



# DATACENTER



The  Art of enclosing electronics

# EXPERIENCE

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**Atos designs, develops and manufactures** enclosures for the electronics industry: cabinets, cases, racks, systems, fine sheet metal work, etc., in France, in its Glos (Normandy), and Carros (French Riviera) plants.

For more than 40 years, ATOS has been working to provide an indoor or outdoor enclosure solution for every requirement in the electronics industry: standard, adapted standard, customized or production as per drawings.

With its strong **customer focus**, ATOS serves the telecommunications, Transportation (aerospace, railway, aviation, navy, etc.), electronics and IT markets (OEM and datacenters : HPC, production, hosting, etc.), in both the civil and defense fields.



*Glos establishment - Normandy*



*Carros establishment - French Riviera*



Our cooling systems contribute to saving energy and improving the carbon footprint of computer fleets.



# KNOW-HOW & DEVELOPMENT

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has developed, in addition to its original sheet metal and modular mechanics businesses, a range of services enabling it to offer its customers

## A RANGE OF SKILLS

### ADAPTED TO THE ELECTRONICS MARKET :

#### DESIGN AND DEVELOPMENT

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- ✓ Two design offices create standard, adapted, or customized products.
- ✓ Mechanical, electrical or thermal dimensioning: Power distribution,
- ✓ Air cooling, water-cooling system up to 50kW per cabinet,
- ✓ Solution architecture: Integration, power distribution, cooling, supervision.
- ✓ 3D CAD mechanical and sheet metal design.
- ✓ Electrical design: diagram creation.

#### PROTOTYPING

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A focused and responsive organisation builds prototypes and guarantees their subsequent industrialisation.

#### TESTS

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Whether using its internal resources or working with partner laboratories, Atos is able to plan and carry out an appropriate environmental qualification for electronics, telecommunications and IT projects: Loaded cabinet transport (up to 1200 kg), IP or IK tests, thermal tests with air or water cooling, supervision.

#### MANUFACTURING

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Manufacturing in France enables us to guarantee regular and constant quality, subject to European and French standards. Our racks and cooling systems are manufactured entirely in our cutting, bending, welding, painting and assembly workshops.

#### PRE-FITTING, INTEGRATION

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Supply of AC and DC UPS, power distribution, integration of hardware or sub-assemblies (power supplies, backplanes, boards, etc.) are additional activities available in both factories for optimum manufacturing efficiency. In this manner, DataCenter racks can be entirely fitted with prewired PDUs, with optimised and factory-tested cable volumes. ...cabinet

#### PROJECT MANAGEMENT, DEPLOYMENT, LOGISTICS

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On each site, dedicated personnel monitors the progress of projects and performs stock management while maintaining direct contact with customers. ...cabinet...

Further information at [www.atos-racks.com](http://www.atos-racks.com)

# CONTENTS

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## **COOLING SOLUTIONS..... p. 6 to 14**

COOLING SYSTEM PRESENTATION .....	6-7
COLD CONTAINED AISLE “CCA” .....	8
HOT CONTAINED AISLE “HCA” .....	9
CONTAINED CABINET AND MODULE “CCM” .....	10-11
PASSIVE COLD DOOR “PCD” .....	12
ACTIVE COLD DOOR “ACD” .....	13
“MODUL’X” CONTAINED MODULAR ASSEMBLY .....	14

## **COOLING SOLUTION ACCESSORIES ..... p. 16 to 27**

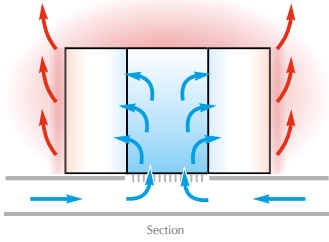
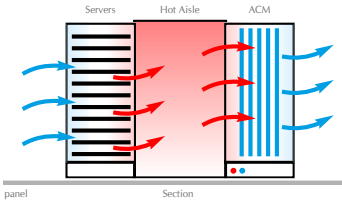
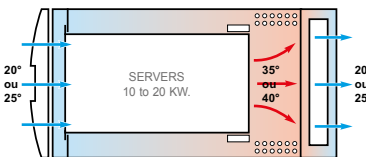
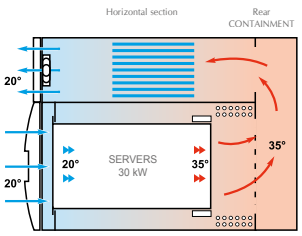
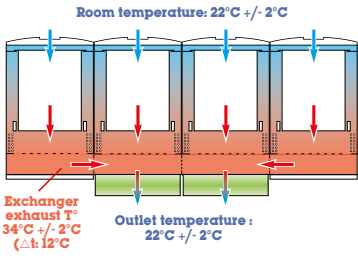
SLIDING DOORS .....	16
AISLE ROOFS, TIGHTNESS, SAFETY .....	17
AISLE OR CABINET COOLING MODULE : ACM or CCM .....	18-19
MULTIPURPOSE STANDBY MODULE “MSM” .....	20
CONTAINMENTS FOR CCM .....	21
PASSIVE COLD DOOR CABINET .....	22-23
ACTIVE COLD DOOR CABINET .....	24-25
ACCESSORIES FOR MODULAR ASSEMBLY .....	26-27

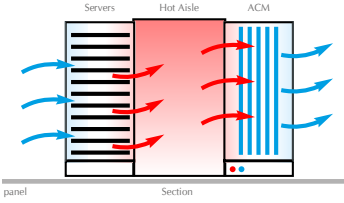
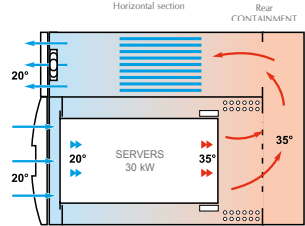
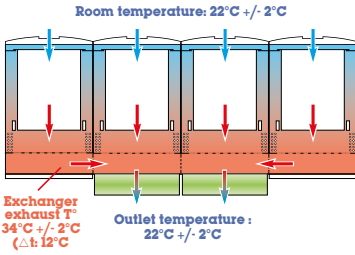
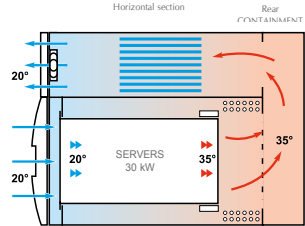
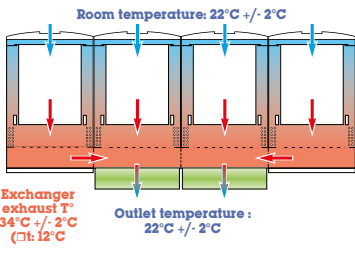
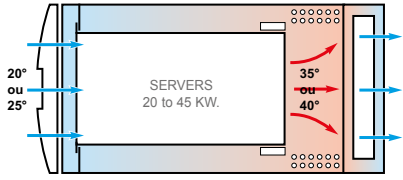
## **CONVERGENCE CABINET ..... p. 28 to 48**

## **UNIVERSAL 19” ACCESSORIES ..... p. 49 to 60**

## **DRAWINGS AND DIMENSIONS ..... p. 61 to 66**



POWER	SOLUTIONS	RECOMMENDATION	VISUAL	PAGE
P < 5 to 6 kW	Light or no cooling problems <b>WITHOUT REAR</b>	Perforated doors for Convection (81% perforation)		28
4 < P < 15 kW	Rear desired: Medium Density = 6 to 15 kW Hot Contained Aisle Cold Contained Aisle Passive cold door. CCM MODUL'X	Contained Cold Aisle <b>CCA</b>		8
		Contained Aisle with Aisle Cooling Module <b>CCA / HCA</b>		9
		Passive Cold Doors <b>PCD</b>		12
		Cabinet and Cabinet Cooling Modules <b>CCM</b>		10
		Cabinet and Active Cold Doors <b>MODUL'X</b>		14

POWER	SOLUTIONS	RECOMMENDATION	VISUAL	PAGE
6 <P< 20 kW	Containment required : Cooling as close as possible to the servers	Contained Aisle with Aisle Cooling Module <b>CCA / HCA</b>		9
		Cabinets and Cabinet Cooling Module <b>CCM</b>		10
		Cabinet and Active Cold Doors <b>MODUL'X</b>		14
10 <P< 30 kW	Containment required : Reinforced cooling system	Cabinets and Cabinet Cooling Modules <b>CCM</b>		10
		Cabinet and Active Cold Doors <b>MODUL'X</b>		14
20 <P< 50 kW	Reinforced cooling system required	Active Cold Doors <b>ACD</b>		13



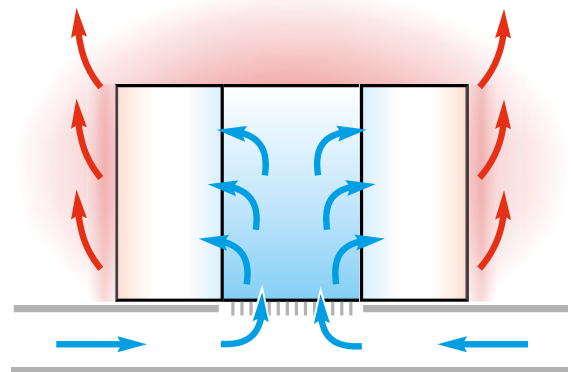
## COLD CONTAINED AISLE "CCA"

### Principle:

The pulsed fresh air in the raised floor is channelled to the front of the racks by closing the Cold Aisle, sliding end doors and removable glass roofs between two rows of racks.

### Benefits:

- Completely passive system.
- The air inlet temperature is controlled over the entire height, no hot air is allowed to return to the front of the cabinets.
- 100% of the air pulsed by the room air conditioning units is used by the servers.



Section

4 to 15 kW / rack



This principle contributes to saving energy and improving the carbon footprint of computer fleets.



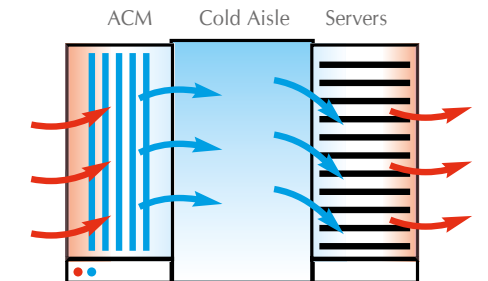
## COLD CONTAINED AISLE "CCA" AIR CONDITIONED BY AISLE COOLING MODULE "ACM"

### Principle:

- The heated air leaving the servers is blown into the room.
- The "ACM" aisle cooling modules pulse the room air and cool it via an air/water exchanger in the aisle.
- The air flow is monitored by the pressure drop and water flow by the outlet temperature setting

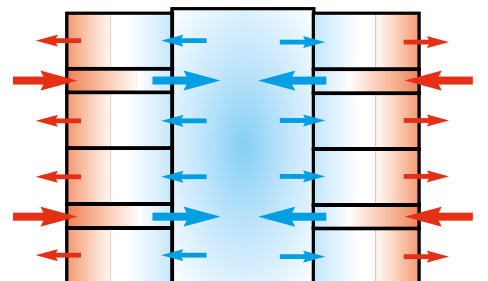
### Benefits:

- Close-to-server cooling system.
- Ability to define the redundancy level: N+1 to 2N.
- Air flow control enables optimum server operation.
- Management:  
Alarm feedback by SNMP trap.  
SNMP-based ON/OFF mode management.  
Data supervision by IMPI.



panel

Section



Horizontal section

6 to 35 kW / rack



This principle contributes to saving energy and improving the carbon footprint of computer fleets.





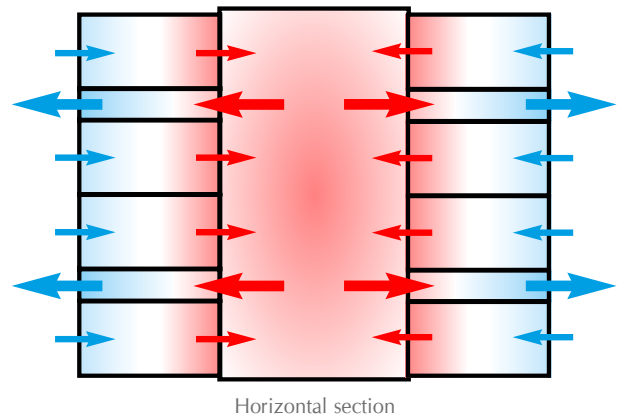
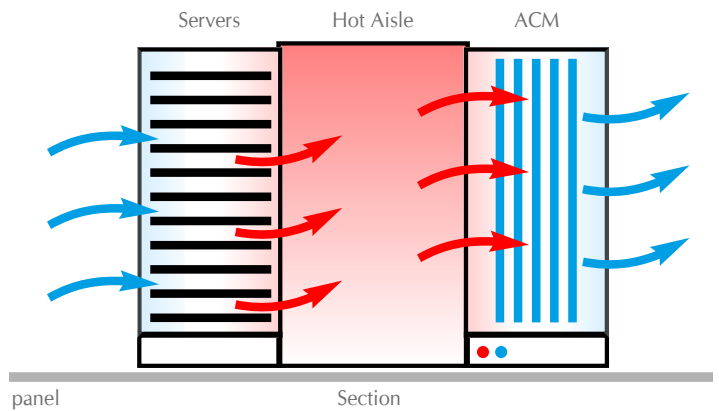
## HOT CONTAINED AISLE "HCA"

### Principle:

- The heated air leaving the servers is blown through the hot contained aisle.
- The "ACM" aisle cooling modules extract the air from the aisle and cool it via an air/water exchanger.
- The air flow is monitored by the pressure drop and water flow by the outlet temperature setting

### Benefits:

- Close-to-server cooling system.
- Ability to define the redundancy level: N+1 to 2N.
- Air flow control enables optimum server operation.
- Management:  
Alarm feedback by SNMP trap.  
SNMP-based ON/OFF mode management.  
data supervision by IMPI.

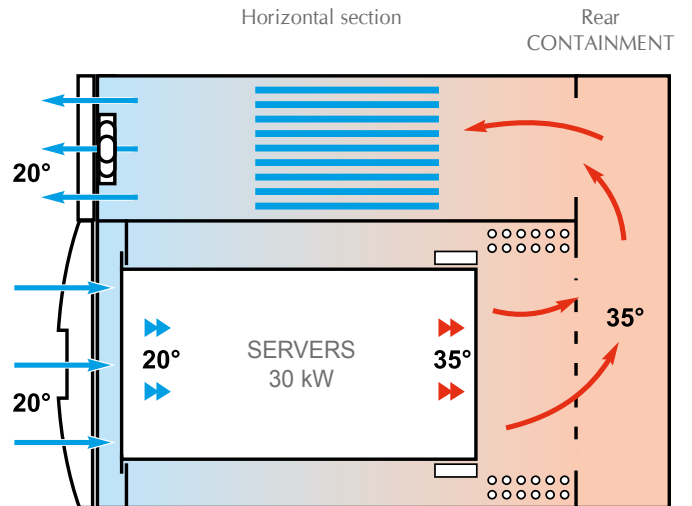


6 to 35 kW / rack

## CONTAINED CABINET AND MODULE ASSEMBLY, REAR CONTAINMENT ONLY

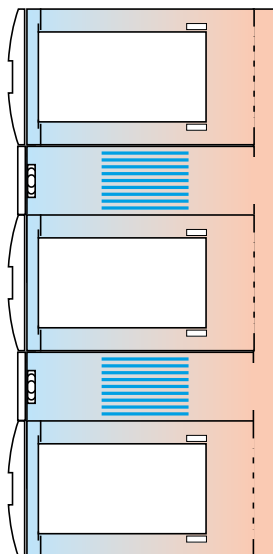
### Principle:

A CCM consists of one or more cabinets and Cabinet Cooling Modules ("CCM"). The assembly is sealed by adding a Rear containment.



12 to 35 kW / rack

Configuration example :  
3 cabinets + 2 CCM

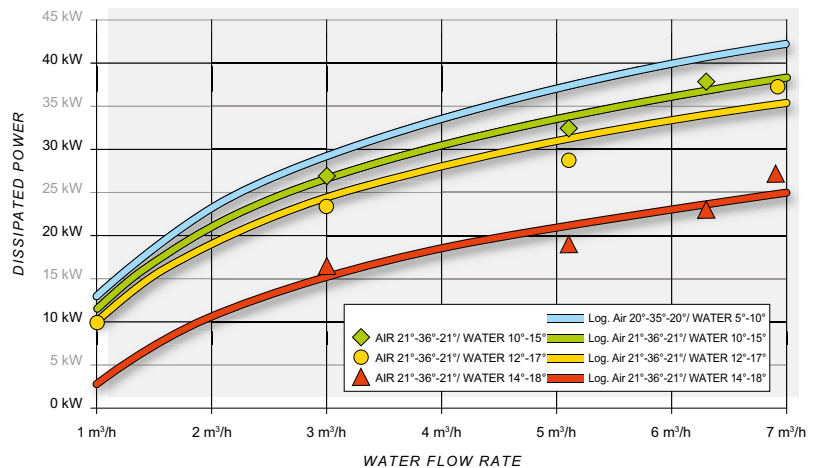


### Benefits:

- Close-to-server cooling system.
- Possible redundancy.
- Air flow control enables optimum server operation.
- More compact solution than an HCA from 1 to 4 cabinets.
- Management: Alarm feedback by SNMP trap. SNMP-based ON/OFF mode management. Data supervision by IMPI.

### Performance:

Module cooling capacity



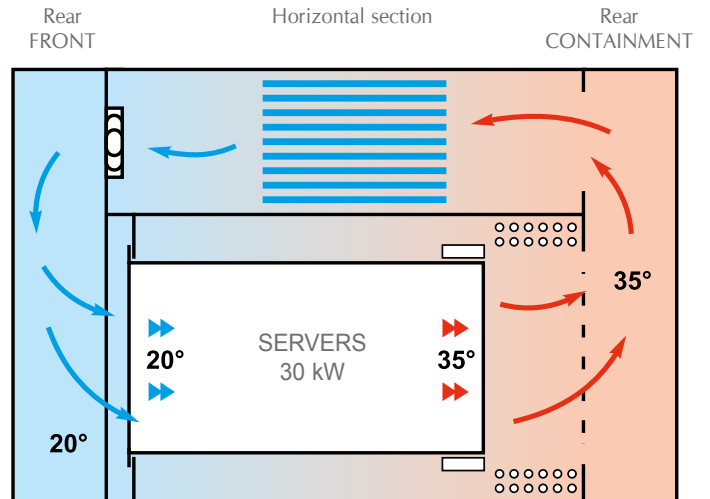


12 to 35 kW / rack

## CONTAINED CABINET AND MODULE "CCM" COMPLETE ASSEMBLY, REAR FRONT-REAR

### Principle:

A CCM consists of one or more cabinets and Cabinet Cooling Modules ("CCM"). The assembly is sealed by adding Front and Rear containments.

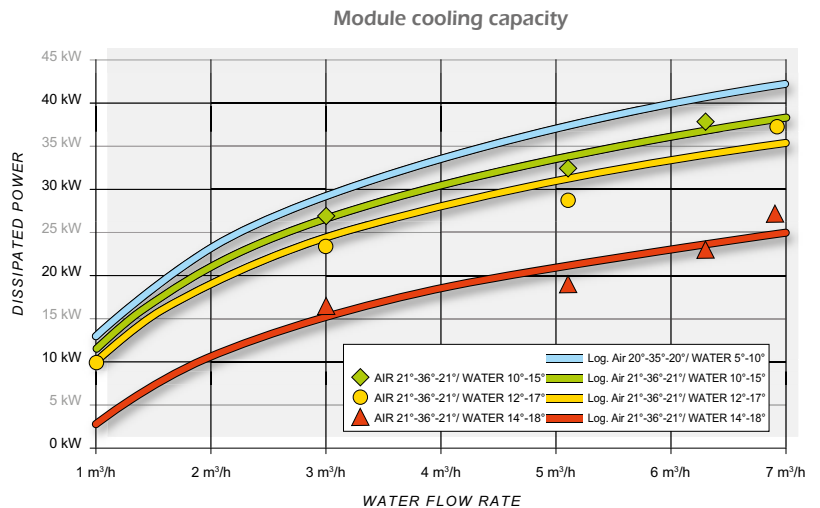


### Benefits:

- Close-to-server cooling system.
- Possible redundancy.
- Air flow control enables optimum server operation.
- More compact solution than an HCA from 1 to 4 cabinets.
- Management: Alarm feedback by SNMP trap. SNMP-based ON/OFF mode management. Data supervision by IMPI.
- The room does not need to be air conditioned.



### Performance:







**10 to 45 kW / rack**

**Sample efficiencies:**

10kW with water conditions 10°C/16°C, air outlet temperature 24°C and server Δt of 9°C

15kW with water conditions 8°C/13°C, air outlet temperature 20°C and server Δt of 12°C

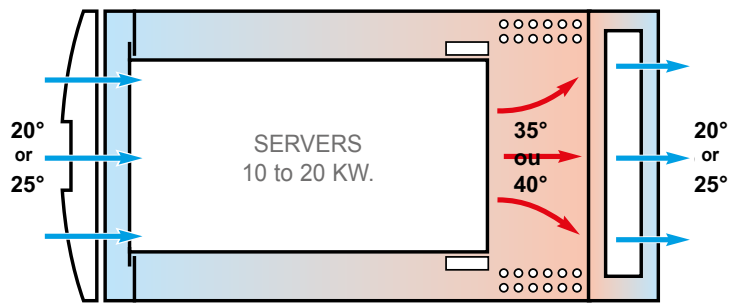
## PASSIVE COLD DOOR

**Function:**

Rear door including an air-water exchanger, with a cooling capacity of 10 to 20 kW depending on the available water temperature. Pressure drop is very low and does not disrupt the servers.

**Principle:**

The heated air leaving the servers is cooled by a chilled water coil housed in the rear door. Coil-related pressure drop remains within the limits recommended by server manufacturers: Pressure drop < 25 Pa



**Benefits of a passive door:**

- Optimised regulation.
- Max power consumption <25 W
- Enhanced hardware safety.
- Communication: Modbus RTU or TCP/IP, SNMP optional

**Installation recommendations:**

The "PFP" passive cold door is used for medium density cooling solutions from 6 to 15 Kw.

For powers to be dissipated greater than 10 kW, we recommend circulating the air at the edge of the cabinet by separate mechanical ventilation or combined with active doors.

Where ventilation is impossible, we recommend adding a thermal insulation kit above cabinets to prevent heat transfer by radiation.

The front part of the cabinet (19" fixing area) must be blanked off entirely to prevent warm air from recirculating.

The 19" equipment must be fitted with a front-to-back ventilation system.

Side ventilation 19" equipment must be prohibited, however, if this is side ventilation with rear exhaust, a side air deflector kit must be installed in the cabinet.



