

INSTALLATION

EN

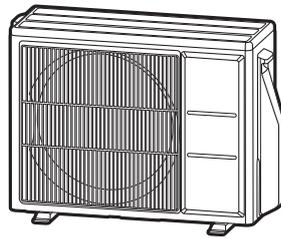
# Alfea Extensa A.I. R32

Air/water heat pump split 1 service

Outdoor unit

WOYA060KLT

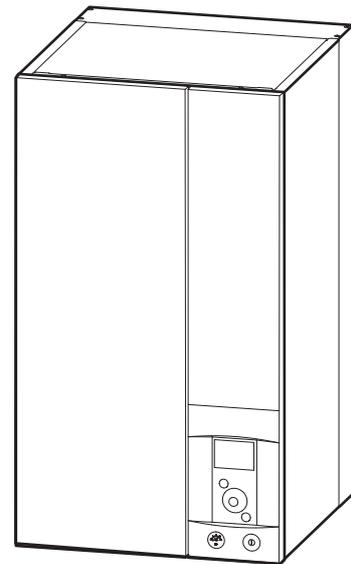
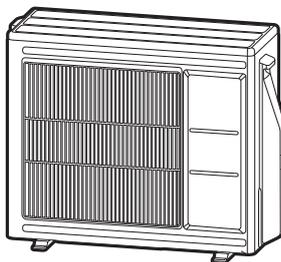
WOYA080KLT



Hydraulic unit

024301

024302



U0671211\_2112\_EN\_5  
06/10/2020

For professionals.  
To be kept by the user for future reference



### ■ Installation and maintenance rules

The appliance must be installed and maintained by an approved professional in accordance with current regulations and codes of practice.

- **Do not use any means to accelerate the defrosting process or to clean the appliance, other than those recommended by the manufacturer.**
- **The appliance must be stored in a room that does not contain continuously operating ignition sources (for example: open flames, gas appliance or operating electric heater).**
- **Do not pierce or burn.**
- **Be careful, refrigerants can be odorless.**

### ■ Handling

The outdoor unit must not be placed in a horizontal position during transport.

If not kept upright during transport, the appliance could be damaged through displacement of the refrigerant and damage to the compressor suspensions.

Any damage caused by transportation in a horizontal position is not covered by the warranty.

If necessary, the outdoor unit may be tilted only during manual handling (to go through a door or to take a stair). This operation must be conducted very carefully and the appliance must be immediately restored to the upright position.

### ■ Installation

The heat pump installation must meet the requirements related to the location of the heat pump.

The heat pump is designed to be installed at less than 2000 m altitude.

In accordance with IEC 60-335-2-40 standard, the hydraulic module of the heat pump as well as all the refrigerant connections that cross the inhabited area must be installed in rooms respecting the minimum surface.

- **Warning, hydraulic unit should not be installed in an air current.**

### ■ Refrigerant

The maximum R32 fluid load after refilling must not exceed 1.84 kg.

### ■ Containment of refrigeration circuits

All refrigeration circuits are sensitive to dust and moisture contamination. If any such pollutants penetrate the refrigeration circuit, they can affect the reliability of the heat pump.

- **Make sure that the connections and refrigeration circuits (hydraulic unit, outdoor unit) are protected correctly.**
- **In the event of a subsequent failure and following an inspection, the presence of moisture or foreign bodies in the compressor oil would automatically void the warranty.**

- Check upon receipt that the fittings and refrigeration circuit caps mounted on hydraulic unit and outdoor unit are properly seated and secured (cannot be loosened with bare hands). If this is not the case, tighten them using a C spanner.

- Check also that the refrigeration connections are sealed (plastic caps or tubes crimped at the ends and brazed). If the caps must be removed during the installation (tubes to be re-cut for example), put them back as soon as possible.

### ■ Hydraulic connections

The connection must comply with industry standard practice according to current regulations.

Reminder: Seal everything when fitting in accordance with industry standard practice for plumbing work:

- Use suitable seals (fibre gasket, O-ring).
- Use Teflon or hemp tape.
- Use sealing paste (synthetic depending on the case).

Use glycol/water mix if the minimum flow temperature is set below 10°C. If you are using a glycol/water mix, arrange for an annual check on the quality of the glycol. Use monopropylene glycol only. The recommended concentration is 30% minimum. **Never use monoethylene glycol.**

- **In some installations, the presence of different metals can cause corrosion problems; the formation of metal particles and sludge can appear in the hydraulic circuit.**

- **In this case, it is advisable to use a corrosion inhibitor in the proportions indicated by the manufacturer.**

- **You must also ensure that treated water does not become corrosive.**

On the cold water inlet, place a safety valve calibrated to between 7 and 10 bar max. (depending on local regulations) and connected to a drain pipe leading to the sewer. Operate the safety valve according to manufacturer's specifications. The domestic hot water tank must be fed with cold water passing through a safety valve. There must be no other valves between the safety valve and the tank.



## ■ Electrical connections

Before performing any maintenance, make sure that all power supplies have been cut off.

### • Specifications of electricity supply

The electrical installation must be carried out in accordance with current regulations.

Electrical connections will only be made once all other installation operations (fastening, assembly, etc.) have been completed.

#### Warning!

The contract signed with the energy provider must be sufficient not only to cover the heat pump's power requirements but also the combined sum of all the appliances likely to be operating at the same time. If the power is too low, check the power rating stated in your contract with your energy provider.

Never use a power socket for the power supply.

The heat pump must be supplied directly with power (without external switch) by special protected leads from the electric panel via dedicated bipolar circuit breakers, C curve for the outdoor unit, C curve for the electrical heating\* and domestic water backups\*.

The electrical installation must be fitted with a 30mA RCD.

This appliance is designed to operate using a nominal voltage of 230 V +/- 10%, 50 Hz.

Type 60245 IEC 57 or 60245 IEC 88 outside power supply cables must be used.

### • General remarks on electrical connections

It is essential to maintain neutral-phase polarity when making electrical connections.

Rigid wires are preferable for fixed installations, particularly in a building.

Tighten the cables using the cable glands to prevent the power cables from being accidentally disconnected.

The earth connection and its continuity must be ensured.

The earth wire must be longer than the other wires.

### • Cable glands

To ensure the stability of power (Low Voltage) and sensor (Extra-Low Voltage) cables, it is essential that the cable glands are tightened according to the following recommendations:

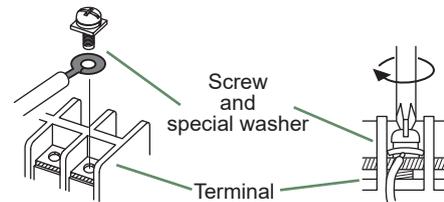
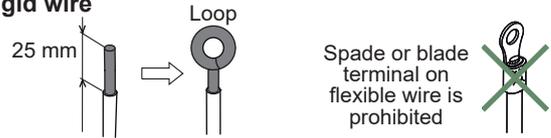
Size of cable gland (mm)	Diameter of cable (mm)	Cable gland tightening torque (check-nut) (N.m)	Coupling net tightening torque (N.m)
PG7	1 to 5	1.3	1
PG9	1.5 to 6	3.3	2.6
PG16	5 to 12	4.3	2.6

### • Connecting to screw terminals

The use of ring, spade or blade terminals or caps is prohibited.

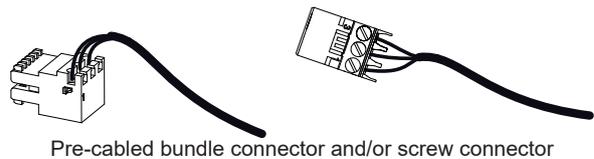
- Always select wire that complies with current standards.
- Strip wire end around 25 mm.
- With round end pliers, form a loop with a diameter which matches the tightening screws on the terminal.
- Tighten the terminal screw firmly onto the loop created. Insufficient tightening can cause overheating, leading to breakdown or even fire.

#### Rigid wire



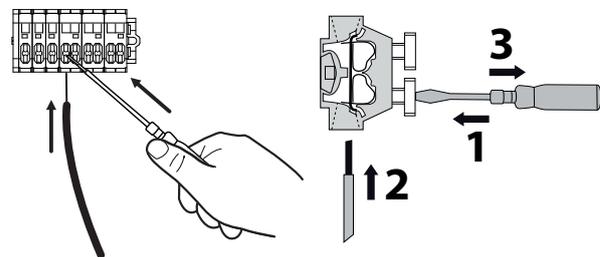
### • Connecting to controller boards

- Remove the corresponding connector and make the connection.



### • Connecting to spring terminals

- Strip wire end around 12 mm.
- Push the spring with a screwdriver so that the wire enters the cage.
- Slide the wire into the opening provided for this purpose.
- Remove the screwdriver and then check that the wire stays gripped by the cage by pulling on it.





This appliance must be installed by qualified personnel holding a certificate of competence in the handling of refrigerants.

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 This document was written in French and translated.

 Read the document comprising the precautions for use (regulation installation and maintenance conditions) before installation and/or use.

**► Symbols and definitions**

 Warning. Risk of serious injury to the person and / or risk of damage to the machine. Observe the warning.

 Important information that must always be kept in mind.

 Tips and tricks / Advice

 Bad practice

 Warning : Electricity hazard

 Warning : Slightly flammable refrigerant.

 Read the installation manual

 Read the operating manual

 Read the installation and operating manuals

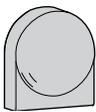
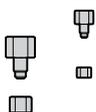
# Q Description of the equipment

## Packing contents list

Heat Pump		Outdoor unit		Hydraulic unit	
Model	Code	Reference	Code	Reference	Code
Alféa Extensa A.I. 5 R32	526151	WOYA060KLT	700227	Alféa Extensa A.I. 5 R32	24301
Alféa Extensa A.I. 6 R32	526152			Alféa Extensa A.I. 6-8 R32	24302
Alféa Extensa A.I. 8 R32	526153	WOYA080KLT	700228		

## ► Packing

- **1 package:** Outdoor unit.
- **1 package:** Hydraulic unit and outdoor temperature sensor.

Hydraulic unit Accessories	
	Outdoor temperature sensor
	Adapter 1/2"-5/8" and/or 1/4"-3/8" Nut 1/2" and/or 1/4"

## ► Optional equipment

- **2nd circuit kit** (code 570630 (074725+075311)) for connecting 2 heating circuits.
- **6 kW backup relay kit** (code 075327) for switching to HP electrical backup of 3 to 6 kW.
- **DHW kit** (code 073991) for connecting a mixed DHW tank (with built-in electrical backups).
- **Boiler connection kit** (code 073989) for connecting a boiler to the heat pump.
- **Condensate drain pan** (models 5/6 - code 074049 / model 8 - code 074126)
- **Wireless room sensor A59** (code 074208) for correcting the ambient temperature.
- **Wireless room sensor A75** (code 074213), **Wireless room sensor A78** (code 074214) for correcting the ambient temperature and programming the heat pump.
- **Cooling kit** (code 075328).
- **Anti-vibration blocks** (code 523574).
- **White PVC floor support** (ref. 809532) or **Black rubber floor support** (ref. 809536).

## ► Unpacking and supplies

While the courier is still present, carefully check the general appearance of the appliances and check that the outdoor unit has not been laid in a horizontal position. Check the package codes that make up your device. In the event of a dispute, send any relevant reservations to the carrier in writing within 48 hours and send a copy of the letter to Customer Services.

## ► Definitions

- **Split:** The heat pump consists of two elements (an outdoor unit to be installed outdoors and a hydraulic unit to be installed inside the dwelling).
- **Air/water:** The surrounding air is the energy source. This energy is transmitted to the heating circuit water by the heat pump.
- **Inverter:** The fan and compressor speeds are modulated according to the heating requirements. This technology enables you to save on energy and operate on a single-phase power supply, whatever the heat pump's output, by avoiding pulling significant amounts of current at start-up.
- **COP** (Coefficient of Performance): This is the relationship between the energy transmitted to the heating circuit and consumed electrical energy.

## ► Operating Range

This heat pump provides:

- Heating in winter,
- The management of electrical backups, for extra heating on the coldest days,  
or
- Installation with boiler connection\* for extra heating on the coldest days,
- Management of two heating circuits\*,
- Production of domestic hot water\* (provided that it is combined with a mixed DHW tank),
- Cooling in summer\* (for underfloor heating-cooling system or fan-convectors).

\*: These options require the use of additional kits (see chapter "Required accessory" or "Optional equipment").

## ► General characteristics

Model		5	6	8
<b>Rated heating performances (outdoor temp. / flow temp.)</b>				
<b>Heat output</b>				
+7°C / +35°C - Underfloor heating system	kW	4.50	5.50	7.50
+7°C / +55°C - Radiator	kW	4.50	5.50	7.00
<b>Power absorbed</b>				
+7°C / +35°C - Underfloor heating system	kW	0.949	1.18	1.69
+7°C / +55°C - Radiator	kW	1.70	2.06	2.63
<b>Coefficient of Performance (COP)</b>	<b>(+7 °C / + 35 °C)</b>	<b>4.74</b>	<b>4.65</b>	<b>4.43</b>
<b>Electrical specifications</b>				
Electrical voltage (50 Hz)	V	230	230	230
Maximum current for appliance	A	13	13	18
Maximum current of the Heating system electrical backup (according option)	A	13 (26.1)	13 (26.1)	13 (26.1)
Power of the Heating system electrical backup (according option)	kW	3 (6 kW option available)		
Circulation pump actual power consumption	W	38	38	38
Maximum power consumed by the outdoor unit	W	3260	3260	4510
<b>Hydraulic Circuit</b>				
Maximum operating pressure	MPa (bar)	0.3 (3)	0.3 (3)	0.3 (3)
Flow rate of the hydraulic circuit for $\Delta t=4^{\circ}\text{C}$ (rated conditions)	l/h	970	1185	1616
Flow rate of the hydraulic circuit for $\Delta t=8^{\circ}\text{C}$ (rated conditions)	l/h	485	593	808
<b>Miscellaneous</b>				
Weight of outdoor unit	Kg	39	39	42
Noise level at 5 m <sup>1</sup> (outdoor unit)	dB (A)	35	35	38
Sound power level in accordance with EN 12102 <sup>2</sup> (outdoor unit)	dB (A)	57	57	60
Weight of hydraulic unit (empty / full of water)	Kg	45 / 61	45 / 61	45 / 61
Water capacity of the hydraulic unit	l	24	24	24
Noise level at 1 m <sup>1</sup> (hydraulic unit)	dB (A)	32	32	32
Sound power level in accordance with EN 12102 <sup>2</sup> (hydraulic unit)	dB (A)	40	40	40
<b>Heating system operating limits</b>				
Outdoor temperature min/max	°C	-20 / +35	-20 / +35	-20 / +35
Max. heating water flow temperature underfloor heating	°C	45	45	45
Max. heating water flow temperature low temperature radiator	°C	52	52	52
<b>Refrigeration circuit</b>				
Gas pipe diameters	Inches	1/2	1/2	1/2
Liquid Piping Diameters	Inches	1/4	1/4	1/4
Factory fill of refrigerant R32 <sup>3</sup>	g	970	970	1020
Maximum operating pressure	MPa (bar)	4.2 (42)	4.2 (42)	4.2 (42)
Minimum / Maximum length of pipes <sup>4/6</sup>	m	3 / 15	3 / 15	3 / 15
Maximum length of pipes <sup>5</sup> / Maximum level difference	m	30 / 20	30 / 20	30 / 20

<sup>1</sup> Hydraulic unit: Sound pressure level at (x) m from the appliance, 1.5m off the ground, open field directionality 2 / Outdoor unit : Sound pressure level at (x) m from the device, halfway between the ground and top of the outdoor unit, open field directionality 2.

<sup>2</sup> The sound power level is a laboratory measurement of the emitted sound power. It does not correspond to a measurement of the perceived sound power.

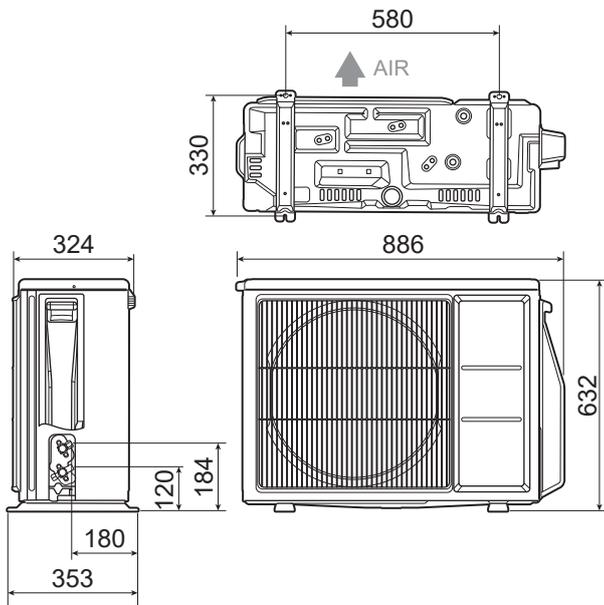
<sup>3</sup> Refrigerant R32 as per NF EN 378.1 standard.

<sup>4</sup> Filling with refrigerant R32 is done at the factory.

<sup>5</sup> Taking into account a possible additional fill of refrigerant R32 (see "Additional filling", page 32).

<sup>6</sup> The announced thermal and acoustic performances are measured with 7.5m length refrigerant lines.

■ Outdoor Unit, model 5 and 6



■ Outdoor Unit, model 8

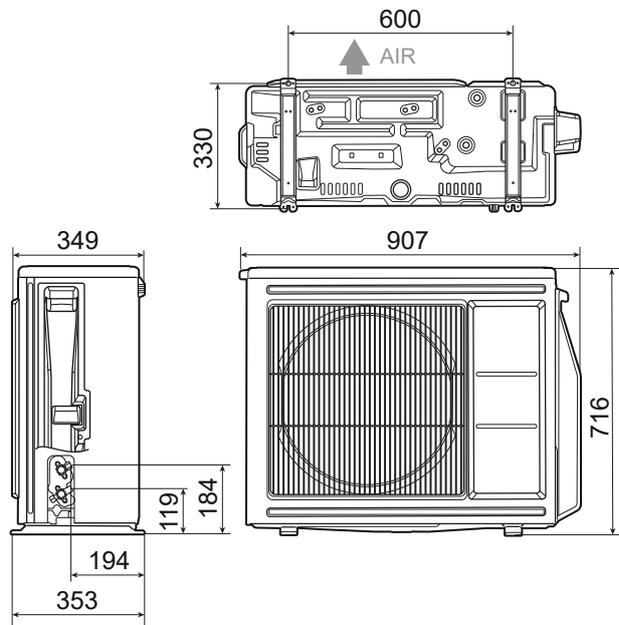
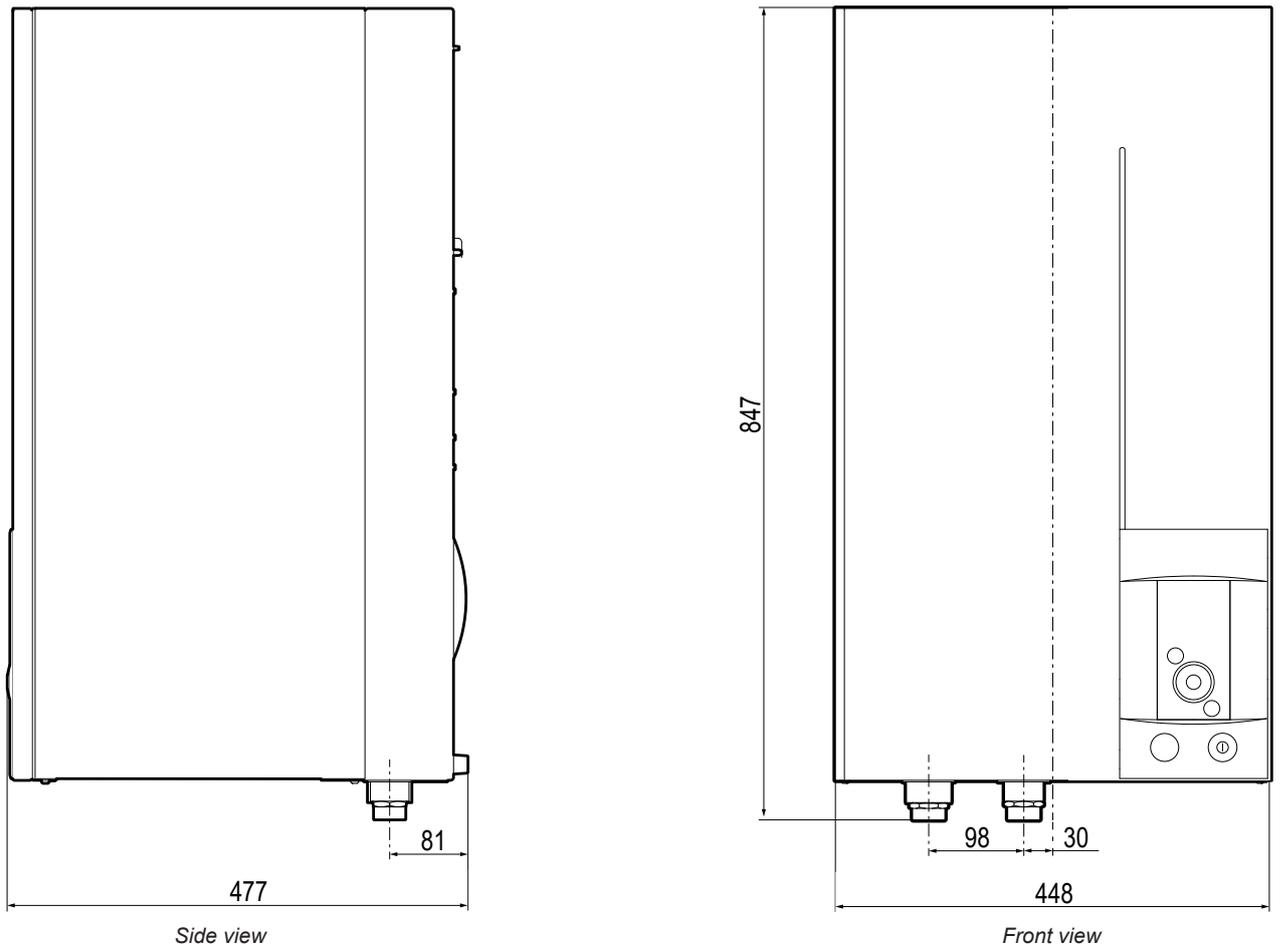


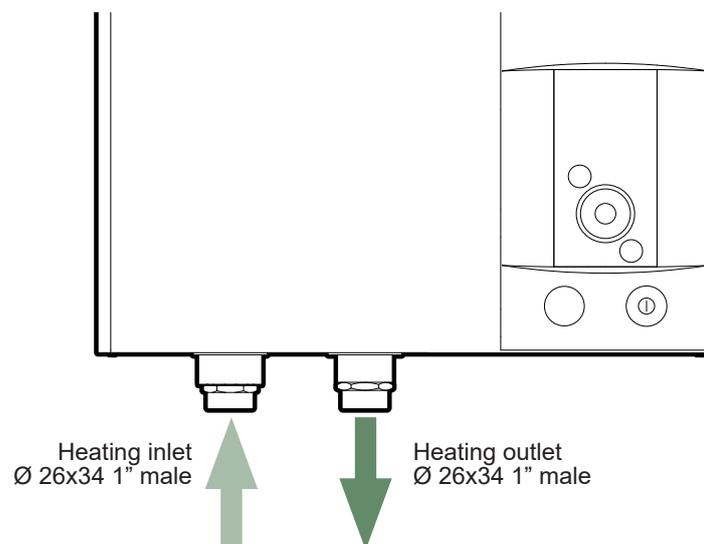
fig. 1 - Dimensions in mm

■ Hydraulic unit



Space requirements of the hydraulic unit, see *fig. 15, page 20*

*fig. 2 - Dimensions in mm*



*fig. 3 - Hydraulic connections*

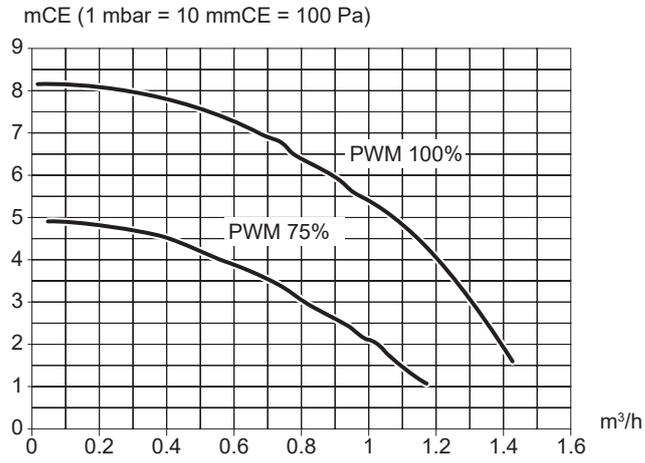


fig. 4 - Available hydraulic pressures and flow rates (models 5, 6 and 8)

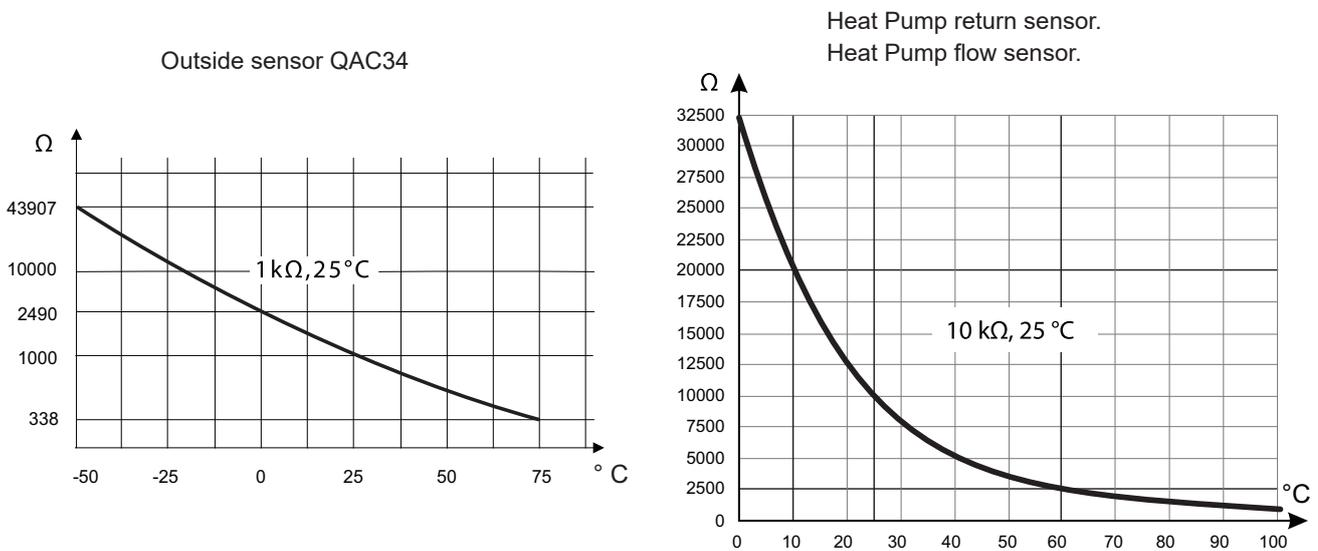


fig. 5 - Ohmic sensor values (Hydraulic unit)

