



EGEA TECH 200 LT - 260 LT - 200 LT-S - 260 LT-S

UK version



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EN-USER, INSTALLATION AND MAINTENANCE MANUAL



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ENGLISH*Translation of the original language of the Manufacturer.***Dear Customer,**

thank you for choosing a **FERROLI** product.

Our company, always attentive to environmental issues, uses low environmental impact technologies and materials for its products, in compliance with EU WEEE standards (2012/19/EU – RoHS 2011/65/EU).

This product complies with EN12897:2016 standard - Water supply - Specification for indirectly heated unvented (closed) storage water heaters.

**OBLIGATION**

Read this instruction manual carefully before using the device and store it carefully.

In the event of a change in ownership of the device, deliver it to the next user/owner.

In the event of loss of or damage to this manual, another copy can be downloaded from the website **www.ferrolí.com** by selecting the purchased product.

The images are for illustrative purpose only and do not constitute a commitment for the manufacturer and/or the Distributor.

KEEP FOR FUTURE CONSULTATION.

MANUFACTURER'S DATA**FERROLI S.p.A.**

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Fax: +39 045 6100933
www.ferrolí.com

TECHNICAL ASSISTANCE DATA

For any request for TECHNICAL ASSISTANCE on the machine, refer to the following contacts.



For the service centre, visit:
www.ferrolí.com

DEVICE IDENTIFICATION

This equipment is a 1.9 kW heat pump for heating domestic hot water available in versions with 200 and 260 liter tanks and can be prepared with integration from a solar heating panel.

Version	Configuration description
200 LT	Air source heat pump for the production of domestic hot water (DHW)
260 LT	
200 LT-S	Air source heat pump for the production of domestic hot water (DHW) with solar coil.
260 LT-S	
G3 KIT 24L	MANDATORY OPTION: G3 kit 24l to comply with UK building regulation

CASING PROTECTION RATING

The equipment protection rating is: **IP24**.

1. SAFETY WARNINGS



ATTENTION



OBLIGATION

Read carefully before installing and using the device.

The manual must be kept for future reference until dismantling.

The manual is provided in paper format; however, it is available in digital version, which can be downloaded from the website **www.ferrolì.com** by selecting the purchased product.



ATTENTION



R290

Any intervention on the equipment must be performed by qualified personnel. Exclusively for interventions on the refrigeration circuit, including disposal, the personnel must be equipped with a suitable refrigeration technician's license aimed at the knowledge and management of systems containing gases of the HFC type.



ATTENTION

The unit can be used by children aged 8 years and over and by persons with reduced physical, sensory or mental capacities, or lacking in experience or the necessary knowledge, provided they are supervised or have received instructions regarding safe use of the unit and understand the related hazards.



ATTENTION

Children must not play with the device.
Cleaning and maintenance operations, which can be carried out by the user, must not be performed by children without supervision.



ATTENTION

Before carrying out any type of intervention on the equipment, the personnel in charge of maintenance must refer to what is reported in this manual in the following chapters and in particular in the chapter "11. REQUIREMENTS FOR THE OPERATION, SERVICE AND INSTALLATION" on page 63.



ATTENTION

During the design and construction phase of the systems, local rules and regulations must be complied with.
The equipment must be installed and operated by a qualified technician in accordance with local health and safety legislation and regulations.



ATTENTION

For equipment installation operations, refer to par. "9.4 PREPARATION OF THE INSTALLATION SITE" on page 42 and par. "9.5 FLOOR FIXING" on page 43.



ATTENZIONE

This product is designed to be used at a maximum altitude of 2000m.



ATTENZIONE

A suitable protection grille must be installed at the air inlet and outlet connections, in order to prevent foreign bodies from entering the equipment.
See description and figures in "9.6 AERAILIC CONNECTIONS" on page 44



ATTENZIONE

For models including a heat exchanger (solar coil), the circuit must not exceed 1.0 MPa (10 bar) and its temperature must not exceed 80°C, the installation of a reset safety thermostat is required manual supplied with the equipment, which interrupts the power supply to the solar circulator when the intervention temperature of 80°C is reached.



ATTENZIONE

Any repair, maintenance, hydraulic and electrical connection must be carried out by qualified technicians, exclusively with the use of original spare parts. Failure to comply with the above instructions may compromise the safety of the equipment and relieves the manufacturer of any responsibility for the consequences.



ATTENTION

For the correct operation of the device, the inlet water pressure must be:

- maximum 0.7 MPa (7 bar);
- minimum 0.15 MPa (1.5 bar).



ATTENTION

It is mandatory that the installation complies with part G3 of the Building Regulations. For that the unit is factory equipped with a T/P safety relief valve (set = 90°C/7bar) and is supplied with a G3 kit composed by expansion vessel, PRSV device to be installed at the water inlet of the unit and that integrates a check-valve, a water pressure reducer (default set = 3,5bar), a water safety relief valve (set=6bar).

The outlet connection of both safety relief valves must be connected to a tundish. The discharge pipes from safety devices (tundish) must be installed

to fully comply with Part G3 of the Building Regulations (latest edition).



ATTENTION

- Water may drip from the safety valve drain hose; leave this tube open to the atmosphere.
- The safety valve must be operated regularly to remove limescale deposits and to check that it is not blocked.
- Destruction of the equipment due to overpressure caused by blockage of the safety valve will void the warranty.
- Connect a rubber pipe to the condensate drain, taking care not to force too much so as not to break the drain pipe and refer to par. "9.8.3 Condensate drain connection" on page 54.



ATTENTION

Use only connecting pipes (not supplied), rigid and resistant to electrolysis both at the inlet of cold water and at the outlet of hot water from the device.



ATTENTION

The device must be installed in compliance with the regulations on electrical systems in force in the country of installation. Refer to par. "9.10 ELECTRICAL CONNECTIONS" on page 56 and par. "9.10.1 Remote connections" on page 56.



ATTENTION

Connect the device to an efficient grounding system.



ATTENTION

Do not use extension cords or adapters.



ATTENTION

For connection to mains and safety devices, comply with the IEC 60364-4-41 standard.



ATTENTION

Fixed devices are not equipped with means of disconnection from the mains with a separation of the contacts on all poles capable of guaranteeing complete disconnection in the **overvoltage category III**, the instructions indicate that the means of disconnection must be integrated in the fixed wiring in compliance with the wiring regulations.



ATTENTION

The device must be protected by an adequate differential switch. The type of differential switch should be selected by assessing the type of electrical devices used by the system as a whole.



ATTENTION

DO NOT TAMPER WITH THE POWER CORD.

If the power supply cable is damaged, it must be replaced by the manufacturer or the technical assistance service or in any case by a person with similar qualifications, in order to prevent any risk.



ATTENZIONE

The manufacturer declines all responsibility for any damage caused by failure to earth the equipment or due to anomalies in the electrical power supply.



ATTENTION

In case of replacement of the fuse, replace it with a new delayed-type one of 5 A 250V IEC 60127-2/II (T5AL250V) certified (refer to par. 10.1 on page 61).



ATTENTION

Before carrying out any repairs to the product, carefully read the wiring diagram shown in chapt. "9.11 ELECTRICAL DIAGRAM" on page 58 and also refer to the inside the product itself.



ATTENZIONE

The simultaneous operation of an open chamber fireplace (e.g. open fireplace) and of the heat pump causes a dangerous negative pressure in the environment. Depression can cause exhaust gases to flow back into the environment.

Do not operate the heat pump together with an open hearth. Only operate sealed chamber fireplaces (approved) with separate combustion air supply. Keep the doors of the boiler rooms sealed and closed so that they do not have the flow of combustion air from the living rooms.

► USE INTENDED BY THE MANUFACTURER

Definition

Air heat pump for the production of domestic hot water

The device covered in this manual has been designed for domestic use in accordance with the requirements provided for in the reference standards indicated in paragraph 2.4.

Moreover, to meet the design and safety features:

- the device must be used according to the instructions and limits of use indicated in this manual;
- the procedures indicated in this user manual must be followed;
- ordinary maintenance must be carried out periodically in the times and in the manner indicated;
- extraordinary maintenance must be performed promptly in case of need.

In consideration of the design features, it is not possible to use the device for other purposes, nor can the manufacturer envisage other ways of use.



PROHIBITION

Using the product for purposes other than that specified is prohibited. Any other use is considered inappropriate and is not permitted.

► REASONABLY FORESEEABLE MISUSE

Reasonably foreseeable misuses are listed below:

- **no aeraulic connection with the external environment (ref. par. 9.6 on page 44);**
- introduction of liquid or solid materials containing chemically aggressive substances;
- use the equipment differently from what is envisaged in paragraph "USE INTENDED BY THE MANUFACTURER" and as indicated in par. "4. GENERAL INFORMATION" on page 33.

Any use other than the one envisaged must be previously authorised in writing by the Manufacturer.

In the absence of such written authorisation, the use is to be considered **"improper use"**; therefore **FERROLI** declines all responsibility in relation to any damage caused to things or people and deems any type of guarantee on supply null and void.

NB! The manufacturer declines any liability for uses different from those for which the equipment is designed, and for any installation errors or improper use of the unit.

► INTENDED USE OF THE DEVICE

The device is intended to be used in a domestic environment within the limits of allowed environmental conditions indicated in chapter 9.

► RISK FROM INADEQUATE MAINTENANCE OR REPAIR



EXPERT TECHNICIAN

Any intervention on the equipment must be performed by qualified personnel. Exclusively for interventions on the refrigeration circuit, including disposal, the personnel must be equipped with a suitable refrigeration technician's license aimed at the knowledge and management of systems containing gases of the HFC type.



PROHIBITION

Never try to carry out maintenance work or repairs on the product yourself.

- Have a qualified technician immediately remove faults and damage.
- Comply with the prescribed maintenance intervals.

► DANGER DUE TO MISUSE

An incorrect command can put yourself and others at risk and cause material damage.

- Read these instructions and all complementary documentation carefully.
- Perform the activities described in this instruction manual.

► DANGER OF DEATH DUE TO CHANGES TO THE PRODUCT OR THE INSTALLATION ENVIRONMENT

- **Do not install the device** in conditions other than those described in this manual (ref. chapter 9 on page 41).
- **Never remove, tamper with, bypass or block** the safety devices.
- **Do not remove or destroy any seal** applied to components.
- **Do not make changes:**
 - to the product
 - to the water and electricity networks

► DANGER OF BURNS DUE TO HIGH TEMPERATURES

The protruding hoses and hydraulic connections become very hot during operation.

- **Do not touch** the hydraulic connections.
- **Do not touch** the air inlet and outlet points.

Domestic hot water heated to temperatures above 50 °C can cause scalding during use (shower, sink, etc.).

Even lower temperatures can be dangerous for children and the elderly.

It is always recommended to install a mixing valve in the outlet connection of the water heater and to set an operating temperature that is not too high.

► AVOID THE RISK OF INJURY AND DAMAGE TO THE ENVIRONMENT DUE TO ACCIDENTAL LEAKAGE OF THE REFRIGERANT GAS

The equipment contains R134a refrigerant gas.

It is a fluorinated refrigerant gas which does not damage the earth's ozone layer, but has a high greenhouse effect and is included in the Kyoto protocol:

- **do not touch** any part of the product;
- **do not inhale** vapours or gases.

Call a physician immediately if you come into contact with the refrigerant gas.

The refrigerant gas must not be released into the atmosphere.

Before disposing of the equipment, the refrigerant it contains must be recovered in a suitable container to be recycled or disposed of in accordance with current regulations.



EXPERT TECHNICIAN

Any intervention on the appliance, including disposal, must be carried out by qualified personnel with a suitable refrigeration technician's license aimed at understanding and managing systems containing HFC type gases.

► DANGERS FROM CHANGES IN THE INSTALLATION ROOM

- Before installing the device, it is mandatory to check the minimum requirements of the installation room.

Certain set-up and renovation works in the installation room can compromise the functionality of the product.

- Before carrying out any renovation work on the installation room, check that the minimum requirements indicated in chapter "9. INSTALLATION AND COMMISSIONING" on page 41 remain valid.
- Contact your installer before carrying out the relevant work.

INSTRUCTIONS FOR:	
 USER	 EXPERT TECHNICIAN / MANUFACTURER'S TECHNICAL ASSISTANCE

2. GENERAL INFORMATION

This instruction manual for use, installation and maintenance is to be considered an integral part of the heat pump (hereinafter referred to as "device").

The manual describes the installation procedures to be observed for correct and safe operation of the device, and the methods of use and maintenance.

The manual must be kept with the device for future reference until it is dismantled and must, in any case, always be available to qualified installation and maintenance personnel.

If the device is sold or passed on to another user, the manual must accompany it to its new destination.

For the EXPERT TECHNICIAN/ MANUFACTURER'S TECHNICAL ASSISTANCE ONLY.

The manual describes the installation methods to be followed for correct and safe operation of the device and maintenance interventions.

Before installing the equipment, carefully read this instruction manual and in particular chapter 8 on safety.

Symbols are used throughout the manual to find the most important information more quickly (paragraph "4.3 DESCRIPTION OF THE SYMBOLS USED IN THE MANUAL AND ON THE PACKAGING" on page 34).

2.1 RECIPIENTS OF THE MANUAL

It is intended for the specialist installer (installers - maintenance technicians) and the end user.

To distinguish the content of the manual based on the characteristics of the recipient (user and expert technician), the instructions are divided as follows:

RECIPIENT OF THE INSTRUCTIONS	
 USER	Person who uses the device under normal conditions. This symbol (where present) indicates that the information and instructions <u>are intended for them</u>.
 USER	ATTENTION! This symbol (where present) indicates that the information and instructions <u>are not intended for them</u>. For each type of intervention, the user must contact the EXPERT TECHNICIAN / MANUFACTURER'S TECHNICAL ASSISTANCE.
 EXPERT TECHNICIAN / MANUFACTURER'S TECHNICAL ASSISTANCE	Person in charge of installation and maintenance. The technician has access to all the information contained in this manual. Any intervention on the equipment must be performed by qualified personnel. Exclusively for interventions on the refrigeration circuit, including disposal, the personnel must be equipped with a suitable refrigeration technician's license aimed at the knowledge and management of systems containing gases of the HFC type.
 ATTENTION	In case of doubts about the correct interpretation of the instructions contained in this Manual, contact the manufacturer's TECHNICAL ASSISTANCE to receive the necessary clarifications.

2.2 GUIDE TO THE MANUAL

For the correct use of the device, the technical reference is the “USE, INSTALLATION AND MAINTENANCE MANUAL” supplied with it.

In order to make the instruction manual compliant with the device described therein, it was drawn up in accordance with the Directives in force at the date of the document’s edition:

- IEC/IEEE 82079-1:2019 - *Preparation of information for use (instructions for use) of products. Principles and general requirements.*
- ISO 7000:2019 - *Graphical symbols for use on device — Registered symbols.*
- UNI EN ISO 7010:2021 - *Graphic signs - Safety colours and safety signs - Registered safety signs*

Moreover, the preparation and composition of the instruction manual complies with the principles dictated by the technical regulations referring to the product.

2.2.1 Supply and storage of the manual

The manual is provided in paper format; however, it is available in digital version, which can be downloaded from the website **www.ferrolì.com** by selecting the purchased product.

The manual must be kept for future reference until dismantling.

2.2.2 Updates

This manual reflects the technique at the time of purchase of the device and contains the information and specifications in force at the current date of the edition.

The manufacturer reserves the right to make modifications, changes or improvements in the manual or on the machines, at any time and without notice.

2.2.3 Copyright

All rights reserved.

These user instructions contain information protected by copyright. It is prohibited to make photocopies, duplicate, translate or to store these user instructions on memory supports, either in part or in whole, without previous authorisation by the supplier. Any violations will be subject to compensation for damages. All rights are reserved, including those resulting from the granting of patents or registration of a utility model.

2.2.4 Language

The manual was written in Italian (IT), the original language of the manufacturer.

Any translations into additional languages must be made from the original instructions.

The Manufacturer is held responsible for the information contained in the original instructions; translations into different languages cannot be fully verified, therefore, if an inconsistency is found, it is necessary to follow the original language text or contact our Technical Documentation Office.

2.3 DECLARATION OF CONFORMITY

The CE marking certifies that the equipment meets the essential requirements of the relevant European directives and regulations in force.

The declaration of conformity can be requested from the manufacturer.



ATTENTION

The manufacturer is not liable for any damage to things or people caused by accidents caused by failure to comply with the instructions contained in this user manual and warnings.

The “USE, INSTALLATION AND MAINTENANCE MANUAL” defines the purpose for which the device was built and contains all the information necessary to ensure safe and correct installation and use.

Further technical information not reported in this manual constitute an integral part of the technical file drawn up by the manufacturer available at its registered office.

The constant compliance with the rules contained therein guarantees the safety of man and equipment, the economy of operation and a longer duration of operation.

The careful analysis carried out by the manufacturer has made it possible to eliminate most of the risks; however, it is recommended to strictly follow the instructions given in this document.



ATTENTION

The manufacturer is not liable for any damage to things or people caused by accidents caused by failure to comply with the instructions contained in this user manual and warnings.

2.4 COMPLIANCE WITH EUROPEAN REGULATIONS

This heat pump is a product intended for domestic use in compliance with the following European directives:

- Directive 2012/19/EU of the European Parliament and of the Council OF 4 July 2012 on **waste electrical and electronic device (WEEE)**.
- Directive 2011/65/EU of the European Parliament and of the Council OF 8 June 2011 on the **restriction of the use of certain hazardous substances in electrical and electronic device (RoHS)**.
- Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to **electromagnetic compatibility**.
- Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of **electrical equipment designed for use within certain voltage limits**.
- Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of **ecodesign requirements for energy-related products**.
- Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of **radio equipment** and repealing Directive 1999/5/EC.
- Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for **energy labelling** and repealing Directive 2010/30/EU.

2.5 DEVICE WARRANTY

Refer to the attached certificate (if present, depending on the country of destination of use).

2.6 DISCLAIMER OF LIABILITY

The conformity of these operating instructions with the hardware and the software has been carefully checked. There may, however, be some differences, therefore, we do not assume any liability if they are incomplete.

In the interest of technical perfection, we reserve the right to carry out manufacturing modifications or changes to technical data at any time.

Therefore, any claim based on indications, figures, drawings or descriptions is excluded. Except in the case of errors.



ATTENTION

The manufacturer is not liable for damage attributable to operating errors, improper use, inappropriate use or due to unauthorised repairs or modifications.

3. USE OF THE WATER HEATER

3.1 BASIC SAFETY RULES



PROHIBITION

Do not open or disassemble the product when it is electrically powered.



PROHIBITION

Do not touch the product if barefoot or with wet or damp parts of the body.



PROHIBITION

Do not climb, sit and/or place any type of object on the product.



VISUAL INSPECTION

Check that the device is free from tools or utensils of various kinds. If present, remove them.

3.2 MAINTENANCE BY THE USER



ATTENTION

Before cleaning, it is important to make sure that the machine is turned off and the plug is not connected to the socket.



DANGER

Do not remove the plug from the socket by pulling the power cord.

3.2.1 General and control panel cleaning

 USER	Periodicity:	Equipment to be used
	MONTHLY (or in conditions of evident dirt)	Soft and dry cloth

 PROHIBITION	Do not pour or spray water on the product. Do not clean the surfaces with easily flammable substances (for example: alcohol or paint thinners).
--	--

 MANUAL CLEANING	Clean only the external surface and the control panel using a soft, dry cloth.
--	---

3.2.2 Operating anomalies / failures

In case of operating anomalies, possible failures or replacement of parts due to wear/damage, the user must:

- switch off the water heater as indicated in the section “Switching off” in paragraph 3.5 and disconnect the power cord plug from the socket.
- Contact an expert technician or the technical assistance service.

3.3 MAINTENANCE TO BE CARRIED OUT BY THE EXPERT TECHNICIAN

 EXPERT TECHNICIAN	Any intervention on the equipment must be performed by qualified personnel. Exclusively for interventions on the refrigeration circuit, including disposal, the personnel must be equipped with a suitable refrigeration technician’s license aimed at the knowledge and management of systems containing gases of the HFC type.
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CHECK OF THE DEVICE

 USER	 EXPERT TECHNICIAN / MANUFACTURER’S TECHNICAL ASSISTANCE	Periodicity: YEARLY
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To ensure the functionality and efficiency of the device, it must be subjected to **regular checks**.

- Refer to chapter 11.

TROUBLESHOOTING / REPLACEMENT / MAINTENANCE

 USER	 EXPERT TECHNICIAN / MANUFACTURER’S TECHNICAL ASSISTANCE	Periodicity: IN CASE OF ANOMALY OR FAULTS.
--	--	--

Before carrying out any type of intervention on the device, the personnel in charge of maintenance must refer to what is reported in this manual in the following chapters and in particular to consult chapter “11. REQUIREMENTS FOR THE OPERATION, SERVICE AND INSTALLATION” on page 63.

 ATTENTION	The manufacturer cannot be held responsible for interventions carried out by non-expert and non-qualified personnel.
--	---

 ATTENTION	DO NOT TAMPER WITH THE POWER CORD. If the power supply cable is damaged, it must be replaced by the manufacturer or the technical assistance service or in any case by a person with similar qualifications, in order to prevent any risk.
--	---

3.4 DESCRIPTION OF THE USER INTERFACE

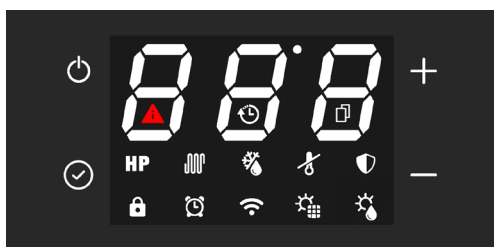


fig. 1

Description	Symbol
"On/off" key for switching on, putting the product in standby and off, back without saving	
"Set" button to change the working mode, confirm, unlocking keys;	
"Increase" key to increase the set-point value, parameter or password	
"Decrease" key to decrease the set-point value, parameter or password	
ECO mode (operation with heat pump only)	HP
ELECTRIC mode (operation with electric heater only)	
AUTO mode (operation with heat pump and, if necessary, electric heater)	HP +
BOOSTER mode (the symbols flash, operation with heat pump and electric heater)	HP +
Button lock active	
Defrosting	
Frost protection	
Anti-legionella cycle	
Operation with time bands	
Connected with Wi-Fi (the symbol flashes when there is no connection)	
Photovoltaic mode (the symbol on steady indicates that the function is enabled, the flashing symbol indicates that the function is active)	
Solar thermal mode (the symbol on steady indicates that the function is enabled, the flashing symbol indicates that the function is active)	
Fault or protection active	
Smart grid mode (the symbol on steady indicates that the function is enabled, the flashing symbol indicates that the function is active)	
Cascade mode active (the symbol flashes when the unit is setted as Master. The symbol on steady indicates that the unit is setted as slave).	

The user interface of this model of water heater consists of four capacitive keys and an LED display. As soon as the water heater is powered, the four keys and all the icons on the display are backlit, then the display firmware version is shown on the display. During normal operation of the product, the three digits on the display show the water temperature in °C, measured with the upper water probe.

On the other hand, during the modification of the set-point the temperature on the display is shown flashing. The icons instead indicate the selected operating mode, the presence or absence of alarms, the status of the Wi-Fi connection, and other information on the status of the product.

3.5 HOW TO TURN THE WATER HEATER ON AND OFF AND UNLOCK THE KEYS

When the water heater is powered correctly, it can be in the "ON" status and, therefore, in one of the various operating modes available (ECO, Automatic, etc.) or in "standby" or "off".

In any state, 180 seconds after the last pressure of any of the four buttons on the user interface, the button lock function is automatically activated so as to avoid possible interactions with the water heater, for example by children, etc. At the same time, the backlighting of the keys and the display decreases in order to reduce the energy consumption of the appliance.

By pressing any of the four keys, the backlighting of the keys and the display will immediately return to its normal level for better visibility.

3.5.1 Power on

With the water heater in "standby" or "off" and the "key lock" function active (padlock icon at the bottom left on) it is first necessary to "unlock" the keys by pressing the "SET" key for at least 3 seconds. (the lock icon will turn off).

- In "off" mode it will be necessary to press the ON/OFF button for 10 seconds (a long confirmation beep will be heard) to turn on the water heater.
- In "standby" mode it will be necessary to press the ON/OFF key for 3 seconds (a short confirmation beep will be heard) to turn on the water heater.

NOTE: if the ON/OFF button is pressed for at least 10 seconds, the water heater goes OFF (a long beep will be heard).

3.5.2 Switching off (Standby - Off)

With the water heater on and the "key lock" function active, it is first necessary to "unlock" the keys by pressing the "SET" key for at least 3 seconds and then:

- press the "ON/OFF" button for 3 seconds to put the water heater in standby (a short beep will be heard)
- press the "ON/OFF" button for 10 seconds to switch off the water heater (a long beep will be heard)

3.5.3 Standby

In standby mode, the wording Stb is shown on the display.
In this mode, the heat pump is off, but all the auxiliary functions (photovoltaic, smart grid, solar thermal, anti-legionella) and the antifreeze function remain active (if previously enabled).

3.5.4 OFF

In off mode, the wording Off is shown on the display.
In this mode, the heat pump is completely off: only the antifreeze function remains active.

3.6 OPERATING MODE

With the water heater on (see “3.5.1 on page 13) the following modes are available:

- ECO;
- BOOSTER;
- ELECTRIC;
- VENTILATION;
- AUTO.

To select the desired mode, press the “SET”  key for 3 seconds (a short confirmation beep will be heard) and then release.

3.6.1 ECO

The “HP” **HP** symbol appears on the display.
With this mode, only the heat pump is used within the product’s operating limits to guarantee the maximum possible energy savings.
The heat pump is switched on 5 minutes after selecting this mode or since it was last switched off.
In case of shutdown, within the first 5 minutes, the heat pump will still remain on to ensure at least 5 minutes of continuous operation.

3.6.2 BOOSTER

The “HP” **HP** + “HEATER”  symbols flash on the display.
This mode uses the heat pump and the electrical heater, within the operating limits of the product, to ensure faster heating.
The heat pump is switched on 5 minutes after selecting this mode or since it was last switched off.
In case of shutdown, within the first 5 minutes, the heat pump will still remain on to ensure at least 5 minutes of continuous operation.
The electric heater is switched on immediately.

3.6.3 ELECTRIC

The “HEATER”  symbol appears on the display.
With this mode, only the electrical heater is used within the product’s operating limits and is useful in situations with low inlet air temperatures.

3.6.4 VENTILATION

FAn ” is shown on the display **FAn**.
With this mode only the fan inside the appliance is used and it is useful if you want to recirculate the air in the installation environment.
The fan will be regulated at the speed defined by parameters F02 and F03. (“3.9.4 FAn Menu - FAN AND SILENT MODE setting”).

3.6.5 AUTO

“HP ” **HP** + “HEATER”  symbol appears on the display . This mode uses the heat pump and, if necessary, also the electrical heater, within the operating limits of the product, to guarantee the best possible comfort.
The heat pump is switched on 5 minutes after selecting this mode or since it was last switched off.
In case of shutdown, within the first 5 minutes, the heat pump will still remain on to ensure at least 5 minutes of continuous operation.

