Installation Manual
(Translation of original language)

EN

innova

N420812A - Rev. 04 - 02/2025

eHPoca

15 - 18 - 25

First of all, we would like to thank you for having chosen a device of our production.

We are sure you will be happy with it because it represents the state of the art in the technology of home air conditioning.

By following the suggestions contained in this manual, the product you have purchased will provide trouble free operation, giving you optimum room temperatures with minimum energy costs.

INNOVA S.r.l.

Conformity

This unit complies with the European directives:

- EN 60335-2-40 Household and similar electrical appliances - Safety Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
- Low Voltage Directive 2014/35/UE
- EMC Directive 2014/30/EU on Electromagnetic Compatibility
- RoHS2 Directive 2011/65/EU2 on the restriction of the use of hazardous substances in electrical and electronic equipment
- Directive 2012/96/EC (WEEE) on waste electrical and electronic equipment
- ErP Directive 2009/125/EC and Regulation 2012/206/EC
- F-Gas Regulation 2014/517/EU on fluorinated greenhouse gases
- Directive 2014/68/EU PED on pressure equipment

And subsequent amendments.

Markings

CE

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1. CODING

1.1 Product related coding

This instruction manual refers to the following product codes.

⚠ Check the correspondence with the technical rating plate on the product. See chapter "Identification" *p. 9*.

eHPoca		
PCSD15IC0II	15	Indoor
PCSD18IC0II	18	Indoor
PCSD25IC0II	25	Indoor

2. GENERAL INFORMATION

2.1 About the manual

This manual was written to provide all the explanations for the correct management of the device.

⚠ This instruction manual forms an integral part of the device and therefore must be carefully preserved and must ALWAYS travel with it, even if you transfer the device to another owner or relocate it to other premises. If the manual gets damaged or lost, download a copy from the website.

⚠ Read this manual carefully before proceeding with any operation and follow the instructions in the individual chapters.

⚠ The Manufacturer accepts no liability for damages to persons or property caused by failure to follow the instructions in this manual.

⚠ This document is restricted in use to the terms of the law and may not be copied or transferred to third parties without the express authorisation of the Manufacturer.

2.1.1 Editorial pictograms

The pictograms in the next chapter provide the necessary information for correct and safe use of the machine in a rapid and unmistakable way.

Related to security

⚠ **High risk warning (bold text)**
- The operation described above presents a risk of serious physical injury, fatality, major damage to the device and/or to the environment if not carried out in compliance with safety regulations.

⚠ Low risk warning (plain text)
- The operation described above presents a risk of minor physical injury or minor damage to the device and/or to the environment if not carried out in compliance with safety regulations.

⛔ Prohibition (plain text)
- Refers to prohibited actions.

ⓘ **Important information (bold text)**
- This indicates important information that must be taken into account during the operations.

In the texts

► procedures
- lists

In the control panels

► actions required
Expected responses following an action.

In the figures

1 The numbers indicate the individual components.
A The capital letters indicate component assemblies.
❶ The white numbers in black marks indicate a series of actions to be carried out in sequence.
Ⓐ The black letter in white identifies an image when there are several images in the same figure.

2.1.2 Pictograms on the product

Symbols are used in some parts of the device:

Related to security

Read instruction manual
Read the instructions carefully before performing any work on the device.

Instruction manual
Read the information available in the technical documentation of the device.

Caution: electrical danger
- The concerned personnel is informed to the presence of electricity and the risk of suffering an electric shock.

Related to refrigerant R32

Caution: low flammability material
- R32 refrigerant gas is mildly flammable and odourless. Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).

Instructions for the Authorised Service Centre
- The Authorised Service Centre must read the instructions carefully before performing any work on the appliance.
-

2.1.3 Recipients

User
Non-expert person capable of operating the product in safe conditions for people, for the product itself and the environment, interpreting an elementary diagnostic of faults and abnormal operating conditions, carrying out simple adjustment, checking and maintenance operations.

Installer
Expert person qualified to position and connect (hydraulically, electrically, etc.) the unit to the plant; this person is

responsible for handling and correct installation according to the instructions provided in this manual and the national standards currently in force.
To work on the refrigeration circuit, the installer must comply with the provisions of Regulation 303/2008/EC which defines, in accordance with Directive 842/2006/EC, the requirements for companies and personnel with regard to fixed refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases (F-gas licence).

Authorised Service Centre
Expert and qualified person authorised directly by the manufacturer to carry out all routine and supplementary maintenance operations, as well as every adjustment, check, repair and replacement of parts necessary during the life of the unit itself.
Service personnel must comply with the provisions of Regulation 303/2008/EC which defines, in accordance with Directive 842/2006/EC, the requirements for companies and personnel with regard to fixed refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases (F-gas licence).

2.1.4 Manual organisation

The manual is divided into sections each dedicated to one or more target groups.

General information
It addresses all recipients.
It contains general information and important warnings that should be known before installing and using the device.

Product presentation
It addresses all recipients.
It contains the information to identify the product, its components, compatible accessories and destination of use.

Installation
It is addressed exclusively to the installer.
It contains specific warnings and all the information necessary for positioning, mounting and connecting the appliance.

Commissioning, maintenance and troubleshooting
They are addressed exclusively to the Authorised Service Centre.
It contains specific warnings useful information for the most common commissioning and routine maintenance.

Configuration accessories
It is addressed to the installer and the Authorised Service Centre.
It contains specific warnings and all detailed information on configuration accessories.

Technical information
It addresses all recipients.
It contains detailed technical information about the appliance.

2.2 General warnings

⚠ Specific warnings are given in each chapter of the document and must be read before starting operations.

⚠ All personnel involved must be aware of the operations and dangers that may arise when beginning all unit installation operations.

⚠ Installation performed outside the warnings provided in this manual and use of the appliance outside the prescribed temperature limits will invalidate the warranty.

⚠ The installation and maintenance of climate control equipment could be dangerous because there is pressurised refrigerant gas and live electrical components inside the appliances. The installation, initial start-up and subsequent maintenance phases must be carried out exclusively by authorised and qualified personnel (see first start-up request form enclosed with the appliance).

⚠ Any contractual or extra-contractual liability for damage caused to persons, animals or property, due to installation adjustment and maintenance errors, or improper use, is excluded. All uses not expressly indicated in this manual are not permitted.

⚠ Only suitably qualified installers are authorised to install the device. After having completed installation, the installer will issue a declaration of conformity to the plant manager, as required by the applicable standards and the guidelines provided by contractor's instruction manual supplied with the device.

⚠ First start-up and repair or maintenance operations must be carried out by the Technical Assistance Centre or by qualified personnel following the provisions of this manual.

⚠ Do not modify or tamper with the appliance as this can lead to dangerous situations.

⚠ Use suitable personal protective clothing and equipment during installation and/or maintenance operations. The Manufacturer is not liable for the non-observance of the current safety and accident prevention regulations.

⚠ In the event of liquid or oil leaks, set the main switch of the plant to "OFF" and isolate water taps where applicable. Call the Authorised Service Centre or professionally qualified personnel as soon as possible and do not work on the appliance yourself.

⚠ In case of replacement of parts, use only original parts.

⚠ The Manufacturer reserves the right to make changes to its models at any time to improve its product, without prejudice to the essential characteristics described in this manual. The manufacturer is not obliged to add such modifications to machines previously manufactured, already delivered or under construction.

⚠ The unit can be used by children over the age of 8, and by people with reduced physical, sensory or mental capabilities, or with no experience or necessary knowledge, as long as they are monitored or after they have received instructions on the safe use of the unit and have understood the dangers involved. Children must not play with the appliance. The cleaning and maintenance that must be performed by the user should not be carried out by children without supervision.

2.2.1 Specific warnings for R32

ⓘ **This document contains only some of the warnings related to the refrigerant R32. For more comprehensive information, carefully read the safety data sheet available from the dealer.**

⚠ Each chapter contains specific warnings for the operations it describes. These warnings must be read before starting activities.

⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.

⚠ The unit uses environmentally friendly R32 refrigerant gas, with a Global Warming Potential (GWP) = 675. Do not release R32 gas into the atmosphere.

⚠ R32 refrigerant gas is mildly flammable and odourless.

⚠ Do not place flammable objects (spray cans) within 1 metre of the air outlet.

⚠ Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).

⚠ If refrigerant gas escapes, ventilate the room abundantly and leave. Call the Authorised Service Centre or professionally qualified personnel as soon as possible and do not intervene on the appliance yourself.

2.3 Basic rules of security

Please keep in mind that the use of products powered by electricity and water call for operators to comply with certain essential safety rules:

⛔ The use of the appliance to children and unassisted disabled persons is prohibited.

⛔ It is forbidden to touch the device with wet or damp body parts.

⛔ It is forbidden to carry out any operation before disconnecting the appliance from the power supply by setting the plant main switch to "OFF".

⛔ It is forbidden to modify the safety or adjustment devices, or adjust without authorisation and indications of the Manufacturer.

⛔ It is forbidden to pull, unplug or twist the device's electric cables, even if it is disconnected from the mains.

⛔ It is forbidden to introduce objects and substances through the air inlet and outlet grilles.

⛔ It is forbidden to open the access doors of the device's internal parts without first having set main switch of the system to "OFF".

⛔ It is forbidden to incorrectly dispose of the packaging, or leave in the reach of children, which may become a source of danger.

2.3.1 Specific safety rules for R32

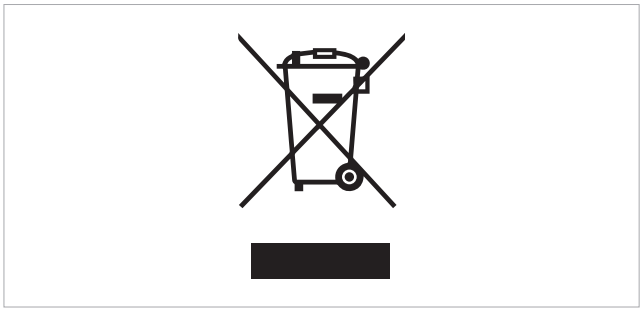
This document contains only some of the safety rules related to refrigerant R32. For more comprehensive information, carefully read the safety data sheet available from the dealer.

⛔ Smoking in the vicinity of the appliance is prohibited.

⛔ Using a mobile phone near the appliance is prohibited.

⛔ Using leak detectors with halogen lamps is prohibited.

2.4 Disposal



The symbol on the product or packaging indicates that the product must not be treated as normal household waste, but must be taken to the appropriate collection point for recycling of used electrical and electronic equipment and batteries.

Proper disposal of this product avoids harm to humans and the environment and promotes the reuse of valuable raw materials.
For more detailed information about the recycling of this product, contact your local authority, your household waste disposal service or the shop where you purchased the product.
Illegal disposal of the product by the user involves the application of the administrative sanctions provided for by the regulations in force.
This provision is valid in the EU Member States.

⚠ Avoid disassembling the unit yourself.

⚠ This unit contains fluorinated greenhouse gases covered by the Kyoto Protocol. Maintenance and disposal operations must be carried out by qualified personnel only.

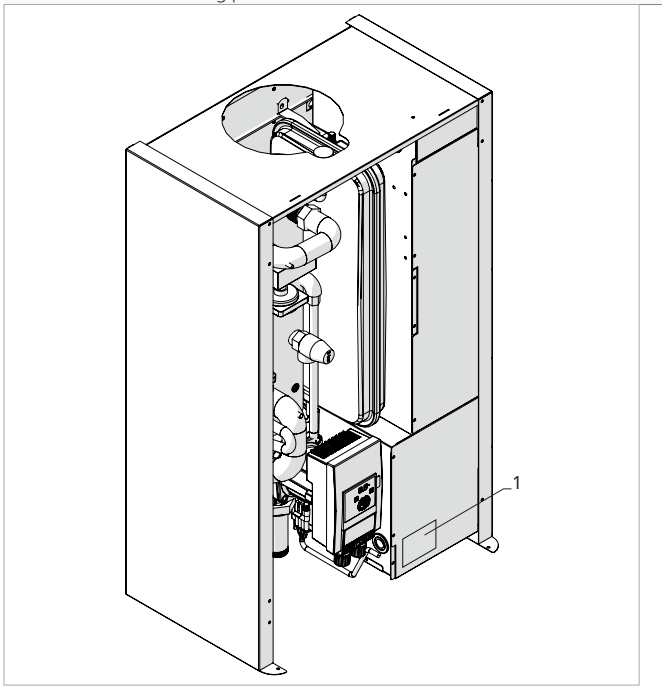
⚠ **Contact an Authorised Service Centre to disassemble the appliance.**

3. PRODUCT PRESENTATION

3.1 Identification

The appliance can be identified by the rating plate:

1. Technical rating plate



Technical rating plate
This shows the technical and performance specifications of the appliance.

⚠ According to EU Regulation No. 517/2014 concerning certain fluorinated greenhouse gases, it is mandatory to indicate the total amount of refrigerant present in the installed system. This information can be found on the rating plate of the combined outdoor unit.

⚠ Tampering with, removal of, or lack of identification plates will not allow for the safe identification of the product by its serial number and therefore invalidates the warranty.

3.2 Destination of use

These appliances are designed for air-conditioning/heating and/or domestic hot water (DHW) production and must be intended for this use compatibly with their performance characteristics.

⛔ It is forbidden to use the device other than as indicated.

3.3 Description of the appliance

eHPoca indoor units are designed for indoor, wall-mounted installation and work in combination with the outdoor units of the same series.
The units are provided with a hydraulic module with circulation pump and heat exchanger.

The units are manufactured in different sizes, distinguished by performance:
Models 15 - 18 - 25

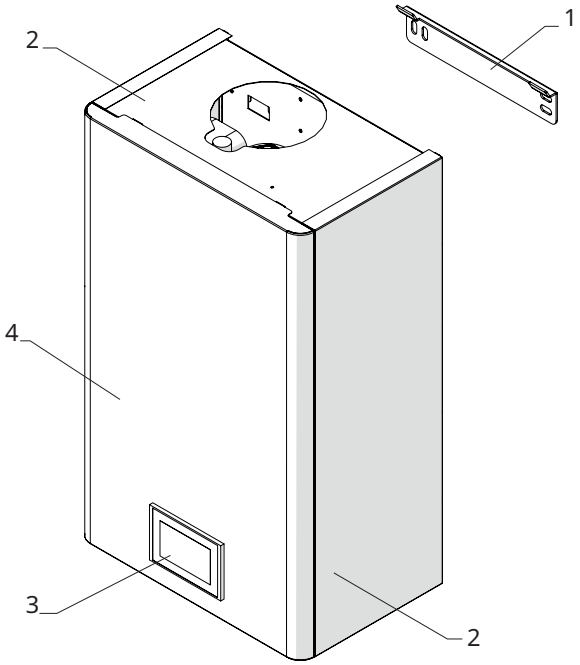
eHPoca size matchability

Indoor unit	15	18	25
Single-phase outdoor unit	15M	-	-
Three-phase outdoor unit	15T	18T	25T

3.4 List of external components

3.4.1 Indoor unit

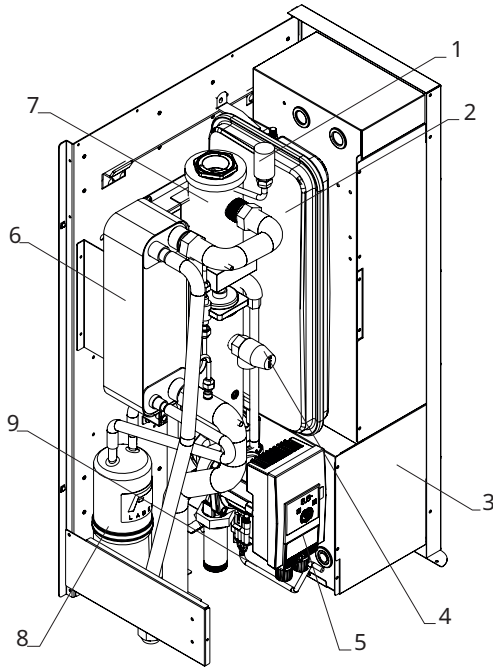
1.	Wall mounting bracket	**3.**	Control Panel
2.	Aesthetic side panel	**4.**	Access panel



3.5 List of internal components

3.5.1 Indoor unit

1.	Safety valve and air vent group	**6.**	Plate heat exchanger
2.	Expansion vessel	**7.**	Control panel manifold
3.	Electrical panel	**8.**	Liquid receiver (except for size 25)
4.	Safety valve	**9.**	Control panel connector
5.	PP1 primary circulation pump		



3.6 Compatible accessories

	Accessory description	Combinable products	Code
Network controls			
Butler			
	BUTLER: codes, accessories and price list in relevant section	All	
Configuration accessories			
Heater kit			
	Heating elements 6 kW (3 steps of 2 kW). For single-phase heat pumps, factory setting 2 kW (maximum 4 kW)	All	GB1118II (1)
Accessories supplied separately			
Valves			
	3 way DHW valve/system. Motorised three-way ball valve for domestic hot water production	All	AI0606II
Domestic hot water preparation tank			
Insulated tank designed for use at low temperature and with renewable energy sources, with instantaneous 316 L stainless steel heat exchanger for DHW production and coil for integration with solar system. EN 10025-compliant sheet steel construction, welded. PVC exterior finish.	Tank ACS 300 L - Heat exchanger surface ACS: 5,5 m^2, Dimensions (Ø x h): 650x1355 mm. With 50 mm thick insulation made of rigid polyurethane λ=0.024 W/(mxk).	All	AI0632II
	Tank ACS 200 L - Heat exchanger surface ACS: 5,5 m^2, Dimensions (Ø x h): 550x1055 mm. With 25 mm thick insulation made of rigid polyurethane λ=0.024 W/(mxk).	All	AI0681II
	ACS tank 600 L - ACS exchanger surface area 5.5 m^2, External dimensions (Øxh): 750x1895 mm. With 50 mm thick insulation made of rigid polyurethane λ=0.024 W/(mxk).	All	AI0784II
	ACS tank 800 L - ACS exchanger surface area 7.0 m^2, External dimensions (Øxh): 1050x1750 mm. With 130 mm thick insulation made of flexible polyester λ=0.038 W/(mxk).	All	AI0785II
	ACS tank 1000 L - ACS exchanger surface area 7.5 m^2, External dimensions (Øxh): 1050x2110 mm. With 130 mm thick insulation made of flexible polyester λ=0.038 W/(mxk).	All	AI0786II
	ACS tank 1500 L - ACS exchanger surface area 10.0 m^2, External dimensions (Øxh): 1260x2215 mm. With 130 mm thick insulation made of flexible polyester λ=0.038 W/(mxk).	All	AI0787II
	ACS tank 2000 L - ACS exchanger surface 12.0 m^2, External dimensions (Øxh): 1369x2380 mm. With 130 mm thick insulation made of flexible polyester λ=0.038 W/(mxk).	All	AI0788II

1. Accessories can be installed and tested at the factory

	Accessory description	Combinable products	Code
Buffer tank			
Inertial tank for hot and chilled water, galvanised steel finish. Steel sheet construction in accordance with EN 10025, welded. External PVC finish.	Puffer 100 L, External dimensions (Ø x h): 500x915 mm. With anti-condensation insulation, 50 mm thick rigid polyurethane λ=0.024 W/(mxk).	All	AI0790II
	Puffer 200 L, External dimensions (Ø x h): 550x1330 mm. With anti-condensation insulation, 50 mm thick rigid polyurethane λ=0.024 W/(mxk).	All	AI0791II
	Puffer 300 L, External dimensions (Ø x h): 600x1610 mm. With anti-condensation insulation, 50 mm thick rigid polyurethane λ=0.024 W/(mxk).	All	AI0792II
	Puffer 500 L, External dimensions (Ø x h): 750x1665 mm. With anti-condensation insulation, 50 mm thick rigid polyurethane λ=0.024 W/(mxk).	All	AI0793II
	Puffer 800 L, External dimensions (Ø x h): 890x1700 mm. With anti-condensation insulation, 50 mm thick rigid polyurethane λ=0.024 W/(mxk).	All	AI0794II
	Puffer 1000 L, External dimensions (Ø x h): 890x2060 mm. With anti-condensation insulation, 50 mm thick rigid polyurethane λ=0.024 W/(mxk).	All	AI0795II
	Puffer 1500 L, External dimensions (Ø x h): 1280x2145 mm. With anti-condensation insulation, 10 mm thick PEXL and thermal insulation, 130 mm thick Flexible Polyester λ=0.038 W/(mxk).	All	AI0796II
	Puffer 2000 L, External dimensions (Ø x h): 1380x2395 mm. With anti-condensation insulation, 10 mm thick PEXL and thermal insulation, 130 mm thick Flexible Polyester λ=0.038 W/(mxk).	All	AI0797II

1. Accessories can be installed and tested at the factory

⚠ **For detailed information on accessories please refer to the "Configuration accessories"** *p. 53* **section.**

4. INSTALLATION

4.1 Preliminary warnings

⚠ **This section is dedicated to the Installer. The features of the installer are described in the "Recipients"** *p. 5* **chapter.**

⚠ **For detailed information on the products, refer to chapter "Technical information"** *p. 54***.**

⚠ **For detailed information on accessories please refer to the "Configuration accessories"** *p. 53* **section.**

⚠ The installation must be carried out by the installer in accordance with national installation regulations. There is a risk of water leakage, electric shock or fire if the installation is not performed correctly.

