CONTEG SOLUTIONS *for the next decade!*

CONTEG

Product Catalog

2011

Data & Telecommunication Solutions and Racks

CONTENTS

QUALITY AND ENVIRONMENTAL COMMITMENTS

Conteg, spol. s r.o. provides TÜV certificates for its products and follows strict ISO 9001 quality & ISO 14001 environment protection standards.

WARRANTY

Conteg, spol. s r.o. provides a 24-month warranty on all products unless otherwise stated. A 12-month warranty is applicable on CoolTeg, CoolSpot, LES-RACK, outdoor cooling units, outdoor air/air heat exchangers and filter fans.

ABOUT CONTEG

Conteg is one of the leading producers of racks and data center solutions in EMEA. In our product portfolio, you can find telecommunication and data racks, complete solutions for data centers, and outdoor cabinets. Our solutions include free-standing & wall-mounting racks, precision cooling, cable management, intelligent power distribution & environmental monitoring systems, as well as a wide range of accessories.

Conteg Headquarters:
Na Vítězné pláni 1719/4
140 00 Prague 4
Czech Republic

Conteg Production Facilities and Central Warehouse:
K Silu 2179
393 01 Pelhřimov
Czech Republic

Our innovative and modular products and solutions are in line with current industry trends. Their quality and functionality can be endorsed by our global customers. They are used throughout the IT industry when deploying servers, UPS and other components and to manage structured cabling systems both inside and outside the racks.

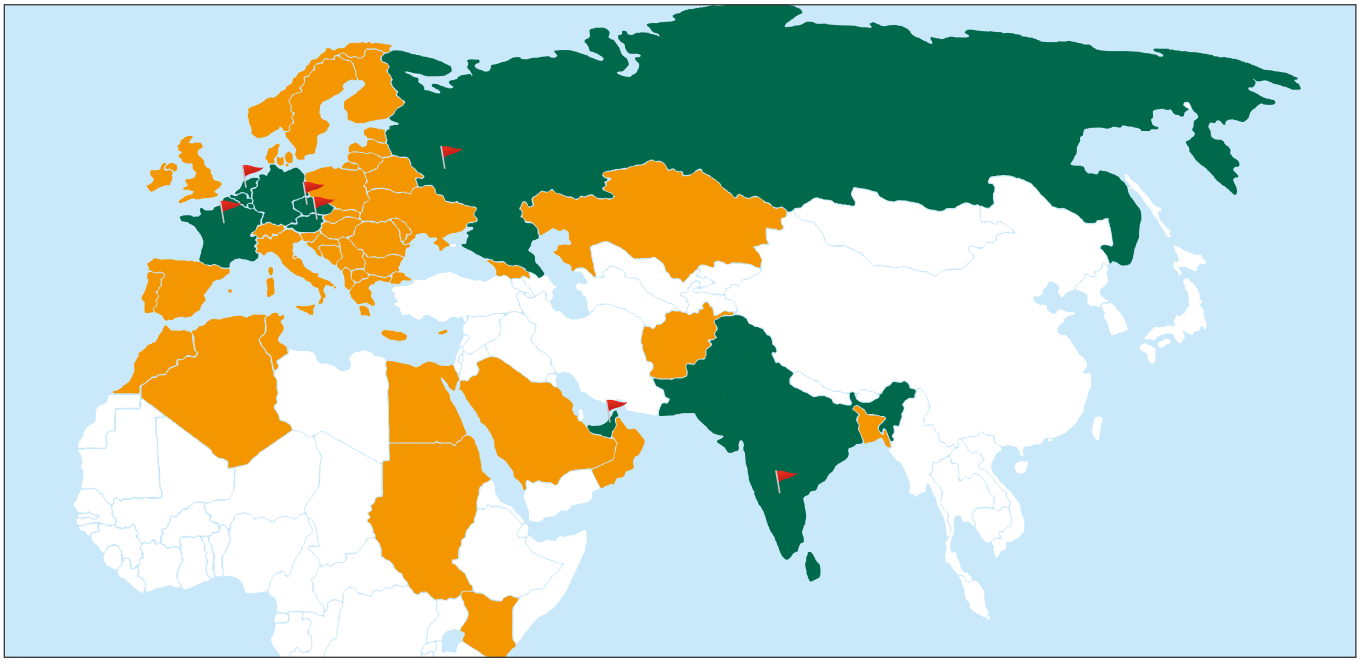
Conteg is based in the Czech Republic and its products satisfy customer needs across the whole Europe, Africa, and Asia – from United Kingdom to Saudi Arabia to Bangladesh and from Finland to France to South Africa. A wide network of distribution partners covers more than 50 countries which means Conteg products are always close to you – ready to be shipped and installed. Many countries are also covered by local branch offices with permanent staff.

Our core values include:

- **Innovativeness**
- **Responsibility and flexibility**
- **Continuous technical support**
- **Quality service**
- **Trust**
- **Experienced and friendly staff**
- **Top-quality products at competitive prices**
- **Saving you time**

Local Branches and Showrooms:

Austria, Vienna
Czech Republic, Prague
France, Paris
India, Bangalore
Russia, Moscow
The Netherlands, Breda
United Arab Emirates, Dubai



History

Our journey from simple racks to complete data center solutions

1998 - one type of free-standing rack

1999 - new series of free-standing rack RSV; wall-mount rack RSD; basic accessories assortment

2000 - new series of free-standing rack ROV

2001 - new series SOHO REH, wall-mount RON; wall-mount ROD

2002 - new series wall-mount REN

2003 - new series of free-standing rack REV

2004 - new series wall-mount RUN, wall-mount RUD

2005 - new series of free-standing rack ROF

2006 - new series of free-standing rack RSL

2007 - new series of free-standing rack ROS; free-standing rack RMF; development of data center solutions

2008 - new series in/on wall-mount rack ACP; KVM/LCD; Targeted Cooling; development of data center solutions finalized

2009 - new series iSEVEN free-standing rack; facelift of free-standing rack ROF; wall-mount RON and wall-mount ROD series; Total Solutions for Data Centers

2010 - new free-standing rack series - PREMIUM; Side Mount Closed Loop Solutions

2011 - construction of a new multi-purpose building at the factory in Pelhřimov; CoolTeg XC units; AEGIS DCIM system; facelift RMF rack, Modular Closed Loop architecture

2012 - opening of new multi-purpose building and TestCenter for Data Centers in Pelhřimov. **New products:** outdoor cabinet outTEG series, OPTIMAL Cable Management rack, Side-to-Side Airflow Support - STS, EC technology fans for cooling, Rack Monitoring Systems – RAMOS Ultra, Optima & Mini, upgrades made to OptiWay, new HDWM, new PDUs, new Separation Frames, Mounting & Connecting Kits

2013 - new cooling units CoolTeg Plus; facelift of PREMIUM Housing RSB rack; **New products:** PDU brackets, Top Ducts - cable management system

CoolTeg CoolSpot OPTIWAY outTEG TC4DC TestCenter for DataCenters RAMOS

Warranty

Emphasis on Quality

Quality is our priority, therefore we do everything to ensure that our products are among the best available on the market, matching the services provided by our company. We aim to provide our customers with the highest possible added value. For this reason, we apply strict ISO 9001 quality management standards at Conteg. All racks undergo a strict testing regime to obtain TÜV certification.

Conteg products are meticulously built from quality materials which comply with technical and environmental specifications and are thoroughly tested and inspected prior to leaving our manufacturing facility. You can be assured that when purchasing a Conteg product you have selected a product of the highest quality and reliability.

Warranty & Return Policy

Conteg products are warranted against defects in material and workmanship for a specific period from the date of shipment. In most cases, the warranty period is two (2) years and covers replacement parts only.

CoolTeg and CoolSpot cooling units, LES-RACK fire extinguishing device and outdoor condensing units have standard warranty period of one (1) year from the date of shipment from Conteg's warehouse. Exception to this warranty period is when customer purchases Start-up service from Conteg or from one of Conteg's local partners. Under these conditions the warranty period commences on the given Start-up date. During the warranty period, Conteg will, at its discretion, provide replacement parts or replace products that prove to be defective. Repairs are warranted for the remainder of the original warranty or a 90 day extended warranty, whichever is longer. The warranty period for all Conteg products can be extended under individual conditions, which must be agreed upon with Conteg.

For equipment under warranty, the owner is responsible for freight to Conteg and all related customs duties, taxes, tariffs, insurance, etc. Conteg is responsible for the freight charges only for return of the equipment from the factory to the owner in cases when the warranty claim has been accepted. All equipment returned for warranty repair must have a valid RMA number issued prior to return and be marked clearly on the return packaging. Conteg strongly recommends all equipment be returned in its original packaging. Conteg's obligations under this warranty are limited to repair or replacement of failed parts, and the return shipment to the buyer of the repaired or replaced parts. Conteg's delivery deadline for any replacement parts shall not exceed a period of 1 month. When "Spare Parts in Stock" service is purchased Conteg will guarantee instant warehouse availability of all needed parts.

In order to assure quality installation of CoolTeg cooling units all customers have option to purchase Start-up services by Conteg. Conteg can also arrange post-warranty service provided either by Conteg's qualified employees or by Conteg's local contractual partners.

Limitations of Warranty

The warranty does not apply to any part of a product that has been installed, altered, repaired, or misused in any way that, in the opinion of Conteg, would affect the reliability or detracts from the performance of any part of the product, or is damaged as the result of use in a way or with equipment that had not been previously approved by Conteg. The warranty does not apply to any product or parts thereof where the serial number or the serial number of any of its parts has been altered, defaced, or removed. The warranty does not cover damage or loss incurred in transportation of the product.

The warranty does not cover replacement or repair necessitated by loss or damage from any cause beyond the control of Conteg, such as lightning or other natural and weather related events or wartime environments. The warranty does not cover any labor involved in the removal and or reinstallation of warranted equipment or parts on site, or any labor required to diagnose the necessity for repair or replacement. The warranty covers products and/or parts only. No service or labor related costs are included under the Conteg warranty.

1. TOTAL SOLUTIONS FOR DATA CENTERS

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MODULAR CLOSED LOOP

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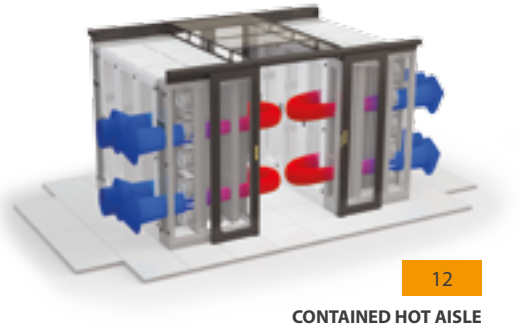
CONTAINED COLD AISLE



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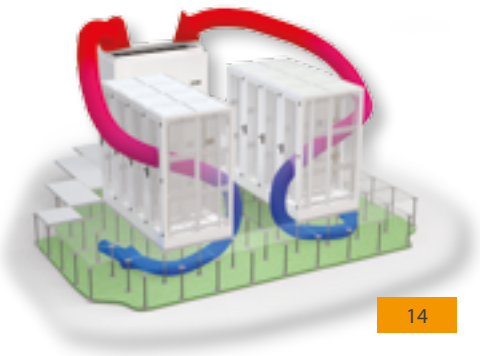
CONTAINED HOT AISLE



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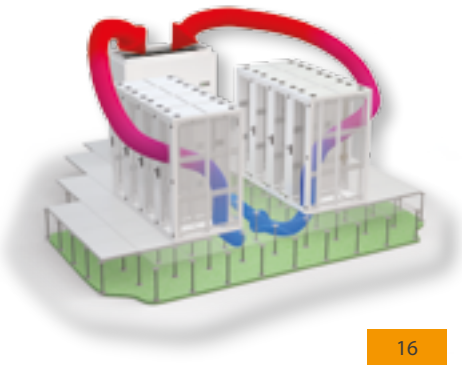
HOT/COLD AISLE



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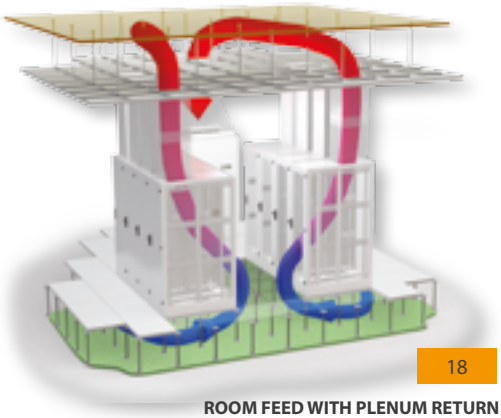
PLENUM FEED WITH ROOM RETURN



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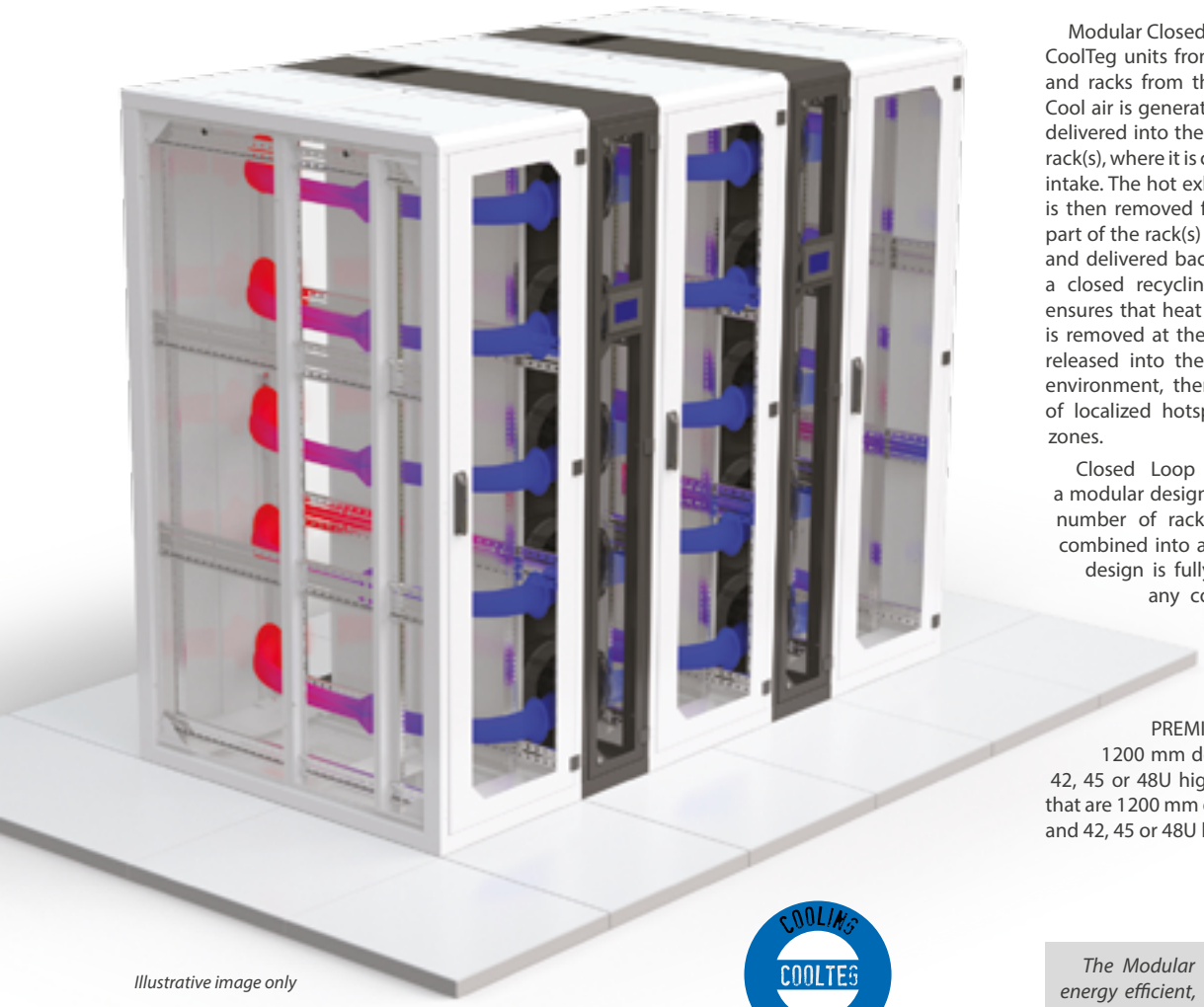
ROOM FEED WITH PLENUM RETURN

1.1 MODULAR CLOSED LOOP 42U+

Modular Closed Loop offers the ability to achieve up to 35 kW of cooling power per rack per assembly. This type of architecture can be especially useful when planning to install a few very high-power racks into a facility since the racks do not release any heat into the data center environment. It is also an ideal solution when limited rack space (for example, in atypical server room of a mid-size company) is required, but cooling becomes an issue because of the high-density applications housed there.



Illustrative image only

Modular Closed Loop architecture is based on CoolTeg units from the Targeted Cooling range and racks from the PREMIUM Server portfolio. Cool air is generated by the CoolTeg unit(s) and delivered into the cold zone in the front part of rack(s), where it is close to the equipment cooling intake. The hot exhaust air from the equipment is then removed from the hot zone in the rear part of the rack(s) by the CoolTeg unit(s), cooled and delivered back into the cold zone, forming a closed recycling air loop. This architecture ensures that heat generated within the cabinet is removed at the point of production and not released into the data center or server room environment, thereby minimizing the chances of localized hotspots forming in high-density zones.

Closed Loop architecture is available in a modular design, where virtually an unlimited number of racks and cooling units can be combined into a closed module. The modular design is fully flexible and accommodates any combinations of cooling units and racks to meet the required levels of cooling and redundancy.

It is pre-designed for PREMIUM Server racks that are 1200 mm deep, 600 or 800 mm wide and 42, 45 or 48U high as well as for CoolTeg units that are 1200 mm deep, 300 mm or 400 mm wide and 42, 45 or 48U high.

The Modular Closed Loop solution is very energy efficient, especially when CoolTeg Plus units are connected to chiller with free-cooling technology.

MODULAR CLOSED LOOP DESIGN GUIDELINES

The Closed Loop can include a virtually unlimited number of PREMIUM Server racks and cooling units. However, six racks (252 – 288U) should be the limit when considering the standard layout of data center applications. The configuration of the rack differs according to its position in the module – please be aware of it when planning the module. All racks are delivered fully assembled with the requested passive airflow management already installed (separation frames). Both cooling unit versions, chilled water (CW) as well as direct expansion (XC, DX), are available to provide the module with needed cooling power of up to 35 kW per cooling unit. The module can be easily designed in fully redundant mode. The Modular Closed Loop can be configured according to the needs of any customer and can be anytime in the future modified and fitted at a later date with additional racks and cooling units.

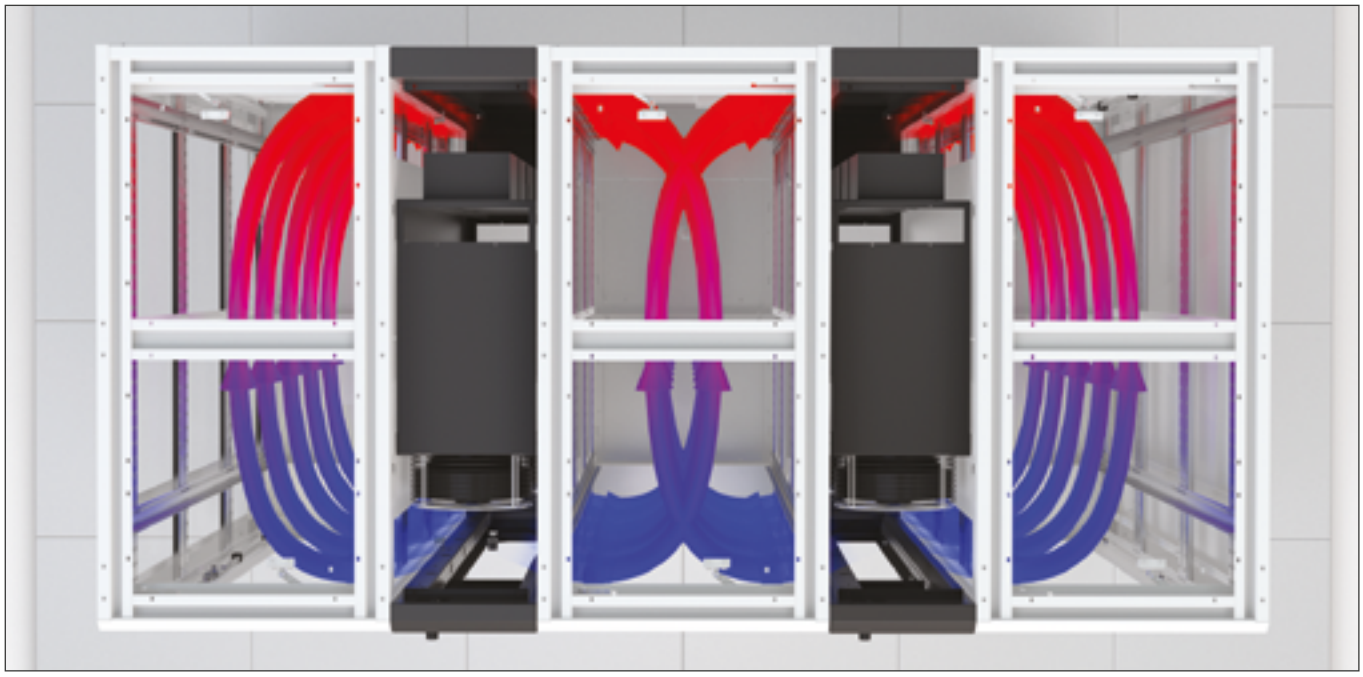
- Typically for heat loads of up to 35 kW per cabinet
- 42U to 48U – 600 mm or 800 mm wide cabinets – 1200 mm deep
- Air separation frames – 200 mm deep
- Front glass door
- Solid rear door
- No raised floor required
- Double brush grommets for cable entries
- Blanking panels for all vacant equipment mounting locations in cabinets
- Monitoring of cabinet's interior environmental conditions
- IP54 protection recommended
- Solution is also applicable outside the clean data halls

Protection rating IP54, load rating PREMIUM Server – 1500 kg, color black RAL 9005 (optionally light gray RAL 7035). Separation frame and sealing. For detailed technical information on PREMIUM Server racks please refer to page 36. CoolTeg Cooling Unit with top or bottom piping. Piping and outdoor chiller are not a standard parts of this product. For more information about CoolTeg cooling units please refer to page 102.

Modular Closed Loop RACKS		
Middle rack code	**End-of-the-row rack code**	**Description**
RSF-42-60/12T-GWSWM-MCL	RSF-42-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 42U x 600×1200
RSF-42-80/12U-GWSWM-MCL	RSF-42-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 42U x 800×1200
RSF-45-60/12T-GWSWM-MCL	RSF-45-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 45U x 600×1200
RSF-45-80/12U-GWSWM-MCL	RSF-45-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 45U x 800×1200
RSF-48-60/12T-GWSWM-MCL	RSF-48-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 48U x 600×1200
RSF-48-80/12U-GWSWM-MCL	RSF-48-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 48U x 800×1200
Add -E at the end of the rack's code for having emergency opening system (EOS) pre-installed; EOS includes 4 electronic latches, specially reinforced door with multipoint lock, gas struts; RAMOS Mini unit recommended for operation (not part of delivery)		

Modular Closed Loop COOLING UNITS [1]	
Cooling unit code [2]	**Description**
AC-TDX-42-30/120-BCD	Direct Expansion, 20 kW, 42U x 300×1200 [3]
AC-TCW-42-30/120-BCD	Chilled Water, 35 kW, 42U x 300×1200
AC-SM-XC/B4-42-40/120	Integrated compressor, 26 kW, 42Ux400×1200
Drain pump can be mounted and connected to the unit to remove condensate out of the unit in case of no raised floor	

[1] Plinth is not a part of delivery
[2] Modular Closed Loop cooling units in 45U and 48U heights available upon request
[3] Different cooling power available depending on the type of outdoor unit AC-DX-XXXXX (ordered separately)



COMPLEMENTARY RAMOS SYSTEMS · COMPLEMENTARY ACS SYSTEMS · COMPLEMENTARY KVM/LCD SYSTEMS · COMPLEMENTARY LES-RACK SYSTEMS · COMPLEMENTARY PDU SYSTEMS · CONTEG

RELATED PRODUCTS

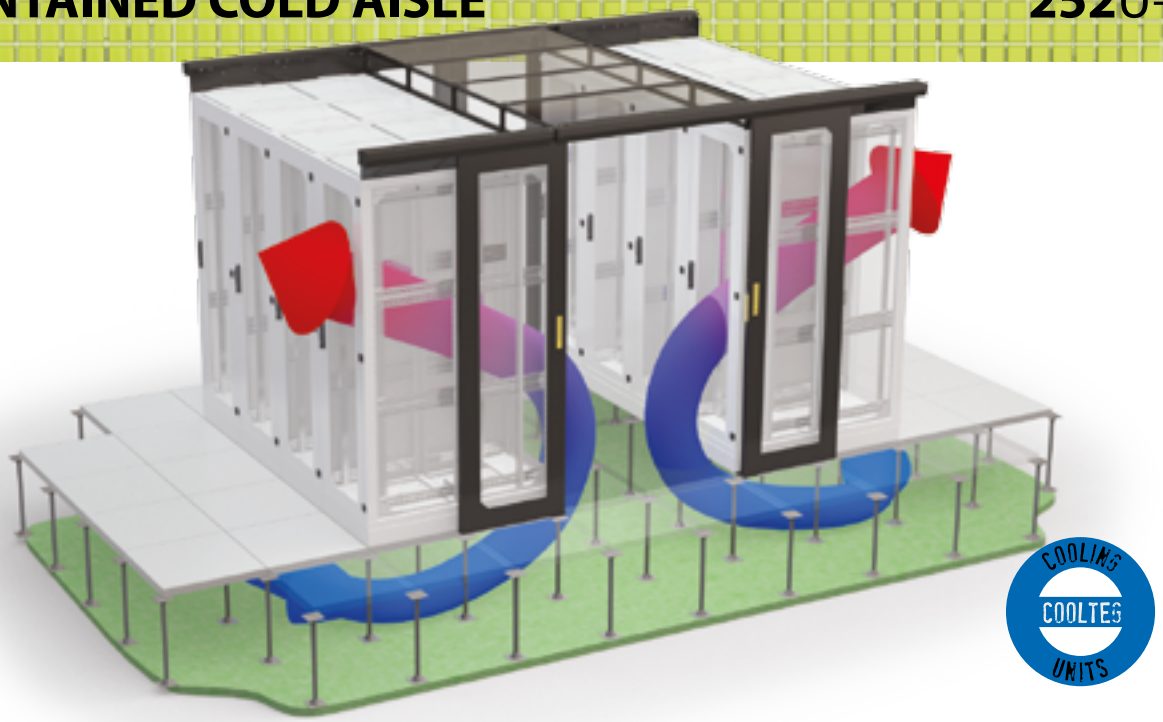
Emergency Opening System automatically opens the front and rear doors of the racks in case the cooling unit fails to prevent the overheating of equipment inside the rack. The problem is detected by the **RAMOS monitoring system** (not a standard part of the Emergency Opening System) which sends an alarm message to the Emergency Opening System to prevent possible damage to the equipment. However, the best protection is provided by having a fully redundant module configuration.

Local Extinguishing System

LES-RACK is a self-contained, fully automatic fire detection and protection system. Designed for installation directly into 19" racks with protection rating IP30 or higher. It offers a very secure and effective solution for server, telecommunication and control racks/cabinets. LES-RACK-M comes with a fully equipped automatic system of fire detection, control, evaluation and extinguishing unit.

Note: Cooling capacity for this configuration can reach higher values, depending on how many variables there are, including capacity and other features of the precision computer room cooling unit, like the ratio of supply air space to return plenum space and the amount of air obstructions in the supply and return air spaces.

1.2 CONTAINED COLD AISLE 252U+



The Conteg Contained Cold Aisle solution physically separates cold and hot zones. One of the potential drawbacks of the no-containment Hot/Cold Aisle approach is the possibility of warm air recirculation due to insufficient static pressure within the raised floor or a lower than optimal ceiling clearance preventing adequate stratification of warm air. Of course, whether this actually occurs or not depends on many variables; however when facing this type of design challenge, it makes engineering and financial sense to form a physical barrier between cold and warm air streams.

With the Conteg Contained Cold Aisle (CCA) solution, a containment system is used to physically separate cold air from hot exhaust by forming a cold plenum space that prevents hot and cold air from mixing, thereby eliminating hot-spots. The cold air is supplied into the contained aisle through perforated tiles from the raised floor or produced locally by CoolTeg units, which are installed directly in the row of cabinets as an integral part of the aisle. The standard width of the CCA is 1.2 m (two perforated tiles) or 1.8 m (three perforated tiles). Other widths are available - 1.0 and 2.4 m. CCA can be deployed with standard swing doors or dual leaf sliding doors. Using the Contained Cold Aisle solution is highly recommended to maximize the cooling efficiency and minimize the energy consumption of the entire data center.

The system is designed to work with the RSF/RDF/RSB/ROF rack series, the basis of Conteg's data center solutions. It supports racks that are 42U, 45U or 48U high.

Roof

The modular roof sections are bolted onto the top of the racks to prevent the mixing of cold air and warm exhaust air. The roof parts are 400, 600, 800, 900 and 1100 mm long. The roof panels are made of 6 mm thick clear polycarbonate panels that allow light to spill into the contained aisle. This material is non-flammable according to the local codes. Our solution allows an extinguishing system to be installed to the aisle.

By using the roof the cold air is "trapped" in the contained aisle. The roof also efficiently blocks the hot air from re-entering the aisle.

Door sections

CCA entry is through one or two doors that are either 1200 mm or 1800 mm wide. The door is a very important component of this contained aisle solution. There are two solutions – a sliding or swing door. Both types consist of two doors (wings). A standard sliding door consists of a mechanical opening system (each door wing is independent) and can be equipped with a dual synchro system (both door wings move simultaneously) or with an automatic system with electric control. Sliding doors are made from aluminium.

As standard, the dual leaf swing door is mechanical and can be equipped with an Automatic door handle system. A blank panel could be used instead of a door to close one side of the contained aisle.

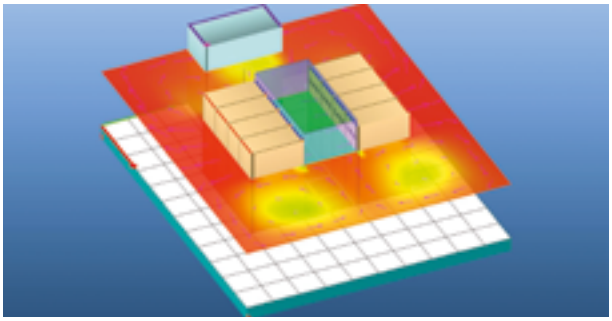
Sliding doors allow access to the contained aisle. They can be equipped by mechanical, dual synchro or automatic handling systems.

CONTAINED AISLE - MODULAR SOLUTION

The Modular Contained Aisle system is the ideal solution when rows of racks with different heights or even gaps (when some racks are missing) need to be to contained. The system is based on self-supporting construction with clear polycarbonate panels on the top of the roof. Vertical side sections of the roof feature PVC foil strips. These strips can be easily cut to the required length. The Modular Contained Aisle can work with standard dual leaf swing doors or with PVC foil strips (see below) instead of standard doors. This solution can be used with cabinets that are 2300 mm or 2500 mm tall. Do not hesitate to contact us for more information.

COOLING

In the Contained Cold Aisle design, cold air is produced by a central cooling system with perimeter-mounted CRAC/CRAH units. The raised floor is used as a cold air handling plenum and the cold air enters the aisle via perforated floor tiles. If for any reason the raised floor cannot be used, the cold air can be produced locally by in-row CoolTeg units that can be installed directly in the row of racks. This solution is currently very popular as it can address very high heat loads and is energy efficient.



RECOMMENDED RACK SERIES

Rack	Description	Read more
PREMIUM Server RSF	PREMIUM rack series, highly configurable with load rating up to 1500 kg	36
PREMIUM Cabling RDF	PREMIUM rack series provides maximum compatibility with Targeted Cooling solutions and is developed for cabling support; load rating up to 500 kg	32
OPTIMAL ROF	OPTIMAL rack series, highly configurable with load rating up to 500 kg, for racks that are 1200 mm deep – 1000 kg	45

- Front vented door (86% perforation rate) with multipoint swivel handle lock (universal key)
- Rear vented door (86% perforation rate) with multipoint swivel handle lock (universal key)
- Removable sheet steel side panels with lock (universal key)
- Two pairs of 19" vertical sliding extrusions
- Top and bottom openings for cable entry
- Adjustable feet as standard; recommended plinth or plinth with filter (not included)

Protection rating IP20, load rating ROF & RDF - 500 kg, RSF – 1500 kg, (for ROF racks 1200 mm deep – 1000 kg), color black RAL 9005 (optionally light gray RAL 7035). For detailed technical information on RSF, RDF, and ROF racks please refer to pages 27 & 45.

Code [1]
RSF-42-60/10T-WWWWA-2EF-H
RSF-45-60/10T-WWWWA-2EF-H
RSF-42-60/12T-WWWWA-2EF-H
RSF-45-60/12T-WWWWA-2EF-H
RSF-42-80/10U-WWWWA-2EF-H
RSF-45-80/10U-WWWWA-2EF-H
RSF-42-80/12U-WWWWA-2EF-H
RSF-45-80/12U-WWWWA-2EF-H

Code [1]
RDF-42-80/10C-WWWWA-2H5-H
RDF-45-80/10C-WWWWA-2H5-H
RDF-42-80/12C-WWWWA-2H5-H
RDF-45-80/10C-WWWWA-2H5-H

Code [1]
ROF-42-60/100-WWWWA-205-H
ROF-45-60/100-WWWWA-205-H
ROF-42-60/120-WWWWA-20A-H
ROF-42-80/10C-WWWWA-205-H
ROF-45-80/10C-WWWWA-205-H
ROF-42-80/12C-WWWWA-20A-H

[1] *All racks in black; 48U height available; for gray – simply change H in the end of the code to B*

RELATED PRODUCTS

Related products	Description	Read more
CoolTeg cooling unit	Recommended cooling for high and very high-density contained cold aisles	102
Contained Aisle – door	Encloses cold aisle ends while providing access to the cold aisle interior	111
Contained Aisle – roof	To seal top of aisle between opposing racks to prevent cold and warm air from mixing	111
Automatic door handle	ADH makes access into the aisle easier as well as increases safety	111
Cable entries	Products for passage of cabling/pipes through raised floor with minimal loss of air pressure	138
Modular plinths	Replace adjustable feet and use as stabilizing and aesthetic element	135
Air separation frames	Prevent by-pass airflow between frame and 19" extrusion to optimize cooling of equipment	112
Brackets	Needed when vertical PDU installation into rack is planned	126
Blank panels	Prevent cold and hot air return through unused 19" U-positions	112

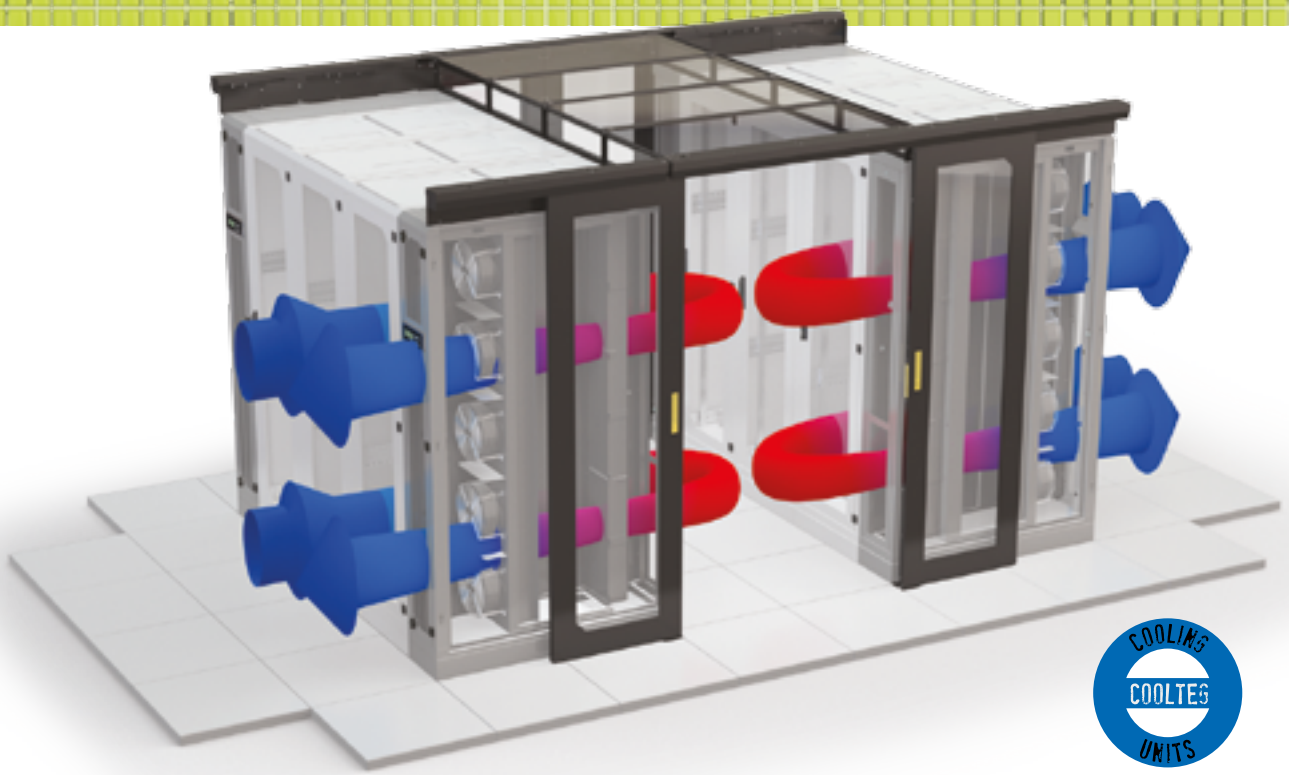
BASIC COLD AIR CONTAINMENT DESIGN GUIDELINES

- 42U to 48U – 600 mm or 800 mm wide cabinets – 1000 mm or 1200 mm deep cabinets
- Air separation frames – 50 mm to 200 mm deep
- Air containment system – 1200 mm or 1800 mm standard ; 1000 or 2400 mm wide upon request
- 86% vented front and rear door
- Double brush grommets for cable entries
- Blanking panels for all vacant equipment mounting locations in cabinets
- Monitoring containment and environmental conditions in the cabinet

Note: There are many variations of this configuration to include ones for non-raised floor facilities, hot or cold air containment, and configurations that utilize primary or supplemental CoolTeg cooling units

1.3 CONTAINED HOT AISLE

252U+



The Conteg Contained Hot Aisle solution physically separates cold and hot zones. One of the potential drawbacks of the no-containment Hot/Cold Aisle approach is the possibility of warm air recirculation due to insufficient static pressure within the raised floor or a lower-than-optimal ceiling clearance preventing adequate stratification of warm air. Of course, whether this actually occurs or not depends on many variables; however when facing this type of design challenge, it makes engineering and financial sense to form a physical barrier between cold and warm air streams.

With the Conteg Contained Hot Aisle (CHA) solution, the containment system is used to physically separate cold air from hot exhaust air by forming a hot plenum space and preventing hot and cold air from mixing, thereby eliminating hotspots. The hot air is aimed into the contained aisle and cooled by CoolTeg units. This cold air is directed to the rest of the room where servers will draw it. Standard width of the CHA is 1.0 m or 1.2 m. Other widths are available (1.8 and 2.4 m). CHA can be deployed with standard swing doors or dual leaf sliding doors. Using the Contained Hot Aisle is highly recommended to maximize cooling efficiency and minimize energy consumption of the entire data center.

The system is designed to work with the RSF/RDF/RSB/ROF rack series, the basis of Conteg's data center solutions. It supports racks that are 42U, 45U or 48U high.

Roof

The modular roof sections are bolted onto the top of the racks to prevent the mixing of cold air and warm exhaust. The roof parts are 400, 600, 800, 900 and 1100 mm long. The roof panels are made of 6 mm clear polycarbonate to allow light to spill in to the contained aisle. This material is non-flammable according to the local codes. Our solution supports the installation of extinguishing system to the aisle.

Door sections

CHA entry is through one or two doors that are either 1000 mm or 1200 mm wide. The door is a very important component of this contained aisle solution. There are two solutions – a sliding or swing door. A one-winged sliding door is ready for 1 m wide CHA; a two-winged sliding door is ready for a CHA that is 1.2 m wide or wider. A dual leaf swing door ready for 1.2 m, 1.8 m and 2.4 m wide CHA only. A two-winged sliding door consists of a mechanical opening system (each door wing is independent) and can be equipped with a dual synchro system (both door wings moving simultaneously, only for two-door solution) or with an automatic system with electric control. Sliding doors are made from aluminium.

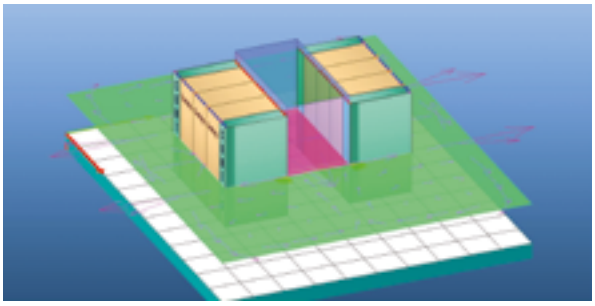
As standard, the dual leaf swing door is mechanical and can be equipped with an Automatic door handle system. A blank panel could be used instead of a door to close one side of the contained aisle.

By using the roof the cold air is "trapped" in the contained aisle, the roof also efficiently blocks the hot air from re-entering the aisle.

Sliding doors allow access to the contained aisle. It can be equipped with mechanical, Dual synchro or automatic handling systems.

COOLING

In the Contained Hot Aisle design, the cold air is produced by in-row CoolTeg units installed directly in the row of racks. The raised floor is not mandatory, but can be used for piping and cable management. This solution is currently very popular as it can address very high heat loads and is energy efficient.



RECOMMENDED RACK SERIES

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PREMIUM Cabling RDF	PREMIUM rack series provides maximum compatibility with Targeted Cooling solutions and is developed for cabling support; load rating up to 500 kg	32
OPTIMAL ROF	OPTIMAL rack series, highly configurable with load rating up to 500 kg, for racks that are 1200 mm deep – 1000 kg	45

- Front vented door (86% perforation rate) with multipoint swivel handle lock (universal key)
- Rear vented door (86% perforation rate) with multipoint swivel handle lock (universal key)
- Removable sheet steel side panels with lock (universal key)
- Two pairs of 19" vertical sliding extrusions
- Top and bottom openings for cable entry
- Adjustable feet as standard; recommended plinth or plinth with filter (not included)

Protection rating IP20, load rating ROF & RDF - 500 kg, RSF – 1500 kg, (for ROF racks 1200 mm deep – 1000 kg), color black RAL 9005 (optionally light gray RAL 7035). For detailed technical information on RSF, RDF and ROF racks please refer to pages 27 & 45.

Code [1]
RSF-42-60/10T-WWWWA-2EF-H
RSF-45-60/10T-WWWWA-2EF-H
RSF-42-60/12T-WWWWA-2EF-H
RSF-45-60/12T-WWWWA-2EF-H
RSF-42-80/10U-WWWWA-2EF-H
RSF-45-80/10U-WWWWA-2EF-H
RSF-42-80/12U-WWWWA-2EF-H
RSF-45-80/12U-WWWWA-2EF-H

Code [1]
RDF-42-80/10C-WWWWA-2H5-H
RDF-45-80/10C-WWWWA-2H5-H
RDF-42-80/12C-WWWWA-2H5-H
RDF-45-80/10C-WWWWA-2H5-H

Code [1]
ROF-42-60/100-WWWWA-205-H
ROF-45-60/100-WWWWA-205-H
ROF-42-60/120-WWWWA-20A-H
ROF-42-80/10C-WWWWA-205-H
ROF-45-80/10C-WWWWA-205-H
ROF-42-80/12C-WWWWA-20A-H

[1] *All racks in black; 48U height available; vertically divided rear door available; for gray – simply change H in the end of the code to B*

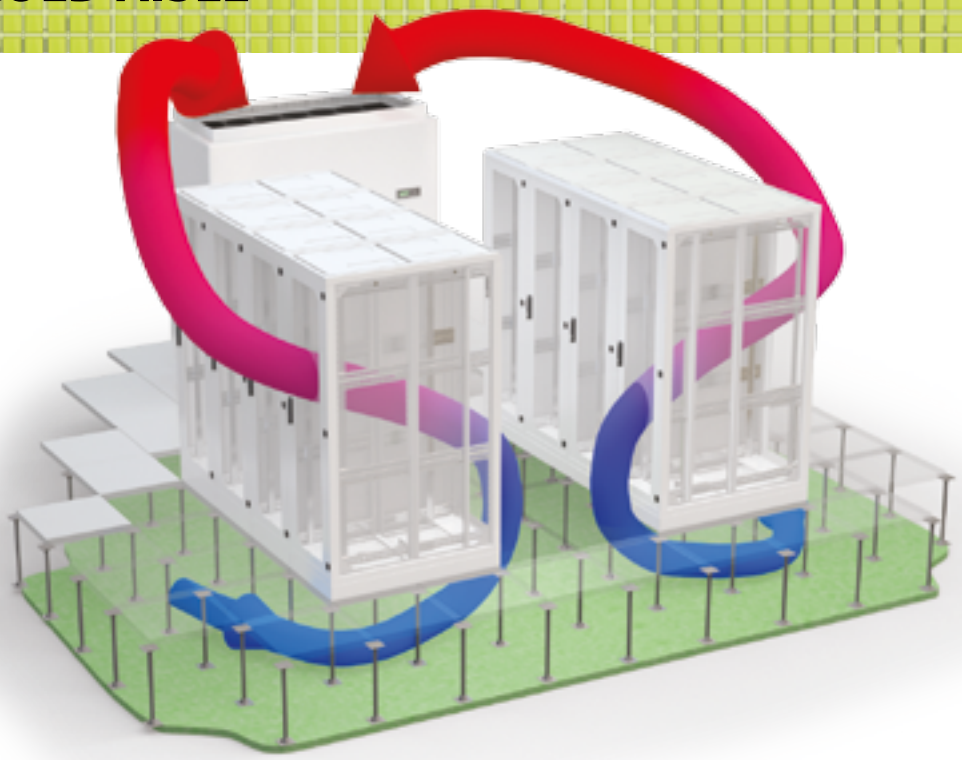
RELATED PRODUCTS

Related products	Description	Read more
CoolTeg cooling unit	Recommended cooling for high and very high-density contained hot aisles	102
Contained Aisle – door	Encloses hot aisle ends while providing access to the hot aisle interior	111
Contained Aisle – roof	To seal top of aisle between opposing racks to prevent cold and warm air from mixing	111
Automatic door handle	ADH makes the access into the aisle easier as well as it increases the safety	111
Cable entries	Products for passage of cabling/pipes through raised floor with minimal loss of air pressure	138
Modular plinths	Replace adjustable feet and use as stabilizing and aesthetic element	135
Air separation frames	Prevent by-pass airflow between frame and 19" extrusion to optimize cooling of equipment	112
Brackets	Needed when vertical PDU installation into rack is planned	126
Blank panels	Prevent cold and hot air return through unused 19" U-positions	112

BASIC HOT AIR CONTAINMENT DESIGN GUIDELINES

- 42U to 48U – 600 mm or 800 mm wide cabinets – 1000 mm or 1200 mm deep cabinets
- Air separation frames – 50 mm to 200 mm deep
- Air containment system – 1000 mm or 1200 mm standard; 1800 or 2400 mm wide upon request
- 86% vented front and rear door
- Double brush grommets for cable entries
- Blanking panels for all vacant equipment mounting locations in cabinets
- Monitoring of containment and interior cabinet environmental conditions

Note: There are many variations of this configuration to including ones for non-raised floor facilities, hot or cold air containment, and configurations that utilize CoolTeg Cooling units



The Hot/Cold Aisle approach is considered to be the "norm" for data center designs. Racks are aligned front to front and cold air is delivered using the raised floor as a cold air handling space (plenum).

The ANSI/TIA/EIA-942-A (data center) standard recommends a cold aisle width of 1.2 meters (which is equivalent to two floor tiles) to allow a perforated tile to be placed in front of each cabinet which allows cold air to be delivered to the cabinet front.

The RSF, RDF and ROF rack series are strongly recommended for hot/cold aisle data center designs. For maximum efficiency, highly perforated doors are required. Conteg test data shows a significant improvement to airflow in cases where the 86% vented doors are used instead of using standard perforated doors. In order to make the best use of available cold air, it is recommended to fill any unused space within the rack with standard blank panels. Additionally, using an air separation frame at the front of the rack will help to block unwanted cold air by-pass and hot air return around the mounting profiles, leading to an improvement in efficiency and ultimately an operational cost savings.

As an alternative to the cabinets, open frames can be used to house all the equipment. Conteg has developed a special high-load open frame series called RSG. It is the best choice when unlimited access to the installed equipment is required, while a safe dust-free environment can be guaranteed.

As the raised floor is being used to deliver the cold air, it is essential that all openings within the floor, such as the passage of cables, are well sealed using double brush grommets. This helps to maintain static pressure within the floor and minimizes the amount of air that can escape the floor in unintended or undesired locations.

Hot/Cold Aisle design can be modified in various ways to meet today's higher energy efficiency requirements. It can be easily improved (i.e. by separating the cold and the hot air streams) making the solution contained. See next chapter to learn more.

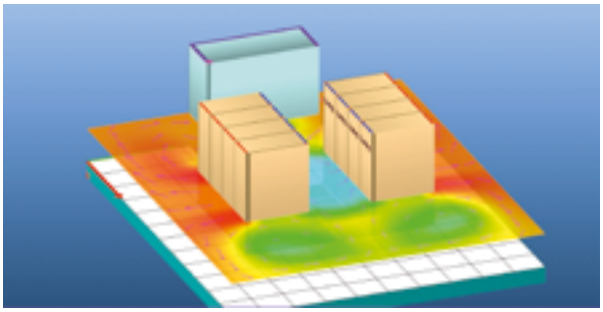
Cold air is delivered to the cold aisle using a raised floor as a cold air handling plenum. The hot air is blown out on the back side to the hot aisle.

Rack design in a hot-cold aisle arrangement requires front vented (86%) & rear vented (86%) doors to easily enter the rack.

The RSG open frame series (two and four posts) is a rack alternative which gives you unmatched access to installed equipment.

COOLING

In the Hot/Cold Aisle design the airflow is managed at the rack level only. Within the data center/server room no barriers are applied to separate hot and cold air streams. This makes this solution very simple, but creates potentially future problems when high-density applications are housed in the cabinets. However, for a traditional Hot/Cold Aisle design, a central room cooling system with perimeter positioned close control units is recommended.



RECOMMENDED RACK / OPEN FRAME SERIES

Rack / open frame series	Description	Read more
PREMIUM Server RSF	PREMIUM rack series, highly configurable with load rating up to 1500 kg	36
PREMIUM Cabling RDF	PREMIUM rack series provides maximum compatibility with Targeted Cooling solutions and is developed for cabling support; load rating up to 500 kg	32
OPTIMAL ROF	OPTIMAL rack series, highly configurable with load rating up to 500 kg, for racks that are 1200 mm deep – 1000 kg	45
Open Frames RSG4	Alternative to racks for housing equipment, load rating up to 1500 kg	68

- Front vented door (86% perforation rate) with multipoint swivel handle lock (universal key)
- Rear vented door (86% perforation rate) with multipoint swivel handle lock (universal key)
- Removable sheet steel side panels with lock (universal key)
- Two pairs of 19" vertical sliding extrusions
- Top and bottom openings for cable entry
- Adjustable feet as standard; recommended plinth or plinth with filter (not included)

Protection rating IP20, load rating ROF & RDF - 500 kg, RSF – 1500 kg, (for ROF racks 1200 mm deep – 1000 kg), color black RAL 9005 (optionally light gray RAL 7035). For detailed technical information on RSF, RDF and ROF racks please refer to pages 27 & 45.

Code [1]
RSF-42-60/10T-WWWWA-2EF-H
RSF-45-60/10T-WWWWA-2EF-H
RSF-42-60/12T-WWWWA-2EF-H
RSF-45-60/12T-WWWWA-2EF-H
RSF-42-80/10U-WWWWA-2EF-H
RSF-45-80/10U-WWWWA-2EF-H
RSF-42-80/12U-WWWWA-2EF-H
RSF-45-80/12U-WWWWA-2EF-H

Code [1]
RDF-42-80/10C-WWWWA-2H5-H
RDF-45-80/10C-WWWWA-2H5-H
RDF-45-80/12C-WWWWA-2H5-H
RDF-42-80/12C-WWWWA-2H5-H

Code [1]
ROF-42-60/100-WWWWA-205-H
ROF-45-60/100-WWWWA-205-H
ROF-42-60/120-WWWWA-20A-H
ROF-45-60/120-WWWWA-20A-H
ROF-42-80/10C-WWWWA-205-H
ROF-45-80/10C-WWWWA-205-H
ROF-42-80/12C-WWWWA-20A-H
ROF-45-80/12C-WWWWA-20A-H

Code [2]
RSG4-42-19/50-LF
RSG4-42-19/74-LF
RSG4-42-19/92-LF
RSG4-45-19/50-LF
RSG4-45-19/74-LF
RSG4-45-19/92-LF
RSG4-47-19/50-LF
RSG4-47-19/74-LF
RSG4-47-19/92-LF

[1] *All racks in black; 48U height available; for gray – simply change H in the end of the code to B*
[2] *All open frames in black*

RELATED PRODUCTS

Related products	Description	Read more
Cable entries	Products for passage of cabling/pipes through raised floor with minimal loss of air pressure	138
Modular plinths	Replace adjustable feet and use as stabilizing and aesthetic element	135
Air separation frames	Prevent by-pass airflow between frame and 19" extrusion to optimize cooling of equipment	112
Brackets	Needed when vertical PDU installation into rack is planned	126
Blank panels	Prevent cold air by-pass through unused U positions	112

BASIC HOT/COLD AISLE DESIGN GUIDELINES

- Typically for heat loads of 4.5 kW to 7 kW per cabinet
- 42U to 48U – 600 mm or 800 mm wide cabinets – 1000 mm or 1200 mm deep cabinets
- Air separation frames – 50 mm to 200 mm deep
- 86% vented front and rear door
- 1200 mm or 1800 mm aisle spacing
- Double brush grommets for cable entries
- Blanking panels for all vacant equipment mounting locations in racks

Note: Recommendations based on room conditions compliant with TIA-942 standard. All the recommendations indicated in this brochure are typical guidelines to be used as a starting point for planning. Results may vary depending on the specifics and related variables for each design. Guidance is available from Conteg product specialists to resolve unique design challenges.

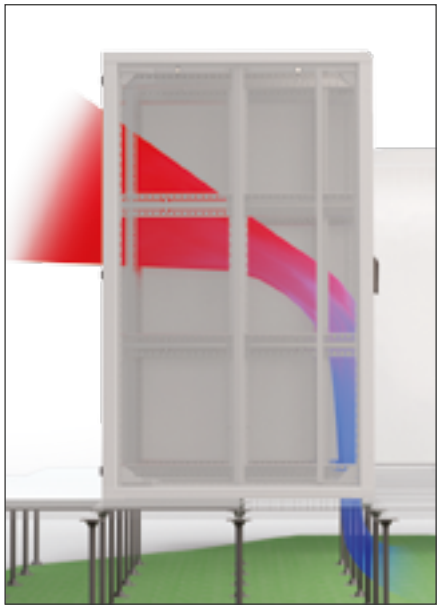
1.5 PLENUM FEED WITH ROOM RETURN 252U+

The Conteg Plenum Feed with Room Return solution optimizes the use of cold air by directing this air from the raised floor straight to the equipment within the rack. The rack sits onto a special positioning welded frame (plinth), which replaces a standard 600×600 floor tile.

A deflector located in the bottom of the rack directs the cold air to the front of the rack to be drawn through the equipment mounted inside. A variable flow-regulating louvre can be installed to control airflow throughput or shut the air supply off if no equipment is housed in the rack.

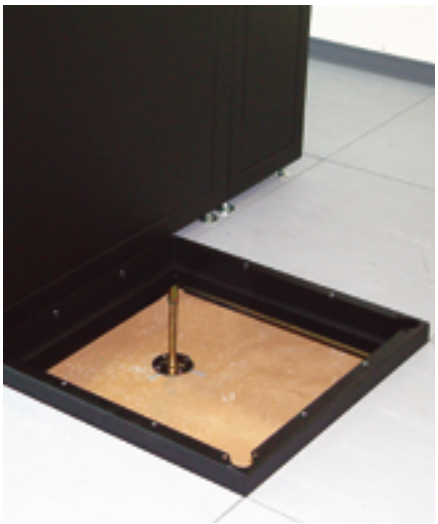
Cold air is kept within the rack by a solid front door which can be either glass or metal depending on preference. An air separation frame is used to create a cold zone in front of the installed equipment. All unused positions should be covered by blank panels to prevent cold air leakage. Hot exhaust air is rejected from the rack into the room through a vented rear door ensuring that cold supply and hot exhaust air streams remain separated, resulting in more efficient use of the cold air and the elimination of hotspots.

One significant advantage of the Plenum Feed Room Return system is the flexibility of floor planning. Dedicated hot and cold aisles are no longer required as the rack contains and separates the hot and cold airstreams.



Cold air is directed to the cold zone by a deflector. A cold zone is created by an air separation frame, blank panels and a solid front door. The hot air leaves rack through a super-vented door.

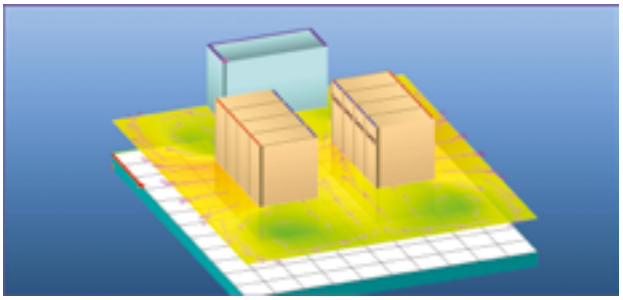
An air flow deflector is used to direct the cold air (which is coming from raised floor plenum) to the front part of rack. A louvre can be used to stop the air intake if no equipment is installed.



A positioning welded frame replaces floor tile and allows the rack to be well positioned on the raised floor construction.

COOLING

In the Plenum Feed with Room Return design, the cold air is usually produced by a central room cooling system with perimeter positioned close control units. The raised floor is used as a cold air handling plenum. The cold air directly enters the front part of rack via the positioning plinth and deflector. This makes both air streams, cold and hot, separated so any mixing is prevented.



RECOMMENDED RACK SERIES

Rack	Description	Read more
PREMIUM Server RSF	PREMIUM rack series, highly configurable with load rating up to 1500 kg	36
PREMIUM Cabling RDF	PREMIUM rack series provides maximum compatibility with Targeted Cooling solutions and is developed for cabling support; load rating up to 500 kg	32
OPTIMAL ROF	OPTIMAL rack series, highly configurable with load rating up to 500 kg, for racks that are 1200 mm deep – 1000 kg	45

- Front glass door with multipoint swivel handle lock (universal key)
- Rear vented door (86% perforation rate) with multipoint swivel handle lock (universal key)
- Removable sheet steel side panels with lock (universal key)
- Two pairs of 19" vertical sliding extrusions
- Top and bottom openings for cable entry
- Adjustable feet as standard; combined with positioning plinth DP-PRF-ROF-60/60 (frame not included)

Protection rating IP20, load rating ROF & RDF - 500 kg, RSF – 1500 kg, (for ROF racks 1200 mm deep – 1000 kg), color black RAL 9005 (optionally light gray RAL 7035). For detailed technical information on RSF, RDF and ROF racks please refer to pages 27 & 45.

Code [1]
RSF-42-60/10T-GWWWA-2EF-H
RSF-45-60/10T-GWWWA-2EF-H
RSF-42-60/12T-GWWWA-2EF-H
RSF-45-60/12T-GWWWA-2EF-H
RSF-42-80/10U-GWWWA-2EF-H
RSF-45-80/10U-GWWWA-2EF-H
RSF-42-80/12U-GWWWA-2EF-H
RSF-45-80/12U-GWWWA-2EF-H

Code [1]
RDF-42-80/10C-GWWWA-2H5-H
RDF-45-80/10C-GWWWA-2H5-H
RDF-42-80/12C-GWWWA-2H5-H
RDF-45-80/12C-GWWWA-2H5-H

Code [1]
ROF-42-60/100-GWWWA-205-H
ROF-45-60/100-GWWWA-205-H
ROF-42-60/120-GWWWA-20A-H
ROF-42-80/10C-GWWWA-205-H
ROF-45-80/10C-GWWWA-205-H
ROF-42-80/12C-GWWWA-20A-H

[1] All racks in black; 48U height available; for gray – simply change H in the end of the code to B

RELATED PRODUCTS

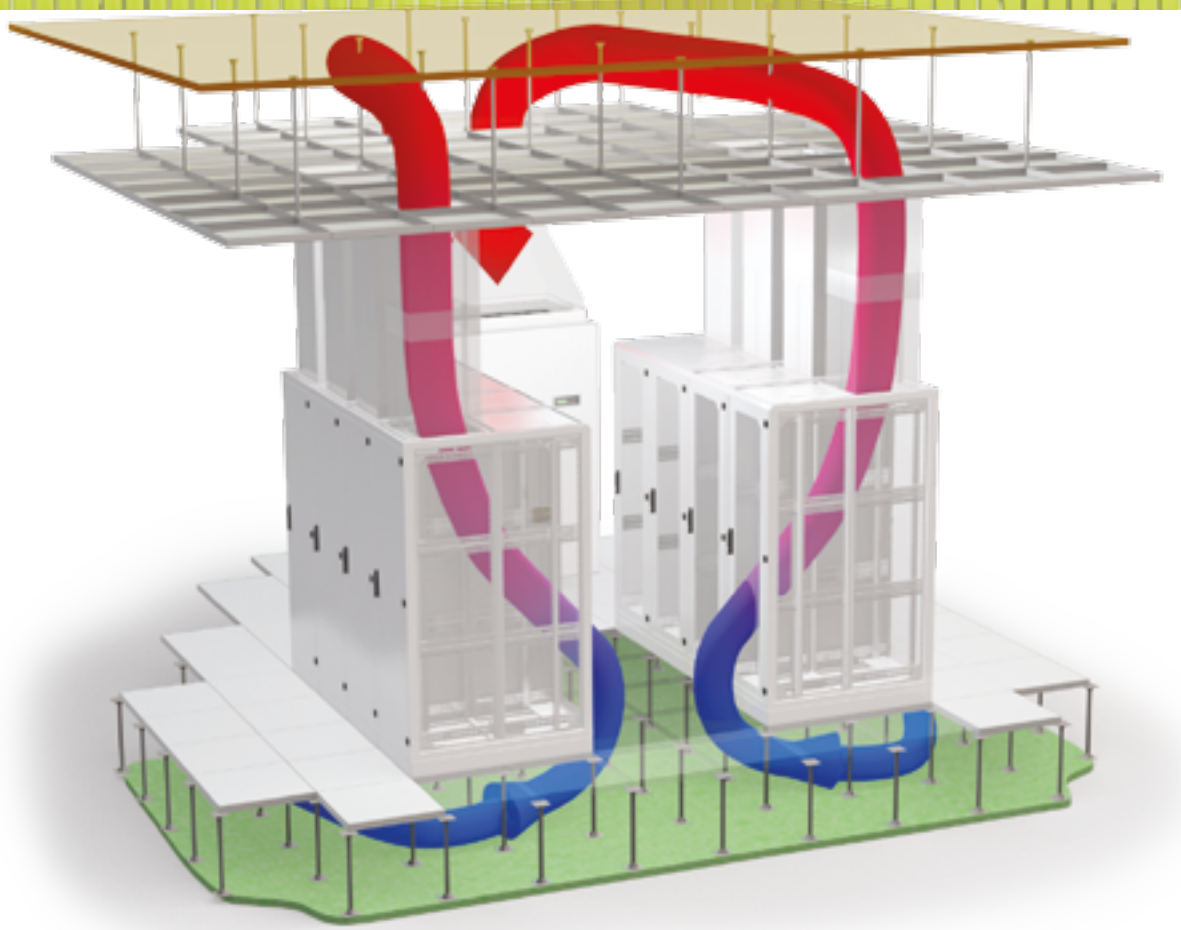
Related products	Description	Read more
Air separation frame	Prevent by-pass airflow between frame and 19" extrusion to optimize cooling of equipment	112
Positioning plinth	The rack sits onto a special welded plinth, which replaces a standard 600×600 floor tile	136
Air flow deflector	Used to lead the cold air directly to the cold zone in front part of a rack	112
Cable entries	Products for passage of cabling/pipes through raised floor with minimal loss of air pressure	138
Brackets	Needed when vertical PDU installation into rack is planned	126
Blank panels	Prevent cold air by-pass through unused U positions	112

BASIC PLENUM FEED WITH ROOM RETURN DESIGN GUIDELINES

- Typically for heat loads of 4.5 kW to 6 kW per cabinet
- 42U to 48U – 600 mm or 800 mm wide cabinets – 1000 mm or 1200 mm deep cabinets
- Positioning plinth when using 600 mm wide cabinets
- Air separation frames – 50 mm to 200 mm deep
- Front glass door
- 86% vented rear door
- Air flow deflector optionally with louvers
- Double brush grommets for cable entries
- Blanking panels for all vacant equipment mounting locations in cabinets
- Monitoring environmental conditions in the cabinet

Note: This configuration has many variables, such as supply air volume and velocity along with the type and position of the equipment mounted in the cabinet. Conteg product specialists are available to assist with details related to designing or using this configuration.

1.6 ROOM FEED WITH PLENUM RETURN 252U+

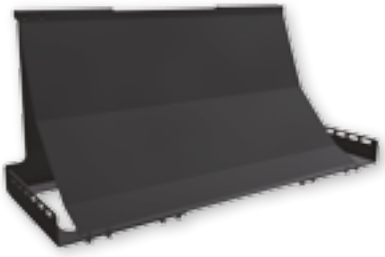


Contained Cold Aisle and Plenum Feed/Room Return technologies release the warm exhaust air into the facility room. Generally, this should not pose a problem as long as the layout of the data center takes this into account. However, in certain very high-density applications it may be desirable to completely separate the hot exhaust from the cool supply air.

Conteg's Hot Plenum Return Kit (HPR) addresses this requirement by using a vertical "chimney" at the top rear of the rack directly connected to a hot plenum below the ceiling. A turning vane located at the bottom rear of the rack helps to optimize the flow of hot exhaust into the "flue", while the large surface area of the chimney ensures that large volumes of air can pass at relatively low velocities.

The hot plenum is formed by installing a suspended ceiling within the facility room and rather than using the stratification principle warm exhaust (typical in a traditional hot/cold aisle arrangement), the hot exhaust air removal into a separate air handling space is used. The Computer Room Air Handlers (CRAC/CRAH) are also connected to the plenum so that an air loop is formed.

This layout can tolerate very high heat densities with excellent cooling system efficiency; a study by Intel which originally pioneered this concept, shows that this design can handle as much as 30 kW per rack.



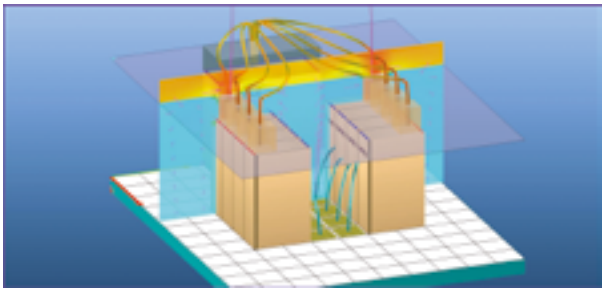
The Turning vane is designed to enhance the natural draw effect of the chimney. It is installed in the rear bottom part of rack and forwards the hot air directly to the above chimney.

The chimney is designed to form a duct for the hot exhaust between the rack and the hot plenum. Its height can be adjusted from 750 mm to 1360 mm.

Cold air is delivered to the cold aisle using the raised floor as a cold air handling plenum; the hot air is directed by a rear deflector straight to the chimney and false ceiling, which is used as a hot air handling plenum.

COOLING

In the Room Feed with Plenum Return design, the cold air is usually produced by a central room cooling system with perimeter positioned close control units. The suspended ceiling is used as a hot air handling plenum, while the cold air is delivered to the room using a raised floor as a cold air handling plenum. In sites where there is no raised floor, displacement cooling can be used instead of traditional down-flow CRAC/CRAH raised floor solutions. This can be useful when there is insufficient clearance for the installation of both raised floor and suspended ceiling.



RECOMMENDED RACK SERIES

Rack series	Description	Read more
PREMIUM Server RSF	PREMIUM rack series, highly configurable with load rating up to 1500 kg	36
PREMIUM Cabling RDF	PREMIUM rack series provides maximum compatibility with Targeted Cooling solutions and is developed for cabling support; load rating up to 500 kg	32

- Front vented door (86% perforation rate) with multipoint swivel handle lock (universal key)
- Rear sheet steel door with multipoint swivel handle lock (universal key)
- Removable sheet steel side panels with lock (universal key)
- Two pairs of 19" vertical sliding extrusions
- Top and bottom openings for cable entry
- Adjustable feet as standard; recommended plinth or plinth with filter (not included)

Protection rating IP20, load rating RDF – 500 kg, RSF – 1500 kg, color black RAL 9005 (optionally light gray RAL 7035). For detail technical information on RDF or RSF racks please refer to page 32 & 36.

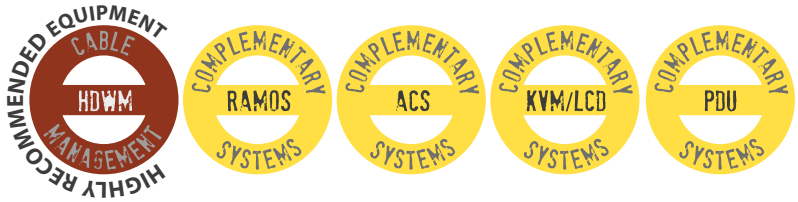
Code [1]
RSF-42-60/12T-WWSWA-0CF-H
RSF-42-80/12U-WWSWA-0CF--H

Code [1]
RDF-42-80/12C-WWSWA-0C5-H

[1] All racks in black; for gray – simply change H in the end of the code to B

RELATED PRODUCTS

Related products	Description	Read more
Air separation frame	Prevent by-pass airflow between frame and 19" extrusion to optimize cooling of equipment	112
Chimney	System for removing hot air from the rack directly to the plenum – ceiling	112
Turning vane	Part of a chimney solution used to turn the direction of airflow in the rear upwards	112
Cable entries	Products for passage of cabling/pipes through raised floor with minimal loss of air pressure	138
Modular plinths	Replace adjustable feet and use as stabilizing and aesthetic element	135
Brackets	Needed when vertical PDU installation into rack is planned	126
Blank panels	Prevent cold air by-pass through unused U positions	112



BASIC ROOM FEED WITH PLENUM RETURN DESIGN GUIDELINES

- Typically for heat loads up to 12.5 kW or greater per cabinet
- 42U to 48U – 600 mm or 800 mm wide cabinets – 1200 mm deep
- Air separation frames – 150 mm or 200 mm deep
- 86% vented front door
- Solid rear door
- Turning vane for bottom rear of cabinet
- Chimney system for directing hot air to return plenum
- 1200 mm or 1800 mm aisle spacing
- Double brush grommets for cable entries
- Blanking panels for all vacant equipment mounting locations in cabinets
- Monitoring of return plenum and environmental conditions in the cabinet

Note: Cooling capacity of this configuration can reach higher values depending on many variables such as the capacity and features of the precision computer room cooling unit, the ratio of supply air space to return plenum space and the amount of air obstructions in the supply and return air spaces.

1.7 SERVICES

Project Support

When preparing a complex network project, consultants, designers or your company's IT department can benefit from the advice or support of our product managers. Our product managers have in-depth knowledge about the parameters and characteristics of all Conteg product portfolio items as well as years of experience successfully delivering completed projects. It does not matter how challenging or simple your project is, Conteg has an engineered solution to fully meet your requirements. Do not hesitate to contact our Total Solutions Technical Support team.

