

PDC FLOOR

Heat pumps for winter heating, summer air conditioning and domestic hot water production



INSTALLATION MANUAL

Compliance

This unit complies with the following European Directives:

- Low voltage 2014/35/EU
- Electro-magnetic compatibility 2014/30/EU
- Use restrictions of hazardous substances in electrical and electronic equipment 2011/65/EC (RoHS2)
- Waste electrical and electronic equipment 2012/19/EC (WEEE).
- ErP Directive 2009/125/EC and regulation 2012/206EC

Symbols

The pictograms in the next chapter provide the necessary information for correct, safe use of the appliance in a rapid,

unmistakable way.

Pictograms referred to the text

U User

- Refers to pages containing instructions or information for the user.

I Installer

- Refers to pages containing instructions or information

for the installer.

S Service

- Refers to pages containing instructions or information for the CUSTOMER TECHNICAL ASSISTANCE SERVICE.

Safety pictograms

A Warning

- It indicates actions that require caution and a suitable preparation.

⊘ Prohibition

- Refers to prohibited actions.

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1 GENERAL

1.1 General warnings

This manual was written to provide all the explanations you need to manage your conditioning system to the best. Please read this manual carefully before operating the device and keep it for future reference.

The manual is divided into four parts:

- **General**
For the specialised installer and the end user.
This part contains information, technical data and important warnings which must be known before installing and using the air-water heat pump.
- **Installation**
For specialised installers only.
The part contains information for positioning and assembling the air-water heat pump in the installation site. Installation of the air-water heat pump by non-specialised personnel will cancel the warranty conditions.
- **Use and maintenance**
This part contains information for understanding and programming the air-water heat pump for the most common maintenance operations.
- **Technical information**
This part contains detailed technical information on the device.

- ⚠ All rights reserved by law. This document cannot be copied or disclosed to third parties without the explicit authorisation of RDZ S.P.A.. Machines may be updated and have different features from those illustrated without affecting the text contained in this manual.
- ⚠ Read this manual carefully before starting any operation (installation, maintenance, use) following the instructions provided in the single chapters to the letter.
- ⚠ The manufacturer shall not be liable for damage or injury to people or property caused by the failure to comply with the regulations contained in this manual.
- ⚠ The manufacturer reserves the right to make changes to models at any time while the essential features described in this manual still apply.
- ⚠ Installing and maintaining conditioning devices like this one may be dangerous because the devices contain pressurised refrigerant gas and live electric components. Therefore, the device must be installed, commissioned and maintained exclusively by authorised, qualified personnel (see first start-up request form attached to the device).
- ⚠ Installations which do not respect the instructions contained in this manual and use beyond the specified temperature limits will cancel the warranty.
- ⚠ Routine maintenance and exterior cleaning may be carried out by the user because operations are simple and not dangerous.
- ⚠ During assembly and for all maintenance operations, observe the precautions shown in this manual and on the labels affixed in the devices in addition to all precautions dictated by

common sense and the safety regulations in force at the installation site.

- ⚠ Always wear protective gloves and eyewear before operating on refrigerant side on the devices.
- ⚠ Air-water heat pumps **MUST NOT** be installed in environments in presence of flammable gases, explosive gases, in very damp environments (laundries, greenhouses etc.) or rooms with other machinery which generates a great deal of heat are present.
- ⚠ Always use RDZ S.P.A. genuine spare parts exclusively for replacements.
- ⚠ **IMPORTANT**
To prevent the risk of electrocution disconnect the master switch before making electric connections and performing maintenance operations on the devices.
- ⚠ Make sure that all personnel involved in transporting and installing the machine are aware of these instructions.



Disposal

According to the provisions of the following European directives 2011/65/EU, 2012/19/EU, and 2003/108/CE, concerning the restriction of the use of certain hazardous substances in electrical and electronic equipment, as well as waste disposal.

The crossed out wheeled bins symbol on the equipment indicates that, at the end of its useful life, the product must be collected separately from general waste.

Therefore, at the end of its useful life, the user must take the equipment to a designated electrical and electronic waste collection point, or return it to the dealer that, against the purchase of an equivalent appliance, it is obliged to collect the product for disposal free of charge.

Appropriate differentiated waste collection for subsequent recycling, treatment and environment-friendly disposal of the discarded equipment helps preventing possible negative environmental and health effects and encourages recycling of the component materials of the equipment.

Illegal disposal of the product by the user entails the application of sanctions provided by the regulations in force.

1.2 Fundamental safety rules

Remember that some fundamental safety rules apply to products using electricity and water. These include:

- ⊖ Children and disabled people must not use the device without assistance.
- ⊖ Do not touch the device when barefooted or if parts of your body are wet or damp.
- ⊖ Always disconnect the device from the electrical mains by turning the master switch of the system to the "off" position before starting any cleaning operation.
- ⊖ Do not modify safety or setting devices without authorisation or instructions by the device manufacturer.
- ⊖ Do not pull, disconnect or twist the electrical wires exiting from the device even when the device is disconnected from the electrical mains.
- ⊖ Do not introduce objects and substances through the air intake and delivery grids.
- ⊖ Do not open the access doors to internal parts of the device before having turned the master switch of the system to the "off" position.
- ⊖ Dispose of the packaging correctly. Do not leave the packaging within reach of children because it is a source of potential danger.
- ⊖ Do not release R-410A into the atmosphere: R-410A is a fluorinated greenhouse gas listed in the Kyoto Protocol as having a Global Warming Potential (GWP) of 1975.

1.3 Cautions

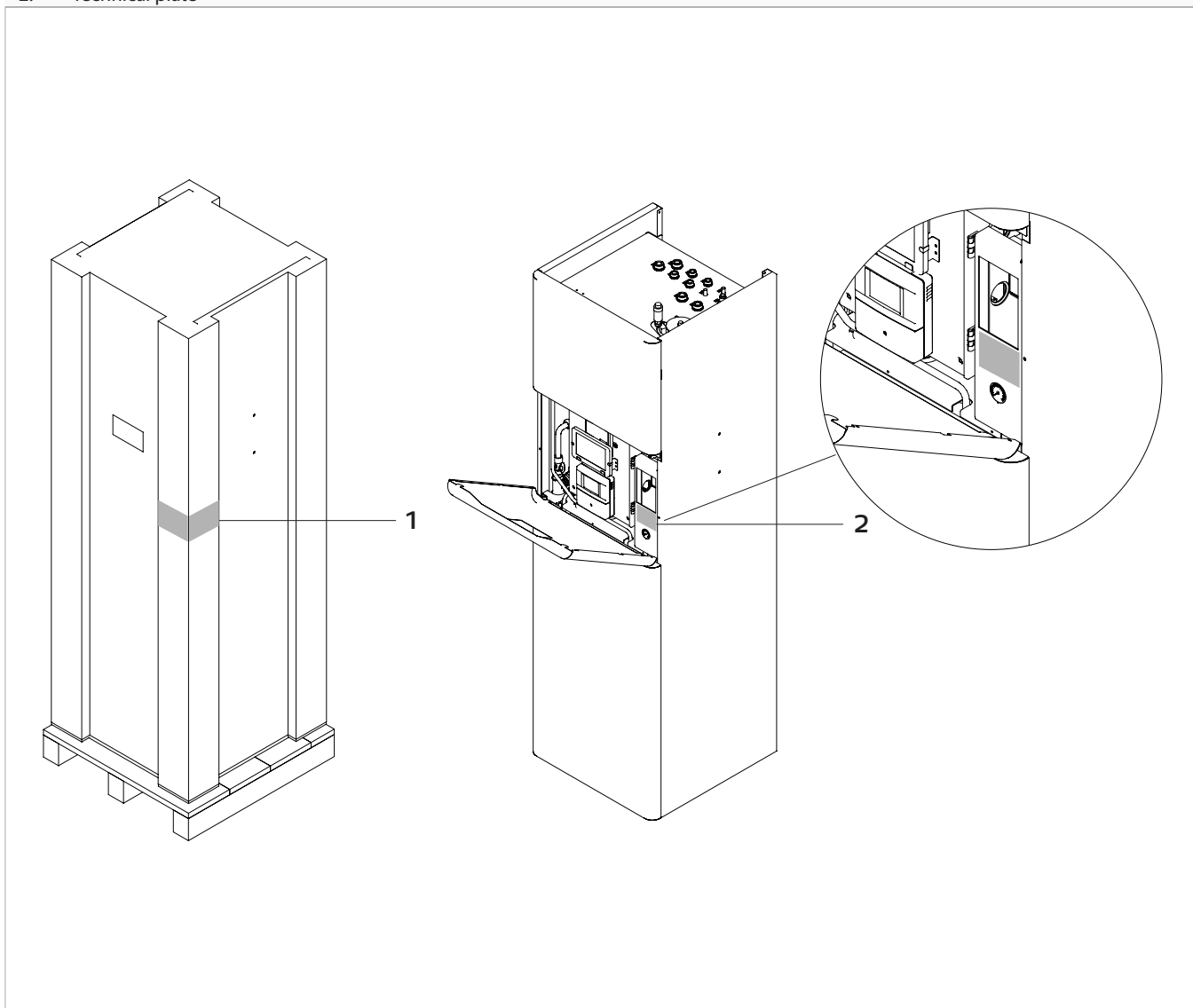
- ⚠ RDZ S.P.A. devices must be installed by an authorised company which shall issue a declaration of conformity in accordance with the laws in force and the indications supplied by RDZ S.P.A. in this manual.
- ⚠ Install the air-water pump following the instructions contained in this manual. Risk of leakage of water, electric shock or fire if installation is not carried out correctly.
- ⚠ Always only use components specifically intended for the installation and provided. Using different components could cause leakage of water, electric shock or fire.
- ⚠ Install the external unit on a solid base capable of withstanding its load. If it is installed incompletely or on an inadequate base, the external unit could fall causing damage and injury to people and property.
- ⚠ Electrical connections must be carried out in accordance with the instructions contained in this installation manual and the national rules, regulations and practices concerning the connections of electric devices. Insufficient capacities and incomplete electric connections could cause electric shock or fire.
- ⚠ Use a cable of sufficient length to cover the entire distance without any connection for the electric connection. Do not use extensions. Do not apply loads onto the power line. Use a dedicated power circuit (risk of overheating, electric shock or fire otherwise).
- ⚠ Use the specified wire types for electric connections between the internal and the external unit. Fix the interconnection wires firmly so that the respective terminals are not subjected to external stress. Incomplete connections or fastenings may cause overheating and fire.
- ⚠ After having connected the interconnection and power wires, make sure that the wires are arranged to avoid excessive forces on covers or electric panels. Fit the covers on the wires. Incomplete connection of the covers may cause overheating of the terminals, electric shock or fire.
- ⚠ Ventilate in case of leakage of refrigerant into the environment during installation (the refrigerant produces toxic gas if exposed to flames).
- ⚠ Check for leakage of refrigerant after installation (the refrigerant produces toxic gas if exposed to flames).
- ⚠ When installing or rearranging the system, make sure that so substances (e.g. air) other than the specific refrigerant (R410A) enters into the refrigerant circuit (the presence of air and other foreign substances in the refrigerant circuit could cause abnormal increase of pressure or breakage in the system, with consequent injury to people).
- ⚠ In case of leakages of water, set the master switch of the system to the "off" position and close the water taps. Call the RDZ S.P.A. Technical Service or qualified personnel promptly in case of need. Do not operate personally on the device.
- ⚠ If a boiler is present in the system, check that the temperature of the water circulating in the air-water heat pump does not exceed 65°C during operation.
- ⚠ This instruction manual is an integral part of the device and consequently must be kept with care and ALWAYS accompany the device if it is resold or transferred to another system. Order another copy from your local RDZ S.p.A. Technical Service in case of damage or misplacement.
- ⚠ Make sure that the device is earthed. Do not connect to earth on distribution pipes, surge arresters or on the telephone system earth. If it is not made correctly, the earth connection may cause electric shock. Momentary high intensity surges caused by lightning or other causes could damage the air-water heat pump.
- ⚠ Be sure to install an earth leakage breaker; failure to install an earth leakage breaker may result in electric shocks.

A It is recommended to install an earth leakage breaker; Failure to install this device could result in electric shock.

1.4 Identification

- The device can be identified by means of:
 - Packing label
This shows the identification data of the device.
 - Rating plate
This is applied to the machine and shows the technical and performance data of the device. Order a duplicate from Technical Service in case of loss or deterioration.
- A** Tampering, removing or deteriorating identification labels will make installation, maintenance and ordering of spare parts difficult.

1. Packing label
2. Technical plate



1.5 Description of the device

1.5.1 Indoor unit

PDC FLOOR combines three functions - winter heating, summer cooling and heating of hot water - in one device. On demand, the machine may be equipped with 6 kW auxiliary resistors and with the solar circuit components on-board (which can be assembled also after installation).

The following components are integrated in the indoor module:

- brazed heat exchanger plates
- P1 primary circulation DC pump (class A)
- inertia tank, 200 litre capacity, with instantaneous serpentine heat exchanger (4 m²) made of AISI 316L stainless steel for making hot water
- system hydraulic separator
- 24 litre system expansion vessel (48 for solar energy models)
- safety valves
- ACS diverting valve
- on-off taps
- screen filter for system water
- automatic vents for perfect air bubble removal.

A P2 secondary circulation pump (electronic, class A) is available as accessory (fitted in the device) downstream of the hydraulic separator. This configuration ensures complete separation between the primary and the secondary circuit with consequent safety and functional stability of the heat pump which is no

longer subject to flow rate fluctuations caused by circulation on system side.

Hydraulic and cooling connections (for connecting to the external unit) are arranged on the top of the module so avoid increasing side dimensions.

Access is from the front only to reduce clearance needed to the front only.

The electric panel is provided with a master switch and is enclosed in a IP44 sealed casing. The electronic control can be connected (by installing a switch) by means of WEB SERVER to any PC or smartphone logged onto the Internet and has a user interface with large touch screen for remote control, if required. A user interface (of the type fitted on eHPoca devices as standard) for emergency operations.

The following components are integrated in PDC FLOOR versions set up to connect to solar panels: circulation pump for PSO solar panel fluid, electronic control unit, safety valves, solar fluid pressure gauge, 24 litre expansion vessel on solar circuit, thermostat mixing valve to avoid excessively hot water temperatures.

The system is also provided with attachments for an auxiliary boiler to configure a hybrid type solution for high average temperature radiators, like heated towel rails. This solution allows to maintain very low delivery temperatures in the primary system and supply higher temperature water to some radiators without compromising the Seasonal Coefficient of Performance (SCOP) of the heat pump.

A P3 high temperature circulation pump is available as accessory (fitted in the device) and may be controlled by an external thermostat.

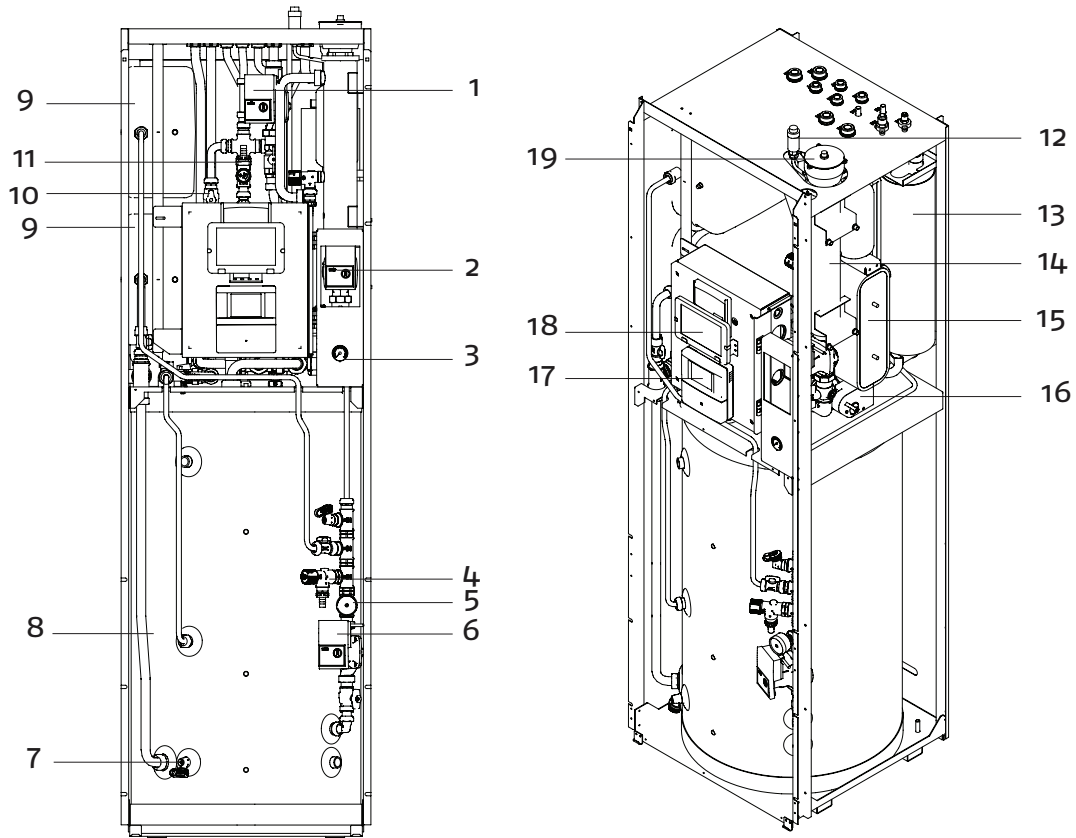
1.5.2 Indoor unit components

1. P2 system circulation pump **
2. P1 head pump circulation pump
3. Pressure gauge
4. 4 bar solar safety valve
5. Solar pressure gauge *
6. PSO solar circuit pump *
7. Drain tap
8. Hot water tank
9. 2 x 24 L expansion vessels (one optional)
10. Charging tap
11. 6 bar safety valve

12. Automatic relief valve
13. Hydraulic separator **
14. Collector
15. Plate heat exchanger
16. Three-way hot water valve
17. Solar unit *
18. LCD touch screen
19. 6 kW resistor *

* **Optional**

** **Optional recommended (obligatory for 12 - 15)**



1.5.3 External unit

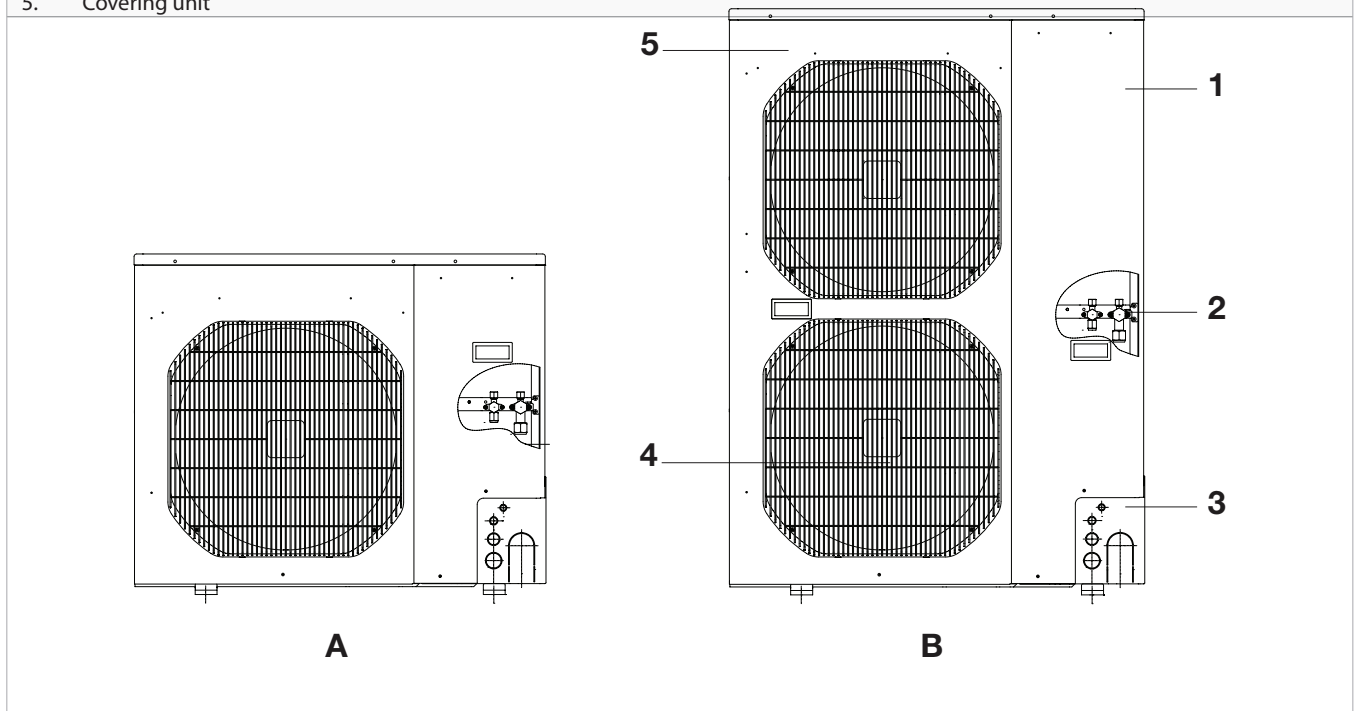
The outdoor units of the eHPoca range (up to the 15 kW model) can be connected. Operation is guaranteed from -20 °C to + 45 °C starting from a water temperature of 5 °C without needing additional electric resistors, modulating full inverter control, perfect defrosting in all climate situations and quiet operation, line length up to 50 metres.

The following are present in the unit:

- Twin rotary DC Inverter compressor with oil separator
- Modulating DC fans
- Electronic laminar valve
- P-Link serial connection with two non-polarised wires.

1.5.4 External unit components

- | | |
|----|--------------------|
| a. | Size 5 - 7 - 9 |
| b. | Size 12 - 15 |
| 1. | Access panel |
| 2. | Cooler attachments |
| 3. | Connection input |
| 4. | Fans |
| 5. | Covering unit |



2 INSTALLATION

2.1 Storage

Arrange the device in vertical position only. Store in closed environments protected from the elements.

- ⚠ Do not stack the devices.
- ⚠ Do not turn the packaging upside down.

2.2 Receipt and unpacking

The external unit is shipped in a cardboard box and the indoor unit is protected by means of polystyrene protections.

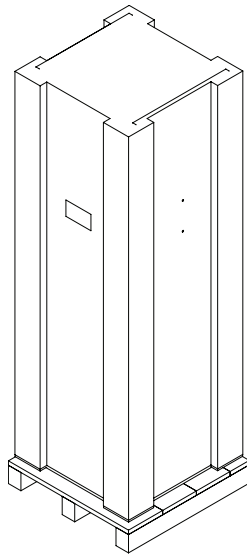
A small pallet is arranged under the indoor unit to facilitating handling and moving operations.

The packaging is appropriate to protect the machine from damage during transportation and handling. The units are delivered complete and in perfect condition, however we suggest that you perform the following checks to determine shipping service quality:

- On receipt of the packages, check them for any damage and, if any is found, accept the goods with reserve, and keep photographic evidence of any damage found.
- Unpack and check the contents against the packing list.
- Make sure none of the parts have been damaged during shipment; in case of damage you must report it to the shipping company within three days of receipt, by registered letter with return receipt, presenting photographic documentation.
Copy of notice should also be sent by fax to the manufacturer. No notice of damage will be accepted after three days from delivery.
For any controversies, the court of TRENTO has jurisdiction.

- ⚠ Handle the units in vertical position.
- ⚠ The units must be handled by qualified personnel provided with equipment appropriate to the weight and size of the device to be transported as shown below. If a forklift is used, insert the forks in the specific openings. Avoid dangerous situations if a hoist is used to lift the device. If straps or chains are used, check that they are in good conditions, of suitable capacity and approved according to the safety rules in force at the installation site.
- ⚠ Stay away from the surrounding area when the load is lifted off the ground. Avoid laying or arranging the product horizontally during handling operations. The cooling compressor is fitted on vibration damping feet which could cause the compressor to shift or push the connection pipes out from their seats.
- ⚠ Keep the packing at least through the warranty period, in case you need to ship the unit to the service centre for repair.
- ⚠ Dispose of the packaging correctly. Do not litter. Do not leave the packaging (cardboard, staples, plastic bags etc.) within reach of children because it is a source of potential danger.

2.2.1 Transport dimensions



Indoor unit		7M	9M	12M	12T	15M	15T
Height	mm	2120	2120	2120	2120	2120	2120
Width	mm	720	720	720	720	720	720
Depth	mm	720	720	720	720	720	720
Gross weight	kg	179	179	179	179	179	179

External unit		7M	9M	12M	12T	15M	15T
Height	mm	1136	1136	1556	1556	1556	1556
Width	mm	1055	1055	1055	1055	1055	1055
Depth	mm	485	485	485	485	485	485
Gross weight	kg	76	76	108	108	108	108

2.3 Installation procedure

Carefully follow the indications in this manual to ensure that the installation is correct and the equipment operates perfectly. Failure to observe these indications could cause device malfunction and relieve the manufacturer of all warranty obligations or responsibility for any damage or injury caused to persons, animals or property.

The electrical system must be installed following all the regulations in force and respecting the data indicated in the Technical Data chapter and includes a correct earthing.

The equipment must be installed so that maintenance can be carried out easily.

2.4 Installation of the indoor unit

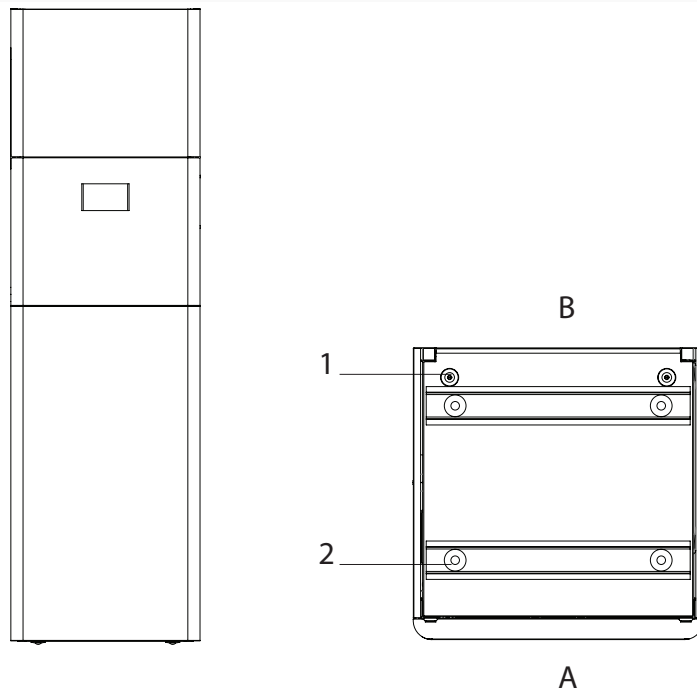
The location of the devices must be established by the system designed or by an expert person and must take technical needs into account in addition to local regulations in force.

- The unit is provided with four ball wheels to facilitating handling.

After having positioned the unit:

- Adjust the two anchoring feet and level the unit.
- ⚠ Keep the device vertical using handling.
- ⚠ Position the unit on a perfectly levelled surface.
- ⚠ Check that the resting surface supports the weight of the device.

- | | |
|----------|--------------------------|
| A | Front side |
| B | Rear side |
| 1. | Floor anchoring feet |
| 2. | Ball wheels for movement |



2.4.1 Minimum distances and access to the internal parts

To access the electrical panel and the primary pump:

- Open the central door by turning it downwards.
- Loosen the fastening screws.
- Remove the upper panel by pulling it towards you.