⚠ During the installation, it is necessary to observe the precautions mentioned in this manual, and on the labels placed inside the equipment, as well as to adopt any precaution suggested by common sense and by the Safety Regulations in force in the place of installation.

⚠ Be sure to use the supplied or specified installation parts. Use of other parts may cause the unit to come loose, leak water, or cause electrical shock, or fire.

⚠ The Manufacturer accepts no liability for damage caused to animals or property due to failure to apply the indicated rules which may cause malfunction of appliances.

4.1.1 Preliminary warnings for R32

⚠ Safety checks must be carried out to ensure that the risk of combustion is minimised before starting work on systems containing flammable refrigerants.

⚠ The appliance must be protected against accidental impacts to prevent mechanical damage.

⚠ Do not puncture or burn.

4.2 Reception

4.2.1 Preliminary warnings

⚠ On receipt check for any damage and, if any is found, accept the goods with reservation, and keep photographic evidence of any damage found

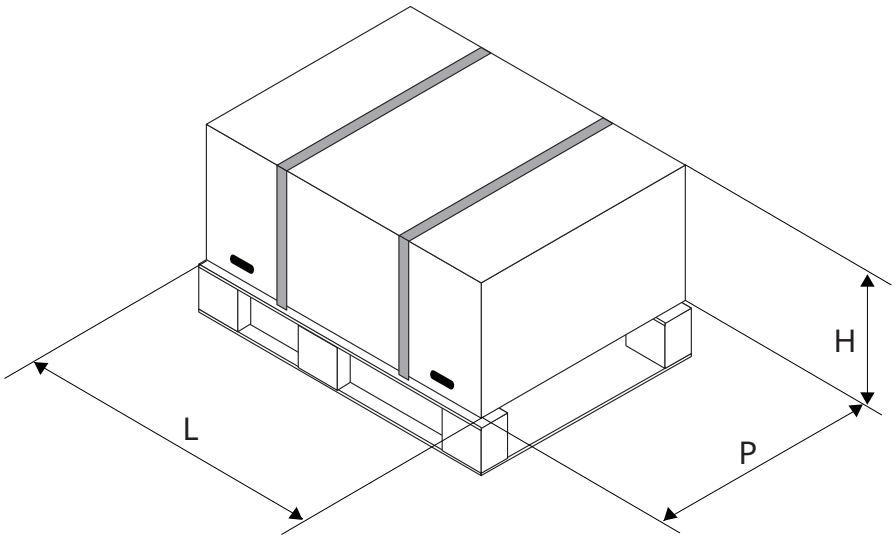
⚠ In the event of damage, notify the shipper within 3 days of receipt of any damage by registered mail with return receipt, submitting photographic evidence. Similar information should be sent by fax to the manufacturer (jurisdiction will be at the Court Trento for any dispute).

⚠ No notice of damage will be accepted after 3 days from delivery.

4.2.2 Package description

The packaging is made of suitable material and carried out by experienced personnel.
The appliance is shipped in standard packaging consisting of a cardboard sleeve and a set of expanded polystyrene protectors.
There is a pallet underneath the packaging of the unit to facilitate transport and moving.
Units are delivered complete and in perfect condition.

4.3 Dimensions and weights with packaging



4.3.1 Indoor unit

Models	u.m.	15	18	25
Width	mm	530	530	530
Height	mm	1100	1100	1100
Total depth	mm	360	360	360
Weight	kg	51,0	54,0	54,0

4.4 Handling with packaging

4.4.1 Preliminary warnings

⚠ The appliance must be handled only by qualified personnel, adequately equipped and with equipment suitable for the weight and dimensions of the appliance.

⚠ Before moving the unit, check the lifting capacity of the machinery used following the instructions on the packaging.

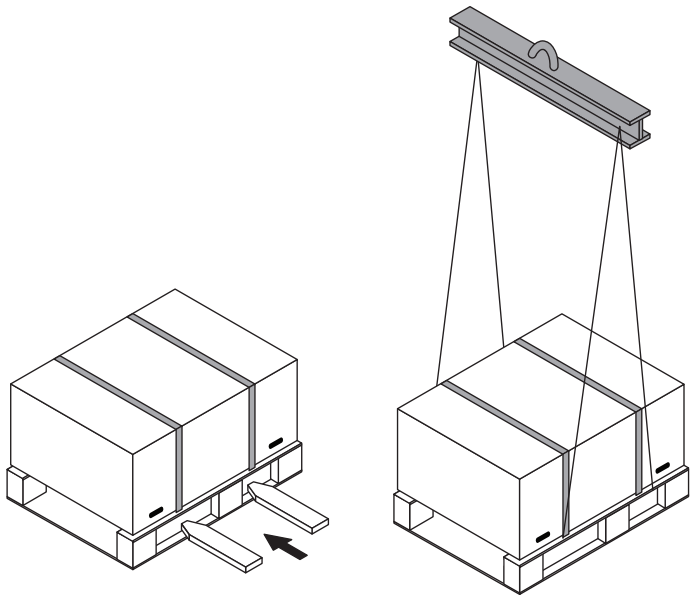
⚠ Stay clear of the area below and around it when the load is lifted off the ground.

⚠ If a forklift truck is used, put the base in the appropriate openings.

⚠ Avoid dangerous situations when using a hoist to lift the appliance.

4.4.2 Movement methods

1. Handles for handling



The product can be handled as follows:
- using a fork lift or a transpallet which can bear its weight

⚠ Use a small balance to prevent the pressure of the belts damages the unit.

⚠ Only in exceptional cases can the unit be moved manually for short distances using the handles provided on the packaging. In this case, the weight of the unit must be carefully checked.

4.5 Storage

4.5.1 Preliminary warnings

⚠ Store in accordance with the applicable national regulations.

⚠ Store the box in a closed environment protected from atmospheric agents and isolate it from the floor using planks or pallets.

⚠ Do not turn the packaging upside down.

⚠ Only place the appliance in a vertical position.

⚠ Store in a clean and dry place.

4.5.2 Appliance with packaging

Store the package:
- in a dry and clean place
- in a closed environment protected from atmospheric elements
- insulated from the ground by crossbars or pallets

4.5.3 Appliance without packaging

The following procedures are recommended in the case of medium to long term storage:
- check that no water is present in the hydraulic systems
- do not remove plastic protective films
- check that the electrical panels are closed

4.6 Unpacking

4.6.1 Preliminary warnings

⚠ Check that no components were damaged during transport.

⚠ Dispose of the packaging components following the applicable waste disposal regulations. Check for disposal arrangements with your municipality.

⚠ Handle with care.

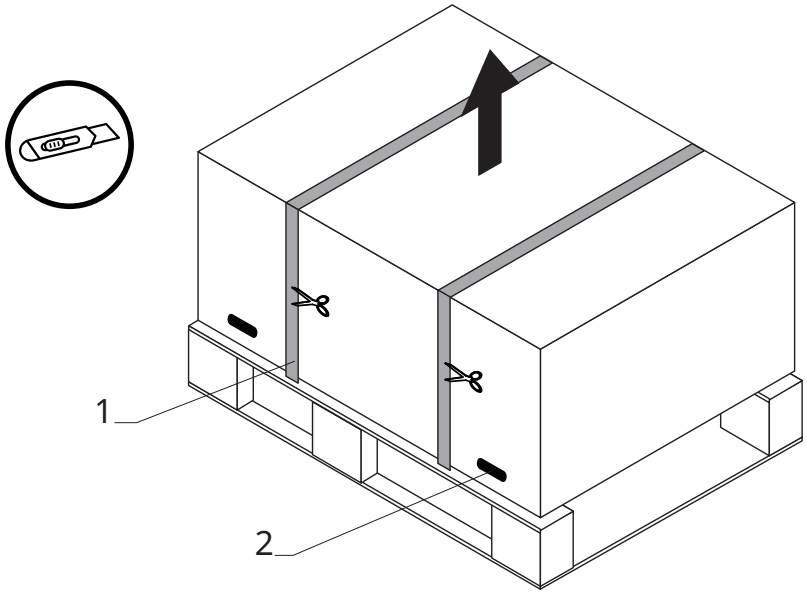
⚠ The equipment must always be handled vertically.

⚠ Check if there is refrigerant inside the package using an electronic leak detector suitable for the system refrigerant. If it is present, the refrigeration circuit is likely damaged. In this case, do not install the appliance and call the Authorised Service Centre.

⛔ The packing material (cardboard, staples, plastic bags, etc.) must not be dispersed or abandoned in the surrounding environment and must be kept out of the reach of children, as it poses a risk of danger.

4.6.2 Remove the package

1. Strapping
2. Handles for handling



Remove the packing:
- ► transport the appliance to the installation area
- ► cut the strapping
- ► remove the packing

Accompanying material

They are included with the appliance, inside the packaging:

⚠ Check the presence of the individual components.

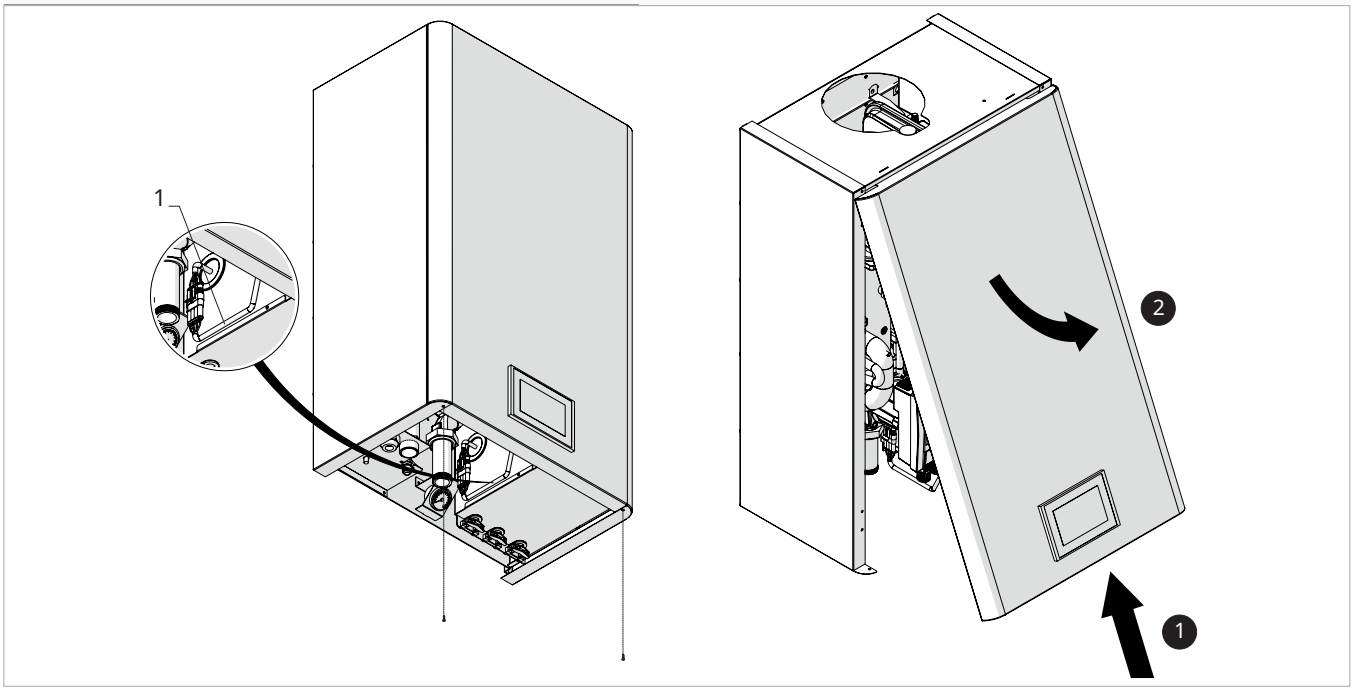
Indoor unit

- 1 installer manual of the unit
- 1 user and installer manual for the Control Panel
- 1 installation template
- 1 Wall mounting bracket
- 1 first start-up form

In c ase of lost, the installation template is available on the website, in the download area.

4.7 Removal of aesthetic panels

1. Connectors



The control panel, fixed to the front panel, is connected with a connector to the electrical board in the unit.
The control panel must be disconnected to avoid damaging the electronic components.

- ► disconnect the connector
- ► undo the lower fixing screws
- ► push the panel upwards
- ► remove the panel

⛔ Removing the side panels without completely removing the fixing screws is forbidden.

⚠ Do not install the cosmetic panels until all connections have been established.

4.8 Handling without packaging

4.8.1 Preliminary warnings

⚠ The appliance must be handled only by qualified personnel, adequately equipped and with equipment suitable for the weight and dimensions of the appliance.

4.8.2 Movement methods

To handle:

- ► lift from the base of the packaging

⚠ The unit can be moved manually for short distances. In this case it is necessary to check carefully that the weight of the unit does not exceed the regulations in relation to the number of people used.

⚠ Use means suitable for the weight of the appliance and how it is to be handled.

4.9 Installation site

The location of the appliance must be determined by the plant engineer or a competent person and must take into account both purely technical requirements and any national/local legislation in force.
The appliance is intended to be installed indoors.

4.9.1 Preliminary warnings

⚠ Avoid installing the unit near:

- narrow places where the sound level of the appliance can be enhanced by reverberations or resonances
- environments with the presence of flammable or explosive gases
- very humid environments (laundries, greenhouses, etc.)
- environments with aggressive atmospheres
- solar radiation and proximity to heat sources

⚠ Avoid placing the unit within 1 metre of radio and video equipment.

⚠ Make sure that:

- the installation site of the unit must be chosen with the utmost care to guarantee adequate protection from shocks and consequent damage
- the supporting structure is able to support the weight of the appliance
- the section of floor or wall does not involve load-bearing construction elements, piping or electrical lines
- the appliance must be installed in a position where it can be easily serviced

⚠ If the appliance is installed incompletely or on an inappropriate wall, it could cause damage to persons or property if it should detach.

⚠ Provide the following:
- a drain and a water supply nearby
- a compliant power supply nearby

Preliminary warnings for R32

⚠ The appliance must be installed in well-ventilated rooms with a minimum floor area as indicated in the Minimum floor area table according to the total refrigerant charge in the circuit.

⚠ **The refrigerant charge means the total charge of the circuit given by the sum of the factory charge and any additional charge.**

⚠ Refer to the rating plate on the paired outdoor unit for the amount of refrigerant gas loaded in the unit.

⚠ If the appliance is located in a poorly ventilated place, precautions must be taken to prevent stagnation in the event of leakage of refrigerant to avoid creating a risk of fire or explosion.

⚠ The appliance must be placed in room where there are no open flames continuously in operation (e.g. a gas appliance in operation) and no sources of ignition (e.g. an electric heater in operation).

⚠ Any ventilation openings must be kept free of obstacles.

⚠ Perform the following checks:
- carry out safety checks to ensure that the risk of combustion is minimised
- avoid working in confined spaces
- delimit the area around the workspace
- ensure safe working conditions around the area by controlling flammable material

Minimum floor area

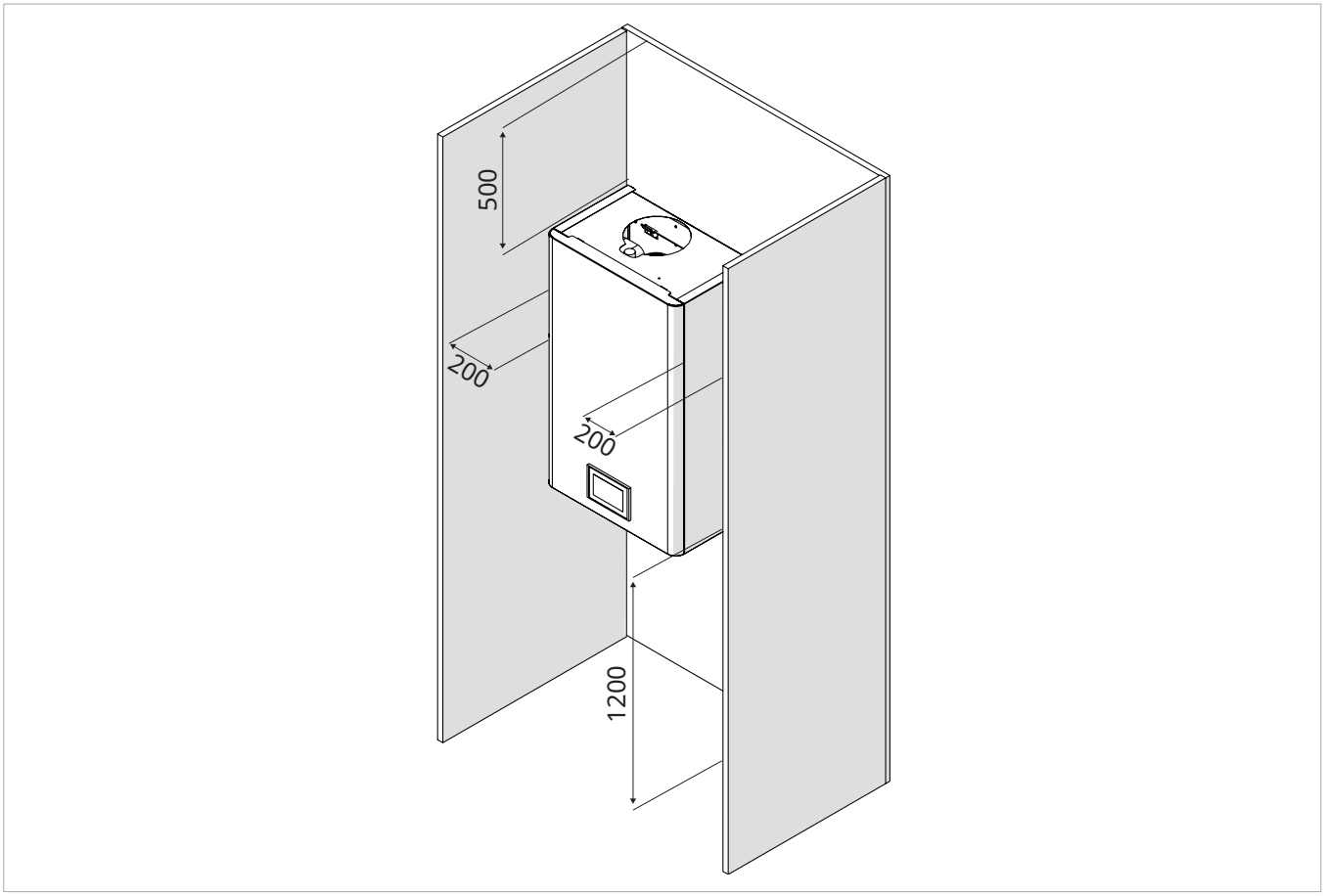
m (kg)	Amin (m^2)
1,8	Without limitations
2,0	3,81
2,2	4,61
2,4	5,49
2,6	6,44
2,8	7,47
3,0	8,58
3,2	9,76
3,4	11,02
3,6	12,36
3,8	13,77
4,0	15,26
4,2	16,82
4,4	18,46
4,6	20,18
4,8	21,97
5,0	23,84
5,2	25,79
5,4	27,81
5,6	29,91
5,8	32,09
6,0	34,34
6,2	36,67

1. **m** Refrigerant charge
2. **Amin** Minimum floor area

4.10 Installation minimum distances

The clearance zones for the installation and maintenance of the appliance are shown in the figure. Established spaces are necessary to allow for normal cleaning and maintenance.

⚠ Make sure that there is sufficient space to allow the panels to be removed for routine and supplementary maintenance operations.



4.11 Positioning

The units must be wall-mounted.

