

HiRef

Innovators above
the standards

TELECOMMUNICATIONS



Split unit **HTS**

for shelters designed for IT equipment

Range: 2.9-40.7 kW



The air conditioners of the HTS serie are units specially designed for telephone exchange facilities and shelters. Designed for ceiling or wall mounting, they are suitable for air conditioning of control centres with limited internal space or space entirely taken up by technological equipment. The rational layout of the internal components makes installation easy. Thanks to the wide range of available accessories, the HTS units are suitable for different shelter configurations. The meticulous thermodynamic and aerodynamic design boosts energy efficiency.

Main advantages

Maximised Redundancy

In the case of coupling with DUAL power supply (mains + DC power system), the operating mode according to the (optional) Free-Cooling system maintains the environmental thermal conditions unaltered even in the event of a power failure. This will ensure uninterrupted operation of the conditioning system.

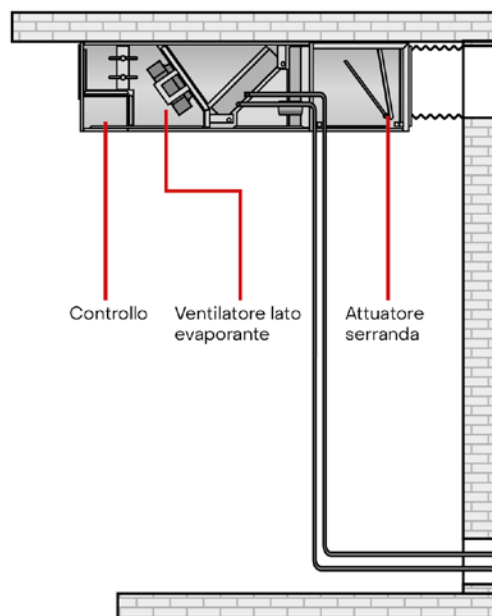
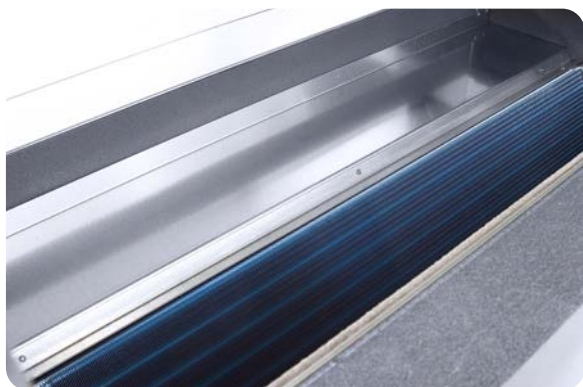
Unit suitable for any kind of climate and environment

Depending on the environment in which the unit is installed, different outfitting layouts and configurations are available:

The high temperature version with R134a refrigerant and specific condensing fan is suitable for applications with outdoor air temperature above 45°C. The unit is capable of starting even in extreme conditions (60°C indoors and 60°C outdoors).

In the case of extremely cold climates (down to -40°C), a version for low outdoor temperatures is available, equipped with silicone cables, Free-Cooling damper with own servomotor and heated with electric heating elements, dual casing heater and electrically heated control panel.

For aggressive environments, dedicated metalwork can be ordered for the outdoor unit, with 160 µm double paint coating or made of AISI 304 stainless steel alloy.



Efficiency and precision

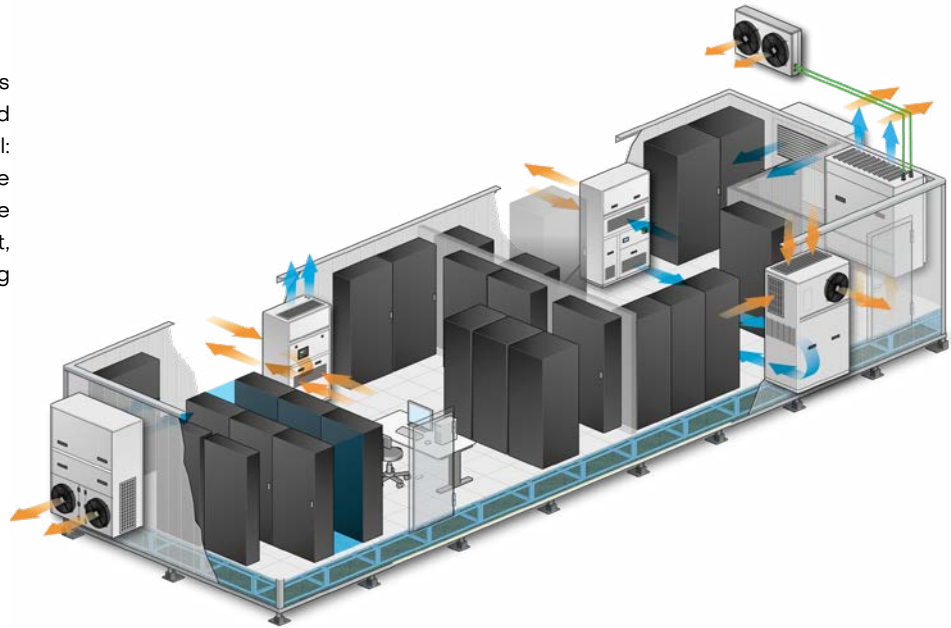
The range includes, in addition to models with ON/OFF compressors (HTS unit), also the possibility of installing compressors with brushless DC motors (NTS unit). As cooling demand varies, the integrated microprocessor allows combined modulation of air flow - via control of the EC fans (supplied as standard for the NTS unit) and of the cooling capacity, via speed control of the DC inverter compressors (supplied as standard). This ensures not only accurate adjustment of ambient hygrothermal parameters, but also maximised energy savings at partial loads, particularly if in combination with direct free cooling.

