

WFN

Technical manual



■ WATER COOLED HEAT PUMP REVERSIBLE WATER SIDE

Cooling capacity 652.3 ÷ 2349.3 kW

Heating capacity 726.4 ÷ 2610.0 kW

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 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.

EC DECLARATION OF CONFORMITY



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WFN

MODEL	_____
SERIAL NUMBER	_____
DATE	_____

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

Name: WFN

Type: Water cooled heat pump reversible water side

Models: WFN_2007_CO

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 378-2: 2017

UNI EN ISO 12100: 2010

CEI EN 61000-6-4: 2007

CEI EN 61000-6-2: 2006

UNI EN 12735-1: 2016

CEI EN 60204-1: 2018

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.

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 H1) with certificate no. 09/021-QT6704 Rev.7 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 2014/64/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 preloaded equipment was placed on the European market by Aermec S.p.A. (which imports or manufactures in the Union), the hydro-fluorocarbons contained therein are considered in the unit system of the Union referred to in Chapter IV of EU Regulation 517/2014 as they were placed on the market by a manufacturer or importer of hydrofluorocarbons to which Article 15 of EU Regulation 517/2014 applies.

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

Bevilacqua (VR),

Marketing manager
Luigi Zucchi

A handwritten signature in black ink, appearing to read 'Luigi Zucchi'.

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1 PRODUCT DESCRIPTION

The heat pump for interiors, WFN from the new series, hydraulic side reversible, was designed to conjugate high efficiency levels and minimal encumbrance. Thanks to the 12 available sizes, it allows to cover a power interval from 652 kW to 2610 kW, satisfying typical air-conditioning needs in residential, commercial complexes or for the refrigeration of industrial processes.

FIELDS OF THE RANGE

All the sizes of the series WFN are made up by a bracket structure, with galvanised steel bearing elements with RAL 9003 polyester paint. The accurate selection and assembly of the components provides a compact design, offering a greater ease of installation in new and pre-existing systems. According to their size, the units are available with 2 or 3 cooling circuits, studied to provide the maximum yield in nominal and partial load conditions, also guaranteeing the redundancy and continuity of operation in case of a circuit stop. All units are equipped with screw compressor, with minimum adjustment step equal to 25% and shell and tube exchangers both on the user and source side, characterised by pressure drops and copper pipes configuration, internally striped, to obtain greater efficiency levels and heat exchange. According to the optimised and careful component selection, all the units in the series WFN are compliant with the efficiency limits established by the most recent and up to date directives of the Ecodesign Directive Erp Directive 2009/125/CE. Furthermore, the high-efficiency version (A) is available in place of the standard version (available only for sizes 6703 to 9603), in order to obtain greater performance values at nominal conditions and partial loads, for all sizes.

THERMOSTATIC EXPANSION VALVE

The series WFN presents a wide operating array, in function of the optional thermostatic valve from the configurator. For both configurations, the selection of the electronic thermostatic valve allows to follow the load with quick response times, especially at partial loads.

Electronic thermostatic expansion valve (X)

The standard component from the configurator allows to work with produced water, DHW side cooling mode, from 0 °C to + 16 °C.

Double electronic thermostatic for low temperature (Z)

Optionable from configurator, with produced water values from -8.0 °C to +10.0 °C, making the unit coherent for industrial and process applications.

ACOUSTIC ISOLATION

Different configurations can be selected according to the acoustic isolation necessities dictated by the place of installation and the type of destination, to be configured. Before showing them, observe how all interventions take place on the compressor compartment, which is the main source of noise:

Standard without hood (°)

The compressors are assembled on rubber anti-vibration mounts.

Silenced acoustic hood equipment (L)

The compressors are mounted on plastic rubber anti-vibration mounts inside a soundproofing hood, reduce the sound power level by around 7db(A).

Extra-silenced acoustic hood equipment (K)

Similar to the silenced version (L), where the hood is characterised by highly absorbing material, with a reduction of sound power around 10 db(A).

HEAT RECOVERY

Both cold and hot water may be required in most process application, as well as in many tertiary solutions.

The following are the typical application cases:

- Simultaneous production of cold water for system terminals and domestic hot water request;
- Cold water production for hot water production and air treatment plant main coil for post heating coil;
- Process machinery cooling and simultaneous fluid pre-heating in service of other industrial processes.

Therefore, a machine with heat recovery system can be selected for this application; the different options are available from the configurator:

Without heat recovery (°)

With desuperheater (D)

This option entails a partial recovery of the condensation heat.

With total recovery (T)

This option entails the recovery of all the heat otherwise transferred/dissipated to the condenser.

Both configurations (D) and (T) are characterised by a larger refrigerating-water shell and tube heat exchanger, which is added to the shell and tube heat exchanger which acts as a condenser, creating a double water circuit.

For more information, refer to the reference hydraulic diagram.

CONDENSERLESS UNIT

If coupling WFN with a remote condenser is envisioned, the unit can be configured as condenserless (E).

All the sizes of the series WFN are available in the standard version, with R134A refrigerating gas or alternatively, with refrigerating fluid R513A (XP10), characterised by a GWP reduction and lower environmental impact.

The R513A (XP10) fluid is A1 class, therefore non toxic and non flammable, allows to obtain refrigerating powers equivalent to those obtainable with R134A refrigerant and equivalent operating pressure values, furthermore, it does not require any special technical modification from a components viewpoint.

CONTROL PCO₅

Microprocessor adjustment, with keyboard and LCD display, for easy access on the unit is 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.

2 CONFIGURATOR

Field	Description
1,2,3	WFN
4,5,6,7	Size 2502, 2802, 3202, 3602, 4202, 4802, 5602, 6402, 6703, 7203, 8403, 9603
8	Model ° Heat pump reversible on the water side
9	Version ° Standard (1) A High efficiency
10	Operating field X Electronic thermostatic expansion valve (2) Z Double electronic thermostatic for low temperature (3)
11	Set-up ° Standard K Super silenced L Silenced with hood
12	Heat recovery (4) ° Without heat recovery D With desuperheater T With total recovery
13	Evaporator ° Standard E Evaporating unit
14	Power supply (5) ° 400V/3/50Hz with fuses on compressors and magnet circuit breakers on auxiliary circuit 2 230V/3/50Hz with fuses on compressors and magnet circuit breakers on auxiliary circuit 4 230V/3/50Hz with magnet circuit breakers on compressors and auxiliary circuit 5 500V/3/50Hz with fuses on compressors and magnet circuit breakers on auxiliary circuit 8 400V/3/50Hz with magnet circuit breakers on compressors and auxiliary circuit 9 500V/3/50Hz with magnet circuit breakers on compressors and auxiliary circuit
15	Refrigerant gas ° R134a G R513A (XP10)

(1) Only for sizes from 6703 to 9603

(2) Water produced from 0 °C ÷ 16 °C

(3) Water produced from -8 °C up to 10 °C

(4) Not available for the condenserless "E"

(5) The 230V and 500V power supplies are only available for sizes 2502 - 2802

3 UNIT COMPONENTS DESCRIPTION

REFRIGERANT CIRCUIT

Compressors

Compressor with semi-hermetic screw with two rotors.

Oil flow induced by the pressure difference, therefore avoiding the aid of the dedicated pump, studied especially to guarantee a constant and uniform lubrication of the bearings in any compressor work state, both in full and partial load.

Oil separator incorporated with the use of a steel mesh filter that ensures constant presence of oil in the compressor.

Partialisation of the cooling capacity via slide valve which, depending on the position assumed, determines a stepless reduction of the compression chamber, can modulate continuously from 100% to 25% of its capacity.

Each compressor has

- Circuit breaker protection (Fuses) of the motor;
- Discharge temperature and oil level check;
- Electric resistance for heating the sump with compressor at a standstill.

The resistance is powered automatically when the unit stops, as long as it is live.

System side heat exchanger

Exchanger, with evaporator function, dry expansion shell and tube type, with pipes side refrigerant passage and case side water passage.

Case side with baffles to increase the turbulence and therefore the efficiency of the heat exchange.

Steel housing with closed cell foam elastomer anti-condensation cladding.

The shell and tube is realised with copper pipes grooved internally to favour heat exchange.

Threaded fittings supplied as standard.

The heat exchanger is manufactured according to the PED Standard working pressures and resistance to stress. Is supplied with the differential pressure switch.

Source side heat exchanger

Condenser, flooded type shell and tube, with pipes side water passage and case side refrigerant.

Steel case and shell and tube realised with internally and externally grooved copper pipes in order to favour heat exchange.

For units operating in heat pump mode (hydraulic side reversible) the isolation has to be provided for the heat exchanger with (ISG ACCESSORY) closed cell expanded elastomer covering with thickness of 10 mm and heat conductivity equal to 0.033 W/mK a 0°C.

Removable heads so that the tubes can be inspected and cleaned.

The heat exchanger is manufactured respecting the PED Standard respectively working pressures and resistance to stress.

Grooved joints water side connections (with stub pipe supplied for the connection).

Dehydrator filter, with replaceable cartridges

Mechanical with cartridge made of ceramics and hygroscopic material, able to withhold impurities and any traces of humidity present in the cooling circuit.

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.

Liquid separator

(Only for E versions)

Positioned on compressor intake for protection against any return of refrigerant fluid, flooded-start-up and functioning in the presence of liquids.

Liquid sight glass with moisture indicator

Used to check the refrigerant gas load and the possible presence of humidity in the cooling circuit.

One-way valve

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

Isolation valves

On the liquid and pressing line, to isolate the refrigerant if requested in the event of extraordinary maintenance.

Safety valves for cooling circuit

On the low pressure branch the pressure relief valve is fitted with an exchange tap.

This device enables to simultaneously use one pressure relief valve and to exclude the other, providing the option to check or replace a valve while maintaining full system operation.

The pressure relief valve is calibrated at 16 bar.

In high pressure the pressure relief valve is fitted with a leaded cut-off tap.

The tap allows the valve to be disassembled for replacement or inspection without having to drain the cooling circuit.

The tap is supplied with the ball in open position and this position is guaranteed by the sealing.

Any intervention to close the tap involves tampering with the seal and must only be carried out by qualified personnel (whoever works on the system is then responsible for returning the tap to the open position and restoring the sealing).

The pressure relief valve is calibrated at 22 bar.

HYDRAULIC CIRCUIT

Water filter (not supplied)

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

Installation is mandatory, contrarily guarantee becomes void.

Differential pressure switch

Checks that water is circulating in the heat exchanger, and stops the unit if this is not the case.

Supplied in series only on the DHW side exchanger.

Air drain valve

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

Water characteristics

System: Chiller with shell and tube exchanger	
PH	6,8 - 8
Electric conductivity	< 800 µS/cm
Total hardness (CaCO ₃)	< 200 ppm
Total dissolved solids	< 15.000 ppm
Max. solid particles dimension	0,5 mm
Max. glycol amount	50%
Iron (Fe)	< 1 ppm
Copper (Cu)	< 1 ppm
Alkalinity (CaCO ₃)	< 100 ppm
Chloride ions (Cl ⁻)	< 150 ppm
Sulphate ions (SO ₄ ²⁻)	< 100 ppm
Sulphide ions (S ⁻)	None
Ammonium ions (NH ₄ ⁺)	< 1 ppm
Silica (SiO ₂)	< 50 ppm
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 N25 mesh (French numbering), mesh size 0.87 mm.

CONTROL AND SAFETY COMPONENTS

Double high pressure switch

Calibrated in the factory, placed on the high pressure side of the cooling circuit, it inhibits the functioning of the compressor if abnormal work pressure occurs.

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.

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.

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.

Door interlocked isolator

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

Electronic controller

The electronic adjustment on WFN 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).

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.

STRUCTURE

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.

Standard structure without hood (°)

The compressors are assembled on rubber anti-vibration mounts.

Silenced acoustic hood equipment (L)

The compressors are mounted on plastic rubber anti-vibration mounts inside a soundproofing hood, reduce the sound power level by around 7db(A).

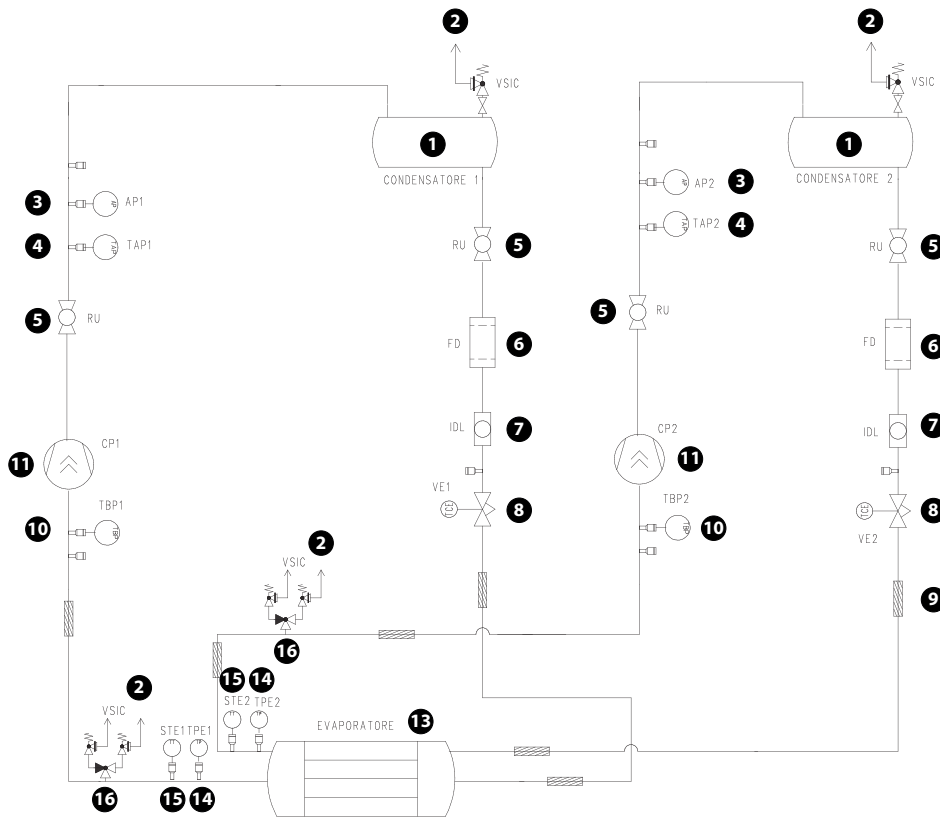
Extra-silenced acoustic hood equipment (K)

Similar to the silenced version (L), where the hood is characterised by highly absorbing material, with a reduction of sound power around 10 db(A).

