

WFI

Technical manual



■ WATER COOLED HEAT PUMP REVERSIBLE WATER SIDE

Cooling capacity 670.0 ÷ 2406.5 kW

Heating capacity 746.2 ÷ 2664.3 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



AERMEC S.p.A.
Via Roma, 996 - 37040 Bevilacqua (VR) - Italy
Phone +39 0442 633111
Fax +39 0442 93577
www.aermec.com - sales@aermec.com

WFI

MODEL	_____
SERIAL NUMBER	_____
DATE	_____

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

Name: WFI

Type: Water cooled heat pump reversible water side

Models: WFI

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, WFI 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 670 kW to 2664 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 WFI 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 have a variable speed compressor with inverter or 1 or 2 fixed stepless speed compressor with minimum adjustment step equal to 23%. This solution combined with the control logic and the electronic thermostatic valve improves the features and advantages of all the compressors, allowing to reduce the set up time of the system and increases the energy efficiency of the unit especially with partial loads. 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 WFI 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. Furthermore, to meet the numerous system needs, the unit may also be optimised for high condensations.

THERMOSTATIC EXPANSION VALVE

The series WFI 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 WFI with a remote condenser is envisioned, the unit can be configured as condenserless (E).

All the sizes of the series WFI 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 PCO₂

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	WFI
4,5,6,7	Size 2502, 2802, 3202, 3602, 4202, 4802, 5602, 6402, 6703, 7203, 8403, 9603
8	Model
	° Standard condensation
	H Optimised for high condensation
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 without hood
	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
	° 400V ~ 3 50Hz with fuses
	8 400V ~ 3 50Hz with magnet circuit breakers
15	Refrigerant gas
	° R134a
	G R513A (XP10) (5)

(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) For further details refer to the technical documentation or to the Magellano selection program.

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.

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

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).

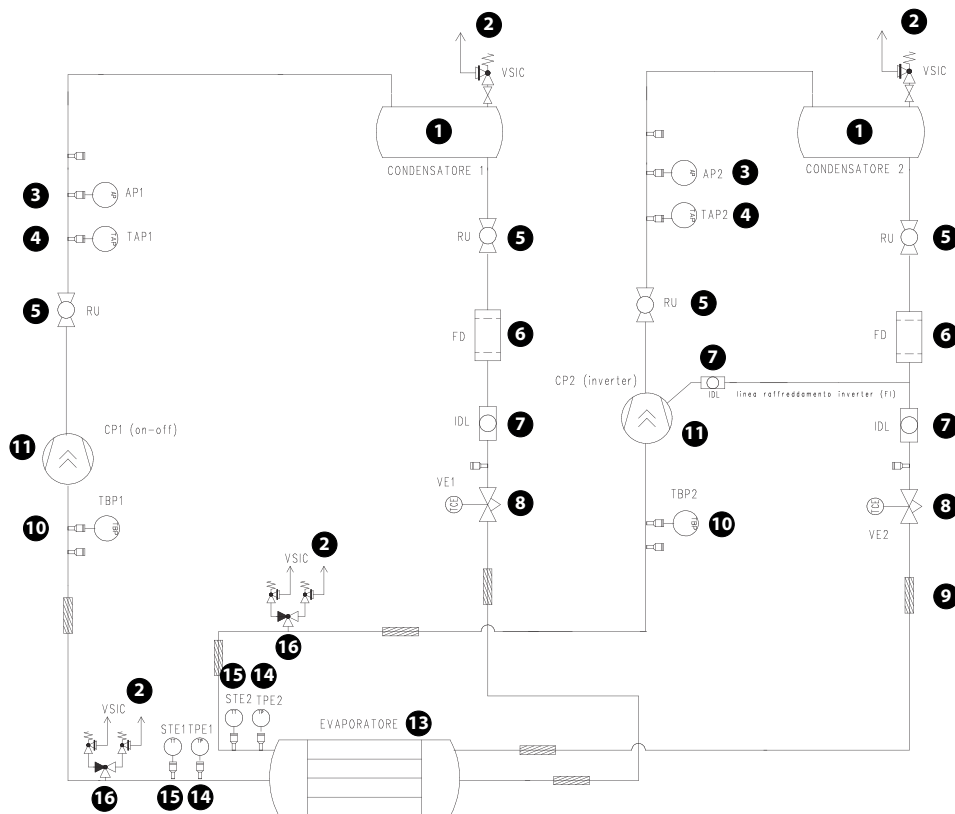
Extra-silenced acoustic hood equipment (K)

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 REFRIGERANT CIRCUIT

MODEL: STANDARD CONDENSATION (°)

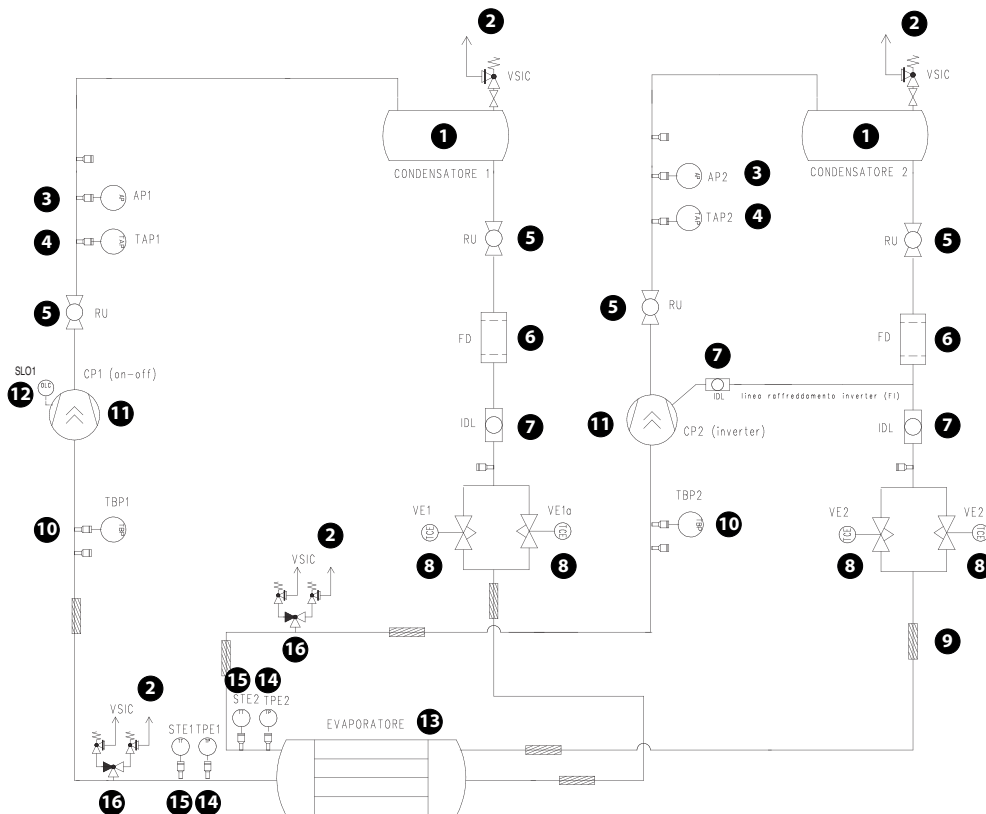
Model: Standard condensation (°) High efficiency (A) Electronic thermostatic expansion valve (X)



COMPONENTS

- 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: Standard condensation (°) High efficiency (A) Double electronic thermostatic for low temperature (Z)



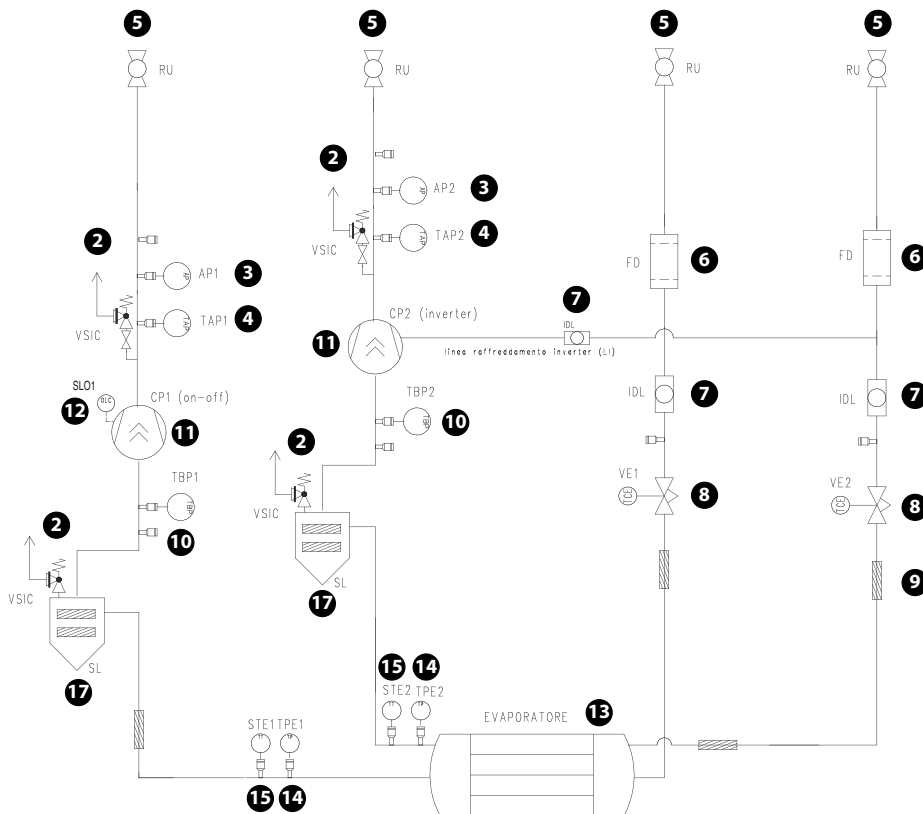
COMPONENTS

- 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.

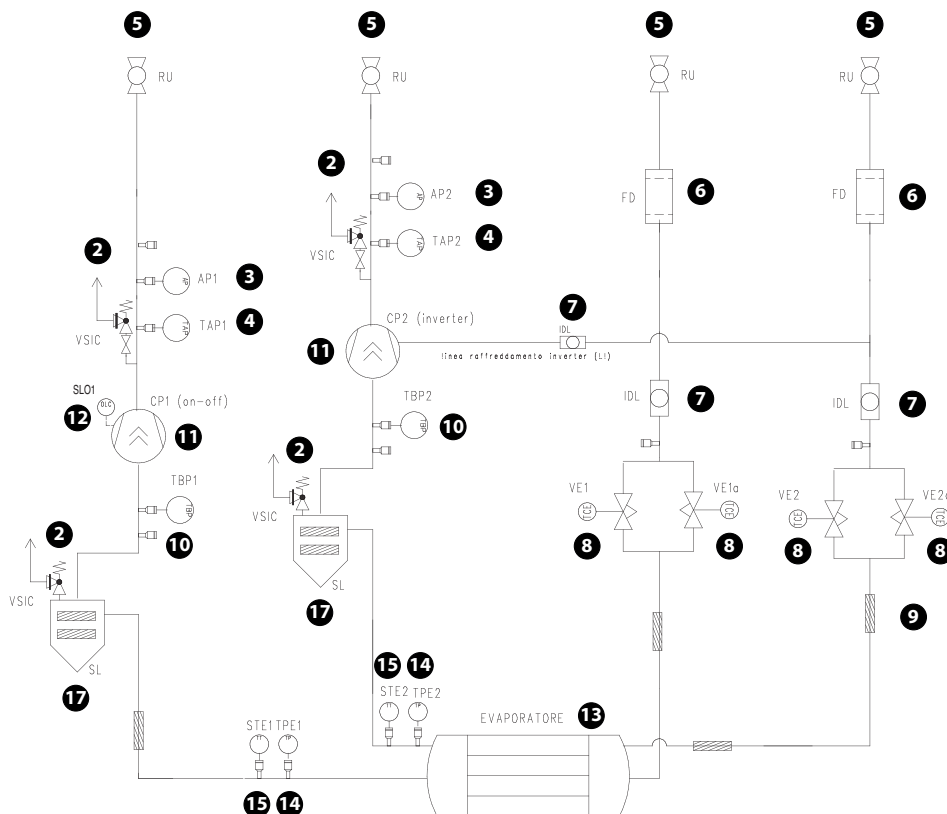
Modello (Model): High-efficiency (A) Motorcondenser (E) with Electronic thermostatic valve (X)



COMPONENTS

- 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 Double electronic thermostatic valve for low temperatures (Z)

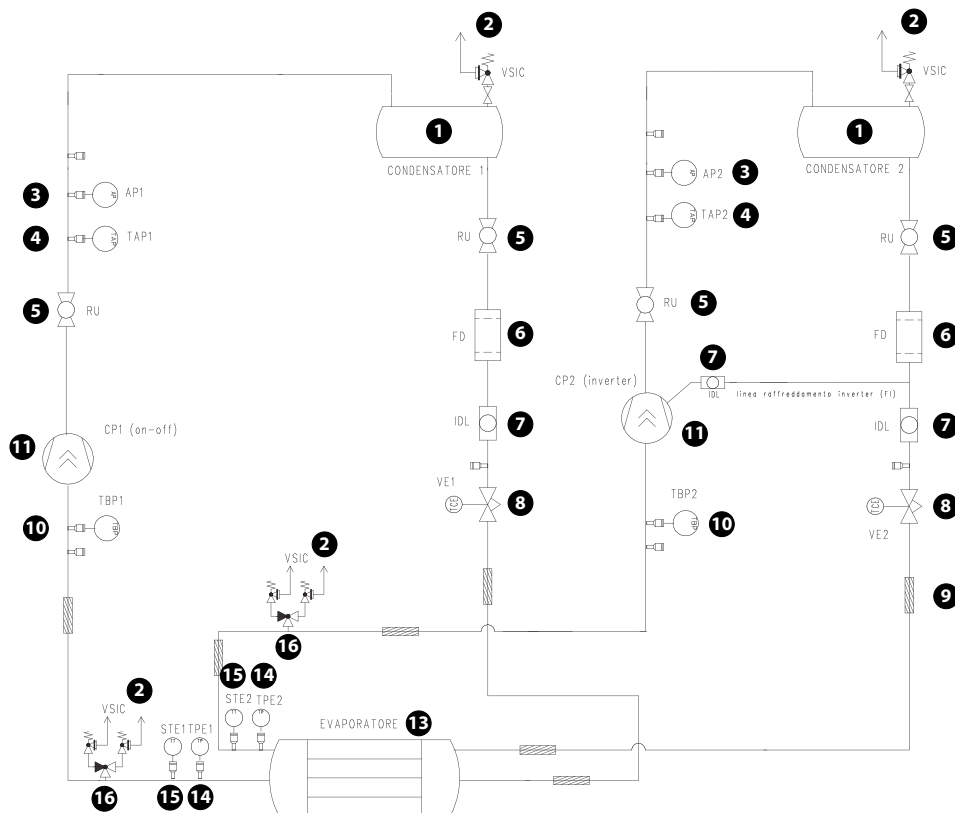


COMPONENTS

- 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)

