



*Schroff*<sup>®</sup>

# SPECIFIER'S GUIDE

---

SUBRACKS • CASES • PANELS • PLUG-IN UNITS • RETAINERS

**Pentair Technical Product's** Schroff® brand has been a world-leader in the electronics packaging industry for over four decades. Schroff supplies subracks and accessories, instrument cases, 19-in. cabinets, backplanes, integrated systems and enclosure hardware, complete packaging systems for MicroTCA, Advanced TCA, CompactPCI, PXI, VME, VME64x, VPX, VXS and customer-specific enclosure systems.

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**Schroff®, Calmark™** and **Birtcher™** printed circuit board retainers, conduction-cooled frame assemblies, and extractors are designed for use in rugged environments with high shock and vibration, and conduction cooling requirements. A large variety of retainers are available to meet your needs for highly rugged to less rugged applications.

### Cases

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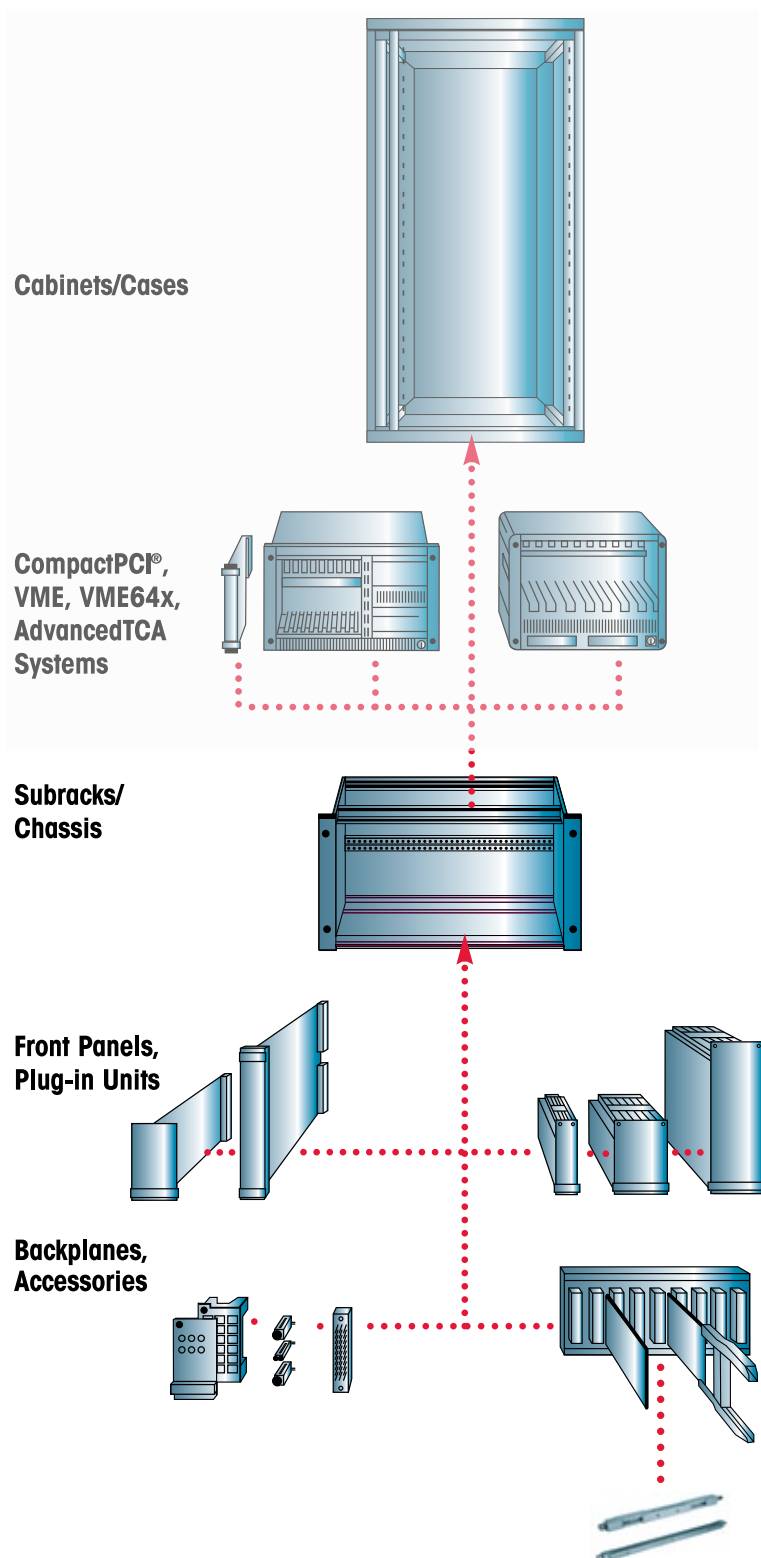
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## Product Description



### Cases—form and functions for a wide range of industries

Schroff instrument and system cases provide fully functional, stylish enclosures offering high-quality protections for electronic equipment. Our cases can be configured to meet most applications using our standard catalog components whether your application is for EMC shielding, ruggedization or highly customized. Whether it is a portable, desk-mount or rack-mount application, or whether it is a CompactPCI, VME or proprietary application, the Schroff case family has an off-the-shelf solution.

### Systems—from a single source

Our comprehensive and highly developed product range offers you mechanical, electronic and thermal components with an extensive choice of dimensions and performance specifications. Simply select a complete, ready system or configure your system from our standard components to your exact requirements. With all resources under one roof, we ensure that backplane, power supply, cooling and mechanics form an optimized system.

### Subracks—a modular toolbox

Schroff subracks, with their modular construction, offer you many profitable advantages, both technical and economic. Their standard components are offered with a vast range of supporting accessories for light-duty or heavy-duty applications. Whether for CompactPCI, VME64x or AdvancedTCA specifications, HF-shielded or rugged, the Schroff subrack system allows versatile combinations, letting you implement a range of versions in varying height, width and depth, simply, cost-effectively and with no design outlay.

### Front panels—products plus services for any requirement

Offering a broad range of front panel products designed to industry-leading specifications, Schroff meets your application needs. With advanced customization services for all front panel product lines, and the Front Panel Express service, you can rely on the Schroff brand to solve your design requirements. Moreover, high-speed milling machines and stamping presses support low to very high volume front panel projects quickly.

### Retainers—design flexibility for any requirement

Choose different wedge segments, lengths, individual wedge dimensions; relocate or add mounting holes, or even different hardware, materials and finishing. Calmark and Birtcher brand retainers offer an extremely broad range of configurations allowing you to meet your application needs.

## Front Panels, Plug-in Units

### Overview

- **Solutions for every application**

Schroff front panels meet all standards required for VME, CPCI, ATCA and mTCA applications. Ordering parts from Schroff will ensure that you have components which meet the highest industry standards.

- **Quality products modified to meet your needs**

Quality design and manufacturing processes back up our world class modification services—get the right product exactly how you need it.

- **Quick turn around for modifications**

Use our five business day Front Panel Express service to get custom front panels to meet your particular requirements. Please find more information at [www.schroff.us/fpx](http://www.schroff.us/fpx)

- **EMI shielded front panels**

Ensuring that all front panels have good EMI shielding will ensure that your overall system is properly shielded.

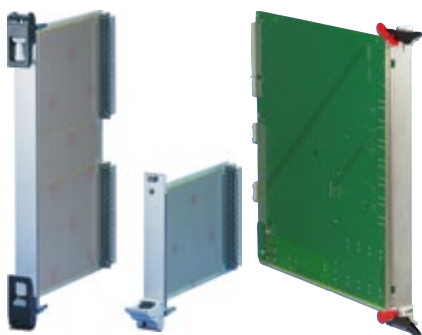
- **Peace of mind**

Ordering Front Panels from Schroff will ensure that you have one facility responsible for machining and screening your parts.

- **Industry leadership**

Active member in global standardization committees like IEC, IEEE, VITA, PICMG

### Plug-in Units



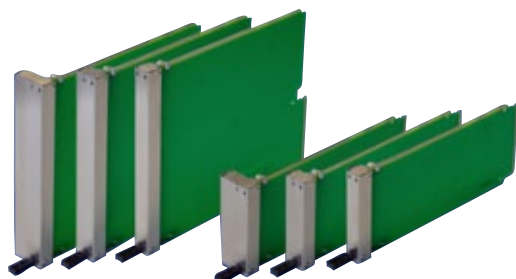
- Plug-in units available as kits or individual components
- Meets IEC 60297-3-101/IEEE 1101.1/11, IEC 60297-3-102/IEEE 1011.10 and IEC 60297-3-103 standards
- Front panels and front handles in different designs:
  - Heavy-load XL insertion/extractor handles, extraction force up to 1500 N
  - Cantilever extraction handle
  - Extraction handles for Multibus® II
  - Shielded insertion/extractor handles (1101.1)
  - Front panel kits with AdvancedTCA-IEA handles
- Nine different handles for plug-in units offering flexibility on application level
- EMC shielding available as application requires

### Front Panels



- We offer the widest range of front panels to fit in subracks and cases
- Meets IEC 60297-3-101 / IEEE 1101.1/10 standards
- Extensive standard range with various aluminum finishes
- Front Panel Express: Fast delivery for customized versions (ready for dispatch within 5 to 10 days)
- EMC shielding available as application requires

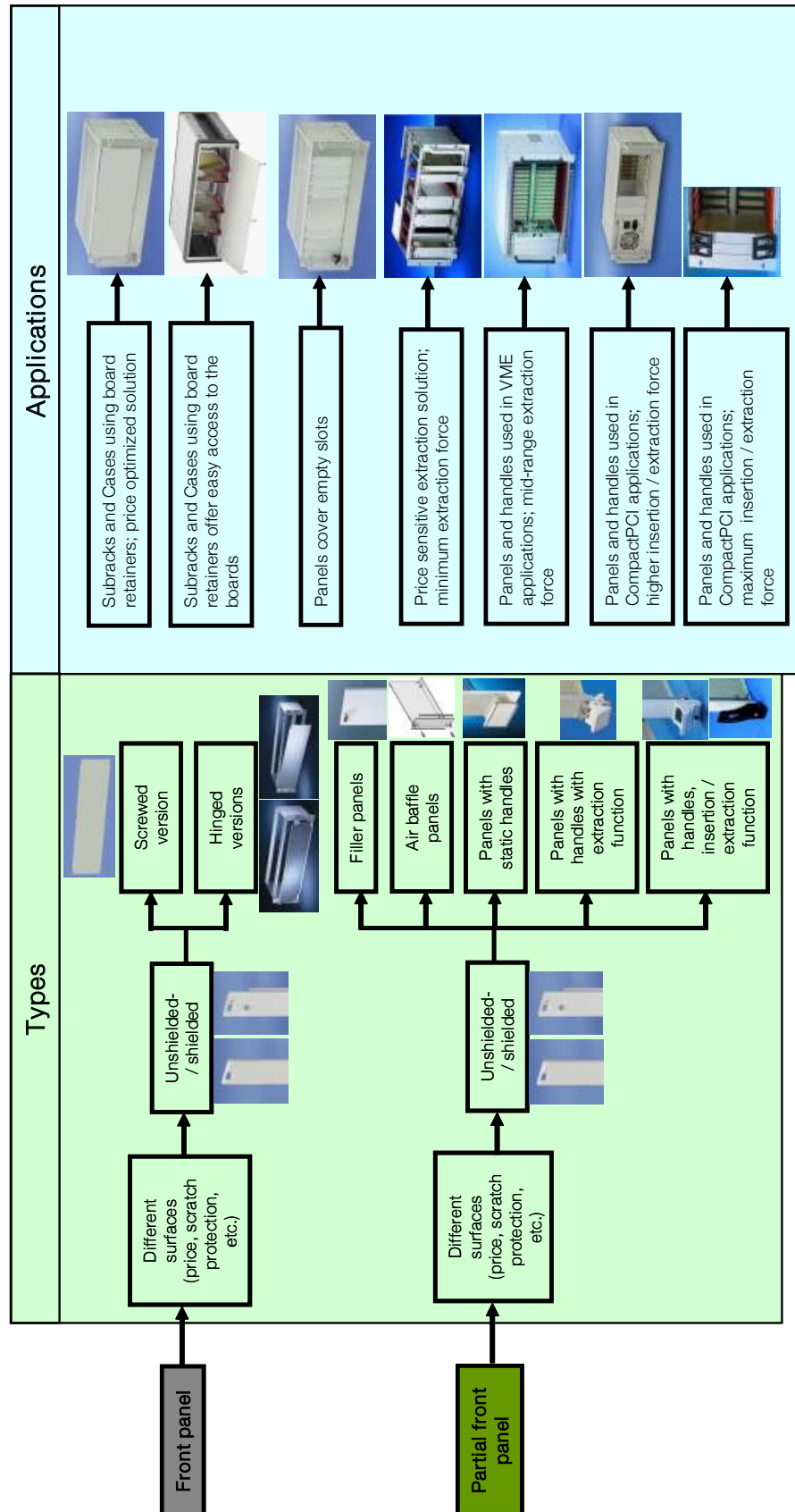
### AdvancedMC-Modules AMC.0 R2.0



- AdvancedMC Modules: physical components
- Front panels with two locking mechanisms suitable for AdvancedMC carriers and MicroTCA systems
- Front panels in stainless steel or aluminium profile
- AdvancedMC Module Dimensions: Two heights (single and double); three widths (compact, mid-size and full-size)
- Ruggedized AdvancedMC Modules for MicroTCA.1 applications
- MicroTCA filler modules with adjustable air throughput
- Front panel sets with AdvancedTCA handles and AdvancedMC modules that support Telecom technologies

## Front Panels

### Front Panel Selection Guide



## Front Panels

**Front Panel Express—when customized panels are required - FAST!**



Schroff Front Panel Express service offers fast prototypes-to-production cycle time. With Front Panel Express, you can get 5 to 50 front panels modified with custom cut-outs, handles and silk-screen in as few as 5 working days. Front Panel Express is available on several Schroff brand modified front panels. Solve your design problems and get your business up and running faster with Schroff brand products.

### Advantages and Features:

- **Fast prototypes to production**—shipped in as few as 5 days
- **Broad** range of rugged front panel products available
- **Customization services** include cut-outs, screen printing, assembly and more
- **Local and global** design and product support
- **Design and engineering technical assistance** (Pro-E, SDRC, AUTOCAD and SolidWorks)



Advanced MC



Advanced TCA



PMC



VME



COMPACT PCI and VME64x

### Preparing Your Design

1. Modify your drawing
2. E-mail your drawing to your local sales representative and we'll do the rest—fast.

Don't know who your sales representative is?

Visit [schroff.us/contact](http://schroff.us/contact)

### Industries

- Telecommunications
- Medical
- Defense
- Aerospace
- Test & measurement
- Industrial automation

### Versatile Solutions from the Authority in Front Panel Technology

For more than 60 years, companies have relied on Schroff for product and service solutions for enclosing, protecting and cooling electrical and electronic systems. The Schroff brand offers world-leading electronics packaging components and systems, including versatile and robust front line products. To contact your local representative or learn more, visit [schroff.us/fpx/](http://schroff.us/fpx/)

## Front Panels

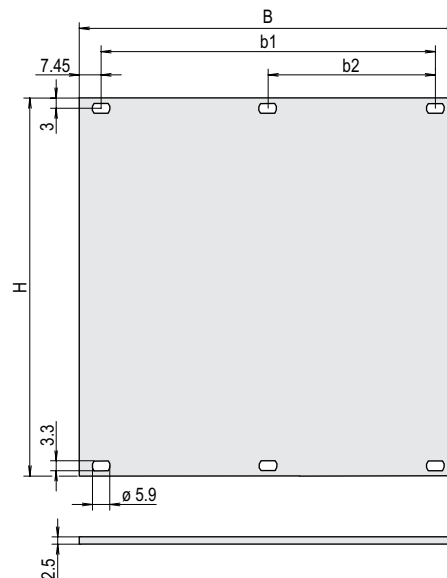
### Front Panels, unshielded



- Front panels, aluminum, 2.5 mm
- Versions:
  - Aluminum, anodized
  - Aluminum, anodized, cut edges plain
  - Aluminum, front anodized, rear conductive coating

### Standard Product

| Height (U) | H (mm) | Width (HP) | B (mm) | b1 (mm) | b2 (mm) | Anodized, cut edges unplated | Anodized  | Front anodized, rear conductive coating |
|------------|--------|------------|--------|---------|---------|------------------------------|-----------|-----------------------------------------|
| 3          | 128.4  | 4          | 20.0   | —       | —       | 30818-273                    | 30807-481 | 30838-043                               |
| 3          | 128.4  | 6          | 30.1   | —       | —       | 30818-275                    | 30807-482 | 30838-045                               |
| 3          | 128.4  | 8          | 40.3   | 25.4    | —       | 30818-277                    | 30807-484 | 30838-047                               |
| 3          | 128.4  | 12         | 60.6   | 45.7    | —       | 30818-281                    | 30807-485 | 30838-051                               |
| 3          | 128.4  | 28         | 141.9  | 127.0   | —       | 30818-296                    | 30807-496 | 30838-067                               |
| 3          | 128.4  | 42         | 213.0  | 198.1   | 101.6   | 30818-310                    | 30807-494 | 30838-081                               |
| 3          | 128.4  | 63         | 319.7  | 304.8   | 157.5   | 30818-331                    | 30808-067 | 30838-102                               |
| 3          | 128.4  | 84         | 426.4  | 411.5   | 203.2   | 30818-352                    | 30807-506 | 30838-123                               |
| 4          | 172.9  | 84         | 426.4  | 411.5   | 203.2   | 30818-434                    | 30807-596 | 30847-465                               |
| 6          | 261.8  | 4          | 20.0   | —       | —       | 30818-518                    | 30807-778 | 30838-124                               |
| 6          | 261.8  | 6          | 30.1   | —       | —       | 30818-520                    | 30807-752 | 30838-126                               |
| 6          | 261.8  | 8          | 40.3   | 25.4    | —       | 30818-522                    | 30807-779 | 30838-128                               |
| 6          | 261.8  | 12         | 60.6   | 45.7    | —       | 30818-526                    | 30807-755 | 30838-132                               |
| 6          | 261.8  | 28         | 141.9  | 127.0   | —       | 30818-542                    | 30807-766 | 30838-148                               |
| 6          | 261.8  | 42         | 213.0  | 198.1   | 101.6   | 30818-556                    | 30807-764 | 30838-162                               |
| 6          | 261.8  | 63         | 319.7  | 304.8   | 157.5   | 30818-577                    | 30807-771 | 30838-183                               |
| 6          | 261.8  | 84         | 426.4  | 411.5   | 203.2   | 30818-598                    | 30807-776 | 30838-204                               |



## Front Panels

### Front Panels, U profile, shieldable



Front panel with textile EMC-gaskets.  
(EMC gasket purchased separately.)

