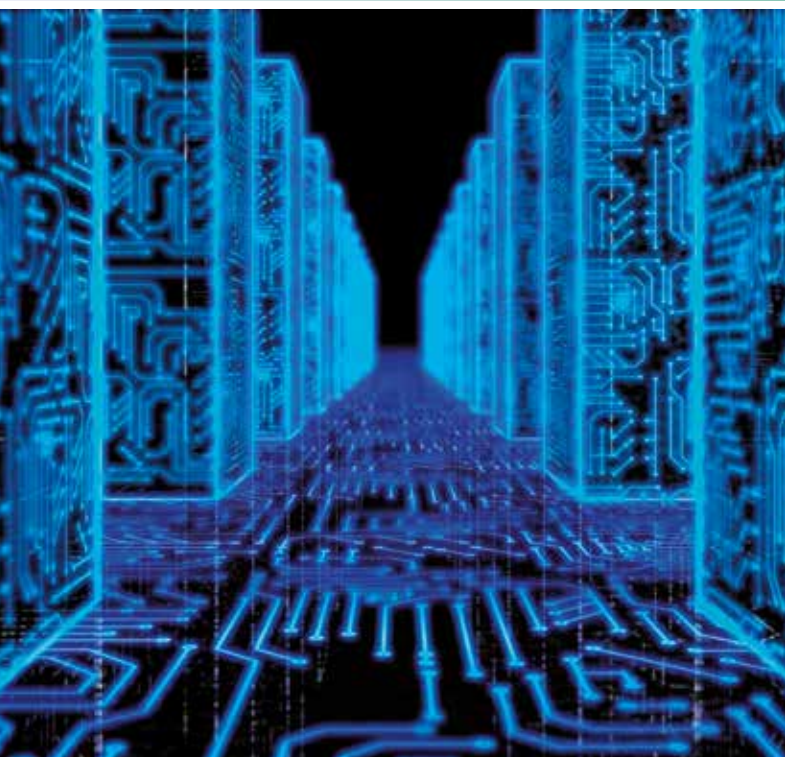


# Knürr® IT Special Catalog

Networks & Data Centers



A division of the Emerson Group, **Emerson Network Power**, is a global company that combines technology and design to offer their customers innovative and effective solutions.

Emerson Network Power protects and optimizes infrastructures for data centers, communication networks, the health sector and industrial systems.

With its comprehensive technology base and global know-how, Emerson Network Power supports a broad range of company-level solutions that constitute one of the most important requirements for today's business.



No company, irrespective of its size, can afford a failure of its critical business systems or time losses incurred when IT infrastructures have to be restored following a downtime.

Leave the work to us: we are experts for all types of systems, from the supply network to the chip, and can deliver tailored solutions for both very large and small data centers.

High-level standardization ensuring that the installation won't cost you any extra. Our solutions are user-friendly: You needn't be an expert to find the best option for your company. Furthermore, we offer comprehensive support so that you have full protection while you go about your business.



Emerson Network Power endorses the European Code of Conduct for Energy Efficiency in Data Center.

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# Knürr DCM® – Rack System

Market-leading Data Center Technologies for your Company

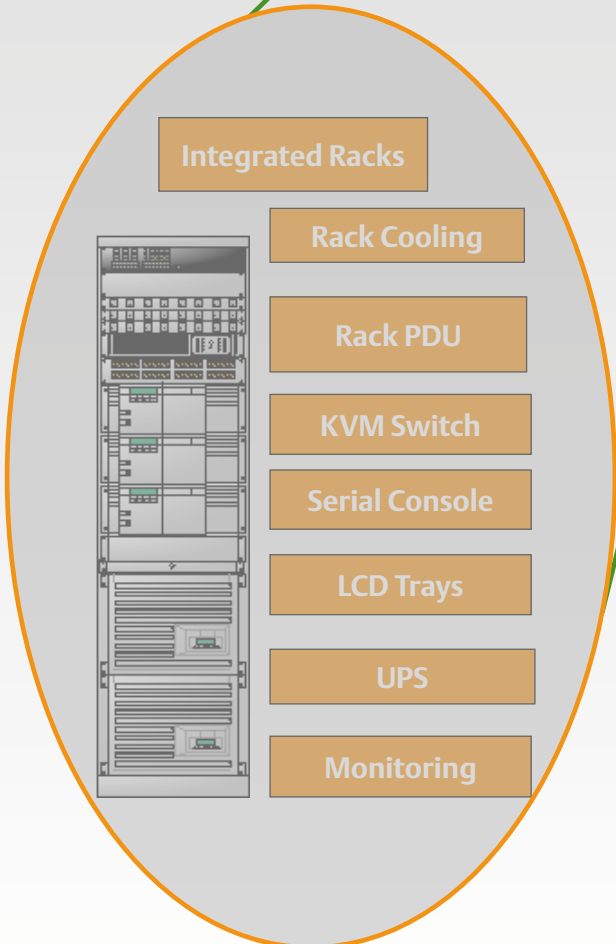
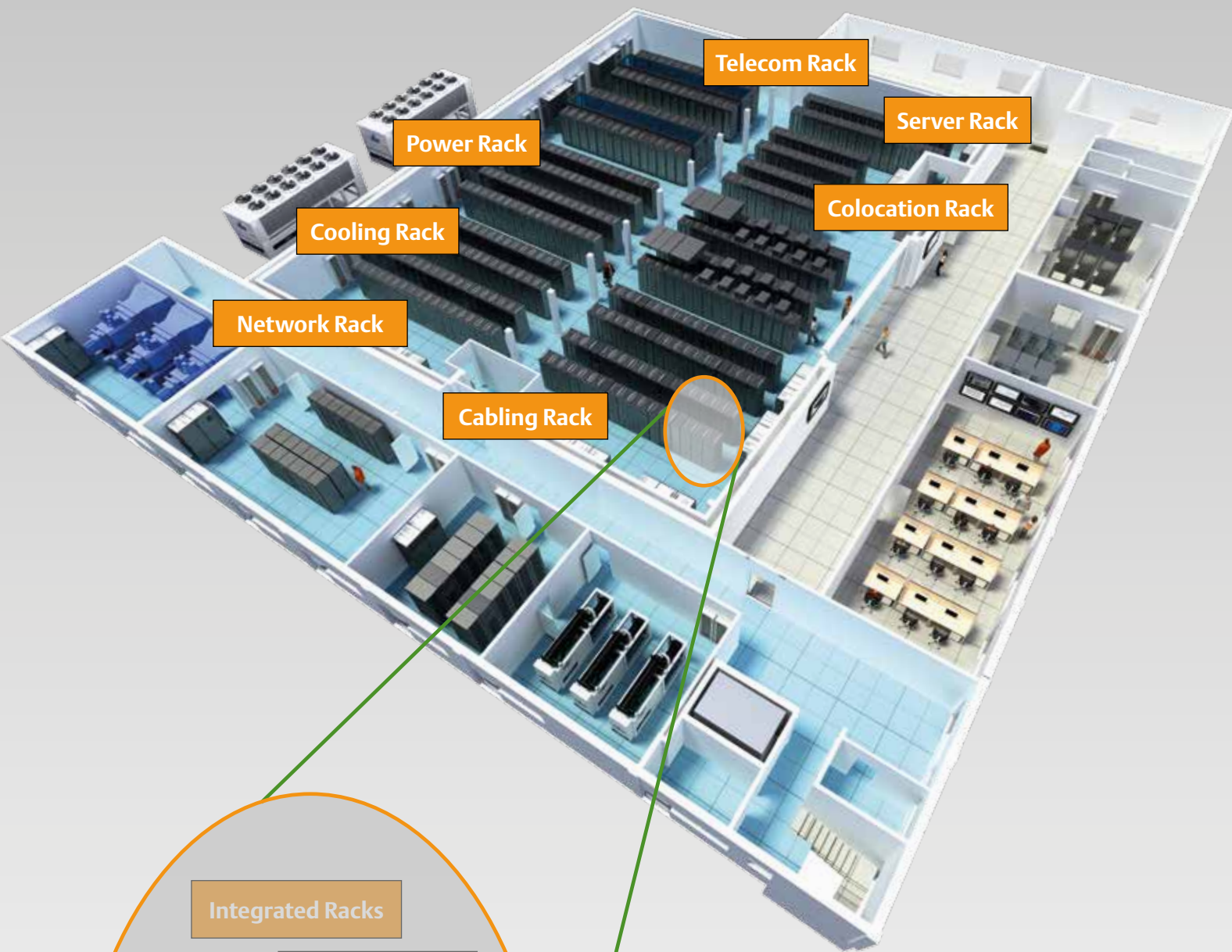
**Integrated solutions.  
Integrated benefits.  
Integrated energy efficiency.**

- **Reliability:**  
Proven business-critical technologies that minimize failure sources and guarantee the greatest possible reliability for your IT systems.
- **Everything from one source:**  
One central provider for the provision, configuration, installation and support of your products and technologies.
- **Integration:**  
From the rack through to the entire room – our products and services form one integrated holistic system.
- **Technical support:**  
Where required, on-site and factory-site support is provided by application specialists. Emerson Network Power has the largest team of customer service specialists in the world.
- **Flexible configuration options:**  
Our products and technologies deliver flexibility, adaptability and cost-effective solutions.
- **Energy efficiency:**  
We offer our customers "Green IT" solutions that set standards on the ITC market – a data-center infrastructure that stays abreast current and future requirements and facilitates management and automation of physical infrastructure.

**Knürr provides comprehensive products and services for all requirements – from compact racks and computer rooms, right through to global data centers.**

Based on a variety of data centers' specific requirements, Emerson Network Power has developed a customized, ready-made solution: rack systems with integrated thermal management, power supply cooling and monitoring. We also provide optional services such as on-site expertise and support, thereby ensuring that you can easily order, configure, manage and implement your Knürr solution.





# Knürr DCM® – Rack System

## Overview



### Knürr DCM® and DCM® Colocation

- **Light aluminum frame, can be disassembled**
  - Easy, low weight transport.
  - Low stress on DC raised floors.
- **42 U / 47 U**
  - e.g. 42 U with 2000 mm external height including caster mounting.
- **Static load rating**
  - 15000 N with stationary version.
  - 10000 N with caster mounting.
- **Simple internal cabling**
- **Comfort and safety**
  - Easy to move even when rack is fully equipped.
- **T-slot system**
  - Freely selectable arrangement of accessories.



### Knürr Miracel® Server Rack

- **Aluminum construction, threaded connection system**
  - High flexibility and stability with low weight; simple assembly and disassembly.
- **41 U / 46 U**
  - e.g. 41 U with 2000 mm external height or 41 U with 2100 mm and mobile plinth.
- **Static load rating**
  - 5000 N with stationary version.
  - 3000 N with mobile plinth.
- **Special server extrusions**
  - Guaranteed easy mounting of 19" servers from all manufacturers.
- **Optional tilt restraint**
  - Ensures safety of service personnel. Also available integrated into the plinth.
- **Flexible ventilation components**
  - Always the right ventilation solution with the corresponding accessory components, e.g. via perforated floor panels, top covers and doors (perforation: 83 %).



### Knürr Miracel® Network Rack

- **Aluminum construction, Threaded connection system**
  - High flexibility and stability with low weight; simple assembly and disassembly.
- **Static load rating**
  - 5000 N with stationary version.
  - 3000 N with mobile plinth.
- **T-slot system**
  - Freely selectable arrangement of accessories. Easy mounting of all non-standard components – variable in 19" and 25 mm increments.
- **Cable management**
  - Guaranteed orderly and space-saving cable management.
  - Easily adjustable to installation site: Cable management can be selected from an extensive range of accessory components.



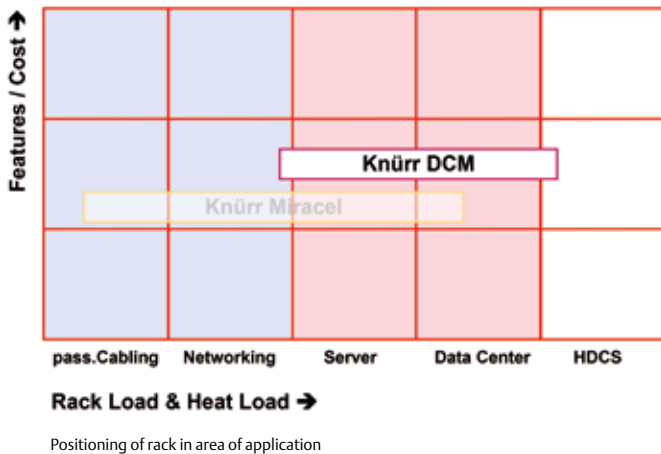
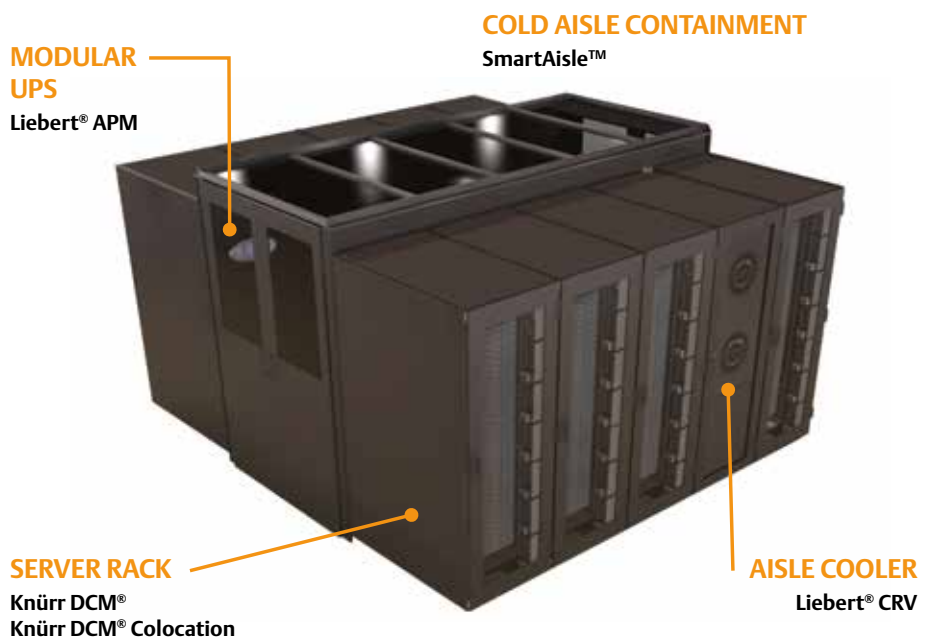
# Knürr DCM®

## The Modular Rack Platform for a Future-proof Data Center

- Modular building box: quick, cost-effective and sustainable.
- Maximum space for power-supply and cabling components allowing them to be placed alongside the panels.
- Structural stability with low weight provided by light aluminum structure that can be disassembled.
- More variability with stepless, adjustable-depth air containment with vertical extrusions.

### Everything in the data center begins with the Knürr DCM®!

The Knürr DCM® is the modular building block for all "in row" applications of Emerson Network Power's products. It's used as server racks, power racks, or storage racks.







# Knürr DCM®

Application-optimized Server-Rack Solution –  
The Keystone for your IT Solutions



## The right rack size for every application

- **Knürr Data Center Module**  
The Knürr DCM® is Emerson Network Power's globally available rack for world-wide, standardized data center planning.
- **Global standard**  
The 2000 mm height and 1100 mm depth rack version is the global platform for rack suites at Emerson Network Power. Cooling racks, power racks and server racks based on the Knürr DCM platform guarantee easy integration into the rack suite.
- **Metric measurements**  
for global use.
- **Stable and secure**  
Knürr DCM seismic-tested version available up on request. Static load of up to 1500 kg. Flexible use as a server or active network rack.







1. DCM20059



3. DCM20030

## Knürr DCM® Features

- **High-load cabinet**  
Static load of 1500 kg featuring a new design, more stable profiles and new high-load corner joints. (1)
- **Screw design**  
Since the rack can easily be dismantled, even to the most restricted areas are accessible. (2)
- **Light aluminum frame**  
Lower weight allows for easier, lighter transportation. (3)
- **Convenient**  
Tool-free door assembly. (4)
- **Low, heavy-duty casters**  
Even fully equipped rack can be moved safely and conveniently. (5)
- **Integrated tilt restraint**  
Quick and easy installation and disassembly.
- **Cable management**  
Guaranteed orderly and space-saving cable management. Adaptable to site installation requirements: cable management can be selected from an extensive range of accessory components. (6)
- **Largest possible perforation**  
For improved airflow. (7)
- **Maximum space**  
PDUs and cable management can also be housed in the space between the 19" level and the side panel.
- **Adjustable-depth air separation**  
Cold/warm air is sealed alongside the panels, permitting adjustment of the depth. The standard air-containment accessory (with 1 U slot) can be used to increase the usable space of your server rack up to 6 U. (8)



2. DCM20008



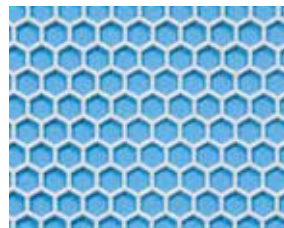
4. DCM20006



5. DCM20028



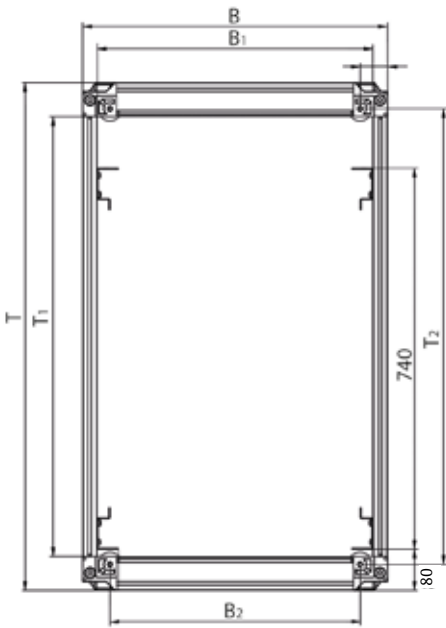
6. DCM20027



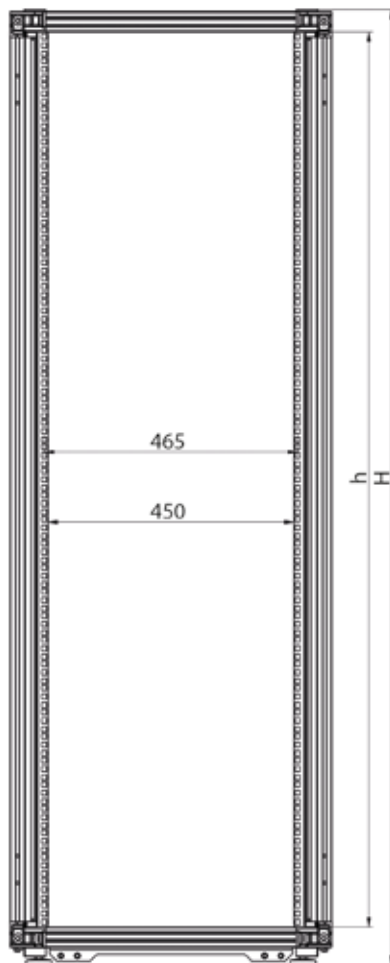
7. MIR20265



8. DCM20000



DCM20066



## Knürr DCM® Technical data

- Material**
    - Extruded aluminum.
    - Corner piece, die-cast aluminum.
    - Covers, steel sheet, zinc-passivated.
    - Steel sheet doors.
  - Installation dimensions compliant with IEC 60297-1 and IEC 60297-2**
    - Height: 42 U / 47 U (1 U) = 44.45 mm).
    - Width: 482.6 mm (19° construction).
  - Available space**
    - Jumpering space, 80 mm.
    - 130° door opening angle in the rack suite and 180° as individual rack.
  - Configurations**
    - Stationary on leveling feet.
    - Mobile with caster mounting and leveling feet.
  - Finish/Color**
    - Basic rack, polished.
    - Visible surface of covers RAL 7021 dark-grey.
  - Static load rating**
    - 15000 N (stationary model).
    - 10000 N (mobile model).
  - Tests depending on design**
    - IP test compliant with IEC 60529.
    - Earthing and protective conductor test compliant with DIN EN 60950.
- Further standards and tests may be provided upon on request.
- Rack suites**

To create a rack suite with "n" racks, the following is required:

    - n-1 racks without side panels and 1 rack with side panels.
    - In a rack suite, per connection you one set of rack connectors.

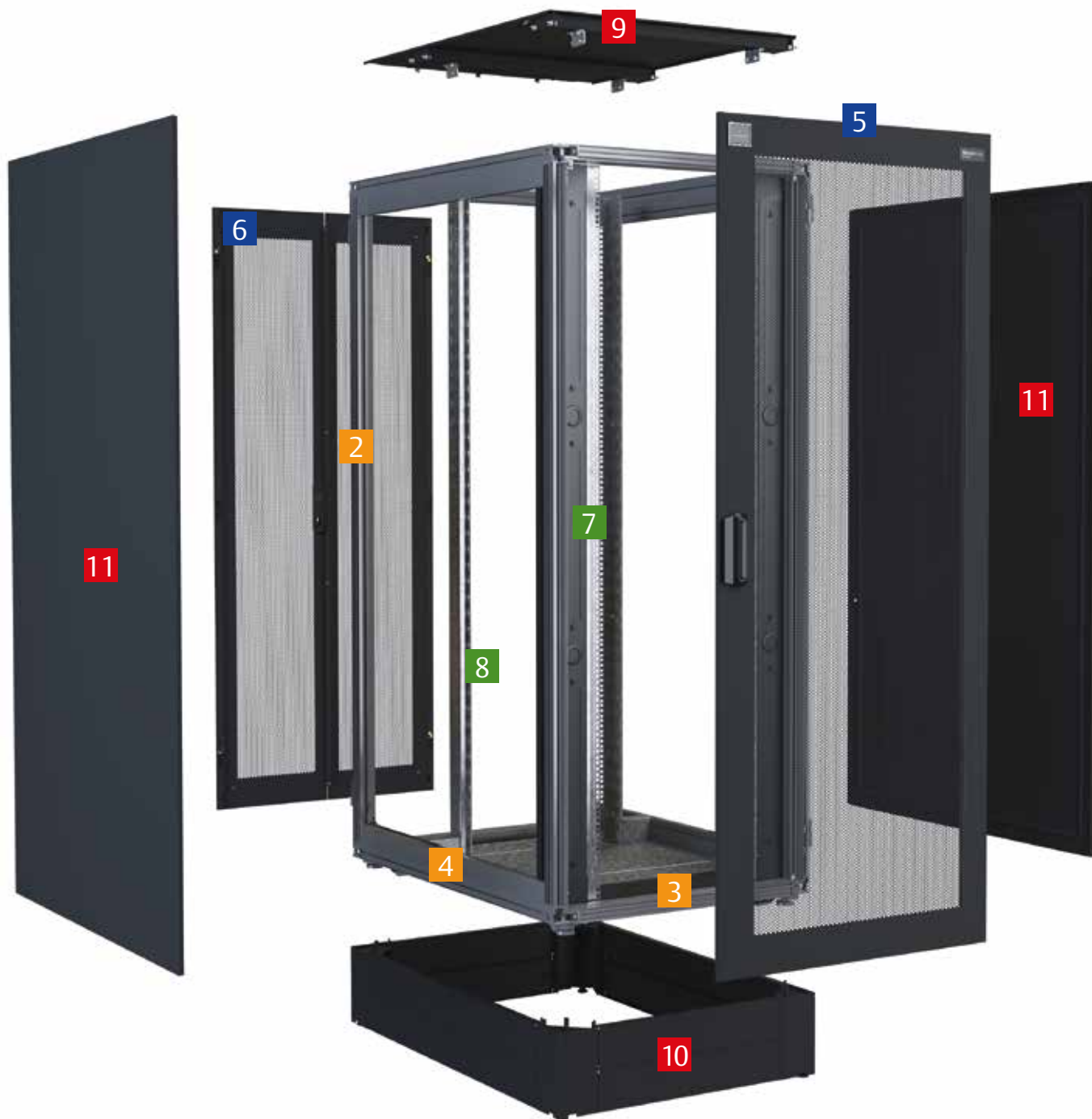
Nom. dimension	W	W1	W2	D	D1	D2
W 600 / D 1000	591	535	485	986	856	885
W 600 / D 1100	591	535	485	1086	956	985
W 600 / D 1200	591	535	485	1186	1056	1085
W 800 / D 1000	791	735	685	986	856	885
W 800 / D 1100	791	735	685	1086	956	985
W 800 / D 1200	791	735	685	1186	1056	1085

Nom. height	H	h
H 2000	1996	1872.60
H 2200	2218	2094.85

Knürr DCM®  
Configurator

1

- Up to 5,160,000 different assembly options



**Knürr DCM® – configured by you**

Impressive number of variations: There are now up to 5,160,000 options for a configuration with the 'Configurable Article Number' (which replaces the old order numbers).

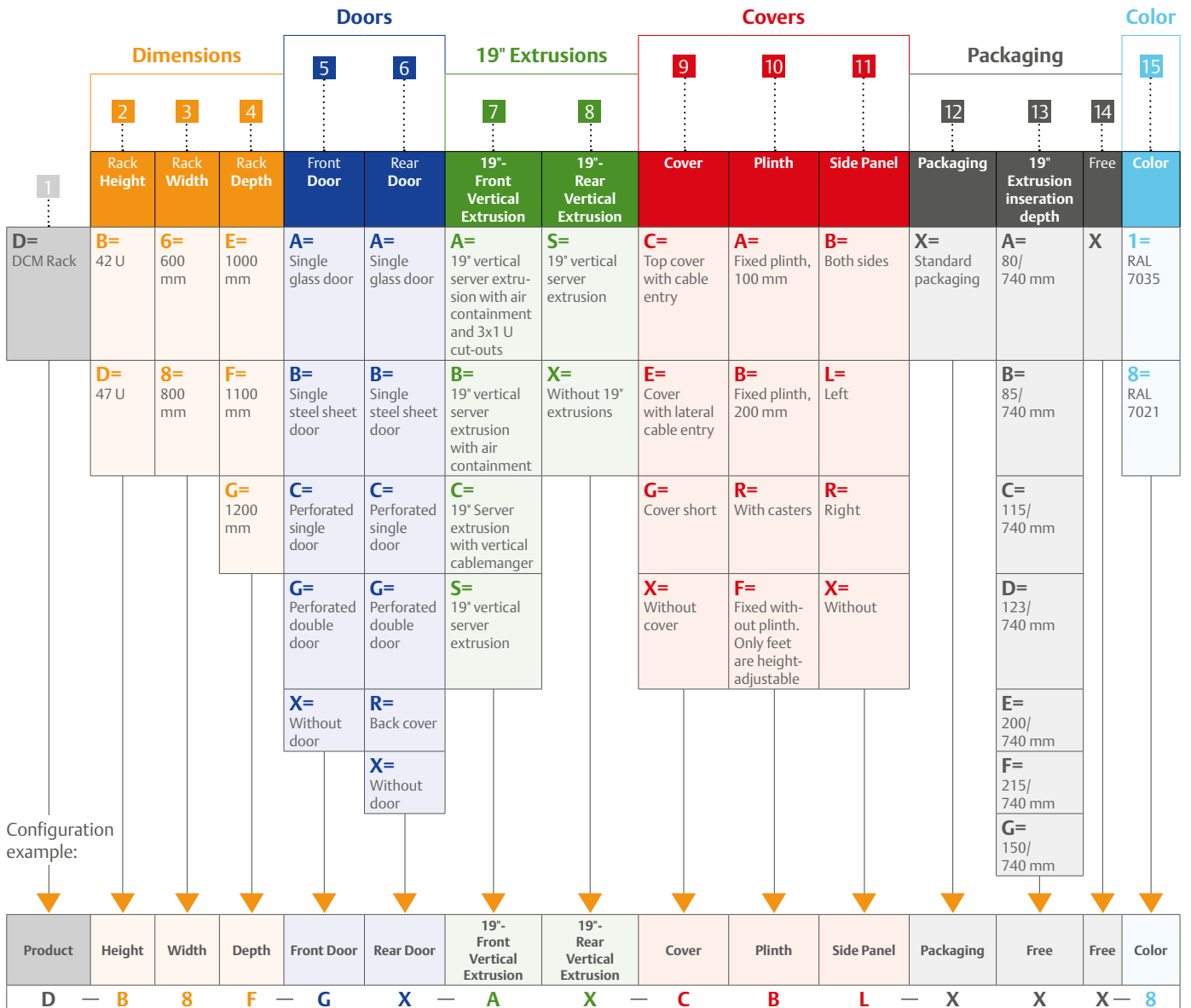
A system building box that significantly simplifies your combinations.

This 'Configurable Article Number' reproduces all requested properties via multiple choice (see chart below), without requiring detailed rack descriptions.

Definite identification is also possible with a repeat order or upgrade.

The 'Configurable Article Number' makes a significant contribution to simplifying the selection and ordering process.

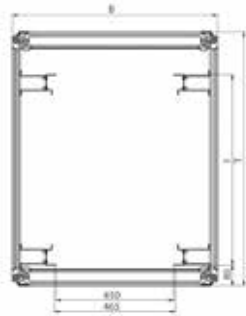
**Product line**  
Knürr DCM®



Example product number



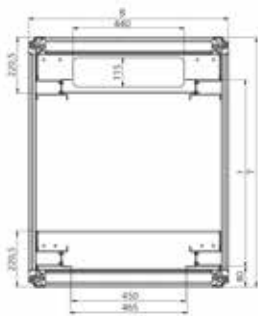
DCM20003 stationary DCM20022 mobile



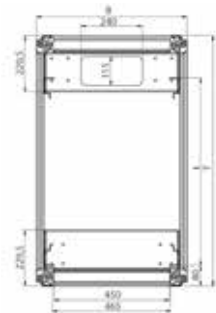
DCM20063 Average width 800 mm, stationary



DCM20062 Average width 600 mm, stationary



DCM20065 Average width 800 mm, mobile



DCM20064 Average width 600 mm, mobile

## DCM® 19" Heavy Duty Server Rack Width 600 and 800, Stationary and Mobile

- Perforated front door.
- Perforated rear double door.
- Special 19" server extrusions for mounting all off-the-shelf 19" servers.
- Components compliant with IEC 297-3.
- Cable entry via top and bottom cover.
- Cable entry on the top cover can be completely removed at the rear allowing installing and removal of top cover after cabling.
- Mobile design includes heavy-duty casters with ample floor clearance.

### ■ Jumping space

- Front 80 mm.

### ■ Load rating

- 15000 N static.
- 10000 N mobile in data center with load.

### ■ Protection rating

- IP 20.

### ■ Tests

- Earth compliant with DIN EN 60950.
- Mobile design: Earthing compliant with VDE 0100 T 540.
- IP test compliant with DIN 40 050 / IEC 529.

### ■ Airflow circulation

- Perforation: 83 %.

### ■ Material / Finish

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Doors, steel sheet, powder-coated texture.
- Covers, zinc-passivated steel sheet, powder-coated texture.
- 19" extrusions, 2.5 mm zinc-passivated steel sheet.

### ■ Color

- Visible surfaces and covers coated with RAL 7021, dark-grey.

### ■ Scope of delivery

- 1 x basic rack.
- 4 x 19" server extrusions, steel sheet inclusive U marking.
- 2 x side panels with quick connectors.
- 1 x top cover with cable entry (three-piece sliding plates can also be opened completely).
- 1 x front door, single, perforated, with handle and mounting for cylinder lock.
- 1 x rear door, double, perforated, steel sheet, with handle and mounting for cylinder lock.
- 4 x leveling feet.
- 1 x complete earthing test (VDE 0100).
- Mobile design: additionally 2 caster mountings with heavy-duty casters and integrated cable entry.

### ■ How supplied

- Mounted.

### ■ Note

Order mounting adapters for 19" server extrusion for mounting Knürr accessories are also available.

W	H	D	U	d	Model	Order No.	UP
600	2000	1200	42	740	Stationary with side panels	<b>DB6GCGSSCFBXXX8</b>	1 unit
600	2200	1200	47	740	Stationary with side panels	<b>DD6GCGSSCFBXXX8</b>	1 unit
800	2000	1200	42	740	Stationary with side panels	<b>DB8GCGSSCFBXXX8</b>	1 unit
800	2200	1200	47	740	Stationary with side panels	<b>DD8GCGSSCFBXXX8</b>	1 unit
600	2000	1200	42	740	Stationary, no side panels	<b>DB6GCGSSCFXXX8</b>	1 unit
600	2200	1200	47	740	Stationary, no side panels	<b>DD6GCGSSCFXXX8</b>	1 unit
800	2000	1200	42	740	Stationary, no side panels	<b>DB8GCGSSCFXXX8</b>	1 unit
800	2200	1200	47	740	Stationary, no side panels	<b>DD8GCGSSCFXXX8</b>	1 unit
600	2000	1200	42	740	Mobile with side panels	<b>DB6GCGSSCRBXXX8</b>	1 unit
800	2200	1200	47	740	Mobile with side panels	<b>DD8GCGSSCRBXXX8</b>	1 unit
600	2000	1200	42	740	Mobile, no side panels	<b>DB6GCGSSCRXXX8</b>	1 unit
800	2200	1200	47	740	Mobile, no side panels	<b>DD8GCGSSCRXXX8</b>	1 unit

#### Dimensions in mm:

W = Width	L = Length	U = Standard rack unit	kg = Weight	Conversion:
H = Height	h = Installation height	(1 U = 44.45 mm)	1 kg = 2.2046 pounds	
D = Depth	d = Insertion depth	UP = Packaging unit		



**DCM® Colocation Rack**  
Width 800 mm



DCM20085



DCM20086



DCM20087



DCM20088

- Perforated front doors with one-point lock.
- Perforated rear doors with one-point lock.
- Special 19" server extrusions for mounting all off-the-shelf 19" servers.
- Components compliant with IEC 297-3.
- Standard cable entry with fixed cable duct on the right.
- Optional cable entry left and right via cover and shelf by reconfiguration of the cable ducts.
- Secure partitioning of the individual bays using securely mounted partition shelves.
- With lateral air containment at the front left and right, each with 1 U opening for mounting different components.
- Doors with handle and mounting for cylinder lock.
- Adjustment of the 19" extrusions in 50 mm increments.

■ **Jumpering space**

- Front 80 mm.

■ **Load rating**

- 25 kg per rack unit (stationary).
- e.g.: 15 U x 25 kg = 375 kg load for one bay.

■ **Protection rating**

- IP 20.

■ **Tests**

- Earthing compliant with VDE 0100 T 450.
- IP test compliant with DIN 40 050 / IEC 529.

■ **Airflow circulation**

- Perforation: 83%.

■ **Material / Finish**

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Doors, steel sheet, powder-coated texture.

- Partitioning walls, zinc-passivated steel sheet.
- 19" extrusions, 2.0 mm zinc-passivated steel sheet.
- Shelf supports, zinc-passivated.

■ **Color**

- Visible cover surface
- Final digit of Order No. .1: RAL 7035 light-grey.
- Final digit of Order No. .8: RAL 7021 dark-grey.

■ **Scope of delivery**

- 1 x basic rack.
- 4 x 19" server extrusions with regular perforations, steel sheet with rack unit marking for each bay.
- 1 x top cover, including cable-inlet covers on the left and right sides.
- 1 x shelf, including cable-inlet cover on the right; open on the left for cable duct = cable entry.
- 2 x partitioning shelves for 3-way colocation.
- 1 x partitioning shelf for 2-way colocation.
- 3 x perforated front and rear doors for 3-way colocation.
- 2 x perforated front and rear doors for 2-way colocation.
- Air containment at the front with covered 1 U cut-out.

■ **How supplied**

- Mounted.

■ **Note**

- Also order mounting adapters for 19" server extrusion for mounting Knürr accessories.
- Side partitioning walls must be ordered separately.
- Cylinder locks must be ordered separately .
- Stationary plinth can be mounted afterwards.

W	H	D	U	d	Model	Order No.	UP
800	2000	1100	13	740	3-way colocation without side panels	<b>01.143.000.X-001</b>	1 unit
800	2000	1200	13	740	3-way colocation without side panels	<b>01.143.000.X-002</b>	1 unit
800	2200	1100	15	740	3-way colocation without side panels	<b>01.143.000.X-003</b>	1 unit
800	2200	1200	15	740	3-way colocation without side panels	<b>01.143.000.X-004</b>	1 unit
800	2000	1100	20	740	2-way colocation without side panels	<b>01.143.001.X-001</b>	1 unit
800	2000	1200	20	740	2-way colocation without side panels	<b>01.143.001.X-002</b>	1 unit
800	2200	1100	23	740	2-way colocation without side panels	<b>01.143.001.X-003</b>	1 unit
800	2200	1200	23	740	2-way colocation without side panels	<b>01.143.001.X-004</b>	1 unit
800	2000	1100	13	740	3-way colocation with side panels	<b>01.143.002.X-001</b>	1 unit
800	2000	1200	13	740	3-way colocation with side panels	<b>01.143.002.X-002</b>	1 unit
800	2200	1100	15	740	3-way colocation with side panels	<b>01.143.002.X-003</b>	1 unit
800	2200	1200	15	740	3-way colocation with side panels	<b>01.143.002.X-004</b>	1 unit
800	2000	1100	20	740	2-way colocation with side panels	<b>01.143.003.X-001</b>	1 unit
800	2000	1200	20	740	2-way colocation with side panels	<b>01.143.003.X-002</b>	1 unit
800	2200	1100	23	740	2-way colocation with side panels	<b>01.143.003.X-003</b>	1 unit
800	2200	1200	23	740	2-way colocation with side panels	<b>01.143.003.X-004</b>	1 unit



DCM20097

**DCM® Steel Sheet Door, with Perforation, Single**

- **Material**  
– Steel sheet 1.0 mm.
- **Color**  
– Final digit of order number .1:  
RAL 7035 light-grey.  
– Final digit of order number .8:  
RAL 7021 dark-grey.
- **Scope of delivery**  
– 1 x door (single).  
– 1 x Mounting kit.
- **How supplied**  
– Preassembled.
- **Volume flow**  
– Large surface perforation (83% free surface) enables optimum airflow through the rack.

W	H	Order No.	UP
600	2000	<b>01.147.803.X</b>	1 unit
600	2200	<b>01.147.806.X</b>	1 unit
800	2000	<b>01.147.805.X</b>	1 unit
800	2200	<b>01.147.808.X</b>	1 unit



DCM20096

**DCM® Steel Sheet Door with Perforation, Double**

- **Material**  
– Steel sheet 1.0 mm.
- **Color**  
– Final digit of order number .1:  
RAL 7035 light-grey.  
– Final digit of order number .8:  
RAL 7021 dark-grey.
- **Scope of delivery**  
– 1 x double door.  
– 1 x Mounting kit.
- **How supplied**  
– Preassembled.
- **Volume flow**  
– Large surface perforation (83% free surface) enables optimum airflow through the rack.

W	H	Order No.	UP
600	2000	<b>01.147.921.X</b>	1 unit
600	2200	<b>01.147.922.X</b>	1 unit
800	2000	<b>01.147.929.X</b>	1 unit
800	2200	<b>01.147.930.X</b>	1 unit



DCM20127

**DCM® Steel Sheet Door without Perforation, Single**

- **Material**  
– Steel sheet 1.0 mm.
- **Color**  
– Final digit of order number .1:  
RAL 7035 light-grey.  
– Final digit of order number .8:  
RAL 7021 dark-grey.
- **Protection rating**  
Installation in the DCM® rack (depending on the other rack components) enables a maximum protection class of IP 20.
- **Scope of delivery**  
– 1 x single steel sheet door.  
– 1 x Mounting kit.
- **How supplied**  
– Preassembled.

W	H	Order No.	UP
600	2000	<b>01.147.534.X</b>	1 unit
600	2200	<b>01.147.537.X</b>	1 unit
800	2000	<b>01.147.536.X</b>	1 unit
800	2200	<b>01.147.539.X</b>	1 unit



DCM20129

**DCM® Steel Sheet Door without Perforation, Double**

- **Material**  
– Steel sheet 1.0 mm.
- **Color**  
– Final digit of order number .1:  
RAL 7035 light-grey.  
– Final digit of order number .8:  
RAL 7021 dark-grey.
- **Protection rating**  
Installation in the DCM® rack (depending on the other rack components) enables a maximum protection class of IP 20.
- **Scope of delivery**  
– 1 x double steel sheet door.  
– 1 x Mounting kit.
- **How supplied**  
– Preassembled.

W	H	Order No.	UP
600	2000	<b>01.147.570.X-002</b>	1 unit
600	2200	<b>01.147.570.X-003</b>	1 unit
800	2000	<b>01.147.570.X-010</b>	1 unit
800	2200	<b>01.147.570.X-011</b>	1 unit

Dimensions in mm:				Conversion:	
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	h = Installation height	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	d = Insertion depth	UP = Packaging unit			



DCM20128

### DCM® Single Glass Door

- **Material**
  - Steel sheet 1.0 mm.
  - Single safety-glass panel, 4.0 mm clear glass.
- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.
- **Protection rating**

Installation in the DCM® rack (depending on the other rack components) enables a maximum protection class of IP 20.
- **Scope of delivery**
  - 1 x single glass door.
  - 1 x Mounting kit.
- **How supplied**
  - Preassembled.

W	H	Order No.	UP
600	2000	01.147.540.X	1 unit
600	2200	01.147.543.X	1 unit
800	2000	01.147.542.X	1 unit
800	2200	01.147.545.X	1 unit



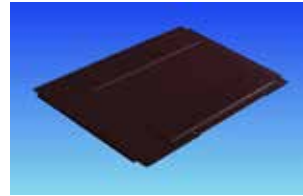
DCM20130

### DCM® Double Glass Door

- **Material**
  - Steel sheet 1.0 mm
  - Single safety-glass panel, 4.0 mm clear glass.
- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.
- **Protection rating**

Installation in the DCM® rack (depending on the other rack components) enables a maximum protection class of IP 20.
- **Scope of delivery**
  - 1 x double glass door.
  - 1 x Mounting kit.
- **How supplied**
  - Preassembled.

W	H	Order No.	UP
600	2000	01.147.571.X-002	1 unit
600	2200	01.147.571.X-003	1 unit
800	2000	01.147.571.X-010	1 unit
800	2200	01.147.571.X-011	1 unit

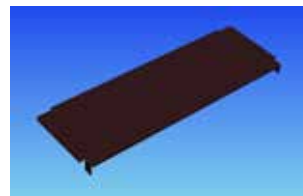


DCM20079

### DCM® Cover with Lateral Cable Entry

- With lateral cable entry on both sides (sliding plates).
- For orderly cable management inside the rack.
- **Material**
  - Steel sheet 1.5 mm.
- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x top cover with lateral cable entry.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

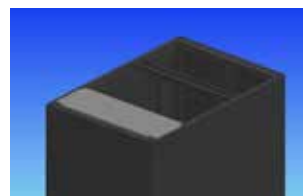
W	D	Order No.	UP
600	1000	01.147.572.X	1 unit
600	1100	01.147.573.X	1 unit
600	1200	01.147.574.X	1 unit
800	1000	01.147.577.X	1 unit
800	1100	01.147.578.X	1 unit
800	1200	01.147.579.X	1 unit



DCM20081

### DCM® Short Cover

- For covering the front area of the top; the rest remains open.
- Facilitates unobstructed cable entry in the rack.
- **Material**
  - Steel sheet 1.5 mm.
- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x short cover.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.



DCM20080

B <sub>Rack</sub>	L	Order No.	UP
600	250	01.147.268.X	1 unit
800	250	01.147.269.X	1 unit



DCM20069

## DCM® Side Panel

- Side panel module for Knürr DCM® 19" heavy duty server rack

### Material

- Steel sheet 1.0 mm.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Scope of delivery

- 1 x side panel.
- 1 x Mounting kit.

### How supplied

- In sets.

H	D	Order No.	UP
2000	1000	<b>01.147.876.X</b>	1 unit
2000	1100	<b>01.147.877.X</b>	1 unit
2000	1200	<b>01.147.878.X</b>	1 unit
2200	1000	<b>01.147.880.X</b>	1 unit
2200	1100	<b>01.147.881.X</b>	1 unit
2200	1200	<b>01.147.882.X</b>	1 unit



DCM20037b

## DCM® Heavy Duty Plinth Fixed, Height 200 mm

- Fixed incl. leveling option.
- Cable entry possible from all sides.
- Cover plate front and rear closed.

### Load rating

- 10000 N static.

### Material

- Steel sheet.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Scope of delivery

- 4 x plinth corners, incl. leveling feet.
- 8 x cover plates.
- 1 x Mounting kit.

### How supplied

- In sets.

W	H	D	Order No.	UP
600	200	1000	<b>01.147.788.X</b>	1 unit
600	200	1100	<b>01.147.789.X</b>	1 unit
600	200	1200	<b>01.147.790.X</b>	1 unit
800	200	1000	<b>01.147.796.X</b>	1 unit
800	200	1100	<b>01.147.797.X</b>	1 unit
800	200	1200	<b>01.147.798.X</b>	1 unit



DCM20037

## DCM® Heavy Duty Plinth Fixed, Height 100 mm

- Fixed.
- Cable entry possible from all sides.
- Cover plate front and rear closed.

### Load rating

- 10000 N static.

### Material

- Steel sheet.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

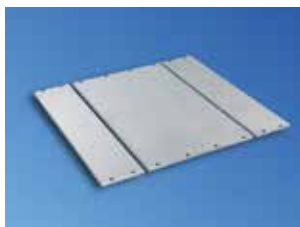
### Scope of delivery

- 4 x plinth corners with leveling.
- 2 x plinth cover plates with slots.
- 2 x plinth cover plates closed on the side.
- 1 x Mounting kit.

### How supplied

- In sets.

W	H	D	Order No.	UP
600	100	1000	<b>01.147.738.X</b>	1 unit
600	100	1100	<b>01.147.739.X</b>	1 unit
600	100	1200	<b>01.147.740.X</b>	1 unit
800	100	1000	<b>01.147.746.X</b>	1 unit
800	100	1100	<b>01.147.747.X</b>	1 unit
800	100	1200	<b>01.147.748.X</b>	1 unit



DCM20032

## DCM® Floor Panel 3-piece

- For covering the rack underside.
- For flexible cable entry at the front and rear
- For racks with caster mounting.

### Material / Finish

- Steel sheet, 1.5 mm, zinc passivated.

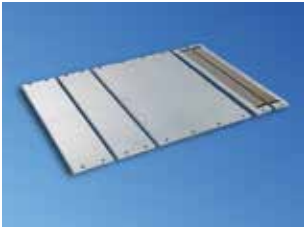
### Scope of delivery

- 3 x floor panels.
- 2 x mounting brackets.
- 1 x Mounting kit.

### How supplied

- In sets.

W	D	Model	Order No.	UP
600	1000	without cable entry	<b>01.147.834.0</b>	1 unit
600	1100	without cable entry	<b>01.147.835.0</b>	1 unit
600	1200	without cable entry	<b>01.147.840.0</b>	1 unit
800	1000	without cable entry	<b>01.147.838.0</b>	1 unit
800	1100	without cable entry	<b>01.147.839.0</b>	1 unit
800	1200	without cable entry	<b>01.147.844.0</b>	1 unit



DCM20035

**DCM® Floor Panel for Cable Entry with Sponge-rubber Seal**

- For covering the rack underside.
- With rubber seal for flexible cable entry at the front or rear.
- For racks without caster mounting.

**Material / Finish**

- Steel sheet, 1.5 mm, zinc passivated.
- Sponge rubber, 50 mm x 30 mm.

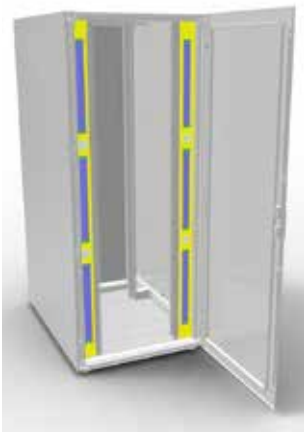
**Scope of delivery**

- 1 x cable entry.
- 2 x floor panels.
- 2 x mounting brackets.
- 1 x Mounting kit.

**How supplied**

- In sets.

W	D	Model	Order No.	UP
600	1000	With cable entry	<b>01.147.846.0</b>	1 unit
600	1100	With cable entry	<b>01.147.847.0</b>	1 unit
600	1200	With cable entry	<b>01.147.852.0</b>	1 unit
800	1000	With cable entry	<b>01.147.850.0</b>	1 unit
800	1100	With cable entry	<b>01.147.851.0</b>	1 unit
800	1200	With cable entry	<b>01.147.856.0</b>	1 unit



LUF20351

**DCM® Air Containment Unit with 3 x 1 U Cover Plates, Vertical**

- Quick and easy retrofitting of cold/warm area separation unit in rack.
- Side cover plates with 2 cut-outs each for cable routing.
- 3 x 1 U cut-outs, covered with cover plates.
- Screwed to the side of the 19" extrusions.
- Foam seals off the side panels or the same level in the linked rack enabling stepless depth adjustment.

**Material**

- Steel sheet.

**Color**

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

**Scope of delivery**

- 2 x side cover plates.
- 1 x cover plate, bottom.
- 1 x foam element, top.
- 1 x Mounting kit.

**How supplied**

- In sets.

W	H	D	Model	Order No.	UP
800	2000	20	3 x 1 U cover plate, for racks with caster mounting	<b>01.147.904.X</b>	1 set
800	2000	20	3 x 1 U cover plate, for racks without caster mounting	<b>01.147.907.X</b>	1 set
800	2200	20	3 x 1 U cover plate, for racks with caster mounting	<b>01.147.905.X</b>	1 set
800	2200	20	3 x 1 U cover plate, for racks without caster mounting	<b>01.147.908.X</b>	1 set



LUF20350

**DCM® Air Containment Unit Closed**

- Quick and easy retrofitting of cold/warm area separation unit in rack.
- Side cover plates, closed.
- Screwed on the side on the 19" extrusions.
- Foam seals off the side panels or the same level in the linked rack enabling stepless depth adjustment.

**Material**

- Steel sheet.

**Color**

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

**Scope of delivery**

- 2 x side cover plates (only W 800).
- 2 x vertical foam elements.
- 1 x cover plate, bottom.
- 1 x foam element, top.
- 1 x Mounting kit.

**How supplied**

- In sets.

W	H	D	Model	Order No.	UP
600	2000	20	No cut-outs, for racks with caster mounting	<b>01.147.898.X</b>	1 set
600	2000	20	No cut-outs, for racks without caster mounting	<b>01.147.901.X</b>	1 set
600	2200	20	No cut-outs, for racks with caster mounting	<b>01.147.899.X</b>	1 set
600	2200	20	No cut-outs, for racks without caster mounting	<b>01.147.902.X</b>	1 set

800	2000	20	No cut-outs, for racks with caster mounting	<b>01.147.889.X</b>	1 set
800	2000	20	No cut-outs, for racks without caster mounting	<b>01.147.895.X</b>	1 set
800	2200	20	No cut-outs, for racks with caster mounting	<b>01.147.890.X</b>	1 set
800	2200	20	No cut-outs, for racks without caster mounting	<b>01.147.896.X</b>	1 set



DCM20052

**DCM® Mounting Adapter for 19" Server Extrusion**

- For mounting standard Knürr components (storage shelves, drawers, chassis rails, keyboard tray, etc.) in 19" installation space.

**Material**

- Steel sheet, zinc-passivated 2.5 mm.

**Scope of delivery**

- 4 x adapters.

W	H	D	U	Order No.	UP
44	44	44	1	<b>01.147.640.9</b>	1 set

Dimensions in mm:						Conversion:
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch		
H = Height	h = Installation height	(1 U = 44.45 mm)		1 kg = 2.2046 pounds		
D = Depth	d = Insertion depth	UP = Packaging unit				



DCM20077



DCM20076

## DCM® PDU Bracket

- For orderly cable management in the rack.
- For hanging in trade-standard PDUs without tools.
- Especially suited to Knürr and Liebert PDUs.

- **Material / Finish**
  - Steel sheet, 1.5 mm, zinc passivated, powder-coated.
- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x PDU bracket.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H <sub>Rack</sub>	D	U	Order No.	UP
125	2000	25	42	<b>01.147.816.X</b>	1 unit
125	2200	25	47	<b>01.147.817.X</b>	1 unit



DCM20105

## DCM® Partitioning Wall for Retrofitting

- For air containment between two fixed adjacent racks.
- The partition wall is fitted between two racks and can be inserted from one side of the linking racks, and guided along the upper rear-enclosure extrusion of one of the linked racks.
- After the partition wall has been inserted, fasteners are bent or welded on one side of the wall and screwed into the vertical T-slot to secure the structure. The rack connectors included in the supply are used on the opposite side.

- **Material**
  - Steel sheet 1.0 mm.
- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x partitioning wall for retrofitting.
  - 1 x set of rack connectors.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

H	D	Order No.	UP
2000	1000	<b>01.147.644.X</b>	1 unit
2000	1200	<b>01.147.646.X</b>	1 unit
2200	1000	<b>01.147.647.X</b>	1 unit
2200	1200	<b>01.147.649.X</b>	1 unit



DCM20103

## DCM® Partitioning Wall Mounted, Fixed

- For air containment between two fixed adjacent racks.
- The partition wall is mounted only on one rack. It must be mounted before the other racks are installed.
- The partition wall is slotted in at the top of the rear extrusion and mounted to the basic rack with quick connectors. The rack connectors are then fitted to the top and bottom of the frame extrusions from the inside.
- Plastic cover extrusions are provided to seal the gap between two racks. These can be clipped into place at the front and back of the gap.

- **Material**
  - Steel sheet 1.0 mm.
- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.

- **Scope of delivery**
  - 1 x fixed partition wall.
  - 1 x set of rack connectors.
  - 2 x cover extrusions.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.



DCM20104

H	D	Order No.	UP
2000	1000	<b>01.147.690.X</b>	1 unit
2000	1200	<b>01.147.692.X</b>	1 unit
2200	1000	<b>01.147.693.X</b>	1 unit
2200	1200	<b>01.147.695.X</b>	1 unit



DCM20082

## DCM® Rack Connector Installed on Top

- For mechanical, stable joining of rack and enclosure suites.
- Can be installed on the racks from the top directly into the die-cast corner piece.
- Easy access for installation from the outside.

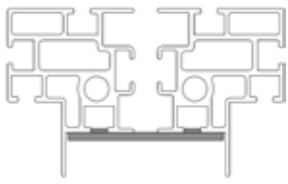
- **Material / Finish**
  - Steel sheet, 3 mm, zinc passivated.
- **Scope of delivery**
  - 2 x rack connectors for connecting 2 racks / frames).
  - 4 x knurled screws M12.

- **How supplied**
  - In sets.



DCM20083

Model	Order No.	UP
30x140	<b>01.147.642.7</b>	1 set



### Rack Connector External Mounting

- For secure connection of several racks.
- Front and rear external mounting.

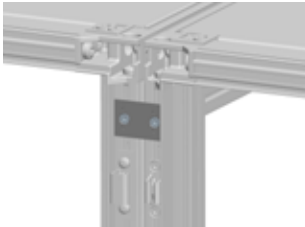
**Material**

- Steel sheet, 1 mm, electroplated zinc.

**Scope of delivery**

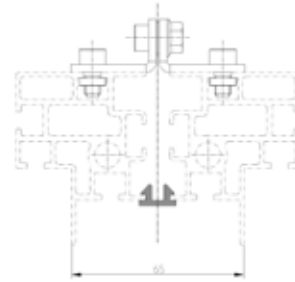
- 6 x mounting straps.
- 1 x Mounting kit.

DCM20125



DCM20123x

Order No.	UP
01.127.114.9	1 set



### Cover Extrusion for Rack Suites, IP20

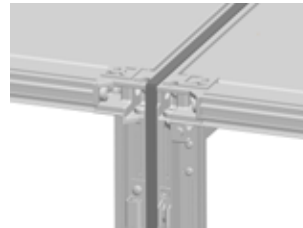
**Material**

- PVC extruder cover, black.

**Scope of delivery**

- 2 x vertical lengths.
- 2 x depth lengths.

DCM20126



DCM20124

H	D	U	Order No.	UP
2000	1000	42	01.127.760.9	1 set
2200	1000	47	01.127.761.9	1 set
2000	1200	42	01.127.762.9	1 set
2200	1200	47	01.127.763.9	1 set



### Rack Connector Internal Mounting

- For mechanical, stable joining of rack and enclosure suites.

**Material / Finish**

- Steel sheet, 2 mm, zinc passivated.

**Installation positions**

1. On the horizontal extrusion (bottom and top; front and rear).
2. Vertically on the vertical extrusion (front and rear; top and bottom).

**Scope of delivery**

- 8 x mounting brackets (for connecting 2 racks / frames)
- 1 x Mounting kit.

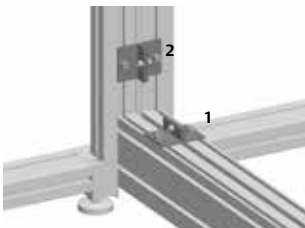
**How supplied**

- In sets.

**Note**

Only use on racks without partition walls.

MIR00100



DCM20084

Order No.	UP
01.130.935.7	1 set



### Tilt Restraint for DCM®

- Quick and easy mounting and removal.
- Can be integrated in the Knürr DCM® rack.
- Use only as required.

**Scope of delivery**

- 2 x anti-tilt restrainers.

**How supplied**

- In sets.

DCM20026

Order No.	UP
01.147.641.9	2 unit



### DCM gap sealing depth profil

- Quick and easy retrofitting.
- Gap sealing between the linked rack.

**Material**

- Steel sheet, zinc-passivated 1,5 mm.

**Scope of delivery**

- 2 gab sealings.
- Mounting kit.

**How supplied**

- In Sets.

DSC00194



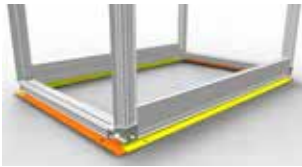
DSC00202

Order No.	UP
01.147.643.9	1 unit

Dimensions in mm:				Conversion:	
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	h = Installation height	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	d = Insertion depth	UP = Packaging unit			



DCM20090



DCM20091

## Mounting Bracket fixed

- Fixed.
- Sits flush (airtight).
- Even load distribution on base.
- Also suitable for Miracel® racks.

- **Load rating**  
- 15000 N static.

- **Material**  
- Steel sheet 3.0 mm.

- **Finish**  
- Powder-coated texture, RAL 7021.

- **Scope of delivery**  
- 2 x mounting brackets for the depth.  
- 2 x mounting brackets for the width.  
- 1 x Mounting kit.

- **How supplied**  
- In sets.

W	H	D	Order No.	UP
600	27	600	01.147.509.8	1 unit
600	27	700	01.147.510.8	1 unit
600	27	800	01.147.511.8	1 unit
600	27	900	01.147.512.8	1 unit
600	27	1000	01.147.513.8	1 unit
600	27	1100	01.147.514.8	1 unit
600	27	1200	01.147.515.8	1 unit
700	27	600	01.147.517.8	1 unit
700	27	700	01.147.518.8	1 unit
700	27	800	01.147.519.8	1 unit
700	27	900	01.147.520.8	1 unit
700	27	1000	01.147.521.8	1 unit
700	27	1100	01.147.522.8	1 unit
700	27	1200	01.147.523.8	1 unit
800	27	600	01.147.525.8	1 unit
800	27	700	01.147.526.8	1 unit
800	27	800	01.147.527.8	1 unit
800	27	900	01.147.528.8	1 unit
800	27	1000	01.147.529.8	1 unit
800	27	1100	01.147.530.8	1 unit
800	27	1200	01.147.531.8	1 unit



DCM20107

## DCM® Seismic Kit

- Retrofitting set for DCM® racks.
- Installed on site.
- Rack with installed seismic kit tested in accordance with Telcordia GR63 Zone 4.
- Maximum total load for seismic application: 500 kg per rack.

- **Material / Finish**  
- Steel sheet, powder-coated.

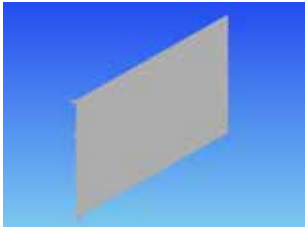
- **Color**  
- RAL 7021, dark-grey.

- **Scope of delivery**  
- 2 x seismic frames.  
- Support for rear EIA-compliant level.  
- 1 x Mounting kit.

- **How supplied**  
- In sets.

W	H	Model	Order No.	UP
600	2000	DCM® USA	01.147.909.8	1 set
600	2000	DCM® Standard	01.147.912.8	1 set





DCM20110

### Partitioning Wall for Retrofitting

- To secure the partitions between the individual bays against unauthorized access.
- Each bay can be closed off separately after initial installation.
- The partitioning wall is inserted above and below on mounting strips provided for this purpose.
- The partitioning wall is screwed into place at the front and covered by the door.

**Material**

- Order no.1: Powder-coated RAL 7035, light-grey texture.
- Order no.8: Powder-coated RAL 7021, dark-grey texture.

**Finish / Color**

- Zinc-passivated steel sheet.

**Scope of delivery**

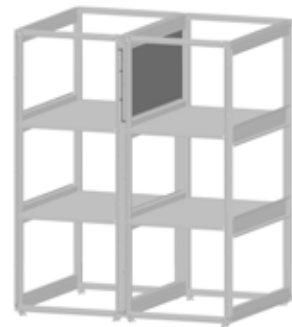
- 1 x partitioning wall for retrofitting.
- 1 x Mounting kit.

**How supplied**

- In sets.

**Note**

Partitioning wall can be installed from every position (top, middle, bottom, left and right).



DCM20109

H	D	Model	Order No.	UP
2000	1100	For 3-way colocation	<b>01.143.100.X-001</b>	1 unit
2000	1200	For 3-way colocation	<b>01.143.100.X-002</b>	1 unit
2200	1100	For 3-way colocation	<b>01.143.100.X-003</b>	1 unit
2200	1200	For 3-way colocation	<b>01.143.100.X-004</b>	1 unit

2000	1100	For 2-way colocation	<b>01.143.100.X-005</b>	1 unit
2000	1200	For 2-way colocation	<b>01.143.100.X-006</b>	1 unit
2200	1100	For 2-way colocation	<b>01.143.100.X-007</b>	1 unit
2200	1200	For 2-way colocation	<b>01.143.100.X-008</b>	1 unit



DCM20111

### 3-point Locking Upgrade Kit

- Upgrade kit for conversion to 3-point locking.
- Additional security.
- Can be upgraded at any time.
- Suitable for heights of 2000 and 2200 mm.

**Scope of delivery**

- 1 x Rod for locking unit.
- 1 x Rod guide.

**How supplied**

- In sets.

H	Model	Order No.	UP
2000, 2200	for 3-way colocation	<b>01.143.102.7-001</b>	1 unit
2000, 2200	for 2-way colocation	<b>01.143.102.7-002</b>	1 unit



DCM20099

### Cable Duct for Retrofitting

- Secure cabling for data and power-supply lines.
- Subsequent installation in 2- or 3-way colocation.
- Cable duct can be rebuilt at any time.

**Material**

- Steel sheet 1.0 mm.

**Finish / Color**

- Zinc-passivated steel sheet.

**Scope of delivery**

- 1 x cable duct for retrofitting.
- 1 x Covers.
- 1 x Mounting kit.

**How supplied**

- In sets.



DCM20100

H	Model	Order No.	UP
2000	Short, for 3-way colocation	<b>01.143.101.0-001</b>	1 unit
2000	Long, for 3-way colocation	<b>01.143.101.0-002</b>	1 unit
2200	Short, for 3-way colocation	<b>01.143.101.0-003</b>	1 unit
2200	Long, for 3-way colocation	<b>01.143.101.0-004</b>	1 unit

2000	For 2-way colocation	<b>01.143.101.0-005</b>	1 unit
2200	For 2-way colocation	<b>01.143.101.0-006</b>	1 unit

Dimensions in mm:				Conversion:
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	h = Installation height	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	d = Insertion depth	UP = Packaging unit		

## Knürr® Miracel 2

### One system with Infinite Possibilities

Knürr® Miracel, the classic amongst innovative racks, is demonstrated by the long-standing and continuous satisfaction of our customers. Drawing on Emerson Network Power's extensive experience with a wide range of applications, Miracel has now been adapted for network and server applications. The innovative Miracel 2 has been designed to meet current requirements in order to ensure that it will continue to meet customers' needs well into the future.

For both network and server applications, the highly versatile Knürr Miracel 2 combines various components and applications in one place. Being a modular rack system, it can easily be expanded at any time and the cable entry points can be flexibly tailored for specific needs.

With a load rating of 800 kg, Knürr Miracel 2 is a **cleverly designed space-saving rack** that offers ample space for a wide range of equipment and, thanks to the absence of depth members, also present at the sides, it provides maximum flexibility with the greatest possible space for cables and cooling components. This rack's integrated castors and doors also make it easy to move without needing to be tilted. Made from aluminum, Knürr Miracel 2 is extremely **light**, minimizing raised floor loading and making it easy to transport and set up. The clever, fully-integrated T-slot system in the aluminum extrusions also allows for the free configuration of accessories and makes it easy to install each and every component.





# Knürr® Miracel 2

## Benefits of an All-in-One Server and Network Rack

### Knürr® Miracel 2 – Technical Data

- **Material**
  - Extruded aluminum.
  - Corner piece: die-cast aluminum.
  - Casing: galvanized steel sheet.
  - Doors: steel sheet.
- **Installation dimensions in accordance with IEC 60297-1 and IEC 60297-2**
  - Height: 42 HE / 47 HE  
(1 HE (or 1U) = 44.45 mm).
  - Width: 482.6 mm (19" version).
- **Available space**
  - 80 mm jumpering space at the front, 215 mm ranges; customizable up on request.
  - Internal hinge: 130° for rack suites: 160° for stand-alone racks.
  - External hinge: 180° for stand-alone racks and rack suites.
- **Installation options**
  - Stationary: on levelling feet.
  - Mobile: with castor mounting and levelling feet.
- **Finish / Colour**
  - Basic rack: polished.
  - Visible surface of casing, powder-coated RAL 7021 dark-grey and RAL 7035 light-grey.
- **Static load rating**
  - 8000 N (stationary version).
  - 4000 N (mobile version).
- **Tests depending on the design**
  - Earthing and earth wire test in accordance with DIN EN 60950.
  - Other standards and certificates upon request.
- **Rack suites**

To create a rack suite with "n" racks, you will need:

  - 1 x rack without side panels and one rack with side panels.
  - 1 x set of rack connectors per connection.





83% Perforation offers optimal airflow



Easy access on all sides enables comfortable service and repair



Raised height from 41/46U up to 42/47U



Load rate raised from 500kg up to 800kg



Light weight aluminium construction, minimizes raised floor loading



Clicksystem, easy mounting accessories



Modular design makes it easy to combine with DCM racks and Smart Aisle Containment



Castors for easy transport



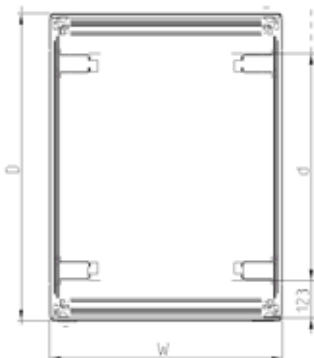
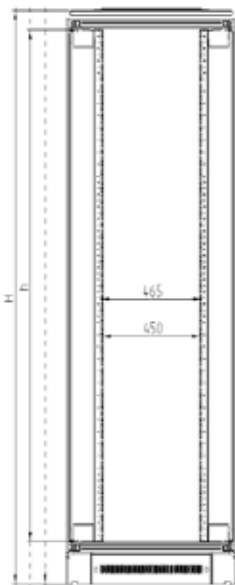
BENEFITS OF AN ALL IN ONE RACK

## Knürr® Miracel 2 – LAN Rack – Features





Knürr® Miracel 2 Network Rack



## Knürr® Miracel 2 – Network Rack

- With fixed 19° mounting on the front and rear for IEC 297-3-compliant components.
- Installation of slot-in runners, drawers, pull-out shelves and cable management equipment.
- Cable entry via plinth and top cover.
- Cable entry on the top cover, at the rear; top cover can be attached / removed after equipment installation.
- Heat is discharged via the raised top cover.
- Door opening angle 160° internal hinges.

### ■ Jumping space

- Front: 123 mm.

### ■ Load rating

- 8000 N static .

### ■ Protection rating

- IP 20.

### ■ Tests

- Earthing compliant with VDE 0100 T 540.
- IP test EN 60529.

### ■ Material / Finish

- Basic rack: extruded aluminum.
- Corner piece: die-cast aluminum, polished.
- Casing: galvanized steel sheet, powder-coated texture.
- Doors, steel sheet, powder-coated texture, glass infill front door, single safety-glass panel, 4 mm.
- 19° extrusions, 1.5 mm galvanized steel sheet.

### ■ Colour

- x = .1 visible surfaces and covers, RAL 7035 light-grey.
- x = .8 visible surfaces and covers, RAL 7021 dark-grey.

### ■ Included in delivery

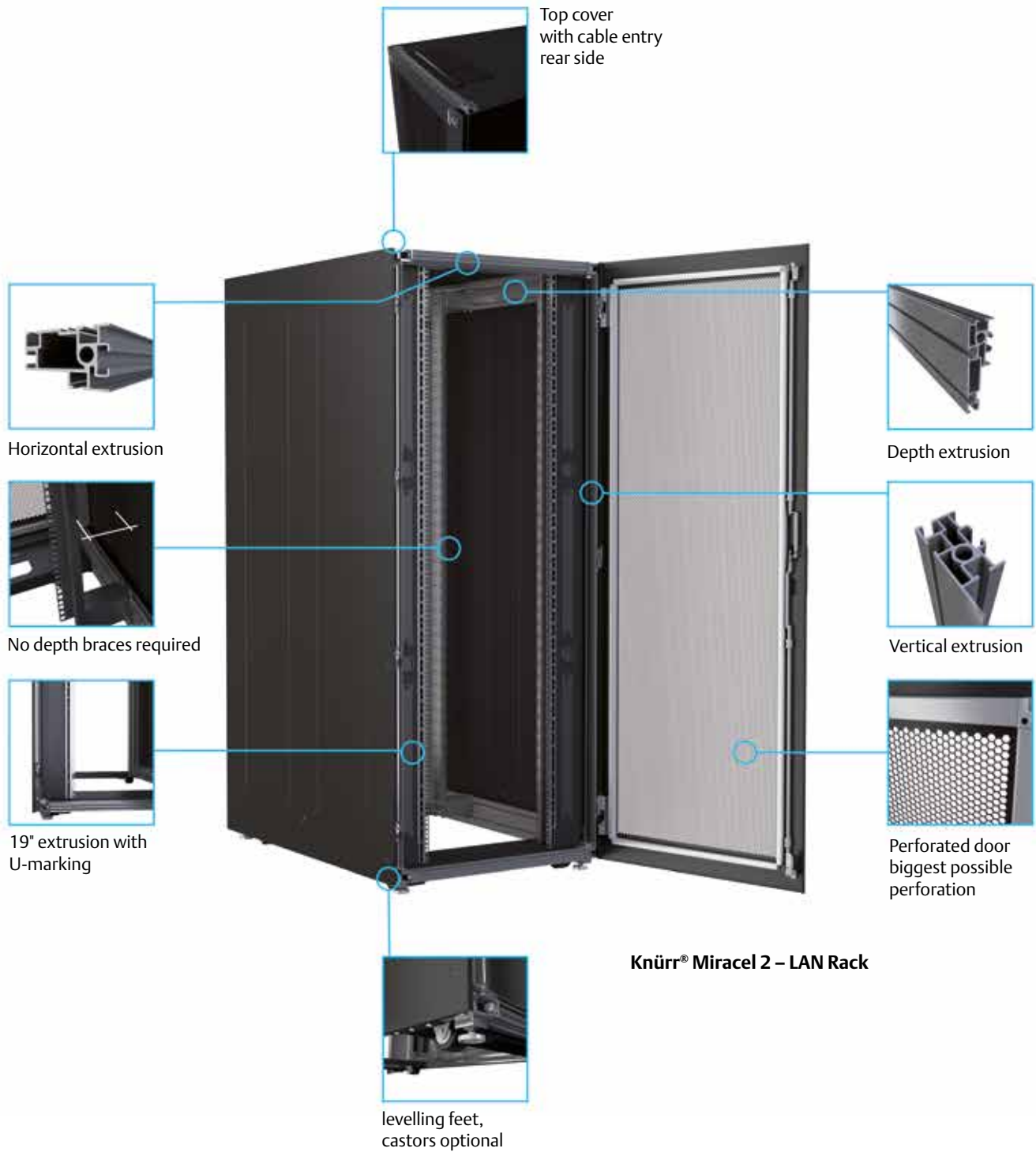
- 1 basic rack.
- 4 x 19° perforated steel sheet extrusions with HE markings. Depth 600 2 x 19°.
- 2 x side panels with quick connectors.
- 1 x raised top cover with cable entry rear (three-piece sliding plates, can also be fully opened) at the rear.
- 1 x front door, single leaf, single safety-glass panel, with handle and mounting for cylinder lock.
- 1 x rear door, single leaf, steel sheet, with handle and mounting for cylinder lock .
- 1 x plinth with vents at the front and rear, including closed sides and mounting for filter mat.
- 1 x complete earthing kit (VDE 0100).
- 4 x levelling feet.

### ■ Delivered

- Assembled.

W	H	D	U	h	d	Order No.	Units
800	2120	600	42	1873		01.157.005.x-022	1 unit
800	2340	600	47	2095		01.157.005.x-032	1 unit
800	2120	800	42	1873	565	01.157.005.x-024	1 unit
800	2340	800	47	2095	565	01.157.005.x-034	1 unit
800	2120	1000	42	1873	740	01.157.005.x-026	1 unit
800	2340	1000	47	2095	740	01.157.005.x-036	1 unit

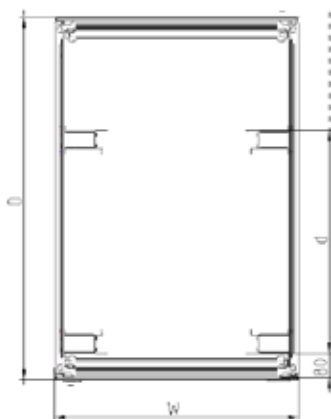
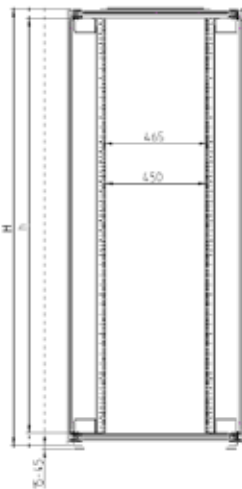
## Knürr® Miracel 2 – Server Rack – Features







Knürr® Miracel 2 Server Rack



## Knürr® Miracel 2 – Server Rack

- With fixed 19" mounting on the front and rear for IEC 297-3-compliant components.
- Perforated single leaf front and rear doors.
- Special 19" server extrusions for mounting all trade-standard 19" servers.
- Components compliant with IEC 297-3.
- Cable entry via base and top cover.
- Cable entry on the top cover, at the rear, can be completely removed, allowing the top cover to be fitted and removed after cabling.

### ■ Jumping space

- Front: 80 mm.

### ■ Load rating

- 8000 N static.

### ■ Protection rating

- IP 20.

### ■ Tests

- Earthing compliant with VDE 0100 T 540.
- Earthing compliant with DIN EN 60950.
- IP test EN 60529.

### ■ Material / Finish

- Basic rack: extruded aluminum.
- Corner piece: die-cast aluminum, polished.
- Covers: galvanized steel sheet, powder-coated texture.
- Doors: steel sheet, powder-coated texture.
- 19" extrusions, 2.5 mm galvanized steel sheet.

### ■ Colour

- x = .1 visible surfaces and covers, RAL 7035 light-grey.
- x = .8 visible surfaces and covers, RAL 7021 dark-grey.

### ■ Included in delivery

- 1 x basic rack.
- 4 x 19" steel sheet server extrusions with HE markings.
- 2 x side panels with quick connectors.
- 1 x top cover with cable entry rear (three-piece sliding plates, can also be fully opened).
- 1 x front door, single leaf, with handle and mounting for cylinder lock.
- 1 x rear door, single leaf, with handle and mounting for cylinder lock.
- 1 x complete earthing kit (VDE 0100).
- 4 x levelling feet.

### ■ Delivered

- Assembled.

### ■ Note

For drawers, pull-out shelves and slot-in runners, please also order the extrusion adapter 01.147.6409.

W	H	D	U	h	d	Order No.	Units
600	1969	1000	42	1873	740	01.157.007.x-026	1 unit
600	2218	1000	47	2095	740	01.157.007.x-036	1 unit
600	1969	1200	42	1873	740	01.157.007.x-028	1 unit
600	2218	1200	47	2095	740	01.157.007.x-038	1 unit
800	1969	1000	42	1873	740	01.157.011.x-026	1 unit
800	2218	1000	47	2095	740	01.157.011.x-036	1 unit
800	1969	1200	42	1873	740	01.157.011.x-028	1 unit
800	2218	1200	47	2095	740	01.157.011.x-038	1 unit

## Knürr<sup>®</sup> Miracel 2 Configurator

### Knürr<sup>®</sup> Miracel 2 – configured by you

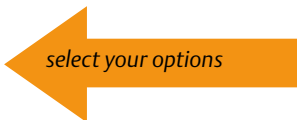
Knürr<sup>®</sup> Miracel 2 is one of our configurable rack platforms. You can easily select the options you need for your individual rack, based on the matrix.



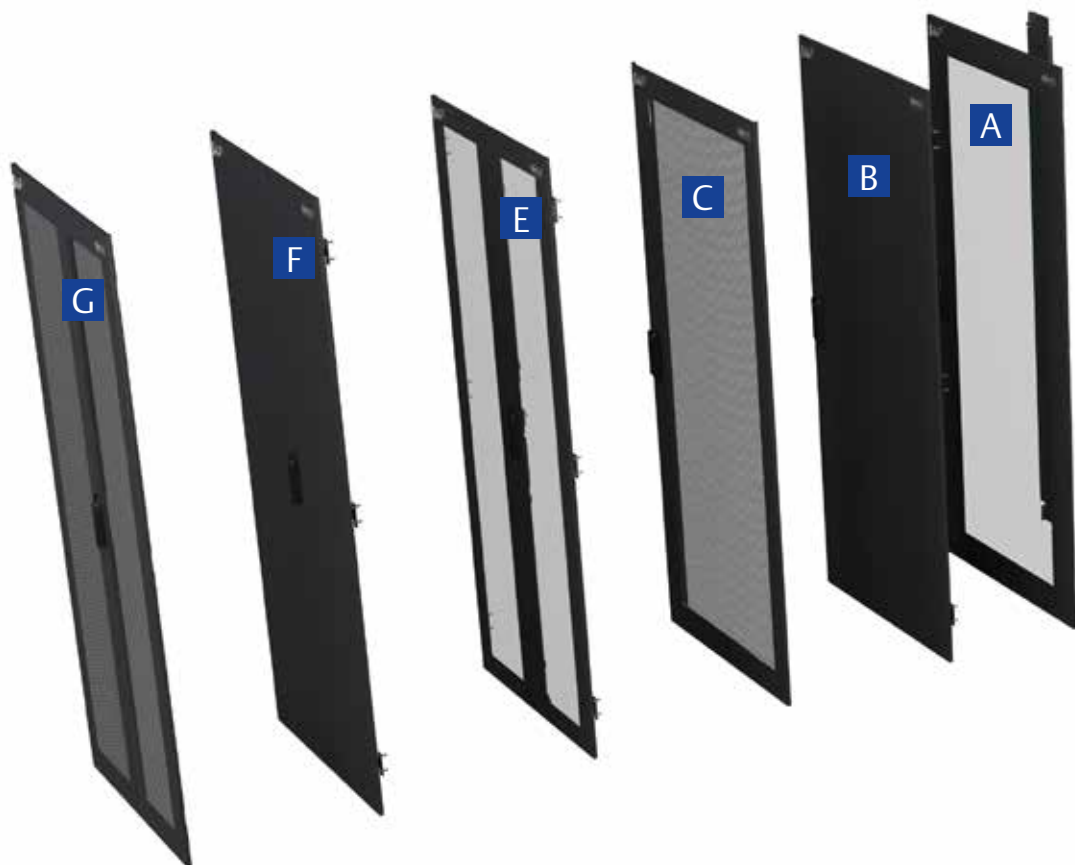
Example product number

Product	Dimensions			Doors		19" Extrusions		Cover parts				Color		
	Height	Width	Depth	Front Door	Rear Door	19" Front Vertical Extrusion	19" Rear Vertical Extrusion	Top Cover	Plinth	Side Panel	Packaging	Jumpering Depth	Free	Color
N	B	8	E	A	B	S	S	B	A	B	X	Q	X	8

Option Matrix	Dimensions			Doors		19" Extrusions		Cover parts			Color			
	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Rack Height	Rack Width	Rack Depth	Front Door	Rear Door	19" Vertical Extrusion Front	19" Vertical Extrusion Rear	Top Cover	Plinth	Side Panel	Packaging	Jumpering Depth/ Installation Depth Front	Free	Color
N= Miracel 2 Rack	B= 42 U	6= 600 mm	C= 800 mm	A= Glass single door right	A= Glass single door right	A= 19" vertical server extrusion with air partition and 3x1 U cut-outs	H= 19" vertical extrusion with mounting holes	B= Top Cover, with cut out for fan units, with cable inlet rear	A= Plinth, stationary 100mm, all sides closed	B= Both sides	X = Standard packaging	A= 80/740mm	X	1= RAL 7035
	D= 47 U	8= 800 mm	D= 900 mm	B= Sheet steel single door right	B= Sheet steel single door right	B= 19" vertical server extrusion with air partition	S= 19" vertical server extrusion	C= Top cover with cable inlet rear	B= Plinth, stationary 200mm, all sides closed	C= Partitioning wall fixed right		C= 115/740mm		8= RAL 7021
			E= 1000 mm	C= Perforated single door	C= Perforated single door	C= 19" vertical server extrusion with cable management	X= Without 19" extrusions	E= Top cover short with lateral cable inlet closed	F= Without plinth. Adjustable feed only	D= Partitioning wall fixed left		D= 123/740mm		X= blank
			F= 1100 mm	D= 180° perforated single door right	D= 180° perforated single door right	H= 19" vertical extrusion with mounting holes		G= Top cover short	G= Plinth, stationary 100mm, with vent slots	L= Left		E= 200/740mm		
			G= 1200 mm	E= Glass double door	E= Glass double door	S= 19" vertical server extrusion		S= Top cover without cut out for fan units, with cable inlet rear, with spacer	H= Plinth, stationary 200mm, with vent slots	R= Right		F= 215/740mm		
				F= Sheet steel double door	F= Sheet steel double door	X= Without 19" extrusions		X= Without top cover	R= Mobile casters	X= Without side panels		G= 150/740mm		
				G= Sheet steel perforated double door	G= Sheet steel perforated double door							Q= 80/565mm		
				H= 180° perforated double door	H= 180° perforated double door							T= 123/565mm		
				M= 180° sheet steel single door right	M= 180° sheet steel single door right							U= 150/565mm		
				N= 180° sheet steel double door	N= 180° sheet steel double door							V= 200/565mm		
				P= 180° glass single door right	P= 180° glass single door right									
				Q= 180° glass double door	Q= 180° glass double door									
				X= Without door	R= rear/front door									
					X= Without door									

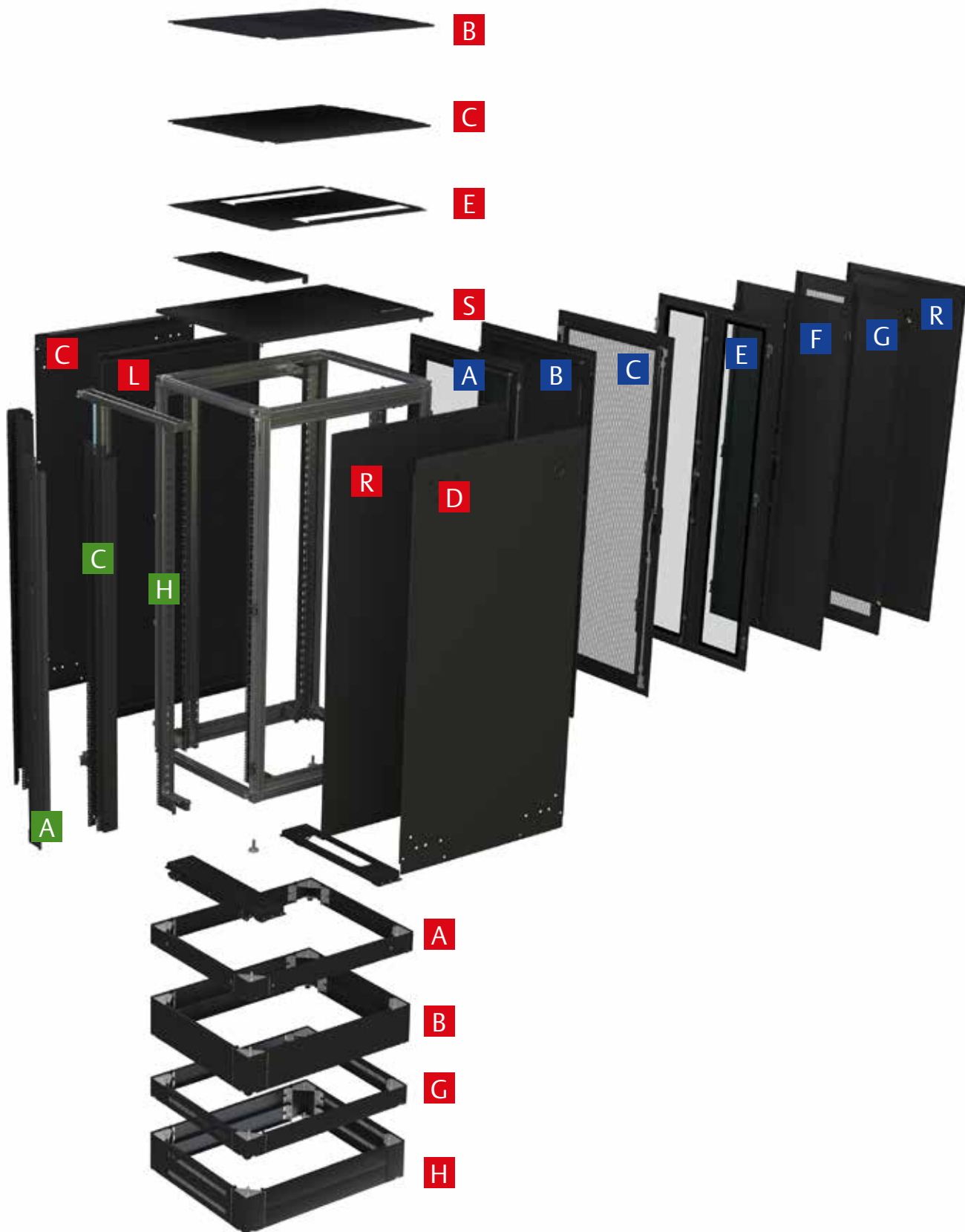


## Knürr® Miracel 2 Configurator – Technical Overview of selectable options

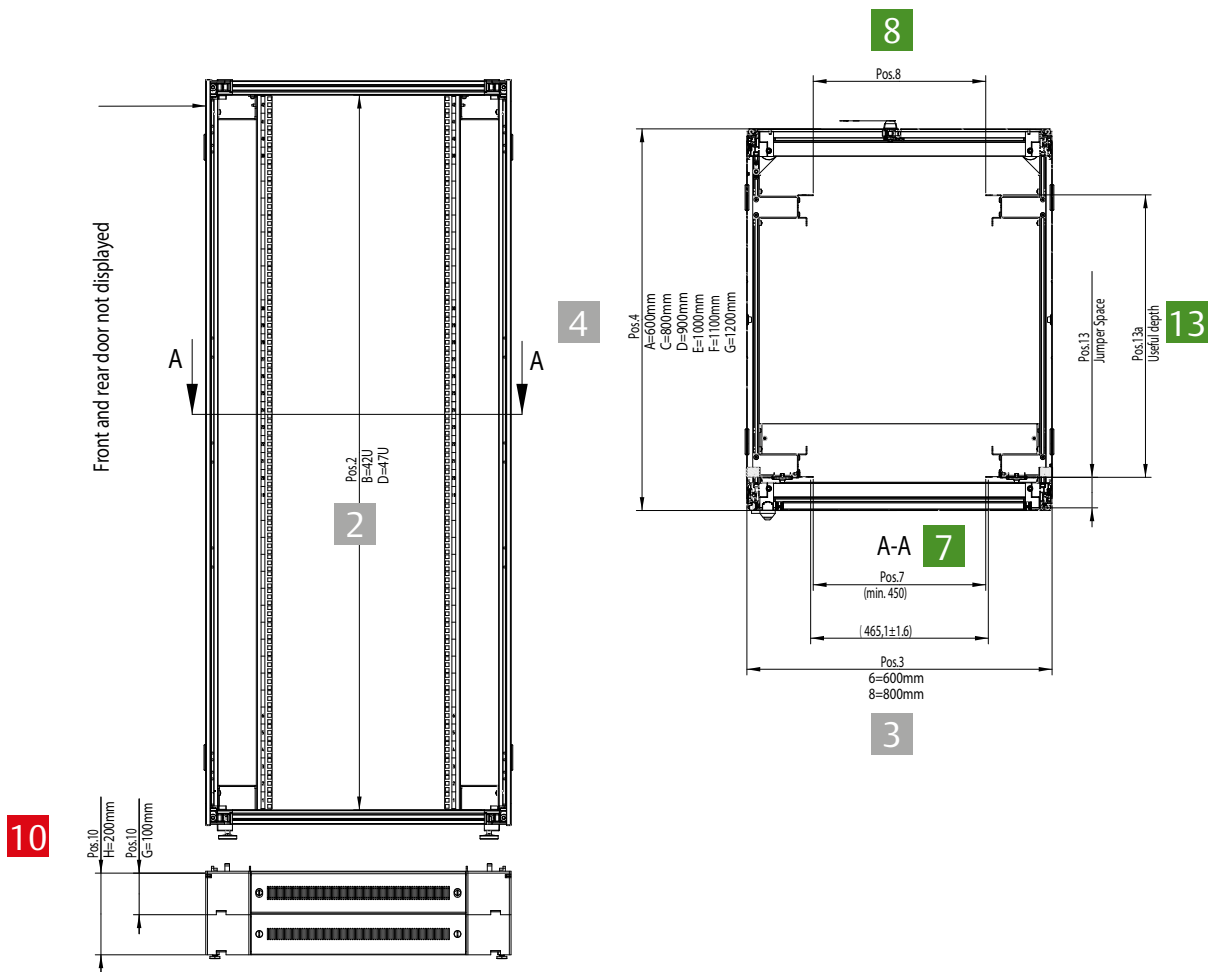


Overview of all mountable parts

	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Product	Height	Width	Depth	Front Door	Rear Door	19" Vertikal Extrusion front	19" Vertikal Extrusion rear	Top Cover	Plinth	Side Panel	Packaging	Jumpering Space	Free	Color



## Knürr® Miracel 2 Configurator – Technical Overview of selectable dimensions



	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Product	Height	Width	Depth	Front Door	Rear Door	19" Vertikal Extrusion front	19" Vertikal Extrusion rear	Top Cover	Plinth	Side Panel	Packaging	Jumping Space	Free	Color



# ACCESSORIES

# Knürr® Miracel 2 – Accessories

## Doors

**Material**

– Steel sheet: 1.0 mm.

**Colour**

– digit X of order number .1:  
RAL 7035 light-grey.  
– digit X of order number .8:  
RAL 7021 dark-grey.

**Included in delivery**

– 1 x door, single, double leaf or rear panel.  
– Mounting kit.

**Delivered**

– Pre-assembled.

**Note**

Perforated doors (83% free surface) allow for optimum airflow throughout the rack.