MODEL: OPTIMISED FOR HIGH CONDENSATION (H)

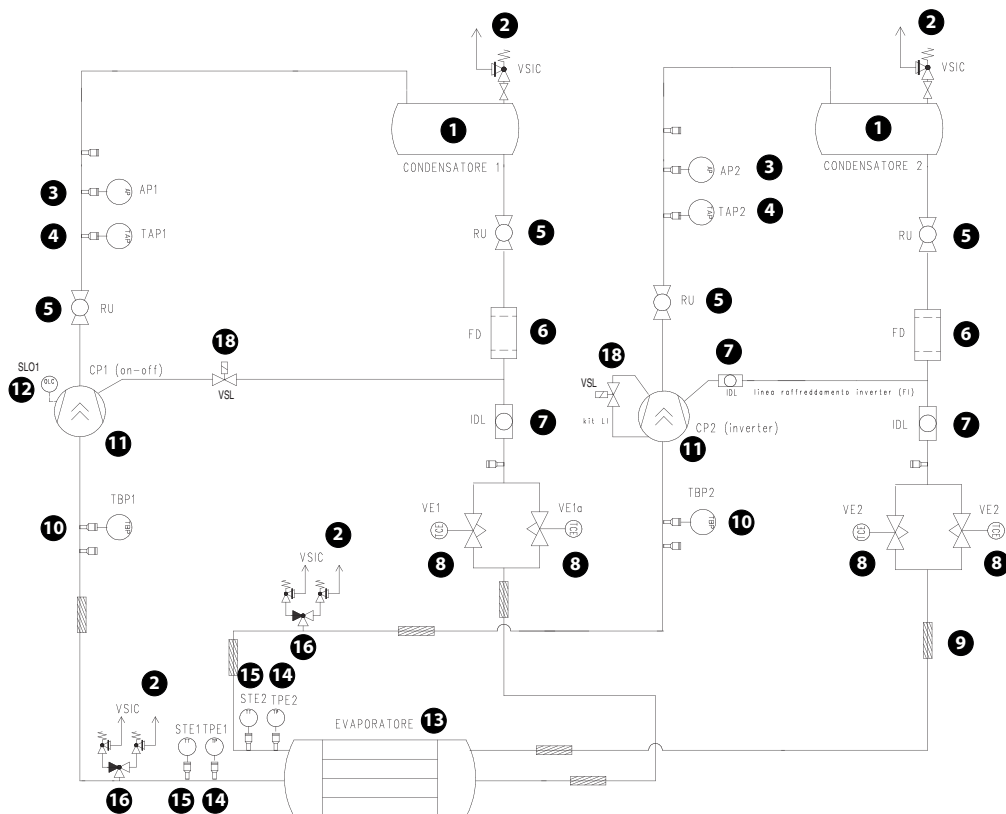
Model: Optimised for high condensation (H) High efficiency (A) Electronic thermostatic expansion valve (X)



COMPONENTS

- 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: Optimised for high condensation (H) High efficiency (A) Double electronic thermostatic for low temperature (Z)



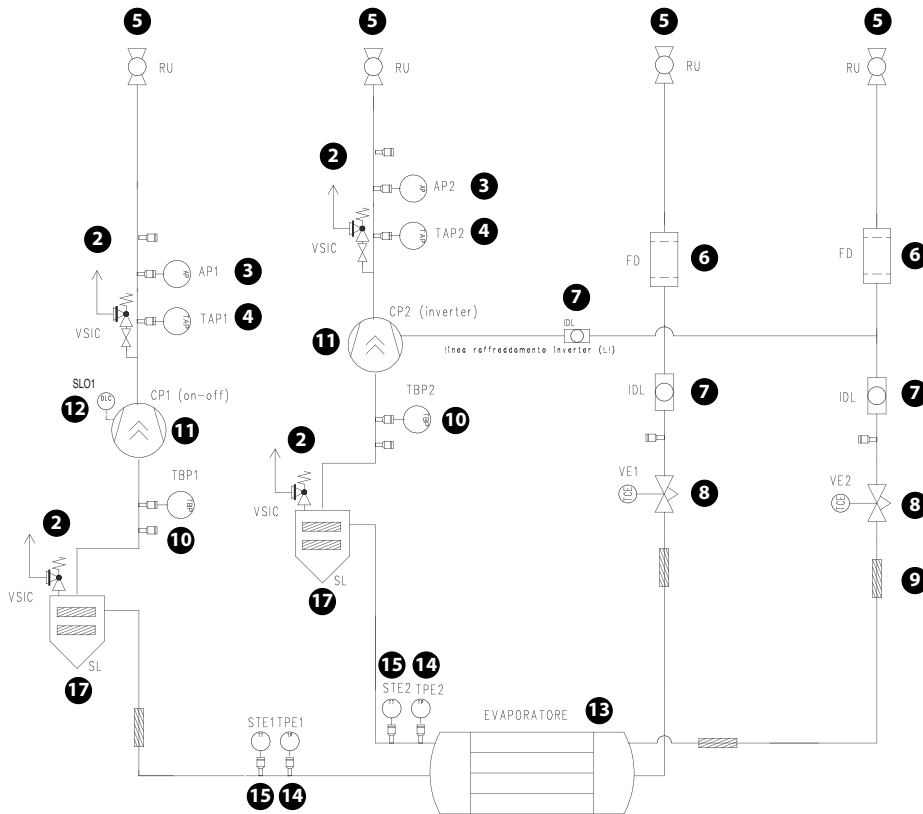
COMPONENTS

- 1 Shell and tube condenser
- 2 Pressure relief valve
- 3 High pressure switch
- 4 High pressure transducer
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- 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

MODEL: EVAPORATING UNIT (E)

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

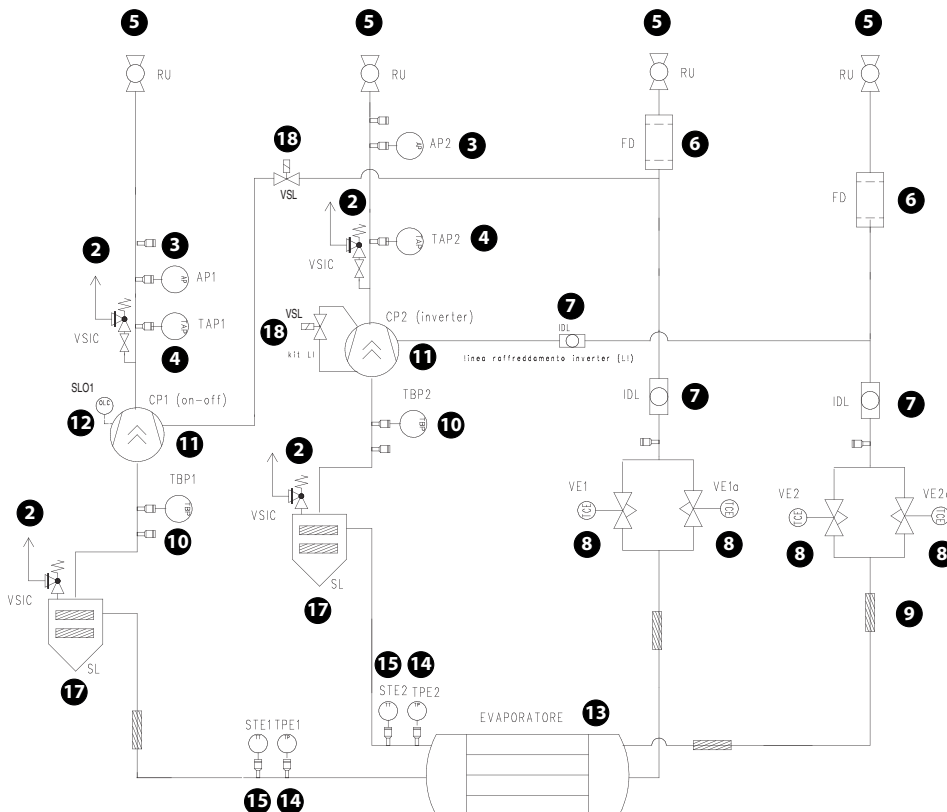
Modello (Model): High-efficiency (A) Motorcondenser (E) with Electronic thermostatic valve (X)



COMPONENTS

- 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 Double electronic thermostatic valve for low temperatures (Z)

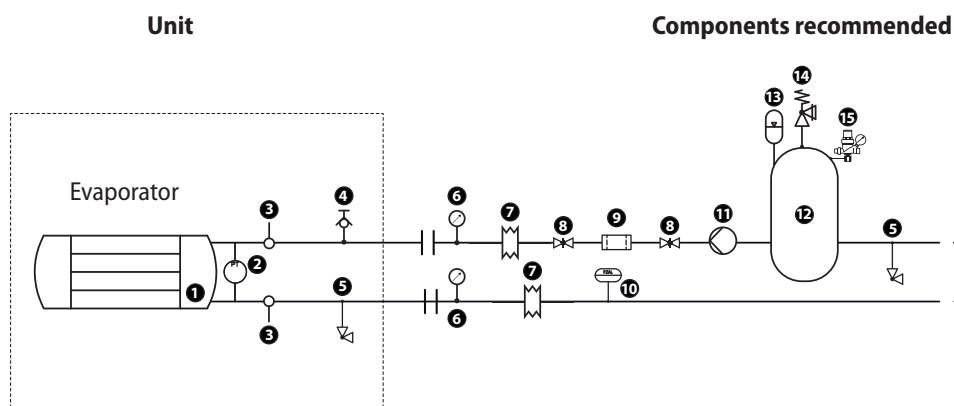


COMPONENTS

- 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
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- 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

5 MAIN HYDRAULIC CIRCUITS

EVAPORATOR



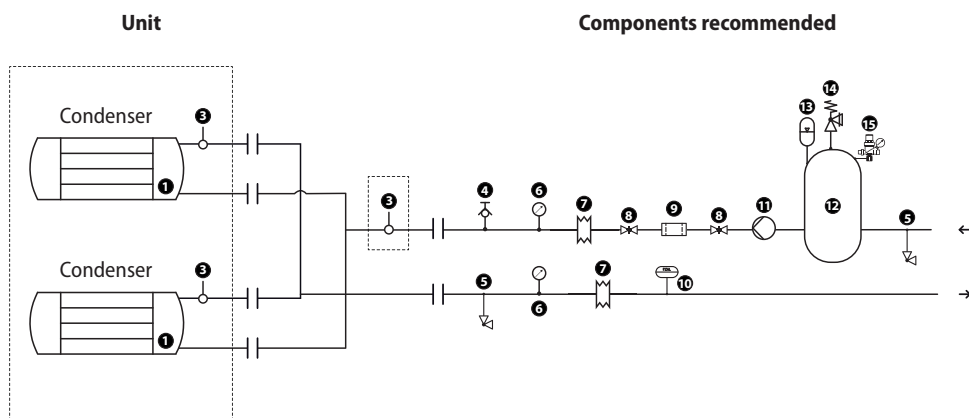
EVAPORATOR COMPONENTS AS STANDARD

- 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)

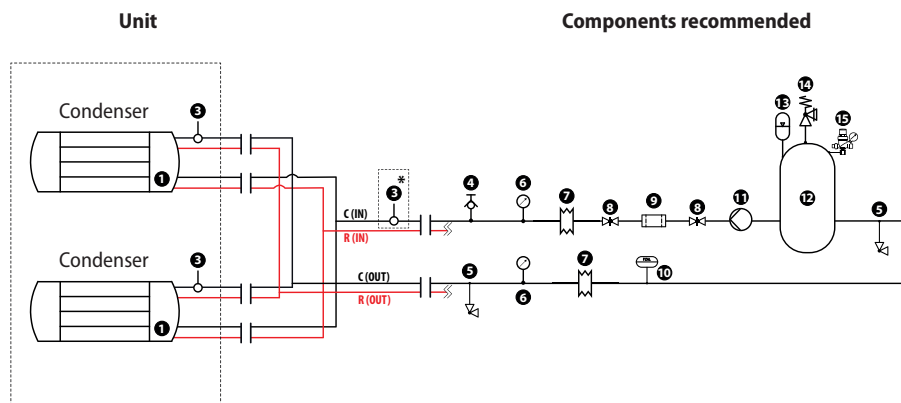
- 4 Air drain valve
- 5 Drain valve
- 6 Pressure gauge
- 7 Anti-vibration joints
- 8 Shut-off valve
- 9 Water filter not supplied. **Installation in the immediate vicinity of the heat exchanger is mandatory, penalty waiver of warranty**
- 10 Flow switch not provided. **Installation compulsory for the 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 $\mu\text{S}/\text{cm}$
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

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	AVX679	AVX678	AVX678	AVX678	Contact us.	Contact us.	Contact us.	Contact us.
A	°	D	AVX674	AVX674	AVX679	AVX679	AVX679	AVX678	AVX678	AVX678	Contact us.	Contact us.	Contact us.	Contact us.
A	L	°	AVX674	AVX674	AVX679	AVX679	AVX679	AVX678	AVX678	AVX678	Contact us.	Contact us.	Contact us.	Contact us.
A	°	T	AVX674	AVX674	AVX679	AVX679	AVX678	AVX678	AVX678	AVX678	Contact us.	Contact us.	Contact us.	Contact us.
A	L	D,T	AVX674	AVX674	AVX679	AVX679	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.