4.11.1 Preliminary warnings

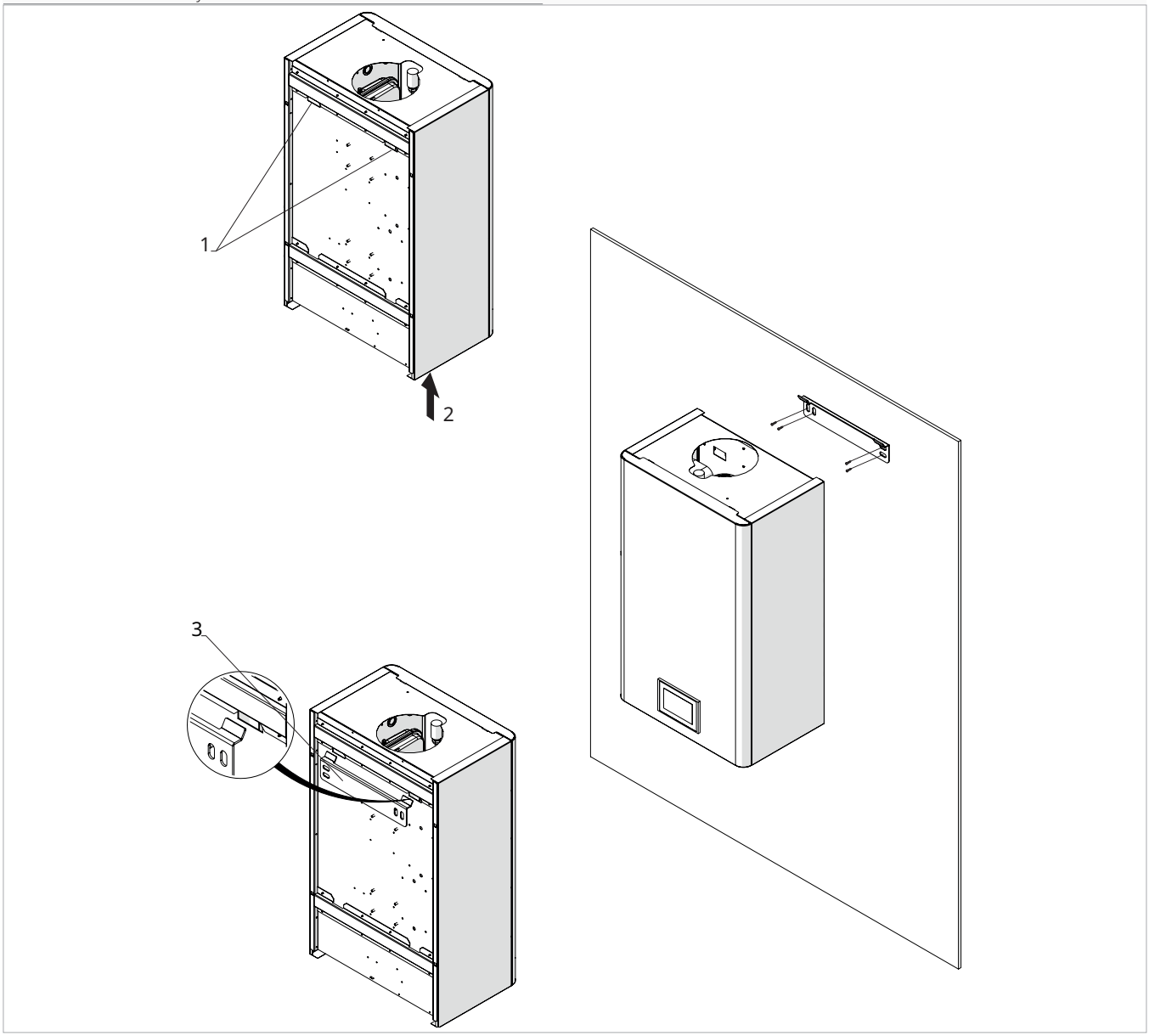
⚠ The unit requires two or more people to position the unit.

⚠ The wall mounting bracket supplied as an accessory is required to position the unit on the wall.

⚠ Ensure that:
- the wall supports the weight of the appliance
- the section of the wall does not contain piping or electrical lines
- the functionality of load-bearing elements is not compromised

4.11.2 Positioning

1. Fastening bracket coupling
2. Connection entry
3. Fixing bracket



⚠ **For dimensional information, refer to chapter "Technical information"** *p. 54***.**

⚠ The appliances are supplied with a cardboard template for marking the holes necessary for installation and a wall mounting bracket.

- ► position the template on the wall
- ► mark the positions of the fixing holes
- ► use screws and expansion plugs suitable for the weight of the appliance and the material of the supporting wall
- ► attach the wall mounting bracket to the supporting wall
- ► hang the appliance on the bracket

Make sure that:

- it is levelled
- easy access is allowed to the hydraulic and electrical parts

4.12 Hydraulic connections

4.12.1 Preliminary warnings

⚠ The engineer is responsible for choosing the right water lines and their size, in accordance with good installation practices and the applicable law.

⚠ The hydraulic system is made by the installer and must be carried out with reference to the diagrams in this manual or on the website.

⚠ The hydraulic pipes connecting to the appliance must be suitably sized for the actual water flow rate required by the plant during operation. The water flow rate to the heat exchanger must always be constant.

⚠ The maximum permissible pressure drops must be compared with the data shown in chapter "Technical information" *p. 54*. If higher heads are required due to high pressure drops in the plant, an external pump with respective buffer vessel must be used.

⚠ Make sure that the quantity of water in the primary circuit is greater than the minimum volume indicated in chapter "Plant water content and minimum flow rate" *p. 22*, to prevent the risk of ice formation during defrosting operations or continuous modulation of the compressor frequency

⚠ It is important to note that the heat pump Control Panel manages all the adjustments of the primary circuit (system and domestic hot water set-point, circulation pump, dynamic set control and auxiliary heater management).

⚠ Any regulation that foresees the management of the plant with a control unit or a boiler conflicting with these regulations must be submitted to the manufacturer's technical office in advance for approval otherwise the warranty will be invalidated.

⚠ If the appliance is connected in parallel with a boiler, make sure that the temperature of the water circulating in the heat pump does not exceed 60 °C during operation.

4.12.2 Hydraulic plant

Heat pumps require plants that guarantee a constant flow of fluid to the appliance, within the minimum and maximum values and with sufficient volumes to avoid imbalances in the refrigeration circuits and to guarantee the correct level of comfort.

4.12.3 Plant water content and minimum flow rate

Water content

A minimum volume of water in the primary circuit of the plant must be guaranteed for the correct operation of the appliance.

⚠ The minimum volume is necessary to prevent risks of ice formation during defrosting operations or continuous modulation of the compressor frequency.

It also allows the following advantages:
- less wear and tear on the appliance
- increased system performance
- improved temperature stability and accuracy

Minimum flow rate

To prevent the differential pressure switch from tripping, a minimum water flow rate must be guaranteed to the appliance.
The minimum flow rate must be guaranteed in all operating modes and under all conditions, if necessary by adding a by-pass valve.
A hydraulic separator must be provided if the plant requires a higher head than that available from the pump of the unit.

Models	u.m.	15	18	25
Minimum water flow rate	L/min	29,3	32,0	45,0

The minimum volume is indicated in the table below:

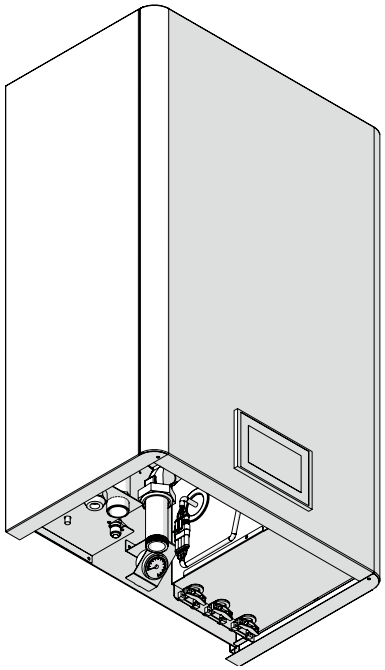
⚠ If the minimum volume is not reached, a suitably sized storage tank must be provided.

⚠ The minimum volume must be guaranteed in all operating modes and under all conditions.

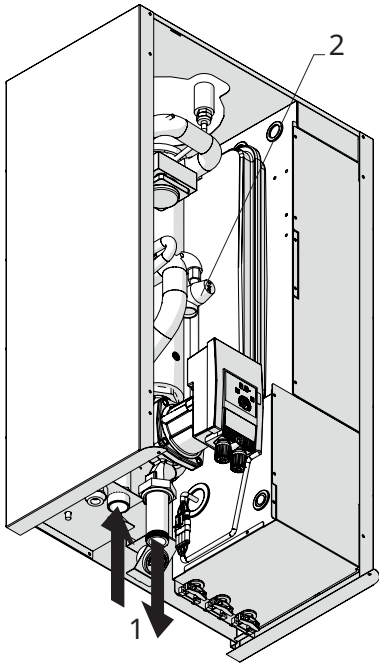
Models	u.m.	15	18	25
Minimum system water content	L	65,0	75,0	110,0

4.12.4 Position and dimensions

1. Plant connections



2. Safety valve connection



⚠ **For dimensional information, refer to chapter "Technical information"** *p. 54*

If cosmetic panels are mounted:

► remove as indicated in the chapter "Removal of aesthetic panels" *p. 18*

4.12.5 Connection to the system

Preliminary warnings

⚠ To allow maintenance or repair operations, each hydraulic connection must be equipped with the respective manual shut-off valves.

⚠ It is advisable to create a by-pass in the plant to be able to wash the plate exchanger without having to disconnect the appliance.

⚠ Before connecting the piping, make sure that it do not contain stones, sand, rust or foreign matter that could damage the plant.

⚠ **The minimum nominal diameter of the connecting pipes must be 1". Keep in mind that undersized piping determines malfunctions and/or loss of heating and cooling performance.**

⚠ The connection piping must be suitably supported so as not to bear on the appliance with its weight.

⚠ Plants filled with antifreeze or special legal provisions require the use of hydraulic disconnectors.

⚠ Flush the plant thoroughly before connecting the unit. This cleaning process removes any residue, such as welding drops, slag, rust or other fouling from the pipes. These substances may otherwise settle inside and cause the appliance to malfunction.

⚠ Hydraulic lines and joints must be thermally insulated. Insulate the water distribution piping with polyethylene foam or similar materials with a minimum thickness of 13 mm. Shut-off valves, elbows and various fittings must also be adequately insulated.

⚠ Avoid partial insulation of the pipes.

⚠ Avoid over-tightening the tape to avoid damaging the insulation.

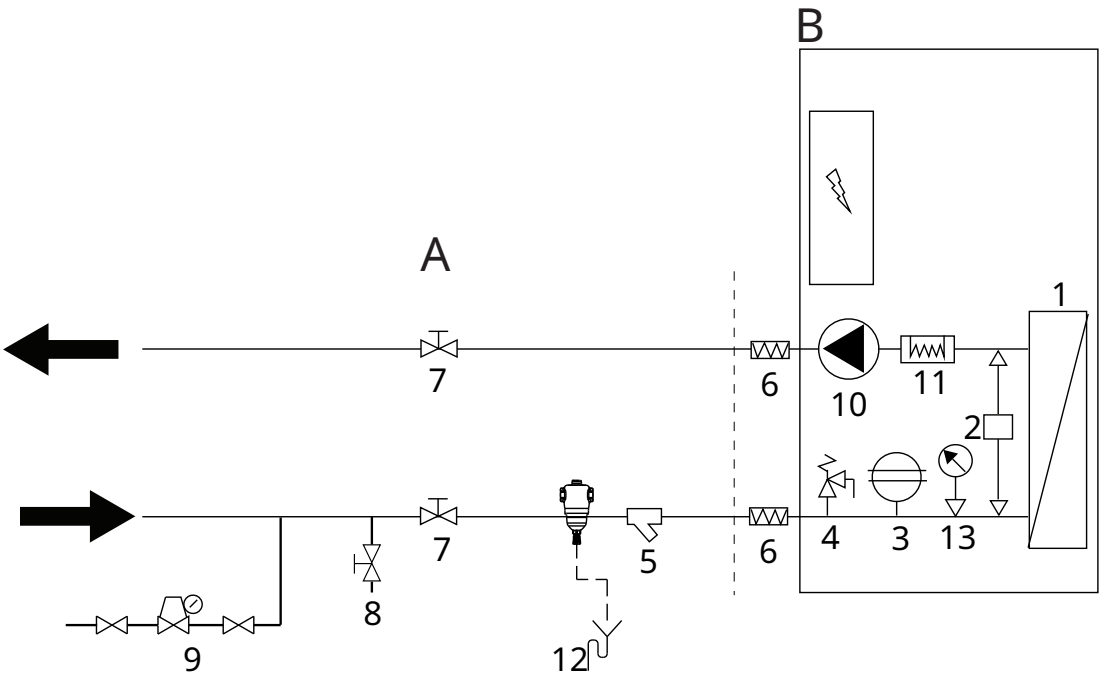
⚠ Carefully check that the insulation is tight, in order to prevent the making and dripping of condensate.

⚠ **Installing a dirt separator or mains water filter at the inlet of the appliance in an area accessible for maintenance is compulsory to safeguard the appliance from impurities in the water.**

⛔ Operating the unit without adequate water filtration installed and clean is forbidden.

Hydraulic connection diagram

A	Installation by the installer
B	Indoor unit eHPoca
1.	Plate exchanger
2.	Flow switch (differential pressure switch)
3.	Expansion vessel
4.	3-bar safety valve
5.	Network water filter
6.	Flexible connections
7.	Shut-off valves
8.	Plant drain cock
9.	Automatic plant filling assembly
10.	PP1 primary circulation pump
11.	Electric heating element (accessory)
12.	Dirt separator
13.	Pressure gauge



Connection

To make the connections:

- ► hydraulic lines positioning
- ► use the "double wrench" method
- ► tighten the connections
- ► check for leaks
- ► coat the connections with insulating material

The hydraulic connections must be completed by installing:

- air vent valves at the highest points of the piping
- flexible elastic joints
- shut-off valves
- drain cock
- filling tap
- a suitably sized storage tank for plant water
- a domestic hot water storage tank chosen so that the combined heat exchanger has surfaces compatible with the output of the heat pump in all conditions
- a mains water filter and a dirt separator at the inlet of the appliance

4.12.6 Filtration system

⚠ **It is necessary to install a filtration system at the inlet of the appliance in an area accessible for maintenance, in order to protect the appliance from impurities in the water.**

⚠ The recommended filtration system is through a dirt separator. Alternatively, a mesh filter can be used.

4.12.7 Safety valve

The outlet of the installed safety valve must be connected to a suitable collection and evacuation system to prevent any water spillage from coming into contact with the electrical parts of the appliance.

⚠ The manufacturer of the appliance is not responsible for any flooding caused by the intervention of the safety valves.

⚠ Provide a pressure reducer if the mains pressure exceeds 3 bar.

4.12.8 Air vent

To avoid air pockets inside the circuit, place automatic or manual venting devices at all points (higher piping, siphons, etc.) where air can accumulate.

4.13 Filling the plant

The plant must be filled once the hydraulic connections have been completed.

4.13.1 Preliminary warnings

⚠ A filling system external to the unit must be provided.

⚠ All operations must be carried out with the machine stopped and disconnected from the power supply.

⚠ If an external auxiliary pump is used, it must be switched off.

⚠ The operating pressure of the plant must not exceed 1.5 bar with the pump off. To check for leaks in the plant during testing, it is advisable to raise the test pressure and then discharge it later to reach the correct working pressure. If the pressure exceeds 3 bar, the safety valve opens and discharges the excess water outside.

4.13.2 Physicochemical characteristics of water

The quality of the water used must comply with the characteristics listed in the following table; otherwise, a treatment system should be considered.

Water content	Unit of measurement	Concentration
Cloruri (Chloride)	ppm	< 50
Oxygen content	ppm	< 0,1
Ammonia (NH3)	ppm	< 0,5
Sulphate (SO4)	ppm	< 70
Bicarbonate (HCO3)	ppm	70 ÷ 300
Bicarbonate/Sulfate Ratio (HCO3/SO4)	-	> 1,0
pH	-	7,5 ÷ 9,0
Total hardness	dH	4,5 ÷ 8,5
Phosphate (PO4)	ppm	< 2,0
Free Chlorine (Cl2)	ppm	< 0,5
Iron (Fe3+)	ppm	< 0,2
Manganese (Mn++)	ppm	< 0,05
Free Carbon Dioxide (CO2)	ppm	< 5
Electrical conductivity	µS/cm	10 ÷ 500
Nitrate (NO3)	ppm	< 100
Aluminum (Al)	ppm	< 0,2
Ratio between [Ca2+, Mg2+] and [HCO3-]	-	-
Chlorides (Cl)	ppm	< 50
Hydrogen sulphide (H2S)	ppm	< 0,05

⚠ Physicochemical characteristics that are not compatible could compromise the integrity of the unit's hydraulic parts.

⚠ Well or groundwater not coming from an aqueduct should always be carefully analysed and, if necessary, conditioned with appropriate treatment systems.

⚠ A water softening plant must be used if the initial water hardness exceeds the value indicated in the table.

⚠ Excessive water softening (total hardness < 1.5 mmol/l) could generate corrosive phenomena in contact with metallic elements (piping or parts of the heat source). Also keep the conductivity value within 600 µS/cm.

⚠ Check the chloride concentration at the outlet after resin regeneration.

⛔ Introducing acids into the washing circuit is forbidden.

⛔ Constantly or frequently topping up the plant is forbidden because this can damage the heat exchanger of the appliance.

4.13.3 Filling

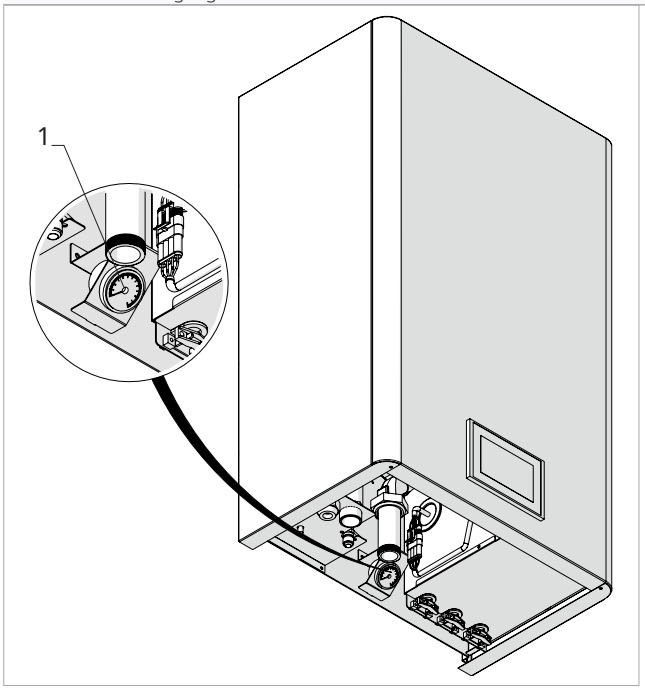
Before starting the filling operation:

- ► set the plant main switch in the OFF position.
- ► check that the plant drain cock is closed
- ► open all the air purge valves of the plant and its terminals
- ► open all the system's shut-off devices

To fill the system:

- ► start filling by slowly opening the plant water filling cock on the outside of the appliance

1. Pressure gauge



When water starts coming out of the terminal vent valves:

- ► close the vent valves
- ► continue filling up to the pressure value required by the plant
- ► check that the expected nominal pressure has been reached
- ► isolate the water supply
- ► check the tightness of the gaskets

⚠ It is recommended to repeat this operation after the device has been running for a few hours.

⚠ Regularly check the system's pressure.

⚠ Keeping the system bleed open during operation may cause loss of performance and increase energy consumption.

4.14 Refrigeration connections

4.14.1 Preliminary warnings

⚠ **The installer must comply with the provisions of Regulation 303/2008/EC which defines, in accordance with Directive 842/2006/EC, the requirements for companies and personnel with regard to fixed refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases.**

⚠ **For dimensional information, refer to chapter "Technical information"** *p. 54*

⚠ Use equipment suited for the refrigerant in the system.

⚠ Plan the route of the pipeline so as to reduce the length and number of bends as much as possible for best performance of the system.

⚠ The refrigeration lines must be as straight as possible and the radius of any bends must be greater than 40 mm.

⚠ Use only special copper pipes for cooling.

⚠ The connections between the parts of the refrigeration system made during installation, if at least one of them is charged, must be made as follows:
- a brazing, welding or mechanical connection must be made before opening the valves that allow the refrigerant to flow between the parts of the refrigeration system. A valve must be provided to create a vacuum in the connecting pipes and/or any other part of the refrigeration system that is not charged
- reusable mechanical connectors or countersunk joints are not permitted inside
- refrigerant pipes must be protected or placed inside to prevent mechanical damage

⚠ The pipes must be supplied clean and sealed at the ends. Pre-insulated copper refrigeration pipes can be used.

⚠ The pipes must not contain residues of shavings, dirt or water which could damage the components of the unit and impair its correct operation.

⛔ Using pipes with diameters other than that indicated in the technical data table is forbidden.

⛔ Employing used refrigeration lines is prohibited because the tightness of the flare fitting cannot be guaranteed.

⛔ Making connections using the normal plumbing system is forbidden.

⛔ Welding in the presence of refrigerant in the refrigerant circuit is forbidden. If necessary, the refrigerant must be recovered and the circuit cleaned with oxygen-free nitrogen.

Specific warnings for R32

⚠ The length of the connecting pipes must be kept to a minimum.

⚠ Connecting pipes must be protected from physical damage and must not be installed in an unventilated space if this space is smaller than that shown in the Minimum Floor Area table.

⚠ The connecting pipes must be installed in a position where they are unlikely to be exposed to corrosive substances unless they are constructed of materials that are inherently corrosion-resistant or adequately protected against corrosion.

⚠ Compliance with national legislation for the gas in use is mandatory.

⚠ The refrigerant fittings must be accessible for maintenance purposes.

⚠ A controlled procedure must be followed to minimise the risk of flammable gases or vapours being present while working.

⛔ Work with heat (welding, soldering, etc.) is prohibited.