To access the hot water tank, the solar kit and the drain tap:

- Loosen the fastening screws.
- Slightly lift and remove the lower panel.

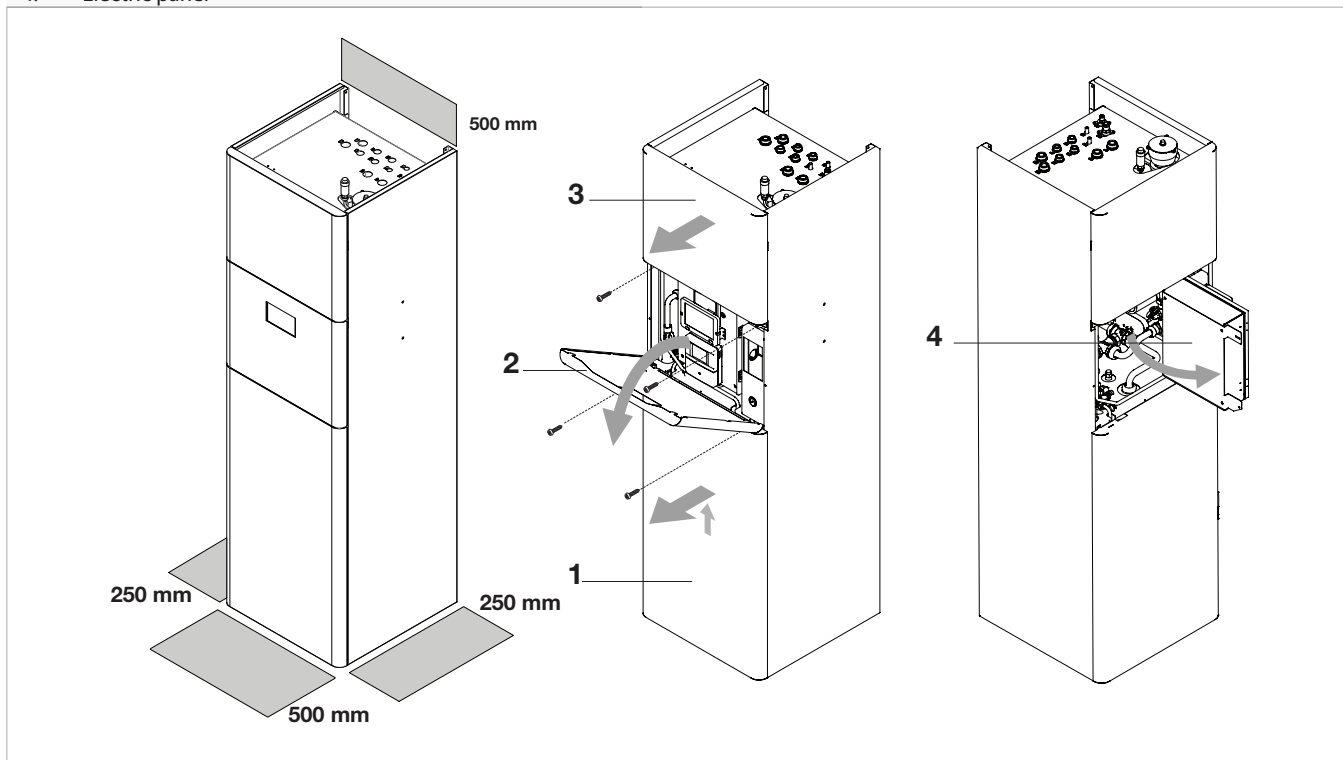
To access the system charging tap and the secondary circulation pump:

- Loosen the fastening screws.
- Remove the upper panel by pulling it towards yourself.

To access the manual vent valve:

- Loosen the fastening screws.
- Remove the electric panel.
- The side panels can be removed by loosening the four front screws and lifting the panel to release it from the rear sliding fasteners.

1.	Lower panel
2.	Central door
3.	Upper panel
4.	Electric panel



2.5 Installation of the external unit

The maximum length of the connection lines to the internal unit
 1. Supporti antivibranti disponibili come accessori in 30 m it will be necessary to top up the R410A load with 40 g for each metre). Furthermore, the maximum difference in height between the in-

ternal and external unit must not exceed the figures indicated in the "Connection" table.

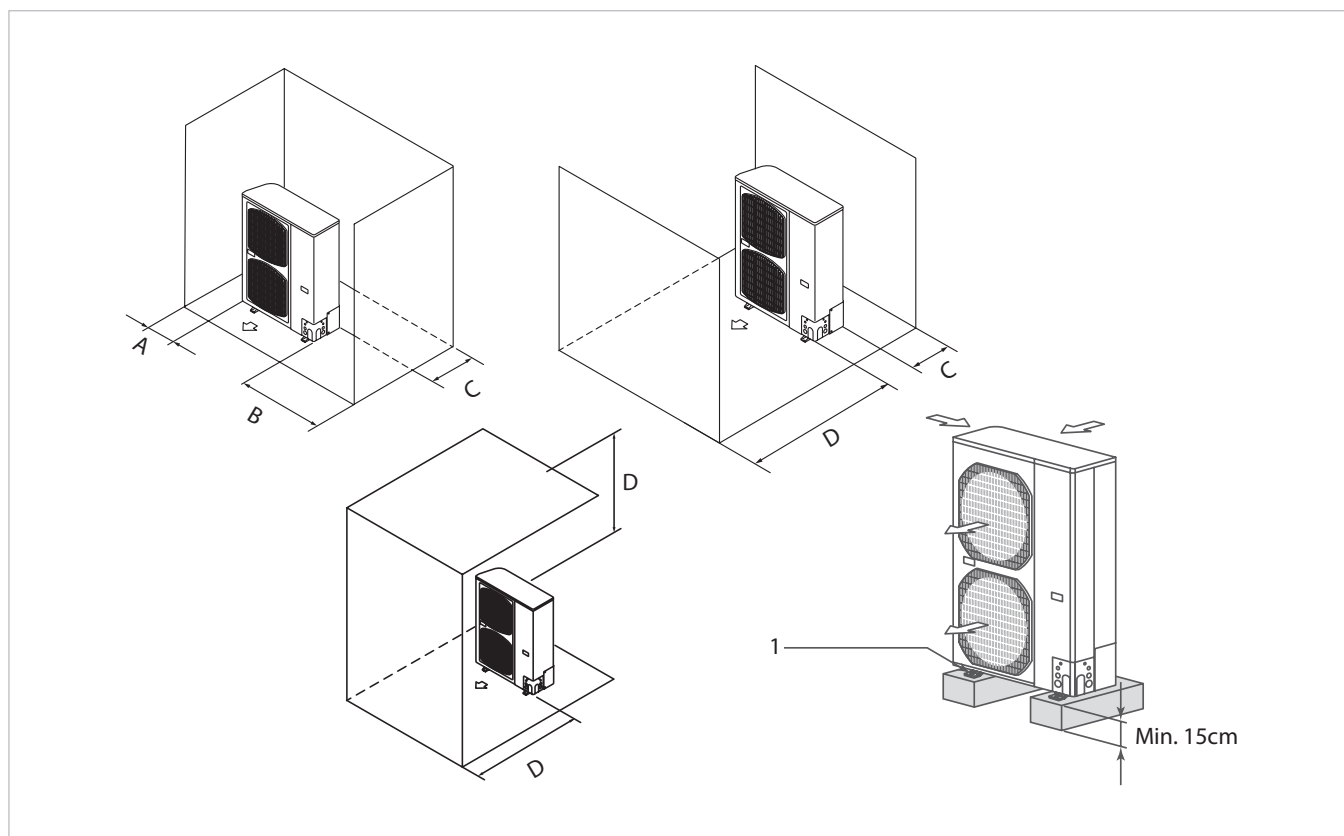
The installation site must be chosen with extreme care in order to ensure adequate protection of the device against impact or possible consequential damage.

2.5.1 Cautions

- ▲ Mount the external unit in a position which is capable of supporting the weight.
- ▲ Choose a place that is adequately ventilated and in which the external temperature in cooling does not exceed 40°C.
- ▲ Leave sufficient clearance around the device in order to avoid recycling and to facilitate maintenance operations.
- ▲ Prearrange a layer of gravel for the drainage of the defrosting water underneath the device.
- ▲ When installed in a location with high snow fall, mount the support of the device at a height which is greater than the maximum level of snow.
- ▲ Use concrete or a similar material to make the base, and ensure good drainage. In this case, prearrange vibration damping blocks in order to prevent the transmission of the vibrations.
- ▲ Ordinarily, ensure a base height of 5 cm or more. We recommend always using a condensate collection tray and drain pipe, or in regions with cold winters, ensure a height of at least 15 cm from the feet on both sides of the unit. (In this case, leave clearance below the unit for the drain pipe, and to prevent freezing of drainage water in cold weather).

		A	B	C	D
Distance	cm	≥ 15	≥ 25	≥ 20	≥ 50

1. Anti-vibration mounts available as accessories



2.6 Cooler connections

The installer must be in compliance with as established by Regulation 303/2008/EC which defines, in accordance with the Directive 842/2006/EC, the requirements of companies and personnel as regards stationary refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases.

IMPORTANT:

- ⊘ Do not make the connections using normal hydraulic pipes that could contain residues of flashing, dirt or water and that could damage the parts inside the unit and interfere with proper operation of the devices.
- ⚠ Use only special copper pipes for cooling, that are supplied clean and sealed at the ends.
- ⚠ After cutting the proper lengths, seal the ends immediately on the roll and cut piece.
- ⚠ Pre-insulated copper cooling system pipes can be used.
- ⊘ Only use pipes with diameter suitable for the dimensions described in the technical data sheets.

Open the inspection panel of the outdoor unit to access to the connection.

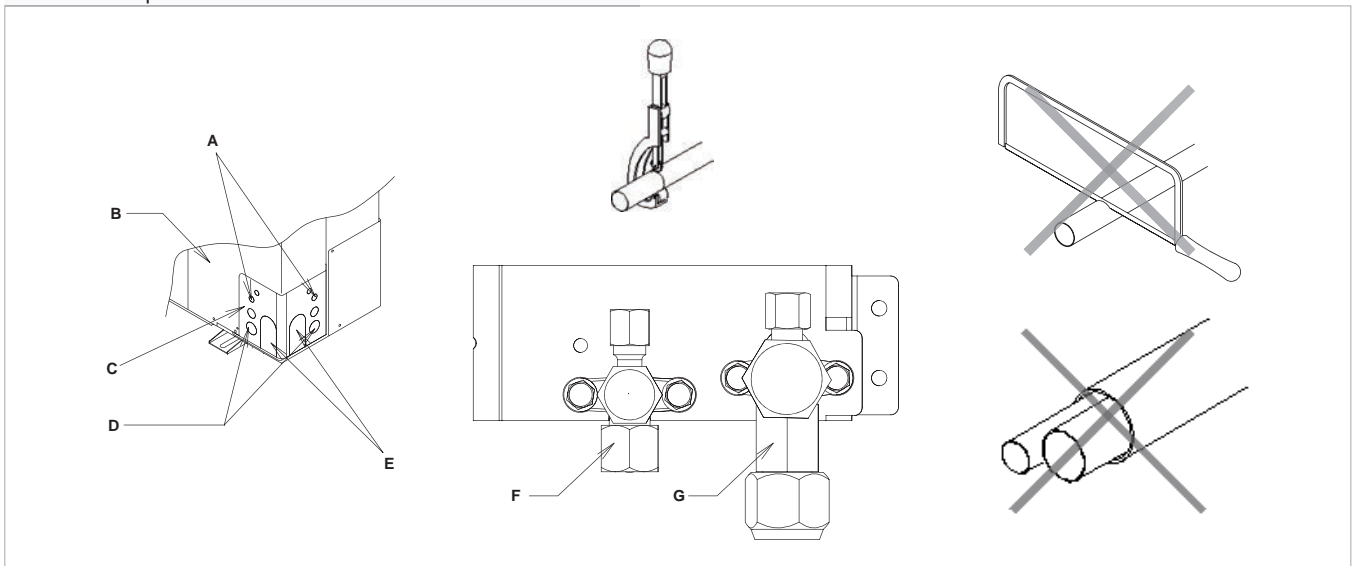
- Plan the route of the pipeline so as to reduce the length and number of bends as much as possible for best performance of the system.
The maximum length of the connection lines to the internal unit must be between 2 and 50 m in each direction (for lengths greater than 30 m it will be necessary to top up the R410A load with 40 g for each metre). Furthermore, the maximum difference in height between the internal and external unit must not exceed the figures indicated in the "Connection" table.
- Fasten a cable raceway to the wall (possibly with internal partitioning) of suitable size for the pipes and electrical wires to pass through.
- Cut the sections of pipe leaving an extra 3-4 cm on the ends.

IMPORTANT: 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 enter the circuitry of the system, damaging the parts severely.

- Remove possible burrs with the special tool.
- ⊘ **IMPORTANT:** immediately after cutting and deburring the pipes, seal the ends with insulating tape.

A	Control wire output
B	Inspection panel
C	Covering A
D	Power wire output
E	Pipe outlet
F	3/8" liquid line
G	5/8" liquid line



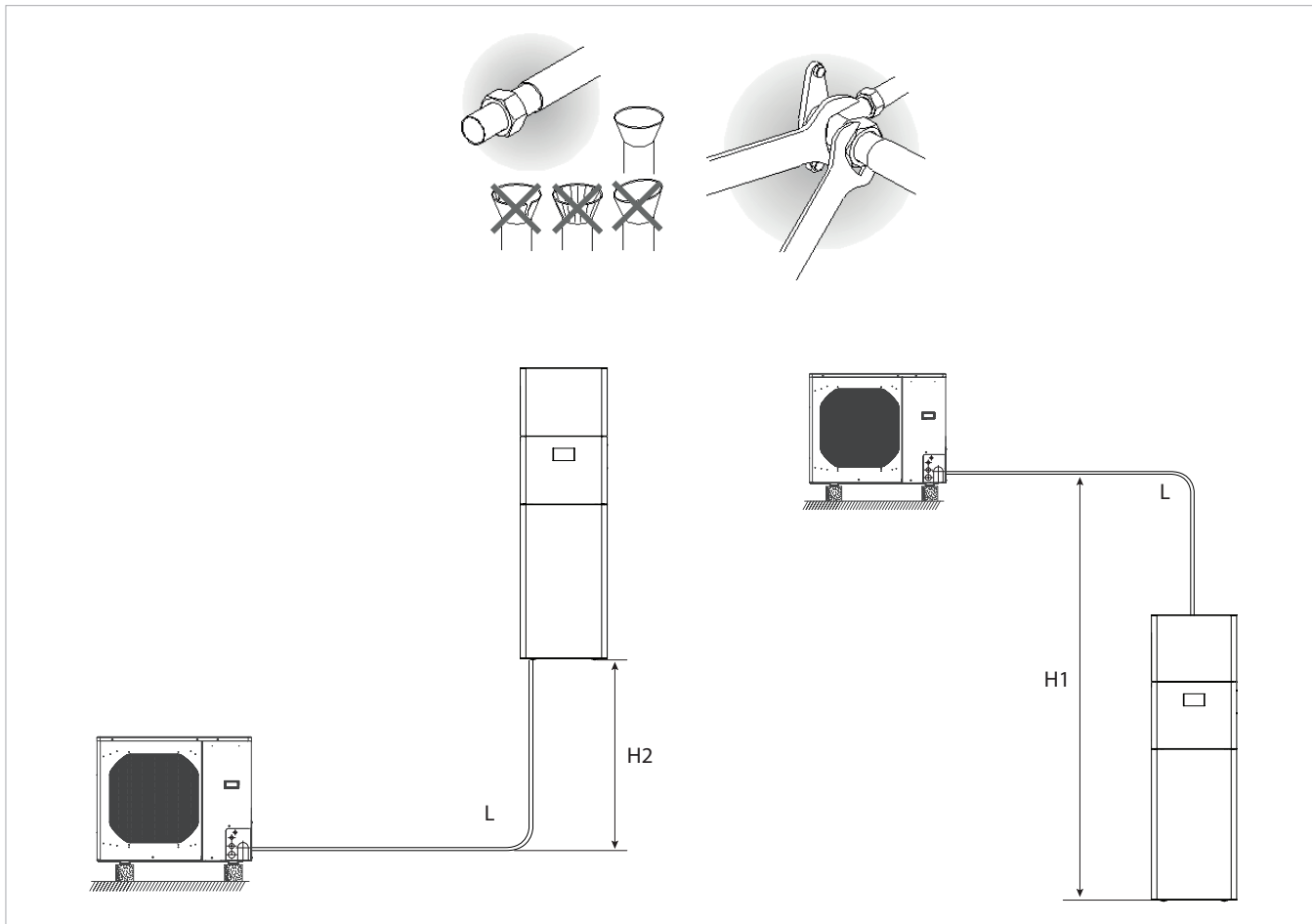
If pre-insulated pipes are not used, insert the pipes in the insulation which must have the following features:

- material: polyurethane foam with closed cells
- max. transmission coefficient: 0.45 W/(Km²) or 0.39 kcal/(hx-Cxm²)
- minimum thickness: 6 mm (for liquid pipes)
- minimum thickness: 9 mm (for gas pipes)
- ⊘ Do not place both pipes in the same sheath as this would jeopardize the proper operation of the system.
- Bind any joints in the sheath securely with insulating tape.
- Before flaring the pipe ends, insert the fastening nut.

- Flare the pipe ends using the special tool. Take care not to break, crack or split the pipe.
- Lubricate the connecting thread with oil for coolant (DO NOT USE ANY OTHER TYPE OF LUBRICANT).
- Screw the pipe nut manually on the connecting thread.
- Tighten using a wrench to hold the threaded part of the connector to avoid twisting the pipe and a torque wrench on the nut calibrated with the following values depending on the size of the pipe:
 Diameter 3/8" 34 N.m < tightening torque < 42 N.m
 Diameter 5/8" 68 N.m < tightening torque < 82 N.m

2.6.1 Connection table

Siphons on refrigerant lines are not necessary because the outdoor units compressors are equipped with oil separators.



Maximum permitted development length	L	m	50
Elevation difference limit between the two units if the external unit is positioned higher	H1	m	30
Elevation difference limit between the two units if the external unit is positioned lower	H2	m	15
Connection pipe 3/8" and 5/8" length without complementary gas charge		m	2 ÷ 30
Complementary R410A charge per metre of pipe between 30 and 50 m		g/m	40

2.6.2 Tests and inspections

Check that the cooling system is perfectly sealed after connecting the pipes.

To perform the operations described below, use a pressure gauge unit which is specific for R410A and a vacuum pump with a minimum flow rate of 40 l/min:

- Unscrew the closure cap of the gas line service joint.
- Connect the vacuum pump and the pressure gauge unit using hoses with a 5/16" fitting to the gas line service fitting.
- Start the pump and open the taps of the pressure gauge unit.
- Reduce the pressure to -101kPa (-755mmHg, -1bar).
- Keep the pressure reduced for at least 1 hour.
- Close the taps of the pressure gauge unit and switch off the pump.
- Go to step 8 if the pressure is still -101kPa (-755mmHg, -1bar) after 5 minutes. If the pressure within the circuit has risen to a value greater than -101kPa (-755mmHg, -1bar) search for

the leak (using a soapy solution with refrigerant circuit under nitrogen pressure ~ 30 bar); once identified and repaired, re-start from point 3.

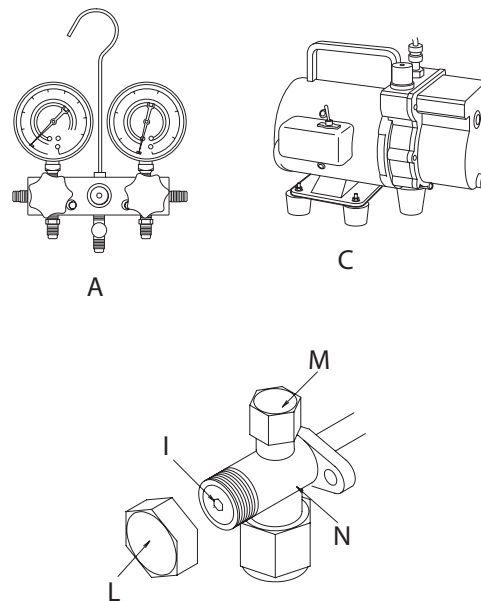
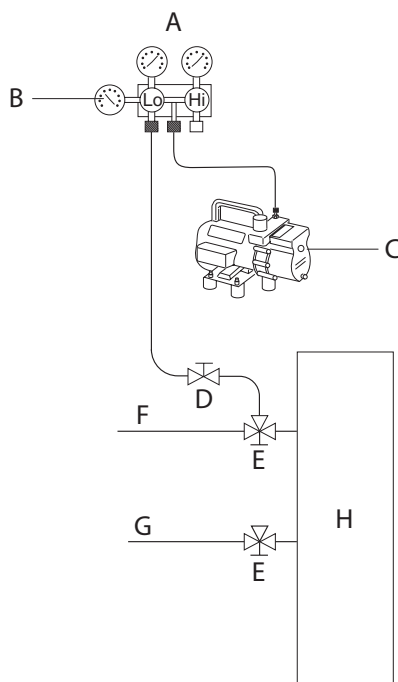
- Using a 4mm hexagonal spanner, open the liquid valve stem to open it completely.
- Open the gas valve stem completely using a 5 mm hexagonal spanner.
- Remove the charge hose connected to the gas pipe service fitting.
- Put the gas pipe service fitting plug back and fasten it with a spanner.
- Refit the gas and liquid service valve stem plugs and fasten them.

⚠ If the length of the pipe is greater than 30 meter it is necessary to top up the R410A gas load by 40 g per metre.

⚠ Do not open the taps if you are not certain about the sealing.

A	Pressure gauge unit
B	Vacuum gauge, where fitted
C	Vacuum pump
D	Hose tap (open)
E	Service fitting (closed)
F	Gas pipe

G	Liquid pipe
H	External unit
I	Valve stem
L	Valve stem cover
M	Loading hole
N	Main valve



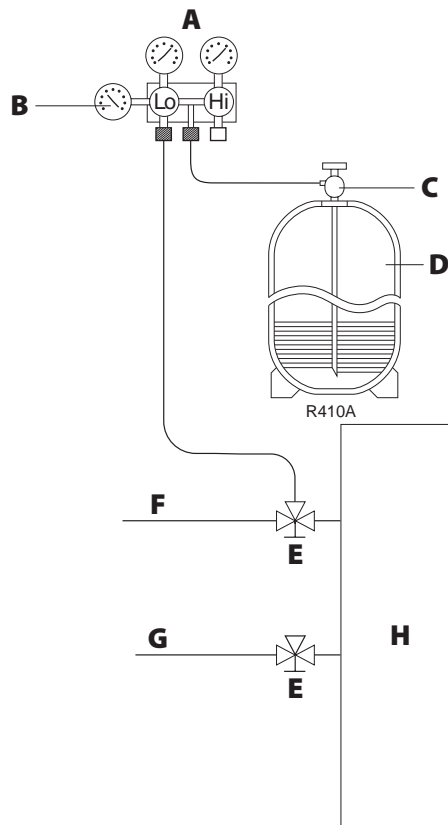
2.6.3 Charging additional refrigerant

If the length of the pipe is greater than 30 meter, the charge must be topped up with 40 g of R410A per metre.

- Connect a cylinder of R410A cooling gas to the pressure gauge unit and place it onto an analytical balance.
- Open the taps of the pressure gauge unit.
- Open the tap of the cylinder liquid.

- Load the required amount of coolant.
- Close the taps of the cylinder and pressure gauge unit and disconnect the cylinder.
- Record the length of the pipes and the quantity of coolant added onto the label of the product (within the panel).

A	Pressure gauge unit	E	Service fitting (closed)
B	Vacuum gauge, where fitted	F	Gas pipe
C	Cylinder liquid tap	G	Liquid pipe
D	R410A gas cylinder	H	External unit



2.7 Hydraulic connections

Components shall be chosen and installed by a skilled installer who shall operate according to rules of good practice and the laws in force. Before connecting the pipes, ensure they are free from stones, grit, rust, debris or any foreign bodies which may damage the system.

The connecting pipes must be supported, so that their weight does not rest on the appliance.

The hydraulic connections should be completed by installing:

- air vents valves at the highest points of the pipes

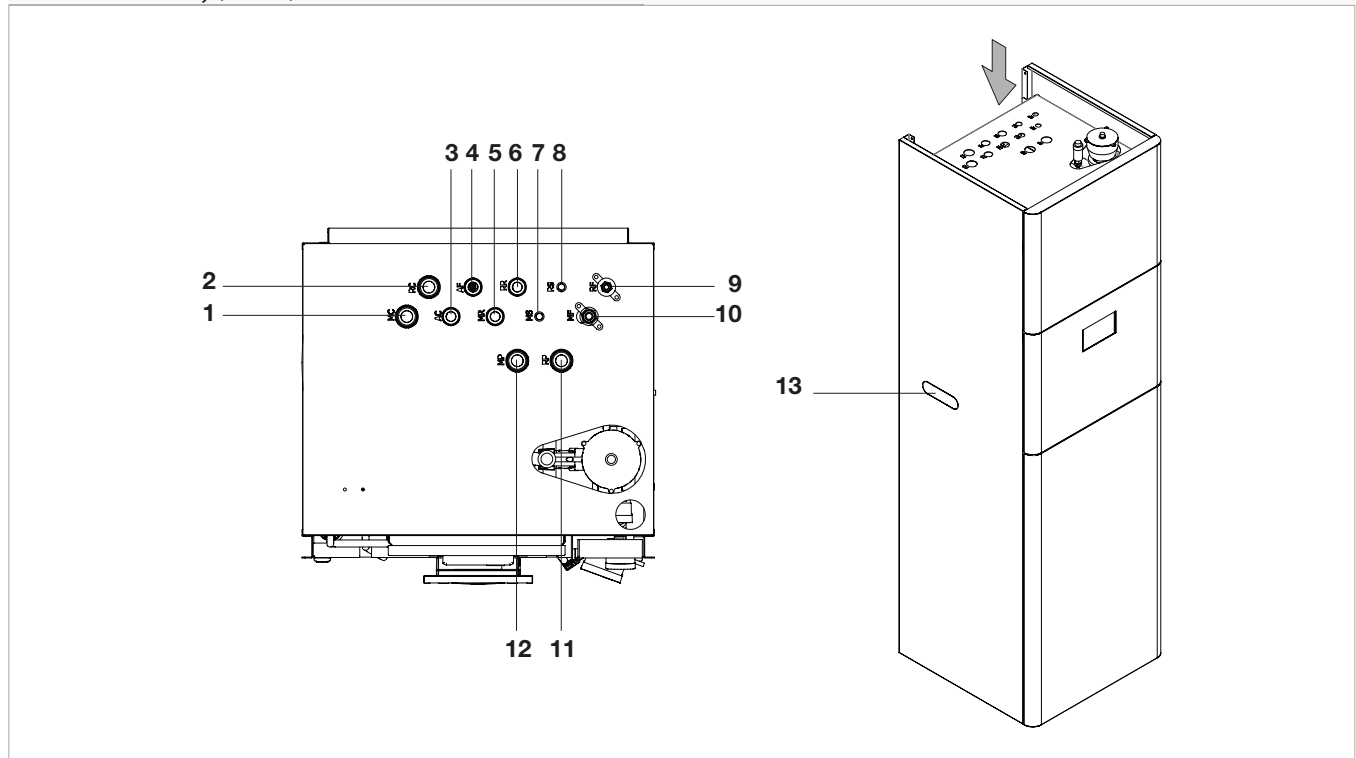
- flexible elastic joints
- on/off valves.