Image	Description	Version	Dimensions		Dimensions	
			H 2000 mm		H 2200 mm	
			W 600 mm	W 800 mm	W 600 mm	W 800 mm
	Steel sheet door with perforation, single leaf	160° opening angle, internal hinges	01.147.803.X	01.147.805.X	01.147.806.X	01.147.808.X
		180° opening angle, external hinges	01.157.092.X-007	01.157.092.X-009	01.157.092.X-010	01.157.092.X-012
	Steel sheet door with perforation, double leaf	160° opening angle, internal hinges	01.147.921.X	01.147.929.X	01.147.922.X	01.147.930.X
		180° opening angle, external hinges	01.157.093.X-007	01.157.093.X-009	01.157.093.X-010	01.157.093.X-012
	Steel sheet door without perforation, single leaf	160° opening angle, internal hinges	01.147.534.X	01.147.536.X	01.147.537.X	01.147.539.X
		180° opening angle, external hinges	01.157.094.X-007	01.157.094.X-009	01.157.094.X-010	01.157.094.X-012
	Steel sheet door without perforation, double leaf	160° opening angle, internal hinges	01.147.570.X-002	01.147.570.X-010	01.147.570.X-003	01.147.570.X-011
		180° opening angle, external hinges	01.157.095.X-007	01.157.095.X-009	01.157.095.X-010	01.157.095.X-012
	Glass door, single leaf	160° opening angle, internal hinges	01.147.540.X	01.147.542.X	01.147.543.X	01.147.545.X
		180° opening angle, external hinges	01.157.090.X-007	01.157.090.X-009	01.157.090.X-010	01.157.090.X-012
	Glass door, double leaf	160° opening angle, internal hinges	01.147.571.X-002	01.147.571.X-010	01.147.571.X-003	01.147.571.X-011
		180° opening angle, external hinges	01.157.091.X-007	01.157.091.X-009	01.157.091.X-010	01.157.091.X-012
	Rear panel		01.157.080.X-003	01.157.080.X-004	01.157.080.X-005	01.157.080.X-006



## Air Containment


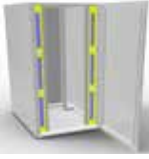
- The cold/warm area partition can be quickly and easily retrofitted into the rack.
- Side cover plates with 2 cut-outs each for cables (for 800 mm wide racks).
- 3 x 1 HE cut-outs, covered with cover plates (only in versions with vents).
- Bolted to the sides of the 19" extrusions (in 800 mm wide racks).
- Sealed off from the side panels or from the same level of adjoining racks.
- Foam components allow for infinite adjustability in terms of depth.

- **Material**
  - Steel sheet.

- **Colour**
  - digit X of order number .1: RAL 7035 light-grey.
  - digit X of order number .8: RAL 7021 dark-grey.

- **Included in delivery**
  - 2 x side cover plates (for 800 mm wide racks).
  - 1 x cover plate, bottom.
  - 1 x foam block for the top.
  - Mounting kit.

- **Delivered**
  - In sets.

Image	Description	Version	Dimensions		Dimensions	
			H 2000 mm		H 2200 mm	
			W 600 mm	W 800 mm	W 600 mm	W 800 mm
	Air containment without vents	for Racks with castor brackets	01.147.898.X	01.147.889.X	01.147.899.X	01.147.890.X
		for Racks without castor brackets	01.147.901.X	01.147.895.X	01.147.902.X	01.147.896.X
	Air containment with 3 x 1 HE cover plates, vertical	for Racks with castor brackets		01.147.904.X		01.147.905.X
		for Racks without castor brackets		01.147.907.X		01.147.908.X



### Side Panel

- Side panel module for 19" server rack.

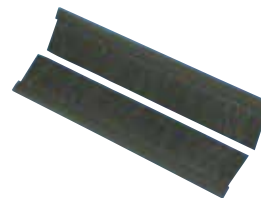
- **Material**
  - Steel sheet: 1.0 mm.
- **Finish / Colour**
  - digit X of order number .1: RAL 7035 light-grey.
  - digit X of order number .8: RAL 7021 dark-grey.

- **Included in delivery**
  - 1 x side panel.
  - Mounting kit.

- **Delivered**
  - In sets.

Side panel

H	D	Version	Order No.	Units
2000	600	Side panel	01.147.871.X-004	1 unit
2000	800	Side panel	01.147.871.X-005	1 unit
2000	1000	Side panel	01.147.876.X	1 unit
2000	1100	Side panel	01.147.877.X	1 unit
2000	1200	Side panel	01.147.878.X	1 unit
2200	600	Side panel	01.147.871.X-007	1 unit
2200	800	Side panel	01.147.871.X-008	1 unit
2200	1000	Side panel	01.147.880.X	1 unit
2200	1100	Side panel	01.147.881.X	1 unit
2200	1200	Side panel	01.147.882.X	1 unit



Brush strips for covers

### Brush Strips for Covers with Cable Entry on the Side

- Brush strip for all covers with cable entry lateral.
- For dust-protected and flexible cable entry.
- Can be used instead of mounting the sliding covers in the top cover.

- **Included in delivery**
  - 4 x brush strips.

- **Delivered**
  - In sets.

H	Version	Order No.	Units
800	Brush strips	01.157.016.9-001	1 unit
1000	Brush strips	01.157.016.9-003	1 unit
1100	Brush strips	01.157.016.9-004	1 unit
1200	Brush strips	01.157.016.9-005	1 unit

## Plinth

- Stationary, including levelling options.
- Cable entry accessible from all sides.
- Removable cover plates.
- Installation option for filter mat.

- **Load rating**
  - 10,000 N static.

- **Material**
  - Steel sheet.

- **Colour**
  - digit X of order number .1: RAL 7035 light-grey.
  - digit X of order number .8: RAL 7021 dark-grey.

- **Included in delivery**
  - 4 x plinth corners, including levelling feet.
  - 8 x cover plates without vents (for a height of 200 mm), 4 x cover plates without vents (for a height of 100 mm).

- 8 x cover plates (for a height of 200 mm, 4 without and 4 with vents), 4 cover plates (for a height of 100 mm, 2 without vents and 2 x with vents).
- Mounting kit.

- **Delivered**
  - In sets.



Image	Description	Dimensions				
		W 600 mm				
		D 600 mm	D 800 mm	D 1000 mm	D 1100 mm	D 1200 mm
	Stationary plinth, 100 mm high, without vents	01.157.055.X-001.	01.157.055.X-002	01.147.738.X	01.147.739.X	01.147.740.X
	Stationary plinth, 100 mm high, with vents	01.157.060.X-001	01.157.060.X-002	01.157.060.X-004	01.157.060.X-005	01.157.060.X-006
	Stationary plinth, 200 mm high, without vents	01.157.056.X-001	01.157.056.X-002	01.147.788.X	01.147.789.X	01.147.790.X
	Stationary plinth, 200 mm high, with vents	01.157.065.X-001	01.157.065.X-002	01.157.065.X-004	01.157.065.X-005	01.157.065.X-006

Image	Description	Dimensions				
		W 800 mm				
		D 600 mm	D 800 mm	D 1000 mm	D 1100 mm	D 1200 mm
	Stationary plinth, 100 mm high, without vents	01.157.055.X-007	01.157.055.X-008	01.147.746.X	01.147.747X	01.147.748.X
	Stationary plinth, 100 mm high, with vents	01.157.060.X-007	01.157.060.X-008	01.157.060.X-010	01.157.060.X-011	01.157.060.X-012
	Stationary plinth, 200 mm high, without vents	01.157.056.X-007	01.157.056.X-008	01.147.796.X	01.147.797X	01.147.798.X
	Stationary plinth, 200 mm high, with vents	01.157.065.X-007	01.157.065.X-008	01.157.065.X-010	01.157.065.X-011	01.157.065.X-012

## Bottom Plates

- For covering the rack underneath.
- With foam rubber seals and brush strips; cable entry at the front and rear.
- For racks with and without castor mounting.

- **Material / Finish**
  - Steel sheet, 1.5 mm, galvanized.
  - For foam rubber seals (foam rubber, 50x30 mm).

- **Included in delivery**
  - Bottom plates.
  - 2 x mounting brackets.
  - Mounting kit.

- **Delivered**
  - In sets.

Image	Description		Dimensions			
			W 600 mm	D 800 mm	D 1000 mm	D 1100 mm
	Bottom plate closed, used with castor bracket	01.157.040.0-001	01.157.040.0-003	01.157.040.0-004	01.157.040.0-005	
	Bottom plate for cable entry with foam rubber seal	01.157.041.0-001	01.147.846.0	01.147.847.0	01.147.852.0	
	Bottom plate, modular	01.157.042.0-001	01.147.834.0	01.147.835.0	01.147.840.0	
	Bottom plate for cable entry with brush strip	01.157.045.0-001	01.157.045.0-003	01.157.045.0-004	01.157.045.0-005	
	Perforated bottom plate d 155mm	01.157.025.0-001				

Image	Description		Dimensions			
			W 800 mm	D 800 mm	D 1000 mm	D 1100 mm
	Bottom plate closed, used with castor bracket	01.157.040.0-006	01.157.040.0-008	01.157.040.0-009	01.157.040.0-010	
	Bottom plate for cable entry with foam rubber seal	01.157.041.0-003	01.147.850.0	01.147.851.0	01.147.856.0	
	Bottom plate, modular	01.157.042.0-003	01.147.838.0	01.147.839.0	01.147.844.0	
	Bottom plate for cable entry with brush strip	01.157.045.0-006	01.157.045.0-008	01.157.045.0-009	01.157.045.0-010	
	Perforated bottom plate d 155mm	01.157.025.0-003				

## Top Cover

- With cable entry (sliding plates).
- For orderly cable management in the rack.

■ **Material**

- Steel, 1.5 mm.

■ **Finish / Colour**

- digit X of order number .1: RAL 7035 light-grey, powder-coated texture.
- digit X of order number .8: RAL 7021 dark-grey, powder-coated texture.

■ **Included in delivery**

- 1 top panel with cable entry.
- Mounting kit.

■ **Delivered**

- In sets.





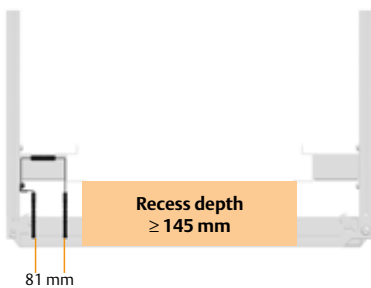
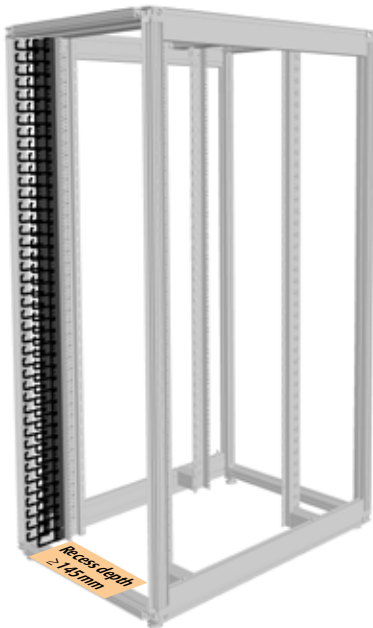
Image	Description	Dimensions				
		W 600 mm				
		D 600 mm	D 800 mm	D 1000 mm	D 1100 mm	D 1200 mm
	Top cover with lateral cable inlet		01.147.570.X	01.147.572.X	01.147.573.X	01.147.574.X
	Top cover with rear cable entry			01.157.050.X-001	01.157.050.X-002	01.157.050.X-003
	Top cover with cut out for fan units and cable inlet rear. Cut out closed with screwed blanking panel.		01.157.052.X-001	01.157.052.X-003		
	Top cover with cable inlet rear and 25 mm raised	01.157.051.X-001	01.157.051.X-002	01.157.051.X-004		
	Top cover, short d 250mm	01.147.268.X				

Image	Description	Dimensions				
		W 800 mm				
		D 600 mm	D 800 mm	D 1000 mm	D 1100 mm	D 1200 mm
	Top cover with lateral cable inlet		01.147.575.X	01.147.577.X	01.147.578.X	01.147.579.X
	Top cover with rear cable entry			01.157.050.X-004	01.157.050.X-005	01.157.050.X-006
	Top cover with cut out for fan units and cable inlet rear. Cut out closed with screwed blanking panel.		01.157.052.X-004	01.157.052.X-006		
	Top cover with cable inlet rear and 25 mm raised	01.157.051.X-005	01.157.051.X-006	01.157.051.X-008		
	Top cover, short d 250mm	01.147.269.X				

## Knürr® Miracel 2 - Cable Manager, Vertical



### Left and right models (2 cable managers) included in the delivery.

- Ideal for organizing cabling of jumper cables (copper and fiber optic cables).
- Retrofitting is possible.
- Prepared for full cold/warm partitioning.
- Cable fingers can be easily installed (clipped on).
- Cabling towards the rear through rubber bushings or cutouts.

Can be used for recess depths from 145 mm.

### Material / Finish

- Cable duct: Sheet steel, 2.0 mm.  
Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.
- Cable fingers: Polyamide (UL 94 V-0), black.

### Standard inclusion

- 1 x cable duct, left.
- 1 x cable duct, right.
- 4 x rows with cable fingers.
- 4 x rubber bushings.
- 1 x Mounting kit.

### Delivery

- In pairs (cable fingers unassembled).

W Rac	H Rac	D	U	Recess depth	Cutout size	Order No.	Up
800	2000	42		Starting from 145 mm	81 x 100 mm	<b>05.045.152.x</b>	1 pair
800	2200	47		Starting from 145 mm	81 x 100 mm	<b>05.045.153.x</b>	1 pair

## Knürr® Miracel 2 – Cover Panel for Vertical Cable Manager



### For only 1 cable manager, i. e., 2 kits required for B800 rack.

- Covers the vertical cable manager.
- Tool-less fastening – clips onto cable finger.
- Can be swiveled on both sides and removed completely.

### Material / Finish

- Cover: sheet steel, 2.0 mm.  
Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.
- Clip: polyamide (UL 94 V-0), black.

### Standard inclusion

- 2 x covers.
- 8 x clips.

### Delivery

- In sets (clips pre-assembled).

W	H	D	U	Order No.	Up
55	927	42		<b>05.045.114.x</b>	1 set
55	103	47		<b>05.045.115.x</b>	1 set

## Partition Wall

### Partition wall for retro-fitting

- For air containment between two fixed adjacent racks.
- The partition wall is fitted between two racks and can be inserted from one side of the linking racks.
- Guided along the upper rear extrusion of one of the linked racks.
- After the partition wall has been inserted, fasteners are bent or welded on one side of the wall and screwed into the vertical T-slot to secure the structure. The rack connectors supplied upon delivery are used on the opposite side.

### Material

- Steel sheet: 1.0 mm.

### Finish / Colour

- digit X of order number .1: RAL 7035 light-grey, powder-coated texture.
- digit X of order number.8: RAL 7021 dark-grey, powder-coated texture.

### Mounted partition wall fixed

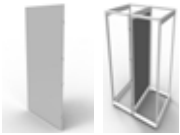
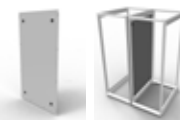
- For air containment between two fixed adjacent racks.
- The partition wall is only mounted on one rack and must be mounted before the other racks are installed.
- The partition wall is slotted in at the top of the rear extrusion and attached to the basic rack with quick connectors.
- The rack connectors are then fitted to the top and bottom of the frame extrusions from the inside.
- Plastic cover extrusions are provided to seal the gap between the two racks. These can be clipped into place at the front and back of the gap.

### Included in delivery

- 1 x partition wall.
- 1 x set of rack connectors.
- 2 x cover extrusions (for permanently fixed walls only).
- Mounting kit.

### Delivered

- In sets.

Image	Description	Dimensions			Dimensions		
		H 2000 mm	H 2200 mm		H 2000 mm	H 2200 mm	
		D 1000 mm	D 1100 mm	D 1200 mm	D 1000 mm	D 1100 mm	D 1200 mm
	Partition wall for retro-fitting	01.147.644.X	01.147.645.X	01.147.646.X	01.147.647.X	01.147.648.X	01.147.649.X
	Mounted, fixed partition wall	01.147.690.8	01.147.691.8	01.147.692.8	01.147.693.X	01.147.694.X	01.147.695.X

## 19" Vertical Extrusion with Mounting Holes

- For mounting 19" rack components.
- For mounting cable management systems and components.
- For mounting slot-in runners, intermediate fixed and pull-out shelves. (no adapter necessary)
- For mounting drawers.

### Material / Finish

- Steel sheet: 1.5 mm, galvanized.

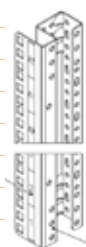
### Included in delivery

- Front (2 x 19" vertical extrusions with cross beam and 2 x 19" mountings – for 600 mm wide racks without cross beam and 19" mountings).
- Rear (2 x 19" vertical extrusions with 4 x 19" mountings – for 600 mm wide racks without 19" mountings).

### Delivered

- In sets.

W	H	U	Description	Order No.	Units
600	2000	42	19" Vertical extrusion, front	01.157.110.7.003	1 unit
600	2000	42	19" Vertical extrusion, rear	01.157.110.7.003	1 unit
600	2200	47	19" Vertical extrusion, front	01.157.110.7.004	1 unit
600	2200	47	19" Vertical extrusion, rear	01.157.110.7.004	1 unit
800	2000	42	19" Vertical extrusion, front	01.157.113.7.003	1 unit
800	2000	42	19" Vertical extrusion, rear	01.157.114.7.003	1 unit
800	2200	47	19" Vertical extrusion, front	01.157.113.7.004	1 unit
800	2200	47	19" Vertical extrusion, rear	01.157.114.7.004	1 unit





MIR20051

## Tilt restraint for Knürr® Miracel 2 Racks, Quick Assembly System

- Quick and easy mounting
- Used as required

■ **Included in delivery**  
- 2 x tilt restraints.

■ **Delivery**  
- In sets.

Order No.	Units
01.127.310.9	2 units



DCM20052

## Mounting Adapter for 19" Server Extrusion

- For mounting standard Knürr-components (shelves, drawers, slot-in runners, keypad drawers, etc.) inside 19" racks.

■ **Material**  
- Steel sheet: 2.5 mm, galvanized.

■ **Included in delivery**  
- 4 x adapters.

W	H	U	Order No.	Units
63	44	1	01.147.640.9	1 set



Cross beam

## Castor Bracket

- Mobile version: an additional 2 castor mountings with castors including integrated cable entry.

■ **Material / Finish**  
- Steel sheet: powder-coated texture.

■ **Colour**  
- RAL 7021 dark-grey.

■ **Included in delivery**  
- 1 set of castor brackets.  
- Mounting kit.

■ **Delivery**  
- In sets.

W	Description	Order No.	Units
600	Miracel 2.0 castor bracket	01.157.073.8 001	1 set
800	Miracel 2.0 castor bracket	01.157.073.8 003	1 set



MIR00100

## Internal Mounting Rack Connector

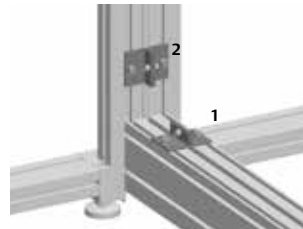
- For mechanical, stable joining of rack and enclosure suites.

■ **Material / Finish**  
- Steel sheet: 2 mm, galvanized.

■ **Installation positions**  
1. On the horizontal extrusions (top & bottom and front & back).  
2. Vertically on the vertical extrusion (front & back and top & bottom).

■ **Included in delivery**  
- 8 x mounting brackets (for connecting 2 racks / frames).  
- Mounting kit.

■ **Delivery**  
- In sets.



DCM20084

Order No.	Units
01.130.935.7	1 set



DCM20082

## Knürr® Rack Connector Installed on Top

- For mechanical, stable joining of rack and enclosure suites.
- Can be installed on racks from the top directly into the die-cast corner piece.
- Easy access for installation from the outside.

■ **Material / Finish**  
- Steel sheet: 3 mm, galvanized.

■ **Included in delivery**  
- 2 x rack connectors (for connecting 2 racks / frames).  
- 4 x knurled screws, M12.

■ **Delivery**  
- In sets.



DCM20083

Version	Order No.	Units
30 x 140	01.147.642.7	1 set

# Knürr Miracel® Server Rack

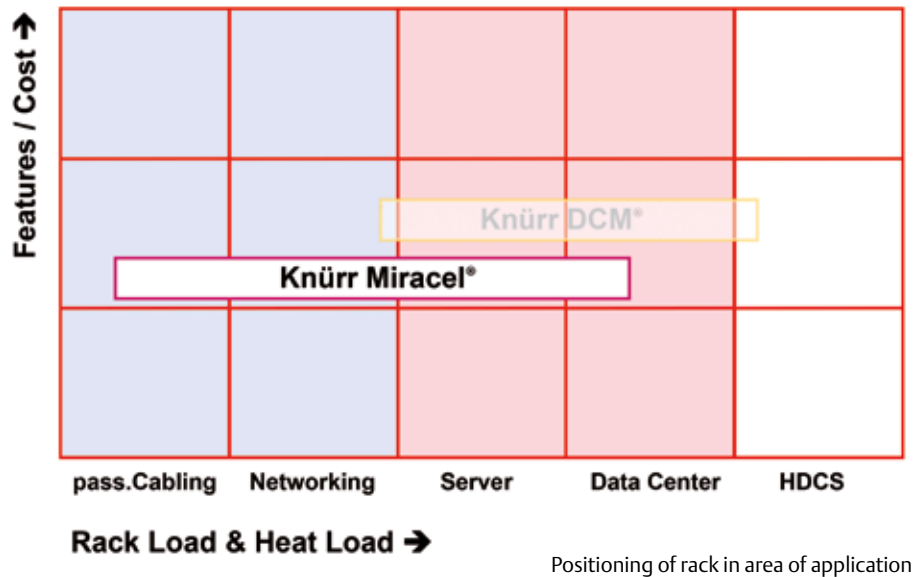
Versatile, Distinctive, Integrative

## Features

- **ALUMINUM CONSTRUCTION**  
 Proven technology based on aluminum extrusions provides high flexibility and stability at a low weight, thereby significantly simplifying handling and installation.
- **T-SLOT SYSTEM**  
 Freely selectable arrangement of accessories. Easy mounting of all non-standard components – variable in 19" and 25 mm increments.
- **SCREW DESIGN**  
 The cabinet is easy to dismantle which guarantees ease of access even in restricted areas.
- **CAN BE EXTENDED AT ANY TIME**  
 System can be extended easily while maintaining the IP protection rating (IP20).
- **FLEXIBLE VENTILATION COMPONENTS**  
 Always the right ventilation solution with the corresponding accessories, such as perforated doors, (perforation: 83 %).
- **CABLE MANAGEMENT**  
 guarantees optimized cable routing. Cable management can be selected from an extensive range of accessory components.
- **ALUMINUM SERVER EXTRUSIONS COMPLIANT WITH IEC 60297**  
 Extrusions for quick installation of all commercially available servers as well as network- and telecom components.

**Knürr Miracel®**, the name that stands for renown, innovative 19" racks, delivers a rack system that significantly enhances energy efficiency.

The main feature of Miracel is the unsurpassed aluminum extrusion with T-slot. It is easy to assemble and offers an extensive range of accessory options.









1. MIR20265



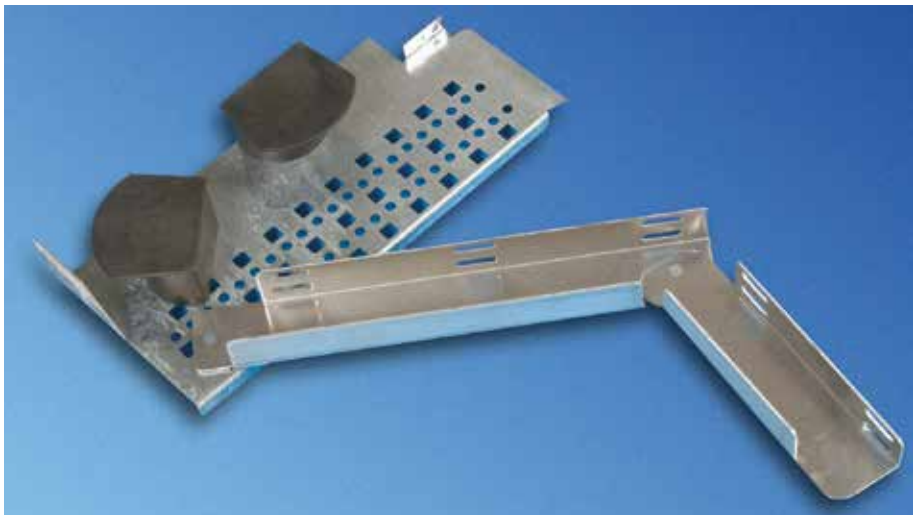
2. MIR20054

## Knürr Miracel® Server Rack Features

- A variety of concepts and designs for front-to-rear airflow. 83% perforation guarantees optimum airflow. (1)
- Optional tilt restraint ensures safety of service personnel. Also available integrated into the plinth. (2)
- Different cable-management variants permit adaptation to set-up conditions. (3)
- Special server extrusions guarantee easy mounting of 19" servers supplied by all manufacturers. (4)



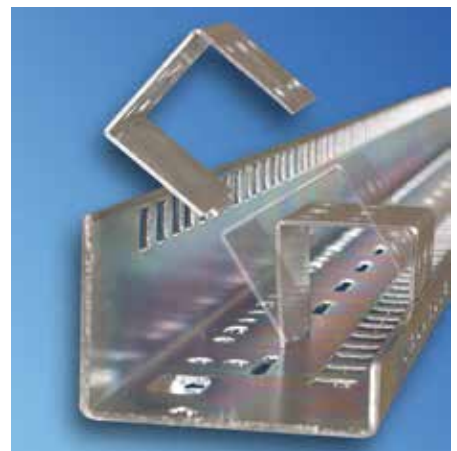
1. MIR00407



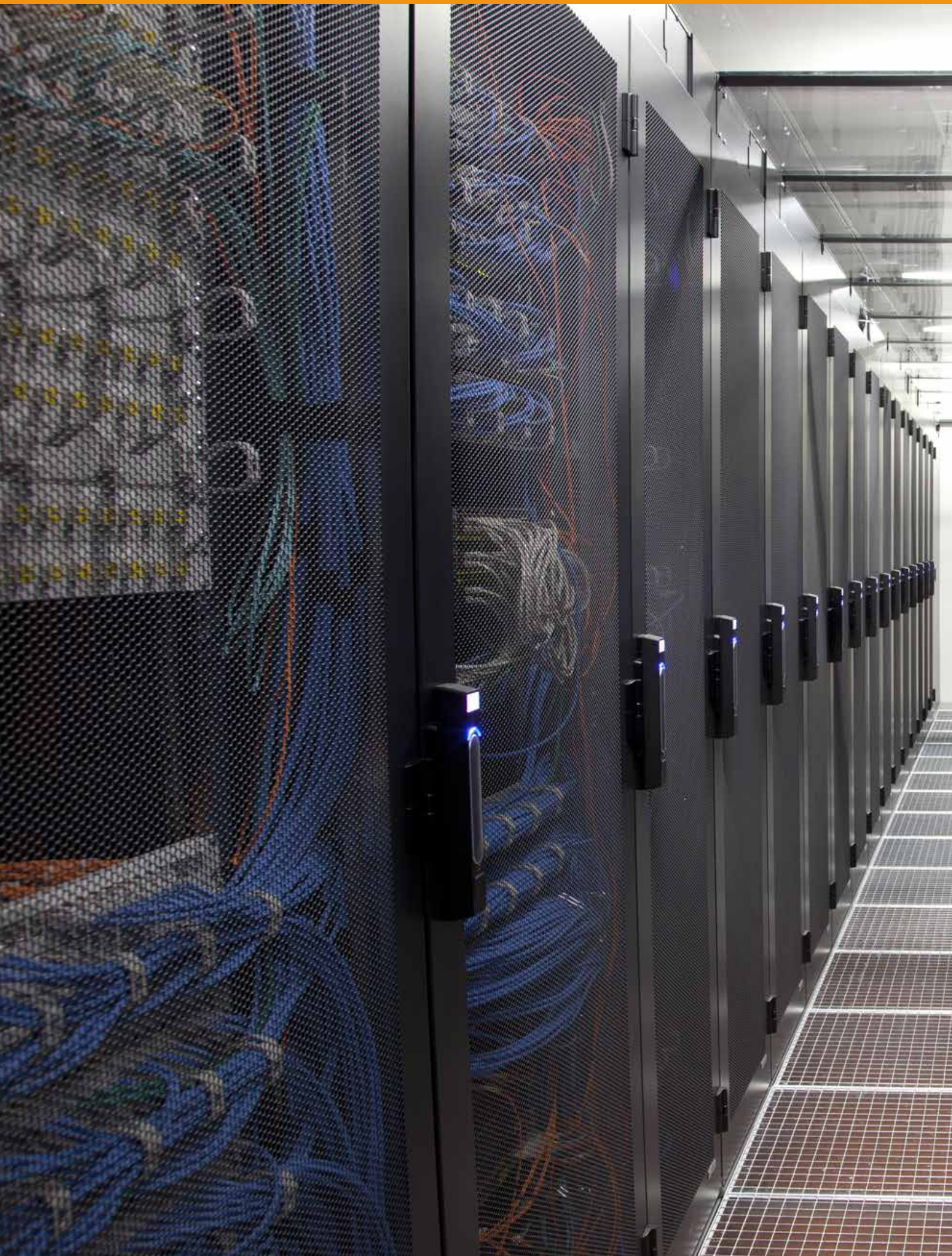
3. MIR20058



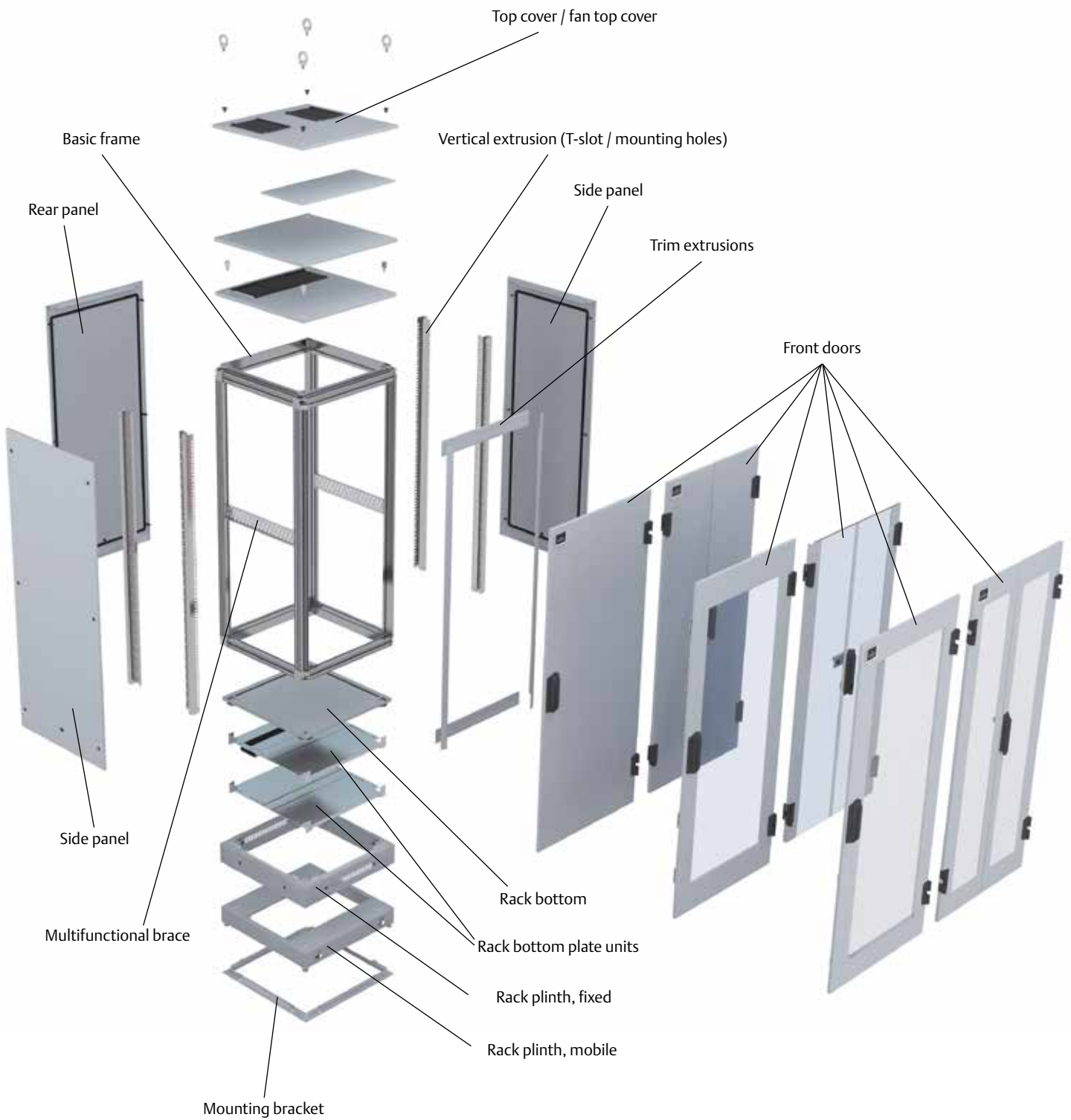
2. MIR20053

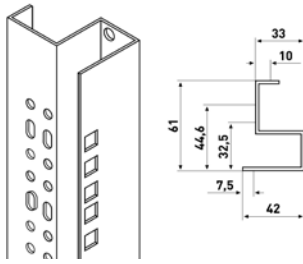


4. MIR20082

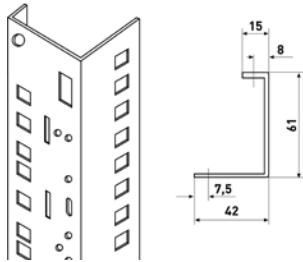


## Knürr Miracel® Technical data

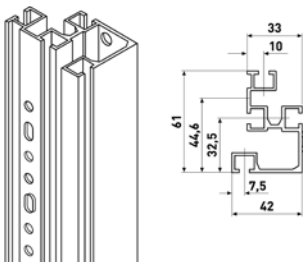




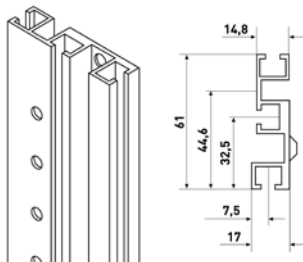
MIR00309 Vertical extrusion with mounting holes  
Steel for 19" racks



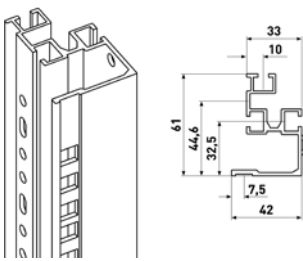
MIR20041 19° server extrusion



MIR00307 Vertical extrusion with T-slot  
Aluminum for 19" construction

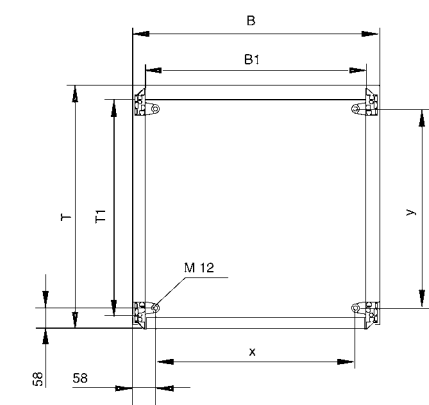


MIR00308 Vertical extrusion with T-slot  
Aluminum for metric construction, 20 module



MIR20271 Vertical extrusion with mounting holes  
Aluminum for 19" racks

- Material**
  - Extruded aluminum
  - Corner piece, die-cast aluminum
  - Covers, sheet steel, zinc-passivated
  - Doors: sheet steel or with single safety-glass panel, 4 mm or 6 mm (double doors).
- Installation dimensions IEC 297-3 and IEC 917 compliant**
  - Height: 23 U / 37 U / 41 U / 46 U (1 U = 44.45 mm)
  - 66 module / 74 module / 82 module (1 module = 25 mm).
  - Width: 482.6 mm (19° construction)
  - 535 mm (20° module construction).
- Available space**
  - 82% of the basic surface can be used as space for installation and cable routing.
  - Jumping space in front, 123 mm or 73 mm.
  - 180° door opening angle.
- Configurations**
  - Stationary, on leveling feet.
  - Stationary with plinth.
  - Mobile with plinth and snib.
- Finish / Color**
  - Basic rack, polished.
  - Optional: door trim, black, RAL 9011.
  - Visible surface of covers powder-coated, light-grey RAL 7035 or dark-grey RAL7021.



MIR00332

- Static load rating**
  - 5000 N with stationary version.
  - 3000 N with mobile plinth.
- Heat transfer**
  - Dissipation:
    - Closed cover: up to 500 W.
    - Vent lid: up to 700 W.
- Tests depending on design**
  - Vibration test compliant with MIL-STD 810 E.
  - IP test compliant with IEC 529.
  - UL test 1244.
  - NEMA 12 standard.
  - EMC shielding attenuation compliant with MIL-STD 285 (10 MHz - 30 MHz) and VG 95 373 Part 15 (30 MHz - 1GHz).
  - Vibration and shock test compliant with ETS 300 019.
  - Seismic test, Bellcore (NEBS) TR-NWT 000063 Zone 4.
  - Earthing, VDE 0 100 T 540.

Further standards and tests up on request.

- Rack suites**
  - To create a rack suite with 'n' racks, the following is required: n-1 racks without side panels and one rack with side panels. In a rack suite you require one set of rack connectors per connection.

W [mm]	W1 [mm]	X [mm]
600	535	485
700	635	585
800	735	685
900	835	785

D [mm]	D1 [mm]	Y [mm]
600	530	485
800	730	685
900	830	785
1000	930	885
1200	1130	1085

## Knürr Miracel® Configurator 1

- Up to 550,000 different assembly options



## Knürr Miracel® – configured by you

Impressive number of variations: there are now up to 550,000 options for a configuration with the 'Configurable Article Number' (which replaces the old order numbers).

A system building box that significantly simplifies your combinations.

This 'Configurable Article Number' reproduces all requested properties via multiple choice (see chart below), without requiring detailed rack descriptions.

Clear identification is also possible with a repeat order or upgrade.

The 'Configurable Article Number' makes a significant contribution to simplifying the selection and ordering process.

## Product line Knürr Miracel®

1	Dimensions			Doors		19" Extrusions		Covers			Packaging			Color
	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Rack height	Rack width	Rack depth	Door front	Door rear	19" vertical extrusion, front	19" vertical extrusion, rear	Cover	Plinth	Side panel	Packaging	Free	Free	Color
M= Miracel Modular Rack	A= 41 U	6= 600 mm	C= 800 mm	A= Single glass door	A= Single glass door	H= 19" vertical extrusion cut outs	H= 19" vertical extrusion cut outs	C= Cover with cable entry and prepared for upgrade with CoolBlast fan unit	A= Fixed plinth, 100 mm	B= Both sides	X= Standard packaging	X	X	1= RAL 7035
		8= 800 mm	E= 1,000 mm	B= Sheet steel single door	B= Sheet steel single door	S= 19" Server vertical extrusion	S= 19" Server vertical extrusion	D= Cover with cable entry (raised with spacers, 30 mm) and prepared for retrofitting Cool-Blast fan unit	D= Mobile plinth	L= Left				8= RAL 7021
			G= 1,200 mm	C= Perforated single door	C= Perforated single door	T= 19" vertical extrusion with T-Slot	T= 19" vertical extrusion with T-Slot	T= Cover closed	F= No plinth. Height can only be varied with adjustable feet	R= Right				
				E= Double glass door	E= Double glass door		X= Without 19" extrusions	S= Cover closed (raised with spacers, 30 mm)		X= Without				
				F= Sheet steel double door	F= Sheet steel double door			X= Without cover						
				G= Perforated double door	G= Perforated double door									
				R= With rear panel	R= With rear panel									
				X= Without door	X= Without door									

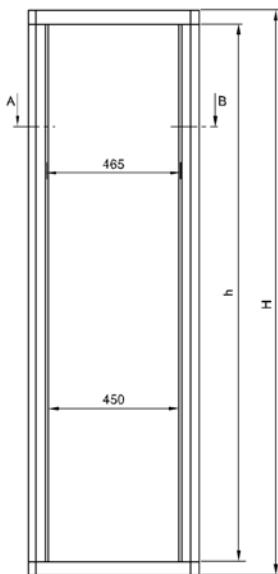
  

Configuration example:	Product	Height	Width	Depth	Front door	Rear door	19" vertical extrusion, front	19" vertical extrusion, rear	Cover	Plinth	Side panel	Packaging	Free	Free	Color
	D	B	8	F	G	X	A	X	C	B	L	X	X	X	8

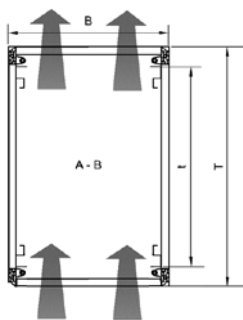
Example product number



MIR20318



MIR20131



MIR20131

## Knürr Miracel® 19" ASP Rack / 19" server rack Widths 600 mm and 800 mm, front door with perforations

- Basic version without plinth; can be ordered if required.
  - With special 19" server extrusions for mounting trade-standard servers.
  - With a perforated doors on the front and rear for optimal airflow.
- **Jumpering space**
    - Front 85.5 mm.
  - **Load rating**
    - 5000 N static.
  - **Protection rating**
    - IP 20.
  - **Airflow circulation**
    - Perforation 83 %.
  - **Tests**
    - Earthing compliant with VDE 0100 T 540.
    - Vibration test compliant with MIL-STD 810 E.
    - IP test compliant with DIN 40 050 / IEC 529.
  - **Material / Finish**
    - Basic rack, extruded aluminum, polished.
    - Corner piece, die-cast aluminum.
    - Multifunctional braces and 19" angular extrusions, sheet steel, zinc-passivated.
    - Visible surface of the cover powder-coated texture.
- **Color**
    - Final digit of order number 1: x=1 Visible surface of covers RAL 7035 light-grey.
    - Final digit of order number 8: Visible surfaces of the covers RAL 7021 dark-grey.
  - **Scope of delivery**
    - 1 x basic rack.
    - 4 x 19" server sheet-steel mounting hole extrusions.
    - 2 x perforated doors (perforation: 83 %).
    - 2 x side panels.
    - 1 x cover, closed.
    - 1 x complete earthing set.
    - 1 x complete locking set.
  - **How supplied**
    - Mounted.
  - **Note**
    - Order mounting adapter for 19" server extrusion for Knürr accessories is also available.

W	H	D	U	h	d	kg	Model	Order No.	UP
600	2000	900	41	1852	740	87		<b>01.127.933.X</b>	1 unit
600	2000	1000	41	1852	740	91		<b>01.127.935.X</b>	1 unit
600	2200	1000	46	2052	740	97		<b>01.127.936.X</b>	1 unit
600	2000	1200	41	1852	740	100		<b>01.128.310.X</b>	1 unit
600	2200	1200	46	2052	740	110		<b>01.128.311.X</b>	1 unit
600	2000	900	41	1852	740	74	without side panels	<b>01.127.980.X</b>	1 unit
600	2000	1000	41	1852	740	78	without side panels	<b>01.127.982.X</b>	1 unit
600	2200	1000	46	2052	740	82	without side panels	<b>01.127.983.X</b>	1 unit
800	2000	1000	41	1852	740	99		<b>01.128.314.X</b>	1 unit
800	2200	1000	46	2052	740	108		<b>01.128.315.X</b>	1 unit
800	2000	1200	41	1852	740	108		<b>01.128.316.X</b>	1 unit
800	2200	1200	46	2052	740	116		<b>01.128.317.X</b>	1 unit
800	2000	1000	41	1852	740	86	without side panels	<b>01.128.330.X</b>	1 unit
800	2200	1000	46	2052	740	93	without side panels	<b>01.128.331.X</b>	1 unit
800	2000	1200	41	1852	740	93	without side panels	<b>01.128.332.X</b>	1 unit
800	2200	1200	46	2052	740	99	without side panels	<b>01.128.333.X</b>	1 unit





MIR20319

## Knürr Miracel® 19" Server Rack Width 700, doors with perforation

- 1 front door with extensive perforation for air intake.
- Prepared for lateral cable management with asymmetric layout of the extrusions.
- On the front installation space, on the left or the right side, 3 x 2 U additional 19" installation frame.

### ■ Jumping space

- Front 85.5 mm.

### ■ Protection rating

- IP 20.

### ■ Airflow circulation

- Perforation 83 %.

### ■ Material / Finish

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Covers, zinc-passivated sheet steel, powder-coated texture.
- Doors, sheet steel, powder-coated texture.
- Multifunctional braces and 19" extrusions, sheet steel, zinc-passivated.

### ■ Color

- Final digit of order number 1: Visible surface of covers RAL 7035 light-grey.
- Final digit of order number 8: Visible surfaces of the covers RAL 7021 dark-grey.

### ■ Scope of delivery

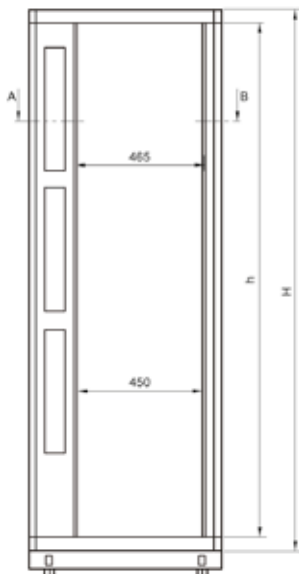
- 1 basic rack.
- 4 19" sheet-steel server extrusions.
- 1 panel, side with 3 x 2 U vertical installation space.
- 2 side panels.
- 1 cover, closed.
- 1 front door with extensive perforation.
- 1 rear door with extensive perforation.
- 1 mobile plinth with rear cable entry and leveling feet.
- 1 complete earthing set.
- 1 complete locking set.

### ■ How supplied

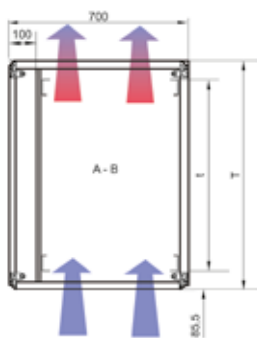
- Mounted.

### ■ Note

Order mounting adapter for 19" server extrusion for Knürr accessories is also available.



MIR20279



MIR20279

W	H	D	U	h	d	kg	Order No.	UP
700	2100	1000	41	1852	740	104	01.127.962.X	1 unit
700	2300	1000	46	2052	740	111	01.127.963.X	1 unit

### Dimensions in mm:

W = Width h = Installation height U = Standard rack unit  
 H = Height d = Insertion depth (1 U = 44.45 mm)  
 D = Depth L = Length UP = Packaging unit

### Conversion:

1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds



## Miracel® air containment for 19" rack, fixed depth

- For separating cold and warm areas in the rack.
- Prevention of hot-spots (air recirculation).
- Quick and easy rack upgrading.
- Ample 19" installation space: Side cover plates with additional 2 x 1 U each in the 19" vertical area.
- Side cover plates with 3 cut-outs each for cable routing (covered with rubber sleeve as standard).

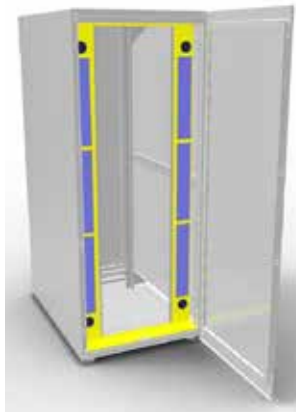
- **Material**
  - Sheet steel.

- **Finish**
  - Final digit of order number 1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number 8: powder-coated, RAL 7021 dark-grey.

- **Scope of delivery**
  - 2 side cover plates (cut-outs covered).
  - 2 cover plates, top / bottom.
  - Mounting kit.

- **How supplied**
  - In sets.

LUF20381



## Miracel® air containment for 19" rack for cross cabling

- For separating cold and warm areas in the rack.
- Prevention of hot-spots (air recirculation).
- Suitable for applications with cross cabling from rack to rack (e.g. switches).
- Ample 19" installation space: side cover plates with additional 3 x 2 U each in the 19" vertical area (can be used for components, cable entry and cable routing).
- Side cover plates with 2 round cut-outs each for cable routing (covered with rubber sleeve).
- Generous recess depth for large cable volumes (depth of 200 is recommended for switch applications).

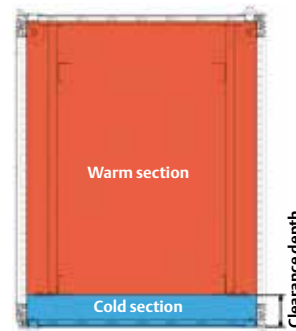
- **Material**
  - Cover plates: sheet steel.
  - High-density: PUR foam (UL94 HF-1).

- **Finish**
  - Final digit of order number 1: powder-coated, RAL 7035 light-grey
  - Final digit of order number 8: powder-coated, RAL 7021 dark-grey.

- **Scope of delivery**
  - 2 side cover plates (cut-outs covered).
  - 2 cover plates, top / bottom.
  - High-density foam.
  - Mounting kit.

- **How supplied**
  - In sets.

LUF20382



LUF20343



LUF20234

W	H	U	JD	For rack type	Order No.	UP
600	2000	41	85.5	Miracel	<b>03.028.036.X</b>	1 set
700	2000	41	85.5	Miracel – asymmetric only	<b>03.028.037.X</b>	1 set
800	2000	41	85.5	Miracel	<b>03.028.038.X</b>	1 set

600	2200	46	85.5	Miracel	<b>03.028.056.X</b>	1 set
700	2200	46	85.5	Miracel – asymmetric only	<b>03.028.057.X</b>	1 set
800	2200	46	85.5	Miracel	<b>03.028.058.X</b>	1 set

600	2000	41	123	Miracel	<b>03.028.031.X</b>	1 set
700	2000	41	123	Miracel – asymmetric only	<b>03.028.032.X</b>	1 set
800	2000	41	123	Miracel	<b>03.028.033.X</b>	1 set

600	2200	46	123	Miracel	<b>03.028.051.X</b>	1 set
700	2200	46	123	Miracel – asymmetric only	<b>03.028.052.X</b>	1 set
800	2200	46	123	Miracel	<b>03.028.053.X</b>	1 set

W	H	U	JD	Order No.	UP
800	2000	41	123	<b>03.028.082.X</b>	1 set
800	2000	41	200	<b>03.028.084.X</b>	1 set
800	2200	46	123	<b>03.028.086.X</b>	1 set
800	2200	46	200	<b>03.028.088.X</b>	1 set

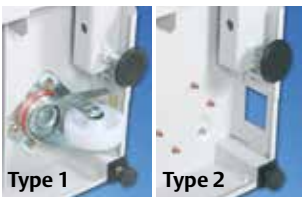
Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			



MIR20050



MIR20053



MIR20260

MIR20261

## Knürr Miracel® plinth

Mobile and fixed, with tilt restraint; height 100 mm

- **Type**
  - Type 1: mobile.
  - Type 2: fixed.
- **Cable entry**
  - Possible at the rear.
- **Load rating**
  - 5000 N static.
- **Material**
  - Sheet steel 2 mm.
- **Finish / Color**
  - Powder-coated texture,
  - RAL 7035 light-grey.
- **Scope of delivery Type 1:**
  - 1 x plinth frame.
  - 2 x fixed casters with snib.
  - 2 x swivel casters.
  - 4 x leveling feet.
  - 1 x tilt restrainer.
  - 1 x Mounting kit.
- **Scope of delivery Type 2:**
  - 1 x plinth frame.
  - 4 x leveling feet.
  - 1 x tilt restrainer.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H	D	Model	Order No.	UP
600	100	900	Type 1, mobile:	<b>01.127.260.X</b>	1 unit
800	100	900	Type 1, mobile:	<b>01.127.262.X</b>	1 unit
600	100	1000	Type 1, mobile:	<b>01.127.263.X</b>	1 unit
700	100	1000	Type 1, mobile:	<b>01.127.264.X</b>	1 unit
800	100	1000	Type 1, mobile:	<b>01.127.265.X</b>	1 unit
600	100	1200	Type 1, mobile:	<b>01.127.266.X</b>	1 unit
800	100	1200	Type 1, mobile	<b>01.127.268.X</b>	1 unit
600	100	900	Type 2, fixed	<b>01.127.270.X</b>	1 unit
700	100	900	Type 2, fixed	<b>01.127.271.X</b>	1 unit
800	100	900	Type 2, fixed	<b>01.127.272.X</b>	1 unit
600	100	1000	Type 2, fixed	<b>01.127.273.X</b>	1 unit
700	100	1000	Type 2, fixed	<b>01.127.274.X</b>	1 unit
800	100	1000	Type 2, fixed	<b>01.127.275.X</b>	1 unit
600	100	1200	Type 2, fixed	<b>01.127.276.X</b>	1 unit
800	100	1200	Type 2, fixed	<b>01.127.278.X</b>	1 unit



MIR20051

## Tilt restraint for Miracel® racks Quick assembly system

- For fixing on the front vertical posts of all types of Miracel® racks.
- Quick and easy mounting and removal without tools.
- Use only as required.
- **Scope of delivery**
  - 2 tilt restrainers.
- **How supplied**
  - In sets.

Order No.	UP
<b>01.127.310.9</b>	2 units



MIR20095

## Combination lock

- Mechanical solution for a top-quality locking system.
- Access either via a three-digit code that can be individually set on the handle or via a master key for access to the rack independent of the code setting.
- Suitable for Miracel rack single doors with swing handle.
- Subsequent retrofitting also possible without mechanical alteration.

Model	Order No.	UP
Single doors DCM® / Miracel®	<b>01.137.013.9</b>	1 unit



MIR20460

## Door locking set

- **Scope of delivery**
  - 1 lock set.
  - 2 keys (half-cylinder).

Order No.	UP
<b>05.041.299.9</b>	1 set



MIR00069

## Complete locking set

- **Scope of delivery**
  - 2 cylinders with 2 keys each.
  - 2 lockable fasteners for side panel with 2 keys each.

Order No.	UP
<b>01.130.940.9</b>	1 set



MIR20092



MIR20273



MIR20274

## Knürr Miracel® Extension kit, 100 mm

- For rack depth extensions even at a later stage.
- Can be used in combination with doors (cannot be used for rear panel).
- Further cabling space, for airflow etc. easily added.

### ■ Material

- Sheet steel.

### ■ Finish / Color

- Powder-coated texture, RAL 7035.

### ■ Scope of delivery

- 2 x vertical cover plates.
- 1 x horizontal cover plate, top.
- 1 x Extension adapter.
- 1 x Mounting kit.

### ■ How supplied

- In sets.

### ■ Note

Please also order lock bracket set if using double doors:  
Order no. 01.127.649.9

W	H	U	Order No.	UP
600	1200	23	01.127.550.1	1 set
600	1800	37	01.127.553.1	1 set
600	2000	41	01.127.554.1	1 set
600	2200	46	01.127.555.1	1 set
700	1800	37	01.127.559.1	1 set
700	2000	41	01.127.560.1	1 set
700	2200	46	01.127.561.1	1 set
800	1200	23	01.127.562.1	1 set
800	1800	37	01.127.565.1	1 set
800	2000	41	01.127.566.1	1 set
800	2200	46	01.127.567.1	1 set

#### Dimensions in mm:

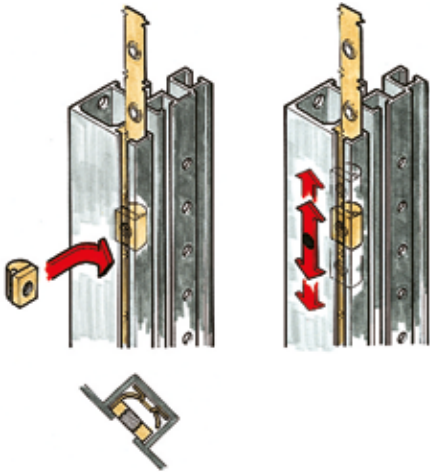
W = Width    h = Installation height    U = Standard rack unit  
 H = Height    d = Insertion depth    (1 U = 44.45 mm)  
 D = Depth    L = Length    UP = Packaging unit

kg = Weight

#### Conversion:

1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds

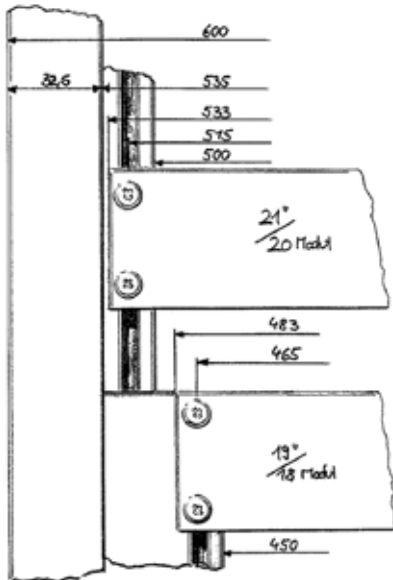




1. MIR00139

## Knürr Miracel® Network Rack Features

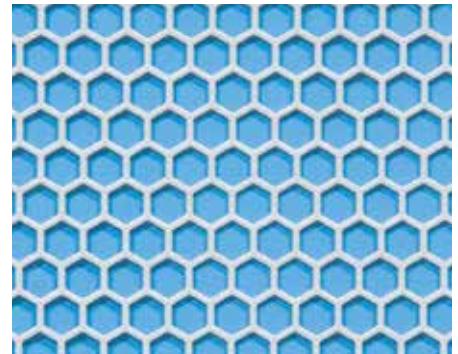
- Versatile rack system with many features.
- **Modular construction**  
Easy mounting, including all non-standard components – variable and integrated 19" or 25 mm increments. (1)
- **Advanced Technology**  
Future-proof and flexible with integrated 19" and metric technology. (2)
- **Expandable at all times**  
System can be expanded easily while maintaining the IP protection rating. (3)
- **Cable management**  
Guaranteed orderly and space-saving cable management. Adaptable to installation-site requirements: cable management can be selected from an extensive range of accessory components. (4)
- **Flexible ventilation components**  
The correct ventilation solution is achieved by an appropriate selection of accessory components enabling the airflow to be specially adapted to the built-in components – for example, through perforated bottom plates, top covers and doors. (5)



2. MIR20466



4. MEC20084



5. MIR20265



3. TEC00028



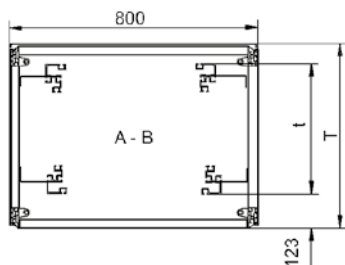
4. MIR00143



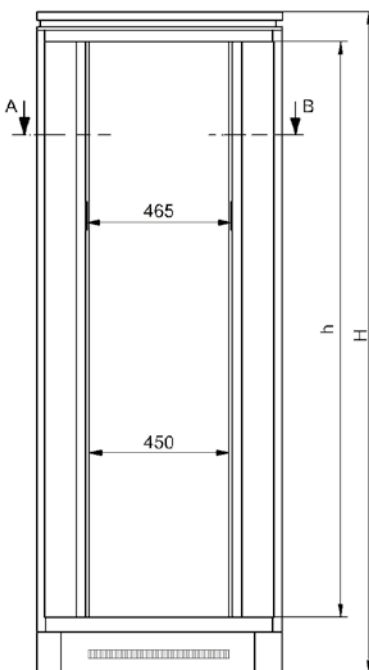
5. LUF20124



MIR20301



MIR20050



MIR20050

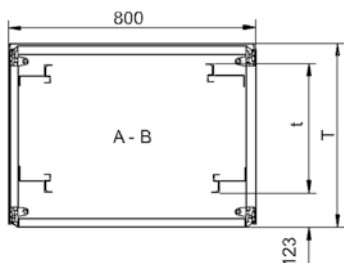
## Knürr Miracel® 19" distribution rack, NS 25 Width 800, front glass door, T-slot extrusions

- With fixed 19" component on the front and rear for IEC 297-3-compliant components.
  - Installation of slot-in runners and 19" shelves available.
  - Flexible assembly of the built-in units with T-slot.
  - Cable entry via plinth and top cover.
  - Cable entry on the top cover can be completely removed at the rear allowing for installation and removal of top cover after cabling.
  - Dissipated heat discharge via raised fan top cover.
  - Top cover prepared for retrofitting CoolBlast® fan units facilitating flexible adjustments in accordance with customer requirements.
  - Door opening angle, 180°.
- **Color**
    - Final digit of order number 1: Visible surface of covers RAL 7035 light-grey.
    - Final digit of order number 8: Visible surfaces of the covers RAL 7021 dark-grey.
  - **Scope of delivery**
    - 1 x basic rack.
    - 4 x aluminum vertical extrusions with T-slot and increment slide for M5 spring nut.
    - 2 x multifunctional braces for cable clamping and universal mounting options.
    - 2 x side panels with quick connectors.
    - 1 x raised fan top cover with cable entry (three-piece sliding plates, can also be opened completely), prepared for retrofitting CoolBlast® fan units.
    - 1 x front door, single, single safety-glass panel with handle and mounting for cylinder lock.
    - 1 x rear door, single, sheet steel, with handle and mounting for cylinder lock.
    - 1 x plinth for cable management on the side and rear with leveling feet (0 - 25 mm).
    - 2 x plinth cover plates for front and rear with vent slots and mounting for filter mat.
    - 2 x plinth cover plates, closed.
    - 1 x complete earthing set (VDE 0100).
  - **Jumpering space**
    - Front 123 mm.
  - **Load rating**
    - 5000 N static.
  - **Protection rating**
    - IP 40.
  - **Tests**
    - Earthing compliant with VDE 0100 T 540.
    - Vibration test compliant with MIL-STD 810 E.
    - IP test compliant with DIN 40 050 / IEC 529.
  - **Material / Finish**
    - Basic rack, extruded aluminum, polished.
    - Corner piece, die-cast aluminum, polished.
    - Doors, sheet steel, powder-coated texture.
    - Covers, zinc-passivated sheet steel, powder-coated texture.
    - Glass infill front door, single safety-glass panel, 4 mm.
    - Multifunctional braces, sheet steel, zinc-passivated.
  - **How supplied**
    - Mounted.

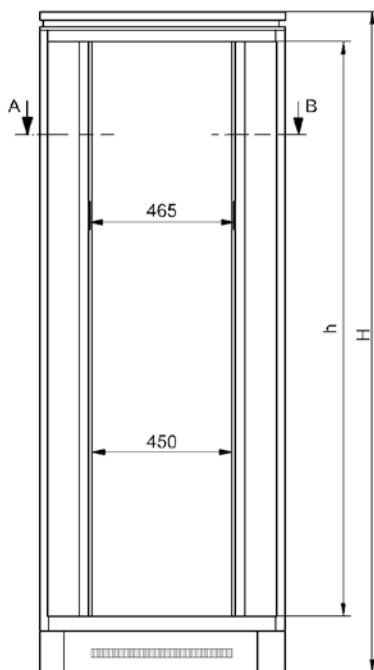
W	H	D	U	h	d	kg	Model	Order No.	UP
800	2120	800	41	1852	565	120	with side panels	<b>01.136.050.X</b>	1 unit
800	2320	800	46	2052	565	130	with side panels	<b>01.136.051.X</b>	1 unit
800	2120	900	41	1852	665	124	with side panels	<b>01.136.056.X</b>	1 unit
800	2320	900	46	2052	665	134	with side panels	<b>01.136.057.X</b>	1 unit
800	2120	1000	41	1852	740	140	with side panels	<b>01.127.970.X</b>	1 unit
800	2320	1000	46	1852	740	140	with side panels	<b>01.127.971.X</b>	1 unit
800	2120	800	41	1852	565	109	without side panels	<b>01.136.250.X</b>	1 unit
800	2120	900	41	1852	665	118	without side panels	<b>01.136.256.X</b>	1 unit
800	2120	1000	41	1852	740	128	without side panels	<b>01.127.975.X</b>	1 unit



MIR20301



MIR00223



MIR20050

## Knürr Miracel® 19" distribution rack, NS 25 Width 800, front glass door, 19" mounting hole extrusions

- With fixed 19" component on the front and rear for IEC 297-3-compliant components.
- Installation of slot-in runners and 19" shelves available.
- Cable entry via plinth and top cover.
- Cable entry on the top cover can be completely removed at the rear allowing for installation and removal of top cover after cabling.
- Dissipated heat discharge via raised fan top cover.
- Top cover prepared for retrofitting CoolBlast® fan units facilitating flexible adjustments in accordance with customer requirements.
- Door opening angle, 180°.

### ■ Jumping space

- Front 123 mm.

### ■ Load rating

- 5000 N static.

### ■ Protection rating

- IP 40.

### ■ Tests

- Earthing compliant with VDE 0100 T 540.
- Vibration test compliant with MIL-STD 810 E.
- IP test compliant with DIN 40 050 / IEC 529.

### ■ Material / Finish

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Doors, sheet steel, powder-coated texture.
- Covers, zinc-passivated sheet steel, powder-coated texture.
- Glass infill front door, single safety-glass panel, 4 mm.
- Multifunctional braces, sheet steel, zinc-passivated.

### ■ Color

- Final digit of order number 1:  
Visible surface of covers  
RAL 7035 light-grey.
- Final digit of order number 8:  
Visible surfaces of the covers  
RAL 7021 dark-grey.

### ■ Scope of delivery

- 1 x basic rack.
- 4 x 19" vertical extrusions, sheet steel with mounting holes.
- 2 x multifunctional braces for cable clamping and universal mounting options.
- 2 x side panels with quick connectors.
- 1 x raised fan top cover with cable entry (three-piece sliding plates can also be opened completely), prepared for retrofitting CoolBlast® fan units.
- 1 x front door, single, single safety-glass panel with handle and mounting for cylinder lock.
- 1 x rear door, single, sheet steel, with handle and mounting for cylinder lock.
- 1 x plinth for cable management on the side and rear with leveling feet (0 - 25 mm).
- 2 x plinth cover plates for front and rear, with vent slots and fixture for filter mat.
- 2 x plinth cover plates, closed.
- 1 x complete earthing set (VDE 0100).

### ■ How supplied

- Mounted.

W	H	D	U	h	d	kg	Model	Order No.	UP
800	2120	800	41	1852	565	120	with side panels	<b>01.133.041.X</b>	1 unit
800	2320	800	46	2052	565	130	with side panels	<b>01.133.042.X</b>	1 unit
800	2120	900	41	1852	665	124	with side panels	<b>01.133.043.X</b>	1 unit
800	2320	900	46	2052	665	134	with side panels	<b>01.133.044.X</b>	1 unit
800	2120	1000	41	1852	740	140	with side panels	<b>01.133.045.X</b>	1 unit
800	2120	800	41	1852	565	109	without side panels	<b>01.133.047.X</b>	1 unit
800	2120	900	41	1852	665	118	without side panels	<b>01.133.048.X</b>	1 unit
800	2120	1000	41	1852	740	128	without side panels	<b>01.133.049.X</b>	1 unit

#### Dimensions in mm:

W = Width    h = Installation height    U = Standard rack unit  
 H = Height    d = Insertion depth (1 U = 44.45 mm)  
 D = Depth    L = Length    UP = Packaging unit

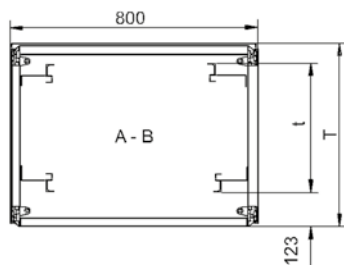
#### Conversion:

1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds

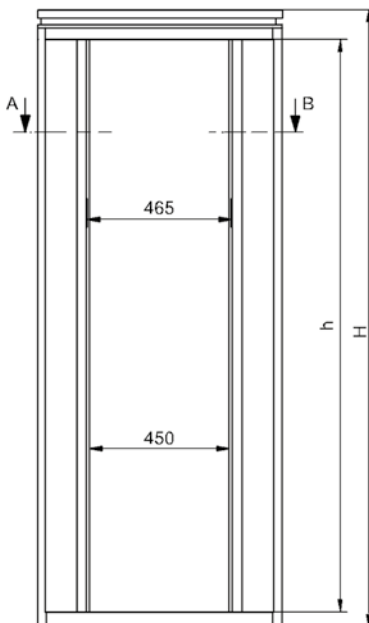




MIR20302



MIR20223



MIR20223

## Knürr Miracel® 19" distribution rack, NS 26 Width 800, front glass door, mounting hole extrusions

- With fixed 19" component on the front and rear for IEC 297-3-compliant components.
- Installation of slot-in runners and 19" shelves available.
- Top cover equipped for retrofitting CoolBlast® fan units facilitating flexible adjustments in accordance with customer requirements.
- Door opening angle, 180°

### ■ Jumping space

- Front 123 mm.

### ■ Load rating

- 5000 N static.

### ■ Protection rating

- IP 40.

### ■ Tests

- Earthing compliant with VDE 0100 T 540.
- IP test compliant with DIN 40 050 / IEC 529.

### ■ Material / Finish

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Covers, zinc-passivated sheet steel, powder-coated texture.
- Doors, sheet steel, powder-coated texture, glass infill, front door, single safety-glass panel, 4 mm.
- Multifunctional braces and 19" extrusions, sheet steel, zinc-passivated.

### ■ Color

- Final digit of order number 1: Visible surface of covers RAL 7035 light-grey.
- Final digit of order number 8: Visible surfaces of the covers RAL 7021 dark-grey.

### ■ Scope of delivery

- 1 x basic rack.
- 4 x 19" vertical extrusions, sheet steel with mounting holes.
- 2 x multifunctional braces for cable clamping and universal mounting options.
- 2 x side panels with quick connectors.
- 1 x raised fan top cover with cable entry (three-piece sliding plates can also be opened completely), prepared for retrofitting CoolBlast® fan units.
- 1 x front door, single, single safety-glass panel with handle and mounting for cylinder lock.
- 1 x rear door, single, sheet steel, with handle and mounting for cylinder lock.
- 1 x complete earthing set (VDE 0100).
- 4 x leveling feet.

### ■ How supplied

- Mounted.

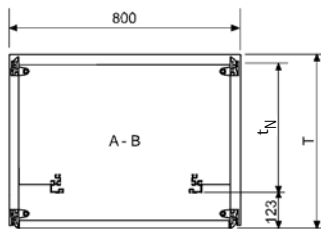
### ■ Note

- Not available with double doors.
- Not available with bottom plates.

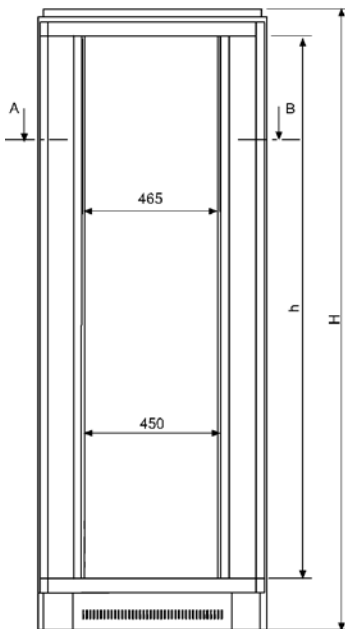
W	H	D	U	h	d	kg	Model	Order No.	UP
800	2000	800	42	1900	565	116	with side panels	<b>01.136.280.X</b>	1 unit
800	2200	800	47	2100	565	126	with side panels	<b>01.136.281.X</b>	1 unit
800	2000	900	42	1900	665	120	with side panels	<b>01.136.286.X</b>	1 unit
800	2200	900	47	2100	665	120	with side panels	<b>01.136.287.X</b>	1 unit
800	2000	800	42	1900	565	105	without side panels	<b>01.136.306.X</b>	1 unit
800	2000	900	42	1900	665	116	without side panels	<b>01.136.312.X</b>	1 unit



MIR20303



MIR00607



MIR00607

## Knürr Miracel® 19" distribution rack, NS 19.8 Width 800, front glass door

- With fixed 19" component on the front for IEC 297-3-compliant components.
- Flexible assembly of the built-in units with T-slot.
- Cable entry via plinth and top cover.
- Cable entry on the top cover can be completely removed at the rear allowing for installation and removal of top cover after cabling.
- Dissipated heat discharge via raised fan top cover.
- Top cover prepared for retrofitting CoolBlast® fan units facilitating flexible adjustments in accordance with customer requirements.
- Door opening angle, 180°.

### ■ Jumping space

- Front 123 mm.

### ■ Load rating

- 5000 N static.

### ■ Protection rating

- IP 40.

### ■ Tests

- Earthing compliant with VDE 0100 T 540.
- Vibration test compliant with MIL-STD 810 E.
- IP test compliant with DIN 40 050 / IEC 529.

### ■ Material / Finish

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Covers, zinc-passivated sheet steel, powder-coated texture.
- Doors, sheet steel, powder-coated texture, glass infill, front door, single safety-glass panel.
- Multifunctional braces, sheet steel, zinc-passivated.

### ■ Color

- Visible surface of the covers, RAL 7035 light-grey.

### ■ Scope of delivery

- 1 x basic rack.
- 2 x 19" aluminum vertical extrusions with T-slot and increment slide for M5 spring nut.
- 2 x multifunctional braces for cable clamping and universal mounting options.
- 1 x raised fan top cover with cable entry (three-piece sliding plates can also be opened completely), prepared for retrofitting CoolBlast® fan units.
- 1 x front door, single or double, single safety-glass panel with handle and mounting for cylinder lock.
- 1 x rear door, single or double, sheet steel, with handle and mounting for cylinder lock.
- 2 x side panels with quick connectors (according to model).
- 1 x plinth for cable management on the side and rear with leveling feet (0 - 25 mm).
- 2 x side plinth cover plates, closed (according to model).
- 2 x plinth cover plates for front and rear, with vent slots and mounting for filter mat.
- 1 x complete earthing set (VDE 0100).

### ■ How supplied

- Mounted.

W	H	D	U	h	d <sub>U</sub>	kg	Model	Order No.	UP
800	1320	600	23	1052	435	78	glass door, side panel	01.135.001.1	1 unit
800	1920	600	37	1652	435	103	glass door, side panel	01.135.003.1	1 unit
800	2120	600	41	1852	435	112	glass door, side panel	01.135.004.1	1 unit
800	1320	800	23	1052	635	80	glass door, side panel	01.135.019.1	1 unit
800	1920	800	37	1652	635	111	glass door, side panel	01.135.021.1	1 unit
800	2120	800	41	1852	635	120	glass door, side panel	01.135.022.1	1 unit
800	1320	800	23	1052	635	80	double glass door, side panel	01.135.037.1	1 unit
800	1920	800	37	1652	635	111	double glass door, side panel	01.135.039.1	1 unit
800	2120	800	41	1852	635	120	double glass door, side panel	01.135.040.1	1 unit
800	2320	800	46	2052	635	121	double glass door, side panel	01.135.041.1	1 unit

#### Dimensions in mm:

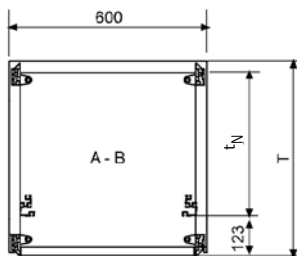
W = Width    h = Installation height    U = Standard rack unit  
 H = Height    d = Insertion depth (1 U = 44.45 mm)  
 D = Depth    L = Length    UP = Packaging unit

#### Conversion:

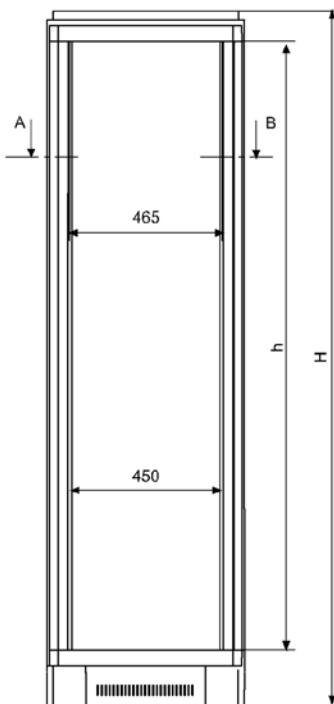
1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds



MIR20304



MIR00056



MIR00031

## Knürr Miracel® 19" distribution rack, NS 19.6 Width 600, with front glass door

- With fixed 19" component on the front for IEC 297-3-compliant components.
- Flexible assembly of the built-in units with T-slot.
- Cable entry via plinth and top cover.
- Cable entry on the top cover can be completely removed at the rear allowing for installation and removal of top cover after cabling.
- Dissipated heat discharge via raised fan top cover.
- Top cover prepared for retrofitting CoolBlast® fan units facilitating flexible adjustments in accordance with customer requirements.
- Door opening angle, 180°.

### ■ Jumpering space

- Front 123 mm.

### ■ Load rating

- 5000 N static.

### ■ Protection rating

- IP 40.

### ■ Tests

- Earthing compliant with VDE 0100 T 540.
- Vibration test compliant with MIL-STD 810 E.
- IP test compliant with DIN 40 050 / IEC 529.

### ■ Material / Finish

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Covers, zinc-passivated sheet steel, powder-coated texture.
- Doors, sheet steel, powder-coated texture, glass infill, front door, single safety-glass panel, 4 mm.
- Multifunctional braces, sheet steel, zinc-passivated.

### ■ Color

- Visible surface of the covers, RAL 7035 light-grey.

### ■ Scope of delivery

- 1 x basic rack.
- 2 x 19" aluminum vertical extrusions with T-slot and increment slide for M5 spring nut.
- 2 x multifunctional braces for cable clamping and universal mounting options.
- 1 x raised fan top cover with cable entry (three-piece sliding plates can also be opened completely), prepared for retrofitting CoolBlast® fan units.
- 1 x front door, single, single safety-glass panel with handle and mounting for cylinder lock.
- 1 x rear door, single, sheet steel, with handle and mounting for cylinder lock.
- 2 x side panels with quick connectors.
- 1 x plinth for cable management on the side and rear with leveling feet (0 - 25 mm).
- 2 x side plinth cover plates, closed.
- 2 x plinth cover plates for front and rear, with vent slots and mounting for filter mat.
- 1 x complete earthing set (VDE 0100).

### ■ How supplied

- Mounted.

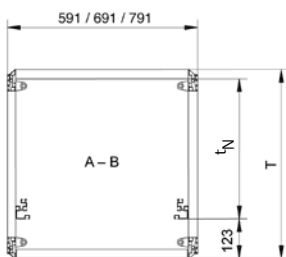
W	H	D	U	h	i <sub>0</sub>	kg	Model	Order No.	UP
600	1320	600	23	1052	435	72	with side panel	<b>01.135.109.1</b>	1 unit
600	1920	600	37	1652	435	95	with side panel	<b>01.135.111.1</b>	1 unit
600	2120	600	41	1852	435	103	with side panel	<b>01.135.112.1</b>	1 unit
600	2320	600	46	2052	435	112	with side panel	<b>01.135.113.1</b>	1 unit
600	1320	800	23	1052	635	74	with side panel	<b>01.135.127.1</b>	1 unit
600	1920	800	37	1652	635	102	with side panel	<b>01.135.129.1</b>	1 unit
600	2120	800	41	1852	635	110	with side panel	<b>01.135.130.1</b>	1 unit
600	2320	800	46	2052	635	119	with side panel	<b>01.135.131.1</b>	1 unit



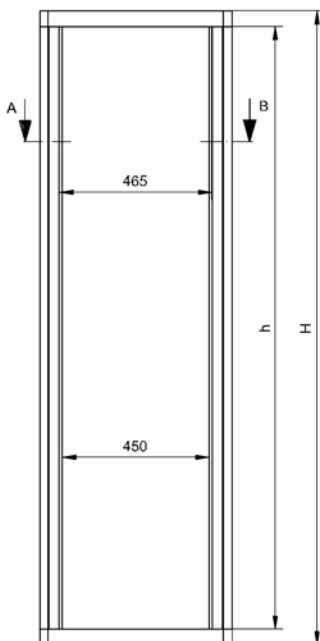
MIR20307

## Miracel® 19" lab rack, NO 19 With 2 x 19" T-slot extrusions (basis for rack widths 600 / 700 / 800)

- With fixed 19" component on the front for IEC 297-3-compliant components.
  - Flexible assembly of the built-in units with T-slot.
- **Jumpering space**
    - Front 123 mm.
  - **Load rating**
    - 5000 N static.
  - **Tests**
    - Earthing compliant with VDE 0100 T 540.
    - Vibration test compliant with MIL-STD 810 E.
  - **Material / Finish**
    - Basic rack, extruded aluminum, polished.
    - Corner piece, die-cast aluminum.
    - Multifunctional braces, sheet steel, zinc-passivated.
  - **Scope of delivery**
    - 1 x basic rack.
    - 2 x 19" aluminum vertical extrusions with T-slot and increment slide for M5 spring nut.
    - 2 x multifunctional braces for cable clamping and universal mounting options.
    - 4 x leveling feet (0 - 25 mm).
  - **How supplied**
    - Mounted.



MIR00043a



MIR20002

W	H	D	U	h	i <sub>b</sub>	kg	Order No.	UP
600	1200	600	23	1052	435	14	01.135.793.3	1 unit
600	1800	600	37	1652	435	16	01.135.795.3	1 unit
600	2000	600	41	1852	435	17	01.135.796.3	1 unit
600	2200	600	46	2052	435	18	01.135.797.3	1 unit
600	1200	800	23	1052	635	16	01.135.817.3	1 unit
600	1800	800	37	1652	635	18	01.135.819.3	1 unit
600	2000	800	41	1852	635	19	01.135.820.3	1 unit
600	2200	800	46	2052	635	20	01.135.821.3	1 unit
600	1200	900	37	1652	735	19	01.135.842.0	1 unit
600	2000	900	41	1852	735	20	01.135.843.0	1 unit
600	2200	900	46	2052	735	21	01.135.844.0	1 unit
600	1800	1000	37	1652	835	20	01.133.600.0	1 unit
600	2000	1000	41	1852	835	21	01.133.610.0	1 unit
600	2200	1000	46	2052	835	22	01.133.620.0	1 unit
600	1800	1200	37	1652	1035	22	01.133.605.0	1 unit
600	2000	1200	41	1852	1035	23	01.133.615.0	1 unit
600	2200	1200	46	2052	1035	24	01.133.625.0	1 unit
700	1200	600	23	1052	435	15	01.135.799.3	1 unit
700	1800	600	37	1652	435	17	01.135.801.3	1 unit
700	2000	600	41	1852	435	18	01.135.802.3	1 unit
700	2200	600	46	2052	435	19	01.135.803.3	1 unit
700	1200	800	23	1052	635	17	01.135.823.3	1 unit
700	1800	800	37	1652	635	19	01.135.825.3	1 unit
700	2000	800	41	1852	635	20	01.135.826.3	1 unit
700	2200	800	46	2052	635	21	01.135.827.3	1 unit
700	1800	900	37	1652	735	19	01.133.630.0	1 unit
700	2000	900	41	1852	735	20	01.133.645.0	1 unit
700	2200	900	46	2052	735	22	01.133.660.0	1 unit
700	1800	1000	37	1652	835	21	01.133.635.0	1 unit
700	2000	1000	41	1852	835	22	01.133.650.0	1 unit
700	2200	1000	46	2052	835	23	01.133.665.0	1 unit
700	1800	1200	37	1652	1035	23	01.133.640.0	1 unit
700	2000	1200	41	1852	1035	24	01.133.655.0	1 unit
700	2200	1200	46	2052	1035	25	01.133.670.0	1 unit

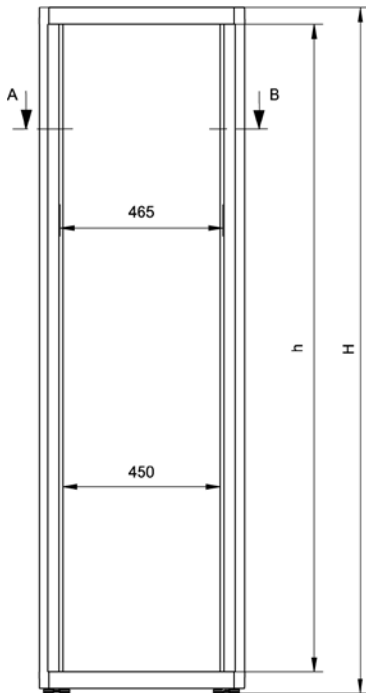
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W	H	D	U	h	i <sub>b</sub>	kg	Order No.	UP
800	1200	600	23	1052	435	16	<b>01.135.805.3</b>	1 unit
800	1800	600	37	1652	435	18	<b>01.135.807.3</b>	1 unit
800	2000	600	41	1852	435	19	<b>01.135.808.3</b>	1 unit
800	2200	600	46	2052	435	20	<b>01.135.809.3</b>	1 unit
800	1200	800	23	1052	635	18	<b>01.135.829.3</b>	1 unit
800	1800	800	37	1652	635	20	<b>01.135.831.3</b>	1 unit
800	2000	800	41	1852	635	21	<b>01.135.832.3</b>	1 unit
800	2200	800	46	2052	635	22	<b>01.135.833.3</b>	1 unit
800	1800	900	37	1652	735	21	<b>01.135.847.0</b>	1 unit
800	2000	900	41	1852	735	22	<b>01.135.848.0</b>	1 unit
800	2200	900	46	2052	735	23	<b>01.135.849.0</b>	1 unit
800	1800	1000	37	1652	835	20	<b>01.133.675.0</b>	1 unit
800	2000	1000	41	1852	835	22	<b>01.133.685.0</b>	1 unit
800	2200	1000	46	2052	835	24	<b>01.133.695.0</b>	1 unit
800	1800	1200	37	1652	1035	22	<b>01.133.680.0</b>	1 unit
800	2000	1200	41	1852	1035	24	<b>01.133.690.0</b>	1 unit
800	2200	1200	46	2052	1035	26	<b>01.133.700.0</b>	1 unit

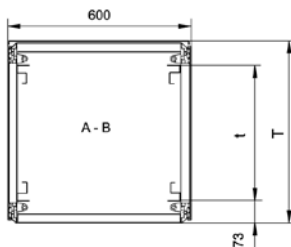
Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	i <sub>b</sub> = Inside depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			



MIR20309



MIR00540



MIR00540

## Knürr Miracel® Without front door, width 600 mm

- With fixed 19" component on the front and rear.
- Installation of chassis runners and 19" shelves available.
- For IEC 297-3-compliant components.
- For installing 19" components on the front and rear.
- For installing equipment with a max. width of 450 mm.
- Installation accessories.

### ■ Jumping space

- Front 73 mm.

### ■ Load rating

- 5000 N static.

### ■ Tests

- Earthing compliant with VDE 0100 T 540.
- Vibration test compliant with MIL-STD 810 E.

### ■ Material / Finish

- Basic rack, extruded aluminum.
- Corner piece, die-cast aluminum.
- Covers and trim extrusions, zinc-passivated sheet steel, powder-coated texture.
- Multifunctional braces and 19" extrusions, sheet steel, zinc-passivated.

### ■ Color

- Basic rack, polished.
- Visible surface of the covers, RAL 7035 light-grey.
- Trim extrusions: RAL 5008 grey-blue.

### ■ Scope of delivery

- 1 x basic rack.
- 4 x 19" sheet steel angular extrusions with mounting holes.
- 2 x multifunctional braces for cable clamping and universal mounting options.
- 1 x cover, closed.
- 1 x rear panel with quick connectors.
- 2 x side panels with quick connectors.
- 2 x horizontal trim extrusions, front.
- 2 x vertical trim extrusions, front.
- 4 x leveling feet (0 - 25 mm).

### ■ How supplied

- Mounted.

W	H	D	U	h	d	kg	Order No.	UP
600	1200	600	23	1052	440	42	01.131.068.1	1 unit
600	1800	600	37	1652	440	57	01.131.071.1	1 unit
600	2000	600	41	1852	440	62	01.131.072.1	1 unit
600	2200	600	46	2052	440	66	01.131.073.1	1 unit
600	1200	800	23	1052	640	48	01.131.074.1	1 unit
600	1800	800	37	1652	640	63	01.131.077.1	1 unit
600	2000	800	41	1852	640	69	01.131.078.1	1 unit
600	2200	800	46	2052	640	75	01.131.079.1	1 unit

Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	d = Insertion depth	(1 U = 44,45 mm)		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			



MIR20336

**Knürr Miracel® IP 55, on request  
With single glass door, width 600 mm**

- With fixed 19° component on the front and rear.
- For IEC 297-3-compliant components.
- Door opening angle, 180°.
- For installing 19° components on the front and rear.
- For installation equipment with a max. width of 450 mm.
- Installation accessories.

■ **Jumpering space**

- Front 73 mm.

■ **Load rating**

- 5000 N static.

■ **Protection rating**

- IP 55.

■ **Tests**

- Earthing compliant with VDE 0100 T 540.
- Vibration test compliant with MIL-STD 810 E.
- IP test compliant with DIN 40 050 / IEC 529.

■ **Material / Finish**

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Covers, zinc-passivated sheet steel, powder-coated texture.
- Doors, sheet steel, powder-coated texture, glass infill, front door, single safety-glass panel, 4 mm.
- Multifunctional braces and 19° extrusions, sheet steel, zinc-passivated.

■ **Color**

- Visible surface of the covers, RAL 7035 light-grey.

■ **Scope of delivery**

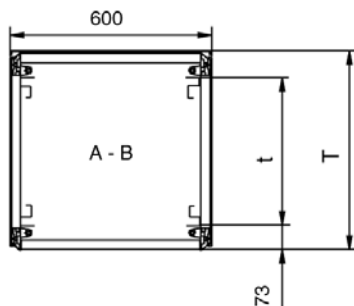
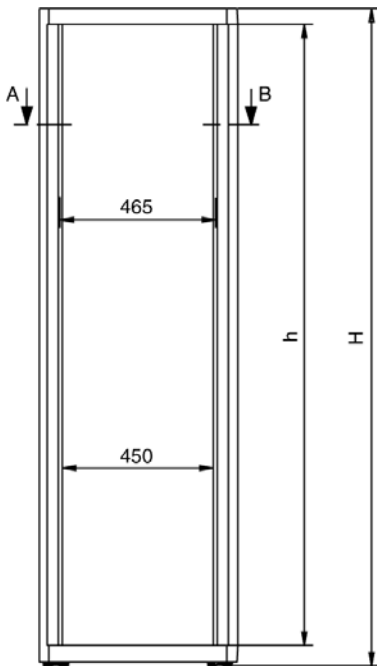
- 1 x basic rack.
- 4 x 19° sheet steel angular extrusions with mounting holes.
- 2 x multifunctional braces for cable clamping and universal mounting options.
- 1 x top cover, closed, IP 55.
- 1 x front door, single, single safety-glass panel, with handle and mounting for cylinder lock, IP55.
- 1 x rear panel with quick connectors, IP 55.
- 2 x side panels with quick connectors, IP 55.
- 1 x floor, closed, IP 55.
- 4 x leveling feet (0 - 25 mm).

■ **How supplied**

- Mounted.

■ **Note on rack suites**

- To create a rack suite with "n" racks, the following is required:
- (n-1) racks without side panels.
  - 1 rack with side panels.
- In a rack suite, per connection you will require a set of BN 01.130.935.7 suite connectors.



MIR00301

W	H	D	U	h	d	kg	Order No.	UP
600	1800	600	37	1652	440	75	01.132.271.1	1 unit
600	2000	600	41	1852	440	80	01.132.272.1	1 unit
600	1800	800	37	1652	640	83	01.132.277.1	1 unit
600	2000	800	41	1852	640	90	01.132.278.1	1 unit



MIR20310

## Miracel® sheet-steel door with perforation, single

- **Material**  
– Sheet steel 1.0 mm.
- **Finish / Color**  
– Final digit of order number 1: Powder-coated texture, RAL 7035, light-grey.  
– Final digit of order number 8: Powder-coated texture, RAL 7021 dark-grey.
- **Scope of delivery**  
– 1 x door.  
– 1 x Mounting kit.
- **Volume flow**  
– Large surface perforation (83% free surface) enables optimum airflow through out the rack.