⚠ The following precautions must be taken when establishing the refrigeration fittings:

Area inspections

- carry out safety checks to ensure that the risk of combustion is minimised
- avoid working in confined spaces
- delimit the area around the workspace
- ensure safe working conditions around the area by controlling flammable material

Checks for the presence of refrigerant

- The area must be checked with an appropriate refrigerant detector before and during work to ensure that the technician is aware of potentially flammable atmospheres
- make sure that the leak detection equipment is suitable for use with flammable refrigerants, i.e. that it does not produce sparks, is adequately sealed or intrinsically safe

⛔ The use of combustion fluid detectors, e.g. a halide torch or other detection system using an open flame, is forbidden.

Combustion source inspections

- the people operating on a refrigeration system involving the exposure of pipes that either contain or contained a flammable refrigerant must not use any

source of combustion that could lead to a risk of fire or explosion
- all potentials sources of combustion, including lit cigarettes, must be kept sufficiently far away from the workplace during operations in which flammable refrigerant could be released into the surrounding space
- check the area around the equipment to ensure there is no fire hazard or risk of combustion
- put up "No smoking" signs

Area ventilation inspections

- ensure that the area is adequately ventilated
- there must be a continuous degree of ventilation while working
- ventilation must safely disperse any released refrigerant and preferably expel it outside into the atmosphere

Leak detection

⛔ The use of combustion fluid detectors, e.g. a halide torch or other detection system using an open flame, is forbidden.

⚠ Follow the instructions below for leak detection:
- use electronic detectors to detect flammable refrigerants
- check that the detectors are properly calibrated before use
- calibration operations must be carried out in an area free from refrigerant
- make sure that the detector is not a potential source of combustion and that it is suitable for the refrigerant used
- all open flames must be removed if a leak is suspected
- in the event of a leak requiring brazing, it is mandatory to recover all the refrigerant from the system or isolate it (by means of shut-off valves) in a part of the system away from the leak

⚠ The use of silicone sealant may affect the effectiveness of some types of leak detectors.

Charging procedure

⚠ For the charging procedure make sure that:
- there is no contamination between different refrigerants
- the pipes of the charging equipment are as short as possible to minimise the amount of refrigerant
- the cylinders are kept in a vertical position
- the refrigeration system is earthed before charging

⚠ Make sure that the leak test has been carried out before charging.

⚠ Check if there are no leaks of refrigerant before leaving the site.

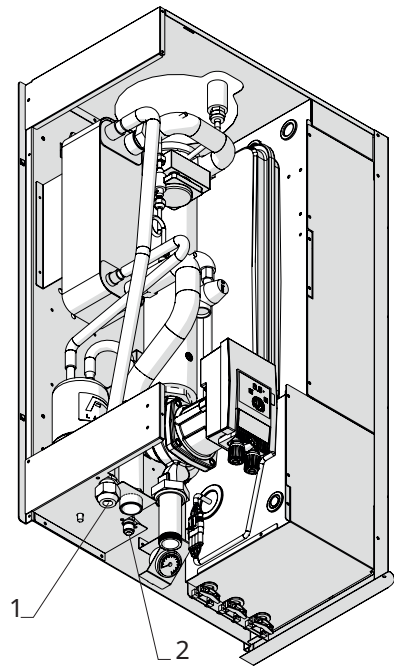
⚠ Label the system when charging is complete.

⛔ Overloading the refrigeration circuit is forbidden.

⛔ Introducing a refrigerant other than the one indicated or mixing different refrigerants into the system is forbidden.

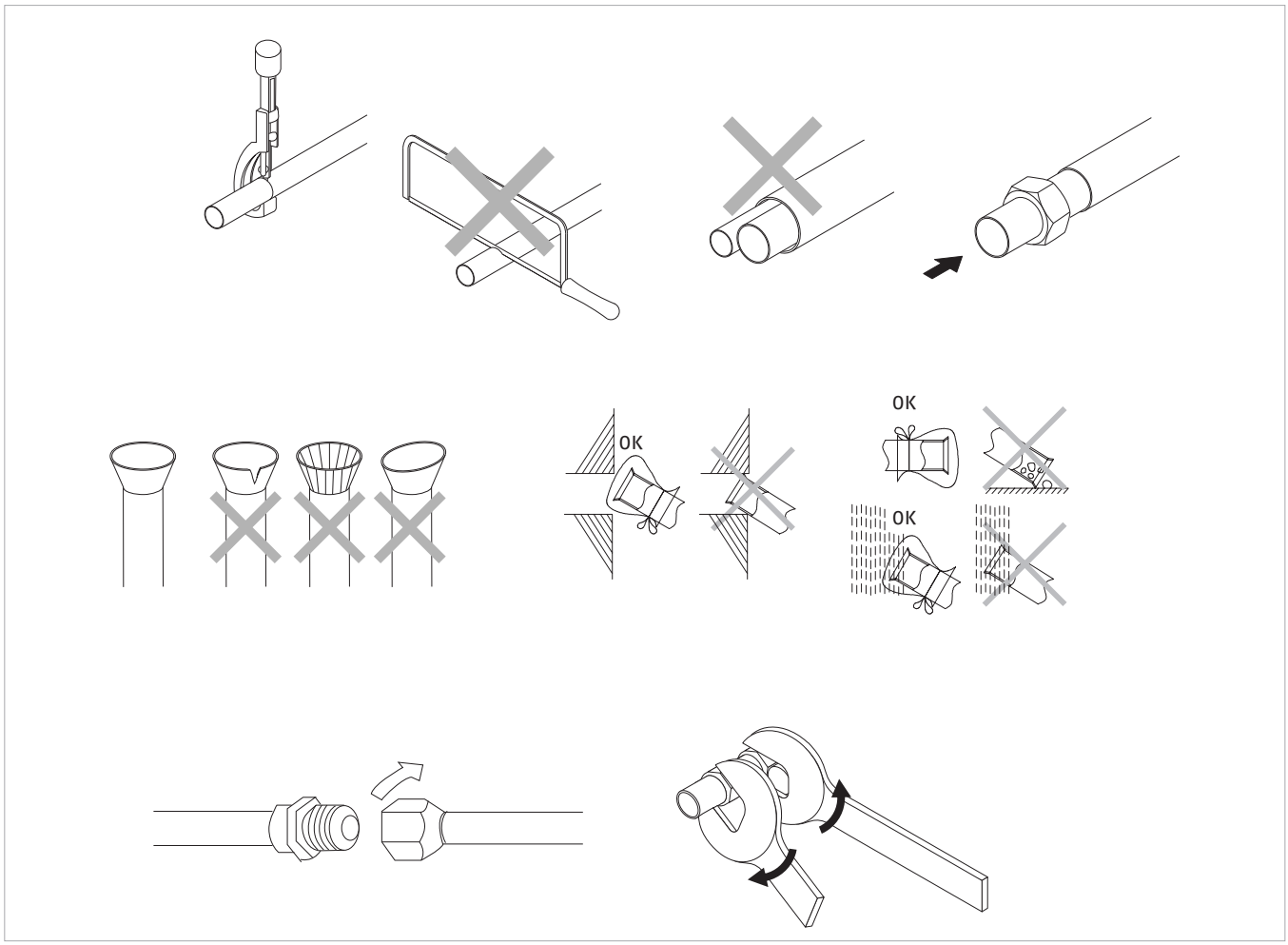
4.14.2 Position

1. Gas line connection
2. Liquid line connection



Models	u.m.	15	18	25
Refrigerant gas data				
Suction	"SAE	5/8	5/8	7/8 solder
Liquid	"SAE	3/8	3/8	1/2

4.14.3 Connection of piping



Preliminary warnings

⚠ Fasten a cable raceway to the wall (possibly with internal partitioning) of suitable size for the pipes and electrical wires to pass through.

⚠ The refrigeration fittings, equipped with shut-off valves, are ready for flared fittings.

⚠ Cut the sections of pipe leaving an extra 3-4 cm on the ends.

⚠ Immediately after cutting and deburring the pipes, seal the ends with insulating tape.

⚠ Remove possible burrs with the special tool.

⚠ Use a wheel pipe cutter only to cut the pipes clamping it in short lengths so as not to crush the pipe.

⚠ **NEVER USE A NORMAL HANDSAW, scraps could fall inside the pipe and ente the circuitry of the system, damaging the parts severely.**

⚠ Avoid introducing non-condensable gases (air) into the circuit. Otherwise, high pressures could be generated during operation with the risk of breakage.

Connection

Before connecting:

- ► insert the fixing nut into the pipe
- ► flare the pipe ends using the special tool
- ► Lubricate the connecting thread with oil for coolant

⚠ Do not use any other type of lubricant.

⚠ The flared fitting must be free of cracks, crazing or flaking.

⚠ Avoid using refrigerant oil on the outside of the countersink.

To connect:

- ► positioning the refrigeration lines
- ► screw the pipe nut manually on the connecting thread

► hold the threaded part of the fitting still with a spanner
► use a torque wrench on the nut to tighten it definitively

⚠ Keep the leak detector switched on near the unit to signal any refrigerant leaks while connecting.

⚠ 25kW: the connection of the refrigerant line to the connection results in soldering.

Pipeline Ø		Tightening torque
mm	inches	Nm
6,35	1/4	18
9,52	3/8	42
12,70	1/2	55
15,88	5/8	60
19,05	3/4	110

⚠ **For the next operations refer to the manual of the paired outdoor unit.**

4.15 Electric connections

The appliance leaves the factory fully wired and only needs to be connected to the external unit and any accessories.

4.15.1 Preliminary warnings

⚠ All operations of an electrical nature must be carried out by qualified personnel having the necessary training, who understands the legal requirements, and is informed about the risks related to such operations.

⚠ All connections must be made following the regulations in force in the country of installation.

⚠ Before carrying out any work, make sure that the power supply is switched off.

⚠ The unit must only be powered after all plumbing and electrical work has been completed.

⚠ **For all safety warnings, please refer to the manual of the combined outdoor unit.**

Preliminary warnings for R32

⚠ R32 refrigerant gas is mildly flammable and odourless.

⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.

⚠ Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).

⛔ Smoking in the vicinity of the appliance is prohibited.

⛔ Using a mobile phone near the appliance is prohibited.

⚠ Perform the following checks:
- carry out safety checks to ensure that the risk of combustion is minimised
- avoid working in confined spaces
- delimit the area around the workspace
- ensure safe working conditions around the area by controlling flammable material

4.15.2 Connection of heating element kit

Preliminary warnings

⚠ Make sure that:
- the characteristics of the electric network are adapted to the absorption of the apparatus, considering also any other devices in parallel operation
- the power supply voltage and system frequency match to the values indicated on the device's plate data
- the cables must be appropriate for the type of installation in accordance with the applicable IEC standards
- the cable terminals are provided with pin terminals of a cross-section proportionate to the connecting cables before inserting them into the terminal block
- the power supply is provided with protection against overload and/or short-circuit
- the disconnection device is located in an easily accessible place in order to be able to intervene in the event of an emergency

⚠ It is required:
- provide a suitable earthing connection
- install an appropriate device ensuring complete omnipolar disconnection under the conditions of overvoltage category III, with at least 3 mm distance between open contacts. The device must be incorporated into the power supply, in accordance with the installation rules
- install upstream of the system power supply a residual current device with a tripping current not exceeding 30 mA

⚠ Ensure that an earth connection is established. Do not connect the appliance to earth using distribution piping, surge arresters or to the telephone plant earth. Improper earthing can result in electric shock. Momentary high-voltage surges caused by lightning or other causes could damage the heat pump.

⚠ Electrical connections must be made following the instructions in this manual and with the standards or practices governing the connection of electrical equipment throughout the country. Insufficient capacity or incomplete electrical connections may result in electric shock or fire.

⚠ The power supply line must be adequately sized to avoid voltage drops or overheating of cables or other devices placed on the line itself.

⚠ Use a dedicated power supply circuit. Never use a power supply to which another appliance is also connected because of the risk of overheating, electric shock or fire.

⚠ For the electrical connection, use a cable that is long enough to cover the entire distance without any connection. Do not use extension cables. Do not apply other loads on the power supply.

⚠ After connecting the interconnection and power cables, make sure that the cables are routed so that they do not apply excessive forces on the covers or electrical panels. Incomplete connection of the covers may result in overheating of the terminals, electric shock or fire.

⚠ Any replacement of the power cable must be carried out by authorised personnel and in accordance with the applicable national law.

⚠ The Manufacturer is not liable for any damage caused by the lack of earthing or failure to comply with the specifications in the respective diagrams.

⛔ It is forbidden the use of gas and water pipes for earthing the appliance.

Power line dimensioning of heating elements

Use the tables below for the sizing of the power supply line and its protection device.
These are not average draw or transient peaks, but values to be considered for the correct sizing of the plant and the request of the contractual power (excluding loads due to the normal operation of the building).

⚠ Maximum power is reached only in exceptional cases. Therefore, the indicated trip current is suggested to guarantee a balance between machine absorption and incidence in the general system.

⚠ The indicated minimum cable cross-section area must be verified according to the actual conditions of the installation: length of the cable, characteristics of the electrical supply, etc.

Single-phase power supply

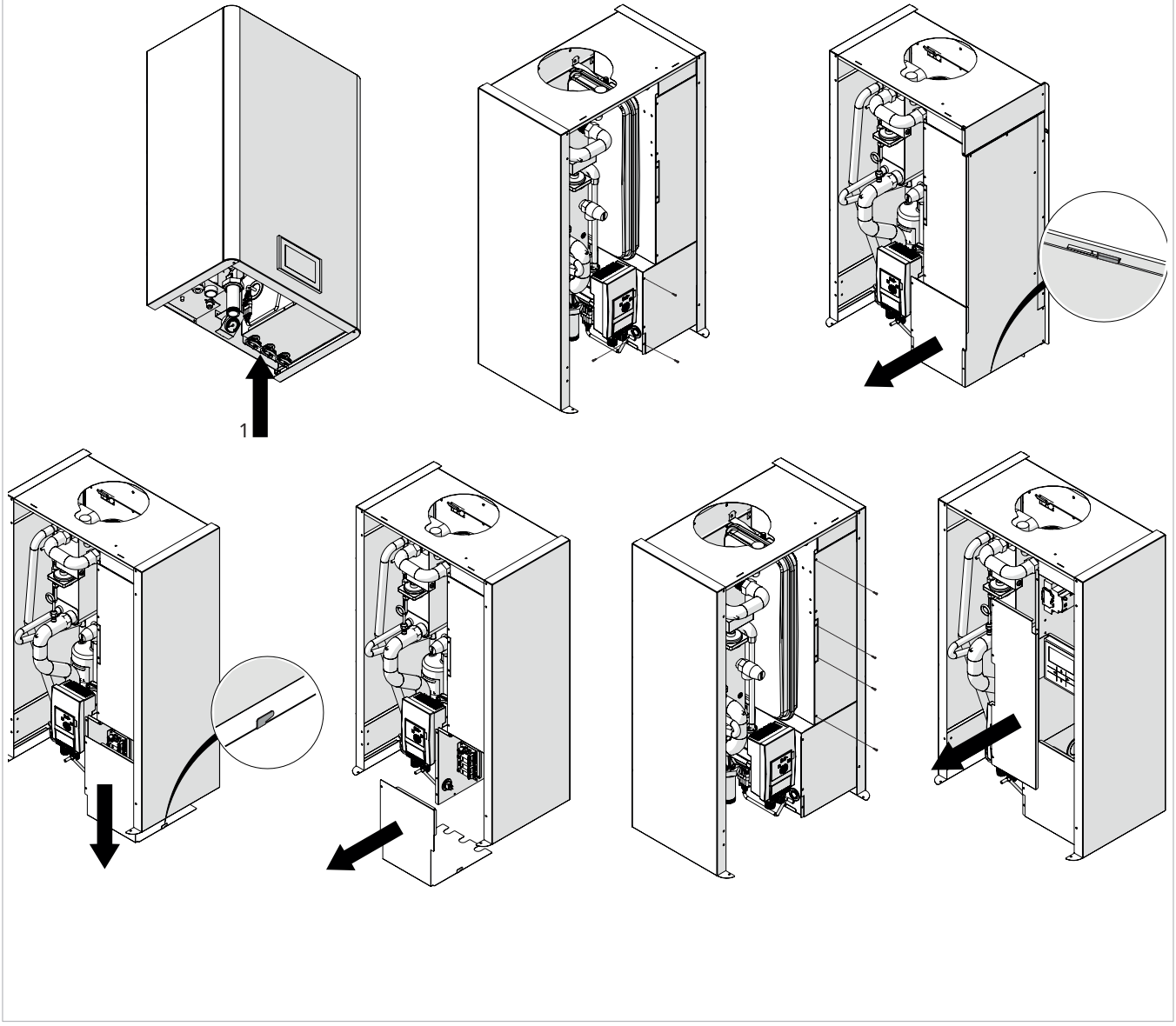
Connection		Stage 1	Stage 2
Power draw	kW	2,00	4,00
Current draw	A	8,70	17,39
Minimum wire cross-section area	mm^2	4,00	4,00

Three-phase power supply

Connection		Stage 1+2+3
Power draw	kW	6,00
Current draw	A	8,70
Minimum wire cross-section area	mm^2	2,50

4.15.3 Access to the electrical panel

1. Connection entry



⚠ Access to the electrical panel is only permitted to qualified personnel.

⚠ Before carrying out any works, please ensure the power supply is disconnected.

To access:

- ► remove the cosmetic panels (if fitted)
- ► see chapter "Removal of aesthetic panels" *p. 18*

To access the connections:

- ► undo the screws of the closing panel of the electric panel
- ► remove the panel

4.15.4 Connection

⚠ **Before connecting the outdoor unit to the electrical power supply, make sure that the power supply to the outdoor unit has been switched off.**

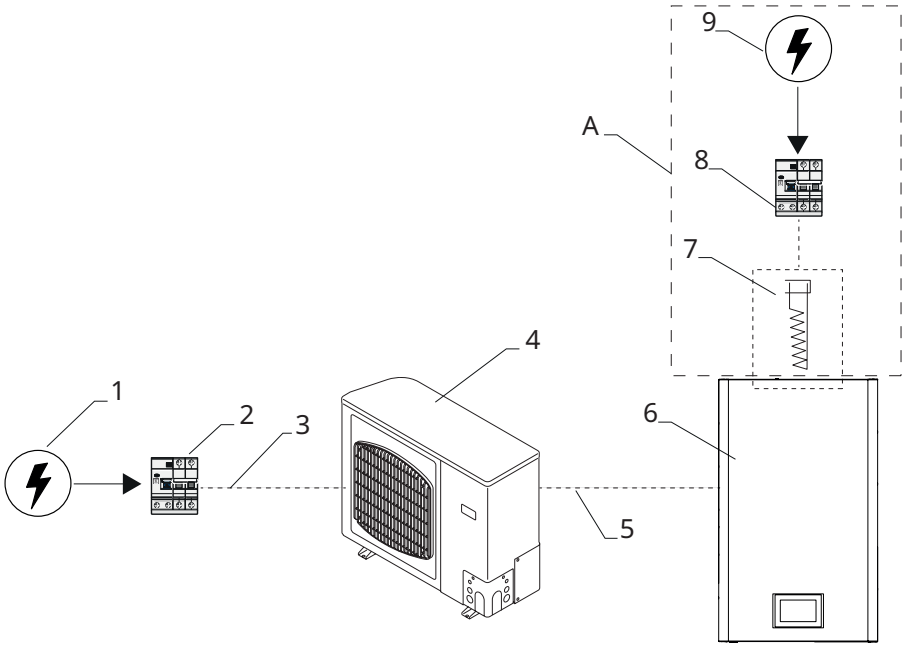
⛔ It is prohibited to continue if the power supply to the outdoor unit has not been switched off.

⚠ Use properly sized cables to avoid voltage drops or overheating.

⚠ Before connecting to the terminals, read this manual carefully.

