WS

Water cooled heat pump reversible water side

Cooling capacity 147 ÷ 700 kW
Heating capacity 164 ÷ 778 kW

- **Optimised for low condenser temperatures**
- **Available also with R513A refrigerant**

DESCRIPTION

Units for internal installation offering chilled/hot water, designed to mit air conditioning needs in residential/commercial complexes or industrial applications.
Compact and flexible, perfect alignment to the requested load thanks to an accurate control algorithm.
The base, the structure and the panels are made of galvanized steel treated with polyester paint RAL 9003.

VERSIONS

° Standard
L Standard silenced

FEATURES

Operating field

Full-load operation with the production of chilled water from 4 to 16°C, and the possibility to produce negative temperature water (down to -6°C) on the evaporator and hot water (up to 50 °C) on the condenser.
(for more information, refer to the technical documentation).

Units mono or dual-circuit

Depending on the size, the units are one-circuit or two-circuit models to ensure maximum efficiency with full loads as well as partial loads and guarantee operation continuity if one of the circuits stop.
They are equipped with screw compressors and system and source side plate heat exchangers.

CONTROL PCO_5

Microprocessor control, with keyboard and LCD display, for easy access on the unit with a menu available in several languages.
Adjustment includes complete management of the alarms and their log.
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.
AERBAC-ONE: Ethernet communication interface for Bacnet/IP and Modbus TCP/IP protocols, HTTPS protocol for web interface, encrypted communication protocols and access credential management in accordance with the latest standards. One accessory is provided for each unit control board.
AERBACP: Ethernet communication interface for Bacnet/IP and Modbus TCP/IP protocols. 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.
MULTICHILLER-EVO: Control, switch-on and switch-off system of the single chillers where multiple units are installed in parallel (max. no. 9), always ensuring constant flow rate to the evaporators.
PRV3: Allows you to control the chiller 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.
AVX: Spring anti-vibration supports.

FACTORY FITTED ACCESSORIES

RIF: Power factor correction. Connected in parallel to the motor allowing about 10% reduction of input current.
AKW: Acoustic kit that lowers the noise level even further, thanks to the special coating on the panelling or on those components that produce the most noise in the unit. Available for the low noise version only.

ACCESSORIES COMPATIBILITY

Model	Ver	0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
AER485P1	°,L	•	•	•	•	•								
AER485P1 x no. 2	°,L						•	•	•	•	•	•	•	•
AERBAC-ONE	°,L	•	•	•	•	•								
AERBAC-ONE x no. 2	°,L						•	•	•	•	•	•	•	•
AERBACP	°,L	•	•	•	•	•								
AERBACP x no. 2	°,L						•	•	•	•	•	•	•	•
AERNET	°,L	•	•	•	•	•	•	•	•	•	•	•	•	•
MULTICHILLER-EVO	°,L	•	•	•	•	•	•	•	•	•	•	•	•	•
PRV3	°,L	•	•	•	•	•	•	•	•	•	•	•	•	•
SGD	°,L	•	•	•	•	•	•	•	•	•	•	•	•	•

Antivibration

	Ver	0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
Evaporator: E														
	°, L	AVX651	AVX651	AVX652	AVX652	AVX656	AVX658	AVX658	AVX658	AVX659	AVX667	AVX661	AVX661	AVX661
Evaporator: °														
	°, L	AVX651	AVX651	AVX652	AVX652	AVX656	AVX658	AVX658	AVX658	AVX659	AVX667	AVX661	AVX661	AVX661

Power factor correction

Ver	0601	0701	0801	0901	1101	1202	1402
°, L	-	RIF161	RIF161	RIF201	RIF241	RIF161 x 2	RIF161 x 2

The accessory cannot be fitted on the configurations indicated with -
A grey background indicates the accessory must be assembled in the factory

Ver	1602	1802	2002	2202	2502	2802
°, L	RIF161 x 2	RIF201 x 2	RIF201+RIF241	RIF241 x 2	RIF301 x 2	RIF301 x 2

A grey background indicates the accessory must be assembled in the factory

Acoustic kit

Ver	0601	0701	0801	0901	1101	1202	1402
°, L	AKW (1)	AKW (1)	AKW (1)	AKW (1)	AKW (1)	AKW (1)	AKW (1)

(1) Available only in low noise version
A grey background indicates the accessory must be assembled in the factory

Ver	1602	1802	2002	2202	2502	2802
°, L	AKW (1)	AKW (1)	AKW (1)	AKW (1)	AKW (1)	AKW (1)

(1) Available only in low noise version
A grey background indicates the accessory must be assembled in the factory

CONFIGURATOR

Field		Description
1,2		**WS**
3,4,5,6		**Size** 0601, 0701, 0801, 0901, 1101, 1202, 1402, 1602, 1802, 2002, 2202, 2502, 2802
7		**Operating field**
	X	Electronic thermostatic expansion valve (1)
	Y	Low temperature mechanic thermostatic valve (2)
	Z	Low temperature electronic thermostatic valve (2)
	°	Standard mechanic thermostatic valve (1)
8		**Model**
	°	Heat pump reversible on the water side
9		**Heat recovery**
	D	With desuperheater (3)
	T	With total recovery (4)
	°	Without heat recovery
10		**Version**
	°	Standard

