

# COMPACT M NET R32

**3301721**  
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 **ARISTON**

TECHNICAL INSTRUCTIONS FOR INSTALLATION AND MAINTENANCE



**420000590201**

## Introduction

Dear Madam,  
Dear Sir,  
thank you for choosing the **COMPACT M NET R32 ARISTON** system.

This manual was drawn up with the aim of informing you on how to install, use and maintain the COMPACT M NET R32 system, in order to enable you to optimally use all the functions. Store this booklet, as it contains all the necessary information regarding the product following its initial installation. To find your nearest Technical Assistance Service, please see our Internet website [www.Ariston.com](http://www.Ariston.com). Please also refer to the Warranty Certificate that you will find inside the packaging, or which was handed to you by the installer.

## Symbols used throughout this manual and their meaning



**WARNING** Indicates important information and particularly delicate operations.



**WARNING: DANGER** Indicates actions that, if not performed correctly, can lead to general injuries or malfunctions or material damages to the appliance; they therefore require special attention and adequate training.

## Warranty

The ARISTON product is covered by a conventional warranty, which takes effect from the date of purchase of the appliance. For the warranty conditions, refer to the warranty certificate accompanying the product.

## Compliance

The CE marking applied to the appliance certifies that it conforms with the essential requirements of the following European Directives:

- 2014/30/EU Electromagnetic Compatibility Directive
- 2014/35/EU Low Voltage Directive
- RoHS 3 2015/863/EU on restrictions regarding the use of certain hazardous substances in electrical and electronic appliances (EN 50581)
- Regulation (UE) no. 813/2013 relative to ecodesign (no. 2014/C 207/02 - transitional methods of measurement and calculation)
- 2014/68/EU PED

## Disposal

PRODUCT CONFORMING TO EU DIRECTIVE 2012/19/EU and to Italian Legislative Decree 49/2014 pursuant to Art. 26 of Legislative Decree no. 49 of 14 March 2014, "Implementation of Directive 2012/19/UE on waste of electrical and electronic equipment (WEEE)".



The barred wheeled bin symbol appearing on the appliance or on its packaging indicates that the product must be collected separately from other waste at the end of its useful life.

The user must therefore deliver the decommissioned product to an appropriate local facility for separate collection of electro-technical and electronic waste. Alternatively, the appliance to be scrapped can be delivered to the dealer when purchasing a new equivalent appliance.











Proper separated collection of the decommissioned appliance for its subsequent recycling, treatment and eco-compatible disposal helps to prevent negative effects on the environment and human health, besides encouraging reuse and/or recycling of its constituent materials.


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## 1. Safety advices

### 1.1 General warnings and safety instructions


-  This manual is the property of ARISTON and it is forbidden to reproduce or transfer to third parties the contents of this document. All rights reserved. This document is an integral part of the product; make sure that it always accompanies the appliance, also when the latter is sold/transferred to another owner, so that it can be consulted by the user or by personnel authorised to perform maintenance and repairs.
-  Read the information and warnings given in this manual in full; they are essential to the safe installation, use and maintenance of the product.
-  Do not use the product for any purpose other than that specified in this manual. The manufacturer is not liable for damage resulting from improper use of the product or failure to install it as instructed herein.
-  All routine and extraordinary maintenance operations must be carried out exclusively by qualified personnel exclusively using original spare parts. The manufacturer is not liable for damage resulting from failure to observe this instruction, which may compromise the safety of the installation.
-  Product dismantling and recycling operations must be carried out by qualified technical personnel.
-  When connecting the cooling system, avoid substances or gases other than the specified refrigerant from entering the unit. The presence of other gases or substances in the unit can reduce its performances and reliability, and also cause an abnormal pressure increase during the cooling cycle. This could lead to possible explosions and the resulting injuries.
-  The appliance must be installed in a well-ventilated room having adequate dimensions as specified for the appliance's operation.
-  The Heat pump can be used by children older than 8 years and by people with reduced physical, sensory or mental abilities, or who lack adequate experience and the necessary knowledge, provided they are supervised or have been instructed on the safe use of the appliance and on the potential risks connected with it. Children must not play with the appliance. Any cleaning and maintenance which should be performed by the user must not be done by unsupervised children.
-  For electrical interventions, observe the provisions of the national electrical standard, local rules, applicable regulations, and the instructions of the installation manual. It is necessary to use an independent circuit and a single power outlet. Do not connect other appliances to the same power outlet. An insufficient electrical capacity or defective electrical installation may lead to potential electrocution or fire.
-  During the appliance installation phases, be careful not to damage the power cables or any existing piping.
-  Perform all electrical connections using suitably-sized cables.
-  Protect connection piping and cables so as to prevent damage to them.
-  Make sure the installation site and any systems to which the appliance must be connected comply with applicable regulations.


 During all work procedures, wear individual protective clothing and equipment. Do not touch the installed product if barefoot and/or with any wet part of the body.


 Reset all safety and control functions affected by any work carried out on the appliance and make sure that they operate correctly before restarting it.


 If you notice a burnt smell or see smoke coming out of the device, disconnect it from the power supply, open all windows and contact the technician.


 Do not climb the outdoor unit.


 It is forbidden to leave the outdoor unit open, without its casing, for longer than strictly necessary for installation or maintenance.

 Do not leave flammable material in the vicinity of the system. Make sure that all components of the system are positioned as required by regulations.

 Do not start up the system if steam or dangerous powders are present in the installation room.

 Do not place fluid containers and other foreign objects on the indoor or outdoor units.

 Do not use the outdoor unit for treating water from industrial processes, swimming pools or domestic water. In such cases, to use the outdoor unit install a heat exchanger in an intermediate position.

 The removal of the product's protective panels and all operations involving maintenance and connection of electrical equipment must be performed by qualified personnel.

## 1.2 Use of the R32 refrigerant



### FLAMMABLE MATERIAL



The R32 refrigerant is odourless.



This system contains fluorinated refrigerant. For specific information on the type and quantity of refrigerant, refer to the data plate. Always observe the national regulations on the use of refrigerant.



Interventions on the refrigeration circuit must only be carried out by operators possessing a valid certification, issued by an accredited body, certifying their expertise in manipulating refrigerants safely and in accordance with the specifications in force in the sector.



The refrigerant used within this heat pump is flammable. A loss of refrigerant exposed to an external source of ignition may cause the risk of fire.

### 1.3 Symbols affixed to the appliance

The appliance has the following symbols affixed to it:

#### Outdoor unit

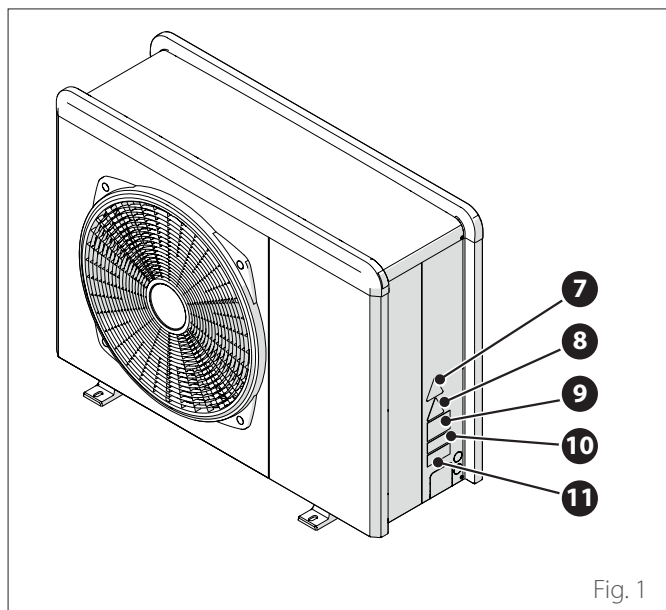




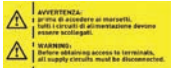


Fig. 1

Reference	Description
7	 Danger moving parts
8	 Danger flammable refrigerant
9	 Normative symbols for R32 gas
10	 Serial number
11	 Electrical precautions

#### Indoor unit

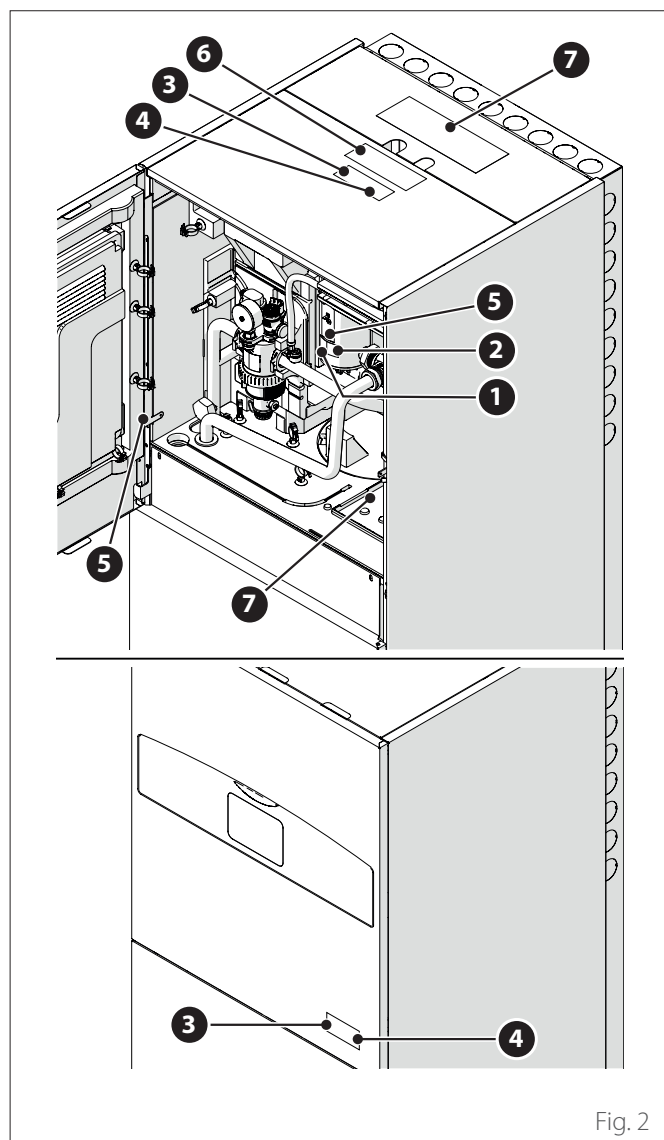






Fig. 2

Reference	Description
1	 Danger hot surface
2	 Do not touch
3	 Danger flammable refrigerant
4	 It is mandatory to read the manual
5	 Earthing symbol
6	 Tighten using 2 spanners
7	 The panel must be in place for the appliance's intended operation. (*)

(\*) The inner label is only present for the 2-ZONE model

## 2. Description of the system

### Composition of the system

The COMPACT M NET R32 system is made up of:

- An indoor unit
- An outdoor unit
- An outdoor temperature sensor
- Master User Interface
- Connectivity package

For further information on the accessories available, please see the Product Catalogue.

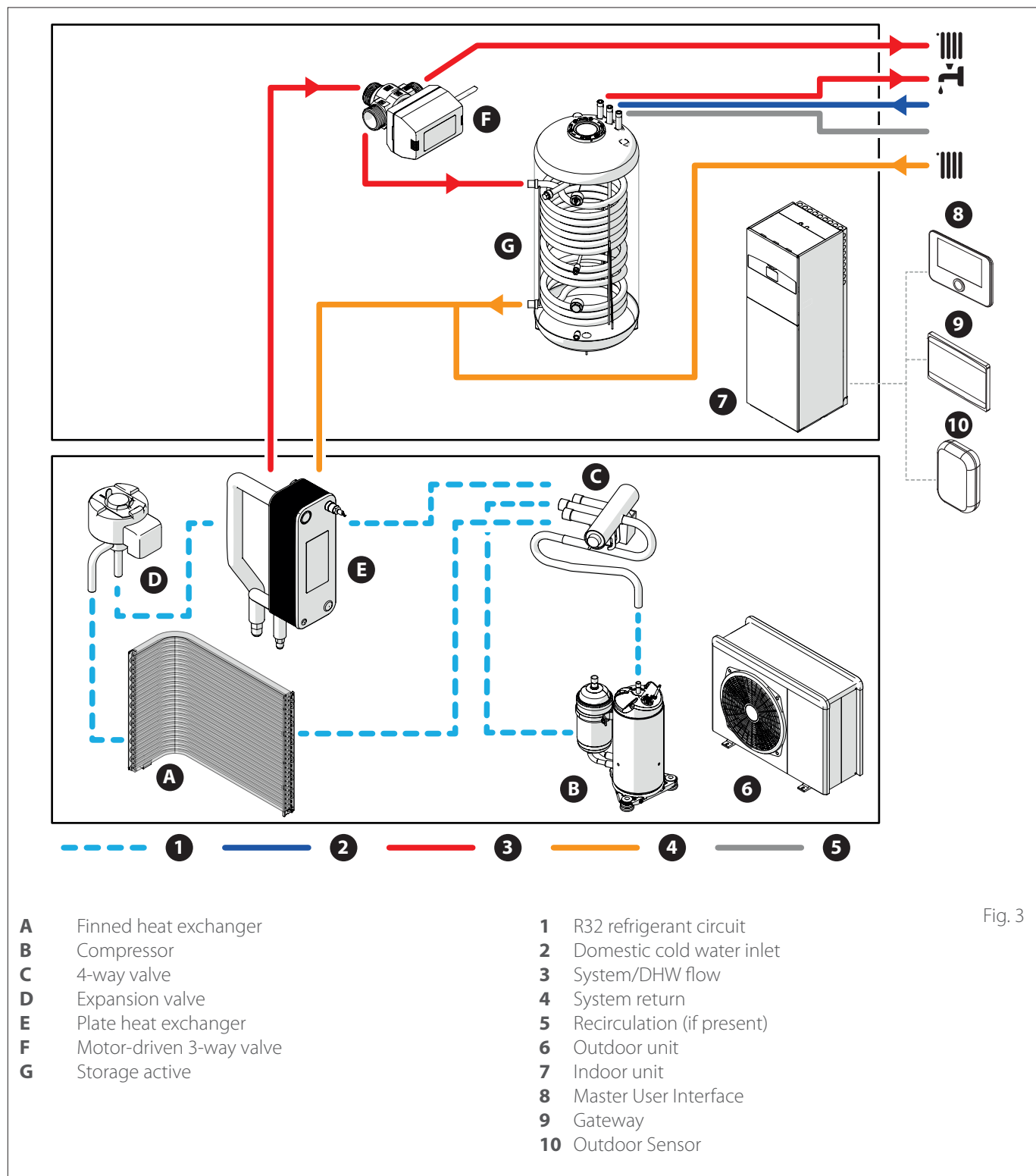


Fig. 3

**i** The images appearing in this manual are purely for illustration purposes. The appliance you have may differ slightly from the illustrations shown here. Always refer to the unit's actual characteristics.

## 2.1 Outdoor unit

### 2.1.1 Structure

The outdoor unit supplied is one of the following models:

- NIMBUS 35 M EXT R32
- NIMBUS 50 M EXT R32
- NIMBUS 80 M EXT R32
- NIMBUS 80 M-T EXT R32
- NIMBUS 120 M EXT R32
- NIMBUS 150 M EXT R32
- NIMBUS 120 M-T EXT R32
- NIMBUS 150 M-T EXT R32

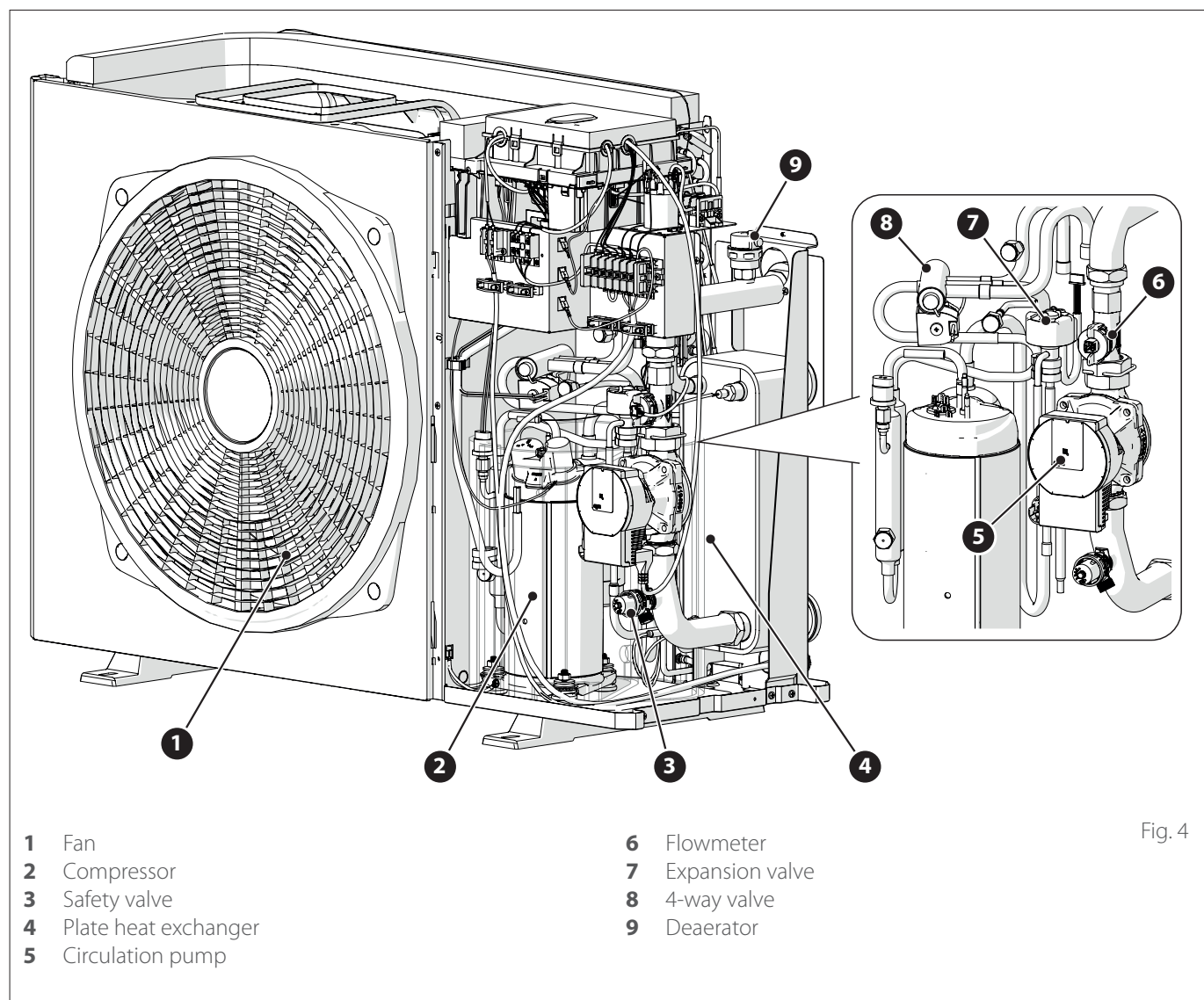


Fig. 4



## 2.1.2 Dimensions and weights

Outdoor unit	Weight [kg]
NIMBUS EXT R32 35 M - 50 M	66
NIMBUS EXT R32 80 M	91
NIMBUS EXT R32 80 M-T	104
NIMBUS EXT R32 120 M - 150 M	124
NIMBUS EXT R32 120 M-T - 150 M-T	131

## 35 M - 50 M

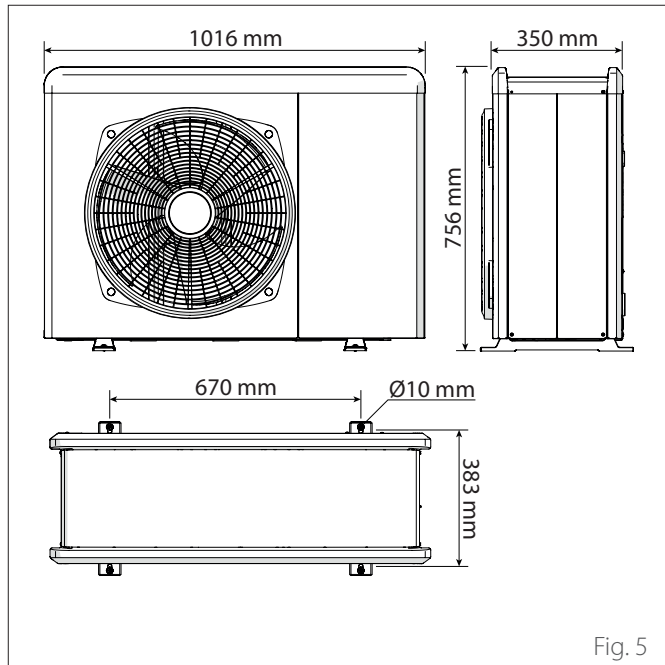


Fig. 5

## 120 M &amp; M-T 150 M &amp; M-T

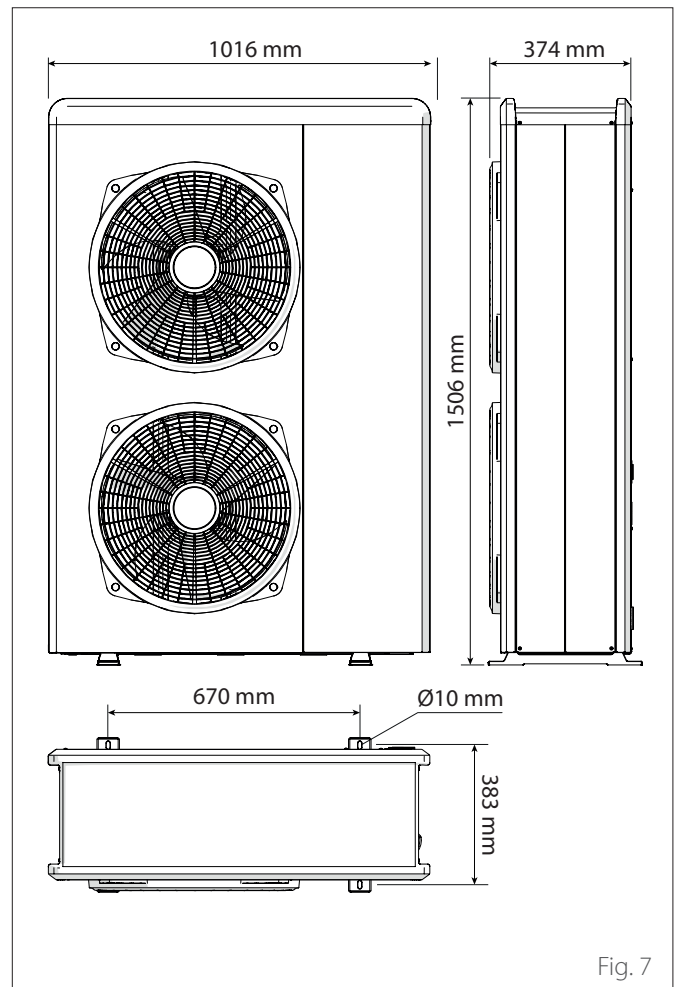


Fig. 7

## 80 M &amp; M-T

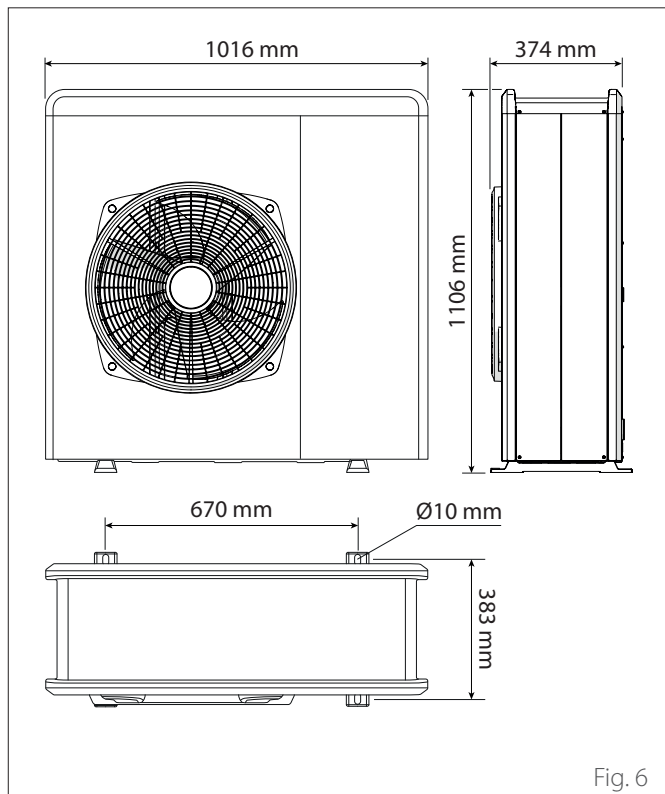


Fig. 6

### 2.1.3 Hydraulic fittings

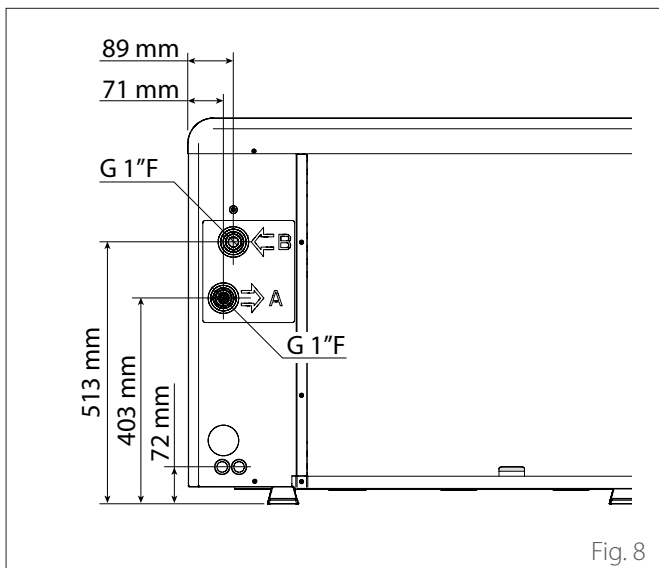


Fig. 8

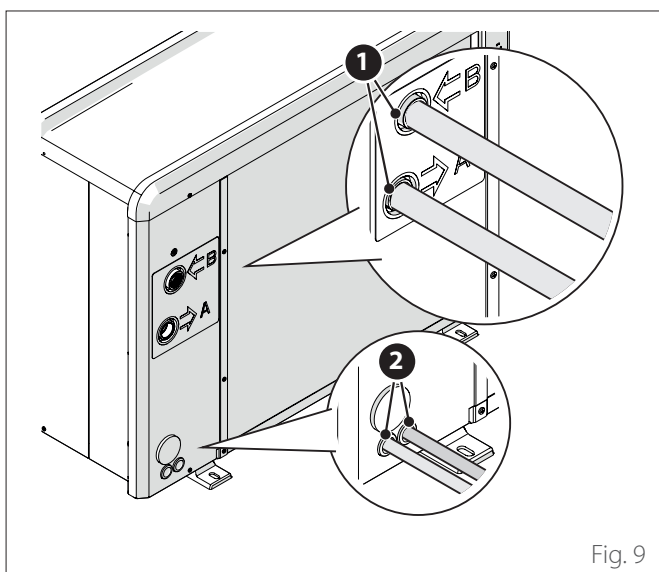


Fig. 9

- 1 Plumbing connections
- 2 Electrical connections passage

### 2.1.4 Accessories

The outdoor unit can be equipped with the following accessories:

- anti-freeze kit
- condensate collection tray
- condensate collection tray heating element

For the installation of the accessories, refer to the paragraph "Installing the accessory kit"

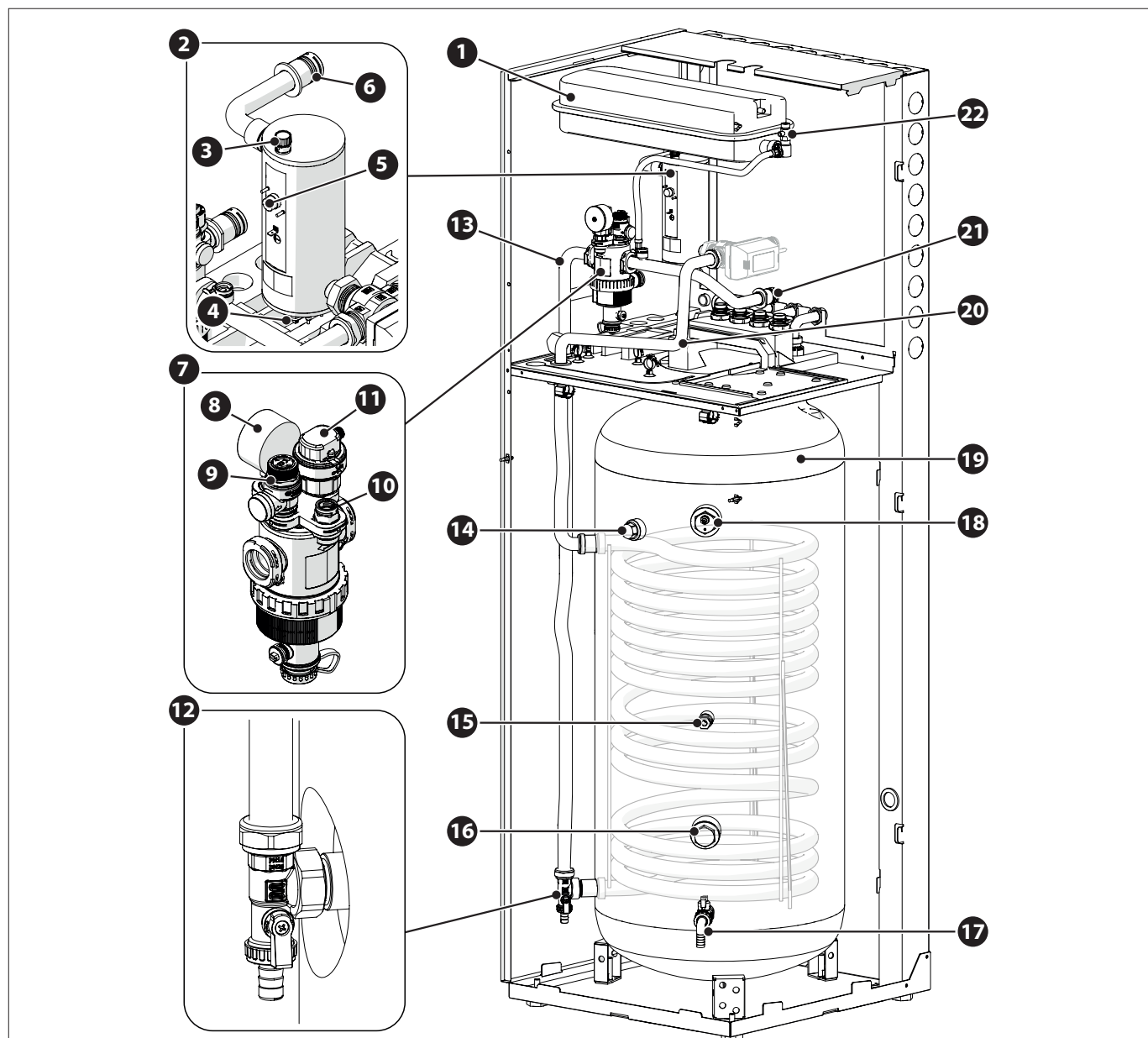
## 2.2 Indoor unit

### 2.2.1 Structure

The indoor unit supplied is one of the following models:

- NIMBUS FS M R32
- NIMBUS FS M 2Z R32
- NIMBUS FS-L M R32
- NIMBUS FS-L M 2Z R32

#### General structure



- |    |  |    |  |
|----|--|----|--|
| 1  | Expansion vessel                             | 12 | Coil discharge                                       |
| 2  | Heating element                              | 13 | Return from system                                   |
| 3  | Automatic air relief valve (heating element) | 14 | Passive anode  |
| 4  | Immersion temperature sensor (flow)          | 15 | Indirect cylinder temperature sensor                 |
| 5  | Manual reset safety thermostat               | 16 | DHW heating element configuration                    |
| 6  | Space heating flow                           | 17 | Indirect cylinder drainage valve with hose connector |
| 7  | Multifunctional magnetic filter              | 18 | Active anode   |
| 8  | Pressure gauge                               | 19 | Storage active                                       |
| 9  | Safety valve                                 | 20 | DHW flow   |
| 10 | Pressure transducer                          | 21 | Return to outdoor unit                               |
| 11 | Automatic air relief valve (filter)          | 22 | Manual air relief valve                              |

Fig. 10

## Structure of the hydraulic part

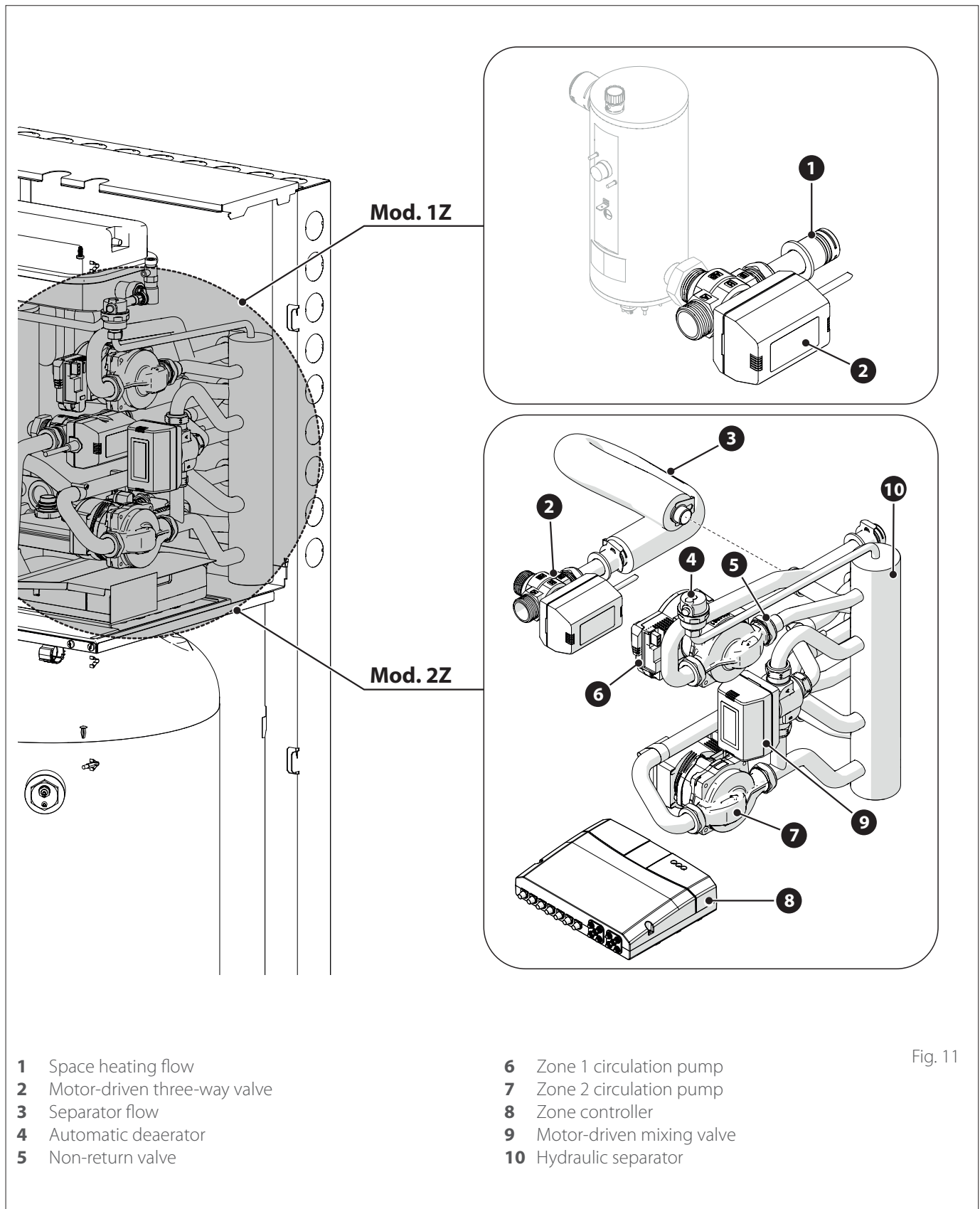


Fig. 11

### 2.2.2 Dimensions and weights

Indoor unit	Weight [kg]
NIMBUS FS M R32	127
NIMBUS FS M 2Z R32	134
NIMBUS FS-L M R32	127
NIMBUS FS-L M 2Z R32	134

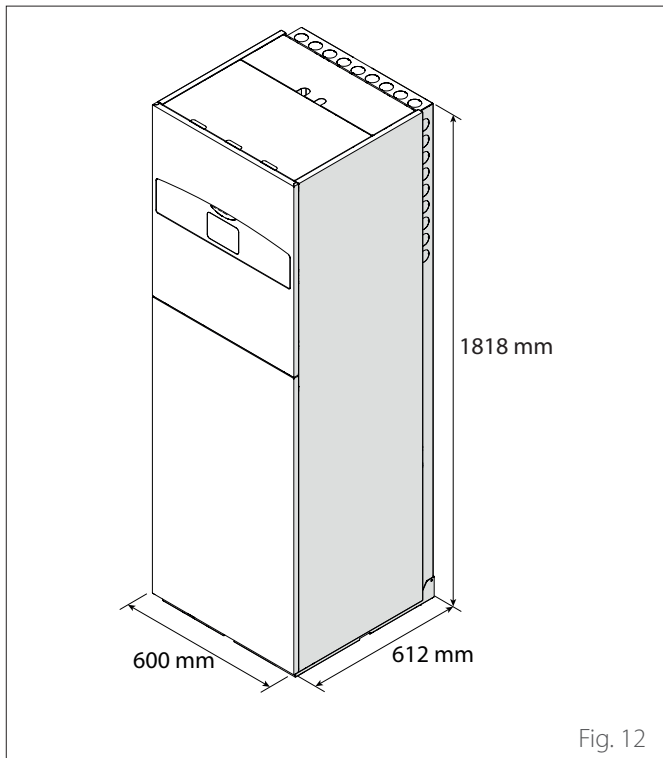


Fig. 12

C		Return to heat pump	1
D	-	DHW recirculation	3/4
E		Domestic hot water inlet	3/4
F		Domestic hot water flow	3/4
G		System return	1
H		Delivery from heat pump	1

