NRG 2.0

PERIMETER MOUNTED UNITS

FOR DATA CENTRES WITH INVERTER COMPRESSORS

NRG 2.0		381	441	501	551	641	701	801	962	1003	1103
		Inlet air 24°C - 50% r.h.; Condensing temperature 45°C									
Total cooling capacity	kW	40.1	47.4	50.3	58.9	60.3	77.1	80.0	96.6	108.6	133.5
SHR	-	1.0	0.9	1.0	0.9	1.0	0.9	1.0	0.9	0.9	0.8
Refrigeration cycle EER	-	4.5	4.2	4.5	4.2	4.3	4.2	4.4	4.6	4.3	4.2
Total absorbed power	kW	10.8	13.0	13.1	16.6	16.2	21.2	21.9	25.4	29.8	36.0
Total absorbed current	A	17.0	20.6	20.9	26.4	25.7	33.6	34.8	42.8	51.9	63.9
		Inlet air 30°C - 35% r.h.; Condensing temperature 45°C									
Total cooling capacity	kW	46.0	53.0	58.0	67.4	69.2	86.6	91.4	109.4	119.5	143
SHR	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Refrigeration cycle EER	-	5.2	4.7	5.2	4.7	4.8	4.7	4.9	5.3	4.7	4.5
Total absorbed power	kW	10.6	13.0	13.1	16.9	16.5	21.5	22.4	25.2	29.8	36.1
Total absorbed current	A	16.7	20.6	20.9	26.9	26.2	34.1	35.7	42.7	52.1	64.0
Air flow rate	m³/h	11700	11700	14300	16200	17500	19900	23700	25300	25300	25300
Dimensions [L x H x D]	mm	1270 x 1998 x 890		1760 x 1998 x 890		2020 x 1998 x 890		2500 x 1998 x 890			

NRG 1.0		0091	0131	0241	0341	0462	0682	0902
		Inlet air 24°C - 50% r.h.; Condensing temperature 45°C						
Total cooling capacity	kW	9.3	12.6	25.2	37.1	48.5	75.2	90.3
SHR	-	0.9	0.9	0.9	0.8	1.0	0.9	0.9
Refrigeration cycle EER	-	3.7	4.0	3.7	3.6	3.6	3.7	3.4
		Inlet air 30°C - 35% r.h.; Condensing temperature 45°C						
Total cooling capacity	kW	9.9	14.2	28.4	39.8	54.4	81.7	98.5
SHR	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Refrigeration cycle EER	-	4.0	4.6	4.2	3.9	4.0	4.0	3.7
Air flow rate	m³/h	2150	3700	6800	7280	14150	19420	22500
Total absorbed power	kW	2.7	3.6	7.8	11.5	16.1	23.4	29.7
Total absorbed current	A	4.3	5.6	12.5	18.4	25.7	37.6	47.8
Dimensions [L x H x D]	mm	600 x 1875 x 600	900 x 1875 x 600	1010 x 1998 x 805	1280 x 1998 x 805	2030 x 1998 x 805	2510 x 1998 x 805	2510 x 1998 x 950

Also available with 60 Hz power supply

ITALIAN COOLING SOLUTIONS

HiRef

PERIMETER MOUNTED UNITS

FOR DATA CENTRES WITH INVERTER COMPRESSORS

NRG 2.0

10 - 143 kW

HiRef

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GALLETTI GROUP

HF65000942

NRG 2.0

PERIMETER MOUNTED UNITS

FOR DATA CENTRES WITH INVERTER COMPRESSORS

NRG perimeter-mounted air conditioning units by HiRef are designed for high thermal density IT facilities requiring accurate hygrothermal parameter control and continuous operation.
The use of inverter-controlled compressors, capable of tracking the thermal load with extreme precision, of EC fans (standard), and of electronically controlled lamination valves (standard) also make it possible to achieve high performance with reduced energy consumption, improving the Data Centre's PUE.
The strength of the new **NRG 2.0** range is its high specific efficiency (kW/m²), obtained thanks to an accurate internal design and careful choice of components.

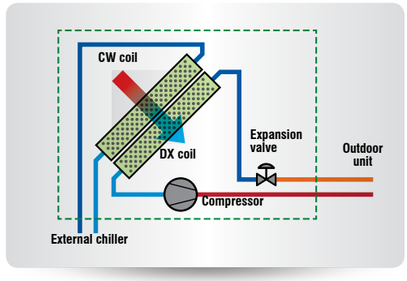
Thanks to the different chiller configurations available, the range is suitable for a number of applications in the Data Centre air conditioning field.