- The textile EMC gaskets are fixed to the front panel at the right-hand side of the profile
- Temperature range -40 C to +70 C

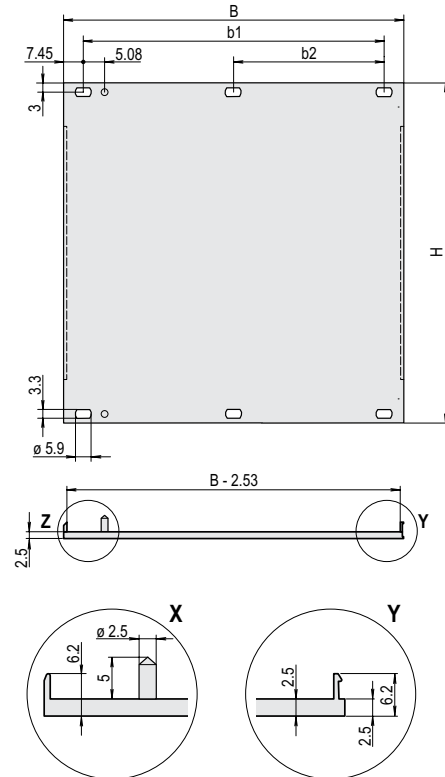
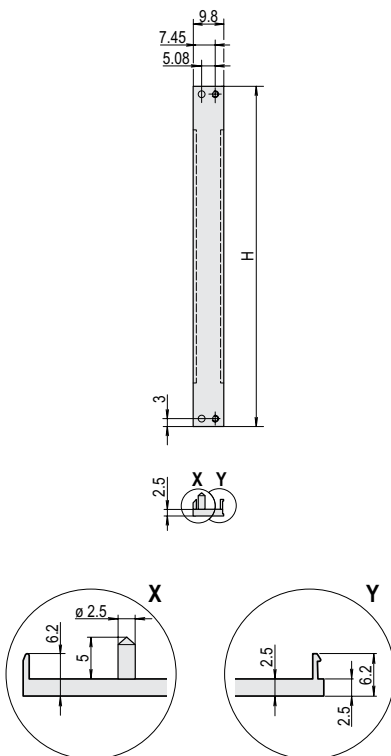
#### Standard Product

| Height H<br>(U) | Width<br>(mm) | Width<br>(HP) | B<br>(mm) | b1<br>(mm) | b2<br>(mm) | Alignment<br>pin | Part no.  |
|-----------------|---------------|---------------|-----------|------------|------------|------------------|-----------|
| 2               | 84            | 84            | 426.4     | 411.5      | 203.2      | —                | 20848-262 |
| 3               | 128.4         | 2             | 9.8       | —          | —          | x                | 30849-001 |
| 3               | 128.4         | 4             | 20        | —          | —          | x                | 30848-354 |
| 3               | 128.4         | 6             | 30.1      | —          | —          | x                | 30848-380 |
| 3               | 128.4         | 8             | 40.3      | 25.4       | —          | x                | 30848-356 |
| 3               | 128.4         | 12            | 60.6      | 45.7       | —          | x                | 30848-358 |
| 3               | 128.4         | 28            | 141.9     | 127        | —          | x                | 20848-027 |
| 3               | 128.4         | 42            | 213       | 198.1      | 101.6      | x                | 20848-047 |
| 3               | 128.4         | 63            | 319.7     | 304.8      | 157.5      | x                | 20848-068 |
| 3               | 128.4         | 84            | 426.4     | 411.5      | 203.2      | —                | 20848-097 |
| 4               | 172.9         | 84            | 426.4     | 411.5      | 203.2      | —                | 20848-271 |
| 6               | 261.8         | 4             | 20        | —          | —          | x                | 30848-355 |
| 6               | 261.8         | 6             | 30.1      | —          | —          | x                | 30848-381 |
| 6               | 261.8         | 8             | 40.3      | 25.4       | —          | x                | 30848-357 |
| 6               | 261.8         | 12            | 60.6      | 45.7       | —          | x                | 30848-359 |
| 6               | 261.8         | 28            | 141.9     | 127        | —          | x                | 20848-120 |
| 6               | 261.8         | 42            | 213       | 198.1      | 101.6      | x                | 20848-139 |
| 6               | 261.8         | 63            | 319.7     | 304.8      | 157.5      | x                | 20848-160 |
| 6               | 261.8         | 84            | 426.4     | 411.5      | 208.3      | —                | 20848-189 |

#### Accessories

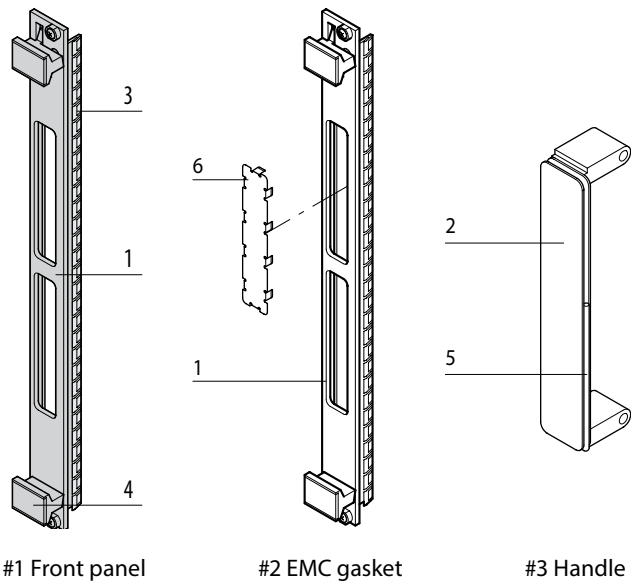
|                                                                |                  |
|----------------------------------------------------------------|------------------|
| <b>Textile EMC gaskets, Height 3 U, 97 mm, Qty. 10 pieces</b>  | <b>21101-853</b> |
| Textile EMC gaskets, Height 3 U, 97 mm, Qty. 100 pieces        | 21101-854        |
| <b>Textile EMC gaskets, Height 6 U, 232 mm, Qty. 10 pieces</b> | <b>21101-855</b> |
| Textile EMC gaskets, Height 6 U, 232 mm, Qty. 100 pieces       | 21101-856        |

Part number in bold face is a stocked item.



Front Panels

PMC Mezzanine Front Panels with handle, shielded



- PMC= PCI Mezzanine Card
- For module size 194 x 74 mm<sup>2</sup>
- Meets IEEE P1386 standard
- 6 U / 4 HP front panels with EMC sealing (stainless steel) and front handles

Standard product

| Item  | Description                                     | Qty. | Part no.  |
|-------|-------------------------------------------------|------|-----------|
| 1+2+3 | PMC mezzanine front panel with handle, shielded | 1    | 20897-950 |

Accessories

|                                                                                                                      |                  |
|----------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Item 6</b> , EMC cover for PMC mezzanine front panel cut-outs, stainless steel, 0.2 mm, black, 1 piece (Qty. 10)  | <b>60835-024</b> |
| <b>Item 6</b> , EMC cover for PMC mezzanine front panel cut-outs, stainless steel, 0.2 mm, bright, 1 piece (Qty. 10) | <b>60835-022</b> |
| <b>Item 2</b> , PMC mezzanine front panels, aluminium extrusion, anodized, conductive contact surfaces, 1 piece      | <b>20835-598</b> |
| <b>Item 2</b> , PMC mezzanine front panels, zinc die-cast, black, chromated, 1 piece                                 | 20835-922        |
| <b>Item 2</b> , PMC mezzanine front panels, zinc die-cast, chrome-plated, mat, 1 piece                               | 20835-923        |
| <b>Cheesehead screw</b> M2.5 x 5 mm, Qty. 100 pieces                                                                 | 21100-624        |

Part number in bold face is a stocked item.

Cantilever Extraction Handles

| Type 2 plastic static handle | Type 2 plastic extraction handle for notched front panel | Type 2 plastic extraction handle, standard C style | Extraction handles for Multibus® II standard | Plastic extraction handles - short lever | Plastic extraction handles - long lever |
|------------------------------|----------------------------------------------------------|----------------------------------------------------|----------------------------------------------|------------------------------------------|-----------------------------------------|
|                              |                                                          |                                                    |                                              |                                          |                                         |

Available as spare parts or in kit form.

Plug-In Units

Plug-In Unit Kits for AdvancedTCA-IEA with die-cast end piece handles



(Board not included)      (AdvancedTCA spring-loaded IEA handle)

- Hot-swap handles (spring-loaded)
- Front panels: aluminum extrusion or stainless steel
- Die-cast end piece (top and bottom) to increase stability of front panel
- EMC sealing (textile)

Standard Product

| Height (U) | Width (HP) | Description                                                     | Part no.  |
|------------|------------|-----------------------------------------------------------------|-----------|
| 8          | 6          | Stainless steel, with AdvancedTCA-IEA handle (plunger type)     | 20818-160 |
| 8          | 6          | Stainless steel, with AdvancedTCA-IEA handle (lever type)       | 20818-161 |
| 8          | 6          | Al extrusion, 1 mm, with AdvancedTCA- IEA handle plunger style) | 20818-169 |
| 8          | 6          | Al extrusion, 1 mm, with AdvancedTCA-IEA handle (lever style)   | 20818-170 |

Plug-In Unit Kits for CompactPCI and VME64x applications



- Meets IEEE 1101.10 and IEC 60297-3-102 standards
- Codable to IEC 60297-3-103
- Shielded front panels
- Suitable for insertion and extraction forces up to 700 N (per pair)
- Designed for fitting microswitches

Standard Product

| Height (U) | Width (HP) | Part no. Front Assembly | Part no. Rear I/O |
|------------|------------|-------------------------|-------------------|
| 3          | 4          | <b>20848-585</b>        | 20848-751         |
| 3          | 6          | 20848-587               | -                 |
| 3          | 8          | 20848-589               | 20848-752         |
| 3          | 10         | 20848-590               | -                 |
| 3          | 12         | 20848-591               | -                 |
| 6          | 4          | <b>20848-592</b>        | -                 |
| 6          | 6          | 20848-594               | -                 |
| 6          | 8          | 20848-596               | -                 |
| 6          | 10         | 20848-597               | -                 |
| 6          | 12         | 20848-598               | -                 |

Accessories

|                                                                        |           |
|------------------------------------------------------------------------|-----------|
| Microswitch for handles, CompactPCI/VME64x application, Qty. 10 pieces | 20817-606 |
|------------------------------------------------------------------------|-----------|

Part number in bold face is a stocked item.

## Plug-In Units

### Plug-In Unit Kits with cantilever extraction handle type 2 for VME applications



(Board not included)

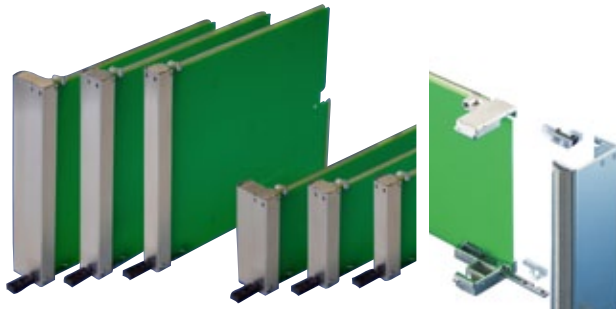
- Unshielded

#### Standard Product

| Height (U) | Width (HP) | Part no.  |
|------------|------------|-----------|
| 3          | 4          | 20817-860 |
| 3          | 6          | 20817-862 |
| 3          | 8          | 20817-864 |
| 3          | 12         | 20817-866 |
| 6          | 4          | 20817-867 |
| 6          | 6          | 20817-869 |
| 6          | 8          | 20817-871 |
| 6          | 12         | 20817-873 |

### AdvancedMC-Modules with Pull-Handle Mechanism for PIGMG AMC.0 R2.0 applications

(Photo shows steel front panel with complete module)



- Shielded
- Insertion/extraction mechanism to AdvancedMC standard; pull handle to extract sub-assembly
- For conventional, cutaway and hybrid carriers
- Designed for microswitch activation (hot-swap); interlocking of modules without screws
- Inclusive of light pipe
- Stainless steel front panel is available on request
- Aluminium profile front panel for foil labelling

#### Standard Product

| H (mm) | h (mm) | Description            | Part no. Aluminium |
|--------|--------|------------------------|--------------------|
| 73.8   | 60.8   | Single compact, 3 HP   | 20849-312          |
| 73.8   | 60.8   | Single mid-size, 4 HP  | 20849-268          |
| 73.8   | 60.8   | Single full-size, 6 HP | 20849-270          |
| 148.8  | 135.8  | Double compact, 3 HP   | 20849-313          |
| 148.8  | 135.8  | Double mid-size, 4 HP  | 20849-269          |
| 148.8  | 135.8  | Double full-size, 6 HP | 20849-271          |

#### Accessories

|                                                                                                 |           |
|-------------------------------------------------------------------------------------------------|-----------|
| <b>Microswitch for AdvancedMC modules</b><br>normally open, for soldering (SMD), Qty. 10 pieces | 20849-209 |
|-------------------------------------------------------------------------------------------------|-----------|

## Subracks

### Overview

#### Subrack Features

- **Subrack products for every application**

19-in. and 23-in. rack-mount equipment, embedded electronics, test equipment, security and defense industry solutions—Schroff provides the widest range of subrack products in the industry.

- **Quality products modified to meet your needs**

Quality design and manufacturing processes back up our world class modification services—get the right product exactly how you need it.

- **Unmatched electromagnetic shielding performance**

The strongest chassis level electromagnetic shielding available on the market—as a standard upgrade.

- **Rugged and robust components**

Designed to meet industry standards for shock and vibration applications.

- **Integration beyond the metal**

Schroff is the expert at integrating to any level you require. Get electronics, wiring, backplanes, power and cooling all from one supplier.

- **Industry leadership**

Active member in global standardization committees like IEC, IEEE, VITA, PICMG.