3.7 SETTING THE HOT WATER SET-POINT

It is possible to adjust the hot water set-point in ECO, AUTO, BOOSTER and ELECTRIC modes by pressing the “+” and “-” keys. Press the “SET”  key for at least 3 seconds or the “ON/OFF”  key to exit without saving.

Mode	Hot water set-point	
	Range	Default
ECO	38÷62°C	55°C
AUTO	38÷62°C	55°C
BOOSTER	38÷75°C*	55°C
ELECTRIC	38÷75°C	55°C

* In BOOSTER mode the maximum set-point value for the heat pump is 62°C. Therefore, setting a higher value this is to be considered only for the electrical heater.

3.8 CASCADE FUNCTIONALITY

The term cascade is intended to indicate a group of water heaters that work together, within which only one Master and several slaves are identified.

The Master has the task of managing the operation of the units connected to it.

The electronics of the unit, in fact, allows the unit to be configured both as Master and as Slave.

While managing the cascade, the MASTER can manage three different levels of operation, depending on the user's request:

1. minimum level of functioning
2. medium level of functioning
3. maximum operating level

Under normal operating conditions, the MASTER has full control of all Slaves.

It is indeed capable of

- manage the operating status of each Slave
- modify the setpoint of all the Slaves
- modify some parameters of all the Slaves according to its values
- if the solar function is active, inform the Slaves of the temperature read by the PT1000 probe of the solar panel
- read the status (e.g. alarms, water temperature, ...) of each SLAVE
- keep the Slave clock updated

NOTE: only from the master display will it be possible to change the system status, such as set-point, operating mode, time band programming. From the display of the SLAVE, on the other hand, it will only be possible to view its status.

3.9 HOW TO ACCESS THE USER AND INSTALLER MENU

In addition to the possibility of changing the set-point, it is possible from the display make some adjustments. Some parameters can be changed by the user, others only by the installer of the unit. All parameters are divided into various submenus, according to their functionality.

The menus available are:

Menu	Description	User	Installer
rtc	Time, day, date setting	U	I
FAn	Ventilator parameters	U	I
HI	Electric heater		I
phv	Photovoltaic parameters - EVU		I
SG	Smart Grid parameters		I
SoL	Solar thermal parameters		I
rEC	Recirculation pump		I
AL	Anti-legionella		I
CAS	Cascade	U	I
Sch	Time bands programming	U	I
En	Energy monitoring	U	I
Inf	Machine status information	U	I
rSt	Reset	U	I
UtS	UtS Menu – brand, range, model, serial number display		I

Level: U=user menu - I=installer menu

To access the menus:

From the main screen, press the + and - keys simultaneously for at least 3 seconds. Enter the 3-digit password: the value must be entered digit by digit and it is possible to move between them by pressing the "SET"  key and the selected digit will be displayed flashing. Then use the + and - keys to modify the value of the digit. confirm the entered password by holding down the "SET"  key for at least 3 seconds. If the entered password is correct, it will be possible to access the visible parameters based on the entered password level, vice versa, you will return to the main screen.

Note: when entering the password, it will always be possible to return to the main screen by pressing the "SET"  key.

- **User password: 000**
- **Installer password: 234**

3.9.1 Using the keys while navigating in the menus

Symbol	Action	
	Within a menu or submenu	While editing a parameter
	Allows you to return to the previous menu	Allows you to return to the previous menu without saving the changes made
	Allows access to the next menu or to the modification screen of the selected parameter	If pressed for more than 3 seconds, it allows saving the entered parameter value and returning to the previous menu. Saving will be confirmed by a beep.
+	Allows you to move within the menu	Allows you to increase or decrease the value of the selected parameter.
-		

3.9.2 Menu rtc - TIME, DAY, DATE SETTING

To set the clock it is necessary to access the Rtc menu , by pressing the “SET” key the value from “t01” to “t06” will appear.

Value	Description	Minimum value	Value maximum	Level
t01	Hours	00	23	U / I
t02	Minutes	00	59	U / I
t03	Day of the week (1= Monday... - 7= Sunday)	1	7	U / I
t04	Day of the month	1	31	U / I
t05	Month	1	12	U / I
t06	Year	20	50	U / I

Level: U=user menu - I=installer menu

NOTE: for a CASCADE system, the clock setting must be performed only on the MASTER. Once modified, it will be necessary to power off and power on the MASTER so that the latter communicates the set time to the SLAVES.

By pressing the “SET” key again on the parameter to be modified, its value can be modified using the “+” and “-” keys. Then press the “SET” key to confirm (a beep will confirm the modification) and the “ON/OFF” key to exit the menu.

3.9.3 Sch MENU - TIME BANDS PROGRAMMING

Before activating the weekly programming it is necessary to set the time, day and date of the appliance.

NOTE: in case of application of several units in cascade, the programming of the time bands must be performed only on the master unit.

To set the weekly programming, access the menu Sch.

By pressing the “SET” key, “d_0” will appear and by pressing the “SET” key again, the value “0” will appear (it means that time band program-

ming is disabled, default value). To activate time band programming, use the “+” and “-” keys to bring the value to “1”. Subsequently you can choose the days on which to set the programming according to the values in the table:

Value	Description	Level
d_1	Monday	U / I
d_2	Tuesday	U / I
d_3	Wednesday	U / I
d_4	Thursday	U / I
d_5	Friday	U / I
d_6	Saturday	U / I
d_7	Sunday	U / I

Level: U=user menu - I=installer menu

Weekly programming allows you to define 6 distinct operating time bands for each day of the week.

Value	Description	Level
d1A	Time slot 1	U / I
d1b	Time slot 2	U / I
d1c	Time slot 3	U / I
d1d	Time slot 4	U / I
d1E	Time slot 5	U / I
d1F	Time slot 6	U / I

Level: U=user menu - I=installer menu

For each band it is possible to define the operating mode (standard or silenced), the set point, the start and end time and, in the case of a cascade of water heaters.

For example: by accessing the “d1A” menu, by pressing the “SET” key and scrolling with the “+” and “-” keys, the values from “1A1” to “1A9” will appear.

Value	Description	default	min	max	Unit of measure	Note	Level
1A1	Enabling/Disabling time band 1	0	0	1	-	(0=disabled, 1=enabled)	U / I
1A2	Band 1 start time	00	00	23	ora	00:23	U / I
1A3	Time slot 1 starts	00	00	45	min	00, 15, 30, 45	U / I
1A4	Band 1 end time	00	00	23	ora	00:23	U / I
1A5	Band 1 end minutes	00	00	45	min	00, 15, 30, 45	U / I
1A6	Band 1 operating mode	2	2	5	-	2=ECO, 3=AUTO, 4=BOOSTER, 5=ELECTRIC HEATING)	U / I
1A7	Band 1 setpoint	50	38	75	°C	38:62 / 38:75 (depending on the mode selected)	U / I
1A8	Enabling/Disabling Silent mode in band 1	0	0	1	-	(0=disabled, 1=enabled)	U / I
1A9	Cascade level in band 1	0	0	2	-	0:2= (0=min, 1=medium, 2=max)	U / I

Level: U=user menu - I=installer menu

By pressing the “SET” key again on the parameter to be modified, its value can be modified using the “+” and “-” keys.

Then press the “SET”  key for 3 seconds to confirm (a beep will confirm the modification) or the “ON/OFF”  key to exit the menu.

Carry out the same procedure for time slots 2 (d1b) to 6 (d1F), then repeat for the following days (d_2=Tuesday, d_3=Wednesday, d_4=Thursday, d_5=Friday, d_6= Saturday, d_7=Sunday). Once the programming has been set, it will be possible to activate or deactivate it via parameter d_0 of the Sch. The schedule can be more easily set via APP.

Note: between one time slot and the next, the appliance goes into stand-by.

3.9.4 FAN MENU - FAN AND SILENT MODE SETTING

In this setting it is possible to activate the “silent mode” (for example during the night) which allows a reduction in the noise of the appliance; in this condition the performance in terms of water heating speed may be lower.

To set the fan speed parameter, access the “Fan” menu by pressing the “SET”  key.

Value	Description	Unit of measure	default	min	max	Level
F01	Enable silent mode function (0=disabled, 1=enabled)	-	0	0	1	U / I
F02	Fan speed in FAN mode	%	100	10	100	I
F03	Silent mode fan speed	%	50	10	100	I

Level: U=user menu - I=installer menu

To set the fan speed in FAN mode, select the F02 value. By pressing the “SET”  key again, the default value of the fan speed will appear.

To enable the silent function, select the F01 value, pressing the “SET”  key again the value “0” will appear (it means that the fan works in default conditions), to activate the silent mode press the “+” and “-” to bring the value to “1”. Press the “SET”  key to confirm (a beep will confirm the modification) and the “ON/OFF”  key to exit the menu.

To set the fan speed in silent mode instead, select the F03 value. By pressing the “SET”  key again, the default value of the fan speed will appear. Decreasing the % value will decrease the noise.

3.9.5 ENERGY MONITORING



NOTA

The Energy Monitoring function allows, through proprietary algorithms, an estimate of the values of thermal energy produced and of the relative share of the renewable part and of the electrical energy absorbed.

The algorithms have been defined through laboratory tests with the units operating with standard factory parameter configuration and in standard operating conditions as defined by the EN 16147 standard.

Therefore, the values indicated by the Energy Monitoring function are purely indicative and are intended to make the end user more aware of consumption based on different uses (operating mode and setpoint) and have no purpose of accounting for the thermal energy produced or of the electricity consumed.

To view the electricity consumption, the thermal energy produced and the renewable energy, access the En menu by pressing the “SET”  key and scrolling with the “+” and “-” keys, the values “E_A”, “E_t” will appear and “E_r”.

Value	Description	Level
E_A	Energy absorbed	U / I
E_t	Thermal energy produced	U / I
E_r	Renewable energy	U / I

Level: U=user menu - I=installer menu

For each value it is possible to access the sub-menu:

E_A menu

Value	Description	Unit of measure	Level
EA1 *	Instantaneous absorbed energy	Wh / 10 *	U / I
EA2	Energy absorbed per day	Wh	U / I
EA3 *	Energy absorbed weekly	kWh / 10 *	U / I
EA4	Monthly absorbed energy	kWh	U / I
EA5	Yearly absorbed energy	kWh	U / I
EA6	Total absorbed energy	kWh x 10**	U / I

Level: U=user menu - I=installer menu

E_t menu

Value	Description	Unit of measure	Level
Et1 *	Instant thermal energy	Wh / 10 *	U / I
Et2	Daily thermal energy	Wh	U / I

Value	Description	Unit of measure	Level
Et3 *	Weekly thermal energy	kWh / 10 *	U / I
Et4	Monthly thermal energy	kWh	U / I
Et5	Annual thermal energy	kWh	U / I
Et6	Total thermal energy	kWh x 10**	U / I

Level: U=user menu - I=installer menu

Menu E_r

Value	Description	Unit of measure	Level
Er1 *	Instant renewable energy	Wh / 10 *	U / I
Er2	Daily renewable energy	Wh	U / I
Er3 *	Weekly renewable energy	kWh / 10 *	U / I
Er4	Monthly renewable energy	kWh	U / I
Er5	Annual renewable energy	kWh	U / I
Er6	Total renewable energy	kWh x 10**	U / I

Level: U=user menu - I=installer menu

Press the "ON/OFF"  key to exit the menu.

Reading example

To display the instantaneous consumption of a value in the E_A sub-menu, it is necessary to select the EA1 value.

The display of the value is carried out in several consecutive screens.

To scroll through the screens use the "+" and "-" keys.

In this example the reading is done by joining all the values found in the 3 screens:

- First screen: 0 (see fig. 2)
- Second screen: 28 (see fig. 3)
- Third screen: 59 (see fig. 4)

Pulse la tecla "ON/OFF"  para salir del menú.



fig. 2 - first reading screen

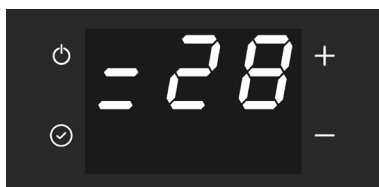


fig. 3 - second reading screen



fig. 4 - third reading screen

NOTA:

* : for the correct reading of this parameter, the value resulting from the 3 screens must be divided by 10.
Ex. 02859 / 10 = 285,9

** : for the correct reading of this parameter, the value resulting from the 3 screens must be multiplied by 10.
Ex. 02859 x 10 = 28590

3.9.6 rSt menu - RESET

Parameter	Description	Note	Level	min	max	Livello
n01	Weekly programming reset	-	0	0	1	U / I
n02	Energy monitoring counter reset	-	0	0	1	U / I

Level: U=user menu - I=installer menu

To perform the reset:

- set the parameter = 1
- power off the unit
- power on the unit.

3.9.7 Inf MENU - MACHINE STATUS INFORMATION

To view the general information, access the Inf menu by pressing the "SET"  key and scrolling with the "+" and "-" keys, the values "I01" to "I13" will appear.

Parameter	Description	Note	Level
I01	Currently active operating mode	0=0 (OFF, 1=STANDBY, 2=ECO, 3=AUTO, 4=BOOSTER, 5=ELECTRIC, 6=FAN)	U / I
I02	real water set point*	°C	U / I
I03	External air temperature	°C	U / I
I04	Lower water temperature	°C	U / I
I05	Higher water temperature	°C	U / I
I06	Evaporator inlet temperature	°C	U / I
I07	Evaporator outlet temperature	°C	U / I
I08	Compressor delivery temperature	°C	U / I
I09	Coil temperature	°C	U / I
I10	PT1000 solar probe temperature	°C	U / I
I11	-	Reserved	U / I
I12	Calculated evaporation temperature	°C	U / I
I13	Calculated condensing temperature	°C	U / I
I14	Electronic expansion valve opening	Step	U / I
I15	Fan rpm number	rpm / 10	U / I
I16	WiFi module firmware	-	U / I
I17	Motherboard firmware	-	U / I
I18	Display firmware	-	U / I
I19	Parameter version	-	U / I

Level: U=user menu - I=installer menu

* : the displayed value also takes into account any offsets linked to the activation of the auxiliary functions (photovoltaic, smartgrid, solar thermal, anti-legionella).

Level: U=user menu - I=installer menu

Press the "ON/OFF"  key to exit the menu.

3.9.8 HI menu - ELECTRIC HEATER SETTING

Value	Description	Unit of measure	default	min	max	Level
H01	Enabling heater in ECO mode when protection alarm (0=disabled, 1=enabled)	-	0	0	1	I
H02	Electric heater ignition upper probe hysteresis (only for Electric and Booster modes)	°C	7	0	20	I
H03	Operating time in AUTO mode for temperature rise control for switching on the electric heater	min	30	0	120	I
H04	Minimum increase in water temperature so as not to turn on the heating element in AUTO mode	°C	4	0	30	I

Level: U=user menu - I=installer menu

Parameters:

H01: from this parameter it is possible to enable or disable the switching on of the heater when the unit is working in ECO mode and the compressor cannot switch on due to an intervention of one of its protections (for example intervention of the HP pressure switch or air temperature at outside the operating limits):

H02: Difference between the set point and the heater switch-on temperature

H03 – H04: These parameters are used when the unit is working in AUTO mode and you want the heater to be turned on when the water temperature does not rise by a minimum increase (H04) after a given pump operating time of heat (H03).

NOTE: once turned on, the heater will turn off only when the water temperature reaches the set point

3.9.9 Phv menu - EVU functionality - Photovoltaic functionality

If parameter G01=1 is set (smartgrid enabled), the EVU and photovoltaic functions are not available. To enable them, set parameter G01=0 (smartgrid not enabled).

3.9.9.1 EVU functionality (see also “9.10.1 Remote connections” on page 56)

This function is indispensable if a subsidized electricity tariff is subscribed for heat pumps. The aim is to facilitate operation when the cost of electricity is low, but still having to comply with the rules of the energy supplier who will be able to decide when to interrupt the supply.

To meet this requirement, the water heater electronics are fitted with a digital input which, when opened, allows the unit to be switched off and thus reduce the load on the electricity grid.

NOTE: When enabled and active, this feature takes priority over the PV feature.

To set the parameters, access the phv menu, by pressing the

“SET”  key the value “P01” will appear.

Parameter	Description	Unit of measure	default	min	max	Level
P01	Enable EVU function (0=disabled, 1=enabled)	-	0	0	1	I
P02	Unit mode with EVU input open (0=OFF, 1=Standby)	-	0	0	1	I

Level: U=user menu - I=installer menu

NOTE: When enabled and active, this feature takes priority over the PV feature.

By pressing the “SET”  key again on the parameter to be modified, its value can be modified using the “+” and “-” keys. Then press the “SET”  key to confirm (a beep will confirm the modification) and the “ON/OFF”  key to exit the menu.

When the EVU function is enabled, the symbol appears  on the display according to the following logic:

Behavior	Description	Active mode
 on with steady light	EVU enabled with digital input closed	The unit continues to work in the mode set by the user
 flashing light	EVU enabled with digital input open	The unit will be put into an OFF or STANDBY state, as configured by the installer

3.9.9.2 Photovoltaic parameters (photovoltaic functionality) (see also “9.10.1 Remote connections” on page 56)

In this configuration it will be possible to exploit the excess energy produced by the photovoltaic system to produce and store domestic hot water at a temperature equal to the previously set setpoint value, plus an offset.

To set the parameters, access the phv menu by pressing the “SET”  key on the parameters “P03” and “P04”.

Value	Description	Unit of measure	default	min	max	Level
P03	Photovoltaic function enabling (0=disabled, 1=enabled)	#	0	0	1	I
P04	Operating offset in photovoltaic mode	°C	30	0	50	I

Level: U=user menu - I=installer menu

By pressing the “SET”  key again, the values can be changed. Press the “SET”  key to confirm (a beep will confirm the modification) and the “ON/OFF”  key to exit the menu.

With the photovoltaic function active (P01 set to 1), the heat pump and the electrical heater will be activated simultaneously until the set-point set for this mode is reached. The setpoint is defined by the PV offset parameter (parameter P02) which defines by how much to increase the standard setpoint with active photovoltaic.

For example, if the offset is equal to 20°C and the setpoint = 50°C the setpoint will be 50+20=70°C. In any case, by default the maximum setpoint is 75°C, therefore if offset=30°C and

setpoint=50°C the photovoltaic setpoint will not be 50+30=80 but 75°C.

When the PHOTOVOLTAIC function is enabled, the symbol appears  on the display according to the following logic:

Behavior	Description	Active mode
 on with steady light	PHOTOVOLTAIC enabled with digital input open	The unit continues to work in the mode set by the user
 flashing light	PHOTOVOLTAIC enabled with digital input closed	The unit will be put in the BOOSTER status and the setpoint will be raised by an offset (the setpoint cannot in any case exceed 75°C)

3.9.10 SG MENU - Smart Grid functionality (see also “9.10.1 Remote connections” on page 56)

The water heater is designed to be integrated with an intelligent electricity network (SMART GRID), managing it efficiently. The electronics of the unit, in fact, provides two digital inputs for managing this function and, depending on their condition, decides how the water heater must work, distinguishing between four possible operating states:

- **Operating state 1:** in this operating state the unit is put into STAND-BY mode and its duration can be a maximum of 2 consecutive hours for a maximum of three times a day. If these conditions are not respected, the electronics will change the operating state bringing it to operating state 2.
- **Operating state 2:** in this state, to obtain maximum efficiency, the unit will work in ECO mode.
- **Operating State 3:** You enter this state when you have the opportunity to take advantage of some excess energy. In this state, in fact, the unit is made to work in BOOSTER mode by raising the setpoint by a pre-set value (offset) up to a maximum of 75 °C. In this mode, the water heater will reach a DHW storage temperature equal to the previously set setpoint value, plus an offset (defined by parameter G02). For example, if the offset is equal to 20°C and the setpoint = 50°C the setpoint will be 50+20=70°C. In any case, by default the maximum setpoint is 75°C, therefore if offset=30°C and setpoint=50°C the setpoint will not be 50+30=80 but 75°C.
- **Operating state 4:** when there is a lot of excess energy, the electronics will use the moment to make the water heater work in BOOSTER mode with a fixed setpoint of 75°C (max setpoint).

To set the parameters it is necessary to access the SG menu, by pressing the “SET”  key the values “G01” and “G02” will appear.

Value	Description	Unit of measure	default	min	max	Level
G01	Enable Smart Grid function (0=disabled, 1=enabled)	-	0	0	1	
G02	Setpoint offset for operating state 3	°C	10	0	40	

Level: U=user menu - I=installer menu

By pressing the “SET”  key again on the parameter to be modified, its value can be modified using the “+” and “-” keys. Then press the “SET”  key to confirm (a beep will confirm the modification) and the “ON/OFF” key to exit the menu.

If parameter G01=1 is set (smartgrid enabled), the EVU and photovoltaic functions are not available. To enable them, set parameter G01=0 (smartgrid not enabled).

To enable the Smart Grid function, select the G01 value, pressing the “SET”  key again the value “0” will appear.

To activate the mode, use the “+” and “-” keys to bring the value to “1”. When G01=1 is set, the water heater will work only in SMART GRID mode.

When the SMART GRID function is enabled, the symbol appears  on the display according to the following logic:

Behavior	Description
 on with steady light	SMART GRID enabled and unit placed in operational state 2
 flashing light	SMART GRID enabled and unit placed in an operational state other than 2

3.9.11 Sol MENU - Solar thermal parameters

To set the parameters it is necessary to access the SoL menu, by pressing the “SET”  key the values from “L01” to “L06” will appear.

Value	Description	Unit of measure	default	min	max	Level
L01	Solar thermal function enabling (0=disabled, 1=enabled)	-	0	0	1	
L02	HP maximum operating temperature with solar function active	°C	40	40	90	
L03	Solar panel circulator ON time	min	5	1	60	
L04	Solar panel circulator OFF time	min	5	0	60	
L05	Solar panel maximum temperature for circulator block	°C	200	100	200	
L06	Setpoint offset for solar functionality	°C	0	0	50	

Level: U=user menu - I=installer menu

NOTE: for a CASCADE system, parameter L01 must be set only on the MASTER.

Parameters:

L01: from this parameter it is possible to enable or disable the SOLAR THERMAL function:

L02: if the SOLAR THERMAL function is enabled and active, this parameter represents the tank water temperature above which the heat pump, if in operation, must switch off

L03: represents the duration of the cycle in which the solar

panel circulator remains on

L04: represents the duration of the cycle in which the solar panel circulator remains off

L05: if the panel temperature exceeds this value, the SOLAR function is deactivated.

L06: when the function is enabled and active, i.e. the opening of the valve is commanded, this parameter expresses how much the setpoint must rise with respect to the set one, once reached which the valve will be commanded to close. If the sum between L06 and the setpoint exceeds 75°C, the setpoint will be limited to 75°C..

By pressing the "SET"  key again on the parameter to be modified, its value can be modified using the "+" and "-" keys. Then press the "SET"  key to confirm (a beep will confirm the modification) and the "ON/OFF"  key to exit the menu.

For example, if the offset is equal to 20°C and the setpoint = 50°C the setpoint will be 50+20=70°C. In any case, by default the maximum setpoint is 75°C, therefore if offset=30°C and setpoint=50°C the setpoint will not be 50+30=80 but 75°C.

3.9.12 rEC menu - RECIRCULATION PUMP setting

Value	Description	Unit of measure	default	min	max	Level
r01	Circulation pump enable (0=disabled, 1=enabled)	-	0	0	1	I
r02	Recirculation pump ON time	min	5	1	60	I
r03	Recirculation pump OFF time	min	20	0	60	I

Level: U=user menu - I=installer menu

Parameters:

r01: from this parameter it is possible to enable or disable the management of the recirculation pump:

r02: represents the duration of the cycle in which the pump remains on

r03: represents the duration of the cycle in which the pump remains off

3.9.13 AL menu - Anti-Legionella

From this menu it is possible to enable and disable the ANTI-LEGIONELLA  function and set the parameters for its correct functioning.

To limit the risk of legionella spreading, the water heater is in fact equipped with a function, called ANTI-LEGIONELLA, which, if enabled, allows automatic disinfection cycles to be carried out, bringing the water temperature inside the tank through a cycle of water heating at 62°C (changeable default value), activating the heat pump and the electrical heater and keeping them for 30 minutes (changeable default value), ensuring the elimination of any bacteria present.

This feature is normally set up to activate autonomously every

14 days (changeable default value) and to activate after midnight on the fourteenth day.

ATTENTION: the 14-day waiting time cycle may not even be respected because if, during normal operation, the temperature of the water inside the tank already reaches 62°C for a minimum time of 30 minutes, the waiting time is reset.

NOTE: If after its activation, the ANTI-LEGIONELLA function fails to satisfy the temperature conditions defined by parameter h02 for a minimum time defined by parameter h06, and after the time defined by parameter h05, the function will be suspended and the unit will work under normal conditions. In the latter case the alarm "E80" will be displayed to indicate to the user that the ANTI-LEGIONELLA cycle has not been completed correctly.

The cycle will be performed again after the period defined by parameter h04.

Value	Description	Unit of measure	default	min	max	Level
h01	Enabling the anti-legionella function	-	0	0	1	I
h02	Anti-legionella cycle setpoint	°C	62	50	75	I
h03	Offset for resetting the anti-legionella temperature maintenance time	°C	4	0	10	I
h04	Interval time between two anti-legionella cycles	giorni	14	1	14	I
h05	Maximum duration of the anti-legionella cycle	h	4	1	12	I
h06	Anti-legionella temperature maintenance time	min	30	5	60	I

Level: U=user menu - I=installer menu

Parameters:

h01: from this parameter it is possible to enable or disable the ANTI-LEGIONELLA function:

h02: when the function is enabled and active, this parameter represents the temperature that the water inside the tank must reach to guarantee the elimination of any bacteria present in it

h03: when the function is enabled and active, once the temperature h02 is reached, this parameter represents the maximum delta within which the water temperature must remain to ensure that the ANTI-LEGIONELLA function takes effect.

h04: parameter representing the time interval, expressed in number of days, between two ANTI-LEGIONELLA cycles

h05: parameter which represents the maximum duration of an ANTI-LEGIONELLA cycle

h06: when the function is enabled and active, once the temperature h02 has been reached, this parameter represents the minimum time in which the water temperature must remain in order to ensure that the ANTI-LEGIONELLA function takes effect.

