



19" TiRAX cabinet system

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19" NETcell cabinet system

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Open 19" racks

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19" floor-standing / wall-mounted enclosure VARi IT

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Wall-mounting enclosure systems

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Air conditioning technology

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Power distribution system

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Cabinet monitoring

from page 155



Cable management

from page 163



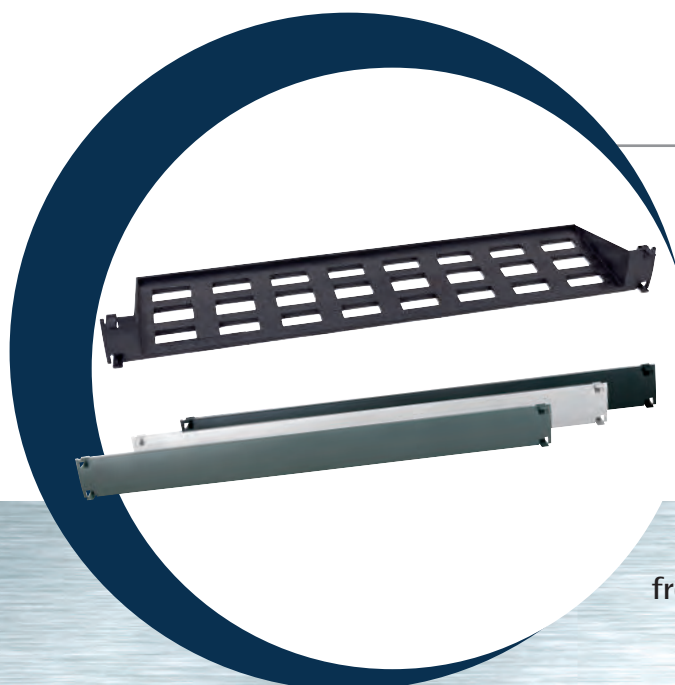
Distribution technology

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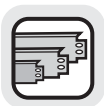


General accessories /
distribution technology

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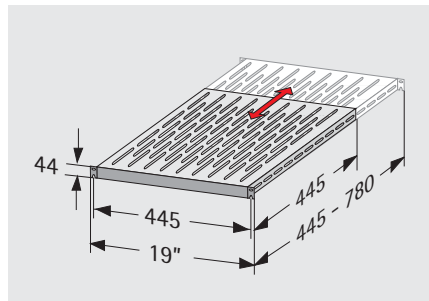


You can read more about products
from the apra-group at www.apra-norm.com



19" shelves

19" shelf 1 U fixed installation "VARiplain"



- 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)

Material:

sheet metal

Finish:

RAL 7035 light grey

RAL 9005 jet black

Load capacity:

150 kg (distributed load/static)

Dimensions (H x W x D):

1 U (44 mm) x 19" (482,6 mm) x 445 - 780 mm

Floor space (b x t):

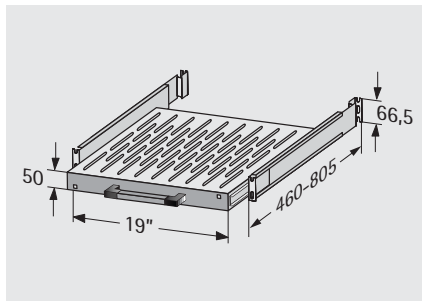
445 x (445 - 780) mm

Delivery:

mounting material included

Colour	Order no.
RAL 7035	316-036-99
RAL 9005	316-036-69

19" shelf 1.5 U "extractable"



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

Material:

sheet metal

Finish:

RAL 7035 light grey

RAL 9005 jet black

Load capacity:

60 kg (distributed load/static)

Dimensions (H x W x D):

1,5 U (66,5 mm) x 19" (482,6 mm) x 465 - 665 mm

Floor space (b x t):

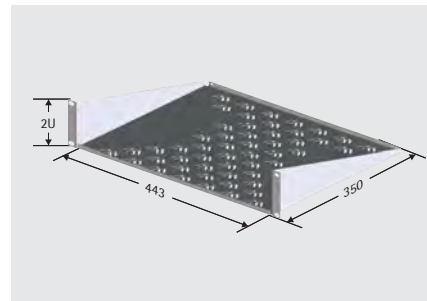
410 x (465 - 665) mm

Delivery:

mounting material included

D mm	Colour	Order no.
465	RAL 7035	318-141-00
665	RAL 7035	318-141-01
465	RAL 9005	318-141-50
665	RAL 9005	318-141-51

19" shelf 2U, fixed



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

Material:

sheet metal

Finish:

RAL 7035 light grey

RAL 9005 jet black

Load capacity:

15 kg (distributed load/static)

Dimensions (H x W x D):

2 U (88 mm) x 19" (482,6 mm) x 350 mm

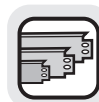
Floor space (b x t):

443 x 350 mm

Delivery:

mounting material included

Colour	Order no.
RAL 7035	315-810-20
RAL 9005	315-810-25



19" shelf 1 U "NETshelf"

- flexible application in all 19" cabinet and enclosure systems
- fast, tool-free assembly
- compact design
- attractive design thanks to rounded front surface
- only 1U required for mounting
- disassemble and resume at any time
- weight savings compared to conventional metal shelves
- passive ventilation by a perforated bottom
- cutouts in the bottom area allow to fix system components with Velcro tape (Velcro strap available as accessory)

Material:

plastic black, halogen free, UL94 - V1

Load capacity:

