WRL 180 - 650

Water cooled heat pump reversible water side

Cooling capacity 49 ÷ 174 kW
Heating capacity 55 ÷ 192 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

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

PR4

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

Antivibration

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

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**
E	Evaporating unit (3)
K	Heat pump reversible on the water side with low pressure drops
°	Heat pump reversible on the water 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
(3) Shipped with holding charge only

PERFORMANCE SPECIFICATIONS

WRL - °

Size		180	200	300	400	500	550	600	650
Cooling performance 12 °C / 7 °C (1)									
Cooling capacity	kW	49,7	64,3	74,4	85,9	99,8	129,5	150,1	169,0
Input power	kW	10,8	14,4	16,8	18,3	20,4	27,0	31,0	35,7
Cooling total input current	A	19,90	25,00	28,50	31,90	36,30	50,80	59,30	68,30
EER	W/W	4,59	4,47	4,42	4,69	4,90	4,80	4,84	4,73
Water flow rate source side	l/h	10.336	13.418	15.531	17.725	20.550	26.664	30.860	34.836
Pressure drop source side	kPa	27	46	62	81	32	52	57	72
Water flow rate system side	l/h	8.549	11.082	12.824	14.822	17.186	22.296	25.844	29.095
Pressure drop system side	kPa	27	43	46	60	30	49	53	67
Heating performance 40 °C / 45 °C (2)									
Heating capacity	kW	55,8	72,6	84,1	95,6	110,7	143,6	166,1	187,7
Input power	kW	13,2	17,6	20,5	22,4	24,8	32,9	37,9	43,9
Heating total input current	A	24,00	30,00	34,00	38,00	44,00	61,00	71,00	82,00
COP	W/W	4,24	4,13	4,10	4,27	4,46	4,36	4,38	4,27
Water flow rate source side	l/h	12.542	16.257	18.813	21.745	25.213	32.709	37.914	42.683
Pressure drop source side	kPa	58	93	99	129	65	105	114	144
Water flow rate system side	l/h	9.685	12.580	14.561	16.557	19.196	24.909	28.816	32.553
Pressure drop system side	kPa	24	40	55	71	28	45	50	63

(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

WRL - K

Size		180	200	300	400	500	550	600	650
Cooling performance 12 °C / 7 °C (1)									
Cooling capacity	kW	49,7	66,3	76,7	88,6	99,8	133,5	154,6	174,1
Input power	kW	10,8	14,4	16,9	18,3	20,4	26,7	30,8	35,6
Cooling total input current	A	20,00	25,00	29,00	32,00	36,00	51,00	59,00	68,00
EER	W/W	4,59	4,61	4,55	4,85	4,50	5,00	5,02	4,90
Water flow rate source side	l/h	10.336	13.753	15.919	18.173	20.550	27.338	31.642	35.716
Pressure drop source side	kPa	27	48	65	85	32	55	60	76
Water flow rate system side	l/h	8.549	11.414	13.209	15.267	17.186	22.965	26.619	29.967
Pressure drop system side	kPa	27	34	42	48	30	24	33	41
Heating performance 40 °C / 45 °C (2)									
Heating capacity	kW	55,8	74,3	86,1	97,9	110,7	147,1	170,1	192,1
Input power	kW	13,2	17,5	20,5	22,2	24,8	32,3	37,3	43,1
Heating total input current	A	24,00	30,00	34,00	38,00	44,00	61,00	71,00	82,00
COP	W/W	4,24	4,24	4,20	4,40	4,46	4,56	4,56	4,46
Water flow rate source side	l/h	12.542	16.745	19.337	22.397	25.213	33.690	39.052	43.963
Pressure drop source side	kPa	58	73	90	103	65	52	71	88
Water flow rate system side	l/h	9.685	12.876	14.904	16.953	19.196	25.504	29.507	33.331
Pressure drop system side	kPa	24	42	57	74	28	48	52	66

(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

WRL - E

Size		180	200	300	400	500	550	600	650
Cooling performance 12 °C / 7 °C (1)									
Cooling capacity	kW	46,0	60,1	69,6	80,1	90,6	121,3	140,2	158,7
Input power	kW	12,4	16,0	18,5	19,8	23,1	29,6	34,1	38,5
Cooling total input current	A	23,00	29,00	32,00	36,00	42,00	56,00	65,00	74,00
EER	W/W	3,71	3,76	3,76	4,05	3,92	4,10	4,11	4,12
Water flow rate system side	l/h	7.903	10.326	11.958	13.762	15.566	20.841	24.088	27.266
Pressure drop system side	kPa	23	39	39	56	25	42	47	57

