

EN

5523461_14 - 26.09
Translation of Original instructions

WWB 0300-0900



WATER-WATER HEAT PUMPS ONLY

Heating capacity 56,7 ÷ 265,9 kW



www.aermec.com

Dear Customer,

Thank you for wanting to learn about a product Aermec. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.

The manual you are about to read is meant to present the product and help you select the unit that best meets the needs of your system.

However, please note that for a more accurate selection, you can also use the Magellano selection program, available on our website.

Aermec, always attentive to the continuous changes in the market and its regulations, reserves the right to make all the changes deemed necessary for improving the product, including technical data.

Thank you again.

Aermec S.p.A.

CERTIFICATIONS



COMPANY CERTIFICATIONS



SAFETY CERTIFICATIONS



This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled disposal of Waste Electrical and Electronic Equipment (WEEE), please return the device using appropriate collection systems, or contact the retailer where the product was purchased. Please contact your local authority for further details. Illegal dumping of the product by the user entails the application of administrative sanctions provided by law.



In accordance with Italian Legislative Decree 116 / 2020, the machine's packaging is marked; for unmarked packaging parts, the composition is as follows: **Expanded polystyrene - PS 6**

All specifications are subject to change without prior notice. Although every effort has been made to ensure accuracy, Aermec shall not be held liable for any errors or omissions.

EC DECLARATION OF CONFORMITY



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WWB 0300-0900

MODEL	_____	
SERIAL NUMBER	_____	
DATE	_____	

We, the undersigned, hereby declare under our own responsibility that the assembly in question, defined as follows:

Name: WWB

Type:

Models: WWB 0300-0900

to which this declaration refers, complies with all the provisions related to the following directives:

Machinery Directive 2006/42/EC

Erp Directive 2009/125/CE

RoHS Directive on the restriction of the use of certain hazardous substances in EEE: 2011/65/UE

PED Directive regarding pressurised devices 2014/68/UE

Electromagnetic Compatibility Directive EMCD: 2014/30/UE

The above-mentioned declaration complies with the harmonised European standards:

UNI EN ISO 12100: 2010

UNI EN 378-2: 2017

UNI EN 12735-1: 2020

CEI EN 60204-1: 2018

CEI EN IEC 61000-6-1: 2019

CEI EN IEC 61000-6-3: 2021

This declaration of conformity has been released under the exclusive responsibility of the manufacturer.

The person authorised to draw up the technical file is Luca Martin via Roma 996, 37040 Bevilacqua (VR) Italy..

The unit complies with the project data indicated in the technical file in the paragraph Definition of the Assembly, is in agreement with Directive 2014/68/EU and satisfies the Total Guarantee procedure (form H) with certificate no. 06/270-QT3664 Rev.18 issued by the notified body no. 1131 CEC via Pisacane 46 Legnano (MI) - Italia.

The list of critical components relevant to the above factory number, in accordance with the provisions of Directive 2014/68/EU, is provided together with this Declaration of Conformity (doc. "List of components for Declaration of Conformity"). We also declare that, at the time this pre-charged equipment is placed on the European market by Aermec S.p.A (which imports or manufactures within the Union), the hydrofluorocarbons contained therein are considered within the Union quota system referred to in Chapter IV of Regulation (EU) No. 2024/573 of the European Parliament and of the Council on fluorinated greenhouse gases, as they have been placed on the market by a producer or importer of hydrofluorocarbons subject to Article 16, paragraph 1, of Regulation (EU) No. 2024/573.

Signed for and on behalf of: AERMEC S.p.A.

Bevilacqua (VR),

Marketing manager
Luigi Zucchi

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1 PRODUCT DESCRIPTION

1.1 AERMEC IS ALWAYS COMMITTED TO SAFEGUARDING THE ENVIRONMENT

The constant increase in atmospheric pollution and global warming led to a rapid change in the regulations in the HVAC & R sector. From the United Nations Framework Convention on Climate Change, all members have gradually committed to fix the new targets, which are increasingly more restrictive and have the following aim:

- reduce green house gas emission;
- limit the increase of global warming within 2°C compared to the pre-industrial age;
- promote the adoption of renewable energy sources.

This entails major changes in the HVAC refrigerant gas sector.

1.2 FIELDS OF THE RANGE

WWB is a range of irreversible water-water heat pumps that produce high temperature water with a low or medium temperature source.

Internal unit suitable for use in centralised residential systems, in systems that serve hotels and other forms of accommodation, and for applications in the tertiary and industrial sectors.

1.2.1 Maximum energy efficiency

Aermec, which has focused for years on energy efficiency, designed the WWB units with the aim of guaranteeing high efficiency both with full and partial loads.

1.2.2 Operating field

With its wide operating range, it can be integrated with numerous applications and is a valid alternative to boilers and all conventional systems used to produce high temperature hot water since it also uses existing systems.

Production of hot water up to 80 °C (Max inlet temperature on source side 45 °C).

1.2.3 Constructional characteristics of unit

- Optimised plate heat exchangers with low pressure drops.
- 2 cooling circuits, 1 compressor per circuit.
- Scroll compressors for high condensing temperatures.
- Compact size for easier installation.

The base, the structure and the panels are made of galvanized steel treated with polyester paint RAL 9003.

1.2.4 Electronic expansion valve

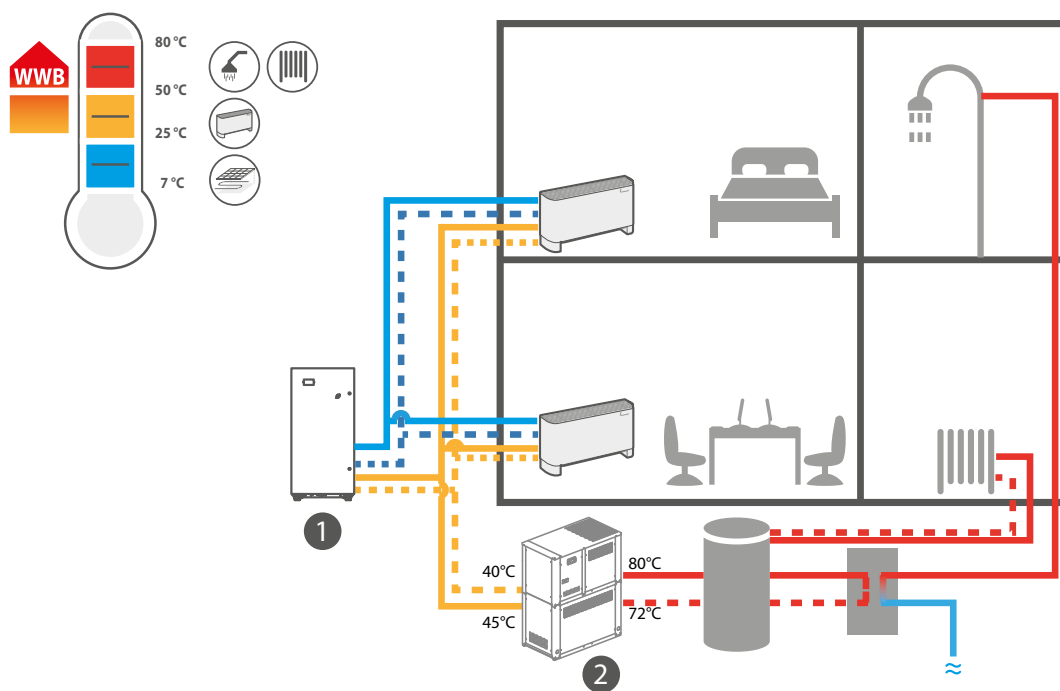
The possibility to use electronic expansion valve, offers significant benefits, especially when the chiller is working with partial loads, increasing the energy efficiency of the unit.