The hydraulic connections are positioned on the top of the unit. The hydraulic connections may be made towards the wall (concealing them from sight) or upwards. Connect a drain pipe to water safety valve so as to prevent that some water leakage can get inside electrical parts.

⚠ Be careful not to invert delivery and return lines.

1.	Boiler delivery (1")
2.	Boiler return (1")
3.	Hot water (3/4")
4.	Hot water feed (3/4")
5.	Boiler delivery (3/4")
6.	Boiler return (3/4")
7.	Solar delivery (12 mm)

8.	Solar return (12 mm)
9.	Liquid line (3/8)
10.	Gas line (5/8)
11.	System return (1")
12.	System delivery (1")
13.	Boiler delivery/return alternative connections



⚠ The minimum nominal diameter of the connection pipes must be 1".

To allow the maintenance and repair operations it is indispensable that each hydraulic connection is fitted with respective manual closing valves.

The maximum pressure losses allowed are those defined in P2 secondary pump flow rate/head chart p<?>

Add an external pump should higher head be necessary due to high pressure loss in the system.

The cooled water distribution pipes must be adequately insulated with expanded polyethylene or similar material with a thickness of at least 13 mm. The on-of valves, elbows and fittings must also be adequately insulated.

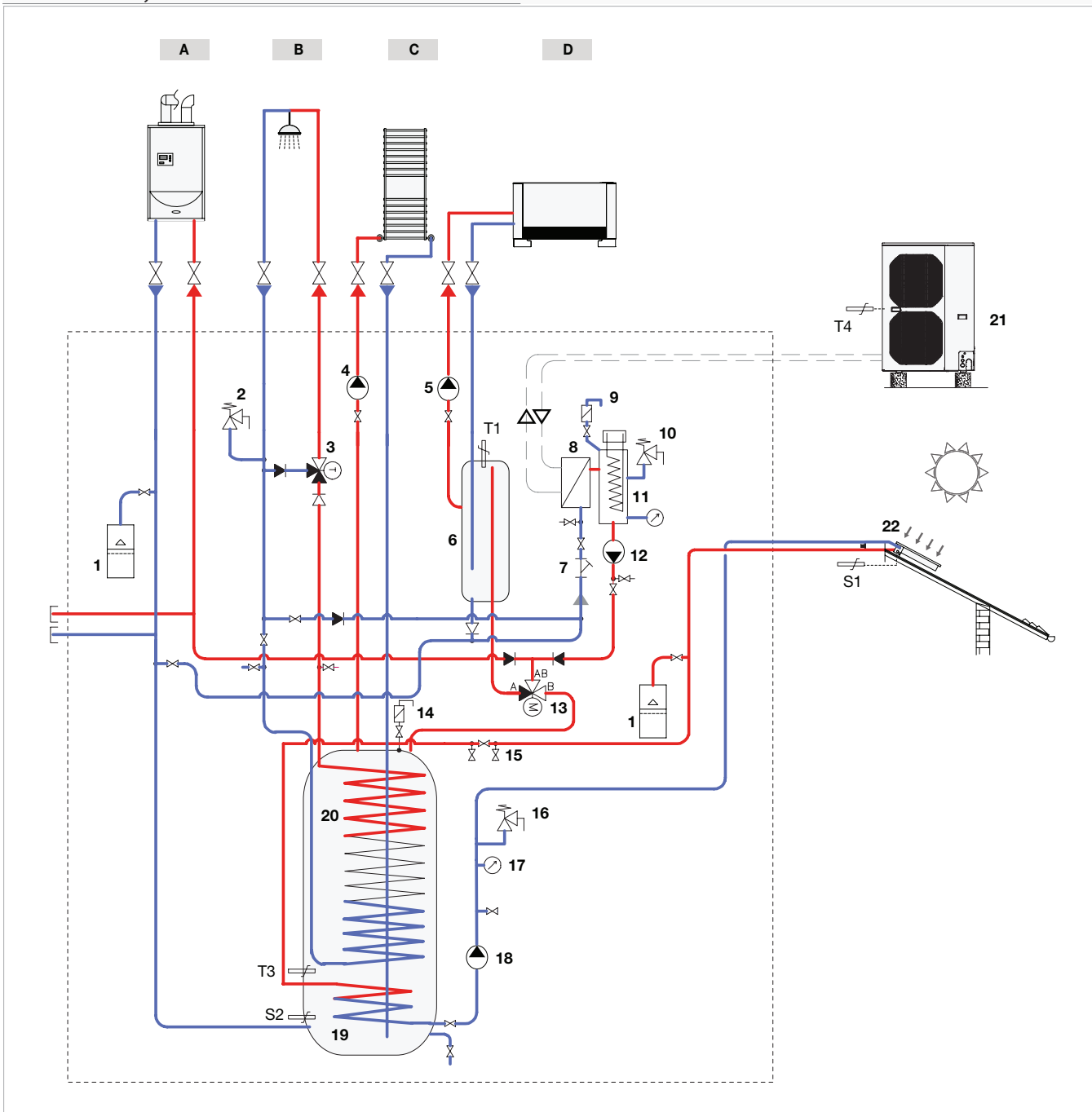
To avoid pockets of air inside the circuit we strongly recommend including automatic or manual venting devices in all points (high pipes, siphons etc.) where air can accumulate. Installed a pressure reducer on the charge if the network pressure is higher than 3 bar.

2.8 Heat pump hydraulic diagram

- a. Boiler
- b. Hot water utilities
- c. High temperature (radiator) utilities
- d. System utilities
- 1. 24 litre expansion vessel
- 2. 7 bar safety valve
- 3. Thermostatic mixing valve *
- 4. P3 high temperature circulation pump *
- 5. P2 system circulation pump
- 6. Hydraulic separator
- 7. Y filter
- 8. Plate heat exchanger
- 9. Automatic relief valve
- 10. 3 bar safety valve

- 11. Collector with resistor *
- 12. P1 head pump circulation pump
- 13. Three-way valve
- 14. Boiler relief valve
- 15. Solar charge tap*
- 16. 4 bar solar safety valve *
- 17. Pressure gauge *
- 18. PSO solar circuit pump *
- 19. Solar serpentine
- 20. ACS stainless steel serpentine
- 21. External unit
- 22. Solar panel

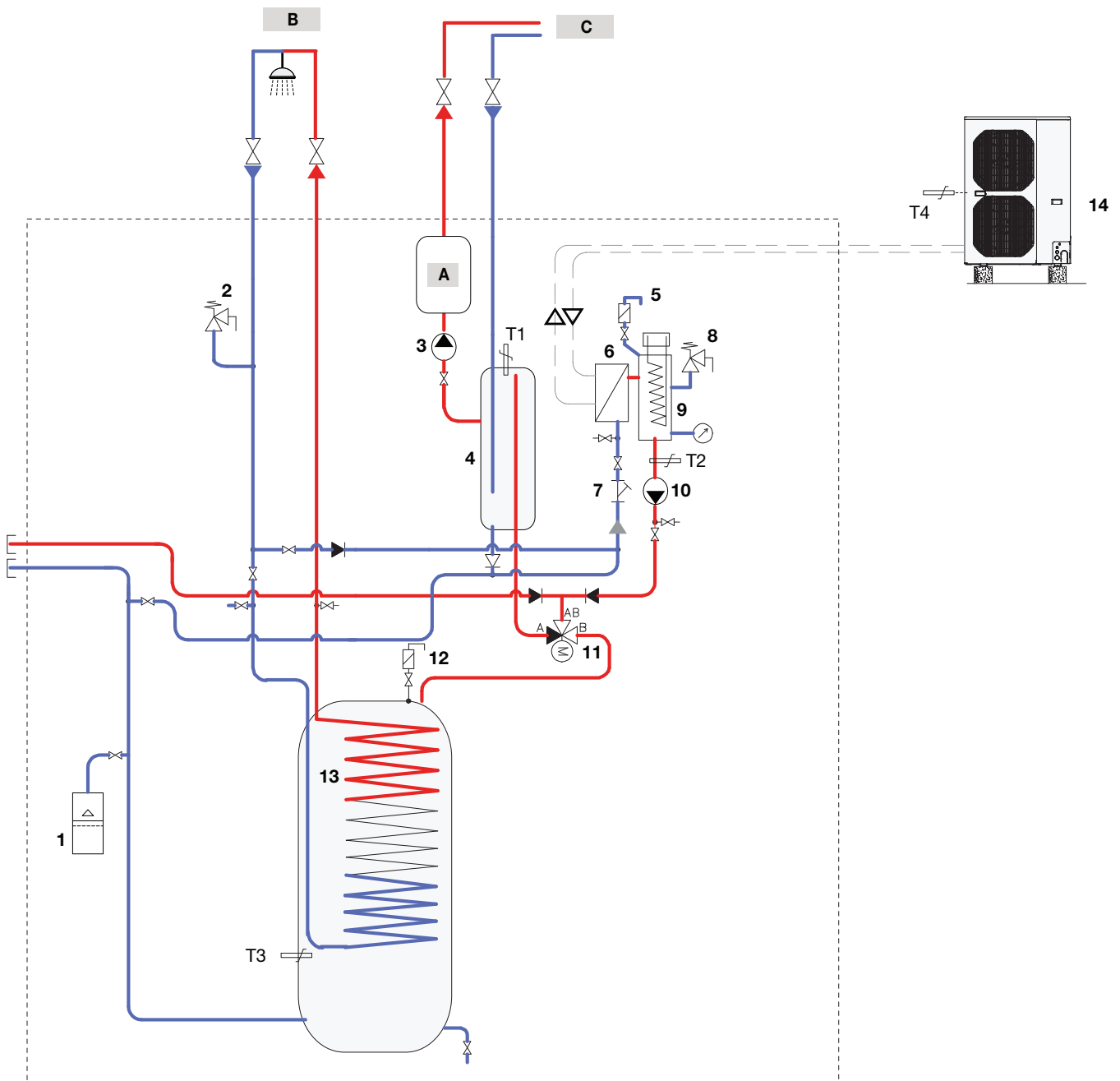
* Optional



2.8.b Schema idraulico FLOOR X

A.	Inerziale
B.	Utenze acqua calda sanitaria
C.	Utenze impianto
1.	Vaso d'espansione 24 litri
2.	Valvola di sicurezza 7 bar
3.	Pompa di circolazione impianto P2
4.	Separatore idraulico
5.	Valvola di sfiato automatico
6.	Scambiatore a piastre
7.	Filtro a Y
8.	Valvola di sicurezza 3 bar

9.	Collettore con resistenza
10.	Pompa di circolazione pompa di calore P1
11.	Valvola a 3 vie
12.	Valvola di sfiato bollitore
13.	Serpentino inox ACS
14.	Unità esterna
T1	Sonda Separatore Idraulico
T2	Sonda Uscita Scambiatore
T3	Sonda ACS



Upon initial start-up, the specialized technician will have to obtain the reference values of the system water using appropriate test kits.

System water reference values		
pH		6,5 ÷ 7,8
Electric conductivity	μS/cm	250 ÷ 800
Total hardness	°F	5 ÷ 20
Total iron	ppm	0,2
Manganese	ppm	< 0,05
Chlorides	ppm	< 250
Sulphur ions		assenti
Ammonia ions		assenti

If the total hardness is above 20°F or some of the make-up water reference values are not within the indicated limits, contact our pre-sales service to determine the treatments to be used.

Bore or groundwater not from water supply system should always be carefully analysed and if necessary treated with appropriate systems. If installing a softener, in addition to following the manufacturer's guidelines, adjust the hardness of the outlet water to no lower than 5°F (also run pH and salinity tests) and check the concentration of chlorides at outlet after regeneration of resins.

⚠ Warning: do not introduce acids into the wash circuit.

If the indoor unit is installed outside or in a room where the temperature may drop to under 0°C, empty the system or introduce antifreeze liquid. The proportion of antifreeze must be suited to the minimum temperatures which may be reached.

Solutions of water and ethylene glycol used as heat-transfer liquids in place of water cause a reduction in the performance of the unit. Add a maximum of 35% of ethylene glycol (protection equivalent to as low as -20°C) to the water.

2.9 Ethylene glycol solutions

	Freezing temperature (° C)							
	0	-5	-10	-15	-20	-25	-30	-35
	Percentage of ethylene glycol by weight							
	0	12%	20%	30%	35%	40%	45%	50%
correction factor cooling capacity (cPf)	1	0,985	0,980	0,974	0,970	0,965	0,964	0,960
corrective factor flow (cQ)	1	1,02	1,04	1,075	1,11	1,14	1,17	1,20
load loss correction factor (cdp)	1	1,07	1,11	1,18	1,22	1,24	1,27	1,30

For operation of units with different unspeakable mixtures (eg propylene glycol) contact our Sales department
Do not use mixtures in brine.

2.10 Filling the system

Once the hydraulic connections have been completed the system will have to be filled.

- Operate on the filling tap.
Vent air from inside the pipes and the device at the same time.
- Operate the manual air vent valve.

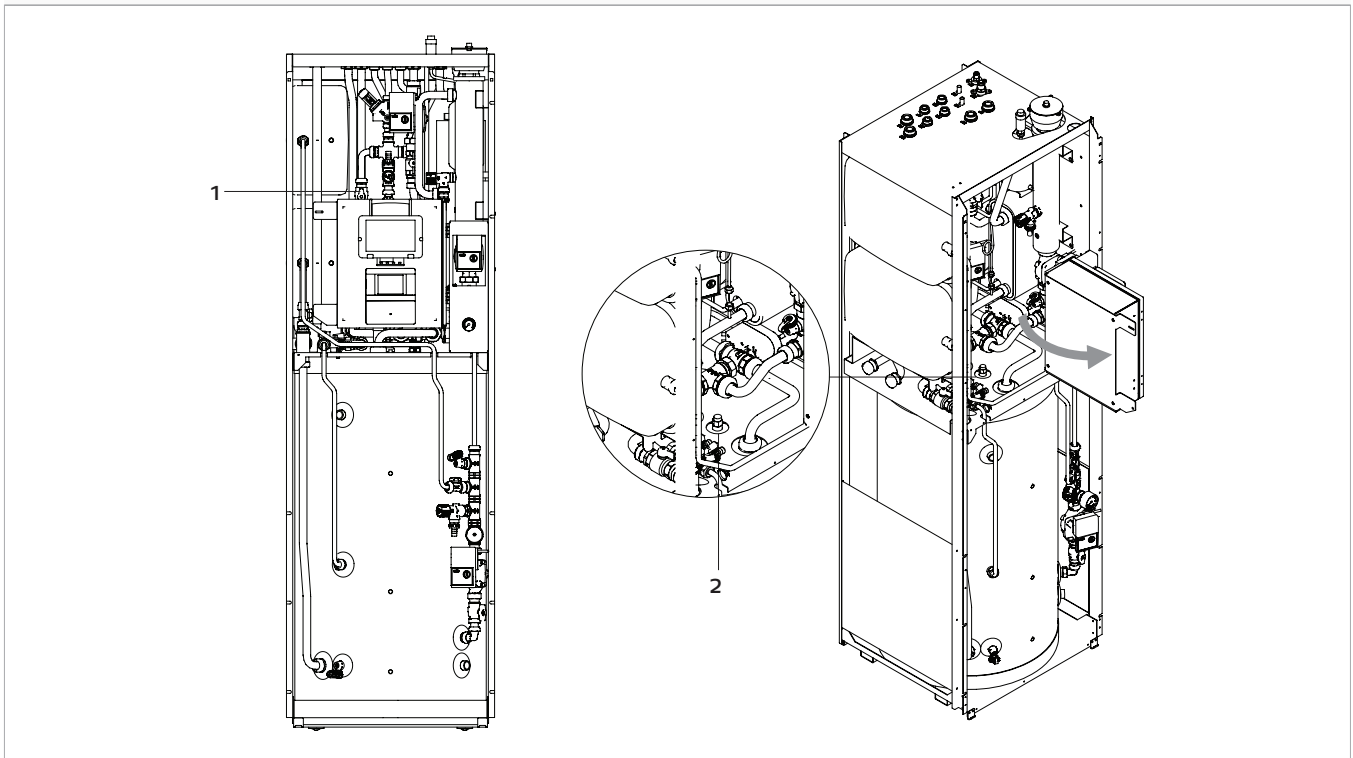
A During these operations, the machine must be disconnected from the mains power supply.

The working pressure of the system must not exceed 1.5 bar with the pump switched off. To check any possible leaks from the system when setting up we suggest you increase the test pressure and then reduce it successively it to reach the working pressure.

If the water pressure exceeds 3 bar the safety valve opens and discharges the water. Connect a drain pipe to water safety valve so as to prevent that some water leakage can get inside electrical parts.

Once all the electrical connections have been made and the circulation pump is activated, check that there are no pockets of air in the system. If this happens, stop the pump, release the air and re-start, repeating the procedure until it is all cleared. To avoid dangerous cavitations which could damage the pump and make the entire system less efficient, the inlet pressure with the pump switched on must not be less than 0.6 bar, measurable with the pressure gauge on the device.

1. Filling tap
2. Manual air relief valve



2.11 P1 primary pump operation

The P1 primary circulation pump (class A inverter) is started when a request for hot water (reading of T3 positioned in the ACS tank) or from the system (reading of T1 positioned in the separator) is received. It may be managed using three algorithms which can be set using the specific PMS parameter of the controller:

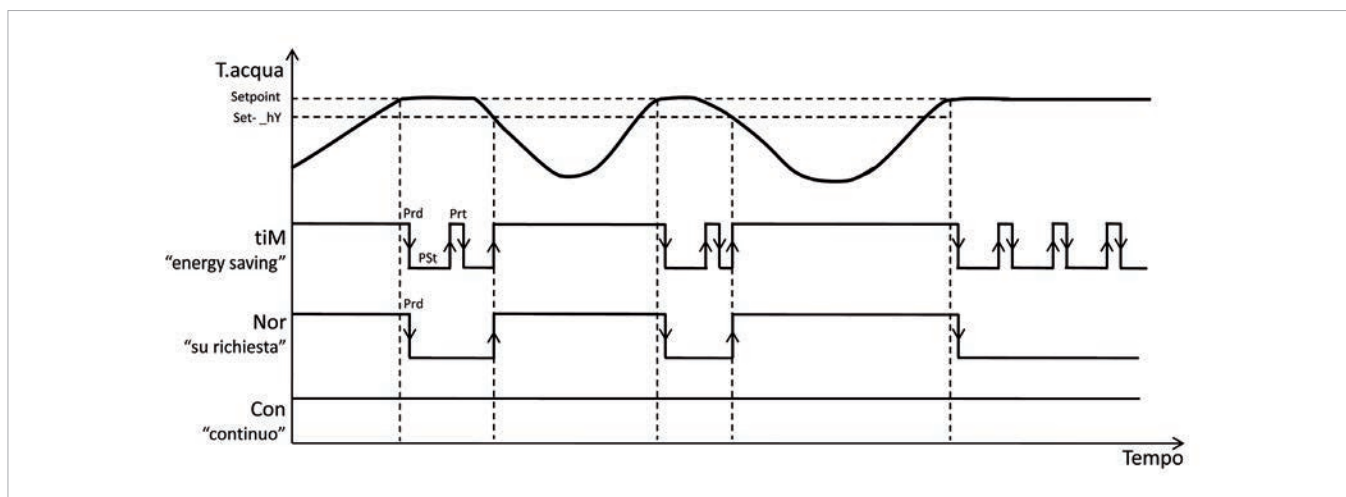
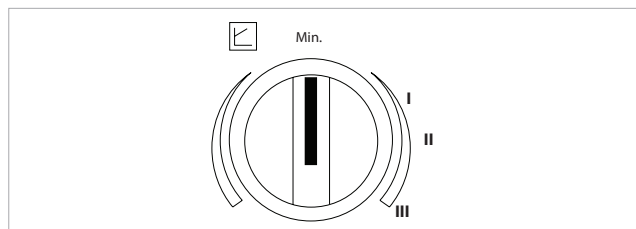
According to the default setting, the pump operates in nor "on demand" in cooling or heating when the pump is active only when requested by the temperature regulator (the circulator starts 20 seconds before the other two outputs and is switched off with a two minute delay) and if the TA selection, "hot water only", is open the pump runs the cycles only when requested by the regulator according to the reading of hot water sensor T3.

Other operating mode are "continuous" (in which the pump operates uninterruptedly for as long as the instrument is active) or "energy saving" (in which in addition to the normal request of the regulator it runs cycles consisting of 2 minutes ON and 15 minutes OFF if the temperature regulator condition is satisfied).

The modes can be activated by means of the specific parameters by Technical Service.

If the boiler function (CAL) is enabled is enabled and the AUXILIARY HEATER is switched to the heating pump and the device is set in standby. The "CAL" prompt appears on the display and is only the SAN output is activated, always controlled by the T3 sensor.

The pump output is always activated in case of antifreeze alarm detected by the sensors T2 or T3.



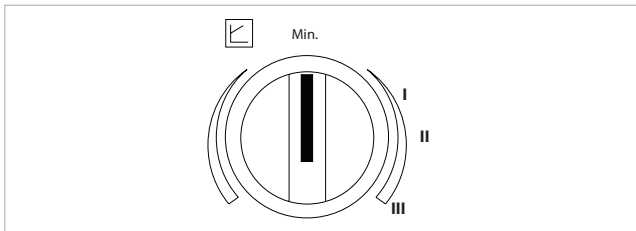
2.12 P2 secondary circulation pump operation

The P2 pump is operated only by the TA "hot water only" setting (and therefore also with the regulator in standby).

The device uses a wet rotor high efficiency circulation pump suited for all heating and cooling systems with a temperature range from -10 °C to +110 °C which by means of specific synchronous motors - with permanent magnet rotor controlled by inverter in class A - guarantee up to 80% of energy saving with respect to standard pumps.

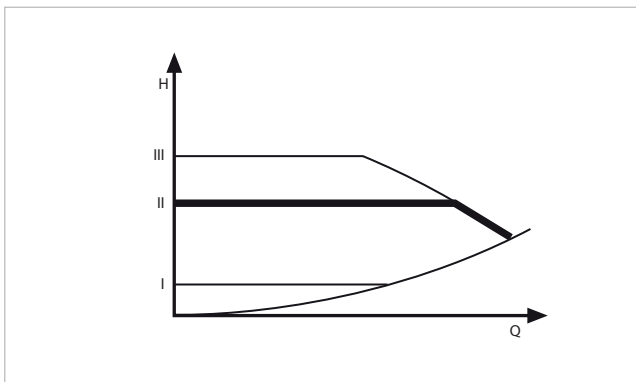
Furthermore, the control electronics automatically adapt operation to the changing conditions in the hydraulic system.

A regulator is present on the front of the pump body to select the maximum head according to the actual needs of the system and to select:



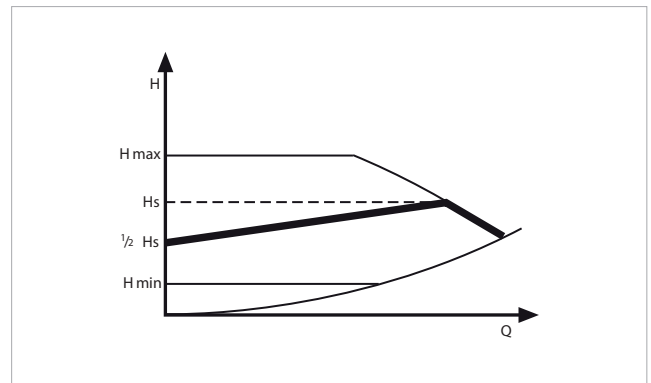
- constant (factory set) head mode (rpm) in which the pressure generated by the pump is maintained constant at the set value in the entire permitted flow rate range (this mode is indicated for systems with constant losses of load or three-way bypass valve)

Constant head



- variable head $\Delta p-v$ operating mode in which the electronic system varies the head developed by the pump between the set value and half the set value as the water flow rate varies. This mode is particularly suited for systems with variable loss of load with two-way valves.

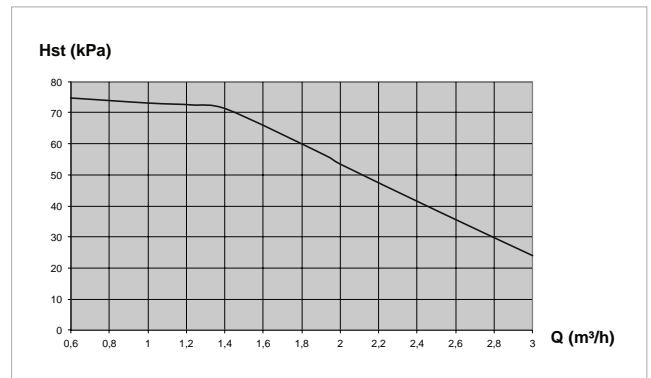
Variable head



The maximum head value setting of the P2 heating/cooling system pump must be made with the compressor at 100% all distribution valves open and the devices on checking the thermal gradient between system delivery and return lines, which must be comprised between 4 - 7 °C.

Set a lower circulator speed if the thermal gradient is lower than 4 °C. On the contrary, if the thermal gradient is higher than 7 °C check the opening of all valves on the system and then add an external pump to increase the water flow rate.

P2 secondary pump flow rate/head chart



- ⚠ The maximum water loss permitted in the system must be compatible with the residual head of the pump in the device.

2.13 Electrical connections

A Before carrying out any intervention, make sure that the electrical power supply is switched off.

For electrical connections, refer to the wiring diagram in 2.15 Wiring diagrams p. 30 especially concerning the power supply terminal strip.

The power supply voltage must be equal to that shown in the technical data table.

The wires must have pointer terminals with a cross section proportionate to the connecting wires before their insertion into the terminal strip.

The power supply must be adequately dimensioned to avoid voltage drops or overheating of the wires or other devices along the line. For data relating to sizing, refer to the table below.

The power line must be cut from the rest of the electrical mains of the building by means of a single-core circuit breaker compli-

ant to EN 60335 part 1 (with at least 3 mm contact gap), suited for the unit maximum absorbed current, with a residual current circuit breaker as to indicated by the individual electrical standards.

A Check that the electric power voltage does not drop under the nominal value -10% during operation of the compressor and in case of three-phase power the maximum phase imbalance is 3%.

A The manufacturer is not responsible for any damage resulting from the lack of an earth connection or the failure to observe that indicated in the wiring diagrams.

E It is forbidden to use the gas or water pipes to earth the device.

2.13.1 Power line dimensioning table

Below is a table with the indications for the sizing of the power supply line and related protection device.

It is not a matter of average absorption or transient peaks, but of values to be considered for the correct sizing of the system and for the request of the contractual power (excluding the loads due to the normal operation of the building).

We recommend to adopt automatic thermal and magnetic devices with adequate intervention curves (to avoid rapid interventions) and selective differential switches.

In non-residential buildings, an intervention threshold of more than 30 mA is recommended.