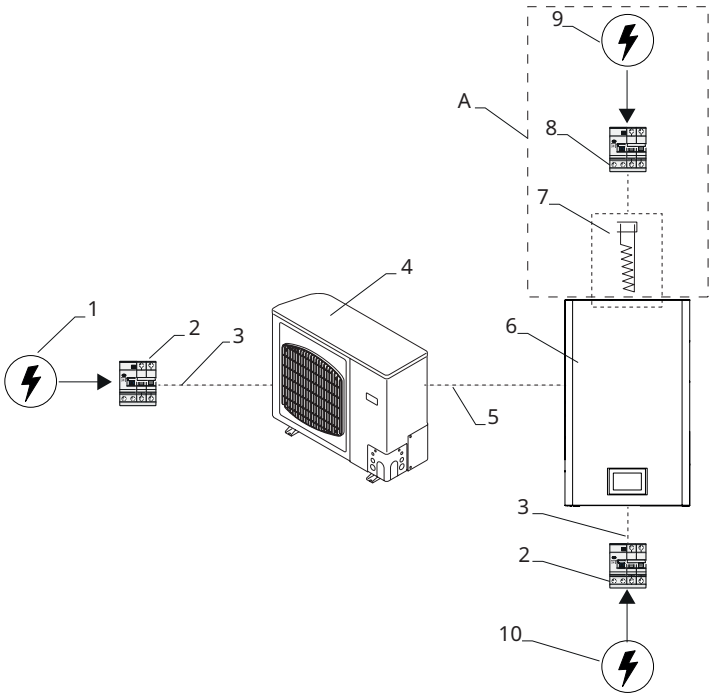
Connection diagram for models 15 - 18

1.	Unit power supply 230/1/50 0 400/3/50 depending on model
2.	Protection switch (by installer)
3.	Power cable
4.	Outdoor unit
5.	Power line communication outdoor unit - indoor unit (3 x 1,5 m^2)
6.	Indoor unit
7.	Heating element kit (Optional kit)
8.	Protection switch for heating elements (see table)
9.	Emergency heating element power supply
A	Connection of electrical resistance



Connection diagram for model 25

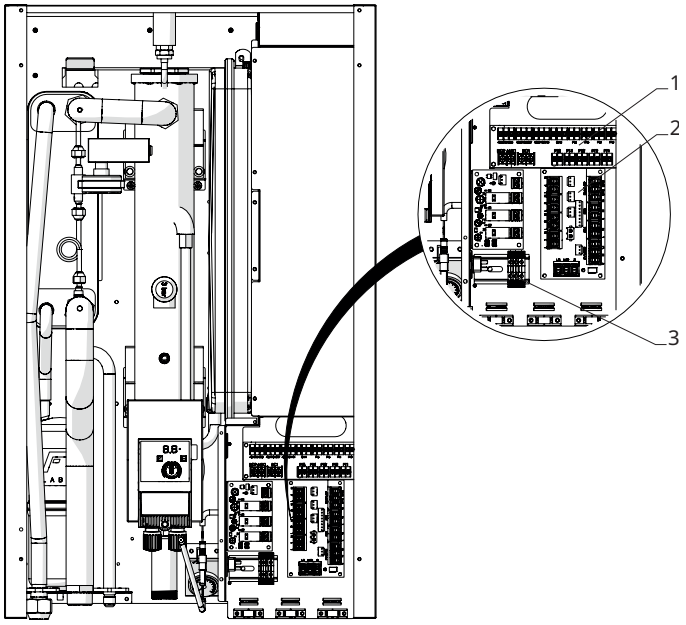
1.	Unit power supply 400/3/50
2.	Protection switch (by installer)
3.	Power cable
4.	Outdoor unit
5.	Outdoor unit serial connection (2-pole two core cable minimum cross-section 0.35 mm^2)
6.	Indoor unit
7.	Heating element kit (Optional kit)
8.	Protection switch for heating elements (see table)
9.	Emergency heating element power supply
10.	Power cable (minimum cable cross section 1.5 mm^2)
A	Connection of electrical resistance



Electrical panel aboard the unit

Connection boards

1.	Terminal board XP2	**3.**	Earth connection XP3
2.	Terminal board XP1		



To make the connection:

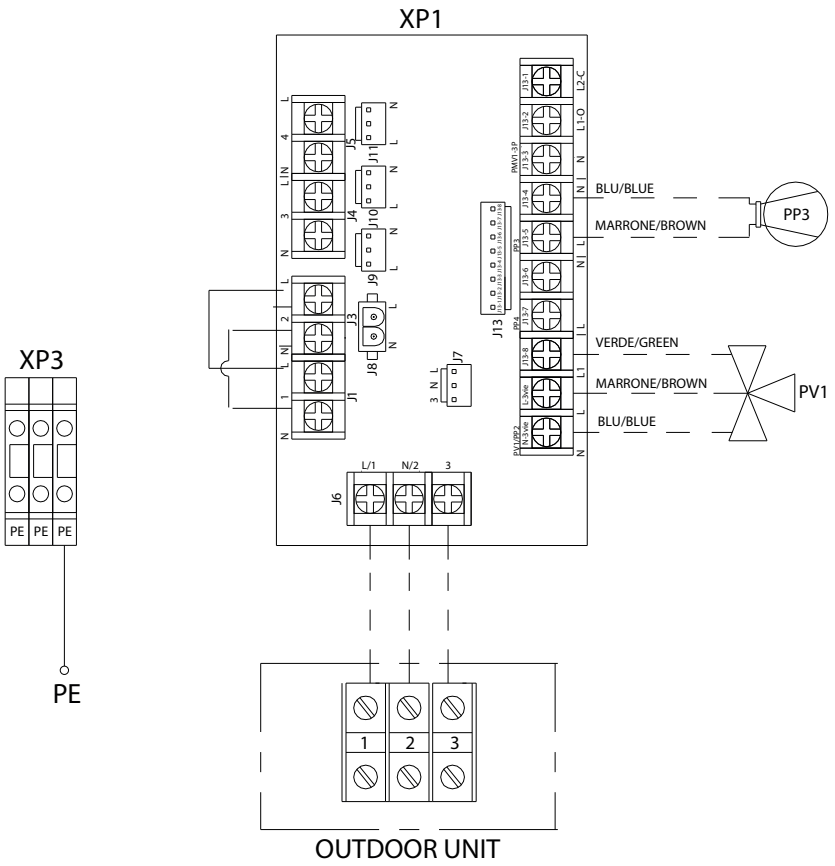
- ► bring the power cord to the terminal block
- ► making the connections
- ► refer to the information in the wiring diagram of the unit you are installing

⚠ The power cable must be sized according to this manual.

⚠ Use a double-insulated multi-core cable mod. H07RNF for outdoor applications in cable duct, or mod, H05VVF for indoor applications.

XP1 power terminal board for models 15 - 18

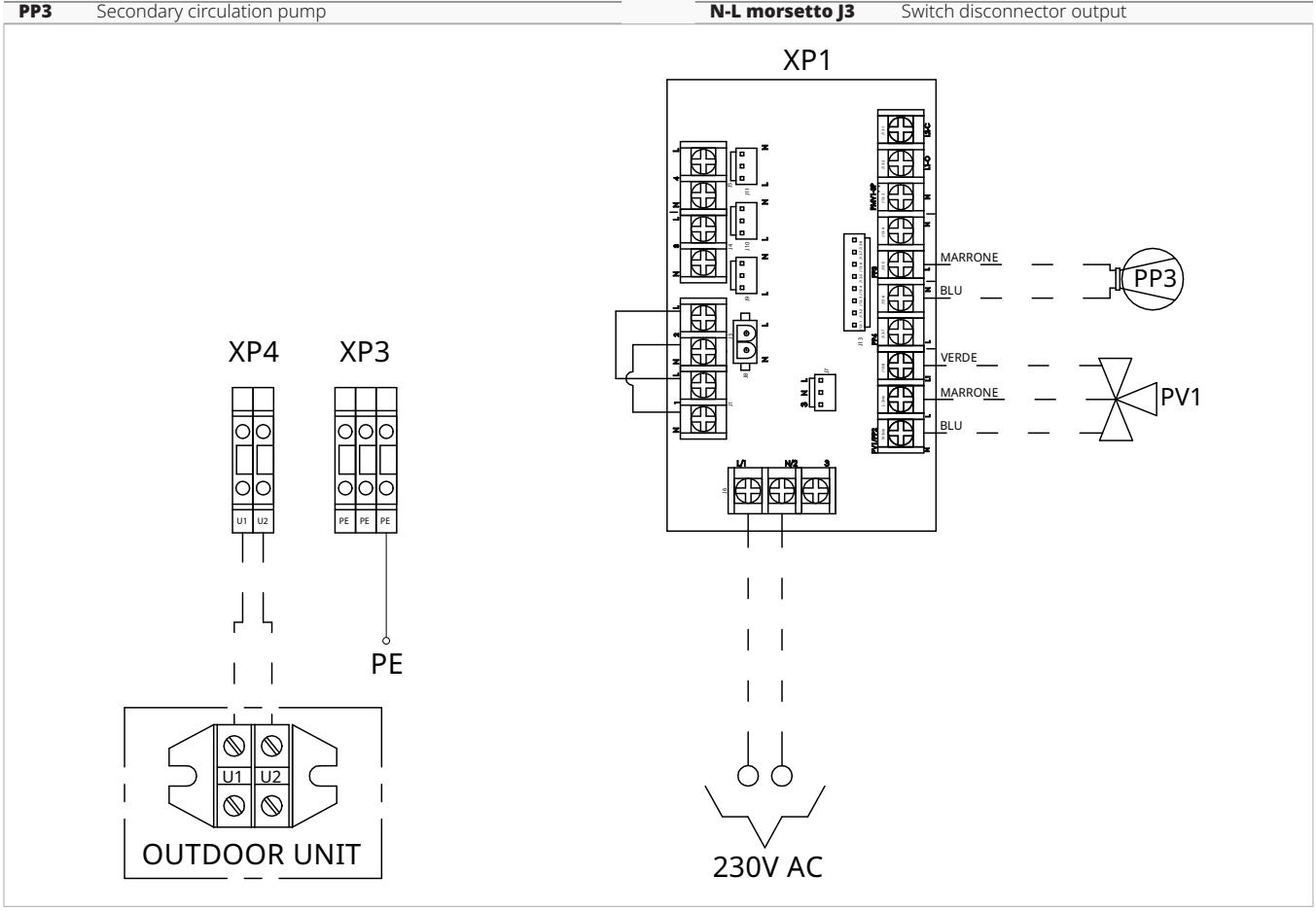
XP1	Power connection terminal block
Outdoor unit	Outdoor unit connection
XP3	Terminal block for earth connection
PP3	Secondary circulation pump
PV1/PP2	System/sanitary deviator valve
PE	Earth connection
1-2 morsetto J6	Indoor unit power supply 230V AC
2-3 morsetto J6	Power line communication outdoor unit - indoor unit



⚠ **To completely disconnect the power supply, the protective switch on the power supply line of the outdoor unit must be opened.**

XP1 power connection terminal board for model 25

XP1	Power connection terminal block
Outdoor unit	Outdoor unit connection
XP3	Terminal block for earth connection
XP4	Terminal block for serial connection to outdoor unit
PP3	Secondary circulation pump
PV1	Plant/domestic hot water diverter valve
PE	Earth connection
1-2 morsetto J6	Indoor unit power supply 230V AC
N-L morsetto J1	Switch disconnector input
N-L morsetto J3	Switch disconnector output



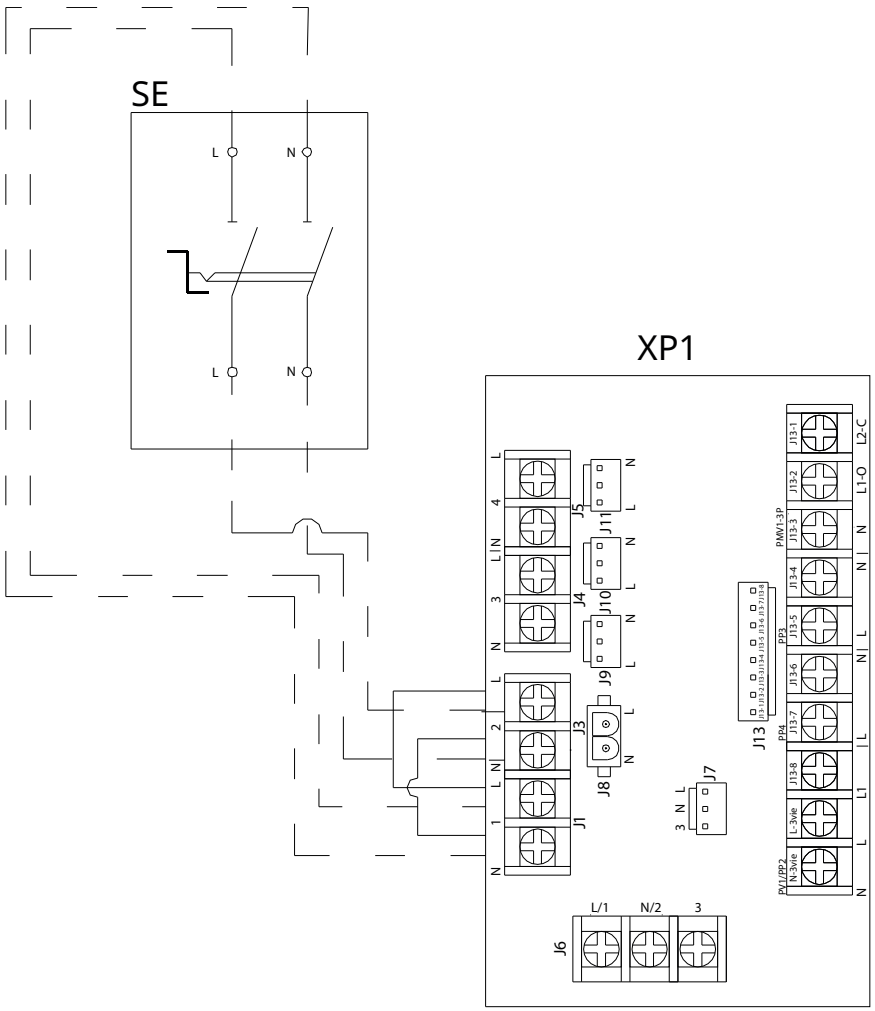
⚠ The unit leaves the factory with terminals J1 and J3 jumpered.
If necessary, a protection switch can be connected to terminals J1 and J3 by removing the jumpers inserted at the factory.

⚠ **Attention, opening the protection switch does not completely disconnect the power supply to the unit. Terminals J6 remain powered by the outdoor unit.**

⚠ **To completely disconnect the power supply, the protective switch on the power supply line of the indoor unit must be opened.**

Connection of the protection switch on the indoor unit

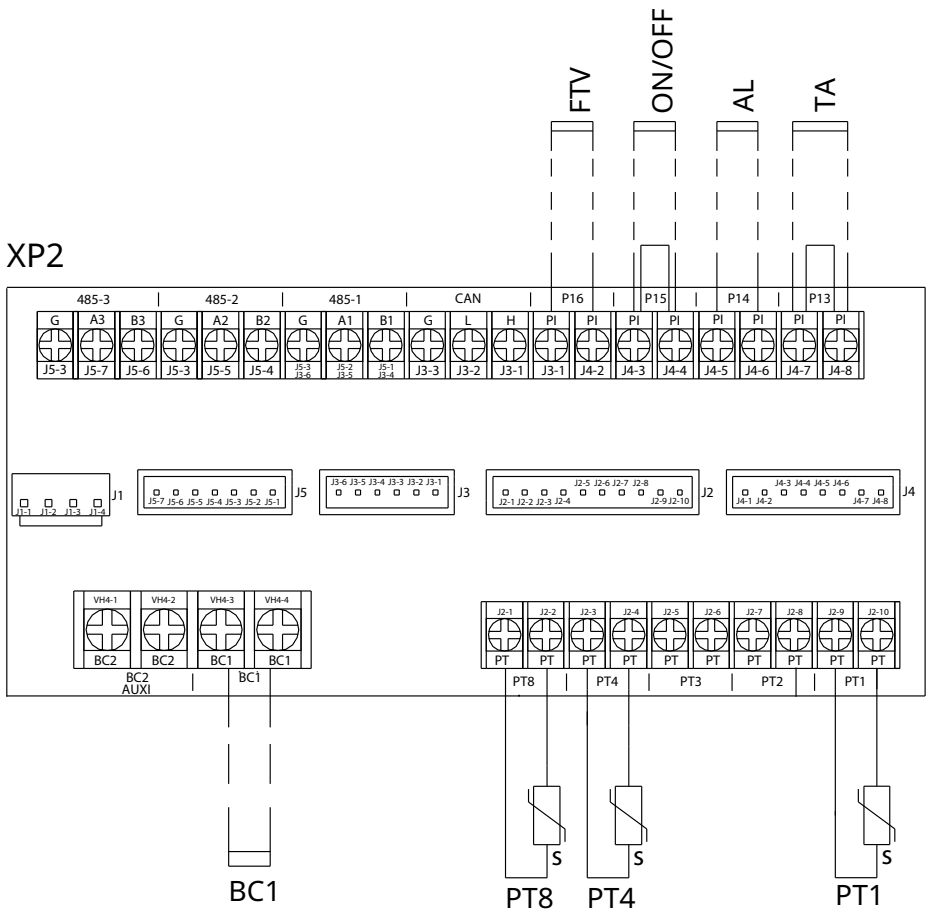
XP1	Power connection terminal block
SE	protection switch (not supplied, connections by installer)
N-L morsetto J1	Protection switch input
N-L morsetto J3	Protective switch output



To connect:

- ► remove the jumpers on terminals J1 and J3
- ► connect the input of the protection switch to the L and N contacts of terminal J1
- ► connect the output of the protection switch to the L and N contacts of terminal J3

XP2	Low voltage terminal board
BC1	Backup heat generator (Backup) (Connection by installer)
PT4	Domestic hot water tank temperature probe
PT1	Plant temperature probe
ON/OFF	Remote On/Off (Connection by installer)
AL	Anti-legionella (Connection by installer)
TA	Consent from room thermostat or generic potential-free contact (Connection by the installer)
PT8	Outside temperature probe
FTV	Photovoltaic management



Description of contacts

Support generator terminals (XP2)

BC1: BC1 normally-open potential-free contact for backup thermal generator. Maximum contact rating 2A.

⚠ Check the tightness of all power conductor terminals at first start-up and 30 days after commissioning.

Digital input terminals (XP2)

P15: ON/OFF contact for activation/deactivation of the appliance.

P14: AL configurable input for activating the anti-legionella function.

By activating the Antilegionella function, the regulator can conduct the thermal disinfection procedures autonomously on hot water systems equipped with recirculation, consider-ably reducing the risk of the presence and proliferation of the bacteria causing Legionella.

⚠ for activation of the anti-legionella function (to purchase separately, together with a timer, and to be connected by the installer)

⚠ The variables in the systems in which our products may be installed do not allow the total exclusion of the risk.

Activation of the disinfection function can be performed by connecting a timer to the inlet that has a default value set for 2 a.m. the night between Sunday and Monday; as statistically this is a time with a low probability of employment on behalf of the users.

The length of the action depends by the features of the installation.

Legionella bacteria react differently de-pending upon the maximum temperature reached within the circuit and, with the increase of temperature, the dura-tion time decreases.

⚠ The anti-legionella function is only possible with the electric heater kit.

P13: TA consent from room thermostat or generic potential-free contact

- Closed contact: the unit is switched on for heating or cooling the plant water.
- Open contact: the unit is switched off for heating or cooling the plant water

⚠ If the domestic hot water function is active, this function has priority even when the contact is open.

⚠ The terminals are supplied jumpered (contact closed). Remove the jumper to connect the CT consent and the ON/OFF consent.

P16: FTV photovoltaic input management for Smart Grid

Setting parameter P16=FTV and connecting a consent from a photovoltaic system control unit results in an increase of the DHW setpoint from SSP to 55 °C in order to 'store' energy in the DHW tank.
The consent must be closed for no less than 10 consecutive minutes before the FTV function is activated.
When the input is opened, the DHW setpoint is reset to the standard SSP value.

Probe terminals (XP2)

PT4: connection of domestic hot water storage tank temperature probe PT4.

PT1: connection of plant temperature probe PT1.

⚠ The probes are supplied connected to the terminal board of the unit. Position the probe used in a suitable sump on the relevant tank (max. distance 50 m).

PT8: External air temperature detection sensor input. The sensor should be positioned so that it detects the real outside air temperature and must not be influenced by factors which may distort the reading (e.g. direct sunlight, oth-er heat sources, accumulations of snow/ice).

⚠ The probe is supplied connected to the terminal block of the unit. Position the probe outside the unit (max. distance 50 m).

Output terminals (XP1)

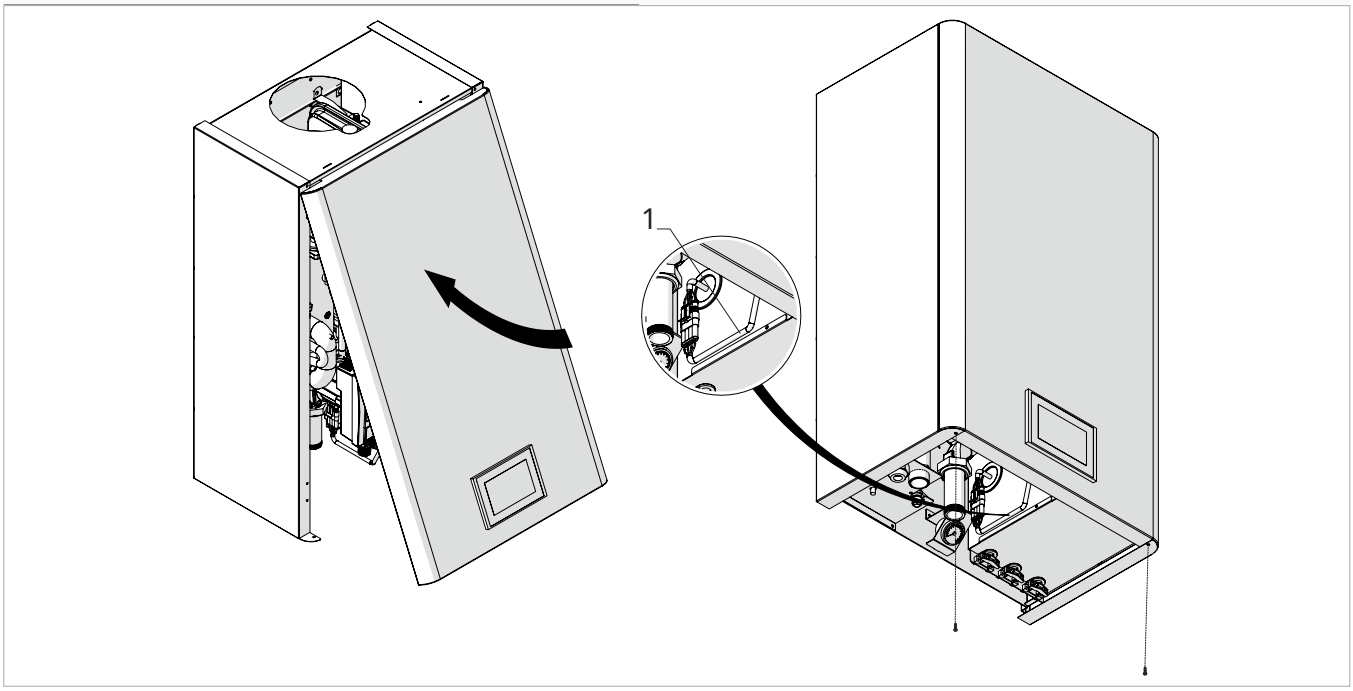
PP3: PP3 secondary pump connection (by installer).