When the ANTI-LEGIONELLA function is enabled, the symbol

appears on the display according to the following logic:

Behavior	Description	Active mode
on with steady light	ANTI-LEGIONELLA enabled but not running	The unit continues to work in the mode set by the user
flashing light	ANTI-LEGIONELLA logic running	The unit will be placed in BOOSTER status and the setpoint will be raised to 62°C

3.9.14 CAS menu - CASCATA

Value	Description	Unit of measure	default	min	max	Level
c01	Cascade level selected in manual mode (0= min, 1= med, 2= max)	-	2	0	2	U / I
c02	Enable cascade function (0= disabled, 1= enabled)	-	0	0	1	I
c03	Unit address	-	2	1	8	I
c04	Number of units present in the cascade	-	2	2	8	I
c05	Number of units switched on with min. level	-	1	1	8	I
c06	Number of units switched on with med level	-	2	2	8	I
c07	Number of units switched on with max	-	2	2	8	I
c08	Unit priority rotation time	days	1	1	30	I

NOTA: for all the units that must operate in CASCATA, parameter c02 must be set = 1.

MASTER (the “” symbol is on and flashing).

Once the cascade function has been activated, it is possible to set the unit in Master mode by setting parameter c03 to the value 1. To function correctly, the cascade function requires the following parameters to be set on the MASTER:

c01: with this parameter it is possible, if the function is enabled, to select the desired cascade level

c02: set the parameter = 1

c03: set the parameter = 1 (MASTER)

c04: the number of units present in the cascade (master + number of slaves)

c05: The number of units to keep on when the minimum operating level is requested

c06: The number of units to keep on when the medium operating level is requested

c07: The number of units to keep on when the maximum operating level is requested

NOTA: parameters c04, c05, c06, c07, c08 must be set only on the MASTER unit. If set on the SLAVE units they have no effect.

SLAVE (the “” symbol stays on)

To function correctly, the cascade function requires the following parameters to be set on the SLAVE:

c02: set the parameter = 1

c03: set the parameter = from 2 to 8 (SLAVE)

NOTE: the value set in parameter c03 identifies the position of the Slave inside the cascade. It is therefore necessary to make sure that the assigned value has not already been assigned to another unit and, above all, that the water heater is identified with an increasing number, from 2 up to the number of units present (maximum 8 units).

Example of setting parameter c03 for a cascade of 4 units:

- unit 1 (master) c03=1
- unit 2 (slave 2) c03=2
- unit 3 (slave 3) c03=3
- unit 4 (slave 4) c03=4

c08: The parameter defines the rotation time expressed in days to define the period of cyclic rotation of operation of the various units. The cyclical rotation has the purpose of guaranteeing a use and therefore a balanced wear in terms of operating time of all the units. Higher values of the parameter do not affect this function but only involve longer times to reach it: it is therefore advisable not to modify this parameter.

3.9.15 UtS Menu – BRAND, RANGE, MODEL, SERIAL NUMBER DISPLAY

From this menu it will be possible to view the identifying values of the unit, such as:

Menu	Liv. 1	Liv. 2	Description	Parameters
Uts	U0	U00 ⁽¹⁾	Brand	1, ... 3
		U01 ⁽¹⁾	Range	1
		U02 ⁽¹⁾	Model	1, ... 8
		U03	Serial Number	Rif. par. 3.9.15

1) To interpret these values, contact technical assistance.

3.9.15.1 Serial Number display “parameter U03”

By accessing the U03 menu you will be able to view the value relating to the serial number.

The serial number display is divided into pairs of two characters and is made up of a maximum of 8 pairs.

The display on the display is as follows:

- the number to the right of the dot represents the number of the pair of characters displayed (1 = first pair of characters, 2 = second pair of characters ... 8 = eighth pair of characters)
- the two characters to the left of the dot are the serial characters relating to the selected pair.

By pressing the + and – keys it is possible to view the various pairs of characters.

Example of displaying the serial number “G000083277”

In this example the display is carried out by combining all the values found in the 5 screens:

- First screen: G0 (vedi fig. 5)
- Second screen: 00 (vedi fig. 6)
- Third screen: 08 (vedi fig. 7)
- Fourth screen: 32 (vedi fig. 8)
- Fifth screen: 77 (vedi fig. 9)

Press the “ON/OFF”  button to exit the menu

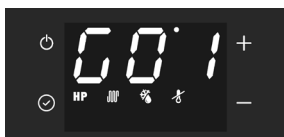


fig. 5 - First screen

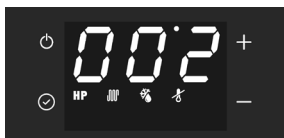


fig. 6 - Second screen



fig. 7 - Third screen



fig. 8 - Fourth screen



fig. 9 - Fifth screen



fig. 10 - sixth screen



NOTA

The “_” character (terminator character) indicates the end of the serial.

3.10 More features

3.10.1 Defrost function

This appliance has an automatic evaporator defrosting  function which is activated, when the operating conditions require it, during operation of the heat pump.

Defrosting is performed by injecting hot gas into the evaporator which allows the latter to be rapidly defrosted.

3.10.1.1 Frost protection

The “ANTIFREEZE” symbol appears on the display .

This protection prevents the temperature of the water inside the tank from reaching values close to zero.

With the appliance in off or standby mode, when the temperature of the water inside the tank is lower than or equal to 5°C, the antifreeze function is activated which switches on the heat pump and the electric heater until 12 °C.

3.11 CONTROL OF THE DEVICE VIA APP

This water heater has a Wi-Fi module integrated in the product which enables it to be connected to an external Wi-Fi router (not supplied) and therefore to be controlled via a smartphone APP.

Depending on the availability of a smartphone with Android® or iOS® operating system, via the dedicated app.

Download and install the App **"Ferrolí Home"**



"Ferrolí Home"



"Ferrolí Home"

Start the **"Ferrolí Home"** app from your smartphone by pressing the icon as indicated above.

User registration

To use the **"Ferrolí Home"** application for the first time, user registration is required: create a new account → enter the mobile phone number/e-mail address → enter the verification code and set the password → confirm.

1. Login

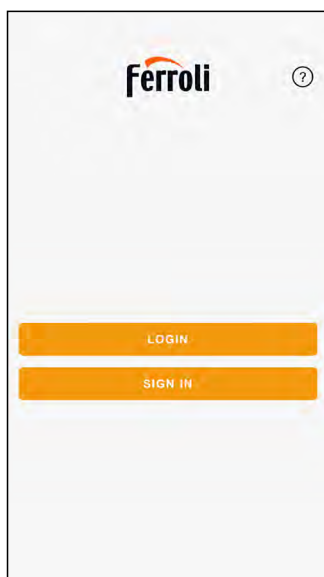


fig. 11

Press the "new user" button to register, then enter the e-mail address to obtain the verification code necessary for registration.

2. Personal data

fig. 12

3. Privacy Policy

fig. 13

4. Terms and conditions of use

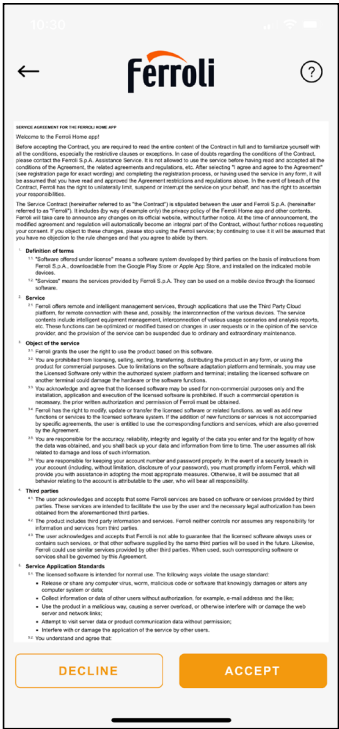


fig. 14

5. Password

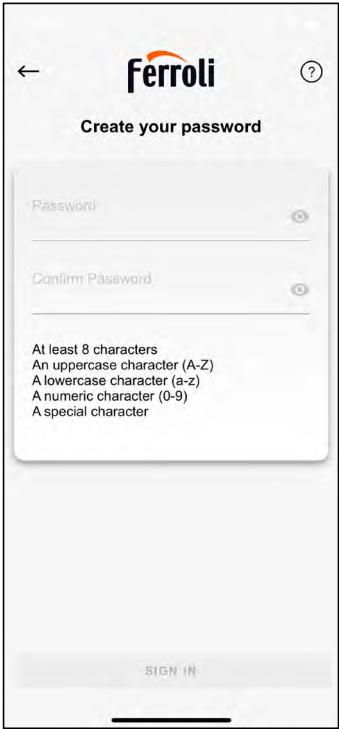


fig. 15

6. Pin

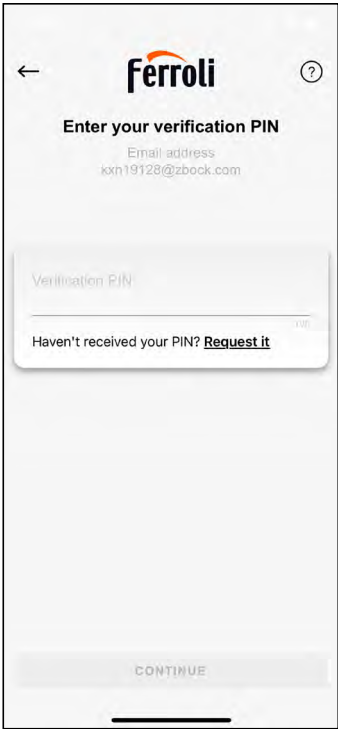


fig. 16

7. Registration completed

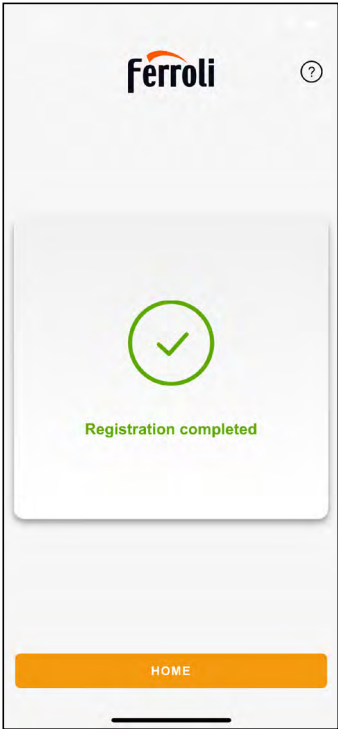


fig. 17

8. Blank homepage

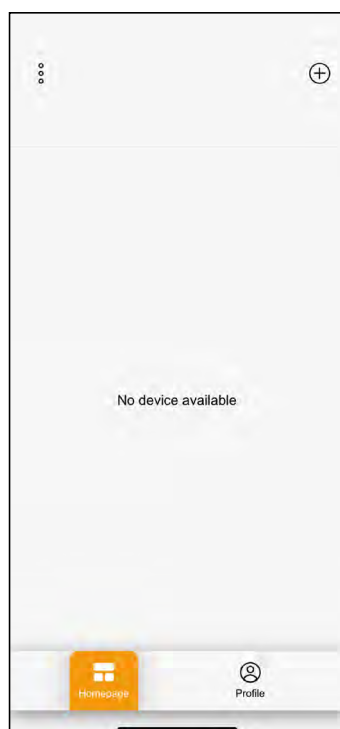


fig. 18

9. Association method



fig. 19

10. Camera permission.

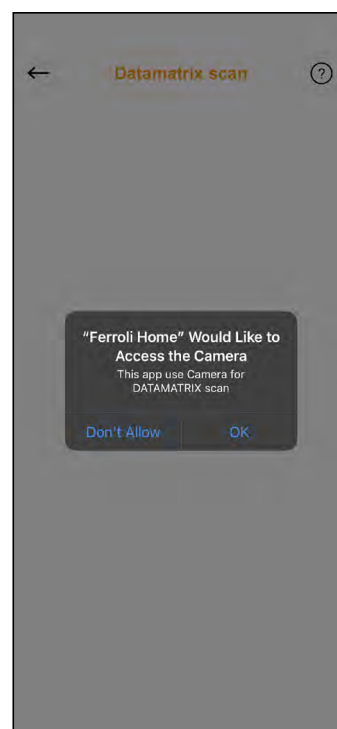


fig. 20

11. Data matrix

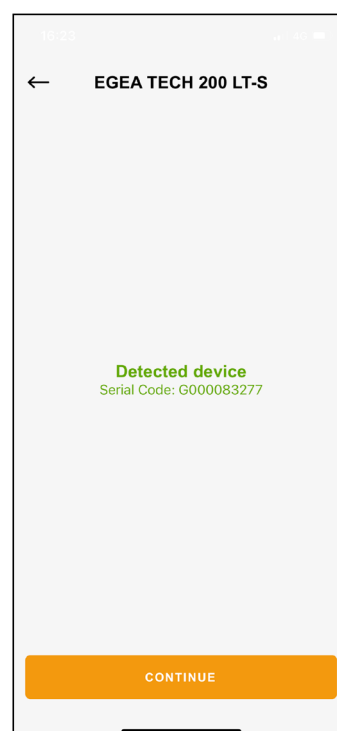


fig. 21

12. Device type and model.

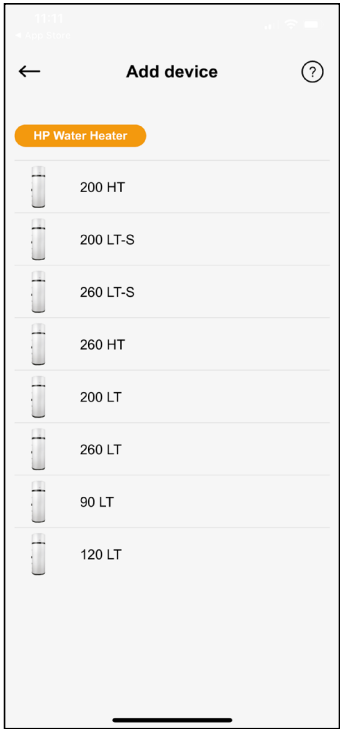


fig. 22

13. Smartphone bluetooth permission

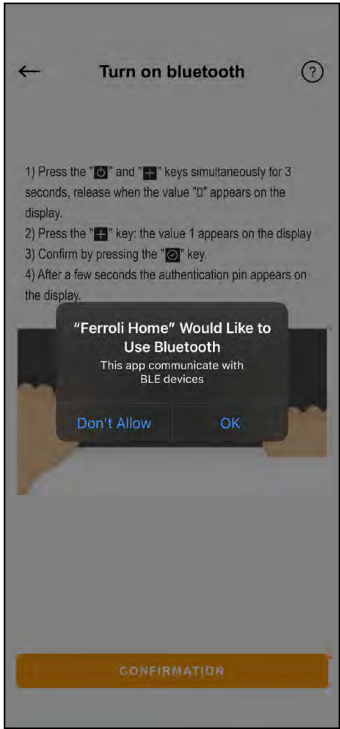


fig. 23

14. Bluetooth activation and authentication PIN generation.

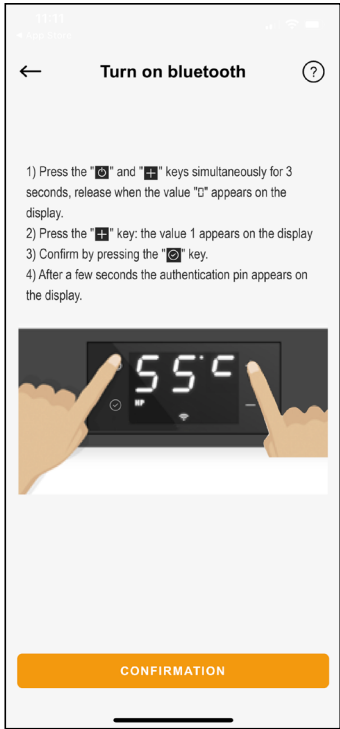


fig. 24

15. Bluetooth search.

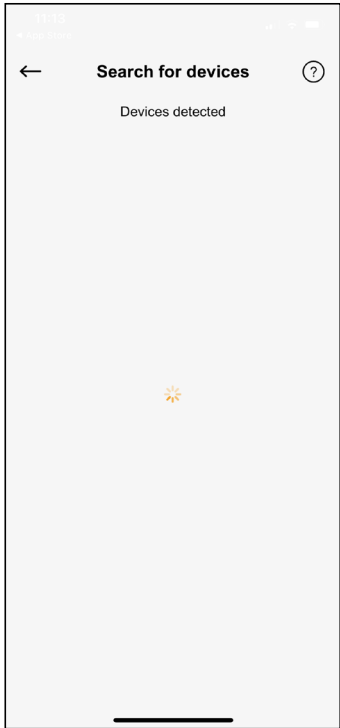


fig. 25

16. Bluetooth devices nearby



fig. 26

Select the device whose name starts with BT-1955

17. 3-digit PIN



fig. 27

Enter the PIN shown on the water heater display.

18. Connection to the wifi network

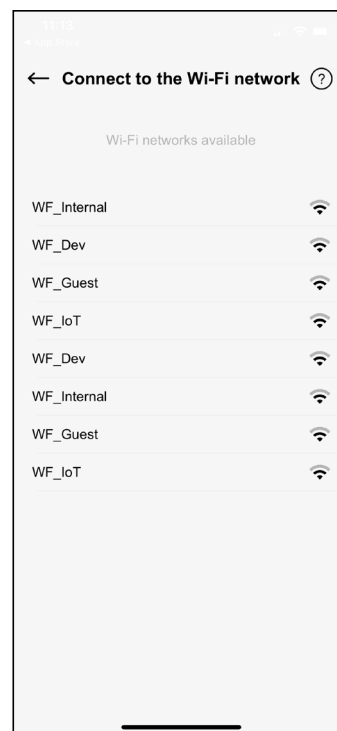


fig. 28

19. Wifi info.

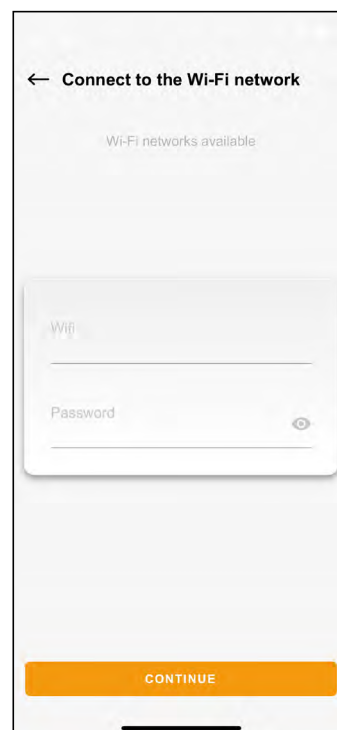


fig. 29

20. WI-FI Incorrect data.

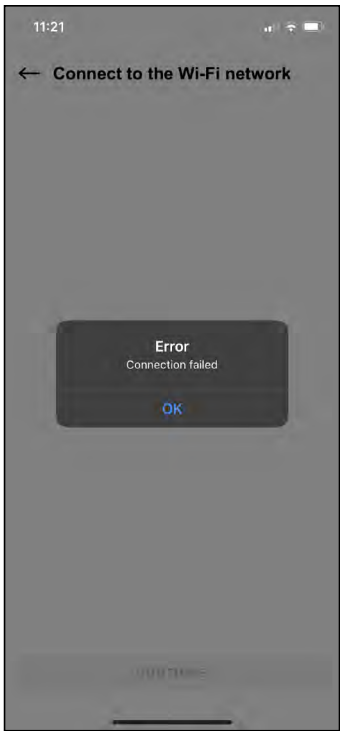


fig. 30

21. Connecting

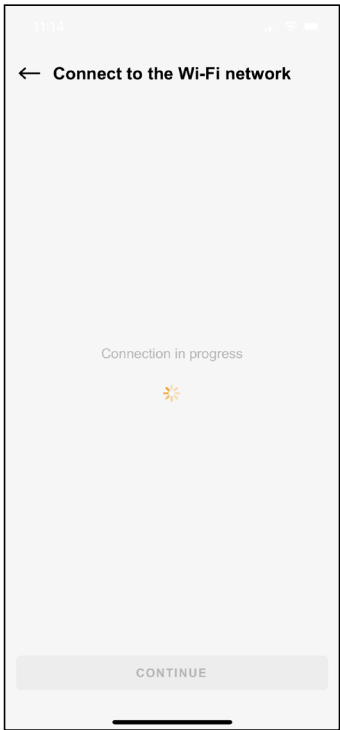


fig. 31

22. Connecting.

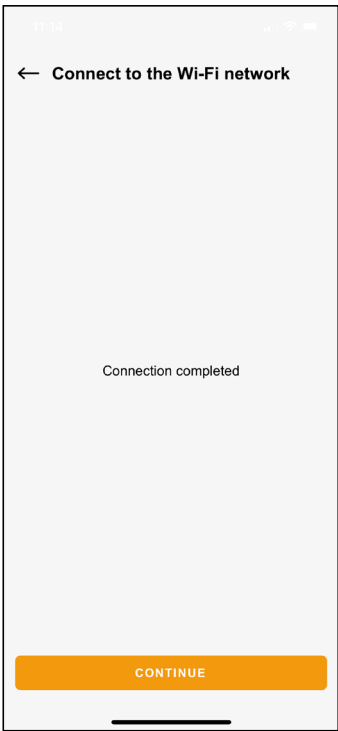


fig. 32

23. Nickname

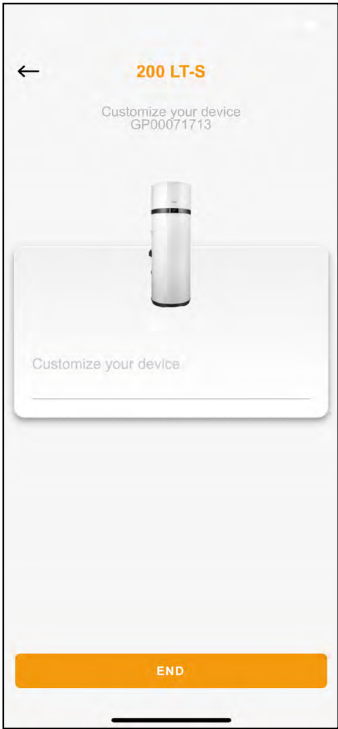


fig. 33

24. End of association.

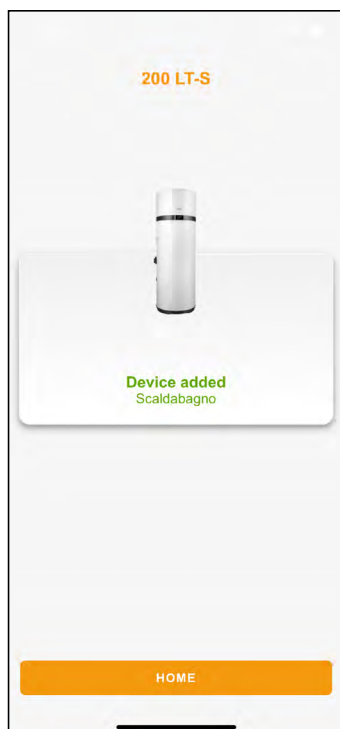


fig. 34

25. Plant information

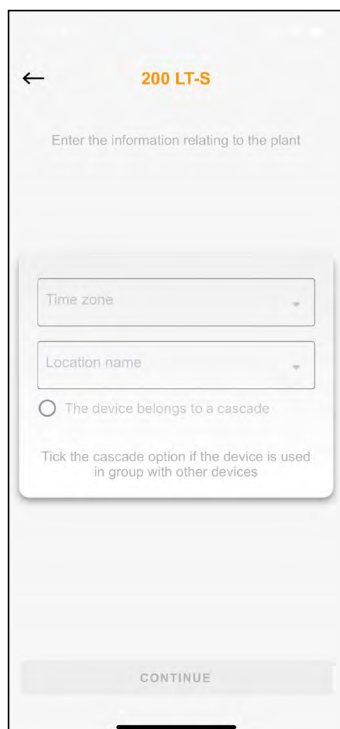


fig. 35

26. Homepage

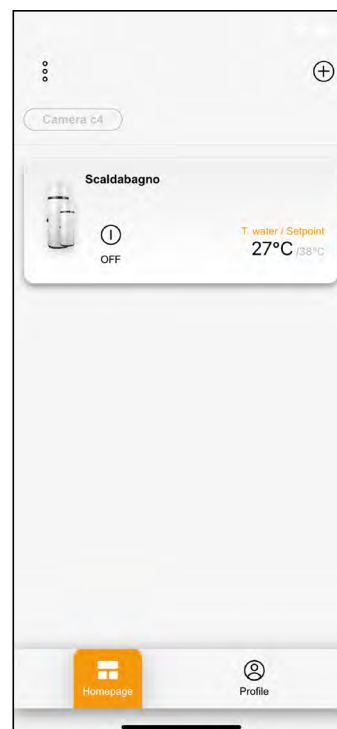


fig. 36

27. Login

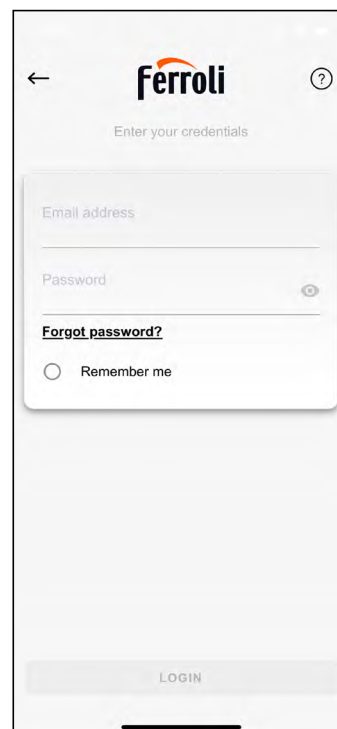


fig. 37

3.12 FAULTS/PROTECTION

This device has a self-diagnosis system that covers some possible faults or protections from anomalous operating conditions through: detection, signalling and adoption of an emergency procedure until resolution of the fault.

Fault/Protection	Error code	Display indication
No communication with the display	E00	 + E00
Tank bottom probe failure	E01	 + E01
Tank top probe fault	E02	 + E02
Battery probe fault	E03	 + E03
Inlet air probe failure	E04	 + E04
Evaporator inlet probe failure	E05	 + E05
Evaporator outlet probe failure	E06	 + E06
Compressor delivery probe failure	E07	 + E07
Solar collector probe failure	E08	 + E08
High pressure alarm	E09 *	 + E01
Refrigerant temperature not suitable for heat pump operation. (With the alarm active, the water is heated only with the electric heater).	E10 *	 + E10
Air temperature not suitable for heat pump operation. (With the alarm active, the water is heated only with the electric heater).	E11 *	 + E11
EEPROM error	E60÷65	 + E60÷65
Cascade alarm, displayed only on master (no communication with one of the slaves)	E70	 + E70
Cascade alarm, displayed only on master (presence of an alarm on one of the slaves)	E71	 + E71
Cascade alarm, displayed only on slave (no communication with master)	E72	 + E72
Legionella cycle not completed	E80	 + E80
Failure of both tank sensors	E99	 + E99



EXPERT TECHNICIAN
/ MANUFACTURER'S
TECHNICAL
ASSISTANCE

If one or more of the above faults occur, contact the manufacturer's technical assistance, indicating the error code shown on the display.

NOTE

* With active alarm, and unit in ECO mode, water heating, based on the set value of parameter H01:

- takes place only with electrical heater (H01 = 1)
- is inactive (H01 = 0)

3.13 TROUBLESHOOTING

If the equipment is not working properly, without any alarm signaling, before contacting the manufacturer's technical assistance service, it is advisable to carry out the following.

