or USB

- designed as a 19" component: extraction via high-quality telescopic rails
- with 17" display DDC 2 with max. resolution 1280 × 1024
- keyboard with separate number block and touch pad (PS/2)
- power supply 230 V / 50 Hz, can be switched to 120 V / 60 Hz

Finish: black

Scope of delivery:

includes operating instructions and power supply unit

Order no.
202-869-17

19" TFT keyboard plug-in unit 1 U with 17" display and KVM switch

- as above, but with a KVM switch to control 8 or 16 servers
- resolution: 1280 × 1024

Finish: black

Scope of delivery:

includes operating instructions and power supply unit

Description	Order no.
8-way	202-869-19
16-way	202-869-18

Accessories: cables for TFT keyboard plug-in units

KVM switch 8-fold	KVM switch 16-fold	Description	Length m	Order no.
X	-	USB adapter cable from the KVM-switch to the server	1,8	202-869-35
X			3,0	202-869-36
X			5,0	202-869-37
-	X		1,8	202-869-29
	X		3,3	202-869-30
	X		5,0	202-869-31
X	X	PS/2 adapter cable from the KVM-switch to the server	1,8	202-869-26
X	X		3,0	202-869-27
X	X		6,0	202-869-28



Noise absorption foam

- absorbs up to 10 dB/A of sound in enclosures (e.g. fan noise)
- self-adhesive on one side
- thermal conductivity: 0.033 W/mk (to DIN 52612)
- temperature range: -40 °C to +100 °C

Material: PUR ester foam (10 mm):
colour grey, with pattern of indentations,
partially compressed (air permeable)

Delivery: unmounted

Order no. (1 m²)

671-211

19" top hat rail support 3 U

- for a recessed mounting of top hat rail enclosures in the 19" area
- as standard fitted with top hat rail TS 35 (width 425 mm)
- perfect to mount our top hat rail enclosures **apraRail**
- integrated cable guarding and strain relief by cable clip bracket

Material: sheet metal

Finish:

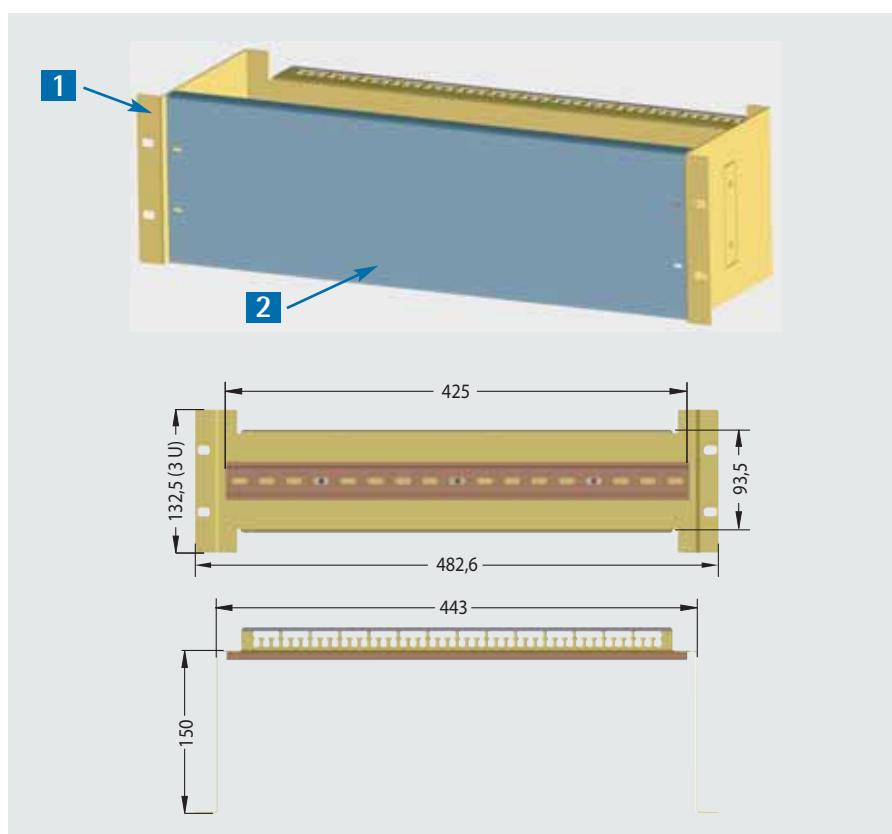
galvanised or painted in
RAL 7035 light grey

Delivery:

unmounted, includes mounting material



If required, we will be happy to affix the noise absorption foam for you before delivering your cabinets or enclosures!



Order information

1 Top hat rail support

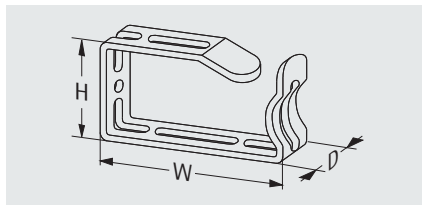
galvanised	RAL 7035
205-420-00	205-420-10

2 Cover (contact protection)

galvanised	RAL 7035
205-420-20	205-420-25



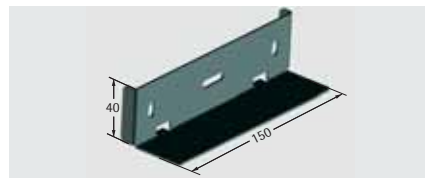
Cable clamps, metal (set)



- for securing cables vertically to a 19" frame (for 800 mm wide cabinets)
 - set = 10 pieces
- Scope of delivery:** incl. mounting material

H x W x D mm	Order no.
44 x 85 x 23	640-036-11
66 x 125 x 23	640-036-12
88 x 125 x 23	640-036-13

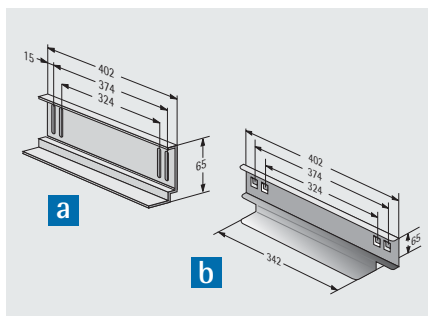
Slide rail, short – for 19" vertical mountings and pivot frames



- with only **one** 19" level or pivot frame
 - delivered in pairs
- Material:** sheet metal, 2 mm galvanised
Load capacity: 15 kg
Delivery: includes mounting material

Order no. (pair)
318-129

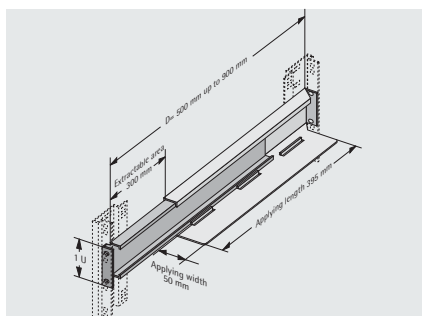
Slide rail, screwable/hook-in



- is screwed/hooked in onto **19" vertical mountings**
 - to support heavy 19" plug-in units
 - two 19" levels are required for mounting
- Material:** sheet metal, galvanised
Load capacity: 50 kg

screwable a	hook-in b
312-544	316-544-00

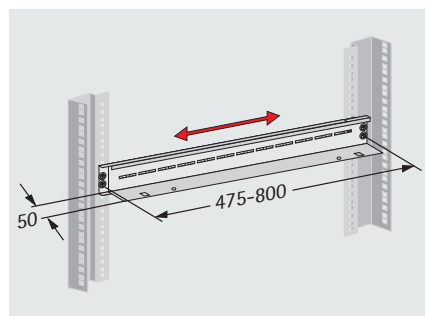
19" slide rail, variable depth



- for cabinet depths of 600 – 900 mm
 - telescopic design: can be extracted/adjusted by 300 mm
- Material:** sheet metal 1.5 mm, galvanised
Load capacity: 50 kg
Delivery: includes mounting material