Consultation on DC Solutions

Our specialists in cabling, power distribution, cooling, enviromental monitoring, etc. are ready to help you with consultations and calculations when designing your data center.

The data center works as a complex organism, in which all parts must operate properly to function reliably and efficiently. Conteg has experts in total solutions for data centers (CDCDP), specialists in issues of power distribution, cooling, fire management, cabling, etc. A well prepared project is essential for swift and correct implementation, and for a completion that satisfies the customer's requirements.

Our team can design a layout of your data rooms, location of individual components (UPS, cabling, IT cabinets, fire extinguishing, engine room), as well as detailed rack distribution on floor tiles. We can offer energy studies, and also the entire cooling system projects, using Conteg products and other brands. The goal is always to maximize the benefits, while minimizing capital and operating costs.

You can also consult with us about minor details and questions that arise during the planning, implementation or operation of your data center or server room.

Conteg Product Commissioning

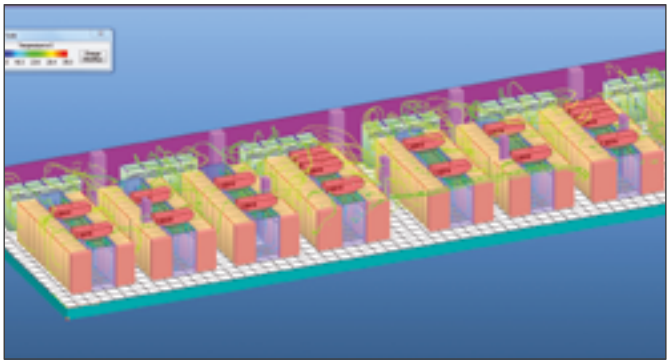
As part of our continuous support, Conteg provides a wide range of services to ensure the best quality support to all customers. The Start-up service was designed to provide professional Start-up and commissioning services to all types of our cooling equipment while focusing on energy-optimal performance and equipment longevity. Only Conteg's technical support personnel or Conteg certified service technicians are allowed to perform the Start-up.

Conteg Assembling Assistance

As an important part of our expanding service to our customers, we are offering a service called Conteg Assembling Assistance (CAA). This service ensures that a Conteg specialist is present on-site to supervise installation and to provide best practice training for your technical staff. We believe that CAA service will help our partners to provide installations of Conteg products at the highest level. Tasks like Contained Aisle (Modular/Fixed) installation, OptiWay attachment, High Density Wire Management placement and RAMOS implementation together with, for example site survey, are ideal for CAA. For more info contact your sales representative.

Computational Fluid Dynamics (CFD) modeling

Computational Fluid Dynamics (CFD) modeling is a service designed to provide detailed data to assess and track the temperature and airflow within your existing or proposed data center. A team of Conteg professionals will assist you with the space planning and data center layout and then model your project on CFD software. The CFD model will simulate the air flows, air pressures, and temperature maps of your data center. Using 3D imaging, the CFD application can run nominal and failure scenarios for the data center or server room project, which displays how the design will perform under these varied conditions. Identifying potential hotspots, optimizing air flows, and right sizing the cooling system are a few of the ways how the CFD simulation can assist you. The service includes detailed reports with graphics of the room conditions under each scenario, details of the air flow maps, pressure and temperature for the racks, floor tiles, and various elevations within the space.



Conteg Certification Program

The Conteg certification program provides quality training for our business partners and integrators worldwide. We offer a wide range of certificates that are technically oriented. Certification training is carried out by our technical staff, in collaboration with local sales representatives. It is a personal training and we use our wide network of show rooms around the world, as well as our training center at the factory in Pelhřimov, Czech Republic. Passing the certification training will help our partners fully understand all details of our products, solutions, and our sales strategy with the goal to improve our services to our customers. For a detailed Training Calendar and Certification schedule, check our website or contact your local sales representatives.

Conteg CERTIFICATES

CDCS - Conteg Data Center Solutions - For DC designers, project managers, professionals responsible for DC implementation
CDCSI - Conteg Data Center Solutions Integrator - For companies whose employees successfully passed CDCS
TRS - Total Rack Solutions - For sales representatives, pre-sales, inside-sales, installers
CCIP - Conteg Certified Installation Partner – For installation companies and installers
CTSS - CoolTeg Start-up Service - For cooling professionals
CCSP - Conteg Certified Service Partner - For cooling professionals and companies

Conteg Live Meeting Webcast & Training Calendar!

As an important part of our training initiative, Conteg provides Live Meeting Webcasts using the MS Office Live meeting service. These webcasts focus on product portfolio training, positioning new products on the market, introducing Conteg Total Solutions and many others. With this service, participants will receive up-to-date information on the latest trends in data center solutions from dedicated Conteg professionals and product managers. There is a weekly schedule and live meetings are provided in English and Czech. Other language versions are available upon request. For a live meeting calendar and other training schedules check our website or contact your local sales representatives.

1.8 TestCenter for Data Centers TC4DC

Conteg's TestCenter for Data Center in Pelhřimov, Czech Republic was built especially for testing new and existing products and their impact in different configurations on the overall power consumption, efficiency, reliability and effectiveness of data centers. Computer simulations and real measurements in the laboratory allow specialists in the company to verify the principles of the various processes in the server rooms and to implement innovative solutions. TC4DC is also a gathering place for experts and training specialists in the design, build-out, and maintenance of data centers. We would like to also offer our clients the premises and equipment in the experimental data center to test any components, and see how the components might react to varying critical conditions, which are difficult and far too risky to simulate in the real operation. Finally, our clients can also use premium wired and wireless measuring instruments for testing and auditing existing data centers to obtain information about how to optimize and use the advancements in the industry.

Basic information

Covered area - Conteg´s TC4DC testing lab covers a total area of 156 m² and consists of two areas - an experimental data center and rooms for technical support.

Experimental data center – designed as a real data center with a raised floor and suspended ceiling, the area of the laboratory is 75 m² and is separated from a technical workshop and observation area by a glass wall. The experimental room arrangement can simulate real life situations. It is possible to install individual racks, their rows, contained aisles and also closed-loops.

Room for technical equipment – place for hardware and software to operate the center, a conference room and presentation equipment.

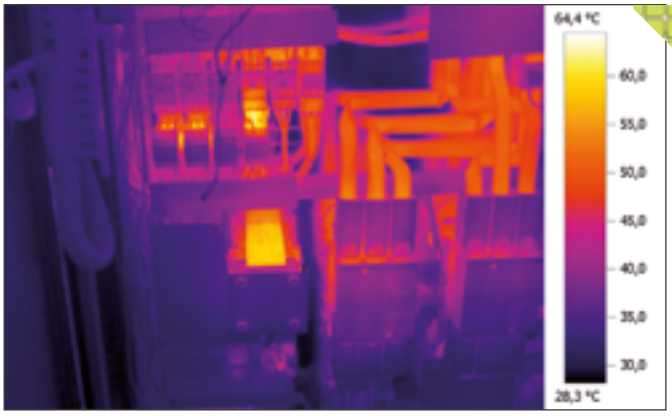
Ancillary spaces - there is a workshop area to place the hardware used for testing and computers to run software to examine the results, along with a conference room for team meetings and technical presentations.

Laboratory equipment

- Cooling system - several variable cooling options for testing different variants of traditional and experimental arrangement of ICT cabinets with thermal loading are available. There are two, 80 kW water cooled CRAC units (Computer Room Air Conditioning) installed with air blowing under the raised floor. Moreover, there are 12 positions for the chilled water connection for different versions of air conditioning units. By default, CoolTeg units integrated into the rows of rack are offered with a cooling capacity of 35 kW. The cooling source is two water-cooled chillers with an output of 80 kW, one of which is equipped with free-cooling accessories. Thanks to sophisticated control, accumulation tanks, and control valves, each independent system delivers the necessary chilled water temperatures and flow rates. At the same time, it is also possible to accurately measure all energy flows. In addition to the water cooling system, we can also offer a compressor system with two outdoor units with a capacity of 20 kW operating with R410A refrigerant.
- Sources of heat – the laboratory is equipped with 20 heat sources, which can be installed in 19" racks. Each source has a continuous control of airflow and can regulate heating power in steps of 2 kW for up to 6 kW of total heating power.

Measuring instruments

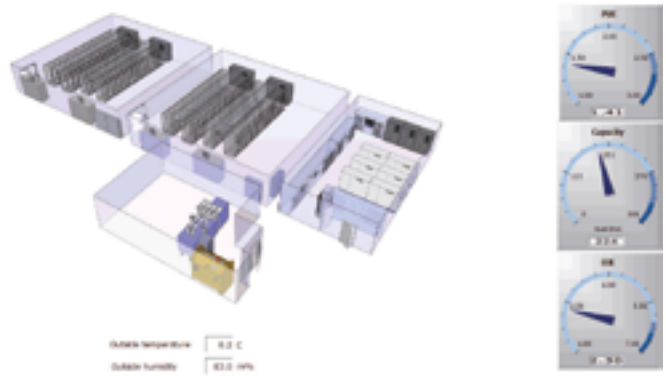
- A system of sensors for long-term monitoring of quantities in the laboratory transmits information to a measuring central unit. The data is then processed and archived by specially designed laboratory software that allows for the evaluation, visualization, and presentation of data from individual experiments.
- Independent measuring system is a system for measuring central unit and wireless temperature and humidity sensors that can be used both in the laboratory and in a real data center for verification of laboratory measurements in practice.
- Separate calibrated measuring instruments for accurate verification of all local variables (sound meter, thermal imagers, anemometers, thermometers, hygrometers, CO_2 sensor, pressure gauges, wattmeter, ammeter, oscilloscope, tachometer, etc.)



Some examples of what can be measured:

- humidity
- temperature (water, air, and surface of all equipment and racks)
- air flow and water flow
- speed of air flow and water flow
- pressure differences in individual parts of experimental arrangements
- CO_2 concentration
- electrical parameters (voltage, current, power consumption)
- noise parameters
- fan speed

1.9 AEGIS Data Center Infrastructure Management (DCIM)



Conteg has developed the Aegis DCIM system which collects, analyzes, and reports all the necessary information using standardized data communication protocols.

Data centers have changed considerably throughout the years; an evolution of information technology has resulted in data centers becoming the critical nerve center of today's enterprise. The efficiency of data centers has become an important topic in a global discussion among end-users, policy makers, technology providers, and facility architects.

DCIM has a real-time performance dashboard with metrics like PUE, EUE, EER, etc. DCIM monitors the status of the data center and reports defects/equipment malfunctions and temperature problems, like excessive humidity or temperatue levels. Aegis is not only a conventional DCIM, but it can also control the strategic equipment of data centers to improve PUE.

One of the important highly developed data center metrics used to measure overall efficiency is PUE (Power Usage Effectiveness) developed by The Green Grid™. PUE is equal to the total power used by the facility to support the IT load, for example cooling, UPS, and lighting divided by the total IT equipment power consumption. In general, PUE calculations, compared with manually gathered information, takes place on a monthly basis. Manual calculation is only useful for reporting. If you want to improve the operation of the data center, then the metrics should be based on real-time information.

Improving efficiency reduces the operational expenses (OPEX) of your data center, and helps make the facility compliant with current and developing governmental regulations, and immediately reduces your carbon footprint. Data center monitoring and control is a critical element for maintaining maximum availability of your critical operations. Conteg developed the Aegis DCIM system which collects, analyzes and reports all the necessary information using standardized data communication protocols. With DCIM, you have full control of your data center.

Aegis DCIM

Conteg's Aegis - Data Center Infrastructure Management (DCIM) is a complete monitoring application for managing data center infrastructure.

Data center efficiency

Conteg's Aegis (DCIM) system collects, analyzes, reports, and manages infrastructure equipment in real-time using standardized data communication protocols. Improving efficiency reduces the operational expenses (OPEX) of a data center, and will reduce the data center's carbon footprint. It also helps to make the facility compliant with current and future developing governmental regulations.

Integration to third-party applications

Conteg's Aegis DCIM is designed to operate with all types of devices, equipment and third-party software applications. Aegis DCIM supports communication with data bases, including SAP BAPI (Business Application Programming Interface), MS SQL server 2008, My SQL, Oracle, MS Access, ODBC, OLEDB and the data mining tool Grid Control, which enables OPC, SNMP. AEGIS DCIM is customized based on the individual needs of each client.

Scalable solutions:

The Conteg Aegis Infrastructure Management can be adapted to fit all scenarios. The solution has been tailored to suit three levels of projects: a Server Room version for projects of up to 10 cabinets/racks, an Enterprise Data Center version for projects of up to 32 cabinets/racks and a Global version that can meet the requirements for a data center project regardless of size or scale.

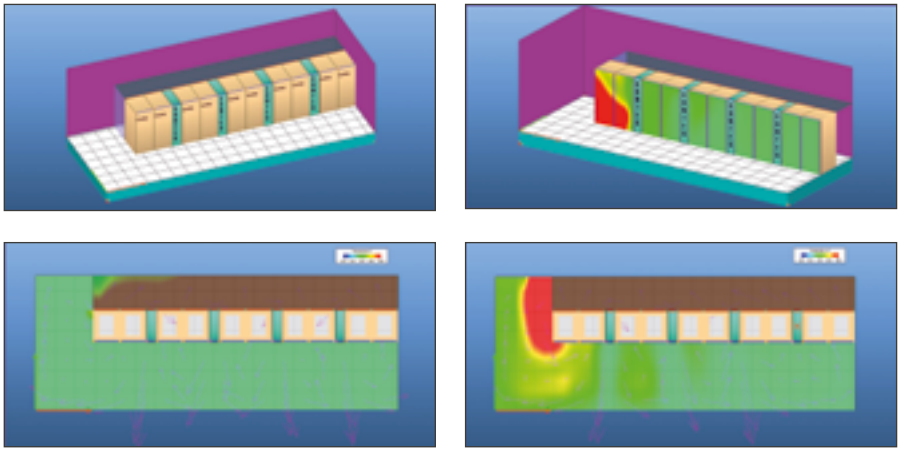
Technical information

- Useful computer room information: metrics like PUE, EUE, EER, etc. are shown on Aegis DCIM dashboard
- Alarm for defects/equipment malfunctions, temperature problems, like excessive humidity or temperature levels
- Monitoring and reporting of IT equipment's energy consumption at facility, row, rack or outlet level
- Monitoring of electrical breaker loads, based on actual and daily peak load values
- Capacity reports
- Local and remote accessibility via a standard web portal
- Data security on various levels

1.10 CFD Modeling

Conteg licenses a highly specialized application specifically designed to produce detailed CFD simulations of temperature distribution and airflow in the data center. The CFD simulation can be based on data you provide via electronic file transfer with the Conteg Technical Team or gathered from on-site surveys conducted at your data center by Conteg data center specialists. Either way, Conteg, using the CFD software, will prepare a model which will provide both tabular data along with a 3D AVI simulation. The data can be used by IT and facility management staff to verify assumptions related to the operation or design of a data center, reduce OPEX by testing optimization schemes or for planning the most efficient way of adding or rearranging IT or cooling equipment.

Computer modeling creates a bridge between information related to the operation of the mechanical systems and the varying operation of the IT equipment heat load so that the IT and facilities staff can optimize the efficacy of air flows and maximize cooling capacity. CFD modeling is a tool that can be used both in the planning stage of data centers, as well as for the analysis of how design assumptions are functioning in an operating data center. Globally, for reasons such as good corporate citizenship, regulatory mandates and reductions in available electrical utility capacity, it has become common, almost essential, that a data center design team verify the functional characteristics of data hall projects. In order to attain effectively cooled high-density IT equipment configurations, CFD modeling is also being applied to server and telecommunications equipment room designs.

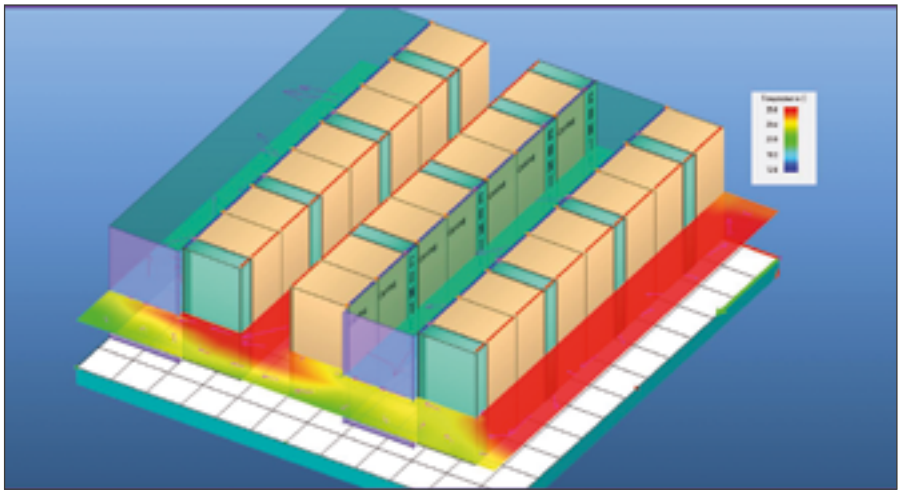


Data centers and server rooms are loaded with many different types of equipment and systems. Each of the systems, for example, a row of SAN equipment, Network Switching equipment, or high-density servers, results in a variety of different sources of heat and cold. How these disparate systems impact the air and pressures in the room becomes extremely complicated. Methods of computer modeling, especially Computational Fluid Dynamics (CFD), remove the guesswork by analyzing the variants in detail and graphically display the effects on the temperature distribution, velocity, and air pressure in the space.

CFD modeling is not a silver bullet, but pragmatic use of the tool can help in the optimization of designs or in researching how to reduce the OPEX of an operating facility. The following are some of the advantages which can be realized by implementing a CFD model for a data center or server room design or an existing operating data center.

- Verification of assumptions related to how the data center or server room cooling system will operate.
- Crisis Management – How does the designed redundancy function should a cooling unit fail?
- The company plans to virtualize applications. So what happens if a new bank of high-density servers are added?
- Would the data center operate more efficiently if we re-arranged some of the IT equipment?
- Would the data center operate more efficiently if we made adjustments to the cooling system?
- What happens if we increase the server inlet temperature to the IT equipment?
- What happens if we increase the chilled water temperature to the cooling units?

When an experienced Conteg specialist familiar with numerous design models collaborates with your team, your design challenges can be resolved. Even more importantly, by simulating crisis scenarios, unknown variables and problems can be prevented from happening. There is no need to search for the optimal arrangement of data center solutions by trial and error, as each attempt costs time and unnecessary expense.



2. FREE-STANDING RACKS

PREMIUM RACK SERIES

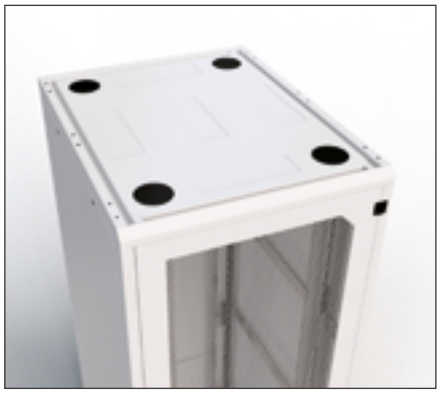
PREMIUM

We have embodied all the traditional requests of users into the PREMIUM rack series design and made it the TOP rack series in the Conteg rack portfolio. With PREMIUM racks, the variability acquires a new dimension – only the frame remains the same. All other parts – 19" extrusions, top and bottom plates, front and rear doors or panels, locks, side panels, feet or plinth – can be defined by you. A wide portfolio of all the mentioned parts is ready to be applied, so an individual rack, meeting the most demanding requirements of data center and server rooms IT administrators, can be defined. Although the main design features remain the same, three configurations according to specific user needs have been pre-designed…

PREMIUM HEAVY RHF

The PREMIUM Heavy RHF rack is designed to cope with the increased loads of today's IT equipment within a data center, equipment room and network or telecommunications closet. The PREMIUM Heavy RHF's heavy-duty, all-welded frame and 1500 kg load rating mean that it's possible to accommodate the heaviest equipment within a standard rack footprint.

Heavy-duty design of 19" vertical extrusion gives PREMIUM Heavy RHF a 1500 kg load rating.



RHF's design will perfectly fit even in a row of cabling (RDF) or server (RSF) racks

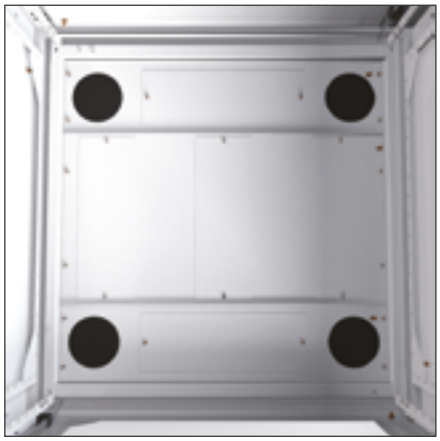
PREMIUM CABLING RDF

The PREMIUM Cabling RDF rack is designed as a dedicated cabling cabinet intended to be used in data centers, equipment rooms and network or telecommunication closets. Moreover, PREMIUM Cabling RDF is fully compatible with all cooling units from the Targeted Cooling portfolio and recommended to be used together with CoolSpot A/C units. We have developed special cabling systems like High Density Wire Management (see page 85), the optical pathway system OptiWay (see page 89) and Top Ducts (see page 94) hand-in-hand with this PREMIUM rack series configuration. We strongly recommend you combine the PREMIUM Cabling RDF rack series with both these cabling systems to give your cables the best possible support and care.

PREMIUM SERVER RSF

The PREMIUM Server RSF rack is designed as a dedicated server cabinet and is intended to be used in data centers, equipment rooms and network or telecommunication closets. The PREMIUM Server RSF's heavy-duty, all-welded construction and 1500 kg load rating mean that it's possible to accommodate the heavy equipment within a standard rack footprint. A full range of complementary systems (see page 114), like Intelligent Power PDUs (see page 124), is ready to be used together with PREMIUM Server RSF racks to make the housing of your servers even more safe and comfortable.

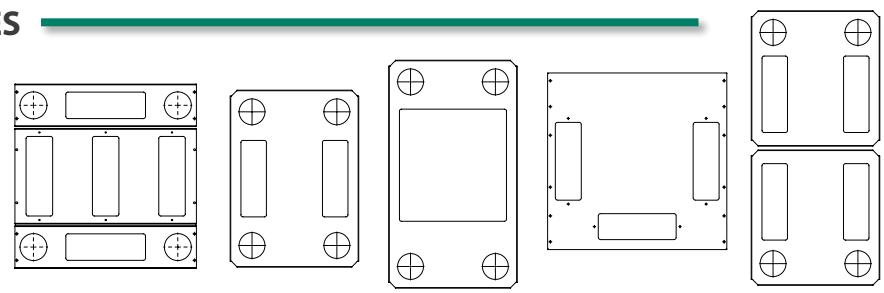
Interchangeable top and bottom plates in various design options provide a unique interface between in-rack and out-of-rack cabling systems (illustrative image only)



Rear pair of 19" extrusions is vertically divided to allow for various depth settings to accommodate different servers.

PREMIUM RACK SERIES PLATES

A unique system of interchangeable PREMIUM plates consists of 3 different top cover single-piece plates and a wide range of bottom plate options. You can create a unique design for your bottom plate in a short and easy way. To find out more information on PREMIUM plates, go to page 40.



2.1 PREMIUM Heavy RHF

The PREMIUM Heavy RHF rack is designed to cope with the increased loads of today's IT equipment within a data center, equipment room and network or telecommunications closet. The RHF's heavy-duty, all-welded frame and 1500 kg load rating mean that it's possible to accommodate the heaviest equipment within a standard rack footprint. The RHF comes with a full range of doors, panels and locks. This racks is 42U tall with a depth of 1000 mm and widths of 600 mm and 800 mm. The RHF is designed to work with Conteg's air-flow optimization solutions and flexible cable management system (see page 85 to find out more on High Density Wire Managers), which means that the RHF can be tailored to suit your needs.

PREMIUM

RHF-42-80/100

COLOR SAMPLER: RAL 9005 | RAL 7035

DESCRIPTION:

Sizes
- Height: 42U
- Width: 600, 800 mm
- Depth: 1000 mm

Construction
- Welded-frame design
- 2.5 mm sheet steel

Load rating
- 1500 kg balanced

19" vertical extrusions
- 2 pairs sliding 19" vertical L-type (10 mm)
- P-type (800 mm) extrusions (provides additional 2U for installation space)
- Adjustable from inside
- type extrusion (800 mm)

IP rating
- Standard IP20
- IP40 with solid doors (partial applied)
- Optionally up to IP54 with multipoint lock only
- A/C ready – IP55 when A/C unit installed with multipoint lock only

Colors
- Standard RAL 7035 and 9005
- Other color options

Front door
- Vented door – perforation rate 86%
- Swivel handle lock – DIN profile, universal key 333, multipoint; half-profile cylinder or combination lock single or multi-point options (other locks on request)
- Door opening angle 180°
- Easy re-hanging to open on right or left
- Optionally glass, steel, perforated, glass with perforation, vertically divided door

Rear door
- Vented door – perforation rate 86%
- Swivel handle lock – DIN profile, universal key 333, multipoint; optionally half profile cylinder or combination lock single or multi-point (other locks on request)
- Optionally can be replaced by full range of front doors and panels

Side panels
- Removable with locks

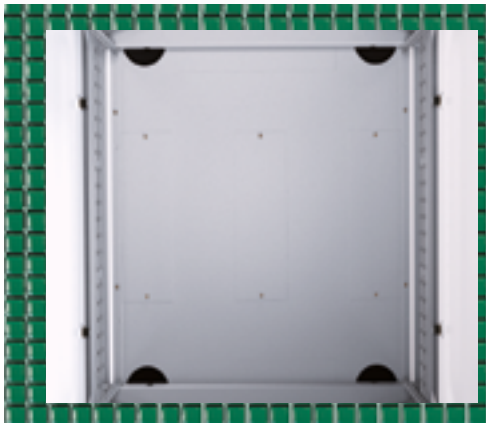
Top plate
- Single piece design, removable
- 4" (100 mm) rounded cable entry in every corner covered by plastic caps
- 300×100 mm cable entries covered with removable sheet steel blank panels

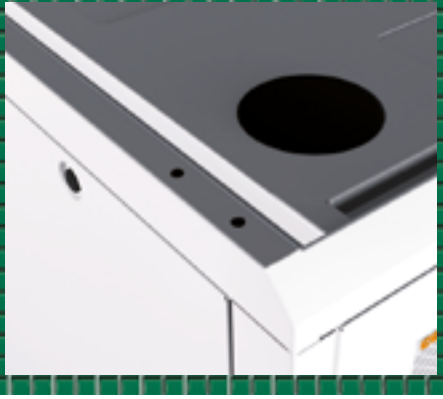
Bottom plate
- Segmented design, removable
- 4" (100 mm) rounded cable entry in every corner covered by plastic caps
- 300×100 mm cable entries covered with removable sheets steel blank panels

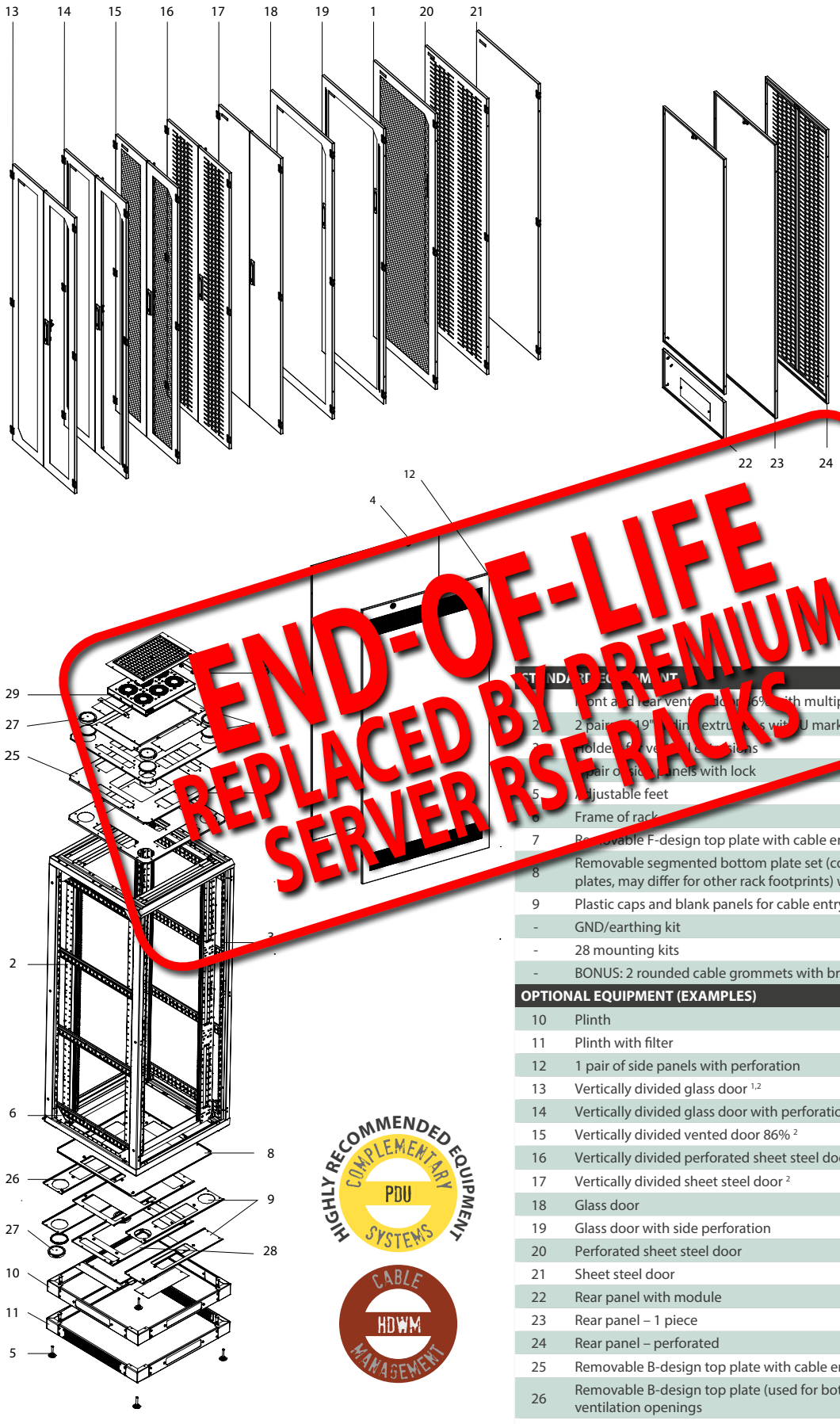
Feet
- Adjustable feet as standard; high-load plinth option

Adaptation
- Possibility to adapt for installation of 21" equipment (on request) - valid for 800 mm width
- Adaptor DP-RE-01 (ordered separately)

Other
- Racks can be installed in blocks by using DP-DR-UNI (ordered separately)
- CoolTeg and CoolSpot cooling units compatible – see page 101 for details
- GND/earthing kit included







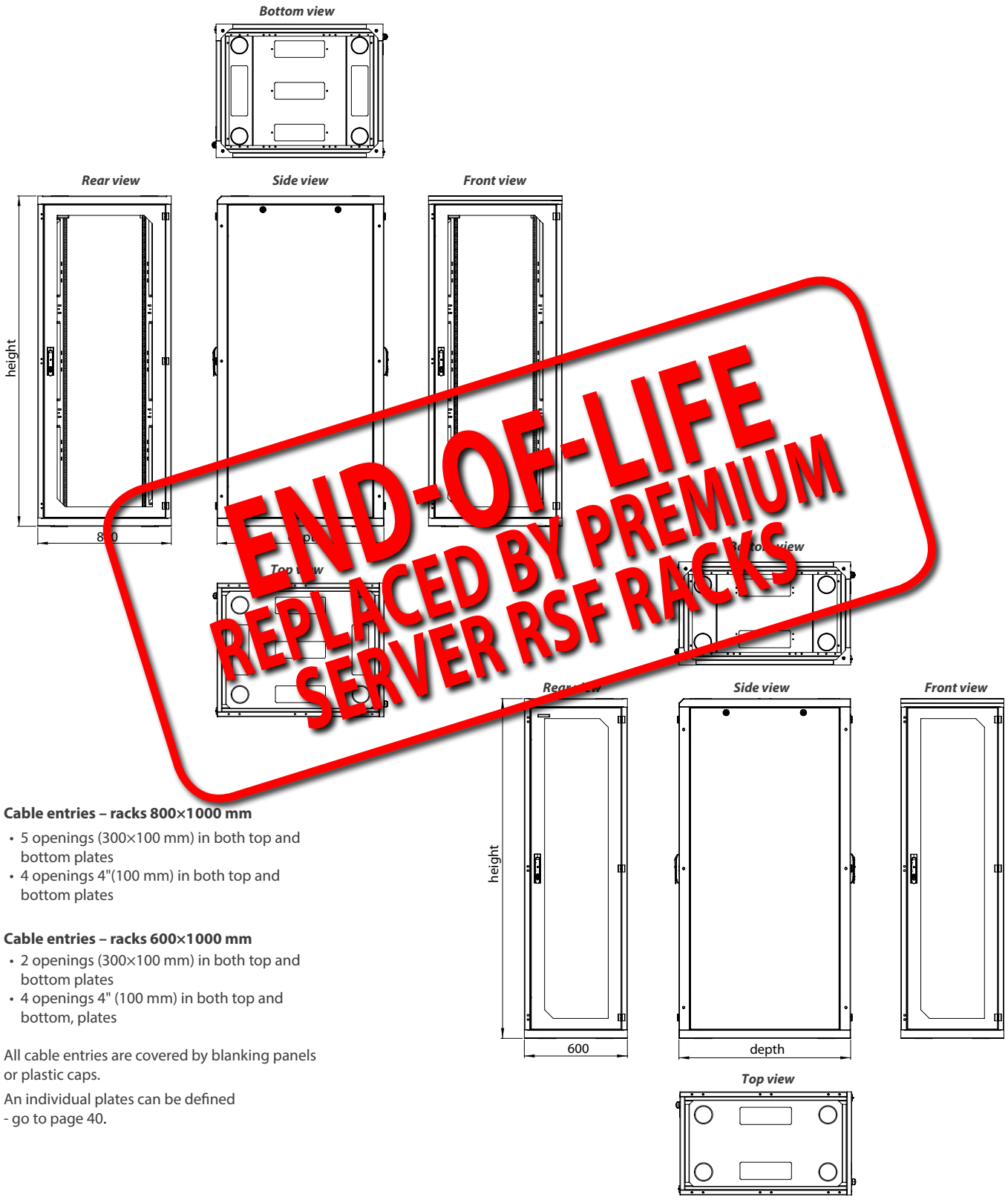
END-OF-LIFE
REPLACED BY PREMIUM
SERVER RSF RACKS

STANDARD EQUIPMENT	
1	Front and rear ventilation doors 86% with multipoint swivel handle lock
2	2 pairs 19" mounting extrusions with U marking
3	Holder for vertical divisions
4	Pair of side panels with lock
5	Adjustable feet
6	Frame of rack
7	Removable F-design top plate with cable entry openings
8	Removable segmented bottom plate set (consists of C and F-design plates, may differ for other rack footprints) with cable entry openings
9	Plastic caps and blank panels for cable entry openings
-	GND/earthing kit
-	28 mounting kits
-	BONUS: 2 rounded cable grommets with brush DP-KP-RB4 for free
OPTIONAL EQUIPMENT (EXAMPLES)	
10	Plinth
11	Plinth with filter
12	1 pair of side panels with perforation
13	Vertically divided glass door [1,2]
14	Vertically divided glass door with perforation [1,2]
15	Vertically divided vented door 86% [2]
16	Vertically divided perforated sheet steel door [2]
17	Vertically divided sheet steel door [2]
18	Glass door
19	Glass door with side perforation
20	Perforated sheet steel door
21	Sheet steel door
22	Rear panel with module
23	Rear panel – 1 piece
24	Rear panel – perforated
25	Removable B-design top plate with cable entry and ventilation openings
26	Removable B-design top plate (used for bottom) with cable entry and ventilation openings
27	Rounded cable grommet with brush
28	Blank panels for ventilation openings
29	Ventilation unit
30	Connecting kit with filter for ventilation unit

[1] *not available for 600 mm wide racks*
[2] *requires multipoint lock*

HIGHLY RECOMMENDED EQUIPMENT
COMPLEMENTARY
PDU
SYSTEMS
CABLE
HDWM
MANAGEMENT

This is example of 19" RHF 800 rack, for other types and options see page 31 "ordering matrix".



END-OF-LIFE
REPLACED BY PREMIUM
SERVER RSF RACKS

Cable entries – racks 800×1000 mm

- 5 openings (300×100 mm) in both top and bottom plates
- 4 openings 4"(100 mm) in both top and bottom plates

Cable entries – racks 600×1000 mm

- 2 openings (300×100 mm) in both top and bottom plates
- 4 openings 4" (100 mm) in both top and bottom, plates

All cable entries are covered by blanking panels or plastic caps.

An individual plates can be defined
- go to page 40.

Code	H in U	Load rating in kg	Dimensions in mm				Dimensions including packing in mm			Gross weight in kg
			H*	W	D	Useful depth	H	W	D	
RHF-42-60/100	42	1500	1978	600	1000	990	2160	640	1040	143
RHF-42-80/100	42	1500	1978	800	1000	990	2160	840	1040	171

** Height in mm without feet; for feet add 16-45 mm*

Note: All dimensions in mm

R | H | F | - | 1. | - | 2. | / | 3. | 4. | - | 5. | 6. | 7. | 8. | 9. | - | 10. | 11. | 12. | - | 13.

ORDERING AND SHIPPING INFORMATION: Configure the rack that will meet your requirements. The ordering matrix below will help you to create the part number. As soon as you have the part number, please contact your Conteg products distributor. Please note that all **RHF RACKS ARE DELIVERED FULLY ASSEMBLED** and palletized!

FOLLOW THE STEPS TO SET UP THE DESIRED RHF RACK PRODUCT CODE!

END-OF-LIFE
REPLACED BY PREMIUM SERVER RSF RACKS

1 HEIGHT

Code	Height in U	External height in mm
42	42	1978

2 WIDTH

Code	Width in mm
60	600
80	800

3 DEPTH

Code	Depth in mm	Useful depth in mm
10	1000	990

4 EXTRUSIONS

Code	Front pair	Rear pair	Note
0	L	L	L-type undivided extrusions – for racks 600 mm wide only
P	P	P	P-type undivided extrusions – for racks 800 mm wide only, each extrusion with 3 additional 19" vertical positions, blank panels not included
C	C	C	C-type undivided extrusions with rounded cable troughs covered with plastic caps – for racks 800 mm wide only

11 PLATES [1]

Code	Top plate	Bottom plate	Note
A	P	X	Top and bottom single pie[illegible]ates, required for IP54
C	no top	X	Open top – for A[illegible]ready option (table 10)
E	F	XXX [2]	Stan[illegible] – one piece top plate, segmented bottom plate
F	F	no botto[illegible]	Open bottom – ready for i[illegible]on on raised floor or plin[illegible]
X	no top [3]	[illegible] bottom [3]	Open top and b[illegible] for i[illegible]vidual plates go to page 40

[1] For more informa[illegible] on plates go to page 40
[2] 600×10[illegible]HB, 800×1000: CHC
[3] [illegible]pen top or bottom results in no IP p[illegible]on unless o[illegible]rwise st[illegible]d

5 FRONT DOOR

Code	Note
0	Without doo[illegible]
G	Glass door
S	Sheet steel do[illegible]
P	Perforated shee[illegible]teel doo[illegible]
T	Glass door with [illegible]rforation [3]
W	Vented door (perforati[illegible]te [illegible]6%) [2]
[illegible]	Vertically [illegible] glass [illegible] [4] *
[illegible]	Vertically [illegible] with [illegible] perforation [illegible] *
C	Vertically [illegible] steel door [4]
D	Vertically d[illegible] perforat[illegible] steel [illegible] [5]
F	Vertically divided vented d[illegible]r (pe[illegible] 86[illegible] [2]
	Other

[1] no IP protection
[2] IP20 max.
[3] IP30 max.
[4] multipoint lock only
[5] multipoint lock on[illegible] IP20 max.
[6] multipoint lock only, IP30 max.
*these options apply to RHF [illegible] only

7 REAR DOOR / PANEL

Code	Note
[illegible]	W[illegible]out [illegible] [1]
[illegible]	Gl[illegible]
S	[illegible]heet stee[illegible]
P	Pe[illegible]ate[illegible] sheet [illegible] door [illegible]
[illegible]	Gla[illegible] with si[illegible] p[illegible]ation [3]
W	Ve[illegible]foration rate 86%) [2]
A	[illegible]ically divided glass door [4] *
B	Vertically divided gla[illegible]door with side perforation [6] *
C	Vertically [illegible] sheet steel door [4]
D	[illegible]tically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [2]
Y	Rear panel – single piece [3,7]
R	Rear panel – divided, with cable entry [7]
Z	Perforated rear panel – single piece [8]
	Other

[1] no IP protection
[2] IP20 max.
[3] IP30 max.
[4] multipoint lock only
[5] multipoint lock only, IP20 max.
[6] multipoint lock only, IP30 max.
[7] Lock code **U** or **X** only
[8] Lock code **U** or **X** only, IP20 max.
*these options apply to RHF 800 only

6 FRONT DOOR LOCK

Code	Options
1	Swivel handle with electronic lock, universal key
3	Swivel handle with electronic lock, universal key, multipoint
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
I	Swivel handle with profile half cylinder, universal key
J	Swivel handle with profile half cylinder, universal key, multipoint
K	Swivel handle with profile half cylinder, keyed different
L	Swivel handle with profile half cylinder, keyed different, multipoint
V	Swivel handle DIN profile, universal key, 333
W	Swivel handle DIN profile, universal key, 333, multipoint
	Other

8 REAR DOOR / PANEL LOCK

Code	Options
1	Swivel handle with electronic lock, universal key
3	Swivel handle with electronic lock, universal key, multipoint
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
I	Swivel handle with profile half cylinder, universal key
J	Swivel handle with profile half cylinder, universal key, multipoint
K	Swivel handle with profile half cylinder, keyed different
L	Swivel handle with profile half cylinder, keyed different, multipoint
V	Swivel handle DIN profile, universal key, 333
W	Swivel handle DIN profile, universal key, 333, multipoint
U	Lock for rear panel, universal key
X	Lock for rear panel, keyed different
	Other

12 LOAD RATING

Code	Load rate in kg	Note
F	1500	Balanced load

13 COLOR

Code	Note
B	RAL 7035 (light gray)
H	RAL 9005 (black)

10 IP RATING [1]

Code	Note
0	IP00
2	IP20
3	IP30
4	IP40
5	IP54[3]
A	A/C ready [2]

[1] According to EN 60529
[2] Ready for AC unit installation; recommended when cooling is planned or required; IP54 when AC unit installed according to instructions
[3] Multipoint lock only

9 SIDE PANELS (BOTH SIDES) *

Code	Note
0	No side panels
A	2 side panels, sheet steel, universal key
B	1 side panel, sheet steel, universal key
C	2 side panels, sheet steel, individual key
D	1 side panel, sheet steel, individual key
E	2 side panels, sheet steel with perforation, universal key
F	1 side panel, sheet steel with perforation, universal key
G	2 side panels, sheet steel with perforation, individual key
H	1 side panel, sheet steel with perforation, individual key
	Other

* open side/sides results in no IP protection; side panels with perforation result in protection rating IP20 max.

An example of a correct product code

RHF-42-80/10P-SWCWA-5AF-B

2.2 PREMIUM Cabling RDF

The PREMIUM Cabling RDF rack is designed as a cabling cabinet for data centers, equipment rooms and network or telecommunication closets. Moreover, RDF is fully compatible with all cooling units from the Targeted Cooling portfolio and is already preconfigured to be used with CoolSpot A/C units. RDF's flexible configuration options allow you to easily tailor the design to meet your exact requirements for quantity, position and type of cable entry openings. RDF comes with a full range of doors, panels and locks and is designed to work with Conteg's airflow optimization solutions. Advanced cabling systems, like High Density Wire Management, OptiWay and Top Ducts (see page 94), are ready to complete RDF's installation and provide any type of cabling with the best possible support and care.

RDF-42-80/80

COLOR SAMPLER:

RAL 9005 | **RAL 7035**

DESCRIPTION:

Sizes
- Height: 27, 42, 45, 48U
- Width: 800 mm
- Depth: 800, 1000, 1200 mm (1200 mm not available for 27U)

Construction
- Welded-frame design
- 1.5 & 2.0 mm sheet steel

Load rating
- 500 kg balanced load (for 27U 300 kg only)

19" vertical extrusions
- 2 pairs of sliding 19" extrusions, adjustable from inside
- C-type extrusion option

IP rating
- Standard IP40
- Optionally IP54 with multipoint lock only
- IP20 when perforated or vented doors used
- A/C ready – IP54 when A/C unit installed with multipoint lock only

Colors
- Standard RAL 7035 and 9005
- Optionally other colors

Front door
- Tinted security glass door
- Swivel handle lock – DIN profile, universal key 333, multipoint; half-profile cylinder or combination lock single or multi-point options (other locks on request)
- Door opening angle 180°
- Easy re-hanging to open on right or left
- Optionally steel, vented, perforated, glass with perforation, vertically divided door

Rear door
- Sheet steel door
- Swivel handle lock – DIN profile, universal key 333, multipoint; optionally half profile cylinder or combination lock single or multipoint (other locks on request)
- Can be replaced by a full range of gront door and panel options

Side panels
- Removable with locks

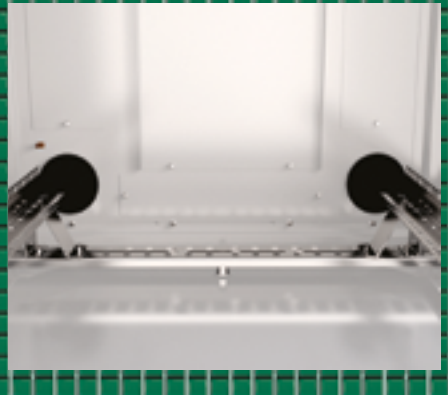
Top plate
- Single-piece design, removable
- 4" (100 mm) rounded cable entry in every corner covered by plastic cap
- 300×100 mm cable entries covered with removable sheet steel blank panels
- 300×50 mm cable entries covered with removable sheet steel blank panels
- 420×280 mm ventilation opening(s) covered with removable sheet steel blank panel, allow for installation of 6-fan ventilation unit(s) (800 mm and 1200 mm deep racks only)
- 420×440 mm ventilation opening covered with removable sheet steel blank panel, allow for installation of 9-fan ventilation unit (1000 mm deep racks only)

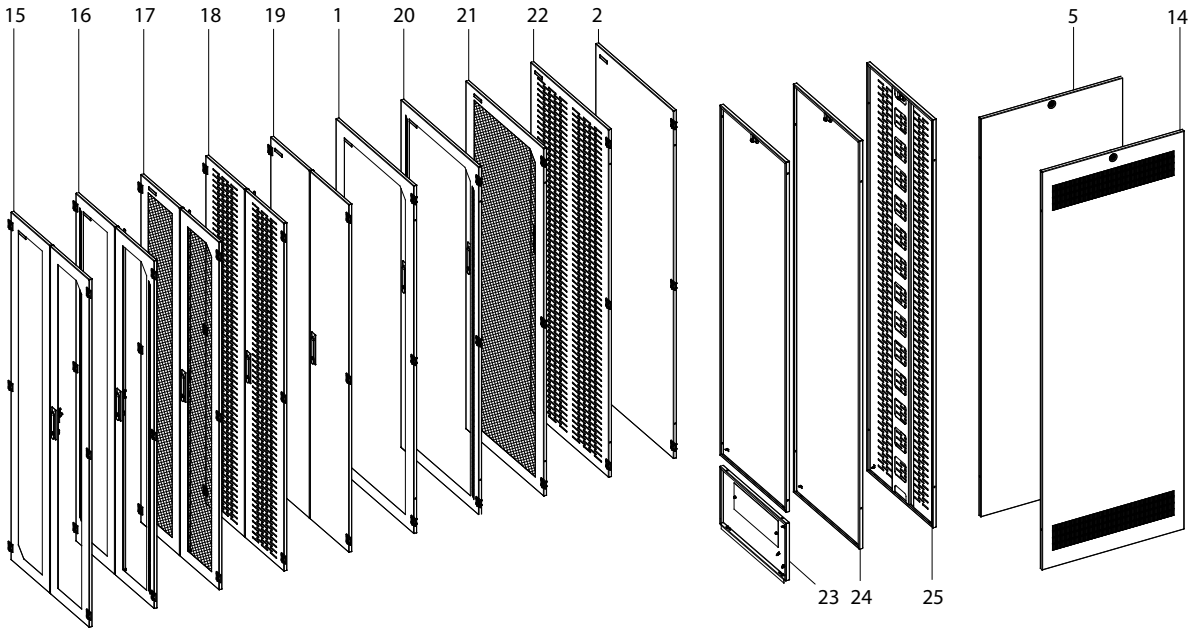
Bottom plate
- Segmented design, removable
- 4" (100 mm) rounded cable entry in every corner covered by plastic caps
- 300×100 mm cable entries covered with removable sheets steel blank panels

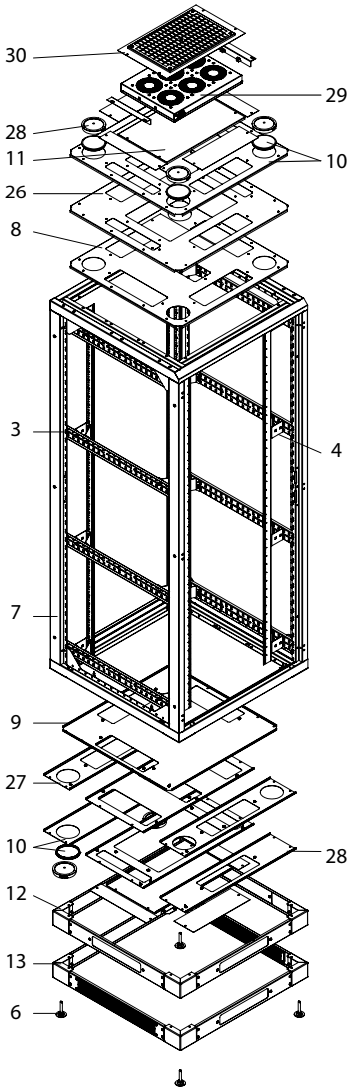
Feet
- Adjustable feet as standard; castors, lockable castors, plinth or plinth with filter options

Adaptation
- Possibility to adapt for installation of 21" equipment
- Adaptor DP-RE-01 needed (ordered separately)

Other
- Racks can be installed in blocks by using DP-DR-UNI (ordered separately)
- CoolTeg and CoolSpot cooling units compatible – see page 101 for details
- GND/earthing kit included







HIGHLY RECOMMENDED EQUIPMENT

CABLE MANAGEMENT HDWM

CABLE MANAGEMENT OPTIWAY

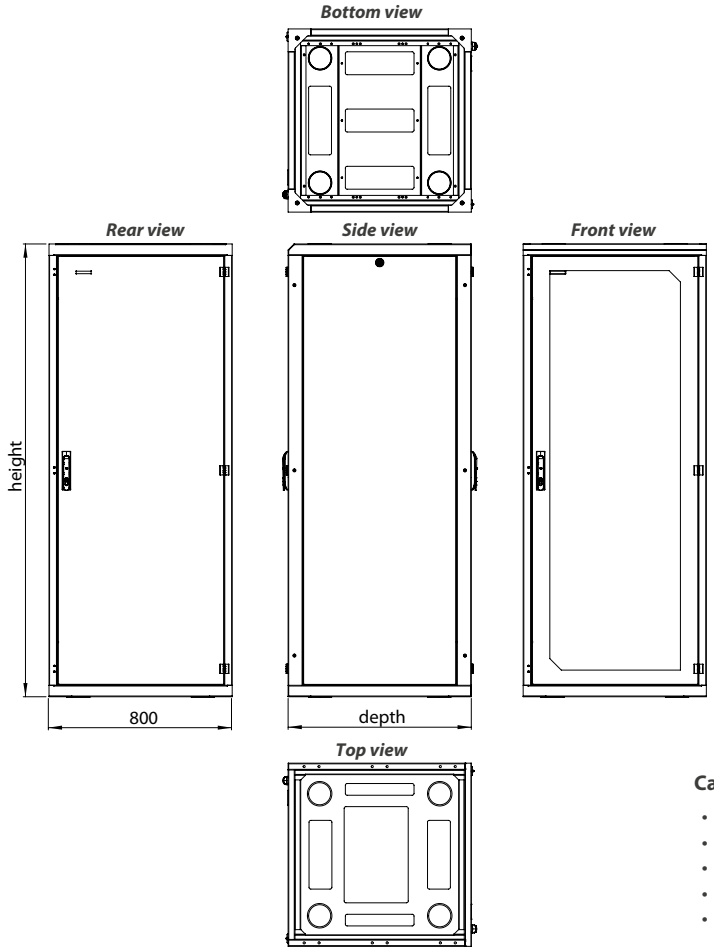
A/C UNITS COOLSPOT WM

A/C UNITS COOLSPOT TM

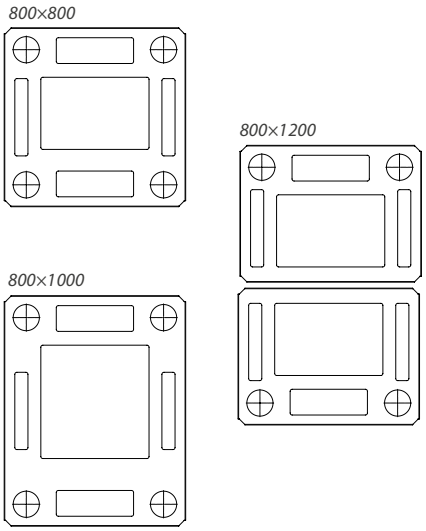
COMPLEMENTARY SYSTEMS RAMOS

STANDARD EQUIPMENT	
1	Front glass door with swivel handle lock
2	Rear sheet steel door with swivel handle lock
3	2 pairs of 19" sliding extrusions
4	Holders for vertical extrusions
5	1 pair of side panels with lock
6	Adjustable feet
7	Frame of rack
8	Removable I-design top plate with cable entry and ventilation openings
9	Removable segmented bottom plate set (consists of C and F-design plates and may differ for other rack footprints) with cable entry openings
10	Plastic caps and blank panels for cable entry openings
11	Blank panel for ventilation opening
-	GND/earthing kit
-	28 mounting kits
-	BONUS: 2 rounded cable grommets with brush DP-KP-RB4 for free
OPTIONAL EQUIPMENT (EXAMPLES)	
12	Plinth
13	Plinth with filter
14	1 pair of side panels with perforation
15	Vertically divided glass door *
16	Vertically divided glass door with perforation *
17	Vertically divided vented door 86% *
18	Vertically divided perforated sheet steel door *
19	Vertically divided sheet steel door *
20	Glass door with side perforation
21	Vented door 86% *
22	Perforated sheet steel door
23	Rear panel with module
24	Rear panel – 1 piece
25	Rear panel – perforated
26	Removable B-design top plate with cable entry and ventilation openings
27	Removable segmented bottom plate set (consists of B and G-design plates and may differ for other rack footprints) with cable entry and ventilation openings
28	Rounded cable grommet with brush
29	Ventilation unit
30	Connecting kit with filter for ventilation unit

** requires multipoint lock*



Top plates – I design



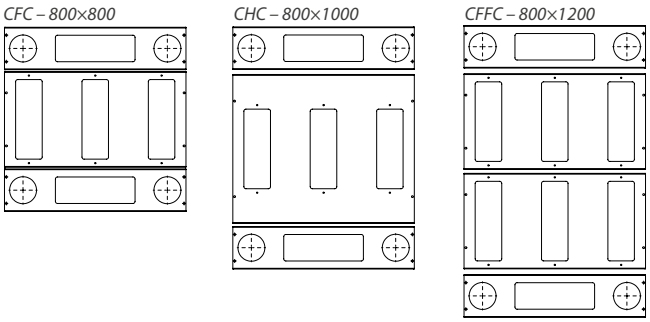
Cable entries and ventilation openings – racks 800×800 mm

- 2 openings 300×100 mm in top plate
- 2 openings 300×50 mm in top plate
- 5 openings 300×100 mm in bottom plate
- 4 openings 4" (100 mm) in both top and bottom plates
- 1 ventilation opening 420×280 mm in top plate

Cable entries and ventilation openings – racks 800×1000 mm

- 2 openings 300×100 mm in top plate
- 2 openings 300×50 mm in top plate
- 5 openings 300×100 mm in bottom plate
- 4 openings 4" (100 mm) in both top and bottom plates
- 1 ventilation opening 420×440 mm in top plate

Bottom plates



Cable entries and ventilation openings – racks 800×1200 mm

- 2 openings 300×100 mm in top plate
- 4 openings 300×50 mm in top plate
- 8 openings 300×100 mm in bottom plate
- 4 openings 4" (100 mm) in both top and bottom plates
- 2 ventilation openings 420×280 mm in top plate

All cable entries and ventilation unit openings are covered by blanking panels or plastic caps.
An individual plates can be defined – go to page 40.

Code	H in U	Load rating in kg	Dimensions in mm				Dimensions incl. packing in mm			Gross weight in kg
			H *	W	D	Useful depth	H	W	D	
RDF-27-80/80	27	300	1311	800	800	790	1500	840	840	100
RDF-42-80/80	42	500	1978	800	800	790	2160	840	840	134
RDF-45-80/80	45	500	2111	800	800	790	2290	840	840	141
RDF-48-80/80	48	500	2245	800	800	790	2430	840	840	147
RDF-27-80/100	27	300	1311	800	1000	990	1500	840	1040	124
RDF-42-80/100	42	500	1978	800	1000	990	2160	840	1040	157
RDF-45-80/100	45	500	2111	800	1000	990	2290	840	1040	165
RDF-48-80/100	48	500	2245	800	1000	990	2430	840	1040	173
RDF-42-80/120	42	500	1978	800	1200	1190	2160	840	1240	175
RDF-45-80/120	45	500	2111	800	1200	1190	2290	840	1240	198
RDF-48-80/120	48	500	2245	800	1200	1190	2430	840	1240	208

** Height in mm without feet; for feet add 16-45 mm*

Note: All dimensions in mm

R D F - 1. - 2. / 3. 4. - 5. 6. 7. 8. 9. - 10. 11. 12. - 13.

ORDERING AND SHIPPING INFORMATION: Configure the rack that will meet your requirements. The ordering matrix below will help you to create the part number. As soon as you have the part number, please contact your Conteg products distributor. Please note that all **RDF RACKS ARE DELIVERED FULLY ASSEMBLED** and palletized!

FOLLOW THE STEPS TO SET UP THE DESIRED RDF RACK PRODUCT CODE!

1 HEIGHT

Code	Height in U	External height in mm
27	27	1311
42	42	1978
45	45	2111
48	48	2245

2 WIDTH

Code	Width in mm
80	800

3 DEPTH

Code	Depth in mm	Useful depth in mm
8	800	790
10	1000	990
12	1200	1190

4 EXTRUSIONS

Code	Front pair	Rear pair	Note
0	L	L	L-type undivided extrusions
C	C	C	C-type undivided extrusions with rounded cable troughs covered with plastic caps – to be used together with separation frame (800 mm)

11 PLATES [1]

Code	Top plate	Bottom plate	Note
A	P	X	Top and bottom single piece plates, required for IP54
C	no top	X	Open top – for A/C-ready option (table 10)
H	I	XXX/XXXX [2]	Standard – one piece top plate, segmented bottom plate
I	I	no bottom [3]	Open bottom – ready for installation on raised floor or plinth
X	no top [3]	no bottom [3]	Open top and bottom, for individual plates go to page 40

[1] For more information on plates go to page 40
[2] 800×800: CFC, 800×1000: CHC, 800×1200: CFFC
[3] Open top or bottom results in no IP protection unless otherwise stated

5 FRONT DOOR

Code	Note
0	Without door [1]
G	Glass door
S	Sheet steel door
P	Perforated sheet steel door [2]
T	Glass door with side perforation [3]
W	Vented door (perforation rate 86%) [2]
A	Vertically divided glass door [4]
B	Vertically divided glass door with side perforation [6]
C	Vertically divided sheet steel door [4]
D	Vertically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [2]
	Other

[1] no IP protection
[2] IP20 max.
[3] IP30 max.
[4] multipoint lock only
[5] multipoint lock only, IP20 max.
[6] multipoint lock only, IP30 max.

7 REAR DOOR / PANEL

Code	Note
0	Without panel/door [1]
G	Glass door
S	Sheet steel door
P	Perforated sheet steel door [2]
T	Glass door with side perforation [3]
W	Vented door (perforation rate 86%) [2]
A	Vertically divided glass door [4]
B	Vertically divided glass door with side perforation [6]
C	Vertically divided sheet steel door [4]
D	Vertically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [2]
Y	Rear panel – single piece [3,7]
R	Rear panel – divided, with cable entry [7]
Z	Perforated rear panel – single piece [8]
	Other

[1] no IP protection
[2] IP20 max.
[3] IP30 max.
[4] multipoint lock only
[5] multipoint lock only, IP20 max.
[6] multipoint lock only, IP30 max.
*[7] Lock code **U** or **X** only*
*[8] Lock code **U** or **X** only, IP20 max.*

6 FRONT DOOR LOCK

Code	Options
1	Swivel handle with electronic lock, universal key
3	Swivel handle with electronic lock, universal key, multipoint
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
I	Swivel handle with profile half cylinder, universal key
J	Swivel handle with profile half cylinder, universal key, multipoint
K	Swivel handle with profile half cylinder, keyed different
L	Swivel handle with profile half cylinder, keyed different, multipoint
V	Swivel handle DIN profile, universal key, 333
W	Swivel handle DIN profile, universal key, 333, multipoint
	Other

8 REAR DOOR / PANEL LOCK

Code	Options
1	Swivel handle with electronic lock, universal key
3	Swivel handle with electronic lock, universal key, multipoint
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
I	Swivel handle with profile half cylinder, universal key
J	Swivel handle with profile half cylinder, universal key, multipoint
K	Swivel handle with profile half cylinder, keyed different
L	Swivel handle with profile half cylinder, keyed different, multipoint
V	Swivel handle DIN profile, universal key, 333
W	Swivel handle DIN profile, universal key, 333, multipoint
U	Lock for rear panel, universal key
X	Lock for rear panel, keyed different
	Other

12 LOAD RATING

Code	Load rate in kg	Note
3	300	27U only
5	500	Balanced load

13 COLOR

Code	Note
B	RAL 7035 (light gray)
H	RAL 9005 (black)

10 IP RATING [1]

Code	Note
0	IP00
2	IP20
3	IP30
4	IP40
5	IP54[3]
A	A/C ready [2]

[1] According to EN 60529
[2] Ready for A/C unit installation; recommended when cooling is planned or required; IP54 when A/C unit installed according to instructions
[3] Multipoint lock only

9 SIDE PANELS (BOTH SIDES) *

Code	Note
0	No side panels
A	2 side panels, sheet steel, universal key
B	1 side panel, sheet steel, universal key
C	2 side panels, sheet steel, individual key
D	1 side panel, sheet steel, individual key
E	2 side panels, sheet steel with perforation, universal key
F	1 side panel, sheet steel with perforation, universal key
G	2 side panels, sheet steel with perforation, individual key
H	1 side panel, sheet steel with perforation, individual key
	Other

** open side/sides results in no IP protection; side panels with perforation result in protection rating IP20 max.*

An example of a correct product code

RDF-45-80/80-AWSWA-AC5-H

2.3 PREMIUM Server RSF

The PREMIUM Server RSF rack is designed as a pure server cabinet for data centers, equipment rooms and network or telecommunication closets. RSF's heavy-duty, all-welded design and 1500 kg load rating mean that it's possible to accommodate the heavy equipment within a standard rack footprint. The RSF comes with a full range of doors, panels and locks. Available in various heights and depths, RSF is designed to work with Conteg's airflow optimization solutions and flexible cable management systems, which means that RSF can be tailored to suit your needs. RSF can be used with many complementary systems (e.g. Intelligent Power PDUs – see page 124), making your servers safe and secure.