4 COOLING CIRCUIT BASE DIAGRAMS

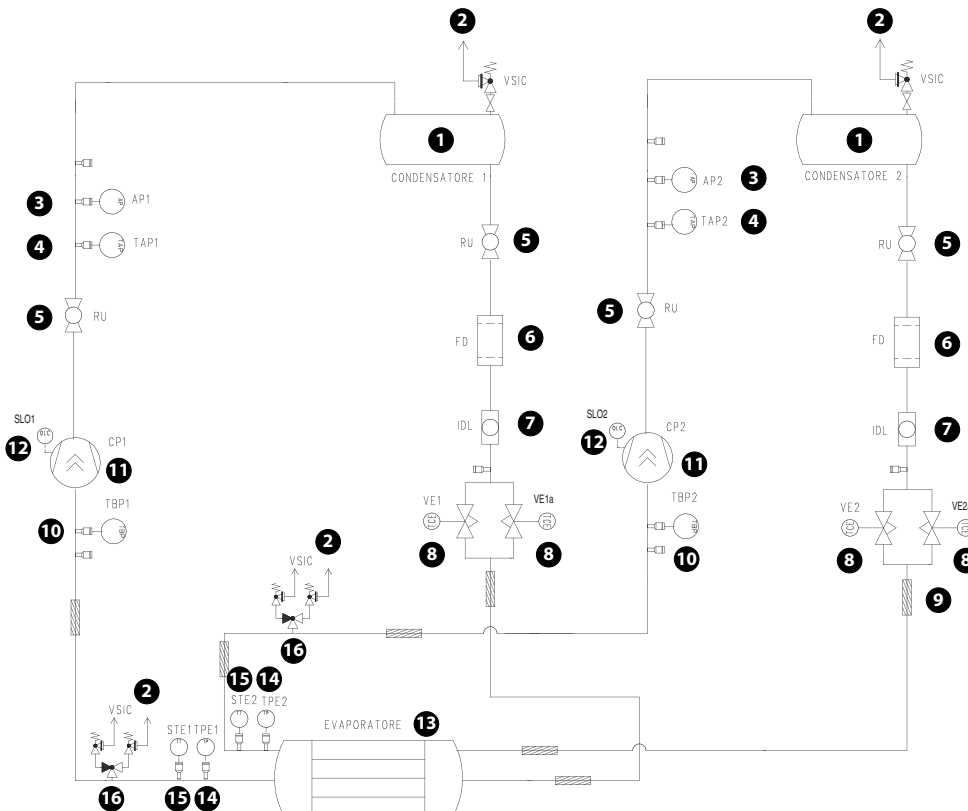
MODEL: HEAT PUMP REVERSIBLE ON THE WATER SIDE (°)

Model: Heat pump reversible on the water side (°) High efficiency (A) Electronic thermostatic expansion valve (X)



- 1 Shell and tube condenser
- 2 Pressure relief valve
- 3 High pressure switch
- 4 High pressure transducer
- 5 Shut-off tap
- 6 Filter drier
- 7 Sight glass
- 8 Electronic expansion valve
- 9 Insulated pipe
- 10 Low pressure transducer
- 11 Screw compressor
- 12 Oil level sensor (not present)
- 13 Shell and tube evaporator
- 14 Electronic expansion valve pressure transducer
- 15 Electronic expansion valve temperature probe
- 16 Changeover valve
- 17 Liquid separator (not present)
- 18 Solenoid valve (not present)

Model: Heat pump reversible on the water side (°) High efficiency (A) Double electronic thermostatic for low temperature (Z)

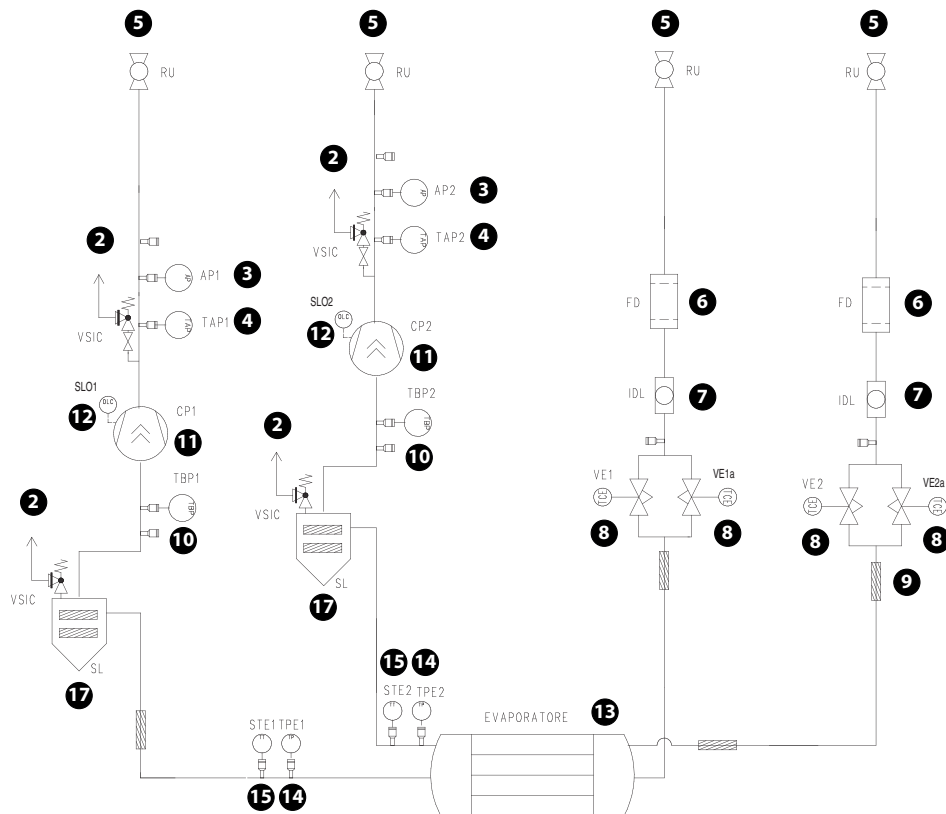


- 1 Shell and tube condenser
- 2 Pressure relief valve
- 3 High pressure switch
- 4 High pressure transducer
- 5 Shut-off tap
- 6 Filter drier
- 7 Sight glass
- 8 Electronic expansion valve
- 9 Insulated pipe
- 10 Low pressure transducer
- 11 Screw compressor
- 12 Oil level sensor
- 13 Shell and tube evaporator
- 14 Electronic expansion valve pressure transducer
- 15 Electronic expansion valve temperature probe
- 16 Changeover valve
- 17 Liquid separator (not present)
- 18 Solenoid valve (not present)

MODEL: EVAPORATING UNIT (E)

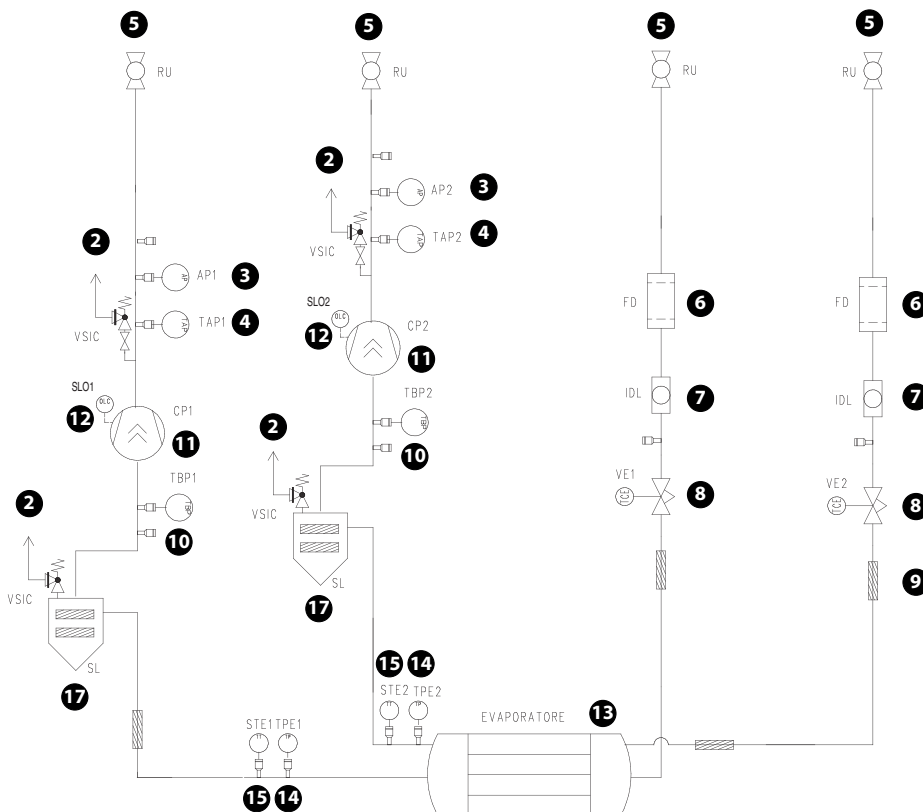
! ATTENTION: Motoevaporating units are delivered with safety charge only.

Modello (Model): High-efficiency (A) Motorcondenser (E) with Double electronic thermostatic valve for low temperatures (Z)



- 1 Shell and tube condenser (not present)
- 2 Pressure relief valve
- 3 High pressure switch
- 4 High pressure transducer
- 5 Shut-off tap
- 6 Filter drier
- 7 Sight glass
- 8 Electronic expansion valve
- 9 Insulated pipe
- 10 Low pressure transducer
- 11 Screw compressor
- 12 Oil level sensor
- 13 Shell and tube evaporator
- 14 Electronic expansion valve pressure transducer
- 15 Electronic expansion valve temperature probe
- 16 Changeover valve (not present)
- 17 Liquid separator
- 18 Solenoid valve (not present)

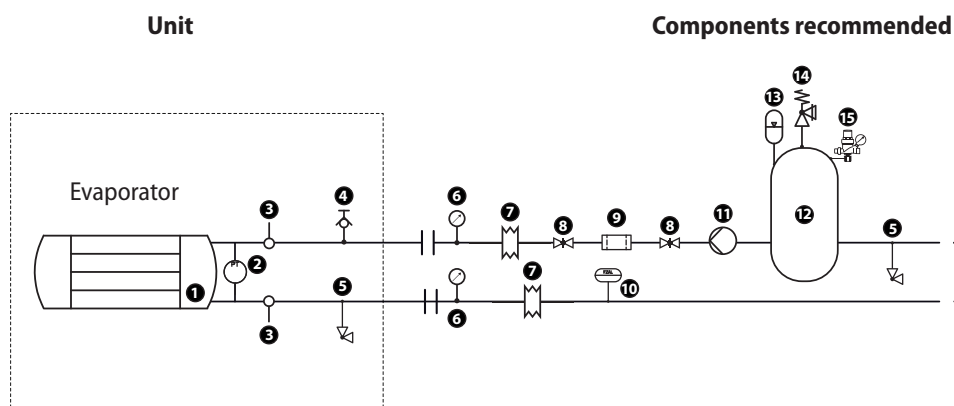
Modello (Model): High-efficiency (A) Motorcondenser (E) with Electronic thermostatic valve (X)



- 1 Shell and tube condenser (not present)
- 2 Pressure relief valve
- 3 High pressure switch
- 4 High pressure transducer
- 5 Shut-off tap
- 6 Filter drier
- 7 Sight glass
- 8 Electronic expansion valve
- 9 Insulated pipe
- 10 Low pressure transducer
- 11 Screw compressor
- 12 Oil level sensor
- 13 Shell and tube evaporator
- 14 Electronic expansion valve pressure transducer
- 15 Electronic expansion valve temperature probe
- 16 Changeover valve (not present)
- 17 Liquid separator
- 18 Solenoid valve (not present)

5 MAIN HYDRAULIC CIRCUITS

EVAPORATOR



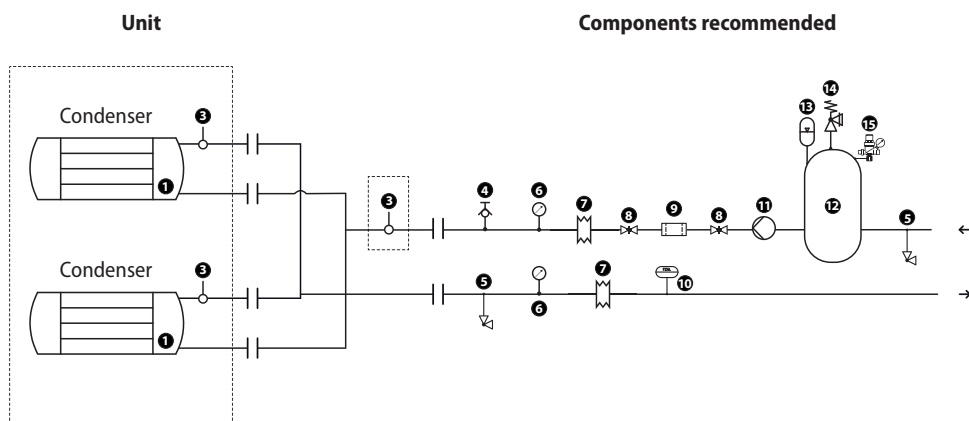
EVAPORATOR COMPONENTS AS STANDARD

- 1 Shell and tube heat exchanger
- 2 Differential pressure switch
- 3 Water temperature sensor
- 4 Air drain valve
- 5 Drain valve

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

- 6 Pressure gauge
- 7 Anti-vibration joints
- 8 Shut-off valve
- 9 Water filter not supplied. **Installation in the immediate vicinity of the heat exchanger is mandatory, penalty waiver of warranty**
- 10 Flow switch not provided. **Installation compulsory for the warranty to be valid**
- 11 Pump
- 12 Storage tank
- 13 Expansion vessel
- 14 Pressure relief valve
- 15 Loading unit

CONDENSER



CONDENSER COMPONENTS AS STANDARD

- 1 Shell and tube heat exchanger
- 2 Differential pressure switch (not supplied)
- 3 Water temperature sensor

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

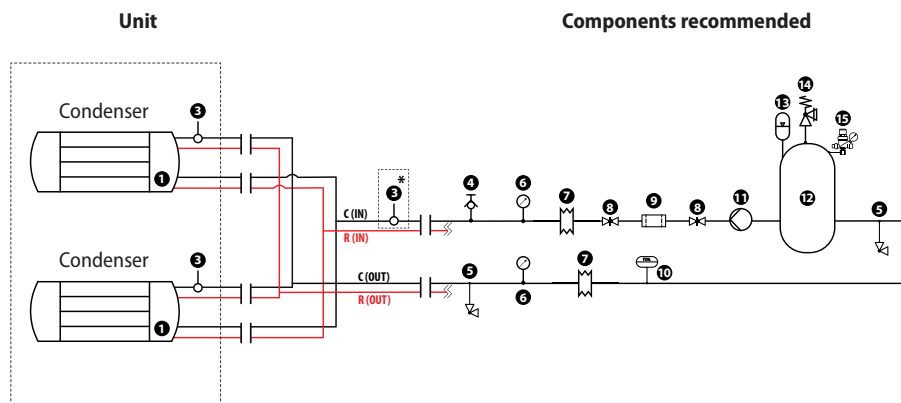
- 4 Air drain valve
- 5 Drain valve
- 6 Pressure gauge
- 7 Anti-vibration joints
- 8 Shut-off valve
- 9 Water filter not supplied. **Installation in the immediate vicinity of the heat exchanger is mandatory, penalty waiver of warranty**
- 10 Flow switch not provided. **Installation compulsory for the warranty to be valid**
- 11 Pump
- 12 Storage tank
- 13 Expansion vessel
- 14 Pressure relief valve
- 15 Loading unit

* Water temperature probe supplied as standard.