- NRGA Air condensing with remote condenser
- NRGZ Mains water condensing (15°C)
- NRGW Dry-Cooler or Tower water condensing
- NRGF Water condensing and indirect water free-cooling
- NRGD Air condensing with remote condenser and Dual Cooling
- NRGQ Mains water condensing (15°C) and Dual Cooling
- NRGK Dry-Cooler or Tower water condensing and Dual Cooling

MAXIMISED POWER DENSITY

The internal design and the special arrangement of the components of the new **NRG 2.0** units have been designed to maximise the exchange surface of the evaporating coil. This, combined with the use of latest-generation electronic switching EC fans with high air flow rate, has allowed the power density to be increased compared to NRG 1.0 units. The space available in the server room is made the most of and this makes the **NRG 2.0** units suitable for applications with high thermal load density, typical of latest generation Data Centres.

REDUNDANCY OF DUAL-COOLING



The Dual Cooling version houses - in addition to the direct expansion evaporating coil and in series with respect to the air flow - a chilled water coil that can, for example, be fed by a chiller. This means that the required cooling capacity can be supplied even when there is a fault on the main refrigerating circuit, thus ensuring maximised system redundancy.

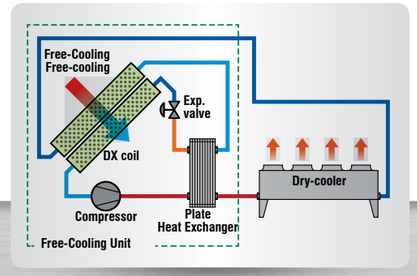
REDUCED UNIT COST

The **NRG 2.0** units have, even in the largest sizes (featuring a dual cooling circuit), a single inverter-controlled compressor. This allows for compressor and inverter cost savings and reduces the unit cost per kW of installed power compared to dual inverter applications.

EASIER SCHEDULED MAINTENANCE

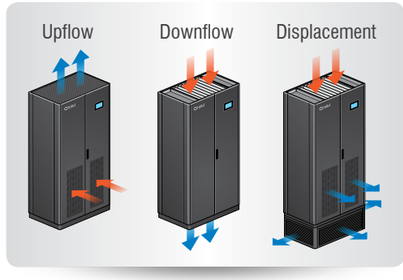
The unit has been painstakingly designed to ensure front access to components even with the unit running, simply by removing a metal plate panel. This makes routine maintenance easier in full compliance with safety standards.

FREE-COOLING EFFICIENCY



In periods when the outdoor air is cooler than the warm air in the Data Center, the external Dry-Cooler, normally used for condensation of the unit's refrigerating circuit, is used to generate effective cooling. A second heat exchange coil, positioned in series on the air flow with respect to the DX evaporator, is, in fact, fed with the cold air produced by the Dry-Cooler and provides a part of or 100% of the required cooling capacity. Use of the compressor is reduced and, under total Free-Cooling conditions, switched off, with significant reductions of system PUE levels.

CONFIGURATION OF THE AIR FLOW



NRG: AIMING AT MAXIMISED SYSTEM EFFICIENCY

The adopted design features include, in addition to the use of electronically controlled expansion valves, management via Modbus of variable-speed scroll compressors and electronic switching EC fans (standard in **NRG 2.0** units**)**: these features make it possible to obtain a very accurate adjustment of the operating parameters and therefore, of the thermohygrometric values in the server room, ensuring high levels of energy efficiency.

SAFETY IN THE SERVER ROOM

All models in the range feature heat exchange coils with hydrophilic coating of the fins. This special coating - together with proper design of air through-flow speeds - aids condensate collection during the dehumidification process, thus avoiding droplets being carried towards the unit exterior.

- Refrigerant R410A
- Post-heating systems:
  - with electrical heating elements
  - with hot gas coil
  - with hot water coil
- Electronically controlled electric lamination valve
- Stainless steel condensate drain tank
- On-board programmable microprocessor control with LCD display
- Humidify/de-humidify feature
- Hot gas by-pass system to limit compressor staging at minimum loads
- Air flow sensor
- Air filter class G3 supplied as standard
- Air delivery/backflow temperature sensors
- Automatic overload cut-out switches

NRG 1.0

For applications where a full inverter cooling configuration is required, an **NRG 1.0** version is available with BLDC inverter modulating compressors installed in each refrigerant circuit.
This allows for accurate tracking of the thermal load, and for maximum efficiency at partial loads with a resulting reduction in plant management costs.