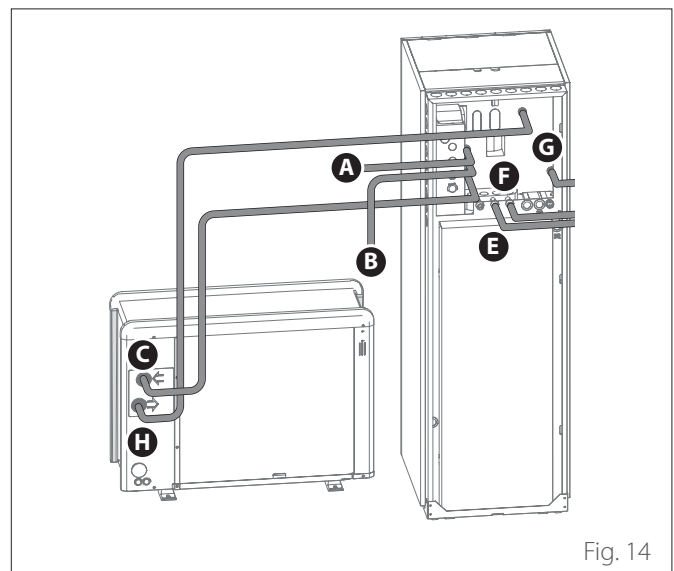


Fig. 14

### 2.2.3 Hydraulic fittings

#### 1-ZONE configuration

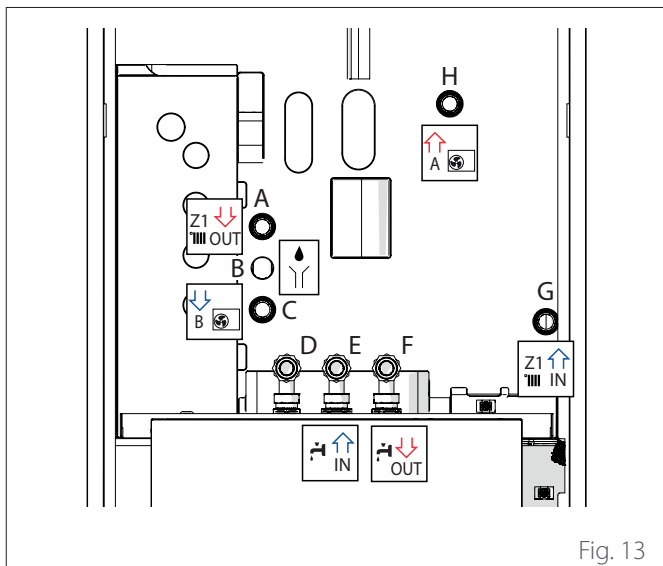


Fig. 13

Label	Description	Ø of fittings [inches]
A	System flow	1
B	Safety valve drain	1

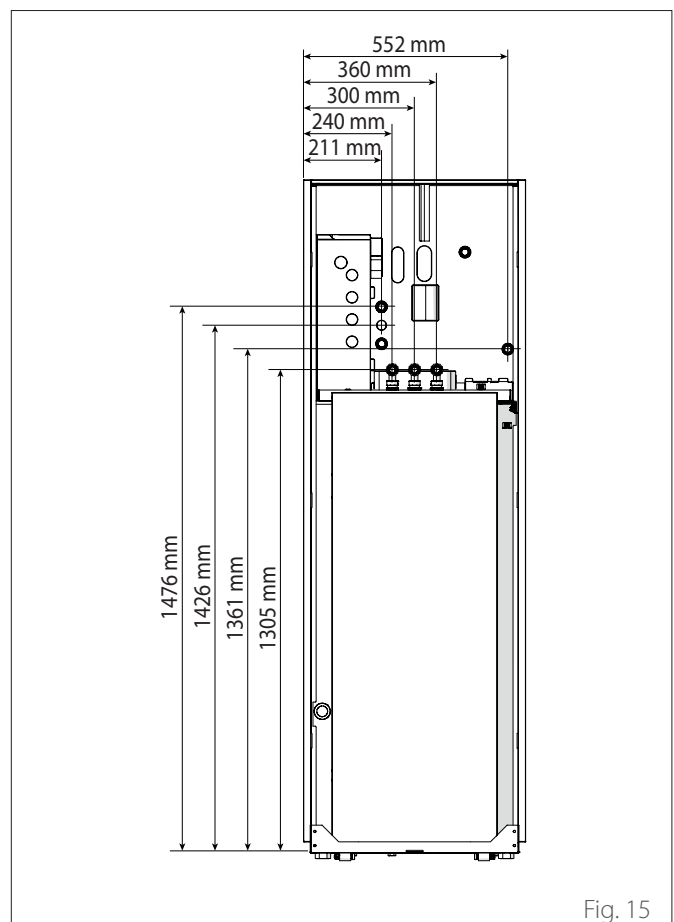


Fig. 15

2-ZONE configuration

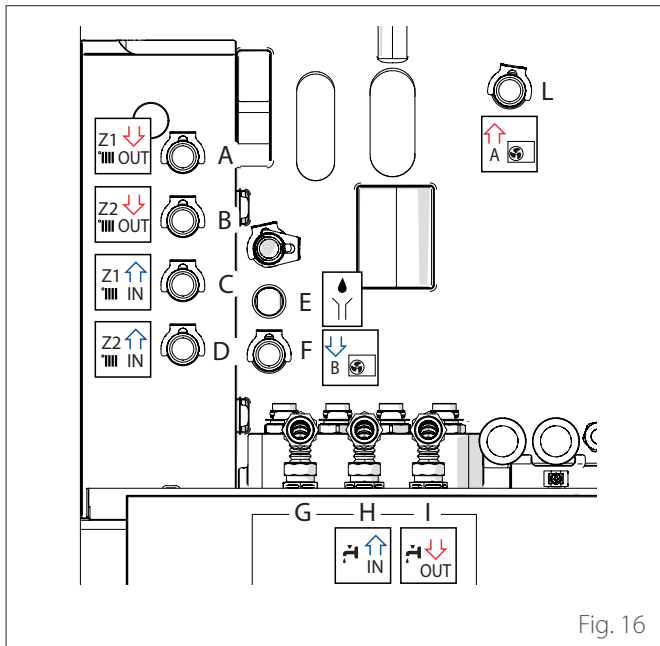


Fig. 16

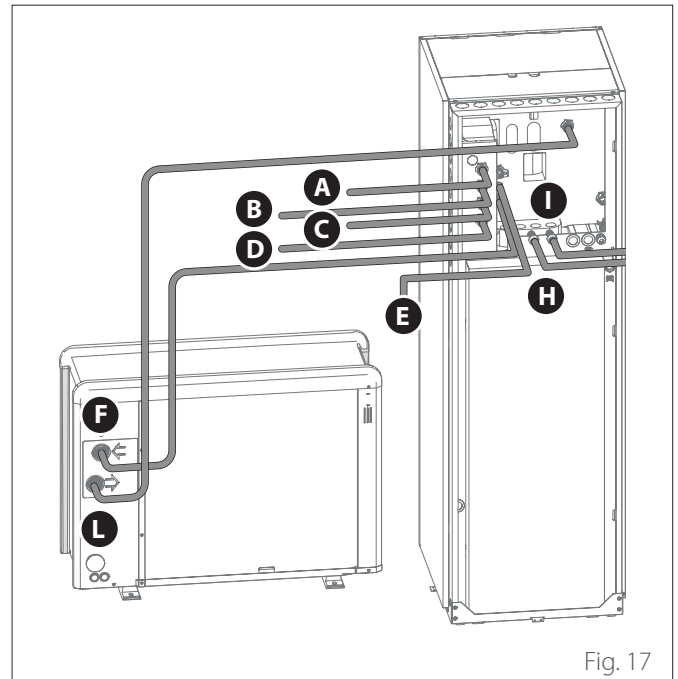


Fig. 17

Label	Description	Ø of fittings [inches]
A	Zone 1 system flow	1
B	Zone 2 system flow	1
C	Zone 1 system return	1
D	Zone 2 system return	1
E	Safety valve drain	1
F	Return to heat pump	1
G	- DHW recirculation	3/4
H	Domestic hot water inlet	3/4
I	Domestic hot water flow	3/4
L	Delivery from heat pump	1

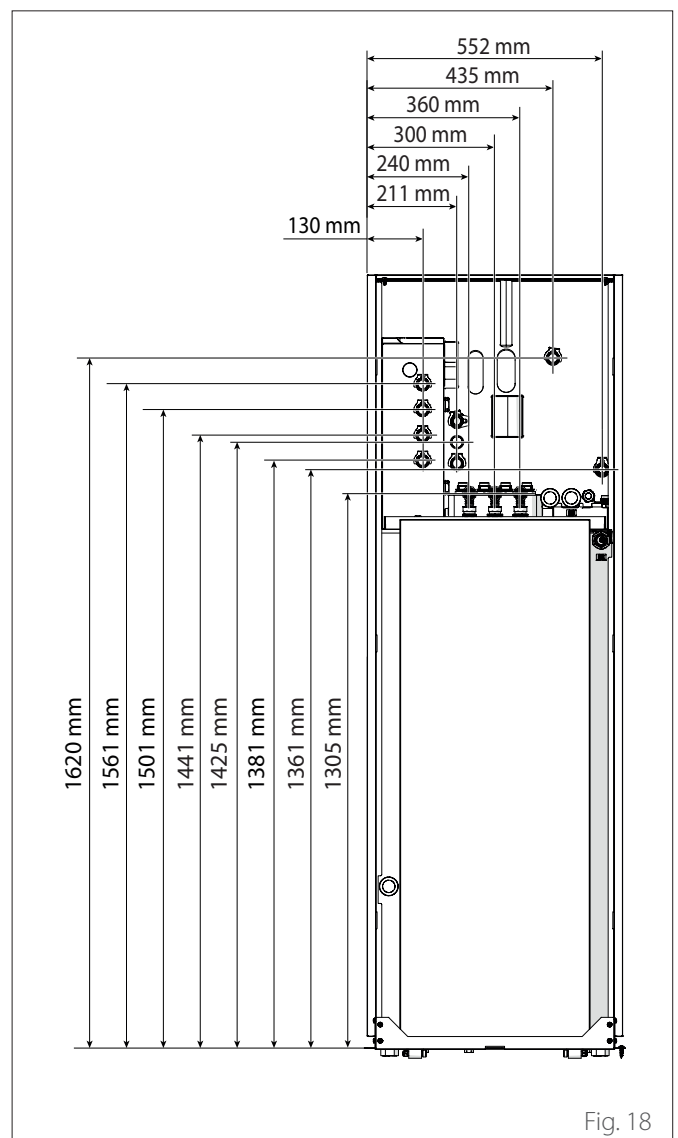
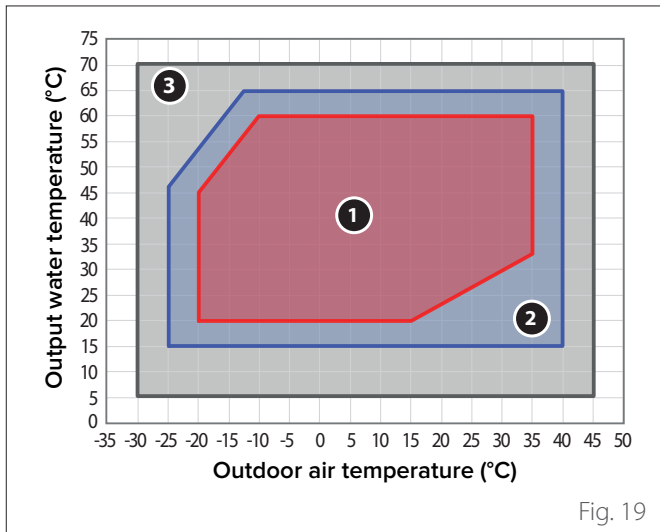


Fig. 18

## 2.3 Operational limits

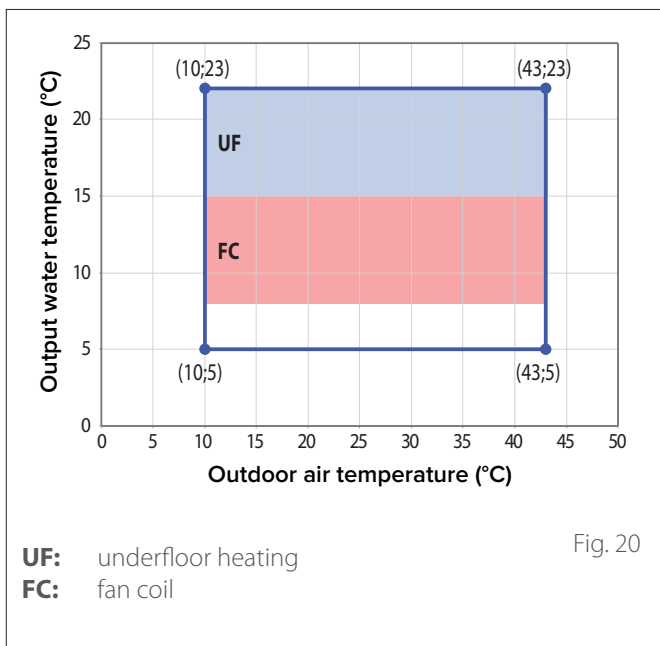
The following diagrams show the limits of the heat pump. The temperature difference between the delivery and return of the plate heat exchanger must be between 5°C and 8°C.

### Operating limits for space heating



- 1 Operation without restrictions
- 2 Operation of the outdoor unit with possible capacity reduction
- 3 Operation with back-up heating element necessary

### Operating limits for cooling



### Operating limits for indoor unit

The indoor unit is designed for being installed only in indoor environments in which the following conditions occur:

- Minimum temperature: 5°C
- Maximum temperature: 30°C - R.H. 65%

### 2.3.1 Compressor frequency table

The maximum allowed frequency varies with the outdoor temperature.

The values shown in the table refer to the following conditions:

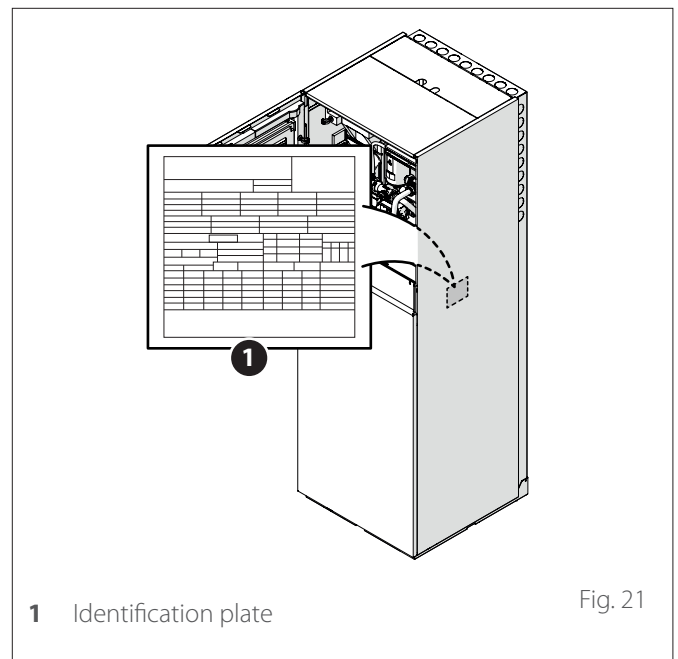
- Heating: air temperature < 0°C
- Cooling: air temperature > 30°C

	NIMBUS EXT R32				
	35 M	50 M	80 M & M-T	120 M & M-T	150 M & M-T
Min frequency [Hz]	18	18	18	18	18
Max frequency (heating) [Hz]	80	100	90	75	90
Max frequency (cooling) [Hz]	65	80	70	57	70

## 2.4 Identification

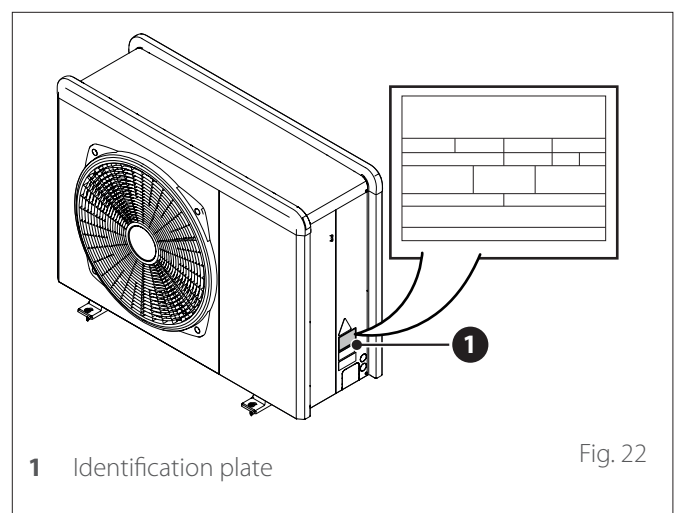
The indoor and outdoor units can be identified through the product identification plate marked with the serial number, model and main technical-performance characteristics.

### Indoor unit



1 Identification plate

### Outdoor unit



1 Identification plate

## 2.5 System interface SENSYS HD

### 2.5.1 Description

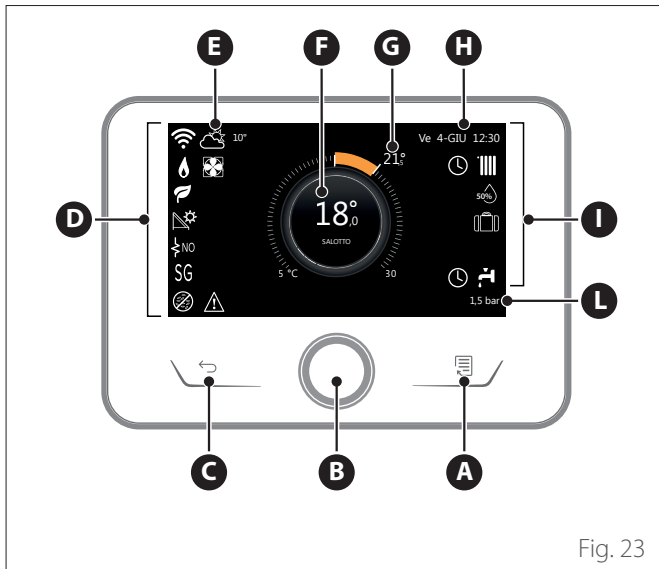


Fig. 23

- A** Menu button
- B** Selector (turn to select / press to confirm)
- C** Esc button (back)
- D** Function icons
- E** Weather and outdoor temperature
- F** Room temperature
- G** Required temperature
- H** Time and date
- I** Operation icons
- L** Pressure indication



**The SENSYS HD interface is compatible with Ariston NET when used with an ARISTON Wi-Fi module. Find out more on [www.ariston.com/it/ariston-net](http://www.ariston.com/it/ariston-net)**

SYMBOLS	
	Wi-Fi module update in progress
AP	Access Point Opening in progress
	Wi-Fi Off or not connected
	Wi-Fi connected but internet access failed
	Wi-Fi active
	Outside air temperature
	Flame present
	Optimum boiler efficiency
	Solar heating module connected
PV	Photovoltaic contact enabled
	Photovoltaic contact active
SG	Smart Grid system enabled
	Supplementary heating elements not enabled
	Number of heating element stages active
	Heat pump active
	Room set-point extension active
	CH
	Heating active

SYMBOLS	
	Domestic hot water
	Domestic hot water active
	Cooling service enabled
	Cooling service active
	Relative humidity index
	Time program
	Manual
	Temperature regulation function active
	Holiday function active
BOOST	Domestic hot water Boost function enabled
HC	Hot water comfort enabled in electricity reduced band rate
HC 40	Hot water comfort enabled in electricity reduced band rate and domestic hot water set-point at 40°C in electricity full band rate
	Test mode active
	Thermal sanitation function active
	Anti-frost function active
	Dehumidification function active
	Silent mode active (only for heat pumps)
	Error in progress

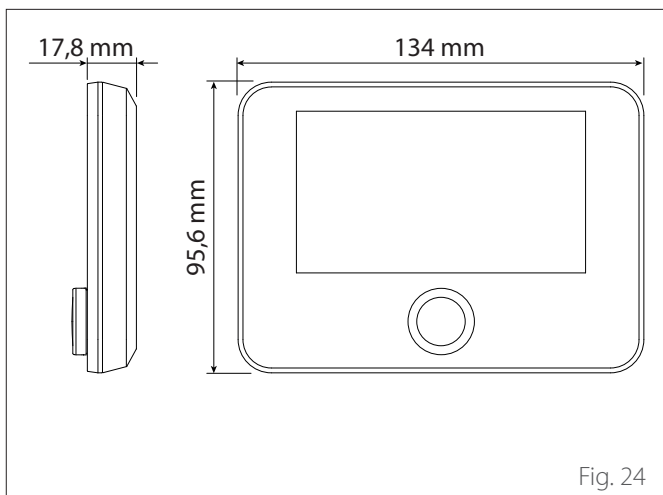


## 2.5.2 Technical data

TECHNICAL DATA	
Dimensions	134 mm x 96 mm x 21 mm
Power supply	BUS BridgeNet® 8 to 24V max
Current draw	≤35mA
Operating temperature	0 ÷ 50°C
Storage temperature	-10 ÷ 45°C
Humidity	20% RH ÷ 80% RH
Temperature reading precision	+/- 0,5°C
Buffer memory duration	min. 2h
Bus cable length and cross-sectional area	max. 50 m ø min. 0.5 mm <sup>2</sup>

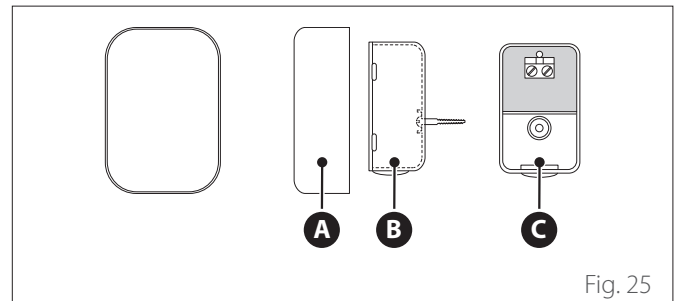
**Note:** in order to avoid interference problems, use a shielded cable or twisted-pair cable.

PRODUCT TECHNICAL SHEET	
Supplier name	ARISTON
Supplier identification model	SENSYS HD
Temperature control class	V
Energy efficiency contribution % for space heating	+3%
<b>Addition of an ARISTON outdoor sensor:</b>	
Temperature control class	VI
Energy efficiency contribution % for space heating	+4%
<b>In a system with 3 zones with 2 ARISTON room Sensors:</b>	
Temperature control class	VIII
Energy efficiency contribution % for space heating	+5%



## 2.6 Outdoor Sensor


PRODUCT TECHNICAL SHEET	
Supplier name	ARISTON
Supplier identification model	OUTDOOR SENSOR
Temperature control class	II
Energy efficiency contribution % for space heating	+2%



- Position the outdoor sensor on the north-facing wall of the building, at least 2.5 m from the ground and away from direct sunlight.
- Remove the cover **(A)** and install the sensor using the rawl plug and screw provided **(B)**.
- Make the connection using a 2x0.5 mm<sup>2</sup> cable. Maximum connection length 50 m.
- Connect the wire to the terminal **(C)** by introducing it from the lower part after creating a suitable passage.
- Place the sensor cover back in the correct position.

### 3. Installation

#### 3.1 Preliminary warnings

 **The appliance must be installed exclusively by the Technical Service or by professionally qualified personnel who MUST wear adequate accident-prevention protective equipment.**

The outdoor unit uses a HFC R-32 (GWP 675) type eco-friendly liquid refrigerant, which does not deplete the ozone layer. Make sure that all the materials used for maintenance and for filling the components can be used with the R-32 refrigerant.


	Refrigerant	GWP (*)
	R-32	675

(\*) Global warming potential

This unit is filled in the factory with the amount of refrigerant shown on the data plate.

If the circuit must be filled after maintenance or repairs, see the information appearing in this manual.

The appliance must be filled with the refrigerant specified, namely R-32.

 **To prevent damages to the compressor, do not fill the circuit with a quantity of refrigerant exceeding the amount specified by the manufacturer.**

The canisters containing the R-32 refrigerant are equipped with a dip tube which allows liquid to flow out only when placed in a vertical position with the valve on top.

The R-32 refrigerant, as occurs with all HFC fluids, is compatible only with oils recommended by the compressor manufacturer. The vacuum pump might not be sufficient for fully eliminating moisture from the oil.

POE-type oils rapidly absorb moisture. Do not expose the oil to the air.

 **Never open the appliance when it is under a vacuum.**

 **Do not disperse the R-32 refrigerant into the environment.**

- Ensure that all applicable national safety standards are observed throughout the course of the installation.
- Ensure that the system is adequately earthed.
- Check that the power supply voltage and frequency match those required by the outdoor unit, and that the installed power is sufficient for its operation.
- Check that the power circuit impedance matches the electrical power absorbed by the outdoor unit, as shown on the rating plate of the outdoor unit (EN 61000-3-12).
- Check that adequately sized residual-current devices and safety switches are connected to the outdoor and indoor units.

 **Never use equipment other than that recommended by the manufacturer to speed up defrosting or for cleaning purposes.**

The appliances must be stored in a room without ignition sources operating continuously (for example: open flames, a running gas-fired device or a running electric heater).

During tests, never raise the appliance's pressure beyond the level recommended by the manufacturer.

 **In the event of leakages, immediately ventilate the area.**

 **Do not perforate or give fire to the appliance.**

Potential risks linked to leakages:

- Reduction of the oxygen in the installation zone
- If the R-32 refrigerant comes into contact with flames, it can generate toxic gases.

## 3.2 Receiving the product

The COMPACT M NET R32 system is supplied in multiple items protected by a cardboard pack:

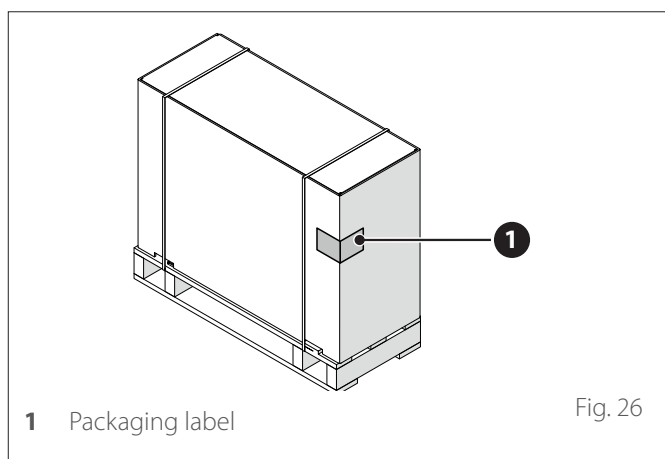
- 1 outdoor unit
- 2 indoor unit

The following material is supplied in a plastic bag contained in the packaging:

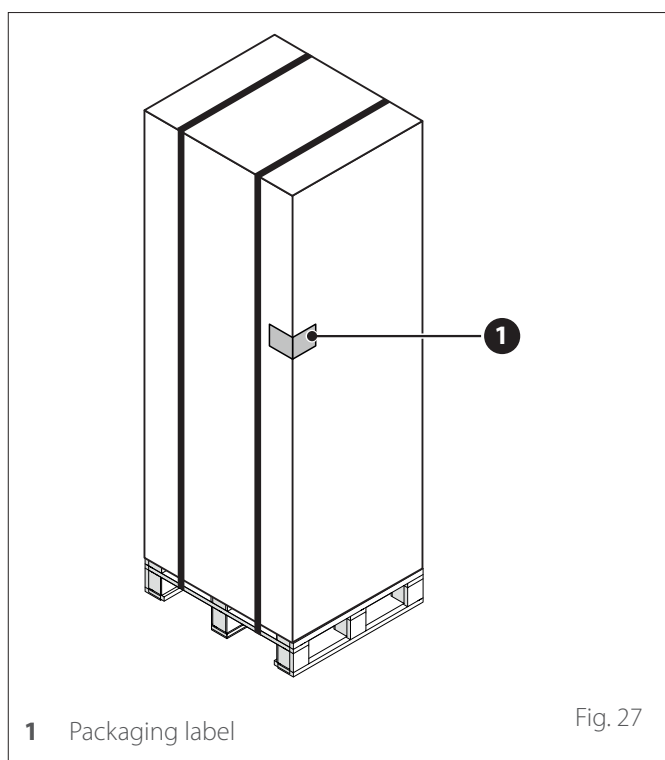
- Instruction manual
- Warranty certificate
- Energy label

Remove the packaging with suitable equipment taking care not to damage the appliance.

### 1 Outdoor unit



### 2 Indoor unit



**i** Upon receiving the product, make sure that its contents are intact and complete and, if they do not match the order, contact the branch that sold the appliance.

**i** IT IS FORBIDDEN to disperse the packaging material in the environment or leave it within reach of children, as it may be potentially dangerous.

**i** The appliance must be lifted exclusively using suitable lifting equipment, such as, for example, hoists or forklift trucks with adequate load-bearing capacity in relation to the weight to be lifted.

## 3.3 Installing the outdoor unit

### 3.3.1 Place of installation

- Avoid positioning the outdoor unit in places which are difficult to access for subsequent installation and maintenance operations.
- Avoid positioning the units close to heat sources.
- Do not position the outdoor unit in places subject to continuous vibrations.
- Do not position the outdoor unit on load-bearing structures that are not designed to withstand its weight.
- Avoid positioning the appliance close to combustible gas tanks or pipes.
- Avoid positions exposed to oil vapours.
- Choose a position where the noise and air emitted by the outdoor unit will not disturb the neighbours.
- Choose a position sheltered from wind.
- Choose a position that guarantees the necessary installation distances.
- Avoid positioning the appliance in a spot preventing access to doors and/or corridors.
- The floor supporting the appliance must be able to sustain the outdoor unit's weight and minimise all possible vibrations.
- If the outdoor unit is installed in a location normally subject to heavy snowfall, it must be positioned at least 200 mm above the usual level of snowfall, or else an adequate supporting structure must be mounted.

### Minimum installation distances

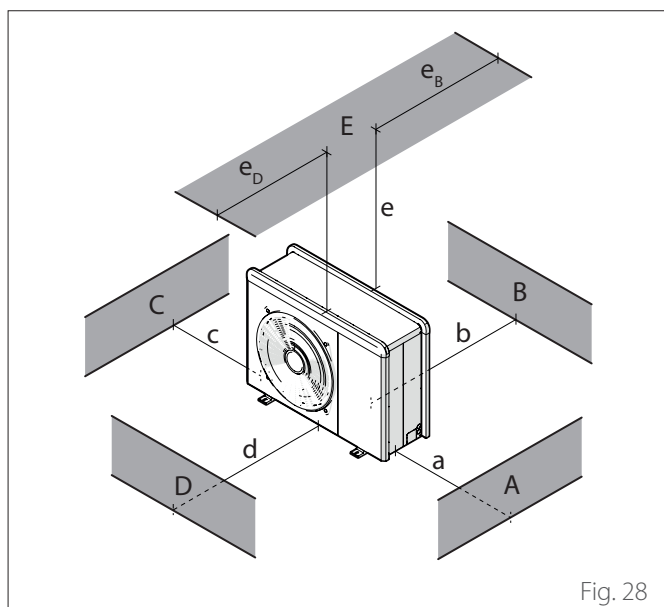


Fig. 28

	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	eD [mm]	andB [mm]
ABC	≥150	≥150	≥300				
B		≥150					
D				≥500			
BE		≥150			≥500		≥150
BD		≥150		≥1000			
DE				≥1000	≥1000	≥1000	



**Do not install the outdoor unit in tight spaces as this may cause abnormal noise levels and reduce its performances.**



**Ensure an adequate distance between the front part of the appliance and any nearby walls**



**The height of any barriers or walls must be lower than the height of the outdoor unit.**

We recommend paying careful attention to where the product is installed, so as to avoid causing inconveniences to the user and to the neighbours. It is necessary to take into account the distance from the property's boundaries, the presence of any windows and the proximity to the bedroom area.

### 3.3.2 Noise level

To limit noise pollution and the transmission of vibrations:

- Install the outdoor unit on a metal frame or on a vibration-damping base. Vibration dampers must be mounted to reduce the transmission of vibrations.
- Install a wall-mounted vibration absorber on the wall behind the unit;
- Install a sound shield. The shield must have a surface area larger than the outdoor unit, it must be positioned as close as possible to the unit itself, while ensuring that air can nonetheless circulate freely, and must be made of suitable material (acoustic bricks or cement blocks lined with sound-absorbing material).

### 3.3.3 Handling

Once the packaging has been removed, the outdoor unit can be handled with suitable equipment in relation to the unit's weight.



**Observe the maximum weight that can be lifted per person.**



**Handling operations may potentially cause personal injuries or damages to the appliance or to the surrounding area. Identify the risky area and check that it is free of people or objects during lifting operations.**

### 3.3.4 Installation

The outdoor unit must be anchored to the floor or to a wall-mounted bracket.



**Before installing the system, check that its supporting base is sufficiently resistant and level.**

Arrange the unit's installation base according to the dimensions shown below.

Outdoor unit						
NIMBUS EXT R32						
	35 M	50 M	80 M & M-T	120 M & M-T	150 M & M-T	UM
A	670	670	670	670	670	mm
B	383	383	383	383	383	
C	1016	1016	1016	1016	1016	
D	756	756	1106	1506	1506	

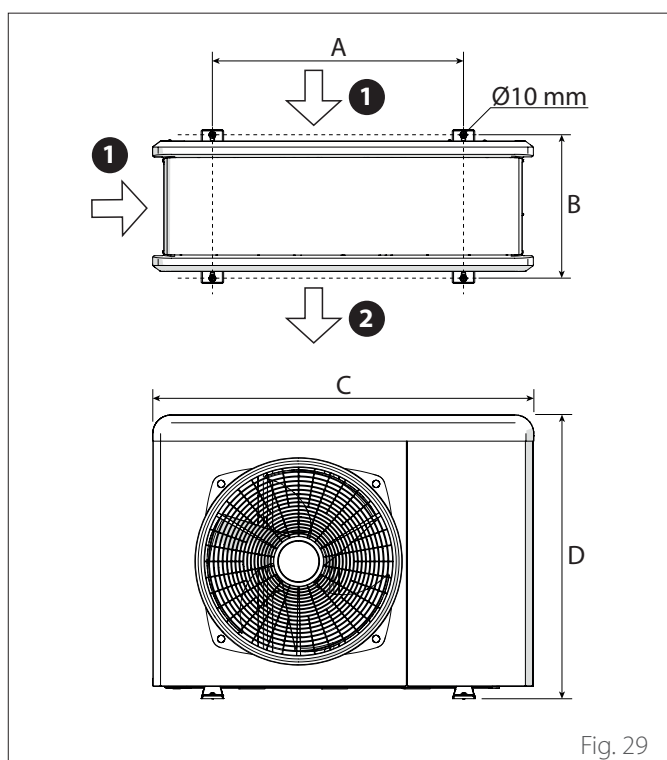


Fig. 29

- 1 Air inlet  
2 Air outlet

**If the unit must be installed on the floor or on a concrete mounting platform, proceed as follows:**

- Mark the positions of the four rawl plugs by referring to the measurements shown on the assembly dimensions diagram.
- Drill the holes for the rawl plugs.
- Clean the concrete dust out of the holes.
- Hammer the rawl plugs into the drilled holes.
- Anchor the base of the outdoor unit to the holes, using the anchoring bolts (1) (M10 x 4), the washers (2) and the vibration dampers (3).

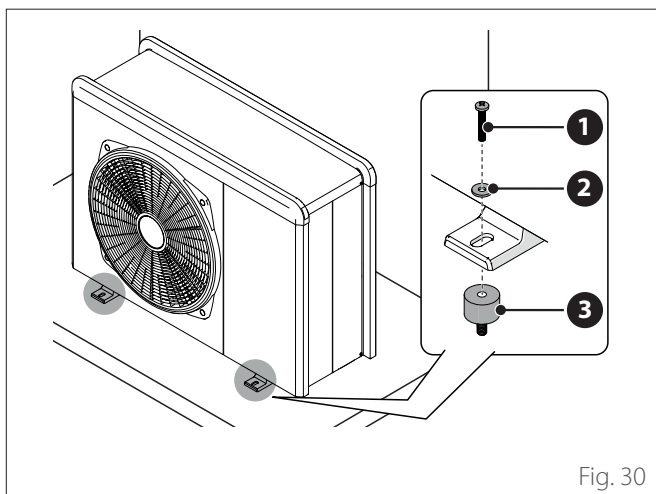


Fig. 30



**When drilling holes into concrete, we recommend always wearing safety goggles or glasses.**

**If the unit must be secured to a wall-mounted bracket, proceed as follows:**

- Mark the positions of the holes for the brackets by referring to the measurements shown on the assembly dimensions diagram.
- Drill the holes for the rawl plugs.
- Clean the concrete dust and residues out of the holes.
- Screw the rawl plugs into the holes of the mounting brackets, arrange the brackets in the proper position and hammer the plugs into the wall.
- Check that the mounting brackets are properly aligned.
- Carefully lift the unit and place its mounting feet on the brackets.
- Secure the unit tightly to the brackets using the anchoring bolts (1) (M10 x 4), the washers (2), the vibration dampers (3) and the nuts (4).

