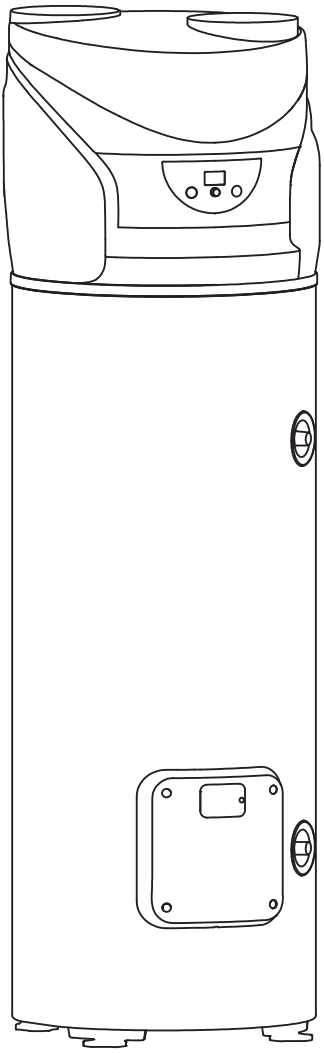


FR Chaffe-eau thermodynamique

ES Calendador con bomba de calor

PL Pompa ciepła

EN Heat pump water heater

IT Scaldacqua a pompa di calore

Dear Customer:

We wish to thank you for having purchased the heat pump water heater. We hope that it meets your expectations and may offer you optimal service coupled with maximum energy saving for many years to come.

Our group invests a lot of time, energy and economic resources in creating innovative solutions aimed at reducing the energy consumption of its products.

Your choice shows sensibility and awareness towards reducing energy consumption, an issue directly related to environmental protection. Our constant commitment to creating innovative and efficient products coupled with your responsible behaviour in the rational use of energy both actively contribute to safeguarding the environment and natural resources.

Store this manual with care; it is intended to provide information, warnings and suggestions on the correct use and maintenance of the appliance, so that you may fully appreciate all its qualities. Our technical assistance centre closest to you is at your complete disposal for answering any of your queries.

INTRODUCTION

This manual is intended for final users of the heat pump water heater and plumbers responsible for the latter installation. Failure to observe the indications contained in this manual shall void the warranty.

This manual is an integral and essential part of the appliance. It must be stored with care by the user and should always be passed on to new owners or users of the appliance, and/or when the latter is transferred to another system.

In order to ensure correct and safe use of the appliance, both installer and user, each for his/her respective requirements, must read the instructions and precautions contained in this manual carefully, as they provide important safety indications concerning installation, use and maintenance of the appliance.

This manual is divided into four distinct sections:

- **SAFETY WARNINGS**
  This section contains the safety precautions to be observed.
- **GENERAL INFORMATION**
  This section contains useful general information relating to the description of the appliance and its technical features, besides information on the symbols, units of measurement and technical terms used. This section includes the water heater's technical data and dimensions.
- **TECHNICAL INFORMATION FOR INSTALLERS**
  This section is intended for installers. It contains all the indications and instructions that professionally qualified personnel must observe in order to ensure optimal installation of the appliance.
- **OPERATING AND MAINTENANCE INSTRUCTIONS FOR THE USER**
  This section is intended for final users and contains all the information necessary for operating the appliance correctly and for assisting the user in carrying out regular checks and maintenance operations on the appliance.

The manufacturer reserves the right to modify the data and contents of this manual without prior notice, with the aim of improving the quality of the relative products.

To facilitate understanding of the contents herein, given that the manual is published in multiple languages and is valid for use in several countries, all the illustrations are grouped in the final pages and are common to the various languages.

TABLE OF CONTENTS

SAFETY WARNINGS

CAUTION

1. **This manual is an integral part of the product. Keep it with care with the appliance, and hand it on to the next user/owner in case of change of property.**
2. **Read the instructions and warnings in this manual carefully, they contain important information regarding safe installation, use and maintenance.**
3. The appliance must be installed and commissioned by a qualified technician in accordance with local legislation and health and safety regulations. All power circuits must be shut off before you open the terminal block.
4. **DO NOT** use the appliance for any other than its specified use. The manufacturer is not liable for damage resulting from improper or incorrect use or failure to observe the instructions given in this manual.
5. Incorrect installation can result in damage to property and injury to persons and animals; the manufacturer is not liable for the consequences.
6. Do not leave the packaging materials (staples, plastic bags, expanded polystyrene, etc.) within the reach of children - they can cause serious injury.
7. The appliance may not be used by persons under 8 years of age, with reduced physical, sensory or mental capacity, or lacking the requisite experience and familiarity, unless under supervision or following instruction in the safe use of the appliance and the hazards attendant on such use. DO NOT permit children to play with the appliance. User cleaning and maintenance may not be done by unsupervised children.
8. **DO NOT** touch the appliance when barefoot or if any part of your body is wet.
9. Any repairs, maintenance, plumbing and electrical connections must be done by qualified technicians using original spare parts only. Failure to observe the above instructions can compromise the safety of the appliance and relieves the manufacturer of any liability for the consequences.
10. The hot water temperature is regulated by a thermostat which also acts as a re-armable safety device to prevent dangerous overheating.
11. The electrical hookup must be done as indicated in this manual.
12. If the appliance is equipped with a power cord, the latter may only be replaced by an authorised service centre or professional technician.
13. It is mandatory to screw on to the appliance's water intake pipe a suitable device against overpressure; this device must not be tampered with and must be made to operate frequently in order to check that it is not blocked

and to remove any limescale. In countries which acknowledge EN 1487, the appliance's water intake pipe must be equipped with a safety device compliant with said standard; it must be calibrated to a maximum pressure of 0.7 MPa, including at least a cock, check valve, safety valve and hydraulic load cut-out.

14. It is normal that water drips from the overpressure safety device or from the EN 1487 safety unit when the appliance is heating. For this reason one must install a drain, open to the air, with a continuously downwards sloping pipe, in an area not subject to subzero temperatures. A condensate drain should also be connected to the same pipe with a special coupling.
15. The appliance must be drained if left inactive in a room subject to frost and/or in the event of prolonged inactivity. Drain as described in the appropriate chapter.
16. Water heated to over 50°C can cause immediate serious burns if delivered directly to the taps. Children, disabled persons and the aged are particularly at risk. We recommend installing a thermostatic mixer valve on the water delivery line.
17. Do not leave flammable materials in contact with or in the vicinity of the appliance.
18. The appliance is not supplied with batteries. Where these are required, it is suggested use the battery kit made by the manufacturer. Carefully observe the polarity when fitting. At the end of their life, dispose of batteries in accordance with applicable legislation using dedicated containers. Disconnect the appliance from the mains power supply when fitting or removing batteries.

GENERAL INFORMATION

1.1 Description of the symbols used

In terms of installation and operation safety, the symbols described in the table below are used in order to stress the importance of the relative risk warnings:

Symbol	Description
	Failure to comply with this warning may result in injury to **persons** or, in some cases, death.
	Failure to comply with this warning may result in serious damage to **property and plants or injury to animals**.
	It is mandatory to comply with the general and appliance-specific safety measures.

1.2 Field of application

This appliance is intended for hot water production for domestic use or similar, at temperatures below boiling point. The appliance must be hydraulically connected to a domestic water supply line and to a power supply network. Exhaust ducts may be used for the entry and discharge of processed air.

It is forbidden to use of the appliance for uses other than those specified. Any alternative use of the appliance constitutes improper use and is prohibited; in particular, the appliance may not be used in industrial cycles and/or installed in environments exposed to corrosive or explosive materials. The manufacturer shall not be held liable for any damage due to faulty installation, improper use or uses deriving from behaviour that is are not reasonably predictable, and incomplete or careless implementation of the instructions contained in this manual.

	This appliance should not be operated by individuals (including children) with reduced physical or sensory abilities, or by inexperienced or unskilled individuals, unless adequately supervised and trained regarding use of the appliance by persons responsible for their own safety. Children must be supervised by persons responsible for their safety so as to ensure that they do not use the appliance as a toy.