Note: Joint between exchangers not supplied, charged to the installer.

⚠ 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.

CONDENSER WITH PARTIAL OR TOTAL RECOVERY



CONDENSER COMPONENTS AS STANDARD

- 1 Shell and tube heat exchanger
- 2 Differential pressure switch (not supplied)
- 3 Water temperature sensor

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

- 4 Air drain valve
- 5 Drain valve
- 6 Pressure gauge
- 7 Anti-vibration joints
- 8 Shut-off valve
- 9 Water filter not supplied. **Installation in the immediate vicinity of the heat exchanger is mandatory, penalty waiver of warranty**
- 10 Flow switch not provided. **Installation compulsory for the warranty to be valid**
- 11 Pump
- 12 Storage tank
- 13 Expansion vessel
- 14 Pressure relief valve
- 15 Loading unit

* Water temperature probe supplied as standard.

Note: Joint between exchangers not supplied, charged to the installer.

C(IN)	Condenser (IN)
C(OUT)	Condenser (OUT)
R(IN)	Total recovery (IN)
R(OUT)	Total recovery (OUT)

System: Chiller with shell and tube exchanger	
PH	6,8 - 8
Electric conductivity	< 800 µS/cm
Total hardness (CaCO ₃)	< 200 ppm
Total dissolved solids	< 15.000 ppm
Max. solid particles dimension	0,5 mm
Max. glycol amount	50%
Iron (Fe)	< 1 ppm
Copper (Cu)	< 1 ppm
Alkalinity (CaCO ₃)	< 100 ppm
Chloride ions (Cl ⁻)	< 150 ppm
Sulphate ions (SO ₄ ²⁻)	< 100 ppm
Sulphide ions (S ⁻)	None
Ammonium ions (NH ₄ ⁺)	< 1 ppm
Silica (SiO ₂)	< 50 ppm
Silica (SiO ₂)	< 30 ppm

⚠ 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.

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			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
Minimum system water content														
Minimum water content for air conditioning	°	l/kW	-	-	-	-	-	-	-	-	3,0	3,0	3,0	3,0
	A	l/kW	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	3,0	3,0	3,0	3,0
Minimum water content for processes	°	l/kW	-	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0
	A	l/kW	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	6,0	6,0	6,0	6,0

6 ACCESSORIES

AER485P1 x n° 2: RS-485 interface for supervision systems with MODBUS protocol.
AER485P1 x n° 3: RS-485 interface for supervision systems with MODBUS protocol.
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 unit); 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.
MULTICHILLER_EVO: Control, switch-on and switch-off system of the single chillers where multiple units are installed in parallel, always ensuring constant flow rate to the evaporators.
PRV3: Allows you to control the chiller at a distance.
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.
ISG: Insulation kit for condensers. Mandatory accessory for machine functioning in heat pump; standard in units with desuperheater or with heat recovery.

ACCESSORIES COMPATIBILITY

Accessories

Model	Ver	2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
AER485P1 x n° 2 (1)	A	*	*	*	*	*	*	*	*				
AER485P1 x n° 3 (1)	°A									*	*	*	*
	°									*	*	*	*
AERNET	A	*	*	*	*	*	*	*	*	*	*	*	*
	°									*	*	*	*
MULTICHILLER_EVO	A	*	*	*	*	*	*	*	*	*	*	*	*
	°									*	*	*	*
PRV3	A	*	*	*	*	*	*	*	*	*	*	*	*

(1) x Indicates the quantity of accessories to match.

Antivibration

Version	Set-up	Heat recovery	2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
°	°K,L	°D,T	-	-	-	-	-	-	-	-	Contact us.	Contact us.	Contact us.	Contact us.
A	°	°	AVX673	AVX674	AVX679	AVX679	AVX678	AVX678	AVX678	AVX678	Contact us.	Contact us.	Contact us.	Contact us.
A	°	D	AVX674	AVX674	AVX679	AVX679	AVX678	AVX678	AVX678	AVX678	Contact us.	Contact us.	Contact us.	Contact us.
A	°	T	AVX674	AVX674	AVX678	AVX678	AVX678	AVX678	AVX678	AVX678	Contact us.	Contact us.	Contact us.	Contact us.
A	L	°D	AVX674	AVX674	AVX678	AVX678	AVX678	AVX678	AVX678	AVX678	Contact us.	Contact us.	Contact us.	Contact us.
A	K	°D,T	Contact us.	Contact us.	Contact us.	Contact us.	Contact us.	Contact us.	Contact us.	Contact us.	Contact us.	Contact us.	Contact us.	Contact us.
A	L	T	AVX674	AVX674	AVX678	AVX678	AVX678	AVX676	AVX676	AVX676	Contact us.	Contact us.	Contact us.	Contact us.

Power factor correction

Ver	2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
°	-	-	-	-	-	-	-	-	RIFWFN6703	RIFWFN7203	RIFWFN8403	RIFWFN9603
A	RIFWFN2502	RIFWFN2802	RIFWFN3202	RIFWFN3602	RIFWFN4202	RIFWFN4802	RIFWFN5602	RIFWFN6402	RIFWFN6703	RIFWFN7203	RIFWFN8403	RIFWFN9603

The accessory cannot be fitted on the configurations indicated with -
A grey background indicates the accessory must be assembled in the factory
For the size of the units with the RIF accessory we ask you to contact the headquarters.

Isolating kit

Ver	2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
°	-	-	-	-	-	-	-	-	ISG5	ISG5	ISG6	ISG6
A	ISG1	ISG1	ISG2	ISG2	ISG2	ISG3	ISG3	ISG3	ISG7	ISG8	ISG8	ISG8

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

7 PERFORMANCE SPECIFICATIONS - R134A

VERSION A

WFN - version A - gas R134a

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °													
Cooling performance 12 °C / 7 °C (1)													
Cooling capacity	kW	652,3	746,8	905,7	1024,5	1164,3	1325,5	1446,9	1589,7	1721,1	1960,7	2149,5	2349,3
Input power	kW	121,4	137,8	167,7	189,5	213,7	242,9	270,4	296,6	317,6	359,9	406,3	445,4
Cooling total input current	A	208,0	239,0	275,0	310,0	341,0	401,0	447,0	493,0	509,0	598,0	667,0	739,0
EER	W/W	5,37	5,42	5,40	5,41	5,45	5,46	5,35	5,36	5,42	5,45	5,29	5,28
Water flow rate system side	l/h	112179	128411	155723	176117	200144	227870	248717	273259	295856	337027	369472	403784
Pressure drop system side	kPa	51,0	41,0	38,0	29,0	33,0	45,0	32,0	38,0	43,0	55,0	51,0	30,0
Water flow rate source side	l/h	132175	151199	183520	207646	235653	268115	293728	322600	348857	396964	437212	478412
Pressure drop source side	kPa	49	50	49	49	50	49	48	46	34	32	32	36
Heating performance 40 °C / 45 °C (2)													
Heating capacity	kW	726,4	828,1	1001,4	1138,6	1283,2	1459,8	1589,2	1809,3	1911,8	2159,8	2376,5	2610,0
Input power	kW	154,8	174,8	209,3	234,9	264,8	302,9	332,5	371,1	396,0	450,7	504,3	547,7
Heating total input current	A	260,0	298,0	339,0	381,0	418,0	492,0	545,0	606,0	624,0	733,0	812,0	900,0
COP	W/W	4,69	4,74	4,78	4,85	4,85	4,82	4,78	4,88	4,83	4,79	4,71	4,77
Water flow rate system side	l/h	126142	143812	173923	197757	222889	253571	276062	314312	332129	375231	412895	453465
Pressure drop system side	kPa	45,0	45,0	44,0	45,0	45,0	44,0	43,0	44,0	31,0	28,0	28,0	32,0
Water flow rate source side	l/h	168271	191878	232387	264585	298364	339696	368017	421779	444410	502013	549582	603144
Pressure drop source side	kPa	114	92	85	65	73	101	70	91	97	122	112	66

(1) Date 14511:2018; Water user side 12 °C / 7 °C; Water source side 30 °C / 35 °C
(2) Date 14511:2018; Water user side 40 °C / 45 °C; Water source side 10 °C / 7 °C

VERSION °

WFN - version ° - gas R134a

Size							6703		7203			8403		9603
REFRIGERANT GAS: °														
Cooling performance 12 °C / 7 °C (1)														
Cooling capacity		kW					1691,1		1925,6			2120,1		2310,0
Input power		kW					322,4		364,9			407,2		452,6
Cooling total input current		A					505,0		594,0			660,0		733,0
EER		W/W					5,00		5,00			5,00		5,00
Water flow rate system side		l/h					290696		330989			364406		397041
Pressure drop system side		kPa					46,0		52,0			39,0		46,0
Water flow rate source side		l/h					343740		390980			431894		471655
Pressure drop source side		kPa					70		70			58		69
Heating performance 40 °C / 45 °C (2)														
Heating capacity		kW					1885,5		2129,2			2348,8		2575,2
Input power		kW					401,0		454,4			501,6		558,6
Heating total input current		A					619,0		728,0			803,0		893,0
COP		W/W					5,00		5,00			5,00		5,00
Water flow rate system side		l/h					327527		369895			408061		447398
Pressure drop system side		kPa					64,0		63,0			52,0		62,0
Water flow rate source side		l/h					436659		493020			542047		593071
Pressure drop source side		kPa					105		115			86		103

(1) Date 14511:2018; Water user side 12 °C / 7 °C; Water source side 30 °C / 35 °C
(2) Date 14511:2018; Water user side 40 °C / 45 °C; Water source side 10 °C / 7 °C

ENERGY INDICES (REG. 2016/2281 EU)

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °														
SEER - 12/7 (EN14825: 2018) . refrigerant gas R134a (1)														
SEER	°	W/W	-	-	-	-	-	-	-	-	6,85	7,02	6,98	6,88
	A	W/W	7,06	7,19	7,07	7,23	7,24	7,18	7,01	7,14	7,37	7,44	7,31	7,34
Seasonal efficiency	°	%	-	-	-	-	-	-	-	-	270.8%	277.7%	276.2%	272.3%
	A	%	279.5%	284.6%	279.8%	296.3%	286.5%	284.3%	277.3%	282.4%	291.9%	294.5%	289.5%	290.4%
SEPR - (EN 14825: 2018) High temperature - refrigerant gas R134a (2)														
SEPR	°	W/W	-	-	-	-	-	-	-	-	8,20	8,20	8,50	8,50
	A	W/W	8,20	8,20	8,30	8,20	8,30	8,30	8,30	8,50	8,60	8,60	8,50	8,40

(1) Calculation performed with VARIABLE water flow rate and VARIABLE outlet temperature.
(2) Calculation performed with VARIABLE water flow rate.

ELECTRIC DATA

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °														
400V ~ 3 50Hz														
Maximum current (FLA)	°	A	-	-	-	-	-	-	-	-	913,0	1050,0	1166,0	1281,0
	A	A	365,0	416,0	486,0	549,0	609,0	700,0	777,0	854,0	913,0	1050,0	1166,0	1281,0
Peak current (LRA)	°	A	-	-	-	-	-	-	-	-	1198,0	1353,0	1585,0	1774,0
	A	A	500,0	552,0	682,0	743,0	894,0	1003,0	1197,0	1347,0	1198,0	1353,0	1585,0	1774,0

UNITS WITH DESUPERHEATER

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °														
Cooling performances with desuperheater (1)														
Recovered heating power	°	kW	-	-	-	-	-	-	-	-	81,0	97,0	97,0	113,0
	A	kW	35,0	46,0	58,0	69,0	69,0	69,0	81,0	81,0	103,0	115,0	128,0	141,0
Desuperheater water flow rate	°	l/h	-	-	-	-	-	-	-	-	14078	16859	16859	19639
	A	l/h	6083	7995	10080	11992	11992	11992	14078	14078	17901	19987	22246	24506
Pressure drop desuperheater	°	kPa	-	-	-	-	-	-	-	-	18	26	26	36
	A	kPa	22	21	22	21	21	21	21	21	10	10	10	10
Desuperheater														
Type	°	type	-	-	-	-	-	-	-	-	Shell and tube	Shell and tube	Shell and tube	Shell and tube
	A	type	Shell and tube											
Number	°	no.	-	-	-	-	-	-	-	-	3	3	3	3
	A	no.	2	2	2	2	2	2	2	2	3	3	3	3
Minimum water flow rate	°	l/h	-	-	-	-	-	-	-	-	12300	12300	12300	14400
	A	l/h	4370	5830	7280	8740	8740	8740	10190	10190	11290	12600	14010	15430
Maximum water flow rate	°	l/h	-	-	-	-	-	-	-	-	36900	36900	36900	42900
	A	l/h	13100	17470	21840	26200	26200	26200	30570	30570	33850	37780	42010	46290

(1) DHW water 12 °C / 7 °C, Source water 30 °C / 35 °C; Desuperheater water 40 °C / 45 °C