Shelter safety

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

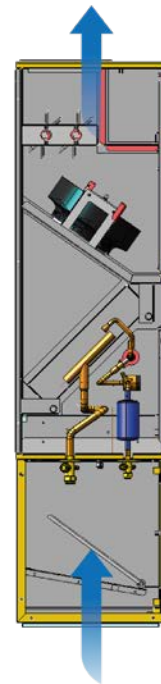
Maximised shelter internal space

The units of the HTS-NTS series are designed to be installed on either a ceiling or the wall: this allows the internal space to be exclusively used for the installation of IT equipment, enjoying greater positioning flexibility.



Easier scheduled maintenance

The unit has been painstakingly designed to ensure frontal access to components. This aspect, combined with the fully removable filters and Free-Cooling damper, if any, is highly useful for routine maintenance operations.



Maximised energy saving with direct Free-Cooling

The units can be equipped (on request) with a direct Free-Cooling module. This system, which can also be retrofitted on site on units already in place, reduces compressor work requirements (partial Free-Cooling) and, under full Free-Cooling conditions, allows the compressor to be turned off, with major effects on the system Power Usage Effectiveness (PUE).

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. Alternatively available with R513A and R134a
- Version available with dual power supply for emergencies: 230/400V network and 24/48VDC backup supply
- EC plug fans (already present on NTS) on evaporating side and condensing side available
- Available in a modulating version with Brushless DC Compressor
- Standard stainless steel condensate drain pan
- Dehumidification function on request
- Epoxy powder painted structural metalwork supplied as standard
- Electric heating function on request

Technical table

HTS		0251	0351	0451	0561	0731	0901	1051	1201	1451	3101	3811
AIR TEMPERATURE 27°C - RELATIVE HUMIDITY 40% / OUTDOOR AIR TEMPERATURE 35°C												
COOLING CAPACITY	kW	2.9	4	4.7	6.2	7.5	9.9	10.6	13.4	15.4	31.4	39.1
TOTAL POWER INPUT	kW	1	1.5	1.4	2.1	2.7	3.1	3.5	4.9	6.2	10.6	13
SHR	-	1	0.99	1	0.89	0.96	0.92	0.89	0.92	0.86	0.97	0.88
EER	-	4.44	3.38	4.62	3.78	3.28	3.77	3.82	3.29	2.84	3.45	3.57
AIR TEMPERATURE 30°C - RELATIVE HUMIDITY 35% / OUTDOOR AIR TEMPERATURE 35°C												
COOLING CAPACITY	kW	3.1	4.2	5	6.5	7.9	10.3	11	14.1	16	33.1	40.7
TOTAL POWER INPUT	kW	1	1.5	1.4	2.1	2.7	3.1	3.5	4.9	6.3	10.7	13.1
SHR	-	1	1	1	0.95	1	0.97	0.94	0.97	0.91	1	0.92
EER	-	4.65	3.47	4.88	3.93	3.44	3.92	3.99	3.41	2.93	3.6	3.69
AIR FLOW INTERNAL UNIT	m³/h	950	930	1400			2300		3200		7750	
AIR FLOW EXTERNAL UNIT	m³/h	2300	2050	3450	3350	3350	5100	5100	5580	5450	9300	16280
POWER SUPPLY	-	230/1/50						400/3+N/50				
SOUND PRESSURE LEVEL at 2 meters free field INTERNAL UNIT	dB	56			59			61		63		
SOUND PRESSURE LEVEL at 10 meters free field EXTERNAL UNIT	dB	34	37	37	39	40	37	42	40	42	45	47
DIMENSIONS INTERNAL UNIT [LxHxD]	mm	650x350x936			1050x350x936				1150x410x1026		1585x685x1096	
DIMENSIONS EXTERNAL UNIT [LxHxD]	mm											

Performance data relating to versions with R410A refrigerant. | Also available with 60 Hz power supply. | Indoor unit can only be installed on the ceiling for sizes 3101-3811.

HiRef S.p.A. reserves the right, at any time, to introduce any necessary changes and improvements to its products without prior notice. Reproduction, even partial, of this catalogue is forbidden without a written permission from **HiRef S.p.A.** © Copyright HiRef S.p.A. 2001-2022