

COSMOGAS®



CAUTION!!! Read these instructions
carefully before installing, starting,
using or maintaining this appliance.

INSTALLATION, USE AND MAINTENANCE MANUAL

HEAT PUMP
FOR DOMESTIC HOT WATER

AGUAMAX R290

CONTENTS

GENERAL SAFETY WARNINGS	4
National installation laws	5
1 - GENERAL INFORMATION	6
1.1 - Introduction	6
1.2 - Overview of the models	7
1.3 - Meaning of symbols used	7
1.4 - Maintenance	7
1.5 - Disposal	7
2 - MAIN COMPONENTS	8
3 - OPERATION	9
3.1 - Operation and intended use	10
3.1.1 - Operation and intended use	10
3.1.2 - Solar heat exchanger	10
3.1.3 - Types of system	10
3.2 - Precautions for installation	10
3.3 - Anti-legionella	10
4 - INSTALLATION	11
4.1 - Scelta del luogo di installazione	11
4.2 - Prepare the appliance	12
4.2.1 - Moving the appliance	12
4.3 - Dimensions and minimum clearances	13
4.4 - Hydraulic connections	18
4.5 - Installation example	18
4.6 - Hydraulic safety unit	20
4.7 - Expansion tank	20
4.8 - System sizing	21
4.9 - Electrical connections	22
4.10 - Photovoltaic	22
4.11 - Air inlet and air outlet	22
4.11.1 - Sealed chamber system	22
4.11.2 - Open chamber system	23
4.11.3 - Installation without piping system	23
4.12 - Tank refill time	24
5 - START-UP	26
5.1 - Start-up	26
5.1.1 - Instructions to the user	26
5.1.2 - Filling the appliance	26
5.1.3 - Water emptying	26
5.2 - Ignition	26
6 - USE	27
6.1 - Standby mode, ignition and shut-off procedure	28
6.2 - Setpoint temperature	28
6.3 - Clock setting	28
6.4 - Timer setting	28
6.5 - "Air exchange" function	28
6.6 - Display icons	29
6.7 - Parameter list	30
6.8 - Diagnostics	32
6.8.1 - Troubleshooting	33
6.8.2 - Operation limits	33
6.8.3 - Antifreeze	33
6.9 - Wi - Fi connection mode	34
6.9.1 - Operation of the "Smart Life" App	34
6.9.2 - Main screen of the device	35
6.9.3 - Protection and failures	35
6.9.4 - Notifications	35
6.9.5 - Time bands configuration from menu "Scenario"	36

CONTENTS

7 - MAINTENANCE	37
7.1 - Maintenance activities	37
7.1.1 - Replace the magnesium anode rode	37
7.2 - Temperature sensor	38
7.3 - Wiring diagram	39
8 - TECHNICAL DATA	40
9 - PRODUCT FICHE	41
10 - NOTE	42
11 - EU DECLARATION OF CONFORMITY	43

GENERAL SAFETY WARNINGS



CAUTION!!! Read these instructions carefully before installing, starting, using or maintaining this appliance.



WARNING!!! Risk of death or serious personal injury arising from failure to comply with that stated in this manual in relation to the risk of fire and explosion in the event of refrigerant gas circuit leaks.

The product contains the flammable gas R290. Risk of fire and/or explosion in the event of a gas leak.



WARNING!!! In the event of a gas leak:

- 1 - Do not switch on any electric device, including a telephone, near the appliance;
- 2 - Move away from the appliance or go to a neighbouring property and immediately call a professionally qualified technician. Call the Fire Service if the former are not available.



Do not store and/or use explosive materials or highly flammable materials such as paper, solvents, paints, etc. in the vicinity of the appliance.



This appliance must be installed, calibrated and serviced by **personnel professionally qualified to work on R290 gas appliances** in compliance with national and local regulations, as well as the instructions in this manual.



WARNING!!! Incorrect installation or poor maintenance can cause damage or injury to persons, animals or objects, for which the manufacturer cannot be deemed liable.



WARNING!!! A hot water temperature exceeding 51°C may cause permanent injury/damage to persons, animals and objects. In particular, protect children, the elderly and people with disabilities against any possible risks of scalds, by inserting devices that limit the usage temperature of the DHW to users.



Do not leave parts of the packaging and any replaced parts within the reach of children.



Do not tamper with, bypass or block any safety devices.



Do not touch the evaporating-condensing battery fins; risk of injuring the fingers.



Do not remove the stickers applied to the appliance as they identify it and the associated risks.



It is strictly forbidden to cover or wrap the appliance in any way, with a waterproof sheet or other material, either to protect it or to alter its appearance. Any type of covering would compromise the operation of the appliance.



In agreement with the provisions for use, the user must keep the installation in good working order and guarantee reliable and safe operation of the appliance.



The user must have maintenance performed on the appliance by a professionally qualified technician in compliance with national and local regulations and this manual.



We would also highlight the benefit of an scheduled maintenance contract with a professionally qualified technician.



WARNING!!! Before performing any cleaning or maintenance operations, disconnect the appliance from the mains power and water supplies, activating the relevant isolation devices.



WARNING!!! After having performed any cleaning or maintenance operations, make sure that all internal parts of the appliance are dry before re-connecting the electric power supply.



This appliance is not intended for use by persons (including children) with reduced physical, sensory and mental capabilities or a lack of experience or knowledge, unless they are supervised or have been instructed on use of the appliance by a person responsible for their safety.



This manual is an integral and essential part of the product and must be retained carefully by the user for future consultation. If the boiler has to be replaced or if you have to move and leave behind the boiler for another user, always make sure that this brochure is left for the new user and/or installer.



Any options or kits added later must be original Cosmogas products.



This appliance must be used solely for the expressly declared purpose: heating or cooling water for closed circuits intended for centralised air-conditioning of civil and domestic premises. Indirect heating of domestic hot water for civil use. Any other use is forbidden.



Any contractual and non-contractual liability on the part of the manufacturer is excluded for damage caused by installation errors or usage errors and, in all cases, following a failure to comply with the instructions given by the manufacturer or with applicable national and/or local laws.



For safety reasons and to safeguard the environment, the packaging components must be disposed of in the relevant separate waste collection centres.



WARNING!!! In the event of a fault and/or poor operation of the appliance, disconnect it and do not attempt to carry out any repairs. Contact a professionally qualified technician only. If components need to be replaced, these must be original spare parts. Failure to comply with the above may jeopardise the safety of the persons, property and the appliance.



A 'professionally qualified technician' means a person with specific technical skills in systems designed for central heating and cooling and for the production of domestic hot water for sanitary and civil uses, electrical installations, and **specific knowledge of R290 gas appliances**. Such people must have the skills envisaged by the law.



All the drawings shown in this manual relating to electrical, hydraulic or gas installation systems must be understood to be purely illustrative. All the safety devices, auxiliary devices as well as the diameters of the electrical, hydraulic and gas pipes, must always be checked by a professionally qualified technician, to make sure they satisfy the applicable laws and regulations.



CAUTION!!! If the appliance is installed in salty environments such as on or near the coast, localised or diffuse corrosion of the appliance may occur, which may also reduce its life expectancy. The appliance manufacturer cannot be held liable for these events and they are not therefore covered by the warranty.

National installation laws

Respect the national regulations, provisions, directives and laws in force.

1.1 - Introduction

The heat pump for domestic hot water is one of the most economical systems for heating water for household use. The use of renewable energy from the air ensures high efficiency at low cost.

Heat recovery

The appliance can be installed in the boiler room, garage, or any room where the temperature is higher than outside. In this way, the room acts as an energy collector: the appliance draws in air and recovers its heat, increasing energy efficiency even at very low outdoor temperatures.

Hot water and dehumidification

The appliance can be installed in the laundry room. During hot water production, it lowers the room temperature and also dehumidifies the environment. The benefits are especially noticeable during the humid season.

Warehouse cooling

The appliance can be placed in the warehouse, as the low temperature helps keep food fresh.

Hot water and fresh air ventilation

The appliance can be installed in a garage, gym, basement, etc. While producing hot water, it cools the room and supplies fresh air.

Compatible with various energy sources

The appliance can be compatible with solar panels, external heat pumps, boilers, or other various energy sources.

Eco-friendly and economical heating

The appliance is the most efficient and economical alternative to both fossil fuel boilers and heating systems. By using the renewable energy present in the air, it consumes much less energy.

Compact design

The appliance is specifically designed to provide domestic hot water for residential use. Its extremely compact structure and elegant design make it suitable for indoor installation.

Multiple functions

The special design of the air intake and exhaust makes the appliance suitable for various connection modes. With different installation options, the appliance can function as a simple heat pump, but also as a fresh air fan, dehumidifier, or energy recovery device.

Other features

The stainless steel tank and magnesium anode ensure the durability of the components and the tank. The high-efficiency compressor with R290 refrigerant. The electrical heating element is available in the unit as a backup, ensuring a constant supply of hot water. **The heat pump is supplied with the electrical heating element disconnected. If necessary, it can only be connected by a professionally qualified technician.**

1.2 - Overview of the models

AGUAMAX XXX R290

- Refrigerant gas type R290.
- **200** = 200-liter stainless steel tank with solar heat exchanger;
300 = 300-liter stainless steel tank with solar heat exchanger;
- Heat pump for domestic hot water.

1.3 - Meaning of symbols used



WARNING!!! Generic hazard symbol. Failure to comply with these warnings may compromise the working order of the appliance or cause serious damage or injury to persons, animals or objects.



WARNING!!! Electric shock hazard symbol. Failure to comply with these warnings may compromise the working order of the appliance or cause serious damage or injury to persons, animals or objects.



CAUTION!!! Generic caution symbol. Failure to comply with these warnings may compromise the working order of the appliance or cause serious damage to surrounding objects.



CAUTION!!! Electric caution symbol. Failure to comply with these warnings may compromise the working order of the appliance or cause serious damage to surrounding objects.



Prohibition symbol.



Important indication symbol.

The following acronyms are used in this booklet:

N/A: Not applicable.

DHW: Domestic hot water.

1.4 - Maintenance

A regular annual maintenance check on the appliance is advised for the following reasons:
to maintain high efficiency and manage the central heating system economically (with low consumption);
to achieve a high level of operating safety;
For this purpose, see section 7.
Offer your customer a scheduled maintenance contract.

1.5 - Disposal

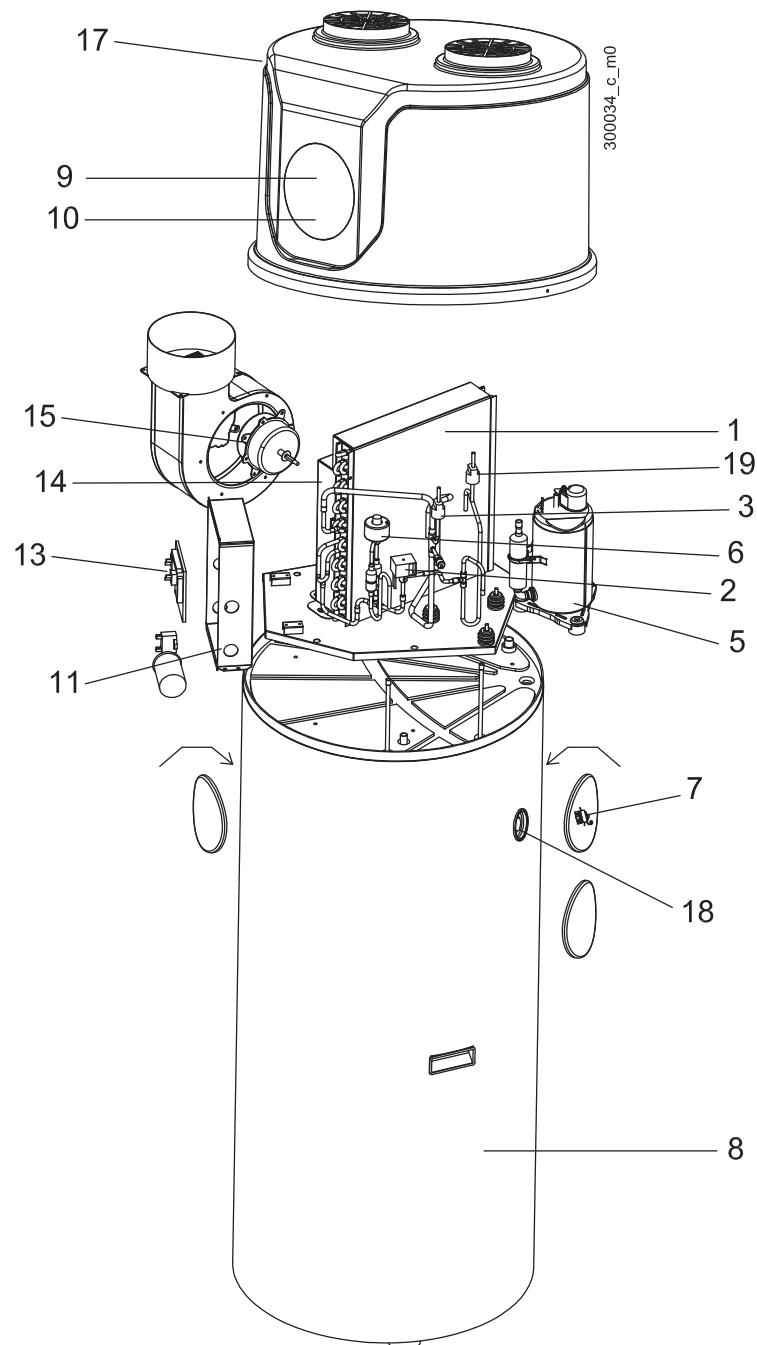


The crossed wheelie bin symbol means that the product must not be thrown away in the ordinary rubbish bin (i.e. in with "mixed urban rubbish"); it must be dealt with separately, in order to undergo suitable operations for it to be reused or treated, so that any substances that are dangerous for the environment can be removed and disposed of safely.

This will enable all the raw materials to be recycled. The user is responsible for getting rid of the appliance at the end of its life, delivering it to a recycling centre (also called ecological islands, ecological platforms), run by the local authority or city hygiene companies, or, when he/she buys a new appliance, giving the product that has been replaced to the dealer, who is obliged to take it under the terms of EU Directive 2012/19/EU.

For further information regarding correct decommissioning of these units, users can contact the public service in charge or retailers.