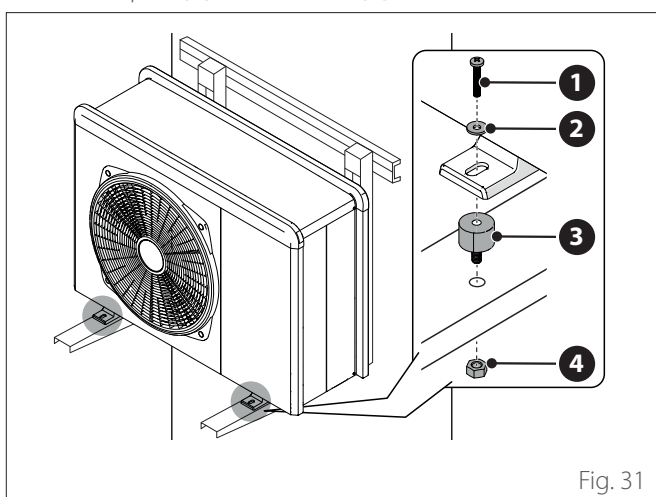


Fig. 31

- If the outdoor unit is exposed to the wind, shield it and check that it works properly.
- If the unit is frequently exposed to heavy snowfall: install a canopy above the unit to protect it from rain or snow. Be careful not to obstruct the flow of air around the unit.

### 3.3.5 Arranging the connections

- To allow the passage of cables, use a screwdriver to remove the pre-cut pieces **(1)** from the unit's frame.
- To detach the pre-cut pieces effectively, keep the unit's front panel fitted on.
- Before passing the cables, position the cable grommets **(2)** contained in the documentation envelope.

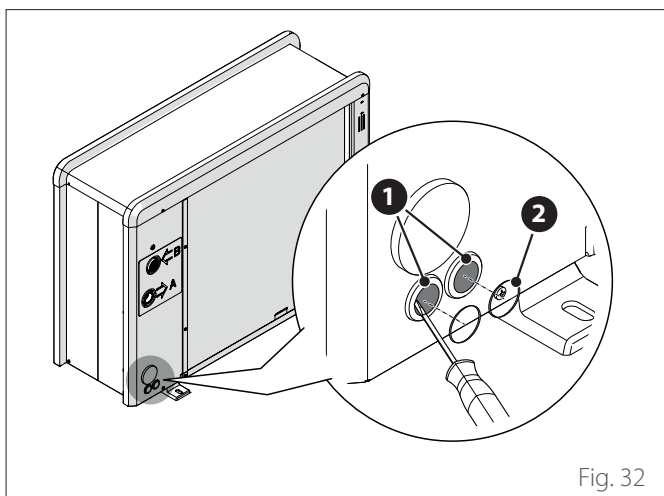


Fig. 32

- Loosen the screws **(3)** and remove the front panel **(4)** by pulling it downwards and forward.

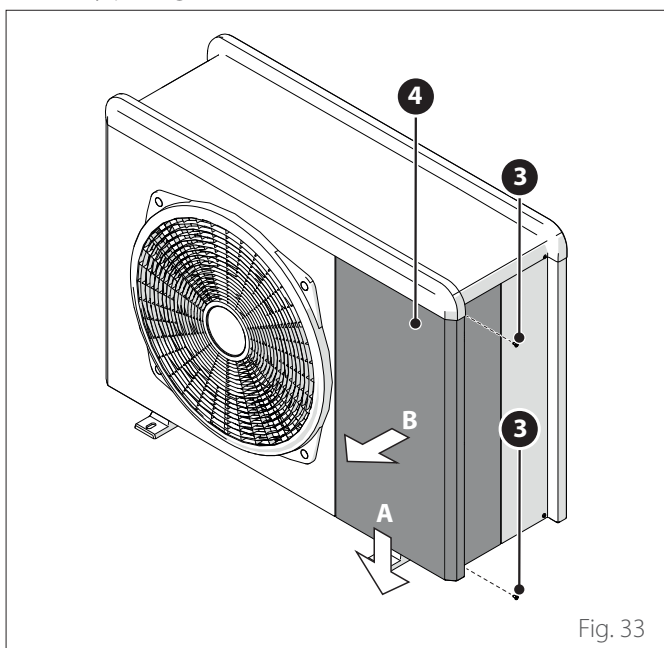


Fig. 33

### 3.3.6 Installing the accessory kit

#### Anti-freeze kit

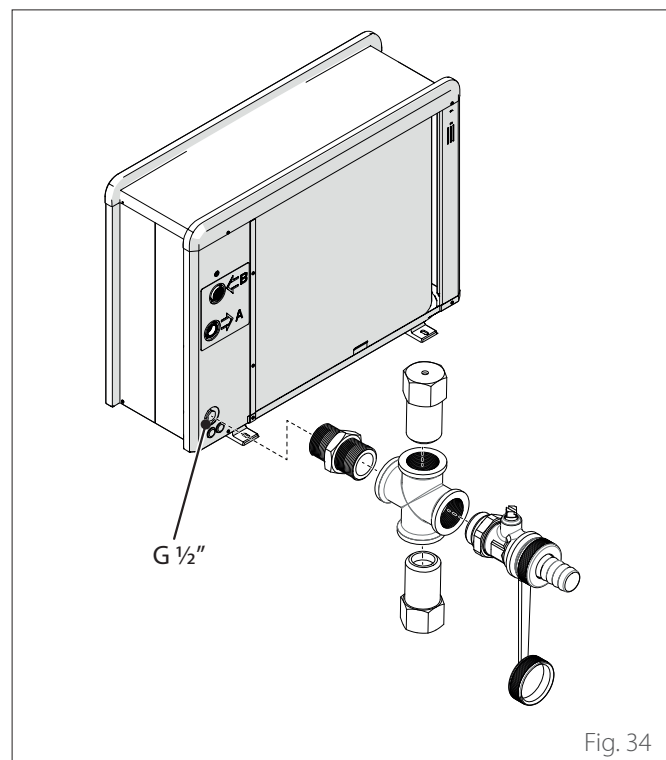


Fig. 34

#### Condensate collection tray

- Loosen screw **(1)** and remove the panel **(2)**.

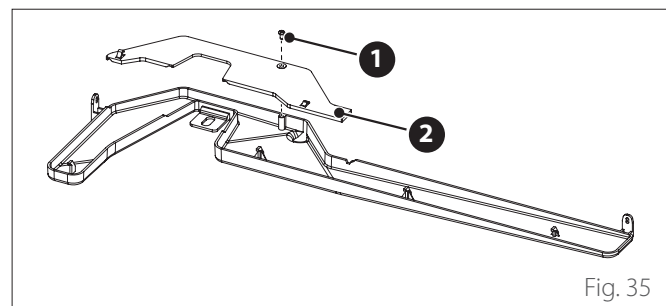


Fig. 35

- Loosen screws **(3)** and **(4)**.

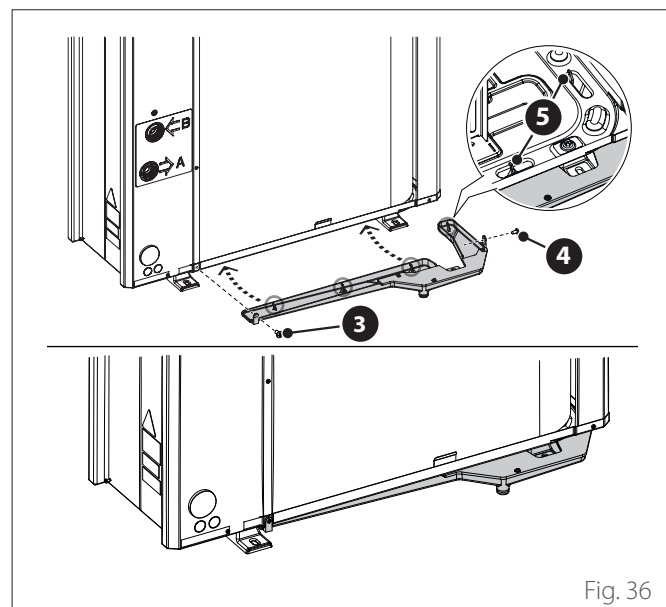


Fig. 36

- To ensure correct operation of the kit, the unit must rest on a base measuring at least 70 mm.

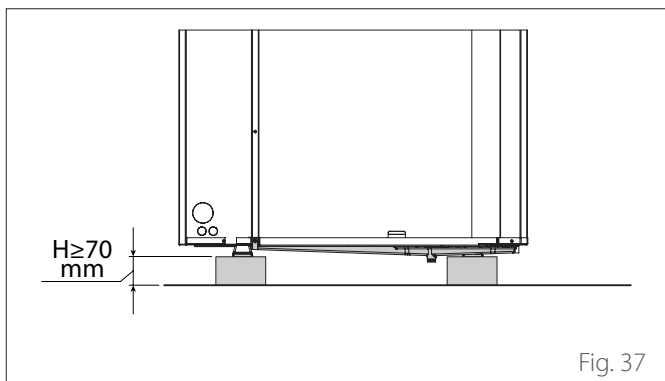


Fig. 37

### Condensate collection tray heating element

- Position the heating element (1) on the bottom of the unit.

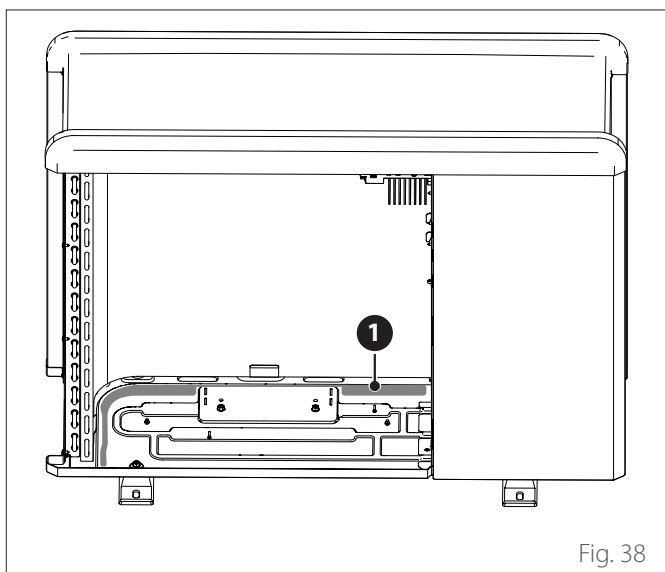


Fig. 38

- Pass the power cables (2) of the heating element through collar (3), cable hole (4) and collar (5).
- To connect the heating element electrically, refer to the paragraph "Electrical connections".

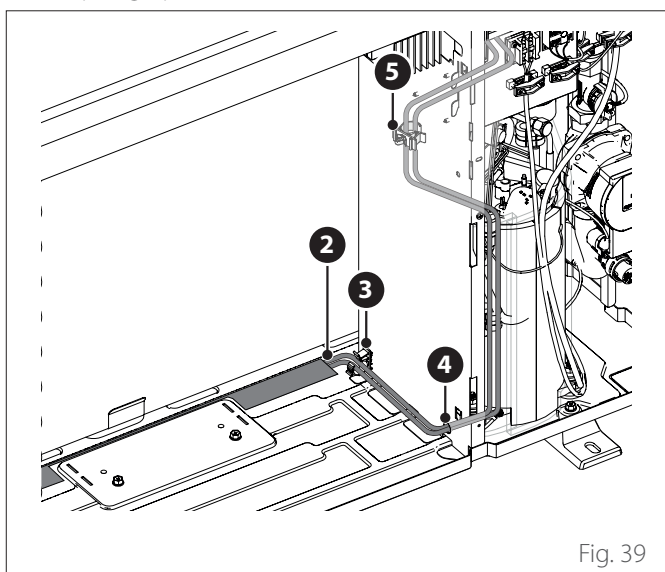


Fig. 39

## 3.4 Installing the indoor unit

### 3.4.1 Place of installation

The indoor unit must be positioned in an occupied room to ensure best performances.

To position the system, use the template provided and a spirit level.

To avoid jeopardising the product's operation, the place of installation must be adequate in relation to the threshold operating temperature (min +5°C) and protected against direct contact with atmospheric agents.

### Minimum installation distances

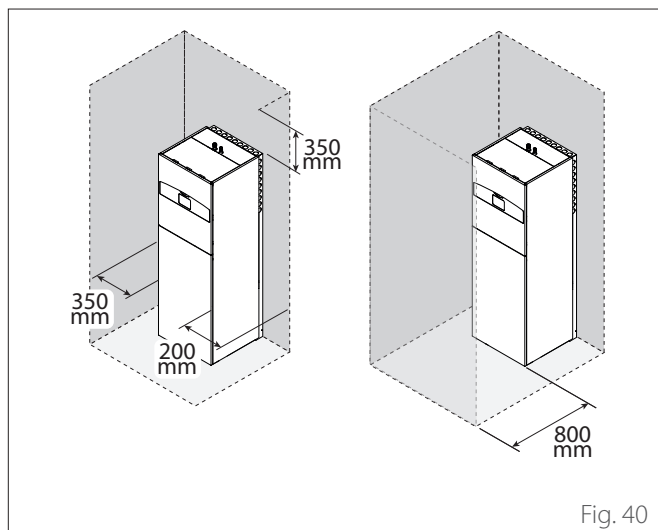


Fig. 40



**If the DHW Expansion Vessel is installed, it is necessary to leave a gap of at least 50 mm from the rear wall.**

### 3.4.2 Handling

Once the packaging has been removed, the indoor unit can be handled with suitable equipment (pallet truck or forklift truck).



**Handling operations may potentially cause personal injuries or damages to the appliance or to the surrounding area. Identify the risky area and check that it is free of people or objects during lifting operations.**

- Loosen the screws **(1)** and remove the pallet **(2)**.
- Remove the fixing plates **(3)**.

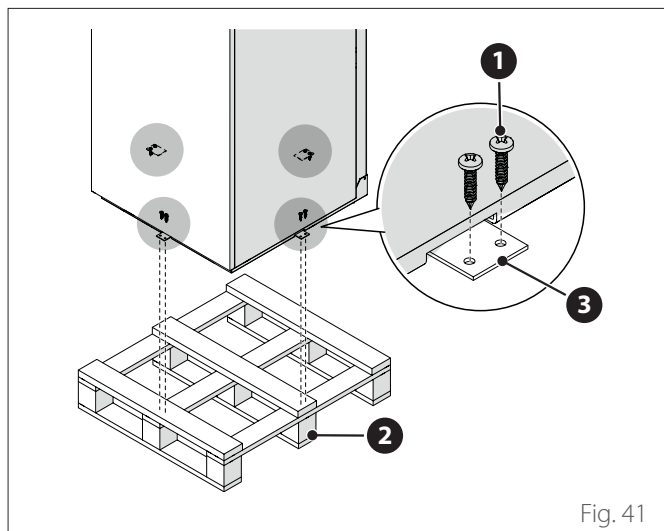


Fig. 41

- Position the appliance with the help of the wheels **(4)** situated on the rear part of the appliance.
- Turn the feet **(5)** to level the appliance. We recommend using a spirit level to position the appliance perfectly level.

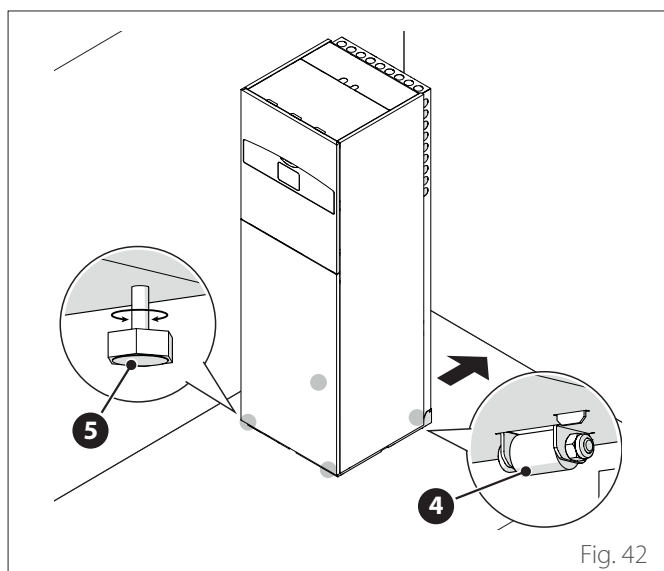


Fig. 42

- Remove the protective film.



## 4. Hydraulic connections

### 4.1 Indoor unit hydraulic connections

Preliminary checks:

- check that the system has been cleaned;
- check that there are no impurities in the circuit water;
- check that compatible components are used (e.g. do not connect copper and steel to each other);
- check that the connection to the water mains has been made correctly;
- check that the water supply distribution network pressure never exceeds 5 bar, otherwise install a pressure reducer at the system's intake;
- check that a disconnect device with cock is installed between the system and the domestic water supply distribution network (if present);
- check that the supplied expansion vessel is large enough to handle the water in the system and, if necessary, install an additional one;

After the checks:

#### 1-ZONE configuration

- Mount the quick couplings (present inside the machine) on the water pipes **(1)**, **(3)**, **(7)** and **(8)**.

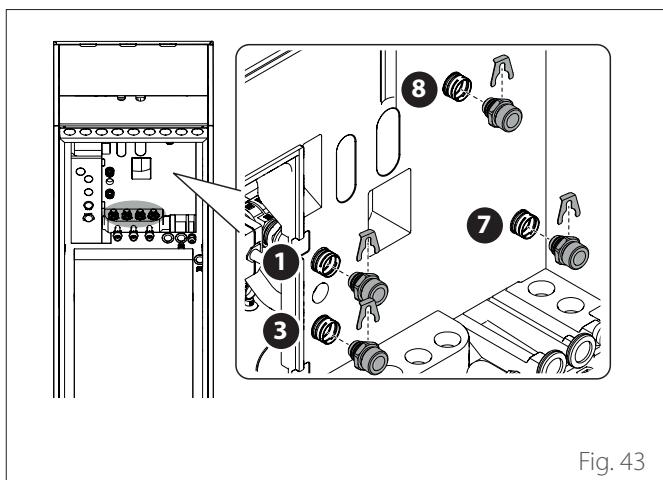


Fig. 43

Make the following hydraulic connections:

- System flow **(1)**
- Safety valve drain **(2)**
- Delivery to heat pump **(3)**
- Recirculation **(4)** (if present) (\*)
- Domestic hot water return **(5)**
- Domestic hot water flow **(6)**
- System return **(7)**
- Return from heat pump **(8)**.

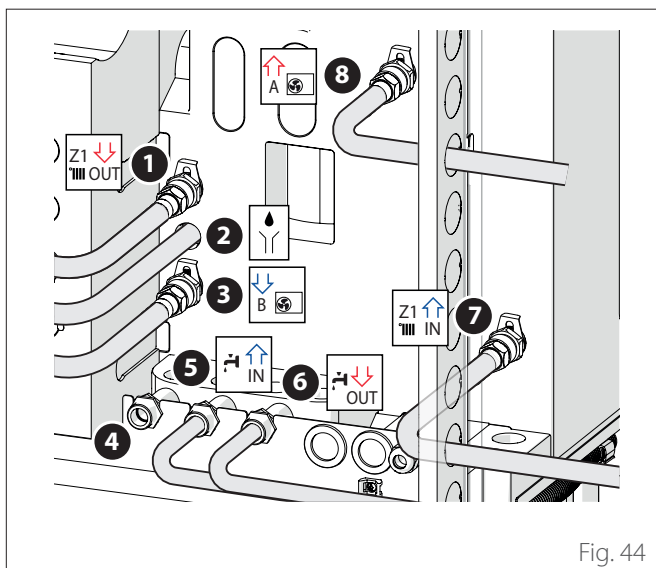


Fig. 44

(\*) Close the outlet if recirculation is not used

#### 2-ZONE configuration

- Mount the quick couplings (present inside the machine) on the water pipes **(1)**, **(2)**, **(3)**, **(4)**, **(5)** and **(10)**.

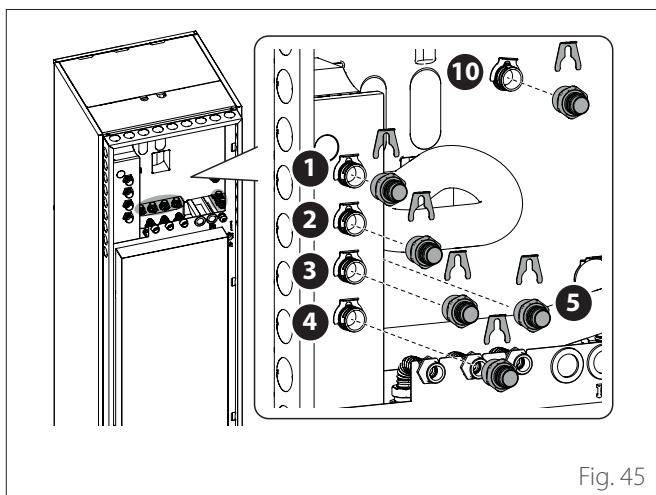


Fig. 45

Make the following hydraulic connections:

- Zone 1 system flow (1)
- Zone 2 system flow (2)
- Zone 1 system return (3).
- Zone 2 system return (4).
- Return from heat pump (5)
- Recirculation (6) (if present) (\*)
- Domestic cold water inlet (7)
- Domestic hot water flow (8)
- Safety valve drain (9)
- Delivery to heat pump (10).

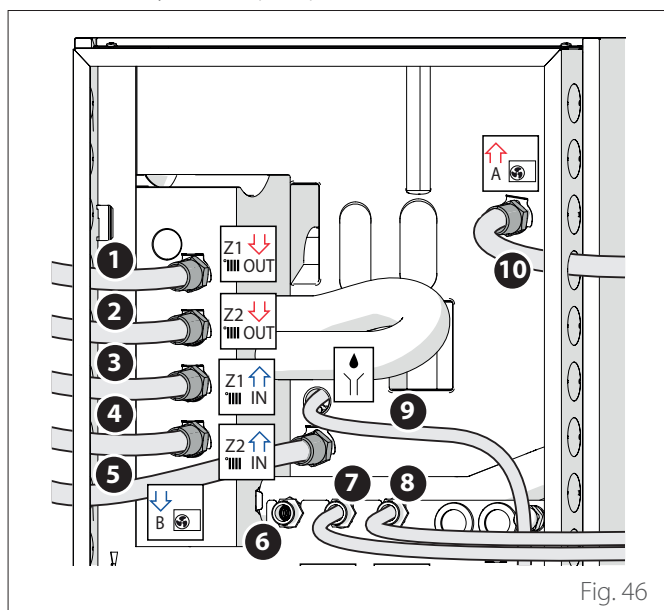


Fig. 46

(\*) Close the outlet if recirculation is not used

#### 4.1.1 Safety valve drain

- Make sure that the drainage pipe (1) supplied is connected to the safety valve (2) and comes out through the hole (3).



**The drainage pipe must be connected to the sewerage system.**

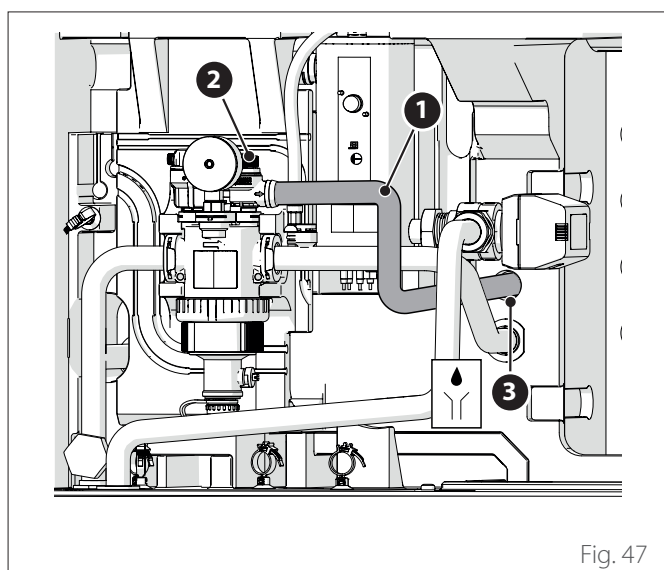


Fig. 47

#### 4.1.2 Minimum water content



**The system must be sized for a minimum water content of at least 5 litres for every kW of rated power. If the minimum water content is not observed, the appliance is not guaranteed to function.**

To optimise the system's efficiency, comfort and correct operation, we recommend:

- reducing the set-point temperature of the room during winter operation when the outdoor temperature increases.
- increasing the set-point temperature of the room during summer operation when the outdoor temperature decreases.

Should this not be possible, we recommend increasing the water content in the system.

If, for an extended period of time, the minimum thermal load is lower than the minimum power delivered by the machine, we recommend increasing the water content in the system.

#### 4.1.3 Expansion vessel

The indoor unit is equipped with an expansion vessel with 12 l nominal capacity pre-charged to 1 bar and with a safety valve (3 bar) on the hydraulic circuit.



**The installer is responsible for ensuring that the expansion vessel is suitably sized in relation to the system's total water content, regardless of the valves that can exclude certain parts of the hydraulic circuit.**

#### 4.1.4 Rated and minimum flow rate

The minimum flow rate must always be guaranteed in all operating conditions.

Model	Nominal flow rate [l/h]	Minimum flow rate [l/h]	Flow meter ON threshold [l/h]
NIMBUS EXT R32 35 M	640	430	390
NIMBUS EXT R32 50 M	860	430	390
NIMBUS EXT R32 80 M & M-T	1400	600	540
NIMBUS EXT R32 120 M & M-T	2100	770	702
NIMBUS EXT R32 150 M & M-T	2600	940	852

### 4.1.5 Available pressure

Make sure that the available pressure is not lower than the head loss of the entire hydraulic system.

The curves in the pictures below shown the available pressure on the flow from the outdoor unit.

#### NIMBUS 35 M EXT R32 - NIMBUS 50 M EXT R32

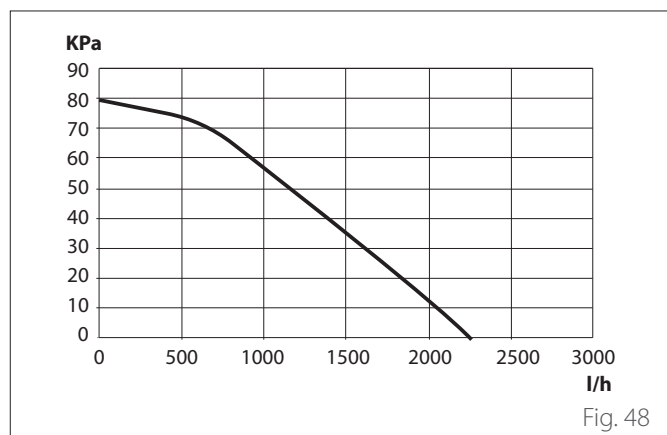


Fig. 48

#### NIMBUS 80 M EXT R32 - NIMBUS 80 M-T EXT R32

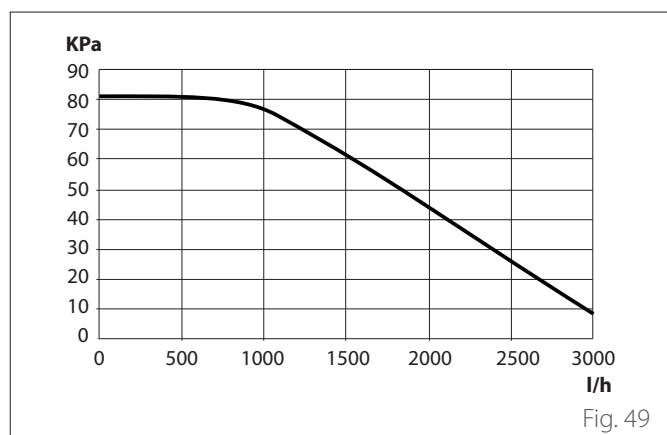


Fig. 49

#### NIMBUS 120 M EXT R32 - NIMBUS 120 M-T EXT R32 - NIMBUS 150 M EXT R32 - NIMBUS 150 M-T EXT R32

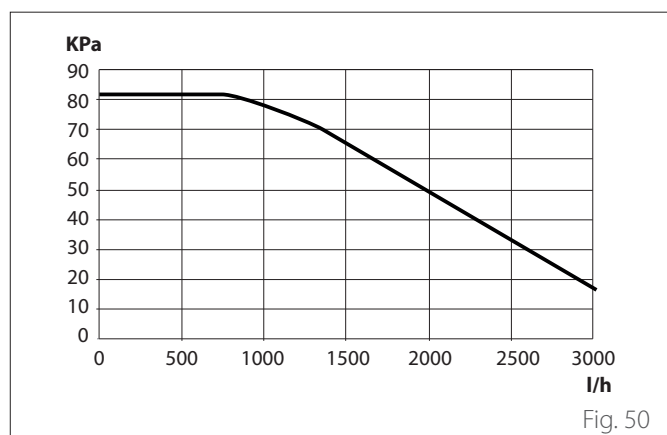


Fig. 50

### Indoor unit head loss

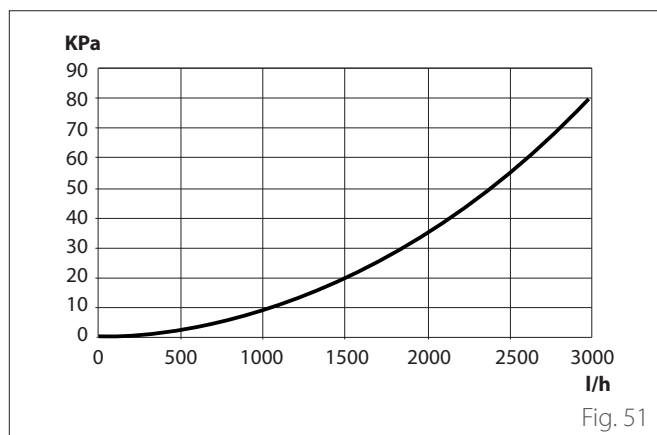


Fig. 51

### Useful head 2 zones

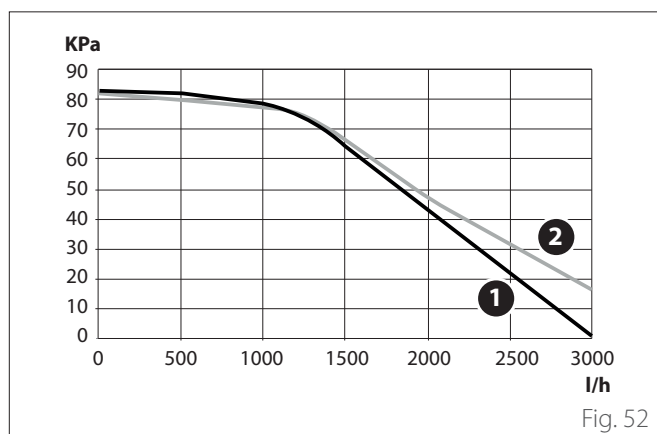


Fig. 52

- 1 Zone 1
- 2 Zone 2

It is possible to install a supplementary circulator pump if the one supplied is not powerful enough. For the electrical connections, refer to the paragraph "Electrical connections".



**If thermostatic or zones valves are installed on all terminals, mount a by-pass to guarantee the minimum operating flow rate. Consult the table in the paragraph "Rated and minimum flow rate".**

#### 4.1.6 Characteristics of the supply water

Make sure that the system is supplied with water having a hardness between 8°F and 15°F and conductivity below 500  $\mu\text{S}/\text{cm}$ . In zones where the water is particularly hard, mount a water softener.

Where the filling water is aggressive (the pH should be maintained between 6.6 and 8.5), ferruginous or hard, use treated water to prevent scale deposits, corrosion, and damage to the appliance. Even a slight amount of impurities in the water may lower the system's performances.

The filling water used must strictly be treated in the case of high-capacity installations (high volumes of water) or if frequent water top-ups are required to maintain a constant level of liquid in the system. If the system must be cleaned, fill it completely with treated water.

Glycol adversely affects the appliance's performances and we strongly advise not to use it. If glycol is nonetheless used, ARISTON shall not be held liable for any loss of efficiency of the system and recommends dosing it properly and performing maintenance.

#### 4.1.7 Filling the system

During filling, it may not be possible to remove all the air from the system. The residual air will be removed through the automatic air relief valves during the initial hours of operation of the system. If the system's pressure drops excessively, fill the circuit with water.



**The installation, initial start up, and configuration must be carried out in accordance with the instructions, by a qualified technician only. The manufacturer declines all responsibility for damages caused to people, animals or possessions following incorrect installation of the appliance.**



**During initial filling of the system, check the outflow of water from the automatic relief outlet. The water outflow makes the sealing discs inside the valve work effectively. We recommend performing the operation with a cloth to absorb the excess water.**

To speed up filling of the system, the system can be deaerated manually as follows:

- Mount the pipe **(1)** supplied on the manual deaerator outlet.
- Open the manual deaerator **(2)** and channel the water towards the outside the machine.
- Deaerate the system for a few minutes until all the air has been removed from the pipes.
- Close the deaerator.

#### 1-ZONE configuration

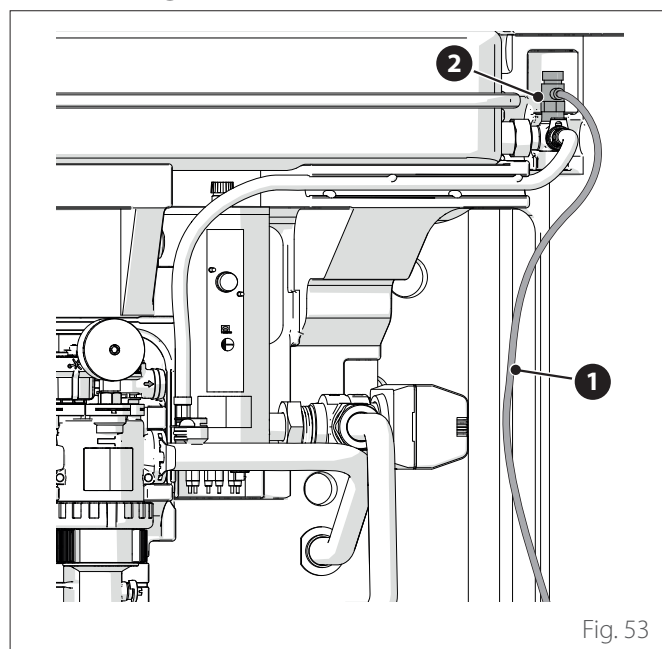


Fig. 53



**The accumulation of air can cause malfunctions to the system and damage the components.**

**Note:** during the initial start-up the automatic deaeration function is activated, which is necessary to ensure the system's correct operation. The activation of the automatic deaeration cycles of the system following the initial start-up can be performed using the Air-purge function 1.12.0 command.



**The indoor unit contains a pressure gauge which can be accessed by the installer during the first filling phase. The system's pressure can nonetheless be read through the system interface (parameter 1.16.7). If the interface is not installed on the machine, we recommend using an external pressure gauge to check the pressure and allow the user to fill the system with water.**

Check the water pressure on the pressure gauge regularly and make sure that the pressure is between 0.5 and 1.5 bar when the system is cold.

If the pressure is below the minimum value, it must be increased through the filling cock.

Close the cock once the average value of 1.2 bar has been reached.

The maximum pressure of the heating/cooling system is 3 bar.