20 to 45 kW / rack

**Dimensions:**

- Height: 42 U
- Depth: 1200 mm
- Width: 600 mm

**Enclosure :**

- perforated door allowing 81% air inlet

**Hardware:**

- Integrated PDU brackets

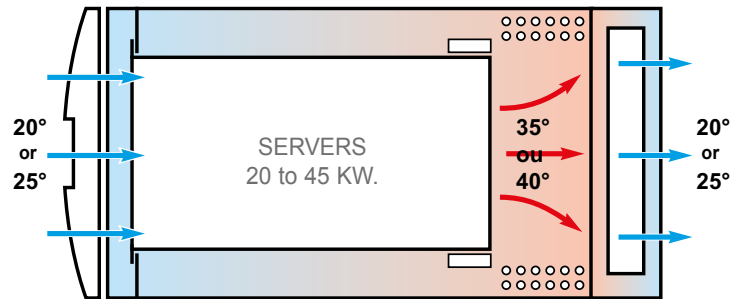
## WATER-COOLED CABINET

**Function:**

Cabinet fitted with a water-cooled door, capable of housing up to 45 kW of hardware without heating the outlet air and without disrupting server ventilation.

**Principle:**

The heated air leaving the servers is cooled by a chilled water coil housed in the rear door. Coil-related pressure drop is compensated by fans



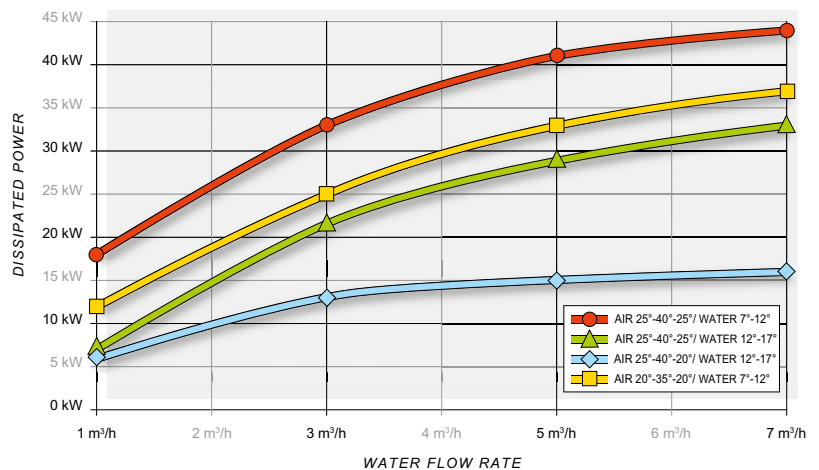
**Benefits of a water-cooled door:**

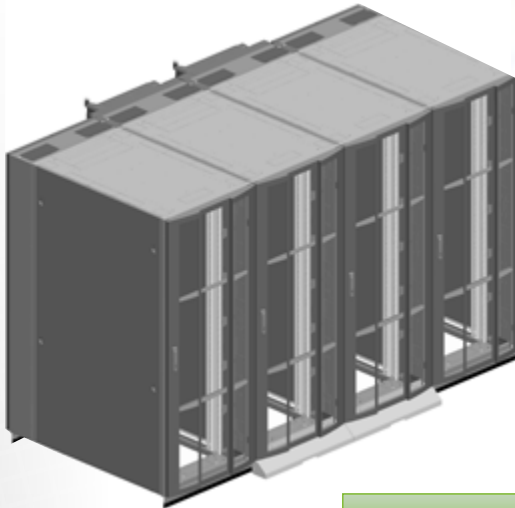
- Optimised regulation.
- Management: Alarm feedback by SNMP trap. SNMP-based ON/OFF mode management. Data supervision by IMPI.
- Optimum power consumption < 800 W.
- Enhanced hardware safety.
- Specific features.

**Performance:**

- The "ACD" Active Cold Door can be used at full power, i.e.:
- 35 to 45 kW with water at 7°C and Cabinet  $\Delta T^\circ = 0^\circ$  at room temperature 25°C
  - 25 to 35 kW with water at 7°C and Cabinet  $\Delta T^\circ = 0^\circ$  at room temperature 20°C
  - 20 to 33 kW with water at 12°C and Cabinet  $\Delta T^\circ = 0^\circ$  at room temperature 25°C or as an additional cold source, e.g.:
  - 17 kW with water at 12°C and Cabinet  $\Delta T^\circ = -5^\circ$

Power dissipated by the "Cold Door" according to water flow and temperature





5 to 45 kW / rack

**Dimensions:**

Height: 42U and 47U  
 Depth: 200 mm  
 Width: 600 and 800 mm

**BENEFITS**

- **Flexible** room layout according to needs.
- **Reduced air volume and fast hot spot treatment** => up to 50% less air volume, i.e. greater thermal efficiency.
- **Quick and cost-saving installation** with no need to change aisle containments (roof panels, door, etc.).
- **Compatible** with all fire detection and suppression systems.
- **No need to remove the aisle roof panels** to work on the aerial cable trays or room lights.
- **No sliding aisle doors** (no annual maintenance).

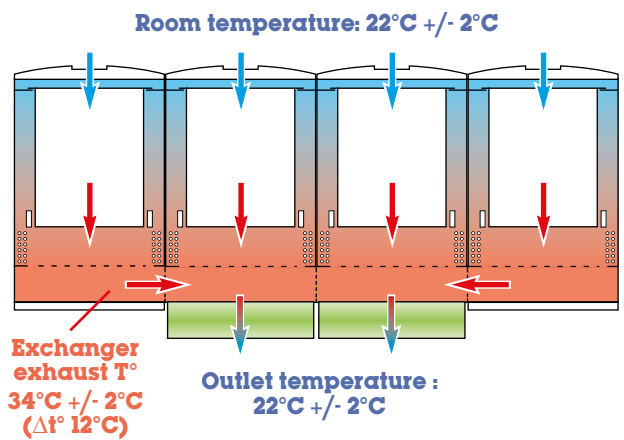


**FUNCTION**

The MODUL'X is a modular solution allowing the successful urbanisation of computer rooms, leading to controlled operation.

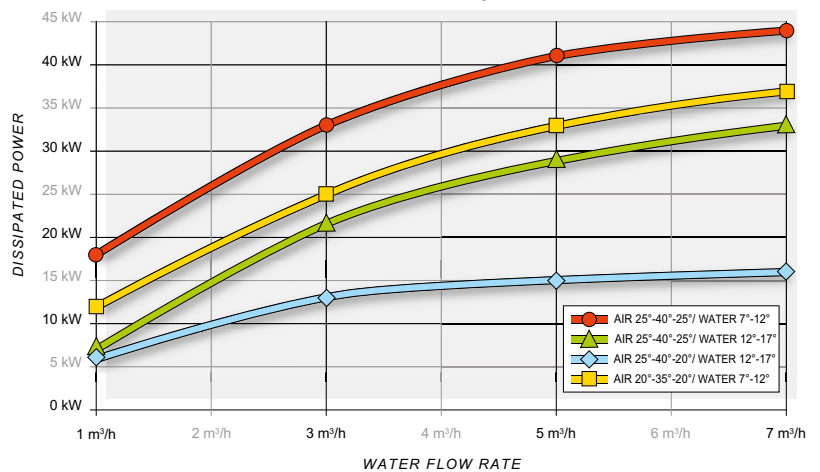
**PRINCIPLE**

The air in the room is drawn in by the servers. It is then exhausted hot into the contained rear part of the racks. WATER-COOLED doors fitted at the rear of the MODUL'X draw in this hot air and cool it via an air/water exchanger, then exhaust it into the room according to a "user" setting.



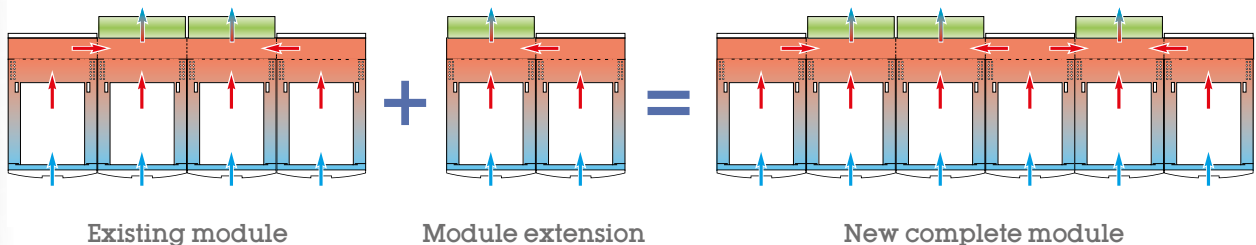
**Performance:**

Power dissipated by the "Cold Door" according to water flow and temperature

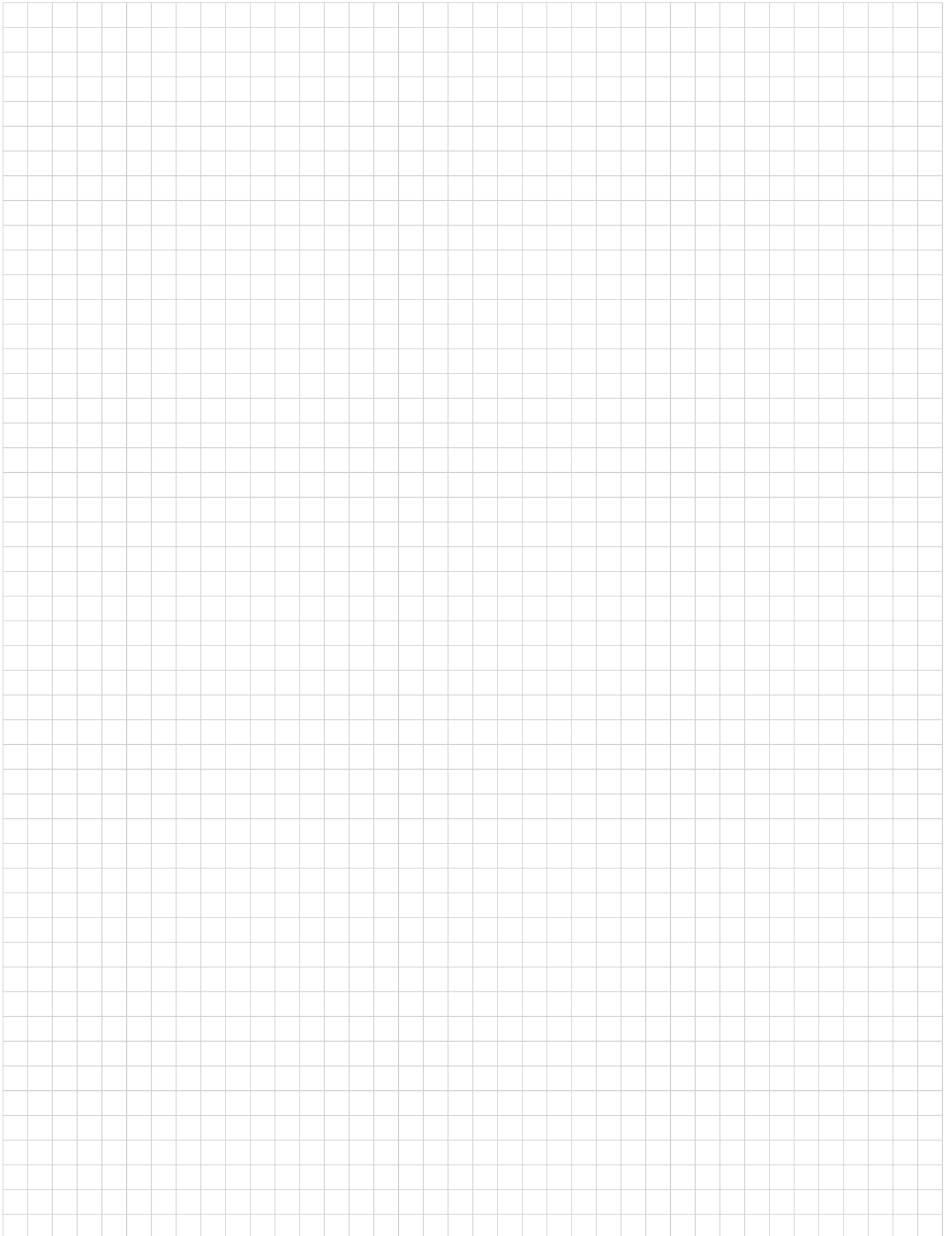


**URBANISATION EXAMPLE**

Containment pooling:





A large rectangular area filled with a light gray grid, intended for taking notes. The grid consists of approximately 30 columns and 40 rows of small squares.



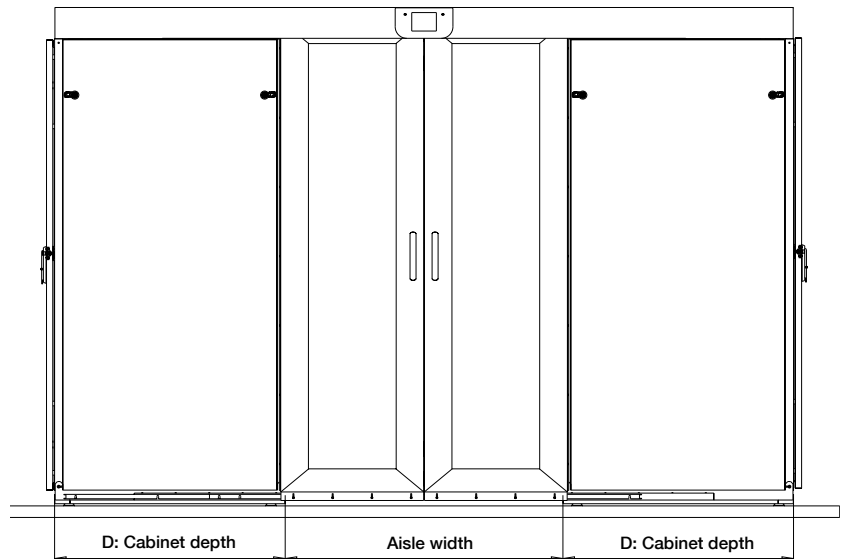
## SLIDING DOORS FOR CCA / HCA CONVERGENCE FOR AISLE WIDTH 900 OR 1200 MM

- Assembly consisting of:
- 1 or 2 tinted safety glass sliding doors,
  - Enclosure crossbars for sliding system,
  - Inside opening system,
  - Brush seals,
  - Seal baffle between the 2 sliding doors.

Aisle width 900 mm	CABINET		Aisle width 1200 mm	CABINET	
	Depth 1000 mm	Depth 1200 mm		Depth 1000 mm	Depth 1200 mm
42 U	1010293	1010294	42 U	1008834	1008844
47 U	1010295	1010296	47 U	1008839	1008849

5 closing solutions (add the text after the code):

- Single handle, no lock. Code only
- ha ΔT° ΔT° ndle with key. Code followed by SER+CLE
- Handle with mechanical code. Code followed by MEC+CLE
- Handle with electromagnetic lock. Code followed by ELECTRO
- Handle with electromagnetic lock with badge keypad. Code followed by DIGICOD



## SPRING-LOADED AUTOMATIC CLOSING KIT

Aisle width	Door	Code
900 mm	single panel door	1010283
1200 mm	split door	1010301





## ROOF PANEL, BRUSH KIT AND GASKETS FOR CCA / HCA CONVERGENCE FOR AISLE WIDTH 900 OR 1200 MM

Assembly consisting of:

- 1 safety glass or plain roof panel depending on width and
- 2 roof support crossbars
- 2 floor brushes (to be fitted on aisle side)
- 2 clip-on inter-rack gaskets



The inter-rack gasket ensures that your aisle is perfectly sealed.

Aisle	Plain roof panel	Safety glass roof panel		
		L.600	L.800	L.900
width 900 mm	1010297	1010298	1010299	1010300
Width 1200 mm	1009476	1009110	1009111	1009488



## DOOR ALARM SENSOR KIT ALARM KITS

- Door sensor kit  
Monitors the open or closed status of each of the sliding doors.
- Door alarm kit (light signal and audible signal)  
Signals untimely or inordinately long door opening.  
The door alarm kit includes a door sensor kit.

	Code
Door sensor kit	1009218
Alarm kit	1009219





## COOLING MODULES “ACM” AND “CCM”

### Function:

300 mm wide cabinet sized module, equipped with an air/water exchanger drawing in hot air from a contained area and exhausting the cooled air into a cold area.

### Principle:

The heated air leaving the servers is blown through the contained hot area. The modules measure the pressure drop between the hot and cold areas.

### Performance:

Module power curves.

Power varies according to the air and water temperatures used. It increases with:

- higher server inlet temperature
- lower water temperature
- higher water flow

### The ACM is available in 2 versions:

- Version V5 with 5 fans (H 42U) for powers to dissipate of up to 30 kW.
- Version V6 with 6 fans (H 47U) for powers to dissipate of up to 45kW.

POWER	WATER (no glycol)		ACM	
	Water temperature	ACM inflow	Number of Fans	server Δt
25 kW	10°C / 15°C	4.3 m3/h	5	10°C
28 kW	10°C / 15°C	4.8 m3/h	5	11°C
34 kW	12°C / 17°C	5.2 m3/h	6	12°C
44 kW	8°C / 13°C	6 m3/h	6	15°C

## AISLE COOLING MODULE “ACM”

The “ACM” aisle cooling module draws in the hot air blown by the servers into the hot controlled aisle, cools it with its air/water exchanger and blows it back into the room. An n+1 to 2n redundancy is possible depending on the configuration.

## CABINET COOLING MODULE “CCM”

The “CCM” cabinet cooling module draws the air in the sealed rear containment, cools it with its air/water exchanger and blows it back into the sealed front containment. This solution, more compact than an HCA, allows module pooling and is suitable for applications involving up to 4 or 5 racks.

An n+1 to 2n redundancy is possible depending on the configuration.

## 1- OPTIMISED REGULATION:

- Air flow control.  
Air flow is controlled by measuring the hot area/cold area pressure drop and by slaving heat exchanger airflow to actual server airflow => (p = 0 ±2 Pa).

\_ No disruption of the servers' own regulation.  
This principle also ensures automatic redundancy between the various modules of a given containment.

\_ In the event of an ACM shutdown, the pressure increases in the containment and the airflow of the other modules automatically increases.

- Water flow monitoring :  
Water flow is controlled by a 2- or 3-way valve according to ACM air outlet temperature (air outlet temperature according to user setting).

## 2-MANAGEMENT

The ACM is fitted with a programmable logic controller providing access to multiple protocols.

- Modbus version RTU.
- Modbus version TCP/IP.
- SNMP (the SNMP option consists of a gateway with embedded web pages for a group of several ACMs. Thus, using a single IP address , it is possible to poll and view all data on all ACMs).
- Dry contact.

List of alarms reported by the PLC:

- ON/OFF STATUS = Returns the operating status of the cooling module.
- MINOR ALARM = Failure of one or more cooling module fans.
- MAJOR ALARM = High temperature fault.
  - temperature probe fault.
  - Valve fault.
  - Pressure fault.
  - Power supply fault.

This list is not exhaustive and may be completed by request according to available data.

## 3-POWER CONSUMPTION:

- ACM V5 < 700W
- ACM V6 < 900W

## 4- SAFETY:

- Stainless steel-sheathed hoses.
- Industrial connectors.
- Condensate drip trays + discharge.
- Water presence detector (optional).
- Redundant power supply (optional).

## 5- FEATURES

- Self-standing unit that does not restrict the structures of adjacent racks.
- Width 300 mm, i.e. 1/2 raised floor panel
- Water inlet/outlet to rear (hot aisle side) from the top of the ACM, or from the bottom with cut-off valves and housing.
- Easy to install.
- Tools for 2-person unpacking/installation.
- Easy floor assembly cutting.

## 6- CONNECTION TO WATER MAINS:

- The CMs are connected to the water mains by means of two 1"1/4 nipples.
  - Blue valve = water inlet.
  - Red valve = return.
- Condensates are removed by connection to a 20 mm diameter tube.

## 7- ELECTRICAL CONNECTIONS:

- Module electrical connection to 230 VAC mains power terminal strip.



ACM		Control valve	
		2-way	3-way
42 U	D. 1000	1010275	1010276
	D. 1200	1010277	1010278
47 U	D. 1000	1010279	1010280
	D. 1200	1010281	1010282

CCM		Control valve	
		2-way	3-way
42 U	D. 1000	1010284	1010285
	D. 1200	1010286	1010287
47 U	D. 1000	1010288	1010289
	D. 1200	1010290	1010291

## DETECTION KIT AND REDUNDANCY KIT

Optional kits	Code
Water detection kit for condensates tray	1010264
Redundant power supply kit	1010265



## MULTIPURPOSE RESERVE MODULE "MRM"

The multipurpose reserve module "MRM" is a 300 mm wide free-standing unit designed to be integrated in a "CCA", "HCA" or "CCM" containment.

The MRM can be used either in the middle or at the end of a row, offering improved cable management, along with strong and weak current separation.

- Equipped with sealed solid doors at both the front and rear of the module, it does not disrupt aisle containment operation.
- The fully open module base facilitate cable rising.
- The top of the module fitted with seal brushes allows cable descent.
- Cable anchoring to wire plates (optional, see below).

	42 U	47 U
MSM Depth 1000	1009489	1009491
MSM Depth 1200	1009490	1009492



## METAL WIRE CABLE TRAYS

	Codes
Cable tray 42U, 300 x 54	1009493
Cable tray 47U, 300 x 54	1009494

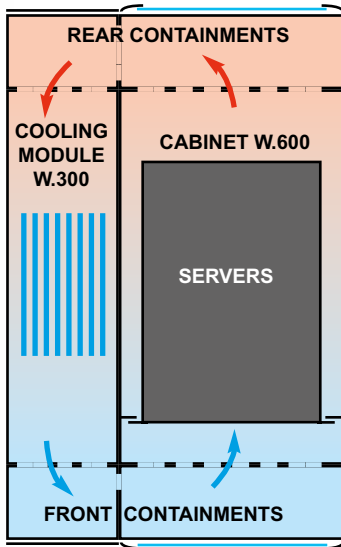
## CONTAINMENT FOR "CCM"

The Contained Cabinet and Module "CCM" containments supplement a series of cabinet(s) and cooling module(s) to create front and rear contained spaces.

Front and Rear containments are grouped under a single item code.

These consists of 300, 600 or 800 mm wide structured with solid door (300 mm width) or glass door (600 and 800 mm widths).

Each containment consists of a 300 mm wide Basic containment and of 300, 600 or 800 mm expansions.