### europacPRO



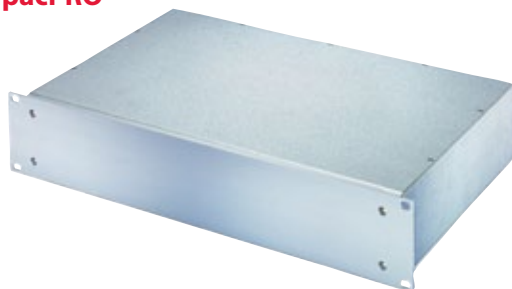
- 19-in. subracks with high design flexibility
- Can be configured to meet a full range of applications and customer requirements from the most basic configuration to Military Spec, Rugged
- Meets IEC 60297-3-103 and IEEE 1101.10/11 standards
- Available in kit or complete assembly

### inpac



- 19-in. chassis with high mechanical stability
- Flexible construction for standard board formats or individual solutions
- Can be used as a desktop enclosure

### multipacPRO



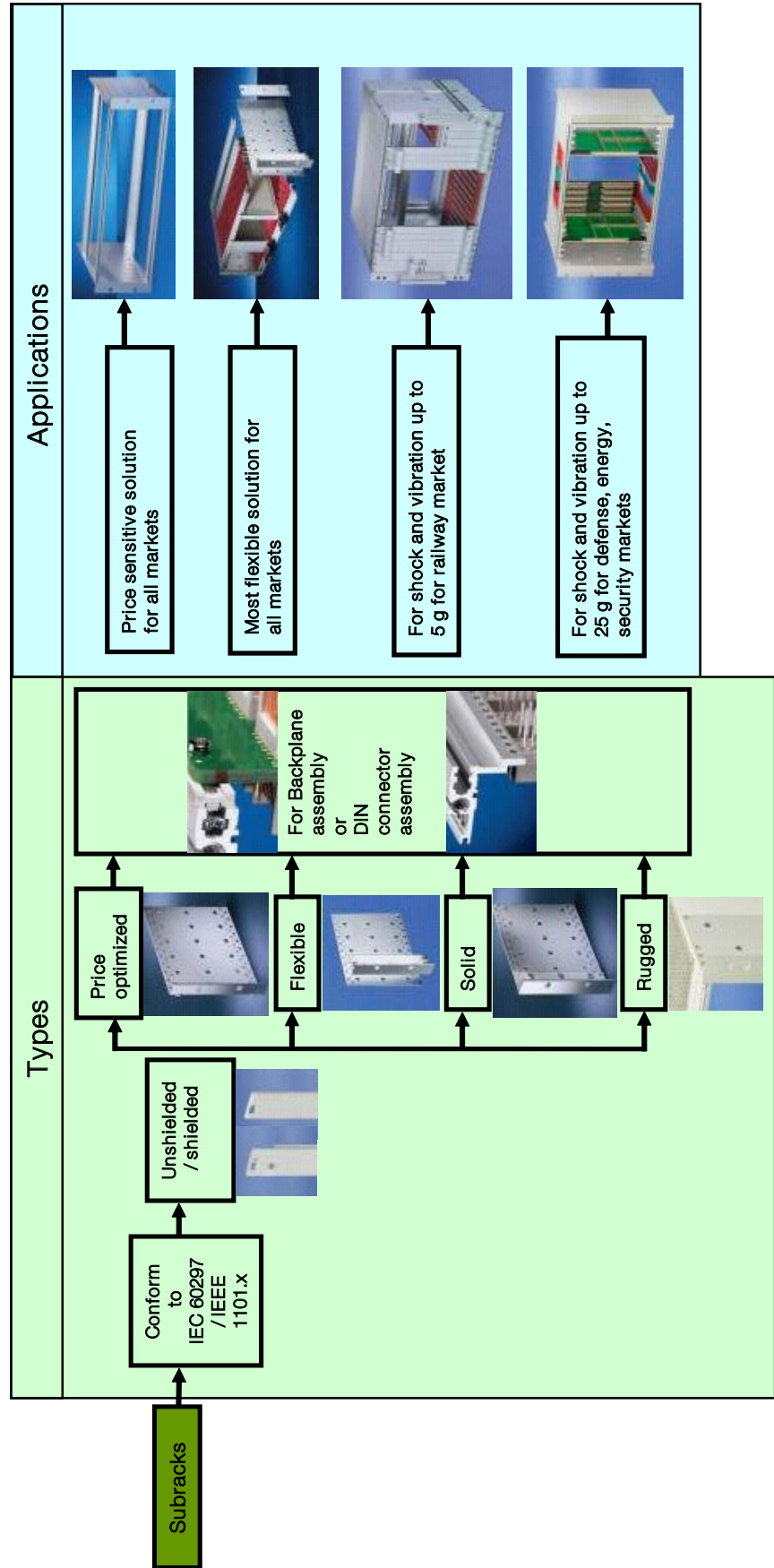
- 19-in. chassis for non-standard components and horizontal board applications
- Versions in steel or aluminum
- Available in kit or complete assembly

## Subracks

# Subrack Selection Guide



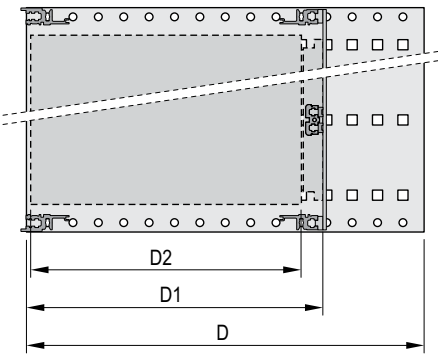
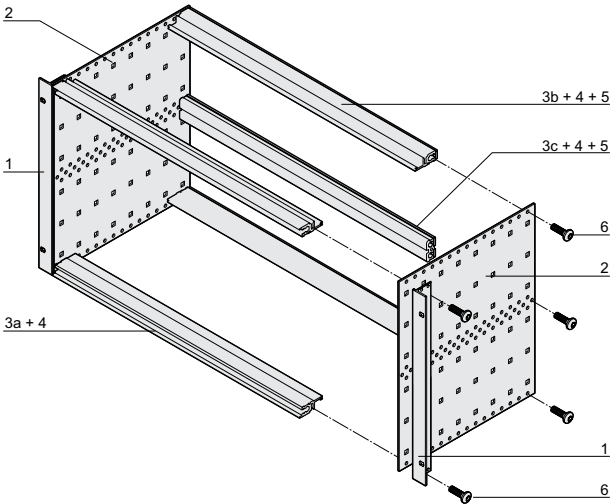
Some limitations apply; please see  
[www.schroff.us/fpx/](http://www.schroff.us/fpx/) for more details.



Subracks

europacPRO—Kits, unshielded, for backplane mounting

- 19-in. subracks with high design flexibility
- Rear horizontal rail for backplane mounting with insulation strip



(D=total depth, D1=insertion depth, D2=board depth)



(Rear horizontal rail for backplane mounting with insulation strip)

Standard Product

| Height (U) | Width (HP) | Depth D (mm) | Depth D1 (mm)   | Depth D2 (mm)   | Part no.         |
|------------|------------|--------------|-----------------|-----------------|------------------|
| 3          | 84         | 175          | 175             | 160             | 24563-131        |
| 3          | 84         | 235          | 175/235         | 160/220         | <b>24563-132</b> |
| 3          | 84         | 295          | 175/235/295     | 160/220/280     | <b>24563-133</b> |
| 3          | 84         | 355          | 175/235/295/355 | 160/220/280/340 | <b>24563-134</b> |
| 3          | 84         | 415          | 175/235/295/355 | 160/220/280/340 | 24563-135        |
| 3          | 84         | 475          | 175/235/295/355 | 160/220/280/340 | 24563-136        |
| 6          | 84         | 175          | 175             | 160             | <b>24563-431</b> |
| 6          | 84         | 235          | 175/235         | 160/220         | <b>24563-432</b> |
| 6          | 84         | 295          | 175/235/295     | 160/220/280     | <b>24563-433</b> |
| 6          | 84         | 355          | 175/235/295/355 | 160/220/280/340 | 24563-434        |
| 6          | 84         | 415          | 175/235/295/355 | 160/220/280/340 | 24563-435        |
| 6          | 84         | 475          | 175/235/295/355 | 160/220/280/340 | 24563-436        |

Accessories

|                                                                                              |                  |
|----------------------------------------------------------------------------------------------|------------------|
| Front handle 3 U, clear anodized, 1 piece                                                    | 10501-005        |
| Front handle 6 U, clear anodized, 1 piece                                                    | 10501-008        |
| Guide rails, 160 mm deep, PBT, UL 94 V-0, red, groove width 2 mm, Qty. 10 pieces             | <b>24560-351</b> |
| Guide rail, 220 mm deep, PBT, UL 94 V-0, red, groove width 2 mm, Qty. 10 pieces              | <b>24560-353</b> |
| Guide rail, 280 mm deep, PBT, UL 94 V-0, red, groove width 2 mm, Qty. 10 pieces              | 24560-379        |
| Guide rail, 340 mm deep, PBT, UL 94 V-0, red, groove width 2 mm, Qty. 10 pieces              | 24560-380        |
| ESD clip for guide rails, Qty. 50 pieces                                                     | <b>24560-255</b> |
| 19-in. assembly kit (screw, washer, nut)<br>(8 × screws, 8 × plastic washers, 8 × cage nuts) | 21100-435        |

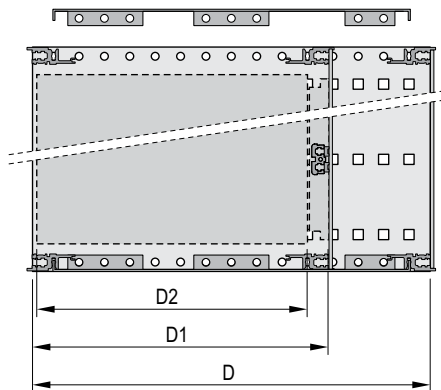
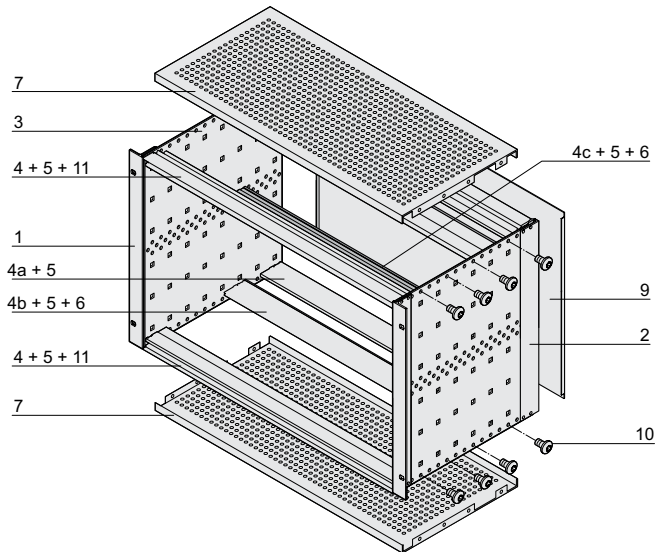
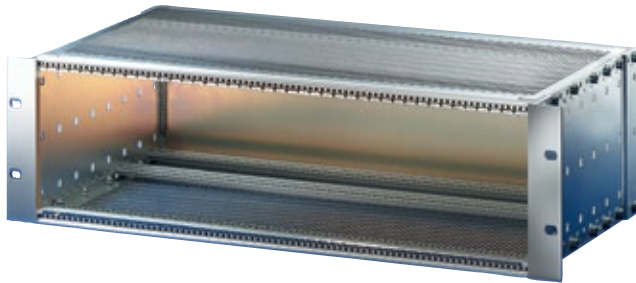
Kit includes:

| Item | Qty. |     | Description                                                       |
|------|------|-----|-------------------------------------------------------------------|
|      | 3 U  | 6 U |                                                                   |
| 1    | 2    | 2   | 19-in. support bracket for stainless steel EMC gasket             |
| 2    | 2    | 2   | Side panel type F                                                 |
| 3a   | 2    | 2   | Front horizontal rail                                             |
| 3b   | 2    | 2   | Rear horizontal rail for backplane mounting with insulation strip |
| 3c   | -    | 1   | Center horizontal rail                                            |
| 4    | 4    | 6   | Threaded inserts, to front and rear, pre-fitted                   |
| 5    | 2    | 4   | Insulation strip (pre-fitted)                                     |
| 6    | 1    | 1   | Assembly kit                                                      |
| 7    | 1    | 1   | User manual                                                       |

Part number in bold face is a stocked item.

## Subracks

### europacPRO—Kits, shielded, for backplane mounting



(D=total depth, D1=insertion depth, D2=board depth)



(Rear horizontal rail for backplane mounting with insulation strip)

- 19-in. subracks with high design flexibility
- Horizontal rail at rear for backplane mounting with insulation strip
- Shielding typically 40 dB at 1 GHz, 30 dB at 2 GHz (to VG 95373, part 15 or IEC 61587, part 3), provided the front is closed with shielded front panels

#### Standard Product

| Height (U) | Width (HP) | Depth D (mm) | Depth D1 (mm) | Depth D2 (mm) | Part no.         |
|------------|------------|--------------|---------------|---------------|------------------|
| 3          | 84         | 235          | 175/235       | 160/220       | <b>24563-142</b> |
| 3          | 84         | 295          | 175/235/295   | 160/220/280   | <b>24563-143</b> |
| 3          | 84         | 355          | 175/235/295   | 160/220/280   | 24563-144        |
| 3          | 84         | 415          | 175/235/295   | 160/220/280   | 24563-145        |
| 3          | 84         | 475          | 175/235/295   | 160/220/280   | 24563-146        |
| 6          | 84         | 235          | 175/235       | 160/220       | 24563-442        |
| 6          | 84         | 295          | 175/235/295   | 160/220/280   | <b>24563-443</b> |
| 6          | 84         | 355          | 175/235/295   | 160/220/280   | 24563-444        |
| 6          | 84         | 415          | 175/235/295   | 160/220/280   | 24563-445        |
| 6          | 84         | 475          | 175/235/295   | 160/220/280   | 24563-446        |

#### Accessories

|                                                                                                     |                  |
|-----------------------------------------------------------------------------------------------------|------------------|
| <b>Front handle</b> 3 U, clear anodized, 1 piece                                                    | 10501-005        |
| <b>Front handle</b> 6 U, clear anodized, 1 piece                                                    | 10501-008        |
| <b>Guide rails</b> , 160 mm deep, PBT, UL 94 V-0, red, groove width 2 mm, Qty. 10 pieces            | <b>24560-351</b> |
| <b>Guide rail</b> , 220 mm deep, PBT, UL 94 V-0, red, groove width 2 mm, Qty. 10 pieces             | <b>24560-353</b> |
| <b>Guide rail</b> , 280 mm deep, PBT, UL 94 V-0, red, groove width 2 mm, Qty. 10 pieces             | 24560-379        |
| <b>ESD clip</b> for guide rails Qty. 50 pieces                                                      | <b>24560-255</b> |
| <b>19-in. assembly kit</b> (screw, washer, nut)<br>(8 × screws, 8 × plastic washers, 8 × cage nuts) | 21100-435        |

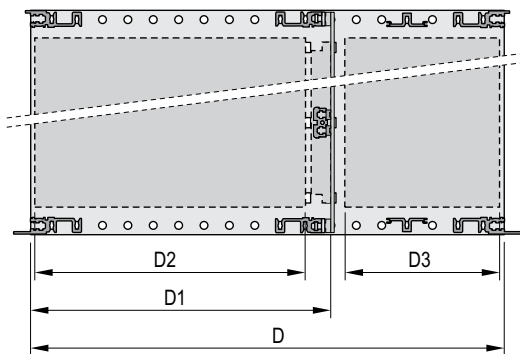
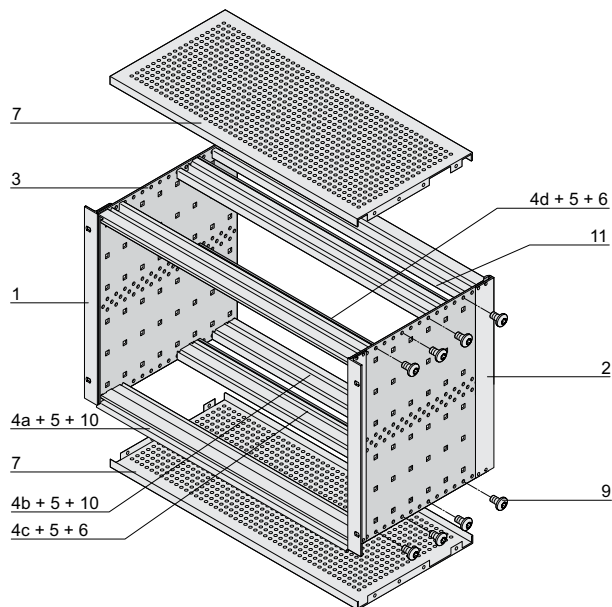
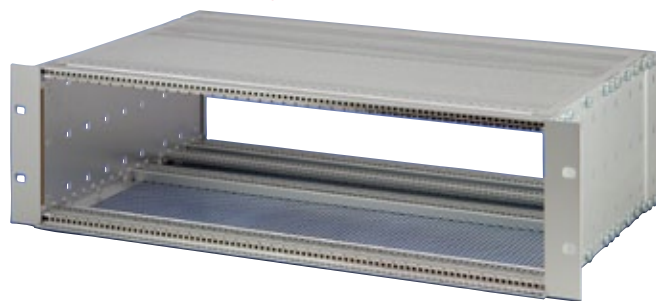
#### Kit includes:

| Item | Qty | 3 U | 6 U | Description                                                       |
|------|-----|-----|-----|-------------------------------------------------------------------|
| 1    | 2   | 2   |     | 19-in. support bracket for EMC gasket (textile)                   |
| 2    | 2   | 2   |     | Rear corner profile for EMC gasket (textile)                      |
| 3    | 2   | 2   |     | Side panel                                                        |
| 4    | 2   | 2   |     | Front horizontal rail                                             |
| 4a   | 2   | 2   |     | Rear horizontal rail                                              |
| 4b   | 2   | 2   |     | Rear horizontal rail for backplane mounting with insulation strip |
| 4c   | -   |     | 1   | Center horizontal rail                                            |
| 5    | 6   | 8   |     | Threaded insert (pre-fitted)                                      |
| 6    | 2   | 4   |     | Insulation strip, fixed                                           |
| 7    | 2   | 2   |     | EMC cover plate                                                   |
| 8    | 1   | 1   |     | EMC gasketing material (pre-fitted)                               |
| 9    | 1   | 1   |     | Rear panel                                                        |
| 10   | 1   | 1   |     | Assembly kit                                                      |
| 11   | 2   | 2   |     | Perforated strip (pre-mounted)                                    |
| 12   | 1   | 1   |     | User manual                                                       |

Part number in bold face is a stocked item.