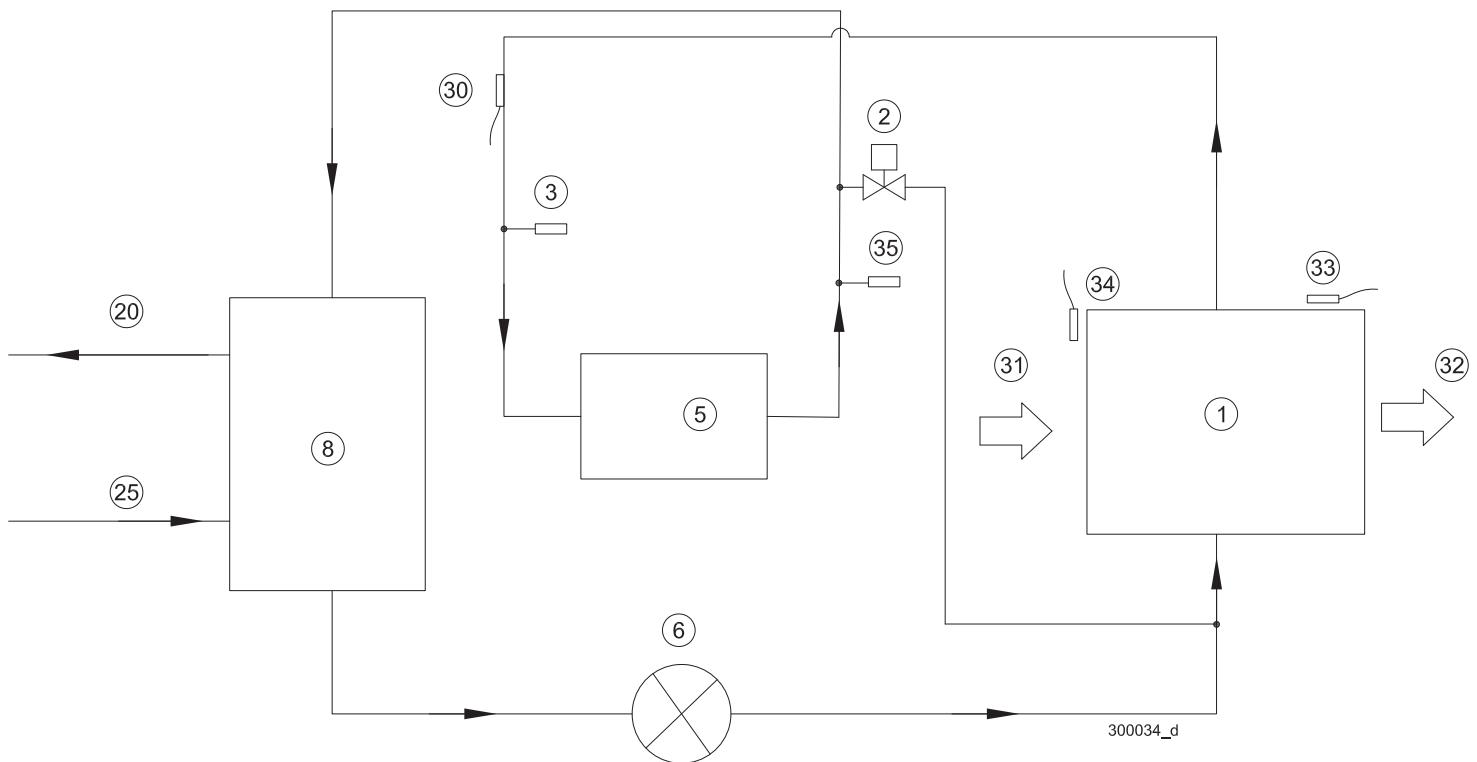
2 - MAIN COMPONENTS



- 1 - Evaporator
- 2 - 4-way valve
- 3 - Low-pressure pressure switch
- 5 - Compressor
- 6 - Electronic expansion valve
- 7 - Thermostat
- 8 - Tank
- 9 - Front panel

- 10 - Display
- 11 - Electrical box
- 13 - Control board
- 14 - Fan sheet metal
- 15 - Fan
- 17 - Top cover
- 18 - Magnesium anode
- 19 - High-pressure pressure switch

Figure 2-1 - Main components



- | | |
|----------------------------------|---|
| 1 - Evaporator | 25 - Cold water inlet |
| 2 - 4-way valve | 30 - Gas return temperature sensor (T5) |
| 3 - Low-pressure pressure switch | 31 - Air inlet |
| 5 - Compressor | 32 - Air outlet |
| 6 - Electronic expansion valve | 33 - Evaporator temperature sensor (T4) |
| 8 - Tank | 34 - Ambient temperature (T1) |
| 20 - Hot water outlet | 35 - High-pressure pressure switch |

Figure 3-1 - Diagram of the operating principle

3.1 - Operation and intended use

3.1.1 - Operation and intended use

The product is a domestic hot water heat pump designed to heat domestic hot water for civil uses (see section 4.5). Any other use is forbidden.

3.1.2 - Solar heat exchanger

The unit is supplied with solar heat exchanger.

3.1.3 - Types of system

The following types of system can be created with this water heater:

- System solely for the production of domestic hot water (see Figure 4-5 and 4-6).



The solar panel or the external heat pump could serve as the second heat source: the unit can operate with a solar panel, external heat pump, boiler, or another different energy source.

3.2 - Precautions for installation

For the water heater to work well, respect the following indications:



It must be connected to a domestic hot water distribution system, compatibly with the features, performance and output of the water heater itself.



In areas where the water is very hard ($\text{Th} > 20^{\circ}\text{fH}$ (11 dH)), it is recommended to install a water softener. To ensure effective protection against corrosion, the water hardness must always be between 12°fH (7 dH) and 20°fH (11 dH).



CAUTION!!! Before installation, carefully wash out the domestic hot water system to remove any possible residues or impurities that might compromise operation of the appliance..



Check the Figure 4-2 concerning the minimum safety distances for installation and future maintenance.



Open flames, fires, and smoking are prohibited.

3.3 - Anti-legionella

The appliance consists of a heat pump connected to a water heater for the preparation of domestic hot water, and it is mandatory to implement a sanitization system against the Legionella bacteria. Sanitization can be carried out in various ways, including chemical sanitization or thermal treatment sanitization. If the installer chooses to use thermal treatment sanitization, this appliance can assist the installer in achieving this goal. If correctly set, the appliance performs a heating cycle of the water heater sensor to 60°C every 7 days. However, to ensure the sanitization of the entire domestic water circuit, including the outlets, the installer must install appropriate devices to achieve this goal (recirculation pumps and automatic bypass devices for any thermostatic mixers). Similarly, the installer must provide transfer pumps on the water heater if the sensor controlled by the appliance is not positioned at the lowest part of the water heater (for example, water heaters with solar coils or heat pump-heated water heaters). The installation must be completed with an alarm system that notifies the user in case of failure of the thermal treatment cycle.



WARNING!!! A hot water temperature exceeding 51°C may cause permanent injury/damage to persons, animals and objects. In particular, protect children, the elderly and people with disabilities against any possible risks of scalds, by inserting devices that limit the usage temperature of the DHW to users.

4.1 - Scelta del luogo di installazione



It is forbidden to store and/or use explosive or highly flammable materials such as paper, solvents, paint, etc., in the same room where the appliance is installed.



Open flames, fires, and smoking are prohibited.



It is forbidden to install the appliance on the carpet.



WARNING!!! The product contains R290 gas and, in the event of a leak, the released gas may accumulate near the ground. The gas must not accumulate in a way that creates a hazardous atmosphere (explosive, asphyxiating, or toxic), must not enter the building through its openings, and must not collect in low-lying areas.



CAUTION!!! The appliance must be installed in an environment where it can be supplied with air for ventilation..



CAUTION!!! If the appliance is installed in rooms with thin flooring, resonance noise may occur. The installation of noise-reducing elements is required.



CAUTION!!! Do not allow excessive dust to accumulate on the appliance.



CAUTION!!! The appliance must be installed exclusively on a solid, level floor that can support its weight.



CAUTION!!! The appliance must be securely fixed to prevent noise and vibrations.



Check the Figure 4-2 concerning the minimum safety distances for installation and future maintenance.



This appliance is not designed to be installed outdoors. It must not be exposed to temperatures below 0.5°C or above 50°C. Choose a location that is sheltered from weather conditions and frost.



The dispersed heat can be useful heat: the appliance can be installed in the boiler room, garage, or any room that is warmer than the outside. In this way, the room acts as an energy collector: the unit draws in air and recovers its heat, increasing energy efficiency even at very low outdoor temperatures.



Hot water and dehumidification: the appliance can be placed in the laundry room or clothing room. When it produces hot water it lowers the temperature and dehumidifies the room as well. The advantages can be experienced particularly in the humid season.

Define the room and suitable location for installation, taking into account the following factors:

- connection to the water supply;
- connection to the domestic hot water system;
- electrical connection;
- connection to the condensate drain from the unit;
- connection to the safety valve drain;
- room ventilation.

4.2 - Prepare the appliance

To install the water heater correctly and easily, the following steps must be scrupulously followed.

4.2.1 - Moving the appliance

Refer to Figure 4-1.



CAUTION!!! Before continuing, check the weight of the appliance in section 8.



WARNING!!! Always lift and carry the water heater with a lift truck or special equipment. Failure to comply with this provisions could result in sever personal injury, death or substantial property damage.

Position the appliance in the area selected for installation, moving it using the pallet it is fixed to, taking care to keep it vertical without making any sharp movements that might cause it to overturn.



The lifting rate should be kept to a minimum.



Due to its top-heaviness, the appliance must be secured against tipping over.



The appliance must be placed on a level surface.



CAUTION!!! Due to the high center of gravity, low overturning moment, the water heater must be secured against tipping over.

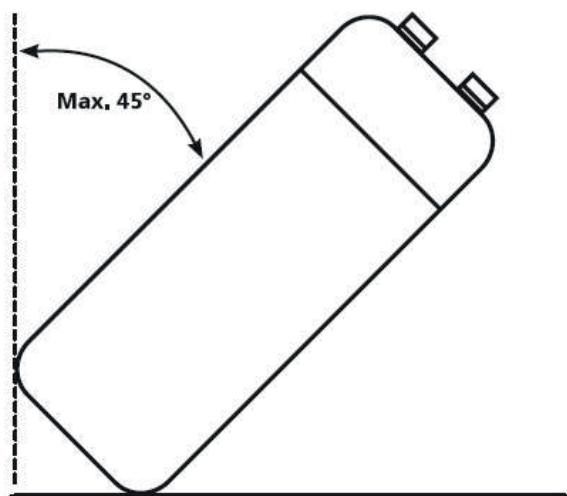


Figure 4-1 - Moving the water heater

4.3 - Dimensions and minimum clearances

For both installation and maintenance, it is recommended to leave free spaces around the appliance, as shown in Figure 4-2. The dimensions and diameter connection for the appliance are shown in Figures 4-3 and 4-4.

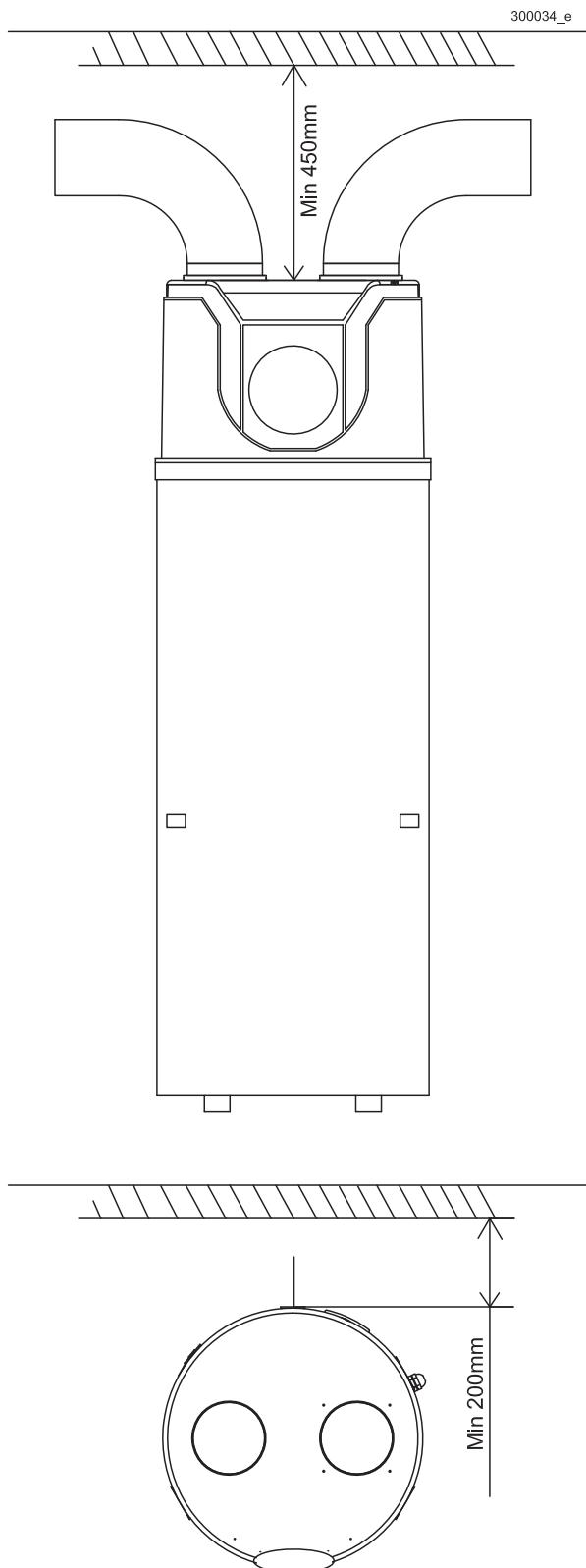
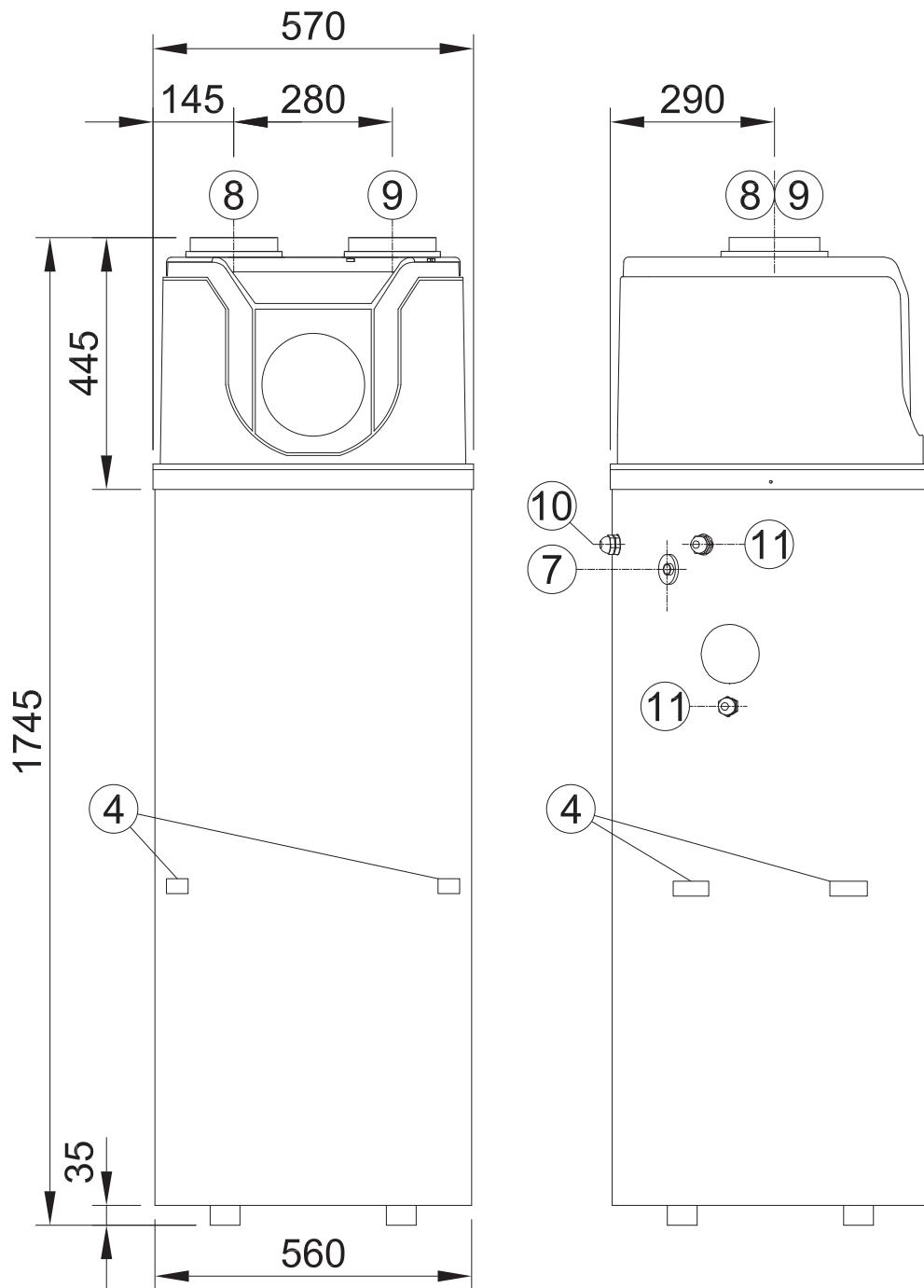


