

NRK

090/0150
heat pump

Reversible heat pump
Air/Water for outside installations
Axial fans and scroll compressors
Cooling capacity 18 - 31 kW
Heating capacity 21 - 35 kW

R410A



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The products concerned appear on the site www.eurovent-certification.com

Variable Multi Flow[®]
VMF



- **MAXIMUM PROCESSED WATER TEMPERATURE 65°C**
- **HEATING OPERATION WITH OUTDOOR TEMPERATURES DOWN TO -20 °C**
- **OPTIMISED FOR HEATING**

Characteristics

Reversible outdoor heating pump for air-conditioning systems where, in addition to cooling rooms, high temperature hot water is required for heating or for the production of hot domestic water.

Special attention was paid to the winter mode, and thanks to the technical solutions adopted the working range was improved with respect to standard heat pumps, guaranteeing a production of hot water up to 65°C and an operation down to an outside air temperature of -20°C.

All the units are equipped with vapour-injection scroll compressors, axial fans, external copper batteries with aluminium fins, and a plate heat exchanger on the side. The base, the structure and the panels are made of steel treated with polyester anti-corrosion paints. Ready for immediate installation, the heat pumps can be supplied with all the components needed for being placed in any type of system, either new or replacing other heat generators, from a system with low temperature floor heating or fan coils, to the more usual radiators.

They are also available with an integrated hydronic unit, thereby simplifying also the final installation because it just need to be connected electrically and hydraulically to be able to start it.

Versions

NRK_H High efficiency

Operating limits

Working at full load up to -20°C outside air temperature in winter, and up to 48°C in summer. Hot water production up to 65°C (for more information see the technical documentation)

- Single circuit.
- Vapour-injection scroll compressor with high capacity and low electrical power consumption.
- Heat exchangers optimised to exploit the excellent heat transfer characteristics of the R410A.
- Flow switch fitted as standard.
- Water filter.
- High and low pressure transducers fitted as standard.

- Option of an integrated hydronic unit, which contains the main hydraulic components; it is available in various configurations with single pump, low or high head, with or without inertial accumulation.
- Device for low outside air temperatures, with continual regulation of the fans that provides improved operation of the unit under any working conditions, and greater acoustic comfort.
- Electrical resistance antifreeze kit for base.
- Micro-processor adjustment Electronic board (modu control).
 - Control of the outlet water temperature, with the possibility of selecting the control of the inlet water.
 - Summer condensation control with 0-10V modulating signal depending on pressure, compensated according to the outside air temperature.
 - Intelligent defrosting with pressure decay.

Accessories

- **MODU-485BL:** RS-485 interface for supervision systems with MODBUS protocol.
- **AERWEB300:** The AERWEB device provides the remote control of a chiller via a standard PC using an ethernet connection and a standard browser; 4 models are available:
 - **AERWEB300-6:** Web server to monitor and control up to 6 devices on the RS485 network;
 - **AERWEB300-18:** Web server to monitor and control up to 18 devices on the RS485 network;
 - **AERWEB300-6G:** Web server to monitor and control up to 6 devices on the RS485 network

with integrated GPRS modem;

AERWEB300-18G: Web server to monitor and control up to 18 devices on the RS485 network with integrated GPRS modem;

- **MULTICONTROL:** allows the simultaneous management of several chillers or heat pumps (up to 4), fitted with our MODUCONTROL, installed in the same system.

For a more complete use, the following accessories are available:

SPLW: System water probe. In most cases the use of the probe supplied with each chiller/

heat pump is sufficient. If a single departure/return collector was used, this probe can be used for regulating the standard water temperature of the chillers connected to the collector or for simply reading the data.

SDHW: Domestic hot water probe. To be used when there is an accumulation tank for regulating the temperature of the water produced.

- **VMF-CRP Accessory for managing the SPLW / SDHW probes**
- **PR3:** Simplified remote panel. This makes it possible to carry out the unit's basic controls

with the signalling of alarms. Can be made remote with shielded cable up to 150 m.

- **VT** Anti-vibration support, to be fitted below the unit base.
- **BSKW:** Electric heater kit with IP44 electrical box, to be installed outside the unit, but inside the technical compartment in a pro-

tected environment: BS6KW400T (6kW, 400V/3) - BS9KW400T (9kW, 400V/3)

For further information about the system see the specific documentation.

Accessories installed in the factory

- **DRE:** Electronic device for reducing the rated starting current.
- **COMPATIBILITY with the VMF SYSTEM**

Compatibility of accessories

NRK	Vers.	0090	0100	0150
MODU-485BL		•	•	•
AERWEB300		•	•	•
PR3		•	•	•
MULTICONTROL		•	•	•
SPLW		•	•	•
SDHW		•	•	•
VMF-CRP		•	•	•
BS6KW400T		•	•	•
BS9KW400T		•	•	•
VT (00)		15	15	15
VT (P1-P3)		15	15	15
VT (01-03)		15	15	15
DCPX		standard		
Accessories installed in the factory				
DRE		10	10	15

Choice of unit

By suitably combining the numerous options available, it is possible to configure each model in such a way as to meet the most specific system requirements.