## Subracks

### europacPRO—Kits, shielded, for CompactPCI with backplane mounting for rear I/O



(D=overall depth, D1=insertion depth, D2=board depth, D3=board depth rear I/O))



(Rear horizontal rail for backplane mounting with insulation strip)

- 19-in. flexible subracks for CompactPCI plug-in units with high insertion and withdrawal forces, meets IEEE 1101.10/11 and IEC 60297-3-103
- For rear I/O boards (depth 80 mm)
- Horizontal rail at rear for backplane mounting with insulation strip
- Shielding typically 40 dB at 1 GHz, 30 dB at 2 GHz (to VG 95373, part 15 or IEC 61587, part 3), provided the front is closed with shielded front panels

#### Standard Product

| Height (U) | Width (HP) | Depth D (mm) | Depth D1 (mm) | Depth D2 (mm) | Depth D3 (mm) | Part no.  |
|------------|------------|--------------|---------------|---------------|---------------|-----------|
| 3          | 84         | 275          | 175           | 160           | 80            | 24563-157 |
| 6          | 84         | 275          | 175           | 160           | 80            | 24563-457 |

#### Accessories

|                                                                                                              |                  |
|--------------------------------------------------------------------------------------------------------------|------------------|
| <b>Front handle</b> 3 U, clear anodized, 1 piece                                                             | 10501-005        |
| <b>Front handle</b> U, clear anodized, 1 piece                                                               | 10501-008        |
| <b>Guide rails with coding, red</b> 70 mm deep, Qty. 10 pieces                                               | 24560-355        |
| <b>Guide rails with coding, gray</b> 70 mm deep, Qty. 10 pieces                                              | 24560-360        |
| <b>Guide rails with coding, red</b> 160 mm deep, PBT, UL 94 V-0, groove width 2 mm, Qty. 10 pieces           | <b>24560-356</b> |
| <b>Guide rails with coding, gray</b> 160 mm deep, PBT, UL 94 V-0, groove width 2 mm, Qty. 10 pieces          | <b>24560-358</b> |
| <b>Guide rails with coding, green, offset</b> 160 mm deep, PBT, UL 94 V-0, groove width 2 mm, Qty. 10 pieces | 24560-359        |
| <b>ESD clip for guide rails</b> Qty. 50 pieces                                                               | <b>24560-255</b> |
| <b>ESD clip for alignment pin of CPCL/VME64x handle</b> Qty. 50 pieces                                       | <b>24560-256</b> |
| <b>Torx Panhead screw</b> 2.5 × 9.3, zinc-plated, Qty. 100 pieces                                            | <b>24560-141</b> |
| <b>Coding pin</b> PC, UL 94 V-0, RAL 7035, Qty. 100 pieces                                                   | <b>20817-501</b> |
| <b>19-in. assembly kit (screw, washer, nut)</b> (8 × screws, 8 × plastic washers, 8 × cage nuts)             | 21100-435        |

#### Kit includes:

| Item | Qty. | 3 U | 6 U | Description                                                       |
|------|------|-----|-----|-------------------------------------------------------------------|
| 1    | 2    | 2   |     | 19-in. support bracket for EMC gasket (textile)                   |
| 2    | 2    | 2   |     | Rear corner profile for EMC gasket (textile)                      |
| 3    | 2    | 2   |     | Side panel                                                        |
| 4    | 1    | -   |     | Front horizontal rail                                             |
| 4a   | 1    | 2   |     | Front horizontal rail IEEE                                        |
| 4b   | 2    | 2   |     | Rear horizontal rail                                              |
| 4c   | 2    | 2   |     | Rear horizontal rail with insulation strip for backplane mounting |
| 4d   | -    | 1   |     | Centre horizontal rail                                            |
| 5    | 6    | 8   |     | Threaded insert (pre-fitted)                                      |
| 6    | 2    | 4   |     | Insulation strip, fixed                                           |
| 7    | 2    | 2   |     | EMC cover plate                                                   |
| 8    | 1    | 1   |     | EMC gasketing material (pre-fitted)                               |
| 9    | 1    | 1   |     | Assembly kit                                                      |
| 10   | 2    | 2   |     | Perforated strip (pre-mounted)                                    |
| 11   | 2    | 2   |     | Horizontal rail                                                   |
| 12   | 1    | 1   |     | User manual                                                       |

Part number in bold face is a stocked item.

## Subracks

### Guide Rails for plug-in units and modules

Assemblies can be clipped into aluminum extruded horizontal rails and 1.5 mm thick plates.

Storage temperature from -40 C to 130 C.

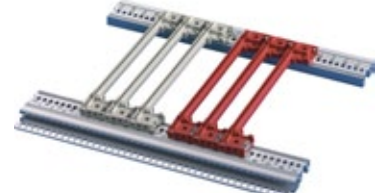
#### Standard Product

For standard plug-in units and frame type plug-in units for 2 HP wide application



PBT, UL 94 V-0

For CompactPCI, VME64x with coding for 4 HP wide application, meets IEEE 1101.10 and EIC 60297-3-103 Standards



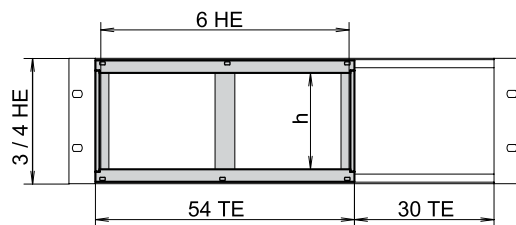
one-piece for groove width 2 mm, PBT, UL 94 V-0  
multi-piece for groove width 2.5 mm, end piece PBT, UL 94 V-0; middle section Al extrusion  
multi-piece for groove width 2.5 mm, end piece PBT, UL 94 V-0; middle section Al extrusion

| Board lengths (mm) | Groove width (mm) | Color | 1 piece (Qty. 50) <sup>1)</sup> | Qty. 10 pieces |
|--------------------|-------------------|-------|---------------------------------|----------------|
| 70                 | 2                 | red   | 34579-230                       | 24560-355      |
| 70                 | 2                 | gray  | 34579-231                       | 24560-360      |
| 160                | 2                 | red   | 64560-001                       | 24560-356      |
| 160                | 2                 | gray  | —                               | 24560-358      |
| 220                | 2                 | red   | 64560-002                       | —              |

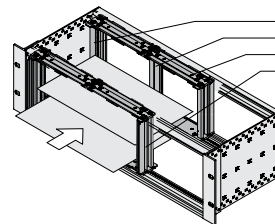
<sup>1)</sup> SPQ (standard pack quantity): Order number includes 1 piece, but delivery is exclusively made in standard pack quantity (SPQ); please order at least the SPQ quantity or a multiple thereof

### Horizontal Boards mounting in 3 or 4 U subracks

#### Standard Product



H = usable height (1 TE = 1 HP, 1 HE = 1 U)



Complete kit; for horizontal mounting of double-height euroboards in 3 or 4 U high subracks/cases. Al extrusion, passivated  
54 HP space required.

Please order front frame for EMC shielding separately.

| Other dimensions and options: |                      |                        |                        | Qty. 1 kit |
|-------------------------------|----------------------|------------------------|------------------------|------------|
| Height (U)                    | Usable height h (HP) | Horizontal rail, front | Horizontal rail, rear* |            |
| 3                             | 20                   |                        |                        | 24564-117  |
| 3                             | 20                   |                        |                        | 24564-118  |
| 4                             | 28                   |                        |                        | 24564-217  |

\*For direct backplane mounting

## Subracks

### Divider Plates

#### Standard Product

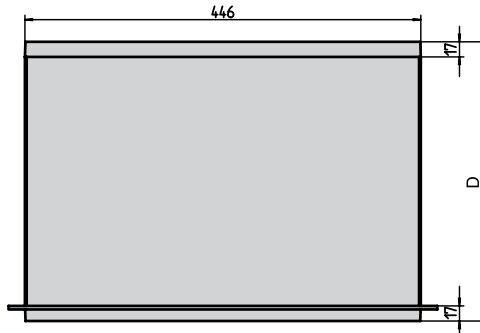
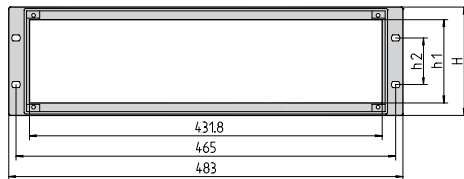
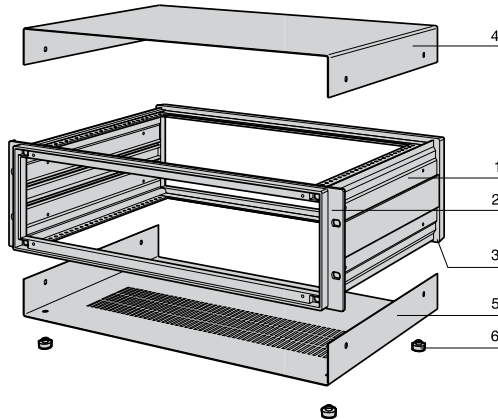
|            |            |        |        |        | Divider Plates                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          |
|------------|------------|--------|--------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|            |            |        |        |        | Mounting position for stainless steel EMC gasket                                                                                                                                                                                                                                                                                                                                                                                 | Mounting position for textile EMC gasket |
|            |            |        |        |        |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                          |
|            |            |        |        |        | Stainless steel, 1 mm, mounted by clipping onto horizontal rail; space requirement on component side 2 mm; mounting direction varies with shielding design (EMC stainless steel or textile gasket); retrofitting the divider plate in an already-assembled subrack/case will first require dismantling the horizontal rails; where front panels are unshielded both mounting directions are possible<br>Al extrusion, passivated |                                          |
| Height (U) | Depth (mm) | A (mm) | B (mm) | H (mm) | Qty. 10 pieces                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          |
| 3          | 160        | 158.3  | 135.0  | 113.5  | 34562-761                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |
| 3          | 220        | 218.3  | 195.0  | 113.5  | 34562-762                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |
| 6          | 160        | 158.3  | 135.0  | 246.9  | 34562-763                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |
| 6          | 220        | 218.3  | 195.0  | 246.9  | 34562-764                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |

### Mounting Plates

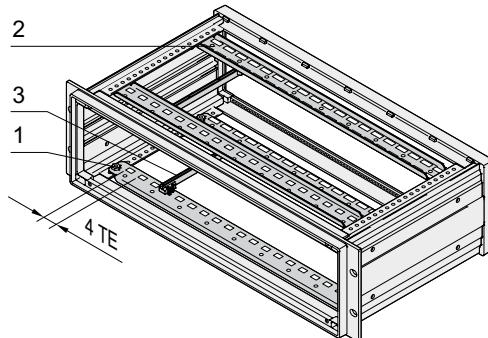
#### Standard Product

|                                                                                                                                                                                             |        |                    | Mounting Plate can be used in combination with cover plates                         | Mounting Plate for fixing heavy components                                                                                                                                                                 | Assembly Strip for partial widths                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                             |        |                    |                                                                                     | <p>Mounting plate over <b>full width</b>: mounting is onto the side panels.</p> <p>Mounting plate over <b>partial width</b>: mounting is onto one side panel and fixing strip or onto 2 fixing strips.</p> |                                                                                                       |
|                                                                                                                                                                                             |        |                    | Al, 1.5 mm; mounting is only possible over the entire width between the side panels | Al, 1.5 mm; for mounting over partial width; please order assembly strips separately                                                                                                                       | St, 2 mm, zinc-plated; is bolted from front to rear onto the horizontal rails; to fix mounting plates |
| Width W (HP)                                                                                                                                                                                | W (mm) | Board Lengths (mm) | Qty. 1 piece                                                                        | Qty. 1 piece                                                                                                                                                                                               | Qty. 1 piece                                                                                          |
| 28                                                                                                                                                                                          | 146.88 | 160                | 34563-001                                                                           | 34562-745                                                                                                                                                                                                  | 30840-021                                                                                             |
| 28                                                                                                                                                                                          | 146.88 | 220                | 34563-009                                                                           | 34562-749                                                                                                                                                                                                  | 30840-033                                                                                             |
| 42                                                                                                                                                                                          | 217.99 | 160                | 34563-002                                                                           | 34562-746                                                                                                                                                                                                  | 30840-021                                                                                             |
| 42                                                                                                                                                                                          | 217.99 | 220                | 34563-014                                                                           | 34562-750                                                                                                                                                                                                  | 30840-033                                                                                             |
| 63                                                                                                                                                                                          | 324.67 | 160                | 34563-003                                                                           | 34562-747                                                                                                                                                                                                  | 30840-021                                                                                             |
| 63                                                                                                                                                                                          | 324.67 | 220                | 34563-019                                                                           | 34562-751                                                                                                                                                                                                  | 30840-033                                                                                             |
| 84                                                                                                                                                                                          | 431.35 | 160                | 34563-004                                                                           | 34562-748                                                                                                                                                                                                  | 30840-021                                                                                             |
| 84                                                                                                                                                                                          | 431.35 | 220                | 34563-024                                                                           | 34562-752                                                                                                                                                                                                  | 30840-033                                                                                             |
| Assembly kit for mounting plate, Qty. 1 kit (Torx countersunk screw M4 x 5, St, zinc-plated, 12 pieces; screw M4 x 6, St, zinc-plated 10 pieces; M4 square nut, St, zinc-plated, 10 pieces) |        |                    | Part no. 24560-146                                                                  | 24560-184                                                                                                                                                                                                  | —                                                                                                     |

inpac—19-in. chassis



**Support rail accessory:** Item 1: Support rail front; Item 2: Support rail rear; Item 3: Guide rail 160/220 mm



(TE = HP)

## Subracks

- For assembly with 19-in. components or individually with mounting plate
- Three rows of ventilation slots in base for air inlet

### Standard Product

| Height H (U) | Height H (mm) | h (mm) | h1 (mm) | h2 (mm) | Depth D (mm) | Part no.  |
|--------------|---------------|--------|---------|---------|--------------|-----------|
| 2            | 88.0          | 86.0   | 57.5    | 76.2    | 254.5        | 10828-071 |
| 2            | 88.0          | 86.0   | 57.5    | 76.2    | 314.5        | 10828-072 |
| 2            | 88.0          | 86.0   | 57.5    | 76.2    | 374.5        | 10828-073 |
| 3            | 132.5         | 130.5  | 102.0   | 57.1    | 254.5        | 10828-051 |
| 3            | 132.5         | 130.5  | 102.0   | 57.1    | 314.5        | 10828-052 |
| 3            | 132.5         | 130.5  | 102.0   | 57.1    | 374.5        | 10828-053 |
| 3            | 132.5         | 130.5  | 102.0   | 57.1    | 434.5        | 10828-054 |
| 4            | 177.0         | 174.5  | 146.5   | 101.6   | 254.5        | 10828-056 |
| 4            | 177.0         | 174.5  | 146.5   | 101.6   | 314.5        | 10828-057 |
| 4            | 177.0         | 174.5  | 146.5   | 101.6   | 374.5        | 10828-058 |
| 4            | 177.0         | 174.5  | 146.5   | 101.6   | 434.5        | 10828-059 |
| 6            | 265.9         | 263.5  | 235.4   | 190.5   | 374.5        | 10828-068 |
| 6            | 265.9         | 263.5  | 235.4   | 190.5   | 434.5        | 10828-069 |