Power factor correction

Ver	2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
°	-	-	-	-	-	-	-	-	RIFWF16703	RIFWF17203	RIFWF18403	RIFWF19603
A	RIFWF12502	RIFWF12802	RIFWF13202	RIFWF13602	RIFWF14202	RIFWF14802	RIFWF15602	RIFWF16402	RIFWF16703	RIFWF17203	RIFWF18403	RIFWF19603

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 MODEL PERFORMANCE DATA (°) - FOR CONDENSING TEMPERATURES UP TO 50°C

PERFORMANCE SPECIFICATIONS - R134A

WFI - model (°) version A - refrigerant gas R134a

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °													
Cooling performance 12 °C / 7 °C - gas R134a (1)													
Cooling capacity	kW	670,0	757,4	889,1	1002,3	1143,6	1304,6	1441,8	1621,2	1771,2	1940,6	2167,0	2406,5
Input power	kW	127,4	144,9	168,9	192,8	218,4	244,5	275,3	309,9	327,6	362,0	410,0	458,2
Cooling total input current	A	214,0	244,0	277,0	315,0	351,0	399,0	446,0	497,0	527,0	597,0	667,0	751,0
EER	W/W	5,26	5,23	5,26	5,20	5,24	5,34	5,24	5,23	5,41	5,36	5,29	5,25
Water flow rate source side	l/h	136129	154084	180866	204404	232973	264813	293658	330152	359034	393872	440716	490182
Pressure drop source side	kPa	55	58	48	46	44	47	48	48	38	31	32	40
Water flow rate system side	l/h	115215	130225	152866	172295	196591	224275	247834	278670	304461	333577	372486	413608
Pressure drop system side	kPa	53,0	43,0	38,0	27,0	31,0	44,0	31,0	39,0	45,0	54,0	57,0	33,0
Heating performances 40 °C / 45 °C - gas R134a (2)													
Heating capacity	kW	746,2	839,5	979,7	1112,5	1270,4	1441,8	1597,0	1815,3	1951,6	2145,2	2391,0	2664,3
Input power	kW	165,1	183,8	210,4	242,5	276,5	310,2	346,1	394,1	414,4	459,6	518,3	573,6
Heating total input current	A	273,0	305,0	341,0	394,0	441,0	499,0	556,0	624,0	656,0	743,0	826,0	931,0
COP	W/W	4,52	4,57	4,66	4,59	4,59	4,65	4,61	4,61	4,71	4,67	4,61	4,64
Water flow rate system side	l/h	129578	145788	170162	193225	220670	250442	277422	315345	339051	372698	415418	462891
Pressure drop system side	kPa	50,0	51,0	42,0	41,0	40,0	42,0	43,0	44,0	34,0	28,0	28,0	36,0
Water flow rate source side	l/h	171302	192864	225753	254786	291203	332319	366559	417106	451025	495203	550498	612203
Pressure drop source side	kPa	118	95	82	60	67	97	69	88	98	118	125	73

(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

WFI - model (°) version ° - refrigerant gas R134a

Size										6703	7203	8403	9603
MODEL: °													
Cooling performance 12 °C / 7 °C - gas R134a (1)													
Cooling capacity		kW				1723,4				1905,7		2114,5	2327,9
Input power		kW				331,7				366,9		409,8	463,6
Cooling total input current		A				522,0				592,0		659,0	744,0
EER		W/W				5,20				5,19		5,16	5,02
Water flow rate source side		l/h				350768				387913		431371	476493
Pressure drop source side		kPa				73				69		58	71
Water flow rate system side		l/h				296246				327572		363441	400118
Pressure drop system side		kPa				47,0				51,0		39,0	46,0
Heating performances 40 °C / 45 °C - gas R134a (2)													
Heating capacity		kW				1909,4				2114,9		2342,8	2593,9
Input power		kW				418,2				463,2		513,0	581,3
Heating total input current		A				651,0				737,0		817,0	922,0
COP		W/W				4,57				4,57		4,57	4,46
Water flow rate system side		l/h				331680				367403		407019	450652
Pressure drop system side		kPa				65,0				62,0		52,0	63,0
Water flow rate source side		l/h				438855				486287		537130	592236
Pressure drop source side		kPa				103				112		85	102

(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													
MODEL: °													
SEER - 12/7 (EN14825: 2018) . refrigerant gas R134a (1)													
SEER	°	W/W	-	-	-	-	-	-	-	-	8,07	8,06	8,03
	A	W/W	8,56	8,58	8,62	8,58	8,52	8,58	8,66	8,68	8,65	8,60	8,59
Seasonal efficiency	°	%	-	-	-	-	-	-	-	-	319.8%	319.2%	318.2%
	A	%	339.2%	340.0%	341.7%	340.2%	337.9%	340.3%	343.5%	344.3%	343.1%	341,0%	340.5%
SEPR - (EN 14825: 2018) High temperature - refrigerant gas R134a (2)													
SEPR	°	W/W	-	-	-	-	-	-	-	-	8,60	8,60	8,40
	A	W/W	9,10	9,00	8,90	8,80	8,90	8,80	8,90	8,90	9,00	8,80	8,80

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

Electric data

Size													
MODEL: °													
Gas R134a													
Maximum current (FLA)	°	A	-	-	-	-	-	-	-	-	862,9	965,5	1077,5
	A	A	354,5	395,1	447,5	511,1	576,7	647,2	724,3	824,0	862,9	965,5	1077,5
Peak current (LRA)	°	A	-	-	-	-	-	-	-	-	1176,0	1301,0	1533,0
	A	A	506,0	550,0	666,0	730,0	889,0	982,0	1179,0	1355,0	1176,0	1301,0	1533,0

UNITS WITH DESUPERHEATER

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °														
Cooling performance with desuperheater - gas R134a (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

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °														
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

UNIT WITH TOTAL RECOVERY

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °														
Cooling performance with total recovery- gas R134a (1)														
Recovered heating power	°	kW	-	-	-	-	-	-	-	-	1930,0	2138,0	2368,0	2622,0
	A	kW	754,0	848,0	990,0	1124,0	1284,0	1457,0	1614,0	1775,0	1973,0	2169,0	2417,0	2694,0
Cooling capacity	°	kW	-	-	-	-	-	-	-	-	1551,7	1719,4	1899,2	2094,0
	A	kW	605,7	681,9	798,2	900,9	1029,6	1175,0	1296,1	1474,8	1594,7	1750,9	1946,4	2164,6
Input power	°	kW	-	-	-	-	-	-	-	-	398,3	440,5	493,9	556,1
	A	kW	156,1	175,2	202,1	235,3	267,8	297,2	335,0	379,2	398,2	439,8	495,7	556,8
Total recovery water flow rate	°	l/h	-	-	-	-	-	-	-	-	335433	371583	411557	455702
	A	l/h	131045	147382	172061	195350	223158	253226	280512	308494	342906	376971	420073	468215
Total pressure drop total recovery	°	kPa	-	-	-	-	-	-	-	-	14	18	23	28
	A	kPa	49	48	44	44	45	44	45	43	28	24	37	46

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °														
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

PERFORMANCE SPECIFICATIONS - R513A (XP10)

Model output data (°) - vers. A - Refrigerant Gas R513A

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °													
Cooling performance 12 °C / 7 °C - gas R513A (1)													
Cooling capacity	kW	683,4	772,5	906,9	1022,1	1166,4	1330,7	1470,6	1653,6	1806,6	1979,5	2210,4	2454,6
Input power	kW	133,6	151,8	177,8	204,4	229,9	257,3	289,6	326,0	343,9	379,1	430,9	480,9
Cooling total input current	A	225,0	256,0	291,0	331,0	369,0	419,0	469,0	520,0	553,0	626,0	700,0	788,0
EER	W/W	5,11	5,09	5,10	5,00	5,07	5,17	5,08	5,07	5,25	5,22	5,13	5,10
Water flow rate source side	l/h	139452	157851	185287	209415	238677	271272	300847	338233	367779	403479	451488	502185
Pressure drop source side	kPa	54	53	56	53	50	51	53	53	37	35	35	41
Water flow rate system side	l/h	117519	132829	155923	175741	200522	228761	252791	284243	310550	340249	379936	421880
Pressure drop system side	kPa	56,0	46,0	38,0	52,0	35,0	50,0	35,0	43,0	48,0	44,0	60,0	34,0
Heating performances 40 °C / 45 °C - gas R513A (2)													
Heating capacity	kW	765,5	861,2	1005,1	1141,4	1303,4	1479,0	1638,5	1862,3	2001,9	2200,6	2452,9	2733,3
Input power	kW	173,3	192,8	221,2	259,2	291,3	326,9	364,3	414,7	435,3	479,1	544,8	601,9
Heating total input current	A	287,0	321,0	358,0	413,0	463,0	524,0	584,0	653,0	689,0	780,0	868,0	977,0
COP	W/W	4,42	4,47	4,54	4,40	4,47	4,52	4,50	4,49	4,60	4,59	4,50	4,54
Water flow rate system side	l/h	132937	149565	174558	198246	226399	256911	284616	323515	347788	382313	426163	474884
Pressure drop system side	kPa	50,0	47,0	50,0	48,0	45,0	46,0	48,0	49,0	33,0	31,0	31,0	37,0
Water flow rate source side	l/h	174728	196722	230268	259881	297027	338966	373890	425448	460046	505107	561508	624447
Pressure drop source side	kPa	123	101	84	113	76	109	77	95	104	97	130	74

(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

Model output data - model (°) vers. ° - refrigerant gas R513A

Size						6703		7203		8403		9603
MODEL: °												
Cooling performance 12 °C / 7 °C - gas R513A (1)												
Cooling capacity		kW				1757,9		1943,8		2156,8		2374,5
Input power		kW				348,4		385,4		431,2		488,1
Cooling total input current		A				549,0		622,0		692,0		781,0
EER		W/W				5,05		5,04		5,00		4,86
Water flow rate source side		l/h				359348		397404		441950		488219
Pressure drop source side		kPa				76		73		64		79
Water flow rate system side		l/h				302171		334123		370710		408121
Pressure drop system side		kPa				49,0		53,0		43,0		51,0
Heating performances 40 °C / 45 °C - gas R513A (2)												
Heating capacity		kW				1958,8		2169,6		2403,6		2661,5
Input power		kW				439,2		486,5		540,0		612,4
Heating total input current		A				683,0		774,0		858,0		968,0
COP		W/W				4,46		4,46		4,45		4,35
Water flow rate system side		l/h				340270		376915		417586		462397
Pressure drop system side		kPa				68,0		66,0		57,0		71,0
Water flow rate source side		l/h				447633		496013		547873		604081
Pressure drop source side		kPa				107		116		93		112

(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
MODEL: °														
SEER - 12/7 (EN14825: 2018) . refrigerant gas R513A (1)														
SEER	°	W/W	-	-	-	-	-	-	-	-	7,84	7,82	7,77	7,65
	A	W/W	8,32	8,34	8,33	8,17	8,27	8,31	8,38	8,40	8,40	8,41	8,33	8,39
Seasonal efficiency	°	%	-	-	-	-	-	-	-	-	310.6%	309.8%	307.8%	302.8%
	A	%	329.6%	330.5%	330.3%	323.7%	327.7%	329.2%	332.2%	333.1%	333.1%	333.4%	330.2%	332.5%
SEPR - (EN 14825: 2018) High temperature - refrigerant gas R513A (2)														
SEPR	°	W/W	-	-	-	-	-	-	-	-	8,40	8,30	8,20	8,10
	A	W/W	8,80	8,80	8,60	8,40	8,60	8,50	8,60	8,60	8,70	8,60	8,40	8,50

(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
MODEL: °														
Gas R513A														
Maximum current (FLA)	°	A	-	-	-	-	-	-	-	-	905,6	1013,4	1197,9	1271,6
	A	A	372,0	414,6	469,6	536,4	605,2	679,2	827,1	864,0	905,6	1013,4	1197,9	1271,6
Peak current (LRA)	°	A	-	-	-	-	-	-	-	-	1205,0	1333,0	1569,0	1784,0
	A	A	516,0	624,0	677,0	743,0	904,0	999,0	1198,0	1377,0	1205,0	1333,0	1569,0	1784,0

UNITS WITH DESUPERHEATER

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °														
Cooling performance with desuperheater - gas R513A (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

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G														
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

UNIT WITH TOTAL RECOVERY

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °														
Cooling performance with total recovery- gas R513A (1)														
Recovered heating power	°	kW	-	-	-	-	-	-	-	-	1980,0	2193,0	2430,0	2691,0
	A	kW	774,0	870,0	1016,0	1154,0	1317,0	1495,0	1656,0	1835,0	2024,0	2225,0	2480,0	2763,0
Cooling capacity	°	kW	-	-	-	-	-	-	-	-	1582,7	1753,8	1937,2	2135,9
	A	kW	617,8	695,6	814,2	918,9	1050,2	1198,5	1322,0	1504,3	1626,6	1786,0	1985,4	2207,9
Input power	°	kW	-	-	-	-	-	-	-	-	418,2	462,6	518,6	583,9
	A	kW	163,9	183,9	212,2	247,0	281,2	312,0	351,7	398,1	418,1	461,8	520,5	584,6
Total recovery water flow rate	°	l/h	-	-	-	-	-	-	-	-	344123	381142	422332	467694
	A	l/h	134521	151205	176580	200564	228894	259830	287812	318922	351770	386703	431022	480207
Total pressure drop total recovery	°	kPa	-	-	-	-	-	-	-	-	14	18	23	28
	A	kPa	52	51	46	47	48	47	47	45	30	25	39	48

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G														
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

8 MODEL PERFORMANCE DATA (H) - FOR CONDENSING TEMPERATURES UP TO 60°C

PERFORMANCE SPECIFICATIONS - R134A

Model output data (H) - vers. A - Refrigerant Gas R134a

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H													
Cooling performance 12 °C / 7 °C - gas R134a (1)													
Cooling capacity	kW	672,4	770,8	886,7	999,1	1145,7	1305,1	1454,0	1620,1	1770,6	1939,2	2161,5	2375,7
Input power	kW	132,4	153,1	173,5	195,9	224,6	254,6	288,9	327,3	340,1	376,7	435,1	482,5
Cooling total input current	A	226,0	257,0	285,0	316,0	364,0	415,0	475,0	543,0	567,0	621,0	715,0	806,0
EER	W/W	5,08	5,04	5,11	5,10	5,10	5,13	5,03	4,95	5,21	5,15	4,97	4,92
Water flow rate source side	l/h	137384	157768	181226	204349	234273	266548	297970	332858	360998	396033	443977	488997
Pressure drop source side	kPa	53	55	48	48	49	48	50	46	36	32	32	38
Water flow rate system side	l/h	115641	132532	152452	171756	196959	224366	249941	278496	304349	333335	371531	408313
Pressure drop system side	kPa	54,0	44,0	36,0	27,0	32,0	44,0	32,0	40,0	46,0	54,0	51,0	30,0
Heating performances 40 °C / 45 °C - gas R134a (2)													
Heating capacity	kW	741,6	852,1	975,8	1106,1	1267,8	1441,2	1611,1	1842,1	1948,7	2138,6	2398,1	2642,8
Input power	kW	160,3	184,4	206,0	235,2	268,6	305,3	343,0	388,6	408,5	453,9	520,2	571,4
Heating total input current	A	268,0	305,0	334,0	376,0	431,0	490,0	558,0	633,0	669,0	732,0	838,0	945,0
COP	W/W	4,63	4,62	4,74	4,70	4,72	4,72	4,70	4,74	4,77	4,71	4,61	4,62
Water flow rate system side	l/h	128783	147970	169486	192116	220216	250335	279872	320004	338539	371554	416652	459154
Pressure drop system side	kPa	47,0	48,0	42,0	42,0	44,0	43,0	44,0	42,0	32,0	28,0	29,0	33,0
Water flow rate source side	l/h	171266	196282	225782	254976	292792	333536	371554	426498	451814	494844	551546	606152
Pressure drop source side	kPa	118	96	80	60	71	97	71	93	101	118	113	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

