

# DS170

*Pilot for HRC<sup>70</sup> & HTi<sup>70</sup> heat pumps*

**Dimplex**

## Installation manual

**DS170**  
*Pilot for heat pump*  
Ref. 890003



The information contained in this document is non-contractual. We reserve the right to modify the technical specifications or characteristics of any of our appliances without prior notice.

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CE

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# 1 - SAFETY INFORMATION

## **Danger resulting from improper qualifications**

- Any work carried out by an unqualified person can result in damage to the installation or in physical injury.
- Do not perform maintenance on this appliance unless you are a qualified professional.
- If the appliance is malfunctioning or not working, cut the electricity supply to the electrical components and seek advice from a qualified professional.

## **Danger resulting from improper use**

This appliance should not be used by anyone (including children under the age of 8 years old) with reduced physical, sensory or mental capabilities, or by anyone with insufficient experience or knowledge of the appliance; unless they are being supervised by someone who is responsible for their safety and in possession of the operating instructions of the appliance, or if they have been instructed in the proper use and in the risks of operating the appliance.

Children must not play with the appliance. Cleaning and maintenance of the appliance must not be undertaken by children without supervision.

## **Applicable areas of use**

The appliance is intended for use as an appliance for the production of domestic hot water: it must be connected to a heating installation, and while complying with the instructions, connected to the drinking water network.

The intended use of the appliance includes the following points:

- Following the instructions for operating, installing and maintaining this appliance and all of its components.
- Ensuring the compliance of the appliance to all inspection and maintenance conditions which are listed in this manual.

## **Danger of death by electrocution**

- Touching live electrical wires can cause severe bodily injury, and lead to death by electrocution. All installation and maintenance work must be carried out with the appliance switched off and by a qualified professional. Before carrying out any work on the appliance:
  - Cut-off the electricity supply.
  - Ensure that there is no possibility of the power supply becoming active again.
  - Wait at least 5 minutes for the capacitors to lose their charge.
- Do not get water on any of the control or electrical components. Always disconnect the appliance from the electricity supply before carrying out work on any of the electrical components.

- It is important that the tundish is positioned away from any electrical components.
- Means for electrical disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- Before removing the cover from the immersion heater isolate the appliance using isolating switch.  
Danger of electrical shock.  
Only use suitable electrically insulated equipment when working inside immersion housing.

## **Danger of death if the pressure relief valves are missing or defective**

A defective pressure relief valve may prove dangerous and could lead to burns or other injuries by, for example, the pipes bursting.

The information presented in this document does not contain all of the schematic diagrams needed for a professional installation of the pressure relief valves.

- Install the necessary pressure relief valves on the circuit.
- Inform the user concerning the function and the placement of the pressure relief valves.
- Respect all applicable national and international regulations, standards and decrees.

## **Risk of corrosion**

The appliance should be installed in an area where it is not exposed to humidity and without any risk of being splashed by water.

## **Risk of damage related to frost**

The pilot MUST be installed in an area where it is not subject to frost or freezing.

## **Risk of material damage**

The pilot can only work when filled with water. Never switch on the appliance if it is not completely filled with water and purged of air.

## **Rules and regulations (decrees, standards, laws)**

Once the appliance is installed and switched on, all decrees, directives, technical rules, safety measures and standards, must be respected in their current version in effect.

The electrical supply must conform to all applicable regulations in the country of installation, as well as the NFC 15-100 standard.

- A method of disconnection ensuring a complete cut-off must be installed in the fixed piping to conform to installation regulations (do not use a movable outlet).
- Protect the appliance with a 2-pole circuit breaker with a minimum contact opening of 3mm and must be grounded.
- If the electrical supply cable is damaged, it must be replaced by the manufacturer, their

customer service technicians, or by a qualified professional to prevent any risk of injury or danger.

- The devices for electrical cut-off must remain accessible.
- Water and/or R290 flammable gas can flow through the discharge pipe of the pressure limiting device (safety valve). This pipe must be kept open outside the building. The end of this pipe must be placed downwards (see § Connecting the pressure relief valve).

### **Maintenance - Troubleshooting**

Maintenance and cleaning of the pilot must be carried out at least once a year by a qualified professional.

**This appliance is in compliance with the international standards concerning electrical safety CEI 60335-1, CEI 60335-2-102. The CE branding on the appliance attests to its compliance with the following directives:**

- **Low voltage (LV): 2014/35/UE**
- **Electromagnetic compatibility(CEM): 2014/125/CE**
- **Ecodesign concerning products related to energy: 2013-813-UE**

## 2 - PLEASE READ IMMEDIATELY

This technical installation manual forms part of the appliance which it refers to. In order for the warranty to be valid, the instructions must be read prior to using the appliance.

The safety advice and instructions provided in this manual must be strictly respected.

Our society is not liable for any damages caused from not following the instructions provided, or improper handling, installation or use.

This technical installation manual can be modified without prior notice.

### 2.1 - Conservation of documents

This manual must be safeguarded and passed on to successive users for future reference.

It will be considered as evidence in case of litigation.

### 2.2 - Symbols used



Indicates warnings and important recommendations.



Consult the installation manual before any intervention on the product, before handling, installation, use, and maintenance.



Contains regulated substances, do not throw in the garbage. If disposing, please respect all regulations pertaining to the recovery of electric and electronic equipment.



Indicates the maximum water temperature in operation.



Heat power output produced.

**PS max** Maximum working pressure.

### 2.3 - Abbreviations and acronyms

DHW ..... Domestic Hot Water  
DCW ..... Domestic Cold Water  
T° ..... Temperature  
HP ..... Heat pump

### 2.4 - Delivery terms and conditions

In general, the material is transported at the recipient's own risk.

It is important to ensure that all components have been received and that no damage has been sustained during transport upon receipt of the appliance, and before beginning the installation procedures

### 2.5 - Storage and transport

Admissible storage and transport temperatures are from -20°C to +60°C.

The **Pilot** must be stored and transported on its pallet and in its original packaging and empty of water.

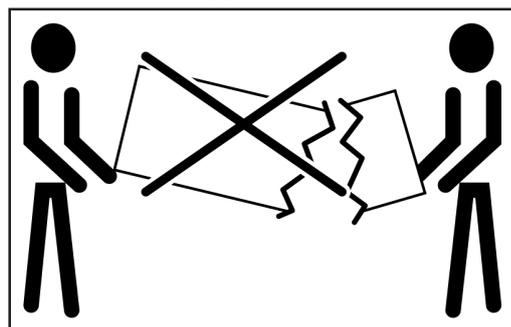


**Straps must not be removed before unpacking.**

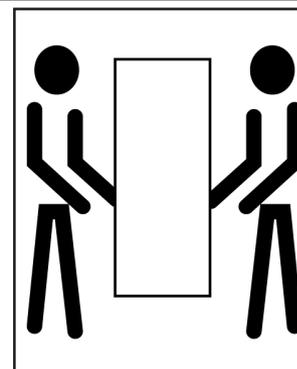
### 2.6 - Handling

The upper cover of the appliance are note made to withstand face and should not be used for handling purposes.

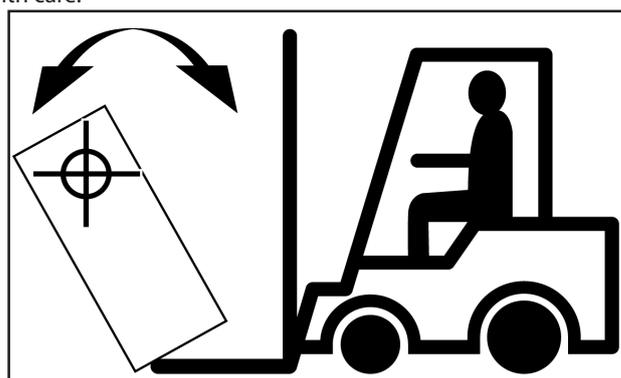
**NO-PERMITTED TRANSPORT POSITIONS :**



**PERMITTED TRANSPORT POSITIONS :**

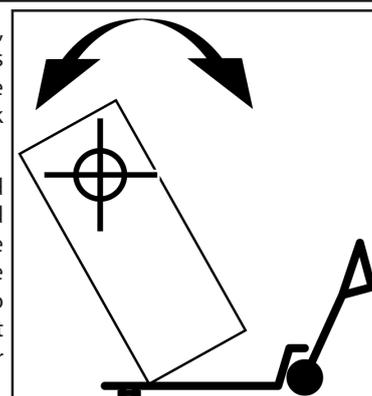


If tipped, the centre of gravity will shift towards the top : Handle with care.

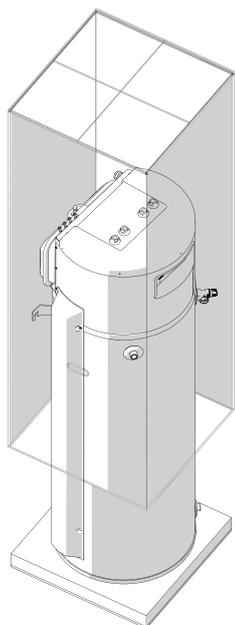


Please note that handling, installation and use of this product is subject to the health and safety at work act.

If the unit is not installed immediately, it should remain in its protective packaging with all pipe protectors and caps to prevent damage and dirt deposit inside the water heater and the coil.



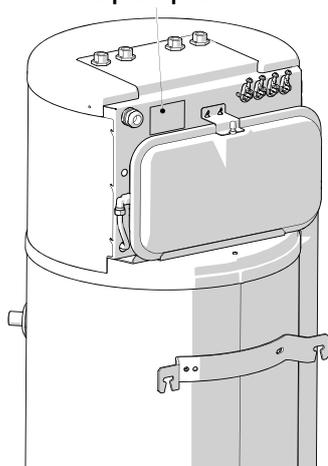
## 2.7 - Unpacking



On reception of the pilot, check the state of the cardboard packaging as well as the general state of the product. Remove cardboard box by pulling it up.

## 2.8 - Rating plate

Data plate position



## 2.9 - End of life of the appliance



Our products are designed and manufactured using components made of recyclable materials.

The appliance must never, in any case, be disposed of with household waste, or in a dump.

The dismantling and recycling of the appliances must be taken charge of by a qualified professional and in compliance with all local and national standards in effect.

# 3 - INTRODUCTION

## 3.1 - General information

The **Pilot** is a hydraulic pilot which ensures the control of one or two heating circuits and the production of domestic hot water for the household.

The **Pilot** is meant to be connected with an **HRC<sup>70</sup>** or **HTI<sup>70</sup>** range heat pump.

Equipments	DS170
Electrical back-up	3 kW
Expansion vessel	8 litres
Electronic control ensuring optimal management of the installation	●
Essential components for the protection of the hydraulic circuits (pressure relief valves, automatic purgers, pressure sensors)	●
Scheduled programming of the comfort mode for the 7 days of the week using programmable ranges	●

The **Pilot** is delivered ready to use in its factory set configuration (see § «Set-up»).

This configuration allows a simplified start-up, with factory set parameters and without access to certain settings.

However, set-up is strongly recommended as it allows for use to be personalised for the household. This configuration and its settings can be modified in the expert menu.

## 3.2 - Packaging

	Weight (kg)	Number of packages	W (mm)	H (mm)	D (mm)
<b>DS 170 Pilot</b>	81	1	600	1970	600

## 3.3 - Accessories (included)

Each **Pilot** is delivered with (non-mounted):

- **Magnetic filter**

Réf. B1473083

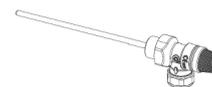
\*This item are supplied factory fitted



- **T + P valve 1/2" / 7 bar / 90°C**

Réf. B1239214

\*This item are supplied factory fitted



### 3.4 - Accessories available as optional extras

#### 3.4.1 - Installation

- **2<sup>nd</sup> heating circuit**

Allows distribution of a second heating circuit controlled by a thermostat (TA) (Ref. 895004)

- **Buffer tank - 25L**  
(Ref. 895020)

#### 3.4.2 - Control

- **Ambient temperature thermostat (TA)**

2 wires - allows to control the temperature in the heating zone.  
(Ref. 710043)



- **Ambient temperature sensor (SA)**

2 wires - allows to control the temperature of the heating zone on a variety of comfort levels (programmable from the pilot).  
(Ref. 751009)



- **Ambient temperature thermostat radio non-chronoproportional -(TH<sup>Rnc</sup>)-**

(type on/off). Wireless, programmable thermostat, transmitting through radio-frequency. Necessary when a wired connection between the Pilot and the ambient temperature thermostat is not possible.  
(Ref. 770001)

- **2-core sheathed connecting cable - 20m long**

To connect the heat pump and the pilot.  
(Ref. 753102)

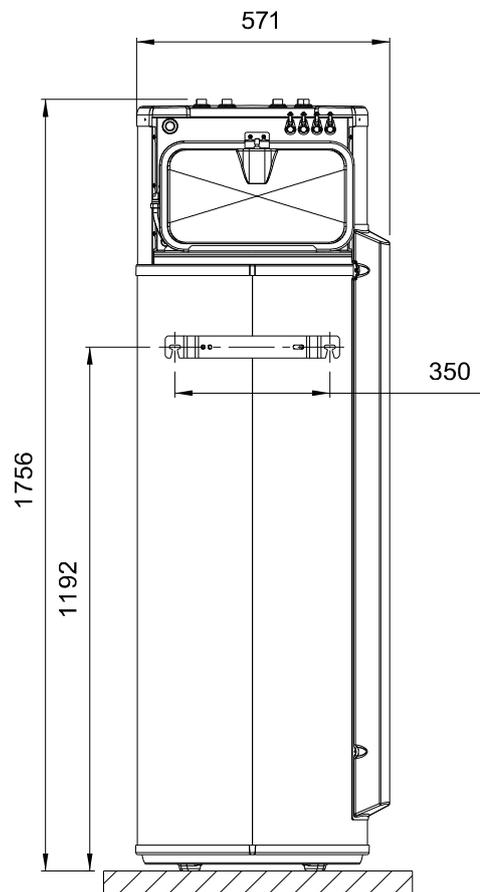
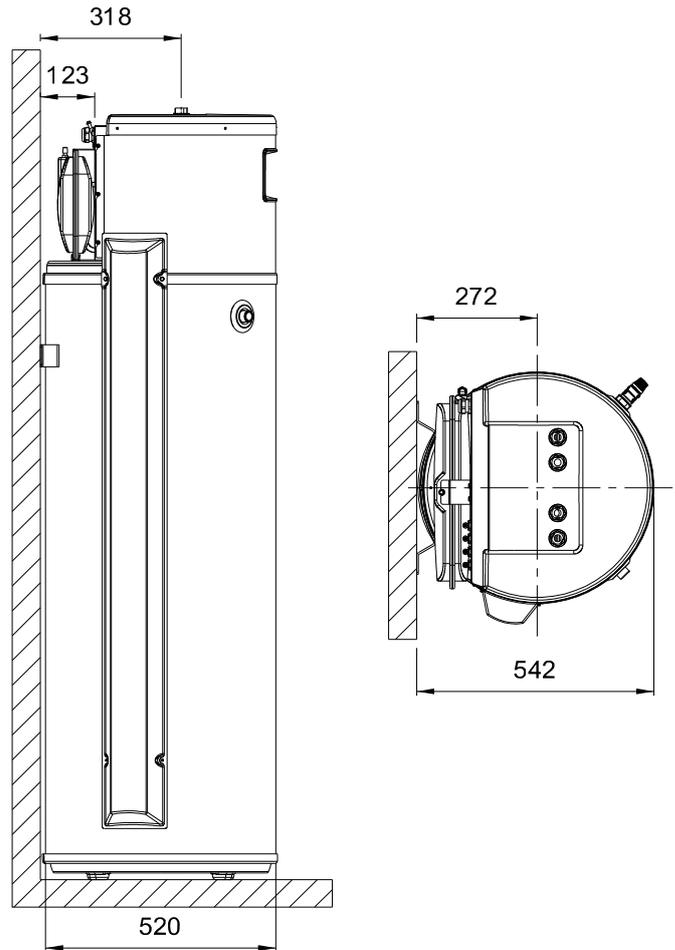
- **Shielded cable - 50m long**

To connect the heat pump and the pilot.  
(Ref. 754103)

- **Overheating Protection Thermostat (65°C)**

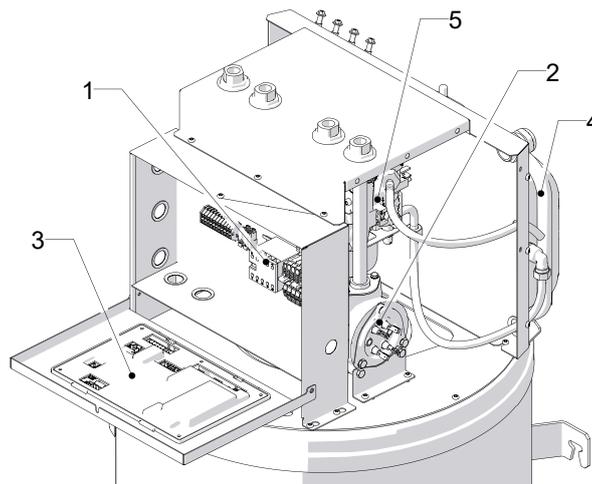
To protect underfloor circuit against rises of temperature.  
(Ref. 710111)