(1) Service side water 12 °C / 7 °C; Condensing temperature 45 °C

ENERGY INDICES (REG. 2016/2281 EU)

WRL °

Size		180	200	300	400	500	550	600	650
SEER - 12/7 (EN14825: 2018)									
SEER	W/W	4,65	4,55	4,54	4,74	5,31	5,04	5,12	4,97
Seasonal efficiency	%	182,80	178,90	178,50	186,40	209,30	198,70	201,70	195,80
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	4,45	4,45	4,58	4,93	4,85	4,93	4,80
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)

WRL K

Size		180	200	300	400	500	550	600	650
SEER - 12/7 (EN14825: 2018)									
SEER	W/W	4,65	4,71	4,67	4,90	5,31	5,31	5,35	5,19
Seasonal efficiency	%	182,80	185,30	183,60	192,90	209,30	209,20	210,90	204,60
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	4,45	4,45	4,58	4,93	4,85	4,93	4,80
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)	°,E,K	A	32,6	41,8	45,2	52,1	59,0	99,0	112,0	125,0
Peak current (LRA)	°,E,K	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	6,00	7,00	6,80	7,20	9,00	14,50	16,80	16,50
Potential global heating (GWP)		2088							
Equivalent CO_2	tCO_2eq	12,52	14,61	14,19	15,03	18,79	30,27	35,07	34,45

(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	°,E,K	type	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
Number	°,E,K	no.	1	1	1	1	1	1	1	1
System side hydraulic connections										
Connections (in/out)	°,E,K	Type	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints	Grooved joints
Sizes (in/out)	°,E,K	Ø	2″	2″	2″	2″	2″1/2	2″1/2	2″1/2	2″1/2

Source side heat exchanger

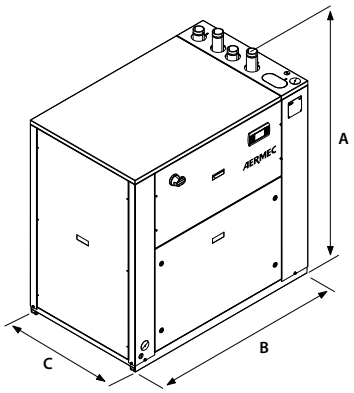
Size			180	200	300	400	500	550	600	650
Source side heat exchanger										
Type	°,K	type	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate	Brazed plate
	E	type	-	-	-	-	-	-	-	-
Number	°,K	no.	1	1	1	1	1	1	1	1
	E	no.	-	-	-	-	-	-	-	-
Source side hydraulic connections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

Sound data

Size			180	200	300	400	500	550	600	650
Sound data calculated in cooling mode (1)										
Sound power level	°,E,K	dB(A)	61,1	61,8	62,9	71,1	67,6	79,1	79,1	79,1

(1) 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



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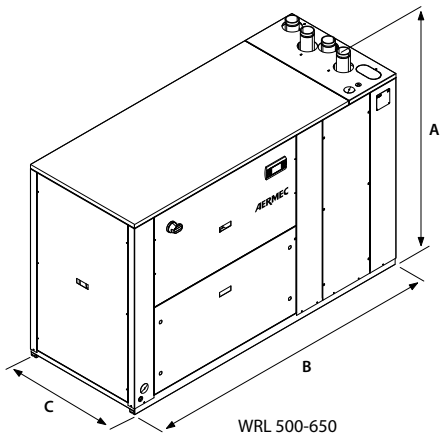

WRL 500-650

Size			180	200	300	400	500	550	600	650
Dimensions and weights										
A	°,E,K	mm	1.380	1.380	1.380	1.380	1.380	1.380	1.380	1.380
B	°,E,K	mm	1.320	1.320	1.320	1.320	2.060	2.060	2.060	2.060
C	°,E,K	mm	845	845	845	845	845	845	845	845
Empty weight	°,K	kg	375	375	381	388	518	594	670	715
	E	kg	-	-	-	-	-	-	-	-

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