Field		Description
	L	Standard silenced
11		**Evaporator**
	E	Evaporating unit (5)
	°	Standard
12		**Power supply**
	2	230V ~ 3 50Hz with fuses
	4	230V ~ 3 50Hz with magnet circuit breakers
	5	500V ~ 3 50Hz with fuses
	8	400V ~ 3 50Hz with magnet circuit breakers
	9	500V ~ 3 50Hz with magnet circuit breakers
	°	400V ~ 3 50Hz with fuses

(1) Water produced from 4 °C ÷ 16 °C
(2) Water produced from 4 °C ÷ -6 °C; for the avalability with the heat recovery we advise you to contact us
(3) In cooling mode, a water temperature no lower than 35°C must always be guaranteed on the heat exchanger inlet.
(4) Option not available for condenserless unit.
(5) Shipped with holding charge only.

PERFORMANCE SPECIFICATIONS

WS - °/L

Size			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
Cooling performance 12 °C / 7 °C (1)															
Cooling capacity	°,L	kW	147,7	186,9	212,2	233,8	299,0	308,6	369,1	421,6	469,8	545,6	599,8	654,3	700,4
Input power	°,L	kW	29,1	36,6	81,8	46,0	58,7	605,6	72,8	83,2	92,7	106,7	117,2	128,1	136,8
Cooling total input current	°,L	A	56,00	67,00	74,00	83,00	95,00	110,00	133,00	149,00	167,00	179,00	190,00	219,00	235,00
EER	°,L	W/W	5,08	5,11	5,07	5,08	5,09	5,10	5,07	5,06	5,07	5,11	5,12	5,11	5,12
Water flow rate source side	°,L	l/h	30.238	38.269	43.508	47.922	61.258	63.078	75.593	86.332	96.177	111.478	122.506	133.608	142.894
Pressure drop source side	°,L	kPa	33	23	22	22	25	47	36	39	43	48	52	58	65
Water flow rate system side	°,L	l/h	25.421	32.148	36.495	40.212	51.431	53.088	63.476	72.492	80.788	93.813	103.143	112.508	120.438
Pressure drop system side	°,L	kPa	23	17	15	16	18	33	25	27	30	33	35	39	44
Heating performance 40 °C / 45 °C (2)															
Heating capacity	°,L	kW	164,9	208,7	237,3	261,4	334,0	343,7	412,1	470,6	524,2	607,2	667,2	727,6	778,0
Input power	°,L	kW	36,8	46,3	52,9	58,1	74,2	76,9	92,2	105,5	117,7	135,5	148,8	162,8	174,1
Heating total input current	°,L	A	70,00	84,00	94,00	105,00	120,00	138,00	168,00	188,00	210,00	225,00	240,00	275,00	296,00
COP	°,L	W/W	4,48	4,51	4,49	4,50	4,50	4,47	4,47	4,46	4,46	4,48	4,48	4,47	4,47
Water flow rate system side	°,L	l/h	28.611	36.218	41.197	45.370	57.987	59.660	71.552	81.718	91.025	105.442	115.854	126.347	135.087
Pressure drop system side	°,L	kPa	29	21	19	20	23	42	32	35	38	43	46	52	58
Water flow rate source side	°,L	l/h	37.525	47.456	53.873	59.360	75.920	78.366	93.702	107.011	119.257	138.485	152.256	166.081	177.787
Pressure drop source side	°,L	kPa	49	37	33	34	39	73	54	59	65	72	77	85	96

(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

Performance specifications Evaporating units

WS - E

Size			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
Evaporator: E															
Cooling performance 12 °C / 7 °C (1)															
Cooling capacity	°,L	kW	134,5	167,9	189,2	216,7	264,4	276,7	333,2	381,0	431,7	489,8	542,5	591,7	629,6
Input power	°,L	kW	34,7	42,2	48,2	55,0	67,0	69,3	84,4	96,5	109,9	122,0	134,1	146,8	157,0
Cooling total input current	°,L	A	63,00	75,00	85,00	96,00	111,00	127,00	151,00	170,00	192,00	207,00	222,00	252,00	270,00
EER	°,L	W/W	3,88	3,98	3,92	3,94	3,94	3,99	3,95	3,95	3,93	4,01	4,05	4,03	4,01
Water flow rate system side	°,L	l/h	23.108	28.849	32.512	37.238	45.248	47.546	57.251	65.458	74.169	84.147	93.212	101.661	108.175
Pressure drop system side	°,L	kPa	18	13	12	12	14	25	19	20	23	25	27	30	34

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

ENERGY INDICES (REG. 2016/2281 EU)