**If frequent fillings (once a month or more frequently) are required for your system, this indicates a potential problem with the installation (leaks, expansion vessel problems). Contact your trusted installer to analyse and solve the problem quickly, and to prevent damage caused by corrosion of the components due to excessive water replacement in the system.**

## 4.2 Schematic hydraulic diagram

## 1 ZONE FS

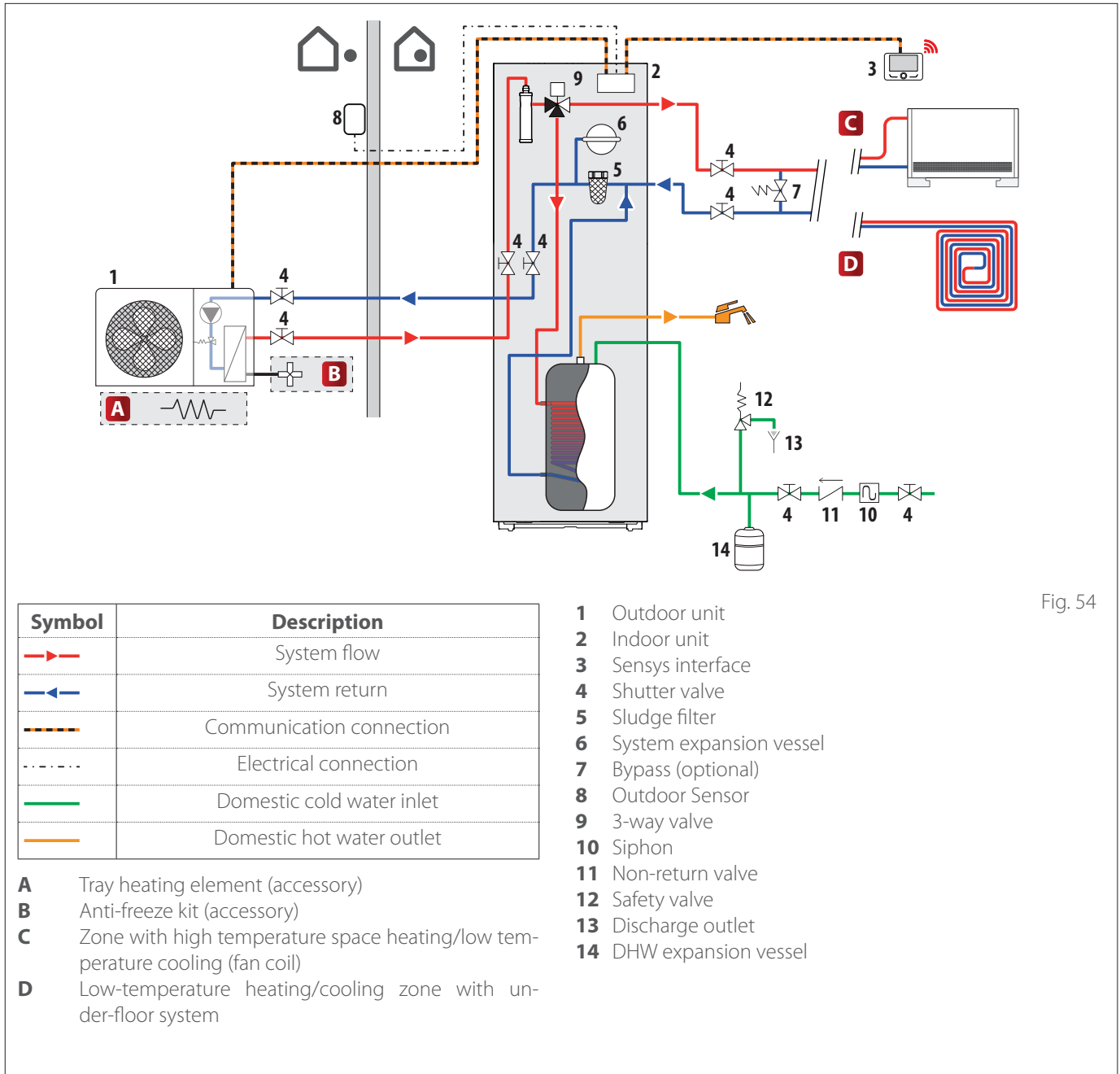


Fig. 54

**NOTE: installations with under-floor system**

In installations with under-floor heating, make sure that in all operating modes (the hot water switching mode in particular), the input temperature of the floor falls within the limits allowed for the application as specified in the national regulations.

For installations with under-floor system, install a safety device on the heating delivery circuit, as specified in the national regulations.

For the electrical connection of the thermostat, refer to the paragraph "Electrical connections".

If the delivery temperature is too high, the system stops in both domestic hot water and heating/cooling modes, and the remote control will report error code 936 "Under-floor safety thermostat open". The system will start again when the manual-reset thermostat is closed.

The input to be used as a connection to the under-floor safety thermostat is IN AUX 2 STE by default (function set through parameter 1.1.4).

If the safety thermostat is connected to STE and the safety device intervenes, the circulation pump will continue to be fed and the anti-freeze protection is always guaranteed.

If the safety thermostat is connected to STT and the safety device intervenes, the circulation pump will no longer be fed and the anti-freeze protection is not guaranteed.



**It is forbidden to disconnect the power supply to the unit if the outdoor temperature can fall below ZERO (risk of frost). Drain the central heating and domestic hot water systems to prevent the risk of ice forming.**



**Do not remove the heating delivery temperature sensor (inside the heating elements).**



**Carry out the electrical connections after having completed all the hydraulic connections.**

## 2 ZONES FS

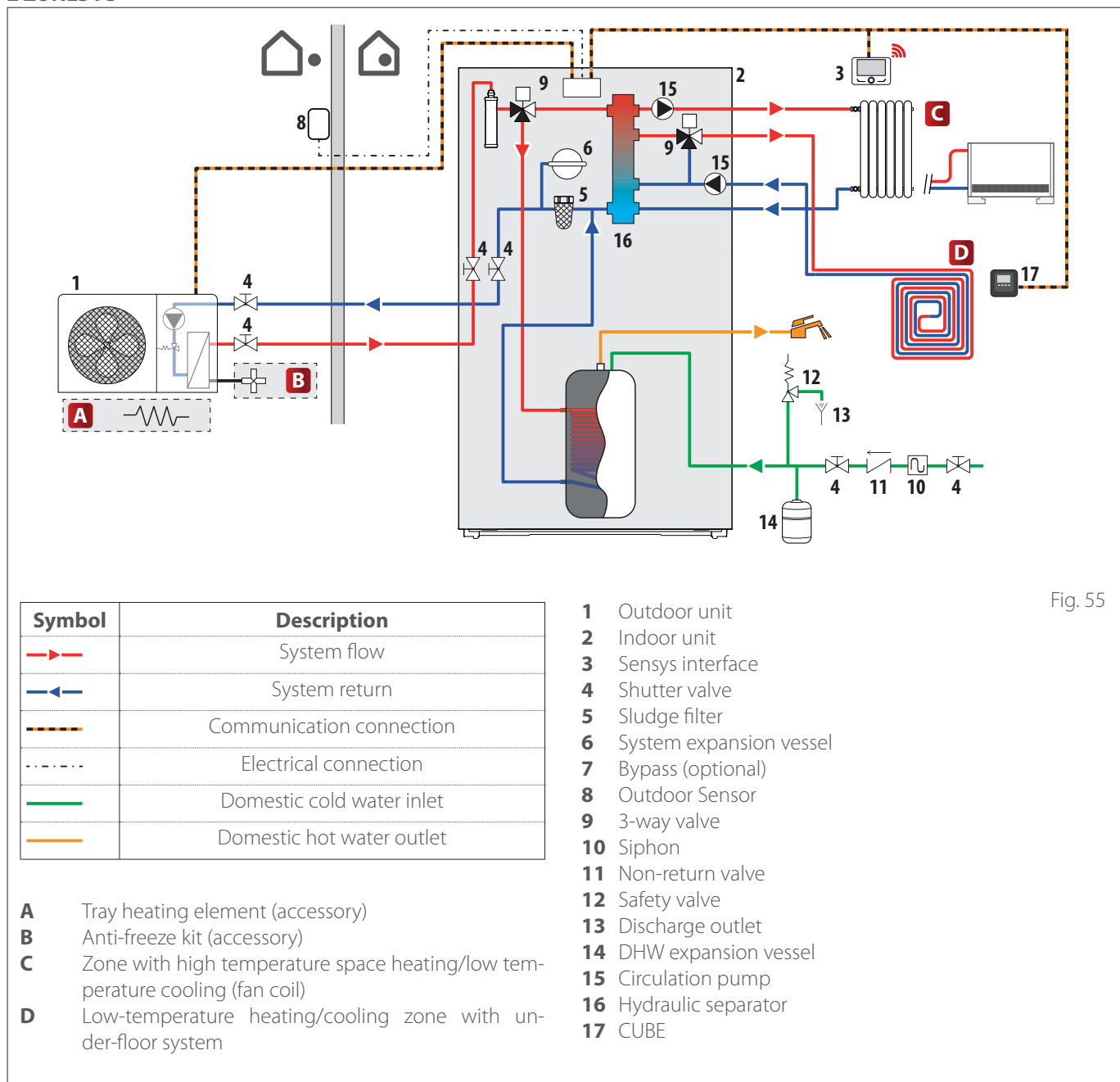


Fig. 55

**NOTE: installations with under-floor system**

In installations with under-floor heating, make sure that in all operating modes (the hot water switching mode in particular), the input temperature of the floor falls within the limits allowed for the application as specified in the national regulations.

For installations with under-floor system, install a safety device on the heating delivery circuit, as specified in the national regulations.

For the electrical connection of the thermostat, refer to the paragraph "Electrical connections".

If the delivery temperature is too high, the system stops in both domestic hot water and heating/cooling modes, and the remote control will report error code 936 "Under-floor safety thermostat open". The system will start again when the manual-reset thermostat is closed.

The input to be used as a connection to the under-floor safety thermostat is IN AUX 2 STE by default (function set through parameter 1.1.4).

If the safety thermostat is connected to STE and the safety de-

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If the safety thermostat is connected to STT and the safety device intervenes, the circulation pump will no longer be fed and the anti-freeze protection is not guaranteed.



**It is forbidden to disconnect the power supply to the unit if the outdoor temperature can fall below ZERO (risk of frost). Drain the central heating and domestic hot water systems to prevent the risk of ice forming.**



**Do not remove the heating delivery temperature sensor (inside the heating elements).**



**Carry out the electrical connections after having completed all the hydraulic connections.**

## 5. Electrical connections



**Carry out the electrical connections after having completed all the hydraulic connections.**



**After the outdoor unit is switched off, it is necessary to wait at least 5 minutes to switch it on again.**

The indoor and outdoor units must be powered separately by observing the indications of the table.

Moreover, a ATG BUS-type connection must be made between the indoor and outdoor units.

This connection can be made using a cable with reduced cross-sectional size (0.75 mm<sup>2</sup> recommended cross-sectional size).

### Electrical circuit

- The electrical system must satisfy all the requirements of the law in force.
  - Check that the mains power supply voltage and frequency are in line with the data indicated on the system's data plate (see table).
  - For greater safety, ask a qualified technician to perform a thorough check of the electrical system.
  - We recommend verifying the presence of surge protection devices (SPDs) in the power supply line, for satisfying the national standards in force (IEC 60364), and the presence of safety switches and residual-current circuit breakers in the electrical panels that supply the indoor and outdoor units separately. We nonetheless recommend installing a SPD even if in the event of a low level of risk resulting from the CRL.
  - The power supply connection is a type-Y system and the connection cable should only be replaced by a qualified technical support centre, in order to avoid any damages.
  - Check that the installation is adequate for supporting the power consumption of the installed units, as indicated on the appliances' data plate.
  - The electrical connections must be made with the help of a fixed support (do not use portable socket-outlets) and fitted with a bipolar switch, with a contact gap of at least 3 mm.
  - The system must be connected to an electrical system with an earthing device capable of ensuring the safety of the installation.
  - It is forbidden to use hydraulic connection pipes and pipes of the space heating system to earth the system.
- The manufacturer is not liable for any damage caused by a system with inadequate earthing or electrical system anomalies.
  - Connect the power supply cable to a **230 V- 50 Hz (1 ph) or 400 V - 50 Hz (3 ph)** network, while verifying that the pole markings match and the connections to earth (see table).

The cross-sectional size of the cables used must comply with the system power (see data plate).

The cross-sectional size of the power cables indicated in the table must be regarded as the minimum cross-sectional size.



**Prior to accessing the terminals, all the supply circuits must be disconnected.**

OUTDOOR UNIT		NIMBUS EXT R32							
		35 M	50 M	80 M	80 M-T	120 M	120 M-T	150 M	150 M-T
Rated current / live	A	11,0	13,5	20,0	7,6	22,5	7,8	26,9	9,41
Maximum current / live	A	11,7	14,3	21,3	8,1	23,9	8,3	28,7	10,0
Thermal cut-out size	A	C-16	C-20	C-32	C-13	C-32	C-13	C-32	C-13
Residual-current circuit breaker (RCCB) size	mA	F-30 / B-30			B-30	F-30 / B-30	B-30	F-30 / B-30	B-30
Surge current	A	< 3							
Rated voltage	V	230	230	230	400	230	400	230	400
Permissible voltage fields	V	216-243	216-243	216-243	376-424	216-243	376-424	216-243	376-424
Cos phi		> 0,9							
Power supply wiring	Reference	H07RN-F							
	Cable min. cross-sectional size	3G4	3G4	3G4	5G2,5	3G6	5G2,5	3G6	5G2,5
	Max. diameter [mm]	14	16,2	16,2	17	17	17	18	18
	Recommended cable cross-sectional size	3G4	3G4	3G6	5G4	3G6	5G4	3G6	5G4
Communication cabling	Reference	H05RN-F							
	Cable cross-sectional size	3 x 0,75mm <sup>2</sup>							
	Max. length	50 m							

The power supplies of the indoor and outdoor units must be connected respectively to a dedicated residual-current circuit breaker (RCCB) with a minimum threshold of 30 mA. For units equipped with an inverter (outdoor unit), we recommend using type B residual-current devices for 3 ph power supplies and type B or F devices (depending on the electrical system to which they are connected) for 1 ph power supplies. For units lacking an inverter (indoor unit), a type A residual-current device will suffice. The type of connection must nonetheless be made in a workmanlike manner by qualified personnel in order to comply with the national regulations in force.

#### Main power supply table.

INDOOR UNIT		NIMBUS FS M R32 - NIMBUS FS M 2Z R32		NIMBUS FS-L M R32 - NIMBUS FS-L M 2Z R32	
Power supply	V - ph - Hz	230 - 1 -50	400 - 3 -50	230 - 1 -50	400 - 3 -50
Permissible voltage fields	V	196 ÷ 253	340 ÷ 440	196 ÷ 253	340 ÷ 440
Nominal absorbed power	kW	4	4	6	6
Maximum current	A	19,1	9,6	30	10
Thermal cut-out	A	C-25	C-16	C-32	C-16
Residual-current circuit breaker (RCCB) size	mA	A-30			
Power supply wiring	Reference	H07RN-F			
	Cable min. cross-sectional size	3G4	5G2,5	3G6	5G2,5
	Max. diameter [mm]	16,2	17	18	17
	Recommended cable cross-sectional size	3G4	5G4	3G6	5G4
	Max. diameter [mm]	16,2	19,9	18	19,9
EDF, AFR, PV signal cabling	mm <sup>2</sup>	H05RN-F 2 x 0,75 mm <sup>2</sup> - H07RN-F 2 x 1,0 mm <sup>2</sup>			

**Note:** in making the connection between the communication cable from the indoor unit to the outdoor unit, use a shielded cable to prevent interference problems.



### 5.1 Outdoor unit electrical connections

In accordance with the installation instructions, all systems for disconnecting the main power supply must have an open contact (4 mm) that guarantees full disconnection as per the indications of the Class III overvoltage conditions.

**!** Make the earth connection before proceeding with all the other electrical connections.

**!** The indoor and outdoor units must be powered separately.

**!** To avoid any risk, the power cable of the indoor and outdoor units must be replaced only by specialised technicians.

- Remove the front panel to access the electrical parts.
- Remove the pre-cut sections (1) with the aid of a screwdriver in order to pass the electrical cables.

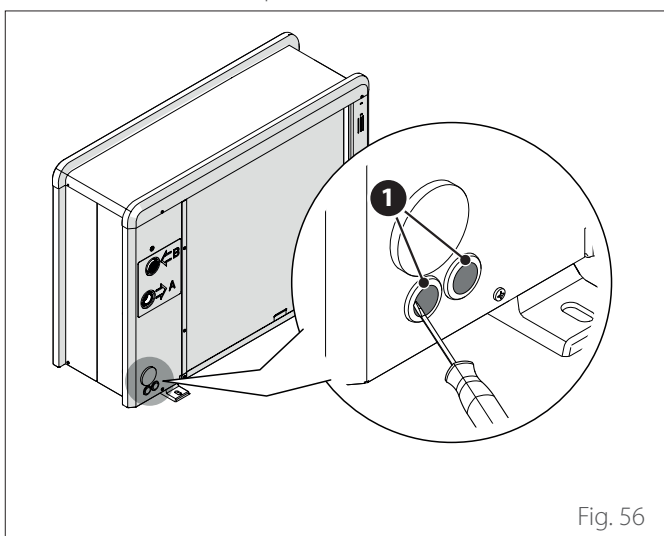


Fig. 56

**!** Prior to accessing the terminals, all the supply circuits must be disconnected

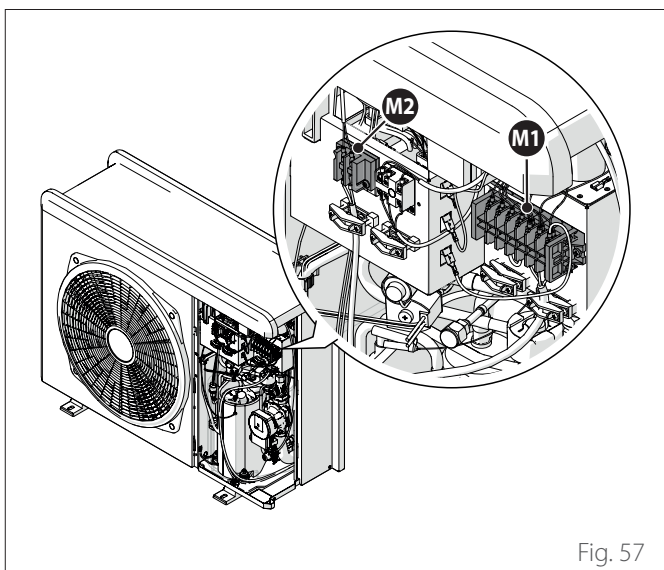


Fig. 57

#### 1-ph outdoor unit terminal board

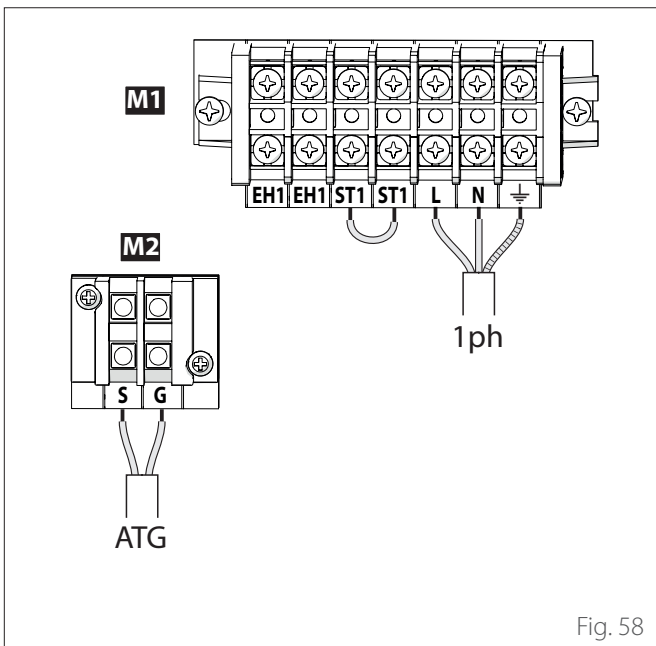


Fig. 58

- M1** Main power supply terminal board
- M2** Signal terminal board
- ATG** ATG Bus connection between indoor and outdoor units
- 1ph** Connection to single-phase power supply
- EH1** Anti-freeze electrical heating element for protecting hydraulic pipes
- ST1** Safety thermostat (230V) connection for the under-floor system (bridged by default)

#### 3-ph outdoor unit terminal board

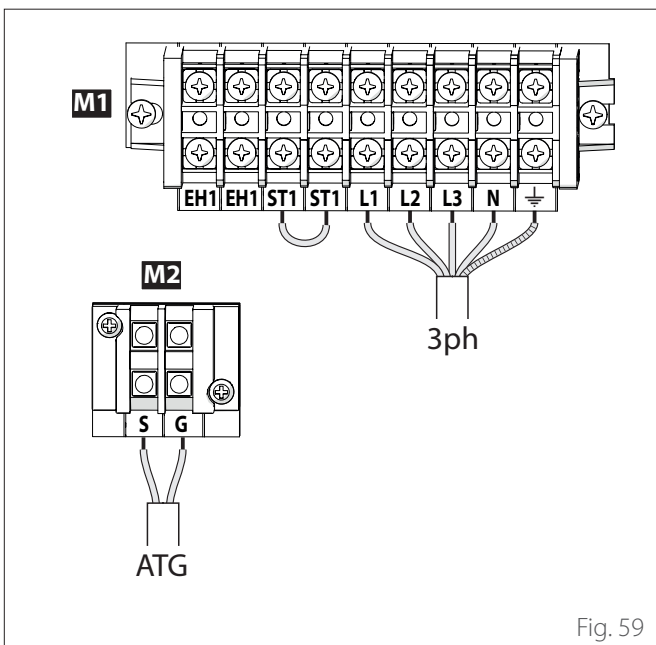



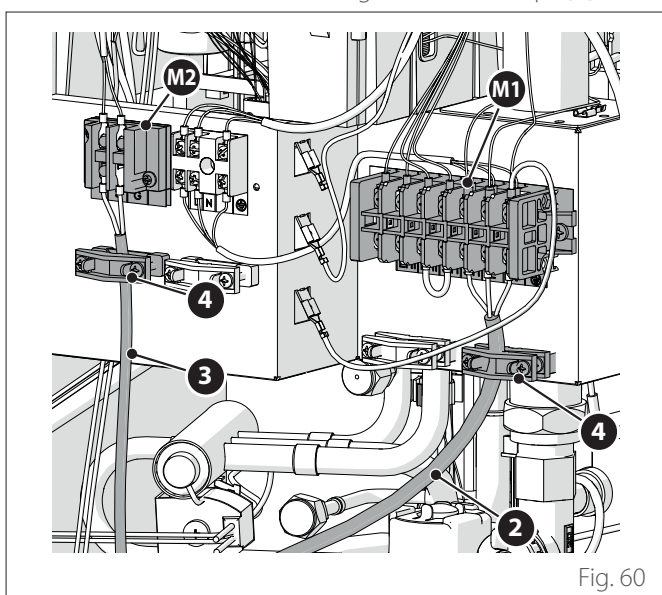
Fig. 59

- M1** Main power supply terminal board
- M2** Signal terminal board
- ATG** ATG Bus connection between indoor and outdoor units
- 3ph** Connection to three-phase power supply
- EH1** Anti-freeze electrical heating element for protecting hydraulic pipes
- ST1** Safety thermostat (230V) connection for the under-floor system (bridged by default)

 The ST1 connection is bridged by default. Do not remove the jumper.

 If the installation involves the use of thermostats or timer-controlled thermostats to manage the heat request, it is necessary to ensure that they do not have a proportional-band control logic. This logic may indeed cause inefficient behaviour of the system and fail to guarantee the fulfilment of the room temperature set-point. We recommend using modulating thermostats, modulating timer-controlled thermostats or ON/OFF thermostats without proportional band logic.

- Fasten the power cable (2) to the terminal board (M1).
- Fasten the communication cable (3) between the outdoor and indoor units to the terminal board (M2).
- To ensure adequate resistance to pulling, the power cables must be secured using the cable clamps (4).



## 5.2 Indoor unit electrical connections



**Before carrying out any work on the system, shut off the power supply at the main switch.**



**Comply with the neutral and phase connections.**

- To access the electrical panel of the indoor unit, loosen the closing screw (1) and open the main door.

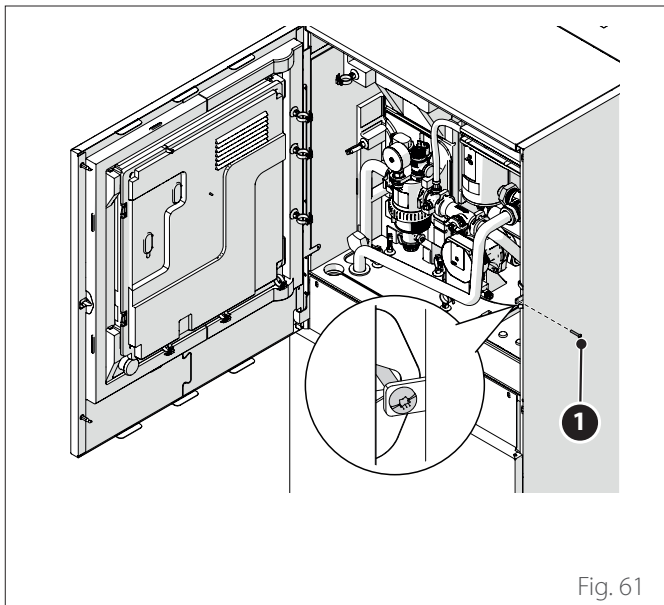


Fig. 61

- Loosen the screws (2).
- Lift and slightly tilt the front panel (3) to remove it.

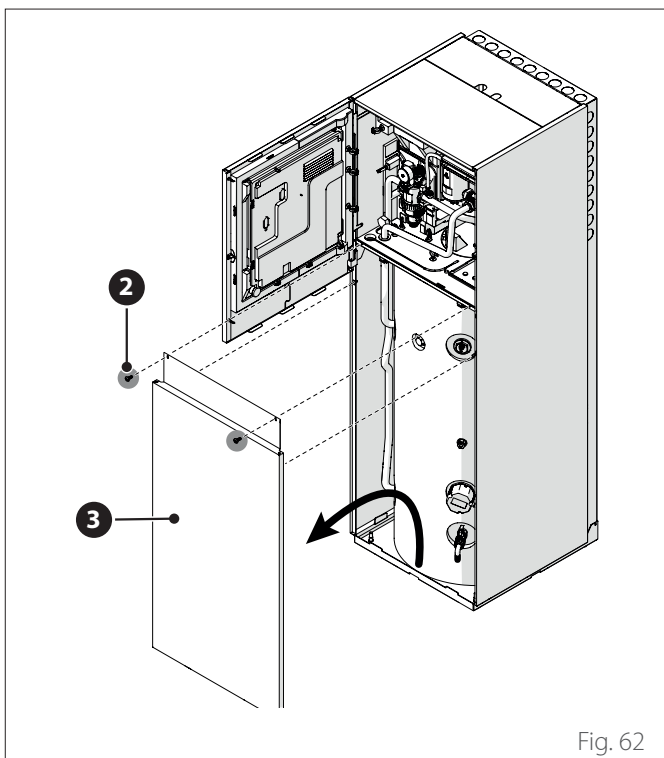


Fig. 62

- Detach the clips (4) and open the cover (5).

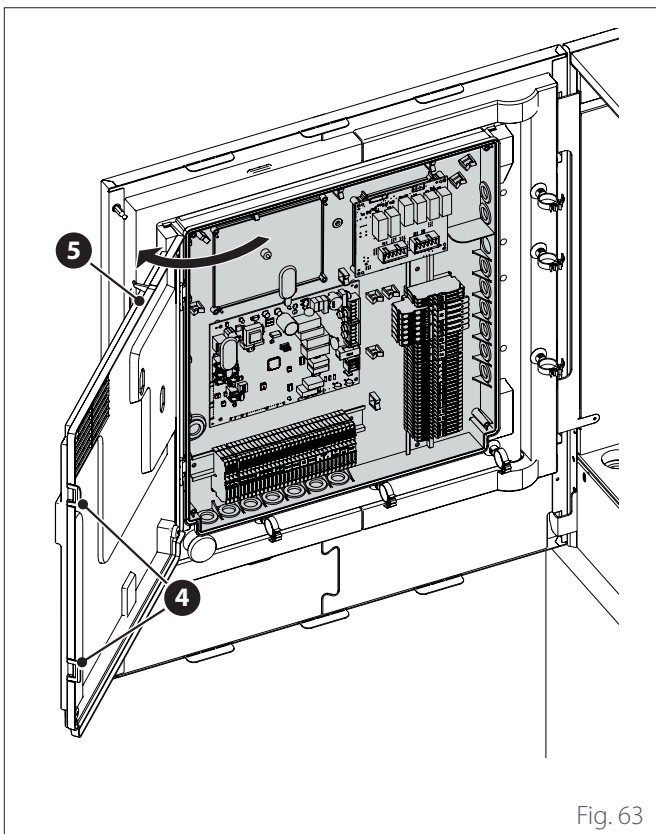


Fig. 63

- Pass the signal cables (6) through cable grommet (7).
- Use the cable ties (8) to secure and the cables (6) and keep them bundled.

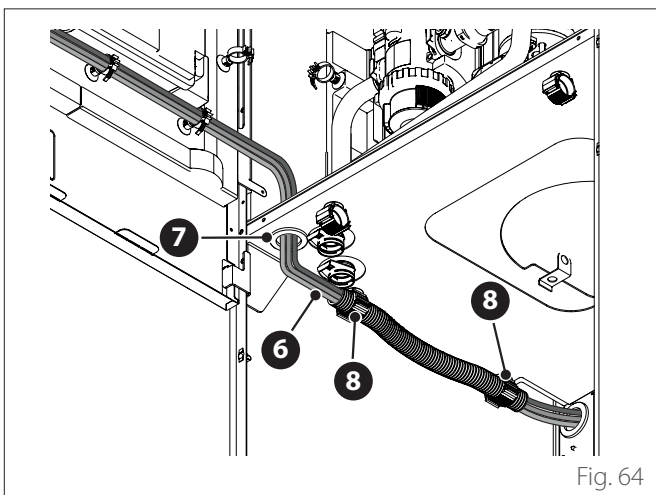


Fig. 64



**If necessary, cut a small hole in the cable hole to facilitate the insertion of cables. Avoid excessively large holes so as to prevent air from flowing inside the appliance.**

- Remove the shaped plugs (9) for passing cables (10), (12) and (13).
- Pass the power cable (10) through the cable grommet (11).
- Pass the load power cables (12) and (13) through the cable grommets (14) and (15).
- Put the shaped plugs (9) back on, while making sure that the opening is completely closed.

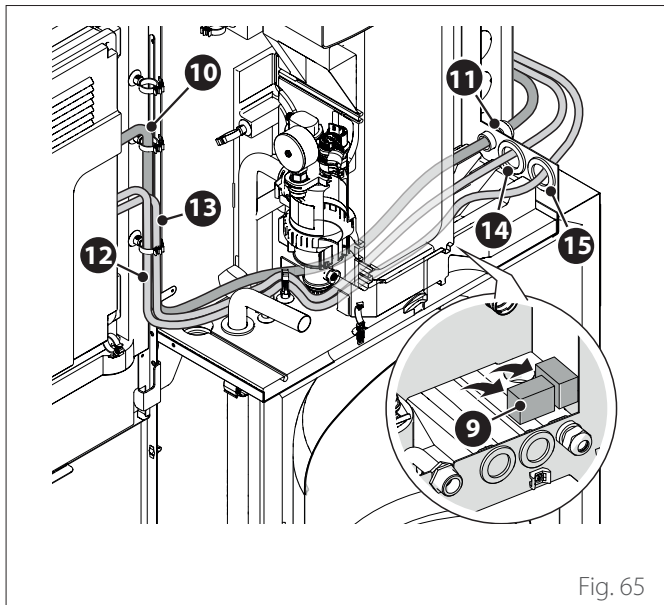


Fig. 65

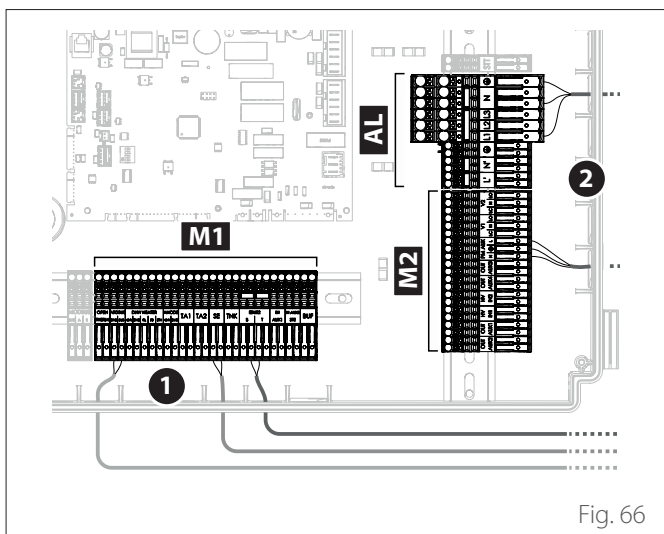


Fig. 66

- M1** Signal terminal board
- M2** 230 V terminal board
- AL** Power supply terminal board
- 1** Signal connections
- 2** 230 V connections

**Note:** secure the cables inside the appliance using the collars.

**Power supply connections**

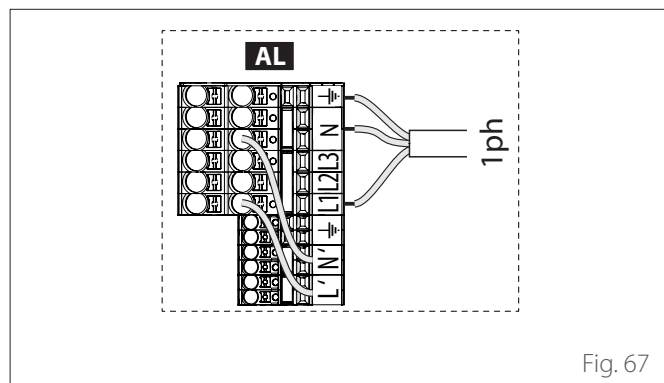


Fig. 67

- AL** Power supply terminal board
- 1ph** Connection to single-phase power supply

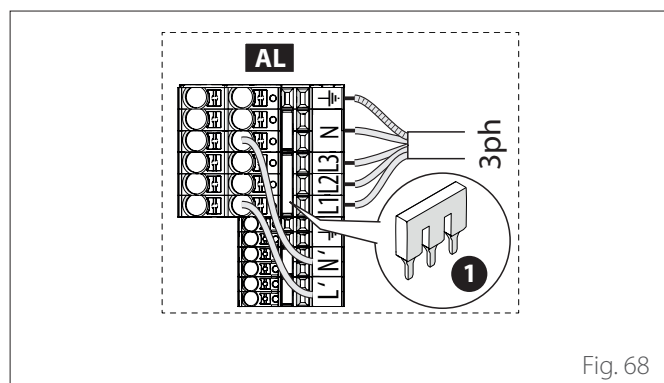


Fig. 68

- AL** Power supply terminal board
- 3ph** Connection to three-phase power supply
- 1** Remove the jumper (1) before making the three-phase connection.

**!** Be careful to make the proper three-phase connection to prevent short-circuits.

**Signal connections**

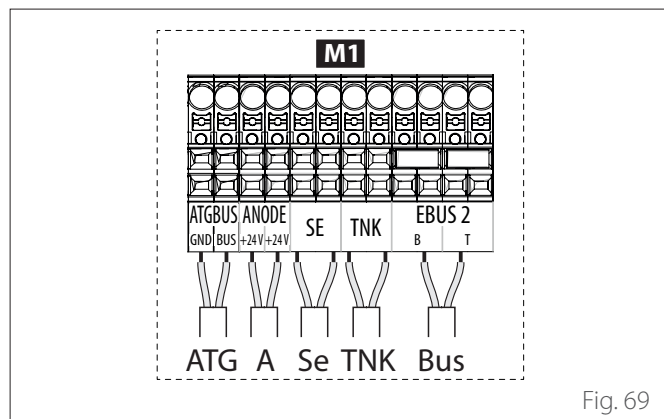


Fig. 69

- M1** Signal terminal board
- ATG** ATG Bus connection between indoor and outdoor units
- A** Anode connection
- Se** Outdoor sensor connection
- TNK** Calorifier sensor connection
- Bus** Interface connection (if the user interface is not mounted on the machine)

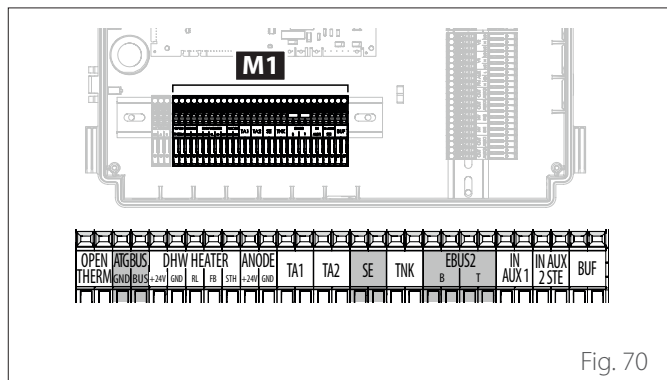
**i** Make the connections of the TNK sensor and of the anode in case of the stand-alone calorifier.

The cross-section and length of the cables must be sized according to the power indicated on the indoor unit's data plate.

**⚠ Once you have completed the connections between the indoor and outdoor units, put both electrical panels back into place.**

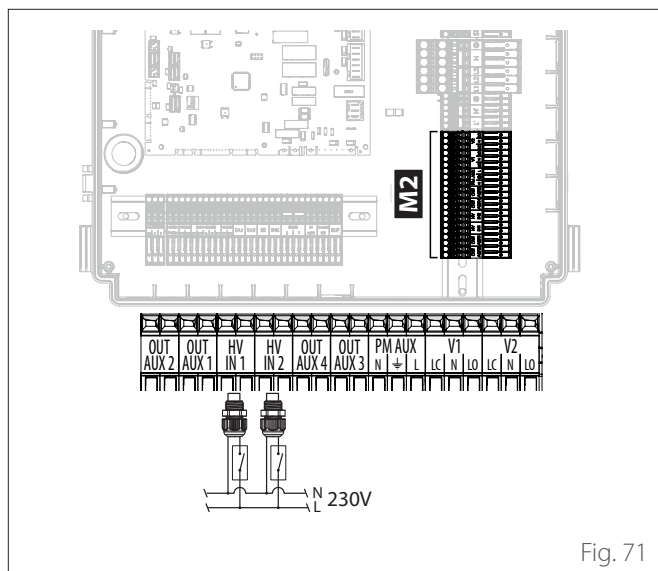
**⚠ Always keep the power and signal cables separate.**

**Signal terminal board**



Reference	Description
ANODE	Connection to the tank protection anode. Observe the electrical polarities.
TA1	Contact room thermostat connection, zone 1. (Bridged by default).
TA2	Room contact thermostat connection, zone 2.
SE	Outdoor temperature sensor connection.
TNK	Calorifier sensor connection.
EBUS 2	BUS connection for system interface.
IN-AUX 1	Auxiliary input 1 connection (dry contact). Select the operating mode through parameter <b>1.1.3</b> .
IN-AUX 2 STE	Connection of auxiliary input 2 (dry contact). Connection of the safety thermostat to the EM board. Select the operating mode through parameter <b>1.1.4</b> . By default it is set to under-floor safety thermostat and is bridged.
BUF	Connection to the puffer sensor.
OPEN THERM	Connection to thermostat Open - Therm
DHW HEATER	Connection to the "Heating Element" accessory of the tank
ATGBUS	Connection between indoor and outdoor unit

**Power terminal board**



Reference	Description
OUT-AUX 1 / 2 / 3 / 4	Auxiliary output, dry contact. Select the operating mode through parameters <b>1.2.0 / 1.2.1 / 1.2.2 / 1.3.3</b> .
HV input 1	230 V input. Select the operating mode through parameter <b>1.1.0</b> .
HV input 2	230 V input. Select the operating mode through parameter <b>1.1.1</b> .
PM-AUX	Auxiliary pump connection.
V1	Diverter valve connection for domestic water supply distribution network.
V2	Diverter valve connection for cooling circuit.