### 3.5 - Dimensions

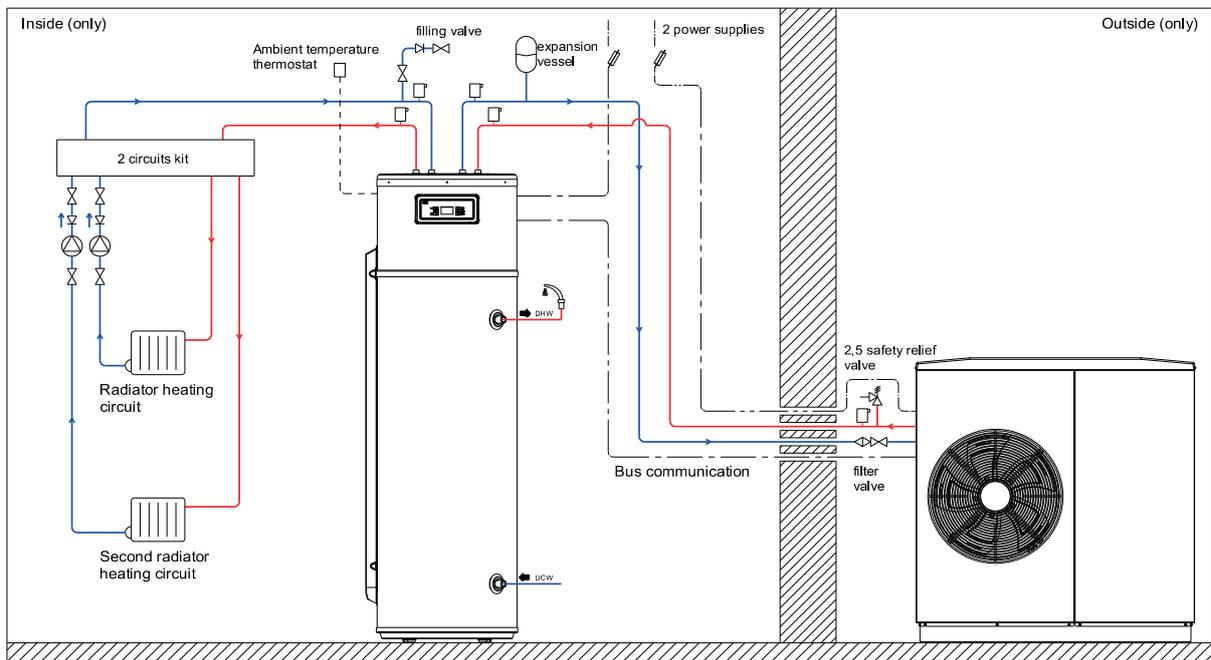


## 3.6 - Operating principles

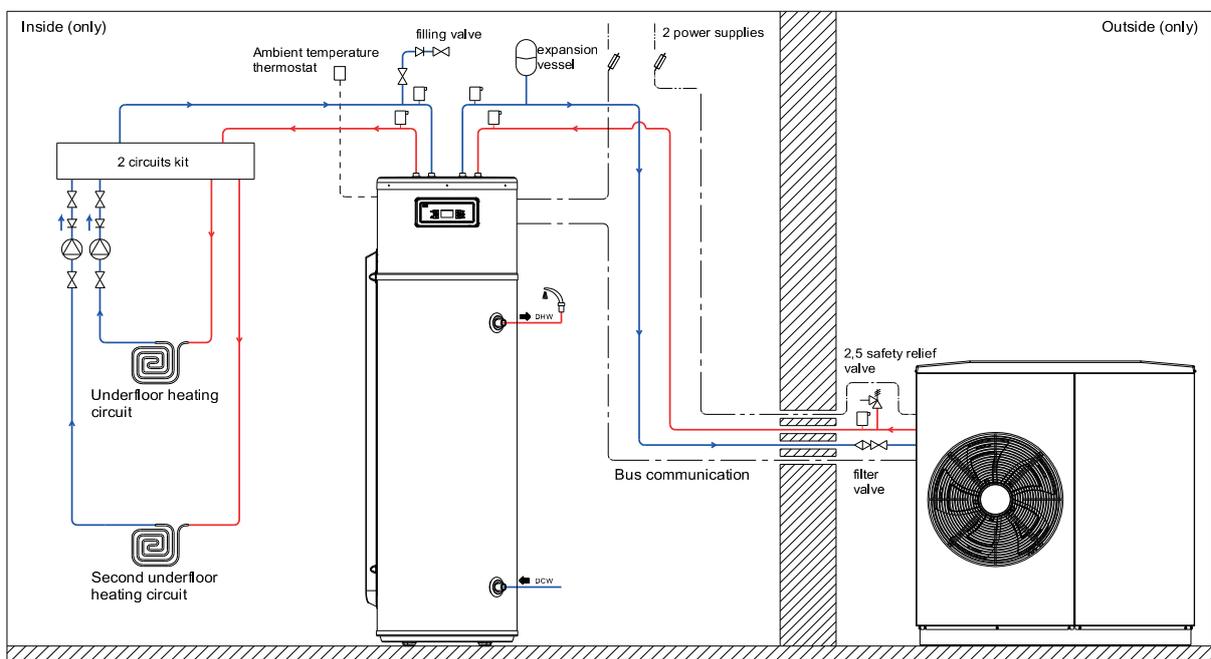
1. Power terminal
2. Electrical resistance
3. Electronic circuit board
4. Expansion vessel
5. Circulator pump



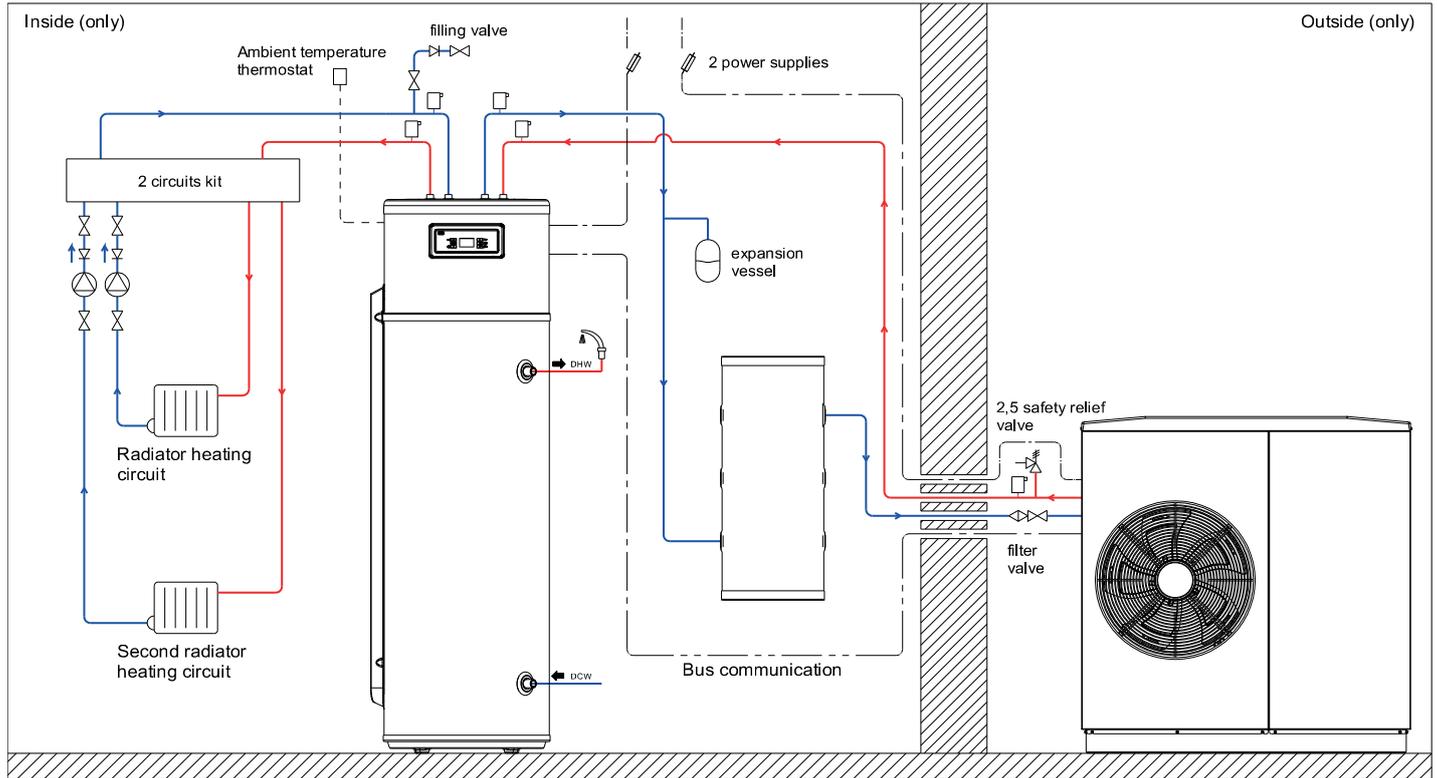
### HTi<sup>70</sup> 6 & 8 kW - Radiator



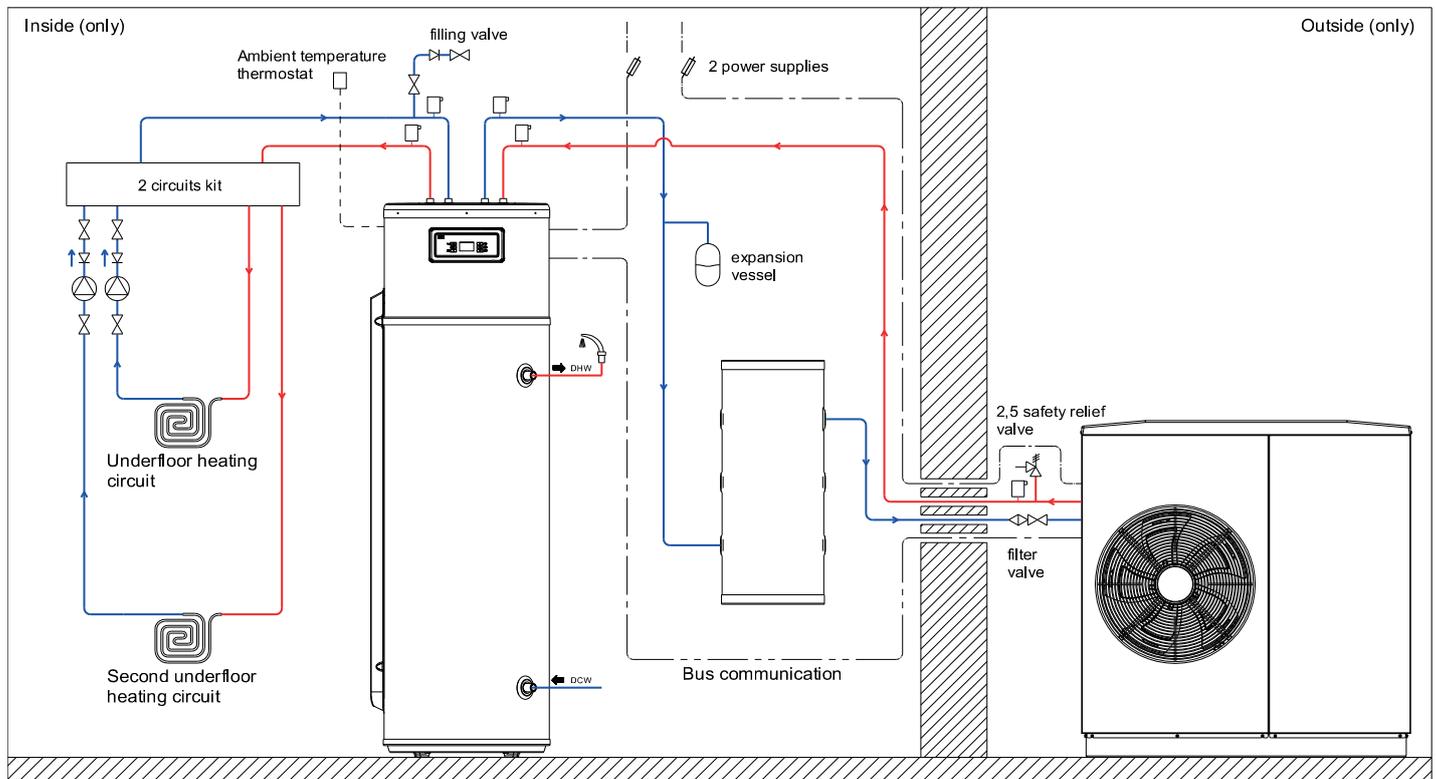
### HTi<sup>70</sup> 6 & 8 kW - Underfloor



## HTi<sup>70</sup> 11 & 14 kW - Radiator



## HTi<sup>70</sup> 11 & 14 kW - Underfloor



## 4 - INSTALLATION

It is strongly recommended to complete a risk assessment before installing the product. The following areas require particular consideration in addition to the information required by the Health and Safety at Work Act.

- Scalding : where appropriate or required by law a thermostatic mixing valve is to be fitted to the hot water outlet of the cylinder.
- Explosion : the unit is fully equipped with all relevant safety equipment to comply with current regulations.

The correct design and function has been verified by independent third party testing. The correct application hereafter is the responsibility of the competent installer.

- Water borne organisms (i.e. Legionella) : if applicable a risk assessment should be carried out following the recommendations outlined in the approved Code of Practice L8.
- The user preference must be considered when commissioning the system.

### 4.1 - Placement choice

#### 4.1.1 - Appropriate placement choice



**The Pilot must be installed on a level and stable base which is distanced from appliances used for cooking and other heat sources.**

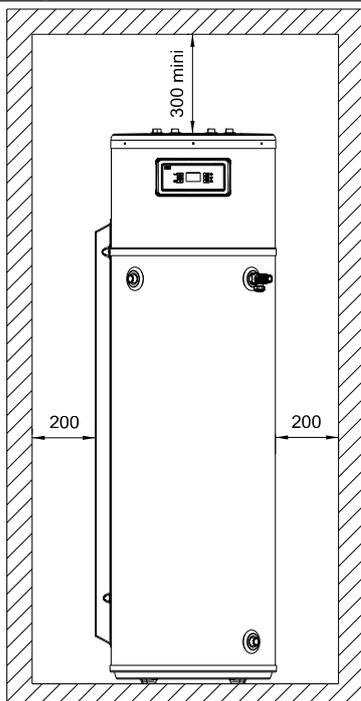
The **Pilot** must be placed in an area which is free from frost and adverse weather conditions.

It must be placed as close to the heat pump as possible without exceeding the maximum distance.

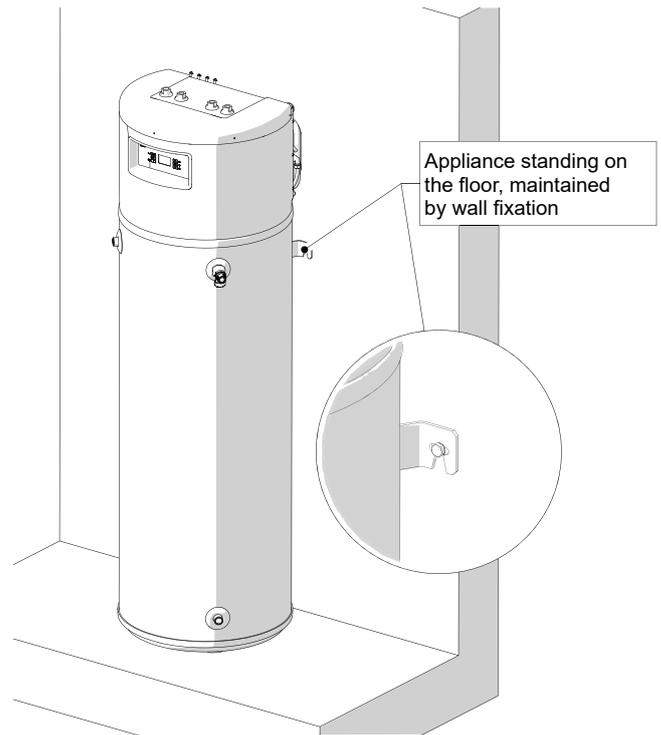
The maximum distance depends on the diameter of piping and the number of elbows used (see «Hydraulic connection» tables).

The 2-core sheathed cable which connects the **Pilot** and the heat pump measures 10m. There is a 20m length available as an optional extra (Ref. 753102).

#### 4.1.2 - Integration



#### 4.1.3 - Hold to the wall



### 4.2 - Cold Water Supply

For a satisfactory and safe performance of the water heater, the water supply must meet the following criteria :

<b>Minimum dynamic pressure</b>	150Kpa (1.5 bar)
<b>Maximum inlet supply pressure</b>	1200Kpa (12 bar)
<b>Minimum flow rate</b>	15L/min
<b>Max. chlorine content</b>	600mg/L
<b>Max. water hardness</b>	200mg/L

The following instructions have to be followed when installing the cold water mains supply to the water heater :

- the cold water supply to the water heater must come directly from the cold water mains after the mains stop valve to the property.
- the cold water inlet pipework should have at least an inside diameter of 19mm and should meet the requirements of the water regulations for the supply of wholesome water.

Dimplex recommend an annual maintenance inspection is carried out on the water heater. In hard water areas this should include inspection of the immersion heater, [above 120ppm or 120mg/L]. A local water treatment company should be able to offer free water quality testing. The heating elements may require periodic de-scaling. The installer should do this as part of a maintenance agreement.

If required, precautions can be taken to minimise effects of water hardness, i.e. installation of water conditioner or water softener. These devices should be installed in hard water areas where high water storage temperatures are required, i.e. greater than 60°C storage temperatures, particularly when water hardness exceeds 200ppm. Should the water heater require de-scaling, this must be performed by a qualified technician.

## 4.3 - Building Regulation G3 Discharge Requirements

As part of the requirements of Building Regulation G3 this product is factory fitted with a T&P valve, which complies with BS EN 1490. Any discharge from a water heater system should be conveyed to where it is visible, but will not cause danger to persons in or about the building. The tundish and the discharge pipes should be fitted in accordance with the requirements of Building Regulation approved document G3, (England and Wales), Part P of Northern Ireland and Standard 4.9 of Scotland.

### 4.3.1 - Discharge Pipe D2

The discharge pipe (D2) from the tundish should :

- «have a vertical section of pipe at least 300mm long below the tundish before any elbows or bends in the pipework and be installed with a continuous fall of at least 1 in 200 thereafter.»