2 CONFIGURATOR

Field	Description
1,2,3	WWB
4,5,6,7	Size 0300, 0330, 0350, 0550, 0600, 0700, 0800, 0900
8	Operating field (1)
	X Standard
9	Model
	H Heat pump
10	Version
	L Silenced
11	Power supply
	S 400V ~ 3 50Hz with Soft-Start
	° 400V ~ 3 50Hz
12	Electrical panel version
	R Reverse opening (RH)
	° Standard opening (LH)

(1) Evaporator water up to +5°C. Electronic thermostatic valve as standard.

2.1 EXAMPLE OF FOUR-PIPE SYSTEM



Key

- 1 Multipurpose
- 2 WWB 0300-0900

3 UNIT COMPONENTS DESCRIPTION

3.1 REFRIGERANT CIRCUIT

3.1.1 Compressors

Crankcase heaters as standard, automatically activated when the unit stops, as long as power is maintained to the unit.

3.1.2 Mechanic thermostatic valve

The mechanical type valve, with external equaliser located at the evaporator outlet, modulates the flow of refrigerant into the evaporator based on the load and ensures the correct superheat of the suction gas.

3.1.3 Electronic thermostatic expansion valve

The valve modulates the flow of gas to the evaporator in relation to the heat load, to ensure the intake gas is properly heated.

3.1.4 Sight glass

It is used to verify that the expansion system is powered correctly and the presence of humidity in the cooling circuit.

3.1.5 Solenoid valve

Allows one-way flow of the refrigerant. Positioned on the compressor flow, it prevents inverse rotation of the rotors after stopping.

3.2 HYDRAULIC CIRCUIT

3.2.1 Water filter

Equipped with steel filtering mesh, it prevents the heat-exchanger from clogging system side due to any impurity inside the circuit.

3.2.2 Water characteristics

System: Chiller with plate heat exchanger	
PH	7,5-9
Electric conductivity	100-500µS/cm
Total hardness	4,5-8,5 dH
Temperature	< 65°C
Oxygen content	< 0,1 ppm
Max. glycol amount	50%
Phosphates (PO ₄)	< 2ppm
Manganese (Mn)	< 0,05 ppm
Iron (Fe)	< 0,3 ppm
Alkalinity (HCO ₃)	70 - 300 ppm
Chloride ions (Cl ⁻)	< 50 ppm
Sulphate ions (SO ₄)	< 50 ppm
Sulphide ion (S)	None
Ammonium ions (NH ₄)	None
Silica (SiO ₂)	< 30ppm

NOTE: Always provide a water filter upstream (inlet) of the heat exchanger. In order to ensure the limits of acceptability of the water, it is recommended to use a filter with holes not greater than one millimetre.

■ **NOTE:** It is absolutely fundamental to keep the oxygen concentration in the water under control, especially in open vessel systems. In fact, this type of system is very sensitive to the additional oxygenation of water (which can be caused by the incorrect positioning of certain components). This phenomenon triggers corrosion processes resulting in the subsequent perforation of the heat exchanger and pipes.



Intermediate exchangers (suitably sized by the designer) are required upstream of the heat exchangers of the refrigeration unit in all cases where strict compliance with the above limits is not guaranteed or in the presence of dirty/aggressive water. Failure to comply with the above requirement shall invalidate the warranty.

3.2.3 Safety valve

Calibrated at 6 Bar and drain pipe, it activates by discharging overpressure if abnormal pressure occurs.

3.2.4 Pump

They provide useful static pressure to the system, excluding the unit pressure drops.



WARNING: In the event of installation the pump must be managed by the control of the unit for the correct functioning of the machine.

3.2.5 System buffer tank

In steel to reduce heat gain and avoid the formation of condensation.

Insulated with polyurethane material of adequate thickness.

It reduces the number of compressor starts and stabilises the water temperature delivered to the system.

3.2.6 Drain valve

Discharges the water from the hydraulic circuit.

3.2.7 Flow switch

3.2.8 Air drain valve

Mounted on the upper part of the DHW side exchanger, it discharges any possible air pockets.

3.3 CONTROL AND SAFETY COMPONENTS

3.3.1 Low pressure transducer

Placed on low pressure side of cooling circuit, it signals the work pressure to the control board, generating a pre-warning in case abnormal pressure occurs.

3.3.2 High pressure transducer

Placed on the high pressure side of the cooling circuit, signals the work pressure to control board, generating a pre-warning in case abnormal pressure occurs.

3.3.3 High pressure switch

With fixed calibration, placed on the high pressure side of the cooling circuit, it inhibits the operation of the compressor if abnormal work pressure occurs.

3.4 STRUCTURE

3.4.1 Load-bearing structure

Made of hot-dipped galvanised steel profiles with suitable thickness.

Paint with polyester powders (RAL 9003).

Made in order to allow total accessibility to internal components, for servicing and maintenance operations.

3.5 ELECTRIC CONTROL BOARD AND REGULATION

The electric power and control panel, built in conformity to the regulation CEI EN 60204-1: 2018 is complete with:

- Circuit board;
- Transformer for the control circuit;
- door lock main isolating switch;
- Fuses for compressors. Magnet circuit breakers are also available on request;
- Power section;
- Clamps for remote ON/OFF;
- Compressors protection with internal circuit breakers;
- Connection clamps to the remote keyboard;
- Summer-winter manual change-over clamps;
- Clamps for alarm signal;
- Clamps for signalling compressor switch-on status;
- Safety fuses;
- Control circuit numbered cables;
- Imbalance sequence check between the phases.

3.5.1 Door interlocked isolator

Access to the electrical panel is by operating the handle of the door interlocked isolator which removes power to the unit.

3.5.2 Electronic controller

The electronic adjustment on WWB 0300-0900 chillers is made up of a control board for every compressor connected to each other in a network and a control panel with display.