### 5.3 Example of electrical connection between indoor and outdoor units

Before carrying out any work on the system, shut off the power supply at the main switch.

The electrical connection between the indoor and outdoor units must be made using the two low-voltage terminal boards: G and S.

Connect "G" on the indoor unit terminal board with "G" on the outdoor unit terminal board.

Connect "S" on the indoor unit terminal board with "S" on the outdoor unit terminal board.

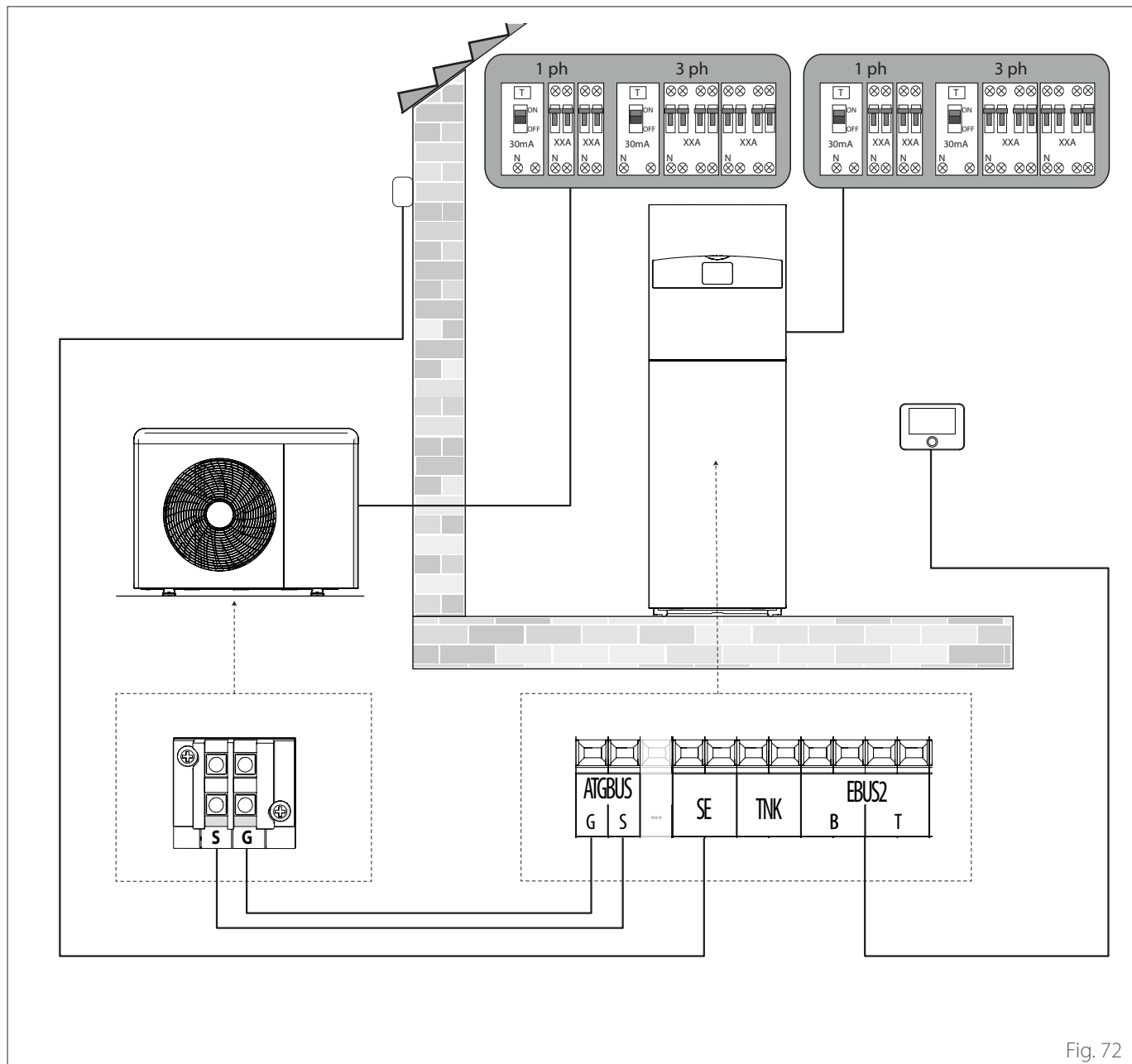


Fig. 72

**1 ph** Single-phase power supply (depending on the model)

**3 ph** Three-phase power supply (depending on the model)



**Once you have completed the connections between the indoor and outdoor units, put both electrical panels back into place.**



**Keep the high- and low-voltage cables separate.**

### 5.4 Outdoor unit overview

Mod. NIMBUS 35 M EXT R32 - NIMBUS 50 M EXT R32

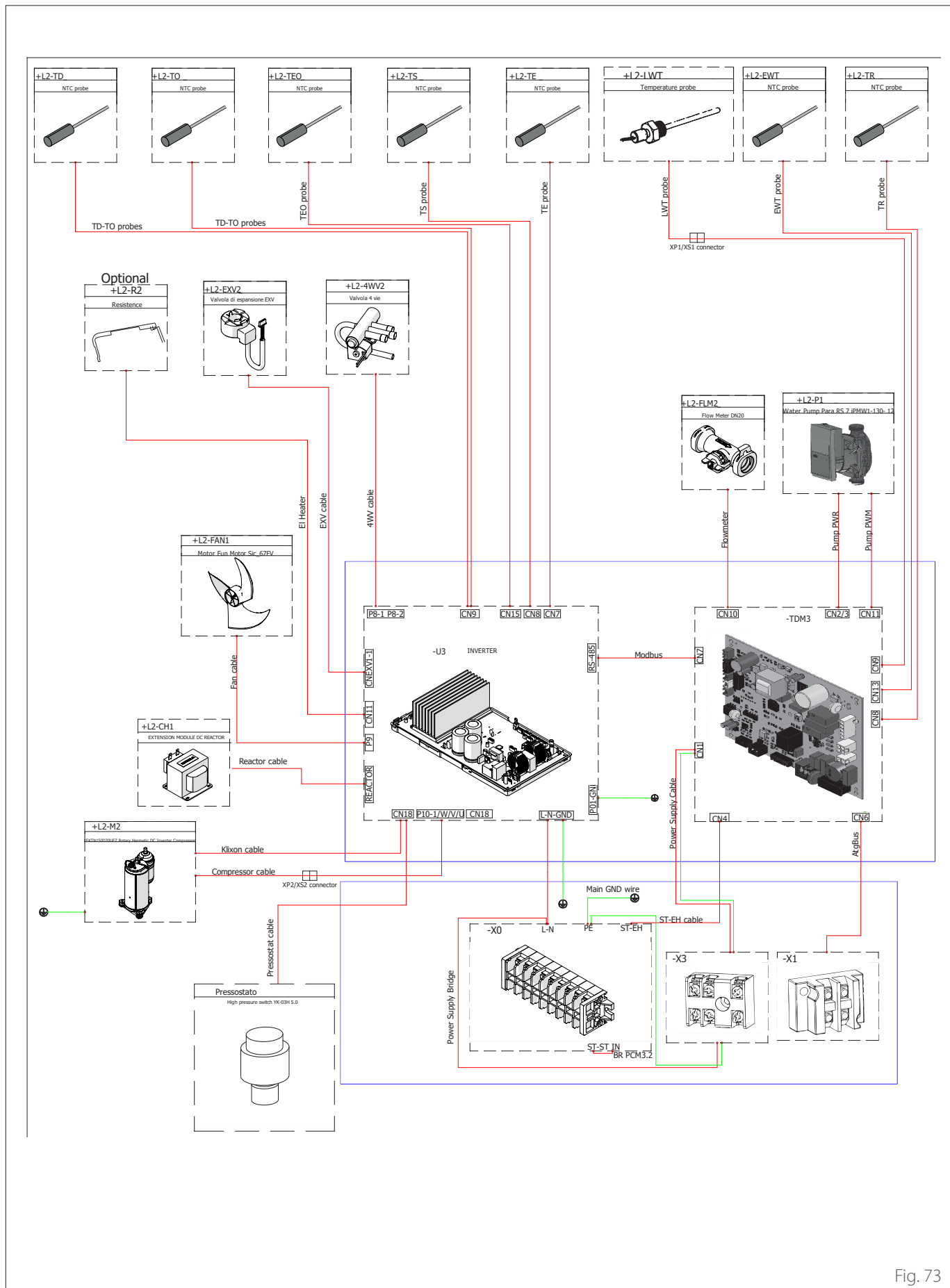


Fig. 73

Mod. NIMBUS 80 M EXT R32 (1ph)

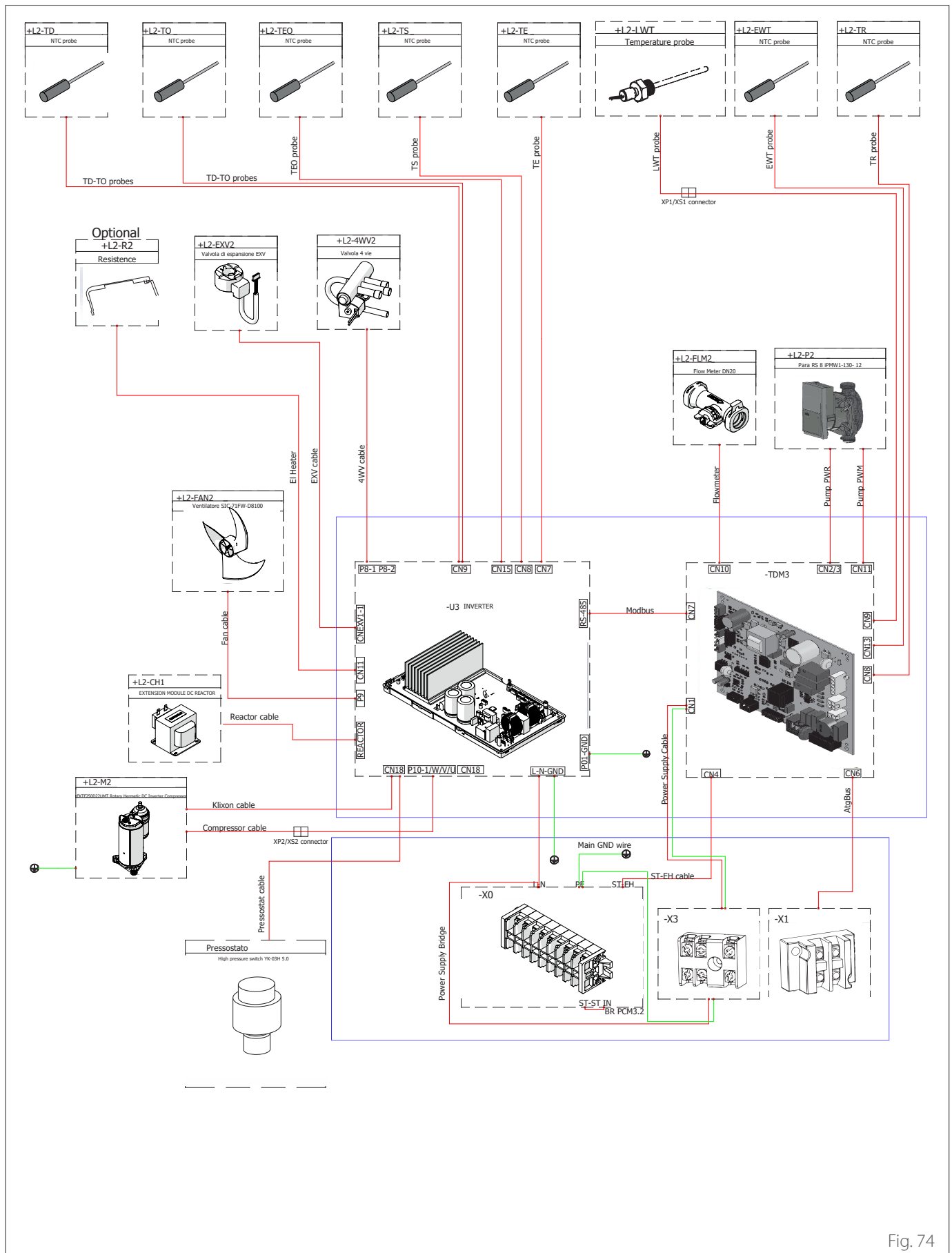


Fig. 74



Mod. NIMBUS 80 M-T EXT R32 (3ph)

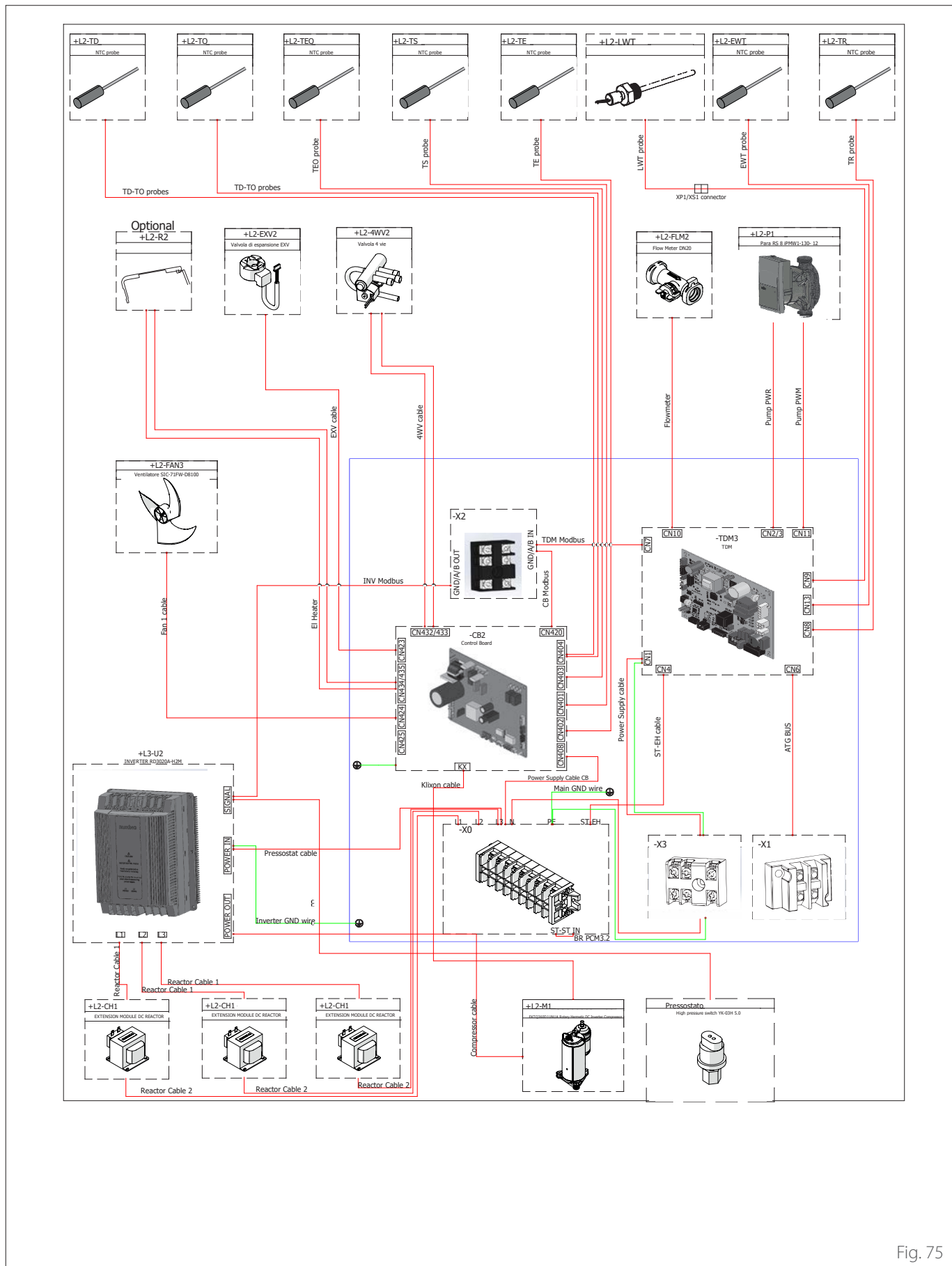


Fig. 75

Mod. NIMBUS 120 M EXT R32 - NIMBUS 150 M EXT R32 (1ph)

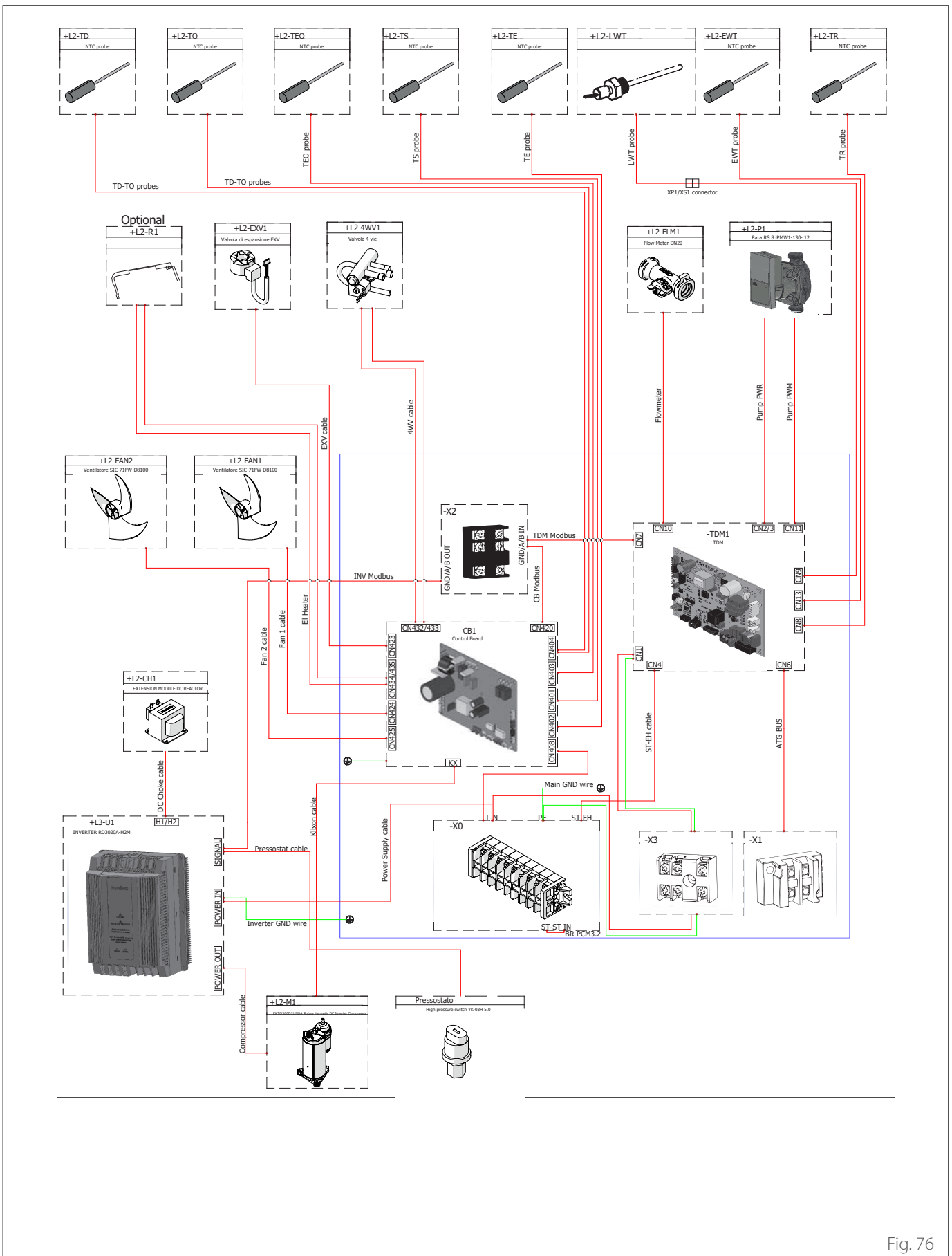


Fig. 76

Mod. NIMBUS 120 M-T EXT R32 - NIMBUS 150 M-T EXT R32 (3ph)

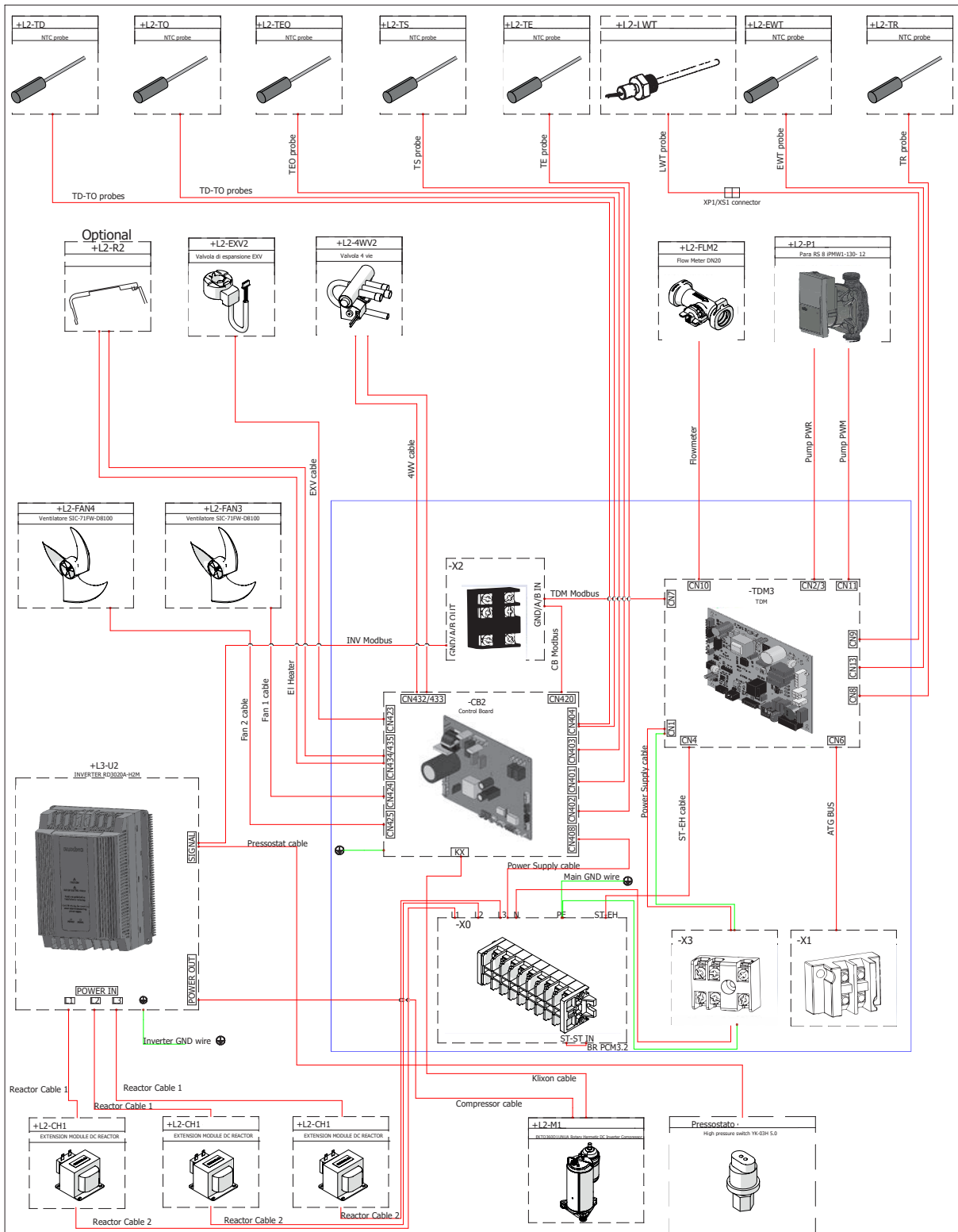


Fig. 77

5.5 Indoor unit overview

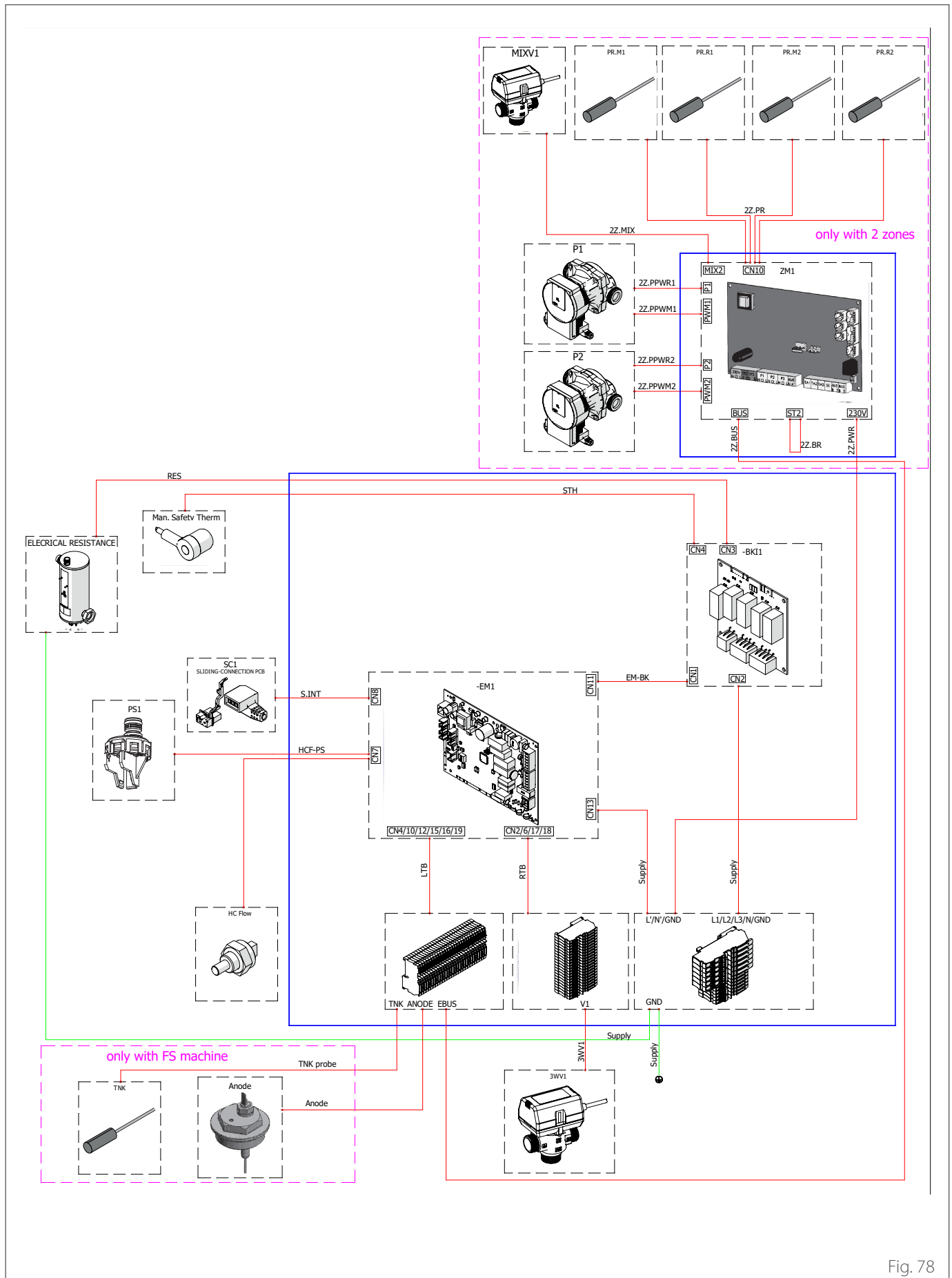


Fig. 78

## 5.6 Installing the system interface

**Note:** when installing cascade systems, to install the system interface refer to the relevant dedicated manual.

### Positioning

The system interface detects the room temperature. This factor must be taken into account when choosing its position.

We recommend positioning the appliance far from heat sources (radiators, direct exposure to sunlight, fireplaces, etc.). We also advise against positioning it near draughts or external openings that could affect the operation of the system interface.

The interface must be placed at least 1.5 m above the floor.



**Installation should be performed by a qualified technician. Before installing the appliance, ensure that the electrical power supply is disconnected.**

### 5.6.1 Wall installation

The SENSYS HD system interface must be fitted to the wall prior to connecting the BUS line.

- Open the holes required for fixing.
- Fix the base of the device to the box on the wall using the screws (1).

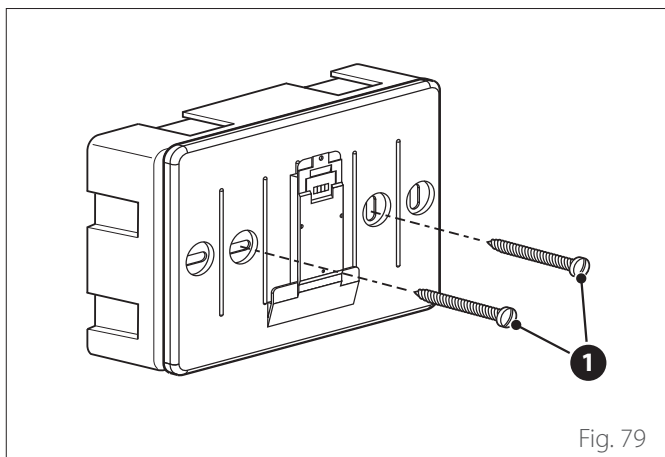


Fig. 79

- Connect the pair of wires to connector (2) while respecting the B-T polarity.

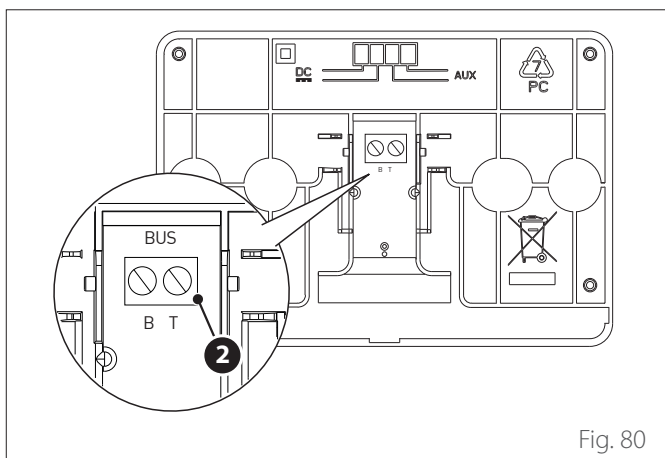


Fig. 80

**B** Blue  
**T** Orange

- Position the system interface on the base, pushing it slightly downwards.

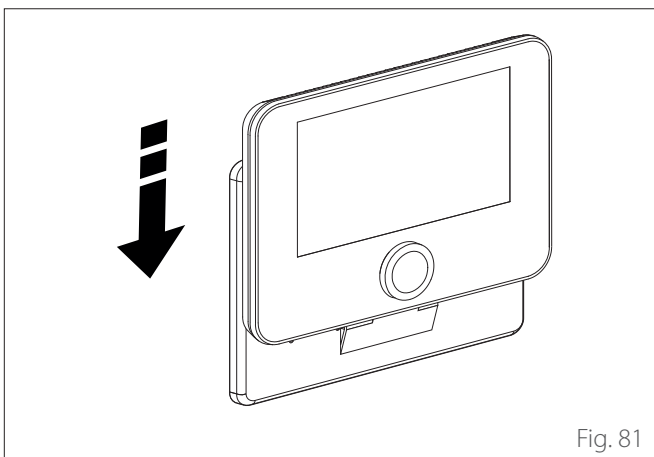


Fig. 81

### 5.6.2 On-board installation

The system interface must be mounted on the indoor unit prior to connecting the BUS line.

- Remove the screw (1) and open the front panel (2).

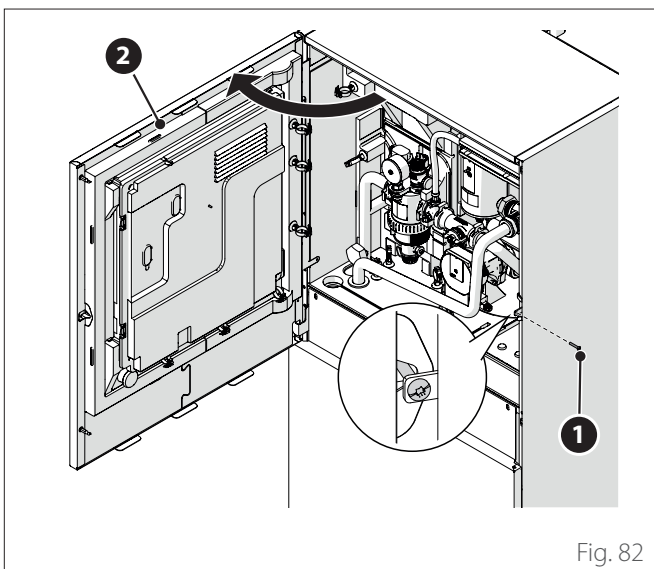


Fig. 82

- Detach the clips (3) and open the cover (4).

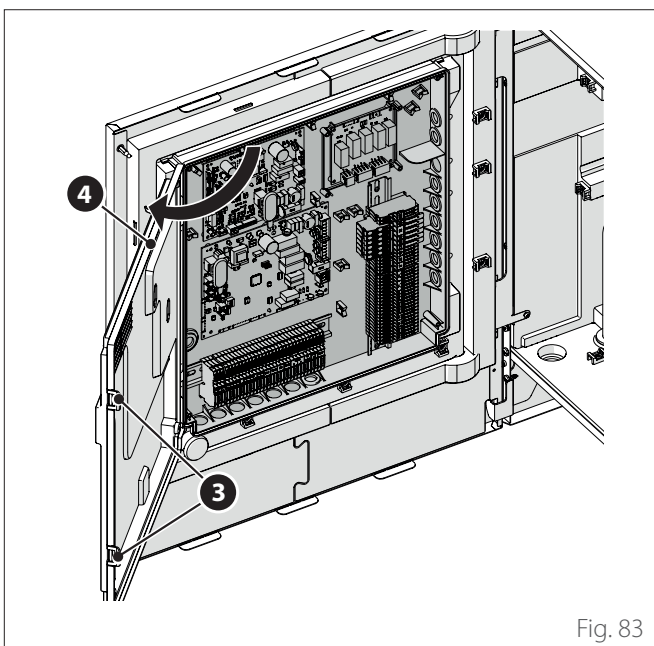


Fig. 83

- Pass the BUS cable (5) through the hole (6) on the electrical panel.

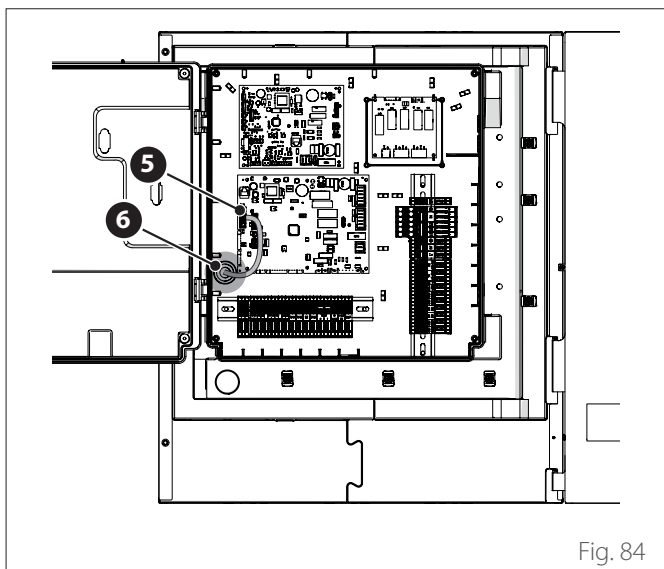


Fig. 84

- Open the internal panel (7) to access the housing (8) of the interface.

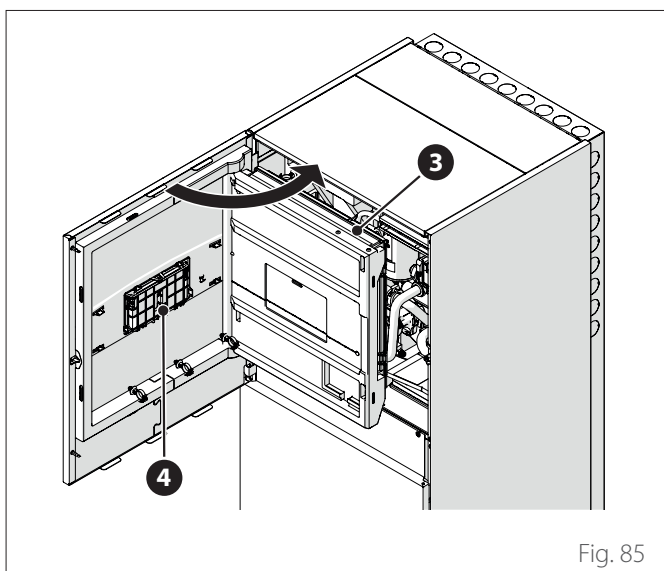


Fig. 85

- Open the flap (9) of the housing and insert the interface (10).