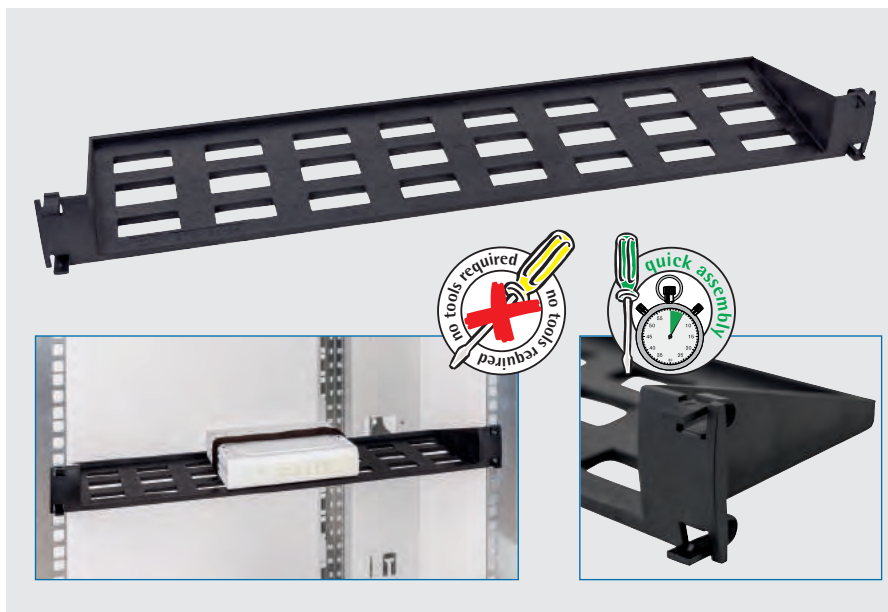
1 kg (distributed load)

Dimensions (H x W x D):

1 U (44 mm) x 19" (482,6 mm) x 116 mm

Floor space (b x t):

425 x 110 mm



Order no.
213-156-54



19" blind panel

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

Material:

Lexan 920, fire class to UL 94 V-0, ROHS-compliant

Finish:

RAL 7016 anthracite grey, RAL 7035 light grey or RAL 9005 jet black

Delivery:

Set = 10 pieces

Set = 136 pieces

Colour	Lieferform	Order no.
RAL 7016	Set = 10 pc.	213-156-25
RAL 7016	Set = 136 pc.	213-156-40
RAL 7035	Set = 10 pc.	213-156-30
RAL 7035	Set = 136 pc.	213-156-45
RAL 9005	Set = 10 pc.	213-156-78
RAL 9005	Set = 136 pc.	213-156-79

19" blind panel sheet metal



Material:

sheet metal 1,5 mm

Finish:

RAL 7035 light grey

RAL 9005 jet black

Dimensions (H x W x D):

1-4 U x 482,6 x 10 mm

Delivery:

mounting material included

U	Colour	Order no.
1	RAL 7035	213-156-00
1	RAL 9005	213-156-10
2	RAL 7035	213-158-00
2	RAL 9005	213-158-10
3	RAL 7035	213-159-00
3	RAL 9005	213-159-10
4	RAL 7035	213-160-00
4	RAL 9005	213-160-10



19" drawers

- for secure storage of documents in 19" cabinets or enclosures
- extractable
- optionally available with lock
- 19" installation dimensions to IEC 60297-3-100

Material:

frame: sheet steel 1.5 mm

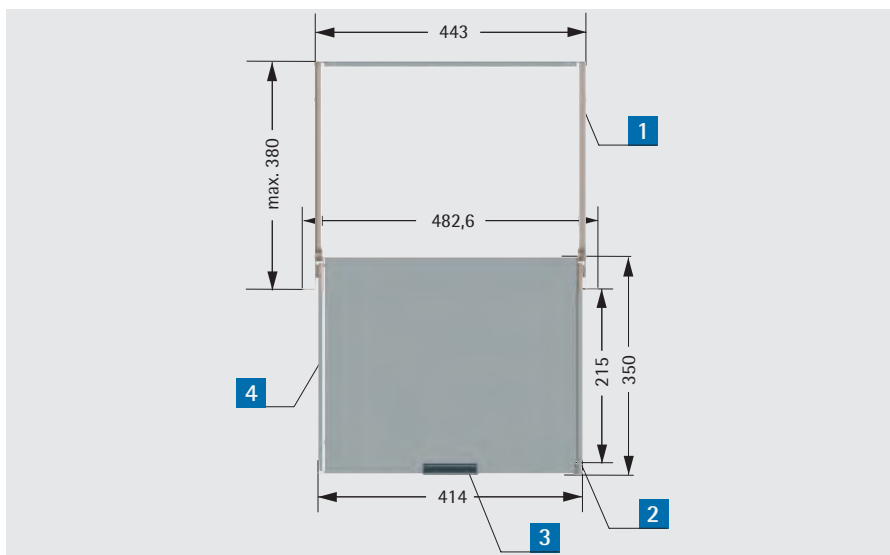
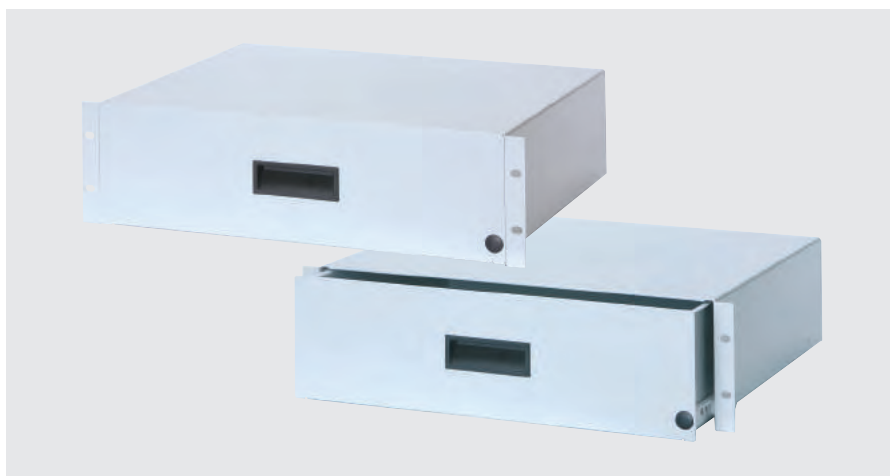
drawer: sheet steel 1.0 mm

Finish:

RAL 7035 light grey

Delivery:

assembled, includes mounting material



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

U	H mm	D mm	Description	Order no.
1	44	378	without lock	202-219-50
2	88	372		202-219-53
3	132,5	372		202-219-56
1	44	378	with lock	202-219-60
2	88	372		202-219-63
3	132,5	372		202-219-66



19" keyboard plug-in unit 2 U

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

Application:

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

Material:

sheet metal

Finish:

RAL 7035 light grey

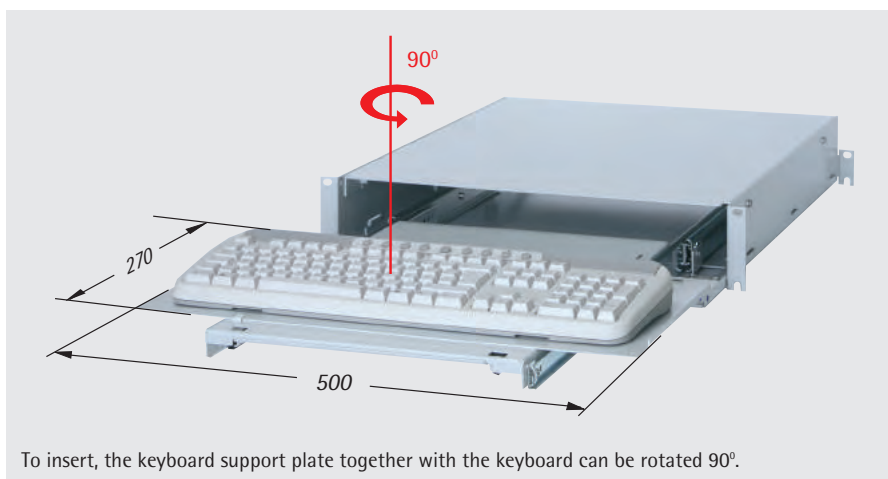
Dimensions (H x W x D):

2 U (88 mm) x 19" (482,6 mm) x 550 mm

Delivery:

assembled

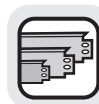
- Keyboard is not included in the scope of delivery.
- The maximum height of the keyboard/mouse is 36 mm.



Delivery

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

Description	Order no.
19" keyboard plug-in unit 2 U	202-868-30



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

Application

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

Material:

sheet metal

Finish:

RAL 7035 light grey

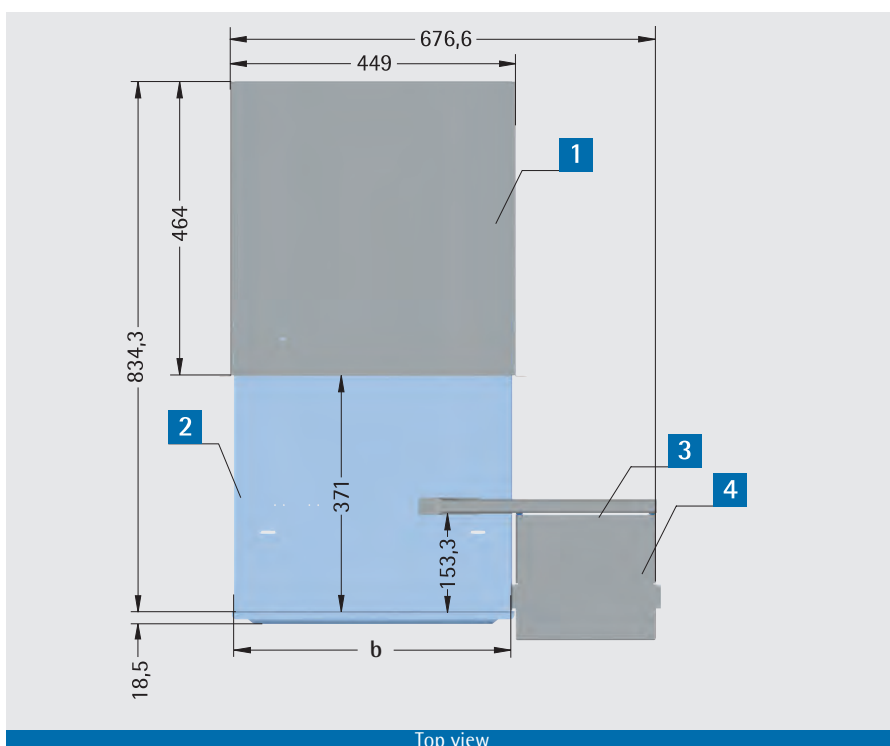
RAL 9005 jet black

Dimensions (H x W x D):

44 x 482,6 x 470 mm

Delivery:

assembled



Top view

- Mouse and keyboard are not included in the scope of delivery.
- The maximum height of the keyboard/mouse is 36 mm.
- Integration on slide rails is recommended.

Delivery

Item	pc.	Description
1	1	Chassis
2	1	Drawer
3	1	Mouse rest
4	1	Mouse pad
6	1	Mounting material

Description	Colour	Order no.
Plug-in unit without keyboard	RAL 7035	202-870-50
Plug-in unit without keyboard	RAL 9005	202-870-55



19" TFT keyboard plug-in unit 1 U

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

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 servers
- resolution: 1280 × 1024

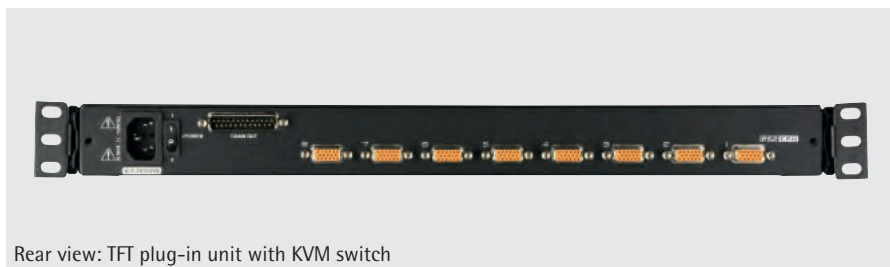
Finish:

black

Delivery:

includes operating instructions and power supply unit

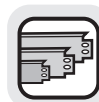
Order no.
202-869-19



Rear view: TFT plug-in unit with KVM switch

cables for TFT keyboard plug-in units

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



19" DIN rail support 3 U

- for a recessed mounting of top hat rail enclosures at 19" levels of cabinets, racks or enclosures
- 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 bar