The board that controls compressor n°1 is the "master" board, while the other is the "slave".

Relative to the compressor that controls, transducers, loads and alarms are connected to every board, while only the machine general ones are connected to the master board.

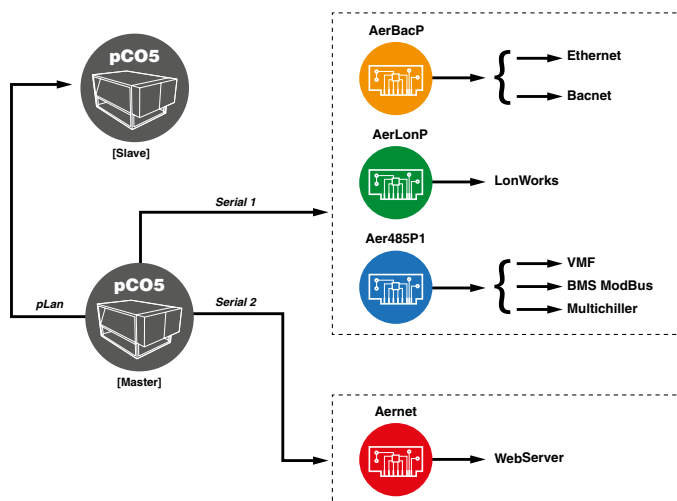
The program and the parameters set are memorised permanently on FLASH memory, allowing them to be kept also in the case of a power cut (without the need for a maintenance battery).

3.5.3 Microprocessor

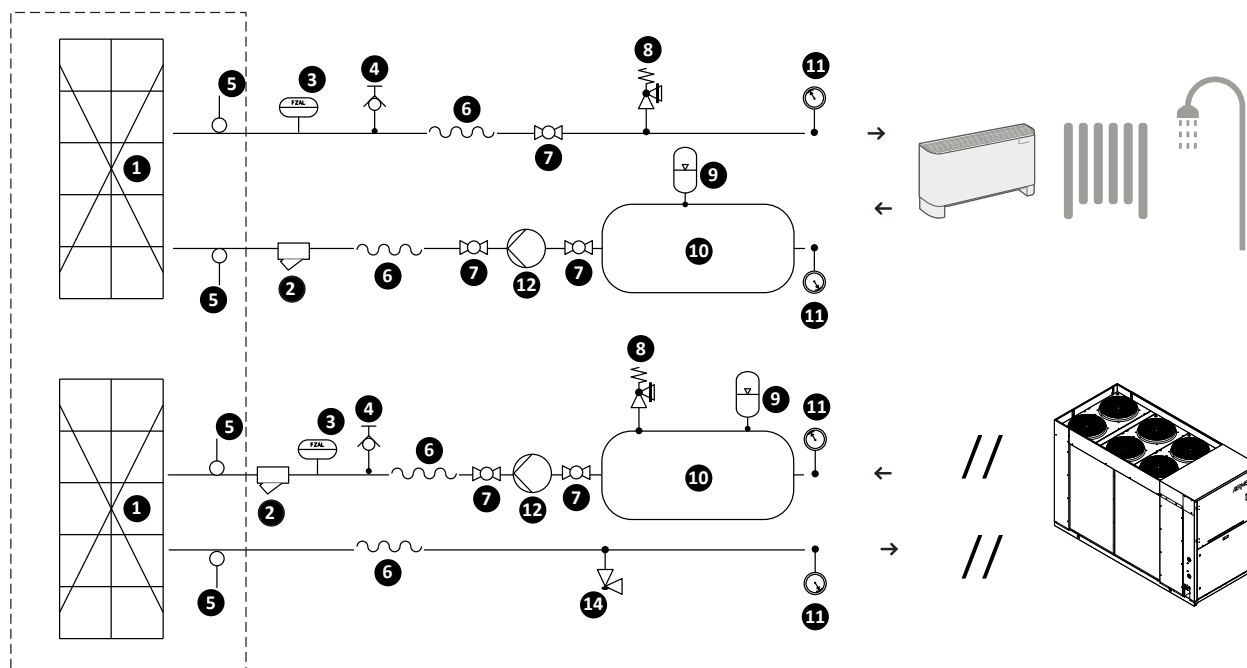
- Remote on/off with voltage-free external contact;
- Multi-language menu;
- Phase sequence control;
- Separate control of the individual compressors;
- Amperometric transformer;
- Cumulative faults block signal;
- Historical alarms function;
- Daily/weekly programming;
- Water temperature display;
- Input/output;
- Alarms display;
- Integral proportional regulation on the temperature of the output water;
- Programmable timer function;
- Function with double calibration point linked to an external contact (between double set point);
- Can be interfaced with Modbus protocol (AER485P1 accessory);
- Pump/s control;
- Compressors rotation management;
- Analogue input from 4 to 20 mA;
- "Always Working" function in the case of critical conditions (e.g. an environmental temperature that is too high) the machine does not stop but can adjust itself and supply the maximum power in those conditions;
- "Switching Hysteresis" self-adapting work differential;
- "Switching Hysteresis" to always ensure the correct functioning times of the compressors even in plants with low water content or insufficient flow rates. This system decreases compressor wear;

—PDC “Pull Down Control” system to prevent the activation of power steps when the water temperature quickly approaches the set-point. Optimises machine functioning when working normally and in the presence of load variations, ensuring the best machine efficiency in all conditions.

For further information please refer to the user manual.



4 MAIN HYDRAULIC CIRCUITS



COMPONENTS AS STANDARD

- 1 Plate heat exchanger
- 5 Water temperature sensor

HYDRAULIC COMPONENTS RECOMMENDED OUTSIDE THE UNIT (AT THE INSTALLER'S RESPONSIBILITY)

- 2 Water filter not supplied. **Installation in the immediate vicinity of the heat ex-**

changer is mandatory, penalty waiver of warranty

- 3 Flow switch not provided. **Installation in the immediate vicinity of the heat exchanger is mandatory, penalty waiver of warranty**
- 4 Air drain valve
- 6 Anti-vibration joints
- 7 Shut-off tap

- 8 Pressure relief valve
- 9 Expansion vessel
- 10 Storage tank
- 11 Pressure gauge
- 12 Pump
- 14 Drain valve

Water characteristics

System: Chiller with plate heat exchanger	
PH	7,5 - 9
Total hardness	4,5 - 8,5 °dH
Electric conductivity	10-500 µS /cm
Temperature	< 65 °C
Oxygen content	< 0,1 ppm
Max. glycol amount	50 %
Phosphates (PO ₄)	< 2ppm
Manganese (Mn)	< 0,05 ppm
Iron (Fe)	< 0,2 ppm
Alkalinity (HCO ₃)	70 - 300 ppm
Chloride ions (Cl ⁻)	< 50 ppm
Free chlorine	< 0,5 ppm
Sulphate ions (SO ₄)	< 50 ppm
Sulphide ion (S)	None
Ammonium ions (NH ₄)	None
Silica (SiO ₂)	< 30 ppm