Figure 4-2 - Minimum clearances

FRONT



- 1 - Cold water inlet 3/4"
- 2 - Solar return 3/4"
- 3 - Solar supply 3/4"
- 4 - Lifting handles
- 5 - Magnesium anode
- 6 - Hot water outlet 3/4"

- 7 - Condensate water drain 1/2"
- 8 - Air outlet DN160
- 9 - Air inlet DN160
- 10 - 230Vac power cable entry
- 11 - Low voltage cable entry
- 12 - Solar circuit temperature sensor

Figure 4-3 - Dimensions and diameter connections model 200

REAR

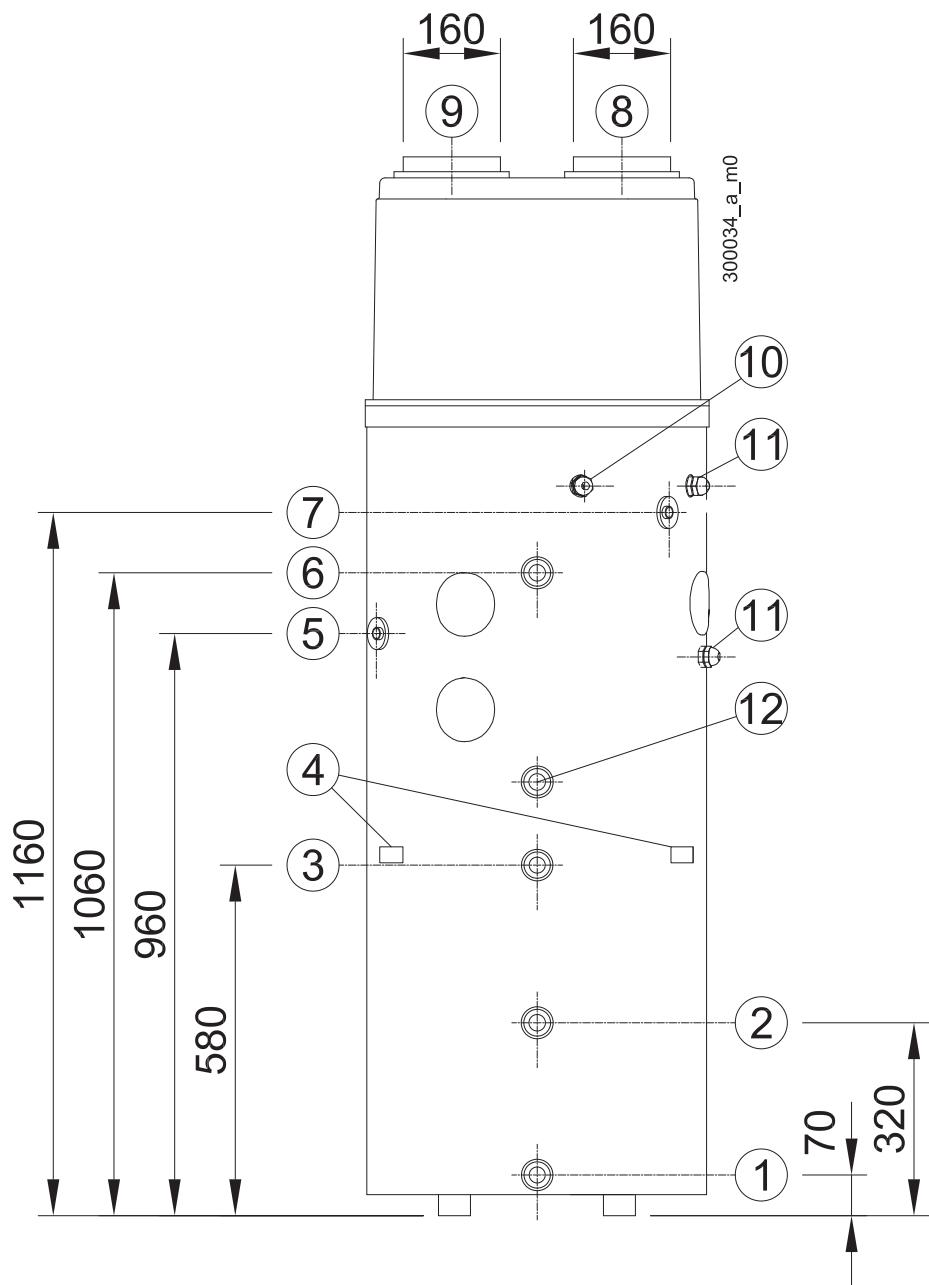
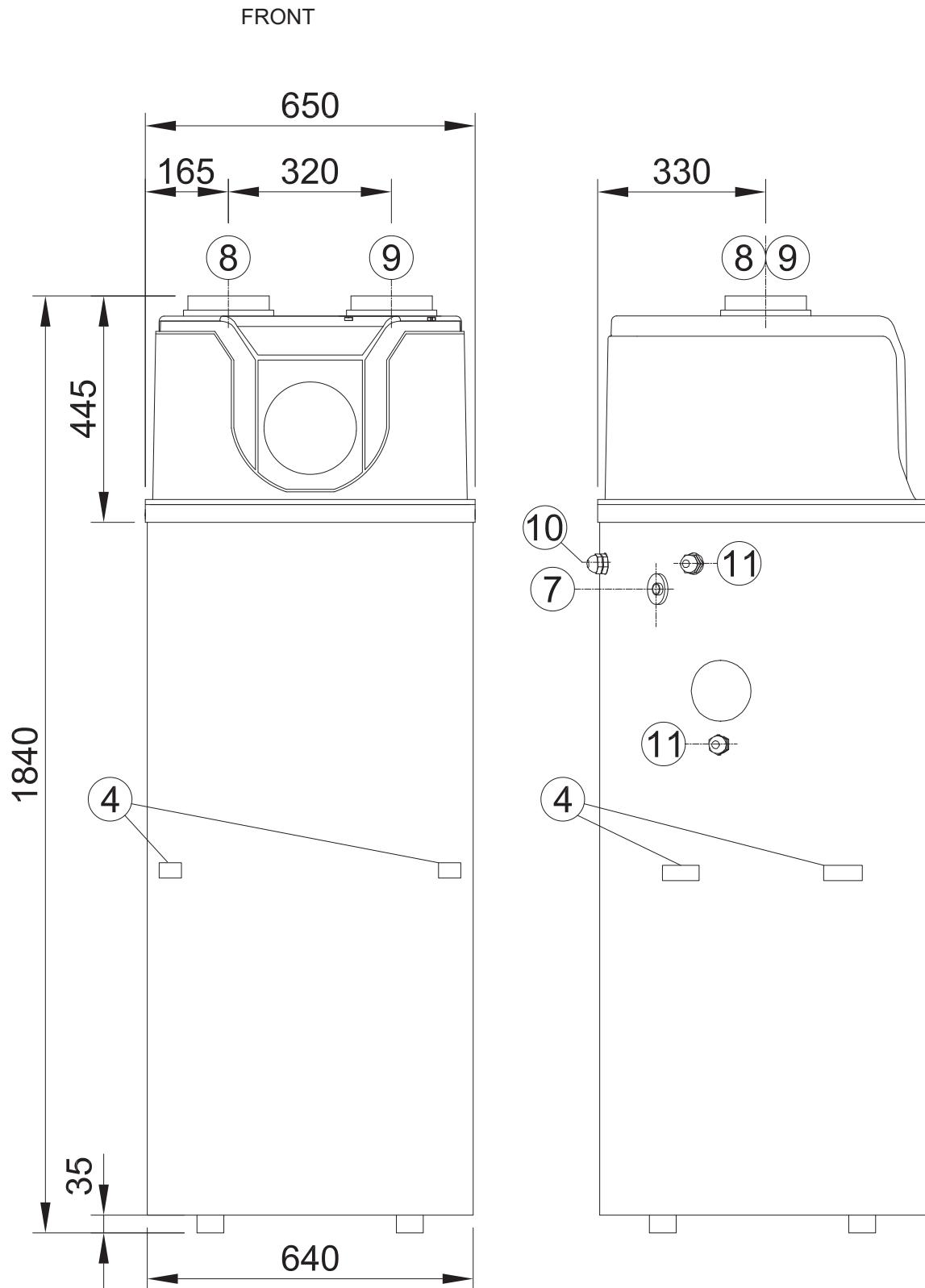


Figure 4-3 - Dimensions and diameter connections model 200



- 1 - Cold water inlet 3/4"
- 2 - Solar return 3/4"
- 3 - Solar supply 3/4"
- 4 - Lifting handles
- 5 - Magnesium anode
- 6 - Hot water outlet 3/4"

- 7 - Condensate water drain 1/2"
- 8 - Scarico aria DN160
- 9 - Aspirazione aria DN160
- 10 - 230Vac power cable entry
- 11 - Low voltage cable entry
- 12 - Solar circuit temperature sensor

Figure 4-4 - Dimensions and diameter connections model 300

REAR

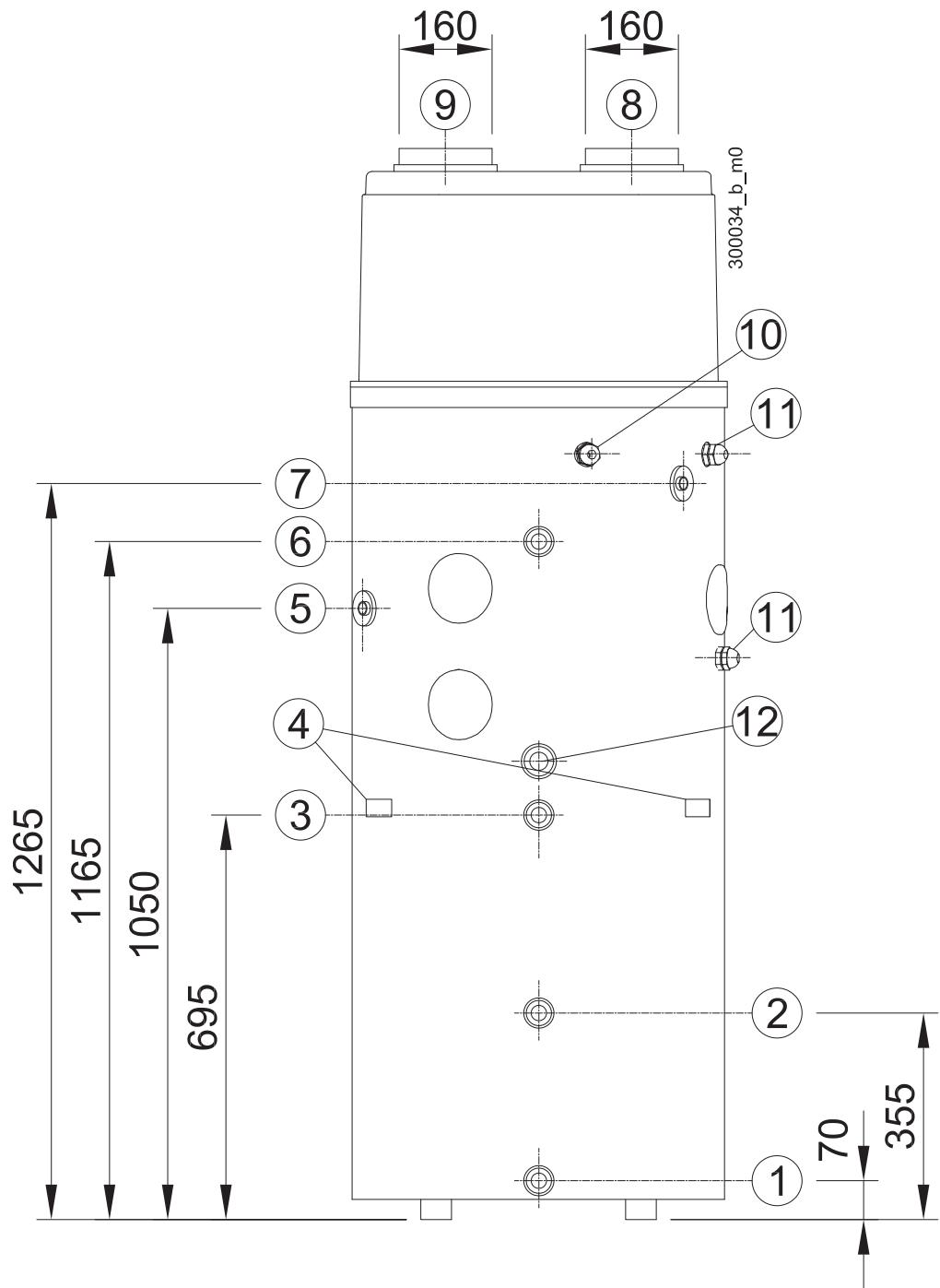


Figure 4-4 - Dimensions and diameter connections model 300

4.4 - Hydraulic connections

You can check the position of the hot water and cold water connections in Figures 4-3 and 4-4.

Please pay attention to the below points when connecting the water pipe:

- 1.-make sure there is nothing in the pipe and the water loop is smooth, check the pipe carefully to see if there is any leak, and then pack the pipe with the insulation;
- 2.-install the hydraulic safety unit (item "5" of Figure 4-5 and 4-6) in the water circulation system;
- 3.-the nominal pipe wide of the field- installed must be selected on the basis of the available water pressure and the expected pressure drop within the piping system and tank (section 4.8);
- 4.-to prevent corrosion damage, make sure that the materials used in the piping system are compatible.

