HiRef

Innovators above the standards

DATA CENTER

Chilled water air conditioning units

HRCC

for high power density racks

Range: 20.1-57.2 kW

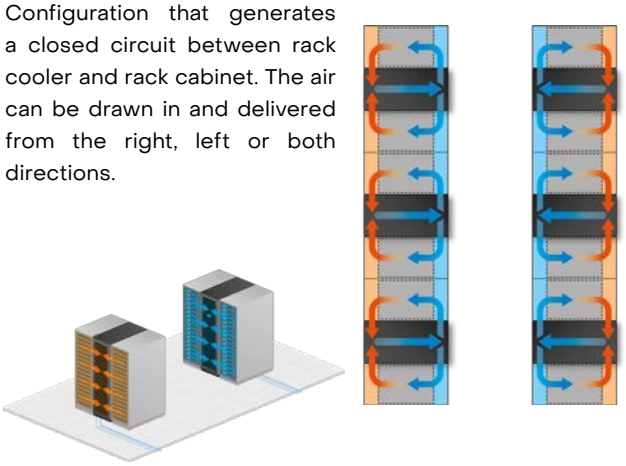
HRCC units are chilled water cooler racks. They offer an ideal solution for the cooling of Data Center racks where precision control of hygrothermal parameters is required 24/7. They are particularly suitable for integration into chilled water systems with Free-Cooling chillers, given the possibility of making these air conditioners work even with higher water temperatures than the usual 7/12°C or 10/15°C values. The internal design and the choice of components are aimed at obtaining high levels of energy efficiency and guaranteeing service continuity, the second being a key requirement in this type of application with high/very high power density.

In-Rack or In-Row configuration

Depending on how rack cooling is done - by creating hot and cold aisles in the Data Center or via compartmentalisation and localised cooling - the HRCC range comes in two different configurations: On request Configuration that generates a closed circuit between rack cooler and rack cabinet. The air can be drawn in and delivered from the right, left or both directions.

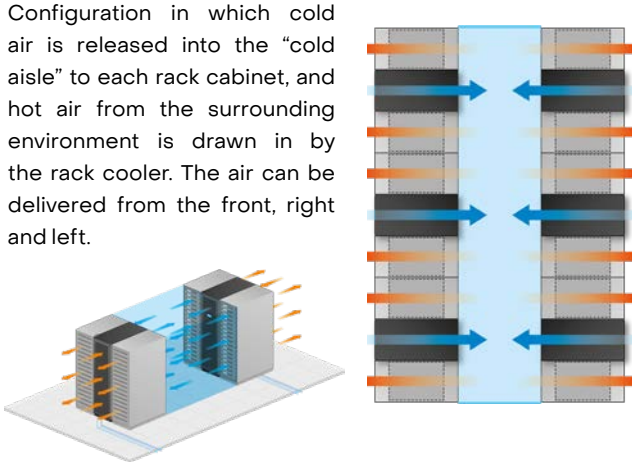
IN RACK

Configuration that generates a closed circuit between rack cooler and rack cabinet. The air can be drawn in and delivered from the right, left or both directions.



IN ROW

Configuration in which cold air is released into the "cold aisle" to each rack cabinet, and hot air from the surrounding environment is drawn in by the rack cooler. The air can be delivered from the front, right and left.



Main advantages

Ventilation EC

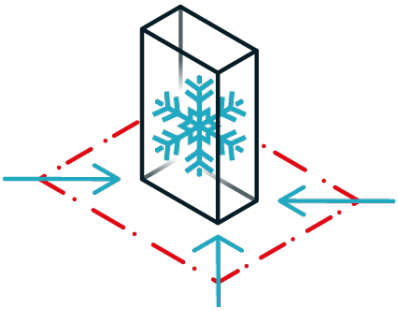
EC PLUG fans, standard throughout the range, are adjustable using different logics: flow rate, overpressure, constant ΔP and ΔT. Their accurate adjustment allows an efficient use of power for ventilation and a consequent reduction of the system's PUE. Extended range speed adjustment is carried out via Modbus protocol. The "emergency speed" function allows for fan operation even in the event of microprocessor malfunctions.

Hot swappable fans

In order to minimize machine shutdown, a failed fan can be replaced without turning off the unit, thanks to the use of the protective basket and connectors for the power and control section. Fan replacement thus becomes a routine maintenance operation.

Safety in the server room

All models in the range feature heat exchange coils with hydrophilic coating. This special coating – together with adequate adjustment of air through-flow speeds – helps condensate collection during the dehumidification process, preventing any dripping on the inside and outside of the unit.



High power density

The internal design and the special component layout allows for an evaporating coil with an extensive heat exchange surface area. The unit footprint is still small, ensuring optimal use of space in the server room.

