WRL 180H - 650H

Reversible water-cooled heat pump, gas side

Cooling capacity 44,9 ÷ 157,4 kW
Heating capacity 53,0 ÷ 183,3 kW

- **High efficiency**
- **Suitable for geothermal applications**
- **Production of hot water up to 55 °C**

DESCRIPTION

Water-water offering chilled/hot water, designed to mit air conditioning needs in residential/commercial complexes or industrial applications.
Indoor units with hermetic scroll compressors and plate heat exchangers.
In the configuration with desuperheater, it is also possible to produce free-hot water.
The technological choices made, always oriented to the highest quality, ensure very easy installation. In fact the electrical and hydraulic connections are all located in the upper part of the unit, facilitating the installation and maintenance operations and also reducing the technical gaps and their position in as little space as possible.

FEATURES

Operating field

Full-load operation with the production of chilled water 4-18°C, and the possibility to produce also negative temperature water down to -8°C for the evaporator and hot water for the condenser up to 55 °C.
(for more information, refer to the technical documentation).

Plug and play

All the units are equipped with scroll compressors and plate heat exchangers; the base and panelling are made of steel treated with RAL 9003 polyester paints.
The electric and hydraulic connections are all located on the upper part of the unit facilitating installation and maintenance. This allows reduced plant room space and installation in the smallest space possible.
The heat pump can be supplied with all the components required for its installation in new systems and to replace other heat generators. It can be combined with low temperature emission systems such as floor heating or fan coils, but also with conventional radiators.

Version with Integrated hydronic kit

The standard unit is supplied with a water filter, differential pressure switch and safety valve already installed on the service and source side (and also on the recovery side, if present).
To obtain a solution that offers economic savings and facilitates installation, these units can be configured with an integrated hydronic kit on both hydraulic sides (service and source).

Low-head and high-head pumps are available, along with a modulating 2-way valve that can only be applied on the source side to reduce consumption in applications with groundwater.

CONTROL MPC

Microprocessor control, with keyboard and LCD display, for easy access on the unit with a menu available in several languages.
— Possibility to control two units in a Master-Slave configuration
— The presence of a programmable timer allows functioning time periods and a possible second set-point to be set.
— The temperature control takes place with the integral proportional logic, based on the water output temperature.

ACCESSORIES

AER485P1: RS-485 interface for supervising systems with MODBUS protocol. 1 accessory is provided for each unit control board.
AERNET: The device remotely controls, manages and remotely monitors a chiller/heat pump using a PC, smartphone or table via a Cloud connection. AERNET acts as Master while each connected unit is configured as Slave up to a maximum of 6 control cards. The connection is made via cable and/or USB key. Wi-Fi connectivity is not available. It is also possible to save a log file with all the data from the connected units to your terminal with a simple click for possible post-analysis. With the purchase of the Router, the Customer benefits from a 24-month free period during which he can use the Aernet Service at no additional cost. At the end of this initial period, the Service may be renewed by subscribing to a 1, 2 or 3 year subscription. For further details on costs and renewal methods, please contact our office or consult the technical documentation available on our website. www.aermec.com.
KSAE: External air sensor.
PGD1: Allows you to control the unit at a distance.
SGD: Electronic expansion that enables connecting to the photovoltaic system and heat pumps to accumulate heat in the DHW tank or in the heating system during the photovoltaic production phase and release it at times when heating demand is highest.
SSM: Probe to be used with the mixer valve in applications with radiant panels. The probe requires the VMF-CRP area accessory as well.

TAH: Ambient terminal with temperature and humidity probe - 230V AC flush-mounting model that can command an On-Off valve or a zone pump and dehumidifier consent.
TAT: Ambient terminal with temperature probe - 230V AC flush-mounting model that can command an On-Off valve or a zone pump.
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.

The accessory PR4 should only be combined with the RS485 communication interface when the serial port is occupied by another device.