Malfunction	Recommended action	
The equipment does not switch on.	 USER	• Check that the plug is properly inserted in the socket. • Check that the ignition procedure has been carried out from the control panel (ref. par. 3.5 on page 13). • Disconnect the plug from the socket (without pulling the power cord) and wait a few minutes; insert the plug back into the socket. If the problem persists: contact a qualified technician or the technical assistance service.
	 EXPERT TECHNICIAN / MANUFACTURER'S TECHNICAL ASSISTANCE	• Check the status of the power cable inside the product. • Check that the fuse on the power board is intact. Otherwise, replace it with a new delayed 5 A 250V, IEC 60127-2/II (T5AL250V) certified (refer to par. 10.1 on page 61).
It is not possible to heat the water using the heat pump in ECO or AUTOMATIC mode	 USER	• Turn off the device (ref. par. 3.5 on page 13) and turn it back on after a few hours. If the problem persists: contact a qualified technician or the technical assistance service.
	 EXPERT TECHNICIAN / MANUFACTURER'S TECHNICAL ASSISTANCE	• Disconnect the device from the power grid. • Drain part of the water contained in the tank (about 50%) and refill it. • Turn the appliance on again in ECO mode.
The heat pump stays on continuously and never turns off	 USER	• Check that, by not opening any valve for a few hours, the equipment reaches the set point temperature. If the problem persists: contact a qualified technician or the technical assistance service.
It is not possible to heat the water using the AUTO, BOOSTER, ELECTRIC integrated electric heater	 EXPERT TECHNICIAN / MANUFACTURER'S TECHNICAL ASSISTANCE	• Switch off the device and check the safety thermostat of the heating element inside the device and reset it if necessary. Then turn on the equipment in AUTOMATIC mode. • Disconnect the device from the power supply then drain part of the water contained in the tank (about 50%) then recharge it and turn the device back on in ELECTRIC mode. • Check that the electrical heater safety thermostat has not intervened (ref. par. 10.2 on page 61).
The product cannot be controlled via APP	 USER	• Check that there is Wi-Fi network coverage, e.g. via smartphone where the product is installed, then carry out the configuration procedure again with the router. • Then ensure that the Wi-Fi symbol on the display is steady on.

INSTRUCTIONS FOR:



USER



EXPERT TECHNICIAN /
MANUFACTURER'S TECHNICAL
ASSISTANCE

P.P.E. NEEDED:



The following instructions are intended for experienced technical personnel.



ATTENTION

The manufacturer cannot be held responsible for interventions carried out by non-expert and non-qualified personnel.



EXPERT TECHNICIAN

Any intervention on the equipment must be performed by qualified personnel. Exclusively for interventions on the refrigeration circuit, including disposal, the personnel must be equipped with a suitable refrigeration technician's license aimed at the knowledge and management of systems containing gases of the HFC type.

4. GENERAL INFORMATION

4.1 PLATE DATA

Read the data plate affixed to the device and check that the user manual corresponds to the model indicated.

Made in

Model	2	Rated voltage	12
Code	3	Rated frequency	13
Serial number	4	DHW Electr. Heater rated voltage	14
Tank capacity	5	DHW Electr. Heater rated power	15
Rated DHW tank press.	6	Max power input	16
Refrigerant type / GWP	7	Heating capacity	17
Refrigerant charge	8	HP power input - rated / max	18
CO ₂ equiv	9	Refrigerant PS - Low / High	19
Net weight	10	Sound power - indoor / outdoor	20
IP level protection	11		



21



22

Hermetically sealed equipment

23

Contains fluorinated greenhouse gases

24

25

fig. 38

REF.	DESCRIPTION
1	Manufacturer's references
2	Model
3	Product code
4	Serial number
5	Tank nominal capacity
6	Nominal tank pressure
7	Refrigerant Gas Type / GWP (Global Warming Potential of Refrigerant)
8	Refrigerant charge
9	Tons of CO ₂ equivalent. It allows to express the greenhouse effect produced by a given refrigerant gas.
10	Net weight
11	IP degree of protection
12	Nominal tension
13	Nominal frequency
14	Nominal supply voltage of the integrative electric heater
15	Nominal power supply of integrative electrical heater
16	Heat pump maximum absorbed power + electrical heater
17	Heat pump thermal power
18	Nominal / maximum power absorbed by the heat pump
19	Maximum pressure of the refrigerant circuit (high / low)
20	Indoor / outdoor unit sound power
21	Identifies compliance with European requirements
22	Professional waste to be disposed of in special collection centres
23	Hermetically sealed equipment
24	Contains fluorinated greenhouse gases
25	Data matrix code for registration via APP



Do not tamper with the data plate in any way.

In the event of a request for information or technical assistance, it is necessary to specify, in addition to the model and type of machine, also the relative serial number.

4.2 IDENTIFICATION PLATES OF THE MAIN ELEMENTS

The labels of all components not built directly by **the manufacturer** are directly applied to the components themselves, in the points where the respective manufacturers originally placed them.

4.3 DESCRIPTION OF THE SYMBOLS USED IN THE MANUAL AND ON THE PACKAGING

The symbols shown in the following table can be used in whole or in part in this manual and accompanied by their description. Some of these may be affixed to the device and/or its packaging.

Symbol	Definition
SYMBOLS USED IN THE MANUAL	
 ATTENTION DANGER	RISK OF ELECTROCUTION. Any intervention that involves the removal of covers or panels on which this symbol is affixed must be carried out exclusively by qualified technicians.
 ATTENTION	GENERIC DANGER. Symbol used to identify important warnings for the safety of the operator and/or the device.
 OBLIGATION	GENERIC OBLIGATION. Symbol used to identify information of particular importance.
 OBLIGATION	OBLIGATION. Symbol used to identify the specific obligation of grounding connection.
 OBLIGATION	OBLIGATION. Symbol used to identify the obligation to read this instruction manual before any type of intervention on the device.

Symbol	Definition
 PROHIBITION	GENERIC PROHIBITION. Symbol used to identify the prohibition of the prescribed description.
 WEIGHT.	Symbol that identifies the weight of the machine. If present on the packaging, it indicates the weight of each package.
 RECYCLING / DISPOSAL.	Symbol that identifies the recovery and recycling of materials.
 PROFESSIONAL WASTE	Indicates that this product must not be treated as household waste but must be delivered to the appropriate collection point for the recycling of electrical and electronic equipment (DIRECTIVE 2012/19/EU)
 VISUAL INSPECTION	Symbol that identifies visual inspection.
 MANUAL CLEANING	Symbol that identifies manual cleaning.
 MINIMUM NUMBER OF OPERATORS EMPLOYED	Operations that must be carried out by at least two people.
SYMBOLS USED ON THE PACKAGING	
 POSITIONING DIRECTION	Affixed to the packaging, it indicates the correct orientation.
 PROTECTION FROM WEATHER CONDITIONS	Affixed to the packaging, it indicates to protect from rain and atmospheric agents. Store in a dry place.
 FRAGILE	Affixed to the packaging, it indicates to handle it with care in order to avoid any breakage of the contents.
 LIMITATION OF PACKAGING OVERLAP	Affixed to the packaging, it indicates not to overlap the packaging.

Symbol	Definition
	It indicates the position on the transport package where the clamps must be positioned during handling with mechanised means.
	RECYCLING / DISPOSAL. Symbol that identifies the recovery and recycling of materials.

4.4 GLOSSARY OF TERMS

Term	Definition
DEVICE	Indicates the product described in this instruction manual.
MANUFACTURER	Natural or legal person who is responsible for design, construction, packaging or labelling and placing on the market.
TECHNICAL ASSISTANCE	Persons or entities responsible to the manufacturer, who install, assemble, maintain or repair the machine.
INTENDED USE	The use of a product in compliance with the specifications, instructions and information provided by the manufacturer.
NORMAL USE	Operation including periodic checks according to the instructions for use.
PROCEDURE	Defined ways to perform an activity.
DAMAGE	Physical injury or damage to the health of people or animals, or damage to property and/or the environment.
DANGER	A potential source of damage.
MAINTENANCE	Periodic operations in order to check correct operation (example: cleaning) addressed to the qualified employee.

4.5 PERSONAL PROTECTIVE EQUIPMENT

The clothes worn by people who work or carry out maintenance work must comply with the essential safety requirements defined by the laws in force in the country in which it is installed.

Signal	Definition
	IT IS MANDATORY TO WEAR PROTECTIVE OR INSULATING GLOVES Use appropriate clothing to protect the upper limbs.
	IT IS MANDATORY TO WEAR EYE PROTECTION. Use appropriate clothing to protect eyesight.
	IT IS MANDATORY TO WEAR PROTECTIVE CLOTHING WITHOUT FLAPPING PARTS Use clothing with no flapping parts to avoid the risk of them getting caught on machine parts.
	IT IS MANDATORY TO WEAR SAFETY SHOES Use suitable shoes to protect the lower limbs.

4.6 NOISE

The data on noise level are indicated in the tables in par. 8.

4.7 VIBRATIONS

The vibrations produced by the equipment, depending on how it is operated, are not dangerous for its intended use.

	Excessive vibration can only be caused by a mechanical failure that must be immediately reported and eliminated, in order not to jeopardise the safety of the device and the operator.
	ATTENTION! To avoid the propagation of mechanical vibrations, do not install the equipment on floors with wooden beams (for example in the attic).

4.8 RESIDUAL RISKS

The design was carried out in order to ensure the essential safety requirements for the operator in charge and for the end user. As far as possible, safety has been integrated into the design and construction of the device; however, there are still risks from which operators must be protected.

Risk	Definition
 ELECTRICAL HAZARD	RISK DUE TO ELECTRICITY. Machine access and maintenance operations expose operators to risk due to electricity. Work on live equipment must only be carried out by expert and qualified personnel. The following safety measures are recommended: do not carry out maintenance work without having previously disconnected the device from electricity;

5. HANDLING AND TRANSPORT

Permitted positions for transport and handling

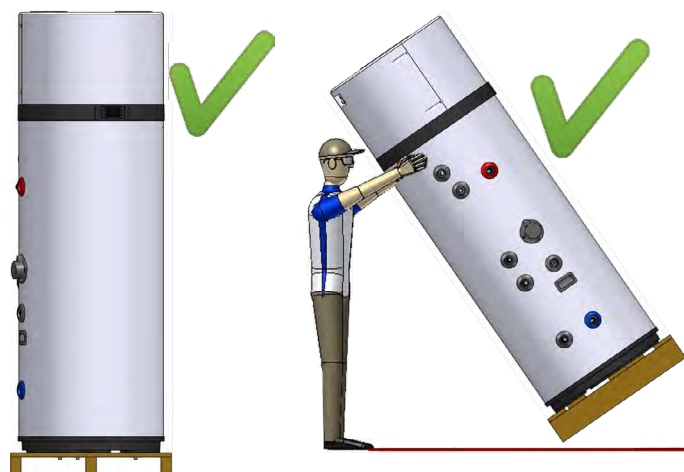


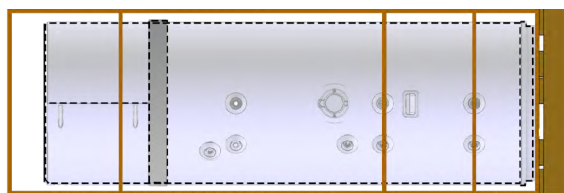
fig. 39



ATTENZIONE

During the handling and installation phases of the product, the upper part must not undergo any type of stress, given that it is not supported by any structure.

Position allowed only for the last km



Positions not permitted for transport and handling

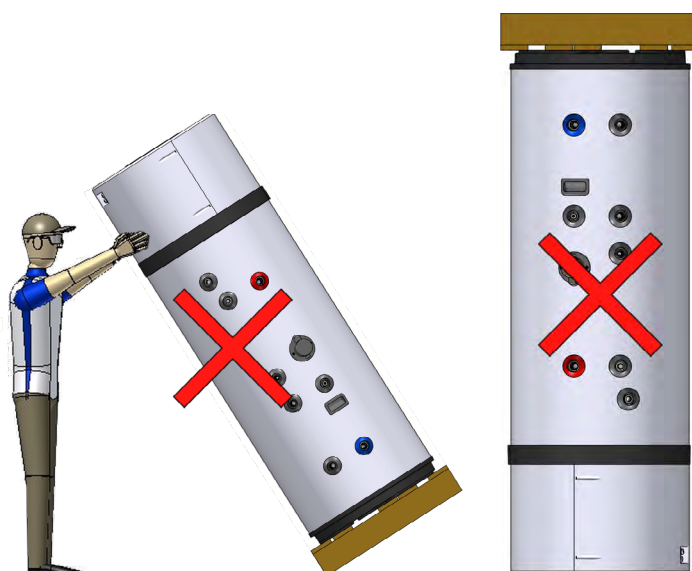
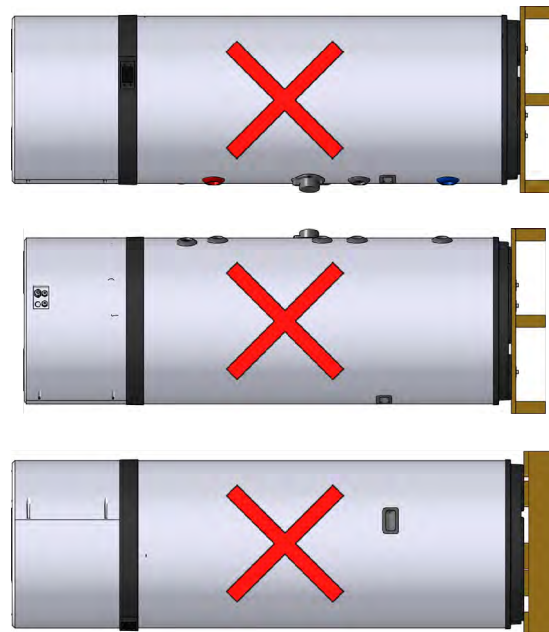


fig. 40

6. "G3 KIT 24L" ACCESSORY

It is mandatory that the installation complies with part G3 of the Building Regulations. For that the unit is factory equipped with a T/P safety relief valve (set = 90°C/7bar) and is supplied with a G3 kit composed by:

- a) 1x PRSV: Pressure reducing valve/pressure relief valve combination (check valve, water pressure regulator default =3,5 bar, water pressure safety valve set=6bar), water inlet and water outlet 22 mm connection, discharge piping connection 15 mm
- b) 1x Adaptor (22 mm×3/4" Female BSP)
- c) 1x Tee piece (22 mm×22 mm×22 mm)
- d) 2x tundishes (15 mm inlet, 22 mm outlet)
- e) Wall mounting set for expansion vessel
- f) 1x expansion vessel 24 liters preset=3,5bar male connection 3/4" BSP

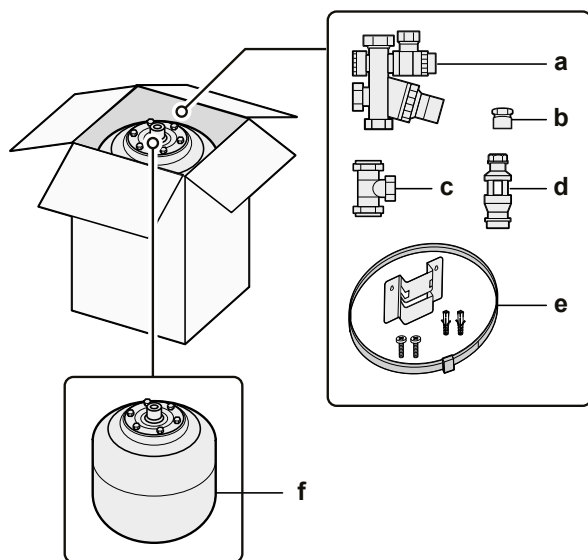


fig. 41

NOTE: All piping **MUST** be installed according to section G3 of the Building Regulations.

6.1 HANDLING OF PACKAGING

The device comes in a cardboard box on a wooden pallet. *The type of packaging may vary at the discretion of the manufacturer.*

For unloading operations, use a forklift truck or transpallet: these should have a capacity of at least 250 kg.

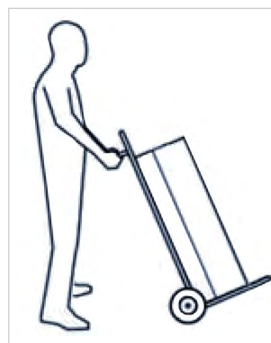


fig. 42



The packaged device must be kept upright during all loading operations.

6.2 UNPACKING



ATTENTION

The packaging material (staples, boxes, etc.) must not left within the reach of children as they pose a risk to them.

Unpacking must done carefully in order not to damage the device casing if using knives or cutters to open the cardboard packaging.

After removing the packaging, check the integrity of the unit. In case of doubt, do not use the device and contact an authorised technician.

Before eliminating the packaging in accordance with current environmental protection laws, make sure that all the accessories supplied have been removed from it.



RECYCLING / DISPOSAL.

All packaging materials must be disposed of in accordance with the laws in force in the country of use.

6.3 RECEIPT

In addition to the units, the packages contain accessories and technical documentation for use and installation.

Check that the following are present:

- User, Installation and Maintenance Manual
- Hexapolar digital input cable
- 3x fixing brackets and relative screws
- 1x safety thermostat (only for 200 LT-S and 260 LT-S model).

For the entire period in which the device remains inactive, pending commissioning, it is advisable to place it in a place protected from atmospheric agents and the environmental conditions indicated in paragraph "9.1 STORAGE" on page 41.

7. CONSTRUCTION FEATURES

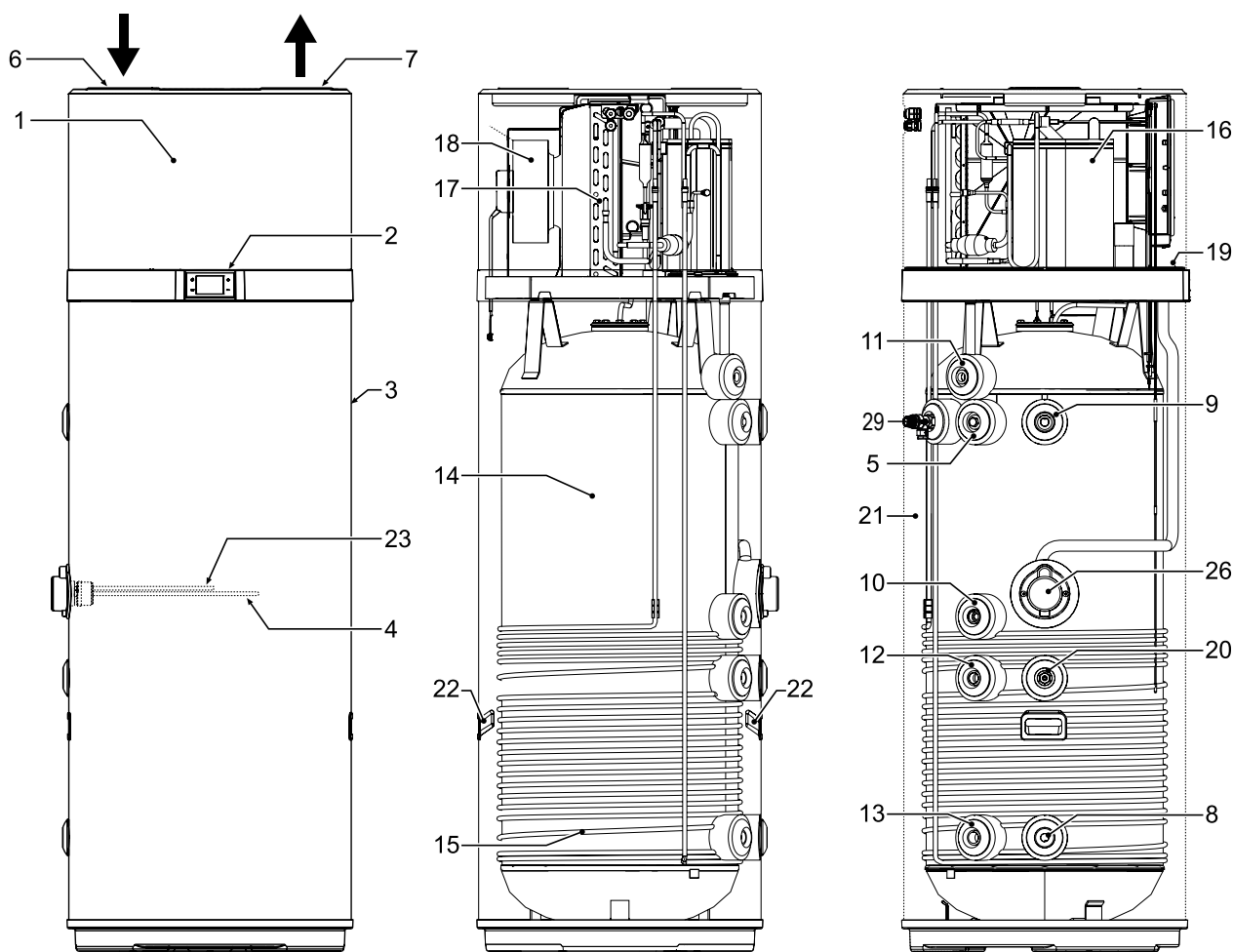


fig. 43

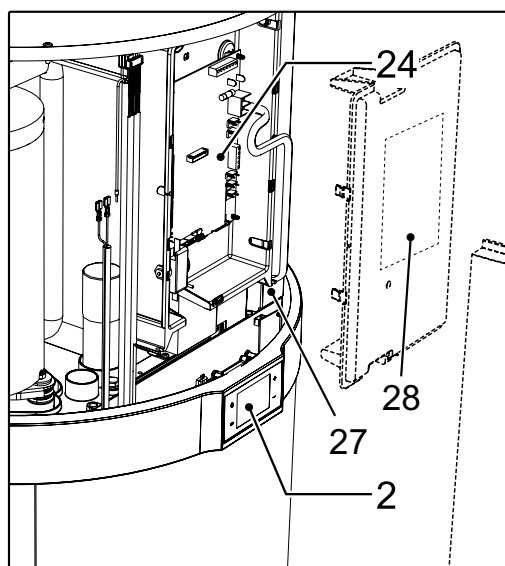


fig. 44

Legend

- 1 heat pump
- 2 User interface
- 3 Steel casing
- 4 Electrical heater
- 5 Magnesium anode
- 6 Ventilation air inlet Ø 160mm
- 7 Ventilation air outlet Ø 160mm
- 8 Cold water inlet connection Ø 1"G
- 9 Hot water outlet connection Ø 1"G
- 10 Arrangement for recirculation Ø 3/4"G
- 11 Condensate drain Ø 1/2"G - Plastic outlet connection
- 12 Arrangement for the entry of the Ø 3/4"G solar coil
- 13 Arrangement for the outlet of the Ø 3/4"G solar coil
- 14 Enamelled steel tank
- 15 Condenser
- 16 Rotary compressor
- 17 Finned coil (evaporator)
- 18 Ventilator
- 19 Water tank probes
- 20 Well for positioning probes for solar system - Ø int =6mm, L=90mm Only for models 200 LT-S, 260 LT-S
- 21 Polyurethane insulation
- 22 Carry handles
- 23 Tube for safety thermostat bulb
- 24 Electronic card
- 26 Compartment for accessing the electrical heater and the safety thermostat bulb
- 27 Wi-Fi card
- 28 Wiring diagram
- 29 T/P relief safety valve

7.1 DIMENSIONAL DATA

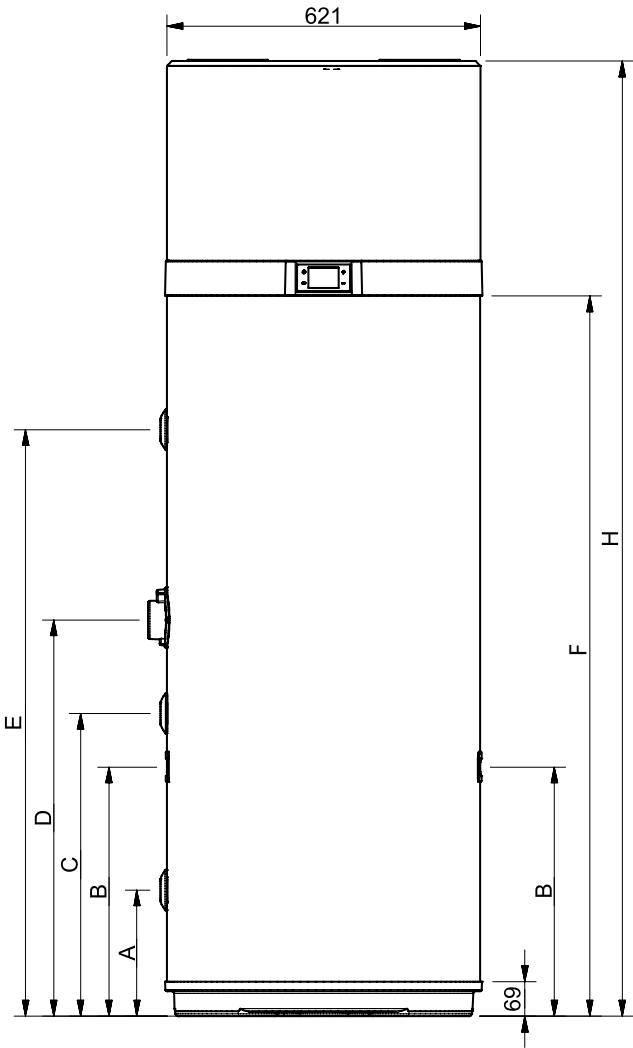


fig. 45

Legend on previous page.

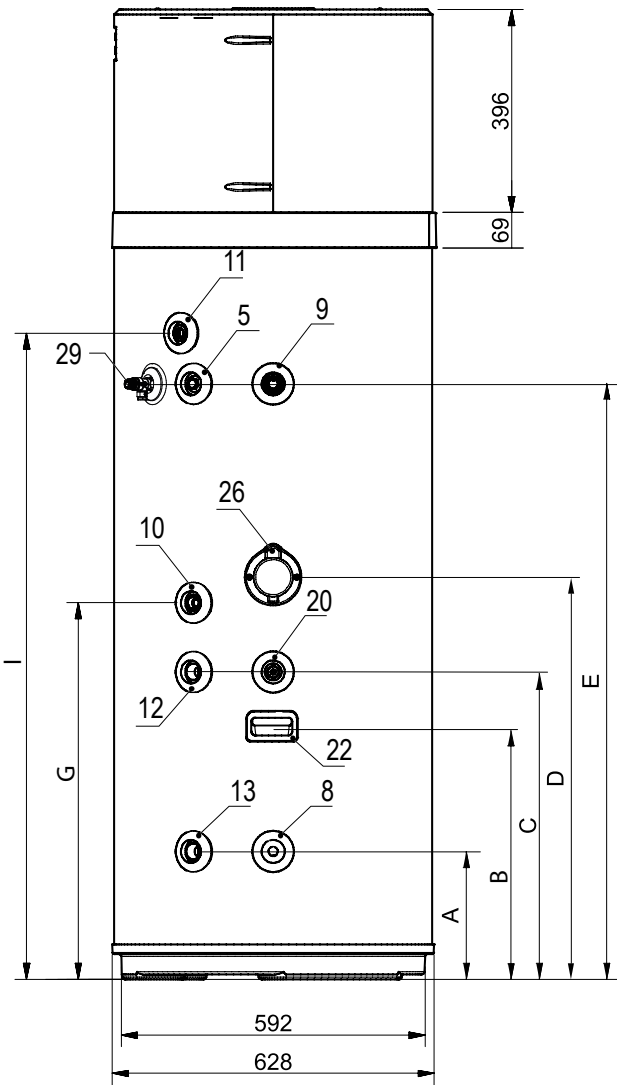


fig. 47

Legend on previous page..