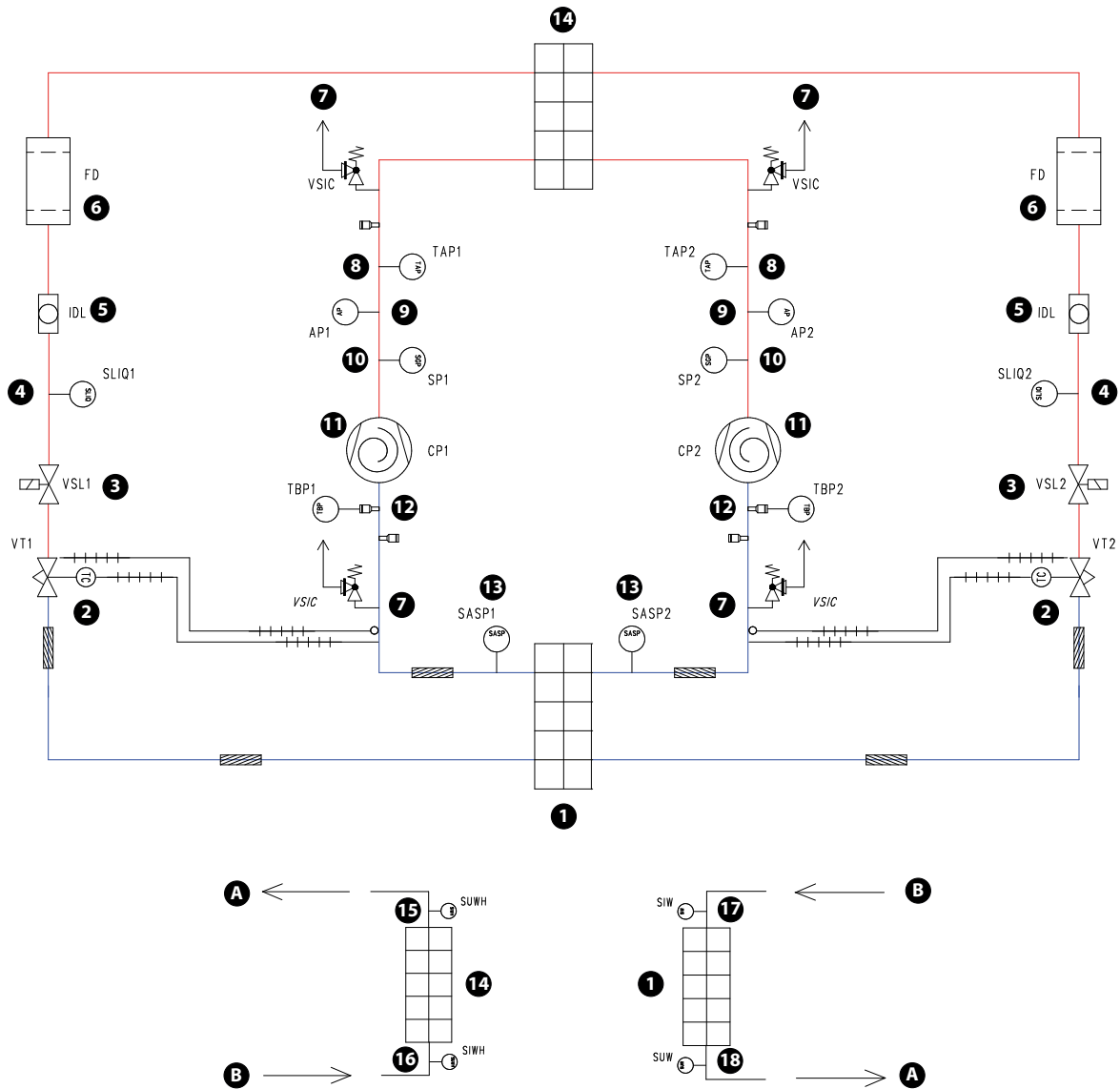
NOTE: Always provide a water filter upstream (inlet) of the heat exchanger. In order to ensure the limits of acceptability of the water, it is recommended to use a filter with holes not greater than one millimetre.

■ *NOTE: It is absolutely fundamental to keep the oxygen concentration in the water under control, especially in open vessel systems. In fact, this type of system is very sensitive to the additional oxygenation of water (which can be caused by the incorrect positioning of certain components). This phenomenon triggers corrosion processes resulting in the subsequent perforation of the heat exchanger and pipes.*



Intermediate exchangers (suitably sized by the designer) are required upstream of the heat exchangers of the refrigeration unit in all cases where strict compliance with the above limits is not guaranteed or in the presence of dirty/aggressive water. Failure to comply with the above requirement shall invalidate the warranty.

5 COOLING CIRCUIT BASE DIAGRAMS



Components

- | | | |
|--------------------------------|------------------------------------|---|
| 1 Evaporator | 8 High pressure transducer | 15 Condenser water outlet temperature probe |
| 2 Thermostatic expansion valve | 9 High pressure switch | 16 Condenser water inlet temperature probe |
| 3 Solenoid valve | 10 Discharge gas temperature probe | 17 Water inlet temperature sensor |
| 4 Liquid temperature probe | 11 Compressor | 18 Water outlet temperature probe |
| 5 Sight glass | 12 Low pressure transducer | A Water outlet |
| 6 Filter drier | 13 Intake temperature probe | B Water inlet |
| 7 Pressure relief valve | 14 Condenser | |

6 ACCESSORIES

AER485P1: RS-485 interface for supervising systems with MODBUS protocol. 1 accessory is provided for each unit control board.

AERBACP: Ethernet communication interface for Bacnet/IP, Modbus TCP/IP, SNMP 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. 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.

PGD1: Allows you to control the unit at a distance.

VT: Anti-vibration supports.

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.

6.1 FACTORY FITTED ACCESSORIES

RIF: Power factor correction. Connected in parallel to the motor allowing about 10% reduction of input current.

6.2 ACCESSORIES COMPATIBILITY

Accessories

Model	Ver	0300	0330	0350	0550	0600	0700	0800	0900
AER485P1	L	.	.	.	.	.	.	.	.
AERBACP	L	.	.	.	.	.	.	.	.
AERNET	L	.	.	.	.	.	.	.	.
MULTICHILLER-EVO	L	.	.	.	.	.	.	.	.
PGD1	L	.	.	.	.	.	.	.	.