ACCESSORIES COMPATIBILITY

Model	Ver	180	200	300	400	500	550	600	650
AER485P1	°	•	•	•	•	•	•	•	•
AERNET	°	•	•	•	•	•	•	•	•
KSAE	°	•	•	•	•	•	•	•	•
PGD1	°	•	•	•	•	•	•	•	•
SGD	°	•	•	•	•	•	•	•	•
SSM	°	•	•	•	•	•	•	•	•
TAH	°	•	•	•	•	•	•	•	•
TAT	°	•	•	•	•	•	•	•	•
VMF-CRP	°	•	•	•	•	•	•	•	•

Antivibration

System side - pumps	Integrated hydronic kit, source side	180	200	300	400	500	550	600	650
°, N, P	°, B, F, I, U, V	VT9	VT9	VT9	VT9	VT15	VT15	VT15	VT15

PR4

Model	Ver	180	200	300	400	500	550	600	650
PR4	°	•	•	•	•	•	•	•	•

CONFIGURATOR

Field		Description
1,2,3		**WRL**
4,5,6		**Size** 180, 200, 300, 400, 500, 550, 600, 650
7		**Operating field**
	X	Electronic thermostatic expansion valve
	Y	Low temperature mechanic thermostatic valve (1)
	°	Standard mechanic thermostatic valve (2)
8		**Model**
	H	Water cooled heat pump, reversible refrigerant side
9		**Version**
	°	Standard
10		**Heat recovery**
	D	With desuperheater
	°	Without heat recovery
11		**Integrated hydronic kit, source side**
	B	On-off pump
	F	Single low-head inverter pump
	I	High-head inverter pump
	U	Pump high head
		Applications with bore hole water
	V	2-way modulating valve
	°	Without hydronic kit
12		**System side - pumps**
	N	Pump high head
	P	Pump low head
	°	Without hydronic kit
13		**Field for future development**
	°	Field for future development
14		**Soft-start**
	S	With soft-start
	°	Without soft-start
15		**Power supply**
	°	400V ~ 3N 50Hz

(1) Water produced from 4 °C ÷ - 8 °C
(2) Water produced from 4 °C ÷ 18 °C

PERFORMANCE SPECIFICATIONS

WRL - °

Size		180	200	300	400	500	550	600	650
Cooling performance 12 °C / 7 °C (1)									
Cooling capacity	kW	44,9	59,6	64,8	79,5	93,0	120,1	140,1	157,4
Input power	kW	10,8	14,7	16,3	18,6	20,1	27,6	31,4	35,8
Cooling total input current	A	20,00	25,00	28,00	32,00	36,00	52,00	60,00	69,00
EER	W/W	4,15	4,06	3,97	4,27	4,63	4,34	4,46	4,39
Water flow rate source side	l/h	9.520	12.659	13.823	16.682	19.331	25.177	29.250	32.920
Pressure drop source side	kPa	31	52	51	74	34	56	57	71
Water flow rate system side	l/h	7.732	10.274	11.168	13.711	16.013	20.686	24.139	27.112
Pressure drop system side	kPa	22	37	36	52	25	40	40	38
Heating performance 40 °C / 45 °C (2)									
Heating capacity	kW	53,0	70,9	76,6	92,6	106,4	143,7	164,2	183,3
Input power	kW	12,9	17,7	19,1	22,6	24,0	33,1	37,2	42,7
Heating total input current	A	22,70	28,70	30,60	36,60	40,50	56,30	64,20	74,10
COP	W/W	4,10	4,00	4,01	4,10	4,44	4,34	4,41	4,30
Water flow rate source side	l/h	11.777	15.734	17.011	20.840	24.211	32.704	37.512	41.689
Pressure drop source side	kPa	49	89	92	132	61	107	101	126
Water flow rate system side	l/h	9.190	12.277	13.264	16.046	18.452	24.913	28.485	31.788
Pressure drop system side	kPa	30	52	49	72	32	58	56	70

(1) Date 14511:2022; Water user side 12 °C / 7 °C; Water source side 30 °C / 35 °C
(2) Date 14511:2022; Water user side 40 °C / 45 °C; Water source side 10 °C / 7 °C

ENERGY INDICES (REG. 2016/2281 EU)

