

Platform **TRF Evolution**

DATA CENTER

INDUSTRIAL

NRG A

**AIR CONDENSED PERIMETER MOUNTED UNITS
FOR DATA CENTERS
WITH MODULATING COMPRESSORS**

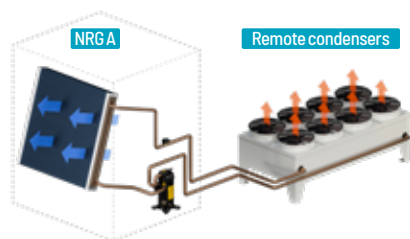
9-147 kW



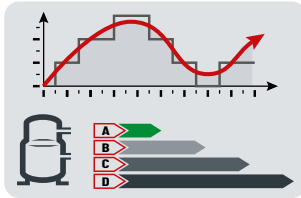
NRG series perimeter-mounted air conditioning units are designed for **high thermal density** IT facilities requiring **accurate hygrothermal parameter control and continuous operation**. The use of inverter-driven compressors, capable of tracking the thermal load with extreme precision, of EC fans (standard), 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 range is **the high cooling density** (KW/m²), obtained thanks to the precise internal design, a frame of just 890 mm in depth, and the careful choice of components. Versatile and flexible range The following refrigerating configuration options are available:

The NRG A units are air-condensed perimeter-mounted units of the NRG range; they are widely used for the cooling of Data Centers. The air-condensed solution offers a **simple system design**, thanks to the absence of auxiliary circuits and pumps; **the cooling circuit is managed by the cabinet**, and both the indoor unit and the remote condenser are **easy to install**.

AIR CONDENSED



- Refrigerant R410A or R513A
- EC Fans
- Scroll inverter compressors
- Electronic expansion valves (optional)
- Advanced programmable microprocessor control with LCD display
- Temperature control through heating and post-heating systems with electric heating elements, hot water and hot gas (optional)
- Humidity control through dehumidification and humidification (optional)
- Broad choice of accessories, including base modules and plenums for ducting
- Air filter class G3 as standard. Air Filters G4, M5, F7 (optional)
- Double power supply with automatic switch (optional)
- Constant-flow (airflow control) or constant available overpressure (ΔP control) ventilation modulation (optional)
- Low temperature kits for optimal operation in the case of installation in particularly cold environments (on request)
- Long distance kits for optimal operation in the event of large distances between indoor and outdoor units (on request)



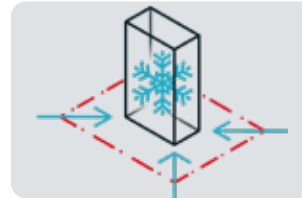
Power modulation

The NRG A units adapt quickly to Data Center cooling requests. Thanks to the inverter-controlled compressor, performance can be modulated to **up to 25% of the rated value, thus reducing consumption**. This ensures **continuous operation of the unit** even at low loads, without switching cycles on and off.



Aiming at maximised system efficiency

Design choices include, in addition to the use of electronically controlled expansion valves, the management of variable-speed Scroll compressors and EC (electronically commutated) fans via Modbus. Thanks to these features it is possible **to acquire, manage and adjust operating parameters and therefore thermo-hygrometric values in the server room very accurately, with high levels of energy efficiency**.



Maximised power density

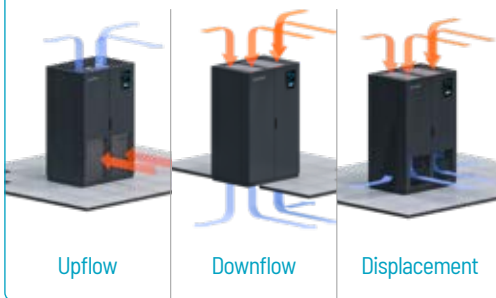
The internal design and the special arrangement of the components of the TRF Evolution platform, used in the NRG units, have been designed to maximise the exchange surface of the evaporating coil. These characteristics, combined with the use of latest-generation electronic switching EC fans with high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



Remote condensers

All units can be combined with HiRef remote condensers, **choosing from different combinations to meet all system needs. Oversize remote condensers** are ideal for warmer environments, where it is necessary to keep the condensing temperature under control, while **the compact condensers** on the other hand are small in terms of both size and consumption. The condensers, used with dual-circuit units, are available with a single cooling circuit **for maximum reliability and redundancy** of the system or with a double cooling circuit, **to reduce installation spaces and costs**.