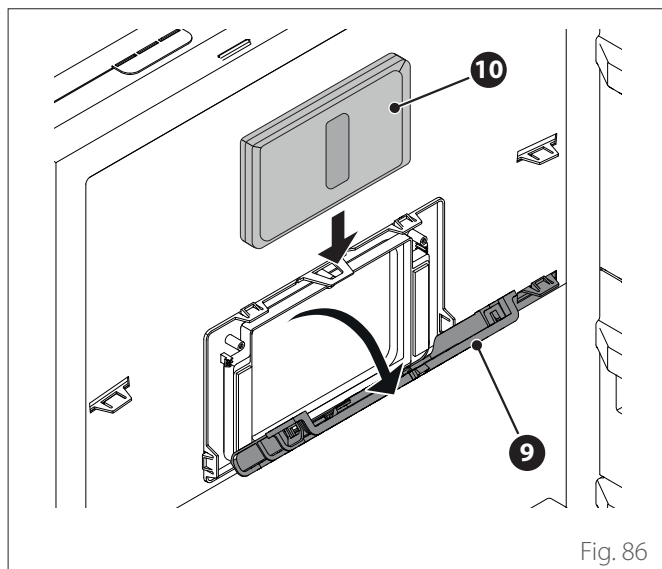


Fig. 86

- Close the flap (9).
- Once the interface has been installed on board, make sure that the bus communication cable passes through the hole (6) in the electrical panel, continues along the panel (7) and is then connected to the terminal board of the interface (11).
- Close the internal panel (7) and the front panel (2).

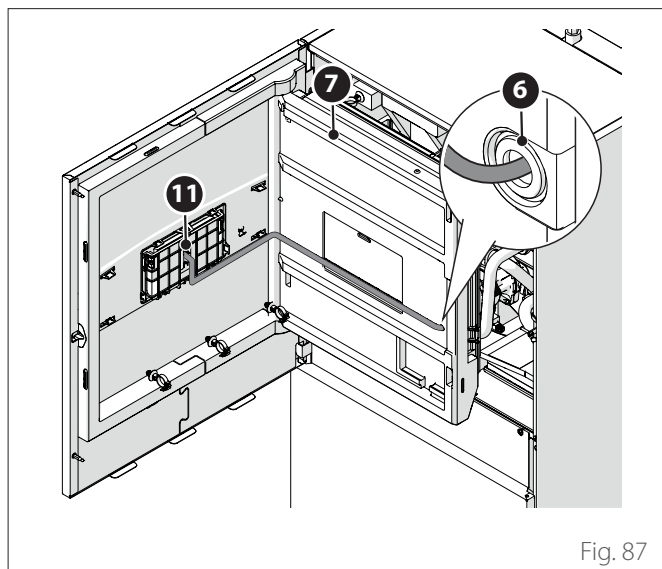


Fig. 87

Signal sending, receiving, and decoding is carried out using BUS protocol, which ensures the interaction between the system and the interface.

Connect the cables to the terminal board located in the system's indoor unit panel.

**NOTE:**

Use a shielded cable or a twisted-pair cable to connect the system interface and the indoor unit so as to avoid interference problems.

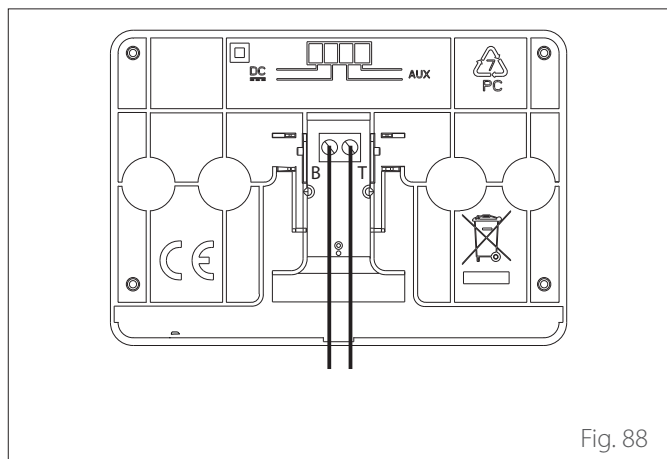


Fig. 88

- B** Blue
- T** Orange

### 5.7 Installing the Light Gateway

**Note:** when installing cascade systems, to install the Light Gateway interface refer to the relevant dedicated manual.

**i** The proper operation of the Light Gateway device depends on the power of the Wi-Fi signal in the point of installation. Make sure that the place of installation is covered by a sufficiently powerful Wi-Fi signal. In case of poor coverage of the Wi-Fi network, install the Light Gateway as close as possible to a Wi-Fi source.

- Remove the screw (1) and open the front panel (2).

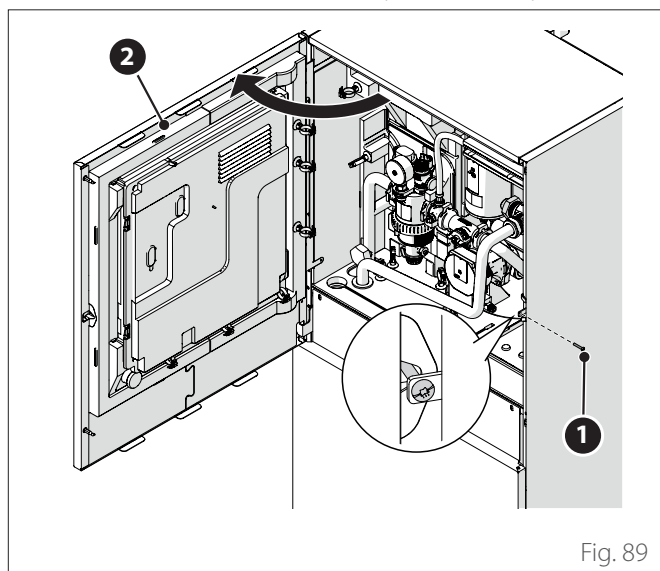


Fig. 89

- Open the internal panel (3) to access the housing (4).

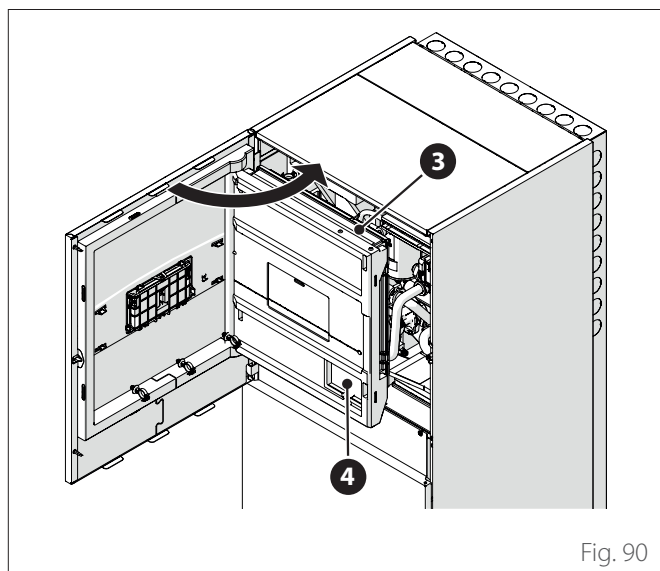
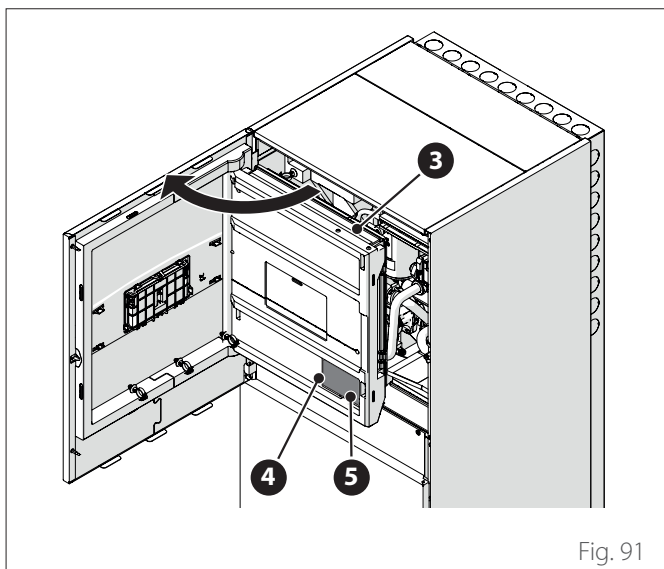
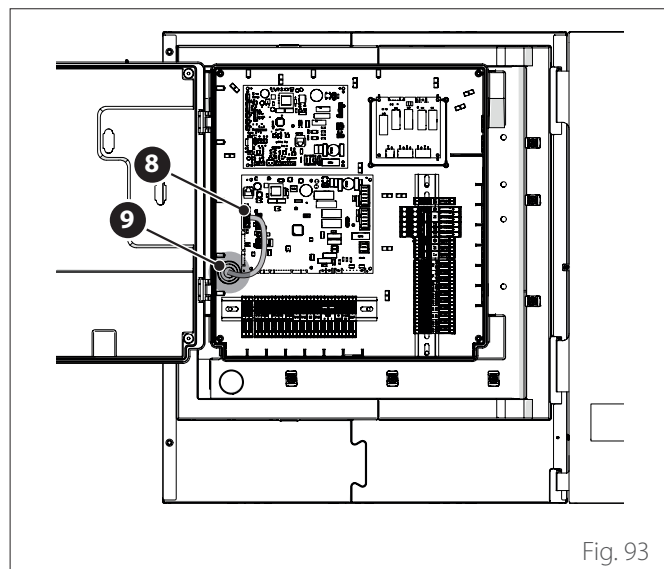


Fig. 90

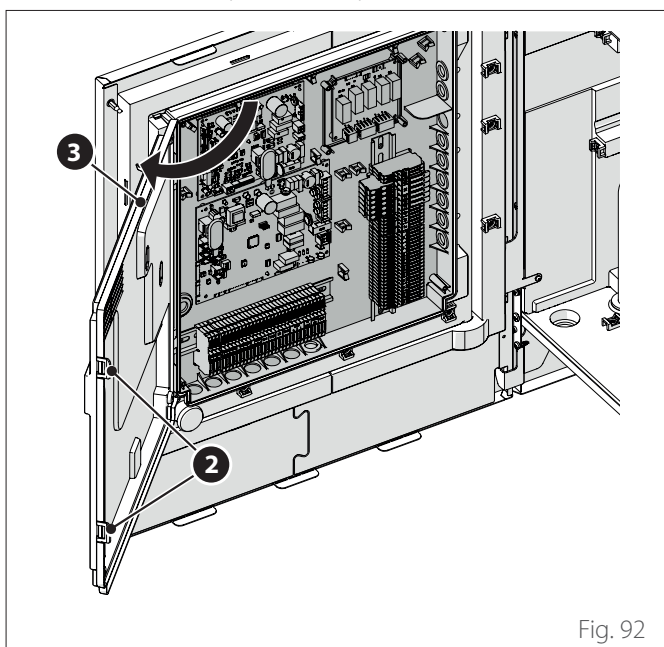
- Position the Light Gateway (5) in the housing (4) and close the panel (3).



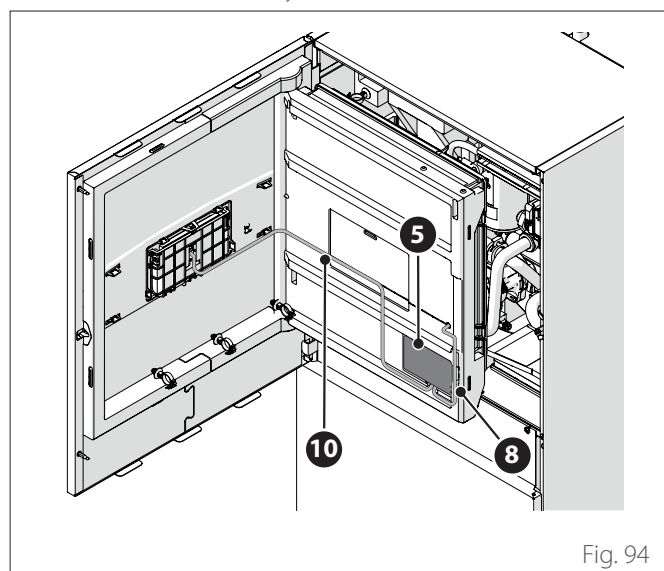
- Pass the BUS cable (8) through the hole (9) on the electrical panel.



- Detach the clips (2) and open the cover (3).



- Connect the BUS cable (8) to the Light Gateway (5) respecting the polarity.
- Connect the second BUS cable (10) which must be connected to the system interface.



- Install the system interface onto the device (refer to the paragraph "On-board installation").



## 6. Commissioning

### 6.1 Checking for electrical dispersions and gas leakages

#### 6.1.1 Electrical safety checks

Upon completing the installation, check that all the power cables have been installed in conformity to the relevant national and local regulations and according to the instructions contained in the installation manual.

#### **PRIOR TO THE OPERATIONAL TEST**

Earthing check.

Measure the earth resistance with a visual inspection and with a specific tester. The earth resistance must be below 0.1  $\Omega$ .

#### **DURING THE OPERATIONAL TEST**

Check for electrical dispersions.

During the operational test, use an electric probe and a multimeter to conduct a complete electrical dispersion test.

If an electrical dispersion is detected, switch off the unit immediately and contact a qualified electrician to identify and solve the cause of the problem.



**All electrical connections must be made by an authorised electrician in conformity to the national and local electrical standards.**

#### 6.1.2 Check for gas leakages

If a leak detector is used, follow the instructions contained in the user manual of the device.

## 6.2 Preliminary checks

### OUTDOOR UNIT

- The unit must be positioned on a sturdy and perfectly horizontal base, in a place that is easily accessible for subsequent maintenance operations.
- If there are significant air draughts, a protective screen must be fitted.
- There must not be any obstacle hindering the flow of air.
- The supporting structure must be able to withstand the weight of the outdoor unit.
- If the installation site is subject to frequent snowfalls, the outdoor unit must be positioned at least 200 mm above the usual snowfall level.

### INDOOR UNIT

- The unit must be positioned in an enclosed space and in a place easily accessible for subsequent maintenance operations.
- The unit must be anchored firmly to the floor or wall.
- If the user interface is installed on the appliance, check that the relative humidity in the installation room does not exceed the allowed limit.

## HYDRAULIC CONNECTIONS

- The water supply distribution network pressure must never exceeds 5 bar, otherwise a pressure reducer must be installed on the system's intake.
- The system must be filled to less than 3 bar (recommended pressure = 1.2 bar).
- The system must be airtight.
- The circuit filling pipes and the pipes reaching the heating/cooling and domestic hot water systems (where present) must be correctly connected.
- The expansion vessel supplied must be pre-charged to 1 bar and must have an adequate capacity for the system.
- The safety valves must be connected correctly to the silicone pipes supplied.
- If an under-floor system is being installed, a safety device must be fitted on the heating delivery circuit.

## ELECTRICAL CONNECTIONS




- The electrical connections must match the wiring diagrams appearing in the installer manual and must be made correctly.
- The mains voltage and frequency must match the data shown on the rating plate.
- The system must be properly sized for withstanding the power draw of the installed units (see data plate).
- The mains power connection must be made using a fixed mount and must include a two-pole switch.
- The earthing system must be correct and must be connected first.
- The overcurrent protection devices, residual-current circuit breakers and thermal cut-outs leaving the electrical enclosure must be installed correctly and in conformity to all the applicable regulations.
- The residual-current devices and safety switches must be correctly sized.

## 6.3 Initial start-up











**To guarantee safety and correct operation of the system interface, it must be commissioned by a qualified technician in possession of the skills as required by law.**

### 6.3.1 Start-up procedure

- Insert the system interface on the connection slide pushing it gently downwards. After a brief initialisation, the device will be ready for being configured.
- The display screen shows "Select language". Select the desired language by rotating the selector.
- Press the selector .
- The display shows the "Date and Time". Turn the selector to select day, month and year. For each selection, always press the selector to confirm. Once the date has been set, the selection shifts to the time setting. Turn the selector to set the exact time, press the selector to confirm and move to the minute selection and setting. Press the selector  to confirm.
- Once the date is set, the selection moves to the daylight saving time setting. Turn the selector to select AUTO or MANUAL. If you want the system to automatically update the period when daylight saving time is in use, select AUTO.
- Press the selector .

#### NOTE:

The display is set by default with a multi-level set-point time schedule. If a message appears concerning the time schedule conflict:

- On the home page press the "Menu" button  to access the user menu.
- Turn the selector  to select the "Advanced settings" menu, then press the selector .
- Turn the selector  to select the "Type of service of the schedule programme", then press the selector .
- Turn the selector  and select the same value (Two-Level Set-Point or Multi-Level Set-Point) present in the other User Interfaces (see technical parameter 0.4.3 on the boiler interface, if available) and press the selector .
- If there is still a conflict, repeat the procedure and use the selector to choose the two-level set-point, then press the selector .

## 6.4 Basic functions

The system interface is a device that controls the heating system. It can be used as a room thermostat and/or as a system interface for monitoring the installation's operation and configuring the desired settings.

### Manual room temperature adjustment

The operating mode of the zone associated with the device is set to MANUAL (1).

Turn the selector to select the temperature value indicated on the display using the movable cursor near the ring. Press the selector to confirm.

The display shows the set temperature.



Fig. 95

### Room temperature adjustment in programmed mode

The operating mode of the zone associated with the device is set to PROGRAMMED (2). During operation in scheduled programming mode, the set room temperature can be changed temporarily.

Turn the selector to select the temperature value indicated using the movable cursor near the ring. Press the selector to confirm.

The display shows the set temperature.

Turn the selector to set the time until which the change must be maintained.

Press the selector to confirm. The (3) symbol appears on the display.

The system interface will maintain the temperature value until the set time, after which the pre-set room temperature is restored.



Fig. 96

### Room temperature adjustment with AUTO function on


If the heating hot water temperature does not match the desired value, it can be increased or decreased via the "Heating Settings". The correction bar will appear on the display.

Press the selector to confirm, or press the back button to return to the previous screen without saving.

## 6.5 Access to technical area

If the screensaver is on, press any button to access the main page.

Simultaneously press the "Esc" and "Menu" buttons until "Insert Code" appears on the display.

Turn the selector to enter the technical code (234) then press the selector  to confirm; the display will show TECHNICAL AREA.

- Language, date and time
- BUS network setting
- Zone mode
- Complete Menu
- Configuration wizard
- Service
- Faults

Turn the selector and select:

- BUS NETWORK SETTING

The display will show the list of devices connected within the system:

- System interface (local)
- Energy Manager
- Zone Manager

### To set the correct zone associated with the system interface, turn the knob and select:

- System interface (local)

Press the OK button. Turn the knob and set the correct zone. Press the OK button to confirm the setting.

## 6.6 Technical parameters

Simultaneously press the "Esc" and "Menu" buttons until "Insert Code" appears on the display.

Turn the selector to enter the technical code (234) then press the selector to confirm; the display will show TECHNICAL AREA.

Turn the selector to choose the desired item.

– COMPLETE MENU

Press the selector. Turn the selector to choose the desired item.

### 1 ENERGY MANAGER

#### 1.0 BASIC PARAMETERS

##### 1.0.0 IDU type

Press the selector. Turn the selector to choose the desired item.

- 0 None.
- 1 Hybrid mode: hybrid hydraulic unit.
- 2 Hydraulic module: wall-hung or floor-standing hydraulic unit.
- 3 Lightbox: hydraulic power pack (if any) present, PCB only.

Press the selector to confirm.

##### 1.0.1 External Unit Version

Press the selector. Turn the selector to choose the desired item.

- 0 None.
- 1 HHP: electric heat pump.

##### 1.0.2 Tank management

Press the selector. Turn the selector to choose the desired item.

- 0 None.
- 1 Storage tank with NTC sensor: presence of a DHW calorifier with temperature sensor of the NTC calorifier.
- 2 Storage tank with DHW thermostat: presence of a DHW calorifier with temperature managed through a mechanical thermostat (ON/OFF).

##### 1.0.6 Thermoregulation

Press the selector.

Activates or deactivates temperature control.

## 1.1 INPUT OUTPUT CONFIGURATION

### 1.1.0 HV IN 1 (input configurable to 230 V)

Press the selector. Turn the selector to choose the desired item.



- 1 Absent: input not active.
- 2 Reduced rate: Input not active (0V). If the comfort function (Par. 1.9.2) is set as HC-HP, the heat pump and the heating elements are inhibited for heating of the DHW calorifier; if the comfort function is set as HC-HP-40°C, heating of the calorifier is limited to the minimum between the reduced set-point temperature and 40°C. Input active (230V). The heat pump and the heating elements are enabled for heating of the calorifier according to standard logics.
- 3 SG Ready 1: input 1 for the Smart Grid Ready protocol (refer to the paragraph "Standard SG ready").
- 4 External switch-off signal: sets the machine to OFF. Every heating, cooling and DHW request is interrupted while the anti-freeze protection logics are active.
- 5 Photovoltaic input active: input not active (0V), no integration. Input active (230 V), the energy surplus is used to increase the DHW set-point by the quantity defined through parameter 1.20.0 - Delta T Setpoint DHW photovoltaic. If the DHW calorifier has reached the new set-point, it is possible to use this energy to increase the set-point of the inertial storage tank (if present) through parameter 20.4.4 or of the heating / cooling function to the comfort set-point.

### 1.1.1 HV IN 2 (input configurable to 230 V)

Press the selector. Turn the selector to choose the desired item.



- 1 Absent: input not active.
- 2 Load splitting: Input not active (0V), the heating elements are disabled in every operating cycle.
- 3 SG Ready 2: input 2 for the Smart Grid Ready protocol (refer to the paragraph "Standard SG ready").
- 4 External switch-off signal: sets the machine to OFF. Every heating, cooling and DHW request is interrupted while the anti-freeze protection logics are active.
- 5 Photovoltaic input active: input not active (0V), no integration. Input active (230 V), the energy surplus is used to increase the DHW set-point by the quantity defined through parameter 1.20.0 - Delta T Setpoint DHW photovoltaic. If the DHW calorifier has reached the new set-point, it is possible to use this energy to increase the set-point of the inertial storage tank (if present) through parameter 20.4.4 or of the heating / cooling function to the comfort set-point.

### 1.1.3 AUX input 1

Press the selector . Turn the selector  to choose the desired item.



- 0** None.
- 1** Humidity sensor: when the contact is closed, the heat pump is turned off during the cooling cycle. Use Par. 1.1.9 to set which zone pumps will stop as a result.
- 2** Heating/Cooling from External Request mode: when the contact is closed, the operating mode is set to cooling; when the contact is opened, the operating mode is set to heating.
- 3** Thermostat TA3: the signal is interpreted as a contact for a thermostat in zone 3. When the contact is closed, it is sent as a heat request for zone 3.
- 4** Safety Thermostat: connect an under-floor safety thermostat to the contact. When the contact is closed, water circulation is interrupted.
- 5** Photovoltaic input active: input not active (0V), no integration.  
Input active (230 V), the energy surplus is used to increase the DHW set-point by the quantity defined through parameter 1.20.0 - Delta T Setpoint DHW photovoltaic. If the DHW calorifier has reached the new set-point, it is possible to use this energy to increase the set-point of the inertial storage tank (if present) through parameter 20.4.4 or of the heating / cooling function to the comfort set-point.

### 1.1.4 AUX input 2

Press the selector . Turn the selector  to choose the desired item.

- 0** None.
- 1** Humidity sensor: when the contact is closed, the heat pump is turned off during the cooling cycle. Use Par. 1.1.9 to set which zone pumps will stop as a result.
- 2** Heating/Cooling from External Request mode: when the contact is closed, the operating mode is set to cooling; when the contact is opened, the operating mode is set to heating.
- 3** Thermostat TA3: the signal is interpreted as a contact for a thermostat in zone 3. When the contact is closed, it is sent as a heat request for zone 3.
- 4** Safety Thermostat: connect an under-floor safety thermostat to the contact. When the contact is closed, water circulation is interrupted.
- 5** Photovoltaic input active: input not active (0V), no integration.  
Input active (230 V), the energy surplus is used to increase the DHW set-point by the quantity defined through parameter 1.20.0 - Delta T Setpoint DHW photovoltaic. If the DHW calorifier has reached the new set-point, it is possible to use this energy to increase the set-point of the inertial storage tank (if present) through parameter 20.4.4 or of the heating / cooling function to the comfort set-point.

### 1.1.5 Electric heat sources blocking type

Press the selector . Turn the selector  to choose the desired item.

- 0** None. The company block function is not specified.
- 1** Soft lockout. The energy provider can send a signal.
- 2** Hard lockout.
- 3** Hybrid lockout.

## 1.2 OUTPUT CONFIGURATION

### 1.2.0 AUX output 1

- 0** None.
- 1** Error alarm: the contact is closed in case of a system error.
- 2** Humidistat alarm: the contact is closed when the AUX1 input is set as a humidistat and the contact is closed.
- 3** Heating and DHW external request: the contact is closed to generate a heat request towards an external source for space heating and DHW.
- 4** Cooling request: the contact is closed to generate a cooling request towards an external source.
- 5** External DHW request: the contact is closed to generate a heating request towards an external source for DHW.
- 6** Heating / Cooling mode: the contact is closed when the cooling operating mode is active. The contact is opened when the operating mode is heating or stand-by.
- 7** External heating request: the contact is closed to generate a heating request towards an external source for space heating.

### 1.2.1 AUX output 2

- 0** None.
- 1** Error alarm: the contact is closed in case of a system error.
- 2** Humidistat alarm: the contact is closed when the AUX1 input is set as a humidistat and the contact is closed.
- 3** Heating and DHW external request: the contact is closed to generate a heat request towards an external source for space heating and DHW.
- 4** Cooling request: the contact is closed to generate a cooling request towards an external source.
- 5** External DHW request: the contact is closed to generate a heating request towards an external source for DHW.
- 6** Heating / Cooling mode: the contact is closed when the cooling operating mode is active. The contact is opened when the operating mode is heating or stand-by.
- 7** External heating request: the contact is closed to generate a heating request towards an external source for space heating.

### 1.2.2 AUX 3 output

- 0 None.
- 1 Error alarm: the contact is closed in case of a system error.
- 2 Humidistat alarm: the contact is closed when the AUX1 input is set as a humidistat and the contact is closed.
- 3 Heating and DHW external request: the contact is closed to generate a heat request towards an external source for space heating and DHW.
- 4 Cooling request: the contact is closed to generate a cooling request towards an external source.
- 5 External DHW request: the contact is closed to generate a heating request towards an external source for DHW.
- 6 Heating / Cooling mode: the contact is closed when the cooling operating mode is active. The contact is opened when the operating mode is heating or stand-by.
- 7 External heating request: the contact is closed to generate a heating request towards an external source for space heating.

### 1.2.3 AUX 4 output

- 0 None.
- 1 Error alarm: the contact is closed in case of a system error.
- 2 Humidistat alarm: the contact is closed when the AUX1 input is set as a humidistat and the contact is closed.
- 3 Heating and DHW external request: the contact is closed to generate a heat request towards an external source for space heating and DHW.
- 4 Cooling request: the contact is closed to generate a cooling request towards an external source.
- 5 External DHW request: the contact is closed to generate a heating request towards an external source for DHW.
- 6 Heating / Cooling mode: the contact is closed when the cooling operating mode is active. The contact is opened when the operating mode is heating or stand-by.
- 7 External heating request: the contact is closed to generate a heating request towards an external source for space heating.

### 1.2.5 AUX P2 circulator setting

- 0 Auxiliary circulation pump: the circulation pump follows in parallel the switching on / off of the P1 primary circulation pump.
- 1 Cooling circulation pump: activates when the cooling mode is selected and the heating request is active.
- 2 Buffer circulation pump: the circulation pump is activated when there is a heating request and the buffer function is active.
- 3 DHW circulation pump: the circulation pump is activated depending on the auxiliary schedule programming and when a thermal sanitisation cycle is in progress.

### 1.2.6 Pro-Tech anode active

Indicates the presence of the impressed-current anode on the DHW calorifier.

## 1.3 CH SECONDARY HEAT SOURCE ACTIVATION

### 1.3.0 CH aux heat source activation logic

- 0 Faulty heat pump and integration: during the heating cycles the auxiliary sources (output auxiliary contacts or heating elements) can activate both in integration mode together with the heat pump and also if the heat pump is unavailable.
- 1 Faulty heat pump only: during the heating cycles the auxiliary sources (output auxiliary contacts or heating elements) can activate only if the heat pump is unavailable.

#### 1.3.1 Active resistance stages


Defines the number of active stages of the integration heating element in heating mode.

#### NOTE:

if set to 0 and there is no other auxiliary energy source, comfort during the heating mode is not guaranteed.

#### 1.3.2 ECO / COMFORT

Defines the start-up delay of the integration heating elements from most economical/ecological (longer delay time) to most comfortable (shorter delay time).

Press the selector  Turn the selector  to choose the desired item.

## 1.4 DHW SECONDARY HEAT SOURCE ACTIVATION

### 1.4.0 DHW aux heat source activation logic

- 0 Faulty heat pump and integration: during the DHW cycles the auxiliary sources (output auxiliary contacts or heating elements) can activate both in integration mode together with the heat pump and also if the heat pump is unavailable.
- 1 Faulty heat pump only: during the DHW cycles the auxiliary sources (output auxiliary contacts or heating elements) can activate only if the heat pump is unavailable.

#### 1.4.1 Active resistance stages

Defines the number of active stages of the integration heating element in DHW mode.

#### NOTE:

if set to 0 and there is no other auxiliary energy source, comfort during the DHW mode is not guaranteed.



**If there are no back-up energy sources or if the back-up energy sources are disabled (Par. 1.4.1), the anti-Legionella cycle cannot be completed.**

### 1.4.2 Delay timer

Time required for starting the calculation of the DHW integration with the auxiliary sources or with the heating elements.

### 1.4.3 Release integral threshold

Activation threshold for DHW integration expressed in °C x min.



### 1.4.4 Tank electric heater

Selection of the operating logic of the integration heating element immersed in the DHW calorifier. The use of this heating element precludes the use of any heating elements present in the hydraulic module in DHW mode.

- 0 Absent.
- 1 Disabled: heating element present but disabled
- 2 Heating element only: the heat pump is not used in DHW mode. Only the heating element heats the DHW calorifier.
- 3 Auxiliary: the heat pump and heating element both contribute to the attainment of the DHW set-point on the calorifier. If there are any cooling/heating requests, they are fulfilled in priority mode by the heat pump, except below the temperature threshold defined by parameter 1.4.6.

### 1.4.6 DHW high priority temperature threshold

Defines the DHW calorifier temperature below which both the heat pump and the heating element switch on together when Par. 1.4.4 Heating element in DHW calorifier is set to 3 (Auxiliary).

Press the selector . Turn the selector  to choose the desired item.

## 1.5 ENERGY MANAGER PARAMETER 1

### 1.5.0 Min pressure

Indicates the pressure value below which the system stops.

#### 1.5.1 Warning pressure

Indicates the pressure value below which it is advisable to fill the system.

#### 1.5.3 Text for HP disabling

The system excludes the heat pump in heating mode when the outdoor temperature is higher than the value set.

#### 1.5.4 Hp disabling out temp DHW



The system excludes the heat pump in DHW mode when the outdoor temperature is higher than the value set.

#### 1.5.5 External temperature correction

Compensation of the temperature reading of the external sensor.

#### 1.5.9 Filling pressure

Indicated pressure value for system filling.

Press the selector . Turn the selector  to choose the desired item.

## 1.6 WATER CIRCULATION

### 1.6.0 CH pump prerun time

Defines the pre-circulation time of the primary circulation pump to detect the presence of flow in the heating circuit.

#### 1.6.1 Time for prerun new attempt

Defines the stand-by time of the circulation pump between successive pre-circulation attempts.

#### 1.6.2 CH pump overrun

Post-circulation time.

#### 1.6.3 Pump speed control



Select the circulation pump speed:

- 0 Low speed
- 1 High speed
- 2 Modulating

#### 1.6.4 Antifreeze HP circulator control

Select the circulation pump speed during the heat pump anti-frost cycle:

- 0 Low speed
- 1 Med speed
- 2 High speed

Press the selector . Turn the selector  to choose the desired item.

## 1.7 CH



### 1.7.1 Boost Time

Defines the delay with which the water delivery set-point during heating is increased in AUTO mode. Intervenes only with temperature control active and when set to "Devices ON/OFF" (see parameters 4.2.1/5.2.1/6.2.1).

Defines the delay with which the delivery set-point temperature is increased by 4°C (up to maximum 12°C). If the value is 0 the function is not active.

#### 1.7.2 FlowT HP Offset

Defines the value in °C to be added to the delivery set-point temperature of the heat pump to offset the heat losses along the hydraulic connections between the outdoor unit and the hydraulic module.

Press the selector . Turn the selector  to choose the desired item.



## 1.8 COOL MODE

### 1.8.0 Cooling mode activation

- 0 Provisioned - Not active
- 1 Run

#### 1.8.2 Cooling FlowT HP Offset

Defines the value in °C to be subtracted from the delivery set-point temperature of the heat pump to offset the heat losses along the hydraulic connections between the outdoor unit and the hydraulic module.

Press the selector . Turn the selector  to choose the desired item.

## 1.9 DOMESTIC HOT WATER

### 1.9.0 DHW comfort setpoint temp.

Defines the comfort DHW set-point temperature.

#### 1.9.1 DHW reduced setpoint temp.

Defines the reduced DHW set-point temperature.

#### 1.9.2 Comfort Function

Configures the domestic hot water production mode as follows:

- 0 Excluded.
- 1 Timer-controlled (starts the comfort function for intervals that can be adjusted according to the DHW schedule programming).
- 2 Always active.

#### 1.9.3 DHW operation mode

- 0 Standard.
- 1 GREEN.

**NOTE:** uses only the heat pump in the intervals configured with the DHW auxiliary schedule programming function.

- 2 HC - HP.

**NOTE:** the DHW storage tank is heated only by the heat pump when the EDF input is enabled (see Par. 1.1.0) and switches to 230 V (electricity reduced-rate period).

- 3 HC - HP 40.

**NOTE:** a function similar to HC - HP, during full-rate electricity supply (EDF input = 0 V) the hot water storage is heated to 40°C.

#### 1.9.5 Max HP charging time

Defines the filling time, carried out only with the heat pump, after which the integration heating elements are switched on when there is no calorifier sensor, but the thermostat (Par. 1.0.2 = 2)

#### 1.9.6 Thermal cleanse function

- 0 OFF.
- 1 ON.

**NOTE:** when the function is enabled, the DHW calorifier is heated and maintained at 60°C for one hour starting from the function start time (see Par. 1.9.7), only if there is a calorifier sensor (Par. 1.0.2 = 1). The operation is repeated after a period of time defined by Par. 1.9.8.

**NOTE 2:** if the energy back-up sources are deactivated (Par. 1.4.1 = 0) or absent, the thermal sanitisation cycle might not be completed owing to the heat pump's working limits.



#### 1.9.7 Thermal Cleanse start time [hh:mm]

Defines the start time of the DHW calorifier sanitisation function.

**NOTE:** in case of DHW HC/HP or HC/HP 40 production mode (Par. 1.9.3 = 2/3), if the function activation time falls within the full-rate electricity period (EDF input = 0 V) the thermal sanitisation cycle does not start but is postponed to the following day.



### 1.9.8 Thermal Cleanse Cycle frequency

Sets the period of time after which the DHW calorifier sanitisation function is repeated.

Press the selector . Turn the selector  to choose the desired item.

## 1.10 MANUAL MODE - 1

Manual activation of the system components (circulation pumps, diverter valves, heating elements, etc.).

Press the selector . Turn the selector  to choose the desired item.

## 1.11 MANUAL MODE - 2

### 1.11.1 Force Hp Heat

Activates the heat pump in heating mode.

### 1.11.2 Forces the pump in cooling mode

Activates the heat pump in cooling mode.

### 1.11.4 Rating Heating Mode

Activates the heat pump in heating mode with fixed frequency settable through Par. 13.5.1. The fans rotate at fixed speed set by parameters 13.5.1 - 13.5.2.

### 1.11.5 Rating Cooling Mode

Activates the heat pump in cooling mode with fixed frequency settable through Par. 13.5.1. The fans rotate at fixed speed set by parameters 13.5.1 - 13.5.2.

### 1.11.6 Tank electric heater

Activates the heating element immersed in the calorifier in DHW mode.

## 1.12 TEST & UTILITIES

### 1.12.0 Air-purge function



Activates deaeration of the system; the operation can last up to 18 minutes.

### 1.12.1 Antiblocking function enable

Activates the anti-lock function of the primary circulation pump.

The circulation pump is activated for 30 seconds every 23 hours of inactivity and the diverter valve is set to DWH production.

### 1.12.2 Quiet mode activation HHP



Press the selector . Turn the selector  to choose the desired item.

- 0 OFF (standard operation).
- 1 ON (reduces the heat pump's noise level).

### 1.12.3 Quiet mode start time HHP [hh:mm]

Press the selector . Turn the selector  to set the start time of the silent mode. The compressor frequency is limited.