Horizontal section

	L.300		L.600	L.800
	Base	Extension	Extension	Extension
Height 42 U	1009449	1009450	1009451	1009452
Height 47 U	1009453	1009454	1009455	1009456

### "CCM" examples

#### ▲ 1 rack + 1 cooling module

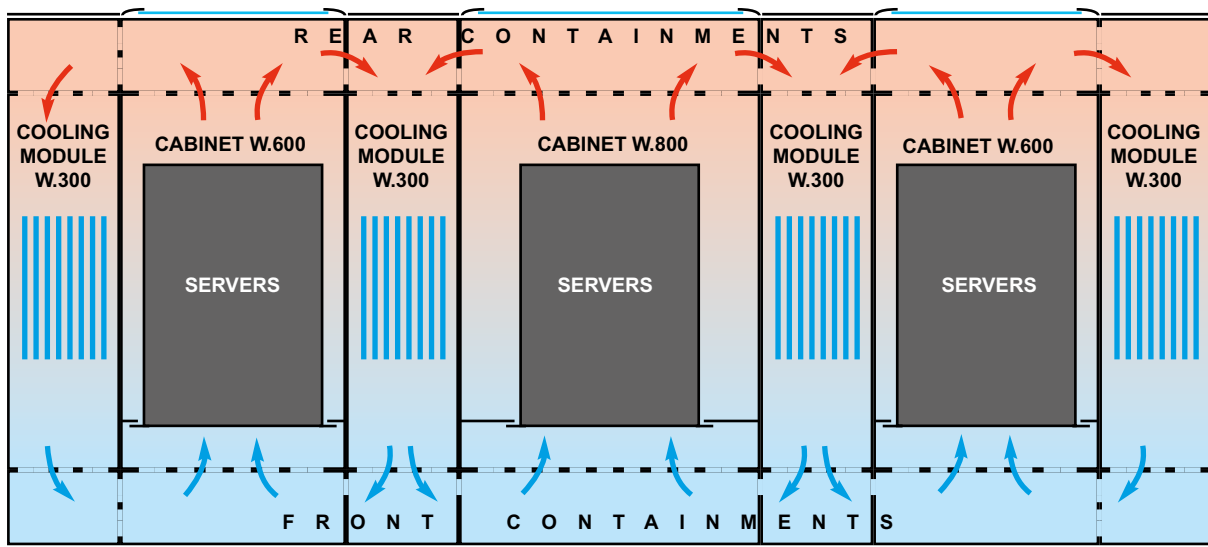
##### Composition:

- 1 cabinet D.1000 x W.600 (page 30)
- 1 CCM D.1000 x W.600 (page 19)
- 1 Basic containment W.300
- 1 containment extension W.600

#### ▼ 3 cabinets + 4 cooling modules

##### Composition:

- 2 cabinets D.1000 x W.600 (page 30)
- 1 cabinet D.1000 x W.800 (page 30)
- 4 CCM D.1000 x W.600 (page 19)
- 1 Basic containment W.300
- 3 containments extension W.300
- 2 containments extension W.600
- 1 containment extension W.800



Horizontal section





**10 to 45 kW / rack**

**Sample efficiencies:**

10kW with water conditions 10°C/16°C, air outlet temperature 24°C and server Δt of 9°C

15kW with water conditions 8°C/13°C, air outlet temperature 20°C and server Δt of 12°C

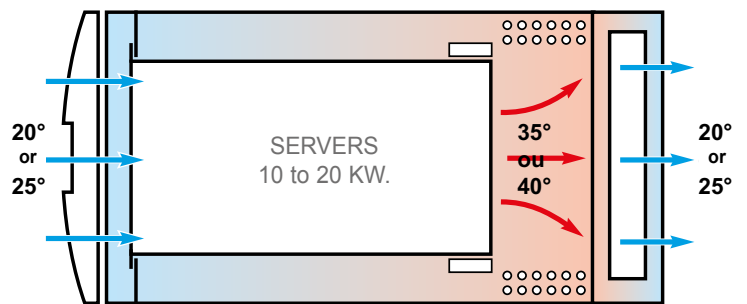
**PASSIVE COLD DOOR**

**Function:**

Rear door including an air-water exchanger, with a cooling capacity of 10 to 20 kW depending on the available water temperature. Pressure drop is very low and does not disrupt the servers.

**Principle:**

The heated air leaving the servers is cooled by a chilled water coil housed in the rear door. Coil-related pressure drop remains within the limits recommended by server manufacturers: Pressure drop < 25 Pa



**Installation recommendations:**

The "PCD" passive cold door is used for medium density cooling solutions from 6 to 15 Kw.

For powers to be dissipated greater than 10 kW, we recommend circulating the air at the edge of the cabinet by separate mechanical ventilation or combined with active doors.

Where ventilation is impossible, we recommend adding a thermal insulation kit above cabinets to prevent heat transfer by radiation.

The front part of the cabinet (19" fixing area) must be blanked off entirely to prevent warm air from recirculating.

The 19" equipment must be fitted with a front-to-back ventilation system.

Side ventilation 19" equipment must be prohibited, however, if this is side ventilation with rear exhaust, a side air deflector kit must be installed in the cabinet.



### Benefits of a passive door:

- Optimised regulation.
- Max power consumption <25 W
- Enhanced hardware safety.
- Communication: Modbus RTU or TCP/IP, SNMP optional



### Assembly composition:

#### 1 x 19" Convergence Rack W.600 mm composed of:

- 1 RAL 9005 painted steel structure
- 4 inner 42U uprights, 9.5mm square perforation (depth-adjustable uprights)
- Permissible load: Static: 1000 kg  
On casters: 800 kg
- 6 slots for 1U PDUs mounted vertically on either side of the 19" at the rear (Zero U assembly)
- 1 curved front door with 81% perforations
- 1 casters + adjustable feet kit.
- 1 solid roof panel with cut-outs for cable passage.

#### 1 Cold Door W.600 D.200 composed of:

- 1 mechanical part:
  - RAL 9005 painted steel fixed chassis,
  - RAL 9005 painted steel mobile chassis,
  - RAL 9005 painted steel perforated door,
- 1 hydraulic part:
  - Cooling coil,
  - Swivel joints,
  - 2- or 3-way ball valve,
  - Condensate recovery tray,
  - Insulating material and hose.
- 1 electrical part:
  - 1 power supply (option: redundant power supply),
  - 1 PLC
  - 3 temperature probes,
  - 1 door sensor.

### 1 installation and user manual.

	2-way valve		3-way valve	
	D1000	D1200	D1000	D1200
42 U	1010256	1010257	1010258	1010259
47 U	1010260	1010261	1010262	1010263

Optional kits	Code
Water detection kit for condensates tray	1010264
Redundant power supply kit	1010265
Pressure sensor kit	1010266



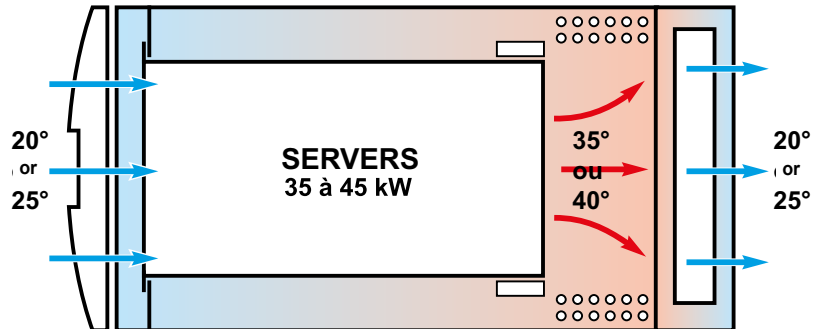
## VHD WATER-COOLED CABINET

### Function:

Cabinet fitted with a water-cooled door, capable of housing up to 45 kW of hardware without heating the outlet air and without disrupting server ventilation.

### Principle:

The heated air leaving the servers is cooled by a chilled water coil housed in the rear door. Coil-related pressure drop is compensated by fans



### Performance:

VHD rack power curves:

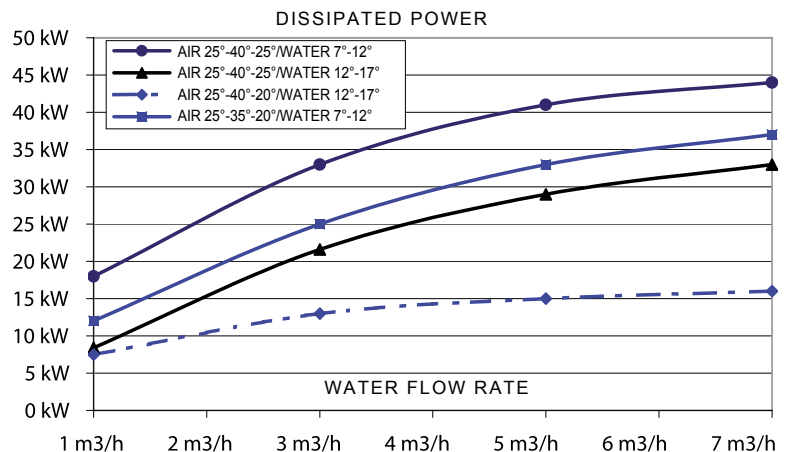
INTEGRALE VHD can be used at full power, i.e.:

- 35 to 45 kW with water at 7°C and Rack  $\Delta T = 0^\circ\text{C}$
- 34 kW with water at 12°C and Rack  $\Delta T = 0^\circ\text{C}$

or as an additional cold source, e.g.:

- 17 kW with water at 12°C and Rack  $\Delta T = 5^\circ\text{C}$

Rear view  
"Cold door" side



### Water mains connections

- The cold door is connected to the water mains by means of two 1 1/4 nipples.
  - Blue valve = water inlet
  - Red valve = return
- Condensates are removed by connection to a 20mm diameter tube.





## Benefits of a water-cooled door:

### 1 - OPTIMISED REGULATION:

- Air flow monitoring by measurement of rack/room pressure drop and slaving of exchanger flow to actual server flow: no disruption of the device air control.
- Water flow monitored by 2- or 3-way valve.
  - Outlet temperature setting assigned by web page.
  - No water circuit pump knocks: constant overall flow.

### 2- MANAGEMENT:

- Alarm feedback by SNMP trap.
- SNMP-based ON/OFF mode management.
- data supervision by IMPL.

### 3- OPTIMUM POWER CONSUMPTION:

From 200 to 800 W (depending on operation).

### 4- SAFETY:

- Ventilation with n+1 redundancy.
- Stainless steel-sheathed hoses.
- Industrial swivel joints.
- Condensate drip trays + discharge.
- Water presence detection (optional).
- Redundant power supply (optional).

### 5- FEATURES:

- Free-standing door unit that does not restrict rack structure.
- Depth 200 mm, 180° opening by offset hinge.
- Controlled water inlet/outlet: to the front with cut-off valves and housing.
- Easy to install.
  - Tools for 2-person unpacking/installation.
  - Easy floor assembly cutting.
- Reduced noise < 72 dBA at 100% output

## Assembly composition:

### 1 x 19" Convergence Rack composed of:

- 1 RAL 9005 painted steel structure
- 4 inner 42U uprights, 9.5mm square perforation (depth-adjustable uprights)
- Permissible load: Static 1000 kg  
On casters: 800 kg
- 6 slots for 1U PDUs mounted vertically on either side of the 19" at the rear (Zero U assembly)
- 1 curved front door with 81% perforations
- 1 casters + adjustable feet kit.
- 1 solid roof panel with cut-outs for cable passage.

### 1 x 42U Cold Door W.600 D.200 composed of:

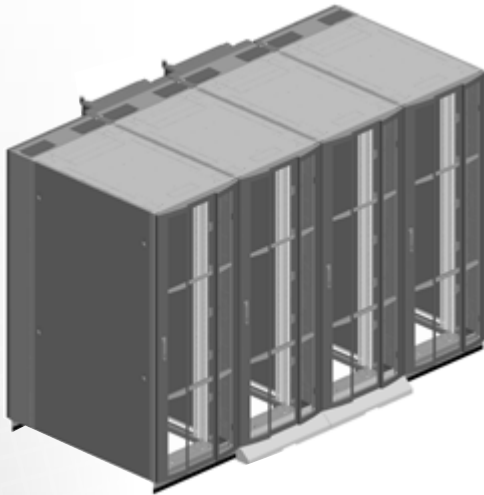
- 1 mechanical part:
  - RAL 9005 painted steel fixed chassis,
  - RAL 9005 painted steel mobile chassis,
  - RAL 9005 painted steel perforated door,
- 1 hydraulic part:
  - Cooling coil,
  - Swivel joints,
  - 2- or 3-way ball valve,
  - Condensate recovery tray,
  - Insulating material and hose.
- 1 electrical part:
  - 1 power supply (option: redundant power supply),
  - 14 fans,
  - 1 control board,
  - 4 temperature probes,
  - 1 differential pressure sensor,
  - 1 door sensor.

	2-way valve		3-way valve	
	D1000	D1200	D1000	D1200
42 U	1010267	1010268	1010269	1010270
47 U	1010271	1010272	1010273	1010274

Optional kits	Code
Water detection kit for condensates tray	1009231
Redundant power supply kit	1009232

## 1 installation and user manual.





## FUNCTION

The MODUL'X is a modular solution allowing the successful urbanisation of computer rooms, leading to controlled operation.

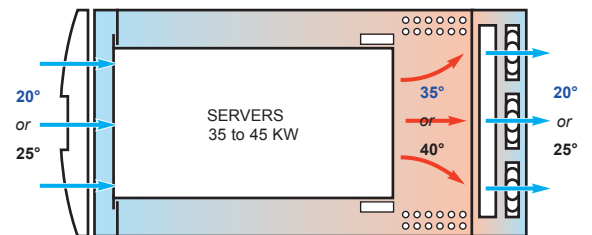
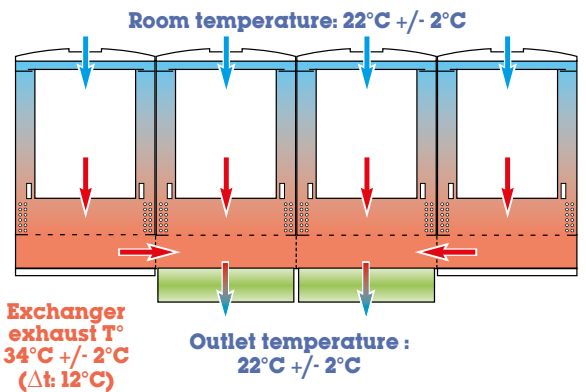
The Modul'x consists mainly of several coupled racks fitted at the rear with a pooled containment.

## PRINCIPLE:

The air in the room is drawn in by the servers. It is then exhausted hot into the contained rear part of the racks. WATER-COOLED doors fitted at the rear of the MODUL'X draw in this hot air and cool it via an air/water exchanger, then exhaust it into the room according to a "user" setting.

## BENEFITS

- **Flexible** room layout according to needs.
- **Reduced air volume and speed of hot spot treatment** => up to 50% less air volume, i.e. greater thermal efficiency.
- **Quick and inexpensive installation** with no need to change aisle containments (roof panels, door, etc.).
- **Compatible** with all fire detection and fire-extinguishing systems.
- **No need to remove the aisle roof panels** to work on the aerial cable trays or room lights.
- **No sliding aisle doors** (no annual maintenance).
- **Rack continuity with no air conditioning modules** => **Easy inter-rack wiring.**

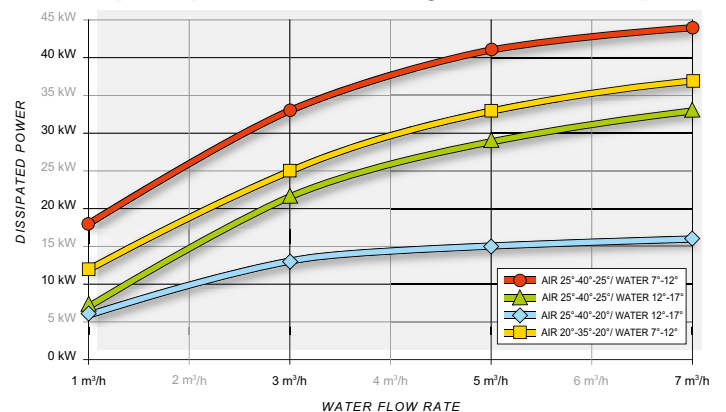


## PERFORMANCE

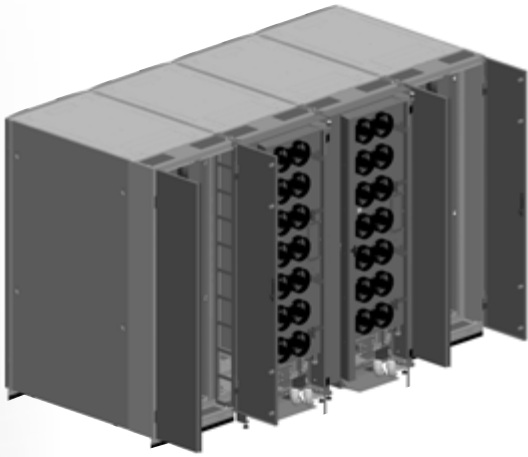
VHD cold doors can be used at full power, i.e.:

- 35 to 45 kW with water at 7°C and  $\Delta$ Rack T° = 0°C for a room temperature of 25°C
- 25 to 35 kW with water at 7°C and  $\Delta$ Rack T° = 0°C for a room temperature of 20°C
- 20 to 33 kW with water at 12°C and  $\Delta$ Rack T° = 0°C for a room temperature of 25°C

Power dissipated by the "Cold Door" according to water flow and temperature



## MODUL'X CONTAINMENT:



The MODUL'X containments supplement a series of cabinets and water-cooled doors to create a contained space at the rear of the module.

The containments consists of 200 mm deep and 600 or 800 mm wide structures.

They can be equipped with 600 mm wide doors, of the following types:

- ▶ Water-cooled
- ▶ Solid
- ▶ Glass

Each containment consists of a 600 or 800mm wide basic containment and of 600 or 800 mm extensions.

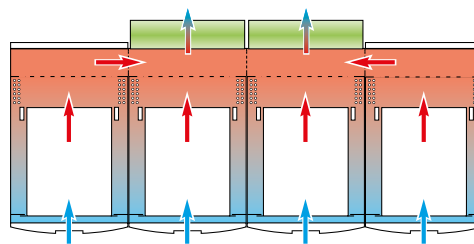
Containment D.200 mm Height / width	Base		Extension	
	600	800	600	800
42 U	1010209	1010210	1010211	1010212
47 U	1010213	1010214	1010215	1010216

Rear doors (width 600 mm) Height	plain	Glass	Water-cooled	
			2-way valve	3-way valve
42 U	1010217	1010218	1010219	1010220
47 U	1010221	1010222	1010223	1010224

Accessory racks and front doors, see pages 30 to 40

## EXAMPLE OF A MODUL'X COMPOSED OF:

- ✓ 1 x 42U HCA/CCM cabinet, depth: 1000, width: 800 reference: 1009459 (see page 30)
- ✓ 3 x 42U HCA/CCM extensions depth: 1000, width: 800 reference: 1009463 (see page 30)
- ✓ 4 curved doors, reference 1008801 (see page 36)
- ✓ 1 x 42U basic containment, width 800 reference: 1010210.
- ✓ 3 x 42U extension containments, width 800 reference: 1010212.
- ✓ 2 x 42U water-cooled doors, 3-way valve, reference: 1010220.
- ✓ 2 x 42U solid doors, reference: 1010217.



New complete module

Optional kits	Code
Water detection kit for condensates tray	1009231
Redundant power supply kit	1009232

# CONVERGENCE CABINET



Cabinet specially designed for medium- and high-density applications, type *Hosting*, *HD DataCenter*, etc.

Network configurations, Mixed Servers, etc.

- **High payload: 900 kg static and on casters**
- **Seamless aesthetics**
- **Innovative internal architecture**
- **81% door perforation for air inlet**
- **PDUs installed in Zero U from width 600 and above**
- **Continuously adjustable internal uprights**
- **1/2 Cabinet or 1/4 Cabinet colocation versions**
- **Removable inter-Cabinet side panels**

# CONVERGENCE RANGE

Our new range of “CONVERGENCE” cabinets has been specially designed for Medium and High-Density applications.

- Design and aesthetics
- Innovative internal architecture
- Continuously adjustable internal uprights
- Removable inter-rack side panels
- 81% door perforation for air inlet
- High payload: 900 kg static and on casters
- PDUs installed in Zero U from width 600 and above

## CONTENTS

Configured Cabinets and Extensions.....	30
Frames and Internal uprights .....	31
Intermediate uprights, Depth crossbars and Angle brackets.....	32
Patching solutions, PDU support uprights and Brushes .....	33
Wiring seal kit, Seals, Profiles and Panels.....	34
Side panels, Coupling kits and Tamper-proofing kits.....	35
Perforated, Glass and plain doors.....	36
Door Handles and Contactor.....	37
Roofs Ventilated roofs, Brushes and Fans .....	38
Lower backing plates, Caster kits and Floor assembly kits.....	39
Stabiliser, quick-hanging rails, PDU angle bracket.....	40
Floor assembly support, Raised floor.....	41
Colocation: Structures, Trays and uprights.....	42
19” PDU supports, Side Panels and cable trays .....	43
Front-rear doors, Handles, Contactors and Seals.....	44
PDU cases .....	46
Cabinet pre-fitting .....	49
Drawings and dimensions.....	62





### “CONVERGENCE” CABINET

Cabinet specially designed for medium- and high-density applications, type Hosting, HD DataCenter, etc.  
Network configurations, Mixed Servers, etc.

- **High payload:**  
**1200 kg static and 900 kg on casters**
- **Seamless aesthetics**
- **Innovative internal architecture**
- **81% door perforation for air inlet**
- **PDU's installed in Zero U from width 600 and above**
- **Continuously adjustable internal uprights**
- **1/2 Cabinet or 1/4 Cabinet colocation versions**
- **Removable inter-Cabinet side panels**

### PRECONFIGURED CABINET / EXTENSION WITHOUT FRONT/REAR DOORS FOR CCA:

**Composition:**

- 1 Cabinet frame guaranteeing a 900 kg payload.
- 2 sets of 2 internal 19" uprights.
- 2 cable grommet seal kits.
- 1 roof panel with cut-outs for cable inlet.
- 1 low payload caster kit.
- 2 single-piece side panels for the Cabinet version.
- 1 coupling kit for the Extension version.

Height	Width	Depth	Convergence	Extension
42 U	600	1000	1009433	1009437
	600	1200	1009434	1009438
	800	1000	1009435	1009439
	800	1200	1009436	1009440
47 U	600	1000	1009441	1009445
	600	1200	1009442	1009446
	800	1000	1009443	1009447
	800	1200	1009444	1009448

### PRECONFIGURED CABINET / EXTENSION WITHOUT FRONT/REAR DOORS FOR HCA/CRM:

**Composition:**

- 1 Cabinet frame guaranteeing a 900 kg payload.
- 2 sets of 2 internal 19" uprights.
- 2 cable grommet seal kits.
- 1 roof panel with cut-outs for cable inlet.
- 1 low payload caster kit.
- 1 Cabinet backing plate.
- 2 single-piece side panels for the Cabinet version.
- 1 coupling kit for the Extension version.