	Model	U.M.	7M	9M	12M	12T	15M	15T
Sizing table of the power supply line								
	Voltage	V(50Hz)	230	230	230	400-3N	230	400-3N
WITHOUT RESISTORS	Power input	kW	3,0	3,5	4,5	4,5	5,5	5,5
	Absorbed current	A	15,0	18,0	23,0	7,6	28,0	9,3
	Circuit breaker threshold	A	16	20	25	10	32	10
	Minimum wiring section	mm ²	4	6	6	2,5	10	2,5
WITH RESISTORS	Power input	kW	9,0	9,5	10,5	10,5	11,5	11,5
	Absorbed current	A	46,0	48,6	53,7	17,8	58,8	19,5
	Circuit breaker threshold	A	50	50	64	20	64	20
	Minimum wiring section	mm ²	16	16	25	6	25	6

2.13.2 Electrical power line connection

The electrical panel is located on the front of the machine.
To access the electrical panel:

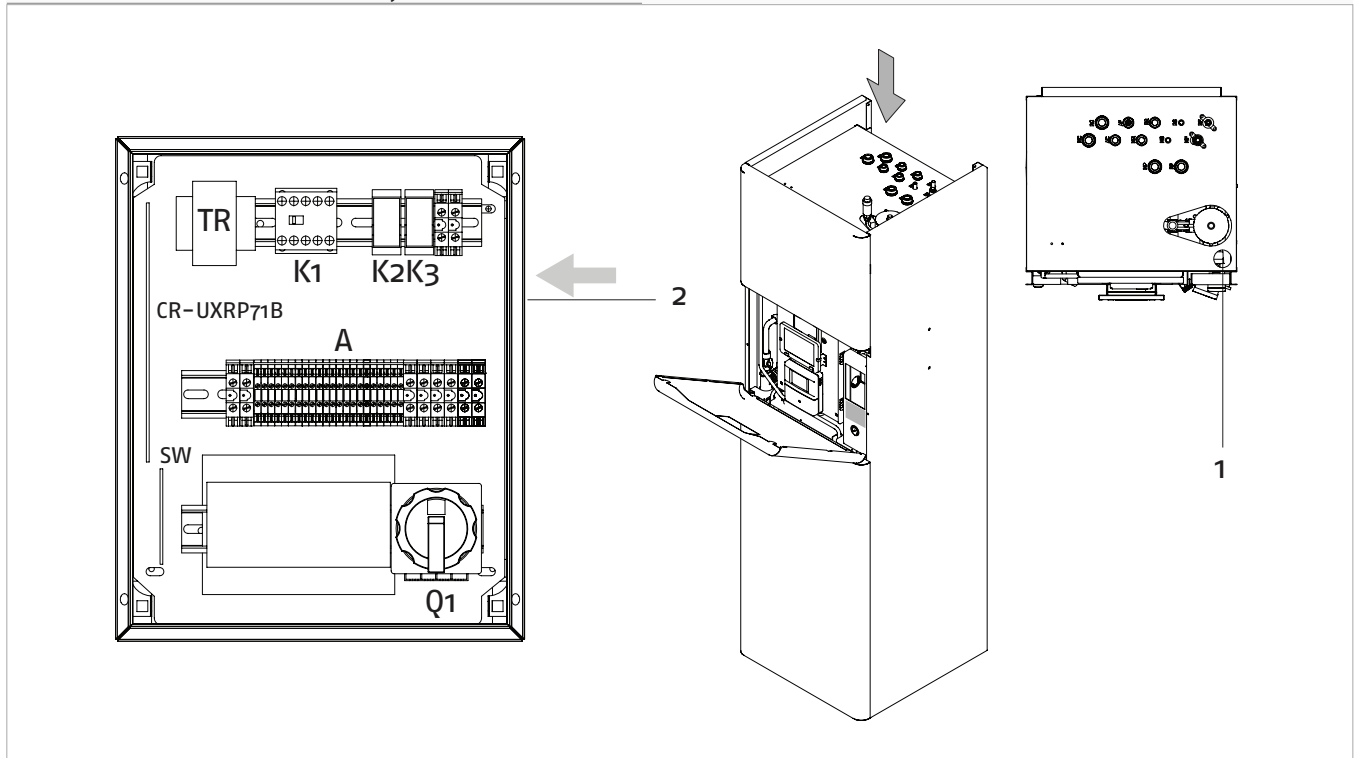
- Remove the central panel as shown in 2.4.1 Minimum distances and access to the internal parts p. 15
- Insert the wire in sheath 1 to lead it out directly into the panel 2.

1.	Electric connection input
2.	Electric panel connection input
Q1	Master switch
K1	Auxiliary heater enable relay
K2	External unit enable relay
K3	Ambient thermostat contact relay

The connection wire must be dimensioned as shown in table p. 15

4 mm² and greater is recommended in all cases. The wire must be of the double insulation multicore type mod. H05VVF for indoor applications and mod. H07RNF per output applications in cable duct.

TR	Transformer 230/24/13V for external unit board
INN-PDC-02	Controller with user interface
SW	Web server board with rabbit
CR-UXRP71B	External unit control board
A	Terminal strip



2.13.3 Outdoor condenser electric connection

The outdoor unit must be connected to power (single-phase or three-phase) to the specific terminals subjected to the action of the master switch Q1, arranged on the left of the indoor unit using

appropriately dimensioned wires to prevent voltage drops or overheating.

2.13.4 Connections to the terminal strip

A Read carefully the instructions in this paragraph before connecting the terminal strip. Remove the two jumpers fitted at the factory to connect to terminals 5-6 and 7-8. To position the external sensor T4, disconnect it from the terminals 13-14, extend it, if needed, and reconnect it.

Terminals 1-2: serial connection of external unit terminals U1 and U2 (by the installer). The connection is polarised. Use a shielded double-core wire with minimum cross-section of 0.35 mm² for the connection.

A If a voltage of 230V is accidentally applied, the 0.5A fuse of the external unit will trip in order to protect the electronic board. In this case, attempt to restore communication by moving connector BLU from OC to EMG on the external unit electronic board.

Terminals 3-4: configurable input for activation of the anti-Legionella function (to purchase separately, together with a timer, and to be connected by the installer) or alternatively for the cooling/heating selection (by setting parameter di2 to SEA). The action of the respective tiles is inhibited in this case. Leave the contact open to override the device in heating and close it cooling.

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

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 duration of the action is determined by the characteristics of the system. Legionella bacteria react differently depending upon the maximum temperature reached within the circuit and, with the increase of temperature, the duration time decreases.

The default parameters set in the device are:

temperature setting > 60°C for a duration of 2 hours but other settings are also possible taking into consideration the following rules:

- above 70°C disinfection lasts 30 minutes
- between 65° and 70°C disinfection lasts 60 minutes
- between 60° and 65°C disinfection lasts 120 minutes
- between 57.5° and 60°C disinfection lasts 180 minutes
- between 55°C and 57.5°C disinfection lasts 240 minutes

The regulator indicates that the anti-Legionella function is active through the flashing of the LED , it checks actual execution of the action on the basis of the preset parameters and then eventually exits the function after a timeout of 5 hours.

During the anti-Legionella function the cooling and heating requirements of the system are not satisfied.

It is advisable to introduce a safety device to prevent burns on every system in order to avoid getting burnt when hot water is taken during the thermal disinfection phase.

Terminals 5-6: Connection used to select the TA "hot water only", mode from a clean remote contact. It inhibits the operation of the cooling and heating

modes, leaving the production of hot water as the only active mode.

▲ 230 V output voltage.

▲ The P2 secondary connection pump is connected directly to this input and also operates with the regulator in standby mode.

Terminals 7-8: Contact used to select ON/OFF from a potential-free remote contact. This puts the device in standby, deactivating all the settings and is shown on the display by OFF. While in standby, the device runs an antifreeze cycle based on the ALO threshold and on the readings of sensors T2 and T3; operation is signalled on the display by the alternating OFF and ALO signs. This may be set by means of parameter dI4 to enable/disable the hot water function (in this case, the standby condition shown on the display only occurs if input TA is open at the same time).

Terminals 9-10: potential-free contact (closed for hot water) to allow back-up hot water (max. 2A).

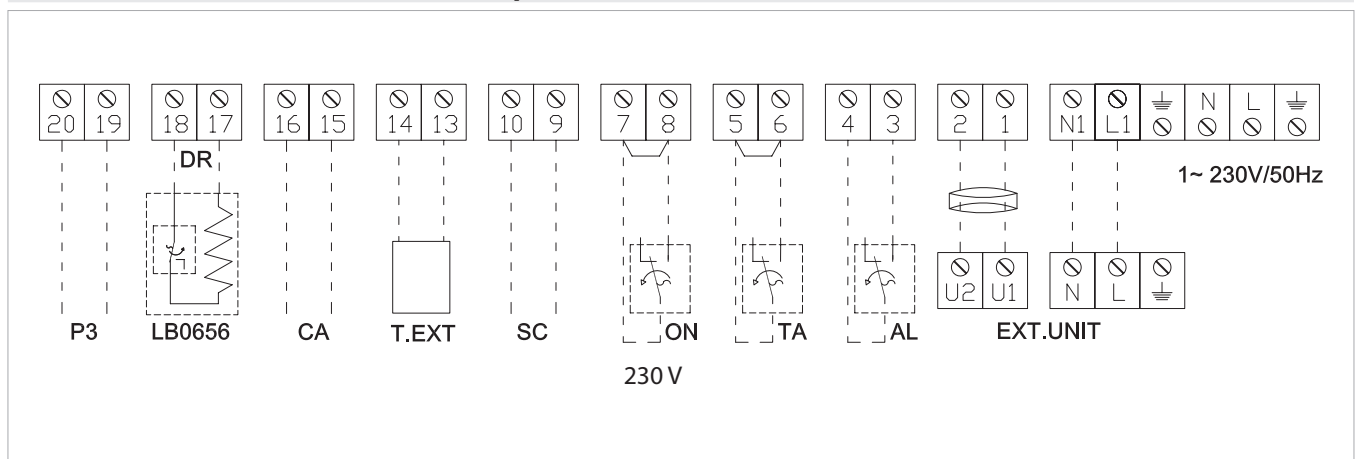
Terminals 13-14: External air temperature detection sensor input. The sensor should be positioned so that it detects the real outside air temperature and must not be influenced by factors which may distort the reading (e.g. direct sunlight, other heat sources, accumulations of snow/ice). Electrical connections to be established by the installer (max. distance 50 m).

Terminals 15-16: potential-free contact (normally open for back-up boiler - max. 2 A).

Terminals 17-18: 230 V power (max. 1 A) for connecting thermostat and resistor included in the HEATED CONDENSATION COLLECTION BOWL KIT LB0656.

Terminals 19-20 230 V input for P3 high temperature circulation optionally in the device.

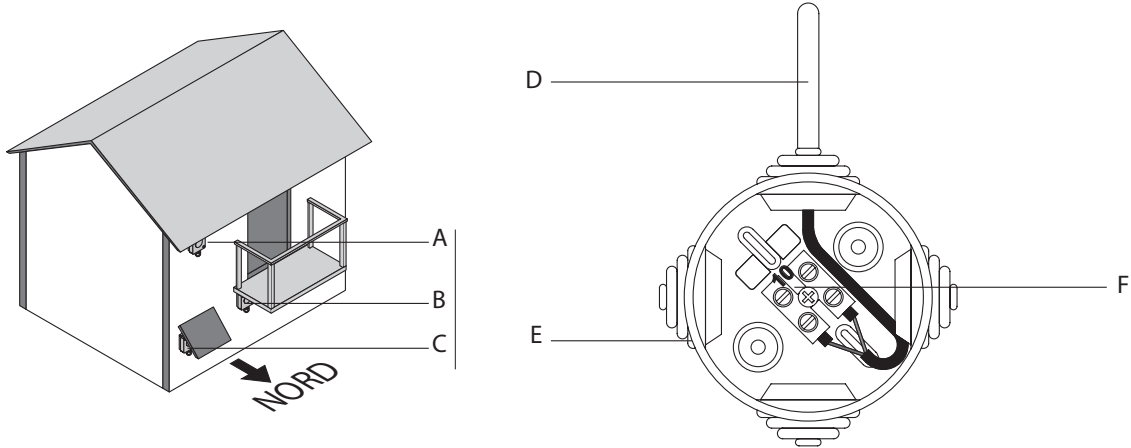
2.13.5 Connection terminal strip



2.13.6 External air sensor

A	under roof
B	under a terrace
C	provide a small roof if installed freely on a wall

D	external air sensor
E	protection box
F	connection terminal strip



2.13.7 Ethernet connection by means of switch

The touch screen interface is connected to the INN-PDC-02 controlled by means of an Ethernet web server which may be connected to a switch and to a modem for controlling and supervising the device from any Internet connection. Additionally, the web server board can send an email to three different recipients if any operating alarm appears. This message

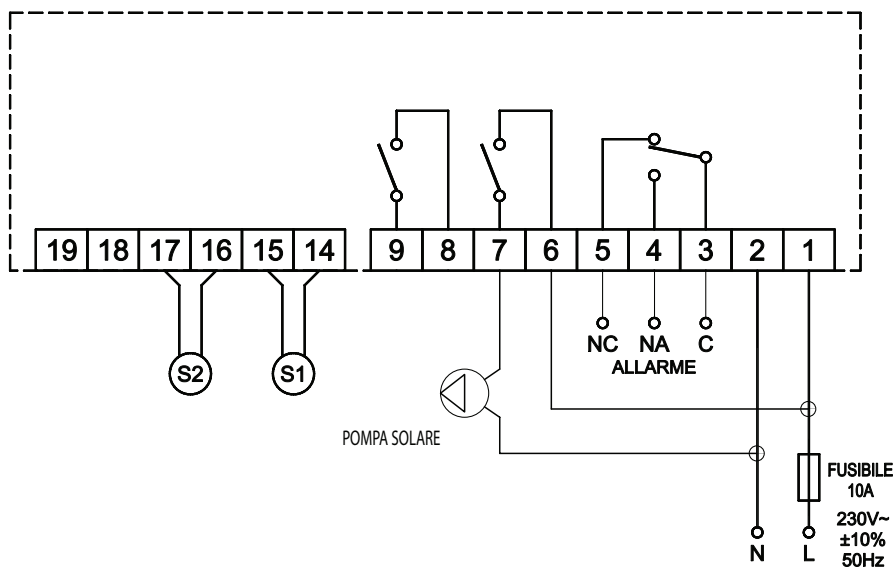
can be used to inform the service centre which can connect (if you authorise them to do so) to your device to understand the reason for faults and in many cases solve the problem without needing to intervene on-site. Contact the Technical Service to activate this function.

2.14 Solar unit connection

The device with solar integration is provided complete with electronic control unit which was pre-wired at the factory.

sensor S1 must be positioned on the solar collector.

S1	Solar panel sensor
S2	Hot water tank sensor
OUT1	PSO solar pump output

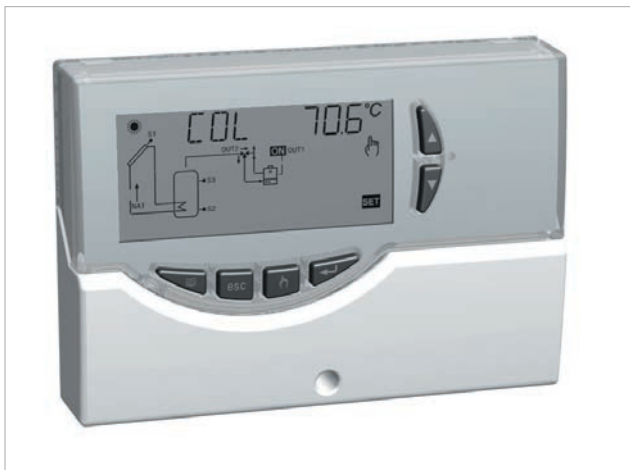


2.14.1 External air sensor

The solar group, to be ordered separately, consists of:

1. solar control unit;
2. boiler probes and panel probe to be positioned in the panel by the installer;
3. 24 L solar expansion vessel;
4. adjustable thermostatic mixing valve from 35 to 65 °C, to be calibrated by the installer;
5. solar circuit charging unit;
6. solar circuit circulation pump.

Solar control unit



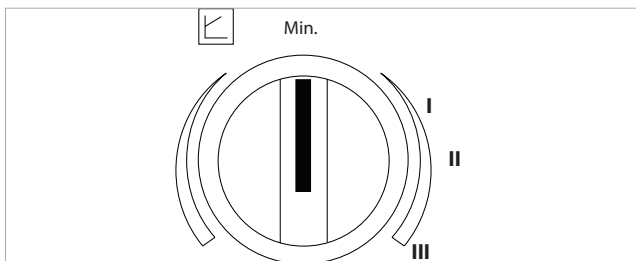
This device is a control unit for solar thermal panel systems.

On the backlit LCD display it is possible to view the configuration of the hydraulic diagram of the plant, the status of the outputs, the status of the probes and other numerous information and data.

The control unit automatically manages the outputs and inputs related to the type of system set according to the following logic:

- The PSO pump is activated with S1 - S2 > 8 °C.
- The PSO pump is switched off with S1 - S2 < 4 °C.

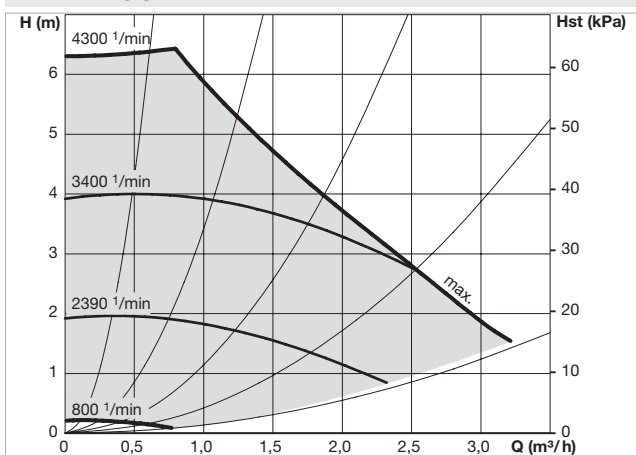
Solar pump PSO



On the front part of the pump body there is a regulator that allows to select the head according to the actual solar system requirement as shown in the figure on the side

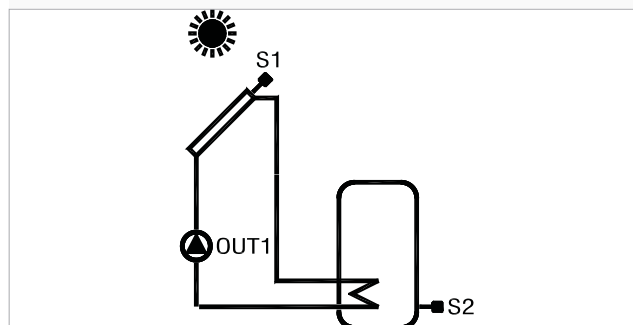
The setting of the head value of the solar pump PSO must be carried out, with the solar system working, all the distribution valves open and the users switched on, verifying that the temperature difference is congruent with the project.

Flow chart / head of solar circuit pump PSO



Preset scheme

- | | |
|------|-------------------------------|
| S1 | Solar panels probe |
| S2 | Domestic hot water tank probe |
| OUT1 | Output for PSO solar pump |



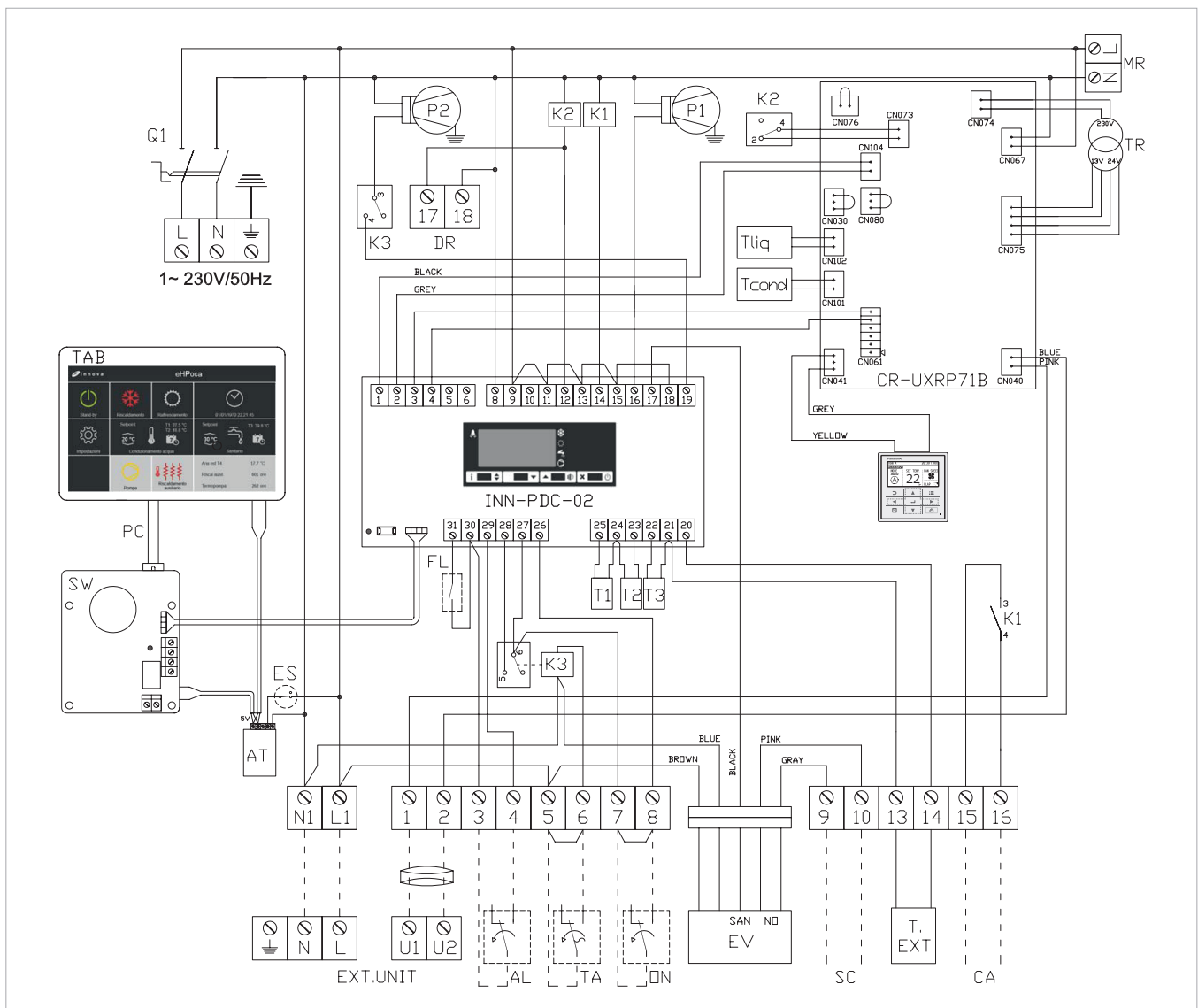
2.15 Wiring diagrams

2.15.1 Single-phase electric diagram with web server

Q1	Master switch
MR	Connection terminal version with resistor
P1	Primary circulation pump
P2	Secondary circulation pump
K1	Auxiliary heater enable relay
K2	External unit enable relay
K3	Ambient thermostat contact relay
AL	Anti-Legionella clock contact (or Cooling / Heating, open in Heating) *
TA	Heating Cooling calling environment thermostat *
ON	ON/OFF contact (or DOM ON/OFF) remote *
EV	Hot water/system solenoid valve *
CA	Auxiliary heater enable (max. 2 A) *
SC	Hot water enable for boiler
TR	Transformer 230/24/13V for external unit board

AT	5 V power for tablet interface
SW	Web server board with rabbit
PC	Tablet interface patch cord
FL	Flow switch
DR	Connection for heated bowl kit DR0656 (max. 1 A) *
T1	System water temperature sensor (adjustment)
T2	Heat exchanger output sensor (antifreeze)
T3	Hot water tank temperature sensor
T.EXT	External air temperature sensor (max. 50m) *
TAB	User interface tablet
CZ-RTC2 E	External unit control panel
CR-UXR71B	External unit control board
INN-PDC-02	Controller with user interface
EXT.UNIT	External unit terminal strip*

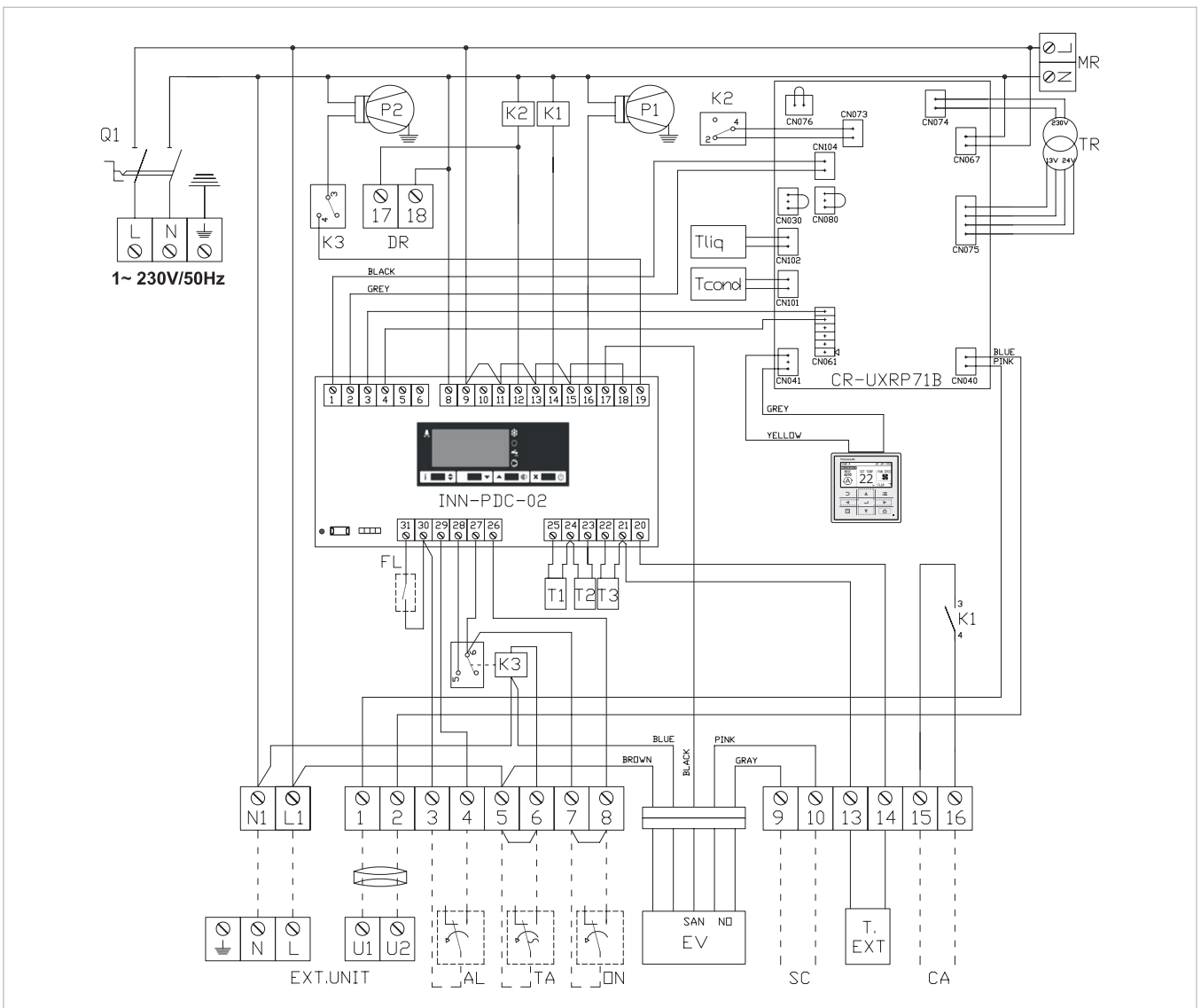
* Connection by the installer



2.15.2 Single-phase electric diagram without web server

Q1	Master switch	SC	Hot water enable for boiler
MR	Connection terminal version with resistor	TR	Transformer 230/24/13V for external unit board
P1	Primary circulation pump	FL	Flow switch
P2	Secondary circulation pump	DR	Connection for heated bowl kit DR0656 (max. 1 A) *
K1	Auxiliary heater enable relay	T1	System water temperature sensor (adjustment)
K2	External unit enable relay	T2	Heat exchanger output sensor (antifreeze)
K3	Ambient thermostat contact relay	T3	Hot water tank temperature sensor
AL	Anti-Legionella clock contact (or Cooling / Heating, open in Heating) *	T.EXT	External air temperature sensor (max. 50m) *
TA	Heating Cooling calling environment thermostat *	CZ-RTC2 E	External unit control panel
ON	ON/OFF contact (or DOM ON/OFF) remote *	CR-UXR71B	External unit control board
EV	Hot water/system solenoid valve *	INN-PDC-02	Controller with user interface
CA	Auxiliary heater enable (max. 2 A) *	EXT.UNIT	External unit terminal strip*

