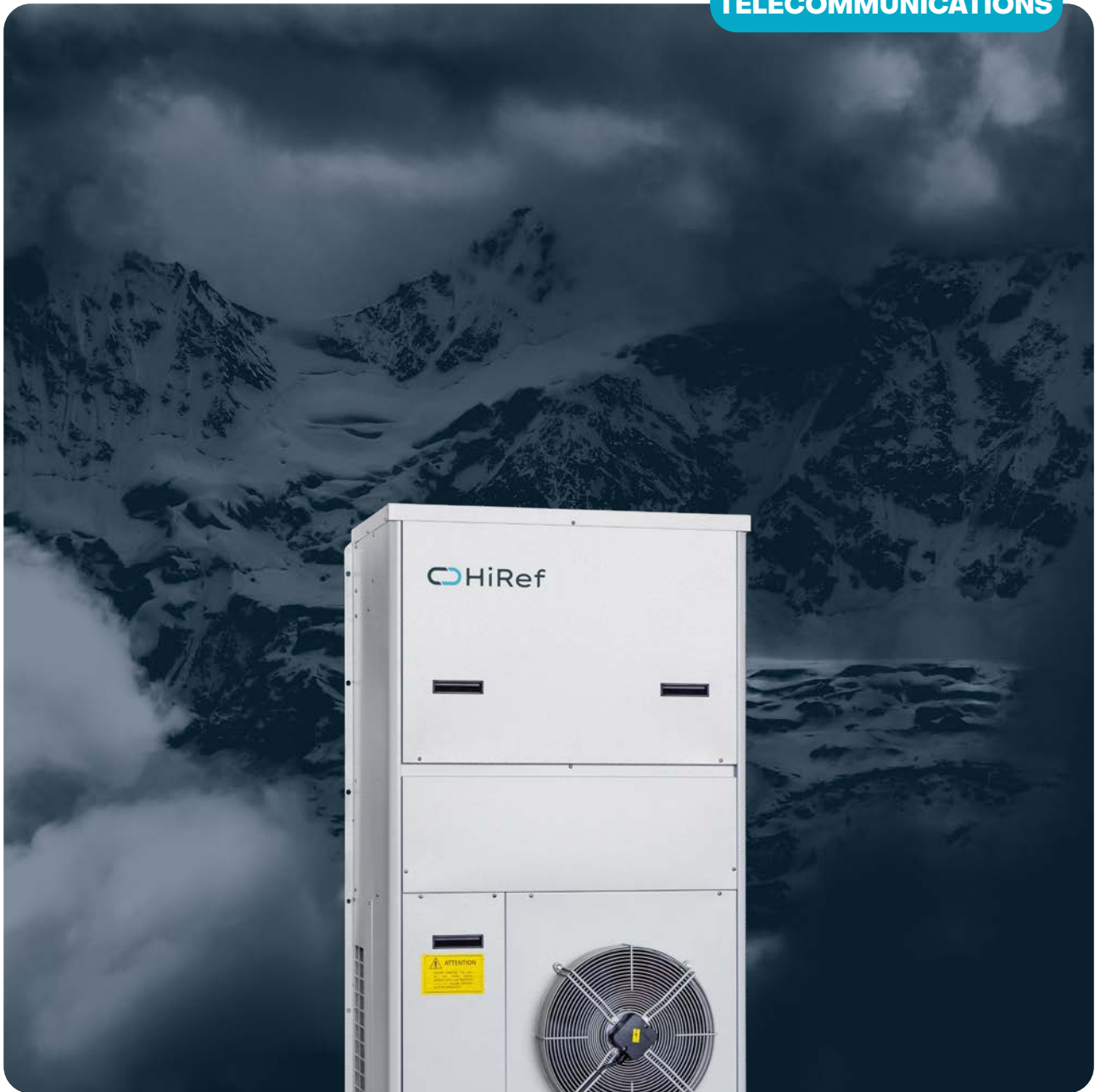


# HiRef

Innovators above  
the standards

TELECOMMUNICATIONS



## Outdoor monobloc units **HTW-HTWD**

for shelters designed for technological equipment

Range: 4.3-40.1 kW



The conditioners of the HTW-HTWD series are monobloc units designed for the air conditioning of small- and medium-sized telephone exchange centres. Designed for external wall mounting, they are suitable for conditioning control centres with limited internal space or space entirely taken up by technological equipment. The rational layout of the components, combined with the wide range of accessories available, make the units easy to install and suitable for different shelter configurations; the accurate thermodynamic and aerodynamic design enhances energy efficiency.

## Main advantages

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### Easier scheduled maintenance

The unit has been painstakingly designed to ensure frontal access to components even with the unit running. This aspect, combined with the fully removable filters and Free-Cooling damper, is particularly advantageous 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 PUE (Power Usage Effectiveness).