1.3 Instructions and technical norms

The purchaser pays for the appliance's installation, which must be carried out by qualified personnel only, in conformity with national regulations in force and any provisions emitted by local authorities or bodies responsible for public health, and in accordance with the specific manufacturer indications contained in this manual.
The manufacturer is responsible for the product's conformity to the relevant construction directives, laws and regulations in force at the time the product is first commercialised. The designer, installer and user are each exclusively responsible, in their respective fields, for knowing and observing the legal requirements and technical regulations concerning the design, installation, operation and maintenance of the appliance. Any reference to laws, regulations or technical specifications contained in this manual is purely for information purposes; any new laws introduced or modifications to existing laws are not in any way binding on the manufacturer towards third parties. It is necessary to ensure that the power supply network to which the product is connected complies with the EN 50160 norm (under penalty of warranty invalidation). Relative to France, ensure that installation complies with the NFC 15-100 norm.
The tampering of product integral parts and/or supplied accessories invalidates the warranty.

1.4 Product certifications

The CE marking of the appliances attests its conformity to the following EC Directives, of which it satisfies the essential requisites:

- 2006/95/EC on electrical safety LVD (EN/IEC 60335-1; EN/IEC 60335-2-21; EN/IEC 60335-2-40);
- 2004/108/EC on electromagnetic compatibility EMC (EN 55014-1; EN 55014-2; EN 61000-3-2; EN 61000-3-3);
- RoHS2 2011/65/EU on restriction of use on certain hazardous substances in electrical and electronic equipment (EN 50581).
- Commission Regulation (EU) no. 814/2013 on ecodesign (no. 2014/C 207/03 - transitional methods of measurement and calculation)

Verification of performance is carried out through the following technical regulations:

- EN 16147;
- CAHIER DE CHARGE_103-15/B_2011 Chauffe-eau Thermodynamiques pour la marque NF élettricitè performance;
- 2014/C 207/03 - transitional methods of measurement and calculation

This product complies with:

- REACH Regulation 1907/2006/EC;
- Commission Delegated Regulation (EU) no. 812/2013 (labelling)

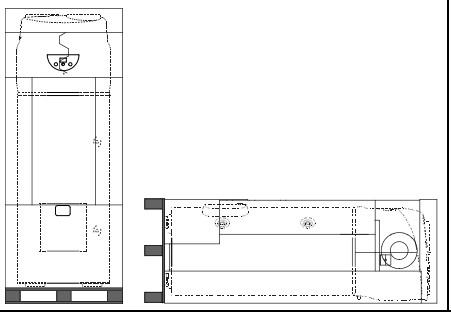
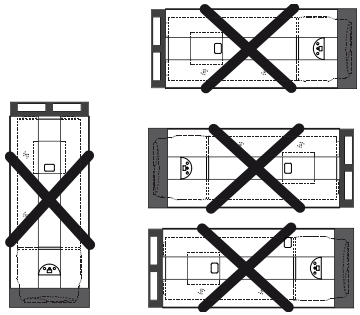
1.5 Packaging and supplied accessories

The appliance is anchored to a wooden pallet and is protected with polystyrene edge protectors, cardboard and a plastic transparent film on the outside; all the materials are recyclable and eco-compatible.
The following accessories are included:

- Belt for handling the water heater (to be removed once the product is installed).
- Connection pipe for condensation water.
- Instruction manual and warranty documents.
- Two 3/4" dielectric coupling and joints.
- Energy label and product fiche.
- 2 air connections.

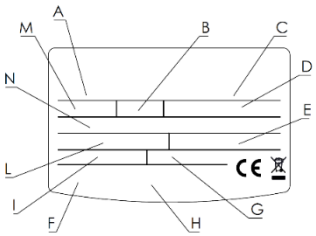
1.6 Transport and handling

Upon delivery of the product, check that the latter has not been damaged during transport and that no signs of damage appear on the packaging. In the event of damages, immediately notify any claims to the forwarder.
WARNING! The appliance should be handled and stored in a vertical position. The product may be handled in a horizontal position only for short distances, while resting on the rear end indicated; in this case, wait at least 3 hours before starting the appliance once it has been correctly repositioned in a vertical position and/or installed; this is to ensure that the lubricating oil inside the refrigeration circuit is suitably distributed and to avoid damages to the compressor.
The packaged appliance may be handled either manually or with the aid of a forklift truck, while ensuring that the above indications are observed. It is advisable to keep the appliance in its original packaging until installing it in its chosen location, particularly when construction work is under way on-site.
Upon removing the packaging, check whether the appliance is intact and that no parts are missing. In the event of defects or missing components, notify the dealer within the time limits specified by the law.
WARNING! Keep the packaging elements out of the reach of children, as they are potentially dangerous.
When transporting or handling the appliance after the initial start-up, observe the aforementioned indication concerning the allowed tilt angle and ensure that all water has been drained from the tank. Should the original packaging be missing, provide an adequate protection for the appliance to prevent any damages, for which the manufacturer shall not be held liable.

Allowed positions	Non-allowed positions
	

1.7 Identification of the appliance

The main information for identifying the appliance is contained on the adhesive data plate located on the water heater casing.



A	model
B	tank capacity
C	serial no.
D	power supply voltage. frequency. maximum absorbed power
E	max./min. pressure of the refrigeration circuit
F	tank protection
G	absorbed power – heating element mode
H	marks and symbols
I	max./min. power in heat pump mode
L	type of refrigerant and charge
M	maximum tank pressure
N	Global warning potential GWP / Quantity of fluorinated greenhauses gases

2. TECHNICAL FEATURES

2.1 Operating principle

The efficiency of a heat pump cycle is measured by the Coefficient of Performance (COP), i.e. the ratio between the energy supplied to the appliance (in this case, the heat transferred to the water to be heated) and the electrical energy used (by the compressor and the appliance's auxiliary devices). The COP varies according to the type of heat pump and to its relative conditions of operation.

For example, a COP value equal to 3 indicates that for every 1 kWh of electrical energy used, the heat pump supplies 3 kWh of heat to the medium to be heated, of which 2 kWh are extracted from the free source.

2.2 Construction features

Refer to Fig. 1

1	Fan
2	4 Ways defrost valve
3	Safety pressure switch
4	Hermetic rotary compressor
5	Electronic control panel
6	Feet with adjustable height
7	Electric heating element
8	Titanium impressed cu+rrent anode
9	Functional and safety NTC sensor
10	Condenser
11	Outlet water NTC temperature sensor
12	Disposable magnesium anode
13	Electrolytic condenser for compressor
14	Condensate drainage pipe
15	Thermostatic expansion valve
16	Evaporator

2.3 Overall dimensions

Refer to Fig. 2

A	Inlet cold water ¾" pipe
B	Outlet hot water ¾" pipe
C	Condensate drainage connection
D	Auxiliary circuit ¾" inlet pipe (SYS version only)
E	Auxiliary circuit ¾" outlet pipe (SYS version only)
F	Sheath for upper probe (S3) (SYS version only)
G	Sheath for bottom probe (S3) (SYS version only)
H	Recirculation ¾" pipe (SYS version only)

2.4 Electrical diagram

Refer to Fig. 3

A	Power supply (220-230V 50Hz)
B	Batteries (3x1,2V AA rechargeable)
C	Interface board
D	Electric heating element (2000W)
E	NTC sensor for heating element zone
F	Impressed current anode
G	Water tank earth connection
H	Serial connection board
I	Mainboard
L	Operation condenser (15µF 450V)
M	Compressor
N	Fan
O	4-ways defrost valve
P	Safety pressure switch
Q	NTC sensor for hot water pipe zone
R	NTC sensor for evaporator and inlet air
EDF	HCHP signal (EDP) - cable not supplied with the product