Order no. (pair)
315-258-00

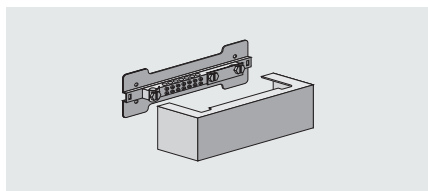
Slide rail, variable depth



- for 19" plug-in units irrespective of the clearance to the 19" levels
 - depth-adjustable
 - for use as of a cabinet depth of 800 mm
- Material:** sheet metal 1.5 mm, galvanised
Load capacity: 50 kg
Delivery: includes mounting material

Order no. (pair)
316-544-20

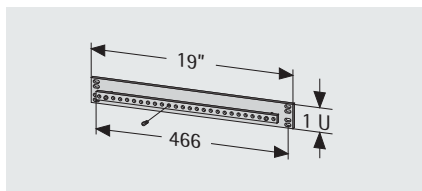
Potential equalisation rail



- covered
- Scope of delivery:**
1 potential equalisation set
2 oval head screws M 5 x 12
2 cage nuts M 5

Order no.
640-200-01

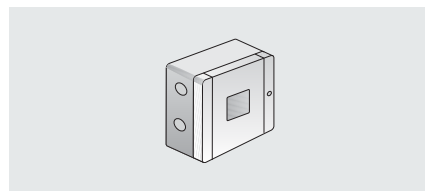
19" Potential equalisation rail



- for 19" or cabinet rack installation
 - connection options: 27 x M 5
 - rail cross-section: 50 mm²
- Material:** sheet metal/copper

Order no.
640-028-00

Terminal box



- for use as a cable distribution box
- simple and quick installation

Order no.
640-059



Document pocket



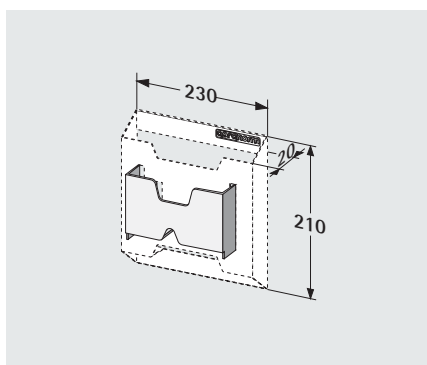
- self-adhesive
- heat-resistant up to 60 °C
- load capacity of up to 3 kg

Dimensions (W × D × H):
235 × 260 × 27 mm

Material: plastic, black

Order no.
640-100

CD holder for document pocket



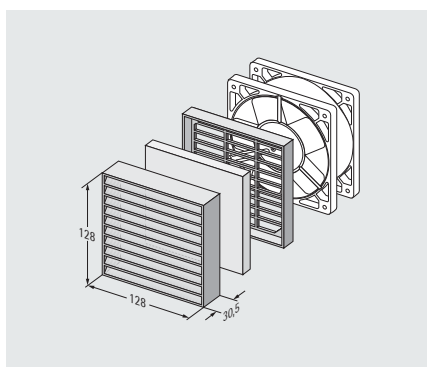
- can be hooked on to the document pocket

Material: aluminium

Colour: RAL 7035 light grey

Order no.
640-100-10

Outlet filter

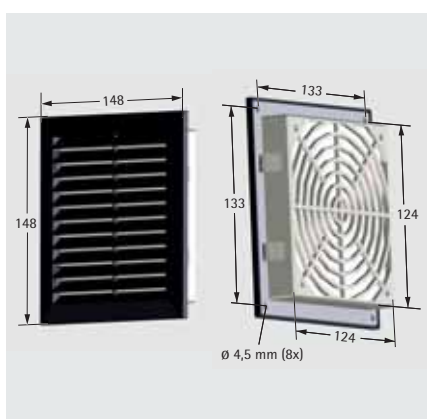


- for individual self-assembly on standard cabinet or enclosure
- outlet filters are preferably installed in conjunction with fans in the upper part of the cabinet

Scope of delivery: 1 outlet filter complete with filter mat, excl. mounting mat.

Order no.
230-800

Outlet filter IP 54



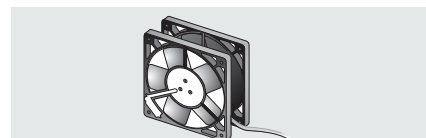
- suitable for fans W × H = 119 × 119 mm
- IP rating is achieved with vertical installation and overhead installation
- with filter mat and seal
- quick mounting: snap fastener
- can as an option be screwed on

Dimensions (W × H × D):
148 × 148 mm × (5.5 mm + 23 mm)

Material: plastic, black

Order no.
230-780

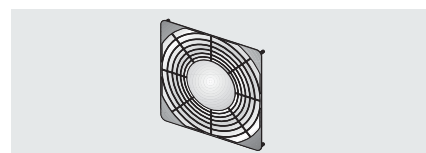
Fan 230 V



- air flow rate: 160 m³/h
- connecting cable L = approx. 310 mm
- dimensions: 119 × 119 × 38 mm
- noise level: 40 dB(A)
- complete with mounting material

Order no.
230-803

Protective grille, plastic

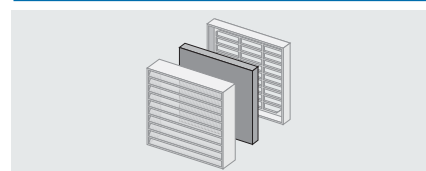


- suitable for all fans with dimensions W × H = 119 × 119 mm

Material: plastic, black

Description	Order no.
screw-on	230-818
clip-in	230-819

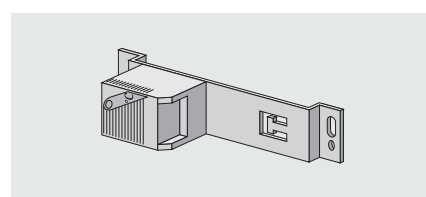
Spare filter mat



- suitable for outlet filters type 230-800 and 230-780
- Dimensions: 120 × 120 mm

Order no.
230-800-01

Thermostat 230 V

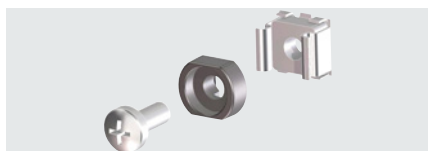


- with mounting bracket and integrated strain relief
- control range 0 - 60 °C
- includes mounting material

Order no.
315-804



Screw set M5 / M6 (set)

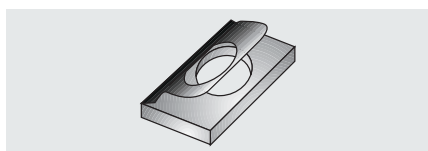


Scope of delivery:

- 50 oval head screws M5 × 12 / M6 × 16
- 50 cage nuts M5-8 / M6-8
- 50 decorative washers M5 / M6 with collar

Screw set M5	Screw set M6
630-991	630-994

Spring nuts M5 (set)