### Accessories

|                                                                                                      |                  |
|------------------------------------------------------------------------------------------------------|------------------|
| <b>Front panels</b> Al, 2 mm, anodized, height 2 U, width 437 mm, 1 piece                            | 30828-055        |
| <b>Front panels</b> Al, 2 mm, anodized, height 3 U, width 437 mm, 1 piece                            | 30828-058        |
| <b>Front panels</b> Al, 2 mm, anodized, height 4 U, width 437 mm, 1 piece                            | 30828-061        |
| <b>Front panels</b> Al, 2 mm, anodized, height 6 U, width 437 mm, 1 piece                            | 30828-067        |
| <b>Rear panel with ventilation openings</b> Al, 2.5 mm, anodized, height 2 U, width 437 mm, 1 piece  | <b>30828-070</b> |
| <b>Rear panel with ventilation openings</b> Al, 2.5 mm, anodized, height 3 U, width 437 mm, 1 piece  | <b>30828-073</b> |
| <b>Rear panel with ventilation openings</b> Al, 2.5 mm, anodized, height 4 U, width 437 mm, 1 piece  | 30828-076        |
| <b>Rear panel with ventilation openings</b> Al, 2.5 mm, anodized, height 5 U, width 437 mm, 1 piece  | 30828-082        |
| <b>Support rail for guide rails</b> front support rail, item 1, St, 1.5 mm, blue-passivated, 1 piece | <b>30828-165</b> |
| <b>Support rail for guide rails</b> rear support rail, item 2, St, 1.5 mm, blue-passivated, 1 piece  | <b>30828-174</b> |
| <b>Screw</b> for support rail assembly, M4 × 8, flat head pozidrive, Qty. 100 pieces                 | 21100-677        |
| <b>Guide rail 160 mm</b> , item 3, groove width 2 mm, Qty. 1 pair                                    | 60817-078        |
| <b>Guide rail 220 mm</b> , item 3, groove width 2 mm, Qty. 1 pair                                    | 60817-079        |
| <b>Guide rails</b> Length 160 mm, groove width 2 mm, 1 piece                                         | 60817-103        |
| <b>Guide rails</b> Length 220 mm, groove width 2 mm, 1 piece                                         | 60817-149        |
| <b>Grounding kit</b> 1 piece                                                                         | 21100-814        |

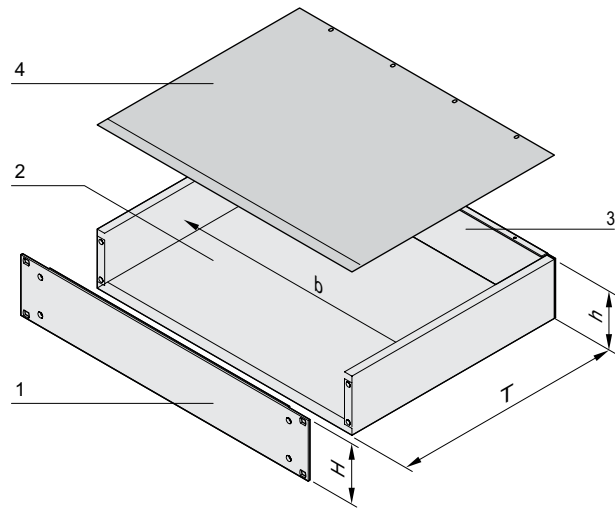
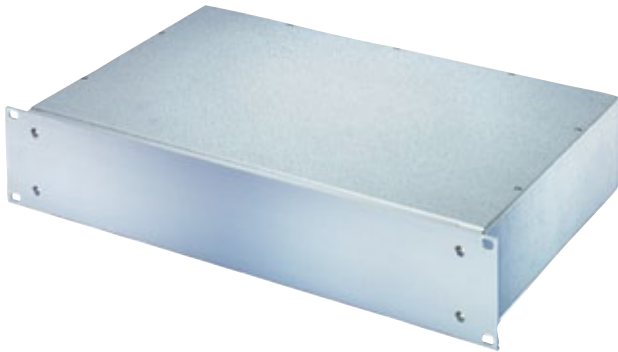
### Includes (Items 1, 2 and 3 assembled)

| Item | Qty. | Description                                                                                                       |
|------|------|-------------------------------------------------------------------------------------------------------------------|
| 1    | 2    | Side panel, Al extrusion, RAL 7030 at 6 U: 2 Al corner profiles 1 divider plate (steel plate)                     |
| 2    | 1    | Front frame, Al die-cast, RAL 7030, rear side with counterbores for drill holes to mount handles and front panels |
| 3    | 1    | Rear frame, Al die-cast, RAL 7030                                                                                 |
| 4    | 1    | Cover plate, St, 1 mm, RAL 7035, plastic-coated, with grounding connection                                        |
| 5    | 1    | Base plate, St, 1 mm, RAL 7035, plastic-coated, with grounding connection                                         |
| 6    | 4    | Case foot with anti-slip protection, PC, UL 94 V-0                                                                |
| 7    | 1    | Assembly kit                                                                                                      |

Part number in bold face is a stocked item.

Subracks

multipacPRO—19-in. complete steel chassis, plain top cover and base plate



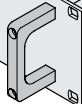
(h - clear height [overall]) (H - 3.0 mm)  
(b = clear installation width)

- Complete chassis, St (AlZn coated) with Al extrusion front panel
- Detachable rear panel for easy machining
- EMC shielding of approximately 30 dB(A) at 1 GHz (without additional shielding material)
- Meets IEC 60297-3-100, 60297-3-101 and 60297-3-105 standards
- In the 1 U version, 19-in. and ATX power supplies can be assembled up to a clearance of 40 mm

Standard Product

| Height (U) | Height H (mm) | Depth T (mm) | Part no.  |
|------------|---------------|--------------|-----------|
| 1          | 43.6          | 220          | 20860-120 |
| 1          | 43.6          | 280          | 20860-121 |
| 1          | 43.6          | 340          | 20860-122 |
| 2          | 88.1          | 280          | 20860-126 |
| 2          | 88.1          | 340          | 20860-127 |

Accessories

|                                                                                   |                                                                   |           |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------|
|  | <b>Front handles</b>                                              | 20860-256 |
|                                                                                   | incl. assembly kit for 1 U, Al extrusion, anodized, Qty. 2 pieces |           |
|  | <b>Front handles</b>                                              | 20860-257 |
|                                                                                   | incl. assembly kit for 2 U, Al extrusion, anodized, Qty. 2 pieces |           |

Includes (kit)

| Item | Qty. | Description                                                                                                                                |
|------|------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | 1    | Front panel, Al extrusion, 3 mm;<br>at 1 U: front anodized, rear etched;<br>from 2 U: front and rear side of front panels clear passivated |
| 2    | 1    | Base body plain, St, 1 mm, (AlZn coated)                                                                                                   |
| 3    | 1    | Rear panel, St, 1 mm (AlZn coated)                                                                                                         |
| 4    | 1    | Cover plain, St, 1 mm (AlZn coated)                                                                                                        |
| 5    | 1    | Assembly kit                                                                                                                               |

## Cases

### Overview

#### Case Features

- **Electronics case products for every application**  
Test and measurement equipment, medical equipment, portable electronics and rugged protection for field equipment
- **Modification to meet your specific needs**  
Panels, I/O cutouts, equipment mounting plates, custom colors and screen printing
- **Highly effective electromagnetic shielding**  
The strongest electromagnetic interference shielding available on standard case products
- **Robust and aesthetic**  
Made from strong aluminum and steel materials, our cases are also attractive with a modern aesthetic look
- **Perfect combination of features**  
Form and function for measurement, instrumentation and control technology in a wide range of industries
- **Always in front**  
Active member in global standardization committees like IEC, IEEE, VITA, PICMG

### comptec



- High stability
- Mini-cabinets
- Desktop enclosures
- Mounts 19-in. equipment
- Lab and demo applications
- Steel or aluminum case

### compacPRO



- For 19-in. components or individual electrical equipment
- Many standard sizes
- Rugged build
- Attractive
- Desktop case
- Aluminum case

### ratiopacPRO

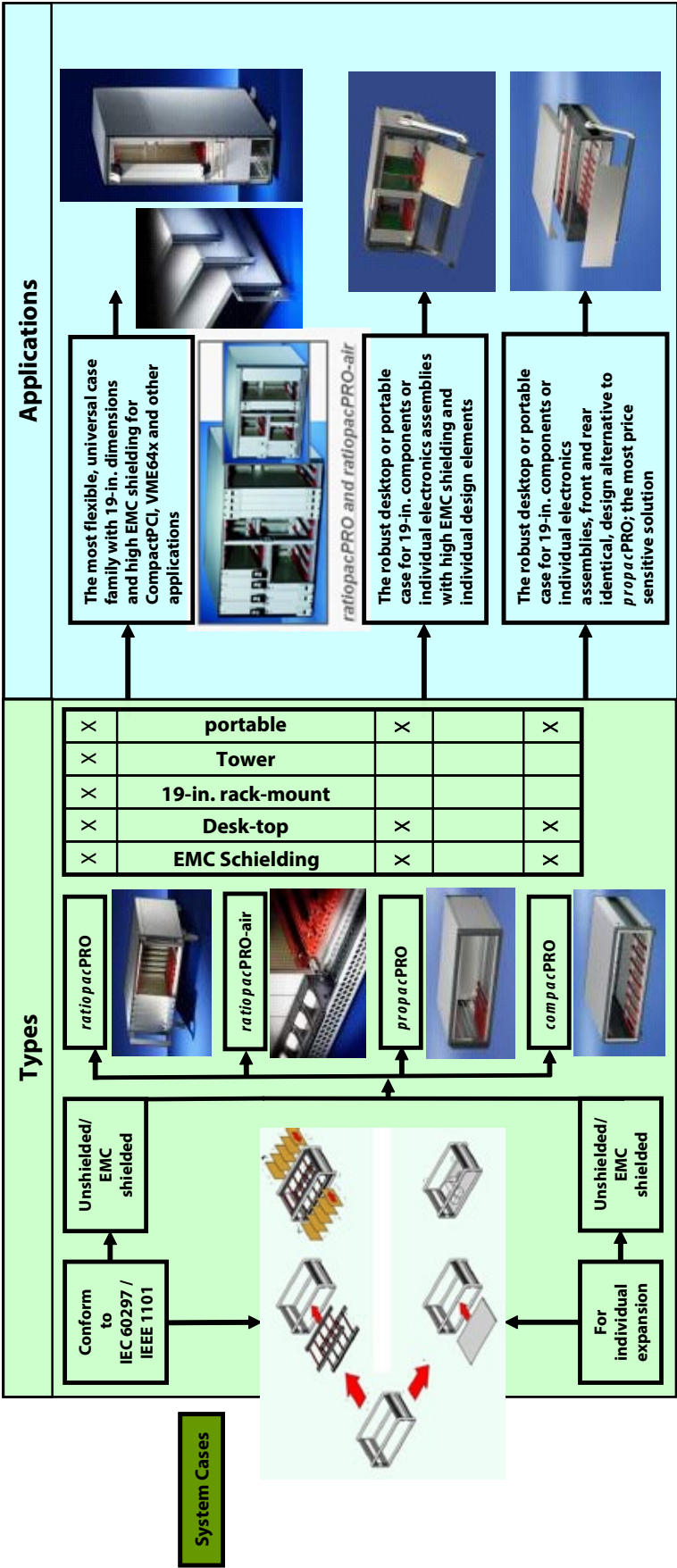


- Universal cases with 19-in. compatible dimensions, e.g., for CompactPCI and VME64x applications
- Feature rich
- Easy to modify
- Best EMC solution
- Desktop or rack mount
- Aluminum case

Cases  
Cases Selection Guide



Some limitations apply; please see  
[www.schroff.us/fpx/](http://www.schroff.us/fpx/) for more details.



## Cases

### comptec—19-in. cases 3, 4, 6, 9 U

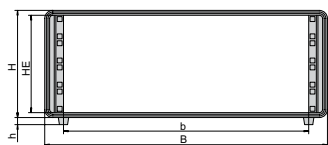


(Height 3 and 4 U)



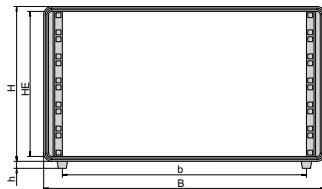
(Height 6 and 9 U)

Front View

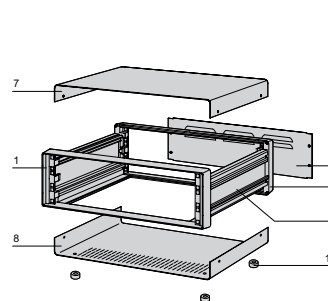


(h = case foot height, HE = U, internal usable height)

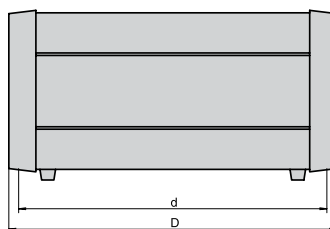
Front View



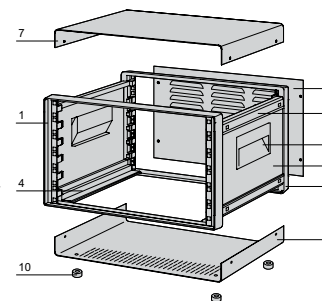
(h = case foot height, HE = U, internal usable height)



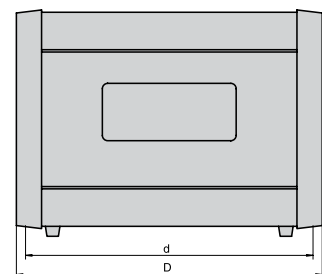
Side View



(Usable width  $b = B - 69$  mm,  $h$  = height of case foot)



Side View



(Usable depth  $d = D - 24$  mm)

- Accepts 19-in. rack-mount units
- Desktop enclosures (pre-assembled)
- Steel top covers, base plates and rear panels
- Al die-cast front and rear frames
- Ventilation slots in base plate, air vents in rear panel

#### Standard Product

| Height H<br>(U) | h<br>(mm) | h<br>(mm) | Depth D<br>(mm) | Usable depth d<br>(mm) | Width<br>(mm) | Part no.         |
|-----------------|-----------|-----------|-----------------|------------------------|---------------|------------------|
| 3               | 153       | 13.0      | 300             | 276                    | 520           | 10225-601        |
| 3               | 153       | 13,0      | 400             | 376                    | 520           | 10225-612        |
| 3               | 153       | 13.0      | 500             | 476                    | 520           | 10225-623        |
| 4               | 198       | 13.0      | 300             | 276                    | 520           | 10225-602        |
| 4               | 198       | 13.0      | 500             | 476                    | 520           | <b>10225-624</b> |
| 6               | 286       | 13        | 300             | 276                    | 520           | 10225-604        |
| 6               | 286       | 13        | 400             | 376                    | 520           | 10225-615        |
| 6               | 286       | 13        | 500             | 476                    | 520           | 10225-626        |
| 6               | 286       | 13        | 600             | 576                    | 520           | 10225-637        |
| 9               | 420       | 13        | 400             | 376                    | 520           | 10225-618        |
| 9               | 420       | 13        | 500             | 476                    | 520           | 10225-629        |
| 9               | 420       | 13        | 600             | 576                    | 520           | <b>10225-640</b> |

#### Accessories

|  |                                                                                                                  |                  |
|--|------------------------------------------------------------------------------------------------------------------|------------------|
|  | <b>Grounding kit for cases with steel covers, for 3, 4 U, Cu wire 1.5 mm², PVC sleeve, green/yellow, 1 kit</b>   | 21100-490        |
|  | <b>Grounding kit for cases with steel cladding, for 6, 9 U, Cu wire 1.5 mm², PVC sleeve, green/yellow, 1 kit</b> | 21100-448        |
|  | <b>Slide rails for 300 mm case depth, 1 piece</b>                                                                | 30225-089        |
|  | <b>Slide rails for 400 mm case depth, 1 piece</b>                                                                | 30225-090        |
|  | <b>Slide rails for 500 mm case depth, 1 piece</b>                                                                | <b>30225-091</b> |
|  | <b>Slide rails for 600 mm case depth, 1 piece</b>                                                                | 30225-092        |