MIR20277

## Miracel® sheet-steel door with perforation, double

- **Material**  
– Sheet steel 1.0 mm.
- **Finish / Color**  
– Final digit of order number 1: Powder-coated texture, RAL 7035, light-grey.  
– Final digit of order number 8: Powder-coated texture, RAL 7021 dark-grey.
- **Scope of delivery**  
– 1 x door.  
– 1 x Mounting kit.
- **Volume flow**  
– Large surface perforation (83% free surface) enables optimum airflow through out the rack.

W	H	Model	Order No.	UP
600	1200	compl. door	<b>01.147.400.X</b>	1 unit
700	1200	compl. door	<b>01.147.401.X</b>	1 unit
800	1200	compl. door	<b>01.147.402.X</b>	1 unit
600	1800	compl. door	<b>01.147.412.X</b>	1 unit
700	1800	compl. door	<b>01.147.413.X</b>	1 unit
800	1800	compl. door	<b>01.147.414.X</b>	1 unit
600	2000	compl. door	<b>01.147.416.X</b>	1 unit
700	2000	compl. door	<b>01.147.417.X</b>	1 unit
800	2000	compl. door	<b>01.147.418.X</b>	1 unit
600	2200	compl. door	<b>01.147.420.X</b>	1 unit
700	2200	compl. door	<b>01.147.421.X</b>	1 unit
800	2200	compl. door	<b>01.147.422.X</b>	1 unit

W	H	Model	Order No.	UP
600	2000	double door	<b>01.128.260.X</b>	1 unit
700	2000	double door	<b>01.128.261.X</b>	1 unit
800	2000	double door	<b>01.128.262.X</b>	1 unit
600	2200	double door	<b>01.128.263.X</b>	1 unit
700	2200	double door	<b>01.128.264.X</b>	1 unit
800	2200	double door	<b>01.128.265.X</b>	1 unit



MIR20460

## Door locking set

- **Scope of delivery**  
– 1 x lock set.  
– 2 x keys (half-cylinder).



MIR20445

## Miracel® spare handle swing handle, black

- **Material**  
– PA 6 UL 94 V-1.
- **Color**  
– Black.
- **Scope of delivery**  
– 1 x handle.

Order No.	UP
<b>05.041.299.9</b>	1 set

Order No.	UP
<b>01.137.017.9</b>	1 unit



– MIR20461

## Spare key for door

- **Scope of delivery**  
– 1 x key.



MIR00069

## Complete locking set

- **Scope of delivery**  
– 2 x cylinders with 2 keys each.  
– 2 x lockable fasteners for side panel with 2 keys each.

Order No.	UP
<b>00.078.467.9</b>	1 unit

Order No.	UP
<b>01.130.940.9</b>	1 set





MIR20313



MIR20314

## Knürr Miracel® sheet-steel door single and double

- **Material**
  - Sheet steel 1.0 mm.
- **Finish / Color**
  - Order no. 1:  
Powder-coated texture,  
RAL 7035 light-grey.
  - Order no. 8:  
Powder-coated texture,  
RAL 7021 dark-grey.
- **Protection rating**
  - Installation of IP 40 double doors in the Miracel rack (depending on other rack components), achieves a maximum protection rating of IP 55.
- **Scope of delivery**
  - 1 x sheet-steel door.
  - 1 x Mounting kit.
- **How supplied**
  - Preassembled.



MIR20311



MIR20312

## Knürr Miracel® glass door, single and double

- **Material**
  - Sheet steel 1.0 mm.
  - Single safety-glass panel,  
4,0 mm clear glass.
  - Double door 6.0 mm.
- **Finish / Color**
  - Order no. 1:  
Powder-coated texture,  
RAL 7035 light-grey.
  - Order no. 8:  
Powder-coated texture,  
RAL 7021 dark-grey.
- **Protection rating**
  - Installation of IP 20 double doors in the Miracel® rack (depending on other rack components), achieves a maximum protection rating of IP 55.
- **Scope of delivery**
  - 1 x glass door.
  - 1 x Mounting kit.
- **How supplied**
  - Preassembled.

W	H	U	Model	Order No.	UP
600	1200	23	compl. door	<b>01.147.440.X</b>	1 unit
700	1200	23	compl. door	<b>01.147.441.X</b>	1 unit
800	1200	23	compl. door	<b>01.147.442.X</b>	1 unit
600	1800	37	compl. door	<b>01.147.452.X</b>	1 unit
700	1800	37	compl. door	<b>01.147.453.X</b>	1 unit
800	1800	37	compl. door	<b>01.147.454.X</b>	1 unit
600	2000	41	compl. door	<b>01.147.456.X</b>	1 unit
700	2000	41	compl. door	<b>01.147.457.X</b>	1 unit
800	2000	41	compl. door	<b>01.147.458.X</b>	1 unit
600	2200	46	compl. door	<b>01.147.460.X</b>	1 unit
700	2200	46	compl. door	<b>01.147.461.X</b>	1 unit
800	2200	46	compl. door	<b>01.147.462.X</b>	1 unit

600	1200	23	double door, steel	<b>01.131.820.1</b>	1 unit
700	1200	23	double door, steel	<b>01.131.821.1</b>	1 unit
800	1200	23	double door, steel	<b>01.131.822.1</b>	1 unit
600	1800	37	double door, steel	<b>01.131.835.1</b>	1 unit
700	1800	37	double door, steel	<b>01.131.836.1</b>	1 unit
800	1800	37	double door, steel	<b>01.131.837.1</b>	1 unit
600	2000	41	double door, steel	<b>01.131.840.1</b>	1 unit
700	2000	41	double door, steel	<b>01.131.841.1</b>	1 unit
800	2000	41	double door, steel	<b>01.131.842.1</b>	1 unit
600	2200	46	double door, steel	<b>01.131.845.1</b>	1 unit
700	2200	46	double door, steel	<b>01.131.846.1</b>	1 unit
800	2200	46	double door, steel	<b>01.131.847.1</b>	1 unit

W	H	U	Model	Order No.	UP
600	1200	23	compl. door	<b>01.147.480.X</b>	1 unit
700	1200	23	compl. door	<b>01.147.481.X</b>	1 unit
800	1200	23	compl. door	<b>01.147.482.X</b>	1 unit
600	1800	37	compl. door	<b>01.147.492.X</b>	1 unit
700	1800	37	compl. door	<b>01.147.493.X</b>	1 unit
800	1800	37	compl. door	<b>01.147.494.X</b>	1 unit
600	2000	41	compl. door	<b>01.147.496.X</b>	1 unit
700	2000	41	compl. door	<b>01.147.497.X</b>	1 unit
800	2000	41	compl. door	<b>01.147.498.X</b>	1 unit
600	2200	46	compl. door	<b>01.147.500.X</b>	1 unit
700	2200	46	compl. door	<b>01.147.501.X</b>	1 unit
800	2200	46	compl. door	<b>01.147.502.X</b>	1 unit

600	1200	23	double door, glass	<b>01.131.850.1</b>	1 unit
700	1200	23	double door, glass	<b>01.131.851.1</b>	1 unit
800	1200	23	double door, glass	<b>01.131.852.1</b>	1 unit
600	1800	37	double door, glass	<b>01.131.862.1</b>	1 unit
700	1800	37	double door, glass	<b>01.131.863.1</b>	1 unit
800	1800	37	double door, glass	<b>01.131.864.1</b>	1 unit
600	2000	41	double door, glass	<b>01.131.866.1</b>	1 unit
700	2000	41	double door, glass	<b>01.131.867.1</b>	1 unit
800	2000	41	double door, glass	<b>01.131.868.1</b>	1 unit
600	2200	46	double door, glass	<b>01.131.870.1</b>	1 unit
700	2200	46	double door, glass	<b>01.131.871.1</b>	1 unit
800	2200	46	double door, glass	<b>01.131.872.1</b>	1 unit

Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			



MIR00070

## Miracel® top cover Closed, IP55

- Can be optionally used as top cover or bottom cover (combination with stationary plinth is not possible with us as bottom cover).
- **Protection rating**
  - Installation in the Miracel rack (depending on other rack components), achieves a maximum protection rating of IP 55.
- **Finish**
  - Powder-coated texture, RAL 7035.
- **Scope of delivery**
  - 1 x cover, closed.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	D	Order No.	UP
600	600	01.130.690.1	1 unit
600	800	01.130.691.1	1 unit
600	900	01.130.692.1	1 unit
600	1000	01.127.700.1	1 unit
600	1200	01.133.760.1	1 unit
700	600	01.130.694.1	1 unit
700	800	01.130.695.1	1 unit
700	900	01.130.696.1	1 unit
700	1000	01.127.701.1	1 unit
700	1200	01.133.761.1	1 unit
800	600	01.130.691.1	1 unit
800	800	01.130.699.1	1 unit
800	900	01.130.700.1	1 unit
800	1000	01.127.702.1	1 unit
800	1200	01.133.762.1	1 unit



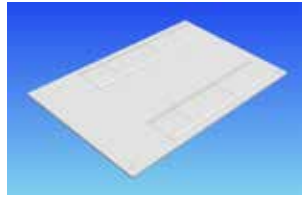
MIR20093

## Miracel® brush strip

- Brush strip for all covers with cable entry.
- For dust-protected and flexible cable entry.
- Can be used instead of mounting the sliding covers in the top cover.
- **Scope of delivery**
  - 2 x brush strips.
- **How supplied**
  - In sets.

Model	Order No.	UP
For rack width 700 / 800	01.130.999.9	2 units
For rack width 600	01.130.998.9	2 units

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		

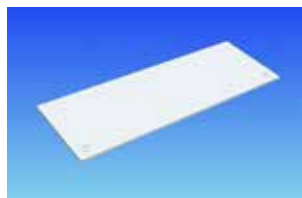


MIR20439

## Miracel® top cover with lateral cable entry

- With lateral cable entry on both sides (sliding plates).
- For orderly cable management in the rack.
- **Material**
  - Sheet steel 1.5 mm.
- **Finish / Color**
  - Final digit of order number 1: Powder-coated texture, RAL 7035, light-grey.
  - Final digit of order number 8: Powder-coated texture, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x top cover with lateral cable entry.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	D	For rack type	Order No.	UP
600	1000	Miracel®	01.130.630.X-003	1 unit
600	1100	Miracel®	01.130.630.X-004	1 unit
600	1200	Miracel®	01.130.630.X-005	1 unit
800	1000	Miracel®	01.130.630.X-008	1 unit
800	1100	Miracel®	01.130.630.X-009	1 unit
800	1200	Miracel®	01.130.630.X-010	1 unit



MIR20441

## Miracel® top cover short

- For covering the front area of the top; the rest remains open.
- Facilitates unobstructed cable entry in the rack.
- **Material**
  - Sheet steel 1.5 mm.
- **Finish / Color**
  - Final digit of order number 1: Powder-coated texture, RAL 7035, light-grey.
  - Final digit of order number 8: Powder-coated texture, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x cover, short.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.



MIR20440

B <sub>Rack</sub>	L	For rack type	Order No.	UP
600	250	Miracel®	01.130.628.X	1 unit
800	250	Miracel®	01.130.629.X	1 unit



MIR00064

## Miracel® side panel

- **Protection rating**
  - Installation with in the Miracel rack (depending on other rack components) achieves a maximum protection rating of IP 55.
- **Material**
  - Sheet steel 1.0 mm.
- **Finish / Color**
  - Order no. 1: Powder-coated texture, RAL 7035 light-grey.
  - Order no. 8: Powder-coated texture, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x side panel.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

H	D	U	Order No.	UP
1200	600	23	<b>01.130.643.X</b>	1 unit
1200	800	23	<b>01.130.649.X</b>	1 unit
1200	900	23	<b>01.130.655.X</b>	1 unit
1800	600	37	<b>01.130.646.X</b>	1 unit
1800	800	37	<b>01.130.652.X</b>	1 unit
2000	600	41	<b>01.130.647.X</b>	1 unit
2000	800	41	<b>01.130.653.X</b>	1 unit
2000	900	41	<b>01.130.659.X</b>	1 unit
2000	1000	41	<b>01.127.739.X</b>	1 unit
2000	1200	41	<b>01.128.874.X</b>	1 unit
2200	600	46	<b>01.130.648.X</b>	1 unit
2200	800	46	<b>01.130.654.X</b>	1 unit
2200	900	46	<b>01.130.660.X</b>	1 unit
2200	1000	46	<b>01.127.740.X</b>	1 unit
2200	1200	46	<b>01.128.875.X</b>	1 unit



MIR00064

## Miracel® rear panel

- **Protection rating**
  - Installation with in the Miracel rack (depending on other rack components) achieves a maximum protection rating of IP 55.
- **Material**
  - Sheet steel 1.0 mm.
- **Finish / Color**
  - Order no. 1: Powder-coated texture, RAL 7035 light-grey.
  - Order no. 8: Powder-coated texture, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x rear panel.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H	U	Order No.	UP
600	1200	23	<b>01.130.662.X</b>	1 unit
600	1800	37	<b>01.130.665.X</b>	1 unit
600	2000	41	<b>01.130.666.X</b>	1 unit
600	2200	46	<b>01.130.667.X</b>	1 unit
700	1200	23	<b>01.130.668.X</b>	1 unit
700	1800	37	<b>01.130.671.X</b>	1 unit
700	2000	41	<b>01.130.672.X</b>	1 unit
700	2200	46	<b>01.130.673.X</b>	1 unit
800	1200	23	<b>01.130.674.X</b>	1 unit
800	1800	37	<b>01.130.677.X</b>	1 unit
800	2000	41	<b>01.130.678.X</b>	1 unit
800	2200	46	<b>01.130.679.X</b>	1 unit

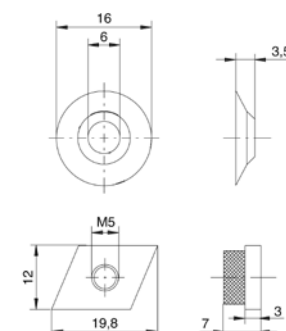


MIR20331

## Knürr Miracel® quick connectors For side and rear panels

- Covers can be secured quickly by rotating the locks 90°.
- Easy to turn with wide flat-head screwdriver.
- **Material / Color**
  - Final digit of order number 1: Polyamide PA66, RAL 7035, light-grey.
  - Final digit of order number 9: Polyamide PA66, RAL 9011, dark-grey.
- **How supplied**
  - Sets of 50 units.

Model	Order No.	UP
for side panel RAL 7035	<b>01.133.900.1</b>	1 set
for side panel RAL 9011	<b>01.133.900.9</b>	1 set
for rear panel RAL 7035	<b>01.133.910.1</b>	1 set
for rear panel RAL 9011	<b>01.133.910.9</b>	1 set



MIR00318

## Miracel® assembly kit Side panel threaded connection

- Used to screw on the side walls instead of quick connectors.
- Renders rack more sturdy.
- **Material**
  - Countersunk washers and mounting nuts, stainless steel.
- **Scope of delivery (for 2 side panels)**
  - 16 x countersunk washers.
  - 16 x mounting nuts, M5.
  - 16 x countersunk screws, M5 x 12.
- **How supplied**
  - In sets.

Order No.	UP
<b>01.130.937.9</b>	1 set



MIR00068

## Miracel® locking set for side or rear panel

- For installation in the side or rear panel. For protection against unauthorized access.
- Can be retrofitted.

- **Scope of delivery**
  - 1 x lockable fastener.
  - 2 x keys.

- **How supplied**
  - In sets.

Order No.	UP
01.130.938.9	1 set



MIR00076

## Miracel® plinth Fixed, height 200 mm

- Stationary included leveling options.
- Cable entry possible from all sides.
- Cover plate front and rear with vent slots and installation option for filter mat.

- **Load rating**
  - 3000 N static.

- **Material**
  - Sheet steel.

- **Finish**
  - Powder-coated texture, RAL 7035.

- **Scope of delivery**
  - 4 x plinth corners, incl. leveling feet.
  - 8 x cover plates.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

W	H	D	Order No.	UP
600	200	600	01.130.958.1	1 unit
600	200	800	01.130.959.1	1 unit
600	200	900	01.130.960.1	1 unit
600	200	1000	01.130.961.1	1 unit
600	200	1200	01.130.963.1	1 unit

800	200	600	01.130.970.1	1 unit
800	200	800	01.130.971.1	1 unit
800	200	900	01.130.972.1	1 unit
800	200	1000	01.130.973.1	1 unit
800	200	1200	01.130.975.1	1 unit

Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			



MIR00414

## Miracel® plinth Fixed, height 100 mm

- Stationary.
- Cable entry possible from all sides.
- Cover plate front and rear with vent slots and installation option for filter mat.

- **Load rating**
  - 5000 N static.

- **Material**
  - Sheet steel.

- **Finish**
  - Powder-coated texture, RAL 7035.

- **Scope of delivery**
  - 4 x plinth corners with leveling.
  - 2 x plinth cover plates with slots.
  - 2 x plinth cover plates closed on the side.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

W	H	D	Order No.	UP
600	100	600	01.130.538.1	1 unit
600	100	800	01.130.539.1	1 unit
600	100	900	01.130.540.1	1 unit
600	100	1000	01.127.650.1	1 unit
600	100	1200	01.133.710.1	1 unit
700	100	600	01.130.544.1	1 unit
700	100	800	01.130.545.1	1 unit
700	100	900	01.130.546.1	1 unit
700	100	1000	01.127.651.1	1 unit
700	100	1200	01.133.711.1	1 unit
800	100	600	01.130.550.1	1 unit
800	100	800	01.130.551.1	1 unit
800	100	900	01.130.552.1	1 unit
800	100	1000	01.127.652.1	1 unit
800	100	1200	01.133.712.1	1 unit



MIR00521

## Miracel® plinth trim with brush strip

- For cable entry on the side, front and rear.

- **Finish**
  - Powder-coated texture, RAL 7035.

- **Scope of delivery**
  - 1 x plinth cover plate with brush strip.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

W	D	Order No.	UP
600	600	01.130.744.1	1 unit
800	800	01.130.745.1	1 unit



## Miracel® filter mat for plinth cover plate for installation in plinth cover plate at the front and rear

- **Scope of delivery**
  - 2 x filter mats.
- **How supplied**
  - In sets.

W	Order No.	UP
600	<b>01.130.530.9</b>	2 units
700	<b>01.130.531.9</b>	2 units
800	<b>01.130.532.9</b>	2 units



MIR00077

## Miracel® plinth Mobile, height 100 mm

- Cable entry possible at the rear.
- With leveling feet for fixed model.

- **Load rating**
  - 3000 N static.
- **Material**
  - Sheet steel 2 mm.
- **Finish**
  - Powder-coated texture, RAL 7035.
- **Scope of delivery**
  - 1 x plinth frame.
  - 2 x fixed casters with snib.
  - 2 x swivel casters.
  - 4 x leveling feet.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H	D	Order No.	UP
600	100	600	<b>01.130.561.1</b>	1 unit
600	100	800	<b>01.130.562.1</b>	1 unit
600	100	900	<b>01.130.563.1</b>	1 unit
600	100	1000	<b>01.127.250.1</b>	1 unit
600	100	1200	<b>01.133.715.1</b>	1 unit
700	100	600	<b>01.130.565.1</b>	1 unit
700	100	800	<b>01.130.566.1</b>	1 unit
700	100	1000	<b>01.127.253.1</b>	1 unit
700	100	1200	<b>01.133.716.1</b>	1 unit
800	100	600	<b>01.130.569.1</b>	1 unit
800	100	800	<b>01.130.570.1</b>	1 unit
800	100	900	<b>01.130.571.1</b>	1 unit
800	100	1000	<b>01.127.254.1</b>	1 unit
800	100	1200	<b>01.133.717.1</b>	1 unit



## Side plinth, cover plate closed

- Suitable for plinth height of 100 mm.
- Cover plates, closed.
- **Material**
  - Sheet steel.
- **Finish**
  - Powder-coated texture, RAL 7035.
- **Scope of delivery**
  - 1 x plinth cover plate.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

H	D	Order No.	UP
100	600	<b>01.139.697.1</b>	1 unit
100	800	<b>01.139.698.1</b>	1 unit
100	900	<b>01.139.699.1</b>	1 unit
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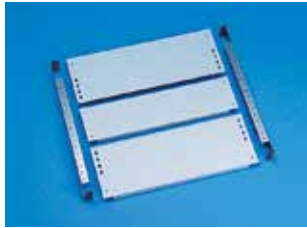


MIR00355

## Miracel® bottom plate For flexible cable entry with rubber seal, IP 40

- For covering the rack underside.
- With rubber seal for flexible cable entry at the front or rear.
- **Material / Finish**
  - Sheet steel, 1.5 mm, electroplated zinc.
  - Sponge rubber, 50 mm x 50 mm.
- **Scope of delivery**
  - 1 x cable entry.
  - 2 x bottom plates.
  - 2 x mounting brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	D	Order No.	UP
600	600	<b>01.130.732.0</b>	1 unit
600	800	<b>01.130.733.0</b>	1 unit
600	900	<b>01.130.734.0</b>	1 unit
600	1000	<b>01.127.670.0</b>	1 unit
600	1200	<b>01.133.740.0</b>	1 unit
700	600	<b>01.130.735.0</b>	1 unit
700	800	<b>01.130.736.0</b>	1 unit
700	900	<b>01.127.671.0</b>	1 unit
700	1000	<b>01.127.672.0</b>	1 unit
700	1200	<b>01.133.741.0</b>	1 unit
800	600	<b>01.130.738.0</b>	1 unit
800	800	<b>01.130.739.0</b>	1 unit
800	900	<b>01.130.740.0</b>	1 unit
800	1000	<b>01.127.673.0</b>	1 unit
800	1200	<b>01.133.742.0</b>	1 unit



MIR00357

## Miracel® bottom plate 3-piece

- For covering the rack underside.
- For flexible cable entry front and rear.
- **Material / Finish**
  - Sheet steel, 1.5 mm, zinc passivated.
- **Scope of delivery**
  - 3 x bottom plates.
  - 2 x mounting brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	D	Order No.	UP
600	600	01.130.750.0	1 unit
600	800	01.130.751.0	1 unit
600	900	01.130.752.0	1 unit
600	1000	01.127.660.0	1 unit
600	1200	01.133.730.0	1 unit
700	600	01.130.753.0	1 unit
700	800	01.130.754.0	1 unit
700	900	01.130.755.0	1 unit
700	1000	01.127.662.0	1 unit
700	1200	01.133.731.0	1 unit
800	600	01.130.756.0	1 unit
800	800	01.130.757.0	1 unit
800	900	01.130.758.0	1 unit
800	1000	01.127.663.0	1 unit
800	1200	01.133.732.0	1 unit

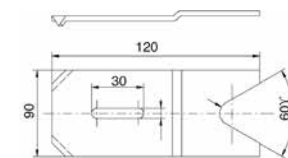


MIR20088

## Miracel® casters

- Can be mounted on the threaded eyelet of the basic rack.
- Caster diameter, 75 mm.
- Threaded bolt, M12.
- Load capacity per caster: 100 kg
- **Scope of delivery**
  - 4 x swivel casters.
- **How supplied**
  - In sets.

H	Order No.	UP
109.5	05.031.057.9	4 units



MIR00319

## Assembly kit for securing bottom plate

- **Material**
  - Sheet steel 3.0 mm.
- **Finish**
  - Galvanized.
- **Scope of delivery**
  - 4 x clamping plates.

Order No.	UP
01.130.934.7	4 units



MIR20462

## Bottom plate, perforated

- For vented racks.
- Replacement for segmented bottom plates.
- **Material / Finish**
  - Sheet steel, 1.5 mm, electroplated zinc.
- **Scope of delivery**
  - 1 x bottom plate.
- **How supplied**
  - In sets.

W	Order No.	UP
600	01.139.628.0	1 unit
700	01.139.629.0	1 unit
800	01.139.630.0	1 unit



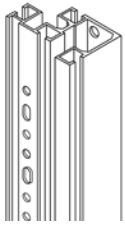
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## Front cover plate (pivots)

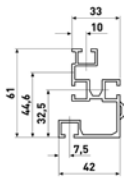
- For covering the side clearance space at the front of the 800-width Miracel racks.
- Easy to open for cable management..
- **Material / Finish**
  - Sheet steel, 1.0 mm, powder-coated texture.
- **Color**
  - Final digit of order number 1: RAL 7035 light-grey.
  - Final digit of order number 8: RAL 7021 dark-grey.
- **Scope of delivery**
  - 2 x front cover plates.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

H	U	Model	Order No.	UP
1003	23	For rack width 800	01.113.044.X	2 units
1803	41	For rack width 800	01.113.048.X	2 units
2002	46	For rack width 800	01.113.049.X	2 units

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



MIR00307

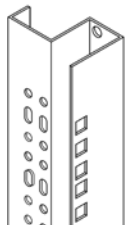


### Miracel® 19" vertical extrusion aluminum with T-slot and increment slide

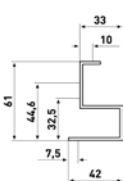
- For front and rear installation with in the rack.
- Spring nut, variable and adjustable, in U increments (19").
- Please order suitable assembly kit for rack widths 700 / 800.
- Screws and spring nuts for W 600.

- **Material**
  - Extruded aluminum, polished.
- **Scope of delivery**
  - 2 x vertical extrusions with increment slide.

H	U	h	Order No.	UP
1200	23	1100	<b>01.130.828.0</b>	2 units
1800	37	1700	<b>01.130.834.0</b>	2 units
2000	41	1900	<b>01.130.835.0</b>	2 units
2200	46	2100	<b>01.130.836.0</b>	2 units



MIR00309

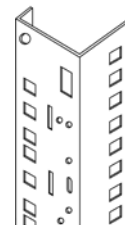


### Miracel® 19" vertical extrusion, steel with mounting holes

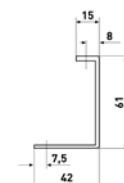
- For front and rear installation with in the rack.
- Caged nut mountable in U increments (19").
- Please order suitable assembly kit for rack widths 700 / 800.
- Screws and spring nuts for W 600.

- **Material**
  - Sheet steel, 1.5 mm, zinc passivated.
- **Scope of delivery**
  - 2 x vertical extrusions with mounting holes.

H	U	h	Order No.	UP
1200	23	1100	<b>01.130.803.0</b>	2 units
1800	37	1700	<b>01.130.809.0</b>	2 units
2000	41	1900	<b>01.130.810.0</b>	2 units
2200	46	2100	<b>01.130.811.0</b>	2 units



MIR20041

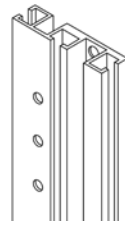


### Miracel® 19" server extrusion, steel with mounting holes

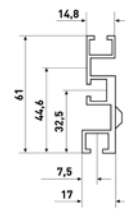
- For mounting trade-standard 19" servers.
- Please order suitable assembly kit for rack widths 700 / 800.
- Please order mounting adapter for Knürr standard components.

- **Material**
  - Sheet steel, 2 mm, zinc passivated.
- **Scope of delivery**
  - 4 x 19" server extrusions.

H	U	Order No.	UP
2000	41	<b>01.127.214.0</b>	4 units
2200	46	<b>01.127.215.0</b>	4 units



MIR00308



Type

### Miracel® vertical extrusion, ETSI 20 module / 21"

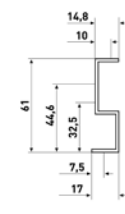
- For metric racks, 20 module 21".
- Spring nut, variable and adjustable in standard increments.
- Please order suitable assembly kit for rack widths 700 / 800.
- Screws and spring nuts for W 600.

- **Material**
  - Type 1: Extruded aluminum, polished.
  - Type 2: Sheet steel, 1.5 mm, zinc-passivated.

- **Scope of delivery**
  - 2 x vertical extrusions.



MIR00311



Type 2

H	Module	h	Model	Order No.	UP
1800	66	1700	alu. T-slot	<b>01.130.847.0</b>	2 units
2000	74	1900	alu. T-slot	<b>01.130.848.0</b>	2 units
2200	82	2100	alu. T-slot	<b>01.130.849.0</b>	2 units

H	Module	h	Model	Order No.	UP
1800	66	1700	steel mount. holes	<b>01.130.822.0</b>	2 units
2000	74	1900	steel mount. holes	<b>01.130.823.0</b>	2 units
2200	82	2100	steel mount. holes	<b>01.130.824.0</b>	2 units



LUF20337

### Miracel® U tape measure

- For sticking on Miracel® 19" extrusions.
- Enables fast component positioning at the correct U position.
- Standard length, 48 U; shorten as required.

- **Scope of delivery**
  - 1 x tape measure.

U	Order No.	UP
48	<b>01.128.400.9</b>	1 unit



MIR20044

### Miracel® mounting adapters for 19" server extrusion

- For mounting standard Knürr components (storage shelves, drawers, chassis rails, keyboard tray, etc.) in 19" installation space.

- **Material**
  - Zinc-passivated sheet steel.

- **Scope of delivery**
  - 4 x adapters.

U	Order No.	UP
1	<b>01.127.119.9</b>	4 units



MIR00510

## Miracel® assembly kits for extrusions

- **Scope of delivery**
  - 4 x node brackets (full-length).
  - 2 x node brackets (short).
  - 2 x Z brackets (short).
  - 1 x Mounting kit.

W	Model	Order No.	UP
700	short	<b>01.131.219.7</b>	1 set
800	short	<b>01.131.221.7</b>	1 set
700	full-length	<b>01.131.220.7</b>	1 set
800	full-length	<b>01.131.222.7</b>	1 set



MIR00089

## Multifunctional brace

- For routing cables with cable ties.
- For universal mounting option.
- Holes for mounting caged nuts.
- Distance between two multifunctional braces can be selected using T-slot.
- Installation on the extrusions of the rack frame or on the 19" extrusions, diagonal and lateral.

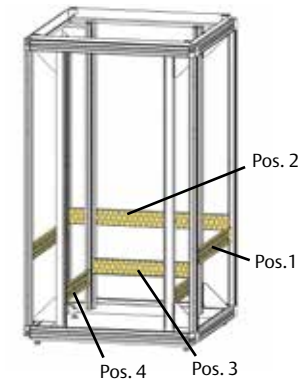
- **Installation positions**
  - 1 toward rear of basic frame.
  - 2 across width of basic frame.
  - 3 across width of 19" extrusions.
  - 4 toward rear of 19" extrusions.

- **Material**
  - Sheet steel 1.5 mm.

- **Finish**
  - Zinc-passivated.

- **Scope of delivery**
  - 4 x multifunctional braces.

- **How supplied**
  - In sets.



MIR88003

D <sub>Rack</sub>	d	Installation position	For rack type	Order No.	UP
600	1	1	Miracel	<b>05.040.160.9</b>	4 units
800	1	1	Miracel	<b>05.040.161.9</b>	4 units
900	1	1	Miracel	<b>05.040.162.9</b>	4 units
1000	1	1	Miracel	<b>05.040.163.9</b>	4 units
1100	1	1	Miracel	<b>05.040.164.9</b>	4 units
1200	1	1	Miracel	<b>05.040.165.9</b>	4 units
600	2	2	Miracel/Smaract	<b>05.040.173.9</b>	4 units
800	2	2	Miracel	<b>05.040.174.9</b>	4 units
		3	Miracel/Smaract/DPR	<b>05.040.175.9</b>	4 units
600	365	4	Miracel/Smaract	<b>05.040.168.9</b>	4 units
800	565	4	Miracel/Smaract	<b>05.040.169.9</b>	4 units
600	440	4	Miracel/Smaract	<b>05.040.170.9</b>	4 units
800	640	4	Miracel/Smaract	<b>05.040.171.9</b>	4 units
900	740	4	Miracel/Smaract	<b>05.040.172.9</b>	4 units
1000	740	4	Miracel/Smaract	<b>05.040.172.9</b>	4 units



MIR00216

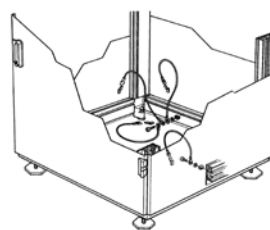
## Earthing set / door Side panel / rear panel

- For safe earthing of doors and panels.

- **Scope of delivery**
  - 1 x earthing connection.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

Model	Order No.	UP
for single steel / glass doors	<b>01.130.624.9</b>	1 set
for side and rear panel	<b>01.133.745.9</b>	1 set
for steel double doors	<b>01.139.540.9</b>	1 set
for glass doors or perforated double doors	<b>01.139.541.9</b>	1 set



MIR00217

## Rack earthing set

- For safe earthing of rack.
- Standardized protective conductor connection.

- **Standards**
  - IEC 950.
  - VDE 0100.

- **Scope of delivery**
  - 5 x earthing connections.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

Order No.	UP
<b>01.130.529.9</b>	1 set

Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			





MIR20452

## Miracel® partition wall can be retrofitted

- For air containment between two fixed adjacent racks.
- The partition wall is fitted between two racks and can be inserted from one side of the linking racks; guided along the upper rear-enclosure extrusion of one of the linked racks.
- After the partition wall has been inserted, fasteners are bent or welded on one side of the wall and screwed into the vertical T-slot to secure the structure. The rack connectors included in the supply are used on the opposite side.



MIR20453

- **Material**
  - Sheet steel 1.0 mm.
- **Finish / Color**
  - Powder-coated texture, RAL 7035 light-grey.
- **Scope of delivery**
  - 1 x partitioning wall for retrofitting.
  - 1 x set of rack connectors.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

H	D	Order No.	UP
2000	1000	01.133.835.1	1 unit
2000	1200	01.133.837.1	1 unit
2200	1000	01.133.838.1	1 unit
2200	1200	01.133.840.1	1 unit



MIR20450

## Miracel® partition wall mounted, fixed

- For air containment between two fixed adjacent racks.
- The partition wall is mounted on only one rack. It must be mounted before the other racks are installed.
- The partition wall is slotted in at the top of the rear extrusion and mounted to the basic rack with quick connectors. The rack connectors are then fitted to the top and bottom of the frame extrusions from the inside.
- Plastic cover extrusions are provided to seal the gap between two racks. These can be clipped into place at the front and back of the gap.



- **Material**
  - Sheet steel 1.0 mm.
- **Finish / Color**
  - Powder-coated texture, RAL 7035 light-grey.
- **Scope of delivery**
  - 1 x fixed partition wall.
  - 1 x set of rack connectors.
  - 2 x cover extrusions.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

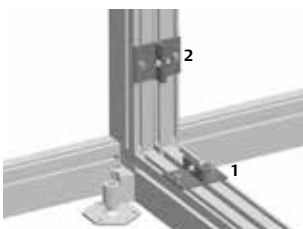
H	D	Order No.	UP
2000	1000	01.133.860.1	1 unit
2000	1200	01.133.862.1	1 unit
2200	1000	01.133.863.1	1 unit
2200	1200	01.133.865.1	1 unit



MIR00100

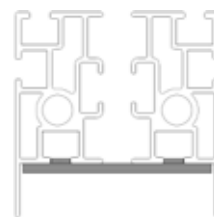
## Rack connector Internal mounting

- For mechanical, stable joining of rack and enclosure suites.
- **Material / Finish**
  - Sheet steel, 2 mm, zinc passivated.
- **Installation positions**
  - 1. On the horizontal extrusion (bottom and top; front and rear).
  - 2. Vertically on the vertical extrusion (front and rear; top and bottom).
- **Scope of delivery**
  - 8 x mounting brackets (for connecting 2 racks / frames).
  - 1 x Mounting kit.
- **How supplied**
  - In sets.
- **Note**
  - Only use on racks without partition walls.



MIR20442

Order No.	UP
01.130.935.7	1 set



MIR20465

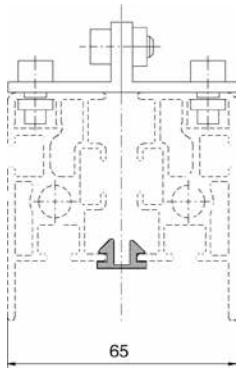
## Miracel® rack connector External mounting

- For secure connection of several racks.
- Front and rear external mounting.
- **Material**
  - Sheet steel, 1 mm, electroplated zinc.
- **Scope of delivery**
  - 6 x mounting straps.
  - 1 x Mounting kit.

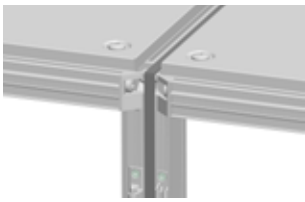


MIR20463

Order No.	UP
01.127.114.9	1 set



MIR00320



MIR20443

## Miracel® cover extrusion for rack suites, IP 20

- **Material**  
– PVC extruder cover, black.
- **Scope of delivery**  
– 2 x vertical lengths.  
– 2 x depth lengths.



MIR20447

## Miracel® Cover screws

- **Material**  
– Plastic.
- **How supplied**  
– Sets of 4 units.

Order No.	UP
01.131.751.9	4 units



MIR20464

## Miracel® Spacer bolt

- M12 bolts.
- **Scope of delivery**  
– Set of 4 units spacer bolt.

Order No.	UP
01.131.752.7	4 units

H	D	U	Order No.	UP
1200	600	23	01.131.270.9	1 set
1800	600	37	01.131.273.9	1 set
2000	600	41	01.131.274.9	1 set
2200	600	46	01.131.275.9	1 set
1200	800	23	01.131.276.9	1 set
1800	800	37	01.131.279.9	1 set
2000	800	41	01.131.280.9	1 set
2200	800	46	01.131.281.9	1 set
1200	900	23	01.131.282.9	1 set
1800	900	37	01.131.285.9	1 set
2000	900	41	01.131.286.9	1 set
2200	900	46	01.131.287.9	1 set
2000	1000	41	01.127.760.9	1 set
2200	1000	46	01.127.761.9	1 set
2000	1200	41	01.127.762.9	1 set
2200	1200	46	01.127.763.9	1 set

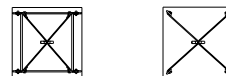
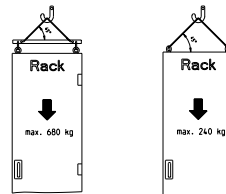


MEC00074

## Miracel® Crane eyes

- For hanging on crane hooks.
- The crane eyes are screwed into the threads provided on the basic frame.

- **Load rating**  
– Max. 6,800 N.
- **Material**  
– Tool steel, forged.
- **Scope of delivery**  
– 4 x ring bolts.  
– 4 x washers.
- **How supplied**  
– In sets.



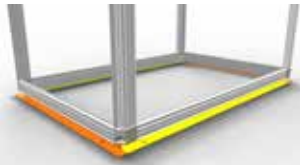
MEC20194

Order No.	UP
01.131.745.9	1 set

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



DCM20090



MIR20449

## Mounting bracket Fixed

- Sits flush ("airtight").
- Even load distribution on base.
- Also compatible with DCM racks.

### ■ Load rating

- 15,000 N static.

### ■ Material

- Sheet steel 3.0 mm.

### ■ Finish

- Order no. 1:  
Powder-coated texture,  
RAL 7035 light-grey.
- Order no. 8:  
Powder-coated texture,  
RAL 7021 dark-grey.

### ■ Scope of delivery

- 2 x mounting brackets for the depth.
- 2 x mounting brackets for the width.
- 1x Mounting kit.

### ■ How supplied

- In sets.

W	H	D	Order No.	UP
600	27	600	<b>01.147.509.X</b>	1 unit
600	27	700	<b>01.147.510.X</b>	1 unit
600	27	800	<b>01.147.511.X</b>	1 unit
600	27	900	<b>01.147.512.X</b>	1 unit
600	27	1000	<b>01.147.513.X</b>	1 unit
600	27	1100	<b>01.147.514.X</b>	1 unit
600	27	1200	<b>01.147.515.X</b>	1 unit
700	27	600	<b>01.147.517.X</b>	1 unit
700	27	700	<b>01.147.518.X</b>	1 unit
700	27	800	<b>01.147.519.X</b>	1 unit
700	27	900	<b>01.147.520.X</b>	1 unit
700	27	1000	<b>01.147.521.X</b>	1 unit
700	27	1100	<b>01.147.522.X</b>	1 unit
700	27	1200	<b>01.147.523.X</b>	1 unit
800	27	600	<b>01.147.525.X</b>	1 unit
800	27	700	<b>01.147.526.X</b>	1 unit
800	27	800	<b>01.147.527.X</b>	1 unit
800	27	900	<b>01.147.528.X</b>	1 unit
800	27	1000	<b>01.147.529.X</b>	1 unit
800	27	1100	<b>01.147.530.X</b>	1 unit
800	27	1200	<b>01.147.531.X</b>	1 unit

## @Lock – solutions for racks

### Access control for data centers and technical rooms

**Data centers are broken into on a regular basis. In many cases, the intention is simply to steal high-quality IT equipment. However, breaking in may only be a pretense for stealing data and/or putting in place a man-in-the-middle infrastructure.**

On 28 February 2011 for example, an important data center belonging to a global telecommunications service provider was paralyzed by intruders. Only a few weeks previously, a DC service provider working on behalf of a major health care company became the victim of an attempted break-in, which resulted in the entire security concept undergoing a TÜV audit. Generally speaking, attacks of this kind go undetected. Data centers are security areas and therefore need to be secured through various measures. An important part of this is controlling access to and in the data center.

Controlling access to the data center is usually achieved through a combination of organizational measures, e.g., gates and turnstiles, besides a building access control system.

Working with various partners, Emerson Network Power has developed system concepts which not only improve physical security through access controls within the data center but also simplify operative processes, making them less susceptible to errors. These concepts are known as "@Lock".



@lock solution with MLR handles in a co-location datacenter

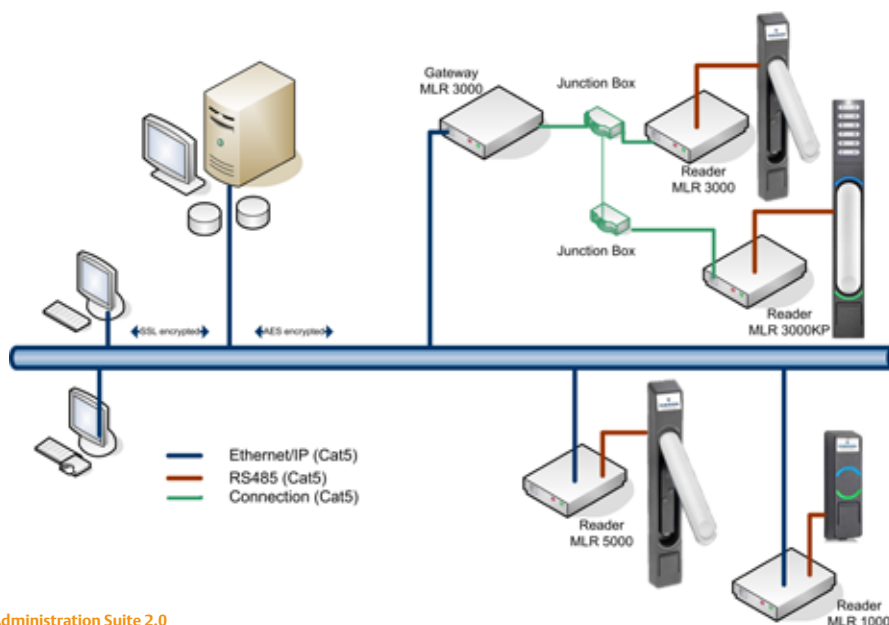
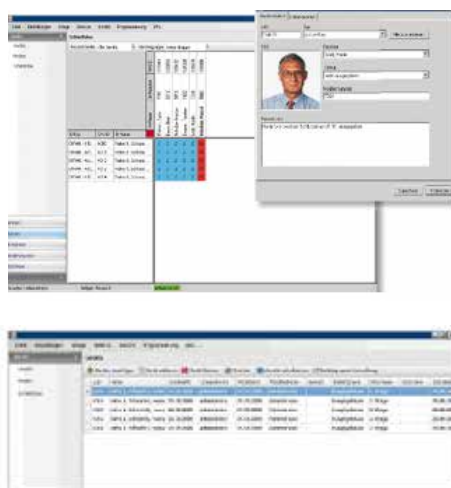


## Option 1: Transponder card system @Lock "transponder card system" concept

This system concept can be applied throughout – from the DC and cold aisle doors to the individual cabinets. In addition to the card readers and handles, the extensive "Administration Suite" management software is a key part of the system.

Thanks to its modular design and open infrastructure architecture, the new Administration Suite can be expanded as required and can also be implemented for third party providers.

- Encrypted data communication between the hardware, server and client.
- Runs on Windows 2000, Windows XP, Windows Vista, Windows Server 2003, Windows Server 2008, Citrix.
- Allows administration of various users with different types of authorization.
- Client/server capability.
- Web client-capable, SNMP alarming.
- Record changes made to the system by users.
- Straightforward user guidance in spite of extensive tools.
- Wide range of alarm messages.
- Automatic alarm notification via e-mail.
- Centralized locking plans and access management.
- Freely selectable four-eyes-principle.
- Support for the most common transponder types.
- Central management of various systems.
- Records all actions in "Log Events".
- Free replacement of the lock system if the authorizing medium is lost.
- Real-time visualization of the swing handle stations.
- Configuration of special days with different locking regimes.
- Allocation of time profiles for access.
- Able to export "Log Events".
- Multilingual software.



Administration Suite 2.0  
Order number: 01.180.049.9



**MLR 3000 and MLR 5000 handles are suitable for linking server or network cabinets to the transponder card system. The E-LINE, by Dirak mechatronic swing handles and the Administration Suite software, provide a convenient, reliable way of monitoring access to your data or server cabinet. With the Administration Suite software, security officers can conveniently monitor and manage access directly from a PC.**

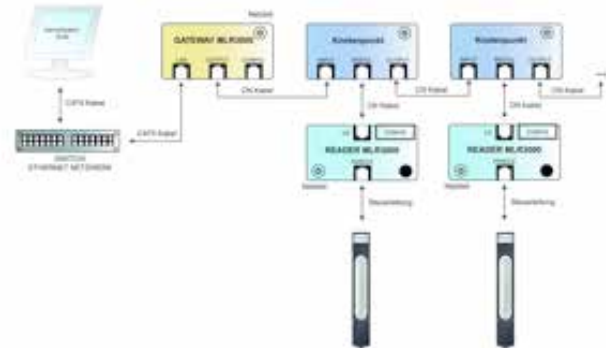
The integrated LEDs display alarm messages and types of authorization on the handle itself. As a result, technicians on site are given the same information that the Administration Suite software sends to the headquarters. LEDs at the top and bottom of the handle offer permanently high luminosity with low power consumption. As a result, the lock status can be determined quickly, even from a distance of several meters.

The top LED can indicate various statuses, such as that the handle is ready to be opened or locked. The bottom LED displays whether the handle is within or outside the temperature range for the cabinet selected by the customer. As a result, irregularities may be identified quickly, leaving enough time for appropriate action to be taken.

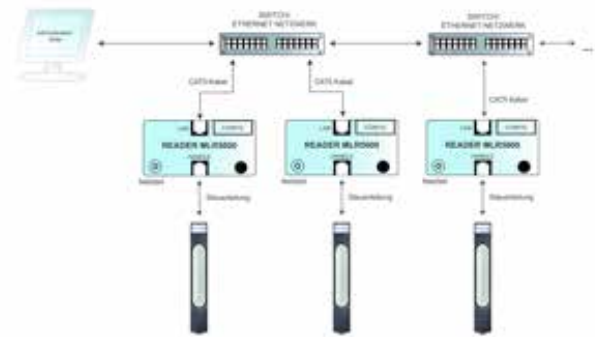
The information display integrated into the handle is backlit and allows customer-specific information, such as the cabinet row, cabinet number etc., to be added for extra clarity.

**Handles are also available with integrated Keypad (MLR5000KP). They can be used with either keycard, keypad or both (two-factor authentication).**

@LockMLR3000



@LockMLR5000



Technical data – @Lock MLR3000/5000

Handle electronics	
Two-part hardware design	Swing handle and reader unit
Visualization	Multicolored status LED
Reader	For 125 kHz transponders (HID 26 bit system), alternatively 13.56 MHz (MIFARE)
Reader	
Housing	Reader unit in plastic housing can be fixed with screws or self-adhesive pad
Power supply	12 V ± 10 % (DC) via low voltage socket
Standby current (system ready)	40 mA (DC)
Max. current consumption (with connector tightening)	440 mA (DC)
RS232 interface for MLR3000	RS232 cable (RXD, TXD, GND, Reader present, PC present), 38,400 baud
Current increase for MLR5000 via Ethernet interface	125 mA (DC)
TCP/IP interface	Ethernet, 10/100 Autosense, up to 100 Mbaud
Connecting cable (reader - handle electronics)	8-pole, 350 cm, UL stranded wire AWG 26, one side with gated RJ45 plug, one side with crimped JST ZH connector ZHR-8
Relay output (via screw clamps)	2.5 mm <sup>2</sup> , can be screwed in from plug side, relay contact: 12 V, 3 A, 60 W, 120
Door contact input (via screw clamps)	2.5 mm <sup>2</sup> , can be screwed in from plug side, terminals 1 and 2
RS485 interface	RS485 cable to the E-LINE by DIRAK Gateway, (+/A, -/B), 38,400 baud
Memory capacity for transponder cards	2000 + 1 master transponder
Memory capacity for events	500 (ring memory)
Memory capacity for time profiles	30
Integrated real-time clock	With buffering of up to 60 min at 25 °C
Temperature range	-20°C – +70°C

Type	Model	Order No.	UP
@LockMLR3000	for Miracel and DCM front door	<b>01.180.226.9</b>	1 unit
@LockMLR3000	for twin door (e.g. DCM rear door)	<b>01.180.227.9</b>	1 unit
@LockMLR5000	for Miracel and DCM front door	<b>01.180.228.9</b>	1 unit
@LockMLR5000	for twin door (e.g. DCM rear door)	<b>01.180.229.9</b>	1 unit
@LockMLR5000KP	for Miracel and DCM front door	<b>01.180.240.9</b>	1 unit
@LockMLR5000KP	for twin door (e.g. DCM rear door)	<b>01.180.241.9</b>	1 unit

Accessories	Order No.	UP
Door contact	<b>06.108.115.9</b>	1 unit
HID transponder card	<b>01.180.040.9</b>	1 unit
Desktop reader for the initial reading of transponder cards	<b>01.180.040.9</b>	1 unit
MLR3000 Gateway	<b>01.180.111.9</b>	1 unit
Plug-in power supply (Europe)	<b>01.180.035.9</b>	1 unit

Other plug-in power supplies on request

## Technical data – MLU3000/5000



**MLU card readers can be used to connect a room door with existing electromechanical locking or motorized cold aisle door (Coolfex):**

- Three-part hardware design MLU3000 set comprising: external MLU reader, network reader unit and MLU1000 lock.
  - Visualization on MLU reader: 2 x multicolored status LEDs and 1 x backlit information display.
  - Antenna for 125 kHz transponders (HID 26 bit system).
  - **Optional MLU1000 lock**
    - Die-cast zinc (GDZn), color: matt chrome.
    - 4 m control cable.
    - Power supply 24 V DC +/- 10 % 100 mA.
    - Proximity sensor status contact.
    - Wall/sheeting thickness independent.
    - Electronic opening by interrupting the power supply.
  - **MLU3000/MLU5000 network reader**
    - Housing reader unit in plastic housing can be fixed with screws or a self-adhesive pad.
    - Nominal input voltage 12/24/48 V ± 10 % (DC) depending on the electronic lock connected.
    - Standby current (system ready) 40 mA (DC).
    - Max. current consumption RJ12 (LOCK) 1.5 A (DC).
    - Max. current consumption via relay clamp 3.0 A (DC), clamps 10-11.
- RS232 interface RS 232 cable (RXD, TXD, GND, Reader present, PC present), 38,400 baud.
  - Connecting cable (reader - external MLU antenna) 8-pole, 350 cm, UL stranded wire AWG 26, one side with gated RJ45 plug, one side with crimped JST ZH connector ZHR-8.
  - Relay output (via screw clamps) 2.5 mm, can be screwed on from plug side, relay contact: 12 V, 3 A, 60 W, 120 VA, terminals 3 - 5.
  - Door contact input (via screw clamps) 2.5 mm<sup>2</sup> can be screwed from plug side, terminals 1 and 2.
  - RS485 - RS485 interface - cable to the E-LINE by DIRAK Gateway, (+/A, -/B), 38,400 baud (MLU3000).
  - TCP/IP Ethernet interface, 10/100 Autosense, up to 100 MBit/s (MLU5000).
  - Power off when open/closed: depending on the electronic lock connected, this is configured in the Administration Suite Config Tool.
  - Memory capacity for transponder cards 2000: + 1 master transponder.
  - Memory capacity for events: 500 (ring memory).
  - Memory capacity for time profiles: 30.
  - Integrated real-time clock with buffering of up to 60 min at 25 °C.
  - Temperature range -20°C – +70°C.

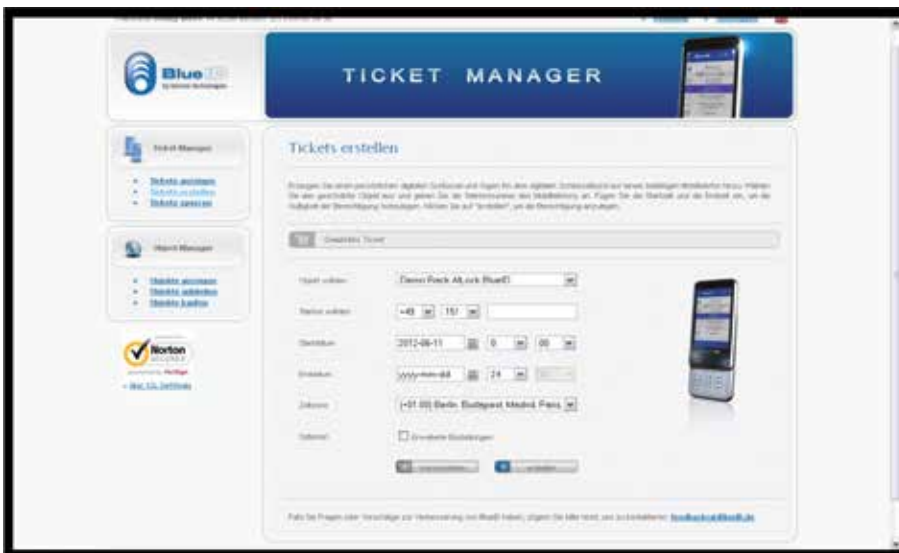
Type	Order No.	UP
MLU 3000	01.180.231.9	1 unit
MLU 5000	01.180.232.9	1 unit



## Option 2: BlueID @Lock "Blue ID" system concept

@Lock BlueID is an innovative data center locking system which is highly flexible and user-friendly. Instead of a set of keys or transponder cards, "virtual" keys, kept on mobile communication devices (smartphones, tablets etc.), are used. These virtual keys are transferred to a mobile device via SMS. No online access is necessary to use the keys.

The locking system comprises MLR1000 handles, a BlueID control system, a power supply, vouchers for generating keys (100 daily tickets, 10 yearly tickets, 10 reload tickets) and installation materials. Additional ticket packages or two additional MLR1000 handles per BlueID box can be ordered separately.



## Technical data – BlueID control system

- Dimensions: 157 x 86 x 58 mm (WxHxD) plus antenna and plug.
- Weight: 0.24 kg.
- Temperature range – storage: -40°C to +85°C.
- Temperature range – operation: -20°C to +70°C.
- Supply voltage: 7-32 V DC; max: 400 mA.
- Power consumption: 2 W.
- Relay switching voltage (max.): 250 V AC.
- Relay switching current (max.): 5 A.
- Contact clamps (potential-free): 4 x 2.
- Optocoupler inputs (potential-free): 4 x 2.
- Connection: Bluetooth 2.0 EDR.
- Connection: Ethernet (RJ45).
- Internal antenna connection: RP-SMA (right hand thread).
- Bluetooth range: up to 5 m / up to 50 m / up to 150 m.
- Security specification: allocation of access authorization and command execution.
- RSA/AES-encrypted up to 4,096 bit.
- Security specification: connection to trust center infrastructure in ISO/IEC 27001:2005-certified data center.
- Security specification: FIPS 140-2-certified cryptography modules; security specification: certificate-based ticket issuing (SHA).
- Security specification: public key infrastructure (PKI).
- Protection class: IP20.
- Certification: CE.

Type	Order No.	UP
Knürr bundle. @LockBlueID for Knürr DCM	<b>01.180.320.0</b>	1 unit
Package of 100 daily tickets	<b>01.180.321.0</b>	1 unit
Package of 10 yearly tickets	<b>01.180.322.0</b>	1 unit
Package of 10 reload tickets	<b>01.180.323.0</b>	1 unit

## Option 3: Potential-free contacts @Lock "potential-free contacts" system concept

Swing handles from the @Lock MLR1000 range are suitable for connecting electromechanical swing handles to existing building management systems or local identification systems, in addition to complementing @LockBlueID or rack monitoring systems.

The handle can be opened as soon as its potential-free contacts are activated or a voltage of 12-24 V DC is supplied. Following activation, the MLR1000 switches to ready-to-open status.

During this period, the user can open the MLR1000 by pressing a button. The LED at the top of the handle offers permanently high luminosity with a low power consumption. As a result, the lock status can be determined quickly, even from a distance of several meters.

The information display integrated into the handle is backlit and allows customer-specific information such as the cabinet row, cabinet number etc., to be added for further clarity.

### Technical data – @LockMLR1000

#### Handle electronics

Two-part hardware design	MLR1000 and MLR1000 Box
Visualization	Status LED

#### MLR1000 Box

Housing	Interface unit, plastic housing can be fixed with screws or self-adhesive pad
Power supply	12 V DC ± 10 % via screw clamps
Standby current (system ready)	40 mA (DC)
Max. current consumption (with connector tightening)	410 mA (DC)
Operating mode	100 % ED
Relay control	12V DC
Operating time	Max. 3 seconds
Contact output	250 V AC, 2 A
Installation position	Vertical
Connection type	Screw clamps, 2.5mm <sup>2</sup>
Connecting cable (reader - handle electronics)	8-pole, 350 cm, UL stranded wire AWG 26, one side with gated RJ45 plug, one side with crimped JST ZH connector ZHR-8
Temperature range	-20°C – +70°C

	@Lock MLR5000	@Lock MLR3000	@Lock MLR1000	@Lock BlueID
Software necessary	Admin Suite	Admin Suite	Custom	Web browser, Mobile phone app
E-Line Administration Suite Software	Yes	Yes	No	No
External emergency power supply connector	Yes	Yes	Yes	No
Identification	Transponder card	Transponder card	Dependent on customer's equipment and software	BlueID
IP support	Yes	Gateway	No	Optional
Log files	Yes (in combination w. Administration Suite)	Yes (in combination w. Administration Suite)	Dependent on customer's equipment and software	Optional
User profiles	Yes (in combination w. Administration Suite)	Yes (in combination w. Administration Suite)	Dependent on customer's equipment and software	No
Four-eyes-principle	Yes (in combination w. Administration Suite)	Yes (in combination w. Administration Suite)	Dependent on customer's equipment and software	Yes
Off-line mode	No	No	No	Yes
Technology partner	Eline by Dirak	Eline by Dirak	Eline by Dirak	BlueID by Baimos Technologies

Type	Model	Order No.	UP
@LockMLR1000	for Miracel and DCM front door	<b>01.180.224.9</b>	1 unit
@LockMLR1000	for twin doors (e.g. DCM rear door)	<b>01.180.225.9</b>	1 unit

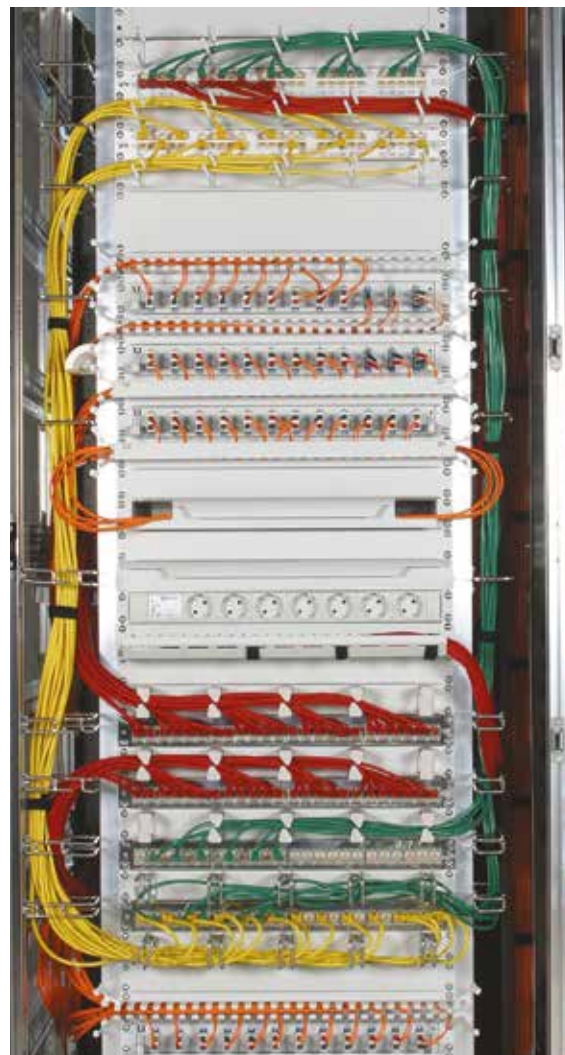
# Knürr Cable Management

## Features

- Allows for prescribed cable radii.
- Components are easy to secure and use.
- Components feature addition functions.
- Extensive use of reusable Velcro strips precludes cable strain.
- No blockage of airflow within the rack.

## Global networking is continuing to grow, meaning users are in need of an intelligent cable management solution.

To meet this demand, Knürr offers a range of products and solutions for server racks, active and passive network racks, as well as special racks. Our range not only allows you to quickly and easily set up and dismantle racks, it also makes it much simpler to troubleshoot problems in your systems and expand your systems. Our cable management components are all based on a number of key principles: Simple and self-explanatory operation, versatile application options, a clear structure, and a cost-efficient design. Thanks to the Knürr cable management system, your rack will be equipped for the future and will save you time and money for the long term.





MEC20064



MEC20084



MEC20086

## Knürr Cable Management Terminology

Laying cables involves ensuring that mechanical stresses are completely avoided.

### ■ Bending load

The bending radii may never fall below the values provided by the cable manufacturer in the respective data sheets. Where excessive bending occurs, the cables' electrical properties are impaired, and transmission bandwidths and ranges are adversely affected. If manufacturer specifications are not available, then the following rule of thumb applies: loose cabling should be at least 15 times the external cable diameter and fixed cabling at least 10 times the external cable diameter.

### ■ Buckling load

Extreme bending loads can cause the cable to break.

### ■ Tensile load

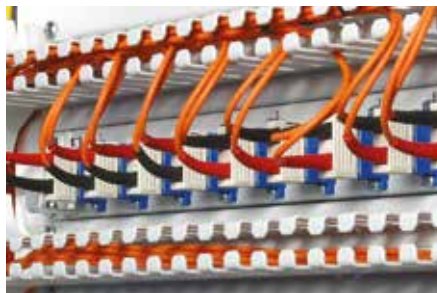
This is determined solely by the copper cross-section of the conductor, as all other materials are too soft. The cable may not be exposed to stress exceeding 50 N/mm<sup>2</sup> (Cu cross-section) as this causes the conductors to stretch which reduces the cross-section. If higher "pulling" forces are required, cables with additional strain-reduction elements must be used.

### ■ Compressive stress

Compressive stress is caused by loads bearing down from above, fixed clamping or sharp cable kinking and must always be avoided, as otherwise the "loose" cable structure changes and electrical transmission properties are impaired.

### ■ Torque strains (twisting)

Cables must never be subjected to torque strains, as they cause cable elements to shift and change their position relative to each other, thereby impairing transmission properties.



LIG00021

## Knürr Cable Management Proper Usage



1. MEC20082

- Various components for fiberglass and copper cables – especially fastening options such as Velcro and cable bundling using different colored strips – guarantee transparent cable management, providing an optimal starting point for both intelligent network expansion and ideal service convenience. (1)
- Special attention has been paid to ensuring that all cable management components can be fastened with Velcro strips which eliminate cable strain and can be reused at any time. Velcro cable ties also aid the installation technician as they are easily manageable, using pinch-free cable bundling. (2)
- Excess cable is stored separately from the patch fields while remaining easily accessible. Copper cable excess can be stored separately from fiber glass excess within the Knürr rack systems: the copper cables are stored on the side while the more sensitive fiberglass cables are stored in a drawer at the front. (3)
- A closer look at the individual products reveals their outstanding versatility. The cable-routing multifunctional brace, for example, not only provides the option of routing cables both horizontally and vertically using Velcro or cable ties, but additionally allows numerous components to be mounted with screws and caged nuts. These caged nuts can also be shifted in a slot with room for play, so that every mounting dimension is accommodated. (4)



2. MEC20070



3. MEC20099



3. MEC20079



4. MEC20077



4. MEC20091



5. MEC20071

# Knürr Cable Management

## Overhead Cabling

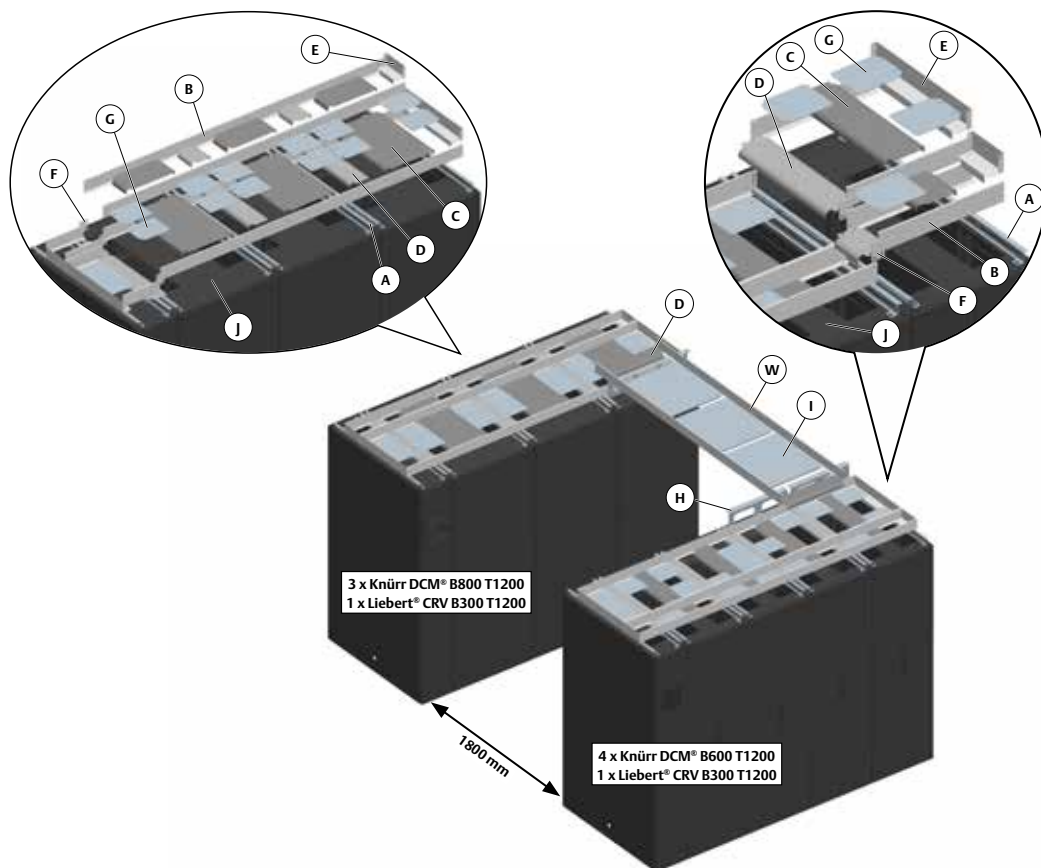
### Features

- Modular, extremely flexible.
- Robust construction.
- Includes integrated radius for cable entry into rack.
- New cover panel with lateral cable entry.
- Selection of cable throughs and mesh cable trays.
- Suitable for DCM® and Miracel®.
- Includes SmartAisle™ enclosure. Various combinations possible.

### Emerson Network Power's Overhead Cabling Solution

The Knürr overhead cable management system is a complete, modular system which offers a variety of cable-tray installment options. The components are very flexible and can be installed on site or modified with ease, to accommodate cable-management requirements that differ from rack to rack. This extremely sturdy and robust system can withstand high stress levels and is suitable for any application. Combined with other items from the Knürr cable-management product range, it provides a comprehensive solution that delivers proper cable bend radii.

### Example of Overhead Configuration



### Legend

- A** Support bracket
- W** Mounting bracket
- C** Center panel insert
- D** Transitional cover
- E** End panel insert
- F** Connecting panel insert
- G** Cover plate
- H** Support bracket cross-cabling
- I** Cover cross-cabling
- J** New cover panel with lateral cable entry

Configuration Assistant

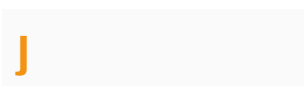
Sample Order	Name	Item	
<b>- Left rack suite</b>	Knürr DCM® B800 T1200	3	01.147.722.8
	New cover panel with lateral cable entry (J)	3	01.147.579.8
	Liebert® CRV B300 T1200	1	CR0302XXX-XXXXXX
	Support bracket (A)	4	05.045.005.X
	Mounting bracket (B)	2	05.045.011.X
		2	05.045.015.X
	Center panel insert (C)	3	05.045.023.X
		3	05.045.024.X
	Transitional cover (D)	3	05.045.031.X
		3	05.045.032.X
	End panel insert (E)	1	05.045.041.X
		1	05.045.042.X
	Connecting panel insert (F)	1	05.045.045.X
	Cover plate (G)	2	05.045.047.X
<b>- Right rack suite</b>	Knürr DCM® B800 T1200	4	01.147.714.8
	New cover panel with lateral cable entry (J)	4	01.147.574.8
	Liebert® CRV B300 T1200	1	CR0302XXX-XXXXXX
	Support bracket (A)	4	05.045.005.X
	Mounting bracket (B)	2	05.045.011.X
		8	05.045.012.X
	Center panel insert (C)	4	05.045.021.X
		4	05.045.022.X
	Transitional cover (D)	4	05.045.031.X
		4	05.045.032.X
	End panel insert (E)	1	05.045.041.X
		1	05.045.042.X
	Connecting panel insert (F)	2	05.045.045.X
	Cover plate (G)	2	05.045.047.X
<b>- Cross-cabling</b>	Support bracket (H)	1	05.045.052.X
		1	05.045.053.X
	Mounting bracket (B)	1	05.045.015.X
	Transitional cover (D)	2	05.045.032.X
	Cover (I)	1	05.045.057.X

## Required Data for Overhead Cabling

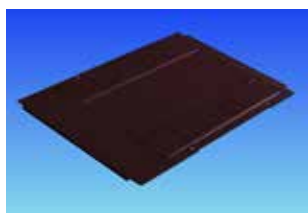
## Example

– Width of racks in the rack suite (300, 600 or 800 mm)	Rack width (W) = 800 mm
– Depth of racks in the rack suite (1000 to 1200 mm)	Rack depth (D) = 1200 mm
– Number of racks in one rack suite	
– Aisle width (Standard dimensions 1200, 1500 and 1800 mm ± 50 mm) – for cross-cabling	Aisle width (AW) = 1800 mm
– Color (light-grey RAL 7035 or dark-grey RAL 7021)	Dark-grey RAL 7021

## Prerequisites for Overhead Cabling



### DCM® cover panel with lateral cable entry



DCM20079

- With lateral cable entry on both sides (sliding plates).
- For orderly cable management with in the rack.
- Optional brush strips.

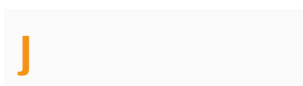
■ **Material**  
– Sheet steel, 1.5 mm.

■ **Finish / Color**  
– Final digit of order number .1: powder-coated, RAL 7035.  
– Final digit of order number .8: powder-coated, RAL 7021.

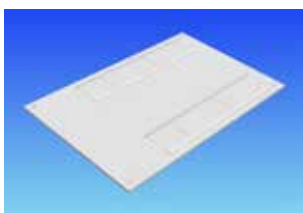
■ **Scope of delivery**  
– 1 x cover panel with lateral cable entry.  
– 1 x Mounting kit.

■ **How supplied**  
– In sets.

W <sub>Rack</sub>	D <sub>Rack</sub>	For rack type	Order No.	UP
600	1000	DCM®	<b>01.147.572.X</b>	1 unit
600	1100	DCM®	<b>01.147.573.X</b>	1 unit
600	1200	DCM®	<b>01.147.574.X</b>	1 unit
800	1000	DCM®	<b>01.147.577.X</b>	1 unit
800	1100	DCM®	<b>01.147.578.X</b>	1 unit
800	1200	DCM®	<b>01.147.579.X</b>	1 unit



### Miracel® cover panel with lateral cable entry



MIR20439

- With lateral cable entry on both sides (sliding plates).
- For orderly cable management with in the rack.
- Optional brush strips.

■ **Material**  
– Sheet steel, 1.5 mm.

■ **Finish / Color**  
– Final digit of order number .1: powder-coated, RAL 7035 light-grey.  
– Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

■ **Scope of delivery**  
– 1 x cover panel with lateral cable entry.  
– 1 x Mounting kit.

■ **How supplied**  
– In sets.

W <sub>Rack</sub>	D <sub>Rack</sub>	For rack type	Order No.	UP
600	1000	Miracel®	<b>01.130.630.X-003</b>	1 unit
600	1100	Miracel®	<b>01.130.630.X-004</b>	1 unit
600	1200	Miracel®	<b>01.130.630.X-005</b>	1 unit
800	1000	Miracel®	<b>01.130.630.X-008</b>	1 unit
800	1100	Miracel®	<b>01.130.630.X-009</b>	1 unit
800	1200	Miracel®	<b>01.130.630.X-010</b>	1 unit

#### Dimensions in mm:

W = Width L = Length U = Standard rack unit kg = Weight  
H = Height R = Bending radius (1 U = 44.45 mm)  
D = Depth UP = Packaging unit

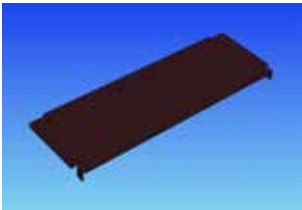
#### Conversion:

1 mm = 0.03937 inch  
1 kg = 2.2046 pounds



## K

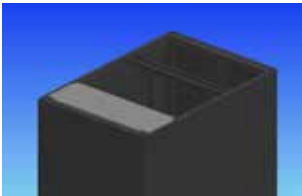
### DCM® cover panel short



DCM20081

- For covering the front overhead area; the rest remains open.
- Facilitates unobstructed cable entry inside the rack.

- **Material**
  - Sheet steel, 1.5 mm.
- **Finish / Color**
  - Powder-coated texture, RAL 7021, dark-grey.



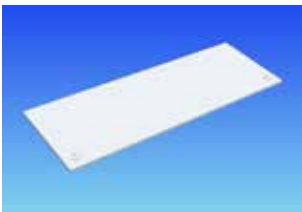
DCM20080

- **Scope of delivery**
  - 1 x cover panel, short.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W <sub>Rack</sub>	L	For rack type	Order No.	UP
600	250	DCM®	<b>01.147.268.8</b>	1 unit
800	250	DCM®	<b>01.147.269.8</b>	1 unit

## K

### Miracel® cover panel short



MIR20441

- For covering the front overhead area; the rest remains open.
- Facilitates unobstructed cable entry inside the rack.

- **Material**
  - Sheet steel, 1.5 mm.
- **Finish / Color**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.



MIR20440

- **Scope of delivery**
  - 1 x cover panel, short.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W <sub>Rack</sub>	L	For rack type	Order No.	UP
600	250	Miracel®	<b>01.130.628.X</b>	1 unit
800	250	Miracel®	<b>01.130.629.X</b>	1 unit

## A

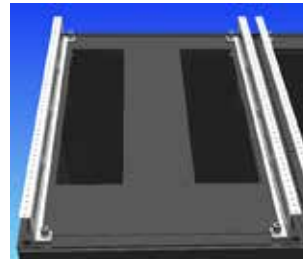
### Support bracket



MEC20200

- Secures corner piece at the top of the rack.
- Quick and easy mounting.
- Suitable for both Miracel and DCM racks.
- Includes screw for securing the mounting brackets, transitional cover and end panel inserts.

- **Material**
  - Sheet steel 2.0 mm.



MEC20201

- **Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

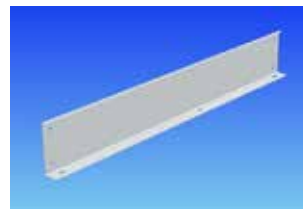
- **Scope of delivery**
  - 2 x support brackets.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

H	D <sub>Rack</sub>	For rack type	Order No.	UP
44	1000	Miracel®/DCM®	<b>05.045.003.X</b>	1 set
44	1100	Miracel®/DCM®	<b>05.045.004.X</b>	1 set
44	1200	Miracel®/DCM®	<b>05.045.005.X</b>	1 set

## B

### Mounting brackets



MEC20202

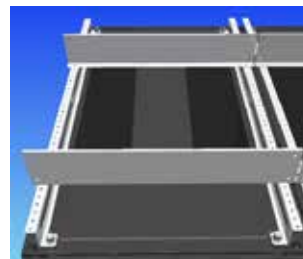
- Secured on support bracket.
- Quick and easy mounting.
- Separate cable trays.

- **Material**
  - Sheet steel 1.0 mm.

- **Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

- **Scope of delivery**
  - 2 x mounting brackets.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

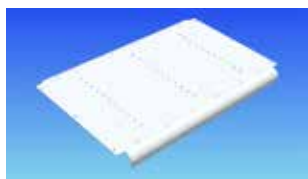


MEC20203

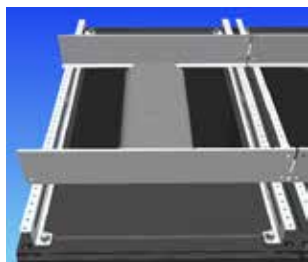
W / L	H	For rack type	Order No.	UP
300	90	Miracel®/DCM®	<b>05.045.011.X</b>	1 set
600	90	Miracel®/DCM®	<b>05.045.012.X</b>	1 set
800	90	Miracel®/DCM®	<b>05.045.013.X</b>	1 set
2400	90	Miracel®/DCM®	<b>05.045.015.X</b>	1 set
3000	90	Miracel®/DCM®	<b>05.045.016.X</b>	1 set

## C

### Center panel insert



MEC20205



MEC20204

- Secured on mounting bracket.
- Quick and easy mounting.
- With 25 mm radius for bending the cables.

■ **Material**  
- Sheet steel, 1.5 mm.

■ **Finish**  
- Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.

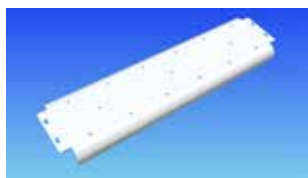
■ **Scope of delivery**  
- 1 x center panel insert.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.

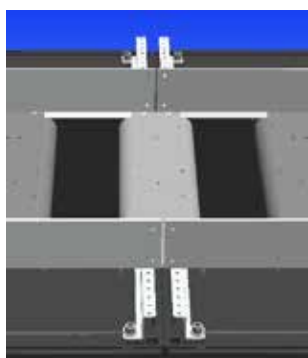
W / L	W <sub>Rack</sub>	R	For rack type	Order No.	UP
200	600	25	Miracel®/DCM®	<b>05.045.021.X</b>	1 set
600	600	25	Miracel®/DCM®	<b>05.045.022.X</b>	1 set
200	800	25	Miracel®/DCM®	<b>05.045.023.X</b>	1 set
600	800	25	Miracel®/DCM®	<b>05.045.024.X</b>	1 set

## D

### Transitional cover from rack to rack



MEC20206



MEC20212

- Secured on support bracket.
- Quick and easy mounting.
- With 25 mm radius for bending the cables.

■ **Material**  
- Sheet steel, 1.5 mm.

■ **Finish**  
- Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.

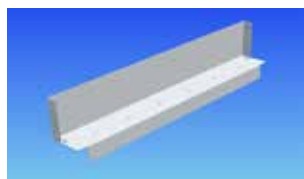
■ **Scope of delivery**  
- 1 x transitional cover.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.

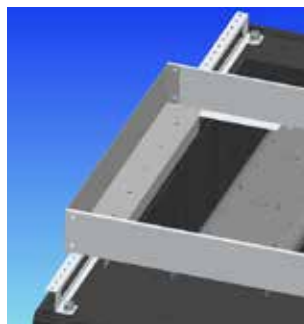
W / L	R	For rack type	Order No.	UP
200	25	Miracel®/DCM®	<b>05.045.031.X</b>	1 set
600	25	Miracel®/DCM®	<b>05.045.032.X</b>	1 set

## E

### End panel insert



MEC20207



MEC20214

- Secured on support bracket.
- Quick and easy mounting.
- Completes cable trays.

■ **Material**  
- Sheet steel 1.0 mm.

■ **Finish**  
- Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.

■ **Scope of delivery**  
- 2 x end panel inserts.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.

W / L	For rack type	Order No.	UP
200	Miracel®/DCM®	<b>05.045.041.X</b>	1 set
600	Miracel®/DCM®	<b>05.045.042.X</b>	1 set

## F

### Connecting panel insert



MEC20208



MEC20213

- For joining mounting brackets.
- Quick and easy mounting.

■ **Material**  
- Sheet steel, 1.5 mm.

■ **Finish**  
- Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.

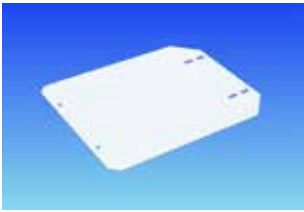
■ **Scope of delivery**  
- 10 x connecting panel inserts.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.

W	H	For rack type	Order No.	UP
64	86	Miracel®/DCM®	<b>05.045.045.X</b>	1 set

## G

### Cover plate



MEC20209

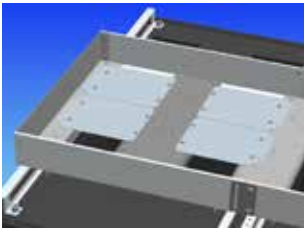
- For covering the space between the center panel inserts and transitional covers.
- Quick and easy mounting.

■ **Material**  
- Sheet steel 1.0 mm.

■ **Finish**  
- Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.

■ **Scope of delivery**  
- 10 x cover plates.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.



MEC20215

L	W	For rack type	Order No.	UP
229	183	Miracel®/DCM®	05.045.047.X	1 set

## Option

### Mesh cable tray



MEC20218

- Secured on support bracket.
- Quick and easy mounting.

■ **Material**  
- Round steel, d = 4.5 mm.

■ **Finish**  
- Zinc-passivated.

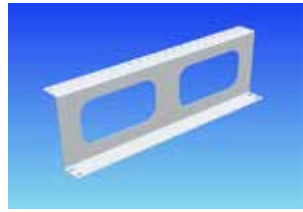
■ **Scope of delivery**  
- 1 x mesh cable tray.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.

B	L	H	For rack type	Order No.	UP
200	3000	54	Miracel®/DCM®	05.045.061.9	1 set
600	3000	54	Miracel®/DCM®	05.045.062.9	1 set

## H

### Support bracket Cross-cabling



MEC20210

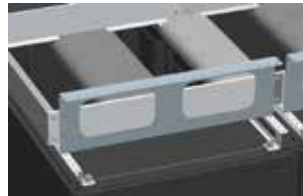
- For cable management at the top between rack suites.
- Quick and easy mounting.
- Includes screw for securing the mounting brackets, transitional covers and cover plates.

■ **Material**  
- Sheet steel 2.0 mm.

■ **Finish**  
- Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.

■ **Scope of delivery**  
- 2 x support brackets, cross-cabling.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.

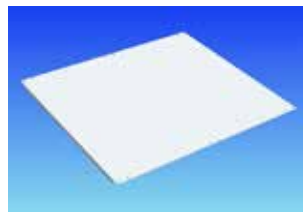


MEC20216

H	W <sub>Rack</sub>	For rack type	Order No.	UP
166	600	Miracel®/DCM®	05.045.052.X	1 set
166	800	Miracel®/DCM®	05.045.053.X	1 set

## I

### Cross-cabling Cover



MEC20211

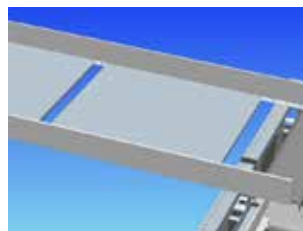
- Provides support for cables and covers the space between the rack suites.
- Secured on mounting bracket.
- Quick and easy mounting.

■ **Material**  
- Sheet steel 1.0 mm.

■ **Finish**  
- Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.

■ **Scope of delivery**  
- 5 x cover plates.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.



MEC20217

L	W	For rack type	Order No.	UP
200	200	Miracel®/DCM®	05.045.055.X	1 set
200	600	Miracel®/DCM®	05.045.056.X	1 set
600	600	Miracel®/DCM®	05.045.057.X	1 set

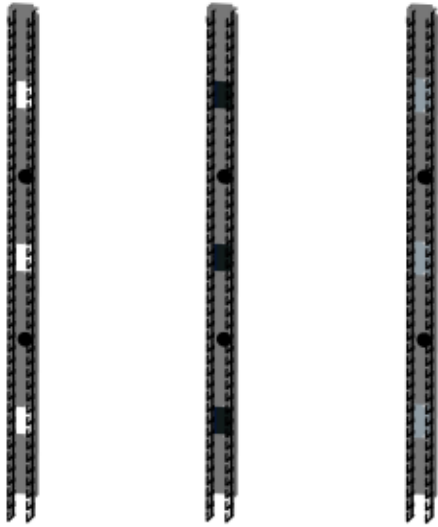
#### Dimensions in mm:

W = Width L = Length U = Standard rack unit kg = Weight  
H = Height R = Bending radius (1 U = 44.45 mm)  
D = Depth UP = Packaging unit

#### Conversion:

1 mm = 0.03937 inch  
1 kg = 2.2046 pounds

## Knürr cable manager



Type 1

Type 2

Type 3

### Features

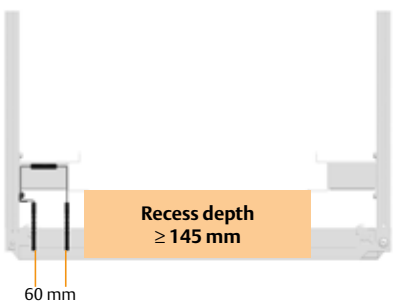
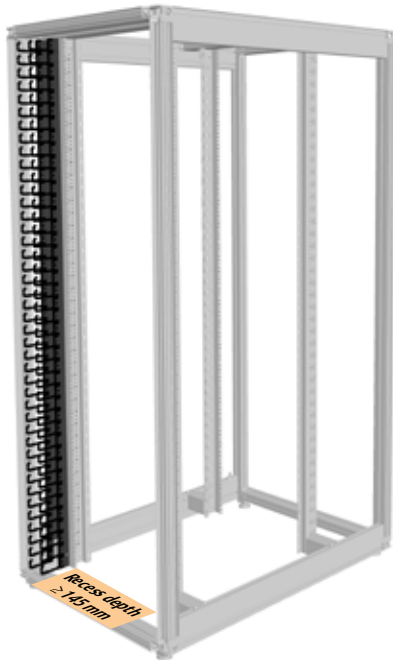
- Organized cabling of jumper cables.
- Suitable for 19" Knürr, DCM® and Miracel® racks.
- Also available optionally as cold/warm partitioning.
- Cutouts for cabling from front to back.
- Lightweight plastic construction of the cable fingers ensures durability and simple installation (clip-on).
- Distance between fingers provides sufficient space for all patch cords.
- Rounded edges on the fingers protect cables against damage.

## Cable manager models

- **Type 1:** Standard (open cutouts).
- **Type 2:** Version with brush strips in cutouts for cable routing towards the rear.
- **Type 3:** Version with sheet-steel cover plates in cutouts as part of the cold/warm partitioning.

## Technical data and required recess depths

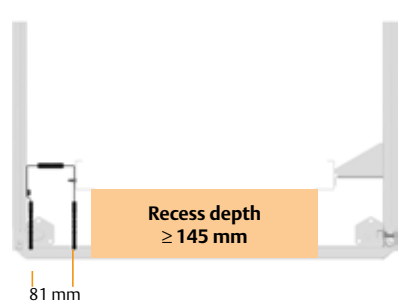
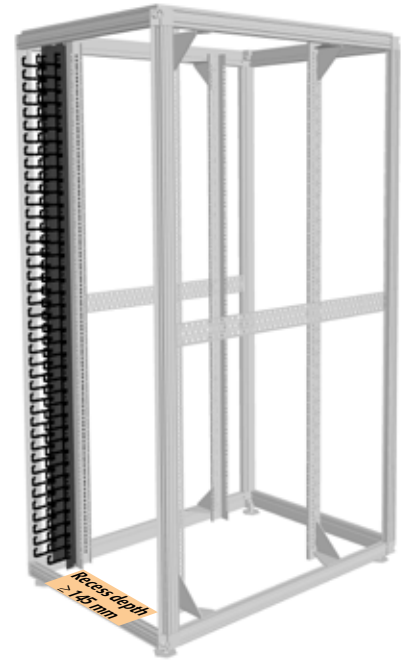
### Knürr DCM®



### Knürr DCM®



### Knürr Miracel®



## DCM® cable manager, vertical



DCM20118



DCM20119

### Description

- **Left and right models (2 cable managers) included in the delivery.**
- Ideal for organizing cabling of jumper cables (copper and fiber optic cables).
- Retrofitting is possible.
- Prepared for full cold/warm partitioning.
- Cable fingers can be easily installed (clipped on).
- Cabling towards the rear through rubber bushings or cutouts.
- **Can be used for recess depths from 145 mm.**

### Material / Finish

- Cable duct: Sheet steel, 2.0 mm.
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- Cable fingers: Polyamide (UL 94 V-0), black.

### Scope of delivery

- 1 x cable duct, left.
- 1 x cable duct, right.
- 4 x rows with cable fingers.
- 4 x rubber bushings.
- 1 x Mounting kit.

### How supplied

- In pairs (cable fingers unassembled).

W <sub>Rack</sub>	H <sub>Rack</sub>	U	Recess depth	Cutout size	Order No.	UP
800	2000	42	Starting from 145 mm	66 x 100 mm	<b>05.045.102.X</b>	1 pair
800	2200	47	Starting from 145 mm	66 x 100 mm	<b>05.045.103.X</b>	1 pair

## DCM® cover panel for vertical cable manager



DCM20120



DCM20121

- **For only 1 cable manager, i. e., 2 kits required for B800 rack.**
- Covers the vertical cable manager.
- Tool-less fastening – clips onto cable finger.
- Can be swiveled on both sides and removed completely.

### Material / Finish

- Cover: sheet steel, 2.0 mm.
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- Clip: polyamide (UL 94 V-0), black.

### Scope of delivery

- 2 x covers.
- 8 x clips.

### How supplied

- In sets (clips pre-assembled).

W	H	U	Order No.	UP
55	927	42	<b>05.045.112.X</b>	1 set
55	1038	47	<b>05.045.113.X</b>	1 set



DCM20117

## DCM® kit for air partitioning for vertical cable manager

- **Suitable for DCM racks.**
- Separates the cold and hot areas with in the rack.
- Prevents hot-spots (air recirculation).

### Material / Finish

- Bottom plate, cover plate: sheet steel, 1.0 mm.
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- High-density foam: PUR foam (UL94 HF-1).

### Scope of delivery

- 1 x bottom plate.
- 6 x covers for cable routing.
- 1 x Foam element, side.
- 1 x Foam element, top.
- 1 x Mounting kit.