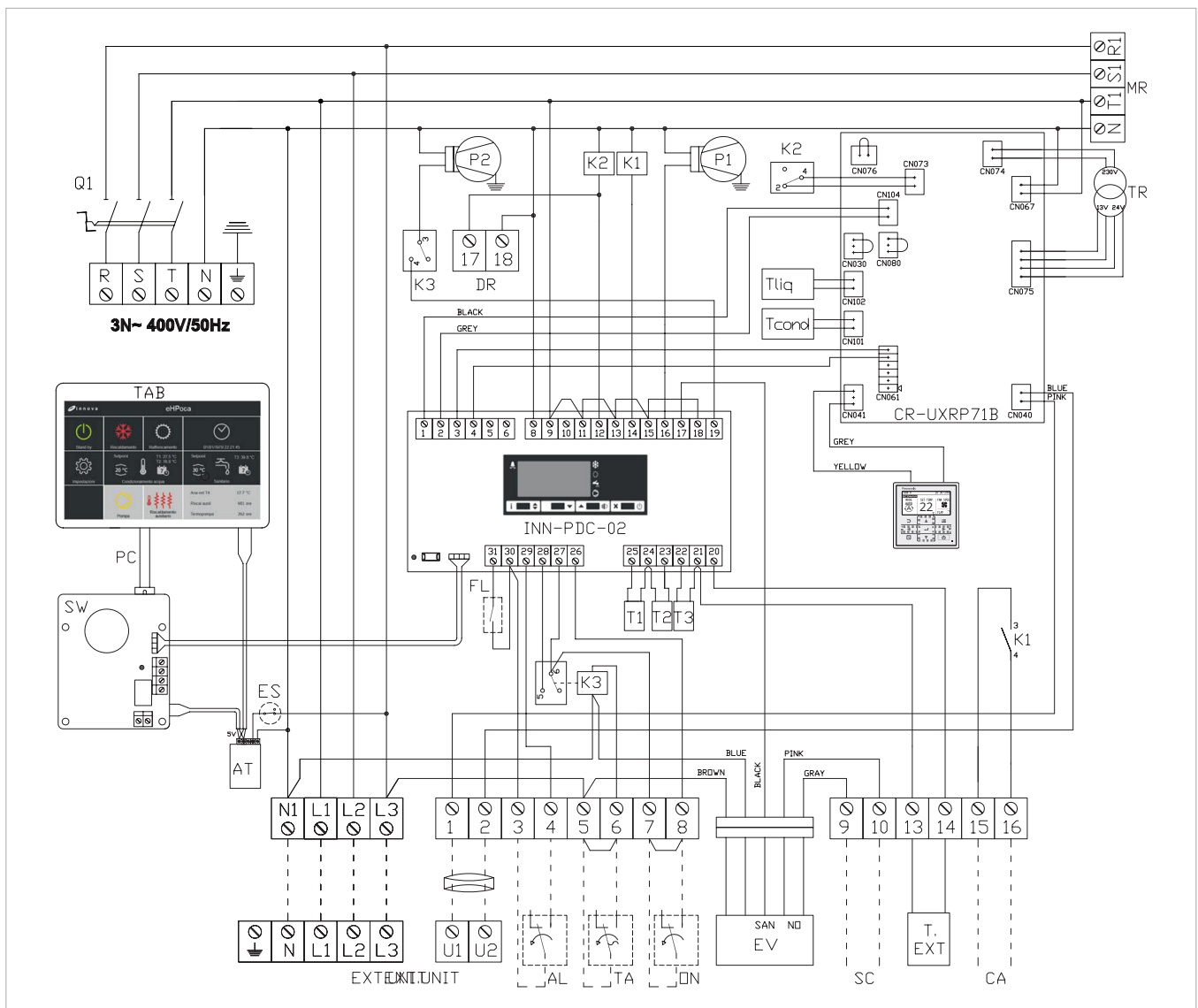
* Connection by the installer



2.15.3 Three-phase wiring diagram with web server

Q1	Master switch
P1	Primary circulation pump
P2	Secondary circulation pump
K1	Auxiliary heater enable relay
K2	External unit enable relay
K3	Ambient thermostat contact relay
AL	Anti-Legionella clock contact (or Cooling / Heating, open in Heating) *
TA	Heating Cooling calling environment thermostat *
ON	ON/OFF contact (or DOM ON/OFF) remote *
EV	Hot water/system solenoid valve *
CA	Auxiliary heater enable (max. 2 A) *
SC	Hot water enable for boiler
TR	Transformer 230/24/13V for external unit board
AT	5 V power for tablet interface

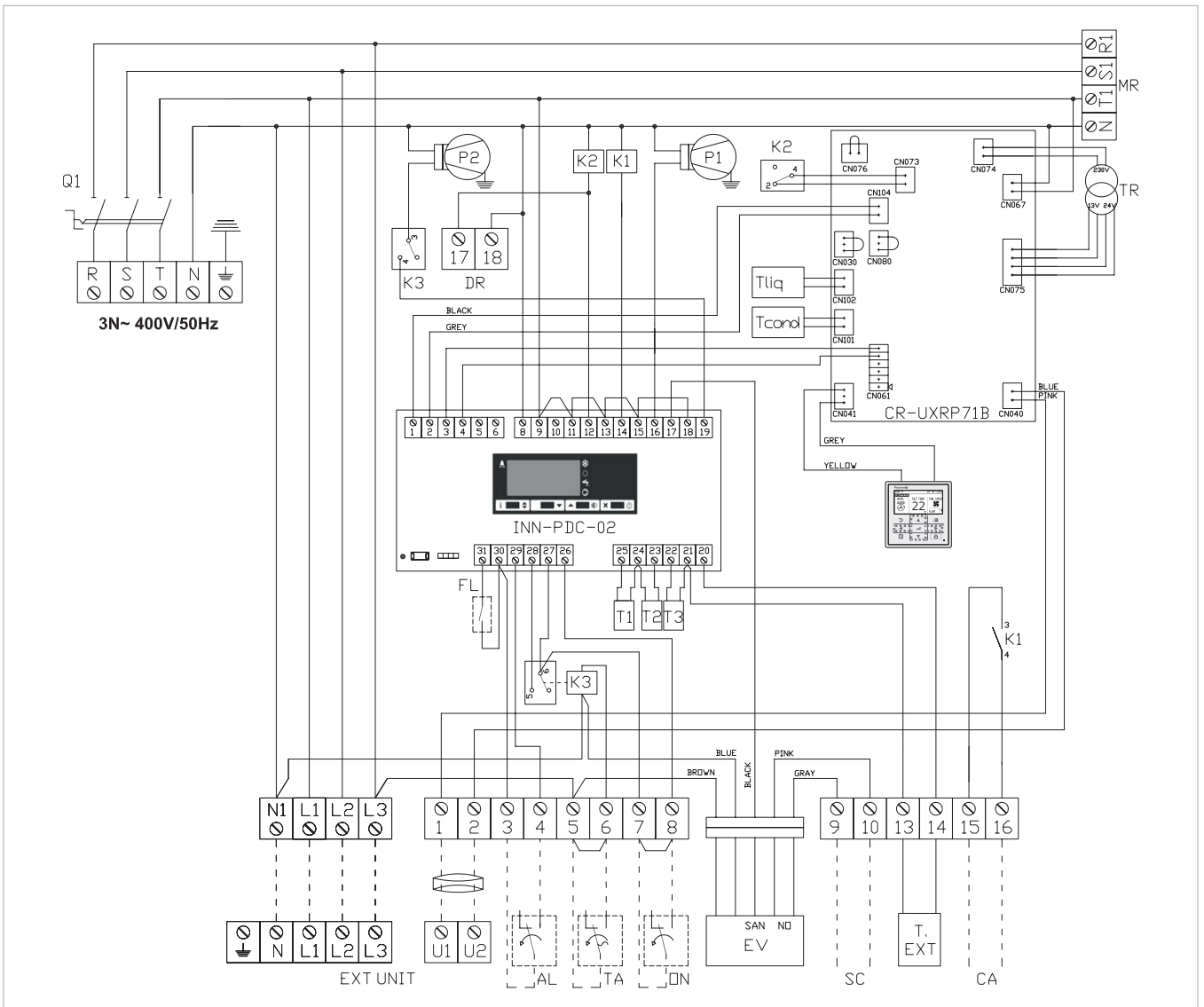
SW	Web server board with rabbit
PC	Tablet interface patch cord
FL	Flow switch
DR	Connection for heated bowl kit DR0656 (max. 1 A) *
T1	System water temperature sensor (adjustment)
T2	Heat exchanger output sensor (antifreeze)
T3	Hot water tank temperature sensor
T.TEXT	External air temperature sensor (max. 50m) *
TAB	User interface tablet
CZ-RTC2 E	External unit control panel
CR-UXR71B	External unit control board
INN-PDC-02	Controller with user interface
EXT.UNIT	External unit terminal strip*
*	Connection by the installer





2.15.4 Three-phase wiring diagram without web server

Q1	Master switch
P1	Primary circulation pump
P2	Secondary circulation pump
K1	Auxiliary heater enable relay
K2	External unit enable relay
K3	Ambient thermostat contact relay
AL	Anti-Legionella clock contact (or Cooling / Heating, open in Heating) *
TA	Heating Cooling calling environment thermostat *
ON	ON/OFF contact (or DOM ON/OFF) remote *
EV	Hot water/system solenoid valve *
CA	Auxiliary heater enable (max. 2 A) *
SC	Hot water enable for boiler
TR	Transformer 230/24/13V for external unit board

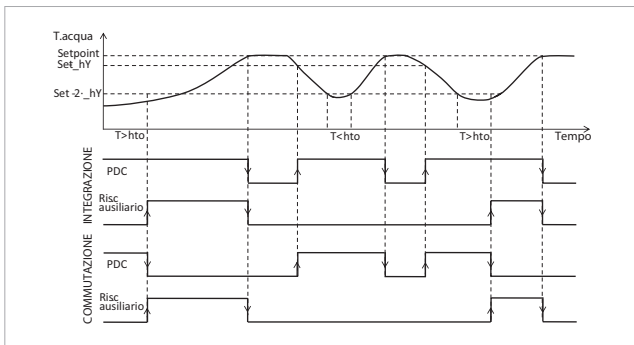
FL	Flow switch
DR	Connection for heated bowl kit DR0656 (max. 1 A) *
T1	System water temperature sensor (adjustment)
T2	Heat exchanger output sensor (antifreeze)
T3	Hot water tank temperature sensor
T.EXT	External air temperature sensor (max. 50m) *
TAB	User interface tablet
CZ-RTC2 E	External unit control panel
CR-UXP71B	External unit control board
INN-PDC-02	Controller with user interface
EXT.UNIT	External unit terminal strip*
* Connection by the installer	



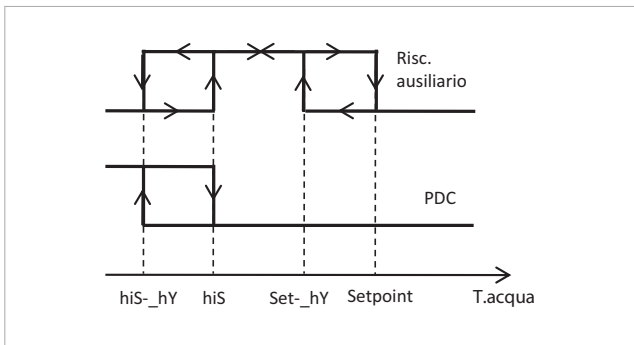
2.16 Auxiliary heater management (resistor or back-up boiler)

This function, displayed by the tile  on the touchscreen interface and by the flashing of the LED  on the emergency interface as well as an automatic intervention in case of external condenser in heating and hot water modes, includes three different algorithms for activating the K1 relay which controls the auxiliary heater (in the units with backup resistor only) and the backup boiler contact (terminals 15-16), which are identical for the hot water and heating functions, and which operate independently from one another:

- if the water detected by the adjustment input sensor (T1 in heating mode or T3 in hot water mode) drops and remains under a value equal to double the set hysteresis for longer than 20 minutes*, the controller activates relay K1 in integration, switching* or exclusion entirely* (with CAL function) the head pump.



- if a setpoint is set higher than 50°C* the controller turns the heat pump off and activates the K1 relay. When this function is active, the heat pump and the auxiliary heater will never operate at the same time.



2.16.1 Disabling hot water, cooling or heating function

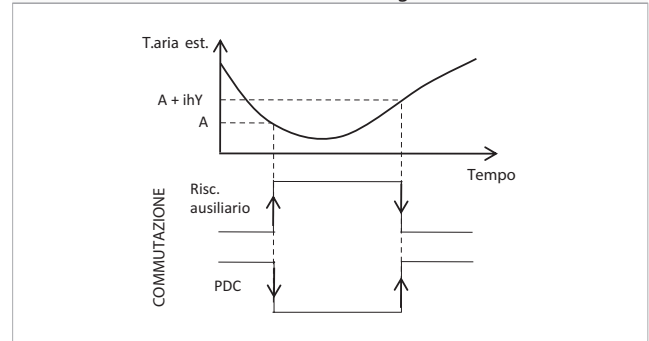
The appliance is designed to provide hot water (high priority), cooling and heating, but the Technical Service technician can easily deactivate the functions by operating on the controller configuration parameters SCE, ECE and ICE.

In this case, the respective tile on the touch screen interface will disappear.

- if the external temperature measured by the T4 sensor goes below -15°C*, the controller activates the K1 relay in switching with the heat pump

* This adjustment can be changed by the Technical Assistance Service.

A hoS for hot water / hor for heating



Master switch Q2 is provided in units provided with back-up resistor to enable the components and protect them electrically. The installer may connect the three stages (2, 4 or 6kW) according to needs and the electric power available to users.

A Refer to the power draw table for the various conditions and add the power of the resistors connected in order to determine the size of the electrical system.

Electrical draw increases by 9A for each connected stage in single-phase units.

In three-phase units, electrical draw increases by 9A on each phase connected to the resistor. In case of connection of only one or two stages, there will be 9A draw also on neutral.

A Adequately size the electrical connector of the neutral.

A manually rearmable thermostat sensor TS calibrated to 80°C is present in units with resistor inside the collector to disconnect power from relay K1 if the threshold is exceeded.

2.17 Climate control

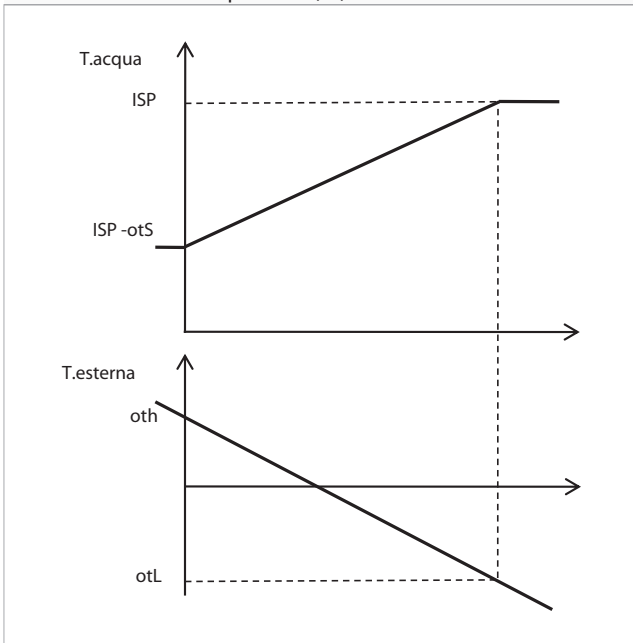
As the outdoor temperature measured by the T4 outdoor temperature sensor increases, the climatic control system reduces the heating setpoint value, starting from -5°C up to a maximum delta of 10°C , which is attained when the external temperature reaches 15°C . The control system makes it possible to create compensation algorithms, according to specific parameters which can be programmed by the Technical Service and be

adapted to any installation by acting on the maximum outdoor temperature OTH (above which the setpoint cannot be further reduced) and minimum outdoor temperature OTL (below which the setpoint is maintained) and the setpoint OTS delta value.

A In heating, the setpoint shown in tile F is subject to the climatic control function.

A Water temperature ($^{\circ}\text{C}$)

B External air temperature ($^{\circ}\text{C}$)



2.18 System handover

When all the checks and controls for the correct operation of the system have been completed, the installer shall show the basic

functional features, the instructions for use and routine maintenance to the user.

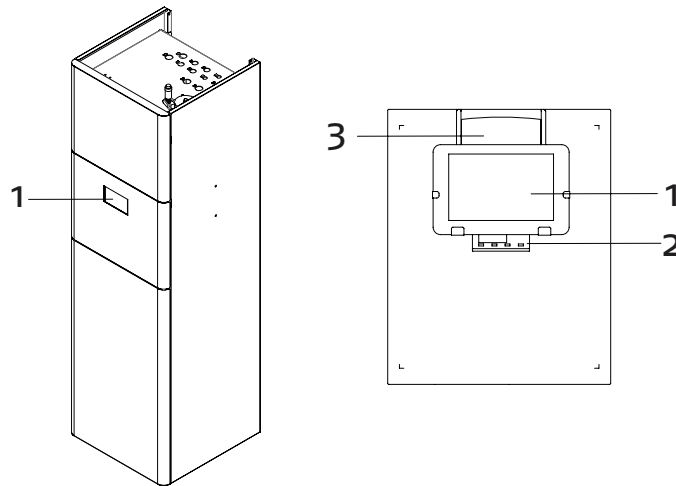
3 USE AND MAINTENANCE

3.1 System components and description of the parts

The system consists of a metallic structure which encloses all the operational parts. The only component accessible from the outside is the touch screen.

The following devices are present on the electric panel:

1. Touch screen control interface
2. Emergency control interface
3. External unit control panel



Touch screen control interface

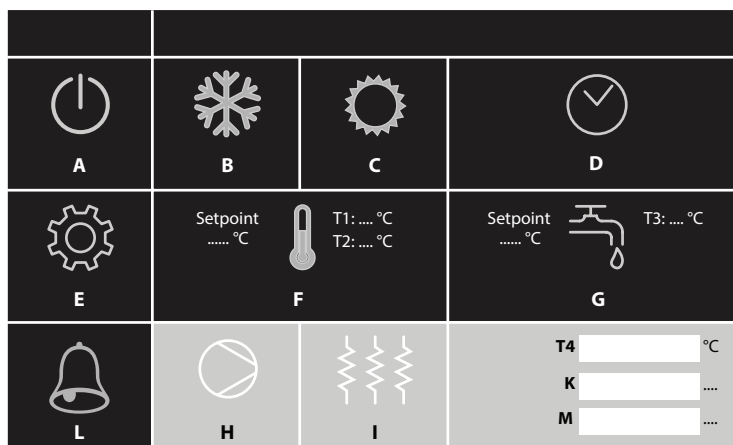
The touch screen interface allows you to adjust and coordinate the main functions of the device.

This device allows to select cooling/heating mode, to regulate heat, to control all the main functions of the device and to view and release alarms.

A See the user manual for how to use the interface.

A	Standby
B	Heating mode
C	Cooling mode
D	Date and time
E	Settings
F	Heating/cooling conditioner temperatures Access to programming page.
G	Hot water and anti-Legionella temperatures. Access to programming page.

L	Active alarm indication and rearming
H	P1 circulation pump operation
I	Auxiliary heating operation
K	Hours of auxiliary heating operation
M	Hours of heat pump operation
T1	System water temperature sensor
T2	Heat exchange water output sensor
T3	Hot water temperature
T4	External air temperature



Emergency control interface

The emergency control interface allows to perform the operations on the heat pump when the touch screen interface is not available.



Info / Setpoint / Lock keypad

Decrease value / Reset alarm ALR (5 seconds)

Increase value / Select heating or cooling (2 seconds)

Exit menu

Press any button to silence the buzzer in case of alarm.

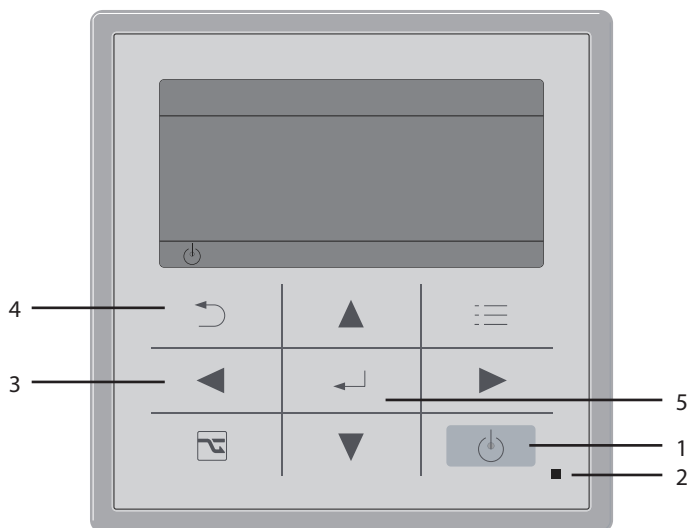
External unit control panel

The external unit control panel is not a remote control: 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. On button
2. Operating LED indicator (lights up during operation / flashes during the alarm)

3. Selection key
4. Back button
5. Enter key



3.2 Emergency control interface use

Use the emergency control interface only in case of unavailability or malfunction of the touch screen control interface!





3.2.1 User interface

The interface normally displays the temperature of the water in the hot water boiler and allows to perform all of the operations related to the use of the instrument and in particular to:

- Select the cooling/heating operation mode
- Display and rearm the alarm situations
- Check the status of the resources (setpoint, temperatures, hours of operation of the external unit and the auxiliary heater)


Apart from what is described in this chapter, there are many other settings possible which imply an in depth knowledge of the device and system to which it is connected in order to prevent serious damage to the device.

It is equipped with a three-digit display for showing temperatures, parameters and alarms, six LEDs indicating decimal point (between the second and third digit, only for the measurements below 20°C), cooling/heating state, hot water request, external unit ON and alarm signalling.


-  Heating control on LED
-  Cooling control on LED
-  Hot water production on LED (blinking with anti-Legionella function on)
-  Outlet ON/OFF LED (blinking with back-up resistor on)


Based on the readings of the return temperature sensor (T1) and the hot water sensor (T3, displayed by default) sensors, the setpoints, the external temperature measured by sensor T4 and input state, the electronic board makes all the necessary temperature adjustments to satisfy the heating/cooling or not water production needs by operating on the relays and (by means of PLL logic) on the external condenser signal.


Hot water production, which has higher priority over the other adjustments, sets heat pump operation of the external unit until the desired setpoint is reached (default setting 45°C, adjustable between 30 and 50°C) and simultaneously activates the three-way valve in order to divert the hot water produced in the boiler.


This adjustment is indicated by the switching on of the appropriate LED .


This function can be disabled by the Technical Service and in this case the system sensor (T1) will appear automatically on the display, and the hot water sensor (T3) will be ignored.


The cooling function enabled by the closing of the ON/OFF input and of the thermostatic contact TA and selected by pressing button , sets the production of cold water to exploit the inverter adjustment modulation to the maximum by means of a PLL logic which acts according to the actual difference between the temperature measured by the probe on the system water return and the setpoint SET set to 12 °C (adjustable between 10 and 20 °C).

This adjustment is indicated by the switching on of the appropriate LED .








The heating function enabled by the specific switch on the control, by the closing of the ON/OFF input and of the thermostatic contact TA and selected by pressing button , by means of a double PLL logic which takes into account both the actual difference between the temperature detected by the sensor on the system water return and the setpoint SEt set to 40 °C (adjustable from 20 to 55 °C) and according to the external air temperature (climatic control), operates so as to make the external unit work in heat pump mode by exploiting to the maximum the modulating algorithm and possibly reactivating the auxiliary heater according to the adjustments 2.16Auxiliary heater management (resistor or back-up boiler)p. 34.

This adjustment is indicated by the switching on of the appropriate LED .



The external condenser is enabled whenever a thermostatic request is received in accordance with the integration and switching settings described in paragraph 2.16Auxiliary heater management (resistor or back-up boiler)p. 34 is disabled in case of alarm and indicated by the lighting of the LED .

 Settings are mutually excluding and the setting remains stored also in case of blackout.


3.2.2 Access to user menu, displaying and modifying information

- Press and immediately release .
- Use buttons  or  to select the data will be viewed from the INFO MENU table.
- Hold button  to view the value.
- To modify the active value setpoint SEt or the hot water function SAn hold press  and use buttons  or  to

set the required value (within the minimum SL and maximum SH limit).

- When the button  is released, the new value is stored and the next parameter is shown.
- To exit from the menu, press  or wait for 10 seconds.

3.2.3 User menu

The following information is available from the menu which can be accessed by pressing  in sequence:

T1	System sensor temperature.
SEt	Active function setpoint (cooling or heating) **.
T2	Heat exchanger output sensor temperature.
SAn	Hot water function setpoint.
T3	Hot water sensor temperature (default view).
T4	External air sensor temperature.
Mhr	Thousand of hours of resistor operation.

Phr	Hours of resistor operation.
MhC	Thousands of hours of heat pump operation.
PhC	Hours of heat pump operation.
Loc	* Keypad state (locked).
* Select YES to lock keypad or NO to unlock it.	
** Subject to climatic control.	

3.2.4 Standby

Standby state can be set using the touch screen interface or by opening the ON/OFF selection contact connected to terminals 7 – 8. It deactivates all adjustments and the OFF indication is shown on the display.

A While in standby, the device runs an antifreeze cycle which activates the circulation pump based on the ALO threshold and on the readings of sensors T2 and T3; operation is signalled on the display by the alternating OFF and ALO signs.

3.2.5 Keypad lock

Locking the keys prevents undesired and potentially damaging operations which may occur whenever the regulator is operating in a public environment.

- To activate the function set Loc=YES in the INFO menu; to return to the normal function reprogram Loc=no.

While the keypad is locked, (Loc in menu INFO on Yes) it is possible to change the setpoints (within the minimum and maximum limits allowed), but it is not possible to put the device in standby, reset the manual reset alarms, make the cooling/heating selection or access the configuration menu.

3.2.6 Displays

In normal operation mode, the display shows the water temperature as measured by the T3 sensor positioned in the hot water tank, or the following messages:



FL	Intervention of the flow meter connected to DI1
Lo	Low temperature alarm (5°C) detected by sensor T2 with controller on
ALO	Low temperature alarm (5°C) detected by sensors T2 or T3 with controller in standby
PDC	External condenser alarm
E1	Sensor T1 fault
E2	Sensor T2 fault

E3	Sensor T3 fault
E4	Sensor T4 fault
ALR	One-hour tripping of one of the alarms for >ASM
LEG	Anti-Legionella cycle ended incorrectly (signalling only)
OFF	Regulator in standby
hi	High temperature alarm (80°C) detected by sensors T2 or T3
CAL	Exclusive operation of the auxiliary heater with circulation pump off.
*	Signalling only

3.2.7 Alarm

Any alarm signal is accompanied by the locking of the outputs, by the lighting of the LED and the sounding of the buzzer (to stop the latter, simply press any key on the controller) and is subject to the maximum time frequency check (three alarms per hour).