Material:

sheet metal 1,5 mm

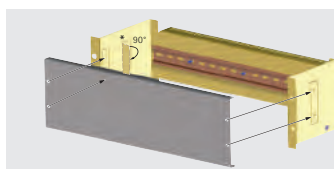
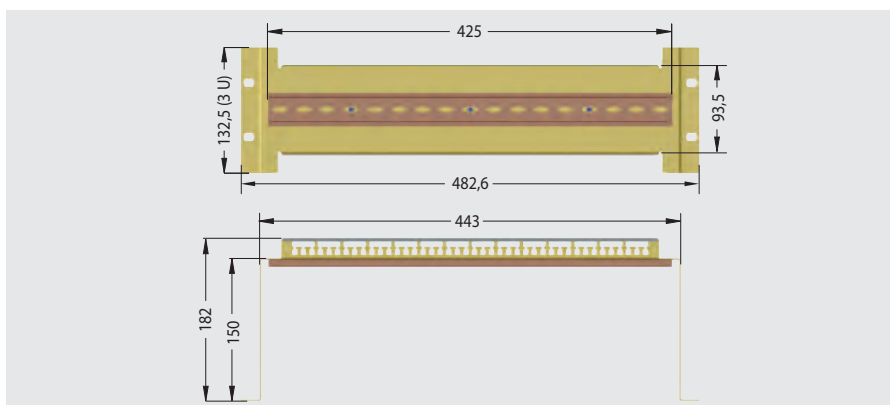
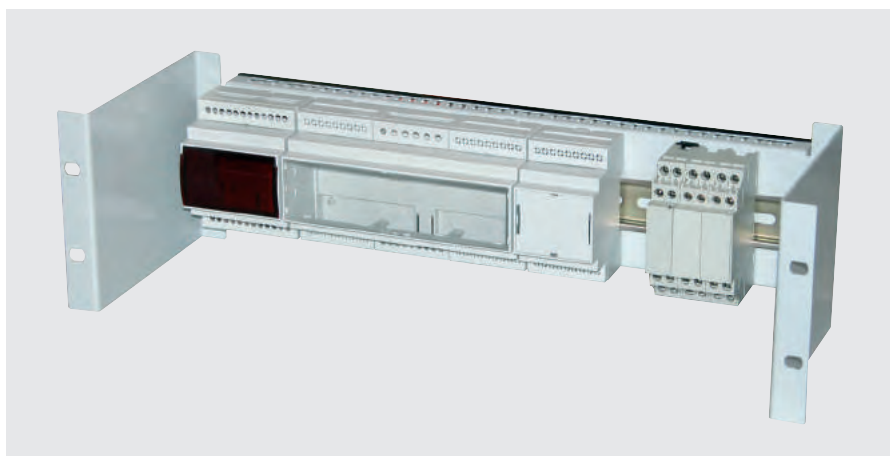
Finish:

galvanised resp.

lackiert RAL 7035 light grey

Delivery:

assembled



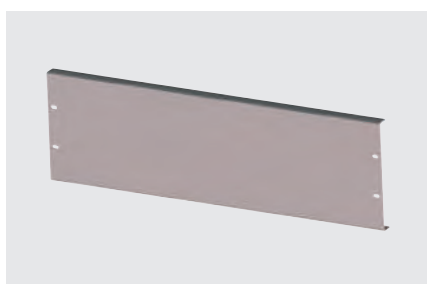
Cover (protection against contact)

* To mount the cover, the lateral flaps can be bent up by hand in two different positions.

Other DIN rail types, installation widths, heights and depths available on request!

Finish	Order no.
galvanised	205-420-00
RAL 7035	205-420-10

Cover (protection against contact)



- for 19" top hat rail support 3 U

Finish	Order no.
galvanised	205-420-20
RAL 7035	205-420-25

DIN rail fixing clamp (set)

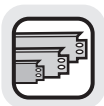
- quick, safe and sturdy fixing of small enclosures, pc boards and components to rails and support rails (TS35)
- can be easily fixed from inside or outside to the rear panel

Material:

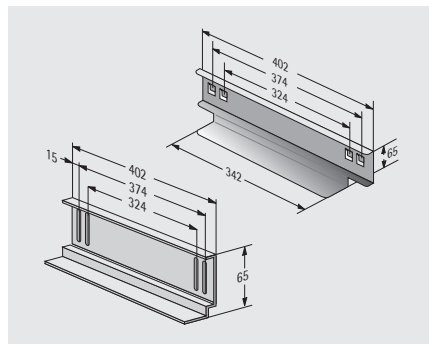
PA6 GF 30, black, flammability rating acc. to UL94 V-0



Description	Order no. (1 Set = 10 pc.)
45 mm wide with through hole	442-311-20
45 mm wide with threaded inserts	442-311-25
18 mm wide with through hole	442-311-30
18 mm wide with threaded inserts	442-311-35



Slide rail, screwable/hook-in



- for screwing/hinging into vertical mountings
- for placing heavy 19" plug-ins
- 2 vertical mountings are required for fixing
- Delivery: 1 pair

Material:

sheet metal, galvanised

Load capacity:

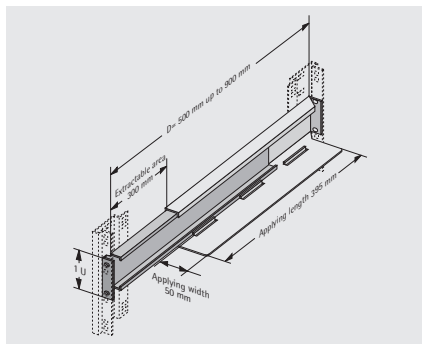
50 kg

Delivery:

mounting material included

Description	Order no.
screwable	312-544
hook-in	316-544-00

19" slide rail, variable depth



- for cabinet depths of 600 - 900 mm
- telescopic design: can be extracted/adjusted by 300 mm
- Delivery: 1 pair