### How supplied

- In sets.

W <sub>Rack</sub>	U	Order No.	UP
800	42 and 47	<b>05.045.132.X</b>	1 set

## Miracel® cable manager, vertical



MIR20456

MIR20457

### Description

- Compatible with B800 and B700 racks, asymmetrical.
- **1 item suitable for left and right models (i.e., 2 items needed for B800 racks).**
- Ideal for orderly cabling of jumper cables (copper and fiber optic cables).
- **Retrofitting is not possible.**
- Prepared for full cold/warm partitioning.
- Cable fingers can be easily installed (clipped on).
- Cabling towards the rear through rubber bushings or cutouts.
- **Can be used for recess depths from 145 mm.**

### Material / Finish

- Cable duct: Sheet steel, 2.0 mm
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- Cable fingers: Polyamide (UL 94 V-0), black.

### Scope of delivery

- 1 x cable duct.
- 2 x rows with cable fingers.
- 2 x rubber bushings.
- 1 x Mounting kit.

### How supplied

- Single items (cable fingers unassembled).

W <sub>Rack</sub>	H <sub>Rack</sub>	U	Recess depth	Cutout size	Order No.	UP
800	2000	41	Starting from 145 mm	66 x 100 mm	<b>05.045.107.X</b>	1 unit
800	2200	46	Starting from 145 mm	66 x 100 mm	<b>05.045.108.X</b>	1 unit

## Miracel® cover for vertical cable manager



MIR20458

MIR20459

- **For only 1 cable manager, i. e., 2 kits required for B800 rack.**
- For covering the vertical cable manager.
- Tool-less fastening – clips onto cable finger.
- Can be swiveled on both sides and removed completely.

### Material / Finish

- Cover: Sheet steel, 2.0 mm
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- Clip: polyamide (UL 94 V-0), black.

### Scope of delivery

- 2 x covers.
- 12 x clips.

### How supplied

- In sets (clips pre-assembled).

W	H	U	Order No.	UP
76	905	41	<b>05.045.117.X</b>	1 set
76	1015	46	<b>05.045.118.X</b>	1 set



MIR20455

## Miracel® kit for air partitioning for vertical cable manager

- **Suitable for Miracel racks.**
- Separates the cold and hot areas in the rack.
- Prevents hot-spots (air recirculation).
- **Can only be used for recess depths of 200 mm.**

### Material / Finish

- Bottom plate, covers: Sheet steel, 1.0 mm.
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- High-density foam: PUR foam (UL94 HF-1).

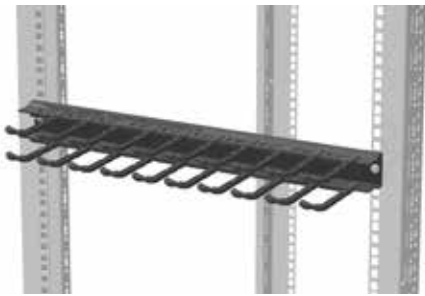
### Scope of delivery

- 1 x bottom plate.
- 1 x cover, top.
- 6 x covers for cable routing.
- 1 x Foam element, side.
- 1 x Mounting kit.

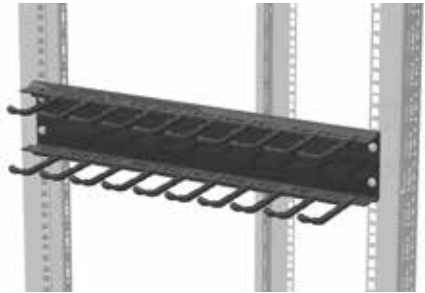
### How supplied

- In sets.

W <sub>Rack</sub>	U	Order No.	UP
800	41	<b>05.045.133.X</b>	1 set
800	46	<b>05.045.134.X</b>	1 set



DCM20112



DCM20114

## 19" cable manager, horizontal

### Description

- 1 U and 2 U models.
- For organized cabling of jumper cables (copper and fiber optic cables).
- Front-mounting on 19" extrusions.
- Cable fingers can be easily installed (clipped on).
- **Can be used for recess depths from 145 mm.**

### Scope of delivery

- 1 x cable duct.
- 2 x rows with cable fingers.
- 1 x Mounting kit.

### How supplied

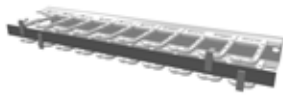
- In sets (cable fingers unassembled).

### Material / Finish

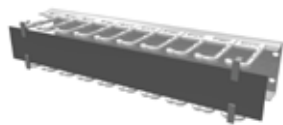
- Cable duct: sheet steel, 2.0 mm.
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- Cable fingers: polyamide (UL 94 V-0), black.

W	U	Recess depth	Order No.	UP
483	1	Starting from 145 mm	<b>05.045.120.X</b>	1 unit
483	2	Starting from 145 mm	<b>05.045.122.X</b>	1 unit

## Cover for 19" horizontal cable manager



DCM20113



DCM20115

- Covers the horizontal cable managers.
- Tool-less fastening – clips onto cable finger.
- Can be swiveled on both sides and removed completely.

### Material / Finish

- Cover: sheet steel, 2.0 mm.
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- Clip: polyamide (UL 94 V-0), black.

### Scope of delivery

- 1 x cover.
- 4 x clips.

### How supplied

- In sets (clips pre-assembled).

W	H	U	Order No.	UP
483	20	1	<b>05.045.121.X</b>	1 set
483	65	2	<b>05.045.123.X</b>	1 set



MIR20093

## Set of brush strips for vertical cable manager

- Upgrade kit for vertical cable manager for routing cables toward the rear.
- Inserted in openings in cable duct (1 pair of brushes per opening).

### Scope of delivery

- 3 x pairs of brushes (length: 99 mm).

### How supplied

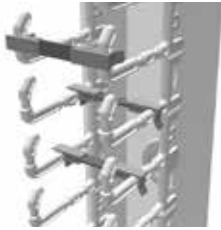
- In sets.



DCM20122

L	for cutouts	Order No.	UP
99	66 x100 mm	<b>05.045.130.9</b>	1 set

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



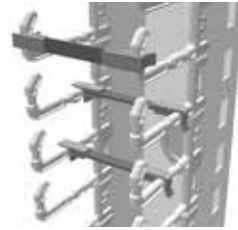
## DCM® kit for cascading; vertical cable manager

- Separates individual cable groups.
- Tool-less fastening – clips onto cable finger.
- Protects the cables and can be used for labeling.

DCM20116

- **Material / Finish**
  - Cascade: sheet steel, 2.0 mm.
  - Powder-coated texture, RAL 7021 dark-grey.
  - Clip: polyamide (UL 94 V-0), black.
- **Scope of delivery**
  - 10 x cascades.
  - 20 x clips.
- **How supplied**
  - In sets (clips pre-assembled).

W	H	Order No.	UP
55	10	05.045.136.8	1 set



## Miracel® kit for cascading; vertical cable manager

- For separating individual cable groups.
- Tool-less fastening – clips onto cable finger.
- Protects the cables and can be used for labeling.

MIR20454

- **Material / Finish**
  - Cascade: sheet steel, 2.0 mm.
  - Powder-coated texture, RAL 7021 dark-grey.
  - Clip: polyamide (UL 94 V-0), black.
- **Scope of delivery**
  - 10 x cascades.
  - 20 x clips.
- **How supplied**
  - In sets (clips pre-assembled).

W	H	Order No.	UP
76	10	05.045.137.8	1 set



## 19" cable routing board 1 U

- For orderly cable routing.
- Enables safe and secure cable routing of copper and fiberglass cables.

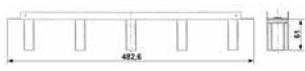
MEC00110

Type 1



MEC20014

Type 2



MEC20103

Type 1



MEC20104

Type 2

- **Material / Finish**
  - Type 1: Front plate, sheet steel, 1.5 mm, powder coated.
  - Type 2: Front plate, sheet steel, 1.0 mm, powder coated.

- **Color**
  - Final digit of order number .1: RAL 7035, light grey.
  - Final digit of order number .8: RAL 7021 dark-grey.

- **External dimensions**
  - Cable routing:
    - Type 1: 55 x 22 mm, plastic.
    - Type 2: 95 x 32 mm, steel.

- **Scope of delivery**
  - 1 x 19" front plate.
  - 5 x cable routers.

- **How supplied**
  - Pre-assembled.

- **Note**
  - Please also order mounting material for front plates.

W	U	Jumpering space	Model	Order No.	UP
483	1	from 80 mm	Type 1	05.040.111.X	1 unit
483	1	from 123 mm	Type 2	01.117.144.X	1 unit



## 19" cable routing board, flexible, 1 U

- For orderly cable routing.
- Enables safe and secure cable routing of copper and fiberglass cables.

MEC20041



MEC20102



MEC20076

- **Material / Finish**
  - Front plate, sheet steel, 1.5 mm, powder coated.
  - Cable routing bracket, round steel, d = 5 mm, zinc-passivated.

- **Color**
  - Final digit of order number .1: RAL 7035, light grey.
  - Final digit of order number .8: RAL 7021 dark-grey.

- **External dimensions**
  - Cable routers (a x b):
    - 1 U: 82 x 43 mm.
    - 2 U: 102 x 82 mm.

- **Scope of delivery**
  - 1 x front plate.
  - 5 x cable routing boards.

- **How supplied**
  - Pre-assembled.

- **Note**
  - Please also order mounting material for front plates.

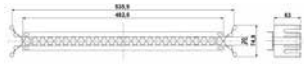
W	U	Jumpering space	Model	Order No.	UP
483	1	from 100 mm	Type 1	05.040.100.X	1 unit
483	2	from 120 mm	Type 2	05.040.101.X	1 unit

Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			





MEC20081



MEC20105



MEC20058

## Fiber optic cable routing panel 1 U

- For orderly cable routing.
- Enables safe and secure cable routing of fiber optic cables.
- Optionally with cover plates to protect the cables and can be used for labeling.

### Material / Finish

- Fiber optic cable routing panel: Sheet steel 1,5mm, powder-coated texture.
- Cover Accessories: Aluminium 2,5mm, powder-coated texture.

### Color

- Final digit of order number .1: RAL 7035, light grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Scope of delivery

- 1 x 19" cable routing board.

### How supplied

- Single items.

### Note

Please also order mounting material for front plates and cover.  
Not suitable for rack widths of 600 mm and 700 mm (asymmetrical).

W	U	Model	Order No.	UP
483	1	Cable routing board	<b>05.040.050.X</b>	1 unit
		Accessories: cover	<b>05.040.051.X</b>	1 unit



MEC20049



MEC20063

## 19" cable through

- For organized cable management at the 19" front plate.
- Mounting possible on front plates.
- Cables can be fastened with Velcro.

### Material / Finish

- Sheet steel, 1,5 mm, powder-coated texture.

### Color

- Final digit of order number .1: RAL 7035, light grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Scope of delivery

- 1 x cable through.

### How supplied

- Single items.

### Note

Please also order mounting material for front plates and Velcro rolls.

W	D	U	Order No.	UP
483	100	1	<b>05.040.055.X</b>	1 unit



MEC20224



MEC20067

## Cable trough

- For orderly cable management in the Miracel and DCM racks.
- Cables secured with Velcro strips or cable ties.
- 9 mm slit width for securing various parts to caged nuts.

### Material / Finish

- Sheet steel, 1,5 mm, zinc passivated, powder-coated.

### Color

- Final digit of order number .1: RAL 7035 light grey.
- Final digit of order number .8: RAL 7021, dark-grey.

### Scope of delivery

- 1 x cable trough.
- 1 x Mounting kit.

### How supplied

- In sets.

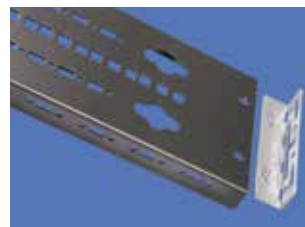
### Note

If required, please also order Velcro rolls.

H	w	Model	Order No.	UP
2000	100	For Miracel and DCM racks	<b>05.040.251.X</b>	1 set
2200	100	For Miracel and DCM racks	<b>05.040.252.X</b>	1 set
2000	150	For Miracel and DCM racks	<b>05.040.254.X</b>	1 set
2200	150	For Miracel and DCM racks	<b>05.040.255.X</b>	1 set
2000	200	For Miracel and DCM racks	<b>05.040.257.X</b>	1 set
2200	200	For Miracel and DCM racks	<b>05.040.258.X</b>	1 set



DCM20077



DCM20076

## DCM® PDU bracket

- For organized cable management in the rack.
- Tool-less mounted trade-standard PDUs.
- Especially suited to Knürr and Liebert PDUs.

### Material / Finish

- Sheet steel, 1,5 mm, zinc passivated, powder-coated.

### Color

- RAL 7021, dark-grey.

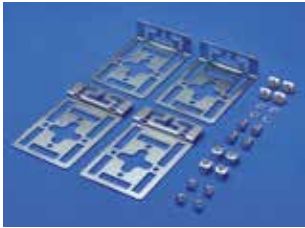
### Scope of delivery

- 1 x PDU bracket.
- 1 x Mounting kit.

### How supplied

- In sets.

W	H	D	U	Order No.	UP
125	2000	25	42	<b>01.147.816.8</b>	1 set
125	2200	25	47	<b>01.147.817.8</b>	1 set



MEC20222

Type 1



MEC20223

Type 2

## PDU mounting kit

- For securing various rack PDUs.
- Suitable for Miracel and DCM racks.
- For installing 1 or 2 PDUs.
- Installation options are described in the "Installation instructions for PDUs" manual.

### Material / Finish

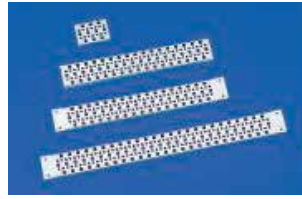
- Sheet steel, 2 mm, zinc passivated.

### Scope of delivery

- 2 x L mounting brackets.
- 2 x angular mounting brackets.
- 1 x Mounting kit.

### How supplied

- In sets.



MIR00089

## Multifunctional brace

- For cable management with cable ties.
- Provides universal securing options.
- Holes for mounting caged nuts.
- Distance between two multifunctional braces can be variably selected using T-slot.
- Installation on the extrusions of the rack frame or on the 19" extrusions, diagonal and lateral.

### Installation positions

- 1 toward rear of basic frame.
- 2 across width of basic frame.
- 3 across width of 19" extrusions.
- 4 toward rear of 19" extrusions.

### Material

- Sheet steel, 1.5 mm.

### Finish

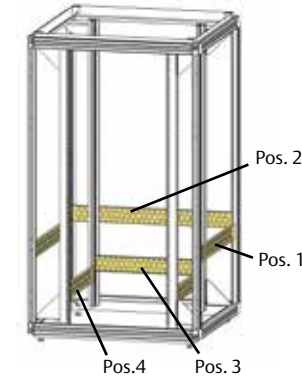
- Zinc-passivated.

### Scope of delivery

- 4 x multifunctional braces.

### How supplied

- In sets.



MIR88003

Model	For rack type	Order No.	UP
Type 1: short	DCM/Miracel	<b>01.147.813.9</b>	1 set
Type 2: long	DCM/Miracel	<b>01.147.814.9</b>	1 set

D	d	Installation position	For rack type	Order No.	UP
600		1	Miracel	<b>05.040.160.9</b>	4 units
800		1	Miracel	<b>05.040.161.9</b>	4 units
900		1	Miracel	<b>05.040.162.9</b>	4 units
1000		1	Miracel	<b>05.040.163.9</b>	4 units
1100		1	Miracel	<b>05.040.164.9</b>	4 units
1200		1	Miracel	<b>05.040.165.9</b>	4 units
600		2	Miracel/Smaract	<b>05.040.173.9</b>	4 units
800		2	Miracel	<b>05.040.174.9</b>	4 units
		3	Miracel/Smaract/DPR	<b>05.040.175.9</b>	4 units
800	565	4	Miracel/Smaract	<b>05.040.169.9</b>	4 units
900	740	4	Miracel/Smaract	<b>05.040.172.9</b>	4 units
1000	740	4	Miracel/Smaract	<b>05.040.172.9</b>	4 units

### Dimensions in mm:

W = Width h = Installation height U = Standard rack unit  
 H = Height d = Insertion depth (1 U = 44.45 mm)  
 D = Depth L = Length UP = Packaging unit

### Conversion:

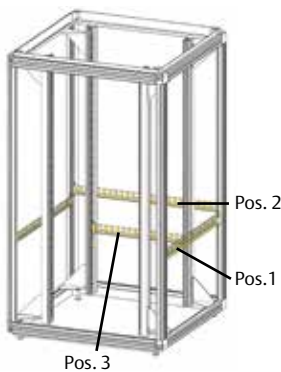
1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds



MEC20091



MEC20078



MIR88001

D	L	Model	For rack type	Order No.	UP
600	455	Pos. 1	Miracel	<b>05.040.200.9</b>	4 units
800	655	Pos. 1	Miracel	<b>05.040.201.9</b>	4 units
900	755	Pos. 1	Miracel	<b>05.040.202.9</b>	4 units
1000	855	Pos. 1	Miracel	<b>05.040.203.9</b>	4 units
1200		Pos. 1	Miracel	<b>05.040.205.9</b>	4 units
468		Pos. 3	Miracel/Smaract/DPR	<b>05.040.215.9</b>	4 units

## Cable routing brace

- Fitted to the Miracel/Smaract basic frame and the 19" extrusion.
- Cables fastened using Velcro and cable ties.
- For organized cable management with in the rack.
- Two-sided installation.
- Provides universal mounting using caged nuts (all dimensions can be accommodated; caged nuts are flexible).

■ **Material**  
- Sheet steel, 1.5 mm.

■ **Finish**  
- Zinc-passivated.

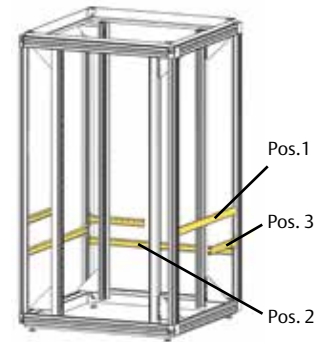
■ **Scope of delivery**  
- 4 x cable routing braces.  
- 1 x Mounting kit.

■ **How supplied**  
- Single items.

■ **Note**  
If required, please also order Velcro rolls .



MEC00113



MIR88004

D	W	Installation position	For rack type	Order No.	UP
800		1	Miracel	<b>05.040.181.9</b>	4 units
900		1	Miracel	<b>05.040.182.9</b>	4 units
1000		1	Miracel	<b>05.040.183.9</b>	4 units
1200		1	Miracel	<b>05.040.185.9</b>	4 units
	800	2	Miracel/Smaract	<b>05.040.194.9</b>	4 units

## C extrusion rail

- Cables secured with U-clamps or cable clamping bars.
- Space-saving installation between the extrusions on the basic rack.
- Two-sided installation.

■ **Material**  
- Sheet steel, 1.5 mm, zinc-passivated.

■ **Finish**  
- Zinc-passivated.

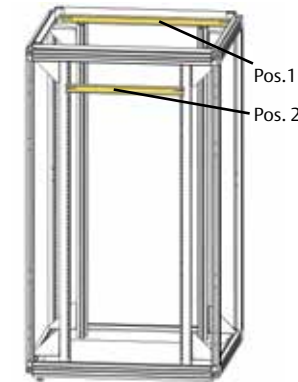
■ **Scope of delivery**  
- 4 x extrusion rails.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.

■ **Note**  
Please also order U-clamps, cable clamping bars or threaded plates.



MIR00096



MIR88002

W	L	Model	Order No.	UP
600	482.5	Pos. 1 Miracel/Smaract	<b>05.040.080.0</b>	1 unit
800	682.5	Pos. 1 Miracel	<b>05.040.082.0</b>	1 unit
19"	508	Pos. 2 Miracel/Smaract/Doubleprorack	<b>01.110.719.9</b>	1 unit

## C extrusion rail

- Cables secured with U-clamps or cable clamping bars.
- Cable clamping close to entry point (type 1).
- Suitable for use with cover panel including cable entry.

■ **Material / Finish**  
- Sheet steel, 1.5 mm, zinc passivated.

■ **Scope of delivery**  
- 1 x C extrusion rail.  
- 1 x Mounting kit.

■ **How supplied**  
- In sets.

■ **Note**  
Please also order U-clamps, cable clamping bars or threaded plates.



MEC00114

## Cable clamping bar

- Clips onto the C extrusion rail.
- **Material**  
- Polyamide, black.
- **Scope of delivery**  
- 1 set of 10 cable clamping bars.
- **How supplied**  
- In sets.

Order No.	UP
01.130.869.9	10 units

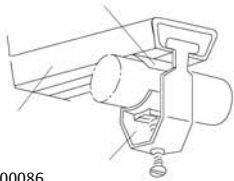


MIR00096

## U clamp

- Reduces cabling strain and permits individual routing of cables and lines.
- Clamping range, 8–64 mm.

- **Material**  
- Steel / plastic.
- **Scope of delivery**  
- 25 x U clamps.  
- 25 x clamping saddles.
- **How supplied**  
- In sets.



ELM00086

Clamping range	Order No.	UP
8 - 12 mm	05.040.150.9	1 unit
12 - 16 mm	05.040.151.9	1 unit
16 - 22 mm	05.040.152.9	1 unit
22 - 28 mm	05.040.154.9	1 unit
34 - 40 mm	05.040.155.9	1 unit
46 - 52 mm	05.040.157.9	1 unit



MEC20051

## M5 threaded plate

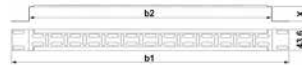
- Used with C extrusion rails.
- **Material / Finish**  
- Flat rolled steel, 4.0 mm, zinc passivated.
- **Scope of delivery**  
- 20 x threaded plates.
- **How supplied**  
- In sets.

Order No.	UP
05.040.077.9	1 set



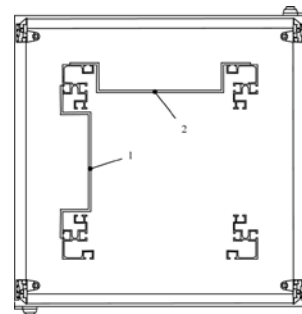
MEC20136

Type 1



MEC20120

Type 1



MIR00094

## Assembly crossbar

- Cable management with Velcro strips.
- Universal mounting option for installation accessories, socket strips, telecommunication installation units, mounting panels, etc.
- For side and cross installation.

- **Material / Finish**  
- Sheet steel 1.5 mm, powder-coated texture.
- **Color**  
- Final digit of order number .1:  
RAL 7035 light-grey.  
- Final digit of order number .8:  
RAL 7021 dark-grey.

- **Scope of delivery**  
- 1 x assembly crossbar.

- **How supplied**  
- Single items.

- **Note**  
Please also order the appropriate mounting material.

W/d	U	w1	w2	X	Type	Model	Order No.	UP
19"	1	482	442.6	81.5	1	Pos. 2 Miracel/Smaract	05.040.018.X	1 unit



MEC20042

## Cable through between the racks

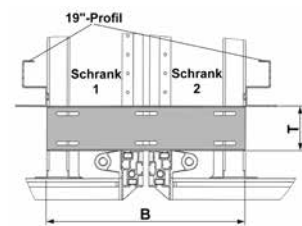
- For orderly cable routing between linked racks, adjacent racks.
- Velcro strips can be used for fastening.

- **Material / Finish**  
- Sheet steel, 1.5 mm.  
- Powder-coated texture,  
RAL 7035 light-grey.

- **Scope of delivery**  
- 1 x cable through.  
- 1 x Mounting kit.

- **How supplied**  
- In sets.

- **Note**  
Please also order Velcro rolls.



MEC20119

W	D	Order No.	UP
265	60	05.040.058.1	1 unit



MEC20047

## FOC 19" excess cable drawer, 1 U

- For storing excess fiber optic cable.
- Pull-out.
- Cables can be fastened with Velcro.

- **Material / Finish**
  - Sheet steel, 1.5 mm.

- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.

- **Scope of delivery**
  - 1 x unit.
  - 1 x drawer.

- **How supplied**
  - In sets.

- **Note**

Please also order mounting material for front plates and Velcro rolls.



MEC20099

W	H	D	Order No.	UP
483	44	350	05.040.047.X	1 set



MEC20044

## Excess fiber optic cable storage

- For orderly cable routing of Fiber optic cables in Miracel rack (from B 800 mm).
- For storing excess cable.

- **Material / Finish**
  - Base plate: powder-coated texture.
  - Cable routing head: polyamide, black.

- **Color**
  - Final digit of order number .1: RAL 7035 light-grey.
  - Final digit of order number .8: RAL 7021 dark-grey.

- **Scope of delivery**
  - 1 x base plate.
  - 1 x cable routing head.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.



MEC20146

U	Order No.	UP
2	05.040.041.X	1 set

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



MEC20038

## Universal cable routing bracket

- Used for extrusion distance (from front) 123 mm and 73 mm.
- For organized cable management.
- Open version, no threading.
- Mounting on the external side of the 19" extrusion.
- Any installation position selectable.

- **Material**
  - Round steel, d = 6 mm.

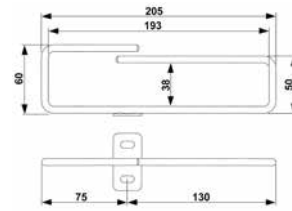
- **Finish**
  - Zinc-passivated.

- **Scope of delivery**
  - 4 x cable routing brackets.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.



MEC20072



MEC20106

W <sub>Rack</sub>	For rack type	Order No.	UP
from 800	Miracel	05.040.220.9	4 Stk



MEC20039

## Square cable routing bracket

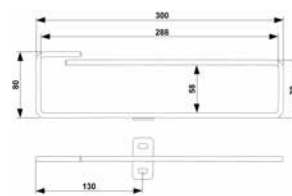
- For orderly cable management.
- Open version, no threading.
- Mounted on the external side of the 19" extrusion.
- Any installation position selectable.
- For high cable density.

- **Material**
  - Round steel, d = 6 mm.

- **Finish**
  - Zinc-passivated.

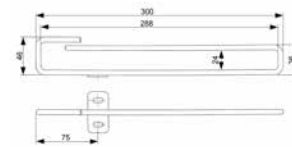
- **Scope of delivery**
  - 4 x square cable routing brackets.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.



MEC20107

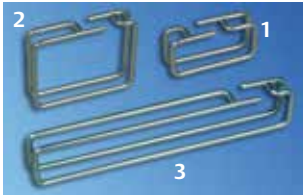
Type 1



MEC20116

Type 2

W <sub>Rack</sub>	Type	For rack type	Order No.	UP
from 800	Type 1	Miracel	05.040.221.9	4 units
from 700	Type 2	Miracel	05.040.222.9	4 units
600	Type 2	Smaract	05.040.222.9	4 units



MEC20035

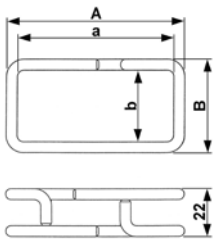
## Cable routing bracket, flexible

- Enables flexible and organized cable routing.
- Can be easily installed in various positions within the rack.
- Open version, no threading.



MEC20065

- **Material**  
- Round steel, d = 5 mm.
- **Finish**  
- Zinc-passivated.
- **Scope of delivery**  
- 10 x cable routing brackets.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.



MEC20108

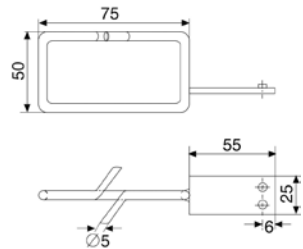
A	a	W	w	Model	Order No.	UP
82	72	43	33	Fig. 1	05.040.231.9	10 units
222	212	30	20	Fig. 3	05.040.232.9	10 units
102	92	82	72	Fig. 2	05.040.233.9	10 units



ELM00117

## Square cable routing bracket

- For organized cable management.
- Open version, no threading.
- Mounted on the external lateral T-slot of the 19" extrusion.
- Any installation position selectable.



ELM00106

- **Material**  
- Round steel, d = 5 mm.
- **Finish**  
- Zinc-passivated.
- **Scope of delivery**  
- 4 x cable routing brackets.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.

For rack type	Order No.	UP
DoubleProRack	05.040.226.9	4 units



MIR00564

## Cable routing bracket

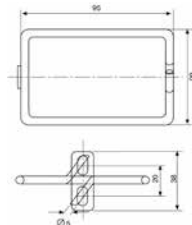
- For organized cable management.
- Open version, no threading.

- **Material / Finish**  
- Round steel, d = 5 mm.

- **Finish**  
- Zinc-passivated.

- **Scope of delivery**  
- 4 x cable routing brackets.  
- 1 x Mounting kit.

- **How supplied**  
- In sets.



MEC00122

Model	Order No.	UP
95 x 60	05.040.225.9	4 units



ELM00028

## Section support bracket

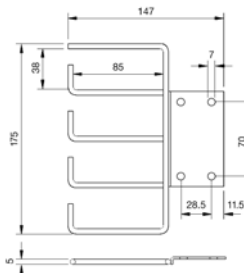
- Ideal for vertical routing and reducing cabling strain.
- Open version, no threading.
- Mounted on the external lateral T-slot of the 19" extrusion.
- Any installation position selectable.
- From rack width 600 mm.

- **Material / Finish**  
- Round steel, d = 5 mm, zinc-passivated.

- **Scope of delivery**  
- 2 x section support brackets.

- **How supplied**  
- In sets.

- **Note**  
Please also order the appropriate mounting material.



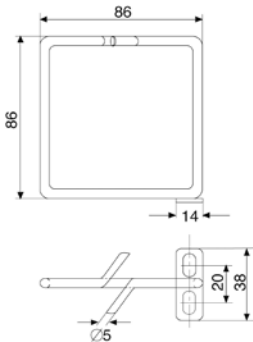
ELM00029

Order No.	UP
01.117.033.7	2 units

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



MIR00183



ELM00057

W <sub>Rack</sub>	Model	Order No.	UP
from 800	86 x 86	<b>05.040.224.9</b>	4 units

## Cable routing bracket, square

- For organized cable management.
- Open version, no threading.
- Mounted on the external lateral T-slot of the 19" extrusion.
- Any installation position selectable.
- From rack width 800 mm.

- **Finish**
  - Zinc-passivated, Zn 10c, white.
- **Scope of delivery**
  - 4 x vertical cable routing brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.



MEC20185



MEC20186

## Quick-Strip ties for T-slot Tool-less mounting

- Quick tool-less securing.
- For bundling cables.
- Can be unfastened and reused.
- For organized cable management.
- Can be fitted into T-slots in any position.

- **Material**
  - Polyethylene and nylon.
  - F.R.T., UL-94 HB.

- **Color**
  - Black.

- **Scope of delivery**
  - 10 x Quick-Strip Velcro ties.

- **How supplied**
  - In sets.

For rack type	Order No.	UP
DCM, Miracel	<b>00.218.506.0</b>	1 set



ELM20008



ELM20007

## Cable routing ring

- For organized cable management.
- Open version, no threading.
- Secured on the T-slots of the vertical extrusions.
- Any installation position selectable.

- **Material / Finish**
  - PA 6, GF 15, black, UL 94-HB.

- **Scope of delivery**
  - 5 x cable routing rings.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

Model	Order No.	UP
54 x 118 mm	<b>01.312.207.9</b>	5 units



MEC20187



MEC20188

## Quick-Clamp plastic cable routing bracket for T-slot mounting without tools

- Quick tool-less securing.
- For organized cable management.
- Open version, no threading.
- Secures T-slots in any position.

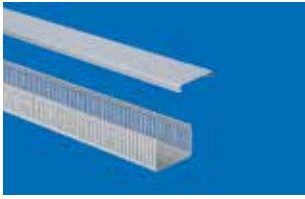
- **Material**
  - Nylon.
  - F.R.T., UL-94 HB.

- **Color**
  - Black.

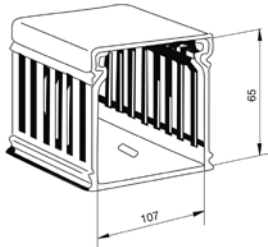
- **Scope of delivery**
  - 10 x plastic cable routing brackets.

- **How supplied**
  - In sets.

For rack type	Order No.	UP
DCM, Miracel	<b>00.218.505.0</b>	1 set



ELM00004



ELM00052

## Cable duct

- Ideal for organized and covered cable management of jumper cables.

- **Material**  
- Hard PVC.

- **Finish**  
- Stone-grey RAL 7030.

- **Scope of delivery**  
- 1 x cable duct with cover.  
- 1 x Mounting kit.

L	Order No.	UP
2000	01.117.098.3	1 unit



MEC20158

## Cable routing ring

- For organized cable management.
- Dimensions:  
Exterior 61 mm x 42.5 mm.  
Interior 52 mm x 23 mm.

- **Material / Finish**  
- Cable support: PPO, similar to RAL 7035 light-grey.  
- Soft rubber extrusion: EPDM, similar to RAL 7021 dark-grey.

- **Scope of delivery**  
- 10 x cable routers.

- **How supplied**  
- In sets.

- **Note**  
Please also order the appropriate mounting material.

Model	Order No.	UP
Screw-on	05.040.113.9	10 units



MEC20048



MEC20147

## Velcro rolls (by the meter)

- For strain-free fastening and bundling of Cu and fiber optic cables.
- Velcro rolls can be cut to any required length.

- **Material / Color**  
- Black, One-Wrap fastener.  
- F.R.T., UL 94-V2.  
- Blue: One-Wrap fastener.

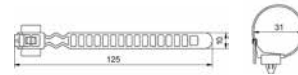
- **Scope of delivery**  
- 1 meter or 25 meter Velcro rolls.

- **How supplied**  
Sold by the meter.

W	L	Model	Order No.	UP
16	1000	Black	05.040.060.9	1 meter
16	1000	Blue	05.040.061.9	1 meter
16	25000	Black	05.040.065.9	25 meters
16	25000	Blue	05.040.066.9	25 meters



ELM00049



ELM00050

## Cable band clip

- For organized cable management.
- For securing harnesses and cables with large cross sections.
- Quick and easy mounting.
- Clips into T-slots in any position.
- Includes releasable clip.

- **Material**  
- PA 6.6, black, UL 94-V0.

- **Scope of delivery**  
- 20 units.

- **How supplied**  
- In sets.

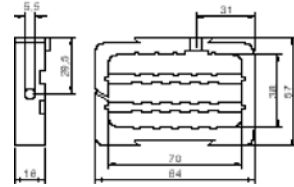
Order No.	UP
01.240.548.9	20 units

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	1 U = 44.45 mm		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		





MEC20048



MEC20147

## Cable clamping frame

- For organized cable management.
- Open version, no threading.
- Cross-section for cable routing, variable with removable routing ribs.
- Can be expanded by adding on further cable clamping frames.
- Mounting options: lengthwise or across the width.

### Material

- Polypropylene, black.

### Scope of delivery

- 1 x cable clamping frame.
- 1 x Mounting kit.

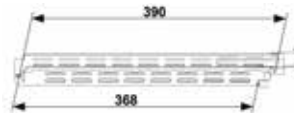
### How supplied

- In sets.

Order No.	UP
01.113.153.9	1 unit



MEC20154



MEC88005

## Cable cantilever

- Easy mounting in rack /on the shelf; easy connection/disconnection from shelf or rack with a spring clip.
- Guarantees defined and kink-free cable management.
- Minimum space requirement at the back of shelves: 40 mm.

### Material / Finish

- Sheet steel, 1.5 mm, zinc passivated.

### Scope of delivery

- 1 x cable cantilever.
- 1 x Mounting kit.

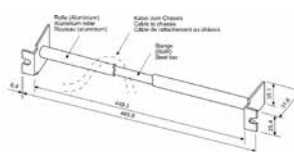
### How supplied

- In sets.

Type	Order No.	UP
2-piece	05.040.096.0	1 unit



TEL00034



TEL00051

## Cable support bar

- For 19" racks and enclosures.
- Reduces the cable load on slot-in.
- Orders cabling.
- Prevents cable-slack.

### Material

- Sheet steel, 1.5 mm.

### Scope of delivery

- 1 x cable support bar.

Order No.	UP
05.043.327.9	1 unit

# Knürr System Accessories

## Features

### BLANKING PANELS

- Design identical to racks
- Tool-less, threaded version available.
- Varying sizes for quick mounting and efficient cooling.

### CHASSIS RAILS

- Various designs catering to different requirements.
- Height positioning for different corpus heights of the subracks possible (not defined according to 19" standard).

### DRAWERS AND SHELVES

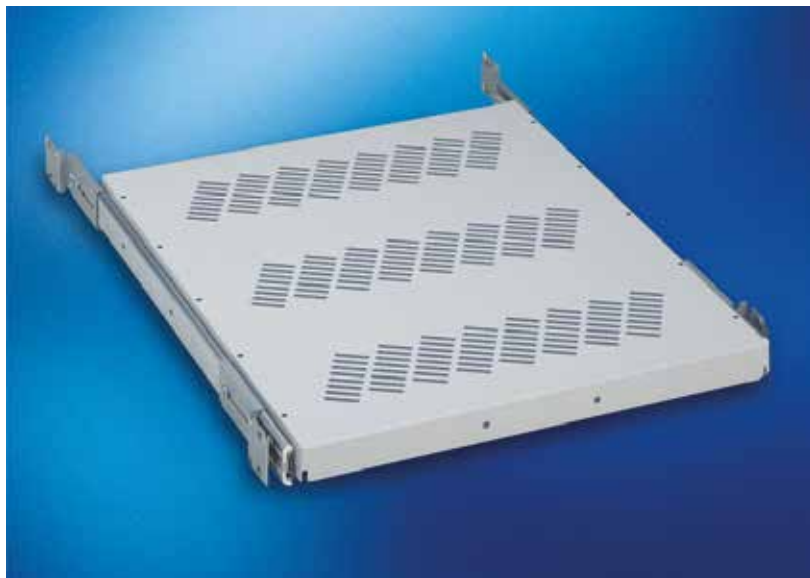
- Various designs catering to different loads.
- Shelves with tool-less mounting available.

**Mechanical accessories are fundamental to effective and economical use of server- and network racks.**

Blanking panels are an essential feature in operating an energy-efficient data center, as they ensure that cold and warm air in the rack are separated.

When there are no mounting adapters for IT components, chassis rails and shelves are required.

Drawers are used to store manuals, spare parts and tools needed on site.







MEC20179

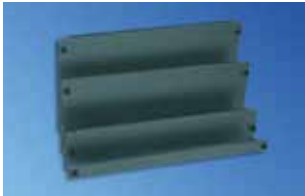
### QuickFix 19" blanking panel Tool-less assembly

- For covering free 19" spaces (cold-hot separation).
- Quick and easy tool-less assembly (one click) and disassembly (quarter turn).
- Suitable for 9.5 x 9.5 square holes.

- **Material**
  - Sheet steel, 1.0 mm.
- **Finish**
  - Final digit of order number .1: powder-coated texture, RAL 7035, light-grey.
  - Final digit of order number .8: powder-coated texture, RAL 7021 dark-grey.

- **Scope of delivery**
  - X (see Order Number for quantity) QuickFix 19" blanking panel.
  - Mounting kit.

- **How supplied**
  - In sets (see Order Number for quantity); fixing clips pre-assembled.



MEC20180



MEC20178

W	H	U	Order No.	UP
482.6	43.6	1	01.103.301.X	6 units
482.6	88.1	2	01.103.302.X	3 units
482.6	132.5	3	01.103.303.X	2 units
482.6	265.9	6	01.103.306.X	1 unit
482.6	399.2	9	01.103.309.X	2 units
482.6	932.6	21	01.103.321.X	1 unit



MEC20181



MEC20178

### 19" QuickFix blanking panel, tool-less assembly

- For orderly cable management inside the rack.
- Quick and easy tool-less assembly (one click) and disassembly (quarter turn).
- Suitable for 9.5 x 9.5 square holes.

- **Material**
  - Sheet steel, 1.0 mm.
- **Finish**
  - Final digit of order number .1: powder-coated texture, RAL 7035, light-grey.
  - Final digit of order number .8: powder-coated texture, RAL 7021 dark-grey.

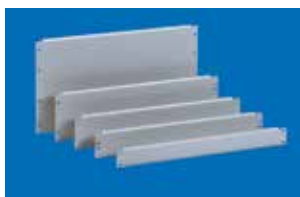
- **Scope of delivery**
  - 6 x QuickFix 19" blanking panel cable ports.
  - 1 x Mounting kit.

- **How supplied**
  - In sets (clips pre-assembled).



MEC20229

W	H	U	Order No.	UP
482.6	43.6	1	01.103.331.X	6 units



CUD00005

### 19" blanking plate Screw-on

- For covering free 19" spaces (cold-hot separation).

- **Material**
  - Sheet steel, 1.0 mm.
- **Finish**
  - Final digit of order number .1: powder-coated texture, RAL 7035, light-grey.
  - Final digit of order number .8: powder-coated texture, RAL 7021 dark-grey.

- **Scope of delivery**
  - X (see Order Number for quantity) QuickFix 19" blanking panel.

- **How supplied**
  - In sets (see ON for quantity).

- **Note**
  - Please also order front panel mounting material.



CUD00004

W	H	U	Order No.	UP
482.6	43.6	1	01.103.201.X	6 units
482.6	88.1	2	01.103.202.X	3 units
482.6	132.5	3	01.103.203.X	2 units
482.6	265.9	6	01.103.206.X	1 unit
482.6	399.2	9	01.103.209.X	2 units



CUD00021

### 19" blanking panel, cable port, threaded connection

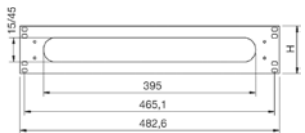
- For organized cable management inside the rack.
- With edge protector.

- **Material**
  - Sheet steel, 1.0 mm.
- **Finish**
  - Final digit of order number .1: powder-coated texture, RAL 7035, light grey.
  - Final digit of order number .8: powder-coated texture, RAL 7021 dark-grey.

- **Scope of delivery**
  - 6 x QuickFix 19" blanking panel cable ports.

- **How supplied**
  - In sets.

- **Note**
  - Please also order mounting kit for front panel.

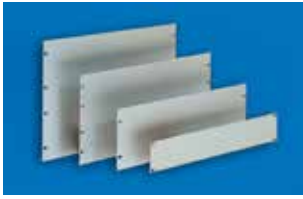


CUD00023

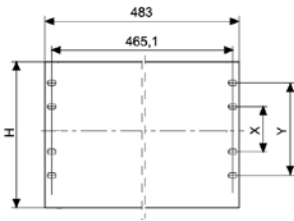
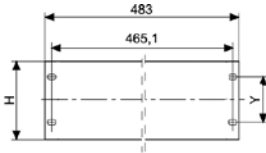


CUD00022

W	H	U	Order No.	UP
483	44	1	01.103.231.X	6 units
483	88	2	01.103.232.X	3 units



FR000005



MEC20109

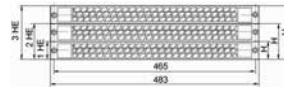
## 19" front plate Aluminum 3 mm

- **Material / Finish**
  - Final digit of order number .0: AlMg3 - F23 polished with lamination sheet.
  - Final digit of order number .1: AlMg3 - F23, powder-coated, RAL 7035, light-grey.
  - Final digit of order number .6: AlMg3 - F23 EB (anodize-enabled), anodized E6/EV1.
  - Final digit of order number .8: AlMg3 - F23, powder-coated, RAL 7021, dark-grey.
- **Scope of delivery**
  - 1 x 19" front plate.
- **How supplied**
  - Single items.
- **Note**
  - Please also order the appropriate mounting kit for the front plates.

H	X	Y	U	Model	Order No.	UP
43.6		31.7	1	Polished	<b>02.008.021.0</b>	1 unit
88.1		76.2	2	Polished	<b>02.008.022.0</b>	1 unit
132.5		57.1	3	Polished	<b>02.008.023.0</b>	1 unit
177.0		101.6	4	Polished	<b>02.008.024.0</b>	1 unit
265.9	76.2	190.4	6	Polished	<b>02.008.026.0</b>	1 unit
43.6		31.7	1	Powder-coated, RAL 7035	<b>02.008.021.1</b>	1 unit
88.1		76.2	2	Powder-coated, RAL 7035	<b>02.008.022.1</b>	1 unit
132.5		57.1	3	Powder-coated, RAL 7035	<b>02.008.023.1</b>	1 unit
177.0		101.6	4	Powder-coated, RAL 7035	<b>02.008.024.1</b>	1 unit
265.9	76.2	190.4	6	Powder-coated, RAL 7035	<b>02.008.026.1</b>	1 unit
43.6		31.7	1	Powder-coated, RAL 7021	<b>02.008.021.8</b>	1 unit
43.6		31.7	1	Anodized	<b>02.008.071.6</b>	1 unit
88.1		76.2	2	Anodized	<b>02.008.072.6</b>	1 unit
132.5		57.1	3	Anodized	<b>02.008.073.6</b>	1 unit
177.0		101.6	4	Anodized	<b>02.008.074.6</b>	1 unit
265.9	76.2	190.4	6	Anodized	<b>02.008.076.6</b>	1 unit



LUF88006



LUF00093

## 19" vented front cover plate

- Provides additional ventilation for 19" racks and 19" plinths compliant with IEC 297.
- **Material / Color**
  - Final digit of order number .1: ABS (UL 94 V0), light-grey RAL 7035.
  - Final digit of order number .9: ABS (UL 94 V0), black RAL 9011.
- **Scope of delivery**
  - 1 x vented front cover plate.
  - 2 x connectors.
- **How supplied**
  - In sets.
- **Note**
  - Please also order the appropriate mounting kit for the front plates.

W	H	U	Order No.	UP
483	43.6	1	<b>02.008.111.1</b>	1 unit
483	43.6	1	<b>02.008.111.9</b>	1 unit



MEC20144



MEC20149

## Cover-plate filter for 19" vented front cover plate

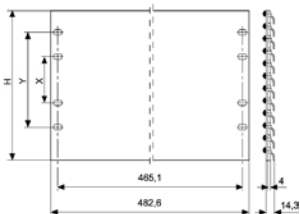
- Used with 19" vented front cover plate.
- **Material / Color**
  - Non-woven and screen cloth.
- **Scope of delivery**
  - 1 x cover-plate filter.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

U	Order No.	UP
1	<b>02.008.131.9</b>	1 unit

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



LUF00217



MEC20110

## 19" ventilation front panel

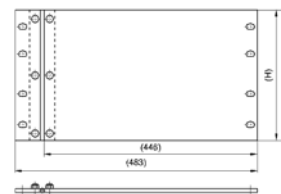
- Provides additional ventilation for 19" racks and 19" plinths compliant with IEC 297.

- **Material**
  - Aluminum.
- **Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .6: colorless anodized E 6 / EV 1.
- **Scope of delivery**
  - 1 x ventilation front plate.
- **How supplied**
  - Single items.
- **Note**
  - Please also order the appropriate mounting kit for the front plates.

H	Y	U	Model	Order No.	UP
43.6	31.7	1	Powder-coated, RAL 7035	<b>02.008.101.1</b>	1 unit
43.6	31.7	1	Anodized	<b>02.008.101.6</b>	1 unit
132.5	57.1	3	Powder-coated, RAL 7035	<b>02.008.103.1</b>	1 unit
132.5	57.1	3	Anodized	<b>02.008.103.6</b>	1 unit



FRO00007



FR000006

## 19" front plate hinged

- With 19" adapter and hinge.

- **Material**
  - Aluminum, 3 mm.
- **Finish**
  - Anodized.
- **Scope of delivery**
  - 1 x front plate, hinged.
  - 1 x 19" adapter.
  - 1 x hinge.
- **How supplied**
  - In sets.
- **Note**
  - Please also order the appropriate mounting kit for the front plates.

U	Model	Order No.	UP
3	Anodized	<b>01.110.780.6</b>	1 unit
6	Anodized	<b>01.110.781.6</b>	1 unit

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



MEC20162



MEC20167



MEC20167

## Chassis runner

Can be hooked on and screwed on

- For installation in 19" rack and 19" enclosure.
- Can be hooked on for quick and easy mounting.
- Can also be attached with screws to accommodate heavier loads.
- Can be screwed from inside (used in rack suites).
- Adjustable height to suit various main-section heights.
- **Material / Finish**
  - Sheet steel, 2.0 mm.
  - Zinc-passivated, blue chrome-plated.
- **Load rating**
  - 1000 N max. with even load distribution.
- **Scope of delivery**
  - 2 x chassis runners.
  - 1 x Mounting kit.
- **How supplied**
  - In pairs.
- **Note**
  - When selecting the chassis runner, please take into account the depth "d" of the rack or enclosure. Four 19" extrusions are required for mounting.

D <sub>Rack</sub>	d	L	For rack type	Order No.	UP
600	365	336	Miracel/Smaract	<b>01.103.051.0</b>	1 pair
600	440	411	Miracel/Smaract	<b>01.103.052.0</b>	1 pair
800	565	536	Miracel/Smaract	<b>01.103.053.0</b>	1 pair
800	640	611	Miracel/Smaract	<b>01.103.054.0</b>	1 pair
900	665	636	Miracel/Smaract	<b>01.103.055.0</b>	1 pair
from 900	740	711	Miracel/Smaract/CoolTherm	<b>01.103.056.0</b>	1 pair



MEC20189

## Aluminum chassis runner

- Can be screwed on.
- For installation in 19" rack and 19" enclosure.
- Can be screwed from inside (used in rack suites).
- Height can be adjusted to suit various main-section heights.

- **Material / Finish**
  - Extruded aluminum, polished.
- **Load rating**
  - 700 N max. with even load distribution.
- **Scope of delivery**
  - 2 x chassis runners.
  - 1 x Mounting kit.
- **How supplied**
  - In pairs.

■ **Note**  
When selecting the chassis runner, please take into account the depth "d" of the rack or enclosure. Four 19" extrusions are required for mounting.

D <sub>Rack</sub>	d	L	For rack type	Order No.	UP
600	365	336	Miracel/Smaract	<b>01.103.101.0</b>	1 pair
600	440	411	Miracel/Smaract	<b>01.103.102.0</b>	1 pair
800	565	536	Miracel/Smaract	<b>01.103.103.0</b>	1 pair
800	640	611	Miracel/Smaract	<b>01.103.104.0</b>	1 pair
800	900	636	Miracel/Smaract	<b>01.103.105.0</b>	1 pair
from 900	740	711	Miracel/Smaract/CoolTherm	<b>01.103.106.0</b>	1 pair
600	385	354	ConAct	<b>01.103.112.0</b>	1 pair
600	435	403	DoubleProRack with door	<b>01.103.118.0</b>	1 pair
800	635	603	DoubleProRack with door	<b>01.103.119.0</b>	1 pair
500	460	428	DoubleProRack, no door	<b>01.103.122.0</b>	1 pair
600	560	528	DoubleProRack, no door	<b>01.103.123.0</b>	1 pair
700	660	628	DoubleProRack, no door	<b>01.103.124.0</b>	1 pair



MEC20163

## Chassis runner, adjustable depth

- For installation in 19" rack and 19" enclosure.
- Adjustable depth.
- Can be screwed from inside (used in rack suites).
- Height can be adjusted to suit various main-section heights.

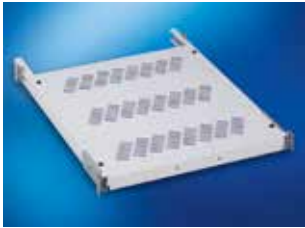
- **Material / Finish**
  - Sheet steel, 1.25 mm.
  - Zinc-passivated, blue chrome-plated.
- **Load rating**
  - 200 N max. with even load distribution.
- **Scope of delivery**
  - 2 x basic rails.
  - 2 x extension rails.
  - 1 x Mounting kit.
- **How supplied**
  - In pairs.

■ **Note**  
When selecting the chassis runner, please take into account the depth "d" of the rack or enclosure. Four 19" extrusions are required for mounting.

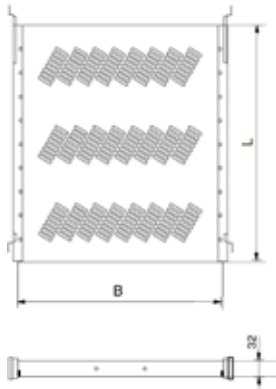


MEC20166

D	d	For rack type	Order No.	UP
600	365-440	Miracel/Smaract	<b>01.103.091.0</b>	1 pair
800-1200	565-740	Miracel/Smaract	<b>01.103.092.0</b>	1 pair
900-1200	740	CoolTherm	<b>01.103.092.0</b>	1 pair
600	385	ConAct	<b>01.103.091.0</b>	1 pair
500-600	435-460	DoubleProRack	<b>01.103.091.0</b>	1 pair
600-800	560-660	DoubleProRack	<b>01.103.092.0</b>	1 pair



MEC00451



MEC20018

## 19" shelf Fixed

- Integrated mounting holes; front and rear for handle or hinged cable routing.
- Perforated to optimize air supply.

### Material / Finish

- Sheet steel 1.0 mm, electroplated zinc, powder-coated texture.

### Color

- Final digit of order number .1: RAL 7035, light grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Load rating

- 500 N static per item.

### Scope of delivery

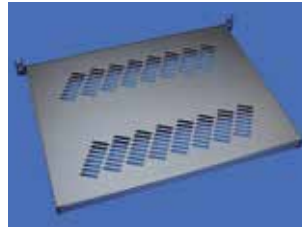
- 2 x mounting rails, incl. mounting bracket.
- 1 x shelf board.
- 1 x extension board (from L = 600).
- 1 x Mounting kit.

### How supplied

- In sets.

### Note

Please order requisite mounting adapter when used for DCM or Miracel/Smaract server extrusion.  
DCM 1 Set 01.147.640.9  
Miracel 1 Set 01.127.119.9



MEC20221

## 19" QuickFix shelf tool-less assembly

- Quick and easy tool-less mounting. Mounted on 19" cutouts.
- Quick and easy tool-less fitting (one click) and removal (quarter turn).
- Suitable for all racks and enclosures with 19" mounting hole extrusions (9.0 x 9.0 square holes).
- Adjustable depth to accommodate variable recess depths and special dimensions.
- Perforated to optimize air supply.

### Material

- Sheet steel, 1.0 mm.

### Finish

- Final digit of order number .1: powder-coated texture, RAL 7035, light-grey.
- Final digit of order number .8: powder-coated texture, RAL 7021 dark-grey.

### Load rating

- 700 N static with even load distribution.

### Scope of delivery

- 1 x 19" QuickFix shelf.
- 1 x Mounting kit.

### How supplied

- In sets.

### Note

Cannot be used for 19" t-slot extrusions.

d	WxL	For rack type	Order No.	UP
365	430 x 300	DCM / Miracel / Smaract	01.102.001.1	1 unit
440	430 x 300	DCM / Miracel / Smaract	01.102.002.1	1 unit
565	430 x 500	DCM / Miracel / Smaract	01.102.003.X	1 unit
640	430 x 600	DCM / Miracel / Smaract	01.102.004.X	1 unit
740	430 x 600	DCM / Miracel / Smaract	01.102.005.X	1 unit
435, 460	430 x 300	DoubleProRack	01.102.002.1	1 unit
560	430 x 500	DoubleProRack	01.102.003.1	1 unit
635, 660	430 x 600	DoubleProRack	01.102.004.1	1 unit
385	430 x 300	ConAct	01.102.001.1	1 unit

d	WxL	Order No.	UP
365-500	430 x 300	01.102.071.X	1 unit
565-740	430 x 500	01.102.072.X	1 unit

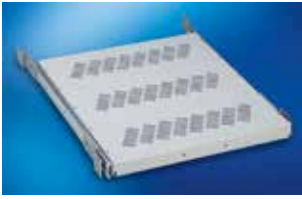
#### Dimensions in mm:

W = Width h = Installation height U = Standard rack unit  
H = Height d = Insertion depth (1 U = 44.45 mm)  
D = Depth L = Length UP = Packaging unit

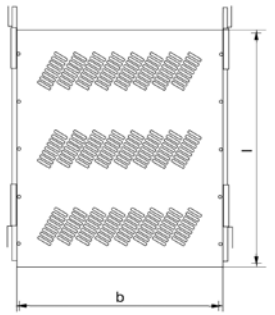
#### Conversion:

1 mm = 0.03937 inch  
1 kg = 2.2046 pounds





MEC00452



MEC20019

## 19" shelf partially retractable

- Integrated mounting holes, front and rear for handle or hinged cable routing.
- Perforated to optimize air supply.
- Locks in retracted position (friction lock).
- Quick separator for tool-less removal and decoupling of shelf board.

### Material / Finish

- Sheet steel, electroplated zinc, powder-coated texture.

### Color

- Final digit of order number .1: RAL 7035, light grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Load rating

- 500 N static per item.

### Scope of delivery

- 1 x pair of telescopic slides.
- 1 x shelf board.
- 1 x Mounting kit.

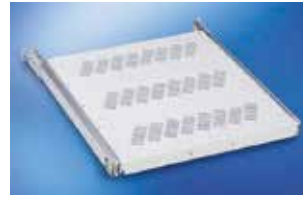
### How supplied

- In sets.

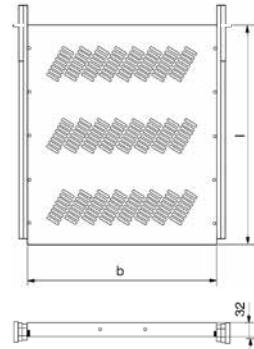
### Note

Order requisite mounting adapter when used for DCM or Miracel/Smaract server extrusion.

d	WxL	Order No.	UP
365-565	430 x 360	<b>01.102.042.X-001</b>	1 unit
565-750	430 x 560	<b>01.102.043.X-001</b>	1 unit



MEC00462



MEC20020

## 19" shelf fully retractable

- Integrated mounting holes, front and rear for handle or hinged cable routing.
- Perforated to optimize air supply.
- Locks in retracted position (friction lock).
- Quick separator for tool-less removal and decoupling of shelf.

### Material / Finish

- Sheet steel, electroplated zinc, powder-coated texture.

### Color

- Final digit of order number .1: RAL 7035, light grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Load rating

- 500 N static per item.

### Scope of delivery

- 1 x pair of telescopic slides.
- 1 x shelf board.
- 1 x Mounting kit.

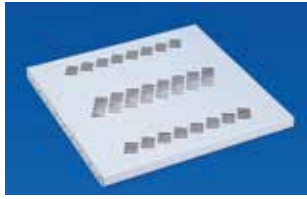
### How supplied

- In sets.

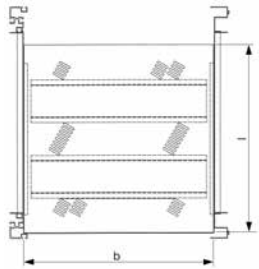
### Note

Please order requisite mounting adapter when used for DCM or Miracel/Smaract server extrusion.

d	WxL	Order No.	UP
365-565	430 x 360	<b>01.102.040.X-001</b>	1 unit
565-750	430 x 560	<b>01.102.041.X-001</b>	1 unit



MEC00120



MEC20117

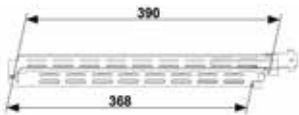
## 19" heavy-duty shelf fixed

- Perforated utility space.
- Installed as base plate for server or battery.
- **Material / Finish**
  - Sheet steel 1.5 mm, electroplated zinc, powder-coated texture.
- **Color**
  - Final digit of order number .1: RAL 7035, light grey.
  - Final digit of order number .8: RAL 7021 dark-grey.
- **Load rating**
  - 1000 N static for CW installation.
  - 1500 N static for 19" installation.
- **Scope of delivery**
  - 1 x shelf, fixed, threaded connection.
  - 2 x mounting braces.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.
- **Note**
  - Please order requisite mounting adapter when used for DCM or Miracel/Smaract server extrusion.

d	WxL	For rack type	Order No.	UP
565	467 x 460	DCM / Miracel /Smaract	<b>01.131.473.X</b>	1 unit
640	467 x 460	DCM / Miracel /Smaract	<b>01.131.475.X</b>	1 unit
665	467 x 460	DCM / Miracel /Smaract	<b>01.131.476.X</b>	1 unit
740	467 x 560	DCM / Miracel /Smaract	<b>01.131.474.X</b>	1 unit



MEC20154

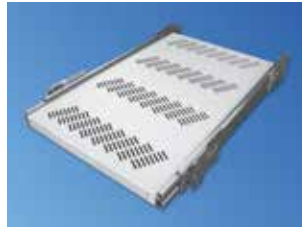


MEC88005

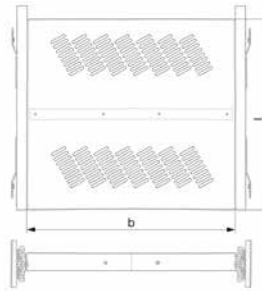
## Cable cantilever

- Can be tilted outward from the rear, facilitating easy access to the rear (only 3 piece).
- For easy mounting in side the rack/on the shelf; shelf or rack easily attached or decoupled with spring clip.
- Guarantees defined and kink-free cable management.
- Minimum space requirement at the back of shelves: 40 mm.
- **Material / Finish**
  - Sheet steel, 1.5 mm, zinc passivated.
- **Scope of delivery**
  - 1 x cable cantilever.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

Type	Order No.	UP
2-piece	<b>05.040.096.0</b>	1 unit



MEC20022



MEC20113

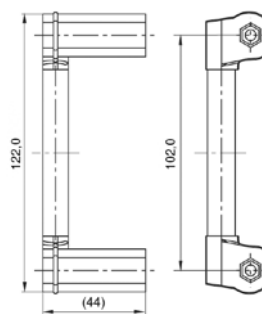
## 19" heavy-duty shelf fully retractable

- Perforated to optimize air supply.
- Locks in pushed-in and fully retracted position.
- Easy mounting with patented quick-mounting system.
- Installed as base plate for server or battery.
- **Material / Finish**
  - Sheet steel, powder-coated texture.
- **Color**
  - Final digit of order number .1: RAL 7035, light grey.
  - Final digit of order number .8: RAL 7021 dark-grey.
- **Load rating**
  - 1200 N static.
- **Scope of delivery**
  - 1 x pair of telescopic slides.
  - 1 x shelf board.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.
- **Note**
  - Please order requisite mounting adapter when used for DCM (2x 01.147.640.9) or Miracel/Smaract (2x 01.127.119.9) server extrusion.

d	WxL	For rack type	Order No.	UP
565-750	412 x 560	DCM / Miracel /Smaract	<b>01.102.650.X-001</b>	1 unit



MEC20138

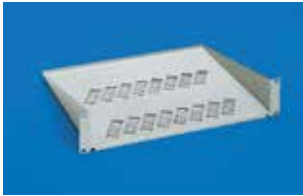


MEC20111

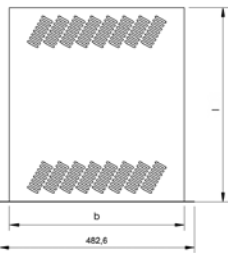
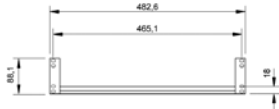
## Handle

- Suitable for traditional and heavy-duty shelves.
- With M5 internal thread.
- **Material**
  - Die-cast aluminum consoles.
  - Extruded aluminum handles.
  - Cap made of ABS UL 94 HB.
- **Finish**
  - Handle, powder-coated, grey-blue, RAL 5008/
  - Cap, light-grey, RAL 7035.
- **Scope of delivery**
  - 2 x handles.

Order No.	UP
<b>00.050.503.1</b>	1 set



MIR00373



MIR00375

## 19" shelf, 2 U Fixed

- Installed in racks with fixed 19° components, front.
- Quick and easy mounting on 19° extrusions.
- Also for swing frame in the 19° rack and 19° enclosure.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Material

- Sheet steel, 1.5 mm.

### Load rating

- 200 N static.

### Scope of delivery

- 1 x shelf, fixed.
- 1 x Mounting kit.

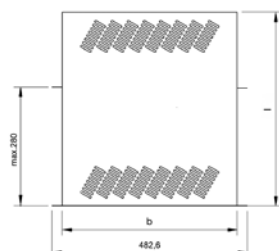
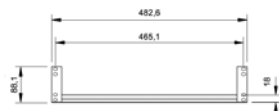
### How supplied

- In sets.

W	H	WxL	Order No.	UP
482.6	88.1	442 x 280	<b>01.113.736.X</b>	1 unit
482.6	88.1	442 x 380	<b>01.113.737.X</b>	1 unit



MIR00102



MIR00103

## 19" shelf, 2 U Adjustable

- Installed in racks with adjustable 19° components, front.
- Quick and easy mounting on 19° extrusions.
- Also for swing frame in the 19° rack and 19° enclosure.
- Depth can be adjusted in increments of 25 mm.

### Material / Finish

- Sheet steel, 1.5 mm, powder-coated texture.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Load rating

- 200 N static.

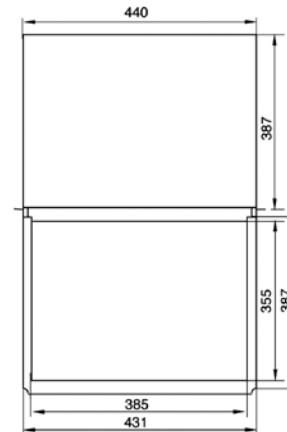
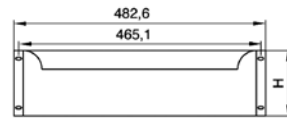
### How supplied

- In sets.

W	H	WxL	Order No.	UP
482.6	88.1	442 x 480	<b>01.113.411.X</b>	1 unit



SCH00058



SCH00054

## 19" drawer Installed on the front

- Installed on front 19° extrusions.
- For storing service documents.
- Quick and easy mounting.

### Material / Finish

- Drawer, sheet steel, powder-coated texture; telescopic slides, Sendzimir zinc-coated.

### Color

- Final digit of order number .1: RAL 7035, light grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Load rating

- 150 N static.

### Scope of delivery

- 1 x 19° drawer with lock, including key.
- 1 x pair of telescopic slides.
- 1 x Mounting kit.

### How supplied

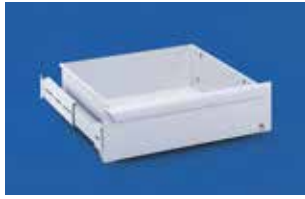
- Pre-assembled.

W	H	U	Order No.	UP
482.6	43.6	1	<b>01.102.048.X-001</b>	1 unit
482.6	88.1	2	<b>01.102.048.X-002</b>	1 unit
482.6	132.5	3	<b>01.102.048.X-003</b>	1 unit

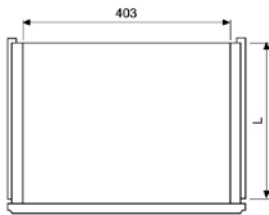
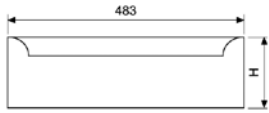
#### Dimensions in mm:

W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		

#### Conversion:



SCH00057



SCH00053

## 19" drawer with lock

- Installed in racks with fixed 19" components on the front and rear.
- Fully retractable.
- With lock.
- Locks in retracted position (friction lock).
- Quick separator for tool-less removal and decoupling of shelf board.

### Material / Finish

- Drawer, sheet steel 1.0 mm, powder-coated texture; telescopic slides, cold rolled steel, Sendzimir zinc-coated.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Load rating

- 500 N static.

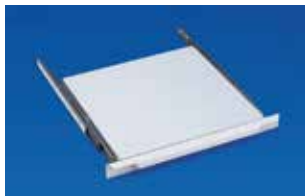
### Scope of delivery

- 1 x 19" drawer with lock, including key.
- 1 x pair of telescopic slides.
- 1 x Mounting kit.

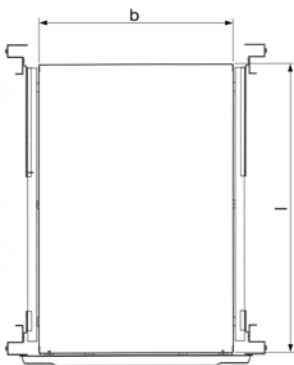
### How supplied

- Pre-assembled.

D	U	WxL	For rack type	Order No.	UP
565-750	2	412 x 562	DCM/Miracel/Smaract	<b>01.102.049.X-001</b>	1 unit
565-750	4	412 x 562	DCM/Miracel/Smaract	<b>01.102.049.X-002</b>	1 unit



MEC00118



MEC20118

## 19" writing board 1 U fully retractable

- With handle.
- Can also be used as writing board.
- Locks in retracted position (friction lock).

### Material / Finish

- Shelf, sheet steel, 1.0 mm.
- Telescopic slide, cold-rolled steel.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Load rating

- 500 N static.

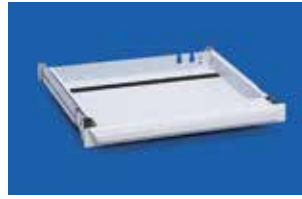
### Scope of delivery

- 1 x shelf.
- 1 x pair of telescopic slides.
- 1 x Mounting kit.

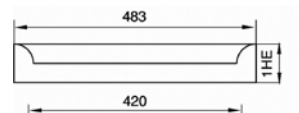
### How supplied

- Pre-assembled.

d	WxL	Order No.	UP
365-565	430 x 360	<b>01.102.045.X-001</b>	1 unit
565-750	430 x 560	<b>01.102.046.X-001</b>	1 unit



SCH00059



SCH00055

## 19" keyboard drawer, 1 U for 19" keyboard

- With hand support.
- With cable strain relief.
- Locks in retracted position (friction lock).
- Quick separator for tool-less removal and decoupling of drawer.

### Material

- Main unit, sheet steel, 1.0 mm.
- Front panel, sheet steel, 1.0 mm.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Scope of delivery

- 1 x 19" keyboard drawer, 1 U.
- 1 x pair of telescopic slides.
- 1 x Velcro for securing the keyboard.
- 1 x Mounting kit.

### How supplied

- Pre-assembled.

d	Order No.	UP
565-750	<b>01.102.047.X-001</b>	1 unit



MEC00116

## 19" keyboard drawer 1 U with extract for pc mouse

- Heel of hand support.
- Mouse area can be extracted right/left.
- Storage compartment for pc mouse.
- Locks in retracted position (friction lock).
- Quick separator for tool-less removal and decoupling of drawer.

### Dimensions

- Useful shelf space: measurements without heel of hand support 372 x 209 x 32 mm.

### Color

- Final digit of order number .1: RAL 7035 light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

### Scope of delivery

- 1 x 19" keyboard drawer, 1 U.
- 1 x pair of telescopic slides.
- 1 x heel of hand support.
- 1 x Mounting kit.

### How supplied

- Pre-assembled.

### Note

- Keyboard is not included.
- Not compatible with racks, depth 600.

d	Order No.	UP
565-750	<b>01.136.379.X</b>	1 unit

### Dimensions in mm:

W = Width	h = Installation height	U = Standard rack unit	kg = Weight	Conversion:
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 mm = 0.03937 inch
D = Depth	L = Length	UP = Packaging unit		1 kg = 2.2046 pounds



MEC20027

## Document holder

- Self-adhesive; for higher loads use 6 mm holes.
- For DIN A4 documents.

■ **Material**

- High-impact Polystyrol.

■ **Color**

- Grey.

■ **Scope of delivery**

- 1 x document holder.

W	L	D	Order No.	UP
264	236	30	05.016.045.0	1 unit

## The right mounting set for every rack type

DCM	Miracel T-slot	Miracel Mount. holes	Miracel Server	Miracel Swing frame	Smaract T-slot	Smaract Mount. holes	Smaract Server	Double ProRack T-slot	Double ProRack Mount. holes	ConAct	Name	Order No.	UP
	●				●						T-Slot mounting set, M5, wide	05.041.320.9	1 set
		●				●					Mounting set Mount. holes M5/BI 1.5	05.041.321.9	1 set
●			●	●			●				Mounting set Mount. holes M5/BI 2.5	05.041.325.9	1 set
								●			Mounting set dpr T-slot, M5 narrow	05.041.323.9	1 set
									●		Mounting set dpr mount. holes M5	05.041.322.9	1 set
										●	Mounting Set, ConAct M5	05.041.324.9	1 set

## The right mounting set for front panel mounting Model: Z-form screw

DCM	Miracel T-slot	Miracel Mount. holes	Miracel Server	Miracel Swing frame	Smaract T-slot	Smaract Mount. holes	Smaract Server	Double ProRack T-slot	Double ProRack Mount. holes	ConAct	Name	Order No.	UP
	●				●						FP mounting set, T-slot M5, wide	05.041.335.9	1 set
		●				●				●	FP mounting set Mount. holes M5/BI 1.5	05.041.336.9	1 set
●			●	●			●		●		FP mounting set Mount. holes M5/BI 2.5	05.041.337.9	1 set
								●			FP mounting set, T-slot M5, narrow	05.041.338.9	1 set

## The right mounting set for front panel mounting Model: countersunk screw + rosette

DCM	Miracel T-slot	Miracel Mount. holes	Miracel Server	Miracel Swing frame	Smaract T-slot	Smaract Mount. holes	Smaract Server	Double ProRack T-slot	Double ProRack Mount. holes	ConAct	Name	Order No.	UP
	●				●						FP mounting set, T-slot M5, wide	05.041.340.9	1 set
		●				●				●	FP mounting set Mount. holes M5/BI 1.5	05.041.341.9	1 set
●			●	●			●		●		FP mounting set Mount. holes M5/BI 2.5	05.041.342.9	1 set
								●			FP mounting set, T-slot M5, narrow	05.041.343.9	1 set

## The right accessories for every rack type

DCM	Miracel T-slot	Miracel Mount. holes	Miracel Server	Miracel Swing frame	Smaract T-slot	Smaract Mount. holes	Smaract Server	Double ProRack T-slot	Double ProRack Mount. holes	ConAct	Name	Order No.	UP
	●				●						Spring nut, M5 wide	01.350.431.9	1 set
								●			Spring nut, M5 narrow	05.041.503.9	1 set
	●				●						Spring nut M6	01.350.405.9	1 set
		●				●				●	Cage nut M5/BI 1.5	05.041.513.7	1 set
●			●	●			●		●		Cage nut M5/BI 2.5	05.041.518.7	1 set
	●				●			●			Oval-head screws, Z-form, M5 x 10	05.041.330.9	1 set
●		●	●	●		●	●		●	●	Oval-head screws, Z-form, M5 x 16	05.041.331.9	1 set
	●				●			●			Countersunk screw M5 x 12 + rosette	05.041.203.9	1 set
●		●	●	●		●	●		●	●	Countersunk screw M5 x 16 + rosette	05.041.290.9	1 set



MIR00114

## Mounting tool for cage nuts

- Allows easy clipping of cage nuts on extrusions.

- **Material**
  - Spring steel.
- **Scope of delivery**
  - 1 x mounting tool.

Order No.	UP
01.130.985.9	1 unit



MEC20125

## T-Slot mounting set, M5, wide for Miracel® / Smaract®

- For securing 19" front panels and 19" components.

- **Scope of delivery**
  - 100 x spring nuts, M5 wide.
  - 100 x oval-head screws, Z-form, M5 x 10.
  - 20 x cage nuts M5 /plate, 1.5 mm.
  - 20 x cylinder screws, M5 x 8.
- **How supplied**
  - In sets.

Order No.	UP
05.041.320.9	1 set



MEC20126

## Mounting set, M5 / plate, 1.5 mm for Miracel® / Smaract®

- For securing 19" front panels and 19" components.

- **Scope of delivery**
  - 100 x cage nuts M5 /plate, 1.5 mm.
  - 100 x oval-head screws, Z-form, M5 x 16.
  - 20 x spring nuts, M5 wide.
  - 20 x cylinder screws, M5 x 8.
- **How supplied**
  - In sets.

Order No.	UP
05.041.321.9	1 set



MEC20126

## Mounting set; mounting holes server extrusion M5 / plate, 2.5 mm for Miracel® / DCM® / Smaract®

- For securing 19" front panels and 19" components.

- **Scope of delivery**
  - 100 x cage nuts M5 /plate, 2.5 mm.
  - 100 x oval-head screws, Z-form, M5 x 16.
  - 20 x spring nuts, M5 wide.
  - 20 x cylinder screws, M5 x 8.
- **How supplied**
  - In sets.

Order No.	UP
05.041.325.9	1 set



MEC20127

## T-slot mounting set, M5, narrow for DoubleProRack®

- For securing 19" front panels and 19" components.

- **Scope of delivery**
  - 100 x spring nuts, M5 narrow.
  - 20 x oval-head screws, Z-form, M5 x 10.
  - 50 x cylinder screws, M5 x 10.
  - 30 x oval-head screws, Z-form, M5 x 8.
- **How supplied**
  - In sets.

Order No.	UP
05.041.323.9	1 set



MEC20126

## Mounting set; mounting holes M5 for DoubleProRack®

- For securing 19" front panels and 19" components.

- **Scope of delivery**
  - 100 x cage nuts M5 /plate, 2.5 mm.
  - 50 x oval-head screws, Z-form, M5 x 16.
  - 40 x spring nuts, M5 narrow.
  - 40 x cylinder screws, M5 x 10.
- **How supplied**
  - In sets.

Order No.	UP
05.041.322.9	1 set

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		





MEC20096

### Mounting holes, mounting set, M5 for ConAct®

- For securing 19" front panels and 19" components.
- **Scope of delivery**
  - 50 x cage nuts M5 /plate, 1.5 mm.
  - 50 x oval-head screws, Z-form, M5 x 16.
  - 50 x cylinder screws, M5 x 8.
  - 25 x locking nuts, M5.
- **How supplied**
  - In sets.

Order No.	UP
05.041.324.9	1 set



MEC20129

### Front panel mounting set, T-slot, M5 wide for Miracel® / Smaract®

- For securing 19" front panels and 19" components.
- **Scope of delivery**
  - Type 1:
    - 50 x spring nuts, M5 wide.
    - 50 x oval-head screws, Z-form, M5 x 10.
  - Type 2:
    - 50 x spring nuts, M5 wide.
    - 50 x countersunk screws, M5 x 12.
    - 50 x rosettes.
- **How supplied**
  - In sets.

Model	Order No.	UP
Type 1: Z-form screw	05.041.335.9	1 set
Type 2: screw + rosette	05.041.340.9	1 set



MEC20098

### Front panel mounting set for Miracel®/Smaract®/ConAct®

- For securing 19" front panels and 19" components.
- Mounting holes.
- **Scope of delivery**
  - Type 1:
    - 50 x cage nuts M5 /plate, 1.5 mm.
    - 50 x oval-head screws, Z-form, M5 x 16.
  - Type 2:
    - 50 x cage nuts M5 /plate, 1.5 mm.
    - 50 x countersunk screws, M5 x 16.
    - 50 x rosettes.
- **How supplied**
  - In sets.

Model	Order No.	UP
Type 1: Z-form screw	05.041.336.9	1 set
Type 2: screw + rosette	05.041.341.9	1 set



MEC20097



MEC20098

### Front panel mounting set; mounting holes, M5/plate, 2.5 mm for Miracel®/DCM®/Smaract®/DoubleProRack®

- For securing 19" front panels and 19" components.
- **Scope of delivery**
  - Type 1:
    - 50 x cage nuts M5 /plate, 2.5 mm.
    - 50 x oval-head screws, Z-form, M5 x 16.
  - Type 2:
    - 50 x cage nuts M5 /plate, 2.5 mm.
    - 50 x countersunk screws, M5 x 16.
    - 50 x rosettes.
- **How supplied**
  - In sets.



MEC20097

Model	Order No.	UP
Type 1: Z-form screw	05.041.337.9	1 set
Type 2: Screw + rosette	05.041.342.9	1 set



MEC20129

### Front panel mounting set, T-slot for DoubleProRack®

- For securing 19" front panels and 19" components.
- **Scope of delivery**
  - Type 1:
    - 50 x spring nuts, M5 narrow.
    - 50 x oval-head screws, Z-form, M5 x 10.
  - Type 2:
    - 50 x spring nuts, M5 narrow.
    - 50 x countersunk screws, M5 x 12.
    - 50 x rosettes.
- **How supplied**
  - In sets.



MEC20130

Model	Order No.	UP
Type 1: Z-form screw	05.041.338.9	1 set
Type 2: screw + rosette	05.041.343.9	1 set



MEC00060

## Spring nut

- To clip on T-slot where required.
  - Type 1: M5 wide for Miracel / Smaract. T-slot size: 10 x 13 mm.
  - Type 2: M5 narrow for DoubleProRack. T-slot size: 8 x 13 mm.
  - Type 3: M6 for Miracel / Smaract. T-slot size: 10 x 13 mm.
- **Scope of delivery**  
- 50 x spring nuts.
  - **How supplied**  
- In sets.

Model	Order No.	UP
Type 1: M5 wide	<b>01.350.431.9</b>	1 set
Type 2: M5 narrow	<b>05.041.503.9</b>	1 set
Type 3: M6	<b>01.350.405.9</b>	1 set



MEC20139

## Cage nut

- For clipping into extrusions with mounting holes.
  - Type 1: Plate, 1.5 mm for Miracel / Smaract / ConAct / SoHo.
  - Type 2: Plate, 2.5 mm for Miracel Server / Smaract Server / DoubleProRack mounting holes.
- **Scope of delivery**  
- 50 x cage nuts.
  - **How supplied**  
- In sets.

Model	Order No.	UP
M5: Type 1: Plate, 1.5 mm	<b>05.041.513.7</b>	1 set
M5: Type 2: Plate, 2.5 mm	<b>05.041.518.7</b>	1 set
M6: Type 1: Plate, 1.5 mm	<b>05.041.514.7</b>	1 set
M6: Type 2: Plate, 2.5 mm	<b>05.041.519.7</b>	1 set



MEC20140

## Oval-head screw

- IEC DIN 967.
- **Scope of delivery**  
- 50 x oval-head screws, Z-form.
  - **How supplied**  
- In sets.

Model	Order No.	UP
M5 x 10	<b>05.041.330.9</b>	1 set
M5 x 16	<b>05.041.331.9</b>	1 set
M6 x 10	<b>05.041.332.9</b>	1 set
M6 x 16	<b>05.041.333.9</b>	1 set



MEC20141

## Countersunk screw + rosette

- IEC DIN EN ISO 7047
- **Scope of delivery**  
- 50 x countersunk screws.  
- 50 x rosettes.
  - **How supplied**  
- In sets.

Model	Order No.	UP
M5 x 12	<b>05.041.203.9</b>	1 set
M5 x 16	<b>05.041.290.9</b>	1 set



MEC80020

## Oval-head screw self-guiding

- DIN 7500.
  - Suitable for system accessories fixed on the inside of the 19" extrusions.
  - Suitable for 19" steel and 19" aluminum extrusions.
  - Easy screwing.
- **Scope of delivery**  
- 50 x oval-head screws, M6x10.
  - **How supplied**  
- In sets.

Model	Order No.	UP
M6 x 10	<b>05.041.334.9</b>	1 set

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



MEC20227

## Oval-head screw With Phillips head

– IEC DIN EN ISO 7045.

- **Scope of delivery**  
– 1 x set of 50 units.



MEC20228

L	Model	Order No.	UP
8	M 5 no washer	05.041.611.8	1 set
12	M 4 no washer	05.041.609.8	1 set
12	M 5 with washer	05.041.613.8	1 set
16	M 5 with washer	05.041.614.8	1 set
16	M 6 with washer	05.041.616.8	1 set



MEC20226

## Cylinder screw With hexagon head

– IEC ISO 4762 (modified).

- **Scope of delivery**  
– 1 x set of 50 units.

L	Model	Order No.	UP
8	M 5	05.041.574.8	1 set
8	M 5 microencapsulated	05.041.575.9	1 set



MEC20225

## Tensiloc nut

- **Material**  
– Steel nickel-plated.
- **Scope of delivery**  
– 1 x set of 50 units.

Model	Order No.	UP
M 5	05.041.533.8	1 set



ELM00058

## Luminestra Rack lighting

- Only for rack type Miracel W 700, W 800.
- Mounted on the basic frame above the vertical extrusions.
- With 13 watt fluorescent tube.
- With on/off rocker switch.
- With 2 m power supply cable and EURO plug.
- Complete with mounting material.
- Only with 123 mm front clearance space.

- **Color**  
– White.

- **Scope of delivery**  
– 1 x Luminestra rack lamp.  
– 2 x mounting brackets.  
– 1 x Mounting kit.

W	H	D	Order No.	UP
70	20	555	01.131.227.9	1 unit



ELM00135

## Compact rack lamp

- **Features**  
– Magnetic mounting.  
– Energy-saving lamp.  
– Protective contact socket.  
– ON/OFF switch.  
– Power supply lead 3 m.  
– Cover panel.

- **Compliance**  
– VDE ICE.

- **Protection rating**  
– IP20.

- **Technical data**  
– Operating voltage 230 V / 50-60 Hz.  
– Lighting: compact fluorescent tube with integrated starter.  
– Power consumption: 11 W  $\approx$  75 W bulb.  
– Light intensity: 900 Lm.  
– Interference suppression compliant with VDE 0712, IEC 82.  
– Socket: 230 VAC / 16A.  
– Connections: 3-pole screw clamp, 2.5 mm<sup>2</sup> with strain relief.

W	H	D	Order No.	UP
65	65	365	01.131.465.9	1 unit



HEI00379

## Distribution box

- For mounting trade-standard installation technology DIN rail components, such as fuses, clamps, relays, etc.
- When installed, the mounting level can be pulled out at the front and locked in position, significantly simplifying the wiring of the individual components. Not available for "fixed installation" model. Up on request: Delivered assembled and wired. Further versions and models up on request.
- Installation space for up to 22 pieces of equipment with 18 mm width each.
- Mounting of the TS35 DIN rail on several levels with simple plug-in connection. Not available for "fixed installation" model.
- "Snap-in" mounting of DIN rail components.
- Easy access to the protective grounding and neutral conductor rails from the front.
- Various positioning options available for N and PE rails. Not available for "fixed installation" model.
- Cable entry at the rear via double brush strip (optionally via bushing sockets).
- Cable strain relief on the inside and therefore accessible from the front.
- Labeling strips on the front, above and below the installation space.
- Installation options available for power distribution with 230 V AC, but also in the low-voltage range (e.g. 48 V DC).
- 19" slot-in, 3 U, depth 150 mm.

### Material / Finish

- Panels powder-coated texture, RAL 7035 light-grey.
- Main unit, sheet steel, zinc-passivated.

### Scope of delivery

- 1 x distribution box.
- Including N and PE rails, cable entry, cable strain relief, empty panel covers and grounding set.

### How supplied

- Fully assembled.



ELM00137

## Door contact switch

- On/off switch, 4 A, 230 V  $\sim$ .
- Activated by opening and closing door.
- **Scope of delivery**
  - 1 x door contact switch (not wired).
  - 1 x mounting bracket.
  - 1 x Mounting kit.

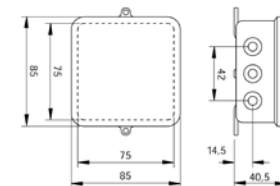
Order No.	UP
01.110.722.9	1 unit



ELM00033

## Cable junction box

- For 230 V electrical installation on-site.
- As fixed-location exchange point.
- Quick and easy mounting.
- **Scope of delivery**
  - 1 x cable junction box.



ELM00034

Order No.	UP
00.078.720.9	1 unit

W	H	D	U	19"	Model	Order No.	UP
482.6	134	150	3	•	Pull-out	03.013.385.1	1 unit
482.6	134	150	3	•	Fixed	03.013.470.1	1 unit



HEI20282



ELM00128

## Modular terminal box

- For 230V electrical installation on-site.
- With series terminal, 8 x 42.
- Pg 11/16 entry.
- IP 54.
- **Material**
  - High-impact, fire-resistant polystyrene.
- **Scope of delivery**
  - 1 x modular terminal box.
  - 4 pg compression glands, pg11.

Order No.	UP
01.117.521.9	1 unit



ELM00114

## 1 equipotential bonding bar

- For central grounding of all protective conductors.
- With sealable cover.
- Connection options:
  - 1 x round conductor 8 – 10 mm Ø
  - 1 x flat conductor up to 30 mm wide or round conductor 8 – 10 mm Ø.
- 7 x single or multi-wire conductors up to 16 mm<sup>2</sup> or fine-wire conductors up to 10 mm<sup>2</sup>.

### Material

- Base plate and cover plate, high-impact plastic.
- Brass nickel-plated contact strip.

### Scope of delivery

- 1 x equipotential bonding bar.

Order No.	UP
01.117.524.3	1 unit



ELM00068

## Grounding bar

- For safe grounding or potential equalization of equipments and components.

### Material

- Electrolyte copper 9 x 9.

### Scope of delivery

- 1 x grounding bar.
- 2 x brackets.
- 1 x Mounting kit.

U	Model	Order No.	UP
24	For DoubleProRack	01.240.546.9	1 unit
21	For DoubleProRack	01.240.545.9	1 unit
18	For DoubleProRack	01.240.544.9	1 unit
15	For DoubleProRack	01.240.543.9	1 unit
45	For Miracel	01.110.709.9	1 unit
41	For Miracel	01.110.708.9	1 unit
12	For Miracel	01.110.703.9	1 unit



DOP20016

## Contact clamp

- Enables safe connection of equipment and components to grounding bar.
- For cables up to 25 mm<sup>2</sup>.

### Scope of delivery

- 20 x contact clamps.

Order No.	UP
01.110.715.9	20 units

Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	d = Insertion depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			

## Knürr Fan Units

### Features

#### CoolBlast®

- Modular construction for varying heat loads; different designs available.
- Top-mounting fan and 19-fan unit available.
- Special protection grid keeps pressure losses to a minimum and reduces noise levels.
- Energy-efficient speed-controlled design also available.

#### Silent top-mounting fan

- Minimal noise level for use in office environment.
- Provides forced rack cooling.

#### Filter fan

- Protection class IP54.
- Filter can be replaced quickly and easily.
- Can be used to draw or push air.

**The ever-increasing power losses of electronic modules make for high demands on effective cooling. Large air-flow volumes ensure secured heat dissipation. The packing density of the electronic equipment in racks and enclosures is also increasing.**

The sharp rise in the price of electricity has resulted in energy efficiency gaining importance and environmental concerns increasingly become a prominent decision-making factor. Consequently, the use of speed-controlled fan units is rising. The additional costs generally prove to be a worthwhile investment.







LUF20203



LUF20205



LUF20124

## Knürr CoolBlast® Fan Unit for Cover Panel Installation Unregulated and thermostat-controlled

- Provides powerful rack cooling.
- Suitable for retrofitting in cover panel of Miracel® rack.
- DC versions and 115 VAC versions upon request (see Knürr CoolBlast® fan inserts).
- Thermostat-controlled model: Fan function (ON/OFF) thermostat-controlled; setting range from 0° to +60° C.

### Material

- Enclosure: sheet steel, high-grade steel grid.

### Finish

- Zinc-passivated.

### Compliance

- CE marking compliant with Low Voltage Directive 73/23/EEC; EMC directive 89/366/EEC.

### Scope of delivery

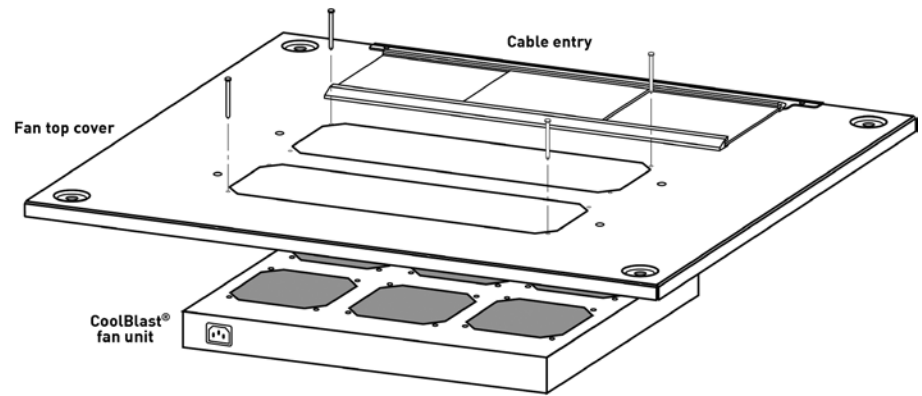
- 1 x CoolBlast fan unit.
- 1 x mains cable, 3 m with safety plug (230 VAC).
- 1 x Mounting kit.
- 1 x Operating instructions.