MULTICHILLER_EVO: Contact the factory for compatibility of the accessory with the type of implant envisaged.

Antivibration

Ver	0300	0330	0350	0550	0600	0700	0800	0900
L	VT9	VT9	VT9	VT9	VT15	VT15	VT15	VT15

Power factor correction

Ver	0300	0330	0350	0550	0600	0700	0800	0900
L	RIFWWB0300	RIFWWB0330	RIFWWB0350	RIFWWB0550	RIFWWB0600	RIFWWB0700	RIFWWB0800	RIFWWB0900

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

PR4

Model	Ver	0300	0330	0350	0550	0600	0700	0800	0900
PR4	L	.	.	.	.	.	.	.	.

7 PERFORMANCE SPECIFICATIONS

Size		0300	0330	0350	0550	0600	0700	0800	0900
Heating performances (Water user side 70 °C / 78 °C; Water source side 45 °C / 40 °C) (1)									
Heating capacity	kW	70,3	77,7	93,2	114,6	143,7	181,7	220,5	265,9
Input power	kW	16,6	18,0	21,6	27,7	34,7	44,3	55,4	66,4
Heating total input current	A	28,5	30,0	36,1	46,3	60,6	71,0	88,9	104,3
COP	W/W	4,22	4,31	4,33	4,14	4,14	4,11	3,98	4,00
Water flow rate system side	l/h	7721	8537	10243	12592	15787	19973	24229	29221
Pressure drop system side	kPa	18	22	31	21	33	24	35	24
Water flow rate source side	l/h	9339	10400	12491	15141	18986	23950	28791	34785
Pressure drop source side	kPa	12	15	10	15	8	12	16	23
Heating performances (Water user side 70 °C / 78 °C; Water source side 35 °C / 30 °C) (2)									
Heating capacity	kW	56,7	62,6	75,2	92,4	115,9	146,5	177,8	214,4
Input power	kW	16,3	17,6	21,0	27,0	33,9	43,2	54,0	64,7
Heating total input current	A	28,0	29,4	35,4	45,4	59,5	29,7	87,3	102,4
COP	W/W	3,48	3,56	3,58	3,42	3,42	3,39	3,29	3,31
Water flow rate system side	l/h	6228	6886	8262	10157	12734	16110	19543	23570
Pressure drop system side	kPa	12	14	20	14	22	15	23	16
Water flow rate source side	l/h	7008	7820	9396	11340	14221	17924	21486	25974
Pressure drop source side	kPa	7	9	6	8	4	7	9	13
Heating performances (Water user side 47 °C / 55 °C; Water source side 10 °C / 7 °C) (3)									
Heating capacity	kW	35,6	39,4	47,3	58,1	72,9	92,2	111,8	134,8
Input power	kW	9,8	10,6	12,7	16,3	20,4	26,1	32,6	39,1
Input current	A	16,9	17,8	21,4	27,4	35,9	42,1	52,7	61,8
COP	W/W	3,62	3,71	3,73	3,56	3,57	3,53	3,43	3,45
Water flow rate system side	l/h	3881	4291	5148	6329	7935	10039	12178	14688
Pressure drop system side	kPa	5	6	8	8	8	6	9	6
Water flow rate source side	l/h	7405	8259	9923	11988	15034	18952	22733	27478
Pressure drop source side	kPa	8	10	6	9	5	7	10	15

(1) Date 14511:2022; Water user side 70 °C / 78 °C; Water source side 45 °C / 40 °C

(2) Date 14511:2022; Water user side 70 °C / 78 °C; Water source side 35 °C / 30 °C

(3) Date 14511:2022; Water user side 47 °C / 55 °C; Water source side 10 °C / 7 °C

8 ENERGY INDEX

Size		0300	0330	0350	0550	0600	0700	0800	0900
Performance in average ambient conditions (average) - 55 °C (1)									
Efficiency energy class		A+++	A+++	A+++	-	-	-	-	-
P _{designh}	kW	46,00	51,00	61,00	76,00	95,00	120,00	145,00	175,00
SCOP	W/W	4,60	4,70	4,70	4,58	4,55	4,55	4,43	4,48
η _{sh}	%	176,00	180,00	180,00	175,00	174,00	174,00	169,00	171,00
Water Regulation (2)	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) Efficiencies for average temperature applications (55 °C)

(2) 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.

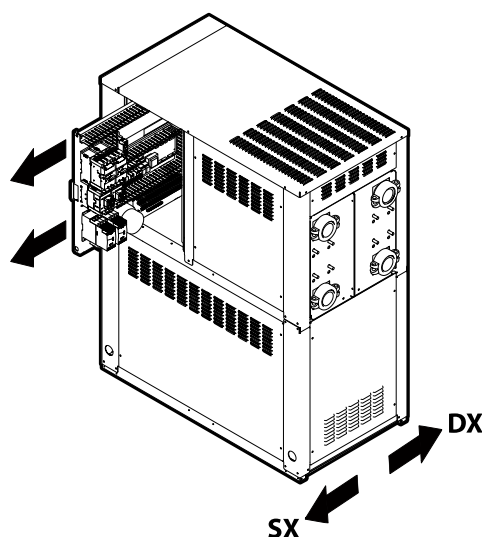
9 GENERAL TECHNICAL DATA

Size		0300	0330	0350	0550	0600	0700	0800	0900
Compressor									
Type	type	Scroll							
Compressor regulation	Type	On-Off							
Number	no.	2	2	2	2	2	2	2	2
Circuits	no.	2	2	2	2	2	2	2	2
Refrigerant	type	R134a							
Refrigerant load circuit 1 (1)	kg	2,8	2,8	3,6	4,4	6,5	7,7	8,0	9,9
Refrigerant load circuit 2 (1)	kg	2,8	2,8	3,5	4,3	6,3	7,5	7,8	9,7
Oil charge circuit 1	kg	2,7	3,4	3,4	3,4	3,4	4,7	6,8	6,3
Oil charge circuit 2	kg	2,7	3,4	3,4	3,4	3,4	4,7	6,8	6,3
Source side heat exchanger									
Type	type	Brazen plate							
Number	no.	1	1	1	1	1	1	1	1
Connections (in/out)	Type	Grooved joints							
Sizes (in/out)	Ø	2"	2"	2"	2"	2"	2" 1/2	2" 1/2	2" 1/2
Minimum water flow rate	l/h	1250	1250	1800	1800	2500	2500	2900	2900
Maximum water flow rate	l/h	60000	60000	60000	60000	60000	60000	60000	60000
System side heat exchanger									
Type	type	Brazen plate							
Number	no.	1	1	1	1	1	1	1	1
Connections (in/out)	Type	Grooved joints							
Sizes (in/out)	Ø	2"	2"	2"	2"	2"	2" 1/2	2" 1/2	2" 1/2
Minimum water flow rate	l/h	850	850	850	1250	1250	1800	1800	2500
Maximum water flow rate	l/h	60000	60000	60000	60000	60000	60000	60000	60000
Sound data calculated in heating mode (2)									
Sound power level	dB(A)	71,8	71,8	71,8	75,1	78,3	79,3	80,4	82,4
Sound pressure level (10 m)	dB(A)	40,2	40,2	40,2	43,5	46,7	47,7	48,9	50,9
Sound pressure level (1 m)	dB(A)	55,7	55,7	55,7	59,0	62,2	63,2	64,3	66,3

(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.