Size			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
SEER - 12/7 (EN14825: 2018) (1)															
SEER	°,L	W/W	5,58	5,80	6,09	6,04	5,96	6,22	6,24	6,39	6,39	6,38	6,38	6,42	6,39
Seasonal efficiency	°,L	%	220,2%	229,0%	240,6%	238.6%	235,2%	245,7%	246,6%	252,5%	252,6%	252,1%	252,2%	253,9%	252,7%
SEPR - (EN 14825: 2018) High temperature (2)															
SEPR	°,L	W/W	-	-	-	-	7,77	7,97	7,99	8,11	8,01	8,04	8,01	8,05	8,01
UE 813/2013 performance in average ambient conditions (average) - 35 °C - Pdesignh ≤ 400 kW (3)															
Pdesignh	°,L	kW	229	290	330	363	-	-	-	-	-	-	-	-	-
SCOP	°,L	W/W	5,98	6,10	6,30	6,25	-	-	-	-	-	-	-	-	-
ηsh	°,L	%	231.0%	236.0%	244.0%	242.0%	-	-	-	-	-	-	-	-	-

(1) Calculation performed with VARIABLE water flow rate and VARIABLE outlet temperature.
(2) Calculation performed with VARIABLE water flow rate.
(3) Efficiencies for low temperature applications (35 °C)

ELECTRIC DATA

Size			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
Electric data															
Maximum current (FLA)	°,L	A	90,7	98,0	112,0	128,0	156,0	168,0	196,0	224,0	256,0	284,0	312,0	354,0	380,0
Peak current (LRA)	°,L	A	147,0	140,0	163,0	192,0	246,0	194,1	198,5	228,0	262,6	316,6	324,7	388,1	448,1

GENERAL TECHNICAL DATA

Refrigerant circuit

Size			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
Compressor															
Type	°,L	type							Screw						
Compressor regulation	°,L	Type							On-Off						
Number	°,L	no.	1	1	1	1	1	2	2	2	2	2	2	2	2
Circuits	°,L	no.	1	1	1	1	1	2	2	2	2	2	2	2	2
Refrigerant	°,L	type							R134a						
Total refrigerant charge (1)	°,L	kg	18,00	22,00	22,00	25,00	38,00	36,00	42,00	44,00	50,00	59,00	68,00	70,00	80,00
Potential global heating (GWP)	°,L								1430						
Equivalent CO_2	°,L	tCO_2eq	25,74	31,46	31,46	35,75	54,34	51,48	60,06	62,92	71,50	84,37	97,24	100,10	114,40

(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			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
System side heat exchanger															
Type	°,L	type							Brazed plate						
Number	°,L	no.	1	1	1	1	1	1	1	1	1	1	1	1	1
System side hydraulic connections															
Connections (in/out)	°,L	Type							Grooved joints						
Sizes (in/out)	°,L	Ø							3"						

Source side heat exchanger

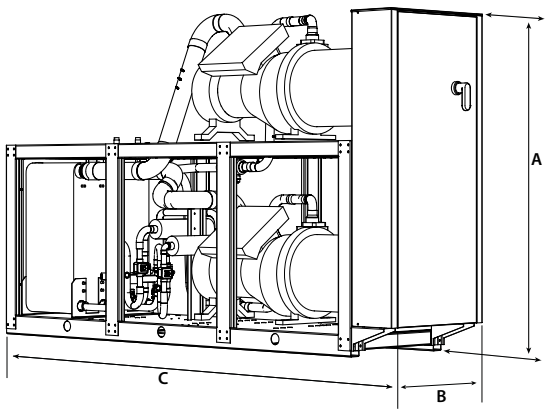
Size			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
Source side heat exchanger															
Type	°,L	type							Brazed plate						
Number	°,L	no.	1	1	1	1	1	1	1	1	1	1	1	1	1
Source side hydraulic connections															
Connections (in/out)	°,L	Type							Grooved joints						
Sizes (in/out)	°,L	Ø							3"						

Sound data

Size			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
Sound data calculated in cooling mode (1)															
Sound power level	°	dB(A)	86,1	86,8	87,1	87,8	87,1	89,1	89,8	90,1	90,8	90,5	90,1	91,3	91,8
	L	dB(A)	78,1	78,8	79,1	79,9	78,1	81,1	81,8	82,1	82,9	82,1	81,1	83,4	84,1

(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



Size			0601	0701	0801	0901	1101	1202	1402	1602	1802	2002	2202	2502	2802
Dimensions and weights															
A	°	mm	1.775	1.775	1.775	1.775	1.775	1.975	1.975	1.975	2.005	1.985	2.065	2.065	2.065
	L	mm	1.775	1.775	1.775	1.775	1.775	2.120	2.120	2.120	2.120	2.120	2.120	2.120	2.120
B	°,L	mm	810	810	810	810	810	810	810	810	810	810	810	810	810
C	°,L	mm	2.960	2.960	2.960	2.960	3.360	2.960	2.960	2.960	2.960	3.360	3.360	3.360	3.360
Empty weight	°	kg	1.101	1.251	1.301	1.357	1.788	1.738	2.071	2.140	2.212	2.648	3.050	3.131	3.131
	L	kg	1.229	1.379	1.429	1.485	1.934	1.966	2.299	2.368	2.440	2.905	3.307	3.388	3.388

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