- for insertion in profile grooves in the VARIRack 316 cabinet system

Scope of delivery: 50 pieces

Order no.
630-015-50

Door contact switch



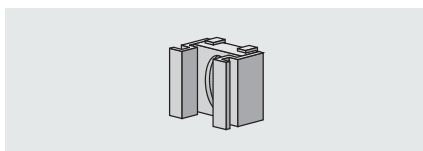
- for switching control cabinet lamps, etc. on and off
- includes mounting material

Order no.
640-071-00

LED cabinet light



Cage nuts M5 / M6 (set)



Scope of delivery:

- 100 cage nuts
- sheet thickness 1.8 - 2.6 mm

Cage nuts M5	Cage nuts M6
630-362	630-363

TiRAX screw set



- for rotating mounting in in the TiRAX cabinet racks

Scope of delivery:

- each with 20 × special cage nuts M6, lens head screw M6 × 16 and washers

Order no.
630-998

"Universal" velcro strip (set)

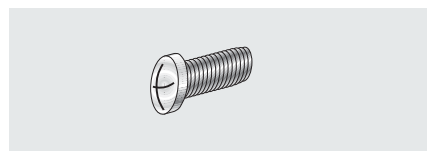


- for quickly securing **non 19"-compatible** components
- length: 300 mm, width: 20 mm
- back to back mounting
- set = 10 pieces

Material: velcro, black

Order no. (set)
671-122-08

Oval head screws M 5 / M 6 (set)



Scope of delivery:

- 100 oval head screws

Description	Order no.
M 5 × 8	630-056
M 5 × 12	630-097
M 6 × 16	630-099

Edge protection rubber band, flexible



- flexible to adapt to a wide variety of holes
- for sheet thickness 1-2 mm
- piece goods sold by the metre

Material: rubber, black

Order no. (per metre)
671-024

Velcro mount "Universal" (set)



- Velcro mount used to accommodate velcro up to w=20 mm
- set = 10 pieces

Material: plastic

Order no.
583-001-08

Connections must be ordered separately!

Description	Order no.
LED cabinet light with switch	640-143-05
LED cabinet light with motion detector	640-143-06
Connection with Euro plug, L=2.5 m	640-143-08



Our service all comes from a single source:

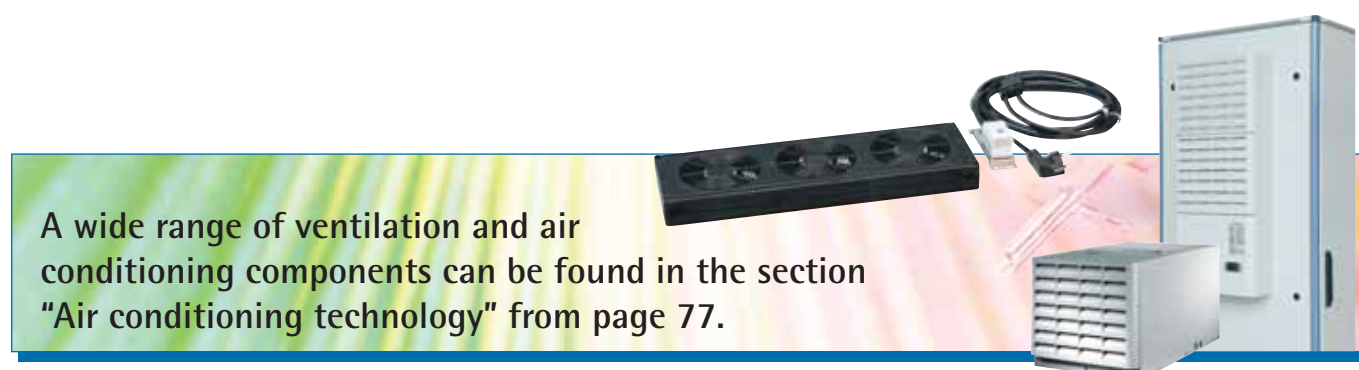
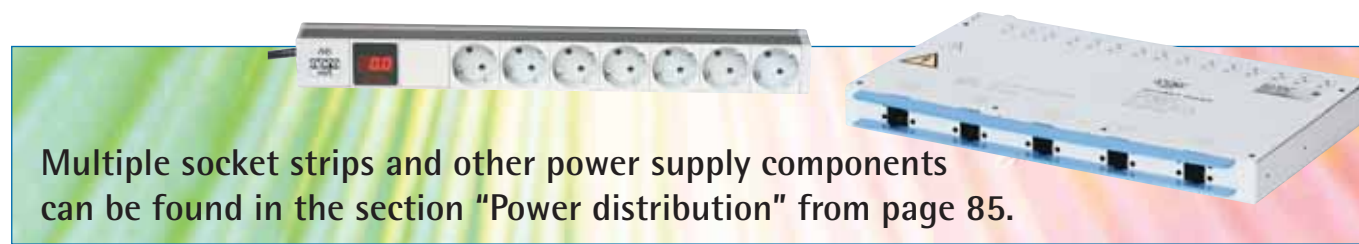
- ☑ take advantage of our expertise
- ☑ save time and money

Air conditioning, power supply, cable entry solutions, plug-and-play versions and pre-wiring for enclosures and cabinet systems

At the apra Group, we place particular emphasis on individual and flexible system solutions. Our enclosures and 19" cabinet systems are equipped with components such as a power supply/distribution system and air conditioning technology in line with customer requirements and are supplied with full pre-wiring on request. This enables us to fulfil the most challenging of customer requirements.

From development right through to the finished product, you can benefit from our expertise and flexibility!

Additional accessories for your cabinet and enclosure system can be found here:





213 • 19" distribution panels



19" copper distribution unit CAT.6

19" copper distribution unit CAT.6

19" copper distribution unit CAT.3

The components meet the requirements in accordance with ISO/IEC 11801 (Draft 2001) in class Channel E.

Order information

Description	Order no.
25-way CAT.3 unshielded	213-504-10
24-way CAT.6A shielded	213-506-25

Other FO products available on request!

19" copper distribution panels 1 U CAT.3/CAT.6A

- suitable for data transfers in high-speed LANs with transfer rates of to 500 Mhz
- supports industrial use in accordance with EN 50081-2 and 50082-2 (only shielded models)
- connection of the wires via coloured LSA Plus IDC termination (in accordance with EIA/TIA 568A)
- large shield contact area on the shielded models directly on the circuit board using cable clips included, without the need for any additional twisting of the screen netting (with CAT.6 panel)
- distance between connecting terminals and shield contact on the circuit board eliminates any danger of short circuiting between screen netting and connecting wires
- cable strain relief with supplied cable ties without screws or any special tools
- consecutive front panel imprint

Finish:

front in RAL 7035 light grey

Material:

enclosure: sheet metal

shielding cap for shielded models: stainless steel

- suitable for accommodation in a 19" subrack (see page 138) or in the LAN small distribution unit (see page 77)
- shielded CAT.6A distribution panel
- 6-way RJ 45 (3 U / 8 HP) or 12-way RJ 45 (3 U / 10 HP)
- metal enclosure with large low-impedance galvanised surfaces
- LSA Plus connecting system
- labelled aluminium front panel

Finish:

front panel: anodised
enclosure: galvanised

Description	Order no.
6-way distrib. panel	213-503-10
12-way distrib. panel	213-503-30