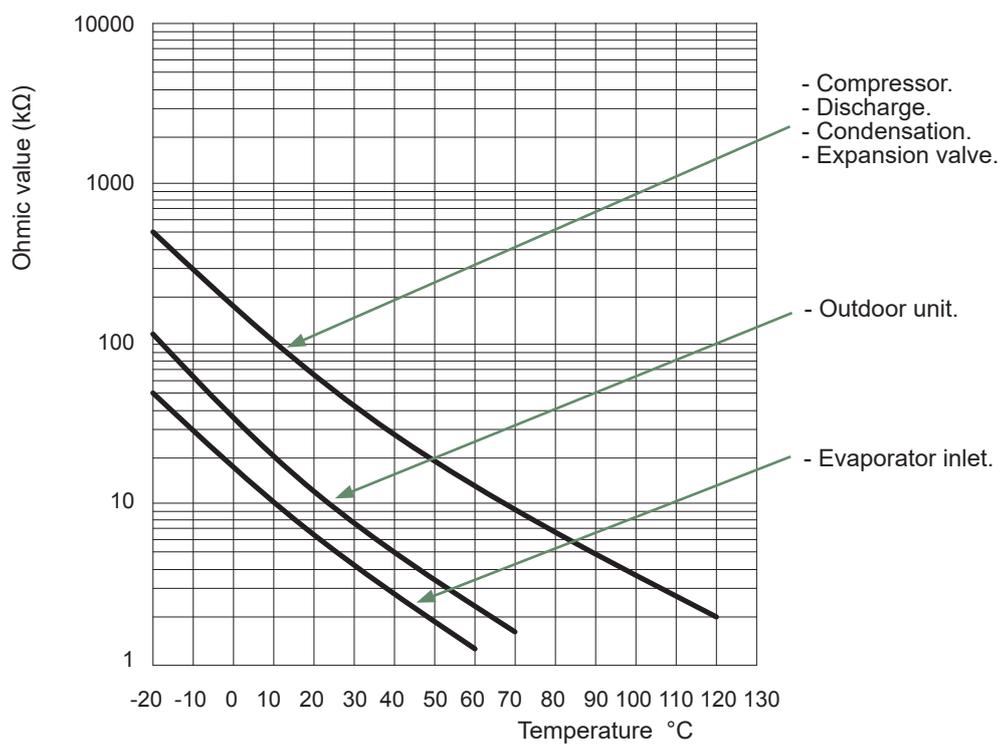
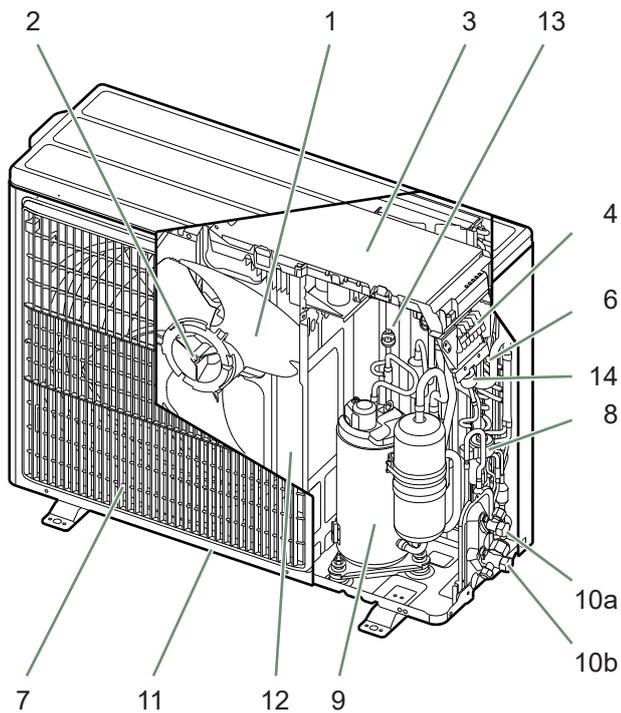


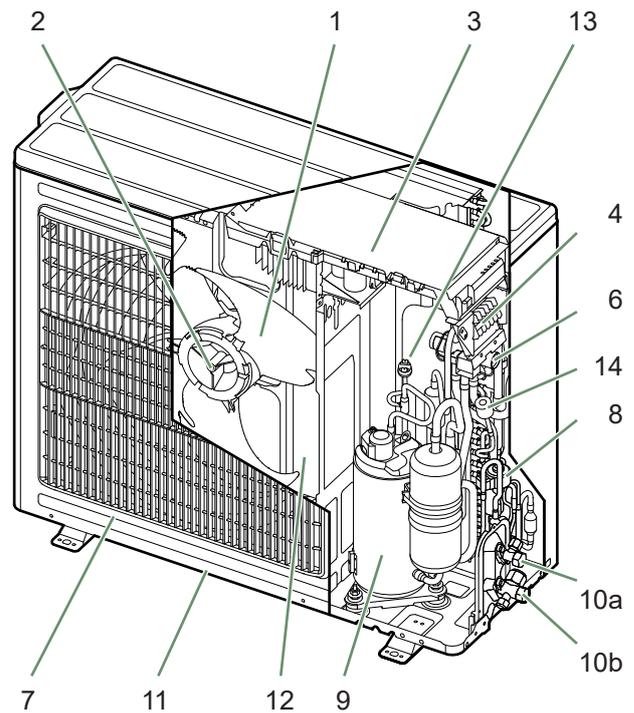
fig. 6 - Ohmic sensor values (Outdoor unit)

## ► Description

### ■ Outdoor unit Model 5 & 6



### ■ Outdoor unit Model 8

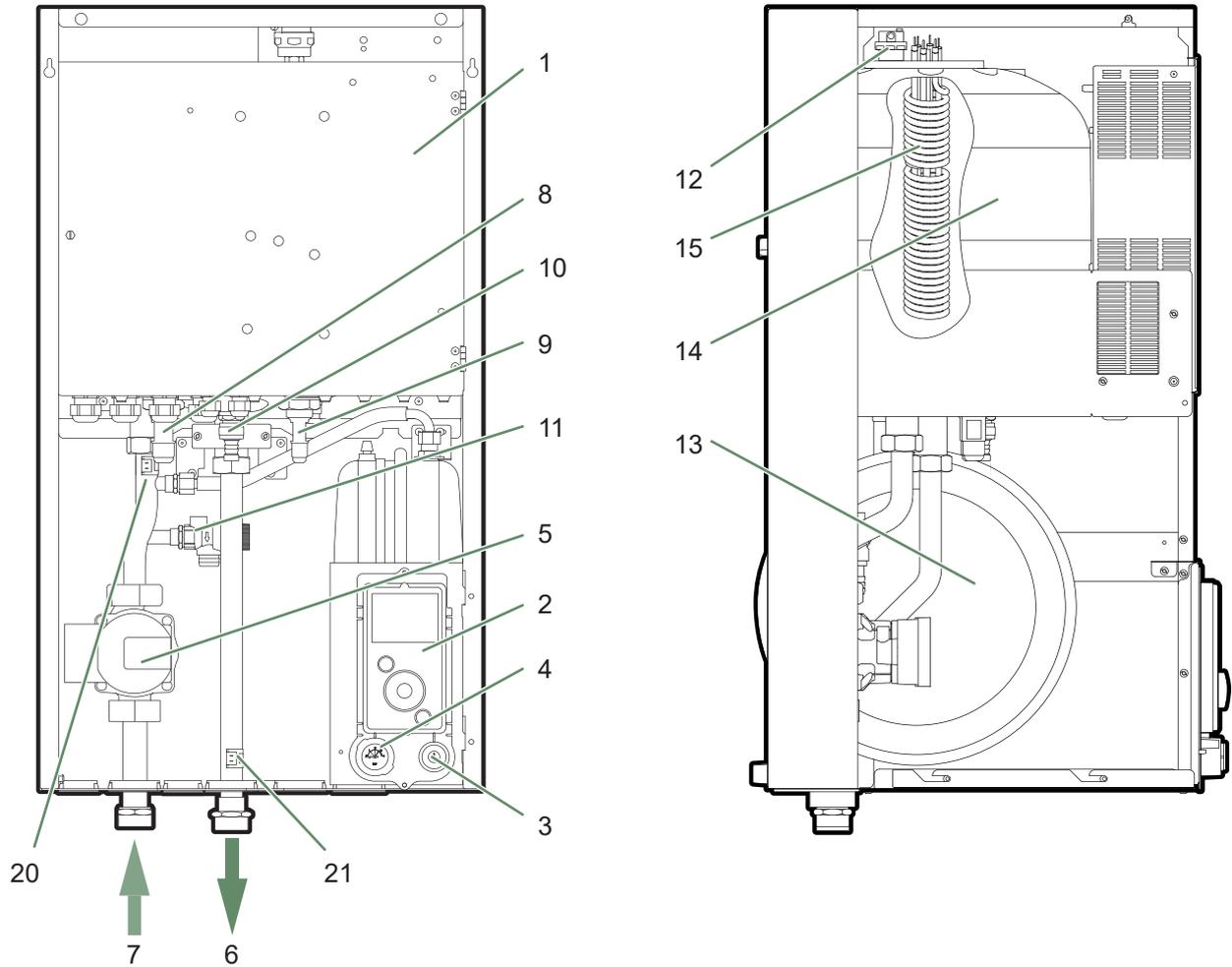


#### Key :

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. High performance and low noise impeller.</li> <li>2. Electrical motor with variable "Inverter" operation.</li> <li>3. "Inverter" control unit.</li> <li>4. Connection terminal blocks (power supply and interconnection).</li> <li>6. 4-way valve.</li> <li>7. Anti-corrosion treated bodywork.</li> <li>8. Main circuit electronic expansion valve.</li> </ol> | <ol style="list-style-type: none"> <li>9. Noise and thermally insulated "Inverter" compressor.</li> <li>10. Refrigeration connection valves (flared connectors) with protective caps (a: liquid; b: gas).</li> <li>11. Holding tank with condensate drain hole.</li> <li>12. High-performance exchange surface evaporator; anti-corrosion treated hydrophilic aluminium fins and grooved copper tubes.</li> <li>13. Pressure Switch.</li> <li>14. Pressure sensor.</li> </ol> |
|---|---|

fig. 7 - Outdoor unit components

■ Hydraulic unit



Key :

- 1. Electric control box.
- 2. Controller / User interface.
- 3. Start/stop button.
- 4. Pressure gauge.
- 5. Hydraulic unit circulation pump.
- 6. Heating flow
- 7. Heating return
- 8. "Gas" refrigeration connection.

- 9. "Liquid" refrigeration connection.
- 10. Drain valve.
- 11. Safety valve.
- 12. Automatic bleeder valve.
- 13. Expansion vessel.
- 14. Condenser.
- 15. HP electrical backup.

Sensors :

- 20. Heat pump return sensor.
- 21. Heat pump flow sensor.

fig. 8 - Hydraulic unit components

## ► Operating principle

The heat pump transmits the energy contained in the surrounding air into the dwelling to be heated.

The heat pump consists of four main elements, in which a refrigerant (R32) circulates.

- In the evaporator (ref. **12**, fig. 7, page 12): The calories are taken from the outside air and transmitted to the refrigerant. Because it has a low boiling point, it changes from a liquid to a vapour, even in cold weather (down to  $-20^{\circ}\text{C}$  outside temperature).
- In the compressor (ref. **9**, fig. 7, page 12): The vaporised refrigerant is pressurised and takes on even more calories.
- In the condenser (ref. **14**, fig. 8, page 13): The energy of the refrigerant is transmitted to the heating circuit. The refrigerant returns to its liquid state.
- In the expansion valve (ref. **8**, fig. 7, page 12): The liquefied refrigerant is returned to a low pressure and regains its initial temperature and pressure.

The heat pump is equipped with a controller which controls the room temperature based on the outdoor temperature measurement. The room thermostat (option) provides a corrective action for the temperature control.

The hydraulic unit is fitted with an electrical backup or boiler connection\* which intervenes to provide additional heat during the coldest periods.

### • Control functions

- The heating circuit's flow temperature is controlled by the temperature control.
- Depending on the heating flow temperature, the outdoor unit's power is modulated by the "Inverter" compressor.
- Control of the backup electrical heating.
- The daily timer program is used to set the periods where the ambient temperature is comfortable or reduced.
- Summer/winter time mode switchover is automatic.
- Management of the boiler backup\*.
- Room sensor\*: The room sensor provides a corrective action for the temperature control.
- Control of a second heating circuit\*.
- Domestic hot water\*: Heating timer program.
- Managing cooling\*.

\* Where the heat pump is fitted with options and associated kits.

### • Protective functions

- Anti-legionella cycle for domestic hot water.
- Frost protection: Frost protection cuts in if the heating circuit's flow temperature falls below  $5^{\circ}\text{C}$  (provided that the heat pump's electrical power supply is not interrupted).

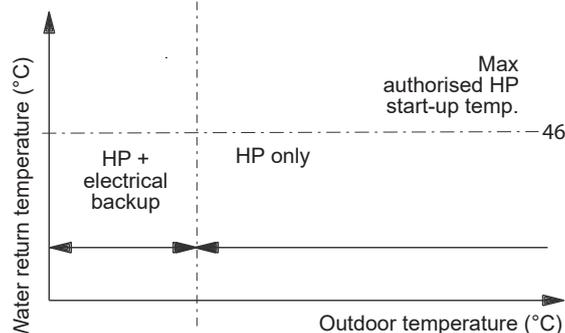
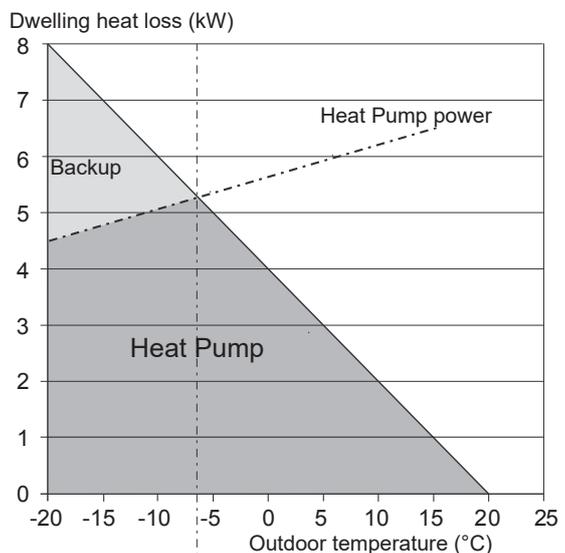


fig. 9 - Examples and operating limits

• **Domestic hot water (DHW) operating principle**

Two domestic hot water (DHW) temperatures can be set: Comfort and ECO.

The default DHW program is set to the Comfort temperature between 00:00 and 05:00 and between 14:30 and 17:00 and to the ECO temperature for the rest of the day. This optimises electrical consumption while ensuring comfortable heating and water temperatures.

The ECO temperature setpoint may be useful to avoid restarting the DHW too often and for too long during the day.

The production of domestic hot water (DHW) is started when the temperature in the tank drops to 7°C below the temperature setpoint.

The heat pump produces the domestic hot water, which is then additionally heated, if required, by the tank's electrical backup or by the boiler. To ensure a DHW setpoint over 55°C, the electrical backup heating must be left on.

Depending on the setting, the comfort temperature can be reached 24h/day or only at night or following the DHW program.

If the contract signed with the energy provider includes

a day/night tariff, the electrical backup is subject to the supplier's power tariff and the comfort temperature may only be reached at night.

If no particular contract has been signed, the comfort temperature can be reached at any time, including during the day.

The production of DHW takes priority over heating; nevertheless the production of DHW is managed by cycles that regulate the amount of time assigned to heating and production of DHW in the event of simultaneous demand.

Anti-legionella cycles can be programmed.

• **Fan convectors with integrated control system**

Do not use a room sensor in the area in question.

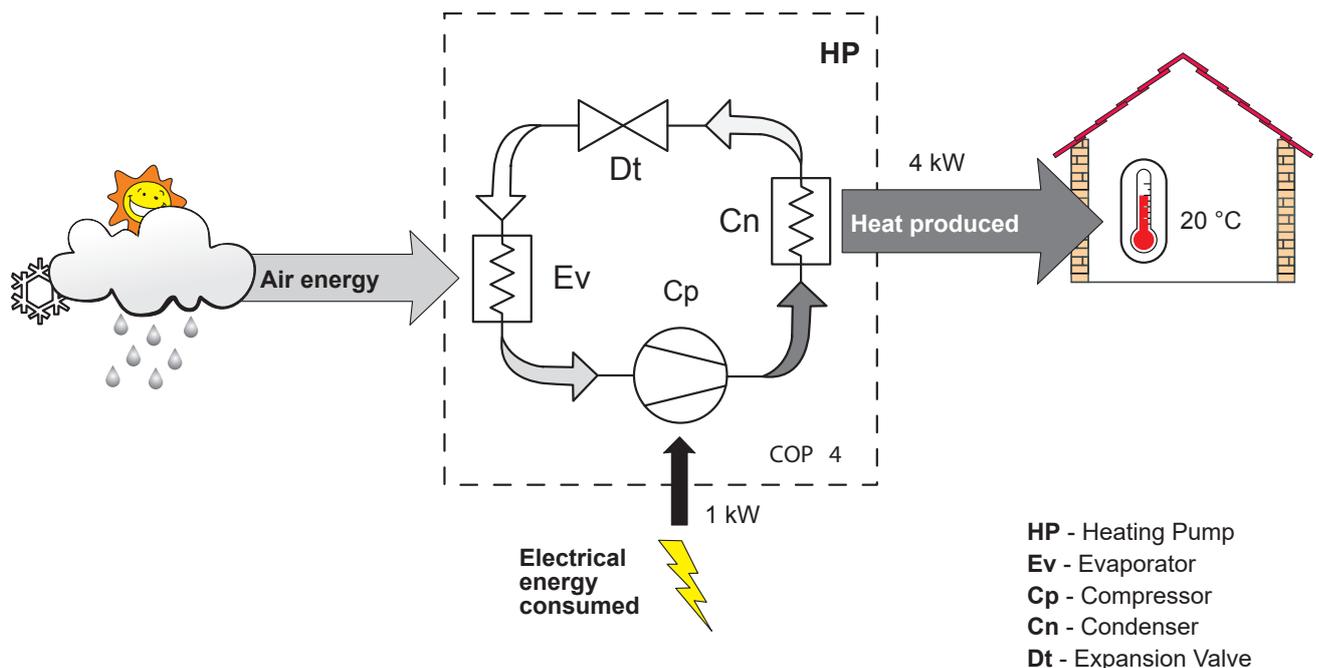


fig. 10 - Heat pump operating principle

# 🏠 Installation

## ► Installation of refrigeration connections



**Bend the pipes into position and make holes for them through the floor or walls either with their protective caps in place or after brazing.**

**Keep the protective caps in place or ends brazed until the appliance is commissioned.**



**The outdoor unit must be connected to the hydraulic unit ONLY with brand new separately insulated copper connections (refrigerant quality).**

Maintain the same pipe diameters (*fig. 28, page 30*).

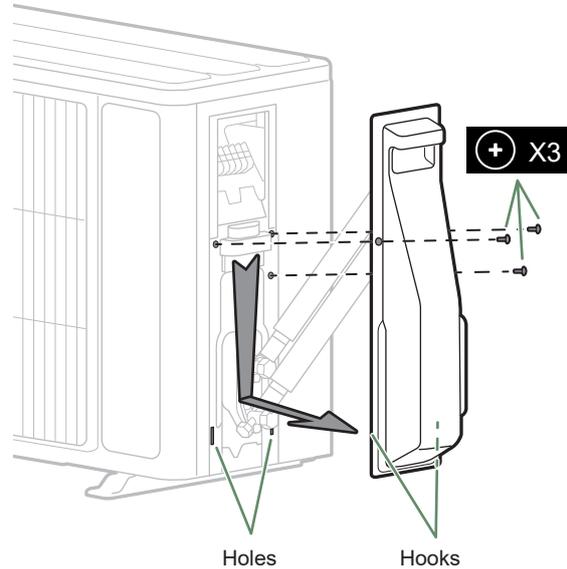
Observe the maximum and minimum distances between the hydraulic unit and the outdoor unit (*fig. 28, page 30*); the guarantee of performance and the service lifespan of the system depend on this.



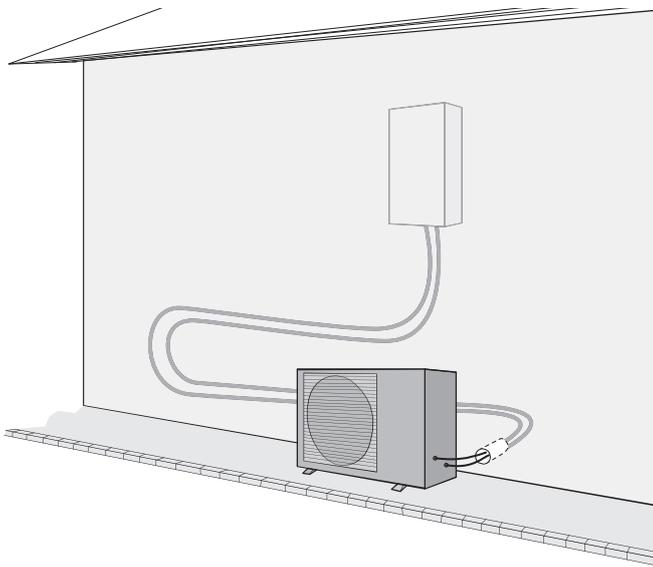
**The minimum length of the refrigeration connections for correct operation is 3 m.**

The appliance's warranty will be void if it is operated with refrigeration connections less than 3 m long (tolerance +/- 10%).

Ensure that the refrigeration connections are protected from physical deterioration.



*fig. 12 - Open the outdoor unit model 5, 6 & 8*



*fig. 11 - Example of recommendation for layout of refrigeration connections*



A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice.

## ► Installation of the outdoor unit

### ▼ Installation precautions



**The outdoor unit must only be installed outside. If a shelter is required, it must have broad openings on all 4 sides and installation clearances must be observed.**

- Choose the location of the appliance after discussion with the client.
- We recommend choosing a site that is sunny but sheltered from strong cold prevailing winds.
- The unit must be easily accessible for future installation and maintenance work (fig. 13).
- Ensure that connections to the hydraulic unit can be made easily.
- The outdoor unit is able to withstand bad weather but avoid installing it in a position where it is likely to be exposed to significant dirt or flowing water (under a defective gutter for example).

- Water may flow out of the outdoor unit when it is operating. Do not install the outdoor unit on a paved terrace; choose a well-drained location (e.g. gravel or sand). If installation is carried out in an area where the temperature stays below 0°C for long periods, check that the presence of ice does not present any danger. A drain pipe can also be connected to the condensate drain pan (option) (see fig. 14).
- Nothing should obstruct the air circulation through the evaporator and out from the fan (fig. 13).
- Keep the outdoor unit away from heat sources and flammable products.
- Make sure that the unit does not disturb the surrounding area or inhabitants (noise level, draught, low temperature of the ejected air freezing the plants in its path).

### Model 5, 6 and 8

**A** ≥ 100 mm  
**B** ≥ 200 mm  
**C** ≥ 250 mm  
**D** ≥ 300 mm  
**E** ≥ 400 mm  
**F** ≥ 500 mm

**G** ≥ 600 mm  
**H** ≥ 1000 mm  
**J** ≥ 1500 mm  
**K** ≥ 2000 mm  
**L** = 200 mm max  
**M** = 300 mm max

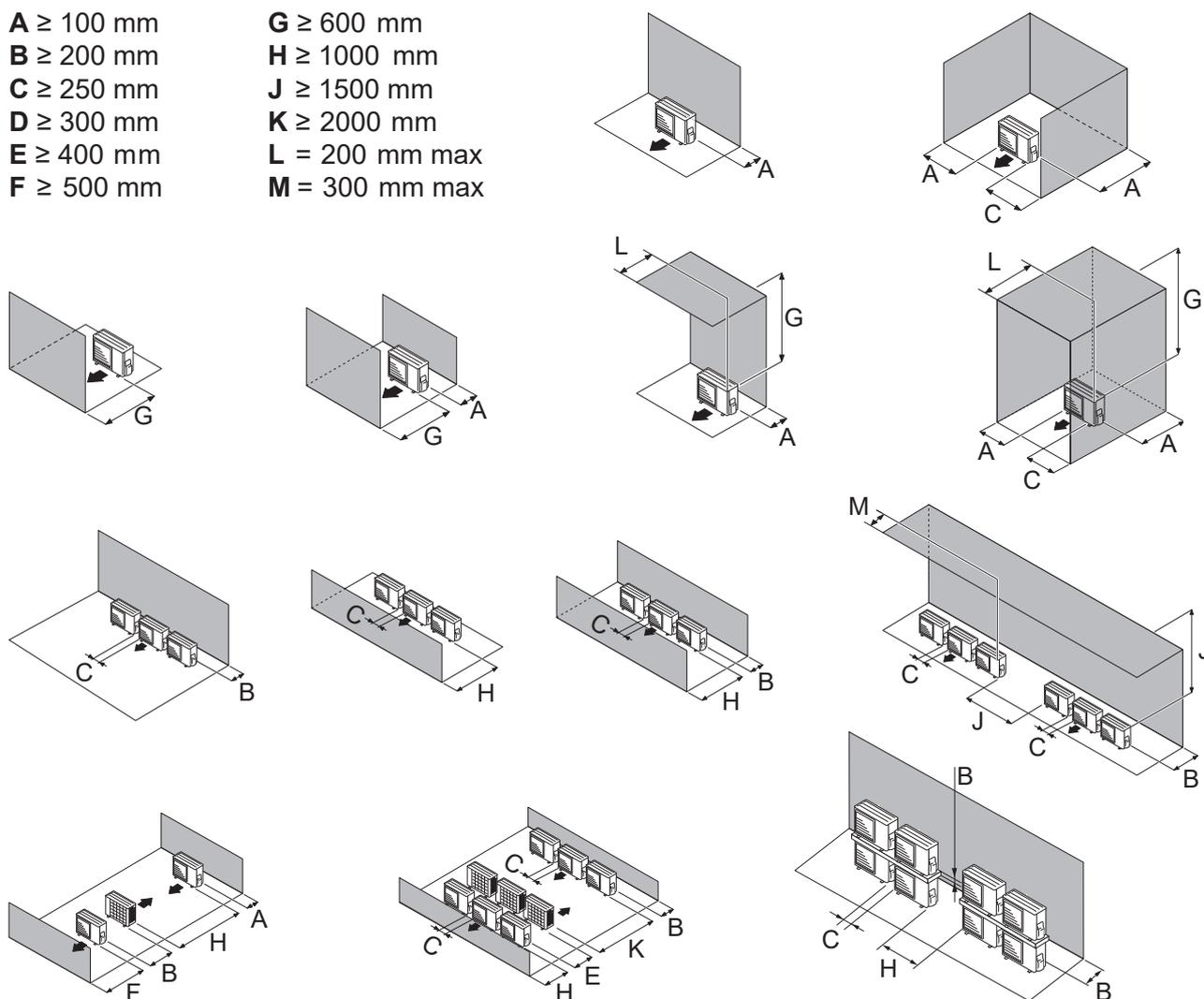


fig. 13 - Minimum installation clearances around the outdoor unit (model 5, 6 & 8)

- The surface on which the appliance is installed must:
  - Be permeable (soil, gravel, etc.),
  - Be perfectly flat,
  - Support its weight easily.
  - Allow a solid fastening base,
  - Not transmit any vibration to the dwelling. Anti-vibratory blocks are available as an option.
- The wall bracket cannot be used where it is likely to transmit vibrations. Installing the unit on the ground is preferred.

### ▼ Positioning Outdoor Unit

The outdoor unit must be raised at least 50 mm above ground level. In areas prone to snow, this height should be increased but should not exceed 1.5 m (fig. 14).

- Fasten the outdoor unit by means of screws and rubber tightening or toothed lock washers to prevent them from coming loose.