4.5 - Installation example



In areas where the water is very hard ($\text{Th} > 20^{\circ}\text{fH}$ (11 dH)), it is recommended to install a water softener. To ensure effective protection against corrosion, the water hardness must always be between 12°fH (7 dH) and 20°fH (11 dH).

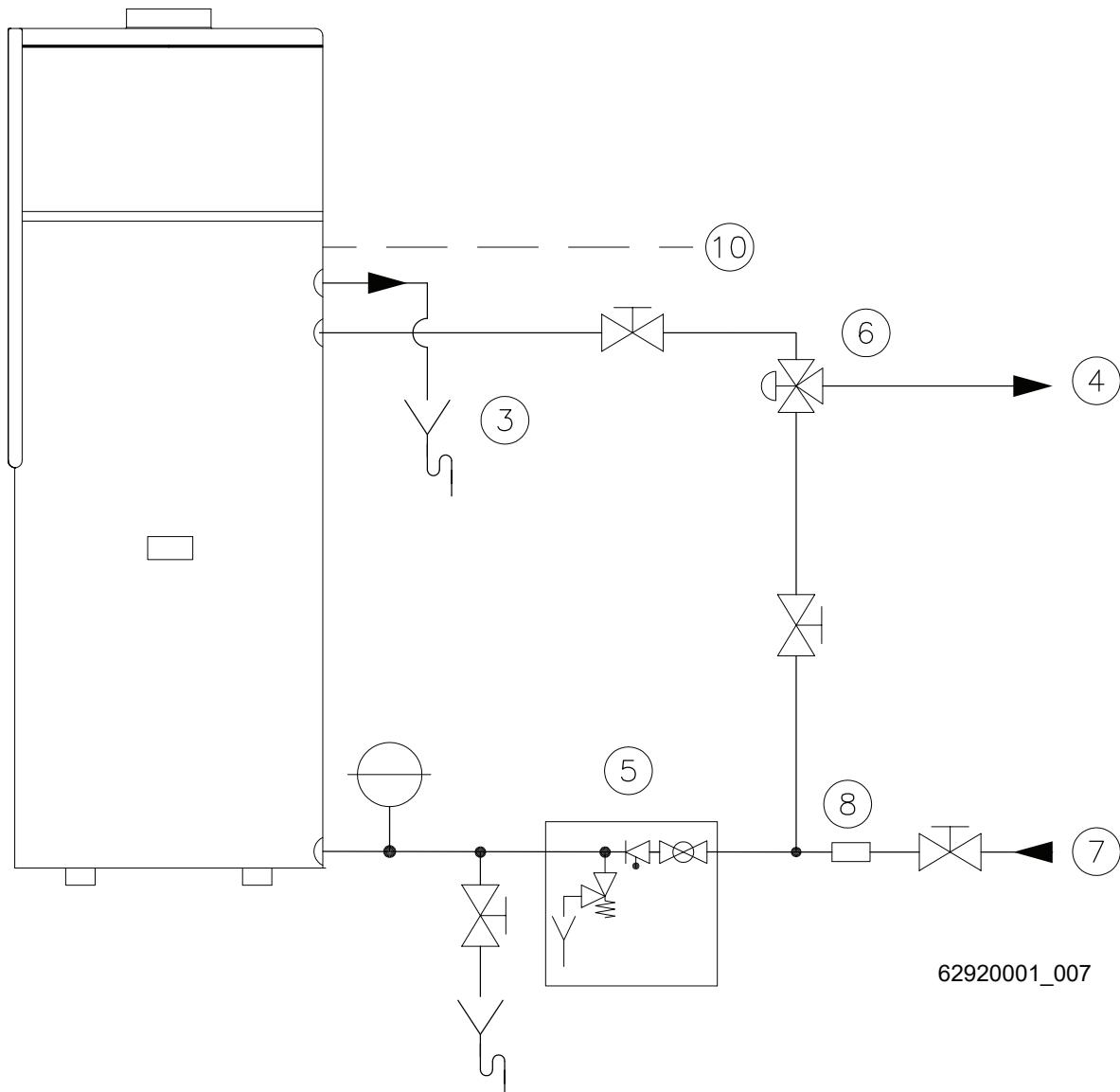
An installation example is in Figure 4-5.



WARNING!!! The hydraulic safety unit (item "5" of Figure 4-5) must be installed. If not, it could cause damage to the water heater, or even hurt people. The set point of this safety valve is 7 bar.



To fluently drain condensate water from evaporator ("3" of Figure 4-5), please install the water heater at the horizontal floor.



3 - Condensate water drain

4 - Hot water outlet

5 - Hydraulic safety unit (EN 1487)

6 - Mixing valve

7 - Cold water inlet

8 - Filter

10 - Electric power supply

Figure 4-5 - Installation example

4 - INSTALLATION

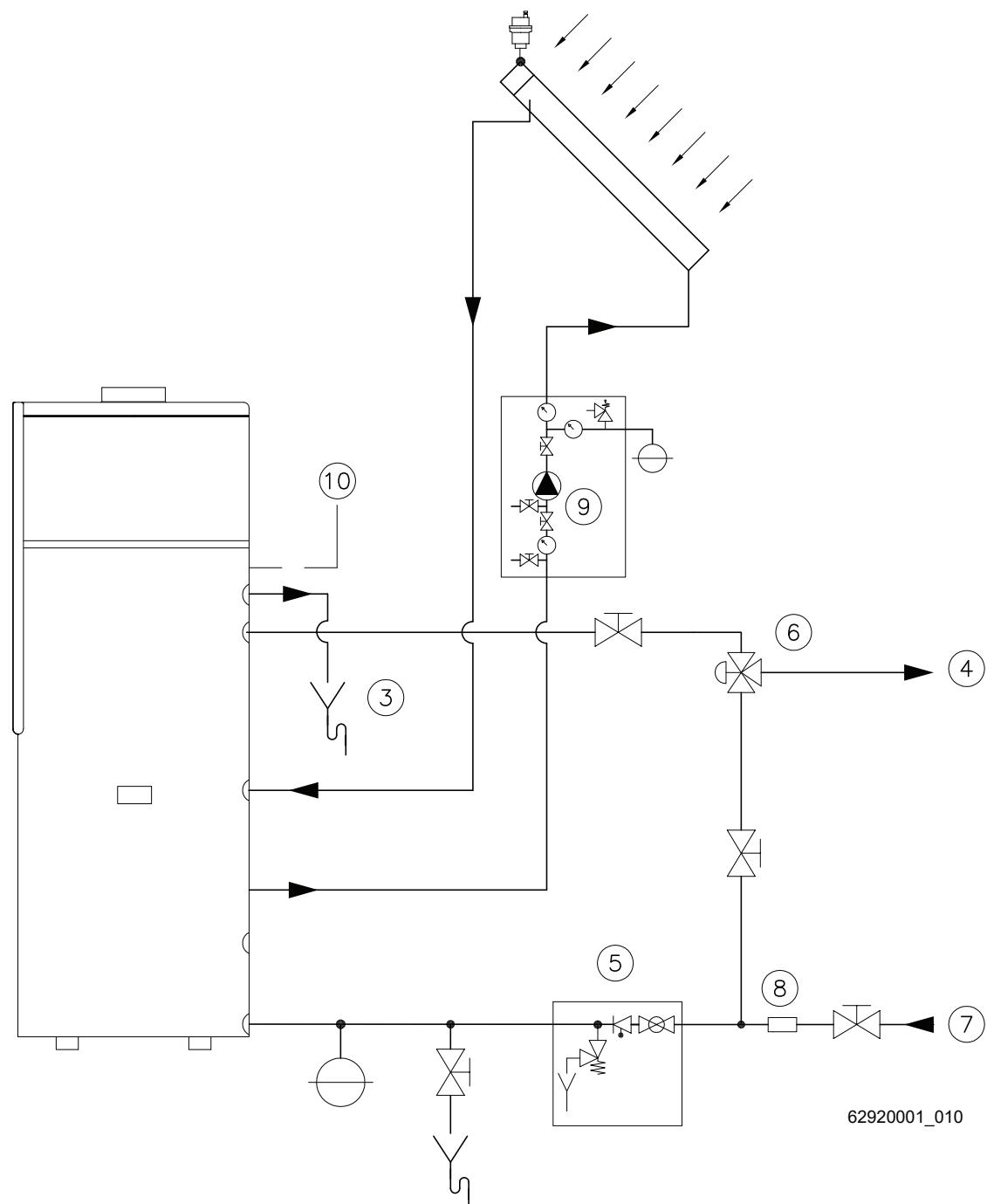
An installation example with solar panel is in Figure 4-6.



WARNING!!! The hydraulic safety unit (item "5" of Figure 4-6) must be installed. If not, it could cause damage to the water heater, or even hurt people. The set point of this safety valve is 7 bar.



To fluently drain condensate water from evaporator ("3" of Figure 4-6), please install the water heater at the horizontal floor.



3 - Condensate water drain

4 - Hot water outlet

5 - Hydraulic safety unit (EN 1487)

6 - Mixing valve

7 - Cold water inlet

8 - Filter

9 - Filling group and solar safety

10 - Electric power supply

Figure 4-6 - Example of installation with solar panel

4.6 - Hydraulic safety unit

The water heater is supplied with no safety valve against too high pressure, so that the installer is able to choose the valve that suits the system's operating pressure. The installation must be carried out in such a way as to allow the user to check it has intervened when the valve is opened. The safety valve outlet (responsibility of the installer) must be orientated in such a way as to avoid danger for people if it intervenes.



CAUTION!!! Convey the safety valve to a water drain.

The safety valve must be installed as shown in Figure 4-5 and 4-6 (item "5").



The discharge pipe connected to the safety valve is to be installed in a continuously downward direction and in a frost-free environment.



The safety valve is to be operated regularly to remove lime deposits and to verify that it is not blocked. Please beware of burn, because of the high temperature of water.

4.7 - Expansion tank

Provide an expansion tank in the system. Make sure that the expansion tank is properly sized considering the volume of water contained in the water heater and in the system (see section 8), also considering the working temperature and pressure.



CAUTION!!! The water heater does not have an expansion tank. Provide the system with an appropriately sized expansion tank for domestic circuits as required by the national and local installation standards. An undersized expansion tank can cause the safety valve to trip.

The expansion tank must be installed as shown in Figure 4-5 and 4-6 or according to recognised design methods. Refer to the instructions of the expansion tank manufacturer for further installation details.

4.8 - System sizing

Size the piping and every device necessary to the system following a recognised design method.

For the sizing of a system like the one in Figure 4-5, consider the pressure losses of the unit as shown in Figure 4-7; for a system like the one in Figure 4-6, refer to the information in Figure 4-8.

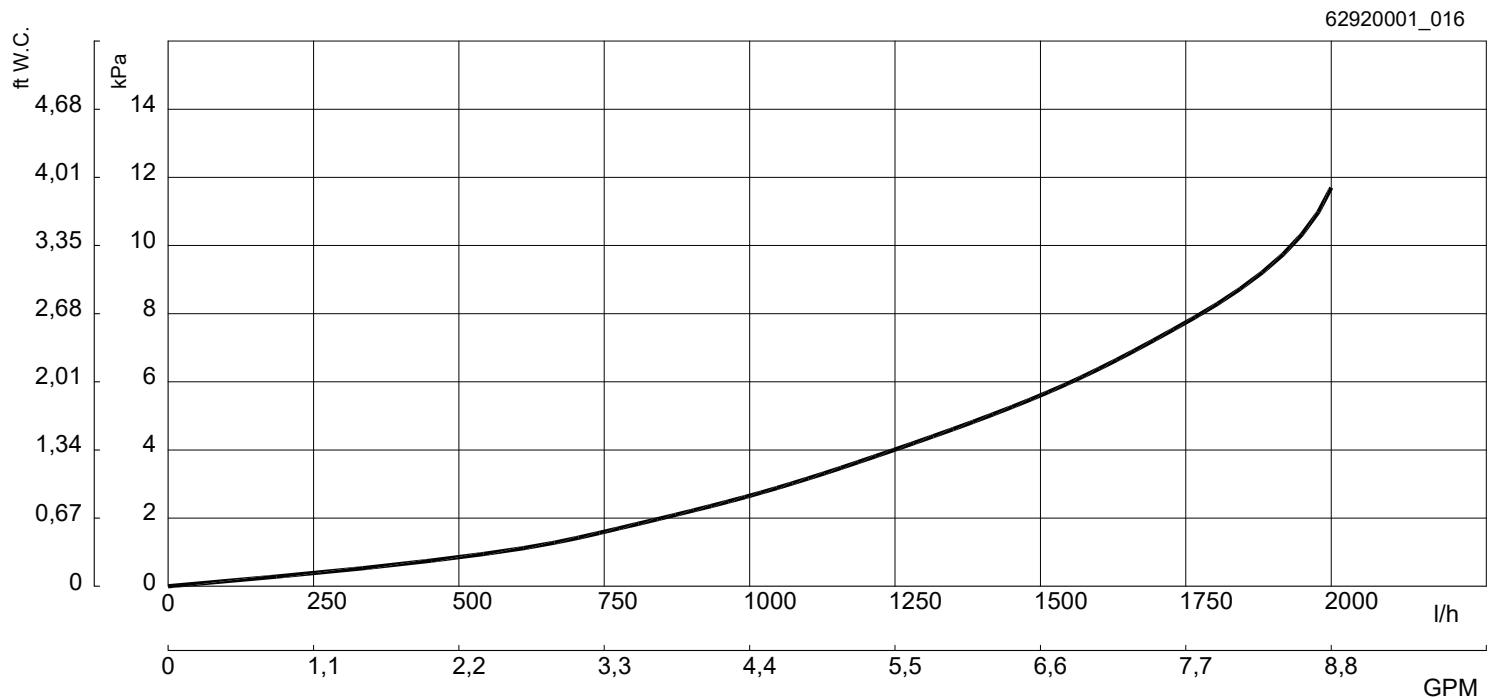


Figure 4-7 - Water side head loss

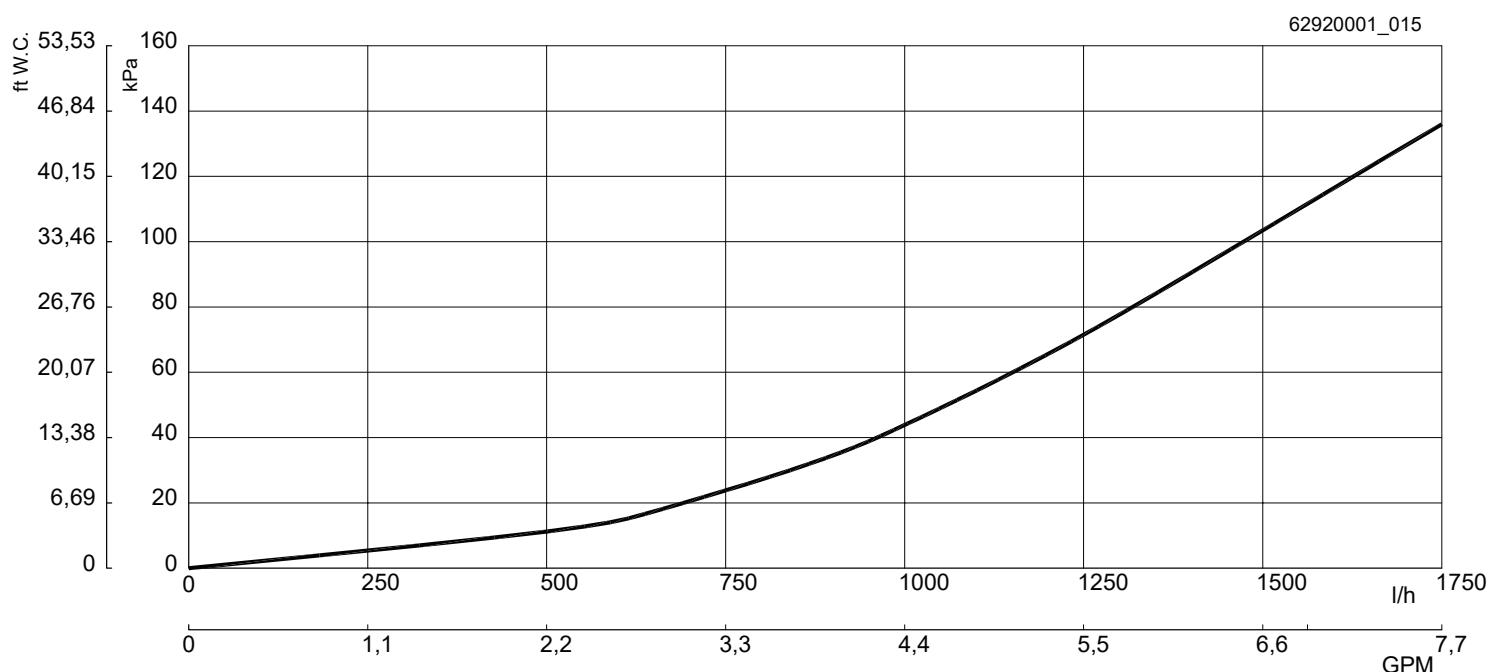


Figure 4-8 - Solar circuit head loss

4.9 - Electrical connections



WARNING!!! Disconnect the electric power supply before carrying out any intervention inside the appliance.