CAT.6A patch panel 6-way/12-way

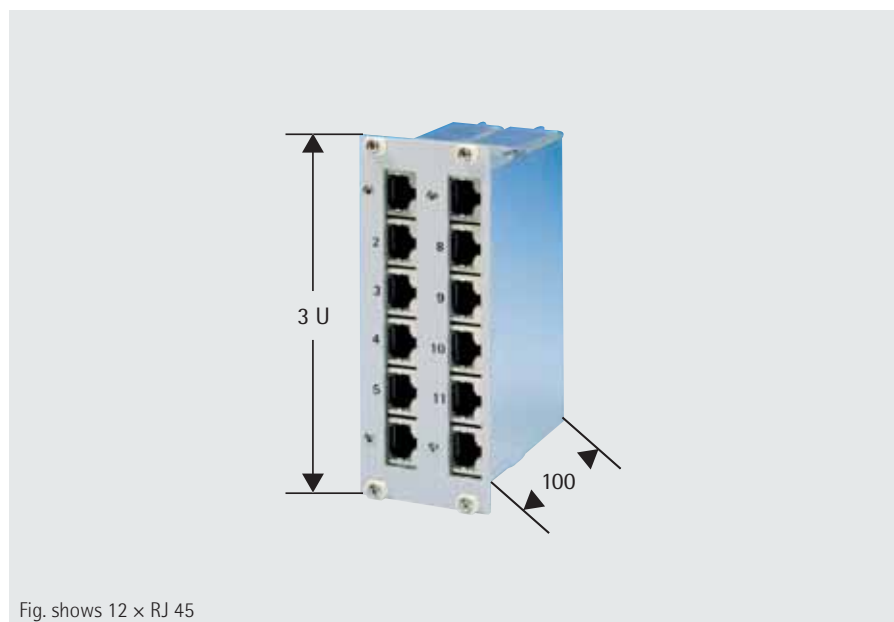


Fig. shows 12 x RJ 45



19" FO splice box 1 U

- ease of use and installation for structured cabling using fibre optics
- modular construction allows you to choose between an extractable or built-in box with different front panels
- installation of the front panels either recessed or flush with the 19" level
- also available pre-assembled

Dimensions (H x W x D):

44 mm x 482.6 mm x 260 mm
(built-in)

44 mm x 482.6 mm x 313 mm
(extractable)

Scope of delivery

Item	Pc.	Description
1	1	Drawer
2	1	Cover
3	1	Front panel



Description	12 x ST	24 x ST	6 x SC-duplex (12 ports)	12 x SC-duplex (24 ports)	12 x SC* simplex	24 x SC* simplex
19" FO splice box (built-in)	213-301-12	213-301-24	213-302-12	213-302-24	213-303-12	213-303-24
19" FO splice box (extractable)	213-311-12	213-311-24	213-312-12	213-312-24	213-313-12	213-313-24

*These boxes are also suitable for the integration of an E2000 simplex mid-section. • FO splice boxes for other plug-in connectors on request!

FO splice cassette/cover



- FO splice cassette with 4 cabling and wire entry areas
- one angled entry area is designed with 3 retention options
- fibre hold-down devices are integrated in the splice cassette area for the fibre lengths

Dimensions (L x W x H):

155 mm x 92 mm x 8 mm

Material: ABS

Description	Order no.
Splice cassette	640-400-01
Splice cassette cover	640-400-02
Splice protective sleeve	640-400-05

Pre-assembly for 19" splice box 1 U

Of course, we also offer this box pre-assembled with fibre optics. This saves you time-consuming and costly on-site assembly.

Scope of delivery

Item	Description
1	Configuration with pigtail (approx. 2.5 m) and coupling
2	Assembly of the coupling in the front panel
3	Secure storage of the fibre optics in the enclosure

Order information

Description	Order no.
1 x ST 50/125	214-321-01
1 x ST 62.5/125	214-331-01
1 x ST 9/125	214-341-01
1 x SC 50/125	214-322-01
1 x SC 62.5/125	214-332-01
1 x SC 9/125	214-342-01

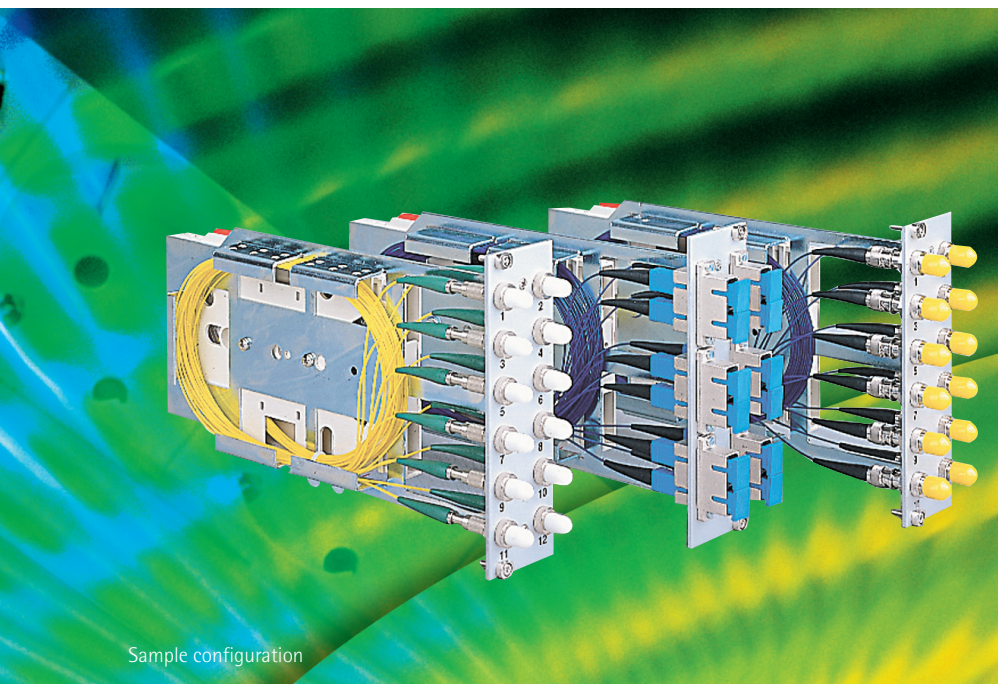
Please order FO splice box and accessories separately!

Pre-assembly means:

- mounting of the coupling on the front panel and fixing of the pigtail
- secure laying of wires from the front panel to the splice cassette with sufficient wire lengths of approx. 1.5 m
- deposit of an additional approx. 1 m wire in the splice cassette
- storing of the coloured fibres in the splice cassette



214 • Fibre optic modules



Fibre optic modules assembled

The fibre optic modules (3 U, 8 HP) are ideal when high packing densities are required in professional distribution systems.

- an extended-length compartment is integrated on the opposite side of the splice cassette for accommodating spare wire lengths in the support panel.
- the front panel may be fitted with up to 12 numbered ST or SC couplings.
- wire pigtails are routed from the front panel to the extended-length compartment and from there via openings into the splice cassette.
- approx. 1 m of the colour-coded wires is deposited and stored here.
- a whole range of feed-through and retainer options are available in the extended-length compartment and splice cassette.

Dimensions (H x W x D):
3 U x 8 HP x 240 mm

Material/finish:
front panel: aluminium, anodised
support panel: sheet metal, galvanised

Scope of delivery

Item	Pc.	Description
1	1	Front panel with screw holder and neck collar screws M 2.5
2	1	Support panel with integrated extended-length compartment
3	1	Splice cassette
4	1	Splice cassette cover
5	1	Mounting material
		FO configuration

Other plug-in connections (e.g. E2000) on request!