Model output data - model (°) vers. ° - refrigerant gas R134a

Size							6703		7203		8403		9603
MODEL: H													
Cooling performance 12 °C / 7 °C - gas R134a (1)													
Cooling capacity													
Input power													
Cooling total input current													
EER													
Water flow rate source side													
Pressure drop source side													
Water flow rate system side													
Pressure drop system side													
Heating performances 40 °C / 45 °C - gas R134a (2)													
Heating capacity													
Input power													
Heating total input current													
COP													
Water flow rate system side													
Pressure drop system side													
Water flow rate source side													
Pressure drop source side													

(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
MODEL: H														
SEER - 12/7 (EN14825: 2018) . refrigerant gas R134a (1)														
Seasonal efficiency	°	%	-	-	-	-	-	-	-	-	279.7%	281.0%	284.8%	278.6%
	A	%	298.0%	297.1%	301.3%	295.4%	301.8%	303.6%	307.3%	298.0%	297.8%	295.6%	296.9%	297.5%
SEER	°	W/W	-	-	-	-	-	-	-	-	7,07	7,10	7,20	7,04
	A	W/W	7,53	7,50	7,61	7,46	7,62	7,67	7,76	7,53	7,52	7,47	7,50	7,51
SEPR - (EN 14825: 2018) High temperature- refrigerant gas R134a (2)														
SEPR	°	W/W	-	-	-	-	-	-	-	-	8,40	8,30	8,20	8,10
	A	W/W	8,80	8,80	8,60	8,40	8,60	8,50	8,60	8,60	8,70	8,60	8,40	8,50

(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
MODEL: H														
Gas R134a														
Maximum current (FLA)	°	A	-	-	-	-	-	-	-	-	954,0	1052,0	1180,0	1290,0
	A	A	378,0	428,0	473,0	535,0	616,0	704,0	787,0	864,0	954,0	1357,0	1180,0	1290,0
Peak current (LRA)	°	A	-	-	-	-	-	-	-	-	1234,0	1357,0	1595,0	1784,0
	A	A	507,0	560,0	676,0	742,0	897,0	1009,0	1203,0	1359,0	1234,0	1052,0	1595,0	1784,0

UNITS WITH DESUPERHEATER

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H														
Cooling performance with desuperheater - gas R134a (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

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °														
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

UNIT WITH TOTAL RECOVERY

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H														
Cooling performance with total recovery- gas R134a (1)														
Recovered heating power	°	kW	-	-	-	-	-	-	-	-	1912,0	2131,0	2374,0	2599,0
	A	kW	749,0	861,0	986,0	1118,0	1281,0	1457,0	1629,0	1865,0	1970,0	2162,0	2425,0	2672,0
Cooling capacity	°	kW	-	-	-	-	-	-	-	-	1539,8	1718,1	1902,9	2073,8
	A	kW	605,6	694,0	798,3	901,5	1035,3	1179,3	1313,7	1508,0	1597,5	1749,7	1950,2	2143,2
Input power	°	kW	-	-	-	-	-	-	-	-	391,3	435,0	496,1	553,4
	A	kW	151,4	175,8	197,8	227,8	259,2	292,0	331,4	372,8	392,1	434,2	499,3	556,4
Total recovery water flow rate	°	l/h	-	-	-	-	-	-	-	-	332304	370366	412599	451704
	A	l/h	130176	149641	171366	194308	222637	253226	283119	323614	342385	375754	421463	464392
Total pressure drop total recovery	°	kPa	-	-	-	-	-	-	-	-	14	18	23	28
	A	kPa	48	50	43	44	45	44	45	47	28	24	38	45

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °														
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

PERFORMANCE SPECIFICATIONS - R513A (XP10)

Model output data (H) - vers. A - Refrigerant Gas R513A

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H													
Cooling performance 12 °C / 7 °C - gas R513A (1)													
Cooling capacity	kW	685,9	786,2	904,5	1018,9	1168,6	1331,2	1483,1	1652,5	1806,0	1978,0	2204,7	2423,2
Input power	kW	139,0	160,8	182,7	207,5	236,0	267,8	303,9	344,8	357,2	394,5	457,9	507,2
Cooling total input current	A	237,0	270,0	299,0	332,0	382,0	436,0	499,0	570,0	595,0	652,0	750,0	847,0
EER	W/W	4,93	4,89	4,95	4,91	4,95	4,97	4,88	4,79	5,06	5,01	4,81	4,78
Water flow rate source side	l/h	140756	161649	185677	209373	240031	273092	305311	341080	369845	405755	454942	501100
Pressure drop source side	kPa	56	55	57	53	51	52	55	54	37	35	36	41
Water flow rate system side	l/h	117954	135183	155501	175191	200898	228854	254939	284065	310436	340002	378961	416480
Pressure drop system side	kPa	56,0	48,0	38,0	51,0	35,0	50,0	36,0	45,0	47,0	44,0	59,0	33,0
Heating performances 40 °C / 45 °C - gas R513A (2)													
Heating capacity	kW	760,7	874,1	1001,0	1134,7	1300,5	1478,2	1652,8	1889,5	1998,7	2193,7	2460,2	2711,3
Input power	kW	168,3	193,9	216,8	251,4	282,4	321,6	361,1	410,0	429,0	473,1	548,8	601,0
Heating total input current	A	281,0	320,0	351,0	395,0	452,0	514,0	586,0	665,0	702,0	769,0	880,0	993,0
COP	W/W	4,52	4,51	4,62	4,51	4,61	4,60	4,58	4,61	4,66	4,64	4,48	4,51
Water flow rate system side	l/h	132102	151794	173848	197078	225894	256777	287097	328236	347237	381119	427439	471071
Pressure drop system side	kPa	49,0	49,0	50,0	47,0	45,0	46,0	49,0	50,0	33,0	31,0	31,0	36,0
Water flow rate source side	l/h	174691	200207	230298	260076	298648	340207	378985	435028	460851	504741	562578	618274
Pressure drop source side	kPa	123	105	84	113	77	110	79	107	105	97	131	72

(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

Model output data - model (°) vers. ° - refrigerant gas R513A

Size			6703		7203		8403		9603
MODEL: H									
Cooling performance 12 °C / 7 °C - gas R513A (1)									
Cooling capacity		kW	1740,7		1942,3		2151,4		2344,6
Input power		kW	360,6		401,0		456,9		512,2
Cooling total input current		A	589,0		647,0		740,0		836,0
EER		W/W	4,83		4,84		4,71		4,58
Water flow rate source side		l/h	358432		399679		445221		487050
Pressure drop source side		kPa	76		74		65		79
Water flow rate system side		l/h	299228		333860		369781		402982
Pressure drop system side		kPa	48,0		52,0		42,0		50,0
Heating performances 40 °C / 45 °C - gas R513A (2)									
Heating capacity		kW	1939,9		2162,8		2409,6		2638,4
Input power		kW	431,4		480,6		542,4		608,8
Heating total input current		A	695,0		763,0		868,0		980,0
COP		W/W	4,50		4,50		4,44		4,33
Water flow rate system side		l/h	336996		375719		418614		458381
Pressure drop system side		kPa	67,0		65,0		57,0		70,0
Water flow rate source side		l/h	444211		495623		548949		598236
Pressure drop source side		kPa	105		116		93		110

(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
MODEL: H													
SEER - 12/7 (EN14825: 2018) . refrigerant gas R513A (1)													
SEER	°	W/W	-	-	-	-	-	-	-	6,95	6,98	7,02	6,86
	A	W/W	7,31	7,29	7,36	7,12	7,39	7,42	7,51	7,26	7,37	7,35	7,33
Seasonal efficiency	°	%	-	-	-	-	-	-	-	275.0%	276.1%	277.9%	271.4%
	A	%	289.5%	288.7%	291.3%	281.8%	292.6%	293.9%	297.3%	287.3%	291.6%	291.1%	290.3%
SEPR - (EN 14825: 2018) High temperature - refrigerant gas R513A (2)													
SEPR	°	W/W	-	-	-	-	-	-	-	8,00	8,00	7,70	7,60
	A	W/W	8,50	8,40	8,30	8,30	8,40	8,20	8,30	8,20	8,40	8,30	7,90

(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
MODEL: H													
Gas R513A													
Maximum current (FLA)	°	A	-	-	-	-	-	-	-	1001,0	1104,0	1238,0	1354,0
	A	A	397,0	449,0	497,0	561,0	647,0	739,0	827,0	907,0	1001,0	1104,0	1238,0
Peak current (LRA)	°	A	-	-	-	-	-	-	-	1266,0	1392,0	1635,0	1827,0
	A	A	517,0	571,0	688,0	756,0	912,0	1027,0	1223,0	1381,0	1266,0	1392,0	1635,0

UNITS WITH DESUPERHEATER

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H														
Cooling performance with desuperheater - gas R513A (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

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G														
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

UNIT WITH TOTAL RECOVERY

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H														
Cooling performance with total recovery- gas R513A (1)														
Recovered heating power	°	kW	-	-	-	-	-	-	-	-	1961,0	2186,0	2436,0	2667,0
	A	kW	769,0	883,0	1012,0	1147,0	1314,0	1494,0	1671,0	1910,0	2021,0	2218,0	2487,0	2741,0
Cooling capacity	°	kW	-	-	-	-	-	-	-	-	1570,6	1752,4	1941,0	2115,2
	A	kW	617,7	707,9	814,3	919,6	1056,0	1202,9	1340,0	1538,2	1629,5	1784,7	1989,2	2186,1
Input power	°	kW	-	-	-	-	-	-	-	-	410,9	456,7	520,9	581,0
	A	kW	159,0	184,6	207,7	239,2	272,1	306,6	348,0	391,4	411,7	455,9	524,3	584,2
Total recovery water flow rate	°	l/h	-	-	-	-	-	-	-	-	340820	379925	423375	463523
	A	l/h	133652	153465	175885	199348	228372	259656	290419	331957	351248	385487	432239	476384
Total pressure drop total recovery	°	kPa	-	-	-	-	-	-	-	-	14	18	23	28
	A	kPa	51	52	46	46	48	47	48	49	30	25	40	47

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: G														
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

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	Inverter+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	-	-	-	-	-	-	-	-	106,0	104,0	110,0	120,0
	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	-	-	-	-	-	-	-	-	106,0	104,0	110,0	120,0
	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	°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											
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											

10 PERFORMANCE SPECIFICATIONS EVAPORATING UNITS

MODEL PERFORMANCE DATA (°) - FOR CONDENSING TEMPERATURES UP TO 50°C

WFI° - °E

Size		6703	7203	8403	9603
MODEL: °					
Cooling performance 12 °C / 7 °C (1)					
Cooling capacity	kW	1515,4	1689,7	1833,1	2021,9
Input power	kW	387,7	429,0	481,0	541,3
Cooling total input current	A	633,0	713,0	793,0	893,0
EER	W/W	3,91	3,94	3,81	3,74
Evaporator water flow rate	l/h	260358	290307	314947	347392
Pressure drop evaporator side	kPa	37	40	29	35

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

WFI° - AE

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °													
Cooling performance 12 °C / 7 °C (1)													
Cooling capacity	kW	603,1	688,5	797,4	899,3	1008,4	1169,8	1287,8	1439,2	1558,1	1742,4	1896,4	2110,0
Input power	kW	152,9	171,4	198,1	229,9	259,8	287,4	323,9	364,6	386,3	431,2	481,0	540,3
Cooling total input current	A	261,4	292,5	330,2	380,6	424,7	476,4	532,4	600,3	631,3	709,7	792,6	891,2
EER	W/W	3,94	4,02	4,03	3,91	3,88	4,07	3,98	3,95	4,03	4,04	3,94	3,91
Evaporator water flow rate	l/h	103615	118287	137003	154508	173247	200980	221262	247268	267705	299365	325826	362526
Pressure drop evaporator side	kPa	43	35	29	22	25	35	25	31	35	43	39	24

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

MODEL PERFORMANCE DATA (H) - FOR CONDENSING TEMPERATURES UP TO 60°C

WFIH - °E

Size		6703	7203	8403	9603
MODEL: H					
Cooling performance 12 °C / 7 °C (1)					
Cooling capacity	kW	1524,4	1698,4	1844,7	2016,4
Input power	kW	383,7	425,2	483,3	533,7
Cooling total input current	A	645,8	709,0	803,3	895,1
EER	W/W	3,97	3,99	3,82	3,78
Evaporator water flow rate	l/h	261912	291802	316947	346444
Pressure drop evaporator side	kPa	38	40	29	35

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

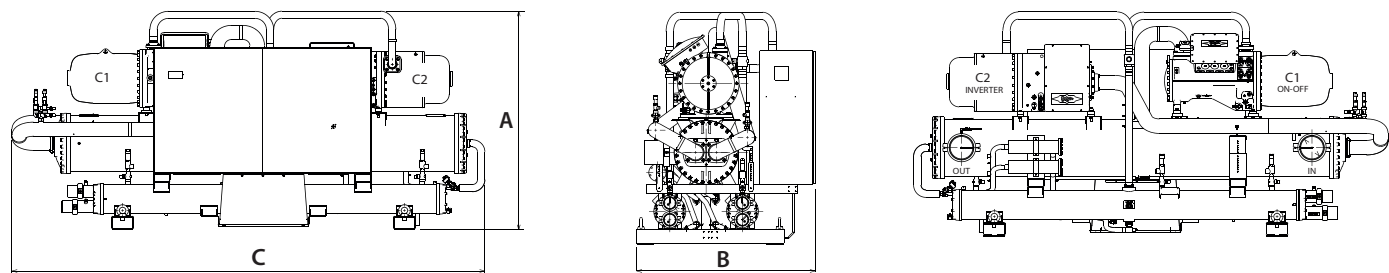
WFIH - AE

Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H													
Cooling performance 12 °C / 7 °C (1)													
Cooling capacity	kW	602,3	690,5	794,5	897,8	1009,4	1177,8	1297,5	1436,1	1566,5	1750,8	1908,3	2101,3
Input power	kW	147,9	170,4	193,3	218,4	248,4	284,6	324,0	361,7	383,8	424,1	485,5	536,4
Cooling total input current	A	256,5	291,2	322,9	358,5	412,8	473,1	536,1	602,7	646,0	707,3	806,6	899,1
EER	W/W	4,07	4,05	4,11	4,11	4,06	4,14	4,01	3,97	4,08	4,13	3,93	3,92
Evaporator water flow rate	l/h	103477	118635	136501	154254	173418	202354	222930	246737	269151	300804	327864	361031
Pressure drop evaporator side	kPa	43	35	29	22	25	36	26	31	36	44	40	24

