

# HRCO

## RACK COOLER UNIT

WITH PUMPED CO<sub>2</sub>



Also available with 60 Hz power supply

HRCO 0250		
Inlet air condition 35 °C - 33% r.h.		
Total refrigerating power	kW	22
SHR	-	1.0
Air flow rate	m <sup>3</sup> /h	3800
Total fan absorbed power	kW	0.3
Dimensions [L x H x D]		300 x 2000 x 1200
CO <sub>2</sub> inlet temperature	°C	18
CO <sub>2</sub> outlet temperature	°C	23
H <sub>2</sub> O inlet temperature	°C	10
H <sub>2</sub> O outlet temperature	°C	16

ITALIAN  
COOLING  
SOLUTIONS

 HiRef

## RACK COOLER UNIT WITH PUMPED CO<sub>2</sub>

# HRCO



25 - 50 kW

 HiRef

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## RACK COOLER UNIT WITH PUMPED CO<sub>2</sub>

### NATURAL REFRIGERANT

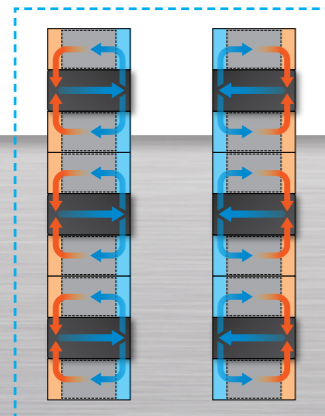
- Carbon dioxide (R744) is a natural gas, largely available in nature and without limitations of use. It is also inert, non-toxic and most importantly, non-flammable: all these handling characteristics reduce the costs and critical issues associated with the installation and safety of the systems.
- The R744 refrigerant is environmentally friendly, as it has a GWP (Global Warming Potential) value of 1. It is highly promising as the refrigerant of the future, not being required to comply with recent regulations aimed at containing the emissions of greenhouse gases.

### HIGH POWER DENSITY

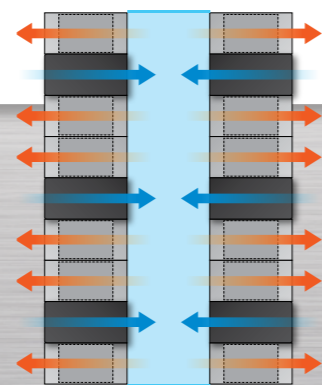
The internal design is such as to enhance the evaporator exchange surface and the section available for air outlet from the unit. The thermodynamic performance is therefore optimised - maintaining at the same time a compact unit footprint. This ensures full compatibility of the units with latest-generation racks - to make the most of the space available in the server room.

### DIFFERENT COOLING SOLUTIONS

Depending on how rack cooling is done - by creating hot and cold aisles in the Data Center or via compartmentalisation and localised cooling - the HRCO range is available in two different configurations:



The "In Rack" configuration in which a closed circuit is created between the rack cooler and rack cabinet.



The "In Row" configuration, in which cold air is released into the "cold aisle" to each rack cabinet and hot air is taken in by suction by the rack cooler from the surrounding environment.

HRCO is the new range of CO<sub>2</sub> rack coolers designed to cool high-density thermal load rack cabinets. The use of R744 environment-friendly refrigerant makes these units suitable for low environmental impact applications - in line with recent directives that limit the use of high GWP refrigerants. The internal design and the choice of components are primarily aimed at ensuring energy efficiency and reliability, so as to minimize the system running costs.

### EASIER SCHEDULED MAINTENANCE

The special arrangement of the internal components, such as the electrical panel positioned horizontally and removable from the unit front, increases the available internal space, making maintenance considerably more straightforward. The new assembly system ensures independent signal and power supply for the fans, allowing them to be replaced even with the unit in operation (*Hot swappable fans*). In case of unit control microprocessor fault, the fans can operate at fixed speed, which can be set in the starting phase through the emergency function.

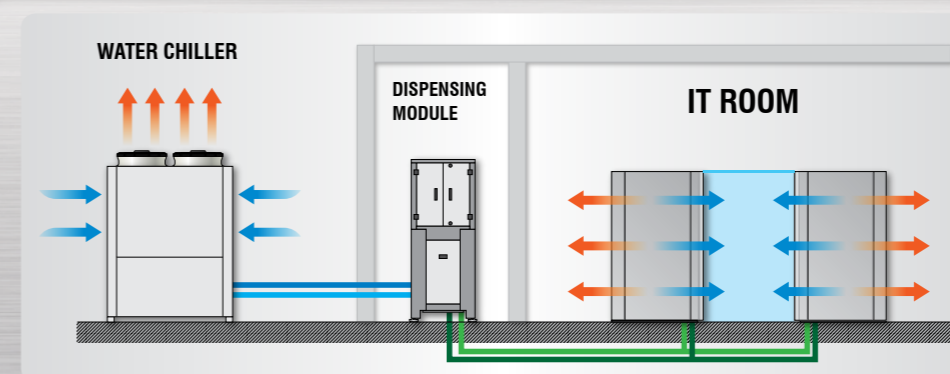


### SAFETY IN THE SERVER ROOM

All models in the HRCO range feature heat exchange coils submitted to hydrophilic treatment. This special coating - together with an adequate adjustment of air through-flow speeds - helps condensate collection during the dehumidification process, avoiding dripping on the inside and outside of the unit. The presence of liquid carbon dioxide instead of water in the system ensures extra safety and reliability in the server room.

### DISPENSING MODULE

At the core of the HRCO rack cooling system is a liquid CO<sub>2</sub> dispensing module, which is cooled by chilled water from an external chiller. The module therefore houses a water/carbon dioxide decoupling exchanger and a set of modulating pumps, managed by the on-board microprocessor. This feature, in particular, allows for fine-tuning of liquid flow rates, ensuring continuity in the delivery of refrigerating power also at partial loads. The dispensing module is typically installed outside the server room to ensure a higher level of safety for servers.



- » Refrigerant R744
- » Standard EC fans
- » 2-way adjustment valve
- » Finned coils with aluminium fins and copper and steel alloy tubes for high pressures (PS = 90 bars)