Below this value the alarm will be automatically reset, while, if the set value is exceeded, rearming will be manual (in this case, the alarms specific sign shall alternate with the ALr sign that means that the device is locked).

LED  goes off when the event that triggered the alarm ceases; only then will it be possible to reset the alarm, by pressing  for 5 seconds.

The opening of the DI1 inlet, connected to the differential pressure gauge that acts as a flow meter, makes all the outputs turn off immediately and, after 1 minute, when the pump is kept on to check once again that the flow meter has closed, it triggers the ALr manual reset alarm signal which alternates with the FL sign, and turns the pump off permanently.

The low temperature (5°C antifreeze signalled on the display by the Lo prompt) and high temperature (80° hi on the display)

alarms are managed by means of the heat exchanger output temperature sensor T2 positioned at the plate heat exchanger outlet and the hot water tank sensor T3. The low temperature alarm is monitored also when the controller is in standby, and triggers the oFF and ALo prompts alternatively and the starting of the circulation pump. The alarm is reset when the water temperature goes up again to above the 5°C + 3°C hysteresis threshold.

Alarm PdC appears on the display in case of malfunctioning of the external condenser.

If the anti-Legionella cycle ends because the timeout has expired, only the LEG prompt is displayed.

Indications E1, E2, E3 and E4 may appear in case of failure or incorrect measurement of the three temperature sensors.

See paragraph 3.9 for causes and remedies of the alarms. p.44

3.3 Setting and general start-up

3.3.1 Preparation for first start-up

The first start-up of the air-water heat pump must be performed by the Technical Service.

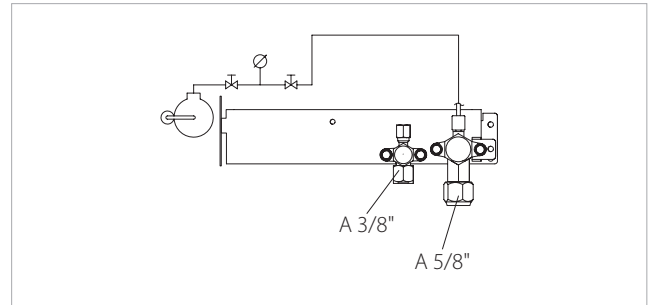
Before starting-up the air-water heat pumps ensure that:

- All the safety conditions have been respected.
- The air-water heat pump has been appropriately fixed to the support surface.
- The minimum clearances has been observed.
- The hydraulic connections have been carried out in accordance with the instruction manual.
- The hydraulic system has been filled and vented of any air.

- The hydraulic circuit interception valves are open.
- The hydrometer pressure is between 1 and 2 bar.
- The electrical connections have been made correctly
- The voltage is within a 10% tolerance of the nominal voltage of the unit.

- The system is correctly earthed.
 - All the electrical connections have been correctly tightened.
 - The power cables have a section that is adequate for the absorption of the unit and the length of the connection made.
 - All loose matter and dirt is removed from the cabinet especially steel filings, bits of wire, and clips.
 - Both the gas tube service valve and the liquid tube valve are open. Open the now, if they are not.
- A Liquid pipe
B Gas pipe
- Request that the customer be present for the test run.

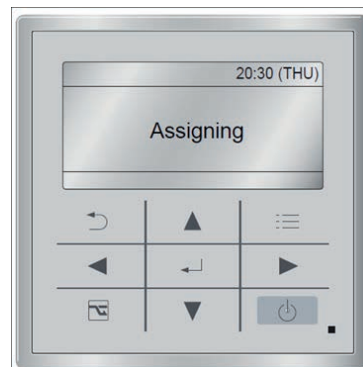
- Explain the contents of the instruction manual, and then have the customer actually operate the system.
- Be sure to give the instruction manual and warranty certificate to the customer.



3.3.2 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 and that oFF appears on the emergency interface, otherwise press the Standby tile.

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 and 15 versions, reverse the two power phases if alarm P05 appears on the external unit control panel.

3.3.3 Automatic address setting

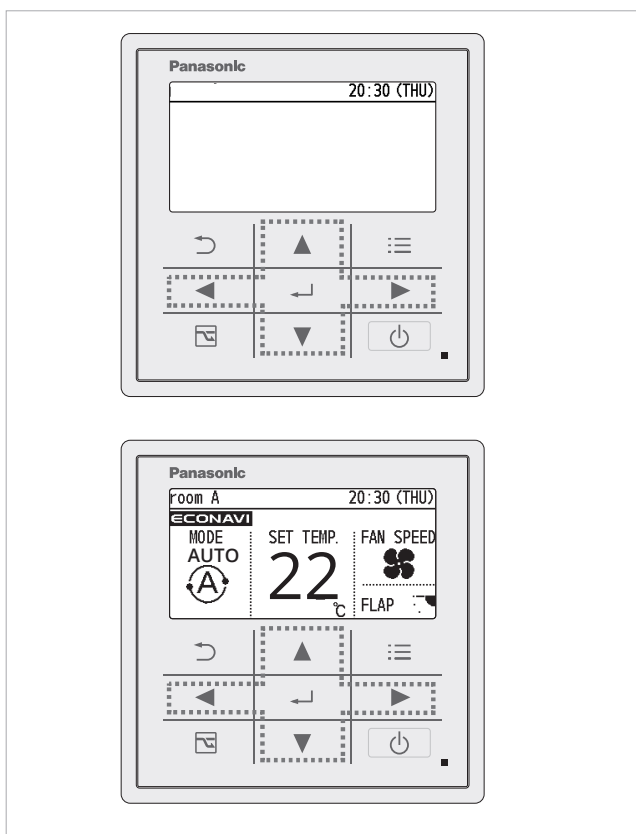
If during the SETTING procedure symbol appears accompanied by the prompt R.C.1., switch off the device, check that the power supply connections and the serial line to terminals 1 and 2 to the outdoor unit are correct. Then switch on the power supply







and check that the SETTING procedure automatically restarts and finishes within a few minutes. If the SETTING process does not restart automatically or remains in the display symbol accompanied by the prompt R.C.1. call the RDZ S.P.A. Service.

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

- on
- off
- * blinking

3.3.4 External unit control panel first switch-on



- At this point the stand-by screen appears on the display, wait a minute and press the power button  on the control panel.
- Select the setting to be changed with the arrow MODE
- Press enter 
- Change the settings with the arrows  until you get to the AUTO mode
- vPress enter again 
- After a few moments, the compressor start symbol appears on the display. 
- Turn the appliance main switch to position 0-OFF. Wait a few seconds and switch on the device again, checking that the display is not changed.

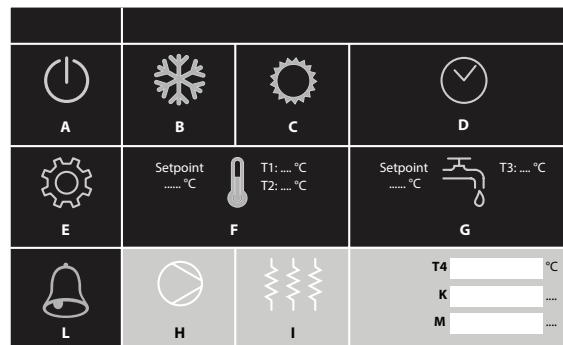
3.3.5 Activation and deactivation

Operate as shown on the User Manual for the ACTIVATION and DEACTIVATION operations.

Follow the instructions if "FL" appears on the display during this first step (see faults table p. 45)

- Check the water flow rate and increase the head of circulate P1 by operating on the regulator.



A	Standby	L	Active alarm indication and rearming
B	Heating mode	H	P1 circulation pump operation
C	Cooling mode	I	Auxiliary heating operation
D	Date and time	K	Hours of auxiliary heating operation
E	Settings	M	Hours of heat pump operation
F	Heating/cooling conditioner temperatures Access to programming page.	T1	System water temperature sensor
G	Hot water and anti-Legionella temperatures. Access to programming page.	T2	Heat exchange water output sensor
		T3	Hot water temperature
		T4	External air temperature



3.3.6 Activation

According to Directive 842/2006/EC, systems containing 3 kg or more of fluorinated greenhouse gases (F-gas) must be checked for leakage at least once a year, using direct or indirect measuring methods, by certified personnel in compliance with Regulation 303/2008/EC. The maintenance company must also keep a register in which be identified the technician who performed the servicing or repair, as well as the dates and results of inspections carried out, it shows the amount and type of fluorinated greenhouse gases used, any quantities added and the quantity recovered during servicing, maintenance and final disposal.

- Turn on the device by using the Standby A tile.
- Select cooling ❄ or heating ☀ function using tiles B and C.
- Check that the temperatures of the water in the hot water boiler and in the system are shown in tiles F and G.

At this point, if the temperature of the hot water boiler is lower than the setpoint (45°C by default) tile G on the touch screen interface and the LEDs  and  on the emergency interface will light up. The external unit will start in heat pump mode after a variable time from 2 to 5 minutes (needed by the device to run internal checks).

On the contrary, the external unit will start to satisfy the request if the hot water boiler setpoint is satisfied, the TA contact is closed and the temperature measured by sensor T1 is higher in cooling or lower in heating * than the required setpoint.


The programs are mutually excluding and the setting remains stored also in case of blackout.

3.3.7 Deactivation

- Press the Standby A tile on the touch screen interface.

3.3.8 Checks during and after the first start-up

When the start-up has been completed check that:

- The current absorbed by the compressor should be less than the maximum indicated in the "Power supply line dimensioning" table.
-  Check that the power supply voltage does not fall below the nominal value -10% while the compressor is in operation.
- Three-phase power may be maximum phase imbalance of 3%.
- The unit operates in the recommended operating conditions (see "technical data" chapter
- All air has been completely vented from the hydraulic circuit.
- The hydrometer pressure is between 1 and 2 bar.
- The air-water heat pump stops and then restarts.
- Always check the thermal gradient between system outlet and return is between 4 and 7°C. Set a lower circulator speed if the thermal gradient is lower than 4 °C. On the contrary, if the thermal gradient is higher than 7 °C check the opening of all valves on the system and then add an external pump to increase the water flow rate.
- Disconnect and reconnect power to the device and check that it restarts correctly.

3.4 Long-term shutdown

▲ When the air-water heat pump is not used for a long period of time, the following operations are to be performed:

- Press the Standby A tile on the touch screen interface.
- Turn the master switch of the device to the 0-OFF position.

After having deactivated the unit:

- Deactivate the internal terminal units by turning the switch of each unit to "off".
- Turn the system master switch to "off".

- Close the water taps.

If the outside temperature could fall below zero and there is a risk of freezing, the hydraulic system **MUST BE EMPTIED**, or else antifreeze (e.g. ethylene glycol) must be added in the dosage recommended by the producer of the liquid.

To re-start the air-water heat pump after a long period of stop and inactivity, request an intervention of the Technical Service. If a boiler is present in the system, check during operation that the temperature of the water circulating in the air-water heat pump does not exceed 65 °C.

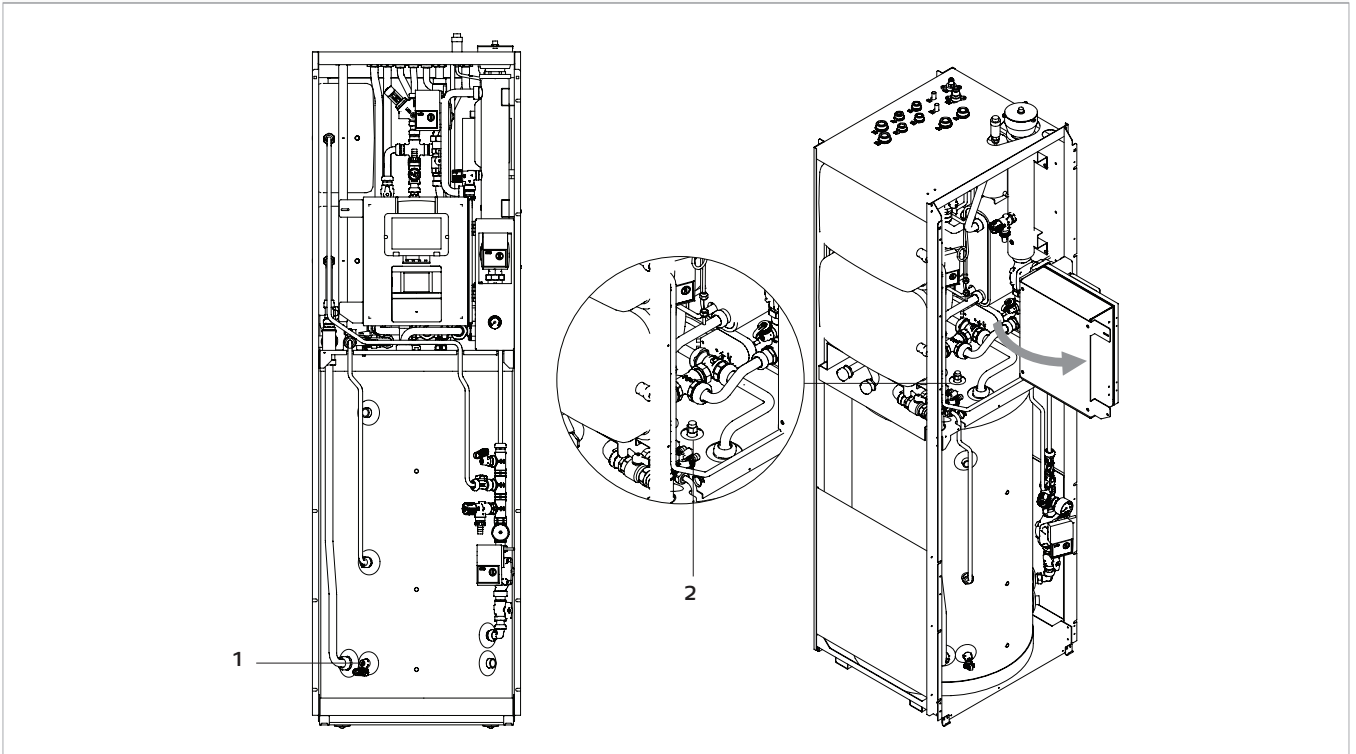
3.5 Emptying the device

- Turn the system master switch to "off".
- Check that the system charging tap is closed.
- Open the water drain tap in the bottom left of the hot water tank.

- Open the manual vent on the top of the hot water tank to facilitate the operation.

▲ If the system is fitted with antifreeze, the liquid must not be discharged freely because it is polluting.

1. Drain tap
2. Manual air relief valve



3.6 Cleaning

The only cleaning operation required on behalf of the person responsible for the system is the external brushing of the air-water heat pump that is to be performed using only cloths dampened with water and soap.

For persistent stains, use a solution of 50% denatured alcohol in water or a specific product.

When the cleaning is completed carefully dry the surfaces.

▲ Do not use sponges with abrasive products or powder detergents.

⚠ Always disconnect the device from the electrical mains by turning the master switch of the system to the "off" position before starting any cleaning operation.

3.7 Maintenance

According to Directive 842/2006/EC, systems containing 3 kg or more of fluorinated greenhouse gases (F-gas) must be checked for leakage at least once a year, using direct or indirect measuring methods, by certified personnel in compliance with Regulation 303/2008/EC. The maintenance company must also keep a register in which be identified the technician who performed the servicing or repair, as well as the dates and results of inspections carried out, it shows the amount and type of fluorinated greenhouse gases used, any quantities added and the quantity recovered during servicing, maintenance and final disposal.

Regular maintenance is indispensable for maintaining the air-water heat pump always efficient, safe and reliable in time. This can be carried out every six months, for some interventions and annually for others by the Technical Service technicians who are technically skilled, authorised and always have original spare parts available.

The annual maintenance programme that the Technical Service or the authorised technician must perform consists of the following checks and operations:

- Check expansion tank pressure
- The hydrometer pressure is between 1 and 2 bar.
- Fill the water circuit
- Check for air presence in water circuit
- Check efficiency of safety units
- Check power supply voltage
- Check electrical draw
- Tighten electrical connections
- Clean fan grills and external unit battery fins
- Check fouling of metallic mesh filter

3.8 Operating aspects which should not be interpreted as problems


The following behaviours which could occur during operation of the device are correct operations and must not be interpreted as faults.

- The compressor does not start again until 3 minutes after being shut off.
- Periodical defrosting cycles are performed during heating.
- When switching from hot water production to cooling, and vice versa, the external heat pump will be kept off for one minute, so as to prevent hot and cold water from mixing.
- After 10 minutes of inactivity the screen saver is enabled. To restore the normal display touch the screen.
- Hot water production, which has higher priority over the other settings, requires external unit pump operation until the desired setpoint is reached (default setting 45°C, adjustable between 30 and 55°C).
- In heating, the setpoint shown in tile F is subject to the action of climatic control calculated according to the outdoor temperature. Consequently, the device may produce water at lower temperature.

3.9 Faults and remedies



TABLE OF FAULTS AND REMEDIES

Effect	Cause	Remedy
The FL alarm appears on the controller display after general switch-on	The water is not circulating well in the system.	Check: the three-way valve for cold-hot deviation, that there are no air bubbles in the circuit, that the screen filter is not obstructed, that the water pressure in the system is correct, that the P1 circulation pump is working correctly (increase head by operating on the regulator, if needed).
Noise or turbulences coming from the hydraulic circuit are heard.	There is air in the circuit.	Relieve the air using the external devices and the vent on the inertia tank of the machine and take the circuit to the correct charging pressure. Check that the intake pressure (hydraulic circuit return) with the pump on is higher than 0.6 bar.
The Lo alarm appears (automatic rearming first followed by manual)	The minimum antifreeze temperature alarm has tripped. The water temperature at the T2 heat exchanger outlet is less than 5 °C.	Check that nothing is preventing the good circulation of the water in the system (air, obstructed air filter etc.). Increase the head of pump P1 by operating on the regulator.
Alarm E1 appears (automatic rearming)	The water temperature measuring sensor is faulty or not connected correctly.	Check the connection and replace the sensor, if needed.
Alarm E2 will appear (automatic rearming)	The outlet water/antifreeze temperature measuring sensor is faulty or not connected correctly.	Check the connection and replace the sensor, if needed.

Alarm E3 will appear (automatic rearming)	The temperature measuring sensor positioned in the hot water boiler is faulty or not connected correctly.	Check the connection and replace the sensor, if needed.
Alarm E4 will appear (automatic rearming)	The external temperature measuring sensor (to be connected to terminals 13-14) is faulty or not connected correctly.	Check the connection and replace the sensor, if needed.
The hi alarm appears (automatic rearming)	The inlet water temperature detected by T2, or the hot water tank, detected by T3, has exceeded 80°C.	Check the diverting valves if a boiler is installed in the system. If a solar collector is present in the system, T3 in the hot water tank detects a high temperature but this does not prevent the production of hot or cold water for the system.
The heat pump is not working	No communication with the external unit. Symbol  appears on the control unit display of the control panel accompanied by blinking RC1 prompt.	Repeat the automatic address setting procedure described in the specific paragraph.
	The B, C, F and G tiles of the touch screen interface have been deactivated.	Turn on the device by using the Standby A tile.
	The touch screen interface is off.	Check that the master switch Q1 on the control panel is set to the I-ON position. Check that electricity is present and reset it if needed.
The Pdc alarm appear on the controller display (automatic rearming)	The P05 alarm appears on the external unit control panel on three-phase version 12 or 15.	Invert two of the three-phase power phases.
	The external unit is not working properly (symbol  appears on the LCD of the external control unit in addition to letters E, F, H, L, P and numbers).	Check the meaning of the alarm on the EXTERNAL UNIT CONTROL PANEL (see chapter 3.10) and connect the RDZ S.P.A. Service.
The heat pump is not working for heating or hot water	The auxiliary heating tile I is active.	The auxiliary heater output was activated but the resistor or the boiler active not active. Check that switch Q2 is armed and that the boiler is powered.
	Cal appears on the touch screen interface in tile L	The specific Cal function which consists in the exclusive operation of a boiler and switches off the heat pump was activated. Check that the boiler is activated correctly with the installer.
	The external unit defroster is not working and ice has formed on the battery.	Check the minimum installation clearances and remove any obstacles.
Cooling or heating is not satisfactory	The controller setpoint is too low (heating mode) or too high (heating mode).	Reset the setpoint according to needs.
	The ambient thermostat connected to terminals 5 and 6 is set too high for cooling (or too low for heating).	Set the temperature to an appropriate value.
	Tiles B and C are both deactivated.	Activate one of the two.
The LEG alarm appears (view only)	The anti-Legionella cycle ended incorrectly after 5 hours instead of holding 60°C for 2 hours.	The auxiliary heater (RESISTOR or BACK-UP BOILER) is not available or the power is not sufficient for perform the function. Contact the installer.

Any alarm signal is accompanied by the locking of the outputs, by the sounding of the buzzer (to stop the latter, simply press tile L) and by the string appearing in tile L. It is also subject to the maximum time frequency check (three alarms per hour).

Below this value the alarm will be automatically reset, while, if the set value is exceeded, rearming will be manual (in this case, only on the emergency user interface, the alarms specific sign shall alternate with the ALr sign that means that the device is locked).

LED  goes off when the event that triggered the alarm ceases; only then will it be possible to reset the alarm, by pressing  for 5 seconds.

The opening of the DI1 inlet, connected to the differential pressure gauge that acts as a flow meter, makes all the outputs turn off immediately and, after 1 minute, when the pump is kept

on to check once again that the flow meter has closed, it triggers the ALr manual reset alarm signal which alternates with the FL sign, and turns the pump off permanently.

The low temperature (5 °C antifreeze signalled on the display by the Lo prompt) and high temperature (80° hi on the display) alarms are managed by means of the temperature sensor T2 positioned at the plate heat exchanger outlet and the hot water tank sensor T3. The low temperature alarm is monitored also when the controller is in standby, and triggers the oFF and ALo prompts alternatively and the starting of the circulation pump P1.

The alarm is reset when the water temperature goes up again to above the 5°C + hysteresis threshold.

Alarm PdC appears on the display in case of malfunctioning of the external condenser (see paragraph 3.10).

If the anti-Legionella cycle ends because the timeout has expired, only the LEG prompt is displayed.

If the CAL function, specially designed for connecting a boiler as auxiliary heating, is activate, the device switches to standby (prompt "CAL" will appear on the display) and only the three-way valve output will be activated. This is managed according to the reading of sensor T3, the state of input DI3 TA and the reading of T1.

Indications E1, E2, E3 and E4 may appear in case of failure or incorrect measurement of the three temperature sensors.

A If a power blackout occurs during operation of the unit, the unit will restart after a few minutes maintaining the same settings made before the current was interrupted.

3.10 Alarms shown on the control panel of the external unit

The external unit control panel shows alarms which may occur during heat pump operation. Call the Technical Service if alarm PdC appears on the user interface

Symptoms and inspection points

Alarms	Cause	Remedy
P01	Jumper on connector CN076 of CR-UXRP71B board missing or disconnected.	Check connection
P03	Anomalous compressor discharge temperature $> \theta =$ at 111°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.	During cooling cycle, check free circulation of air on the external unit. Check refrigerant charge. During heating cycle, check opening of refrigerant taps.
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.
P09	Jumper on connector CN080 of CR-UXRP71B board missing or disconnected.	Check connection
P10	Jumper on connector CN030 of CR-UXRP71B 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 activated by excessive temperature on the external condenser.	Check cleanliness of external heat exchanger and respect of minimum clearances. Check operation of the fan and correct disposal of air 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.	Check opening of cooler taps. Disconnect and reconnect power to the device and check that the compressor starts up correctly.
P29	Compressor not working properly.	Check inverter board wiring and replace it, if needed.
H01	Surge detected by inverter board of the compressor.	Cooling problem of the radiating plate of the inverter board. Check cleanliness of the heat sink. Check electric connections of the compressor.
H05	External unit control board software to be updated.	Contact Technical Service for updating.
H31	Problems of communication between external and indoor units.	Contact Technical Service 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 disconnected, 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 connection of terminals 1 and 2 of INN-PDC-02 controller to CN104 connector of board CR-UXR71B.
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 power to the device and check correct operation. Replace and reprogram the CR-UXR71B board.
F31	External 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 (paragraph 3.3.3 Automatic address settingp<?>). Contact RDZ S.p.A. Service to run programming again.
L08	No setting in the indoor unit.	
L09	No setting in the indoor unit.	
L10	No setting in the external unit.	
L13	Incorrect settings of parameters in the indoor unit.	
E01	Automatic setting of address has not been completed. Wiring between internal and external unit are cut or not connected correctly.	Check the connection of terminals 1 and 2 of the indoor unit to the external unit (a shielded double-core cable, minimum cross-section area 0.35 mm ² kept separate from the electric power cables). Check the external unit control panel connection. Check the automatic settings of the address again (paragraph 3.3.3 Automatic address settingp<?>).
E03	Signal reception error by indoor unit.	
E04		
E06	Problems of communication between external and indoor units.	
E07		
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 of terminals 1 and 2 of the indoor unit to the external unit (a shielded double-core cable, minimum cross-section area 0.35 mm ² kept separate from the electric power cables). Check the external unit control panel connection. Check the automatic settings of the address again (paragraph 3.3.3 Automatic address settingp<?>).
E31	Problems of communication between external and indoor units.	