2.5 Technical data table

Description	Unit of measurement	200	240	240 SYS
Rated tank capacity	l	202	244	239
Insulation thickness	mm	≈ 35		
Type of internal tank protection		enamelling		
Type of corrosion protection		titanium impressed current anode + disposable magnesium anode		
Maximum operating pressure	MPa	0,6		
Diameter of hydraulic connections	II	G 3/4 M		
Diameter of condensate drainage connection	mm	14		
Diameter of air exhaust/intake pipes	mm	150-160-200		
Minimum water hardness	°F	12		
Minimum conductivity of the water	µS/cm	150		
Weight when empty	kg	87	92	107
Heating circuit exchange surface	m^2	-	-	0,65
Max water temperature with external integration	°C	-	-	75
Heat pump				
Average electrical power consumption	W	500		
Max. electrical power consumption	W	750		
Quantity of R134a refrigerant fluid	kg	0,9		
Quantity of fluorinated greenhauses gases	Tonnes CO_2 eq	1,287		
Global warning potential	GWP	1430		
Max. pressure of refrigerating circuit (low-pressure side)	MPa	1		
Max. pressure of refrigerating circuit (high-pressure side)	MPa	2,7		
Max. water temperature with heat pump	ºC	55		
EN 16147 (A)				
COP (A)		2,71	2,86	2,77
Heating time (A)	h:min	6:19	7:59	7:57
Heating energy consumption (A)	kWh	2,906	3,700	3,646
Max. amount of hot water in a single intake V_{max} (A) Delivered at 52°C	l	247	323	313
Pes (A)	W	28	34	35
Tapping (A)		L	XL	XL
812/2013 – 814/2013 (B)				
Q_{elec} (B)	kWh	4,308	6,676	6,887
η_{wh} (B)	%	112,3	117,6	114,0
Mixed water at 40°C V40 (B)	l	247	323	313
Temperature setting (B)	°C	52	52	52
Annual electricity consuption (average climatic condition) (B)	kWh/year	912	1425	1470

Load prifile (B)		L	XL	XL
Indoor sound power level (C)	dB(A)	53	53	53
EN 16147 (F)				
COP (F)		2,85	3,15	3,06
Heating time (F)	h:min	5:21	6:49	6:44
Heating energy consumption (F)	kWh	2,584	3,308	3,254
Max. amount of hot water in a single intake V_{max} (F) Delivered at 52°C	l	249	321	311
Pes (F)	W	27	31	32
Tapping (F)		L	XL	XL
812/2013 – 814/2013 (G)				
Q_{elec} (G)	kWh	4,092	6,059	6,226
Π_{wh} (G)	%	118,3	129,6	126,1
Mixed water at 40°C V40 (G)	l	249	321	311
Temperature setting (G)	°C	52	52	52
Annual electricity consuption (average climatic condition) (G)	kWh/year	866	1293	1328
Load profile (G)		L	XL	XL
Heating element				
Heating element power	W	2000		
Max. water temperature with heating element	ºC	75 (65 factory default setting)		
Max. current consumption	A	8,7		
Power supply				
Voltage / max. power consumption	V / W	220-230 single-phase / 2750		
Frequency	Hz	50		
Protection rating		IPX4		
Air side				
Standard air flow rate (automatic modulating control)	m^3/h	400		
Available static pressure	Pa	55		
Minimum volume of room of installation (D)	m^3	20		
Minimum ceiling height of room of installation (D)	m	2,06	2,28	2,28
Min. temperature of room of installation	ºC	1		
Max. temperature of room of installation	ºC	42		
Minimum air temperature (w.b. at 90% r.h.) (E)	ºC	-5		
Maximum air temperature (w.b. at 90% r.h.) (E)	ºC	42		

(A) Values obtained with external air temperature of 7°C and relative humidity at 87%, inlet water temperature of 10°C and set temperature of 52°C (according to the provisions set forth in EN 16147). Rigid Ø200 ducted product.

(B) Values obtained with external air temperature of 7°C and relative humidity at 87%, inlet water temperature of 10°C and set temperature of 52°C (according to the provisions set forth in 2014/C 207/03 - transitional methods of measurement and calculation). Rigid Ø200 ducted product.

(C) Values obtained from average results of three tests carried out with external air temperature of 7°C and relative humidity at 87%, inlet water temperature of 10°C and temperature set according to the provisions set forth in 2014/C 207/03 - transitional methods of measurement and calculation and EN 12102). Rigid Ø200 ducted product.
(D) Value that ensures correct operation and eases maintenance if the product is not ducted.
(E) Outside the operating temperature range of the heat pump, heating of the water is ensured by the integration.
(F) Values obtained with external air temperature of 20°C and relative humidity at 37%, inlet water temperature of 10°C and set temperature of 52°C (according to the provisions set forth in EN 16147). Product not ducted.
(G) Values obtained with external air temperature of 20°C and relative humidity at 37%, inlet water temperature of 10°C and set temperature of 52°C (according to the provisions set forth in 2014/C 207/03 - transitional methods of measurement and calculation). Product not ducted.

Data collected from a significant number of products.
Additional energy data are shown on the Product Sheet (Attachment A) that is an integral part of this manual.
Products which do not have the label and data sheet required for boiler/solar power configurations pursuant to regulation 812/2013 may not be used in such installations.

TECHNICAL INFORMATION FOR INSTALLERS

3. WARNINGS

3.1 Installer qualification

WARNING! The installation and initial start-up of the appliance must be performed by qualified personnel in compliance with the national regulations in force regarding installation, and in conformity with any regulations issued by local authorities and public health bodies.

The water heater is supplied with a sufficient amount of R134a refrigerant for its operation. This refrigerant fluid does not damage the atmosphere's ozone layer, is not flammable and does not cause explosions; however any maintenance activities or work on the refrigerant circuit must exclusively be carried out by authorised personnel with the suitable equipment.

3.2 Implementing the instructions

WARNING! Incorrect installation can harm persons or animals and damage possessions; the manufacturer shall not be held liable for any damage in such cases.
The installer is required to observe the instructions outlined in this manual.
Once installation is complete, it is the installer's duty to inform and instruct the user on how to operate the water heater and carry out the main operations correctly.

3.3 Safety regulations

Refer to Paragraph 1.1 under the section GENERAL INFORMATION for the description of the symbols used in the table below.

Ref.	Warning	Type of risk	Symbol
1	**Protect connection piping and cables so as to avoid them being damaged.**	Electrocution caused by exposure to live wires.	
		Flooding due to water leaking from damaged pipes.	
2	**Make sure the installation site and any systems to which the appliance must be connected fully comply with the regulations in force.**	Electrocution from contact with live wires that have been incorrectly installed.	
		Damage to the appliance caused by improper operating conditions.	

3	**Use manual tools and equipment that are suitable for the intended use (in particular, ensure that the tool is not worn and that the handle is intact and securely fixed); use them correctly and prevent them falling from a height. Put them safely back in place after use.**	Personal injury caused by flying splinters or fragments, inhalation of dust, knocks, cuts, puncture wounds and abrasions.	
		Damage to the appliance or surrounding objects caused by falling splinters, knocks and incisions.	
4	**Use electrical equipment that is suitable for the intended use; use the equipment correctly, keep passages clear of the power supply cable, prevent the equipment falling from a height, disconnect and put back in place after use.**	Personal injury caused by flying splinters or fragments, inhalation of dust, knocks, cuts, puncture wounds and abrasions.	
		Damage to the appliance or surrounding objects caused by falling splinters, knocks and incisions.	
5	**Descale the components, in accordance with the instructions of the safety data sheet included with the product used, while ventilating the room and wearing protective clothing; avoid mixing different products and protect the appliance and surrounding objects.**	Personal injury caused by acidic substances coming into contact with skin or eyes; inhaling or swallowing harmful chemical agents.	
		Damage to the appliance or surrounding objects due to corrosion caused by acidic substances.	
6	**Make sure that any portable ladders are securely positioned, that they are sufficiently resistant, that the steps are intact and not slippery, that these do not move around when someone climbs on them and that someone supervises at all times.**	Personal injury caused by falling from a height or cuts (stepladders shutting accidentally).	
7	**Make sure that the work area has adequate hygiene and health conditions in terms of lighting, ventilation and the solidity of relevant structures.**	Personal injury caused by knocks, stumbling etc.	
8	**Wear individual protective clothing and equipment during all work phases.**	Personal injury caused by electrocution, falling splinters or fragments, inhalation of dust, shocks, cuts, puncture wounds, abrasions, noise and vibration.	
9	**All operations inside the appliance must be performed with the necessary caution in order to avoid sudden contact with sharp parts.**	Personal injury caused by cuts, puncture wounds and abrasions.	
10	**Before handling, empty all components which may contain hot water and perform bleeding where necessary.**	Personal injury caused by burns.	
11	**Make all electrical connections using suitably-sized conductors.**	Fire caused by overheating due to electrical current passing through undersized cables.	
12	**Protect the appliance and all areas in the vicinity of the work area using suitable material.**	Damage to the appliance or surrounding objects caused by falling splinters, knocks and incisions.	
13	**Handle the appliance with care, while using suitable protection equipment. Use the appropriate handling belt.**	Damage to the appliance or surrounding objects caused by shocks, knocks, incisions and crushing.	