RSF-42-80/10A

DESCRIPTION:

Sizes
- Height: 27, 42, 45, 48, 52U (52U not available for 800 mm depth)
- Width: 600, 800 mm
- Depth: 800, 1000, 1200 mm (1200 mm not available for 27U)

Construction
- Welded-frame design
- 1.5 & 2.0 mm sheet steel

Load rating
- 1500 kg balanced load (1000 kg for 27U only)

19" vertical extrusions
- 2 pairs of sliding 19" vertical A-type (600 or 800 mm) extrusions without horizontal holders; (for 800 mm provide additional 24U of installation space – valid for racks 42U and taller), adjustable from inside
- Optionally 2 pairs of sliding 19" vertical L-type (600 mm) or P-type (800 mm) extrusions (Provide additional 12U of installation space – valid for racks 42U and taller), adjustable from inside, Rear pair of vertical extrusions is divided in up to 3 parts (according to rack's height) for individual settings according to server depth

IP rating
- Standard IP20
- IP40 when solid doors or panels applied
- Optionally up to IP54 with multipoint lock only
- A/C-ready – IP54 when A/C unit installed with multipoint lock only

Colors
- Standard RAL 9005

Front door
- Vented door – perforation rate 86%
- Swivel handle lock – DIN profile, universal key 333, multipoint; optionally half profile cylinder or combination lock single or multipoint (other locks on request)
- Door opening angle 180°
- Easy re-hanging to open on right or left
- Optionally glass, steel, perforated, glass with perforation, vertically divided door

Rear door
- Vented door – perforation rate 86%
- Swivel handle lock – DIN profile, universal key 333, multipoint; optionally half profile cylinder or combination lock single or multipoint (other locks on request)
- Optionally can be replaced by full range of front doors and panels

Side panels
- Removable with locks

Top plate
- Single-piece design, removable
- 4" (100 mm) rounded cable entry in every corner covered by plastic cap
- 300×100 mm cable entries covered with removable sheet steel blank panels

Bottom plate
- Segmented design, removable
- 4" (100 mm) rounded cable entry in every corner covered by plastic caps
- 300×100 mm cable entries covered with removable sheets steel blank panels

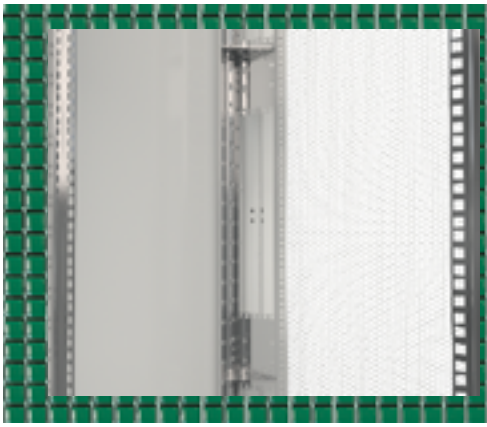
Feet
- Adjustable feet as standard; plinth or plinth with filter options

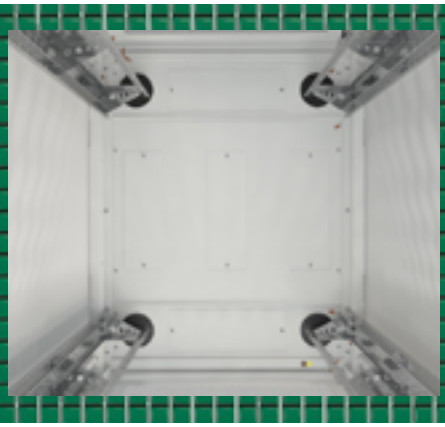
Adaptation
- Possibility to adapt for installation of 21" equipment (on request only for 800 mm width)
- Adaptor DP-RE-01 needed (ordered separately)

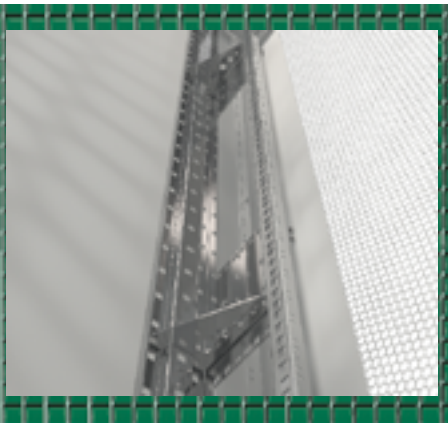
Other
- Racks can be installed in blocks by using DP-DR-UNI (ordered separately)
- CoolTeg and CoolSpot cooling units compatible – see page 101 for details
- GND/earthing kit included

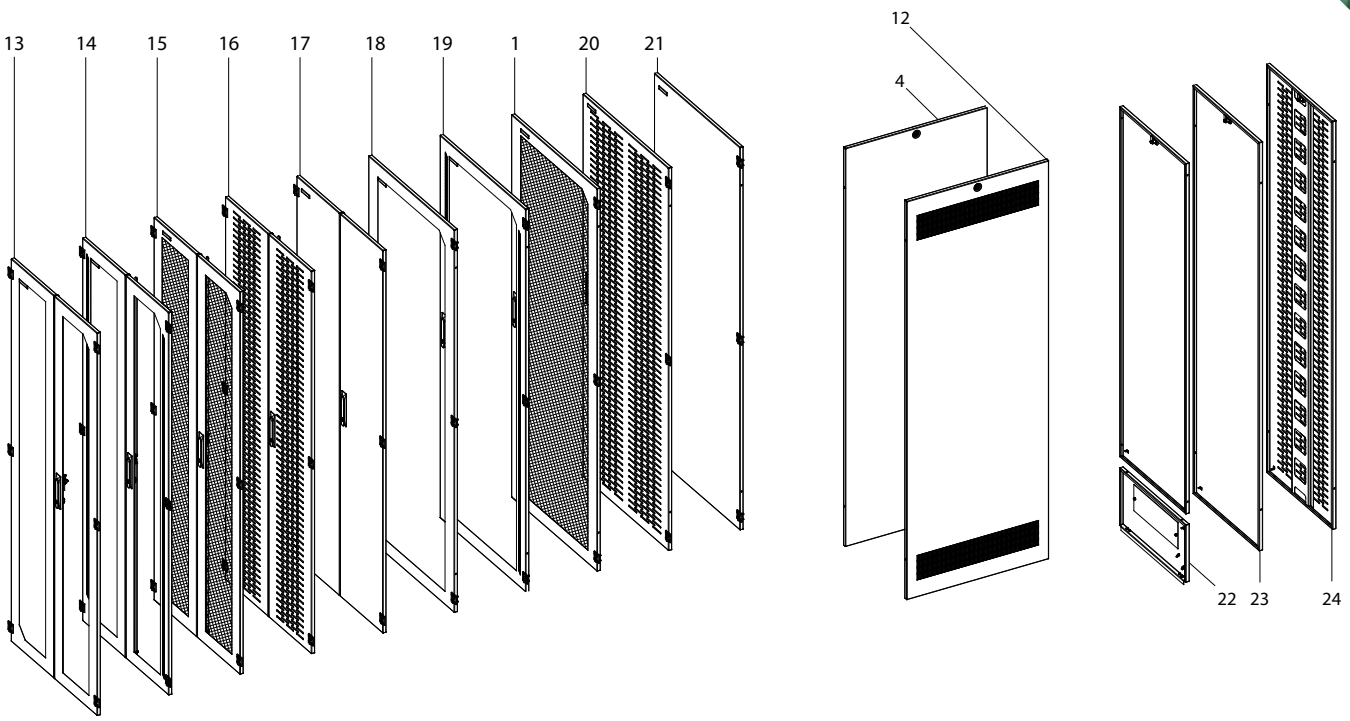
COLOR SAMPLER:

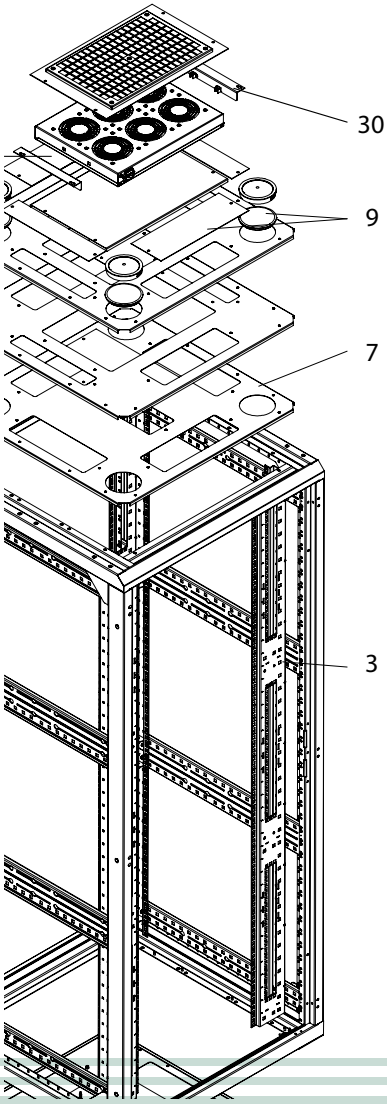
RAL 9005	RAL 7035







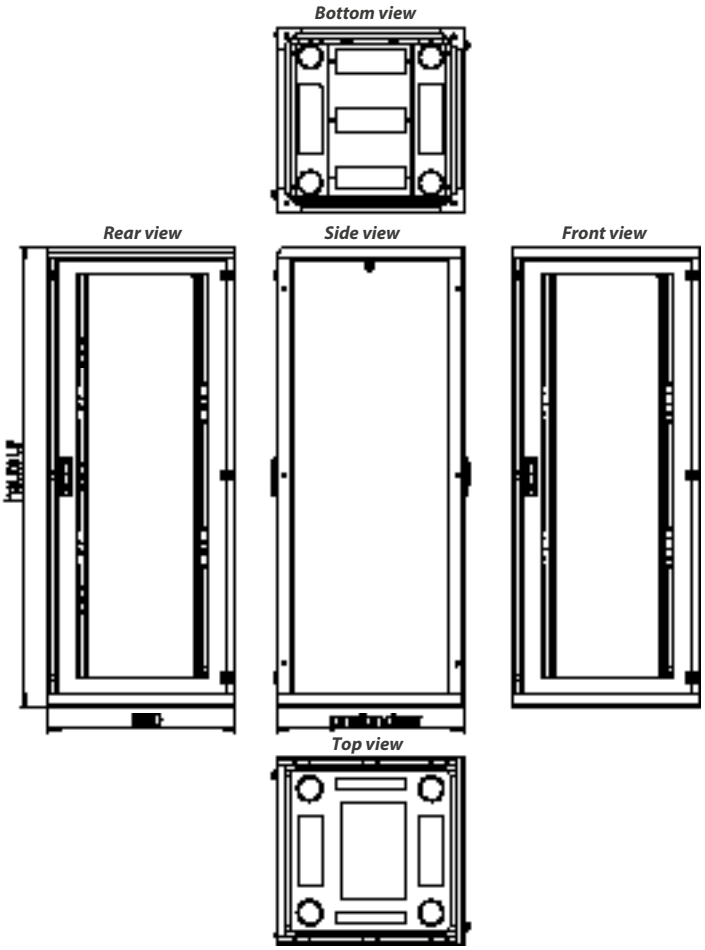




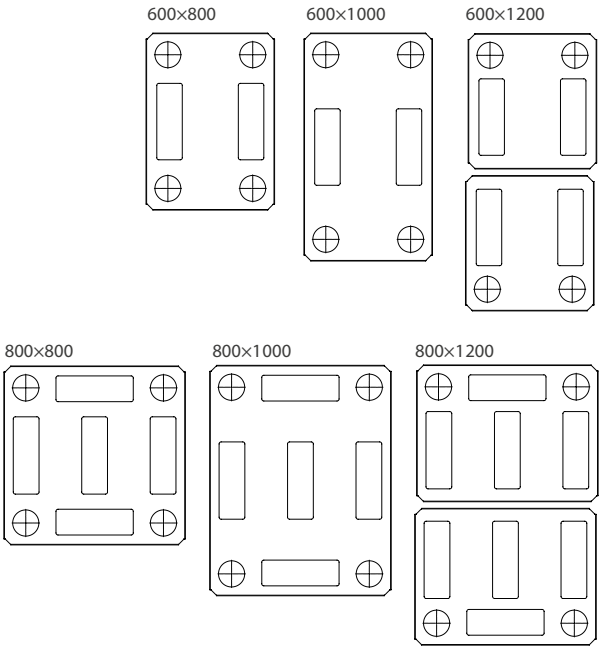
HIGHLY RECOMMENDED EQUIPMENT
CABLE MANAGEMENT HDWM
COOLING UNITS COOLTEG
COMPLEMENTARY SYSTEMS RAMOS
COMPLEMENTARY SYSTEMS KVM/LCD
COMPLEMENTARY SYSTEMS LES-RACK
COMPLEMENTARY SYSTEMS PDU

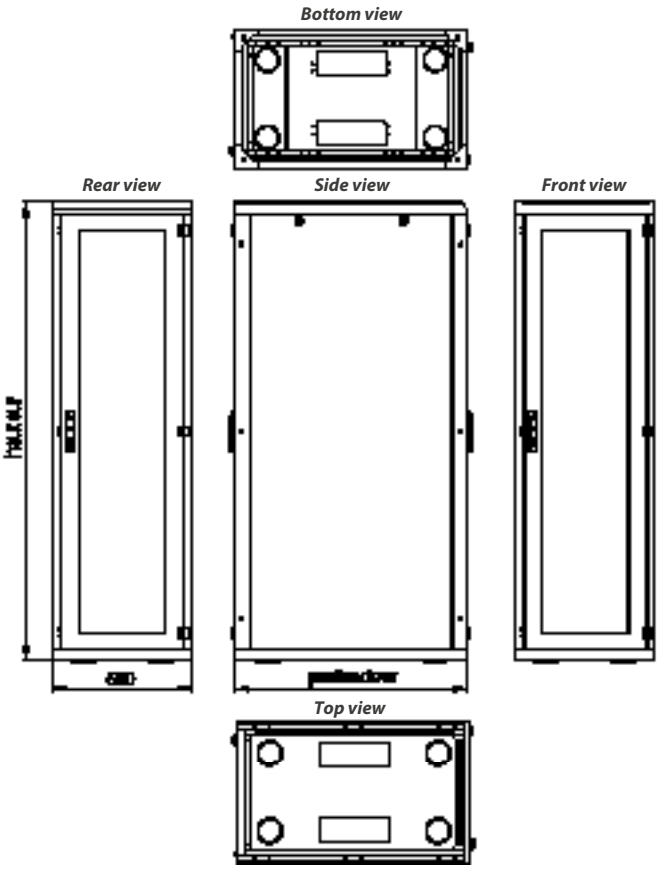
STANDARD EQUIPMENT	
1	Front and rear vented door 86% with multipoint swivel handle lock
2	2 pairs of 19" sliding extrusions - A-type
3	Holders for vertical extrusions
4	1 pair of side panels with lock
5	Adjustable feet
6	Frame of rack
7	Removable F-design top plate with cable entry openings
8	Removable segmented bottom plate set (consists of C and F-design plates, may differ for other rack footprints) with cable entry openings
9	Plastic caps and blank panels for cable entry openings
-	GND/earthing kit
-	28 mounting kits
-	BONUS: 2 rounded cable grommets with brush DP-KP-RB4 for free
OPTIONAL EQUIPMENT (EXAMPLES)	
10	Plinth
11	Plinth with filter
12	1 pair of side panels with perforation
13	Vertically divided glass door [1,2]
14	Vertically divided glass door with perforation [1,2]
15	Vertically divided vented door 86% [2]
16	Vertically divided perforated sheet steel door [2]
17	Vertically divided sheet steel door [2]
18	Glass door
19	Glass door with side perforation
20	Perforated sheet steel door
21	Sheet steel door
22	Rear panel with module
23	Rear panel – 1 piece
24	Rear panel – perforated
25	Removable B-design top plate with cable entry and ventilation openings
26	Removable segmented bottom plate set (consists of B and G-design plates, may differ for other rack footprints) with cable entry and ventilation openings
27	Rounded cable grommet with brush
28	Blank panels for ventilation openings
29	Ventilation unit
30	Connecting kit with filter for ventilation unit

[1] *not available for 600 mm wide racks*
[2] *requires multipoint lock*

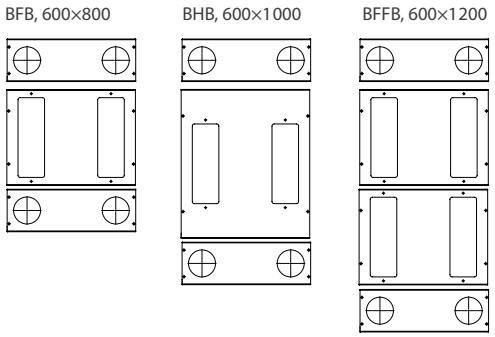


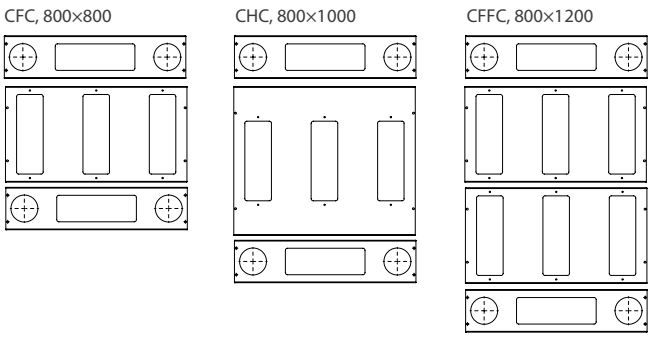
Top plates – F design





Bottom plates





Cable entries – racks 800×800, 800×1000 mm
- 5 openings (300×100 mm) in both top and bottom plates
- 4 openings 4"(100 mm) in both top and bottom plates

Cable entries – racks 800×1200 mm
- 8 openings (300×100 mm) in both top and bottom plates
- 4 openings 4" (100 mm) in both top and bottom plates

Cable entries – racks 600×800, 600×1000 mm
- 2 openings (300×100 mm) in both top and bottom plates
- 4 openings 4"(100 mm) in both top and bottom plates

Cable entries – racks 600×1200 mm
- 4 openings (300×100 mm) in both, top and bottom, plates
- 4 openings, 4"(100 mm) in both top and bottom plates

All cable entries are covered by blanking panels or plastic caps.
An individual plates can be defined – go to page 40.

Note: All dimensions in mm

R S F - 1. - 2. / 3. 4. - 5. 6. 7. 8. 9. - 10. 11. 12. - 13.

ORDERING AND SHIPPING INFORMATION: Configure the rack that will meet your requirements. The ordering matrix below will help you in creating the part number. As soon as you have the part number, please contact your Conteg products distributor. Please note, that all **RSF RACKS ARE DELIVERED FULLY ASSEMBLED** and palletized!

FOLLOW THE STEPS TO SET UP THE DESIRED RSF RACK PRODUCT CODE!

1 HEIGHT

Code	Height in U	External height in mm
27	27	1311
42	42	1978
45	45	2111
48	48	2245
52	52	2423

2 WIDTH

Code	Width in mm
60	600
80	800

3 DEPTH

Code	Depth in mm	Useful depth in mm
8	800	790
10	1000	990
12	1200	1190

4 EXTRUSIONS

Code	Front pair	Rear pair	Note
A	A	A	A-type extrusions, non-divided (600 or 800 mm wide) extrusions without horizontal holders; (for 800 mm provide additional 24U of installation space – valid for racks 42U and taller), adjustable from inside, blank panels not included
T	L	L divided	L-type extrusions, rear pair divided – for racks 600 mm wide only
U	P	P divided	P-type extrusions, rear pair divided – for racks 800 mm wide only, each extrusion with up to 3 additional 19" vertical positions (for 27U only 2 positions), blank panels not included

11 PLATES [1]

Code	Top plate	Bottom plate	Note
A	P	X	Top and bottom single piece plates, required for IP54
C	no top	X	Open top – for A/C-ready option (table 10)
E	F	XXX/XXXX [2]	Standard – one piece top plate, segmented bottom plate
F	F	no bottom [3]	Open bottom – ready for installation on raised floor or plinth
X	no top [3]	no bottom [3]	Open top and bottom, for individual plates go to page 40

[1] For more information on plates go to page 40
[2] 600×800: BFB, 600×1000: BHB, 600×1200: BFFB, 800×800: CFC, 800×1000: CHC, 800×1200: CFFC
[3] Open top or bottom results in no IP protection unless otherwise stated

5 FRONT DOOR

Code	Note
0	Without door [1]
G	Glass door
S	Sheet steel door
P	Perforated sheet steel door [2]
T	Glass door with side perforation [3]
W	Vented door (perforation rate 86%) [2]
A	Vertically divided glass door [4] *
B	Vertically divided glass door with side perforation [6] *
C	Vertically divided sheet steel door [4]
D	Vertically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [5]
	Other

[1] no IP protection
[2] IP20 max.
[3] IP30 max.
[4] multipoint lock only
[5] multipoint lock only, IP20 max.
[6] multipoint lock only, IP30 max.
** these options apply for RSF 800 only*

7 REAR DOOR / PANEL

Code	Note
0	Without panel/door [1]
G	Glass door
S	Sheet steel door
P	Perforated sheet steel door [2]
T	Glass door with side perforation [3]
W	Vented door (perforation rate 86%) [2]
A	Vertically divided glass door [4] *
B	Vertically divided glass door with side perforation [6] *
C	Vertically divided sheet steel door [4]
D	Vertically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [5]
Y	Rear panel – single piece [3,7]
R	Rear panel – divided, with cable entry [7]
Z	Perforated rear panel – single piece [8]
	Other

[1] no IP protection
[2] IP20 max.
[3] IP30 max.
[4] multipoint lock only
[5] multipoint lock only, IP20 max.
[6] multipoint lock only, IP30 max.
*[7] Lock code **U** or **X** only*
*[8] Lock code **U** or **X** only, IP20 max.*
** these options apply for RSF 800 only*

6 FRONT DOOR LOCK

Code	Options
1	Swivel handle with electronic lock, universal key
3	Swivel handle with electronic lock, universal key, multipoint
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
V	Swivel handle DIN profile, universal key, 333
W	Swivel handle DIN profile, universal key, 333, multipoint
	Other

8 REAR DOOR / PANEL LOCK

Code	Options
1	Swivel handle with electronic lock, universal key
3	Swivel handle with electronic lock, universal key, multipoint
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
V	Swivel handle DIN profile, universal key, 333
W	Swivel handle DIN profile, universal key, 333, multipoint
U	Lock for rear panel, universal key
X	Lock for rear panel, keyed different
	Other

10 IP RATING [1]

Code	Note
0	IP00
2	IP20
3	IP30
4	IP40
5	IP54[3]
A	A/C ready [2,3]

[1] According to EN 60529
[2] Ready for A/C unit installation; recommended when cooling is planned or required; IP54 when A/C unit installed according to instructions
[3] Multipoint lock only

9 SIDE PANELS (BOTH SIDES) *

Code	Note
0	No side panels
A	2 side panels, sheet steel, universal key
B	1 side panel, sheet steel, universal key
C	2 side panels, sheet steel, individual key
D	1 side panel, sheet steel, individual key
E	2 side panels, sheet steel with perforation, universal key
F	1 side panel, sheet steel with perforation, universal key
G	2 side panels, sheet steel with perforation, individual key
H	1 side panel, sheet steel with perforation, individual key
	Other

** open side/sides results in no IP protection; side panels with perforation result in protection rating IP20 max.*

12 LOAD RATING

Code	Load rate in kg	Note
A	1000	27U only
F	1500	Balanced load

13 COLOR

Code	Note
H	RAL 9005 (black)

An example of a correct product code

RSF-48-80/12U-WWFWA-2EF-H

Code	H in U	Load rating in kg	Dimensions in mm				Dimensions incl. packing in mm			Gross weight in kg
			H *	W	D	Useful depth	H	W	D	
RSF-27-60/8A	27	1000	1311	600	800	790	1500	640	840	85
RSF-42-60/8A	42	1500	1978	600	800	790	2160	640	840	112
RSF-45-60/8A	45	1500	2111	600	800	790	2290	640	840	119
RSF-48-60/8A	48	1500	2245	600	800	790	2430	640	840	123
RSF-27-60/10A	27	1000	1311	600	1000	990	1500	640	1040	109
RSF-42-60/10A	42	1500	1978	600	1000	990	2160	640	1040	135
RSF-45-60/10A	45	1500	2111	600	1000	990	2290	640	1040	142
RSF-48-60/10A	48	1500	2245	600	1000	990	2430	640	1040	148
RSF-52-60/10A	52	1500	2423	600	1000	990	2608	640	1040	156
RSF-42-60/12A	42	1500	1978	600	1200	1190	2160	640	1240	149
RSF-45-60/12A	45	1500	2111	600	1200	1190	2290	640	1240	170
RSF-48-60/12A	48	1500	2245	600	1200	1190	2430	640	1240	178
RSF-52-60/12A	52	1500	2423	600	1200	1190	2608	640	1240	189
RSF-27-80/8A	27	1000	1311	800	800	790	1500	840	840	100
RSF-42-80/8A	42	1500	1978	800	800	790	2160	840	840	134
RSF-45-80/8A	45	1500	2111	800	800	790	2290	840	840	141
RSF-48-80/8A	48	1500	2245	800	800	790	2430	840	840	147
RSF-27-80/10A	27	1000	1311	800	1000	990	1500	840	1040	124
RSF-42-80/10A	42	1500	1978	800	1000	990	2160	840	1040	157
RSF-45-80/10A	45	1500	2111	800	1000	990	2290	840	1040	165
RSF-48-80/10A	48	1500	2245	800	1000	990	2430	840	1040	173
RSF-52-80/10A	52	1500	2423	800	1000	990	2608	840	1040	184
RSF-42-80/12A	42	1500	1978	800	1200	1190	2160	840	1240	175
RSF-45-80/12A	45	1500	2111	800	1200	1190	2290	840	1240	198
RSF-48-80/12A	48	1500	2245	800	1200	1190	2430	840	1240	208
RSF-52-80/12A	52	1500	2423	800	1200	1190	2608	840	1240	220

** Height in mm without feet; for feet add 16-45 mm*

2.4 PREMIUM RACK SERIES PLATES

PREMIUM rack series gives you unlimited flexibility when planning the final look of your rack, thanks to the interchangeable top and bottom plates. A portfolio of three different single-piece top plates and an even wider range of segmented bottom plates represent a unique interface between out-of-rack and in-rack cabling systems (like OptiWay, Top Ducts and High Density Wire Managers). Simply choose the plate design (quantity and type of cable entry openings) that perfectly suits to your needs. All presented plates here are applicable for RSF and RDF rack series.

TOP PLATES

Top plates are designed as single-pieces with three different design options. They are delivered already installed or separately in a carton box. The plate is always delivered with blanking panels/plastic caps.

Installation in the rack

Code *	RDF/RSF footprint in mm
CO-TI-60/80-X-Y	600×800
CO-TI-60/100-X-Y	600×1000
CO-TI-60/120-X-Y	600×1200
CO-TI-80/80-X-Y	800×800
CO-TI-80/100-X-Y	800×1000
CO-TI-80/120-X-Y	800×1200

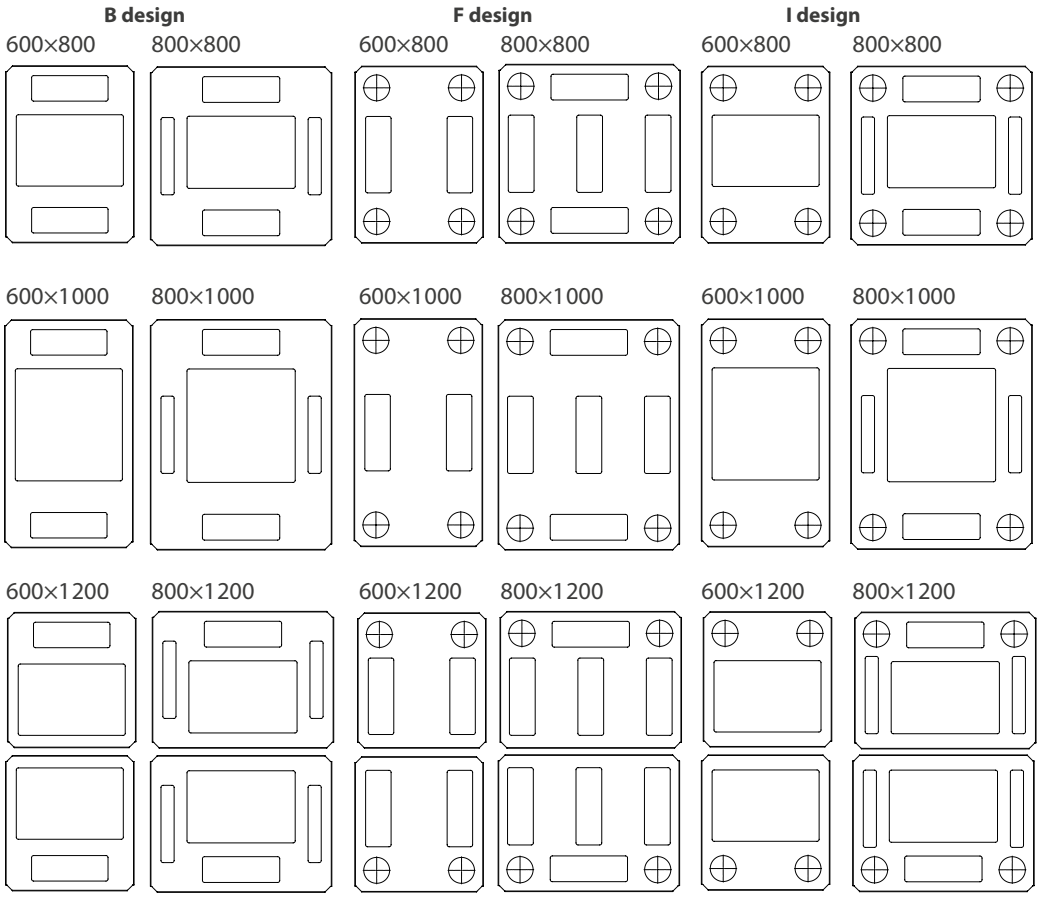
** To be ordered together with rack that you want to have plate installed in*

Choose the design you like and write its code (B, I, F or Z) instead of X. Write B for gray (RAL 7035) or H for black (RAL 9005) instead of Y.

Delivery in carton box

Code	RDF/RSF footprint in mm
CO-TU-60/80-X-Y	600×800
CO-TU-60/100-X-Y	600×1000
CO-TU-60/120-X-Y	600×1200
CO-TU-80/80-X-Y	800×800
CO-TU-80/100-X-Y	800×1000
CO-TU-80/120-X-Y	800×1200

Choose the design you like and write its code (B, I, F or Z) instead of X. Write B for gray (RAL 7035) or H for black (RAL 9005) instead of Y.



P and X design are compatible with request with IP54 (similar as Z design)

BOTTOM PLATES

Bottom plates are designed as segmented. Full bottom plate (set) consists of 3 or 4 plates. They are delivered already installed or separately in a carton box. Plate is always delivered with blanking panels/plastic caps.

Installation in the rack

Code *	RDF/RSF footprint in mm
CO-BI-60/80-XXX-Y	600×800
CO-BI-60/100-XXX-Y	600×1000
CO-BI-60/120-XXXX-Y	600×1200
CO-BI-80/80-XXX-Y	800×800
CO-BI-80/100-XXX-Y	800×1000
CO-BI-80/120-XXXX-Y	800×1200

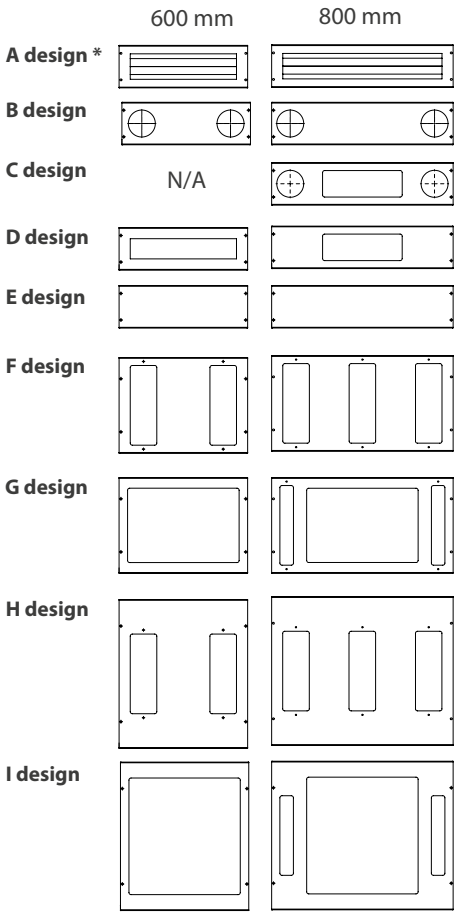
** To be ordered together with rack that you want to have the plate installed in*

Define the desired bottom plate set. Choose the design of plates you like and write its codes (A – I) **in front to rear order** instead of X. Write B for gray (RAL 7035) or H for black (RAL 9005) instead of Y. Any plate may be omitted (incomplete bottom plate sets applicable – results in no IP protection). Write 0 if the position should be left empty.

Delivery in carton box

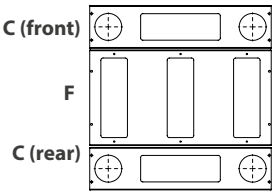
Code	RDF/RSF width in mm
CO-BU-60-X-Y	600
CO-BU-80-X-Y	800

Single plates can be delivered in carton boxes. Choose the design you like and write its code (A – I) instead of X. Write B for gray (RAL 7035) or H for black (RAL 9005) instead of Y.

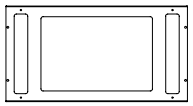


** plate is designed as divided with double brush*

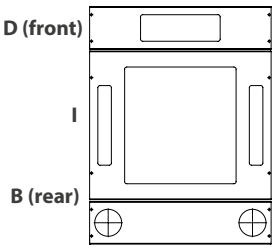
Example
CO-BI-80/80-CFC-X
installed in rack



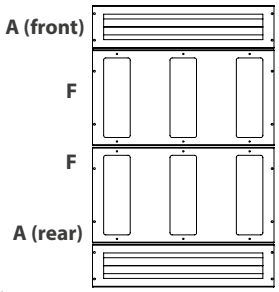
Example
CO-BU-80-G-X
delivered in carton box



Example
CO-BI-80/100-DIB-X
installed in rack



Example
CO-BI-80/120-AFFA-X
installed in rack



A, B, C, D, E design: lateral plates

Complete bottom plate always contains two plates of A, B, C, D or E design. Combination of two different plates is allowed.

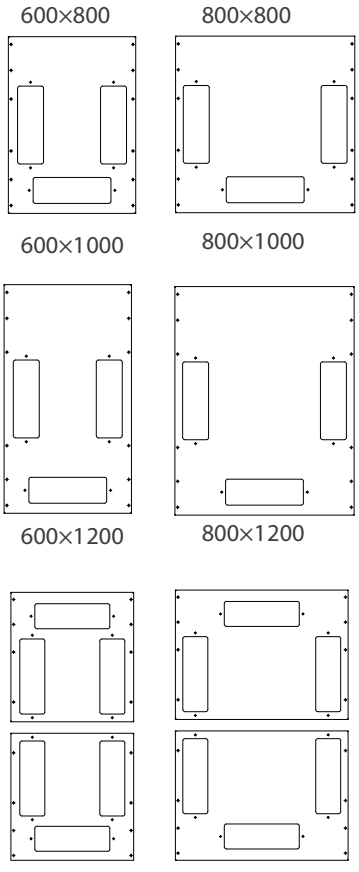
F, G design: central plates for 800 and 1200 mm deep racks

Complete bottom plate always contains one (800 mm deep racks) or two (1200 mm deep racks) plates of F or G design. Combination of two different plates is allowed.

H, I design: central plates for 1000 mm deep racks

Complete bottom cover always contains always one plate of H or I design.

Z design



RECOMMENDED ACCESSORIES FOR PREMIUM PLATE CABLE ENTRIES

All cable entries are delivered with removable blanking panels or plastic caps. If removed, open cable entries result in no IP rating so water or dust can enter the rack. Sharp edges and poor management of entering cables can also negatively impact the service life of cables and their performance in data transmission. With products from the portfolio "cable protection in cable openings" both problems can be prevented. For more information on those products go to page 138.

300×100 mm
Cable entry openings, covered by removable sheet steel blank panel

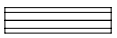
Recommended accessories
Code
DP-KP-LEM
DP-KP-HCE2
DP-KP-KAR
DP-KP-KAR4
DP-KP-KAR4-D
DP-KP-KAR7

300×50 mm
Cable entry openings, covered by removable sheet steel blank panel

Recommended accessories
Code
DP-KP-KAR5

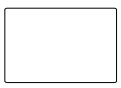
4" (100 mm)
Cable entry openings, covered by removable plastic cap

Recommended accessories
Code
DP-KP-RB4

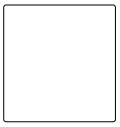


Dimensions of brush openings:
width 60 – 76×400 mm
width 80 – 76 x600 mm

Brush dimensions:
width 60 – 60×400 mm
width 80 – 60×600 mm



420×280 mm
Ventilation unit openings, covered by removable sheet steel blank panel, allows for installation of 6-fan unit



420×440 mm
Ventilation unit openings, covered by removable sheet steel blank panel, allows for installation of 9-fan unit

Example of installed plates and cable opening in a rack

These openings are used for the installation of ventilation unit. For more information on ventilation units and related products go to page 109.

2.5 PREMIUM Housing RSB

The PREMIUM Housing RSB rack series is designed for server housing and co-location centers, where they can be installed as standalones or in rows. The rack can be designed with 2, 3 or 4 sections upon request. These compartments are equipped with individually adjustable 19" extrusions that can be individually locked and separated by perforated high-load shelves. Moreover, the rack can be equipped with individual cable guiding and a separation frame (must be ordered separately). All 19" types of active or passive equipment can be housed inside.

RSB-48-60/100-3

COLOR SAMPLER: ***RAL 9005*** ***RAL 7035***

DESCRIPTION:

Sizes
- Height: 42, 45, 48U (total useful height = 42/45/48 – number of compartments)
- Width: 600, 800 mm
- Depth: 800, 1000 and 1200 mm

Construction
- 1.5 & 2.0 mm sheet steel
- 2 - 4 compartments; other combinations upon request

Load rating
- 1500 kg maximum load rating per frame
- Load rating 500 kg per 19" compartments; 100 kg per shelf

IP rating
- IP20

Colors
- Standard RAL 7035 and 9005
- Optionally other colors

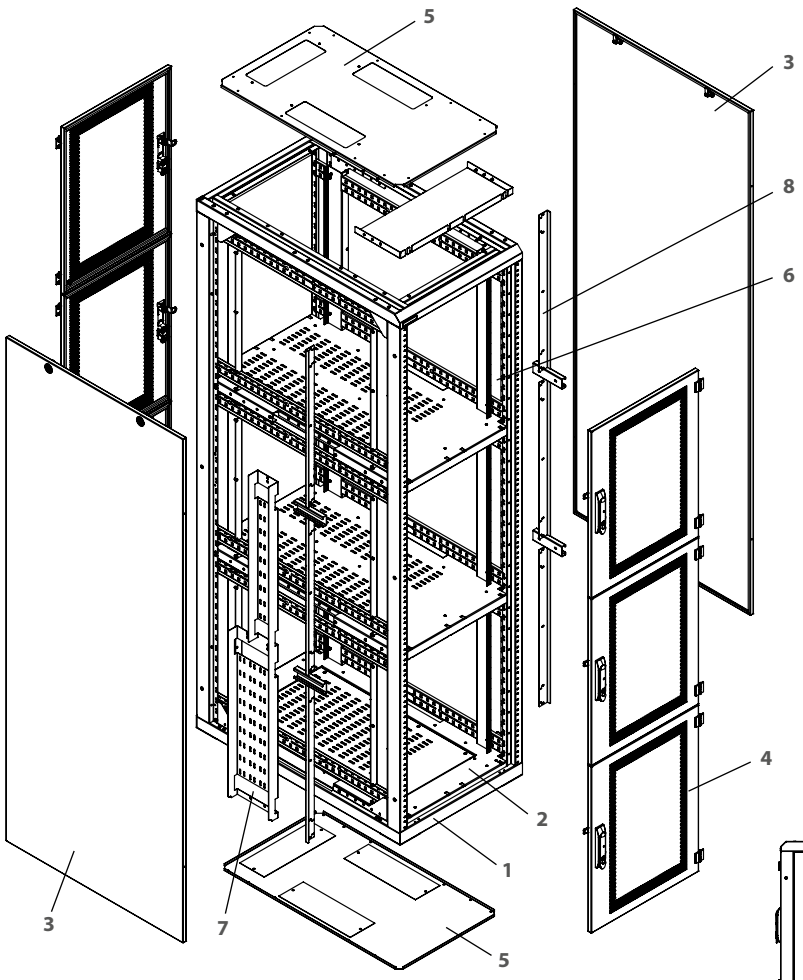
Front and rear doors
- Vented door – perforation rate 86%
- Swivel handle lock – DIN profile, universal key 333, single point;
- Door opening angle 180°
- Easy re-hanging to open on right or left
- Optionally other locks and doors upon request

Side panels
- Removable with locks

Cable entries
- Top and bottom
- All cable entries covered by removable blank panels

19" vertical extrusions
- 2 pairs of sliding 19" vertical L-type (600mm) or C-type (800mm) extrusions for each compartment
- P-type extrusions optional for RSB width 800mm (2 and 3 compartments)

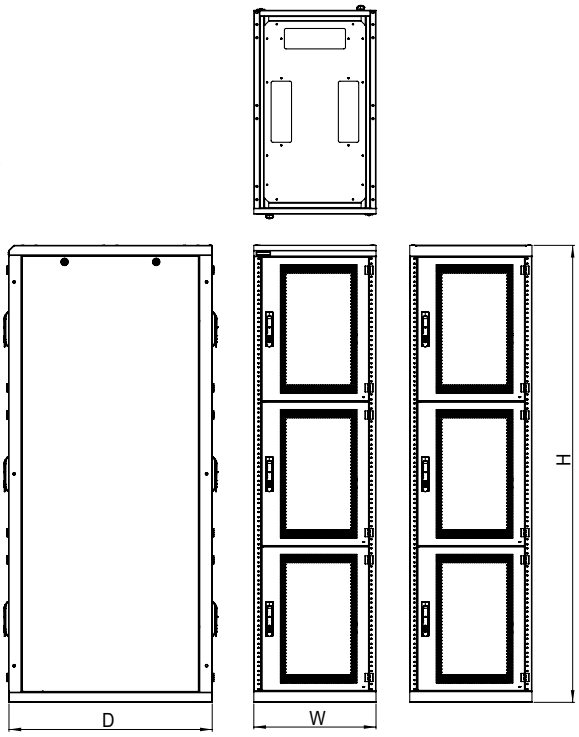
Other
- Racks can be installed in blocks by using DP-DR-UNI (ordered separately)
- GND/earthing kit included
- Individual cabling for each compartment (ordered separately)
- Air separation frame for all compartments (ordered separately)



RSB-48-60/100-3

STANDARD EQUIPMENT *	
1	Frame of server housing rack
2	3 pieces of high-load shelf
3	2 removable side panels with locks
4	6 pieces of vented doors with swivel handle lock
5	Removable Z-design top and bottom plate with cable entry openings
6	2 pairs of 19" vertical L-type extrusions for each compartment
-	GND/earthing kit
-	28 mounting kits
OPTIONAL EQUIPMENT	
7	Set of individual cable guiding
8	Separation frame for each compartment

** Valid for RSB racks with 3 compartments*



HIGHLY RECOMMENDED EQUIPMENT
COMPLEMENTARY PDU SYSTEMS
COMPLEMENTARY RAMOS SYSTEMS

FOLLOW THE STEPS TO SET UP THE DESIRED RSB RACK PRODUCT CODE!

R	S	B	-	1.	-	2.	/	3.	-	4.	-	5

1 HEIGHT *

Code	Height in U	External height in mm
42	42	1978
45	45	2111
48	48	2245

** Height in mm without feet*

2 WIDTH

Code	Width in mm
60	600
80	800

3 DEPTH

Code	Depth in mm
80	800
100	1000
120	1200

4 NUMBER OF COMPARTMENTS

Code	Options
2	2 compartments
3	3 compartments
4	4 compartments

5 COLOR

Code	Note
B	RAL 7035 (light gray)
H	RAL 9005 (black)

ACCESSORIES	
Code	**Description**
RSB-CM-xx[1] -y[2]	Set for individual cable guiding of RSB racks, top or bottom cable entry[3]
DP-RSB-CW-y[2] -xx[1]	Set of air separation frames for RSB racks

[1] *Substitute xx with height of RSB rack*
[2] *Substitute y with number of compartments*
[3] *Only RSB 45-2, 42-4 and 45-4 need to define top or bottom cable guiding, add as suffix to the end of code: -T for Top entry, -B for Bottom entry*

An example of a correct product code

RSB-48-60/100-3-B

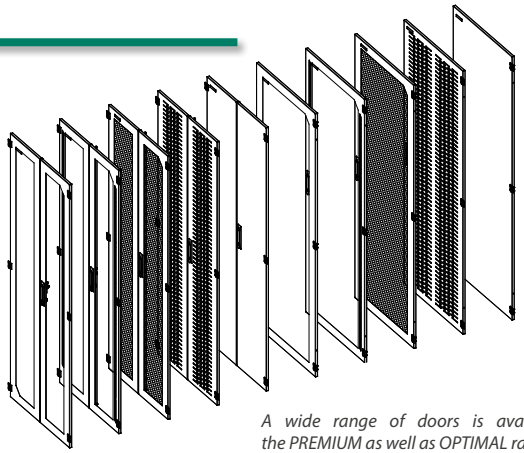
OPTIMAL RACK SERIES

OPTIMAL

OPTIMAL rack series is available in two design options – as a fully welded OPTIMAL ROF rack or as an unassembled version called OPTIMAL Flex RMF. The OPTIMAL rack series has a great history – hundreds of thousands of OPTIMAL/OPTIMAL Flex racks are in use from Dubai to London. Their users appreciate a wide range of dimension options, which include a wide portfolio of doors, panels and locks. The options portfolio is the same as the PREMIUM rack series, with the exception of the top and bottom plates, which are a fixed part of the frame and cannot be changed. The OPTIMAL rack series can be implemented into the biggest data center projects and can also be used in the smallest projects as a stand-alone rack. This makes it optimal for any user and any project. Although OPTIMAL Flex racks have a unassembled frame, the load rating, stability and all the other features of the OPTIMAL ROF rack remain the same. This makes it a perfect solution for locations with a complicated approach to the facility.

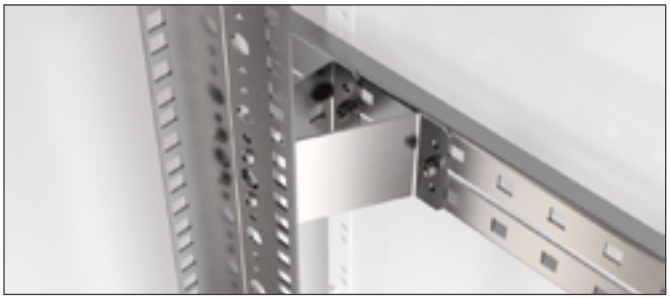
OPTIMAL ROF SERIES

The OPTIMAL ROF rack is designed to provide an optimal mixture of the key features like load rating, portfolio width (62 dimension options) and numerous types of doors, panels and locks. A stable and rigid frame makes it very safe to install in data centers with special requirements for load rating. The OPTIMAL ROF racks can be considered like an universal networking and server rack, which is compatible with almost all recommended cabling, cooling and complementary systems and accessories.



A wide range of doors is available for the PREMIUM as well as OPTIMAL rack series

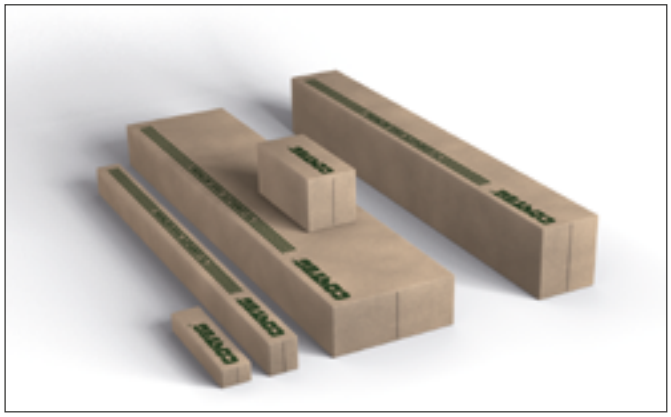
Since the OPTIMAL and PREMIUM racks can be easily combined, the outside frame design is unified



Load rating up to 500 kg is sufficient for most applications that may be considered

OPTIMAL Flex RMF SERIES

Since the OPTIMAL Flex RMF rack series is the unassembled version of OPTIMAL ROF rack series, the main features are virtually the same. A wide portfolio of dimension options is complemented by a full range of doors, panels and locks. The rack is transported in 3 to 5 carton boxes. Any installation company or the end-user can assemble the rack in the final location quickly and easily.



Delivery to even the most complicated location is easy since OPTIMAL Flex RMF is packed into carton boxes (Illustrative image only)

The design of the frame can fit with other OPTIMAL and PREMIUM racks, too; although the frame is not welded, its rigidity is excellent

2.6 OPTIMAL ROF

The OPTIMAL ROF rack is designed to cope with the demanding needs of IT equipment within a data center, equipment room and network or telecommunications closet. ROF's flexible configuration options mean that it's easy to tailor the solution to your exact requirements. Various height, depth and width options, along with a load rating of up to 1000 kg, airflow optimization solutions and flexible cable management mean that it has never been easier to custom configure a cabinet that meets your requirements.

ROF-42-80/80

COLOR SAMPLER: *RAL 9005* *RAL 7035*

DESCRIPTION:

Sizes
- Height: 15, 18, 21, 24, 27, 33, 36, 42, 45, 48U
- Width: 600, 800 mm
- Depth: 600, 800, 1000, 1200 mm (only for 42U)

Construction
- Welded-frame design
- 1.5 & 2.0 mm sheet steel

Load rating
- Standard 300 kg (15-33U), 400 kg (36U) and 500 kg (42-48U) for 600, 800 and 1000 mm deep racks
- Standard 1000 kg for 1200 mm deep racks

19" vertical extrusions
- 2 pairs of sliding 19" extrusions, adjustable from inside

IP rating
- Standard IP30
- Optionally IP54 (required for A/C unit installation) with multipoint lock only
- IP20 when perforated doors used

Colors
- Standard RAL 7035 and 9005
- Optionally other colors

Front door
- Tinted security glass door
- Swivel handle lock assembly – single or multipoint, optionally cylinder or combination lock (other locks on request)
- Door opening angle 180°
- Easy re-hanging to open on right or left
- Optionally steel, vented, perforated, glass with perforation, vertically divided door

Rear panel
- Removable with module for cable entry
- Can be replaced by multiple door options

Side panels
- Removable with locks

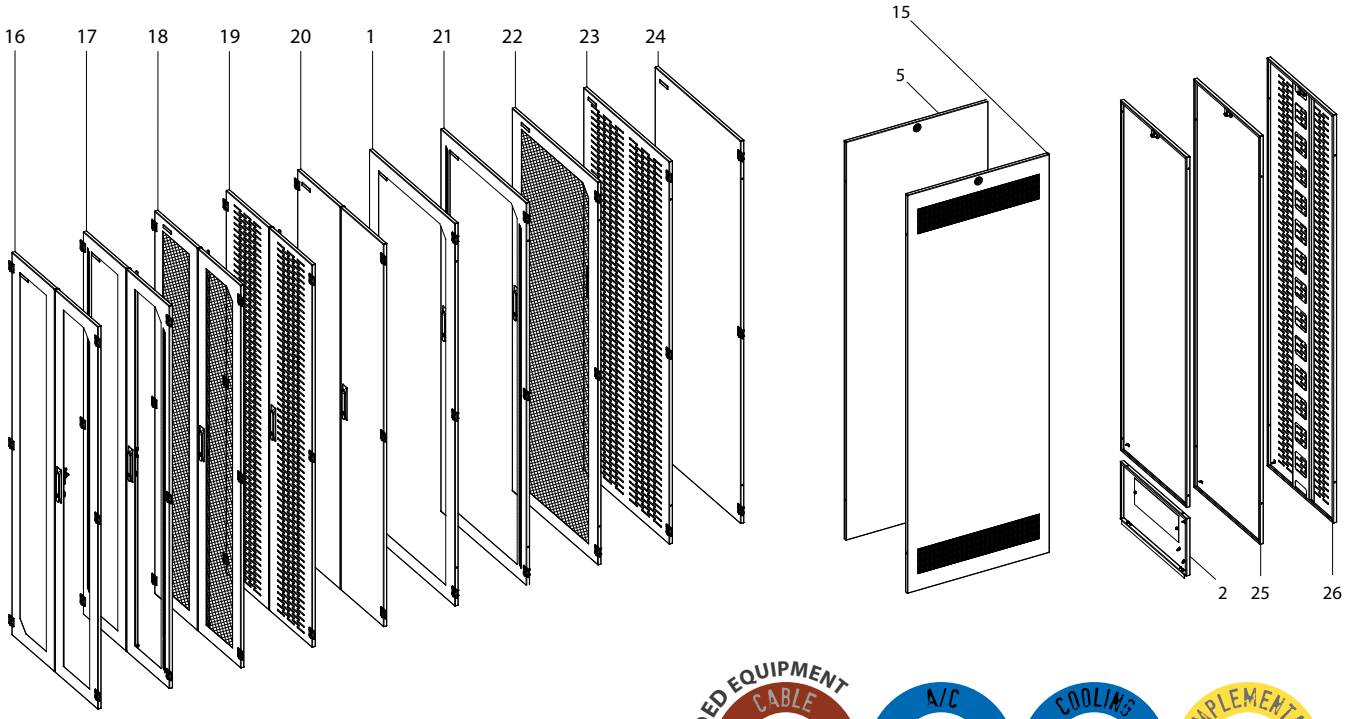
Cable entries (300×100 mm)
- Top, bottom and rear plate
- 800 mm wide racks have additional cable entries in top and bottom plate
- All cable entries covered by removable blank panels

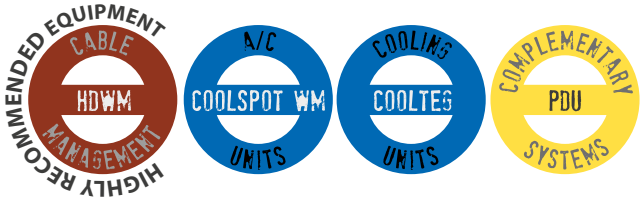
Ventilation unit openings
- Top, bottom plate
- All ventilation unit openings covered by removable blank panels

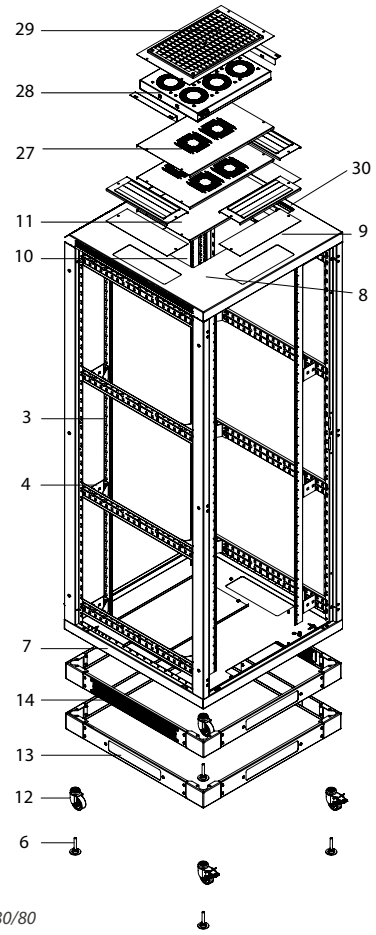
Feet
- Adjustable feet as standard; castors, lockable castors, plinth, or plinth with filter options

Adaptation
- Possibility to adapt for installation of 21" equipment (on request only for 800 mm width)
- Adaptor DP-RE-01 needed (ordered separately)

Other
- Racks can be installed in blocks by using DP-DR-UNI (ordered separately)
- GND/earthing kit included



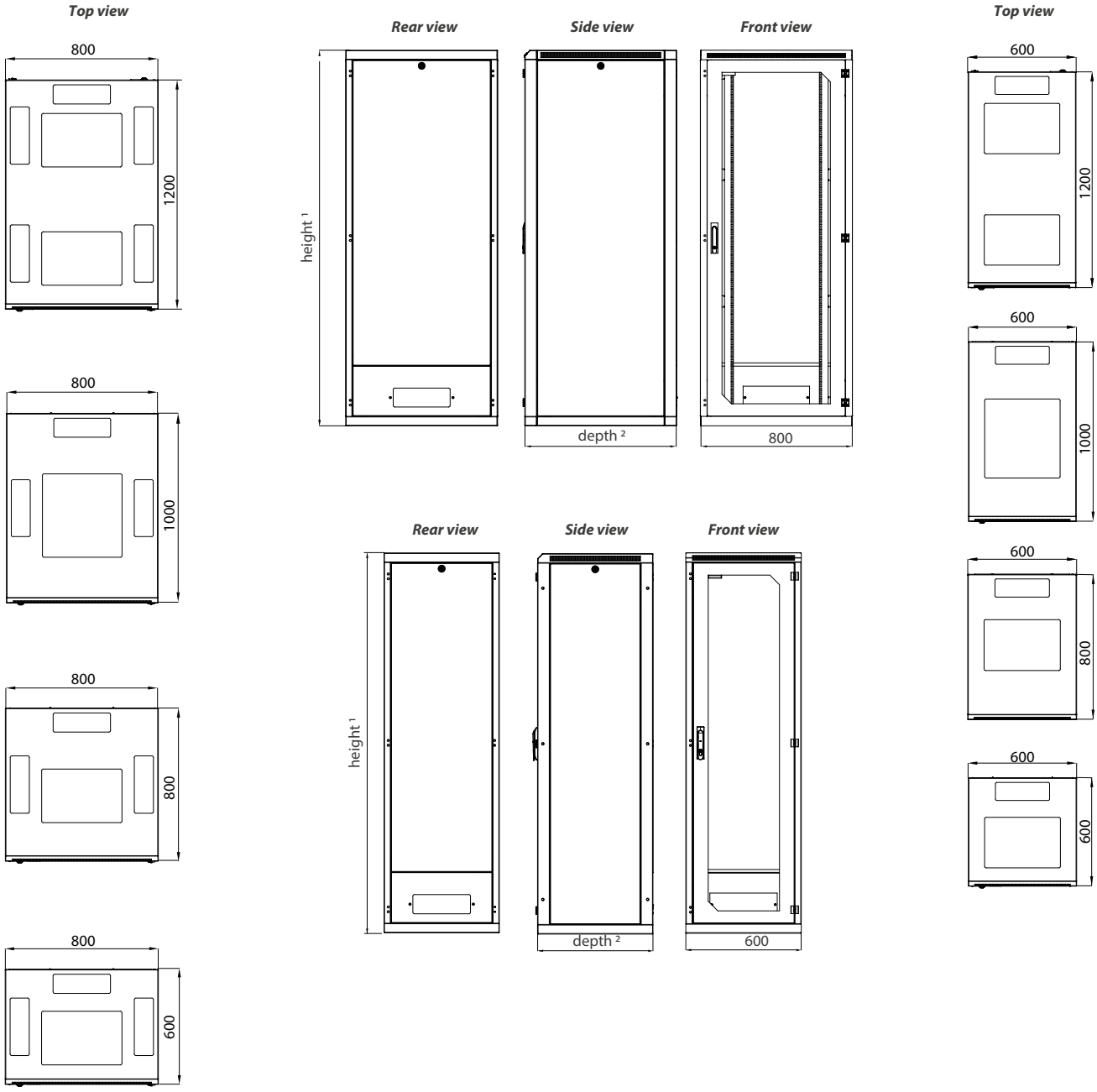




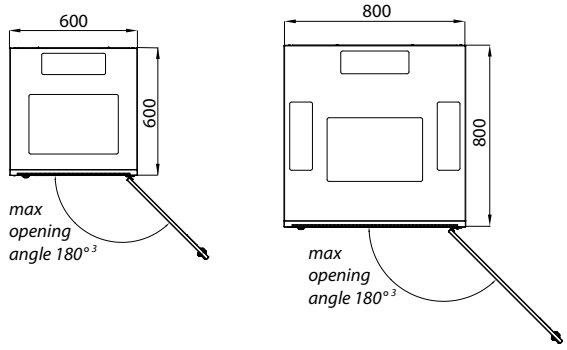
ROF-42-80/80

STANDARD EQUIPMENT	
1	Glass door with swivel handle lock
2	Rear panel with module (can be replaced by any door) and lock
3	2 pairs of 19" sliding extrusions
4	Holders for vertical extrusions
5	1 pair of side panels with locks
6	Adjustable feet
7	Frame of rack
8	Top and bottom cable entry openings
9	Blank panels for cable entry openings
10	Top and bottom openings for ventilation unit
11	Blank panels for ventilation unit openings
-	GND/earthing kit
-	28 mounting kits
OPTIONAL EQUIPMENT (EXAMPLES)	
12	Castors
13	Plinth
14	Plinth with filter
15	1 pair of side panels with perforation
16	Vertically divided glass door [1,2]
17	Vertically divided glass door with perforation [1,2]
18	Vertically divided vented door 86% [2]
19	Vertically divided perforated sheet steel door [2]
20	Vertically divided sheet steel door [2]
21	Glass door with side perforation
22	Vented door
23	Perforated sheet steel door
24	Sheet steel door
25	Rear panel – 1 piece
26	Rear panel – perforated
27	Perforated gland plate
28	Ventilation unit
29	Connecting kit with filter for ventilation unit
30	Dust-proof panels with brush for cable entry openings

[1] *not available for 600 mm wide racks*
[2] *requires multipoint lock*



Examples of opened-door angle



[1] for available heights please see page 48 (ordering and shipping information), table 1
[2] available depths: 600, 800, 1000, 1200 mm
[3] when rear doors applied (rear panel as standard) the max. angle is 180°

Ventilation unit openings
600, 800 mm deep racks – 420×280 mm
1000 mm deep racks – 420×440 mm
1200 mm deep racks – 420×280 mm (2×)

Cable entries
300×100 mm

Note: All dimensions in mm

Code	H in U	Load rating in kg	Dimensions in mm				Dimensions incl. packing in mm			Gross weight in kg
			H *	W	D	Useful depth	H	W	D	
ROF-15-60/60	15	300	778	600	600	590	960	640	640	50
ROF-18-60/60	18	300	911	600	600	590	1090	640	640	54
ROF-21-60/60	21	300	1045	600	600	590	1230	640	640	59
ROF-24-60/60	24	300	1178	600	600	590	1360	640	640	64
ROF-27-60/60	27	300	1311	600	600	590	1500	640	640	69
ROF-33-60/60	33	300	1578	600	600	590	1760	640	640	78
ROF-36-60/60	36	400	1711	600	600	590	1890	640	640	83
ROF-42-60/60	42	500	1978	600	600	590	2160	640	640	93
ROF-45-60/60	45	500	2111	600	600	590	2290	640	640	98
ROF-48-60/60	48	500	2245	600	600	590	2430	640	640	103
ROF-15-60/80	15	300	778	600	800	790	960	640	840	59
ROF-18-60/80	18	300	911	600	800	790	1090	640	840	64
ROF-21-60/80	21	300	1045	600	800	790	1230	640	840	69
ROF-24-60/80	24	300	1178	600	800	790	1360	640	840	74
ROF-27-60/80	27	300	1311	600	800	790	1500	640	840	80
ROF-33-60/80	33	300	1578	600	800	790	1760	640	840	91
ROF-36-60/80	36	400	1711	600	800	790	1890	640	840	98
ROF-42-60/80	42	500	1978	600	800	790	2160	640	840	107
ROF-45-60/80	45	500	2111	600	800	790	2290	640	840	114
ROF-48-60/80	48	500	2245	600	800	790	2430	640	840	118
ROF-15-60/100	15	300	778	600	1000	990	960	640	1040	72
ROF-18-60/100	18	300	911	600	1000	990	1090	640	1040	79
ROF-21-60/100	21	300	1045	600	1000	990	1230	640	1040	86
ROF-24-60/100	24	300	1178	600	1000	990	1360	640	1040	95
ROF-27-60/100	27	300	1311	600	1000	990	1500	640	1040	104
ROF-33-60/100	33	300	1578	600	1000	990	1760	640	1040	114
ROF-36-60/100	36	400	1711	600	1000	990	1890	640	1040	117
ROF-42-60/100	42	500	1978	600	1000	990	2160	640	1040	130
ROF-45-60/100	45	500	2111	600	1000	990	2290	640	1040	137
ROF-48-60/100	48	500	2245	600	1000	990	2430	640	1040	143
ROF-42-60/120	42	1000	1978	600	1200	1190	2160	640	1240	144
ROF-15-80/60	15	300	778	800	600	990	960	840	640	65
ROF-18-80/60	18	300	911	800	600	590	1090	840	640	70
ROF-21-80/60	21	300	1045	800	600	590	1230	840	640	75
ROF-24-80/60	24	300	1178	800	600	590	1360	840	640	80
ROF-27-80/60	27	300	1311	800	600	590	1500	840	640	86
ROF-33-80/60	33	300	1578	800	600	590	1760	840	640	98
ROF-36-80/60	36	400	1711	800	600	590	1890	840	640	107
ROF-42-80/60	42	500	1978	800	600	590	2160	840	640	115
ROF-45-80/60	45	500	2111	800	600	590	2290	840	640	123
ROF-48-80/60	48	500	2245	800	600	590	2430	840	640	131
ROF-15-80/80	15	300	778	800	800	790	960	840	840	70
ROF-18-80/80	18	300	911	800	800	790	1090	840	840	78
ROF-21-80/80	21	300	1045	800	800	790	1230	840	840	86
ROF-24-80/80	24	300	1178	800	800	790	1360	840	840	90
ROF-27-80/80	27	300	1311	800	800	790	1500	840	840	95
ROF-33-80/80	33	300	1578	800	800	790	1760	840	840	108
ROF-36-80/80	36	400	1711	800	800	790	1890	840	840	117
ROF-42-80/80	42	500	1978	800	800	790	2160	840	840	129
ROF-45-80/80	45	500	2111	800	800	790	2290	840	840	136
ROF-48-80/80	48	500	2245	800	800	790	2430	840	840	142
ROF-15-80/100	15	300	778	800	1000	990	960	840	1040	84
ROF-18-80/100	18	300	911	800	1000	990	1090	840	1040	90
ROF-21-80/100	21	300	1045	800	1000	990	1230	840	1040	96
ROF-24-80/100	24	300	1178	800	1000	990	1360	840	1040	102
ROF-27-80/100	27	300	1311	800	1000	990	1500	840	1040	119
ROF-33-80/100	33	300	1578	800	1000	990	1760	840	1040	136
ROF-36-80/100	36	400	1711	800	1000	990	1890	840	1040	144
ROF-42-80/100	42	500	1978	800	1000	990	2160	840	1040	152
ROF-45-80/100	45	500	2111	800	1000	990	2290	840	1040	160
ROF-48-80/100	48	500	2245	800	1000	990	2430	840	1040	168
ROF-42-80/120	42	1000	1978	800	1200	1190	2160	840	1240	170

** Height in mm without feet; for feet add 16-45 mm*

ORDERING AND SHIPPING INFORMATION: Configure the rack that will meet your requirements. The ordering matrix below will help you to create the part number. As soon as you have the part number, please contact your Conteg products distributor. Please note that all **ROF RACKS ARE DELIVERED FULLY ASSEMBLED** and palletized!

FOLLOW THE STEPS TO SET UP THE DESIRED ROF RACK PRODUCT CODE!

R O F - 1. - 2. / 3. 4. - 5. 6. 7. 8. 9. - 10. 11. 12. - 13.

1 HEIGHT

Code	Height in U	External height in mm
15	15	778
18	18	911
21	21	1045
24	24	1178
27	27	1311
33	33	1578
36	36	1711
42	42	1978
45	45	2111
48	48	2245

2 WIDTH

Code	Width in mm
60	600
80	800

3 DEPTH

Code	Depth in mm	Useful depth in mm
6	600	590
8	800	790
10	1000	990
12 [1]	1200	1190

[1] *only for 42U height*

5 FRONT DOOR

Code	Options
0	Without door [1]
G	Glass door
S	Sheet steel door
P	Perforated sheet steel door [2]
T	Glass door with side perforation [3]
W	Vented door (perforation rate 86%) [2]
A	Vertically divided glass door [4] *
B	Vertically divided glass door with side perforation [6] *
C	Vertically divided sheet steel door [4]
D	Vertically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [2]
	Other

[1] *no IP protection*
[2] *IP20 max.*
[3] *IP30 max.*
[4] *multipoint lock only*
[5] *multipoint lock only, IP20 max.*
[6] *multipoint lock only, IP30 max.*
* *not available for 600 mm wide racks*

4 EXTRUSIONS

Code	Front pair	Rear pair	Note
0	L	L	L-type undivided extrusions
C	C	C	C-type undivided extrusions with rounded cable troughs covered with plastic caps – to be used together with separation frame (only for 800 mm wide racks)

6 FRONT DOOR LOCK

Code	Options
1	Swivel handle with electronic lock, universal key
3	Swivel handle with electronic lock, universal key, multipoint
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
I	Swivel handle with profile half cylinder, universal key
J	Swivel handle with profile half cylinder, universal key, multipoint
K	Swivel handle with profile half cylinder, keyed different
L	Swivel handle with profile half cylinder, keyed different, multipoint
V	Swivel handle DIN profile, universal key, 333
W	Swivel handle DIN profile, universal key, 333, multipoint
	Other

7 REAR DOOR / PANEL

Code	Options
0	Without panel/door [1]
G	Glass door
S	Sheet steel door
P	Perforated sheet steel door [2]
T	Glass door with side perforation [3]
W	Vented door (perforation rate 86%) [2]
A	Vertically divided glass door [4] *
B	Vertically divided glass door with side perforation [6] *
C	Vertically divided sheet steel door [4]
D	Vertically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [2]
Y	Rear panel – single piece [3,7]
R	Rear panel – divided, with cable entry [7]
Z	Perforated rear panel – single piece [8]
	Other

[1] *no IP protection*
[2] *IP20 max.*
[3] *IP30 max.*
[4] *multipoint lock only*
[5] *multipoint lock only, IP20 max.*
[6] *multipoint lock only, IP30 max.*
[7] *lock code U or X only*
[8] *lock code U or X only, IP20 max.*
* *not available for 600 mm wide racks*

8 REAR DOOR / PANEL LOCK

Code	Options
1	Swivel handle with electronic lock, universal key
3	Swivel handle with electronic lock, universal key, multipoint
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
I	Swivel handle with profile half cylinder, universal key
J	Swivel handle with profile half cylinder, universal key, multipoint
K	Swivel handle with profile half cylinder, keyed different
L	Swivel handle with profile half cylinder, keyed different, multipoint
V	Swivel handle DIN profile, universal key, 333
W	Swivel handle DIN profile, universal key, 333, multipoint
U	Lock for rear panel, universal key
X	Lock for rear panel, keyed different
	Other

9 SIDE PANELS (BOTH SIDES) *

Code	Options
0	No side panels
A	2 side panels, sheet steel, universal key
B	1 side panel, sheet steel, universal key
C	2 side panels, sheet steel, keyed different
D	1 side panel, sheet steel, keyed different
E	2 side panels, sheet steel with perforation, universal key
F	1 side panel, sheet steel with perforation, universal key
G	2 side panels, sheet steel with perforation, keyed different
H	1 side panel, sheet steel with perforation, keyed different
	Other

* *open side/sides results in no IP protection; side panels with perforation result in protection rating IP20 max.*

10 IP RATING [1]

Code	Options
0	IP00
2	IP20
3	IP30
5	IP54[3]
A	A/C ready [2]

[1] *According to EN 60529*
[2] *Ready for A/C unit installation; recommended when cooling is planned or required; IP54 when A/C unit installed according to instructions*
[3] *Multipoint lock only*

11 PLATES

Code	Options
0	Top & bottom plates – Integral

12 LOAD RATING

Code	Load rating in kg	Note
3	300	**standard** for racks height 15 – 33U; depths 600, 800, 1000 mm
4	400	**standard** for racks height 36U; depths 600, 800, 1000 mm
5	500	**standard** for racks height 42 – 48U; depths 600, 800, 1000 mm
A	1000	**standard** for racks height 42U; depth 1200 mm

13 COLOR

Code	Note
B	RAL 7035 (light gray)
H	RAL 9005 (black)

An example of a correct product code

ROF-45-60/60-WWWWA-205-H

2.7 OPTIMAL Flex RMF

The OPTIMAL Flex RMF unassembled rack is designed to cope with the demanding needs of IT equipment within a data center, equipment room and network or telecommunications closet. RMF's flexible configuration options mean that it's easy to tailor the solution to your exact requirements. Various height, depth and width options, along with a load rating up of to 500 kg, air-flow optimization solutions and flexible cable management mean that it has never been easier to custom configure a cabinet that meets your requirements. The RMF rack is delivered unassembled for easy transportation to the site, where it can be quickly and easily assembled.

OPTIMAL

RMF-42-80/80

COLOR SAMPLER: ***RAL 9005*** ***RAL 7035***

DESCRIPTION:

Sizes
- Height: 21, 33, 42, and 45U
- Width: 600 and 800 mm
- Depth: 600, 800,1000 mm

Construction
- Robust frame design, connected by 32 M5×12 screws
- Delivered unassembled; assembly at installation site
- Easy and quick assembly
- 1.5 & 2.0 mm sheet steel

Load rating
- Standard 400 kg, with RMF-BRACE 500 kg

19" vertical extrusions
- 2 pairs of sliding 19" extrusions, adjustable from inside

IP rating
- Standard IP30
- IP20 when perforated doors used

Colors
- Standard RAL 7035, RAL 9005
- Optionally other colors

Front door
- Door with swivel handle lock and tinted security glass
- Wide range of doors and locks available
- Reversible door – easy re-hanging to open on right or left (at installation site)
- Door opening angle 180˚

Rear panel
- Removable rear panel with lock
- Wide range of rear doors available

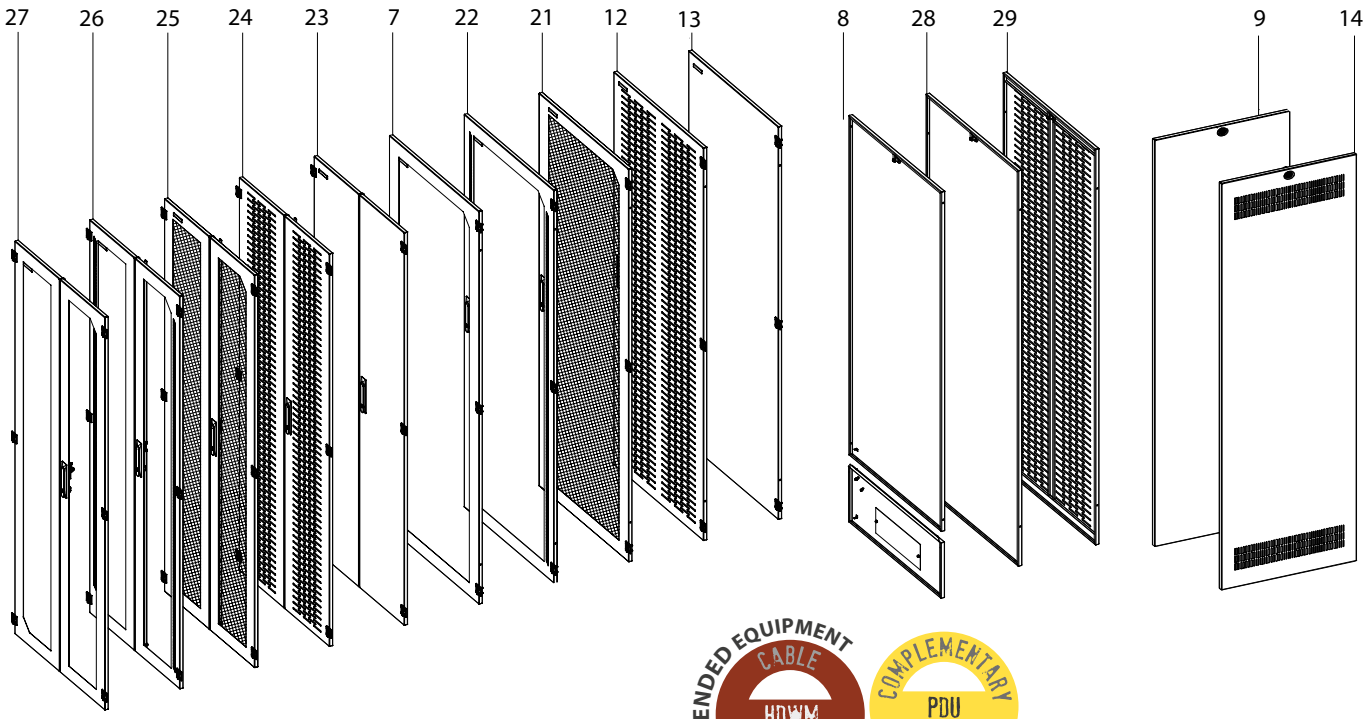
Side panels
- Removable with locks

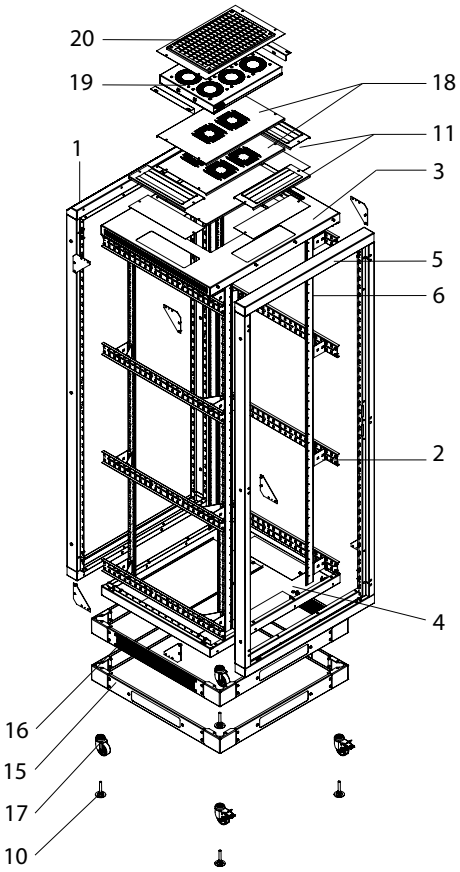
Cable entries
- Top, bottom, and rear openings for cable entry covered with removable blank panels

Ventilation unit openings
- Ventilation unit can be installed in top or bottom frame

Feet
- Adjustable feet as standard;
- Castors, lockable castors, plinth or plinth with filter options

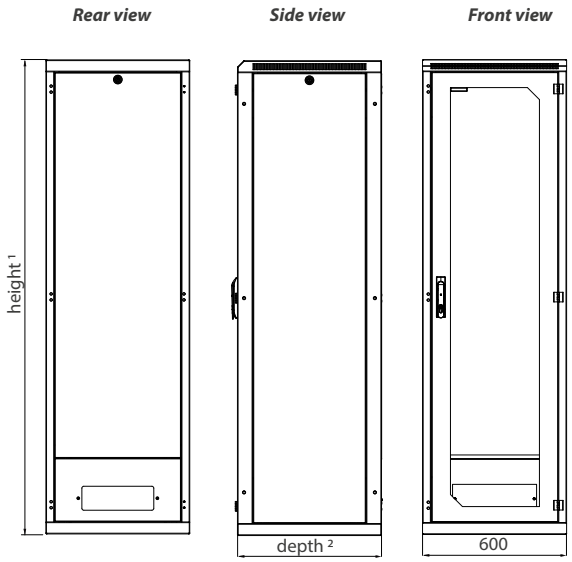
Other
- Racks can be installed in blocks by using DP-DR-UNI (ordered separately)
- GND/earthing kit included

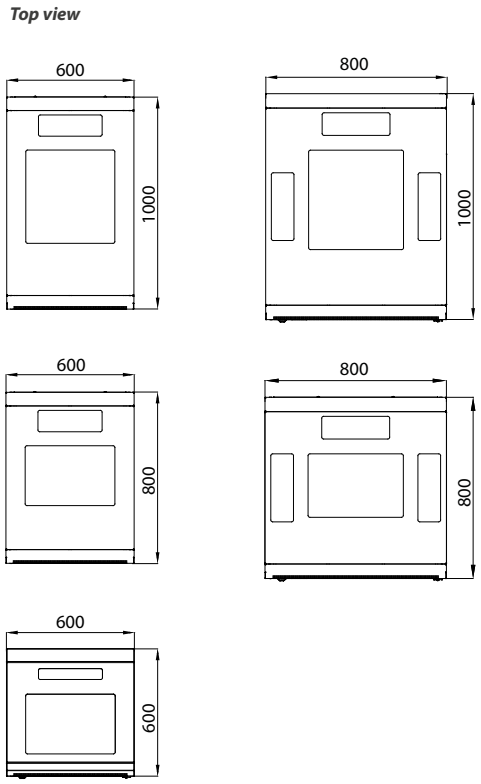


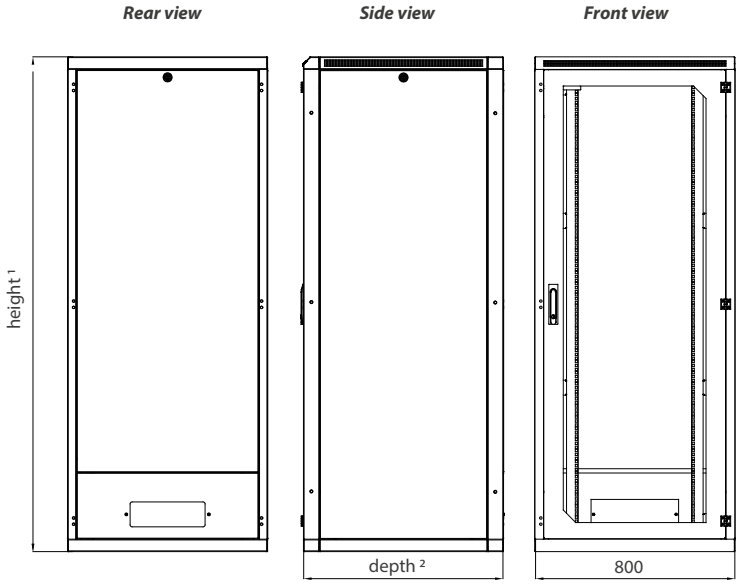


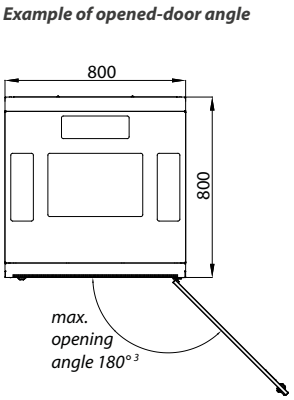
STANDARD EQUIPMENT	
1	Front frame
2	Holders for vertical extrusions Rear frame
3	Top cover
4	Bottom cover
5	Rear frame
6	2 pairs of 19" vertical extrusions
7	Front glass door with swivel handle lock
8	Divided rear panel with cable entry and lock
9	1 pair of side panels with lock
10	Adjustable feet
11	Blank panels for top and bottom openings
-	GND/earthing kit
-	28 mounting kits
OPTIONAL EQUIPMENT	
12	Door with perforation
13	Sheet steel door
14	Side panels with perforation
15	Plinth
16	Plinth with filter
17	Castors
18	Perforated gland plate
19	Ventilation unit
20	Connecting kit with filter for ventilation unit
21	Vented door
22	Glass door with side perforation
23	Vertically divided sheet steel door [2]
24	Vertically divided perforated sheet steel door [2]
25	Vertically divided vented door 86% [2]
26	Vertically divided glass door with perforation [1,2]
27	Vertically divided glass door [1,2]
28	Rear panel (single piece)
29	Perforated rear panel (single piece)

[1] not available for 600 mm wide racks
[2] requires multipoint lock









[1] for available heights please see page 53, table 1
[2] for available depths please see page 54, step 3 - table 2
[3] when rear doors applied (rear panel as standard) the max. angle is 180°

Ventilation unit openings
800 mm deep racks – 420×280 mm
1000 mm deep racks – 420×440 mm

Cable entries
600 mm deep racks – 300×50 mm
800, 1000 mm deep racks – 300×100 mm

Note: All dimensions in mm

ORDERING AND SHIPPING INFORMATION: Configure the rack that will meet your requirements. The ordering matrix below will help you to create the part number. As soon as you have the part number, please contact your Conteg products distributor. Please note that all **RMF RACKS ARE DELIVERED UNASSEMBLED** in carton boxes!