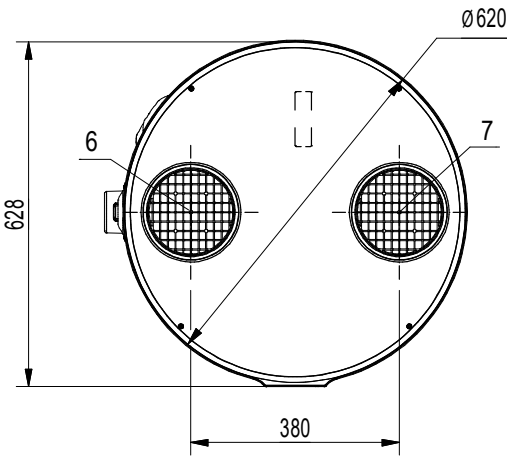


fig. 46

Legend on previous page.

MODEL	200 LT-S	260 LT-S	200 LT	260 LT	UM
A	250	250	250	250	mm
B	490	490	490	490	mm
C	600	600	/	/	mm
D	705	785	705	785	mm
E	877	1162	877	1162	mm
F	1142	1427	1142	1427	mm
G	705	735	705	735	mm
H	1607	1892	1607	1892	mm
I	976	1261	976	1261	mm

8. TECHNICAL FEATURES

Models		200 LT	260 LT	200 LT-S	260 LT-S	U.m.
General data	Voltage supply	230Vac-50Hz				-
	Tank water content - V _{nom}	192	250	187	247	l
	Maximum inlet water pressure	0,7	0,7	0,7	0,7	MPa
	Empty weight	85	97	96	106	kg
	Operating weight	277	347	283	353	kg
	Dimensions (φxh)	621 x 1607	621 x 1892	621 x 1607	621 x 1892	mm
	Max. Hot water temperature with heat pump	62	62	62	62	°C
	Max. Hot water temperature with additional electric heater	75	75	75	75	°C
Tank	Material	Enameled steel				-
	Cathodic protection	Mg rod anode				-
	Insulating type	Polyurethane				-
	Insulation thickness	50	50	50	50	mm
	Hot water capacity	-	-	160,4	219,2	l
	Heat loss *	66,8	83,9	65,1	82,9	W
	Standing heat loss 24 hours*	1,60	2,01	1,56	1,99	kWh/24h
	Specific heat loss *	1,48	1,86	1,45	1,84	W/K
	Insulation class	C	C	C	C	-
	T/P relief safety valve	90 / 7				°C / bar
Heat pump electrical data	Average power input in heating	430	430	430	430	W
	Maximum power input	530	530	530	530	W
	Maximum current input	2,43	2,43	2,43	2,43	A
Electric heater electrical data	Supply voltage	230Vac-50Hz				-
	Power input	1500	1500	1500	1500	W
	Current input	6,5	6,5	6,5	6,5	A
Electrical data Heat pump + electric heater	Maximum power input	1960	1960	1960	1960	W
	Maximum current input	8,5	8,5	8,5	8,5	A
Air circuit	Fan type	Centrifugal				-
	Air flow rate	450	450	450	450	m³/h
	Maximum available pressure head	117	117	117	117	Pa
	Ducts diameter	160	160	160	160	mm
Refrigerant circuit	Compressor	Rotary				-
	Refrigerant	R134a				-
	Refrigerant charge	1	1	1	1	kg
	Evaporator	Copper-aluminum finned coil				-
	Condenser	Aluminum tube wound outside tank				-
Solar coil	Material	-	-	Enameled steel	Enameled steel	-
	Surface	-	-	0,72	0,72	m²
	Max pressure	-	-	1	1	MPa
	Rated volume	-	-	3,5	3,5	l
	Rated flow rate	-	-	15	15	l/min
	Pressure drop	-	-	34	34	mbar
Data according to EN 16147: 2017+A1 standard for AVERAGE climate (unit in ECO mode, Hot water setpoint = 55 °C; Inlet water = 10 °C; Inlet air temp = 7 °C DB / 6 °C WB)	Load profile	L	XL	L	XL	-
	Water heating energy efficiency class *	A+	A+	A+	A+	-
	Water heating energy efficiency - η_{wh}	135	138	135	138	%
	COP _{DHW}	3,23	3,37	3,23	3,37	-
	Maximum volume of mixed water at 40 °C - V ₄₀	247	340	241	335	l
	Reference hot water temperature - θ'_{wh}	52,5	53,2	52,5	53,2	°C
	Rated heat output - Prated	1,339	1,249	1,339	1,249	kW
	Heating up time - t _h	06:27	09:29	06:27	09:29	h:min
	Annual electricity consumption - AEC	761	1210	761	1210	kWh
	Stand-by power input (P _{es})	26	28	26	28	W
Data according to EN 12102-2: 2019 ECO mode with Inlet air temp = 7 °C DB / 6 °C WB	Indoor sound power level	53	51	53	51	dB(A)
	Outdoor sound power level	45	44	45	44	dB(A)

9. INSTALLATION AND COMMISSIONING

Product installation, commissioning and maintenance must be carried out by **qualified and authorised personnel**.



Any intervention on the equipment must be performed by qualified personnel. Exclusively for interventions on the refrigeration circuit, including disposal, the personnel must be equipped with a suitable refrigeration technician's license aimed at the knowledge and management of systems containing gases of the HFC type.

Comply with the warnings given in chapter 11 on page 63.

9.1 STORAGE



For the storage of devices equipped with flammable refrigerant gas, refer to local regulations in force.

NEVER place the device outdoors; atmospheric agents would damage it, making it unreliable and dangerous for the operator and user.

9.1.1 Environmental storage conditions

The device must be stored in a dry place, protected from dust or anything else that may damage it.

Ambient temperature (min. / max.)
-20 °C / +70 °C

9.2 LIMITS OF USE



ATTENTION



PROHIBITION

This product has not been designed, nor is it intended as such, to be used in hazardous environments according to Directive 2014/34/EU (due to the presence of potentially explosive atmospheres - ATEX).



ATTENTION



PROHIBITION

Or for applications that require a degree higher than IP24 or that require safety features (fault-tolerant, fail-safe) such as life support systems and/or technologies or any other context in which the malfunction of an application may lead to the death or injury of persons or animals, or to serious damage to property or the environment.

If a fault or malfunction of the product could cause damage (to persons, animals and property), then a separate, performance-monitoring system is required, equipped with alarms to exclude such damage.

9.3 OPERATING LIMITS

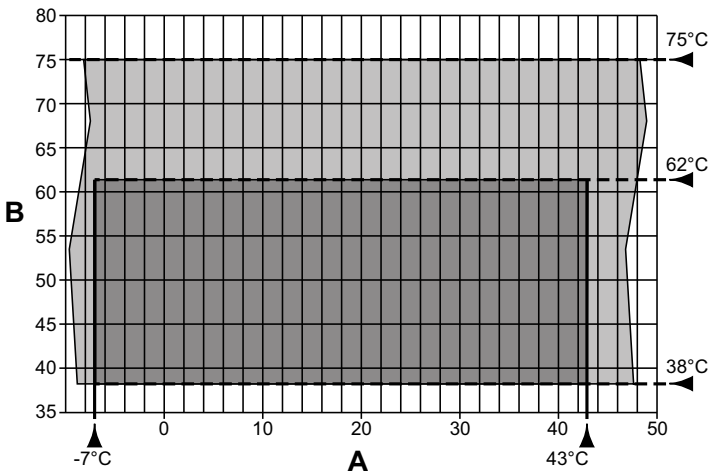


fig. 48 - Chart

- A = Inlet air temperature (°C)
- B = Hot water temperature (°C)
- = Operating range for heat pump (HP)
- = Integration with heating element only

9.3.1 Environmental conditions for operation



The device cannot operate in rooms classified as environments with an explosive atmosphere or at risk of fire.



The general operation of the device is guaranteed by observing the environmental conditions indicated.



The equipment has not been designed to be installed outdoors but to be used in a “closed” environment not exposed to the elements with an ambient temperature between +4 °C / +43 °C. To avoid the risk of freezing, if the appliance is installed in an area subject to temperatures lower than those indicated, when it is not electrically powered, the water present in the tank must be emptied. Empty it as described in the appropriate chapter.

For the correct operation of the device it is necessary that its positioning meets the following requirements:

- away from heat sources,
- away from direct sunlight,
- away from air conditioning systems,
- in a dust-free environment.

The environmental conditions for operation are shown in the table below.

Ambient external air temperature (min. / max.)

-7 °C / +43 °C

9.3.2 Physical characteristics of water

The Langelier index of the water, measured at the operating temperature, must be between 0 and +0.4

The device must not operate with water hardness of less than 12°F. Conversely, if the water hardness is very high (over 25°F), use a suitably calibrated and monitored water softener, because the residual hardness must not drop below 15°F.



NB: In the design and construction phase of the plants, the applicable local regulations and provisions must be complied with.

9.4 PREPARATION OF THE INSTALLATION SITE

Proper operation affects the life of the device and its components, but above all it affects the efficiency of the system. We recommend that you carefully follow the instructions below; our Technical Assistance Office is available for any clarifications on the matter.



In the planning and construction phases of the systems, the standards and regulations in force locally must be complied with.

The equipment must be installed and operated by a qualified technician in accordance with local health and safety legislation and regulations.

Incorrect installation can cause damage to property and injury to people and animals; the manufacturer declines all responsibility for the consequences.

The air inlet and outlet of the appliance must be ducted as indicated in the paragraph 9.6 on page 44.

The product must be installed in a suitable place, i.e. to allow normal use and adjustment operations as well as routine and extraordinary maintenance.

The place where it will be operated must, therefore, be prepared according to the values shown in fig. 49 and fig. 50.

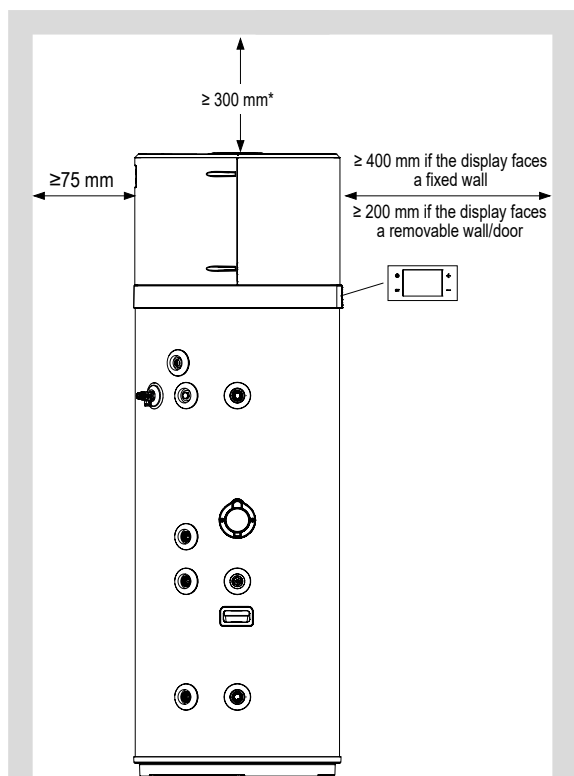


fig. 49 - Minimum spaces

* : allow sufficient space when fitting the G3

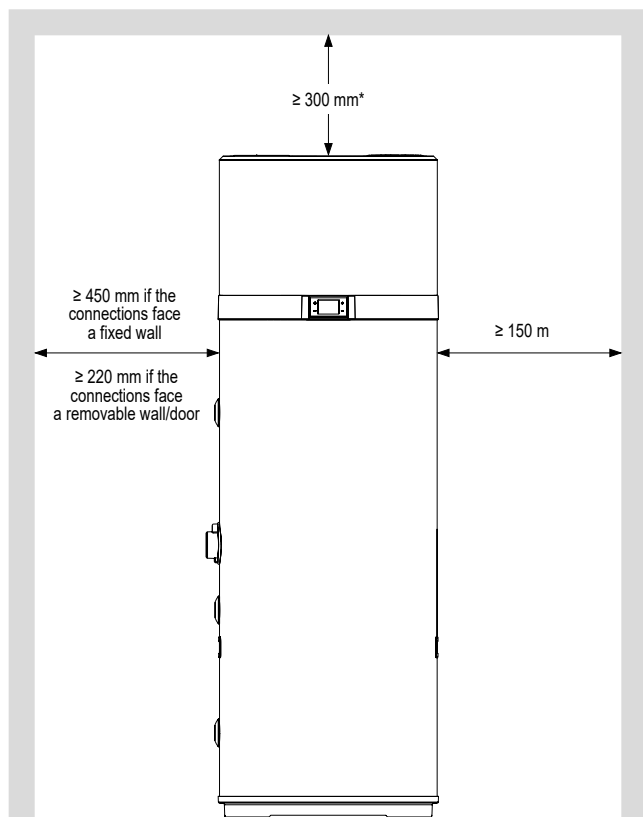


fig. 50 - Minimum spaces

* : allow sufficient space when fitting the G3

For the required ducting installations, please refer to "9.6 AER-AULIC CONNECTIONS" on page 44.

The room must also be::

- Equipped with adequate water and electricity supply lines;
- Prearranged for the condensation water discharge connection;
- Prearranged with adequate water drains in case of boiler damage or safety valve intervention or the breakage of pipes/connections;
- Equipped with possible containment systems in case of serious water leakage;
- Sufficiently illuminated (where required);
- Not less than 20 m³ in volume (it refers to the minimum room volume before unit and ducting installation);
- Protected against frost and be dry.



ATTENTION

ATTENTION! To avoid the propagation of mechanical vibrations, do not install the equipment on floors with wooden beams (e.g. in the attic).



ATTENTION

ATTENTION! Observe duct configuration and diameter to allow sufficient space when fitting the G3 kit inside the cupboard.

9.5 FLOOR FIXING

To fix the product to the floor, apply the supplied brackets as shown in fig. 51.

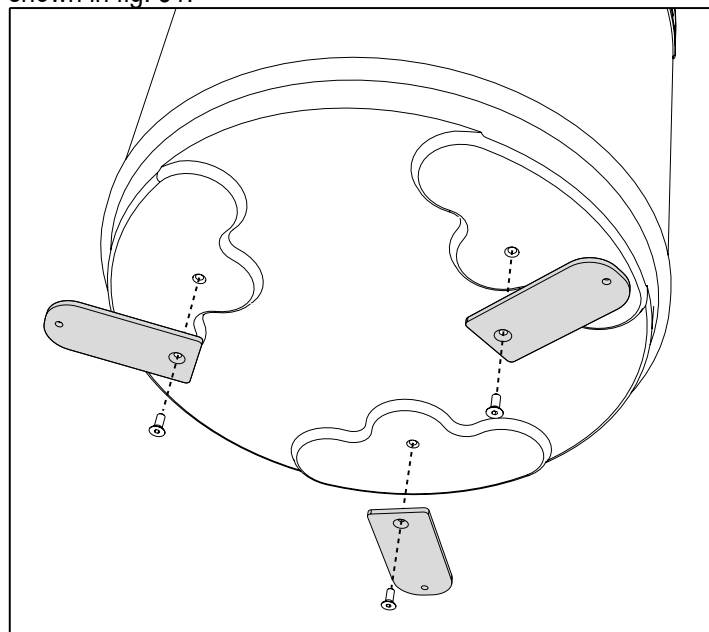


fig. 51- Fixing the brackets

Then, secure the unit to the floor with the help of suitable plugs, which are not supplied, as shown in fig. 52.

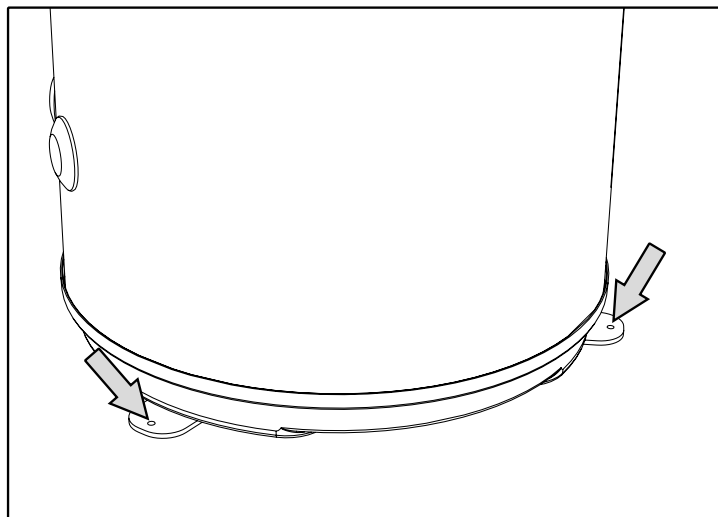


fig. 52- Fixing to the floor

9.6 AERAULIC CONNECTIONS



ATTENZIONE

In many images of this document the position of the air ducts are schematized at the top and bottom, in reality for the purposes of correct installation we recommend positioning the ducts side by side (see fig. 53)

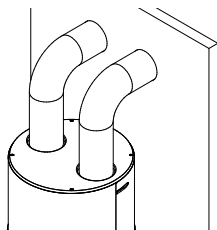


fig. 53- Arrangement of air channels

9.6.1 Standard aeraulic connections

In addition to the spaces indicated in section 9.4, the heat pump requires adequate air ventilation.

- Create a dedicated air duct as indicated in fig. 54.



ATTENZIONE

The simultaneous operation of an open chamber fireplace (e.g. open fireplace) and of the heat pump causes a dangerous negative pressure in the environment.

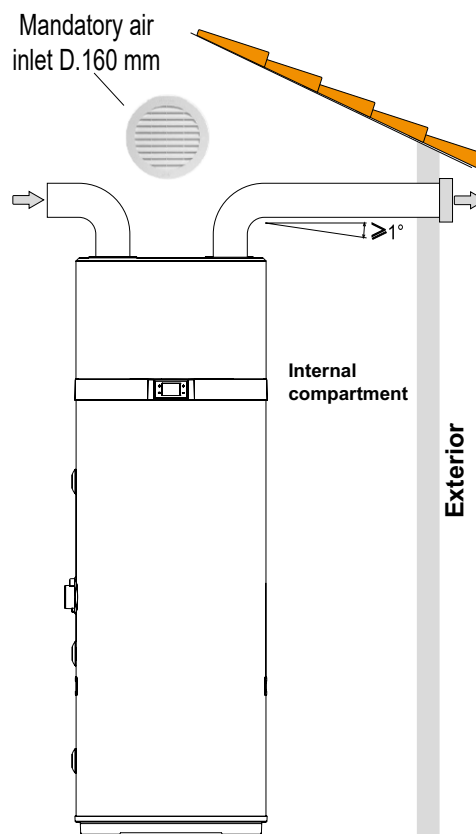


fig. 54- Example of air outlet connection

It is also important to ensure adequate ventilation of the room containing the unit. An alternative solution is shown in the figure below (fig. 55): it provides for a second ducting that takes air from the outside instead of directly from the inside room.

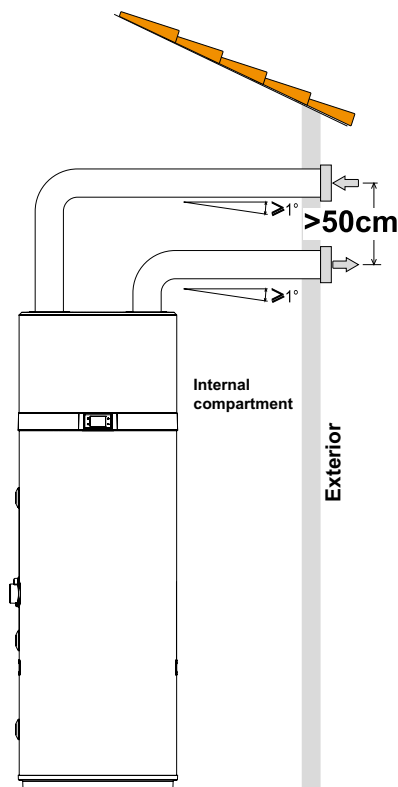
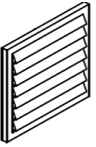


fig. 55- Example of air outlet connection

Install each air duct making sure that:

- It does not weigh down on the equipment.
- It allows maintenance operations.
- It is adequately protected to prevent the accidental intrusion of materials inside the equipment.
- The connection to the outside must be done with suitable, non-flammable piping.
- The total equivalent length of the extraction pipes plus the delivery, including grilles, must not exceed 12 m.

The table gives the characteristic data of commercial ducting components with reference to nominal air flows and diameters 160 mm.

Data	Smooth straight pipe	Smooth 90 ° curve	Grille	UM
Type				
Effective length	1	1	1	m
Equivalent length	1	2	2	m

- While operating, the heat pump tends to lower the temperature of the room if the air is not ducted outside.
- A suitable protection grille must be fitted during installation near the external air exhaust pipe, to prevent foreign bodies from getting inside the device. To ensure maximum product performance, the grille must be selected from those with low pressure loss.
- To prevent the formation of condensate: isolate the air exhaust pipes and the ducted air cover attachments with a vapour proof thermal coating of a suitable thickness.
- If necessary, install mufflers to prevent noise due to the air flow. Fit the pipes, wall entries and connectors to the heat pump systems with vibration damping.



ATTENTION

Operating an open-chamber hearth (e.g. open fireplace) and the heat pump at the same time will cause a dangerous drop in pressure in the room.

The negative pressure can cause the return of exhaust gases into the room.

- Do not operate the heat pump together with an open fireplace.
- Only operate fireplaces with airtight chambers (approved) with separate combustion air ducting.
- Keep the doors of boiler rooms sealed and closed so that the combustion air is not drawn from living areas.

9.6.2 Cascade system aeraulic connections



ATTENZIONE

The simultaneous operation of an open chamber fireplace (e.g. open fireplace) and of the heat pump causes a dangerous negative pressure in the environment.

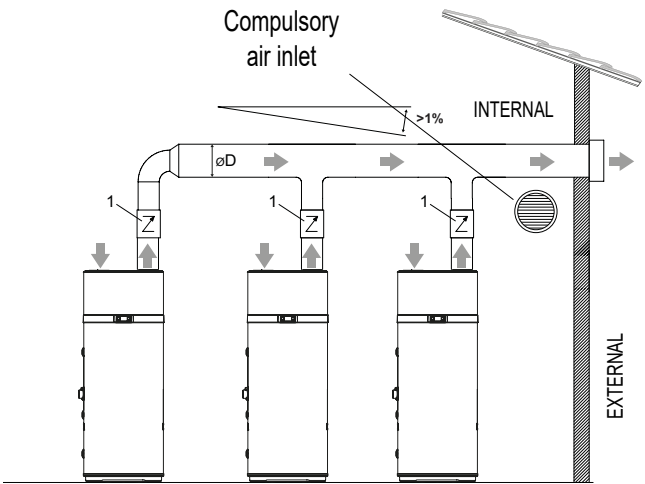


fig. 56 - Example of air discharge connection

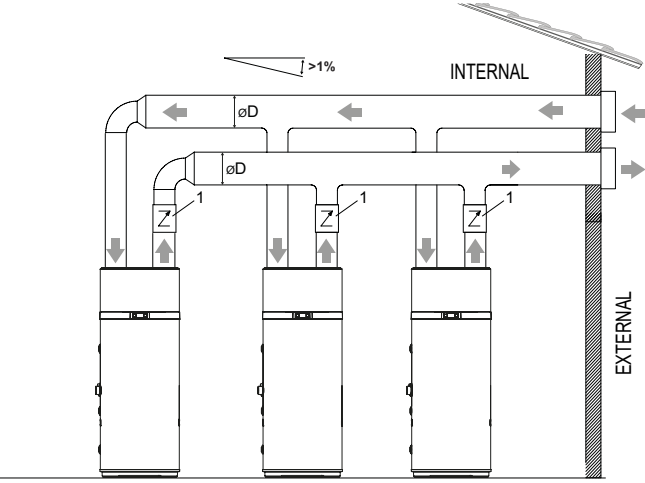


fig. 57- Example of air outlet connection

n° units	2	3	4
----------	---	---	---

D [mm]	200	250	300
--------	-----	-----	-----

Nota:

Over 4 units (max 8), consider two separate ducts referring to the diameters in the table relating to the number of units connected in parallel.

Example with 7 units:

- No. of units connected in parallel on the first duct:
4 → ØD = 300 mm
- No. of units connected in parallel on the second duct:
3 → ØD = 250 mm

To avoid air recirculation it is mandatory to install a non-return valve (part.1 fig. 56 and fig. 57) on the air expulsion duct of each unit.

9.6.3 Special installation

One of the peculiarities of the heat pump heating systems is that these units considerably lower the air temperature, generally expelled to the outside of the house. As well as being colder than the ambient air, the expelled air is also completely dehumidified, therefore the air flow can be returned inside for the summer cooling of specific rooms or areas.

Installation provides for splitting of the extraction pipe, which is fitted with two dampers ("A" and "B") for directing the air flow to the outside (fig. 59) or the inside of the house (fig. 58).

