



WELCOME TO THE FUTURE OF CONNECTION AND PROTECTION

At nVent, we believe that safer systems ensure a more secure world.
We connect and protect our customers with inventive electrical solutions.

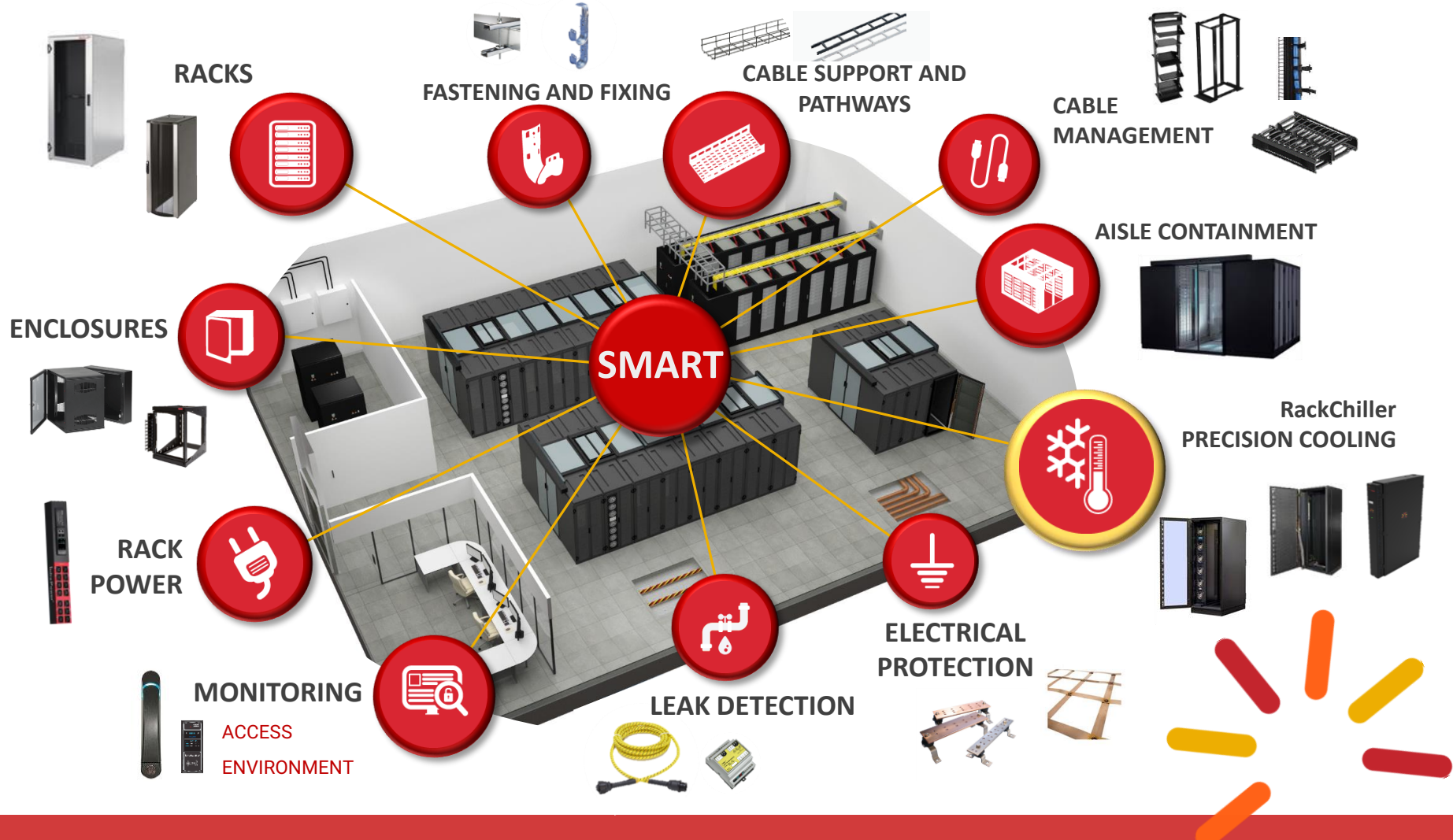


TRUSTED DATACOM AND NETWORKING SOLUTIONS FOR A CONNECTED WORLD

Trust in nVent to secure mission critical data availability combined with optimized efficiency at minimal cost of ownership.