UNIT WITH TOTAL RECOVERY

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °														
Cooling performances with total recovery (1)														
Recovered heating power	°	kW	-	-	-	-	-	-	-	-	1906,0	2152,0	2375,0	2603,0
	A	kW	734,0	837,0	1012,0	1151,0	1297,0	1476,0	1606,0	1829,0	1933,0	2184,0	2403,0	2639,0
Cooling capacity	°	kW	-	-	-	-	-	-	-	-	1543,9	1743,2	1916,6	2097,0
	A	kW	595,0	678,4	821,7	935,5	1055,0	1201,1	1301,2	1491,3	1571,3	1755,0	1943,2	2132,6
Input power	°	kW	-	-	-	-	-	-	-	-	381,0	430,8	482,1	533,1
	A	kW	146,4	166,8	200,4	226,6	254,8	289,0	321,3	355,5	380,4	430,0	483,7	532,8
Total recovery water flow rate	°	l/h	-	-	-	-	-	-	-	-	331261	374016	412773	452399
	A	l/h	127569	145470	175885	200043	225418	256528	279122	317879	355954	379578	417640	458656
Total pressure drop total recovery	°	kPa	-	-	-	-	-	-	-	-	14	18	23	28
	A	kPa	46	47	46	46	46	45	44	45	27	24	37	44
Total recovery														
Type	°	type	-	-	-	-	-	-	-	-	Shell and tube	Shell and tube	Shell and tube	Shell and tube
	A	type	Shell and tube											
Number	°	no.	-	-	-	-	-	-	-	-	3	3	3	3
	A	no.	2	2	2	2	2	2	2	2	3	3	3	3
Minimum water flow rate	°	l/h	-	-	-	-	-	-	-	-	127800	145800	176400	176400
	A	l/h	65700	75100	91200	103200	117100	133200	145900	160300	203900	207600	217200	216000
Maximum water flow rate	°	l/h	-	-	-	-	-	-	-	-	385500	439500	528300	528300
	A	l/h	197000	225300	273500	309400	351100	399500	437700	480700	611500	622600	651400	648000

(1) DHW water 12 °C / 7 °C, Source water 30 °C / 35 °C; Total recovery water 40 °C / 45 °C

PERFORMANCE SPECIFICATIONS - R513A (XP10)

VERSION A

WFN - version A - gas R513A (XP10)

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G													
Cooling performance 12 °C / 7 °C (1)													
Cooling capacity	kW	665,4	763,6	917,3	1048,8	1197,0	1355,7	1495,8	1635,5	1776,9	2002,6	2186,0	2386,1
Input power	kW	127,4	145,4	174,9	199,3	226,6	253,4	283,5	310,4	333,3	377,3	426,8	469,8
Cooling total input current	A	216,0	249,0	284,0	321,0	359,0	414,0	460,0	511,0	531,0	623,0	695,0	773,0
EER	W/W	5,22	5,25	5,25	5,26	5,28	5,35	5,28	5,27	5,33	5,31	5,12	5,08
Water flow rate system side	l/h	114421	131293	157719	180329	205783	233073	257123	281139	305447	344229	375748	410098
Pressure drop system side	kPa	53,0	45,0	39,0	54,0	36,0	52,0	36,0	44,0	46,0	45,0	58,0	32,0
Water flow rate source side	l/h	135380	155295	186595	213122	243359	274913	304143	332498	360983	407153	446655	488630
Pressure drop source side	kPa	51	51	57	55	52	52	54	55	36	35	34	39
Heating performance 40 °C / 45 °C (2)													
Heating capacity	kW	745,0	851,8	1019,4	1169,4	1326,9	1497,9	1646,4	1865,8	1979,5	2218,0	2431,1	2670,1
Input power	kW	162,5	184,7	218,1	249,6	281,1	316,6	349,0	389,1	416,0	470,1	531,0	577,9
Heating total input current	A	270,0	311,0	350,0	394,0	440,0	508,0	561,0	628,0	651,0	764,0	846,0	941,0
COP	W/W	4,58	4,61	4,67	4,69	4,72	4,73	4,72	4,80	4,76	4,72	4,58	4,62
Water flow rate system side	l/h	129369	147922	177045	203114	230481	260193	285987	324110	343900	385348	422373	463900
Pressure drop system side	kPa	47,0	46,0	52,0	50,0	47,0	47,0	48,0	52,0	32,0	32,0	31,0	35,0
Water flow rate source side	l/h	171633	196185	235365	270913	306770	347452	380456	433942	458818	512740	558918	612575
Pressure drop source side	kPa	118	100	87	123	81	115	79	106	104	100	129	71

(1) Date 14511:2018; Water user side 12 °C / 7 °C; Water source side 30 °C / 35 °C
(2) Date 14511:2018; Water user side 40 °C / 45 °C; Water source side 10 °C / 7 °C

VERSION °

WFN - version ° - gas R513A (XP10)

Size							6703		7203			8403		9603
REFRIGERANT GAS: G														
Cooling performance 12 °C / 7 °C (1)														
Cooling capacity		kW					1744,2		1979,4			2121,5		2307,1
Input power		kW					338,2		383,2			422,2		469,6
Cooling total input current		A					527,0		618,0			686,0		763,0
EER		W/W					5,16		5,17			5,02		4,91
Water flow rate system side		l/h					299817		340238			364646		396545
Pressure drop system side		kPa					48,0		54,0			41,0		48,0
Water flow rate source side		l/h					355369		403079			434468		473760
Pressure drop source side		kPa					75		75			62		75
Heating performance 40 °C / 45 °C (2)														
Heating capacity		kW					1950,6		2197,0			2366,5		2590,9
Input power		kW					420,6		477,1			520,2		579,4
Heating total input current		A					645,0		757,0			835,0		928,0
COP		W/W					4,64		4,60			4,55		4,47
Water flow rate system side		l/h					338840		381675			411129		450131
Pressure drop system side		kPa					68,0		67,0			55,0		67,0
Water flow rate source side		l/h					450361		506796			542403		592331
Pressure drop source side		kPa					108		121			91		108

(1) Date 14511:2018; Water user side 12 °C / 7 °C; Water source side 30 °C / 35 °C
(2) Date 14511:2018; Water user side 40 °C / 45 °C; Water source side 10 °C / 7 °C

ENERGY INDICES (REG. 2016/2281 EU)

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G														
SEER - 12/7 (EN14825: 2018) . refrigerant gas R513A (1)														
SEER	°	W/W	-	-	-	-	-	-	-	-	6,94	7,00	6,94	6,75
	A	W/W	6,87	6,97	6,86	6,98	7,02	7,03	6,89	6,99	7,25	7,27	7,07	7,06
Seasonal efficiency	°	%	-	-	-	-	-	-	-	-	274.7%	276.9%	274.6%	267.1%
	A	%	271.7%	275.8%	271.2%	276.2%	277.6%	278.2%	272.7%	276.5%	287.0%	287.7%	279.6%	279.4%
SEPR - (EN 14825: 2018) High temperature - refrigerant gas R513A (2)														
SEPR	°	W/W	-	-	-	-	-	-	-	-	8,40	8,40	8,00	7,90
	A	W/W	8,00	8,10	8,10	8,00	8,10	8,10	8,20	8,50	8,50	8,50	8,30	8,30

(1) Calculation performed with VARIABLE water flow rate and VARIABLE outlet temperature.
(2) Calculation performed with VARIABLE water flow rate.

ELECTRIC DATA

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G														
400V ~ 3 50Hz														
Maximum current (FLA)	°	A	-	-	-	-	-	-	-	-	527,0	618,0	686,0	763,0
	A	A	374,0	425,0	497,0	561,0	621,0	715,0	791,0	871,0	931,0	1073,0	1186,0	1306,0
Peak current (LRA)	°	A	-	-	-	-	-	-	-	-	1210,0	1368,0	1599,0	1791,0
	A	A	504,0	561,0	688,0	749,0	900,0	1011,0	1204,0	1356,0	1210,0	1368,0	1599,0	1791,0

UNITS WITH DESUPERHEATER

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G														
Cooling performances with desuperheater (1)														
Recovered heating power	°	kW	-	-	-	-	-	-	-	-	103,0	115,0	128,0	141,0
	A	kW	35,0	46,0	58,0	69,0	69,0	69,0	81,0	81,0	103,0	115,0	128,0	141,0
Desuperheater water flow rate	°	l/h	-	-	-	-	-	-	-	-	17901	19987	22246	24506
	A	l/h	6083	7995	10080	11992	11992	11992	14078	14078	17901	19987	22246	24506
Pressure drop desuperheater	°	kPa	-	-	-	-	-	-	-	-	10	10	10	10
	A	kPa	22	21	22	21	21	21	21	21	10	10	10	10
Desuperheater														
Type	°	type	-	-	-	-	-	-	-	-	Shell and tube	Shell and tube	Shell and tube	Shell and tube
	A	type	Shell and tube											
Number	°	no.	-	-	-	-	-	-	-	-	3	3	3	3
	A	no.	2	2	2	2	2	2	2	2	3	3	3	3
Minimum water flow rate	°	l/h	-	-	-	-	-	-	-	-	12300	12300	12300	14400
	A	l/h	4370	5830	7280	8740	8740	8740	10190	10190	11290	12600	14010	15430
Maximum water flow rate	°	l/h	-	-	-	-	-	-	-	-	36900	36900	36900	42900
	A	l/h	13100	17470	21840	26200	26200	26200	30570	30570	33850	37780	42010	46290

(1) DHW water 12 °C / 7 °C, Source water 30 °C / 35 °C; Desuperheater water 40 °C / 45 °C

UNIT WITH TOTAL RECOVERY

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G														
Cooling performances with total recovery (1)														
Recovered heating power	°	kW	-	-	-	-	-	-	-	-	1972,0	2221,0	2392,0	2619,0
	A	kW	753,0	861,0	1030,0	1182,0	1341,0	1514,0	1664,0	1886,0	2001,0	2242,0	2458,0	2699,0
Cooling capacity	°	kW	-	-	-	-	-	-	-	-	1592,4	1791,9	1917,8	2094,4
	A	kW	606,9	693,7	832,2	957,9	1084,7	1228,5	1345,2	1534,3	1622,3	1812,9	1976,2	2165,9
Input power	°	kW	-	-	-	-	-	-	-	-	399,3	451,7	499,5	552,5
	A	kW	153,6	175,9	208,5	235,9	270,0	263,1	335,8	370,3	398,9	452,0	506,9	561,6
Total recovery water flow rate	°	l/h	-	-	-	-	-	-	-	-	342732	386008	415728	455180
	A	l/h	130871	149641	179013	205431	233065	263132	289202	327785	347772	389658	427199	469084
Total pressure drop total recovery	°	kPa	-	-	-	-	-	-	-	-	14	18	23	28
	A	kPa	49	50	47	49	50	48	47	48	29	25	39	46
Total recovery														
Type	°	type	-	-	-	-	-	-	-	-	Shell and tube	Shell and tube	Shell and tube	Shell and tube
	A	type	Shell and tube											
Number	°	no.	-	-	-	-	-	-	-	-	3	3	3	3
	A	no.	2	2	2	2	2	2	2	2	3	3	3	3
Minimum water flow rate	°	l/h	-	-	-	-	-	-	-	-	127800	145800	176400	176400
	A	l/h	65700	75100	91200	103200	117100	133200	145900	160300	203900	207600	217200	216000
Maximum water flow rate	°	l/h	-	-	-	-	-	-	-	-	385500	439500	528300	528300
	A	l/h	197000	225300	273500	309400	351100	399500	437700	480700	611500	622600	651400	648000

(1) DHW water 12 °C / 7 °C, Source water 30 °C / 35 °C; Total recovery water 40 °C / 45 °C

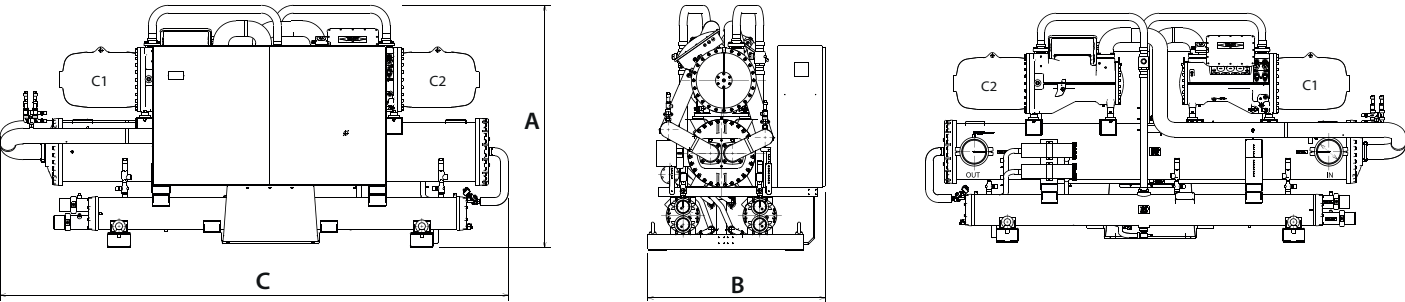
9 GENERAL TECHNICAL DATA

General data

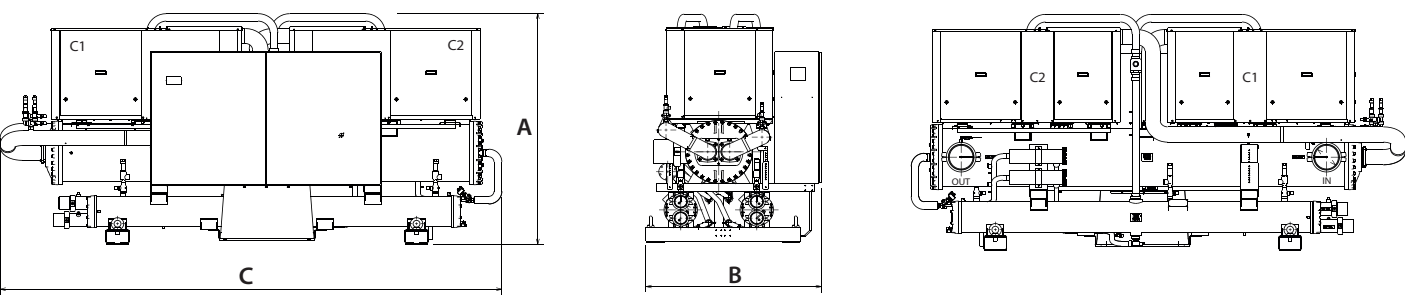
Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
Compressor														
Type	°A	type	Screw											
Compressor regulation	°A	Type	On-Off											
Number	°A	no.	2	2	2	2	2	2	2	2	3	3	3	3
Circuits	°A	no.	2	2	2	2	2	2	2	2	3	3	3	3
Refrigerant	°A	type	R134a											
Refrigerant load circuit 1	°	kg	-	-	-	-	-	-	-	-	107,0	115,0	136,0	157,0
	A	kg	50,0	53,0	81,0	71,0	70,0	123,0	124,0	121,0	106,0	104,0	110,0	120,0
Refrigerant load circuit 2	°	kg	-	-	-	-	-	-	-	-	107,0	115,0	136,0	157,0
	A	kg	50,0	53,0	81,0	71,0	70,0	123,0	124,0	121,0	106,0	104,0	110,0	120,0
Refrigerant load circuit 3	°	kg	-	-	-	-	-	-	-	-	107,0	115,0	136,0	157,0
	A	kg	-	-	-	-	-	-	-	-	106,0	104,0	110,0	120,0
System side heat exchanger														
Type	°A	type	Shell and tube											
Number	°A	no.	1	1	1	1	1	1	1	1	1	1	1	1
Connections (in/out)	°A	Type	Grooved joints											
Sizes (in/out)	°	Ø	-	-	-	-	-	-	-	-	10"	10"	10"	10"
	A	Ø	8"	8"	8"	8"	10"	10"	10"	10"	-	-	-	-
Source side heat exchanger														
Type	°A	type	Shell and tube											
Number	°A	no.	2	2	2	2	2	2	2	2	3	3	3	3
Connections (in/out)	°A	Type	Grooved joints											
Sizes (in/out)	°	Ø	-	-	-	-	-	-	-	-	5"	5"	6"	6"
	A	Ø	4"	4"	4"	4"	5"	6"	6"	6"	-	-	-	-