Pre-assembly means:

- mounting of the coupling on the front panel and fixing of the pigtail
- secure laying of wires from the front panel to the splice cassette with sufficient wire lengths of approx. 1.5 m
- deposit of an additional approx. 1 m wire in the splice cassette
- storing of the coloured fibres in the splice cassette

Order information

Pre assembled with 4, 8 or 12 FO pigtails and ST couplings

Assembly	ST 50/125	Order no. ST 62,5/125	ST 9/125
4	214-221-04	214-231-04	214-241-04
8	214-221-08	214-231-08	214-241-08
12	214-221-12	214-231-12	214-241-12

Pre assembled with 4, 8 or 12 FO pigtails and SC couplings

Assembly	SC 50/125	Order no. SC 62,5/125	SC 9/125
4	214-222-04	214-232-04	214-242-04
8	214-222-08	214-232-08	214-242-08
12	214-222-12	214-232-12	214-242-12



You can find the right LAN small distribution cabinet unit in the section "Wall-mounting enclosure systems" on page 75!



Empty fibre optic modules

- front panels with a pre-punched hole pattern and under anodising printing

Dimensions (H × W × D):

3 U × 7 HP × 240 mm or

3 U × 8 HP × 240 mm

Material/finish:

front panel: aluminium, anodised

support panel: sheet metal, galvanised



Scope of delivery

Item	Pc.	Description
1	1	Front panel with screw holder and neck collar screws M 2.5
2	1	Support panel with integrated extended-length compartment
3	1	Splice cassette
4	1	Splice cassette cover
5	1	Mounting material

Order information

HP	Description	Order no.
8	12 × ST	213-120-10
8	12 × SC (6 × SC-duplex)	213-120-11
8	12 × E2000 (6 × duplex)	213-120-12
7	12 × SC (6 × duplex)	213-120-13
7	12 × E2000 (6 × duplex)	213-120-14
7	12 × E2000 (SC-simplex)	213-120-17

Other module variants on request!

Accessories

Blind/partial front panels 3 U



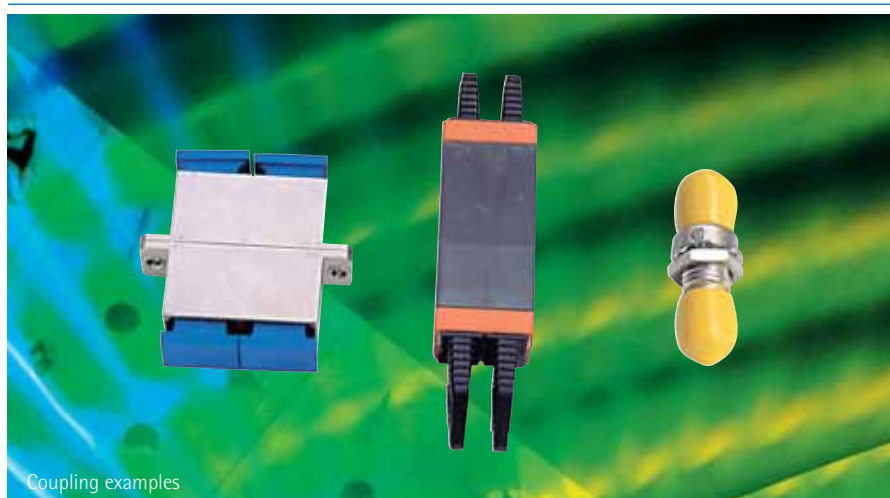
- for fitting non-reserved pitches (HP) in the subrack

Material: aluminium 2.5 mm

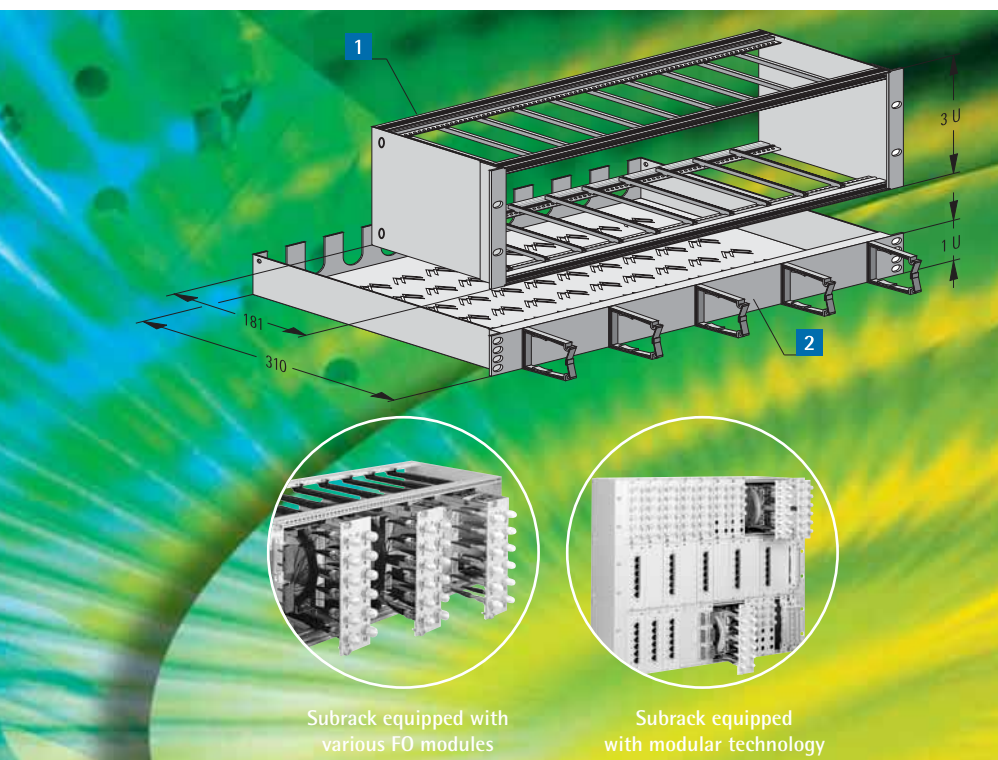
Finish: anodised/chromated

Description	Order no.
Blind panel 4 HP	243-304-00
Blind panel 7 HP	243-307-00
Blind panel 8 HP	243-308-00

FO couplings available on request!



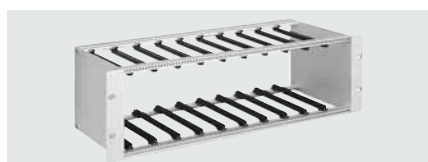
Coupling examples



Modular technology

- system for accommodating fibre optics, CAT.6 and telephone modules
- ideal for very high packing densities (max. 144 ports on 3 U or mixed hybrid use)
- based on a 19" subrack, which can accommodate up to 12 modules (7 HP per module)
- screw-on 19" FO shelf 1 U for secure cable feed through
- 5 front-mounted cable clips for neat horizontal switching
- compact and stable 4U component

1 19" subrack 3 U



- installation width 84 HP
- for the integration of up to 12 modules (with 7 HP module) including 24 plastic card guides
- includes mounting material

Finish: anodised/chromated

Material: aluminium/plastic

Dimensions (H x W x D):

132.5 mm x 482.6 mm x 181 mm

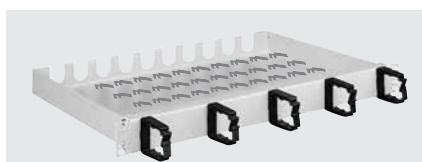
Scope of delivery

Item	Pc.	Description
1	2	Front bracket
2	2	Side panels
3	4	Module rails
4	2	Threaded strips M 2.5
5	24	Card guides
6	1	Screw set M 5 x 8 (4x)
7	1	Mounting material

Order no.