FOLLOW THE STEPS TO SET UP THE DESIRED RMF RACK PRODUCT CODE!

QUICK WAY TO STANDARD CONFIGURATION OF RMF RACKS!

You should choose this quick part number look-up table if you are interested in the RMF rack's standard configuration. More information regarding standard configuration can be found in the appropriate table. To order, you only need to tell us the code (i.e. RMF-21-60/60). Please note that the rack is delivered unassembled!

Types:
RMF – 21, 33, 42, 45 – 60/60
RMF – 21, 33, 42, 45 – 60/80
RMF – 42, 45 – 60/100
RMF – 21, 33, 42, 45 – 80/80
RMF – 42, 45 – 80/100

xx – rack width, yy – rack depth, zz – rack height
** One pack is needed for racks 21U and 33U. Two packs are needed for racks 42U and 45U.*

Code	Dimensions including packing in mm				
	Box 1 RMF-FF-zz/xx	Box 2 RMF-RF-zz/xx	Box 3 RMF-SP-zz/yy	Box 4 RMF-TB-zz/yy	Box 5 RMF-HVE-xx/yy*
RMF-21-60/60	630×1100×130	630×1100×130	520×990×85	650×535×160	70×35×565
RMF-33-60/60	630×1630×130	630×1630×130	520×1520×85	650×535×160	70×35×565
RMF-42-60/60	630×2030×130	630×2030×130	520×1920×85	650×535×160	70×35×565
RMF-45-60/60	630×2166×130	630×2166×130	520×2055×85	650×535×160	70×35×565
RMF-21-60/80	630×1100×130	630×1100×130	720×990×85	650×735×160	70×35×765
RMF-33-60/80	630×1630×130	630×1630×130	720×1520×85	650×735×160	70×35×765
RMF-42-60/80	630×2030×130	630×2030×130	720×1920×85	650×735×160	70×35×765
RMF-45-60/80	630×2166×130	630×2166×130	720×2055×85	650×735×160	70×35×765
RMF-42-60/100	630×2030×130	630×2030×130	920×1920×85	650×935×160	70×35×965
RMF-45-60/100	630×2166×130	630×2166×130	920×2055×85	650×935×160	70×35×965
RMF-21-80/80	830×1100×130	830×1100×130	720×990×85	850×735×160	145×105×810
RMF-33-80/80	830×1630×130	830×1630×130	720×1520×85	850×735×160	145×105×810
RMF-42-80/80	830×2030×130	830×2030×130	720×1920×85	850×735×160	145×105×810
RMF-45-80/80	830×2166×130	830×2166×130	720×2055×85	850×735×160	145×105×810
RMF-42-80/100	830×2030×130	830×2030×130	920×1920×85	850×935×160	145×105×1010
RMF-45-80/100	830×2166×130	830×2166×130	920×2055×85	850×935×160	145×105×1010

Standard configuration: front frame, rear frame, top cover, bottom cover, holders for vertical extrusions, 2 pairs of 19" vertical extrusions, front glass door with standard swivel handle universal key, 1 pair of side panels with lock, adjustable feet, divided rear panel with cable entry, blank panel for top and bottom openings.

Code	Hn in U	Dimensions in mm				Gross weight in kg
		H*	W	D	Useful depth	
RMF-21-60/60	21	1045	600	600	590	65
RMF-33-60/60	33	1578	600	600	590	87
RMF-42-60/60	42	1978	600	600	590	106
RMF-45-60/60	45	2111	600	600	590	111
RMF-21-60/80	21	1045	600	800	790	74
RMF-33-60/80	33	1578	600	800	790	97
RMF-42-60/80	42	1978	600	800	790	118
RMF-45-60/80	45	2111	600	800	790	123
RMF-42-60/100	42	1978	600	1000	990	118
RMF-45-60/100	45	2111	600	1000	990	127
RMF-21-80/80	21	1045	800	800	790	91
RMF-33-80/80	33	1578	800	800	790	118
RMF-42-80/80	42	1978	800	800	790	140
RMF-45-80/80	45	2111	800	800	790	145
RMF-42-80/100	42	1978	800	1000	990	157
RMF-45-80/100	45	2111	800	1000	990	165

** Height in mm without feet; for feet add 16-45 mm*

SET UP THE RMF RACK'S PRODUCT CODE STEP BY STEP!

Step-by-step configuration allows you to choose from various options and configure the rack to meet your exact requirements. This is recommended, when the standard configuration does not meet your requirements.

RMF – DELIVERED UNASSEMBLED ONLY	
Code of box	**Box contains**
RMF-FF-zz/xx	Front frame and panel for RMF-zz-xx/yy, 2 pairs of 19" vertical extrusions, mounting kit, feet
RMF-RF-zz/xx	Rear frame and panel for RMF-zz-xx/yy
RMF-SP-zz/yy	2 pieces of side panels for RMF-zz-xx/yy
RMF-TB-xx/yy	Top and bottom covers of RMF-zz-xx/yy
RMF-HVE-xx/yy *	Holders for vertical extrusions for yy racks; 1 box contains 2 pairs of holders

xx – rack width, yy – rack depth, zz – rack height
** One pack is needed for racks 21U and 33U. Two packs are needed for racks 42U and 45U.*

R M F - FF - 1. / 2. - 3. 4. - 5.

STEP 1: FRONT FRAME CONFIGURATION

1 HEIGHT

Code	Height in U	External height in mm
21	21	1045
33	33	1578
42	42	1978
45	45	2111

2 WIDTH

Code	Width in mm
60	600
80	800

5 COLOR

Code	Note
B	RAL 7035 (light gray)
H	RAL 9005 (black)

3 FRONT DOOR

Code	Options
0	Without door [1]
G	Glass door
S	Sheet steel door
P	Perforated sheet steel door [2]
T	Glass door with side perforation [3]
W	Vented door (perforation rate 86%) [2]
A	Vertically divided glass door [4] *
B	Vertically divided glass door with side perforation [6] *
C	Vertically divided sheet steel door [4]
D	Vertically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [2]
	Other

[1] *no IP protection*
[2] *IP20 max.*
[3] *IP30 max.*
[4] *multipoint lock only*
[5] *multipoint lock only, IP20 max.*
[6] *multipoint lock only, IP30 max.*
* *racks 800 mm wide only*

4 FRONT DOOR LOCK

Code	Options
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
I	Swivel handle with profile half cylinder, universal key
J	Swivel handle with profile half cylinder, universal key, multipoint
K	Swivel handle with profile half cylinder, keyed different
L	Swivel handle with profile half cylinder, keyed different, multipoint
V	Swivel handle DIN profile, universal key 333
W	Swivel handle DIN profile, universal key 333, multipoint

An example of a correct product code

STEP 1: RMF-FF-42/80-WW-B

R M F - RF - 1. / 2. - 3. - 4. - 5.

STEP 2: REAR FRAME CONFIGURATION

1 HEIGHT

Code	Height in U	External height in mm
21	21	1045
33	33	1578
42	42	1978
45	45	2111

2 WIDTH

Code	Width in mm
60	600
80	800

5 COLOR

Code	Note
B	RAL 7035 (light gray)
H	RAL 9005 (black)
E	RAL 7035/7040

3 REAR PANEL / DOOR OPTIONS

Code	Options
0	Without door [1]
G	Glass door
S	Sheet steel door
P	Perforated sheet steel door [2]
T	Glass door with side perforation [3]
W	Vented door (perforation rate 86%) [2]
A	Vertically divided glass door [4] *
B	Vertically divided glass door with side perforation [6] *
C	Vertically divided sheet steel door [4]
D	Vertically divided perforated sheet steel door [5]
F	Vertically divided vented door (perforation rate 86%) [2]
Y	Rear panel, single piece (no cable entry) [3,7]
R	Rear panel, divided, with cable entry [7]
Z	Perforated rear panel, single (no cable entry) [8]

[1] no IP protection
[2] IP20 max.
[3] IP30 max.
[4] multipoint lock only
[5] multipoint lock only, IP20 max.
[6] multipoint lock only, IP30 max.
*[7] Lock code **U** or **X** only*
*[8] Lock code **U** or **X** only, IP20 max.*
** racks 800 mm wide only*

4 REAR PANEL / DOOR LOCK

Code	Options
E	Swivel handle with combination lock and universal key
F	Swivel handle with combination lock and universal key, multipoint
G	Swivel handle with combination lock, keyed different
H	Swivel handle with combination lock, keyed different, multipoint
I	Swivel handle with profile half cylinder, universal key
J	Swivel handle with profile half cylinder, universal key, multipoint
K	Swivel handle with profile half cylinder, keyed different
L	Swivel handle with profile half cylinder, keyed different, multipoint
V	Swivel handle DIN profile, universal key 333
W	Swivel handle DIN profile, universal key 333, multipoint
U	Lock for rear panel, universal key
X	Lock for rear panel, keyed different

An example of a correct product code

STEP 2: RMF-RF-42/80-RU-B

STEP 3: SIDE PANEL CONFIGURATION

R M F - SP - 1. / 2. - 3. - 4.

1 HEIGHT

Code	Height in U	External height in mm
21	21	1045
33	33	1578
42	42	1978
45	45	2111

2 DEPTH

Code	Depth in mm	Useful depth in mm
60	600	590
80	800	790
100	1000	990

3 SIDE PANEL WITH LOCKS (BOTH SIDES)

Code	Options
C	2 side panels, sheet steel, keyed different
E	2 side panels, sheet steel with perforation, universal key
G	2 side panels, sheet steel with perforation, keyed different

4 COLOR

Code	Note
B	RAL 7035 (light gray)
H	RAL 9005 (black)

An example of a correct product code

STEP 3: RMF-SP-42/100-C-B

STEP 4: COVER CONFIGURATION

R M F - TB - 1. / 2. - 3.

1 WIDTH

Code	Width in mm
60	600
80	800

2 DEPTH

Code	Depth in mm	Useful depth in mm
60	600	590
80	800	790
100	1000	990

3 COLOR

Code	Explanation
B	RAL 7035 (light gray)
H	RAL 9005 (black)

An example of a correct product code

STEP 4: RMF-TB-80/100-B

STEP 5: ORDER RMF-BRACE
Requested for 500 kg load rating.

All types of vertically divided doors require multi-point lock. RMF racks are compatible with side cooling. Please use RDF/RSF/ROF racks for top-mount or wall-mount cooling unit.

2.8 SPECIAL OPTIMAL

OPTIMAL Twist ROR

The OPTIMAL Twist ROR rack is based on the ROF concept and equipped with a swing frame. Front access and maintenance of the installed equipment will be significantly improved, thanks to the rack's swing frame. Therefore, the rack is suitable for all PC rooms where access to the rack is limited.

COLOR SAMPLER:

RAL 9005	RAL 7035

ROR-42-80/80

DESCRIPTION:

Sizes
- Height: 27, 42, 45U
- Width: 800 mm
- Depth: 600 or 800 mm

Construction
- Welded-frame design
- 1.5 & 2.0 mm sheet steel

Asymmetric frame placing
- Max. useful depth 450 mm
- Frame opening angle 90 °
- Cover on side of swing frame perforated for easy cable management
- Useful height of swing frame is 3U less than rack height
- Swing frame conductively connected with rack

Load rating of swing frame
- Max. 100 kg

IP rating
- Standard IP30

Colors
- Standard RAL 7035 and 9005
- Optionally other colors

Front door
- Same as ROF series

Side panels
- Same as ROF series

Feet
- Adjustable feet as standard; plinth, or plinth with filter options

Adaptation
- Possibility to install one pair of sliding 19" vertical extrusions in the rear of rack

Code	H in U (total/useful)	Dimensions in mm				Dimensions including packing in mm			Gross weight in kg
		H*	W	D	Useful depth	H	W	D	
ROR-27-80/60	27/24	1321	800	600	450	1500	840	640	89
ROR-42-80/60	42/39	1988	800	600	450	2160	840	640	120
ROR-45-80/60	45/42	2121	800	600	450	2290	840	640	128
ROR-27-80/80	27/24	1321	800	800	450	1500	840	840	110
ROR-42-80/80	42/39	1988	800	800	450	2160	840	840	140
ROR-45-80/80	45/42	2121	800	800	450	2290	840	840	144

** Height in mm without feet; for feet add 16-45 mm*

OPTIMAL PC ROP

The OPTIMAL PC ROP racks have emerged from the ROF concept, too. They were redesigned to securely house a personal computer, however, it is also possible to install standard 19" equipment. Thanks to the special design of the rack, a PC can be positioned safely, and the user is not limited in any way.

COLOR SAMPLER: *RAL 7035*

ROP-36-65/80

DESCRIPTION:

Sizes
- Height: 36U
- Width: 650 mm
- Depth: 600 or 800 mm

Construction
- Welded-frame design
- 1.5 & 2.0 mm sheet steel

IP rating
- Standard IP30
- IP54 option (recommended for industrial installation)

Load rating
- Frame – 400 kg
- Bottom section – 300 kg
- Top section – 100 kg
- Pull-out shelf – 10 kg

Colors
- Standard RAL 7035
- Optionally other colors

Front door
- Tinted security glass door with swivel handle lock – top part (12U)
- Sheet steel door with swivel handle lock – bottom part (22U)
- Door opening angle 180°
- Middle part (pull-out shelf) is lockable (2U)

Rear panel
- Removable with lock
- Sheet steel or perforated sheet steel

Side panels
- Removable with lock
- Sheet steel or perforated sheet steel

Cable entries
- In the top and bottom plate
- Covered by removable blank panels

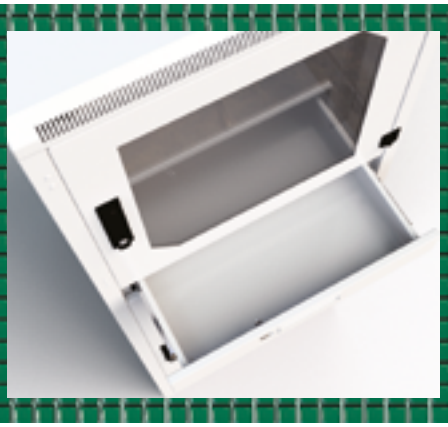
Ventilation unit openings
- In the top and bottom plate
- All ventilation unit openings covered by removable blank panels

Feet
- Adjustable feet as standard; castors, lockable castors, plinth, or plinth with filter options

Adaptation
- Possibility to adapt for installation of 21" equipment on-site

Code	H in U	Dimensions in mm				Dimensions including packing in mm			Gross weight in kg
		H*	W	D	Useful depth	H	W	D	
ROP-36-65/60	36	1721	650	600	590	1850	690	660	105
ROP-36-65/80	36	1721	650	800	790	1850	690	890	119

** Height in mm without feet; for feet add 16-45 mm*



OPTIMAL Cable Management

The Cable Management rack is designed to support the horizontal Cross Connect configuration or Consolidation Point topology based on ISO/IEC 11801, TIA/EIA 942 and TIA/EIA 568 B standards. This solution is recommended for telecommunication rooms where active components and patch panels need to be separated.

This solution consists of the Main Cable Management Rack and the Extension. It can be installed as a standalone and due to its standard depth (300 or 400 mm) the corridors remain accessible. The Main Cable Management Rack is equipped with movable 19" extrusions (42U or 45U) and a pair of patch cord management panels. These three parts can be configured based on the customer's needs. The front-to-back distance can be adjusted, too. The space for the cable management can be extended with the Extension section, which can be placed on both sides of the Main Cable Section.

DESCRIPTION:

Sizes
- Height: 42, 45 U
- Width of Main rack – 900 mm
- Width of Extended rack - 300 mm
- Depth: 300 or 400 mm

Construction
- Welded-frame design
- 1.5 mm sheet steel
- Free-standing solution (recommended that you attach to the wall or connect two together)

IP rating
- Standard IP30

19" vertical extrusions
- Adjustable positioning of the 19" extrusions – front to rear and left, central or right
- Pair of patch cord management panels, placement upon request in combination with the 19" extrusions

When 19" extrusions are in the front position of Main rack:
- Useful rearward depth is 254 mm – for 300 mm and 354 mm for 400 mm depth of ROF-CS; when cable management accessories are installed the useful depth is different
- Useful frontward space is limited by multipoint lock and ranges between 10 and 15 mm
- Extended rack is possible attach to main Cable Management Rack at both sides

Colors
- Standard RAL 7035 and 9005
- Optionally other colors

Front door
- Main rack - Front vertically divided sheet steel doors, multipoint lock; rear and side panels with lock
- Extended rack - Front sheet steel door, single point lock; rear and side panels with lock

Rear and side panels
- Removable sheet steel door with lock

Cable entries
- In the top and bottom plate
- Covered by removable blank panels metal and plastic

Feet
- Adjustable feet as standard

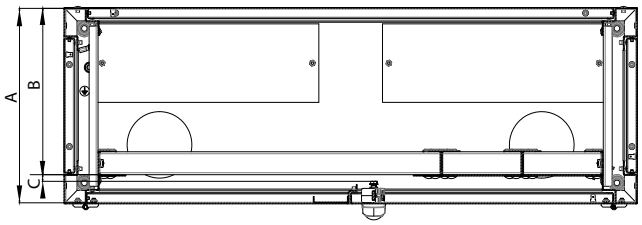
Cable management
- Management panels can be equipped with cable management accessories
- Fibre storage spools – HDWM-FSS-50 or HDWM-FSS-100 (4 x HDWM-FSS-50 included)
- Plastic cable brackets – VO-xxx
- Metal cable brackets - VO-Wx-xx/xx

COLOR SAMPLER:

RAL 9005 ***RAL 7035***

ROF-CS-42-90/30 & ROF-CS-42-30/30

Code	Depth of the rack	Total useful depth for installed equipment	When 19" extrusions are in the front position	
			Rearward usable depth	Frontward useful depth
	A	B+C	B	C
ROF-CS-xx-90/30	300	264	254	10
ROF-CS-xx-90/40	400	364	354	10



Code	Specification	H in U	W	D
ROF-CS-42-90/30-CWYUA	Main Cable Management Rack	42	900	300
ROF-CS-45-90/30-CWYUA	Main Cable Management Rack	45	900	300
ROF-CS-42-90/40-CWYUA	Main Cable Management Rack	42	900	400
ROF-CS-45-90/40-CWYUA	Main Cable Management Rack	45	900	400
ROF-CS-42-30/30-SVYUA	Extension Cable Management Rack	42	300	300
ROF-CS-45-30/30-SVYUA	Extension Cable Management Rack	45	300	300
ROF-CS-42-30/40-SVYUA	Extension Cable Management Rack	42	300	400
ROF-CS-45-30/40-SVYUA	Extension Cable Management Rack	45	300	400

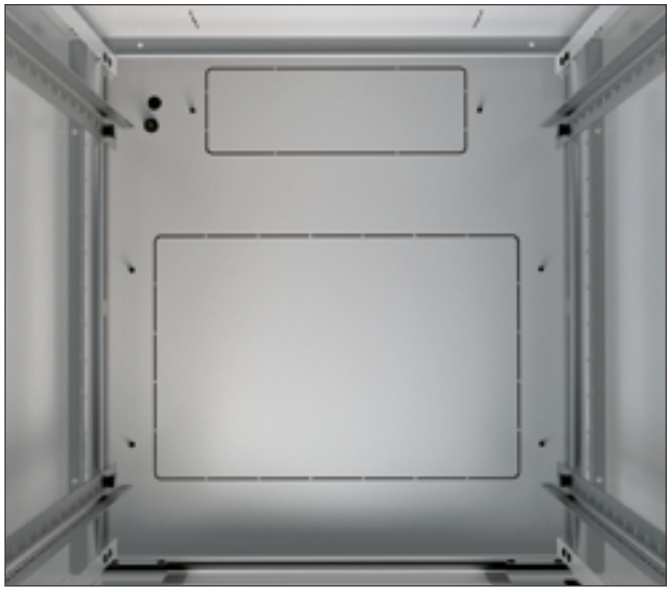
Dimensions in mm

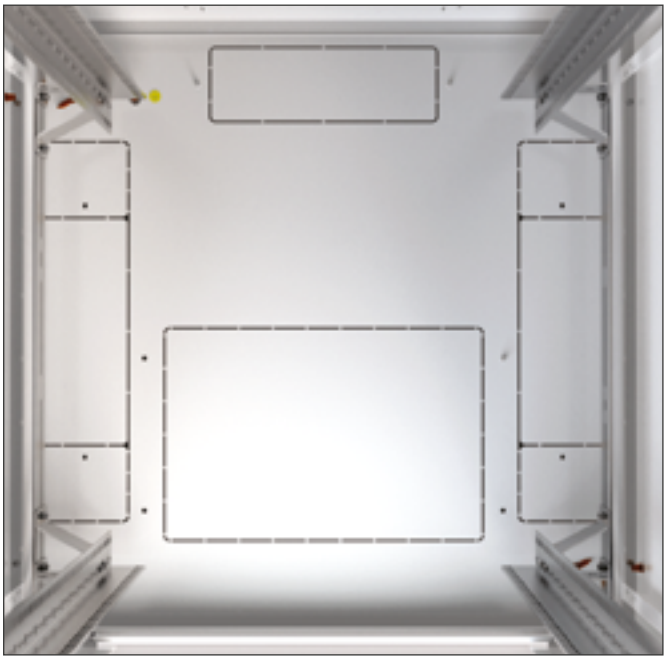
iSEVEN RACK SERIES

The main feature of the iSEVEN rack series is the SMART BUY. What's behind this? First of all – a user-friendly price combined with traditional Conteg quality and clever design. The iSEVEN racks are designed for day-to-day use over all regions and projects. Their features make them ideal for standard applications. With respect to the range of options and load rating, which is 300 or 400 kg, active as well as passive components can be safely housed inside iSEVEN racks. The iSEVEN rack series is also available in two design options . You can choose between a fully welded RI7 (iSEVEN) rack and an unassembled version called RM7 (iSEVEN Flex). Although the history of iSEVEN racks is not as long as that of the OPTIMAL rack series, RI7 and RM7 racks quickly developed a loyal following thanks to their many unique features. If these features fit your requirements, the iSEVEN rack series may be the best choice for you. However, if any of its features are unsuitable, simply select the OPTIMAL rack series or even the PREMIUM racks, where all your requirements will be fulfilled.

iSEVEN RI7 SERIES

The iSEVEN 19" rack has been designed to provide the user with an unmatched ratio between price, utility value, and quality. This rack is the ideal choice for installers and end-users who want to spend less time choosing between various options and configuring difficult product part numbers. iSEVEN racks are the best solution when the price is a crucial factor of your project with standard technical requirements.





iSEVEN racks are equipped with knock-out cable openings

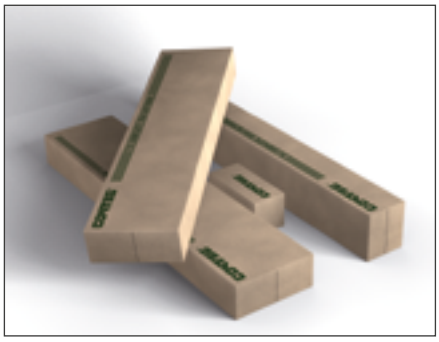
iSEVEN Flex RM7 SERIES

The iSEVEN Flex racks have been designed for users whose space constraints of the access path do not allow for the installation of the iSEVEN rack series (RI7) with a welded design. The iSEVEN Flex (RM7) racks are delivered unassembled for an easy transportation to the installation site, where they can be built quickly and easily. This type of rack is the ideal choice for installers and end-users who want to spend less time choosing between various options and configuring difficult product part numbers.

Although the design is different, the outside look of the iSEVEN and iSEVEN Flex is almost identical

When unassembled according to instructions, RM7 achieves the same load rating and frame rigidity as RI7

Transportation friendly – RM7 is packed in carton boxes and its installation is easy and fast (Illustrative image only)



2.9 iSEVEN RI7

The iSEVEN 19" rack has been designed to provide the user with an unmatched ratio between price, utility value, and quality. This rack is the ideal choice for installers and end-users who want to spend less time choosing between various options and configuring difficult product part numbers. After thorough research, we have prepared a portfolio of the most common dimensions together with one universal design.

RI7- 42-80/80

DESCRIPTION:

Sizes
- Height: 21, 27, 42, 45U
- Width: 600, 800 mm
- Depth: 600, 800, 1000 mm

Construction
- Welded-frame design
- 1.5 mm sheet steel

Load rating
- 21 & 27U: 300 kg
- 42 & 45U: 400 kg

19" vertical extrusions
- 2 pairs of sliding 19" extrusions, adjustable from inside

IP rating
- Standard IP30

Colors
- Standard RAL 7035 and 9005
- Optionally other colors

Front door
- Security glass door with swivel handle lock
- Optional sheet steel door
- Easy re-hanging to open on right or left
- Door opening angle 180°

Rear panel
- Removable with knock-out cable entry and lock
- Rear sheet steel door

Side panels
- Removable with locks

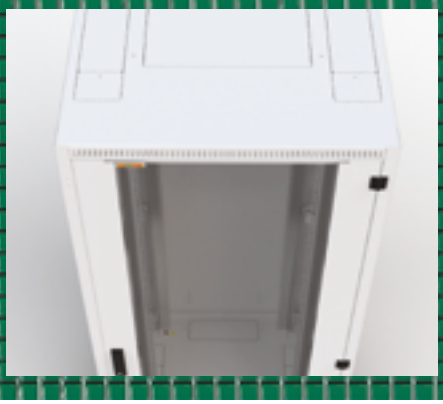
Knock-out openings – cable entry
- Universal size 300×100 mm – rear side of top and bottom plate and rear panel
- Universal openings can be covered by blank panels (ordered separately)
- Extended size 500×115 mm – both sides of top and bottom plate. It consists of 3 parts – 300×115 mm and 2× -100×115 mm, each can be opened individually
- Extended opening can be covered by a blank panel or standard cable brush - middle opening. Opening can be protected by rubber piece for edges (DP-KP-LEM-6) or brushes protection (DP-KP-KAR-6)

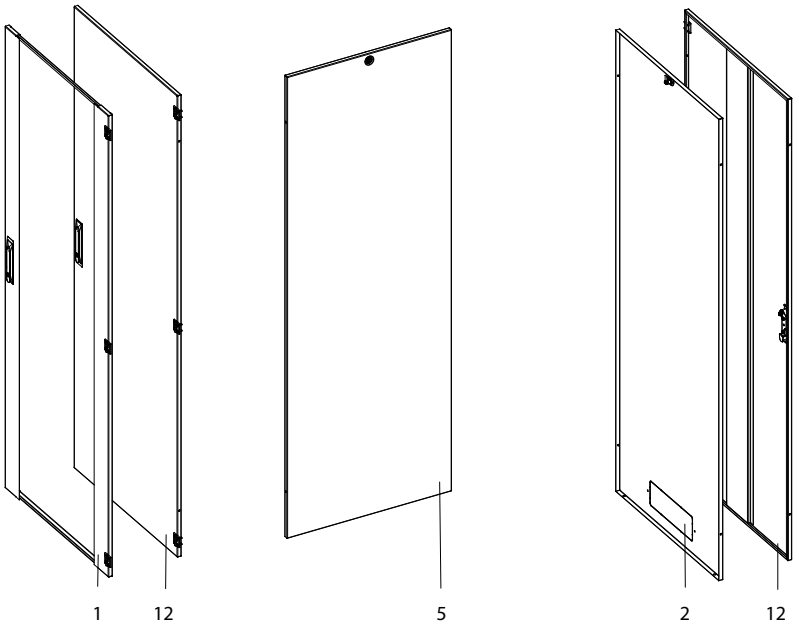
Knock-out openings – ventilation unit installation
- Standard size 480×280 mm (1000 mm deep – 480×440 mm)
- Available in top and bottom plate
- Can be covered by blank panels (ordered separately)

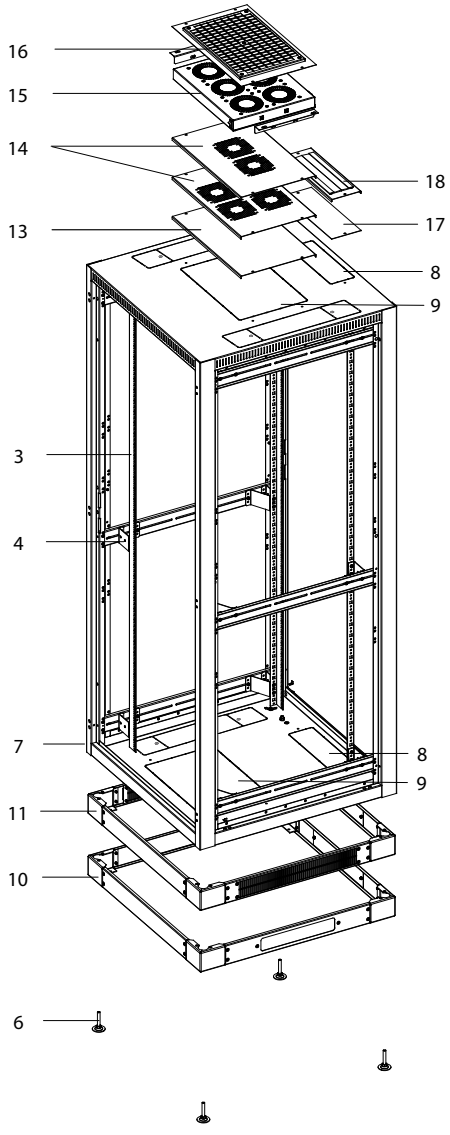
Adjustable Feet

COLOR SAMPLER:

RAL 9005	RAL 7035

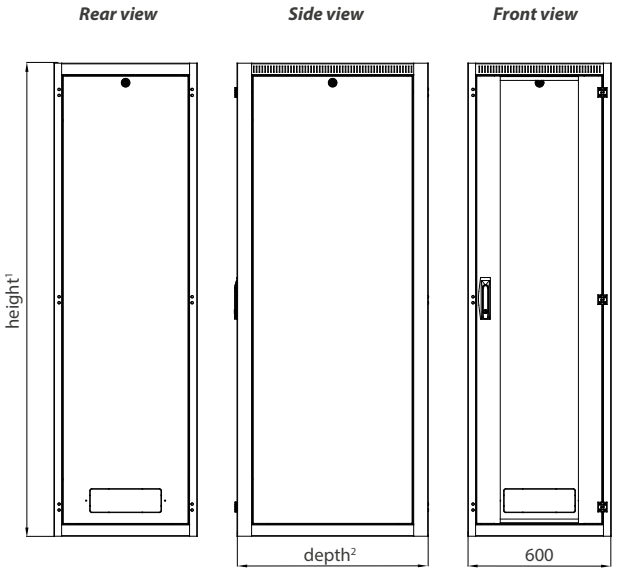


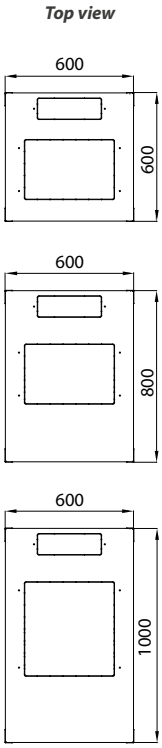


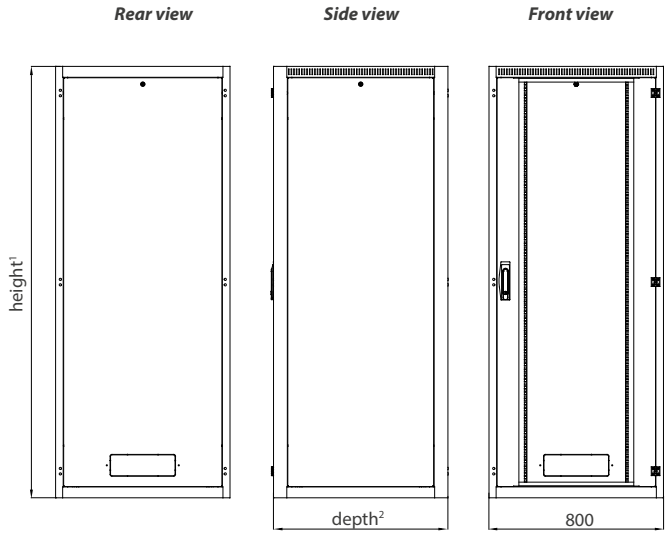


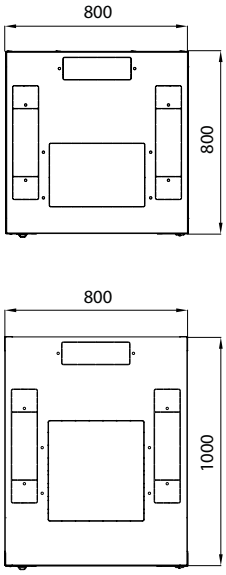
HIGHLY RECOMMENDED EQUIPMENT
COMPLEMENTARY
PDU
SYSTEMS

STANDARD EQUIPMENT	
1	Front glass door with swivel handle lock
2	Rear sheet steel panel with knock-out opening for cable entry and lock
3	4 pcs of 19" vertical extrusions
4	Holders for vertical extrusions
5	1 pair of side sheet steel panels with lock
6	Adjustable feet
7	Frame of rack
8	Top and bottom knock-out openings for cable entry
9	Top and bottom knock-out openings for ventilation unit
-	GND/earthing kit
-	28 mounting kits
SOME OPTIONAL EQUIPMENT/ ACCESSORIES	
10	Plinth
11	Plinth with filter
12	Sheet steel door
14	Blank panels for ventilation unit openings
15	Perforated gland plate
16	Ventilation unit
17	Connecting kit with filter for ventilation unit
18	Blank panel for cable entry openings
19	Dust-proof panel with brush for cable entry openings









[1] available heights:
- for width 600 mm – 21U/1044 mm, 27U/1311 mm, 42U/1978 mm, 45U/2111 mm
- for width 800 mm – 27U/1311 mm, 42U/1978 mm, 45U/2111 mm

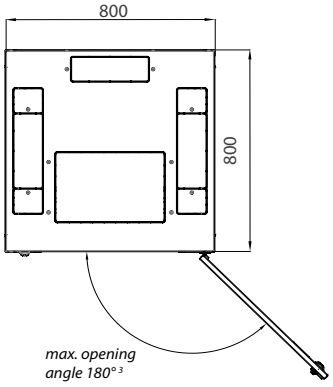
[2] available depths:
- for width 600 mm – 600, 800, 1000 mm
- for width 800 mm – 800, 1000 mm

[3] when rear doors applied (rear panel as standard) the max. angle is 180°

Ventilation unit openings
420×280 mm (depth 1000 mm – 420×440 mm)

Cable entries
300×100 mm 1x on top and bottom - rear
500×115 mm 2x on top and bottom - side; for width 800 mm

Example – opened door



Note: All dimensions in mm

ORDERING AND SHIPPING INFORMATION: Choose the iSEVEN rack that will meet your requirements from the table below. For optional configurations please add the appropriate suffix (i.e. RI7-27-60/80-GASAA-303-H will specify 27U iSEVEN rack 600×800 mm with front glass door, rear sheet steel door, 2 sheet steel side panels in black).

Code standard configuration	H in U	Dimensions in mm				Dimensions incl. packing (mm)			Gross weight in kg
		H*	W	D	Useful depth	H	W	D	
RI7-21-60/60-**X**	21	1044	600	600	590	1179	640	640	52
RI7-27-60/60-**X**	27	1311	600	600	590	1446	640	640	61
RI7-21-60/80-**X**	21	1044	600	800	790	1179	640	840	61
RI7-27-60/80-**X**	27	1311	600	800	790	1446	640	840	70
RI7-27-60/100-**X**	27	1311	600	1000	990	1446	640	1040	91
RI7-27-80/80-**X**	27	1311	800	800	790	1446	840	840	83
RI7-27-80/100-**X**	27	1311	800	1000	990	1446	840	1040	104

Code – **optional suffix**	Description
GASAA-303-**X**	front glass door, rear sheet steel door, 2 sheet steel side panels
SAYUA-303-**X**	front sheet steel door, rear sheet steel panel, 2 sheet steel side panels
SASAA-303-**X**	front sheet steel door, rear sheet steel door, 2 sheet steel side panels
GAYU0-003-**X**	front glass door, rear sheet steel panel, no side panels
GASA0-003-**X**	front glass door, rear sheet steel door, no side panels
SAYU0-003-**X**	front sheet steel door, rear sheet steel panel, no side panels
SASA0-003-**X**	front sheet steel door, rear sheet steel door, no side panels

** Height in mm without feet; for height including feet add 16-45 mm*
Substitute X with desired color: B – RAL 7035 (light gray)
H – RAL 9005 (black)

Code standard configuration	H in U	Dimensions in mm				Dimensions incl. packing (mm)			Gross weight in kg
		H*	W	D	Useful depth	H	W	D	
RI7-42-60/60-**X**	42	1978	600	600	590	2113	640	640	83
RI7-45-60/60-**X**	45	2111	600	600	590	2246	640	640	88
RI7-42-60/80-**X**	42	1978	600	800	590	2113	640	840	94
RI7-45-60/80-**X**	45	2111	600	800	790	2246	640	840	100
RI7-42-60/100-**X**	42	1978	600	1000	990	2113	640	1040	114
RI7-42-80/80 -**X**	42	1978	800	800	790	2113	840	840	113
RI7-45-80/80-**X**	45	2111	800	800	790	2246	840	840	120
RI7-42-80/100-**X**	42	1978	800	1000	990	2113	840	1040	133
RI7-45-80/100-**X**	45	2111	800	1000	990	2246	840	1040	110

Code – **optional suffix**	Description
GASAA-304-**X**	front glass door, rear sheet steel door, 2 sheet steel side panels
SAYUA-304-**X**	front sheet steel door, rear sheet steel panel, 2 sheet steel side panels
SASAA-304-**X**	front sheet steel door, rear sheet steel door, 2 sheet steel side panels
GAYU0-004-**X**	front glass door, rear sheet steel panel, no side panels
GASA0-004-**X**	front glass door, rear sheet steel door, no side panels
SAYU0-004-**X**	front sheet steel door, rear sheet steel panel, no side panels
SASA0-004-**X**	front sheet steel door, rear sheet steel door, no side panels

** Height in mm without feet; for height including feet add 16-45 mm*
Substitute X with desired color: B – RAL 7035 (light gray)
H – RAL 9005 (black)

2.10 iSEVEN Flex RM7

The iSEVEN Flex RM7 racks have been designed for users whose space constraints of the access path do not allow for the installation of the iSEVEN rack series (RI7) with a welded design. The iSEVEN Flex racks are delivered unassembled for easy transportation to the installation site, where they can be assembled quickly and easily. This type of rack is the ideal choice for installers and end-users who want to spend less time on choosing between various options and configuring difficult product part numbers. After thorough research, we have prepared for you the most requested dimensions together with one universal design.

RM7- 42-60/100

COLOR SAMPLER:

RAL 9005 | **RAL 7035**

DESCRIPTION:

Sizes
- Height: 21, 27, 42, 45U
- Width: 600 a 800 mm
- Depth: 600, 800 a 1000 mm

Construction
- Robust frame design, joined by 32 M6×12 screws
- Delivered unassembled; assembly at installation site
- Easy and quick assembly
- 1.5 mm sheet steel

Load rating
- 21 & 27U: 300 kg
- 42 & 45U: 400 kg

19" vertical extrusions
- 2 pairs of sliding 19" extrusions, adjustable from inside

IP rating
- Standard IP30

Colors
- Standard RAL 7035 and 9005

Front door
- Security glass door with swivel handle lock
- Optional sheet steel door
- Easy re-hanging to open on right or left
- Door opening angle 180°

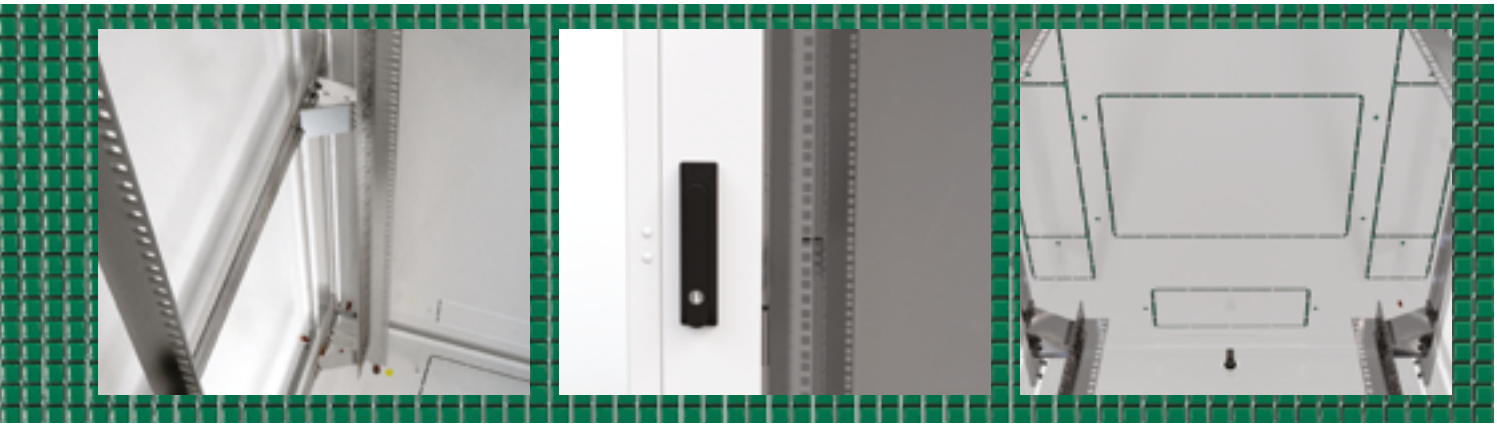
Rear panel
- Removable with knock-out cable entry and lock
- Rear sheet steel door

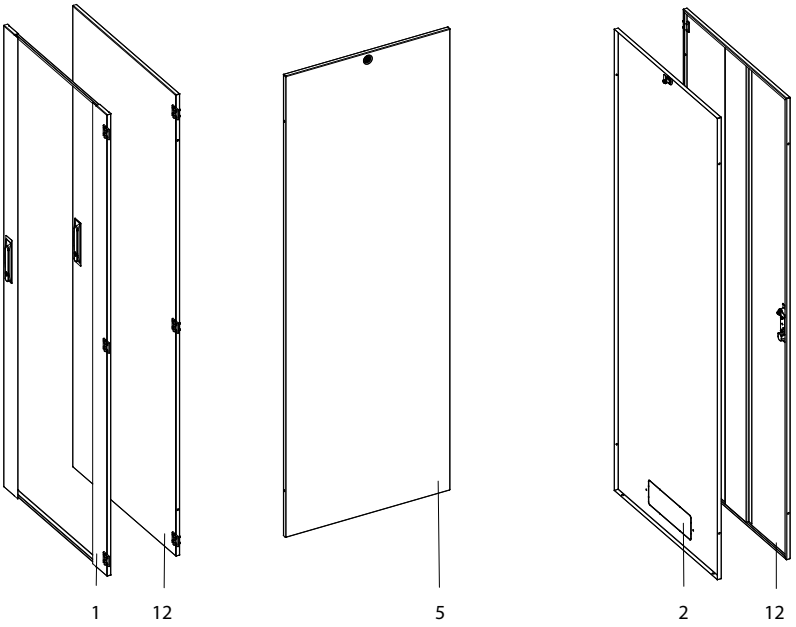
Side panels
- Removable with locks

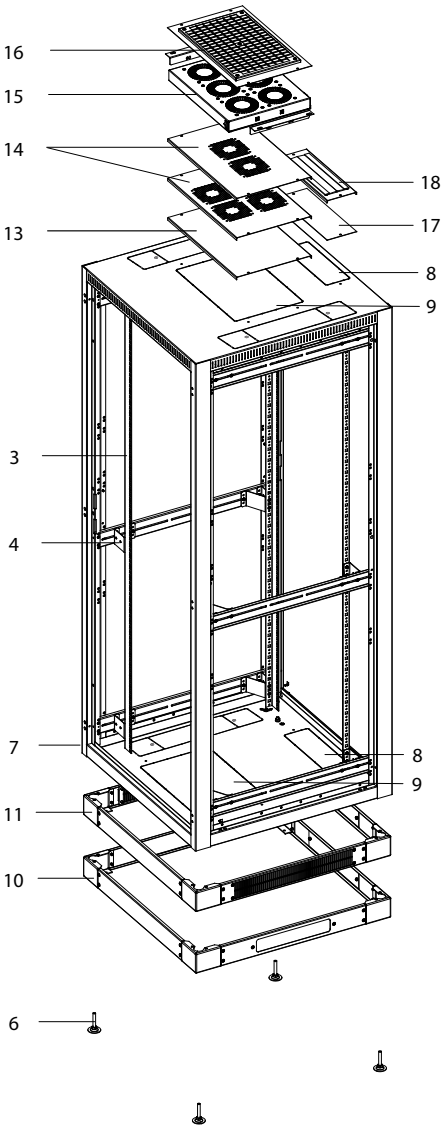
Knock-out openings – cable entry
- Universal size 300×100 mm – rear side of top and bottom plate and rear panel
- Universal openings can be covered by blank panels (ordered separately)
- Extended size 500×115 mm – both sides of top and bottom plate. It consists from 3 parts – 300×115 mm and 2× - 100×115 mm, each can be opened individually
- Extended opening can be covered by a blank panel or standard cable brush - middle opening. Opening can be protected by rubber piece for edges (DP-KP-LEM-6) or brushes protection (DP-KP-KAR-6)

Knock-out openings – ventilation unit installation
- Standard size 480×280 mm (1000 mm deep – 480×440 mm)
- Available in top and bottom plate
- Can be covered by blank panels (ordered separately)

Adjustable Feet

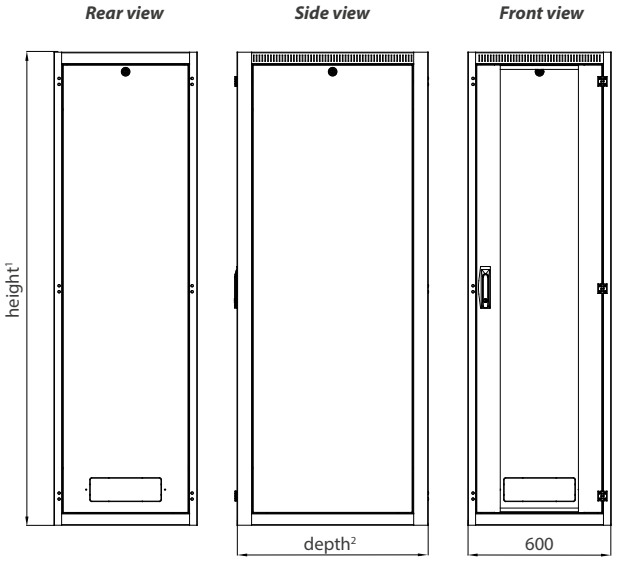


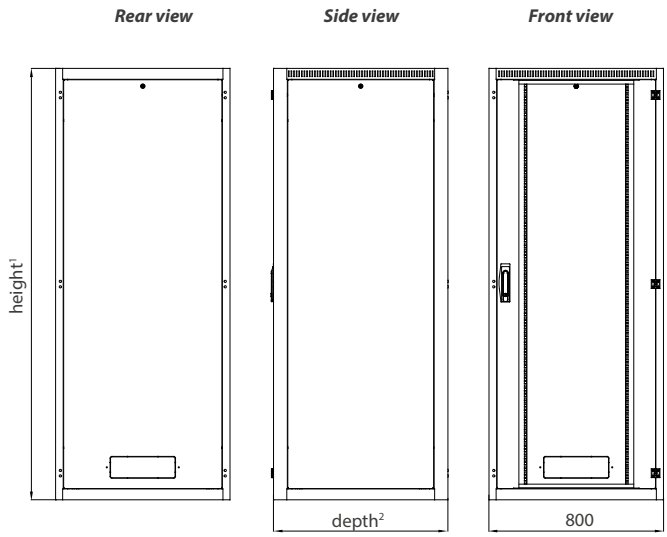


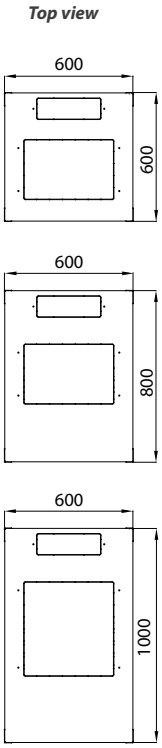


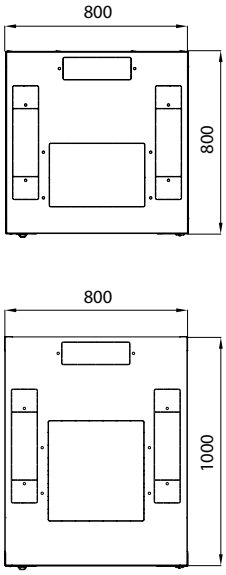
HIGHLY RECOMMENDED COMPLEMENTARY EQUIPMENT PDU SYSTEMS

STANDARD EQUIPMENT	
1	Front glass door with swivel handle lock
2	Rear sheet steel panel with knock-out opening for cable entry and lock
3	4 pcs of 19" vertical extrusions
4	Holders for vertical extrusions
5	1 pair of side sheet steel panels with lock
6	Adjustable feet
7	Frame of rack
8	Top and bottom knock-out openings for cable entry
9	Top and bottom knock-out openings for ventilation unit
-	GND/earthing kit
-	28 mounting kits
SOME OPTIONAL EQUIPMENT/ ACCESSORIES	
10	Plinth
11	Plinth with filter
12	Sheet steel door
14	Blank panels for ventilation unit openings
15	Perforated gland plate
16	Ventilation unit
17	Connecting kit with filter for ventilation unit
18	Blank panel for cable entry openings
19	Dust-proof panel with brush for cable entry openings









[1] available heights:
- for width 600 mm – 21U/1044 mm, 27U/1311 mm, 42U/1978 mm, 45U/2111 mm
- for width 800 mm – 27U/1311 mm, 42U/1978 mm, 45U/2111 mm

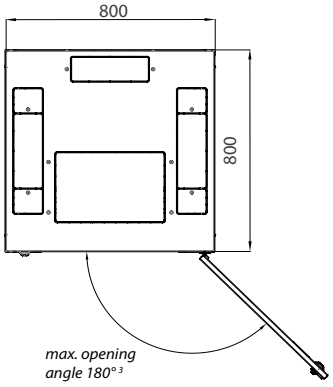
[2] available depths:
- for width 600 mm – 600, 800, 1000 mm
- for width 800 mm – 800, 1000 mm

[3] when rear doors applied (rear panel as standard) the max. angle is 180°

Ventilation unit openings
420×280 mm (depth 1000 mm – 420×440 mm)

Cable entries
300×100 mm 1× on top and bottom - rear
500×115 mm 2× on top and bottom - side; for 800 mm width

Example – opened door



Note: All dimensions in mm

ORDERING AND SHIPPING INFORMATION: Configure the rack that meets your requirements. You can choose a standard or modified configuration for your iSEVEN Flex rack. The ordering matrix below will help you to create the part number. As soon as you have the part number, please contact your Conteg products distributor. Please note that all **iSEVEN Flex RACKS ARE DELIVERED UNASSEMBLED** in 3 – 5 carton boxes!

QUICK STANDARD CONFIGURATION OF iSEVEN Flex!

You should choose this quick way if you are if you are interested in the iSEVEN Flex rack's standard configuration. More information regarding standard configuration can be found in appropriate table. To order it, you only need to tell us the code, e.g. (RM7-21-60/60). The rack will be delivered unassembled in 3 – 5 boxes (for the total number of boxes for each configuration you can find on the next page). Please note that product codes (standard/short code) will differ from the code on invoice/delivery note, where the codes for the separate packages of the racks you chose will appear (each package has its own code). If your finance department requires the exact product code on the order as well as on all related documents like invoice/delivery note, please order the separate packages directly (do not use short product code). Packages codes can be found at the bottom of this page in the Ordering table.

Standard configuration:

- Top and bottom covers
- 4 columns
- 2 pairs of 19" sliding vertical extrusions
- 2 or 3 pairs of vertical extrusion holders
- Front door with swivel handle lock and safety glass (EN 12150-1)
- Removable rear panel with knock-out cable entry and lock
- 1 pair of sheet steel side panels with locks
- 4 adjustable feet
- GND/earthing kit
- 28 mounting kits

Code - Standard configuration [1]	H in U	Dimensions of the rack in mm				Package dimensions (mm)				
		H *	W	D	Useful depth	Package 1 RM7-CO-xx/yy[2]	Package 2 RM7-TB-yy/zz[2]	Package 3 RM7-DO-xx/yy[2]	Package 4 RM7-SP-xx/zz[2]	Package 5 RM7-HVE-yy/zz[2]
RM7-21-60/60-X	21	1044	600	600	590	105×140×1165	630×620×135	550×70×955	520×990×85	-
RM7-27-60/60-X	27	1311	600	600	590	105×140×1430	630×620×135	550×70×1255	520×1255×85	-
RM7-42-60/60-X	42	1978	600	600	590	105×140×2100	630×620×135	550×70×1890	520×1920×85	185×75×100
RM7-45-60/60-X	45	2111	600	600	590	105×140×2230	630×620×135	550×70×2020	520×2055×85	185×75×100
RM7-21-60/80-X	21	1044	600	800	790	105×140×1165	630×820×135	550×70×955	720×990×85	-
RM7-27-60/80-X	27	1311	600	800	790	105×140×1430	630×820×135	550×70×1255	720×1255×85	-
RM7-42-60/80-X	42	1978	600	800	590	105×140×2100	630×820×135	550×70×1890	720×1920×85	185×75×100
RM7-45-60/80-X	45	2111	600	800	790	105×140×2230	630×820×135	550×70×2020	720×2055×85	185×75×100
RM7-27-60/100-X	27	1311	600	1000	990	105×140×1430	630×1020×135	550×70×1255	920×1255×85	-
RM7-42-60/100-X	42	1978	600	1000	990	105×140×2100	630×1020×135	550×70×1890	920×1920×85	185×75×100
RM7-27-80/80-X	27	1311	800	800	790	105×140×1430	1005×820×135	750×70×1255	720×1255×85	-
RM7-42-80/80 -X	42	1978	800	800	790	105×140×2100	1005×820×135	750×70×1890	720×1920×85	185×75×100
RM7-45-80/80-X	45	2111	800	800	790	105×140×2230	1005×820×135	750×70×2020	720×2055×85	185×75×100
RM7-27-80/100-X	27	1311	800	1000	990	105×140×1430	1005×1020×135	750×70×1255	720×1255×85	-
RM7-42-80/100-X	42	1978	800	1000	990	105×140×2100	1005×1020×135	750×70×1890	920×1920×85	185×75×100
RM7-45-80/100-X	45	2111	800	1000	990	105×140×2230	1005×1020×135	750×70×2020	920×2055×85	185×75×100

** Height in mm without feet; for feet add 16-45 mm*
*[1] Substitute **X** with desired color: B – 7035 (light gray), H – 9005 (black)*
[2] xx – Rack height; yy – Rack width; zz – Rack depth

Ordering table					
Code - Standard configuration [1]	Codes of packages [1]				
RM7-21-60/60-X	RM7-CO-21/60-X	RM7-TB-60/60-X	RM7-DO-21/60-X	RM7-SP-21/60-X	
RM7-27-60/60-X	RM7-CO-27/60-X	RM7-TB-60/60-X	RM7-DO-27/60-X	RM7-SP-27/60-X	
RM7-42-60/60-X	RM7-CO-42/60-X	RM7-TB-60/60-X	RM7-DO-42/60-X	RM7-SP-42/60-X	RM7-HVE-60/60
RM7-45-60/60-X	RM7-CO-45/60-X	RM7-TB-60/60-X	RM7-DO-45/60-X	RM7-SP-45/60-X	RM7-HVE-60/60
RM7-21-60/80-X	RM7-CO-21/60-X	RM7-TB-60/80-X	RM7-DO-21/60-X	RM7-SP-21/80-X	
RM7-27-60/80-X	RM7-CO-27/60-X	RM7-TB-60/80-X	RM7-DO-27/60-X	RM7-SP-27/80-X	
RM7-42-60/80-X	RM7-CO-42/60-X	RM7-TB-60/80-X	RM7-DO-42/60-X	RM7-SP-42/80-X	RM7-HVE-60/80
RM7-45-60/80-X	RM7-CO-45/60-X	RM7-TB-60/80-X	RM7-DO-45/60-X	RM7-SP-45/80-X	RM7-HVE-60/80
RM7-27-60/100-X	RM7-CO-27/60-X	RM7-TB-60/100-X	RM7-DO-27/60-X	RM7-SP-27/100-X	
RM7-42-60/100-X	RM7-CO-42/60-X	RM7-TB-60/100-X	RM7-DO-42/60-X	RM7-SP-42/100-X	RM7-HVE-60/100
RM7-27-80/80-X	RM7-CO-27/80-X	RM7-TB-80/80-X	RM7-DO-27/80-X	RM7-SP-27/80-X	
RM7-42-80/80 -X	RM7-CO-42/80-X	RM7-TB-80/80-X	RM7-DO-42/80-X	RM7-SP-42/80-X	RM7-HVE-80/80
RM7-45-80/80-X	RM7-CO-45/80-X	RM7-TB-80/80-X	RM7-DO-45/80-X	RM7-SP-45/80-X	RM7-HVE-80/80
RM7-27-80/100-X	RM7-CO-27/80-X	RM7-TB-80/100-X	RM7-DO-27/80-X	RM7-SP-27/100-X	
RM7-42-80/100-X	RM7-CO-42/80-X	RM7-TB-80/100-X	RM7-DO-42/80-X	RM7-SP-42/100-X	RM7-HVE-80/100
RM7-45-80/100-X	RM7-CO-45/80-X	RM7-TB-80/100-X	RM7-DO-45/80-X	RM7-SP-45/100-X	RM7-HVE-80/100

*[1] Substitute **X** with desired color: B – 7035 (light gray), H – 9005 (black)*

SPECIAL CONFIGURATIONS OF THE RACK iSEVEN Flex!

There are several types of customized covers available for the iSeven Flex rack. In this case, the ordering procedure differs. The rack should always be ordered in parts (individual boxes), so the order includes 3 – 5 individual ordering codes. To simplify this, we have prepared a comprehensive guide below. If your requirements are still not met, we recommend that you choose the 19" unassembled RMF rack series.

iSEVEN Flex – ITEM OVERVIEW OF INDIVIDUAL BOXES	
Package Code [1]	**Package includes**
RM7-CO-xx/yy	4× column and 4×19" vertical extrusion
RM7-TB-yy/zz	Top and bottom cover plate, 4× bracket for vertical extrusions
RM7-DO-xx/yy	Front door and rear panel (for customized versions the package content may differ)
RM7-SP-xx/zz	2× side panels
RM7-HVE-yy/zz [2]	2× bracket for vertical extrusions

[1] xx – Rack height; yy – Rack width; zz – Rack depth
[2] Only for 42 and 45U racks, which need 6 brackets for vertical extrusions

6 ORDERING THE iSEVEN Flex Rack in 6 STEPS

STEP NO. 1 — Choose standard size of your iSEVEN Flex rack

STEP NO. 2 — Choose customized (non-standard) cover (see "Cover" column)

Cover (modifications from standard configuration are written in bold script)	**Package codes of non-standard version of iSEVEN Flex rack**				
	Package 1	**Package 2**	**Package 3**	**Package 4**	**Package 5**
Front glass door, **rear sheet steel door**, 2 side panels	RM7-CO-xx/yy-**X**	RM7-TB-yy/zz-**X**	RM7-DO-xx/yy-GASA-**X**	RM7-SP-xx/zz-**X**	RM7-HVE-yy/zz [1]
Front sheet steel door, rear sheet steel panel, 2 side panels	RM7-CO-xx/yy-**X**	RM7-TB-yy/zz-**X**	RM7-DO-xx/yy-SAYU-**X**	RM7-SP-xx/zz-**X**	RM7-HVE-yy/zz [1]
Front sheet steel door, rear sheet steel door, 2 side panels	RM7-CO-xx/yy-**X**	RM7-TB-yy/zz-**X**	RM7-DO-xx/yy-SASA-**X**	RM7-SP-xx/zz-**X**	RM7-HVE-yy/zz [1]
Front glass door, rear sheet steel panel, **without side panels**	RM7-CO-xx/yy-**X**	RM7-TB-yy/zz-**X**	RM7-DO-xx/yy-**X**	-	RM7-HVE-yy/zz [1]
Front glass door, **rear sheet steel door, without side panels**	RM7-CO-xx/yy-**X**	RM7-TB-yy/zz-**X**	RM7-DO-xx/yy-GASA-**X**	-	RM7-HVE-yy/zz [1]
Front sheet steel door, rear sheet steel panel, **without side panels**	RM7-CO-xx/yy-**X**	RM7-TB-yy/zz-**X**	RM7-DO-xx/yy-SAYU-**X**	-	RM7-HVE-yy/zz [1]
Front sheet steel door, rear sheet steel door, without side panels	RM7-CO-xx/yy-**X**	RM7-TB-yy/zz-**X**	RM7-DO-xx/yy-SASA-**X**	-	RM7-HVE-yy/zz [1]

[1] Package 5 (PM7-HVE-yy/zz) is only available for iSEVEN Flex racks that are 42 and 45U tall. Do not choose this package for racks that are 21 and 27U tall.

STEP NO. 3 — Complete the ordering codes from columns Package 1 – 5: Instead of xx write the rack height chosen in step 1 (RM7-**xx**-yy/zz)

STEP NO. 4 — Complete the ordering codes from columns Package 1 – 5: Instead of yy write the rack width chosen in step 1 (RM7-xx-**yy**/zz)

STEP NO. 5 — Complete the ordering codes from columns Package 1 – 5: Instead of zz write the rack depth chosen in step 1 (RM7-xx-yy/**zz**)

STEP NO. 6 — Complete the ordering codes in columns Package 1 – 4: Instead of the last letter **X** write B for the color gray (RAL 7035) or H for the color black (19" extrusions and their brackets have zinc-coated surface)

2.11 OPEN FRAMES RSG4

RSG4 high-load, four post open frames are an alternative to housing equipment in racks. Open frames bring unbeatable accessibility but require a dust-free environment with controlled access, because no protection is provided to the equipment. These frames have a load rating of up to 1500 kg (balanced load), which means they are also suitable for installation of heavy servers, disk arrays etc. The frames are also suitable for use in testing and service rooms, where they ensure unlimited access to installed components. The RSG4 open-frame series can be used with High Density Wire Managers.

RSG4-42-19/92-LF

DESCRIPTION:

Sizes
- Height: 42, 45, 47U
- Width: 550 mm
- Depth: 500-680 mm, 710-890 mm, 920-1100 mm (step 30 mm)

Load rating
- 1500 kg (balanced load)

IP rating
- IP 00 (no protection)

Construction
- 2.0 mm sheet steel

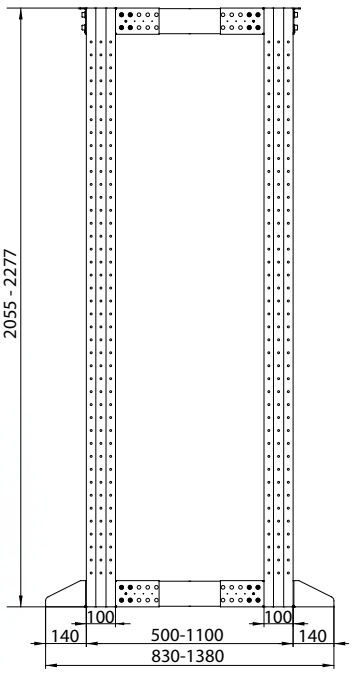
Color
- Standard RAL 9005

Base
- Produced from sheet steel
- L – outside oriented (X – inside oriented optionally)
- Base has holes for anchoring screws

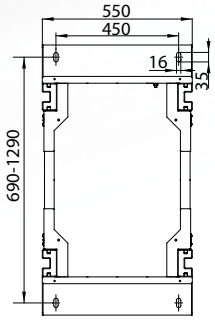
Standard equipment
- 2 pairs of 19" vertical extrusions with U marking
- Top angles
- 2× base L-sheet steel outwards

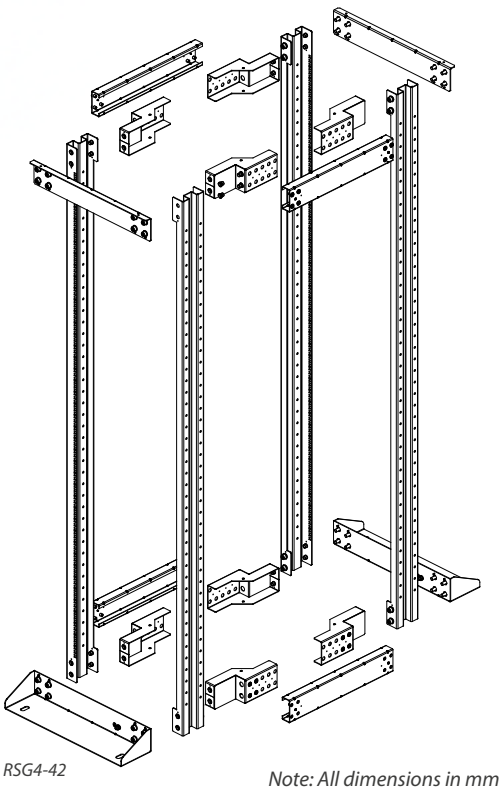
COLOR SAMPLER:

RAL 9005



Top view





RSG4-42

Note: All dimensions in mm

Code *	H in U	Dimensions in mm		
		H	W	Depth settings
RSG4-42-19/50-LF	42	2055	550	500-680
RSG4-42-19/74-LF	42	2055	550	710-890
RSG4-42-19/92-LF	42	2055	550	920-1100
RSG4-45-19/50-LF	45	2188	550	500-680
RSG4-45-19/74-LF	45	2188	550	710-890
RSG4-45-19/92-LF	45	2188	550	920-1100
RSG4-47-19/50-LF	47	2277	550	500-680
RSG4-47-19/74-LF	47	2277	550	710-890
RSG4-47-19/92-LF	47	2277	550	920-1100

** for inwards oriented base replace L by X in product code*

2.12 OPEN FRAMES RSG2

RSG2 high-load, two post open frames are designed to be used with High Density Wire Managers. RSG2 open frames give you unbeatable accessibility. The RSG2 two-post frames are available with two load ratings, depending on the type of equipment that you want to install. The 500 kg-rated frame is ideally suited to high-density cabling applications, whereas the 1000 kg-rated frame is better suited for the installation of heavier equipment. The frames are also suitable for use in testing and service rooms, where they ensure unlimited access to components installed.