The discharge pipe (D2) should be made of :

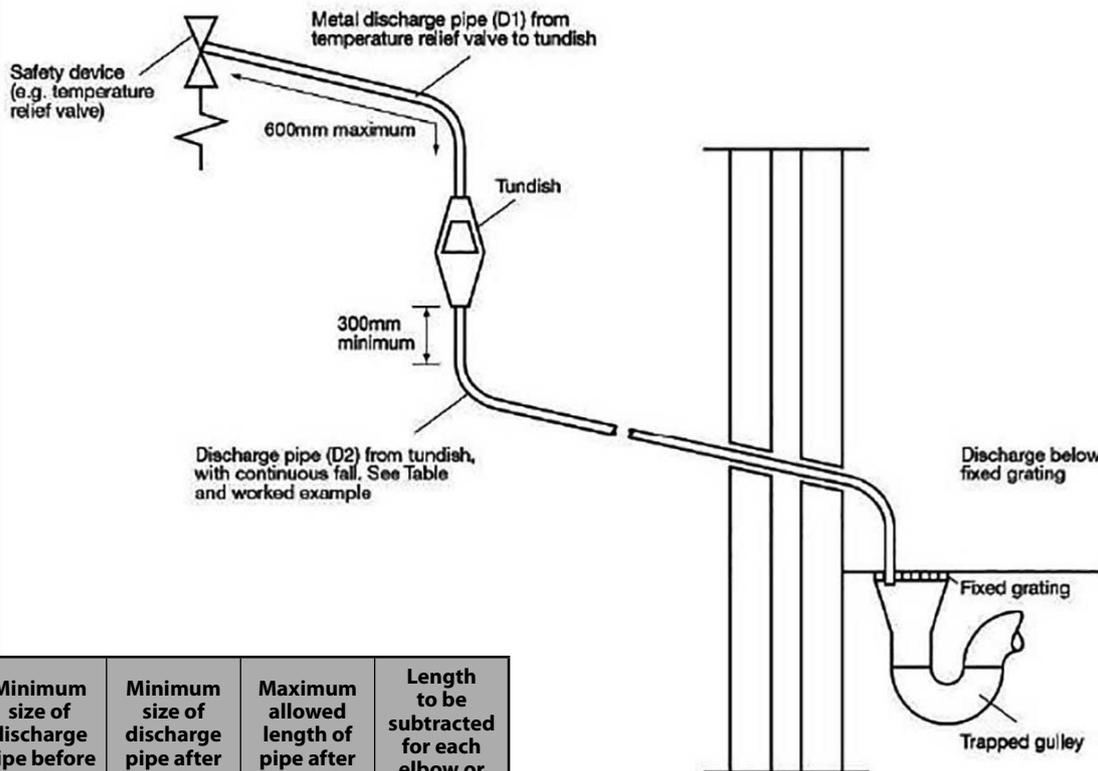
- «metal ; or other material that has been demonstrated to be capable of safely withstanding temperatures of the water discharged and is clearly and permanently marked to identify the product and performance standard».

Dimplex strongly recommends the use of metal pipework only and Dimplex does not take responsibility for any damage caused from discharges.

The discharge pipe D2 should be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9m long, i.e. for discharge pipes between 9m and 18m the equivalent resistance length should be at least two sizes larger than the nominal outlet size larger, and so on ; bends must be taken into account in calculating the flow resistance. See figure and table below and the worked example.

#### Note:

An alternative approach for sizing discharge pipes would be to follow Annex D, section D.2 of BS 6700:2006+A1:2009.



Value outlet size	Minimum size of discharge pipe before tundish (mm)	Minimum size of discharge pipe after tundish (mm)	Maximum allowed length of pipe after tundish (m)	Length to be subtracted for each elbow or bend (m)
G½	15	22	9	0.8
		28	18	1.0
		35	27	1.4
G¾	22	28	9	1.0
		35	18	1.4
		42	27	1.7
G1	28	35	9	1.4
		42	18	1.7
		54	27	2.3

### 4.3.2 - Worked Example

This example is for a G½ temperature relief valve with a discharge pipe (D2) having 4 No. 22mm elbows and length of 7m from the tundish to the point of discharge.

From Table above, the maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G½ temperature relief valve is 9.0m. Subtract the resistance for 4 No. 22mm elbows at 0.8m each = 3.2m.

Therefore the maximum permitted length equates to 5.8m, which is less than the actual length of 7m, therefore calculate the next largest size.

Maximum resistance allowed for a straight length of 28mm copper discharge pipe (D2) from a G½ temperature relief valve is : 18m.

Subtract the resistance for 4 No. 28mm elbows at 1.0m each = 4m. Therefore the maximum permitted length equates to 14m.

As the actual length is 7m, a 28mm (D2) copper pipe will be satisfactory.

- Where a single common discharge pipe serves more than one system, it should be at least one pipe size larger than the largest individual discharge pipe (D2) to be connected.
- This discharge pipe should not be connected to a soil discharge stack unless the soil discharge stack is capable of safely withstanding temperatures of the water discharged, in which case, it should :
- Contain a mechanical seal, which allows water into the branch pipe without allowing foul air from the drain to be ventilated through the tundish.
- There should be a separate branch pipe with no sanitary appliances connected to it.
- If plastic pipes are used as branch pipes carrying discharge from a safety device, they should be either polybutylene (PB) or cross-linked polyethylene (PE-X) complying with national standards.
- Be continuously marked with a warning that no sanitary appliances should be connected to the pipe.

### 4.3.3 - Termination of discharge pipe

- "The discharge pipe (D2) from the tundish should terminate in a safe place where there is no risk to persons in the vicinity of the discharge."

Examples of acceptable discharge arrangements are :

- "To a trapped gully with the end of the pipe below a fixed grating and above the water seal ;
- Downward discharges at low level ; i.e. up to 100mm above external surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that a wire cage or similar guard is positioned to prevent contact, whilst maintaining visibility ; and,
- Discharges at high level : e.g. into a metal hopper and metal downpipe with the end of the discharge pipe clearly visible or onto a roof capable of withstanding high temperature discharges of water and 3m from any plastic guttering system that would collect such discharges."



**As the discharge would consist of high temperature water and steam, asphalt, roofing felt and non-metallic rainwater goods may be damaged by such discharges.**

## 4.4 - Hydraulic installation

All taps and fitting incorporated in the system should have a rated operating pressure of 0.6MPa (6 bar) or above.

Consult the hydraulic schematic diagrams in the appendix.

### 4.4.1 - Recommendations for heating circuit

#### 4.4.1.1 - Backflow prevention device

A type CB backflow prevention device may be installed. This device must be at different, non-regulated pressure zones. Check your national laws and regulations to know if this is an obligatory requirement. The backflow prevention device is designed to prevent incoming heating water from entering the drinking water circuit. It must be connected to the mains drainage system.

#### 4.4.1.2 - Cross sections, purging of the heating circuits

A sufficient flow rate should be ensured so that the difference in temperature between the outlet and inlet points does not exceed 6°C. In an installation equipped with thermostatic mixing valves, this inspection must be done with all taps/valves open.

The output actually needed determines the water flow rate of the heating circuit and allows to calculate the dimensions of the distribution network.

Adapt the speed of the circulator pump to the hydraulic characteristics using the flow rate/pressure curve provided.

All necessary measures must be taken to ensure that the installation can be continuously purged. Automatic air purging valves should be placed at each high point of the installation, and manual air purging valves should be installed on each radiator.

#### 4.4.1.3 - Desludging tank

Plan for a desludging tank with a sufficient volume at a low point on the inlet of the heating circuit. This tank must be equipped with a drain so it can collect the oxides, particles, and calamines which detach from the inner walls of the heating circuit while it is in operation.

#### 4.4.1.4 - Preparing the hydraulic circuit (rinsing)

Before placing the pilot and heat pump, it is necessary to rinse the installation with an appropriate product. This allows to eliminate all traces of soldering waste, joint filler, grease, sludge, metallic particles, etc... in the radiators, underfloor heating, etc...

Pressure head of the installation (m)	2.5	5	7.5	10	12.5	15
Pre-inflated pressure (bar) <sup>(1)</sup>	0.25	0.50	0.75	1.00	1.25	1.50
Maximum volume of the installation covered by the 8L expansion vessel <sup>*(2)</sup>	152	138	125	111	97	83
Expansion factor <sup>*(3)</sup>	0.05	0.058	0.064	0.072	0.083	0.096

\*The values given are for application to radiators (water at 80°C)

For application to underfloor heating:

-Multiply values<sup>(2)</sup> by 2

-Divide values<sup>(3)</sup> by 2

<sup>(1)</sup> : Deflate and check pressure in the expansion vessel if necessary.

<sup>(2)</sup> : As a guideline, take into account:

- 11 litres per kW heating capacity for steel radiators
- 13 liters per kW heating capacity for cast-iron radiators
- 17 liters per kW heating capacity for underfloor heating

<sup>(3)</sup>For installation with a larger volume of water, multiply the volume by the expansion factor corresponding to the pre-inflated pressure to obtain the minimum required capacity of the expansion vessel. If necessary, add an additional expansion vessel to the 8L one already included in the boiler.

#### 4.4.1.5 - Frost protection

Frost protection is necessary if the pilot is switched off during the winter months (ex: secondary residence, etc...).



**If the appliance is connected to an electricity supply, the heating circuit is protected from freezing. It is IMPERATIVE to drain the domestic hot water circuit however.**

**If the pilot is not being supplied with electricity (electrical cut-off for example), or it is defective and there is a risk of freezing, it is IMPERATIVE to completely drain the appliance (heating and hot water).**

#### 4.4.1.6 - Underfloor heating

It is mandatory to install a 65°C safety aquastat (OPT) with manual reset on the underfloor heating outlet.

**OPT kit (Ref. 710111)** : Use the additional wiring provided in the kit to protect the underfloor heating.

Refer to the diagrams in Appendix.

When the installation includes an underfloor heating, do not exceed a temperature target of 55°C.

**CAUTION WHEN THE INSTALLATION INCLUDES A SANITARY TANK!**

**1. The DHW setpoint setting must be less than 55 ° C.**

**2. Place the safety aquastat as close as possible to the common outlet of all the underfloor heating loops (that is to say just upstream of the floor outlet manifold) so as to move it away from the Pilot's floor outlet and in order to avoid its triggering after a load of the domestic hot water tank.**

#### 4.4.1.7 - Thermostatic valves

Thermostatic valves: these valves should prioritise rooms with higher levels of heat gain.



**In an installation with both thermostatic valves and a room temperature thermostat, the radiator(s) in the room in which the thermostat is located MUST be equipped with a manual valve(s).**



**It is IMPERATIVE to refer to the installation instructions for the initial installation of the ambient temperature thermostat to ensure satisfactory operation.**

#### 4.4.1.8 - Treatment of the water in the heating circuit



**It is MANDATORY to read the additional document concerning the quality of water used for filling the installation. This document is included with this manual as well as in the packet with the warranty information.**

**This document also contains information which is PERTINENT to the WARRANTY of the material.**

##### 4.4.1.8.1 - Filling water

The materials used for producing a heating circuit are of different natures. Instances of corrosion may occur through galvanic coupling in both new and existing installations.

The filling of the heating circuit must only be done with untreated water (no water softener) from the drinking water network. Water from any other source (rain-water, well-water, etc...), must be analysed and **MUST** have the following properties:

8,5	≤	PH (acidity)	≤	9,5
		Chlorides	≤	60 mg / litre
		Conductivity	<	1000 µS / cm
5	≤	TH (hardness in French °)	≤	15



Central heating installations must be cleaned in order to eliminate debris (copper, filings, soldering waste) related to the set-up of the installation or from chemical reactions between the metals.

Futhermore, it is important to **protect the central heating installations from risks of corrosion, limescale, and microbiological development** through use of a corrosion inhibitor which is suitable for all kinds of installations (steel or cast-iron radiators, PEX underfloor heating).

**PRODUCTS USED FOR HEATING WATER TREATMENT MUST BE APPROVED BY THE LOCAL OR NATIONAL PUBLIC HYGIENE AND HEALTH AUTHORITY.**

#### 4.4.1.8.2 - Treatment of the heating circuit

We recommend the use of products in the **SENTINEL** range by **GE BETZ** for preventative and curative treatment of the heating circuit.

##### • For new installations : (less than 6 months old):

- Clean the installation with a universal cleaner to eliminate the debris from the installation (copper, fibres, soldering fluxes) Example : **SENTINEL X300**
- Thoroughly rinse the installation until the water runs clear, with no traces of impurities left.
- Protect the installation against corrosion with a corrosion inhibitor, example: **SENTINEL X100**. Or against corrosion and freezing with an inhibitor with an anti-freeze additive. Example : **SENTINEL X500**.

##### • For existing installations:

- Desludge the installation with a desludging product to eliminate any sludge from the installation. Example: **SENTINEL X400**.
- Thoroughly rinse the installation until the water runs clear, with no traces of impurities left.
- Protect the installation against corrosion with a corrosion inhibitor, example: **SENTINEL X100**. Or against corrosion and freezing with an inhibitor with an anti-freeze additive. Example : **SENTINEL X500**.

##### Corrosion inhibitor :

- protects against the formation of limescale
- prevents «pinhole» type corrosion
- prevents, in new installations, the formation of sludge and the proliferation of bacteria (in low temperature networks: algae)
- prevents the formation of hydrogen
- eliminates the sound of the generators

Treatment products from other manufacturers can be used if they guarantee that the product is appropriate for all the materials used in the appliance and offers efficient resistance to corrosion. To find this information refer to their user manual.

#### 4.4.1.8.3 - Purging the installation

The oxygen present in the air is extremely corrosive. All necessary measures must be taken to ensure that the installation can be continuously purged. Automatic air purging valves should be placed at each high point of the installation, and manual air purging valves should be installed on each radiator.



##### **RENDERING THE WARRANTY NULL AND VOID**

**Any deterioration of the appliance due to inappropriate filling water, and/or corrosion in the absence of the use of treatment products, and/or improper purging of the installation, will render the warranty null and void.**

#### 4.4.1.8.4 - Connecting the pressure relief valve

The Heat Pump and the **Pilot** are both equipped with pressure-relief valves. The **Pilot's** pressure-relief valve is set at 3 bar.

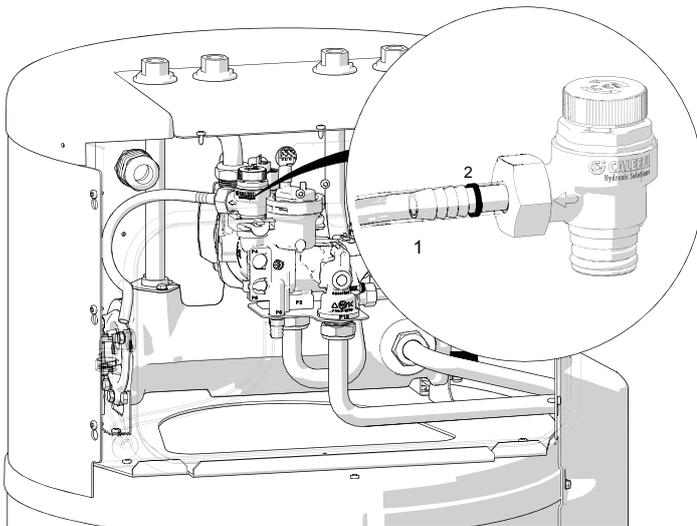
The pressure-relief valve on the Heat Pump sets the maximum acceptable pressure in the installation (2.5 bar when hot). The maximum service pressure in the Heat Pump must, consequently, be lower than 2.5 bar.

*Example: If the Heat Pump is positioned 5m below the **Pilot**, the pressure reading on the **Pilot** would be 0.5 bar less than the real pressure of the water in the Heat Pump. In this case, the maximum service pressure for the **Pilot** would be 2 bar.*

*Therefore it would be advisable to fill the heating circuit at an intermediary pressure (between 1 and 1.5 bar).*

For safety reasons (potential presence of flammable R290 gas), drainage of the Pilot's pressure-relief valve must **MANDATORILY** be done **outside the building**. The outlet of the drainage pipe (4m length provided with the pilot) must be placed downwards in order to avoid any introduction of water inside, any risk of obstruction due to frozen water or any other pollution (see drawing).

If the provided drainage pipe is too short, it's mandatory to use a well-adapted length (can be supplied on demand). It will have to be installed as well as there will be no pinch on it, it will then ensure the drainage of the overpressure from the 3 bar safety valve outside the building.

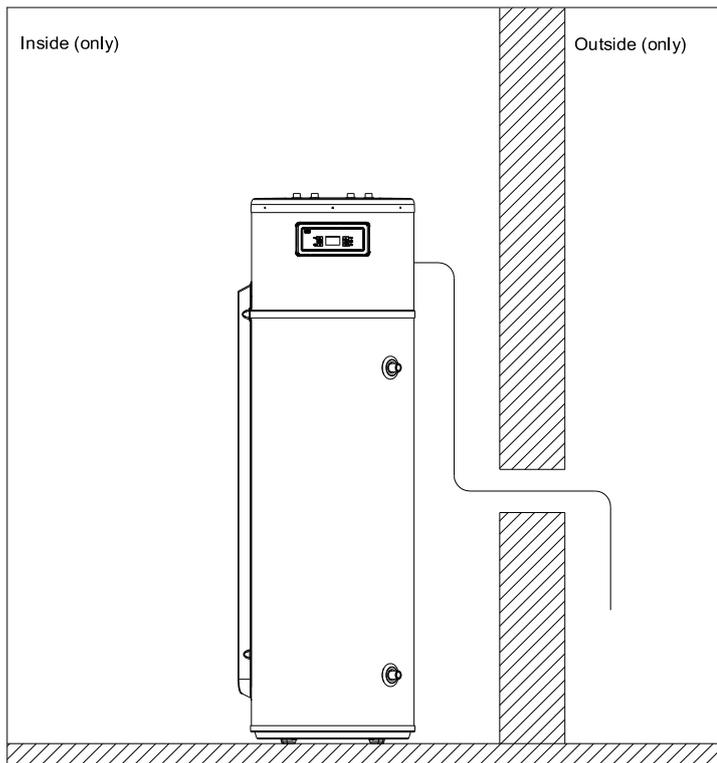


1. EPDM pipe

2. Hose clamp



The EPDM pipe must be pushed to the end of the safety valve barb tip and held with a hose clamp.