14	**Arrange materials and equipment in such a way as to make handling easy and safe, and avoid the formation of any piles which could give way or collapse.**	Damage to the appliance or surrounding objects caused by shocks, knocks, incisions and crushing.	
15	**Reset all safety and control functions affected by any work performed on the appliance and make sure that they operate correctly before restarting the appliance.**	Damage or shutdown of the appliance caused by out-of-control operation.	

4. INSTALLATION

WARNING! Observe the general warnings and safety instructions listed in the previous paragraphs and strictly adhere to the indications therein contained.

4.1 Location of the appliance

WARNING! Prior to starting any installation activities, ensure that the location where the water heater is to be installed satisfies the following requirements:

a) In the event of water heaters without an air exhaust duct, the room of installation should have a volume of no less than 20 m^3 and must be adequately ventilated. Avoid installing the appliance in rooms which may favour frost build-up. Do not install the product in a room containing an appliance that requires air to function (e.g. an open-chamber gas boiler, open-chamber gas water heater, etc.). The product's safety and performance levels are not guaranteed in the event of outdoor installation.
b) The appliance's air exhaust and/or extraction duct (if present) must have access to the outside from the point where the appliance is installed. The connections for the air exhaust and aspiration ducts are located on the upper part of the appliance.
c) Ensure that the installation site and the electrical and hydraulic systems to which the appliance must be connected fully comply with the regulations in force.
d) The chosen site must have, or must be suitable to house, a single-phase 220-230 V ~ 50 Hz power supply socket.
e) The chosen site must be suitable to house a condensate drainage outlet connected to the back of the appliance with a suitable siphon.
f) The chosen site must ensure that the appropriate safety distances from the wall and ceiling can be observed, for the appliance to operate properly and to facilitate maintenance operations.
g) The support surface must ensure a perfectly horizontal operating position (Refer to fig. 2).
h) The chosen site must conform to the appliance's IP protection rating (protection against the penetration of liquids) as specified by the regulations in force.
i) The appliance must not be exposed to direct sunlight, even when windows are present.
j) The appliance must not be exposed to particularly aggressive substances such as acidic vapours, dust or gas-filled environments.
k) The appliance must not be directly installed on telephone lines that are unprotected against overvoltage.
l) The appliance must be installed as close as possible to the points of use to limit heat dispersion along the piping.
m) The air aspirated by the product must be free of dust, acicid vapours and solvents.

In the event of non-ducted installation, observe the distances from the walls as indicated in Fig. 4.

4.2 Positioning on the ground

a) Once the suitable installation position has been located, remove the packaging and unscrew the product from the pallet.
b) Using the appropriate belt, remove the product from the pallet.
c) Fix the feet on the ground (through the appropriate holes) using suitable screws and rawlplugs; after positioning the appliance, remove the fabric belt by loosening the relative bolts.

4.3 Air supply connections

Please bear in mind that using air from heated environments may hamper the building's thermal performance.
There is one connection for the air intake and one for the air exhaust on the rear side of the appliance. It is important to not remove or tamper the two grilles.
The outlet air may reach temperatures that are 5-10°C lower compared to that of the inlet air and, if not ducted, the temperature of the room of installation may drop sensibly. If the water heater is intended to function by externally (or through another room) expelling or intaking the air processed by the heat pump, pipes specifically designed for the passage of air may be used. Make sure that the pipes are securely connected and fixed to the product so as to avoid any accidental detachments (for example, use suitable silicone). Do not in any way manipulate or break the air intake/exhaust grilles.
Even if the product is not ducted it is advisable to install a curve in the suction line to prevent by-pass between the air inlet and outlet (fig. 4).
In the case of product ducted with rigid tubes adopt during installation all the precautions necessary to ensure the maintenance operations (fig.4)
WARNING: Do not use outdoor grills resulting in high losses, such as anti-insect grilles. The grids used should allow good air flow, the distance between the inlet and outlet air should not be less than 26 cm.
Protect pipes from the external wind. The expulsion of air in the chimney is allowed only if the draft is appropriate, is also required periodic maintenance of the barrel, and chimney accessories.
The total static pressure loss due to installation is calculated by adding the loss of the single installed components; this sum must be lower than the static pressure of the fan which is equal to (55 Pa).
See diagram on the last page.

WARNING! A type of canalization not suitable affects product performance and significantly increases the heating time!

EXAMPLES

Figure 5	**Inlet air:** Not ducted / **Outlet air:** externally ducted
Figure 6	**Inlet air:** internally ducted / **Outlet air:** externally ducted
Figure 7	**Inlet air:** externally ducted / **Outlet air:** externally ducted
Figure 8	Installation without ducting

4.4 Hydraulic connections

Before using the product, we recommend filling its tank with water and draining it completely so as to remove the residual impurities.
Connect the water heater inlet and outlet to pipes or pipe fittings that can withstand the operating pressure and temperature of the hot water, which may reach 75°C. It is not advisable to use materials that cannot withstand such temperatures. The dielectric union fitting (with joint supplied with the product) must be applied to the hot water outlet pipe, prior to performing the connection.
Screw a "T" fitting identified by a blue collar onto the appliance's water inlet pipe. It is mandatory to screw on said fitting a cock for draining the product with a tool on one side, and a suitable device against overpressure on the other side.

In countries which acknowledge EN 1487 It is mandatory to fit a safety valve onto the appliance's water inlet pipe. The device must comply with the EN 1487:2002 standard and must have a maximum pressure of 0.7 Mpa (7 bar). Moreover, it must at least include the following components: a cut-off valve, a non-return valve, a control mechanism for the non-return valve, a safety valve and a water pressure shut-off device.

See Figure 9.
The accessory part codes are:
- 1/2" hydraulic safety device (for products with 1/2" diameter inlet pipe) → **code 877084**;
- 3/4" hydraulic safety device (for products with 3/4" diameter inlet pipe) → **code 877085**;
- Syphon 1" → **code 877086**.

Some countries may require the use of alternative safety devices, as required by local law; the installer must check the suitability of the safety device he tends to use. Do not install any shut-off device (valve, cock, etc.) between the safety device and the heater itself.

The device's relief outlet must be connected to a relief pipe with a diameter no less than that of the appliance's connection (3/4"), with the aid of a siphon creating an air gap of at least 20 mm to allow for visual inspection; this is to prevent any harm to persons and animals or damage to objects should the device activate and for which the manufacturer shall not be held liable. Use a flexible pipe to connect the pressure safety device inlet to the cold water system pipe, using a cut-off valve if necessary. Additionally, a water discharge pipe must be fitted to the outlet in case the drainage tap is opened.
Avoid overtightening the pressure safety device and do not tamper with it. It is normal for water to trickle from the pressure safety device during the heating phase; for this reason, it is necessary to connect the outlet, which must always be left exposed to the atmosphere, to a drainage pipe that slopes downwards and towards an area not subject to frost. It is advisable to also connect the condensate outlet to the same pipe, through the connection located on the back side of the water heater.
The appliance must not operate with water hardness levels below 12°F; on the other hand (>25°F), it is advisable to use a suitably calibrated and monitored water softener in the event of particularly hard water; **in this event, the residual hardness must not fall below 15°F.**
If the mains pressure is close to the calibrated valve values, a pressure reducer must be installed as far as possible from the appliance.
The SYS version is provided with a connection G3/4" for recirculation circuit (if present in hydraulic circuit).
WARNING! It is advisable to carefully wash the system's pipes in order to remove any residues of screw thread, welding or dirt which may hamper the correct operation of the appliance.

