

## NRK 0090/0150 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

HFC  
Refrigerant  
**R410A**

Variable Multi Flow<sup>®</sup>  
VMF



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The products concerned appear on the site [www.eurovent-certification.com](http://www.eurovent-certification.com)



- **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.
- **AERNET**: the device allows the control, the management and the remote monitoring of a Chiller with a PC, smartphone or tablet using Cloud connection. AERNET works as Master while every unit connected is configured as Slave (max. 6 unit); also, with a simple click is possible to save a log file with all the connected unit datas in the personal terminal for post analysis.
- **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 protected environment: BS6KW400T (6kW, 400V/3) - BS9KW400T (9kW, 400V/3)

- **COMPATIBILITY with the VMF SYSTEM**  
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 of accessories

NRK	Vers.	0090	0100	0150
MODU-485BL		•	•	•
AERNET		•	•	•
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
<b>1,2,3</b>	<b>NRK</b>
<b>4,5,6,7</b>	<b>Size</b> 0090-0100-0150
<b>8</b>	<b>Field of use</b> ° mechanical thermostatic valve (1)
<b>9</b>	<b>Model</b> <b>H</b> Heat pump
<b>10</b>	<b>Heat recuperators</b> ° Without recuperator <b>D</b> With desuperheater(2)
<b>11</b>	<b>Version</b> ° High efficiency
<b>12</b>	<b>Coils</b> ° Aluminium <b>R</b> Copper <b>S</b> Tinned copper <b>V</b> Varnished
<b>13</b>	<b>Fans</b> ° Standard
<b>14</b>	<b>Power supply</b> ° 400V3N/50Hz with thermomagnetic switches
<b>15-16</b>	<b>Integrated hydronic unit</b> <b>00</b> Without hydronic unit <b>01</b> Accumulation with 1 low head pump <b>03</b> Accumulation with 1 high head pump <b>P1</b> 1 low head pump <b>P3</b> 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			400V/3N/50Hz		
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
	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
	Water flow rate	(2) l/h	3564	4914	5891
	Pressure drop	(2) kPa	24	45	65
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
	Water flow rate	(3) l/h	4235	6040	7092
	Pressure drop	(3) kPa	33	67	92
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
	Water flow rate	(4) l/h	3472	4817	5775
	Pressure drop	(4) kPa	23	44	64
Performance under average climatic conditions (Average) UE n°811/2013 Pdesignh ≤ 70kW					
Pdesignh		(5)	21	27	32
SCOP		(5)	3,70	3,68	3,60
ηs		(5)	145	144	141
Efficiency Energy Class		(6)	A+	A+	A+
Cooling mode for low temperature					
ηsc		%	131,1	132,6	133,8
SEER			3,35	3,39	3,42

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

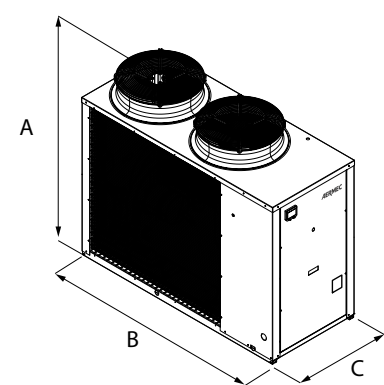
### Date (14511:2013)

- (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 low temperature Applications (35°C)
- (6) 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
A	(mm)		1450	1450	1450
B	(mm)		1750	1750	1750
C	(mm)		750	750	750
Weight when empty	(kg)		289	328	372