**In areas with heavy snowfall, if the inlet and outlet of the outdoor unit are blocked with snow, heating may become difficult and a failure is likely to occur.**

Construct a canopy or place the unit on a high stand (local configuration).

- Place the unit on a solid stand in order to minimise impacts and vibrations.
- Do not place the unit directly on the ground as this will cause problems.

### ▼ Condensate drain pipe

(see fig. 14).



**The outdoor unit can generate a large volume of water (called condensate).**

If the use of a drain pipe is necessary (e.g., superposition of the outdoor units) :

- Install the condensate drain pan (optional) for models 5, 6 and 8 only. Use the elbow provided (C) and connect a 16 mm-diameter hose for draining the condensate.

Allow for the condensate to flow away under the force of gravity (waste water, rain water, gravel bed).



**If installation is carried out in an area where the temperature stays below 0°C for long periods, equip the drain pipe with trace heating to avoid it icing up. Trace heating must heat not only the drain pipe but also the bottom of the appliance's condensate collection tank.**

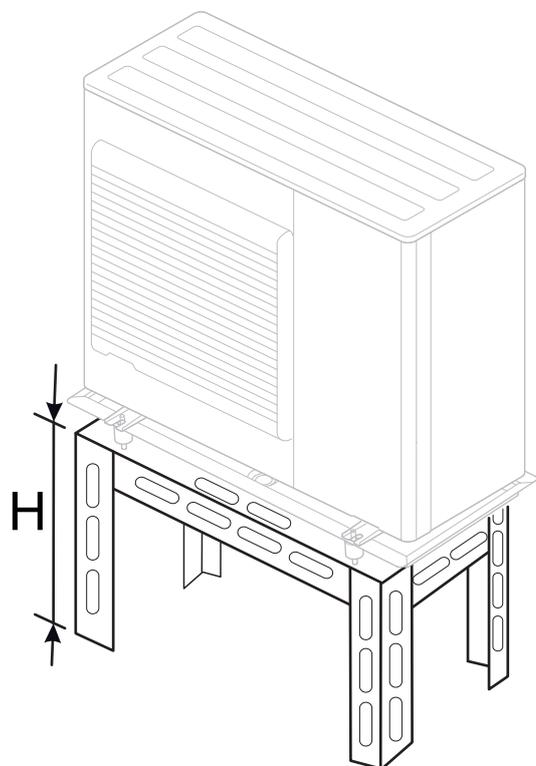
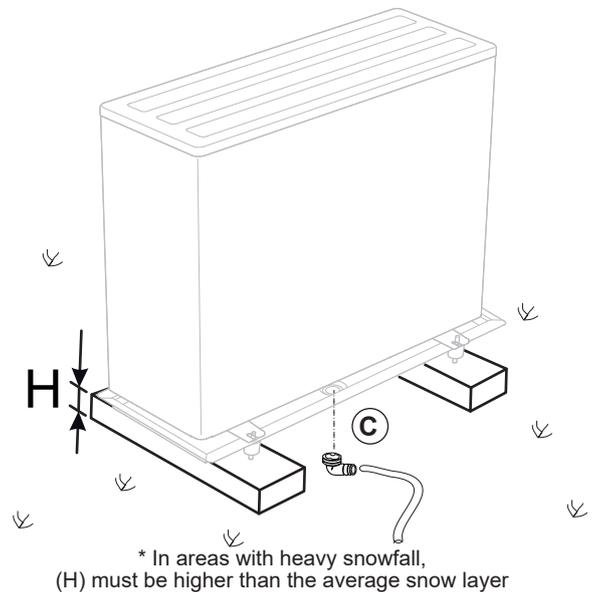


fig. 14 - Installation of the outdoor unit  
evacuation of condensates

## ► Installation of the hydraulic unit

### Heat sources such as :

- Open flame,
- High temperature surface >700°C (filament),
- Electrical circuit breaker >5kVA,

Avoid using sources of heat inside the room where the heat pump is installed. If this is not possible, see [page 24](#)



### ▼ Installation precautions

- Choose the location of the appliance after discussion with the client.
- The installation space should comply with current regulations.
- To facilitate maintenance and allow access to the various parts, we recommend that you provide sufficient space all the way around the hydraulic unit.

### Other precautions

**Be careful not to bring flammable gas near the heat pump during installation, in particular when brazing is required. The appliances are not fireproof and should not therefore be installed in an explosive environment.**



**To prevent risks of humidity in the exchanger, it is pressurized with nitrogen.**

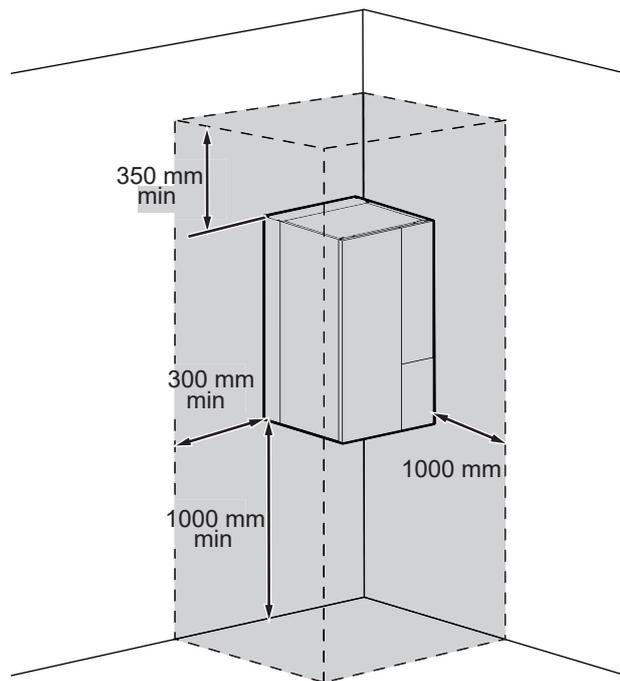


- To avoid condensation inside the condenser, remove the refrigeration circuit caps **only when making the refrigeration connections.**

- If the refrigeration connection is only performed at the end of the installation, make sure that the refrigeration circuit caps\* remain in place and tight throughout the installation.

\* (Hydraulic unit side and outdoor unit side).

- After each maintenance operation on the refrigeration circuit and before the final connection, take care to put the caps back in position to avoid any pollution of the refrigeration circuit (sealing with adhesive is prohibited).



*fig. 15 - Minimum installation clearances around the hydraulic unit for maintenance*



A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice.

### ▼ Minimum room volume

In accordance with EN 378-1 -2017 standard (Refrigerating systems and heat pumps - Safety and environmental requirements), the system's hydraulic unit and all refrigeration connections passing through inhabited areas must comply with the minimum room volume requirements shown hereafter (voir *fig. 16*) :

The minimum volume of a room (in m<sup>3</sup>) is calculated using the formula: "fluid fill load" (in kg) / 0.3.

#### Alternatively, you must ensure that :

- The location has natural ventilation through another room where the combined volume of the two rooms is greater than "liquid fill load" (in kg) / 0.3kg/m<sup>3</sup>. Ventilation between the two rooms is ensured by openings of at least: see *fig. 17* and *fig. 18*.
- Or that the location is mechanically ventilated:
  - Minimum flow rate of 165m<sup>3</sup>/H;
  - Extraction at less than 0.20m from the floor.

Refrigeration connections Length			Modele (kW)	
			5, 6	8
15 m	R32 gas charge	g	970	1020
	min room volume	m <sup>3</sup>	3.2	3.4
16 m	R32 gas charge	g	995	1045
	min room volume	m <sup>3</sup>	3.3	3.5
17 m	R32 gas charge	g	1020	1070
	min room volume	m <sup>3</sup>	3.4	3.6
20 m	R32 gas charge	g	1095	1145
	min room volume	m <sup>3</sup>	3.65	3.8
21 m	R32 gas charge	g	1120	1170
	min room volume	m <sup>3</sup>	3.73	3.9
22 m	R32 gas charge	g	1145	1195
	min room volume	m <sup>3</sup>	3.82	3.98
23 m	R32 gas charge	g	1170	1220
	min room volume	m <sup>3</sup>	3.9	4.1
25 m	R32 gas charge	g	1220	1270
	min room volume	m <sup>3</sup>	4.1	4.2
30 m	R32 gas charge	g	1345	1395
	min room volume	m <sup>3</sup>	4.5	4.7

*fig. 16 - Minimum room volume*

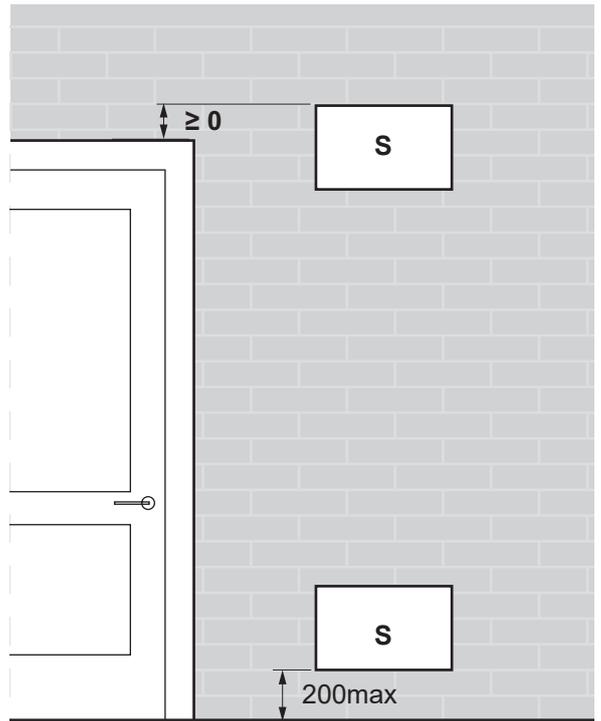


fig. 18 - Position of openings for ventilation

Room volume (m <sup>3</sup> )	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5				
<b>Refrigerant Amount (g)</b>	<b>Minimal section (S) of the opening (cm<sup>2</sup>)</b>															
970	500	350	250	200	200	No requirement										
1000	550	350	300	250	200											
1100	600	400	300	250	200							200				
1170	600	400	300	250	200							200				
1300	700	450	350	300	250							200	200			
1400	750	500	400	300	250							250	200	200		
1500	800	550	400	350	300							250	200	200	200	
1600	850	550	450	350	300							250	250	200	200	
1700	900	600	450	350	300							250	250	200	200	200
1800	950	650	500	400	350							300	250	250	200	200
1840	950	650	500	400	350	300	250	250	200	200	200					

fig. 17 - Section of the opening

## ▼ With Heat sources

### Heat sources such as :

- Open flame,
- High temperature surface >700°C (filament),
- Electrical circuit breaker >5kVA,



In accordance with IEC 60-335-2-40 standard, the hydraulic module of the heat pump as well as all the refrigerant connections that cross the inhabited area must be installed in rooms respecting the minimum surface (fig. 20).

Depending on the total coolant load (heat pump + links + additional load):

if the minimal surface area (fig. 20) cannot be complied with, follow the instructions in fig. 22 to take into account the surface areas of adjoining rooms and the creation of ventilation points (see fig. 19 and fig. 21).

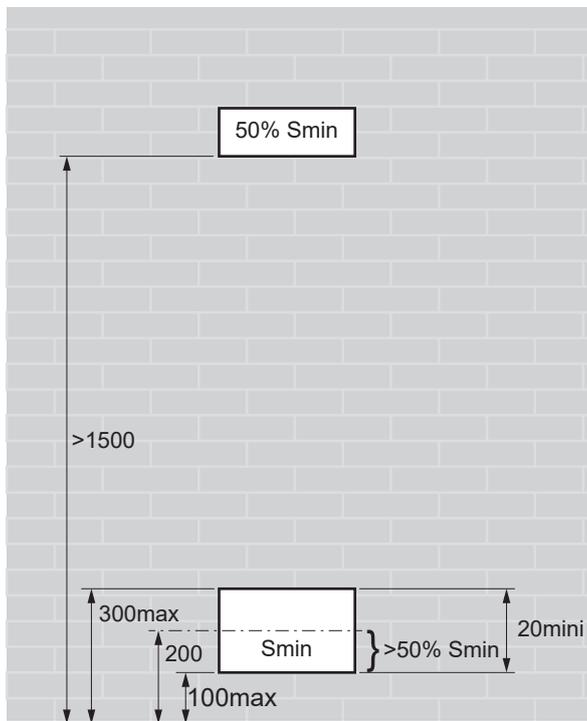


fig. 19 - Position of openings for ventilation

Refrigeration connections Length			Modele (kW)	
			5, 6	8
15 m	R32 gas charge	g	970	1020
	min room Surface	m <sup>2</sup>	<b>4.21</b>	<b>4.43</b>
16 m	R32 gas charge	g	995	1045
	min room Surface	m <sup>2</sup>	<b>4.32</b>	<b>4.54</b>
17 m	R32 gas charge	g	1020	1070
	min room Surface	m <sup>2</sup>	<b>4.43</b>	<b>4.65</b>
20 m	R32 gas charge	g	1095	1145
	min room Surface	m <sup>2</sup>	<b>4.76</b>	<b>4.97</b>
23 m	R32 gas charge	g	1170	1220
	min room Surface	m <sup>2</sup>	<b>5.08</b>	<b>5.30</b>
25 m	R32 gas charge	g	1220	1270
	min room Surface	m <sup>2</sup>	<b>5.30</b>	<b>5.52</b>
30 m	R32 gas charge	g	1345	1395
	min room Surface	m <sup>2</sup>	<b>5.84</b>	<b>6.06</b>

fig. 20 - Minimum room surface

Surface of Room A (m <sup>2</sup> )	0.8	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5
Refrigerant Amount (g)	Minimal section (Smin) of the low opening (cm <sup>2</sup> )														
970	246	232	196	160	124	88	51	15	-	-	-	-	-	-	-
1000	256	241	205	169	133	97	61	25	-	-	-	-	-	-	-
1100	287	273	236	200	164	128	92	56	20	-	-	-	-	-	-
1170	309	294	258	222	186	150	114	78	42	6	-	-	-	-	-
1300	350	335	299	263	227	191	155	119	83	47	11	-	-	-	-
1400	381	367	330	294	258	222	186	150	114	78	42	6	-	-	-
1500	412	398	362	326	290	254	218	181	145	109	73	37	14	-	-
1600	444	429	393	357	321	285	249	213	177	141	105	68	46	29	12
1700	475	461	424	388	352	316	280	244	208	172	136	100	77	61	45
1800	506	492	456	420	384	348	312	275	239	203	167	131	109	93	78
1840	519	504	468	432	396	360	324	288	252	216	180	144	122	106	91

fig. 21 - Minimal section of the opening

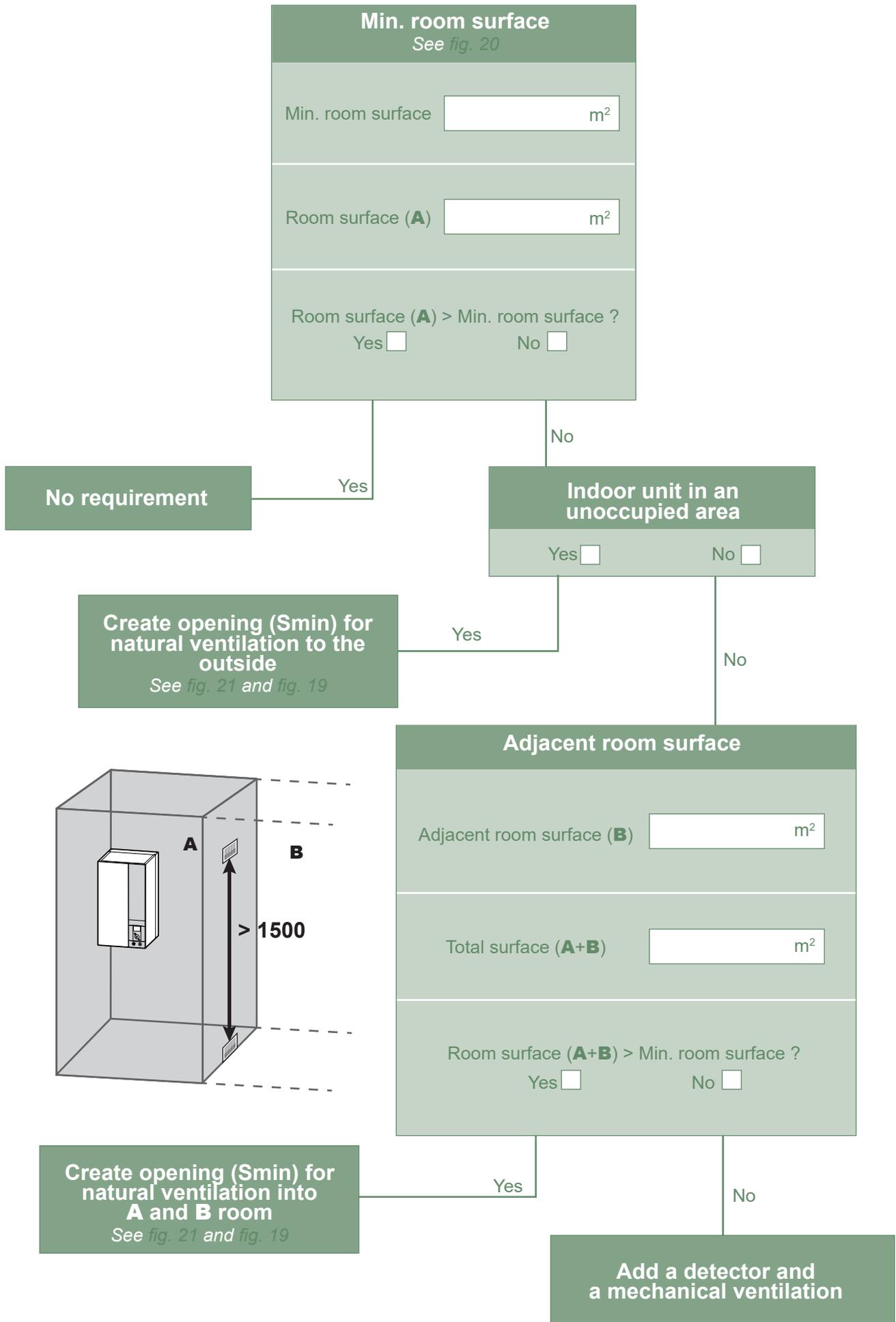


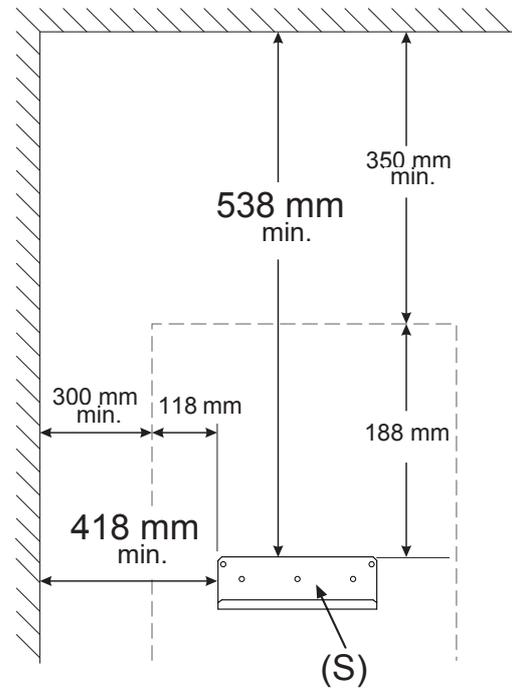
fig. 22 - Min. room surface

### ▼ Positioning the hydraulic unit

- Fix the bracket **S** securely (4 screws and plugs) to a strong, flat wall ensuring that it is correctly levelled. If weak partition wall, install reinforcements (metal or wood), use a suitable fastening system.
- Hook the appliance onto its bracket **S**.



**Weight of hydraulic unit (full of water) : 61kg**



*fig. 23 - Mounting bracket*

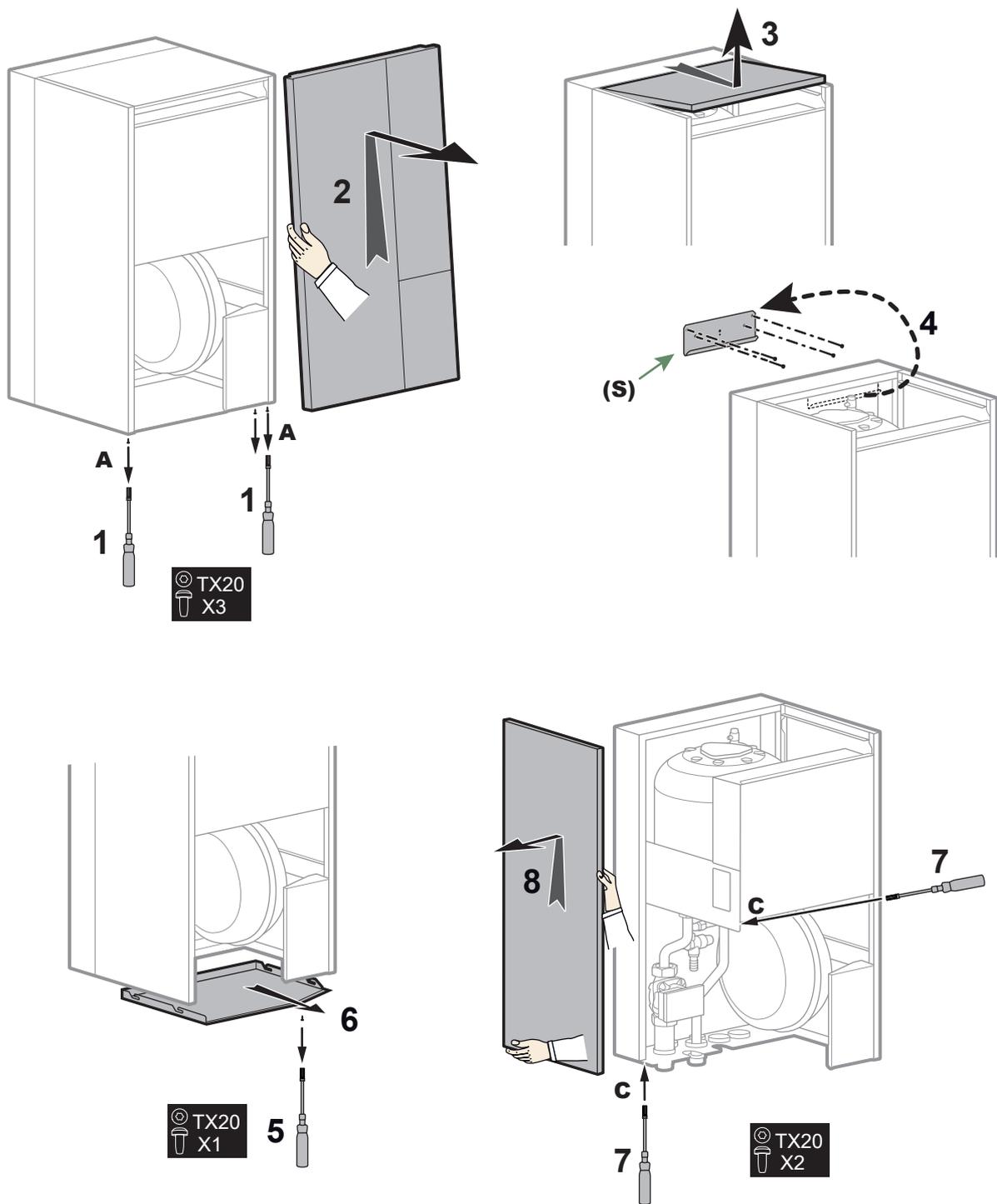


fig. 24 - Removing the casing

# Refrigeration connections

## This appliance uses refrigerant R32.

Comply with the legislation on handling of refrigerants.

### ► Rules and precautions



**Connections must be made on the same day the installation is filled with gas (see para. "Filling the installation with gas", page 74).**

#### • Minimum tools required

- Set of pressure gauges (*Manifold*) with hoses exclusively designed for HFCs (Hydrofluorocarbons).
- Vacuum gauge with isolation valves.
- Vacuum pump specifically for HFCs (using a standard vacuum pump is allowed if, and only if, it is fitted with a non-return valve on the suction side).
- Flaring tool, Pipe-cutter, Deburring tool, Spanners.
- Certified refrigerant leak detector (sensitivity 5g/year).

**Using tools that have been in contact with HCFCs (R22 for example) or CFCs is prohibited.**



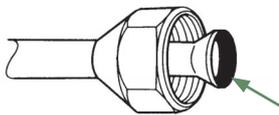
**The manufacturer declines any liability with regard to the warranty if the above instructions are not observed.**

#### • Flared connections



**Lubricating with mineral oil (for R12, R22) is prohibited.**

- Lubricate only with alkylbenzene oil. If alkylbenzene oil is not available, fit without lubrication.



Coat the flared surface with alkylbenzene oil.  
Do not use mineral oil.

#### • Brazing the refrigeration circuit (if necessary)

- Silver brazing (40% minimum recommended).
- Brazing only with dry nitrogen internal flux.

#### • Other remarks

- After each maintenance operation on the refrigeration circuit and before final connection, take care to put the caps back in position to avoid any pollution of the refrigeration circuit.
- To eliminate any filings getting into the pipes, use dry nitrogen to avoid introducing any humidity that may adversely affect the appliance's operation. In general, take every precaution to avoid humidity penetrating into the appliance.
- Proceed with the thermal insulation of the pipes / connections / refrigeration fittings in order to avoid any condensation. Use insulating sleeves resistant to temperatures above 90 ° C, at least 15mm thick if the humidity reaches 80% and at least 20mm if the humidity exceeds 80%. The thermal conductivity of the insulation is less than or equal to 0.040 W / mK. The insulation must be waterproof to resist the passage of steam during the defrost cycles. **Glass wool is prohibited.**

### ► Shaping the refrigeration pipes

#### ▼ Bending

The refrigeration pipes must be shaped only on a bending machine or with a bending spring in order to avoid any risk of crushing or breaking them.

**Remove the insulation material from the section of pipe to be bent.**

**Do not bend copper to an angle greater than 90°.**



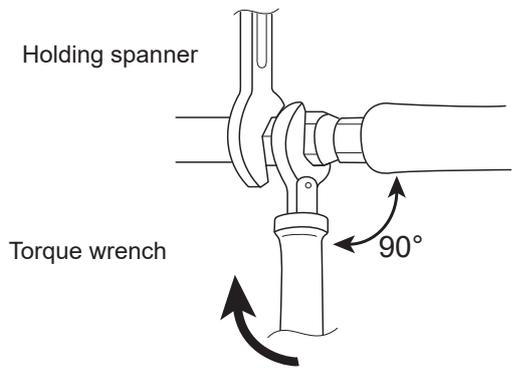
**The radius of curvature must be more than 2.5x ø pipe.**

**Never bend pipes more than 3 times in the same place otherwise traces of fracturing may appear (hardening of the metal).**

#### ▼ Creating the flarings

- Cut the pipe to an appropriate length with a pipe-cutter without damaging it.
- Carefully deburr it, holding the pipe pointing downward to avoid introducing filings into the pipe.
- Remove the flared connection nut situated on the valve to be connected and slide the pipe into the nut.
- Proceed to flare it, letting the pipe protrude out of the flaring tool's tube.