WARNING!!! The appliance is only electrically safe when it has been correctly connected to an efficient grounding, performed as provided for by the current safety regulations. If in doubt, request a thorough check of the electrical system by a professionally qualified technician.



CAUTION!!! Have a qualified installer check that the electrical system is suitable for the electric power required by the appliance, as indicated on the plate.



CAUTION!!! The appliance must be connected to the main electrical supply using a three-polar electric cable, with double isolation, of appropriate section and resistance to a minimum temperature of 70°C.



The use of adapters, multiplugs, extension leads, etc. is prohibited.



CAUTION!!! For connection to main electrical supply, a bipolar switch, appropriately sized, must be installed near the appliance, as envisioned by the current sector regulations.



Respect the polarity between the neutral and phase wires when connecting the appliance.



CAUTION!!! Make sure that the water system and heating pipes are not used as earth points for the electrical system or telephone lines. This piping is not suitable for this purpose, serious corrosion damage would occur in a very short time to the appliance, piping and radiators.



CAUTION!!! The appliance is not protected against the effects caused by lightning.



The water heater must be connected to the electrical mains with a wire that is 3x1.5 mm².



The fuse specification is T 3.15A 250V.



There must be a switch when connecting the water heater to the power system. The current of the switch is 10A.



The appliance must be installed with a residual current circuit breaker near the power supply and must be effectively grounded. The specification of the residual current device is 30 mA, with a response time of less than 0.1 seconds.

4.10 - Photovoltaic

For the photovoltaic function, proceed as follow:

- 1.- disconnect the appliance from the power supply;
- 2.-remove the top cover "17" of Figure 2-1, by unscrewing the three screws on its perimeter;
- 3.-disconnect the display cable;
- 4.-access the internal components and the electrical box ("11" Figure 2-1);
- 5.-Identify the terminal "38" in Figure 7-2 and pass it through the specific cable gland "11" in Figures 4-3 and 4-4;
- 6.-reassemble everything in reverse order;
- 7.-turn ON the appliance and set parameter "35" to "1" (see section 6.7).

Through this function, if the photovoltaic contact is closed, the setpoint temperature is automatically set to 65°C. When the photovoltaic contact reopens, the set point temperature will become equal to the maximum allowed set point temperature. For this function to be active, the control panel must be active and not in stand-by.

4.11 - Air inlet and air outlet



If air ducts are connected in the air inlet and outlet, they must be compatible with the characteristics indicated in Figures 4-3 and 4-4.



The length of the ducts should not be longer than as per table below, in the event of a difference in level it cannot exceed 4 m and in any case the maximum static pressure should not exceed than 85 Pa.

Air Max. ducts length (inlet + outlet) Diameter = 160 mm

No bends	17 m
No. of 90° bend(s)	1 14,5 m
	2 11,5 m
	3 9 m
	4 6 m



If ducts are connected in the air inlet / outlet, the water heater may have a loss of capacity.



Install protections on the openings air ducts that prevent the entry of water or foreign bodies into the pipes (protective grids for vertical walls, terminals for roofs).



Each bend corresponds to an additional tube length of 1 meter.

4.11.1 - Sealed chamber system

Refer to Figures 4-9 and 4-10.



This installation is suitable for small rooms.



Preferably use this configuration as no part is cooled and ventilation is not compromised.



The ends of the air inlet and outlet ducts must be at least half a meter away from each other.

4.11.2 - Open chamber system

Refer to Figure 4-11. Hot air is drawn into the room, and cold air is released outside. This installation uses the heat from a room without cooling it.



WARNING!!! Section "F" must be at least 100 cm² and dimension "E" must not exceed 300 mm.



Prevent negative pressure from forming in the installation room so that the air from adjacent heated rooms is not sucked in.



Check that the ventilation openings present can compensate for the amount of extracted air.

4.11.3 - Installation without piping system

Refer to Figure 4-12. The air is taken and diverted to the same room. This installation exploits the heat of a room and returns cold and dry air to the room itself.



WARNING!!! Section "F" must be at least 100 cm² and dimension "E" must not exceed 300 mm.

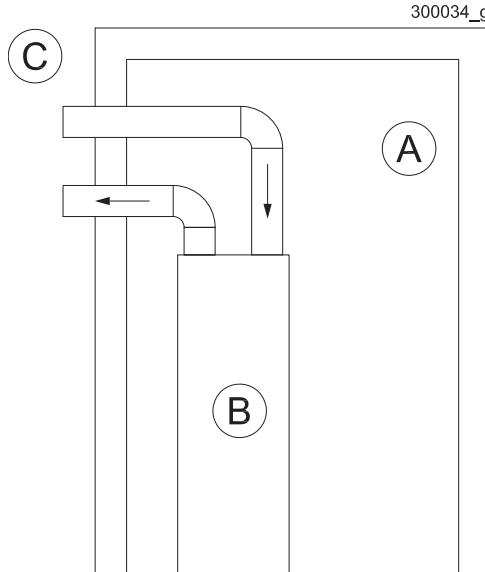


Figure 4-9 - Air inlet and outlet from outdoor

Key Figures 4-9, 4-10, 4-11 and 4-12:

A - Installation room

B - Aguamax

C - Outdoor

D - Adjacent room

E - Max height 300 mm

F - Opening with a net cross-sectional area of at least 100 cm²

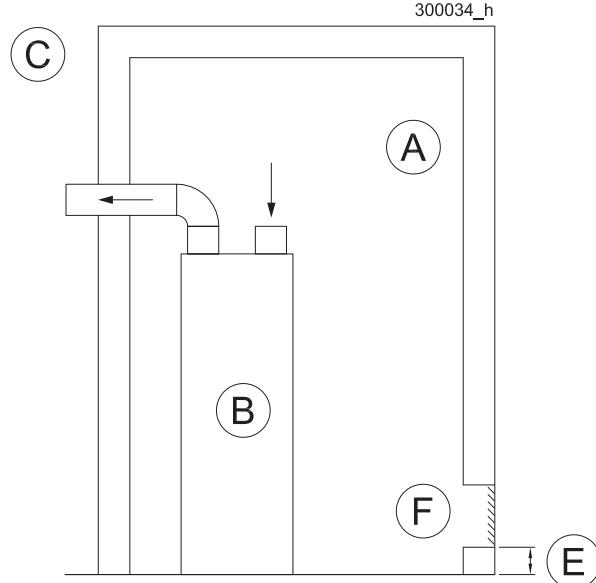


Figure 4-11 - Open chamber system

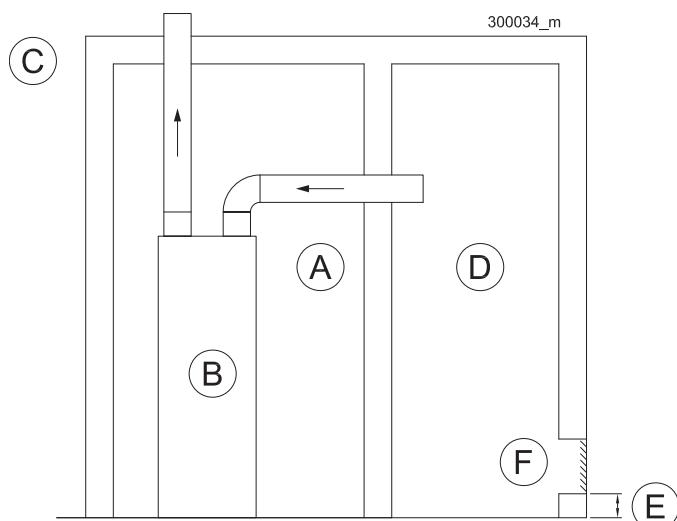


Figure 4-10 - Air from an adjacent room

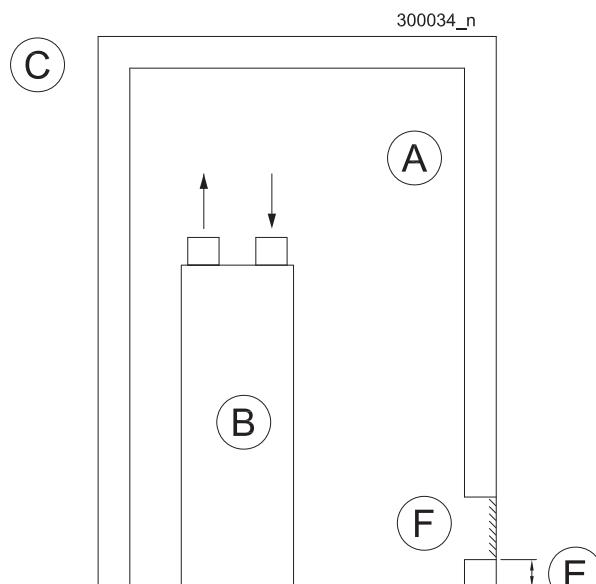
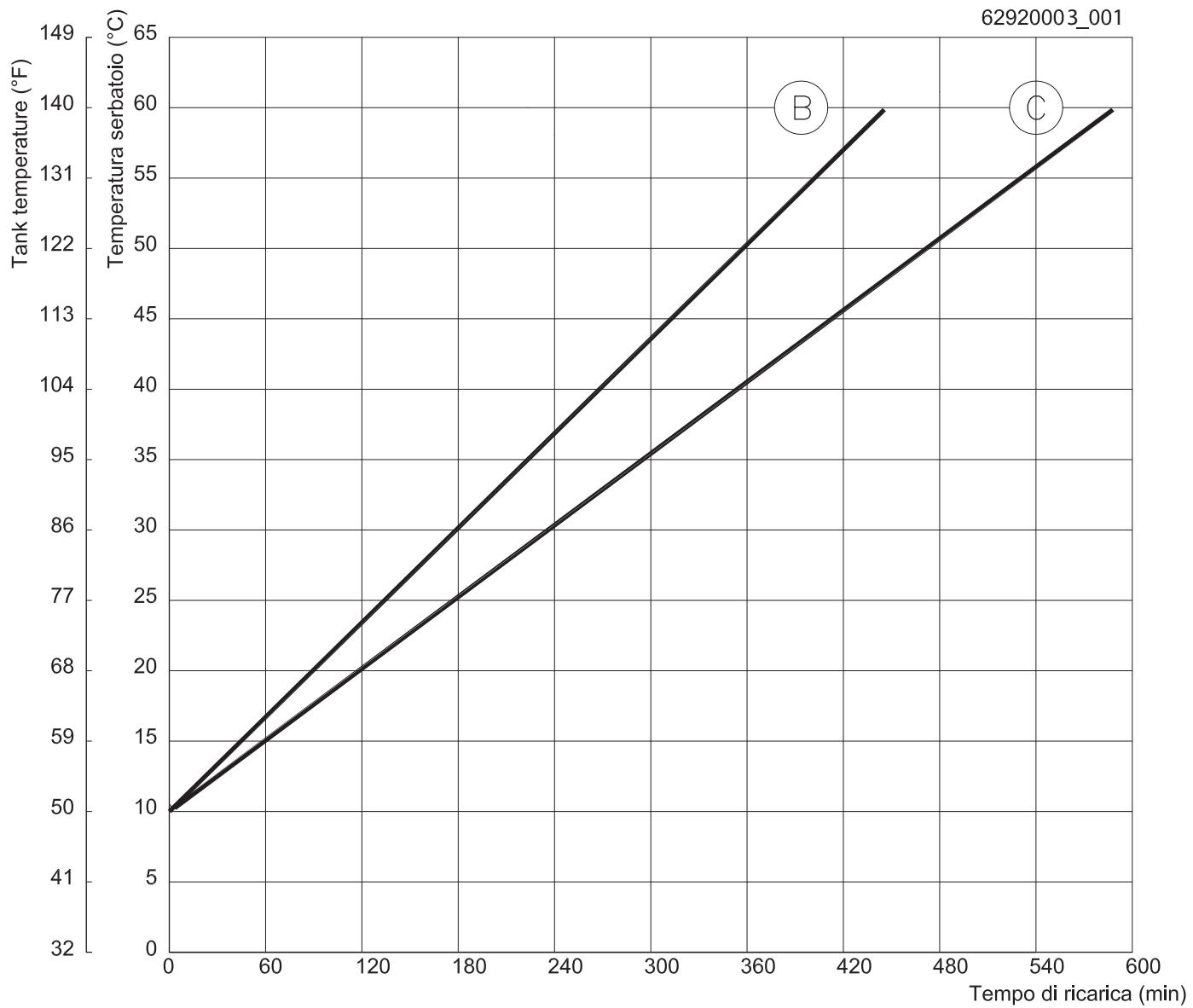