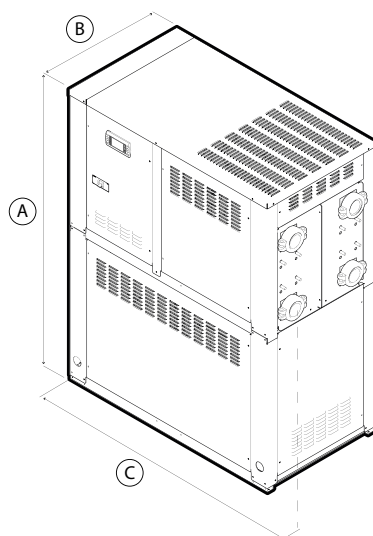
(2) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification. Sound pressure (cold functioning) measured in free field, 10m away from the unit external surface (in compliance with UNI EN ISO 3744).

Removal of electrical panel



Electrical panel version	Configurator option
Sx - LH side	° (Standard)
Dx - RH side	R

9.1 DIMENSIONS AND WEIGHTS



Dimensions and weights

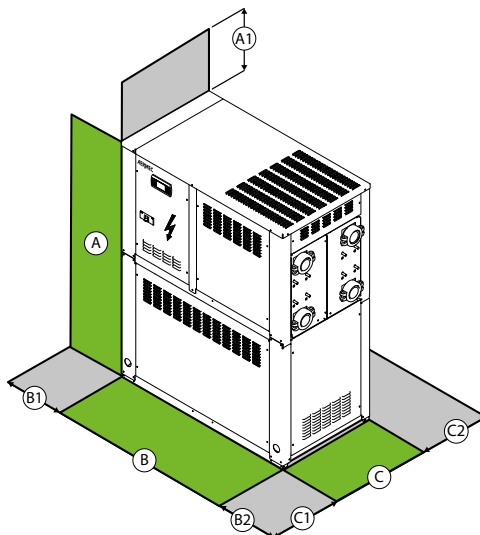
Size		0300	0330	0350	0550	0600	0700	0800	0900
Dimensions and weights									
A	mm	1650	1650	1650	1650	1650	1650	1650	1650
B	mm	710	710	710	710	710	710	710	710
C	mm	1300	1300	1300	1300	1300	1300	1300	1300
Weights									
Weight empty + packaging	kg	420	425	440	455	500	715	760	820
Weight functioning	kg	415	420	440	460	510	730	775	840

9.2 ELECTRIC DATA

Size		0300	0330	0350	0550	0600	0700	0800	0900
POWER SUPPLY: S									
Electric data									
Maximum current (FLA)	A	30,9	32,2	38,2	50,2	64,6	79,8	94,6	113,7
Peak current (LRA)	A	53,4	60,5	66,3	81,1	101,9	129,9	156,1	180,9
Size		0300	0330	0350	0550	0600	0700	0800	0900
POWER SUPPLY: °									
Electric data									
Maximum current (FLA)	A	30,9	32,2	38,2	50,2	64,6	79,8	94,6	113,7
Peak current (LRA)	A	110,4	127,1	137,1	165,1	206,3	264,9	319,3	366,9

10 MINIMUM TECHNICAL SPACES

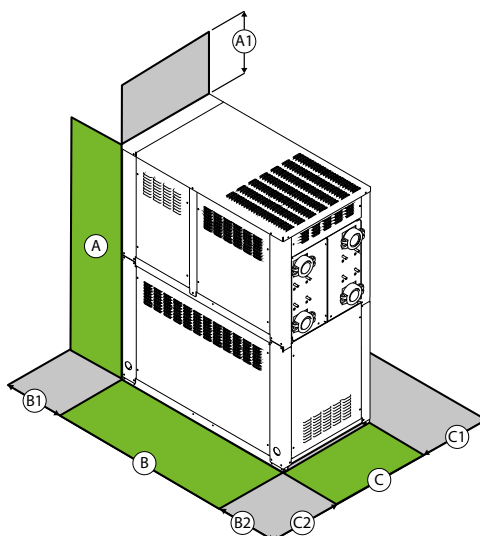
10.1 STANDARD OPENING ELECTRICAL PANEL (LH)



Minimum technical spaces

WWB °		
A1	mm	500
B1	mm	100
B2	mm	1000
C1	mm	800
C2	mm	100

10.2 REVERSE OPENING (RH)



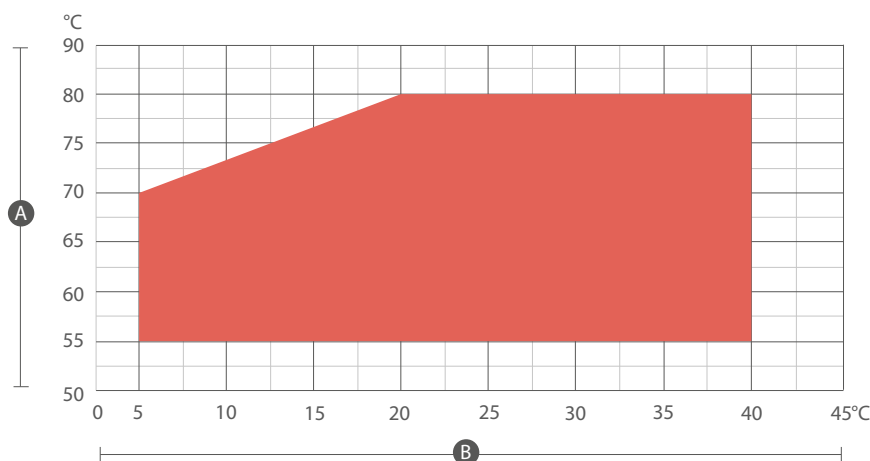
Minimum technical spaces

WWB R		
A1	mm	500
B1	mm	100
B2	mm	800
C1	mm	1000
C2	mm	100

11 OPERATING LIMITS

The units, in standard configuration, are not suitable for installation in aggressive environments. The values indicated here refer to the min. and max. temperature limits of the unit. For further information, refer to the Magellano selection program available on the website Aermec.

The min and max temperature limits are highlighted in the envelope. It is recommended to consider these temperatures when transporting in containers.