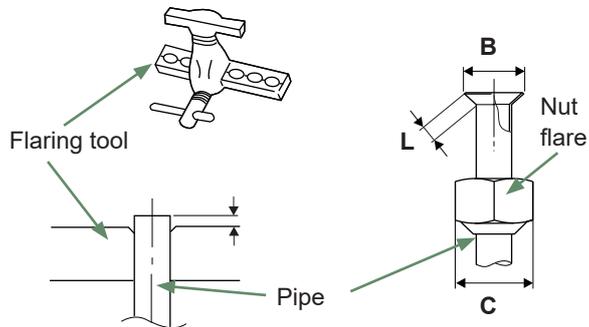
After flaring, check the state of the working radius (**L**). This must not present any scratches or signs of fracturing. Also check the dimension (**B**).



Designation	Tightening torque
Flared nut 6.35 mm (1/4")	16 to 18 Nm
Flared nut 9.52 mm (3/8")	32 to 42 Nm
Flared nut 12.7 mm (1/2")	49 to 61 Nm
Flared nut 15.88 mm (5/8")	63 to 75 Nm
Plug (A) 3/8", 1/4"	20 to 25 Nm
Plug (A) 1/2"	28 to 32 Nm
Plug (A) 5/8"	30 to 35 Nm
Plug (B) 3/8", 5/8", 1/2", 1/4"	12.5 to 16 Nm

Plug (A) and (B) : see fig. 47, page 75.

fig. 27 - Tightening torques



Pipe ø	Values in mm		
	L	B 0/-0.4	C
6.35 (1/4")	1.8 to 2	9.1	17
9.52 (3/8")	2.5 to 2.7	13.2	22
12.7 (1/2")	2.6 to 2.9	16.6	26
15.88 (5/8")	2.9 to 3.1	19.7	29

fig. 25 - Flaring of the flare connections

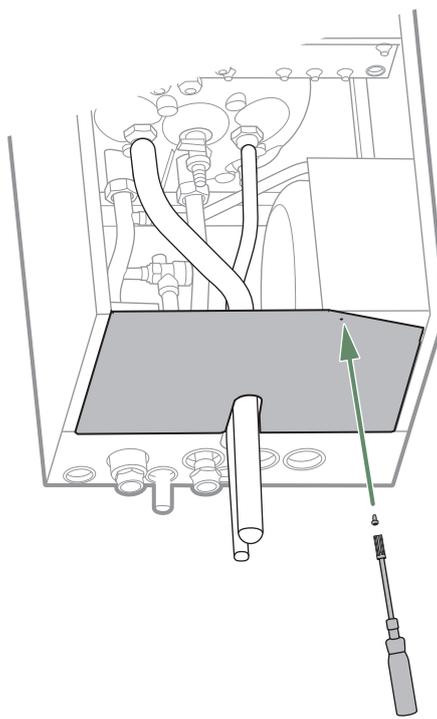
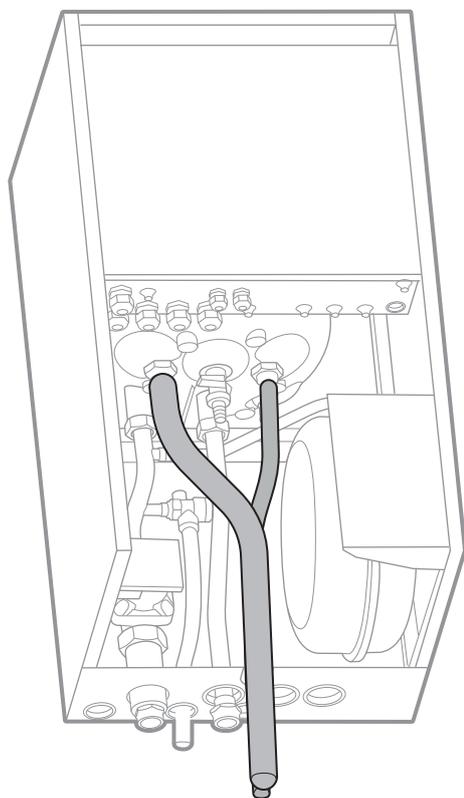


fig. 26 - Feeding through flared connections

HP models	5, 6		8	
	gas	liquid	gas	liquid
Outdoor unit connections	1/2"	1/4"	1/2"	1/4"
Diameter:	(D1) 1/2"	(D2) 1/4"	(D1) 1/2"	(D2) 1/4"
Refrigeration connections	Minimum length (L)		3 m	
	Maximum length* (L)		15 m	
	Maximum length** (L)		30 m	
	Maximum Height Difference** (D)		20 m	
Male-female adapter (reduction)	(R1) 1/2" - 5/8"	(R2) 1/4" - 3/8"	(R1) 1/2" - 5/8"	(R2) 1/4" - 3/8"
Hydraulic unit connections	5/8"	3/8"	5/8"	3/8"

\* : Without additional charge.

\*\* : Including any additional filling (see "Additional filling", page 32).

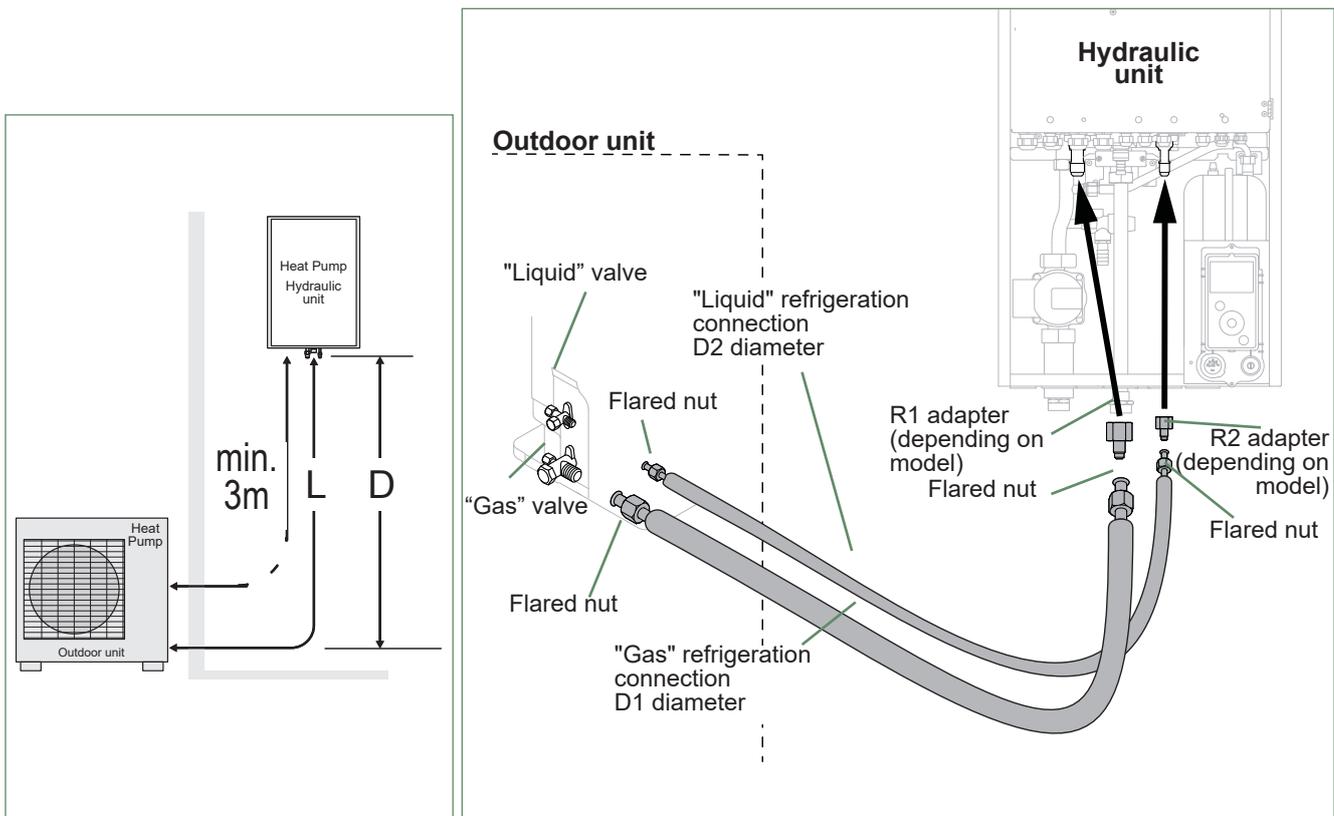


fig. 28 - Refrigeration connections (authorised diameters and lengths)

## ► Checks and connection



The refrigeration circuit is very sensitive to dust and humidity: check that the area around the connection is clean and dry before removing the plugs protecting the refrigeration connectors.

Indicated blowing value: 6 bar for minimum 30 seconds for connection of 20 m.

### Checking the gas connection (large diameter).

- 1 Connect the gas connection to the outdoor unit. Blow dry nitrogen into the gas connection and inspect its end:
  - If water or impurities emerge, use a brand new refrigeration connection.
- 2 Otherwise, proceed with flaring and connect the refrigeration connection to the outdoor unit immediately.

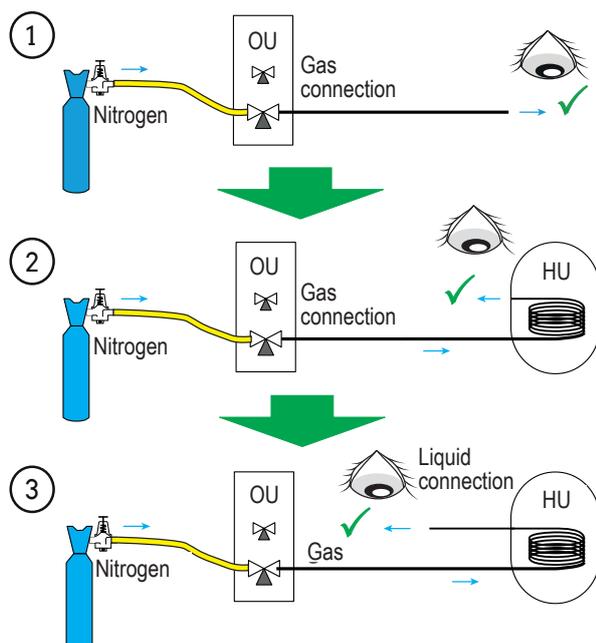
### Checking the liquid connection (small diameter).

- 3 Connect the liquid connection to the hydraulic unit. Blow nitrogen into the **gas-condenser-liquid connection** system and inspect its end (outdoor unit side).
  - If water or impurities emerge, use a brand new refrigeration connection.
  - Otherwise, proceed with flaring and connect the refrigeration connection to the outdoor unit immediately.



Take particular care to position the tube opposite its connector so as not to risk damaging the threads. A properly aligned connector can be attached easily by hand without much force being required.

- Where necessary, connect an adapter (reducer) 1/4"- 3/8" or 1/2"- 5/8" (see *fig. 28*).
- Remove the plugs from the pipes and the refrigeration connections.
- **Warning!** Avoid positioning the gas pipe in front of the pump.
- Comply with the indicated tightening torques (*fig. 27, page 29*). If it is too tight, the fitting may break after a long period of time and cause a refrigerant leak.



*fig. 29 - Checking refrigeration connections*

## ▼ Filling with gas

- See Appendices *page 74*



Indicate on the label present on the outdoor unit, the amount of gas (Factory + additional filling) see *fig. 30*.



If additional filling is required, do it before filling the hydraulic unit with gas. Refer to paragraph "Additional filling", *page 32*

- Remove the access plugs (A) (*fig. 47, page 75*) from the valve controls.
- First of all fully open the liquid valve (small) and then the gas valve (large) using an Allen (hex) key (anti-clockwise direction) without using excessive force against the stop.
- Quickly disconnect the hose from the *Manifold*.
- Refit the 2 original caps (be sure they are clean) and tighten them to the recommended tightening torque indicated in the table *fig. 27, page 29*. A seal is achieved in the caps only with metal to metal.
- The outdoor unit does not contain any additional refrigerant allowing the installation to be bled.
- Bleeding by flushing is strictly forbidden.

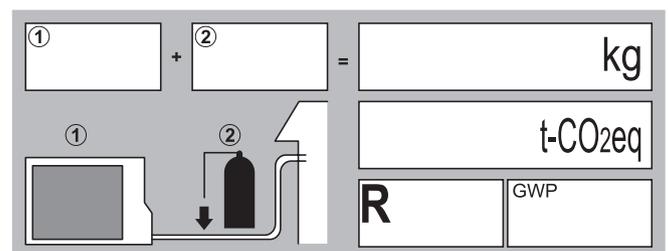
## ▼ Final sealing test

The sealing test must be carried out using a certified gas detector (sensitivity of 5g/year).

Once the refrigeration circuit has been gassed as described above, check that all the refrigeration connectors are gas-tight (4 connectors). If the flarings have been made correctly, there should be no leaks. If necessary, check the seal of the refrigeration valve caps.

### If the event of a leak:

- Return the gas to the outdoor unit (pump down). The pressure should not drop below atmospheric pressure (0 relative bar read on the Manifold) so as not to contaminate the recovered gas with air or moisture.
- Redo the connection,
- Restart the commissioning procedure.



*fig. 30 - Additional filling label*

## ▼ Additional filling

The amount needed to fill the outdoor units corresponds to the maximum distances between the outdoor unit and the hydraulic unit as defined here [page 30](#). If the distances are greater, an additional amount of R32 is required. For each type of appliance, this additional amount depends on the distance between the outdoor unit and the hydraulic unit. Any additional filling with R32 must be carried out by an approved specialist.

### Models 5, 6 and 8 (Outdoor unit WOYA060KLT, WOYA080KLT)

15m < Length of the connections ≤ 30m

(Length of the connections - 15m) x 25 g/m= g

Models / Factory fill	Length of the connections in m	16	17	X	29	30
Models 5, 6 / 970 g	Fill amount in g	995	1020	$970 + (X - 15) \times 25 = g$	1320	1345
Model 8 / 1020 g		1045	1070	$1020 + (X - 15) \times 25 = g$	1370	1395

Filling must be carried out after creating a vacuum and before gassing the hydraulic unit, as follows:

- Disconnect the vacuum pump (yellow hose) and connect a bottle of R32 in its place **in the liquid extraction position**.
- Open the bottle's valve.
- Bleed the yellow hose by loosening it slightly on the Manifold side.
- Place the bottle on scales with a minimum accuracy of 10g. Note the weight.
- Carefully open the blue valve slightly and check the value shown on the scales.
- As soon as the value displayed has dropped by the value for the calculated additional fill amount, close the bottle and disconnect it.
- Quickly disconnect the hose connected to the appliance.
- Proceed to fill the hydraulic unit with gas.

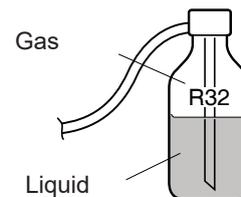


fig. 31 - Gas bottle R32



**Only use R32 !**

**Only use tools suitable for R32 (set of pressure gauges).**

**Always fill in the liquid phase.**

**Never exceed the maximum length or difference in level.**

## ▼ Recovering the refrigerant in the outdoor unit



Before performing any maintenance, make sure that all power supplies have been cut off.

**Stored energy:** after cutting off the power supplies, wait for 10 minutes before accessing the internal parts of the equipment.



Perform the following procedures to collect the refrigerant.

1. Press the ON/OFF button to the **OFF** position (mark **3**, page 13). Disconnect the outdoor unit's power supply.
2. Remove the front panel. Open the power control box. Then turn **ON** the **DIP SW1** on the interface board,
3. Reconnect the power supply. Press the ON/OFF button to position ON. (The green and red LEDs start flashing; 1s on / 1s off). The outdoor unit begins cooling operation about 3 minutes after being switched on.
4. The circulation pump starts.
5. Close the liquid valve on the outdoor unit **maximum** 30 secs after the outdoor unit starts.
6. Close the gas valve on the outdoor unit when the pressure is below 0.02 relative bar read on the *Manifold*, or 1-2 minutes after the liquid valve has been closed, while the outdoor unit continues to operate.
7. Disconnect the power supply.
8. Recovery of the refrigerant is complete.

Notes:

- The pump down operation cannot be activated even if **DIP SW1** is set to **ON** while the heat pump is in operation.
- Do not forget to switch **DIP SW1** back to **OFF** after the pump down operation has been completed.
- Select the heating mode.
- If the pump down operation fails, try the operation again by turning the machine off and opening the "liquid" and "gas" valves. Then after 2-3 minutes, restart the pump down operation.

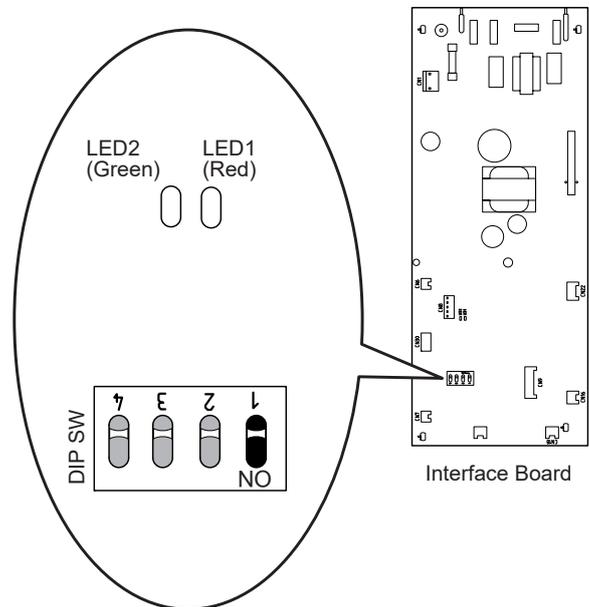


fig. 32 - Location of DIP switches and LEDs on the hydraulic unit interface board

# Hydraulic connections

---



See “Basic Hydraulic Layout”, page 76

## ► Heating circuit

### ▼ Flushing the installation

Before connecting the hydraulic unit to the installation, **rinse out the heating system correctly** to eliminate any particles that may affect the appliance's correct operation.

Do not use solvents or aromatic hydrocarbons (petrol, paraffin, etc.).



**Flush the installation several times before proceeding to the final filling.**

In the case of an old installation, provide a sufficiently large decanting pot with a drain on the return from the heat pump and at the lowest point in the system in order to collect and remove any impurities.

In some installations, the presence of different metals can cause corrosion problems; the formation of metal particles and sludge can appear in the hydraulic circuit. In this case, it is advisable to use a corrosion inhibitor in the proportions indicated by the manufacturer. You must also ensure that treated water does not become corrosive (neutral pH:  $7 < \text{pH} < 9$ ).



**Flush the installation several times before proceeding to the final filling.**

### ▼ Connections

The heating circulation pump is built into the hydraulic unit.

Connect the central heating pipes to the hydraulic unit correctly according to the direction of circulation.

The pipe between the hydraulic unit and the heat collector must be at least one inch in diameter (26x34 mm).

Calculate the diameter of the pipes based on flow rates and lengths of the hydraulic systems.

Tightening torque: 15 to 35 Nm.

Use union connectors to make it easier to remove the hydraulic unit.

Try to use connection hoses to avoid transmitting noise and vibrations to the building.

Connect the drains from the drain valve and the safety valve to the main sewer system.

Verify that the expansion system is correctly connected. Check the expansion vessel pressure (pre-inflated to 1 bar) and the safety valve is calibrated.

The flow rate of the installation must be at least equal to the minimum value mentioned in the table “General characteristics”, page 7). The installation of a regulator (other than those included in our configurations) which reduces or stops the flow through the hydraulic unit is prohibited.

### ▼ Volume of the heating system

**You must maintain the minimum installation water volume.** Install a buffer tank on the return from the heating circuit in case the volume is lower than this value. Where the system is fitted with one or more thermostatic valves, you must ensure that this minimum water volume is able to circulate.

Models ...	Theoretical min. volume in litres PER CIRCUIT (excl. HP)		
	Mandatory Fan-coil	Recommendation Radiators	Recommendation Heating-cooling floor
Model 5	23	12	2
Model 6	23	12	2
Model 8	36	33	15

### ► Filling and bleeding the installation

Check the pipe fixings, tightness of the connectors and the stability of the hydraulic unit.

Check the direction in which the water is circulating and that all the valves are open.

Proceed to fill the installation.

**Do not operate the circulation pump during filling.**

Open all the drain valves in the installation and the bleeder valve on the hydraulic unit (**P**) to expel the air contained in the pipes.

Close the drain and bleeder valves and add water until the pressure in the hydraulic circuit reaches 1 bar.

Check that the hydraulic circuit has been bled correctly.

Check there are no leaks.

After the "⚙️ *Commissioning*", page 50 stage, and once the machine has started, bleed the hydraulic unit again (2 litres of water).

**i** Precise filling pressure is determined by the water pressure in the installation.

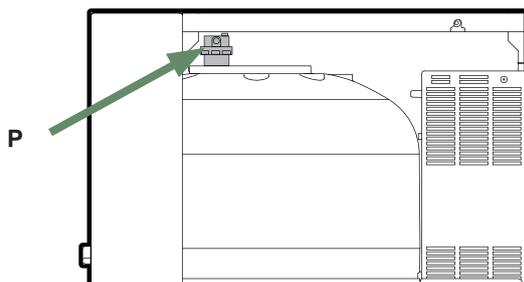


fig. 33 - Hydraulic unit automatic bleeder valve

# Electrical connections

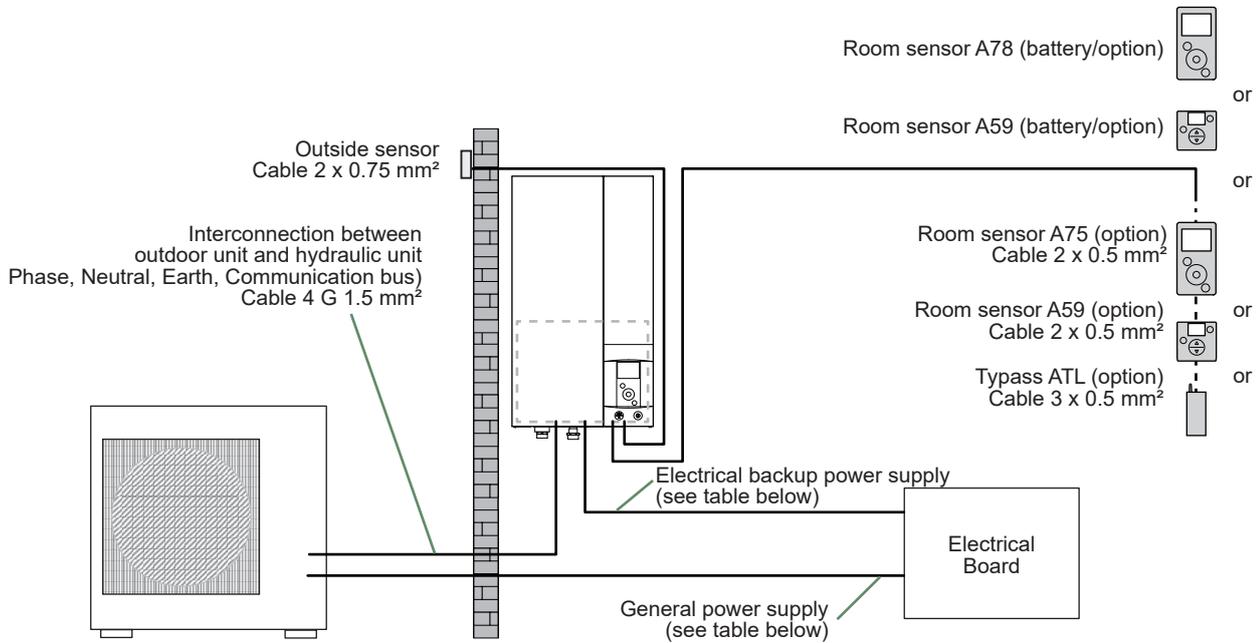


Before performing any maintenance, make sure that **all power supplies** have been cut off.

Electrical installation must be performed in accordance with current regulations.



The electrical diagram for the hydraulic unit is shown on *fig. 49, page 80*.



*fig. 34 - Overall layout of electrical connections for a simple installation (1 heating circuit)*

## ► Cable dimensions and protection rating

These cable dimensions are provided for information purposes only and do not exempt the installer from checking that these dimensions match requirements and comply with current standards.

### • Outdoor Unit Power Supply

<i>Heat Pump (HP)</i>		<i>Electricity supply 230 V - 50 Hz</i>	
<i>Model</i>	<i>Max. power consumption</i>	<i>Connection cable *</i> (phase, neutral, earth)	<i>Circuit breaker C curve</i>
Alféa Extensa A.I. 5	2530 W	3 G 1.5 mm <sup>2</sup>	16 A
Alféa Extensa A.I. 6	2875 W		
Alféa Extensa A.I. 8	4025 W	3 G 2.5 mm <sup>2</sup>	20 A

### • Interconnection between the outdoor unit and the hydraulic unit

The hydraulic unit is powered by the outdoor unit by means of a 4 G 1.5 mm<sup>2</sup> cable\* (phase, neutral, earth, communication bus).

### • DHW power supply (according option)

The DHW section is powered directly via a 3 G 1.5 mm<sup>2</sup> cable\* (phase, neutral, earth).

Protection by rated circuit breaker (16 A - C curve).

### • Electrical backup power supply (according option)

The hydraulic unit contains a electrical backup circuit (and a second optional) installed in the storage tank.

<i>Heat pump</i>	<i>Electrical backups</i>		<i>Electrical backup power supply</i>	
<i>Model</i>	<i>Power</i>	<i>Nominal current</i>	<i>Connection cable *</i> (phase, neutral, earth)	<i>Circuit breaker C curve</i>
Alféa Extensa A.I. 5, 6 and 8	3 kW	13 A	3 G 1.5 mm <sup>2</sup>	16 A
Alféa Extensa A.I. 5, 6 and 8 with 6 kW Backup Relay Kit	2 x 3 kW	26.1 A	3 G 6 mm <sup>2</sup>	32 A

\* Cable type 60245 IEC 57 or 60245 IEC 88.

## ► Outdoor unit

Access to connection terminals:

### ■ Models 5, 6 and 8

- Remove the cowl.



**Avoid contact between cables and refrigeration valves / connections.**



**Use cable clamps to prevent any power cables from being disconnected accidentally.**

**Fill in the space where the cables enter the outdoor unit with the insulating plate.**

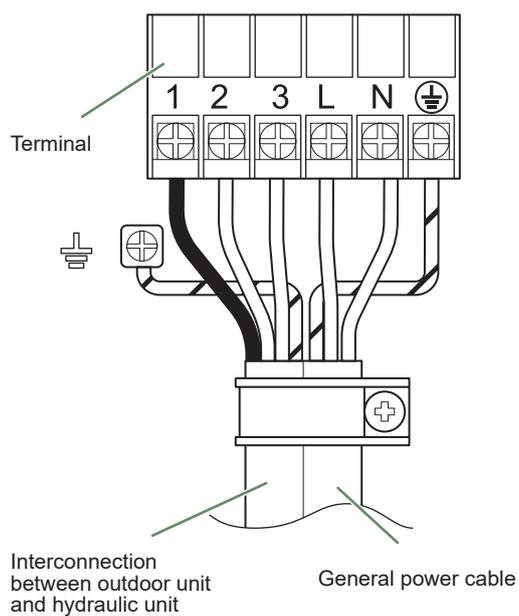


fig. 35 - Connections to outdoor unit's terminal block

### ■ Models 5, 6 and 8

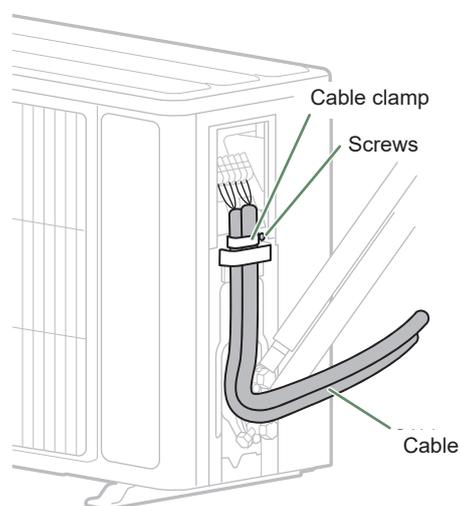


fig. 36 - Access to outdoor unit's terminal block

## ► Hydraulic unit

Access to connection terminals:

- Remove the front panel (2 screws).
- Open the power control box.
- Make the connections according to the diagram (*fig. 40, page 43*).