Figure 4-12 - System without ducts

4.12 - Tank refill time

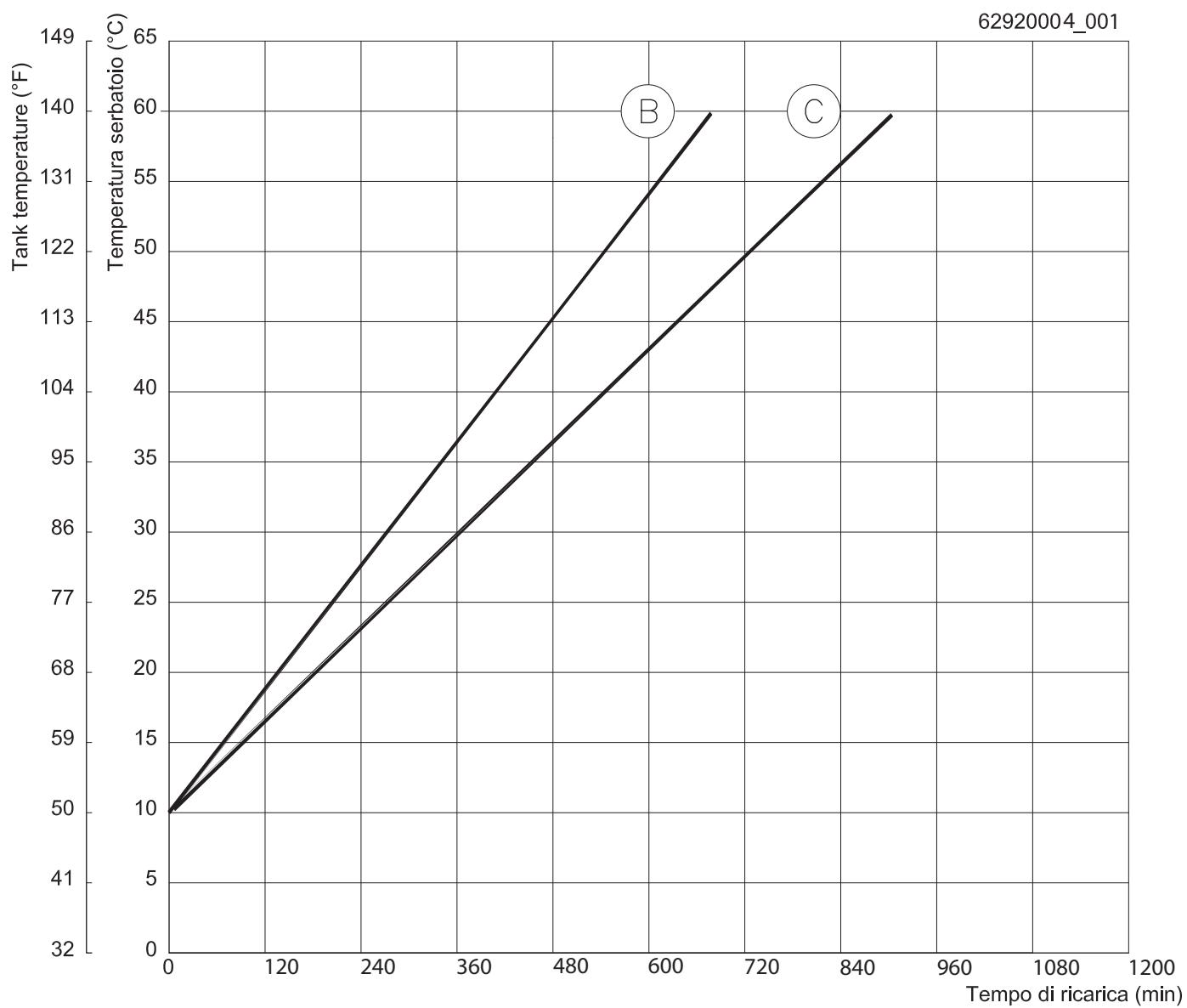
The time required to restore the temperature inside the tank can vary significantly depending on the temperature of the incoming air.

The recovery times for some typical operating conditions are provided in Figure 4-13 and 4-14.



B - Heat pump with outdoor temperature at 20°C
 C - Heat pump with outdoor temperature at 7°C

Figure 4-13 - Model 200 tank recovery time



B - Heat pump with outdoor temperature at 20°C
C - Heat pump with outdoor temperature at 7°C

Figure 4-14 - Model 300 tank recovery time

5.1 - Start-up

Before starting up the water heater the following operations must be carried out:

- 1.-check both the water in the tank as well as the water pipe connection;
- 2.-check the power system, make sure that the power supply is normal and the wire connection is ok;
- 3.-check the inlet water pressure, and make sure that the pressure is sufficient (above 0.15Mpa);
- 4.-check if any water flows out from the hot water outlet, and make sure that the tank is full of water (section 5.1.2) before turning on the power.

5.1.1 - Instructions to the user



Instruct the user on correct use of the water heater and the whole system in general.



Hand over the installation and use manual and all the documentation contained in the package to the user.



Instruct the user that air duct must not be restricted/ closed/ or modified in any way.



Inform the user of the water pressure check that needs to be done on the system and the steps required to fill it and vent the air.



Inform the user about correct adjustment of the temperatures, control units/thermostats for maximum efficiency.

5.1.2 - Filling the appliance

If the appliance is being used for the first time or reused after being emptied, make sure the tank is full of water before turning on the power. Proceed as follow:

- 1.-open the cold water inlet and hot water outlet;
- 2.-start the water filling. When there is water normally flowing out from the hot water outlet, the tank is full;
- 3.-turn off the hot water outlet valve and water filling is finished.

5.1.3 - Water emptying

If the appliance needs cleaning, moving etc, the tank should be emptied. Proceed as follow:

- 1.-close the cold water inlet;
- 2.-open the hot water outlet and open the manual valve of drainpipe;
- 3.-start the water emptying;
- 4.-after emptying, close the manual valve.

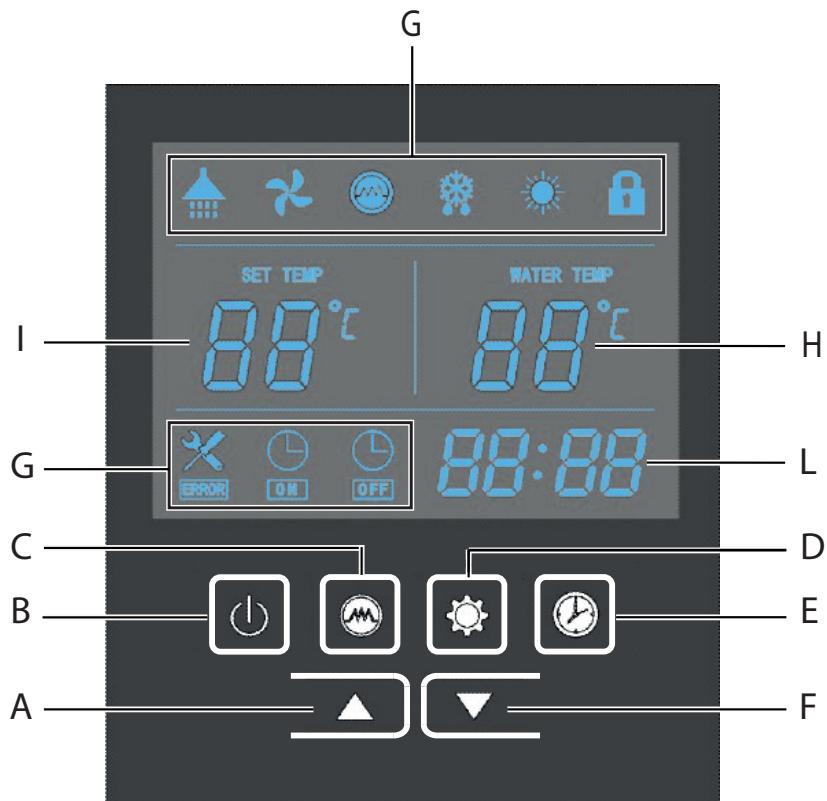
5.2 - Ignition

Make sure everything is ok before turning on the power, check that the control panel lights on when the appliance runs.

- 1.-turn on the water heater from the control panel using the button "B" in Figure 6-1;
- 2.-listen to the unit carefully when turning on the power of the water heater. Turn the power off when you hear an abnormal sound;
- 3.-measure the water temperature, to check the undulation of the water temperature;
- 4.-once the parameters have been set, the user cannot change it (section 6.7).



CAUTION!!! Please consult a qualified service person to do this.



- A - Multifunction button.
- B - Power on/off button of the appliance and button for entering/exiting the setting and control parameters.
- C - Button for enabling or disabling air exchange.
- D - Settings button.
- E - Button for setting the clock or time programming.
- F - Multifunction button.
- G - Icon (see section 6.6).
- H - WATER TEMP: water temperature/error code (see section 6.6 and 6.8).
- I - SET TEMP: setpoint temperature (see section 6.2).
- L - Hour and minutes icon (see section 6.6).

Buttons and are used for setpoint temperature setting, parameter setting, parameter checking, clock adjustment and the adjustment of the timer.

Press and buttons at the same time and hold for 5 seconds, the button are locked.

Press and buttons at the same time and hold for 5 seconds again, the button are unlocked.

Figure 6-1 - Control panel

6.1 - Standby mode, ignition and shut-off procedure

To switch on the appliance, proceed as follows:

- 1.-connect the appliance to the mains;
- 2.-when turning on the power, whole icons are displayed on the controller screen for 3 seconds. After checking if everything is ok, the water heater enters into the standby mode (Figure 6-2);

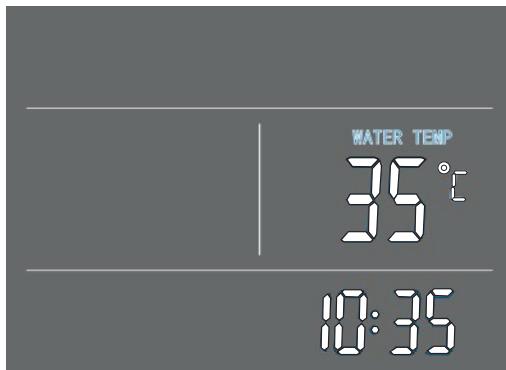


Figure 6-2 - Standby mode

- 3.-press the button and keep for 2 seconds when the appliance is standby, the appliance can be turned ON;
- 4.-press the button and keep for 2 seconds when the appliance is running, the appliance can be turned OFF;
- 5.-press the button and keep for 5 seconds when the water heater is running, the water heater can be enter in standby mode.

6.2 - Setpoint temperature

During the running status, to adjust the setting temperature directly press and buttons; to confirm press button or wait for 5 seconds. In the control panel the setting temperature is the icon "I" of Figure 6-1.

6.3 - Clock setting

To do this proceed as follow:

- 1.-turn ON the appliance (section 6.1);
- 2.-short press the button to entry the clock setting interface; hour and minutes icons ("L" Figure 6-1) flash together;
- 3.-short press the button to switch hour/minute setting;
- 4.-press the and buttons to set exact hour(s) and minute(s);
- 5.-press button again to confirm and exit.

6.4 - Timer setting

To do this proceed as follow:

- 1.-turn ON the appliance (section 6.1);
 - 2.-Press and hold the button for 5 seconds to enter the time programming settings: now the icon "Timer ON" and the icon of hours "88" flashing;
 - 3.-using the buttons and set the hour;
 - 4.-press button to switch to minute editing: now minutes icon flashing;
 - 5.-using the buttons and set the minutes;
 - 6.-press button to switch to the OFF setting: the icon "Timer OFF" and that of the hour "88" are flashing simultaneously;
 - 7.-using the buttons and set the hour;
 - 8.-press button to switch to minute editing: now minutes icon flashing;
 - 9.-using the buttons and set the minutes;
 - 10.-press button again to save and exit the timer setting interface;
 - 11.-press button to cancel the timer settings during the "Time ON" / "Timer OFF" programming.
- The timer settings are repeating.
- The timer settings are still valid after a sudden power cut.

6.5 - "Air exchange" function

To enable or disable the "Air exchange" function press button ("C" Figure 6-1) for 5 seconds and leave it, while the appliance is ON. When this function is active, the relative icon appears (see section 6.6). If "Air exchange" function is active the fan will continue working to ventilate the air, even after the water temperature has reached the setpoint and when it goes into standby. If this function is disabled the fan will stop, when the water temperature reaches the set point and water heater is standby.

6.6 - Display icons

Icon	Description
	"Hot water available" icon indicates that the DHW temperature reaches the setpoint and the hot water is available for use. Water heater is standby.
	"Fan ventilation" icon indicates that the fan ventilation function is enabled. To enable or disable this function see section 6.5.
	(N/A)
	"Defrosting" icon shows the water heater is under defrosting.
	"Heating" icon shows the water heater is working.
	"Key lock" icon indicates the key lock function is enabled. The keys cannot be operated until this function is disabled. <ul style="list-style-type: none"> - Press and buttons at the same time and hold for 5 seconds, the button are locked. - Press and buttons at the same time and hold for 5 seconds again, the button are unlocked.
	"SET TEMP": the display shows the setting water temperature. When checking or adjusting the parameters, this section will display the relating parameter number.
	"WATER TEMP": The display shows the current upper water tank temperature (T3 temperature sensor). When checking or adjusting the parameters, this section will display the related parameter value. CAUTION!!! In case any malfunction occurs, this section will display the related error code (section 6.8).
	"Time display": The display shows the clock time or timer time. See section 6.3 and 6.4.
	"Timer ON": the icon indicates that the timer function is enabled. See section 6.4.
	"Timer OFF": the icon indicates that the timer function is disabled. See section 6.4.
	"Error": this icon indicates there is malfunction. See section 6.8.

6.7 - Parameter list

To access the parameter, proceed as follow:

1.-when the water heater is in standby mode (Figure 6-2), press together the  and  buttons for a few seconds;

2.-press  button, appears a screen (Figure 6-3) where you set profile password:

- Installatore: 29;

3.-with  and  buttons set the "A" value and confirm with  button;

4.-with  and  buttons set the "B" value and confirm it with  button;

5.-now you enter the parameter list, where "C" is the parameter and "D" the parameter value, see Figure 6-4;

6.-with the  and  buttons scroll the parameters;

7.-to modify a parameter value press  button and using  and  changes the value. Confirm the value by pressing  again.

 If no operations are performed for 10 seconds, the water heater automatically exits and returns to standby mode.

 Parameters from "A" to "H" can also be viewed without entering the parameter list: while the water heater is in operation or in standby, press the key .