A Outlet water temperature - user side (°C)

B Outlet water temperature - source side (°C)



Attention: With produced water temperature at $\leq 4^{\circ}\text{C}$, it is advisable to provide a percentage of glycol inside the hydraulic circuit in order to avoid damaging the unit.

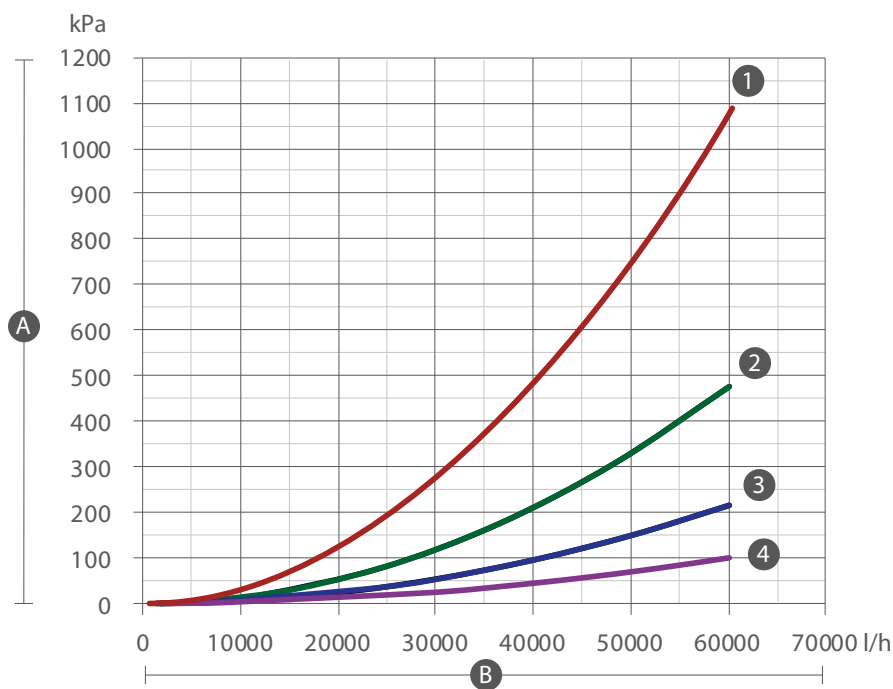
11.1 PROJECT DATA

Heating		High pressure side	Low Pressure side
Maximum allowable pressure	bar	32	20
Maximum allowable temperature	°C	120	52
Minimum allowable temperature	°C	-35	-35
Technical water		Condenser	Evaporator
Maximum allowable pressure	bar	10	10

12 PRESSURE DROPS

The following graphs show the pressure loss values in kPa according to the flow rate in l/h, the operating field is established by the minimum and maximum value shown in the tables.

12.1 SYSTEM SIDE



- A Pressure drop (kPa)**
B Water flow rate (l/h)
1 300-330-350
2 550-600
3 700-800
4 900

Size		0300	0330	0350	0550	0600	0700	0800	0900
System side heat exchanger									
Minimum water flow rate	l/h	850	850	850	1250	1250	1800	1800	2500
Maximum water flow rate	l/h	60000	60000	60000	60000	60000	60000	60000	60000

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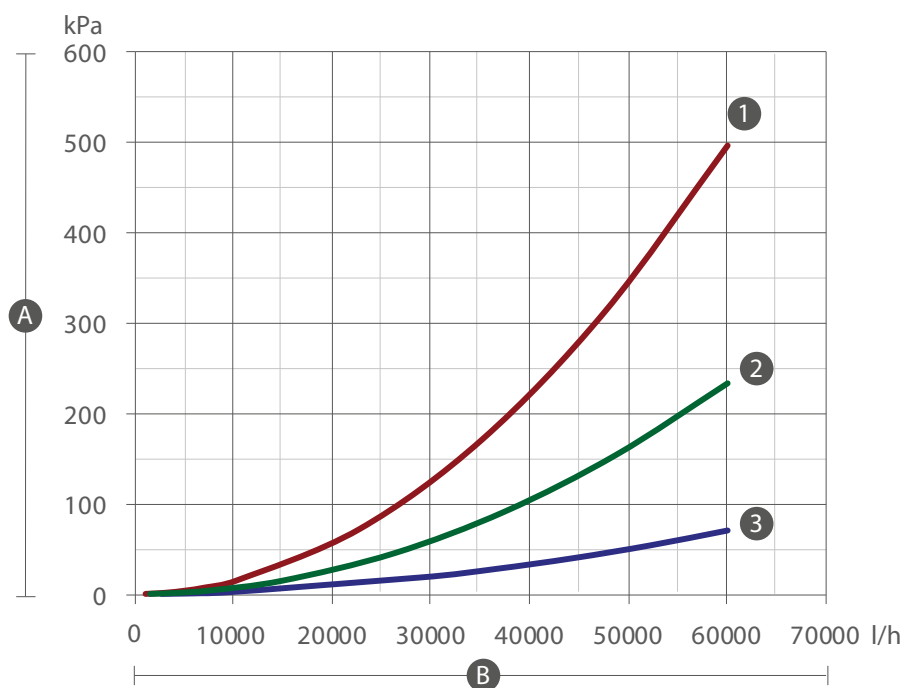
The capacities and pressure drops in the heat exchangers calculated:

Water user side 70 °C / 78 °C; Water source side 45 °C / 40 °C

Water user side 70 °C / 78 °C; Water source side 35 °C / 30 °C

For operating conditions different to those declared refer to the selection program Magellano, available on www.aermec.com

12.2 SOURCE SIDE



A Pressure drop (kPa)

B Water flow rate (l/h)

1 300-330

2 350-550

3 600-700-800-900

Size		0300	0330	0350	0550	0600	0700	0800	0900
Source side heat exchanger									
Minimum water flow rate	l/h	1250	1250	1800	1800	2500	2500	2900	2900
Maximum water flow rate	l/h	60000	60000	60000	60000	60000	60000	60000	60000

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The capacities and pressure drops in the heat exchangers calculated:

Water user side 70 °C / 78 °C; Water source side 45 °C / 40 °C

Water user side 70 °C / 78 °C; Water source side 35 °C / 30 °C

For operating conditions different to those declared refer to the selection program Magellano, available on www.aermec.com

13 SYSTEM WATER CONTENT

13.1 MINIMUM SYSTEM WATER CONTENT

For correct unit operation, there must be a suitable amount of water in the system. A sufficient quantity of water not only ensures machine stability, but also helps avoid a high number of hourly compressor start-ups.

To calculate it, use the formula: Unit rated cooling capacity (kW) x table value (l/kW) = Minimum system content (l).