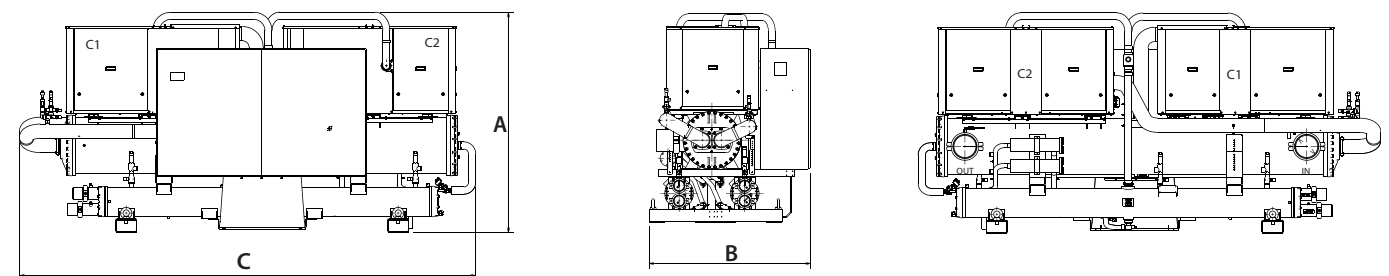
(1) Service side water 12 °C / 7 °C; Condensing temperature 45 °C

11 DIMENSIONS AND WEIGHTS

STANDARD EQUIPMENT



SILENCED EQUIPMENT AND SUPER SILENCED EQUIPMENT



Unit weights and dimensions °/H

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °, H														
Dimensions and weights - standard configuration														
A	°	mm	-	-	-	-	-	-	-	-	2250	2250	2250	2250
	A	mm	2131	2131	2195	2195	2340	2455	2440	2432	2250	2250	2250	2250
B	°	mm	-	-	-	-	-	-	-	-	2200	2200	2200	2200
	A	mm	1645	1645	1675	1675	1685	1875	1875	2000	2200	2200	2200	2200
C	°	mm	-	-	-	-	-	-	-	-	5650	5650	5650	5650
	A	mm	4320	4345	4380	4380	4395	4500	4580	4580	5650	5650	5650	5650
Empty weight	°	kg	-	-	-	-	-	-	-	-	8740	9680	9900	10000
	A	kg	3710	3980	5160	5220	5710	6440	6680	6770	9730	11440	11980	12060
Dimensions and weights - quiet configuration														
A	°	mm	-	-	-	-	-	-	-	-	2250	2250	2250	2250
	A	mm	2131	2131	2195	2195	2340	2455	2440	2432	2250	2250	2250	2250
B	°	mm	-	-	-	-	-	-	-	-	2200	2200	2200	2200
	A	mm	1645	1645	1675	1675	1685	1875	1875	2000	2200	2200	2200	2200
C	°	mm	-	-	-	-	-	-	-	-	5650	5650	5650	5650
	A	mm	4320	4345	4630	4630	4600	5015	5060	5060	5650	5650	5650	5650
Empty weight	°	kg	-	-	-	-	-	-	-	-	9270	10240	10510	10610
	A	kg	4020	4290	5500	5560	6050	6810	7080	7170	10260	12000	12590	12670
Super silenced equipment dimensions and weights														
A	°	mm	-	-	-	-	-	-	-	-	2250	2250	2250	2250
	A	mm	2131	2131	2195	2195	2340	2455	2440	2432	2250	2250	2250	2250
B	°	mm	-	-	-	-	-	-	-	-	2200	2200	2200	2200
	A	mm	1645	1645	1675	1675	1685	1875	1875	2000	2200	2200	2200	2200
C	°	mm	-	-	-	-	-	-	-	-	5650	5650	5650	5650
	A	mm	4320	4345	4630	4630	4600	5015	5060	5060	5650	5650	5650	5650
Empty weight	°	kg	-	-	-	-	-	-	-	-	9890	10890	11230	11330
	A	kg	4400	4670	5910	5970	6460	7240	7550	7640	10880	12650	13310	13390

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

12 MINIMUM TECHNICAL SPACES

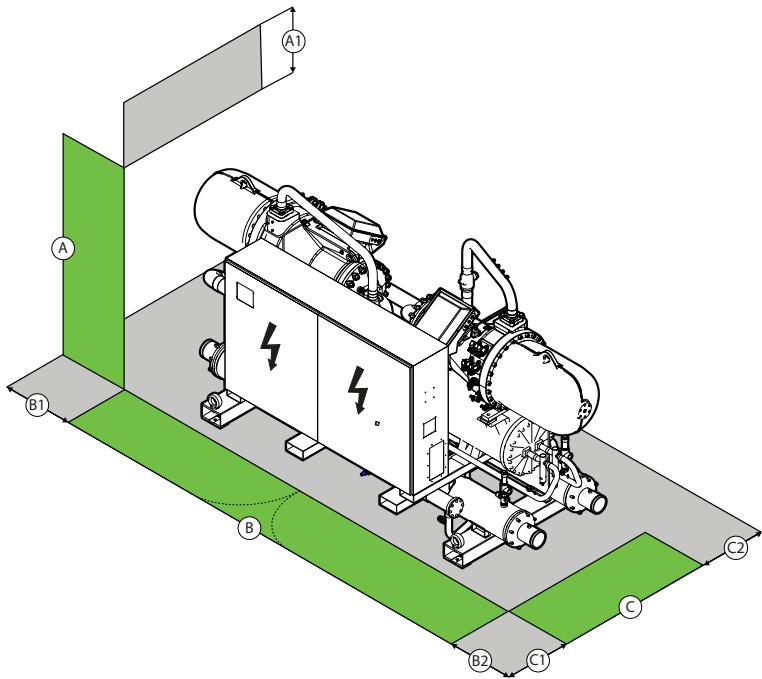
With regards to all units, it is essential to respect the minimum distances to avoid:
— The generation of hazardous atmospheres in the case of refrigerant gas leaks;

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		
WFI		
A1	mm	1000
B1	mm	2000 (*)
B2	mm	2000 (*)
C2	mm	1000
Electrical box standard		
C1 (2502-6402)	mm	1650

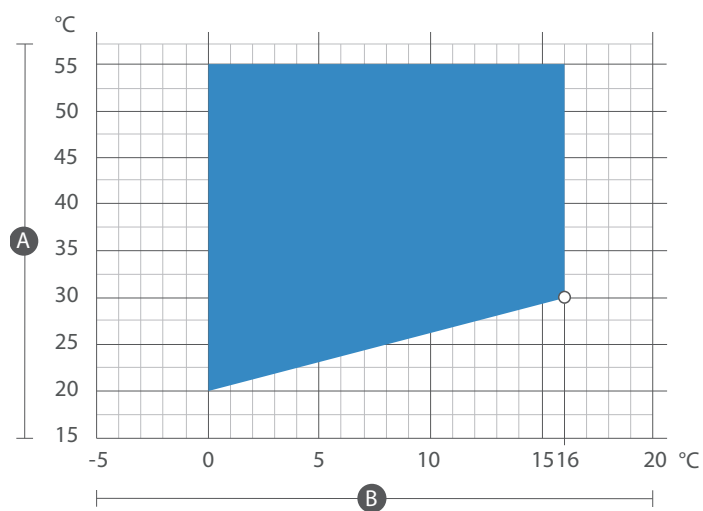
(*) Technical spaces required for chemical cleaning or cleaning with condenser brushes. These spaces can be reduced to 1000 mm only for chemical cleaning.

13 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.

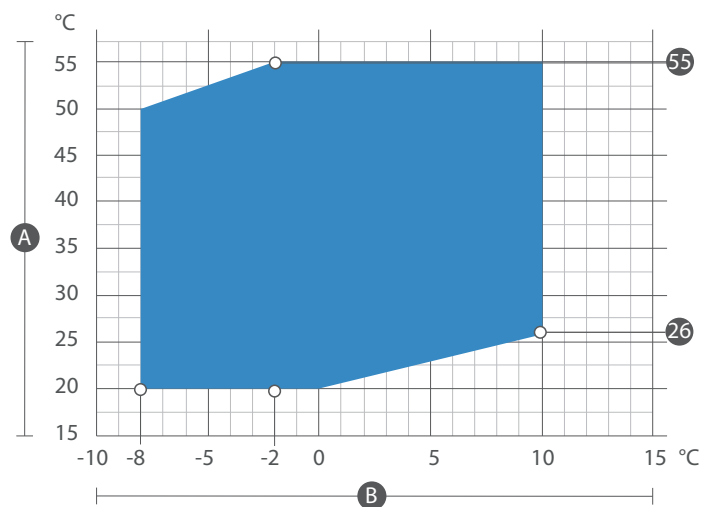
MODEL ° : OPERATION: VALVE X



A Outlet water temperature - source side (°C)

B Outlet water temperature - user side (°C)

MODEL ° : OPERATION: VALVE Z

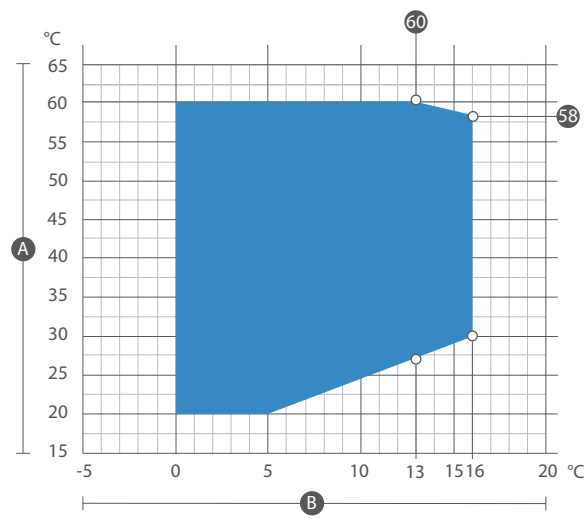


A Outlet water temperature - source side (°C)

B Outlet water temperature - user side (°C)

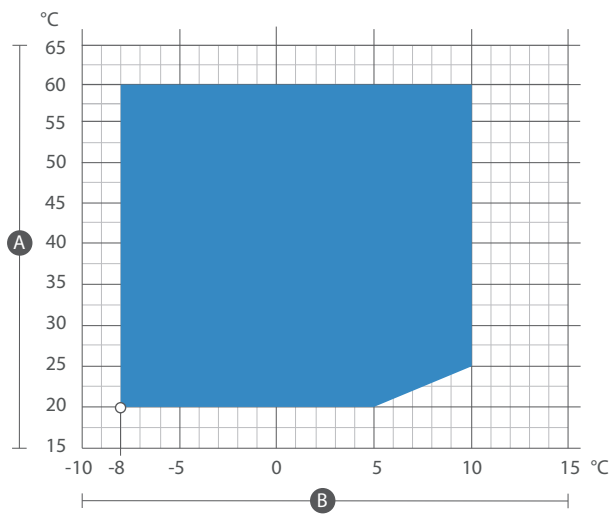
⚠ Attention: With produced water temperature at $\leq 4^{\circ}\text{C}$, it is advisable to provide a percentage of glycol inside the hydraulic circuit in order to avoid damaging the unit.

MODEL H : OPERATION: VALVE X



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

MODEL H : 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 .

⚠ All units in this series are designed for indoor installation in machinery rooms only, according to EN378. Attention: the ambient temperature inside the technical room where the unit is installed must not exceed 45°C , otherwise ventilation systems must be installed.

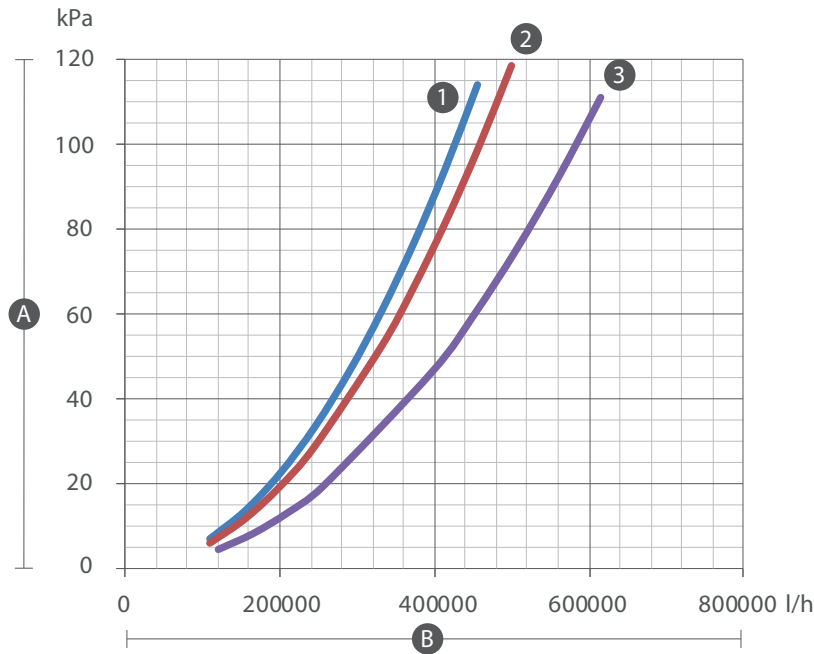
14 PRESSURE DROPS

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

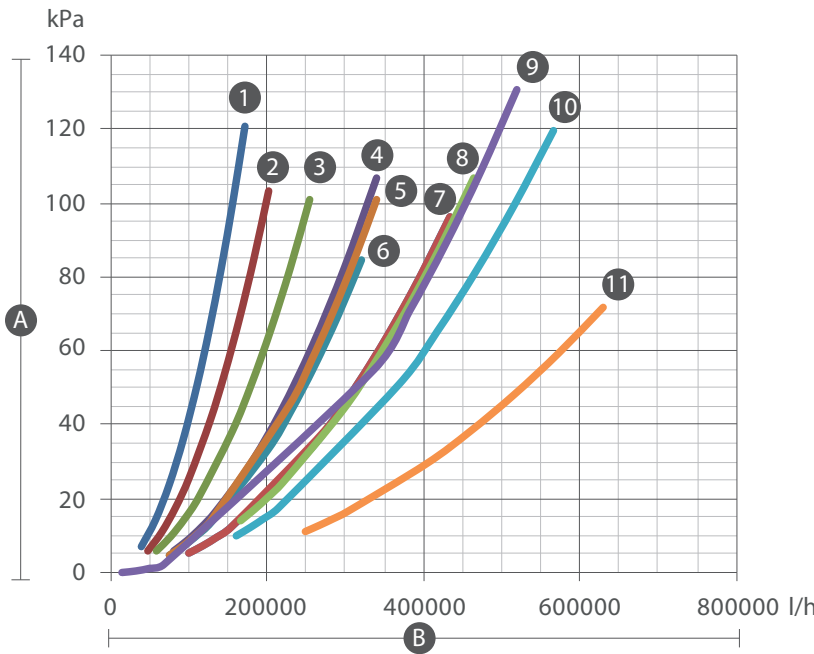
Valve X

Model °/H - Version °



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

Model °/H - Version A



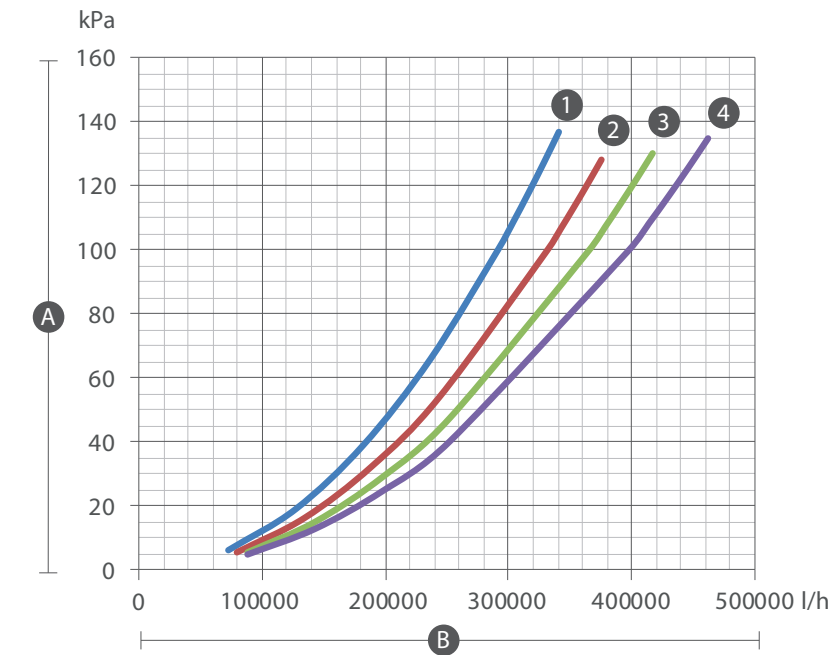
- A Pressure drop (kPa)
- B Water flow rate (l/h)
- 1 2502
- 2 2802
- 3 3202
- 4 3602
- 5 4802
- 6 4202
- 7 5602-6402
- 8 6703
- 9 7203
- 10 8403
- 11 9603