Height	Width	Depth	Convergence	Extension
42 U	600	1000	1009457	1009461
	600	1200	1009458	1009462
	800	1000	1009459	1009463
	800	1200	1009460	1009464
47 U	600	1000	1009465	1009469
	600	1200	1009466	1009470
	800	1000	1009467	1009471
	800	1200	1009468	1009472



Frame width 600



Frame width 800

### FRAME

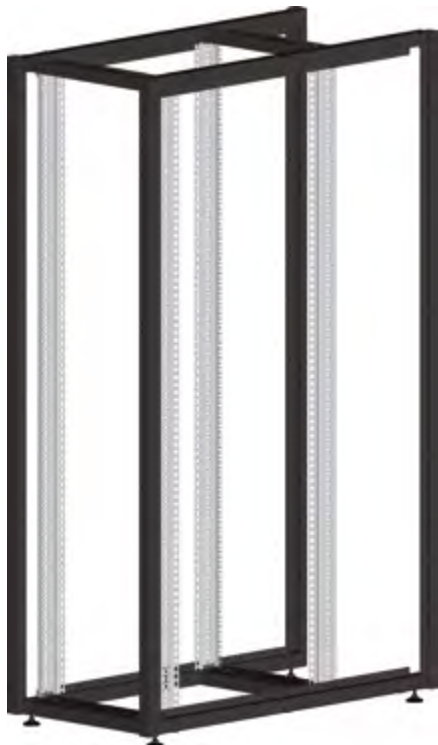
#### Characteristics:

- An innovative structure with cable trays located at the rear for 600 width and at the rear and on the sides for the 800 width.
- A high load capacity thanks to its tubular cross-bars.
- Optimised height: a 42U Cabinet on high-load caster can pass under any standardised door (H < 2.02 m).
- Basic mechanically screwed version (detachable), optional mechanical welding.
- Reinforced version for seismic risk areas, or loaded Cabinet transport, contact us.
- General mass point.

#### Composition:

- 2 reinforced, mechanically welded, painted steel frames.
- 4 painted steel uprights.
- 4 feet adjusted from inside.
- Transport pallet.

	24 U	42 U	47 U
W.600 x D.800	-	1009663	1009664
W.800 x D.800	-	1009575	1009654
W.600 x D.1000	1008701	1008705	1008709
W.800 x D.1000	1008702	1008706	1008710
W.600 x D.1200	1008703	1008707	1008711
W.800 x D.1200	1008704	1008708	1008712



### INTERNAL UPRIGHTS

#### Characteristics:

- Galvanized steel uprights
- Adjustable either in 25 mm pitches or continuously.
- Can be fitted with 19" PDU kits in zero U (see page 6).
- U identification and numbering for easier integration.
- 19" brackets in 9.5 mm squares

#### Composition:

- 2 internal 19" galvanized steel uprights.
- Units numbered by screen printing.
- Fasteners.



Set of 2 internal uprights	24 U	42 U	47 U
	1008713	1008714	1008715



### INTERMEDIATE UPRIGHTS

**Characteristics:**

- Fit onto all CONVERGENCE Cabinet types
- Depth adjustable in 25 mm pitches,
- The aisles have punch holes every half-unit, thus facilitating the fitting of collars for cable bundles

**Composition:**

- 2 uprights + 1 fastening kit (screws and angles).
- Material: galvanized steel.

Set of 2 internal uprights	24 U	42 U	47 U
	1009710	1009711	1009712



### DEPTH CROSSBAR

Painted steel Crossbar with brackets to take the strain of internal uprights.

Model		D.800	D.1000	D.1200
Crossbar alone*	W.800	1009656	1008722	1008723
Crossbar + 2 brackets for fitting to uprights	W.600	1009657	1008724	1008726
	W.800	1009658	1008725	1008727

\* For the W.800 Cabinet with PDU supports and grommet seal kit.



### SIDE BRACKETS FOR 19" VERTICAL MOUNTING

**Characteristics:**

- Fit to the side of the Cabinet's internal uprights (outside of the 19" area).
- Used for the vertical mounting of all types of 1U 19" format hardware.
- Each upright can hold 2 x 19" 24 U areas, 3 x 19" 42U areas and 4 x 19" 47U areas.

**Composition:**

- 2 brackets + fasteners.
- Material: painted steel.

	Code
Set of 2 brackets for 19" 1U fastening	1008875

These elements are available individually (reversible left or right) to fit one side of the Cabinet.



### PATCHING COMB

**Characteristics:**

- Fits to the side of the Cabinet's internal uprights (outside of the 19" area).
- Used to patch cables every unit.

**Composition:**

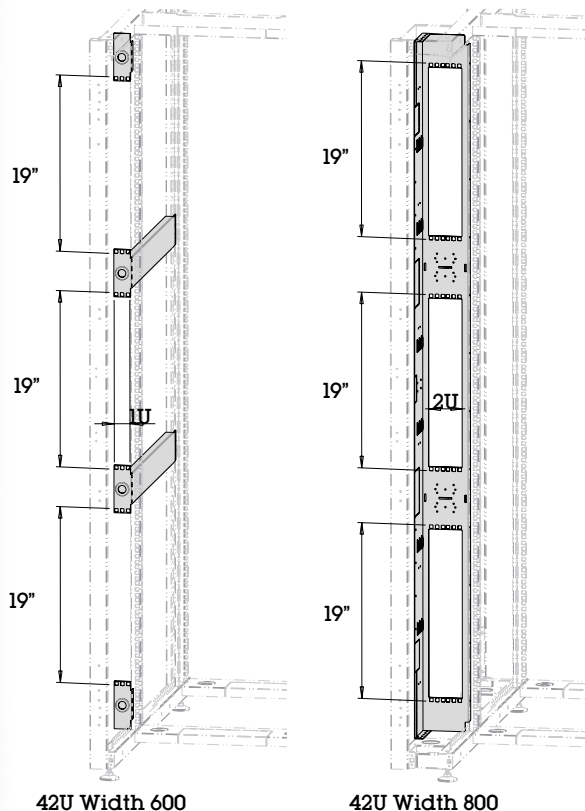
- 1 Comb + fasteners for attachment to 1 upright.
- Material: painted steel sheet.

The patching combs can be used either directly, by fastening them to the Cabinet's internal uprights, or via brackets for fastening to "PDU supports" or "seal kit" in W.800 mm versions.

Height	42 U	47 U
Patching comb	1009713	1009714

Fastening to...	PDU support	seal kit
Set of brackets	1009715	1009716



### PDU SUPPORT UPRIGHTS

"Zero U" PDU assembly spreads the sockets over the height, ensuring rational wiring without the need to use an horizontal 19" unit.

Besides the assembly of very high "zero U" PDUs, the CONVERGENCE Cabinet can be used for the "zero U" mounting of PDUs or any other 19" 1U format hardware, even if this hardware is deep\*.

This is a critical benefit for optimised integration. This feature is available on all Cabinets from 600 mm wide onwards.

\* PDU for power, but also network or supervision hardware.

**Total capacity in terms of 1U hardware mounted sideways**

	24 U	42 U	47 U
W.600	2 x 1U	3 x 1U*	4 x 1U
W.800	2 x 2U	3 x 2U	4 x 2U

° Incompatible with depth crossbar below, this kit acts as a upright brace.

Model	24 U	42 U	47 U
PDU support uprights W.600	1008716	1008717	1008718
W.800	1008719	1008720	1008721



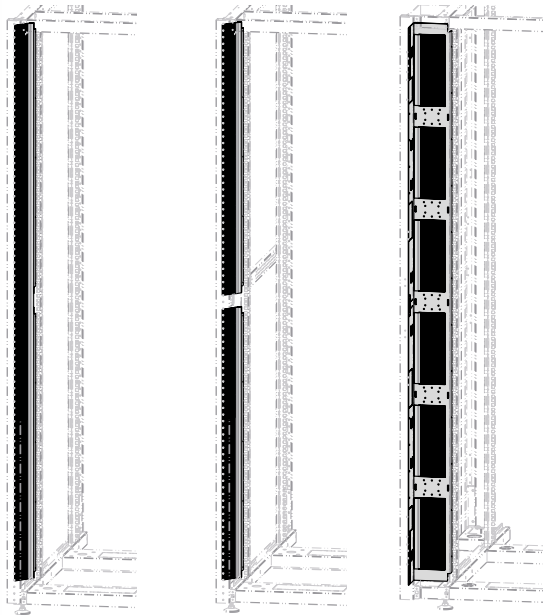
### BRUSHES

	2U x 19"
2U 19" brushes	A115220

For 19" front panels, see page 52.



These elements are available individually (reversible left or right) to fit one side of the Cabinet.



W.600 continuous    W.600 Crossbar inlet    Width 800

### GROMMET SEAL KIT

Whatever the Cabinet arrangement (cold aisles/hot aisles, containment, etc.), hot air/cold air loops between the front and rear of the Cabinet must be avoided.

The brush seal kits prevent air from returning, while allowing cables to pass along the sides of the 19" uprights.

#### Composition:

- Width 600: support brackets + 1 full-height brush support brackets + 2 half-brushes
- Width 800: painted steel housing with grommets occluded by brushes.

Model	24 U	42 U	47 U
W.600 continuous	1008728	1008729	1008730
W.600 Crossbar inlet	1008731	1008732	1008733
W.800 with brushes	1008734	1008735	1008736
W.800 no brushes	1009717	1009718	1009719

### BACKING PLATE FOR 90x240 DIVISIONS OF THE 800 mm SEAL KIT

For the plain plate, Atos offers optional customisation (machining, screen printing, etc.), Contact us.



	Brush	plain backing plate
For 90x240 division	A114854	1009720



### INTER-CABINET PROFILE

The inter-Cabinet profile provides a perfect seal between 2 Cabinets and guarantees aesthetics when the Cabinets are not fitted with doors.

	Code
Inter-Cabinet profile	B114139



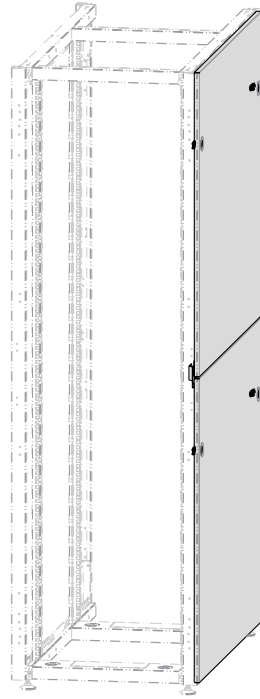
### CABINET-BOTTOM PANEL

This panel can be fitted either to the front or rear of the Cabinet. Fitted with seal brushes, it prevents air from passing under the Cabinet.

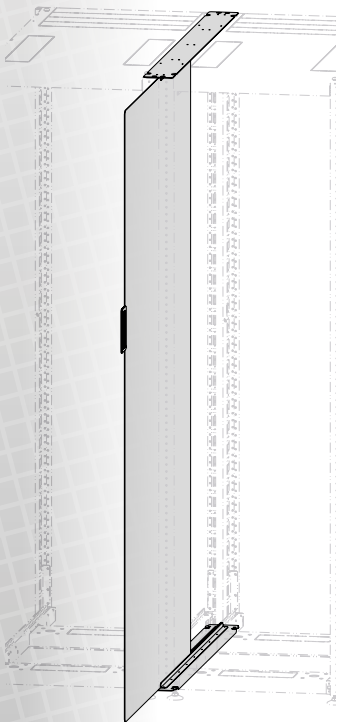
	W.600	W.800
Cabinet-bottom panel and brush kit	1008832	1008833



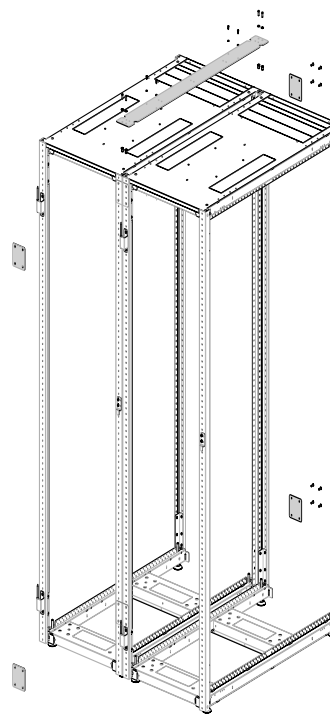
Single-piece panel



2-piece panel



Sliding panel



Coupling kits

### SIDE PANELS

The side panels close the sides of the Cabinets, or the row ends.

The sliding panels separate coupled Cabinets (safety, air flow, etc.) after the row has been installed.

#### Characteristics:

- RAL 9005 painted steel.
- Closed by two 1/4 turns, optional lock.

#### Versions:

- Single-piece, full height.
- Two pieces for the largest formats.
- With sliding separation panel.

Single-piece panel	24 U	42 U	47 U
D.800	-	1009574	1009571
D.1000	1008761	1008762	1008763
D.1200	1008764	1008765	1008766
2-piece panel			
D.1200	-	1008768	1008769
Complete sliding panel	<b>with coupling kit</b>		
D.1000	1008640	1008641	1008642
D.1200	1008639	1008637	1008638
Sliding panel alone	<b>without coupling kit</b>		
D.1000	-	1009679	1009681
D.1200	-	1009680	1009682

### COUPLING KITS

For rigid mechanical connection between two Cabinets.

Coupling possible after integration.

#### Composition:

- RAL 9005 painted steel roof connecting flat.
- Steel front and rear connecting flat.
- Fasteners.

Coupling kit	For Cabinet	For sliding panel
D.800	1009673	-
D.1000	1008773	1009705
D.1200	1008774	1009706

### PANEL TAMPER-PROOFING KITS

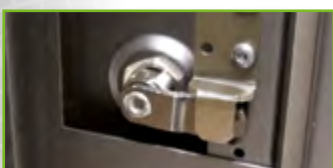
#### Lock and key kit

Fitted instead of the side panel 1/4 turns for complete security.

#### Lock-out kit

This kit locks the panel cam. It is fitted inside the Cabinet, on the external uprights.

Two kits are required for 2-piece panels.



	Code
Lock and key kit	1008770
Lock-out kit	1009739



### DOORS

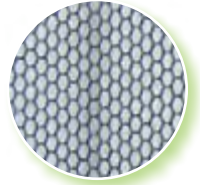
To ensure perfect server ventilation, the doors must be heavily perforated.

Convergence doors possess 81% perforation.

A W.600 42U door offers 0.583 m<sup>2</sup> air inlet.

#### Characteristics:

- 81% perforation.
- Invisible hinges, 120° opening
- Unhingeable without tools
- Fitted with a bonding strap
- 1 point cam locking, or multi-point cremone-bolt locking
- Right/left reversibility
- Several handles available (see following page).



#### Perforated versions:

- Curved door, single or split.
- Flat door, single or split.
- By default: handle with lock and key.

#### plain versions:

- Glass vented door.
- plain steel door, single or split.

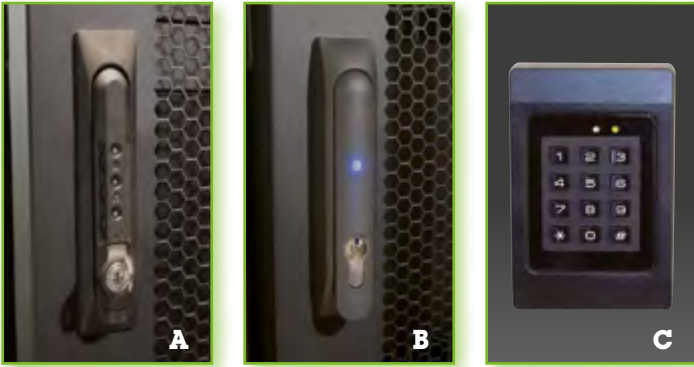


Curved door		24 U	42 U	47 U
single	W.600	1008737	1008738	1008739
1 point locking	W.800	1008740	1008741	1008742
single	W.600	1008797	1008798	1008799
multi-point locking	W.800	1008800	1008801	1008802
split	W.600	1008743	1008744	1008745
multi-point locking	W.800	1008746	1008747	1008748

Flat door		24 U	42 U	47 U
single	W.600	1008749	1008750	1008751
1 point locking	W.800	1008752	1008753	1008754
single	W.600	1008803	1008804	1008805
multi-point locking	W.800	1008806	1008807	1008808
split	W.600	1008755	1008756	1008757
multi-point locking	W.800	1008758	1008759	1008760

Glass vented door.		24 U	42 U	47 U
W.600		1009721	1009722	1009723
W.800		1009724	1009725	1009726

plain rear door		24 U	42 U	47 U
single	W.600	1009727	1009728	1009729
1 point locking	W.800	1009730	1009731	1009732
split	W.600	1009733	1009734	1009735
multi-point locking	W.800	1009736	1009737	1009738



### HANDLES

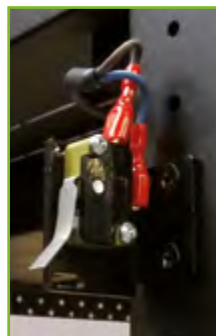
These models can be fitted instead of the basic handle. Specify the table according to the table shown below, behind the door item code.

*Example:*  
Curved door with handle B  
Code: 1008738 ELECTRO.

#### Versions:

- A** Mechanical code + key: the Cabinet user selects the code, the room operator uses the key as a pass.
- B** Electromagnetic closing, lockable by means of a relay controlled by a supervision system with mechanical emergency opening.
- C** Electromagnetic closing, controlled by a digi-code keypad.

	A	B	C
Handle	MEC+CLE	ELECTRO	DIGICOD



### DOOR CONTACTOR

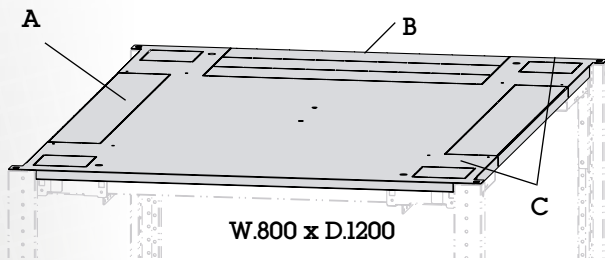
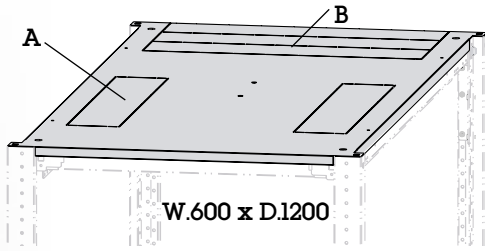
To monitor a door's open or closed status, or to control a lighting system.

#### Composition:

- 1 miniature micro-switch
- 3m long H05RR-F 2 x 0.75 mm<sup>2</sup> cable
- Fasteners + screws for various assemblies
- Assembly drawing

	Codes
Door contactor	1008795





Possible number of fans
4 for D.800 x W.600
4 for D.800 x W.800
6 for D.1000 x W.600
9 for D.1000 x W.800
6 for D.1200 x W.600
9 for D.1200 x W.800



## ROOF PANELS

Made from painted steel, with cable inlet cut-outs at the rear and on the sides, from width 600 onwards.

- Cut-outs easily allow many cables to be passed through thanks to the Cabinet's open structure.
- Grounding by means of continuity washers.

Depth	Width	Code	Dim. A	Dim. B	Dim. C
D.800	W.600	1009665	90 x 240	90 x 240	-
	W.800	1009740	90 x 240	90 x 240	90 x 100
D.1000	W.600	1008775	90 x 470	90 x 470	-
	W.800	1008776	90 x 470	90 x 470	90 x 100
D.1200	W.600	1008777	90 x 470	3 x 90 x 470	-
	W.800	1008778	90 x 670	3 x 90 x 470	90 x 100

## VENTILATED ROOFS

The ventilated model can be fitted from 1 to 9 fans. Cable inlet cut-outs are provided.

### Composition:

- 1 item + fasteners.
- 1 bonding strap

Depth	Width	Code	Dim. A	Dim. B	Dim. C
D.800	W.600	1009741	90 x 240	90 x 240	-
	W.800	1009655	90 x 240	90 x 240	90 x 100
D.1000	W.600	1009742	90 x 470	90 x 470	-
	W.800	1009743	90 x 470	90 x 470	90 x 100
D.1200	W.600	1009744	90 x 470	3 x 90 x 470	-
	W.800	1009745	90 x 670	3 x 90 x 470	90 x 100

## BRUSHES

For cable inlet cut-outs

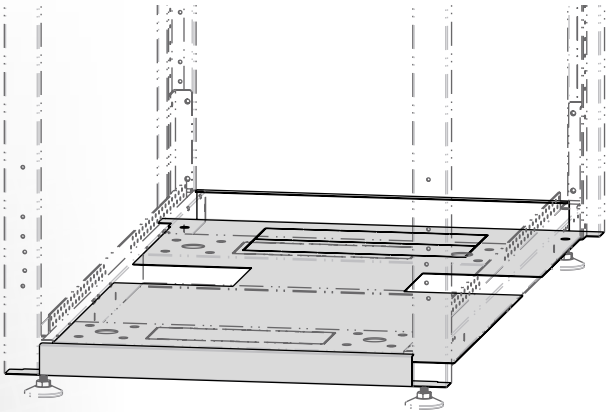
Dimensions	90 x 240	90 x 470	90 x 670	90 x 100
Brush	All4854	All4925	All4926	All4762

## FANS & ACCESSORIES

Fitted onto roofs or perforated trays.

Fan characteristics	Standard	Low noise	48 VDC
Voltage	230 VAC	230 VAC	48 VDC
Size	120x120x38	120x120x38	120x120x38
Power	21 W	7.5 W	10 W
Free air flow	160 m <sup>3</sup> /h	115 m <sup>3</sup> /h	180 m <sup>3</sup> /h
Noise level	45 dBA	32 dBA	43 dBA
1 fan	<b>B104053</b>	<b>B106398</b>	<b>B104740</b>
1 fan + fastenings + cords	<b>0000038</b>	<b>0000040</b>	<b>0000041</b>
Fitted and cabled 2-fan assembly	<b>6000382</b>	<b>6000545</b>	<b>6000546</b>
Fitted and cabled 4-fan assembly	<b>6000377</b>	<b>6000547</b>	<b>6000548</b>
Fitted and cabled 6-fan assembly	<b>6000583</b>	<b>6000584</b>	<b>6000585</b>
Fitted and cabled 9-fan assembly	<b>6000586</b>	<b>6000587</b>	<b>6000588</b>

Accessories	Finger guard	Terminal strip
Codes	<b>6000033</b>	<b>0000039</b>



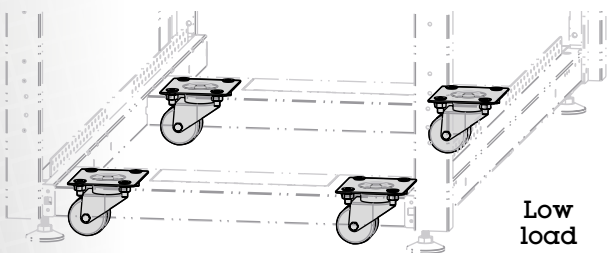
**BACKING PLATES**

Made from painted steel, with cut-outs for cable inlet:

- At the rear, for width 600
- At the rear and on the sides for width 800.

- Cut-outs easily allow many cables to be passed through thanks to the Cabinet's open structure.
- Grounding by means of continuity washers.

D.800		D.1000		D.1200	
W.600	W.800	W.600	W.800	W.600	W.800
1009746	1009747	1008779	1008780	1008781	1008782



**CASTER KIT**

2 types of caster kits are available.

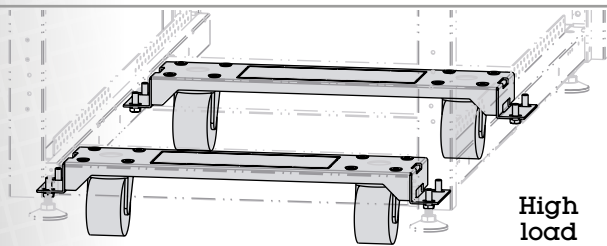
- Low load kit (max. 250 kg) to move empty Cabinets at their installation location.
- High load kit (max. 900 kg) to move Cabinets fitted with servers at their installation location.