### 1.12.4 Quiet mode end time HHP [hh:mm]

Press the selector . Turn the selector  to set the end time of the silent mode.

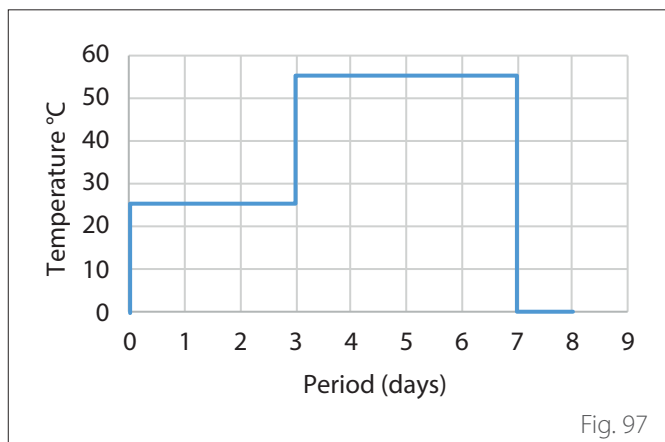


### 1.12.5 Floor drying cycle

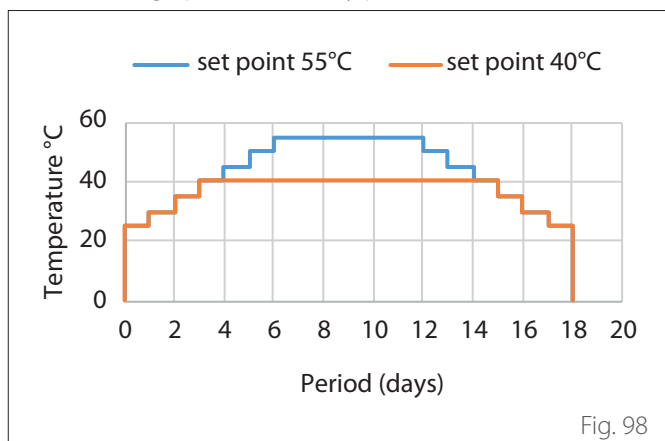
Defines the screed drying programme for under-floor systems using the following values:

**0** OFF

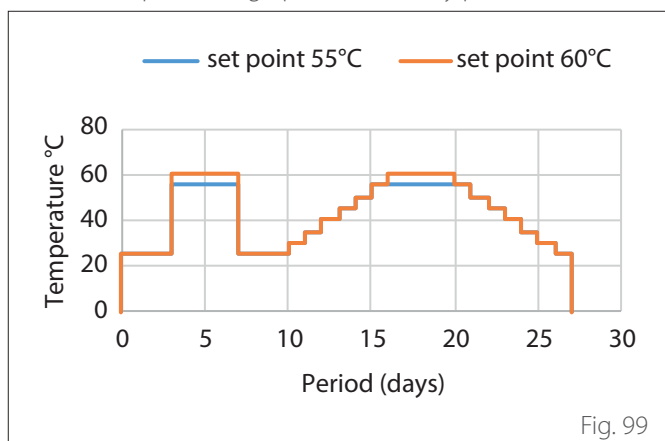
**1** **Functional** (screed heating at a fixed temperature of 25°C for 3 days, then at the temperature defined by Par. 1.12.6)



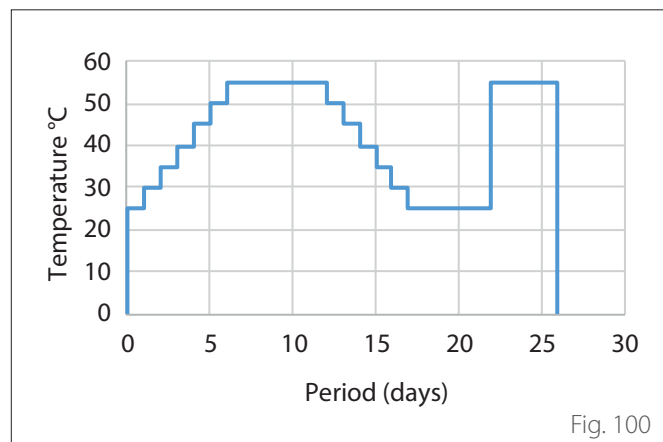
**2** **Ready to Use** (heating of the screed at a variable temperature from 25°C to the temperature defined by Par. 1.12.6, according to the period indicated as an example in the graph for an 18-day period)



**3** **Functional + Ready to Use** (screed heating at a fixed temperature of 25°C for 3 days, then for a further 4 days at the temperature defined by Par. 1.12.6, then at a variable temperature from 25°C to the temperature defined by Par. 1.12.6, according to the period indicated as an example in the graph for an 18-day period)



**4** **Ready to Use + Functional** (heating of the screed at a variable temperature from 25°C to the temperature defined by Par. 1.12.6, according to the period indicated as an example in the graph for an 18-day period, then at a fixed temperature of 25°C for a period of 3 days, then for a further 4 days at the temperature defined by Par. 1.12.6)



**5** **Manual** (screed heating at the temperature set in Par. 1.12.6)

### 1.12.6 Floor drying Flow Set Point T

Defines the set-point temperature of the heating delivery during the screed drying function (see Par. 12.8.1).

### 1.12.7 Floor drying total Remaining Days

Defines the days remaining for the screed drying function.

### 1.12.8 DhW rating mode

Defines the test operation mode in DHW mode.

### 1.12.9 Exogel kit activation

Enables integration of the anti-freeze kit.

### 1.16 EM DIAGNOSTICS - 1 INPUT



Displays the values of the system's board inputs.

### 1.18 EM DIAGNOSTICS - 1 OUTPUT

Displays the values of the system's board outputs.

### 1.20 SYSTEM INTEGRATION

#### 1.20.0 PV offset DHW setpoint temperature

Press the selector . Rotate the selector  to set the desired value to increase the DHW set-point during integration from the photovoltaic system.

#### 1.20.2 Tank solar integration

Activates integration of the solar heating system. In this case, the high sensor of the solar heating calorifier is used as a DHW calorifier sensor.

#### 1.20.3 OpenTherm gateway activation

Activates the OpenTherm gateway.

### 1.21 ERROR HISTORY

Displays the last 10 errors.

### 1.22 RESET MENU

Restores the default settings.

## 6.7 Temperature adjustment

Simultaneously press the "Esc" and "Menu" buttons until "Insert Code" appears on the display.

Turn the selector to enter the technical code (234) then press the selector to confirm; the display will show TECHNICAL AREA.

Turn the selector to choose the desired item.

- COMPLETE MENU

Press the selector. Turn the selector to choose the desired item.

### 4 ZONE 1 PARAMETERS

#### 4.1 AUTOMATIC WINTER MODE

##### 4.1.0 Activation of the auto summer/winter function [ON, OFF]

##### 4.1.1 Auto summer/winter temperature limit

Turn the selector and set the threshold temperature of the auto summer/winter function.

##### 4.1.2 Summer/winter switching delay

Turn the selector and set the auto summer/winter switching delay.

Press the selector. Turn the selector to choose the desired item.

### 4.2 ZONE 1 SETTING

#### 4.2.0 Z1 T range

Turn the selector and select the temperature range:

- 0 - low temperature
- 1 - high temperature

##### 4.2.1 Temperature adjustment

Press the selector. Turn the selector and set the type of temperature control installed:

- 0 - Fix Flow T
- 1 - Basic Thermoreg
- 2 - Room T Only
- 3 - Outdoor T Only
- 4 - Room+Outdoor T

### 4.2.2 Slope

Press the selector. Turn the selector and set the curve in accordance with the type of heating system.

Press the selector to confirm.

Low-temperature system (under-floor panels) curve between 0.2 and 0.8

High-temperature system (radiators) curve between 1.0 and 3.5

The checking process for the suitability of the curve requires a long period of time during which several adjustments may be necessary. When the outdoor temperature falls (winter) three conditions may arise:

- The temperature of the room may fall, indicating that a steeper curve should be set.
- The temperature of the room may rise, indicating that a gentler curve should be set.
- The temperature of the room remains constant, indicating that the set curve is exactly right.

Once you have found the curve which maintains the room temperature at a constant level, check the actual temperature value.

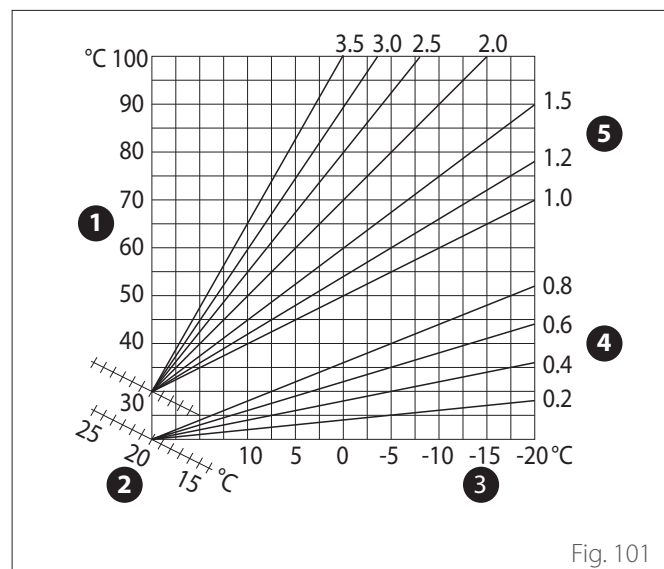


Fig. 101

- 1 Delivery temperature to the system
- 2 Delivery value room temperature
- 3 Outside air temperature
- 4 Low temperature
- 5 High temperature

### 4.2.3 Parallel shifting

Press the selector . Turn the selector and set the most suitable value. Press the selector  to confirm.

#### IMPORTANT:


**If the room temperature is higher than the desired value, the curve must be shifted lower. If the room temperature is too low, the curve should be shifted upwards. If the temperature of the room corresponds with the desired value, the curve is correct.**

**In the graph below, the curves have been divided into two groups:**



- Low-temperature systems
- High temperature systems

**The two groups are divided according to the different point of origin of the curves, which for high-temperature systems is higher than 10°C, a correction usually made to the delivery temperature in these types of systems during climatic adjustment.**



### 4.2.4 Proportional room influence

Turn the selector and set the most suitable value, then press the  selector to confirm. The influence of the room sensor can be adjusted to a value between 20 (maximum influence) and 0 (no influence). In this way, the contribution of the room temperature to the delivery temperature calculation can be adjusted.



### 4.2.5 Maximum delivery temperature

Turn the selector  then set the most suitable value and press the selector  to confirm.

### 4.2.6 Minimum delivery temperature

Turn the selector  then set the most suitable value and press the selector  to confirm.

### 4.2.7 Thermoregulation type

Turn the selector  then set the most suitable value and press the selector  to confirm.

Turn the selector and select:

- Conventional
- Smart temperature control (in this mode, the water flow set-point is calculated using the information provided in parameter 4.8)

### 4.2.9 Heat request mode

Turn the selector and select:

- Standard
- RT Time Programs Exclusion (in this mode, the heat demands generated by the room thermostat remain active also during the night-time period in programmed mode)
- Force the heat request (the activation of this function generates a constantly active heat request)


Repeat the steps described previously to set the values for zone 2 (where present), by selecting menu 5.

#### NOTE:

For correct operation of the temperature adjustment types: 2. Room sensor only; 3. Outdoor sensor only; 4. Room sensor plus outdoor sensor, parameter 1.0.6 should be set to value 1, or the AUTO function must be activated.

## 4.5 COOLING

### 4.5.0 Z1 Cooling T Set


Press the selector . Turn the selector and set the delivery set-point temperature value, if temperature control is deactivated or with fixed point.

### 4.5.1 Z1 Cooling T range

Press the OK button. Turn the selector and select the temperature range:


- Fan coil units
- Under-floor system

### 4.5.2 Select type

Press the selector , turn the selector and set the type of temperature control installed:

- 0 - ON/OFF devices (fixed water flow set-point specified in par. 4.5.0)
- 1 - Fixed delivery temperature (fixed water flow set-point specified in par. 4.5.0)
- 2 - Room sensor only (water flow set-point on the basis of the outdoor temperature)

### 4.5.3 Slope

Press the selector . Turn the selector and set the curve on the basis of the type of cooling system.

Press the selector  to confirm.

- Fan coil units (curve from 18 to 33)
- Under-floor system (curve from 0 to 30)

The checking process for the suitability of the curve requires a long period of time during which several adjustments may be necessary.

### Fan coil units

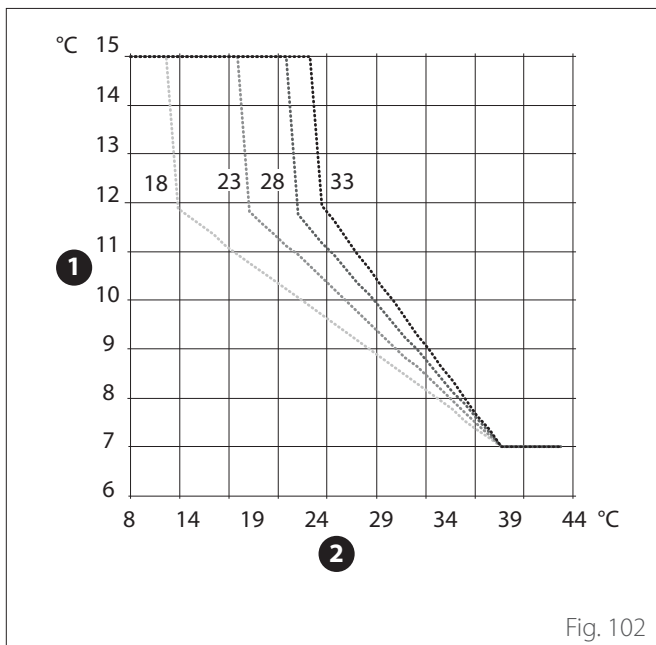
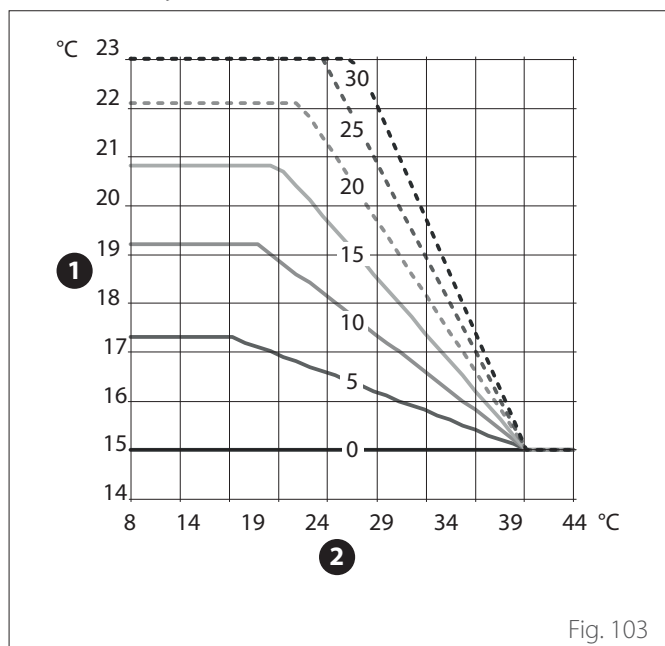


Fig. 102

- 1 Delivery temperature to the system
- 2 Outside air temperature

## Under-floor system



- 1 Delivery temperature to the system
- 2 Outside air temperature

When the outdoor temperature rises (summer), three conditions may arise:

- The room temperature increases, indicating that a gentler curve must be set.
- The room temperature decreases, indicating that a steeper curve must be set.
- The temperature of the room remains constant, indicating that the set curve is exactly right.

Once you have found the curve which maintains the room temperature at a constant level, check the actual temperature value.

**IMPORTANT:**

**If the room temperature is higher than the desired value, the curve must be shifted lower. If the room temperature is too low, the curve should be shifted upwards. If the temperature of the room corresponds with the desired value, the curve is correct.**

**In the above graph, the curves have been divided into two groups:**

- **Fan-coil systems**
- **Under-floor systems**

**4.5.4 Parallel shifting**

Turn the selector then set the most suitable value and press the selector to confirm.

**4.5.6 Maximum delivery temperature**

Turn the selector then set the most suitable value and press the selector to confirm.

**4.5.7 Minimum delivery temperature**

Repeat the steps described previously to set the values for zone 2 (where present), by selecting menu 5.

**6.8 Standard SG ready**

The SG ready function is activated from the technical menu Par. 1.1.0 (=3) and Par. 1.1.4 (=3).

SG Ready 1 Input	SG Ready 2 Input	Description
0 V	0 V	The system works according to its standard logics.
230 V	0 V	The system is OFF for maximum 2 hours, the anti-freeze protection remains active.
0 V	230 V	In the schedule programming mode during the reduced time slot the delivery set-point is set to the comfort set-point temperature.
230 V	230 V	In the schedule programming mode during the reduced time slot the delivery set-point is set to the comfort set-point temperature. The heating elements are not enabled.

## 6.9 Parameter table

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
1	Energy Manager			
1. 0	Basic parameters			
1. 0. 0	IDU type	0	0 = None 1 = Hybrid Mode 2 = Hydraulic module 3 = Light	
1. 0. 1	External Unit Version	1	0 = None 1 = Heat Pump	
1. 0. 2	Tank management	0	0 = None 1 = Storage with NTC 2 = Storage with Thermostat	
1. 0. 6	Thermoregulation	1	0 = Provisioned - Not active 1 = Run	
1. 1	Multifunctional PCB			
1. 1. 0	HV input 1	1	1 = Absent 2 = EDF 3 = SG1 4 = External switch off signal 5 = Photovoltaic integration	
1. 1. 1	HV input 2	1	1 = Absent 2 = DLSG 3 = SG2 4 = External switch off signal 5 = Photovoltaic integration	
1. 1. 3	AUX input 1	0	0 = None 1 = Humidistat sensor 2 = Heat / Cool by external control 3 = Room thermostat HC3 4 = Safety thermostat 5 = Photovoltaic integration	
1. 1. 4	AUX input 2	0	0 = None 1 = Humidistat sensor 2 = Heat / Cool by external control 3 = Room thermostat HC3 4 = Safety thermostat 5 = Photovoltaic integration	
1. 1. 5	Electric heat sources blocking type	0	0 = None 1 = Soft lockout 2 = Hard lockout 3 = Hybrid lockout	
1. 1. 7	CH Press Detection Device	2(*)	0 = Not defined 1 = Pressure switch 2 = Pressure sensor	(*) only "0" if Par. 1.0.0 = 3
1. 1. 8	System flow T selection	1(*)	0 = LWT 1 = Flow temperature	(*) "0" if Par. 1.0.0 = 3

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
1. 1. 9	Humidity input zone	0	0 = All zones 1 = Zone 1 2 = Zone 2 3 = Zone 3 4 = Zone 4 5 = Zone 5 6 = Zone 6 7 = Zones 1 , 2 8 = Zones 3 , 4 9 = Zones 5 , 6 10 = Zones 1,2,3 11 = Zones 4,5,6	
1. 2	Output configuration			
1. 2. 0	AUX output 1	0	0 = None 1 = Fault alarm 2 = Humidistat alarm 3 = External heat and DHW request 4 = Cooling serving 5 = DHW request 6 = Heat / Cool mode 7 = CH request 8 = Cooling request	
1. 2. 1	AUX output 2	0	0 = None 1 = Fault alarm 2 = Humidistat alarm 3 = External heat and DHW request 4 = Cooling serving 5 = DHW request 6 = Heat / Cool mode 7 = CH request 8 = Cooling request	
1. 2. 2	AUX output 3	0	0 = None 1 = Fault alarm 2 = Humidistat alarm 3 = External heat and DHW request 4 = Cooling serving 5 = DHW request 6 = Heat / Cool mode 7 = CH request 8 = Cooling request	
1. 2. 3	AUX output 4	0	0 = None 1 = Fault alarm 2 = Humidistat alarm 3 = External heat and DHW request 4 = Cooling serving 5 = DHW request 6 = Heat / Cool mode 7 = CH request 8 = Cooling request	
1. 2. 5	AUX P2 circulator setting	0	0 = Auxiliary circulator 1 = Cooling circulator 2 = Buffer circulator 3 = DHW circulator	
1. 2. 6	Pro-Tech anode active	1	0 = OFF 1 = ON	

Menu.	Sub-menu.	Parameter	Description	Default	Range - Value	Notes
1.	3		CH secondary heat source activation			
1.	3.	0	CH aux heat source activation logic	1	0 = Heat integr. and backup 1 = HP failure backup	
1.	3.	1	Active resistance stages	2		
1.	3.	2	ECO / COMFORT	2	0 = Eco Plus 1 = Eco 2 = Average 3 = Comfort 4 = Comfort Plus	
1.	4		DHW secondary heat source activation			
1.	4.	0	DHW aux heat source activation logic	0	0 = Heat integr. and backup 1 = HP failure backup	
1.	4.	1	Active resistance stages	2	0 = None 1 = 1 Stage 2 = 2 Stages 3 = 3 Stages	
1.	4.	2	Delay timer	30 min	[10 -120]min	
1.	4.	3	Release integral threshold	60°C*min	[15 -200]°C*min	
1.	4.	4	Tank electric heater	0	0 = Absent 1 = Disabled 2 = Alone electric heater 3 = Auxiliary	
1.	4.	6	DHW high priority temperature threshold	20°C	20°C - Par. 1.9.0 DHW Comfort Temperature	
1.	5		Energy manager parameter 1			
1.	5.	0	Min pressure	0.4 bar	[0.3 -0.4]bar	
1.	5.	1	Warning pressure	0.6 bar	[0.4 -0.8]bar	
1.	5.	2	Text for boiler disabling	35°C	[Text for boiler disabling; 40]°C	
1.	5.	3	Text for HP disabling	-20°C	[-20;Text for HP disabling]°C	
1.	5.	4	Hp disabling out temp DHW	-20°C	[-20;Hp disabling out temp DHW]°C	
1.	5.	5	External temperature correction	0°C	[-3; +3 ]°C	
1.	5.	9	Filling pressure	1.2 bar	[0.9 - 1.5]bar	
1.	6		Water circulation			
1.	6.	0	CH pump prerun time	30s	[30-255]s	
1.	6.	1	Time for prerun new attempt	90s	[0-100]s	
1.	6.	2	CH pump overrun	3min	[0-16]min	
1.	6.	3	Pump speed control	2	0 = Low speed 1 = High speed 2 = Modulating	
1.	6.	4	Antifreeze HP circulator control	1	0 = Low speed 1 = Med speed 2 = High speed	
1.	7		CH			
1.	7.	1	Boost Time	16min	[0 - 60] min	
1.	7.	2	FlowT HP Offset	0°C	[0 - 10]°C	
1.	8		Cool mode			
1.	8.	0	Cooling mode activation	0	0 = Provisioned - Not active 1 = Run	
1.	8.	2	Cooling FlowT HP Offset	0°C	[-10 - 0]°C	
1.	9		Domestic hot water			
1.	9.	0	DHW comfort setpoint temp.	55°C	[35 - 65] °C	
1.	9.	1	DHW reduced setpoint temp.	35°C	[35 - DHW reduced setpoint temp.]°C	

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
1. 9. 2	Comfort Function	2	0 = Disabled 1 = Time Based 2 = Always active	
1. 9. 3	DHW operation mode	1	0 = Standard 1 = GREEN 2 = HC - HP 3 = HC - HP 40	
1. 9. 5	Max HP charging time	120 min	[30-240]min	
1. 9. 6	Thermal cleanse function	1	0 = OFF 1 = ON	
1. 9. 7	Thermal Cleanse start time [hh:mm]	01:00	[00:00-24:00]	
1. 9. 8	Thermal Cleanse Cycle frequency	481 (=720h)	[24, 481 (=720h)]h	
1. 10	Manual Mode - 1			
1. 10. 0	Manual mode activation	0	0 = OFF 1 = ON	
1. 10. 1	HP circulator control	0	0 = OFF 1 = Low speed 2 = High speed	
1. 10. 2	Diverter valve control	0	0 = Domestic hot water 1 = CH	
1. 10. 3	Diverter valve COOLING	0	0 = CH 1 = Cool mode	
1. 10. 4	Auxiliary circulator	0	0 = OFF 1 = ON	
1. 10. 5	Test resistance 1	0	0 = OFF 1 = ON	
1. 10. 6	Test resistance 2	0	0 = OFF 1 = ON	
1. 10. 7	Test resistance 3	0	0 = OFF 1 = ON	
1. 10. 8	All output AUX contact	0	0 = OFF 1 = ON	
1. 10. 9	Anode output	0	0 = OFF 1 = ON	
1. 11	Manual Mode - 2			
1. 11. 0	Manual mode activation	0	0 = OFF 1 = ON	
1. 11. 1	Force Hp Heat	0	0 = OFF 1 = ON	
1. 11. 2	Force Hp Cool	0	0 = OFF 1 = ON	
1. 11. 4	Rating Heating Mode	0	0 = OFF 1 = ON	
1. 11. 5	Rating Cooling Mode	0	0 = OFF 1 = ON	
1. 11. 6	Tank electric heater	0	0 = OFF 1 = ON	
1. 12	Test & Utilities			
1. 12. 0	Air-purge function	0	0 = OFF 1 = ON	
1. 12. 1	Antiblocking function enable	1	0 = OFF 1 = ON	
1. 12. 2	Quiet mode activation HHP	0	0 = OFF 1 = ON	
1. 12. 3	Quiet mode start time HHP [hh:mm]	22:00	[00:00 - 24:00]	
1. 12. 4	Quiet mode end time HHP [hh:mm]	06:00	[00:00 - 24:00]	
1. 12. 5	Floor drying cycle	0	0-5	



Menu.	Sub-menu.	Parameter	Description	Default	Range - Value	Notes
1.	12.	6	Floor drying Flow Set Point T	55°C	[25-60]°C	
1.	12.	7	Floor drying total Remaining Days			
1.	12.	8	Dhw rating mode	0	0-3	
1.	12.	9	Exogel kit activation	1	0 = OFF 1 = ON	
1.	14		Energy Manager Statistics			
1.	14.	1	Heating running hours (h/10)			
1.	14.	2	DHW running hours (h/10)			
1.	14.	3	Resistor 1 running hours (h/10)			
1.	14.	4	Resistor 2 running hours (h/10)			
1.	14.	5	Resistor 3 running hours (h/10)			
1.	16		EM diagnostics - 1 input			
						0 = Standby 1 = Antifrost 2 = HP Discharge temp 4 = Domestic hot water 5 = Thermal cleanse function 6 = Air purge function 7 = Chimney function 8 = Floor drying cycle 9 = No heat generation 10 = Manual mode 11 = Error 12 = Initialization 13 = OFF 14 = Cool mode 15 = DHW antifreeze 16 = Photovoltaic integration 17 = Dehumidification 18 = Pump Down 19 = Defrost 20 = Buffer Heating+DHW Serving 21 = Buffer Cooling+DHW Serving 22 = Buffer Heating Serving 23 = Buffer Cooling Serving 24 = Automatic calibration
1.	16.	0	Energy Manager status			
						0 = None 1 = Hybrid combi 2 = Hybrid system 3 = Hybrid system with thermostat 4 = Pacman plus 5 = Pacman flex 6 = Pacman flex with thermostat 7 = Pacman light plus 8 = Pacman light flex 9 = Pacman light flex with thermostat
1.	16.	1	Hydraulic scheme diagnostic			
1.	16.	2	CH flow set T			
1.	16.	3	CH flow temperature			
1.	16.	5	DHW storage temperature			
1.	16.	6	Pressure switch		0 = Open 1 = Close	
1.	16.	7	Heating circuit pressure			

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
1. 17	EM diagnostics - 2 input			
1. 17. 0	Room Thermostat 1		0 = OFF 1 = ON	
1. 17. 1	Room Thermostat 2		0 = OFF 1 = ON	
1. 17. 2	AUX input 1		0 = Open 1 = Close	
1. 17. 3	AUX input 2		0 = Open 1 = Close	
1. 17. 4	HV input 1		0 = OFF 1 = ON	
1. 17. 5	HV input 2		0 = OFF 1 = ON	
1. 18	EM diagnostics - 1 output			
1. 18. 0	CH Circulator status		0 = OFF 1 = ON	
1. 18. 1	Tank electric heater		0 = OFF 1 = ON 2 = Integration 3 = Lockout	
1. 18. 2	HC Pump 2		0 = OFF 1 = ON	
1. 18. 3	Diverter Valve (CH/DHW)		0 = Domestic hot water 1 = CH	
1. 18. 4	Diverter Valve 2 (CH/Cooling)		0 = CH 1 = Cool mode	
1. 18. 5	CH backup resistance 1		0 = OFF 1 = ON	
1. 18. 6	CH backup resistance 2		0 = OFF 1 = ON	
1. 18. 7	CH backup resistance 3		0 = OFF 1 = ON	
1. 18. 8	AUX output 1		0 = Open 1 = Close	
1. 18. 9	AUX output 2		0 = Open 1 = Close	
1. 19	Service			
1. 19. 0	SW Version main			
1. 20	System integration			
1. 20. 0	PV offset DHW setpoint temperature	0°C	0-20°C	
1. 20. 2	Tank solar integration	0	0 = Absent 1 = Present	
1. 20. 3	OpenTherm gateway activation	0	0 = Absent 1 = Present	
1. 21	Error History			
1. 21. 0	Last 10 errors			
1. 21. 1	Reset error list			
1. 21. 1	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
1. 22	Reset Menu			
1. 22. 0	Reset factory settings			
1. 22. 0	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
4	Zone 1 parameters			
4. 0	Setpoint			
4. 0. 0	T Day	19°C Heat - 24°C Cool	10-30°C	
4. 0. 1	T Night	13°C Heat - 30°C Cool	10-30°C	
4. 0. 2	T set Z1	40 [HT] - 20 [LT]	par 4.2.5 - par 4.2.6	
4. 0. 3	Zone frost temperature	5°C	2-15°C	
4. 1	Automatic winter mode			
4. 1. 0	Automatic winter mode activation	0	0 = OFF 1 = ON	
4. 1. 1	Automatic winter mode threshold	20°C	10-30°C	
4. 1. 2	Automatic winter mode delay time	300	0-600	
4. 2	Settings			
4. 2. 0	Zone temperature range	1	0 = Low Temp[LT] 1 = High Temp[HT]	
4. 2. 1	Thermoregulation	1	0 = Fix Flow T 1 = Basic Thermoreg 2 = Room T Only 3 = Outdoor T Only 4 = Room+Outdoor T	
4. 2. 2	Slope	0.6 [LT] or 1.5 [HT]	0.2-1 [LT] or 0.4-3.5 [HT]	
4. 2. 3	Paral shift	0	-14 +14 [HT] or -7 +7 [LT]	
4. 2. 4	Room Influence Proportional	10 [HT] or 2 [LT]	0-20	
4. 2. 5	Max T	60 [HT] or 45 [LT]	20-70 [HT] or 20-45 [LT]	
4. 2. 6	Min T	20 [HT] or 20 [LT]	20-70 [HT] or 20-45 [LT]	
4. 2. 7	Thermoregulation logic	0	0 = Classic 1 = Smart	
4. 2. 8	Quick night setback	0	0 = OFF 1 = ON	
4. 2. 9	Heat request mode	0	0 = Standard 1 = RT Time Programs Exclusion 2 = Forcing Heat Demand	
4. 3	Diagnostics			
4. 3. 0	Room T			
4. 3. 1	Room T setpoint			
4. 3. 2	Flow temperature			Visible only with Zone Module
4. 3. 3	Return temperature			Visible only with Zone Module
4. 3. 4	Heat Request Z1		0 = OFF 1 = ON	
4. 3. 5	Pump status		0 = OFF 1 = ON	Visible only with Zone Module
4. 3. 7	Relative humidity			
4. 3. 8	Zone flow temperature setpoint			
4. 4	Zone module settings			
4. 4. 0	Zone pump modulation	1	0 = Fixed 1 = Modulating on DeltaT 2 = Modulating on pressure	Visible only with Zone Module
4. 4. 1	Target deltaT for pump modulation	20 [HT] or 7 [LT]	4-25	Visible only with Zone Module

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
4. 4. 2	Pump fixed speed	100	20-100	Visible only with Zone Module
4. 5	Cool mode			
4. 5. 0	T Set Cool			
4. 5. 1	Cooling Temp Range	0	0 = Fan Coil[FC] 1 = Underfloor[UFH]	
4. 5. 2	Thermoregulation	0	0 = ON/OFF Thermostat 1 = Fix Flow T 2 = Outdoor T Only	
4. 5. 3	Slope	25 [FC] or 20 [UFH]	18-33 [FC] or 0-60 [UFH]	
4. 5. 4	Paral shift	0°C	(-2.5 – 2.5)°C	
4. 5. 6	Max T	12°C [FC] 23°C [UFH]	Min T – 15°C [FC] or Min T - 23°C [UFH]	
4. 5. 7	Min T	7°C [FC] 18°C [UFH]	7°C – Max T [FC] or 15°C – Max T [UFH]	
4. 5. 8	Target deltaT for pump modulation	-5°C	-5 - -20°C	Visible only with Zone Module
4. 7	Zone regulation parameters			Visible only with 4.2.7 or 5.2.7 = 1
4. 7. 0	Heating Type	0	0 = Floor Heating 1 = Radiators 2 = Floor Heating (main) + Radiators 3 = Radiators (main) + Floor Heating 4 = Convection 5 = Air Heating	
4. 7. 1	Room Influence	0	0 = OFF 1 = Less 2 = Average 3 = More	
4. 7. 2	Building Isolation Level	0	0 = Poor 1 = Average 2 = Good	
4. 7. 3	Building Size	0	0 = Small 1 = Average 2 = Large	
4. 7. 4	Climatic Zone	0°C	-20°C - 30°C	
4. 7. 5	Auto Slope Adaptation	0	0 = OFF 1 = ON	
4. 7. 6	Preheating function	0	0 = OFF 1 = ON	
4. 8	Advanced settings			
4. 8. 3	Heating controller	2	0 = None 1 = Room thermostat 2 = Room Sensor	
4. 8. 4	Cooling controller	1	0 = None 1 = Room thermostat 2 = Room Sensor	
5	Zone 2 parameters			
5. 0	Setpoint			
5. 0. 0	T Day	19°C Heat - 24°C Cool	10-30°C	

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
5. 0. 1	T Night	13°C Heat - 30°C Cool	10-30°C	
5. 0. 2	T set Z2	40 HT - 20 LT	par 425-426	
5. 0. 3	Zone frost temperature	5°C	2-15°C	
5. 1	Automatic winter mode			
5. 1. 0	Automatic winter mode activation	0	0 = OFF 1 = ON	
5. 1. 1	Automatic winter mode threshold	20°C	10-30°C	
5. 1. 2	Automatic winter mode delay time	300	0-600	
5. 2	Settings			
5. 2. 0	Zone temperature range	0	0 = Low Temp 1 = High Temp	
5. 2. 1	Thermoregulation	1	0 = Fix Flow T 1 = Basic Thermoreg 2 = Room T Only 3 = Outdoor T Only 4 = Room+Outdoor T	
5. 2. 2	Slope	0.6 [LT] or 1.5 [HT]	0.2-1 [LT] or 0.4-3.5 [HT]	
5. 2. 3	Paral shift	0	-14 +14 [HT] or -7 +7 [LT]	
5. 2. 4	Room Influence Proportional	10 (HT) or 2 (LT)	0-20	
5. 2. 5	Max T	60 [HT] or 45 [LT]	20-70 [HT] or 20-45 [LT]	
5. 2. 6	Min T	20 [HT] or 20 [LT]	20-70 [HT] or 20-45 [LT]	
5. 2. 7	Thermoregulation logic	0	0 = Classic 1 = Smart	
5. 2. 8	Quick night setback	0	0 = OFF 1 = ON	
5. 2. 9	Heat request mode	0	0 = Standard 1 = RT Time Programs Exclusion 2 = Forcing Heat Demand	
5. 3	Diagnostics			
5. 3. 0	Room T			
5. 3. 1	Room T setpoint			
5. 3. 2	Flow temperature			Visible only with Zone Module
5. 3. 3	Return temperature			Visible only with Zone Module
5. 3. 4	Heat Request Z2		0 = OFF 1 = ON	
5. 3. 5	Pump status		0 = OFF 1 = ON	Visible only with Zone Module
5. 3. 7	Relative humidity			
5. 3. 8	Zone flow temperature setpoint			
5. 4	Zone module settings			
5. 4. 0	Zone pump modulation	1	0 = Fixed 1 = Modulating on DeltaT 2 = Modulating on pressure	Visible only with Zone Module
5. 4. 1	Target deltaT for pump modulation	20 [HT] or 7 [LT]	4-25	
5. 4. 2	Pump fixed speed	100	20-100	
5. 5	Cool mode			
5. 5. 0	T Set Cool			
5. 5. 1	Cooling Temp Range	1	0 = Fan Coil 1 = Underfloor	