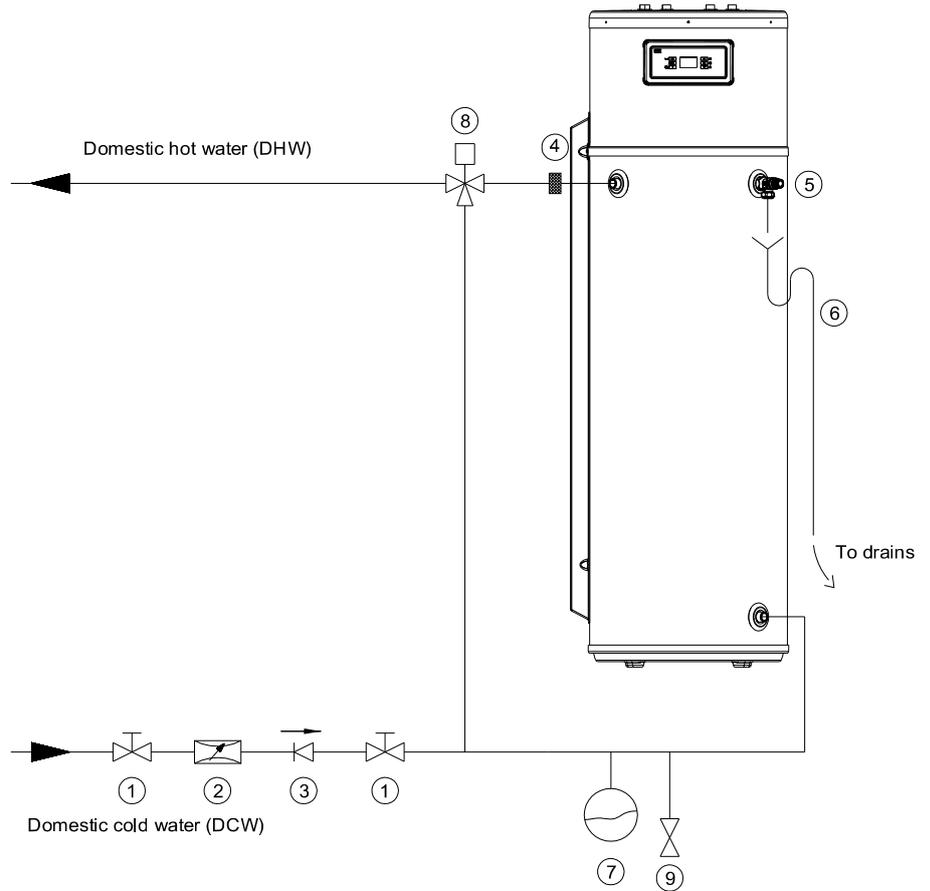
The Pilot's pressure-relief valve drainage pipe must be properly secured until the outside of the building without any pinching zone.



**WARNING**  
Failure to comply with this requirement concerning the evacuation of overpressure outside the building releases the heat pump manufacturer from any liability in case of incident.

## 4.4.2 - Recommendations for sanitary circuit

- 1 : Stop valve
- 2 : Pressure-reducing valve
- 3 : Check valve
- 4 : Insulated dielectric valve
- 5 : Pressure-relief membrane valve
- 6 : Run-off siphon
- 7 : Expansion vessel
- 8 : Thermostatic mixing valve
- 9 : Drainage valve



### 4.4.2.1 - Cold Water Inlet with Inlet Group

The inlet group regulates the pressure of the incoming mains water supply to the water heater and removes any debris that might be water borne.



**Between the inlet groupe and the cold water inlet on the water heater NO isolating device may be fitted, as by doing so important safety devices could be isolated !**

#### 4.4.2.1.1 - Expansion Vessel

The expansion vessel is mandatory on the Dimplex water heater and can be connected directly to the cold water inlet groupe, utilising the flexible hose supplied with the vessel. The expansion vessel should always be fitted in accordance with the manufacturer's instruction. No isolating device should be fitted between the water heater and the cold water inlet group.

Futhermore, it is recommended to mount the vessel higher than the water heater to avoid having to drain the water heater when maintaining and replacing th expansion vessel.

It is important to check the pre-charge pressure of the expansion vessel membrane before filling the cylindeer. The pre-charge should be greater than or equal to 3 bar.

**Note:** The expansion vessel must be installed to the side of the expansion relief valve on the inlet group. To do this the blanking plug must be removed and the expansion vessel conected.

### 4.4.2.1.2 - Balanced Cold Water Supply

If balanced cold water supply is required a connection can be taken from the bottom of the inlet group.

#### 4.4.2.1.3 - Drain valve

It is also recommended to install a drain valve (not supplied) at the lowest point of the cold water feed to the water heater. This allows the water heater to be drained in a controlled manner should this become necessary.

### 4.4.2.2 - Hot Water Outlet

The hot water pipework is to be directly connected to the hot water outlet connection on the water heater.

#### 4.4.2.2.1 - Thermostatic Mixing Valve

A thermostatic mixing valve may be required to limit the outlet temperature. In this case, the valve should be installed following the manufacturer's instructions, ensuring none of the safety equipment has been isolated, (i.e. make sure the connection to the thermostatic mixing valve is taken after the safety equipment of the inlet group).

#### 4.4.2.2.2 - Pipe Insulation

It is recommended to insulate the hot water pipeword from the water heater to the outlets, to reduce the energy requirements for providing hot water. It is also recommended to insulate all other exposed pipework, such as the T&P to the tundish, the coil flow and return and the cold water inlet pipes.

### 4.4.2.3 - Discharge pipes from safety devices

#### 4.4.2.3.1 - Discharge Pipe D1

The temperature and pressure relief valve must be discharged directly or by way of a manifold via a short length of metal pipe (D1) into a tundish; and the discharge pipe must be installed in a continuously downward direction and in a frost free environment. Water may drip from the discharge pipe of the pressure relief device and this pipe must be left open to the atmosphere.

The diameter of discharge pipe (D1) should not be less than the nominal outlet size of the safety device, e.g. temperature relief valve.

Where a manifold is used it should be sized to accept and discharge the total discharge from all the D1 discharge pipes connected to it.

The discharge pipework from the expansion relief valve must be installed constantly falling to an open point of discharge. It is recommended to combine it with the discharge of the temperature and pressure relief valve.

**Note:** The T&P valve is pre-sealed and if moved the seal will be broken, should this occur, it will need to be resealed with an appropriate sealant (dimplex part number R00836-1).

#### 4.4.2.3.2 - Discharge Pipe D2

For a detailed description of the discharge pipework D2 (see section " Building Regulation G3 Discharge Requirements / Discharge Pipe D2".

#### 4.4.2.3.3 - Tundish

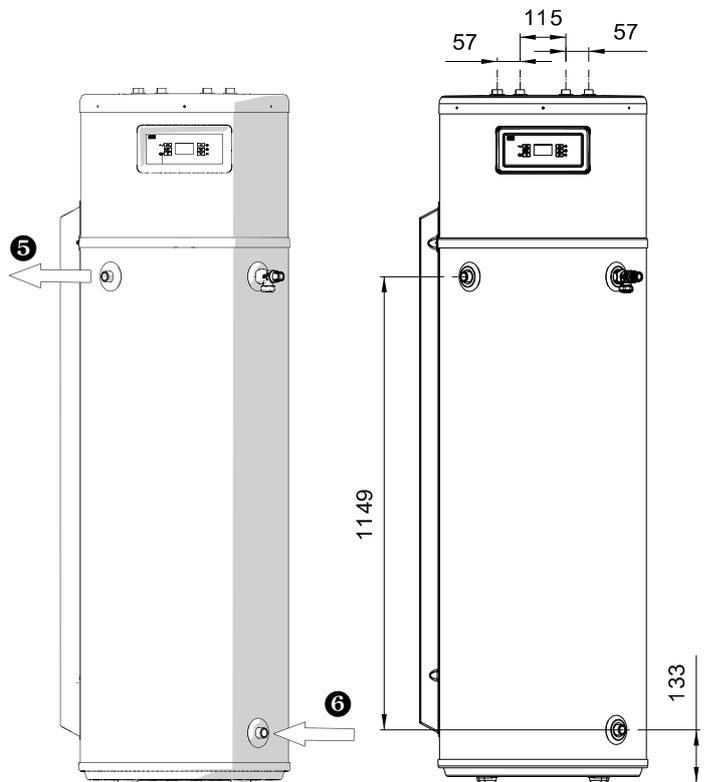
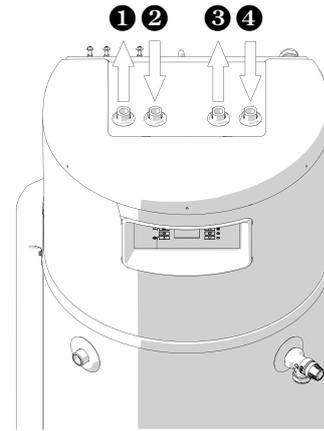
The tundish should be vertical, located in the same space as the unvented hot water storage system and be fitted as close as possible to, and lower than, the safety device, with no more than 600mm of pipe between the valve outlet and the tundish.

Where discharge may not be apparent, e.g. in dwellings occupied by people with impaired vision or mobility, consideration should be given to the installation of a suitable safety device to warn when discharge takes place, e.g. electronically operated.

**Note:** To comply with the Water Supply (Water Fittings) Regulation, the tundish should incorporate a suitable air gap.

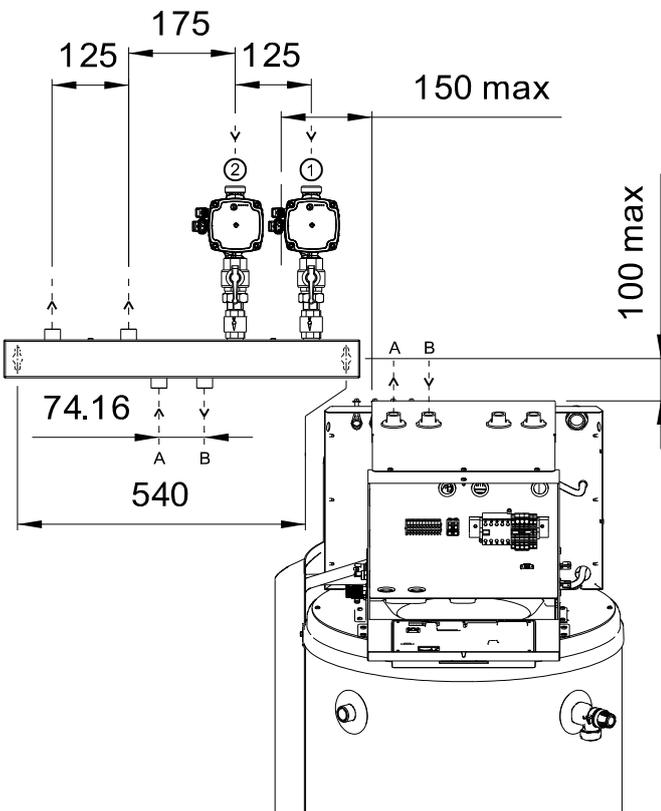
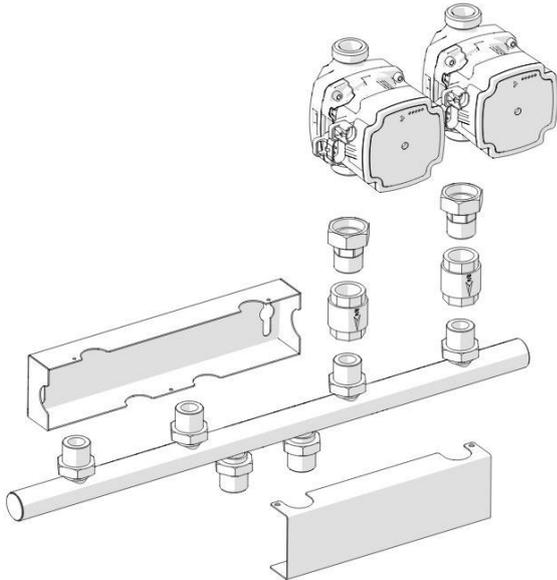
**Note:** It is **IMPORTANT** that the tundish is positioned away from any electrical components.

### 4.4.3 - Hydraulic connections



	Description	Hydraulic connections
1	Outlet towards heating circuit(s)	3/4"
2	Inlet from heating circuit(s)	3/4"
3	Outlet towards heat pump	3/4"
4	Inlet from heat pump	3/4"
5	Domestic hot water outlet	3/4"
6	Domestic cold water inlet	3/4"

#### 4.4.3.1 - Second circuit kit



#### 4.5 - Electrical connections

Plan for a circuit breaker dedicated to the power supply of the **Pilot** on the electrical panel. It must be able to completely cut-off the electrical supply from the network (all-pole) to eliminate any danger when carrying out maintenance on the appliance.

##### **How to proceed:**

- Check that the «ground» cable is connected properly to the grounding peg or grounding network of the building.
- Connect the **Pilot's** electrical cable to the dedicated outlet, equipped with a circuit breaker.
- Leave the pilot switched off until set-up.

The proper voltage is: 230 V (+10% / -15%) single phase. Each appliance is delivered from the factory completely pre-wired. However, it is necessary to connect the following elements to the relevant terminals:

- The general electricity supply.
- The different sensors or thermostats on the **Pilot**.
- The 2-core shielded cable connecting the **Pilot** and the Heat pump (10m length supplied).

Under no circumstances will the manufacturer be held liable for any problems which may arise due to improper installation and/or choice of power supply cable.

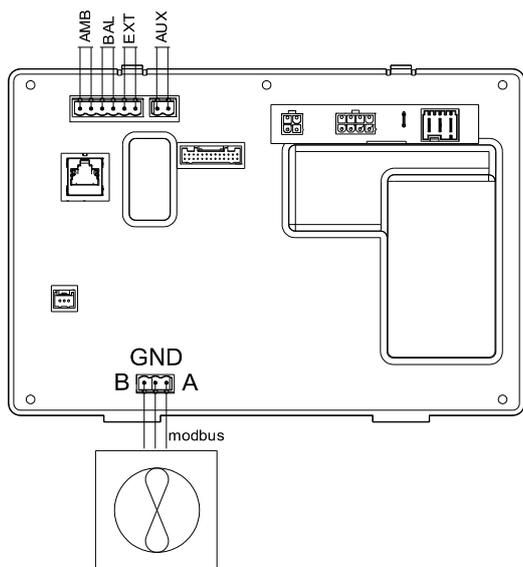
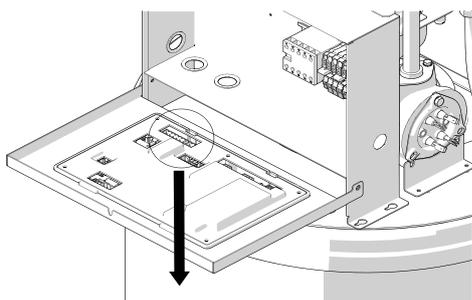


**The rules and regulations in the country of installation MUST be respected (standard C15-100).**

- **The electrical lines for general power supply to the circuits must be made in compliance with your country's current rules and regulations (standard C15-100).**
- **Standard C15-100 determines the cable section to be used based on acceptable currents.**
- **Standard C15-100 determines the cable section to be used based on the following elements:**
  - *Nature of the conductor :*
    - . type of insulation, number of strands, etc...
  - *Installation mode :*
    - . influence of conductor and cable groups
    - . ambient temperature
    - . tightly or non-tightly installed
    - . length of cables, etc...

- A means of disconnection which ensure an electrical isolation in category III conditions should be installed in fixed cabling in compliance with the installation rules.

## 4.6 - Connection to the Heat pump and to the accessories for control

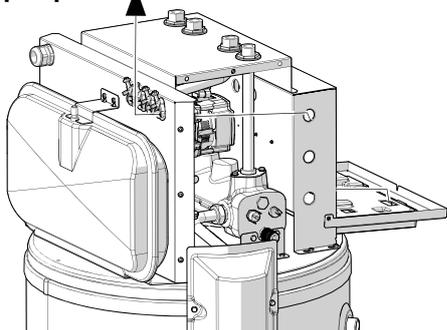


<b>ModBus</b>	: Connection to the heat pump
<b>Amb</b>	: Ambient temperature sensor or thermostat (dry contact)
<b>BAL</b>	: Tank sensor
<b>EXT</b>	: Exterior sensor
<b>AUX</b>	: Dry contact towards Thorix

### 4.6.1 - Control connection towards the Heat pump

- Connect the two wires of the connecting cable on terminals **A** and **B** of the «**Modbus**» terminal while taking care to respect the polarity **A/B** (terminal **A** of the **Pilot** to be connected to terminal **A** of the heat pump; the same for terminal **B**).
- Connect:
  - the brown wire to A
  - the white wire to B
  - the black wire to GND on both appliances.
- If you are using a different cable, respect the polarity of A and B as well as the connection of the shielding on 0V on both appliances.

Heat pump



Plan for the appropriate length of cable between the pilot and the heat pump. Do not hesitate to cut the cable to the appropriate length to **AVOID LOOPS**.



**Ensure that the connecting cable is distanced from any source of electrical disturbance (ex: washing machine, neon lighting, power supply cable....)**

### 4.6.2 - Ambient temperature control

In an installation with both thermostatic valves and a room temperature thermostat, the radiator(s) in the room in which the thermostat is located **MUST** be equipped with a manual valve(s). It is mandatory to install the ambient temperature control on an interior wall of the room and not a wall that lets out onto the outside of the building.

Installation against an exterior facing wall is prohibited.

Do not place the ambient temperature controller too close to a window, a curtain, or a door. Avoid placing it in an alcove, a closet, or behind drapes.

Do not place above a heat source (radiator,...) or against a wall with a chimney.

Do not place in reach of sun's rays, or near powerful lighting.

Place the sensor 1.50m above floor level, and at least 50cm away from neighboring walls. Insulate the extremities of the electrical cabling of the installation on the side of the appliance to prevent air currents from influencing the measures taken.



**EXCLUSIVELY connect either:**

- The **AMBIENT TEMPERATURE SENSOR with DISPLAY (Ref. 751009)**
- The **AMBIENT TEMPERATURE RADIO THERMOSTAT (Ref. 770001)**

**All other thermostats which are chronoproportional may cause malfunctioning and render the warranty null and void.**

### 4.6.3 - Exterior sensor

The connection of the exterior sensor is recommended (if it is not the heat curve is calculated using the temperature read by the heat pump air sensor).

Place the sensor on the coldest exterior wall of the building (usually the north-facing wall). It must not be exposed to the morning sun.