Reminder: the overall height of a 42U Cabinet is less than 2.02 m, allowing it to pass through all standardised doors.

**Composition:**

- Low load: 1 set of casters + fastenings
- High load: 1 set of crossbars + casters + fastenings

	Low load	High load
Caster kit	1008783	1008784



**BRUSHES FOR RAISED FLOOR**

For raised floor cable inlet.

**Composition:**

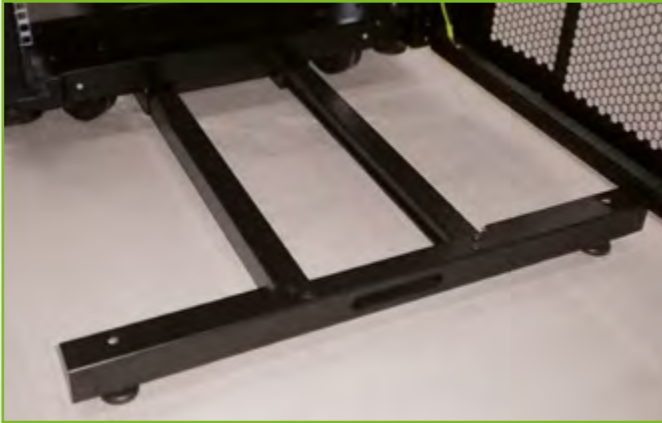
2 brushes + floor panel fastenings

Floor cut-out	100 x 450
Brushes	1009541



### STABILISER

- Provides maximum safety in deployed position.
- Telescopic stabiliser, does not impede movements through the aisles.
- Compatible with Cabinets fitted with caster kits.
- During installation, the adjustable feet can be used to adjust the level.



Delivered assembled (if specified upon ordering) or in kit form with assembly instructions.

	Code
Stabiliser Width 600	1009495
Stabiliser Width 800	1009497



### QUICK HANGING RAILS

#### Characteristics:

- Fixed position depending on distance between uprights.
- Can be fitted every 1/2 unit.
- Hardware support side +2 mm.

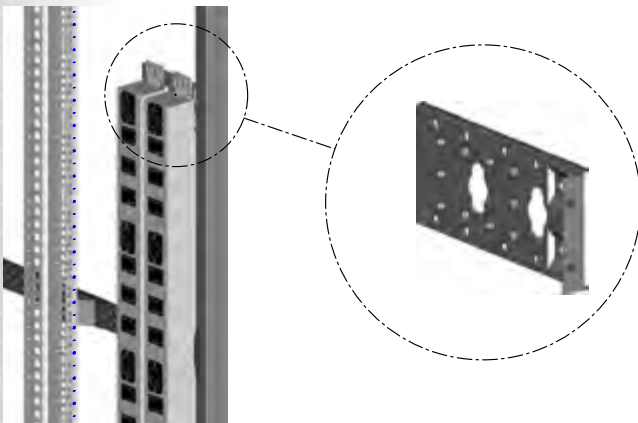
Material: galvanized steel.

Permissible load: 60 kg/pair.

Delivery: 1 pair + fastenings for locking in position (kit)

Distance between uprights*	540 mm	740 mm
Quick hanging rails	1009748	1009513

\* Distance between the front and rear 19" fixing plans.



### PDU SUPPORT BRACKET

- Fits onto the Cabinet's external uprights.
- Allows the vertical fitting of 2 Zero U PDUs.
- A keyhole facilitates the mounting of PDUs equipped with quick-hanging systems.

Material: painted steel.

Delivery: set of 2 brackets + Cabinet fastenings.

	Code
PDU support bracket	1009678



### RAISED FLOOR SUPPORT

Mounted on 6 adjustable feet.  
 Height adjustment from 260 to 350 mm.  
 Permissible static load: 1000 kg  
 Front and rear panel support included.  
 Kit of 2 lateral supports, to be ordered separately, according to depth.

	D.600	D.800	D.1000	D.1200
Support Width 600	1008313	1008314	1009319	1009220
Support Width 800	1008315	1008316	1009320	1009112
2 lateral support kit	1008317	1008318	1009321	1009113



### RAISED FLOORS

#### • ADJUSTABLE FEET

For floors with a finished height of between 200 and 800 mm approximately, according to threaded rod Ø.

#### Design

Base made from 80x80 treated steel, treated M16 or M18 threaded rod welded to the base.

Notched adjustment nut supporting the smooth aluminium drum head, electrostatic conductive seal and bonding strap clamps.

#### Height adjustment range

± 25 mm from the nominal height

#### Point loads

550 kg for height up to 300mm

450 kg for height up to 800mm



Finished floor height	200 mm	300 mm	400 mm	500 mm
Ø 16 adjustable foot	A115079	A115124	A115125	A115126

Finished floor height	600 mm	700 mm	800 mm
Ø 18 adjustable foot	A115080	A115127	A115128

#### • CROSSBAR

For spaced assembly.

Treated steel U-shaped floor profiles.

Guarantee greater floor stability.

Cross crossbar	Code
Clip-on 30x34x30	A115081



#### • PANELS

The plain or perforated panels are specially designed to meet the special requirements of datacenter technical applications.

#### plain panels

Standard 600 x 600 mm module.

High density particle board, thickness 38 mm.

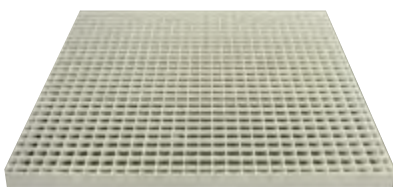
Colour: grey marbling on white background.



#### Ventilated panels

Standard 600 x 600 mm module.

Top plate with Ø 6 mm perforations for an effective flow area of 8 dm<sup>2</sup>.



#### Grating

Standard 600 x 600 mm module.

19x19 mm mesh, for an effective flow area of 26 dm<sup>2</sup>.

Smooth RAL 9016 satin white finish.

	plain	Ventilates	Grating
panel	A115084	A115082	A115123



CONVERGENCE Cabinets are available in “SECURE” and “NON-SECURE” versions. Specially designed for use in hosting centres, it is available in 1/2, 1/3 or 1/4 Cabinet format to meet the various site configurations.

## STRUCTURE

The structure of the CONVERGENCE colocation Cabinet allows a static payload of 1200 kg spread over the various compartments. It is fitted with a backing plate and plain roof panel.



Available in several versions:

- ✓ Height: 42 U or 47 U
- ✓ Depth: 1000 or 1200 mm
- ✓ Width: 600 or 800 mm



## SEPARATING TRAY

The compartments are separated by a reinforced tray mounted to the Cabinet's external uprights.

This tray can accept a static payload of 300 to 600 kg (depending on 1/2, 1/3 or 1/4 bay configuration).

Compartment	1/2 Cabinet	1/3 Cabinet	1/4 Cabinet
Permissible load	600 kg	400 kg	300 kg



## 19" INTERNAL UPRIGHTS

The compartments are fitted with four 19" internal uprights that can be individually depth-adjusted. Unit identification by screen printing.

19" effective area	1/2 Cabinet	1/3 Cabinet	1/4 Cabinet
42 U	20 U	13 U	-
47 U	23 U	15 U	11 U

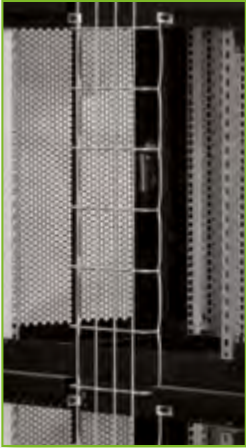
## SIDE PANELS AND CABLE TRAYS

The NON-SECURE colocation Cabinet is fitted with:

- 2 REMOVABLE side panels with 1/4 lock.
- 2 wiring panels guide the cables to their various compartments.

The SECURE colocation Cabinet is fitted with:

- 2 NON-REMOVABLE side panels fitted with individual cable trays for each compartment.

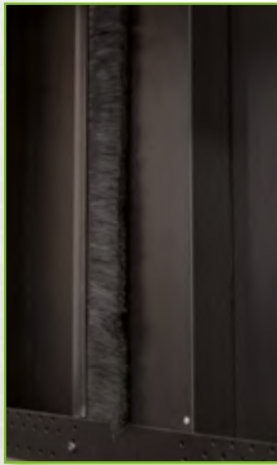


"Non-secure" version

### PRE-CONFIGURATIONS FOR COLOCATION CABINET WIDTH 600 MM

42 U	NON-SECURE		SECURE	
	D.1000	D.1200	D.1000	D.1200
2-compartment rack	1008862	1009381	<b>1008865</b>	1009400
3-compartment rack	<b>1008863</b>	1009380	1008866	<b>1009401</b>

47 U	NON-SECURE		SECURE	
	D.1000	D.1200	D.1000	D.1200
2-compartment rack	1009382	<b>1009385</b>	1009397	1009402
3-compartment rack	1009383	1009386	<b>1009398</b>	1009403
4-compartment rack	1009384	<b>1009387</b>	1009399	<b>1009404</b>



"Secure" version

### PRE-CONFIGURATIONS FOR COLOCATION CABINET WIDTH 800MM

42 U	NON-SECURE		SECURE	
	D.1000	D.1200	D.1000	D.1200
2-compartment rack	1010235	1010236	<b>1010237</b>	1010238
3-compartment rack	<b>1010239</b>	1010240	1010241	<b>1010242</b>

47 U	NON-SECURE		SECURE	
	D.1000	D.1200	D.1000	D.1200
2-compartment rack	1010243	<b>1010244</b>	1010245	1010246
3-compartment rack	1010247	1010248	<b>1010249</b>	1010250
4-compartment rack	1010251	<b>1010252</b>	1010253	<b>1010254</b>

## 19" PDU SUPPORTS

The compartments can be fitted with two 19" PDU supports mounted onto the Cabinet's rear internal uprights.

Provided as standard on secure versions, these supports can also be provided with non-secure versions.

Non-secure colocation		1/2 Cabinet	1/3 Cabinet	1/4 Cabinet
W. 600	42 U	1009749	1009750	-
	47 U	1009751	1009752	1009753
W. 800	42 U	1010230	1010231	-
	47 U	1010232	1010233	1010234



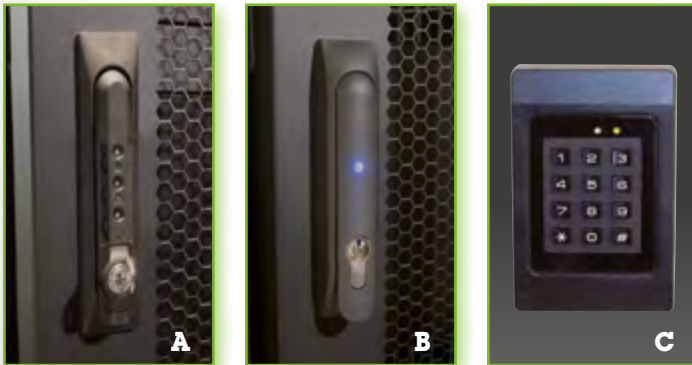
## FRONT AND REAR DOORS

The compartment doors are 81% perforated to allow air flow, thus ensuring perfect server ventilation.

The front doors are available in curved form, while the rear doors are flat.

They are fitted as standard with a mechanical code handle, though they can be optionally provided with electromagnetic locking handles (add ELECTRO after the Cabinet code) or digicode-controlled handles (add DIGICOD after the Cabinet code).

1-point locking, cannot be unhinged in closed position. Provided with bonding strap.



## HANDLES

These models can be fitted instead of the basic handle. Specify the table according to the table shown below, behind the door item code.

*Example:*  
Curved door with handle B  
Code: 1008738 ELECTRO.

### Versions:

- A** Mechanical code + key: the Cabinet user selects the code, the room operator uses the key as a pass.
- B** Electromagnetic closing, lockable by means of a relay controlled by a supervision system with mechanical emergency opening.
- C** Electromagnetic closing, controlled by a digicode keypad.

	A	B	C
Handle	MEC+CLE	ELECTRO	DIGICOD



## DOOR CONTACTOR

To monitor a door's open or closed status, or to control a lighting system.

### Composition:

- 1 miniature micro-switch
- 3m long H05RR-F 2 x 0.75 mm<sup>2</sup> cable
- Fasteners + screws for various assemblies
- Assembly drawing

	Codes
Door contactor	1008795

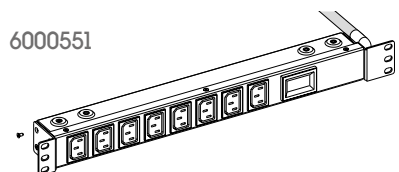
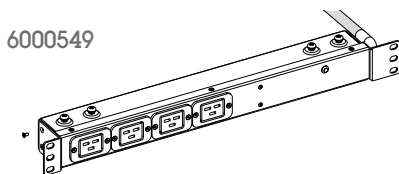
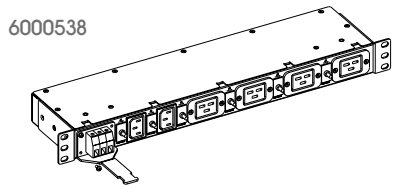
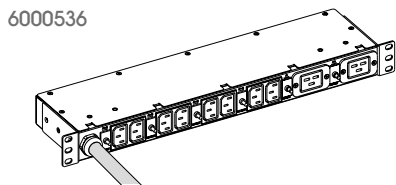
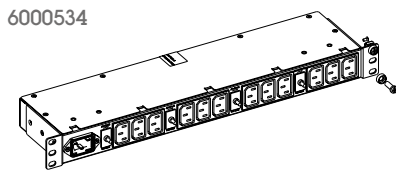
## FRONT SEAL KIT

The compartments can be fitted with a front seal kit. Consisting of brush profiles, they prevent hot air from flowing back onto the front of the servers. Provided as standard on secure versions, these brushes can also be provided with non-secure versions.

Non-secure colocation		1/2 Cabinet	1/3 Cabinet	1/4 Cabinet
W. 600	42 U	1009406	1008874	-
	47 U	1009407	1009408	1009409
W. 800	42 U	1010225	1010226	-
	47 U	1010227	1010228	1010229







### IEC 320 PASSIVE PDU

**Function:**

Power distribution units IEC 320 10A (C13) or 16A (C19) sockets. The Atos PDU range offers numerous possibilities:

- Direct server socket power supply from the mains, or via secondary units connected to the primary units.
- Connection by IEC 309 plugs (the plug, to be wired, is provided) using strapped or terminal strap connected wire.
- Departure thermal protection, per group of sockets, according to model.
- All models are compatible with vertical assembly ("Zero U" assembly) into Convergence or Integrale VHD Cabinets.

**Characteristics:**

- Very rigid galvanized steel cases.
- Distribution by bolted distribution blocks.
- Very flexible industrial H07 RNF cables.

Models with circuit-breaker	Code
PDU 16A - Emb C20 - 6C13 - Circuit-breaker *	6000532 *
PDU 2x16A - 2xEmb C20 - 2x6C13 - Circuit-breaker	6000533
PDU 16A - Emb C20 - 12C13 Circuit-breaker	6000534
PDU 32A 309 2.5lm - 12C13 - Circuit-breaker	6000535
PDU 32A 309 2.5lm - 8C13+2C19 - Circuit-breaker	6000536
PDU 32A 309 2.5lm - 2C13+4C19 - Circuit-breaker	6000537
PDU 50A Terminal strap - 2C13+4C19 - Circuit-breaker	6000538
PDU-TRI 3x32A - 309 2.5lm - 6C19 - Circuit-breaker	6000539

\* Specific 1/2 19" unit. Dimensions: H.44 x W.217 x D.70 mm.

### IEC 320 PASSIVE PDU

Shallow units (45, 51 or 56 mm), identical to the previous ones, with the exception of:

**Function:**

- Connection by IEC 320 UTE plug or by strapped wire.

**Characteristics:**

- Distribution by welded bus or bolted distribution blocks.

Models without circuit-breaker	Code
PDU 16A UTE 3lm - 9C13 / Black	6000557
PDU 16A C20 3lm - 9C13 / Black	6000558
PDU 16A C20 11m - 9C13 / Black	6000559
PDU 20A 3G2.5 4lm - 8C13 / Grey	6000540
PDU 30A 3G4 4lm - 8C13 - Display / Grey	6000551
PDU 30A 3G4 4lm - 8C13 / Grey	6000541
PDU 32A 3G4 4lm - 4C19 / Grey	6000549
PDU 32A 3G4 4lm - 4C19 - Display / Grey	6000550

So-called "smart" PDUs are 1U 19" distribution straps fitted with 8 IEC 320 10A (C13) sockets that can be switched, either individually or in groups, from an embedded web page.



Controllable PDU,	Code
With 3m lead, UTE plug	6000553
With 2m lead, C20 plug	6000554
With 1m lead, C20 plug	6000555

### CONTROLLABLE PDU

#### Function:

This PDU possesses a web interface that can be assessed via a specific IP address, allowing the following to be performed remotely:

- socket sequencing during boot
- status change of a socket or group of sockets
- real-time display of load for all the PDU's sockets, to within one tenth of an amp
- generation of high power consumption alarms either by sending an SNMP trap, an email, or by direct display on the web page
- alarm transmission in the event of a status change of one or more sockets, either by sending an SNMP trap, an email, or by direct display on the web page
- network connection, SNMP trap transmission and email sending configuration.



Manageable PDU	Code
With 3m lead, UTE plug	6000564
With 2m lead, C20 plug	6000565
With 1m lead, C20 plug	6000566

### MANAGEABLE PDU

#### Function:

This PDU possesses a web interface that can be assessed via a specific IP address, allowing the following to be performed remotely:

- socket sequencing during boot
- status change of a socket or group of sockets
- real-time display of load for each socket or for the entire PDU, either in drain current to within a hundredth of an amp, or in power consumption to within a hundredth of a Watt. Historical data, however, are not available.
- temperature display to within a half degree and of hygrometry to within 1 percent, by means of a remote probe
- generation of configurable high and low alarms for load and temperature/hygrometry, either by sending an SNMP trap, an email or by direct display on the web page
- generation of status change alarms for one or more sockets, either by sending an SNMP trap, an email or by direct display on the web page
- network connection, SNMP trap transmission and email sending configuration.
- viewing of an events log summarising the alarms generated and the various events occurring on the network.



These effects contribute to saving energy and improving the carbon footprint of computer fleets.



## CABINET PRE-FITTING

Atos can assemble the Cabinet and perform all wiring and power distribution tests as required.

The items included in the Cabinet are taken from our catalogue.

# UNIVERSAL ACCESSORIES

Atos offers a complete range of universal accessories suited to your needs.

<b>TRAYS</b>	Fixed and telescopic trays .....	50
	Laptop tray .....	51
	Keyboard-mouse tray .....	51
	19" quick-hanging rails .....	51
	Plate for rail kit .....	51
	Velcro / Straps .....	51
<b>FRONT PANELS</b>	Solid screw-on front blanking panels .....	52
	Clip-on 9.5 square blanking panels .....	52
	Split front blanking panels - 3, 7 or 21U boards .....	52
	Cable through ducting front panels and front cable-guide panels .....	53
	Cable storage front panels and fibre storage front panels .....	53
	Patch panels .....	53
<b>WIRING</b>	cable trays .....	54
	Wiring plate .....	54
	19", 1U and 2U cable holders .....	54
	Cable management D-ring .....	54
	DIN rails .....	54
	19" enclosure lamp, enclosure lamp switch .....	55
	3U panel, 19" supports for DIN mounting cases .....	55
	main distribution frame components .....	55
	Profile supports .....	55
<b>ENERGY POWER</b>	Strips for 19" horizontal and vertical assembly .....	56
	Controllable PDUs .....	56
	PDUs with and without circuit-breakers .....	57
<b>VENTILATION</b>	Ventilation louvers with 19" filter .....	57
	19" 1U ventilation louver .....	57
	Thermostats .....	57
	Heaters .....	57
	Axial fans .....	58
	Fan trays .....	59
	Fan enclosures .....	59
<b>ACCESSORIES</b>	Grounding kits .....	60
	Ground bar kits .....	60
	Grounding terminal strip .....	60
	Push / 1/4 turn quick lock .....	60
	9.5 square front panel fastenings .....	60
	8.4 square front panel fastenings .....	60
	Drawings pocket .....	60
	Drawings and dimensions .....	62





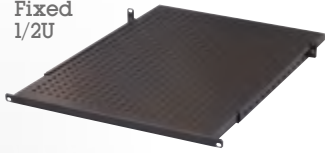
## TRAYS

Fixed or telescopic trays allow non 19" format hardware to be fitted. Perforated models allow quick fitting of hardware, strongly recommended for telescopic models. The perforations over the entire tray surface allow perfect air flow.

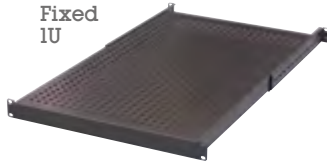
Various versions are available:

- Solid or perforated.
- Fixed or telescopic.
- 2- or 4-point fastening.
- 1/2U, 1U or 2U height.
- Colour: RAL 7035 grey or RAL 9005 black.
- Permissible load: 10 to 80 kg.

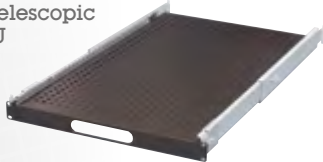
Fixed  
1/2U



Fixed  
1U



Telescopic  
1U



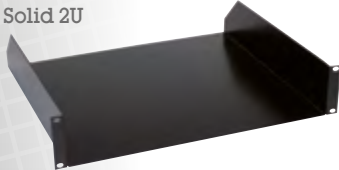
### FIXED 4-POINT FASTENING PLATES (FRONT/REAR) + FASTENINGS.

