



# NRK 0090-0150

# **Reversible air/water heat pump**

1.

AERMEC

EUROVENT CERTIFIED

Cooling capacity 18,4 ÷ 31,0 kW – Heating capacity 20,8 ÷ 34,4 kW

- Cooling / heating / high-temperature water production even for DHW production.
- Water produced up to +65 °C
- Heating operations with external temperatures down to -20 °C
- Optimised for heating mode



**AERBAC-MODU:** Ethernet communication Interface for protocols Bacnet/IP, Modbus TCP/IP, SNMP. The accessory is supplied with the unit and must be installed on an external electrical panel.

**AERLINK:** Aerlink is a WiFi gateway with an RS485 serial port that allows a wide range of Aermec products (heat pumps/chillers/system controllers) equipped with this interface to connect easily and securely to a Wi-Fi network. It works both as an access point (AP access point) and as a client (WiFi Station), it can be connected to a single generator or system centraliser, allowing anyone to easily integrate them into any network. Thanks to the AerApp and AerPlants apps, which can be used on Android and iOS platforms, the remote management of the air conditioning systems developed by Aermec becomes intuitive and simple.

**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 control boards). 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.

**BMConverter:** The BMConverter accessory consists of the FPC-N54 network device which allows units that communicate via the Modbus RTU protocol on RS485, to be controlled by a third-party BMS system via the BACNet TCP-IP protocol.

**MODU-485BL:** RS-485 interface for supervision systems with MODBUS protocol.

**MULTICONTROL:** Allows the simultaneous control of several units (up to 4), installed in the same hydraulic system.

**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.

**SAF:** Thermal buffer tank kit with instantaneous Domestic Hot Water production. For more information about SAF refer to the dedicated documentation.

**SDHW:** Domestic hot water sensor. To be used with a storage tank for the control of water temperature produced.

**SGD:** Electronic expansion that enables connecting to the photovoltaic system and heat pumps to accumulate heat in the DHW tank or in the heating

#### DESCRIPTION

Air-cooled outdoor chiller designed to meet air conditioning needs in residential, commercial complexes or industrial applications. The base, the structure and the panels are made of galvanized steel treated with polyester paint RAL 9003.

#### VERSIONS

° High efficiency

# **FEATURES**

#### **Operating field**

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.

#### **Integrated hydronic kit**

Integrated hydronic kit containing the main hydraulic components; available with various configurations with one pumps or storage tank to obtain a solution that allows you to save money and to facilitate installation.

# Components

Water filter, flow switch, low and high pressure transducers as standard supply on all units.

#### Hot water production

In the configuration with desuperheater, it is also possible to produce freehot water.

# DCPX as standard

Phase-cut device that regulates the fan speed to ensure optimum unit operation in all conditions.

#### CONTROL

### MODUCONTROL control type.

The command panel of the unit allows the rapid setting of the working parameters of the machine, and their visualisation. The display consists of 4 figures and various LEDs for indicating the type of operational mode, the visualisation of the parameters set and of any alarms triggered. The card stores all the default settings and any modifications. system during the photovoltaic production phase and release it at times when heating demand is highest.

SPLW: System water temperature sensor. In most cases the loose supplied sensors for each chiller/heat pump are sufficient. In cases of a common flow/ return header this sensor can be used to control the common system supply water temperature for the chillers connected to the header, or it can be used for temperature monitoring

VMF-CRP: Accessory module for controlling boilers, heat recover units and pumps (if associated with VMF-E5 / RCC panels); if associated with the VMF-E6 panel, the VMF-CRP modules will be able to manage heat recovery units, RAS, boiler, sanitary management, I/O control, pumps.

PR4: Remote panel with LCD display and touch keyboard that allows carrying out the basic controls, the programming of time ranges and the signalling of the alarms of a single unit.

#### For the installation of the PR4 remote panel, the MODU-485BL communication interface is indispensable.

# VT: Anti-vibration supports.

BSKW: Electric heaters kit with IP44 panel for remote mounting in a sheltered area.