Field	Description
1,2,3	NRK
4,5,6,7	Size 0090-0100-0150
8	Field of use ° mechanical thermostatic valve (1)
9	Model H Heat pump
10	Heat recuperators ° Without recuperator D With desuperheater(2)
11	Version ° High efficiency
12	Coils ° Aluminium R Copper S Tinned copper V Varnished
13	Fans ° Standard
14	Power supply ° 400V3N/50Hz with thermomagnetic switches
15-16	Integrated hydronic unit 00 Without hydronic unit 01 Accumulation with 1 low head pump 03 Accumulation with 1 high head pump P1 1 low head pump P3 1 high head pump

(1) Temperature of water produced up to 4°C

(2) **The desuperheater can only be used with cold running**

Technical data

NRK - H			0090	0100	0150
			V/ph/Hz		
12°C / 7°C	Cooling capacity	(1) kW	18,37	26,25	30,77
	Total input power	(1) kW	5,81	8,46	9,92
	EER	(1)	3,16	3,10	3,10
	ESEER	(1)	3,66	3,71	3,72
	Cooling Energy Class Eurovent	(1)	A	A	A
	Water flow rate	(1) l/h	3175	4551	5344
	Pressure drop	(1) kPa	19	39	54
40°C / 45°C	Heating capacity	(2) kW	20,84	28,82	34,61
	Total input power	(2) kW	6,16	8,40	10,39
	COP	(2)	3,38	3,43	3,33
	Heating Energy Class Eurovent	(2)	A	A	A
	Water flow rate	(2) l/h	3564	4914	5891
		Pressure drop	(2) kPa	24	45
23°C / 18°C	Cooling capacity	(3) kW	24,40	34,68	40,65
	Total input power	(3) kW	6,13	9,04	10,62
	EER	(3)	3,98	3,84	3,83
	Cooling Energy Class Eurovent	(3)	A	A	A
	Water flow rate	(3) l/h	4235	6040	7092
		Pressure drop	(3) kPa	33	67
30°C / 35°C	Heating capacity	(4) kW	20,20	28,09	33,73
	Total input power	(4) kW	4,57	6,07	7,52
	COP	(4)	4,42	4,63	4,49
	Heating Energy Class Eurovent	(4)	A	A	A
	Water flow rate	(4) l/h	3472	4817	5775
		Pressure drop	(4) kPa	23	44
Performance under average climatic conditions (Average)					
	Pdesignh	(5)	22	28	34
	SCOP	(5)	3,03	2,98	2,90
	ηs	(5)	118	116	113
	Efficiency Energy Class	(7)	A+	A+	A+
	Pdesignh	(6)	21	27	32
	SCOP	(6)	3,70	3,68	3,60
	ηs	(6)	145	144	141
	Efficiency Energy Class	(7)	A+	A+	A+

			0090	0100	0150
Electrical data					
Total input current (cooling)	(8) A		13,3	17,5	20,4
Total input current (heating)	(8) A		14,1	17,3	21,3
Maximum current (FLA)	(8) A		19,1	24,6	29,5
Starting current (LRA)	(8) A		104	121	143
Scroll Compressor					
Compressors / Circuit	n°		1/1	1/1	1/1
Refrigerant	Type			R410A	
Heat exchanger system side					
Exchanger	Type/n°			Plate/1	
hydraulic connections (In/Out)	Ø		1"1/2	1"1/2	1"1/2
Axial fans					
Fan	n°		2	2	2
Air flow rate (cooling)	m³/h		14200	14200	13700
Sound data (cooling)					
Sound power level	dB(A)		78	78	78
Sound pressure level	dB(A)		46,5	46,5	46,5

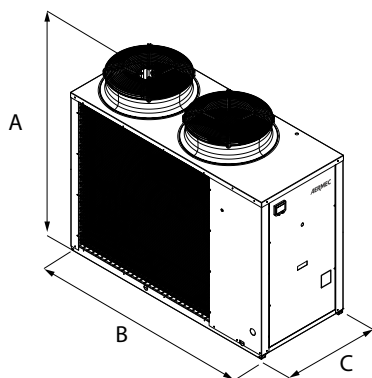
Date (14511:2013)

- (1) Water evaporator 12°C/7°C, External air 35°C
- (2) Water condenser 40°C/45°C, External air 7°C b.s./6°C b.u.
- (3) Water evaporator 23°C/18°C, External air 35°C
- (4) Water condenser 30°C/35°C, External air 7°C b.s./6°C b.u.
- (5) Efficiencies for average temperature Applications (55°C)
- (6) Efficiencies for low temperature Applications (35°C)
- (7) Efficiency Energy Class in according to regulation n°811/2013 Pdesignh ≤ 70kW
- (8) Unit standar configuration without hydronic kit

Sound power Aermec determines sound power values on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification.

Sound pressure Sound pressure in free field, at 10 m distance from the external surface of the unit (in accordance with UNI EN ISO 3744).

Dimensions (mm)



NRK		Vers.	0090	0100	0150
Height	(mm)	A	1580	1580	1580
Width	(mm)	B	1850	1850	1850
Depth	(mm)	C	870	870	870
Weight when empty	(kg)		289	328	372