Code	Colour (RAL)	Version		Height (U)	Depth (mm)			Permissible load			Distance between 19" fastenings (mm)
		Solid	Perforated		440	640	740	40 kg	50 kg	80 kg	
<b>1008108</b>	<b>7035</b>		•	<b>1/2 U</b>	•			•			400 to 750
<b>1208108</b>	<b>9005</b>		•	<b>1/2 U</b>	•			•			400 to 750
<b>1008109</b>	<b>7035</b>		•	<b>1/2 U</b>		•		•			600 to 850
<b>1208109</b>	<b>9005</b>		•	<b>1/2 U</b>		•		•			600 to 850
<b>1008414</b>	<b>7035</b>		•	<b>1 U</b>			•			•	700 to 850
<b>1208414</b>	<b>9005</b>		•	<b>1 U</b>			•			•	700 to 850

### 4-POINT FASTENING TELESCOPIC TRAYS (FRONT/REAR) + FASTENINGS.

Code	Colour (RAL)	Version		Height (U)	Depth (mm)			Permissible load			Distance between 19" fastenings (mm)
		Solid	Perforated		450	640	740	40 kg	50 kg	80 kg	
<b>1008508</b>	<b>7035</b>		•	<b>1 U</b>	•				•		<b>460 to 630</b>
<b>1208508</b>	<b>9005</b>		•	<b>1 U</b>	•				•		<b>460 to 630</b>
<b>1008509</b>	<b>7035</b>		•	<b>1 U</b>		•			•		610 to 760
<b>1208509</b>	<b>9005</b>		•	<b>1 U</b>		•			•		610 to 760
<b>1008478</b>	<b>7035</b>		•	<b>1 U</b>			•			•	700 to 850
<b>1208478</b>	<b>9005</b>		•	<b>1 U</b>			•			•	700 to 850

Solid 2U



Perforated 1U



### 2-POINT FASTENING PLATES (FRONT) - WITHOUT FASTENINGS\*.

Code	Colour (RAL)	Version		Height (U)	Depth (mm)			Permissible load: 10 kg.
		Solid	Perforated		230	290	400	
<b>A112026</b>	<b>7035</b>		•	<b>1 U</b>	•			•
<b>A122026</b>	<b>9005</b>		•	<b>1 U</b>	•			•
<b>A113052</b>	<b>7035</b>	•		<b>1 U</b>		•		•
<b>A113051</b>	<b>7035</b>		•	<b>1 U</b>		•		•
<b>A123052</b>	<b>9005</b>	•		<b>1 U</b>		•		•
<b>A123051</b>	<b>9005</b>		•	<b>1 U</b>		•		•
<b>A111801</b>	<b>7035</b>	•		<b>2 U</b>		•		•
<b>A113053</b>	<b>7035</b>		•	<b>2 U</b>		•		•
<b>A121801</b>	<b>9005</b>	•		<b>2 U</b>		•		•
<b>A123053</b>	<b>9005</b>		•	<b>2 U</b>		•		•
<b>A111802</b>	<b>7035</b>	•		<b>2 U</b>			•	•
<b>A113054</b>	<b>7035</b>		•	<b>2 U</b>			•	•
<b>A121802</b>	<b>9005</b>	•		<b>2 U</b>			•	•
<b>A123054</b>	<b>9005</b>		•	<b>2 U</b>			•	•

\* The 2-point fastening plates are provided without fastening. See p. 60.



## TELESCOPIC LAPTOP TRAY

The telescopic trays are specifically designed to hold laptop PCs or any other non 19" format hardware.

- 2-point fastening to the front of the tray.
- The 400 mm deep 2U plate is fitted with a 400 mm wide and 350 mm deep telescopic tray.
- Telescopic slide allows the tray to pull out by 290 mm.
- Made of painted steel.
- Permissible load: 10kg

<b>RAL 7035 grey</b>	<b>1004003</b>	<b>RAL 9005 grey</b>	<b>1204003</b>
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## KEYBOARD AND MOUSE TRAY

Keyboard and mouse trays are designed to hold 1 keyboard and 1 mouse.

- 4-point fastening to the front and rear of the plate.
  - 1U plate fitted with a mouse tray sliding sideways.
  - Telescopic slide allows the tray to pull out by 330 mm.
  - Made of painted steel.
- Depth according to model.

Distance between 19" fastenings	439 to 599 mm	599 to 759 mm
<b>RAL 7035 grey</b>	<b>1003335</b>	<b>1006554</b>
<b>RAL 9005 black</b>	<b>1203335</b>	<b>1206554</b>

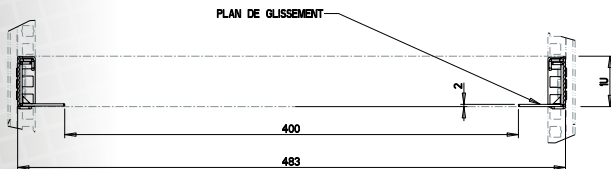


## 19" QUICK-HANGING RAILS FOR CUTTING $\square$ 9.5

The universal hanging fixed rails are used to fit 19" hardware.

- Quick hanging to 9.5 mm square cut-outs on the rear uprights and screwed by cage nut to the front uprights.
- Distance between 19" fastenings: 400 to 800 mm.
- Made from galvanized steel.
- Delivered in kit form.
- Permissible load: 50 kg

<b>19" quick-hanging rails, 400 to 600 mm</b>	<b>1009666</b>
<b>19" quick-hanging rails, 600 to 800 mm</b>	<b>1009703</b>



## PLATE FOR RAIL KIT $\square$ 9.5 CUT-OUT



<b>Plate + M5 screws. Pack of 20</b>	<b>1006249</b>
--------------------------------------	----------------

## VELCRO STRIP

Adhesive strip to be stuck to all light hardware to ensure they are held in place. Provided with 1 "female" velvet strip and 1 "male" hook strip. Length: 1 m. Width: 20 mm.



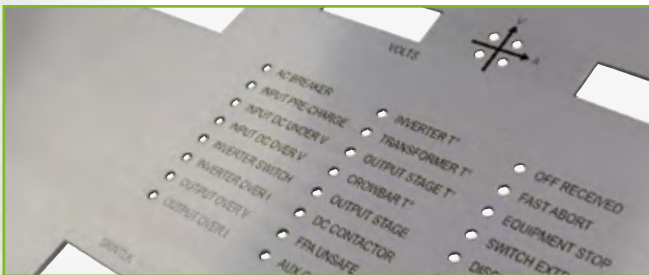
<b>Velcro strip</b>	<b>1009695</b>
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## STRAP

20 mm wide cloth strap fitted with a quick-release buckle



<b>1 m strap</b>	<b>B113012</b>
<b>2 m strap</b>	<b>B113041</b>



## SCREW-ON SOLID FRONT BLANKING PANELS

As per DIN 41 494 standard. Provided without fastenings (see page 15).

### Aluminium front panel:

- Material: Aluminium, thickness 4 mm.
  - Finishings: - Natural, protected by a plastic film,  
- Brushed, with clear anodising.
- To be specified in addition to the reference.

### Steel front panel painted RAL 9005 Black or RAL 7035 Grey:

- Material: Steel.
- Finish: Smooth epoxy-polyester powder.

Hght.	aluminium	grey steel 7035	black steel 9005
<b>1 U</b>	<b>A110789</b>	<b>A112074</b>	<b>A122074</b>
<b>1.5 U</b>	-	<b>A112075</b>	<b>A122075</b>
<b>2 U</b>	<b>A110790</b>	<b>A112076</b>	<b>A122076</b>
<b>3 U</b>	<b>A110791</b>	<b>A410196</b>	<b>A420196</b>
<b>4 U</b>	<b>A110792</b>	<b>A410197</b>	<b>A420197</b>
<b>5 U</b>	<b>A110793</b>	<b>A410198</b>	<b>A420198</b>
<b>6 U</b>	<b>A110794</b>	<b>A410199</b>	<b>A420199</b>
<b>7 U</b>	<b>A110795</b>	-	-
<b>8 U</b>	<b>A110796</b>	-	-
<b>9 U</b>	<b>A110797</b>	-	-
<b>10 U</b>	<b>A110798</b>	-	-
<b>11 U</b>	<b>A110799</b>	-	-
<b>12 U</b>	<b>A110800</b>	-	-

Other finishings and customisations (machining, screen printing, etc.) available, contact us.

## CLIP-ON 9.5 FRONT BLANKING PANELS

- Material: Steel.
- Finish: RAL 9005 Black paint
- Provided with "Push / 1/4 turn quick lock" fastening.

1U perforated	1U solid	2U solid	3U solid	6U solid
<b>1008585</b>	<b>1008581</b>	<b>1008582</b>	<b>1008583</b>	<b>1008584</b>

## CLIP-ON 19" 1U FRONT PANELS

- 19" quick-fit front panel, without screws.
- Fastening and positioning onto 9.5 mm squares.
- Unclipped by pressing the fastening tabs.
- Material: Black ABS, fire rating: UL94-VO.

Each	Pack of 10	Pack of 20	Pack of 50
<b>B117216</b>	<b>1009761</b>	<b>1009762</b>	<b>1009763</b>

## CLIP-ON 9.5 SPLIT BLANKING PANELS 3, 7 OR 21U BOARDS

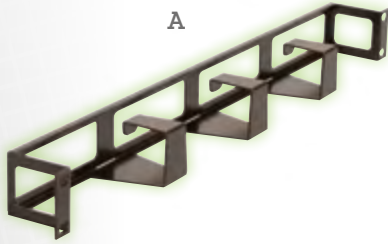
- Material: Class M1 honeycomb polypropylene
- Finish: Black or printed with a "server" pattern.
- Front panels provided with "Push / 1/4 turn" quick connectors (4 in 3U, 6 in 7U and 10 in 21U).

Additional "Push / 1/4 turn" quick connectors on page 60.

Split plate	3U	7U	21U
19" printed front panel	<b>1009674</b>	<b>1009676</b>	<b>1009659</b>
19" black front panel	<b>1009675</b>	<b>1009677</b>	<b>1009660</b>







## FRONT CABLE THROUGH DUCTING PANELS AND FRONT CABLE MANAGEMENT PANELS

- Material: Steel.
- Finish: RAL 7035 Grey or RAL 9005 Black paint. Provided without fastenings (see fastenings page 60).

### GROMMETS

Height	Opening	No brushes	With brushes	
		RAL 7035 grey		RAL 9005 black
1 U	27 x 438	<b>1002962</b>	<b>1002960</b>	<b>1202960</b>
2 U	60 x 438	<b>1002963</b>	<b>1002961</b>	<b>1202961</b>
2 U / 2 parts	60 x 438	<b>1002998</b>	<b>1202964</b>	-

### 1U CABLE GUIDE

Model	RAL 7035 grey	RAL 9005 black
A- 3 folded rings, 37x57 effective, Recoil: 50	<b>A114342</b>	<b>A124342</b>
B- 4 folded rings, 37x57* effective, no Recoil	<b>A114229</b>	<b>A124229</b>
C- 4 folded rings, 37x57* effective, no Recoil + brushes	<b>A115495</b>	<b>A125495</b>
D - 5 wire rings, 30x60* effective	<b>A112298</b>	<b>A122298</b>

## CABLE STORAGE FRONT PANEL

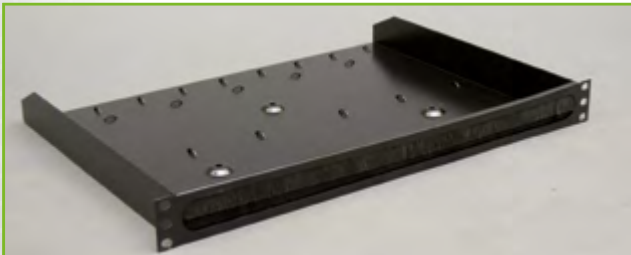
- To manage cord slack
- 1U front panel with brushes, RAL 9005 black painted steel.
- Rear plate, D.400 mm with cavities for anchoring cable ties. Provided without fastenings (see fastenings page 60).

Cord storage front panel	<b>1207127</b>
--------------------------	----------------

## FIBRE STORAGE FRONT PANEL

- To manage fibre slack
- 19" 1U front panel with brushes, RAL 9005 black painted steel.
- Rear panel D.400 mm with three spools for fibre stowage. Provided without fastenings (see fastenings page 60).

Fibre storage front panel	<b>1207128</b>
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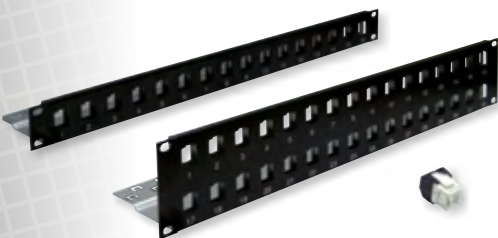
## PATCH PANELS

### Unfitted panel

- RAL 9005 black painted steel double-wall panel.
- Fitted with a fold-back to hold cables.
- All are designed to receive Keystone connectors (compatible with 3M Telecommunications).

### Fitted panel

Same models as above, delivered with RJ45 connectors (not fitted).



UNFITTED	
1U / 16 ports	<b>A610086</b>
1U / 24 ports	<b>A610087</b>
2U / 32 ports	<b>A610088</b>
2U / 48 ports	<b>A610089</b>

FITTED	RJ45 K5E Cat.5			RJ45 K6 Cat.6		
	9 pts shielded STP	9 pts non-shielded STP	8 pts UTP	9 pts shielded STP	9 pts non-shielded STP	8 pts UTP
1U / 16 ports	<b>6000461</b>	<b>6000462</b>	<b>6000463</b>	<b>6000473</b>	<b>6000474</b>	<b>6000475</b>
1U / 24 ports	<b>6000464</b>	<b>6000465</b>	<b>6000466</b>	<b>6000476</b>	<b>6000477</b>	<b>6000478</b>
2U / 32 ports	<b>6000467</b>	<b>6000468</b>	<b>6000469</b>	<b>6000479</b>	<b>6000480</b>	<b>6000481</b>
2U / 48 ports	<b>6000470</b>	<b>6000471</b>	<b>6000472</b>	<b>6000482</b>	<b>6000483</b>	<b>6000484</b>



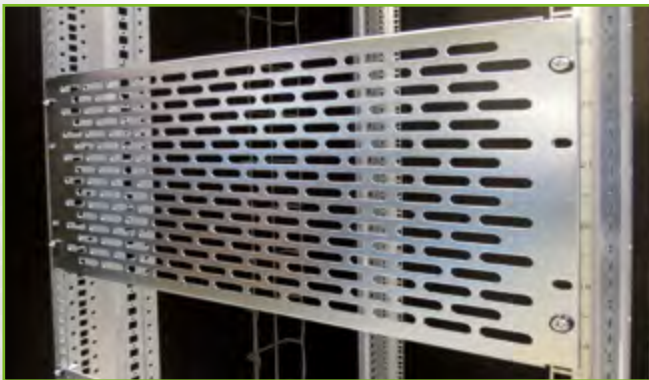


## CABLE TRAY

- Top guide cables in the rack.
- Made of steel wire (per pair, except for 3 linear metres) or PVC (each).

Steel wire	24U (x2)	36U (x2)	42U (x2)	47U (x2)	3 m (x1)
100 x 30	<b>1006642</b>	<b>1006643</b>	<b>1003177</b>	<b>1008320</b>	<b>B018166</b>
200 x 30	-	-	<b>1008876</b>	<b>1009371</b>	<b>B017598</b>
300 x 30	-	-	<b>1009260</b>	<b>1009261</b>	<b>B018175</b>
200 x 54	<b>1006645</b>	<b>1006646</b>	<b>1003178</b>	<b>1008322</b>	<b>B016781</b>
300 x 54	-	-	<b>1009707</b>	<b>1009708</b>	<b>B017217</b>

PVC cable tray (x1)	Codes
<b>PVC cable tray L.2000 x W.30 x H.42</b>	<b>1006090</b>
<b>PVC cable tray L.2000 x W.60 x H.42</b>	<b>1006091</b>
<b>4 angle brackets for PVC cable tray</b>	<b>1006332</b>

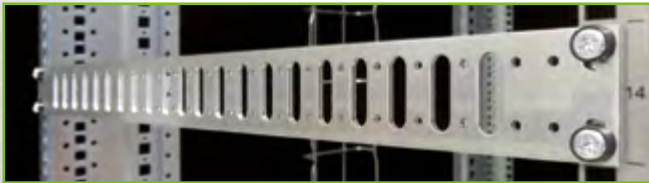


## WIRING PLATE

Fastens as a front panel in 19".  
The 8.4x30 oblongs are used to fasten hardware (see fastenings page 60).

**Composition:** 1 steel screen 2 mm thick, zinc-plated, white.  
**Delivery:** Each.

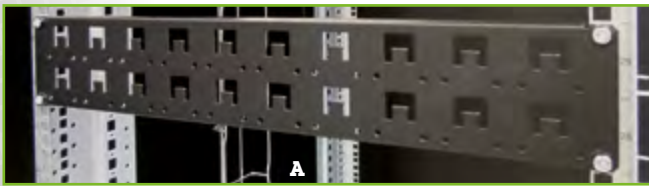
	6 U	9 U
<b>19" format</b>	<b>A410675</b>	<b>A410674</b>



## 19" CABLE CLIPS

**Composition:**  
Single 19" part, galvanized steel.  
(see fastenings page 60)

<b>1U part alone, for 19" assembly</b>	<b>A111880</b>
<b>2U part alone with cavities for collars, 19" assembly</b>	<b>1008826</b>

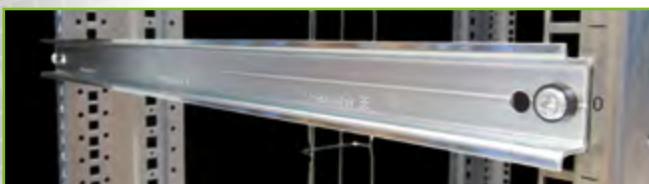


## CABLE GUIDE RING

Mounts onto internal or external uprights.

**Composition:**  
1 ring + 2 flanges + M4 and M5 screws.

<b>Steel wire ring, 80x100 mm effective clearance</b>	<b>1009563</b>
---	----------------



## DIN RAILS

Symmetrical 35x15 mm white zinc-plated steel DIN rails.  
2 profile models:

- Length 85 mm, ideal for terminal strip, thermostat, etc. Fits onto internal or external uprights with the fastenings provided.
- Length 19", provided alone.

<b>85 mm long DIN rail</b>	<b>1003200</b>
<b>19" DIN rail</b>	<b>A112082</b>

## 19" ENCLOSURE LAMP

### Composition:

- 1 enclosure lamp.
- low-energy lamp, double tube, TC-SEL 11W 2G7.
- Fasteners, cagenuts and screws.

19" lamp

**1010255**

## ENCLOSURE LAMP SWITCH

Fits onto the internal or external rack uprights to control lighting when a door is opened. "O/C" bipolar snap-acting contact.

### Composition:

- 1 switch,
- Fasteners for various assemblies,
- Assembly drawing.

Switch

**1008439**

## 3U PANEL, 19" SUPPORTS FOR DIN MOUNTING CASES

Provided without fastenings (see fastenings page 60).



	Grey	Black
A - 3U panel, alone, 422 mm cut-out	<b>A113304</b>	<b>A123304</b>
A + B - 19" 3U support, 2 brackets, DIN rail, panel	<b>1006333</b>	<b>1206333</b>
A + C - 19" 3U support, single-piece, DIN rail, panel	<b>1006334</b>	<b>1206334</b>

## MAIN DISTRIBUTION FRAME COMPONENTS

### HPUL profiles

- Fastened:
- vertically to the internal uprights,
  - as a main distribution frame, vertically with supports shown below,
  - horizontally on 19" support

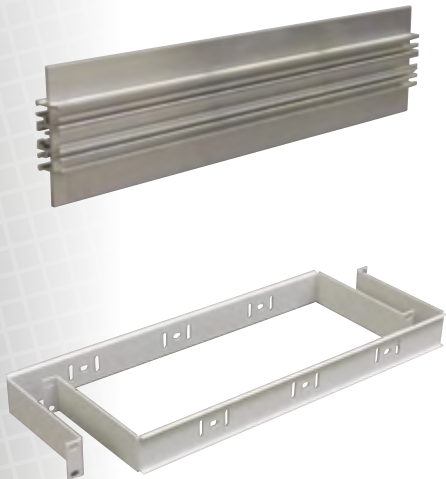
Composition: 1 profile cut to length + fastenings.

Height: 8U (355 mm) Capacity: 22 modules	<b>1003343</b>
Height: 22U (975 mm) Capacity: 60 modules	<b>1003344</b>

## PROFILE SUPPORTS

For mounting HPUL or Europe profiles.

Set of 2 parts + fastenings for 19" assembly, with 145 mm recoil	<b>1003047</b>
--	----------------





## POWER STRIP FOR 19" HORIZONTAL ASSEMBLY

### Composition:

- 1 unit with 10/16 A 2 P+T sockets (see table below),
- 1.5 m cord (3 x 1.5 mm<sup>2</sup>),
- 1 plug,
- Fasteners.

Front panel fastenings are available on page 15.

Characteristics	Height	Material	Code
<b>6 sockets</b>	<b>73 mm</b>	<b>plastic</b>	<b>6000010</b>
<b>6 sockets</b>	<b>1 U</b>	<b>aluminium</b>	<b>6000386</b>
<b>6 sockets + 16A circuit-breaker</b>	<b>1 U</b>	<b>aluminium</b>	<b>6000368</b>
<b>6 sockets + 16A 30 mA ground fault circuit-breaker</b>	<b>1 U</b>	<b>aluminium</b>	<b>6000376</b>
<b>8 sockets with foolproofing</b>	<b>1.5 U</b>	<b>aluminium</b>	<b>6000387</b>
<b>8 sockets + Illuminated rocker switch</b>	<b>1 U</b>	<b>aluminium</b>	<b>6000367</b>
<b>8 sockets + Indicator light</b>	<b>1.5 U</b>	<b>aluminium</b>	<b>6000427</b>
<b>9 sockets</b>	<b>1 U</b>	<b>aluminium</b>	<b>6000366</b>



All of these strips can be provided with additional functions: switches, indicator lights, protective mechanisms, surge protectors, phone closing relays, RJ45 sockets, sub-D, etc. CONTACT US FOR DETAILS.

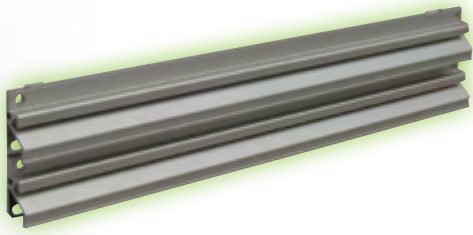


## POWER STRIPS FOR VERTICAL FITTING

### Composition:

- 1 unit with 10/16 A 2 P+T sockets (see table below),
- 1.5 m or 2.5 m cord (3 x 1.5 mm<sup>2</sup>) depending on model,
- 1 plug,
- Fasteners,
- Rack mounting fasteners.

Characteristics	cord	Material	Code
<b>6 sockets</b>	<b>1.5 m</b>	<b>plastic</b>	<b>6000037</b>
<b>6 sockets + 16A circuit-breaker</b>	<b>2.5 m</b>	<b>plastic</b>	<b>6000355</b>
<b>12 sockets</b>	<b>2.5 m</b>	<b>aluminium</b>	<b>6000038</b>
<b>12 sockets + 16A circuit-breaker</b>	<b>1.5 m</b>	<b>aluminium</b>	<b>6000356</b>
<b>18 sockets</b>	<b>2.5 m</b>	<b>aluminium</b>	<b>6000039</b>
<b>24 sockets</b>	<b>2.5 m</b>	<b>aluminium</b>	<b>6000040</b>



## VENTILATION LOUVERS WITH 19" FILTER

**Composition:**

- 2, 3 or 4 x 1U ventilation louvers,
- 1 interchangeable filter comprised of a filtering medium on galvanized steel wire frame,
- 4, 6 or 8 self-tapping screws to fit the filter to the louvers.

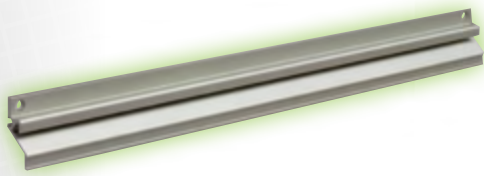
**Material:** Aluminium profile + filtering medium (Viledon type medium).