Refer to the specific "SAF" datasheet for more information about correct system operation, and about the required or recommended accessories. Please consult the VMF system for the production of DHW with a thermal storage tank not supplied by Aermec.

# FACTORY FITTED ACCESSORIES

DRE: Electronic device for peak current reduction.

# **COMPATIBILITY WITH VMF SYSTEM**

For more information about VMF system, refer to the dedicated documentation.

# **ACCESSORIES COMPATIBILITY**

Model	Ver	0090	0100	0150
AERBAC-MODU	0	•	•	•
AERLINK	0	•	•	•
AERNET	0	•	•	•
BMConverter	0	•	•	•
MODU-485BL	0	•	•	•
MULTICONTROL	0	•	•	•
PR3	0	•	•	•
SAF (1)	0	•	•	•
SDHW (2)	0	•	•	•
SGD	0	•	•	•
SPLW (3)	0	•	•	•
VMF-CRP	0	•	•	•

For more information about SAF refer to the dedicated documentation.
 Probe required for MULTICONTROL for managing the domestic hot water system.
 Probe required for MULTICONTROL to manage the secondary circuit system.

#### **Remote panel**

Model	Ver	0090	0100	0150
PR4	0	•	•	•

For the installation of the PR4 remote panel, the MODU-485BL communication interface is indispensable.

#### **BSKW: Electric heater kit**

Model	Ver	0090	0100	0150
BS6KW400T	Ō	•	•	•
BS9KW400T	0	•	•	

BS6KW400T (6kW, 400V 3); BS9KW400T (9kW, 400V 3)

# VT. Antivibration

Ver	0090	0100	0150
Integrated hydronic kit: 00, 01, 03, P1, P3			
0	VT15	VT15	VT15

#### **DRE: Device for peak current reduction**

Ver	0090	0100	0150
٥	DRE10 (1)	DRE10 (1)	DRE15 (1)

(1) Only for supplies of 400V 3N ~ 50Hz and 400V 3 ~ 50Hz. x 2 or x 3 (if present) indicates the quantity to be ordered. A grey background indicates the accessory must be assembled in the factory

#### **CONFIGURATOR**

Field	Description
1,2,3	NRK
4,5,6,7	Size 0090.0100.0150
8	Operating field (1)
0	Standard mechanic thermostatic valve
9	Model
Н	Heat pump
10	Heat recovery
D	With desuperheater (2)
0	Without heat recovery
11	Version
0	High efficiency
12	Coils
R	Copper pipes-copper fins

Description
Tinned copper
Copper pieps-Coated aluminium fins
Alluminium
Fans
Standard
Power supply
400V ~ 3N 50Hz
Integrated hydronic kit
Without hydronic kit
Storage tank with low head pump
Storage tank with high head pump
Single pump low head
Single pump high head

(1) Water produced up to +4 °C.
(2) The desuperheater can only be used with cold running.

# **PERFORMANCE SPECIFICATIONS**

# NRK - (°) / 12/7 °C - 40/45 °C

Size		0090	0100	0150
Cooling performance 12 °C / 7 °C (1)				
Cooling capacity	kW	18,4	26,4	31,0
Input power	kW	5,8	8,4	9,8
Cooling total input current	А	13,0	18,0	20,0
EER	W/W	3,19	3,15	3,15
Water flow rate system side	l/h	3172	4546	5338
Pressure drop system side	kPa	19	39	54
Heating performance 40 °C / 45 °C (2)				
Heating capacity	kW	20,8	28,7	34,4
Input power	kW	6,1	8,3	10,3
Heating total input current	А	14,0	17,0	21,0
СОР	W/W	3,40	3,45	3,34
Water flow rate system side	l/h	3601	4965	5953
Pressure drop system side	kPa	24	45	65

(1) Data EN 14511:2022; Heat exchanger water (services side) 12°C / 7°C; outside air 35°C (2) Data EN 14511:2022; System side water heat exchanger 40 °C / 45 °C; Outside air 7 °C d.b. / 6 °C w.b.