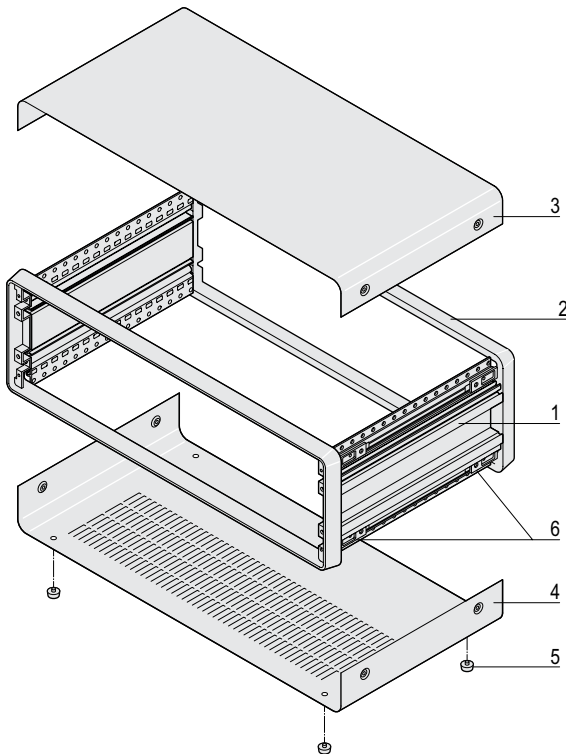
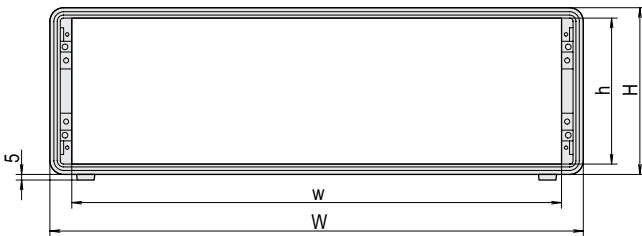
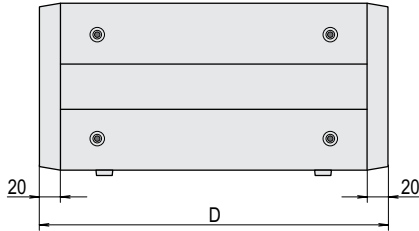
#### Includes (kit) (6, 9 U; 3, 4 U without item 3, 4, 6)

| Item | Qty | Description                                                               |
|------|-----|---------------------------------------------------------------------------|
| 1    | 1   | Front frame, Al die-cast, RAL 7016, with 19-in. grid                      |
| 2    | 1   | Rear frame, Al die-cast, RAL 7016, with 19-in. grid                       |
| 3    | 2   | Side profile at top, Al extrusion, RAL 7016                               |
| 4    | 2   | Side profile at bottom, Al extrusion, RAL 7016                            |
| 5    | 2   | Side panel, St, 1.5 mm, RAL 9006, with grounding tag                      |
| 6    | 2   | Handle shell, PC, RAL 7016, UL 94 V-0, load-carrying capacity: 60 kg/pair |
| 7    | 1   | Cover plate, St, 1 mm, RAL 9006, with grounding tag                       |
| 8    | 1   | Base plate, St, 1 mm, RAL 9006, with grounding tag                        |
| 9    | 1   | Rear panel, St, 1 mm, RAL 9006, with grounding tag                        |
| 10   | 4   | Case foot with anti-slip protection, PC, black, UL 94 V-0                 |
| 11   | 1   | Assembly kit                                                              |

Items 1, 2, 3, 4, 5, 6, and 9 fitted.

## Cases

### compacPRO—Cases 2, 3 and 4 U



- Desktop enclosures, prefitted, for individual assembly
- For backplane mounting with insulation strips
- Ventilation slots in base plate

#### Standard Product

| Height<br>(U) | Usable width<br>(HP) | Width W<br>(mm) | Width w<br>(mm) | Height H<br>(mm) | Height h<br>(mm) | Depth D<br>(mm) | Part no.         |
|---------------|----------------------|-----------------|-----------------|------------------|------------------|-----------------|------------------|
| 2             | 42                   | 257             | 219             | 102.6            | 84.4             | 271             | 14575-023        |
| 2             | 42                   | 257             | 219             | 102.6            | 84.4             | 331             | 14575-025        |
| 2             | 42                   | 257             | 219             | 102.6            | 84.4             | 391             | <b>14575-027</b> |
| 2             | 84                   | 471             | 432             | 102.6            | 84.4             | 271             | 14575-063        |
| 2             | 84                   | 471             | 432             | 102.6            | 84.4             | 331             | 14575-065        |
| 2             | 84                   | 471             | 432             | 102.6            | 84.4             | 391             | 14575-067        |
| 3             | 28                   | 186             | 148             | 147.1            | 129.3            | 271             | <b>14575-103</b> |
| 3             | 28                   | 186             | 148             | 147.1            | 129.3            | 331             | 14575-105        |
| 3             | 42                   | 257             | 219             | 147.1            | 129.3            | 271             | 14575-123        |
| 3             | 42                   | 257             | 219             | 147.1            | 129.3            | 331             | <b>14575-125</b> |
| 3             | 42                   | 257             | 219             | 147.1            | 129.3            | 391             | <b>14575-127</b> |
| 3             | 63                   | 364             | 326             | 147.1            | 129.3            | 271             | 14575-143        |
| 3             | 63                   | 364             | 326             | 147.1            | 129.3            | 331             | 14575-145        |
| 3             | 63                   | 364             | 326             | 147.1            | 129.3            | 391             | 14575-147        |
| 3             | 84                   | 471             | 432             | 147.1            | 129.3            | 271             | 14575-163        |
| 3             | 84                   | 471             | 432             | 147.1            | 129.3            | 331             | 14575-165        |
| 3             | 84                   | 471             | 432             | 147.1            | 129.3            | 391             | 14575-167        |
| 3             | 84                   | 471             | 432             | 147.1            | 129.3            | 451             | 14575-169        |
| 3             | 84                   | 471             | 432             | 147.1            | 129.3            | 511             | 14575-171        |
| 4             | 42                   | 257             | 219             | 191.6            | 173.8            | 271             | 14575-223        |
| 4             | 42                   | 257             | 219             | 191.6            | 173.8            | 331             | 14575-225        |
| 4             | 63                   | 364             | 326             | 191.6            | 173.8            | 271             | 14575-243        |
| 4             | 63                   | 364             | 326             | 191.6            | 173.8            | 331             | 14575-245        |
| 4             | 63                   | 364             | 326             | 191.6            | 173.8            | 391             | 14575-247        |
| 4             | 84                   | 471             | 432             | 191.6            | 173.8            | 331             | 14575-265        |
| 4             | 84                   | 471             | 432             | 191.6            | 173.8            | 391             | 14575-267        |
| 4             | 84                   | 471             | 432             | 191.6            | 173.8            | 451             | 14575-269        |
| 4             | 84                   | 471             | 432             | 191.6            | 173.8            | 511             | 14575-271        |

#### Accessories

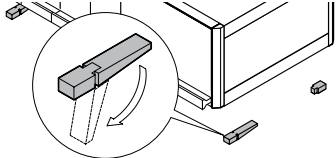
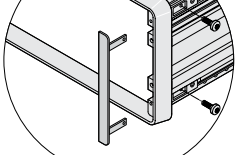
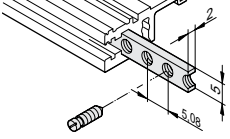
|                                                                |                  |
|----------------------------------------------------------------|------------------|
| <b>Grounding kit</b>                                           | <b>24575-801</b> |
| Cu wire, 1.5 mm <sup>2</sup> , PVC sleeve, green/yellow, 1 kit |                  |

#### Includes (kit, item 1 and 2 assembled)

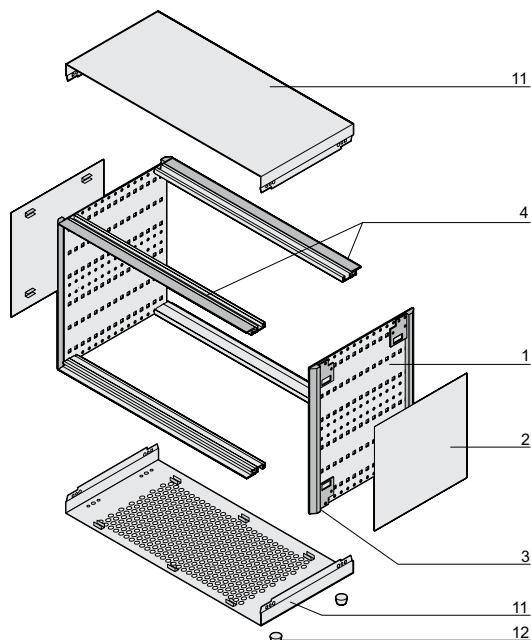
| Item | Qty. | Description                                                                                                |
|------|------|------------------------------------------------------------------------------------------------------------|
| 1    | 2    | Side panel, Al extrusion, powder-coated, RAL 7016                                                          |
| 2    | 2    | Frame, Al die-cast, powder-coated, RAL 7016                                                                |
| 3    | 1    | Cover plate, Al, 1.5 mm, powder-coated, RAL 9006, with grounding connection                                |
| 4    | 1    | Base plate with 4 rows of ventilation slots, Al, 1.5 mm, powder-coated RAL 9006, with grounding connection |
| 5    | 4    | Case foot with anti-slip protection, PC, black                                                             |
| 6    | 8    | Cover plate fixing adapter, prefitted                                                                      |
| 7    | 1    | Assembly kit, additionally allows mounting of a full-width front panel, two cover brackets or a rear panel |

## Cases

### compacPRO—Accessories

|                                                                                     | Description                                                                | Part no.  |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------|
|    | <b>Front panel</b> Al, 3 mm, height 2 U, width 42 HP, 1 piece              | 30823-209 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 2 U, width 84 HP, 1 piece              | 30823-215 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 3 U, width 28 HP, 1 piece              | 30823-254 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 3 U, width 42 HP, 1 piece              | 30823-257 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 3 U, width 63 HP, 1 piece              | 30823-224 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 3 U, width 84 HP, 1 piece              | 30823-260 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 4 U, width 42 HP, 1 piece              | 30823-269 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 4 U, width 63 HP, 1 piece              | 30823-227 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 4 U, width 84 HP, 1 piece              | 30823-272 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 6 U, width 63 HP, 1 piece              | 30823-230 |
|                                                                                     | <b>Front panel</b> Al, 3 mm, height 6 U, width 84 HP, 1 piece              | 30823-284 |
|    | <b>Rear panel</b> Al, 2 mm, height 2 U, width 42 HP, 1 piece               | 30823-015 |
|                                                                                     | <b>Rear panel</b> Al, 2.5 mm, height 2 U, width 84 HP, 1 piece             | 30823-512 |
|                                                                                     | <b>Rear panel</b> Al, 2 mm, height 3 U, width 28 HP, 1 piece               | 30823-021 |
|                                                                                     | <b>Rear panel</b> Al, 2 mm, height 3 U, width 42 HP, 1 piece               | 30823-024 |
|                                                                                     | <b>Rear panel</b> Al, 2 mm, height 3 U, width 63 HP, 1 piece               | 30823-027 |
|                                                                                     | <b>Rear panel</b> Al, 2.5 mm, height 3 U, width 84 HP, 1 piece             | 30823-515 |
|                                                                                     | <b>Rear panel</b> Al, 2 mm, height 4 U, width 42 HP, 1 piece               | 30823-033 |
|                                                                                     | <b>Rear panel</b> Al, 2 mm, height 4 U, width 63 HP, 1 piece               | 30823-036 |
|                                                                                     | <b>Rear panel</b> Al, 2.5 mm, height 4 U, width 84 HP, 1 piece             | 30823-518 |
|                                                                                     | <b>Rear panel</b> Al, 2 mm, height 6 U, width 63 HP, 1 piece               | 30823-045 |
|                                                                                     | <b>Rear panel</b> Al, 2.5 mm, height 6 U, width 84 HP, 1 piece             | 30823-521 |
|   | <b>Tip-up carrying handle</b> for case height 2 U, width 42 HP, 1 piece    | 24575-038 |
|                                                                                     | <b>Tip-up carrying handle</b> for case height 2 U, width 84 HP, 1 piece    | 24575-078 |
|                                                                                     | <b>Tip-up carrying handle</b> for case height 3, 4 U, width 28 HP, 1 piece | 24575-118 |
|                                                                                     | <b>Tip-up carrying handle</b> for case height 3, 4 U, width 42 HP, 1 piece | 24575-138 |
|                                                                                     | <b>Tip-up carrying handle</b> for case height 3, 4 U, width 63 HP, 1 piece | 24575-158 |
|                                                                                     | <b>Tip-up carrying handle</b> for case height 3, 4 U, width 84 HP, 1 piece | 24575-178 |
|  | <b>Tip-up foot</b> silver, similar to RAL 9006, 4 pieces                   | 20603-001 |
|                                                                                     | <b>Tip-up foot</b> anthracite similar to RAL 7016, 4 pieces                | 20603-002 |
|  | <b>Filler angle</b> Al extrusion, anodized, 2 U, 1 piece                   | 24575-019 |
|                                                                                     | <b>Filler angle</b> Al extrusion, anodized, 3 U, 1 piece                   | 24575-119 |
|                                                                                     | <b>Filler angle</b> Al extrusion, anodized, 4 U, 1 piece                   | 24575-219 |
|                                                                                     | <b>Filler angle</b> Al extrusion, anodized, 5 U, 1 piece                   | 24575-419 |
|  | <b>Front horizontal rail</b> 42 HP, 1 piece (Qty. 10)                      | 34560-242 |
|                                                                                     | <b>Rear horizontal rail</b> 42 HP, 1 piece (Qty. 10)                       | 34560-542 |
|                                                                                     | <b>Front horizontal rail</b> 84 HP, 1 piece (Qty. 10)                      | 34560-284 |
|                                                                                     | <b>Rear horizontal rail</b> 84 HP, 1 piece (Qty. 10)                       | 34560-584 |
|  | <b>Threaded strip</b> , 28 HP, 146.82 mm, 1 piece                          | 34561-328 |
|                                                                                     | <b>Threaded strip</b> , 42 HP, 217.94 mm, 1 piece                          | 34561-342 |
|                                                                                     | <b>Threaded strip</b> , 63 HP, 324.62 mm, 1 piece                          | 34561-363 |
|                                                                                     | <b>Threaded strip</b> , 84 HP, 431.3 mm, 1 piece                           | 34561-384 |
|  | <b>Insulation strip</b> 28 HP, PBT UL 94 V-0, gray, Qty. 10 pieces         | 24560-828 |
|                                                                                     | <b>Insulation strip</b> 42 HP, PBT UL 94 V-0, gray, Qty. 10 pieces         | 24560-842 |
|                                                                                     | <b>Insulation strip</b> 63 HP, PBT UL 94 V-0, gray, Qty. 10 pieces         | 24560-863 |
|                                                                                     | <b>Insulation strip</b> 84 HP, PBT UL 94 V-0, gray, Qty. 10 pieces         | 24560-884 |

**ratiopacPRO—Cases**



**Cases**

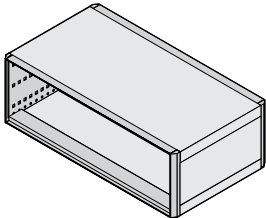
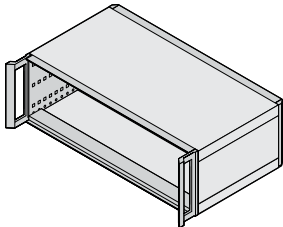
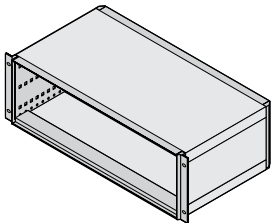
- Cases for individual expansion or to house 19-in. standard components (e.g. with mounting plate)
- Unshielded (EMC shielding retrofittable)
- Symmetrical design, identical front and rear side
- Available in three versions:
  - with cover strips
  - with front handles
  - with 19-in. mounting bracket
- For board depth 160 mm, 220 mm, 280 mm and 340 mm

**Includes (Kit)**

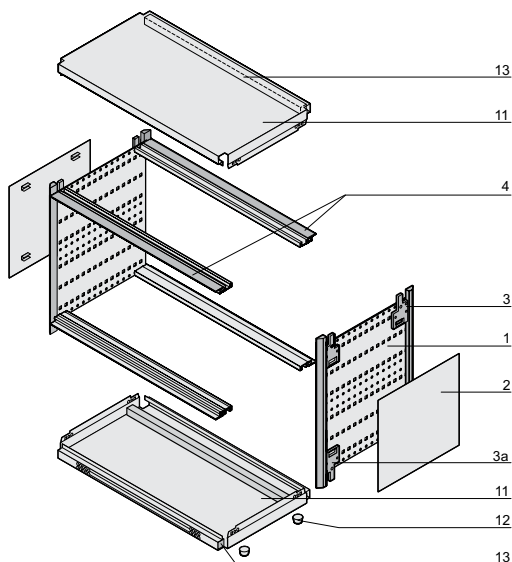
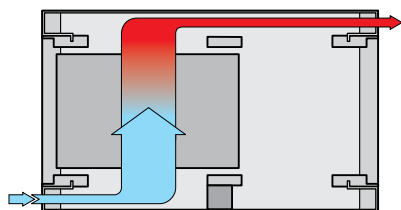
| Item | Qty. | Description                                                                                                                                                                      |
|------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | 2    | Side panel, Al, 2 mm, chromated                                                                                                                                                  |
| 2    | 2    | Side plate, Al, 1 mm, visible surface powder-coated, RAL 9006                                                                                                                    |
| 3    | 2    | Rear trim, Zn die-cast, powder-coated, RAL 7016                                                                                                                                  |
| 3a   | 2    | Cover strip, Zn die-cast, powder-coated, RAL 7016                                                                                                                                |
| 3b   | 2    | Front handle, Al die-cast, powder-coated, RAL 7016                                                                                                                               |
| 3c   | 2    | 19-in. mounting angle, Al die-cast, powder-coated, RAL 7016                                                                                                                      |
| 4    | 4    | Horizontal rail, Al, visible surface powder-coated, RAL 7016                                                                                                                     |
| 11   | 2    | Top cover and base plate, Al, 1 mm, internal surface conductive, visible surface powder-coated, RAL 9006, with grounding connections, base plate with honeycomb grid ventilation |
| 12   | 4    | Case foot with anti-slip protection, UL 94V-0, PC black                                                                                                                          |
| 13   | 1    | Assembly kit                                                                                                                                                                     |