4 TECHNICAL INFORMATION

4.1 Technical specifications

Performance		5M	7M	9M	12M	12T	15M	15T
Riscaldamento (1)								
Max heating capacity(A7/W35)	kW	6,82	12,53	13,72	18,32	18,32	22,76	22,76
Heating capacity	kW	4,77	7,10	8,10	12,75	12,75	14,61	14,61
Total drawn power *	kW	1,16	1,64	1,79	2,87	2,87	3,19	3,19
COP		4,11	4,33	4,53	4,44	4,44	4,58	4,58
Heating (2)								
Heating capacity	kW	4,59	4,32	4,86	7,62	7,62	9,03	9,03
Total drawn power *	kW	1,79	1,75	1,67	2,58	2,58	3,10	3,10
COP		2,56	2,47	2,91	2,95	2,95	2,91	2,91
Cooling (3)								
CMax cooling capacity (A35/W7)	kW	4,11	7,56	8,11	11,79	11,79	13,34	13,34
Cooling capacity	kW	3,52	5,36	6,27	8,89	8,89	11,24	11,24
Total drawn power *	kW	1,42	1,69	1,97	2,76	2,76	3,51	3,51
EER		2,48	3,17	3,18	3,22	3,22	3,20	3,20
Cooling (4)								
Cooling capacity	kW	5,14	7,39	8,71	12,30	12,30	15,60	15,60
Total drawn power *	kW	1,50	1,84	2,07	3,01	3,01	3,90	3,90
EER		3,43	4,02	4,21	4,09	4,09	4,00	4,00
Flow rate	L/h	605	912	1078	1529	1529	1933	1933
Indoor unit noise								
Sound pressure at distance of 1 metre	dB(A)	30	30	30	31	31	31	31
External unit noise								
Sound pressure at distance of 1 metre (cooling/heating)	dB(A)	48/50	48/50	48/50	52/52	52/52	53/53	53/53
hydraulic data								
Nominal water flow rate with heating data (30/35°C)	L/min	13,7	20,6	23,5	32,1	32,1	41,9	41,9
Residual head	kPa	65	64	58	31	31	31	31
Hydraulic attachment diameter	" Gas	1"	1	1	1	1	1	1
Expansion vessel capacity	L	24+(24)	24+(24)	24+(24)	24+(24)	24+(24)	24+(24)	24+(24)
Minimum system water content	L	20	30	40	50	50	65	65
Hot water tank capacity	L	200	200	200	200	200	200	200
Cooler attachments								
Refrigerant inlet attachment diameter	" Sae	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Refrigerant outlet attachment diameter	" Sae	5/8	5/8	5/8	5/8	5/8	5/8	5/8
R410a refrigerant charge	kg	1,65	2	2,35	3,40	3,40	3,40	3,40
Electric power								
Voltage	V/50 Hz	230	230	230	230	400-3N	230	400-3N
Indoor unit protection degree		IPX2	IPX2	IPX2	IPX2	IPX2	IPX2	IPX2
External unit protection degree		IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4

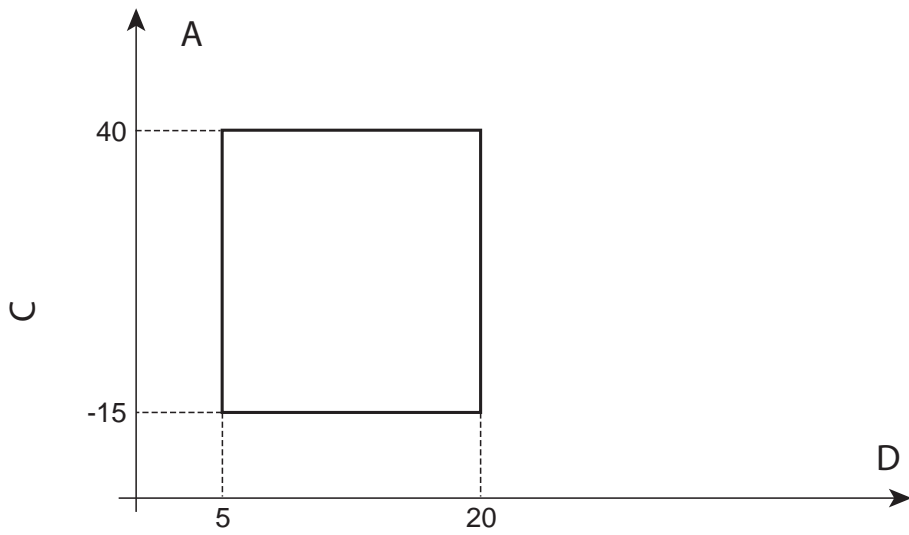
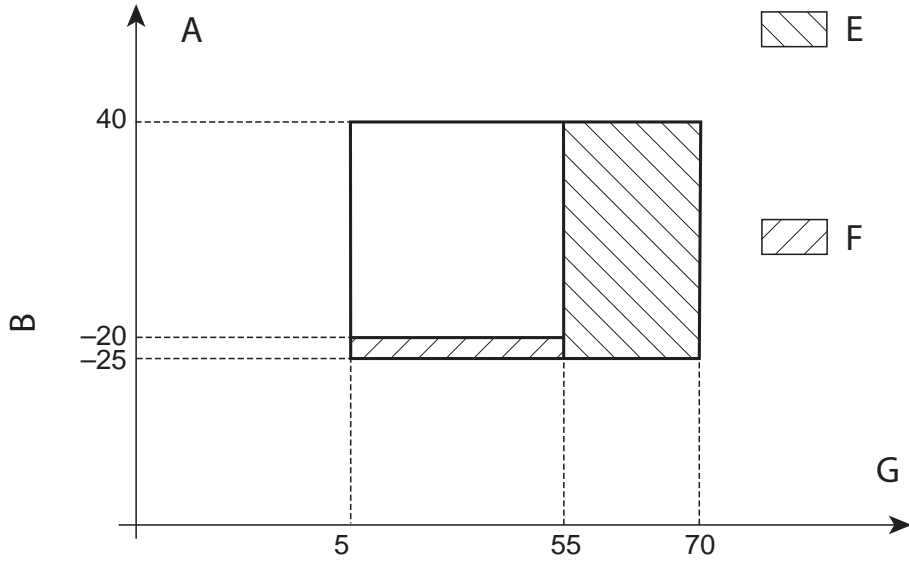
1. Out water temperature 35 °C/External air temperature 7 °C/
Relative humidity 85%
2. Out water temperature 35 °C/External air temperature -7 °C/
Relative humidity 85%
3. Out water temperature 7 °C/External air temperature 35 °C
4. Out water temperature 18 °C/External air temperature 35 °C
5. Seasonal efficiency and Energy Efficiency Class certified according to UNI EN 14825 by a third party accredited according to UNI EN 17025

* Including circulation pump

Note: performance data at rating frequency detected in compliance with UNI EN 14511

4.2 Operating limits

A	External temperature (°C)	E	PDC off. Heating by means of resistor, boiler or solar integrator.
B	Heating and hot water mode	G	Hot water tank temperature (°C)
C	Cooling mode	F	Integration by resistor or boiler
D	Output water temperature (°C)		



4.3 Cooling Performance

TABLE OF COOLING PERFORMANCE - RATING FREQUENCIES

COOLING PERFORMANCE WITH PARTIAL LOADS

Dati in raffreddamento

T. ae = T ambiente esterno

T. a = T acqua uscita

PF = Potenza frigorifera

PA = Potenza assorbita (compresa pompa di circolazione)

Cooling data

T. ae = T external environment

T. a = T outlet water

PF = Cooling power

PA = Absorbed power (including the water pump)

Mod.	T. a	20			25			30			35			40		
	T.ae	PF	PA	EER	PF	PA	EER	PF	PA	EER	PF	PA	EER	PF	PA	EER
5	7	4,12	1,01	4,08	3,95	1,13	3,51	3,73	1,27	2,95	3,52	1,42	2,48	3,31	1,59	2,08
	10	4,61	1,02	4,50	4,42	1,14	3,87	4,17	1,28	3,26	3,92	1,44	2,72	3,70	1,61	2,30
	13	5,13	1,04	4,93	4,92	1,15	4,27	4,64	1,30	3,58	4,36	1,46	2,98	4,12	1,64	2,52
	15	5,50	1,05	5,24	5,27	1,16	4,54	4,98	1,31	3,81	4,66	1,48	3,16	4,42	1,65	2,67
	18	6,08	1,07	5,70	5,82	1,17	4,97	5,50	1,32	4,17	5,14	1,50	3,43	4,88	1,68	2,91
	22				6,62	1,19	5,58	6,25	1,34	4,68	5,83	1,53	3,81	5,55	1,71	3,25
7	7	6,21	1,25	4,96	5,94	1,39	4,28	5,61	1,56	3,60	5,30	1,75	3,03	4,98	1,96	2,54
	10	6,82	1,27	5,36	6,52	1,40	4,65	6,17	1,58	3,91	5,84	1,77	3,30	5,46	1,99	2,75
	13	7,46	1,30	5,76	7,13	1,42	5,03	6,76	1,60	4,23	6,41	1,79	3,57	5,99	2,02	2,96
	15	7,90	1,31	6,02	7,55	1,42	5,30	7,17	1,61	4,45	6,79	1,81	3,75	6,36	2,04	3,12
	18	8,58	1,34	6,41	8,21	1,44	5,72	7,81	1,63	4,79	7,39	1,84	4,03	6,95	2,07	3,36
	22				9,15	1,45	6,31	8,70	1,65	5,27	8,23	1,87	4,39	7,80	2,11	3,69
9	7	7,35	1,43	5,14	7,02	1,56	4,50	6,64	1,75	3,79	6,27	1,97	3,19	5,89	2,20	2,68
	10	8,08	1,44	5,61	7,70	1,58	4,88	7,30	1,77	4,12	6,90	1,99	3,47	6,46	2,23	2,89
	13	8,84	1,45	6,10	8,41	1,59	5,29	7,99	1,79	4,47	7,56	2,02	3,75	7,08	2,27	3,12
	15	9,36	1,45	6,44	8,91	1,60	5,57	8,47	1,80	4,71	8,01	2,04	3,93	7,52	2,29	3,28
	18	10,17	1,46	6,96	9,69	1,61	6,01	9,22	1,82	5,08	8,71	2,07	4,22	8,21	2,33	3,53
	22				10,79	1,63	6,62	10,27	1,84	5,59	9,69	2,11	4,60	9,21	2,38	3,87
12	7	10,35	2,03	5,09	9,90	2,27	4,36	9,36	2,55	3,67	8,89	2,76	3,21	8,30	3,20	2,59
	10	11,38	2,05	5,56	10,86	2,29	4,73	10,29	2,58	3,99	9,83	2,80	3,51	9,11	3,25	2,80
	13	12,45	2,06	6,04	11,87	2,31	5,13	11,27	2,61	4,32	10,83	2,84	3,81	9,98	3,30	3,02
	15	13,18	2,07	6,38	12,57	2,33	5,40	11,95	2,63	4,54	11,53	2,87	4,02	10,59	3,33	3,18
	18	14,31	2,07	6,90	13,67	2,35	5,83	13,01	2,66	4,89	12,62	2,91	4,33	11,57	3,39	3,42
	22				15,23	2,37	6,42	14,50	2,70	5,37	14,16	2,97	4,76	12,97	3,46	3,75
15	7	13,12	2,64	4,97	12,55	2,94	4,26	9,36	3,31	2,83	11,24	3,55	3,17	10,52	4,15	2,53
	10	14,42	2,66	5,43	13,76	2,97	4,63	10,29	3,35	3,08	12,36	3,69	3,35	11,54	4,21	2,74
	13	15,77	2,67	5,90	15,04	3,00	5,01	11,27	3,39	3,33	13,54	3,81	3,56	12,65	4,28	2,96
	15	16,70	2,68	6,22	15,93	3,02	5,28	11,95	3,41	3,50	14,36	3,87	3,71	13,44	4,32	3,11
	18	18,14	2,70	6,72	17,33	3,04	5,69	13,01	3,45	3,77	15,63	3,93	3,98	14,68	4,39	3,34
	22				19,29	3,08	6,27	14,50	3,50	4,14	17,41	3,96	4,40	16,47	4,48	3,67

T. ae = T ambiente esterno / Outdoor temperature (U.R. 85%)

T. a = T acqua uscita / Water temperature

PF = Potenza frigorifera / Cooling power

PA = Potenza assorbita (con pompa di circolazione) / Adsorbed power (including circulation pump)

I dati possono subire variazioni senza preavviso / The performance data are subject to minimal changes without notice.

TABLE OF COOLING PERFORMANCE - MAXIMUM FREQUENCIES COOLING PERFORMANCE WITH PARTIAL LOADS

Dati in raffreddamento

T. ae = T ambiente esterno
T. a = T acqua uscita
PF = Potenza frigorifera
PA = Potenza assorbita (compresa pompa di circolazione)

Cooling data

T. ae = T external environment
T. a = T outlet water
PF = Cooling power
PA = Absorbed power (including the water pump)

		T. a	20			25			30			35			40		
		T _{ae}	PF	PA	EER	PF	PA	EER	PF	PA	EER	PF	PA	EER	PF	PA	EER
5	7	4,81	1,24	3,89	4,61	1,38	3,35	4,36	1,55	2,81	4,11	1,74	2,36	3,87	1,95	1,99	
	10	5,38	1,25	4,29	5,16	1,40	3,70	4,87	1,57	3,11	4,58	1,76	2,60	4,32	1,97	2,19	
	13	5,99	1,27	4,71	5,74	1,41	4,07	5,42	1,59	3,42	5,09	1,79	2,84	4,81	2,00	2,40	
	15	6,42	1,29	5,00	6,15	1,42	4,33	5,81	1,60	3,64	5,44	1,81	3,01	5,16	2,02	2,55	
	18	7,10	1,31	5,44	6,80	1,43	4,74	6,43	1,61	3,98	6,00	1,83	3,27	5,70	2,05	2,78	
	22				7,73	1,45	5,32	7,30	1,63	4,47	6,80	1,87	3,63	6,48	2,09	3,10	
7	7	8,74	1,88	4,65	8,37	2,09	4,01	7,91	2,35	3,37	7,56	2,55	2,97	7,01	2,95	2,38	
	10	9,61	1,91	5,02	9,18	2,11	4,35	8,69	2,38	3,66	8,41	2,58	3,26	7,69	2,99	2,57	
	13	10,51	1,95	5,40	10,04	2,13	4,72	9,52	2,41	3,96	9,33	2,61	3,57	8,43	3,04	2,78	
	15	11,13	1,97	5,64	10,63	2,14	4,97	10,10	2,42	4,17	9,98	2,64	3,79	8,95	3,07	2,92	
	18	12,09	2,01	6,01	11,57	2,16	5,36	10,99	2,45	4,49	11,01	2,68	4,11	9,79	3,11	3,14	
	22				12,88	2,18	5,91	12,25	2,48	4,94	12,48	2,73	4,57	10,98	3,17	3,46	
9	7	9,51	1,95	4,86	9,08	2,13	4,26	8,59	2,39	3,59	8,11	2,68	3,02	7,61	3,01	2,53	
	10	10,45	1,97	5,31	9,96	2,15	4,62	9,44	2,42	3,90	8,93	2,72	3,28	8,36	3,05	2,74	
	13	11,43	1,98	5,78	10,88	2,17	5,01	10,33	2,44	4,23	9,78	2,76	3,55	9,16	3,10	2,95	
	15	12,10	1,98	6,10	11,53	2,19	5,27	10,96	2,46	4,46	10,37	2,78	3,72	9,72	3,13	3,11	
	18	13,15	2,00	6,59	12,53	2,20	5,69	11,93	2,48	4,81	11,27	2,82	3,99	10,62	3,18	3,34	
	22				13,95	2,23	6,27	13,29	2,51	5,29	12,53	2,88	4,36	11,91	3,25	3,67	
12	7	13,73	2,74	5,01	13,13	3,06	4,29	12,42	3,44	3,61	11,79	3,73	3,16	11,00	4,31	2,55	
	10	15,09	2,76	5,47	14,40	3,09	4,66	13,65	3,48	3,93	13,04	3,78	3,45	12,08	4,38	2,76	
	13	16,51	2,77	5,95	15,74	3,12	5,05	14,95	3,52	4,25	14,37	3,83	3,75	13,23	4,45	2,98	
	15	17,48	2,78	6,28	16,68	3,14	5,32	15,85	3,54	4,47	15,29	3,87	3,95	14,05	4,49	3,13	
	18	18,98	2,80	6,79	18,14	3,16	5,73	17,25	3,58	4,81	16,74	3,93	4,26	15,35	4,56	3,36	
	22				20,20	3,20	6,32	19,23	3,64	5,29	18,78	4,00	4,69	17,20	4,66	3,69	
15	7	15,57	3,24	4,81	14,90	3,61	4,12	11,11	4,06	2,74	13,34	4,31	3,10	12,48	5,09	2,45	
	10	17,12	3,26	5,25	16,34	3,65	4,48	12,22	4,11	2,98	14,68	4,45	3,30	13,71	5,17	2,65	
	13	18,72	3,28	5,71	17,86	3,68	4,85	13,38	4,15	3,22	16,08	4,53	3,55	15,02	5,25	2,86	
	15	19,83	3,29	6,02	18,92	3,71	5,11	14,19	4,19	3,39	17,05	4,55	3,75	15,95	5,30	3,01	
	18	21,53	3,31	6,50	20,57	3,74	5,51	15,44	4,23	3,65	18,56	4,54	4,09	17,43	5,39	3,24	
	22				22,91	3,77	6,07	17,21	4,30	4,01	20,68	4,44	4,66	19,55	5,50	3,55	

T. ae= T ambiente esterno / Outdoor temperature (U.R. 85%)

T. a= T acqua uscita / Water temperature

PF= Potenza frigorifera / Cooling power

PA= Potenza assorbita (con pompa di circolazione) / Adsorbed power (including circulation pump)

I dati possono subire variazioni senza preavviso / The performance data are subject to minimal changes without notice.

4.4 Performance in heating and sanitary

TABLE OF HEATING PERFORMANCE - RATING FREQUENCIES
HEATING PERFORMANCE FOR HEAT PUMP

	T. a	30			35			40			45			50			55		
		T _{ae}	PH	PA	COP _{bc}	PH	PA	COP _{bc}	PH	PA	COP _{bc}	PH	PA	COP _{bc}	PH	PA	COP _{bc}	PH	PA
5	-20	2,29	0,94	2,43	2,22	1,06	2,09	2,16	1,21	1,78	2,08	1,38	1,51	2,01	1,58	1,27	1,94	1,81	1,07
	-15	2,64	0,96	2,75	2,56	1,08	2,37	2,48	1,23	2,02	2,40	1,40	1,71	2,31	1,61	1,44	2,23	1,84	1,21
	-7	3,31	0,99	3,36	3,21	1,11	2,89	3,12	1,26	2,46	3,01	1,44	2,09	2,90	1,65	1,76	2,80	1,89	1,48
	-2	3,81	1,00	3,80	3,70	1,13	3,28	3,59	1,29	2,79	3,47	1,47	2,36	3,34	1,68	1,99	3,22	1,92	1,68
	0	4,03	1,01	4,00	3,91	1,14	3,45	3,80	1,29	2,93	3,67	1,48	2,49	3,54	1,69	2,09	3,41	1,94	1,76
	2	4,26	1,01	4,20	4,14	1,14	3,62	4,02	1,30	3,09	3,88	1,49	2,61	3,74	1,70	2,20	3,61	1,95	1,85
	7	4,91	1,03	4,76	4,77	1,16	4,11	4,63	1,32	3,50	4,47	1,51	2,96	4,31	1,73	2,49	4,16	1,98	2,10
	12	5,66	1,05	5,40	5,49	1,18	4,65	5,33	1,35	3,96	5,15	1,54	3,35	4,97	1,76	2,82	4,79	2,01	2,38
7	15	6,16	1,06	5,82	5,98	1,19	5,01	5,81	1,36	4,27	5,61	1,55	3,62	5,41	1,78	3,04	5,22	2,03	2,56
	20	7,10	1,08	6,59	6,89	1,21	5,68	6,69	1,38	4,84	6,46	1,58	4,10	6,23	1,81	3,45	6,01	2,07	2,90
	-20	3,14	1,53	2,05	3,04	1,72	1,77	2,95	1,96	1,50	2,85	2,24	1,27	2,75	2,57	1,07	2,65	2,55	1,04
	-15	3,49	1,43	2,44	3,39	1,61	2,11	3,29	1,83	1,79	3,18	2,09	1,52	3,06	2,40	1,28	2,95	2,58	1,14
	-7	4,45	1,35	3,30	4,32	1,52	2,85	4,20	1,73	2,42	4,05	1,97	2,05	3,91	2,26	1,73	3,77	2,59	1,46
	-2	5,30	1,35	3,93	5,15	1,52	3,39	5,00	1,73	2,88	4,82	1,98	2,44	4,65	2,26	2,06	4,49	2,59	1,73
	0	5,69	1,36	4,18	5,53	1,53	3,61	5,37	1,75	3,07	5,18	1,99	2,60	5,00	2,28	2,19	4,82	2,62	1,84
	2	6,12	1,38	4,43	5,94	1,55	3,82	5,77	1,77	3,25	5,57	2,02	2,76	5,37	2,31	2,32	5,18	2,65	1,95
9	7	7,31	1,45	5,03	7,10	1,64	4,34	6,89	1,87	3,69	6,65	2,13	3,13	6,42	2,44	2,63	6,19	2,79	2,22
	12	8,69	1,57	5,55	8,44	1,76	4,78	8,19	2,01	4,07	7,91	2,29	3,45	7,63	2,63	2,90	7,36	3,01	2,44
	15	9,61	1,65	5,81	9,33	1,86	5,01	9,06	2,12	4,26	8,75	2,42	3,61	8,44	2,78	3,04	8,14	3,18	2,56
	20	11,30	1,83	6,17	10,97	2,06	5,32	10,65	2,35	4,53	10,29	2,68	3,83	9,92	3,07	3,23	9,57	3,52	2,72
	-20	3,21	1,64	1,96	3,11	1,85	1,68	3,02	2,11	1,43	2,92	2,40	1,21	2,81	2,75	1,02	2,71	2,65	1,02
	-15	3,75	1,55	2,41	3,64	1,75	2,08	3,53	1,99	1,77	3,41	2,27	1,50	3,29	2,60	1,26	3,17	2,98	1,06
	-7	5,00	1,49	3,37	4,86	1,67	2,90	4,71	1,91	2,47	4,55	2,18	2,09	4,39	2,49	1,76	4,23	2,85	1,48
	-2	6,03	1,49	4,04	5,85	1,68	3,48	5,68	1,91	2,97	5,48	2,18	2,51	5,29	2,50	2,12	5,10	2,86	1,78
12	0	6,49	1,50	4,32	6,30	1,69	3,72	6,12	1,93	3,17	5,91	2,20	2,68	5,69	2,52	2,26	5,49	2,89	1,90
	2	6,98	1,52	4,59	6,78	1,71	3,96	6,58	1,95	3,37	6,35	2,23	2,85	6,13	2,55	2,40	5,91	2,92	2,02
	7	8,34	1,59	5,25	8,10	1,79	4,52	7,86	2,04	3,85	7,59	2,33	3,26	7,32	2,67	2,75	7,06	3,05	2,31
	12	9,88	1,69	5,84	9,59	1,91	5,03	9,31	2,17	4,28	8,99	2,48	3,63	8,67	2,84	3,05	8,37	3,25	2,57
	15	10,90	1,77	6,15	10,58	2,00	5,30	10,27	2,28	4,51	9,92	2,60	3,82	9,57	2,97	3,22	9,23	3,41	2,71
	20	12,74	1,93	6,59	12,37	2,18	5,68	12,01	2,48	4,83	11,59	2,83	4,09	11,18	3,24	3,45	10,78	3,72	2,90
	-20	4,44	1,80	2,46	4,30	2,03	2,12	4,18	2,32	1,80	4,03	2,64	1,53	3,89	3,02	1,29	3,75	3,46	1,08
	-15	5,58	2,02	2,76	5,42	2,27	2,38	5,26	2,59	2,03	5,08	2,96	1,72	4,90	3,39	1,45	4,72	3,88	1,22
15	-7	7,85	2,29	3,43	7,62	2,58	2,96	7,40	2,94	2,52	7,15	3,35	2,13	6,89	3,84	1,79	6,65	4,40	1,51
	-2	9,55	2,41	3,96	9,27	2,72	3,41	9,00	3,10	2,90	8,69	3,53	2,46	8,38	4,05	2,07	8,08	4,64	1,74
	0	10,29	2,45	4,19	9,99	2,76	3,62	9,70	3,15	3,08	9,36	3,59	2,61	9,03	4,11	2,19	8,71	4,71	1,85
	2	11,06	2,49	4,45	10,74	2,80	3,83	10,42	3,19	3,26	10,06	3,64	2,76	9,71	4,17	2,33	9,36	4,78	1,96
	7	13,13	2,55	5,16	12,75	2,87	4,45	12,38	3,27	3,79	11,95	3,73	3,21	11,53	4,27	2,70	11,12	4,89	2,27
	12	15,42	2,57	6,00	14,97	2,89	5,17	14,54	3,30	4,40	14,04	3,76	3,73	13,54	4,31	3,14	13,05	4,94	2,64
	15	16,89	2,57	6,58	16,40	2,89	5,67	15,92	3,30	4,83	15,38	3,76	4,09	14,83	4,31	3,44	14,30	4,93	2,90
	20	19,52	2,53	7,70	18,95	2,85	6,64	18,40	3,25	5,65	17,77	3,71	4,79	17,13	4,25	4,03	16,52	4,87	3,39

T. ae = T ambiente esterno / Outdoor temperature (U.R. 85%)

PH = Potenza Termica / Thermal Power

T. a = T acqua uscita / Water temperature

PA = Potenza assorbita (con pompa di circolazione) / Adsorbed power (including circulation pump)

I dati prestazionali, in accordo con le condizioni sui test, considerato tutti gli ausiliari e i cicli di sbrinamento / Performance data, according standard includes all auxiliary circuits and real defrosting cycles
 I dati possono subire variazioni senza preavviso / The performance data are subject to minimal changes without notice.

