HiRef
Innovators above the standards

POWERFUL-ENERGY ROMA

NTG

TELECOMMUNICATIO NS

Indoor monobloc units

NTG

for shelters with inverter compressors - displacement version

Range: 6.6-8.6 kW

www.powerfulenergyroma.com mramirez@powerfulenergyroma.com WhatsApp: 55 1406.1538

Our NTG series conditioners with inverter compressor are indoor monobloc units designed for small equipment rooms and telecom shelters. Their special configuration with displacement air delivery makes these units ideal for spaces without double flooring. Thanks to the various configurations available, the range is very versatile and thus suited to many system set-ups; additionally, the accurate thermodynamic and aeraulic distribution design enhances energy efficiency.

Main advantages

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.

Simple and fast installation

The monobloc construction ensures fast installation as no connecting refrigeration piping needs on-site laying. Thanks to the Plug & Play configuration, wall mounting and electrical connection of the unit are considerably simplified. The peculiar internal design facilitates front access to the components, even with the unit running. This aspect, combined with the fully removable filters and Free-Cooling damper, if any, is highly useful for routine maintenance operations. The unit has been designed to be installed directly on the door or on the wall of the shelter.

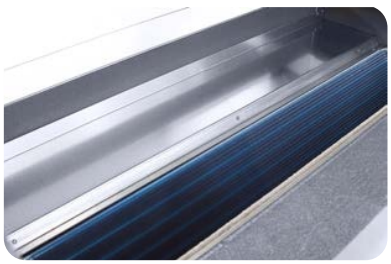
Unit suitable for any kind of climate and environment

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

- 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 m double paint coating or made of AISI 316 stainless steel alloy.

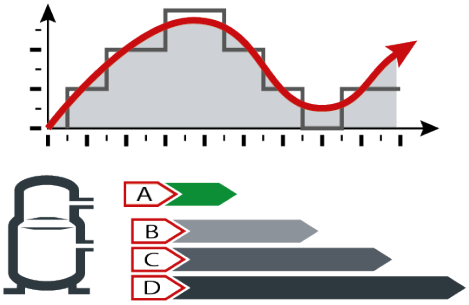
Shelter safety

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



Efficiency and precision

As cooling demand varies, the integrated microprocessor allows combined modulation of air flow – via control of the EC fans (as standard) – and 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.



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).

Technological components

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.

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.

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.

Types of system

ARIA/ARIA

Additional benefits

- Refrigerant R410A
- Version available with dual power supply for emergencies: 230/400V network and 24/48VDC backup supply
- Electric lamination valve with optional electronic control
- Evaporating side fans available with EC motor
- Control panel in separate enclosure

www.powerfulenergyroma.com mramirez@powerfulenergyroma.com WhatsApp: 55 1406.1538

Technical table

NTG		0060	0085
AIR TEMPERATURE 27°C - RELATIVE HUMIDITY 40% / OUTDOOR AIR TEMPERATURE 35°C			
COOLING CAPACITY	kW	6.6	8.3
TOTAL POWER INPUT	kW	2.5	3.4
SHR	-	0.9	0.89
EER	-	3.45	3.03
AIR TEMPERATURE 30°C - RELATIVE HUMIDITY 35% / OUTDOOR AIR TEMPERATURE 35°C			
COOLING CAPACITY	kW	6.9	8.6
TOTAL POWER INPUT	kW	2.5	3.4
SHR	-	0.95	0.95
EER	-	3.54	3.09
AIR FLOW	m^3/h	1500	1800
POWER SUPPLY	-	230/1/50	
SOUND PRESSURE LEVEL at 2 meters free field	dB	63	64
DIMENSIONS [LxHxD]	mm	730x1640x400	930x1640x400

Also available with 60 Hz power supply.