3a, 3b or 3c depending on selection

**Standard Product**

|                                                                                                                            | Width w<br>(HP) | Depth D<br>(mm) | Case height H   |                  |                 |                 |
|----------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|
|                                                                                                                            |                 |                 | 2 U<br>Part no. | 3 U<br>Part no.  | 4 U<br>Part no. | 6 U<br>Part no. |
| 3a: with cover strips<br>               | 28              | 255.5           | 24572-500       | 24571-002        | 24571-050       | 24571-098       |
|                                                                                                                            | 42              | 255.5           | 24572-510       | <b>24571-014</b> | 24571-062       | 24571-110       |
|                                                                                                                            | 42              | 315.5           | 24572-513       | <b>24571-017</b> | 24571-065       | 24571-113       |
|                                                                                                                            | 63              | 255.5           | 24572-520       | 24571-026        | 24571-074       | 24571-122       |
|                                                                                                                            | 63              | 375.5           | 24572-524       | 24571-030        | 24571-078       | 24571-126       |
|                                                                                                                            | 84              | 315.5           | 24572-533       | 24571-041        | 24571-089       | 24571-137       |
|                                                                                                                            | 84              | 495.5           | 24572-536       | 24571-044        | 24571-092       | 24571-140       |
| 3b: with front handles<br>              | 28              | 255.5           | —               | 24571-702        | 24571-750       | 24571-798       |
|                                                                                                                            | 42              | 255.5           | —               | 24571-714        | 24571-762       | 24571-810       |
|                                                                                                                            | 42              | 375.5           | —               | 24571-718        | 24571-766       | 24571-814       |
|                                                                                                                            | 63              | 255.5           | —               | 24571-726        | 24571-774       | 24571-822       |
|                                                                                                                            | 63              | 375.5           | —               | 24571-730        | 24571-778       | 24571-826       |
|                                                                                                                            | 84              | 375.5           | —               | 24571-742        | 24571-790       | 24571-838       |
|                                                                                                                            | 84              | 495.5           | —               | 24571-744        | 24571-792       | 24571-840       |
| 3c: with 19-in.<br>mounting bracket<br> | 84              | 315.5           | 24572-573       | <b>24571-441</b> | 24571-489       | 24571-537       |
|                                                                                                                            | 84              | 375.5           | 24572-574       | 24571-442        | 24571-490       | 24571-538       |
|                                                                                                                            | 84              | 435.5           | 24572-575       | 24571-443        | 24571-491       | 24571-539       |

**ratiopacPRO-air—Cases**



**Cases**

- Cases for individual expansion or to house 19-in. standard components (e.g., with mounting plate)
- Unshielded (EMC shielding retrofittable)
- Symmetrical design, identical front and rear side
- Available in three versions:
  - with cover strips
  - with front handles
  - with 19-in. mounting bracket
- For board depth 160 mm, 220 mm, 280 mm and 340 mm

**Includes (kit)**

| Item | Qty. | Description                                                                                                                                                                      |
|------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | 2    | Side panel, Al, 2 mm, chromated                                                                                                                                                  |
| 2    | 2    | Side plate, Al, 1 mm, visible surface powder-coated, RAL 9006                                                                                                                    |
| 3    | 2    | Rear trim, Zn die-cast, powder-coated, RAL 7016                                                                                                                                  |
| 3a   | 2    | Cover strip, Zn die-cast, powder-coated, RAL 7016                                                                                                                                |
| 3b   | 2    | Front handle, Al die-cast, powder-coated, RAL 7016                                                                                                                               |
| 3c   | 2    | 19-in. mounting angle, Al die-cast, powder-coated, RAL 7016                                                                                                                      |
| 4    | 4    | Horizontal rail, Al, visible surface powder-coated, RAL 7016                                                                                                                     |
| 11   | 2    | Top cover and base plate, Al, 1 mm, internal surface conductive, visible surface powder-coated, RAL 9006, with grounding connections, base plate with honeycomb grid ventilation |
| 12   | 4    | Case foot with anti-slip protection, UL 94 V-0, PC black                                                                                                                         |
| 13   | 1    | Assembly kit                                                                                                                                                                     |

**Standard Product**

|                        |  |    | Case height H                                                                                                               |             |           |
|------------------------|--|----|-----------------------------------------------------------------------------------------------------------------------------|-------------|-----------|
|                        |  |    | 4 (U)                                                                                                                       | 5 (U)       | 7 (U)     |
|                        |  |    | PCB height h                                                                                                                |             |           |
|                        |  |    | 3 U                                                                                                                         | 4 U (3+1 U) | 6 U       |
|                        |  |    | <div style="border: 1px solid black; padding: 5px; text-align: center;">                     3<br/>1                 </div> |             |           |
|                        |  |    | Part no.                                                                                                                    | Part no.    | Part no.  |
| 3a: with cover strips  |  | 28 | 24571-146                                                                                                                   | 24571-194   | 24571-242 |
|                        |  | 42 | 24571-158                                                                                                                   | 24571-206   | 24571-254 |
|                        |  | 42 | 24571-161                                                                                                                   | 24571-209   | 24571-257 |
|                        |  | 63 | 24571-170                                                                                                                   | 24571-218   | 24571-266 |
|                        |  | 63 | 24571-174                                                                                                                   | 24571-222   | 24571-270 |
|                        |  | 84 | 24571-185                                                                                                                   | 24571-233   | 24571-281 |
|                        |  | 84 | 24571-186                                                                                                                   | 24571-234   | 24571-282 |
|                        |  | 84 | 24571-187                                                                                                                   | 24571-235   | 24571-283 |
| 3b: with front handles |  | 28 | 24571-846                                                                                                                   | 24571-894   | 24571-942 |
|                        |  | 42 | 24571-858                                                                                                                   | 24571-906   | 24571-954 |
|                        |  | 42 | 24571-862                                                                                                                   | 24571-910   | 24571-958 |
|                        |  | 42 | 24571-863                                                                                                                   | 24571-911   | 24571-959 |
|                        |  | 63 | 24571-873                                                                                                                   | 24571-921   | 24571-969 |
|                        |  | 63 | 24571-875                                                                                                                   | 24571-923   | 24571-971 |
|                        |  | 84 | 24571-882                                                                                                                   | 24571-930   | 24571-978 |
|                        |  | 84 | 24571-886                                                                                                                   | 24571-934   | 24571-982 |
|                        |  | 84 | 24571-888                                                                                                                   | 24571-936   | 24571-984 |

also available with 19-in. mounting bracket

## Cases

### rationacPRO, rationacPRO-air—Accessories

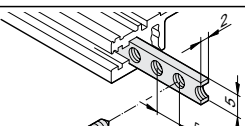
#### Standard Product

|                                                                                                    | <table> <tr> <th>Description</th><th>Part no.</th></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 2 U, 28 HP, 1 piece</td><td>30849-007</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 2 U, 42 HP, 1 piece</td><td>30849-014</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 2 U, 63 HP, 1 piece</td><td>30849-015</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 2 U, 84 HP, 1 piece</td><td>30849-016</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 3 U, 28 HP, 1 piece</td><td>30849-008</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 3 U, 42 HP, 1 piece</td><td>30849-021</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 3 U, 63 HP, 1 piece</td><td>30849-022</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 3 U, 84 HP, 1 piece</td><td>30849-023</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 4 U, 28 HP, 1 piece</td><td>30849-009</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 4 U, 42 HP, 1 piece</td><td>30849-028</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 4 U, 63 HP, 1 piece</td><td>30849-029</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 4 U, 84 HP, 1 piece</td><td>30849-030</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 6 U, 28 HP, 1 piece</td><td>30849-010</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 6 U, 42 HP, 1 piece</td><td>30849-035</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 6 U, 63 HP, 1 piece</td><td>30849-036</td></tr> <tr><td>Rear panels with vent slots Al, 2.5 mm, 6 U, 84 HP, 1 piece</td><td>30849-037</td></tr> </table>                                                             | Description                                                   | Part no.  | Rear panels with vent slots Al, 2.5 mm, 2 U, 28 HP, 1 piece   | 30849-007 | Rear panels with vent slots Al, 2.5 mm, 2 U, 42 HP, 1 piece   | 30849-014 | Rear panels with vent slots Al, 2.5 mm, 2 U, 63 HP, 1 piece                                        | 30849-015 | Rear panels with vent slots Al, 2.5 mm, 2 U, 84 HP, 1 piece                                        | 30849-016 | Rear panels with vent slots Al, 2.5 mm, 3 U, 28 HP, 1 piece                                        | 30849-008 | Rear panels with vent slots Al, 2.5 mm, 3 U, 42 HP, 1 piece                                        | 30849-021 | Rear panels with vent slots Al, 2.5 mm, 3 U, 63 HP, 1 piece                                        | 30849-022 | Rear panels with vent slots Al, 2.5 mm, 3 U, 84 HP, 1 piece                                        | 30849-023 | Rear panels with vent slots Al, 2.5 mm, 4 U, 28 HP, 1 piece                                        | 30849-009 | Rear panels with vent slots Al, 2.5 mm, 4 U, 42 HP, 1 piece                                        | 30849-028 | Rear panels with vent slots Al, 2.5 mm, 4 U, 63 HP, 1 piece                                        | 30849-029 | Rear panels with vent slots Al, 2.5 mm, 4 U, 84 HP, 1 piece                                        | 30849-030 | Rear panels with vent slots Al, 2.5 mm, 6 U, 28 HP, 1 piece | 30849-010 | Rear panels with vent slots Al, 2.5 mm, 6 U, 42 HP, 1 piece | 30849-035 | Rear panels with vent slots Al, 2.5 mm, 6 U, 63 HP, 1 piece | 30849-036 | Rear panels with vent slots Al, 2.5 mm, 6 U, 84 HP, 1 piece | 30849-037 |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------|---------------------------------------------------------------|-----------|---------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------|-----------|-------------------------------------------------------------|-----------|-------------------------------------------------------------|-----------|-------------------------------------------------------------|-----------|
| Description                                                                                        | Part no.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 2 U, 28 HP, 1 piece                                        | 30849-007                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 2 U, 42 HP, 1 piece                                        | 30849-014                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 2 U, 63 HP, 1 piece                                        | 30849-015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 2 U, 84 HP, 1 piece                                        | 30849-016                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 3 U, 28 HP, 1 piece                                        | 30849-008                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 3 U, 42 HP, 1 piece                                        | 30849-021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 3 U, 63 HP, 1 piece                                        | 30849-022                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 3 U, 84 HP, 1 piece                                        | 30849-023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 4 U, 28 HP, 1 piece                                        | 30849-009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 4 U, 42 HP, 1 piece                                        | 30849-028                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 4 U, 63 HP, 1 piece                                        | 30849-029                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 4 U, 84 HP, 1 piece                                        | 30849-030                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 6 U, 28 HP, 1 piece                                        | 30849-010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 6 U, 42 HP, 1 piece                                        | 30849-035                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 6 U, 63 HP, 1 piece                                        | 30849-036                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Rear panels with vent slots Al, 2.5 mm, 6 U, 84 HP, 1 piece                                        | 30849-037                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
|                                                                                                    | <table> <tr><td>Tip-up carrying handles for 42 HP width (3, 4 and 5 U), 1 kit</td><td>24571-320</td></tr> <tr><td>Tip-up carrying handles for 63 HP width (3, 4 and 5 U), 1 kit</td><td>24571-321</td></tr> <tr><td>Tip-up carrying handles for 84 HP width (3, 4 and 5 U), 1 kit</td><td>24571-322</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 255 mm</td><td>24571-352</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 315 mm</td><td>24571-353</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 375 mm</td><td>24571-354</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 435 mm</td><td>24571-355</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 495 mm</td><td>24571-356</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 255 mm</td><td>24571-359</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 315 mm</td><td>24571-360</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 375 mm</td><td>24571-361</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 435 mm</td><td>24571-362</td></tr> <tr><td>Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 495 mm</td><td>24571-363</td></tr> </table> | Tip-up carrying handles for 42 HP width (3, 4 and 5 U), 1 kit | 24571-320 | Tip-up carrying handles for 63 HP width (3, 4 and 5 U), 1 kit | 24571-321 | Tip-up carrying handles for 84 HP width (3, 4 and 5 U), 1 kit | 24571-322 | Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 255 mm | 24571-352 | Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 315 mm | 24571-353 | Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 375 mm | 24571-354 | Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 435 mm | 24571-355 | Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 495 mm | 24571-356 | Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 255 mm | 24571-359 | Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 315 mm | 24571-360 | Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 375 mm | 24571-361 | Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 435 mm | 24571-362 | Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 495 mm | 24571-363 |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Tip-up carrying handles for 42 HP width (3, 4 and 5 U), 1 kit                                      | 24571-320                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Tip-up carrying handles for 63 HP width (3, 4 and 5 U), 1 kit                                      | 24571-321                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Tip-up carrying handles for 84 HP width (3, 4 and 5 U), 1 kit                                      | 24571-322                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 255 mm | 24571-352                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 315 mm | 24571-353                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 375 mm | 24571-354                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 435 mm | 24571-355                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 3 U PRO and 4 U PRO-air case height, case depth 495 mm | 24571-356                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 255 mm | 24571-359                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 315 mm | 24571-360                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 375 mm | 24571-361                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 435 mm | 24571-362                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Assembly kit for tip-up carrying handle for 4 U PRO and 5 U PRO-air case height, case depth 495 mm | 24571-363                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
|                                                                                                    | <table> <tr><td>Tip-up foot silver, similar to RAL 9006, 4 pieces</td><td>20603-001</td></tr> <tr><td>Tip-up foot anthracite similar to RAL 7016, 4 pieces</td><td>20603-002</td></tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Tip-up foot silver, similar to RAL 9006, 4 pieces             | 20603-001 | Tip-up foot anthracite similar to RAL 7016, 4 pieces          | 20603-002 |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Tip-up foot silver, similar to RAL 9006, 4 pieces                                                  | 20603-001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |
| Tip-up foot anthracite similar to RAL 7016, 4 pieces                                               | 20603-002                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |           |                                                               |           |                                                               |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                                                                    |           |                                                             |           |                                                             |           |                                                             |           |                                                             |           |

## Cases

### rationacPRO, rationacPRO-air—Accessories

#### Standard Product

|                                                                                   | Description                                                                                     | Part no.  |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------|
|                                                                                   | <b>Grounding kit</b><br>Cu wire, 1.5 mm <sup>2</sup> , PVC sleeve, green/yellow, 1 kit, 1 piece | 24571-380 |
|  | <b>Front horizontal rail</b> 42 HP, 1 piece (Qty. 10)                                           | 34560-242 |
|                                                                                   | <b>Rear horizontal rail</b> 42 HP, 1 piece (Qty. 10)                                            | 34560-542 |
|                                                                                   | <b>Front horizontal rail</b> 84 HP, 1 piece (Qty. 10)                                           | 34560-284 |
|                                                                                   | <b>Rear horizontal rail</b> 84 HP, 1 piece (Qty. 10)                                            | 34560-584 |
|  | <b>Threaded strip</b> , 28 HP, 146.82 mm, 1 piece                                               | 34561-328 |
|                                                                                   | <b>Threaded strip</b> , 42 HP, 217.94 mm, 1 piece                                               | 34561-342 |
|                                                                                   | <b>Threaded strip</b> , 63 HP, 324.62 mm, 1 piece                                               | 34561-363 |
|                                                                                   | <b>Threaded strip</b> , 84 HP, 431.3 mm, 1 piece                                                | 34561-384 |
|  | <b>Insulation strip</b> 28 HP, PBT UL 94V-0, gray, Qty. 10 pieces                               | 24560-828 |
|                                                                                   | <b>Insulation strip</b> 42 HP, PBT UL 94V-0, gray, Qty. 10 pieces                               | 24560-842 |
|                                                                                   | <b>Insulation strip</b> 63 HP, PBT UL 94V-0, gray, Qty. 10 pieces                               | 24560-863 |
|                                                                                   | <b>Insulation strip</b> 84 HP, PBT UL 94V-0, gray, Qty. 10 pieces                               | 24560-884 |

## Retainers

### Calmark™ and Birtcher™

Calmark and Birtcher design and manufacture rugged printed circuit board retainers, conduction cooled frame assemblies and extractors for use in non-benign and rugged environments.