Size		0300	0330	0350	0550	0600	0700	0800	0900
Minimum system water content									
Minimum water content for air conditioning	l/kW	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4

Note: the water content referred to in the tables corresponds to the amount of water effectively useful for inertial purposes; this value does not necessarily coincide with the entire system water content, and must be calculated on the basis of the system layout and operating modes.

A example is given below, but it does not cover a possible situation.

Example: for a chiller/heat pump equipped with a primary and a secondary circuit, and in which the zone pumps of the secondary circuit could (even occasionally) be turned off, only the water content of the primary circuit has value of useful water content for the counting purposes.

If you are in any doubt, please refer to the relevant technical documentation or contact the AERMEC Technical-Commercial Service.



ATTENTION It is recommended to design systems with high water content (minimum recommended values shown in tab), in order to limit:

- Number of peaks made by the compressors
- The reduction of water temperature during defrosting cycles in the winter period for heat pumps.

14 CORRECTION FACTORS

14.1 CORRECTIVE FACTORS FOR AVERAGE WATER TEMPERATURES DIFFERENT FROM NOMINAL VALUES

The pressure drops are calculated with an average water temperature of 10 °C (Cooling mode), 43 °C (Heating or recovery mode)

System side heat exchanger									
Heating mode or recovery									
3,75									
Average water temperatures	°C	23	28	33	38	43	48	53	58
Correction factor		1,04	1,03	1,02	1,01	1,00	0,99	0,98	0,97

14.2 FOULING: DEPOSIT CORRECTIVE FACTORS $[K \cdot M^2]/[W]$

	0,0	0,00005	0,0001	0,0002
Corrective factor of cooling capacity	1,0	1	0,98	0,94
Corrective factor of input power	1,0	1	0,98	0,95

15 GLYCOL

15.1 ETHYLENE GLYCOL

15.1.1 Cooling mode

CORRECTION FACTOR WITH ETHYLENE GLYCOL - COOLING MODE											
Freezing point	°C	0	-3,63	-6,10	-8,93	-12,11	-15,74	-19,94	-24,79	-30,44	-37,10
Percent ethylene glycol	%	0	10	15	20	25	30	35	40	45	50
Qwc	–	1,000	1,033	1,040	1,049	1,060	1,072	1,086	1,102	1,120	1,141
Pc	–	1,000	0,990	0,985	0,980	0,975	0,970	0,965	0,960	0,955	0,950
Pa	–	1,000	0,996	0,994	0,992	0,990	0,988	0,986	0,984	0,982	0,980
Δp	–	1,000	1,109	1,157	1,209	1,268	1,336	1,414	1,505	1,609	1,728

15.1.2 Heating mode range

CORRECTION FACTOR WITH ETHYLENE GLYCOL - HEATING MODE											
Freezing Point	°C	0	-3,63	-6,10	-8,93	-12,11	-15,74	-19,94	-24,79	-30,44	-37,10
Percent ethylene glycol	%	0	10	15	20	25	30	35	40	45	50
Qwh	–	1,000	1,027	1,038	1,050	1,063	1,078	1,095	1,114	1,135	1,158
Ph	–	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Pa	–	1,000	1,002	1,003	1,004	1,005	1,007	1,008	1,010	1,012	1,015
Δp	–	1,000	1,087	1,128	1,175	1,227	1,286	1,353	1,428	1,514	1,610

Qwc Corrective factor of flow rates (middle water temperatur 9,5°C)
 Qwh Corrective factor of flow rates (middle water temperatur 42,5°C)
 Pc Corrective factor of cooling Capacity
 Ph Corrective factor of heating Capacity
 Pa Correction factor input Power
 ΔP Correction factor Pressure drop

15.2 PROPYLENE GLYCOL

15.2.1 Cooling mode

CORRECTION FACTOR WITH PROPYLENE GLYCOL - COOLING MODE											
Freezing Point	°C	0	-3,43	-5,30	-7,44	-9,98	-13,08	-16,86	-21,47	-27,04	-33,72
Percent propylene glycol	%	0	10	15	20	25	30	35	40	45	50
Qwc	–	1,000	1,007	1,006	1,007	1,010	1,015	1,022	1,032	1,044	1,058
Pc	–	1,000	0,985	0,978	0,970	0,963	0,955	0,947	0,939	0,932	0,924
Pa	–	1,000	0,996	0,994	0,992	0,990	0,988	0,986	0,984	0,982	0,980
Δp	–	1,000	1,082	1,102	1,143	1,201	1,271	1,351	1,435	1,520	1,602

15.2.2 Heating mode range

CORRECTION FACTOR WITH PROPYLENE GLYCOL - HEATING MODE											
Freezing Point	°C	0	-3,43	-5,30	-7,44	-9,98	-13,08	-16,86	-21,47	-27,04	-33,72
Percent propylene glycol	%	0	10	15	20	25	30	35	40	45	50
Qwh	–	1,000	1,008	1,014	1,021	1,030	1,042	1,055	1,071	1,090	1,112
Ph	–	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Pa	–	1,000	1,003	1,004	1,005	1,007	1,009	1,011	1,014	1,018	1,023
Δp	–	1,000	1,050	1,077	1,111	1,153	1,202	1,258	1,321	1,390	1,467

16 SOUND DATA

Size		0300	0330	0350	0550	0600	0700	0800	0900
Sound data calculated in heating mode (1)									
Sound power level	dB(A)	71,8	71,8	71,8	75,1	78,3	79,3	80,4	82,4
Sound pressure level (10 m)	dB(A)	40,2	40,2	40,2	43,5	46,7	47,7	48,9	50,9
Sound pressure level (1 m)	dB(A)	55,7	55,7	55,7	59,0	62,2	63,2	64,3	66,3
Sound power by centre octave band dB(A)									
125 Hz	dB(A)	49,1	49,1	49,1	52,4	55,6	56,6	57,8	59,8
250 Hz	dB(A)	69,4	69,4	69,4	72,7	75,9	76,9	78,1	80,1
500 Hz	dB(A)	65,6	65,6	65,6	68,9	72,1	73,1	74,2	76,2
1000 Hz	dB(A)	61,5	61,5	61,5	64,8	68,0	69,0	70,2	72,2
2000 Hz	dB(A)	60,0	60,0	60,0	63,3	66,5	67,5	68,7	70,7
4000 Hz	dB(A)	52,4	52,4	52,4	55,7	58,9	59,9	61,0	63,0
8000 Hz	dB(A)	36,8	36,8	36,8	40,1	43,3	44,3	45,5	47,5

(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).

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DHW side water 70 °C / 78 °C; Source side water 45 °C / 40 °C

DHW side water 70 °C / 78 °C; Source side water 35 °C / 30 °C

Note

For operating conditions different to those declared refer to the selection program Magellano, available on www.aermec.com



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