**Finish:** Clear anodised.

**Filter:** Colour: white.

**Delivery:** Pre-assembled + fitted to rack.

Height	2 U	3 U	4 U
louver	<b>6000043</b>	<b>6000360</b>	<b>6000044</b>
Filter	<b>A610025</b>	<b>A610026</b>	<b>A610027</b>



## 19" 1U VENTILATION LOUVER

**Material:** Aluminium profile

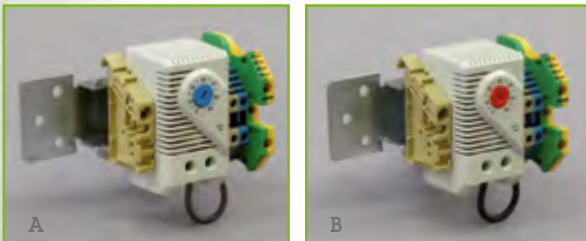
**Finish:** Clear anodised.

**Delivery:** Pre-assembled + fitted to rack.

**NB:** Flow area: = 1 dm<sup>2</sup>.

For N x U louvers without filter, order this code N times.

<b>19" 1U ventilation louver</b>	<b>6000042</b>
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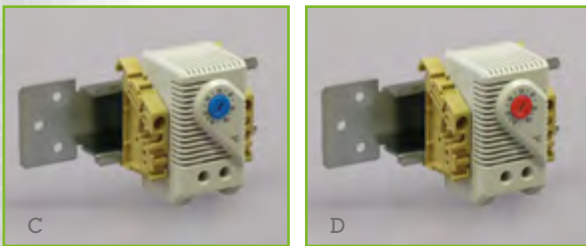
## THERMOSTATS

Mount onto internal or external uprights.

**Composition:** - 1 DIN rail,  
- Thermostat + terminals for power supply.

Control thermostat		Alarm thermostat	
A) ventilation	B) heater	C) low temp.*	D) high temp.
<b>6000388</b>	<b>6000389</b>	<b>6000390</b>	<b>6000391</b>

\* Dry contact: the circuit is open if the threshold is exceeded.



## HEATERS

To keep a rack from freezing or to prevent condensation. Resistors equipped with fans for improved convection.

Fit directly onto the 19" external or 19" internal uprights.

Fitted with a 3 x 1 mm<sup>2</sup> cord, length 2 m with plug.

80x80x50/150 W	19"/3U/Prof.85/250W	19"/3U/Prof.85/600W
<b>6000415</b>	<b>6000416</b>	<b>6000418</b>





## AXIAL FANS

Fitted onto roofs or perforated trays.



Characteristics	Standard	Low noise	48 VDC
<b>Voltage</b>	<b>230 VAC</b>	<b>230 VAC</b>	<b>48 VDC</b>
<b>Size</b>	<b>120x120x38</b>	<b>120x120x38</b>	<b>120x120x38</b>
<b>Power</b>	<b>21 W</b>	<b>7.5 W</b>	<b>10 W</b>
<b>Free air flow</b>	<b>160 m<sup>3</sup>/h</b>	<b>115 m<sup>3</sup>/h</b>	<b>180 m<sup>3</sup>/h</b>
<b>Noise level</b>	<b>45 dBA</b>	<b>32 dBA</b>	<b>43 dBA</b>
<b>1 fan</b>	<b>B104053</b>	<b>B106398</b>	<b>B104740</b>
<b>1 fan + fastenings + cords</b>	<b>0000038</b>	<b>0000040</b>	<b>0000041</b>
<b>Fitted and wired 2-fan assembly</b>	<b>6000382</b>	<b>6000545</b>	<b>6000546</b>
<b>Fitted and wired 4-fan assembly</b>	<b>6000377</b>	<b>6000547</b>	<b>6000548</b>
<b>2-fan assembly kit + protective cover</b>	<b>6000443</b>	-	-
<b>4-fan assembly kit + protective cover</b>	<b>6000445</b>	-	-
<b>6-fan assembly kit + protective cover</b>	<b>6000445</b>	-	-



### Finger guard

Fastens directly onto the fan

Composition: 1 zinc-plated steel screen + fastenings.

<b>Finger guard</b>	<b>6000033</b>
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### Terminal strip

For fan connection.

Fits directly onto the cowl.

Composition: 1 terminal strip + fasteners.

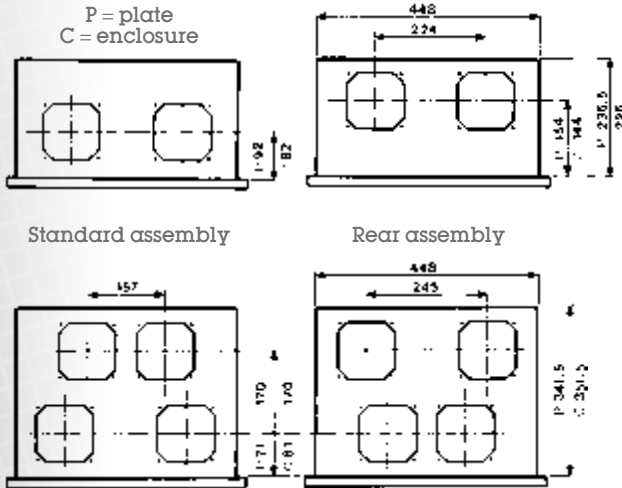
<b>Terminal strip</b>	<b>0000039</b>
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### Polycarbonate wiring protective cover

For compliance with the EN 60439 standard

Composition: 1 cover + fastenings.

<b>Polycarbonate wiring protective cover</b>	<b>6000433</b>
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Assembly note. Supply is provided for standard assembly. If rear assembly is required, please mention this explicitly on your order.

## FAN TRAYS

### Characteristics:

- 19" - 1U assembly,
- Fully wired,
- Fitted onto simple or adjustable rails.

### Versions:

- 1 1,5mm thick painted steel plate,
- 2 or 4 axial fans with cords,
- 1 clear anodised aluminium profile,
- 1 on/off indicator light,
- 1 terminal strip,
- 1x2 m cord (3 x 1 mm<sup>2</sup>) + plug,
- 4 or 8 finger guards.

### Delivery:

Fully assembled.

Standard or rear assembly, to be specified when ordering.

Tray	2 fans	4 fans
<b>Air flow</b>	<b>300 m<sup>3</sup>/hour</b>	<b>600 m<sup>3</sup>/hour</b>
<b>Depth</b>	<b>226 mm</b>	<b>341.5 mm</b>
<b>Finger guards</b>	<b>4</b>	<b>8</b>
<b>Code</b>	<b>6000027</b>	<b>6000028</b>

## FAN ENCLOSURES

### Characteristics:

- 19" - 1U assembly,
- Fully wired,
- No-removal interchangeable filter,
- Fitted onto simple or adjustable rails.
- Front air intake.

### Versions:

- 1 x 15/10<sup>th</sup>s painted steel enclosure,
- 1 plate, 2 or 4 fans,
- 2 colourless anodised aluminium profiles,
- 1 on/off indicator light,
- 1 filter (Viledon type medium) on galvanized steel wire frame,
- 2 or 4 finger guards.

### Delivery:

Fully assembled.

Standard or rear assembly, to be specified when ordering.

Shell	2 fans/2U	4 fans/3U
<b>Air flow</b>	<b>300 m<sup>3</sup>/hour</b>	<b>600 m<sup>3</sup>/hour</b>
<b>Depth</b>	<b>236.5 mm</b>	<b>341.5 mm</b>
<b>Code</b>	<b>6000029</b>	<b>6000030</b>

<b>Spare wire (each)</b>	<b>A610025</b>	<b>A610026</b>
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## GROUNDING KITS

Available for cabinet or extension, with or without doors.

<b>6 mm. braids for rack trim</b>		
Pack of 5 black braids, screws + M5 nuts		<b>1002566</b>
Pack of 3 green/yellow braids, screws + M5 nuts + fast on		<b>1006591</b>
Pack of 5 green/yellow braids, screws + M5 nuts + fast on		<b>1005696</b>
<b>General grounding kit, 25 mm., length 500 mm</b>		
1 flat braid + M8 fastenings		<b>1005699</b>

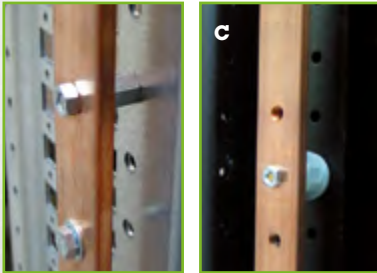


## GROUND BAR KITS

Fit in 19" or vertically, depending on the model.

**Material:** Copper bar.

**Delivery:** 1 ground bar + rack fastening + ground fastenings.



A - 19" assembly, 18 M5 drill holes		<b>1005697</b>
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Assembly	Hght. / Length	Section	Drill holes	Position	Ground bar
B - On threaded spacers	40 U / 1800 mm	25 x 5 mm	20 M5	every 2U	<b>1008796</b>
C - On insulators	40 U / 1810 mm	20 x 5 mm	40 M6	every 1U	<b>1009704</b>

## GROUNDING TERMINAL STRIP

Grounding terminal strip, 6x35 mm to be screwed onto the rack frame.

Used in the context of the EN 60439 & EN 60950-1 standards.



Terminal strip	<b>1008810</b>
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## PUSH / 1/4 TURN QUICK LOCK $\square$ 9.5 mm

Plastic fastener for front panels



Quick fasteners, pack of 10	<b>1009702</b>
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## FRONT PANEL FASTENINGS: $\square$ 9.5 mm

**Composition:** M6 screw + washer + cagenut.

Model	Quantity	Codes
<b>A - Cage nut, quick-fit, front</b>	Pack of 50	<b>1008615</b>
<b>B - Cage nut, rear</b>	Pack of 50	<b>1006228</b>
<b>C - Plate for rail kit + M5 screws</b>	Pack of 20	<b>1006249</b>

## DRAWINGS POCKET

- Impact-resistant plastic
- DIN A4 format
- Self-adhesive (can be fastened using M6 screws).



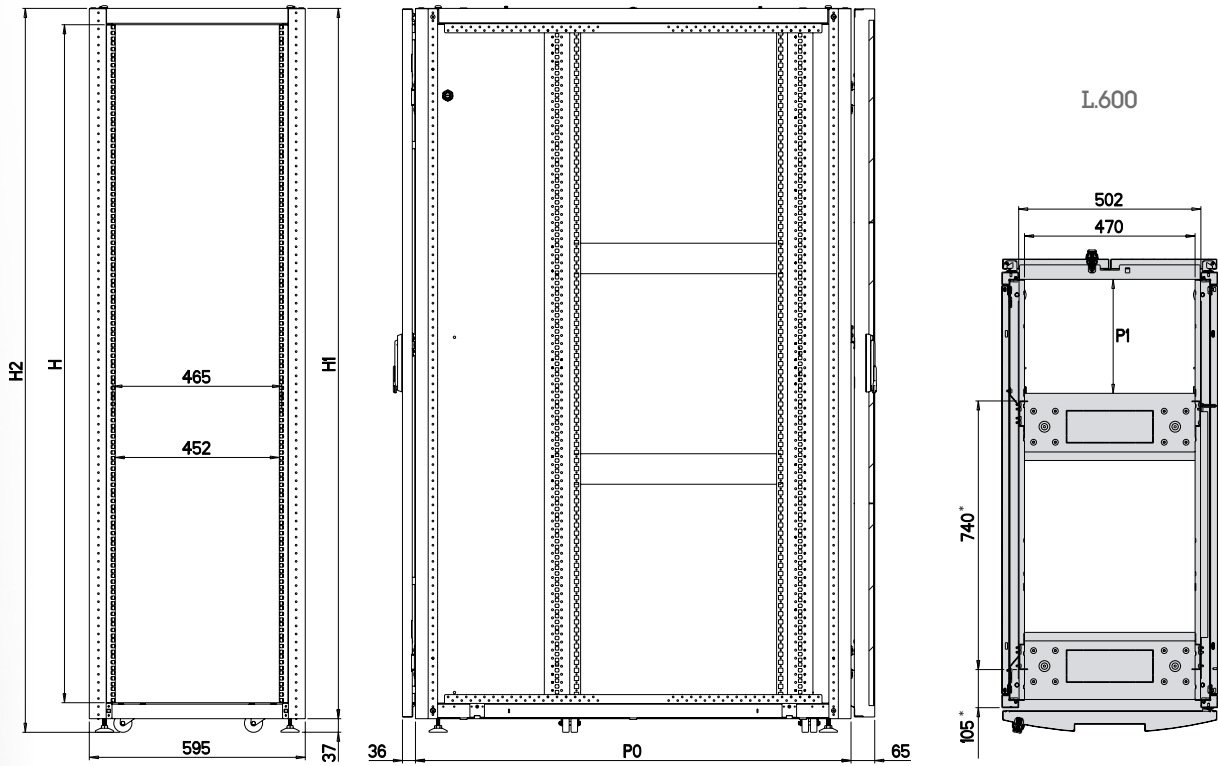
Drawings pocket	<b>B014949</b>
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Earth bonding nut

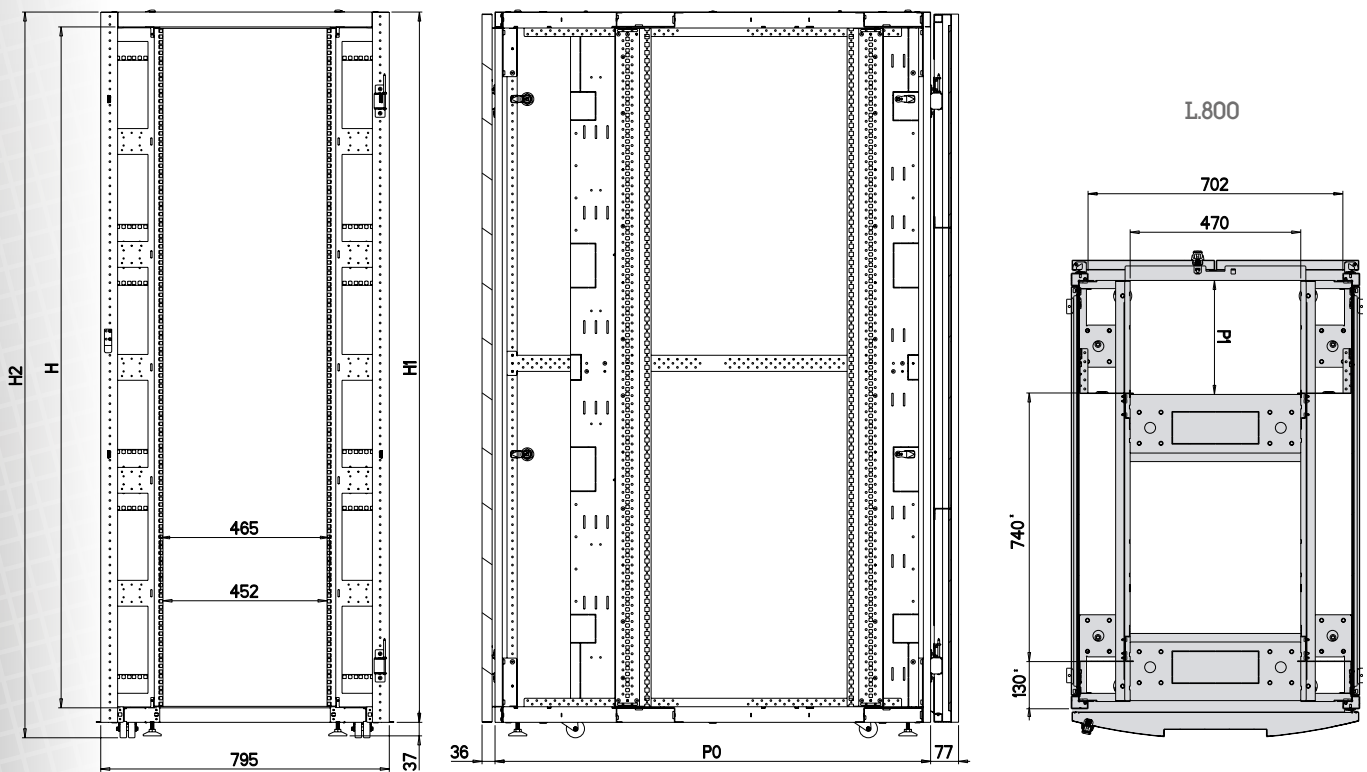






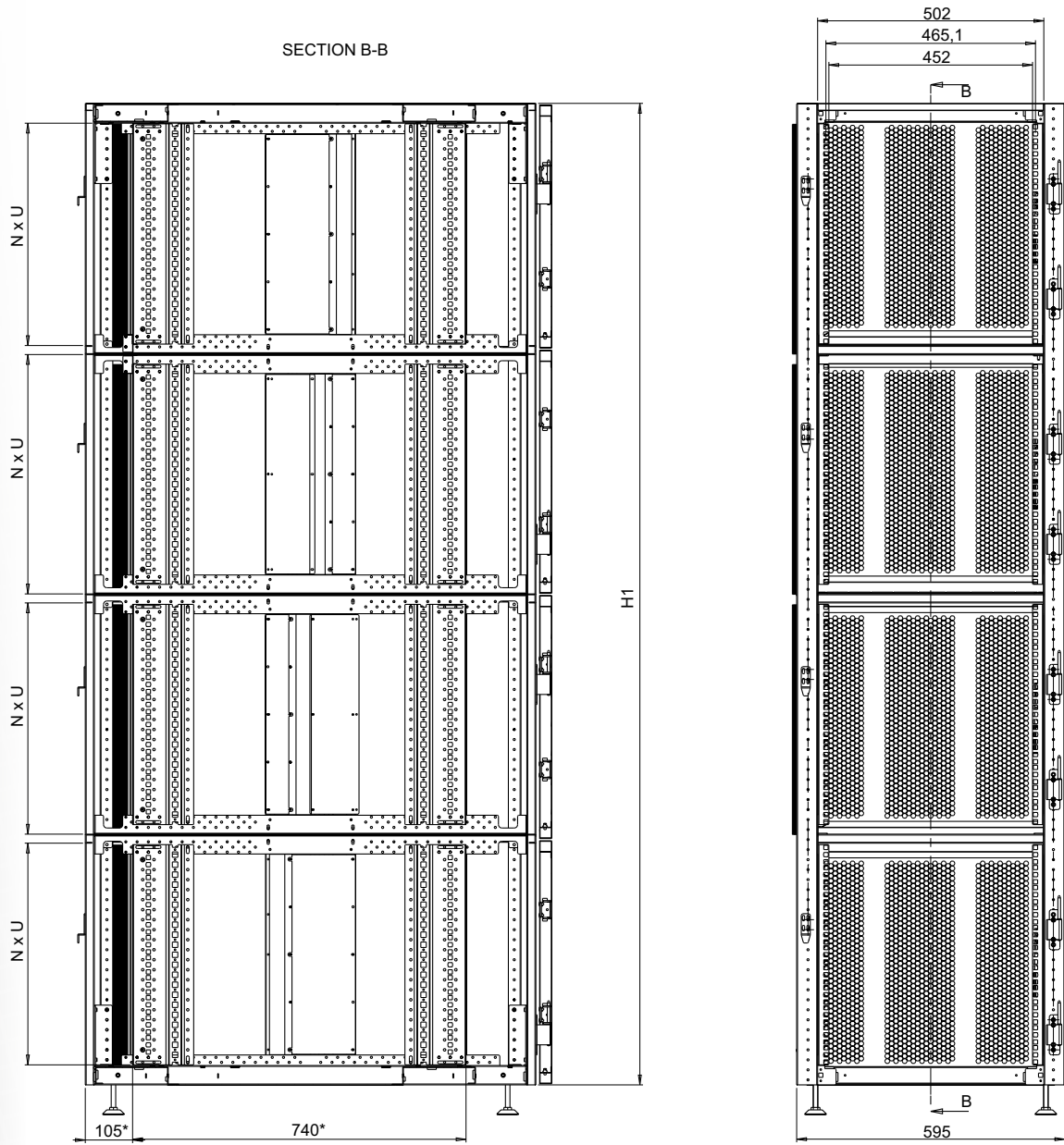


\* Standard upright position, unless otherwise specified on order.  
The uprights are adjustable either in 25 mm pitches or continuously.