Do not place the sensor and power supply lines parallel to each other to avoid interference due to voltage spikes in the power supply.

Make sure that all electrical cables are housed in the areas provided for this purpose.

### ▼ Interconnection between outdoor unit and hydraulic unit

Match up the terminal block markers on the hydraulic unit to those of the outdoor unit exactly when connecting the interconnection cables.

An incorrect connection could result in the destruction of one or other of the units.

### ▼ Electrical backup

If the heat pump is not installed with a boiler connection:

- Connect the power supply for the backup to the electrical panel.

### ▼ Boiler connection (option)

**i** If the boiler connection option is used, the electric backup must not be connected.

- Please refer to the instructions supplied with the boiler connection kit.
- Please refer to the instructions supplied with the boiler.

### ▼ Second heating circuit (option)

Refer to the instructions supplied with the double hydraulic circuit kit.

### ▼ DHW tank with electrical backup heating (option)

If the installation is fitted with a DHW tank with electrical backup heating:

- Please refer to the instructions supplied with the DHW kit.
- Please refer to the instructions supplied with the DHW tank.

### ▼ Contract with Energy Supplier

The heat pump can be set to operate within particular types of energy contract, e.g. off-peak, PV (Photovoltaic). In particular, domestic hot water (DHW) at the comfort temperature will be produced at off-peak times when electricity is at its cheapest.

- Connect the "Power Provider" contact to input EX2 (*fig. 40, page 43*).
- Set the DHW configuration to "Off-Peak".
- 230V on input EX2 = "Peak Hours" information activated.

### ▼ Power limitation or EDR (Energy Demand Reduction)

Power limitation is designed to reduce electricity consumption when it is too high for the contract signed with the energy supplier.

- Connect the power limiter device to input EX1 (*fig. 40, page 43*). Heat pump and DHW backups will be shut off in the event of over-consumption by the dwelling.
- 230 V on input EX1 = power limitation in progress.

**i** During the power limitation or EDR, the outdoor unit errors are not displayed on the hydraulic unit.

### ▼ Faults external to the heat pump

Any component which reports back information (Underfloor heating safety switch, thermostat, pressure switch, etc.) may signal an external problem and stop the heat pump.

- Connect the external component to input EX3 (*fig. 40, page 43*).
- 230 V on input EX3 = heat pump stopped (system displays Error 369).

## ▼ External control

It is possible to control the changeover from "Heating Mode" to "Cooling Mode" via an "external control unit".



**Function not compatible with :**

- Dual circuit kit
- Room sensors A59, A75 et A78

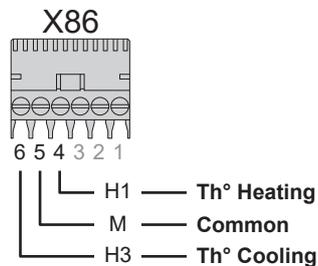
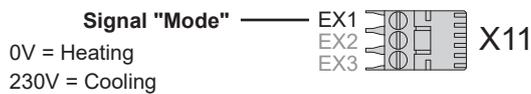
## Parameter setting

HP configuration → HP → **Tariff input configuration**

Set "Type of use" to "EXT control" (See "Tariff input configuration", page 59)

## Connections

Connections on the heat pump controller :



## Operation

Signal on EX1	H1 - M	H3 - M	Operation	
<b>0V</b>	<b>1</b>	<b>0</b>	<b>Heating works</b>	Cooling does not work
0V	0	0	Heating does not work	Cooling does not work
0V	0	1	Heating does not work	Cooling does not work
<b>230V</b>	<b>0</b>	<b>1</b>	<b>Cooling works</b>	<b>Heating does not work</b>
230V	0	0	Cooling does not work	Heating does not work
230V	1	0	Cooling does not work	Heating does not work

- If **0V** on **EX1** → Heating mode
- If **230V** on **EX1** → Cooling mode
- A heating thermostat or a heating contact can be connected at **H1 - M**
- A cooling thermostat or a cooling contact can be connected at **H3 - M**
- The thermostats (or contacts) control the operation of the heat pump in the selected Mode.

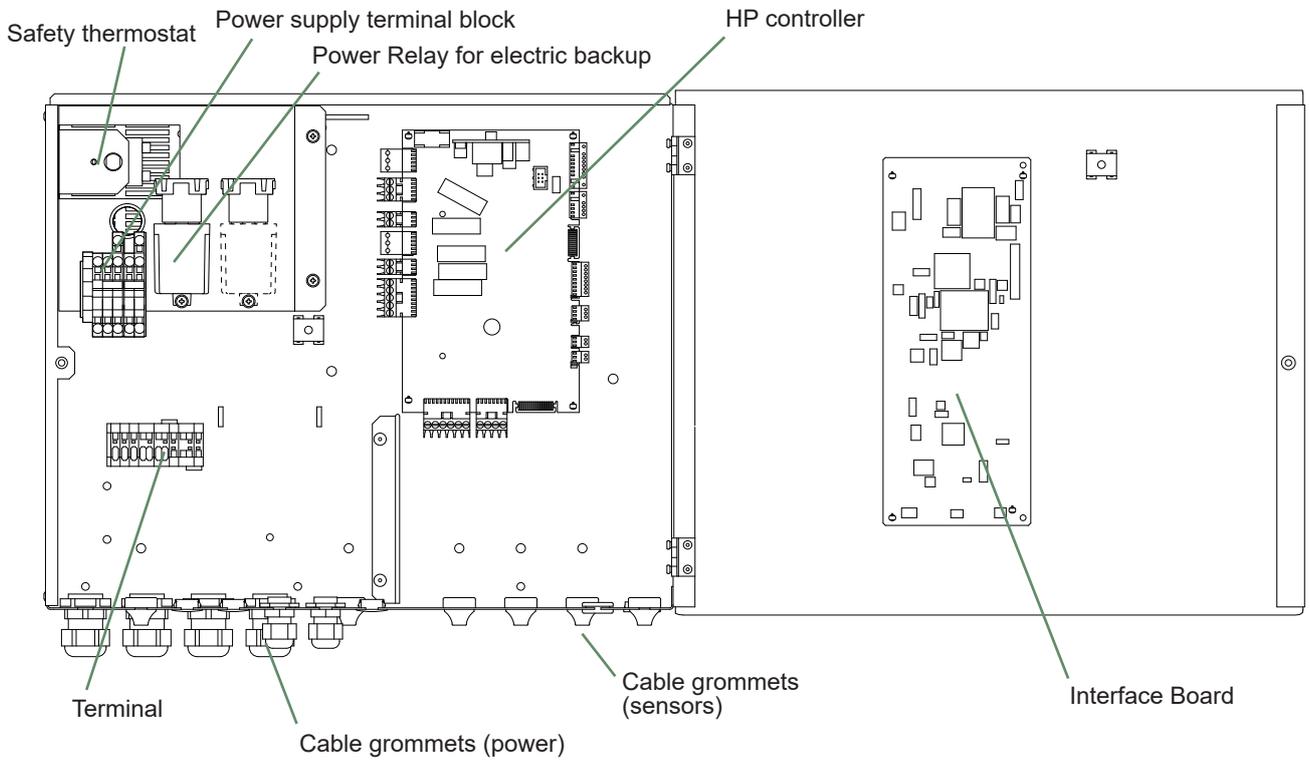
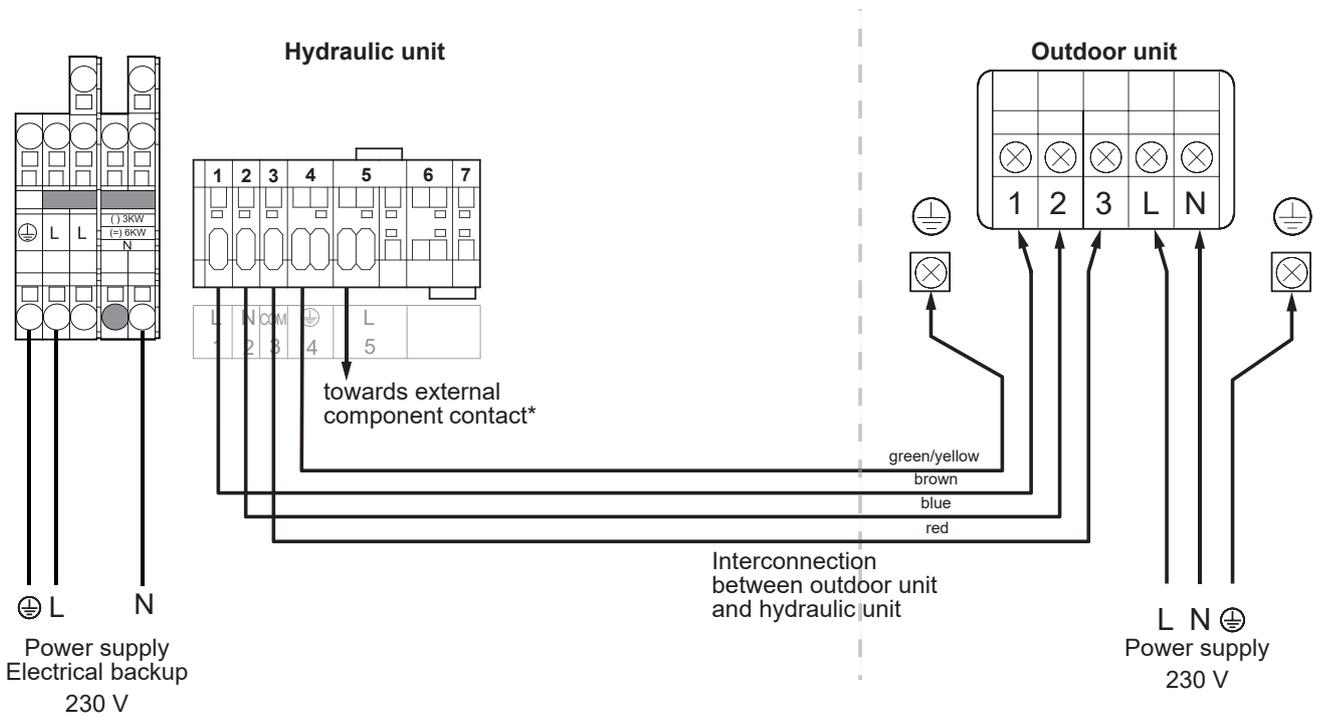


fig. 38 - Description of the hydraulic unit electric control box



\* If the control device does not provide a potential-free contact, the contact must be relayed to create an equivalent wiring. In any case, refer to the instructions for the external components (power limiting device, electricity meter, etc.) to create the wiring.

fig. 37 - Connection to terminal blocks and power relay

## ► Outdoor sensor

The outdoor sensor is required for correct operation of the heat pump.

Please see the fitting instructions on the sensor's packaging.

Place the sensor on the coldest side of the building, generally the northern or north-western side.

It must not be exposed to morning sun.

It must be installed so as to be easily accessible but at least 2.5m from the ground.

It is essential that it is not placed near any sources of heat such as flues, upper parts of doors and windows, near extractor vents, under balconies and eaves, or anywhere which would insulate the sensor from variations in the outdoor air temperature.

- Connect the outdoor sensor to connector **X84** (fig. 40) (terminals **M** and **B9**) on the heat pump control board.

## ► Room sensor (option)

The room sensor is optional.

Please see the fitting instructions on the sensor's packaging.

The sensor must be installed in the living room area on an unobstructed wall. It must be installed so as to be easily accessible.

Avoid direct sources of heat (chimney, television, cooking surfaces, sun) and draughty areas (ventilation, door, etc.).

Draughts in buildings are often brought about by cold air blowing through the electrical ducting. Lag the electrical ducts if there is a cold draught behind the room sensor.

### ▼ Installing a room sensor

#### • Room sensor A59 (if cabled) (fig. 40)

- Connect the sensor's power supply to connector **X86** on the HP control board using the connector provided (terminals **2** and **3**).

#### • Room sensor A75 (fig. 40)

- Connect the sensor's power supply to connector **X86** on the HP control board using the connector provided (terminals **2** and **3**).

### ▼ Installing a Typass ATL

- Connect the Typass ATL to connector **X86** (fig. 40) on the HP control board using the connector provided (terminals **1**, **2** and **3**).

### ▼ Fan convector zone

If the installation is equipped with fan convectors or dynamic radiators, **do not use a room sensor**.

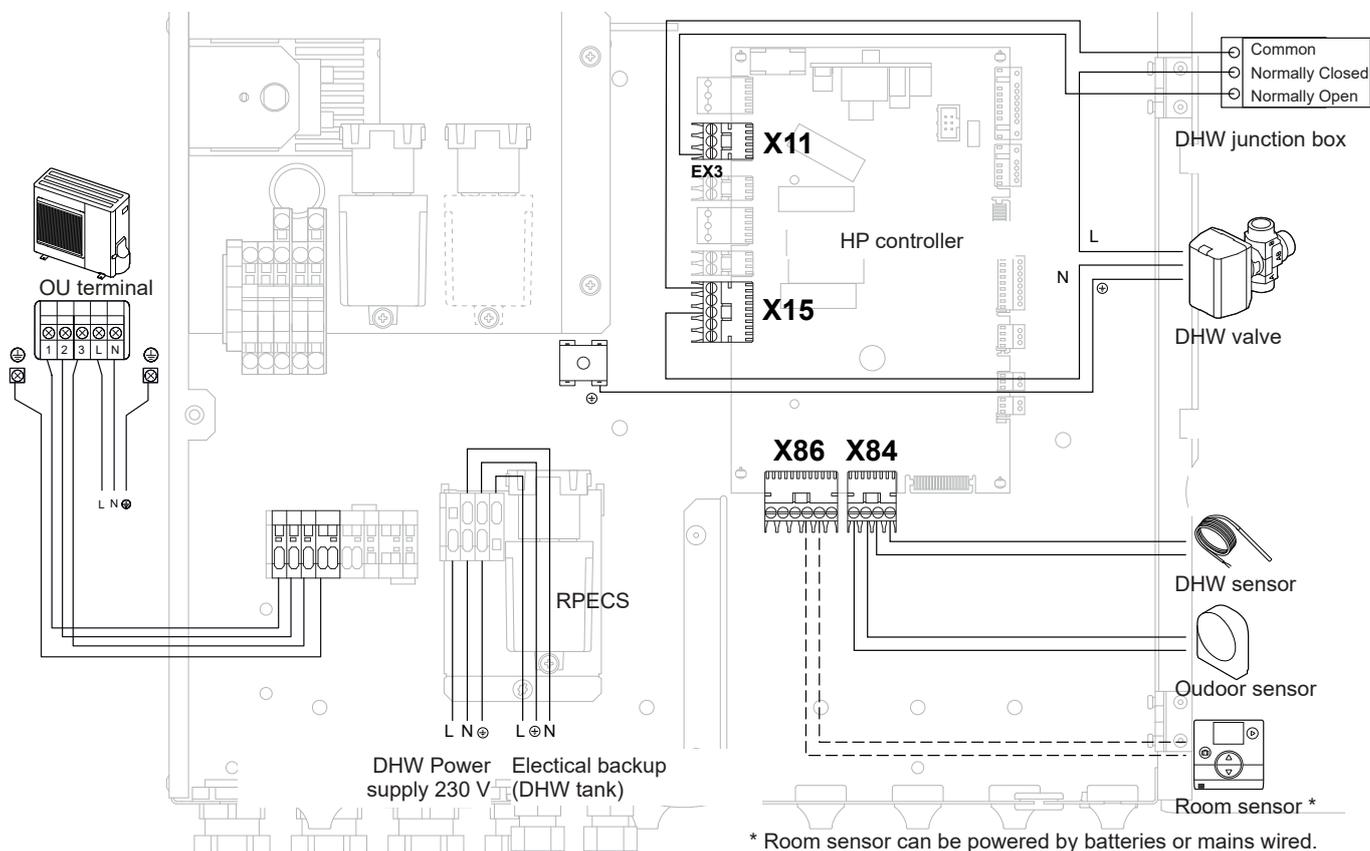


fig. 39 - DHW electrical connections

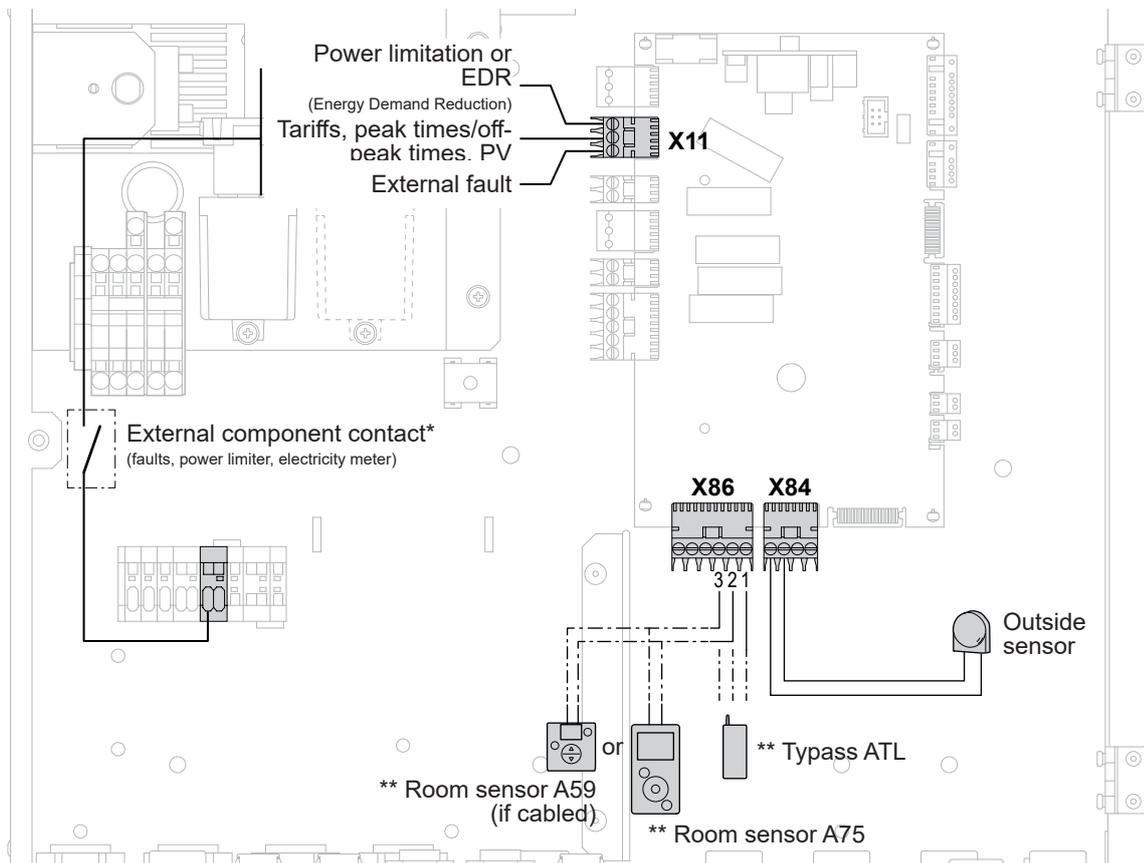


fig. 40 - Connections on the heat pump controller (accessories and options)

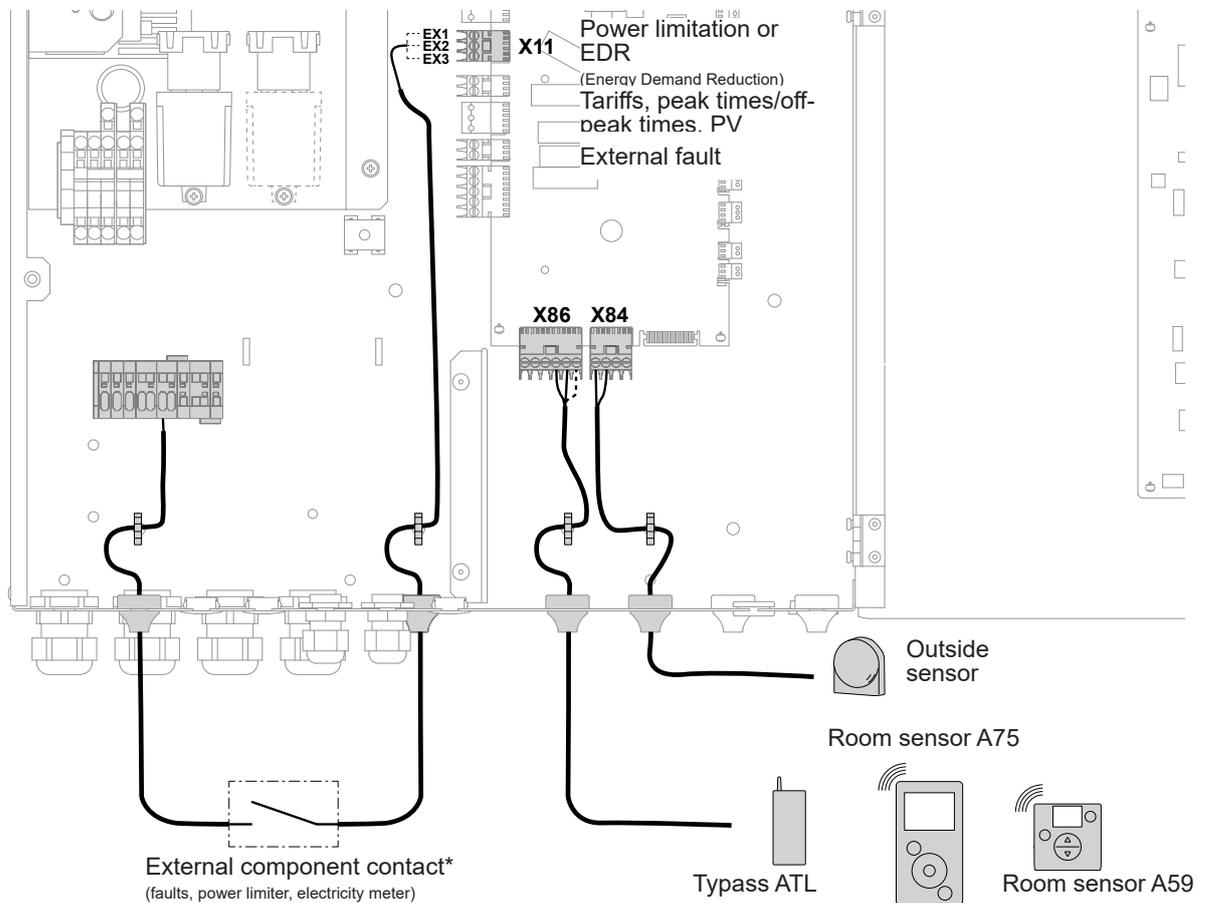
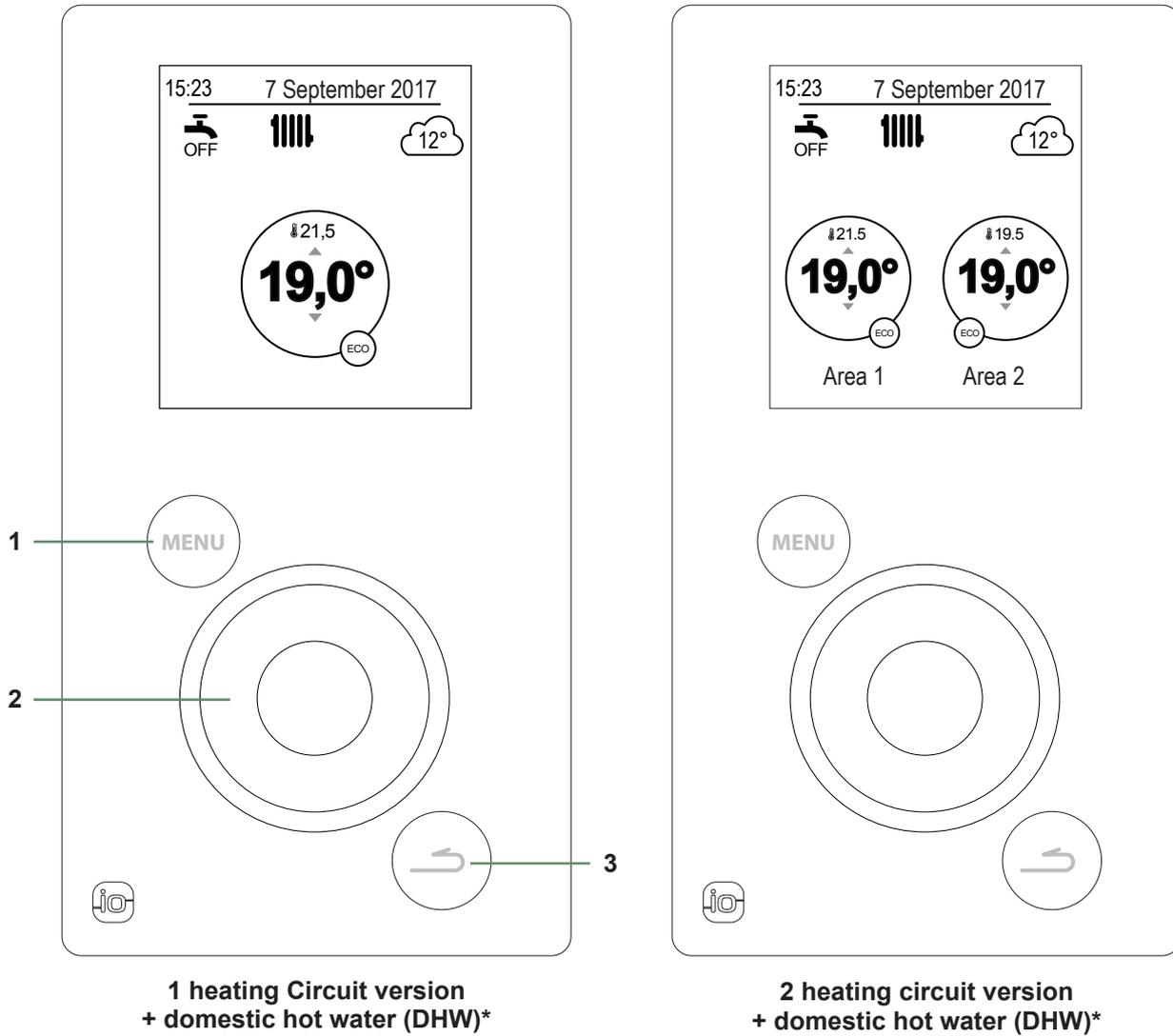


fig. 41 - Sensor cable feeds

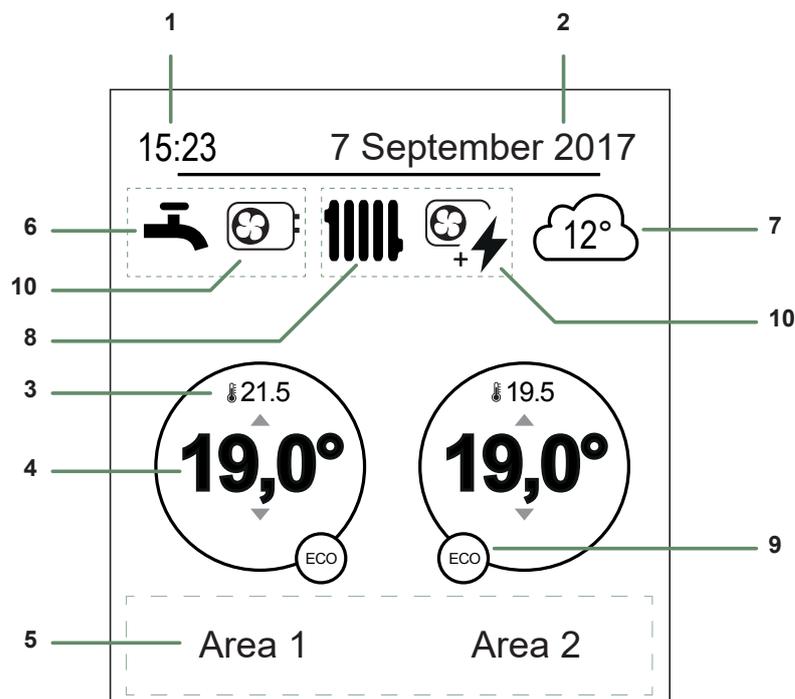
# Controller Interface

## ► User Interface



N°	Description
1	Menu button
2	Navigation knob (rotate knob), accept (press knob)
3	Back button

## ► Display Description



N°	Symbols	Definitions
1	15:23	Time
2	7 September 2017	Date
3	21.5	Temperature measured by the room sensor*
4	19,0°	Room temperature setpoint
5	Information (Area names, emergency mode, test mode, error display, etc.)	
6	<b>Domestic Hot Water (DHW)*:</b>	
		Activated
		Boosting in progress
		Deactivated
7		Temperature measured by the outside sensor
8	<b>Operation</b>	
		Heating
		Cooling*

N°	Symbols	Definitions
9	<b>Mode</b>	
		Comfort
		Manual (exemption)
	ECO	ECO
		Holiday
		Floor drying
		Stop (except frost)
10	<b>Production via ...</b>	
		Heat Pump
		Electrical backup
		HP + electrical backup
		HP + Fuel/Gas*
		Fuel/Gas*

\* Option

## ► Installer Menu

To access the Installer Menu, press and hold the  button and turn the knob a **quarter turn to the right**.  
To return to the User Menu, repeat the same operation.