### How supplied

- Assembled, wired and tested.

### Note

- Please also order corresponding mains cable.



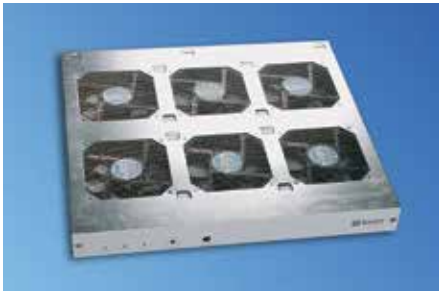
LUF20175

Name	Model	Electrical connection	P(W)	V' (m³/h)	ΔP(Pa)	p(dB(A))	Order No.	UP
CoolBlastT 230V 3-piece		207...253 VAC; 50/60 Hz	45	495	74	45.2	03.027.301.1	1 unit
CoolBlastT 230V 6-piece		207...253 VAC; 50/60 Hz	90	990	74	48.8	03.027.302.1	1 unit
CoolBlastT 230V 2-piece	Thermostat	207...253 VAC; 50/60 Hz	30	330	74	43.4	03.027.310.1	1 unit
CoolBlastT 230V 3-piece	Thermostat	207...253 VAC; 50/60 Hz	45	495	74	45.2	03.027.311.1	1 unit
CoolBlastT 230V 6-piece	Thermostat	207...253 VAC; 50/60 Hz	90	990	74	48.8	03.027.312.1	1 unit





LUF20160



LUF20161



LUF20124

## Knürr CoolBlast® Fan Unit for Cover Panel Installation speed-controlled

- Provides powerful rack cooling.
- Suitable for retrofitting in top cover of Miracel rack.
- DC version upon request (see CoolBlast fan inserts).
- Settable reference temperature (20° to 55° C).
- Speed control, 30 to 100%, if sensor fails, 100% rotation.
- Individual fan monitoring.
- Potential-free common alarm output for excess temperature and fan failure.
- Visual status display for O.K., excess temperature and fan failure.
- Acoustic warning inclusive reset button.

### Material

- Enclosure: sheet steel, high-grade steel grid.

### Finish

- Zinc-passivated front cover plate, powder-coated, smooth in RAL 7035 light-grey.

### Compliance

- CE marking compliant with Low Voltage Directive 73/23/EEC; EMC directive 89/366/EEC.

### Scope of delivery

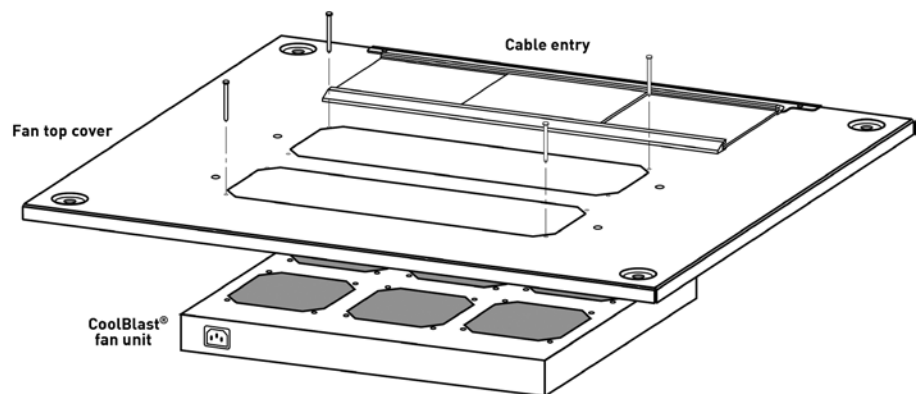
- 1 x CoolBlast fan unit.
- 1 x sensor cable, 2 m (plug-in).
- 1 x signal cable, 2 m (plug-in).
- 1 x mains cable, 3 m with safety plug (230 VAC).
- 1 x Mounting kit.
- 1 x Operating instructions.

### How supplied

- Assembled, wired and tested.

### Note

- Please also order specific mains cable.



LUF20175

Name	Model	Electrical connection	P(W)	V' (m³/h)	ΔP(Pa)	p(dB(A))	Order No.	UP
CoolBlastT 230V 3-piece	Regulated SP	100...253 VAC; 50/60 Hz	25	553	68	49.6	<b>03.027.321.1</b>	1 unit
CoolBlastT 230V 6-piece	Regulated SP	100...253 VAC; 50/60 Hz	48	1106	68	53.3	<b>03.027.322.1</b>	1 unit
CoolBlastT 230V 3-piece	Regulated HP	100...253 VAC; 50/60 Hz	32	711	173	55.8	<b>03.027.324.1</b>	1 unit
CoolBlastT 230V 6-piece	Regulated HP	100...253 VAC; 50/60 Hz	62	1422	173	59.1	<b>03.027.325.1</b>	1 unit

### Dimensions in mm:

W = Width    h = Installation height    U = Standard rack unit    kg = Weight  
 H = Height    d = Usable depth    (1 U = 44.45 mm)  
 D = Depth    L = Length    UP = Packaging unit

### Conversion:

1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds

SP = Standard Performance    V' = Air-flow volume (m³/h)

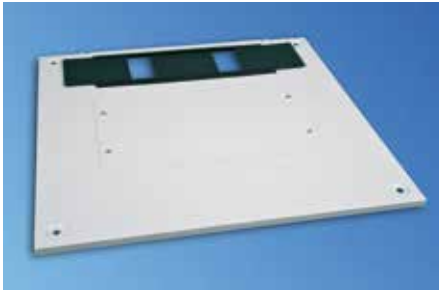
HP = High Performance    ΔV' = Air-flow volume loss (%)

UP = Ultra High Performance    ΔP = Pressure increase (Pa)

n = Number of fans    I nom = Nominal current (A)

W = Power consumption    I max = Residual current (A)

V = Voltage (400V = 3-phase)    p = Sound pressure (dB(A))  
 distance from the rack 1 m (600 mm x 600 mm; raised cover)



LUF20163



LUF20169

## Fan Top Cover for Knürr CoolBlast®

- Used with CoolBlast fan unit.
- Suitable for installation in Miracel.
- With cable routing (sliding plate).
- Two-part cover to facilitate retrofitting and servicing.

### Material

- Sheet steel.

### Finish / Color

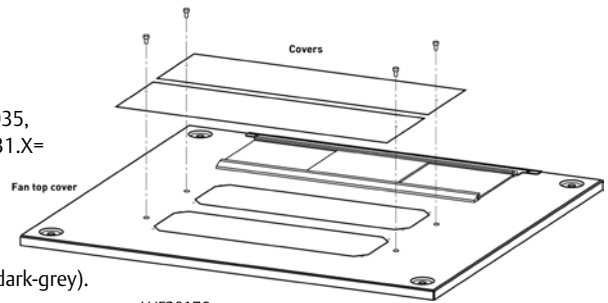
- Final digit of order number .1:  
Powder-coated texture, RAL 7035, light-grey (e. g. X=1; 01.149.031.X=01.149.031.1=light-grey).
- Final digit of order number .8:  
Powder-coated texture, RAL 7021 dark-grey (e. g. X=8; 01.149.031.X=01.149.031.8=dark-grey).

### Scope of delivery

- 1 x cover panel with cover strip and cable entry.
- 2 x covers.

### How supplied

- Pre-assembled.



LUF20176

W	D	Model	Order No.	UP
600	600	For 2 or 3-piece	<b>01.149.031.X</b>	1 unit
700	600	For 2 or 3-piece	<b>01.149.041.X</b>	1 unit
800	600	For 2 or 3-piece	<b>01.149.051.X</b>	1 unit
600	800	For 2, 3 or 6-piece	<b>01.149.033.X</b>	1 unit
700	800	For 2, 3 or 6-piece	<b>01.149.043.X</b>	1 unit
800	800	For 2, 3 or 6-piece	<b>01.149.053.X</b>	1 unit
600	900	For 2, 3 or 6-piece	<b>01.149.034.X</b>	1 unit
700	900	For 2, 3 or 6-piece	<b>01.149.044.X</b>	1 unit
800	900	For 2, 3 or 6-piece	<b>01.149.054.X</b>	1 unit
600	1000	For 2, 3 or 6-piece	<b>01.149.035.X</b>	1 unit
700	1000	For 2, 3 or 6-piece	<b>01.149.045.X</b>	1 unit
800	1000	For 2, 3 or 6-piece	<b>01.149.055.X</b>	1 unit
600	1200	For 2, 3 or 6-piece	<b>01.149.037.X</b>	1 unit
800	1200	For 2, 3 or 6-piece	<b>01.149.057.X</b>	1 unit



LUF20121



LUF20168

## CoolBlast® Dust/Particle Protection Solution 1: Filter Mat

- Used with CoolBlast® fan top cover.
- Simple filter cover preventing the ingress of dust when the fan stops (regulated or thermostat-controlled version available).
- For all top-cover sizes; filter and adhesive tape can be cut to the required length.

### Material

- Fildon (filter class G2).

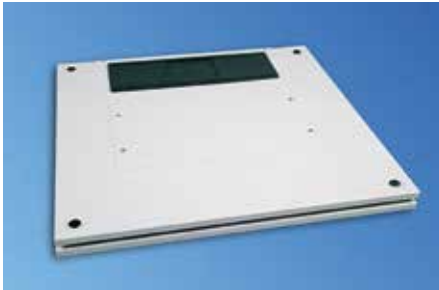
### Scope of delivery

- 1 x filter.
- 1 x Adhesive tape.

### How supplied

- In sets.

Model	Order No.	UP
For 2, 3 and 6-piece fan unit	<b>01.149.101.9</b>	1 set



LUF20174



LUF20172

## Knürr CoolBlast® Dust/Particle Protection Solution 2: Vent Cover

- Used with CoolBlast fan top cover.
- Closed cover panel with cable entry for protection against foreign particles and dust.
- Mounting on the spacer bolts on the standard cover.

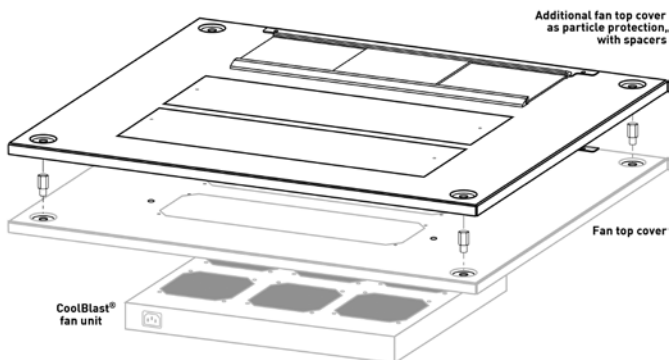
- **Material**
  - Sheet steel.

- **Finish / Color**
  - Final digit of order number 1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

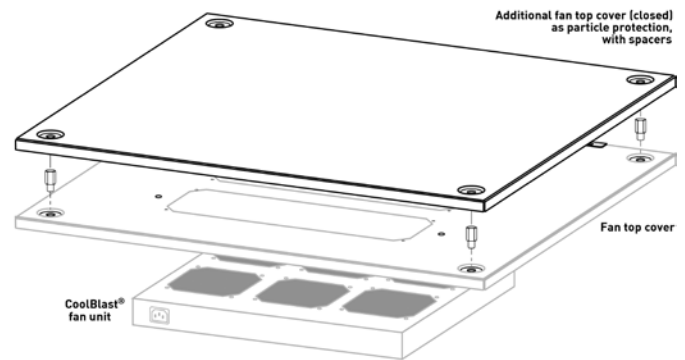
- **Scope of delivery**
  - 1 x cover panel with cable entry.

- **How supplied**
  - In sets.

W	D	Model	Order No.	UP
600	600	with cable entry	01.149.031.X	1 unit
700	600	with cable entry	01.149.041.X	1 unit
800	600	with cable entry	01.149.051.X	1 unit
600	800	with cable entry	01.149.033.X	1 unit
700	800	with cable entry	01.149.043.X	1 unit
800	800	with cable entry	01.149.053.X	1 unit
600	900	with cable entry	01.149.034.X	1 unit
700	900	with cable entry	01.149.044.X	1 unit
800	900	with cable entry	01.149.054.X	1 unit
600	1000	with cable entry	01.149.035.X	1 unit
700	1000	with cable entry	01.149.045.X	1 unit
800	1000	with cable entry	01.149.055.X	1 unit
600	1200	with cable entry	01.149.037.X	1 unit
800	1200	with cable entry	01.149.057.X	1 unit
600	600	closed	01.130.690.X	1 unit
700	600	closed	01.130.694.X	1 unit
800	600	closed	01.130.691.X	1 unit
600	800	closed	01.130.691.X	1 unit
700	800	closed	01.130.695.X	1 unit
800	800	closed	01.130.699.X	1 unit
600	900	closed	01.130.692.X	1 unit
700	900	closed	01.130.696.X	1 unit
800	900	closed	01.130.700.X	1 unit
600	1000	closed	01.127.700.X	1 unit
700	1000	closed	01.127.701.X	1 unit
800	1000	closed	01.127.702.X	1 unit



LUF20177



LUF20178



LUF20125



LUF20139

## 19" Knürr CoolBlast® Fan Unit Unregulated and thermostat-controlled

- Fan unit for vertical ventilation of modules in 19" racks.
  - Chassis rails are recommended for mounting. Chassis rails are required with 6-piece CoolBlast (use chassis runner, adjustable depth).
  - Thermostat-controlled model: Fan function (ON/OFF) thermostat-controlled; setting range from 0° to + 60° C.
- **Material**
    - Sheet steel, high-grade steel grid.
  - **Finish / Color**
    - Enclosure zinc-passivated.
    - Front cover plate, powder-coated, smooth in RAL 7035 light-grey.
  - **How supplied**
    - Assembled, wired and tested.
  - **Compliance**
    - CE marking compliant with Low Voltage Directive 73/23/EEC; EMC directive 89/366/EEC.
  - **Scope of delivery**
    - 1 x CoolBlast fan unit, packed with operating instructions.
    - 1 x connection cable, 2 m; Euro power plugs and sockets.
  - **Note**
    - Please also order specific mains cable.

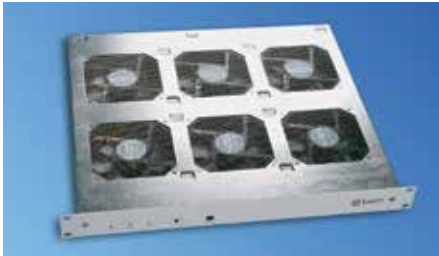
Name	W	H	D	kg	n	Electrical connection	P(W)	V' (m³/h)	ΔP(Pa)	p(dB(A))	Order No.
CoolBlast 230V 3-piece, thermostat	440	43.6	230	3	3	207 ... 253VAC; 50/60Hz	45	495	74	45.2	<b>03.027.011.1</b>
CoolBlast 230V 6-piece, thermostat	440	43.6	390	6	6	207 ... 253VAC; 50/60Hz	90	990	74	48.8	<b>03.027.012.1</b>
CoolBlast 115V 3-piece, thermostat	440	43.6	230	3	3	103.5 ... 126.5VAC; 50/60Hz	44	576	88	47.3	<b>03.027.014.1</b>
CoolBlast 115V 6-piece, thermostat	440	43.6	390	6	6	103.5 ... 126.5VAC; 50/60Hz	88	1152	88	50.8	<b>03.027.015.1</b>
CoolBlast 24V 3-piece SP	440	43.6	230	2.5	3	12...27 VDC	23	553	68	49.6	<b>03.027.031.1</b>
CoolBlast 24V 6-piece SP	440	43.6	390	5	6	12...27 VDC	46	1106	68	53.3	<b>03.027.032.1</b>

## Technical data for Axial Single Fan

	Knürr CoolBlast®	Knürr CoolBlast®	Knürr CoolBlast®	Knürr CoolBlast®	Knürr CoolBlast®
Item number	01.914.070.9	01.914.075.9	01.914.050.9	01.914.051.9	01.914.051.9-2
Dim: L x W x H	119 x 119 x 38	119 x 119 x 38	119 x 119 x 38	119 x 119 x 38	119 x 119 x 38
Max. volume flow, free blowing:	184.2 m³/h	237 m³/h	192 m³/h	165 m³/h	120 m³/h
Voltage	24 VDC	24 VDC	115 VAC	230 VAC	230 VAC
Frequency			50 Hz	50 Hz	50 Hz
Power consumption	7.4 W	11 W	14.5 W	15 W	7.5 W
Noise, free blowing	43 dB(A)	59 dB(A)	41 dB(A)	38 dB(A)	32 dB(A)
Bearing system	Ball bearing	Ball bearing	Ball bearing	Ball bearing	Ball bearing
Nominal speed	2950 min-1	4400 min-1	2900 min-1	2600 min-1	2100 min-1
Permitted ambient temp.	-10 °C to + 70 °C	-30 °C to + 55 °C	-40 °C to + 60 °C	-40 °C to + 60 °C	-40 °C to + 70 °C
Service life, L10 at 40°C	75,000 h	70,000 h	43,500 h	43,500 h	43,500 h
Compliance	CE, VDE	CE, VDE	CE, VDE	CE, VDE	CE, VDE
<b>Use in fan unit:</b>	03.027.021.1 03.027.022.1 03.027.051.1 03.027.052.1 03.027.321.1 03.027.322.1	03.027.024.1 03.027.025.1 03.027.054.1 03.027.055.1 03.027.324.1 03.027.325.1	03.027.014.1 03.027.015.1	03.027.011.1 03.027.012.1 03.027.301.1 03.027.302.1 03.027.310.1 03.027.311.1 03.027.312.1 02.111.180.9 05.010.306.1 01.243.428.1 03.028.110.8	02.111.181.9 05.010.307.1



LUF20128



LUF20140



LUF20054

## 19" Knürr CoolBlast® Fan Unit Speed-controlled

- Fan unit for vertical ventilation of modules in 19" racks.
- Reference temperature can be set (20°C to 55°C).
- Speed control, 30 to 100%; if sensor fails, 100% rotation.
- Individual fan monitoring.
- Potential-free alarm output for excess temperature alarm and fan failure.
- Visual status display for O.K., excess temperature and fan failure.
- Acoustic alarm can be switched off with switch.
- Chassis rails are recommended for mounting. Chassis rails are required with 6-piece CoolBlast (use chassis runner, adjustable depth).

### Material

- Sheet steel, high-grade steel grid.

### Finish / Color

- Enclosure zinc-passivated.
- Front cover plate, powder-coated, smooth in RAL 7035 light-grey.

### Compliance

- CE marking compliant with Low Voltage Directive 73/23/EEC; EMC directive 89/366/EEC.

### Scope of delivery

- 1 x CoolBlast fan unit, packed with operating instructions.
- 1 x sensor cable, 2 m (plug-in).
- 1 x signal cable, 2 m (plug-in).

Only with DC devices:

- 1 x connection cable, 2 m with connector plug and free ends.

Only with AC devices:

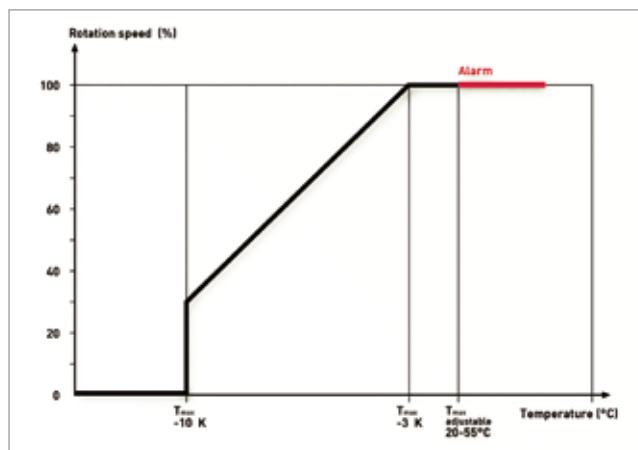
- 1 x connection cable, 2 m; Euro power plugs and sockets.

### How supplied

- Assembled, wired and tested.

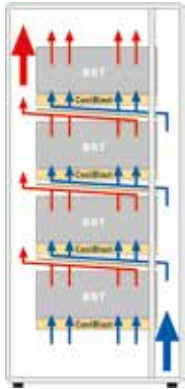
### Note

Further project-specific characteristics can be realized in line with standards.



LUF20179

Name	W	H	D	kg	n	Electrical connection	P(W)	V' (m³/h)	ΔP(Pa)	p(dB(A))	Order No.
CoolBlast 115/230V, 3-piece, controlled SP	440	43.6	230	3.2	3	100 to 253VAC; 50/60Hz	25	553	68	49.6	03.027.021.1
CoolBlast 115/230V, 6-piece, controlled SP	440	43.6	390	6.2	6	100 to 253VAC; 50/60Hz	48	1106	68	53.3	03.027.022.1
CoolBlast 115/230V, 3-piece, controlled HP	440	43.6	230	3.2	3	100 to 253VAC; 50/60Hz	32	711	173	55.8	03.027.024.1
CoolBlast 115/230V, 6-piece, controlled HP	440	43.6	390	6.2	6	100 to 253VAC; 50/60Hz	62	1422	173	59.1	03.027.025.1
CoolBlast 24/48V, 3-piece, controlled SP	440	43.6	230	3.1	3	20 to 60VDC	25	553	68	49.6	03.027.051.1
CoolBlast 24/48V, 6-piece, controlled SP	440	43.6	390	6.1	6	20 to 60VDC	48	1106	68	53.3	03.027.052.1
CoolBlast 24/48V, 3-piece, controlled HP	440	43.6	230	3.1	3	20 to 60VDC	32	711	173	55.8	03.027.054.1
CoolBlast 24/48V, 6-piece, controlled HP	440	43.6	390	6.1	6	20 to 60VDC	62	1422	173	59.1	03.027.055.1



LUF20156



LUF20131



LUF20142

H	D	Model	Order No.	UP
43.6	230	For 3-piece	<b>03.027.094.1</b>	1 unit
43.6	390	For 6-piece	<b>03.027.095.1</b>	1 unit

## Knürr CoolBlast® – Air-flow Routing via Front Intake, 1 U

- The "front-intake unit" for the Knürr CoolBlast fan delivers targeted cooling for module supports arranged on top of each other (heat sources).
- For Knürr CoolBlast slot-in unit 3- and 6 piece for front intake.
- Used as cooling baffle.
- Can be supplemented with front plate and filter mat.

### Material

- Sheet steel.

### Finish / Color

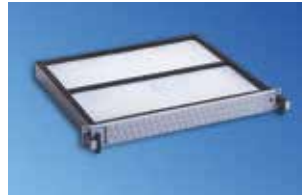
- Powder-coated texture, RAL 7035.
- Light-grey.

### Scope of delivery

- 1 x air-flow guide.

### How supplied

- Single items.



LUF00205

## 19" Filter Unit, 1 U

- Suitable for use with CoolBlast slot-in unit.
- Adjusted to the respective recess depth.

### Material

- Enclosure: sheet steel.
- Front cover plate: ABS (UL94 V-0).
- Handle: extruded aluminum.
- Filter: Viledon P 15/150.

### Filter class

- G2.

### Finish / Color

- Enclosure: powder-coated texture, RAL 9011 dark-grey.
- Front cover plate: RAL 7035, light-grey.
- Handle: powder-coated texture, RAL 5008 grey-blue.

### Scope of delivery

- 1 x filter insert.
- 1 x filter.

### How supplied

- Single items.

H	D	kg	Order No.	UP
43.6	282	2.0	<b>03.025.250.1</b>	1 unit
43.6	660	4.0	<b>03.025.253.1</b>	1 unit



LUF20136

## Knürr CoolBlast® Front Plate

- For use with air-flow guide for front intake.
- Can be retrofitted.

### Material

- Sheet steel.

### Finish / Color

- Powder-coated, RAL 7035.
- Light-grey, smooth.

### Scope of delivery

- 1 x front plate.

### How supplied

- Single items.

H	Order No.	UP
43.6	<b>03.027.097.1</b>	1 unit

### Dimensions in mm:

W = Width h = Installation height U = Standard rack unit  
 H = Height d = Usable depth (1 U = 44.45 mm)  
 D = Depth L = Length UP = Packaging unit

### Conversion:

1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds

SP = Standard Performance V' = Air-flow volume (m³/h)  
 HP = High Performance ΔV' = Air-flow volume loss (%)  
 UP = Ultra High Performance ΔP = Pressure increase (Pa)  
 n = Number of fans I<sub>nom</sub> = Nominal current (A)  
 W = Power consumption I<sub>max</sub> = Residual current (A)  
 V = Voltage p = Sound pressure (dB(A))  
 (400V = 3-phase) distance from the rack 1 m (600 mm x 600 mm; raised cover)



LUF20135

## Knürr CoolBlast® Filter for Front Intake

- For use with air-flow routing via front intake.
- Can be retrofitted; filter can also be replaced during operation.

- **Filter class**  
- G2.
- **Material**  
Viledon K15/150.
- **Scope of delivery**  
- 1 x filter.
- **How supplied**  
- Single items.

W	D	Model	Order No.	UP
400	160	For 3-piece	<b>03.027.098.1</b>	1 unit
400	320	For 6-piece	<b>03.027.099.1</b>	1 unit



LUF00280

## Replacement Filter

- For 19" filter insert.
- **Material**  
- Filter: Viledon P 15/150.
- **Filter class**  
- G2.
- **Scope of delivery**  
- 1 x filter.
- **How supplied**  
- Single items.

D	Order No.	UP
282	<b>03.025.246.9</b>	1 unit
660	<b>03.025.249.9</b>	1 unit



LUF20194

## Silent Top-mounting Fan

- Used for applications with silent environment (e. g. offices).
- Suitable for installation in Miracel.
- High volume flow with low noise generation (e.g. for office applications).

- **Material / Finish**  
- Sheet steel.

- **Technical data for single fan**
  - Max. volume flow (free blowing): -1500 m<sup>3</sup>/h.
  - Voltage / frequency: 230 V / 50 Hz.
  - Power consumption: 117 W.
  - Noise level: 40 dB(A).
  - Temperature range: -25 to 40°C.

- **Finish / Color**
  - Final digit of order number 1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

- **Scope of delivery**
  - 1 x top-mounting fan.
  - 1 x mains cable, 3 m with safety plug (230 VAC).
  - 1 x Mounting kit.

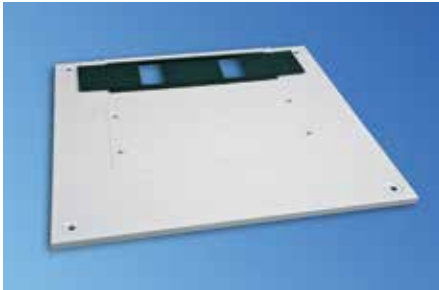
- **How supplied**  
- In sets.

- **Note**  
Please also order suitable cover panel.



LUF20195

W	H	D	For rack type	Order No.	UP
449	237	490	Miracel	<b>03.028.111.X</b>	1 unit



LUF20163



LUF20195

## Fan Top Cover for Silent, Top-mounting Fan

- Used with silent-fan top cover.
- Suitable for installation in Miracel.
- With cable routing (sliding plate).
- Two-part cover to facilitate retrofitting and servicing.

- **Material / Finish**
  - Sheet steel.

- **Finish / Color**
  - Final digit of order number 1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

- **Scope of delivery**
  - 1 x cover panel with cover strip and cable entry.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

W	D	For rack type	Order No.	UP
600	600	Miracel	01.149.201.x	1 unit
700	600	Miracel	01.149.202.x	1 unit
800	600	Miracel	01.149.203.x	1 unit
600	800	Miracel	01.149.206.x	1 unit
700	800	Miracel	01.149.207.x	1 unit
800	800	Miracel	01.149.208.x	1 unit
600	900	Miracel	01.149.211.x	1 unit
700	900	Miracel	01.149.212.x	1 unit
800	900	Miracel	01.149.213.x	1 unit
600	1000	Miracel	01.149.216.x	1 unit
700	1000	Miracel	01.149.217.x	1 unit
800	1000	Miracel	01.149.218.x	1 unit
600	1200	Miracel	01.149.221.x	1 unit
700	1200	Miracel	01.149.222.x	1 unit
800	1200	Miracel	01.149.223.x	1 unit





LUF20057

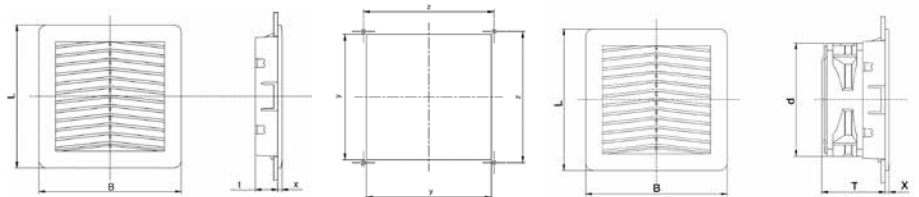


LUF20058

## Filter Fan

- For specific use where hot spots occur.
- Also suitable for retrofitting, quick and easy.
- The filter mats provide high-level filtration, are easily exchanged and can be cleaned.
- These maintenance-free fans feature a long service life and low noise levels.
- Air-flow routing: blows into the rack (pre-set).
- Can be used to draw in or move air out.

- **Material**
  - Heat-resistant ABS plastic, UL 94 V-0.
- **Color**
  - RAL 7035 light-grey.
- **Compliance**
  - CE marking.
- **Protection rating**
  - IP 54.



LUF80011

LUF800040

LUF80012

LxW	D  x	y/z	kg	Max. AF	El. conn.	L	G	N	Service life/40°	Model	Order No.	UP
150 x 150	71/120/5	125/131	0.812	57 m³/h	230V / 50/60Hz	20 W	43 dB(A)	2650/min	40,000 h	Filter fan	<b>03.026.501.1</b>	1 unit
204 x 204	90/120/5.7	177/185	1	90 m³/h	230V / 50/60Hz	20 W	43 dB(A)	2650/min	40,000 h	Filter fan	<b>03.026.502.1</b>	1 unit
250 x 250	113/172/6	223/230	1.690	240m³/h	230V / 50/60Hz	29 W	50 dB(A)	2800/min	40,000 h	Filter fan	<b>03.026.503.1</b>	1 unit
325 x 325	125/208/7	291/302	3.620	520m³/h	230V / 50/60Hz	67 W	63 dB(A)	2770/min	50,000 h	Filter fan	<b>03.026.504.1</b>	1 unit
150 x 150	24/5	125/131	0.140							Exit filter	<b>03.026.511.1</b>	1 unit
204 x 204	20.5/5.7	177/185	0.275							Exit filter	<b>03.026.512.1</b>	1 unit
250 x 250	25/6	223/230	0.440							Exit filter	<b>03.026.513.1</b>	1 unit
325 x 325	26/7	291/302	0.780							Exit filter	<b>03.026.514.1</b>	1 unit
150 x 150										Replacement filter mat	<b>03.026.521.9</b>	6 unit
204 x 204										Replacement filter mat	<b>03.026.522.9</b>	6 unit
250 x 250										Replacement filter mat	<b>03.026.523.9</b>	6 unit
325 x 325										Replacement filter mat	<b>03.026.524.9</b>	6 unit

Dimensions in mm:		Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight
H = Height	d = Usable depth	(1 U = 44.45 mm)	1 mm = 0.03937 inch
D = Depth	L = Length	UP = Packaging unit	1 kg = 2.2046 pounds
SP = Standard Performance	V' = Air-flow volume (m³/h)		
HP = High Performance	ΔV' = Air-flow volume loss (%)		
UP = Ultra High Performance	ΔP = Pressure increase (Pa)		
n = Number of fans	I nom = Nominal current (A)		
W = Power consumption	I max = Residual current (A)		
V = Voltage	p = Sound pressure (dB(A))		
(400V = 3-phase)	distance from the rack 1 m (600 mm x 600 mm; raised cover)		



LUF00237a

## Temperature Module

- For monitoring the inside temperature of the rack.
- Temperature display (+ 10°C to + 70°C).
- Alarm temperature set via potentiometer at the front.
- Visual alarm display (LED red).
- Alarm signaling via potential-free switching contact (1 changeover contact 250 VAC / 8 A).
- Power supply 230 V / 50 Hz.

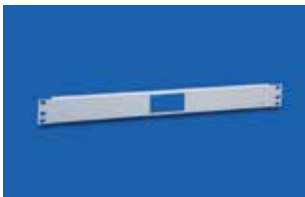
- **Material**  
- Plastic.

- **Compliance**  
- CE marking compliant with Low Voltage Directive 73/23/EEC; EMC directive 89/336/EEC.

- **Scope of delivery**  
- 1 x Temperature module.  
- 1 x Temperature sensor (3 m).

- **How supplied**  
- Assembled, wired and tested.

Order No.	UP
01.117.525.1	1 unit



LUF00256

## 19" Front Plate 1 U for Temperature Module

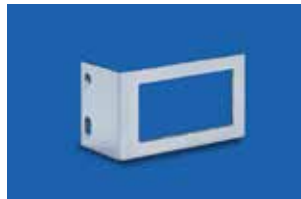
- For temperature module installation.

- **Material / Finish**  
- Sheet steel, 1.5 mm, powder-coated texture.

- **Color**  
- RAL 7035 light-grey.

- **Scope of delivery**  
- 1 x 19" front plate.

Order No.	UP
01.117.526.1	1 unit



LUF00255

## Bracket for Temperature Module

- For non-standard temperature module installation, e.g., on the side of the 19" extrusion.

- **Material / Finish**  
- Aluminum, 2 mm, polished.

- **Scope of delivery**  
- 1 x bracket.  
- 1 x Mounting kit.

- **How supplied**  
- In sets.

Order No.	UP
01.117.527.0	1 unit



LUF20000

## Thermostat

- For monitoring the inside temperature of the rack with respect to slot-in units and heating fans.
- Setting range: + 10°C to + 60°C.
- Switching temperature difference (hysteresis) 2 K.
- Contact type: 1 changeover contact.
- Sensor: thermo-bimetal.
- Contact rating: 230 VAC/10 A (heating), 5 A (cooling).
- Interference suppression: compliant with DIN 55014.

- **Material**  
- Plastic.

- **Protection rating**  
- IP 30.

- **Compliance**  
- CE marking compliant with Low Voltage Directive 73/23/EEC; EMC directive 89/336/EEC.

- **Dimensions**  
- 74 x 74 x 23 mm.

- **Scope of delivery**  
- 1 x thermostat.  
- 1 x mounting bracket.  
- 1 x Mounting kit.

Order No.	UP
01.113.384.3	1 unit



DOS00077

## Euro Mains Cable for Swiss Standard

- Mains plug: Type 12 - Euro socket IEC 320.
- Cable: H05VV-F 3G 1 mm<sup>2</sup>

■ **Mains voltage**  
- 250 VAC.

■ **Nominal current**  
- 10 A.

L	Order No.	UP
2000	04.000.055.9	1 unit



DOS00519

## Euro Plug Connection Cable

- Mains plug: IEC 320 - Euro socket IEC 320.
- Cable: H05VV-F 3G 1 mm<sup>2</sup>

■ **Mains voltage**  
- 250 VAC.

■ **Nominal current**  
- 10 A.

L	Order No.	UP
900	04.000.051.9	1 unit



DOS00078

## Euro Mains Cable for British Standard

- Mains plug: Type BS 1363 - IEC320 Euro socket.
- Cable: H05VV-F 3G 1 mm<sup>2</sup>

■ **Mains voltage**  
- 250 VAC.

■ **Nominal current**  
- 10 A.

L	Order No.	UP
2000	04.000.056.9	1 unit

Dimensions in mm:			Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		
SP = Standard Performance	V' = Air-flow volume (m <sup>3</sup> /h)			
HP = High Performance	ΔV' = Air-flow volume loss (%)			
UP = Ultra High Performance	ΔP = Pressure increase (Pa)			
n = Number of fans	I <sub>nom</sub> = Nominal current (A)			
W = Power consumption	I <sub>max</sub> = Residual current (A)			
V = Voltage (400V = 3-phase)	p = Sound pressure (dB(A) distance from the rack 1 m (600 mm x 600 mm; raised cover)			

# Knürr Smaract®

## Compact Rack

### Features

- Ample space for components and cabling provided in an efficient, compact design.
- The innovative frame concept with triangular extrusions ensures low weight while maintaining high stability.
- Modular, stackable construction.
- Easy access from all sides for installation and maintenance – hinged doors and side panels can be quickly removed.
- Secured access: The side panels can only be removed once the front or rear door has been opened.
- The patented mounting hole rails in the 19" extrusion ensure that all components can be positioned quickly and easily.
- Doors and side panels have an 180° opening angle.
- Available as server compact rack: Perforation of front and rear doors > 80%.
- Available as EMC and IP version (also IP-EMC combination).

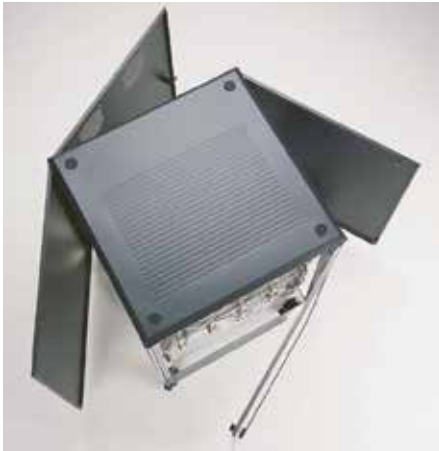
**The Smaract® Compact Rack is an innovative and practical 19" enclosure with extremely low space requirements that is highly flexible and efficient. At the same time, it facilitates integration and modular expansion, delivering a wide range of impressive detailed solutions.**

Knürr Smaract is an ideal, compact 19" platform available in various models that meet IP and EMC requirements.

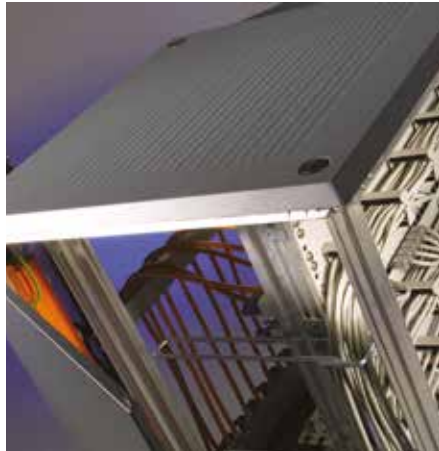




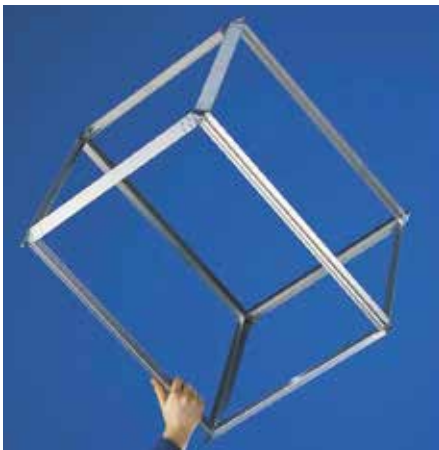
## Knürr Smaract® Main features



1. SMA20006



4. SMA20126



2. SMA20005



5. SMA20046



3. SMA20004



6. SMA20017

- **Access**  
 Access from all sides is a time-saving factor, e. g. for integration of components and for maintenance. (1)
- **Intelligent construction**  
 Innovative frame concept delivers low weight while providing high stability with new triangular extrusions. (2)
- **Modular concept: simple expansion with stackability**  
 Provides adequate space on the side for cabling; cable entry on rear door. (3)
- **Cable management**  
 Well prepared to have and easy and self-explanatory cabling. (4)
- **EMC and IP version**  
 The compact rack can be upgraded to IP or EMC standard at all times. (Also in combined IP/EMC version). (5)
- **Forward-thinking solutions**  
 Flexibility due to integration of 19" technology. 6 heights to choose from; 9 U to 24 U. (6)



SMA20067

**Knürr Smaract® 19" Rack Compliant with IEC 297**  
**Technical data**

- **19" components compliant with IEC 297-3**
  - Height: 9 U to 24 U  
1 U = 44.45 mm.
  - Width: 482.6 mm (19").
  - Depths: 600, 800, 900 and 1000 mm.
- **Versions**
  - IP 20.
  - IP 54.
  - EMC.
- **Available space**
  - 82 % of the basic surface can be used as space for installation and cable routing.
- **Configuration**
  - Fixed, on leveling feet.
  - Mobile, on casters with snib.
- **Tests dependent on design**
  - Safety compliant with EN 50298 and EN 60950.
  - Protective conductor/grounding compliant with DIN VDE 0701-1.
  - Vibration test compliant with MIL-STD 810 E.
  - Vibration and shock test compliant with DIN EN 300019-2-2.
  - IP test compliant with DIN EN 60529.
  - EMC shielding attenuation compliant with IEEE-STD-299 and VG 95 373 part 15 (30 MHz - 1 GHz).
  - Plastic components as per UL94 V-0.

**Applications**



SMA20166



SMA20109



SMA20122



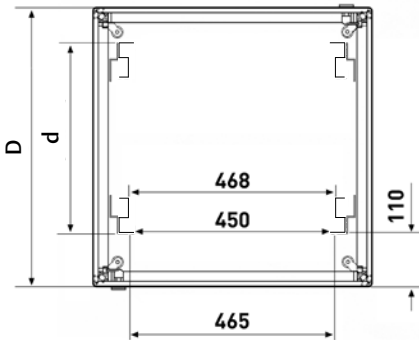
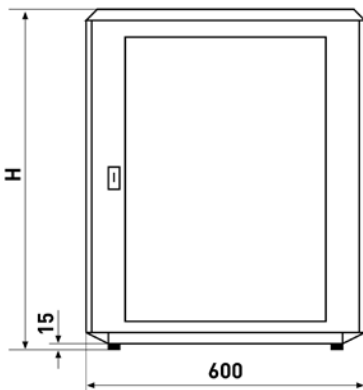
SMA20181



SMA20009



SMA20024



SMA20026

## Knürr Smaract® 19" Compact Rack with Glass Door

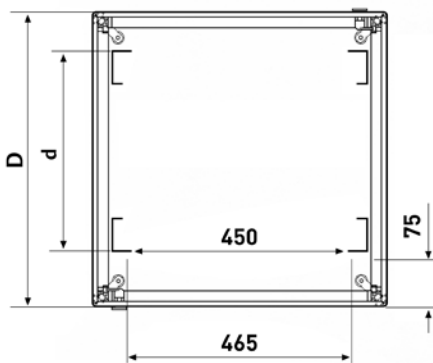
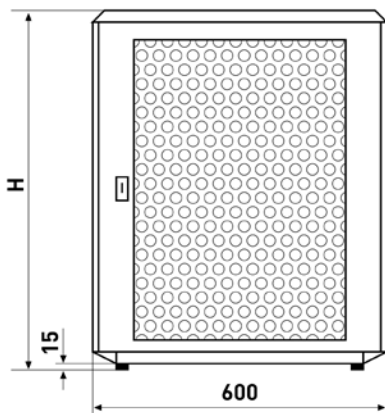
- For components compliant with IEC 297-3.
  - Access from all sides with removable covers.
  - Flexible assembly of the components using mounting holes.
  - Cable entry via rear panel (optional via top cover/bottom cover).
  - Heat loss discharge via own convection or with fan unit on the rear panel (accessory).
  - Door opening angle, 180°.
  - Front door with safety glass, lockable.
- **Color**
    - RAL 7035, light-grey.
  - **Scope of delivery**
    - 1 x basic rack.
    - 2 x side panels, closed; hinged on both sides.
    - 1 x top cover, closed.
    - 1 x glass front door, lockable.
    - 1 x rear door with cable entry, lockable, prepared for ventilation unit.
    - 4 x 19" sheet steel vertical extrusions.
    - 1 x grounding set.
    - 4 x leveling feet.
  - **How supplied**
    - Assembled.
  - **Jumpering space**
    - Front 110 mm.
  - **Load rating**
    - 2000 N static.
  - **Protection rating**
    - IP 20.
  - **Material / Finish**
    - Basic rack, extruded aluminum, polished.
    - Corner connector, die-cast, polished.
    - Covers, sheet steel, powder-coated texture.
    - Glass infill front door, single safety glass panel.

W	H	D	U	d (max.)	kg	Model	Order No.	UP
600	478	600	9	450	16	With 19" mount. hole extru.	02.110.057.1	1 unit
600	612	600	12	450	20	With 19" mount. hole extru.	02.110.062.1	1 unit
600	745	600	15	450	24	With 19" mount. hole extru.	02.110.067.1	1 unit
600	879	600	18	450	28	With 19" mount. hole extru.	02.110.072.1	1 unit
600	1012	600	21	450	32	With 19" mount. hole extru.	02.110.077.1	1 unit
600	1145	600	24	450	36	With 19" mount. hole extru.	02.110.082.1	1 unit
600	478	800	9	650	19	With 19" mount. hole extru.	02.110.059.1	1 unit
600	612	800	12	650	23	With 19" mount. hole extru.	02.110.064.1	1 unit
600	745	800	15	650	27	With 19" mount. hole extru.	02.110.069.1	1 unit
600	879	800	18	650	31	With 19" mount. hole extru.	02.110.074.1	1 unit
600	1012	800	21	650	35	With 19" mount. hole extru.	02.110.079.1	1 unit
600	1145	800	24	650	39	With 19" mount. hole extru.	02.110.084.1	1 unit





SMA20067



SMA20060

## Knürr Smaract® 19" Server Compact Rack with Perforated Door

- For components compliant with IEC 297-3.
- Access from all sides, removable covers.
- With special 19" server extrusions for mounting trade-standard servers.
- With perforated doors on the front and rear (hexagonal holes with large flow cross-section) for optimal airflow.
- Door opening angle, 180°.

■ **Jumpering space**

- Front 75 mm.

■ **Flow cross-section**

- 1150 cm<sup>2</sup> with 9 U.
- 1950 cm<sup>2</sup> with 15 U.
- 2700 cm<sup>2</sup> with 21 U.
- 3100 cm<sup>2</sup> with 24 U.

■ **Material / Finish**

- Basic rack, extruded aluminum, polished.
- Corner connector, die-cast, polished.
- Covers, sheet steel, powder-coated texture.

■ **Color**

- Final digit of order number .1: RAL 7035, light-grey.
- Final digit of order number .8: RAL 7021 dark-grey.

■ **Scope of delivery**

- 1 x basic rack.
- 2 x side panels, closed, hinged on both sides.
- 1 x top cover, closed.
- 1 x front door with perforation, lockable.
- 1 x rear door with perforation, lockable.
- 4 x 19" server sheet-steel extrusions with mounting holes.
- 1 x grounding set.
- 4 x leveling feet.

■ **Note**

Order mounting adapters for 19" server extrusion for mounting Knürr accessories. Set with 4 adapters order number 01.127.119.9.

W	H	D	U	d	kg	Model	Order No.	UP
600	478	900	9	740	21	Door without frame	<b>02.110.010.1</b>	1 unit
600	478	900	9	740	21	Door without frame	<b>02.110.010.8</b>	1 unit
600	745	900	15	740	29	Door with frame	<b>02.110.020.1</b>	1 unit
600	745	900	15	740	29	Door with frame	<b>02.110.020.8</b>	1 unit
600	1012	900	21	740	37	Door with frame	<b>02.110.030.1</b>	1 unit
600	1012	900	21	740	37	Door with frame	<b>02.110.030.8</b>	1 unit
600	1145	900	24	740	41	Door with frame	<b>02.110.035.1</b>	1 unit
600	1145	900	24	740	41	Door with frame	<b>02.110.035.8</b>	1 unit
600	1145	1000	24	740	43	Door with frame	<b>02.110.040.1</b>	1 unit
600	1145	1000	24	740	43	Door with frame	<b>02.110.040.8</b>	1 unit

Dimensions in mm:				Conversion:
W =Width	h =Installation height	U =Standard rack unit	kg =Weight	1 mm =0.03937 inch
H =Height	d =Usable depth	(1 U = 44.45 mm)		1 kg =2.2046 pounds
D =Depth	L =Length	UP =Packaging unit		

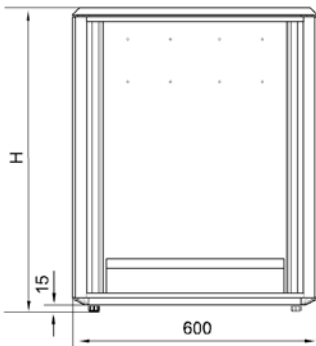


SMA20025

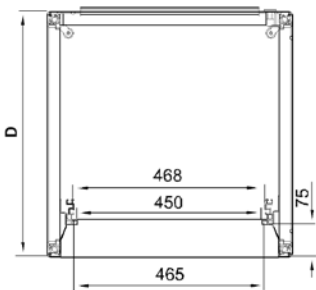
### Knürr Smaract® 19" Compact Rack Enclosure without door

- For components in acc. with IEC 297-3.
- Removable covers.
- **Load rating**
  - 2000 N static.
- **Material/Finish**
  - Basic rack, extruded aluminum, polished.
  - Corner connector, die-cast, polished.
  - Covers, sheet steel, powder-coated texture.
- **Color**
  - RAL 7035 light-grey.
- **Supply schedule**
  - 1 x basic rack.
  - 2 x side panels, closed, hinged on both sides.
  - 1 x top cover, closed.
  - 1 x trim frame, front.
  - 1 x rear door with cable entry, lockable, prepared for ventilation unit.
  - 2 x 19" aluminum vertical extrusions, front, with T-slot.
  - 1 x earthing set.
  - 4 x leveling feet.
- **How supplied**
  - Assembled.
- **Note**

If required, please also order 19" extrusions for rear 19" level.



SMA20027



SMA20042

W	H	D	U	kg	Order no.	UP
600	478	600	9	16	02.110.107.1	1 unit
600	745	600	15	24	02.110.117.1	1 unit
600	1012	600	21	28	02.110.127.1	1 unit
600	478	800	9	19	02.110.109.1	1 unit
600	745	800	15	25	02.110.119.1	1 unit
600	1012	800	21	31	02.110.129.1	1 unit

Dimensions in mm:				Conversion:	
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	d = Usable depth	1 U = 44.45 mm		1 kg = 2.2046 pounds	
D = Depth	L = Length	UP = Packaging unit			

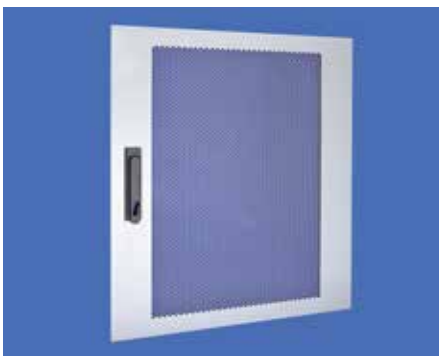


SMA20194

### Knürr Smaract® Glass Door with Swing Handle

- Can be used as front and rear door.
- With swing handle for mounting a profile half-cylinder lock.
- **Material**
  - Covers, sheet steel, powder-coated texture.
  - Glass infill, single safety glass panel.
- **Finish**
  - Powder-coated texture, RAL 7035 light-grey.
- **Scope of delivery**
  - 1 x glass door with swing handle.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H	U	Model	Order No.	UP
600	478	9	Glass door	02.111.086.1	1 unit
600	612	12	Glass door	02.111.087.1	1 unit
600	745	15	Glass door	02.111.088.1	1 unit
600	879	18	Glass door	02.111.089.1	1 unit
600	1012	21	Glass door	02.111.090.1	1 unit
600	1143	24	Glass door	02.111.091.1	1 unit



SMA20193

### Knürr Smaract® Door, perforated with Swing Handle

- Can be used as front and rear door.
- With swing handle for mounting a profile half-cylinder lock.
- Hexagonal holes with large flow cross-section.
- **Material**
  - Covers, sheet steel, powder-coated texture.
- **Finish**
  - Final digit of order number .1: powder-coated texture, RAL 7035, light-grey.
  - Final digit of order number .8: powder-coated texture, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x perforated door with swing handle.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H	U	Model	Order No.	UP
600	478	9	Perforated door	02.111.096.1	1 unit
600	612	12	Perforated door	02.111.097.1	1 unit
600	745	15	Perforated door	02.111.098.1	1 unit
600	879	18	Perforated door	02.111.099.1	1 unit
600	1012	21	Perforated door	02.111.100.1	1 unit
600	1143	24	Perforated door	02.111.101.1	1 unit



SMA20195

## Knürr Smaract® Ventilation Unit

- Easily added onto a rear panel.
- With two axial fans.
- With thermostat.
- Available in two different performance classes.



SMA20180

### ■ Technical data for single fan

- Type 1:  
max. volume flow (free blowing):  
162 m³/h.  
Noise emission (free blowing): 37 dB(A).
- Type 2 (quiet):  
max. volume flow (free blowing):  
120 m³/h.  
Noise emission (free blowing): 32 dB(A).

### ■ Technical data for thermostat

- Setting range: 0 to 60 °C.
- Mains supply: 240 V / 50 Hz.
- Nominal current: 16 A.

### ■ Material / Finish

- Zinc-passivated sheet steel.

### ■ Scope of delivery

- 1 x fan unit wired ready for connection, with thermostat.
- 1 x Mounting kit.

### ■ How supplied

- Pre-assembled.

Model	Order No.	UP
Type 1	02.111.180.9	1 unit
Type 2 (quiet)	02.111.181.9	1 unit



SMA20103

## Knürr Smaract® 19" Aluminum Extrusion with T-slot

- For front and rear installation.

### ■ Material / Finish

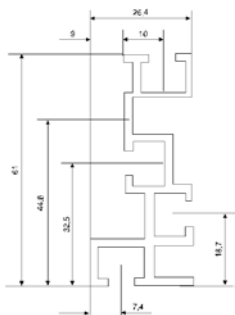
- 19" extrusions: extruded aluminum polished.
- Mounting bracket: Sheet steel, zinc-passivated.

### ■ Scope of delivery

- 2 x 19" extrusions with T-slot incl. increment slides.
- 4 x mounting brackets.
- 1 x Mounting kit.

### ■ How supplied

- In sets.



SMA20105

U	Order No.	UP
9	02.111.146.9	1 unit
12	02.111.147.9	1 unit
15	02.111.148.9	1 unit
18	02.111.149.9	1 unit
21	02.111.150.9	1 unit
24	02.111.151.9	1 unit



SMA20104

## Knürr Smaract® 19" Steel Extrusion with Mounting Holes

- For front and rear installation.

### ■ Material / Finish

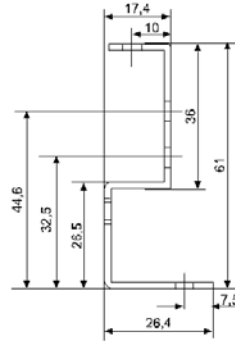
- 19" extrusions: sheet steel, zinc-passivated.
- Mounting bracket: sheet steel, 1.5 mm, zinc-passivated.

### ■ Scope of delivery

- 2 x 19" extrusions with mounting holes.
- 4 x mounting brackets.
- 1 x Mounting kit.

### ■ How supplied

- In sets.



SMA20106

U	Order No.	UP
9	02.111.156.9	1 unit
12	02.111.157.9	1 unit
15	02.111.158.9	1 unit
18	02.111.159.9	1 unit
21	02.111.160.9	1 unit
24	02.111.161.9	1 unit



MIR20044

## Mounting Adapters for 19" Server Extrusion

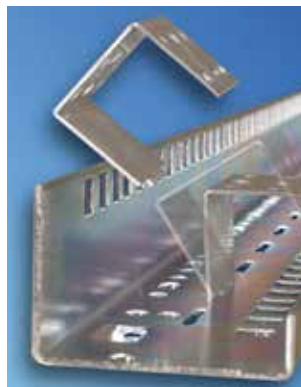
- For mounting standard Knürr components (storage shelves, drawers, chassis rails, keyboard tray, etc.) in 19" installation space.

### ■ Material

- Zinc-passivated sheet steel.

### ■ Scope of delivery

- 4 x adapters.



MIR20082

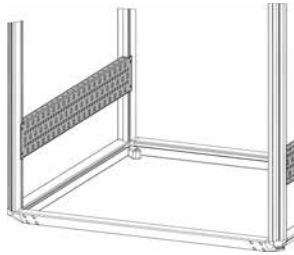
U	Order No.	UP
1	01.127.119.9	1 unit



SMA20172

**Knürr Smaract®  
Depth Brace**

- For additional strengthening of the enclosure.
- For routing cables with cable ties and as universal mounting option.
- With holes for mounting cage nuts.
- Variable positioning with T-slot.
- Installation on the frame extrusions.



SMA20173

- **Material / Finish**  
- Sheet steel, zinc-passivated 1.5 mm.
- **Scope of delivery**  
- 1 x depth brace.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.
- **Note**  
Not compatible with 19" server extrusions.

D	Order No.	UP
600	02.111.002.0	1 unit
800	02.111.004.0	1 unit
900	02.111.005.0	1 unit



SMA20028

**Knürr Smaract®  
Top Cover/Bottom Cover closed**

- **Material / Finish**  
- Sheet steel, powder-coated texture.
- **Color**  
- Final digit of order number .1:  
RAL 7035, light-grey.  
- Final digit of order number .8:  
RAL 7021 dark-grey.
- **Scope of delivery**  
- 1 x bottom cover, closed.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.
- **Note**  
Use of the bottom cover in combination with the stationary plinth is not possible.

W	D	Order No.	UP
600	600	02.111.052.1	1 unit
600	800	02.111.054.1	1 unit
600	900	02.111.055.1	1 unit
600	900	02.111.055.8	1 unit
600	1000	02.111.056.1	1 unit
600	1000	02.111.056.8	1 unit

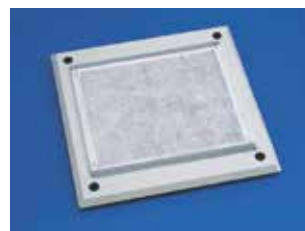


SMA20168

**Knürr Smaract®  
Top/Bottom Cover with Cable Entry**

- With integrated cable clamping.
- With brush strip for cable entry.
- **Material / Finish**  
- Sheet steel, powder-coated texture.
- **Color**  
- Final digit of order number .1:  
RAL 7035, light-grey.  
- Final digit of order number .8:  
RAL 7021 dark-grey.
- **Scope of delivery**  
- 1 x bottom cover with cable routing.  
- 1 x brush strip.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.

W	D	Order No.	UP
600	600	02.111.042.1	1 unit
600	800	02.111.044.1	1 unit
600	900	02.111.045.1	1 unit
600	900	02.111.045.8	1 unit
600	1000	02.111.046.1	1 unit
600	1000	02.111.046.8	1 unit



SMA20029

**Knürr Smaract®  
Bottom Cover, perforated with Filter Mat**

- For cooling with air convection.
- **Material / Finish**  
- Bottom cover: sheet steel, powder-coated texture.  
- Filter mat: Filedon
- **Color**  
- RAL 7035, light-grey.
- **Scope of delivery**  
- 1 x perforated bottom cover with filter mat.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.

W	D	Order No.	UP
600	600	02.111.062.1	1 unit
600	800	02.111.064.1	1 unit

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	1 U = 44.45 mm		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



SMA20058

## Knürr Smaract® Replacement Filter Mat for perforated Bottom Cover

- Used with perforated bottom cover.
- **Material / Finish**  
- Fildon.
- **Scope of delivery**  
- 5 x replacement filter mats.
- **How supplied**  
- In sets.

Model	Order No.	UP
for D600	<b>02.111.068.9</b>	5 units
For D800	<b>02.111.069.9</b>	5 units



SMA20177

## Knürr Smaract® Plinth

- Stationary.
- Cable entry possible from all sides.
- Panels front and rear with vent slots and installation option for filter mat.
- **Material / Finish**  
- Sheet steel, powder-coated texture.
- **Color**  
- Final digit of order number .1:  
RAL 7035, light-grey.  
- Final digit of order number .8:  
RAL 7021 dark-grey.
- **Scope of delivery**  
- 4 x plinth corners.  
- 2 x cover plates, closed.  
- 2 x cover plates with vent slots.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.

W	H	D	Order No.	UP
600	100	600	<b>02.111.201.1</b>	1 set
600	100	800	<b>02.111.203.1</b>	1 set
600	100	900	<b>02.111.204.1</b>	1 set
600	100	900	<b>02.111.204.8</b>	1 set



SMA20098

## Knürr Smaract® Plinth Cover Plate with Cable Entry

- Used with plinth.
- **Material / Finish**  
- Sheet steel, powder-coated texture.
- **Scope of delivery**  
- 1 x cover panel with cable entry.  
- 1 x brush strip.  
- 1 x Mounting kit.
- **Color**  
- Final digit of order number .1:  
RAL 7035, light-grey.  
- Final digit of order number .8:  
RAL 7021 dark-grey.
- **How supplied**  
- In sets.

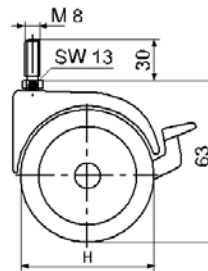
W	H	Order No.	UP
600	100	<b>02.111.206.1</b>	1 unit
600	100	<b>02.111.206.8</b>	1 unit



SMA20034

## Knürr Smaract® Twin Caster

- Height 50 mm.
- **Color**  
- RAL 9011, graphite black.
- **Load rating**  
- 400 N per caster.  
- 1200 N max. static total load per rack.
- **Scope of delivery**  
- 2 x twin casters.  
- 2 x fixed casters.
- **Standards**  
- Casters compliant with DIN 12530.  
- Load compliant with DIN 12527.
- **How supplied**  
- In sets.



DOP00233

Order No.	UP
<b>02.111.175.9</b>	4 units

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	1 U = 44.45 mm		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



SMA20035

### Knürr Smaract® Stacking Set

- Fixed connection for stacking compact racks.
- **Material / Finish**  
- Steel, cold rolled, zinc-passivated.
- **Scope of delivery**  
- 4 x stacking elements.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.

Order No.	UP
02.111.171.9	4 unit

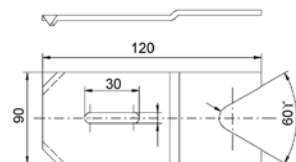


MEC00074

### Knürr Smaract® Eyebolt Set

- Mounted/fixed on crane hooks.
- Load rating, 1900 N static per ring screw.
- **Material / Finish**  
- Tool steel, forged.
- **Scope of delivery**  
- 4 x crane eyebolts.
- **How supplied**  
- In sets.

Order No.	UP
01.243.440.9	4 units



MIR00319

### Floor Fixing Kit

- **Material / Finish**  
- Sheet steel, 3.0 mm.
- **Finish**  
- Galvanized.
- **Scope of delivery**  
- 4 x fixing brackets.

Order No.	UP
01.130.934.7	1 unit



SMA20094

### Knürr Smaract® Wall Mounting Bracket

- **Material / Finish**  
- Sheet steel, powder-coated texture.
- **Color**  
- RAL 7035, light-grey.
- **Scope of delivery**  
- 2 x wall mounting brackets.  
- 1 x Drill hole template.  
- 1 x Mounting kit.
- **Load rating**  
- 500 N.
- **How supplied**  
- In sets.



SMA20085

W	Order No.	UP
600	02.111.220.9	1 set



ELM00068

### Grounding Bar

- For safe grounding or potential equalization of equipments and components.
- **Material**  
- Electrolyte copper 9 x 9.
- **Scope of delivery**  
- 1 x grounding bar.  
- 2 x brackets.  
- 1 x Mounting kit.

U	Order No.	UP
12	01.110.703.9	1 unit
15	01.240.543.9	1 unit
18	01.240.544.9	1 unit
21	01.240.545.9	1 unit
24	01.240.546.9	1 unit



DOP20016

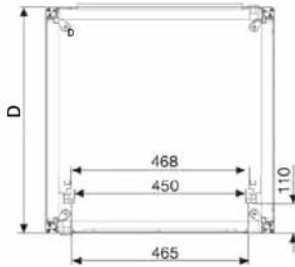
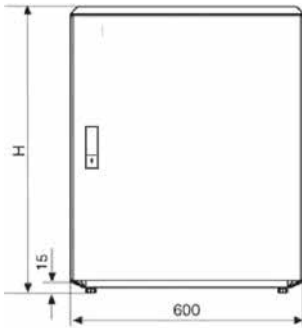
### Contact Clamp

- Enables safe connection of equipment and components to grounding bar.
- For cables up to 25 mm<sup>2</sup>.
- **Scope of delivery**  
- 20 x contact clamps.

Order No.	UP
01.110.715.9	20 units



SMA20035

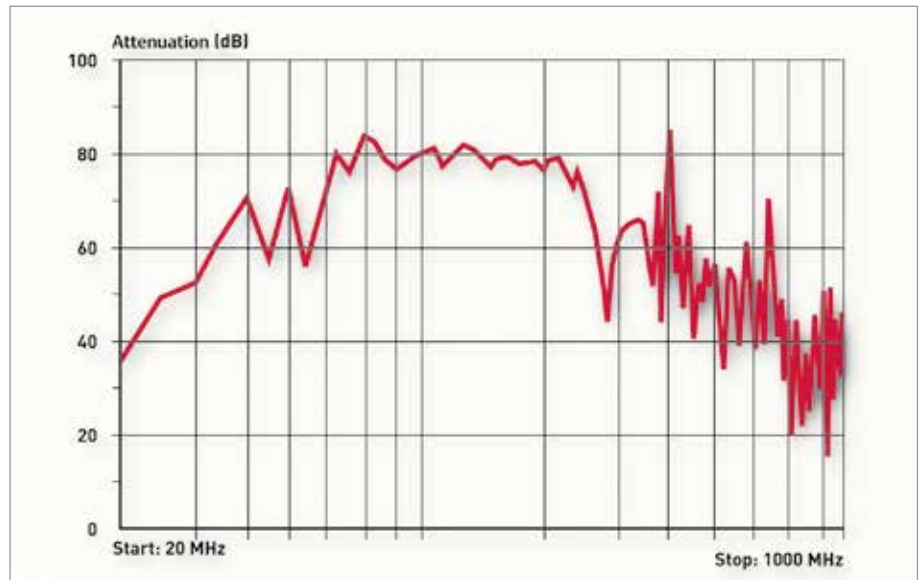


SMA20059

## Knürr Smaract® 19" Compact Rack EMC with sheet steel door

- For components compliant with IEC 297-3.
- Removable covers.
- **Load rating**
    - 2000 N static.
  - **Material**
    - Basic frame: extruded aluminum.
    - Panels: sheet steel.
    - EMC spring: high-grade steel.
  - **Finish**
    - Basic frame: polished.
    - Panels: powder-coated texture.
  - **Color**
    - RAL 7035, light-grey.
- **Scope of delivery**
    - 1 x basic rack.
    - 2 x side panels, EMC, closed, hinged on both sides.
    - 1 x top cover, EMC, closed.
    - 1 x bottom cover, EMC, closed.
    - 1 x front door, EMC, closed, lockable.
    - 1 x rear panel, EMC, closed, screwed.
    - 2 x 19" front aluminum vertical extrusions with T-slot incl. increment slide.
    - 1 x grounding set.
    - 4 x leveling feet.
  - **How supplied**
    - Assembled.

W	H	D	U	kg	Order No.	UP
600	612	600	12	28	02.110.312.1	1 unit
600	879	600	18	36	02.110.322.1	1 unit
600	1146	600	24	44	02.110.332.1	1 unit
600	612	800	12	32	02.110.314.1	1 unit
600	879	800	18	40	02.110.324.1	1 unit
600	1146	800	24	48	02.110.334.1	1 unit



- EMC measurements performed by pkm Electronic GmbH, Frontenhausen.
- Tests were carried out in compliance with the following standard: VG 95373 Part 15.
- Tested rack: width 600, depth 600, height 1150, closed version.





SMA20148

**Knürr Smaract®**  
Connection Plate, EMC, closed

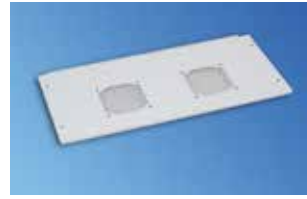
- EMC shielding.
- Screwed.
- **Material**
  - Panel: sheet steel.
  - EMC spring: high-grade steel.



SMA20137

- **Finish**
  - Powder-coated texture.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x connection plate closed.
  - 2 x brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

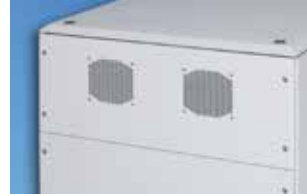
W	H	U	Order No.	UP
600	131.3	3	02.111.351.1	1 set



SMA20150

**Knürr Smaract®**  
Connection Plate, EMC, for Fan Unit

- EMC shielding.
- Screwed.
- **Material**
  - Panel: sheet steel.
  - EMC spring: high-grade steel.



SMA20135

- **Finish**
  - Powder-coated texture.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x connection plate for fan unit.
  - 2 x brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

■ **Note**  
Suitable fan unit: 02.111.180.9.

W	H	U	Order No.	UP
600	264.6	6	02.111.372.1	1 set



SMA20145

**Knürr Smaract®**  
Connection Plate, EMC, with Cable Entry

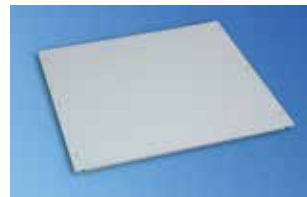
- EMC shielding.
- Screwed.
- **Material**
  - Panel: sheet steel.
  - EMC spring: high-grade steel.
  - EMC seal extrusion: with high-grade steel grid; rubber.



SMA20137

- **Finish**
  - Powder-coated texture.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x connection plate with cable entry.
  - 2 x brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H	U	Order No.	UP
600	131.3	3	02.111.361.1	1 set



SMA20152

**Knürr Smaract®**  
Rear Plate, EMC, closed

- EMC shielding.
- Screwed.
- **Material**
  - Panel: sheet steel.
  - EMC spring: high-grade steel.



SMA20137

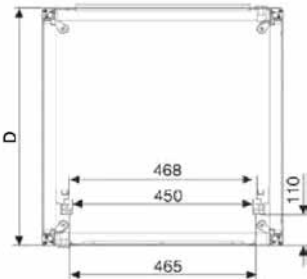
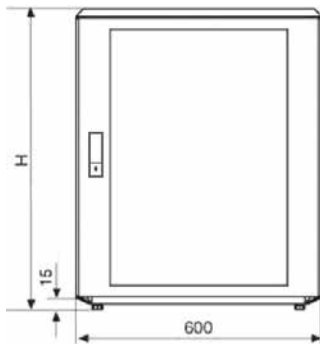
- **Finish**
  - Powder-coated texture.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x rear plate closed.
  - 2 x brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H	U	Order No.	UP
600	422.9	9	02.111.353.1	1 set
600	556.3	12	02.111.354.1	1 set
600	689.6	15	02.111.355.1	1 set

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



SMA20062



SMA20108

## Knürr Smaract® 19" Compact Rack IP 54 with glass door

- For components compliant with IEC 297-3.
- Removable covers.
- **Load rating**
    - 2000 N static.
  - **Protection rating**
    - IP 54.
  - **Material**
    - Basic frame: extruded aluminum.
    - Panels: sheet steel.
    - Foam seal: polyurethane.
  - **Finish**
    - Basic frame: polished.
    - Panels: powder-coated texture.
- **Color**
    - RAL 7035, light-grey.
  - **Scope of delivery**
    - 1 x basic frame.
    - 2 x side panels, IP 54, closed, hinged on both sides.
    - 1 x top cover, IP 54, closed.
    - 1 x bottom cover, IP 54, closed.
    - 1 x glass front door IP 54, lockable.
    - 1 x rear panel, IP 54, closed, screwed.
    - 2 x 19" aluminum vertical extrusions, front, with T-slot incl. increment slide.
    - 1 x grounding set.
    - 4 x leveling feet.
  - **How supplied**
    - Assembled.

W	H	D	U	kg	Order No.	UP
600	612	600	12	28	02.110.212.1	1 unit
600	879	600	18	36	02.110.222.1	1 unit
600	1146	600	24	44	02.110.232.1	1 unit
600	612	800	12	32	02.110.214.1	1 unit
600	879	800	18	40	02.110.224.1	1 unit
600	1146	800	24	48	02.110.234.1	1 unit



SMA20148

**Knürr Smaract®**  
Connection Plate, IP54, Closed

- Protection rating, IP 54
- Screwed.
- **Material**
  - Panel: sheet steel.
  - Foam seal: polyurethane.



SMA20138

- **Finish**
  - Powder-coated texture.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x connection plate closed.
  - 2 x brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

W	H	U	Order No.	UP
600	131.3	3	02.111.301.1	1 set



SMA20139

**Knürr Smaract®**  
Connection Plate, IP54, with Cable Entry

- Possible sealing: IP 54.
- Screwed.
- **Material**
  - Panel: sheet steel.
  - Foam seal: polyurethane.
  - Seal extrusion:
    - Type 1: sponge-rubber seal.
    - Type 2: polymeric reinforced with metal.



SMA20169

- **Finish**
  - Powder-coated texture.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x connection plate with cable entry.
  - 2 x brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.



SMA20138

W	H	U	Model	Order No.	UP
600	131.3	3	Type 1	02.111.311.1	1 set
600	131.3	3	Type 2	02.111.312.1	1 set



SMA20143

**Knürr Smaract®**  
Connection Plate, IP54, for Fan Unit

- Protection rating, IP 54.
- Screwed.
- **Material**
  - Panels: sheet steel.
  - Foam seal: polyurethane.
  - Exit filter: ABS plastic, UL94 V-0.

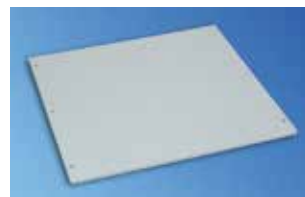


SMA20136

- **Finish**
  - Powder-coated texture.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x connection plate for fan unit.
  - 2 x brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

■ **Note**  
Suitable fan unit: 02.111.180.9.

W	H	U	Order No.	UP
600	264.6	6	02.111.322.1	1 set



SMA20141

**Knürr Smaract®**  
Rear Panel, IP54, closed

- Protection rating, IP 54.
- Screwed.
- **Material**
  - Panels: sheet steel.
  - Foam seal: polyurethane.



SMA20138

- **Finish**
  - Powder-coated texture.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x rear panel closed.
  - 2 x brackets.
  - 1 x Mounting kit.

■ **How supplied**  
- In sets.

W	H	U	Order No.	UP
600	156.3	3	02.111.308.1	1 set
600	289.6	6	02.111.302.1	1 set
600	422.9	9	02.111.303.1	1 set
600	556.3	12	02.111.304.1	1 set
600	689.6	15	02.111.305.1	1 set
600	823	18	02.111.306.1	1 set
600	956.3	21	02.111.307.1	1 set

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		

# Knürr DoubleProRack®

## Stand-Alone Enclosure

### Features

- Comprehensive 19" enclosure range from the 6 U enclosure to the 24 U compact rack.
- Innovative design.
- Optional with glass door or without front door.
- Integrated carrying handle permits easy handling.
- Version without front door is used for applications, where direct contact to controls is needed.

**DoubleProRack is the choice of rack if an innovative design is requested for electronic and networking applications.**

The DoubleProRack® is commonly used for electronic and networking applications.



**Knürr DoubleProRack® 19" Enclosure Compliant with IEC 297-3**  
**Technical data**

- Die-cast aluminum frame construction connected with depth and vertical extrusions made of aluminum.
- **External dimensions**
  - Width: 554.4 mm.
  - Depths: 500, 600, 700 or 800 mm.
  - Heights: 6 U to 24 U.
- **Installation space compliant with IEC 297-3.**
  - Height 6 – 24 U
  - (1 U = 44.45 mm).
  - Width 19".
- **Tests**
  - Vibration test compliant with MIL-STD 810 D.
  - NEMA 12 test.

**Applications**



DOP20019



DOP00225



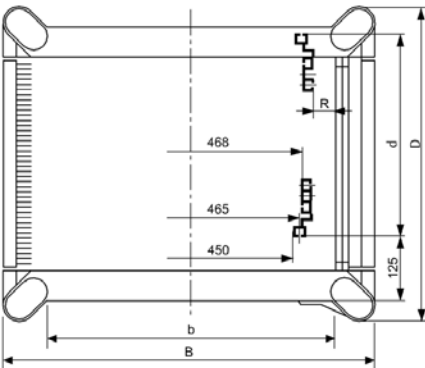
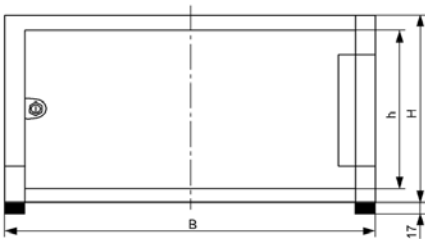
DOP20037



DOP20028



DOP00256



DOP00230

## Knürr DoubleProRack® 19" Stand-alone Enclosure

### Description

- For components compliant with IEC 297-3.
- Side covers and rear panel may be removed.
- Flexible assembly of components using T-slot (also available with mounting holes).
- Cable entry via rear panel.
- Heat loss discharge via convection on the rear panel (optional with fan unit).

### Jumpering space

- Front 125 mm.

### Load rating

- 1500 N static.

### Protection rating

- IP 20.

### Material / Finish

- Covers, sheet steel, powder-coated texture.
- Die-cast aluminum frame.
- Extruded aluminum extrusions.
- Front door glass infill, single safety glass panel.

### Color

- Panels RAL 7035 light-grey.
- Frame and extrusions, RAL 5008, grey-blue.

### Scope of delivery

- 1 x frame rack incl. side covers.
- 1 x full glass door.
- 1 x rear panel with cable entry, 3 parts.
- 1 x panel, above, with vent slots.
- 1 x panel, below, with vent slots.
- 1 x 19" component set (4 vertical extrusions with T-slot).
- 1 x grounding set with M8 grounding bolt.

### How supplied

- Assembled.

W	H	D	U	h	d (max.)	Model	Order No.	UP
554.4	577	600	12	532	435	With full glass door	01.246.643.1	1 unit
554.4	711	600	15	666	435	With full glass door	01.246.644.1	1 unit
554.4	844	600	18	799	435	With full glass door	01.246.645.1	1 unit
554.4	978	600	21	932	435	With full glass door	01.246.646.1	1 unit
554.4	1111	600	24	1066	435	With full glass door	01.246.647.1	1 unit
554.4	577	800	12	532	635	With full glass door	01.246.843.1	1 unit
554.4	711	800	15	666	635	With full glass door	01.246.844.1	1 unit
554.4	844	800	18	799	635	With full glass door	01.246.845.1	1 unit
554.4	978	800	21	932	635	With full glass door	01.246.846.1	1 unit
554.4	1111	800	24	1066	635	With full glass door	01.246.847.1	1 unit

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	1 U = 44.45 mm		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



DOP00253

## Knürr DoubleProRack® 19" Enclosure without Front Door

**Description**

- For components compliant with IEC 297-3.
- Side covers and rear panel may be removed.
- Heat loss discharge via convection on the rear panel (optional with fan unit).

**Load rating**

- 1500 N static.

**Protection rating**

- IP 20.

**Material / Finish**

- Covers, sheet steel, powder-coated texture.
- Die-cast aluminum frame.
- Extruded aluminum extrusions.

**Color**

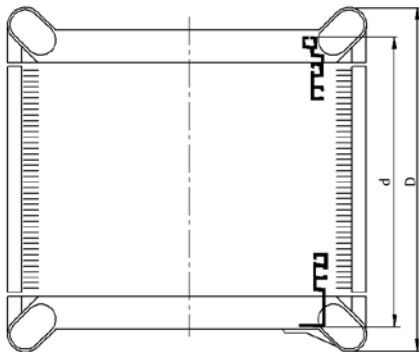
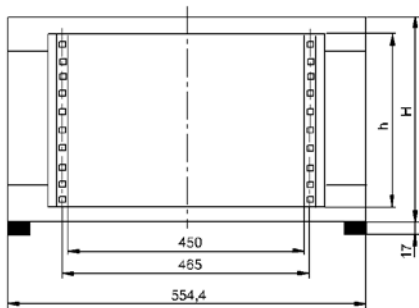
- Panels RAL 7035 light-grey.
- Frame and extrusions, RAL 5008, grey-blue.

**Scope of delivery**

- 1 x frame rack incl. side covers.
- 1 x panel, above, with vent slots.
- 1 x panel, below, with vent slots.
- 1 x rear panel (from 12 U enclosure height incl. 3 U vented cover plate).
- 2 x 19" extrusions, front, with mounting holes.
- 2 x 19" extrusions at the rear, T-slot.

**How supplied**

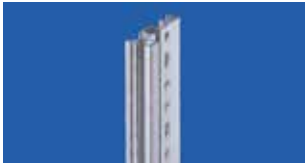
- Assembled.



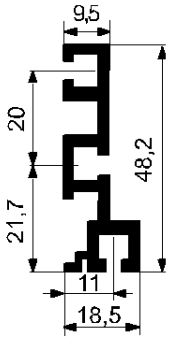
DOP00052

W	H	D	U	h	d (max.)	kg	Model	Order No.	UP
554.4	311	500	6	265	460	12.5	Without door	<b>01.243.506.1</b>	1 unit
554.4	444	500	9	399	460	15.0	Without door	<b>01.243.509.1</b>	1 unit
554.4	577	500	12	532	460	17.0	Without door	<b>01.243.512.1</b>	1 unit
554.4	711	500	15	666	460	19.5	Without door	<b>01.243.515.1</b>	1 unit
554.4	311	600	6	265	560	14.0	Without door	<b>01.243.606.1</b>	1 unit
554.4	444	600	9	399	560	16.5	Without door	<b>01.243.609.1</b>	1 unit
554.4	577	600	12	532	560	19.0	Without door	<b>01.243.612.1</b>	1 unit
554.4	711	600	15	666	560	22.0	Without door	<b>01.243.615.1</b>	1 unit
554.4	844	600	18	799	560	24.5	Without door	<b>01.243.618.1</b>	1 unit
554.4	577	700	12	532	660	21.5	Without door	<b>01.243.712.1</b>	1 unit
554.4	711	700	15	666	660	24.0	Without door	<b>01.243.715.1</b>	1 unit
554.4	844	700	18	799	660	27.0	Without door	<b>01.243.718.1</b>	1 unit
554.4	978	700	21	932	660	29.5	Without door	<b>01.243.721.1</b>	1 unit
554.4	1111	700	24	1066	660	32.5	Without door	<b>01.243.724.1</b>	1 unit

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



DOP20004



DOP00313

U	Order No.	UP
6	01.240.440.9	1 set
9	01.240.443.9	1 set
12	01.240.445.9	1 set
15	01.240.446.9	1 set
18	01.240.447.9	1 set
21	01.240.448.9	1 set
24	01.240.449.9	1 set

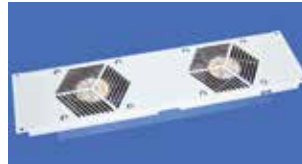
## Knürr DoubleProRack® 19" Installation, Front with T-slot

- Can also be used as second mounting level.

- **Material**  
- Aluminum extrusions.
- **Finish**  
- Polished.
- **Scope of delivery**  
- 2 x 19" extrusions at the front, T-slot.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.



DOP20035



DOP20036

## Knürr DoubleProRack® Fan Rear Panel 3 U

- With axial fans.
- With thermostat.

- **Technical data for single fan**  
- Max. volume flow (free blowing): 162 m³/h.  
- Noise emission (free blowing): 37 dB(A).

- **Technical data for thermostat**  
- Setting range: 0 to 60°C.  
- Mains supply: 240 V / 50 Hz.  
- Nominal current: 16 A.

- **Scope of delivery**  
- 1 x fan rear panel, wired.  
- 1 x Mounting kit.

- **Finish / Color**  
- Powder-coated texture,  
RAL 7035 light-grey.

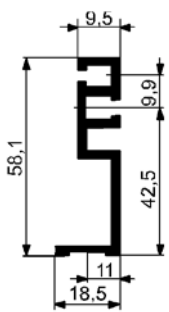
- **How supplied**  
- Assembled.

- **Note**  
Cannot be used in the enclosure's lowest U.

W	H	U	Model	Order No.	UP
554.4	132.5	3	With thermostat	01.243.428.1	1 unit



DOP20005



DOP00055

U	Order No.	UP
6	01.240.490.9	1 set
9	01.240.493.9	1 set
12	01.240.495.9	1 set
15	01.240.496.9	1 set
18	01.240.497.9	1 set
21	01.240.498.9	1 set
24	01.240.499.9	1 set

## Knürr DoubleProRack® 19" Installation, Front with Mounting Holes

- Can also be used as second mounting level.

- **Material**  
- Extruded aluminum extrusions.
- **Finish**  
- Polished.
- **Scope of delivery**  
- 2 x 19" extrusions at the front, mounting holes.
- **How supplied**  
- In sets.



DOP00275

## Knürr DoubleProRack® Rear Panel, closed

- For DoubleProRack width 554.4 mm.

- **Material / Finish**  
- Sheet steel, 0.8 mm, powder-coated texture.

- **Color**  
- RAL 7035, light-grey.

- **Scope of delivery**  
- 1 x rear panel, closed.  
- 1 x Mounting kit.

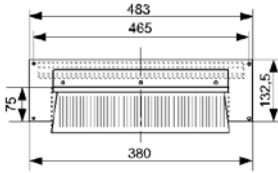
- **How supplied**  
- In sets.

W	U	Order No.	UP
554.4	6	01.240.454.1	1 unit
554.4	9	01.240.457.1	1 unit
554.4	12	01.240.459.1	1 unit
554.4	15	01.240.460.1	1 unit
554.4	18	01.240.461.1	1 unit
554.4	21	01.240.462.1	1 unit





DOP00274



DOP00288

## Knürr DoubleProRack® Connection Panel with Brush Strip

- To cover rear panel along with the corresponding rear panel shortened by 3 U.
- For DoubleProRack width 554.4 mm.
- With brush strip for cable routing and strain relief.

- **Finish / Color**
  - Powder-coated texture, RAL 7035 light-grey.

- **Scope of delivery**
  - 1 x connection plate.
  - 1 x Mounting kit.

- **How supplied**
  - In sets.

W	H	U	Order No.	UP
554.4	132.5	3	01.243.438.1	1 unit



MEC20122



DOP20025

## Knürr DoubleProRack® Grounding Set for Enclosures

- For grounding top/bottom cover.
- With central grounding bolt.

- **Scope of delivery**
  - 2 x grounding connections, length 250 mm.
  - 4 x spring nuts, M5.
  - 2 x washers.
  - 4 x cylinder screws, M5 x 10.
  - 1 x grounding bolt.

- **How supplied**
  - In sets.

Order No.	UP
01.243.400.9	1 set



MEC20123



DOP00286

## Knürr DoubleProRack® Grounding Set for Doors and Trims

- For grounding doors and/or cover plates.

- **Scope of delivery**
  - 5 x grounding connections, length 250 mm.
  - 1 x grounding connection, 250 mm, two-sided AMP plug.
  - 5 x spring nuts, M5.
  - 5 x cylinder screws, M5 x 10 with tooth-lock washer.
  - 5 x washers.

- **How supplied**
  - In sets.

Order No.	UP
01.245.400.9	1 set



ELM00068

## Grounding Bar

- For safe grounding or potential equalization of equipment and components.

- **Material**
  - Electrolyte copper 9 x 9.

- **Scope of delivery**
  - 1 x grounding bar.
  - 2 x brackets.
  - 1 x Mounting kit.

U	Order No.	UP
12	01.110.703.9	1 unit
21	01.240.545.9	1 unit



DOP20016

## Contact Clamp

- Enables safe connection of equipment and components to grounding bar.
- For cables up to 25 mm.

- **Scope of delivery**
  - 120 x contact clamps.

Order No.	UP
01.110.715.9	20 units

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	1 U = 44.45 mm		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		



DOP00282

## Knürr DoubleProRack® Mounting Bracket

- For mounting socket strips and cable duct.
- **Material / Finish**
  - Zinc-passivated sheet steel.
- **Scope of delivery**
  - 2 x mounting brackets.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

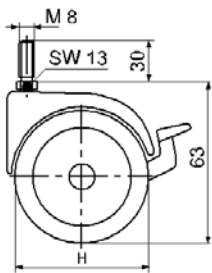
Order No.	UP
01.240.533.9	1 set



DOP00267

## Knürr DoubleProRack® Twin Caster 50 mm

- For mobile installation of the DoubleProRack stand-alone enclosure with fixed casters.
- **Material / Finish**
  - Polyamide, RAL 9011 black.
- **Load rating**
  - 400 N per caster.
  - 1200 N max. static total load per rack.
- **Scope of delivery**
  - 2 x twin casters.
  - 2 x fixed casters.
  - 4 x lock washers.
- **How supplied**
  - In sets.



DOP00233

H	Order No.	UP
50	01.240.527.9	1 set
75	01.240.528.9	1 set

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	1 U = 44.45 mm		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		

# Knürr ConAct®

## Network wall-mounted housing

### Features

- Economical: savings of up to 50% on transport volume and storage space.
- Practical: "one-person" installation as housing is delivered in parts.
- Convenient for laying cables as it can be accessed from all sides; generous lateral clearance space.
- Individual configuration: various modification options available (color, design etc.).

**The ConAct® network wall-mounted housing is notable due to its simple and quick "one-person" installation.**

The ConAct® wall-mounted housing offers ideal conditions for network distribution. It is delivered in flat-pack sets.

Installing the ConAct network housing involves: Unpacking – and then network installation can begin within minutes.





A. ACT00024

### ■ Economical

- Savings of up to 50% of transport volume with flat-pack packaging (see figure A).
- Easily transported and installed thanks to space-saving packaging.
- Small packaging allows for maximized storage space.



B. ACT00031

### ■ "One-person" installation

- No unnecessary dismantling of housing as it is delivered in parts.
- Rear panel mounted using drill-hole template.
- Easy assembly:
  - Keyhole punching on the rear panel (see figure B).
  - Push-in technology for mounting rails and covers.
  - Symmetrical housing configuration.



C. ACT00030



D. ACT00033

### ■ Cabling made easy

- Access from all sides guarantees convenient mounting of the components.
- Open construction design permits easy cable management.
- Organized cable management with spacious lateral clearance area and cable clamping rails (see figures C+D).



E. ACT00034



F. ACT00033

### ■ Accessories

- Easy integration of accessories; e.g. socket strips with screw-on points on the vertical extrusion or on the rear panel (see figure E).
- Accessories available for orderly cable management; e.g. cable routing board or cable-routing bracket (see figure F).
- Comprehensive standard range of accessories available; e.g. shelves, drawers, socket strips, etc.

### ■ Maintenance-friendly

- Easy access for servicing is guaranteed when removing the side panels.
- Housing can be locked with security lock.
- Door opening angle: 180°.