H	Inside height	24 U	42 U	47 U
H1	Overall height	1160	1960	2180
H2	Overall height on casters	1200	2000	2220

D0	Frame depth	1000	1200
D1	Wiring area	114	314

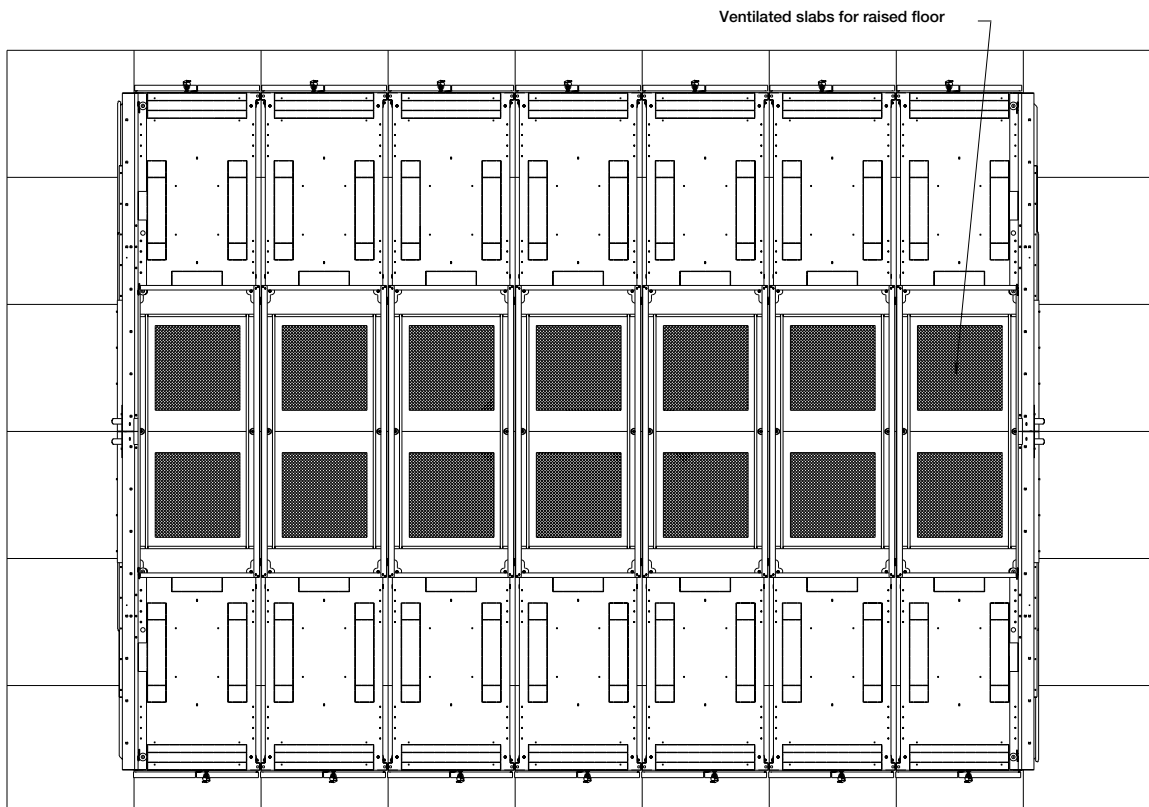
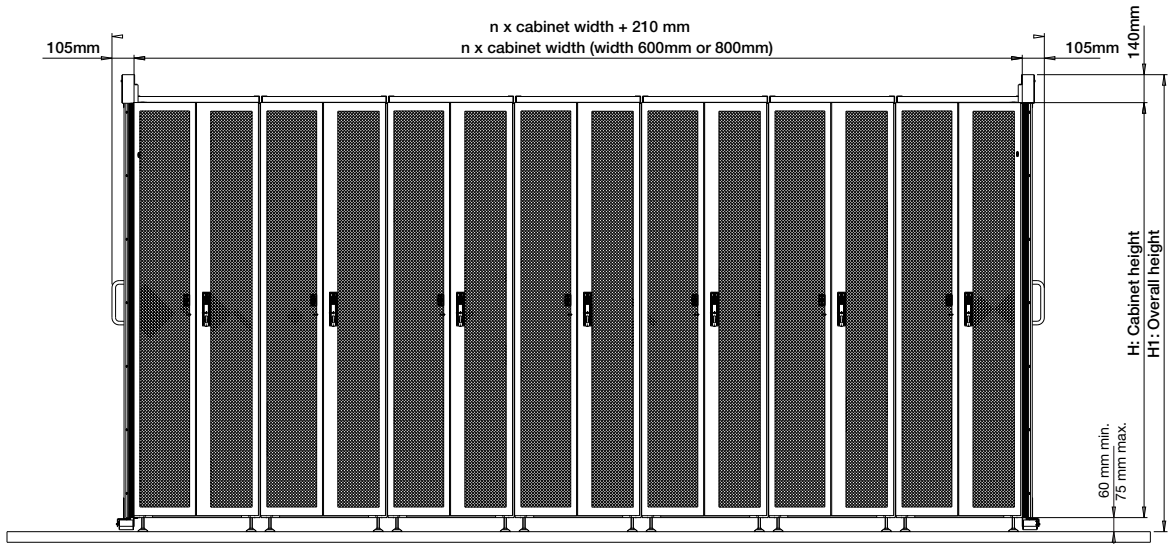
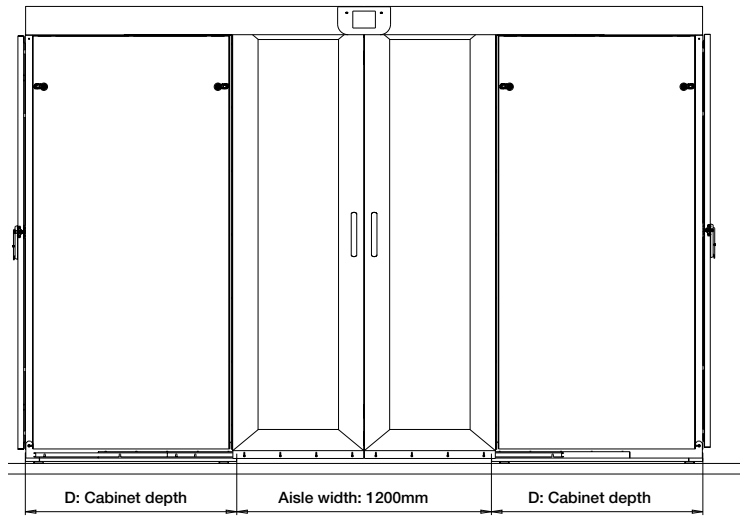


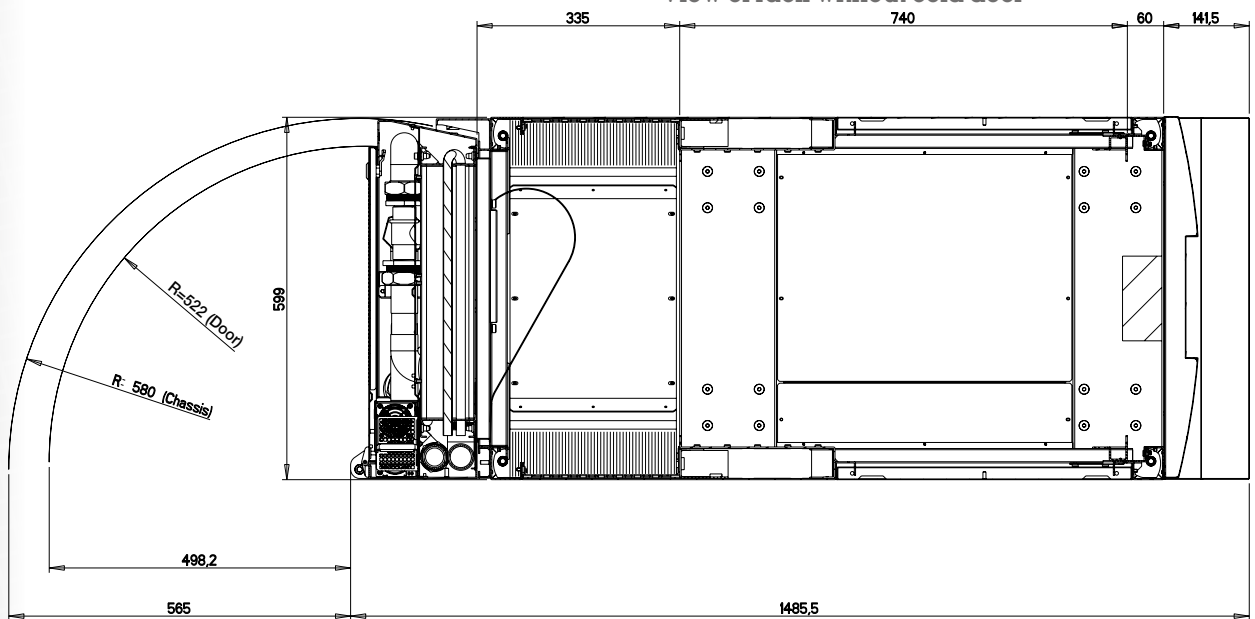
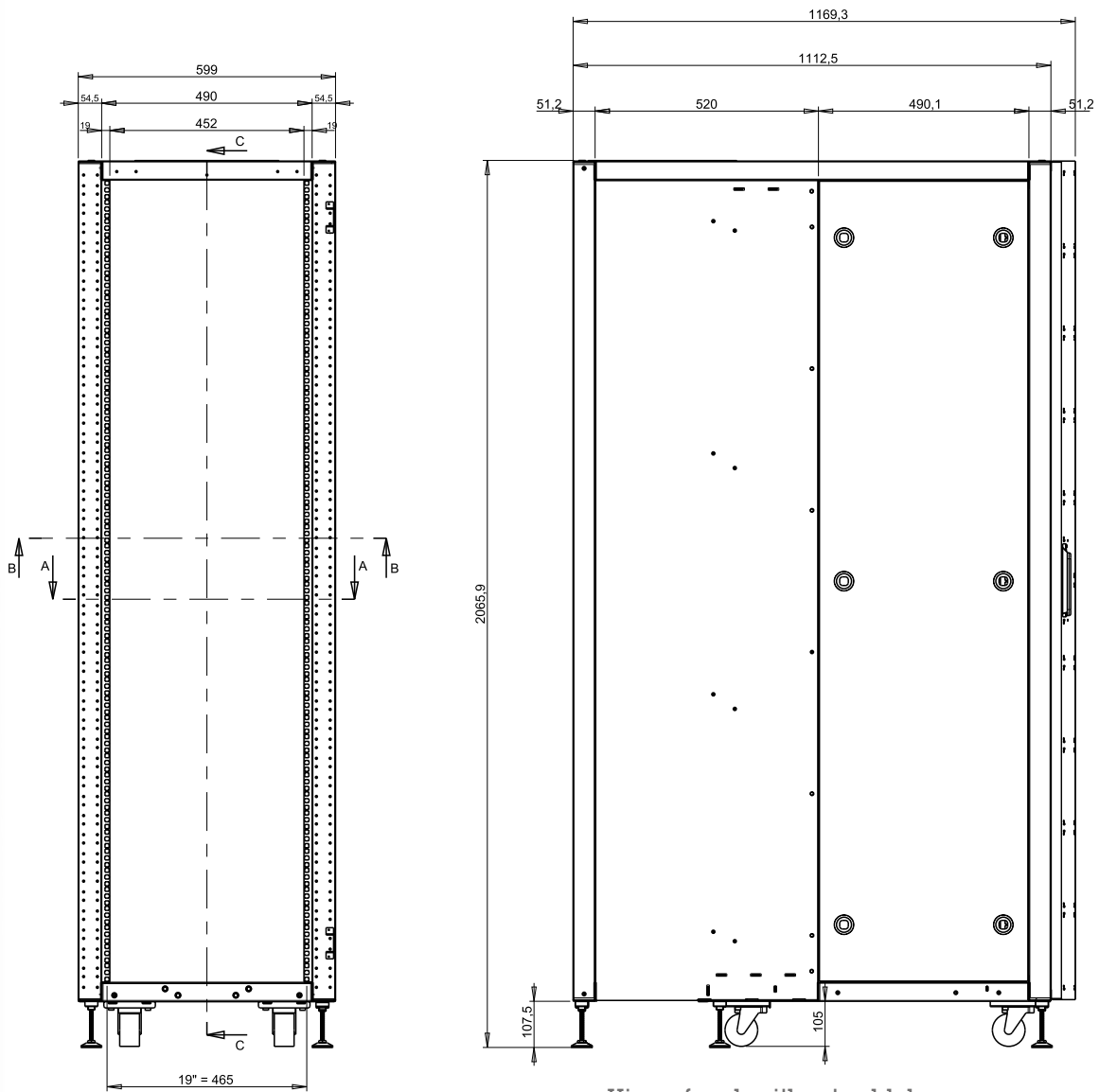
\* Standard upright position, unless otherwise specified on order.  
The uprights are adjustable either in 25 mm pitches or continuously.

42 U	OVERALL HEIGHT H 1	INSIDE HEIGHT PER COMPARTMENT
2-compartment rack	1960	20 U
3-compartment rack	1960	13 U

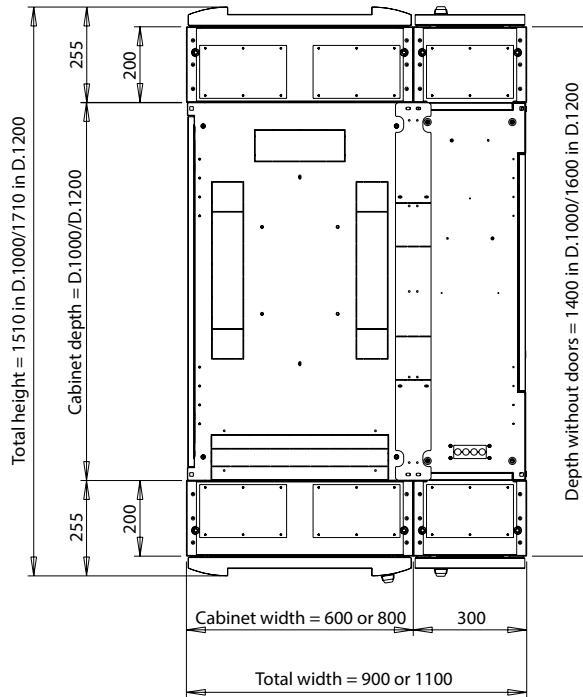
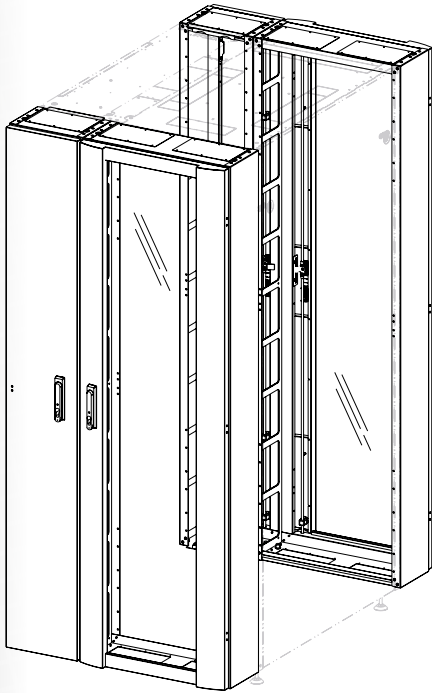
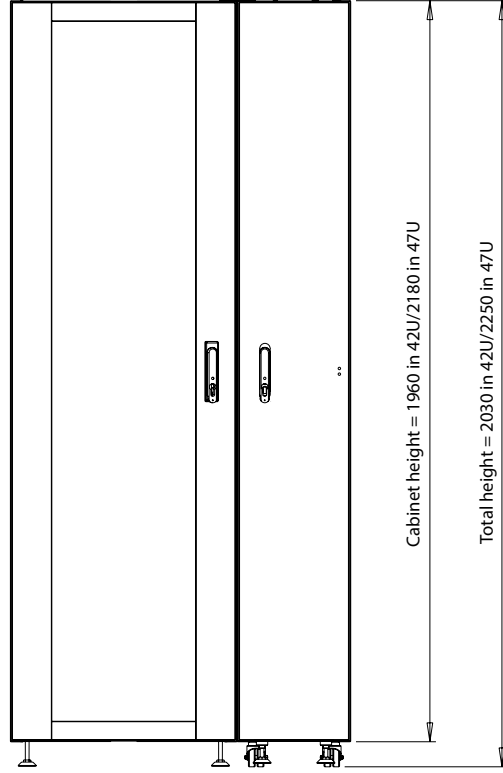
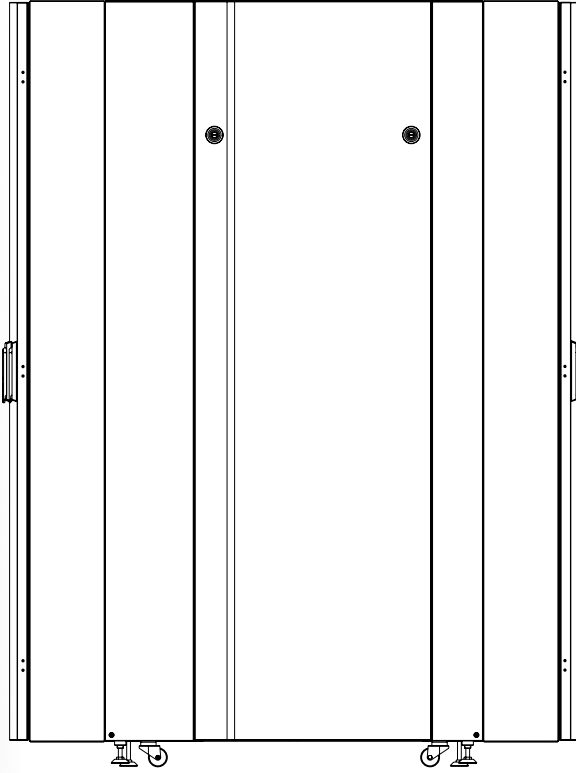
47 U	OVERALL HEIGHT H 1	INSIDE HEIGHT PER COMPARTMENT
2-compartment rack	2180	23 U
3-compartment rack	2180	15 U
4-compartment rack	2180	11 U

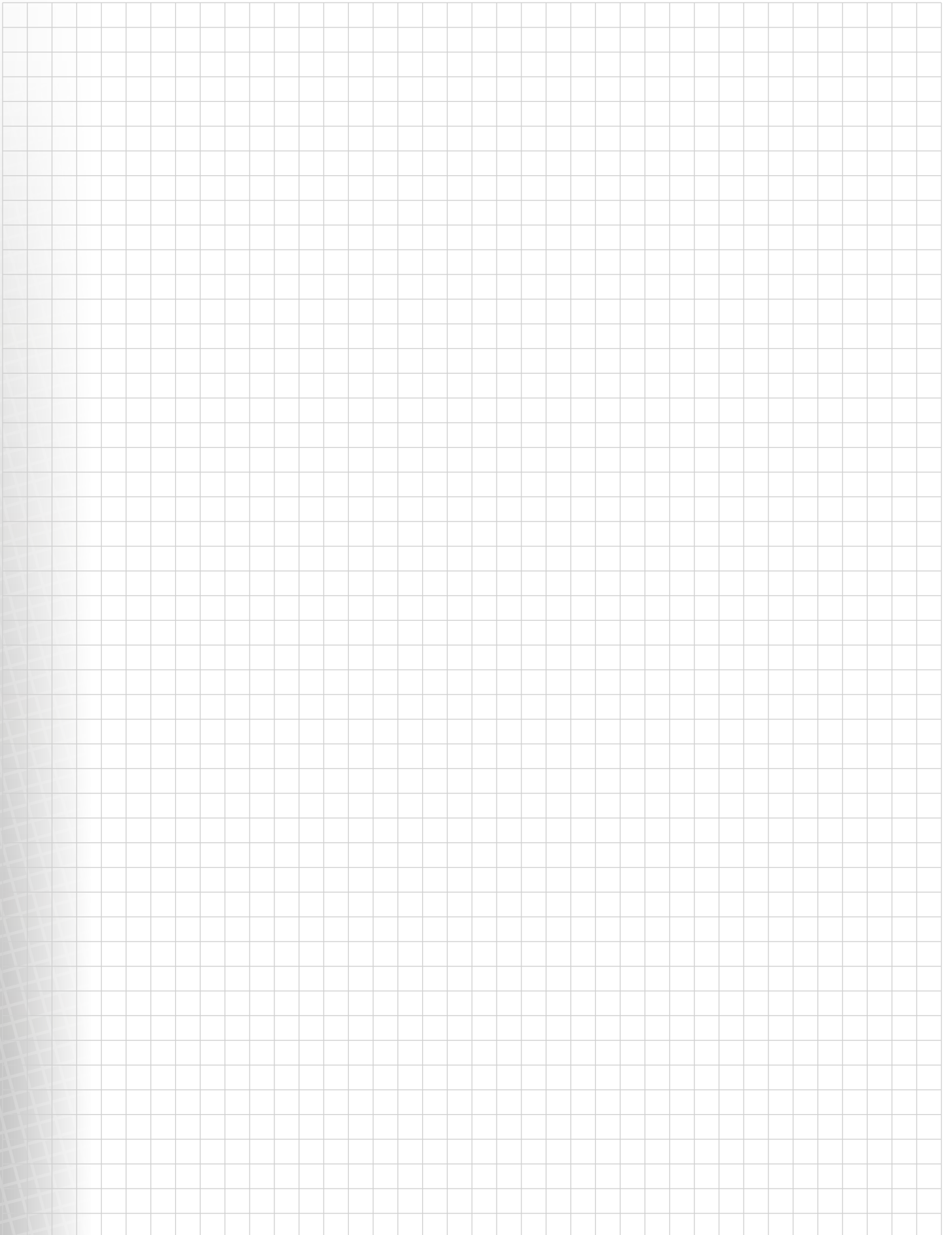
		42 U	47 U
H	Rack height	1960	2180
H1	Min. overall height	2160	2380
H2	Max. overall height	2175	2395

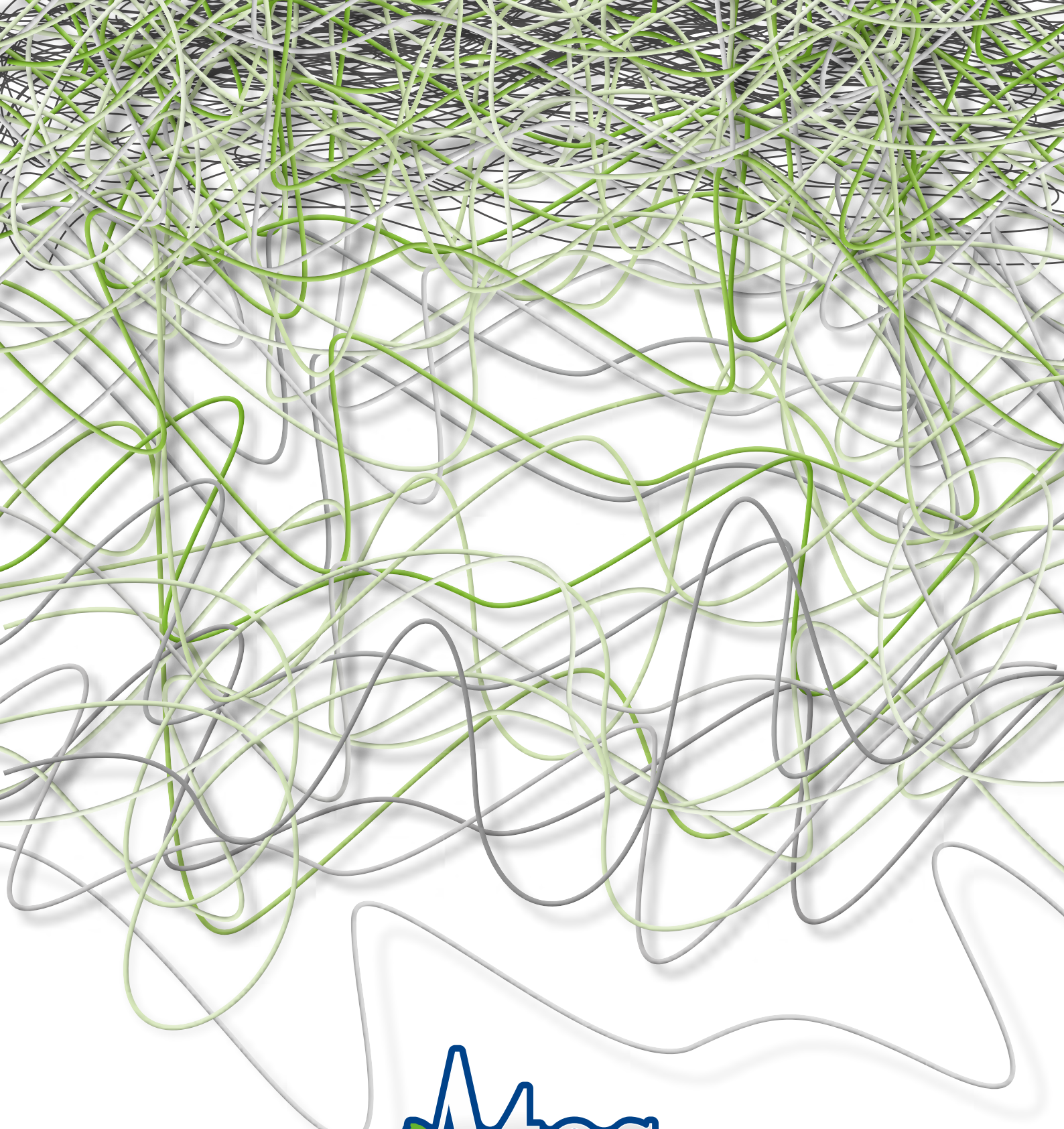












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