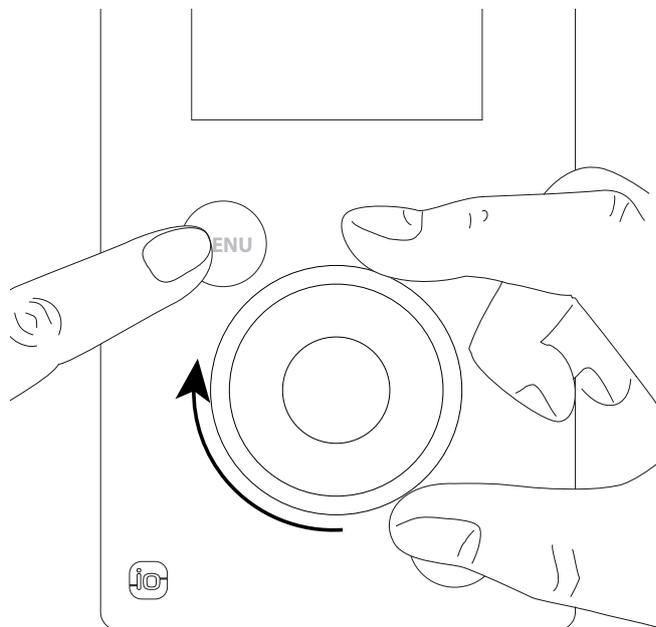


fig. 42 - Installer Menu

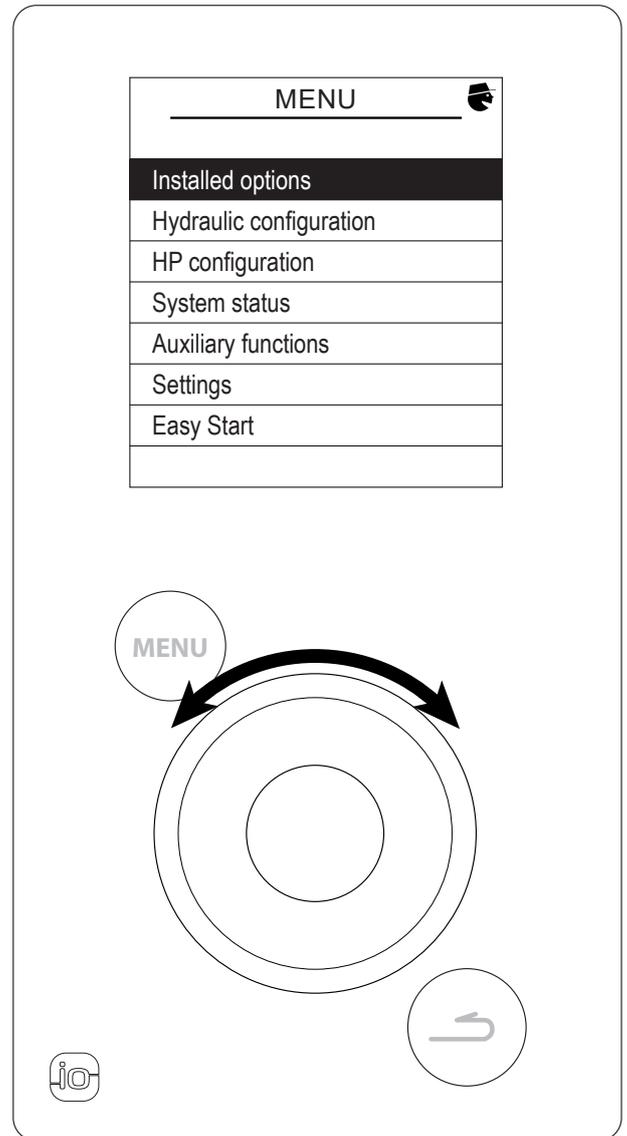
## ► Navigating the Menus

To ...	Action:
Access the menu	Press  .
Choose a menu item	Turn the knob to highlight your choice. Press the knob to accept.
Return to the previous menu	Press  .
Return to the main menu	Press  twice.
Return to the welcome screen	Press  or  on the main menu.

**Note:** Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

## ► Modifying Settings

- Turn the knob to highlight the setting you wish to change.
- Press the knob to accept the change.
- Turn the knob to adjust the setting.
- Press the knob to accept your choice.



*fig. 43 - Navigation*

# Temperature control

---

The heat pump's operation is subject to the temperature control.

The heating circuit water temperature setpoint is adjusted according to the outdoor temperature.

If there are thermostatic valves on the installation, these must be fully open or set higher than the normal temperature setpoint.

## ▼ Setting

During the installation, the temperature control must be configured to suit the radiators and level of insulation of the dwelling.

The temperature control graphs (*fig. 44*) refer to a room temperature setpoint of 20°C.

The temperature control's gradient determines the impact of variations in the outdoor temperature on variations in the heating flow temperature.

The steeper the gradient, the more likely a slight reduction in the outdoor temperature will cause a significant increase in the water flow temperature in the heating circuit.

The temperature control off-set modifies the flow temperature of all graphs, without modifying the gradient (*fig. 45*).

Corrective actions to take in the case of discomfort are listed in the table (*fig. 46*).

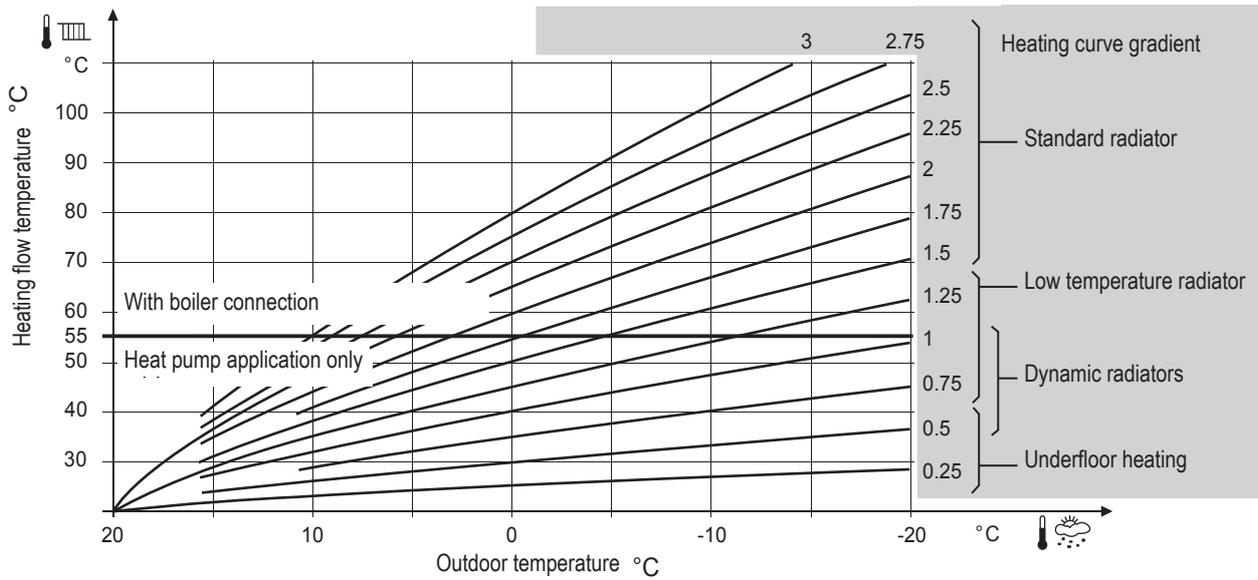


fig. 44 - Heating curve gradient

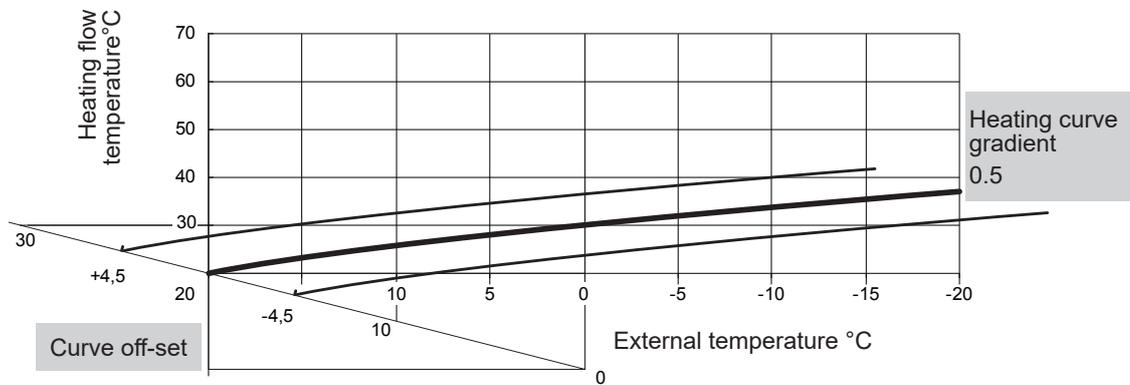


fig. 45 - Transferral of the heating curve

Sensations...		Corrective actions on the temperature control:	
...in mild weather	...in cold weather	Gradient	Off-set
Good	&  Good	→ No correction	No correction
Cold	&  Hot	→	
Cold	&  Good	→	
Cold	&  Cold	→ No correction	
Good	&  Hot	→	No correction
Good	&  Cold	→	No correction
Hot	&  Hot	→ No correction	
Hot	&  Good	→	
Hot	&  Cold	→	

fig. 46 - Corrective actions in case of discomfort

# Commissioning

- Close the installation's main circuit breaker.

Upon initial start-up (or in winter), to preheat the compressor, engage the installation's main circuit breaker (outdoor unit power supply) several hours before starting any tests.

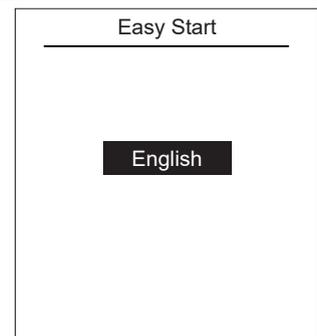
- Press the heat pump's Start/Stop button.

To ensure that inputs EX1, EX2 and EX3 operate correctly: Check that the electricity supply's neutral phase polarity has been respected.

When the power is switched on and every time that the ON/OFF button is switched off and then switched on again, the outdoor unit will take approximately 4 minutes to start up, even if the setting is requesting heating.

When the power is switched on, the "Easy Start" quick start function allows you to set the appliance's initial settings.

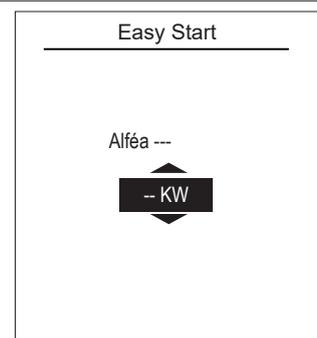
- Turn the knob to choose the language.
- Press the knob to accept.



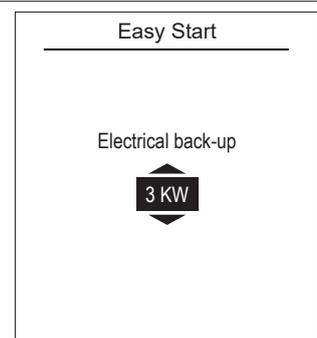
- Turn the knob to adjust the date. Press the knob to accept.
- Repeat this operation for the month, year, hours and minutes.



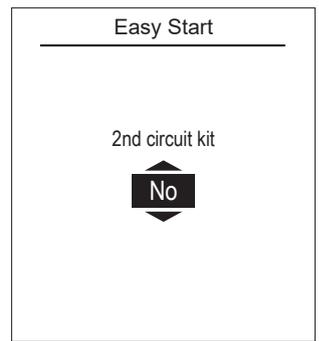
- Set the appliance's power.



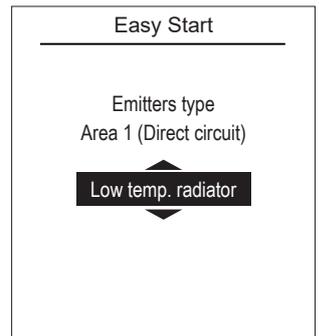
- Set the Electrical backup power:  
*3kW / 6kW / 9kW / None.*



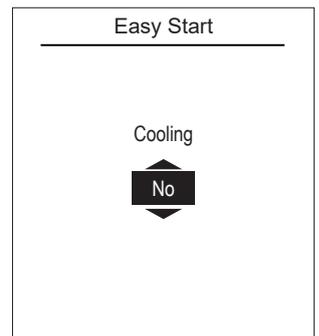
- If the installation covers 2 zones, set "2nd circuit kit" to "Yes".



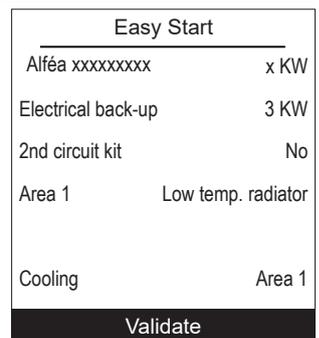
- Choose the radiator type for each zone:  
*Low temp. radiator / Heat. floor system / Dynamic Radiators / Radiators.*



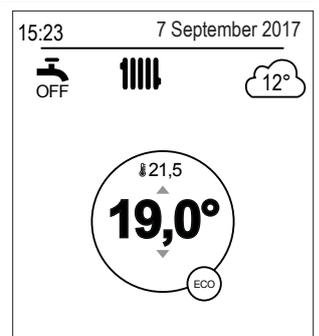
- If the installation is fitted with cooling function, choose the zone(s):  
*None / Area 1 / Area 2 / Area 1 and 2.*



- Appliance settings summary screen. Press the knob to accept.  
 - The appliance starts initialising.



- The welcome screen is displayed (screen varies depending on installed options).



Upon commissioning, the electrical backup heaters or boiler are liable to start up even if the outdoor temperature at the time is above the heaters' trigger temperature.

The controller uses the initial average outdoor temperature of 0°C and needs time to update this temperature.

# Controller Menu

## ► Menu Structure

### Installed options

page 53

### Hydraulic configuration

page 53

#### Heating

#### Control / Temperature control

- Temperature control
- Comfort optimisation
- ECO mode limitation

- Setting setpoint T°
- Time programming

#### DHW

- General Configuration
- Time programming
- Setting setpoint T°
- Anti-legionella management

### HP configuration

page 58

#### HP

- Compressor configuration
- Heating/cooling configuration
- DHW configuration
- Tariff input configuration
- Attenuation

#### Electrical backup / Connection boiler

### System status

page 60

- Active functions
- Control panel
- Errors history
- Temperature control
- Energy consumption

### Auxiliary functions

page 62

- Floor drying
- Relay test
- Outd. T° simulation
- Reset factory configuration

### Settings

page 64

- Date and time
- Language
- Advanced/simplified menu
- Areas name
- Connectivities

- Connection
- Reset connectivities

#### Software version

### Easy Start

page 68

Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

## Installed options

### ► Installed options

Installed options are configured during commissioning (see [page 50](#)). However, you can modify them by accessing the "Installed Options" menu.

#### **Name of Appliance**

- Choose the appliance's power.

#### **Electrical backup**

- Choose the electrical backup power.

#### **Boiler connection**

- If the electrical backup is set to "No", you can then set the boiler connection to "Yes".
- If a power setting is applied to the electrical backup, the boiler connection setting remains set to "No" and cannot be changed.

#### **Number of Circuits**

- Choose the number of circuits.

#### **Cooling**

- If the installation is fitted with cooling function, choose the zone(s):  
*None / Area 1 / Area 2 / Area 1 and 2.*

Installed options	
Name of Appliance	-- KW
Electrical back-up	3 KW
Boiler connection	No
Number of circuits	2
Cooling	Area 1
Complete	

## Hydraulic configuration > Area 1

### ► Hydraulic configuration

### ▼ Heating / Cooling

- Choose the heating zone to configure.

Hydraulic configuration
Area 1 (Direct circuit)
Area 2 (Mixed circuit)
Hot water

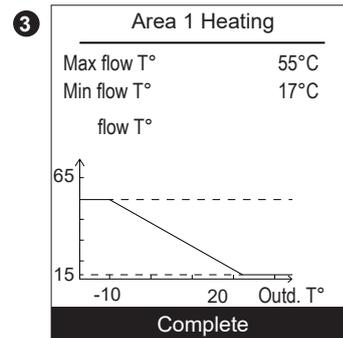
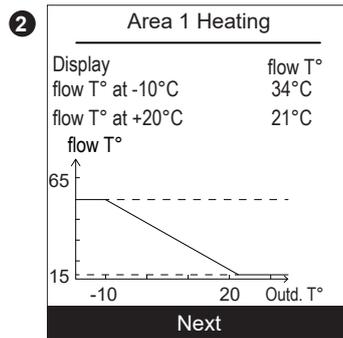
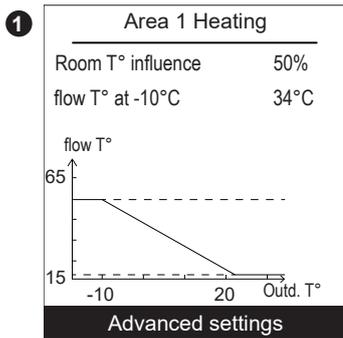
Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

Choose the temperature control to adjust: "Heating".

Two methods for adjusting the temperature control are available: flow temperature or gradient control.

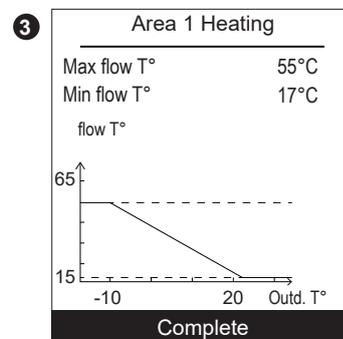
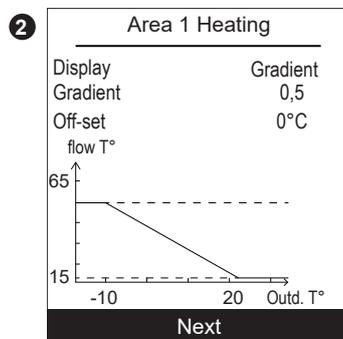
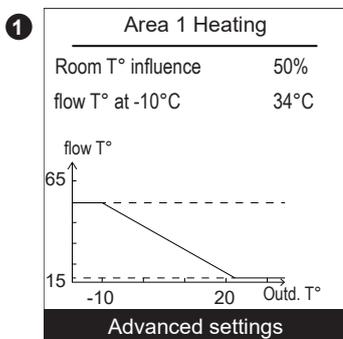
• Control using flow temperature

- 1 - Set "Room T° influence" then select "Advanced settings".
- 2 - Set "Display" to "flow T°". Set "flow T° to -10°C" and "flow T° to +20°C".
- 3 - Set "Max flow T°" and "Min flow T°".



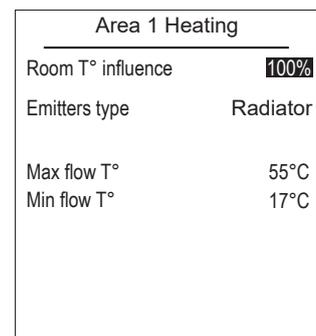
• Control using gradient

- 1 - Set "Room T° influence" then select "Advanced settings".
- 2 - Set "Display" to "Gradient". Set "Gradient" and "Off-set".
- 3 - Set "Max flow T°" and "Min flow T°".



• Use 100% ambient temperature

If set to use 100%, adjust the radiator type.



Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

Comfort optimisation

"Accelerated decrease": ON / Stop.

"ECO / Comfort switchover" Anticipates time needed to reach the comfort setpoint.

"Comfort / ECO switchover" Anticipates time needed to switch from comfort setpoint to ECO setpoint.

Area 1	
Comfort optimisation	
Accelerated decrease	Stop
Max anticipation	
ECO / Comfort switchover	03:00 h
Comfort / ECO switchover	00:30 h

ECO mode limitation

"Activation outd. T°": Stopping outd. T°... +10°C.

"Stopping outd. T°": -30°C ... Activation outd. T°.

Area 1	
ECO mode limitation	
Activation outd. T°	---
Stopping outd. T°	-5°C

Setting setpoint T°

"Comfort T°": ECO Temperature ... 35°C.

"ECO T°": Absence Temperature ... Comfort Temperature.

"Absence T°": 4°C... ECO Temperature.

**Heating temperatures factory settings:**

**Comfort 20°C, ECO 19°C, Absence 8°C.**

**Cooling temperatures factory settings:**

**Comfort 24°C, ECO 26°C, Absence 35°C.**

Zone 1	
Heating Setpoint T°	
Comfort T°	20°C
ECO T°	19°C
Absence T°	8°C

① - Choose "Heating" or "Cooling" as well as the appropriate zone by accessing the menu:  
 "Programming" > "Heating" / "Cooling" > "Area 1" / "Area 2".

② - Select the day.

③ - Adjust the Comfort period start and end times.

If 2 or 3 Comfort periods are not required, click on "--:--".

- To return to the previous setting (e.g. end 1st heating period to start of 1st heating period), press the  button.

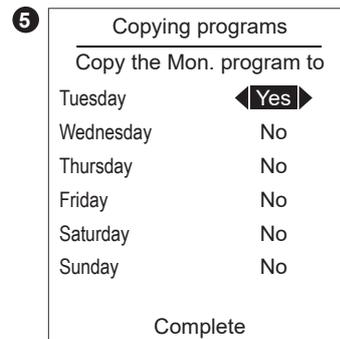
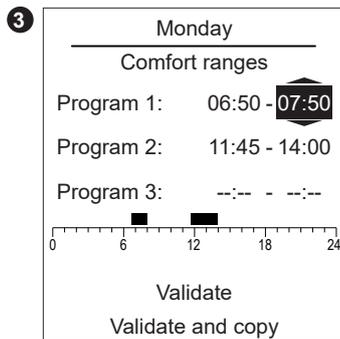
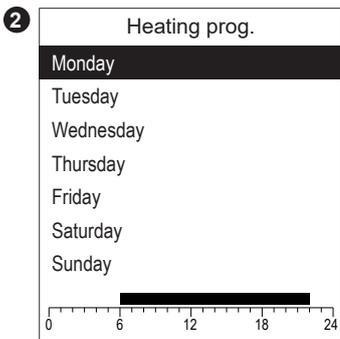
• To copy the program to other days:

④ - Select "Validate and copy".

⑤ - Set the required days to "Yes" and then select "Complete".

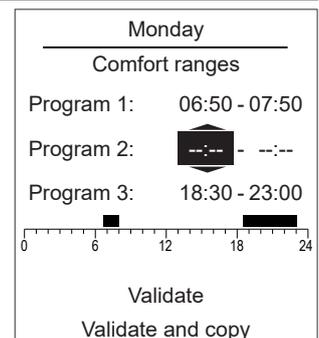
• Else "Validate".

Heating / cooling period factory setting: 06:00 - 22:00.



To delete a Comfort period, set its start and end times to the same value.  
 When accepting a setting, the screen displays:

Program X: --:-- - --:--



▶ Hot Water (HW)

General Configuration

"Comfort T° charge": *DHW program + off-peak hours / Off-peak hours / Permanent.*  
 Electrical back-up power: *0.1 to 10 KW.*

DHW Circuit Configuration Comfort T° charge	
DHW program + off-peak hours	
Electrical back-up power	1KW

Time programming

Use the same procedure as the time program of heating periods. Resume from the step ② (See "*Time programming*", page 56).

**DHW period factory setting: 00:00 - 05:00, 14:30 - 17:00.**

Setting setpoint T°

"Comfort T°": *ECO Temp Setpoint ... 80°C.*  
 "ECO T°": *8°C... Comfort Temp setpoint.*

DHW Circuit Setpoint settings	
Comfort T°	55°C
ECO T°	40°C

**DHW temperature factory settings: Comfort 55°C, ECO 40°C.**

Anti-legionella management

"Anti-legionella": *Stop, ON.*  
 "Day of treatment": *Monday / Tuesday / Wednesday / Thursday / Friday / Saturday / Sunday.*  
 "Hour of treatment": *00:00.*  
 "Setpoint T°": *55°C... 75°C.*

DHW Circuit Anti-legionella management	
Anti-legionella	Stop
Day of treatment	Sunday
Hour of treatment	---
Setpoint T°	60°C

*Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).*

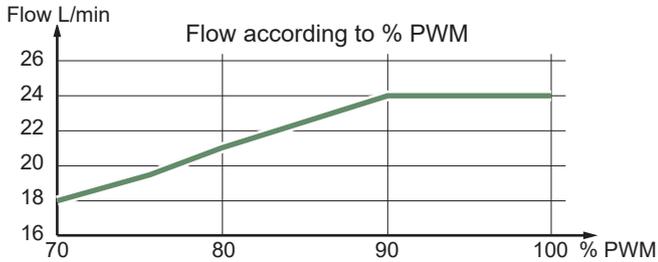
▶ Heat Pump Configuration

▼ Heat Pump

Compressor configuration

"Minimum shutdown time": 3 mins... 20 mins.

"Pump speed": 70%... 100%.



HP	
Compressor configuration	
Minimum shutdown time	8 mins
Pump speed	100%
Post-circulation	5s
Power shedding operating	Released

"Post-circulation": 0 secs... 600 secs...

"Power shedding operating": Automatic, When needed.

Released: HP = Start / DHW Backup = Stop / 1<sup>st</sup> HP Backup = Stop / 2<sup>nd</sup> HP Backup = Stop / Boiler = Start.