RSG2- 42-19-L5

COLOR SAMPLER: ***RAL 9005***

DESCRIPTION:

Sizes
- Height: 27, 42, 45, 47U
- Width: 550 mm
- Depth: 100 mm

Construction
- 2.0 mm sheet steel

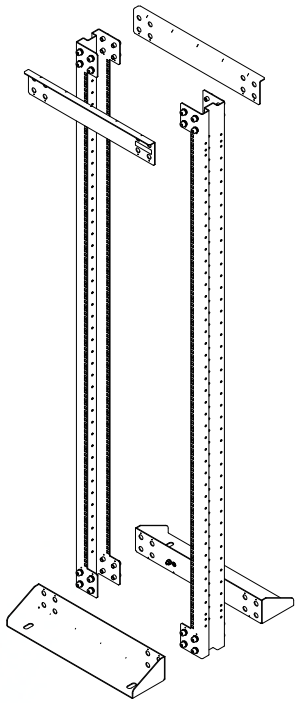
Load rating
- 500 kg (balanced load; all heights)
- 1000 kg (balanced load; only 42, 45, 47U)

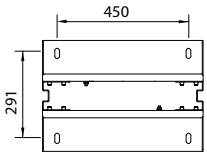
IP rating
- IP00 (no protection)

Color
- Standard RAL 9005

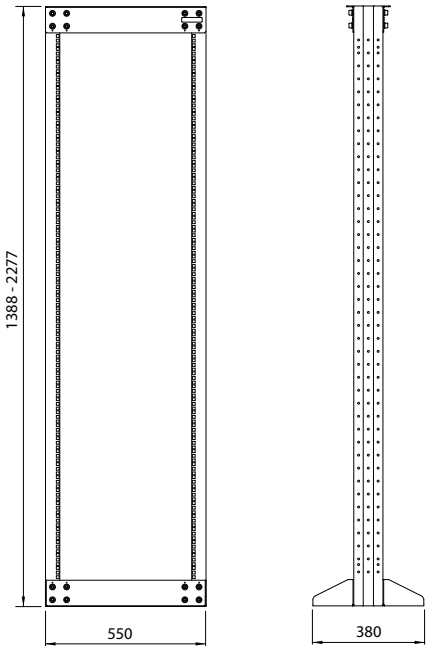
Base
- Produced from sheet steel
- Base comprises holes for anchoring screws

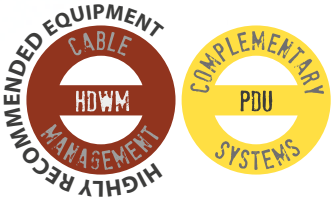
Standard equipment
- 1 pair of 19" vertical extrusions with U marking
- Top angles
- 2× base





Top view





Code	H in U	H in mm	Load rating in kg
RSG2-27-19-L5	27	1388	500
RSG2-42-19-L5	42	2055	500
RSG2-45-19-L5	45	2188	500
RSG2-47-19-L5	47	2277	500
RSG2-42-19-LA	42	2055	1000
RSG2-45-19-LA	45	2188	1000
RSG2-47-19-LA	47	2277	1000

Note: All dimensions in mm

2.13 OPEN FRAMES RS

The RS frame series is used in closed rooms with controlled access and within a suitable operating environment for installed components or wherever racks cannot be used for any reason. These frames are available as a single version single version (one frame) or double version (two frames).

DESCRIPTION:

Sizes
- Height: 27, 36, 42, and 45U
- Width: 559 mm
- Depth: 600 mm (base size)

Construction
- 2.0 mm sheet steel

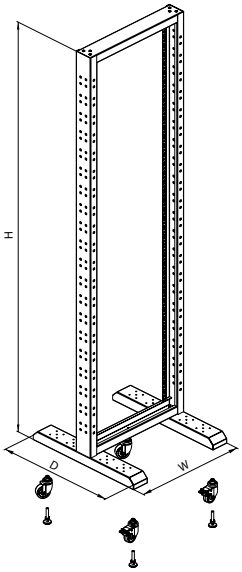
Load rating
- 200 kg – two post frame
- 400 kg – four post frame

IP rating
- IP00 (no protection)

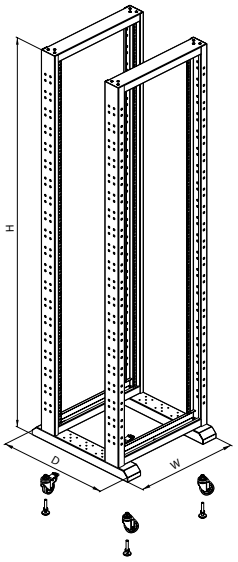
Colors
- Standard RAL 9005

Base
- Produced from sheet steel
- Equipped with feet
- Optionally castors (to be ordered separately)

COLOR SAMPLER: ***RAL 9005***



RS-42, RS-P



RS-42, RS-42, RS-P

19" TWO POST FRAMES					
H in U	Consist of		W in mm	D in mm	H in mm
	code	pcs			
27U	RS-27	1	559	600	1339
	RS-P	1			
36U	RS-36	1	559	600	1739
	RS-P	1			
42U	RS-42	1	559	600	2005
	RS-P	1			
45U	RS-45	1	559	600	2139
	RS-P	1			

19" FOUR POST FRAMES					
H in U	Consist of		W in mm	D in mm	H in mm
	code	pcs			
27U	RS-27	2	559	600	1339
	RS-P	1			
36U	RS-36	2	559	600	1739
	RS-P	1			
42U	RS-42	2	559	600	2005
	RS-P	1			
45U	RS-45	2	559	600	2139
	RS-P	1			

ACCESSORIES FOR RS FRAMES

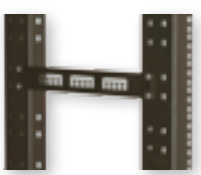
CROSS-RAIL FOR FOUR-POST FRAMES

Description:
- Used for fixing four-post frame
- Set includes one pair of rails
- Made of 2 mm sheet steel
- Set of 12 pcs M5×12 screws included
- Color: powder-coated RAL (standard RAL 9005)

ACCESSORIES FOR RS FRAMES		
Code	Description	One set includes
RSSD-RAIL	Cross-rail for four-post frame	1 pair
RSSD-VP	Wire management panel for four-post frame	1 piece
RSSD-BRACE	Stabilizer for two and four-post frame	1 pair

WIRE-MANAGEMENT PANEL FOR FOUR-POST FRAMES

Description:
- Used for storing and cable holding between two pairs of 19" vertical extrusions of four-post frame
- Made of 1.5 mm sheet steel
- Color: powder-coated RAL (standard RAL 9005)



STABILIZER FOR TWO-POST AND FOUR-POST FRAMES

- Used for increased sturdiness and stability of RS open frames
- Assembly hardware included

2.14 SPACE OPTIMIZATION SECTIONS

Conteg's Space Optimization Sections are designed to give additional layout flexibility options to the data center. The 300 mm wide sections can be added to the sides , front, and/or rear to expand the cabinets to give equipment and cabling additional mounting space. Since these secions only consume half a standard rack footprint, the floor space within the data center can be optimized to accommodate IT equipment while still providing adequate space for power and network cabling distribution.

Middle & end-of-the-row sections applied

Front/rear sections applied

MIDDLE AND END-OF-THE-ROW SECTION can improve cable management. This can be especially desirable when zone cabling or horizontal distribution areas are used within the rows of racks since large volumes of cables will need to be effectively managed. Within cabling distribution areas, middle and end-of-the-row sections can be deployed to ease cable congestion and facilitate good patch field management.

SPACE OPTIMIZATION SECTIONS COMPATIBILITY
Space Optimization Sections are compatible with all RSF, ROF and RDF racks.

MIDDLE AND END-OF-THE-ROW SECTIONS are connected with neighboring racks using the mounting hardware included in the delivery.

FRONT AND REAR SECTIONS can be added to the rack to increase the overall depth by up to 600 mm (300 mm at the front, 300 mm at the back). This can be useful where equipment that requires a deeper rack than originally planned needs to be accommodated.

These sections can also be used to mount power strips or patch field positions, meaning that the management of a high number of cable and power connections is possible without sacrificing the internal space of the cabinet. Front and rear sections can be retrofitted to existing cabinets if necessary, meaning that your facility can be upgraded as required without the need to replace cabinets.

FRONT/REAR SECTIONS are connected to the rack using the mounting hardware included in the delivery. Front/rear sections come with a glass door as standard.

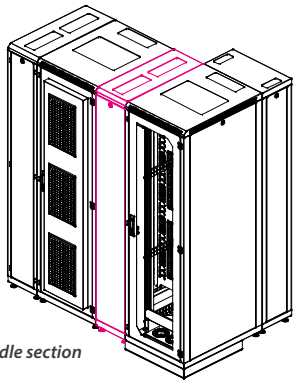
Space optimization sections	Compatible racks
ROF-MS-42-30/80, ROF-ES-42-30/80	ROF/RDF/RSF-42-xx/80
ROF-MS-45-30/80, ROF-ES-45-30/80	ROF/RDF/RSF-45-xx/80
ROF-MS-42-30/100, ROF-ES-42-30/100	ROF/RDF/RSF/100
ROF-MS-45-30/100, ROF-ES-45-30/100	ROF/RDF/RSF/100

Space optimization sections	Compatible racks
ROF-RS-42-60/30	ROF/RSF/yy
ROF-RS-45-60/30	ROF/RSF/yy
ROF-RS-42-80/30	ROF/RDF/RSF/yy
ROF-RS-45-80/30	ROF/RDF/RSF/yy

MIDDLE SECTION

- For cable management, patching, and power distribution of neighboring racks
- Standard width 300 mm
- Front and rear panels with locks, no side panels
- Cable entries in bottom and top covers
- Accepts vertical panel with 9×19" position for patching or power distribution
- Accepts all Conteg vertical cable management systems (plastic or metal brackets, slotted trunking, perforated flat panels, basket trays)

Code	H in U	Dimensions in mm		Consists of
		W	D	
ROF-MS-42-30/80	42	300	800	ROF-MS-TB-30/80, ROF-MS-FP-42/30
ROF-MS-45-30/80	45	300	800	ROF-MS-TB-30/80, ROF-MS-FP-45/30
ROF-MS-42-30/100	42	300	1000	ROF-MS-TB-30/100, ROF-MS-FP-42/30
ROF-MS-45-30/100	45	300	1000	ROF-MS-TB-30/100, ROF-MS-FP-45/30

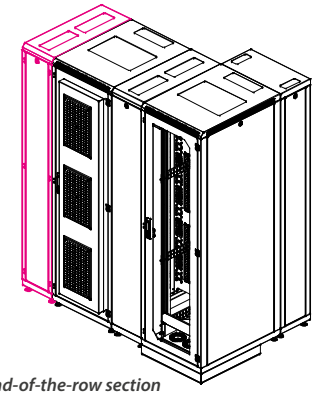


Middle section

END-OF-THE-ROW SECTION

- For cable management, patching, and power distribution at the end of a row of cabinets
- Frame design
- Front and rear panels with locks, no side panels
- Cable entries in top and bottom covers
- Accepts 19" vertical extrusions and/or vertical cable management systems (e.g. perforated flat panels, basket trays)

Code	H in U	Dimensions in mm	
		W	D
ROF-ES-42-30/80	42	300	800
ROF-ES-42-30/100	42	300	1000
ROF-ES-45-30/80	45	300	800
ROF-ES-45-30/100	45	300	1000

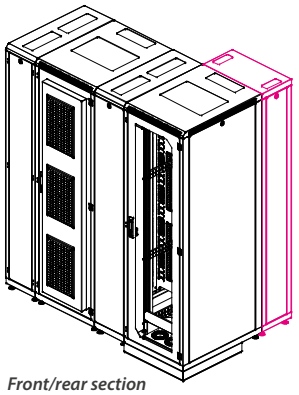


End-of-the-row section

FRONT/REAR SECTION

- Expands available room within cabinet allowing for installation of deeper equipment
- Further possibility for patching and power distribution
- Cable entries in top and bottom covers
- Tinted glass door with swivel handle; full range of ROF family door option (security glass, sheet steel, perforated sheet steel, vented, active vented, etc.)

Code	H in U	Dimensions in mm	
		W	D
ROF-RS-42-60/30	42	600	300
ROF-RS-45-60/30	45	600	300
ROF-RS-42-80/30	42	800	300
ROF-RS-45-80/30	45	800	300

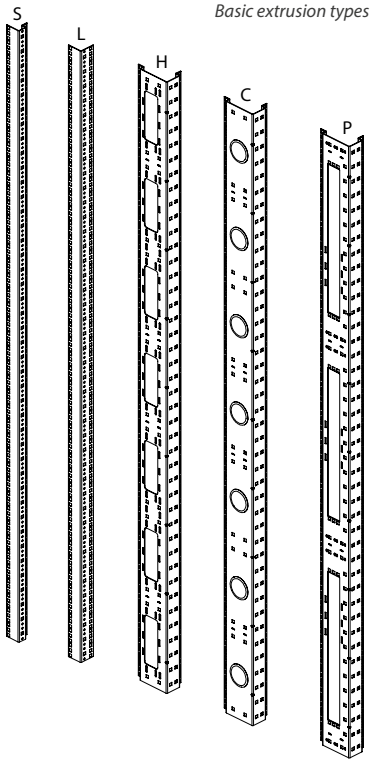


Front/rear section

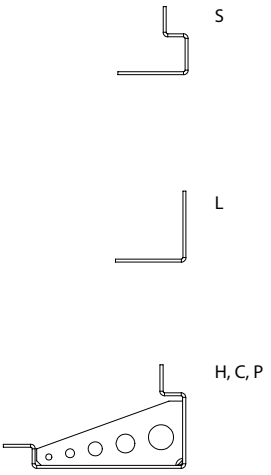
Related accessories

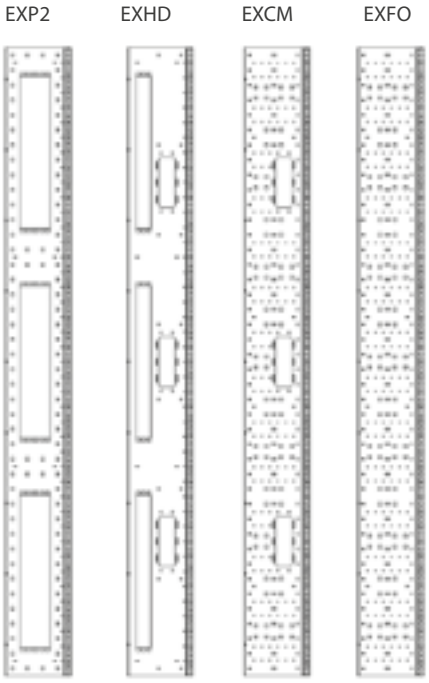
Code	Description	Note
DP-RS-VP-42/30/19-A	(H) 42U, (W) 300 mm, 9×19" positions	**VERTICAL PANELS FOR FRONT/REAR SECTIONS –** vertical panels are required for installing relevant 19" and 10" equipment (patch panels, PDUs, switches) and 14 or 15 RJ-45 panels in the front/rear section
DP-RS-VP-45/30/19-A	(H) 45U, (W) 300 mm, 9×19" positions	
DP-RS-VP-42/30/10-A	(H) 42U, (W) 300 mm, 24×10" positions	
DP-RS-VP-45/30/10-A	(H) 45U, (W) 300 mm, 24×10" positions	
DP-RS-VP-42/30/RJ-A	(H) 42U, (W) 300 mm, 14 x positions for RJ-45 panels, 6 x RJ-45 modules each panel	
DP-RS-VP-45/30/RJ-A	(H) 45U, (W) 300 mm, 15 x positions for RJ-45 panels, 6 x RJ-45 modules each panel	
DP-RS-RJ-14-xx	14 empty panels for snap in, 6× RJ-45 modules each; check with sales for compatibility of the respective RJ-45 brand	
DP-MS-VP-42/30/19-A	(H) 42U, (W) 300 mm, 9×19" positions; provision for cable management	**VERTICAL PANELS FOR MIDDLE SECTIONS-** vertical panels are required for installing 9×19" equipment (patch panels, PDUs, switches) in the middle section
DP-MS-VP-45/30/19-A	(H) 45U, (W) 300 mm, 9×19" positions; provision for cable management	
DP-ES-VP-42/30/19-A	(H) 42U, (W) 300 mm, 9×19" positions	**VERTICAL PANELS FOR END-OF-THE-ROW SECTIONS –** vertical panels are required for installing 9×19" equipment (patch panels, PDUs, switches) in the end-of-the-row section
DP-ES-VP-45/30/19-A	(H) 45U, (W) 300 mm, 9×19" positions	

2.15 19" EXTRUSIONS



Basic extrusion types - side view





Eccentric extrusion types - front view

DESCRIPTION OF EXTRUSIONS

STANDARD EXTRUSION	
Type	**Description**
C	C-type extrusions have the same load rating as high-load extrusions. C-type extrusions are required when using an air separation frame in a 800 mm-wide rack. All round cable openings indicated above are covered with removable plastic caps.
H	High-load extrusion with oval holes. Can be used with HDWM-VMR-ACT troughs.
L	L-profile extrusions guarantee maximum compatibility with server mounting kits, making installation even easier. L-type extrusions are standard in the 600 mm and 800 mm wide racks. Vertical holders are used for 800 mm wide racks.
S	S-profile extrusions are used when structured cabling systems are installed in the rack.
P	High-load P-type extrusions provide three separate 3U -19" vertical mounting positions and are compatible with 42U - 800 mm wide racks. The additional 12U mounting positions can be used for structured cabling, active components or filled with optional blank panels for future use.
T	Variant of L-type extrusion especially modified for 800 mm wide Conteg RSF rack. The front extrusions are a single contiguous piece and the rear extrusions are equally divided into three sections. Each one of the rear sections can be set to a different depth to support different ICT equipment configurations.
U	Variant of P-Type extrusions especially modified for 800 mm-wide Conteg RSF rack. The front extrusions are a single contiguous piece each with three 3U, 19" vertical mounting positions. The additional 12U mounting positions can be used for structured cabling, active components or filled with optional blank panels for future use. The rear extrusions are equally divided into three sections which can be set at different depths. Each of the rear divided sections has a 3U - 19" vertical mounting position (total of 12U) to be used for PDUs, structured cabling or active components.

ECCENTRIC EXTRUSIONS		
Type	**Description**	
EXP2	Space for patch panels, PDUs and switches.	• Possible to install in racks: RDF, RSF and ROF – 800 mm width only • Supported for 42U and 45U racks • One pair of 19" vertical extrusions in the package, the oposite is always L-profile extrusion.
EXHD	Combination space for patch panels, PDUs, switches and vertical HDWM -VMR-12/10F	
EXCM*	Space for HDWM-VMR-12/10F and individual cable management	
EXFO*	Universal space for individual cable management	

** Extrusions EXCM and EXFO are compatible with HDWM-FSS-50 and HDWM-FSS-100*

ORDERING INFORMATION FOR ECCENTRIC EXTRUSIONS: Conteg racks defined in the product catalog come with industry standard extrusions. To order custom solutions using Eccentric Extrusions, start by ordering a rack without extrusions. To do this just place an "X" in the last position normally used to indicate the depth of the rack in the ordering code matrix, followed by the code for the extrusion part you've selected. The following are some examples of correct part numbers for 42U racks: ROF-LV-42/8X-EXP2, ROF-LV-42/8X-EXHD, ROF-LV-42/8X-EXCM or ROF-LV-42/8X-EXFO.

It is always necessary to order two packages – for front and rear extrusions. Different types of extrusions for front and rear positions can be combined. Eccentric extrusions can be installed in a rack by simply ordering the extrusion mentioned above then removing the existing parts and installing the new extrusions.

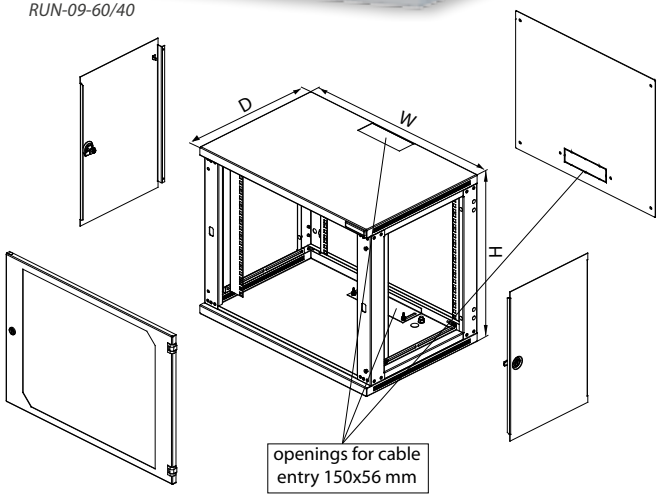
Components for covering holes in extrusions:
DP-EHC-1000 - Set of covers for covering square holes 9.5 mm, packaged by 1000 pcs

3. WALL-MOUNT & SOHO RACKS

3.1 Wall-Mount PREMIUM RUN

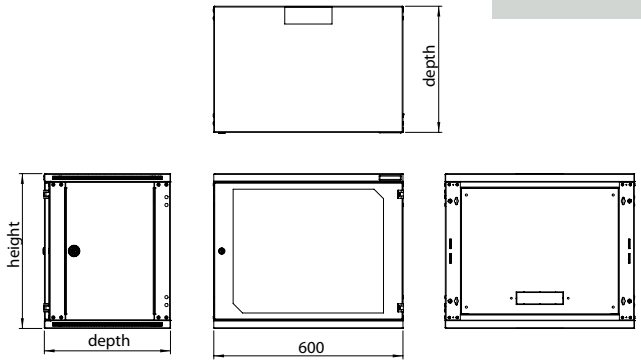
Wall-Mount PREMIUM RUN racks are installed on the wall. They offer an extended access level to the installed equipment. Thanks to removable and lockable side panels, thed equipment can be accessed from the front and the side. Racks are designed for installing patch panels, active components, etc.

RUN-09-60/40



COLOR SAMPLER:

RAL 7035



DESCRIPTION:

Sizes
- Height: 4, 6, 9, 12, 15, 18U
- Width: 600 mm
- Depth: 400, 500 or 600 mm

Construction
- 1.25 mm sheet steel

Load rating
- Standard 40 kg (depth 400 and 500 mm), standard 30 kg (depth 600 mm)

IP rating
- Standard IP30

Colors
- Standard RAL 7035
- Optionally other colors

Front door
- Tinted security glass (EN 12150-1) or sheet steel door
- Reversible door – easy to re-hang to open right or left
- Door opening angle 180°

Rear panel
- Removable with module for cable entry
- When installed without the rear panel, additional holes are exposed for installation of 19" components
- Mounting holes for wall installation on the back

Cable entries
- Top and bottom openings for cable entry, size 150×56 mm
- Covered with sliding blank panel with butterfly nuts (DP-DB-200×68)
- Variable openings in relation to number of cables entering the rack
- Cable entries on rear edge of enclosure for straight cable path alongside the wall

Others
- Drilling template
- Possibility to add extra pair of extrusions (DP-LV-N-xx)

STANDARD CONFIGURATION:

- 1 pair of sliding 19" vertical extrusions
- 2 removable side panels with lock
- Tinted security glass door (EN 12150-1) with lock
- GND/earthing kit
- 16 mounting kits

LOAD RATING 30KG

Code	H in U	Dimensions in mm				Dimensions including packing in mm			Gross weight in kg
		H	W	D	Useful depth	H	W	D	
RUN-06-60/60	6	358	603	600	580	378	620	630	20
RUN-09-60/60	9	491	603	600	580	510	620	630	26
RUN-12-60/60	12	624	603	600	580	645	620	630	29
RUN-15-60/60	15	758	603	600	580	778	620	630	33
RUN-18-60/60	18	891	603	600	580	910	620	630	39

LOAD RATING 40KG

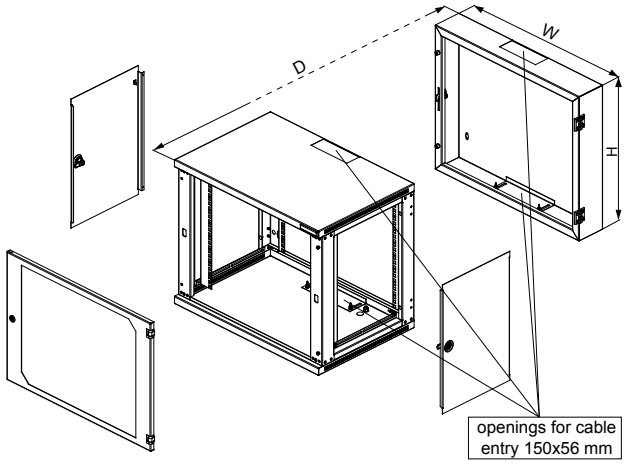
Code	H in U	Dimensions in mm				Dimensions including packing in mm			Gross weight in kg
		H	W	D	Useful depth	H	W	D	
RUN-04-60/40	4	267	600	400	380	290	620	430	14
RUN-06-60/40	6	358	600	400	380	378	620	430	16
RUN-09-60/40	9	491	600	400	380	510	620	430	20
RUN-12-60/40	12	624	600	400	380	645	620	430	23
RUN-15-60/40	15	758	600	400	380	778	620	430	27
RUN-18-60/40	18	891	600	400	380	910	620	430	33
RUN-04-60/50	4	267	600	500	480	290	620	530	16
RUN-06-60/50	6	358	600	500	480	378	620	530	18
RUN-09-60/50	9	491	600	500	480	510	620	530	23
RUN-12-60/50	12	624	600	500	480	645	620	530	26
RUN-15-60/50	15	758	600	500	480	778	620	530	30
RUN-18-60/50	18	891	600	500	480	910	620	530	36

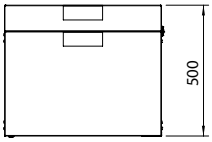
3.2 Wall-Mount PREMIUM Split RUD

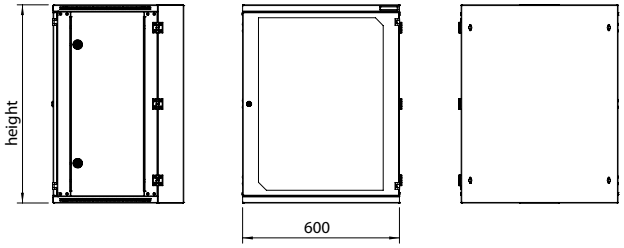
Wall-Mount PREMIUM Split RUD racks are installed on the wall. They offer the highest possible access level to the installed equipment. Thanks to removable and lockable side panels, the installed equipment can be accessed from the front, sides or rear (swing-frame design). Racks are designed for installing patch panels, active components, etc.

COLOR SAMPLER: *RAL 7035*

RUD-15-60/50







DESCRIPTION:

Sizes
- Height: 4, 6, 9, 12, 15, 18U
- Width: 600 mm
- Depth: 500 mm

Construction
- 1.25 mm sheet steel

Load rating
- Standard 40 kg (balanced load)

IP rating
- Standard IP30

Colors
- Standard RAL 7035
- Optionally other colors

Front door
- Tinted security glass (EN 12150-1) or sheet steel door
- Reversible door – easy to re-hang to open right or left
- Door opening angle 180°

Rear module
- Removable with module for cable entry
- When installed without the rear panel additional holes are exposed for installation of 19" components
- Mounting holes for wall installation on the back

Cable entries
- Top and bottom openings for cable entry, size 150×56 mm
- Covered with sliding blank panel with butterfly nuts (DP-DB-200×68)
- Variable openings in relation to number of cables entering the rack
- Cable entries on rear edge of enclosure for straight cable path alongside the wall

Others
- Drilling template
- Possibility to add extra pair of extrusions (DP-LV-N-xx)

STANDARD CONFIGURATION:

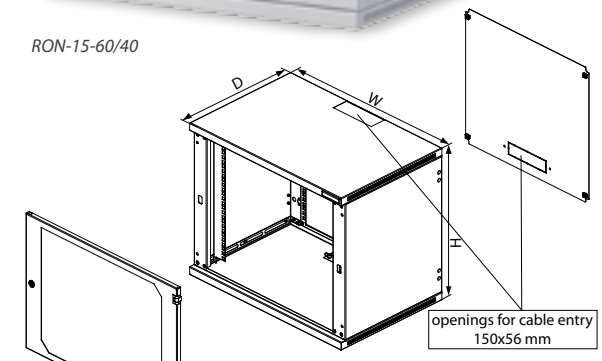
- 1 pair of sliding 19" vertical extrusions
- 2 removable side panels with lock
- Tinted security glass door (EN 12150-1) with lock
- GND/earthing kit
- 16 mounting kits

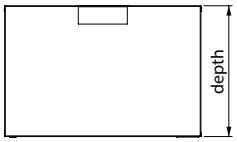
Code	H in U	Dimensions in mm				Dimensions including packing in mm			Gross weight in kg
		H	W	D	Useful depth	H	W	D	
RUD-04-60/50	4	267	600	500	490	290	620	530	16
RUD-06-60/50	6	358	600	500	490	378	620	530	20
RUD-09-60/50	9	491	600	500	490	510	620	530	24
RUD-12-60/50	12	624	600	500	490	645	620	530	28
RUD-15-60/50	15	758	600	500	490	778	620	530	32
RUD-18-60/50	18	891	600	500	490	910	620	530	40

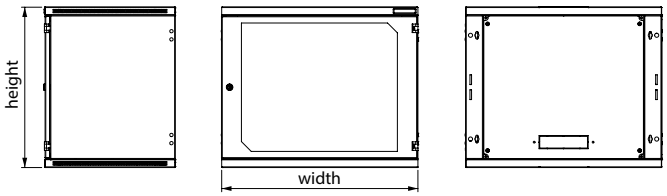
3.3 Wall-Mount OPTIMAL RON

Wall-Mount OPTIMAL RON racks are designed for wall-mount installation. Access to the installed equipment is through the front. The rack features a design with excellent rigidity. These 19" wall-mount telecommunication and data racks are designed for the installation of patch panels, active components, etc. Should you need rear access to the installed equipment please refer to the Wall-Mount OPTIMAL Split ROD racks.

RON-15-60/40







COLOR SAMPLER: *RAL 7035*

DESCRIPTION:

Sizes
- Height: 4, 6, 9, 12, 15, 18U
- Width: 600 mm
- Depth: 400 and 600 mm

Construction
- 1.25 mm sheet steel

Load rating
- Standard 40 kg balanced load

IP rating
- Standard IP30

Colors
- Standard RAL 7035
- Optionally other colors

Front door
- Tinted security glass (EN 12150-1) or sheet steel door
- Reversible door – easy to re-hang to open right or left (at installation site)
- Door opening angle 180°

Rear panel
- Removable with module for cable entry
- When installed without the rear panel additional holes are exposed for installation of 19" components
- Mounting holes for wall installation on the back

Cable entries
- Top and bottom openings for cable entry, size 150×56 mm
- Covered with sliding blank panel with butterfly nuts (DP-DB-200×68)
- Variable openings in relation to number of cables entering the rack
- Cable entries on rear edge of enclosure for straight cable path alongside the wall

Others
- Drilling template
- Possibility to add extra pair of extrusions (DP-LV-N-xx)

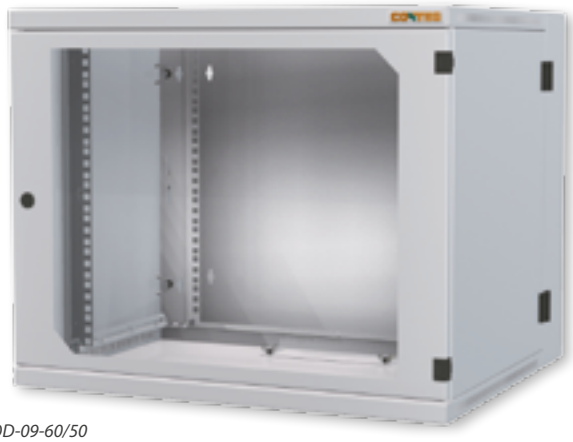
STANDARD CONFIGURATION:

- 1 pair of sliding 19" vertical extrusions
- Tinted security glass door (EN 12150-1) with lock
- GND/earthing kit
- 16 mounting kits

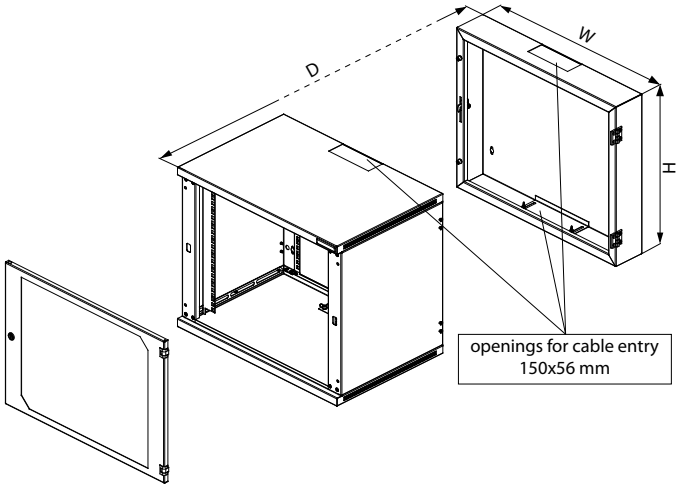
Code	H in U	Dimensions in mm				Dimensions incl. packing in mm			Gross weight in kg
		H	W	D	Useful depth	H	W	D	
RON-04-60/40	4	300	600	400	370	325	625	435	15
RON-06-60/40	6	388	600	400	370	413	625	435	17
RON-09-60/40	9	521	600	400	370	546	625	435	20
RON-12-60/40	12	655	600	400	370	680	625	435	24
RON-15-60/40	15	788	600	400	370	813	625	435	27
RON-18-60/40	18	921	600	400	370	946	625	435	30
RON-06-60/60	6	388	600	600	570	413	625	635	21
RON-09-60/60	9	521	600	600	570	546	625	635	24
RON-12-60/60	12	655	600	600	570	680	625	635	30
RON-15-60/60	15	788	600	600	570	813	625	635	31
RON-18-60/60	18	921	600	600	570	946	625	635	38

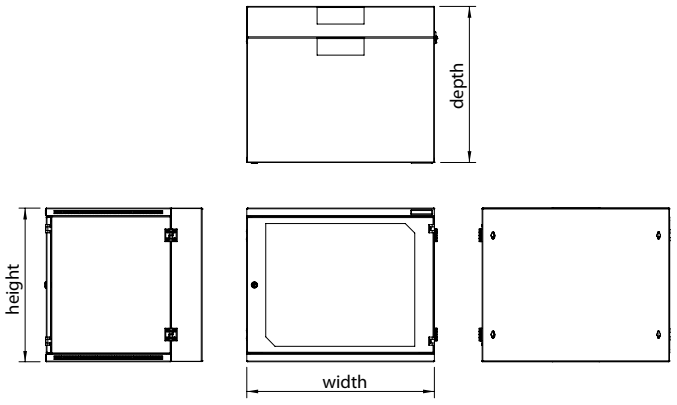
3.4 Wall-Mount OPTIMAL Split ROD

Wall-Mount OPTIMAL Split ROD racks are designed for wall-mount installation where an extended level of access to the installed equipment is desired. Wall-Mount OPTIMAL Split ROD racks feature a swing-frame design so that equipment can be accessed from both the front and rear of the rack. These 19" wall-mounting telecommunication and data racks are designed for the installation of patch panels, active components, etc.



ROD-09-60/50





COLOR SAMPLER: *RAL 7035*

DESCRIPTION:

Sizes
- Height: 4, 6, 9, 12, 15, 18U
- Width: 600 mm
- Depth: 500 mm

Construction
- 1.25 mm sheet steel

Load rating
- Standard 40 kg balanced load

IP rating
- Standard IP30

Colors
- Standard RAL 7035
- Optionally other colors

Front door
- Tinted security glass (EN 12150-1) or sheet steel door
- Reversible door – easy re-hanging to open right or left (at installation site)
- Door opening angle 180°

Rear module
- 100 mm deep rear module with lockable panel and cable entries
- When installed without the rear panel, additional holes are exposed for installation of 19" components
- Mounting holes for wall installation on the back

Cable entries
- Top and bottom openings for cable entry, size 150×56 mm,
- Covered with sliding blank panel with butterfly nuts (DP-DB-200×68)
- Variable openings in relation to number of entering cables
- Cable entries on rear edge of enclosure for straight cable path alongside the wall

Others
- Drilling template
- Possibility to add extra pair of extrusions (DP-LV-N-xx)

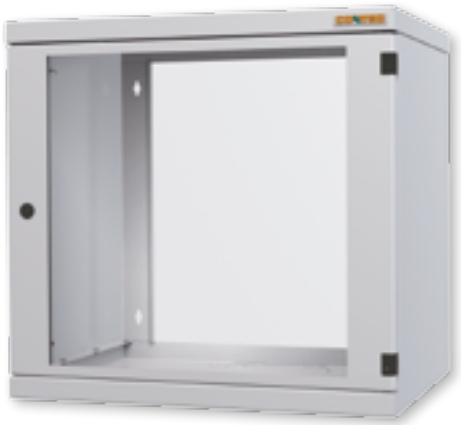
STANDARD CONFIGURATION:

- 1 pair of sliding 19" vertical extrusions
- Tinted security glass door (EN 12150-1) with lock
- GND/earthing kit
- 16 mounting kits

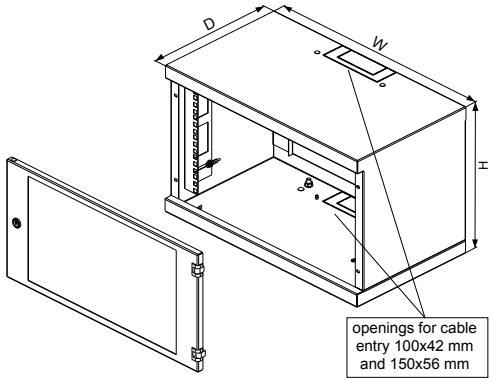
Code	H in U	Dimensions in mm				Dimensions incl. packing in mm			Gross weight in kg
		H	W	D	Useful depth	H	W	D	
ROD-04-60/50	4	300	600	500	470	325	625	535	18
ROD-06-60/50	6	388	600	500	470	413	625	535	21
ROD-09-60/50	9	521	600	500	470	546	625	535	25
ROD-12-60/50	12	655	600	500	470	680	625	535	29
ROD-15-60/50	15	788	600	500	470	813	625	535	33
ROD-18-60/50	18	921	600	500	470	946	625	535	37

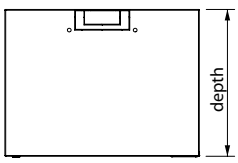
3.5 Wall-Mount iSEVEN REN

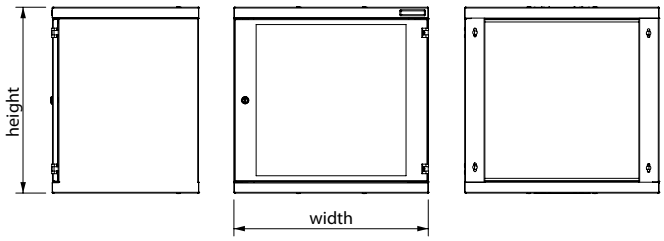
Wall-Mount iSEVEN REN racks are installed on the wall. This economic version of a wall-mount rack offers a basic level of access to the equipment installed, using the front door. The rack is open in the rear making it ideal for solutions where cable access from the rear of the rack is needed.



REN-10-60/40







COLOR SAMPLER: *RAL 7035*

DESCRIPTION:

Sizes
- Height: 6, 10, 12, 15U
- Width: 530 mm
- Depth: 300, 400 or 500 mm

Construction
- 1 mm sheet steel

Load rating
- Standard 20 kg balanced load

IP rating
- Standard IP30

Colors
- Standard RAL 7035
- Optionally other colors

Front door
- Tinted security glass (EN 12150-1) or sheet steel door
- Reversible door – easy re-hanging to open right or left (at installation site)
- Door opening angle 180°

Cable entries
- Top and bottom openings for knock-out cable entry, size 100×42 mm and 150×56 mm
- Cable entries on rear edge of enclosure for straight cable path alongside the wall

Others
- Drilling template

STANDARD CONFIGURATION:

- 1 pair of sliding 19" vertical extrusions
- Tinted security glass door (EN 12150-1) with lock
- GND/earthing kit

Code	H in U	Dimensions in mm				Dimensions incl. packing in mm			Gross weight in kg
		H	W	D	Useful depth	H	W	D	
REN-06-60/30	6	332	530	300	250	350	555	339	9
REN-06-60/40	6	332	530	400	350	350	555	439	10
REN-10-60/40	10	510	530	400	350	535	555	439	12
REN-12-60/40	12	599	530	400	350	655	555	439	15.5
REN-15-60/40	15	732	530	400	350	758	555	439	16
REN-06-60/50	6	332	530	500	450	350	555	539	11
REN-10-60/50	10	510	530	500	450	535	555	539	13
REN-12-60/50	12	599	530	500	450	655	555	539	21.6
REN-15-60/50	15	732	530	500	450	758	555	539	17.5

3.6 SOHO In-Wall

The ACP series SOHO racks are designed for households and small offices. They are the only racks in the Conteg portfolio that are installed into a wall directly, making them an aesthetic solution for deployment within a domestic environment. SOHO racks are equipped with extrusions for active equipment installation (2U) as well as mounting passive elements (4U). SOHO In-Wall racks offer a basic level of access to the installed equipment through the front door.

COLOR SAMPLER: *RAL 7035*

ACP-IW-55/53/14

DESCRIPTION:

Sizes
- Height: 550 mm
- Width: 530 mm
- Depth: 140 mm

Construction
- Box from zinc-coated 1.25, 1.5, and 2 mm sheet steel

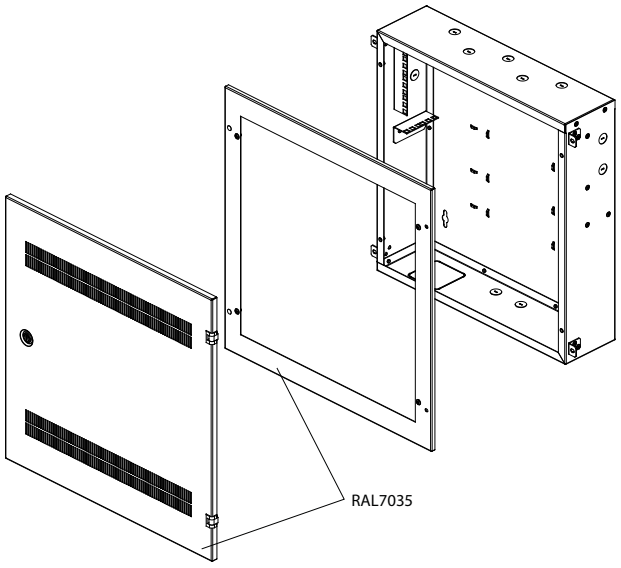
Colors
- Standard RAL 7035
- Optionally other colors

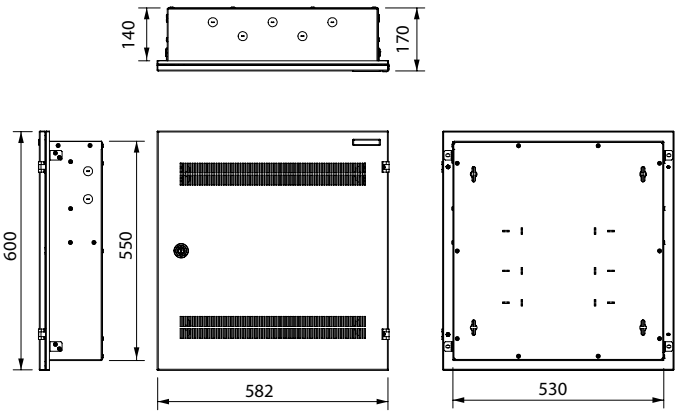
Front door
- Door opening angle 180°
- Perforated door for effective ventilation with lock

Cable entries
- Knock-out at the bottom for an internal electrical outlet
- Multiple 22.6 mm conduit knock-outs on all sides of the box
- Cable tie bump outs on rear side of the box

STANDARD CONFIGURATION:

- 1 pair of fixed 19" horizontal extrusions (2U)
- 1 pair of fixed 19" vertical extrusions (4U)
- Sheet steel perforated door with lock





Code	Box dimensions in mm			Vertical extrusions		Horizontal extrusions		External dimensions including packing in mm			Gross weight in kg
	H	W	D	U *	UD **	U *	UD **	H	W	D	
ACP-IW-55/53/14	550	530	140	4	90	2	300	630	595	170	12

** length of extrusions in units*
*** max. depth of installed equipment in mm*

3.7 SOHO On-Wall

SOHO On-Wall racks are installed on the wall. The Conteg SOHO On-Wall distribution enclosure gives great deployment flexibility while offering a more aesthetically pleasing and cost-effective solution to the developer/homeowner. The SOHO racks are equipped with extrusions for active equipment installation (2U) as well as for mounting passive elements (4U). SOHO On-Wall racks offer a basic level of access to the installed equipment through the front door.

ACP-OW-55/53/14

COLOR SAMPLER: *RAL 7035*

DESCRIPTION:

Sizes
- Height: 550 mm
- Width: 530 mm
- Depth: 155 mm

Construction
- Box and door are made from 1.25, 1.5, and 2 mm sheet steel

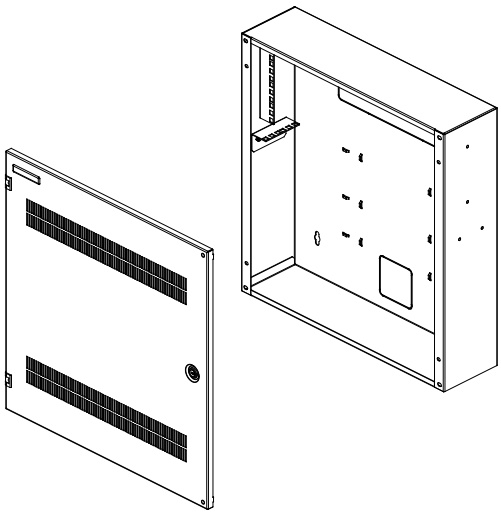
Colors
- Standard RAL 7035
- Optionally other colors

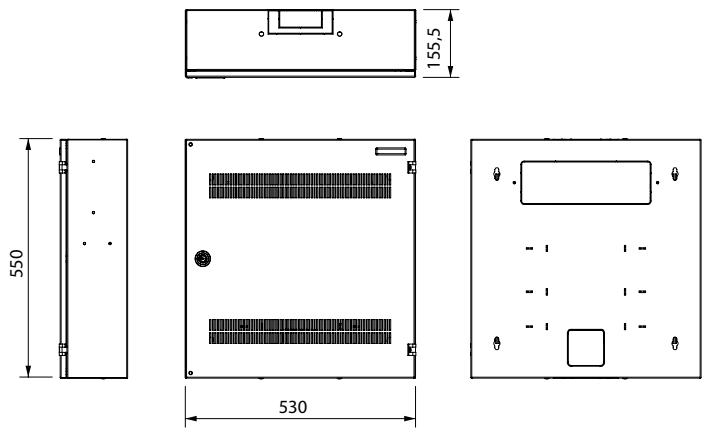
Front door
- Door opening angle 180°
- Perforated door for effective ventilation with lock

Cable entries
- Knock-out at the bottom for an internal electrical outlet
- Multiple 22.6 mm conduit knock-outs on all sides of the box
- Cable tie bump outs on rear side of the box

STANDARD CONFIGURATION:

- 1 pair of fixed 19" horizontal extrusions (2U)
- 1 pair of fixed 19" vertical extrusions (4U)
- Sheet steel perforated door with lock





Code	Box dimensions in mm			Vertical extrusions		Horizontal extrusions		External dimensions including packing in mm			Gross weight in kg
	H	W	D	U *	UD **	U *	UD **	H	W	D	
ACP-OW-55/53/14	550	530	155	4	90	2	300	630	595	170	12

* *length of extrusions in units*
** *max. depth of installed equipment in mm*

3.8 SOHO Mini REH - 10" RACKS

SOHO Mini REH racks are suitable for the placing of 10" patch panels, shelves, SOHO active elements, etc. Thanks to their minimal dimensions, they are suitable for installation in small offices and households. REH racks offer a basic level of access to the installed equipment through the front door.

COLOR SAMPLER: *RAL 7035*

REH-06-30/26

DESCRIPTION:

Sizes
- Height: 4, 6 and 9U
- Width: 300 mm
- Depth: 260 mm

Construction
- 1.25 mm sheet steel

Load rating
- Standard 20 kg balanced load

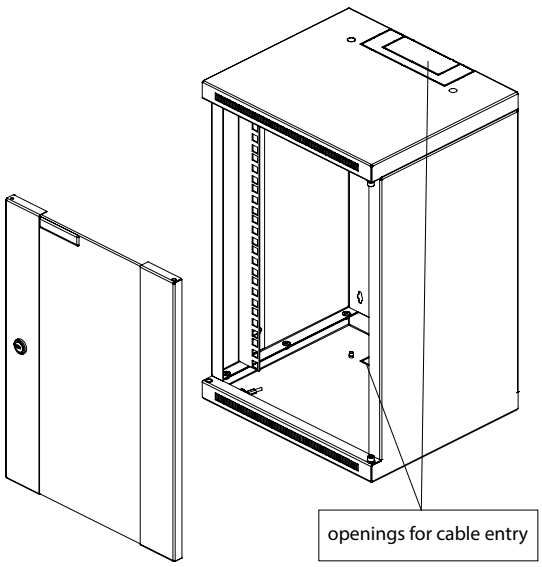
IP rating
- Standard IP30

Colors
- Standard RAL 7035
- Optionally other colors

Front door
- Tinted security glass (EN 12150-1)
- Reversible door – easy re-hanging to open on right or left (at installation site)
- Door opening angle 180°

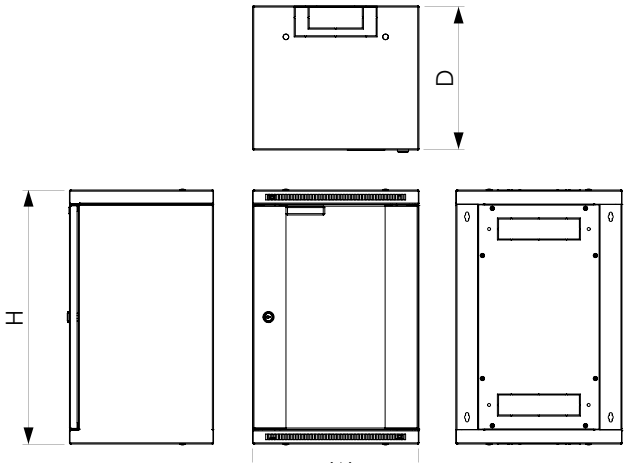
Cable entries
- Knock-out top and bottom openings for cable entry size 150×56 mm or 100×41 mm, rear panel cable entry size 150×56 mm; openings can optionally be covered by a blank panel (DP-DB-200×68) or a cover with brush (DP-KP-KAR3)
- Cable entries start on rear edge of enclosure for straight cable path alongside wall

Others
- One pair of 10" vertical extrusions; possibility to move back in range of 20 mm
- Drilling template
- Mounting holes on the back for wall installation



STANDARD CONFIGURATION:

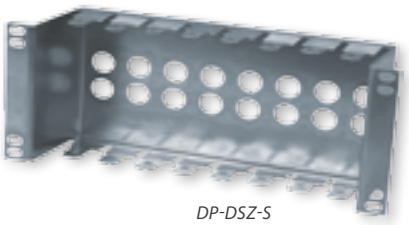
- 1 pair of 10" vertical extrusions
- Tinted security glass door (EN 12150-1) with lock
- Openings for cable entry
- 8 mounting kits



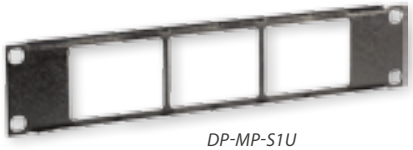
Code	H in U	Dimensions in mm				Dimensions including packing			Gross weight in kg
		H	W	D	Useful depth	H	W	D	
REH-04-30/26	4	237	300	260	230	257	317	287	4.5
REH-06-30/26	6	326	300	260	235	346	317	287	5.5
REH-09-30/26	9	459	300	260	235	477	317	287	7

SOHO Mini REH ACCESSORIES

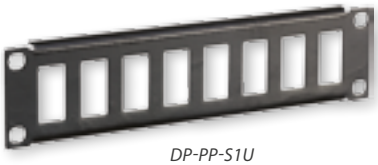
REH – PATCH PANELS			
Code	**H in U**	**W**	**Used with**
DP-PP-S1U	1	10"	8 modules Keystone type with DP-KEY; standard size of hole is 16.7×24.3 mm
DP-MP-S1U	1	10"	12 modules Panduit
DP-DSZ-S	2+1/2	10"	8 modules LSA-PLUS



DP-DSZ-S



DP-MP-S1U



DP-PP-S1U

REH – ACCESSORIES			
Code	**H in U**	**W**	**Description**
DP-PT-S200	1	10"	Shelf, 150 mm depth
DP-ZA-S1U	1	10"	Blank panel
DP-S01-VENT	1	10"	Vented panel
DP-VP-PS01	1	10"	Wire management panel with plastic brackets

DP-PT-S200

DP-ZA-S1U

DP-S01-VENT

DP-VP-PS01

10" FIBER-OPTIC SPLICE BOXES

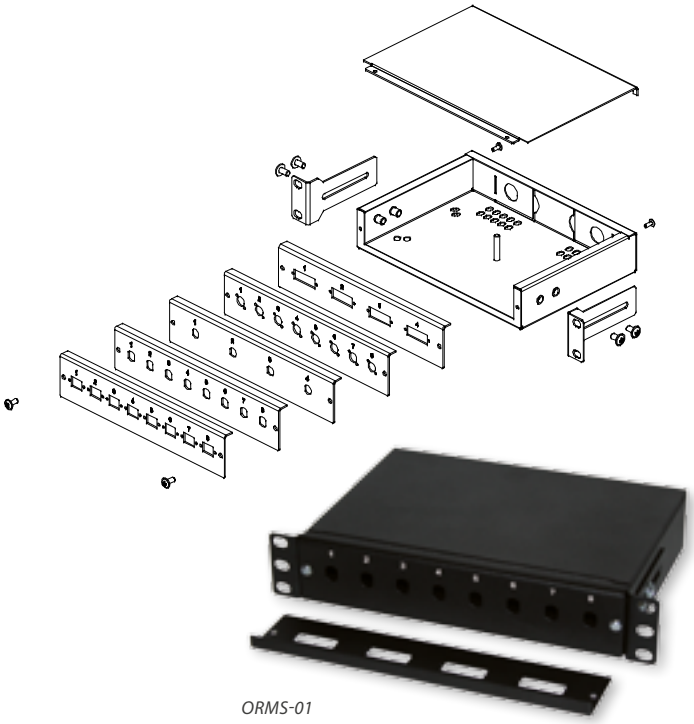
Used for termination of optical cables in REH racks.

DESCRIPTION:

- Used with modular front panel
- Up to 8 positions ST, SC, or FC type or 4 positions DSC or FCD type
- Height: 1U
- Cable entry by two PG9 couplings on the rear part (included)
- Holes not in use can be covered
- Installation in 10" rack with two sliding holders
- Installation kit for splice cassette size 142×95 mm included
- Color: powder-coated RAL (standard RAL 9005)

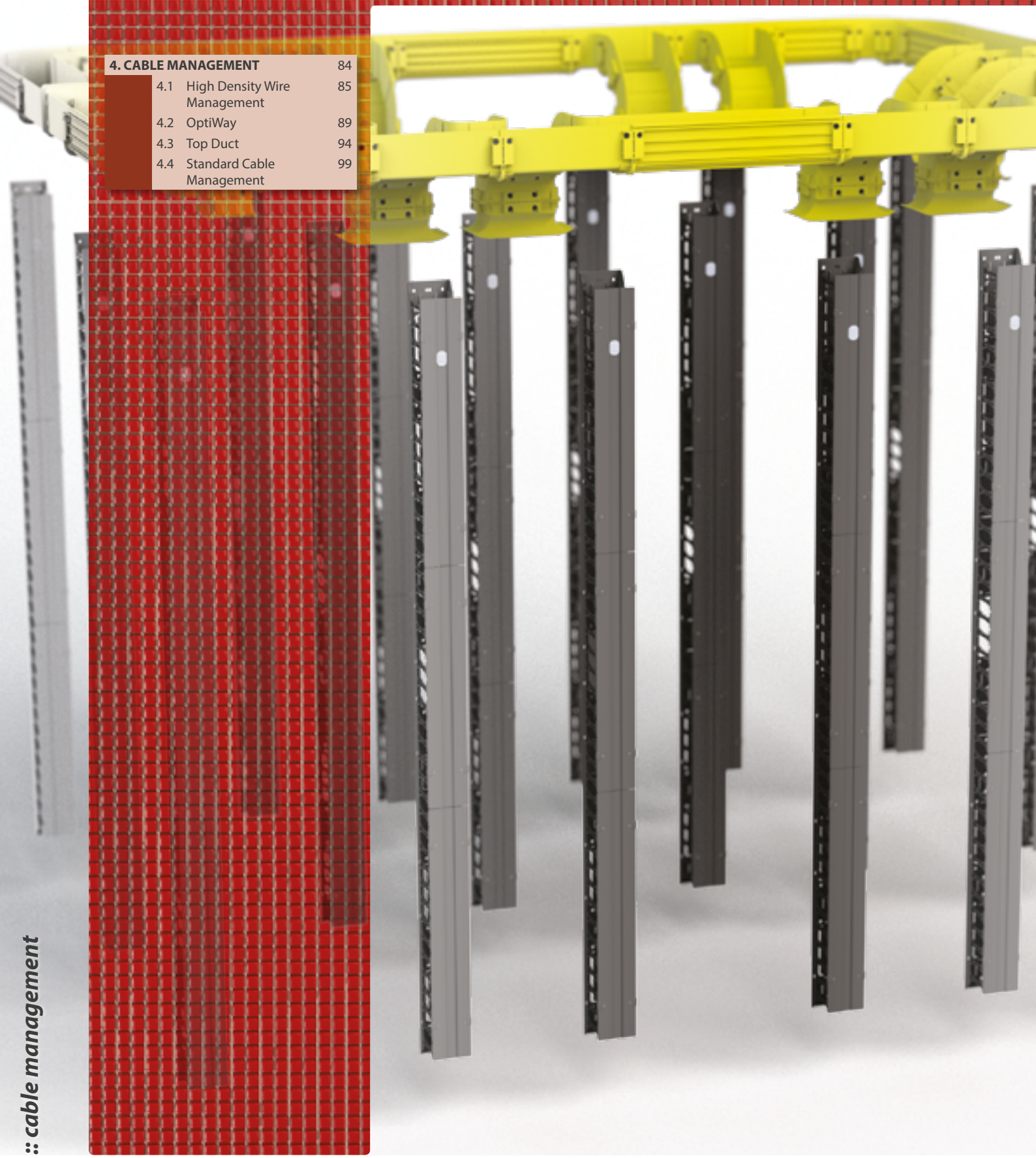
10" FIBER-OPTIC SPLICE BOXES			
Code	**H in U**	**W**	**D in mm**
ORMS-01	1	10"	160

MODULAR FRONT PANELS
Code
ORS-08ST
ORS-08SC
ORS-04DSC
ORS-08FC
ORS-04FCD



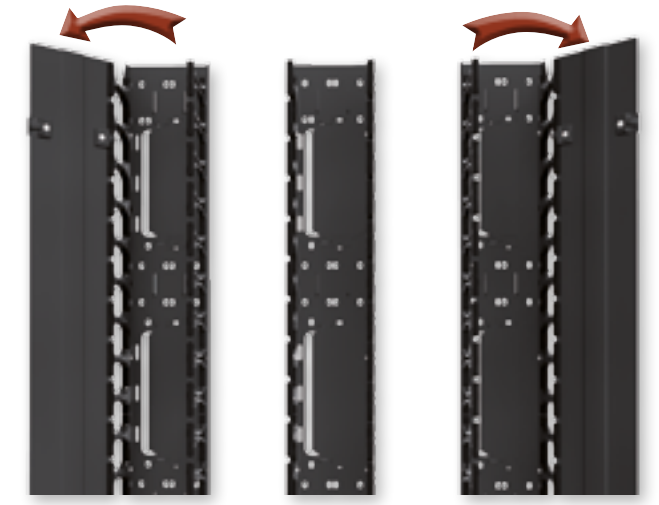
ORMS-01

4. CABLE MANAGEMENT

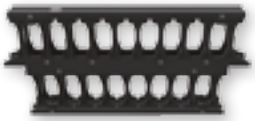


4.1 HIGH DENSITY WIRE MANAGEMENT

Cable management can have a serious impact on the reliability of your data transmissions. Poorly managed cables can adversely affect network throughput while poorly arranged patch cords can make cabling migration, add-ons and changes difficult to achieve. High Density Wire Managers will help to improve network performance and reliability by reducing the risk of attenuation due to fiber micro bends. Its capacity allows for a large number of patch cables without exceeding TIA/EIA/ISO recommended fill factor. Thanks to its clever design, backbone and patch, cables will be well organized in accordance with industry standards and major cable manufacturer recommendations so all your cabling needs will be met.



Front only design – HDWM-WM-3F



Front/rear design – HDWM-HM-1FR

DESCRIPTION:

Front/rear design
- Dual pathway for managing cables within the same HDWM
- Horizontal and vertical orientations, vertical racks (VMR) are for front only

Front only design
- Simple pathway for cables
- Available in horizontal and vertical orientations

Horizontal orientation
- Horizontal pathway for managing cables among the installed equipment
- Mounting onto 19" extrusions

Vertical orientation
- Vertical pathway for managing cables into and through the rack or frame
- Velcro cable ties for optimum cable bundle management
- Vertical managers can be bolted together (front to back) to customize the HDWM to your requirements

Frame vertical panel (VMF)
- 3 mm thick aluminum ensures high rigidity and structural strength
- Easy installation on RSG frames

Cable Troughs
- Allow the management of cables between vertical rack (VMR) or frame (VMF) HDWM
- Adjustable length

INSTALLATION
vertical High Density Wire Managers can be installed in any type of standard vertical 19" extrusions

HDWM-HM-1FR
front/rear horizontal 1U High Density Wire Manager, applicable in both rack and frame deployments

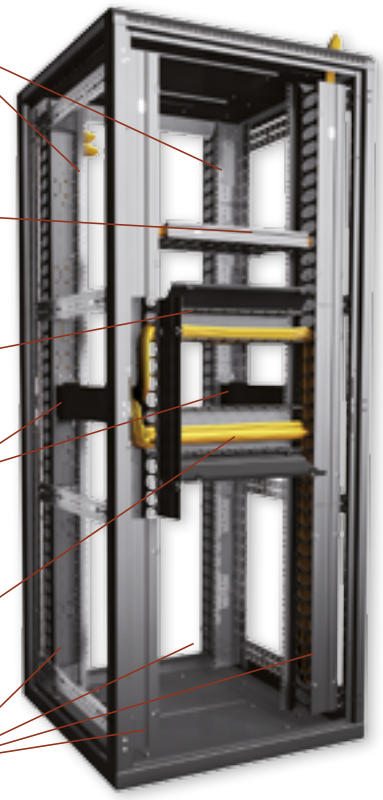
front/rear horizontal 2 or 3U High Density Wire Manager with brush also available

HDWM-HM-2F
front horizontal 2U High Density Wire Manager, applicable in both rack and frame deployments

HDWM-VMR-ACT
horizontal adjustable cable troughs to lead the cables between front and rear vertical rack High Density Wire Managers

HDWM-HM-3F
front horizontal 3U High Density Wire Manager, applicable in both rack and frame deployments

HDWM-VMR-42-12/10F
front vertical High Density Wire Managers, applicable in rack deployment



HDWM-FDF-S3-20B
front duct system, compatible with HDWM-VMF-xx-yy/20F installed on the both sides

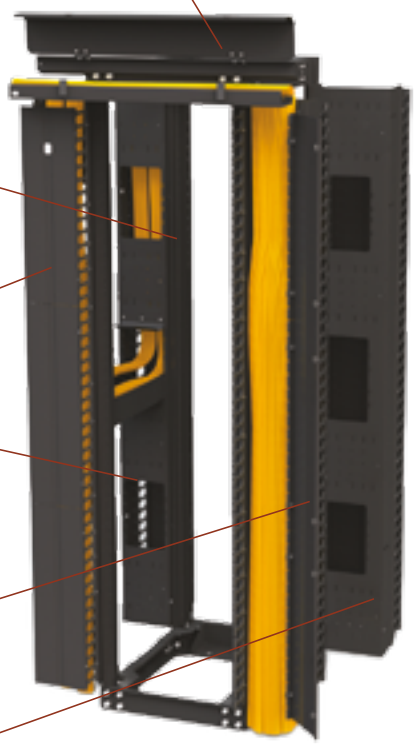
HDWM-VMF-47-15/20F
front vertical High Density Wire Manager, applicable in frame deployments

HDWM-VMF-47-15/20F
front vertical High Density Wire Manager, applicable in frame deployments

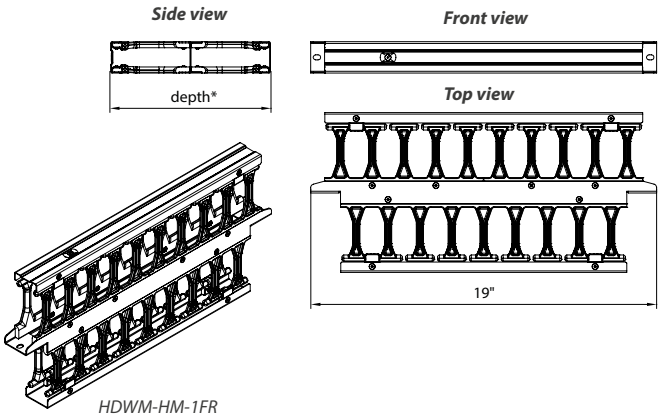
HDWM-VMF-ACT
horizontal adjustable cable troughs to lead the cables between front and rear vertical open frame High Density Wire Managers

HDWM-VMF-47-25/20F (2 x)
front wire managers shown joined to give front & rear cable management, applicable in frame deployments

HDWM-VMF-47-25/30F
front vertical High Density Wire Manager, applicable in frame deployments

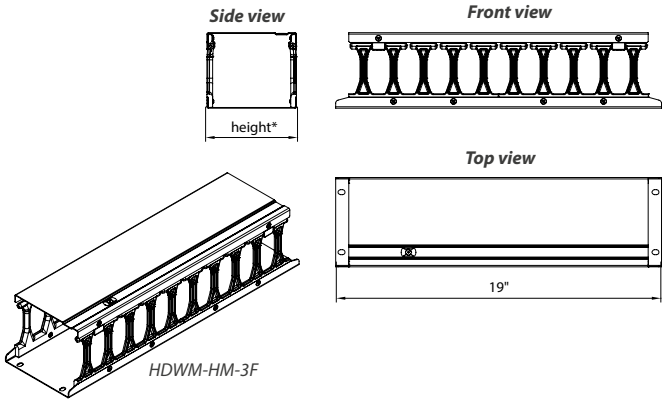


HORIZONTAL HIGH DENSITY WIRE MANAGERS – FRONT/REAR



HDWM-HM-1FR

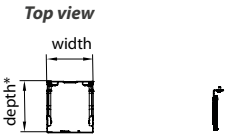
HORIZONTAL HIGH DENSITY WIRE MANAGERS – FRONT ONLY



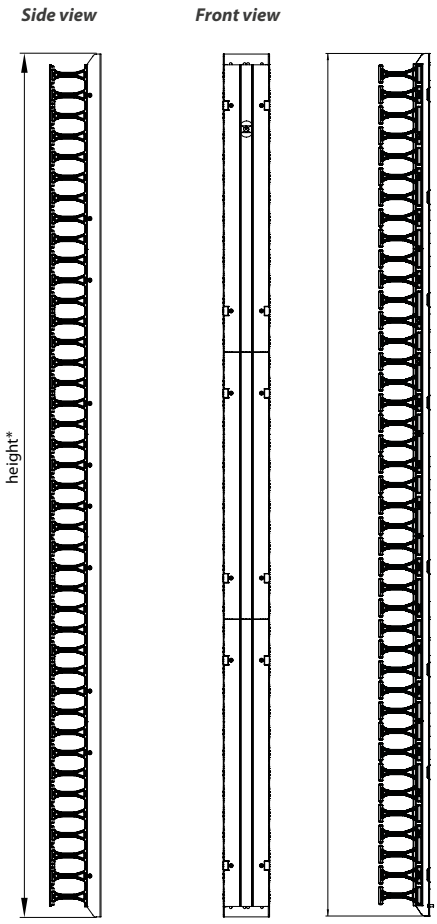
HDWM-HM-3F

HORIZONTAL HIGH DENSITY WIRE MANAGERS							
Code	Installation	Type	No. of fingers		Dimensions		
			Front	Rear	H in U	W	D in mm
HDWM-HM-1F	Open frame/rack	Front	10	x	1	19"	112
HDWM-HM-1FR	Open frame/rack	Front/rear	10	9	1	19"	223
HDWM-HM-2F	Open frame/rack	Front	10	x	2	19"	112
HDWM-HM-2FR	Open frame/rack	Front/rear	10	9	2	19"	223
HDWM-HM-2FRB	Open frame/rack	Front/rear, brush	10	9	2	19"	223
HDWM-HM-3F	Open frame/rack	Front	10	x	3	19"	112
HDWM-HM-3FR	Open frame/rack	Front/rear	10	9	3	19"	223
HDWM-HM-3FRB	Open frame/rack	Front/rear, brush	10	9	3	19"	223

Standard equipment: manager, installation instructions, 4 mounting kits



VERTICAL HIGH DENSITY WIRE MANAGERS – RACK INSTALLATION



HDWM-VMR-42-12×10F

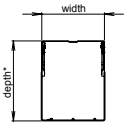
HDWM-VMR-42-12P

VERTICAL HIGH DENSITY WIRE MANAGERS – RSG OPEN FRAME INSTALLATION

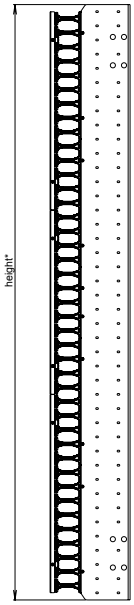
VERTICAL HIGH DENSITY WIRE MANAGERS							
Code	Installation	Type	No. of fingers		Dimensions		
			Front	Rear	H in U	W in mm	D in mm
HDWM-VMR-42-12/10F	Rack	Front	41	x	42	100	126
HDWM-VMR-45-12/10F	Rack	Front	44	x	45	100	126
HDWM-VMR-42-12L	Rack	L-type extrusion One Row	41	x	42	-	126
HDWM-VMR-45-12L	Rack	L-type extrusion One Row	44	x	45	-	126
HDWM-VMR-42-12P	Rack	P-type extrusion One Row	41	x	42	-	126
HDWM-VMR-45-12P	Rack	P-type extrusion One Row	44	x	45	-	126
HDWM-VMF-42-15/20F	Open frame	Front ¹	41	x	42	200	151
HDWM-VMF-45-15/20F	Open frame	Front ¹	44	x	45	200	151
HDWM-VMF-47-15/20F	Open frame	Front ¹	46	x	47	200	151
HDWM-VMF-42-25/20F	Open frame	Front ¹	41	x	42	200	251
HDWM-VMF-45-25/20F	Open frame	Front ¹	44	x	45	200	251
HDWM-VMF-47-25/20F	Open frame	Front ¹	46	x	47	200	251
HDWM-VMF-42-25/30F	Open frame	Front ¹	41	x	42	300	251
HDWM-VMF-45-25/30F	Open frame	Front ¹	44	x	45	300	251
HDWM-VMF-47-25/30F	Open frame	Front ¹	46	x	47	300	251

Standard equipment: manager including blanking panels, installation instructions, mounting hardware, 10 velcro ties HDWM-VCT (One Row only 5 x HDWM- VCT-S)
¹ For front/rear design simply order respective front managers and install them easily at the installation site with enclosed hardware, which is delivered in each box as standard

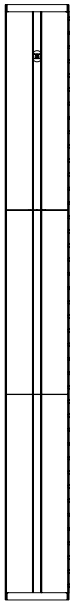
Top view



Side view

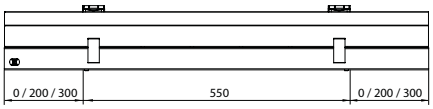


Front view

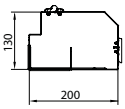


FRONT DUCT SYSTEM COMPATIBLE WITH VERTICAL HDWM – RSG OPEN FRAME INSTALLATION

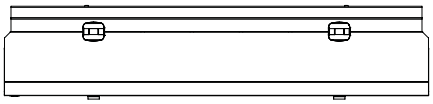
Front view

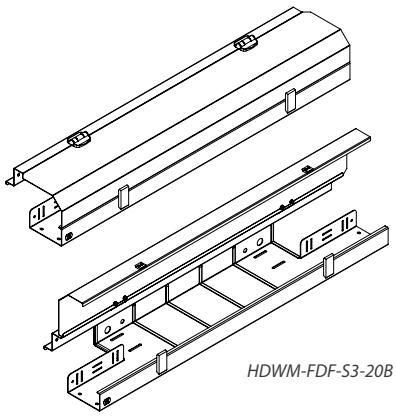


Side view



Top view

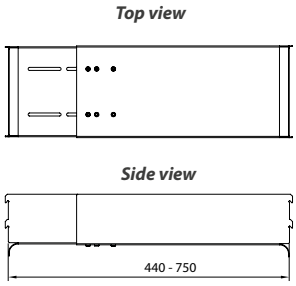


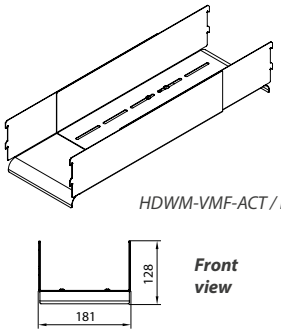


HDWM-FDF-S3-20B

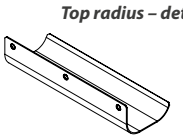
FRONT DUCT SYSTEM COMPATIBLE WITH VERTICAL HDWM		
Code	Installation	Description
HDWM-FDF-S3-20L	Open frame	Front duct system, compatible with HDWM-VMF-xx-yy/20F installed on the left-hand side, 1× cable radius protector included
HDWM-FDF-S3-20R	Open frame	Front duct system, compatible with HDWM-VMF-xx-yy/20F installed on the right-hand side, 1× cable radius protector included
HDWM-FDF-S3-20B	Open frame	Front duct system, compatible with HDWM-VMF-xx-yy/20F installed on the both sides, 2× cable radius protector included
HDWM-FDF-S3-30L	Open frame	Front duct system, compatible with HDWM-VMF-xx-yy/30F installed on the left-hand side, 1× cable radius protector included
HDWM-FDF-S3-30R	Open frame	Front duct system, compatible with HDWM-VMF-xx-yy/30F installed on the right-hand side, 1× cable radius protector included
HDWM-FDF-S3-30B	Open frame	Front duct system, compatible with HDWM-VMF-xx-yy/30F installed on the both sides, 2× cable radius protector included
HDWM-FDF-S3-20L30R	Open frame	Front duct system, compatible withHDWM-VMF-xx-yy/20F installed on the left-hand side and HDWM-VMF-xx-yy/30F installed on the right-hand side , 2× cable radius protector included
HDWM-FDF-S3-30L20R	Open frame	Front duct system, compatible withHDWM-VMF-xx-yy/30F installed on the left-hand side and HDWM-VMF-xx-yy/20F installed on the right-hand side , 2× cable radius protector included
HDWM-FDF-S3-EC	Open frame	End cap for front duct system, 2 pcs

ADJUSTABLE CABLE TROUGH FOR VERTICAL HDWM – RSG OPEN FRAME INSTALLATION





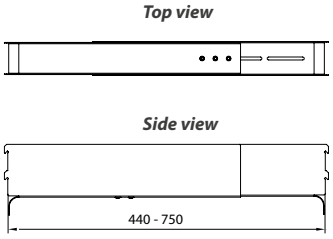
HDWM-VMF-ACT / HDWM-VMF-ACT-L



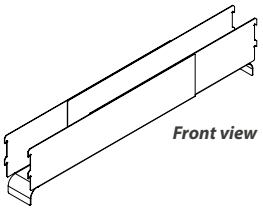
HDWM-FSS-50

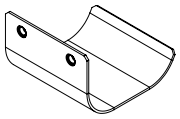
HDWM-VCT-S

ADJUSTABLE CABLE TROUGH FOR VERTICAL HDWM – RACK INSTALLATION



HDWM-VMR-ACT /
HDWM-VMR-ACT-L





HDWM-VCT-B

HDWM-VCT

HDWM-VCT

For available sizes of HDWM-VMR-ACT please see table on page 104.