ACT00017



ACT00024

1. Unpack



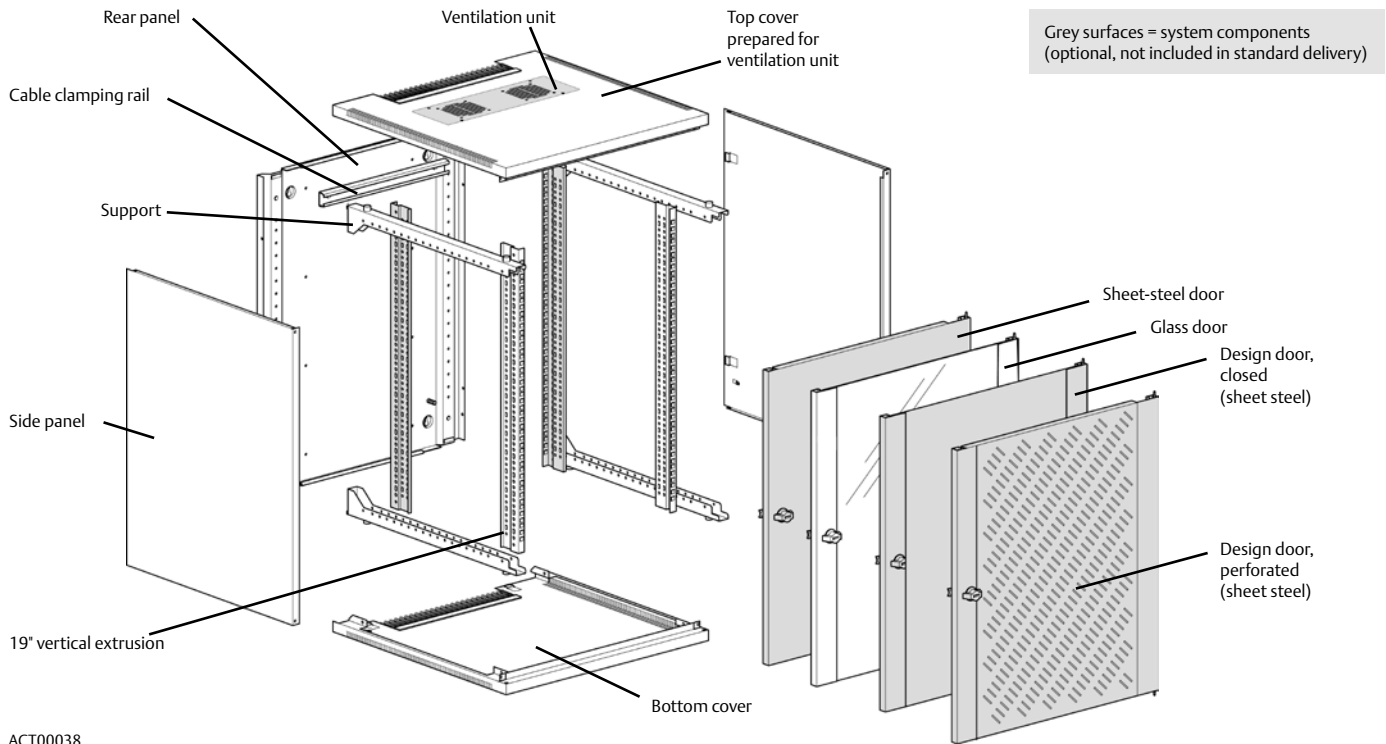
ACT00004

2. Mount rear panel



ACT00005

3. Mount supports and vertical extrusions



### Knürr ConAct® Technical data

- **19" installation dimensions as per IEC 297-3**
  - Heights: 6 U / 9 HE / 12 U / 15 U / 18 U / 21 U / 24 U (1 U = 44.45 mm).
  - Widths: 482.6 mm (19").
- **External dimensions**
  - Heights: 352 mm / 486 mm / 619 mm / 752 mm / 886 mm / 1019 mm / 1152 mm.
  - Width: 600 mm.
  - Depths: 400 mm / 500 mm / 600 mm.
- **Standards**
  - Grounding VDE 0100 T 540, EN 60950, EN 60529.
- **Configurations**
  - Stationary, wall mounting.



**4.** Install cables and components



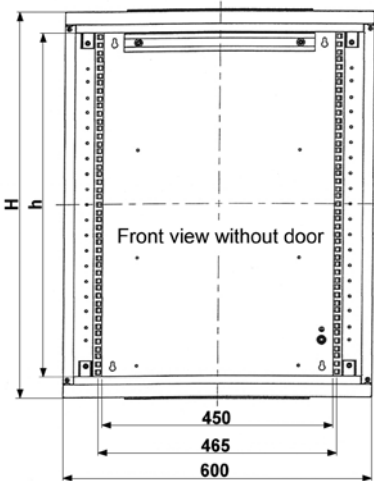
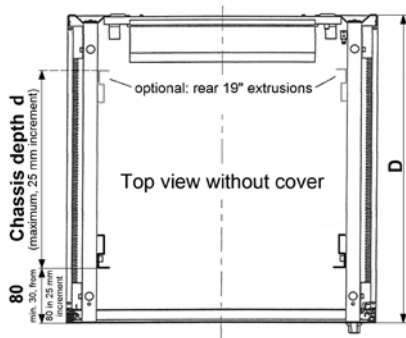
**5.** Fit covers into place



**6.** Installation is now complete.



ACT20053



ACT20041

## Knürr ConAct® Standard 19" Wall-mounted Housing

### Description

- For components compliant with IEC 297-3.
- Accessible from all sides; covers can be removed quickly.
- Cable routing via brush strip on top and bottom covers.
- Ventilation unit, optional (can easily be retrofitted).
- Front door with safety glass, lockable.

### Jumpering space

- 80 mm (minimum 32, > 80 in 25 mm increments).

### Load rating

- 500 N static.

### Protection rating

- IP 20.

### Material / Finish

- Rear panel and basic frame, sheet steel, zinc-passivated.
- Removable covers, powder-coated sheet steel.
- Front door, single safety glass panel, textured.
- 19" vertical extrusions, zinc-passivated sheet steel.

### Color

- RAL 7035, light-grey.

### Scope of delivery

- 1 x rear panel.
- 4 x mounting rails.
- 2 x 19" sheet-steel vertical extrusions.
- 1 x top cover, prepared for ventilation unit.
- 1 x bottom cover, closed.
- 2 x side panels.
- 1 x glass door.
- 1 x cable clamping rail.
- 1 x Mounting kit.

### How supplied

- In parts.

W	H	D	U	h	d (max.)	kg	Model	Order No.	UP
600	352	400	6	270	235	16	With glass door	<b>05.010.000.1</b>	1 unit
600	486	400	9	404	235	19	With glass door	<b>05.010.001.1</b>	1 unit
600	619	400	12	537	235	22	With glass door	<b>05.010.002.1</b>	1 unit
600	352	500	6	270	335	18	With glass door	<b>05.010.007.1</b>	1 unit
600	486	500	9	404	335	21	With glass door	<b>05.010.008.1</b>	1 unit
600	619	500	12	537	335	24	With glass door	<b>05.010.009.1</b>	1 unit
600	752	500	15	670	335	28	With glass door	<b>05.010.010.1</b>	1 unit
600	886	500	18	804	335	31	With glass door	<b>05.010.011.1</b>	1 unit
600	352	600	6	270	435	20	With glass door	<b>05.010.014.1</b>	1 unit
600	486	600	9	404	435	23	With glass door	<b>05.010.015.1</b>	1 unit
600	619	600	12	537	435	27	With glass door	<b>05.010.016.1</b>	1 unit
600	752	600	15	670	435	30	With glass door	<b>05.010.017.1</b>	1 unit
600	886	600	18	804	435	34	With glass door	<b>05.010.018.1</b>	1 unit
600	1019	600	21	937	435	37	With glass door	<b>05.010.019.1</b>	1 unit
600	1152	600	24	1070	435	41	With glass door	<b>05.010.020.1</b>	1 unit

#### Dimensions in mm:

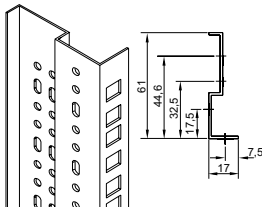
W = Width	h = Installation height	U = Standard rack unit	kg = Weight
H = Height	d = Usable depth	1 U = 44.45 mm	
D = Depth	L = Length	UP = Packaging unit	

#### Conversion:

1 mm = 0.03937 inch
1 kg = 2.2046 pounds



ACT00029



ACT00035

### Knürr ConAct® 19" Vertical Extrusion

- Install in front and/or rear of housing.
- **Material / Finish**
  - Sheet steel, 1.5 mm, zinc passivated.
- **Scope of delivery**
  - 2 x vertical extrusions.
  - 1 x Mounting kit.

U	Order No.	UP
6	05.010.321.9	1 set
9	05.010.322.9	1 set
12	05.010.323.9	1 set
15	05.010.324.9	1 set
18	05.010.325.9	1 set
21	05.010.326.9	1 set
24	05.010.327.9	1 set



ACT20058



ACT20056



ACT20059

### Knürr ConAct® Ventilation Unit with Thermostat

- Easy retrofitting of ventilation unit in top cover.
- With two axial fans.
- With thermostat.
- Available in two performance classes.
- **Material / Finish**
  - Zinc-passivated sheet steel.
- **Technical data for single fan**
  - Type 1:
    - Volume flow (free blowing): 162 m³/h per fan.
    - Noise emission (free blowing): 37 dB(A).
  - Type 2 (quiet):
    - Volume flow (free blowing): 120 m³/h per fan.
    - Noise emission (free blowing): 32 dB(A).
- **Technical data for thermostat**
  - Setting range: 0 to 60°C.
  - Mains supply: 240 V / 50 Hz.
  - Nominal current: 16 A.
- **Color**
  - RAL 7035, light-grey.
- **Scope of delivery**
  - 1 x ventilation unit ready for connection.
  - 1 x Wired with thermostat.
- **How supplied**
  - Assembled, wired and tested.

Model	Order No.	UP
Type 1	05.010.306.1	1 set
Type 2 (quiet)	05.010.307.1	1 set



ACT00026

### Knürr ConAct® Grounding Set

- For grounding all covers on housing frame.
- **Scope of delivery**
  - 5 x grounding conductors, 6 mm².
  - 1 x Mounting kit.

Order No.	UP
05.010.330.9	1 set



MIR00641

### Knürr ConAct® Cable Clamping Rail

- Cables secured with U-clamps, clamping bars or hammer-head threaded plate.
- For mounting on rear panel.
- **Material / Finish**
  - Zinc-passivated sheet steel.
- **Scope of delivery**
  - 1 x cable clamping rail.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.



ACT00006\_A

Order No.	UP
05.010.340.9	1 set

# SmartAisle™

## The Comprehensive Solution for Data Centers

### Features

- Outstanding fail-safe design.
- Ideal temperature for IT equipment; no hot spots.
- Minimal energy consumption.
- Easy to plan a new data center.

### Comprehensive Solution

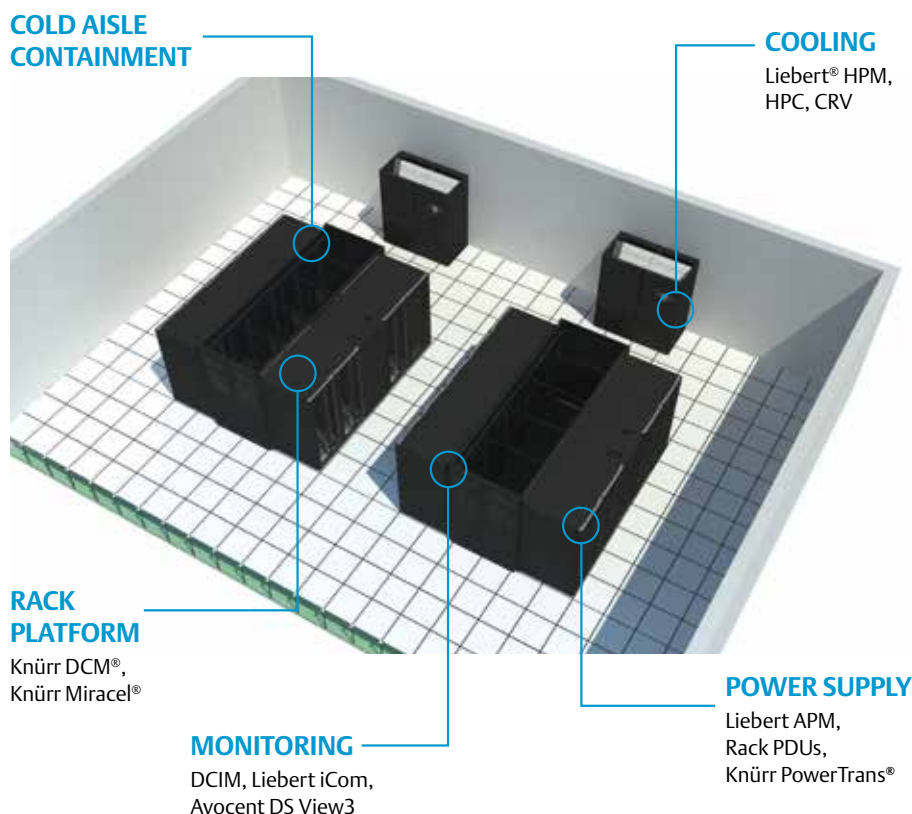
- Racks.
- Rack PDUs.
- Power distribution.
- UPS.
- iCOM-controlled cooling.
- Containment.
- Cable management.
- Rack and aisle monitoring.
- Data center infrastructure.
- DCIM Management.
- Commissioning and maintenance.
- Other services.

All have interfaces at a top-level infrastructure management system (Trellis™), which facilitates holistic monitoring, management and automation of the physical infrastructure.

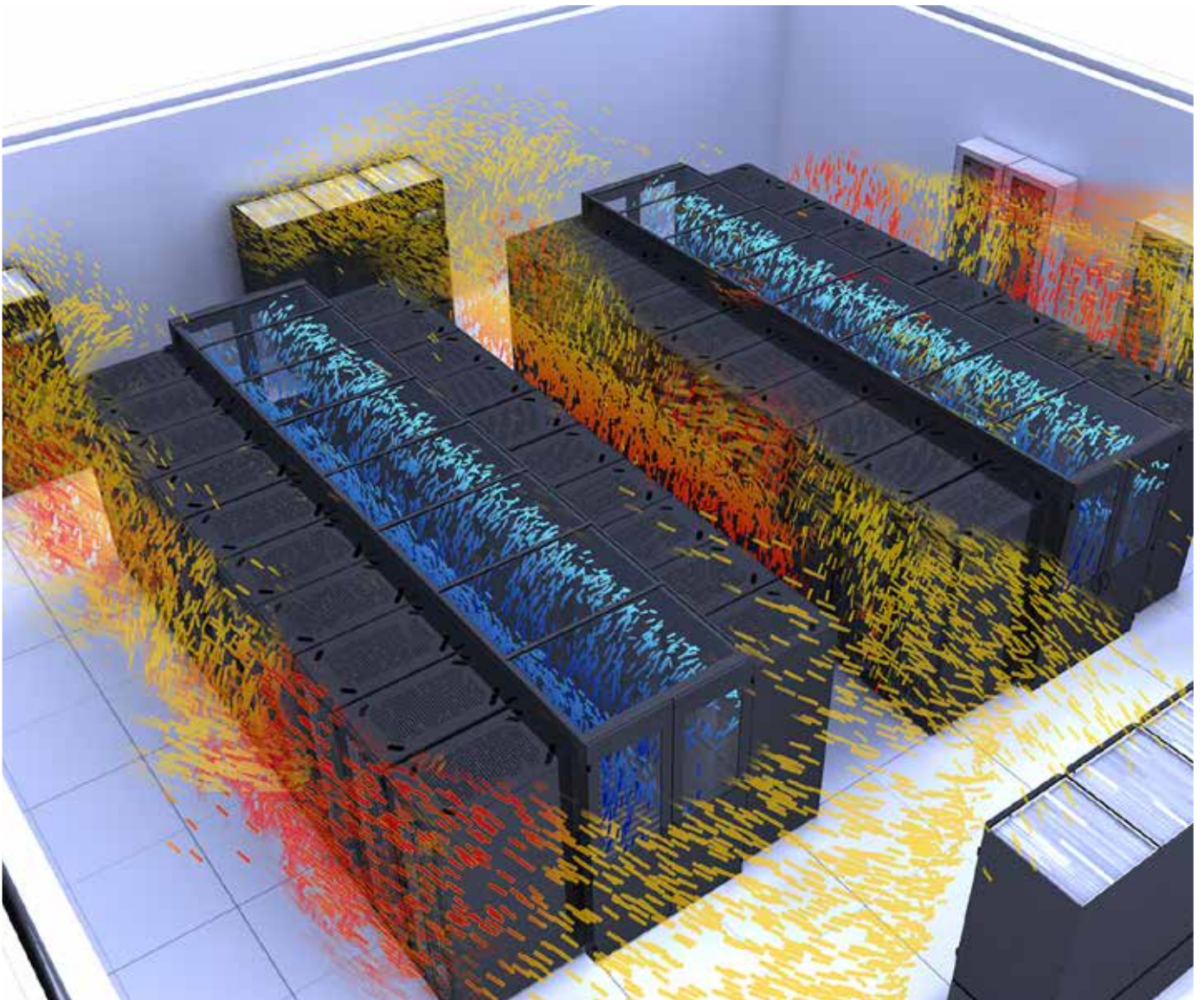
**The most important trend in IT is the increasing independence of applications from the IT infrastructure. Virtualization and cloud computing are the current buzzwords. Hardware is based on energy-efficient IT components and the dynamic control of these components to meet the applications' current requirements.**

Emerson Network Power's SmartAisle™ is the SmartAisle™ solution encompasses the space, power supply and cooling for servers, storage and the network in the data center. Data centers are highly individual and are constantly subject to change. The physical infrastructure can be adapted to meet any conceivable need by selecting comprehensive portfolio components that harmonize with one another.

The SmartAisle™ solution is future-proof and delivers outstanding availability and efficiency.







SmartAisle™ containment – consistent separation of warm and cold air is the cornerstone of an energy-efficient data center.

# SmartAisle™

## The Comprehensive Solution Concept for Data Centers

### Emerson Network Power Control System



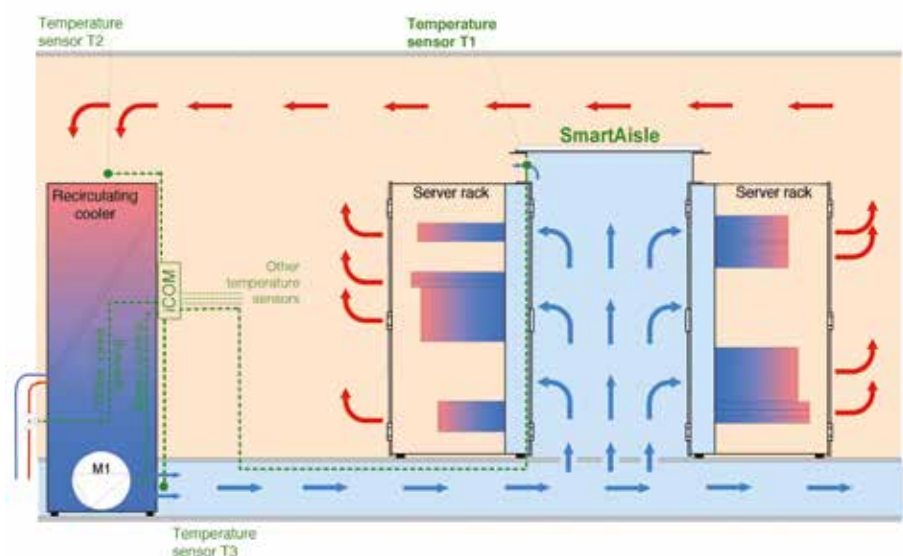
**Due to rising power costs and increased environmental awareness, the main objective for most operators is to maximize the energy efficiency of their data centers.**

Many have already implemented basic separation of cold air from warm air with blanking panels, bushings for cable entry, cold aisle containment, etc. Air-cooling units are key to energy-efficient data centers and further optimization is achieved by adjusting the fans' speed. The operator reduces electricity costs significantly by choosing the right type of control system, which in turn increases availability. In the event of one recirculated air cooling device malfunctioning, temperature control

is maintained by increasing the speed of the remaining devices. The two most common control principles are pressure control and control via the cold aisle temperature.

With the SmartAisle™ control principle, the cold aisle temperature, i.e. the temperature of the air supply to the servers is used to control the fans in the room's climate control equipment (see diagram). This control principle is patented.

### The SmartAisle™ Control-System Principle





# SmartAisle™

## The Comprehensive Solution Concept for Data Centers

### Overview of SmartAisle™ Containment



#### STANDARD

##### Standard program:

- Aisle width 1200 / 1500 and 1800 mm.
- Rack height 2000 and 2200 mm.

##### Features:

- Ideal for new data centers and for retrofitting homogeneous rack aisles.
- Industrial prefabrication makes for a highly economic solution.
- Quick and easy on-site installation.



#### CUSTOMIZED

##### Features:

- Precision fit to racks and rows.
- Suitable for retrofitting heterogeneous data centers.
- Compatible with standard SmartAisle™.



#### FREE-STANDING

##### Features:

- Flexible adjustment to racks with non-standard dimensions.
- For racks and applications that are exchanged at intervals.
- Compatible with standard SmartAisle™.



#### SWITCH TUBES

##### Features:

- No hot spots.
- Suitable airflow routing.
- Utilized in energy-efficient data centers.

# Standard SmartAisle™ Containment

## Emerson Network Power Containment Solution

### Standard program

- Aisle width: 1200 / 1500 and 1800 mm.
- Rack height: 2000 and 2200 mm.

### Features

- Ideal for new data centers and for retrofitting homogeneous rack aisles.
- Industrial prefabrication makes for a highly economic solution.
- Quick and easy on-site installation.
- The containment can be used for Emerson racks as well as for the most common racks in the market.
- The racks do not need to be installed in pairs.
- The top panels are transparent so that the available room lighting can be used.

**The standard SmartAisle™ product range consists of flexible, adaptable and user-friendly components.**

The individual components equalize the tolerances of the racks, which are not usually installed with millimeter precision. The system is compatible with most commercially available racks.

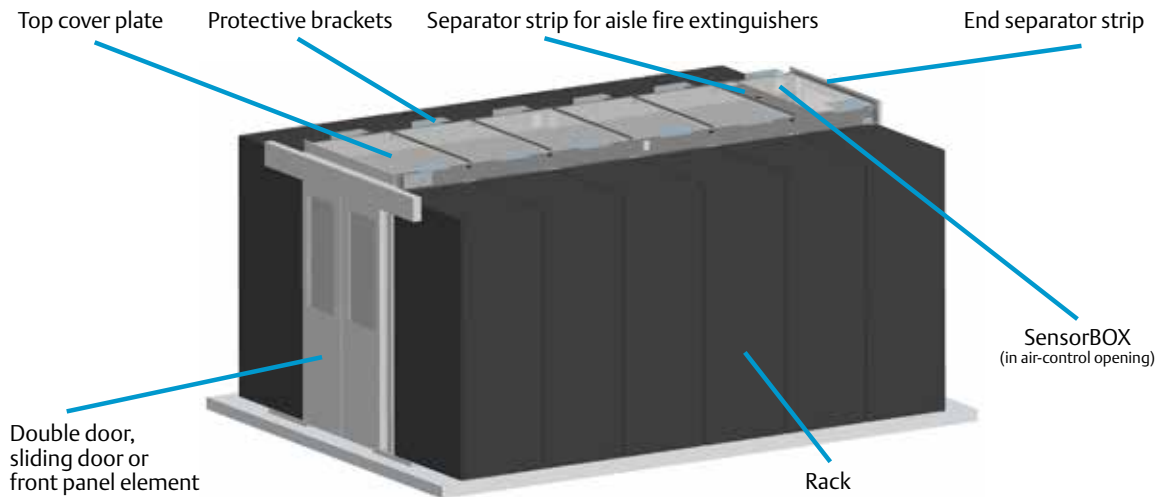
The standard top covers have been prepared for the patented SmartAisle™ control system.

Different door systems are available, including hinged and sliding doors. Hinged or swing doors offer advantages in terms of safety and emergency exits, while sliding doors take up less space.



## Standard SmartAisle™ Containment

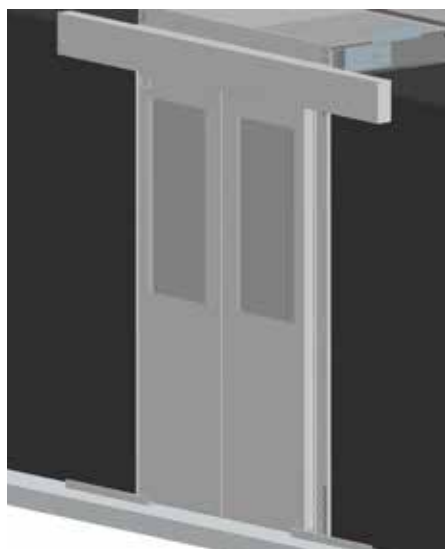
### ■ Configuration assistant



CAC20000

Required data per cold aisle	Example
- Aisle width (standard dimensions 1200, 1500 and 1800 mm ± 50 mm)	Aisle width (AW) = 1200 mm
- Rack height (standard dimensions 2000 and 2200 mm)	Rack height (H) = 2000 mm
- Aisle length	Aisle length (L) = 4800 mm
- Rack type	Knürr DCM® B800
- Color (light-grey RAL 7035 or dark-grey RAL 7021)	Dark-grey RAL 7021

Options	Example	Item	
- Front door component (sliding door, double door, front panel)	Sliding door	<b>03.029.026.8</b>	1 unit
- Front door c closer (mechanical, electric)	Electric door closer	<b>03.029.046.8</b>	1 unit
- Rear door component (sliding door, double door, front panel)	Double door	<b>03.029.021.8</b>	1 unit
- Rear door closer (mechanical, electric)	Mechanical door closer		(integrated in double door)
- Top cover plate	Top cover plate L2400	<b>03.029.129.8</b>	2 sets
- End separator strip	End separator strip GB 1200	<b>03.029.010.8</b>	1 pair
- SensorBOX	Yes	<b>03.029.132.8</b>	2 units
- Protective brackets	Yes	<b>03.029.041.8</b>	6 sets
- DCM® adjustment shim	Yes	<b>03.029.137.8</b>	3 sets
- Filler panel	No		
- Height trims	No		
- Sealing set	Yes	<b>03.029.040.9</b>	2 sets
- Raised-floor air barrier for cable entry	Yes (per rack)	<b>03.029.211.9</b>	22 units
- Open mesh flooring plate	Yes	<b>03.029.090.8</b>	28 units



CAC20001

## SmartAisle™ Sliding-door Prepared for Automatic Door Closers

- Description**
  - Used in cold aisle containment for aisle widths: 1200 / 1500 / 1800 mm (± 50 mm).
  - Quick and easy mounting.
  - Suitable for Miracel® and DCM® racks and most other brands.
- Clear door opening**
  - Width: at least 950 mm.
  - Height: 2080 mm.
- Material**
  - Door components: sheet steel.
  - Observation window: single safety-glass panel.
  - Brush strips: polyamide (UL94 HF-1).
- Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey (e. g. X=1; 03.029.026.X=03.29026.1=light-grey).
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey (e. g. X=8; 03.029.026.X=03.29026.8=dark-grey).
- Scope of delivery**
  - 1 x frame.
  - 2 x doors.
  - 2 x floor guides.
  - 1 x Covers.
  - 1 x Sealing material.
  - 1 x Mounting kit.
- How supplied**
  - In sets.
- Note**

Please order the requisite closers (electric or mechanical).

H	AW	Order No.	UP
2000	1200	<b>03.029.026.X</b>	1 set
2200	1200	<b>03.029.027.X</b>	1 set
2000	1500	<b>03.029.061.X</b>	1 set
2200	1500	<b>03.029.062.X</b>	1 set
2000	1800	<b>03.029.066.X</b>	1 set
2200	1800	<b>03.029.067.X</b>	1 set



CAC20004



CAC20005

## Electric Sliding-door Closer

- Description**
  - Compatible with SmartAisle™ sliding door.
  - Increases energy efficiency as doors closes automatically.
  - Opens with "push & go".
  - Closes with "push & go" or automatically (0 to 30 seconds).
  - Opener/closer contact for control (e.g. fire alarm system).
- Material**
  - Sheet steel.
- Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- Scope of delivery**
  - 1 x electric drive.
  - 1 x cover.
  - 1 x Mounting brackets.
  - 1 x Mounting kit.
- Technical data**
  - Power supply: 230 V / 50 - 60 Hz.
  - Opening speed: 0.4 m/s.
  - Closing speed: 0.2 m/s.
  - Automatic closing time, adjustable: 0 to 30 s.
  - Force: 30 N.
- How supplied**
  - Single items.

Order No.	UP
<b>03.029.046.X</b>	1 set

Dimensions in mm:				Conversion:
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	AW = Aisle width	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth		UP = Packaging unit		



CAC20006



CAC20007

## Mechanical Sliding-door Closer

**Description**

- Suitable for SmartAisle™ sliding door.
- Increases energy efficiency as doors open and close automatically.
- Stop function when open.

**Material**

- Sheet steel.

**Finish**

- Final digit of order number .1: powder-coated, RAL 7035 light-grey (e. g. X=1; 03.029.026.X=03.29026.1=light-grey).
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey (e. g. X=8; 03.029.026.X=03.29026.8=dark-grey).

**Scope of delivery**

- 2 x sets of gas pressure springs.
- 1 x cover.
- 1 x Mounting brackets.
- 1 x Mounting kit.

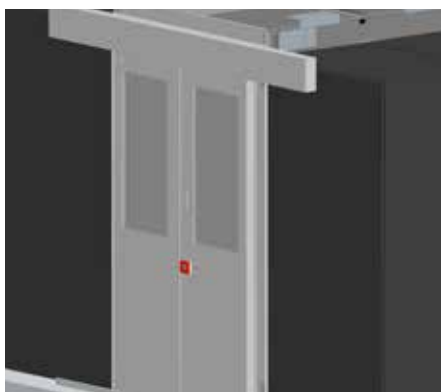
**Technical data**

- Force: 20 N.

**How supplied**

- Single items.

Order No.	UP
03.029.047.X	1 set



CAC20002



CAC20003

## SmartAisle™ Sliding-door with Access Check

**Description**

- Used in cold aisle containment for aisle widths: 1200 / 1500 / 1800 mm (± 50 mm).
- Quick and easy mounting.
- Suitable for Miracel® and DCM® racks and most other brands.
- Magnets ensure safe closing; in the event of a power failure, the door can easily be opened manually.
- Standard access check with keypad (other systems also available).
- Inside switch for routine exit.
- VdS-compliant emergency switch inside; height of switch < 1 meter.
- VdS-compliant emergency switch outside for rescue purposes.
- Door contact switch for monitoring "door open" - "door closed".

**Clear door opening**

- Width: at least 950 mm.
- Height: 2080 mm.

**Material**

- Door components: sheet steel.
- Observation window: single safety-glass panel.
- Brush strips: polyamide (UL94 HF-1).

**Finish**

- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

**Scope of delivery**

- 1 x frame.
- 2 x doors.
- 2 x floor guides.
- 1 x rack monitoring system.
- 1 x Electrical closing system.
- 1 x Covers.
- 1 x Sealing material.
- 1 x Mounting kit.

**How supplied**

- In sets.

H	AW	Order No.	UP
2000	1200	03.029.029.X	1 set
2200	1200	03.029.029.X	1 set

Dimensions in mm:				Conversion:	
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch	
H = Height	AW = Aisle width	(1 U = 44.45 mm)		1 kg = 2.2046 pounds	
D = Depth		UP = Packaging unit			





CAC20008

## SmartAisle™ Double Door with Automatic Door Closer

- **Description**
  - Used in cold aisle containment for aisle widths: 1200 / 1500 / 1800 mm (± 50 mm).
  - Quick and easy mounting.
  - Suitable for Miracel® and DCM® racks and most other brands.
  - Integrated automatic/mechanical door closer (opening angle 180°, stop angle approx. 120°; door closes automatically from approx. 100°).
- **Clear door opening**
  - Width: 1200 mm.
  - Height: 2100 mm (for rack height 2000 mm); 2300 (for rack height 2200).
- **Material**
  - Door frame: aluminum.
  - Door components: sheet steel.
  - Observation window: single safety-glass panel.
  - Brush strips: polyamide (UL94 HF-1).
- **Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x door frame.
  - 2 x doors.
  - 3 x design covers.
  - 2 x door closers.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

H	AW	Order No.	UP
2000	1200	03.028.021.X	1 set
2200	1200	03.028.022.X	1 set
2000	1500	03.028.041.X	1 set
2200	1500	03.028.042.X	1 set
2000	1800	03.028.046.X	1 set
2200	1800	03.028.047.X	1 set

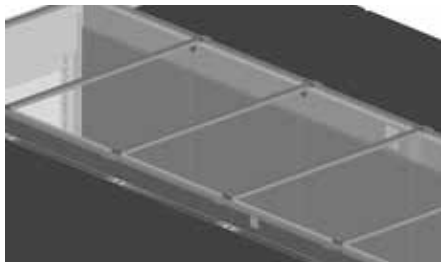


CAC20009

## SmartAisle™ Front Panel

- **Description**
  - Used in cold aisle containment for aisle widths: 1200 / 1500 / 1800 mm (± 50 mm).
  - Alternative to cold aisle door.
  - Quick and easy mounting.
  - Suitable for Miracel® and DCM® racks and most other makes.
- **Material**
  - Sheet steel.
- **Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x bracing bracket.
  - 2 to 4 panels.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

H	AW	Order No.	UP
2000	1200	03.029.031.X	1 set
2200	1200	03.029.032.X	1 set
2000	1500	03.029.034.X	1 set
2200	1500	03.029.035.X	1 set
2000	1800	03.029.037.X	1 set
2200	1800	03.029.038.X	1 set



CAC20010

## SmartAisle™ Top Cover Plate

### ■ Description

- Used in cold aisle containment for aisle widths: 1200 / 1500 / 1800 mm (± 50 mm).
- Quick and easy mounting.
- Suitable for Miracel® and DCM® racks and most other brands.
- With rubber sleeves for cable routing.
- Top cover plate with low fire load and smoke generation (optionally with compound safety glass).
- Top cover plate(s) can be removed quickly and easily.
- Equipped with SensorBOX for energy-efficient operation of the recirculated air cooling devices and for preventing hot spots.

### ■ Clear aisle height

- Rack height 2000 mm: 2150 mm.
- Rack height 2200 mm: 2350 mm.

### ■ Material

- Angular extrusion, cross brace: sheet steel.
- Top cover plate: polycarbonate, UL94 V-0/DIN 4102 B1.

### ■ Finish

- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

### ■ Scope of delivery

- 2 x angular extrusions with air regulation opening.
- 1 x separator strip for W 300/600/800, 3 x separator strips for L 2400.
- 1 x top cover plate for W 300/600/800, 3 x top cover plates for L 2400.
- 2 x angular extrusion plates.
- 1 x Mounting kit.

### ■ How supplied

- In sets.

### ■ Important Note

When using Knürr DCM® racks, please also order corresponding adjustment plates.

### ■ Note

Please also order correct number of Sensor-BOXes for the recirculated air cooling devices' control system.

W / L	AW	Order No.	UP
300	1200	03.029.120.X	1 set
600	1200	03.029.123.X	1 set
800	1200	03.029.126.X	1 set
2400	1200	03.029.129.X	1 set
300	1500	03.029.121.X	1 set
600	1500	03.029.124.X	1 set
800	1500	03.029.127.X	1 set
2400	1500	03.029.130.X	1 set
300	1800	03.029.122.X	1 set
600	1800	03.029.125.X	1 set
800	1800	03.029.128.X	1 set
2400	1800	03.029.131.X	1 set



CAC20011

## SmartAisle™ End Separator Strip

■ **Description**

- Used in cold aisle containment for aisle widths: 1200 / 1500 / 1800 mm (± 50 mm).
- Quick and easy mounting.
- For connecting the door component or front panel.

■ **Material**

- Sheet steel.

■ **Finish**

- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

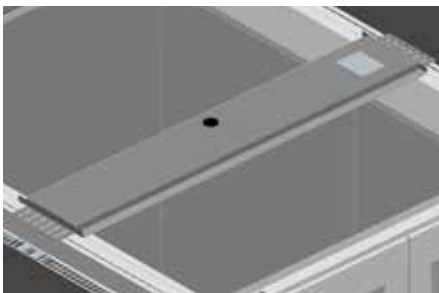
■ **Scope of delivery**

- 2 x end separator strips.
- 1 x Mounting kit.

■ **How supplied**

- Single items.

AW	Order No.	UP
1200	03.029.010.X	1 pair
1500	03.029.011.X	1 pair
1800	03.029.012.X	1 pair



CAC20012

## SmartAisle™ Separator Strip for Aisle Fire Extinguisher for SmartAisle™ Top Cover Plate

■ **Description**

- For gas extinguisher in cold aisle.
- Rubber sleeve for covering piping, and/or the nozzles in the cold aisle.
- Screw fitting for securing the piping to the cold-aisle containment.
- Equipped with SensorBOX for energy-efficient operation of the recirculated air cooling devices as well as to prevent hot spots.

■ **Material**

- Sheet steel.

■ **Finish**

- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

■ **Scope of delivery**

- 1 x separator strip for aisle fire extinguisher.
- 1 x Mounting kit.

■ **How supplied**

- In sets.

W / L	AW	Order No.	UP
200	1200	03.029.115.X	1 set
200	1500	03.029.116.X	1 set
200	1800	03.029.117.X	1 set

**Dimensions in mm:**

W = Width    L = Length    U = Standard rack unit    kg = Weight  
 H = Height    AW = Aisle width    (1 U = 44.45 mm)  
 D = Depth    UP = Packaging unit

**Conversion:**

1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds



CAC20013

### SmartAisle™ DCM® Adjustment Shim used with Knürr DCM® Racks

- **Description**
  - Spacer between DCM® rack and cold aisle containment.
- **Material**
  - Sheet steel.
- **Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x adjustment shim.
- **How supplied**
  - In sets.



CAC20014

W / L	For rack type	Order No.	UP
300	DCM®	03.029.134.X	1 set
600	DCM®	03.029.135.X	1 set
800	DCM®	03.029.137.X	1 set
1000	DCM®	03.029.139.X	1 set



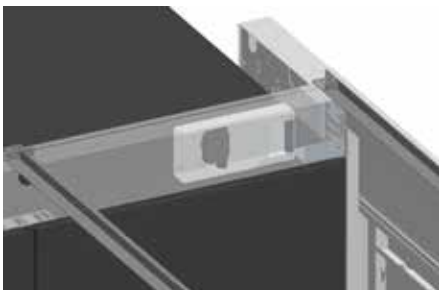
CAC20015



CAC20016

### SmartAisle™ SensorBOX for SmartAisle™ Top Cover Plates

- **Description**
  - Suitable for air regulation opening of the top cover plates.
  - As per patented control-system principle designed for energy-efficient operation of the cooling system.
  - Prepared for Liebert® temperature sensor.
  - Compatible with a variety of sensors.
- **Material**
  - Sheet steel.
- **Finish**
  - Final digit of order number .1: powder-coated, RAL 7035 light-grey.
  - Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- **Scope of delivery**
  - 1 x SensorBOX.
  - 1 x Mounting kit.
- **How supplied**
  - In sets.

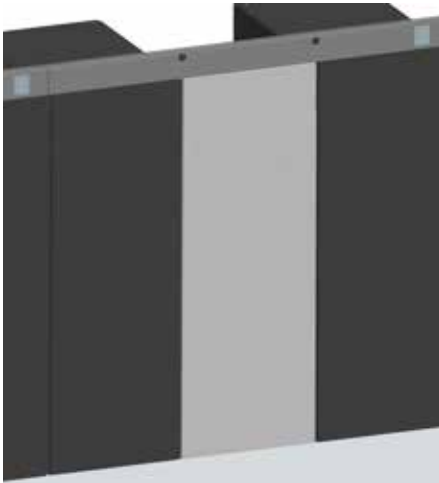


CAC20017

Order No.	UP
03.029.132.X	1 set



CAC20018



CAC20019

## SmartAisle™ Filler Panel

### ■ Description

- For sealing off the compartments without racks in the suite.
- Quick and easy mounting.
- Variable height; can be used for total rack heights of 1990 to 2220 mm.
- Several filler panels can be set up in a row.

### ■ Material

- Sheet steel.

### ■ Finish

- Final digit of order number .1:  
powder-coated, RAL 7035 light-grey.
- Final digit of order number .8:  
powder-coated, RAL 7021 dark-grey.

### ■ Scope of delivery

- 1 x filler panel (two parts).
- 1 x Mounting kit.

### ■ How supplied

- In sets.

W / L	H	Order No.	UP
300	2000 / 2200	<b>03.029.055.X</b>	1 set
600	2000 / 2200	<b>03.029.056.X</b>	1 set
800	2000 / 2200	<b>03.029.058.X</b>	1 set

Dimensions in mm:				Conversion:
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	AW = Aisle width	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth		UP = Packaging unit		



DCM20057

### SmartAisle™ Height Trim

- For adjusting the separation of the cold and hot areas in smaller racks.
- **Material**  
- Sheet steel.
- **Finish**  
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- **Scope of delivery**  
- 1 x height trim.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.
- **Note**  
Where there are several adjacent height panels, please request the corresponding angular extrusion plates.



LUF20328

W	H	For rack type	Order No.	UP
300	221	DCM®	<b>03.029.140.X</b>	1 set
600	221	DCM®	<b>03.029.141.X</b>	1 set
600	200	Miracel®	<b>03.029.051.X</b>	1 set
800	221	DCM®	<b>03.029.143.X</b>	1 set
800	200	Miracel®	<b>03.029.052.X</b>	1 set
1000	221	DCM®	<b>03.029.145.X</b>	1 set

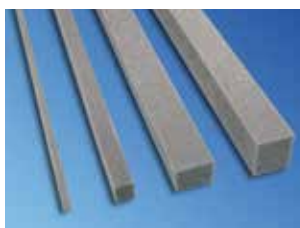


LUF20336

### SmartAisle™ Sealing Set for 4.8 meter Aisle Length

- Suitable for installation in Miracel® rack.
- For sealing the leveling area between the floor and the rack.
- For sealing Miracel® rack suites without side panels.
- **Material / Color**  
- Foam element: PUR ether UL94 HF-1, black.  
- Cover extrusion: PVC extruder extrusion, black.
- **Scope of delivery**  
- 10 meters of foam 40 x 25 mm.  
- 31 meters cover extrusion.
- **How supplied**  
- In sets.

W	For rack type	Order No.	UP
4800	Miracel®	<b>03.029.040.9</b>	1 set

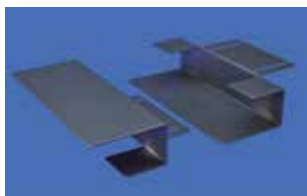


DCM20047

### SmartAisle™ Sealing Set for 4.8 meter Aisle Length

- Suitable for sealing gaps (e. g. in the leveling area between floor and rack, between racks, etc.).
- **Material / Color**  
- PUR ether (UL94 HF-1), black.
- **Scope of delivery**  
- 5 x 2 meters of foam.
- **How supplied**  
- In sets.

Size	Order No.	UP
40 x 40 (adhesive surface) mm	<b>03.029.042.9</b>	1 set
20 x 20 (adhesive surface) mm	<b>03.029.043.9</b>	1 set
5 x 10 (adhesive surface) mm	<b>03.029.044.9</b>	1 set
25 x 40 (adhesive surface) mm	<b>03.029.045.9</b>	1 set



DCM20131

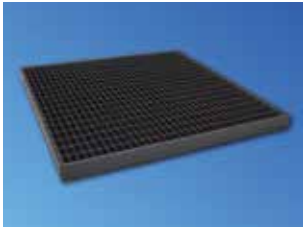
### SmartAisle™ Protective Brackets for Top Cover Plate

- Prevents Plexiglas panels from lifting up when there is excess pressure.
- Enables safe pressure equalization in the event of a malfunction or while a fire is being extinguished.
- **Material**  
- Sheet steel.
- **Finish**  
- Final digit of order number .1: powder-coated, RAL 7035 light-grey.  
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.
- **Scope of delivery**  
- 1 x pair of protective brackets.  
- 1 x Mounting kit.
- **How supplied**  
- In sets.



LUF20383

Order No.	UP
<b>03.029.041.X</b>	1 set



DSC00318

**SmartAisle™ Open Mesh Flooring Plate for Raised Floors**

- Used in raised floors.
- Can be used with high heat loads and high cooling-air requirements per rack.
- For energy-efficient operation of the recirculated air cooling devices.
- Stiffener distance 33 x 16 mm.

**Material**

- Steel, zinc-passivated.

**Finish**

- Final digit of order number . 1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

**Standards**

- Produced as per RAL-GZ 638.
- Load capacity as per DIN EN 12825
- On supports: class 1A, deflection under instantaneous working load (2 kN) and 2C (3kN); measured at the center of plate.
- On supports and control-room profiles: deflection under instantaneous working load 2A (3kN).

**Scope of delivery**

- 1 x open mesh flooring plate for raised floor.

**Technical data**

- Size 598 x 598 x 40 mm (W x L x H).
- Free cross-section: 77%.
- Max. surface load 50,000 N/m² with even distribution;
- Max. point load (on surface 200 x 200 mm) 4,500 N.

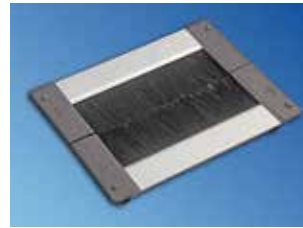
**How supplied**

- Single items.

**Note**

- Suitable for raised floors with 40 mm panel heights.

Order No.	UP
03.029.090.X	1 unit



LUF20334

**SmartAisle™ Raised Floor Air Barrier for Cable Entry**

- For cable entry from the raised floor.
- Lowered into raised floor, or can be mounted on top.
- Two-row tight brushes for pressure-resistant cold-hot separation.
- For new cutouts and as add-on to existing cutouts.
- Two-piece – easy extend and retrofit option.
- The length can easily be shortened on-site (metal saw).
- Also suitable for cabling on the rack wall (U-shape, two pieces).
- Slot-in – and additional threaded connection.

**Dimensions**

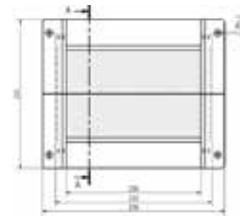
- 03.028.211.9:**
  - External dimension (270 mm x 220 mm).
  - Usable cable entry (200 mm x 126 mm).
  - Raised floor cutout (240 mm x 180 mm).
- 03.028.212.9:**
  - External dimension (600 mm x 220 mm).
  - Usable cable entry (530 mm x 126 mm).
  - Raised floor cutout (570 mm x 180 mm).

**Scope of delivery**

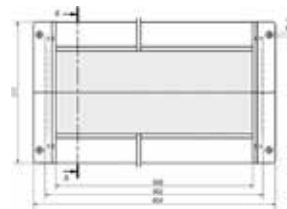
- 1 x pair of raised floor air barriers.
- 1 x Mounting kit.

**How supplied**

- In sets.



LUF20301



LUF20302

W	H	for type	Order No.	UP
270	220	Length, 270 mm	03.028.211.9	1 set
600	220	Length, 600 mm	03.028.212.9	1 set

Dimensions in mm:				Conversion:
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	AW = Aisle width	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth		UP = Packaging unit		

# Customized SmartAisle™ Containment

Customized – Retrofitting Solution from Emerson Network Power

## Features

- Precision fit on racks and rack rows.
- Suitable for retrofitting heterogeneous data centers.
- Combined with standard SmartAisle™.

**Data center structures are often the result of ongoing changes and modifications spanning a number of years.**

The racks have different dimensions and they are not always positioned in a line. Knürr offers this solution based on a profile construction that can be made on site to correspond to the precise dimensions of a given data center.

With the customized solution, the dimensions are measured on site and the profiles and panels for the containment are cut and assembled to meet precise requirements. The panels are normally cut outside the data center in a designated area.

If possible, the customized elements are combined with standard components. As a rule, standard sliding or hinged doors are used. The standard top cover plate is generally used, thus, customized elements are only used to fill the gaps between the racks.





# Free-Standing SmartAisle™ Containment

## Free-Standing – Emerson Network Power's Special Solution

### Features

- Can be flexibly adjusted to racks with non-standard dimensions.
- For racks and applications that are exchanged at intervals.
- Combined with standard SmartAisle™.

### Free-Standing System

In many data centers, so-called "free-standing systems" are installed in addition to the server racks. These often non-standard racks are regularly exchanged at defined intervals (usually one to three years).

Free-standing systems may include storage cabinets, cluster applications (e.g. IBM, SUN) or server racks (e.g. IBM, HP, SUN, etc.). There are a number of reasons for delivering a complete package including the racks. For storage applications, one of the main reasons is product liability. Cluster applications are usually leased and with server applications, the reasons are often marketing-related.

The challenge facing the SmartAisle™ for free-standing systems is to construct a flexible cold aisle containment, allowing a modular and fast exchange of these free-standing systems.

The free-standing cold aisle containment solution is based on standard SmartAisle™ products and used in combination with these. The panels for the free-standing solution can be customized in both dimensions (height and width) according to the rack dimensions.



# SmartAisle™ Containment Switch Tubes

## Switch Tubes – Switch Cooling from Emerson Network Power

### Switches have special requirements.

#### ■ Cooling/ventilation

- Mostly lateral air flow (from right to left, from left to right, from left and right toward the rear, including many other directions)  
→ switches draw in warm air.
- Power requirements for cooling are often high (up to over 10 kW per switch).

#### ■ Max. permitted input air temperature

- Max. permitted input air temperature is approx. 37° to 40°C.  
→ Probably higher inlet temperatures in efficient cold/warm separation environment.  
→ High energy consumption for cooling.

#### ■ Cabling

- Large cable volumes.
- Fan units free from cabling; repair work can be performed during operation.
- Air flow should have be free of cables.

#### ■ Mechanics

- Various heights (1 U to approx. 24 U).
- Various depths, where air can be drawn in from different areas.

Emerson Network Power offers a large range of switch tubes for the most common switch types.

#### ■ Features

- No hot spots.
- Suitable airflow routing.
- Utilized in energy-efficient data center.

### Cooling switches

For cooling purposes, servers draw in cold air from the front and blow heated air out at the rear. By contrast, switches mainly draw the cold air in from the side and blow air out either laterally or at the rear. Since cooling problems arise in racks equipped with consistent hot/cold separation, Special airflow systems are required for switch applications to ensure reliability and energy efficiency.

The SmartAisle™ switch tube is a flexible and safe add-on to the complete SmartAisle program. Various standard products are available for the respective switch types.

### Switch Tubes – controlled switch cooling

**Servers are usually cooled from the front to the rear, in line with modern and energy-efficient data center requirements. However, cooling direction for switches most often occurs from the side. In this application, the switches draw the cooling air out of the warm area.**

The SwitchTube provides air for the switch from the cold aisle, where heated air is directed into the warm aisle.



Air flow in switch rack for switches equipped with lateral cooling.

## SmartAisle™ 19" SwitchTube



LUF20360

03.029.217.X



LUF20379

03.029.217.X

### Description

- For cooling a core switch from the cold aisle.
- Can be used with or without a raised floor.
- Provides energy-efficient cooling for laterally cooled switches.
- Cooling air drawn in from cold aisle (ideally with containment).
- Suitable for both Knürr Miracel® and DCM® racks; width of rack 800 mm.
- Space requirement: 3 or 6 U of the 19" installation space.
- Suitable for a number of switch heights.
- Installation height of switches in rack can be adjusted.
- Perforated front panel to the air intake units prevents the exhaust of paper, etc. in the tube.
- Note: cold/warm separation in rack is required.

### Material

- Tube: sheet steel.
- High-density foam: PUR ether foam (UL94 HF-1).

### Finish

- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

### Scope of delivery

- 2 x air intake units incl. perforated front panel (for 12 – 21 U models)
- 1 x air intake unit incl. perforated front panel (for 7 – 12 U / 4 – 6 U models).
- 1 x adjustable depth lateral air duct.
- 1 x High-density foam.
- 1 x Mounting kit.

### How supplied

- In sets.

### Important Note

Suitable for cooling max. 2-7 kW thermal load (at  $\Delta T = 13 K$ ) per switch tube (see table on the next page).

### Important Note

With many switches, part of the front air-intake perforation is covered (as these are generally located near the front, directly behind the front 19" extrusion).

### Important Note

May not be suitable for switches with different cooling directions.

### Note

Retrofitting may not be applied due to cables and other accessories.

W <sub>Rack</sub>	Application	For rack type	Order No.	UP
800	Core switch 12 - 21 U	Miracel®, DCM®	03.029.217.X	1 set
800	Core switch 12 - 21 U	Miracel®, DCM®	03.029.218.X	1 set
800	Core switch 7 - 12 U	Miracel®, DCM®	03.029.213.X	1 set
800	Core switch 7 - 12 U	Miracel®, DCM®	03.029.215.X	1 set
800	Core switch 4 - 6 U	Miracel®, DCM®	03.029.214.X	1 set
800	Core switch 7-12U	Miracel®, DCM®	03.029.219.X	1 set



LUF20358

03.029.213.X



LUF20377

03.029.215.X



LUF20359

03.029.214.X



LUF20375

03.029.213.X



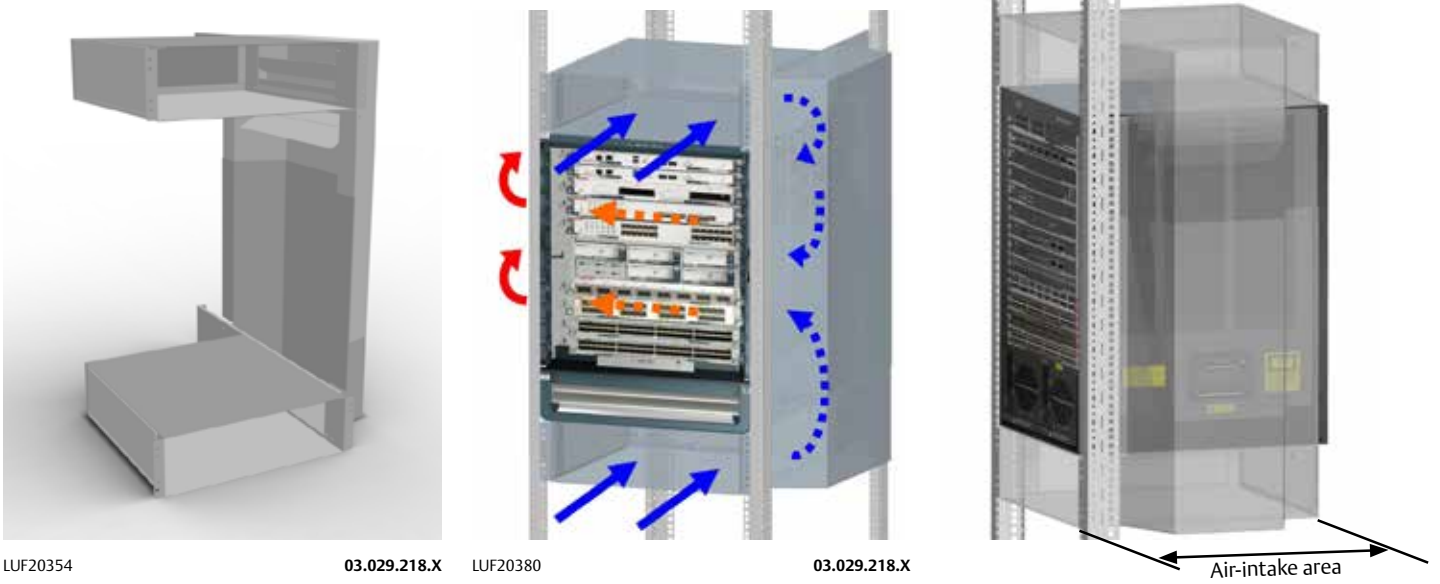
LUF20378

03.029.215.X



LUF20376

03.029.214.X



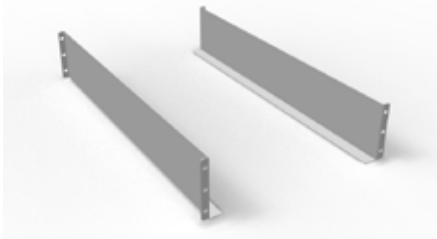
LUF20354                      03.029.218.X    LUF20380                      03.029.218.X                      Air-intake area

Item number	Switch height [U]	Max. cooling	Max. air-intake area depth in mm (Distance to 19" level)	Compatible with
03.029.217.X	12-21	approx. 7 kW ( $\Delta T = 13$ K) per switch tube	460	CISCO Catalyst 6506(-E), 6509(-E), 6513, MDS 9509 Director
03.029.218.X	12-21	approx. 7 kW ( $\Delta T = 13$ K) per switch tube	600	Cisco Nexus 7009
03.029.213.X	7-12	approx. 2 kW ( $\Delta T = 13$ K) per switch tube	320	CISCO Catalyst 4503(-E), 4506(-E), 4507R(-E), 4510R(-E)
03.029.215.X	7-12	approx. 4 kW ( $\Delta T = 13$ K) per switch tube	600	Cisco Nexus 7004
03.029.214.X	4-6	approx. 4 kW ( $\Delta T = 13$ K) per switch tube	550	CISCO Catalyst 6503(-E), 6504(-E)
03.029.219.X	7-12	approx. 4 kW ( $\Delta T = 13$ K) per switch tube	460	Cisco Catalyst 6807-XL, Enterasys S4

**Dimensions in mm:**  
W = Width    L = Length    U = Standard rack unit    kg = Weight  
H = Height    AW = Aisle width    (1 U = 44.45 mm)  
D = Depth    UP = Packaging unit

**Conversion:**  
1 mm = 0.03937 inch  
1 kg = 2.2046 pounds

## Chassis Runner Tube T740



LUF20364



LUF20365



LUF20366

### Description

- For supporting switches during installation in rack.
- Supports weight of switches during installation and fitting in rack.
- Can be used with SmartAisle™ 19" switch tubes 12 - 21 U.
- Suitable for insertion depth of 740 mm.
- Suitable for all 19" extrusions.
- Suitable for CISCO Catalyst 6506(-E), MDS 9509 Director.

### Material / Finish

- Sheet steel, 2.0 mm, zinc passivated.

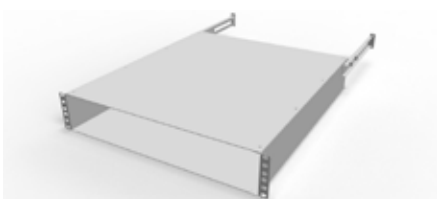
### Scope of delivery

- 2 x chassis runners.
- 1 x Mounting kit.

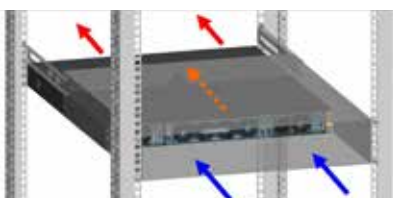
### How supplied

- In pairs.

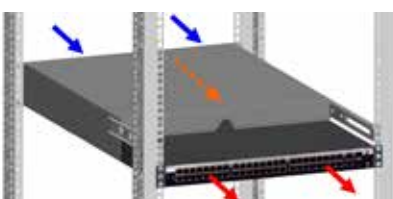
W	U	D <sub>Rack</sub>	For insertion depth	Order No.	UP
130	3	from 900	740	03.029.230.7	1 pair



LUF20372



LUF20373



LUF20374

## SmartAisle™ SwitchTube Back-to-front for Switches with back-to-front Cooling

### Description

- For 1 U switches with back-to-front cooling.
- Extractable – can be used for different switch depths.
- Suitable for various insertion depths.
- Compatible with both Miracel® and DCM® racks.
- Suitable for Enterasys SSA 180.

### Material

- Tube: sheet steel.
- High-density foam: PUR ether foam (UL94 HF-1).

### Finish

- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

### Scope of delivery

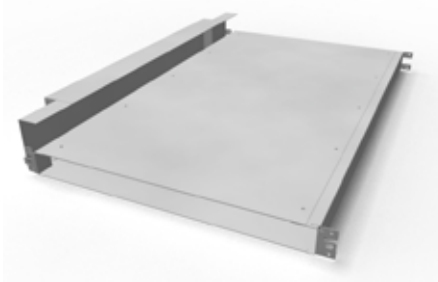
- 1 x air intake unit.
- 2 x rear support brackets.
- 1 x High-density foam.
- 1 x Edge protector.
- 1 x Mounting kit.

### How supplied

- In sets.

W	H	U	For insertion depth	Model	Order No.	UP
450	87.5	2	600-750	for Switches with 1U height	03.029.212.X	1 unit
450	132	3	600-750	for Switches with 2U height	03.029.207.X	1 unit

## SmartAisle™ 19" SwitchTube for Switch Heights 1 U / 2 U / 3 U



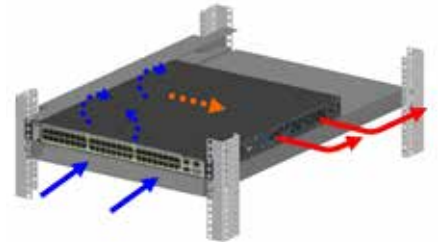
LUF20356

03.029.210.X



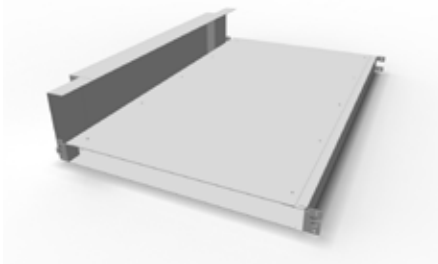
LUF20368

03.029.210.X



LUF20369

03.029.210.X



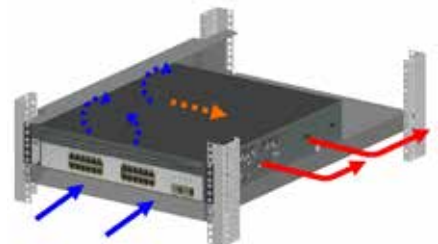
LUF20357

03.029.211.X



LUF20370

03.029.211.X



LUF20371

03.029.211.X

### Description

- For 1 U, 2 U or 3 U switches with lateral cooling.
- Can be used in racks with front-to-back cooling.
- Extractable – can be used for different switch depths.
- Front or rear installation possible.
- Suitable for different cooling directions (from left to right, from right to left or from right and left toward the rear).
- Suitable for insertion depth of 740 mm.
- Compatible with both Miracel® and DCM® server extrusions.
- Suitable for rack widths of 600, 700, 800 and 1000.
- Suitable for CISCO Catalyst 3750, Juniper EX3200, Juniper EX4200.

### Material

- Tube: sheet steel.
- High-density foam: PUR ether foam (UL94 HF-1).

### Finish

- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

### Scope of delivery

- 1 x air intake unit.
- 2 x lateral air ducts.
- 1 x side cover.
- 1 x High-density foam.
- 1 x Mounting kit.

### How supplied

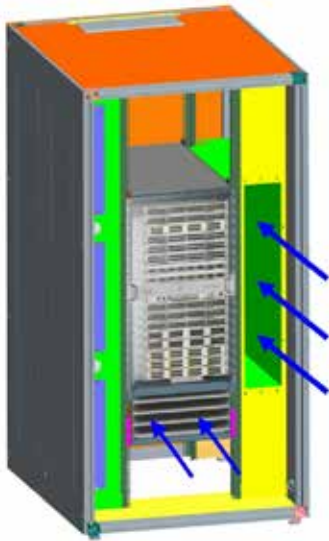
- In sets.

### Note

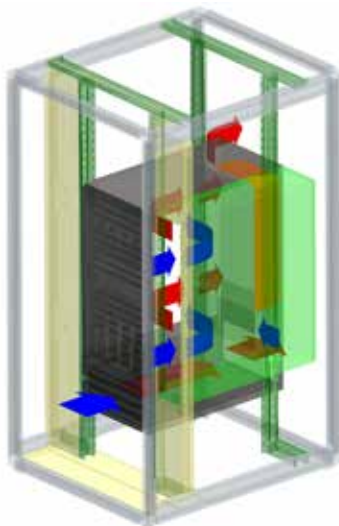
Retrofitting may not be applied due to cables and other accessories.

W	H	U	For insertion depth	Model	Order No.	UP
440	88.1	2	740	for 1 U switch	03.029.210.X	1 unit
440	132.5	3	740	for 2 U switch	03.029.211.X	1 unit
440	177	4	740	for 3 U switch	03.029.208.X	1 unit

## SmartAisle™ SwitchRack for Cisco Nexus 7018



LUF20362



LUF20363

### Description

- For installing a CISCO Nexus 7018 at a height of 7 U to 31 U.
- Based on DCM® rack.
- Rack width 1000 mm as per CISCO requirements for adequate cooling air.
- Prevents hot-spots (air recirculation).
- 200 mm clearance space for orderly cabling.
- Includes cold/warm plates for reliable and energy-efficient operation.
- Cold air drawn in from cold aisle.

### Material / Finish

- Basic rack, extruded aluminum, polished.
- Corner piece, die-cast aluminum, polished.
- Doors, sheet steel, powder-coated texture.
- Covers, zinc-passivated sheet steel, powder-coated texture.
- PUR ether foam (UL94 HF-1).

### Color

- Final digit of order number .1: visible surface of covers RAL 7035 light-grey.
- Final digit of order number .8: visible surfaces of the covers RAL 7021 dark-grey.

### Scope of delivery

- 1 x basic frame.
- 4 x 19" server extrusions, sheet steel incl. U marking.
- 2 x side panels with quick connectors.
- 1 x top cover with cable entry (three-piece sliding plates can also be opened completely).
- 1 x front door, double, perforated, with handle and mounting for cylinder lock.
- 1 x rear door, double, perforated, sheet steel, with handle and mounting for cylinder lock.
- 1 x complete air separation unit (left plate with 3 x 2 U 19" cutouts, right plate with air duct).
- 4 x leveling feet.
- 1 x complete grounding set (VDE 0100).

### How supplied

- Mounted.

### Note

Also order mounting adapter for 19" server extrusion to mount Knürr accessories (01.147.640.9).

W	H	D	U	Recess depth	Insertion depth	Model	Order No.	UP
1000	2000	1200	42	200	740	DCM®	03.029.222.X	1 unit

#### Dimensions in mm:

W = Width L = Length  
 H = Height AW = Aisle width  
 D = Depth

U = Standard rack unit  
 (1 U = 44.45 mm)  
 UP = Packaging unit

#### Conversion:

1 mm = 0.03937 inch  
 1 kg = 2.2046 pounds

## SmartAisle™ Raised Floor SwitchTube



LUF20355



LUF20367

### Description

- For cooling a core switch from the raised floor.
- Provides energy-efficient cooling for laterally cooled switches.
- Cold air drawn in from raised floor.
- Compatible with Knürr Miracel® rack: width 800 mm (NOT for DCM® rack).
- Suitable for different switch heights.
- Installation height of switches in rack can be adjusted; tool-less blanking plates for covering areas outside of switches.
- Air-duct area: 420 cm<sup>2</sup>.
- Size of cutouts in raised floor (min./max.): 355/410 x 127/162 mm.
- Note: Cold/warm separation in rack is required.
- Note: for max. switch air-intake depth from 460 mm (distance to 19" level).
- **SUITABLE FOR CISCO CATALYST 6509(-E), CATALYST 6513, CATALYST 6506(-E), MDS 9509 DIRECTOR, HP PROCURVE 8212.**

### Material

- Tube: sheet steel.
- High-density foam: PUR ether foam (UL94 HF-1).

### Finish

- Final digit of order number .1: powder-coated, RAL 7035 light-grey.
- Final digit of order number .8: powder-coated, RAL 7021 dark-grey.

### Scope of delivery

- 1 x air duct with blanking plates (1 U, 3 U).
- 1 x bottom plate.
- 1 x Sealing material.
- 1 x Mounting kit.

### How supplied

- In sets.

### Important Note

- Suitable for cooling max. 4 kW thermal load (at ΔT = 13 K) per switch tube.
- The tube covers part of the front air-intake perforation with many switch types (as these are generally located near the front, directly behind the front 19" extrusion).
- May not be suitable for switches with different cooling directions.
- The uppermost 3 U in the rack cannot be used for cooling.

### Note

- Retrofitting may not be applied due to cables and other accessories.

W	H	Item	For rack type	Order No.	UP
800	2000	Tube	Miracel®	<b>03.029.200.X</b>	1 set
800	2200	Tube	Miracel®	<b>03.029.202.X</b>	1 set

Dimensions in mm:				Conversion:
W = Width	L = Length	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	AW = Aisle width	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth		UP = Packaging unit		



# Emerson Network Power

## Rack Cooling Solutions

All issues and arguments to date can be summarized under three main criteria for assessing data center infrastructure.

### 1. Availability

The key issue for all data centers is availability. Maximum computing power, rapid access or lowest costs, are of little use if availability is jeopardized by uncertainties, failures or even lengthy downtimes.

Data center services users, whether it be in-house or a customer that outsources its computing power, will only remunerate the finest computing technology (including cloud computing) if they can rely one hundred percent on the availability of the data they need.

With Emerson Network Power data center infrastructure, you are always in a position to achieve the degree of availability that matches your scope of work.

### 2. Efficiency

A customer who can rely on the availability will still be dissatisfied if this availability is achieved at the expense of efficiency. Efficiency must be seen as a multi-purpose term. Efficiency covers:

The functionality of technical processes, e.g. expressed in the efficiency of the cooling or power supply.

Cost effectiveness in terms of both investment and running costs. When we talk about investment, it is not just the pure equipment investment that matters;

other important factors are:

- Building costs.
- Consequential costs for recirculation facilities
- Consequential costs for power supply
- Efficiency of the cooling and power supply facilities
- Consumption values and costs for operating equipment
- Monitoring, service and repair costs

Timely efficiency in relation to processing speed and the period from data provision to data output.

### 3. Adaptability

Availability and efficiency are only sufficient if planning, project management and implementation is short term rather than sustainable.

Future-proofing and adaptability for Emerson Network Power are also crucial factors in the development and delivery of data center infrastructure.

Future-proofing redners data center infrastrucutre operational even:

- there is a demand for increased computing capacity
- the heat loads caused by new server types – or changes to the proportions of different server types – are increased or redistributed
- current flow and speed, volume flow or the pressure ratios are changed.

Products from Emerson Network Power are future-proof and provide an appropriate and efficient response.

Adaptability delivers highly efficient results even during planning and project management and is, naturally, also part of future-proofing.

# Knürr® DCL

## Modular Rack Cooling from 6 kW to 60 kW

**Rack cooling enables you to expand server performance without interfering with existing room cooling. The design of Knürr DCL is built on the three principles:**

### Adaptability

- Two "room neutral" architectures for all power density
- Can be retrofitted easily on site.
- Various combinations from up to four server racks.

### Availability

- N +1 fan redundancy.
- Multi-level "fail-safe" controller.
- Comprehensive alarm and monitoring functions.
- Automatic emergency door opening

### Efficiency

- Minimizes power consumption with controlled EC fans.
- Long freecooling periods due to large dimensioned heat exchanger.



Knürr DCL with DCM rack





Simple fan replacement



Knürr DCM® server rack for cooling with Knürr® DCL, Liebert®; integrated power distribution modules and cable management.



Embedded controller



Knürr® DCL fans



Switchover between a 2 and 3-way valve

## Knürr® DCL Benefits

### ■ Availability

An essential requirement for data center operators is to ensure uninterrupted availability. Knürr guarantees this by means of:

- Embedded controller hardware guaranteeing autonomous continued operation of the control system in the event of a component failure.
- Access control and data security guaranteed by means of HTTPS and SNMP V3.
- Alarm management can be integrated into DCIM (Data Center Infrastructure Management).

### ■ Efficiency

Given current competition, no data center operator can leave the costs issue to chance. Anyone who only thinks about the upfront costs or wants to cut costs at the expense of reliability will be in for unpleasant surprises later on.

- Greater power density in the data center results in better use of space and reduced building costs.
- High cold-water supply temperature increases the proportion of free cooling during cold-water generation and improves the energy efficiency rating (EER) of the chiller.
- Low air-side pressure loss reduces the power consumption of the fans.

### ■ Adaptability

The modular DCL design accommodates frequently changing requirements:

- Two room-neutral cooling architectures for medium- to high-power density.
- Simple retrofitting on site.
- A number of combinations with up to 4 server racks to choose from.



Detail of the DCL data center

## Knürr® DCL Configurations

- DCL-L facilitates efficient rack cooling from 1 to 4 server racks

### Knürr® DCL – L

- Air flow completely contained in rack or in the row.
- No thermal load or air flow in the room for greatly reduced noise levels.
- Comprehensive separation of IT equipment and IT room; precisely controlled cooling air temperature.
- No special room requirements; raised floor not necessary.



Knürr® DCL-L with one-sided connection to Knürr DCM®



\* Flow diagram

### Knürr® DCL – H

- Hybrid configuration: Contain warm air and cold air supplied to the room.
- Cooling devices and racks are open at the front and closed at the rear.
- No thermal load in room; warm air contained within racks.
- Cold air distribution throughout the room; cold air reserve available in the event of cooling failure.
- A better alternative to hot aisle containment.
- Raised floor not required.



Knürr® DCL-H with one-sided connection to Knürr DCM®



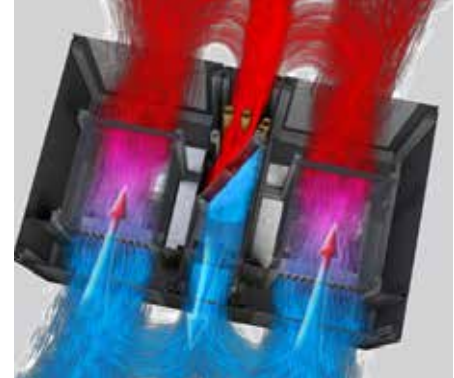
\* Flow diagram

### Knürr® DCL – R

- Aisle cooling device for SmartAisle cold aisle containment.
- State of the art controller.
- Switching to Knürr DCL-L or DCL-H can be done simply by changing the doors.



Knürr® DCL-R with one-sided connection to Knürr DCM®



\* Flow diagram

\* Diagrams show horizontal cross-section from above.

## Knürr® DCL Basic Specifications

Cooling power levels/specification		Knürr® DCL 30 kW	Knürr® DCL 34 kW
Product name Knürr® DCL for rack cooling		Knürr® DCL30L	Knürr® DCL34L
Product name Knürr® DCL for hybrid solution		Knürr® DCL30H	Knürr® DCL34H
Product name Knürr® DCL for aisle cooling		Knürr® DCL30R	Knürr® DCL34R
Nominal cooling power*		30 kW	34 kW
Volume flow rate of air		5000 m³/h	6000 m³/h
Volume flow rate of water		4.5 m³/h	5.0 m³/h
Max. water pressure		10 bar (145 PSI)	10 bar (145 PSI)
Number of fans		5	6
Max. power consumption of fans		5 x 170 W	6 x 170 W
Dimensions	Height	2000 mm	2200 mm
	Width	300 mm	
	Depth	DCL-L	1.200 mm - 1.300 mm
		DCL-H	1.100 mm - 1.300 mm
DCL-R	1.000 mm - 1.300 mm		

\* when cooled at a water temperature of 16/22 °C and air inlet temperature of 43 °C



Knürr® DCL with Knürr® DCM

## Knürr® DCL Order number

Model number – Part 1/2										Detail of model											Part 2/2			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
D	C	L	3	0	L																			
D	C	L	3	4	H																			
D	C	L	3	0	R																			

**1. – 3. DCL (Modular Rack Cooling for Data Centers)**  
DCL – Knürr® DCL

**4. – 5. Nominal Cooling Capacity**  
30 – 30 kW (height 2000 mm / 42 U)  
34 – 34 kW (height 2200 mm / 47 U)

**6. Application**  
L – Cooling with closed cold-air circulation (without side panels)  
H – Hybrid cooling (open in the front; closed at the rear - without side panels)  
R – Cooling with perforated doors (with side panels)

**7. Depth**  
1 – 1000 mm (only for DCL-R version)  
R – 1100 mm (not for DCL-L version)  
2 – 1200 mm  
H – 1300 mm

**8. Rollers and Ramp for Transport**  
0 – No rollers (2 devices on one pallet)  
D – Transport rollers (one device on one pallet with ramp)

**9. Power Connection**  
2 – 230 V AC 1-phase 50/60 Hz CE  
4 – 230 V AC 1-phase 50/60 Hz CE with A/B switching  
2 – 230 V AC 1-phase 50/60 Hz 2-pole CE  
B – 230 V AC 1-phase 50/60 Hz 2-pole CE with A/B switching

**10. Water Connection and Heat Exchanger Redundancy**  
Z – Water connection, bottom  
Y – Water connection, top  
9 – Water connection, top and bottom  
V – Redundant water connection, bottom (external valve)

**11. Filter (only for DCL-R)**  
N – No filter  
A – MERV 1 (not possible for 1000 mm depth)  
C – MERV 1, filter monitoring (not possible for 1000 mm depth)

**12. Screen Display**  
0 – Without  
Y – 145 cm display (5.7"); touchscreen

**13. Preparation for Automatic Door Opening**  
0 – Not prepared  
1 – Prepared for one rack with automatic door opener  
2 – Prepared for two racks with automatic door opener  
3 – Prepared for three racks with automatic door opener  
4 – Prepared for four racks with automatic door opener

**14. Cooling Water Monitoring / Condensate Pump**  
0 – Without  
T – Temperature sensor inlet flow / return flow  
4 – Heat meter  
5 – Condensate pump  
6 – Temperature sensor inlet flow / return flow + condensate pump  
7 – Heat meter + condensate pump

**15. Environmental Monitoring**  
0 – Without  
S – Smoke detection  
H – Humidity monitoring  
B – Smoke detection and humidity monitoring

**16. Color**  
1 – RAL 7021, (dark-grey)  
G – RAL 7035, (light-grey)  
2 – No standard color

**17. – 18. Free (for Future Use)**

**19. Communication Interface**  
0 – Standard / always available (HTTPS, SSH, MODBUS TCP, SNMP - to V3)  
D – Digital input / output (8/4)  
M – Modbus RTU  
B – Bacnet  
V – 4 digital input / output + Modbus RTU  
W – 4 digital input / output + Bacnet

**20. Server Rack Monitoring (Accessory Kit)**  
0 – Without  
1 – Door contacts 1 rack  
2 – Door contacts 2 racks  
A – Door contacts 3 racks  
B – Door contacts 4 racks  
3 – 2 x temperature sensors 1 rack  
4 – 2 x 2 temperature sensors 2 racks  
C – 3 x 2 temperature sensors 3 racks  
D – 4 x 2 temperature sensors 4 racks  
7 – Door contacts + temperature sensors 1 rack  
8 – Door contacts + temperature sensors 2 racks  
E – Door contacts + temperature sensors 3 racks  
F – Door contacts + temperature sensors 4 racks

**21. Packaging**  
P = Land freight – short distance (pallet, shrink film, cardboard protection)  
S = Sea freight (air freight) – large distance (wooden crate)

**22. Special Note**  
A = No special customer request to be confirmed by contractor; standard device  
X = Includes special customer request to be confirmed by contractor

**23. – 25. Manufacturer's Configuration Number**

# Knürr® DCD

## Cooling Door for Maximum Energy Efficiency

**ENP DCD is an air-water heat exchanger that is integrated in the rear door of a server rack. The heat exchanger is designed to absorb heat loads of up to 35 kW from server racks.**

- Compact solution for new and existing data centers.
- Highest possible energy efficiency with shortage of fans.
- Supports cold-room concept.
- Permanent water circulation piping can be routed through water-carrying hinges.



Opened Knürr® DCD







Special water-bearing hinge



Water-connection fitting for the top



Condensation-water discharge fittings    Condensate pan

## Knürr® DCD Benefits

### ■ Availability

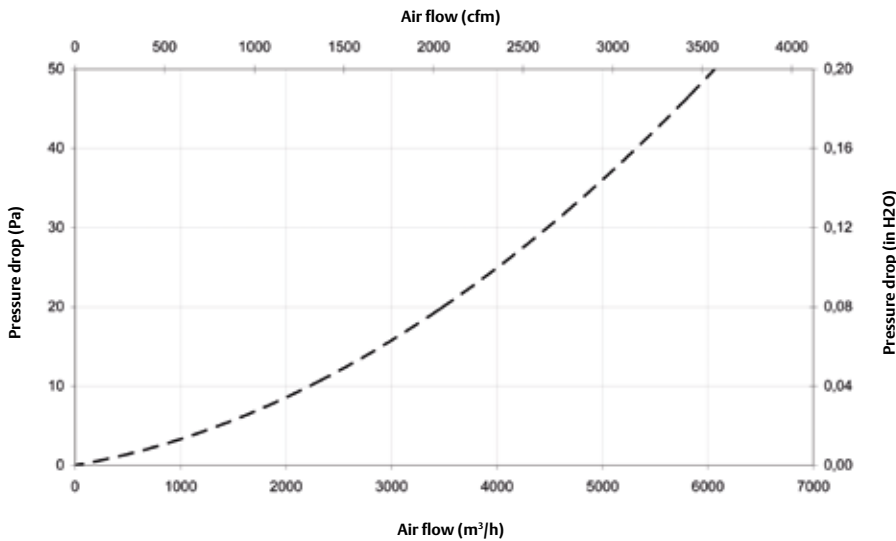
- No additional fans are required for cooling; fan failure is no longer an issue.
- System is highly reliable.
- Fewer sources of failure.
- No additional fans needed; thus no heat is wasted.
- Guaranteed 35 kW cooling.
- Minimal air pressure drop for cooling air.
- Conduit and collector for condensate water in the event of the temperature dropping below dew point. Condensate water is discharged via a flexible 5/8" hose attached to a male coupling.

### ■ Efficiency

- Optimal space utilization through ultra compact design and hence very low room costs.
- Lowest possible pressure loss in water cooling circulation: only 54 kPa minimizes energy consumption of pumps.
- Minimal pressure loss in cooling air flow through optimized heat exchanger structure and linear air paths without bends: no energy costs incurred by additional fan for cooling unit.

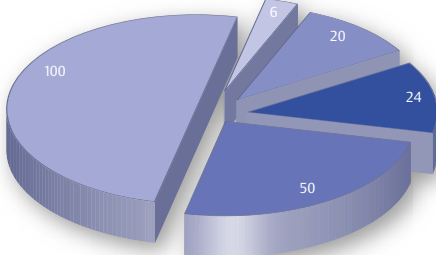
### ■ Adaptability

- Standard heights for 2000 and 2200 mm (42 / 47U).
- Standard widths 600, 700 and 800 mm.
- Top or bottom cold-water connection (field can be adjusted).
- Using a special adapter frame, the Knürr® DCD cooling door is compatible with server racks from other manufacturers.

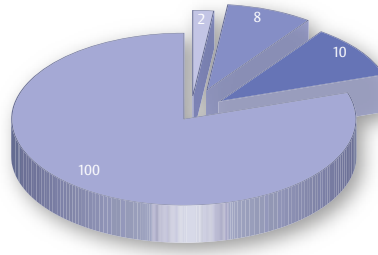


35Pa can be handled in servers with typical fans

PUE = 2



PUE = 1.2



- Lighting
- Electrical losses
- Air circulation
- Cooling
- IT equipment

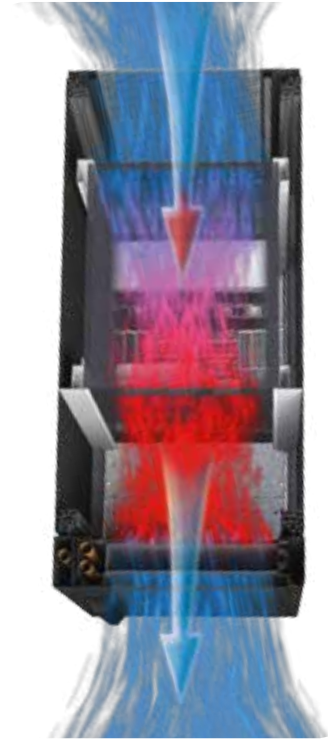
**Knürr® DCL  
Configurations**



Knürr® DCD open without trim



Server rack cooling components with Knürr® DCD cooling door



Server rack air flow with Knürr DCL (cross-section)

**Knürr® DCD/DCM  
Basic Specifications**

**Cooling-air side**

Housing material	Sheet steel (powder-coated)
Operating ambient temperature	10 °C ÷ 35 °C (50 °F - 95 °F) (other temperatures available upon on request)
Max. absolute humidity on site	8 g/kg
Air outlet temperature (as per ASHARE)	18 °C ÷ 27 °C (64.4 °F - 80.6 °F)
Air temperature difference - OFF	15 K ÷ 20 K

**Cold-water side**

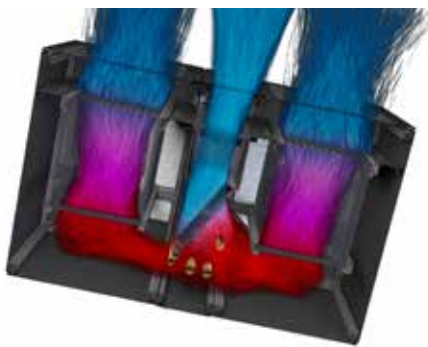
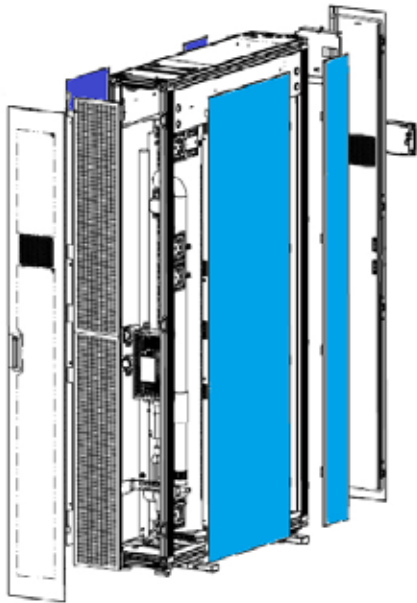
Cooling power	35 kW
Cold water inlet temperature	12 °C ÷ 18 °C (53.6 °F - 64.4 °F) (other temperatures available upon on request)
Cold water outlet temperature	18 °C ÷ 24 °C (64.4 °F - 75.2 °F) (other temperatures available upon on request)
Max. operating pressure	10 bar (145 psi)
Pipe connection IN / OUT	1" female (on frame) (DIN ISO 228-1)

## Knürr® DCD Configuration number

Model number – Part 1/2										Detail of model										Part 2/2				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
D	C	D	3	5																				

<b>1. – 3.</b>	<b>DCD (ENP DCD)</b> DCD – Data Center Door	<b>10.</b>	<b>Options</b> 0 – No options (N/A at the moment)
<b>4. – 5.</b>	<b>Nominal cooling capacity</b> 30 – 35 kW	<b>11. – 15.</b>	<b>Not in use</b> 0 – No options (N/A at the moment)
<b>6.</b>	<b>Rack height</b> A – 2,000 mm (78 – 6/8") B – 2,100 mm (82 – 5/8") C – 2,200 mm (86 – 5/8")	<b>16.</b>	<b>Color</b> 1 – RAL 7035 (light-grey) G – RAL 7021 (black-grey)
<b>7.</b>	<b>Rack width</b> 6 – 600 mm (23 – 5/8") 7 – 700 mm (27 – 4/8") 8 – 800 mm (31 – 4/8")	<b>17. – 20.</b>	<b>Not in use</b> 0 – No options (N/A at the moment)
<b>8.</b>	<b>Rack type</b> A – Prepared for DCM rack (separately ordered) 3 – 3rd party rack adapter 0 – No rack	<b>21.</b>	<b>Packaging</b> P – Landfreight – short distance (Shrink wrap, pallet, cardboard) S – Long distance (Seafreight) – (Wooden crate) 0 – No packaging (only when Digit 8 = A)
<b>9.</b>	<b>CW connection – hinge position</b> 1 – top left 2 – top right 3 – bottom left 4 – bottom right	<b>22.</b>	<b>SFA – special features</b> A – Standard unit X – SFAs included
		<b>23. – 25.</b>	<b>Factory configuration number</b>

## Rack Cooling Accessories



### Knürr® DCL Partition Panels

■ **Application**

– Used for changing air flow rate.

■ **Material**

– Sheet steel, 1.0 mm.

■ **Color**

– Powder coated texture, RAL 7021, dark-grey.

H [mm]	D [mm]	Description	Order No.
2000	1000-1100	Internal side panel front, right H2000 D1000 - 1100 dark-grey	<b>080130708</b>
2000	1200-1300	Internal side panel front, right H2000 D1200 - 1300 dark-grey	<b>080130718</b>
2200	1000-1100	Internal side panel front, right H2200 D1000 - 1100 dark-grey	<b>080130808</b>
2200	1200-1300	Internal side panel front, right H2200 D1200 - 1300 dark-grey	<b>080130818</b>
2000	1000-1100	Internal side panel front, left H2000 D1000 - 1100 dark-grey	<b>080130728</b>
2000	1200-1300	Internal side panel front, left H2000 D1200 - 1300 dark-grey	<b>080130738</b>
2200	1000-1100	Internal side panel front, left H2200 D1000 - 1100 dark-grey	<b>080130828</b>
2200	1200-1300	Internal side panel front, left H2200 D1200 - 1300 dark-grey	<b>080130838</b>
2000	1000	Internal side panel rear, right H2000 D1000 dark-grey	<b>080130748</b>
2000	1100-1200	Internal side panel rear, right H2000 D1100 - 1200 dark-grey	<b>080130758</b>
2000	1300	Internal side panel rear, right H2000 D1300 dark-grey	<b>080130768</b>
2200	1000	Internal side panel rear, right H2200 D1000 dark-grey	<b>080130848</b>
2200	1100-1200	Internal side panel rear, right H2200 D1100 - 1200 dark-grey	<b>080130858</b>
2200	1300	Internal side panel rear, right H2200 D1300 dark-grey	<b>080130868</b>
2000	1000	Internal side panel rear, left H2000 D1000 dark-grey	<b>080130778</b>
2000	1100-1200	Internal side panel rear, left H2000 D1100 - 1200 dark-grey	<b>080130788</b>
2000	1300	Internal side panel rear, left H2000 D1300 dark-grey	<b>080130798</b>
2200	1000	Internal side panel rear, left H2200 D1000 dark-grey	<b>080130878</b>
2200	1100-1200	Internal side panel rear, left H2200 D1100 - 1200 dark-grey	<b>080130888</b>
2200	1300	Internal side panel rear, left H2200 D1300 dark-grey	<b>080130898</b>

### Knürr® DCL / DCM Add-on Kit

■ **Application**

– Connects and seals the DCL and DCM racks.

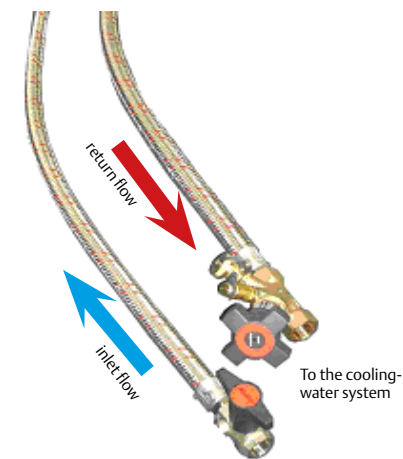
■ **Material**

– Metal plate, plastic extrusion strips, foam strips.

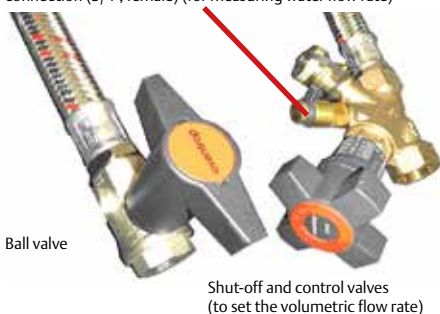
■ **Consists of**

– Connection plates, vertical sealing strips, horizontal sealing strip.

Description	Order No.
Add-on kit DCL / DCM	<b>080134530</b>

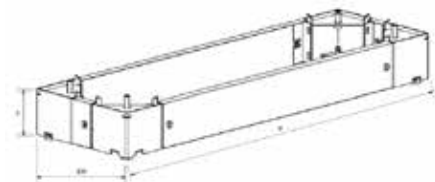


Draining and purging valve with nipple for measurement device connection (3/4", female) (for measuring water flow rate)



Ball valve

Shut-off and control valves (to set the volumetric flow rate)



## Knürr® Chilled Water Connecting Kit

- **Application**
  - Simple connection to water circulation, simple start-up.
- **Consists of**
  - Two flexible armored tubes, stainless steel plated, water-resistant and frost-resistant EPDM. Nickel-plated pipe connections.
- **Temperature range**
  - 0 – 110° C.
- **Operating pressure**
  - Max. 10 bar.
- **Inner diameter**
  - 31 mm.
- **Connections**
  - Threaded connection, 1 1/4" (or 1"), flat sealing.
- **Length**
  - 1500 mm.
- **Ball valve connections**
  - 1 1/4" (or 1").

