HiRef

Innovators above the standards

DATA CENTER

Mini rack cooler

MRAC DX

for high density system

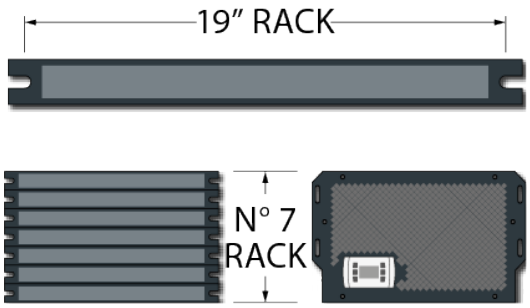
Range: 3.2-9.4 kW

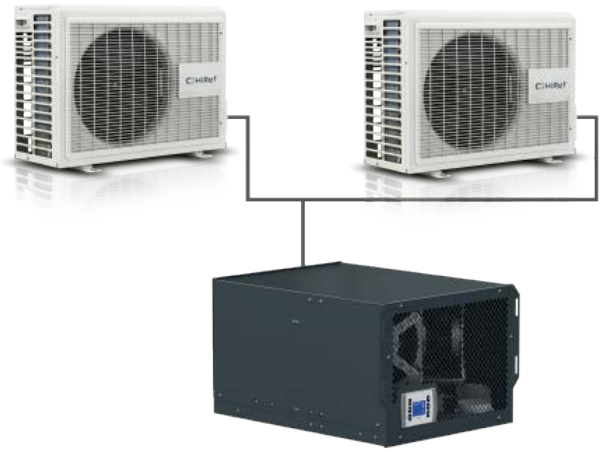
The units in the MRAC family offer an ideal solution for cooling 19” racks, which require precise internal temperature control and 24/7 operation. In split execution, with R410A refrigerant external condensing unit, the range extends from 3.6 to 7.9 kW. The CW version, with chilled water, reaches 4.5 kW. The MRAC unit is controlled by a dedicated software, developed within HiRef, allowing a LAN connection for up to 8 units and interfacing with an automatic door-opening system in the event of an alarm.

Main advantages

Compactness

MRAC has been designed to be hidden inside the rack cabinet and take up as little space as possible. Installable in any rack cabinet with 19” racks, it occupies the height of just 7 racks, taking up very little space in the Data Center.





Maximum MRAC redundancy with the version having two external motocondensing units

The MRAC unit with dual external motocondensing unit is available on request. This solution provides redundancy and ensures continuity of service even in the event of failure of one of the two units.

Ventilation EC

EC PLUG fans, standard on the entire range, make it possible to vary the air flow according to the thermal load. 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 enables the fan to move even if the microprocessor is switched off.

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.

Inverter driven compressors

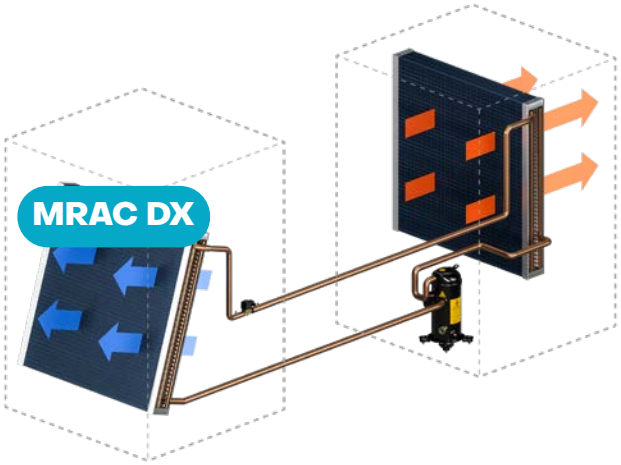
Inverter-driven compressors allow compressor rotation speed and efficiency to be controlled, by modulating the frequency and the supply voltage of the motor. They are driven by electronically commutated (EC) brushless permanent-magnet (BLDC) synchronous motors. The use of these motors reduces unit consumption, 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.

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.

Types of system

AIR/AIR



Additional benefits

- Coil with highly efficient hydrophilic fin and aluminum frame
- A version is available for low outdoor air temperatures
- Compressor with brushless inverter technology available for 7 kW version
- Condensate drain pan made from stainless steel AISI 430
- Electrical and rapid control connections
- Completely insulated panelling
- Air filter type G3

Technical table

MRAC DX		0035	035B	0070	070 (INVERTER)
AIR TEMPERATURE 30°C - RELATIVE HUMIDITY 35% / OUTDOOR AIR TEMPERATURE 35°C					
COOLING CAPACITY	kW	3.7	3.2	4	8.8
SHR	-	1	1	1	0.83
EER	-	3.58	3.18	3.73	2.73
TOTAL POWER INPUT	kW	1.3	1.4	1.5	4
AIR TEMPERATURE 35°C - RELATIVE HUMIDITY 30% / OUTDOOR AIR TEMPERATURE 35°C					
COOLING CAPACITY	kW	4	3.6	4.7	9.4
SHR	-	1	1	1	0.86
EER	-	3.78	3.43	4.22	2.86
TOTAL POWER INPUT	kW	1.3	1.4	1.5	4.1
AIR FLOW INTERNAL UNIT	m^3/h	915		1330	
AIR FLOW EXTERNAL UNIT	m^3/h		1600		5100
POWER SUPPLY INTERNAL UNIT	-		230/1/50		
POWER SUPPLY EXTERNAL UNIT	-		230/1/50		
SOUND PRESSURE LEVEL at 2 meters free field INTERNAL UNIT	dB	62		66	
SOUND PRESSURE LEVEL at 10 meters free field EXTERNAL UNIT	dB		34		46
DIMENSIONS INTERNAL UNIT [LxHxD]	mm		485x300x600		
DIMENSIONS EXTERNAL UNIT [LxHxD]	mm		776x540x320		1305x648x495

Performance data for size 035B relating to operation with only one motocondensing unit. | Total absorbed power relating to indoor unit and motocondensing unit. | Also available with 60 Hz power supply.

HiRef

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