Experienced project support and proven product lines help our customer to achieve their goals.

TRUSTED DATA CENTER AND NETWORKING SOLUTIONS FOR A CONNECTED WORLD



OUR FLEXIBLE MODULAR PORTFOLIO, COMBINED WITH DESIGN AND PROJECT SUPPORT, ENABLES YOU TO SPECIFY AND DEPLOY YOUR PROJECT ON TIME TO ENSURE DATA AND NETWORK INFRASTRUCTURE AVAILABILITY AND PROTECTION

FROM THE EDGE TO THE CLOUD

trust in nVent to secure mission critical data availability combined with optimized efficiency at minimal cost of ownership.



CADDY

The nVent CADDY brand includes fixing, fastening, and support products for high performance cabling systems designed to save installation time.

ERICO

nVent ERICO offers full range of facility electrical protection products to protect data centers, network and other facilities.

HOFFMAN

nVent HOFFMAN offers broad range of targeted networking enclosures, racks and accessories for protecting sensitive electronic equipment.

RACHEM

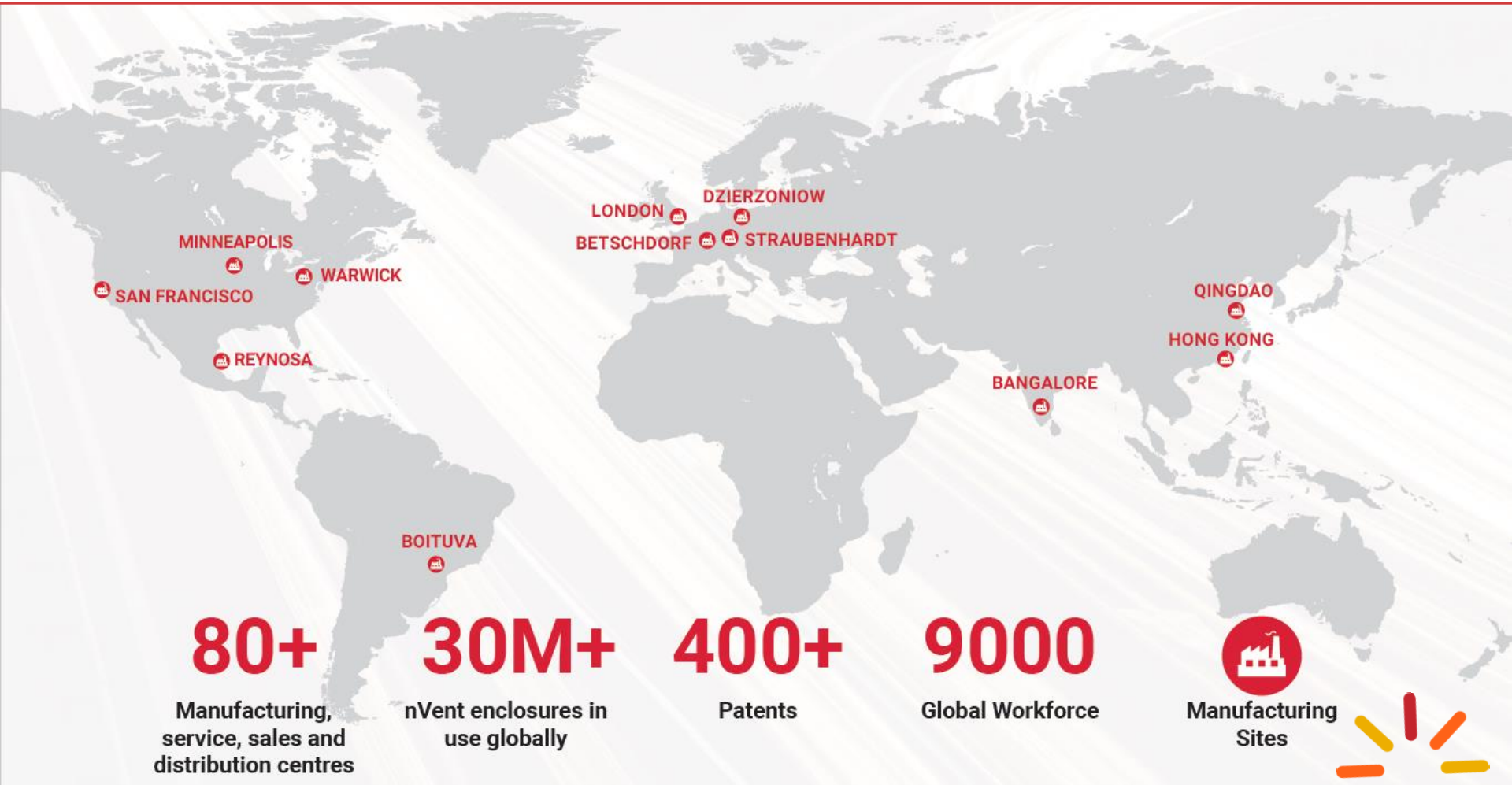
TRACETEK a brand of RACHEM nVent includes sensing probes and cables for monitoring water and fuels to ensure availability.