213-084-00

2 19" shelf 1 U



- for accommodation of wire and cable lengths routed from the rear through slot openings. M 20 screw connections are used in the openings to hold the cables.
- perforated in the bottom area for unhindered air circulation and neat cable arrangements, e.g. with cable ties
- includes mounting material

Finish: RAL 7035 light grey

Material: sheet metal/plastic

Dimensions (H x W x D):

44 mm x 482.6 mm x 310 mm

Scope of delivery

Item	Pc.	Description
1	2	FO shelf
2	5	Cable conduit
3	1	Mounting material

Order no.

213-085-00

CAT.6A patch panel 6-way/12-way

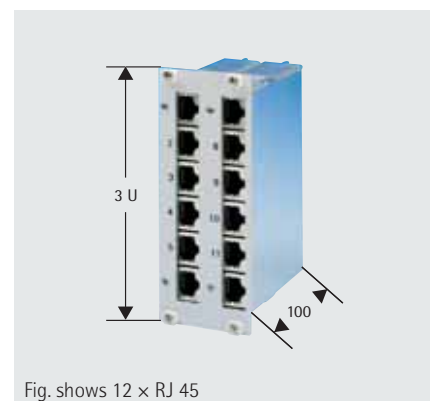


Fig. shows 12 x RJ 45

- shielded CAT.6 distribution panel
- 6-way RJ 45 (3 U / 8 HP) or 12-way RJ 45 (3 U / 10 HP)
- metal enclosure with large low-impedance galvanised surfaces
- LSA Plus connecting system
- labelled aluminium front panel

Finish:

front panel: anodised

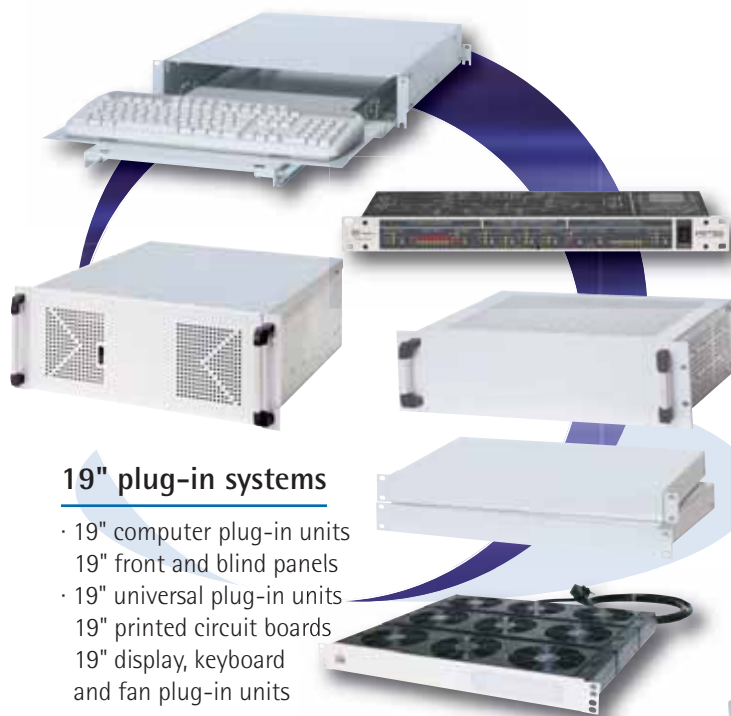
enclosure: galvanised

Description	Order no.
6-way distrib. panel	213-503-10
12-way distrib. panel	213-503-30



Important notes:

Questions for the sales team:



19" plug-in systems

- 19" computer plug-in units
- 19" front and blind panels
- 19" universal plug-in units
- 19" printed circuit boards
- 19" display, keyboard and fan plug-in units



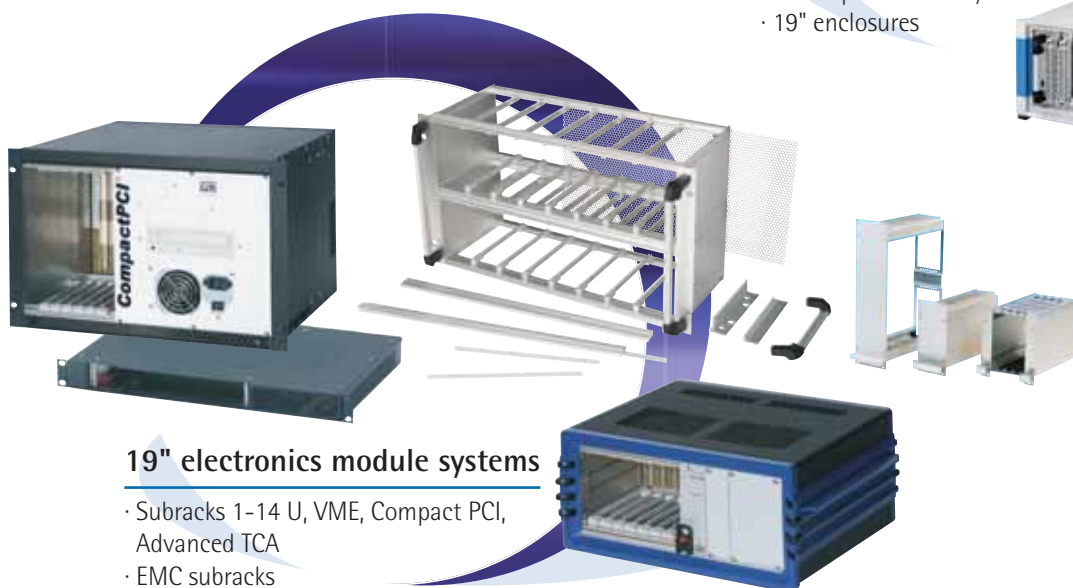
19" cabinet systems

- 19" "TiRAX" cabinet system (from page 3)
- 19" "NETcell" cabinet system (from page 31)
- VARI 2000 wall-mounting distribution system (from page 63)
- Power supplies (from page 85) and air conditioning technology (from page 77)



19" enclosure systems

- Desktop enclosure systems
- 19" enclosures



19" electronics module systems

- Subracks 1-14 U, VME, Compact PCI, Advanced TCA
- EMC subracks
- Customer-specific subracks
- Cassettes, plug-in modules, partial front panels



Small enclosure systems

- Modem enclosures
- Profile small enclosures
- Console enclosures

Plastic enclosures

- Individual plastic enclosures in milling, bending, casting and deep drawing technology
- Film technology

Display and control enclosures

- TFT terminals
- Enclosures for information technology (e.g. visualisation of information in public transport)
- Enclosures for advertising technology

Panel instrument cases and top hat rail enclosures

- Enclosures in accordance with IEC 61554
- Plastic injection moulding
- Plastic mould construction

Whether it be metal or plastic, standard or customer-specific – we can help you plan the optimum shell for your valuable electronics. Contact us to find out more!



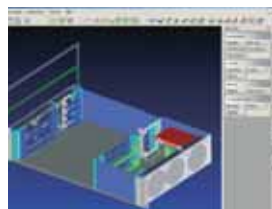


A holistic approach

With our expertise and ultra-modern machinery, we can develop, produce and assemble the perfect enclosure for you.