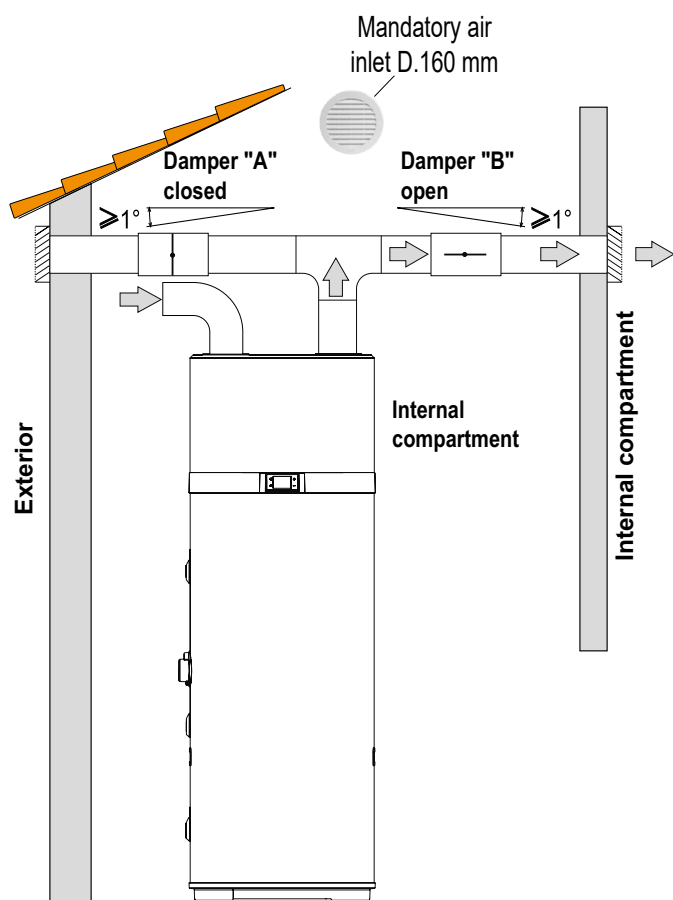


fig. 58- Example of installation in the summer period

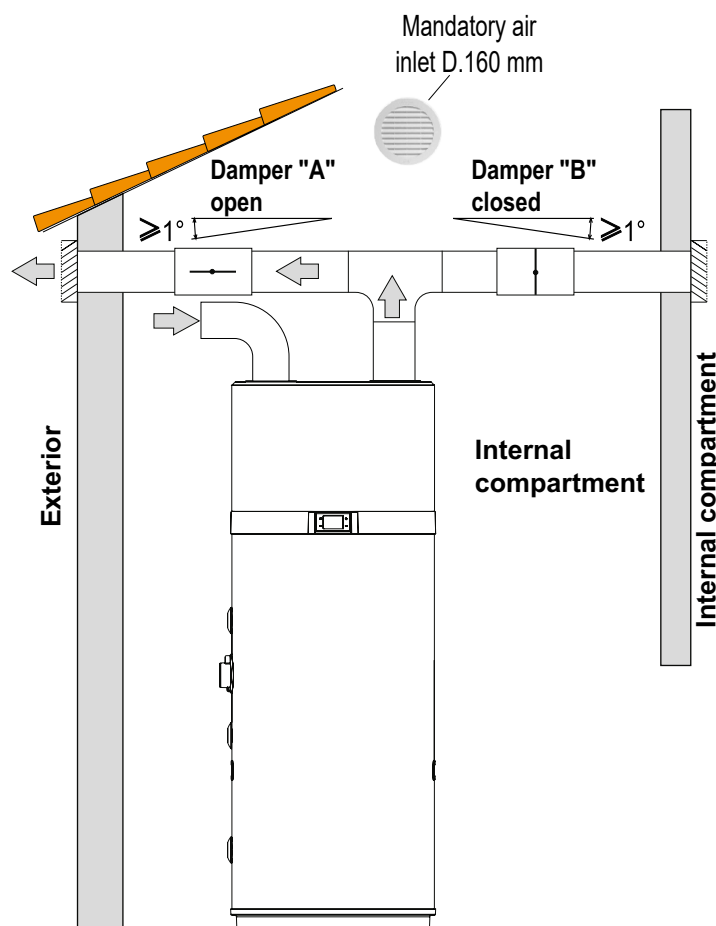


fig. 59- Example of installation in the winter period

9.6.4 Aeraulic connections prohibited

Water heater that draws the air from a heated room.

- Connection to the VMC.
- Connection on the attic.
- Connection to the external air in the intake and expulsion of the fresh air inside.
- Connection to a Canadian well.
- Water heater installed in a room containing a natural draft boiler and channeled to the outside for the release of air only
- Aeraulic connection of the appliance to a tumble dryer.
- Installation in dusty rooms.
- Withdrawal of air containing solvents or explosive materials.
- Connection to hoods that evacuate greasy or polluted air.
- Installation in a freezing room.
- Objects placed above the water heater.

9.7 Hydraulic connections

Connect the cold water supply line and the outlet line to the appropriate connection points (fig. 60).

The table below gives the characteristics of the connection points.

Ref.	Function	Model 200 I / 260 I
8	Cold water inlet	1"G
9	Hot water outlet	1"G
10	Recirculation	3/4"G
11	Condensate drain	1/2"G
12 *	Solar coil inlet	3/4"G
13 *	Solar coil outlet	3/4"G
20 *	Socket for solar probe and thermal cut-out bulb	1/2"G
29	T/P relief safety valve	Ø 15mm

*: only for 200 LT-S and 260 LT-S models.

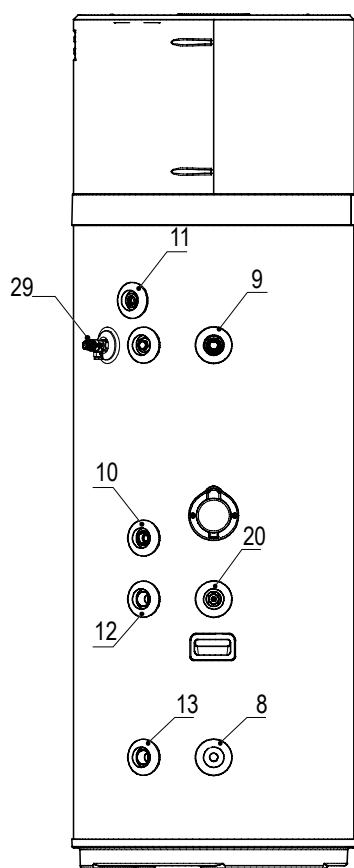


fig. 60

9.8 Connection the piping for domestic hot water

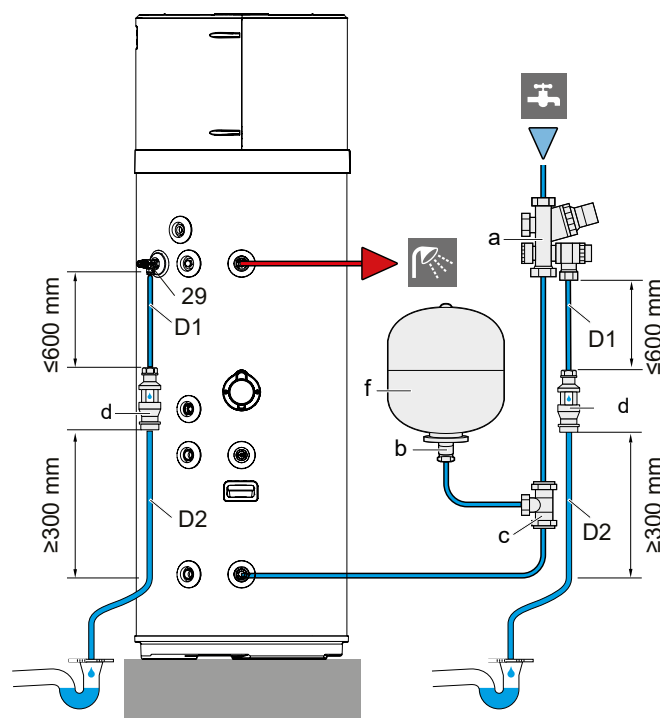


fig. 61

29 - T/P safety relief valve (factory installed)

Components supplied with G3 kit (see "6. "G3 KIT 24L" accessory" on page 37):

- a) 1x PRSV: Pressure reducing valve/pressure relief valve combination (check valve, water pressure regulator default =3,5 bar, water pressure safety valve set=6bar), water inlet and water outlet 22 mm connection, discharge piping connection 15 mm
- b) 1x Adaptor (22 mm×3/4" Female BSP)
- c) 1x Tee piece (22 mm×22 mm×22 mm)
- d) 2x tundishes (15 mm inlet, 22 mm outlet)
- e) wall mounting set for expansion vessel
- f) 1x expansion vessel 24 liters preset=3,5bar male connection 3/4" BSP

1) Pre-assemble the adaptor (b) and expansion vessel (f) so that the expansion vessel is ready for installation.

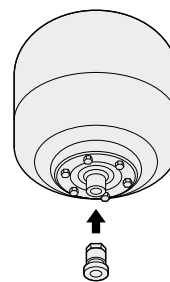


fig. 62

2) Mount the expansion vessel (f) to the wall.

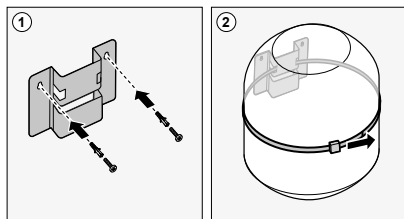


fig. 63

3) Fit the T-piece (c) to the domestic hot water cold water IN pipe of the unit.

4) Connect the pressure reducing valve/pressure relief valve combination (a) to the T-piece (c) with a length of copper tube Ø22 mm (field supply).

5) Connect the expansion vessel (f) to the T-piece (c) with a length of copper tube Ø22 mm (field supply).

6) Connect the pressure reducing valve/pressure relief valve combination (a) to the water mains inlet.

7) Install the tundish (d) in a vertical position within a maximum of 600 mm away from the pressure reducing valve/ pressure relief valve combination.

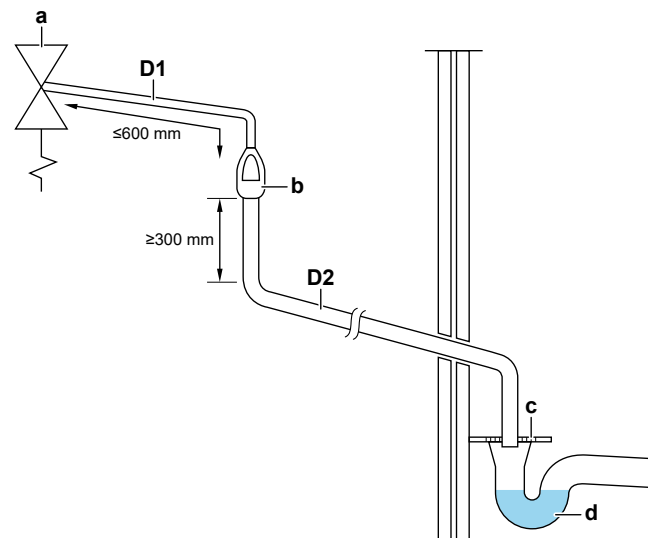


fig. 64

a Safety device (pressure and temperature relief valve of domestic hot water tank; pressure relief valve of domestic hot water tank kit)

b Tundish

c Fixed grating

d Trapped gully

D1 Metal discharge pipe from safety device to tundish

D2 Discharge pipe from tundish, with continuous fall. See Building Regulation G3 section 3.56, Table 03 and worked example.

10) After completing the installation, the installer has to fill out the warning label on the tank with indelible ink.

WARNING TO USER	
a.	Do not remove or adjust any component part of this unvented water heater; contact the installer.
b.	If this unvented water heater develops a fault, such as a flow of hot water from the discharge pipe, switch the heater off and contact the installer.
WARNING TO INSTALLER	
a.	This installation is subject to the Building Regulations.
b.	Use only appropriate components for installation or maintenance.
Installed by:	
Name	
Address	
Tel. No.	
Completion date	

fig. 65



ATTENTION

- **The discharge pipes from the pressure relief valves MUST terminate in a safe and visible position without forming any risk to persons in the vicinity.**



ATTENTION

- Do NOT install any valves between the domestic hot water tank and relief valves/expansion vessel.
- Do NOT install shut-off valves between the expansion relief valve and the domestic hot water tank.



OBLIGATION

To ensure a free water flow through the discharge pipe, manually operate the pressure relief valve by turning its knob left.

8) Using the accessory brass compression coupler (part of the T/P valve installed on the hot water tank), connect the discharge pipe (Ø 15mm) to the T/P valve (29). Install the tundish (d) in a vertical position within a maximum of 600 mm away from the T/P valve.

9) Connect the 2 tundishes, supplied with the G3 kit, to an appropriate drain according to the applicable legislation. The following example shows discharge below fixed grating (Building Regulation G3 section 3.61 gives alternative points of discharge):



ATTENTION

- Discharge piping, tundish, drain valves, etc. **MUST** be positioned away from any electrical components.
- The discharge pipe away from the tundish **MUST** terminate in a safe, visible position without forming any risk to persons in the vicinity.



ATTENTION

- Do **NOT** install any valves between the domestic hot water tank and relief valves/expansion vessel.
- Do **NOT** install shut-off valves between the expansion relief valve and the domestic hot water tank.



OBLIGATION

All pipework and fittings must be flushed free of flux and debris prior to installing the domestic hot water tank kit. Failure to do this may cause irreparable damage to the tank kit controls. Flush the system by opening the hot water tap.

- The tundish pipework must be a 22 mm metal pipe with a minimal vertical length of 300 mm below the tundish before any elbows or bends in the pipework. All pipework must have a continuous fall of 1 in 200 thereafter. Maximum permitted (equivalent) length of 22 mm pipework is 9 m. Each bend or elbow is equivalent to 0.8 m of pipework.



ATTENTION

For the correct operation of the device, the inlet water pressure must be:

- maximum 0.7 MPa (7 bar);
- minimum 0.15 MPa (1.5 bar).



ATTENTION

- Water can drip from the discharge pipe of the overpressure device; leave this pipe open to the atmosphere.
- The decompression device must be operated regularly to remove limescale deposits and to check that it is not blocked.
- Connect a rubber hose to the condensate drain, taking care not to force too much so as not to break the drain hose itself.

9.8.1 Standard hydraulic connections

The following figures (fig. 66 - fig. 67 - fig. 68) illustrate 3 examples of hydraulic connection.

Legend (fig. 66 - fig. 67 - fig. 68)

- 1 Inlet tube
- 4 Recirculation water inlet
- 5 Hot water outlet pipe
- 9 Inspectable end of the exhaust pipe
- 10 Pressure gauge
- 11 Shut-off valve
- 12 Pressure regulator
- 13 Safety valve
- 14 Expansion vessel
- 15 Drain cock
- 16 Recirculation pump
- 17 Non-return valve
- 18 Thermostatic mixing valve
- 29 T/p relief safety valve (factory installed)

PRSV Pressure reducing valve/pressure relief valve combination

--- when the circulation pump is running

NOTE: All piping MUST be installed according to section G3 of the Building Regulations.

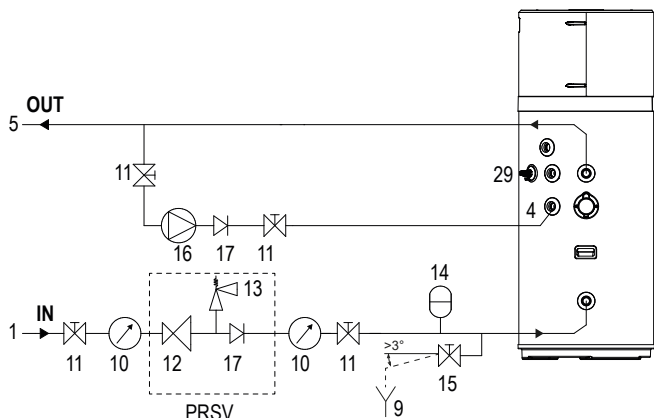


fig. 66 - Example of water system WITHOUT thermostatic mixing valve

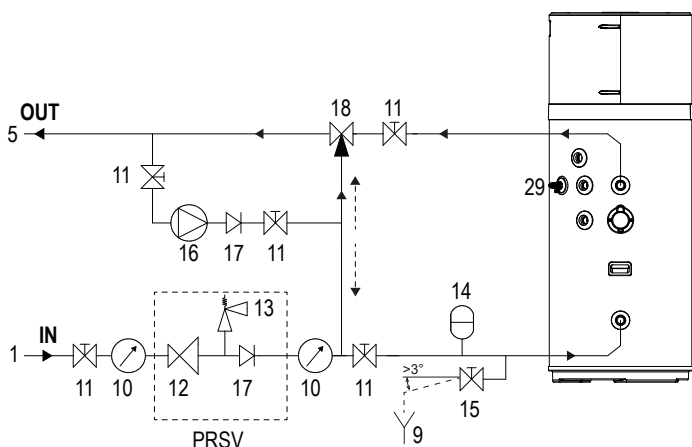


fig. 67 - Example of water system WITH thermostatic mixing valve (recirculation on unit cold water inlet connection)

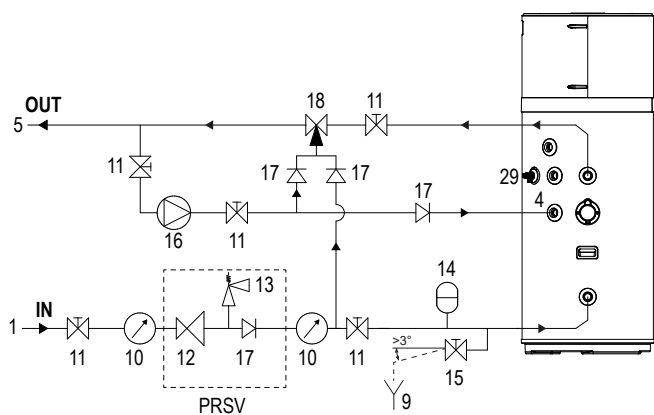


fig. 68 - Example of water system WITH thermostatic mixing valve (recirculation on unit water recirculation connection)

9.8.2 Cascade system plumbing connections

The following figures (fig. 69 - fig. 70 - fig. 71) show 3 examples of hydraulic connection.

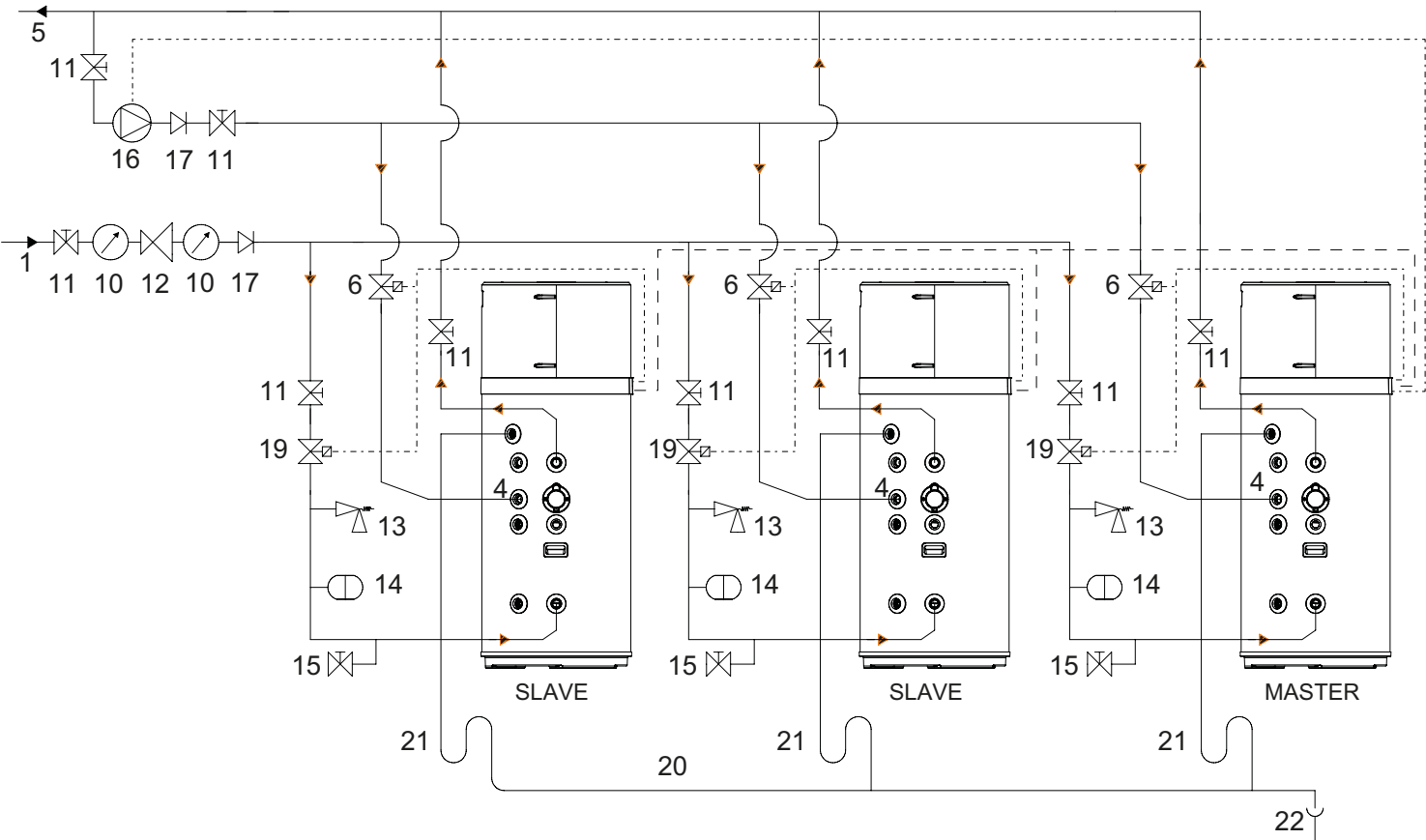


fig. 69 - Example of water system WITHOUT thermostatic mixing valve

Legend				
1	Inlet tube	12	Pressure regulator	ment (normally open 230Vac-50Hz)
4	Recirculation water inlet	13	Safety valve	20 Exhaust manifold
5	Hot water outlet pipe	14	Expansion vessel	21 Siphon
6.	Solenoid valve for recirculation with cascade (normally open 230Vac-50Hz)	15	Drain cock	22 Unloading on the ground
9	Inspectable end of the exhaust pipe	16	Recirculation pump	— — Cascade management serial connectionsa
10	Pressure gauge	17	Non-return valve	— — — — — Electrical connections
11	Shut-off valve	18	Thermostatic mixing valve	
		19	Solenoid valve for cascade water inlet manage-	

Note:

1) The recirculation pump (part.16) must be connected to terminal CN26 of the master motherboard (ref. "fig. 79 - Wiring diagram of the equipment" on page 58).

2) Fit a normally open solenoid valve (part. 19) for each unit in the cascade. The valve must be connected to terminal CN14-1 (ref. "fig. 79 - Wiring diagram of the equipment" on page 58) of the mother board of each unit.

3) If recirculation is provided, a normally open solenoid valve (part. 6) must also be fitted for each unit in the cascade. The valve must be powered in parallel with the normally open solenoid valve (part. 19).

9.8.2.1 Example of water system WITH thermostatic mixing valve (recirculation on unit cold water inlet connection)ità)

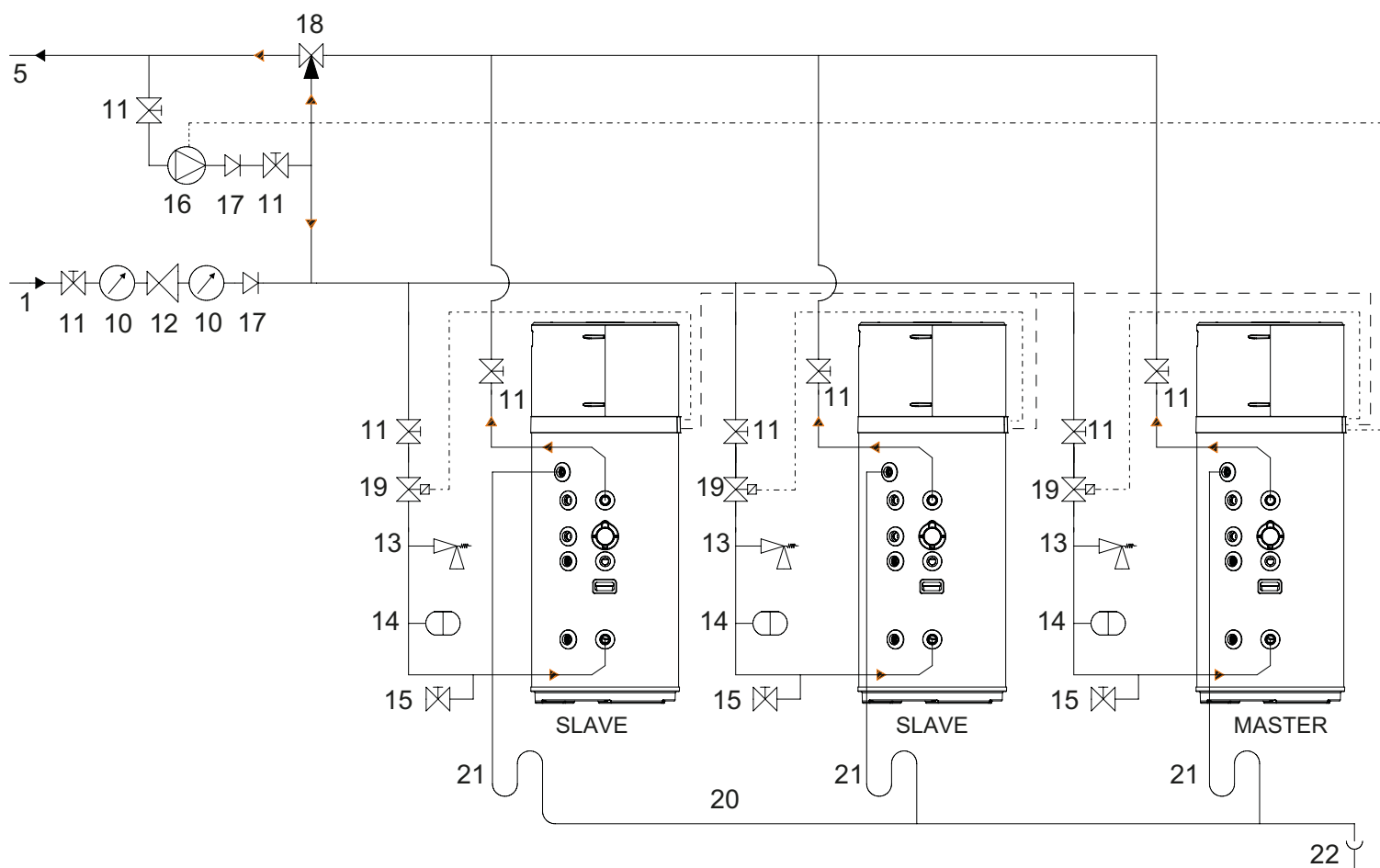


fig. 70 - Example of water system WITH thermostatic mixing valve (recirculation on unit cold water inlet connection)

Legenda

1	Inlet tube	14	Expansion vessel	21	Siphon
4	Recirculation water inlet	15	Drain cock	22	Unloading on the ground
5	Hot water outlet pipe	16	Recirculation pump	— —	Cascade management serial connections
9	Inspectable end of the exhaust pipe	17	Non-return valve	- - - -	Electrical connections
10	Pressure gauge	18	Thermostatic mixing valve		
11	Shut-off valve	19	Solenoid valve for cascade water inlet management (normally open 230Vac-50Hz)		
12	Pressure regulator	20	Exhaust manifold		
13	Safety valve				

Note:

- 1) The recirculation pump (part.16) must be connected to terminal CN26 of the master motherboard (ref. "fig. 79 - Wiring diagram of the equipment" on page 58).
- 2) Fit a normally open solenoid valve (part. 19) for each unit in the cascade. The valve must be connected to terminal CN14-1 (ref. "fig. 79 - Wiring diagram of the equipment" on page 584) of the mother board of each unit.