# NRK - (°) / 23/18 °C - 30/35 °C

Size		0090	0100	0150
Cooling performance 23 °C / 18 °C (1)				
Cooling capacity	kW	24,5	34,9	40,9
Input power	kW	6,1	9,0	10,6
Cooling total input current	А	14,0	18,0	22,0
EER	W/W	4,03	3,88	3,86
Water flow rate system side	l/h	4236	6040	7093
Pressure drop system side	kPa	34	69	95
Heating performance 30 °C / 35 °C (2)				
Heating capacity	kW	20,4	28,2	33,8
Input power	kW	5,0	6,7	8,3
Heating total input current	A	11,0	14,0	17,0
СОР	W/W	4,11	4,22	4,09
Water flow rate system side	l/h	3521	4866	5833
Pressure drop system side	kPa	23	43	-

(1) Data EN 14511:2022; System side water heat exchanger 23 °C/ 18 °C; External air 35 °C (2) Data EN 14511:2022; System side water heat exchanger 30 °C / 35 °C; External air 7 °C d.b. / 6 °C w.b.

# **ENERGY DATA**

Size			0090	0100	0150			
Cooling capacity with low leaving water temp (UE n° 2016/2281)								
SEER	0	W/W	3,35	3,39	3,42			
ŋsc	٥	%	131,10	132,60	133,80			
Size			0090	0100	0150			
Integrated hydronic ki	t: 00							
UE 811/2013 performance in ave	rage ambient conditions (a	verage) - 55 °C - Pdesignh ≤ 70 k	W (1)					
Efficiency energy class	0		A+	A+	A+			
Pdesignh	0	kW	22,00	28,00	34,00			
SCOP	0	W/W	3,03	2,98	2,90			
nsh	0	%	118,00	116,00	113,00			
UE 811/2013 performance in ave	rage ambient conditions (a	verage) - 35 °C - Pdesignh ≤ 70 k	W (2)					
Efficiency energy class	0		A+	A+	A+			
Pdesignh	0	kW	21,00	27,00	32,00			
SCOP	0	W/W	3,70	3,68	3,60			
ηsh	0	%	145,00	144,00	141,00			

(1) Efficiencies for average temperature applications (55 °C)
 (2) Efficiencies for low temperature applications (35 °C)

# **ELECTRIC DATA**

Size			0090	0100	0150
Electric data					
Maximum current (FLA)	0	Α	19,1	24,6	29,5
Peak current (LRA)	0	А	104,2	121,2	143,2

# **GENERAL TECHNICAL DATA**

Size			0090	0100	0150
Compressor					
Туре	o	type		Scroll	
Compressor regulation	0	Туре		On-Off	
Number	0	no.	1	1	1
Circuits	0	no.	1	1	1
Refrigerant	0	type		R410A	
Refrigerant charge (1)	0	kg	13,0	14,0	16,0
System side heat exchanger					
Туре	0	type		Brazed plate	
Number	0	no.	1	1	1
Hydraulic connections					
Connections (in/out)	0	Туре		Gas-F	
Size (in)	0	Ø		1½″	
Size (out)	0	Ø		1½"	
Fan					
Туре	0	type		axials	
Fan motor	0	type		Asynchronous	
Number	Ō	no.	2	2	2
Air flow rate	o	m³/h	14200	14200	13700
Sound data calculated in cooling m	node (2)				
Sound power level	0	dB(A)	78,0	78,0	78,0
Sound pressure level (10 m)	0	dB(A)	46,5	46,5	46,5

(1) The load indicated in the table is an estimated and preliminary value. The final value of the refrigerant load is indicated on the unit's technical label. For further information contact the office.
(2) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification. Sound pressure (cold functioning) measured in free field, 10m away from the unit external surface (in compliance with UNI EN ISO 3744).

# DIMENSIONS



Size			0090	0100	0150
Dimensions and weights					
A	٥	mm	1450	1450	1450
В	0	mm	1750	1750	1750
(	0	mm	750	750	750
Empty weight	0	kg	289	328	372

Aermec reserves the right to make any modifications deemed necessary. All data is subject to change without notice. Aermec does not assume responsibility or liability for errors or omissions.

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