Size		180	200	300	400	500	550	600	650
SEER - 12/7 (EN14825: 2018)									
SEER	W/W	4,25	4,04	4,15	4,38	5,04	4,62	4,80	4,69
Seasonal efficiency	%	166,90	158,50	162,80	172,30	198,40	181,70	188,90	184,50
Water Regulation (1)	type	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW
Performance in average ambient conditions (average) - 35 °C (2)									
Efficiency energy class		A+++	-	-	-	-	-	-	-
Pdesignh	kW	79,00	-	-	-	-	-	-	-
SCOP	W/W	5,75	-	-	-	-	-	-	-
ηsh	%	222,00	-	-	-	-	-	-	-
Water Regulation (1)	type	FW/VO-FW	-	-	-	-	-	-	-
Performance in average ambient conditions (average) - 55 °C (3)									
Efficiency energy class		A+++	-	-	-	-	-	-	-
Pdesignh	kW	68,00	91,00	98,00	119,00	137,00	185,00	212,00	236,00
SCOP	W/W	4,53	4,33	4,33	4,45	4,80	4,73	4,80	4,68
ηsh	%	173,00	170,00	170,00	175,00	189,00	186,00	189,00	184,00
Water Regulation (1)	type	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW	FW/VO-FW

(1) VW/VO - variable water flow rate/variable outlet temperature; FW/VO - fixed water flow rate/variable outlet temperature; VW/FO - variable water flow rate/fixed outlet temperature; FW/FO - fixed water flow rate/fixed outlet temperature.
(2) Efficiencies for low temperature applications (35 °C)
(3) Efficiencies for average temperature applications (55 °C)

ELECTRIC DATA

Size		180	200	300	400	500	550	600	650
Electric data									
Maximum current (FLA)	A	32,6	41,8	45,2	52,1	59,0	99,0	112,0	125,0
Peak current (LRA)	A	119,0	123,0	125,0	167,0	174,0	265,0	310,0	323,0

GENERAL TECHNICAL DATA

Refrigerant circuit

Size		180	200	300	400	500	550	600	650
Compressor									
Type	type	Scroll							
Compressor regulation	Type	On-Off							
Number	no.	2	2	2	2	2	2	2	2
Circuits	no.	1	1	1	1	1	1	1	1
Refrigerant	type	R410A							
Total refrigerant charge (1)	kg	5,30	5,30	6,60	7,50	9,40	10,00	17,00	17,50
Potential global heating (GWP)		2088							
Equivalent CO_2	tCO_2eq	11,06	11,06	13,78	15,66	19,62	20,88	35,49	36,54

(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.

System side heat exchanger

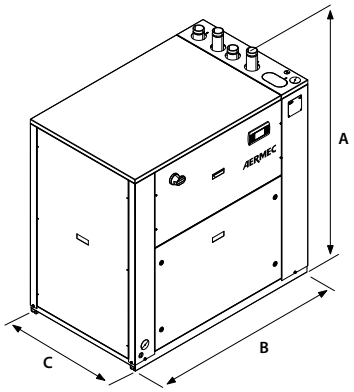
Size		180	200	300	400	500	550	600	650
System side heat exchanger									
Type	type	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Number	no.	1	1	1	1	1	1	1	1
System side hydraulic connections									
Connections (in/out)	Type	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints
Sizes (in/out)	Ø	2"	2"	2"	2"	2"1/2	2"1/2	2"1/2	2"1/2

Source side heat exchanger

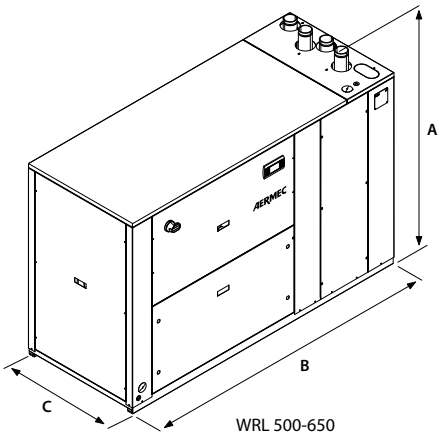
Size		180	200	300	400	500	550	600	650
Source side heat exchanger									
Type	type	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Number	no.	1	1	1	1	1	1	1	1
Source side hydraulic connections									
Connections (in/out)	Type	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints
Sizes (in/out)	Ø	2"	2"	2"	2"	2"1/2	2"1/2	2"1/2	2"1/2

Sound data

DIMENSIONS



WRL 180-400



WRL 500-650

Size		180	200	300	400	500	550	600	650
Dimensions and weights									
A	mm	1.380	1.380	1.380	1.380	1.380	1.380	1.380	1.380
B	mm	1.320	1.320	1.320	1.320	2.060	2.060	2.060	2.060
C	mm	845	845	845	845	845	845	845	845
Empty weight	kg	370	370	381	388	522	598	708	753

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