10 DIMENSIONS AND WEIGHTS

STANDARD EQUIPMENT



SILENCED EQUIPMENT AND SUPER SILENCED EQUIPMENT



Dimensions and weights

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
Dimensions and weights - standard configuration														
A	°	mm	-	-	-	-	-	-	-	-	2250	2250	2250	2250
	A	mm	2000	2075	2195	2195	2340	2432	2440	2432	2250	2250	2250	2250
B	°	mm	-	-	-	-	-	-	-	-	2200	2200	2200	2200
	A	mm	1500	1500	1575	1575	1585	1775	1775	1820	2200	2200	2200	2200
C	°	mm	-	-	-	-	-	-	-	-	5650	5650	5650	5650
	A	mm	4320	4345	4380	4380	4395	4535	4605	4605	5650	5650	5650	5650
Empty weight	°	kg	-	-	-	-	-	-	-	-	9330	9910	10130	10200
	A	kg	3810	4100	5690	5750	6300	6670	6970	7070	10320	11670	12270	12360
Dimensions and weights - quiet configuration														
A	°	mm	-	-	-	-	-	-	-	-	2250	2250	2250	2250
	A	mm	2000	2075	2195	2195	2340	2432	2440	2432	2250	2250	2250	2250
B	°	mm	-	-	-	-	-	-	-	-	2200	2200	2200	2200
	A	mm	1500	1500	1575	1575	1585	1775	1775	1820	2200	2200	2200	2200
C	°	mm	-	-	-	-	-	-	-	-	5650	5650	5650	5650
	A	mm	4320	4345	4650	4650	4600	5015	5150	5150	5650	5650	5650	5650
Empty weight	°	kg	-	-	-	-	-	-	-	-	9890	10470	10760	10830
	A	kg	4120	4410	6050	6120	6670	7040	7420	7490	10880	12230	12950	12990
Super silenced equipment dimensions and weights														
A	°	mm	-	-	-	-	-	-	-	-	2250	2250	2250	2250
	A	mm	2000	2075	2195	2195	2340	2432	2440	2432	2250	2250	2250	2250
B	°	mm	-	-	-	-	-	-	-	-	2200	2200	2200	2200
	A	mm	1500	1500	1575	1575	1585	1775	1775	1820	2200	2200	2200	2200
C	°	mm	-	-	-	-	-	-	-	-	5650	5650	5650	5650
	A	mm	4320	4345	4650	4650	4600	5015	5150	5150	5650	5650	5650	5650
Empty weight	°	kg	-	-	-	-	-	-	-	-	10540	11120	11510	11580
	A	kg	4500	4790	6480	6550	7100	7470	7890	7990	11530	12880	13650	13740

Sizes and weights of the standard and silenced units without accessories and other options.

11 MINIMUM TECHNICAL SPACES

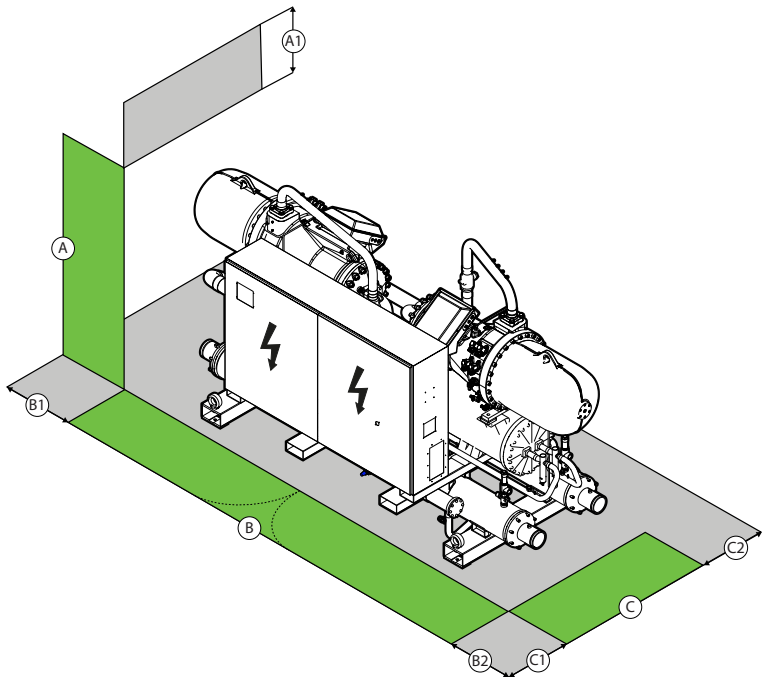
With regards to all units, it is essential to respect the minimum distances to avoid:
— The generation of hazardous atmospheres in the case of refrigerant gas leaks;

The place where the unit is installed must be accessible and permitted only to authorised personnel.

⚠ It is important that the units are installed flat. The improper installation of the unit invalidates the warranty.

⚠ Each side of the unit must have space to allow all routine and extraordinary maintenance to be performed.

THE FOLLOWING IMAGES INDICATE THE MINIMUM REQUIRED SPACE:



Minimum technical spaces		
WFN		
A1	mm	1000
B1	mm	2000 (*)
B2	mm	2000 (*)
C2	mm	1000
Electrical box standard		
C1 (2502-4802)	mm	1550
C1 (5602-6402)	mm	1650

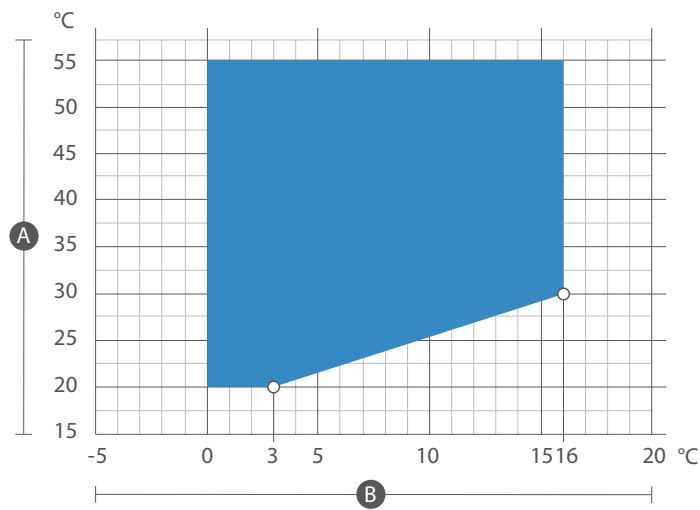
(*) Technical spaces required for chemical cleaning or cleaning with condenser brushes. These spaces can be reduced to 1000 mm only for chemical cleaning.

12 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.

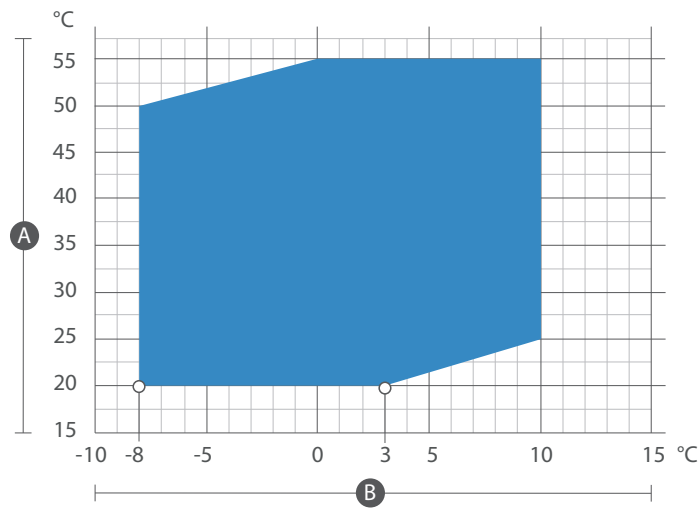
The min and max temperature limits are highlighted in the envelope. It is recommended to consider these temperatures when transporting in containers.

OPERATION: VALVE X



- A Outlet water temperature - source side (°C)
- B Outlet water temperature - user side (°C)

OPERATION: VALVE Z



- A Outlet water temperature - source side (°C)
- B Outlet water temperature - user 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.

PROJECT DATA

Cooling		High pressure side	Low Pressure side
Maximum allowable pressure	bar	22	16
Maximum allowable temperature	°C	120	59
Minimum allowable temperature	°C	10	-10
Technical water		Condensers	Evaporator
Maximum allowable pressure	bar	16	10

With the double electronic low temperature thermostatic expansion valve (Z), the minimum permissible temperature on the low pressure side becomes -20°C .

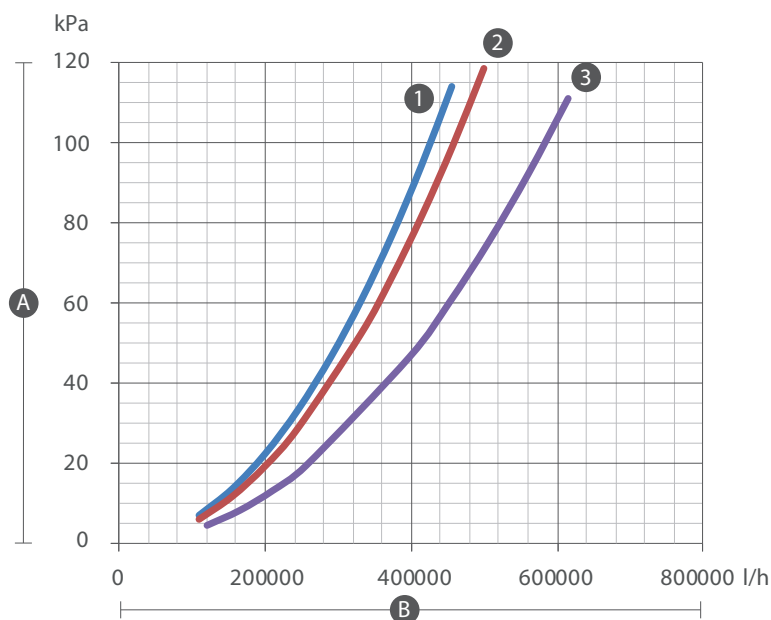
13 PRESSURE DROPS

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.

SYSTEM SIDE - GAS R134A

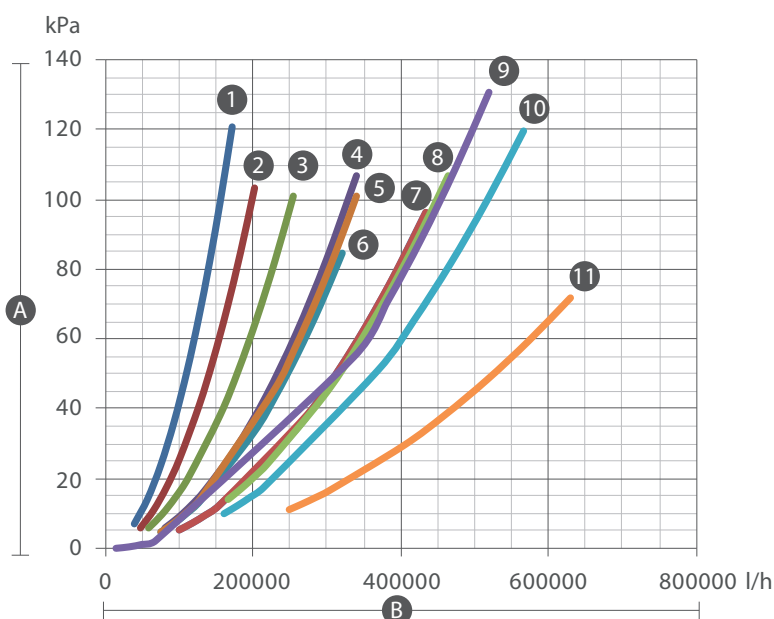
Valve X

Version °



A	Pressure drop (kPa)
B	Water flow rate (l/h)
1	6703
2	7203
3	8403-9603

Version A



A	Pressure drop (kPa)
B	Water flow rate (l/h)
1	2502
2	2802
3	3202
4	3602
5	4802
6	4202
7	5602-6402
8	6703
9	7203
10	8403
11	9603

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
OPERATING FIELD: X													
Unit with gas utility side exchanger (R134a)													
Minimum water	°	I/h	-	-	-	-	-	-	-	109800	109800	119300	119300
flow rate	A	I/h	40700	48200	60100	80400	74800	74600	99500	99500	167700	150000	250000
Maximum water	°	I/h	-	-	-	-	-	-	-	-	455000	500000	555000
flow rate	A	I/h	173000	203500	253900	339400	320600	340000	433000	433000	465000	520000	630000