Sliding control panel

For 300 mm wide structures, the electrical panel is designed to take up as little space as possible without interfering with air distribution over the whole working height of the unit. A “sliding drawer” structure has been used, making access possible during commissioning and extraordinary maintenance operations. This configuration also prevents tangling of the wiring.

Additional benefits

- Advanced programmable microprocessor control with LCD display
- Humidity control through dehumidification and humidification
- Fan speed modulation based on thermal load (constant ΔT)
- Air filter class G3 supplied as standard Air Filters G4, M5, F7
- Double power supply with automatic switch
- Constant flow (airflow control) or constant available overpressure (ΔP control) ventilation modulation
- Instant reading of water flow rate, water inlet and outlet temperatures, or cooling capacity

Technological components

Multi-protocol communication interface

HiRef units can be integrated with the customer's external supervision Building Management System (BMS), using the most popular communication protocols, including Modbus RTU, Modbus/IP, BacNet, LonWorks, SNMP.

EC Radial Fans

Radial or centrifugal fans are characterised by backward blades. Air is taken in the axial direction, parallel to the rotation axis and delivered radially, perpendicular to the rotation axis. This type of fan does not require an external screw, has a high head and is suitable for use in indoor units where the air is often ducted and recirculated. They are driven by electronically commutated (EC) brushless permanent-magnet (BLDC) synchronous motors. The use of these motors reduces unit consumption, noise and footprint, improves the efficiency and life cycle of the system through accurate control of speed and acceleration, resulting in less heat dissipation. In addition, inrush currents and sparks are eliminated.

Modbus controlled fans

The Modbus protocol, unlike the 0-10V signal, allows to not only control the speed of the fans, but also to capture, monitor and manage considerably more data and alarm information.

Hot swappable fans

A faulty fan can be replaced without turning off the unit, thanks to the use of the protective basket and connectors for the power and control section. In this way, fan replacement becomes a routine maintenance operation.

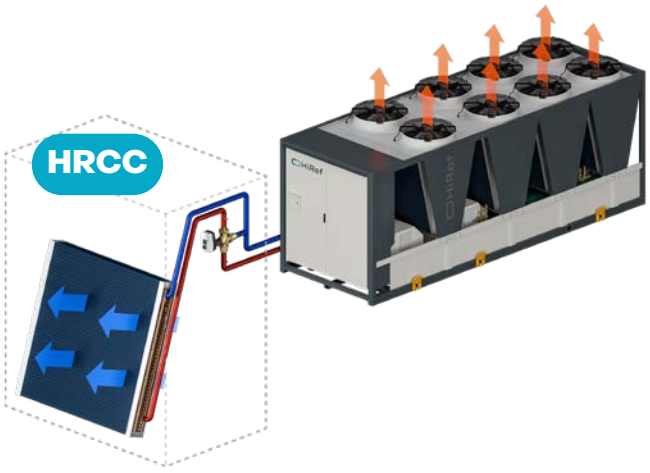
On-board Humidifier

Humidifiers are essential components for maintaining the right level of humidity in the server room and ensuring the proper functioning of the room equipment. Humidifiers with immersed electrodes can be installed in HiRef units, managed by proprietary software which, equipped with a special probe, keeps humidity levels at pre-established values.

Types of system

CW

CHILLED WATER



Technical table

HRCC		0200	0250	0450	0510
AIR TEMPERATURE 30°C - RELATIVE HUMIDITY 35% / WATER TEMPERATURE IN 10°C OUT 15°C					
COOLING CAPACITY	kW	20.1	27.7	46.2	57
SHR	-	1	1	1	1
EER	-	43.54	38.35	31.1	37.27
AIR TEMPERATURE 35°C - RELATIVE HUMIDITY 30% / WATER TEMPERATURE IN 15°C OUT 20°C					
COOLING CAPACITY	kW	20.2	27.8	46.4	57.2
SHR	-	1	1	1	1
EER	-	43.69	38.44	31.21	37.37
AIR FLOW	m^3/h	4000	5300	9000	11000
POWER SUPPLY	-	230/1/50		400/3+N/50	
SOUND PRESSURE LEVEL at 2 meters free field	dB	62	65	70	67
DIMENSIONS [LxHxD]	mm	300x2000x1200		600x2000x1200	

Also available with 60 Hz power supply.

HiRef

HiRef S.p.a · Viale Spagna 31/33 35020 Tribano (PD) – IT · **Tel:** +39 0499588511 · **Fax:** +39 0499588522
info@hiref.it · hiref@pec.it · **CF/P.IVA:** 02191431200 · **REA:** PD – 327685