PV1: PV1 plant/domestic hot water diverter valve connection.

⚠ To connect the 3-way valve accessory, you must cut the connector and connect the cables separately.

4.16 Assembly of cosmetic panels after installation

1. Connectors



► approach the panel
► couple the upper part of the panel
► close the panel
► fasten the lower fixing screws
► connect the connector

5. PUTTING IT INTO SERVICE

5.1 Preliminary warnings

⚠ **This section is dedicated to the Authorised Service Centre. The features of the Authorised Service Centre are described in chapter "Recipients"** *p. 5***.**

⚠ **The initial start-up of the heat pump must be carried out by the Authorised Service Centre.**

⚠ **For detailed information on accessories please refer to the "Configuration accessories"** *p. 53* **section.**

⚠ The customer must be present when the appliance is tested and informed of the contents of the manual and procedures. After commissioning, the manual and the warranty certificate must be handed over to the customer.

⚠ Before start-up, all work (electrical and plumbing connections, filling and venting of air from the plant) must be completed.

5.1.1 Preliminary warnings for R32

⚠ The unit uses environmentally friendly R32 refrigerant gas, with a Global Warming Potential (GWP) = 675. Do not release R32 gas into the atmosphere.

⚠ R32 refrigerant gas is mildly flammable and odourless.

⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.

⚠ Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).

⛔ It is forbidden to use means to accelerate the defrosting process or for cleaning other than those recommended.

⛔ Smoking in the vicinity of the appliance is prohibited.

⛔ Using a mobile phone near the appliance is prohibited.

⚠ Perform the following checks:
- carry out safety checks to ensure that the risk of combustion is minimised
- avoid working in confined spaces
- delimit the area around the workspace
- ensure safe working conditions around the area by controlling flammable material

Leak detection

⛔ The use of combustion fluid detectors, e.g. a halide torch or other detection system using an open flame, is forbidden.

⚠ Follow the instructions below for leak detection:
- use electronic detectors to detect flammable refrigerants
- check that the detectors are properly calibrated before use
- calibration operations must be carried out in an area free from refrigerant
- make sure that the detector is not a potential source of combustion and that it is suitable for the refrigerant used
- all open flames must be removed if a leak is suspected
- in the event of a leak requiring brazing, it is mandatory to recover all the refrigerant from the system or isolate it (by means of shut-off valves) in a part of the system away from the leak

⚠ The use of silicone sealant may affect the effectiveness of some types of leak detectors.

5.2 First start-up

5.2.1 Preliminary checks

Before proceeding with start-up, check that:

Functional
- all safety conditions have been met
- the unit has been properly secured to the supporting surface or wall
- the minimum technical clearances have been respected

Hydraulics
- the hydraulic connections have been made according to the instructions in the manual
- the hydraulic plant has been filled and vented
- the shut-off valves of the hydraulic circuit are open
- the dirt separator or mesh filter is installed and clean

⛔ Operating the unit without adequate water filtration installed and clean is forbidden.

Electrics
- the cross-section of the power supply cables is suitable for the absorption of the appliance and the length of the connection made
- the earthing was performed correctly
- the electrical connections have been established correctly

- all electrical connections are properly secured and all terminals properly tightened
- the voltage is within a tolerance of 10% of the rated voltage of the unit
-

Refrigeration

- the refrigerant connections have been made according to the instructions in the manual
- the hydraulic circuit interception valves are open

5.2.2 Water quality checks

The technician must measure the reference values of the water in the system with special test kits.

⚠ Take the necessary steps to achieve the indicated limits if the total hardness is greater than 15 °F or some top-up water reference values are not within the limits indicated.

⚠ Water from wells or groundwater that is not from an aqueduct should always be carefully analysed. If necessary, condition with appropriate treatment systems.

⚠ If a softener is installed, in addition to following the Manufacturer's instructions, adjust the outlet water hardness to not less than 5 °F (by performing pH and salinity tests) and check the outlet chloride concentration after adjusting the resins.

5.2.3 Powering up

⚠ **Power up the unit for at least 12 hours before starting.**

⚠ Make sure that the control panel is switched off.

To start the unit:

► set the main switch to ON

The display will light up a few seconds after power-up, check that the operating status is OFF. Otherwise, press the ⏻ button to put it in Standby.

⚠ **Refer to the Control Panel Manual to carry out the operations.**

5.2.4 Start-up

Once all checks have been made, the unit can be started up.

To activate the device

► press the key ⏻
The symbol 🔥 or ❄ lights up

Functional checks:

- verify the different modes of operation
- check that the appliance performs a shutdown and subsequent restart
- switch the appliance off and on again and check that it restarts correctly

⚠ Carry out the measurements indicated on the Test Sheet for the first start-up.

⚠ Refer to the Control Panel Manual to carry out the operations.

⚠ During start-up, the primary pump must be operated in fixed speed mode set at maximum speed (factory setting).

⚠ The first start-up must be carried out with standard settings. Only after the test has been completed, change the operating set point values.

Intervention ALRM 010

If alarm ALRM 010 appears during the first start-up, after the circulator starts, check that:

- the plant valves are open
- there is at least one consumer with an open circuit
- the mesh filter is not clogged
- there are no air bubbles inside the circuit
- the water pressure of the plant is correct

If necessary, rearm the alarm.

5.2.5 Checks with the machine switched on

After starting up, check that

Functional

- the appliance operates within the recommended operating conditions (see technical specifications table)
- the 3-way sanitary/plant diverter valve is functioning correctly
- Probe PT4 is correctly positioned inside the DHW tank.
- the temperature shown on the display is consistent with the actual water temperature (use a thermometer)
- the circulation pump is running and the water flow rate is sufficient to close the contact of the differential pressure switch
- the water supply is correct (see chapter "Thermal gradient" *p. 40*)
- the differential pressure switch is functioning correctly

Electrics

- the current draw of the compressor is lower than the maximum indicated in the technical specifications table
- the supply voltage value is within the set limits and does not fall below the nominal value during compressor operation -10 %
- in models with three-phase power supply, the compressor noise level is not abnormal

Hydraulics

- the hydraulic circuit is completely deaerated (see chapter "Presence of air" *p. 41*)

Thermal gradient

The temperature difference must be verified with:

- 100% compressor capacity
- all distribution valves open
- all consumers on

Check that the thermal gradient between the plant delivery and return is between 4÷7°C by querying parameters PT5 and PT6.

If the temperature difference is less than 4 °C, set a lower circulator speed, see chapter "PP1 primary circulation pump" *p. 41*.

If the thermal gradient is greater than 7 °C check that all the valves on the plant are open and if necessary add an external pump to increase the water flow rate.

If the mains pressure exceeds 3 bar, install a pressure reducer on the filling line.

Presence of air

Check that no air pockets are still present once the electrical connections have been established and the circulation pump has been switched on.

In the presence of air pockets:

- stop the pump several times
- vent again

⚠ To avoid dangerous cavitation that could damage the pump and make the entire appliance less efficient, the suction pressure, with the pump on, measured by the pressure gauge on the appliance, must not be less than 0.6 bar.

5.3 Adjustments

5.3.1 Setting the head value

The maximum head value must be set with:

- 100% compressor capacity
- all distribution valves open
- all consumers on

5.4 PP1 primary circulation pump

The appliance uses a high-efficiency wet circulation pump, suitable for all heating and air-conditioning plants.
On the front of the pump body there is a regulator for select operating mode at fixed or variable speed:

⚠ **Fixed speed mode must be used for the primary pump.**

5.4.1 Fixed speed mode

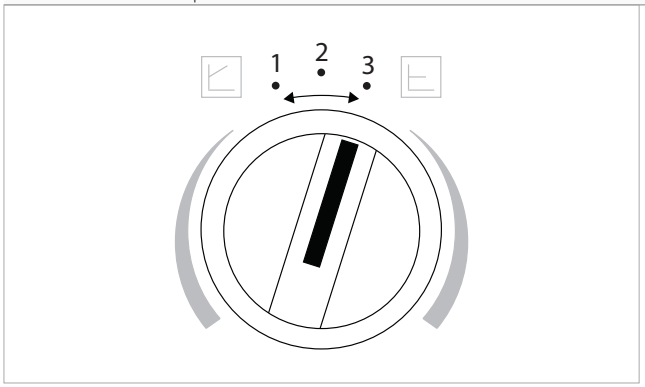
In this mode, the circulation pump operates at fixed speeds that are not subject to regulation. For operating curves (available at maximum speed) see chapter "PP1 primary circulation pump graphs" *p. 58*.

⚠ The unit is supplied with the selector set to maximum speed.

There are two different control modes according to the installed pump model:

Pump model variant 1

1.	Minimum speed
2.	Medium speed
3.	Maximum speed

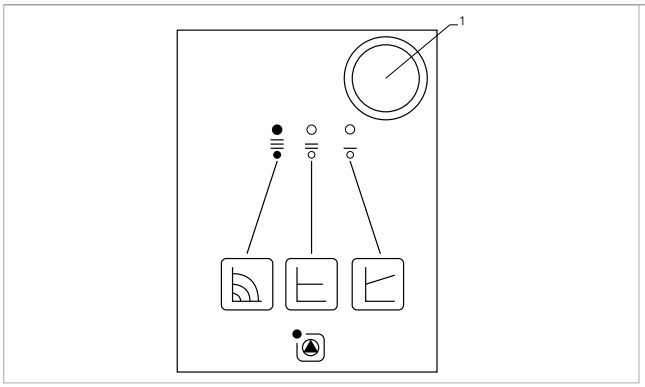


To select maximum speed:

► act on the knob
► set to 3

Pump model variant 2

1.	Selection button



To select maximum speed:

► press the selection button in sequence until the LEDs light up

Fixed speed selection

Maximum speed

5.5 Anti-legionella activation

The anti-legionella function must be activated if domestic hot water is stored in a boiler.
The function is not necessary if domestic hot water is produced by the plant water using a rapid exchanger.

⚠ The anti-legionella function is only possible with the electric heater kit.

⚠ For activation, refer to the control panel manual.

5.6 Plant delivery

Once all the checks and controls on the correct operation of the plant have been completed, the installer must explain the following to the user:

- the basic functional characteristics of the appliance
- the instructions for use
- the routine maintenance

5.7 Long period shut-down

The following operations must be carried out if the air-to-water heat pump is not used for a long time:

► disable the device
► turn the master switch of the appliance to position 0-, OFF.

After switching off the appliance:

► switch off the indoor terminal units by setting the switch of each appliance to the "Off" position
► set the main system switch to "Off"
► isolate the water supply

⚠ Contact the Authorised Service Centre.

⚠ If the outside temperature may fall below zero degrees centigrade, with the likelihood of frost, the hydraulic plant must be drained or antifreeze liquid (e.g. ethylene glycol) must be added in the doses recommended by the manufacturer.

To restart the heat pump after it has been out of operation for a long time, contact the Service Centre.

5.8 Draining the plant

The appliances are not equipped with a drain cock, it is necessary to provide one on a pipe connecting to the plant at a point near and below the appliance.

5.8.1 Preliminary warnings

⚠ All operations must be carried out with the machine stopped and disconnected from the power supply.

5.8.2 Draining

Before starting the emptying operation:

► check that the plant water filling loop cock is closed

To drain the plant:

► open the drain cock on the outside of the appliance
► open all the air purge valves of the plant and its terminals

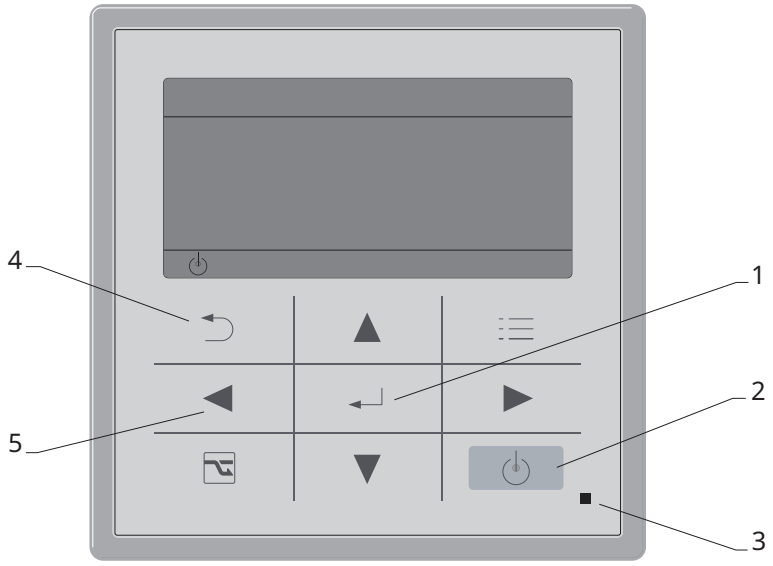
5.9 External unit control panel

5.9.1 Control Panel

⚠ The external unit control panel is not a remote control

⚠ The external unit control panel it is only used during commissioning for automatic address setting and first start-up. Do not press any button, switch it off or attempt to programme it after this.

1.	Send button
2.	Power button
3.	Operating LED indicator (lights up during operation/flashes during the alarm)
4.	Back button
5.	Selection button



5.9.2 First start-up

- ► turn the system master switch to "on"
- ► turn the master switch Q1 of the device on the electric panel to the I-ON position
- ► check the touch screen interface is off
- ► check that oFF ap-pears on the emergency interface, otherwise press the Standby icon

Within few minutes the prompt ASSIGNING will appear and flash on the control panel of the external unit.
This signal will cease within a maximum time of 4-5 minutes once the panel has correctly communicated with the external unit.

⚠ On three-phase 12, 15, 18 versions, reverse the two power phases if alarm P05 appears on the external unit control panel.

5.9.3 Automatic address setting (Assigning)

Before starting the Assigning procedure:

- ► check that the electrical connections between the outdoor unit and the indoor unit at terminal block J6 have been made correctly. See "Connection boards" *p. 33*.

A Stand-by display

To start the Assigning procedure:

- ► supply the appliance with electricity
  On the display appears Assigning
  Assigning procedure starts

► wait a few minutes

On the display disappears Assigning
The Assigning procedure is complete
► wait a minute
► proceed with switching on the control panel of the outdoor unit

⚠ If the Assigning procedure doesn't restart automatically or remains in the display the symbol ⚠ accompanied by R.C.1, call the Technical Service Centre.

⚠ If during the Assigning procedure appears the symbol ⚠ accompanied by R.C.1 disconnect the device from the power supply.

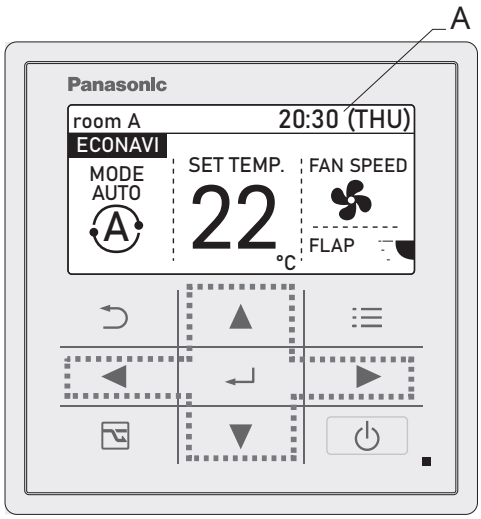
Meaning of the warning lights on the external unit electronic board		
Meaning	**LED 1**	**LED 1**
Upon power-up		
1. no communication with the indoor unit	○	○
2. established communication with the indoor unit	●	○
3. normal communication OK (validating power and quantity)	●	●
4. automatic address setting in progress	✹	✹

○ on
● off
✹ alternative flashing

5.9.4 External unit control panel first switch-on

► press ⏻

A Display on



► press ◁
► select MODE
► press ↵
► press ⇳
► select the auto mode
► press ↵
► wait a few seconds
On the display appears ✹.
► wait a few seconds
► remove tension
► re-energize the appliance
► check that the settings have been memorised

5.9.5 Checks during and after the first start-up

After starting up, check that
- the current consumption of the appliance is lower than the maximum current indicated in the manual of the indoor unit

⚠ During compressor operation, the power supply voltage does not fall below the nominal value -10 %.
- the appliance operates within the recommended operating conditions
- the hydraulic circuit is completely deaerated
- the hydrometer pressure is between 1 and 2 bar
- the air-to-water heat pump performs a shutdown and subsequent restart
- the thermal gradient between the delivery and return is between 4 ÷7 °C

⚠ Set a lower circulator speed if the thermal gradient is lower than 4 °C.

⚠ If the thermal gradient is greater than 7 °C check that all the valves on the plant are open and if necessary add an external pump to increase the water flow rate.
- disconnect and reconnect power to the device and check correct operation

6. MAINTENANCE

Routine maintenance is essential to keep the device efficient, safe, and reliable over time.

6.1 Preliminary warnings

⚠ **This section is dedicated to the Authorised Service Centre. The features of the Authorised Service Centre are described in chapter "Recipients"** *p. 5***.**

⚠ **For detailed information on accessories please refer to the "Configuration accessories"** *p. 53* **section.**

⚠ This unit contains fluorinated greenhouse gases covered by the Kyoto Protocol. Maintenance and disposal operations must be carried out by qualified personnel only.

Before each cleaning and maintenance intervention:

- ► disconnect the device from the power supply by turning the system main switch to "OFF"
- ► wait for the components to cool down in order to avoid any burns

⛔ Carrying out any technical or cleaning work before disconnecting the unit from the power supply is forbidden.

⚠ Make sure that there is no voltage before operating.

⚠ After completing the maintenance work, the unit must be restored its original condition.

⚠ Handle refrigerant with care. Leaking refrigerant can cause freezing.

6.1.1 Preliminary warnings for R32

⚠ The unit uses environmentally friendly R32 refrigerant gas, with a Global Warming Potential (GWP) = 675. Do not release R32 gas into the atmosphere.

⚠ R32 refrigerant gas is mildly flammable and odourless.

⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.

⚠ Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).

⛔ Smoking in the vicinity of the appliance is prohibited.

⛔ Using a mobile phone near the appliance is prohibited.

⚠ Perform the following checks:

- carry out safety checks to ensure that the risk of combustion is minimised
- avoid working in confined spaces
- delimit the area around the workspace
- ensure safe working conditions around the area by controlling flammable material

Leak detection

⛔ The use of combustion fluid detectors, e.g. a halide torch or other detection system using an open flame, is forbidden.

⚠ Follow the instructions below for leak detection:

- use electronic detectors to detect flammable refrigerants
- check that the detectors are properly calibrated before use
- calibration operations must be carried out in an area free from refrigerant
- make sure that the detector is not a potential source of combustion and that it is suitable for the refrigerant used
- all open flames must be removed if a leak is suspected
- in the event of a leak requiring brazing, it is mandatory to recover all the refrigerant from the system or isolate it (by means of shut-off valves) in a part of the system away from the leak

⚠ The use of silicone sealant may affect the effectiveness of some types of leak detectors.

6.2 Routine maintenance

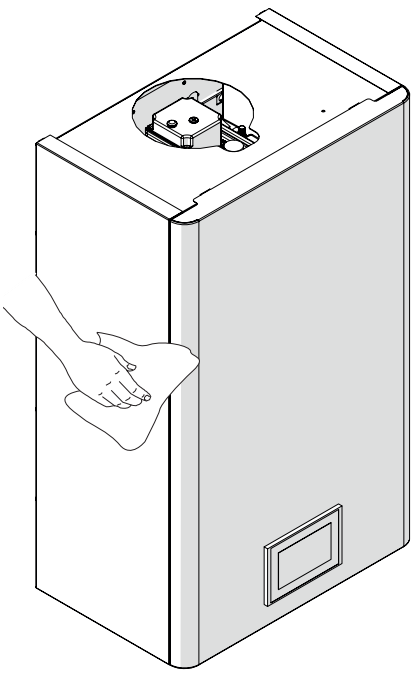
The routine maintenance plan includes the following cleaning operations.