It is preferred to mount the exterior sensor in the middle of the wall of the building or of the heating zone, at least 2.5m above ground level.

Do not place the sensor:

- above windows, doors, air exhausts, or other heat sources,
- beneath balconies or gutters

To prevent mistakes in the temperatures measured due to air circulation, insulate the extremities of the sensor's electrical conduit.

Do not paint the exterior sensor.

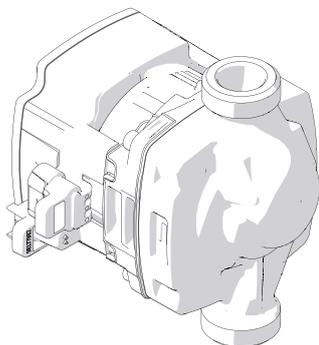
#### Note :

After connection, go to the «**DISPLAY**» menu and check that the «**EXTERIOR**» screen appears with the value read by the probe. If not, check the connection of the probe or the pilot connector.

## 4.6.4 - Second circuit

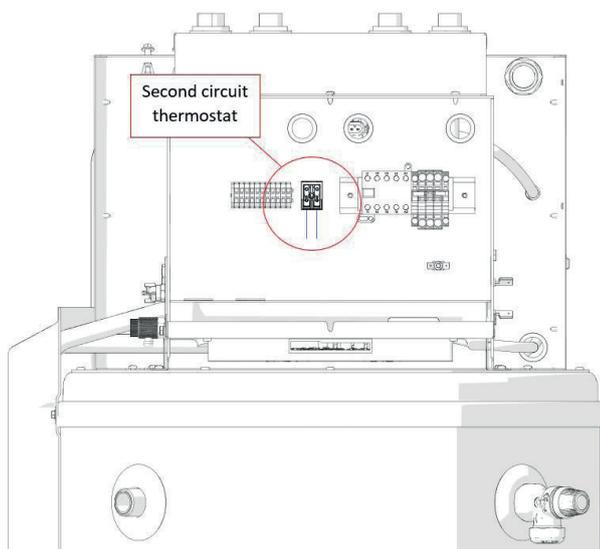
### 4.6.4.1 - Second circuit - Circulator

Use the cable delivered in the unit connect the circulator of the second circuit at its dedicated connector.



### 4.6.4.2 - Second circuit - Room thermostat

Connect the thermostat at designated terminals in the pilot electrical panel.



### 4.6.5 - Underfloor safety device of the 65°C safety aquastat (OPT) with manual reset (OPT)

Use the additional wiring provided in the kit (**Ref. 710111**) to protect the floor heating circuit.

Refer to the related notice to connect OPT onto DS170 controle base.

**CAUTION WHEN THE INSTALLATION INCLUDES A SANITARY TANK!**

1. The DHW setpoint setting must be less than 55 ° C.
2. Place the safety aquastat as close as possible to the common outlet of all the underfloor heating loops (that is to say just upstream of the floor outlet manifold) so as to move it away from the Pilot's floor outlet outlet and in order to avoid its triggering after a load of the domestic hot water tank.

## 5 - SET-UP



**Set-up must be done by a qualified professional.**

### 5.1 - Before set-up

Ensure that:

- All work carried out on the hydraulic circuits and the electrical circuits are in compliance with the regulations in effect (inspection by a qualified professional)
- The pressure relief valve on the cold water inlet of the domestic hot water tank is working properly and is properly connected to a drain in compliance with the regulations in effect.
- All piping is watertight.
- All hydraulic connections are properly tightened.
- The correct voltage at the mains switch.
- All of the valves are open and nothing is obstructing the circulation of water in the exchanger and in the hydraulic circuit.
- The installation is equipped with a filter valve or a filter on its inlet and that the filter is not clogged.
- The automatic air purger's cap is open.
- The exterior sensor and the ambient temperature control (if present on the installation) are connected properly.
- If using an ambient thermostat, ensure that it is actually being used and set to be on demand (turn it to its maximum set point).

Once all of these checks have been done, turn on the heat pump and **Pilot**.

### 5.2 - Check watertightness

Inspect the entirety of the hydraulic connections (nuts with washers, toric joints or anything assembled with glue) which may loosen during transport or during the installation process, and tighten if necessary.

After pressurising the appliance, it is important to check the watertightness (both visually and by any lowering of pressure) of all internal and external connections.



**Any deterioration of the appliance due to a lack of watertightness renders the warranty null and void.**

### 5.3 - Starting set-up

In order to get the best service from the set-up wizard, ensure that you have connected all the required options and accessories (room controls, hydraulic kits,...) prior to the first start.

In case of room thermostats, ensure that they are all sending a heating demand (closed dry contact sent to the pilot).



When the **Pilot** is turned on for the first time, it will ask you to confirm the language of use (French, English, German, Italian, Spanish, or Polish), and will request to start set-up:



Choose **YES** and confirm by pressing .

**Note:** If you choose not to start set-up (**NO**) this option remains accessible in the expert menu, by the **COMMISSIO.** sub-menu.

### 5.4 - Step 1: Circuit choice



Select the kind of circuit connected (domestic hot water, radiators).

**Note:** Circuits are proposed according to the connected sensors.

### 5.5 - Step 2: Filling

Activate the backflow prevention device of the installation to fill the heating circuit to just over 1.5 bars of pressure.



During the filling stage, the **Pilot** indicates the pressure measured in the heating circuit.

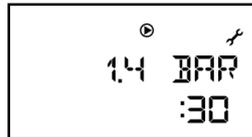
The **Pilot** automatically confirms the filling of the installation once the pressure reaches 1.6 bars.

A manual confirmation (press ) is possible starting at 0.6 bars of pressure.

### 5.6 - Step 3: Purging the installation



The purging cycle activates the circulator pump at an alternating rhythm to allow the displacement and purging of any air bubbles accumulated at high points of the installation using the **Pilot's** automatic purger.



During the purging cycle, the screen indicates the countdown until the automatic stop of the cycle as well as the pressure in the circuit.

During the cycle, check that the automatic purgers are open and regularly activate the manual purgers.

If the pressure in the circuit becomes insufficient due to the volume of air purged, the **Pilot** will indicate it and will pause the purging cycle.

Activate the backflow prevention device or the filling valve to raise the pressure. The purging cycle will resume automatically once there is sufficient pressure.

The purging cycle is launched for a duration of 30 minutes and will automatically stop after that time is up.

At any time during the cycle, you can:

- Interrupt (or resume) the cycle by pressing on .
- End the cycle and continue to the next step by pressing .

### 5.7 - Step 4 : Choosing the back-up

It is possible to select the electrical back-up, or not to declare a back-up.

### 5.8 - Step 5: Finishing set-up

The **Pilot** will indicate when set-up has been achieved:



And will automatically put itself in standby mode.

The **Pilot** can be left in this state until first use.

### 5.9 - 1st use

To turn on the **Pilot**, press .

Long pressing  puts the **Pilot** in standby mode.

# 6 - SETTINGS AND FUNCTIONS

## 6.1 - Control panel

### 6.1.1 - Keypad

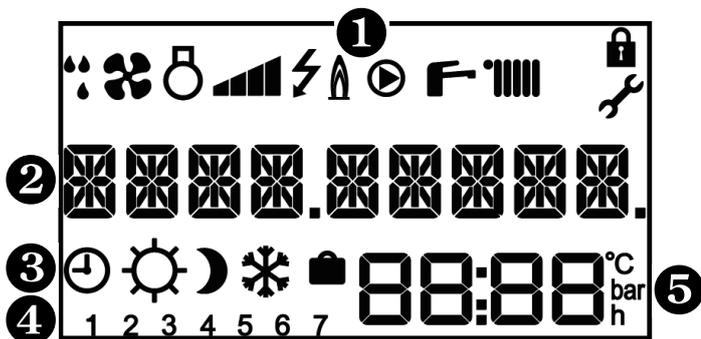


**Button Primary function**  
ex.: decrease / scroll down

**Secondary function**  
ex.: holiday mode

Primary function (short press)	Secondary function (long press)
- menu access - return / cancel	locking / unlocking of the keypad
- switch on	standby mode
- setting the temperatures	program scheduled comfort modes
- increase the setting - scroll up	activate temporary comfort mode
- confirm / remove error - display pressure or T°	information on temperatures and current operating state
- decrease the setting - scroll down	activation of holiday mode

### 6.1.2 - Display



#### 1 Symbols of current operating state

	defrosting in progress		circulating pump working
	ventilator working		domestic hot water activated
	compressor working		heating activated
	power level		keypad locked
	electrical back-up		installer menu

#### 2 9 character message

#### 3 Current comfort mode

	Programming active		Comfort mode		Eco mode
	Frost protection mode		Holiday mode		

#### 4 Day of the week: (1= Monday; 2= Tuesday...)

#### 5 Display zone: temperatures, pressure, settings, time...

## 6.2 - Menus

Menus (and sub-menus)	access buttons
<b>menu USER</b>	
<b>menu INSTALLER</b> <i>(Display here under will be shown or hidden according to product configuration)</i> <ul style="list-style-type: none"> <li>- HP CIRC : Setting the speed of HP circulating pump</li> <li>- CIRC.PUMP : Setting the speed of heating circulating pump</li> <li>- OUTS.TMAX : Outside temperature on the warmest day</li> <li>- OUTS.TMIN : Outside temperature on the coldest day</li> <li>- BACKUP : Choice of back-up</li> <li>- HEAT CURV 1 : Setting the heat curve 1</li> <li>- HEAT TMAX : Heat curve 1 setpoint on the coldest day</li> <li>- HEAT TMIN : Heat curve 1 setpoint on the warmest day</li> <li>- HEAT CURV 2 : Setting the heat curve 2</li> <li>- TMAX HEAT 2 : Heat curve 2 setpoint on the coldest day</li> <li>- TMIN HEAT 2 : Heat curve 2 setpoint on the warmest day</li> <li>- SHARING : Activation of priority sharing</li> <li>- ANTI_BACT : Activation of anti-bacteria function</li> </ul>	 + 
<b>menu EXPERT</b> <ul style="list-style-type: none"> <li>- SETTINGS : Access to all parameters</li> <li>- DISPLAY : State of operation of the pilot</li> <li>- DATA CALC : Temperatures and time delays in progress</li> <li>- COUNTERS : Operation counters</li> <li>- CONFIGURA : Choice of circuits and their controls</li> <li>- AIR BLEED : Activation of a special air purge cycle</li> <li>- MANUAL : Manual operation of component for diagnostics</li> <li>- COMMISSIO: Access to the set-up</li> <li>- MODBUS : Remote control setting up</li> <li>- SOFTWARE : Manage software version</li> </ul>	 + 

Press  to exit the menus and sub-menus.

## 6.3 - Actions to be activated using a combination of buttons

Action	combination of buttons
<b>Reset counters to zero</b> Certain counters cannot be reset to zero. Only the counters which can be reset are affected by this action.	in the «counters» menu  press for 5s
<b>Reset to default settings</b> (return to factory settings)	in the «settings» menu  press for 5s

## 6.4 - List of parameters which can be set

Parameter N°	Description	Unit	Range of setting	Factory setting
P202	Maximum exterior temperature (TEMA)	°C	11 to 25	20
P203	Minimum exterior temperature (TEMI)	°C	-30 to 10	-5
P204	Summer/winter changeover: choice of changeover method	-	AUTO: changeover is done automatically based on the exterior temperature MANU: changeover is done manually by the user	MANU
P205	Summer/winter time delay: time period for observation of the exterior temperature before automatic season changeover. Only used if automatic changeover is activated.	hour	0 to 48	12
P206	Reactivity: the temperature for heating takes into account the ambient temperature to accelerate heating time when heating is switched on or restarted.	-	YES: reactivity activated NO: reactivity deactivated	NO
P207	Anticipation of heating: heating restarted before return from holidays (for a home already at the set temperature on return)	-	YES: anticipation activated NO: anticipation deactivated	NO

Parameter N°	Description	Unit	Range of setting	Factory setting
P208	Minimum exterior temperature for operation using only the HP (TEPAC). The back-up is authorised to operate in colder temperatures.	°C	P209 to 20	2
P209	Maximum exterior temperature for operation using only the back-up (TEAPP). The heat pump is authorised to operate in warmer temperatures.	°C	-20 to P323	-20
P210	Operation during peak hours (when pilot receive an open contact on HP/HC terminal)	-	0: no operation 1: heat pump 1st power stage authorized 2: heat pump 2nd power stage authorized 3: heat pump 3rd power stage authorized 4/5/6: full authorization (heat pump + electric back-up) 7: 3kW electric back-up only 8: room comfort set on anti-freeze level 9: room comfort set on eco level 10: PV-smart grid control	6
P212	Type of back-up	-	NO: no backup ELEC: Electrical back-up	NO
P213	Heat pump time-out: allows the heat pump to continue running for a period of time after intervention of the back-up	min.	1 to 20	5
P214	Difference in temperature between the back-up and the heat pump	°K	0 to 7	4
P215	Presence of a heat pump	-	0: operation without a heat pump 1: presence of a heat pump	1
P216 to P226	Not concerned	-	Do not change the setting	0.5
P221	Choice of compressor in operation	-	0 to 2	0
P227	Speed of heat pump circulator pump	%	10 to 100	100
P228	Post-circulation of the heat pump circulator pump	-	Do not change the setting	3
P230	Speed of heating circuit circulator pump	%	10 to 100	100
P231	Set temperature of heating water	°C	AUTO: automatic set temperature from the air sensor or exterior sensor (if connected) or 20 to 70: setting fixed in °C	AUTO
P232	Maximum set temperature (TCMA) for the heating circuit	°C	P233 to P302	70
P233	Minimum set temperature (TCMI) for the heating circuit	°C	P304 to P232	40
P234	Heating circulation is controlled by the ambient temperature control	-	0: permanent 1: controlled by ambient temperature control 2: controlled by ambient temperature control with set temperature for no heating request – «anti-cold radiators» function (requires ambient temperature sensor)	1
P234	Heating circulation is controlled by the ambient temperature control	-	0: permanent 1: controlled by ambient temperature control 2: controlled by ambient temperature control with set temperature for no heating request – «anti-cold radiators» function (requires ambient temperature sensor)	1
P235	Lowering of the temperature when not requested: lowering of temperature applied to the heating temperature when the ambient temperature is not being requested.	°K	0 to 30	4
P236	Lowering in ECO: lowering of the temperature applied to heating in ECO mode.	°K	0 to P237	10
P237	Lowering in Frost protection : lowering of the temperature applied to heating in Frost protection mode.	°K	P236 to 40	20
P238	Auto-adaptability: automatic correction of the heat curve based on the ambient temperature on a 24h cycle	-	YES: correction activated NO: correction deactivated	NO

Parameter N°	Description	Unit	Range of setting	Factory setting
P239	Complementary auto-adaptability: automatic correction of the temperature on a 3h cycle of ambient temperature	-	YES: correction activated NO: correction deactivated	NO
P247	Ambient temperature hysteresis (requires an ambient temperature sensor): difference in ambient temperature to engage a heating request.	°K	0.1 to 1	0.5
P251	Circuit 2 - Setpoint temperature for heating circuit	°C	AUTO: automatic setpoint from air or outside probe if connected or 20 to 70: fixed set point in °C	AUTO
P252	Circuit 2 - Setpoint temperature at the coldest day	°C	P253 to 70	70
P253	Circuit 2 - Setpoint temperature at the warmest day	°C	20 to P252	40
P254	Circuit 2 - Action of circulating pump for heating circuit	-	0: permanent 1: controlled by room temperature / room thermostat 2: controlled by room temperature with lower setpoint when room temperature target is reached («anti-cold radiators» function)	1
P255	Circuit 2 - Lowering of heating setpoint : lowering applied to the heating temperature when room has reached the temperature target	°K	0 to 30	4
P256	Circuit 2 - Lowering in ECO: temperature lowering applied to the heating setpoint during ECO mode.	°K	0 to P257	10
P257	Circuit 2 - Lowering in Frost protection : temperature lowering applied to the heating setpoint during Frost protection mode	°K	P256 to 40	20
P258	Circuit 2 - Self-adaptability: automatic correction of the heat curve based on the room temperature on a 24h cycle	-	YES : correction enabled NO : correction disabled	NO
P259	Circuit 2 - Complementary self-adaptability: automatic correction of the temperature on a 3h cycle of room temperature	-	YES : correction enabled NO : correction disabled	NO
P267	Circuit 2 - (mixed circuit option) - Room temperature hysteresis (requires a room sensor): room temperature deviation triggering a heating demand	°K	0.1 to 1	0.5
P271	Domestic sharing: simultaneous operation of heating and domestic hot water production at the end of the tank's heating cycle. Increases the available heating time for installations with a larger volume of domestic hot water.	-	YES: sharing activated NO: sharing deactivated	NO
P272	Anti-legionellosis – activation and choice of frequency: the cycle raises the temperature in the domestic hot water tank. This cycle eliminates the bacteria through thermal shock.	-	0: protection deactivated 1: (monthly) : the cycle is carried out at the beginning of each month, on the first day P273 the month 2: (weekly): the cycle is carried out each week on day P273	0
P273	Anti-legionellosis – choice of day to carry out anti-legionellosis cycle	-	1 (Monday) to 7 (Sunday)	2
P275	Circulator pump speed during production of domestic hot water	%	10 to 100	100
P278	Lowering of the domestic hot water temperature in ECO mode.	°K	0 to 40	10
P279	Maximum heating time of the domestic hot water tank (heating time too long function)	min.	5 to 60	20
P281	Domestic water request differential: loss of heat from the domestic hot water tank compared to the set temperature to start a new heating cycle.	°K	2 to 15	5
P282 to P291	Not concerned	-	Do not change the setting	

## 6.5 - Description of functionalities

### 6.5.1 - Functions related to heating

#### 6.5.1.1 - AUTO temperature (heat curve)

The set temperature for heating decreases with the exterior temperature, which allows the installation to operate at a low temperature throughout the majority of the heating season and improves the seasonal efficiency of the installation.