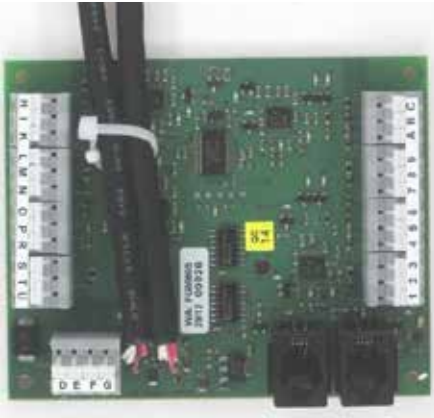
Shut-off and control valves with 3/4" draining and purging connection and a nipple for measuring pressure and temperature. Connections: 1 1/4" (or 1").

Description	Order No.
Cold-water connection kit 5/4" (for DCL)	080090910
Cold-water connection kit 1" (for CoolTherm and DCD)	080090660

## Knürr® DCL Plinth

- **Application**
  - For installing lower cold-water connection without a raised floor.
- **Material**
  - Sheet steel, 1.0 mm.
- **Color**
  - Powder-coated, RAL 7021 - dark-grey, RAL 7035 - light-grey.

H [mm]	D [mm]	Description	Order No.
100	1000	Plinth H100 D1000 dark-grey	011479838
100	1100	Plinth H100 D1100 dark-grey	011479848
100	1200	Plinth H100 D1200 dark-grey	011479858
100	1300	Plinth H100 D1300 dark-grey	011479868
100	1000	Plinth H100 D1000 light-grey	011479831
100	1100	Plinth H100 D1100 light-grey	011479841
100	1200	Plinth H100 D1200 light-grey	011479851
100	1300	Plinth H100 D1300 light-grey	011479861
200	1000	Plinth H200 D1000 dark-grey	011479788
200	1100	Plinth H200 D1100 dark-grey	011479798
200	1200	Plinth H200 D1200 dark-grey	011479808
200	1300	Plinth H200 D1300 dark-grey	011479818
200	1000	Plinth H200 D1000 light-grey	011479781
200	1100	Plinth H200 D1100 light-grey	011479791
200	1200	Plinth H200 D1200 light-grey	011479801
200	1300	Plinth H200 D1300 light-grey	011479811



Sensor module

## Knürr® Additional Temperature Sensor Kit

### ■ Application

- For installing the remote temperature measuring point (e. g. in SmartAisle containment).

### ■ Consists of

- Sensor module, temperature sensor with cable and plug.

Description	Order No.
Temperature sensor	400006856
Analog sensor module	400006853



Temperature sensor with cable and plug

# Knürr PowerTrans2®

## Power Distribution Rack

### Features

- The Knürr PowerTrans2 has a modular design with a versatile plug-in units that can be used as required.
- **Plug and Play:**  
Only the main feed must be installed by a qualified electrician.
- The plug-in units can be inserted during operation; there are no downtimes.
- **Elementary model:**  
Power distribution unit without metering.
- **Metered version:**  
Power distribution unit offers extensive metering functions with a high level of accuracy (up to  $\pm 1\%$ ).
- **Highest power density:**  
up to max. 346 kVA.

**The Knürr PowerTrans2 forms the interface between the low-voltage power supply and rack PDUs as well as further components for supplying servers and other IT devices.**

Rack basics: connecting the Knürr DCM rack and the existing PowerTrans2 19" plug-in units simply involves slotting the elements into a free slot and securing them. The rack is then immediately connected to the power supply. The power is distributed via the individual slot-in units, avoiding installation within the building.



PowerTrans2: 19" slot-in



- Input Power**
- Max. 250 A per phase.
  - 1 ph. or 3 ph. feed.
  - Max. 2 feeds per rack.



- Modularity**
- Output distributors can be installed as modules during running operation.



- Output Distributor**
- 230/400V – 32A via IEC 60309 socket.
  - 230/400V – 16A via GST 18 socket.
  - 230V – 32A via IEC 60309 socket.
  - 230V – 16A via GST18 socket.



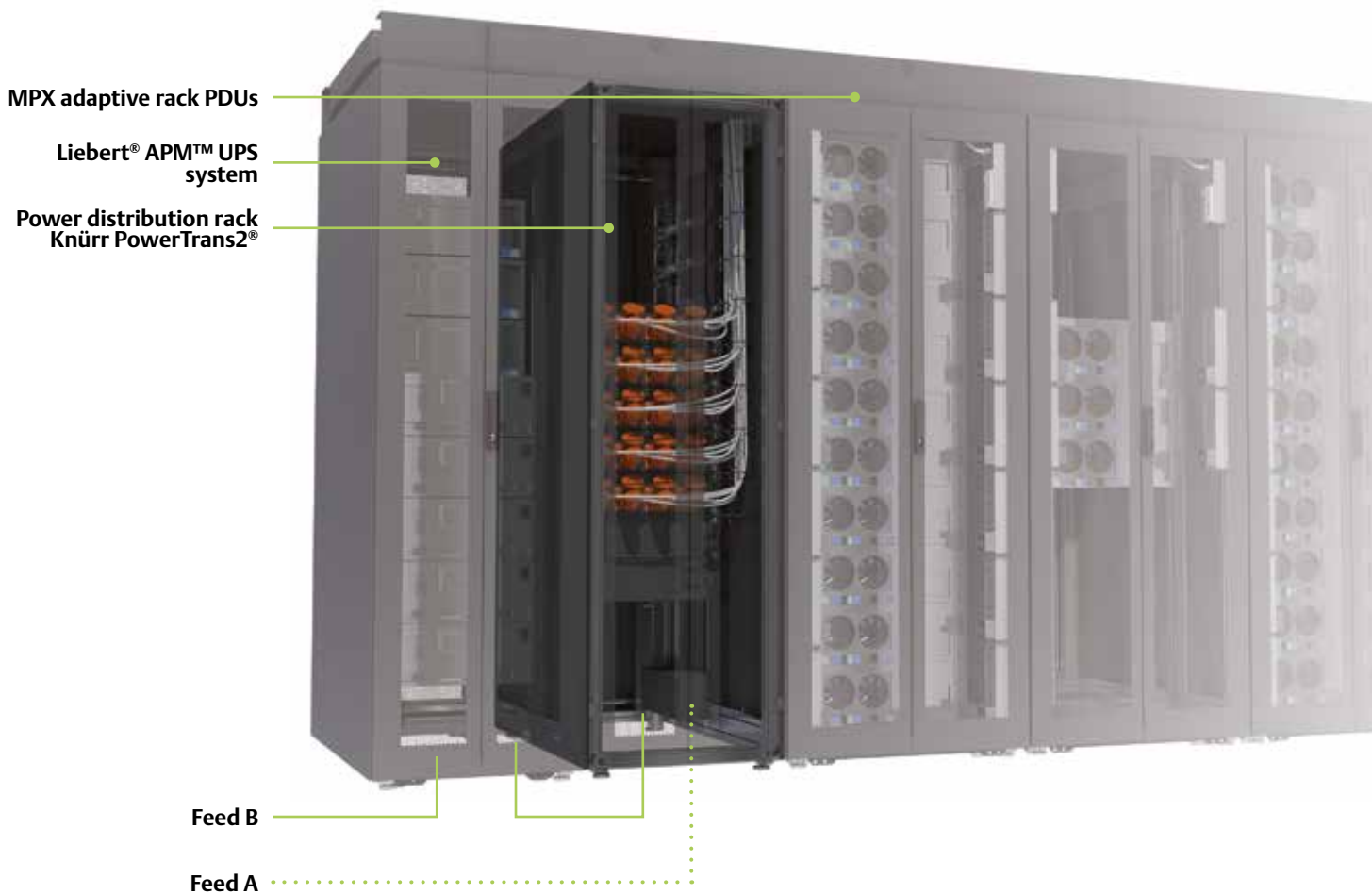
- Monitoring**
- Input level.



# Knürr PowerTrans2®

Power distribution unit between

Liebert® APM™ UPS system and MPX rack PDUs



## Benefits

- Two feeds (A + B) available for each rack.
- Optimum power distribution from the Liebert® APM™ UPS system to the MPX rack PDUs.
- Each phase input from the Knürr PowerTrans2® is monitored and evaluated.
- The PowerTrans2 Basic can be populated with a maximum of 9 plug-in units, while the metered version can be populated with a maximum of 8 plug-in units.
- Minimal footprint due to a rack width of 600 mm.



Knürr PowerTrans2

## Knürr PowerTrans2® 19" Power Distribution Rack

- Elementary and Monitored type**
  - Feed of 2 separate 3-phase 400V mains, L1, L2, L3, N, PE.
  - Each with a 250 A circuit breaker in the input.
  - Distribution to the individual plugs via busbars and contact-safe plug-in connections.
  - Up to 8 (Monitored) / 9 (Elementary) slot-in units where A feed and B feed are possible.
- Monitored type**
  - Provides the following phase-input data: voltage, current, effective power, consumption and frequency.
  - Power alarm functions for the individual phases and their operating status are also supported.
- Technical data Interfaces**
  - RJ-45 LAN port (10/100 MBit) – for connecting to local network (LAN) via an Ethernet cable.
  - Serial interface: RS485.
  - Remote management: Onboard Web Interface, SNMPv1,2,3, SSH and Syslog can be integrated into Nform & Trellis as well as Nagios or other management software programs.
- Material / Finish**
  - Basic rack, extruded aluminum, polished.
  - Corner piece, die-cast aluminum, polished.
  - Perforated front door.
  - Rear door, double, closed.
  - Covers, zinc-passivated sheet steel, powder-coated texture.
- Color**
  - RAL 7021 dark-gray.
- Scope of delivery**
  - 1 x rack with covers, front door, rear door.
  - 1 x set of safe-contact busbars, for A feed and B feed.
  - 2 x circuit breakers, max. 250 A.
  - 16 x (Monitored type) / 18 x (Elementary type) power supply plugs for the slot-in units wired on the busbars.
  - 1 x 19" PowerTrans2 metering slot-in unit (Monitored type).
  - 2 x 19" T-slot extrusions.
  - 18 x chassis runners.
  - 1 x complete earthing set.

W	H	D	U	Model	Cable entry	Order No.	UP
600	2000	1000	42	Elementary	Below	03.014.600.8.004	1
600	2000	1100	42	Elementary	Below	03.014.600.8.005	1
600	2000	1200	42	Elementary	Below	03.014.600.8.006	1
600	2200	1000	47	Elementary	Below	03.014.600.8.010	1
600	2200	1100	47	Elementary	Below	03.014.600.8.011	1
600	2200	1200	47	Elementary	Below	03.014.600.8.012	1
600	2000	1000	42	Monitored	Below	03.014.601.8.004	1
600	2000	1100	42	Monitored	Below	03.014.601.8.005	1
600	2000	1200	42	Monitored	Below	03.014.601.8.006	1
600	2200	1000	47	Monitored	Below	03.014.601.8.010	1
600	2200	1100	47	Monitored	Below	03.014.601.8.011	1
600	2200	1200	47	Monitored	Below	03.014.601.8.012	1
600	2000	1000	42	Elementary	Above	03.014.602.8.004	1
600	2000	1100	42	Elementary	Above	03.014.602.8.005	1
600	2000	1200	42	Elementary	Above	03.014.602.8.006	1
600	2200	1000	47	Elementary	Above	03.014.602.8.010	1
600	2200	1100	47	Elementary	Above	03.014.602.8.011	1
600	2200	1200	47	Elementary	Above	03.014.602.8.012	1
600	2000	1000	42	Monitored	Above	03.014.603.8.004	1
600	2000	1100	42	Monitored	Above	03.014.603.8.005	1
600	2000	1200	42	Monitored	Above	03.014.603.8.006	1
600	2200	1000	47	Monitored	Above	03.014.603.8.010	1
600	2200	1100	47	Monitored	Above	03.014.603.8.011	1
600	2200	1200	47	Monitored	Above	03.014.603.8.012	1



PowerTrans2

## Knürr PowerTrans2® 19" Slot-in Power Distributor

- Power distributor slot-in for PowerTrans2 rack.
- Also functions without PowerTrans2 rack if used with a suitable connection cable.
- 19" slot-in housing.
- Width 19".
- Height: 3 U.
- Depth: 480 mm.
- Color: RAL 7021 dark-gray.
- 2 separate 3-phase inputs with max. 63 A phase current (feed A + feed B).
- Outputs are shown in the table below.
- Backups: 1-pole (for single-phase) or 3-pole (for 3-phase). 2-pole or 4-pole backups available upon request.

Inputs Phase tap per feed	Outputs		Order No.
	Feed A	Feed B	
L1-N, L2-N, L3-N	6 x 230Vac 16 A GST 18i3	6 x 230Vac 16 A GST 18i3	<b>03.014.011.8.002</b>
L1-N, L2-N	2 x 230Vac 32 A IEC60309 1ph/N/PE 6h	2 x 230Vac 32 A IEC60309 1ph/N/PE 6h	<b>03.014.011.8.005</b>
L2-N, L3-N	2 x 230Vac 32 A IEC60309 1ph/N/PE 6h	2 x 230Vac 32 A IEC60309 1ph/N/PE 6h	<b>03.014.011.8.006</b>
L3-N, L1-N	2 x 230Vac 32 A IEC60309 1ph/N/PE 6h	2 x 230Vac 32 A IEC60309 1ph/N/PE 6h	<b>03.014.011.8.007</b>
L1-N, L2-N, L3-N	3 x 230/400Vac 3 x 16 A GST18i5	3 x 230/400Vac 3 x 16 A GST18i5	<b>03.014.012.8.002</b>
L1-N, L2-N, L3-N	2 x 230/400Vac 3 x 32 A IEC60309 3ph/N/PE 6h	2 x 230/400Vac 3 x 32 A IEC60309 3ph/N/PE 6h	<b>03.014.012.8.003</b>

## Knürr PowerTrans2® Connection Cable

- Connection cable between 19" power distributor slot-in and rack PDUs

Length	Input connector	Output socket	Order No.
5000	230Vac 16 A GST 18i3	230Vac 16 A IEC60320 C19	<b>03.014.013.9.001</b>
5000	230Vac 16 A GST 18i3	230Vac 16 A IEC60309 1ph/N/PE 6h	<b>03.014.013.9.003</b>
5000	230/400Vac 3 x 16 A GST 18i5	230/400Vac 3 x 16 A IEC60309 3ph/N/PE 6h	<b>03.014.014.9.001</b>
5000	230Vac 32 A IEC60309 1ph/N/PE 6h	230Vac 32 A IEC60309 1ph/N/PE 6h	<b>On request</b>
5000	230/400Vac 3 x 32 A IEC60309 3ph/N/PE 6h	230/400Vac 3 x 32 A IEC60309 3ph/N/PE 6h	<b>03.014.014.9.003</b>
10000	230Vac 16 A GST 18i3	230Vac 16 A IEC60320 C19	<b>03.014.013.9.002</b>
10000	230Vac 16 A GST 18i3	230Vac 16 A IEC60309 1ph/N/PE 6h	<b>03.014.013.9.004</b>
10000	230/400Vac 3 x 16 A GST 18i5	230/400Vac 3 x 16 A IEC60309 3ph/N/PE 6h	<b>03.014.014.9.002</b>
10000	230Vac 32 A IEC60309 1ph/N/PE 6h	230Vac 32 A IEC60309 1ph/N/PE 6h	<b>On request</b>
10000	230/400Vac 3 x 32 A IEC60309 3ph/N/PE 6h	230/400Vac 3 x 32 A IEC60309 3ph/N/PE 6h	<b>03.014.014.9.004</b>

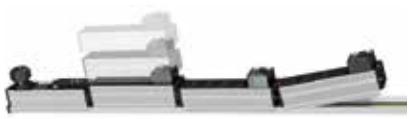


# Rack PDUs MPX, MPH2 and MPE

Your product range for the highest data center demands

**The key aspects of this product range are:**

- High availability for connected electrical loads.
- Optimized energy and capacity management.
- Simplified integration into management tools.
- Simplified physical and electrical installation.

**Overview: Emerson Network Power Rack PDUs for Europe**

								
Features	MPX-Adaptive Rack PDU			MPH2-Managed Rack PDU				MPE Rack PDU
	MPX-R	MPX-B	MPX-E	MPH2-R	MPH2-M	MPH2-C	MPH2-B	MPE
Modular	■	■	■					
Remote interface	■	■	■*	■	■	■	■	
Measurement per phase	■	■	■*	■	■	■	■	
Measurement per group	■	■		■	■	■	■	
Measurement per output	■			■	■			
Switching per output	■			■		■		
Measurement parameters	A, V, W, kWh, VA, Hz, power factor, crest factor	A, V, W, kWh, VA, Hz, power factor	A, V, W, kWh, Hz	A, V, W, kWh, VA, Hz, power factor, crest factor	A,V,W,kWh, VA, Hz, power factor, crest factor	A,V,W,kWh, VA, Hz, power factor	A,V,W,kWh, VA, Hz, power factor	
Input	1 ph + 3 ph max. 63 A	1 ph + 3 ph max. 63 A	1 ph + 3 ph max. 63 A	1 ph + 3 ph max. 32 A	1 ph + 3 ph max. 32 A	1 ph + 3 ph max. 32 A	1 ph + 3 ph max. 32 A	1 ph + 3 ph max. 63 A
Outputs	IEC C13 & C19 Schuko	IEC C13 & C19 Schuko	IEC C13 & C19 Schuko Switzerland GST18	IEC C13 & C19	IECC13 & C19	IEC C13 & C19	IEC C13 & C19	IEC C13 & C19 Schuko
Sensor connections	■	■	■*	■	■	■	■	

The range of MPX and MPH2 accessories is almost identical, which simplifies administration!

\* Only in conjunction with MPX-PEM monitored.




# DI-STRIP® Socket System

Your product range to cover basic requirements in all areas

**The key aspects of this product range are:**

- Robust design with the highest level of quality.
- Cost effective thanks to flexible and simple assembly.
- Numerous designs for all application areas in IT, network technology, laboratories, and in the home.

**Overview: Emerson Network Power DI-STRIP for Europe**

			
Features	DI-STRIP® RM	DI-STRIP® M	DI-STRIP® E
Local display	■	■	
Remote interface	■		
Measurement per phase	■	■	
Measurement parameters	A	A	
Input	1 ph + 3 ph max. 16 A	1 ph + 3 ph max. 16 A	1 ph + 3 ph max. 16 A
Outputs	IEC C13 & C19 Schuko, France, Switzerland	IEC C13 & C19 Schuko, France, Switzerland	IEC C13 & C19 Schuko, France, Switzerland

# MPX™ – Adaptive Rack PDU

*Respond to change and maximize profits*

No-one can make definite predictions about the power-supply demands the future will bring. But one thing is certain: the versatile, adaptive MPX rack PDUs equip you with the wherewithal to face all eventualities. They enable you to react quickly to changes in rack equipment and provide dynamic capacities, offering:

- **Modular hot-swap-enabled output power**
- **Modular hot-swap-enabled communication**
- **Modular input power.**

## Benefits of MPX

- **Adaptive** capacity, distribution, monitoring, control and administration of critical equipment.
- **Flexibility** in reacting to constant changes – modules can be regrouped to accommodate altered requirements.
- **Only purchase what you really need** and utilize existing investments.
- **Reliable communication.**

## Flexible, configurable input and output distribution

The scalable design of the MPX rack PDU allows on-site configuration that meets the current requirements of the IT equipment. It is the perfect solution for coping with the ever increasing demands of expanding data centers. You can set up your IT equipment at another location or add new components to extend your environment. All you need to do in this case is simply reconfigure the power supply and the power distribution.

## Equipped to face the demands of today and tomorrow

The MPX rack PDU supports a variety of configurations for single-phase and three-phase power inputs enabling changes while retaining the distribution infrastructure.

## Developed for critical environments

- **Critical rack operating temperature** – of up to 60° C suitable for high temperatures inside racks.
- **Accurate voltage and current metering** with tolerances of  $\pm 1\%$  offer a comprehensive overview.
- **Energy and power metered** with outstanding precision all the way through to output level.
- **Extensive alert function; including notification before failure occurs.**
- **Monitoring of environment conditions** including alerts and alarms.
- **Notification** upon failure or if individual components are removed.



### Hot-swap-enabled output module

Simple implementation for quick start-up of IT equipment.

### Outputs and modules

Outputs can be controlled and measured remotely thereby increasing flexibility and on-site security.

### Modular input power.

- Can be reconfigured for altered power demands; single-phase and three-phase input.
- Module can be fitted on top or at the bottom.



**Output module (MPX™ BRM):**

Provides overload protection by distributing power to individual servers. Available functions: Elementary, Branch Metering and Output Metering with switch function.

**Power-rail spacer:**

Reserves unused space until needed for an MPX™ module.

**The busbar (MPX™ PRC):**

Serves as power and communication distribution for all supported modules. Available in two heights to accommodate different rack heights.



**BDM™ local display module**

Extended diagnostic functionality; customer-convenient display. Features include detailed information about alerts and specific labeling for outputs.



**SN sensors:**

Consolidates environmental monitoring of temperature, humidity and potential-free input contacts with the power supply at rack level.



**Communication module (RPC2):**

Installed in the power input module and offers an extendable interface for network communication, sensors and the local display.

**Input module (MPX™ PEM):**

Routes the input power to the busbar system of the Elementary model (without RPC2™) and the version with input metering (includes pre-installed RPC2™).



## MPX™

*Benefits of the modular MPX rack PDU***INPUT POWER**

- Configurable: 20 to 60 A (USA); 16 to 63 A (EU).
- Single-phase and three-phase.
- Cable routing possible from above and below.

**OUTPUT DISTRIBUTOR**

- Scalable, combination-compatible and can be replaced during operation
- Single-phase NEMA 5-20R, IEC-C13, IEC-C19, Schuko, Switzerland, GST18.
- Load balance.

**MODULARITY**

- Input modules.
- Output modules.
- External display.
- External sensors.
- RPC2 communication card.

**MONITORING**

- Three levels: Input level, module level, output level.
- Temperature and humidity.
- Door contacts and floating break input contacts.

**REMOTE CONTROLLED SOCKETS**

- Socket level.

**Featuring High Availability**

- Heat resistant up to 60° C ensuring reliable operation in the warm aisle.
- Modular hot-swap-enabled output module, controller card and sensors; can be exchanged or updated during operation.
- Special switch relay (normally closed); connected servers have an uninterrupted power supply even in the event of failure.
- Redundant power supply for control electronics.
- Fixed databus on the busbar.
- Complete data tapping on the Power Entry Module (PEM) without any additional external monitoring devices.
- Proactive alert by additional metering of the neutral conductor and crest factor (assessment of network quality facilitating early detection of power-supply unit failures).

**Maximum Flexibility and Scalability**

- All modules configured in line with requirements (patented quick-mount fitting for safe installation).
- One busbar for different networks and power levels – input module can be freely selected. All other components are "hot-swap-enabled" when running operation.
- Mobile display for reading all MPX data on the rack.
- Optical slot-space display (easy server slot-space identification at the push of a button).

**Highest Possible Power Levels in all Areas**

- Power feed of max. 3 x 63 A; optimal for Blade server applications.
- Only one IP address for up to 4 rails with 24 modules.
- Plug and Play for numerous sensors.
- Extensive monitoring with a metering accuracy of  $\pm 1$  % right through to output level.
- Module and sensor autodetect function with operating software.
- Minimal power loss for MPX systems.



# MPX™

## Four equipment models for different requirements

The MPX modular rack PDU consists of various components. The basic element is a busbar, which is responsible for the power and communication distribution to the individual modules. The input power is routed via the MPX Power Entry Module (MPX PEM) to the MPX system. Different output modules (MPX Branch Receptacle Modules, MPX BRM) are available depending on requirements. Four different variants can be set up depending on the component population of the busbars:

### 1. MPX Elementary

Modular basic power distribution without metering and control function. An upgrade to another equipment model is quick and easy.

### 2. MPX Elementary Phase Monitored

Modular power distribution with metering on input. An upgrade to a superordinate line is possible by populating with appropriate output modules.

### 3. Branch-Monitored MPX

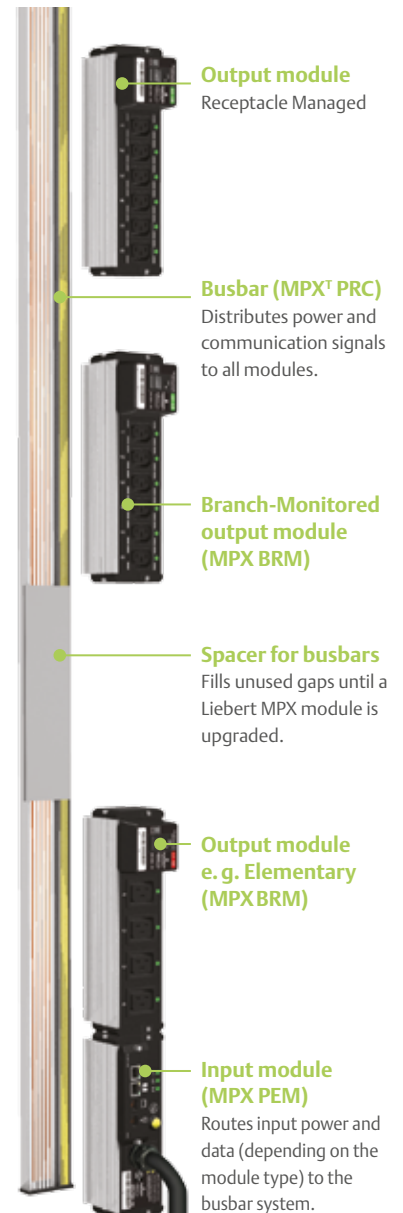
Modular power distribution with metering on input and each output module.

An upgrade or downgrade to another line is possible if installed with appropriate output modules.

### 4. Receptacle Managed MPX

Modular power distribution with input, metering, each output module and each output. Individual outputs can also be switched on and off remotely. A downgrade to another line is possible if installed with the appropriate output modules.

A combination of the "Elementary Phase Monitored", "Branch-Monitored" and "Receptacle Managed" lines on a shared busbar is also possible and is one of the exceptional features of the MPX. Interfaces for the network communication, sensors and/or local display are provided by the Rack PDU Card (RPC) in the MPX PEM. The RPC Card enables connection to an optional RPC Basic Display Module (RPC BDM) to display local status and alerts.



# MPX™ – Configuration models in Europe

			Four equipment models			
Order number			MPX™ Elementary	MPX™ Elementary Phase-Monitored	MPX™ Branch-Monitored	MPX™ Receptacle Managed
Busbar	Length 1035	MPXPRC-V1035XXX	■	■	■	■
	Length 1880	MPXPRC-V1880XXX	■	■	■	■
	Length 2144	MPXPRC-V2146XXX	■	■	■	■
Input Modules	1ph 16A fest	MPXPEM-EHABXS30				■
	1ph 32A fixed*	MPXPEM-EHAEXQ30	■			
		MPXPEM-EHABXQ30		■	■	■
	3ph 16A fixed	MPXPEM-EHAEXT30	■			
		MPXPEM-EHABXT30		■	■	■
	3ph 32A fixed	MPXPEM-EHAEXR30	■			
		MPXPEM-EHABXR30		■	■	■
	3ph 63A fixed	MPXPEM-EHBEXZ30	■			
MPXPEM-EHBBXZ30			■	■	■	
Elementary Output Modules	IEC-C13 L1	MPXB RM-EEBC7N1N	■	■		
	IEC-C13 L2	MPXB RM-EEBC7N2N	■	■		
	IEC-C13 L3	MPXB RM-EEBC7N3N	■	■		
	IEC-C19 L1	MPXB RM-EEBC4O1N	■	■		
	IEC-C19 L2	MPXB RM-EEBC4O2N	■	■		
	IEC-C19 L3	MPXB RM-EEBC4O3N	■	■		
	Schuko L1	MPXB RM-EEBC3P1N	■	■		
	Schuko L2	MPXB RM-EEBC3P2N	■	■		
	Schuko L3	MPXB RM-EEBC3P3N	■	■		
	Switzerland T23	MPXB RM-EEBC4S1N	■	■		
	Switzerland T23	MPXB RM-EEBC4S2N	■	■		
	Switzerland T23	MPXB RM-EEBC4S3N	■	■		
	GST18	MPXB RM-EEBC9U1N	■	■		
	GST18	MPXB RM-EEBC9U2N	■	■		
	GST18	MPXB RM-EEBC9U3N	■	■		
Branch-Monitored Output Modules	IEC-C13 L1	MPXB RM-EBBC6N1N			■	
	IEC-C13 L2	MPXB RM-EBBC6N2N			■	
	IEC-C13 L3	MPXB RM-EBBC6N3N			■	
	IEC-C19 L1	MPXB RM-EBBC4O1N			■	
	IEC-C19 L2	MPXB RM-EBBC4O2N			■	
	IEC-C19 L3	MPXB RM-EBBC4O3N			■	
	Schuko L1	MPXB RM-EBBC3P1N			■	
	Schuko L2	MPXB RM-EBBC3P2N			■	
	Schuko L3	MPXB RM-EBBC3P3N			■	
Receptacle Managed Output Modules	IEC-C13 L1	MPXB RM-ERBC6N1N				■
	IEC-C13 L2	MPXB RM-ERBC6N2N				■
	IEC-C13 L3	MPXB RM-ERBC6N3N				■
	IEC-C19 L1	MPXB RM-ERBC4O1N				■
	IEC-C19 L2	MPXB RM-ERBC4O2N				■
	IEC-C19 L3	MPXB RM-ERBC4O3N				■
	Schuko L1	MPXB RM-ERBC3P1N				■
	Schuko L2	MPXB RM-ERBC3P2N				■
	Schuko L3	MPXB RM-ERBC3P3N				■
Sensors	1xTemp.	SN-Z01		■	■	■
	3xTemp.	SN-Z02		■	■	■
	3xT. + 1xHum	SN-Z03		■	■	■
	1xTemp. Mod.	SN-T		■	■	■
	Temp/Hum Mod.	SN-TH		■	■	■
	2xDoor Mod.	SN-2D		■	■	■
	3xInput Mod.	SN-3C		■	■	■
External Display	RPCBDM-1000		■	■	■	

Upgrade possible

Different combinations available

\*Note: One-phase input modules can only be populated with L1 modules.



DOS20153

## MPX™ – Input Module/Power Supply

### Elementary and Monitored type

- The MPX PEM is fixed on the MPX PRC and provides the connection to the power supply.
- Fixed-connection cable; 3 m long.
- With IEC60309 plug, 1Ph/N/PE 6h blue, 3Ph/N/PE 6h red.

### Monitored type

- The MPX PEM provides connection to the databus for data communication.
- Integrated RPC2 communication card enables remote monitoring and maintenance of the MPX modules.
- Provides the following phase-input data: voltage, current, effective power, consumption and frequency.
- Power alarm functions for individual phases and their operating status are also supported.
- Further important features: Three displays inform the user on the current status of each individual input. An acoustic alarm is activated at certain overload conditions.
- The communication card centralizes the MPXs local and remote administration.
- Serves as the connection point for versatile support options and devices, such as the display module (RPC BDM), various sensors and connection to other MPX™ or MPH2™ systems, for example.
- Has RJ-45 ports for all connections (except USB port) and does not require any special cabling.

### Technical Data Interfaces:

- RJ-45 LAN port (10/100 MBit) – for local network (LAN) connection via an Ethernet cable.
- Expansion / administration port for local configuration using a computer / laptop, for creating a link-up of several PDUs (MPX or MPH).
- Serial interface RS232.

- Display port for connecting the RPC BDM (display module).
- External sensor port for connecting optional sensors.
- Remote management: Onboard Web interface, CLI, SNMPv1,2,3, SSH, Telnet Syslog, compatible with Avocent ACS, UMG & MPU, SiteScan, DSView, Rack Power Manager, Nform & Trellis as well as Nagios or other management software programs.
- Authentication: local, remote: Active Directory, LDAP, TACACS, Radius, Kerberos.
- Encryption: MD5, AES, DES.

### Material / Finish

- Enclosure: aluminum.
- Cover: sheet steel.
- Power contacts: silver-plated.
- Databus contacts: gold-plated (only Monitored type)

### Dimensions

- Width: 75 mm.
- Height: 65 mm.
- Feed cable: 3 m.

### Color

- Enclosure: aluminum/RAL7021 dark-gray

### Certification

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.

### Scope of delivery

- 1 x MPX PEM power input module.
- Including connection cable.
- Including RPC2 communication card (only Monitored type).

L	W	H	Feed	Load rating	Type	Order No.	UP
220	75	65	Fixed	230 VAC, max. 32 A	Elementary	MPXPPEM-EHAEXQ30	1 unit
220	75	65	Fixed	230/400 VAC, max. 16 A	Elementary	MPXPPEM-EHAEXT30	1 unit
220	75	65	Fixed	230/400 VAC, max. 32 A	Elementary	MPXPPEM-EHAEXR30	1 unit
266	75	65	Fixed	230/400 VAC, max. 63 A	Elementary	MPXPPEM-EHBEXZ30	1 unit
220	75	65	Fixed	230VAC,max.16A	Monitored	MPXPPEM-EHABXS30	1 unit
220	75	65	Fixed	230 VAC, max. 32 A	Monitored	MPXPPEM-EHABXQ30	1 unit
220	75	65	Fixed	230/400 VAC, max. 16 A	Monitored	MPXPPEM-EHABXT30	1 unit
220	75	65	Fixed	230/400 VAC, max. 32 A	Monitored	MPXPPEM-EHABXR30	1 unit
266	75	65	Fixed	230/400 VAC, max. 63 A	Monitored	MPXPPEM-EHBBXZ30	1 unit

#### Dimensions in mm:

W = Width	n = Number of sockets	U = Standard rack unit	Conversion:
H = Height	F1 = Standard side panel	1 U = 44.45 mm	1 mm = 0.03937 inch
L = Length	F2 = Design side panel	UP = Packaging unit	1 kg = 2.2046 pounds
S = Switch	19" = ideal for 19" components	Safe = child-proof	

Replace .x with the number of the color combination you require: .1 = RAL 7035, .6 = RAL 7035/RAL 2003



DOS20153

## MPX™ BRM – Output Module

- The MPX BRM enables the distribution to the individual consumers.
- Each module taps a color-coded phase.
- All modules are protected against overload with a 20 A circuit breaker.
- Modules can be exchanged during operation thereby facilitating user-specific installation without having to shut down the MPX.
- Up to 3 BRM output modules can be installed on a 1,035 mm PRC busbar; up to 6 BRM output modules can be installed on a 1,880 mm PRC busbar.

### ■ Dimensions

- Width: 75 mm.
- Height: 65 mm.

### ■ Color

- Enclosure: aluminum/RAL7021 dark-gray

### ■ Certification

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.

### ■ Material / Finish

- Enclosure: aluminum.
- Cover: sheet steel.
- Power contacts: silver-plated.
- Databus contacts: gold-plated (only type B and R).

### ■ Scope of delivery

- 1 x MPX PEM power output module.
- 1 x instruction manual.

### Type E – Elementary

- Module for power distribution via respective outputs.

### Type B – Branch-Monitored

- Module for power distribution via respective outputs with metering function on module level.
- The MPX BRMs have LED ID indicator which identifies every module with a number.
- Modules are administered in the software.
- Provides the following metered readings: voltage, current, power, apparent power, kWh and power factor.
- Power alarm functions and operating status are supported.

### Type R – Receptacle Managed:

- Module for power distribution via respective outputs with metering function on module level and output level.
- The MPX BRMs have LED ID indicator which identifies every module with a number.
- Modules are administered in the software.
- Provides the following metered readings: voltage, current, power, apparent power, kWh, frequency, power factor and crest factor.
- Power alarm functions and operating status are supported.
- Individual outputs can be switched on and off remotely.

L	n	Outputs	Load rating per output	Phase tap	Type	Order No.	UP
266	7	IEC320 C 13	10 A	L1	E	MPXBRM-EEBC7N1N	1 unit
266	7	IEC320 C 13	10 A	L2	E	MPXBRM-EEBC7N2N	1 unit
266	7	IEC320 C 13	10 A	L3	E	MPXBRM-EEBC7N3N	1 unit
266	4	IEC320 C 19	16 A	L1	E	MPXBRM-EEBC401N	1 unit
266	4	IEC320 C 19	16 A	L2	E	MPXBRM-EEBC402N	1 unit
266	4	IEC320 C 19	16 A	L3	E	MPXBRM-EEBC403N	1 unit
266	3	Schuko CEE 7/4	16 A	L1	E	MPXBRM-EEBC3P1N	1 unit
266	3	Schuko CEE 7/4	16 A	L2	E	MPXBRM-EEBC3P2N	1 unit
266	3	Schuko CEE 7/4	16 A	L3	E	MPXBRM-EEBC3P3N	1 unit
266	4	Switzerland T23	16 A	L1	E	MPXBRM-EEBC451N	1 unit
266	4	Switzerland T23	16 A	L2	E	MPXBRM-EEBC452N	1 unit
266	4	Switzerland T23	16 A	L3	E	MPXBRM-EEBC453N	1 unit
266	9	GST18 3-pole	16 A	L1	E	MPXBRM-EEBC9U1N	1 unit
266	9	GST18 3-pole	16 A	L2	E	MPXBRM-EEBC9U2N	1 unit
266	9	GST18 3-pole	16 A	L3	E	MPXBRM-EEBC9U3N	1 unit
266	6	IEC320 C 13	10 A	L1	B	MPXBRM-EBBC6N1N	1 unit
266	6	IEC320 C 13	10 A	L2	B	MPXBRM-EBBC6N2N	1 unit
266	6	IEC320 C 13	10 A	L3	B	MPXBRM-EBBC6N3N	1 unit
266	4	IEC320 C 19	16 A	L1	B	MPXBRM-EBBC401N	1 unit
266	4	IEC320 C 19	16 A	L2	B	MPXBRM-EBBC402N	1 unit
266	4	IEC320 C 19	16 A	L3	B	MPXBRM-EBBC403N	1 unit
266	3	Schuko CEE 7/4	16 A	L1	B	MPXBRM-EBBC3P1N	1 unit
266	3	Schuko CEE 7/4	16 A	L2	B	MPXBRM-EBBC3P2N	1 unit
266	3	Schuko CEE 7/4	16 A	L3	B	MPXBRM-EBBC3P3N	1 unit
266	6	IEC320 C 13	10 A	L1	R	MPXBRM-ERBC6N1N	1 unit
266	6	IEC320 C 13	10 A	L2	R	MPXBRM-ERBC6N2N	1 unit
266	6	IEC320 C 13	10 A	L3	R	MPXBRM-ERBC6N3N	1 unit
266	4	IEC320 C 19	16 A	L1	R	MPXBRM-ERBC401N	1 unit
266	4	IEC320 C 19	16 A	L2	R	MPXBRM-ERBC402N	1 unit
266	4	IEC320 C 19	16 A	L3	R	MPXBRM-ERBC403N	1 unit
266	3	Schuko CEE 7/4	16 A	L1	R	MPXBRM-ERBC3P1N	1 unit
266	3	Schuko CEE 7/4	16 A	L2	R	MPXBRM-ERBC3P2N	1 unit
266	3	Schuko CEE 7/4	16 A	L3	R	MPXBRM-ERBC3P3N	1 unit



DOS20153

## MPX™ PRC – Power Distribution Unit / Communication Bus

- The MPX PRC is the basic element of the MPX power distribution unit.
  - Power and data transfer buses are integrated across the entire length of the MP PRC.
  - The MPX BRMs (output modules) and the MPX PEM (power input module) are fixed on the MPX PRC and, depending on the type, facilitate the modules' power feed, output, monitoring and management.
- **Material / Finish**
    - Busbar housing: aluminum.
    - Busbars: copper.
    - Databus: gold-plated.
  - **Dimensions**
    - Width: 68 mm.
    - Height: 24 mm.
  - **Color**
    - Enclosure: aluminum.
  - **Approvals**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - BV BG.
  - **Load rating**
    - Max. current: 3 x 63 A.
    - Nominal voltage (L-N / L-L): 230 / 400 VAC.
  - **Scope of delivery**
    - 1 x MPX PRC - power distribution unit / communication bus.
    - 1 x mounting kit.

L	W	H	U	Model	Order No.	UP
1035	68	24	23	1 PEM (220 mm) + 3 BRM	<b>MPXPRC-V1035XXX</b>	1 unit
1880	68	24	42	1 PEM (220/266 mm) + 6 BRM	<b>MPXPRC-V1880XXX</b>	1 unit
2144	68	24		1 PEM (220/266 mm) +7 BRM	<b>MPXPRC-V2146XXX</b>	1 unit



DOS20153

## MPX™/MPH™/MPH2™/IMS™ – Sensors

- These sensors are designed for tool-less installation in a Knürr Miracle / DCM rack, and is also compatible with all other rack types.
  - "Fixed" type sensors are attached to a cable.
  - "Modular" type sensors can be connected to the delivered cable.
  - Plugged into the RPC-1000 or RPC2 communication card.
  - Several sensors can be connected in rows.
  - Automatically displayed in the MPX/MPH/MPH2/IMS software.
  - Temperature measurement range: 5 – 60° C.
  - Accuracy: ± 0.5° C.
  - Humidity measurement range: 10 – 95 %.
  - Accuracy: ± 3.5 %.
- **Note**

Sensors are not required for operating the MPX or MPH, MPH2, IMS. However, a communication card is needed.
  - **Scope of delivery**
    - 1 x sensor with connection cable.
    - 1 x instruction manual.

Cable length	Type	Model	Order No.	UP
3660	Fixed	Temperature sensor, single	<b>SN-Z01</b>	1 unit
5180	Fixed	Temperature sensor, triple	<b>SN-Z02</b>	1 unit
5180	Fixed	Temperature sensor, triple + humidity sensor, single	<b>SN-Z03</b>	1 unit
2000	Modular	Temperature sensor, single	<b>SN-T</b>	1 unit
2000	Modular	Temperature sensor, single + humidity sensor, single	<b>SN-TH</b>	1 unit
2000	Modular	2 x door contact - input module*	<b>SN-2D</b>	1 unit
2000	Modular	3 x digital input	<b>SN-3C</b>	1 unit

\* Suitable door contact switch: Order no.: 06.108.115.9



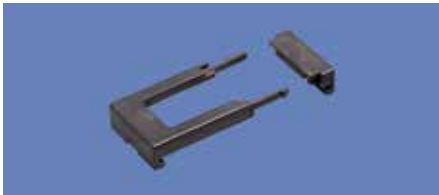
DOS20153

## RPC BDM - 1000 Display Module

- Provides the local display of the monitored data for all connected MPX/MPH/MPH2/IMS systems.
- Operated with a navigation switch.
- Connected via a cable with the RPC, enabling the user to place the displays where they can be easily read in the given local space conditions.
- An individual display can be used for up to four MPX/MPH/MPH2/IMS PDUs, which are all connected in a PDU array.

- **Note**  
The display module is not required when operating the MPX or MPH, MPH2, IMS. However, a communication card is needed.
- **Scope of delivery**
  - 1 x RPCBDM-1000 display module.
  - 1 x connection cable 2 m.
  - 1 x mounting kit.

Order No.	UP
RPCBDM-1000	1 unit



DOS20444

## BRM Power-Distribution Cable-Holder Clip Set

- Cable clips provide strain relief for the feed lines of the network equipment.
- Cable clips are suitable for most IEC-C13 socket plugs with a raised edge. (Must be checked for suitability).
- Cable clips are sold in sets of 18 units.

- **How supplied**
  - In sets.
- **Note**
  - Optimal function only with cable connector 04.000.051.9.
  - Can only be used with MPXBRM-EBBC6NxN and MPXBRM-ERBC6NxN (x = 1, 2, 3).

- **Scope of delivery**
  - 1 x cable holder set (18 units).



395

Order No.	UP
03.910.216.9	1 unit



DOS20493

## SafetySleeve™ Cable Protection IEC C19

- SafetySleeves protect the feed lines of the network equipment.
- They can be used on all C19 cables and fit onto all PDUs.

- **Material / Finish**
  - PVC, black.

Model	Order No.	UP
C20 plug in C19 socket	03.910.212.9001	20 unit



DOS20494

## SafetySleeve™ Cable Protection IEC C13

- SafetySleeves protect the feed lines of the network equipment.
- They can be used on all C13 cables and fit onto all PDUs.

- **Material / Finish**
  - PVC, black.

Model	Order No.	UP
C14 plug in C13 socket	03.910.213.9001	50 unit



RPC2-KIT

### RPC2 Communication Module for MPX, MPH2 and IMS

- For retrofitting to existing MPX , MPH and IMS products.
- The communication card can be upgraded during operation.

■ **Technical Data Interfaces**

- RJ-45 LAN port (10/100 MBit) – for local network (LAN) connection via an Ethernet cable.
- Expansion / administration port for local configuration using a computer / laptop, for creating a link-up of several PDUs (MPX, MPH2 or IMS).
- Serial interface RS232.

- Display port for connecting the RPC BDM (display module).
- External sensor port for connecting optional sensors.
- Remote management: Onboard Web interface, CLI, SNMPv1,2,3, SSH, Telnet Syslog, compatible with Avocent ACS, UMG & MPU, SiteScan, DSView, Rack Power Manager, Nform & Trellis as well as Nagios or other management software programs.
- Authentication: local, remote: Active Directory, LDAP, TACACS, Radius, Kerberos.
- Encryption: MD5, AES, DES.

Order No.	UP
RPC2-KIT	1 unit

# MPH2™ – Managed Rack PDU

## Monitoring and Control

The MPH2™ Managed Rack PDU is a power supply system with monitoring and control functions. The MPH2™ offers outstanding features such as easy rack-integration and management architecture as well as optimum availability and energy efficiency.

Four MPH2™ versions are available:

Model/functions	MPHR	MPHM	MPHC	MPHB
Input / Group measurement	■	■	■	■
Output measurement	■	■		
Output switching	■		■	

### Benefits of MPH2™

- **Monitors several parameters** with defined thresholds and alarm tools.
- **Monitors and controls individual outputs** and/or load and appliance groups.
- **A variety of measurements** allow you to predict failing conditions before they occur and proactively manage connected equipment for maximum uptime.
- **Energy and power metering** maximize the data center power and cooling infrastructure.
- **Lowest power consumption** of all switched-rack PDUs lowers power costs and thermal load.
- **Up to four rack MPH2™ PDUs** can be connected in a Rack PDU Array™ thereby consolidating user-specific IP connections and equipment monitoring.

### Developed for critical environments

- **Industry-leading operating temperature** of up to 60° C suitable for high temperatures inside racks.
- **Bistable relays ensure basic power supply** even when shortfalls occur elsewhere.
- **Accurate voltage and current metering up to outlet level** with ±1 % tolerances deliver reliable results.
- **Extensive alarm functions including notification** when an overload occurs in individual groups.
- **Monitoring of environment conditions (temperature, humidity and input contacts)** with alerts and alarms.
- **Notification** upon failure or if loads are removed in individual racks.



reddot award 2015  
winner

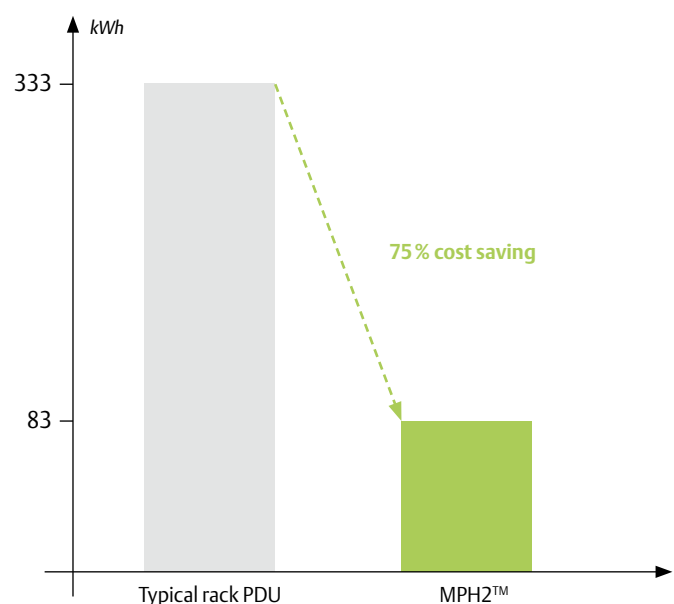


### MPH2™ savings for a typical data center

	Typical rack PDU with 24 outputs	MPH2™
Power consumption of PDU (in Watt)	20	5
Annual energy consumption of PDU (kWh)	176	44
Total proportion of the data center's energy consumption (kWh)*	333	83
<b>Energy saving</b>	<b>75%</b>	

Compared with a Switched Rack-PDU model for a typical data center with a 1.9 PUE.

\* according to Energy Logic calculations





**INPUT POWER**

- 16 to 32 A (EU).
- Single-phase and three-phase.

**OUTPUT DISTRIBUTOR**

- IEC C13 and IEC C19.
- Combination systems.

**MODULARITY**

- Communication card.
- External display.
- External sensors.

**MONITORING**

- Three various levels: Input level, group level, output level
- Temperature and humidity.
- Door contacts and potential-free input contacts.

**REMOTE CONTROLLED SOCKETS**

- Socket level.

# MPH2™

## Benefits

### Highest availability levels

- Modular communications card; can be replaced during operation. This simplifies maintenance and increases the level of availability.
- Bistable relays in switchable designs; the server's power supply is ensured even during outages.
- Software-controlled overload protection – affected outputs are switched off before the advance fuse is activated.
- Additional metering of the neutral conductor and of the crest factor; possible faults that cause switch-off are detected in advance.

### Leading technology in many areas

- Operating temperatures of up to 60 °C allow secure operation in the warm aisle.
- Metering accuracy of  $\pm 1\%$  ensures reliable measurement results.
- Power losses of approx. 5 W, even in switchable models, reducing electricity costs and minimizing the thermal load.

### Industry-leading management properties

- An integrated local display and an optional external display facilitates flexible local management.
- Onboard web interface and CLI/SSH interface; suitable for both Windows and Linux administration.
- A variety of authentication options and encrypted protocols ensure integration into Enterprise Security architectures.
- SNMPv3 and IPv6 support so that current requirements, particularly from the public sector, can be satisfied.

### Simple integration into ENP solutions

- Can be delivered pre-installed in Knürr racks to save time and costs during installation in the data center.
- Serial integration into Avocent UMG, ACS and MPU guarantees redundant management access to the MPH2.
- Integration into ENP software solutions; the MPH2 is an integral part of a comprehensive DCIM solution with monitoring and control functions.

**Colored clamps:**  
Colored labeling of supply.



**Communications module (RPC2™):**  
Offers extendable interfaces for network communication, sensors and local display.



**BDM™ local display module**  
Extended diagnostic functionality; user-friendly display. Features include detailed information about alerts and specific labeling for outputs.



**Integrated display:**  
Provides easy access to important information on the rack.

**Ultra-flat circuit breakers:**  
Compact construction; minimizes space requirements in the rack.



**Special tool-less Knürr DCM rack fixture:**  
Lowers installation costs and extra space in rack for cables and other components.



**Connection cable with locking mechanism**  
Prevents IT cables from being accidentally disconnected.



**SN sensors:**  
Consolidates environmental monitoring of temperature, humidity and potential-free input contacts with the power supply at rack level.



**Flexible network cable input:**  
Simplifies installation in the rack PDU.



**Cable and fixed wiring options:**  
Flexible power distribution; input-cable can be connected locally.



## Easy Integration into DCIM Systems

The rack PDUs MPH2™ and MPX™ as well as the in-line metering system MPXIMS™ can be managed both locally and remotely.

- Power data and sensor data are recorded
- Conventional standardized protocols are used to ensure secure data transfer, management, and authentication.

As such, the products can be easily integrated into any existing network and any system architecture.

### Flexible Local or Remote Management

**Integrated standard displays on the DiStrip RM and MPH2™** show all the key information required at the rack. **The optional local display BDM** for the MPH2™ or MPX™ can be mounted in different locations depending on where it can be read most easily.

**Remote communication** thanks to the modular hot-swappable **RPC2™ card** ensures seamless expansion options and easy servicing

- **Support for up to four PDUs within a single rack PDU Array™:** Minimizes the number of IP addresses required.
- **Support for up to ten ambient sensors:** Consolidates power and environment monitoring at rack level.
- **Support for Web UI and CLI, with SSL and SSH:** Windows, Linux, and network administrators can use their preferred form of communication with the rack PDU.
- **Support for all conventional remote authentication and encryption protocols:** Products can be seamlessly integrated into an existing security infrastructure.
- **Support for SNMP v1, v2, and v3:** Allows for secure communication via network management systems.
- **Support for IPv4 and IPv6:** Future-proof IP support for rack PDUs.
- **Data logging:** All data is saved automatically, ensuring easy troubleshooting without the need for additional external management software.

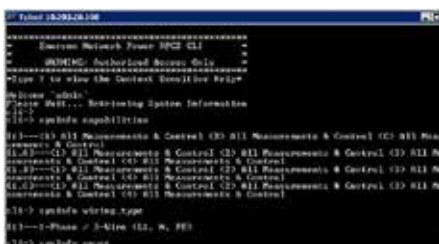
**Power management** with the following functions:

- Snapshot of all electrical parameters at output, group, phase, and general level.
- Snapshot of the status and the measured values from the ambient sensor.
- Threshold configuration, alerts, and messages.
- Control of individual outputs and groups.
- Status information and configuration of all outputs.
- Network management settings.

To enable **central management** of all rack PDUs within a data center, the following software packages are available:

- **Avocent Rack Power Manager**, which includes access and control functions to easily manage and monitor your PDUs.
- Trellis Express, which provides a comprehensive view of the devices in the data center.
- Liebert Sitescan.
- Liebert NFORM, which provides an overview of the health status of relatively small to medium data centers.

**Rack Power Manager** boasts state-of-the-art monitoring functions and allows intelligent server grouping over multiple racks. You also benefit from customized reports and scheduled standard reports, and have the option to define thresholds for real-time alarms. As such, you obtain high-quality information about the power supply infrastructure of your data center, thereby allowing you to make full use of the investment in PDUs.



- Power costs are measured and monitored.
- Historical data is checked in capacity and consumption reports.

The Trellis™ platform is a pioneering DCIM innovation from Emerson Network Power. It not only reduces IT risks but also increases operational efficiency, meaning it solves current problems and prepares you for the future. The real-time visualization, monitoring of the power supply, and mobile access provided by the Trellis™ platform allow you to:

- reduce inefficiencies without interrupting current processes.
- postpone investments as you make better use of existing resources, thereby improving the operating profit.
- improve Service Level Agreements with complete transparency throughout the infrastructure.
- gain a better insight into the data center and thus improve overall efficiency.

Integration into the **clear, easy-to-install Liebert NFORM status monitoring software** ensures the following:

- Rack PDUs are part of a consolidated monitoring solution for data center infrastructure.
- Virtually any component in critical support equipment can be monitored.
- Alerts and automatic actions in the event of a fault.
- Event management.

Integration into the scalable **Liebert SiteScan® building infrastructure management software** ensures the following:

- Rack PDUs are part of a consolidated monitoring solution for data center infrastructure.
- Virtually any component in critical support equipment can be monitored and controlled.
- Data analysis and trend reports.
- Event management.

## Make the Most of Your Rack PDU Investment

The rack PDUs MPX™, MPH2™, and MPXIMS™ can be fully integrated into the industry-leading KVM systems, serial consoles, and infrastructure management systems from Emerson Network Power.

Integration into **Avocent® Advanced Console Server, MergePoint™ Unity KVM Switches and Universal Management Gateway Appliances** offers the following advantages:

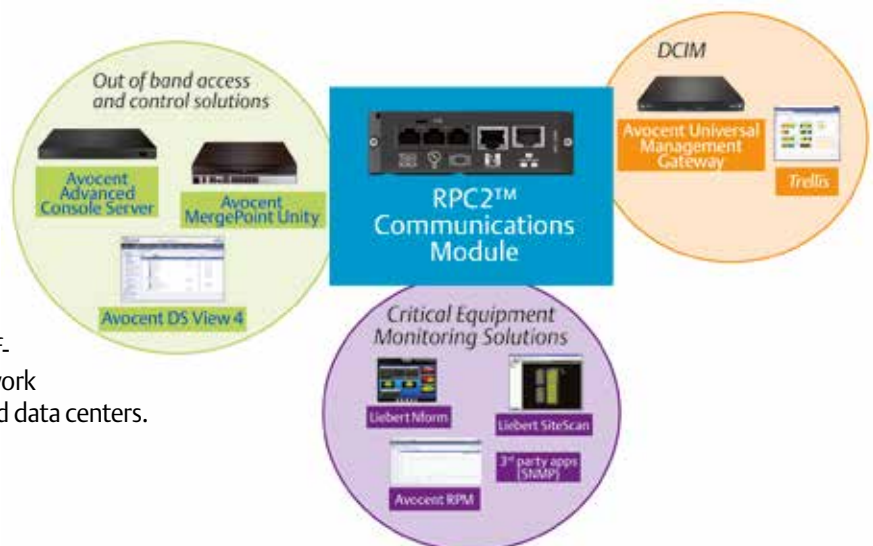
- Rack PDUs are integrated into the out-of-band management solution.
- Rack PDUs become part of a consolidated access and control solution.
- The number of IP addresses required for managing the rack PDUs is minimized.

Integration into the management software **Avocent DSView™ 4**, in which all data center management functions are compiled on a consolidated interface, allows for seamless control of the data center for 24/7 operation.

The software provides secure, centralized out-of-band management of all connected IT and network devices in complex and geographically dispersed data centers.

DSView4 and rack PDUs together ensure:

- Consolidated access to server control and the related access control.
- Easy assignment of IT equipment to the relevant rack PDU outputs.



## MPH2™

- The MPH2 is a power distribution unit for IT racks which provides metering of electrical values. Depending on the model, individual outputs can also be remote-controlled.
  - The integrated RPC2 communications card allows you to connect up to 4 MPH2 / MPX™ units as well as monitor and maintain all connected units remotely. Up to 10 sensors (temperature, air humidity, door contacts as well as potential-free input contacts) can be connected.
  - The MPH2™ unit has an integrated display. In addition, the optional external RPCBDM-1000 display module can easily be connected and mounted on the rack.
  - Special cables with locking mechanisms can be connected to the outputs.
  - Depending on the model, the connecting cable for the MPH2 is attached to the housing (cable length 3 m), also permitting a connecting cable can be connected on site (model with connection unit).
- Remote management: Onboard Web Interface, CLI, SNMPv1,2,3, SSH, Telnet, integratable into Avocent ACS, UMG & MPU, DSView, Rack Power Manager, Nform & Trellis as well as Nagios or other management software programs.
  - Authentication: local, remote: active directory, LDAP, TACACS, Radius, Kerberos. Encryption: MD5, AES, DES.
  - Measurement parameters: Current (A), voltage (V), real power (W), apparent power (VA), consumption (kWh), power factor, frequency and crest factor (only tapes M and R). Accuracy: ±1 % (V, A).
- **MPH2™ models**
    - **MPH2™ B** – Metering per phase and per group (only models with >16 A input power).
    - **MPH2™ C** – Metering per phase and per group (only models with >16 A input power). Each output can also be individually switched remotely.
    - **MPH2™ M** – Metering per phase and per group (only models with >16 A input power) and per output.
    - **MPH2™ R** – Metering per phase and per group (only models with >16 A input power) and per output. Each output can also be individually switched remotely.
  - **Material / finish / color**
    - Closed housing, aluminum profile, finely textured powder-coated top (RAL 7021), Vampamid 6 0024 V0 (UL94) recyclable plastic parts, finely textured and colored (RAL 9005).
- **Mechanical dimensions**
    - Vertical models:  
Width x Depth x Length (mm): 56 x 50 x (see table).
    - Horizontal models:  
Width x Depth x Length (mm): 482,6 (440) x 250 x 44.
  - **Certification**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - BV BG.
  - **Scope of delivery**
    - MPH2™ rack PDU.
    - Standard mounting bracket.
    - Safety instructions.
    - Quickstart guide.

## MPH2™ Types for Europe

Model/functions	MPHR	MPHM	MPHC	MPHB
Input / Group measurement	■	■	■	■
Output measurement	■	■		
Output switching	■		■	

### Vertical models

Type	Input Values		Input Connector	Outputs		Length (mm)	Order Number
	Voltage	Current		C13	C19		
B	230V	16A	C20 inlet	17	2	916.5	MPHB3241
B	230V	16A	C20 inlet	21		916.5	MPHB3141
B	230V	16A	C20 inlet	30	6	1736.5	MPHB1241
B	230V	16A	IEC 60309 16A 1P+N+G	17	2	916.5	MPHB3242
B	230V	16A	IEC 60309 16A 1P+N+G	21		916.5	MPHB3142
B	230V	16A	IEC 60309 16A 1P+N+G	30	6	1736.5	MPHB1242
B	230V	32A	IEC 60309 32A 1P+N+G	30	6	1736.5	MPHB1243
B	230V	32A	Connection unit	30	6	1736.5	MPHB1260
B	230/400V	3 x 16A	IEC 60309 16A 3P+N+G	30	6	1736.5	MPHB1244
B	230/400V	3 x 32A	IEC 60309 32A 3P+N+G	42		1826.5	MPHB1545
B	230/400V	3 x 32A	IEC 60309 32A 3P+N+G	18	12	1826.5	MPHB1345
B	230/400V	3 x 32A	IEC 60309 32A 3P+N+G	30	6	1826.5	MPHB1245
B	230/400V	3 x 32A	Connection unit	42		1826.5	MPHB1562
B	230/400V	3 x 32A	Connection unit	18	12	1826.5	MPHB1362
B	230/400V	3 x 32A	Connection unit	30	6	1826.5	MPHB1262
C	230V	16A	C20 inlet	8		916.5	MPHC3341
C	230V	16A	C20 inlet	16		1004	MPHC3141
C	230V	16A	C20 inlet	18	6	1736.5	MPHC1141
C	230V	16A	C20 inlet	24		1736.5	MPHC1241
C	230V	16A	IEC 60309 16A 1P+N+G	18	6	1736.5	MPHC1142
C	230V	16A	IEC 60309 16A 1P+N+G	24		1736.5	MPHC1242
C	230V	16A	IEC 60309 16A 1P+N+G	16		1004	MPHC3142
C	230V	32A	IEC 60309 32A 1P+N+G	18	6	1736.5	MPHC1143
C	230V	32A	IEC 60309 32A 1P+N+G	24		1736.5	MPHC1243
C	230V	32A	Connection unit	18	6	1736.5	MPHC1160
C	230V	32A	Connection unit	24		1736.5	MPHC1260
C	230/400V	3 x 16A	IEC 60309 16A 3P+N+G	18	6	1736.5	MPHC1144
C	230/400V	3 x 16A	IEC 60309 16A 3P+N+G	24		1736.5	MPHC1244
C	230/400V	3 x 16A	Connection unit	18	6	1736.5	MPHC1161
C	230/400V	3 x 16A	Connection unit	24		1736.5	MPHC1261
C	230/400V	3 x 32A	IEC 60309 32A 3P+N+G	18	6	1736.5	MPHC1145
C	230/400V	3 x 32A	IEC 60309 32A 3P+N+G	24		1736.5	MPHC1245
C	230/400V	3 x 32A	IEC 60309 32A 3P+N+G	6	12	1736.5	MPHC1345
C	230/400V	3 x 32A	Connection unit	18	6	1736.5	MPHC1162
C	230/400V	3 x 32A	Connection unit	24		1736.5	MPHC1262
C	230/400V	3 x 32A	Connection unit	6	12	1736.5	MPHC1362
M	230V	16A	C20 inlet	8		916.5	MPHM3341
M	230V	16A	IEC 60309 16A 1P+N+G	8		916.5	MPHM3342
M	230V	16A	C20 inlet	16		1004	MPHM3141
M	230V	16A	C20 inlet	18	6	1736.5	MPHM1141
M	230V	16A	C20 inlet	24		1736.5	MPHM1241
M	230V	16A	IEC 60309 16A 1P+N+G	18	6	1736.5	MPHM1142
M	230V	16A	IEC 60309 16A 1P+N+G	24		1736.5	MPHM1242
M	230V	16A	IEC 60309 16A 1P+N+G	16		1004	MPHM3142
M	230V	32A	IEC 60309 32A 1P+N+G	18	6	1736.5	MPHM1143
M	230V	32A	IEC 60309 32A 1P+N+G	24		1736.5	MPHM1243
M	230V	32A	Connection unit	18	6	1736.5	MPHM1160
M	230V	32A	Connection unit	24		1736.5	MPHM1260
M	230/400V	3 x 16A	IEC 60309 16A 3P+N+G	18	6	1736.5	MPHM1144
M	230/400V	3 x 16A	IEC 60309 16A 3P+N+G	24		1736.5	MPHM1244
M	230/400V	3 x 16A	Connection unit	18	6	1736.5	MPHM1161

# Emerson Network Power Rack PDUs

Type	Input Values		Input Connector	Outputs		Length (mm)	Order Number
	Voltage	Current		C13	C19		
M	230/400V	3 x 16 A	Connection unit	24		1736.5	MPHM1261
M	230/400V	3 x 32 A	IEC 60309 32 A 3P+N+G	18	6	1736.5	MPHM1145
M	230/400V	3 x 32 A	IEC 60309 32 A 3P+N+G	24		1736.5	MPHM1245
M	230/400V	3 x 32 A	IEC 60309 32 A 3P+N+G	6	12	1736.5	MPHM1345
M	230/400V	3 x 32 A	Connection unit	18	6	1736.5	MPHM1162
M	230/400V	3 x 32 A	Connection unit	24		1736.5	MPHM1262
M	230/400V	3 x 32 A	Connection unit	6	12	1736.5	MPHM1362
R	230V	16 A	C20 inlet	8		916.5	MPHR3341
R	230V	16 A	IEC 60309 16 A 1P+N+G	8		916.5	MPHR3342
R	230V	16 A	C20 inlet	16		1004	MPHR3141
R	230V	16 A	C20 inlet	18	6	1736.5	MPHR1141
R	230V	16 A	C20 inlet	24		1736.5	MPHR1241
R	230V	16 A	IEC 60309 16 A 1P+N+G	18	6	1736.5	MPHR1142
R	230V	16 A	IEC 60309 16 A 1P+N+G	24		1736.5	MPHR1242
R	230V	16 A	IEC 60309 16 A 1P+N+G	16		1004	MPHR3142
R	230V	32 A	IEC 60309 32 A 1P+N+G	18	6	1736.5	MPHR1143
R	230V	32 A	IEC 60309 32 A 1P+N+G	24		1736.5	MPHR1243
R	230V	32 A	Connection unit	18	6	1736.5	MPHR1160
R	230V	32 A	Connection unit	24		1736.5	MPHR1260
R	230/400V	3 x 16 A	IEC 60309 16 A 3P+N+G	18	6	1736.5	MPHR1144
R	230/400V	3 x 16 A	IEC 60309 16 A 3P+N+G	24		1736.5	MPHR1244
R	230/400V	3 x 16 A	Connection unit	18	6	1736.5	MPHR1161
R	230/400V	3 x 16 A	Connection unit	24		1736.5	MPHR1261
R	230/400V	3 x 32 A	IEC 60309 32 A 3P+N+G	18	6	1736.5	MPHR1145
R	230/400V	3 x 32 A	IEC 60309 32 A 3P+N+G	24		1736.5	MPHR1245
R	230/400V	3 x 32 A	IEC 60309 32 A 3P+N+G	6	12	1736.5	MPHR1345
R	230/400V	3 x 32 A	Connection unit	18	6	1736.5	MPHR1162
R	230/400V	3 x 32 A	Connection unit	24		1736.5	MPHR1262
R	230/400V	3 x 32 A	Connection unit	6	12	1736.5	MPHR1362

## Horizontal models

Type	Input Values		Input Connector	Outputs		Order Number
	Voltage	Current		C13	C19	
B	230V	16 A	C20 inlet	12		MPHB2141
B	230V	16 A	C20 inlet	8	2	MPHB2341
B	230V	32 A	IEC 60309 32A 1P+N+G	12		MPHB2143
B	230V	32 A	IEC 60309 32A 1P+N+G	8	2	MPHB2343
B	230/400V	3 x 16 A	IEC 60309 16A 3P+N+G	12		MPHB2144
B	230/400V	3 x 16 A	IEC 60309 16A 3P+N+G	2	6	MPHB2244
B	230/400V	3 x 32 A	IEC 60309 32A 3P+N+G	2	6	MPHB2245
M	230V	16 A	C20 inlet	9		MPHM2141
M	230V	16 A	C20 inlet	6	2	MPHM2441
M	230V	32 A	IEC 60309 32A 1P+N+G	9		MPHM2143
M	230V	32 A	IEC 60309 32A 1P+N+G	6	2	MPHM2443
M	230/400V	3 x 16 A	IEC 60309 16A 3P+N+G	9		MPHM2144
M	230/400V	3 x 16 A	IEC 60309 16A 3P+N+G	2	6	MPHM2344
M	230/400V	3 x 32 A	IEC 60309 32A 3P+N+G	2	6	MPHM2345
R	230V	16 A	C20 inlet	9		MPHR2141
R	230V	16 A	C20 inlet	6	2	MPHR2441
R	230V	32 A	IEC 60309 32A 1P+N+G	9		MPHR2143
R	230V	32 A	IEC 60309 32A 1P+N+G	6	2	MPHR2443
R	230/400V	3 x 16 A	IEC 60309 16A 3P+N+G	9		MPHR2144
R	230/400V	3 x 16 A	IEC 60309 16A 3P+N+G	2	6	MPHR2344
R	230/400V	3 x 32 A	IEC 60309 32A 3P+N+G	2	6	MPHR2345





DOS20153

## MPX™/MPH™/MPH2™/IMS™ – Sensors

- These sensors are designed for tool-less installation in a Knürr Miracle / DCM rack, but is also compatible with all other rack types.
- "Fixed" type sensors are attached to a cable.
- "Modular" type sensors can be connected to the delivered cable.
- Plugged into the RPC-1000 or RPC2 communication card.
- Several sensors can be connected in rows.
- Automatically displayed in the MPX/MPH/MPH2/IMS software.
- Temperature measurement range: 5 – 55° C.
- Accuracy: ± 0.5° C.
- Humidity measurement range: 10 – 95 %.
- Accuracy: ± 3.5 %.

■ **Note**

The sensors are not required for operating the MPX or MPH, MPH2, IMS. However, a communication card is needed.

■ **Scope of delivery**

- 1 x sensor with connection cable.
- 1 x instruction manual.

Cable length	Type	Model	Order No.	UP
3660	Fixed	Temperature sensor, single	<b>SN-Z01</b>	1 unit
5180	Fixed	Temperature sensor, triple	<b>SN-Z02</b>	1 unit
5180	Fixed	Temperature sensor, triple + humidity sensor, single	<b>SN-Z03</b>	1 unit
2000	Modular	Temperature sensor, single	<b>SN-T</b>	1 unit
2000	Modular	Temperature sensor, single + humidity sensor, single	<b>SN-TH</b>	1 unit
2000	Modular	2 x door contact - input module*	<b>SN-2D</b>	1 unit
2000	Modular	3 x digital input	<b>SN-3C</b>	1 unit

\* Suitable door contact switch: Order no.: 06.108.115.9



DOS20153

## Liebert RPC BDM - 1000 Display Module

- Provides the local display of the monitored data for all connected MPX/MPH/MPH2/IMS systems.
- Operated with a navigation switch.
- Connected via a cable with the RPC, enabling the user to place the displays where needed in the given local space conditions.
- An individual display can be used for up to four MPX/MPH/MPH2/IMS PDUs, which are all connected in a PDU array.

■ **Note**

The display module is not required for operating the MPX or MPH, MPH2, IMS. However, a communication card is needed.

■ **Scope of delivery**

- 1 x RPCBDM-1000 display module.
- 1 x connection cable 2 m.
- 1 x mounting kit.

Order No.	UP
<b>RPCBDM-1000</b>	1 unit



DOS20495



DOS20496



DOS20497



DOS20498



DOS20499



DOS20500

### SafetyLock™ Connection Cable IEC C13 EU

- Connection cables have integrated protection against accidental disconnection.
- For straight locking from C14 to C13.
- Locking cables are sold in sets of 9 units.

- **Certification**
  - ENEC.
  - VDE.
  - CB scheme.
  - RoHS compliant.

- **Technical data**
  - Standard: IEC 60320.
  - Load rating: 250 Vac/10 A.
  - Operating temperature: -25° C ~ +70° C.
  - Extraction force with locking function: up to 120 N.
  - Electric power cable: H05VV-F 3G 1.0 mm².
  - Flame retardance: Plug: UL 94V-2 or better; cable: UL VW-1, IEC60332-1. Cat F2.

- **Color**
  - Black/white.
  - Other colors available upon request.

- **Scope of delivery**
  - 9 x locking cables.

- **How supplied**
  - In sets.

L	Model	Order No.	UP
0.5 m	Black	03.951.450.001	9 unit
1.0 m	Black	03.951.450.002	9 unit
1.5 m	Black	03.951.450.003	9 unit
0.5 m	White	03.951.451.001	9 unit
1.0 m	White	03.951.451.002	9 unit
1.5 m	White	03.951.451.003	9 unit

### SafetyLock™ Connection Cable IEC C19 EU

- Connection cables have integrated protection against accidental disconnection.
- For straight locking from C20 to C19.
- Locking cables are sold in sets of 6 units.

- **Approvals**
  - ENEC.
  - VDE.
  - CB scheme.
  - RoHS compliant.

- **Technical data**
  - Standard: IEC 60320.
  - Load rating: 250 Vac/16 A.
  - Operating temperature: -25° C ~ +70° C.
  - Extraction force with locking function: up to 120 N.
  - Electric power cable: H05VV-F 3G 1.5 mm².
  - Flame retardance: Plug: UL 94V-2 or better; cable: UL VW-1, IEC60332-1. Cat F2.

- **Color**
  - Black/white.
  - Other colors available upon request.

- **Scope of delivery**
  - 6 x locking cables.

- **How supplied**
  - In sets.

L	Model	Order No.	UP
0.5 m	Black	03.951.455.001	6 unit
1.0 m	Black	03.951.455.002	6 unit
1.5 m	Black	03.951.455.003	6 unit
0.5 m	White	03.951.456.001	6 unit
1.0 m	White	03.951.456.002	6 unit
1.5 m	White	03.951.456.003	6 unit

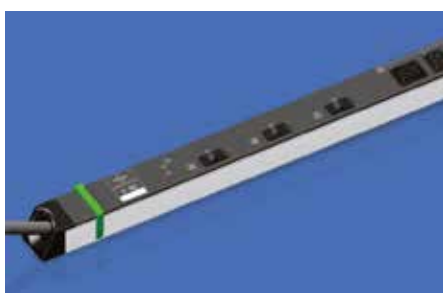


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### SpeedMountKit MPH2, MPE

- Installation of the rack PDUs MPH2 and MPE without tools in Knürr DCM and InstaRack racks.

Rack type	Rack height	Order No.	UP
DCM	H2000	<b>039514050001</b>	1 unit
DCM	H2200	<b>039514050003</b>	1 unit
InstaRack	H2000	<b>039514050002</b>	1 unit
InstaRack	H2200	<b>039514050004</b>	1 unit



MPH2 / MPE – Color Coding

### MPH2 / MPE – Color Coding

- Option for color coding power supply A or B.
- Option for color coding the individual phases / groups.
- Installation without tools on MPH2 and MPE.

Design/Color	Order No.	UP
Blue	<b>03.951.476.0.001</b>	20 unit
Red	<b>03.951.476.0.002</b>	20 unit
Yellow	<b>03.951.476.0.003</b>	20 unit
Green	<b>03.951.476.0.004</b>	20 unit
Orange	<b>03.951.476.0.005</b>	20 unit

## MPE – Rack PDU

### *Reliable power distribution for data centers*

The MPE Rack PDU is a power distribution unit for data center applications. It provides all the necessary functions of a rack-based power distribution unit and guarantees reliable power distribution. A broad range of IT devices and other sensitive electrical loads can be connected to it.

#### The MPE offers you the highest level of availability for your critical loads.

- Its high **operating temperature of up to 60°C** makes it suitable for installation in hot aisles (area at the back of the rack).
- **20 A overload switch** for many 32 A models that prevents the overload switch from triggering prematurely at high temperatures and during start-up peaks.
- Output cable with **disconnection protection** to prevent the IEC60320 connection cable from being unintentionally disconnected.
- **Stable aluminum housing** supports the mechanical stability of the housing.
- Extra-large wire cross-sectional area of the input cable; in three-phase models, this makes it possible to subject the neutral wire to greater loads in the event that the loads are unbalanced.

#### Simple physical and electrical installation helps to keep costs down.

- Emerson Network Power supplies the **PDU pre-installed in racks** which saves extra work on-site.
- **Flexible cable entry** facilitates installation in the rack.
- **Very low unit profile** – even in the overload switch area – leaves maximum installation space for other components as well as more space for air supply in the rack.
- **Models with fixed connection** facilitate customer-side connection of the input cable for special requirements.
- **"SpeedMount" function** for installation in Knürr DCM / InstaRack saves time and money in on-site installation.
- **Great model variety** with power supply from up to three-phase 32 A and a number of different outputs – including country-specific with Schuko plug, UK or Switzerland.

**INPUT POWER**

- 16 to 63A (EU).
- Single-phase and three-phase.

**OUTPUT DISTRIBUTOR**

- IEC-C13 and IEC-C19, Schuko, UK.
- Combination systems.

**MODULARITY**

- Input cable.





MPE1345

## MPE – Rack PDU

- The MPE Rack PDU is a power distribution unit for data center applications. It provides all the necessary functions of a rack-based power distribution unit and guarantees reliable power distribution. A broad range of IT devices and other sensitive electrical loads can be connected to it.
  - Special cables with a locking function can be connected to the outputs.
  - Depending on the model, the connecting cable of the MPH2 is securely attached to the housing (length of input lead: 3 m) or a connection cable can be connected directly on site (models with connection block).
  - The PDU can be installed without any tools in ENP Knürr racks or other housing systems with the corresponding mountings.
  - For 32 A models, the individual groups are protected by a 20 A circuit breaker (hydraulic, magnetic).
  - The maximum operating temperature is 60°C (not for MPE-3345-002, this type has 6 x 16A miniature circuit breaker).
- **Material / Surface / Color**
    - Closed housing, aluminum profile, upper section powder-coated in RAL 7021 fine structure, plastic parts Vampamid 60024 V0 (UL94) recyclable, dyed fine structure RAL 9005.
  - **Mechanical dimensions**
    - Width x depth x length (mm)  
56 x 50 x (see table).
  - **Standards**
    - CE conformity: LVD, including the applicable harmonized standards.
    - CB certification: IEC 60950-1 (2nd Ed.).
    - BV-BG certification (factory inspected).

Input values		Input plug	Outputs			Lengths (mm)	Order No.
Voltage	Current		C13	C19	Schuko		
100-240 V	16 A	C20 inlet	18	3		826,5	MPE-3141
100-240 V	16A	C20 inlet	24			826,5	MPE-3241
230 V	16 A	IEC 60309 16A 1P+N+G	18	3		826,5	MPE-3142
230 V	16 A	IEC 60309 16A 1P+N+G	24			826,5	MPE-3242
230 V	32A	IEC 60309 32 A 1P+N+G	36	6		1736,5	MPE-1243
230 V	32A	IEC 60309 32 A 1P+N+G	24	6	3	1736,5	MPE-1543
230 V	32A	IEC 60309 32 A 1P+N+G			18	1736,5	MPE-1643
230 V	32A	Hardwired	36	6		1736,5	MPE-1260
230 V	32A	Hardwired	24	6	3	1736,5	MPE-1560
230 V	32A	Hardwired			18	1736,5	MPE-1660
230/400 V	3 x 16 A	IEC 60309 16 A 3P+N+G	36	12		1736,5	MPE-1144
230/400 V	3 x 16 A	IEC 60309 16 A 3P+N+G	36	6	3	1736,5	MPE-1444
230/400 V	3 x 16 A	IEC 60309 16 A 3P+N+G			18	1736,5	MPE-1644
230/400 V	3 x 16 A	Hardwired	36	12		1736,5	MPE-1161
230/400 V	3 x 16 A	Hardwired	36	6	3	1736,5	MPE-1461
230/400 V	3 x 16 A	Hardwired			18	1736,5	MPE-1661
230/400V	3x32A	IEC 60309 32A 3P+N+G		6		826,5	MPE-3345-002
230/400 V	3 x 32 A	IEC 60309 32A 3P+N+G	36	6		1736,5	MPE-1245
230/400 V	3 x 32 A	IEC 60309 32A 3P+N+G	24	12		1736,5	MPE-1345
230/400 V	3 x 32 A	IEC 60309 32A 3P+N+G	24	6	3	1736,5	MPE-1545
230/400 V	3 x 32 A	IEC 60309 32A 3P+N+G			18	1736,5	MPE-1645
230/400 V	3 x 32 A	IEC 60309 32A 3P+N+G	48			1736,5	MPE-1745
230/400 V	3 x 32 A	Hardwired	36	6		1736,5	MPE-1262
230/400 V	3 x 32 A	Hardwired	24	12		1736,5	MPE-1362
230/400 V	3 x 32 A	Hardwired	24	6	3	1736,5	MPE-1562
230/400 V	3 x 32 A	Hardwired			18	1736,5	MPE-1662
230/400 V	3 x 32 A	Hardwired	48			1736,5	MPE-1762



DOS20495



DOS20496



DOS20497



DOS20498



DOS20499



DOS20500

## SafetyLock™ Connection Cable IEC C13 EU

- Connection cables have integrated protection against accidental disconnection.
- For straight locking from C14 to C13.
- Locking cables are sold in sets of 9 units.

### ■ Technical data

- Standard: IEC 60320.
- Load rating: 250 Vac/10 A.
- Operating temperature: -25° C ~ +70° C.
- Extraction force with locking function: up to 120 N.
- Electric power cable: H05VV-F 3G 1.0 mm².
- Flame retardance: Plug: UL 94V-2 or better; cable: UL VW-1, IEC60332-1. Cat F2.

### ■ Certification

- ENEC.
- VDE.
- CB scheme.
- RoHS compliant.

### ■ Color

- Black/white.
- Other colors available upon request.

### ■ Scope of delivery

- 9 x locking cables.

### ■ How supplied

- In sets.

L	Model	Order No.	UP
0.5 m	Black	03.951.450.0,001	9 unit
1.0 m	Black	03.951.450.0,002	9 unit
1.5 m	Black	03.951.450.0,003	9 unit
0.5 m	White	03.951.451.0,001	9 unit
1.0 m	White	03.951.451.0,002	9 unit
1.5 m	White	03.951.451.0,003	9 unit

## SafetyLock™ Connection Cable IEC C19 EU

- Connection cables have integrated protection against accidental disconnection.
- For straight locking from C20 to C19.
- Locking cables are sold in sets of 6 units.

### ■ Technical data

- Standard: IEC 60320.
- Load rating: 250 Vac/16 A.
- Operating temperature: -25° C ~ +70° C.
- Extraction force with locking function: up to 120 N.
- Electric power cable: H05VV-F 3G 1.5 mm².
- Flame retardance: Plug: UL 94V-2 or better; cable: UL VW-1, IEC60332-1. Cat F2.

### ■ Approvals

- ENEC.
- VDE.
- CB scheme.
- RoHS compliant.

### ■ Color

- Black/white.
- Other colors available upon request.

### ■ Scope of delivery

- 6 x locking cables.

### ■ How supplied

- In sets.

L	Model	Order No.	UP
0.5 m	Black	03.951.455.0,001	6 unit
1.0 m	Black	03.951.455.0,002	6 unit
1.5 m	Black	03.951.455.0,003	6 unit
0.5 m	White	03.951.456.0,001	6 unit
1.0 m	White	03.951.456.0,002	6 unit
1.5 m	White	03.951.456.0,003	6 unit

## DI-STRIP® – Basic Rack-PDU

*Robust PDUs with useful equipment features*

### Features

- Closed sheet-steel extrusions and ideal integration into Knürr rack systems deliver high stability and torsional strength.
- Best possible conductivity: Full-length brass busbar provided with many models.
- Double spring contacts for reliable and low contact resistance.

The DI-STRIP product family meets a broad range of data center power distribution requirements for IT applications, computer networking, laboratories and home sector.

Specially configured for the growing number of electronic components in network switching racks or server racks. Available with different accessories, such as circuit breakers, overvoltage protection, mains filter, master-slave function, emergency stop switch, fault-current circuit-breaker, local and remote power metering.



**INPUT POWER**

- Single-phase or three-phase.
- Up to 22 kVA.
- Simple input supply.

**OUTPUT DISTRIBUTOR**

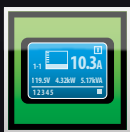
- NEMA 5-20R single-phase, IEC C13 and C19, combination systems.
- Schuko, France, Switzerland.

**MODULARITY**

- More connectivity with expansion unit for Basic Rack PDU GST18.

**FORM FACTOR**

- Vertical mounting (0 U).
- Rack installation.
- Workstation mounting.

**LOCAL MONITORING**

- Fixed display.

**REMOTE MONITORING**

- Secure Web and SNMP interfaces with Liebert Nform.

**OVERLOAD PROTECTION**

- Circuit breakers/fuses per branching cable/output as required.



## Benefits

- Optimal phase distribution across the entire rack with color-coded identification of the individual phases.
- Up to 48 different plug options per PDU: shortens the cable distance between the PDU and the consumer.
- One of the most compact PDUs on the market: measures only 44.4 x 45.5 mm, which saves space even on a 600 mm-wide rack.
- Simple and quick installation on the rack extrusion: reduces installation and wiring costs.



**Highest possible security and availability with:**

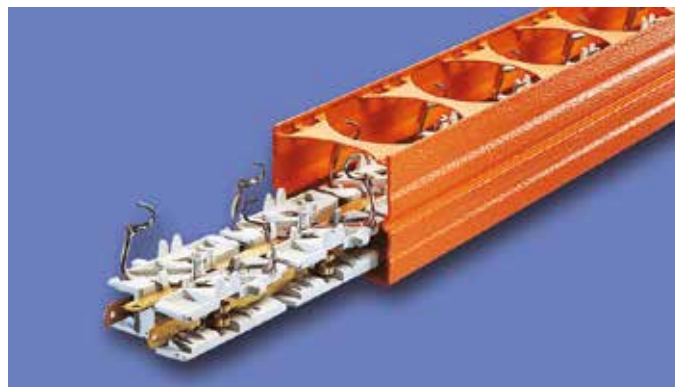
- Closed sheet-steel extrusions that deliver high stability and torsional flexibility.
- Extensive certification compliant with the international Standard.
- Double spring contacts for reliable and low contact resistance.
- Unbalanced load monitoring prevents feed-cable overload of 3-phase feed (only DI-STRIP versions M and RM).
- Optimal load monitoring for server installation (only DI-STRIP versions M and RM).
- Individual output-backup with DI-STRIP BladePower and Pizza Power.

**Maximum flexibility attained due to:**

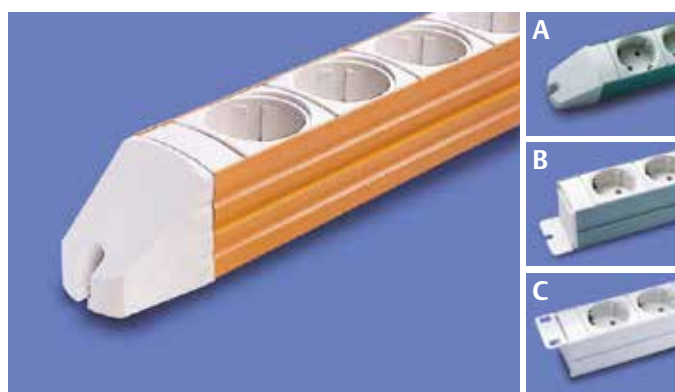
- Internationally compatible configurations and options.
- Power cable lengths of 2.5 m or 4 m for more spatial flexibility.
- Rotating current indicator in 90° steps (only M and RM DI-STRIP versions).
- Tool-less installation, which means quick and easy extension in the rack (only with DI-STRIP HighPower).

**Extremely low operating costs:**

- Installation in the rack is rapid and easy requiring minimal space and reduced installation time.
- Automatic background-light reduction reduces the rack PDU power loss (only with M and RM DI-STRIP versions).
- Especially flat housing extrusion, providing full accessibility to the 19" level on 600 mm wide server racks.



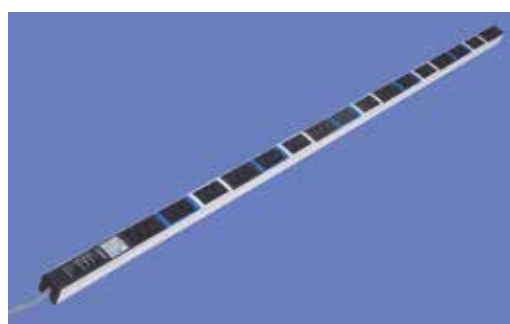
Reliable power distribution at full power delivered by full-length brass busbars.



Can be fitted to a rack or workstation.



Highly compact construction; minimizes space requirements in the rack.



Color-coded phase allocation (L1, L2, L3).

## DI-STRIP®

## European Equipment Models

DI-STRIP models	Functions	Input power	Outputs
Euro socket system IEC 320	Basic power distribution	1 x 16 A 3.68 kVA	IEC60320 C13 & C19
TriplePower	Basic power distribution	3 x 16 A 11 kVA	IEC60320 C13 & C19 & Schuko
Classic	Basic power distribution/extra large distance between the sockets	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Compact	Basic power distribution	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Protector FI	Fault-current circuit-breaker FI	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Protector LS	Circuit breaker (LS) FI	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Protector FI/LS	Combination FI + LS	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Protector Emergency Stop	Emergency stop switch	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Protector Emergency Stop FI/LS	Combination emergency stop + FI + LS	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Power Cleaner	Mains filter	1 x 16 A 3.68 kVA	Schuko, France
Safety Basic	Overvoltage protection	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Safety Standard	Mains filter + overvoltage protection	1 x 16 A 3.68 kVA	Schuko, France, Switzerland
Master Slave	Master Slave	1 x 16 A 3.68 kVA	Schuko, France
Combi	Combination Master Slave + overvoltage protection + mains filter	1 x 16 A 3.68 kVA	Schuko, France
M (metered)	Phase current metered reading, local	1 x 16 A, 1 x 32 A, 3 x 16 A 3.32 A to 22 kVA	IEC60320 C13 & C19 & Schuko
RM (remote metered)	Phase current metered reading local + remote	1 x 16 A, 1 x 32 A, 3 x 16 A 3.32 A to 22 kVA	IEC60320 C13 & C19 & Schuko



DOS20062



DOS00458



DOS00460



DOS20102

## DI-STRIP® Euro Socket System, IEC 320

- Optionally with illuminated switch; 2-pole switching.
- 19" installation option.
- Euro socket combinations of IEC 320 C13 and C19 sockets.
- Feed cable: H05VV-F 3G 1.5/2.5 mm<sup>2</sup>.
- Feed cable: 2.5 m / 5 m.

### Material / Finish

- Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.

### Dimensions

- Height: 45.5 mm.
- Width of housing: 44.4 mm (= 1 U).