1. DEVELOPMENT

-  3D design
-  Construction
-  Testing and simulation (EMC, IP, trial, etc.)
-  Consulting and technical support



2. PUNCHING/ PRESSING TECHNOLOGY

-  Laser cutting
-  Punching/pressing
-  Imprinting



3. BENDING TECHNOLOGY

-  Robot-supported bending
-  Crimping
-  Deposit



4. PLASTICS PROCESSING

-  Milling and bending technology
-  Vacuum casting technology (SYN-PRO tech)
-  Cast moulding technology (GIEFO tech)
-  Injection moulding
-  Rapid prototyping

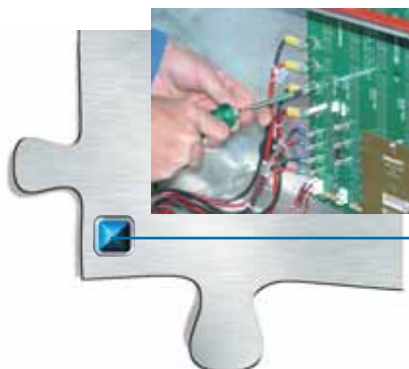


to production



5. JOINTING TECHNOLOGY

- ☒ Robot-supported welding
- ☒ Press-fitting
- ☒ Pressure joining
- ☒ Riveting



8. ASSEMBLY

- ☒ Assembly service
- ☒ Pre-wiring
- ☒ Cable configuration
- ☒ System integration



7. LABELLING

- ☒ Screen printing
- ☒ Digital printing
- ☒ Pad printing
- ☒ Sub-oxal printing
- ☒ Films and membrane keypads



6. SURFACE TECHNOLOGY

- ☒ Powder coating
- ☒ Wet painting
- ☒ Chromating
- ☒ Conductive paint coating
- ☒ Nano paint coating





IP protection classes in accordance with DIN EN 60529

In order to ensure reliable operation, all electronic devices and systems must be protected against possible interference. Enclosures and/or cabinets must therefore fulfil certain protection requirements depending on the area of application. These requirements are specified in

the standards DIN EN 60529 with IP protection classes (IP = international protection). They indicate the capacity of an enclosure to protect installed components against contact and the ingress of foreign bodies and water. The first digit of the IP protection class defines the degree of protection against contact and foreign bodies, while the sec-

ond digit indicates the degree of water protection. The table below shows the meaning of the individual numbers.

IP 43

- Protection against spray up to 60° to the vertical
- Protection against contact with tools, foreign bodies and wires, diameters greater than 1 mm

Degrees of protection in accordance with DIN EN 60529

Protection against contact and foreign bodies			Protection against ingress of water	
First digit	Contact	Foreign bodies	Second digit	Contact
0	No protection	No protection	0	No protection
1	Protection against contact with larger body parts	Protection against large foreign bodies, diameters greater than 50 mm	1	Protection against water dripping vertically
2	Protection against finger contact	Protection against medium-size foreign bodies, diameter greater than 12.5 mm	2	Protection against water dripping at an enclosure angle up to 15° to the vertical
3	Protection against contact with tools and wires, diameters greater than 2.5 mm	Protection against small foreign bodies, diameter greater than 2.5 mm	3	Protection against spray up to 60° to the vertical
4	Protection against contact with tools and wires, diameters greater than 1 mm	Protection against granular impurities, diameter greater than 1 mm	4	Protection against splash water from any direction
5	Full protection	Protection against harmful dust deposits	5	Protection against jet water from any direction
6	Full protection	Protection against dust entry	6	Protection against heavy jet water from any direction
			7	Protection when temporarily immersed in water
			8	Protection when immersed in water for an extended period

Certification

The apra Group relies on innovative products of high quality, which form the basis of the continually growing corporate group. A sound quality and environmental management system is a prerequisite for this.

Independent proof of this system is provided by means of a certificate issued when a company can prove by means of an audit that all requirements arising from the DIN standard have been met.

One of these requirements is, for example, that all processes are documented clearly, transparently and in full.

The apra Group can produce proof of certification of its quality and environmental management system for all locations.

DIN EN ISO 9001:2008 is a standard that regulates the selection and installation of a quality management system within a company.

DIN EN ISO 14001:2009 is the environmental standard. It is awarded when a company complies with all environmental aspects.

The management systems described in a management manual for quality and the environment set out all organisational measures to ensure that all products comply with the rules and regulations to be applied as agreed and function as intended during operation.

The apra Group undertakes to comply with the environmental requirements and to continuously improve its environmental protection. Compliance with the environmental protection policy is monitored regularly.

The certificates issued are checked annually by TÜV to ensure they are valid.

A quality management system certified in accordance with the standard proves to the customer that the supplier will deliver good products in compliance with its own rules.

These certificates significantly reduce the cost for the verification of suppliers and customers on both sides.



Approvals



Verein Deutscher Elektrotechniker



Conformité Européenne



Tested Safety



Underwriters Laboratories



Canadian Standards Association



Technischer Überwachungsverein



Terms of Delivery and Payment

1. Application

- 1.1 These terms and conditions of sale shall apply exclusively. Differing or contrary terms shall not apply except if expressly agreed upon in writing.
- 1.2 These terms and conditions of sale shall also govern all future transactions between the parties and shall also apply if we perform delivery despite our knowledge of differing or contrary terms.
- 1.3 These terms and conditions of sale shall only apply vis à vis entrepreneurs, governmental entities, or special governmental estates within the meaning of sec. 310 para. 1 BGB (German Civil Code).

2. Offer, Acceptance

- 2.1 Our offerings are subject to change, the agreement shall only come into effect upon receipt of our order confirmation or when the order is carried out. Changes in price or cost (e.g. salary increases as agreed by collective agreement or material cost increases) entitle us to adjust our prices. Provided such change occurs after an order confirmation, we are entitled to withdraw, as far as the customer does not agree to a price adjustment.
- 2.2 The cabinets and enclosures depicted are configuration examples. These are not identical with the scope of delivery. The right to make technical changes is reserved.

3. Prices, Payment

- 3.1 Except as otherwise stated under the terms of any quotation or unless otherwise agreed in writing all prices are ex works („ex works“, Incoterms® 2010), exclusive of the respective statutory VAT and exclusive of costs for packaging. Transport and packaging costs will be calculated separately, and the respectively applicable VAT applied separately.
- 3.2 The purchase price is due and payable net within 30 days from the date of the invoice. From the due date default interest in the amount of 9% above the respective base interest rate p. a. shall accrue. We reserve all rights to claim further damages for delay.
- 3.3 Payments to agents or our employees shall only be effective if a written authorization to receive money or a receipt from us is submitted.
- 3.4 First orders to new clients shall generally only be made with cash on delivery (standard products) or with advance payment (customized products). We reserve the right to specify the terms of payment for future deliveries after submission of a completed customer data-sheet and credit assessment.

4. Offset, Retainer

The customer shall be entitled to offset or to claim retainer rights only insofar as the customer's counterclaim is acknowledged, undisputed or assessed in a legally binding judgment. Additionally, the customer is entitled to claim retainer rights only to the extent such rights are based on the same transaction.