Data 14511:2018

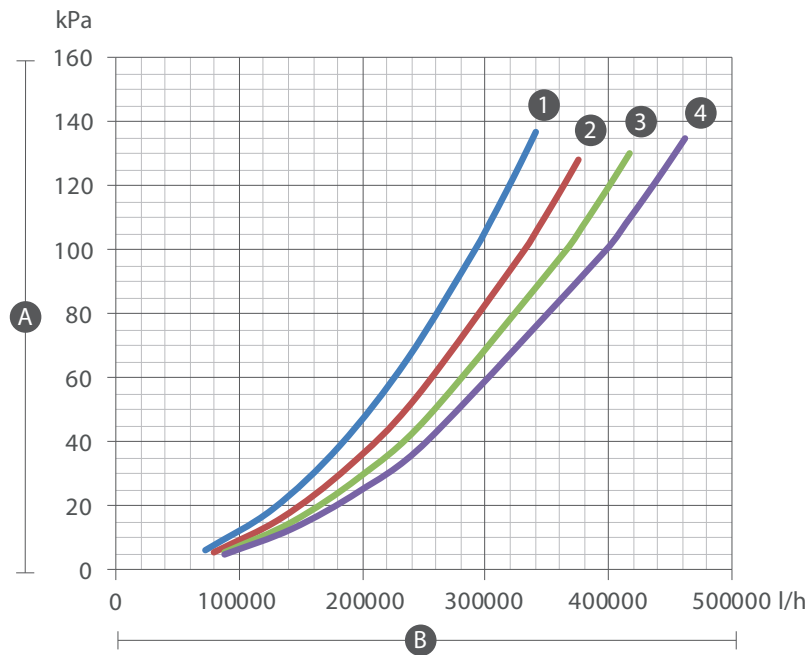
The capacities and pressure drops in the heat exchangers calculated:

DHW side water 12 °C / 7 °C; Source side water 30 °C / 35 °C

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

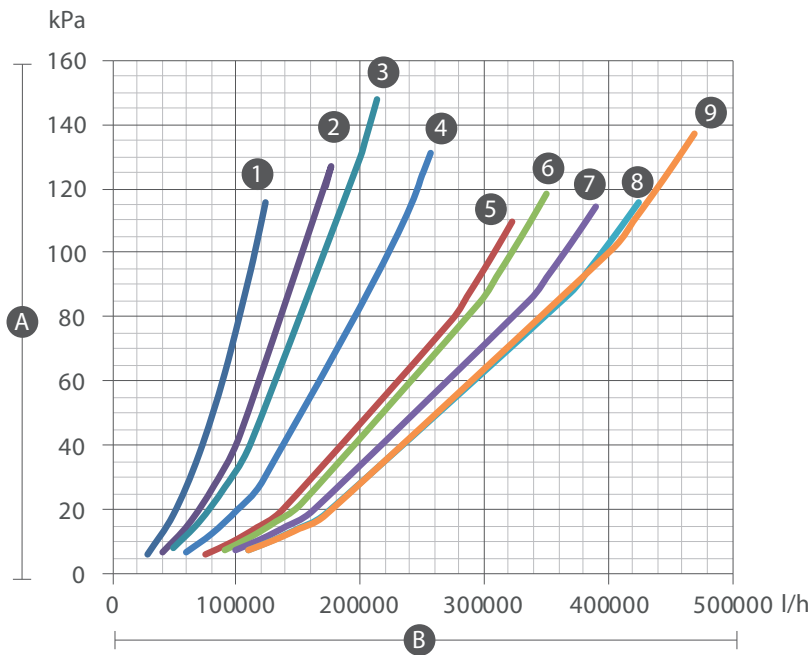
Valve Z

Version °



A	Pressure drop (kPa)
B	Water flow rate (l/h)
1	6703
2	7203
3	8403
4	9603

Version A



A	Pressure drop (kPa)
B	Water flow rate (l/h)
1	2502
2	2802-3202-3602
3	4202
4	4802-5602
5	6402
6	6703
7	7203
8	8403
9	9603

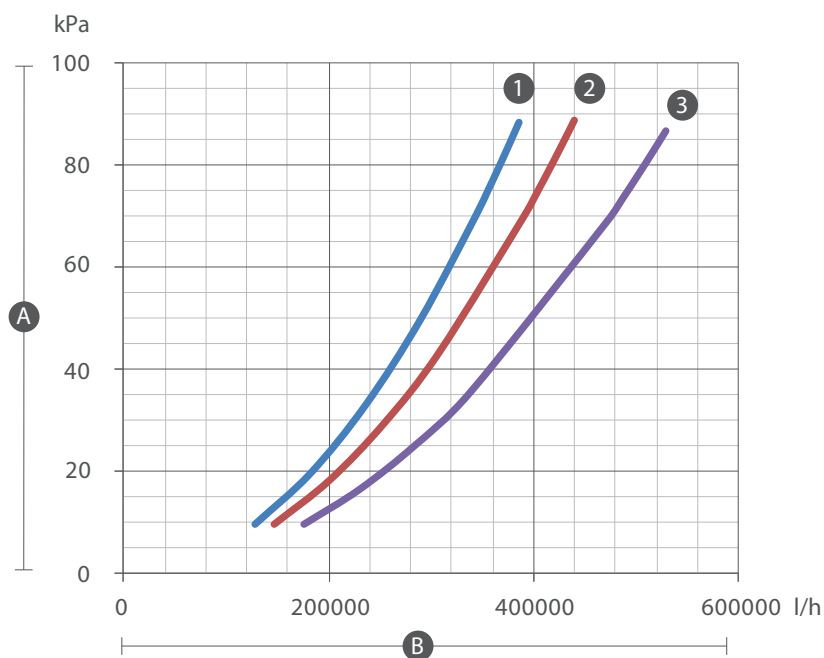
Size	2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
OPERATING FIELD: Z												
Unit with gas utility side exchanger (R134a)												
Minimum water	°	I/h	-	-	-	-	-	-	-	72000	80000	88000
flow rate	A	I/h	29200	40700	40700	40700	49800	59900	59900	75100	90000	110000
Maximum water	°	I/h	-	-	-	-	-	-	-	340000	375000	416000
flow rate	A	I/h	124100	171700	171700	171700	213600	256900	256900	321900	350000	470000

Data 14511:2018
The capacities and pressure drops in the heat exchangers calculated:
DHW side water 12 °C / 7 °C; Source side water 30 °C / 35 °C
For operating conditions different to those declared refer to the selection program Magellano, available on www.aermec.com

SOURCE SIDE - GAS R134A

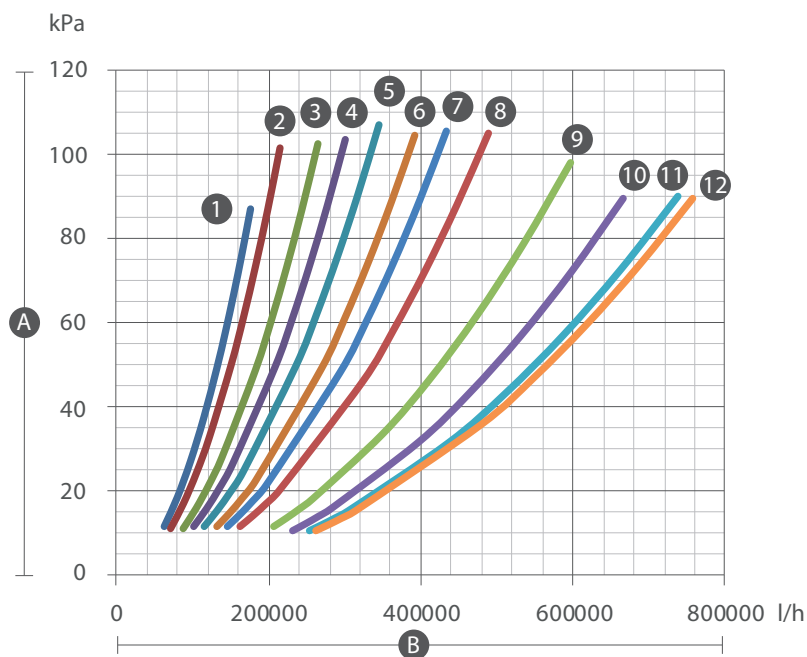
Valves X/Z

Version °



A **Pressure drop (kPa)**
 B **Water flow rate (l/h)**
 1. 6703
 1 7203
 2 8403-9603

Version A



A **Pressure drop (kPa)**
 B **Water flow rate (l/h)**
 1 2502
 2 2802
 3 3202
 4 3602
 5 4202
 6 4802
 7 5602
 8 6402
 9 6703
 10 7203
 11 8403
 12 9603

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
OPERATING FIELD: X, Z													
Unit with gas source side exchanger (R134a)													
Minimum water	°	l/h	-	-	-	-	-	-	-	127800	145800	176400	176400
flow rate	A	l/h	64000	71659	88629	100300	115100	130500	144873	162618	206700	231000	255000
Maximum water	°	l/h	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	l/h	176000	214976	265888	300900	345300	391500	434619	487853	595500	666900	738300

Data 14511:2018

The capacities and pressure drops in the heat exchangers calculated:

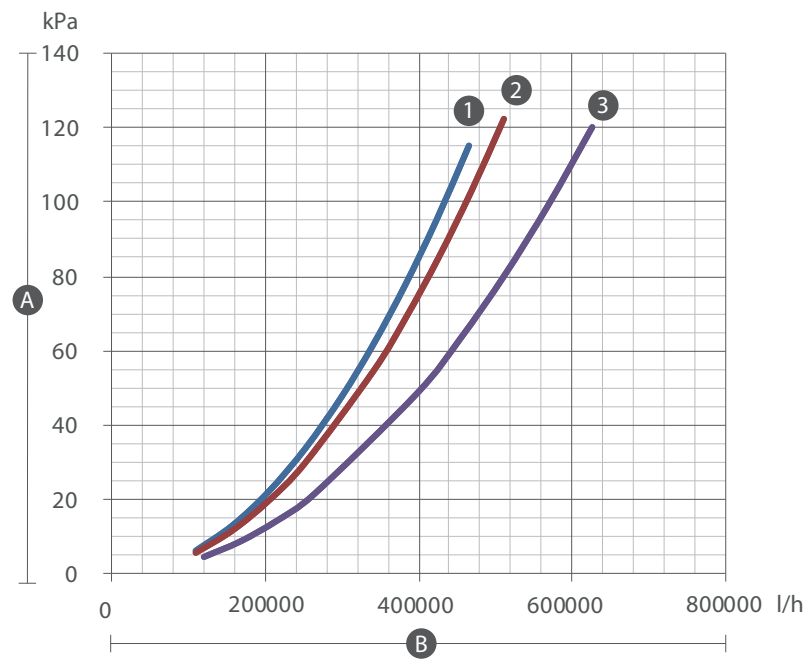
DHW side water 12 °C / 7 °C; Source side water 30 °C / 35 °C

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

SYSTEM SIDE - GAS R513A (XP10)

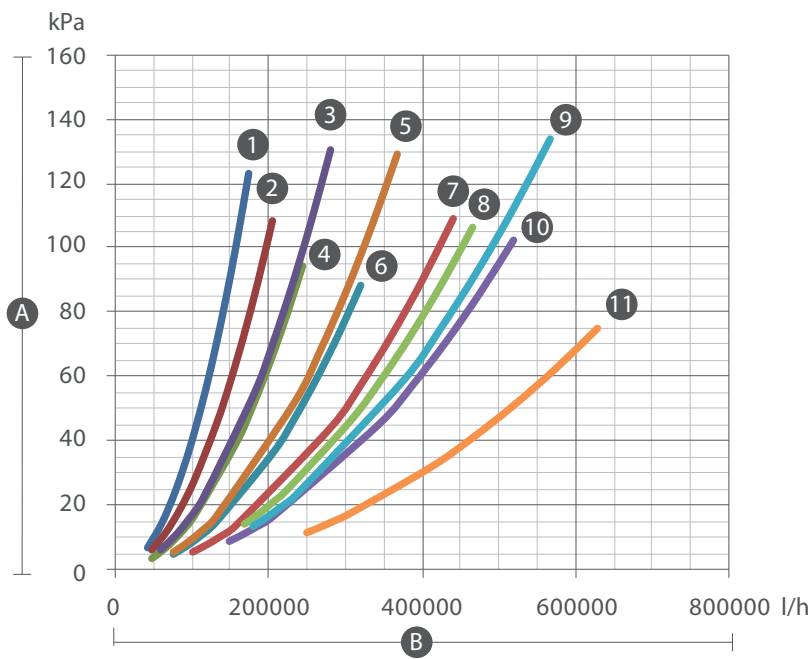
Valve X

Version °



- A **Pressure drop (kPa)**
B **Water flow rate (l/h)**
1 6703
2 7203
3 8403-9603

Version A



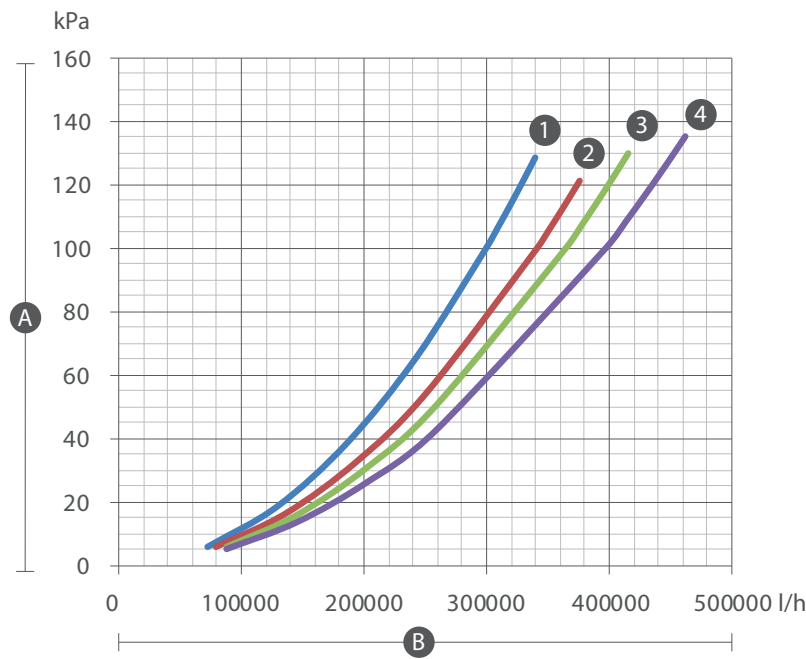
- A **Pressure drop (kPa)**
B **Water flow rate (l/h)**
1 2502
2 2802
3 3602
4 3202
5 4802
6 4202
7 5602-6402
8 6703
9 8403
10 7203
11 9603