### Approvals/certificates

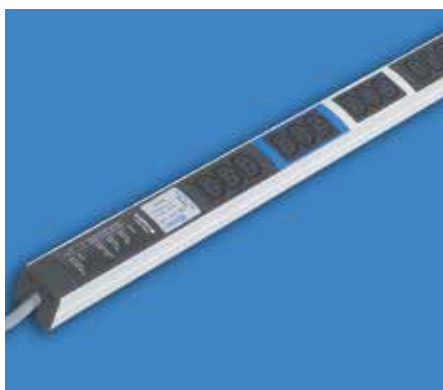
- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.
- CB scheme.
- CSA (only models with IEC60320 input).

### Color

- Enclosure: RAL 7035, light-gray.
- Plastic parts: RAL 7021 dark-gray.

### Scope of delivery

- 1 x socket strip.
- 2 x mounting brackets.



DOS20126

## DI-STRIP® TriplePower® Euro Socket System

- Feed cable: H05VV-F 5 G 2.5 mm<sup>2</sup>.
- Feed cable: 2.5 m (optional with IEC60309 plug, 3Ph/N/PE 6h).
- Easy mounting on the rack extrusion.
- Standard feed 3 x 16 A.
- Ideal for implementing redundancy (e.g. 96 A with redundant feed).
- Color-coded phase allocation.
- Optimum distribution across the entire rack height (23 U and 41 U).
- Alternative to 3-phase GST18 system.

### Material/ Finish

- Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.

### Dimensions

- Height: 45.5 mm.
- Width of housing: 44.4 mm (= 1 U).

### Approvals/certificates

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.
- CB scheme.
- IEC 320.

### Color

- Enclosure: RAL 7035, light-gray.
- Plastic parts: RAL 7021 dark-gray.

### Load rating

- 100-240/173-415 Vac.
- Input: 3 x 16 A.
- Output: 10 A (C13).
- Output: 16 A (C19 / Schuko).

### Scope of delivery

- 1 x socket strip.
- 2 x mounting brackets.



DOS00403

## Knürr DI-STRIP® Classic

- Optionally with illuminated switch; 2-pole switching.
  - Socket rotation: 45°.
  - Feed cable: H05VV-F 3G 1.5 mm².
  - Optionally with Euro plug, IEC320 for UPS application.
- **Material / Finish**
    - Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
    - Plastic parts: Vampamid 6 0024 VO (UL94).
    - Internal conductor: full-length busbars, brass.
  - **Dimensions**
    - Distance between sockets: 100 mm.
    - Height: 45.5 mm.
    - Width of housing: 44.4 mm (= 1 U).
    - Feed cable: 2.5 m.
  - **Approvals/certificates**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - BV BG.
    - CB scheme.
    - VDE GS.
  - **Color**
    - RAL 7035, light-gray.
  - **Load rating**
    - 100-240 Vac/16 A (output Schuko and UTE).
    - 100-240 Vac/10A (outputs Switzerland).
  - **Scope of delivery**
    - 1 x socket strip.
    - 2 x mounting brackets.



DOS00401

with switch.

## Knürr DI-STRIP® Compact

- Optionally with illuminated switch; 2-pole switching.
  - 19" installation option (for length 483 mm).
  - 2 versions: standard side panel or design side panel.
  - Socket rotation: 45°.
  - Feed cable: H05VV-F 3G 1.5 mm².
  - Molded right angle plug.
  - Optionally with Euro plug, IEC320 for UPS applications.
- **Material / Finish**
    - Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
    - Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
    - Internal conductor: full-length busbars, brass.
  - **Dimensions**
    - Distance between sockets: 50 mm.
    - Height: 45.5 mm.
    - Width of housing: 44.4 mm (= 1 U).
    - Feed cable: 2.5 m.
  - **Approvals/certificates**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - BV BG.
    - CB scheme.
    - VDE GS.
  - **Color combination**
    - Final digit of order number .1: RAL 7035, light-gray.
    - Final digit of order number .6: housing RAL 2003 pastel orange.
    - Plastic parts: RAL 7035, light-gray.
  - **Load rating**
    - 100-240 Vac/16 A (output Schuko and UTE).
    - 100-240 Vac/10 A (outputs Switzerland).
  - **Scope of delivery**
    - 1 x socket strip.
    - 2 x mounting brackets.



DOS20065

with FI circuit breaker

## Knürr DI-STRIP® Protector FI

### ■ Protector FI

- Fault-current circuit breaker for user protection.
- Protection against indirect contact by disconnection of the circuit when inadmissibly high contact voltage occurs through bodily contact with electrical equipment.
- Additional protection against direct contact.
- Residual operating current  $I_g = 10 \text{ mA}$  for alternating and pulsating direct fault currents.
- 19° installation option (for length 483 mm).
- Socket rotation: 45°.
- Feed cable: H05VV-F 3G 1.5 mm<sup>2</sup>.
- Molded right angle plug.

### ■ Material/ Finish

- Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
- Internal conductor: full-length busbars, brass.

### ■ Dimensions

- Distance between sockets: 50 mm.
- Height: 78 mm.
- Width of housing: 44.4 mm (= 1 U).
- Feed cable: 2.5 m.

### ■ Approvals/certificates

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.
- CB scheme.

### ■ Color combination

- Final digit of order number .1:
- RAL 7035, light-gray.
- Plastic parts: RAL 7035, light gray.

### ■ Load rating

- 100–240 Vac/16 A.

### ■ Scope of delivery

- 1 x socket strip.
- 2 x mounting brackets.



DOS00692

with circuit breaker.

## Knürr DI-STRIP® Protector LS

### ■ Protector LS

- Circuit breaker for overload and short circuit.
- Protects cables and lines by switching off rapidly in the event of a short circuit and defined delayed switch-off when overloads occur.
- Circuit breaker: 16 A.
- Trip characteristics: type B, 2-pole.
- 19° installation option (for length 483 mm).
- Socket rotation: 45°.
- Feed cable: H05VV-F 3G 1.5 mm<sup>2</sup>.
- Molded right angle plug.

### ■ Material/ Finish

- Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
- Internal conductor: full-length busbars, brass.

### ■ Dimensions

- Distance between sockets: 50 mm.
- Height: 78 mm.
- Width of housing: 44.4 mm (= 1 U).
- Feed cable: 2.5 m.

### ■ Approvals/certificates

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.
- CB scheme.
- VDE GS.

### ■ Color combination

- Final digit of order number .1:
- RAL 7035, light-gray.
- Plastic parts: RAL 7035, light gray.

### ■ Load rating

- 100–240 Vac/16 A.

### ■ Scope of delivery

- 1 x socket strip.
- 2 x mounting brackets.



DOS00693

## Knürr DI-STRIP® Protector FI / LS

### ■ Protector FI / LS

- Fault current switch and circuit breaker.
- Provides a combination of user, overload and short circuit protection.
- Residual operating current  $I_g = 30$  mA for alternating and pulsating direct fault currents.
- Circuit breaker 16 A (Schuko and France) / 10 A (Switzerland).
- Trip characteristics, type B, 2-pole.
- 19° installation option (for length 483 mm).
- Socket rotation: 45°.
- Feed cable: H05VV-F 3G 1.5 mm<sup>2</sup>.
- Molded right angle plug.

### ■ Material / Finish

- Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
- Internal conductor: full-length busbars, brass.

### ■ Dimensions

- Distance between sockets: 50 mm.
- Height: 78 mm.
- Width of housing: 44.4 mm (= 1 U).
- Feed cable: 2.5 m.

### ■ Approvals/certificates

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.
- CB scheme.

### ■ Color combination

- Final digit of order number . 1:  
RAL 7035, light-gray.
- Plastic parts: RAL 7035, light-gray.

### ■ Load rating

- 100–240 Vac/16 A (Schuko and France).
- 100–240 Vac/10 A (Switzerland).

### ■ Scope of delivery

- 1 x socket strip.
- 2 x mounting brackets.



DOS20059

## Knürr DI-STRIP® Protector Emergency Stop

- With 2-pole emergency stop switch for user protection.
- For manually disconnecting consumers in an emergency.
- Phase and neutral conductors are separated safely.
- Switch must be intentionally unlocked to restart.
- 19° installation option (for length 483 mm).
- Socket rotation: 45°.
- Feed cable: H05VV-F 3G 1.5 mm<sup>2</sup>.
- Molded right angle plug.

### ■ Material / Finish

- Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
- Internal conductor: full-length busbars, brass.

### ■ Dimensions

- Distance between sockets: Classic: 100 mm, Compact: 50 mm.
- Height: 101 mm.
- Width of housing: 44.4 mm (= 1 U).
- Feed cable: 2.5 m.

### ■ Approvals/certificates

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.
- CB scheme.

### ■ Color combinations

- Final digit of order number . 1:  
RAL 7035, light gray.
- Plastic parts: RAL 7035, light gray.

### ■ Load rating

- 100–240 Vac/16 A.

### ■ Scope of delivery

- 1 x socket strip.
- 2 x mounting brackets.





DOS00456

## Knürr DI-STRIP® Protector Emergency Stop FI /LS

- With 2-pole emergency stop switch for user protection.
  - For protecting operating personnel.
  - For manually disconnecting consumers in an emergency.
  - Phase and neutral conductors are separated safely.
  - Switch must be intentionally unlocked to restart.
  - Socket rotation: 45°.
  - Feed cable: H05VV-F 3G 1.5 mm<sup>2</sup>.
  - Molded right angle plug.
- **Material/ Finish**
    - Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
    - plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
    - Internal conductor: full-length busbars, brass.
  - **Dimensions**
    - Distance between sockets: Compact: 50 mm.
    - Height: 101 mm.
    - Width of housing: 44.4 mm (= 1 U)
    - Feed cable: 2.5 m.
  - **Approvals/certificates**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - BV BG.
    - CB scheme.
  - **Color combinations**
    - Final digit of order number .1: RAL 7035, light-gray.
    - Plastic parts: RAL 7035, light-gray.
  - **Additionally:**
    - With 2-pole fault-current switch and circuit breaker
    - Provides a combination of user, overload and short circuit protection.
  - **Load rating**
    - 100–240 Vac/16 A.
  - **Scope of delivery**
    - 1 x socket strip.
    - 2 x mounting brackets.



DOS20061

## Knürr DI-STRIP® Power Cleaner

- High-frequency glitches generally occur in switching processes ranging from 100 kHz to 5 MHz. This high-frequency rate overloads the mains frequency and affects adjacent electronic equipment. The mains filter attenuates this high-frequency rate.
  - The attenuation behavior is harmonized with the typical interference spectrum.
  - The mains filter works in both directions: where glitches from the equipment to the socket strip are also filtered from the mains.
  - 19" installation option (for length 483 mm).
  - Socket rotation: 45°.
  - Feed cable: H05VV-F 3G 1.5 mm<sup>2</sup>.
  - Molded right angle plug.
- **Material / Finish**
    - Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
    - Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
    - Internal conductor: full-length busbars, brass.
  - **Dimensions**
    - Distance between sockets: 50 mm.
    - Height: 45.5 mm.
    - Width of housing: 44.4 mm (= 1 U).
    - Feed cable: 2.5 m.
  - **Approvals/certificates**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - BV BG.
    - CB scheme.
  - **Color combination**
    - Final digit of order number .1: RAL 7035, light-gray.
    - Final digit of order number .6: housing RAL 2003 pastel orange.
    - Plastic parts: RAL 7035, light-gray.
  - **Technical data**
    - Nominal voltage: max. 250 Vac, 50 Hz.
    - Nominal current, max. 16 A.
    - Filter compliant with VDE 0565-3 (EN 60939-1).
  - **Scope of delivery**
    - 1 x socket strip.
    - 2 x mounting brackets.
    - 2 x 19" mounting brackets (additionally with 19" installation option).



DOS20068

with overvoltage protection

## Knürr DI-STRIP® Safety Basic

- For protection against transient overvoltage from the mains, which, for example, are caused by switching machines on and off.
  - When critical overvoltages occur, the connection to the mains is cut off.
  - Once the protective conductor has been triggered, the green function display light is not illuminated. Thus, the socket strip can no longer be used.\*
  - Basic equipment protection is classified as class 3 (category D).
  - For optimal protection, class 1 and 2 (categories B and C) protective equipment must be installed in the building.
  - 19" installation option (for length 483 mm).
  - Socket rotation: 45°.
  - Feed cable: H05VV-F 3G 1.5 mm<sup>2</sup>.
  - Molded right angle plug.
- **Material / Finish**
    - Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
    - plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
    - Internal conductor: full-length busbars, brass.
- **Dimensions**
    - Distance between sockets: 50 mm.
    - Height: 45.5 mm.
    - Width of housing: 44.4 mm (= 1 U).
- **Approvals/certificates**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - BV BG.
    - CB scheme.
- **Color combination**
    - Final digit of order number .1: RAL 7035, light-gray.
    - Final digit of order number .6: housing RAL 2003 pastel orange.
    - Plastic parts: RAL 7035, light-gray.
- **Technical data**
    - Appliance class: Type 3 as per DIN EN 61643-11.
    - Requirement class: category D as per VDE 0675-6.
    - Mains voltage: 230 VAC.
    - Nominal current, max. 16 A.
    - Discharge surge current (8/20 μs): 10 kA.
    - Reaction time: < 25 ns.
    - Safety level (at 100 A varistor peak current): L with respect to N: < 800 V, L / N with respect to PE: < 1500 V.
- **Scope of delivery**
    - 1 x socket strip.
    - 2 x mounting brackets.

\* Send the socket strip to the manufacturer for the protective conductor to be replaced!



DOS20069

## Knürr DI-STRIP® Safety Standard

- Standard safety models consist of a combined overvoltage protection/mains filter element.
  - Protects against transient overvoltages from the mains, which, for example, are caused by switching machines on and off.
  - When critical overvoltages occur, connection to the mains is cut off.
  - Once the protective conductor has been triggered, the green function display light is not illuminated. The socket strip can thus no longer be used.\*
  - Basic equipment protection is classified as class 3 (category D).
  - For optimal protection, class 1 and 2 (categories B and C) protective equipment must be installed in the building.
  - High-frequency glitches are generally caused by switching processes in an operation from 100 kHz to 5MHz.
  - This high-frequency rate overloads the mains frequency and affects adjacent electronic equipment. The mains filter attenuates this high-frequency rate.
  - The attenuation behavior is harmonized with the typical interference spectrum.
  - 19° installation option (for length 483 mm).
  - Socket rotation: 45°.
  - Feed cable: HO5VV-F 3G 1.5 mm<sup>2</sup>.
  - Molded right angle plug.
- **Material/ Finish**
    - Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
    - Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
    - Internal conductor: full-length busbars, brass.
- **Dimensions**
    - Distance between sockets: 50 mm.
    - Height: 45.5 mm.
    - Width of housing: 44.4 mm (= 1 U).
    - Feed cable: 2.5 m.
- **Approvals/certificates**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - BV BG.
    - CB scheme.
- **Color combination**
    - Final digit of order number .1: RAL 7035, light-gray.
    - Final digit of order number .6: housing RAL 2003 pastel orange.
    - Plastic parts: RAL 7035, light-gray.
- **Technical data**
    - Mains voltage: 230 VAC.
    - Nominal current: max. 16 A / 10 A.
    - Discharge surge current (8/20 μs): 10 kA.
    - Reaction time: < 25 ns.
    - Safety level (at 100 A varistor peak current): L with respect to N: < 800 V, L / N with respect to PE: < 1500 V.
    - Overvoltage protection
    - Appliance class: Class 3 – as per DIN EN 61643-11.
    - Requirement class: Category D as per VDE 0675-6.
    - Mains filter: as per VDE 0565 (EN 60939).
- **Scope of delivery**
    - 1 x socket strip.
    - 2 x mounting brackets.

\* Send the socket strip to the manufacturer for the safety arrester to be replaced!



DOS20070

## Knürr DI-STRIP® Master-Slave

- Slave plugs will switch on if master switches on.
- Note:
  - The master consumer's power intake must always exceed the switch-on threshold. When switching off the master consumer, the power intake must fall below the switch-off threshold.
  - 19" installation option (for length 483 mm).
  - Socket rotation: 45°.
  - Feed cable: H05VV-F 3G 1.5 mm².
  - Molded right angle plug.

### Material / Finish

- Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
- Internal conductor: full-length busbars, brass.

### Dimensions

- Distance between sockets: 50 mm.
- Height: 45.5 mm.
- Width of housing: 44.4 mm (= 1 U).
- Feed cable: 2.5 m.

### Approvals/certificates

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.
- CB scheme.
- VDE GS.

### Color combination

- Final digit of order number .1:
- RAL 7035, light-gray.
- Plastic parts: RAL 7035, light-gray.

### Load rating

- Max. 250 Vac/16 A.

### Technical data

- Switching-threshold setting range
- On: 20 - 200 mA (approx. 55 mA on delivery).
- Off: 16 - 160 mA (approx. 44 mA on delivery).
- Switching delay: 550 ms, ± 20 %.
- Electronic module: 2-pole switching.

### Scope of delivery

- 1 x socket strip.
- 2 x mounting brackets.



DOS00325

with master-slave overvoltage protection and mains filter.

## Knürr DI-STRIP® Combi

- Master-slave with overvoltage protection and mains filter.
- Automatic consumer switching.
- Combines Master-Slave and Safety Standard functions.
- Socket rotation: 45°.
- Feed cable: H05VV-F 3G 1.5 mm².
- Molded right angle plug.

### Material / Finish

- Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.
- Internal conductor: full-length busbars, brass.

### Dimensions

- Distance between sockets: 50 mm.
- Height: 45.5 mm.
- Width of housing: 44.4 mm (= 1 U).
- Feed cable: 2.5 m.

### Approvals/certificates

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.
- CB scheme.

### Color combination

- Final digit of order number .1:
- RAL 7035, light-gray.
- Plastic parts: RAL 7035, light-gray.

### Technical data

- With overvoltage protection and mains filter.
- Mains voltage: max. 250 VAC.
- Nominal current: 16 A.
- Requirement class: D (protection as per VDE 0675).
- Surge current resistance (8/20 µs wave): Max. 10 kA.
- Protection level (1.5/50 µs wave): < 1500 V (L + N against PE).
- Master-slave function:
  - Switching-threshold setting range
  - On: 20 - 200 mA (approx. 55 mA on delivery).
  - Off: 16 - 160 mA (approx. 44 mA on delivery).
  - Switching delay: 550 ms ± 20 %.
  - Electronic module: 2-pole switching.

### Scope of delivery

- 1 x socket strip.
- 2 x mounting brackets.



DOS80002

## Knürr DI-STRIP® M

- Large LCD display for clear view.
- Effective metering of alternating current displayed per phase (single-phase or 3-phase, depending on model).
- LCD display rotation in 90° steps.
- Display contrast can be adjusted.
- Unbalanced-load warning display with 3-phase model.
- Signals indicate load changes.
- Automatic reduction of background light.
- Feed cable: 4 m H05VV-F 5 G 4 mm<sup>2</sup> (PizzaPower M).
- Feed cable: 2.5 m H05VV-F 5 G 2.5 mm<sup>2</sup> (TriplePower M).
- Feed cable: 2.5 m H05VV-F 3G 1.5 mm<sup>2</sup> (DI-STRIP Compact M, DI-STRIP IEC320 M).

### Material/ Finish

- PizzaPower® model; Housing: sheet steel, zinc-passivated, powder-coated.
- Other models: Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.

### Approvals/certificates

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC. EN61326-1, EN61000-3-2, EN61000-3-3.
- FCC Class B.
- CB scheme (TriplePower M, DI-STRIP compact M, IEC320M, ampere meter GST18i).

### Color

- PizzaPower M model; Housing: RAL 9005 black.
- Other models; Housing: RAL 7035 light-gray.
- Plastic parts: RAL 7021 dark-gray.

### Scope of delivery

- 1 x socket strip with ampere meter.
- 2 x mounting brackets.
- 2 x 19" mounting brackets (with 19" installation option).

### Note

- Other models (e.g. C 19 outputs) available on request.



DOS80002

## Knürr DI-STRIP® RM

- Displays real RMS value for the alternating current per phase.
- LCD display rotation in 90° steps.
- Display bright/dark switchover.
- Warning display for unbalanced load.
- Signals indicate load changes.
- Automatic darkening of background light for energy saving.

### Data interface:

- The plug strip can be integrated into the network via an RJ45 plug.
- Access is possible without special software via a remote browser.
- Three variable limit values and a warning for unbalanced loads can be specified.
- The module enables access for up to 5 users or administrators; access is password-protected.
- The software displays the name and location of the PDU; this information can be entered by an administrator.
- The user can specify a static IP address or access using DHCP.
- Firmware updates can be made via a web browser.
- Supported protocols: HTTP, SNMP (Traps, SET, GET), Syslog.

### Material / Finish

- PizzaPower model; Housing: sheet steel, zinc-passivated, powder-coated.
- Other models; Housing: closed sheet steel extrusion, zinc-passivated, powder-coated texture.
- Plastic parts: Vampamid 6 0024 VO (UL94), recyclable.

### Dimensions

- Width: 84 mm (PizzaPower), 44.4 mm (others).
- Height: 60 mm (PizzaPower), 44.4 mm (others).

### Color

- PizzaPower model; Housing: RAL 9005 black.
- Other models; Housing: RAL 7035 light-gray.
- Plastic parts: RAL 7021 dark-gray.

### Approvals

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV BG.

### Scope of delivery

- 1 x socket strip (PDU) with remote ampere meter.
- 1 x mounting bracket.
- 1 x instruction manual.

DI-STRIP Model	Input Values		Input Connector	Outputs					L	S	F1	F2	19"	Safe	Order No.
	Voltage	Current		C13	C19	Schuko	UTE	Type 13							
<b>Euro plug IEC320 system</b>															
With feed cable	230V	16 A	Schuko CEE7/7	6					333		■				03.600.006.1
	230V	16 A	Schuko CEE7/7	9					483	■	■		■		03.602.009.1
	230V	10 A	IEC60320 C13	12					483		■		■		03.600.312.1
	230V	16 A	IEC60320 C19	15	3				783		■				03.600.418.1
	230V	16 A	IEC60309 1ph/N/PE 6h	15	3				783		■				03.600.518.1
Euro input in plug panel	230V	10 A	IEC60320 C14 inlet	6					383		■				03.622.006.1
	230V	10 A	IEC60320 C14 inlet	9					483		■		■		03.622.009.1
Euro input on side panel	230V	10 A	IEC60320 C14 inlet	6					333		■				03.622.706.1
	230V	10 A	IEC60320 C14 inlet	9					433		■				03.622.709.1
	230V	10 A	IEC60320 C14 inlet	6					383	■	■				03.624.706.1
	230V	10 A	IEC60320 C14 inlet	9					483	■	■				03.624.709.1
With overload protection 10 A	230V	10 A	Schuko CEE7/7	10					483	■	■		■		03.632.010.1
GST18 input in side panel	230V	16 A	GST18	6					383		■				03.600.206.1
<b>TriplePower</b>															
	230/400V	3 x 16 A	none	24					1033		■				03.600.024.1
	230/400V	3 x 16 A	none	48					1833		■				03.600.048.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	24					1033		■				03.600.824.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	48					1833		■				03.600.848.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	18	6				1133		■				03.600.524.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	36	6				1733		■				03.600.542.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h		6				483		■		■		03.600.506.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h			12			833		■				03.300.812.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	18	3				833		■				03.600.521.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	18		3			833		■				03.300.521.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	21					833		■				03.600.821.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	45					1733		■				03.600.845.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	36		6			1733		■				03.300.542.1
<b>PizzaPower</b>															
	230V	32 A	IEC60309 1ph/N/PE 6h	7					400		■		■		03.631.007.1
	230V	32 A	none	7					400		■		■		03.631.807.1
	230V	32 A	IEC60309 1ph/N/PE 6h	12	4				720		■				03.631.124.1
	230V	32 A	IEC60309 1ph/N/PE 6h	24					960		■				03.631.240.1
	230V	32 A	IEC60309 1ph/N/PE 6h	21	4				1017		■				03.631.214.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	21					933		■				03.631.021.1
	230/400V	3 x 32 A	none	21					933		■				03.631.821.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h		6				408		■				03.631.006.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	9	12				939		■				03.631.912.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	36					1362		■				03.631.360.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	18	6				1002		■				03.631.186.1
<b>BladePower</b>															
	230V	32 A	IEC60309 1ph/N/PE 6h	2	3				375		■		■		03.630.005.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	6	9				740		■				03.630.015.1
	230V	32 A	none	2	3				375		■		■		03.630.805.1
	230/400V	3 x 32 A	none	6	9				740		■				03.630.815.1
<b>Classic</b>															
	230V	16 A	Schuko CEE7/7			17			1783		■				03.300.067.X
	230V	16 A	Schuko CEE7/7			13			1383		■				03.300.063.X
	230V	16 A	Schuko CEE7/7			9			983		■				03.300.059.X
	230V	16 A	Schuko CEE7/7			5			583		■				03.300.055.X
	230V	16 A	Schuko CEE7/7			16			1733	■	■				03.302.066.X
	230V	16 A	Schuko CEE7/7			12			1333	■	■				03.302.062.X
	230V	16 A	Schuko CEE7/7			8			933	■	■				03.302.058.X
	230V	16 A	Schuko CEE7/7			4			533	■	■				03.302.054.X

DI-STRIP Model	Input Values		Input Connector	Outputs					L	S	F1	F2	19"	Safe	Order No.
	Voltage	Current		C13	C19	Schuko	UTE	Type 13							
<b>Classic</b>															
	230V	16 A	Schuko CEE7/7				13		1383		■			■	03.400.063.X
	230V	16 A	Schuko CEE7/7				9		983		■			■	03.400.059.X
	230V	16 A	Schuko CEE7/7				5		583		■			■	03.400.055.X
	230V	16 A	Schuko CEE7/7				8		933	■	■			■	03.402.058.X
	230V	10 A	SEV 1011 T12					13	1383		■				03.701.063.1
	230V	10 A	SEV 1011 T12					9	983		■				03.701.059.1
	230V	10 A	SEV 1011 T12					5	583		■				03.701.055.1
	230V	10 A	SEV 1011 T12					16	1733	■	■				03.703.066.1
	230V	10 A	SEV 1011 T12					8	933	■	■				03.703.058.1
<b>Compact</b>															
	230V	16 A	Schuko CEE7/7				15		883		■				03.300.015.X
	230V	16 A	Schuko CEE7/7				11		732			■			03.300.111.X
	230V	16 A	Schuko CEE7/7				11		683		■				03.300.011.X
	230V	16 A	Schuko CEE7/7				7		532			■			03.300.107.X
	230V	16 A	Schuko CEE7/7				7		483		■		■		03.300.007.X
	230V	16 A	Schuko CEE7/7				8		483		■		■		03.300.008.1
	230V	16 A	Schuko CEE7/7				4		382			■			03.300.104.X
	230V	16 A	Schuko CEE7/7				4		333		■				03.300.004.X
	230V	16 A	Schuko CEE7/7				14		883	■	■				03.302.014.X
	230V	16 A	Schuko CEE7/7				10		732	■		■			03.302.110.X
	230V	16 A	Schuko CEE7/7				10		683	■	■				03.302.010.X
	230V	16 A	Schuko CEE7/7				6		532	■		■		■	03.303.106.X
	230V	16 A	Schuko CEE7/7				6		532	■		■			03.302.106.X
	230V	16 A	Schuko CEE7/7				6		483	■	■		■		03.302.006.X
	230V	16 A	Schuko CEE7/7				7		483	■	■		■		03.302.007.1
	230V	16 A	Schuko CEE7/7				3		382	■		■			03.302.103.X
	230V	16 A	Schuko CEE7/7				3		333	■	■				03.302.003.X
UPS application	230V	10 A	IEC60320 C14				8		483		■		■		03.300.308.1
	230V	16 A	IEC60320 C20				8		483		■		■		03.300.408.1
	230V	16 A	GST18				6		583	■	■				03.302.206.1
	230V	16 A	GST18				3		433	■	■				03.302.203.1
	230V	16 A	GST18				7		533		■				03.300.207.1
	230V	16 A	GST18				4		383		■				03.300.204.1
	230V	16 A	Schuko CEE7/7				11		683		■			■	03.400.011.X
	230V	16 A	Schuko CEE7/7				7		532			■		■	03.400.107.X
	230V	16 A	Schuko CEE7/7				7		483		■		■	■	03.400.007.X
	230V	16 A	Schuko CEE7/7				4		333		■			■	03.400.004.X
	230V	16 A	Schuko CEE7/7				10		683	■	■			■	03.402.010.X
	230V	16 A	Schuko CEE7/7				6		483	■	■		■	■	03.402.006.X
	230V	16 A	Schuko CEE7/7				3		333	■	■			■	03.402.003.X
	230V	16 A	GST18				7		533		■			■	03.400.207.1
	230V	16 A	GST18				4		383		■			■	03.701.011.1
	230V	10 A	SEV 1011 T12					11	683		■				03.701.007.1
	230V	10 A	SEV 1011 T12					7	483		■		■		03.701.004.1
	230V	10 A	SEV 1011 T12					4	333		■				03.703.110.1
	230V	10 A	SEV 1011 T12					10	732	■		■			03.703.110.1
	230V	10 A	SEV 1011 T12					6	483	■	■		■		03.703.006.1
	230V	10 A	SEV 1011 T12					3	382	■		■			03.703.103.1
	230V	10 A	SEV 1011 T12					3	333	■	■				03.703.003.1
<b>Protector FI</b>															
	230V	16 A	Schuko CEE7/7				13		883		■				03.304.013.1
	230V	16 A	Schuko CEE7/7				9		683		■				03.304.009.1
	230V	16 A	Schuko CEE7/7				5		483		■		■		03.304.005.1
	230V	16 A	Schuko CEE7/7				5		483		■		■	■	03.404.005.1

DI-STRIP Model	Input Values		Input Connector	Outputs					L	S	F1	F2	19"	Safe	Order No.
	Voltage	Current		C13	C19	Schuko	UTE	Type 13							
<b>Protector LS</b>															
	230V	16 A	Schuko CEE7/7			13			883		■				03.308.013.1
	230V	16 A	Schuko CEE7/7			9			683		■				03.308.009.1
	230V	16 A	Schuko CEE7/7			5			483		■	■			03.308.005.1
	230V	16 A	Schuko CEE7/7				5		483		■	■	■		03.408.005.1
<b>Protector FI/LS</b>															
	230V	16 A	Schuko CEE7/7			13			883		■				03.310.013.1
	230V	16 A	Schuko CEE7/7			9			683		■				03.310.009.1
	230V	16 A	Schuko CEE7/7			5			483		■	■			03.310.005.1
	230V	16 A	Schuko CEE7/7				9		683		■		■		03.410.009.1
	230V	16 A	Schuko CEE7/7				5		483		■	■	■		03.410.005.1
	230V	10 A	SEV 1011 T12					5	483		■	■			03.711.005.1
<b>Protector emergency stop switch</b>															
Compact	230V	16 A	Schuko CEE7/7			6			483		■	■			03.326.006.1
	230V	16 A	Schuko CEE7/7				10		683		■		■		03.426.010.1
<b>Protector emergency stop switch FI/LS</b>															
	230V	16 A	Schuko CEE7/7			8			683		■				03.328.008.1
<b>Power Cleaner</b>															
	230V	16 A	Schuko CEE7/7			13			883		■				03.312.013.X
	230V	16 A	Schuko CEE7/7			9			683		■				03.312.009.X
	230V	16 A	Schuko CEE7/7			5			483		■	■			03.312.005.X
	230V	16 A	GST18	6					483		■	■			03.612.206.1
<b>Safety Basic</b>															
	230V	16 A	Schuko CEE7/7			10			732			■			03.316.110.1
	230V	16 A	Schuko CEE7/7			10			683		■				03.316.010.X
	230V	16 A	Schuko CEE7/7			6			483		■	■			03.316.006.X
	230V	16 A	Schuko CEE7/7			4			383		■				03.316.004.1
	230V	16 A	GST18			4			433		■				03.316.204.1
	230V	16 A	GST18	6					483		■	■			03.616.206.1
	230V	16 A	Schuko CEE7/7				6		483		■	■	■		03.416.006.1
<b>Safety Standard</b>															
	230V	16 A	Schuko CEE7/7			13			883	■	■				03.318.013.X
	230V	16 A	Schuko CEE7/7			9			732	■		■			03.318.109.X
	230V	16 A	Schuko CEE7/7			9			683	■	■				03.318.009.X
	230V	16 A	Schuko CEE7/7			5			532	■		■			03.318.105.X
	230V	16 A	Schuko CEE7/7			5			483	■	■		■		03.318.005.X
	230V	16 A	GST18	6					483		■	■			03.618.206.1
	230V	16 A	Schuko CEE7/7				5		483	■	■		■	■	03.418.005.X
	230V	10 A	SEV 1011 T12					5	483	■	■		■		03.719.005.1
<b>Master-Slave</b>															
	230V	16 A	Schuko CEE7/7			9			683		■				03.314.009.1
	230V	16 A	Schuko CEE7/7			5			483		■	■			03.314.005.1
	230V	16 A	Schuko CEE7/7				5		483		■	■	■		03.414.005.1
<b>Combi</b>															
	230V	16 A	Schuko CEE7/7			9			733		■				03.320.009.1
	230V	16 A	Schuko CEE7/7			5			533		■				03.320.005.1
<b>M</b>															
	230V	32 A	IEC60309 1ph/N/PE 6h	7					483		■		■		03.636.007.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	21					933		■				03.636.021.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	21					1033		■				03.606.821.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	45					1833		■				03.606.845.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	18	6				1133		■				03.606.824.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	36	6				1733		■				03.606.842.1
	230V	16 A	Schuko CEE7/7			6			483		■		■		03.306.006.1
	230V	16 A	Schuko CEE7/7	9					483		■		■		03.606.009.1
	230V	16 A	GST18						233		■				03.606.200.1



DI-STRIP Model	Input Values		Input Connector	Outputs					L	S	F1	F2	19"	Safe	Order No.
	Voltage	Current		C13	C19	Schuko	UTE	Type 13							
<b>RM</b>															
	230V	16 A	Schuko CEE7/7			8			733		■				03.307.008.1
	230V	16 A	Schuko CEE7/7			17			1183		■				03.307.017.1
	230V	16 A	Schuko CEE7/7	9					633		■				03.607.009.1
	230V	16 A	Schuko CEE7/7	18					933		■				03.607.018.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	24					1133		■				03.607.825.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	45					1833		■				03.607.845.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	18	6				1233		■				03.607.824.1
	230/400V	3 x 16 A	IEC60309 3ph/N/PE 6h	36	6				1833		■				03.607.842.1
	230V	32 A	IEC60309 1ph/N/PE 6h	24					1111		■				03.637.023.1
	230V	32 A	IEC60309 1ph/N/PE 6h	12	4				871		■				03.637.016.1
	230V	32 A	IEC60309 1ph/N/PE 6h	21	4				1168		■				03.637.025.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h		6				563		■				03.637.006.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	6	12				995		■				03.637.018.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	21					1022		■				03.637.021.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	18	6				1157		■				03.637.024.1
	230/400V	3 x 32 A	IEC60309 3ph/N/PE 6h	36	6				1751		■				03.637.042.1

**Outputs:**

C13 = IEC60320 C13  
C19 = IEC60320 C19

Schuko = Protective contact plug DIN 49440

UTE = France Standard CEE 7-V

Type 13 = Switzerland, type 13

L = Length in mm

S = Switch

F1 = Standard side pane (for rack mounting)

F2 = Design side panel (for installing at workstation)

19" = Suitable for 19" installation

safe = Child-proof



1. DOS20147

### 3-Phase in Rack with GST18 Features



2. DOS20132



3. DOS20142



4. DOS20135

- **Requirement**  
Constant energy increase requirements in the rack caused by high packing densities (e.g. 1 U Pizza servers, blade servers, etc.) (1)
- **Solution**  
3-phase distributor with GST18 plug system, e.g. 96 A with redundant feed. (2)
- **Benefits (3, 4)**
  - Modularity.
  - Plug-in capability (no wiring required).
  - Can be expanded.
  - Cascadable.
  - Easy implementation of redundancies/UPS-secured circuits.
  - Combination of DIN Schuko / IEC320 Euro systems.
  - Any installation position can be selected.
  - Good alternative to 3-phase DI-STRIP Triple Power.



DOS20104

### Power Supply Cable, 3-Phase Accessories for GST 18 Plug System

- GST 18 socket for connecting GST18i5 distributor block with 3 phases.
- 5-pole (L1, L2, L3, N, PE) 250/400 V ~.
- Cable: H05VV-F 5G 2.5 mm<sup>2</sup>.

- **Color**  
- Black.

L	Order No.	UP
2000	04.000.048.0	1 unit



DOS20103

### GST18i5 Distributor Block, 3-Phase

- For individual connection at the customer.
- Modular plug-in connection.
- 3-phase distribution on various socket strips.
- Including mounting panel.

- **Color**  
- Black.

Order No.	UP
04.000.038.9	1 unit



DOS00467

### Power Supply Cable, Single Phase Accessories for GST 18 Plug System

- Mains plug CEE/VII: GST18 socket (Wieland).
  - Cable: H05VV-F3G 1.5 mm<sup>2</sup>.
- **Color**  
- White.

L	Order No.	UP
2000	<b>04.000.040.0</b>	1 unit
5000	<b>04.000.041.0</b>	1 unit



DOS00469

### Connection Cable Accessories for GST 18 Plug System

- GST 18 plug.
  - GST 18 socket.
  - Cable: H05VV-F3G 1.5 mm<sup>2</sup>.
- **Color**  
- For color coding circuits (e.g. UPS).

L	Model	Order No.	UP
200	White	<b>04.000.042.0</b>	1 unit
200	Black	<b>04.000.042.9</b>	1 unit
500	White	<b>04.000.037.0</b>	1 unit
500	Black	<b>04.000.037.9</b>	1 unit
1000	White	<b>04.000.044.0</b>	1 unit
1000	Black	<b>04.000.044.9</b>	1 unit
5000	White	<b>04.000.045.0</b>	1 unit



DOS20105

### GST18 Socket

- With threaded connection for cross-section 1.5 – 2.5 mm<sup>2</sup> with cable strain relief.
  - For individual connection.
- **Color**  
- White.

Order No.	UP
<b>04.000.046.0</b>	1 unit

DOS00471



DOS00470

### GST18 Plug

- With threaded connection for cross-section 1.5 – 2.5 mm<sup>2</sup> with cable strain relief.
  - For individual, further cabling.
- **Color**  
- White.

Order No.	UP
<b>04.000.047.0</b>	1 unit



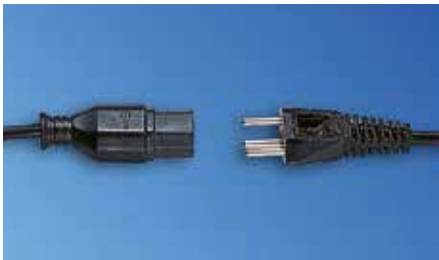
DOS00076

### Mains Cable for Euro Socket Strip For DIN 49 440 and French/Belgian Standard

- Mains plug CEE/VII: Euro socket IEC 320.
- Cable: H05VV-F 3G 1 mm<sup>2</sup>.

- **Mains voltage**  
- 250 VAC.
- **Nominal current**  
- 10 A.

L	Order No.	UP
2000	<b>04.000.054.9</b>	1 unit
6000	<b>04.000.053.9</b>	1 unit



DOS00077

### Mains Cable for Euro Socket Strip For Swiss Standard

- Mains plug: Type 12 - Euro socket IEC 320.
- Cable: H05VV-F 3G 1 mm<sup>2</sup>.

- **Mains voltage**  
- 250 VAC.
- **Nominal current**  
- 10 A.

L	Order No.	UP
2000	<b>04.000.055.9</b>	1 unit



DOS00078

### Mains Cable for Euro Socket Strip For British Standard

- Mains plug: Type BS 1363 - IEC320 Euro socket.
- Cable: H05VV-F 3G 1 mm<sup>2</sup>.

- **Mains voltage**  
- 250 VAC.
- **Nominal current**  
- 10 A.

L	Order No.	UP
2000	<b>04.000.056.9</b>	1 unit



DOS00519

### Euro Connection Cable

- Mains plug: IEC 320.
- Euro socket IEC 320.
- Cable: H05VV-F 3G 1 mm<sup>2</sup>.
- USA: SJT AWG18 with USA approval.

- **Mains voltage**  
- 250 VAC.
- **Nominal current**  
- 10 A.

L	Model	Order No.	UP
900	EU	<b>04.000.051.9</b>	1 unit
900	USA	<b>04.000.052.9</b>	1 unit

**Dimensions in mm:**

- L = Length
- n = Number of sockets
- S = Switch
- F1 = Standard side panel
- F2 = Design side panel
- 19" = ideal for 19" components
- U = Standard rack unit
- UP = Packaging unit
- Safe = child-proof

**Conversion:**

- 1 mm = 0.03937 inch
- 1 kg = 2.2046 pounds

Replace .x with the number of your color combination: .1 = RAL 7035, .6 = RAL 7035/RAL 2003



DOS20493

### SafetySleeve™ Cable Protection IEC C19

- SafetySleeves protect the feed lines of the network equipment.
- Compatible with all C19 cables and fit onto all PDUs.

- **Material / Finish**  
- PVC, black.

Model	Order No.	UP
C20 plug in C19 socket	<b>03.910.212.9 001</b>	20 unit



DOS20494

### SafetySleeve™ Cable Protection IEC C13

- SafetySleeves protect the feed lines of the network equipment.
- Compatible with all C13 cables and fit onto all PDUs.

- **Material / Finish**  
- PVC, black.

Model	Order No.	UP
C14 plug in C13 socket	<b>03.910.213.9 001</b>	50 unit

Dimensions in mm:			Conversion:
L = Length	n = Number of sockets	U = Standard rack unit	1 mm = 0.03937 inch
S = Switch	F1 = Standard side panel	UP = Packaging unit	1 kg = 2.2046 pounds
	F2 = Design side panel	Safe = child-proof	
	19" = ideal for 19" components		

Replace .x with the number of your color combination: .1 = RAL 7035, .6 = RAL 7035/RAL 2003

# Rack PDU Support and Warranty Options

Emerson Network Power offers you various options to ensure that you get the support you need in the event of a fault. You can get in touch with your usual contact person directly or contact us by phone or e-mail.

## Technical Support

- Website:  
[www.EmersonNetworkPower.eu](http://www.EmersonNetworkPower.eu)
- Telephone:  
+800 1155 4499
- E-mail:  
[liebert.upstech@emerson.com](mailto:liebert.upstech@emerson.com)

## Warranty Extension

When you purchase PDUs from us, you also have the option of ordering warranty extensions for certain models. The following overview shows you the various options available for increasing your service level.

Warranty term (months)	Order No.		
	24	36	60
MPH2 B Version (all B models)	free of charge	WE1Y-MPH2VB	WE3Y-MPH2VB
MPH2 R, C, M Versions (all R, C, M models)	free of charge	WE1Y-MPH2VRCM	WE3Y-MPH2VRCM
MPX Components (excluding sensors and display)	free of charge	WE1Y-MPX	WE3Y-MPX

If a warranty case should unfortunately arise for your product, we will decide whether to repair or replace the defective product based on the type of defect in question. Please contact your usual sales contact in such cases.

# Knürr RMS Compact II®

## Constant Reliability with Remote Monitoring

### The advantages of Knürr's modern rack monitoring system:

- Guarantees fault-free operation.
- Early disturbance detection.
- Incident logging.
- Automatic monitoring simplifies maintenance.
- Activates countermeasures in the event of a malfunction.
- Central status control of: filters, paper, toner, meter readings, inspection intervals, and much more.
- Up to 12 sensors can be connected in any arrangement.

### System Reliability and Availability

System and network management requirements mean the systems' ambient conditions must be monitored. Compliance with the required ambient parameters is extremely important for successful/continuous operation of high-grade components.

### Management Software

Inadmissible fluctuations in temperature or humidity often cause hardware defects. Constant automatic monitoring of these parameters is therefore a basic requirement for safeguarding operability. All the relevant data can be recorded and forwarded directly to a higher-level management system, e.g. Nagios Liebert Nform™ with the Knürr RMS Compact II®.

### Alarm Consolidation and Control

Simply recording data does not suffice to ward off damages. When faults occur, short response times are aided by the monitoring system triggering actions automatically (e.g. activating additional fans).

### Fast Response

When defined incidents occur, the RMS Compact II can immediately send a message as an "SNMP trap" to the management system or directly as an e-mail to a technician or an SMS gateway.





RMS20013



RMS20015



RMS20047



RMS20048

## Knürr RMS Compact II®

### Description

- **Compact construction** - Zero unit solution (for mounting outside the 19" installation area).
- 19" installation with adapter bracket.
- Safe clamping of all connected cables with integrated cable clamping bracket.
- Cost-effective orderly installation with Plug & Play concept.
- Convenient cabling with RJ45 sensor connections.
- TCP/IP connection via Ethernet (10/100 Base T).
- Configuration via SNMP and Web-Browser.
- Web access is password-protected and optionally encrypted (https).
- 3 different user levels.
- Freely programmable filter system (Boolean logic) for implementing all alarm conditions.
- Compatible with standard network-management and infrastructure-management systems such as Liebert Nform™ or Open-Source.
- Sensors for monitoring all relevant environmental influences (optional).
- Internal power supply for sensor equipment (no additional power supply necessary).
- Alarms via LEDs, relay, network management or e-mail (SMTP).
- Support from Modbus/TCP.
- System time balancing with NTP servers.

### Technical data

- 12 universally usable sensor inputs for temperature and humidity sensors, digital (on/off) or analog sensors (0...10V).
- 3 digital outputs (2 x relay, max. 3 A at 230 VAC, 1 x 750 mA at 48 VDC).
- Power supply: 100 – 240 VAC.
- Operating voltage: 12 VDC.

### Compliance

- CE marking compliant with Low Voltage Directive 73/23/EEC; EMC directive 89/336/EEC.

### Color

- RAL 7021, dark-grey.

### Scope of delivery

- 1 x Knürr RMS Compact II.
- 1 x power supply unit.
- 2 x 19" mounting brackets.
- 1 x support bracket for power supply unit.
- 1 x CD ROM (with manual, MIB file)

### How supplied

- In sets.

W	H	D	Model	Order No.	UP
350	42	170	RMS Compact II®	06.108.200.8	1 set



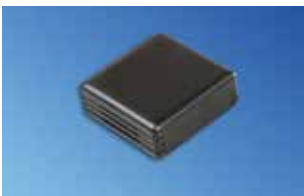


LUF20069

## ECO Temperature Sensor

- **Quick and easy installation**
  - Insensitive to disturbances.
  - No additional power supply required.
  - The sensor must be recalibrated.
- **Technical data**
  - Temperature measurement range: 0...60°C.
  - Accuracy: ± 5%.
- **Scope of delivery**
  - 1 x sensor.
  - 1 x mounting kit.

Model	Order No.	UP
ECO	06.108.220.9	1 unit



RMS20019

(similar to picture)  
RMS compact-specific

## Humidity Sensor

- **Avoids dew**
  - Insensitive to disturbances.
  - Additional power supply required.
  - The sensor does not have to be recalibrated.
- **Technical data**
  - Air measurement range 30 – 90%.
  - Accuracy: ± 5%.
- **Scope of delivery**
  - 1 x sensor with RJ45 port.
  - 1 x mounting kit.

Order No.	UP
06.108.212.9	1 unit



RMS20031

## Water Sensor

- **Conductive water spot sensor**
  - Detects presence of water.
- **Technical data**
  - Operating voltage: max. 24 VDC.
- **Scope of delivery**
  - 1 x sensor with 2 m connection cable.
  - 1 x mounting bracket.

Order No.	UP
06.108.217.9	1 unit



RMS20006

## Door Contact Sensor

- **No additional magnet required**
  - Magnet bridge sensor works on all magnetic conductive materials (no special mating part required).
  - Can also be used for monitoring side panels and roof.
  - Standard cable length, 4 m.
- **Technical data**
  - Temperature range: -20° C to +70° C.
  - Switching voltage, max. 200 VDC.
  - Switching current, max. 500 mA.
- **Scope of delivery**
  - 1 x sensor with 4 m connection cable.
  - 1 x mounting kit.

Order No.	UP
06.108.215.9	1 unit



RMS20032

## Air Speed Sensor

- **Fan and filter monitoring**
  - No additional power supply.
  - Automatic detection as analog sensor.
  - Does not have to be recalibrated.
  - Offset and alarm parameters can be set in RMS.
- **Technical data**
  - Measurement range: 0 to 1 m/s.
  - Non-linear measurement, Value table:

< 0 m/s	< 1 V
0 m/s	1 V
1 m/s	1.7 V
2 m/s	2.9 V
3 m/s	4.1 V
4 m/s	5 V (6 V max.).
- **Scope of delivery**
  - 1 x sensor with 4 m connection cable.
  - 1 x mounting kit.

W	H	D	Order No.	UP
20	39	9	06.108.218.9	1 unit

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		

## Smoke Detector

- Sends signal to IT Department**
  - Optical smoke detector with VdS approval.
  - For early fire detection with smoke emission.
  - Power supply provided via RMS compact.
  - Standard cable length, 4 m.
- Technical data**
  - Operates between -20°C and +75°C.
- Scope of delivery**
  - 1 x sensor with 4 m connection cable.
  - 1 x mounting kit.

W	H	Order No.	UP
Ø 90	75	06.108.211.9	1 unit

## Vibration Sensor

- Protection against vandalism**
  - Detects vibrations.
  - Theft prevention.
  - Reset possible via Viewer software.
- Scope of delivery**
  - 1 x sensor with 4 m connection cable.

Order No.	UP
06.108.213.9	1 unit

## Passive Infrared Movement Sensor

- Security**
  - Room monitoring with state-of-the-art technology.
- Technical data**
  - VdS approval: Classes A + B.
  - Range of volumetric lens: 2 – 16 m.
  - Long lens range: 29 – 50 m.
  - Curtain lens range: 17 – 30 m.
  - Manipulation monitoring.
  - Digital fault evaluation.
  - Corner or wall mounting.
- Scope of delivery**
  - 1 x sensor with 4 m connection cable.
  - 1 x mounting kit.

Order No.	UP
06.108.214.9	1 unit

## Sensor Cable

- Plug & Play for own sensors**

(Third party and/or any existing analogue/digital sensor)

  - The 4 m long cable is used for connecting further analog/digital sensors or alarm outputs to the sensor input of the Knürr RMS compact II.
  - One end of the cable has an RJ45 connection while other end is open.
  - The RMS automatically recognizes a sensor that is connected to this cable as an analog sensor.
  - A sensor can be supplied with 12 V voltage using the cable.
- Technical data**
  - Length: 4 m.
- Scope of delivery**
  - 1 x cable.
  - 1 x layout overview.
- How supplied**
  - In sets.

Model	L	Order No.	UP
Analog sensor cable	4000	06.108.225.9	1 unit
Digital sensor cable	4000	06.108.224.9	1 unit

## Sensor Extension Cable

- Flexible positioning of sensors**
  - The cable is used for extending RMS compact II sensors.
  - It consists of a cable with a connected RJ45 plug and an RJ45 connector.
- Technical data**
  - Length: 3 m and 10 m.
- Scope of delivery**
  - 1 x cable.
- How supplied**
  - In sets.

Model	L	Order No.	UP
Sensor extension cable	3000	06.108.223.1	1 unit
Sensor extension cable	10000	06.108.223.5	1 unit

## Power over Ethernet (PoE) Update Set

- Save on cabling**
  - Saves on costly power supply installations (e.g. WLAN access points) or enables centralized UPSs for decentralized equipment (e.g. IP phones).
  - Using the PoE update set, the RMS can therefore support installations with the corresponding UPS concepts and/or non-standard IDF room.
- Dimensions**
  - Length: 81 mm.
  - Width: 52 mm.
  - Height: 28 mm.
- Approvals**
  - EMI: FCC Part 15 Class B, CE Class B.
  - Safety: UL, TUV.
- Scope of delivery**
  - 1 x PoE adapter.
  - 1 x mounting bracket for easy attachment to the RMS (similar to the classic power supply unit mounting bracket).
- How supplied**
  - In sets.
- Technical data**
  - Input: 48 V DC, 400 mA.
  - Output: 12 V DC (12 W).
  - Operating temperature: 0° to 40° C.
  - Storage temperature: -40° to 70° C.
  - Operating air humidity: 10% to 80% rel. humidity.

Model	Order No.	UP
PoE update set	06.108.230.8	1 unit

Dimensions in mm:				Conversion:
W = Width	h = Installation height	U = Standard rack unit	kg = Weight	1 mm = 0.03937 inch
H = Height	d = Usable depth	(1 U = 44.45 mm)		1 kg = 2.2046 pounds
D = Depth	L = Length	UP = Packaging unit		

**Carbon Monoxide Alarm Sensor**

- **Detects smoke-free gases and triggers an alarm**
  - Used for detecting carbon monoxide emitted by burning fire-retardant cables.
  - Sends signals carbon monoxide to the RMS and triggers an alarm.
  - Standard cable length, 4 m.
  - The RMS automatically recognizes this sensor as a digital sensor.

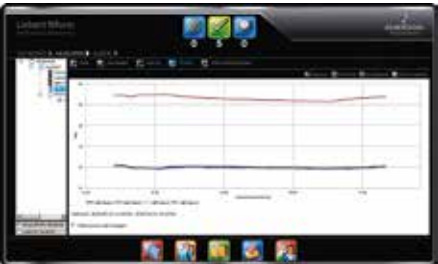
- **Technical data**
  - Operating voltage: 12 VDC (± 20%).
  - Power consumption: approx. 190 mA (idle) approx. 280 mA (alarm).
  - Sensitivity: 100 ppm CO.
  - Ambient temperature: -15° C to 40° C.
  - Piezo alarm: approx. 85 dB(A) at 3 m away.
  - Protection rating: IP 20.
  - Switching output 12 V DC: Max. 170 mA.
  - Relay output: Changeover contact, max. 5 A 230 V DC, max. 5 A 30 V DC.
  - Reset: automatic when the gas concentration falls below sensitivity level.

- **Dimensions**
  - Length: 140 mm.
  - Width: 125 mm.
  - Height: 40 mm.
- **Color**
  - White.

- **Scope of delivery**
  - 1 x sensor.
  - 1 x sensor connection cable.
  - 1 x Mounting kit.
  - 1 x Instructions.
- **How supplied**
  - In sets.

Model	Order No.	UP
Carbon monoxide alarm sensor	06.108.211.8	1 unit

*Liebert Nform™*  
Increases Reliability and Energy Efficiency



**Liebert Nform™ helps meet these requirements:**

**Overview of data center status**

- Liebert Nform is data-center monitoring software especially for Liebert infrastructure systems with a trend analysis function, alarm management and result notifications.

**What does Nform offer?**

- Liebert Nform provides a uniform monitoring interface with an overview of the operative status of a large number of devices, such as:
  - PDUs: Liebert MPX®, Liebert MPH®, Knürr DI-STRIP® RM.
- Uninterrupted power supplies.
- Water-cooled racks, such as:
  - Knürr CoolLoop®, Knürr CoolTherm®.
- Thermal management equipment.
- Environmental monitoring systems, such as:
  - Knürr RMS Compact II®.

## Inline Metering System (IMS)

### Optimum Upgrade Solution for Existing Installations

#### Emerson Network Power Inline Metering System (IMS) benefits:

- Existing rack PDUs can be retrofitted for optimal savings.
- Almost all consumers can be integrated into the monitoring system, since numerous plug systems are provided (1 ph – 3 ph, max. 63 A per phase).
- Flexible installation inside or outside the rack (e.g. on shelf).

Monitoring is already part of the everyday routine in most data centers when it comes to system availability. Consequently, new systems are equipped with socket strips or **PDUs with integrated monitoring** (Managed PDUs or Adaptive PDUs). Yet, what can be done about existing systems containing socket strips or PDUs that do not provide measuring functions?

**Emerson Network Power's solution for this is called IMS** (Inline Metering System). These modules allow existing racks with installed basic power distributors to be upgraded accordingly. As almost all server racks are supplied with an A and B-feed, **retrofitting is possible without have to interrupt operation**. The IMS modules can also be installed inside or outside the rack; e.g., on the shelf to save space. The Inline Metering Systems (IMS) are divided into **three different product groups with different features**.

#### IMS model series overview

##### MPX IMS

#### Features

- The rack PDU software interface is familiar; communication card is the same as the ones for MPX/MPH.
- Highest possible reliability and availability with an operating temperature of max. 55°C.
- Comprehensive measurement functions (electricity, current, power and energy) with a high measurement accuracy of up to  $\pm 1\%$ .
- N-conductor overload with 3-phase systems can be prevented as the N-conductor current is monitored.
- Easy connection to the network of up to 4 Liebert MPX IMS / MPH / MPX with only one IP address.
- External sensors and a display can also be connected.



##### Knürr MODULAR IMS

#### Features

- Extensive measurement functions (electricity, current, effective power, apparent power, reactive power, energy and power factor), with high measurement accuracy of up to 0.17% (referring to the end value of specified measurement range).
- Very high input currents can be measured (up to 999 A per phase via external transducer).
- The modular setup allows the solution to be customized (e.g. up to 4 in-feeds per module with different input plugs or even fixed feed).
- Up to 75 modules can be controlled via one IP address.
- Storage in external databases possible without additional software.





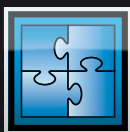
## INPUT POWER

- Single-phase or three-phase
- 16 A up to max. 63 A



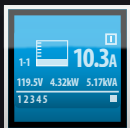
## OUTPUT DISTRIBUTOR

- Single-phase or three-phase
- 16 A up to max. 63 A



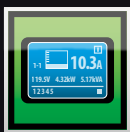
## MODULARITY

- External displays or external sensors (depending on the type of communication card).



## MONITORING

- Input level



## LOCAL MONITORING

- Display for user (MPX™ IMS).



## REMOTE MONITORING

- Secure web and SNMP interfaces



## RACK PDU ARRAY™

- One IP address; up to 4 rack PDUs (MPX IMS)
- MPX, MPH™ and IMS in the same private network



# Inline Metering System

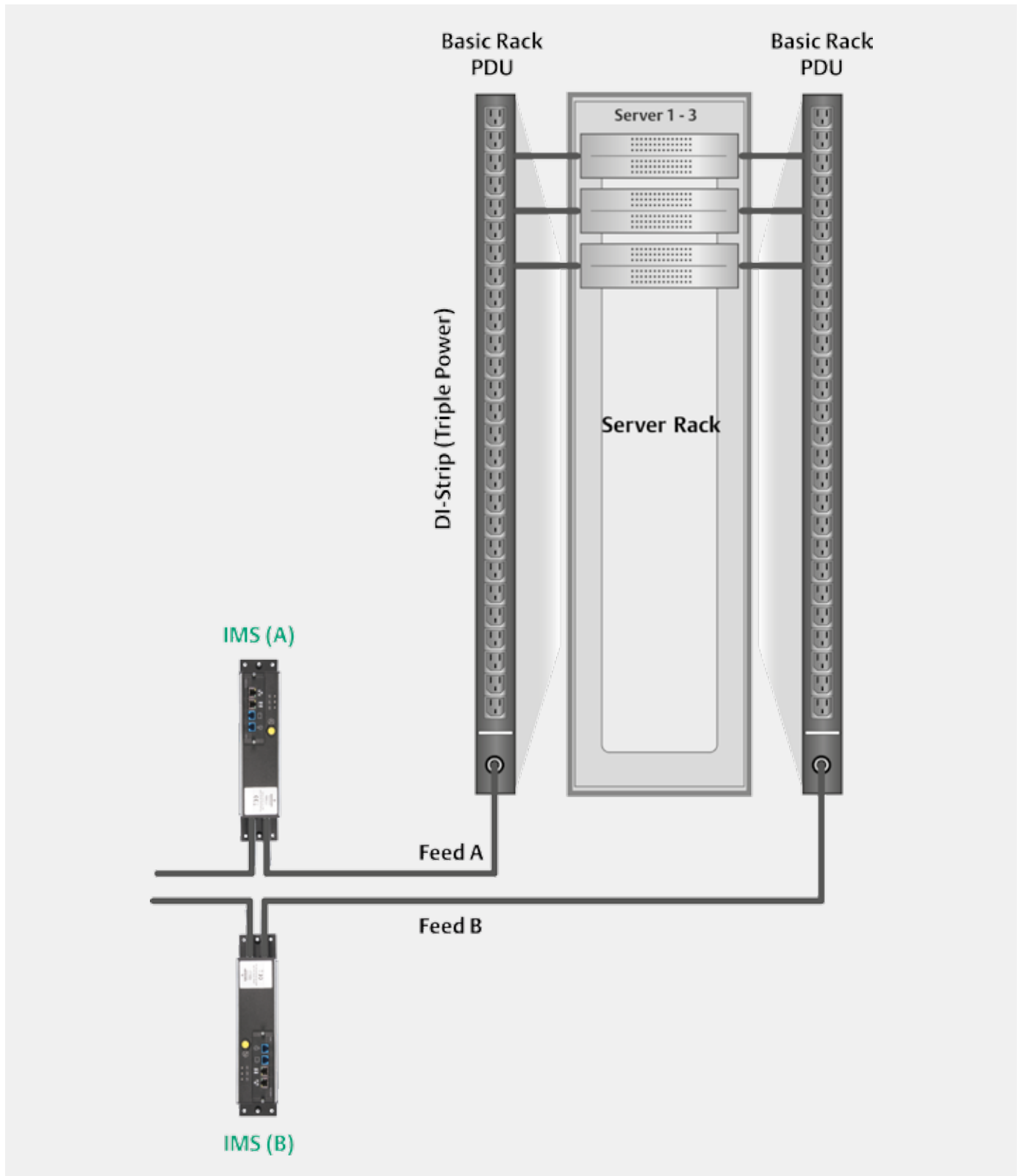
## Emerson Network Power IMS – product series

Features	MPX™ IMS	Knürr Modular IMS
Measurement module	■	■
Modular		■
Display	External	
Remote interface	■	■
Measuring at input level	■	■
Measurement modules per IP address	4	75
Max. measurement points per IP address	4	300
Visualization at PDU level	■	■
Visualization at rack level	■	■
Visualization at room level	Only with additional software: Nform or Avocent DSView	■
Measurement parameters	A, V, W, kWh	A, V, W, VA, Var, kWh, cosphi
Phase asymmetry analysis	■	■
External sensor connection options	■	■
Input power	1 ph + 3 ph, max 32 A	1 ph + 3 ph, max. 63 A (max. 4 feeds ), max. 3 ph 999 A (via external transducer)
Connection option	IEC 60309	IEC 60309, GST18, fixed connection
Protocols	HTTP, HTTPS, SNMP, Telnet	HTTP, HTTPS, SNMP v3,
Storage in external database	Only with additional software: Nform or Avocent DSView	Oracle, MySQL, MSSQL

### Order number

1 ph. 16 A	MPXIMS-EHBAXS30	On request
1 ph. 32 A	MPXIMS-EHBAXQ30	On request
3 ph. 16 A	MPXIMS-EHBAXT30	On request
3 ph. 32 A	MPXIMS-EHBAXR30	On request
Control unit	Not required	On request

Easy Upgrade from Basic Power Distributor to Measurement-enabled Power Distributor





IMS\_8141

## Liebert MPX™ IMS

- Existing rack PDUs do not have to be replaced as the modules can be retrofitted.
- Almost all consumers can be integrated into the monitoring system, since numerous plug systems are provided (1 ph – 3 ph, max. 32 A per phase).
- Flexible installation inside or outside the rack (e.g. on shelf).
- Liebert Rack PDU software interface is familiar; communication card is the same as the one for Liebert MPX/MPH.
- Highest possible reliability and availability with an operating temperature of max. 55°C.
- Comprehensive measurement functions (electricity, current, power and energy), with high measurement accuracy of up to  $\pm 1\%$ .
- N-conductor overload with 3-phase systems can be prevented since the N-conductor current is monitored.
- Easy connection to the network of up to 4 Liebert MPX IMS / MPH / MPX with only 1 IP address.
- External sensors and a display can also be connected.

### ■ Technical data

#### Interfaces:

- RJ-45 LAN port (10/100 MBit) for connecting to local area network (LAN) via an Ethernet cable.
- Expansion / administration port for local configuration using a computer / laptop, for setting up a link-up of several PDUs (Liebert MPX™ or MPH™).
- Serial interface RS232.
- Display port for connecting the RPC BDM (display module).
- External sensor port for connecting optional sensors.
- Remote management: Onboard web interface, CLI, SNMPv1, 2, 3, SSH, Telnet, integratable into Avocent ACS, UMG & MPU, DSView, Rack Power Manager, Nform & Trellis as well as Nagios or other management software programs.
- Authentication: local, remote; active directory, LDAP, TACACS, Radius, Kerberos.
- Encryption: MD5, AES, DES.

### Supported technologies:

- Web support provided by Liebert MPX control and management. Authorized users can view status information via their network.
- SNMP support provided by Liebert MPX SNMP management.
- Easy integration into Liebert Nform, Avocent DSVIEW3 and Nagios.

### ■ Material / Finish

- Enclosure: aluminum.
- Cover: sheet steel.

### ■ Dimensions

- Height: 81 mm.
- Width: 75 mm.
- Length: 266 mm.
- Input cable length: 3 m.
- Output cable length: 0.5 m.

### ■ Certification

- CE label in accordance with Low Voltage Directive 2006/95/EC.
- EMC Directive 2004/108/EC.
- BV GS.

### ■ Color

- Enclosure: aluminum/RAL 7021 dark-gray.

### ■ Scope of delivery

- 1 x MPXIMS-Module/power supply.

### ■ How supplied

- In sets.

Model	L	Input values	Input connector	Output socket	Order No.	UP
Liebert MPX™ IMS 1 x 16 A	266	230 Vac, 16 A	IEC60309 1ph/N/PE 6h	IEC60309 1ph/N/PE 6h	<b>MPXIMS-EHBAXS30</b>	1 unit
Liebert MPX™ IMS 1 x 32 A	266	230 Vac, 32A	IEC60309 1ph/N/PE 6h	IEC60309 1ph/N/PE 6h	<b>MPXIMS-EHBAXQ30</b>	1 unit
Liebert MPX™ IMS 3 x 16 A	266	230/400 VAC, 16 A	IEC60309 1ph/N/PE 6h	IEC60309 1ph/N/PE 6h	<b>MPXIMS-EHBAXT30</b>	1 unit
Liebert MPX™ IMS 3 x 32 A	266	230/400 VAC, 32 A	IEC60309 1ph/N/PE 6h	IEC60309 1ph/N/PE 6h	<b>MPXIMS-EHBAXR30</b>	1 unit





IMS\_Module

## Knürr Modular IMS

- Existing rack PDUs modules can be retrofitted.
  - Almost all consumers can be integrated into the monitoring system, since numerous plug systems are provided (1 ph – 3 ph, max. 63 A per phase).
  - Flexible installation inside or outside the rack (e.g. in shelf).
  - Extensive measurement functions (electricity, current, effective power, apparent power, reactive power, energy and power factor), with high measurement accuracy of up to 0.17% (referring to the end value of the specific measurement range).
  - Very high input currents can be measured (up to 999 A per phase via external transducer).
  - The modular setup means the solution can be customized (e.g. up to 4 in-feeds per module with different input plugs or even fixed feed).
  - Up to 75 modules can be controlled via one IP address.
  - Storage in external databases possible without additional software.
- **Technical data**
    - The measurement modules can only be operated with a control unit.
    - No more than 75 measurement modules can be connected to a single control unit.
    - 2 x RJ 45 LAN Port 10/100MBit for local network connection (on the control unit).
    - Visualization of all connected measurement modules via WEB.
    - Status information visible via WEB.
    - Protocols: HTTP, HTTPS, SNMPv3.
    - Storage in external data base possible (Oracle, MySQL, MSSQL).
    - Integration into building systems also possible via potential-free contacts.
    - Temperature sensors can be connected.
  - **Dimensions**
    - Length/depth (control unit): 600 mm.
    - Length/depth (module): 400 mm.
    - Width: 483 mm (19").
    - Height: 88.8 mm (2 U).
    - Power supply cable: length, 2 m.
    - Output: socket fixed on device.
  - **Approvals/certificates**
    - CE label in accordance with Low Voltage Directive 2006/95/EC.
    - EMC Directive 2004/108/EC.
    - FCC.
    - GS Certificate.
    - CB scheme.
  - **Color**
    - RAL 7021, dark-gray.
  - **Scope of delivery**
    - 1 x Measurement modules, control unit.
  - **How supplied**
    - In sets.

Model	Input values	Input connector	Output socket	Order No.	UP
Knürr Modular IMS 1x16 A	2 x 230 VAC, 16 A	2 x IEC60309 1ph/N/PE 6h	2 x IEC60309 1ph/N/PE 6h	<b>On request</b>	1 unit
Knürr Modular IMS 1 x 32 A	2 x 230 VAC, 32 A	2 x IEC60309 1ph/N/PE 6h	2 x IEC60309 1ph/N/PE 6h	<b>On request</b>	1 unit
Knürr Modular IMS 3 x 16 A	2 x 230/400 VAC; 16 A	2 x IEC60309 1ph/N/PE 6h	2 x IEC60309 1ph/N/PE 6h	<b>On request</b>	1 unit
Knürr Modular IMS 3 x 32 A	2 x 230/400 VAC; 32 A	2 x IEC60309 1ph/N/PE 6h	2 x IEC60309 1ph/N/PE 6h	<b>On request</b>	1 unit
Knürr Modular control unit				<b>On request</b>	1 unit

## Glossary

### Adaptive Architecture

#### Liebert Adaptive Architecture™

The Liebert Adaptive Architecture product and technology family distinguishes itself by delivering an ideal balance between minimal TCO and optimal availability.

#### Open Architecture/ Closed Architecture

**Open architecture** utilizes cooling coils and the room's air volume as thermal storage to guarantee continuity in the event of power failures.

**Closed architecture** means that the rack is entirely closed off. The cooling coils are inside the enclosure. Other provisions must be made to bridge power failures.

#### Redundancy

Measure of a system's failure tolerance and the extent to which maintenance work can be performed on a product in operation without function loss.

- Systems without redundancy can fail as soon as one single component fails; or cannot be operated during maintenance work.
- Redundancy is achieved with the parallel setup of the same components, of which at least one of these is not required for the system to achieve 100 % functionality. Such a setup means that even the failure of important components or planned maintenance work will not impair the product's continuous operation. Redundancy concepts can therefore deliver very high system availability levels.
- The highest level of redundancy is attained with the installation of two independent systems whose incoming and outgoing lines are also separated. Preventive maintenance work or component faults do not impair the system's performance because the second system can take over the entire desired functionality at any time.

### Industry Terms and Phrases

#### Availability

Availability is achieved through proven technology or a system that minimizes malfunction risks and downtimes of your IT system.

#### Flexibility

"Flexible" products and systems that can be reconfigured or extended to meet the requirements of new technologies, provide even more protection, or meet the requirements of corporate growth or business changes.

#### Total Cost Of Ownership

All operating costs (TCO) of a solution, including purchase, future changes and maintenance.

### Power Supply

#### Power supply; three-phase (EMEA)

A three-phase power circuit has three conductors, an earth connection, and in most cases, a neutral conductor. Typical voltages for such power circuits are 380 V, 400 V and 415 V.

#### Power supply; single-phase (EMEA)

Single-phase power circuits have two cables and an earth connection. Typical voltages are 220 V, 230 V and 240 V.

#### Power density

More power. More heat generation. Less space. Since the performance of processors is constantly growing but the amount of space available is decreasing, power density rises (from less than 50 to more than 300 watt per m<sup>2</sup>). This generates far more heat, resulting in hot spots that can occur in your data center.

#### UPS types:

##### Online and Line Interactive

An online UPS is used to back up critical applications and guarantee a continuous, uninterrupted power supply. Frequency and wave form are also regulated. A line-interactive UPS prevents voltage peaks and inadmissible power-supply parameters. This energy-efficient technology regulates the power supply and the battery backup system which is especially ideal for installations that rarely suffer power failures, but frequently suffer supply fluctuations.

#### Battery capacity

The percentage power capacity of your batteries, depending on their age, usage period, environment, ambient temperature and maintenance status. A normal VRLA battery can achieve 80 % and has to be replaced after 3-5 years.

#### Battery runtime

The time (in minutes) in which your batteries provide power supply and protect your information in the event of a power or system failure.

#### kW

Standard measurement unit for electrical power. 1 kW is 1,000 W or power consumption of 1,000 joules per second. (1 joule is the required energy it takes to heat 1 kg of water by 1°C.)

### Cooling

#### Back cooling

Absorbs the heat generated by air-cooled condensers and dry coolers for all ambient temperatures or heights. Hot air or hot water is drawn off; water is cooled and recirculated.

#### Precision cooling

The precise controlling and regulation of temperatures, moisture or air filtering.

#### Hot Aisle / Cold Aisle

A highly efficient method of improving performance with existing raised floor systems with high-density rack-based installations. The racks and frames are set up to create "hot" and "cold aisles". Perforated bottom covers from which the raised floor's cool air flows are only placed in the cold aisles.

#### Sensible heat

"Sensible" or "tangible" heat can be directly sensed or measured. Sensible heat changes a material's temperature. Essentially, it provides information on temperature, comparable to that of a weather forecast. Sensible heat is measured with a thermometer. Servers, for example, emit solely sensible heat.

#### Latent heat

"Latent heat" is the heat energy that goes into a material's state change. During a thermally managed cooling process, latent heat is diverted into the air by vapor condensation when the air is cooled below dew point (dehumidification). Latent heat discharge does not have any effect on the temperature you feel.

#### Total heat

Total heat is composed of the heat content of the air (sensible heat) and the water-vapor mixture (latent heat). It is crucial for the thermal device's nominal power.

#### BTU

BTU is a heat energy unit. It is the amount of heat required to raise the temperature of 1 British pound of water by 1 degree Fahrenheit (at sea level). One ton of cooling power is equal to 12,000 BTU/hour.

#### Ton

A ton, in relation to cooling systems, is the amount of heat required to melt 1 ton of ice in 24 hours. A ton is equal to 12,000 BTU/hour or 3,025,900 calories/hour.



## ■ AC Power

Sustaining critical operations that simply can't go down. We deliver a full range of uninterruptible power systems plus STS devices, providing everything from individual products to integrated power protection solutions that keep network closets, computer rooms and data centers up and running.

## ■ DC Power

Supporting voice and communication networks through reliable and efficient DC power. The extensive DC power portfolio includes a wide range of -48 V and 400 V DC systems; from sub-racks to large stand-alone systems. Improved reliability, increased energy efficiency and load balancing is enabled through the Intelligent Load Management functionality (patent pending).

## ■ Infrastructure Management & Monitoring

Managing and monitoring critical environments at multiple sites around the clock. We make it easy in today's ROI-driven business environment, with comprehensive infrastructure management and monitoring systems for both IT and facilities. Solutions and services that provide continuous oversight of data centers, computer rooms and network closets, as well as wireless, wireline and enterprise telecom applications.

## ■ Power Switching & Controls

Safeguarding facilities from operational disruption due to electrical power interruption. We provide ASCO® power-transfer switches, generator paralleling switchgear/power control systems, and touch screen SCADA for monitoring and control of the utility service and on-site backup power generators; all helping to ensure continuity of supply to essential and mission-critical communications, data-processing, life-safety, and other critical loads. Backed by the largest manufacturers, direct field based project management and service technicians in the industry.

## ■ Thermal Management

Managing the heat transferred from the data center to the external environment, while assuring the right temperature and airflow for each server. The Thermal Management range of Liebert® solutions answers to all different customer needs and applications, adopting state-of-the-art technologies to achieve the highest efficiency while minimizing energy costs.

## ■ Racks & Integrated Solutions

Optimizing technology and performance needs for indoor IT applications. We deliver standard and customized integrated cabinet solutions that meet unique and specific needs, from Knürr® and Liebert® rack solutions for computer rooms of all sizes to integrated racks with self-contained cooling, UPS and cable management in a solid, lockable cabinet.

## ■ Surge Protection

Defending power, voice and data moving through a network against grid irregularities and dangerous electrical disturbances. Depending on the application, we offer Liebert® and PowerSure™ AC Power Protection, Islatrol™ Active Tracking Filters and Edco™ data/signal surge protective devices; all of which provide power protection to reduce downtime, saving crucial man-hours and extending equipment life.

## ■ Service and Solutions

Delivering assessment, testing and reliability programs backed by the largest global services organization in the industry. We offer engineering, installation, startup services, project management and training together with entire life-cycle management including preventive and predictive maintenance, remote diagnostics, on-site operations management, and energy consumption monitoring.

## Centers of Expertise

When you partner with Emerson Network Power for your business continuity needs across your enterprise, you benefit from more than products to support and protect your technology infrastructure.

Developing such a wide range of technologies gives us in-depth industry knowledge and a “big-picture” understanding of how all systems must work together within any critical environment. We deliver this knowledge through Emerson Network Power's Centers of Expertise: distinct areas of world-class products and services that help you determine what you need and where, depending on your application.

All so that you can keep your business moving forward for your customers.

# Emerson Network Power

## Data Center Infrastructure for Large Applications



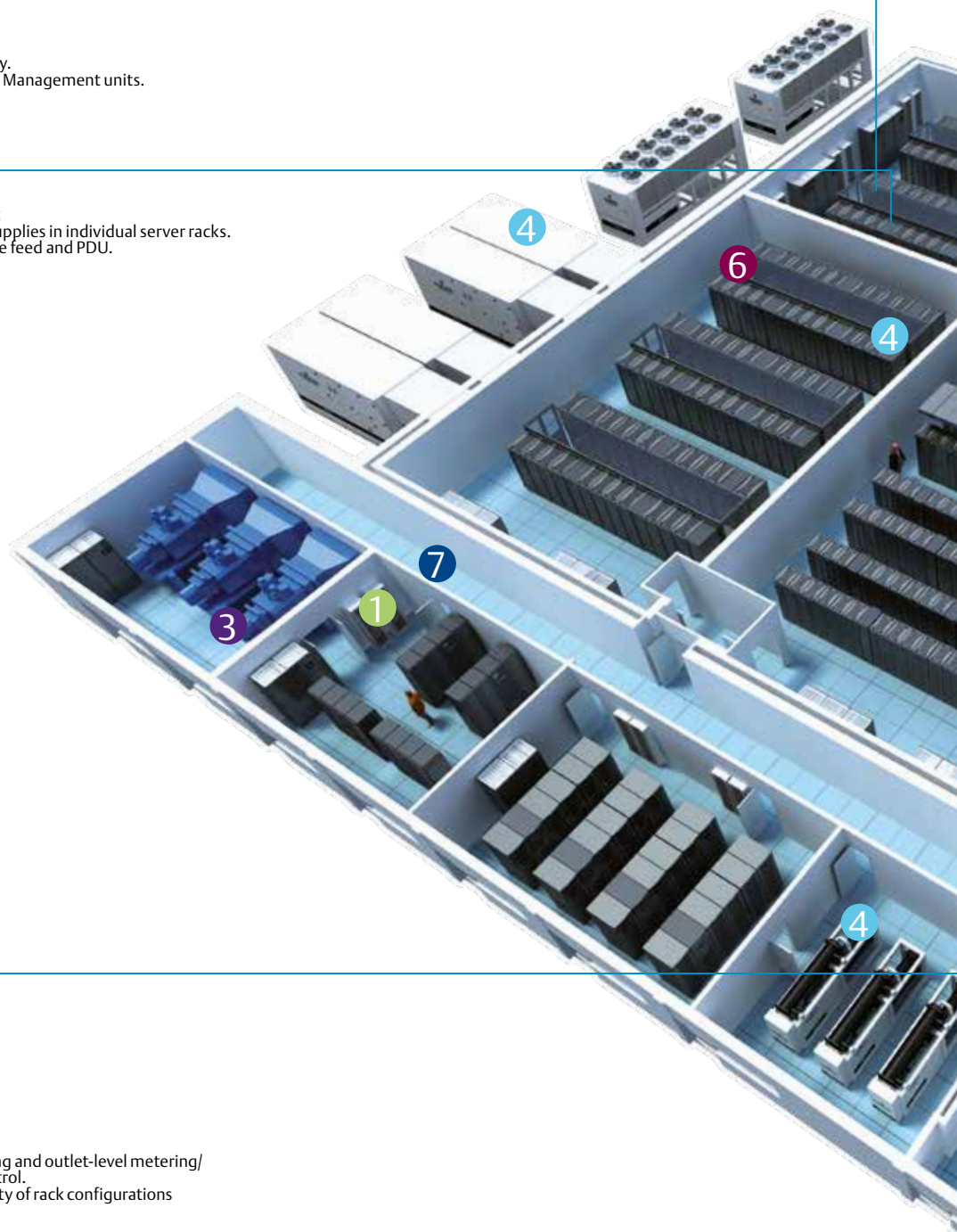
### SmartAisle™

- Aisle containment.
- Provides highest energy efficiency.
- Control compatible with Thermal Management units.



### Knürr® Power Distribution Rack

- Central connection unit for power supplies in individual server racks.
- Interface between the low voltage feed and PDU.
- Individual plug-in units.
- Up to 346 kVA/Rack.



### Rack PDU

- Rack-based power distribution units.
- Supports strip-level metering, outlet-level switching and outlet-level metering/switching for remote power management and control.
- Horizontal and vertical models designed for a variety of rack configurations in branch and remote offices.

1 AC Power

2 Infrastructure Management & Monitoring

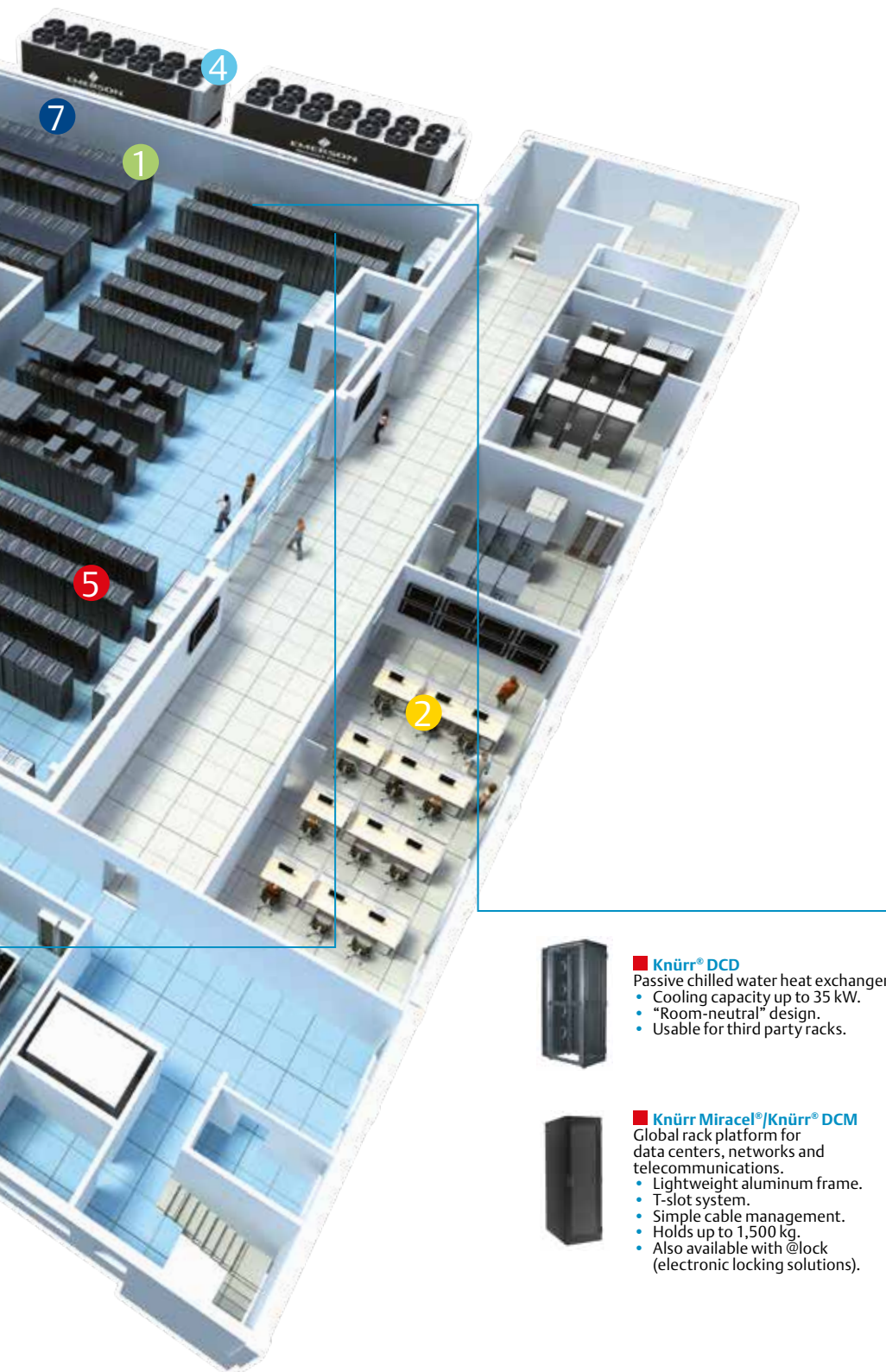
3 Power Switching & Controls

4 Thermal Management

5 Racks & Integrated Solutions

6 Surge Protection

7 DC Power



- **Knürr® DCD**  
Passive chilled water heat exchanger.
  - Cooling capacity up to 35 kW.
  - "Room-neutral" design.
  - Usable for third party racks.

- **Knürr Miracel®/Knürr® DCM**  
Global rack platform for data centers, networks and telecommunications.
  - Lightweight aluminum frame.
  - T-slot system.
  - Simple cable management.
  - Holds up to 1,500 kg.
  - Also available with @lock (electronic locking solutions).

## Service

Emerson Network Power supports entire critical infrastructures with the largest global service organization and an extensive service offering, enhancing network availability and ensuring total peace of mind 24/7. Our approach to servicing critical infrastructure covers all aspects of availability and performance: from single power and thermal management equipment to entire mission-critical systems.

The most comprehensive insurance for business protection can be obtained with a service program from Emerson Network Power which includes access to LIFE™.

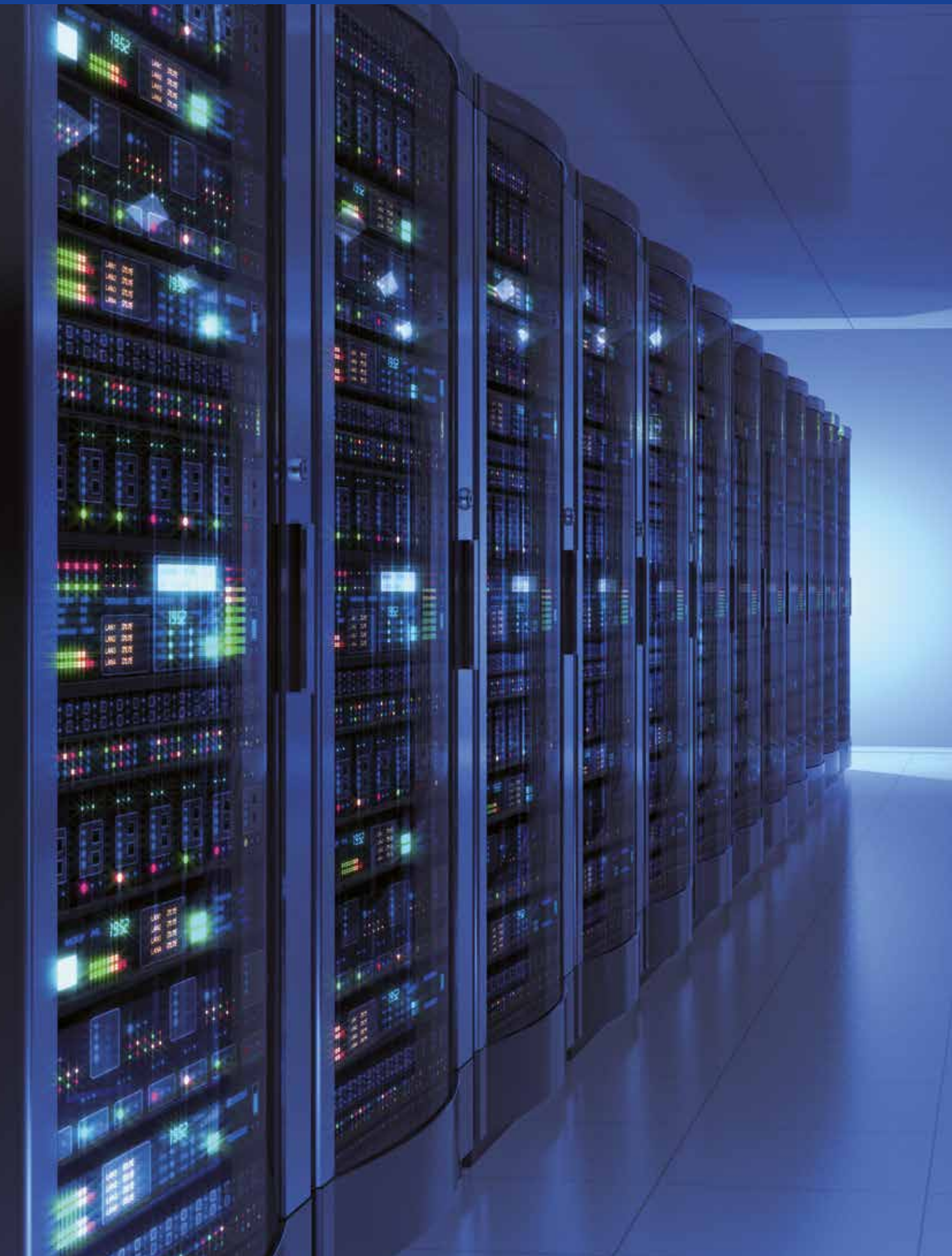



## LIFE™

LIFE provides remote diagnostics and preventive monitoring service for UPS and thermal management equipment. LIFE delivers increased uptime and operational efficiency by enabling continuous monitoring of your equipment, expert data analysis and field engineering expertise.

Through the data transferred from your equipment via LIFE, our remote service experts gain the real-time insight and information needed to quickly identify, diagnose, and resolve any irregularities that may arise in operation, ultimately taking responsibility for your critical assets 24/7.

*Emerson Network Power*



A photograph of three business professionals (two men and one woman) sitting around a conference table in a meeting room. They are looking at documents and a laptop. The man on the left is wearing glasses and a white shirt. The woman in the middle is wearing a red sweater. The man on the right is wearing a white shirt and a red tie.

## *Emerson Network Power – For greater Energy Efficiency in your IT Environment*

Really reliable availability of business-critical networks requires a network infrastructure installation you can fully depend on, administration and continuous support.

This in turn depends on the power supply and cooling infrastructure supporting these systems and is based on the following key components:

- ***Business-critical power supply***
- ***Business-critical cooling***
- ***Rack and enclosure systems***
- ***Monitoring and management***
- ***Proactive maintenance***

Emerson Network Power has developed new power-supply-, cooling-, rack- and enclosure systems, as well as monitoring solutions which further support uninterrupted availability – and offer real added value that goes well beyond the sum of the individual solutions.

With our solutions we provide unsurpassed adaptability, individualization and the ability to integrate into the most diverse products and services.

We acquire extensive knowledge of the challenges you face and are in a position to meet your requirements.

Our exceptionally reliable and comprehensive solutions are tailored to your requirements – thereby providing the benefit of optimized strategic and operational efficiency enhanced reliability, higher flexibility and lower overall operating costs.

Drawing on the combined use of our knowledge, our experience and our resources, we deliver a demand-driven solution from a single source.

The result: an infrastructure that stays abreast of current and future requirements.



## Ensuring high availability of mission-critical data and applications.

### About Emerson Network Power

Emerson Network Power, a business of Emerson (NYSE:EMR), is the world's leading provider of critical infrastructure technologies and life cycle services for information and communications technology systems. With an expansive portfolio of intelligent, rapidly deployable hardware and software solutions for power, thermal and infrastructure management, Emerson Network Power enables efficient, highly-available networks. Learn more at [www.EmersonNetworkPower.com](http://www.EmersonNetworkPower.com)

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