SCHROFF

nVent SCHROFF brand offers modular and scalable server cabinets, aisle containment systems and active cooling solutions to perfectly fit customers' data center requirements



YOUR GLOBAL PARTNER



Americas

- 6 manufacturing locations
- +300 technical sales reps
- +3,000 distributor branches

Europe

- 3 manufacturing locations
- +100 technical sales reps
- +100 distributor branches

APAC

- 2 manufacturing locations
- +75 technical sales reps
- 100 distributor branches

I-MEA

- 1 manufacturing location
- +25 technical sales reps
- +50 distributor branches

Infrastructure Under Control



Precision Cooling

➤ Smart AIR TO WATER HEAT EXCHANGER

- High density cooling
- Minimal operation costs
- Efficient regulation

CONTINUUM OF COOLING



Server Rack

2 - 4 kW



Rear View

Server Rack w/Fans

4 - 6 kW



Server Rack w/AC

6 - 8 kW



Row Aisle Containment (Passive)

8 - 12 kW

COOLING CAPACITY per RACK



100+ kW

25 - 60 kW

25 - 30 kW

20 - 25 kW



Direct to Chip Liquid Cooling



Rear Door (Passive/Active)



Rack w/Integrated LX Cooling (MicroEdge)



In Row Cooling – CW/DX

Complete offering

Precision Cooling



Aisle Containment System

- 3 different door options: swing door, manual and automatic sliding doors
- Design allows easy integration of third party cabinets
- Minimum air loss due to standard gaskets and panels



Precision Cooling



RackChiller IR - InRow

- Fully compatible with Varistar Containment System
- Scalable, networked cooling devices allow optimal management
- Water entry from top and bottom



RackChiller IN - InRack

- High packing density per rack with efficient temperature regulation
- 1, 2 or more closed-loop cabinet designs possible
- IP/EMC (EMI) shielded versions available

RackChiller RD - Rear Door Cooler

- Frame solution separates cooling from the rear inside of the rack
- Passive and Active configurations
- Attachable to third party racks



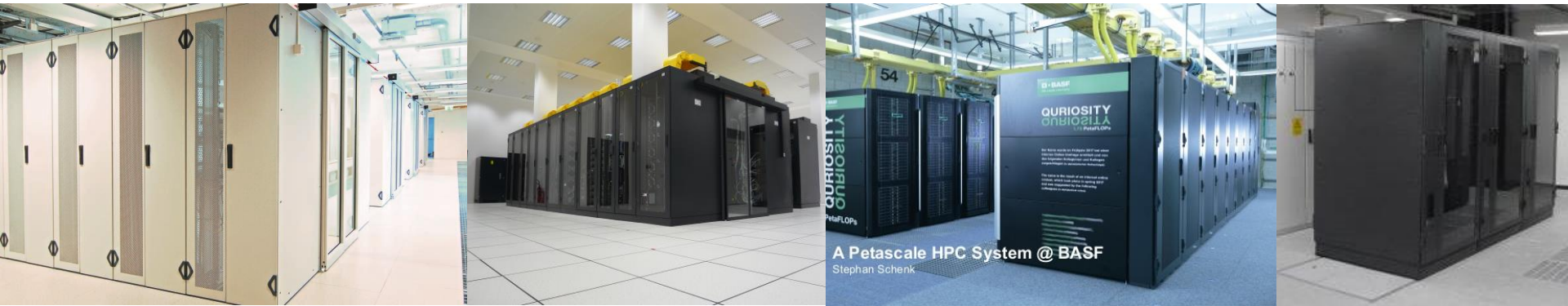
High Density Liquid Cooling

- Water to water and water to air heat exchangers.
Cooling of more than 50kW per rack for super computing, AI and Big Data applications