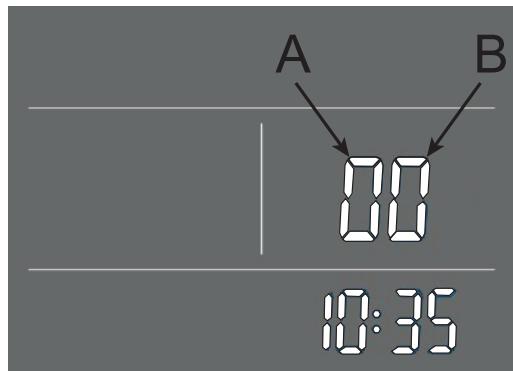


Figure 6-3 - Profiling

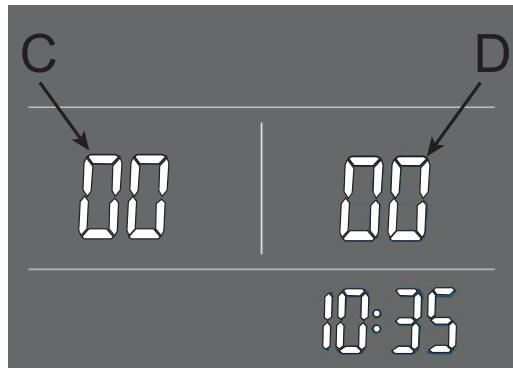


Figure 6-4 - Parameter value change

Parameter	Parameter description	U.M.	Setting field	Default value	Profile
00	Tank water setpoint temperature (in the display is the item "H" in Figure 6-1) based on T2 sensor	°C	10...65	50	Installer
01	Negative hysteresis for heat pump ignition	°C	2...15	5	Installer
02	(N/A)	°C	10... value set in parameter 34	65	Installer
03	(N/A)	min	0...90	6	Installer
04	(N/A)	°C	50...70	70	Installer
05	(N/A)	min	0...90	30	Installer
06	Minimum time between one defrost cycle and the next	min	30...90	45	Factory
07	Defrosting entry coil temperature	°C	-30...0	-7	Factory
08	Defrosting exit coil temperature	°C	2...30	13	Factory
09	Maximum duration of the defrost cycle	min	1...12	8	Factory
10	Electronic expansion valve adjustment	/	1=auto 0=manual	1	Factory
11	Setpoint over-heat degree	°C	-9...9	4	Factory
12	Steps of manually adjusting the electronic expansion valve (Nx10)	steps	6...47	35	Factory
13	(N/A)	h	0...23	23	Installer
14	(N/A)	/	0,1 and 2	0	Installer
15	(N/A)	°C	15...50	35	Installer
16	(N/A)	°C	1...15	2	Installer
17	(N/A)	°C	5...20	5	Installer
18	(N/A)	°C	1...4	2	Installer

Parameter	Parameter description	U.M.	Setting field	Default value	Profile
19	Operating mode if the outdoor temperature is below -10 ° C: 0 = heating served only by the heat pump; 1 = N/A;	/	0-1	1	Installer
20	N/A	/	0-1	1	Installer
21	N/A	days	1...30	7	Installer
22	Opening of expansion valve during defrost function (Nx10). 10 = completely open; 47 = completely closed.	steps	10...47	30	Factory
23	Delay time from switching on the compressor for adjusting the opening of the electronic expansion valve (Nx10sec)	sec	3...30	21	Factory
24	If the outdoor temperature falls below the value set in this parameter, the water heater continues to operate and does not go into low refrigerant pressure error E2 (see section 6.8).	°C	-10...25	-5	Installer
25	Delay time from switching on the compressor for the activation of the protection against low pressure of the refrigerant	min	2...20	5	Factory
26	Ambient temperature for four way valve reversing	°C	-10...10	-2	Factory
27	Reversal duration of the 4-way valve after starting the compressor	min	0...15	2	Factory
28	Closing of the electronic expansion valve when the compressor is switched off 0 = Disabled 1 = Enabled	/	0-1	0	Factory
29	Anti-block function from outside temperature 0 = Disabled 1 = Enabled	/	0-1	0	Factory
30	Anti-block function compensation temperature	°C	-10...10	0	Factory
31	Ambient temperature sampling frequency	min	2...120	15	Factory
32	N/A	/	0-1	1	Installer
33	N/A	°C	1...10	3	Installer
34	N/A	°C	65...85	75	Factory
35	Heat pump photovoltaic connection 0 = Disabled 1 = Enabled	/	0-1	0	Installer
38	N/A	/	-9...9	6	Factory
39	N/A	/	-9...9	7	Factory
A	Lower water tank temperature (T2 sensor, item "23" of Figure 2-2 and 2-3)	°C	-9...99	Actual testing value	
B	Upper water tank temperature (T3 sensor, item "21" of Figure 2-2 and 2-3)	°C	-9...99	Actual testing value	
C	Evaporator coil temperature (T4 sensor, item "33" of Figure 3-1)	°C	-9...99	Actual testing value	
D	Return gas temperature (T5 sensor, item "30" of Figure 3-1)	°C	-9...99	Actual testing value	
E	Ambient/air inlet temperature (T1 sensor, time "34" of Figure 3-1)	°C	-9...99	Actual testing value	
F	(N/A)	°C	0...125	Actual testing value	
G	Electronic expansion valve opening	steps	6..47	Actual value x 10	
H	Actual set value (according to the outdoor temperature)	°C	10...70	Actual testing value	

6.8 - Diagnostics

When an error occurs or the protection mode is set automatically, the circuit board and the wired controller will both display the error message (item "H" of Figure 6-1).

Error code	Protection/Malfunction	LED indicator of the control board	Possible reasons	Corrective actions
	Standby	Dark		
	Normal running	Bright		
P1	Lower tank temperature sensor failure	1 flashes	1.- The sensor open circuit; 2.- The sensor short circuit.	1.- Check the sensor connection; 2.- Replace the sensor.
P2	Upper tank water temperature sensor failure	2 flashes	1.- The sensor open circuit; 2.- The sensor short circuit.	1.- Check the sensor connection; 2.- Replace the sensor.
P3	Evaporator coil temperature sensor failure	3 flashes	1.- The sensor open circuit; 2.- The sensor short circuit.	1.- Check the sensor connection; 2.- Replace the sensor.
P4	Return air temperature sensor failure	4 flashes	1.- The sensor open circuit; 2.- The sensor short circuit.	1.- Check the sensor connection; 2.- Replace the sensor.
P5	Ambient temperature sensor failure	5 flashes	1.- The sensor open circuit; 2.- The sensor short circuit.	1.- Check the sensor connection; 2.- Replace the sensor.
P6	Anti-freeze protection	10 flashes	1.- Low water tank temperature too low;	The unit will be automatic in antifreeze function.
E1	High pressure protection (HP switch)	6 flashes	1.- Too high air inlet temperature; 2.- Less water in the tank; 3.- The electronic expansion valve assembly blocked; 4.- Too much refrigerant; 5.- The switch damaged; 6.- The uncompresssed gas is in refrigerant system.	1.- Check if the air inlet temp is over the working limited; 2.- Check if the tank is full of water. If not, charge water; 3.- Replace the electronic expansion valve assembly; 4.- Discharge some refrigerant; 5.- Replace with a new switch; 6.- Discharge and then recharge the refrigerant.
E2	Low pressure protection (LP switch)	7 flashes	1.- Too low air inlet temperature; 2.- The electronic expansion valve assembly blocked; 3.- Too less refrigerant; 4.- The switch damaged; 5.- The fan assembly can not work.	1.- Check if the air inlet temp is over the working limited; 2.- Replace the electronic expansion valve assembly; 3.- Charge some refrigerant; 4.- Replace with a new switch; 5.- Check if the fan working when the compressor working. If not, some problems with the fan assembly.
E3	Over heat protection	8 flashes	1.- Too high tank water temperature; 2.- The switch damaged.	1.- If the tank water temp is over 85°C, the switch will open and the unit will stop for protection. After the water comes to normal temp; 2.- Replace a new switch.
E5	Water flow error	9 flashes		1.- set parameter 14 to 0
"Defrosting indicate"	Defrost	all long flashes		
E6	Electric magnesium anode rode	12 flashes		
E8	Communication failure	bright	1.- The communication line is not plugged into the socket.	1.- Check if the socket of the communication line is plugged in.
P7	Setting error	Off	1.- The contact "38" in Figure 7-2 is open and the photovoltaic function has not been enabled.	1.- Close contact "38" in Figure 7-2 or enable the photovoltaic function (parameter 35=1).

6.8.1 - Troubleshooting

This section provides useful information for diagnosing and correcting certain troubles which may occur. Before starting the troubleshooting procedure, carry out a thorough visual inspection of the water heater and look for obvious defects such as loose connections or defective wiring.



CAUTION!!! When carrying out an inspection on the switch box of the water heater, always make sure that the main switch of the water heater is switched off.

The guidelines below might help to solve your problem. If you cannot solve the problem, consult your installer/local dealer.



No image on the controller (blank display). Check if the main power is still connected.



One of the error codes appears, consult your local dealer.



The scheduled timer does work but the programmed actions are executed at the wrong time (e.g. 1 hour too late or too early). Check if the clock and the day of the week are set correctly, adjust if necessary.

6.8.2 - Operation limits

Regardless of the parameters set, if the outdoor temperature (T1 sensor) is above 44 ° C, the water heater turns off. When the outdoor temperature drops below 42 ° C, the water heater restarts.

6.8.3 - Antifreeze



CAUTION!!! The appliance does not have antifreeze protection. If you intend to abandon it and there is a risk that the water inside the tank will freeze, you must empty the appliance beforehand to avoid any damage.

6.9 - Wi - Fi connection mode

To activate the connection of Aguamax to Wi - Fi it is necessary to download the “Smart Life” App from the App Store.



App “Smart Life” icon

Then you need to register for the App for free, by entering an email address and a password.

Once registered you can add a device, you can proceed to connect Aguamax to your Wi-Fi network. Follow the instructions below:

- 1.- Turn ON the appliance and press buttons  and  simultaneously for 5 seconds. The display will now flash quickly;
- 2.-from the initial menu “My home” press the key “+” at the top right;
- 3.-the App searches and displays the available devices found;
- 4.-select the found device and proceed guided by the App for pairing;
-  If the search does not yield results, you can proceed with the “Add manually” button and follow the App instructions.
- 5.-choose the type of device to connect via “Add manually”. In the case of Aguamax, you must select Large appliances from the list on the right and then under the Water heater category select Water heater (Wi-Fi);
- 6.-activate bluetooth and location on your smartphone and connect to the Wi-Fi network you want to connect Aguamax to. The app will ask you to enter the password of the Wi - Fi network;
- 7.-from the Aguamax display activate the network search procedure by pressing the keys  and  together for 5 seconds. Now icon will flash quickly (3 times per sec.);
- 8.-in the App press the button “Confirm indicator rapidly blink” and select rapidly blink;
- 9.-now the device will try to connect to the Wi-Fi network and will be registered in the cloud;
- 10.-if the operation is successful, the device will appear whose name can be changed and pressing Finish ends the procedure.

6.9.1 - Operation of the “Smart Life” App

Below are the possibilities offered by the “Smart Life” App connected to AGUAMAX.

- MENÙ “my home”

Opening the App you access the “My home” home screen (see Figure 14), which shows the machine connected to Wi-Fi.

From the My home menu it is possible to see if Aguamax is active or in standby by the color of the On-Off button next to the device name.

Using the keys at the bottom it is possible to access the following menus:

- **Scenario** : for home automation settings, it can be used to define time bands (section 6.9.5).
- **Smart** : this menu is used to define actions related to home automation (Do not use).
- **Mi** : menu for connection to voice services such as Alexa, Google Assistant, these services are not active and cannot be used.

6.9.2 - Main screen of the device

Opening the App you access the main screen by selecting the device.

On the main screen the current tank temperature and the desired temperature are shown. This temperature can be changed by turning the wheel represented on the screen. The machine operating mode is also indicated on the main screen ("Heating").



Only the operating mode is displayed, and not the status, i.e. there is no information as to whether the heat pump is active or not.

From the main screen it is possible to activate or put the machine in stand-by, using the central button at the bottom. Through the two side keys at the bottom and the one at the top left you can access the various menus.

- MENÙ "Plan"

Access to the "Plan" menu is possible from the main screen by pressing the button at the bottom right with the clock symbol.

The "Plan" menu consists of 3 pages:

- Plan;
- Timer Add;
- Repeat.

The Schedule screen lists all the set actions and can be added by going to the "Add Timer" page, by pressing the "Add Timer" button at the bottom.

On the "Add Timer" page you can define the action time, the type of action (On or Off), you can enter a note (Observation), you can set the receipt of a notification that warns of the execution of the scheduled action and you can define the possible repetition of that action at that time by pressing the arrow next to the word "Repeat".

This last operation opens the "Repeat" page, through which you can set the repetition of the action for different days of the week.

Note that the only actions allowed are the switching on and off of the heat pump, not the setting of the desired temperature.

- "Mode" MENÙ

The mode menu opens directly on the initial screen by pressing the "M" key at the bottom left.

Through this menu it is possible to set the functioning mode of the water heater:

- **Heating:** the heat pump is activated to bring the temperature of the water in the storage tank to the desired value, then both the compressor and the fan switch off;
- **Heat + fan:** like "Heating" but when the desired temperature is reached, the compressor turns off and the fan remains on to ventilate the room.

6.9.3 - Protection and failures

Two types of errors are generated in the heat pump: **Faults** and **Protections**.

The faults are related to malfunctions of the temperature sensor. Such faults are indicated with the letter "P". The protections refer to the intervention of the high / low pressure switches and the safety thermostat. The intervention of the protection is signaled by the letter "E".

On the App, in the main screen faults (Figure 6-15) and protections (Figure 6-16) are signaled immediately, simultaneously with the appearance on the display. However, there is **NO NOTIFICATION** about the error status of the machine, it is necessary to open the App to notice it.

6.9.4 - Notifications

The notifications that can be received are of two types:

- **Notification of the offline status of the appliance;**
- **Notification of the execution of the planned command.**

The notification of the offline status of the appliance (both because the appliance is off and due to Wi-Fi problems) is activated from the **Settings** menu, which can be accessed from the main screen using the key at the top right.

You are notified if the device is offline for at least 30 minutes.

The notifications of the execution of the planned command are activated from the "Plan" menu.

6.9.5 - Time bands configuration from menu “Scenario”

It is possible to define an unlimited number of time bands with the possibility of also setting the desired temperature from the menu **Scenario**, following these steps:

- 1.- access the **Scenario** menu and on the **Automation** page add a routine by pressing the “+” key at the top right or click **Create Scenario**;
- 2.-from the page that opens select **Pianifica**;
- 3.-select the start time of the time slot, or rather, the activation time of the commands you want to activate;
- 4.-to set a weekly repetition, press the arrow on the **Repeat** line and select the days of the week for which you want to repeat the actions that will be defined;
- 5.-to add the actions to be performed, press the “+” referred to the line **Then**;
- 6.-from the pop-up that opens, select Run device;
- 7.-select the appliance in question;
- 8.-the screen that opens shows all the actions that can be performed on the machine:
 - define the switchon or switch-off status;
 - the desired temperature (**Temp Set**);
 - the operating mode;
- 9.-from the **On Off** screen you can select the status of the machine;



Note: if nothing is selected, the machine will not switch its state. So if the machine is off when the action is performed, it remains so.

- 10.-from the **Temp Set** screen you define the desired temperature;



Note: the maximum value is 70 °C, but in the water heater the desired temperature is limited to the maximum allowed (65 °C by default).

- 11.-from the **Work Mode** screen the appliance operating mode is defined;
- 12.-once all the actions have been defined, proceed to the summary and save screen;
- 13.-the new schedule will appear on the home page of the **Scenario** menu.