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
5. 5. 2	Thermoregulation	0	0 = ON/OFF Thermostat 1 = Fix Flow T 2 = Outdoor T Only	
5. 5. 3	Slope	25 [FC] or 20 [UFH]	18-33 [FC] or 0-60 [UFH]	
5. 5. 4	Paral shift	0°C	(-2.5 – 2.5)°C	
5. 5. 6	Max T	12°C [FC] 23°C [UFH]	Min T – 15°C [FC] or Min T – 23°C [UFH]	
5. 5. 7	Min T	7°C [FC] 18°C [UFH]	7°C – Max T [FC] or 15°C – Max T [UFH]	
5. 5. 8	Target deltaT for pump modulation	-5°C	-5 - -20°C	Visible only with Zone Module
5. 7	Zone regulation parameters			Visible only with 4.2.7 or 5.2.7 = 1
5. 7. 0	Heating Type	0	0 = Floor Heating 1 = Radiators 2 = Floor Heating (main) + Radiators 3 = Radiators (main) + Floor Heating 4 = Convection 5 = Air Heating	
5. 7. 1	Room Influence	0	0 = OFF 1 = Less 2 = Average 3 = More	
5. 7. 2	Building Isolation Level	0	0 = Poor 1 = Average 2 = Good	
5. 7. 3	Building Size	0	0 = Small 1 = Average 2 = Large	
5. 7. 4	Climatic Zone	0°C	-20°C - 30°C	
5. 7. 5	Auto Slope Adaptation	0	0 = OFF 1 = ON	
5. 7. 6	Preheating function	0	0 = OFF 1 = ON	
5. 8	Advanced settings			
5. 8. 3	Heating controller	2	0 = None 1 = Room thermostat 2 = Room Sensor	
5. 8. 4	Cooling controller	1	0 = None 1 = Room thermostat 2 = Room Sensor	
7	General Zone Module			Visible only with Zone Module
7. 0	Not a real number			
7. 1	Manual mode			
7. 1. 0	Manual mode activation	0	0 = OFF 1 = ON	
7. 1. 1	Z1 Pump control	0	0 = OFF 1 = ON	
7. 1. 2	Z2 Pump control	0	0 = OFF 1 = ON	

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
7. 1. 3	Z3 Pump control	0	0 = OFF 1 = ON	
7. 1. 4	Z2 Mix Valve Control	0	0 = OFF 1 = Open 2 = Close	
7. 1. 5	Z3 Mix Valve Control	0	0 = OFF 1 = Open 2 = Close	
7. 1. 6	Z1 Mix Valve Control	0	0 = OFF 1 = Open 2 = Close	
7. 2	General Zone Module			
7. 2. 0	Hydraulic scheme	2	0 = Not defined 1 = MCD 2 = MGM II 3 = MGM III 4 = MGZ I 5 = MGZ II 6 = MGZ III	
7. 2. 1	FlowT Offset	0°C	[0 - 40]°C	
7. 2. 2	Auxiliary output setting	0	0 = Heat request 1 = External pump 2 = Alarm	
7. 2. 3	External temperature correction	0	-3°C - 3°C	
7. 2. 4	Valves overrun time	0		
7. 2. 5	Valves Driving Delta T	0		
7. 2. 6	Valves Kp Heating	0		
7. 2. 7	Mixing zones shifting mode	0	0 = Disabled 1 = Enabled	
7. 2. 8	Pumps overrun time ZM1	150s	[0 - 600]s	
7. 2. 9	HC pump overrun DHW	0	0 = OFF 1 = ON	
7. 3	Cool mode			
7. 3. 0	FlowT Offset Cooling	0°C	[0 - 6]°C	
7. 3. 1	Cooling mode activation	0	0-1	
7. 5. 9	Pumps overrun time ZM2	150s	[0 - 600]s	
7. 7	Not a real number			
7. 8	Error History			
7. 8. 0	Last 10 errors			
7. 8. 1	Reset error list			
7. 8. 1	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
7. 8. 2	Last 10 errors 2			
7. 8. 3	Reset error list 2			
7. 8. 3	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
7. 9	Reset Menu			
7. 9. 0	Multi Function Clip			
7. 9. 0	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
7. 9. 1	Reset factory settings 2			

Menu.	Sub-menu.	Parameter	Description	Default	Range - Value	Notes
7.	9.	1	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
13 Heat Pump TDM						
13. 0 Basic parameters						
13. 1 Input configuration						
13.	1.	0	TDM Flow Sensor Type	0	0 = Not Selected (Self-Recognition) 1 = DN 15 2 = DN 20	
13. 2 Output configuration						
13.	2.	1	HP Electric Heater Config	0	0 = OFF 1 = ON	
13. 3 TDM parameters						
13. 4 Water circulation						
13.	4.	4	Target deltaT for pump modulation	5°C	[5 - 20]°C	
13.	4.	5	Max PWM Pump	100%	TDM Min PWM Pump - 100%	
13.	4.	6	Min PWM Pump	40%	20 - TDM Max PWM Pump	
13. 5 Manual mode						
13. 5. 0 Manual mode activation						
13.	5.	1	Compressor frequency setting	120 Hz	[18 - 120]Hz	
13.	5.	2	Fan 1 rpm setting	500 RPM	[0 - 1000] RPM	
13.	5.	3	Fan 2 rpm setting	500 RPM	[0 - 1000] RPM	
13. 6 Test & Utilities						
13.	6.	0	Refrigerant Recover	0	0 = OFF 1 = ON	
13.	6.	1	Defrost	0	0 = OFF 1 = ON	
13. 7 Energy Manager Statistics						
13. 7. 0 HP running hours (h/10)						
13. 7. 1 HP on cycles (n/10)						
13. 7. 2 HP defrost hours (h/10)						
13. 7. 3 Cooling running hours (h/10)						
13. 8 HP diagnostics - input 1						
13. 8. 0 Outside air temperature						
13. 8. 1 HP water flow temp						
13. 8. 2 HP water return temp						
13. 8. 3 HP Evaporator temp						
13. 8. 4 HP Suction temp						
13. 8. 5 HP Discharge temp						
13. 8. 6 HP condenser outlet temp						
13. 8. 7 TEO						



Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
13. 9	HP diagnostics - input 2			
				0 = OFF 1 = Standby 2 = Cool mode 3 = CH 4 = Booster Heating 5 = Booster Cooling 6 = Rating Heating Mode 7 = Rating Cooling Mode 8 = Frost Protection 9 = Defrost 10 = High temperature protection 11 = Timeguard 12 = System Fail 13 = System Fail 14 = Pump Down 15 = Soft Fail Mode 16 = Rating only fan 17 = Defrost 18 = Casacade heating 19 = Cascade cooling
13. 9. 0	Heat Pump Mode			
13. 9. 1	Last inverter error			
13. 9. 2	HP evaporator refrigerant flow temp. (TEIM)		0 = Open 1 = Close	
13. 9. 3	Flowmeter			
13. 9. 4	Boiler Flowswitch		0 = Open 1 = Close	
13. 9. 5	Inverter shut off protection			
13. 9. 6	Evaporator pressure P			
13. 9. 7	Condenser pressure P			
13. 10	HP diagnostics - output 1			
13. 10. 0	Inverter Capacity			
13. 10. 1	HP actual compressor frequency			
13. 10. 2	HP set compressor modulation			
13. 10. 3	Electric Heater 1		0 = OFF 1 = ON	
13. 10. 4	CH Circulator status		0 = OFF 1 = ON	
13. 10. 5	Measured rpm fan 1			
13. 10. 6	Measured rpm fan 2			
13. 10. 7	Expansion valve			
13. 11	HP diagnostics - output 2			
13. 11. 0	compressor on/off		0 = OFF 1 = ON	
13. 11. 1	compressor preheating		0 = OFF 1 = ON	
13. 11. 2	current fan 1 status		0 = OFF 1 = ON	
13. 11. 3	current fan 2 status		0 = OFF 1 = ON	
13. 11. 4	4way valve heat / cool		0 = CH 1 = Cool mode	
13. 11. 5	Base panel heater status		0 = OFF 1 = ON	
13. 12	Service			
13. 12. 0	SW Version main			

Menu. Sub-menu. Parameter	Description	Default	Range - Value	Notes
13. 13	Error History			
13. 13. 0	Last 10 errors			
13. 13. 1	Reset error list			
13. 13. 1	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
13. 14	Reset Menu			
13. 14. 0	Reset factory settings			
13. 14. 0	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
13. 14. 1	Service reset			
13. 14. 1	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
13. 14. 2	Cmp timer reset			
13. 14. 2	Do you really want to perform the reset ? If you press OK button, the reset command will be executed otherwise, by way of ESC, the previous page is shown			
20	General			
20. 0	DHW setpoint temperature			
20. 0. 0	Buffer activation		0 = OFF 1 = ON	
20. 0. 1	Buffer charge mode		1 = Partial charge 2 = Full charge	
20. 0. 2	Buffer setpoint temperature hysteresis			
20. 0. 3	Buffer comfort setpoint heating			
20. 0. 4	Buffer comfort setpoint cooling			
20. 0. 5	SG Ready Buffer setpoint			
20. 0. 6	Offset PV integration setpoint			
20. 0. 7	Buffer setpoint mode		0 = Fixed 1 = Variable	
20. 0. 8	Buffer hysteresis cooling			
20. 1	Diagnostics			
20. 1. 0	Low sensor temperature			
20. 1. 2	High sensor temperature			
20. 1. 4	Would you confirm ?		0 = Absent 1 = Disabled 2 = OFF 3 = Unlock 4 = Starting 5 = Antifrost 6 = SW version # 7 = Buffer high probe error 8 = Buffer overtemperature 9 = File System version # 10 = Disconnect the connector of the temperature probes.	
20. 2	Gas Type			
20. 2. 2	Buffer charge hours Heating (/10)			
20. 2. 3	Buffer charge hours Cooling (/10)			

Menu.	Sub-menu.	Parameter	Description	Default	Range - Value	Notes
20.	3		Maximum Water temp			
20.	3.	0	Control mode		0 = Disabled 1 = Time Based 2 = Always active	
20.	3.	1	Reduced Setpoint heating			
20.	3.	2	Reduced Setpoint cooling			
20.	4		System settings			
20.	4.	0	Buffer integration scheme		0 = Series 1 = Parallel	
20.	4.	1	Buffer solar integration		0 = NO 1 = YES	
20.	4.	2	Buffer offset compensation heating			
20.	4.	3	Buffer offset compensation cooling			
20.	4.	4	Buffer electric integration offset			

## 7. Service

Maintenance is an essential operation for safety, correct boiler operation, and system durability.

It must be carried out in accordance with applicable regulations.

You should regularly check the refrigerant gas pressure.

Before beginning maintenance work:

- Disconnect the power supply to the system.
- Close the circuit heating water and domestic hot water taps.

Initial safety checks:

- check that the condensers are empty; this must be done safely to prevent possible sparks;
- check that no live component and electrical wiring are exposed during charging, recovery or purging of the system;
- check that the earthing connection is uninterrupted.



**The minimum water temperature in heating mode, in order for the system to function correctly, is 20°C. In the absence of back-up energy sources, if the water temperature is below 20°C there could be problems during the machine start-up phase. IT IS FORBIDDEN TO ELECTRICALLY DISCONNECT THE INTEGRATED HEATING ELEMENTS FROM THE TERMINAL BOARD, AND WE RECOMMEND NOT TO DISABLE THEM (PAR. 1.3.1 and 1.4.1)**



**If any work must be carried out on hot cooling equipment or on any other associated part, adequate fire-safety equipment must be on hand. Keep a dry powder or CO<sub>2</sub> fire extinguisher close to the charging area.**



**The ventilation should safely disperse the refrigerant released and preferably expel it towards the outside.**



**The repair and maintenance of electrical components should include initial safety checks and component inspection procedures.**



**If there is a fault that could jeopardise safety, do not connect the power supply to the circuit until the problem has been adequately resolved. If the fault cannot be resolved immediately but the device must nonetheless continue operating, adopt an adequate temporary solution. This must be signalled to the owner of the equipment so that all relevant parties can be notified.**



**Check that the gas detector is not a potential source of ignition and that it is suitable for the refrigerant used. The leak detection equipment must be set to a percentage of the refrigerant's LFL and must be calibrated on the basis of the refrigerant used, confirming the appropriate gas percentage (25% maximum).**



**The check must also take into account the effects of ageing or the continuous vibrations generated by sources such as compressors or fans.**



**It is possible to use electronic leak detectors to find refrigerant leakages, but if flammable refrigerants are used their sensitivity may be inadequate or may have to be recalibrated.**



**Fluids for detecting leaks are also suitable for use with most refrigerants, however detergents containing chlorine must be avoided, as chlorine may react with the refrigerant and corrode the copper pipes.**



**If a leak is suspected, all open flames must be eliminated/extinguished.**



**If repairs (or any other intervention) must be carried out in the refrigerant circuit, conventional procedures must be used.**

### Checklist for annual maintenance

Check the following elements at least once a year:

- **Visual inspection of the general state of the system.**
- **Carry out a general inspection of the system operation.**

- **Outdoor unit heat exchanger.**

The heat exchanger of the outdoor unit may be obstructed by dust, dirt, leaves, etc.

A heat exchanger lock-out can lower or raise the pressure levels excessively; if the unit works in these conditions, the performances will deteriorate with respect to the declared values. Remove the obstructions, if present.

- **Front grille of the outdoor unit.**

The front grille of the outdoor unit can get clogged. Remove the obstructions, if present.

- **Plumbing connections.**

Visually inspect all the sleeves, pipes and plumbing connections to identify any leakages. Replace the seals if necessary.

- **Water pressure.**

Check that the water pressure value is between 1 and 2 bar.

- **Expansion vessel.**

Check the pre-charge pressure of the expansion vessel and replenish it if it is too low or replace it if damaged.

- **Water filter (if installed).**

Clean the water filter frequently to remove any residues.

- **Multi-function magnetic filter.**

Following a prolonged shutdown, dirt residues may deposit in the system and clog the filter. We therefore recommend verifying the condition of the filter in these situations.

Check that both parts of the magnetic filter are tightly screwed on.

To clean the filter a 3/4"-diameter hose is required for draining the water. Use an intermediate hose connection to connect the hose. Proceed as follows:

- Loosen the ring nut **(1)** using the relevant tool.
- Remove the side band **(2)**.
- Fasten the relevant hose connector **(3)** to the outlet **(4)** and connect the pipe **(5)**.
- Open the valve **(6)**.

**Note:** with column-type units, use the hose connector installed on the indirect cylinder discharge outlet.

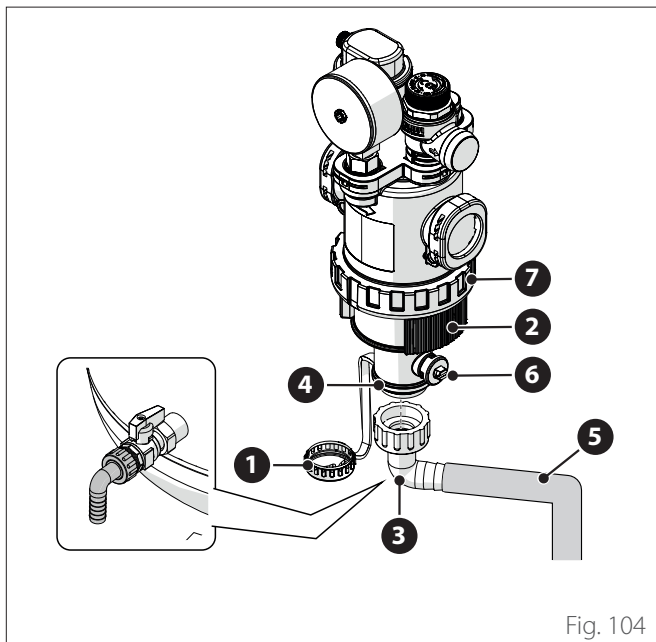


Fig. 104



**The filter must be opened only during extraordinary maintenance when the filter is clogged. To clean the metal mesh, proceed as follows:**

- Loosen ring nut **(7)** and, using the relevant tool, remove the lower part of the filter to access the metal mesh.
- Remove the metal mesh and clean it.
- Mount the metal mesh back on and screw the lower part of the filter back on.
- **Safety valve discharge pipe.**  
Check that the pipe of the overpressure valve is properly positioned for draining the water and removing any obstructions.
- **Abnormal noises/vibrations of the outdoor unit.**  
Check the noise level of the outdoor unit: if it appears to be abnormal (for example, due to contacts or rubbing between metal parts), check the tightness of the screws and of the vibration-damping supports and the spacing between pipes (especially those with reduced diameter, such as the capillary pipes in the evaporator).

– **Automatic deaeration valve.**

To check the condition of the discs, it is necessary to access the upper part of the valve and dismantle it. If the disc appears to be damaged and/or has expanded to the point of obstructing (even partially) the air outlet hole, it must be replaced. The discs tend to wear out more when the supplementary heating element is used frequently.

– **Automatic deaeration function.**

Remove all the air present in the hydraulic circuit. Upon the initial start-up, an automatic deaeration cycle of the system will start. During the maintenance phase it is possible to set the Air Purge Function 1.12.0 to start an automatic deaeration cycle.

The air purge cycle should be repeated whenever the deaeration does not appear to have been sufficient.

– **2 Zones (if present).**



**Maintenance of the hydraulic components of the 2-zone model must be carried out on the rear of the product.**

**Checklist for annual maintenance of the electrical connections.**

Check the following elements at least once a year:

– **Electrical panels**

Open the electrical panels of the outdoor and indoor units and perform a visual inspection to verify that there are no evident defects, particularly with regard to the terminal boards. Check the tightness of the connection wire by wire so as to avoid potential loosening of any connection. In no case must there be any wires that are not connected to a terminal.

– **Cabling**

Check that all cable connectors are appropriately connected to their respective boards and that no elements are disconnected.

– **Supply voltage check.**

– **Electrical absorption check.**

**Checklist for annual maintenance of the domestic hot water storage tank (if included in the system).**

Check the following elements at least once a year:

– **Limescale removal.**

When using the device with very hard water, it is advisable to use an adequate scale remover.

– **Safety valve (if installed).**

The safety valve is used to protect the storage tank and the heat exchanger for domestic hot water production against overpressure. Consequently, its operation must be checked frequently and it must be inspected to ensure that it is not obstructed by limescale deposits of other residues. When expansion vessels are used, the safety valve is normally not subject to stress. However, over an extended period of time, it may stop working. Replace it if it is damaged.

– **Active anode (if installed).**

Permanent protection is ensured by the PRO-TECH anode connected electrically. Replace it if it is damaged.

– **Passive anode (if installed).**

Dismantle the magnesium anode and check its condition. Replace it if it is very eroded.

– **Hydraulic safety assembly (if installed).**

For countries that have implemented the EN 1487 European standard, domestic storage water heaters and similar appliances must be connected to the mains water using an appropriate hydraulic safety assembly. The hydraulic safety assembly supplied with the appliance (if present) does not conform to this standard; it is therefore necessary to install an additional device supplied as an accessory. If installed, periodically check that the drainage pipe is adequately positioned for draining water (refer to the installation instructions) and remove any obstructions.

– **Risk of freezing.**

If there is a risk of frost, the calorifier must be heated or emptied completely.

– **Cleaning of external parts.**

The external parts must be cleaned with a damp cloth. Avoid using solvents or detergents.



**Empty all components that could contain residual hot water before handling them. Descale the components, by following the instructions indicated on the descaling agent used. Perform this operation in a ventilated space, while wearing appropriate safety equipment; avoid mixing detergents and protect the equipment and surrounding objects.**

### User information

Inform the user on how to operate the installed system. In particular, hand this instruction manual to the users, informing them that it must be kept near the product at all times. Inform potential users that the following actions must be carried out:

- Periodically check the system water pressure.
- Restore system pressure, by deaerating the system when necessary.
- Adjust the setting parameters and the adjustment devices to optimise operation and reduce the system's operating costs.
- Perform regular maintenance, as envisaged in the standards.

### Anti-freeze function of the indoor unit

The primary circulation pump of the indoor unit starts at maximum power when the temperature measured by the "CH Flow" sensor falls below 7°C in heating mode.

The primary circulation pump stops when the temperature measured by the "CH Flow" sensor rises above 9°C in heating mode.



**The integrated heating elements must never be disconnected electrically from the terminal board.**

### Anti-freeze function of the outdoor unit

The primary circulation pump of the outdoor unit starts at the minimum speed when the water delivery temperature (LWT) is below 10°C or the return temperature (EWT) is below 7°C in heating mode. It will instead start if the delivery temperature (LWT) is less than 1°C in cooling mode.

The primary circulation pump stops at when the delivery temperature (LWT) is below 10°C or the return temperature (EWT) is above 8°C in heating mode. It will instead stop if the delivery temperature (LWT) is above 4°C in cooling mode.

If the LWT sensor malfunctions, the protection logic will be based on the values measured by the outdoor temperature sensor (OAT) of the outdoor unit. The primary circulation pump starts when the external temperature sensor gives a reading below 7°C in heating mode. The primary circulation pump stops after 30 sec or when the external temperature sensor gives a reading above 8°C in heating mode. This check is repeated every 15 minutes.



**Once maintenance operations have been completed, mount all previously removed components back on again and secure them adequately.**

## 7.1 Cleaning and inspecting the indoor unit

It is necessary to carry out the following checks at least once a year:

- Inspection of the hydraulic system for filling and tightness, and replacement of seals, if necessary.
- Presence of air bubbles in the water supply distribution network.
- Check to verify the operation of the heating safety system (limit thermostat check).
- Check the heating circuit pressure.
- Inspection of the expansion vessel pressure.



**Do NOT replace burnt fuses with fuses of different amperage, as this may damage the circuit or trigger a fire.**

Only use a soft and dry cloth to clean the unit.

If the unit is very dirty, it is possible to use a cloth dampened with lukewarm water.

Check that the drainage pipe is laid according to the instructions. If not, water leakages may occur resulting in material damages and the risk of fire and electrocution.

## 7.2 Cleaning and inspecting the outdoor unit

It is necessary to carry out the following at least once a year:

- Inspection of the refrigerant gas seal.
- Cleaning of the front grille.

Only use a soft and dry cloth to clean the unit.

If the unit is very dirty, it is possible to use a cloth dampened with lukewarm water.

If the evaporator **(1)** of the outdoor unit is clogged up, remove all leaves and debris, then clean off all dust with a water jet or some water. Repeat the same procedure with the front grille **(2)**.

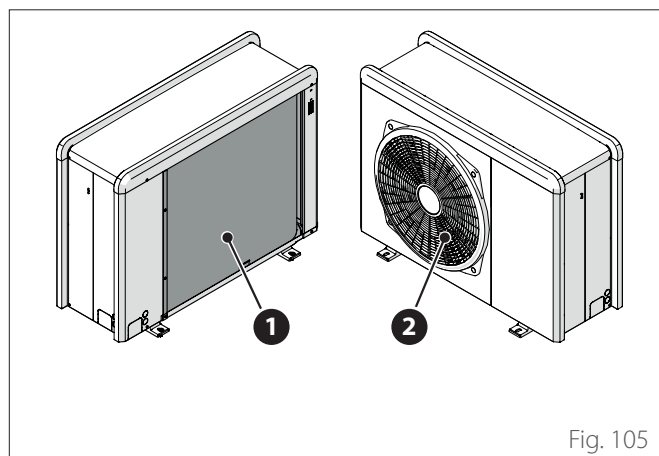


Fig. 105

### 7.3 Error list

The errors are displayed on the interface in the indoor unit (see paragraph "System interface SENSYS HD").

#### Indoor unit errors

Code	Description	Resolution
114	Outside temperature not available	Temperature control activation based on the external sensor External sensor not connected or damaged. Check the sensor's connection and replace it, if necessary.
730	Buffer high probe error	Buffer filling inhibited. Check the hydraulic diagram. Buffer sensor not connected or damaged. Check the sensor's connection and replace it, if necessary.
731	Buffer overtemperature	Buffer filling inhibited. Check the hydraulic diagram. Buffer sensor not connected or damaged. Check the sensor's connection and replace it, if necessary.
732	Buffer low probe error	Buffer filling inhibited. Check the hydraulic diagram. Buffer sensor not connected or damaged. Check the sensor's connection and replace it, if necessary.
902	System flow sensor damaged	Delivery sensor not connected or defective. Check the sensor's connection and replace it, if necessary.
923	Heating circuit pressure error	Check for any water leakages in the hydraulic circuit Faulty pressure switch Defective cabling of the pressure switch. Check the connection of the pressure switch and replace it, if necessary.
924	HP communication error	Check the cabling between the TDM board and the Energy Manager
927	AUX inputs correspondence error	Verify the configuration of parameters 1.1.3 and 1.1.4
928	Energy supply shutdown configuration error	Check the configuration of parameter 1.1.5
933	Flow sensor overtemperature	Check the flow in the primary circuit. Delivery sensor not connected or defective. Check the sensor's connection and replace it, if necessary.
934	DHW tank sensor damaged	Calorifier sensor not connected or defective. Check the sensor's connection and replace it, if necessary.
935	Tank overtemperature	Check whether the 3-way valve is locked in the DHW position. Check the connection of the calorifier's sensor and replace it, if necessary.



Code	Description	Resolution
936	Floor thermostat 1 error	Check the flow of the under-floor system. Check the connection of the thermostat on the IN-AUX2 STE terminal of the Energy Manager and/or STT of the TDM. If the thermostat of the under-floor system is not present, apply an electrical jumper to terminal IN-AUX2 STE of the Energy Manager and/or STT of the TDM.
937	No circulation error	Check that the main circuit has activated
938	Anode fault	Check the connection of the anode Check whether there is any water in the indirect cylinder Check the condition of the anode Check the configuration of parameter 1.2.6
940	Hydraulic scheme not defined	Hydraulic diagram not selected through parameter 1.1.0
955	Water flow check error	Check the connection of the flow and return temperature sensors
970	Undefined split / mono config.	Check the configuration of parameter 1.2.5
2P2	Thermal cleanse not complete	Sanitisation temperature not reached in 6 h: Check the drawing of domestic hot water during the thermal sanitisation cycle Check the activation of the heating element
2P3	DHW setpoint not reached in boost	Domestic hot water set-point temperature not reached during the boost cycle Check the drawing of domestic hot water during the DHW boost cycle Check the activation of the heating element
2P4	Electr. heater thermos. (manual)	Check the activation of the main circulation pump Check the flow with the reading of the flow meter through parameter 13.9.3 Check the condition of the safety thermostat and of the cabling
2P5	Electr. heater thermostat (auto)	Check the activation of the main circulation pump Check the flow with the reading of the flow meter through parameter 13.9.3 Check the condition of the safety thermostat and of the cabling
2P7	Precirculation error	Check the connection of the flow meter Run an automatic deaeration cycle 1.12.0
2P8	Low pressure warning	Check for any water leakages in the hydraulic circuit Faulty pressure switch Defective cabling of the pressure switch. Check the connection of the pressure switch and replace it, if necessary.
2P9	SG ready input config. err.	Only one of the parameters 1.1.0 or 1.1.1 is set as an SG Ready input

## Outdoor unit errors

Error	Description	NO RESET	RESET		
		Volatile	User reset	HP Power OFF	Service reset
1	TD sensor error	-	X	-	-
905	HP compressor mismatch error	-	-	X	-
906	HP fan mismatch error	-	-	X	-
907	HP 4-way valve mismatch error	-	-	X	-
908	Expansion valve mismatch error	-	-	X	-
909	HP zero fan speed	-	-	X	-
910	Inverter-TDM communication error	X	-	-	-
912	4-way valve error	-	-	-	X
913	LWT sensor error	X	-	-	-
914	TR sensor error	X	-	-	-
917	Freeze error	-	-	-	X
918	Pump down error	-	-	-	X
922	Freeze error	-	X	-	-
931	Inverter error	X	-	-	-
947	4-way valve error	-	X	-	-
956	HP compressor model mismatch	-	-	X	-
957	HP fan model mismatch	-	-	X	-
960	HP EWT sensor error	X	-	-	-
962	Defrost energy	X	-	-	-
968	ATGBUS TDM-EM communication error	X	-	-	-
989	Machine empty error	-	-	-	X
997	Compressor overcurrent	-	-	X	-
998	Compressor overcurrent	-	-	-	X
9E5	High-pressure pressure switch intervention	X	-	-	-
9E8	Low-pressure pressure switch error with compressor OFF	X	-	-	-
9E9	Klixon error with compressor OFF	X	-	-	-
9E18	ST1 safety thermostat error	X	-	-	-
9E21	Low refrigerant charge error	-	X	-	-
9E22	Machine empty error	-	-	-	X
9E24	EXV seized up error	-	X	-	-
9E25	EXV seized up error	-	-	-	X
9E28	High pressure protection	-	X	-	-
9E29	High pressure protection	-	-	-	X
9E31	Compressor thermostat protection	-	X	-	-
9E32	Compressor thermostat protection	-	-	-	X
9E34	Low-pressure protection	-	X	-	-
9E35	Low-pressure protection	-	-	-	X
9E36	Compressor phases current imbalance	-	X	-	-
9E37	Compressor phases current imbalance	-	-	-	X
9E38	Excessively steep compressor current variation	-	X	-	-
9E39	Excessively steep compressor current variation	-	-	-	X

## Inverter error

Description	Code (for inverter errors falling within error code 931)	NIMBUS EXT R32		
		35 M - 50 M - 80 M	80 M-T - 120 M-T - 150 M-T	120 M - 150 M
Inverter output current sensor error	1	x	x	x
DC bus condensers pre-charge error	2	x		
Inverter input voltage sensor error	3	x		
Inverter heat sink temperature sensor error	4	x	x	x
DSP&MCU communication error	5	x		
Inverter input AC overcurrent	6	x	x	x
Inverter PFC current sensor error	7		x	x
Inverter PFC temperature sensor error	8		x	x
Corrupt EEPRPOM	9		x	x
PFC HW overcurrent	10		x	x
PFC SW overcurrent	11		x	x
Inverter PFC overvoltage	12		x	x
A/D error	13		x	x
Addressing error	14		x	x
Compressor inverse rotation	15		x	x
No current variation on compressor phase	16		x	x
Misalignment between real and calculated speed	17	x	x	x

## 8. Decommissioning

Prior to performing this procedure, it is imperative for the technician to fully understand the equipment and all its details.

We recommend recovering all the refrigerants safely.

Electricity must be available before the activity starts.

Familiarise with the equipment and its operation.

Isolate the system electrically.

Before proceeding:

- Make sure that all personal protective equipment is available and is used correctly.
- Make sure that the recovery process is always supervised by a competent person.
- Make sure that the recovery equipment and the cylinders conform to the appropriate standards.

### 8.1 Draining the circuit and recovering the refrigerant

To correctly recover the refrigerant from the system, the following standard indications must be observed:

- When the refrigerant is transferred to the cylinders, make sure that only appropriate refrigerant recovery cylinders are used. Make sure that the correct number of cylinders is available for maintaining the system's total charge. The cylinders must be complete with the pressure limiting valve and the relative shut-off valves in efficient working order. The vacuum recovery cylinders must be drained and, if possible, cooled before the recovery operations begin.
- The recovery equipment must be in good working order. Moreover, a set of calibrated scales must be available and in good working order. The flexible hoses must be complete with the disconnection joints without leakages and in good working order. Before using the recovery machine, check that it is in efficient working order, that it has been adequately serviced and that all the associated electrical components are sealed to prevent ignition in case of refrigerant leakages. Contact the manufacturer in case of doubts.
- The refrigerant recovered must be returned to the refrigerant supplier in the correct recovery cylinder and the relevant waste transfer note must be drawn up. Do not mix the refrigerants in the recovery units and, above all, in the cylinders.
- If the compressors or the compressor oils must be removed, make sure that they have been drained to an acceptable level so that no flammable refrigerant remains inside the lubricant. The drainage process must be carried out before returning the compressor to the suppliers.

## 8.2 Disposal

The manufacturer is registered with the national EEE Register, in conformity to the implementation of Directive 2012/19/EU, and of the relative national regulations in force concerning waste electrical and electronic equipment.

This directive recommends the correct disposal of waste electrical and electronic equipment.

Equipment bearing the crossed-out wheellie bin symbol must be disposed of at the end of its life and sorted to avoid detrimental effects on human health and on the environment.

Electrical and electronic equipment must be disposed of together with all its constituent parts.

To dispose of "domestic" electrical and electronic equipment, the manufacturer recommends contacting an authorised dealer or an authorised ecological facility.

The disposal of "professional" electrical and electronic equipment must be made by authorised personnel through the specially instituted local consortiums.

To this aim, we include below the definition of domestic WEEE and professional WEEE.

**WEEE deriving from households:** WEEE deriving from households and WEEE deriving from commercial, industrial, institutional and other sources, similar by nature and quantity, to that deriving from households. WEEE that could be used both by households and by other types of users are nonetheless regarded as WEEE coming from households;

**Professional WEEE:** all WEEE other than that coming from households as mentioned above.

This equipment may contain:

- Refrigerant gas that must be fully recovered by specialised personnel and accompanied by the necessary authorisations in special containers;
- Lubricant oil contained in compressors and in the refrigeration circuit that must be collected;
- Mixtures with anti-freeze liquids contained in the water supply distribution network, the contents of which must be appropriately collected;
- Mechanical and electrical parts that must be sorted and disposed of in an authorised manner.

When machine components are removed for being replaced for maintenance purposes or when the entire unit reaches the end of its life and must be removed from the installation, we recommend sorting the waste according to type and ensuring that it is disposed of by authorised personnel at the existing waste collection facilities.

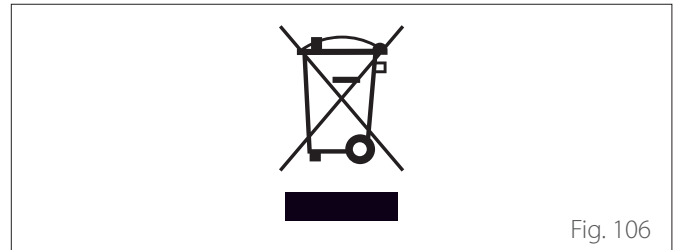


Fig. 106

## 9. Technical information

### 9.1 Data plate

#### Indoor unit

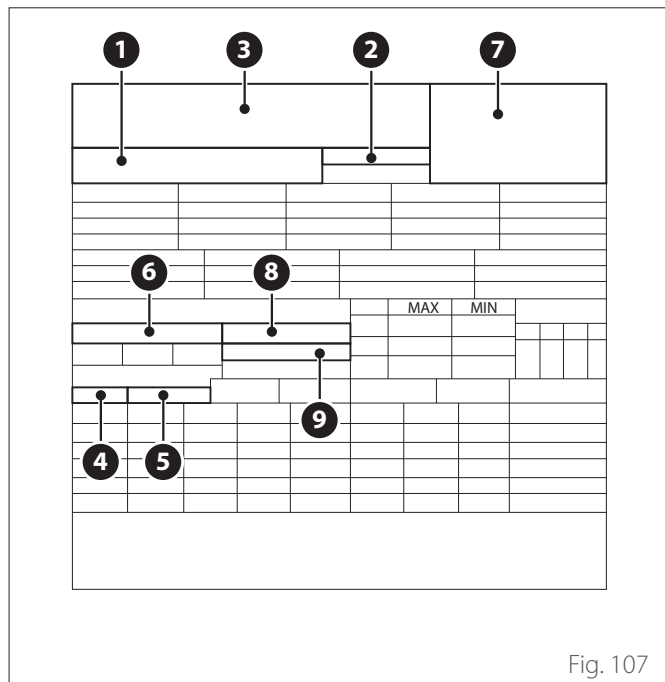


Fig. 107

- 1 Model - Serial no.
- 2 Commercial code
- 3 Manufacturer
- 4 Domestic hot water distribution network maximum pressure (if present)
- 5 Maximum heating circuit pressure
- 6 Electrical data and rated power
- 7 ID BSI PED certification
- 8 IP: user interface on machine
- 9 IP: user interface from remote

#### Outdoor unit

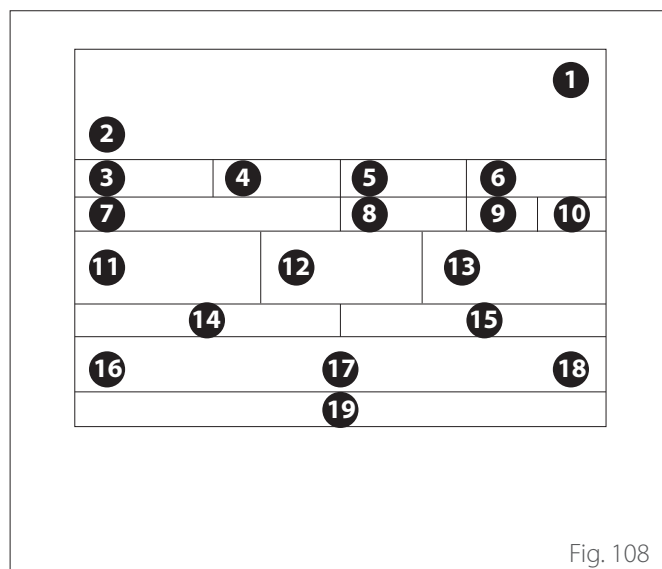


Fig. 108

- 1 Name or trademark
- 2 Model
- 3 Heating data
- 4 Nominal heating performance
- 5 Cooling data
- 6 Nominal cooling performance
- 7 Refrigeration circuit oil type
- 8 Refrigerant type - refrigerant filling
- 9 GWP. Global Warming Potential index
- 10 CO<sub>2</sub> equivalent
- 11 Electrical data
- 12 Degree of electrical protection
- 13 Maximum electrical power
- 14 Maximum refrigeration circuit pressure
- 15 Minimum refrigeration circuit pressure
- 16 Place of manufacture
- 17 IP protection rating
- 18 Certification
- 19 Contact address

### 9.2 Technical data table for refrigerant

	NIMBUS EXT R32			
	35 M	50 M	80 M 80 M-T	120 M - 120 M-T 150 M - 150 M-T
Type of refrigerant	R32	R32	R32	R32
Refrigerant charge [g]	1000	1000	1400	2100
GWP	675	675	675	675
CO <sub>2</sub> equivalent [t]	0,7	0,7	0,9	1,4

## 10. Annexes



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