#### Product Overview

- Card-Lok™ and Wedge-Lok™ retainers offer the highest locking force available to hold the PC board firmly in place, providing high resistance to shock and vibration while producing maximum thermal transfer for cold wall applications.
- Lok-Tainer™ retainers are typically mounted to a sheet metal chassis, achieving high resistance to shock and vibration and good thermal transfer.
- PCB-Tainer™ and Calmark Retainers feature a spring-action card retention design. They are designed primarily for use in sheet metal applications, provide protection against shock and vibration, and offer excellent grounding characteristics.
- Calmark and Birtcher Extractors are used for safe and easy extraction of printed circuit boards with high-density connectors.
- Conduction Cooled Assemblies provide a direct thermal path for the heat generated from the processors to the cold wall. Conduction Cooled Assemblies are also used to make the module stiffer for improved resistance to shock and vibrations.

Thermal transfer

Conduction  
Cooling

Convection  
Cooling

Calmark Conduction Cooled Assemblies



Birtcher Wedge-Loks



Calmark Card-Loks

Birtcher Lok-Tainers

Birtcher PCB-Tainers



Calmark Nylon Card Guides



Shocks and vibrations

## CALMARK™ Products

### Card-Lok Features

- Large variety of profiles (width x height) and material finishes available
- Visual indication of locking status
- Self-ejecting Card-Lok
- Custom designs available
  - 7 and 9 or more wedge segments
  - Lengths outside of standard catalog offering

**For more information,  
please go to [www.calmark.com](http://www.calmark.com).**

### Series 260—Card-Loks



- Profile: .250 x .270 in.
- Five-segment design for increased clamping force
- Aluminum shaft for increased thermal transfer and lighter weight.

### Series LE260—Card-Loks



- Profile: .250 x .270 in.
- Tool free, lever action locking
- Safe and easy module insertion and extraction lever
- Preset and adjustable clamping force
- Five-segment design for increased clamping force
- Aluminum shaft for increased thermal transfer and lighter weight

### Series 223 and 224—Torque Limiting Card-Loks



- Profiles: .225 x .260 in. and .210 x .275 in.
- Safe and reliable clamping force without the need for a torque wrench
- Prevents damage to the board or the retainer due to over-tightening
- Enhances "Two-Level Maintenance" capability for your modul

### Series 120 Nylon



- Easy and secure snap-in design
- Wide lead-in for easy card entry
- Conductive material available

## CALMARK™ Products

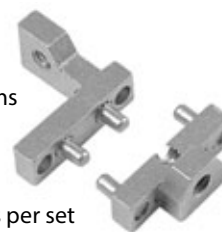
### Extractors / Inserts

- Lever action for safe and easy extraction and insertion of printed circuit board from connectors
- Available in aluminum and nylon
- Some series offer a positive locking feature
- Up to 8:1 lever ratio

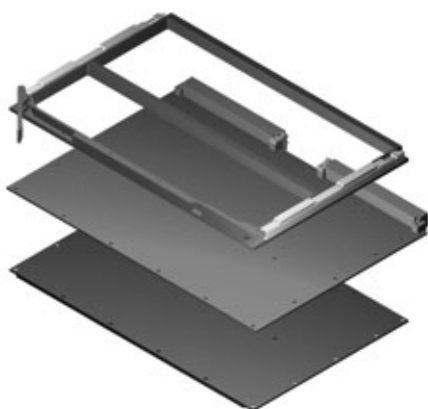


### Coding Keys / Inserts

- Method for keying systems with no front panels
- Complies with VITA 1.6 standard
- Six coding configurations per set



### Conduction Cooled Assemblies

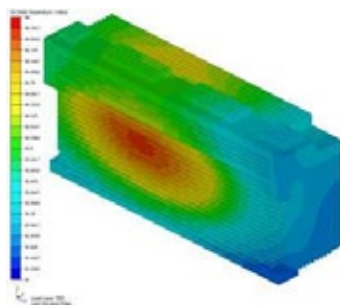


#### A Conduction Cooled Assembly (CCA) consists of:

- Conduction cooled frame and backing plate
  - To provide a direct thermal path for the heat generated from the processors to the cold wall
  - Makes the module stiffer for improved resistance to shock and vibrations
- Card-Loks or Wedge-Loks provide high clamping force with even pressure distribution for low thermal resistance out to the cold wall
- Extractors provide ample force to disengage board connectors

#### Our offering:

- Available in 3 U or 6 U (width of frame)
- Various standards:
  - VME/VME64x, compactPCI (IEEE 1101.2, VITA 30.1)
  - VPX (VITA 48.2)
  - $\mu$ TCA (PICMG MTCA.3)
  - PMC (VITA 20)
  - Proprietary
- Customization of the frame to match the board and envelope hot components; design types:
  - Basic frames
  - Customized frames
  - Engineered frames
  - Clamshells
- Available in black anodize, hard black anodize, chem film, or electroless nickel plating for excellent corrosion resistance



#### Engineering services:

- Thermal analysis of the module to determine the hotspots and design the conduction cooled frame appropriately
- 3D CAD models available
- Collaborative engineering

## Birtcher™ Products

## Wedge-Lok Features

- Large variety of profiles (width x height) and material finishes available
- Custom designs available
  - 7 and 9 or more wedge segments
  - Lengths outside of standard catalog offering

**For more information,  
please go to [www.birtcherproducts.com](http://www.birtcherproducts.com).**

## Series 48-5—Wedge-Loks



- Profile: .225 x .260 in.
- Screw-actuated wedge action design locks board module assembly in place to provide maximum resistance to shock and vibration
- Wedge action design provides maximum contact between thermal paths on Board Module Assembly and the heat sinking surface

## Series 48SL—Wedge-Loks



- Profile: .225 x .260 in.
- Screw-actuated wedge action design locks board module assembly in place to provide maximum resistance to shock and vibration
- Five-segment design for increased clamping force
- Alignment springs return wedge bodies to relaxed position when unclamping and keep wedges in line for tight tolerance situations

## Series 120 Nylon



- Easy and secure snap-in design
- Wide lead-in for easy card entry
- Conductive material available

## Extractors / Inserts



- Lever action for safe and easy extraction and insertion of printed circuit board from connectors
- Available in aluminum and nylon
- Some series offer a positive locking feature
- Up to 8:1 lever ratio

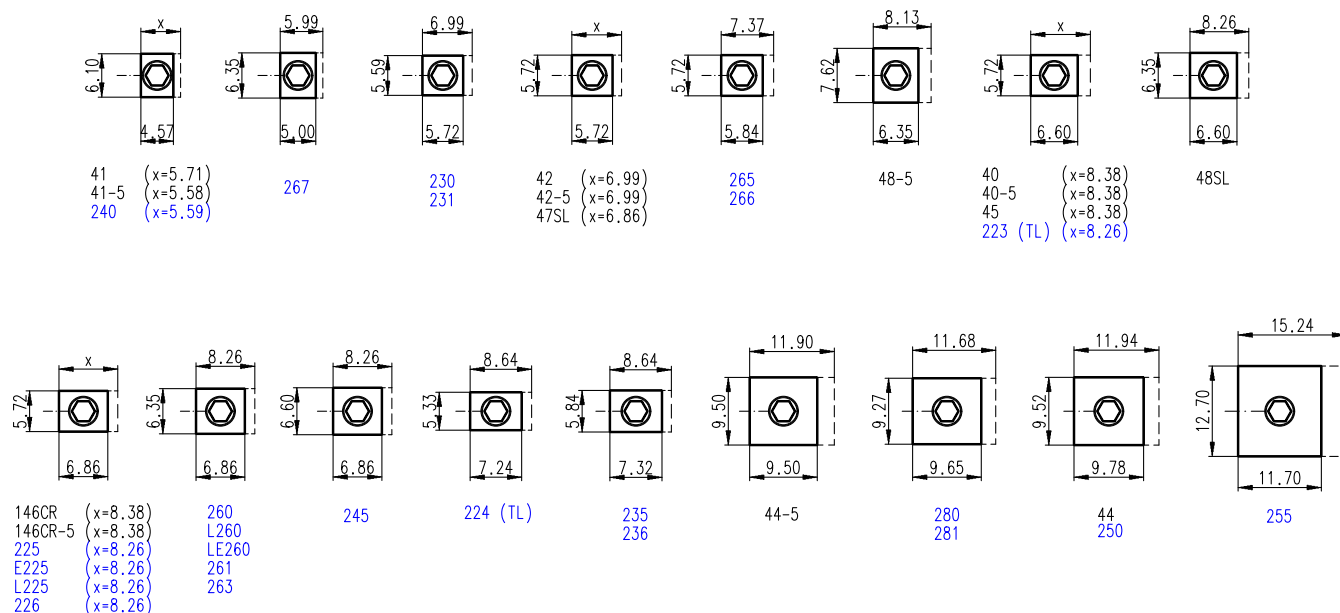
## Series 340 Wedge-Tainer



- For military and commercial applications where harsh environments exist
- For use where retainers are not mounted to PC modules (i.e., SEM-A, B, D, D and E mounted)

## Birtcher™ Products

### Wedge-Lok / Card-Lok Selection Guide



### Birtcher Standard Products

#### Wedge-Loks

| Series    | Height x Width (in.) | Number of segments* (in) | Length (in.) | Finish               | Mounting method         | Part number |
|-----------|----------------------|--------------------------|--------------|----------------------|-------------------------|-------------|
| 42 series | .225 x .260          | 3                        | 3.00         | Chemical Film, Clear | 2-56 UNC-2B tapped hole | 40-6-S      |
|           | .225 x .260          | 3                        | 4.00         | Chemical Film, Clear | 2-56 UNC-2B tapped hole | 40-8-S      |
|           | .225 x .260          | 3                        | 5.00         | Chemical Film, Clear | 2-56 UNC-2B tapped hole | 40-10-S     |
|           | .225 x .260          | 5                        | 3.00         | Chemical Film, Clear | 2-56 UNC-2B tapped hole | 40-5-6      |
| 45 series | .225 x .260          | 5                        | 4.00         | Chemical Film, Clear | 2-56 UNC-2B tapped hole | 40-5-8      |
|           | .225 x .260          | 5                        | 5.00         | Chemical Film, Clear | 2-56 UNC-2B tapped hole | 40-5-10     |

\* The 5 segment version provides a higher clamping force and higher thermal transfer

#### Lok-Tainers

| Series    | Actuation type | Material | Length (in.) | Finish       | PC board thickness (in.) | Part number          |
|-----------|----------------|----------|--------------|--------------|--------------------------|----------------------|
| 24 series | Lever          | Steel    | 5.00         | Nickel plate | .063                     | 24SX-2-10-6-L or -R* |
|           | Lever          | Steel    | 8.00         | Nickel plate | .063                     | 24SX-2-16-6-L or -R* |
|           | Lever          | Steel    | 5.00         | Nickel plate | .094                     | 24SX-3-10-6-L or -R* |
|           | Lever          | Steel    | 8.00         | Nickel plate | .094                     | 24SX-3-16-6-L or -R* |

\* -R = right hand, -L = left hand

#### PCB-Tainers

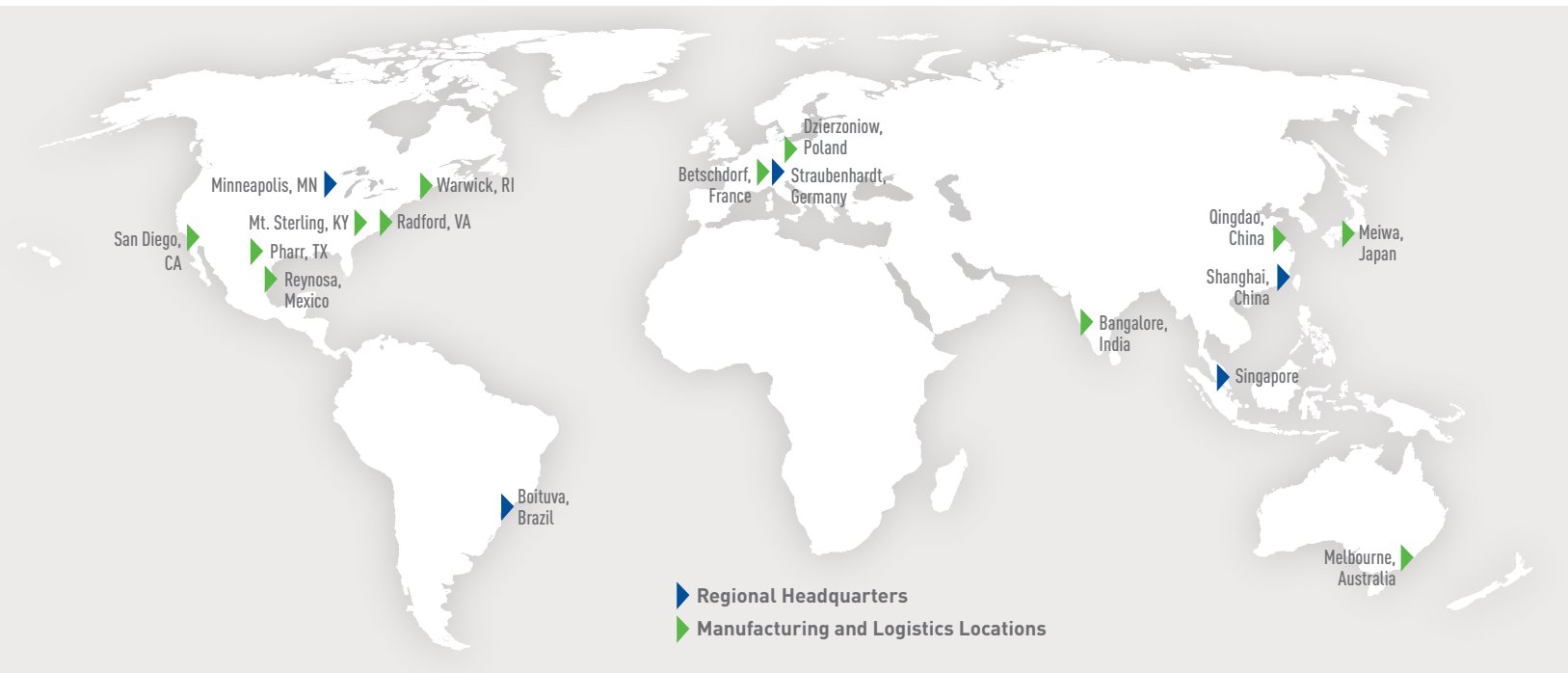
| Series      | Height (in.) | Material         | Length (in.) | Finish          | PC board thickness (in.) | Part number  |
|-------------|--------------|------------------|--------------|-----------------|--------------------------|--------------|
| 35-1 series | 180          | Beryllium copper | 4.00         | Cadmium plating | .063                     | 35-1B-2-8-3  |
|             | 180          | Beryllium copper | 6.00         | Cadmium plating | .063                     | 35-1B-2-12-3 |
| 35-2 series | 130          | Beryllium copper | 4.00         | Cadmium plating | .063                     | 35-2B-2-8-3  |
|             | 130          | Beryllium copper | 6.00         | Cadmium plating | .063                     | 35-2B-2-12-3 |
| 35-7 series | 125          | Beryllium copper | 4.00         | Cadmium plating | .063                     | 35-7B-2-8-3  |
|             | 125          | Beryllium copper | 6.00         | Cadmium plating | .063                     | 35-7B-2-12-3 |

#### Extractors

| Series    | Hand action | PC board thickness (in.) | Part number |
|-----------|-------------|--------------------------|-------------|
| 71 series | Left Hand   | .063                     | 71-2-L      |
|           | Right hand  | .063                     | 71-2-R      |
|           | Left Hand   | .094                     | 71-3-L      |
|           | Right hand  | .094                     | 71-3-R      |

## About Pentair Technical Products

Pentair Technical Products, a Pentair global business unit, is the leading provider of worldwide product and service solutions for enclosing, protecting and cooling electrical and electronic systems. Its industry-leading brands—Hoffman®, Schroff® and McLean® Cooling Technology—provide a broad variety of standard, modified and engineered solutions to the commercial, communications, energy, general electronics, industrial, infrastructure, medical and security and defense markets.



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