6.2.1 External cleaning

Clean the external surfaces with a soft damp cloth.

⚠ Disconnect the unit from the power supply before each cleaning and maintenance intervention by setting the main power supply switch to off.

⚠ Do not use abrasive sponges, or abrasive or corrosive detergents, as you might damage the painted surfaces.



6.3 Once-a-year operations

The once-a-year maintenance plan includes the following operations and checks and must be carried out by the Authorised Service Centre or by qualified personnel.

6.3.1 Routine maintenance of the unit

Hydraulic circuit

Check:

- water circuit filling
- cleaning the net filter
- pressure switch and flowmeter control
- absence of air in the circuit (venting)
- that the water flow rate is always constant at the evaporator
- the status of thermal insulation of the hydraulic piping
- the glycol percentage, if any is present

Electric circuit

Check:

- electrical supply voltage
- electric draw
- tightness of connections
- that there is no damage or excessive wear on the electrical cables
- the seals and sealing materials have not deteriorated to such an extent that they are no longer suitable for preventing the development of flammable atmospheres inside
- correct fixing of the cable clamps
- safety devices

Mechanical checks

Check:

- the tightness of the screws, the compressors and the electrical box and the external panelling of the unit
- the conditions of the structure

⚠ Poor fastenings cause abnormal noises and vibrations.

⚠ Treat any rusty parts with paints suitable to eliminate or reduce the rust.

Cleaning

- clean cosmetic covering elements

Refrigeration checks

Make sure that:

- the amount of charge complies with the size of the room in which the parts containing the refrigerant are installed (see table "Minimum floor area" ***p. 19***)
- ventilation equipment and vents functioning properly and not obstructed
- the marking on the equipment must remain visible and legible. Illegible markings and graphics must be corrected
- the refrigerant pipes and components are installed in a position in which they are unlikely to be exposed to corrosive substances unless the components are made of inherently corrosion-resistant materials or adequately protected against corrosion
- the thermodynamic values are within the nominal parameters

Under the provisions of Directive 517/2014/EU, plants containing more than 5 equivalent tonnes of CO2 (7.41 kg of R32 gas or 2.39 kg of R410a gas) must be checked for leaks once a year, using either direct or indirect methods, by personnel certified under EU Regulation 2015/2067.

The company responsible for maintenance must keep a logbook in which the following information is recorded:

- the technician who performed the maintenance or repair,
- the dates and results of the checks,
- the quantity and type of fluorinated gas used,
- any quantities added or recovered during servicing, repair or final disposal.

⚠ If needed, a form is available at in the manual of the combined external unit.

⚠ Filling the refrigeration circuit with a refrigerant other than the one indicated is forbidden. Using a different refrigerant gas can cause serious damage to the unit.

7. TROUBLESHOOTING

7.1 Preliminary warnings

⚠ **For detailed information on accessories please refer to the "Configuration accessories"** *p. 53* **section.**

Should you encounter any of the anomalies below:

- the ventilation does not start even if the water circuit is filled with hot or cold water
- the device is losing water in heating mode
- the device is loosing water in cooling mode
- the device generates excessive noise
- there is dew on the front panel

Follow the instructions below:

- ► disconnect the device from power supply immediately
- ► isolate the water supply
- ► contact an authorised Technical Assistance Centre or professionally qualified personnel

⚠ The interventions must be carried out by a qualified installer or by an Authorised Service Centre.

⛔ Do not intervene personally.

7.2 Faults reported by the Control Panel

Faults are indicated on the display of the Control Panel.

⚠ For reading, refer to the Control Panel Manual.

Manual reset of alarms

Repeating a fault several times will put the appliance in safety and the alarm must be reset manually.

To restore:

- ► press and hold SET for a few seconds
- ► the padlock disappears from the symbol ⚠
- ► then the symbol ⚠ disappears

7.3 Functional aspects not to be interpreted as faults

- The following functional aspects may occur during the operation of the appliance, these behaviours of the appliance are correct and should not be interpreted as a fault.
- The compressor does not start again until 3 minutes after being shut off.
- During operation in heating mode of systems with heat pump, heat is produced a few minutes after the compressor starts.
- Periodic defrosting cycles occur during heating operation.
- When switching from domestic hot water production to cooling and vice versa, the external heat pump is kept off for one minute to avoid mixing hot and cold water.

7.4 Troubleshooting Table

Alarm	Description	Correlated variables	Cause	Solution
ALLARME 001	Inlet water temperature probe malfunction	PT6	Probe disconnected, faulty or abnormal value	Check the connection and if necessary replace the probe
ALLARME 002	Water outlet temperature probe malfunction	PT5	Probe disconnected, faulty or abnormal value	Check the connection and if necessary replace the probe
ALLARME 003	Domestic water temperature probe malfunction	PT4	Probe disconnected, faulty or abnormal value	Check the connection and if necessary replace the probe
ALLARME 004	Outdoor temperature probe malfunction	PT8	Probe disconnected, faulty or abnormal value	Check the connection and if necessary replace the probe
ALLARME 005	Low water temperature	PT5	The minimum frost protection temperature alarm has triggered. The temperature of the exiting water dropped below 5°C.	• Check that nothing is preventing the good water circulation in the plant (air, partially closed valves, clogged sieve filter) • Check that the thermal gradient between the plant delivery and return is between 4÷7 °C by querying parameter PT5 • Set a lower circulator speed if the thermal gradient is lower than 4 °C • If the thermal gradient is greater than 7 °C, check that all the valves on the plant are open and if necessary add an external pump to increase the water flow rate or insert a hydraulic separator
ALLARME 006	Low water temperature PT5 (and PT6 and if enabled PT1) on standby	PT1, PT5, PT6	The frost temperature alarm has triggered during the stand-by state. The outlet water temperature has dropped below 5 °C.	• During the stand-by state, a dangerous situation developed that could lead to serious damage to the device. • If the outside temperature may fall below zero degrees centigrade, with the likelihood of frost, the hydraulic plant must be drained or antifreeze liquid (e.g. ethylene glycol) must be added in the doses recommended by the manufacturer.
ALLARME 007	Low water temperature in standby	PT4	The frost temperature alarm has triggered during the stand-by state. The outlet water temperature has dropped below 5 °C.	• During the stand-by state, a dangerous situation developed that could lead to serious damage to the device. • If the outside temperature may fall below zero degrees centigrade, with the likelihood of frost, the hydraulic plant must be drained or antifreeze liquid (e.g. ethylene glycol) must be added in the doses recommended by the manufacturer.
ALLARME 008	High water temperature	PT5	Inlet water temperature detected by PT5 exceeded 80 °C	• If a boiler is installed in the system check the system's diverter valves
ALLARME 009	High water temperature	PT4	The domestic water tank temperature detected by PT4 has exceeded 80 °C	• If a boiler is installed in the system check the system's diverter valves • If a solar collector is present in the system, PT4 in the hot water tank detects a high temperature but this does not prevent the production of hot or cold water for the system
ALLARME 010	Plant flowmeter tripped	PI1	The water circulation in the plant is not good	Check that: • The check valves are open • the three -way valve for hot-cold diversion (if present) is in the correct position, • There are no air bubbles inside the circuit • At least one of the consumers has an open circuit or is equipped with a 3-way valve • The external mesh filter is not clogged • The plant water pressure is correct • The circulation pump is working properly (unlock it if necessary)
ALLARME 011	Malfunctioning of condensing unit	-	• The alarm P05 appears on the control panel of the outdoor unit on size 15 or 18. (Size 18 refers to the eHPoca indoor unit only). • The outdoor unit is not working properly.	• Invert two of the three-phase power phases. • Check on the control panel of the outdoor unit the meaning of the alarm • Contact the Technical Service Centre

Alarm	Description	Correlated variables	Cause	Solution
ALLARME 012	Anti-legionella cycle terminated after LTO timeout exceeded	-	The anti-Legionella cycle ended in-correctly after 5 hours instead of holding 60°C for 2 hours.	• The auxiliary heater (resistor or backup boiler) is not available or the power is not sufficient for perform the function • Contact the installer
ALLARME 013	Plant temperature probe malfunction	PT1	Probe disconnected, faulty or abnormal value	Check the connection and if necessary replace the probe
ALLARME 014	Low water temperature	PT1	The minimum frost protection temperature alarm has triggered. The temperature of the exiting water dropped below 5°C.	Check that: • There is nothing to prevent good water circulation in the system (air, partially closed valves, clogged mains water filter, etc.) • Check that the thermal gradient between the plant flow and return is between 4÷7 °C by querying parameter PT1 • Set a lower circulator speed if the thermal gradient is lower than 4 °C • If the thermal gradient is greater than 7 °C, check that all the valves on the plant are open and if necessary add an external pump to increase the water flow rate or insert a hydraulic separator
ALLARME 015	Low water temperature	PT6	The minimum frost protection temperature alarm has triggered. The temperature of the exiting water dropped below 5°C.	Check that: • There is nothing to prevent good water circulation in the system (air, partially closed valves, clogged mains water filter, etc.) • Check that the thermal gradient between the plant flow and return is between 4÷7 °C by querying parameter PT6 • Set a lower circulator speed if the thermal gradient is lower than 4 °C • If the thermal gradient is greater than 7 °C, check that all the valves on the plant are open and if necessary add an external pump to increase the water flow rate or insert a hydraulic separator
-	Noise and turbulence is coming from the hydraulic circuit	-	There is air inside the circuit	• Vent the air via the external devices and the vent on the buffer tank of the machine and bring the circuit to the correct pressure • Check that the suction pressure (hydraulic circuit return) with the pump on is higher than 0.6 bar.
-	Unsatisfactory cooling or heating	-	• The setpoint set on the controller is too low (heating mode) or too high (cooling mode) • The control panel is regulated to too high a temperature for cooling (or too low for heating) • Open doors and/or windows	• Reset according to needs • Adjust the temperature to a suitable value • Close them to prevent air from entering

1. **Notes:**
2. In general, alarm resetting is automatic when the activation condition is established again.
3. The activation or reset conditions must remain for a preset time (e.g. 30 s) before the alarm is activated or deactivated on the display. The duration of the preset time depends on the alarm type.
4. If the alarm trips multiple times in a given time (e.g. 3 times in 1 hour), it must be reset manually by the Technical Service Centre.

7.5 Alarms shown on the control panel of the external unit

The control panel of the outdoor unit displays the alarms that occur during operation of the heat pump.

⚠ If the PdC alarm appears on the user interface, refer to the Technical Service Centre.

Alarms displayed	Cause	Solution
P03	Anomalous compressor discharge temperature > o = at 103 °C.	Check cooling cycle (possibly excessive refrigerant charge). Check opening of cooler taps. Check TD compressor delivery sensor and replace it if needed.
P04	External unit high pressure switch tripped.	In the summer cycle, check the free circulation of air on the outdoor unit. Check the refrigerant charge. In the winter cycle, check that the refrigerant taps are open.
P05	One of phases missing or incorrect connection of power phases in three-phase versions. No neutral in single-phase versions.	Check for presence and sequence of R, S and T phases and that the device is not powered with two phases in one-phase systems.
P10	Electrical jumper on connector CN034 of PAW-ACXA73-38670 board missing or disconnected.	Check connection.
P11	Electric jumper on connector CN068 of PAW-ACXA73-38670 board missing or disconnected.	Check connection.
P15	Insufficient refrigerant charge.	Check the cooling circuit to locate the possible leakage.
P16	Excessive compressor draw.	Check values of resistors.
P19	Four-way valve jammed.	Check electric power and operation of the four-way valve.
P20	High refrigerant pressure protection.	Check the cleanness of the external heat exchanger and respect of minimum clearances. Check fan operation and correct air exhaust from the condenser.
P22	External fan motor not working correctly. External fan inverter circuit protection tripped.	Check free fan movement. Replace fan motor inverter board.
P26	Compressor inverter circuit protection tripped.	Disconnect and reconnect power to the device and check that the compressor starts up correctly. Check inverter board wiring and replace it, if needed. Cooling problem of the radiating plate of the inverter board. Check cleanness of the heat sink. Check electric connections of the compressor.
P29	Compressor not working properly.	
H01	Surge detected by inverter board of the compressor.	
H05	External unit control board software to be updated.	Contact Technical Service Centre for replacement.
H31	HIC driver board malfunction	Contact Technical Service Centre for replacement.
F01	Liquid sensor E1 on indoor unit disconnected, interrupted or short-circuited.	Check sensor and replace it, if needed.
F02	Condensation sensor E2 sensor on indoor unit disconnect-ed, interrupted or short-circuited.	Check sensor and replace it, if needed.
F04	Compressor delivery sensor TD disconnected, interrupted or short-circuited.	Check sensor and replace it, if needed.
F06	Liquid sensor C1 on external unit battery disconnected, interrupted or short-circuited.	Check sensor and replace it, if needed.
F07	Condensation sensor C2 on external unit battery disconnected, interrupted or short-circuited.	Check sensor and replace it, if needed.
F08	External temperature sensor TO disconnected, interrupted or short-circuited.	Check sensor and replace it, if needed.
F10	Adjustment signal connection from controller disconnected, interrupted or short-circuited.	Check the connection of the Tout connector and the INN-PDC_03 controller to the CN104 connector on the PAW-ACXA73-38670 board.
F12	Compressor intake sensor TS disconnected, interrupted or short-circuited.	Check sensor and replace it, if needed.
F29	Indoor unit EEprom problem.	Disconnect and reconnect to the device and check for correct operation. Replace the EEprom of the PAW-ACXA73-38670 board.
F31	Indoor unit EEprom problem.	Disconnect and reconnect power to the device and check correct operation. Replace and reprogram the external unit board.
L02	Parameter incompatibly between internal and external unit.	Check the automatic settings of the address again. Contact Technical Service Centre to run programming again.
L08	No setting in the indoor unit.	
L09	No setting in the indoor unit.	
L10	No setting in the indoor unit.	
L13	Incorrect settings of parameters in the indoor unit.	

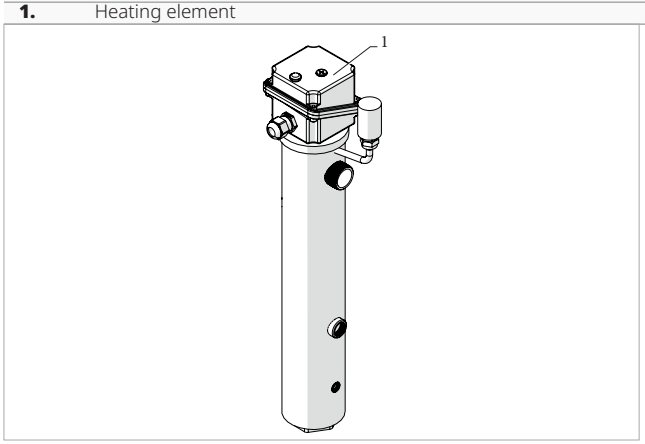
Alarms displayed	Cause	Solution
L18	4-way valve malfunctioning. E1 and E2 probes measure low temperatures during heating. E1 and E2 probes measure high temperatures during cooling.	This could be a transitory situation. Disconnect and reconnect power to the unit and check for correct operation.
E01	Automatic address setting has not been completed. Wiring between internal and external unit are cut or not connected correctly.	Check the connection between the indoor unit and the outdoor unit.
E03	Signal reception error by indoor unit.	
E04	Signal reception error by indoor unit.	
E06	Problems of communication between external and indoor units.	
E07	Problems of communication between external and indoor units.	
E15	Power of indoor unit lower than external unit.	Check device size and reconfigure the indoor unit.
E16	Power of external unit lower than indoor unit.	Check device size and reconfigure the indoor unit.
E20	Automatic addressing procedure interrupted.	Check the connection between the indoor unit and the outdoor unit.
E31	Problems of communication between external and indoor units.	

8. CONFIGURATION ACCESSORIES

8.1 Heater kit

Maximum heating elements 6 KW (3 steps of 2 kW). For single-phase heat pumps, factory setting 2 kW (maximum 4 kW)

1. Heating element



8.1.1 Electric connections

The accessory is supplied installed and tested at the factory.

Single-phase power supply

Connection		Stage 1	Stage 2
Power draw	kW	2,00	4,00
Current draw	A	8,70	17,39
Minimum wire cross-section area	mm^2	4,00	4,00

Three-phase power supply

Connection		Stage 1+2+3
Power draw	kW	6,00
Current draw	A	8,70
Minimum wire cross-section area	mm^2	2,50

8.1.2 Checks with the machine switched on

ⓘ This check should only be carried out if the unit is equipped with an electrical heating element.

After starting up, check that

- the heating element operation indicator light is on

8.1.3 Failures of the heating element

Failure of the electrical resistance is indicated by the operating light going out.

The fault may be due to:

- intervention of the resistor safety thermostat
- resistor protection switch intervention

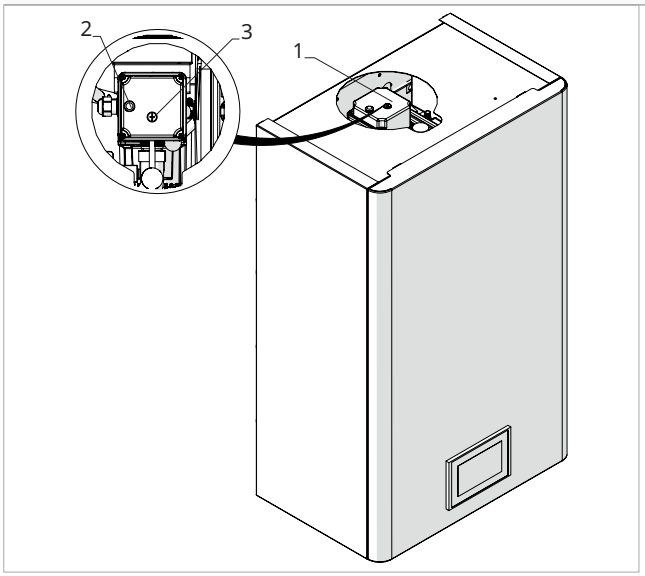
To restore:

► undo the protective cap

► press the reset button

⚠ If the fault occurs several times in a given period of time (e.g. 3 times in 1 hour), contact the Technical Service Centre.