When needed (Locked): HP = Stop / DHW Backup = Stop / 1<sup>st</sup> HP Backup = Stop / 2<sup>nd</sup> HP Backup = Stop / Boiler = Start.

Heating/cooling configuration

- 1 - "Summer/winter switchover outd. T<sup>o</sup>" Zone 1: ---, 8°C... 30°C.  
 "Mini. cooling switchover outd. T<sup>o</sup>": ---, 8°C... 35°C.  
 "Mini. time prior to heat./cool.switchover": ---, 8h... 100h.
- 2 - "Circuit 2 heating": 0°C... 20°C.  
 - "Circuit 2 cooling": 0°C... -20°C.

1

HP	
Heating/cooling configuration	
Summer/winter switchover outd. T <sup>o</sup>	18°C
Mini. cooling switchover outd. T <sup>o</sup>	---
Mini. time prior to heat./cool.switchover	24h
Next	

2

HP	
Heating/cooling configuration	
Mixing valve compensation Area 2	
Area 2 heating	0°C
Area 2 cooling	0°C
Complete	

DHW configuration

"Switching differential": 0°C... 20°C.

"Heat./cool. alternating time": 10 mins... 600 mins.

(with dynamic radiator, set to 40 mins).

"Max charging time": 120mins... 180mins.

HP	
DHW configuration	
Switching differential	7°C
Heat./cool. alternating time	90 mins
Max charging time	120 mins

Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

"Type of use": Power shedding + Off-peak hours / Smartgrid / EXT control.  
 "EX1: function activation": 230V / 0V.  
 "EX2: function activation": 230V / 0V.  
 "EX3: function activation": 230V / 0V.

Heat Pump	
Tariff input configuration	
Type of use	Power shedding + Off-peak hours
EX1: function activation	230V
EX2: function activation	0V
EX3: function activation	230V

"Start time" : 00:00 ... 23:50.  
 "Stop time" : 00:00 ... 23:50.  
 "Compressor Limitation" : 1% ... 100%, ---.  
 "Stoping outd. T°" : -20°C ... 5°C.



**Recommended setting :**  
 "Compressor Limitation" : 50%

Heat Pump	
Attenuation	
Start time	22:00
Stop time	07:00
Compressor Limitation	---
Stoping outd. T°	5°C

▼ Electrical back-up

"Authorisation if outd. T° <": ---, -15°C... 10°C.  
 "Switching setting": 0°Cmin... 500°Cmin.

Configuration	
Back-up	
Authorisation if outd. T° <	2°C
Switching setting	100°C min

- "Authorisation if outd. T° <": ---, -15°C... 10°C.  
 "Switching setting": 10°C.min... 500°C.min.
- "Minimum shutdown time": ---, 1min... 120min.  
 "Post-circulation": 0min... 120min.  
 "DHW operating": ECO / Comfort.

**1**

Configuration	
Connection boiler	
Authorisation if outd. T° <	2°C
Switching setting	100°C.min
Next	

**2**

Configuration	
Connection boiler	
Minimum shutdown time	30min
Post-circulation	20min
DHW operating	ECO
Complete	

Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

## ► System status

### Active functions

The "Active Functions" page tells you which services are operating and allows you to change their status.

- "Indoor comfort": Heating / Cooling / Stop.
- "Area 1" / "Area 2" / "Hot water" / "Emergency mode": ON / Stop.

**If "Indoor Comfort" is set to "Stop", Area 1 and 2 cannot be modified.**

**"Emergency mode":**

"Stop" : The HP is operating normally (with backup if necessary).

"Start" : The HP is using the backup heating or boiler connection.

- ➔ Use the "Start" setting only in emergency or test mode as your heating bill could be large.

Active functions	
Indoor comfort	Heating
Area 1	Start
Area 2	Start
Hot water	Start
Emergency mode	Stop

### Control panel

The "Control Panel" allows you to see the status of the different functions and actuators.

- 1 - Press the knob to access the "Control Panel" second screen.
- 5 - Press the knob to return to the "System Status" menu.

1

Control panel	
Generator	40%
Elec. backup	Stop
HP circulation pump	ON
Flow setpoint	26°C
Flow temp	60°C
Return T°	50°C
Outdoor T°	20°C
Mode	Heating

Next

2

Control panel	
Area 1	
Setpoint T°	20°C
Flow T° setpoint	26°C

Next

3

Control panel	
Area 2	
Setpoint T°	20°C
Flow T° setpoint	26°C
Flow temp	22°C
Circulation	ON
Valve	Opening

Next

4

Control panel	
DHW	
Setpoint T°	55°C
T°	52°C
Valve	Circuit
Back-up	ON

Next

5

Control panel	
Power shedding input	Inactive
Off-peak hours input	Active
External fault input	Inactive

Complete

Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

**10:** Outside sensor, **32:** Flow sensor 2, **33:** Flow sensor HP, **44:** Return sensor HP, **50:** DHW sensor 1, **60:** Room sensor 1, **65:** Room sensor 2, **83:** BSB short-circuit, **127:** Legionella temp, **212:** Internal comm failure, **441:** BX31 no function, **442:** BX32 no function, **443:** BX33 no function, **444:** BX34 no function, **369:** External, **370:** Thermodynamic source, **516:** Heat pump missing.

For more info about errors § "Fault Diagnosis", page 70

Errors history		
10/09/2016	Error	441
10/09/2016	Error	369
09/09/2016	Error	441
09/09/2016	Error	369
20/08/2016	Error	369
20/08/2016	Error	369
01/08/2016	Error	441
01/08/2016	Error	369
14/07/2016	Error	441
06/05/2016	Error	441

## Temperature control

See "Temperature control", page 48

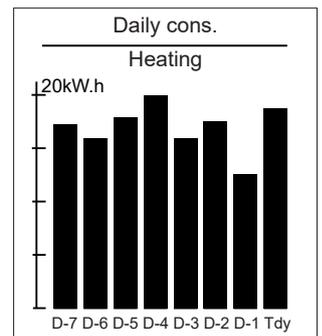
## Energy consumption

Consumption can be displayed per usage:

- Heating (Zones 1 and 2).
- Cooling.
- Domestic Hot Water (DHW).
- Total (Heating + Cooling + Hot Water).

This information is available for:

- the last 8 days: daily consumption (Tdy = Today, D-1 = yesterday, etc.).
- the last 12 months: monthly consumption (Initial letter of month. e.g. J = January, etc.).
- the last 10 years: annual consumption (last 2 digits. e.g. 16 = 2016).



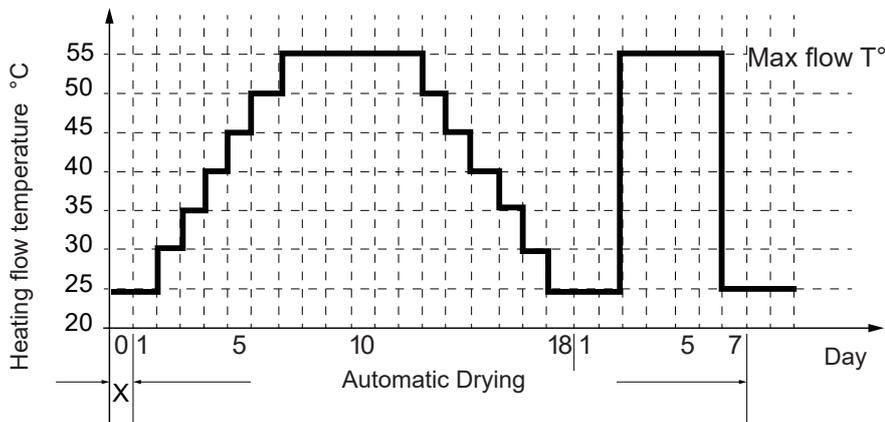
Example for daily consumption of the heating system.

► Auxiliary functions

Floor drying

- Choose the zone.
- Choose the "Drying type": *Stop / Automatic / Manual*.

• **Automatic Drying**



Area 1 floor drying	
Drying type	Stop
Flow T° setpoint	25°C

• **Manual Drying**

Manual mode enables you to programme your own concrete slab drying time. The function ends automatically after 25 days.

- Set the "Flow T° setpoint": 15°C... 60°C.

**Please comply with the standards and instructions of the manufacturer of the building ! A good performance of this function is only possible with an installation correctly implemented (hydraulic, electricity and adjustments) ! This function can be stopped by anticipation when setting the adjustment to "Off".**

## Auxiliary functions

### Relay test

- "HP circulation pump": ON / ----
- "Elec. backup 1": ON / ----
- "Area 2 circulation pump": ON / ----
- "Mixing valve": Open / Close / ----
- "DHW valve": DHW / ----
- "DHW backup": ON / ----
- "Boiler connection": ON / ----
- "Boiler connection ON / Stop": ON / ----



**Don't forget to deactivate them after the tests.**

Relay test	
HP circulation pump	----
Elec. backup 1	----
Area 2 circulation pump	----
Mixing valve	----
DHW valve	----
DHW backup	----

### Outd. T° simulation

- "Simulated Outd. T°" : -50°C... 50°C.

Outd. T° simulation
Simulated Outd. T°
---

### Reset factory configuration

The factory settings, stored within the controller, will replace and delete any custom programs.

**Your custom settings will therefore be lost.**

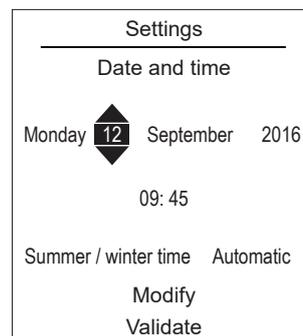
Reset factory configuration
Reset factory configuration

Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

## ► Settings

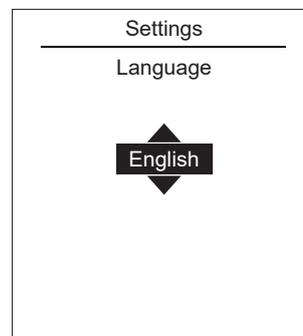
## Date and time

To set the appliance's date and time, access the menu:  
"Settings" > "Date and Time".



## Language

To set the appliance's language, access the menu:  
"Settings" > "Language".



Two display modes for menus and appliance functions are available:

- Advanced menu:

- The appliance follows the time programming defined in paragraph *"Time programming"*, page 56.

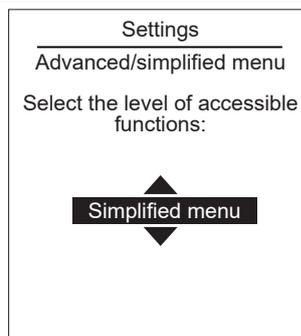
- Simplified menu\*:

- The appliance operates at a constant temperature set directly by the user.
- Some functions are no longer accessible.

\* The "Simplified Menu" setting is not compatible with the Cozytouch application.

Choose the display mode from the menu:

"Settings" > "Advanced/Simplified menu".



### Setting the temperature in the Simplified Menu

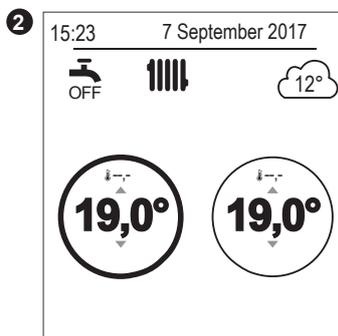
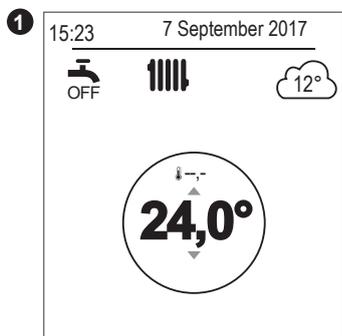
#### 1 zone

① - Turn the knob to adjust the temperature **directly**.

#### 2 zones

② - Select the zone. Accept.

④ - Set the temperature using the knob. Accept.



You can customise the zone names from the menu:

*"Settings" > "Areas name".*

Available names: *"Area 1" / "Area 2" / "Day area" / "Night area" / "1st floor" / "Lounge" / "G. floor" / "Bedroom" / "Floor" / "Radiator".*

## Settings

Circuits name

Rename Zone 1 in

Area 1

Rename Zone 2 in

Area 2

To connect a room sensor, go to the menu:

*"Settings" > "Connectivities" > "Connection".*

The appliance waits for pairing for 10 minutes.

**See the room sensor's installation instructions.**

**The "Connection" menu is no longer accessible if a sensor has already paired.**

## Settings

Connectivities

Connection



Quit

 All pairings are re-initialised annually.

Select "Re-set" in the menu:

*"Settings" > "Connections" > "Re-set Connections".*

## Settings

Connections

Reset connectivities

Warning! The equipment will be removed from the system.

Quit

Reset

Show the display and controller software versions.

Software version

HMI:

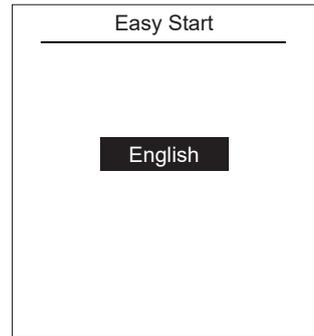
xxxx xxxx xxxx xxxx

Controller:

RVS21 - 85.002.030

► Easy Start

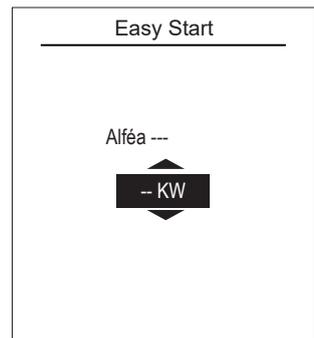
- Turn the knob to choose the language.
- Press the knob to accept.



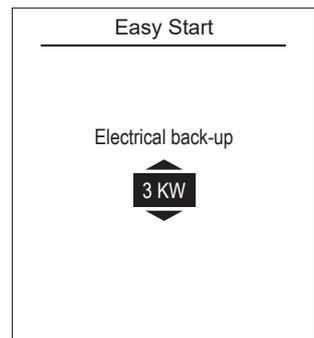
- Turn the knob to adjust the date. Press the knob to accept.
- Repeat this operation for the month, year, hours and minutes.



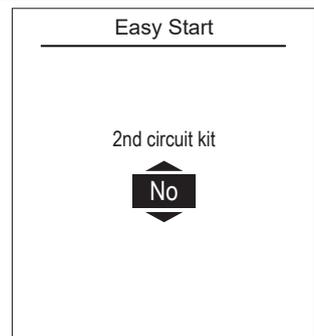
- Set the appliance's power.



- Set the Electrical backup power:  
3kW / 6kW / 9kW / None.

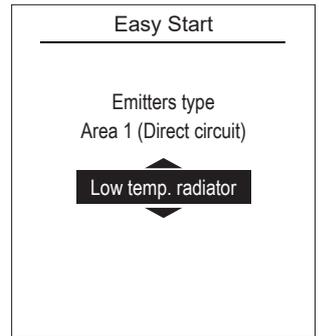


- If the installation covers 2 zones, set "2nd circuit kit" to "Yes".

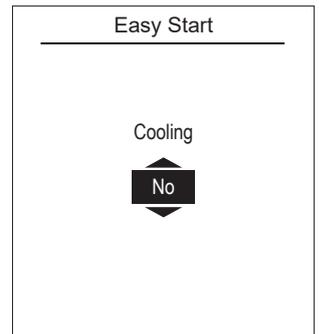


Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).

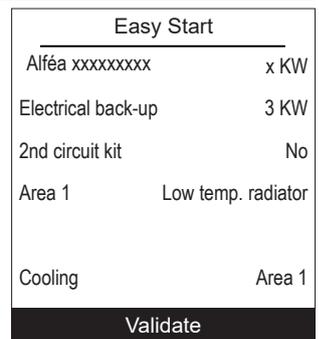
- Choose the radiator type for each zone:  
*Low temp. radiator / Heat. floor system / Dynamic Radiators / Radiators.*



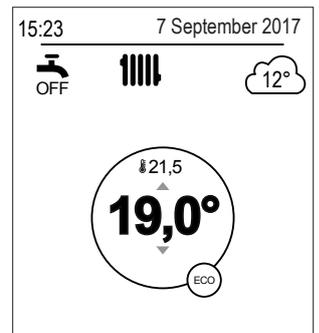
- If the installation is fitted with cooling function, choose the zone(s):  
*None / Area 1 / Area 2 / Area 1 and 2.*



- Appliance settings summary screen. Press the knob to accept.
- The appliance starts initialising.



- The welcome screen is displayed (screen varies depending on installed options).



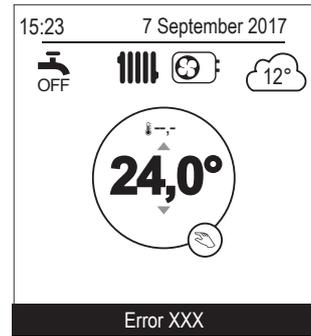
Upon commissioning, the electrical backup heaters or boiler are liable to start up even if the outdoor temperature at the time is above the heaters' trigger temperature.

The controller uses the initial average outdoor temperature of 0°C and needs time to update this temperature.

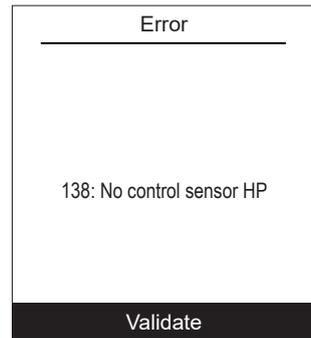
*Some settings (or menus) might not be displayed. They are dependent on the installation's configuration (and installed options).*

# Fault Diagnosis

If a fault occurs, the error number appears on the welcome screen.  
To obtain the error's designation, select it using the knob.



In the event of an error originating in the outdoor unit, the user interface displays error code "370: Thermodynamic Generator" followed by the outdoor unit error.



The error log can be viewed in the "System Status" > "Errors history", page 61.

## ► Faults in the Hydraulic Unit

Error	Designation	Probable causes	Proposed actions
10	Outside sensor	Short-circuit. Unplugged or disconnected sensor. Faulty sensor. Other fault.	Check the sensor's wiring. Replace the sensor.
32	Flow sensor 2		
33	Flow sensor HP		
44	Return sensor HP		
50	DHW sensor 1		
60	Room sensor 1		
65	Room sensor 2		
83	BSB, short circuit	Wiring problem (between the sensor or remote control, display and controller).	Check the wiring.
127	Legionella temp	Anti-legionella temp setpoint not reached.	Check the wiring of the DHW backup / boiler connection.
212	Internal comm failure	Unplugged or disconnected sensor.	Check the sensor's wiring.
369	External	External safety triggered EX3 (fig. 40, page 43).	-
370	Thermodynamic source	See details in "Faults in the Outdoor Unit"	-
441	BX31 no function	Short-circuit. Unplugged or disconnected sensor. Faulty sensor. Other fault.	Check the sensor's wiring. Replace the sensor.
442	BX32 no function		
443	BX33 no function		
444	BX34 no function		
516	Heat pump missing	Loss of connection between controller and HP.	Check the wiring between X60 and the interface board (fig. 49, page 80).

**Before performing any maintenance, make sure that all power supplies have been cut off.**

**Stored energy: after cutting off the power supplies, wait for 10 minutes before accessing the internal parts of the equipment.**

**Frost protection is not available when the heat pump is not powered up.**



## ► Operation signals with the HP circulator



LED Off

The pump does not work, no electrical power.



Green LED on

The pump works normally



Green/Red LED blink

Circulation pump operation in "alert" mode (under unusual conditions such as: dry running, motor overload due to impurities in the water, etc.).



Red LED blink

Operating error due to a persistent external fault (abnormal voltage/current, external pump blockage, reverse flow, etc.). Circulation pump stops. The circulation pump restarts once the issue is resolved.



Red LED on

Operating error / Permanent shutdown. Circulation pump replacement.

## ► Faults in the Outdoor Unit

Error	Interface Board		Outdoor Unit Board	Error designation
	LED Green	LED Red	LED	
11	1	1	Off	Serial communication error
			1	
32	3	2	-	UART communications error
42	4	2	22	Hydraulic unit heat-exchange thermistor error
63	6	3	18	Inverter error
64	6	4	19	Active filter error, PFC error
71	7	1	2	Discharge thermistor error
72	7	2	8	Compressor thermistor error
73	7	3	5	Heat-exchange thermistor error (centre)
			4	Heat-exchange thermistor error (outlet)
74	7	4	7	Outdoor thermistor error
77	7	7	9	Heat sink thermistor error (Inverter)
			10	Heat sink thermistor error (P.F.C.)
78	7	8	6	Expansion valve thermistor error
84	8	4	-	Current sensor error
86	8	6	3	Pressure sensor error / Pressure switch error
94	9	4	13	Current tripped (permanent stoppage)
95	9	5	14	Detection of compressor position error (permanent stoppage)
			15	Compressor motor control error (permanent stoppage)
97	9	7	16	Outdoor unit fan motor error
			17	
A1	10	1	11	Discharge temperature protection (permanent stoppage)
A3	10	3	12	Compressor temperature protection (permanent stoppage)
A5	10	5	20	Low pressure abnormal
-	-	-	-	Outdoor unit error

# Maintenance of the installation



Before performing any maintenance, make sure that **all power supplies** have been cut off.

**Stored energy:** after cutting off the power supplies, wait for 10 minutes before accessing the internal parts of the equipment.



## ► Hydraulic checks



**If frequent refills are required it is absolutely essential that you check for any leaks. If refilling and a pressure reset are necessary, check what type of fluid was used initially.**

Recommended filling pressure: between 1 and 2 bar (the exact filling pressure is determined by the water pressure in the installation).

### **Periodically,**

- Check the expansion circuit pressure (pre-inflation of 1 bar) and the correct operation of the safety valve.

If the installation is fitted with a hot water tank:

- Check the safety valve on the cold water supply inlet. Make it operate as advised by the manufacturer.
- Check the back flow preventer.

## ► Checking the outdoor unit

- Remove any dust from the exchanger, if necessary, while making sure not to damage the blades.
- Straighten the blades using a comb.
- Check that there is nothing blocking the air flow.
- Check the fan.
- Verify that condensate drain is not obstructed.

## ▼ Checking the refrigeration circuit

- Check there are no leaks (connections, valves...).

## ► Electrical checks

- Check the connections and re-tighten if necessary.
- Check the state of the cables and plates.

## Other maintenance

---

### ► Emptying the hydraulic unit

- Remove the front panel of the hydraulic unit.
- Open the drain plug,
- Check that the hydraulic unit's bleeder valve opens automatically,
- Open the installation's bleeder valve(s).

### ► Distribution valve

If the installation is fitted with a hot water tank.

Ensure the distribution valve is fitted in the correct direction.

- Channel **AB**: Outlet to the hydraulic unit.
- Channel **A** open: Return from DHW tank.
- Channel **B** open: Return from the heating circuit.

## ► Filling the installation with gas



This operation is reserved for installers familiar with the legislation for handling refrigerants.  
 Creating a vacuum with a calibrated vacuum pump is essential (see APPENDIX 1).  
 Never use equipment used previously with any refrigerant other than a HFC.  
 Only remove the refrigeration circuit caps when performing the refrigeration connections.

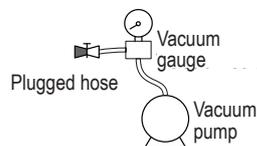
### If the outdoor temperature is below +10°C:

- You must use the triple evacuation method (see APPENDIX 2).
- We recommend installing a dehydrator filter (and this is highly recommended if the outdoor temperature is below +5°C).

### APPENDIX 1

#### Method for calibrating and checking a vacuum pump

- Check the vacuum pump's oil level.
  - Connect the vacuum pump to the vacuum gauge as shown in the diagram.
  - Pump down for 3 minutes.
  - After 3 minutes, the pump reaches its threshold vacuum limit and the vacuum gauge's needle stops moving.
  - Compare the obtained pressure value against the table of values. Depending on the temperature, this pressure should be lower than that shown in the table.
- => If this is not the case, replace the gasket, hose or pump.



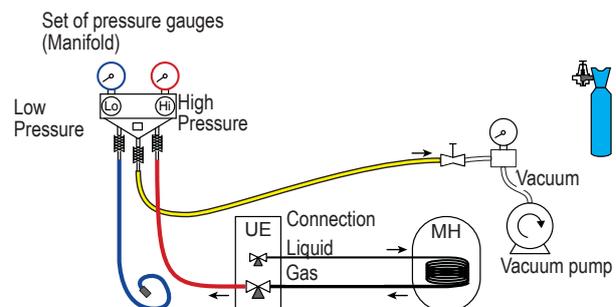
T °C	5°C < T < 10°C	10°C < T < 15°C	15°C < T
Pmax - bar	0.009	0.015	0.020
- mbar	9	15	20

### APPENDIX 2

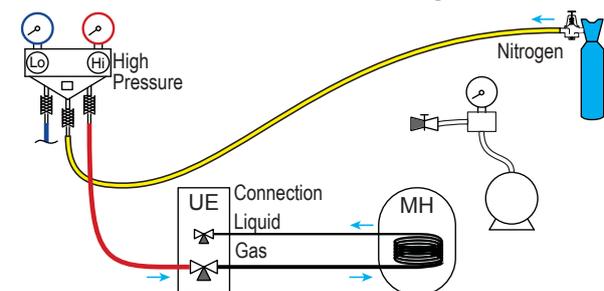
#### Triple Evacuation Method

- Connect the *Manifold* high-pressure hose to the filling hole (gas connection). A valve must be fitted to the vacuum pump's hose so you can shut it off.

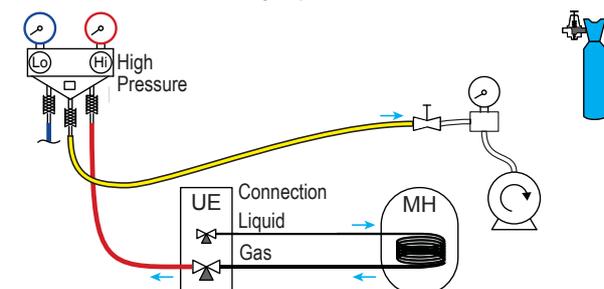
a) Create a vacuum until the desired value is reached and maintain this value for 30 mins (see table in APPENDIX 1),



b) Switch off the vacuum pump, close the valve at the end of the service hose (yellow), connect this hose to the expansion valve on the nitrogen bottle, fill to 2 bar, close the hose's valve again,



c) Connect this hose to the vacuum pump again, switch it on and slowly open the hose's valve.

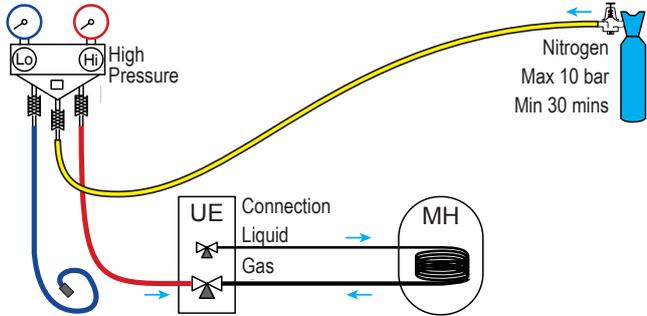


d) Repeat this operation at least three times.