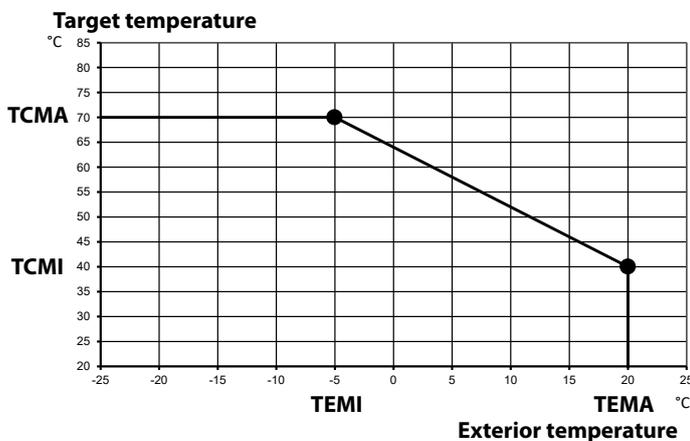
This function can be activated by setting *P231* to *AUTO*.

Setting the heat curve is done using parameters *P202*, *P203*, *P232* and *P233*.

#### RADIATOR application:

*P202* (TEMA) = 20°C      *P233* (TCMI) = 40°C

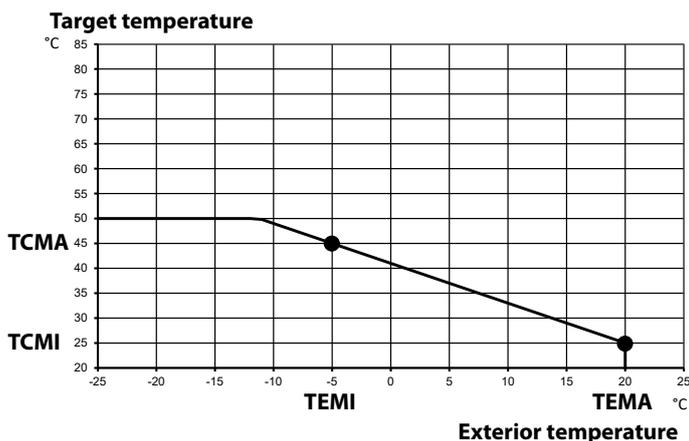
*P203* (TEMI) = -5°C      *P232* (TCMA) = 70°C



#### UNDERFLOOR HEATING application:

*P202* (TEMA) = 20°C      *P233* (TCMI) = 25°C

*P203* (TEMI) = -5°C      *P232* (TCMA) = 45°C



**It is mandatory to place a 65°C safety aquastat (LTP), with manual reset, on the underfloor heating outlet.**

#### Note:

In manual operation, it is possible for the user to set the set temperature in the range of TCMI to TCMA.

#### 6.5.1.2 - Lowering of the temperature

The set temperature of heating can be lowered at the same time as the ambient temperature when in Eco or Frost protection modes to improve the heat pump's performance.

The set temperature in comfort mode is the reference point. The set temperature applied in Eco or Frost protection mode is the temperature in comfort mode lowered by the differential:

- *P236*: lowering of the temperature in ECO mode.
- *P237*: lowering of the temperature in Frost protection mode

#### 6.5.1.3 - Auto-adaptability

The auto-adaptability function allows to continually correct the heat curve to correspond to the needs of the household.

Auto-adaptability operates on two modes, which can be independently activated:

- primary auto-adaptability (activated by *P238*) examines the heating needs over 24h cycles and adjusts the set temperature for heating when ambient temperature is requested.
- complementary auto-adaptability (activated by *P239*) examines the heating needs over 3h cycles and adjusts the set temperature when ambient temperature is not requested. Complementary auto-adaptability requires the presence of an ambient temperature sensor and the activation of the anti-cold radiators function (*P234 = 2*).

#### 6.5.1.4 - Ambient temperature reactivity

The reactivity function allows the pilot to increase its set temperature for heating when the temperature read by the ambient temperature sensor is far from the set temperature.

In particular, it allows an accelerated increase in ambient temperature when returning to comfort mode.

This function is activated using parameter *P206* and requires the presence of an ambient temperature sensor.

### 6.5.2 - Programming and timeout functions

#### 6.5.2.1 - Anticipation of return from holiday

When this function is activated, the time of return from holiday mode is no longer considered as the time for heating to resume, but instead is considered as the time that the ambient temperature should be at the set temperature. And so, the heating will resume in advance based on the planned return from holiday mode.

This anticipation can vary based on if the heating circuit has a weak inertia (*RADIATOR* setting) or strong inertia (*FLOOR* setting). It also depends on the exterior temperature read (advanced anticipation on cold days).

The pilot uses a arbitrary initial time-delay which may cause discomfort on the first use of the function (first return from holiday). The length of anticipation is automatically adjusted after the first use.

This function can be activated by setting parameter *P207* to *YES*.

### 6.5.2.2 - Automatic summer/winter changeover

With the automatic summer/winter changeover function activated, the pilot decides when to enact the changeover from one season to another, independently from the choice made by the user via the on/off button.

The pilot examines the exterior temperature for an extended period of time (standby time) and uses the maximum exterior temperature for heating («*TMAXEXTER*», corresponding to parameter *P202*) as a reference point:

- If the observed exterior temperature is continually above the maximum temperature, the pilot switches to summer mode.
- If the observed exterior temperature is continually below the maximum temperature, the pilot switches to winter mode.

This function can be activated by setting parameter *P204* to *YES*.

Parameter *P205* allows the adjustment of the length of standby time observed by the pilot before the changeover from one season to the other.

## 6.5.3 - Ambient temperature and heating circulation control functions

### 6.5.3.1 - Ambient temperature sensor hysteresis

Differential between the set ambient temperature and the measured ambient temperature to activate or deactivate a heating request.

Only applicable if an ambient temperature sensor is connected.

Controlled by parameter *P247*.

### 6.5.3.2 - Heating circulator speed

Speed is adjustable through parameter *P230*.

Also adjustable through the installer menu : «*CIRC. PUMP*».

### 6.5.3.3 - Heating circulator control

Heating circulation can be permanent or controlled by an ambient temperature control.

If being controlled, the heating circulator will only be activated when there is an ambient temperature request.

Control activated through parameter *P234*.

### 6.5.3.4 - Anti-cold radiators

This function is only possible with an ambient temperature sensor.

Circulation is always controlled by the ambient temperature control. When the set ambient temperature is reached, the pilot adopts a lower set water temperature but continues to circulate so the radiators do not become cold.

This function can be activated by setting parameter *P234* to *2*. The set temperature can be lowered through parameter *P235*.

## 6.5.4 - Functions related to the production of domestic hot water

### 6.5.4.1 - Domestic priority sharing

Allows the operation of the heating circuit at the end of the domestic hot water heating cycle when the tank's temperature has been raised sufficiently but before the cycle has been completed).

This function can be activated by setting parameter *P271*.

### 6.5.4.2 - Anti-legionellosis protection

This function activates a cycle which raises the temperature in the domestic hot water tank above the set temperature so as to eliminate any bacteria. This cycle is carried out at regular intervals.

If the function is activated, the cycle will be carried out at the chosen frequency and on the day of week chosen:

- Activation / choice of frequency at *P272*: deactivated, monthly, or weekly.
- Choice of day at *P273*: if the frequency is weekly, the cycle will be carried out each week on the selected day. If the frequency is monthly, the cycle will be carried out on the first day chosen in the month (ex. first Monday of the month).

**Note:** If holiday mode is engaged for more than 3 days, an anti-legionellosis cycle will run at the exiting of holiday mode.

#### **Note:**

The cycle starts by default at 22:00 with a set temperature of 60°C.

## 6.6 - Heat pump circulator speed

Speed is adjustable through parameter *P227*.

Also adjustable through the installer menu : *HP.CIRC*

# 7 - MAINTENANCE AND TROUBLESHOOTING



• All work on the pilot must be carried out by a qualified professional.

- Follow all safety instructions!
- Disconnect the pilot from the electrical supply before opening it.
- Except for certain operations, it is not necessary to drain the system to work on the components.
- If the system must be drained, close the overflow valves and open the drainage valve.
- Do not get water on the control components.

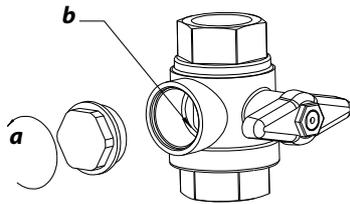
## 7.1 - Maintenance



Operation to carry out at least  
**ONCE PER YEAR**  
BY A QUALIFIED PROFESSIONAL

### Clean the filter valve:

- 1 - Turn the knob to close the filter valve.
- 2 - Unscrew the access cap (a)
- 3 - Remove the clips and then remove the filter for cleaning (b)
- 4 - Put the valve back together.
- 5 - Open the heating circuit by turning the knob on the filter valve again.



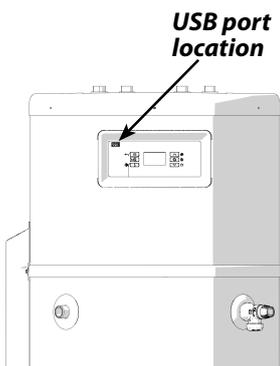
**Note :** According to the heat pump connected to the pilot, the filter valve is replaced by a filter. When cleaning the filter, the heat pump and the pilot must be switched off in order to avoid any water flow. Valves situated before and after the filter must be closed before cleaning.

## 7.2 - Diagnostics

### 7.2.1 - Loading the operating history

The operating history is saved in the memory of the electronic board. This data can be loaded onto a USB stick. The USB port is located behind the front panel, to the, to the bottom left of the screen.

- 1) Have an empty and formatted USB stick.
- 2) Insert the USB stick into the USB port (in the front panel, or behind the front panel depending on the model)
- 3) As soon as the USB stick is recognized\* the file transfer will begin. This can take several minutes (depending on the amount of operating history to transfer).



- 4) When the transfer is complete there will be a sound signal and the message: «REMOVE USB STICK» will appear.

Remove the USB stick, **but be sure not to remove it before this message is displayed.**

- 5) A file named «C14\_historique» will be generated onto the USB stick. It contains the recent operating history of the pilot and the heat pump.

\* if the USB stick is not recognized, disconnect and reconnect the electrical supply to the appliance and try again.  
If the USB stick is still not being recognized, try a different USB stick.  
Avoid advertising memory sticks.

In the user menu, the *USB* sub-menu allows you to set the frequency of monitoring of operating history (every minute, every 30 seconds....). These changes are not retroactive, they will only be visible in the *USB* history in the period following the changes being applied.

### 7.2.2 - Consulting the current operating state of the system

Enter the *EXPERT* menu ( + ) and then in the *DISPLAY* sub-menu, or enter the *DISPLAY* sub-menu directly by long pressing .

The *DISPLAY* sub-menu gives you access to the following values:

<i>AMBIENCE</i>	Measured ambient temperature (if using an ambient temperature sensor)
<i>THERMOSTA</i>	State of contact (if using a thermostat): 0 = open (no request) 1 = closed (request)
<i>T_WATER</i>	Temperature of domestic hot water
<i>OUTSIDE</i>	Exterior temperature
<i>3W VALVE</i>	Position of the 3-way valve 0 = Heating 1 = Domestic Hot Water
<i>0/1 ECO</i>	State of peak hours contact : 0 = open (peak hours) 1 = close (standard operation)
<i>HEAT CURVE</i>	Current temperature set point (determined by the heat curve)
<i>T_PILOTE</i>	Temperature at pilot outlet
<i>VERSION</i>	Pilot version number

The data specific to the heat pump is accessible in the *HP* sub-menu:

<i>T_FLOW</i>	Temperature at heat pump outlet
<i>T_RETURN</i>	Temperature at heat pump inlet
<i>T_AIR</i>	Temperature of heat pump air
<i>T_EVAPOR</i>	Temperature of evaporator
<i>T_COMP 1</i>	Temperature of compressor (compressor n°1 if using heat pumps with 2 compressors)
<i>T_COMP 2</i>	Temperature compressor n°2 (heat pumps with 2 compressors)
<i>VERSION</i>	Heat pump version number
<i>T_COND</i>	Temperature of condenser (sensor)
<i>COMP 1</i>	Compressor 1 working state

### 7.2.3 - Water sensors

Ohmic values for  $T_{PILOTE}$  (pilot outlet) and  $T_{WATER}$  (domestic water sensor placed in the tank) sensors

10 K $\Omega$  à 25°C

T (°C)	R (ohms)	T (°C)	R (ohms)
0	32 550	50	3 605
5	25 340	55	2 990
10	19 870	60	2 490
15	15 700	65	2 084
20	12 490	70	1 753
25	10 000	75	1 481
30	8 060	80	1 256
35	6 535	85	1 070
40	5 330	90	915
45	4 372		

### 7.2.4 - Exterior sensor

Ohmic values for OUTSIDE (exterior) sensor

12 K $\Omega$  à 25°C

T (°C)	R (ohms)	T (°C)	R (ohms)
-30	171 800	5	28 600
-25	129 800	10	22 800
-20	98 930	15	18 300
-15	76 020	20	14 770
-10	58 880	25	12 000
-5	45 950	30	9 804
0	36 130		

### 7.2.5 - Consulting the counters

To consult the pilot and heat pump counters, enter the **EXPERT** menu by pressing simultaneously on  + , and select the **COUNTERS** sub-menu.

Counter n°	Description	Unit
C-00*	Time of DHW request from tank	h
C-01*	Time of heating request from ambience (circuit n°1)	h
C-02*	Time of heating request from ambience (circuit n°2)	h
C-06*	Time of heat pump operation	h
C-07*	Length of boiler heating request	h
C-08*	Length of electrical back-up operation	h
C-11*	Defrosting cycles	quantity
<b>Heat pump</b>		
C-20	Heat pump operating time	h
C-21	Number of start-ups from compressor n°1	quantity
C-22**	Number of start-ups from compressor n°2	quantity
C-23	Operating time of compressor n°1	h
C-24**	Operating time of compressor n°2	h

Counter n°	Description	Unit
C-25	Defrosting cycles	quantity
C-26	Frequent defrosting errors	quantity
C-27	High pressure (switch) on compressor n°1	quantity
C-28**	Activation of high pressure switch for compressor n°2	quantity
C-29	Activation of low pressure switch for refrigerant fluid	quantity
C-30	Activation of high temperature for compressor n°1 exhaust	quantity
C-31**	Activation of high temperature for compressor n°2 exhaust	quantity
C-32	Overheating at heat pump outlet	quantity
C-35	Insufficient flow rate	quantity
C-36	BUS error	quantity
<b>PILOT</b>		
C-40	Time of DHW request from tank	h
C-41	Time of heating request from ambience (circuit n°1)	h
C-42	Time of heating request from ambience (circuit n°2)	h
C-45	Length of heating request for back-up	h
C-46	Stage 1 Operating Time of the electrical back-up	h
C-48	Operating time for electric back-up	h
C-49	Overheating at pilot outlet error	quantity
C-50	Lack of water pressure error	quantity
C-51	Lack of water pressure defect	quantity
C-52	Error loss of BUS connection	quantity

\* counters which can be reset to zero by long pressing (5s) on  +  in the **COUNTERS** menu.

\*\* Not applicable to single compressor units (HTI<sup>706</sup>, HTI<sup>708</sup>, HTI<sup>7011</sup>, HTI<sup>7014</sup> et HRC<sup>705</sup>, HRC<sup>707</sup>)

### 7.2.6 - Manual operation of components

Enter the **EXPERT** menu ( + ) and then the **MANUAL** sub-menu.

#### 7.2.6.1 - Circulator pump

Activate the forced operation of the circulator pump to check that circulation is working properly. To activate forced operation press



#### 7.2.6.2 - 3-way valve

Select the 3-way valve and activate either the heating (CH) of domestic hot water (ECS) by pressing



Observe the placement of the valve in each position.

**HEAT** : the valve switches to heating (lower position)

**SANI** : the valve switches to hot water (high position)

#### 7.2.6.3 - Electrical back-up

Activate (always in the **MANUAL** menu of the pilot) the forced operation of the electrical back-up by pressing



## 7.2.7 - Errors indicated by the pilot

Press  to stop the sound signal (the error persists)

Display	Error	Possible causes	Consequences	Reset
<i>AIR HP</i>	T <sub>air</sub> error	The heat pump temperature sensor (T <sub>air</sub> ) is defective or not connected properly - Check Cable and Probe Connector Status - Check the ohmic value of the probe - Replace probe if fault is found	heat pump stopped	automatic after repair
<i>CIRC PUMP</i>	Power cable or PWM circulator cable error	The cables for the circulator (heat pump/water) are defective or not connected properly - Check PWM cable connection to circulator - Check power cable connection	complete stop	manual
<i>HEAT. CIR 1</i>	Power cable or PWM circulator cable error	The cables for the heating circulator pump are defective or not connected properly. - Check PWM cable connection to circulator - Check power cable connection - For the installations equipped with an underfloor heating, verify a potential electricity cut by the OPT.	complete stop	manual
<i>AMBI ENCE</i>	Amb error	The ambient temperature sensor is defective (error when measuring the ambient temperature)	heating circuit stopped	automatic after repair
<i>BLOC. CIRC</i>	Circulator pump blocked	The circulator (heating/water) is blocked or is working with a load loss which is too high - Check that na valves are closed on the circuit - Check the status of the filter - Reset and verify that the circulator rotates with a screwdriver and the central circulator screw	complete stop	manual
<i>BUS</i>	BUS	BUS communication error - Check BUS connection between heat pump and hydraulic pilot - Verify that the BUS cable is routed away from power cables or other disturbance sources (neons, appliances, ...)	complete stop	automatic after repair
<i>AMB BUS</i>	Amb BUS error	The ambient temperature sensor («Amb» terminals on the pilot) is defective or not connected properly	heating circuit stopped	automatic after repair
<i>COND. SENSO DIAG</i>	Condenser fluid pressure sensor error	The refrigerant circuit pressure sensor is defective or not connected properly	operation in downgraded mode	automatic after repair
<i>EVAP. SENSO</i>	Evaporator fluid pressure sensor error	The refrigerant circuit pressure sensor is defective or not connected properly	heat pump stopped	automatic after repair
<i>PRES. SENSO</i>	Pressure sensor error	The heating water pressure sensor is defective or not connected properly	complete stop	automatic after repair
<i>INVR. COMM.</i>	Inverter communication error	HP circuit board is disconnected or defective - Check condition of internal wiring to heat pump	heat pump stopped	manual
<i>CP CTRL</i>	Loss of control of inverter	Error detected by the HP circuit board.	heat pump stopped	manual
<i>CP ELEC</i>	Inverter having electrical problems	Error detected by the HP circuit board.	heat pump stopped	manual
<i>CP MECA</i>	Inverter having mechanical problems	Error detected by the HP circuit board.	heat pump stopped	manual
<i>CP THERM</i>	Inverter having thermal problems	Error detected by the HP circuit board.	heat pump stopped	manual
<i>CP1 OVRHT. ERR</i>	Multiple overheatings on compressor 1	- The set temperature for heating during warmer months is too high - Problem with refrigerant fluid load	heat pump stopped	manual
<i>CP2 OVRHT. ERR</i>	Multiple overheatings on compressor 2	- The set temperature for heating during warmer months is too high - Problem with refrigerant fluid load	heat pump stopped	manual

Press  for 2 seconds to remove the errors manually (indicated by «press »).