9.8.2.2 Example of water system WITH thermostatic mixing valve (recirculation on unit water recirculation connection)

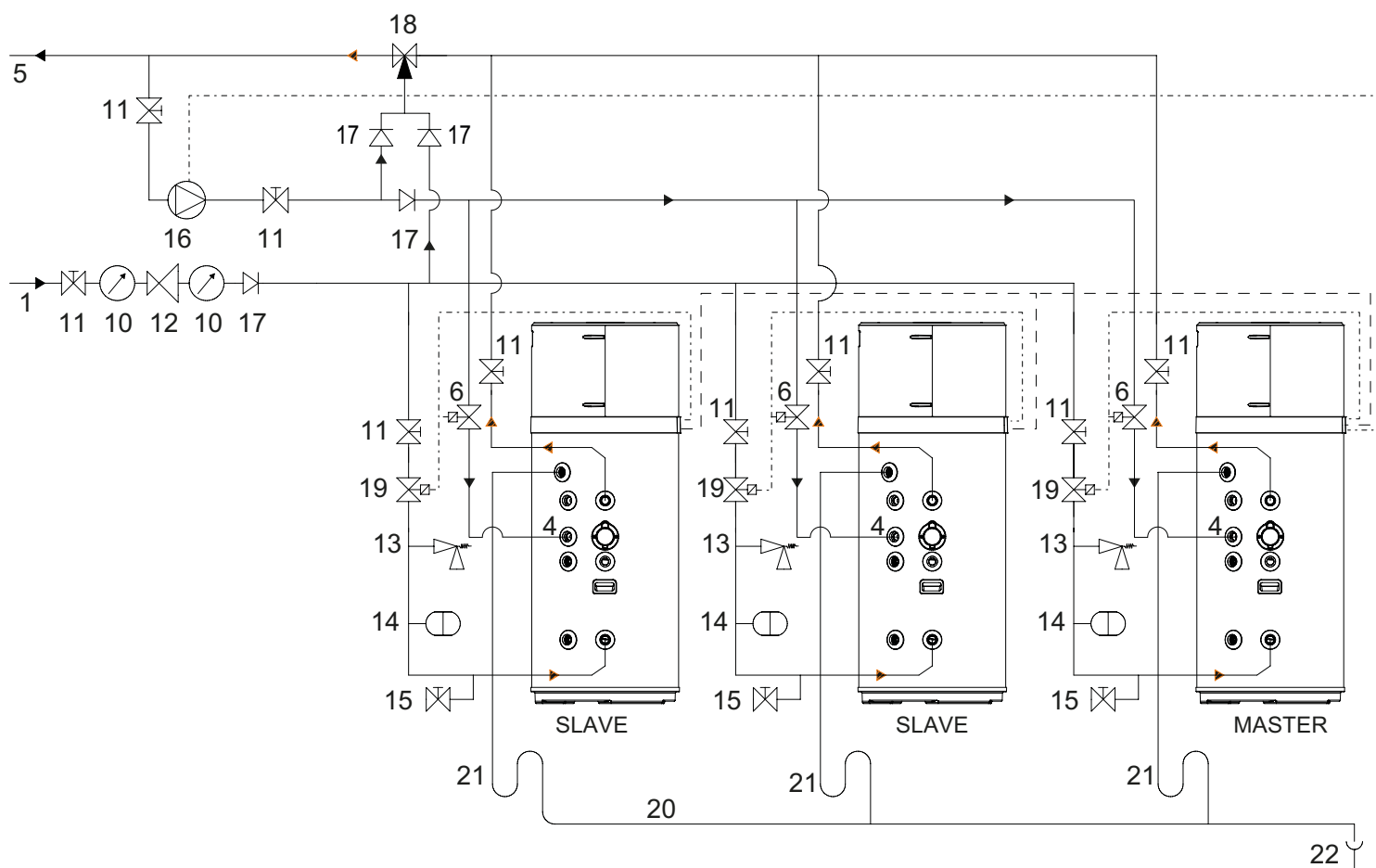


fig. 71 - Example of water system WITH thermostatic mixing valve (recirculation on unit water recirculation connection)

Legenda

1	Inlet tube	12	Pressure regulator	20	Exhaust manifold
4	Recirculation water inlet	13	Safety valve	21	Siphon
5	Hot water outlet pipe	14	Expansion vessel	22	Unloading on the ground
6	Solenoid valve for recirculation with cascade (normally open 230Vac-50Hz)	15	Drain cock	— —	Cascade management serial connections
9	Inspectable end of the exhaust pipe	16	Recirculation pump	—	Electrical connections
10	Pressure gauge	17	Non-return valve		
11	Shut-off valve	18	Thermostatic mixing valve		
		19	Solenoid valve for cascade water inlet management (normally open 230Vac-50Hz)		

Note:

- 1) The recirculation pump (part.16) must be connected to terminal CN26 of the master motherboard (ref. "fig. 79 - Wiring diagram of the equipment" on page 58).
- 2) Fit a normally open solenoid valve (part. 19) for each unit in the cascade. The valve must be connected to terminal CN14-1 (ref. "fig. 79 - Wiring diagram of the equipment" on page 58) of the mother board of each unit.
- 3) If recirculation is provided, a normally open solenoid valve (part. 6) must also be fitted for each unit in the cascade. The valve must be powered in parallel with the normally open solenoid valve (part. 19).

9.8.3 Condensate drain connection

The condensate forming during heat pump operation flows through a special drain pipe (1/2" G) that passes inside the insulating casing and comes out at the side of the equipment. It must be connected, via a trap, to a duct so that the condensate can flow regularly (fig. 72).

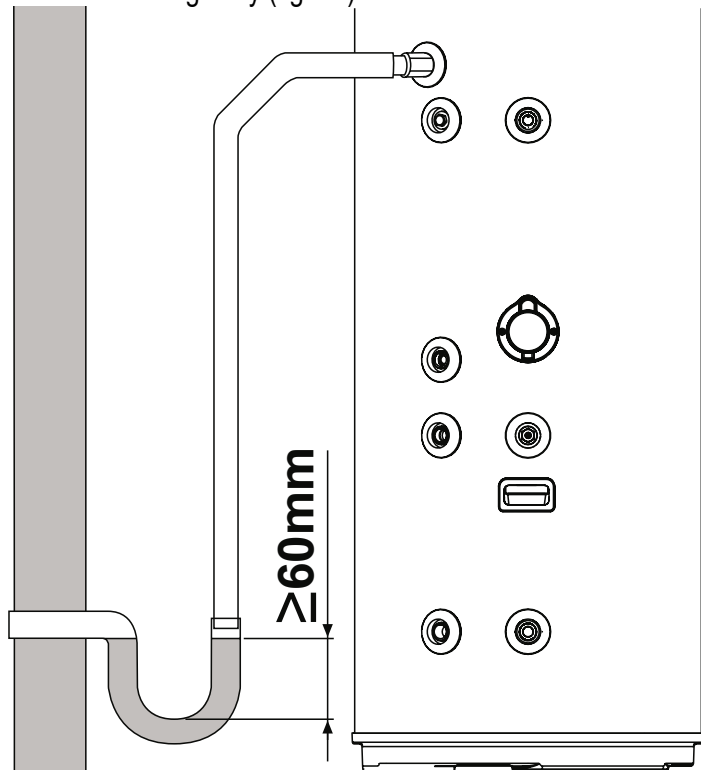


fig. 72- Examples of condensate drain connection via a trap

9.9 Integration with the solar thermal system (only for mod 200 LT-S e 260 LT-S)

9.9.1 Integration with the standard solar thermal system

The following figure shows how to connect the appliance to a solar thermal system.

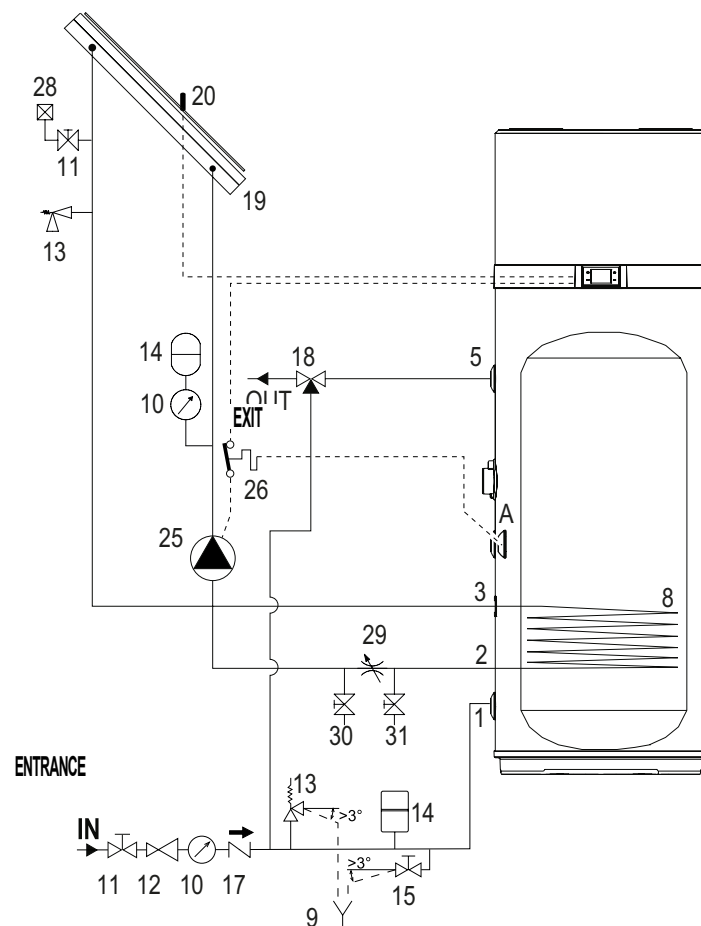


fig. 73

Legend, see next page.

9.9.2 Integration with the solar thermal system cascade system

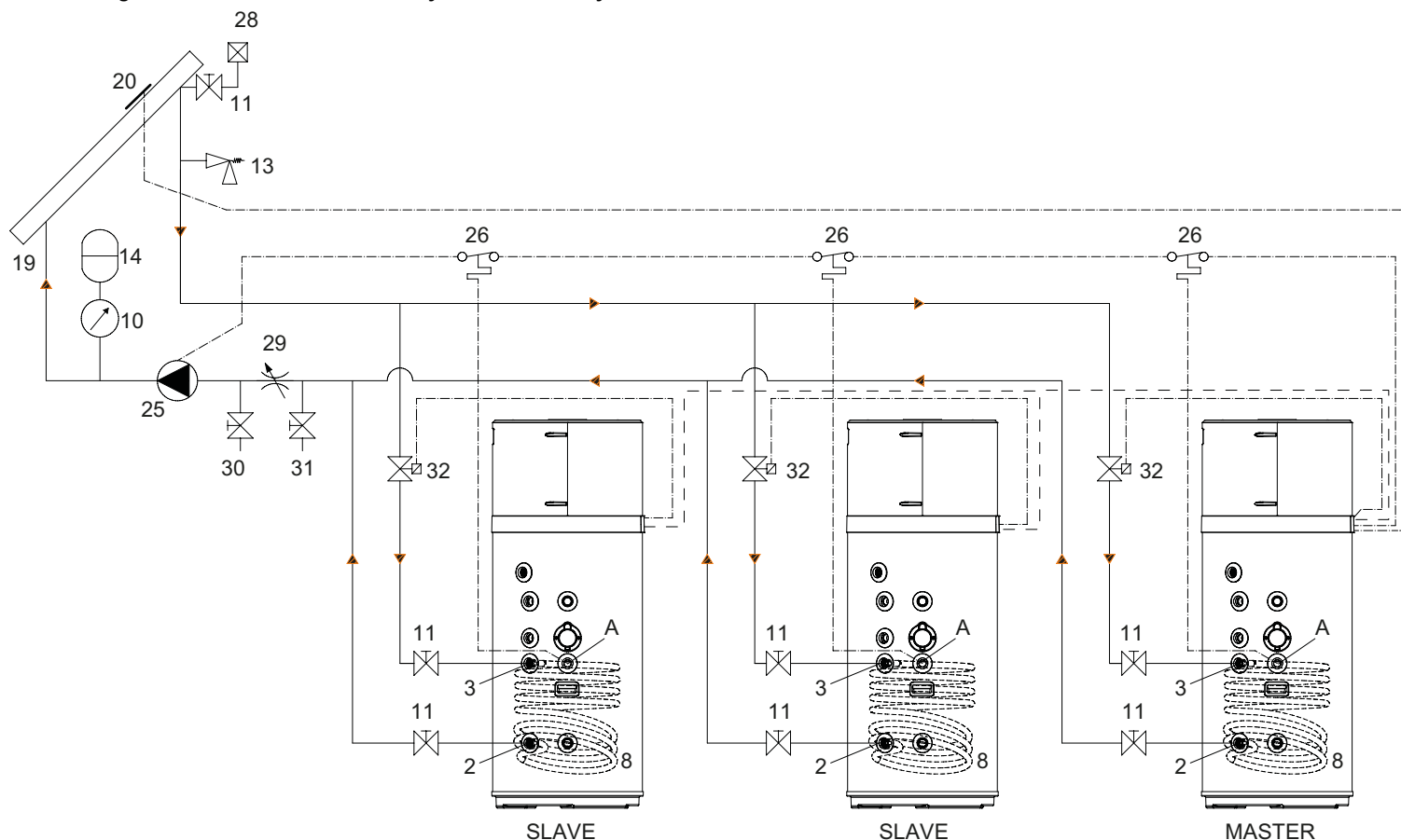


fig. 74

Legend (fig. 73 and fig. 74)

- | | |
|---------------------------------------|--|
| 1 Cold water inlet | 18 Thermostatic mixing valve |
| 2 Solar coil outlet | 19 Thermal solar panel |
| 3 Solar coil inlet | 20 Solar panel probe (PT1000 not supplied*) |
| 4 Recirculation | 25 Solar pump PS (type ON/OFF 230Vac-50Hz) |
| 5 Hot water outlet | 26 Safety thermostat (supplied) for solar pump |
| 8 Solar thermal coil | 27 Manual valve |
| 9 Inspectable end of the exhaust pipe | 28 Air vent valve |
| 10 Pressure gauge | 29 Flow regulator |
| 11 Shut-off valve | 30 System filling cock |
| 12 Pressure regulator | 31 System drain cock |
| 13 Safety valve | 32 Solar thermal solenoid valve (VS) 230Vac-50Hz normally closed |
| 14 Expansion vessel | A Well for safety thermostat |
| 15 Drain cock | * We recommend using the PT1000 solar collector probe (available in the manufacturer's accessories list) |
| 16 Circulation pump (ON/OFF type) | |
| 17 Non-return valve | |

Note:

- 1) The PT1000 probe of the solar panel must be connected to the motherboard of the master
- 2) The solar pump must be connected to the master's motherboard. The electric power supply of the solar pump must be intercepted by the solar safety thermostats (one for each unit) which must be connected in series: this is to allow the blocking of the solar pump in the event of overheating in one of the units in the cascade
- 3) Fit a normally closed (VS) solenoid valve for each unit in the cascade. The valve must be connected to the motherboard of each unit

9.10 ELECTRICAL CONNECTIONS

Before connecting the appliance to AC mains, a check must be carried out on the electrical system to verify conformity to the regulations in force and that the electrical system can suitably withstand the water heater's maximum power consumption values (refer paragraph 4.2 for technical characteristics), in terms of the size of the cables and their conformity to the regulations in force.

The appliance is supplied with a power cord (fig. 76) which fits English plug with Integrated fuse (13A)

For the connection with AC mains is required:

- a English wall socket (BS1363) (fig. 75) with ground and separate protection
- an omnipolar 16 A circuit breaker with a contact opening of at least 3 mm;
- a 30 mA differential circuit breaker.

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.

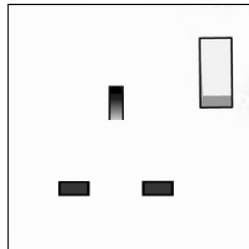


fig. 75 - English socket

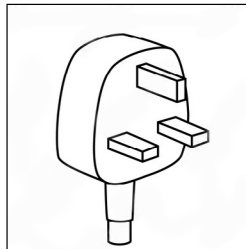


fig. 76 - Unit plug



ATTENTION

For connection to mains and safety devices, comply with the IEC 60364-4-41 standard.



ATTENTION

DO NOT TAMPER WITH THE POWER CORD.

If the power supply cable is damaged, it must be replaced by the manufacturer or the technical assistance service or in any case by a person with similar qualifications, in order to prevent any risk.



ATTENTION

If the equipment is electrically powered, do not touch it with bare feet or with wet parts of the body.



ATTENTION

All power circuits must be disconnected before accessing the electrical panel of the appliance.

9.10.1 Remote connections

Photovoltaic enabling

Verify that the following values are set:

- P03=1 (see "3.9.9 Phv menu - EVU functionality - Photovoltaic functionality" on page 19)
- P04=offset (to be set, see "3.9.9 Phv menu - EVU functionality - Photovoltaic functionality" on page 19)
- G01=0 (vedi "3.9.10 SG Menu - Smart Grid functionality (see also "9.10.1 Remote connections" on page)" on page 20)

DIG2	PV
Open	Normal operation
Closed	Operation in BOOST mode with Setpoint + Offset

EVU block enable

Verify that the following values are set:

- P01=1 (see "3.9.9 Phv menu - EVU functionality - Photovoltaic functionality" on page 19)
- P02=mode with DIG1 input open (see "3.9.9 Phv menu - EVU functionality - Photovoltaic functionality" on page 19)
- G01=0 (see "3.9.10 SG Menu - Smart Grid functionality (see also "9.10.1 Remote connections" on page)" on page 20)

In this configuration the water heater is subjected to an EVU block by your electricity supplier.

DIG1	EVU
Open	Normal operation
Closed	Unit in Off / Standby (depending on parameter P02)



ATTENTION

The device must be installed in compliance with the regulations on electrical systems in force in the country of installation.



OBLIGATION

Connect the device to an efficient grounding system.



PROHIBITION

Do not use extension cords or adapters.

SMART GRID enabling

Verify that the following values are set:

- G01=1 (see “3.9.10 SG Menu - Smart Grid functionality (see also “9.10.1 Remote connections” on page)” on page 20
- **G02=operating state offset 3 (to be set, see “3.9.10 SG Menu - Smart Grid functionality (see also “9.10.1 Remote connections” on page)” on page 20)**

When G01=1 is set, the water heater will work in SMART GRID mode according to the 4 possible operating states:

DIG1	DIG2	Operational status	
Open	Closed	1	STANDBY unit
Open	Open	2	Operation in ECO mode
Closed	Open	3	Operation in BOOST mode with Setpoint + Offset
Closed	Closed	4	Operation in BOOST mode with Setpoint max



NOTA

NOTE The effect of the change of state of the digital inputs DIG1 and DIG2 is applied after 10 min.

Remote connection mode

For connection to the digital inputs, the equipment is equipped with an additional 6-conductor cable (DIG1=EVU/SG0= white/brown cable, DIG2=P/SG1= green/yellow cable, DIG3= grey/pink cable) already connected to the main -board (located inside the device).

Remote connections to possible energy systems are the responsibility of the qualified installer (connection boxes, terminals and connection cables).

The figures below give an example of a remote connection (fig. 77 and fig. 78), which must not be longer than 3 m.

fig. 77- Remote connection example

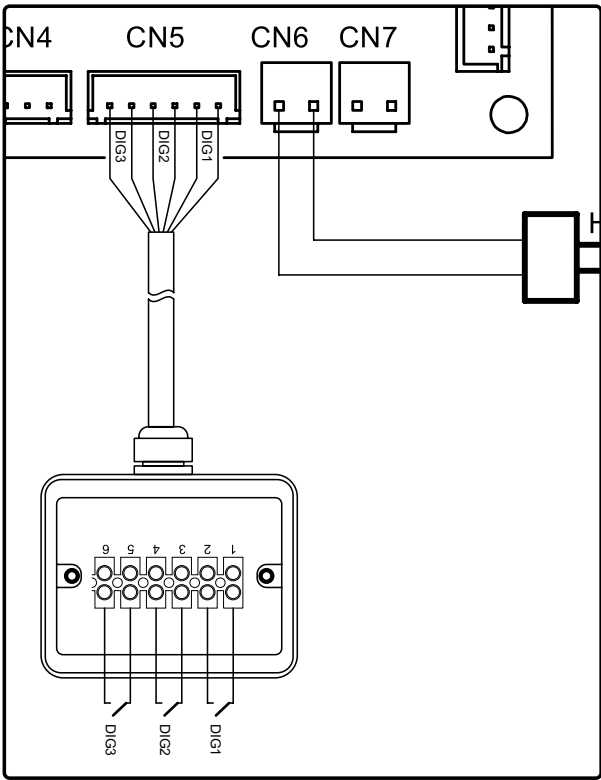
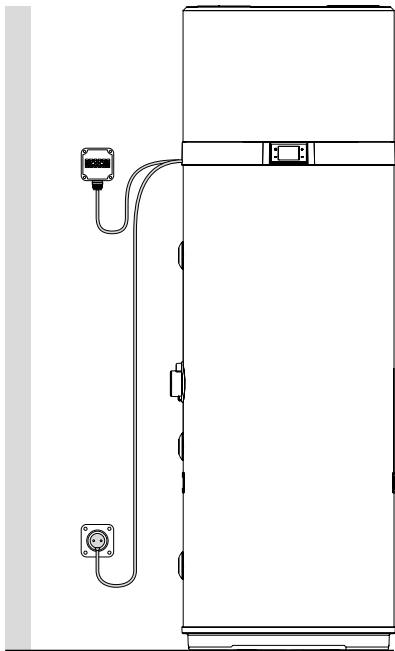


fig. 78



9.11 ELECTRICAL DIAGRAM

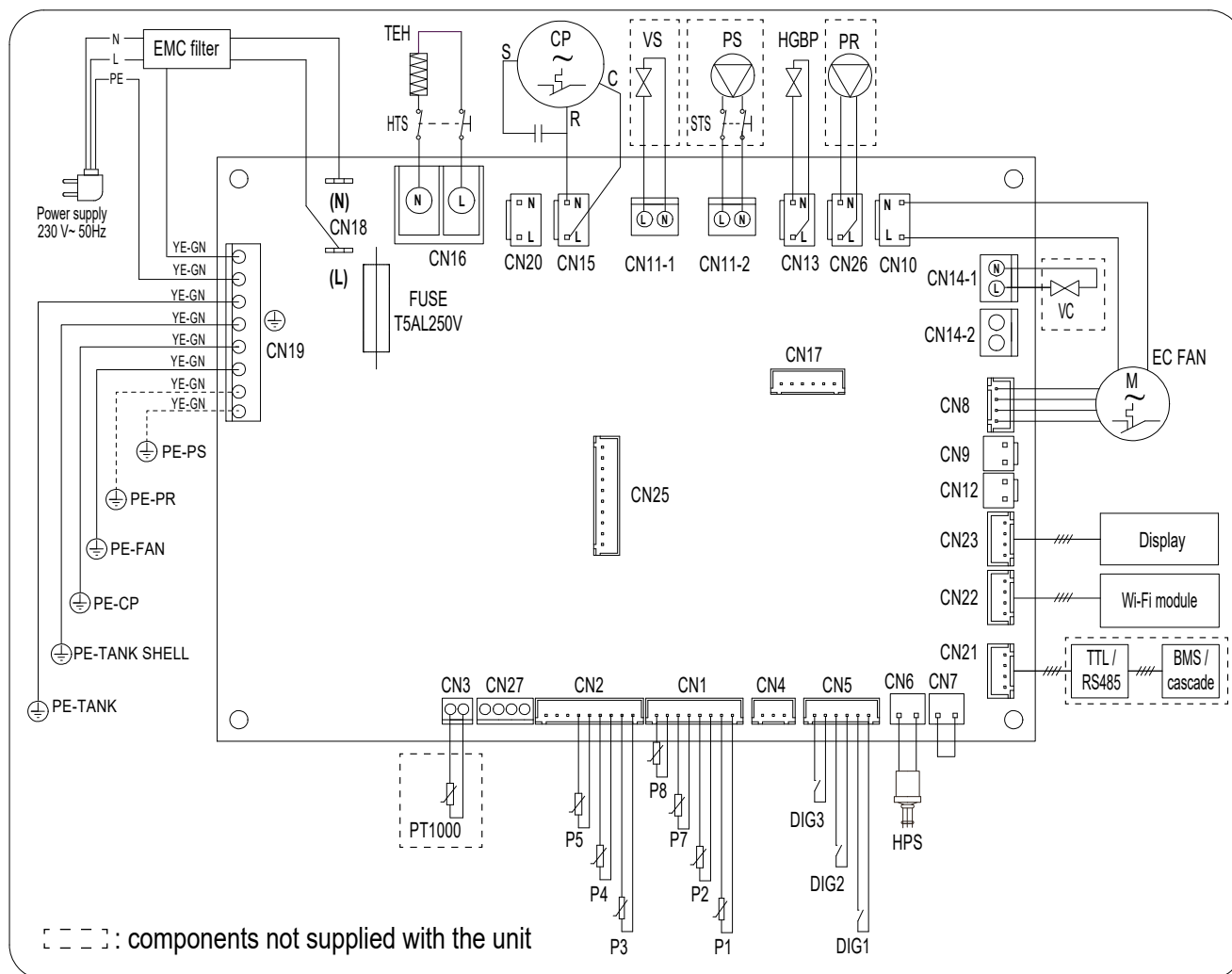


fig. 79 - Wiring diagram of the equipment

Description of connections available on the power board

RIF.	DESCRIPTION
BMS / cascade	Supervision / testing / cascade system
CN1	NTC probes for air, defrost and water
CN2	Evaporator inlet and outlet NTC probes, compressor delivery
CN3	Thermal solar panel probe - Only for LT-S models
CN4	Unusable
CN5	digital inputs
CN6	High pressure switch
CN7	Unusable
CN8	Fan speed adjustment
CN9	Unusable
CN10	Fan power supply
CN11-1	Solar thermal solenoid valve for cascade systems (normally closed) - Only for LT-S models
CN11-2	Solar pump (ON/OFF type) - Only for LT-S models
CN12	Unusable
CN13	Electric supply of the hot-gas defrost valve
CN14-1	Power supply of the waterfall valve
CN14-2	Unusable
CN15	Compressor power supply
CN16	Power supply of the tank electric heater
CN18	Unusable
CN19	Ground connections
CN20	230 Vac power supply
CN21	Connection for supervision
CN22	Wi-Fi card connection
CN23	User interface connection
CN26	DHW recirculation pump

RIF.	DESCRIPTION
CN27	Unusable
CP	Compressor
DIG1-DIG2-DIG3	Multifunction digital input
Display	User interface
EC FAN	EC fan
EMC filter	Electromagnetic interference filter
FUSE	Fuse
HGBP	Hot gas bypass valve
HPS	High pressure switch
HTS	Electric heater safety thermostat
P1	External air inlet NTC temperature probe
P2	Battery NTC temperature probe
P3	Evaporator refrigerant inlet NTC temperature probe
P4	Evaporator refrigerant outlet NTC temperature probe
P5	Compressor refrigerant outlet NTC temperature probe
P7	Tank water NTC temperature probe (upper)
P8	Tank water NTC temperature probe (bottom)
PR	Recirculation pump
PS	Solar thermal pump (only for LT-S models)
PT1000	Thermal solar panel temperature probe (only for LT-S models)
STS	Solar pump safety thermostat
TEH	Tank electrical heater
TTL / RS485	TTL / RS485 serial interface
VC	Cascade solenoid valve (normally open - 230 Vac)
VS	Solar thermal solenoid valve, (normally closed - 230 Vac - only for LT-S models)
Wi-Fi module	Wi-Fi module

9.12 CASCADE WIRING DIAGRAM

It is possible to connect up to 8 units in cascade. To create the cascade, n°1 "TTL-RS485 serial interface kit" is required for each unit.