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	°	l/h	-	-	-	-	-	-	109800	109800	119300	119300
flow rate	A	l/h	40700	48200	60100	80400	74800	99500	167700	15000	162000	250000
Maximum water	°	l/h	-	-	-	-	-	-	455000	500000	555000	615000
flow rate	A	l/h	173000	203500	253900	339400	320600	340000	433000	433000	465000	630000

Data 14S11:2018
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

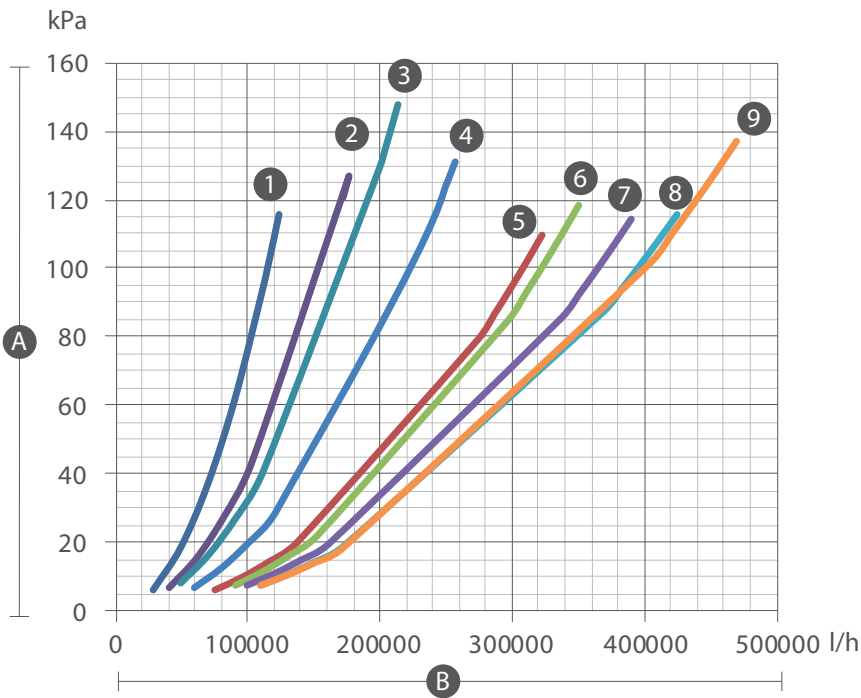
Valve Z

Model °/H - Version °



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

Model °/H - 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

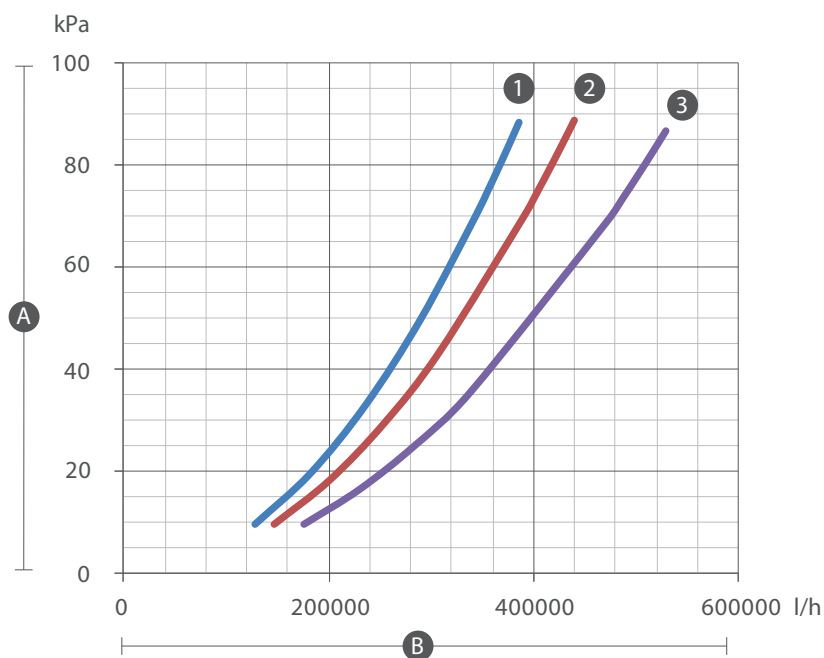
Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
OPERATING FIELD: Z													
Unit with gas utility side exchanger (R134a)													
Minimum water	°	I/h	-	-	-	-	-	-	-	72000	80000	88000	88000
flow rate	A	I/h	29200	40700	40700	40700	49800	59900	59900	75100	90000	100000	110000
Maximum water	°	I/h	-	-	-	-	-	-	-	340000	375000	416000	4612500
flow rate	A	I/h	124100	171700	171700	171700	213600	256900	256900	321900	350000	390000	425000

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

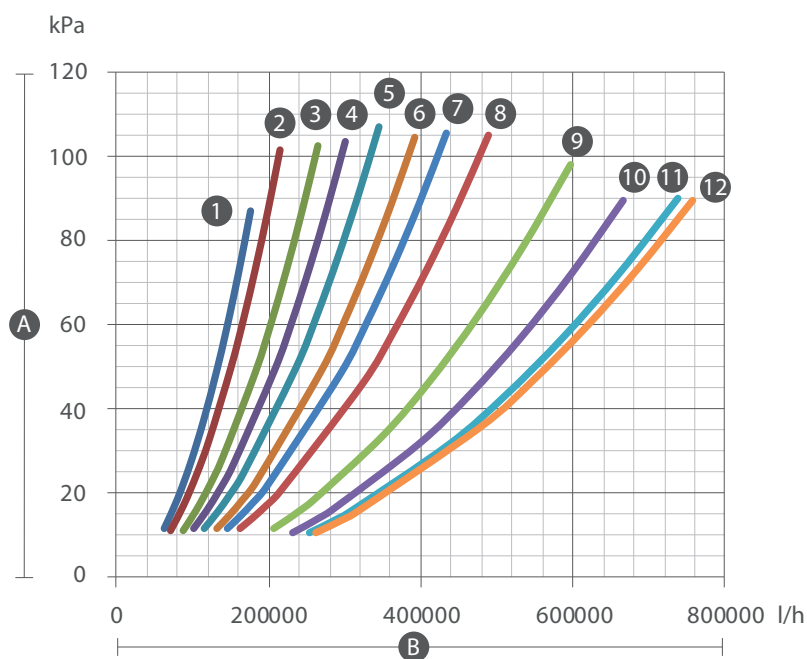
Valves X/Z

Model °/H - Version °



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

Model °/H - 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	°	I/h	-	-	-	-	-	-	-	127800	145800	176400	176400
flow rate	A	I/h	64000	71659	88629	100300	115100	130500	144873	162618	206700	231000	255000
Maximum water	°	I/h	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	I/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:

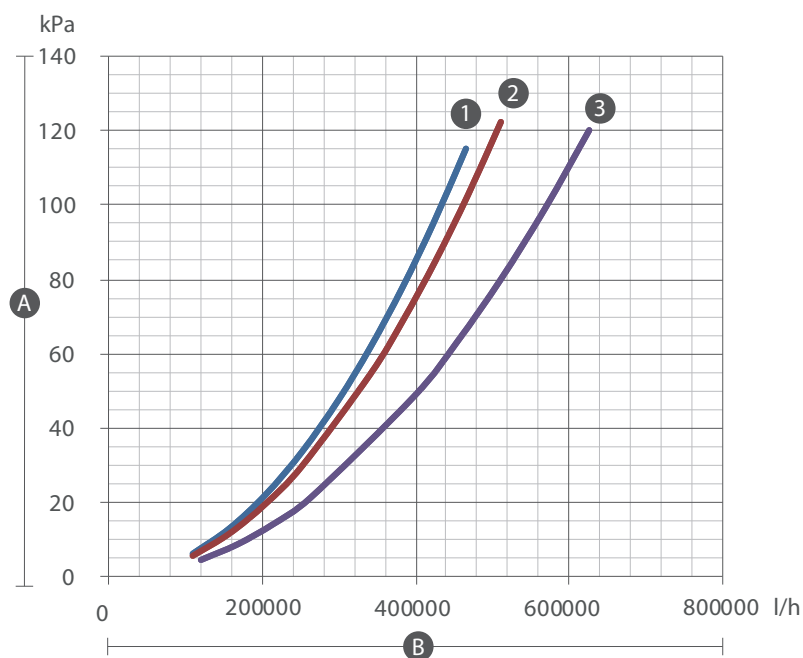
DHW side water 12 °C / 7 °C; Source side water 30 °C / 35 °C

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

SYSTEM SIDE - GAS R513A (XP10)

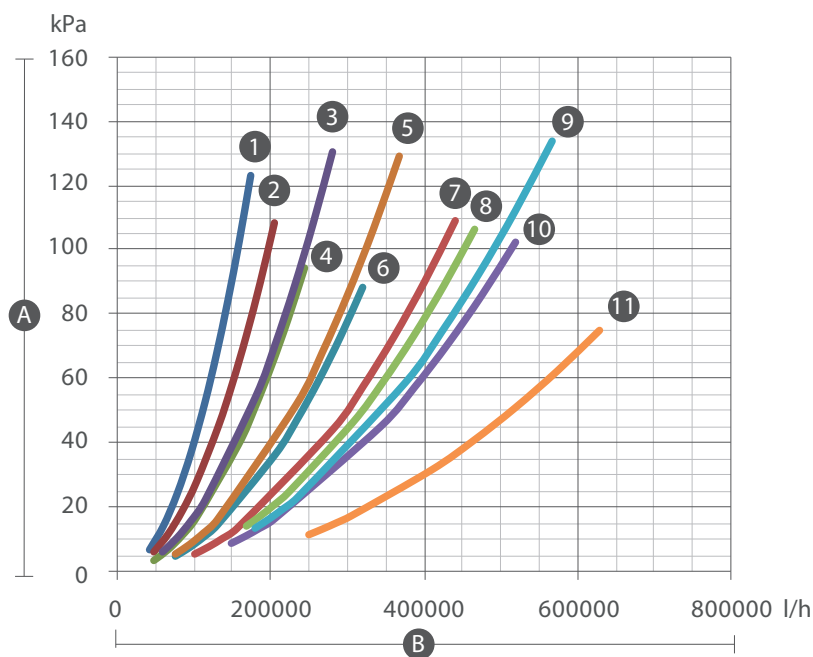
Valve X

Model °/H - Version °



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

Model °/H - 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	255000
Maximum water	°	I/h	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	I/h	176000	176000	263200	346600	276000	396800	400000	400000	595500	666900	738300

Data 14511:2018

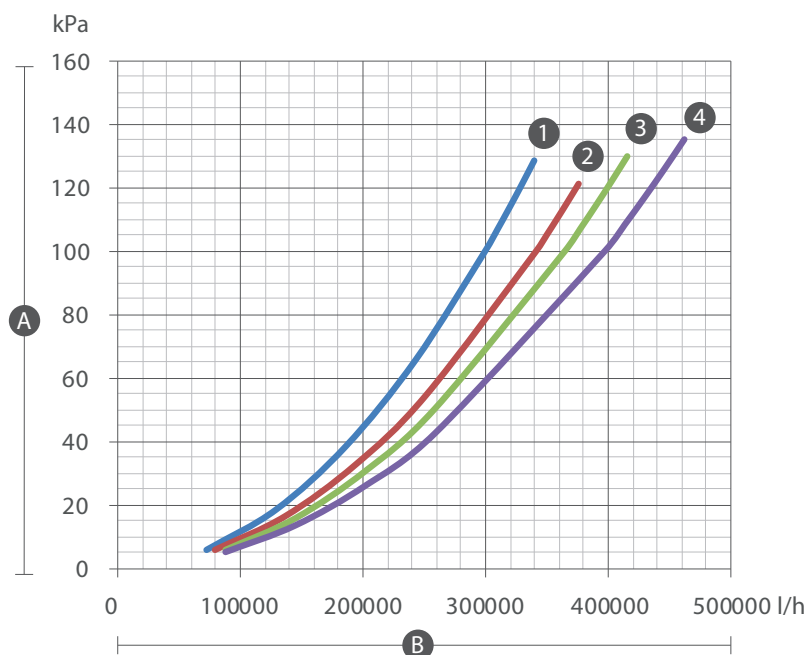
The capacities and pressure drops in the heat exchangers calculated:

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

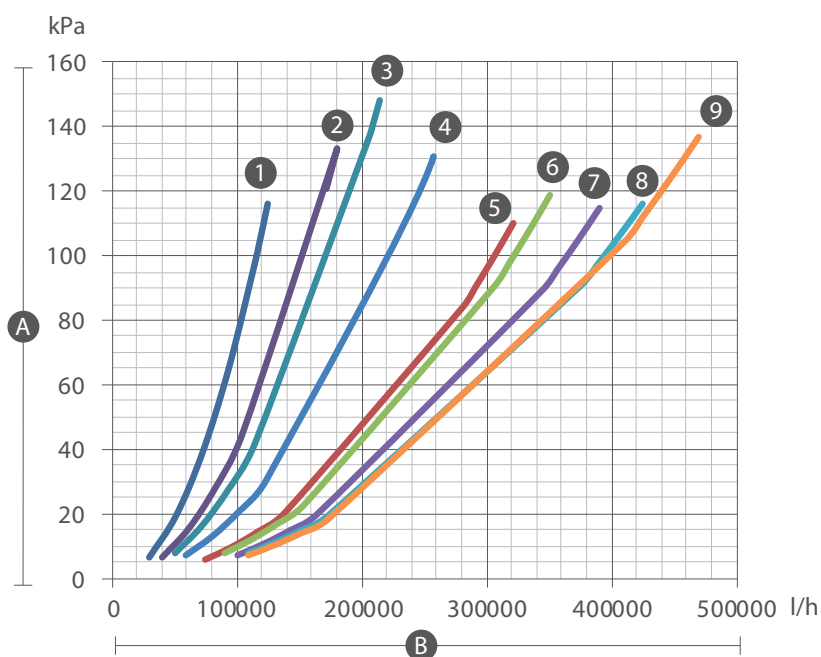
Valve Z

Model °/H - Version °



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

Model °/H - 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	255000
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:

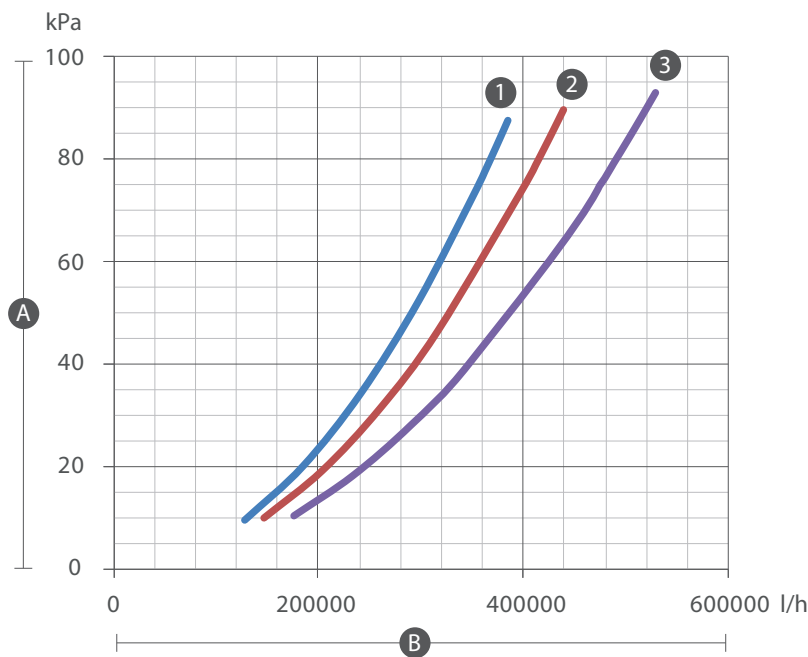
DHW side water 12 °C / 7 °C; Source side water 30 °C / 35 °C

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

SOURCE SIDE - GAS R513A (XP10)

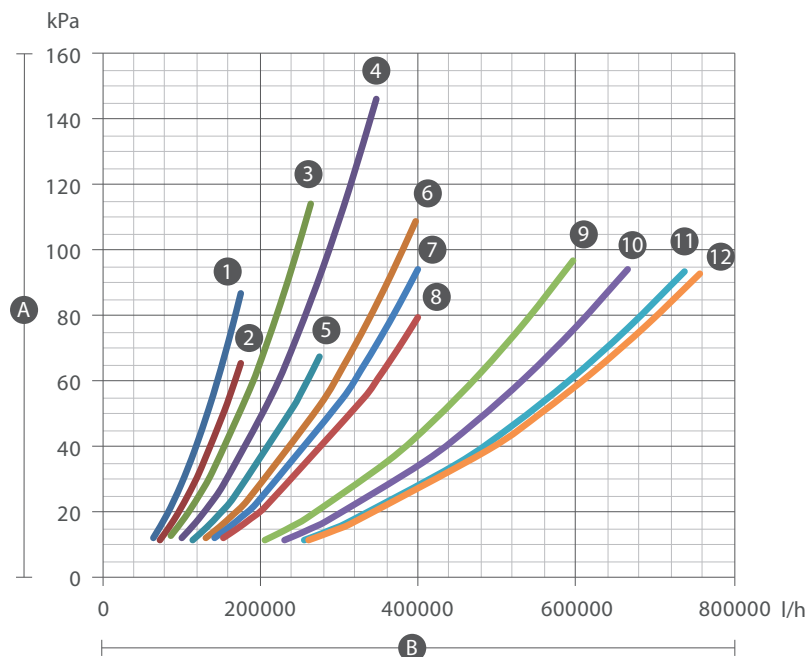
Valves X/Z

Model °/H - Version °



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

Model °/H - 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

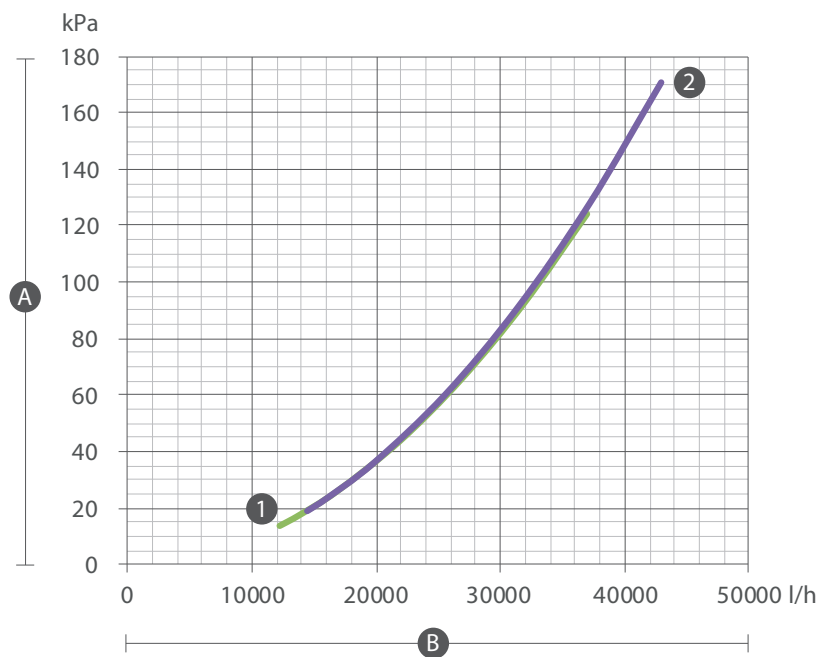
Size		2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
OPERATING FIELD: X, Z													
Unit with gas source side exchanger (R513A)													
Minimum water	°	I/h	-	-	-	-	-	-	-	127800	145800	176400	176400
flow rate	A	I/h	65400	73200	87800	100200	114200	132200	143400	154600	206700	231000	255000
Maximum water	°	I/h	-	-	-	-	-	-	-	-	385500	439500	528300
flow rate	A	I/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

15 DESUPERHEATER PRESSURE DROPS

VERSION ° GAS R134A/GAS R513A (XP10)

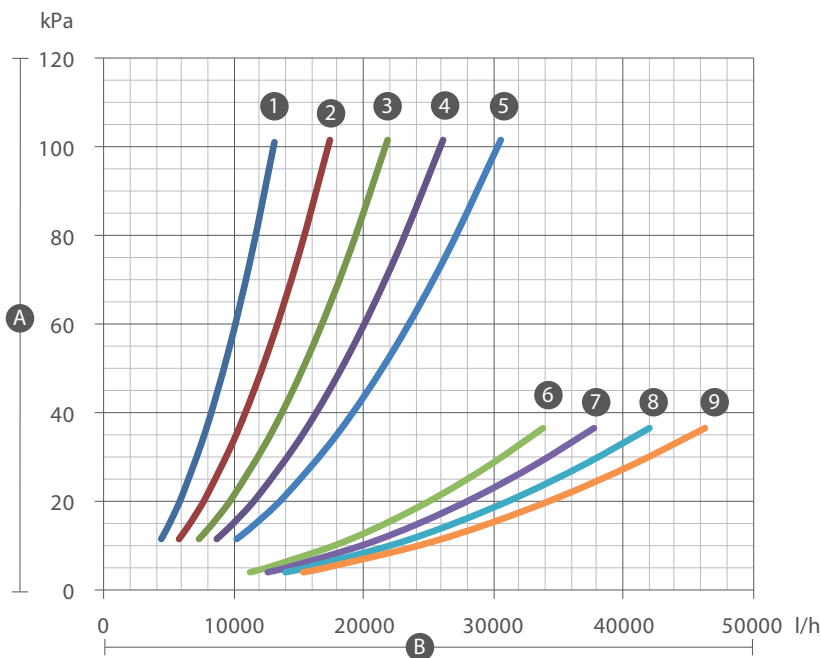
Model °/H - Valves X/Z



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

VERSION A GAS R134A/GAS R513A (XP10)

Model °/H - 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

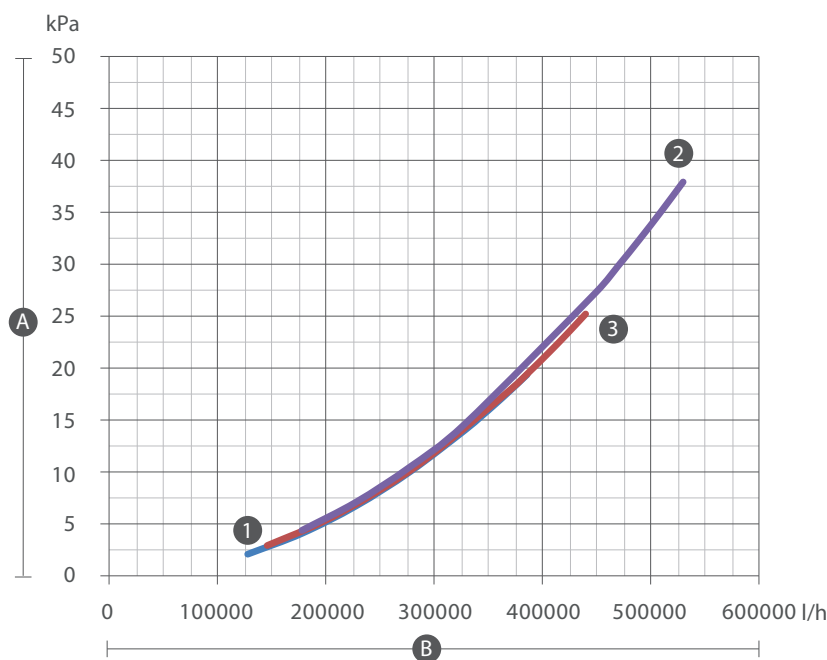
Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
REFRIGERANT GAS: °, G														
Desuperheater														
Minimum water	°	I/h	-	-	-	-	-	-	-	-	12300	12300	12300	14400
flow rate	A	I/h	4370	5830	7280	8740	8740	8740	10190	10190	11290	12600	14010	15430
Maximum water	°	I/h	-	-	-	-	-	-	-	-	36900	36900	36900	42900
flow rate	A	I/h	13100	17470	21840	26200	26200	26200	30570	30570	33850	37780	42010	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

16 TOTAL RECOVERY PRESSURE DROPS

VERSION ° - GAS R134A

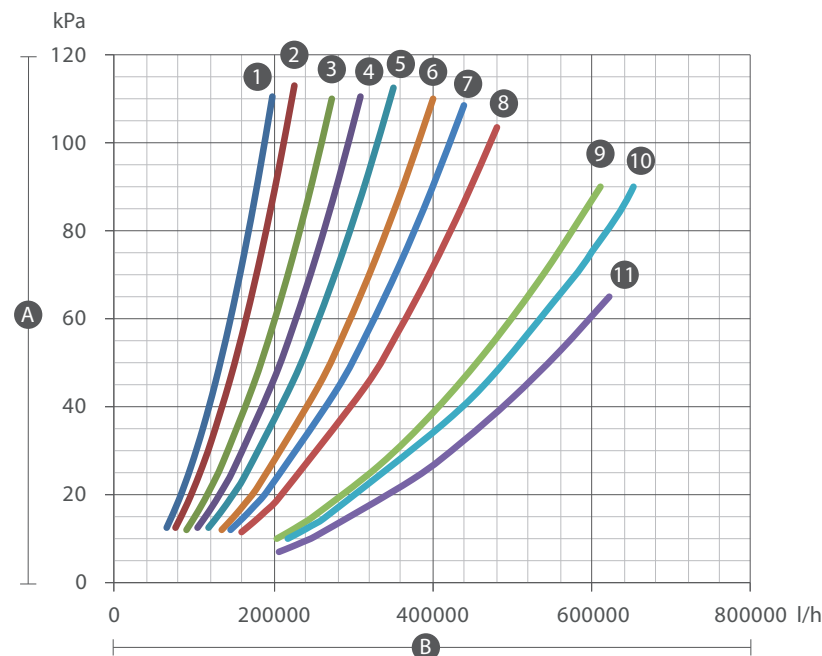
Model °/H - Valves X/Z



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

VERSION A - GAS R134A

Model °/H - 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	°	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

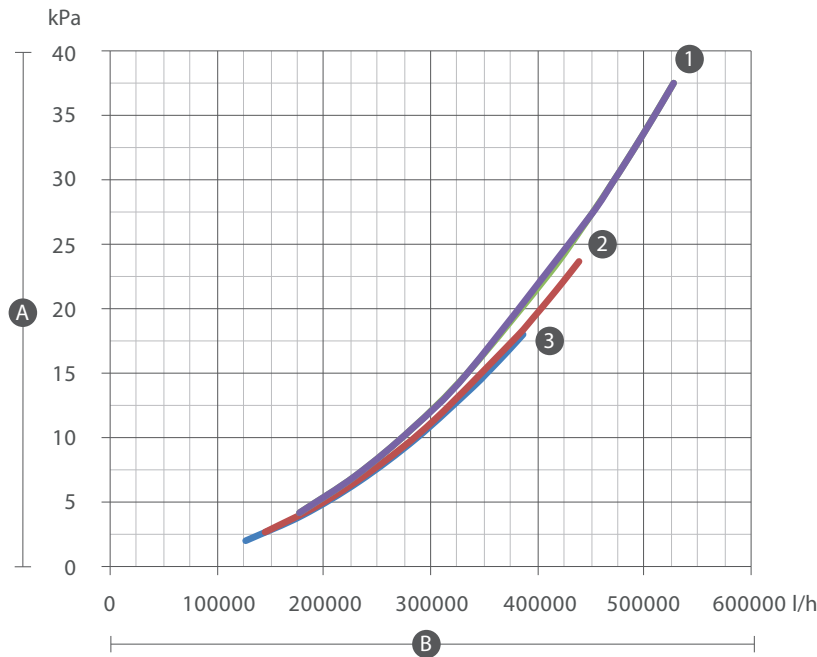
The capacities and pressure drops in the heat exchangers calculated:

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

VERSION ° - GAS R513A (XP10)

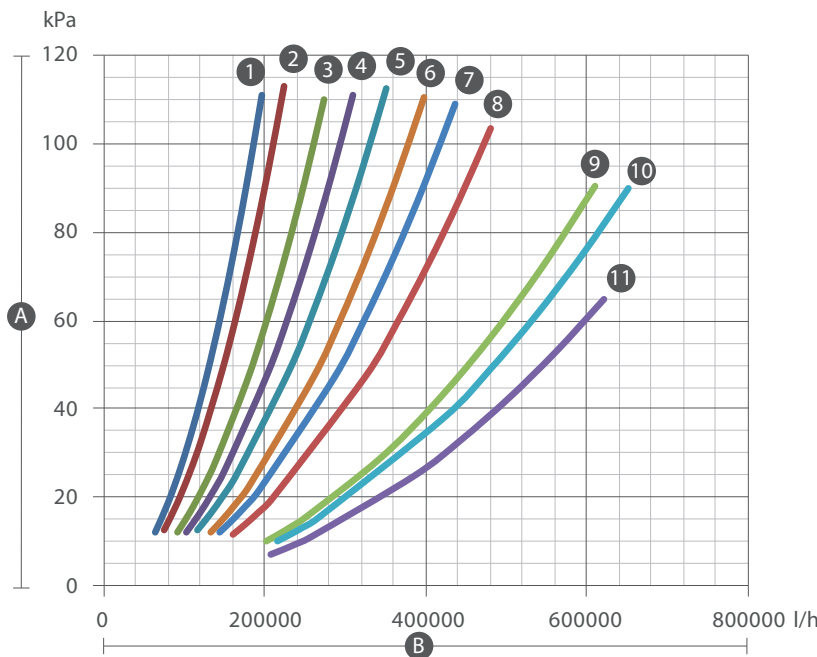
Model °/H - Valves X/Z



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

VERSION A - GAS R513A (XP10)

Model °/H - 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	217200	216000
Maximum water	°	l/h	-	-	-	-	-	-	-	-	385500	439500	528300	528300
flow rate	A	l/h	197000	225300	273500	309400	351100	399500	437700	480700	611500	622600	651400	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

17 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	58
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	0,97

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

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

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

- 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

18 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.

MODEL °

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °														
Standard equipment														
Sound power level (1)	°	dB(A)	-	-	-	-	-	-	-	-	99,2	98,9	100,0	100,5
	A	dB(A)	96,9	97,4	97,9	98,0	98,8	98,8	98,6	98,9	99,2	98,9	100,0	100,5
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	66,8	66,5	67,6	68,1
	A	dB(A)	64,7	65,2	65,7	65,8	66,6	66,5	66,3	66,6	66,8	66,5	67,6	68,1
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	73,8	76,2	74,1	59,6
	A	dB(A)	56,4	71,3	72,0	72,3	72,5	76,0	74,0	58,8	73,8	76,2	74,1	59,6
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	85,8	78,5	83,9	82,6
	A	dB(A)	74,2	78,3	80,7	81,2	83,4	77,5	81,4	80,1	85,8	78,5	83,9	82,6
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	90,4	93,0	93,5	95,5
	A	dB(A)	87,7	92,2	92,9	93,0	93,4	91,8	91,2	93,8	90,4	93,0	93,5	95,5
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	97,2	96,0	97,3	96,2
	A	dB(A)	95,4	92,1	92,3	92,3	93,8	96,3	96,2	94,2	97,2	96,0	97,3	96,2
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	88,9	89,0	91,4	94,4
	A	dB(A)	88,9	93,0	93,3	93,4	93,9	88,3	89,3	93,2	88,9	89,0	91,4	94,4
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	89,0	88,9	88,8	87,9
	A	dB(A)	78,0	81,5	83,9	83,4	83,3	89,7	88,7	87,1	89,0	88,9	88,8	87,9
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	74,5	74,9	73,8	76,8
	A	dB(A)	67,1	67,1	69,3	69,8	69,3	75,2	73,8	76,1	74,5	74,9	73,8	76,8

(1) Sound power: calculated in agreement with the Standard UNI EN ISO 9614-2, in compliance with that requested by Eurovent certification.

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °														
Silenced equipment														
Sound power level (1)	°	dB(A)	-	-	-	-	-	-	-	-	92,3	91,3	92,8	93,0
	A	dB(A)	89,3	89,6	90,3	90,5	91,5	91,1	91,2	91,3	92,3	91,3	92,8	93,0
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	59,9	58,9	60,4	60,6
	A	dB(A)	57,1	57,5	58,1	58,3	59,2	58,7	58,8	58,9	59,9	58,9	60,4	60,6
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	70,3	72,7	70,6	56,1
	A	dB(A)	52,9	67,8	68,5	68,8	69,0	72,5	70,5	55,3	70,3	72,7	70,6	56,1
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	86,3	79,0	84,4	83,1
	A	dB(A)	74,7	78,8	81,2	81,7	83,9	78,0	81,9	80,6	86,3	79,0	84,4	83,1
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	83,9	86,5	87,0	89,0
	A	dB(A)	81,2	85,7	86,4	86,5	86,9	85,3	84,7	87,3	83,9	86,5	87,0	89,0
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	89,7	88,5	89,8	88,7
	A	dB(A)	87,9	84,6	84,8	84,8	86,3	88,8	88,7	86,7	89,7	88,5	89,8	88,7
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	78,4	78,5	80,9	83,9
	A	dB(A)	78,4	82,5	82,8	82,9	83,4	77,8	78,8	82,7	78,4	78,5	80,9	83,9
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	75,5	75,4	75,3	74,4
	A	dB(A)	64,5	68,0	70,4	69,9	69,8	76,2	75,2	73,6	75,5	75,4	75,3	74,4
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	63,0	63,4	62,3	65,3
	A	dB(A)	55,6	55,6	57,8	58,3	57,8	63,7	62,3	64,6	63,0	63,4	62,3	65,3

(1) Sound power: calculated in agreement with the Standard UNI EN ISO 9614-2, in compliance with that requested by Eurovent certification.

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: °														
Super silenced equipment														
Sound power level (1)	°	dB(A)	-	-	-	-	-	-	-	-	89,4	88,4	89,8	90,0
	A	dB(A)	86,3	86,7	87,4	87,5	88,5	88,1	88,2	88,8	89,4	88,4	89,8	90,0
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	57,0	56,0	57,4	57,6
	A	dB(A)	54,1	54,5	55,1	55,3	56,3	55,8	55,8	56,4	57,0	56,0	57,4	57,6
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	70,3	72,7	70,6	56,1
	A	dB(A)	52,9	67,8	68,5	68,8	69,0	72,5	70,5	55,8	70,3	72,7	70,6	56,1
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	83,3	76,0	81,4	80,1
	A	dB(A)	71,7	75,8	78,2	78,7	80,9	75,0	78,9	77,7	83,3	76,0	81,4	80,1
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	80,9	83,5	84,0	86,0
	A	dB(A)	78,2	82,7	83,4	83,5	83,9	82,3	81,7	84,9	80,9	83,5	84,0	86,0
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	86,7	85,5	86,8	85,7
	A	dB(A)	84,9	81,6	81,8	81,8	83,3	85,8	85,7	84,2	86,7	85,5	86,8	85,7
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	75,4	75,5	77,9	80,9
	A	dB(A)	75,4	79,5	79,8	79,9	80,4	74,8	75,8	80,5	75,4	75,5	77,9	80,9
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	72,5	72,4	72,3	71,4
	A	dB(A)	61,5	65,0	67,4	66,9	66,8	73,2	72,2	71,4	72,5	72,4	72,3	71,4
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	60,0	60,4	59,3	62,3
	A	dB(A)	52,6	52,6	54,8	55,3	54,8	60,7	59,3	62,3	60,0	60,4	59,3	62,3

(1) Sound power: calculated in agreement with the Standard UNI EN ISO 9614-2, in compliance with that requested by Eurovent certification.

MODEL H

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H														
Standard equipment														
Sound power level (1)	°	dB(A)	-	-	-	-	-	-	-	-	99,5	100,6	101,0	102,0
	A	dB(A)	97,3	97,7	98,8	98,8	98,9	98,9	99,3	100,0	99,5	100,6	101,0	102,0
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	67,1	68,2	68,6	69,6
	A	dB(A)	65,1	65,5	66,6	66,6	66,7	66,6	67,0	67,7	67,1	68,2	68,6	69,6
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	74,8	75,0	74,4	62,9
	A	dB(A)	57,5	71,3	73,6	73,2	73,1	74,4	74,1	61,0	74,8	75,0	74,4	62,9
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	91,6	90,2	89,1	86,8
	A	dB(A)	73,7	77,9	83,7	85,6	88,4	87,2	86,3	83,9	91,6	90,2	89,1	86,8
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	88,4	92,2	91,7	96,3
	A	dB(A)	86,3	92,6	93,0	93,5	93,0	90,0	89,7	94,4	88,4	92,2	91,7	96,3
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	96,8	98,2	99,3	98,5
	A	dB(A)	95,9	92,7	94,6	93,8	93,4	96,6	97,5	96,0	96,8	98,2	99,3	98,5
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	91,0	91,0	89,9	95,2
	A	dB(A)	90,0	92,9	93,5	93,8	94,3	88,8	88,1	93,7	91,0	91,0	89,9	95,2
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	88,8	89,2	89,0	88,6
	A	dB(A)	77,8	81,5	83,6	83,2	82,8	88,8	88,8	87,4	88,8	89,2	89,0	88,6
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	74,0	74,6	74,6	77,0
	A	dB(A)	66,6	67,3	69,1	69,1	68,4	74,2	74,2	76,2	74,0	74,6	74,6	77,0

(1) Sound power: calculated in agreement with the Standard UNI EN ISO 9614-2, in compliance with that requested by Eurovent certification.

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H														
Silenced equipment														
Sound power level (1)	°	dB(A)	-	-	-	-	-	-	-	-	94,4	94,6	94,6	94,9
	A	dB(A)	89,5	90,0	91,6	91,9	92,7	92,4	92,5	92,6	94,4	94,6	94,6	94,9
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	62,0	62,2	62,2	62,5
	A	dB(A)	57,4	57,8	59,4	59,7	60,5	60,1	60,2	60,3	62,0	62,2	62,2	62,5
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	71,3	71,5	70,9	59,4
	A	dB(A)	54,0	67,8	70,1	69,7	69,6	70,9	70,6	57,5	71,3	71,5	70,9	59,4
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	92,1	90,7	89,6	87,3
	A	dB(A)	74,2	78,4	84,2	86,1	88,9	87,7	86,8	84,4	92,1	90,7	89,6	87,3
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	81,9	85,7	85,2	89,8
	A	dB(A)	79,8	86,1	86,5	87,0	86,5	83,5	83,2	87,9	81,9	85,7	85,2	89,8
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	89,3	90,7	91,8	91,0
	A	dB(A)	88,4	85,2	87,1	86,3	85,9	89,1	90,0	88,5	89,3	90,7	91,8	91,0
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	80,5	80,5	79,4	84,7
	A	dB(A)	79,5	82,4	83,0	83,3	83,8	78,3	77,6	83,2	80,5	80,5	79,4	84,7
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	75,3	75,7	75,5	75,1
	A	dB(A)	64,3	68,0	70,1	69,7	69,3	75,3	75,3	73,9	75,3	75,7	75,5	75,1
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	62,5	63,1	63,1	65,5
	A	dB(A)	55,1	55,8	57,6	57,6	56,9	62,7	62,7	64,7	62,5	63,1	63,1	65,5

(1) Sound power: calculated in agreement with the Standard UNI EN ISO 9614-2, in compliance with that requested by Eurovent certification.

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

Size			2502	2802	3202	3602	4202	4802	5602	6402	6703	7203	8403	9603
MODEL: H														
Super silenced equipment														
Sound power level (1)	°	dB(A)	-	-	-	-	-	-	-	-	91,5	91,6	91,6	91,9
	A	dB(A)	86,5	87,0	88,6	89,0	89,7	89,5	89,6	90,0	91,5	91,6	91,6	91,9
Sound pressure level (10 m)	°	dB(A)	-	-	-	-	-	-	-	-	59,1	59,2	59,2	59,5
	A	dB(A)	54,4	54,8	56,4	56,8	57,5	57,1	57,2	57,7	59,1	59,2	59,2	59,5
Sound power by centre octave band dB(A)														
125 Hz	°	dB(A)	-	-	-	-	-	-	-	-	71,3	71,5	70,9	59,4
	A	dB(A)	54,0	67,8	70,1	69,7	69,6	70,9	70,6	57,8	71,3	71,5	70,9	59,4
250 Hz	°	dB(A)	-	-	-	-	-	-	-	-	89,1	87,7	86,6	84,3
	A	dB(A)	71,2	75,4	81,2	83,1	85,9	84,7	83,8	81,4	89,1	87,7	86,6	84,3
500 Hz	°	dB(A)	-	-	-	-	-	-	-	-	78,9	82,7	82,2	86,8
	A	dB(A)	76,8	83,1	83,5	84,0	83,5	80,5	80,2	85,4	78,9	82,7	82,2	86,8
1000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	86,3	87,7	88,8	88,0
	A	dB(A)	85,4	82,2	84,1	83,3	82,9	86,1	87,0	85,8	86,3	87,7	88,8	88,0
2000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	77,5	77,5	76,4	81,7
	A	dB(A)	76,5	79,4	80,0	80,3	80,8	75,3	74,6	80,8	77,5	77,5	76,4	81,7
4000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	72,3	72,7	72,5	72,1
	A	dB(A)	61,3	65,0	67,1	66,7	66,3	72,3	72,3	71,7	72,3	72,7	72,5	72,1
8000 Hz	°	dB(A)	-	-	-	-	-	-	-	-	59,5	60,1	60,1	62,5
	A	dB(A)	52,1	52,8	54,6	54,6	53,9	59,7	59,7	62,4	59,5	60,1	60,1	62,5

(1) Sound power: calculated in agreement with the Standard UNI EN ISO 9614-2, in compliance with that requested by Eurovent certification.



AERMEC S.p.A.

Via Roma, 996 - 37040 Bevilacqua (VR) - Italy

Phone +39 0442 633111 - Fax +39 0442 93577

sales@aermec.com - www.aermec.com



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