Material:

sheet metal 1,5 mm, galvanised

Load capacity:

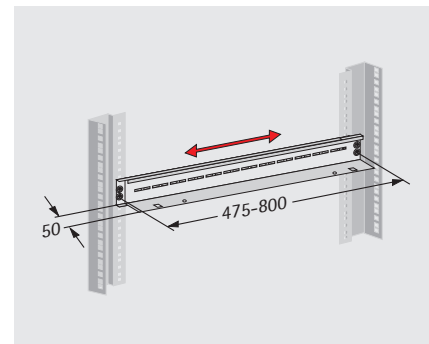
50 kg

Delivery:

mounting material included

Order no.
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
- Delivery: 1 pair

Material:

sheet metal 1,5 mm, galvanised

Load capacity:

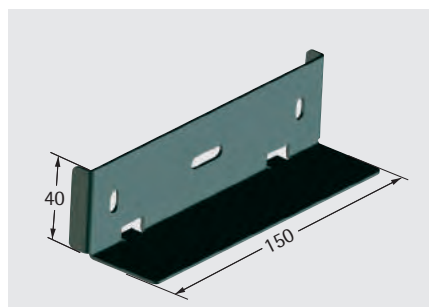
50 kg

Delivery:

includes mounting material

Order no.
316-544-20

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



- with only one 19" level or pivot frame
- delivery: 1 pair

Material:

sheet metal, 2 mm galvanised

Load capacity:

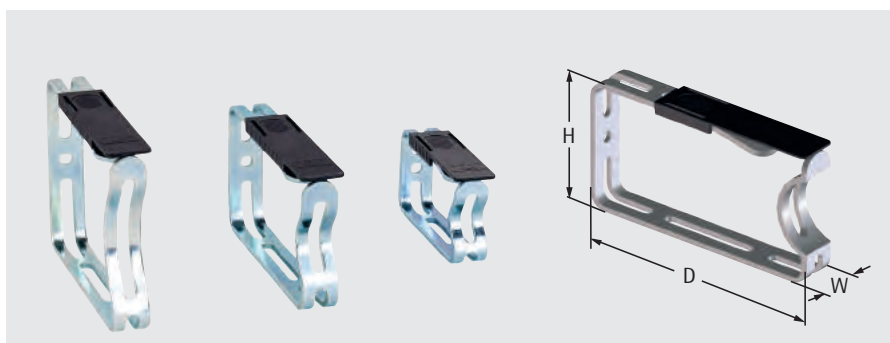
15 kg

Delivery:

includes mounting material

Order no.
318-129

Cable clamps, metal (set)

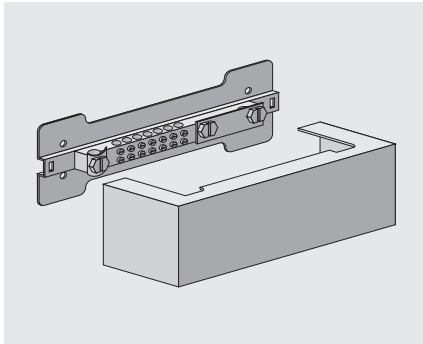


- for securing cables vertically to a 19" frame (for 800 mm wide cabinets)
- set = 10 pieces
- mounting material included

Dimensions (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



Potential equalisation rail



- covered

Delivery:

- 1 potential equalisation rail
- mounting material

Order no.
640-200-01

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 (acc. 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)

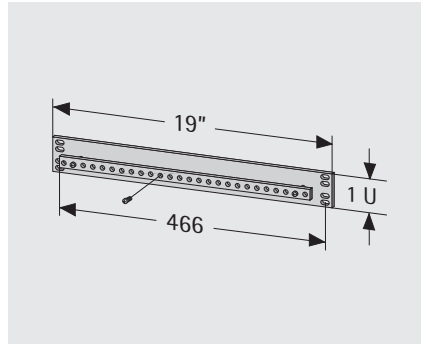
Delivery: unmounted

Delivery: 1 m²

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

Order no.
671-211

19" Potential equalisation rail 1 U



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

Material:

sheet metal/copper

Order no.
640-028-00

cabinet labeling



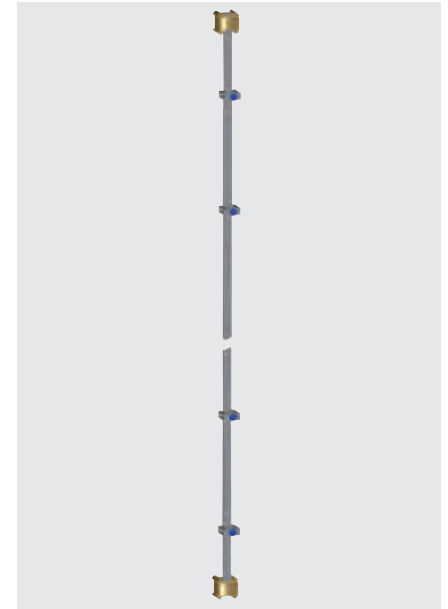
- Magnetic label for mounting on cabinets and enclosures
- optionally fixable with adhesive tape
- removable title block for customization

Delivery:

- Magnetic label for mounting on cabinets and enclosures
- Protective film transparent for magnetic profile 40 x 100 mm
- Adhesive tape, double-sided covered, B = 38 mm