5. Delivery

- 5.1 Delivery of the goods shall be made by the customer collecting the goods at our premises after we have notified the customer that the goods are ready for collection („ex works“, Incoterms® 2010) or, if agreed otherwise by us delivering the goods to the agreed place. Delivery is conditioned upon timely and proper performance of all duties of the customer. Defences based on non-performance of the contract are reserved.
- 5.2 In case of default in acceptance or other breach of duties to cooperate by the customer we are entitled to claim any resulting damage including but not limited to additional expenses, if any. Further damages are reserved. In this case, the risk of loss or damage to the goods passes to the customer at the time of such default or breach of duty to cooperate.
- 5.3 In the event that the financial circumstances of the ordering party deteriorate significantly (e.g. protest of bill of exchange, application to open insolvency proceedings, submission of affidavit, etc.) as well as any disclosure of insufficient credit worthiness, we are entitled to request advance payments or the provision of security or to withdraw from the agreement.

6. Passing of Risk, Shipment

- 6.1 Risk of loss or damage to the goods shall pass to the customer as follows:
 - In the case of goods to be delivered otherwise than at our premises, at the time of delivery, or if the customer wrongfully fails to take delivery of the goods, the time when the seller has tendered delivery of the goods;
 - In the case of goods to be delivered at our premises („ex works“ Incoterms® 2010) at the time we notify the customer that the goods are available for collection.
- 6.2 Unless otherwise specifically agreed upon, the means of transportation (shipping company, package service, post, etc.) shall be selected by us.
- 6.3 The delivery deadline is kept if, by its expiration, the subject of the agreement has left the factory or if we have declared that the subject of the agreement is ready for dispatch.
- 6.4 If we fall in default of delivery, we shall have an extension period of two weeks. In the case of force majeure (e.g. operational failures, difficulties with raw materials, war, strikes, etc.), we are released from the delivery deadline.

7. Withdrawal, Request of Partial Delivery

- 7.1 If our contractual partner withdraws unauthorized from the agreement or unauthorized refuses satisfaction of the agreement, the contractual partner shall be obligated to pay 15% of the gross value of the order as a lump sum in compensation unless it can prove that no damages were incurred or that damages were not incurred in this amount. The right to claim further damages is expressly retained.
- 7.2 Orders may then only be requested for delivery in partial quantities if this has been expressly previously agreed. Partial deliveries are excluded if the total order value is less than € 2,500.00 net, the term of the order is over six months and a single request for delivery amounts to a delivery value of less than € 1,000.00 net. If the ordering party withdraws unauthorized from the agreement, refuses satisfaction of the agreement or we are entitled to claim for damages, the regulations of aforementioned paragraph 1 shall apply. If we request neither satisfaction nor damages, we reserve the right to recalculate the prices of the quantities requested for standard parts, at the prices which would have been calculated had the order been restricted to this quantity at the onset. If the order concerns cus-

tomized products, we insist on satisfaction of the order in any eventuality. Prices offered or confirmed for larger procurement quantities can not be claimed for smaller quantities. Decreased or increased efficiency of 10% of the order volume is permissible for customized products.

8. Retention of Title

- 8.1 We retain title to the delivered goods until receipt of all payments in full regarding the purchase agreement. In case of breach of contract by the customer including, without limitation, default in payment, we are entitled to take possession of the goods.
- 8.2 Aforementioned title retention shall also apply to all claims from current and future business connections with the customers, including any current accounts.
- 8.3 The customer shall handle the goods with due care, maintain suitable insurance for the goods and, to the extent necessary, service and maintain the goods.
- 8.4 As long as the purchase price has not been completely paid, the customer shall immediately inform us in writing if the goods become subject to rights of third persons or other encumbrances.
- 8.5 The customer may resell goods subject to the above retention of title only in the course of his regular business. For this case, the customer hereby assigns all claims arising out of such resale, whether the goods have been processed or not, to us. Notwithstanding our right to claim direct payment the customer shall be entitled to receive the payment on the assigned claims. To this end, we agree to not demand payment on the assigned claims to the extent the customer complies with all his obligations for payment and does not become subject to an application for insolvency or similar proceedings or to any stay of payments. Storage of goods delivered under retention of title shall be at the cost and risk of the customer. Decrease in value of such goods shall be borne by the customer.
- 8.6 Insofar as the above securities exceed the secured claim by more than 20%, we are obligated, upon our election, to release such securities upon the customer's request.

9. Warranty

- 9.1 The customer is obligated to inspect the goods immediately upon receipt of delivery and to submit defects or deviations in quantity without delay - at least within 5 days of receipt of delivery - to us in writing. The deadline shall be met by receipt of the report of defects to us. Otherwise, the goods shall be deemed as accepted and approved regarding such defect or deviation in quantity. If defects or deviation in quantity are not recognized during the inspection mentioned above and are established later, declaration thereof must be made without delay within one week after discovery at the latest. Otherwise, the goods shall be deemed as accepted and approved also as regards such defect or deviation in quantity.
- 9.2 In the event of founded complaints, we resolve at our discretion pursuant to sec. 439 BGB (German Civil Code) the defect or deliver a replacement. If resolution of a defect fails, the ordering party can demand delivery of a defect-free product or reduction of the purchase price or withdraw from the agreement.
- 9.3 If inspection of a complaint determines no defect, we are entitled to charge the ordering party for the costs incurred.
- 9.4 The customer is obligated to inform us without delay of any expected claims resulting from a supply chain. Complaints concerning a part of a delivery do not justify complaints regarding the entire delivery.
- 9.5 Warranty claims expire by limitation within 12 months after delivery of goods.

10. Liability

- 10.1 Any liability not expressly provided below-mentioned shall be disclaimed as far as permitted by law.
- 10.2 In case of intent or gross negligence on our part or by our agents or assistants in performance we are liable according to the provisions of applicable law; the same applies in case of breach of fundamental contract obligations. To the extent the breach of contract is unintentionally our liability for damages shall be limited to the typically predictable damage.
- 10.3 Our liability for culpable damage to life, body or health as well as our liability under the Product Liability Act shall remain unaffected.

11. Customer's Obligations

- 11.1 The customer accepts the obligation to dispose properly of the delivered goods after the end of usage at its own cost and in accordance with legal regulations. The customer is obligated to keep us indemnified against all obligations under sec. 10, para. 2 ElektroG (Electrical and Electronic Equipment Act) (Take-back obligation of the Producer) and from any claims to which third parties are entitled thereunder.
- 11.2 The ordering party shall bear partial costs for special tools and related machinery and programs. The partial cost for tools shall be due at the latest upon presentation of the sample produced with the tool and must be paid in the net amount within 10 days of the date of invoice. These special tools, machinery and programs shall remain our unlimited property.

12. Final Clauses

- 12.1 This contract shall be governed by the laws of the Federal Republic of Germany excluding the Convention on Contracts for the International Sale of Goods (CISG).
- 12.2 If the conditions for a court agreement pursuant to sec. 38 ZPO (German Code of Civil Procedure) have been met, then the court of jurisdiction for all claims by the contractual partner shall be - depending on the value of the subject matter - Amtsgericht (District Court) Daun or Landgericht (County Court) Trier. We are entitled at our discretion to file an action against the customer at all his places of jurisdiction whether to German law or the national law of the customer.
- 12.3 If any individual provision herein is or becomes ineffective, the validity of the remaining provisions shall remain unaffected thereby. Contractual partners shall be obligated to replace an ineffective provision with a new provision that is as close as possible to the fiscal meaning and purpose of the ineffective provision.
- 12.4 In case of doubt to the interpretation of these general terms and provisions the German version shall obtain.