4.5 Electrical connections

	Cable	Max current
Permanent power supply (cable supplied with the appliance)	3G 1.5mm^2	16A
EDF signal (cable not supplied with the appliance)	H05V2V2-F 2G min.0.75mm^2	2A

WARNING: BEFORE YOU GET ACCESS TO TERMINALS, ALL SUPPLY CIRCUITS MUST BE DISCONNECTED

The batteries ensure that the product is protected against corrosion, when the appliance is not powered.

WARNING:

Is forbidden remove covers and do maintenance and / or electrical connections by unqualified personnel

The appliance is supplied with a power supply cable (should the latter need to be replaced, use only original spare parts supplied by the manufacturer).
It is advisable to carry out a check on the electrical system to verify conformity to the regulations in force. Verify that the electrical system can suitably withstand the water heater's maximum power consumption values (refer to the data plate), in terms of the size of the cables and their conformity to the regulations in force. It is forbidden to use multiple outlet sockets, extension cables or adaptors. It is forbidden to use piping from the water, heating and gas systems for earthing the appliance.
Prior to operating the machine, make sure that the electricity mains voltage conforms to the value indicated on the appliance's data plate. The manufacturer of the appliance shall not be held liable for any damage caused by failure to earth the system or due to anomalies in the electric power supply. To disconnect the appliance from the mains, use a bipolar switch complying with all applicable CEI-EN regulations in force (minimum distance between contacts 3 mm, switch preferably equipped with fuses).
The appliance must comply with the European and national standards, and must be protected by a 30mA RCD.

PERMANENT ELECTRICAL CONNECTION	
Fig. 10	Use this configuration whenever users do not have a two-tier electricity rate. The water heater will always be connected to the power supply network to ensure 24h operation. Remove the 3 NI-MH batteries if you do not use the two-rate time-of-day tariff with HC/HP signal (see Fig. 13).
ELECTRICAL CONNECTION WITH TWO-TIER ELECTRICITY RATE	
Fig. 11	If users have a two-tier electricity rate and a suitable meter, the product may be powered only while the lowest rate applies. During the period in which the appliance is not powered, protection against corrosion through the impressed current anode is ensured by the rechargeable batteries.
ELECTRIC CONNECTION WITH TWO-TIER RATE AND HC-HP SIGNAL	
Fig. 12	Offers the same cost advantages compared to the two-tier rate configuration but, additionally, it allows for obtaining rapid heating thanks to the BOOST mode that activates heating even with the HP rate. 1) Connect a bipolar cable to the appropriate signal contacts on the meter. 2) Connect the signal bipolar cable to the terminal “EDF” which is located inside the electric box at right side of the product. **WARNING**: the signal cable must be inserted in the hole beneath the power supply cable then anchored with suitable cable clips located inside the product and tightened in the cable glands near the appropriate terminal; make a suitably-sized hole in the rubber rings for the passage of the cable. 3) **Activate the HC-HP function** through the installer menu (see Paragraph 7.7).
Fig. 14	In case of connection of boiler/heater to 240SYS heating pump version is recommended to use upper shealt (S3) In case of connection of solar panel to 240SYS heating pump version is recommended to use both upper and bottom shealt (S3) and (S2)

5. INITIAL START-UP

Once the appliance is connected to the hydraulic and electric systems, the water heater must be filled with water from the domestic water supply network. In order to fill the water heater, it is necessary to open the central tap of the domestic network supply and the nearest hot water tap, while making sure that all the air in the tank is gradually expelled.

The product is not supplied with batteries.
In the event of installation with batteries, use 3 type NiMh, AA, 1.2V, 2100 mAh minimum, rechargeable batteries with a minimum of 1000 recharging cycles and a minimum operating temperature of 65°C (it is suggested use batteries supplied from the manufacturer's catalogue). These should be inserted carefully observing the correct polarity, in the special seat inside the front casing that is accessible by removing only the external frame. These will ensure correct operation of the impressed current anode also during any electrical power cuts. The appliance will automatically recharge them.

OPERATING AND MAINTENANCE INSTRUCTIONS FOR THE USER

6. WARNINGS

6.1 Initial start-up

WARNING! The installation and initial start-up of the appliance must be performed by qualified personnel in compliance with the national regulations in force regarding installation, and in conformity with any regulations issued by local authorities and public health bodies.
In all cases, the company performing the work must carry out checks to verify the safety and correct operation of the entire system.

Before starting up the water heater, verify whether the installer has completed all the relative installation operations. Make sure to have clearly understood the installer's indications on how to operate the water heater and perform the main operations on the appliance.
The heat pump requires 5 minutes to become fully operational when starting it for the first time.

6.2 Recommendations

In the event of a malfunction and/or faulty operation, turn the appliance off and do not attempt any repairs, but contact qualified personnel. Only original spare parts must be used and any repairs must be carried out exclusively by qualified personnel. Failure to comply with the above-mentioned recommendations may jeopardise the appliance's safety and void the manufacturer's liability. In the event of prolonged inactivity of the water heater, make sure to carry out the following:

- Disconnect the appliance from the power supply or, if a switch is mounted upstream from the appliance, turn the switch itself to the "OFF" position.
- Close all taps of the domestic water supply system.
- Empty the product as shown par. 8.1.

WARNING! Hot water at temperatures above 50°C running from taps may immediately cause serious burns. Children, the disabled and the elderly run a greater risk in this regard. Therefore, it is advisable to use a thermostatic mixing valve connected to the appliance's water outlet pipe, which is identified by a red collar.

The mixing valve is compulsory on SYS models.

WARNING! (SYS version only) Make sure the temperature detected by the control unit probes S2 and S3 does not exceed 75°C Fig. 14.

6.3 Safety regulations

Refer to paragraph 1.1 for the description of the symbols used in the table below.

Ref.	Warning	Type of risk	Symbol
1	**Do not perform operations that involve removing the appliance from its housing.**	Electrocution due to exposure to live components.	
		Flooding caused by water leaking from disconnected piping.	
2	**Do not leave objects lying on the appliance.**	Personal injury caused by the object falling off the appliance as a result of vibrations.	
		Damage to the appliance or any underlying items caused by the object falling off as a result of vibrations.	
3	**Do not climb onto the appliance.**	Personal injury caused by the appliance falling down.	
		Damage to the appliance or any underlying objects caused by the appliance detaching from its fixing brackets and falling.	

4	**Do not perform any operations that involve opening the appliance.**	Electrocution due to exposure to live components. Personal injury caused by burns due to overheated components, or wounds caused by sharp edges or protrusions.	
5	**Do not damage the power supply cable.**	Electrocution from non-insulated live wires.	
6	**Do not climb onto chairs, stools, ladders or unstable supports to clean the appliance.**	Personal injury caused by falling from a height or cuts (stepladders shutting accidentally).	
7	**Do not attempt to clean the appliance without first switching it off, removing the plug or turning the external switch to the OFF position.**	Electrocution due to exposure to live components.	
8	**Do not use the appliance for any purpose other than normal household operation.**	Damage to the appliance caused by operation overload. Damage to objects caused by improper use.	
9	**Do not allow children or inexperienced persons to operate the appliance.**	Damage to the appliance caused by improper use.	
10	**Do not use insecticides, solvents or aggressive detergents to clean the appliance.**	Damage to plastic or painted parts.	
11	**Avoid placing any objects and/or appliance beneath the water heater**	Damage due to possible water leakage.	
12	**Do not drink the water of condensation**	Injury from positioning	

6.4 Recommendations for prevention of Legionella growth (based on European standard CEN/TR 16355)

Informative

Legionella are small rod shaped bacteria which are a natural constituent of all fresh waters.
Legionaries' disease is a serious pneumonia infection caused by inhaling the bacteria Legionella pneumophilia or other Legionella species. This bacterium is frequently found in domestic, hotel and other water systems and in water used for air conditioning or air cooling system. Hence the main intervention against the condition is prevention, through control of the organism in water systems.
The European standard CEN/TR 16355 gives recommendations for good practice concerning the prevention of Legionella growth in drinking water installations but existing national regulations remain in force.