1. Heating element
2. Led
3. Reset button



9. TECHNICAL INFORMATION

9.1 Technical data

Models		u.m.	15	18	25
Heating performances (A 7 °C BS; W 35 °C)					
Maximum heat output	(1)	kW	22,80	26,90	31,07
Nominal heat power	(1)	kW	14,61	15,95	24,78
Total absorbed power	(1)	kW	2,95	3,69	5,87
COP	(1)		4,95	4,32	4,22
SCOP	(1)(2)		4,92	4,45	4,11
Energy efficiency					
Energy efficiency class	(3)			A+++	
Heating performances (A-7 °C BS; W 35 °C)					
Maximum heat output	(4)	kW	14,74	17,36	18,37
Nominal heat power	(4)	kW	9,03	10,03	14,65
Total absorbed power	(4)	kW	2,87	3,54	5,12
COP	(4)		3,15	2,83	2,86
Cooling performances (A35 °C; W 18 °C)					
Maximum cooling capacity	(5)	kW	18,56	23,15	32,64
Nominal cooling capacity	(5)	kW	15,60	19,40	27,94
Total absorbed power	(5)	kW	3,90	4,70	6,65
EER	(5)		4,00	4,13	4,20
SEER	(5)		6,62	7,23	7,10
Cooling performances (A35 °C; W 7°C)					
Maximum cooling capacity	(6)	kW	13,34	16,45	23,24
Nominal cooling capacity	(6)	kW	11,20	13,90	19,90
Total absorbed power	(6)	kW	3,50	4,40	6,31
EER			3,20	3,19	3,15
SEER	(6)		5,12	5,95	5,81
Hydraulic data					
Nominal flow rate for heating		L/min	41,9	45,7	71,0
Nominal flow rate for cooling		L/min	44,7	55,5	80,1
Available pressure primary circuit		kPa	31,0	51,0	40,0
Diameter of hydraulic fittings		"GAS		1	
expansion vessel capacity		L	8	8	8
Minimum system water content		L	65,0	75,0	110,0

1. Water temperature in/out 30/35 °C; outdoor air temperature 7 °C; U.R. 85%
2. Value referred to the Average climate profile for supply temperature of 35 °C. Values in compliance with Regulation 811/2013.
3. Seasonal efficiency according to UNI EN 14825. Energy Efficiency Class referred to the Average climate profile for flow temperature of 35 °C in compliance with Regulation 811/2013
4. Water temperature in/out 30/35 °C; outdoor air temperature -7 °C
5. Water in/out temperature 23/18 °C; outside air temperature 35 °C (radiant application)
6. Water temperature in/out 12/7 °C; Outdoor air temperature 35 °C (fancoil application)
7. Sound pressure at a distance of 1 meter measured in a semi-anechoic chamber according to UNI EN 3744

Models		u.m.	15	18	25
Refrigerant gas data					
Type of refrigerant			R32		
Quantity of refrigerant		kg	3,05	3,05	3,50
Suction		"SAE	5/8	5/8	7/8 solder
Liquid		"SAE	3/8	3/8	1/2
Sound data					
Sound pressure internal unit	(7)	dB(A)	31,0	32,0	32,0
Electrical data					
Power Supply		V/ph/Hz	230/1/50 - 400/3/50	400/3/50	230/1/50 U.I - 400/3/50 U.E
Indoor unit protection degree			IPX2		
Product dimensions and weight					
Width		mm	501	501	501
Height		mm	826	826	826
Total depth		mm	321	321	321
Empty weight		kg	43,0	43,0	46,0

1. Water temperature in/out 30/35 °C; outdoor air temperature 7 °C; U.R. 85%
2. Value referred to the Average climate profile for supply temperature of 35 °C. Values in compliance with Regulation 811/2013.
3. Seasonal efficiency according to UNI EN 14825. Energy Efficiency Class referred to the Average climate profile for flow temperature of 35 °C in compliance with Regulation 811/2013
4. Water temperature in/out 30/35 °C; outdoor air temperature -7 °C
5. Water in/out temperature 23/18 °C; outside air temperature 35 °C (radiant application)
6. Water temperature in/out 12/7 °C; Outdoor air temperature 35 °C (fancoil application)
7. Sound pressure at a distance of 1 meter measured in a semi-anechoic chamber according to UNI EN 3744

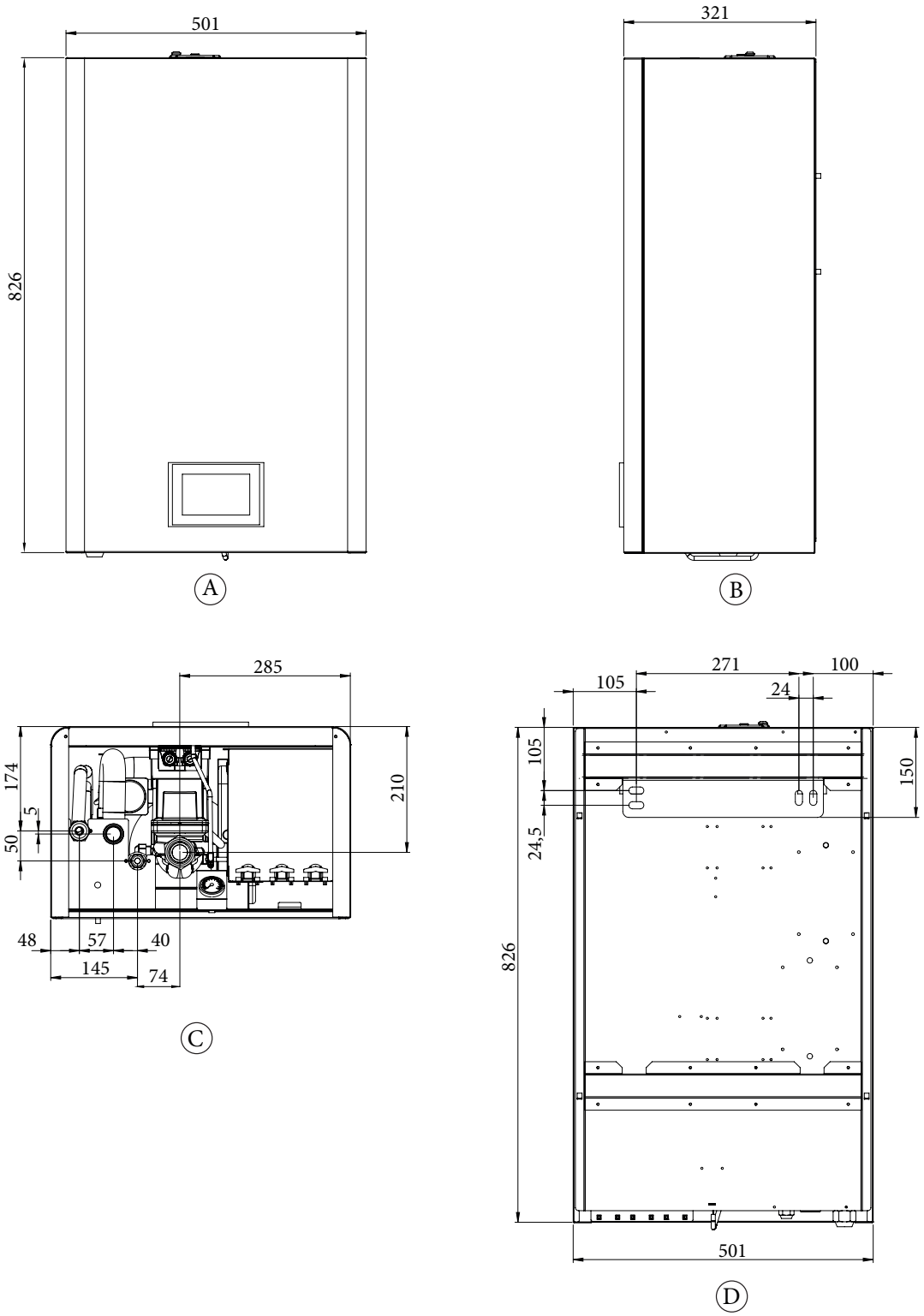
⚠ Refer to the manual of the outdoor unit for data about the refrigerating circuit.

⚠ For size 25, the indoor unit power supply is different from the outdoor unit power supply. Supply the indoor unit power with 230/1/50 V/ph/Hz. Power the outdoor unit with 400/3/50 V/ph/Hz.

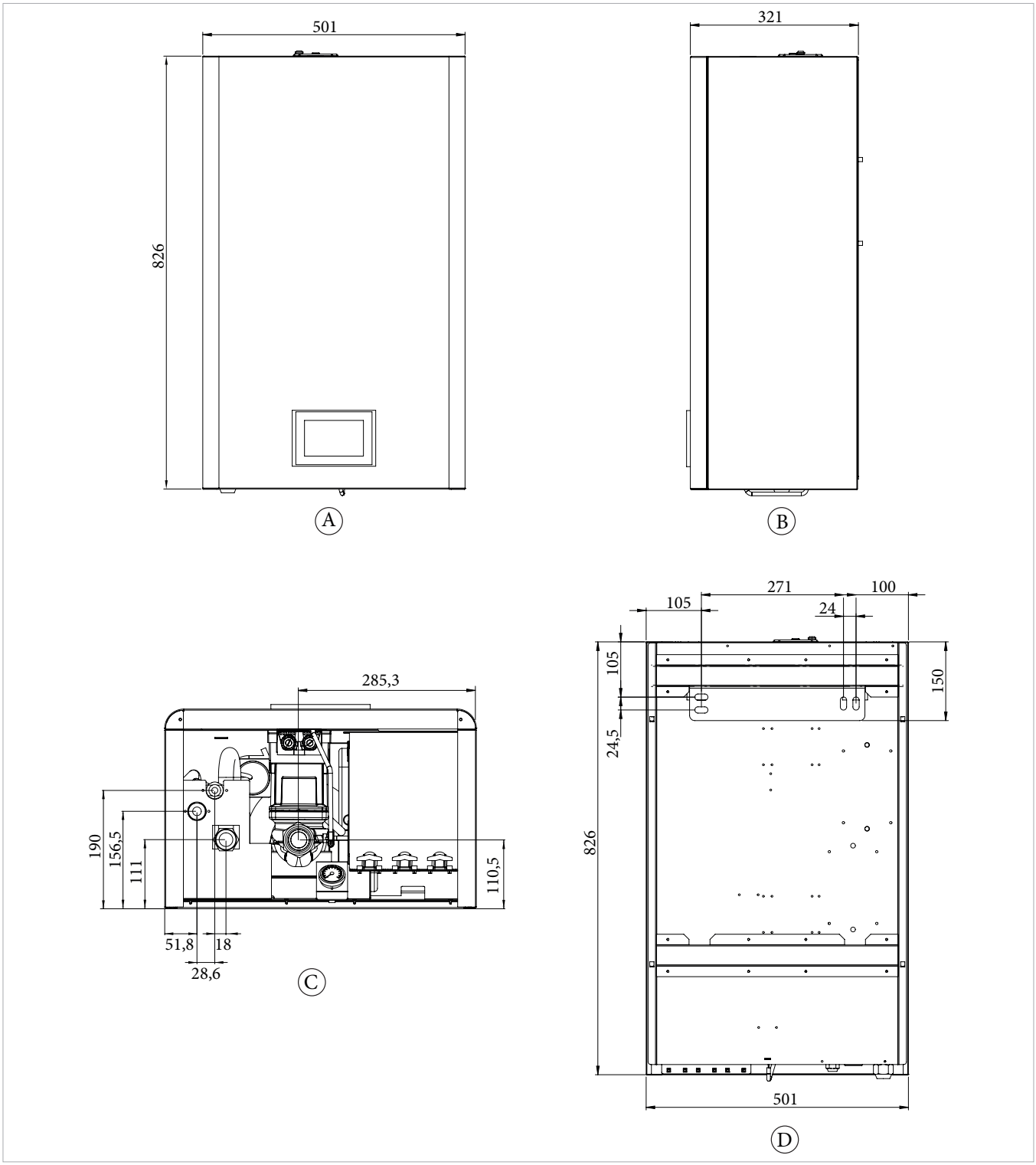
9.2 Dimensions

9.2.1 Indoor unit for models 15 - 18

A	Front view	**C**	View from below
B	Left side view	**D**	Rear view



9.2.2 Indoor unit for models 25

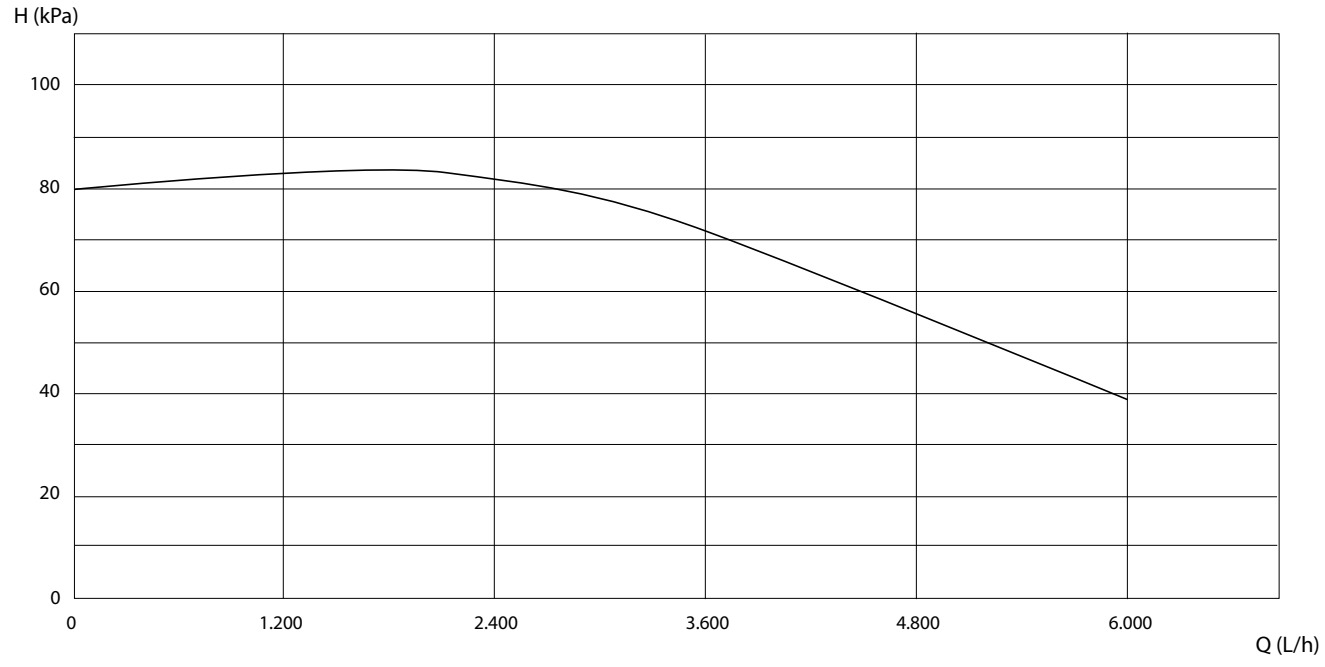


9.3 PP1 primary circulation pump graphs

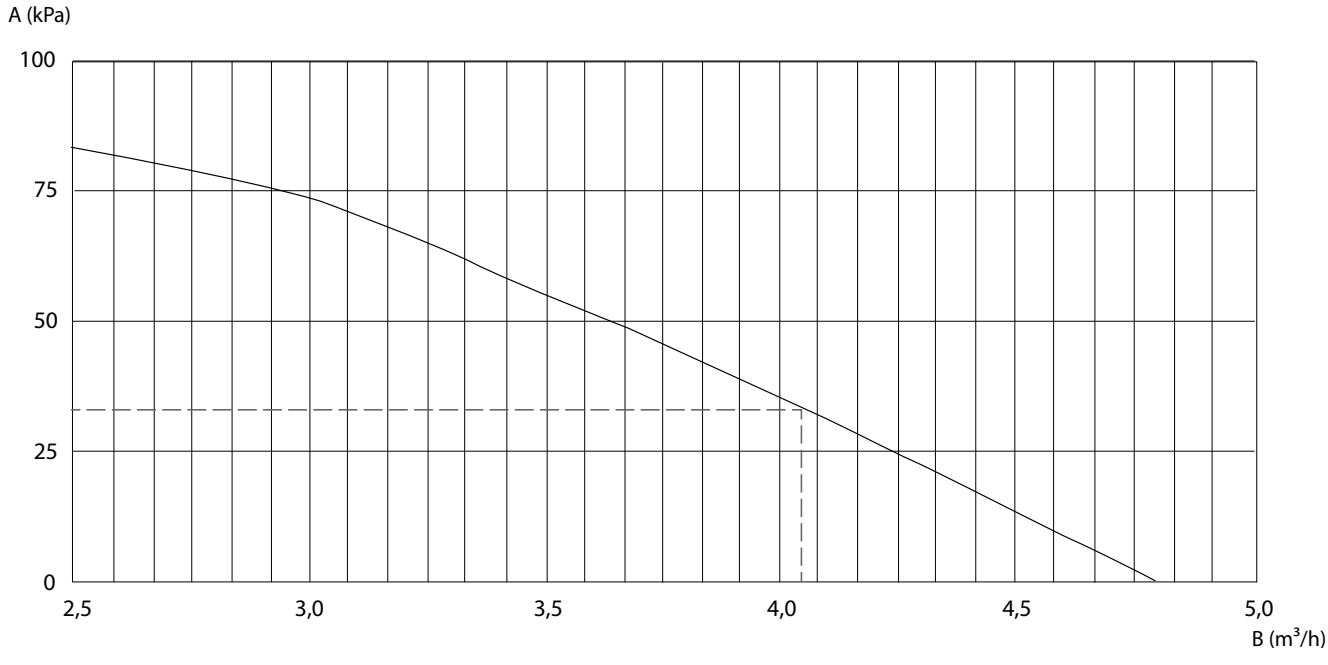
9.3.1 Model 15 - 18

H	Available pressure
Q	Water flow rate

Curves refer to fixed maximum speed

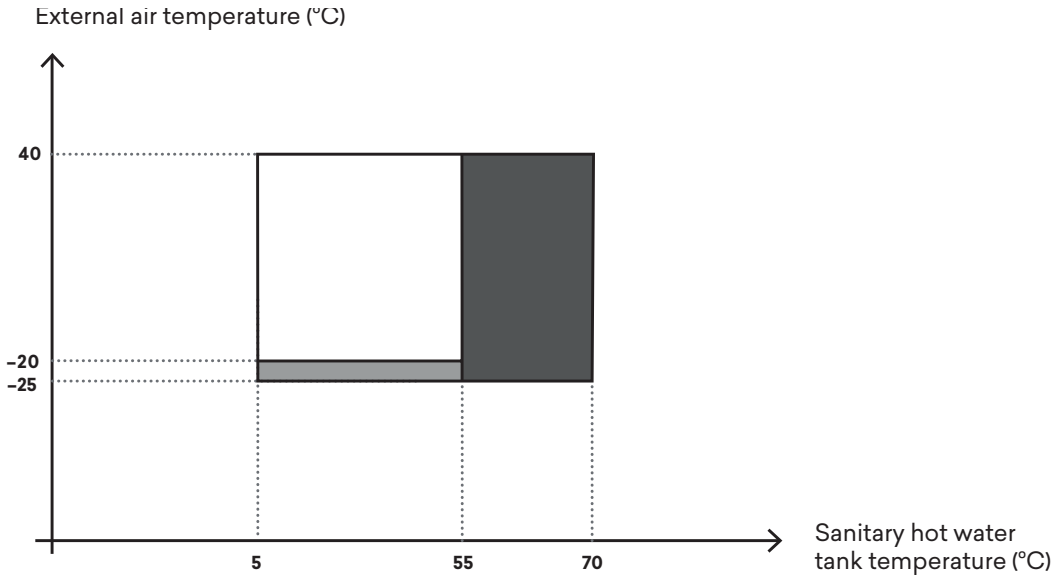


9.3.2 Model 25



9.4 Operating limits

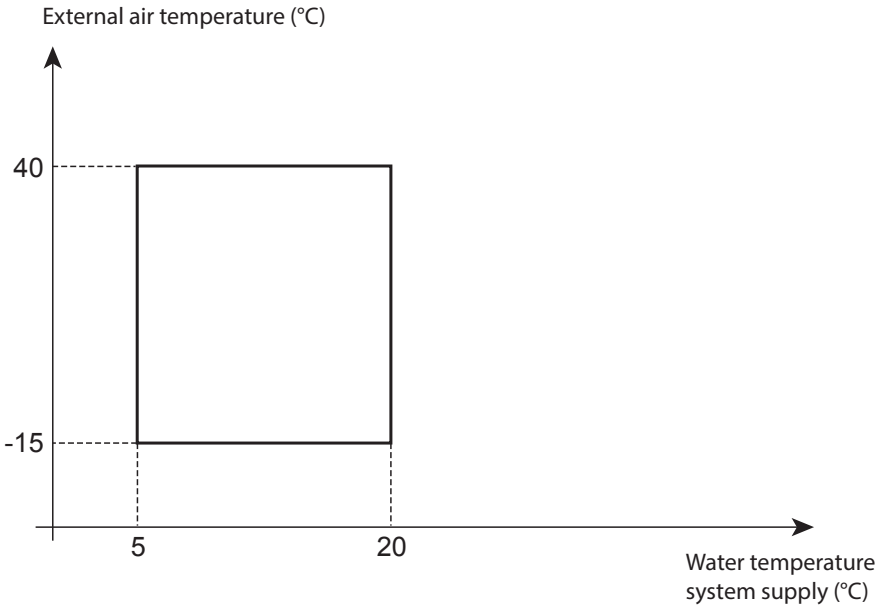
Domestic hot water



⚠ The areas represented by the graph marked by back-up heater are simplified. They could be more advantageous (greater contribution of the heat pump) in relation to the operating conditions and internal operating parameters.

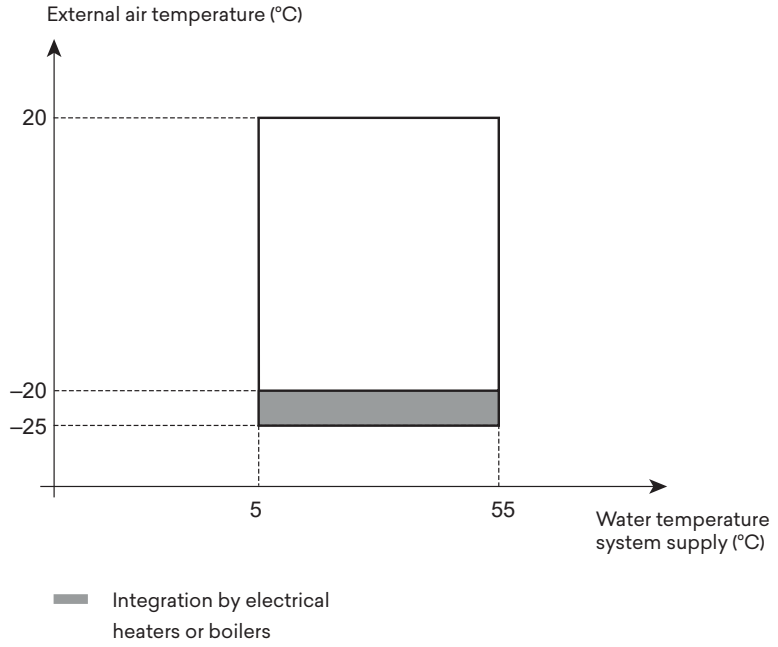
⚠ the unit may reduce the outlet water temperature of the condenser at outdoor air temperatures below -15 °C.

Cooling



*The area represented by the graph is simplified. It may be more advantageous depending of oudoor and working conditions.

Heating



⚠ The areas represented by the graph marked by back-up heater are simplified. They could be more advantageous (greater contribution of the heat pump) in relation to the operating conditions and internal operating parameters.

⚠ the unit may reduce the outlet water temperature of the condenser at outdoor air temperatures below -15 °C.

innova

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