### Simple and fast installation

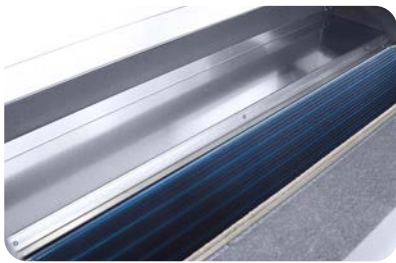
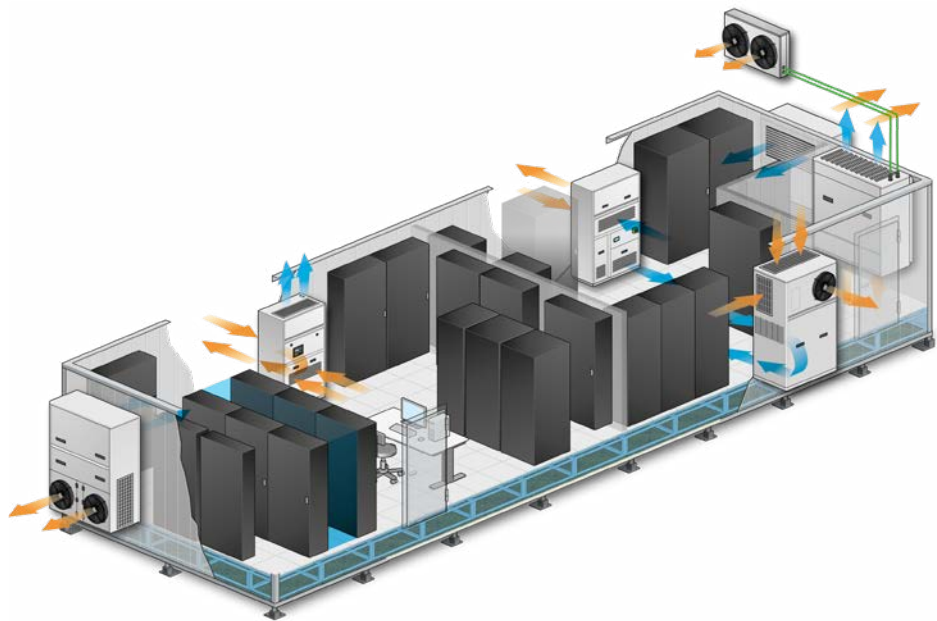
The monobloc construction ensures fast installation with no on-site refrigeration piping requirements. Thanks to the Plug & Play configuration, wall mounting and electrical connection of the unit are considerably simplified: rain shields to be installed on the external wall are available on request.

### Maximised Redundancy

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

### Maximised shelter internal space

The units of the HTW-HTWD series are designed to be installed externally to the shelter: in this way, all the available internal space can be used for IT equipment installation.



### Shelter safety

All models in the outdoor monobloc units range feature hydrophilic coating. This special coating - together with adequate adjustment of air through-flow speeds - helps condensate collection during the dehumidification process, avoiding dripping on the inside and outside of the unit.

### 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 where the outside air temperature is higher than 45°C. The unit is capable of starting even in extreme conditions (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 with 160 µm double paint coating or made of AISI 316 stainless steel alloy.



## 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 R513A and R134a
- Version available with dual power supply for emergencies: 230/400V network and 24/48VDC backup supply
- Stainless steel condensate drain pan
- Evaporating and condensing side fans available with EC motor
- Epoxy powder painted structural metalwork supplied as standard
- De-humidify function

## Technical table

HTW-HTWD		0451	0561	0731	0901	1051	1201	1451	0902	1102	1302	2302	2902	3201	
<b>AIR TEMPERATURE 27°C - RELATIVE HUMIDITY 40% / OUTDOOR AIR TEMPERATURE 35°C</b>															
<b>COOLING CAPACITY</b>	<b>kW</b>	4.3	5.9	7.1	10.1	10.8	12.7	14.4	8	11.1	14.2	22.8	28.2	37.8	
<b>SHR</b>	-	1	0.88	0.92	0.92	0.98	0.91	0.92	1	0.86	0.89	1	0.95	1	
<b>EER</b>	-	4.18	3.52	3.55	3.54	3.4	2.84	3.28	3.84	3.2	3.28	3.44	2.95	4.7	
<b>AIR TEMPERATURE 30°C - RELATIVE HUMIDITY 35% / OUTDOOR AIR TEMPERATURE 35°C</b>															
<b>COOLING CAPACITY</b>	<b>kW</b>	4.6	6.1	7.5	10.5	11.5	13.3	15	8.6	11.5	14.8	24.5	29.5	40.1	
<b>SHR</b>	-	1	0.93	0.98	0.97	1	0.96	0.96	1	0.9	0.94	1	0.99	1	
<b>EER</b>	-	4.39	3.59	3.68	3.7	3.61	2.91	3.37	4.06	3.28	3.38	3.66	3.03	4.98	
<b>AIR FLOW</b>	<b>m<sup>3</sup>/h</b>	1450		2150		3020			2800			6500		10000	
<b>POWER SUPPLY</b>	-	230/1/50			400/3+N/50				230/1/50		400/3+N/50				
<b>SOUND PRESSURE LEVEL at 2 meters free field</b>	<b>dB</b>	55		56		57			58		60		68		69
<b>DIMENSIONS [LxHxD]</b>	<b>mm</b>	804x1580x498			999x1630x596			999x1790x596				1600x2100x600			

Performance data relating to Upflow versions with R410A refrigerant. | Also available with 60 Hz power supply. | Units also available in Downflow models except sizes 0902-1102-1302-2302-2902-3201.

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