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
OPERATING FIELD: X													
Unit with gas source side exchanger (R513A)													
Minimum water	°	I/h	-	-	-	-	-	-	-	127800	145800	176400	176400
flow rate	A	I/h	65400	73200	87800	100200	114200	132200	143400	154600	206700	231000	262500
Maximum water	°	I/h	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	I/h	176000	176000	263200	346600	276000	396800	400000	595500	666900	738300	756000

Data 14511:2018
The capacities and pressure drops in the heat exchangers calculated:
DHW side water 12 °C / 7 °C; Source side water 30 °C / 35 °C
For operating conditions different to those declared refer to the selection program Magellano, available on www.aermec.com

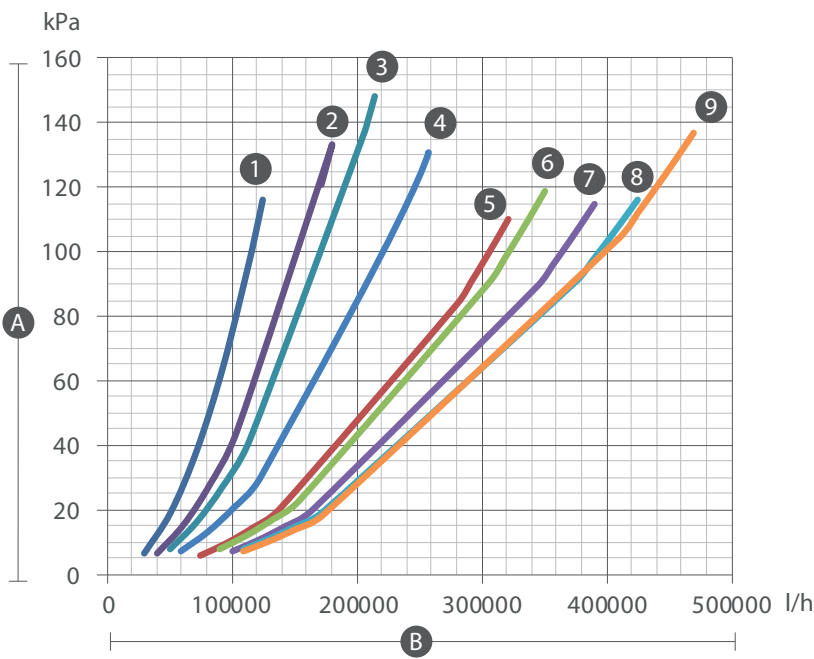
Valve Z

Version °



A	Pressure drop (kPa)
B	Water flow rate (l/h)
1	6703
2	7203
3	8403
4	9603

Version A



A	Pressure drop (kPa)
B	Water flow rate (l/h)
1	2502
2	2802-3202-3602
3	4202
4	4802-5602
5	6402
6	6703
7	7203
8	8403
9	9603

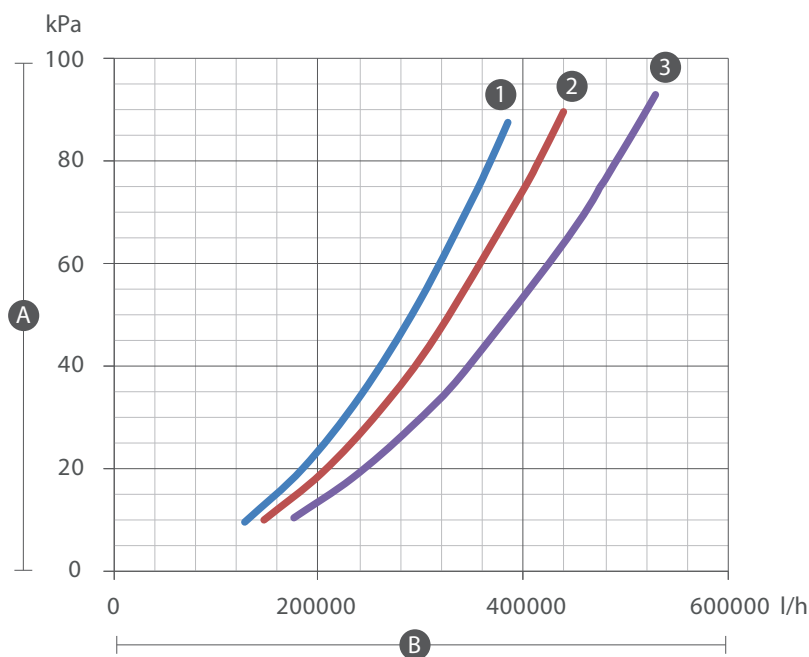
Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
OPERATING FIELD: Z													
Unit with gas source side exchanger (R513A)													
Minimum water	°	l/h	-	-	-	-	-	-	-	127800	145800	176400	176400
flow rate	A	l/h	65400	73200	87800	100200	114200	132200	143400	154600	206700	231000	262500
Maximum water	°	l/h	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	l/h	176000	176000	263200	346600	276000	396800	400000	400000	595500	666900	738300

Data 14511:2018
The capacities and pressure drops in the heat exchangers calculated:
DHW side water 12 °C / 7 °C; Source side water 30 °C / 35 °C
For operating conditions different to those declared refer to the selection program Magellano, available on www.aermec.com

SOURCE SIDE - GAS R513A (XP10)

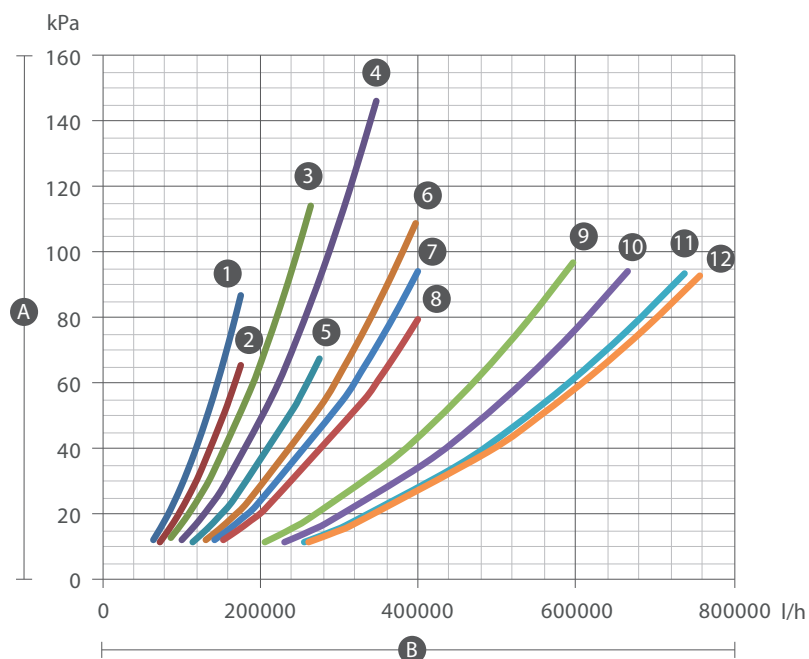
Valves X/Z

Version °



- A **Pressure drop (kPa)**
 B **Water flow rate (l/h)**
 1 6703
 2 7203
 3 8403-9603

Version A



- A **Pressure drop (kPa)**
 B **Water flow rate (l/h)**
 1 2502
 2 2802
 3 3202
 4 3602
 5 4202
 6 4802
 7 5602
 8 6402
 9 6703
 10 7203
 11 8403
 12 9603

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
OPERATING FIELD: X, Z													
Unit with gas source side exchanger (R513A)													
Minimum water	°	I/h	-	-	-	-	-	-	-	127800	145800	176400	176400
flow rate	A	I/h	65400	73200	87800	100200	114200	132200	143400	206700	231000	255000	262500
Maximum water	°	I/h	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	I/h	176000	176000	263200	346600	276000	396800	400000	595500	666900	738300	756000

Data 14511:2018

The capacities and pressure drops in the heat exchangers calculated:

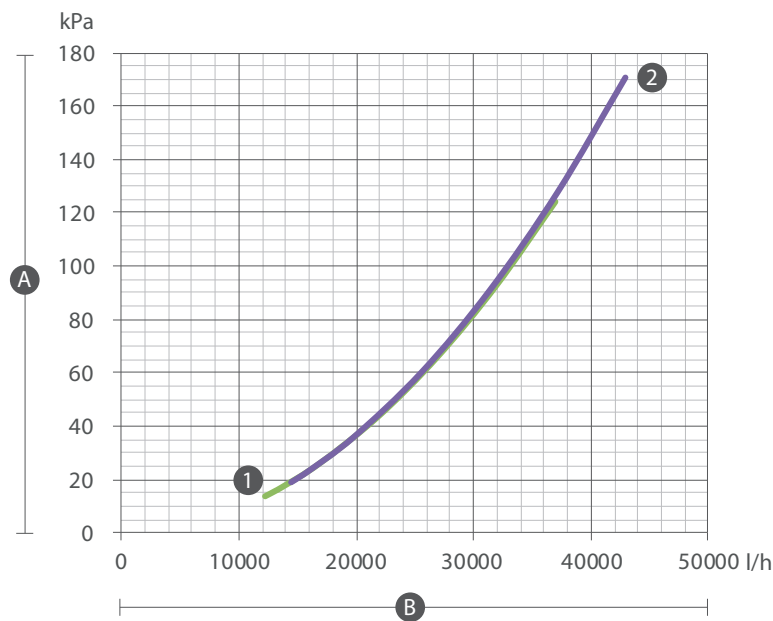
DHW side water 12 °C / 7 °C; Source side water 30 °C / 35 °C

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

14 DESUPERHEATER PRESSURE DROPS

VERSION ° GAS R134A/GAS R513A (XP10)

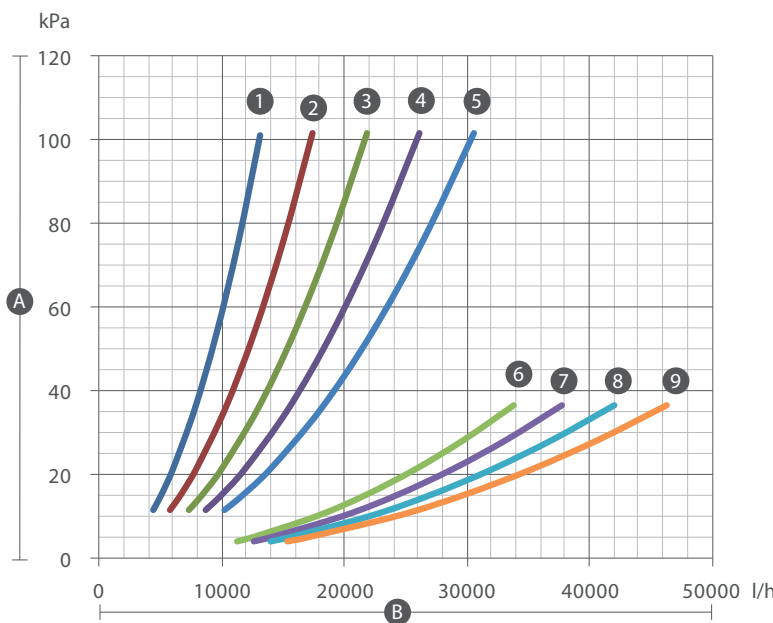
Valves X/Z



- A **Pressure drop (kPa)**
B **Water flow rate (l/h)**
1 6703-7203-8403
2 9603

VERSION A GAS R134A/GAS R513A (XP10)

Valves X/Z



- A **Pressure drop (kPa)**
B **Water flow rate (l/h)**
1 2502
2 2802
3 3202
4 3602-4202-4802
5 5602-6402
6 6703
7 7203
8 8403
9 9603

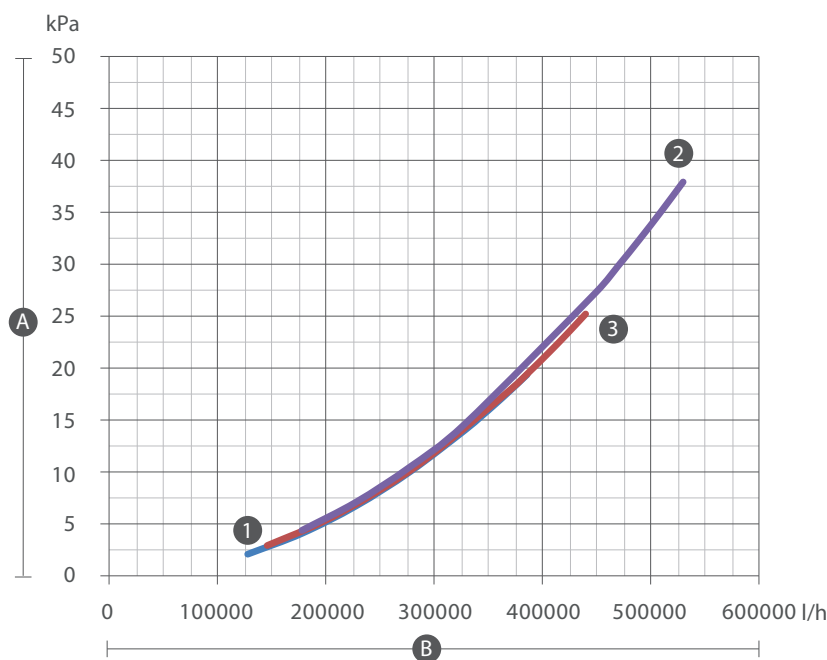
Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °, G													
Desuperheater													
Minimum water	°	I/h	-	-	-	-	-	-	-	12300	12300	12300	14400
flow rate	A	I/h	4370	5830	7280	8740	8740	8740	10190	10190	11290	12600	15430
Maximum water	°	I/h	-	-	-	-	-	-	-	36900	36900	36900	42900
flow rate	A	I/h	13100	17470	21840	26200	26200	26200	30570	30570	33850	37780	46290