Note: All dimensions in mm

ACCESSORIES FOR HIGH DENSITY WIRE MANAGERS	
Code	**Description**
HDWM-VMR-19	Bracket for attachment of HDWM-VMR-xx-xx/xxF to 19" profiles (not required for ROF/RDF/RSF)
HDWM-VMR-ACT	Adjustable Cable Trough - for front-to-rear cable management between front and rear mounted VMR, top radius included, range 440 to 750 mm*
HDWM-VMF-ACT	Adjustable Cable Trough - for front-to-rear cable management between front and rear mounted VMF, top radius included, range 440 to 750 mm
HDWM-VMR-ACT-L	Adjustable Cable Trough - Long - for front-to-rear cable management between front and rear mounted VMR, top radius included, range 680 to 1150 mm*
HDWM-VMF-ACT-L	Adjustable Cable Trough - Long - for front-to-rear cable management between front and rear mounted VMF, top radius included, range 680 to 1150 mm
HDWM-VMF-B15	Bracket for attachment of HDWM-VMF-xx-15/xxF to back of open frame (not required for RSG)
HDWM-VMF-B25	Bracket for attachment of HDWM-VMF-xx-25/xxFR to back of open frame (not required for RSG)
HDWM-VMF-BLANK-42	Blank panel kit to close ACT holes for 42U VMF range of wire managers
HDWM-VMF-BLANK-45	Blank panel kit to close ACT holes for 45/47U VMF range of wire managers
HDWM-FSS-50	Fiber Storage Spools, 50 mm deep, pair, including mounting hardware
HDWM-FSS-100	Fiber Storage Spools, 100 mm deep, pair, including mounting hardware
HDWM-VCT-B	Velcro Cable Belt, 13×5000 mm, 1 pc, black
HDWM-VCT-S	Velcro Cable Ties-small, 13×190 mm, pack of 25 pcs, black
HDWM-VCT	Velcro Cable Ties, 25×300 mm, pack 10, black

** not compatible with divided rear extrusions of RSF rack*

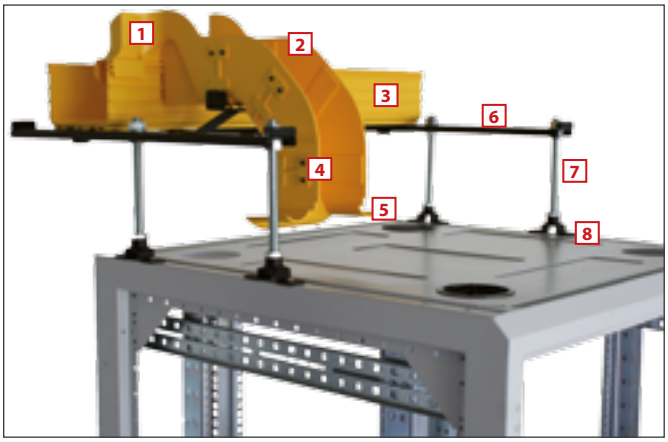
4.2 OPTICAL PATHWAY SYSTEM - OptiWay

OptiWay is designed to provide a safe easy-to-use and cost-effective management system for your fragile optical cables. OptiWay allows you to route fiber optic cables among equipment and provides the physical protection and bend radius management that is crucial to optical cable performance.

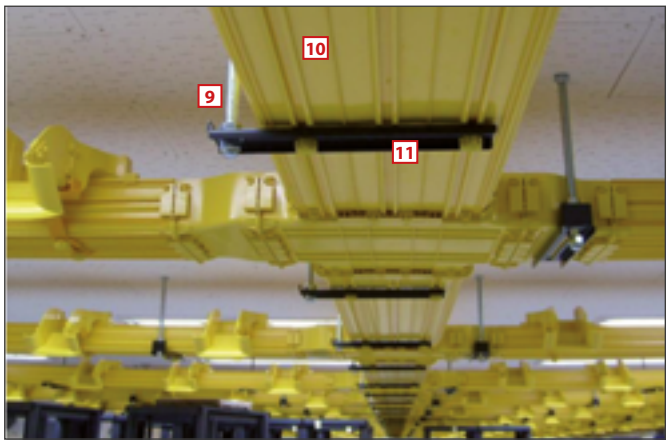
Constructed of halogen-free PC/ABS material, OptiWay can be used to protect your cabling from the point of building entry right up to the terminal devices. The OptiWay system is fully modular, giving you unrivalled flexibility in your chosen layout, whether it's a new-build or refurbishment project.

Description of pictures 1 and 2 on the right		
No	**Code**	**Description**
1	OPW-10DR	Spillover
2	OPW-10IA45-YL	Vertical inside elbow
3	OPW-16MD2M	Main duct
4	OPW-10JO	Joiner
5	OPW-10TP	Trumpet
6	OPW-RRB-100	Threaded rod attachment bracket (rack mounting)
7	OPW-TR-16/20	Threaded rod
8	OPW-TR-BR	Threaded rod mounting bracket
9	OPW-TR-16/100	Threaded rod
10	OPW-30MD2M	Main duct
11	OPW-TRB-30	Threaded rod attachment bracket (ceiling mounting)

OPTIWAY INSTALLATION – there are two ways of installing the OptiWay system. In the first scenario, the threaded rods are fixed to the ceiling and OptiWay ducts are supported by brackets mounted on the threaded rods. In the second scenario, threaded rods are fixed to the top of rack. OptiWay ducts are again supported by brackets mounted on the threaded rods. As each type of installation has its own specific features, the final design is individually customized by Conteg product engineers to guarantee the best available OptiWay system performance.



1. Example of OptiWay installation on the top of the rack



2. Example of OptiWay ceiling installation

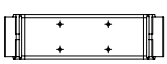
JOINER

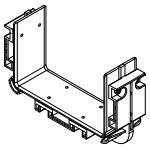
The Joiner is used to connect two components of OptiWay. The joiner does not require drilling of duct or components. Screws included. Color: Yellow

Code	Inner duct size in mm	
	H	W
OPW-10JO-YL	100	100
OPW-16JO-YL	100	160
OPW-30JO-YL	100	300

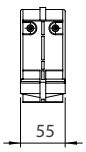
**for available widths see appropriate table*

Top view

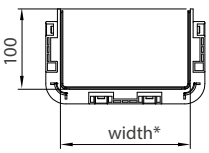




Side view



Front view

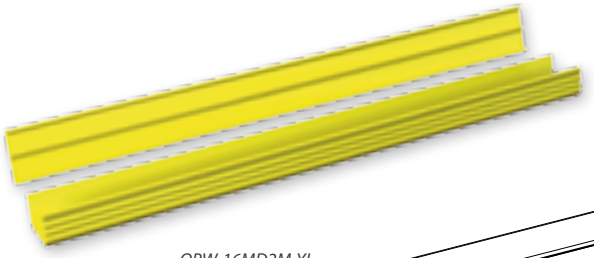


OPW-16JO-YL

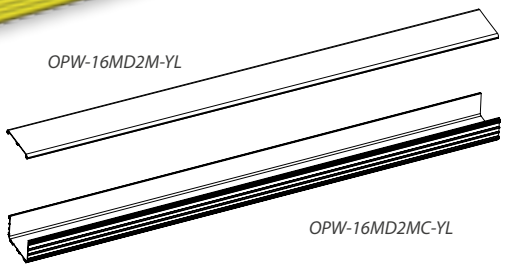
MAIN DUCT

The Main Duct is an extruded 2-meter-long conduit and can be connected with other OptiWay products using joiners. The duct can be easily cut to length on-site. Delivered in even numbers (packaged by 2 pcs = 4 m). Color: Yellow

Code	Inner duct size in mm		Length in m
	H	W	
OPW-16MD2M-YL	100	160	2
OPW-30MD2M-YL	100	300	2
Covers			
OPW-16MD2MC-YL	-	160	2000
OPW-30MD2MC-YL	-	300	2000



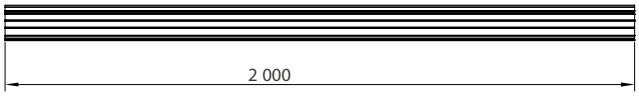
OPW-16MD2M-YL



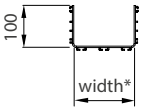
OPW-16MD2MC-YL

Top view

Side view



Front view



Duct load rating 20 kg/m, required distance between brackets max. 900 mm

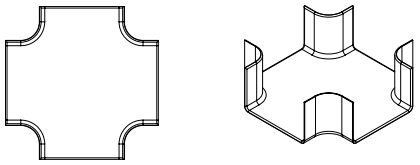
**for available widths see appropriate table*

CROSS

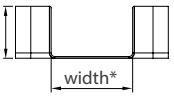
The Cross is used to establish a 4-way, right-angled intersection. Four joiners are required per cross. Color: Yellow

Code	Inner duct size in mm		Arms
	H	W	
OPW-16CA-YL	100	160	4
OPW-30CA-YL	100	300	4
Covers			
OPW-16CAC-YL			160
OPW-30CAC-YL			300

Top view

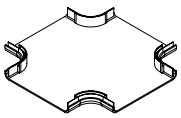


Side view



Front view

Cover



OPW-16CA-YL

OPW-16CAC-YL

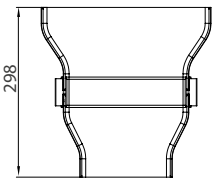
**for available widths see appropriate table*

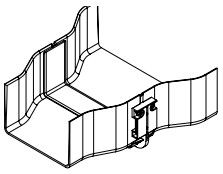
REDUCER

The Reducer allows 300×100 mm and 160×100 mm OptiWay sections to be joined together. Two joiners are required per reducer. Color: Yellow

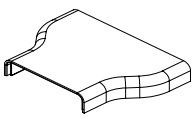
Code	Inner duct size in mm	
	H	W_1 / W_2
OPW-3016RD-YL	100	300 / 160
Cover		
OPW-3016RDC-YL	-	300 / 160

Top view

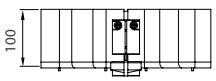




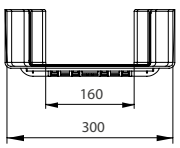
Cover



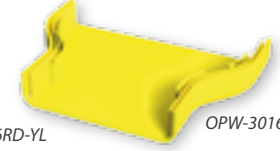
Side view



Front view



OPW-3016RD-YL



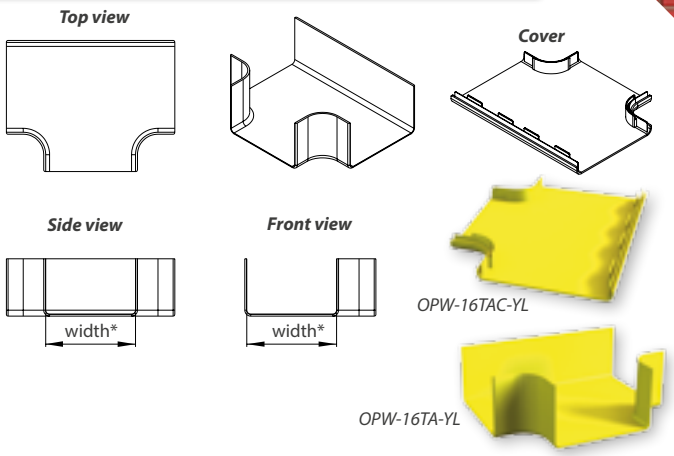
OPW-3016RDC-YL

Note: All dimensions in mm

TEE

The Tee is used to establish a 3-way, right-angled intersection. Three joiners are required per Tee. Color: Yellow

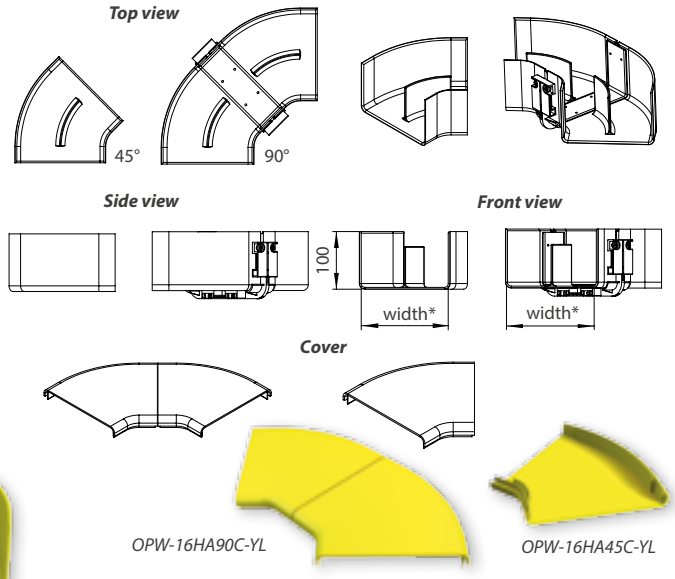
Code	Inner duct size in mm	
	H	W
OPW-16TA-YL	100	160
OPW-30TA-YL	100	300
Covers		
OPW-16TAC-YL	-	160
OPW-30TAC-YL	-	300



HORIZONTAL ELBOW

The Horizontal Elbows allow ducts to be diverted through 45° or 90°. Two joiners required per elbow. Color: Yellow

Code	Type	Inner duct size in mm	
		H	W
OPW-16HA45-YL	45°	100	160
OPW-30HA45-YL	45°	100	300
OPW-16HA90-YL	90°	100	160
OPW-30HA90-YL	90°	100	300
Covers			
OPW-16HA45C-YL	45°	-	160
OPW-30HA45C-YL	45°	-	300
OPW-16HA90C-YL	90°	-	160
OPW-30HA90C-YL	90°	-	300

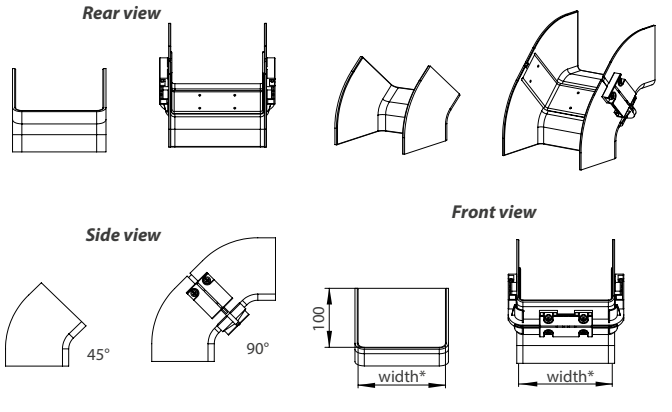


*for available widths see appropriate table

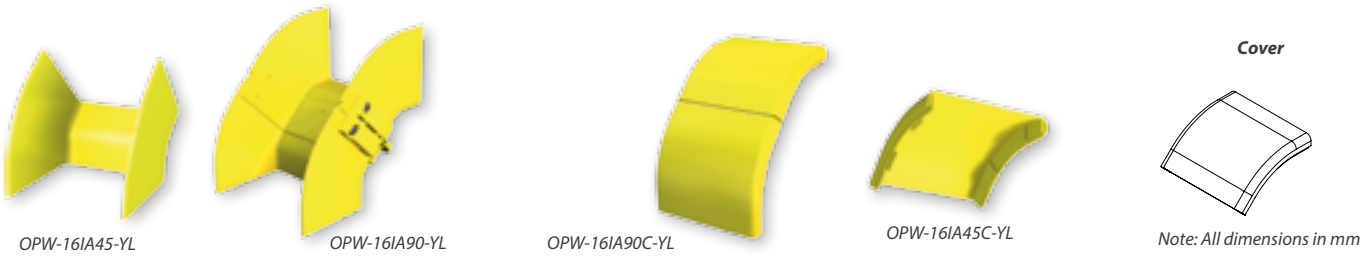
VERTICAL INSIDE ELBOW

The Vertical Inside Elbows allow ducts to be diverted through 45° or 90° with an inside angle (usually in a downward direction). Two joiners required per elbow. Color: Yellow

Code	Type	Inner duct size in mm	
		H	W
OPW-16IA45-YL	45°	100	160
OPW-30IA45-YL	45°	100	300
OPW-16IA90-YL	90°	100	160
OPW-30IA90-YL	90°	100	300
Covers			
OPW-16IA45C-YL	45°	-	160
OPW-30IA45C-YL	45°	-	300
OPW-16IA90C-YL	90°	-	160
OPW-30IA90C-YL	90°	-	300



*for available widths see appropriate table



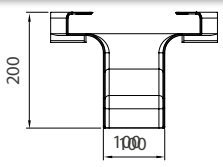
Note: All dimensions in mm

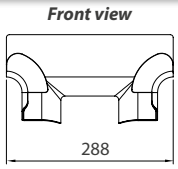
SPILLOVER

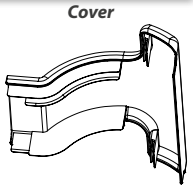
The Spillover is used to provide a protected exit for cables leaving the OptiWay ducting system for cables. Color: Yellow

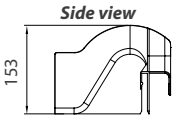
Code	Inner duct size in mm	
	H	W
OPW-10DR-YL	100	100
OPW-10DRF-YL	100	100
Cover		
OPW-10DRC-YL	-	100
OPW-10DRFC-YL	-	100

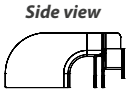
ACCESSORIES FOR SPILLOVER	
Code	**Description**
OPW-10JO-YL	OptiWay 100 Joiner, 100×100 mm, yellow
OPW-10TP-YL	OptiWay 100 Trumpet, 100×100 mm, yellow
OPW-10IA45-YL	OptiWay 100 mm, 45 ° down angle, yellow
OPW-SDMB-16	OptiWay Side Drop Mounting Bracket for 160×100 mm duct size
OPW-SDMB-30	OptiWay Side Drop Mounting Bracket for 300×100 mm duct size
OPW-10DRF-TG	OptiWay 100 Spillover fall-out tube guide for up two tubes, without tube, black
OPW-10DRF-TB3	OptiWay 100 tube for spillover, outer diam. 40mm, length 3m, black
OPW-10DRF-TB30	OptiWay 100 tube for spillover, outer diam. 40mm, length 30m, black

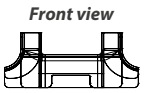


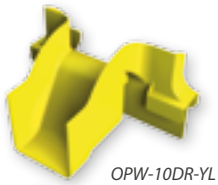




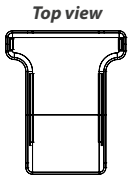






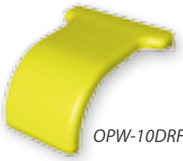


OPW-10DR-YL



OPW-10DRF-YL

OPW-10DRC-YL



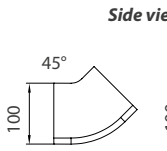
OPW-10DRFC-YL

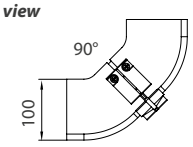
VERTICAL OUTSIDE ELBOW

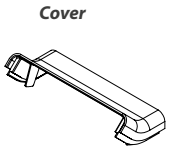
The Vertical Outside Elbows allow ducts to be diverted through 45° or 90° with an inside angle (usually in an upward direction). Two joiners required per elbow. Color: Yellow

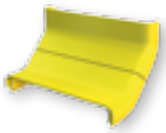
Code	Angle	Inner duct size in mm	
		H	W
OPW-16OA45-YL	45°	100	160
OPW-30OA45-YL	45°	100	300
OPW-16OA90-YL	90°	100	160
OPW-30OA90-YL	90°	100	300
Covers			
OPW-16OA45C-YL	45°	-	160
OPW-30OA45C-YL	45°	-	300
OPW-16OA90C-YL	90°	-	160
OPW-30OA90C-YL	90°	-	300

**for available widths see appropriate table*



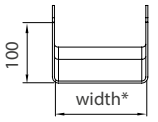






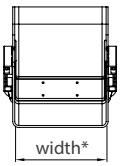
OPW-16OA90C-YL

OPW-16OA90-YL



OPW-16OA45C-YL

OPW-16OA45-YL

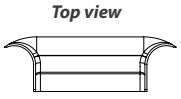


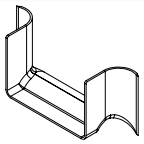
TRUMPET

The Trumpet is used to provide bend-radius control for cables entering or exiting the OptiWay ducting system. One joiner is required per trumpet. Color: Yellow

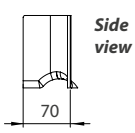
Code	Inner duct size in mm	
	H	W
OPW-10TP-YL	100	100
OPW-16TP-YL	100	160
OPW-30TP-YL	100	300

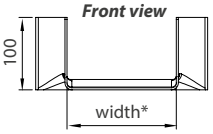
**for available widths see appropriate table*





OPW-16TP-YL



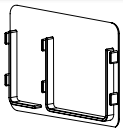


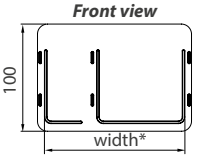
END CAP

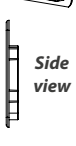
The End Cap provides a clean finish to the end of an OptiWay run. Color: Yellow

Code	Inner duct size in mm	
	H	W
OPW-16EC-YL	100	160
OPW-30EC-YL	100	300

**for available widths see appropriate table*





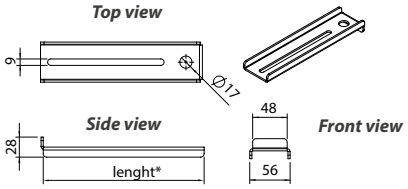


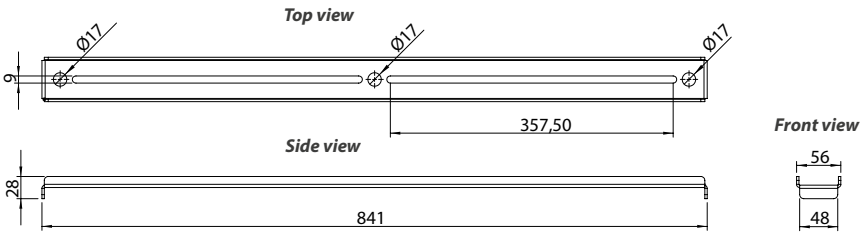
OPW-16EC-YL

Note: All dimensions in mm

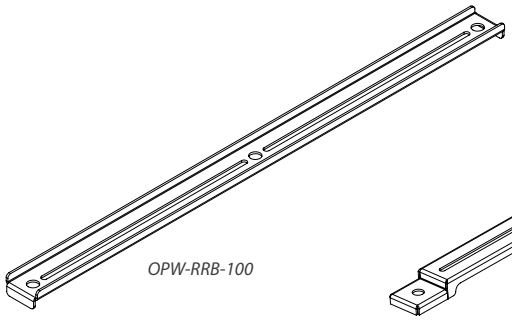
THREADED ROD ATTACHMENT BRACKET

Basic supporting element. Consists of metal bracket and 2 fixing screws. Please note: brackets do not include threaded rod. Recommended 12-16 mm diameter threaded rod. Color: Black

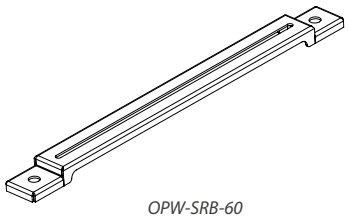




OPW-TRB-16



OPW-RRB-100



OPW-SRB-60

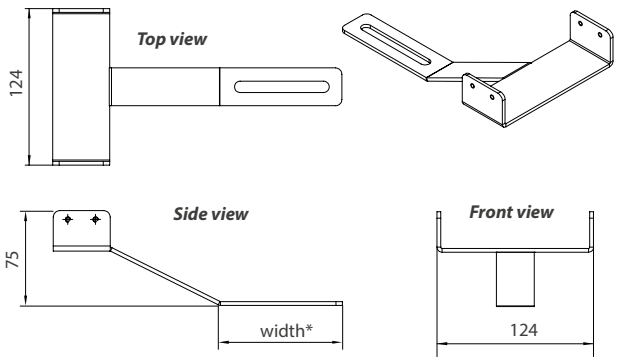
Code	Bracket length in mm	Type of mounting	Rec. rack depth in mm	Mount. holes
OPW-TRB-16	160	ceiling mounted	all	1
OPW-TRB-30	300	ceiling mounted	all	1
OPW-RRB-40	400	mounted on the top of the half part of the rack	800	2
OPW-RRB-50	500	mounted on the top of the half part of the rack	1000	2
OPW-RRB-60	600	mounted on the top of the half part of the rack	1200	2
OPW-RRB-80	800	on top of the rack or overlap of the rack	800	3
OPW-RRB-100	1000	on top of the rack or overlap of the rack	1000	3
OPW-RRB-120	1200	on top of the rack or overlap of the rack	1200	3
OPW-SRB-60	600	OptiWay - side mounting bracket for installation of cable duct on a 600 mm wide rack – front/rear orientation	—	2
OPW-SRB-80	800	OptiWay - side mounting bracket for installation of cable duct on a 800 mm wide rack – front/rear orientation	—	2

Note: required distance between brackets RRB max. 900 mm

**for available widths see appropriate table*

SPILLOVER SUPPORT BRACKET

Spillover OPW-10DR-YL supporting element. Consists of metal bracket and 2 fixing screws. Color: Black

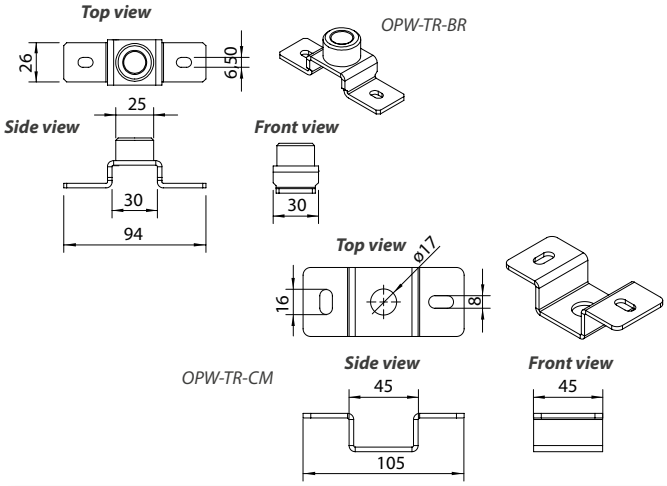


**for available widths see appropriate table*

Note: All dimensions in mm

Code	Supported duct inner size in mm	
	H	W
OPW-SDMB-16	100	160
OPW-SDMB-30	100	300

THREADED ROD, MOUNTING BRACKETS



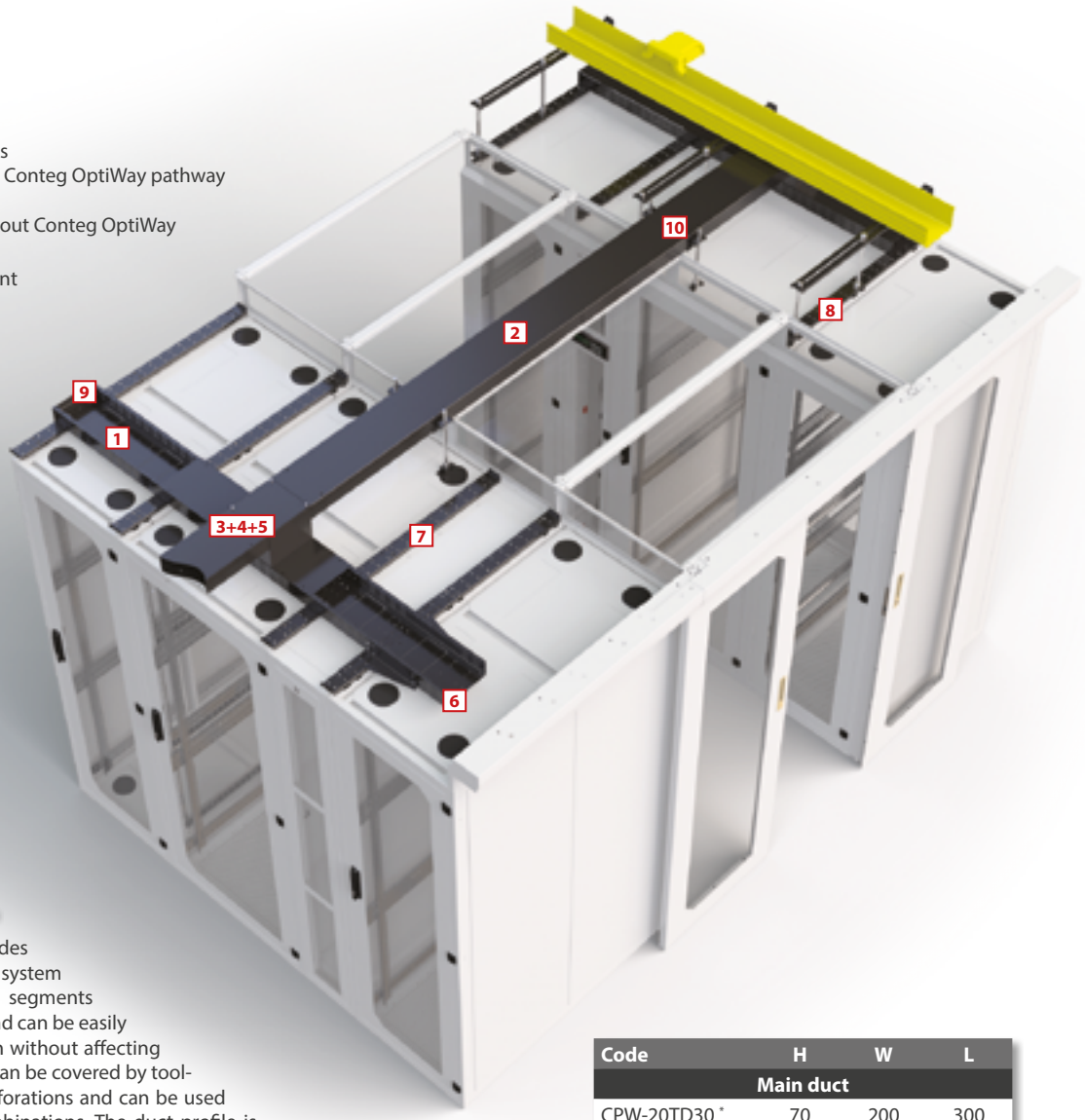
Code	Supported duct inner size in mm		Type of mounting
	H	Size	
OPW-TR-16/100	1000	M16	from the ceiling
OPW-TR-16/200	2000	M16	from the ceiling
OPW-TR-16/20	200	M16	on the top of the rack using OPW-TR-BR
OPW-TR-16/40	400	M16	on the top of the rack using OPW-TR-BR
OPW-TR-16/60	600	M16	on the top of the rack using OPW-TR-BR
OPW-TR-BR		M16	Threaded rod mounting bracket for top part of RDF/RSF
OPW-TR-CM			Threaded rod mounting bracket for ceiling installation with OPW-TR-16/100 or 200

4.3 TOP DUCT

Top ducts are designed to provide a safe, easy-to-use, and cost-effective management system for copper cables above the racks. Top ducts are simple to install and allow for easy installation, manipulation, and re-patching of cooper cables between server, network and UPS racks. The system is designed to provide a simple connection between the rack rows without ceiling or other exterior support. This solution reduces the installation time and the rack layout can be easily changed. The connection between rack rows can be multi-layered and can be combined with the Conteg OptiWay pathway system to provide independent routes for fiber cables. The solution complies with market requirements, recommendations, and best practices.

MAIN COMPONENTS:

- Top duct
- Cross connection
- Radius protectors and accessories
- Supporting brackets for use with Conteg OptiWay pathway system
- Supporting brackets for use without Conteg OptiWay pathway system
- Accessories for cable management



TOP DUCTS

The Top duct solution provides a backbone cable management system above a rack. The basic length segments correspond with the rack's width and can be easily removed and later installed back in without affecting neighboring racks. All cable ducts can be covered by tool-less covers. The main duct has perforations and can be used with all cover types and their combinations. The duct profile is 200×70 mm. An end-member of 350 mm is recommended for places where it is not possible to use a full length cable duct.

1 *CPW-20TD80*

CPW-20TDC80

6 *CPW-20TD35*

Code	H	W	L
Main duct			
CPW-20TD30 *	70	200	300
CPW-20TD40 *	70	200	400
CPW-20TD60 *	70	200	600
CPW-20TD80 *	70	200	800
CPW-20TD35	70	200	350
Cover			
CPW-20TDC10 *		200	100
CPW-20TDC20 *		200	200
CPW-20TDC30 *		200	300
CPW-20TDC40 *		200	400
CPW-20TDC50 *		200	500
CPW-20TDC60 *		200	600
CPW-20TDC80 *		200	800
CPW-20TDC35		200	350

** packaged by 2 pcs*

TOP DUCTS - CROSS CONNECTION

The Cross-connection duct allows a cable management system to be installed across one or more rack rows. It includes several adjustable features that allow it to achieve the required duct length on a multilevel basis. Ducts can be covered by tool-less covers.

Code	H	W	L
Cross connection			
CPW-20CD100	70	200	1034 – 1480
CPW-20CD140	70	200	1434 – 2280
CPW-20CD180	70	200	1834 – 3080
CPW-20CD220	70	200	2234 – 3880
CPW-20CD260	70	200	2634 – 4680
Cover			
CPW-20CDC100		200	1034 – 1480
CPW-20CDC140		200	1434 – 2280
CPW-20CDC180		200	1834 – 3080
CPW-20CDC220		200	2234 – 3880
CPW-20CDC260		200	2634 – 4680

2 CPW-20CDC260

CPW-20CD260

TOP DUCTS ACCESSORIES

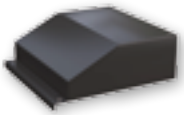
Used for multilevel cross connection. The system can be used with/without contained aisle solutions for racks that are 42U, 45U or 48U in height.

3 CPW-20CA

4 CPW-20CC-SM

CPW-20CAC-0U

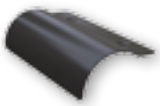
5 CPW-20CAC-3U



CPW-20TAC-0U

CPW-20TAC-3U

CPW-20-R10



CPW-20-R17

CPW-20-R20

9 CPW-20-EC

CPW-20-CC

Top ducts accessories

Code	Description
Cross and Tee members – for multilevel intersection	
CPW-20CA	Cross member between CPW-20TDxx and 2x CPW-20CDxx (for CPW-20CDxx when using crosswise)
CPW-20CC-SM	Set of 2 support brackets for CPW-20CDxx; only for CCA with 42U racks or for crossover
CPW-20CAC-0U	Cover for cross member CPW-20CA
CPW-20CAC-3U	Cover for cross member CPW-20CA, offset use
CPW-20TAC-0U	Cover of tee connection from CPW-20CDxx to CPW-20TDxx when 45U and 48U racks are used
CPW-20TAC-3U	Cover of tee connection from CPW-20CDxx to CPW-20TDxx when CCA or CPW-20CC-SM are used; only for 42U racks
Cable duct accessories	
CPW-20-R17	Radius cable protection for CPW-20TDxx, 170 mm width; 2 pieces with plastic pins
CPW-20-R10	Radius cable protection for CPW-20TDxx, 100 mm width; 2 pieces with plastic pins
CPW-20-R20	Radius cable protection for end of CPW-20TDxx or CPW-20CDxx, 200 mm width; 2 pieces with plastic pins
CPW-20-EC	End cap of CPW-20TDxx; 2 pieces
CPW-20-CC	Connecting kit for CPW-20TDxx for direct application on roof of rack, pack of 10, not necessary when using CPW-RRB-xx
Cable management	
DP-KP-LEM	Rubber piece for edges of 790 mm cable entry opening
HDWM-VCT	Velcro cable ties, 25×300 mm, pack of 10, black
HDWM-VCT-B	Velcro cable belt, 13×5000 mm, 1 piece, black
HDWM-VCT-S	Velcro cable ties-small, 13×190 mm, pack of 25, black

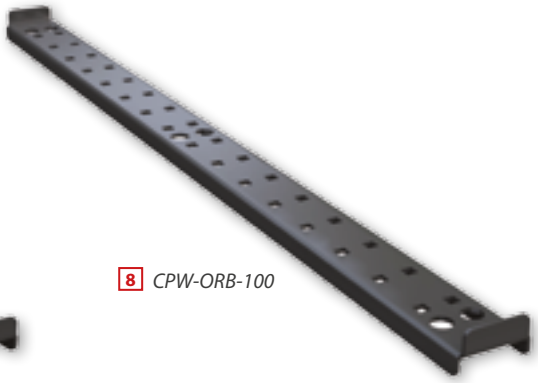
SUPPORTING BRACKETS

Top ducts can be installed directly onto the roof of the rack with or without the OptiWay pathway system. The supporting brackets that are intended for use without OptiWay can be easily installed and adjusted above the racks. The supporting brackets that are intended for use with OptiWay combine both the OptiWay and Top duct systems. These supporting brackets are equipped with holes for threaded rods used to support the OptiWay system at different levels.

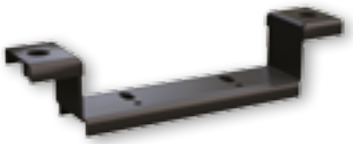
Code	Bracket length in mm	Type of mounting	Recommended rack depth in mm	Mounting holes
Supporting brackets without OptiWay				
CPW-BR-BR		Top duct bracket for installation of CPW-RRB on racks RSF/RDF		
CPW-RRB-40	400	Top duct half-size mounting bracket for installation of cable duct CPW-20TDxx on roof of rack, 80 cm depth	800	2
CPW-RRB-50	500	Top duct half-size mounting bracket for installation of cable duct CPW-20TDxx on roof of rack, 100 cm depth	1000	2
CPW-RRB-60	600	Top duct half-size mounting bracket for installation of cable duct CPW-20TDxx on roof of rack, 120 cm depth	1200	2
CPW-RRB-80	800	Top duct full-size mounting bracket for installation of cable duct CPW-20TDxx on roof of rack, 80 cm depth	800	3
CPW-RRB-100	1000	Top duct full-size mounting bracket for installation of cable duct CPW-20TDxx on roof of rack, 100 cm depth	1000	3
CPW-RRB-120	1200	Top duct full-size mounting bracket for installation of cable duct CPW-20TDxx on roof of rack, 120 cm depth	1200	3

CPW-BR-BR

7 *CPW-RRB-100*



8 *CPW-ORB-100*



10 *CPW-CDB*

Code	Bracket length in mm	Type of mounting	Recommended rack depth in mm	Mounting holes
Supporting brackets with OptiWay				
OPW-TR-BR		Bracket for installing threaded rod on racks RSF/RDF.		
OPW-TR-16/20	210	Rack mounting threaded rod for OptiWay, M16, 21 cm length		
OPW-TR-16/40	400	Rack mounting threaded rod for OptiWay, M16, 40 cm length		
OPW-TR-16/60	600	Rack mounting threaded rod for OptiWay, M16, 60 cm length		
OPW-TR-16/100	1000	Threaded rod for OptiWay, M16, 100 cm length		
OPW-TR-16/200	2000	Threaded rod for OptiWay, M16, 200 cm length		
OPW-TR-CM	200	OptiWay ceiling-mounting holder for threaded rod		
CPW-ORB-50	500	Top duct half-size mounting bracket for installing cable duct CPW-20TDxx on roof of rack, 100 cm depth; used with OptiWay (OPW-TR-BR and OPW-TR-16/xx needed)	1000	2
CPW-ORB-60	600	Top duct half-size mounting bracket for installing cable duct CPW-20TDxx on roof of rack, 120 cm depth; used with OptiWay (OPW-TR-BR and OPW-TR-16/xx needed)	1200	2
CPW-ORB-80	800	Top duct full-size mounting bracket for installing cable duct CPW-20TDxx on roof of rack, 80 cm depth; used with OptiWay (OPW-TR-BR and OPW-TR-16/xx needed)	800	3
CPW-ORB-100	1000	Top duct full-size mounting bracket for installing cable duct CPW-20TDxx on roof of rack, 100 cm depth; used with OptiWay (OPW-TR-BR and OPW-TR-16/xx needed)	1000	3
CPW-ORB-120	1200	Top duct full-size mounting bracket for installing cable duct CPW-20TDxx on roof of rack, 120 cm depth; used with OptiWay (OPW-TR-BR and OPW-TR-16/xx needed)	1200	3
CPW-CDB		Top duct cross connection support - rack or ceiling installation (used with threaded rods and mounting brackets)		2

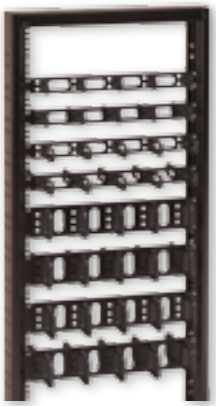
4.4 STANDARD CABLE MANAGEMENT

19" WIRE MANAGEMENT PANELS WITH PLASTIC BRACKETS

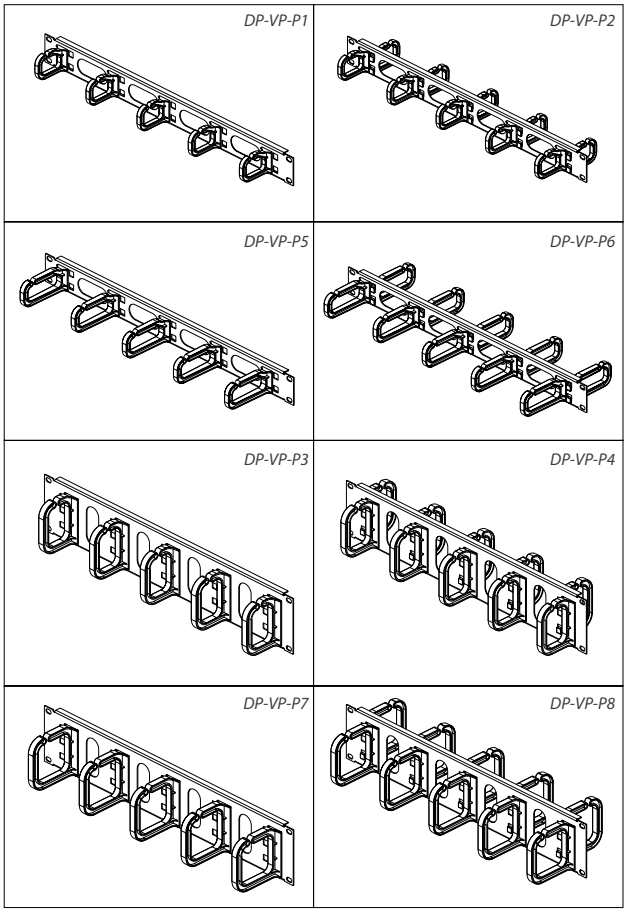
Used for storing and managing cables horizontally within the rack.

DESCRIPTION:

- Height: 1U or 2U
- Available in "front only" and "front and rear" types
- 5 plastic brackets per side
- Oval openings in panel allow front to rear cabling
- Color: powder-coated RAL (standard RAL 9005); brackets black



DP-VP-P



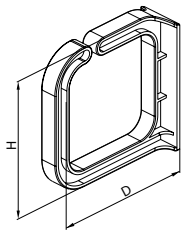
Code	H in U	Type	Hook sizes H x D in mm	Number of brackets
DP-VP-P1	1	Front only	40×50	5
DP-VP-P2	1	Both sides	40×50	10
DP-VP-P3	2	Front only	80×60	5
DP-VP-P4	2	Both sides	80×60	10
DP-VP-P5	1	Front only	40×80	5
DP-VP-P6	1	Both sides	40×80	10
DP-VP-P7	2	Front only	80×80	5
DP-VP-P8	2	Both sides	80×80	10

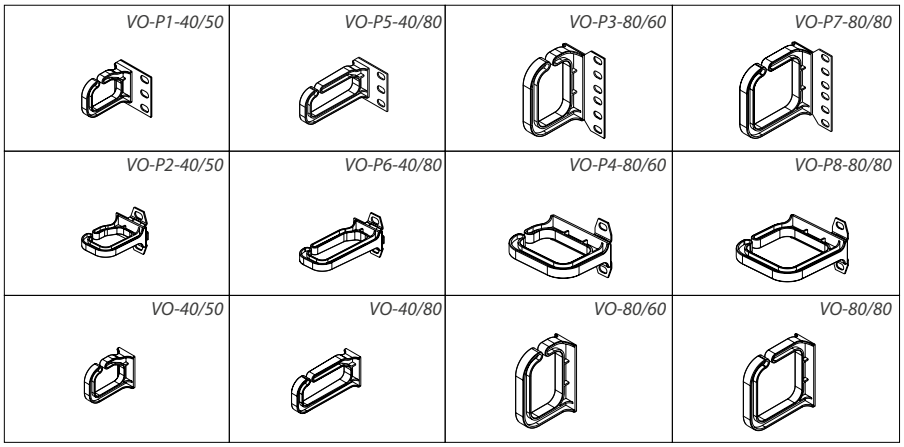
PLASTIC CABLE BRACKETS

Mounted on 19" vertical extrusions for management of horizontal and vertical cabling within the rack.

DESCRIPTION:

- Types:
  a) for managing vertical cables
  b) for managing horizontal cables
- Equipped with metal flange for installing on 19" vertical extrusions
- Color: powder-coated RAL (standard RAL 9005); brackets black





Code	H in mm	D in mm	Orientation
VO-P1-40/50	40	50	Horizontal
VO-P2-40/50	40	50	Vertical
VO-P3-80/60	80	60	Horizontal
VO-P4-80/60	80	60	Vertical
VO-P5-40/80	40	80	Horizontal
VO-P6-40/80	40	80	Vertical
VO-P7-80/80	80	80	Horizontal
VO-P8-80/80	80	80	Vertical

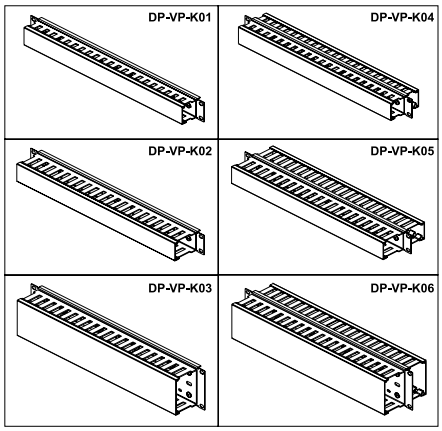
H…height, D…depth

19" WIRE MANAGEMENT PANELS WITH PLASTIC DUCTS

Used for storing and managing cables horizontally within the rack.

DESCRIPTION:

- Height 1U or 2U
- Available in "front-only" and "front-and-rear" types
- Plastic duct for cable managing
- Oval openings in panel allow front to rear cable passing
- Color: powder-coated RAL (standard RAL 9005)



DP-VP-K01

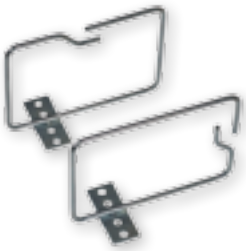
Code	H in U	Type	Duct sizes H x D in mm
DP-VP-K01	1	Front only	40×40
DP-VP-K02	1	Front only	40×60
DP-VP-K03	2	Front only	80×60
DP-VP-K04	1	Both sides	40×40
DP-VP-K05	1	Both sides	40×60
DP-VP-K06	2	Both sides	80×60

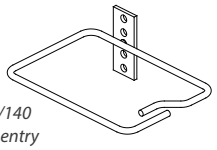
METAL CABLE BRACKETS

Mounted on 19" vertical extrusions and used for vertical cable management in racks.

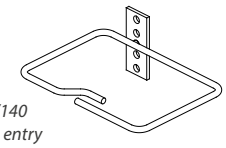
DESCRIPTION:

- For vertical cable management
- Dimensions 100×100 or 100×140 mm
- Flange with 4 holes for installing on front or side of 19" vertical extrusion
- Zinc plated
- Each code contains 10 pcs of brackets
- Front or side cable entry





VO-W1-100/140 – side cable entry



VO-W2-100/140 – front cable entry

Code	Dimensions in mm		Cable entry	Qty
	W	D		
VO-W1-100/140	140	100	side	10 pcs
VO-W2-100/140	140	100	front	10 pcs
VO-W2-100/100	100	100	front	10 pcs

HOLDERS OF VERTICAL WIRE MANAGEMENT PANELS AND CABLE BRACKETS

Used for installation of vertical wire management panels, cable brackets (ordered separately) or additional 19" space in 800 mm wide free-standing racks.

DESCRIPTION:

- Two designs HVMF and HVMP
- HVMF - ready for cable management; compatible with VO-xx/yy and DP-VP-VR-xx
- HVMP - additional 3 x 1U 19" space (load rating 5 kg by one position); compatible with separation frame
- Set includes 2 holders
- Mounting kit included
- Color: powder-coated RAL (standard RAL 9005)

Code		Rack height in U
HVMF-15		15
HVMF-18		18
HVMF-21		21
HVMF-24		24
HVMF-27		27
HVMF-33		33
HVMF-36		36
HVMF-42	HVMP-42	42
HVMF-45	HVMP-45	45
HVMF-48	HVMP-48	48

HVMP - 42

HVMF 42U

VERTICAL WIRE MANAGEMENT PANELS

Used for storing and managing cables vertically in 800 mm wide free-standing racks.

DESCRIPTION:

- For racks 15-48U high
- Plastic duct for cable management, size 80×60 mm
- Oval openings in base of ducts allow front to rear cabling
- Ducts that are at least 33U have divided covers easier handling
- Installation to the front part of vertical extrusions by using holder of vertical wire management panels (HVMF) – ordered separately
- Color: powder-coated RAL (standard RAL 9005)

Code	Rack height in U
DP-VP-VR-15	15
DP-VP-VR-18	18
DP-VP-VR-21	21
DP-VP-VR-24	24
DP-VP-VR-27	27
DP-VP-VR-33	33
DP-VP-VR-36	36
DP-VP-VR-42	42
DP-VP-VR-45	45, 48

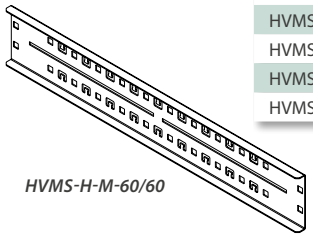
DP-VP-VR-42U

HORIZONTAL HOLDERS FOR CABLE TRAYS AND SIDE CABLE MANAGEMENT

The HVMS-H-M holders are used for fitting vertical cable trays in racks. The holder can be also used as a cable holder.

DESCRIPTION:

- HVMS-H-M: for ROF family rack series, mounted to rack frame
- HVMS-H: for all rack series (recommended for RM7 and RI7), mounted on vertical extrusions
- Possibility to install plastic cable brackets
- Set includes 2 holders
- Mounting kit included



HVMS-H-M-60/60

Code	Used in rack sizes in mm	
	ROF/RMF/RDF/RSF	SEVEN family
HVMS-H-M-60/60	600×600, 800×600 600×1200, 800×1200	
HVMS-H-M-60/80	600×800, 800×800	
HVMS-H-M-60/100	600×1000, 800×1000	
HVMS-H-600	600×600, 800×600	600×600, 800×600
HVMS-H-800	600×800, 800×800	600×800, 800×800

CABLE BASKET TRAYS

Cable basket trays HVMS-B are used to guide and support vertical cables in free-standing racks between 19" extrusions and side panels.

DESCRIPTION:

- 140×30 mm (W×D), could be mounted between horizontal holder and side panel
- 300×60 mm and 400×60 mm (W×D); mounted on inner side of horizontal holder
- 140×60 mm (W×D), mounted on inner side of horizontal holder
- Produced for rack sizes 15-48U
- Mounted on holders of vertical extrusions, horizontal holders are needed for racks of 18, 21 and 27U; for RI7 and RM7 only sizes 42 and 45U
- Set of fittings included

HVMS-B

Code	Dimensions in mm			Used in rack height U
	H	W	D	
HVMS-B-600-140/30	605	170	35	15,18
HVMS-B-800-140/30	805	170	35	21
HVMS-B-1000-140/30	1005	170	35	24, 27
HVMS-B-1400-140/30	1405	170	35	33, 36
HVMS-B-1800-140/30	1805	170	35	42, 45, 48
HVMS-B-600-140/60	605	170	65	15, 18
HVMS-B-800-140/60	805	170	65	21
HVMS-B-1000-140/60	1005	170	65	24, 27
HVMS-B-1400-140/60	1405	170	65	33, 36
HVMS-B-1800-140/60	1805	170	65	42, 45, 48

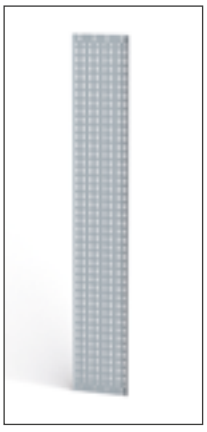
Code	Dimensions in mm			Used in rack height U
	H	W	D	
HVMS-B-1800-300/60	1805	325	65	42, 45, 48
HVMS-B-1800-400/60	1805	425	65	42, 45, 48

SIDE CABLE PERFORATED PANELS

Panels DP-VV are used to guide and support vertical cables in free-standing racks between 19" extrusions and side panels.

DESCRIPTION:

- Application in free-standing racks 15 – 48U high
- Available widths – 150 mm and 300 mm
- Installation either directly in top and bottom frame of the rack (OPTIMAL/PREMIUM racks series only) or on holders of vertical extrusions (all free-standing rack series)
- Installation kit is included in delivery



DV-VV-42U/300

Code		Used in rack height U
panels width 150 mm	panels width 300 mm	
DP-VV-15U/150	DP-VV-15U/300	15
DP-VV-18U/150	DP-VV-18U/300	18
DP-VV-21U/150	DP-VV-21U/300	21
DP-VV-24U/150	DP-VV-24U/300	24
DP-VV-27U/150	DP-VV-27U/300	27
DP-VV-30U/150	DP-VV-30U/300	30
DP-VV-33U/150	DP-VV-33U/300	33
DP-VV-36U/150	DP-VV-36U/300	36
DP-VV-42U/150	DP-VV-42U/300	42
DP-VV-45U/150	DP-VV-45U/300	45
DP-VV-48U/150	DP-VV-48U/300	48

SIDE CABLE GRIDS

These grids are used for managing cables in the sides of rack behind the 19" extrusions.

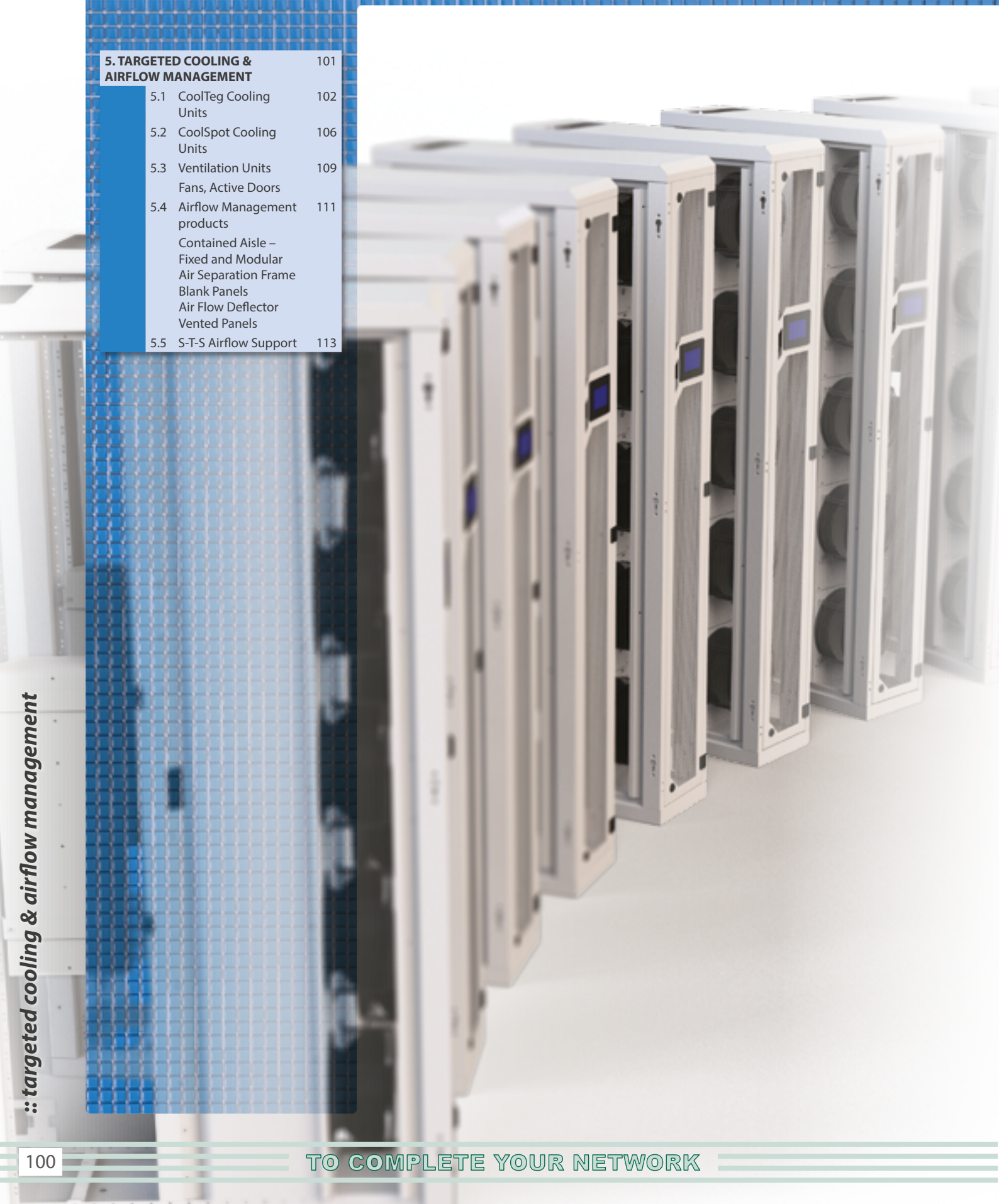
DESCRIPTION:

- Installation possible in racks 600, 800 and 1000 mm deep
- The installation kit is part of delivery
- Cable ties are not part of delivery

HVMS-CH

Code	Dimensions in mm	Used in rack depths in mm
HVMS-CH-400	404×181	600, 800, 1000
HVMS-CH-500	504×181	600, 800, 1000
HVMS-CH-600	604×181	800, 1000
HVMS-CH-700	704×181	800, 1000
HVMS-CH-800	804×181	1000

5. TARGETED COOLING & AIRFLOW MANAGEMENT



TARGETED COOLING CoolTeg & CoolSpot units

CoolTeg units

CoolTeg units are positioned next to server racks and deliver chilled air directly to the cold aisle side. They can to be installed in either closed or open air loop configurations. The open-loop configuration is designed for cooling units that will be deployed inside a row of racks, positioned next to server racks. The closed-loop configuration currently provides the most powerful cooling solution with a cooling capacity of up to 35 kW. Cooling units in a closed-loop configuration are enclosed within the server racks as one unit in order to blow chilled air directly in front of the equipment. CoolTeg cooling units are available as direct expansion (DX or XC) or as a chilled water (CW) version. All CoolTeg units are designed to perfectly match and fit together with Conteg manufactured cabinets to maximize cooling efficiency. Top or bottom piping connections are available as standard on all units. All cooling units are equipped with high-efficiency EC fans as standard.

CoolTeg DX units are connected to Mitsubishi outdoor condensing units which are equipped with an inverter-driven compressor.

CoolTeg XC units have EC compressor placed inside the indoor units. XC units are connected to a remote condenser, which is designed for a high ambient temperature use of up to 53 °C. Both direct expansion units use refrigerant R410A.

CoolTeg CW units use a central chilled water system as a source of chilled media. The CoolTeg CW unit comes equipped with a 3-way valve (option of a 2-way valve) to control its cooling capacity.

CoolSpot units

CoolSpot air conditioning units are ready to maintain the correct environment inside Conteg racks. Despite a fluctuating room environment, CoolSpot keeps a set temperature for IT equipment installed in these cabinets. CoolSpot units require low maintenance and no air filters. Air inside the cabinets is separated from the outside air. These features allow these cabinets to be used in dusty areas such as production lines or assembly halls.

We designed CoolSpot units for two different applications – Top Mount and Wall Mount. Conteg offers two different cooling principles – direct expansion (DX) and chilled water (CW).

CoolSpot DX units include a complete refrigerant circuit with a compressor, evaporator, condenser, and all other necessary components and control systems. This air conditioning unit is designed to deliver a cooling capacity of up to 6 kW for standalone cabinets. CoolSpot DX units are designed as Plug &Play easy-to-use cooling systems that require only a power supply and condensate drainage. The cooling capacity of the air conditioning unit is controlled by an EMB controller with a simply display to keep a set temperature in the cabinet.

CoolSpot CW - our very new product line – was developed for places where heat and noise from a compressor could be disturbing in the room. It must be connected to the building's chilled-water piping system. The cooling capacity of the air conditioning unit (up to 6.7 kW) is controlled by a 2-way valve to keep a set temperature in the cabinet.

TARGETED COOLING UNITS COMPATIBILITY

The installation and operation principles of all cooling systems on offer are different. Cooling units should be connected to Conteg racks according to the recommendations to maintain maximum effectiveness.

PREMIUM RACK SERIES

The PREMIUM rack series is most suitable for Targeted Cooling solutions. The following cooling and ventilation units are fully compatible with all PREMIUM rack series (RDF, RSF).

OPTIMAL RACK SERIES

The ROF rack series has been redesigned to fit with all data center solutions, including Targeted Cooling products. Thanks to this, ROF racks can be used in various projects, using side open-architecture cooling systems and wall mount A/C units. Top-mount A/C units cannot be used with ROF racks.

5.1 CoolTeg COOLING UNITS

CoolTeg equipment represents a family of precision cooling units specifically designed for easy integration between IT racks. These air conditioning units with various cooling principles, sizes and capacities are Conteg´s main product line for effective targeted cooling from the server rooms to large data centers. What is the biggest advantage of CoolTeg units when compared with similar products on today's market? They are built to perfectly match Conteg´s series of server racks. They have the same design, material, color and dimensions. CoolTeg units work in unison with closed or open rack aisles, or they can be integrated within Conteg's Modular Closed Loop. This highly effective cooling will cut your electricity bills.

Why use CoolTeg air conditioning units?

The majority of data centers around the world are still using CRAC (Computer Room Air Conditioner) units for cooling. These type of air conditioning units are typically located around server rooms in a perimeter. CRAC's supply air is diffused below a raised floor and distributed through a series of perforated floor tiles across a server room. Warm return air comes back through the return air grill located on top of the unit.

CoolTeg, a Conteg in-row unit, uses a more modern approach for chilled-air distribution by providing targeted cooling while bringing chilled air directly to a server rack. This reasonably priced method has a very low energy consumption.

What is the difference between CRAC units and CoolTeg air conditioners?

Deliver cold air where needed

The air passage going from CRAC units underneath a raised floor through perforated floor tiles can be very long and can get derailed since there are typically many obstacles located below floor. This type of system cannot guarantee the chilled air will be delivered to the intended location in correct volume. Obstacles may cause a loss in pressure and additional energy will have to be used to push the air through.

To avoid these air passage issues, CoolTeg units collect warm air from the hot zone located on the back side of servers and deliver chilled air to front of servers, eliminating any obstacles. Chilled air is transferred the shortest possible way with minimal energy consumption, lowering overall operational costs.

Easy to plan different power and temperature zones

The configuration of data center rooms can include many rows of IT cabinets. By using CoolTeg cooling equipment, and when a contained aisle arrangement is applied within a data center, each separate aisle can be configured with a different temperature setting. This type of data center configuration better serves IT equipment demand, while reducing the cooling system's power consumption.

What else is there? In one rack row several different heat density zones can be established. There could be more CoolTeg cooling units installed in the high-density zone and fewer CoolTeg units in the low-density zone. All of this data center magic is simply not possible with a standard CRAC system. Only when CoolTeg cooling units are installed, we can improve the overal system performance.

Possibility to enlarge a data center in steps

When using CoolTeg in-row cooling units, you will be able to build a total system solution step-by-step. Your initial server room design can be based on one or two CoolTeg cooling units. Depending on the need for more servers and increased cooling capacity, you can add additional CoolTeg units. Don't waste your money on unnecessary cooling solutions. Only buy what you need.

This is not true when it comes to CRAC units. There is always a minimum airflow and air pressures in the room. A larger CRAC unit with low initial heat is expensive and consumes a large amount of energy even when it's not working at 100% capacity. By investing in a CoolTeg cooling solution, you will have an energy-efficient system when you need it.

It is Conteg's mission to prepare the ideal server room environment based on your current needs. Select Conteg and select long-term satisfaction for all your data center needs.

What is the difference between hot and cold aisle containment?

Cold or hot containments

The actual energy-efficiency measurements show very similar results; however, each system has its own advantages and disadvantages, depending on server room arrangements and how the room is being utilized. When a CRAC system is in place, any kind of hot aisle containment is very difficult to provide. We recommend CoolTeg cooling equipment if you are planning to desing either cold or hot aisle containment. CoolTeg units deliver the ideal cooling solution that will be best suited for your data center. And you will benefit from substantial energy cost savings.

Open or closed architecture

When air is freely circulating inside a serverroom, we are talking about open architecture. In modern server rooms, you will find rows of IT racks with cooling units mounted in-between cabinets.

When closed architecture is being deployed, we typically mean a Modular Closed Loop (MCL) solution. Conteg manufactures custom-made pods with a various number of server racks and cooling units incorporated inside the loop. Conteg will provide closed-loop air conditioning units based on the required cooling capacity and redundancy level for any MCL solution.

Chilled Water (CW) CoolTeg units

CoolTeg CW units are suitable for cooling systems with a chilled water source and theoretically an unlimited cooling capacity. Everything depends on the proper design and implementation of the piping, pumps and chillers. CoolTeg CW are also suitable to be used with free-cooling systems.

The chilled water temperature may be from +4 ° C to virtually unlimited levels. Lower water temperature will improve the cooling performance of CoolTeg units. Higher water temperatures can significantly reduce the cooling system's overall energy consumption. Each unit's cooling capacity can be changed by the water valve position. Changes in the fan speed can help ensure a constant air distribution in the data center. The relative humidity is controlled thanks to the dehumidification mode. An internally mounted steam humidifier is a valuable option, too. Very effective fans with EC technology and speed control are used. CoolTeg CW units provide you with top-quality performance, while at the same time reduce your annual energy consumption levels better than any other air conditioning unit on the market today.

Direct Expansion CoolTeg units with integrated Compressor (XC)

The CoolTeg XC unit is equipped with a compressor inside, and each indoor unit is connected with refrigerant copper piping to the outside condenser. Modern EC-driven compressors and electronic expansion valves are used. EC fans are standard.

The piping system is limited by the distance between the indoor and outdoor units (see detailed technical documentation) and their height differences.

You can design these outdoor units according to your specific project needs (different size, shape, noise level or outdoor temperature limits). The standard ambient temperature is from -25°C up to +53 ° C. When temperatures below -25 ° C are expected, it is recommended that a special Winter Kit accessory be installed.

The cooling capacity of each unit can be changed, according to immediate requirements, by adjusting the compressor or fan speeds or by opening the electronic expansion valve. If necessary, the unit automatically responds by activating the dehumidification mode.

Used in conjunction with the outdoor condensing unit from the Conteg AC-COND series, CoolTeg XC is a highly effective system that comes with ecological refrigerant and is suitable for server rooms with total heat loads of up to 150 kW. When a higher cooling capacity is needed, we can recommend a chilled water system.

Direct Expansion (DX) CoolTeg units

The indoor CoolTeg DX unit with a highly effective evaporator inside must be connected with an outdoor Mitsubishi condensing unit, which will provide the "split" system with copper pipes and ecological refrigerant R410A. The outdoor unit is equipped with frequency controlled compressor, electronic expansion valve and other components. They come in various capacities.

The cooling system design is limited by the distance between the indoor and outdoor units, and their height differences (see detailed technical documentation). Cooling is guaranteed for outdoor temperatures ranging from -15 to +43° C. Used in conjunction with the outdoor Mitsubishi unit, CoolTeg DX is a highly effective system especially suitable for server rooms with a total capacity of roughly up to 100 kW. When a higher cooling capacity is needed, a water system is probably more suitable solution.

The cooling capacity of each unit can be changed, according to individual requirements, by compressor speed, opening the electronic expansion valve or by changing the fan´s speed. If it is necessary to reduce the relative humidity, the dehumidification mode is activated automatically.
CoolTeg DX units give you top-quality performance at reasonable rates and reduce your annual energy consumption.

CoolTeg Plus – Product of the New Generation

In our CoolTeg air conditioning units, we use a combination of the newest component technologies and precision controls based on our experience and feedback from data centers around the world. Fan, heat exchanger and control parts technology is advancing, so we are always modifying our products to make sure our clients have the most up-to-date features.

We have started production of our new generation CoolTeg units featuring energy-saving EC fans and high-efficiency copper-aluminium heat exchangers. Your energy consumption will significantly drop.

The main difference can be seen in the control unit. We use an absolutely new control box and a new 4.3" size graphic touchscreen display with 65 000 colors - 21st century technology. One remote display can be used for all CoolTeg units in one data room – up to 30 units with a maximum distance of 500 m. Also bigger displays (7", 10" or 14") for monitoring of the whole cooling part of a data center are available. Communication through TCP/IP protocol is standard. ModBUS or other protocols are also available, and remote management from any computer connected to the Internet is simply manageable. We can now measure the humidity in both the cold and hot zones.

CoolTeg Plus is a new generation of Targeted Cooling for all projects in modern data centers.