Order no.
855-444

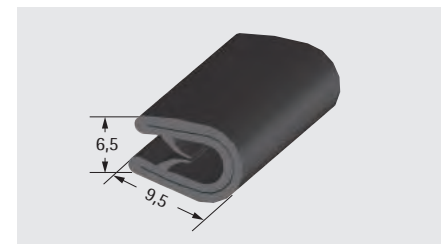
Potential equalisation bar 1 U



- 30 mm² incl. 10 pieces bail
- mounting material including

L mm	Order no.
2000	640-028-08
1800	640-028-10

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

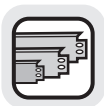
Material:

rubber, black

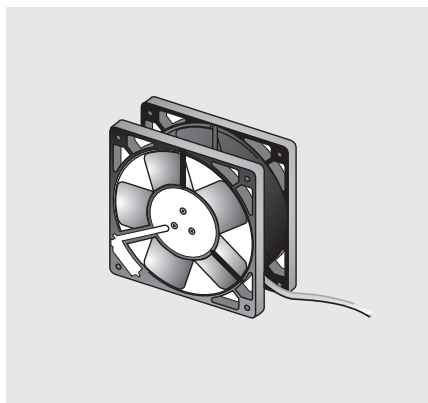
Delivery:

1m

Order no.
671-024



Fan 230 V



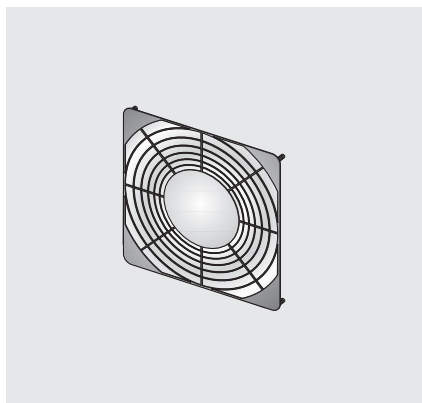
- air flow rate: 160 m³/h
- connecting cable L = approx. 310 mm
- dimensions: 119 × 119 × 38 mm
- noise level: 40 dB (A)
- mounting material included

Dimensions H x W x D:

119 x 119 x 38 mm

Order no.
230-803

Protective grille, plastic



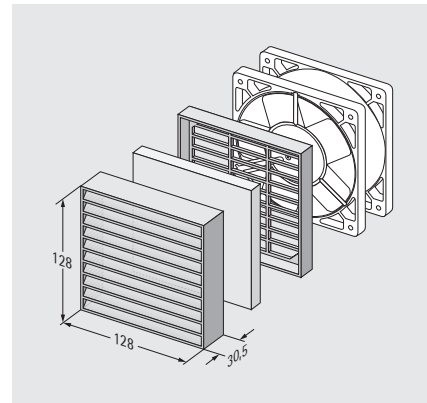
- suitable for all fans with dimensions W x H = 119 x 119 mm

Material:

plastic, black

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

Outlet filter



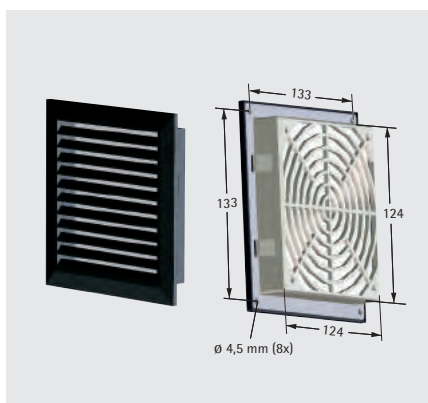
- for individual self-assembly on standard cabinet or enclosure
- outlet filters are preferably installed in conjunction with fans in the upper part of the cabinet

Delivery:

1 outlet filter complete with filter mat, excl. mounting material

Order no.
230-800

Outlet filter IP 54

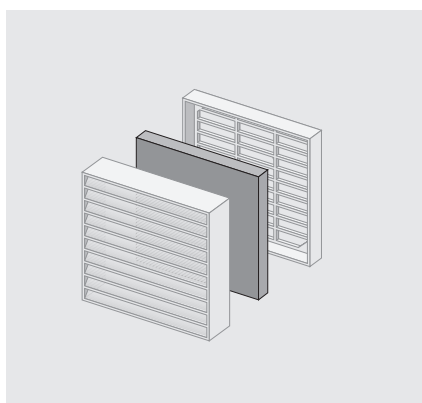


- suitable for fans W x H = 119 × 119 mm
- Dimensions H x W x D: 148 x 148 x (5,5 + 23) mm
- IP rating is achieved with vertical installation and overhead installation
- with filter mat and seal
- quick mounting: snap fastener
- can as an option be screwed on

