

HiRef

Innovators above
the standards

TELECOMMUNICATIONS



Rooftop HTR

for precision air conditioning

Range: 6.8–63.4 kW

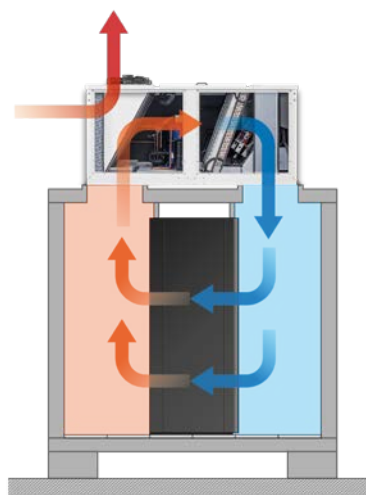


HTR rooftops are direct expansion air-cooled units developed and designed for container air conditioning. They represent the simplest solution for the air conditioning of CEDs inside containers; this is thanks to the external positioning of the shelter and the easy installation typical of single-block versions. The internal design and the careful choice of components are designed to provide the unit with maximum energy efficiency, to obtain the highest savings in terms of operating costs of the cooling system.

Main advantages

Unit optimised for the hot/cold aisle configuration

The unit is designed to take advantage of the compartment in hot and cold aisle, in order to avoid energy waste due to the short-circuiting between hot air and cold air to the server. The distance between the two air intake and supply flanges guarantees easy installation, without the use of piping.



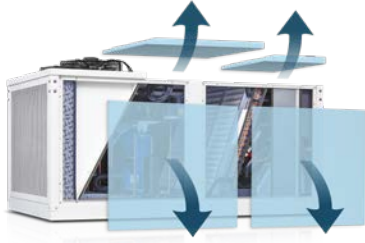
Maximum efficiency at partial loads

EC fans are a standard for the evaporating section to cut down running costs, thus contributing to increasing the energy efficiency of the unit, especially at partial loads. In order to obtain the highest energy savings, the version with BLDC variable-speed compressors is also available.

Maximised energy saving with direct Free-Cooling

Upon request, the units of the HTR range can also be fitted with a direct Free-Cooling module. Since this Free-Cooling system is also activated during mechanical cooling, it allows significant energy savings, cutting down the running hours of the compressor. In this case, an overpressure damper is needed.



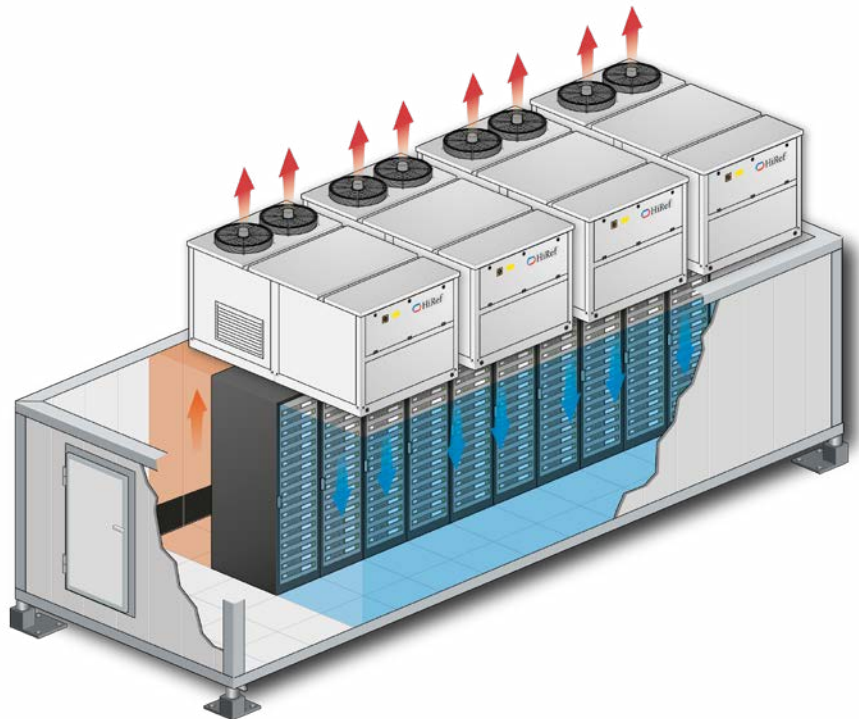


Completely accessible from above

All components installed inside the HTR rooftop unit are accessible by removing the panels on the top part; this significantly makes all maintenance operations easier, whether routine or extraordinary.

Maximised shelter internal space

The HTR rooftop units are designed to be installed outside the shelter. This makes it possible to fully use the internal space, which is dedicated exclusively to installation of the server racks.



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.



Scroll compressors

Scroll compressors include a mobile scroll, driven by the motor, which completes orbital revolutions and a fixed scroll that is coupled to it. The orbital motion creates a series of gas pockets that move from one scroll to the other. When moving closer to the centre of the scroll, where exhaust takes place, the gas is compressed to smaller and smaller volumes until the desired delivery pressure is reached. Scroll technology improves volumetric efficiency and flow continuity, reduces noise and leakage and eliminates harmful volumes and downtime.



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.



Corrosion resistant material

The HiRef outdoor units are protected by a metal structure resistant to corrosion and weathering. They are also made of galvanised steel sheet, with epoxy-polyester powder coating, oven-polymerised at 180°C, to offer a C3 degree of protection. On request, it is possible to order specific paint finishing treatments or a metalwork structure built entirely in stainless steel, to obtain a higher degree of protection from high impact adverse weather events.

Types of system



AIR/AIR

Additional benefits

- Refrigerant R410A, also available with R134a for applications with high outdoor temperature
- Available with BLDC compressor with variable speed
- Available with 50 Hz or 60 Hz power supply
- Version for low outdoor temperatures (-40°C) available
- Re-heating system with electrical heaters
- Electrical panel in overpressure for the utmost safety
- Stainless steel metalwork upon request

Technical table

HTR		0701	1201	1601	1801	2501	3201	5602
AIR TEMPERATURE 27°C - RELATIVE HUMIDITY 40% / OUTDOOR AIR TEMPERATURE 35°C								
COOLING CAPACITY	kW	6.8	11.6	15.2	17.6	24.8	33	59.8
SHR	-	1	1	1	1	1	0.99	1
EER	-	4.24	3.54	3.48	4.25	3.73	3.73	3.97
AIR TEMPERATURE 30°C - RELATIVE HUMIDITY 35% / OUTDOOR AIR TEMPERATURE 35°C								
COOLING CAPACITY	kW	7.3	12.4	16.1	18.8	26.3	34.9	63.4
SHR	-	1	1	1	1	1	1	1
EER	-	4.4	3.77	3.64	4.48	3.9	3.89	4.16
AIR FLOW	m³/h	2500	4000	4800	6000	8000	9000	17000
POWER SUPPLY	-	400/3+N/50						
SOUND PRESSURE LEVEL at 2 meters free field	dB	59	67	73	64	72	74	
DIMENSIONS [LxHxD]	mm	910x1630x2300			1200x1630x2300			

Performance data relating to versions with R410A refrigerant. | Also available with 60 Hz power supply.

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