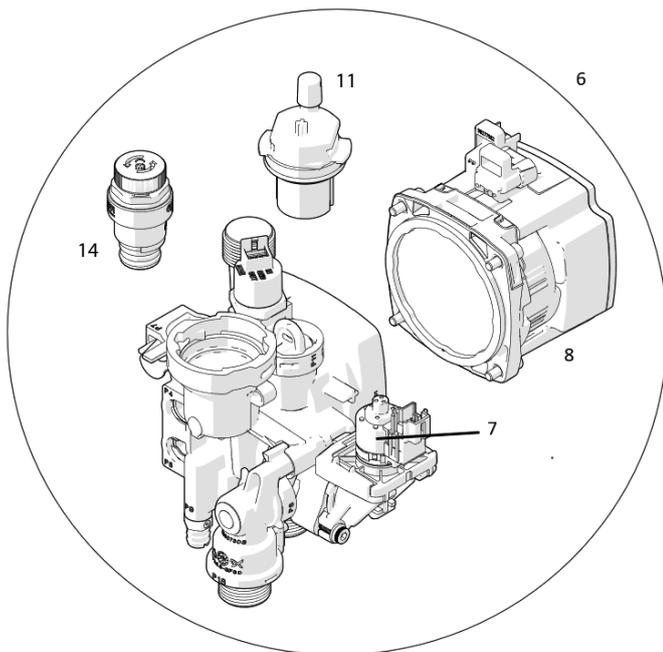
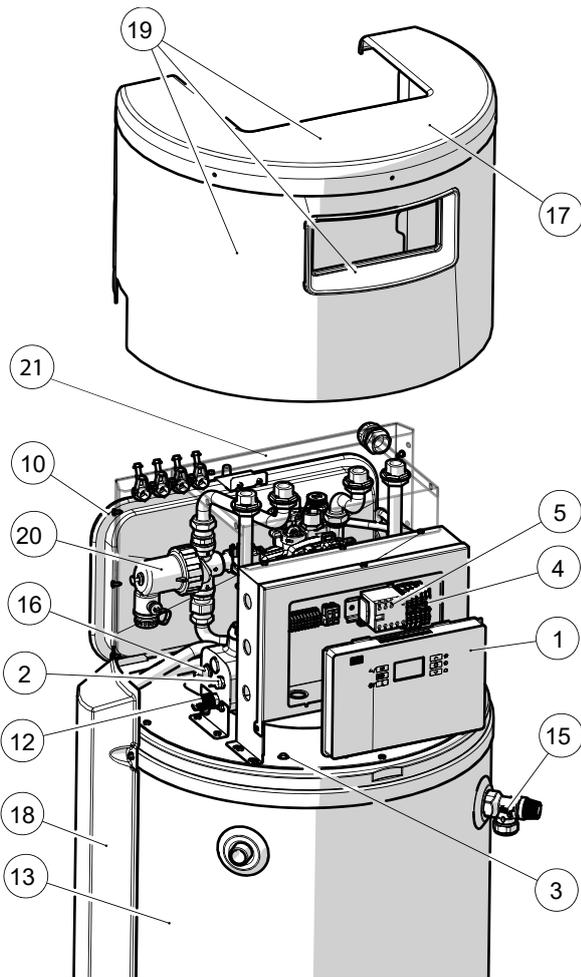
Display	Error	Possible causes	Consequences	Reset
<i>FLOW or FLOW 1</i>	No flow HP circuit	- The filter valve needs maintenance - A valve on the distribution circuit is closed - The circuit is blocked	heat pump stopped	manual
<i>LOW FLOW DIAG</i>	Insufficient flow rate	- The filter valve needs maintenance - The circuit is blocked	informative message	manual
<i>REV. FLOW</i>	Flow rate is reversed	- The hydraulic connection between the heat pump and the pilot is reversed - The heat pump's inlet and outlet sensors are reversed - One of the TePAC or TePAC probes does not return the correct ohmic value	heat pump stopped	manual
<i>FREQ. DEFRO.</i>	Defrosting too often error	- The heat pump's evaporator or the grills of the crankcase heater are obstructed and are preventing proper air flow - The free space around the heat pump to ensure sufficient air flow has not been respected - Problem with refrigerant fluid load	heat pump stopped	manual
<i>LONG DEFRO. DIAG</i>	Defrosting cycle is too long error	- Evaporator sensor improperly positioned - Defrosting valve blocked	informative message	manual
<i>LONG DEFRO.</i>	Defrosting cycle is too long error	- Evaporator sensor improperly positioned - Defrosting valve blocked	heat pump stopped	manual
<i>"MAIN TENAN EXCH ANGER"</i>	Maintenance is needed on the hot water exchanger	- Hot water exchanger is clogged - The tank's water sensor is misplaced	informative message	manual
<i>CLOC K</i>	Clock	- Reschedule date and time - If the fault persists, replace electronics board pilot	permanent operation in ECO mode	replace circuit board
<i>INV T1/T2</i>	Compressor sensors reversed error	The sensors for compressor 1 and compressor 2 have been reversed (affects the heat pumps and both compressors)	heat pump stopped	manual
<i>SOFT WARE</i>	Software update necessary	The software versions of the heat pump and pilot are incompatible	complete stop	automatic after repair
<i>HP M EMORY</i>	HP memory card	- Reprogramming the heat pump - If the fault persists, change the PAC main board	heat pump stopped	automatic after repair
<i>MEMO RY</i>	Pilot memory card	- Reschedule the pilot - If the fault persists, change the main driver board	complete stop	automatic after repair
<i>MODB US</i>	External control protected by Modbus	- Programming error of the central GTB/GTC - Too many interventions in the same day - Check the programming of the plant or PLC which controls the installation	operation of circuits in Frost protection mode	manual or automatic after 24h
<i>HP N UMBER DIAG</i>	Number of HPs connected error	- The HP has been unplugged or switched off - The number of heat pumps declared at P215 is not accurate - Three-phase PAC connected with 2 inverted phases	informative message	automatic after repair

The messages signalled by «*DIAG*» are informative and do not interrupt the operating of the **Pilot**. This information comes from the analysis of the operating history of the **Pilot** and is designed to assist you in the maintenance of your installation.

Display	Error	Possible causes	Consequences	Reset
<i>HP O UTPUT.</i>	Overheating at HP outlet	The temperature at the heat pump outlet is abnormally high - Check the status filter valve : Clean the filter - Check PAC circulator flow is sufficient - Check operation of circulators 1 and 2 (option)	heat pump stopped	automatic
<i>HP O UTPUT ERR</i>	Multiple overheatings at HP outlet	- Drop in flow rate when traveling through the heat pump - Repeated heating requests for low heating needs (installation design)	heat pump stopped	manual
<i>CP1 POWER</i>	Compressor 1 power supply error	There is a problem with the power supply to the compressor (cable,...)	heat pump stopped	manual
<i>CP2 POWER</i>	Compressor 2 power supply error	There is a problem with the power supply to the compressor (cable,...)	heat pump stopped	manual
<i>EVAP. SENSO.</i>	Defrosting sensor error	Error when measuring the evaporation temperature - Check operation of air probe and low sensor pressure - check 4-way valve tilting - check that the compressor starter is not faulty (for the models concerned) - Check that the evaporator probe is not covered with ice (for the models concerned)	heat pump stopped	manual
<i>EXT. SENSO. DIAG</i>	Exterior sensor placement error	- The exterior sensor is badly positioned and is being influenced by heat or cold sources - The exterior sensor or the air sensor is defective	informative message	manual
<i>PRES SURE</i>	Lack of water pressure	Water pressure is less than 0.3 bars - The water pressure in the heating circuit must be higher to 0.5bar cold - Check heating circuit tightness and repair leaks of possible water - Purge air in high areas and on the pilot - Check that the PAC safety valve is watertight - Check that the pilot safety valve is watertight - Check that the expansion tank is large enough for the facility volume	complete stop	automatic after pressure is returned
<i>CP1 RAMP</i>	Temperature ramp is insufficient for Compressor 1	- Compressor blocked or error in power supply (cable, voltage) - Defrosting valve blocked - Compressor 1 probe failed	HP stopped and restart (with anti-short cycle)	automatic
<i>CP2 RAMP</i>	Temperature ramp is insufficient for Compressor 2	- Compressor blocked or error in poiwer supply (cable, voltage) - Defrosting valve blocked - Compressor 2 probe failed	HP stopped and restart (with anti-short cycle)	automatic
<i>REPR OG / PILOT / HP</i>	Reprogramming error	An error is detected on the reprogramming circuit on one the bus's circuit boards - Try a new bus's circuit boards programming - If the problem persists, reprogramming must be done in the factory	informative message	automatic after repair
<i>CUTO. LPRE</i>	Low pressure error	- The set temperature for heating during colder months is too low - Check that nothing obstructs the battery or interferes with the fan operation	heat pump stopped	automatic
<i>CUTO. LPRE ERR</i>	Low pressure error	- The set temperature for heating during colder months is too low - Check the good fan operation - Check the surface condition of the finned battery and remove anything that might impede the passage of air through the rear grille (sheets or other...) - In case of total ice setting, stop the heat pump and let it melt, sprinkle with hot water if necessary - Refrigeration fluid load problem (fluid leakage?) - Blockage or failure of defrost valve or pressure regulator Intervention on the refrigerant circuit by authorised personnel	heat pump stopped	manual

Display	Error	Possible causes	Consequences	Reset
<i>CUTO. HPRE1</i>	High pressure switch HP1	<ul style="list-style-type: none"> <li>- Check the filter valve status</li> <li>- Check that the heating system is well drained</li> <li>- Check the PAC circulator for proper operation</li> <li>- Check that the heating water setting in hot weather is not too high</li> <li>- Clean plate heat exchanger inlet</li> <li>- Problem with refrigerant fluid load</li> <li>- Failure of the check valve or 4-way valve</li> </ul> Intervention on the refrigerant circuit by authorised personnel	heat pump stopped	manual
<i>CUTO. HPRE2</i>	High pressure switch HP2	<ul style="list-style-type: none"> <li>- Check the filter valve status</li> <li>- Check that the heating system is well drained</li> <li>- Check the PAC circulator for proper operation</li> <li>- Check that the heating water setting in hot weather is not too high</li> <li>- Clean plate heat exchanger inlet</li> <li>- Problem with refrigerant fluid load</li> <li>- Failure of the check valve or 4-way valve</li> </ul> Intervention on the refrigerant circuit by authorised personnel	heat pump stopped	manual
<i>T CY LIND</i>	Tank sensor out of place	The water sensor is out of place in the tank, or it is placed too low in the tank (placed below the heat exchanger or near the cold water inlet)	DHW circuit stopped	manual
<i>CP1 SENSO.</i>	T1 defect	Defect of incorrect connection of the temperature sensor for the compressor – or compressor n°1 depending on the model (connector TCP1 on the HP)	heat pump stopped	automatic after repair
<i>CP2 SENSO.</i>	T2 defect	Defect of incorrect connection of the temperature sensor for compressor n°2 (TCP2)	heat pump stopped	automatic after repair
<i>T-WA TER</i>	Tballon defect	Defect of incorrect connection of the temperature sensor for the DHW tank (terminal «Bal»)	DHW circuit stopped	automatic after repair
<i>T-FLOW</i>	TsPAC defect	Defect of incorrect connection of the temperature sensor at the heat pump outlet (TwOUT)	heat pump stopped	automatic after repair
<i>T-PI LOTE</i>	TsEAU defect	Defect of incorrect connection of the temperature sensor of the pilot	back-up stopped	automatic after repair
<i>T-PI LOTE DIAG</i>	Overheating at pilot outlet	<ul style="list-style-type: none"> <li>- Check operation of circulators 1 and 2 (option)</li> <li>- Check the operating status of the power relays of the electric power packs</li> <li>- check the status of the backup boiler control</li> <li>- check that the flow rate of the auxiliary boiler is sufficient.</li> </ul>	back-up stopped	automatic
<i>T-PI LOTE ERR</i>	Multiple overheatings at pilot outlet	Perform the same checks as for the T-PILOT DIAG alert above.	back-up stopped	manual
<i>T-RE TURN</i>	TePAC defect	Defect of incorrect connection of the temperature sensor at the heat pump inlet (TwIN)	heat pump stopped	automatic after repair

## 8 - SPARE PARTS



**Nota : Availability of spare parts :**

The spare parts of our products are available for 10 years, from the date of stop of production in series, except event independent of our will.

Rep	Reference	Description
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### Electronic / Display

1	B4994610	Control panel
2	B1243534	Pilot sensor
Invisible	B1244401	Outside sensor
3	B1244477	DHW sensor

### Electricity

4	B1244777	Mains terminal
Invisible	B1244907	Complete wiring
5	B1243561	20A relay
6	B1244739	Hydraulic bloc
7	B1944638	3 way valve body
8	B1244393	Circulator
Invisible	B1244620	3kW heating element + gasket

### Hydraulic

10	B1472534	8L expansion vessel
11	B1939259	Air bleed body
12	B1239089	Drain tap
13	B4994611	Insulated cylinder
20	B1473083	Magnetic Filter

### Protection / Security

14	B1239094	3 bar pressure relief valve
15	B1239214	7 bar pressure relief valve
16	B1239012	110°C thermal safety cutout

### Covering

17	B4994612	Upper cover
Invisible	B1657813	Top part insulation
18	B1759488	Side cover
19	B4994613	Upper cover + side walls kit
21	B4485563	Back panel

# 9 - WARRANTY

## 9.1 - Warranty coverage

- The tank is guaranteed for a period **five (5) years** against breakage, starting from the date of first use if the warranty form was returned to the manufacturer, In the absence of this form, the date of manufacture will be used as a reference point for the start of warranty.
- The spare parts (see attached list) are guaranteed for a period of **two (2) years** starting from the date of first use if the warranty form was returned to the manufacturer, In the absence of this form, the date of manufacture will be used as a reference point for the start of warranty.

The appliance is guaranteed against all manufacturing defects, provided that it was installed according to the instructions provided in this manual and in compliance with all current rules and regulations in the country of installation. All electrical connections should comply with the C15-100 standard.

Under no circumstances does a defective part warrant the replacement of the whole appliance.

The warranty only applies to parts which we (AUER) identify as having been defective at manufacture. If necessary, the part or product should be returned to the manufacturer, but only with prior agreement from our technical department. Labour, transport, and packaging costs are the responsibility of the user. Repairs on a device will not result in compensation.

The warranty on replacement parts ends at the same time as the warranty of the appliance.

The warranty only applies to the appliance and its components and excludes any part or installation external to the appliance: electrical parts, hydraulic components, etc...

The warranty will not apply in the absence of, insufficient, or improper, maintenance of the appliance.

It is essential to carry out regular annual maintenance on the appliances and on the installation to ensure sustained use and durability. This maintenance should be carried out by your installer, or by an AUER-approved technical center. In the absence of regular maintenance the warranty is rendered null and void.

If an appliance is presumed to be the cause of any damage, it must not be moved or tampered with before an expert assessment has been carried out.

## 9.2 - Limitations of warranty

### 9.2.1 - General information

The warranty does not apply to defects or damage caused by situations or events such as:

- Misuse, abuse, negligence, improper transport or handling.
- Incorrect installation, or installation which has been carried out without following the instructions in the manual and user guide.
- Insufficient maintenance.
- Modifications or changes carried out on the appliance.
- Impacts from foreign objects, fire, earthquakes, floods, lightning, ice, hailstones, hurricanes or any other natural disaster.
- Movement, imbalance, collapse or settling of the ground or the structure where the appliance is installed.
- Any other damage which is not due to defects in the product.

**The Pilot** is not guaranteed against:

- Variations in the colour of the appliance or damage caused by air pollution, exposure to chemical elements, or changes brought about by adverse weather conditions
- Dirt, rust, grease or stains which occur on the surface of the appliance.

### 9.2.2 - Cases (not limited to) for exclusion from warranty

#### 9.2.2.1 - Usages

Cases (not limited) for exclusion from warranty:

- Filling with anything other than domestic cold water from the drinking water network; such as rain-water, well-water, ...etc, or using domestic cold water which is particularly aggressive and not in compliance with the national regulations in effect in the country of use (DTU 60-1 addendum 4 concerning hot water).
- Switching on the appliance without first having filled it with water.

#### 9.2.2.2 - Handling

Cases (not limited) for exclusion from warranty:

- Any damage sustained by impacts or falls during handling after delivery from the factory.
- Deterioration in the condition of the appliance after handling where the instructions in the manual have not been followed.

#### 9.2.2.3 - Installation site

Cases (not limited) for exclusion from warranty:

- Placement of the **Pilot** in a location where it could be subject to ice frost or other adverse weather conditions.
- Not positioning the appliance in accordance with the instructions in the installer manual.
- Installation of the appliance against a wall which cannot support the weight of the appliance when filled with water.

Costs incurred due to access difficulties are not the manufacturer's responsibility.

#### 9.2.2.4 - Electrical connections

Cases (not limited) for exclusion from warranty:

- Faulty electrical connection which does not conform to the national standards in effect.
- Not following the electrical connection diagrams provided in the installer manual.
- Electrical supply being significantly over- or under- the required voltage.
- Not respecting the supply cable sections.
- Absence of, or insufficient electrical protection throughout the appliance (fuses / circuit breaker, grounding...).
- Damages caused after the neutralisation of the safety aquastat, or due to not having installed an appropriate safety aquastat for underfloor heating.