Material: plastic, black

Order no.
230-780

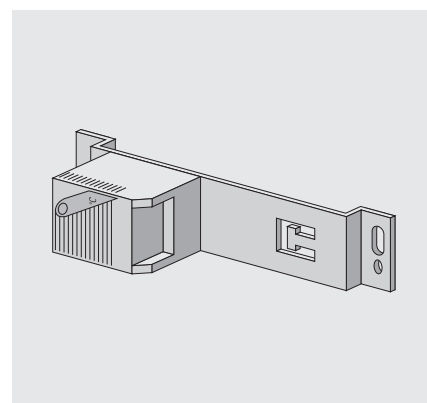
Spare filter mat



- 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



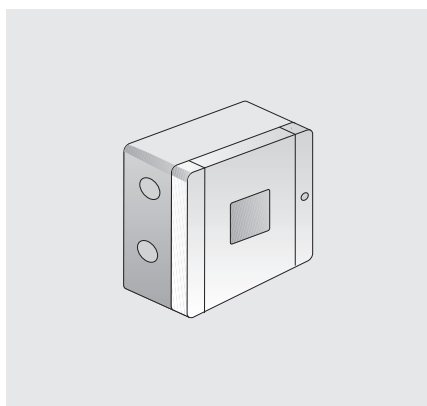
Door contact switch



- for switching cooling devices etc. on and off
- includes mounting material

Order no.
640-071-00

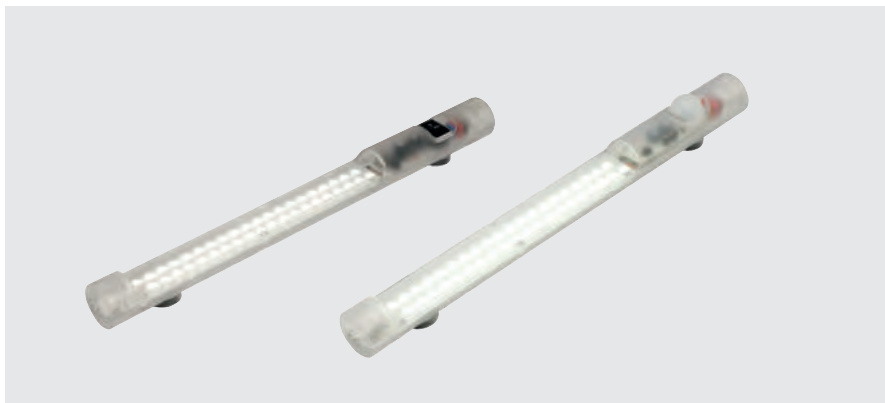
Terminal box



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

Order no.
640-059

LED cabinet light



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

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

Document pocket



- self-adhesive
- heat-resistant up to 60 °C
- load capacity of up to 3 kg
- your company's logo can be affixed

Dimensions (H x W x D):

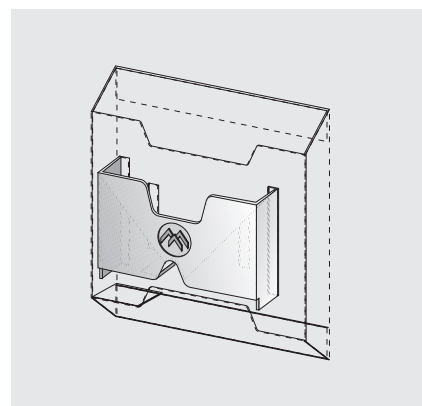
235 x 260 x 27 mm

Material:

plastic, black

Order no.
640-100

CD holder for document pocket



- can be hung in the document pocket

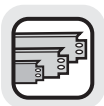
Material:

Aluminium

Finish:

RAL 7035 light grey

Order no.
640-100-10



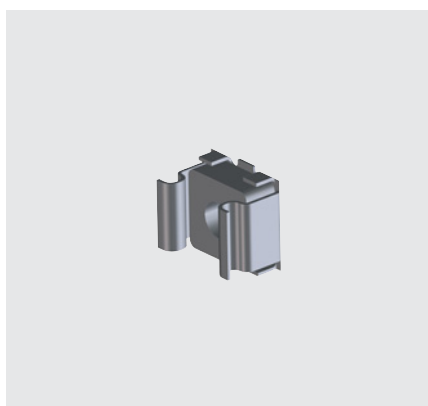
Screw set M5 / M6 (set)



- necessary for mounting of 19" components into racks or enclosures
- included in delivery:
 - 50 oval head screws M 5 x 12 / M 6 x 16
 - 50 cage nuts M 5 - 8 / M 6 - 8
 - 50 rosettes for lens screws M 5 / M 6, flattened according to standards

Description	Order no.
M 5	630-991
M 6	630-994
Torx M 6	350-001-20

Cage nuts M 5 / M 6 (set)



- set = 100 cage nuts
- sheet thickness 1.8 - 2.6 mm

Finish:
galvanised

Description	Order no.
Cage nuts M 5	630-362
Cage nuts M 6	630-363

TiRAX screw set



- for rotating mounting in the TiRAX cabinet racks

Delivery:
each with 20 x special cage nuts M 6, lens head screw M 6 x 16 and washers

Order no.
630-998

"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.
671-122-08

19" plug-in nut M5



- For mounting in 19" grid rails with a standard breakthrough 9,5 x 9,5 mm (square perforation)

Material:
Threaded insert, galvanised steel
Plastic housing:
PA (UL-certificate)
Finish: plastic (black)
thread use: galvanized

Description	Order no.
set 4-fold	631-555-04
set 50-fold	631-555-50

Velcro mount "universal"



- used to accommodate velcro up to w = 20 mm
- for screws M 4 (not included)
- set = 10 pieces

Material:
plastic, black UL94 V-0

Order no.
583-001-08

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:



Multiple socket strips and other power supply components can be found in the section "Power distribution" from page 137.



A wide range of ventilation and air conditioning components can be found in the section "Air conditioning technology" from page 129.



Suitable cable routing solutions such as cable clamps, patch bays, etc. can be found in the section "Cable management" from page 163.





WE GIVE YOUR DATA A SAFE HOME

Optimum protection, maximum safety, efficiency and reliability: apraNET offers you a wide selection of high-quality products from its own production on the basis of state-of-the-art manufacturing technologies – and in addition a great deal of flexibility in implementing individual wishes.

apraNET equips the Enervie Group's data center with the NETcell cabinet system.

With 1.500 employees in North Rhine-Westphalia, the Enervie Group supplies around 400.000 customers with electricity, gas, drinking water and energy-related services. The headquarters of Enervie Südwestfalen Energie und Wasser AG is located in Hagen. The modern data center and additional technical rooms were equipped with 68 NETcell cabinet systems in 2014.



The cabinet system NETcell, nominated for the German Data Center Award, inspires the technical managers at Enervie with the well thought-out cable management system, the high load capacity of far more than one ton and the simple installation. Due to the complete disassembly, installation and final assembly can also be carried out in locations that are difficult to access. Based on the integration of the modular enclosure components, Enervie also takes advantage of the NETcell system for energy- and cost-efficient data center air conditioning.

The FernUniversität in Hagen relies on products from apraNET.

The FernUniversität in Hagen is the first and only distance learning university under public law in Germany. With around 77.000 students, it is also Germany's largest university. By awarding degrees such as Bachelor, Master and Doctorate, the FernUniversität in Hagen represents a real alternative to attendance based studies and represents the trend towards lifelong learning.