AIRFLOW CONFIGURATIONS



NRG A		0091	0131	0201	0251	0301	0381	0441	0501	0551	0641	0701	0801	0852	0962	1003	1103
R410A - Indoor air 24°C - 50% / Outdoor air 35°C																	
Cooling capacity	kW	9.3	12.3	19.8	23.8	31.3	38.1	44	47.7	56.8	58.2	73.8	77.3	81.4	93.3	109.2	127
Total absorbed power	kW	2.7	3.7	6.2	7.2	9.3	11.6	14.5	14.5	17.2	18	23.8	25.1	25.2	28.6	32.8	41.1
EER		3.74	3.71	4	3.99	4.19	3.9	3.46	3.89	3.78	3.85	3.72	3.83	4.21	4.1	4.06	3.61
SHR		0.89	0.94	1	1	1	0.99	0.93	0.99	0.91	0.99	0.93	0.99	1	0.94	0.87	0.81
R410A - Indoor air 30°C - 35% / Outdoor air 35°C																	
Cooling capacity	kW	10	13.9	22.5	27	35.5	43.2	48.7	53.7	62.9	65.6	81.9	87.3	92	104.1	119	135.7
Total absorbed power	kW	2.7	3.8	6.3	7.4	9.4	11.8	15.1	15	17.5	18.4	24.5	25.9	25.6	29.3	33.1	41.7
EER		3.94	4.09	4.44	4.42	4.67	4.32	3.67	4.2	4.11	4.23	3.98	4.16	4.65	4.45	4.37	3.79
SHR		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.97
R410A - Indoor air 35°C - 30% / Outdoor air 35°C																	
Cooling capacity	kW	10.8	15.2	25	29.9	39.2	47.5	53.4	59	68.9	72.3	90	96.1	101.2	114.3	130.1	147.2
Total absorbed power	kW	2.8	3.9	6.4	7.4	9.5	12	15.5	15.4	17.8	18.6	25.1	26.5	26	29.6	33.6	42.3
EER		4.18	4.35	4.86	4.81	5.08	4.66	3.9	4.48	4.43	4.59	4.25	4.45	5.02	4.81	4.69	4.04
SHR		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
R513A - Indoor air 30°C - 35% / Outdoor air 35°C - 50%																	
Cooling capacity	kW	-	-	-	-	34.7	39.2	47.7	52.8	61.5	65.7	-	70.7	83.4	-	-	-
Total absorbed power	kW	-	-	-	-	11.3	12.7	16.8	17.2	19.7	20.9	-	23.1	26.5	-	-	-
EER		-	-	-	-	3.65	3.6	3.18	3.52	3.51	3.65	-	3.88	4.05	-	-	-
SHR		-	-	-	-	1	1	1	1	1	1	-	1	1	-	-	-
R513A - Indoor air 35°C - 30% / Outdoor air 35°C - 50%																	
Cooling capacity	kW	-	-	-	-	38.7	43.7	52.9	58.8	68.2	73.3	-	78.9	92.8	-	-	-
Total absorbed power	kW	-	-	-	-	11.6	13.2	17.3	17.8	20.4	21.7	-	23.9	27.4	-	-	-
EER		-	-	-	-	3.95	3.83	3.41	3.77	3.75	3.9	-	4.15	4.32	-	-	-
SHR		-	-	-	-	1	1	1	1	1	1	-	1	1	-	-	-
Rated air flow	m³/h	2150	3700	8800		11720		14300		17500	19900	23700	25300				
Power supply	V/ph/Hz	400/3+N/50															
Number of circuits		1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Number of inverter compressors		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of on/off compressors		-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2
Lp @ nominal rpm; dist.=2m Q=2	db(A)	50	54	70	70	71	74	74	75	77	77	76	76	76	76	77	77
Dimensions [LxHxD]	mm	600	900	1010x2000x890		1270x2000x890		1760x2000x890		2020x2000x890		2510x2000x890					
		x1875 x600	x1875 x600														

Performance data relating to Downflow versions combined with standard HiRef remote condenser. | Also available with 60 Hz power supply. | Model height Displacement 2125 mm for sizes 0091-0131.