General recommendations

"Conditions for Legionella growth". The following conditions encourage Legionella growth:

- water temperature between 25 °C and 50 °C. To restrict the growth of Legionella bacteria, the water temperature shall be in a range that the bacteria will not grow or have minimum growth, wherever possible. Otherwise, it is necessary to disinfect a drinking water installation by means of a thermal treatment;
- stagnation of the water. To avoid long periods of stagnation, the water in every part of the drinking water installation should be used or flushed at least weekly;
- nutrients, biofilm and sediment within the installation including water heaters, etc. Sediment can support the growth of Legionella bacteria and it should be removed on a regular basis from e.g. storage systems, water heaters, non-flown through expansion vessels (e.g. once a year).

Regarding to this storage water heater, if
1) the product is switched-off for a period of time [months] or
2) the water temperature is constantly maintained between 25°C and 50°C,
the Legionella bacteria could growth inside the tank. In these cases, to restrict the Legionella growth, it is necessary to perform the so called "thermal disinfection cycle".
This storage water heater is sold with a software that, if it is enabled, carry out a "thermal disinfection cycle" to restrict the Legionella growth inside the tank.
This cycle complies with the hot water installations and relevant recommendations for Legionella prevention specified in the following Table 2 of the CEN/TR 16355.

Types of hot water installation

	Hot and cold water separately				Mixed hot and cold water					
	No storage		Storage		No storage upstream of mixing valves		Storage upstream of mixing valves		No storage upstream of mixing valves	
	No circulation of hot water	With circulation of hot water	No circulation of hot water	With circulation of hot water	No circulation of hot water	With circulation of hot water	No circulation of mixed water	With circulation of mixed water	No circulation of mixed water	With circulation of mixed water
Rif. In Allegato C	C.1	C.2	C.3	C.4	C.5	C.6	C.7	C.8	C.9	C.10
Temp.	-	≥ 50°C[e]	In the storage water heater[a]	≥ 50°C[e]	Thermal disinfection[d]	Thermal disinfection[d]	In the storage water heater[a]	≥ 50°C[e] Thermal disinfection[d]	Thermal disinfection[d]	Thermal disinfection[d]
Ristagno	-	≤ 3 l [b]	-	≤ 3 l [b]	-	≤ 3 l [b]	-	≤ 3 l [b]	-	≤ 3 l [b]
Sedimento	-	-	Remove[c]	Remove[c]	-	-	Remove[c]	Remove[c]	-	-

a. Temperature ≥ 55°C the whole day or at least 1h per day ≥60°C.
b. The volume of water contained in the pipework between the circulation system and the tap which has the greatest distance to the system.
c. Remove the sediment from the storange water heater in accordance with the local conditions but at least once a year.
d. Thermal disinfection for 20 min at a temperature of 60°C, for 10 min at 65°C or for 5 min at 70°C at every draw-off point at least once a week.
e. The water in the circulation loop shall be not less than 50°C.
- No requirement.

This electronic storage water heater is sold with a thermal disinfection cycle function not enabled for default; as a consequence, if, for any reason, one of the above said "Conditions for Legionella growth" could occur; it's hardly recommended to enable such function by following the instructions mentioned in this booklet [see par. 7.8].
However, this thermal disinfection cycle is not able to destroy any Legionella bacteria in the storage tank; so, if this function is then disenabled, Legionella bacteria growth might re-take place again.

Note: when this software carries out the thermal disinfection treatment, the energy consumption of the storage water heater is expected to increase.

Warning: when this software has been carrying out the thermal disinfection treatment, water temperature can cause severe burns instantly. Children, disabled and elderly are at highest risk of being scalded. Feel water before bathing or showering.

7. INSTRUCTIONS FOR USE

7.1 Control panel description

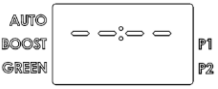
Refer to Fig. 13.

A	Knob
Buttons	ON/OFF - MODE

The control panel, constructed in a simple and rational way, comprises two buttons and a central knob.
In the upper section, a DISPLAY shows the set temperature or the detected temperature, besides other specific indications such as the operation mode signal, fault codes, settings and information of the product's condition.

7.2 Turning the water heater on/off

Turning the appliance on: simply press the ON/OFF button to turn the water heater on.



Now you can set the current time (see section 7.5)

The DISPLAY visualises the "set" temperature and operation mode, while the HP symbol and/or heating element symbol indicate the operation of the heat pump and/or heating element respectively.

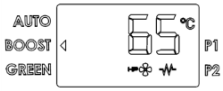
Turning the appliance off: simply press the ON/OFF button to turn the water heater off, only "OFF" appears on the display. The protection against corrosion is still ensured, while the product will automatically ensure that the temperature of the water in the tank does not fall below 5°C.

7.3 Setting the temperature

The desired temperature for the hot water can be set by turning the knob clockwise or anti-clockwise (the visualised temperature will flash temporarily).
To visualise the current temperature of the water in the tank, press and release the knob; the relative value will appear for 8 seconds then the set temperature will reappear once again.
The temperatures that can be obtained in the heat pump mode vary between 50°C and 55°C, by factory default setting, and 40°C-55°C, by varying the setting on the installer menu.
The maximum temperature that can be obtained with the heating element is 65°C, by factory default setting, and 75°C, by varying the setting on the installer menu.

7.4 Mode of operation

In normal operating conditions, the "mode" button can be used to vary the operating mode through which the water heater reaches the set temperature. The selected mode will be visualised on the line below the temperature.



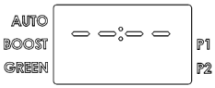
If the heat pump is active, the following symbol will appear:	HP
If the heating element is active, the following symbol will appear:	

- **AUTO:** mode: the water heater understands how to reach the desired temperature in a few hours, through the rational use of the heat pump and, only if necessary, of the heating element. The maximum number of hours it takes depends on the P4 – TIME_W parameter (see Paragraph 7.7), which is set to 8 hours by default. (recommended for winter).
- **BOOST:** mode: by activating this mode, the water heater simultaneously uses the heat pump and heating element to reach the desired temperature in the shortest possible time. Once this temperature is reached, the AUTO operating mode is restored.
- **GREEN:** mode: the water heater will use the heat pump, thereby ensuring maximum energy saving! The maximum temperature that can be reached is 55°C. The heating element may also turn in case of errors or anti-legionnaire's disease. This function is recommended for air temperatures above 0°C during the hours of heating.
- **PROGRAM** mode: You have two programs P1 and P2, which may act either individually or in combination with each other during the day (P1 + P2). The device will be able to activate the heating phase to reach the selected temperature set in the timetable, giving priority to heating by heat pump and, if necessary, through the heating element.
  Press the mode button to select the desired Program mode (P1/P2/P1+P2), turn the knob to set the desired temperature, press it again to confirm, turn the knob to set the desired time and press to confirm; mode P1 + P2 can set the information for both programs.
  In the case of electrical connection with two-tier price signal HC / HP, you still possible program the water heater at any time of day.
  For this function is required the setting of the current time, see the next paragraph.
  Note: To ensure comfort, in the case of P1 + P2 mode operation with very close times between them, it is possible that the temperature of water is higher than the temperature set.
  Note: with small tappings the compressor does not restart immediately, even if the temperature is lower than the set-point temperature.