Performance Considerations for Heat Exchangers

- How to reduce operating costs for equipment cooling?
 - ✓ Reduce usage of expendable materials (filters, lube oil,...)
 - ✓ Decrease probability of component failure (fans, valves, electronics,...)
 - ✓ Minimize consumption and loss of transport media (water, air, refrigerant,...)
 - ✓ Optimize energy efficiency (pumps, fans, compressors,...)



**Consider working parameters and IT equipment –
when specifying the most effective cooling solution is key**

Comparison: RackChiller - Precision Cooling Solutions

 RackChiller	Rear Door	Rear Door with fan package	InRack	InRow
Max. Cooling capacity per rack	Up to 55kW	Up to 60kW	Up to 25-30kW	Up to 20-25kW
Redundancies	★	★	★ ★	★ ★ ★
Maintenance	★ ★ ★	★	★	★
Energy-Efficiency	★ ★ ★	★ ★	★ ★	★
Noise	No additional noise	Less noise due to larger fans	Minimal as closed cabinets	Depends the required air volume flow
Server assembly	Relative homogeny	Heterogenic	Heterogenic	Heterogenic
Customer examples	<ul style="list-style-type: none"> • Server Cluster • Edge Computing • Advanced physics 	<ul style="list-style-type: none"> • HPC racks 	<ul style="list-style-type: none"> • Smaller DC with changing computing power during day time • Edge Computing 	DC with packing density >10kW per rack

RackChiller Rear Door - FEATURES

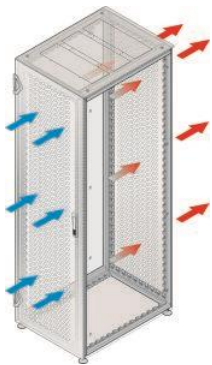
Fan less Solution

- No noise
- No additional power consumption
- Low maintenance costs

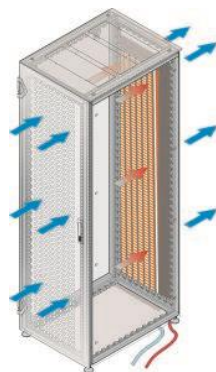
Easy adaption & retrofitting also on third party racks

Frame solution allows to separate coil and condensate management from the rack mount equipment

Rear space inside the rack is completely available for cabling and power distribution