TABLE OF HEATING PERFORMANCE - MAXIMUM FREQUENCIES

HEATING PERFORMANCE FOR HEAT PUMP

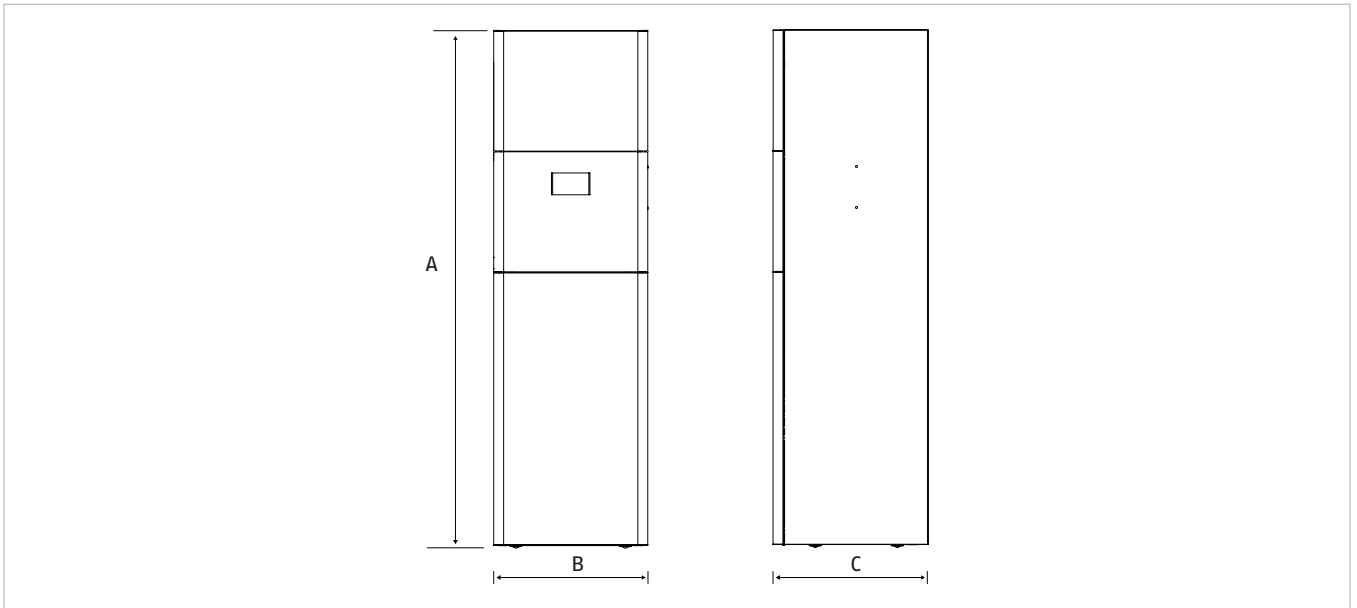
Mod.	T. a	30			35			40			45			50			55		
	T.ae	PH	PA	COP _{bc}	PH	PA	COP _{bc}	PH	PA	COP _{bc}	PH	PA	COP _{bc}	PH	PA	COP _{bc}	PH	PA	COP _{bc}
5	-20	3,27	1,52	2,15	3,17	1,71	1,85	3,08	1,95	1,58	2,98	2,23	1,34	2,87	2,55	1,13	3,19	2,92	1,09
	-15	3,77	1,55	2,44	3,66	1,74	2,10	3,55	1,98	1,79	3,43	2,26	1,52	3,31	2,59	1,28	3,49	2,97	1,18
	-7	4,72	1,59	2,98	4,59	1,79	2,57	4,45	2,04	2,19	4,30	2,32	1,85	4,15	2,66	1,56	4,00	3,05	1,31
	-2	5,44	1,61	3,37	5,28	1,82	2,91	5,13	2,07	2,48	4,95	2,36	2,10	4,78	2,71	1,77	4,61	3,10	1,49
	0	5,76	1,62	3,55	5,59	1,83	3,06	5,43	2,08	2,60	5,24	2,38	2,21	5,06	2,72	1,86	4,88	3,12	1,56
	2	6,09	1,63	3,73	5,92	1,84	3,21	5,74	2,10	2,74	5,55	2,39	2,32	5,35	2,74	1,95	5,16	3,14	1,64
	7	7,02	1,66	4,23	6,82	1,87	3,64	6,62	2,13	3,10	6,39	2,43	2,63	6,16	2,79	2,21	5,94	3,19	1,86
	12	8,09	1,69	4,79	7,85	1,90	4,13	7,62	2,17	3,51	7,36	2,47	2,98	7,10	2,83	2,51	6,85	3,25	2,11
	15	8,80	1,71	5,16	8,55	1,92	4,45	8,30	2,19	3,79	8,01	2,50	3,21	7,73	2,86	2,70	7,45	3,28	2,27
7	-20	5,63	3,24	1,74	5,46	3,65	1,50	5,30	4,16	1,27	5,12	4,17	1,23	5,35	4,78	1,12	5,40	5,29	1,02
	-15	6,60	3,18	2,07	6,41	3,58	1,79	6,22	4,09	1,52	6,01	4,29	1,40	5,79	4,91	1,18	5,59	5,32	1,05
	-7	7,95	3,09	2,57	7,72	3,48	2,21	7,49	3,97	1,89	7,24	4,53	1,60	6,98	5,19	1,34	6,73	5,71	1,18
	-2	9,55	3,04	3,14	9,27	3,42	2,71	9,00	3,90	2,31	8,69	4,45	1,95	8,38	5,10	1,64	8,08	5,84	1,38
	0	10,24	3,02	3,39	9,94	3,40	2,93	9,65	3,87	2,49	9,32	4,42	2,11	8,99	5,06	1,78	8,67	5,80	1,50
	2	10,97	3,00	3,66	10,65	3,37	3,16	10,34	3,85	2,69	9,98	4,39	2,28	9,63	5,02	1,92	9,28	5,76	1,61
	7	12,91	2,94	4,39	12,53	3,31	3,78	12,17	3,78	3,22	11,75	4,31	2,73	11,33	4,93	2,30	10,93	5,65	1,93
	12	15,04	2,89	5,21	14,60	3,25	4,49	14,18	3,71	3,82	13,69	4,23	3,24	13,20	4,84	2,73	12,73	5,55	2,30
	15	16,42	2,86	5,75	15,94	3,22	4,96	15,47	3,67	4,22	14,94	4,18	3,57	14,41	4,79	3,01	13,90	5,49	2,53
9	-20	18,86	2,80	6,73	18,31	3,16	5,80	17,77	3,60	4,94	17,16	4,10	4,18	16,55	4,70	3,52	15,96	5,38	2,96
	-15	6,83	3,24	2,11	6,63	3,65	1,81	6,43	4,17	1,54	6,21	4,18	1,49	6,49	4,90	1,33	6,55	5,30	1,24
	-7	7,74	3,19	2,43	7,52	3,59	2,09	7,30	4,09	1,78	7,05	4,30	1,64	6,80	4,92	1,38	6,96	5,33	1,31
	-2	8,99	3,11	2,89	8,73	3,50	2,50	8,48	3,99	2,12	8,18	4,55	1,80	7,89	5,21	1,51	8,11	5,64	1,44
	0	10,64	3,06	3,48	10,33	3,45	3,00	10,03	3,93	2,55	9,68	4,48	2,16	9,34	5,13	1,82	9,01	5,88	1,53
	2	11,36	3,04	3,73	11,03	3,43	3,22	10,70	3,91	2,74	10,34	4,45	2,32	9,97	5,10	1,95	9,61	5,84	1,64
	7	12,11	3,02	4,00	11,75	3,41	3,45	11,41	3,88	2,94	11,02	4,43	2,49	10,63	5,07	2,09	10,25	5,81	1,76
	12	14,13	2,98	4,74	13,72	3,36	4,08	13,32	3,83	3,48	12,86	4,37	2,94	12,40	5,00	2,48	11,96	5,73	2,09
	15	16,36	2,95	5,55	15,88	3,32	4,79	15,42	3,78	4,08	14,89	4,31	3,45	14,36	4,94	2,91	13,85	5,66	2,45
12	-20	20,37	2,92	6,09	17,28	3,29	5,25	16,78	3,76	4,47	16,20	4,28	3,78	15,63	4,90	3,19	15,07	5,62	2,68
	-15	20,37	2,89	7,04	19,77	3,26	6,07	19,20	3,71	5,17	18,54	4,23	4,38	17,88	4,85	3,69	17,24	5,66	3,10
	-7	9,87	4,29	2,30	9,58	4,84	1,98	9,30	5,51	1,69	8,98	5,53	1,62	9,38	6,48	1,45	8,70	7,01	1,24
	-15	10,73	4,14	2,59	10,51	4,67	2,25	10,11	5,32	1,90	9,93	5,58	1,78	9,50	6,39	1,49	9,64	6,92	1,39
	-7	12,05	3,96	3,04	11,70	4,46	2,62	11,36	5,09	2,23	11,08	5,69	1,95	10,58	6,65	1,59	10,87	7,08	1,54
	-2	14,17	3,89	3,64	13,76	4,38	3,14	13,36	4,99	2,67	12,90	5,69	2,27	12,44	6,52	1,91	11,99	7,47	1,61
	0	15,11	3,87	3,91	14,67	4,36	3,37	14,25	4,97	2,87	13,76	5,66	2,43	13,27	6,49	2,05	12,80	7,43	1,72
	2	16,12	3,85	4,18	15,65	4,34	3,61	15,19	4,95	3,07	14,67	5,64	2,60	14,15	6,46	2,19	13,64	7,40	1,84
	7	18,87	3,83	4,93	18,32	4,31	4,25	17,79	4,92	3,62	17,18	5,61	3,06	16,57	6,43	2,58	15,98	7,36	2,17
15	-20	21,99	3,84	5,72	21,35	4,33	4,93	20,72	4,93	4,20	20,01	5,63	3,56	19,30	6,44	2,99	18,61	7,38	2,52
	-15	24,02	3,86	6,22	23,32	4,35	5,36	22,64	4,96	4,57	21,87	5,66	3,87	21,09	6,48	3,26	20,34	7,42	2,74
	-7	27,71	3,92	7,06	26,90	4,42	6,09	26,12	5,04	5,19	25,22	5,74	4,39	24,32	6,58	3,70	23,45	7,53	3,11
	-15	11,99	5,32	2,26	11,63	5,99	1,94	11,29	6,83	1,65	10,90	6,85	1,59	10,79	7,85	1,37	11,02	8,68	1,27
	-7	13,31	5,25	2,53	12,60	5,91	2,13	12,32	6,74	1,83	12,00	7,07	1,70	11,89	8,10	1,47	11,66	8,77	1,33
	-2	15,18	5,15	2,95	14,74	5,80	2,54	14,31	6,61	2,16	13,82	7,54	1,83	13,33	8,46	1,58	12,85	9,00	1,43
	0	17,82	5,09	3,50	17,30	5,73	3,02	16,80	6,54	2,57	16,22	7,45	2,18	15,65	8,54	1,83	15,09	9,78	1,54
	2	18,98	5,07	3,74	18,42	5,71	3,23	17,89	6,51	2,75	17,27	7,42	2,33	16,66	8,50	1,96	16,06	9,74	1,65
	7	20,18	5,05	4,00	19,59	5,68	3,45	19,02	6,48	2,94	18,37	7,39	2,49	17,72	8,47	2,09	17,09	9,70	1,76
15	12	23,44	5,00	4,69	22,76	5,63	4,04	22,09	6,42	3,44	21,33	7,32	2,92	20,57	8,38	2,45	19,84	9,60	2,07
	15	27,04	4,95	5,46	26,25	5,58	4,71	25,49	6,36	4,01	24,61	7,25	3,39	23,73	8,30	2,86	22,89	9,51	2,41
	20	29,36	4,93	5,96	28,51	5,55	5,14	27,68	6,32	4,38	26,72	7,21	3,71	25,77	8,26	3,12	24,86	9,46	2,63
	20	33,51	4,89	6,86	32,53	5,50	5,91	31,58	6,27	5,03	30,50	7,15	4,26	29,41	8,19	3,59	28,37	9,39	3,02

T. ae = T ambiente esterno / Outdoor temperature (U.R. 85%)
T. a = T acqua uscita / Water temperature

PH = Potenza Termica / Thermal Power
PA = Potenza assorbita (con pompa di circolazione) / Adsorbed power (including circulation pump)

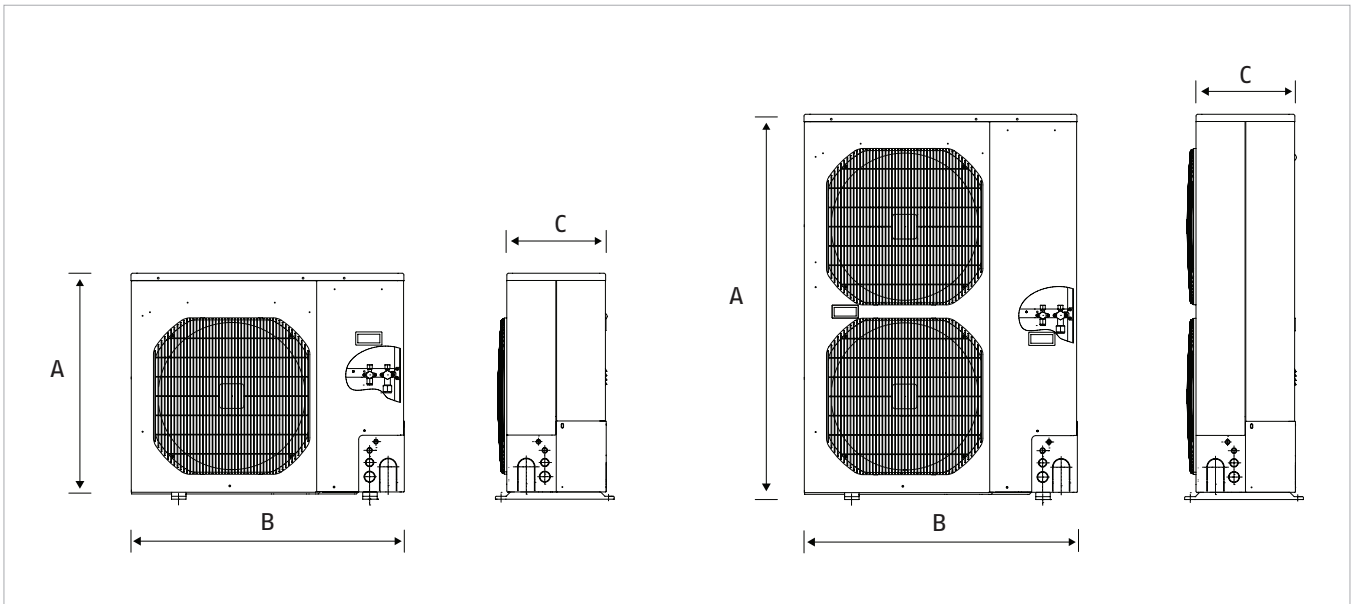
I dati prestazionali, in accordo con le condizioni sui test, considerato tutti gli ausiliari e i cicli di sbrinatorio / Performance data, according standard includes all auxiliary circuits and real defrosting cycles
I dati possono subire variazioni senza preavviso / The performance data are subject to minimal changes without notice.

4.5 Indoor unit dimensions



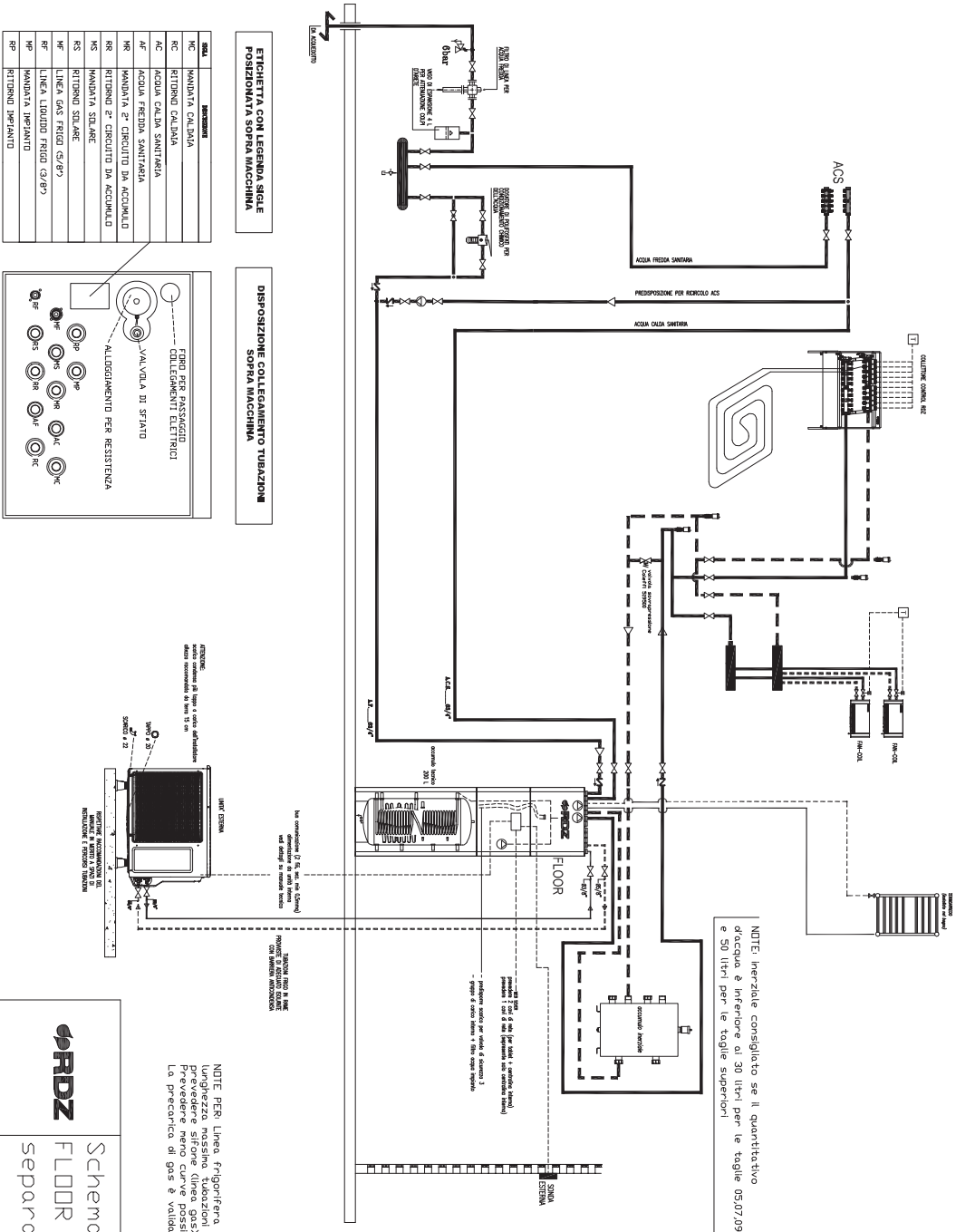
Model		5M	7M	9M	12M	12T	15M	15T
Width (B)	mm	600	600	600	600	600	600	600
Height (A)	mm	2000	2000	2000	2000	2000	2000	2000
Depth (C)	mm	600	600	600	600	600	600	600
Net weight	kg	172	172	172	172	172	172	172

4.6 External unit dimensions



Modelli		5M	7M	9M	12M	12T	15M	15T
Larghezza (B)	mm	940	940	940	940	940	940	940
Altezza (A)	mm	996	996	996	1416	1416	1416	1416
Profondità (C)	mm	340	340	340	340	340	340	340
Peso netto	kg	68	68	69	98	98	98	98

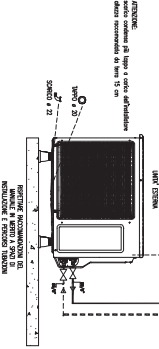
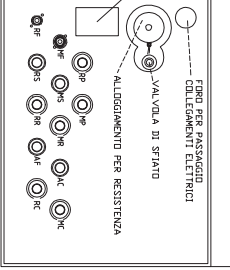
Schema d'esempio a puro scopo indicativo per la predisposizione dei componenti, rimane a carico del professionista abilitato redigere lo schema d'impianto.



ETICHETTA CON LEGENDA SINGLE FASCELLATA SOPRA MANIFOLD

DISPOSIZIONE COLLEGAMENTO TUBAZIONI SOPRA MANIFOLD

TESTA	INNESTO
MC	MANDATA CALDAIA
MC	RITORNO CALDAIA
AC	ACQUA CALDA SANITARIA
AF	ACQUA FREDDA SANITARIA
RR	RITORNO 2° CIRCUITO DA ACCUMULO
MS	MANDATA SOLARE
RF	RITORNO SOLARE
RF	LINEA GAS FREDDO (G5/G7)
RF	LINEA LIQUIDI FREDDI (G3/G5)
RP	MANDATA IMPIANTO
RP	RITORNO IMPIANTO



NOTE PER Linea Frigorifera secondo UNI EN 378-2/2012. Lunghezza massima consentita 15 mt. Prevedere sifone (linea gas) ogni 6 mt in caso di linea verticale. Prevedere meno curve possibili e con raggio maggiore di 300mm. La precarica di gas è valida dai 2 ai 30mt di linea frigo (valde fino alle taglie 18 kW*)

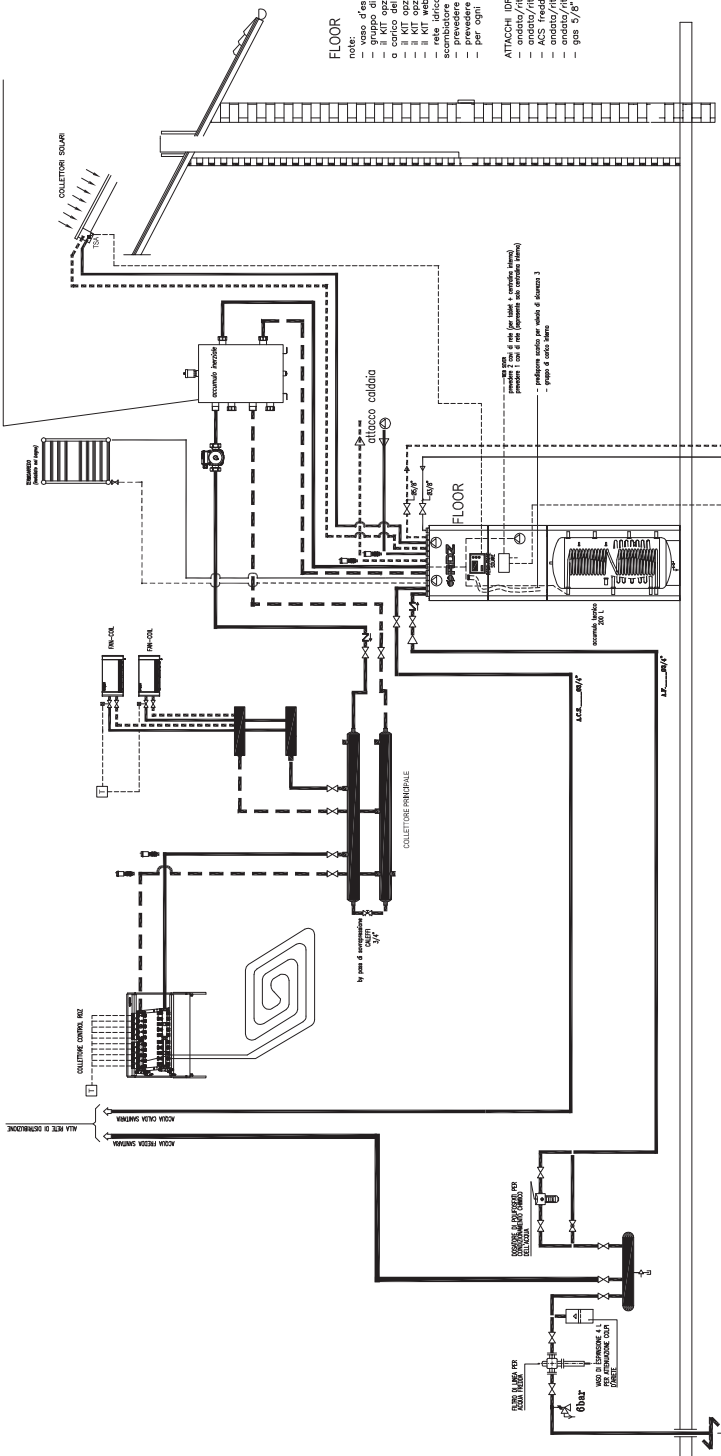
SRDZ
Schema d'esempio con Pompa di calore RDZ
FLOOR produzione ACS. Versione con KIT
separatore e circolatore di rilancio

LEGENDA	
SIMBOLI	ISOTIPICO
☉	MANIFOLD
☉	MANIFOLD 2
☉	MANIFOLD 3
☉	MANIFOLD 4
☉	MANIFOLD 5
☉	MANIFOLD 6
☉	MANIFOLD 7
☉	MANIFOLD 8
☉	MANIFOLD 9
☉	MANIFOLD 10
☉	MANIFOLD 11
☉	MANIFOLD 12
☉	MANIFOLD 13
☉	MANIFOLD 14
☉	MANIFOLD 15
☉	MANIFOLD 16
☉	MANIFOLD 17
☉	MANIFOLD 18
☉	MANIFOLD 19
☉	MANIFOLD 20
☉	MANIFOLD 21
☉	MANIFOLD 22
☉	MANIFOLD 23
☉	MANIFOLD 24
☉	MANIFOLD 25
☉	MANIFOLD 26
☉	MANIFOLD 27
☉	MANIFOLD 28
☉	MANIFOLD 29
☉	MANIFOLD 30

- FLOOR**
- note:
- vano d'ispezione interno della FLOOR da 24 litri per lato ACS e per lato impianto
 - separatore sifonico disponibile con KIT con circolatore di rilancio interno
 - il KIT opzionale per scaldastuffe
 - il KIT web server opzionale
 - il KIT opzione resistenza integrabile prevede una resistenza configurabile da 2 a 6 kW.
 - il KIT opzione sifone (linea gas) ogni 6 mt in caso di linea verticale.
 - il KIT opzione sifone (linea gas) ogni 6 mt in caso di linea verticale.
 - prevedere termistrica di SENSIBILITÀ per le FLOOR ACS secondo norma.
 - prevedere termistrica di SENSIBILITÀ per le FLOOR ACS secondo norma.
 - per ogni altra informazione NON CONTENUTA nel presente schema, consultare il manuale tecnico della FLOOR.
- ATTACCHI IDRAULICI/GAS FLOOR (parte superiore)**
- andata/ritorno impianto 1"
 - ACS freddo/caldo 3/4"
 - andata/ritorno acqua sanitaria 3/4"
 - gas 5/8" - 3/8"

Schema d'esempio a puro scopo indicativo per la predisposizione dei componenti, rimanere a carico del professionista abilitato redigere lo schema d'impianto.

NOTE: Inerziale consigliato se il quantitativo d'acqua è inferiore ai 30 litri per le taglie 05/07/09 e 30 litri per le taglie superiori!



ABBREVIAZIONE	DESCRIZIONE	ABBREVIAZIONE	DESCRIZIONE
AC	ACQUA CALDA	AC	ACQUA CALDA
AF	ACQUA FREDDA	AF	ACQUA FREDDA
RR	RITORNO	RR	RITORNO
MS	MANDATA	MS	MANDATA
RS	RITORNO SOLARE	RS	RITORNO SOLARE
NF	LINEA GAS FREDDO	NF	LINEA GAS FREDDO
RF	LINEA GAS FREDDO	RF	LINEA GAS FREDDO
MP	MANDATA IMPIANTO	MP	MANDATA IMPIANTO
RP	RITORNO IMPIANTO	RP	RITORNO IMPIANTO

FLOOR
 note:
 - vaso d'espansione interno della FLOOR da 24 litri per lato impianto.
 - il KIT opzionale per scaldavivande prevede un circolatore interno per alimentare uno/aue scaldavivande. Rimane a carico del progettista abilitato la verifica del KIT opzionale.
 - il KIT opzionale per scaldavivande prevede una resistenza integrativa prevedibile da 2 a 6 kW.
 - il KIT opzionale resistenza integrativa prevede una resistenza configurabile da 2 a 6 kW.
 - il KIT Web sever opzionale a richiesta.
 - il KIT Web sever opzionale a richiesta.
 - scambiatore ACS a gas/olio/legna.
 - Prevedere termistatica di SICUREZZA per le UTENZE ACS secondo norme.
 - Prevedere termistatica di SICUREZZA per le UTENZE ACS secondo norme.
 - per ogni altra informazione NON CONTENUTA nel presente schema, consultare il manuale tecnico della FLOOR.

ATTACCHI IDRAULICI/GAS FLOOR (parte superiore)
 - andata/ritorno impianto.
 - ACS freddo/calda 3/4" - serpentina intera da 5,5 mq
 - andata/ritorno calda sabbivette 3/4"
 - andata/ritorno calda sabbivette 1/2"
 - gas 3/8" - 3/8"

ETICHETTA CON LEGENDA SIELE POSIZIONATA SOPRA MACCHINA

ABBREVIAZIONE	DESCRIZIONE
MC	MANDATA CALDAIA
RC	RITORNO CALDAIA
AC	ACQUA CALDA
AF	ACQUA FREDDA
RR	RITORNO 2° CIRCUITO DA ACCUMULO
RR	RITORNO 2° CIRCUITO DA ACCUMULO
MS	MANDATA SOLARE
RS	RITORNO SOLARE
NF	LINEA GAS FREDDO (G/87)
RF	LINEA GAS FREDDO (G/87)
MP	MANDATA IMPIANTO
RP	RITORNO IMPIANTO

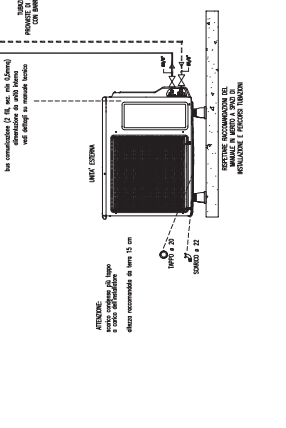
DISPOSIZIONE COLLEGAMENTO TUBAZIONI SOPRA MACCHINA

FORO PER PASSAGGIO COLLEGAMENTI ELETTRICI

VALVOLA DI SFILATO

ALLEGGIAMENTO PER RESISTENZA

MP, MS, RR, RS, NF, RF, AC, AF, MC, RC



RDZ

Schema d'esempio con Pompa di calore RDZ FLOOR con: produzione ACS, sorgente integrativa(generatora di calore + solare), resistenza integrati + radiatore con circolatore

NOTE: PER Linea Frigorifera secondo UNI EN 378-2/2012 lunghezza massima tubazioni consigliata 25mt - con dislivello max 15 mt. Prevedere sifone (linea gas) ogni 6 mt in caso di linea verticale. La precarica di gas è valida dal 2 a 30mt di linea Frigo (valido fino alle taglie 18 kWt)



bit.ly/rdzwebsite

FAF0FB001BZ.05
11/2019



RDZ S.p.A.
📍 V.le Trento, 101 - 33077 SACILE (PN) - Italy
☎ Tel. +39 0434.787511 📠 Fax +39 0434.787522
✉ info@rdz.it 🌐 www.rdz.it

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