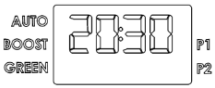
7.5 Time setting

The time setting is required:

- At initial start-up;
- Occur simultaneously absence of power from the mains and battery (the product will restart in Auto mode).

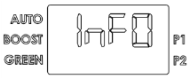


You can also change the current time through the parameter P1 (paragraph 7.7). The display flashes up showing hours and minutes. Turn the knob until you find the current time and confirm by pressing the knob. Repeat the procedure to set the minutes.

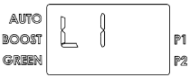


7.6 Information menu

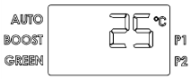
The information menu allows for visualising data for monitoring the product.
To enter the menu, press the relative knob and hold for 5 seconds.



Turn the knob to select the parameters L1, L2, L3 … L9



Upon reaching the desired parameter, press the knob to visualise its value. Press the knob or "MODE" button to return to the parameter selection area once again.

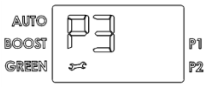


To exit the information menu, press the "mode" button (the appliance will ensure that the menu is automatically exited after the latter has been idle for 10 minutes).		
Parameter	**Name**	**Parameter description**
L1	T W1	Temperature recorded by the heating element unit sensor 1.
L2	T W2	Temperature recorded by the heating element unit sensor 2.
L3	TW3	Temperature recorded by the hot water pipe sensor.
L4	T AIR	Temperature recorded by the inlet air sensor.
L5	T EVAP	Temperature recorded by the evaporator sensor.
L6	HP h	Meter for internal parameter 1.
L7	HE h	Meter for internal parameter 2.
L8	SW MB	Mainboard software version.
L9	SW HMI	Interface board software version.

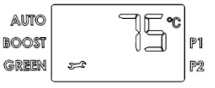
7.7 Installer menu

⚠	**CAUTION: THE FOLLOWING PARAMETERS MUST BE ADJUSTED BY QUALIFIED PERSONNEL.**

Several of the appliance's settings can be modified through the installer menu. The maintenance symbol is visualised on the left.
To enter the menu, keep the knob pressed for 5 seconds then scroll the parameters of the "L – INFO" menu until reaching "P1".
After entering the code (illustrated in the table that follows), turn the knob to select the parameters P1, P2, P3 … P8



Upon reaching the parameter to be modified, press the knob to visualise the parameter's value then turn the knob to set the desired value. To return to the parameter selection area, press the knob to store the entered parameter or press "mode" (or wait 10 seconds) to exit without storing the entered value.
To exit the installer menu, press the "mode" button (the appliance will ensure that the menu is automatically exited after the latter has been idle for 10 minutes).

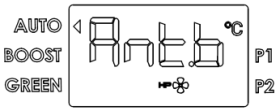


Parameter	**Name**	**Parameter description**

P1	TIME	Time setting
P2	T Max	Adjustment of the maximum obtainable temperature (from 65°C to 75°C). A higher temperature value allows for using a greater amount of hot water.
P3	ANTI_B	Activation/deactivation of the Anti-Legionnaire's Disease function (on/off). See Paragraph 7.8
P4	TIME_W	Maximum number of hours of daily heating (from 5h to 24h).
P5	HC-HP	Activation/deactivation of the two-tier rate operation mode. See Paragraph 7.10
P6	RESET	Resetting of all factory default settings.
P7	T Min	Adjustment of the minimum obtainable temperature (from 50°C to 40°C). A lower temperature setting allows for more energy-efficient operation in the event of limited hot water consumption.
P8	DEFROS	Activation/deactivation of the defrost mode (on/off). If activated, this mode allows the heat pump to function at air temperatures as low as -5°C.

7.8 Anti-legionnaire's disease protection (function activated only through the installer menu)

If activated, the water heater automatically carries out the anti-legionnaire's disease protection function. The water is brought to a temperature of 65°C on a monthly basis and for a maximum time of 15 minutes, so as to avoid germs from developing in the water tank and piping (provided the water has not been brought to T>57°C at least once for at least 15 minutes). The first heating cycle is performed 3 days after the function has been activated. As these temperatures may cause burns, it is advisable to use a thermostatic mixer.



During the cycle of antilegionella will be displayed "ANTI_B" alternately to the mode of operation, once the cycle is done the set temperature remains the original one.

In the event that is enabled the two-tier rate signal HC-HP, the function will take place during the economic tariff. To stop press "on/off".

7.9 Default settings

The appliance is manufactured with a series of default modes, functions or values, as indicated in the table below:

	Parameter	**Factory default setting**
	PRE-SET TEMPERATURE	52°C
P2	MAX. TEMPERATURE SETTABLE WITH THE HEATING ELEMENT	65°C
P3	ANTI-LEGIONNAIRE'S DISEASE PROTECTION	DEACTIVATED
P4	TIME_W (no. of accepted hours of powering)	8h
P5	HC-HP (two-tier rate operation mode)	DEACTIVATED
P7	MINIMUM SETTABLE TEMPERATURE	50°C
P8	DEFROST (active defrost activation)	ACTIVATED
	PROGRAM P1 TEMPERATURE PRESET	55°C
	PROGRAM P1 TIME PRESET	06:00
	PROGRAM P2 TEMPERATURE PRESET	55°C
	PROGRAM P2 TIME PRESET	18:00

7.10 Operation with two-tier electricity rate

To be able to operate also on appliances with a two-tier rate system, the control logic calculates the number of average hours a day during which the power supply is available in the economy mode (HC).
A self-learning function ensures that the appliance reaches the pre-set temperature in the time range during which the economy rate applies; the maximum limit of hours is determined by the P4 TIME_W parameter; after the initial start-up (or after switching off the hardware), the default setting is 8 hours. In order to optimize the self-learning function it is advisable to set AUTO mode.

7.11 Anti-frost function

In any event, if the temperature of the water in the tank falls below 5°C while the appliance is powered, the heating element (2000 W) will be automatically activated to heat the water up to 16°C.

7.12 Faults

As soon as a fault occurs, the appliance enters into the fault mode while the display emits flashing signals and visualises the error code. The water heater will continue supplying hot water provided the fault affects only one of two the heating units, by activating the heat pump or heating element.

If the fault involves the heat pump, the symbol "HP" will flash on the screen, while the heating element symbol will flash if the fault involves this component. If both components are affected, both symbols will flash.

Error code	Cause	Heating element operation	Heat pump operation	What to do
E1	Heating occurs without any water in the water tank	OFF	OFF	Verify the causes of the lack of water (leakage, faulty hydraulic connections, etc.).
E2	Excessive temperature of the water in the tank	OFF	OFF	Turn the appliance off then on again; if the problem persists, contact the technical assistance service.
E4	Sensor fault – heating element zone	OFF	OFF	Check or replace the heating element zone sensors, if necessary.
E5	Excessive difference between the temperatures of the heating element zone sensors	OFF	OFF	Check or replace the sensors, if necessary.
H1	Excessive pressure in the refrigeration circuit, or faulty reading on the pressure switch	ON	OFF	Try restarting the machine; if the error persists, contact the technical assistance service.
H2	Heat pump circuit low pressure or fan fault	ON	OFF	Turn off the appliance. Check that the fan is not broken and that the evaporator is not obstructed. Check whether the 4 ways valve functions properly and replace it if necessary. Check the evaporator sensor.
H3	Compressor or evaporator sensor fault, gas leak	ON	OFF	Turn off the appliance. Verify whether the compressor functions properly and/or check for any refrigerant gas leakages. Verify whether the evaporator sensor is properly connected and positioned, and replace it if necessary.
H4	Evaporator obstructed	ON	ON	Check the perfect cleaning of grids and ducts
H5	Fan fault / evaportora sensor error	ON	OFF	Turn off the appliance. Verify that there are no physical impediments to the movement of fan blades, check the wiring of connection with circuit boards. Check the evaporator sensor.
H6	Air sensor fault	ON	OFF	Verify whether the sensor is properly connected and positioned, and replace it if necessary
H7	Evaporator sensor fault	ON	OFF	Verify whether the sensor is properly connected and positioned, and replace it if necessary
H8	Hot water pipe sensor fault	ON	OFF	Verify whether the sensor is properly connected and positioned, and replace it if necessary