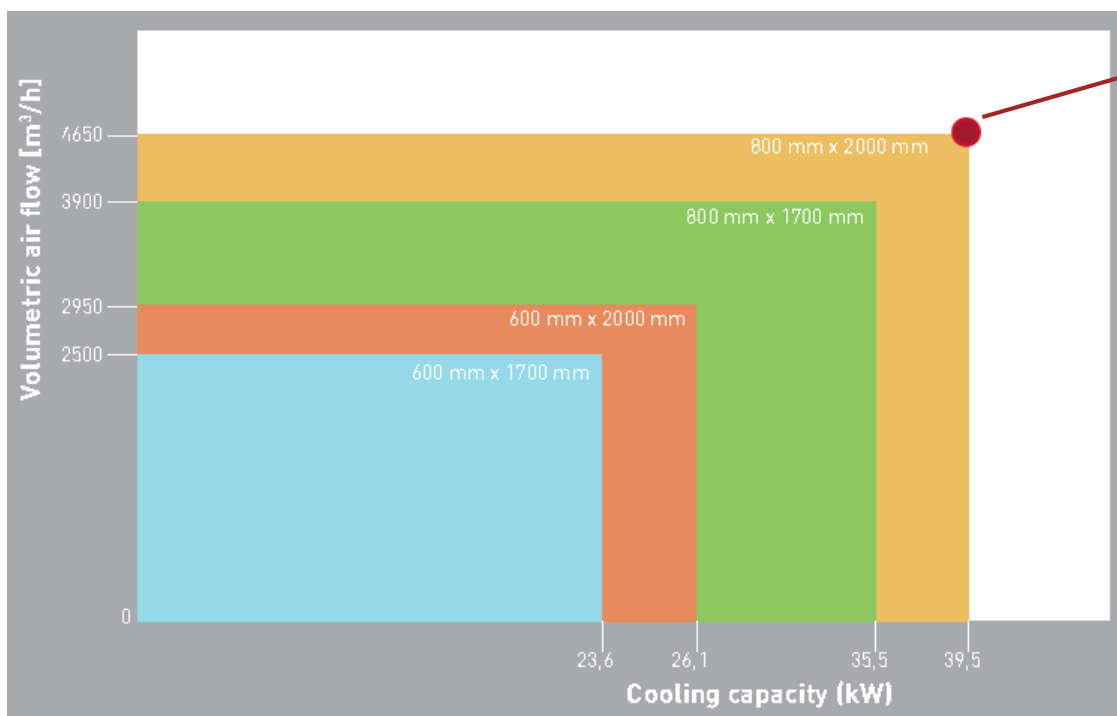
Perforated door



Rear door heat exchanger

RackChiller Rear Door

➤ Cooling Performance for Different Rear Door Cooler Dimensions



Maximum working parameters for air 55° C and water 20° C inlet temps.

- Cooling capacity: 39,5 kW
- Water volume flow: 70 l/min
- Water pressure loss: <0.5 bar

- Air volume flow: 4.650 m³/h
- Air pressure loss: 15 Pa

- Delta T air: 25 K
- Delta T water: 8 K

RackChiller Rear Door - OFFERING

- Widths: 600 and 800mm
- Height: 2000 (42RU), 2200 (47RU) and 2450mm (52RU)



1. Mounting frame
2. Controller (Optional)
3. Heat exchanger
4. Cover water connections
5. Water inlet
6. Water outlet
7. Mounting position for display (optional)
8. Water hoses
9. Actuator (optional)

RackChiller Rear Door – OFFERING accessories

- Flexible water hoses to connect the LHX RD to the pipework



- Valve with actuator to control water flow according temperature

- Water control package (flow and temperature)

1. Flow sensor
2. Pressure sensor
3. Connection 1 ¼"
4. Gaskets
5. Connection cable sensors
6. Connection cable controller



RackChiller Rear Door – OFFERING accessories

➤ Controller for actuato

1. Controller
2. Power Supply
3. Cover
4. Mains input
5. Ethernet connection



- 4 air temperature sensors (included in cooler door)
- 4 water sensors (included in water control package)
- PID control of air or water temperatures
- RJ45 for Ethernet or Modbus-TCP
- Prepared for active RDC (PID fan control; pressure diff. sensor)
- Free clamps for alarms, door locks, condensate pumps, ...
- 3 languages (English, German, French)

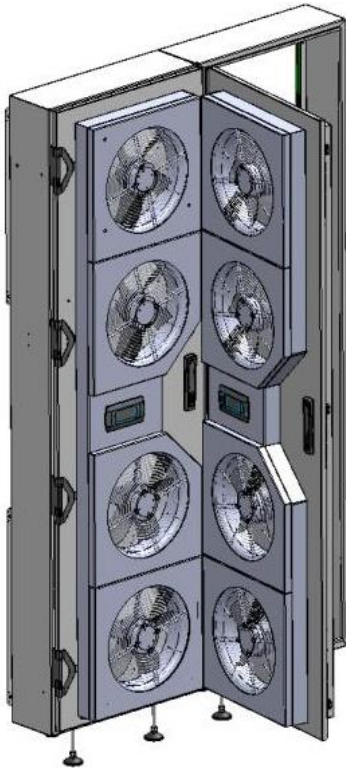
➤ Control-Display



RackChiller Rear Door – FAN PACKAGE

➤ Standard Rear Door Dimensions

- 600 and 800 mm width
- 2000, 2200 and 2450mm height



- Design allows a door opening of 100°
- Use the same accessories like the fan less solution: controller, display, water package...
- Regulation of the fan speed through differential pressure sensor
- **Available January 1st 2019**

Allows assembly of heterogenic server equipment



Work with experts to get the best fitting solution



nvent