In 2012 and 2013 the university computer centre was equipped with the NETcell cabinet system specially developed for the data center sector. Especially the flexible installation and mounting options as well as the customer-



© FernUniversität / Mette

specific adaption of enclosure components to the data center infrastructure convinced the IT managers at the University of the apraNET products and services. Through the field service on-site, the extensive consultation by the office service as well as the own assembly and installation service apraNET was a reliable partner to the university during the entire project.



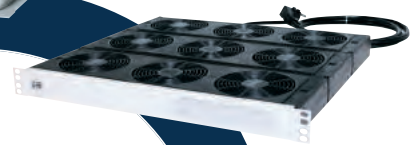
Datacenter, network engineering and industrial applications

- ▶ 19" cabinet system TiRAX
- ▶ 19" cabinet system NETcell
- ▶ Wall enclosure systems
- ▶ Wall-mounted and free-standing distributors
- ▶ Power Supply/PDU, Air Conditioning and cable management



19" electronic module systems

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



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" enclosure systems

- ▶ Desktop enclosure systems
- ▶ 19" enclosures





Housing for Maker Boards

customized enclosures

for Embedded NUC, Raspberry Pi, Arduino, Banana Pi, Nano ITX, Pico ITX, Smarc, ...



Small enclosure systems

- ▶ Modem enclosures
- ▶ Profile small enclosures
- ▶ Console enclosures



Panel instrument cases and top hat rail enclosures

- ▶ Enclosures in accordance with IEC 61554
- ▶ Plastic injection moulding
- ▶ Plastic mould construction

Plastic enclosures

- ▶ individual plastic housing without tool costs
 - ▶ even the most unusual shape and material requests are possible
 - ▶ from 1 - 100.000 pc. in different techniques
 - ▶ **3D-Printing:** Your Fast Track to Prototyping
 - ▶ **Digital printing:** fast, flexible and inexpensive
 - ▶ Front membranes and membrane keypads
 - ▶ Material mix: the perfect combination of plastic and metal



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!

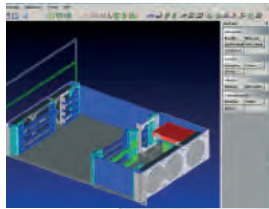




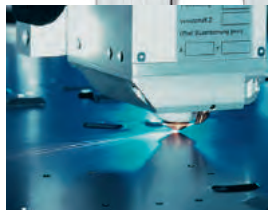
A holistic approach

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

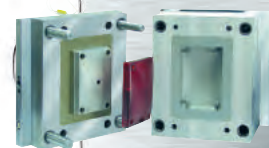
3. BENDING TECHNOLOGY

- Robot-supported bending
- Crimping
- Deposit

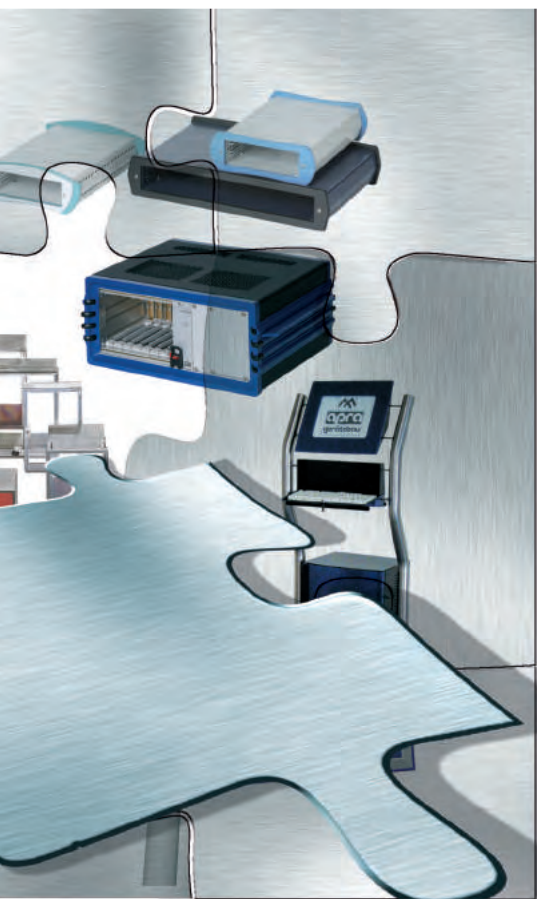


4. PLASTICS PROCESSING

- Milling and bending technology
- Vacuum casting technology (SYN-PRO tech)
- Cast moulding technology (GIEFO tech)
- Injection moulding
- Rapid prototyping

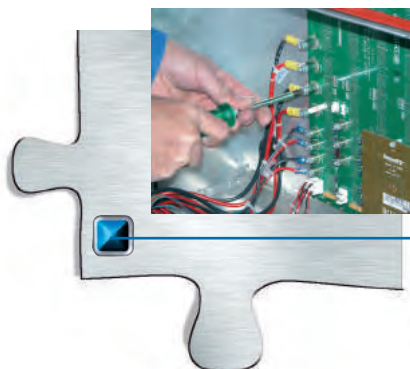


to production



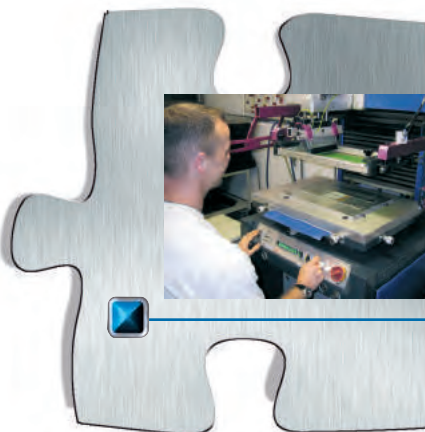
5. JOINTING TECHNOLOGY

- ☒ 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



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 9001:2015 is a standard that regulates the selection and installation of a quality management system within a company.

DIN EN ISO 14001:2015 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



Geprüfte Sicherheit



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 dataset 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 customized

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.