TECHNICAL DATA – CoolTeg Plus UNITS

	Unit	CW30	CW60	DX12	DX20	XC40
Indoor unit type [1]		AC-TCW-42-30...	AC-TCW-42-60...	AC-TDX-42-30...	AC-TDX-42-30...	AC-Sx-XC/B4
Connected outdoor unit [2]		Chilled water system		AC-DX-PUHZ125YHA	AC-DX-PUHZ200YHA	AC-COND1-35
BASIC DATA						
Cooling system	-	Chilled Water		Direct Expansion		
Architecture [3]	-	Open or Closed	Open	Open or Closed	Open or Closed	Open or Closed
Nominal cooling capacity [4]	kW	26	61	12	19	23
Nominal net cooling capacity [5]	kW	25	58	12	18	22
Power supply	V/ph/Hz	230 / 1 / 50	400 / 3 / 50	230 / 1 / 50 [2]	230 / 1 / 50 [2]	400 / 3 / 50
Running current	A	4.2	4.8	1.2	4.2	12.6
Maximum current	A	6	6	6	6	25
Nominal power consumption	W	770	2930	190	770	7600
Nominal airflow [6]	m^3/h	3800	10500	2200	3800	4300
Number of fans	pcs	5	3	5	5	5
Motor fan technology		EC	EC	EC	EC	EC
Water flow (or refrigerant type)	kg/h	3700	8750	R410A	R410A	R410A
Filter class [7]		G4	G4	G4	G4	G4
DIMENSIONS						
Height [8]	mm (U)	1978 (42U), 2111 (45U), 2245 (48U)				
Width	mm	300	600	300	300	400
Depth [9]	mm	1000 or 1200	1000 or 1200	1000 or 1200	1000 or 1200	1200
Weight – depth 1000 mm, height 42/45/48U	kg	163/168/173	248/256/264	163/168/173	163/168/173	-
Weight – depth 1200 mm, height 42/45/48U	kg	173/179/185	260/270/280	173/179/185	173/179/185	355/360/365
PIPING CONNECTION						
Supply pipe diameter and type		1¼" female	1 ½" female	10 mm braze	10 mm braze	16 mm braze
Return pipe diameter and type		1¼" female	1 ½" female	22 mm braze [10]	22 mm braze	22 mm braze

[1] AC-T... units of the New generation - CoolTeg Plus
[2] AC-DX-PUHZ outdoor condensing units require power supply: 400V / 3ph / 50Hz, but one-phase units are also available
[3] CoolTeg units could be used independently in the row of racks, or integrated in Modular Closed Loop (MCL) - closed architecture system of racks and cooling units. Type code is changed according to the key
[4] Cooling capacity is changed by controller. The nominal one is calculated at indoor hot air temperature 35°C without condensation (air humidity below dew-point), chilled water temp. 6/12°C (for CW), outdoor temp. +35°C (for DX and XC), clean filters
[5] Net cooling capacity is the total cooling capacity reduced by the heat loads of the fans. It is the actual cooling capacity of the unit available to IT equipment
[6] Airflow is changed by controller. The nominal one matches the nominal cooling capacity
[7] Units in the Closed Architecture (MCL) are delivered without filters
[8] Without any plinth or transport trolley
[9] Units for the Closed Architecture (MCL) are available only in 1200 mm depth
[10] Piping reduction to 10/16 mm is necessary for connection to the outdoor unit

TECHNICAL DATA – DIRECT EXPANSION OUTDOOR UNITS

BASIC DATA	Unit	AC-DX-PUHZ-P125	AC-DX-PUHZ-P200
Nominal cooling capacity	kW	12	19
Power supply	V/ph/Hz	400 / 3 / 50 [1]	
Running current	A	6.2	9.5
MaxIMUM current	A	13	19
Compressor control		Inverter	
Refrigerant control		Linear expansion valve	
Refrigerant R410A volume	kg	4.5	5.8
DIMENSIONS			
Width	mm	950	
Depth	mm	360	
Hight	mm	1350	
Weight	kg	101	126
CONNECTIONS			
Liquid pipe (diameter)	mm	10	10
Gas pipe (diameter)	mm	16	26
Max. piping length	m	50	70
Max. height difference	m	30	30

[1] AC-DX-PUHZ outdoor condensing unit demands power supply: 400V / 3ph / 50Hz, but also one-phase units are available
Data valid for nominal conditions: Outdoor temperature: 35°C DB, Indoor temperature: 27°C DB, Refrigerant piping length: 7.5 m
Application - outdoor temperature -15 °C to +43 °C

FOLLOW THE STEPS TO SET UP THE DESIRED CoolTeg Plus COOLING UNIT PRODUCT CODE!

AC - 1. - 2. - 3. / 4. - 5. 6. 7.

1 CoolTeg Plus COOLING SYSTEM

Code	Options
TCW	Chilled water
TDX	Direct expansion
TXC	Integrated compressor

2 HEIGHT *

Code	Height in U	External height in mm
42	42	1978
45	45	2111
48	48	2245

** without plinth and transport trolley*

3 WIDTH

Code	Width in mm
30	300
40	400*
60	600**

** only for XC unit*
*** only for CW unit*

4 DEPTH

Code	Depth in mm
100	1000*
120	1200

** not for XC unit*

5 CONNECTION

Code	Options
T	Top
B	Bottom

6 ARCHITECTURE

Code	Options
O	Open architecture
C	Closed architecture - MCL

7 DISPLAY

Code	Options
D	Display on the door
W	Without display

An example of a correct product code

AC-TCW-42-30/120-TOD

5.2 CoolSpot COOLING UNITS

CoolSpot products are small air conditioning units designed for Conteg PREMIUM and OPTIMAL IT racks to provide the desired environment inside the rack. In spite of the fluctuating ambient conditions in the room, CoolSpot keeps a set temperature for IT equipment installed in the cabinet, which should be protected against dust and outside humidity (IP 54). We can offer two different cooling principles – a direct expansion (DX) version with a complete compressor loop inside or a chilled-water (CW) version that connects to the building's cold water piping system. Both cooling versions are produced in two designs for two different applications – Top Mount and Wall Mount.

CoolSpot DX

The Conteg CoolSpot DX unit is a standalone direct expansion solution with a compressor inside, which means that no additional plumbing or piping is required. The condensate is removed, thanks to a condensate dissipater (1.4 kW version and above), and water detection is guaranteed by a triple condensate protection system. This means that the condensation normally associated with air conditioning systems is reduced or eliminated, giving total flexibility for deployment. The special condenser coil design enables perfect operation without any air filter, which reduces maintenance costs.

CoolSpot DX units feature electronic control boards as standard, which allows for superior control of the air conditioner over standard electromechanical types. The electronic control board ensures that the Conteg air conditioning units are running at optimal efficiency and not overcooling the cabinet.

When installing these units into closed areas always make sure that the room has sufficient clearance and adequate ventilation so that environmental operating conditions (up to 55 °C) are not exceeded.

CoolSpot cooling units are easily integrated with the monitoring system RAMOS to provide remote notification about the temperature inside the rack.

COOLSPOT DX TOP MOUNT (AC-TM-xx) delivers exceptional cooling capacity without needing additional floor area required for a rack. The CoolSpot TM solution is available in capacities ranging from 0.9 kW to 5.2 kW to provide required cooling of the rack. The air conditioning unit is delivered with a special rack top-mount plate adapted to perfectly fit the selected size of the CoolSpot unit. These CoolSpot TM cooling units are compatible with the free-standing RSF and RDF rack series.

COOLSPOT DX WALL MOUNT (AC-WM-xx) units are ideally suited for spaces where there is insufficient clearance to install a roof-mount solution.Conteg CoolSpot WM solutions are available with capacities ranging from 1.1 kW to 3.0 kW per one cooling unit. Up to two CoolSpot WM cooling units can be fitted to one rack for desired redundancy and safety. The air-conditioning unit is delivered with a special rack side panel adapted to perfectly fit the selected CoolSpot unit size. These CoolSpot WM cooling units are compatible with the free-standing RSF, RDF and ROF rack series.

The standard warranty period is 12 months. For more information see page 5.

Air flow through the rack – CoolSpot TM

Air flow through the rack – CoolSpot WM

The CoolSpot DX solution can be hooked up to the Conteg's Rack Monitoring System to alert the user in cases of too high temperatures.

CoolSpot CW

Conteg CoolSpot CW units are designed to maintain the right environment inside Conteg cabinets. The inside temperature of a rack equipped with a CoolSpot unit is controlled to ensure a very low energy consumption. The AC-TM-CW series is connected to the chilled-water piping system in the building. The radial fan in the air conditioning unit maintains the correct airflow from the high-capacity water-air heat exchanger into the rack.

The CoolSpot CW can be installed in rooms where people are working since it makes little noise, and there is no heat load coming out of the unit. When installing these units into closed areas, always make sure that the room has sufficient space above or to the side of the cabinet.

The CoolSpot CW includes a 2-way solenoid valve with a gas-loaded mechanical thermostat in return air. Temperature set point can be adjusted from 20 to 46 °C. Cooling control band is 4K. If high condensate level is detected, it closes solenoid valve while fans keep running.

CoolSpot cooling units are easily integrated with the RAMOS monitoring system to provide remote notification about the temperature inside the rack.

CoolSpot Top Mount (AC-TM-CW) units have an exceptional cooling capacity and do not need additional rack floor area. The CoolSpot AC-TM-CW solution is available in nominal cooling capacities, ranging from 2.2 kW to 6.7 kW (cooling capacity depends on the water, air temperature and water flow). Since it is mounted on the roof of the rack, some overhead clearance will be necessary. CoolSpot TM-CW cooling units are compatible with the free-standing RDF and RSF rack series.

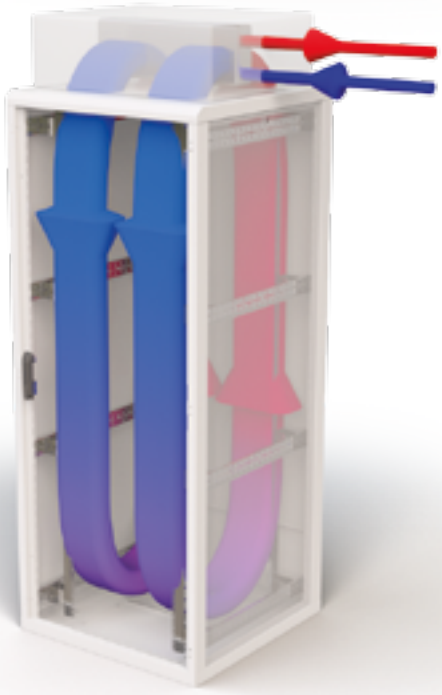
The big advantage of this top-mount model is that it perfectly matches with the Conteg cabinet that's fitted with a separation frame and blanking panels. This arrangement ensures that the cold zone is in the front of the IT components in the rack. The air from the hot zone in the rear part of the cabinet is sucked into the CoolSpot cooler.

The CoolSpot Wall Mount (AC-WM-CW) solution is available in nominal cooling capacities, ranging from 0.9 kW to 6.7 kW (cooling capacity depends on the water, air temperature and water flow). Since CoolSpot AC-WM-CW cooling units are installed instead of one of the rack´s side panels, there is no need for overhead clearance. CoolSpot WM-CW cooling units are compatible with the free-standing RDF, RSF and ROF rack series.

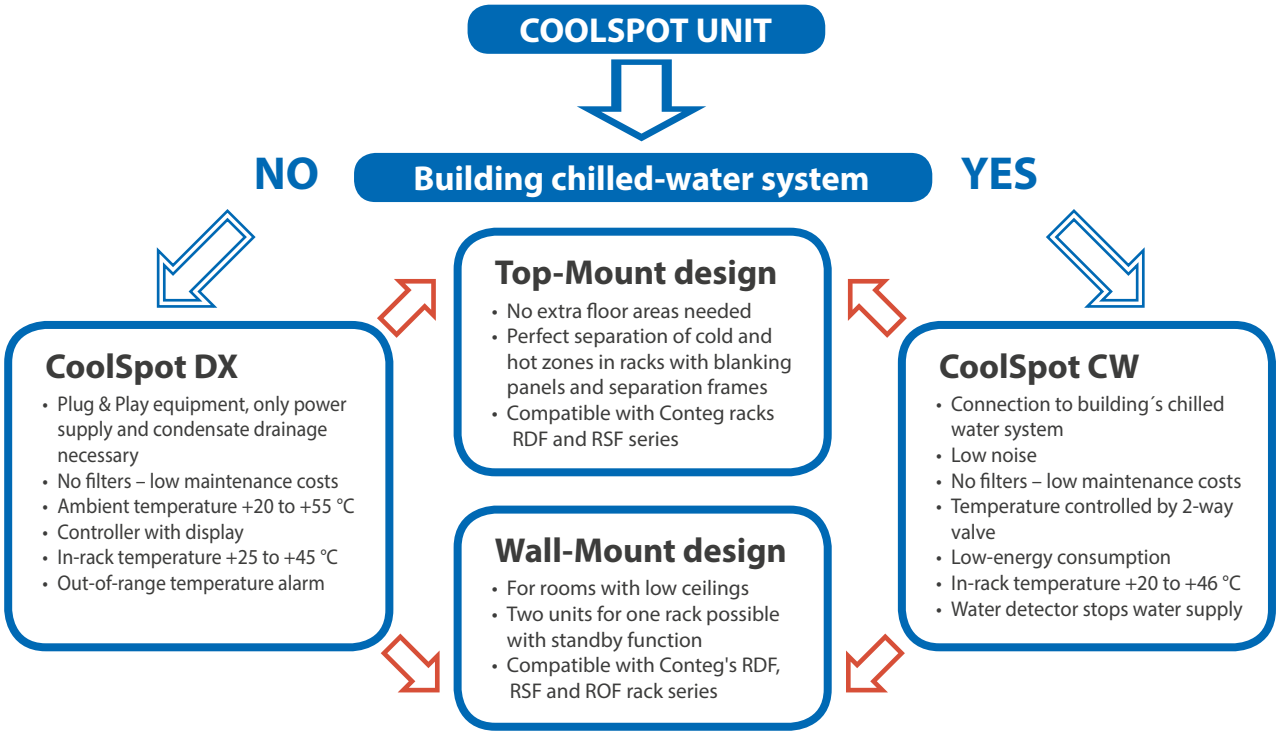
It is recommended for projects where there is insufficient clearance to install a top-mount solution and cold water is present. Hot air is sucked from the top of the rack, and the cold air is delivered to the bottom.The advantage of this wall-mount model is that it makes it possible to connect two CoolSpot AC-WM-CW cooling units to one rack. This way the required redundancy of the cooling source is ensured.

The standard warranty period is 12 months. For more information see page 5.

Air flow through the rack – CoolSpot WM



Air flow through the rack – CoolSpot TM



CoolSpot CW		AC-TM-CW15	AC-TM-CW50	AC-WM-CW06	AC-WM-CW15	AC-WM-CW25	AC-WM-CW50
Cooling capacity (L35W10)	W	2200	6700	870	2200	3100	6700
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
Max. running current	A	0.36	0.95	0.21	0.36	0.38	0.95
Pre-fuse T	A	2	4	2	2	2	4
Absorbed power	W	80	215	35	80	80	215
Airflow in rack	m³/h	575	1450	330	575	860	1450
Water flow	ltr/h	150	860	150	150	500	860
Water connection	"G	½	½	⅜	½	½	½
Water pressure drop	kPa	30	40	2	30	63	40

CoolSpot DX		AC-TM2-10	AC-TM2-14	AC-TM2-20	AC-TM2-28	AC-TM2-41	AC-TM2-60	AC-WM-11	AC-WM-14	AC-WM-20	AC-WM-25	AC-WM-30
Cooling capacity (L35L35)	W	900	1400	2000	2700	3800	5200	1050	1400	2000	2500	3000
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
Max. running current	A	3.2	5.2	5.7	7	9	4.6	2.8	5	5.5	7.1	8.5
Absorbed power	W	630	950	1200	1580	2000	2540	506	939	1160	1478	1950
Airflow in rack	m³/h	575	575	860	860	1450	1720	575	575	860	860	1050

Code	Description	Weight without panel and water (kg)	Dimensions of cooling unit (mm)			Dimension of suitable racks (cm)		
CoolSpot CW TM			Width	Height	Depth	Width	Height	Depth
AC-TM-CW-15	Top Mount CoolSpot, chilled water, 2.2 kW	21	404	200	804	60, 80	all	80, 100, 120
AC-TM-CW-50	Top Mount CoolSpot, chilled water, 6.7 kW	39	509	255	905	60, 80	all	100, 120
CoolSpot CW WM				**Height**	**Depth**	**Width**	**Height**	**Depth**
AC-WM-CW-06	Wall Mount CoolSpot, chilled water, 0.87 kW	9	308	500	150	all	42U	60, 80, 100
AC-WM-CW-15	Wall Mount CoolSpot, chilled water, 2.2 kW	21	400	925	205	all	42U	80, 100
AC-WM-CW-25	Wall Mount CoolSpot, chilled water, 3.1 kW	22	400	925	205	all	42U	80, 100
AC-WM-CW-50	Wall Mount CoolSpot, chilled water, 6.7 kW	39	501	1101	300	all	42U	80, 100
CoolSpot DX TM				**Height**	**Depth**	**Width**	**Height**	**Depth**
AC-TM2-10	Top Mount CoolSpot, direct expansion, 0.9 kW	32	325	350	600	60, 80	all	80
AC-TM2-14	Top Mount CoolSpot, direct expansion, 1.4 kW	48	400	450	600	60, 80	all	80
AC-TM2-20	Top Mount CoolSpot, direct expansion, 2.0 kW	52	400	450	600	60, 80	all	80
AC-TM2-28	Top Mount CoolSpot, direct expansion, 2.7 kW	75	450	480	800	60, 80	all	80, 100, 120
AC-TM2-41	Top Mount CoolSpot, direct expansion, 3.8 kW	77	450	480	800	60, 80	all	80, 100, 120
AC-TM2-60	Top Mount CoolSpot, direct expansion, 5.2 kW	94	600	550	800	60, 80	all	100, 120
CoolSpot DX TM				**Height**	**Depth**	**Width**	**Height**	**Depth**
AC-WM-11	Wall Mount CoolSpot, direct expansion, 1.05 kW	47	1614	402	180	all	42U	60, 80
AC-WM-14	Wall Mount CoolSpot, direct expansion, 1.4 kW	47	1614	402	180	all	42U	60, 80
AC-WM-20	Wall Mount CoolSpot, direct expansion, 2.0 kW	50	1614	402	180	all	42U	60, 80
AC-WM-25	Wall Mount CoolSpot, direct expansion, 2.5 kW	65	1664	492	223	all	42U	80, 100
AC-WM-30	Wall Mount CoolSpot, direct expansion, 3.0 kW	75	1664	492	223	all	42U	80, 100

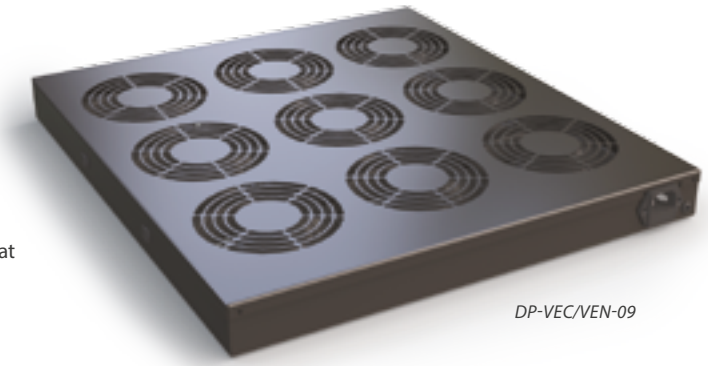
5.3 VENTILATION UNITS

IT components installed in Conteg cabinets need sufficient airflow to help them stay cool and function properly. Sometimes these components cannot cool themselves properly, and we need to help them. When the air in the room is cold and clean enough, it is best to install Conteg's ventilation units. We offer different styles, sizes, types and accessories. To reduce operations costs, we have even developed DP-VEC units with highly efficient EC fans.

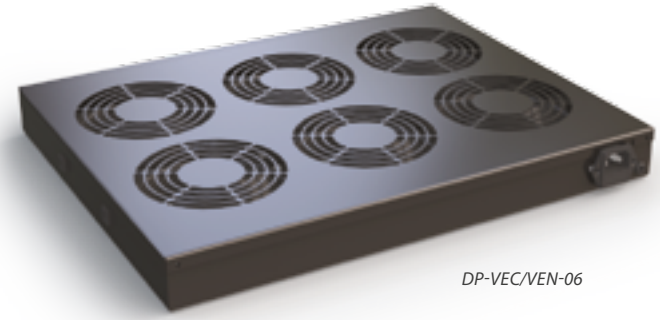
Ventilation Units:
Used to force airflow through a rack to assist with cooling.

DESCRIPTION:

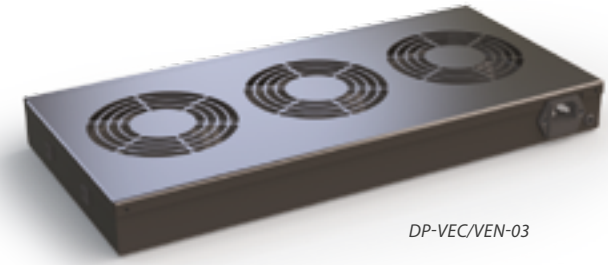
- Two to nine fans
- Possible to install:
  a) in 19" extrusions – horizontally
  b) in top or bottom frame of free-standing rack
  c) in active doors (see the next page)
- Connecting kit for ventilation unit is needed when installing in top or bottom frame
- Temperature range: -10 °C to 55 °C
- Thermostat ranges from 0 °C – 60 °C included; optionally no thermostat
- Voltage range 230 V / 50 Hz (optionally 48 V DC)
- Protection category: to EN 60 529, IP 20
- Color: powder-coated RAL (standard RAL 9005)
- Standard solution with AC fans DP-VEN-xx
- High-end version with the most efficient EC fans DP-VEC-xx



DP-VEC/VEN-09



DP-VEC/VEN-06



DP-VEC/VEN-03

EC TECHNOLOGY:
Efficient, ecological, economical! New high-quality fans from reputable European producer Ebm-papst feature electronically commuted synchronic motors known as "EC motors". The main advantage of this technology is its very low power consumption in comparison to the standard AC motors. For example, the power consumption of our new DP-VEC ventilation unit is seven times lower than the standard DP-VEN, which has equal airflow. On top of this, DP-VEC provides up to 60% more airflow with an equal number of fans and required air pressure in comparison with the standard DP-VEN.

Code	Air flow (m^3/h)	Rated current max. (A)	Power consumption (W)	Annual power consumption [1] (kWh/year)	Possible heat removal [2] (kW)
Standard AC fans		Specific Fan Power (SFP) = 611 W/(m^3/s)			
DP-VEN-02	224	0.180	38	333	0.38
DP-VEN-03	336	0.270	57	499	0.57
DP-VEN-04	448	0.360	76	666	0.76
DP-VEN-05	560	0.450	95	832	0.95
DP-VEN-06	672	0.540	114	999	1.14
DP-VEN-07	784	0.630	133	1165	1.33
DP-VEN-08	896	0.720	152	1332	1.52
DP-VEN-09	1008	0.810	171	1498	1.71
High-end EC fans		**Specific Fan Power (SFP) = 88 W/(m^3/s)**			
DP-VEC-03	540	0.057	13.2	116	0.92
DP-VEC-06	1080	0.114	26.4	231	1.84
DP-VEC-09	1620	0.171	39.6	347	2.75

[1] *for non-stop operation*
[2] *if temperature difference between intake and exhaust air from the rack is Δt=5K*

Type of ventilation unit	Connecting kit for installation in top or bottom frame of free-standing racks			
	600, 800 or 1200 mm depth		1000 mm depth	
	without filter	with filter	without filter	with filter
DP-VEx-02, 03	DP-VER-03	DP-VER-03F	DP-VER-031	DP-VER-031F
DP-VEx-04, 05, 06	DP-VER-06	DP-VER-06F	DP-VER-061	DP-VER-061F
DP-VEx-07, 08, 09	-	-	DP-VER-091	DP-VER-091F

FANS

Used to force airflow through a rack where ventilation unit is not used.

DESCRIPTION:

Two versions
- With thermostat and metal chassis - DP-VEN-01 (for -VC openings)
- Without thermostat and metal chassis - DP-VE-01 (for -VH or -TH openings)

Possible to install
- On side or top of wall-mounting rack. Special perforation needed - ordering code of the wall mounting rack to be extended:
  a) VH for 2×side perforation or –TH for 2×top cover perforation; both for DP-VE-01 only
  b) VC for 2×center-oriented holes for DP-VEN-01
- In top or bottom frame of distribution rack, requires perforated gland plate DP-VE-ROV2 or DP-VE-ROV4

Mounting kit included

DP-VEN-01

ACTIVE DOORS

The active door is designed for mounting up to 3 ventilation units, each with 6 fans (for 600 mm wide racks) and 9 fans (for 800 mm wide racks). Front-mounted active door ensures effective air delivery into the rack. The rear-mounted active door removes heated air from the rack. Active doors can be installed where high-density heat loads are required by augmenting the delivery or extraction of hot air for cooling purposes.

- Perforated sheet metal or vented door
- Preparation for mounting 3 ventilation units
- Multipoint swivel handle lock
- Universal keys
- Color: powdered paint RAL 7035 or RAL 9005

Apply the appropriate codes in positions describing door type/door lock type in the rack ordering matrix:
- JW for sheet steel perforated door, ready for up to 3×6 (3×9) -position ventilation unit, multipoint swivel handle lock, universal key; in this case add DP-VER-06 600 mm rack width) / DP-VER-061 (800 mm rack width)
- KW for vented door, ready for up to 3×6 (3×9)-position ventilation unit, multipoint swivel handle lock, universal key

Ventilation units are not included.
Color: powder-coated RAL (9005) or RAL (7035)

Active doors

5.4. AIRFLOW MANAGEMENT PRODUCTS

The mechanical separation of cold and hot air in data center rooms leads to higher energy efficiency. Thanks to this separation, the right conditions (low temperature) for computers can be kept and optimal conditions (high temperature) for cooling machines is ensured. Power consumption of the air conditioning system will be lower if a proper separation and higher temperature difference between the cold and hot zones will be sustained.

CONTAINED AISLE

If your racks are fully equipped by blanking panels and separation frames, then the contained aisle is the most effecive way to separate the hot and cold zones in the room. The Conteg Contained Aisle solution can be used as both, the contained hot aisle as well as the contained cold aisle arrangement. For the most effective solution, use Conteg IT racks and Fixed Contained Aisle solution. The special Conteg Modular Contained solution can help improve existing data centers that have different rack sizes.

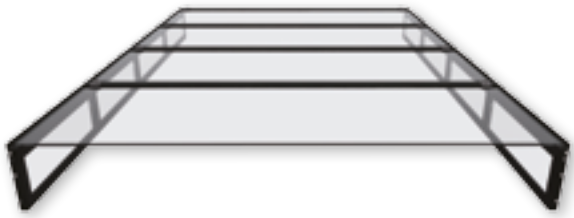
CONTAINED AISLE - FIXED SOLUTION

Door sections

- Sliding doors made from aluminium are equipped with:
  a) A standard mechanical opening system (each door wing is independent) and can be equipped with a dual synchro system
  b) A dual-synchro system (both door wings moving simultaneously) or an automatic system with electronic control
- Double wing doors - standard double wing doors are mechanical, and they can be equipped with an automatic door handle system.
- A blank panel could be used instead of doors to close one side of contained aisle.

Roof

- Solution available for 42, 45, and 48U racks and for 1000, 1200, 1800 and 2400 mm wide aisles
- The roof sections (available in 400, 600, 800, 900 & 1100 mm) are bolted onto the top of racks to prevent mixing of cold air and warm exhaust. The frame is made from 1.5 mm sheet-steel.
- The vertical sections feature a glass insert panel to allow easy access to the top of installed racks while allowing maximum light into the cold aisle.
- The roof panel is made from 6 mm clear polycarbonate panels to allow for the easy integration of fire suppression systems into the cold aisle.



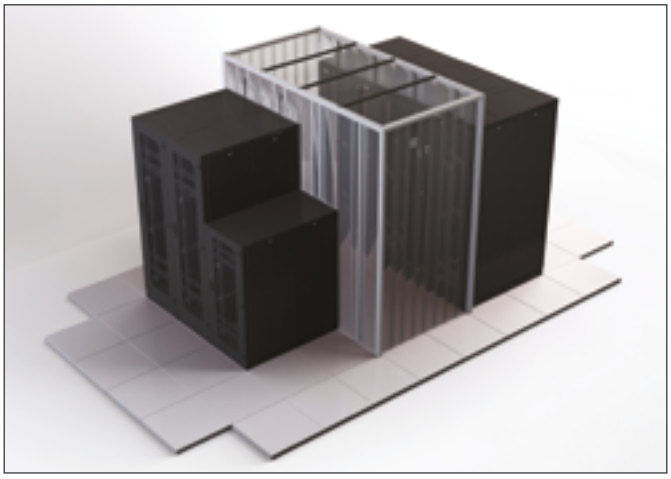
Sliding doors

Double wing doors with automatic door handle

CONTAINED AISLE - MODULAR SOLUTION

The Modular Contained Aisle system is the ideal solution for retrofit projects where row of racks with different heights or even gaps (when some racks are missing) are required. The system is based on a self-supporting design with clear polycarbonate panels on the top of the roof. Vertical side sections of the roof feature PVC foil strips. These strips can be easily cut to the required length. Modular Contained Aisle can work with standard double wing doors (see above) or with PVC foil strips instead of standard doors. This solution is available in heights of 2300 and 2500 mm.

For more information about a specific solution please contact Conteg's presales team, and let us help you prepare your project.



Modular solution - MCA

AIR SEPARATION FRAME

The air separation frame is used to minimize by-pass airflow between racks hot and cold zones. Using an air separation frame in a room feed with plenum return deployment forms a "cool zone" inside the rack between the front door and the equipment mounted on the 19" profiles. It is recommended that the cold zone depth be 150 mm. The separation frame features 6 installation openings with covers so it can be factory pre-installed. Connecting racks (baying) into one row is easily possible at a later stage as well.

Air separation frame - illustrative image

Code	Depth of cold zone in mm	Applicable for ROF/ RDF/RSF	
		H in U	W in mm
DP-ROF-CW-42/60/15 [3]	150	42	600
DP-ROF-CW-42/80/15 [1, 2, 3]	150	42	800
DP-RSF-CW-42/60/15[3]	150	42	600
DP-RSF-CW-42/80/15 [2,3]	150	42	800
DP-RSF-CWA-42/60 [3,5]	variable	42	600
DP-RSF-CWA-42/80 [3,5]	variable	42	800
DP-RxF-CW-48/60/5 [4]	50	42-48	600
DP-RxF-CW-48/80/5 [1,2,4]	50	42-48	800

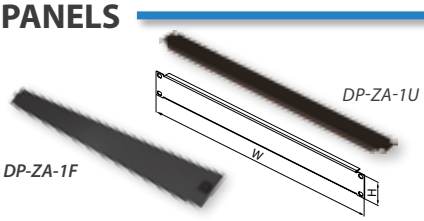
[1] *Can be used for RDF racks*
[2] *Necessary to use C or P extrusions (with blank panels)*
[3] *Height 42U can be replaced by 45 or 48U*
[4] *Can be used for all RSF/ROF racks of any height*
[5] *Can be used with A extrusions of RSF racks*

19" BLANK AND FAST BLANK PANELS

Used to cover empty positions in rack to minimize by-pass airflow, increase energy efficiency and enhance aesthetic appearance.

DESCRIPTION:

- Height: 1, 2, 3, and 5U
- Color: powder-coated RAL (standard RAL 9005)
- **Tool-less solution uses quarter turn fasteners**



*For tool-less design use code with the suffix **F.***

Code	H in U	Width
DP-ZA-1U	1	19"
DP-ZA-2U	2	19"
DP-ZA-3U	3	19"
DP-ZA-5U	5	19"
DP-ZA-1F	1	19"
DP-ZA-2F	2	19"
DP-ZA-3F	3	19"
DP-ZA-5F	5	19"

AIRFLOW DEFLECTOR

The deflector is located in the bottom part of the rack and is used to lead the cold air from the raised floor space directly to the cold zone in front part of a rack. Deflectors are produced for two racks series: RSF/RDF and ROF. The ROF version is produced for 600 or 800 mm wide and can be installed into all ROF family racks of all depths from 600 to 1200 mm. The deflector can be equipped with a louvre, which helps control airflow rates or shut air supply off if no equipment is fitted into the rack. The version for RDF/RSF racks doesn´t use up space on 19" extrusions and can be easily installed instead of the front part of the bottom cover of RDF/RSF racks with widths of 600 or 800 mm.

Code	Used height	D in mm	Aplicable for	W in mm
DP-AFD-ROF-60/80/15	2U	800, 1200	ROF	600
DP-AFD-ROF-60/100/15	2U	1000	ROF	600
DP-AFD-ROF-80/80/15	2U	800, 1200	ROF	800
DP-AFD-ROF-80/100/15	2U	1000	ROF	800
DP-AFD-VF-60	Variable Flow Rate Louvre – 600		ROF	
DP-AFD-VF-80	Variable Flow Rate Louvre – 800		ROF	
DP-AFD-RSF-60/15 *	-		RSF	600
DP-AFD-RSF-80/15 *	-		RSF/RDF	800

Note: Depth of cold zone is 150 mm
** when use with A type extrusions is min depth of cold zone 220 mm*

These accessories for Conteg Premium Racks solve the air separation in room arrangement when the cold air is supplied to the front part of the cabinet and the hot air is dissipated in the rear.

The chimney is designed to lead the hot exhaust air to the suspended ceiling. The chimney is completed with gasket kits to ensure optimum sealing between the rack and the hot plenum. The chimney height is adjustable from 750 to 1360 mm according to your site requirements.

The turning vane is designed to enhance the natural draw effect of the chimney and allow for the passage of cabling. The turning vane requires a minimum 200 mm off-set on the rear extrusions.

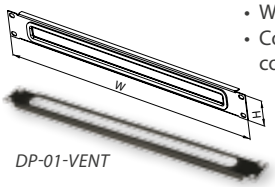
Code	Description
DP-HPR-60/120-B	Kit consists of top plate, chimney, turning vane; designed for RSF-xx-60/120; color light gray (RAL 7035)
DP-HPR-60/120-H	Kit consists of top plate, chimney, turning vane; designed for RSF-xx-60/120; color black (RAL 9005)
DP-HPR-80/120-B	Kit consists of top plate, chimney, turning vane; designed for RDF/RSF-xx-80/120; color light gray (RAL 7035)
DP-HPR-80/120-H	Kit consists of top plate, chimney, turning vane; designed for RDF/RSF-xx-80/120; color black (RAL 9005)

19" VENTED PANEL

Enables front-to-rear cable passage through empty positions in rack.

DESCRIPTION:

- Height: 1U
- Width: 19"
- Color: powder-coated RAL (9005)



DP-01-VENT

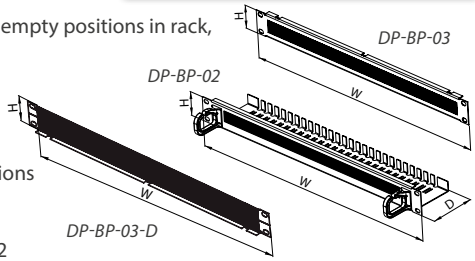
Code	H in U	Width
DP-01-VENT	1	19"

19" VENTED PANEL WITH BRUSH

Enables front-to- rear cable passage through empty positions in rack, while helping to minimize by-pass airflow.

DESCRIPTION:

- Types:
a) with brush at one side DP-BP-04
  - Usable for 2U 19" openings at A type extrusions
b) with brush DP-BP-03
c) with brush, divided - DP-BO-03-D
d) with brush and cable management DP-BP-02
  - Vented panel with brush and cable management has cable management bar on back and two 40x50 mm cable brackets on sides
- Height: 1U
- Color: powder-coated RAL (standard RAL 9005)



Code	H in U	Width	Depth in mm
DP-BP-02	1	19"	85
DP-BP-03	1	19"	--
DP-BP-03-D	1	19"	--
DP-BP-04	1	19"	--

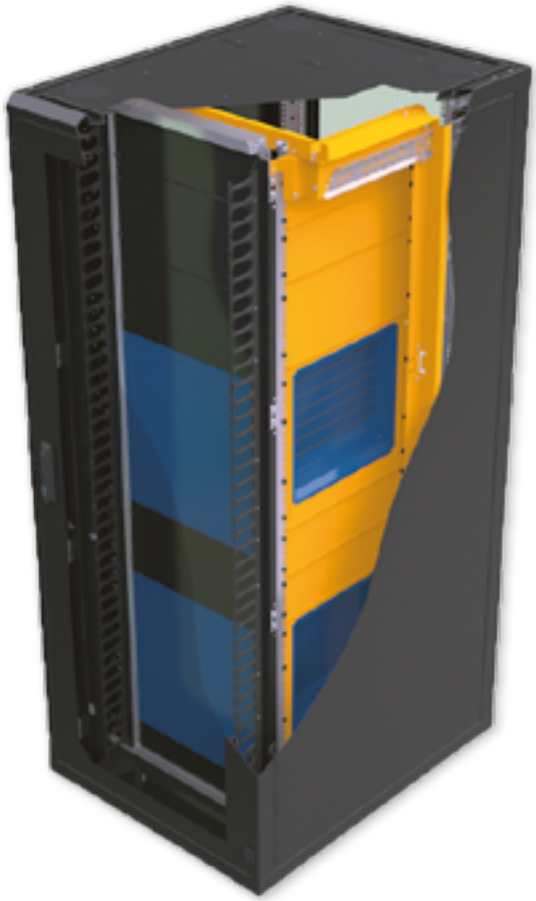
5.5 Side-To-Side airflow solution – STS

The separation of cold and hot air zones is the main tool for improving efficiency in data centers. The goal is to reach perfect hot/cold air separation in each rack. But it is very difficult to reach this air separation in racks with different IT components, as various airflow directions create big problems there. Conteg has a solution for all these possibilities. We can manage the situation with side-to-side air direction components in our racks.

Increasing the computing capacity has a direct impact on the volume of transferred data. Currently there are several high-end network equipment producers on the market who supply products that bring a new challenge to the airflow management area. Typical suppliers of such equipment include Cisco Systems Inc. and Juniper Networks Inc. However, their newly designed high-performance products are not always in compliance with the current industry standard "front-to-back" airflow configuration, where vertical or front to back airflow is being supported. In these new applications, the more efficient "side-to-side" airflow management configuration is desirable. Designing for efficiency is nothing new at Conteg. The company has always led the industry with designs and solutions to meet the ever-changing challenges on today's market:

DESCRIPTION:

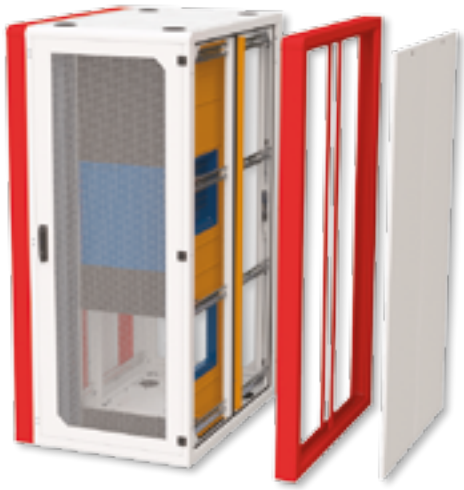
- Width: 800 mm
- Depth: 1000 or 1200 mm
- Front and rear vented doors, 86% perforation, multipoint lock with DIN profile, key 333
- Load rating up to 1000 kg depending on the frame type
- The P-type of extrusion on the left front side, installation of vertical HDWM-VMR-42-12/10F is possible.
- Blank panels for side deflector are included for all positions
- Frame for separation of hot and cold air space
- Clearance between the chassis and side panels is 170 mm
- High Density Wire Management bar on the right front side for effective cable management as standard
- **Enables installation of the network components for specific data Center layouts:**
  - Hot/Cold Aisle
  - Contained Aisle
  - Chimney solution
  - Modular Closed Loop
- **Adaptors need to be ordered separately**
- **Enables combination of several types of the network chassis in one rack**
- **Parts of the network chassis allow cable management only on right side.** It is possible to use HDWM-HM-3F to guide these bundles of cables on opposite sides above and below the chassis into another installed cable manager - HDWM-VMR-42-12/10F.



Code	Product
	Side-to-Side Airflow Support
RSF-42-80/100-WWWWA-SE1	RSF, 42U×800×1000, S-t-S Airflow solution, Size 1
RSF-42-80/120-WWWWA-SE1	RSF, 42U×800×1200, S-t-S Airflow solution, Size 1
RSF-42-80/120-WWWWA-SE2	RSF, 42U×800×1200, S-t-S Airflow solution, Size 2

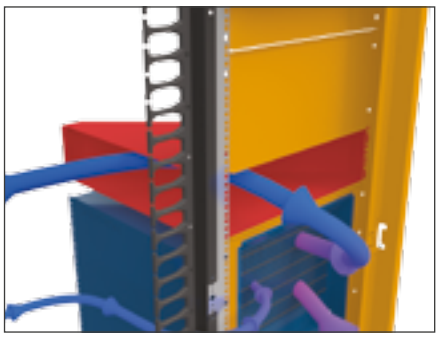
Heights 45 and 48U available upon request

For more information about Side Extension kits visit www.conteg.com



Side Extension kit at 1200 mm depth rack

Example of S-t-S with two Airflow Supporting channels



Detail of S-t-S with two Airflow Supporting channels

6. COMPLEMENTARY SYSTEMS

6.1 RACK MONITORING SYSTEM

RAMOS (Rack Monitoring System) - comes in 3 different versions of graded functionality. Units differ in features and in the quantity of sensors and inputs and outputs. The RAMOS portfolio includes a complete range of accessories for monitoring cabinets, so you are able to fully control the internal and external cabinet environment.
All RAMOS units come with software for configuring IP addresses suitable for your computer network. The web interface also allows you to set all the parameters you wish to monitor through the RAMOS unit. This information can be transmitted in different ways: HTML, XML, SNMP, SMTP. It also supports many NMS applications (LoriotPro, HP OpenView, Nagios, IBM Tivoli, SNMPc, MRTG, etc.).

RAMOS Ultra

RAMOS Ultra is an excellent solution for server rooms and data centers that require more than 8 sensors and up to 500 sensors using expanders. Expanders make it possible to create a wide monitoring network. It is great for any design, where sensors mapping and a GSM gateway are required without external software/applications.

RAMOS Ultra uses a Linux Operating System. It is TCP/IP compliant and runs a Lighttpd web server, including https (SSL), Bash, Perl, Telnet, PHP, email and Nagios. RAMOS Ultra has an easy-to-use web-based user interface for sensor configuration, data collection and extensive graphing. Complete SNMP functions, such as SNMP v3 encryption, are supported. RAMOS Ultra also supports Modbus Master/Slave, Modbus RTU and Modbus over TCP/IP creating a unique, easy to configure Modbus to SNMP gateway. The web-based interface is written in PHP allowing the end-user changes such as language translation. RAMOS Ultra has a battery-backed, time-of-day clock for accurate record keeping.

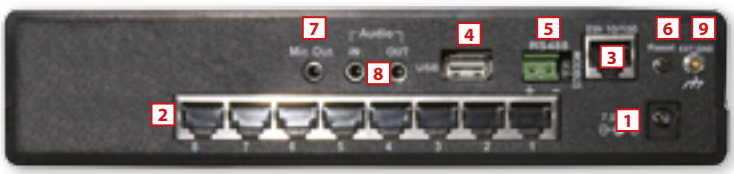
RAMOS Ultra can record all events in its database with a stamp, showing when the sensor alarm was raised and the action that took place. A standalone product with no external software dependencies, RAMOS Ultra gives you the very best for your monitoring needs. It has 8 auto-sense intelligent sensor ports, which work with a wide range of RAMOS intelligent sensors. It can use any combination of sensors to monitor temperature, humidity, water leakage, airflow, security and even control relays. RAMOS sensors can also be used to detect AC voltage and measure DC voltage. Our sensors include an integrated data collection and graphing package to spot trends in the airflow, temperature and humidity.

RAMOS Ultra FEATURES:

- Monitors up to 500 intelligent sensors using expansion modules (RAMOS Ultra-EX-O16 and RAMOS Ultra-EX-I8)
- Each intelligent sensor port can be set to be input or output
- Compatible with complete range of RAMOS Intelligent Sensors
- All RAMOS Ultra accessories are powered by monitoring device
- Built-in notification features – e-mail and SNMP traps
- Receive notifications of anomalous events via email, SMS / MMS, SNMP traps and many more options.
- Integrates with network management systems via SNMPv1 and Encrypted SNMPv3.
- Fully embedded TCP/IP and web server
- Network Management System integration
- Login for user and administrator for better security
- Virtual sensors monitor power, Modbus, network devices, and other SNMP-based equipment
- Built-in graphing and data logging, internally or to a remote PC.
- Sensors/detectors can be added to the uploaded picture/map for better and quick locating.
- The web-based interface is written in PHP, allowing end-user changes, such as language translation.
- Independent platform; free firmware upgrades and utilities from Conteg.
- Internal Linux web-based interface for easy configuration and monitoring
- Battery-backed clock for an accurate system date and time
- Stream sensor information directly to your mobile phone or PDA
- Ability to connect to an external GPRS / GSM modem, Bluetooth and WiFi USB adapters
- Full Modbus support: Modbus Master/Slave, Modbus RTU, Modbus over TCP/IP

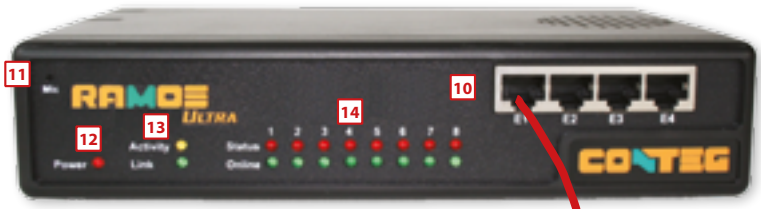
RAMOS ULTRA

RAMOS Ultra - REAR VIEW



1) 7.5 V DC power input
2) 8 Intelligent sensor ports (RJ-45)
3) Standard 10/100 Base-T Ethernet
4) USB port 2.0 for GSM/GPRS, Bluetooth or Wi-Fi adapter
5) Modbus connectivity – RS485
6) Reset button
7) Output from int. microphone
8) Input for ext. microphone and output for ext. speaker
9) External ground

RAMOS Ultra - FRONT VIEW



Max. cable length 300 m

10) 4 expansion ports
11) Internal microphone
12) Power indicating LED
13) Activity/link indicating LED
14)16 LED indicating online status and network activity

Technical information

- Size: 216×138×46 mm
- Voltage: 7 – 9 VDC, 3 A
- Power consumption: 5.025 Watt, 0.67 A
- Weight: 1 kg

FRONT PANEL

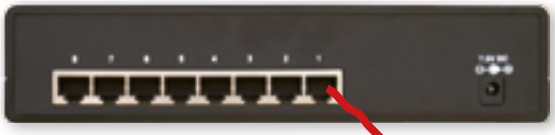
REAR PANEL

RAMOS Ultra-EX-O16 – The RAMOS Ultra Expander-O16 is an expansion board that adds 16 opto-isolated dry contact inputs to the RAMOS Ultra. The EX-O16 can be connected to any of the 4 RJ-45 expansion ports located on the front panel of the RAMOS Ultra unit, using a standard Cat.5 LAN cable. The EX-O16 may also be daisy-chained using the E-Out/E-In ports on other expansion boards. A typical use of the EX-O16 would be to connect the outputs of an alarm panel to each of the 16 dry contact inputs, allowing the RAMOS Ultra's full-fledged, built-in notification system to be integrated into these alarm panels, or other systems that output a voltage. The maximum length of connection cable (LAN Cat.5/6) between an expander and a RAMOS or between expanders is 300 m. Quantities of the expanders are unlimited.

- Size: 216×138×46 mm
- Voltage: 7 – 9 VDC, 3 A
- Power consumption: 6.150 Watt, 0.82 A
- Weight: 0.8 kg

FRONT PANEL

REAR PANEL



RAMOS Ultra-EX-I8 – The RAMOS Ultra Expander-Intelligent port 8 is an expansion board that adds 8 intelligent ports (In/Out) to the RAMOS Ultra. The EX-I8 can be connected to any of the 4 RJ-45 expansion ports located on the front panel of the RAMOS Ultra unit using a standard Cat.5 LAN cable. The EX-I8 may also be daisy-chained using the E-Out/E-In ports on other expansion boards. The maximum length of connection cable (Cat.5/6 LAN) between an expander and a RAMOS or between expanders is 300 m. Quantities of the expanders are unlimited.

- Size: 216×138×46 mm
- Voltage: 7 – 9 VDC, 3 A
- Power consumption: 6.150 Watt, 0.82 A
- Weight: 0.8 kg

TOP VIEW

SIDE VIEW

RAMOS Ultra-EX-D8-8 – The RAMOS Ultra Expander-D8-8 is an expansion board that adds 8 dry contacts (IN/OUT) to one intelligent port (RJ-45) in the RAMOS Ultra or RAMOS Ultra-EX-I8 (up to 64 dry contacts per unit). The EX-D8-8 can be connected to any of the intelligent ports located on the rear side the of devices. Each dry contact can be configured as input or output (up to 20 mA) and the EX-D8-8 is user-definable so it can be used to detect many different inputs such as UPS status, security systems, alarm panels or air conditioning status. The expander is powered by the RAMOS Ultra or RAMOS Ultra-EX-I8. The maximum length of connection cable (Cat.5/6 LAN) for is 300 m.

Rack monitoring system	
Code	**Description**
RAMOS Ultra	Monitoring device RAMOS Ultra; 8 Intelligent ports (In/Out); 4 expansion ports on front panel; Modbus (RS-485); USB 2.0 for connection to GSM, Bluetooth or Wi-Fi adapter; power adapter with power cord; crossover patch cord 1.5 m long cable; 1U high bracket with screws and installation CD
RAMOS Ultra-EX-O16	RAMOS Ultra Expander - add 16 opto-isolated, dry contact inputs; daisy chain connection; power adapter with power cord; 1U tall bracket with screws and 1.5 m LAN cable
RAMOS Ultra-EX-I8	RAMOS Ultra Expander - add 8 intelligent Sensor (In/Out); daisy chain connection; power adapter with power cord; 1U high bracket with screws and 1.5 m LAN cable
RAMOS Ultra-EX-D8-8	Expander for intelligent port - digital adaptor adds 8 dry contacts - via 8×2 pins

RAMOS Optima

RAMOS Optima is a suitable solution for monitoring with up to 8 intelligent sensors (example: with 8 dual sensors [T+H] up to 16 parameters). It is an ideal solution for one or a few racks where less than 8 intelligent ports are required.

The Intelligent Monitoring Solution for your Enterprise Resources RAMOS Optima is a high-speed, accurate and intelligent monitoring device. The RAMOS Optima is a completely embedded host with a proprietary Linux-like operating system, which includes a TCP/IP stack, a built-in web server and full email and SNMP functionality.

RAMOS Optima can record all events in its database with a time stamp, showing when the sensor alarm was raised and the action took place. A standalone product with no external software dependencies, RAMOS Optima gives you the very best for your monitoring needs. It has 8 auto-sense intelligent sensor ports which work with a wide range of RAMOS intelligent sensors. It can use any combination of sensors to monitor temperature, humidity, water leakage, airflow, security and even control relays. RAMOS sensors can also be used to detect AC voltage and measure DC voltage. Our sensors include an integrated data collection and graphing package to spot trends in the airflow, temperature and humidity.

RAMOS Optima FEATURES:

- Supports up to 8 autosense intelligent sensor ports
- Each intelligent sensor port can be set to be input or output
- All RAMOS Optima accessories are powered with a monitoringdevice
- Built-in notification features – email and SNMP traps
- Fully embedded TCP/IP and web server
- Internal Linux web-based interface for easy configuration and monitoring
- Battery-backed clock for an accurate system date and time
- Network Management System integration
- Login for user and administrator for better security

TECHNICAL INFORMATION:

- Size: 216×138×46 mm
- Voltage: 7 – 9 VDC, 1.2 A
- Power consumption: 1.12 W, 0.15 A
- Weight: 0.8 kg

FRONT VIEW

1) Power indicating LED
2) Activity/link indicating LED
3) 16 LEDs indicating online status and network activity

REAR VIEW

4) 8 intelligent sensor ports (RJ-45)
5) Standard 10/100 Base-T Ethernet
6) 7.5 V DC power input

Rack monitoring system	
Code	**Description**
RAMOS Optima	Monitoring device RAMOS Optima [up to 8 Intelligent ports (In/Out)], 1 x temperature sensor with 30 cm long cable, power adapter with power cord, 1.5 m crossover patch cord cable, 1U high bracket with screws and installation CD

RAMOS Ultra & Optima accessories

Intelligent Accessories for RAMOS Ultra & Optima			
Code	**Description**	**RAMOS Ultra**	**RAMOS Optima**
RMS-I-ST	Temperature sensor with 30 cm cable (coupler RJ-45 included) [1]	x	x
RMS-I-STH	One wire temperature and humidity sensor with 30 cm cable (coupler RJ-45 included) [1]	x	x
RMS-I-VC	4-20 mA converter with 1.5 m cable [1]	x	x
RMS-I-AS	Siren & Strobe light with 1.5 m cable [1]	x	x
RMS-I-AF	Airflow sensor with 1.5 m cable [1]	x	x
RMS-I-DE-01	Smoke detector with 1.5 m cable [1]	x	x
RMS-I-DE-02	PIR motion detector with 1.5 m cable [1]	x	x
RMS-I-DE-04	Spot water sensor with 4.5 m cable [2]	x	x
RMS-I-DE-06	Rope water sensor with 3 m long detection cable and 1.5 m connection cable [1]	x	x
RMS-I-MK	Magnetic door contact with 4.5 m cable [2]	x	x
RMS-I-DRC	Dry contact with 4.5 m cable [2]	x	x
RMS-I-PWR-NO	AC sensor-controlled relay normally open (110 V/220 V) [1]	x	x
RMS-U-DST	Daisy-chain temperature sensor with 1.5 m cable [1]	x	-
RMS-U-GSM	USB modem with audio cable (Quad - band)	x	-
RMS-I-CON	Coupler CAT.5 e RJ45-RJ45 for sensor cable extension, pack 10 pcs	x	x

[1] can be extended by LAN cable (Cat.5 e/6)
[2] can be extended by LAN cable (Cat.5 e/6) and coupler with RJ-45 connection

RMS-I-ST
Temperature sensor with 30 cm cable. Semiconductor, microprocessor-controlled temperature sensor, autosense sensor. The cable can be extended up to 300 m (Cat.5/6 LAN)

RMS-I-STH
One wire temperature and humidity sensor with 30 cm long cable. Up to 8 dual sensors can be connected to device with 8 intelligent ports. Humidity range: 0-100%.

RMS-I-VC
4-20 mA converter with attached 1.5 m LAN cable (Cat.5). The converter can collect the analog values from a wide array of sensors.

RMS-I-AS
Siren & Strobe light with attached 1.5 m LAN cable (Cat.5); 100 dB siren sound and flashing strobe at an interval of is 400× per minute. Cable can by extended up to 30 m (cat.5/6 LAN)

RMS-I-AF
Airflow sensor with attached 1.5 m LAN cable (Cat.5). Airflow data graphically displayed over time. On/off alarm signal of airflow.

RMS-I-DE-01
Smoke detector with attached 1.5 m LAN cable (Cat.5). On/Off alarm signal of smoke detector. With 9 V battery as backup, RAMOS will still work as a smoke detector on its own. The smoke detector can also be attached to expander's dry contacts.

RMS-I-DE-02
PIR motion detector with attached 1.5 m LAN cable (Cat.5). Up to 10 motion detector sensors can be connected in a chain on a single port; 60° detection angle.

RMS-I-DE-04
Spot water sensor with 4.5 m cable. Maximum cable extension is 150 m. It is able to detect distilled water.

RMS-I-DE-06
Rope water sensor with 3 m long detection cable and 6 m non-detection cable. Attached 1.5 m LAN cable (Cat.5). Maximum extension cable length is 30 m.
Protects water-sensitive equipment from potential disaster. This product detects battery acid leakage for a short period.

RMS-I-MK
Magnetic door contact with 4.5 m cable. Maximum extension cable length: 300 m. Open/closed contact switch.

RMS-I-DRC
Dry contact with 4.5 m cable. It can be input or output. When used as an output it can supply up to 20 mA. Input voltage range is 0 to 5V. Open/Closed contact switch sensor.

RMS-I-PWR-NO
AC sensor-controlled relay normally open (110V/220V). Attached 1.5 m LAN cable (Cat.5). Maximum LAN cable is 30 m.
Build-in 10 A Fuse. C13 and C14 socket connection. Switch can be controlled by any sensor.

RMS-U-DST
Daisy-chain temperature sensor with attached 1.5 m LAN cable (Cat.5). Up to 8 sensors can by connected to single intelligent sensor port with a 150 m long cable. It can be connected to the RAMOS Ultra main monitoring device only.

RMS-U-GSM
USB modem (Quad- band) with audio cable for connection to RAMOS Ultra.

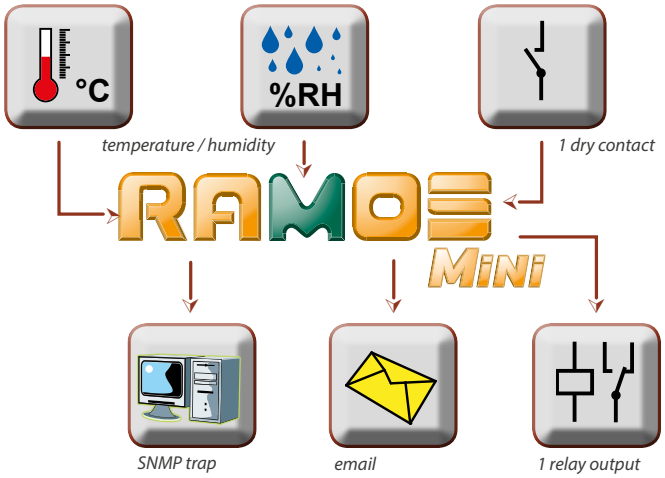
RMS-I-CON
Coupler CAT.5 e RJ45-RJ45 for sensor cable extension, pack 10 pcs

RAMOS Mini

RAMOS (Rack Monitoring System) is designed to be deployed within a rack to monitor its internal and external environment. As a network attached device, RAMOS can report the status of sensors deployed in and around racks to any location "worldwide". By using SNMP traps, it can integrate with any network management software.

RAMOS Mini Features:

- 1 output (relay switch contact)
- 1 dry contact input
- Up to 2 temperature or humidity sensors
- For sensors (up to 10 m) standard phone switches, cables, and RJ11 or RJ12 connectors can be used
- Contact switching can send email or SNMP trap to several recipients
- No specialized SW necessary, simple RAMOS setup utility
- Possibility to connect to every building monitoring system in the industry, IT and networks
- Support and plug-in modules for many NMS applications (LoriotPro, Nagios, SNMPc, HP OpenView, IBM Tivoli, MRTG and others)
- Built-in graphic web interface for configuration and value monitoring
- 1 RAMOS Mini unit can monitor up to 3 external sensors (1 contacts, 2 sensors on a bus)
- 1 RAMOS Mini unit can control 1 output (relay switch contact up to 50 V DC or voltage output for external relay)
- Each sensor has its own unique ID
- Alarm updates over email, SNMP trap, SMS (over SW-3 rd party)
- Two alert ranges per sensor
- Open communication protocols (web, email, SNMP, XML)
- Security: password, IP addresses range
- Graph view available with 255 data points



Code	Sensors	Input	Output
RAMOS Mini	up to 2	1	1

Standard equipment:
1× RAMOS Mini unit; 1× RMS-ST-02; 1× RMS-PW-05; straight and angled holder; first-run installation manual; installation CD (RAMOS Setup)

ACCESSORIES for RAMOS Mini only	
Code	**Description**
RMS-ST-02	1-wire temperature sensor on a 3 m long cable with RJ12 connector
RMS-ST-04	1-wire temperature sensor, rack mounting kit, 3 m long cable, 2× RJ12 connector
RMS-ST-05	1-wire temperature OUTDOOR sensor on a 3 m long cable with RJ12 connector
RMS-SH-02	1-wire humidity sensor, 3 m long cable, RJ12 connector
RMS-STH-02	1 wire temperature and 1 humidity sensors, rack mounting kit, 3 m long cable, 2× RJ12 connector
RMS-DE-01	Optical smoke detector with relay output [1]
RMS-DE-02	PIR motion detector [1]
RMS-DE-04	Flood detector [2]
RMS-DE-05	Broken glass dual detector [1]
RMS-CON-04	Hub for connecting 2 sensors to 1-wire bus
RMS-MK-01	Magnetic contact, fixing bracket (universal mounting) and connection accessories included, VdS G, 2.5 m
RMS-PWR-01	PowerBox, remote switching external devices up to 230 V/10 A, power detection feature
RMS-AS-01	Acoustic siren with LED signalling, 120 dB [1]
RMS-PW-05	Universal power adapter 5 V DC
RMS-PW-12	EU plug power adapter for accessories 12 V DC 0.5 A

[1] require power supply (RMS-PW-12). Doesn't contain connection cable.
[2] require power supply (RMS-PW-12).

6.2 ACCESS CONTROL SYSTEM (ACS)

Most technical and server rooms face a similar challenge. Many of the technical staff require unlimited physical access to the trusted servers and other equipment; each group of staff, however, has different needs, so individual access rights must be defined. Setting up and maintaining these rights can be difficult and time-consuming.

One of the most important considerations is how to provide the best possible level of security and avoid any unauthorized physical access to the housed applications.

The heart of the ACS portfolio is the RMS-ACS-02 system. This system can be installed in standalone or small groups of racks. With the ACS system you will only need a key card or PIN (or both) to open the rack, instead of a key.

Please note, the system does not support central management access rights.

DESCRIPTION:

- Controls access to the cabinet
- 3 operation modes:
  - **Card-Only:** access granted when a valid card is held to the unit
  - **Card & PIN:** access granted when a valid card is held to the unit and a valid PIN is entered
  - **Card or PIN:** access granted when a valid card is held to the unit or a valid PIN is entered
- Up to 5 users access PIN codes
- 4-digit PIN code length
- Key card – EM format
- Combination with electronic door lock (latch) – DP-ZM-1 for front and rear door
- Usable for wall-mount racks – different type of front door required
- Applicable with RAMOS Mini to transmit change-of-door lock status (open door lock via key or proximity card)
- Packed in a box, on request can be pre-installed in the rack (together with electronic door lock), cables need to be installed by customer

Required accessories

The ACS system is designed to be used in conjunction with the DP-ZM-1 electronic lock. It is possible to use 1 or 2 door locks per cabinet. This is not included in the package and must be ordered separately or in the rack configuration. To order the lock(s) in the rack configuration simply insert 1 in the rack part number in positions K and M (locks), e.g. ROF-42-80/80-G1S1A-305-B.

With the RAMOS Mini unit, you can easily monitor the status of doors. The ACS system together with RAMOS accessories will be able to tell you when the door was opened or closed last. For more information on RAMOS units, go to page 120.

Standard equipment:

- Keypad with proxy reader
- Interface box
- 3 access cards (2 access, 1 supervisor)
- Power supply unit
- Cable for keyboard connection to central unit – 4.5 m
- 2 cables for electronic door lock (DP-ZM-1, not included) connection to central unit – 4 m
- Connection cable for other equipment to receive status info from the latch; typically a RAMOS Mini unit – 2 m

Code	Description
RMS-ACS-02	Access control system for rack, includes Prox card reader, 3× key card, keyboard and cables, supplied in separate box
RMS-ACS-02-AS	Access control system for rack, includes Prox card reader, 3× key card, keyboard and cables, pre-installed in rack (keyboard). Cables need to be installed by installer.

Code	Description	Recommendation
DP-ZM-1	Electronic door lock	
RMS-ACS-CARD10	Key card for proxy reader – EM format, 1 bundle includes 10 key cards	
RAMOS Mini	RAMOS Mini, up to 2 sensors (temperature or humidity), 1× IN, 1× OUT, incl. RMS-ST-02, RMS-PW-05, straight and angled holder and installation CD	By using this unit you can monitor and manage door lock in your rack
RMS-MK-01	Magnetic contact for door or side panel	For advanced security – monitoring of access to the rack through the side panels or doors without electronic door lock

6.3 KEYBOARD-VIDEO-MOUSE SOLUTIONS (KVM/LCD)

KVM consoles

Conteg KVM consoles are designed for deployment in server rooms or data centers. The consoles allow direct or remote access to individual servers or their cascades. Using the Conteg console, you will be able to configure and administer servers from all the main manufacturers (IBM, HP, DELL, SUN and others). The Conteg KVM console has an integrated design, where the KVM switch and LCD console, including a keyboard and touchpad, are housed within a compact 1U height.

Two types of KVM: Sxxxx - DB15 - direct cable
Cxxxx - Cat.5 - dongle via twisted pair cable

K-LKD151(171)

LCD holders

LCD holders include high-quality SAMSUNG monitors with a 15", 17" and 19" diagonal. The design of the holder allows the screen to be folded when not in use so that the total height of the console including the LCD monitor does not exceed 1U. The holder includes extrusions designed for easy assembly and for drawing out the KVM/LCD console. A significant advantage of the Conteg KVM/LCD holders is that they are equipped with a full keyboard (including numerical) with 104 keys and optional language localization, including a touchpad.

K-SA-171-S1601P-E

K-SA-171-S801P-E

K-SA-171-C1601P-E

K-SA-171-C3201P-E

K-SA-171-CIP3201P-E

DESCRIPTION:

- PS/2 or USB input into the LCD holder (according to the cabling terminal type)
- Optional language setting of keyboard (USA, GBR, JPN, DEU, FRA, ITA, RUS, ESP, CHN, KOR, DNK, CHE, NOR and European localization of keyboard)
- Keyboard is equipped with a touchpad (with option for trackball)
- Multilingual "on-screen" menu
- Sliding bars with a fixed position to prevent movement during typing
- Easy connection to KVM console
- Standard power supply 230 V; 12, 24 and 48 V options available

LCD DRAWERS ONLY										
Code	H in U	LCD size	Dimensions in mm			Dimensions including packing in mm			Weight in kg	
			W	D	H	W	D	H	Nett	Gross
K-SA-171	1	17"	442	650	44	589	856	168	16	22
K-SA-191	1	19"	442	650	44	589	856	168	17	23
K-LKD-151	1	15"	442	650	44	589	856	168	15	21
K-LKD-171	1	17"	442	650	44	589	856	168	15	21

KVM SETS – LCD DRAWER & KVM SWITCH			
Code [3]	No and type of port	Access over IP	Description
K-SA-171-S801P-E	8× USB/PS2 [1]	No	up to 128 servers by 8-level cascade
K-SA-171-S1601P-E	16× USB/PS2 [1]	No	up to 128 servers by 8-level cascade
K-SA-171-C1601P-E	16× Cat5 [2]	No	up to 256 servers by 8-level cascade
K-SA-171-C3201P-E	32× Cat5 [2]	No	up to 256 servers by 8-level cascade
K-SA-171-CIP3201P-E	32× Cat5 [2]	Yes	up to 256 servers by 8-level cascade

[1] includes 8 KVM cables (additional cables to be ordered separately)
[2] USB, PS/2 dongles or Cat5 cords required for use with this switch (to be ordered separately)
[3] KVM set contains LCD type K-SA-171; this can be replaced by any other LCD solution from table LCD DRAWERS ONLY

LCD holders can be combined with individual KVM consoles from the Conteg portfolio. If you do not find the LCD holder or KVM console you are looking for, do not hesitate to contact us. Many special consoles and holders are not included in the standard offer.

All LCD drawers include a standard English keyboard. All other layouts available on request.

6.4 LOCAL EXTINGUISHING SYSTEM (LES-RACK)

Information is critically important to all of us, and the security of our data needs to be ensured. One of the most dangerous threats to our data systems is fire. LES-RACK ensures that any fires occurring within the rack are dealt with quickly and effectively.

LES-RACK is a self-contained, fully automatic fire detection and protection system. Designed for installation directly into 19" racks with IP30 or higher. It offers a very efficient and effective solution for servers, telecommunication and control racks/cabinets. The LES-RACK-M unit comes with a fully equipped fire detection, control, evaluation, communication and extinguishing system. Larger-sized server racks and adjacent cabinet units may be protected with additional auxiliary LES-RACK-S units that include a fire detection, communication and extinguishing system.

The LES-RACK system extinguishes fires by flooding the protected space with a clean gas and maintains this method until the fire is completely out. The extinguishing unit is formed by metal pressure cylinders filled with and extinguishing mixture (the clean extinguishing agent HFC-236fa Hexafluoropropane in accordance with the Type certificate of Type issued by TUPO – Technical Institute of Fire Protection, Authorized Body 221) and pressured by propelling gas.

To detect a fire, each LES-RACK system is equipped with optical fire detectors, which – in order to eliminate false alarms – are interconnected in double-loop dependency and connected to the evaluation and control unit. The integrated control unit indicates the system's current status and controls and evaluates the extinguishing unit. The LES RACK-M system allows communication with the building's fire alarm control panel (FACP) and reports its status: pre-alarm, alarm and extinguishing.

Standard Parts only warranty is 12 months. For more information see page 5.

"With LES-RACK you have one les(s) thing to worry about!"

Code	Description
LES-RACK-M	Fire detection, control, evaluation, communication and fire extinguishing unit
LES-RACK-S	Detection, communications and fire extinguishing unit

LES-RACK parameter	Value
Unit width	483 mm / 19"
Unit height	105 mm / 2.5U
Unit base depth	382 mm
Total depth of detection extension, according to the depth of protected equipment	max. 750 mm
Weight of the system	15.5 kg ± 3 %
Weight of extinguishing agent	2 kg
Classification of environmental conditions, according to EN 60721-3-3	3 k5
Environment class	A
Operating temperature range	-5 °C to 50 °C
Relative humidity of air	95 % non-condensing
Atmospheric pressure	70 to 106 kPa
Operating position	Horizontal – upper most position
Operation type	permanent
Operating pressure at 20° C	10 bar
Maximum operating pressure	16 bar
Shielding, according to ČSN EN 55022	class B device
Electrical input power	max. 40 VA
Protection rating	IP30
Shielding class (non-interference)	RO2
Supply voltage of main source	230 V ± 15 %
Supply frequency of main source	50 Hz
Maximum current supplied by main source	1.25 A
Standby current	210 mA
Current consumption during pre-alarm	300 mA
Current consumption during alarm	2 A
Max. current consumed by outputs in standby	40 mA
Max. current consumed by outputs during alarm	0.5 A
Max. output voltage on terminal X32 (batt. recharge)	13.7 V
Max. current from terminal X32 (batt. recharge)	200 mA
Backup power source (150×94×65 mm)	12 V / 7.2 Ah
Maximum volume of protected cabinet (perforated - min. IP30)	1.5 m^2
Maximum volume of protected cabinet (clossed)	3 m^2

6.5 INTELLIGENT & BASIC POWER DISTRIBUTION UNITS

The Conteg Intelligent & Basic Power product range comprises three different technologies to address the needs of the high-density computing user. The range comprises power strips which feature either no intelligence (Basic), the ability to remotely monitor current draw per strip using Ethernet and IP (Monitored range) or the ability to fully manage power strips and groups of power strips across the network (Managed range). Conteg Intelligent & Basic Power offers a combination of outlets, including national outlet styles combined with industrial outlets, high-amperage inputs and both 1-phase and 3-phase powered models. Standard 1-phase input plug styles include the EN60309 16 A and 32 A type or the IEC-C20 or Schuko/UTE, which are also rated for 16 A operation. The standard 3-phase input plug is EN60309 3×16 A.

Basic PDU with DP-RP-VM-02

Managed PDU

Monitored PDU

Monitored PDU

BASIC POWER

These Basic Power Distribution Units are designed for standard applications without the above standard safety or operational requirements. These models provide reliable power to the cabinet for a standard environment.