Data 14511:2018
The capacities and pressure drops in the heat exchangers calculated:
DHW water 12 °C / 7 °C, Source water 30 °C / 35 °C; Desuperheater water 40 °C / 45 °C
For operating conditions different to those declared refer to the selection program Magellano, available on www.aermec.com

15 TOTAL RECOVERY PRESSURE DROPS

VERSION ° - GAS R134A

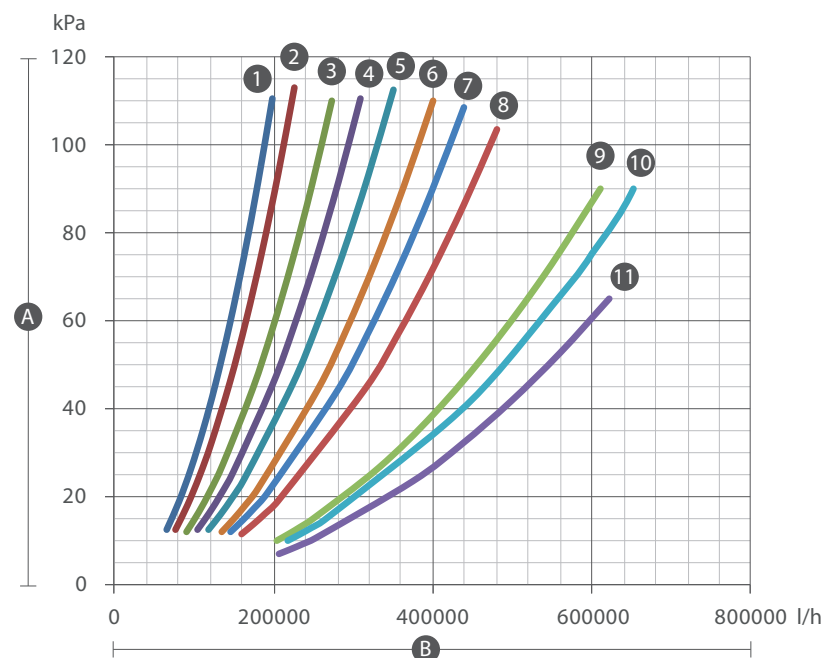
Valves X/Z



- A **Pressure drop (kPa)**
 B **Water flow rate (l/h)**
 1. 6703
 2. 8403-9603
 3. 7203

VERSION A - GAS R134A

Valves X/Z



- A **Pressure drop (kPa)**
 B **Water flow rate (l/h)**
 1 2502
 2 2802
 3 3202
 4 3602
 5 4202
 6 4802
 7 5602
 8 6402
 9 6703
 10 8403-9603
 11 7203

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °													
Total recovery													
Minimum water	°	I/h	-	-	-	-	-	-	-	127800	145800	176400	176400
flow rate	A	I/h	65700	75100	91200	103200	117100	133200	145900	160300	203900	207600	216000
Maximum water	°	I/h	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	I/h	197000	225300	273500	309400	351100	399500	437700	480700	611500	622600	648000

Data 14511:2018

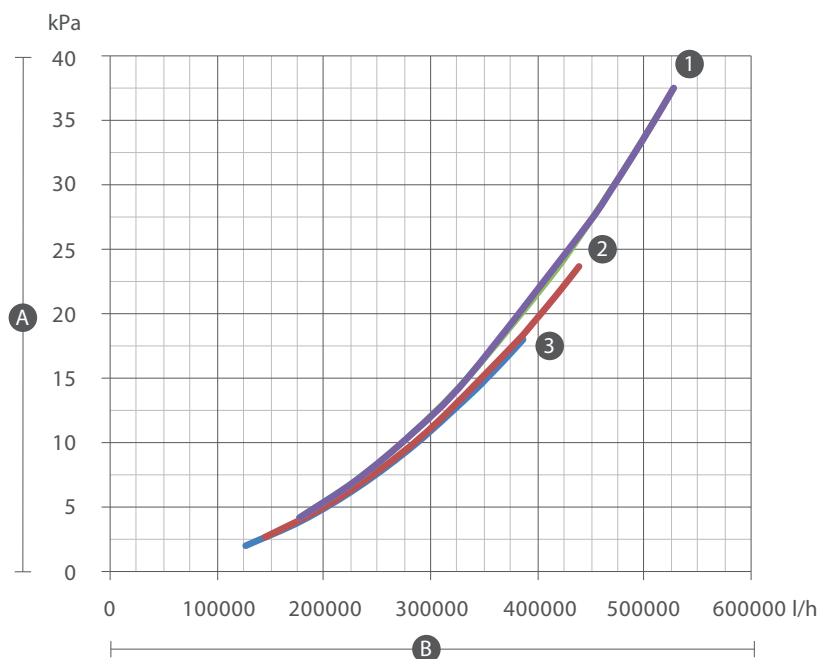
The capacities and pressure drops in the heat exchangers calculated:

DHW water 12 °C / 7 °C, Source water 30 °C / 35 °C; Total recovery water 40 °C / 45 °C

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

VERSION ° - GAS R513A (XP10)

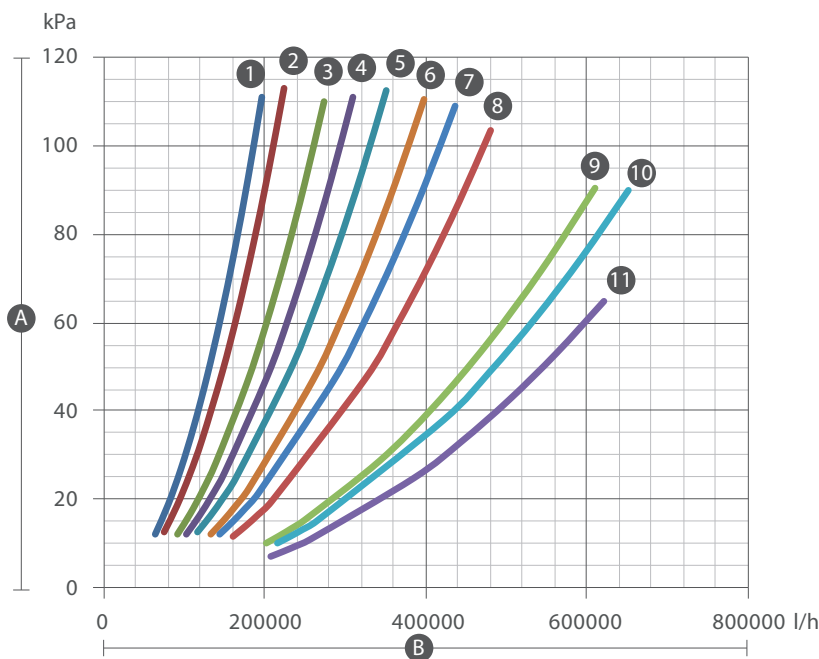
Valves X/Z



- A **Pressure drop (kPa)**
- B **Water flow rate (l/h)**
- 1 8403-9603
- 2 7203
- 3 6703

VERSION A - GAS R513A (XP10)

Valves X/Z



- A **Pressure drop (kPa)**
- B **Water flow rate (l/h)**
- 1 2502
- 2 2802
- 3 3202
- 4 3602
- 5 4202
- 6 4802
- 7 5602
- 8 6402
- 9 6703
- 10 8403-9603
- 11 7203

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G													
Total recovery													
Minimum water	°	l/h	-	-	-	-	-	-	-	127800	145800	176400	176400
flow rate	A	l/h	65700	75100	91200	103200	117100	133200	145900	160300	203900	207600	216000
Maximum water	°	l/h	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	l/h	197000	225300	273500	309400	351100	399500	437700	480700	611500	622600	648000

Data 14511:2018

The capacities and pressure drops in the heat exchangers calculated:

DHW water 12 °C / 7 °C, Source water 30 °C / 35 °C; Total recovery water 40 °C / 45 °C

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

16 CORRECTION FACTORS

The performance provided in the technical data refer to clean tubes with deposit factor=1.
For different deposit factor values, multiply the performance data in the table by the coefficients shown.

ATTENTION: The yields are calculated with the glycol % and temperature indicated in table, for different yields refer to Magellano.

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															
		Cooling mode								Heating mode or recovery					
Average water temperatures	(°C)	5	10	15	20	30	40	50	23	28	33	38	43	48	53
Correction factor		1,02	1,00	0,98	0,97	0,95	0,93	0,91	1,04	1,03	1,02	1,01	1,00	0,99	0,98

FOULING: DEPOSIT CORRECTIVE FACTORS [K*M²]/[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

PROPYLENE GLYCOL

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

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

ETHYLENE GLYCOL

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

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

17 SOUND DATA

The data refers to units operating in nominal conditions in cooling mode.

The sound power level expressed in dB(A) is measured in accordance with regulation ISO 9614-2 and is the only binding acoustic data.

The sound pressure level expressed in dB(A) is measured in accordance with regulation UNI EN ISO 3744 in respect of the requirements of Eurovent 8/1, and refer to a distance of 10 metres from the external surface of the unit operating in free field with direction factor equal to 2.

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
SET-UP: °														
Sound data calculated in cooling mode (1)														
Sound power level	°	dB(A)	-	-	-	-	-	-	-	-	97,0	97,2	99,5	100,0
	A	dB(A)	93,5	94,0	94,0	94,5	95,0	95,5	97,5	98,0	97,0	97,2	99,5	100,0
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	64,6	64,8	67,1	67,6
	A	dB(A)	61,4	61,9	61,8	62,3	62,8	63,2	65,2	65,7	64,6	64,8	67,1	67,6
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	51,9	74,4	65,2	54,4
	A	dB(A)	50,4	52,9	60,8	62,3	50,0	72,7	63,2	52,5	51,9	74,4	65,2	54,4
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	86,5	78,6	85,3	84,9
	A	dB(A)	76,9	76,7	81,8	82,7	84,5	76,9	83,3	82,9	86,5	78,6	85,3	84,9
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	89,4	93,9	94,4	95,2
	A	dB(A)	89,6	87,3	87,9	89,1	87,4	92,2	92,4	93,2	89,4	93,9	94,4	95,2
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	94,8	92,8	96,1	97,1
	A	dB(A)	89,6	90,9	90,9	91,0	92,7	91,1	94,1	95,1	94,8	92,8	96,1	97,1
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	87,7	88,7	92,1	90,7
	A	dB(A)	85,5	88,4	85,1	86,1	85,7	87,0	90,1	88,7	87,7	88,7	92,1	90,7
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	78,9	78,3	77,9	78,5
	A	dB(A)	72,4	69,8	82,8	80,9	76,9	76,6	76,0	76,5	78,9	78,3	77,9	78,5
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	67,5	70,2	56,9	63,7
	A	dB(A)	62,2	56,4	67,9	69,1	65,5	68,5	55,0	61,8	67,5	70,2	56,9	63,7
SET-UP: K														
Sound data calculated in cooling mode (1)														
Sound power level	°	dB(A)	-	-	-	-	-	-	-	-	88,1	87,3	89,8	90,3
	A	dB(A)	83,6	83,6	84,5	85,2	86,1	85,6	87,8	88,3	88,1	87,3	89,8	90,3
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	55,7	54,9	57,4	57,9
	A	dB(A)	51,5	51,5	52,3	53,0	53,9	53,3	55,5	56,0	55,7	54,9	57,4	57,9
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	48,4	70,9	61,7	50,9
	A	dB(A)	46,9	49,4	57,3	58,8	46,5	69,2	59,7	49,0	48,4	70,9	61,7	50,9
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	84,0	76,1	82,8	82,4
	A	dB(A)	74,4	74,2	79,3	80,2	82,0	74,4	80,8	80,4	84,0	76,1	82,8	82,4
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	79,9	84,4	84,9	85,7
	A	dB(A)	80,1	77,8	78,4	79,6	77,9	82,7	82,9	83,7	79,9	84,4	84,9	85,7
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	84,3	82,3	85,6	86,6
	A	dB(A)	79,1	80,4	80,4	80,5	82,2	80,6	83,6	84,6	84,3	82,3	85,6	86,6
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	74,2	75,2	78,6	77,2
	A	dB(A)	72,0	74,9	71,6	72,6	72,2	73,5	76,6	75,2	74,2	75,2	78,6	77,2
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	62,4	61,8	61,4	62,0
	A	dB(A)	55,9	53,3	66,3	64,4	60,4	60,1	59,5	60,0	62,4	61,8	61,4	62,0
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	53,0	55,7	42,4	49,2
	A	dB(A)	47,7	41,9	53,4	54,6	51,0	54,0	40,5	47,3	53,0	55,7	42,4	49,2
SET-UP: L														
Sound data calculated in cooling mode (1)														
Sound power level	°	dB(A)	-	-	-	-	-	-	-	-	91,1	90,2	92,8	93,3
	A	dB(A)	86,6	86,6	87,5	88,2	89,1	88,5	90,8	91,3	91,1	90,2	92,8	93,3
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	58,7	57,8	60,4	60,9
	A	dB(A)	54,5	54,5	55,3	56,0	56,9	56,2	58,5	59,0	58,7	57,8	60,4	60,9
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	48,4	70,9	61,7	50,9
	A	dB(A)	46,9	49,4	57,3	58,8	46,5	69,2	59,7	49,0	48,4	70,9	61,7	50,9
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	87,0	79,1	85,8	85,4
	A	dB(A)	77,4	77,2	82,3	83,2	85,0	77,4	83,8	83,4	87,0	79,1	85,8	85,4
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	82,9	87,4	87,9	88,7
	A	dB(A)	83,1	80,8	81,4	82,6	80,9	85,7	85,9	86,7	82,9	87,4	87,9	88,7
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	87,3	85,3	88,6	89,6
	A	dB(A)	82,1	83,4	83,4	83,5	85,2	83,6	86,6	87,6	87,3	85,3	88,6	89,6
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	77,2	78,2	81,6	80,2
	A	dB(A)	75,0	77,9	74,6	75,6	75,2	76,5	79,6	78,2	77,2	78,2	81,6	80,2
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	65,4	64,8	64,4	65,0
	A	dB(A)	58,9	56,3	69,3	67,4	63,4	63,1	62,5	63,0	65,4	64,8	64,4	65,0
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	56,0	58,7	45,4	52,2
	A	dB(A)	50,7	44,9	56,4	57,6	54,0	57,0	43,5	50,3	56,0	58,7	45,4	52,2

(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).

Data 14511:2018

DHW water 12 °C / 7 °C; Source water 30 °C / 35 °C

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



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