Kit components:

- 1) serial interface board housed in a plastic casing designed for fixing to the base of the heat pump
 - 2) blue connector for connection to the cable already installed on the unit
 - 3) mammoth connector with screw terminals for serial connection (cables not supplied) between the units in cascade
- fixing screws to the base of the heat pump
 - assembly instruction

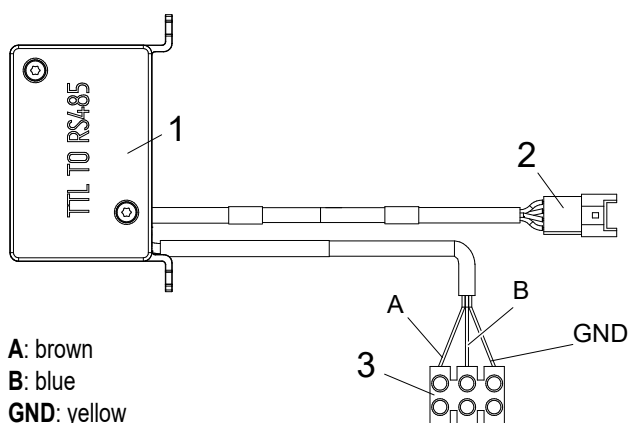


fig. 80 - TTL-RS485 serial interface kit

The TTL-RS485 interface has two cables, one with a mammoth end and the other with a blue connector. As indicated in the wiring diagram "fig. 81 - Cascade wiring diagram", the mammut is used for parallel connection of several units; the blue connector must be connected to the corresponding blue connector coming out of the electrical panel of the machine.

NOTE

For correct parallel connection of several units, it is recommended to use twisted and shielded cables suitable for RS485 transmission with a section not less than 0.34 mm².

The following diagram ("fig. 81 - Cascade wiring diagram") shows an example of cascade connection with 3 units.

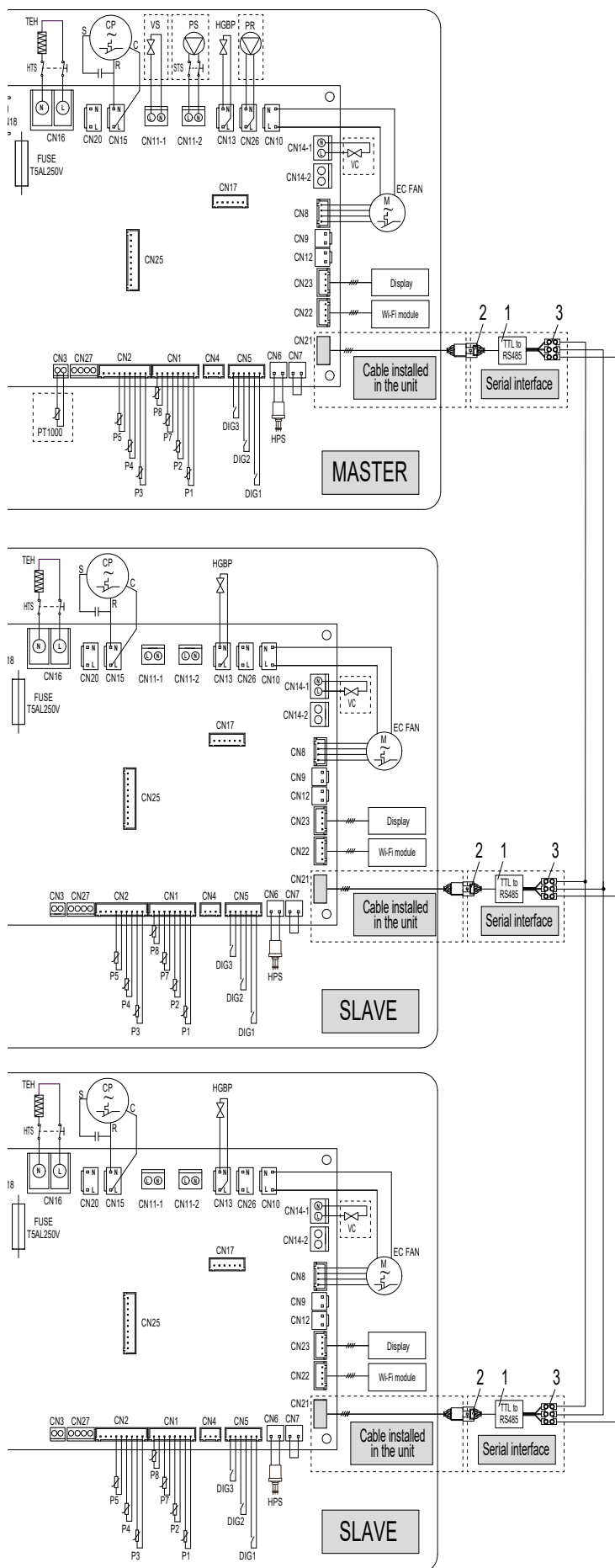


fig. 81 - Cascade wiring diagram

9.13 COMMISSIONING

To commission the device, perform the following operations.

9.13.1 Preliminary checks

 OBLIGATION	Check that the device has been connected to the ground cable.
 ATTENTION	Check that the line voltage corresponds to that indicated on the device plate.
 VISUAL INSPECTION	Check that the device is free from tools or utensils of various kinds. If present, remove them.

9.13.4 Query, editing operating parameters

This equipment has distinct menus for consulting and modifying the operating parameters. For details, refer to chapter "3. USE OF THE WATER HEATER" on page 11.

NB!: Use of the password is reserved for qualified personnel; any consequences due to incorrect parameter settings will be the sole responsibility of the customer. Therefore, any interventions requested by the customer from an authorised technical assistance centre FERROLI during the standard warranty period, for product problems due to incorrect settings of password-protected parameters, will not be covered by the standard warranty.

9.13.2 General cleaning

 PROHIBITION	• Do not pour or spray water on the product. • Do not clean the surfaces with easily flammable substances (for example: alcohol or paint thinners).
 MANUAL CLEANING	Clean only the external surface using a soft and dry cloth.

9.13.3 Commissioning of the plant

- Fill the tank completely via the inlet faucet and check that there are no water leaks from gaskets and connections.
- Do not exceed the max. permissible pressure indicated in the "general technical data" section.
- Check the water circuit safety devices.
- Plug the unit into the power outlet.
- When the plug is inserted, the unit is OFF. To turn on the unit, refer to paragraph "3.5.1 Power on" on page 13

In case of a sudden power outage, when restored the equipment will restart from the operating mode prior to the interruption.

10. REPLACEMENTS



ATTENTION

Incorrect repairs may put the user in serious danger. If your device needs any repair, **contact the technical assistance service.**



EXPERT TECHNICIAN

Any intervention on the equipment must be performed by qualified personnel. Exclusively for interventions on the refrigeration circuit, including disposal, the personnel must be equipped with a suitable refrigeration technician's license aimed at the knowledge and management of systems containing HFC type gases



ATTENTION

Before undertaking any maintenance operation make sure the equipment is not and cannot accidentally be electrically powered. **Therefore, turn off the device and remove the plug from the socket.**



ATTENTION

Carrying out repair work on parts with safety function compromises safe operation of the equipment. Only replace defective parts with **original spare parts.**

10.1 POWER BOARD FUSE REPLACEMENT

Proceed as indicated below (reserved for qualified technical personnel only):

- Disconnect the power to the equipment.
- Remove the top cover of the equipment and then the power board cover.
- Remove the fuse cap, then the fuse, using a suitable screwdriver.
- Install a new IEC-60127-2/II certified time-delay 5 A fuse (T5AL250V), then refit the protective cap.
- Reassemble all the plastics and make sure the equipment is correctly installed before powering it.

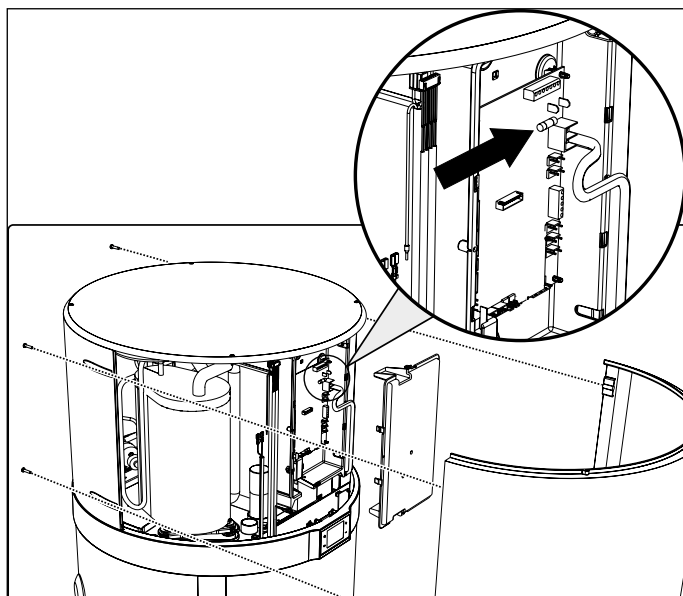


fig. 82

10.2 REPLACEMENT OF ELECTRIC HEATER SAFETY THERMOSTAT

This equipment has a manual-reset safety thermostat connected in series with the heating element immersed in water, which interrupts the power supply in case of overtemperature inside the tank.

If necessary, proceed as follows to reset the thermostat (reserved for qualified technical personnel):

- Unplug the product.
- Remove any air ducts.
- Remove the top cover by first undoing the locking screws (fig. 83).
- Remove the front panel and manually reset the tripped safety thermostat (fig. 84). In case of intervention, the central pin of the thermostat comes out by about 2 mm.
- Refit the previously removed top cover.

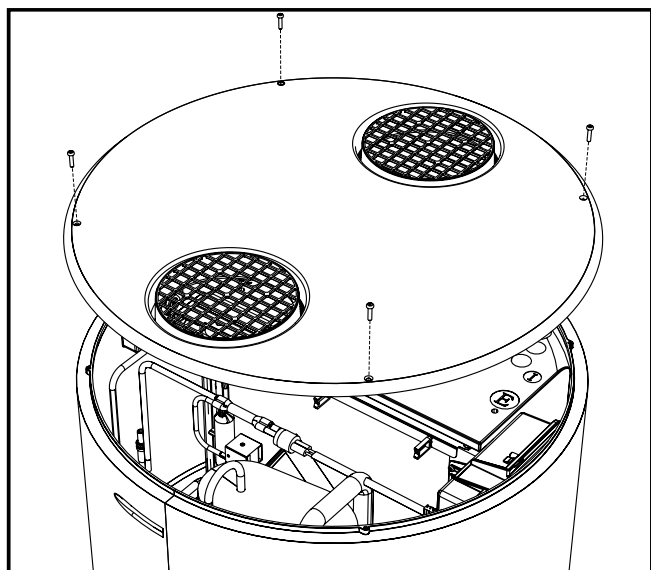


fig. 83- Top cover removal

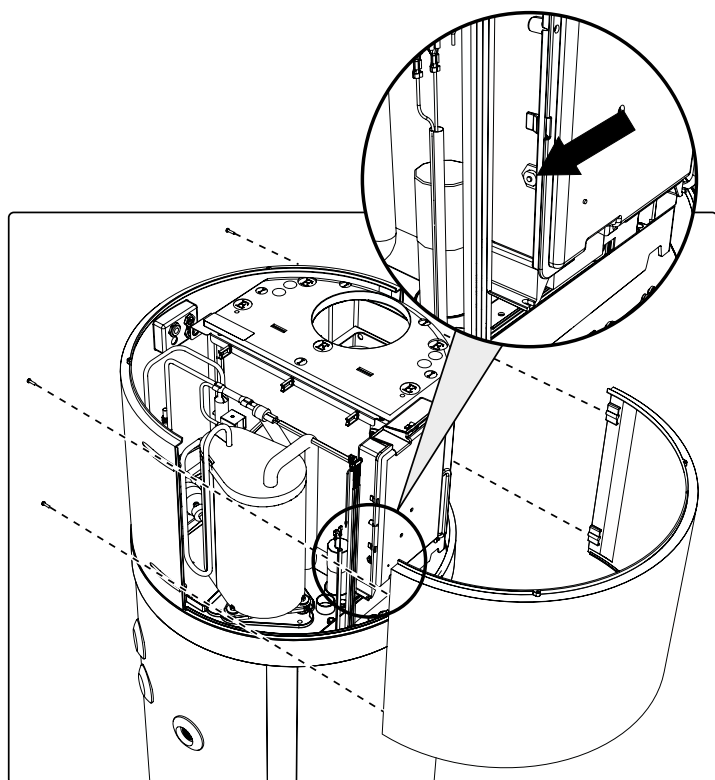


fig. 84- Front panel removal



ATTENTION

If the operator is unable to eliminate the fault, switch off the equipment and contact the Technical Assistance Service, communicating the model of the product purchased.

10.3 CHECK/REPLACEMENT OF THE SACRIFICIAL ANODE

The integrity of the Mg anode must be checked at least every two years (better once a year). The operation must be performed by qualified personnel.

In fact, magnesium is a weakly charged metal compared to the material of which the inside of the boiler is coated, therefore it attracts first the negative charges that form with the heating of water, consuming itself. The anode therefore “sacrifices” itself by corroding itself instead of the tank. The boiler has an anode mounted at the bottom of the tank.

Before doing the check:

- Close the cold water inlet.
- Proceed with emptying the boiler (see par. “10.4 EMPTYING THE TANK”).
- Unscrew the upper anode and check its corrosion; if the corrosion affects more than 2/3 of the anode surface proceed with replacement.

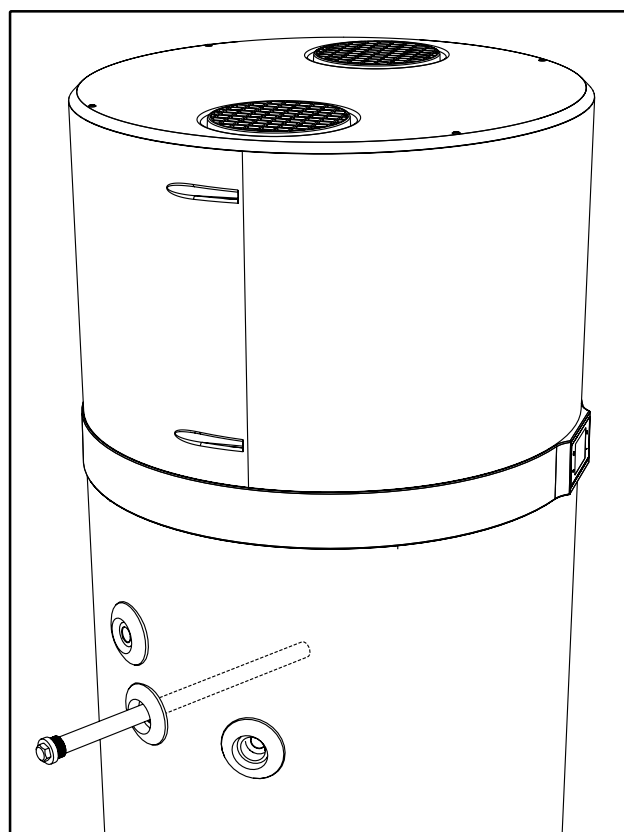


fig. 85



ATTENTION

The intervention of the safety thermostat may occur due to a fault in the control board or the absence of water in the boiler tank.

NB!: The intervention of the thermostat excludes the operation of the electrical heater but not the heat pump system within the allowed operating limits.

10.4 EMPTYING THE TANK

When not in use, especially in the presence of low temperatures, it is advisable to drain the water present inside the tank.

For the appliance in question, just disconnect the water inlet connection (see par. "9.7 Hydraulic connections" on page 47). Alternatively, if you are setting up the system, it is recommended that you install a drain ball valve.

NB!: empty the system in case of low temperatures in order to avoid freezing phenomena.

10.5 Tank internal inspection

To inspect the tank internally, follow this procedure:

- empty the tank (as described in paragraph "10.4 EMPTYING THE TANK")
- remove the sacrificial anode (as described in paragraph "10.3 CHECK/REPLACEMENT OF THE SACRIFICIAL ANODE")
- inspect the inside of the tank using an endoscopic camera evaluating the integrity of the enamelling and metal components.

Once the inspection is complete, reinstall the sacrificial anode and refill the tank as indicated in paragraph "9.13 COMMISSIONING" on page 60.

10.6 Tank internal inspection

To inspect the tank internally, follow this procedure:

- empty the tank (as described in paragraph "10.4 EMPTYING THE TANK")
- remove the sacrificial anode (as described in paragraph "10.3 CHECK/REPLACEMENT OF THE SACRIFICIAL ANODE")
- inspect the inside of the tank using an endoscopic camera evaluating the integrity of the enamelling and metal components.

Once the inspection is complete, reinstall the sacrificial anode and refill the tank as indicated in paragraph "9.12 CASCADE WIRING DIAGRAM" on page 59.

10.7 REPLACEMENT OF THE POWER CORD



ATTENTION

DO NOT TAMPER WITH THE POWER CORD.

If the power supply cable is damaged, it must be replaced by the manufacturer or the technical assistance service or in any case by a person with similar qualifications, in order to prevent any risk.

The cable must be replaced in compliance with the laws in force

in the country where the product is used.

Replace the damaged power cord with a new one with the same or equivalent characteristics to the original cord.

11. REQUIREMENTS FOR THE OPERATION, SERVICE AND INSTALLATION

11.1 GENERAL WARNINGS



OBLIGATION

Any maintenance operation must be performed by qualified personnel in accordance with the instructions in this manual.



OBLIGATION

The unit must be placed in a room that does not have continuous ignition sources (e.g. naked flames, a gas appliance or electric heater in operation).



OBLIGATION

Do not pierce or burn.



OBLIGATION

Remember that refrigerant fluids may be odorless.



OBLIGATION

The appliance must be installed, operated and placed in an installation compartment with a minimum height of no less than 2 metres.

11.2 MAINTENANCE



EXPERT TECHNICIAN

Any intervention on the equipment must be performed by qualified personnel. Exclusively for interventions on the refrigeration circuit, including disposal, the personnel must be equipped with a suitable refrigeration technician's license aimed at the knowledge and management of systems containing gases of the HFC type.

During maintenance operations, the operator in charge must check the following points.

Installation conditions

Check that:

- The dimensions of the installation compartment are those specified in this manual.
- Sufficient ventilation of the room is ensured.
- The markings and graphic signs on the product are present and legible.
- There are no signs of damage or corrosion on the product that could impair its operation or cause refrigerant gas to escape.

In case of differences in the product installation conditions, maintenance personnel are required to inform the owner and proceed with elimination of the non-conformities found.

Checks and repairs of electrical components

Check that:

- There are no conditions of imminent danger for the operator;
- The circuit is not powered.
- If it is not possible to operate without power supply, make sure the owner has been notified regarding the situation.
- The electric capacitors have been safely discharged without producing sparks.
- There is continuity in the ground connection.
- The electrical components are replaced only with original spare parts.
- No cuts or joints are made on the cables of the electrical components.
- The cables and wires do not have any damage which could compromise the integrity of the product and the safety of people and/or property.

Note: only spare parts for original electrical components are guaranteed by the manufacturer to be safe.

Search for refrigerant leaks

- Do not use any kind of flame to detect refrigerant leakage.
- Use electrical detectors only if you are sure of their efficiency and safety.
- Alternatively, specific leak detector sprays can be used for refrigerant gases; the product used must be non-corrosive type.

In order to be used safely, the leak detection instruments must have a calibration tool normally called a calibrated leak. Checking the sensitivity of the detector with the aid of the calibration tool must be carried out far from the place of installation in order to ensure correct calibration.

12. DISPOSAL



EXPERT
TECHNICIAN

Any intervention on the appliance, including disposal, must be carried out by qualified personnel with a suitable refrigeration technician's license aimed at understanding and managing systems containing HFC type gases.

At the end of use, the heat pumps must be disposed of in compliance with current regulations.



ATTENTION

Divide the materials and dispose of them in special collection centres suitable for waste disposal, according to the laws and regulations in force in the country of use.

Disposal operations must only be carried out at an authorised centre by qualified personnel and in full compliance with current regulations.

Before proceeding with the disposal of the product, it is necessary to safely remove the refrigerant gas from the circuit; this operation must be performed according to the following procedure:

- The product must not be connected to the power grid.
- Before starting, ensure you have an adequate gas recovery system equipped with cylinders suitable for the quantity and type of gas you are about to recover, make sure you are wearing suitable PPE.
- Empty the circuit from the service outlet or from the pipe used by the manufacturer to charge the refrigerant gas and at the same time from the compressor suction pipe.
- Start the refrigerant gas recovery system, taking care not to exceed in filling and in the maximum operating pressure.
- The operation ends when the desired vacuum level has been reached; at this point close the recovery cylinder valves and remove the device.
- The removed gas can only be reused after it has been purified and checked by its supplier.

Product disposal label

The product must be identified with a label indicating that it must be scrapped, bearing the date and signature of the employee in charge.

Recovery of refrigerant gas

To perform this operation, the recovery equipment used must be in full working order and properly maintained, suitable for use with flammable gases HFC and accompanied by an instruction manual for proper use.

The connecting pipes must be in good condition and equipped with leak-free connections.

The recovery cylinders must be suitable for use and equipped with a safety valve and shut-off valve, if possible, cool the cylinders before carrying out the recovery operation.

The refrigerant gas recovered must be correctly identified and not mixed with other different gases within the same cylinder; the cylinders must then be sent to the gas supplier who will perform recovery and purification.

If it is necessary to dispose of the compressor or the oil contained in it, it is advisable to first provide for the electrical heating of the compressor body in order to allow the complete and quick evaporation of the refrigerant gas that may have remained dissolved in the oil. The oil must then be managed appropriately.

The main materials that make up the device in question are:

- steel - magnesium - plastic - copper - aluminium - polyurethane

USER INFORMATION

Pursuant to Directives 2011/65/EU and 2012/19/EU on the restriction of the use of hazardous substances in electrical and electronic equipment, as well as the disposal of waste.

The crossed-out bin symbol on the equipment or on its packaging indicates that, at the end of its useful life, the product must be collected separately from other waste.

Therefore, at the end of its life, the user must give the equipment to the appropriate recycling centers for electrical and electronic equipment, or return it to the dealer when purchasing new, equivalent type equipment, on a one-to-one basis.

Adequate separate waste collection for subsequent sending of the decommissioned equipment to environmentally compatible recycling, treatment and/or disposal helps prevent negative effects on the environment and health and favors the reuse and/or recycling of the materials that make up the equipment.

The illegal disposal of the product by the user may lead to the application of the administrative penalties laid down the legislation in force.

13. PRODUCT FICHE

Descriptions	u.m.	200 LT	260 LT	200 LT-S	260 LT-S
Declared load profile	-	L	XL	L	XL
Water heater thermostat temperature settings	°C	55	55	55	55
Water heating energy efficiency class ⁽¹⁾	-	A+	A+	A+	A+
Water heating energy efficiency - η_{wh} ⁽¹⁾	%	135	138	135	138
COP _{DHW} ⁽¹⁾	-	3,23	3,37	3,23	3,37
Annual electricity consumption - AEC ⁽¹⁾	kWh	761	1210	761	1210
Water heating energy efficiency - η_{wh} ⁽²⁾	%	106	112	106	112
COP _{DHW} ⁽²⁾	-	2,55	2,73	2,55	2,73
Annual electricity consumption - AEC ⁽²⁾	kWh	944	1496	944	1496
Water heating energy efficiency - η_{wh} ⁽³⁾	%	162	160	162	160
COP _{DHW} ⁽³⁾	-	3,89	3,9	3,89	3,9
Annual electricity consumption - AEC ⁽³⁾	kWh	631	1046	631	1046
Indoor sound power level ⁽⁴⁾	dB (A)	53	51	53	51
Outdoor sound power level ⁽⁴⁾	dB (A)	45	44	45	44
The water heater can work during off-peak hours only	-	NO	NO	NO	NO
Any specific precautions that shall be taken when the water heater is assembled, installed or maintained	-	See manual			

(1): Data according to EN 16147: 2017+A1 standard for AVERAGE climate (unit in ECO mode; Inlet water = 10 ° C; Inlet air temp = 7 ° C DB / 6 ° C WB)

(2): Data according to EN 16147: 2017+A1 standard for COLDER climate (unit in ECO mode; Inlet water = 10 ° C; Inlet air temp = 2 ° C DB / 1 ° C WB)

(3): Data according to EN 16147: 2017+A1 standard for WARMER climate (unit in ECO mode; Inlet water = 10 ° C; Inlet air temp = 14 ° C DB / 13 ° C WB)

(4): Data according to EN 12102-2: 2019 ECO mode with Inlet air temp = 7 ° C DB / 6 ° C WB

14. NOTES ON RADIO DEVICES AND APPS

This product incorporates a radio module (Wi-Fi) and complies with the RED (Radio Equipment Directive) 2014/53/EU. The following are the main data of the radio part:

- Transmission protocol: IEEE 802.11 b/g/n
- Frequency range: 2412÷2472 MHz (13 channels)
- Maximum transmitter power: 100 mW (20.00 dBm)
- Maximum power spectral density: 10 dBm/MHz
- Maximum antenna gain: 3.23 dBi

Wireless networks can be affected by surrounding wireless communication environments.

The product may not be able to connect to the Internet or lose the connection due to the distance from the Wi-Fi router or electrical interference from the surrounding environment. Wait a few minutes and try again.

If your internet service provider records the MAC address of PCs or modems for identification purposes, this product may fail to connect to the Internet. In this case, contact your internet service provider for assistance.

The firewall settings of your network system may prevent this product from accessing the Internet. Contact your internet service provider for assistance. If this problem persists, contact an authorised service centre or dealer.

In order to configure the wireless router (AP) settings, refer to the router's user manual.

Visit the Google Play Store or Apple App Store and search for the app provided for this product to find out the minimum installation requirements and to download it to your smart device.

This app is not available for some tablets/smartphones and, for the purpose of constant performance improvement, is subject to changes/updates without notice, or an interruption of support according to the manufacturer's policies.



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