H9	Active defrost fault	ON	OFF (if T air <5°C)	Check that the fan is not broken and that the evaporator is not obstructed. Check whether the 4-way valve functions properly and replace it if necessary. Check the perfect cleaning of grids and ducts
F1	PCB fault	OFF	OFF	Try turning the appliance off then on again and verify the operation of the control boards, if necessary
F2	Excessive number of ON/OFF (RESET)	OFF	OFF	Temporarily disconnect the product and the batteries
F3	Lack of communication between the PCB and interface	OFF	OFF	Try turning the appliance off then on again and verify the operation of the control boards or replace them, if necessary
F4	Empty tank (EMPTY), impressed current anode circuit open	OFF	OFF	Verify whether there is any water in the tank, check or replace the impressed current anode, if necessary
F5	Short-circuit on the impressed current anode circuit	ON	ON	Check or replace the impressed current anode if necessary

8. MAINTENANCE (for authorized personnel)

WARNING! Observe the general warnings and safety instructions listed in the previous paragraphs and strictly adhere to the indications therein contained.

All maintenance operations and interventions should be performed by qualified personnel (i.e. with the necessary requirements as outlined in the applicable norms in force).
During maintenance it is advisable to wash the tank in order to remove any remaining impurities.

8.1 Draining the appliance

The appliance must be drained if left inactive in a room subject to frost and/or in the event of prolonged inactivity.
When necessary, empty the appliance as follows:

- Permanently disconnect the appliance form the mains electricity.
- Close the shut-off valve, if installed, or the central tap of the domestic water supply network.
- Open the hot water tap (washbasin or bathtub).
- open the cock on the safety device (in countries which acknowledge EN 1487) or the special cock installed on the "T" fitting, as described in paragraph 4.4.

8.2 Routine maintenance

It is advisable to clean the evaporator on an annual basis in order to remove any dust or obstructions.
To access the evaporator, it is necessary to remove the fixing screws of the frontal and top cover. Verify that the external terminal of the air exhaust duct, and the duct itself, are not obstructed or have not deteriorated.
Clean the evaporator with a flexible brush taking care not damage it. In the case you found some bended fins, straighten them with a special comb, according to the fins spacing (1.6mm). Carry out the same check for the intake duct, if present.
Ensure that the condensate water runs out in a suitable drain and make sure the discharge is made without hindrance.
Check and clean canalizations and grills.
Use only original spare parts.
After each removal is advisable to replace the gasket flange.
During maintenance it is advisable to wash the tank in order to remove any remaining impurities.

8.3 Troubleshooting

Problem	Possible reason	What to do
Water comes out cold or insufficiently warm	Low temperature set	Increase the temperature set for the outlet water.
	Device functioning errors	Check for errors on the display and act in the way specified on the chart "Faults".
	No electrical connection, disconnected or damaged wirings	Check the voltage at the supply terminals, verify the integrity and connections of the cables.
	Absence of HC/HP signal (if the product is installed with the HC/HP signal cable)	Try to put the product in “Boost” mode, if is ok in this way, check the connection of the meter, check the integrity of the HC/HP cable.
	Malfunctioning of the timer for two-tier rate (if the product is installed in this configuration)	Check the operation of the contactor day / night and that the set time is enough to heat water.
	Insufficient air flow to the evaporator.	Clean the grilles and ducts regularly.
	Product off	Check availability of electricity, turn on the product.
	Usage of a large amount of hot water when the product is heating up phase.	
	Probe error	Control the presence, even if occasional E5.
The water is boiling (with the possible presence of steam from the taps)	High level of scaling of the boiler and components	Turn off the power, drain the unit, remove the sheath of the resistance and remove lime scale inside the boiler, be careful not to damage the enamel of the boiler and the sheath resistance. Repackage the product as in the original configuration, it is recommended to replace the flange gasket.
	Probe error	Control the presence, even if occasional E5.
Reduced functioning of the heat pump, semi-permanent operation of the electrical resistance	Air temperature out of range	Depending from the climatic conditions.
	“Time W” value too low	Set a parameter for lower temperature or a longer unit of “Time W".
	Installation done not in accordance with electric voltage (too low)	Provide a proper Electric voltage.
	Evaporator clogged or frozen	Check the cleaning of the evaporator.
	Problems with the heat pump circuit	Make sure that there are no errors on the display.
	Are not yet past 8 days by: -First Time instalation. -Change of the parameter Time-W. -No power from mains in absence of batteries or exhausted batteries.	
Insufficient flow of hot water	Leaks or obstructions by the water circuit	Verify that there are no leaks along the circuit, check the integrity of the the deflector pipe, the integrity of incoming cold water pipe and hot water pipe.
Overflowing water by the the safety valve	A drip of water by the device should be considered normal during the heating	If you want to avoid the drip, install an expansion vessel on the plant supply. If leakage continues during the period of no heating, check the calibration of the device and the pressure of the water network. Caution: Do not obstruct the hole for evacuation of the device!
Increase of the noise	Presence of obstructive elements inside	Check the components in movement, clean the fan and the other parts who can generate noise or vibrations.
	Components vibration	Check the components fixed with screws, be sure that the screws are tight.
Problems of visualization or display off	Damage or disconnection of the wiring connecting electronic board and interface board	Check the integrity of the connection, check the operation of electronic boards.
	No power from mains in absence of batteries or exhausted batteries.	Check if there is electric mains supply and check the conditions of the batteries.
Bad odor coming from the the product	Absence of a siphon or siphon empty	Provide a siphon, with the proper quantity of water.
Abnormal or excessive	Loss or partial obstructions of the refrigerant circuit	Start your product in heat pump mode, use a leak detector for R134a to verify that there are no leaks.

consumption than expected	Bad environmental conditions or improper installation	
	Partially clogged evaporator	Check the cleanliness of the evaporator grid and ducts.
	Incorrect installation	
Other		Contact the technical support.

8.4 Routine maintenance performed by users

It is advisable to rinse out the appliance after each routine or extraordinary maintenance intervention.
The pressure safety device must be operated regularly to verify that it is not clogged and to remove any limescale deposits.
Check that the condensate drainage pipe is not obstructed.
In case of using, the batteries must be replaced every year or in case of losses. Make sure that they are correctly disposed of and exclusively replace them with **3 NiMh, AA,-type, rechargeable batteries, minimum 2100 mAh, rminimun 1000 recharge cycles, minimum working temperature of 65°C (it is recommend use batteries supplied from the manufacturer's catalogue)** observe the polarities as illustrated in the battery housing. The appliance should be unplugged when you remove the batteries.

8.5 Water heater disposal

The appliance contains R134a-type refrigerant gas which must not be released into the atmosphere. In case of permanent decommissioning of the water heater, ensure that disposal procedures are carried out by qualified personnel only.

This product conforms to Directive WEEE 2012/19/EU.
The barred bin symbol on the appliance and its packaging indicates that the product must be scrapped separately from other waste at the end of its service life. The user must therefore hand the equipment over to a sorted waste disposal facility for electro-technical and electronic equipment at the end of its service life. Alternatively, the equipment may be returned to the retailer at the time of purchase of a new equivalent type of appliance. Electronic equipment of size less than 25 cm can be handed over to any electronics equipment retailer whose sales area is at least 400 m2 for disposal free of charge and without any obligation to purchase new product.
Sorted waste collection for recycling, treatment and environmentally compatible scrapping contributes to the prevention of damage to the environment and promotes reuse/recycling. For more detailed information on the collection systems available, contact the local waste disposal service or the shop where the product was purchased.
This appliance includes rechargeable batteries: these must be removed before disposing of the appliance and placed in specific disposal containers. The battery housing is located beneath the cover on the lower side of the product.