7.1 - Maintenance activities

In order to ensure an optimum operation of the water heater, a number of checks and inspections on the water heater and the field wiring have to be carried out at regular intervals, preferably yearly.

- 1.-check the water supply and air vent frequently, to avoid lack of water or air in the water loop.
- 2.-clean the water filter to keep a good water quality. Lack of water and dirty water can damage the water heater.
- 3.-keep the water heater in a place where it is dry and clean, and which has good ventilation. Clean the heat exchanger every years.
- 4.-check each part of the water heater and the pressure of the system. Replace the defect part if there is any, and recharge the refrigerant if it is required.
- 5.-check the power supply and the electrical system, make sure the electrical components are good, and the wiring is well. If there is a damaged part or a strange smell, please replace it in time.
- 6.-if the heat pump is not used for a long time, please drain out all the water from the unit and seal the unit to keep it good. Please drain the water from the lowest point of the water heater to avoid freezing in winter. Water recharge and full inspection on the heat pump is required before it is restarted.
- 7.-do not turn the power 'OFF' when you use the water heater continuously, or the water in the pipe will freeze and split the pipe.
- 8.-keep the water heater clean by means of soft damp cloth, no maintenance is required by the operator.
- 9.-it is recommended to clean the tank regularly to keep an efficient performance.
- 10.-it is recommended to set a lower temperature to decrease the heat release, prevent scale and save energy if the outlet water is sufficient.
- 11.-clean the air filter regularly to keep an efficient performance.
- 12.-Check the magnesium anode rode every year and change it if it has been used out (section 7.1.1).
- 13.-In regions with hard water it is recommended to ask the installer to descale the electric heater (not factory connected) with heat pump water heaters once a year, in order to maintain performance levels.

7.1.1 - Replace the magnesium anode rode

To replace the magnesium anode rode, proceed as follow:

- 1.-turn off the unit and pull out the plug;
- 2.-drain all the water out of the tank (see section 5.1.3);
- 3.-remove the magnesium anode from the tank item "5" Figure 4-3 and 4-4;
- 4.-install the new magnesium anode;
- 5.-fill the appliance (see section 5.1.2).

7.2 - Temperature sensor

Various temperature sensors are positioned inside the water heater. The temperature sensors are shown in the list of parameters (section 6.7).

The electrical resistance existing between the two sensor contacts "Lower tank temperature (T2)", "Upper tank temperature (T3)", "Evaporator coil temperature (T4)", "Return gas temperature (T5)", "Ambient temperature (T1)" and "DHW/Solar temperature (T6)" must correspond with what is shown in Figure 7-1.

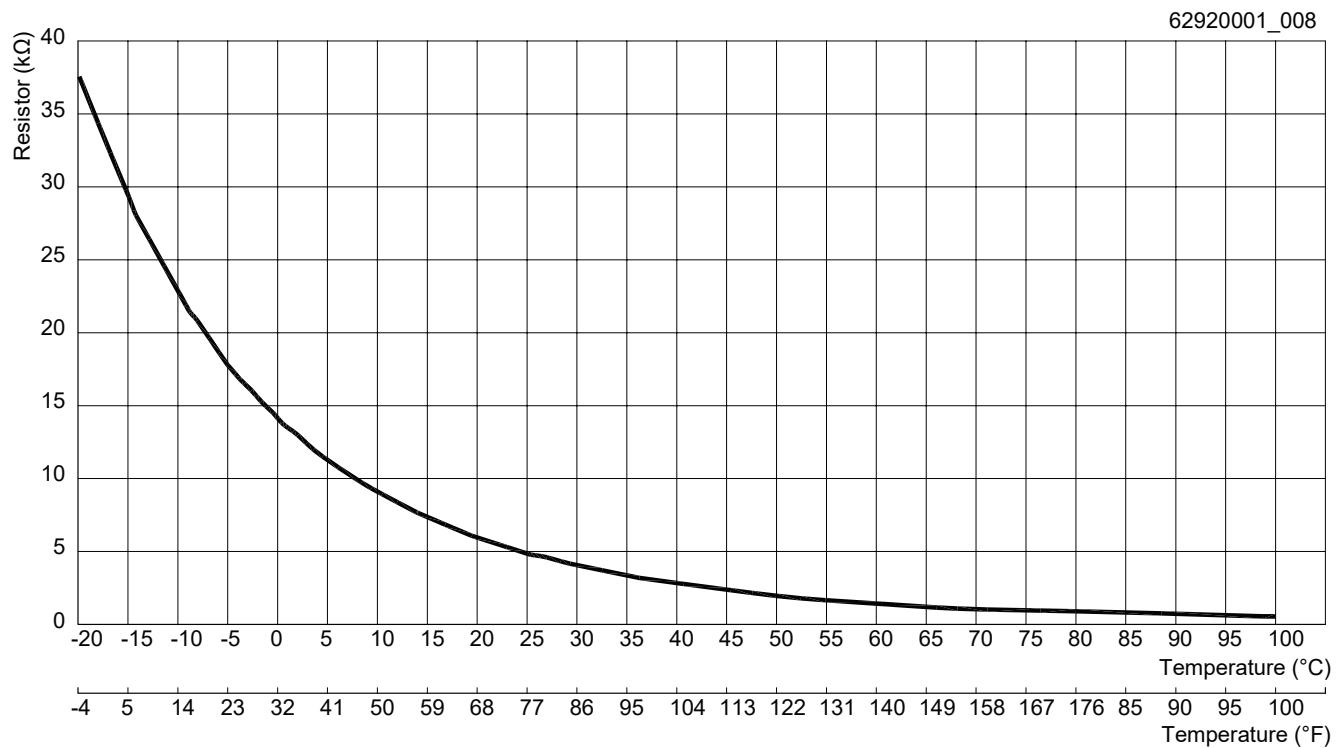
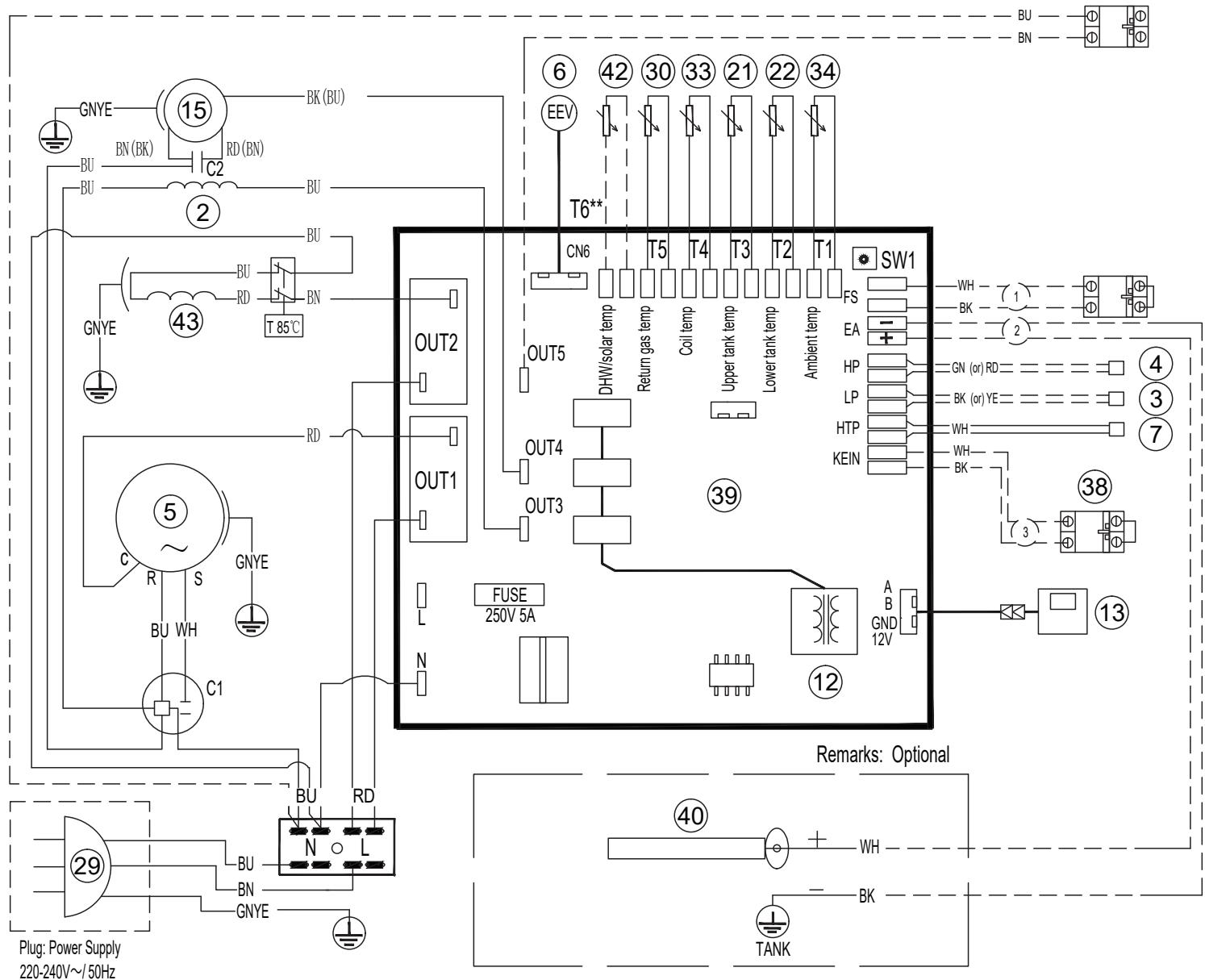


Figure 7-1 - Temperature sensor curve

7.3 - Wiring diagram



- 2 - 4-way valve
 - 3 - Low pressure switch
 - 4 - High pressure switch
 - 5 - Compressor
 - 6 - Electronic expansion valve
 - 7 - Thermostat switch
 - 12 - Transformer
 - 13 - Control panel
 - 15 - Fan
 - 21 - Upper tank temperature sensor (T3)
 - 23 - Lower tank temperature sensor (T2)
 - 29 - Power supply

- 30 - Return gas temperature sensor (T5)
 - 33 - Evaporator coil temperature sensor (T4)
 - 34 - Ambient/gas inlet temperature sensor (T1)
 - 38 - Photovoltaic contact
 - 39 - Control board
 - 40 - Magnesium anode
 - 42 - Solar temperature sensor (T6)
 - 43 - Electric heater (not factory connected, see section 1.1)

Figura 7-2 - Schema elettrico

8 - TECHNICAL DATA

AGUAMAX R290 Technical data	UM	200	300
Tank volume	l	200	300
Tank surface	m ²	1,44	2,07
Solar heat exchanger surface	m ²	0,414	0,69
Solar coil water content	l	2,52	3,6
Heating capacity *	kW	1,5 (+1,5)	
Potenza elettrica assorbita in riscaldamento *	kW	0,365 (+1,5)	0,365 (+1,5)
Electric power absorbed in heating	kW	0,7 (+1,5)	0,7 (+1,5)
COP	/	4,11	4,11
COP DHW (AIR 7°C) (EN16147)	/	2,95	2,95
Cooling capacity dissipated	kW	1,04	1,09
Total capacity absorbed	kW	1,95	
Motor protection	/	Klixon	
Maximum absorbed current	A	9,3	
Maximum starting current	A	17	
Power supply	V/Hz	230/50	
Minimum number and section of power cables	n°x mm ²	3 x 1,5 mm ²	
Auxiliary protection fuse	A	3,15	
Fan	Type	Centrifugal	
	rpm	1000	
Total air flow	m ³ /h	290	
Fan capacity absorbed	kW	0,025	
Capacitor type	/	Aluminum tubes	
Refrigerant type	/	R290	
Refrigerant charge	kg	0,150	
Compressor	Type	Rotary	
Number of refrigerant circuit	/	1	
Evaporator	Type	Finned battery	
Inside tank material	/	Stainless steel 2205	
Maximum refrigerant circuit pressure	bar	25	
Refrigerant circuit test pressure	bar	30	
Diameter of water inlet and outlet connections	inch	3/4	
Diameter of air inlet and outlet connections	mm	160	
Diameter of condensate water drain	inch	1/2	
Maximum hydraulic circuit pressure	bar	10	
Maximum water outlet temperature (without electric heater)	°C	65	
Maximum water outlet temperature (with electric heater)*	°C	75	
Minimum water temperature	°C	5	
Working ambient temperature	°C	-5..43	
Electronic expansion valve	/	YES	
Magnesium anode rode	/	YES	
Noise level	dB(A)	51	
Appliance dimensions (DxH)	mm	560x1755	640x1840
Appliance weight empty	Kg	80	85
Weight of the appliance at full load	Kg	270	370
Packaged appliance dimensions (WxDxH)	mm	570x630x1850	690x690x1945
Packaged appliance weight	Kg	90	95

Conditions: Outdoor temperature: 7°C; Water temperature 55°C.

* il riscaldatore elettrico non è collegato di fabbrica, vedi capitolo 1.1.

9 - PRODUCT FICHE

(a) Name or brand of the supplier			COSMOGAS	
(b) Model			AGUAMAX R290	
			200	300
(c) Load profile			L	XL
(d) Energy efficiency class			A+	A+
(e) Water heating energy efficiency	ηwh	%	126,3	131,7
(f) Annual electricity and/or combustible consumption	Qelec	kWh	811	1272
(g) Other load profiles			-	-
(g) Water heating energy efficiency *		%	-	-
(g) Annual electricity and/or combustible consumption *		kWh	-	-
(h) Thermostat temperature settings of the water heater		°C	55	55
(i) Sound power level indoors	LWA	dB	51	51
(j) The water heater is able to work only during off-peak hours			NO	NO
(k) Any specific precautions that shall be taken when the water heater is assembled, installed or maintained	Read the installation, use and maintenance manual of the water heater.			
(l) Smart control			N/A	N/A

According commission delegated regulation EU no 812/2013 and no 814/2013.

* refers to other load profiles (g)";

N/A = Not applicable

BLANK PAGE - BLANK PAGE - BLANK PAGE

The undersigned sole director of company **COSMOGAS S.r.L.**, with registered office in via L. Da Vinci n° 16 - 47014 Meldola (FC) ITALY,

DECLARATES

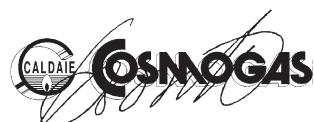
declares under its own responsibility that the heat pump described in this declaration, complies with the requirements of Directives:

- Machinery, **EU Regulation 2023/1230**
- Low voltage, Directive **2014/35/EU**
- Electromagnetic Compatibility, Directive **2014/30/EU**
- Pressure equipment, Directive **2014/68/EU**
- Energy labelling **EU Regulation 2013/811**
- Energy labelling **EU Regulation 2017/1369**
- Ecodesign Directive **2009/125/EC**
- Ecodesign **EU Regulation 2013/813**

(The serial number corresponds to the warranty number)

This declaration is issued as stipulated by the aforementioned Regulations.

Meldola (FC) ITALY.



Alessandrini Arturo
Sole Director



COSMOGAS s.r.l.
Via L. da Vinci 16 - 47014
MELDOLA (FC) ITALY
info@cosmogas.com
www.cosmogas.com