DESCRIPTION:

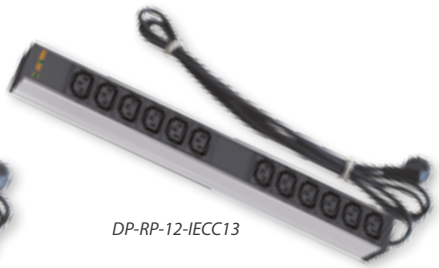
- Types:
  a) 19" mounting
  b) 10" mounting
  c) free-standing
  d) vertical
- Outlet types: UTE, SCHUKO, UK, IEC320 C13, IEC320 C19
- Other outlet types in combination with surge protection and ammeter also available
- Power output:
  - SCHUKO, UTE, IEC320 C19: 16 A, 250 V
  - UK: 13 A, 250 V
  - IEC320 C13: 10 A, 250 V
- Power input:
  - all types with 3 m power cord
  - UK plug for PDU with UK outlets
  - Schuko/UTE plug for all other PDUs

BASIC POWER DISTRIBUTION UNITS – FOR STANDARD ENVIRONMENT						
Code	Mounting	H in U	Outlet type	Qty	Over voltage protection	Switch
DP-RP-02-UK	10"	1	UK	2	No	No
DP-RP-03-UTE	10"	1	UTE	3	No	No
DP-RP-03-SCHU	10"	1	SCHUKO	3	No	No
DP-RP-06-UTESP [1*]	19"	2	UTE	6	Yes	Yes
DP-RP-06-SCHUSP [1*]	19"	2	SCHUKO	6	Yes	Yes
DP-RP-06-UTESP-F	free	-	UTE	6	Yes	Yes
DP-RP-06-SCHUSP-F	free	-	SCHUKO	6	Yes	Yes
DP-RP-06-UKS [1]	19"	1	UK	6	No	Yes
DP-RP-07-UK [1]	19"	1	UK	7	No	No
DP-RP-08-UTES [1]	19"	1	UTE	8	No	Yes
DP-RP-08-SCHUS [1]	19"	1	SCHUKO	8	No	Yes
DP-RP-09-UTE [1]	19"	1	UTE	9	No	No
DP-RP-09-SCHU [1]	19"	1	SCHUKO	9	No	No
DP-RP-09-IECC19 [1]	19"	1	IEC320 C19	9	No	No
DP-RP-12-IECC13 [1]	19"	1	IEC320 C13	12	No	No
DP-RP-20-IECC19 [2]	vertical	-	IEC320 C19	20	No	No
DP-RP-20-IECC13 [2]	vertical	-	IEC320 C13	20	No	No
DP-RP-20-SCHUV [2]	vertical	-	SCHUKO	20	No	No
DP-RP-20-UTEV [2]	vertical	-	UTE	20	No	No

[*] panels contain HF filter
[1] for vertical installation use DP-RP-VM-01
[2] for vertical installation use DP-RP-VM-02, see above picture "Basic PDU with DP-RP-VM-02"

DP-RP-09-UTE

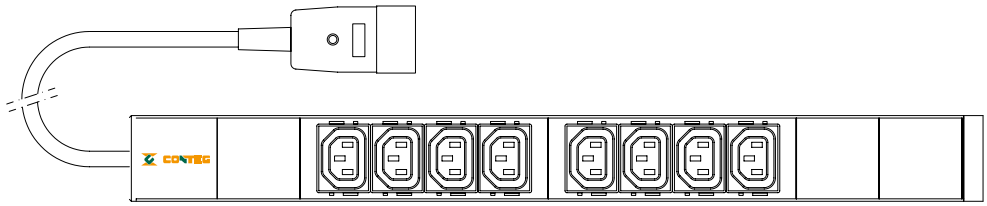
DP-RP-09-SCHU



DP-RP-12-IECC13

These Basic Power Distribution Units are designed for high-density, mission-critical server applications. These models provide reliable power to the cabinet for both standard and blade server environments.

Basic PDU



BASIC POWER DISTRIBUTION UNITS – FOR STANDARD AND BLADE SERVER ENVIRONMENTS											
Code	Input plug	Length	Type 1 outlet	Qty	Type 2 outlet	Qty	Rating	Mounting	Dimensions in mm		
									H	W	D
IP-BA-308UK8C916	EN 60309	3 m	UK	8	C19	8	16 A	0U	860	44	44
IP-BA-312UK8C316	EN 60309	3 m	UK	12	C13	8	16 A	0U	985	44	44
IP-BA-308SH8C916	EN 60309	3 m	SCHUKO	8	C19	8	16 A	0U	722	44	44
IP-BA-312SH8C316	EN 60309	3 m	SCHUKO	12	C13	8	16 A	0U	777	44	44
IP-BA-308UT8C916	EN 60309	3 m	UTE	8	C19	8	16 A	0U	780	44	44
IP-BA-312UT8C316	EN 60309	3 m	UTE	12	C13	8	16 A	0U	865	44	44
IP-BA-320C34C916	EN 60309	3 m	C13	20	C19	4	16 A	0U	908	44	44
IP-BA-C20C34C916	C20	3 m	C13	20	C19	4	16 A	0U	908	44	44
IP-BA-C08C300016	C20	3 m	C13	8	None	0	16 A	1U	439	44	44
IP-BA-320C34C932	EN 60309	3 m	C13	20	C19	4	32 A	0U	1038	44	44
IP-BA-306C900011	EN 60309	3 m	C19*	6	None	0	3× 16 A	1U	439	44	44
IP-BA-306SH00011	EN 60309	3 m	SCHUKO	6	None	0	3× 16 A	1U	439	44	44
IP-BA-306UT00011	EN 60309	3 m	UTE	6	None	0	3× 16 A	1U	439	44	44
IP-BA-306C900022	EN 60309	3 m	C19*	6	None	0	3× 32 A	1U	439	44	145

** C19 sockets with lock mechanism (IEC lock)*

INTELLIGENT POWER MONITORED

Strips feature a local easy-to-read ammeter on the outlet strip along with the ability to monitor the current draw of outlets remotely over an Ethernet connection. The user can aggregate the information from thousands of Intelligent Power Strips in one location. Designed for high-density, mission-critical server applications, the Conteg Monitored power strips provide reliable power to the cabinet for both standard and blade server environments.

The enhanced version of the monitored strip also offers voltage and frequency metering. Hence the PDU is able to report the power factor, active and apparent power and main energy consumed in kWh. A calculation of carbon emission data (CO_2 footprint) and the price estimation of consumed energy is also made.

monitored PDU

INTELLIGENT POWER DISTRIBUTION UNITS – MONITORED											
Code	Input plug	Length	Type 1 outlet	Qty	Type 2 outlet	Qty	Rating	Mounting	Dimensions in mm		
									H	W	D
IP-DMI-008C300016	C20	x [1]	C13	8	x	x	16 A	1U	432	44	90
IP-DMI-021C33C916	C20	x [1]	C13	21	C19	3	16 A	0U	1645	44	56
IP-DMI-314C32C932	EN 60309	3 m	C13	14	C19	2	32 A	0U	1245	44	56
IP-DMI-321C33C932	EN 60309	3 m	C13	21	C19	3	32 A	0U	1645	44	56
IP-DMI-321C33C911	EN 60309	3 m	C13	21	C19	3	3× 16 A	0U	1778	44	56
IP-DMI-318C36C922	EN 60309	3 m	C13	18	C19	6	3× 32 A	0U	1778	44	56
INTELLIGENT POWER DISTRIBUTION UNITS - ENHANCED MONITORED (kWh)											
IP-DEI-008C300016	C20	x [1]	C13	8	x	x	16 A	1U	432	44	90
IP-DEI-321C33C932	EN 60309	3 m	C13	21	C19	3	32 A	0U	1645	44	56

[1] *INPUT power cords for these models must be ordered separately (see table page 127)*

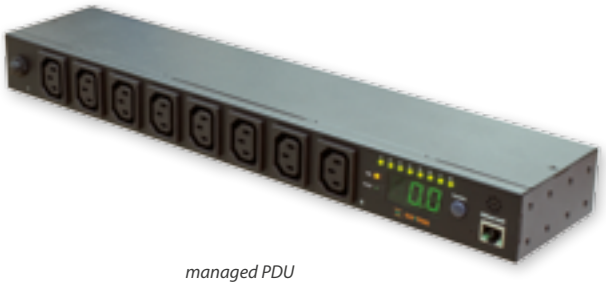
INTELLIGENT POWER MANAGED

Strips represent the leading edge in functionality available in a power strip. Employing a server-grade microprocessor, this product has unprecedented management and monitoring capabilities available through the built in web-server and firewall.

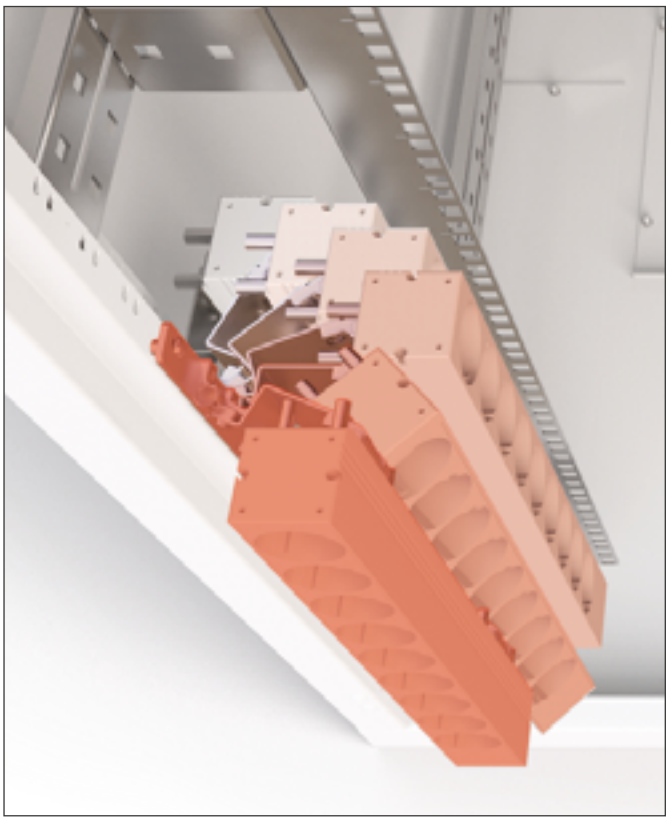
- Switch individual outlets on or off to enable remote reboot of servers
- Virtual grouping of outlets for single-click reboot of multi-corded servers
- Single-click control of entire racks or non-critical loads
- Current monitoring per outlet (POM)
- User-definable sequencing of outlets for reboot

Designed for high-density, mission-critical server applications, the Conteg Managed power strips provide reliable power to the cabinet in both standard and blade-server environments.

The enhanced version of the managed strip also offers voltage and frequency metering. Hence the PDU is able to report the power factor, active and apparent power and main energy consumed in kWh. A calculation of carbon emission data (CO_2 footprint) and the price estimation of consumed energy is also made.



managed PDU



Possible position settings PDU with DP-RP-VM-06

INTELLIGENT POWER DISTRIBUTION UNITS – MANAGED (MONITORED PER OUTLET)											
Code	Input plug	Length	Type 1 outlet	Qty	Type 2 outlet	Qty	Rating	Mounting	Dimensions in mm		
									H	W	D
IP-DMA-008C3POM16 [2]	C20	x [1]	C13	8	x	x	16 A	1U	432	44	90
IP-DMA-308C9POM32	EN 60309	3 m	C19	8	x	x	32 A	1U	432	44	90
INTELLIGENT POWER DISTRIBUTION UNITS - ENHANCED MONITORED (kWh)											
IP-DEA-308C9POM32	EN 60309	3 m	C19	8	x	x	32 A	1U	432	44	90

[1] INPUT power cords for these models must be ordered separately (see below)
[2] "POM" stands for "per-outlet-monitored" i.e. each outlet is metered separately

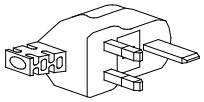
INTELLIGENT POWER DISTRIBUTION UNITS – MANAGED (MONITORED PER STRIP)											
Code	Input plug	Length	Type 1 outlet	Qty	Type 2 outlet	Qty	Rating	Mounting	Dimensions in mm		
									H	W	D
IP-DMA-008C300016	C20	x [1]	C13	8	x	x	16 A	1U	432	44	90
IP-DMA-021C33C916	C20	x [1]	C13	21	C19	3	16 A	0U	1778	44	56
IP-DMA-314C32C932	EN 60309	3 m	C13	14	C19	2	32 A	0U	1245	44	56
IP-DMA-321C33C932	EN 60309	3 m	C13	21	C19	3	32 A	0U	1778	44	56
IP-DMA-318C36C911	EN 60309	3 m	C13	18	C19	3	3x 16 A	0U	1778	44	56
IP-DMA-318C36C922	EN 60309	3 m	C13	18	C19	3	3x 32 A	0U	1778	44	56
INTELLIGENT POWER DISTRIBUTION UNITS - ENHANCED MANAGED (kWh)											
IP-DEA-008C300016	C20	x [1]	C13	8	x	x	16 A	1U	432	44	90
IP-DEA-314C32C932	EN 60309	3 m	C13	14	C19	2	32 A	0U	1245	44	56

[1] INPUT power cords for these models must be ordered separately

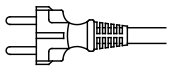
Brackets for PDU	
Code	Options
DP-RP-VM-01	Brackets for mounting vertical 19" power distribution unit into PREMIUM/OPTIMAL frame
DP-RP-VM-02	Brackets for mounting vertical power distribution unit DP-RP-20-xx into PREMIUM/OPTIMAL frame
DP-RP-VM-06	Swivel brackets for mounting vertical PDU DP-RP-xx and IP-xxx into PREMIUM/OPTIMAL frame, set for 1 PDU

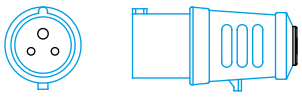
OUTLET AND PLUG TYPES:


UK

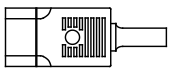

UK (BS 1363)


SCHUKO


SCHUKO – GERMAN

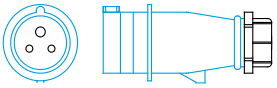

EN60309 16A 1PH


IEC320 C13

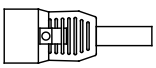

IEC320 C14

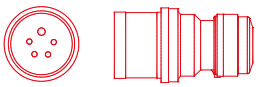

UTE

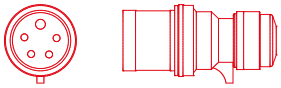

UTE – FRENCH


EN60309 32A 1PH


IEC320 C19


IEC320 C20


EN60309 16A 3PH


EN60309 32A 3PH

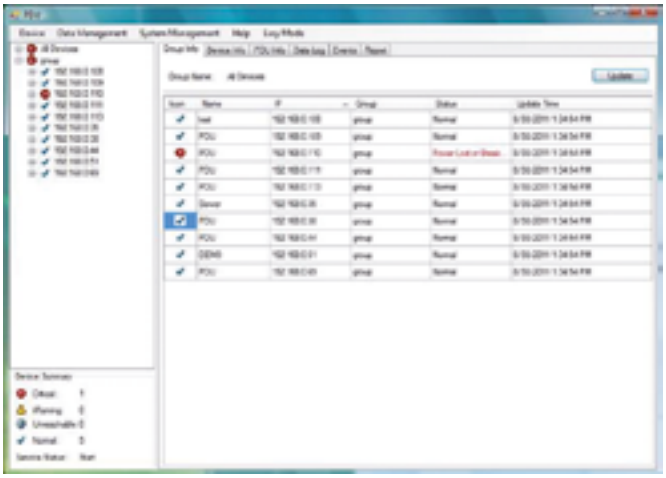
INPUT POWER CORDS FOR INTELLIGENT PDUs		
Code	**In-out type**	**Length**
IP-C-C9SH25	IEC 320 C19 to Schuko (plug)	2.5 m
IP-C-C93025	IEC 320 C19 to EN 60309 (1×16 A)	2.5 m
IP-C-C9C225	IEC 320 C19 to IEC 320 C20	2.5 m

Note: Compatible with IP-DMI and IP-DMA

OUTPUT POWER CORDS FOR INTELLIGENT PDUs		
Code	**In-out type**	**Length**
IP-C-C9C218	IEC 320 C19 to IEC 320 C20	1.8 m
IP-C-C3C405	IEC 320 C13 to IEC 320 C14	0.5 m
IP-C-C3C410	IEC 320 C13 to IEC 320 C14	1.0 m
IP-C-C3C418	IEC 320 C13 to IEC 320 C14	1.8 m

Note: Compatible with IP-DMI and IP-DMA

Dashboard screenshot of enhanced managed PDU:



HOW TO READ PRODUCT CODE FOR INTELLIGENT POWER UNITS

Traditional basic PDUs, which are still produced and delivered, have part numbers starting with code DP-RP-xx. Conteg´s PDU part numbers for Intelligent and Basic power strips are set up in accordance with the following matrix.

IP	-	1.	-	2.	3.	4.	5.	6.	7.

1 POWER STRIP TECHNOLOGY

Code	Options
BA	Basic
DMI	Monitored (over IP)
DMA	Managed
DEI	Enhanced Monitored
DEA	Enhanced Managed

2 INPUT PLUG TYPE (on the input power cord)

Code	Options
0	no cable, Inlet C20 only
C	IEC C20
3	EN 60309

3 NUMBER OF OUTLET TYPE 1

4 TYPE OF OUTLET TYPE 1

Code	Options
UK	UK
SH	Schuko
UT	UTE (French)
C3	C13
C9	C19

5 NUMBER OF OUTLET TYPE 2

6 TYPE OF OUTLET TYPE 2

Code	Options
C3	C13
C9	C19

7 RATING OF STRIP

Code	Options
16	16 Amps
32	32 Amps
11	11 kW (3×16 A)
22	22 kW (3×32 A)

An example of a correct product code

IP-DMI-321C33C911*

** IP-DMI-321C33C911 indicates a Monitored Power Strip with plug EN 60309, 21×C13 and 3×C19 outlets with 3×16 Ampere rating (11kW).*

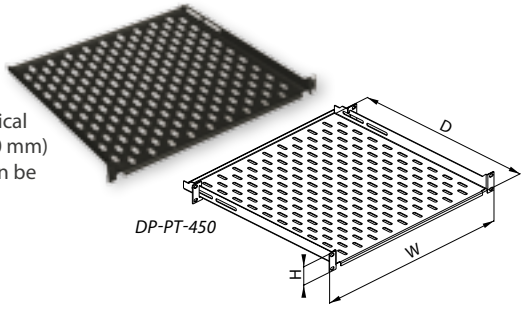
7. ACCESSORIES

7.1 SHELVING

19" FIXED LITE SHELVES SERIES DP-PT

- Made of 1.5 mm sheet steel
- Supporting brackets included
- Load rating max. 20 kg balanced load; maximum load rating decreased to 25% when mounted only on front pair of vertical extrusions (shelf depth 150, 250, and 350 mm)
- Longer supporting bracket DP-PO-PD can be used

See the table "Supporting brackets" below



Code	W	D in mm	H in U	min-max dist.[1]	max. dist.[2]
DP-PT-150	19"	150	1	75-121	370
DP-PT-250	19"	250	1	125-221	470
DP-PT-350	19"	350	1	175-321	570
DP-PT-450	19"	450	1	225-421	670
DP-PT-550	19"	550	1	275-521	770
DP-PT-650	19"	650	1	325-621	870
DP-PT-750	19"	750	1	375-721	970
DP-PT-850	19"	850	1	425-821	1070

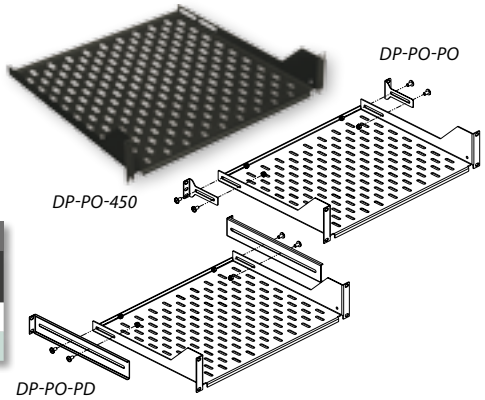
[1] *between standard front and rear brackets in mm*
[2] *between front and rear brackets with – DP-PO-PD*

19" FIXED SHELVES SERIES DP-PO

- Made of 2 mm sheet steel
- Possibility of adding supporting brackets
- Load rating max. 60 kg balanced load (when supporting brackets used – ordered separately); load rating decreased to 25% when mounted only on front pair of vertical extrusions – shelf depth 150, 250, and 350 mm

SUPPORTING BRACKETS				
Code	Type	Packing	Length in mm	H in U
DP-PO-PO	Standard	1 PAIR	88	1
DP-PO-PD*	Extended	1 PAIR	298	1

** Compatible with DP-PO-xxx, DP-PT-xxx*

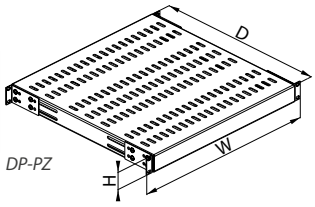


Code	H in U	W	D in mm	min-max dist.[1]	max. dist.[2]
DP-PO-150	1	19"	150	75-180	385
DP-PO-250	1	19"	250	125-265	470
DP-PO-350	2	19"	350	230-380	585
DP-PO-450	2	19"	450	260-480	685
DP-PO-550	2	19"	550	360-580	785
DP-PO-650	2	19"	650	460-680	885
DP-PO-750	2	19"	750	560-780	985
DP-PO-850	2	19"	850	660-880	1085

[1] *between standard front and rear brackets in mm*
[2] *between front and rear brackets with – DP-PO-PD*

19" FIXED HIGH-LOAD SHELVES SERIES DP-PZ

- Made of 2 mm sheet steel, strengthened by two metal bars
- Four supporting brackets for mounting on vertical extrusions included
- Load rating max. 100 kg balanced load

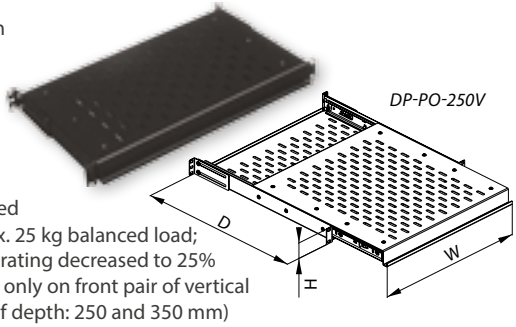


Code	H in U	W	D in mm	min-max distance[1]
DP-PZ-450	1	19"	450	113-463
DP-PZ-550	1	19"	550	213-563
DP-PZ-650	1	19"	650	313-663
DP-PZ-750	1	19"	750	413-763
DP-PZ-850	1	19"	850	513-863

[1] *between standard front and rear brackets in mm*

19" PULL-OUT SHELVES SERIES DP-PO-V

- Made of 1.5 mm sheet steel
- Height: 1U
- Equipped with one pair of side telescopic rails
- Supporting brackets included
- Load rating max. 25 kg balanced load; maximum load rating decreased to 25% when mounted only on front pair of vertical extrusions (shelf depth: 250 and 350 mm)

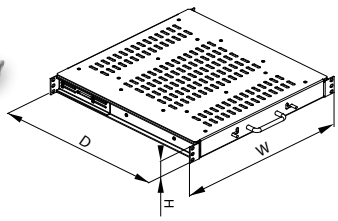


Code	H in U	W	D in mm	min-max dist.[1]	Drawout part max.	
DP-PO-250V	1	19"	250	155-370	DP-PO-250 V	160 mm
DP-PO-350V	1	19"	350	255-470	DP-PO-350 V	260 mm
DP-PO-450V	1	19"	450	355-570	DP-PO-450 V	325 mm
DP-PO-550V	1	19"	550	455-670	DP-PO-550 V	410 mm
DP-PO-650V	1	19"	650	555-770	DP-PO-650 V	485 mm
DP-PO-750V	1	19"	750	655-870	DP-PO-750 V	520 mm

[1] *between standard front and rear brackets in mm*

19" PULL-OUT HIGH LOAD SHELVES SERIES DP-PZ-V

- Made of 2 mm and 2.5 mm sheet steel
- Height: 1U
- Max. pull-out 450 mm
- Load rating max. 80 kg balanced load

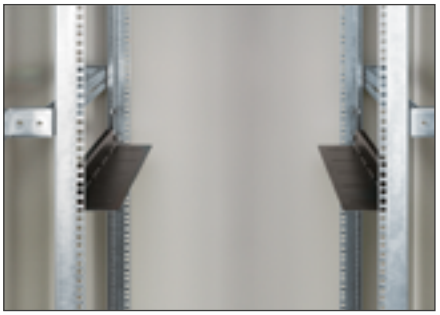


Code	H in U	W	D in mm	min-max distance[1]
DP-PZ-450V	1	19"	505	296-507
DP-PZ-550V	1	19"	605	406-607

[1] *between standard front and rear brackets in mm*

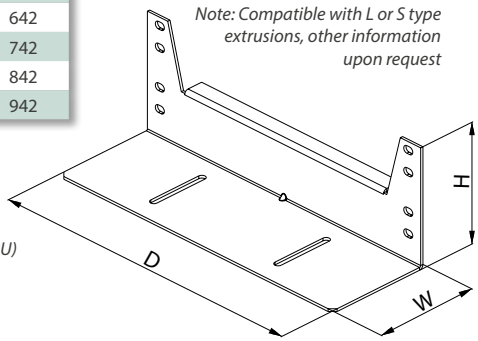
SUPPORTING RAILS

- Made of 2 mm sheet steel
- Mounting on side holes of vertical extrusions with mounting kits DP-MO-01 (not included)
- Color: powder-coated RAL (standard RAL 9005)
- Space between rails provides effective cooling of installed active devices
- Load rating max. 50 kg balanced load



SUPPORTING RAILS		
Code	Distance between front and rear vertical L-type extrusions mm	Depth in mm
DP-DU-300	296	242
DP-DU-400	396	342
DP-DU-500	496	442
DP-DU-600	596	542
DP-DU-700	696	642
DP-DU-800	796	742
DP-DU-900	896	842
DP-DU-1000	996	942

Note: Compatible with L or S type extrusions, other information upon request



H – 88 mm (2U)
W – 80 mm

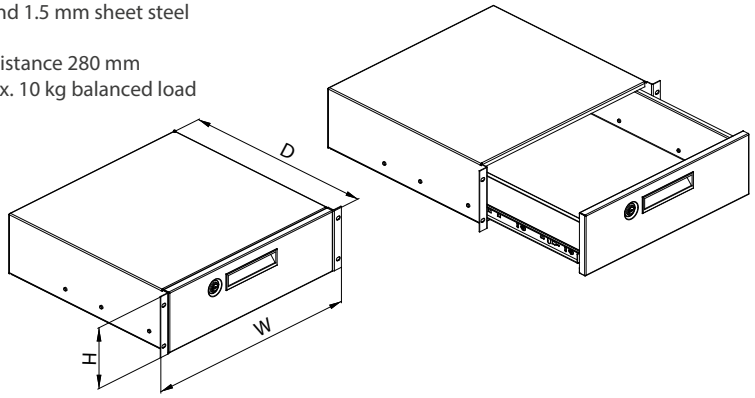
DP-DU

Rack	max. DP-DU
RDF 80/80	700
RDF 80/100	900
RSF 60/80	700
RSF 60/100	900
RSF 80/80	700
RSF 80/100	900
RSB 60/90 [1]	800
ROF 60/60	500
ROF 60/80	700
ROF 60/100	900
ROF 80/60	500
ROF 80/80	700
ROF 80/100	900
ROP 65/60	500
ROP 65/80	700
RMF 60/60	500
RMF 60/80	700
RMF 60/100	900
RMF 80/80	600
RMF 80/100	800
Rx7 60/60	500
Rx7 60/80	700
Rx7 60/100	900
Rx7 80/80	700
Rx7 80/100	900

[1] only if extrusions are installed
NOTE: For installation in racks 1200 mm deep, it is necessary to use S-type extrusions

19" PULL-OUT DRAWER DP-DD

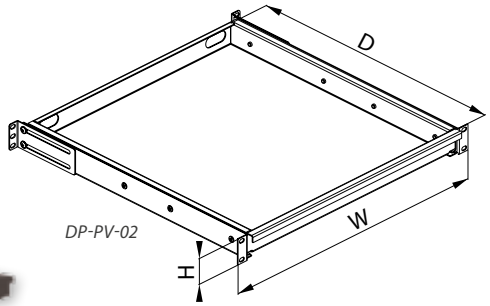
- Made of 1.25 and 1.5 mm sheet steel
- Height: 3U
- Max. pull-out distance 280 mm
- Load rating max. 10 kg balanced load



Code	H in U	W	D in mm
DP-DD-03	3	19"	430

19" PULL-OUT KEYBOARD HOLDER SERIES DP-PV

- Made of 1.5 mm sheet steel
- Max. keyboard width 400 mm and height 36 mm
- Shelf depth: 480 mm
- Max. pull-out distance 330 mm
- Supporting brackets included



DP-PV-02

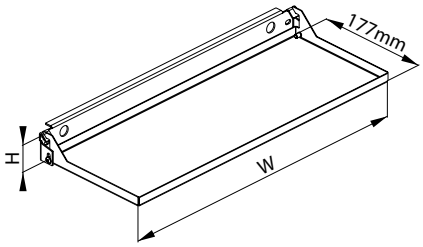
Code	H in U	W	D in mm
DP-PV-02	1U	19"	480

Supporting brackets DP-PV-PD for installation into 800 and 1000 mm deep racks available optionally

19" FOLDING KEYBOARD HOLDER SERIES DP-PV

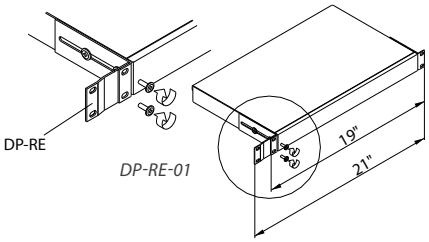
- Enables keyboard placement in front of sliding vertical extrusions
- Max. keyboard size 480×175 mm
- Height: 1U
- Fix keyboard to shelf using self-adhesive velcro – 8 pcs of size 12×25 mm included

Code	H in U	W
DP-PV-01	1	19"



21" ADAPTORS

- Allow for use of 19" equipment in 21" rack



DP-RE-01

Code	H in U
DP-RE-01	1
DP-RE-02	2
DP-RE-03	3

7.2 FIBER-OPTIC PRODUCTS

19" TELESCOPIC FIBER-OPTIC SPLICE BOXES

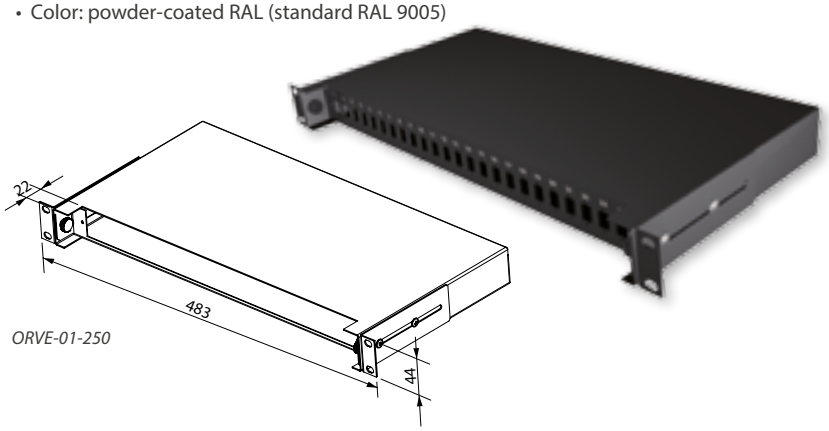
Used to terminate optical cables in racks.

Code	H in U	W	D in mm	Description
ORVM-01	1	19"	320	Telescopic
ORVE-01-250	1	19"	250	Telescopic

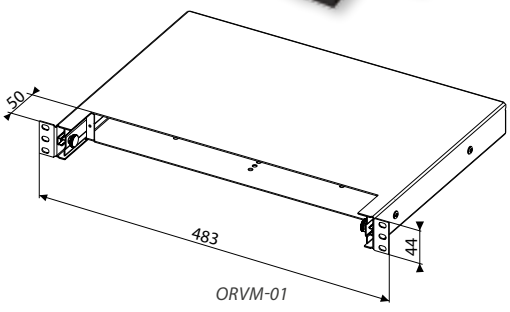
DESCRIPTION:

- Type: telescopic
- Height: 1U
- Modular front panels not included – see table on page 132
- Up to 24 positions for FO couplings
- Front panel must be selected and ordered separately
- Cable entry openings in rear part
- Holes not in use can be covered with blank modules
- Installation in rack with two sliding holders
- Installation kit for splice cassettes and inner organizer included (only ORVM-01)
- Wide range of accessories (optional)
- Color: powder-coated RAL (standard RAL 9005)


ORVM-01 with front panel



ORVE-01-250



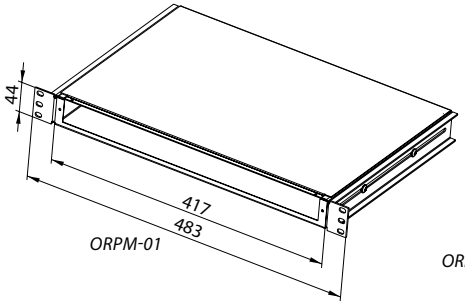
ORVM-01

19" FIXED FIBER-OPTIC SPLICE BOX

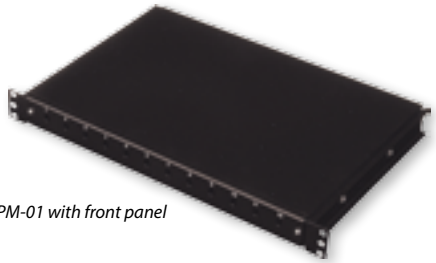
DESCRIPTION:

- Type: fixed
- Height: 1U
- Modular front panels not included (see below)
- Up to 24 positions for FO couplings
- Front panel must be selected and ordered separately
- Cable entry openings in rear part
- Holes not in use can be covered with blank modules
- Installation in rack with two sliding holders
- Installation kit for splice cassettes and inner organizer included
- Wide range of accessories (optional)
- Color: powder-coated RAL (standard RAL 9005)

Code	H in U	W	D in mm	Description
ORPM-01	1	19"	300	Fixed



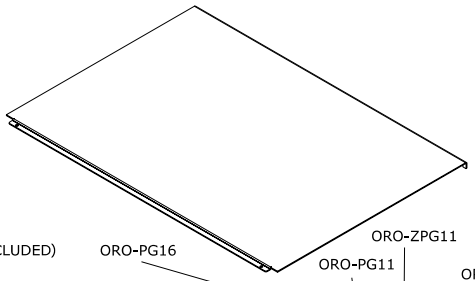
ORPM-01

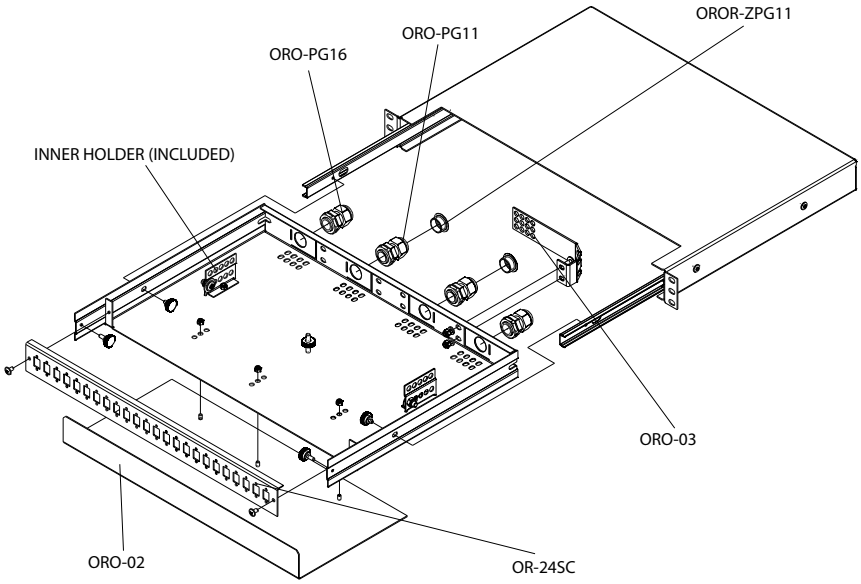

ORPM-01 with front panel

ACCESSORIES FOR FIBER-OPTIC SPLICE BOXES	
Code	**Description**
ORO-K2000	Splice cassette
ORO-PG11	PG11 coupling
ORO-PG16	PG16 coupling
ORO-ZPG11	Cover of opening for PG11 coupling
ORO-ZPG16	Cover of opening for PG16 coupling
ORO-01	Front organizer for ORPM
ORO-02	Front organizer for ORVM
ORO-03	Rear organizer

TYPES OF MODULAR FRONT PANELS				
Code	**NUMBER OF HOLES FOR FO COUPLINGS**			
	8	**12**	**16**	**24**
OR-xxST	yes	yes	yes	yes
OR-xxSC	yes	yes	yes	yes
OR-xxDSC	yes	yes	yes	yes*
OR-xxFC	yes	yes	yes	yes
OR-xxFCD	yes	yes	yes	yes

** without numbering and holes for screws*





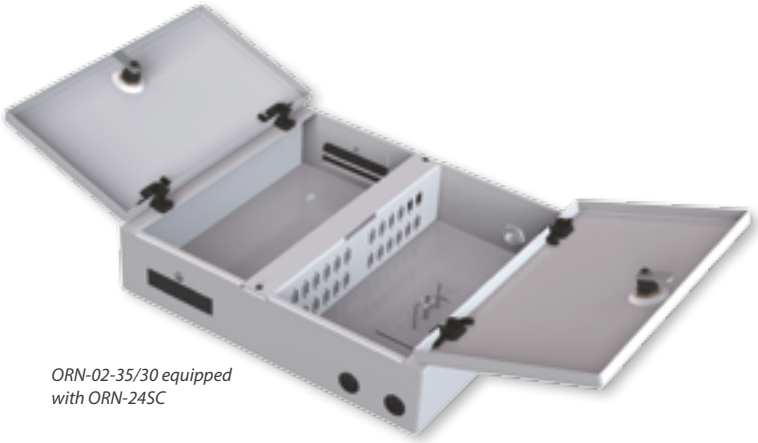
WALL-MOUNTING FIBER-OPTIC SPLICE BOXES

Wall-mounting fiber-optic splice boxes are used to terminate optical cables.

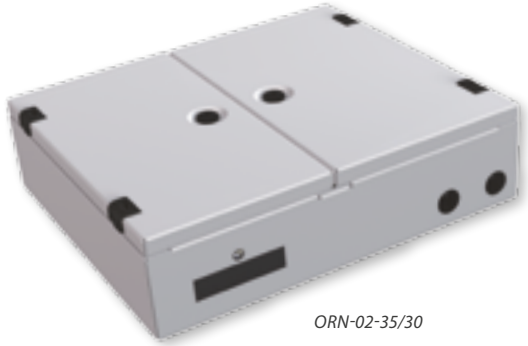
DESCRIPTION:

- Types:
  a) double – size 350×300 mm; equipped with double-leaf door and lock
  b) single – size 300×180 mm or 220×180 mm
- Modular panels with holes for couplings – see table on page 132 (need to be ordered separately)
- In double FO splice-box up to 24 positions for ST or SC or FC or 12 DSC or FCD adapters
- In single FO splice-box up to 8 positions for ST or SC or FC or 4 DSC or FCD adapters
- Holes not in use can be covered with blank modules
- Cable entry through PG couplings (PG 9 for ORN-01 and PG 11 for ORN-02)
- Installation kit for splice cassette (ORO-K2000) included
- Color: powder-coated RAL (standard RAL 7035)

Code	Type	Sizes W x H in mm
ORN-01-30/18	Single	300×180
ORN-01-22/18	Single	220×180
ORN-02-35/30	Double	350×300

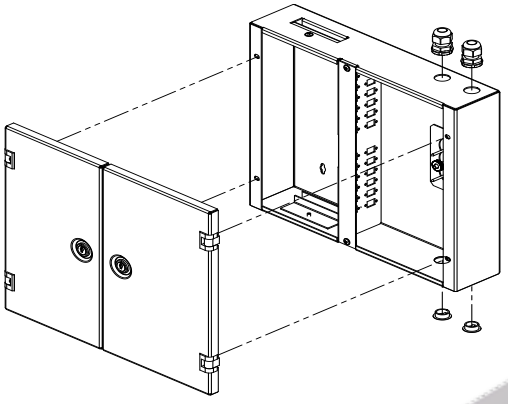


ORN-02-35/30 equipped with ORN-24SC

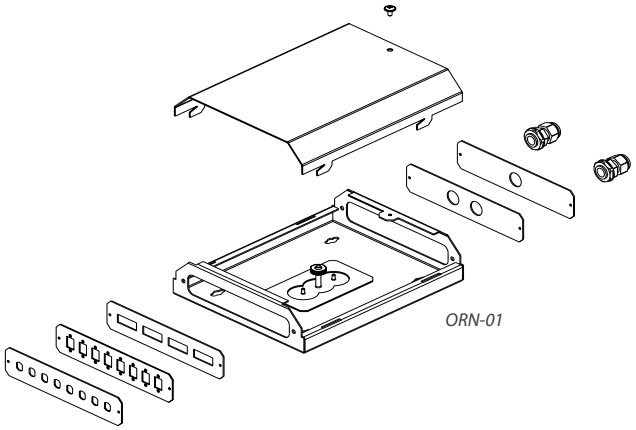


ORN-02-35/30

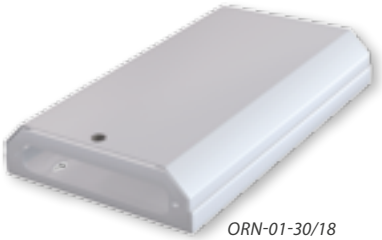
PANELS FOR WALL-MOUNTING FIBER-OPTIC SPLICE BOXES	
ORN-01-30/18 and ORN-01-22/18	**ORN-02-35/30**
ORN-M-8ST	ORN-24ST
ORN-M-8SC	ORN-24SC
ORN-M-4DSC	ORN-12DSC
ORN-M-1PG	ORN-24FC
ORN-M-2PG	ORN-12FCD
ORN-M-8FC	
ORN-M-4FCD	



ORN-01-22/18

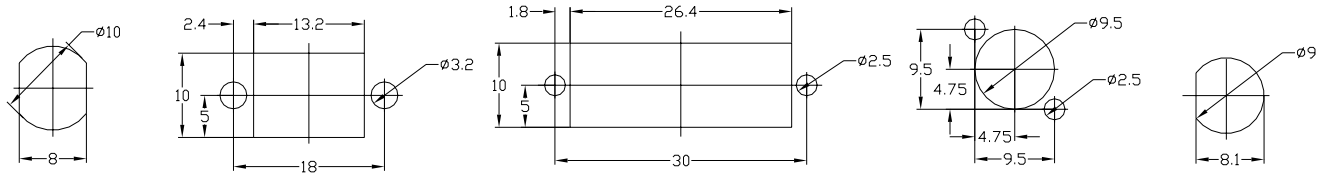


ORN-01



ORN-01-30/18

TYPES OF HOLES FOR FIBER-OPTIC CONNECTORS:



ST SC DSC FC FCD

** This type of hole is used also for DUAL-LC (adapter needed).*

Note: Dimensions before powder coating

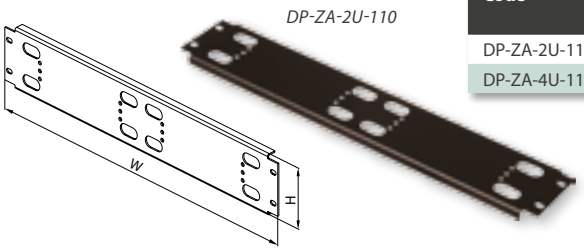
7.3 19" PATCH PANELS

19" PANELS FOR 110 CONNECTING BLOCKS

Used for installing 110 connecting blocks in 19" racks.

DESCRIPTION:

- Produced in sizes 2U and 4U
- Color: powder-coated RAL (standard RAL 9005)
- Possibility to install up to 100 pairs for height 2U incl. wire management



DP-ZA-2U-110

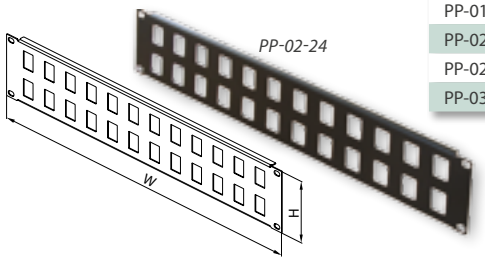
Code	H in U	For	
		110 block	cable man. panel
DP-ZA-2U-110	2	1 pc	1 pc
DP-ZA-4U-110	4	2 pcs	2 pcs

19" PATCH PANELS FOR KEYSTONE MODULES

Used for installing of Keystone type modules in rack.

DESCRIPTION:

- Height: 1U, 2U, and 3U
- Possibility to install up to 16 Keystone type modules for height 1U, size of hole 16.7×24.3 mm
- Color: powder-coated RAL (standard RAL 9005)
- For each module DP-KEY adaptor needed



PP-02-24

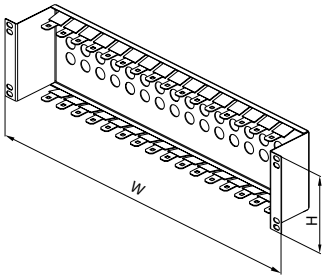
Code	H in U	Width	No. of positions
PP-01-16	1	19"	16
PP-02-24	2	19"	24
PP-02-32	2	19"	32
PP-03-48	3	19"	48

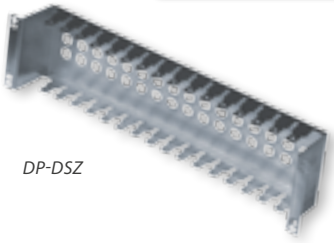
19" PATCH PANELS FOR LSA-PLUS MODULES

Used for installing modules LSA-PLUS (spacing 96 mm).

DESCRIPTION:

- 16 positions for installation of 10 pairs of LSA-PLUS modules
- Finishing: zinc-plated





DP-DSZ

Code	H in U	Width	No. of positions
DP-DSZ	2.5	19"	16

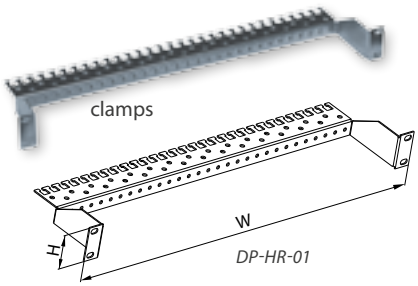
7.4 EARTHING BARS

CABLE CLAMP BRACKET/EARTHING BAR FOR PATCH PANEL

Used for earthing installed equipment.

DESCRIPTION:

- Height: 1U and 2U
- Hold cables with cable ties or PVC
- Possible to use as earthing bar
- Finishing: zinc-plated



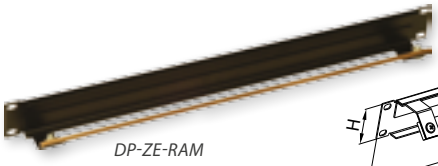
DP-HR-01

Code	H in U	Width
DP-HR-01	1	19"
DP-HR-02	2	19"

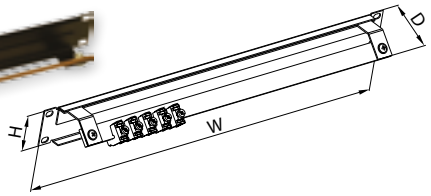
19" PANEL WITH EARTHING BAR

DESCRIPTION:

- Height: 1U
- Copper earthing rail with 5 earthing clips (DP-ZE-CL) included
- Color: powder-coated RAL (standard RAL 9005)
- Code: DP-ZE-RAM



DP-ZE-RAM



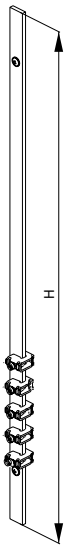
EARTHING BAR

DESCRIPTION:

- Produced for rack sizes 15-48U
- Made of copper bar 25×5 mm
- Installation kit for mounting in rack included
- 5 pieces of earthing clips (DP-ZE-CL) included

Code	H in U	Length in mm
DP-UL-15U	15	667
DP-UL-18U	18	800
DP-UL-21U	21	933
DP-UL-24U	24	1067
DP-UL-27U	27	1200
DP-UL-33U	33	1467
DP-UL-36U	36	1600
DP-UL-42U	42	1867
DP-UL-45U	45	2000
DP-UL-48U	48	2134

DP-ZE-CL



DP-UL

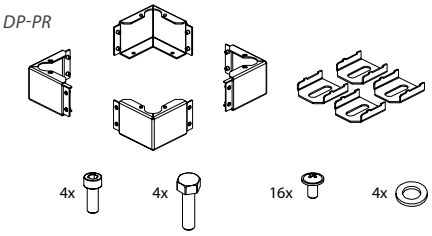
7.5 MODULAR PLINTHS

Plinths are installed as an aesthetic and stabilizing element – instead of feet or castors. When a plinth with filter is used, the plinth supplies a sufficient amount of filtered air. Plinths can also be used for storing cables.

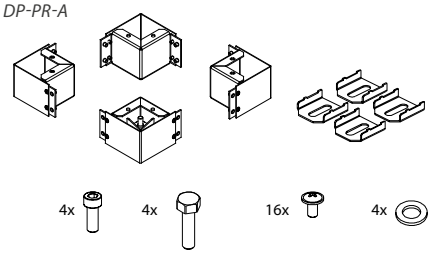
DESCRIPTION:

- Used with PREMIUM, OPTIMAL, and iSEVEN rack series (RDF, RSF, RSB, ROF, ROP, ROR, RMF, RI7 and RM7)
- Height of plinth 100 mm and 200 mm
- Color: powder-coated RAL (standard RAL 7035 or 9005)
- Delivered unassembled; assembly hardware and instructions included
- Plinth consists of:
  - Set of corners
  - Set of side panels

DP-PR



DP-PR-A



SET OF PLINTH CORNERS

- Used for all types of free-standing racks.
- Three types of plinth corners:
  a) DP-PR: fixed height 100 or 200 mm; for total load (IT equipment + rack) up to 800 kg (applicable also for racks 1200 mm deep, in this case load rating is up to 1000 kg)
  b) DP-PR-100-HL: fixed height 100 for total load (IT equipment + rack) 800 kg and more
  c) DP-PR-A: fixed height 100 or 200 mm; equipped with adjustable feet; for total load (IT equipment + rack) up to 500 kg

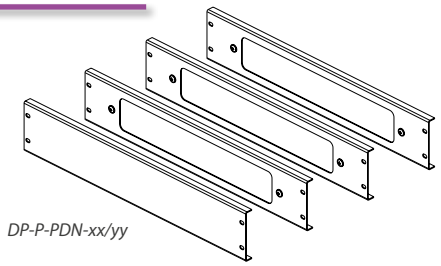
DP-PR-100-HL

Code	Load rating in kg *
DP-PR	800
DP-PR-A	500
DP-PR-100-HL	1700

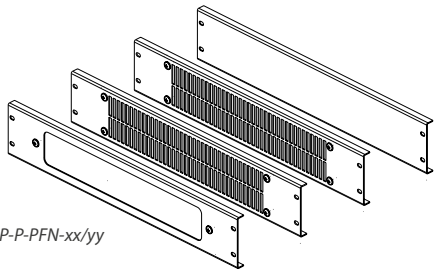
** Load rating for set (4 pcs) of corners incl. weight of rack*

SET OF SIDE PANELS

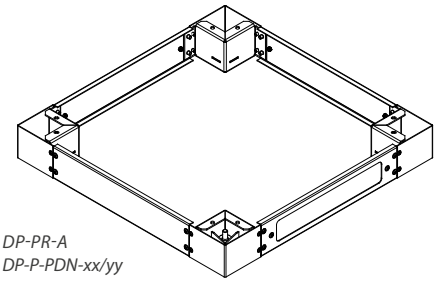
- Consists of:
  - 2 pcs of side panels
  - 1 pc of front panel
  - 1 pc of rear panelcable entry opening (size 300×50 mm)
  - cable entry opening covered with removable blank panel
- Two types of side panels:
  a) with cable entry openings (in DP-P-PDN-xx/yy)
  b) with perforation and exchangeable filters (in DP-P-PFN-xx/yy)



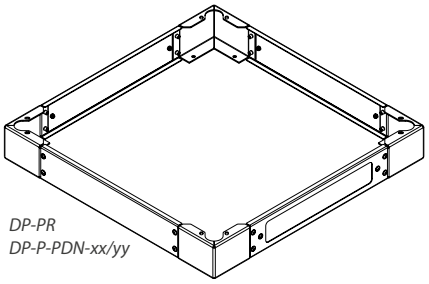
DP-P-PDN-xx/yy



DP-P-PFN-xx/yy



DP-PR-A
DP-P-PDN-xx/yy



DP-PR
DP-P-PDN-xx/yy

ORDERING MATRIX

PLINTH CORNERS

			1	2
DP	-	PR	- 100	- A

According to load rating of the rack, choose DP-PR-100-HL, ie. special corners with fixed height 100 mm only.

1	- 100	Plinth height 100 mm (fixed)
	- 200	Plinth height 200 mm (fixed)
2	- A	Plinth corners with adjustable feet
	- HL	Plinth corners – high load*

** only for height 100 mm*

SIDE PANELS

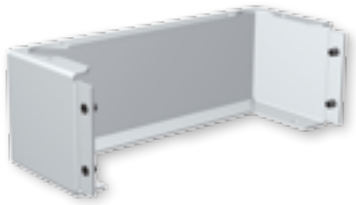
			1		2		3	4		
DP	-	P	-	PDN	-	60	/	60	- 100	

1	PDN	Plinth without filter
	PFN	Plinth with filter
2		Rack width in mm – ie. 600, 800
3		Rack depth in mm – ie. 600, 800, 1000
4	- 100	Plinth height 100 mm
	- 200	Plinth height 200 mm

Ordering code for exchangeable filter DP-P-PFN-FI-600 – 600 mm length, DP-P-PFN-FI-800 – 800 mm length

PLINTHS FOR 1200 MM DEEP RACKS & FOR SPACE OPTIMIZATION SECTIONS

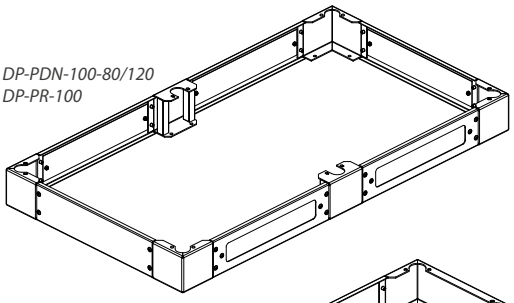
Set of plinth panels for rack footprint xx/yyy (height 100 mm):

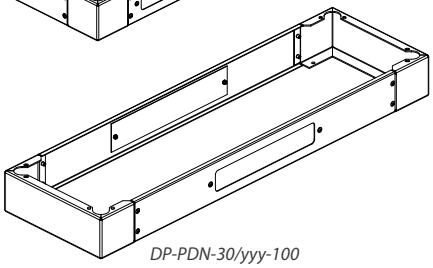


Code	Description
DP-PDN-100-60/120 *	Set of plinth panels for 60/120 (height 100 mm)
DP-PDN-100-80/120 *	Set of plinth panels for 80/120 (height 100 mm)

** with DP-PR -100 (height 100 mm)*

DP-PDN-100-80/120
DP-PR-100





DP-PDN-30/yyy-100

Code	Description
DP-PDN-30/60-100	Plinth for a space optimization section 30/60, height 100 mm
DP-PDN-30/80-100	Plinth for a space optimization section 30/80, height 100 mm
DP-PDN-30/100-100	Plinth for a space optimization section, 30/100, height 100 mm
DP-PDN-30/120-100	Plinth for a space optimization section, 30/120, height 100 mm

7.6 CASTORS & FEET


DP-KO-01


DP-KO-02


DP-KO-H2


DP-KO-H1


DP-KO-TC


DP-NO-01

CASTORS, FEET			
Code	**Description**	**Set includes**	**Load rating per castor in kg ***
DP-KO-01	Castor for free-standing cabinet	1 pc	50 kg
DP-KO-02	Lockable castor for free-standing cabinet	1 pc	50 kg
DP-KO-H1	High-load castor for free-standing cabinet	1 pc	100 kg
DP-KO-H2	Lockable high-load castor for free-standing cabinet	1 pc	100 kg
DP-NO-01	Adjustable foot for free-standing cabinet	1 pc	-
DP-KO-TC	Transport castors for free-standing racks	4 pc	30 kg

** Castor load rating = (rack weight + devices weight) / 3*

iSeven rack series is compatible only with DP-KO-TC and DP-NO-01.

7.7 MOUNTING & CONNECTING KITS

MOUNTING KIT

Serves to attach equipment to vertical extrusions

Code	Description	Size	Set includes
DP-MO-01[1]	Mounting kit	M5	1× screw, 1× floating nut, 1× washer
DP-MO-F2[1, 2]	Mounting kit – fast installation	M6	1× screw, 1× nut
DP-MO-100	Mounting kit – multipack	M5	100× mounting kit (1× screw, 1× floating nut, 1× washer)

[1] *Please order in multiples of four only (one packaging = 4 above presented sets)*
[2] *Compatible with cut-out 9.5×9.5 mm*


DP-MO-01

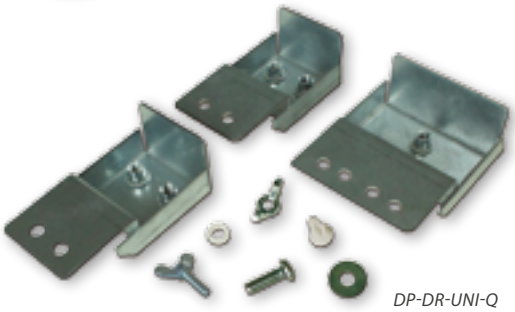

DP-MO-F2

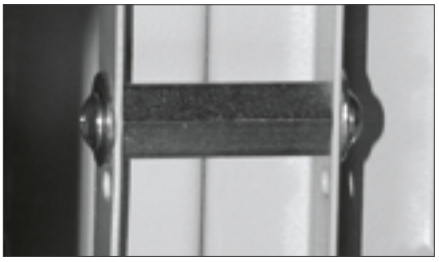
CONNECTING KITS

Serve to connect (bay) free-standing racks of the same height and depth into one row. The DP-DR-UNI connecting kit is used to connect of the ROF racks series.

- **DP-DR-UNI-Q:** QUICK connecting kit is used to connect all free-standing rack series, excl. iSEVEN series, one-man installation ready, tool-less version
- **DP-DR-UNI:** used to connect of all free-standing rack series, excl. iSEVEN series, side panels do not need to be removed
- **DP-DR-7:** used to connect of iSEVEN rack series, side panels must be removed


DP-DR-UNI


DP-DR-UNI-Q


DP-DR-7

Code	Description	Set includes
DP-DR-UNI-Q	QUICK connecting kit for all free-standing rack series, excluding RI7 and RM7, tool-less	3 brackets of QC, 3 wings screws M5×16, 6 screws M5×16, 3 nuts M5
DP-DR-UNI	Connecting kit for all free-standing rack series, excluding RI7 and RM7	6 wings nuts M5, 6 screws M5×20, 12 washers
DP-DR-7	Connecting kit for RI7 and RM7 rack series	6 hexagonal nuts, 12 screws M5×10, 12 washers M5 DIN125

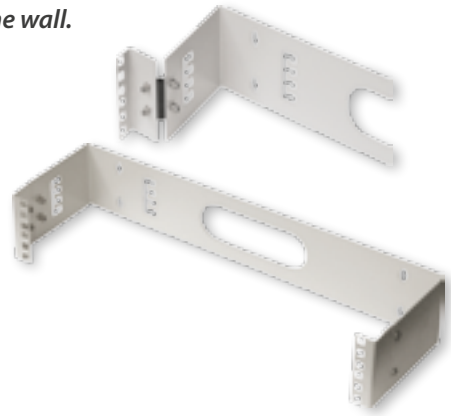
7.8 OTHERS

19" WALL-MOUNTING HOLDERS

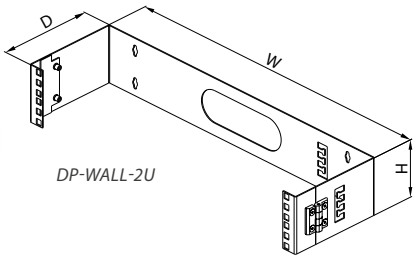
Used for installing 19" equipment on the wall.

DESCRIPTION:

- Height: 2U and 4U
- Mounting holes for wall installation on the back
- Holder equipped with hinges enabling installed equipment to swing open from wall
- Cable entry openings on the side
- Color: powder-coated RAL (standard RAL 7035)



19" WALL-MOUNTING HOLDERS			
Code	**H in U**	**W**	**Depth in mm**
DP-WALL-2U	2	19"	150
DP-WALL-4U	4	19"	150



DP-WALL-2U

LIGHTING UNITS

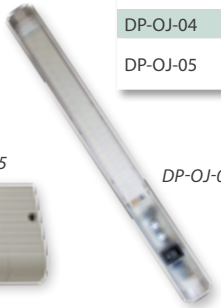
Used to provide light in rack.

DESCRIPTION:

- DP-OJ-01 and DP-OJ-05 ready for 19" installation
- DP-OJ-04 and DP-OJ-05 can be easily placed by magnets on any sheet steel part on/in the rack (0U installation)
- Automatic function ensured by motion sensor (DP-OJ-05 only)

Code	Description
DP-OJ-01	Lighting unit – telescopic, 19" installation, florescent tube 230 V/50 Hz with switch
DP-OJ-04	Lighting unit, 5W, LED technology, magnets for easy fixing
DP-OJ-05	Lighting unit, 11 W, motion sensor, magnets for easy fixing or 19" installation

DP-OJ-05



DP-OJ-04

DP-OJ-01

CABLE PROTECTION IN OPENINGS

Edging strips and brush panels help to protect cable entries and can limit dust penetration into the rack. In all cases, they are installed into the cable openings.

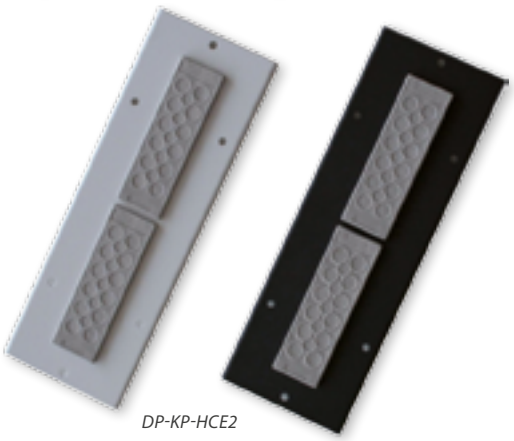
DESCRIPTION:

- Installed in cable entry openings (300×100 mm or 300×50 mm)
- Mounting holes for wall installation on the back

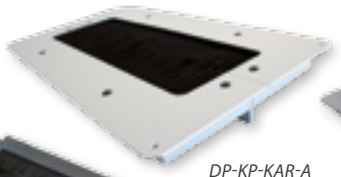
Code	Description
DP-KP-LEM	Rubber piece on edges of cable entries (length 790 mm) for free-standing racks
DP-KP-HCE2	Hermetic dust-proof panel for IP54 racks, ready for 24×12.6 mm and 10×10.5 mm cable openings
DP-KP-KAR	Dust-proof panel with brush – for free-standing racks
DP-KP-KAR3	Dust-proof panel with brush – for wall-mounting racks
DP-KP-KAR4	Dust-proof panel with double brush – for free-standing racks
DP-KP-KAR4-D	Divided dust-proof panel with double brush – for free-standing racks
DP-KP-KAR5	Dust-proof panel with brush – for PREMIUM free-standing racks, size of hole 300×50 mm
DP-KP-KAR-A	Dust-proof panel with double brush – for raised floor installation (opening size 410×215 mm)
DP-KP-KAR6	Dust-proof brush for cable entry 500×115 mm (for RI7/RM7), two pieces of the brushes and two pieces of rubber for edges of cable entry
DP-KP-KAR7	Dust-proof panel with sliding part covering with PUR material
DP-KP-RB4	Round cable entry with brush, 4" (100 mm)

DP-KP-KAR

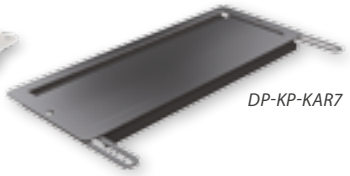
DP-KP-RB4



DP-KP-HCE2



DP-KP-KAR-A



DP-KP-KAR7

DP-KP-KAR4

DP-KP-KAR4-D

8. outTEG

Outdoor Cabinets

PERFECT PROTECTION FOR ALL WEATHER CONDITIONS

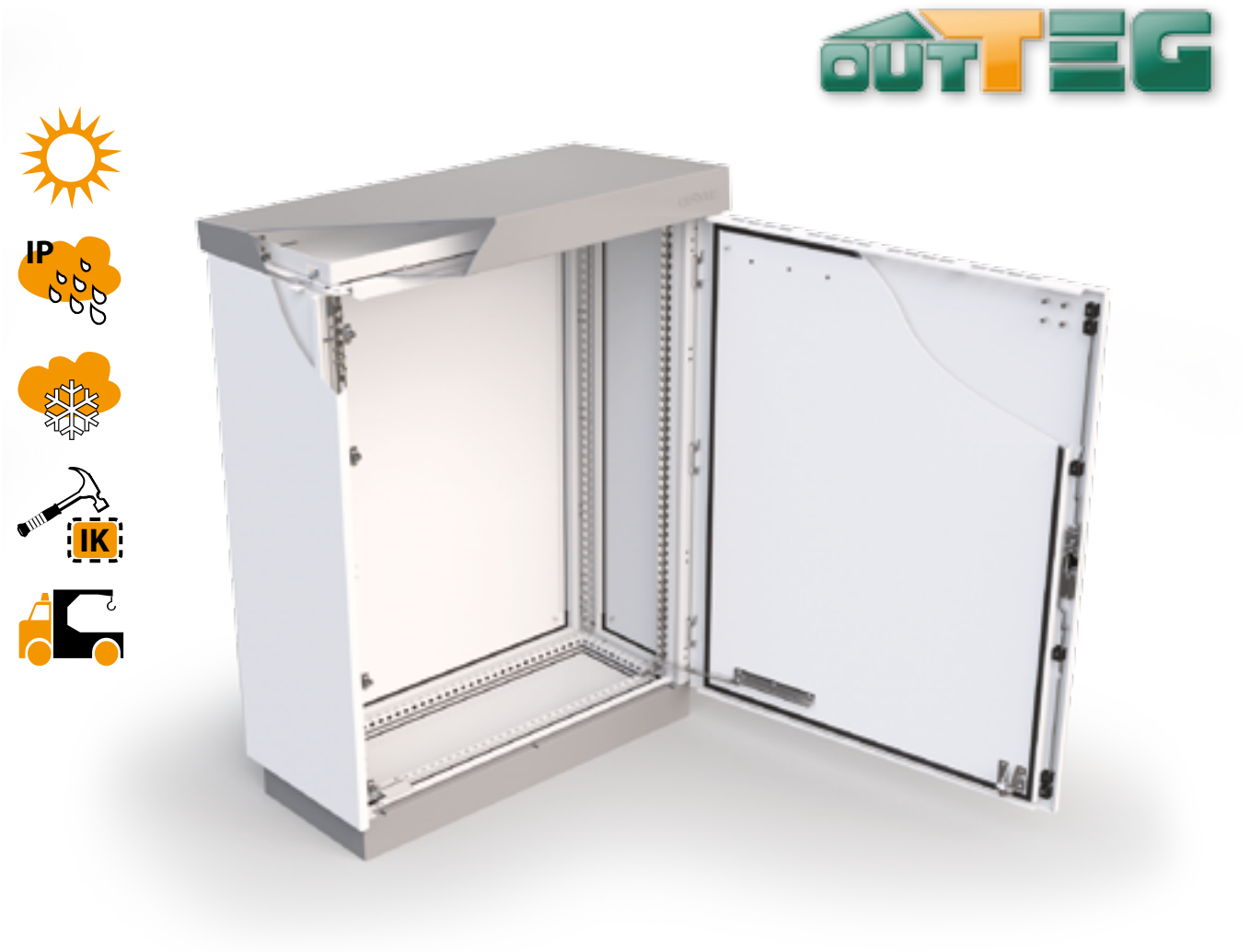
For more detail information about outdoor cabinet outTEG see our special "outTEG Product Catalog".

8. outTEG OUTDOOR CABINETS

Don´t compromise, you can benefit from the advantages offered by the specialized outTEG line. With a compact design, a clear line, and a climate control system, outTEG satisfies the requirements of customers based in high-temperature locations as well as those who are situated in regions with extremely low temperatures. The 25 mm cabinet frame perforations along with internal accessories allow for a high variability of cabinets.

MAIN ADVANTAGES:

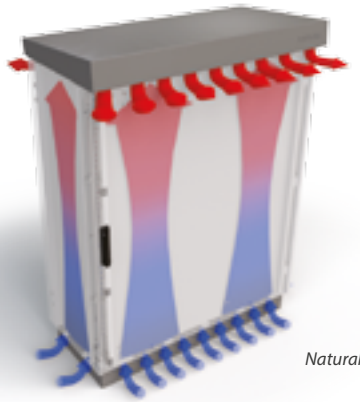
- Simple, useful, functional construction
- The highest protection against corrosion
- Welded stainless steel enclosure frame
- All removable parts are made of aluminium (doors, rear/side panels, roof)
- Polyester powder coat with UV protection
- PUR non-porous gasket – suitable for extreme temperature ranges
- Dust and water protection IP55
- Mechanical protection IK10 – against severe damage
- Anti-vandal
- Compact design = no point of access for lever-type tools
- Ready for crane transport
- Anti-seismic rating (Bellcore)



outTEGs can be designed at different levels:

- **outTEG I single-walled cabinets** come with simple design, which safely protects IT and electrical equipment against any weather conditions and corrosion.
- When looking for more complex cabinet solutions, we suggest choosing **outTEG II, the double-walled cabinets** with natural ventilation between the sealed inner space and the outer vented case. These cabinets together with our climate control units help to achieve better thermal comfort for installed components and are suitable to use in regions with extremely low or high temperatures.
- **We offer modular solutions for every type of installation depending on your individual requirements.**

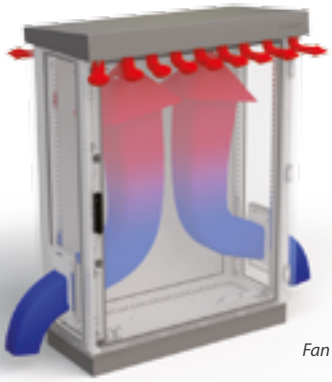
outTEG II Double Natural



Natural vented solution

- Double-walled outdoor cabinet
- Natural airflow on front door, rear/side panels and roof
- IP55

outTEG II Double Fan



Fan solution

- Double-walled outdoor cabinet
- Natural airflow on front door, rear/side panels and roof
- Forced ventilation: EC filter fans with flow 180 – 540 m^3/h
- IP55

outTEG II Double Active

Solution with cooling units or air/air heat exchanger

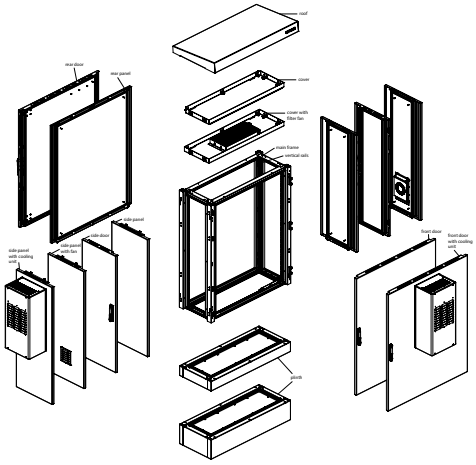
- Double-walled outdoor cabinet
- Natural airflow on front door, rear/side panels and roof
- Active climate control – air/air heat exchanger up 160 W/K, cooling units up 2000 W
- IP54 (optionally IP55)

outTEG I Single

outTEG I Single

- Single-walled outdoor cabinet
- IP55
- Basic protection of installed equipment for all-weather conditions

Customized solution for outTEG



- Individual solution according your requirements
- Solution for single-walled cabinet outTEG I Single and double-walled cabinet outTEG II Double

Wide range of accessories

- Thermoelectric cooler
- Mounting plates
- ETSI, 19", 21" vertical rails
- Horizontal rails
- Resistance heaters
- Thermostat for cooling and heating
- Hygrostat
- Pressure compensator
- Monitoring system RAMOS
- 19" accessories
- Power distribution units ….

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