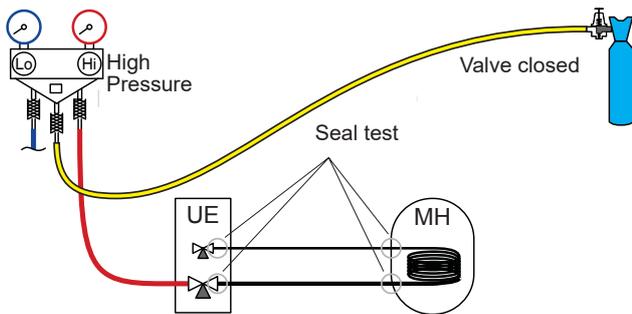
**Remember: performing these operations using refrigerant is strictly prohibited.**

## ▼ Seal test

- Remove the protective plug (B) from the filling hole (Schrader) in the gas valve (large diameter).
- Connect the high pressure hose from the *Manifold* to the filling hole (fig. 47).
- Connect the nitrogen bottle to the *Manifold* (only use dehydrated nitrogen type U).
- Fill the refrigeration circuit with nitrogen to maximum 10 bar (**gas-condenser-liquid connection** system).
- Maintain this pressure in the circuit for 30 minutes.



- If a pressure drop occurs, bring it back down to 1 bar and look for leaks with a leak detector, repair and repeat the test.



- Once the pressure is steady and there are no leaks, empty the nitrogen by leaving the pressure above atmospheric pressure (between 0.2 and 0.4 bar).

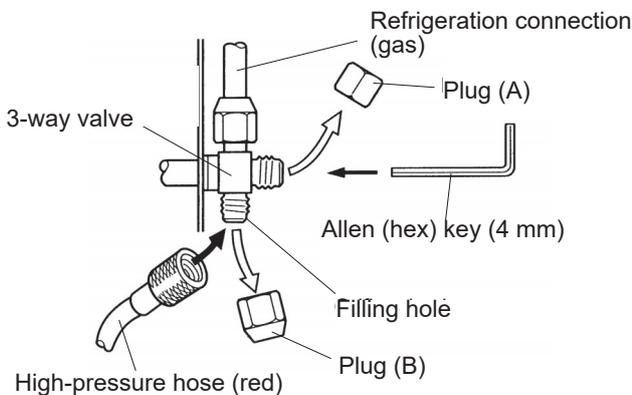


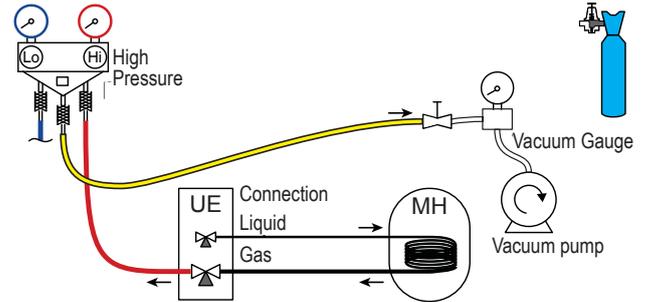
fig. 47 - Connecting the hose to the gas valve

## ▼ Creating a vacuum



The triple evacuation method (APPENDIX 2) is strongly recommended for any installation and especially when the outdoor temperature is below 10°C.

- If necessary, calibrate the *Manifold* pressure gauge(s) to 0 bar. Adjust the vacuum gauge to current atmospheric pressure ( $\approx 1013$  mbar).
- Connect the vacuum pump to the *Manifold*. Connect a vacuum gauge if the vacuum pump is not equipped with one.



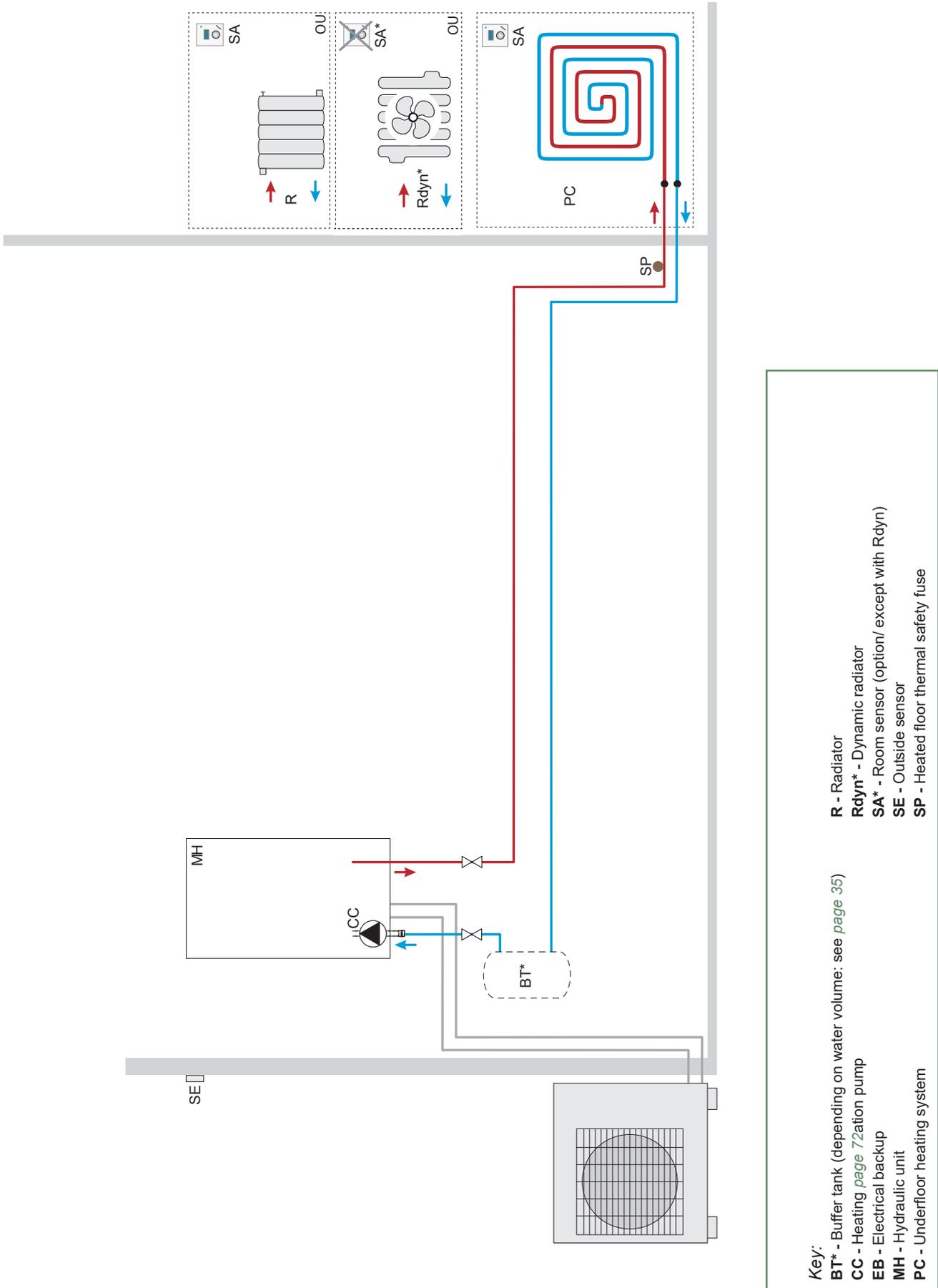
- Create a vacuum until the residual pressure\* in the circuit falls below the value given in the following table (\* measured with the vacuum gauge).

T °C	5°C < T < 10°C	10°C < T < 15°C	15°C < T
Pmax - bar	0.009	0.015	0.020
- mbar	9	15	20

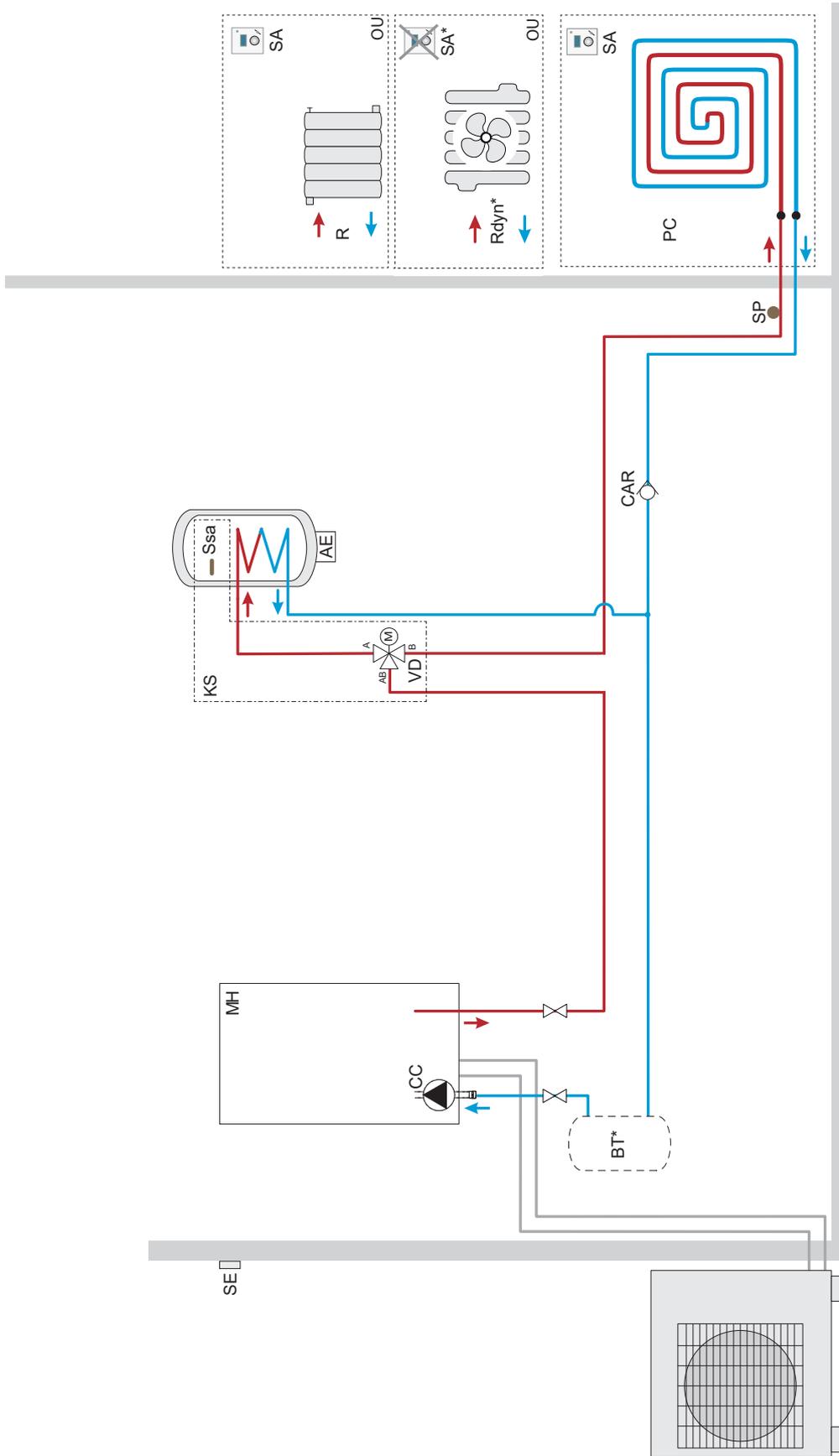
- Let the pump continue to operate for another 30 minutes minimum after reaching the required vacuum.
- Close the *Manifold* valve, then stop the vacuum pump **without disconnecting any of the hoses in place**.

## ► Basic Hydraulic Layout

### ■ 1 heating circuit



■ 1 heating circuit and mixed hot water tank



Key:

**EB** - Electrical backup

**BT\*** - Buffer tank (depending on water volume: see page 35)

**CAR** - Non-return valve

**CC** - Heating circulation pump

**KS** - DHW kit

**MH** - Hydraulic unit

**PC** - Underfloor heating system

**R** - Radiator

**Rdyn\*** - Dynamic radiator

**SA\*** - Room sensor (option/ except with Rdyn)

**Ssa** - Hot water sensor

**SE** - Outside sensor

**SP** - Heated floor thermal safety fuse

**VD** - Distribution valve

## ► Electrical Cabling Plans

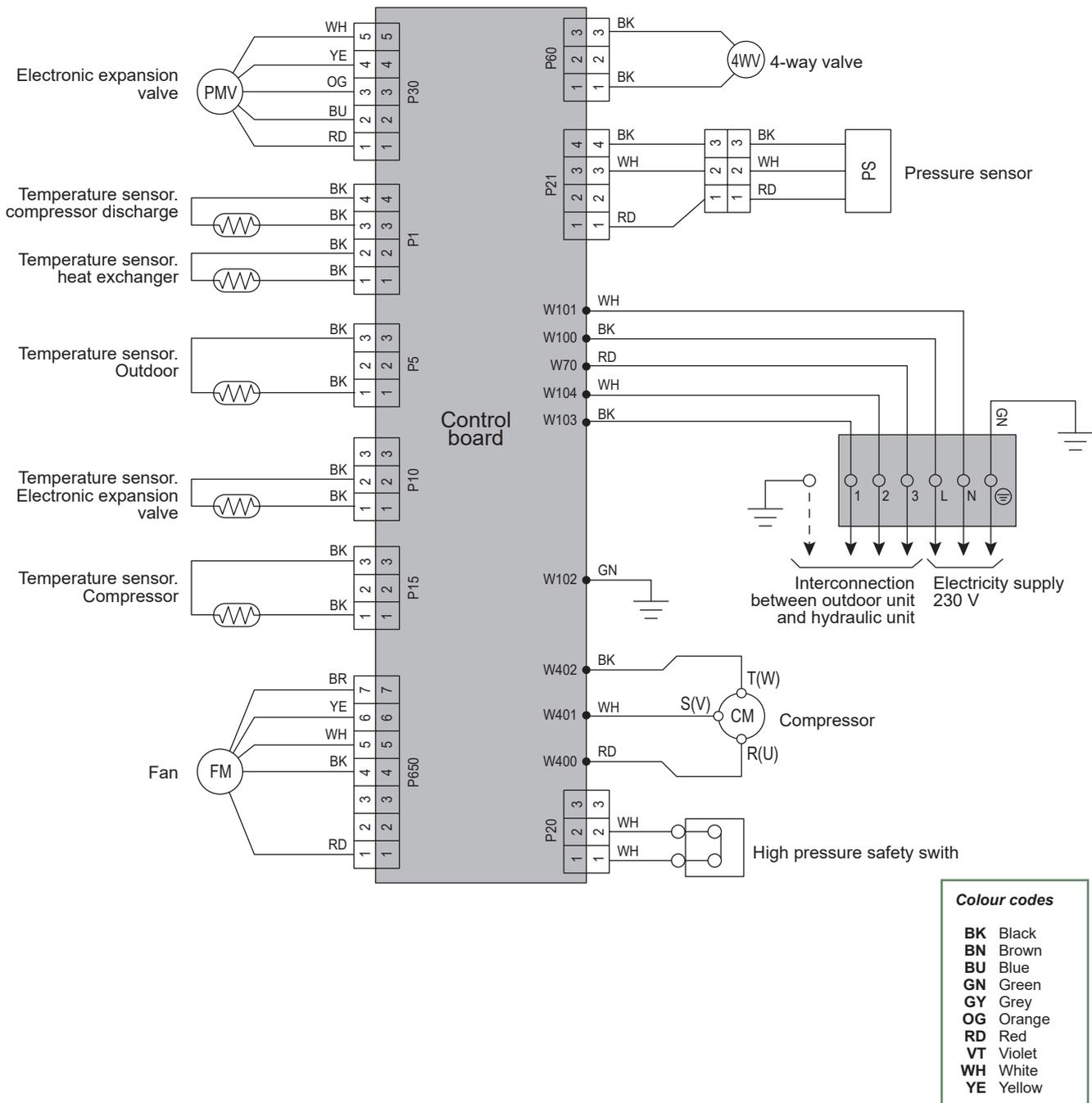


Before performing any maintenance, make sure that **all power supplies** have been cut off.

**Stored energy:** after cutting off the power supplies, wait for 10 minutes before accessing the internal parts of the equipment.



### ▼ Outdoor unit



Colour codes	
<b>BK</b>	Black
<b>BN</b>	Brown
<b>BU</b>	Blue
<b>GN</b>	Green
<b>GY</b>	Grey
<b>OG</b>	Orange
<b>RD</b>	Red
<b>VT</b>	Violet
<b>WH</b>	White
<b>YE</b>	Yellow

fig. 48 - Outdoor unit electrical cabling models 5, 6 and 8



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▼ Hydraulic unit

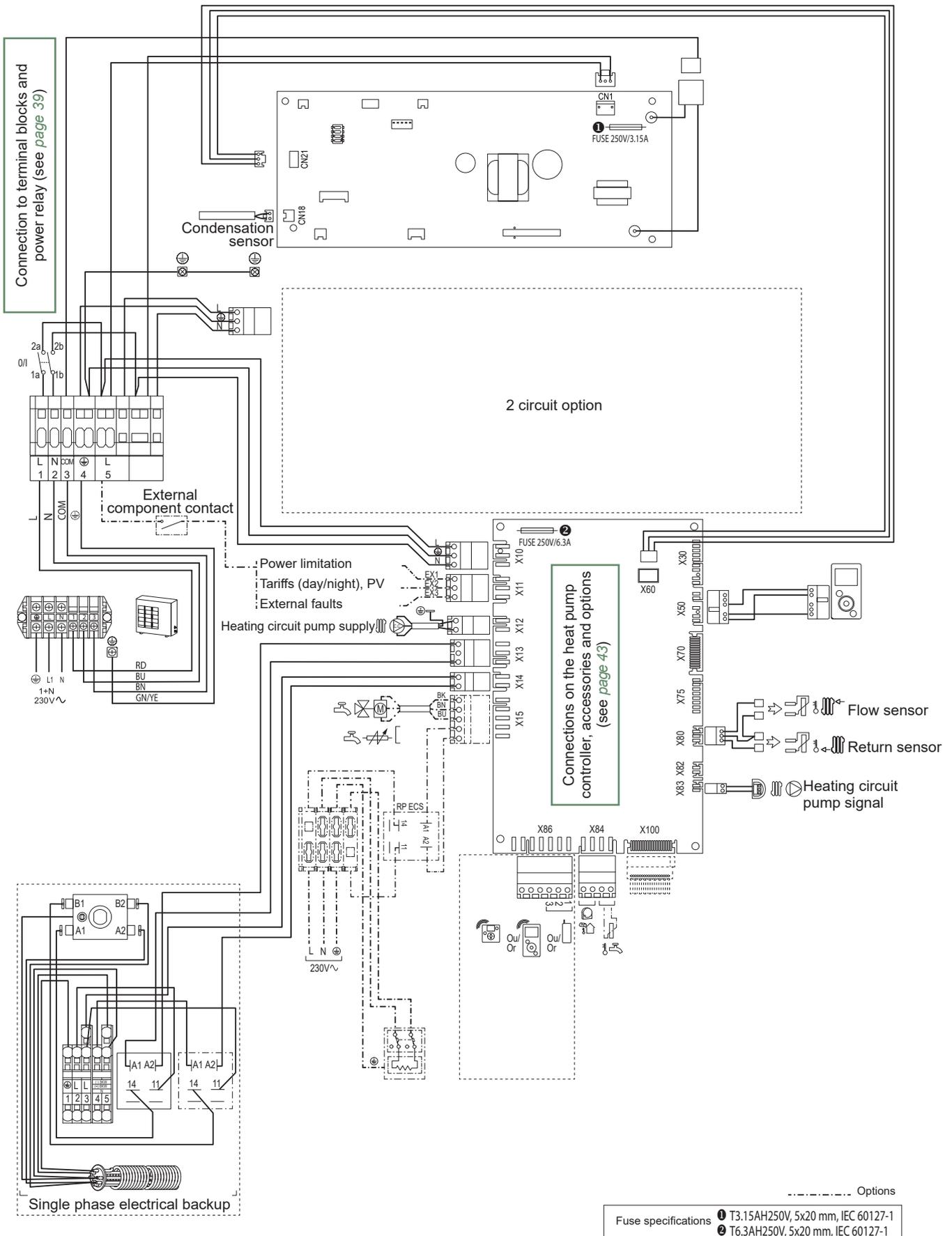


fig. 49 - Electrical wiring of hydraulic unit (excluding connections made by installer)



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# ✓ Quick-start procedure

Before switching on the hydraulic unit:

- Check the electric wiring.
- Check the refrigeration circuit and make sure that it has been gassed.
- Check the hydraulic circuit's pressure (1 to 2 bar), check that the heat pump has been bled, along with the rest of the installation.
- Make sure that ALL DIP SW on the interface board are OFF before starting up.

## ▶ Start-up check-list

### ▼ Before starting-up

	OK	Not compliant
<b>Installation</b> (“ <a href="#">🏠 Installation</a> ”, page 16)		
Surface, volume and ventilation of the room		
<b>Visual checks Outdoor unit</b> (“ <a href="#">Installation of the outdoor unit</a> ”, page 18)		
Location and fittings, condensate evacuation.		
Comply with distances from obstacles.		
<b>Hydraulic checks Hydraulic unit</b> (“ <a href="#">Installation of the hydraulic unit</a> ”, page 20).		
Connection of pipes, valves and pumps (heating circuit, DHW).		
Installation water volume (expansion vessel of adequate capacity?).		
No leaks.		
Main system pressure and degassing.		
<b>Refrigeration connections and checks</b> (“ <a href="#">❄️ Refrigeration connections</a> ”, page 28).		
Check the refrigeration circuits (sealing, no dust or humidity).		
Connections between units (pipe length, flare tightening torque...).		
Mechanical protection of refrigeration connections		
Installation of HP pressure gauges on the gas line (large tube).		
Pump down mandatory.		
Nitrogen leak test (~ 10 bar).		
Opening of refrigeration valves to outdoor unit.		
Filling hydraulic unit and pipes with refrigerant.		
Indicate on the label present on the outdoor unit, the amount of gas (Factory + additional filling)		
<b>Electrical checks Outdoor unit</b> (page 38).		
Main power supply (230 V).		
Protection by rated circuit breaker.		
Cable dimensions.		
Earth connection.		
<b>Hydraulic unit</b> (page 39).		
Connection to outdoor unit (L, N, Earth).		
Sensors connection (positioning and connections).		
Distribution valve connections (boiler and DHW) and circulation pump.		
Power supply and protection of electric backup (option).		

## ▼ Starting-up

	OK	Not compliant
<b>Quick Start Procedure</b> (  <i>Commissioning</i> , page 50)		
Close the installation's main circuit breaker (outdoor unit power supply) 2 hours before testing => Preheating of the compressor.		
Press the On/Off Switch => Initialisation takes several seconds.		
Operation of the heating circulation pump.		
Venting of the pump PAC (heating).		
Bleeding the installation.		
Outdoor unit starts after 4 mins.		
Configure Time, Date and Heating circuit, DHW period programs if different from the default values.		
Configure the hydraulic circuit.		
Adjust the heating gradient.		
Adjust the max flow setpoint.		
<b>Outdoor unit checks</b>		
Operation of fan(s), compressor.		
Current measurement.		
After several minutes measure the difference in air temperature.		
Check condensation and evaporation pressure/temperature.		
<b>Hydraulic unit checks</b>		
After 15 mins of operation.		
Primary water temp. difference.		
Operation of heating, boiler backup, etc.		
<b>Control</b> (  <i>Controller Interface</i> , page 44 and  <i>Controller Menu</i> , page 52).		
Settings, maintenance, checks.		
Program the heating periods.		
Adjust the setpoints for the heating circuits if different from the default values.		
Setpoint display.		
<b>Explanations of use</b>		



**The heat pump is ready for operation!**

## ► Commissioning technical datasheet

<b>Site</b>				<b>Installer</b>			
<b>Outdoor unit</b>	Serial No.			<b>Hydraulic unit</b>	Serial No.		
	Model				Model		
<b>Refrigerant type</b>				<b>Refrigerant load</b>			
				Kg			
<b>Checks</b>				<b>Operating voltage &amp; current on outdoor unit</b>			
Compliance with positioning distances				L/N	V		
Condensate evacuation correct				L/E	V		
Electric connections / connections tightness				N/E	V		
No GAS leaks (unit ID No. : )				Icomp	A		
Installation refrigeration connection correct (length m)							
<b>Taken in operation when HOT</b>							
Compressor discharge temperature					°C		
Liquid line temp.					°C		
Condensation temperature	HP =	bar	°C	Under-cooling		°C	
Tank water output temperature				ΔCondensation Temp.		°C	
Tank water input temperature				ΔSecondary Temp.		°C	
Evaporation temperature	LP =	bar	°C				
Suction Temp.				Overheating		°C	
Battery air input temperature				ΔEvaporation Temp.		°C	
Battery air output temperature				ΔBattery Temp.		°C	
<b>Hydraulic network on hydraulic unit</b>							
Secondary system	Underfloor heating system			Circulation pump brand	Type		
	LT Radiators						
	Fan coils						
Domestic hot water; tank type							
Estimated water volume of secondary system L							
<b>Options &amp; accessories:</b>							
Power supply for electric backup				Room sensor A59			
Correct location of room sensor				Wireless room sensor A75			
2 circuit kit				Wireless room sensor A78			
Boiler connection kit							
DHW kit							
Cooling kit				Details			
<b>Control settings</b>							
Configuration type							
Essential settings							

# Instructions for the end user

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**Explain to the user how his installation operates, in particular the functions of the room sensor and the programmes accessible to them via the user interface.**



**Emphasise that a heated floor has significant inertia and that therefore any adjustments must be made gradually.**

**Also explain to the end user how to check the filling of the heating circuit.**

## **End-of-life of the appliance**



The appliances must be dismantled and recycled by a specialised service. The appliances must not, under any circumstances, be thrown out with household waste, bulky waste or at a tip.

At the end of its service life, please contact the installer or local representative to proceed with its dismantling and recycling.



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A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice.

Date de la mise en service :

Coordonnées de votre installateur chauffagiste ou service après-vente.



This equipment complies with:

- Low Voltage Directive 2014/35/EC in accordance with NF EN 60335-1, NF EN 60335-2-40, NF EN 60529, NF EN 60529/A2 (IP) standards,
- Electromechanical Compatibility Directive 2014/30/EC,
- Machines Directive 2006/42/EC,
- Pressure Equipment Directive 2014/68/EC in accordance with NF EN 378-2 standard,
- Ecodesign Directive 2009/125/EC and regulation (EU) No 813/2013,
- regulation (EU) 2017/1369 setting a framework for energy labelling and repealing Directive 2010/30/EU..

This appliance also complies with:

- Decree No. 92-1271 (and its modifications) relating to certain refrigeration fluids used in refrigeration and air conditioning equipment.
- Regulation 517/2014 of the European Parliament on certain fluorinated greenhouse gases.
- Standards relating to the product and testing methods used: Air-conditioners, liquid chiller units and heat pumps with a compressor driven by an electric motor for heating and refrigeration EN 14511-1, EN 14511-2, EN 14511-3, EN 14511-4, EN 14825.
- EN 12102-1 standard: determination of the sound power level



This appliance is marked with this symbol. It means that all electrical and electronic products must be strictly separated from household waste. A specific recovery system for this type of product is in place in the countries of the European Union (\*), Norway, Iceland and Liechtenstein.

Do not attempt to dismantle this product yourself. This can have adverse effects on your health and on the environment.

Refrigerant liquid, oil and other parts must be reprocessed by a qualified installer in accordance with applicable local and national laws.

In terms of recycling, this appliance must be processed by a specialised service and must not, under any circumstances, be thrown out with household waste, bulky waste or at a tip.

Please contact your installer or local representative for more information.

\* Depending on the national regulations of each member state.



Keymark Certification:

012-SC0366-19 - Alféa Extensa A.I. 5 R32

012-SC0367-19 - Alféa Extensa A.I. 6 R32

012-SC0368-19 - Alféa Extensa A.I. 8 R32