#### 9.2.2.5 - Hydraulic connections

Cases (not limited) for exclusion from warranty:

- Reversing the inlet/outlet connections.
- Water pressure over 7 bars.
- Absence of, improper mounting of, or obstruction of pressure-relief valves.
- Not installing pressure relief valves directly on the outlet for domestic cold water of the appliance.
- Installing pressure relief valves which do not comply with the national regulations in effect (NF EN 1487 for France).
- Using pressure relief valves which are previously used.
- Not respecting the plumbing of the pressure relief valves.
- Abnormal corrosion due to improper hydraulic connections (direct contact between iron/copper) without a sleeve (cast iron, steel, or insulated).
- External corrosion due to piping being improperly sealed.

In no case can compensation be claimed due to damages caused by the absence of thermostatic mitigators.

#### 9.2.2.6 - Accessories

The warranty does not cover faults or defects resulting from:

- Installation of accessories which do not comply with our recommendations.
- The use of accessories which do not come from the manufacturer of the appliance.

#### 9.2.2.7 - Maintenance

Cases (not limited) for exclusion from warranty:

- Not maintaining the appliance.
- Not maintaining the pressure relief valves leading to high pressures.
- Abnormal levels of limescale on the heating elements and of the safety devices.
- Not using parts issued by the manufacturer.
- Outer casing and bodywork being subjected to any external damage.

# APPENDIX

## A1 - Technical specifications

### A1.1 - General characteristics

	DS170 pilot
Power supply cable cross-section	3 G 2.5mm <sup>2</sup>
Circuit breaker	16A
Electrical supply	230V single phase
Buffer volume	-
Dimensions (W x H x D)	571x1756x542
Weight when empty	68 kg
Hydraulic connection	20/27 male (3/4")
Back-up	electric only
Electrical back-up output	0 to 3 kW
3-way valve for domestic water	included
Expansion vessel	8 L
Maximum hydraulic pressure	2.5 bar
Filter valve (delivered with link kit)	included

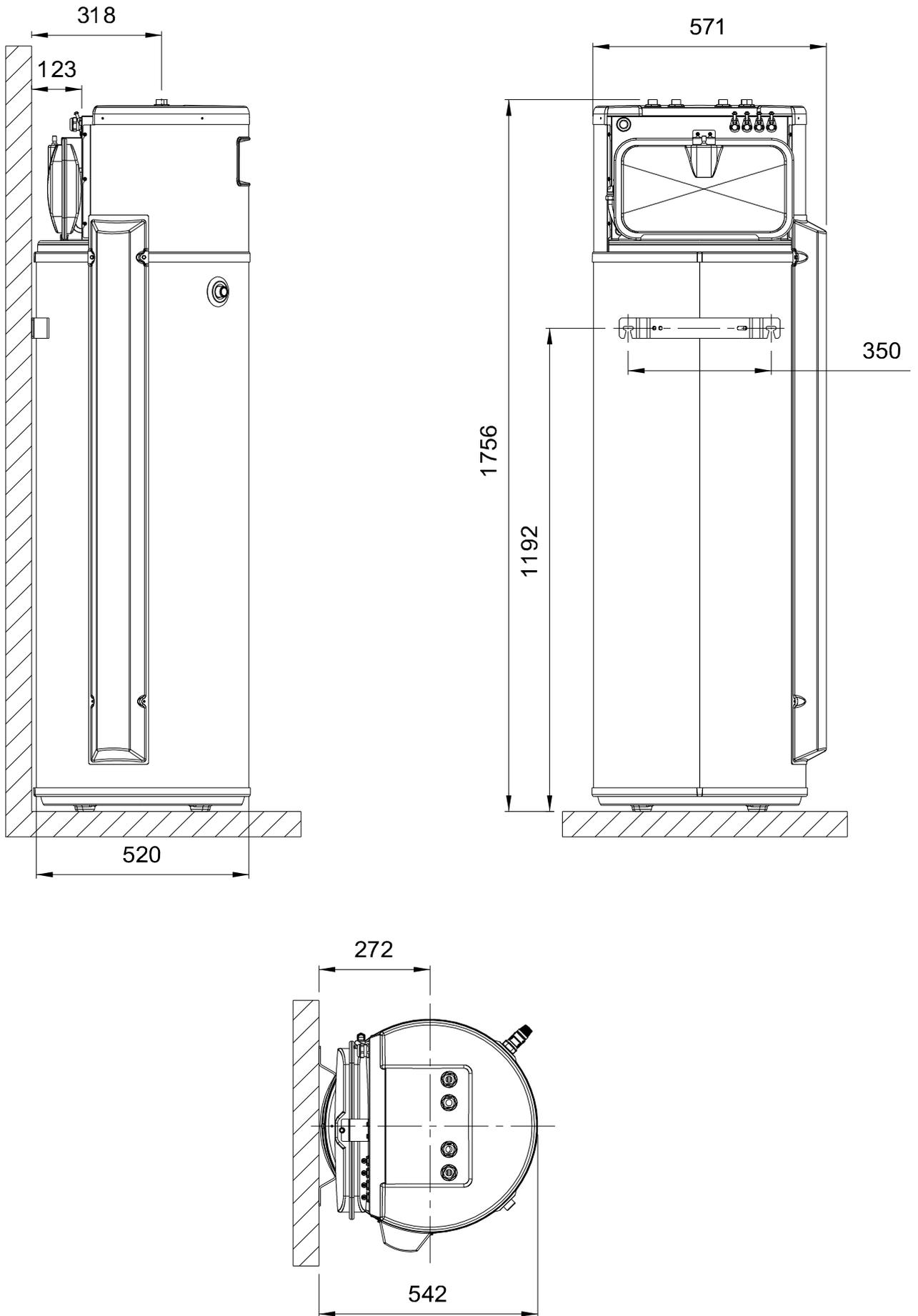
### A1.2 - EU declaration

This device complies with international electrical safety standards IEC 60335-1, IEC 60335-2-40.

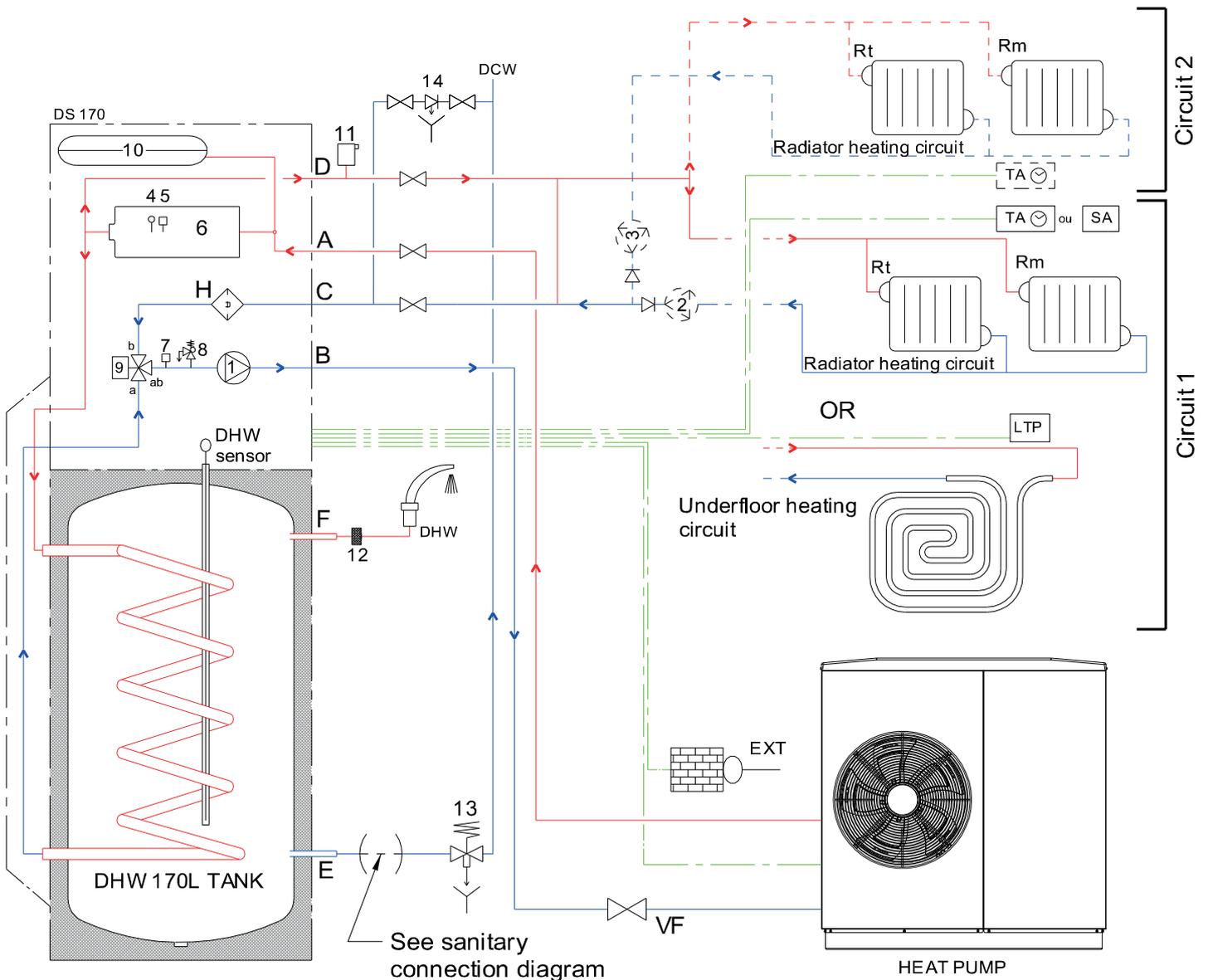
The CE marking present on the device attests to its conformity with the following Community Directives, of which it meets the essential requirements:

- Low Voltage Directive (LV): 2014/35/EU.
- Electromagnetic Compatibility Directive: (EMC): 2014/30/EU.
- Ecoconception Directive for Energy-related products: 2009/125/EC.
- Limiting Hazardous Substances (ROHS): 2011/65/EU.

A1.3 - Dimensions



## A2 - Hydraulic schematic diagrams



**A :** Inlet from heat pump  
**B :** Outlet towards heat pump  
**C :** Inlet from heating circuit  
**D :** Outlet towards heating circuit  
**E :** Domestic Cold Water (DCW)  
**F :** Domestic Hot Water (DHW)  
**LTP:** Floor outlet temperature limiter  
**Rt :** Thermostatic mixing valves  
**Rm :** Manual valve  
**Ext:** Exterior sensor  
**TA :** Room temperature thermostat  
**SA :** Room temperature sensor  
**VF :** Filter valve

**1 :** HP circulator  
**2 :** Circuit 1 circulator  
**3 :** Circuit 2 circulator  
**4 :** Water temperature sensor  
**5 :** 110°C security aquastat  
**6 :** 3 kW electrical back-up  
**7 :** Pressure gauge  
**8 :** 3 bar pressure relief valve  
**9 :** 3-way valve  
**10 :** 8 litres expansion vessel  
**11 :** Air purger (not supplied)  
**12 :** Dielectric connection (not supplied)  
**13 :** DCW safety group (not supplied)  
**14 :** Backflow prevention device (not supplied)

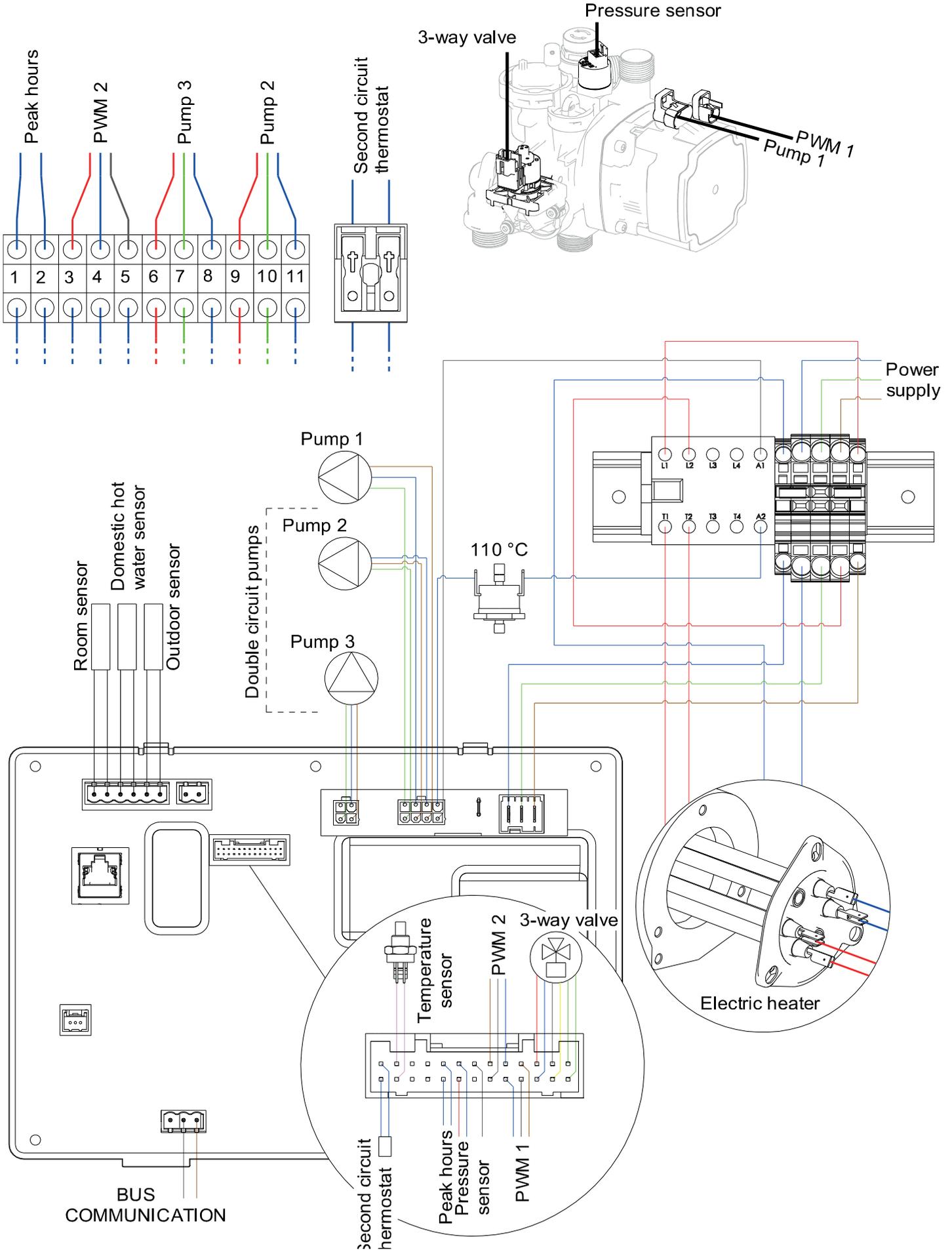
## A2.1 - Hydraulic connection between the pilot and the heat pump

	Minimum Ø of piping to respect		
	HTi <sup>70</sup> 6 et 8kW	HTi <sup>70</sup> 11kW	HTi <sup>70</sup> 14kW
<b>If distance between HP and pilot &lt; 10m</b> <i>(the equivalent of 20m linear of loss of load)</i>	22/24	24/26	28/30
<b>If distance between HP and pilot &gt; 10m and &lt; 15m</b> <i>(the equivalent of 30m linear of loss of load)</i>	24/26	28/30	32/34
<b>If distance between HP and pilot &gt; 15m and &lt; 25m</b> <i>(the equivalent of 50m linear of loss of load)</i>	28/30	32/34	36/38
<b>If distance between HP and pilot &gt; 25m and &lt; 50m</b> <i>(the equivalent of 100m linear of loss of load)</i>	32/34	36/38	42/44

## A2.2 - Minimum flow rate according to the heat pump model

Heat pump model	HTi <sup>70</sup>			
	6 kW	8 kW	11 kW	14 kW
<b>Nominal output</b>				
<b>Minimum nominal flow rate</b>	1050 L/h	1350 L/h	1550 L/h	2000 L/h
<b>Maximum Pressure</b>	2,5 bar	2,5 bar	2,5 bar	2,5 bar

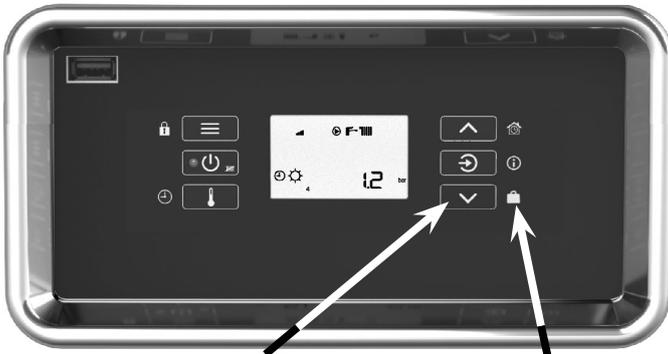
# A3 - Wiring diagrams



## A4 - Recap of functions

### A4.1 - Control panel

#### A4.1.1 - Keypad

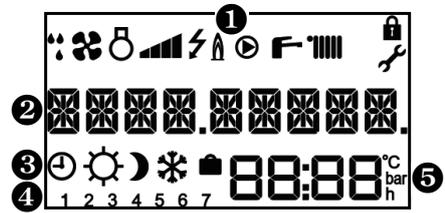


**Button Primary function**  
ex.: decrease / scroll down

**Secondary function**  
ex.: holiday mode

Primary function (short press)	Secondary function (long press)
- menu access - return / cancel	locking / unlocking of the keypad
- switch on	standby mode
- setting the temperatures	program scheduled comfort modes
- increase the setting - scroll up	activate temporary comfort mode
- confirm / remove error - display pressure or T°	information on temperatures and current operating state
- decrease the setting - scroll down	activation of holiday mode

#### A4.1.2 - Display



##### 1 Icônes de fonctionnement et d'état

	defrosting in progress		circulator pump working
	ventilator working		domestic hot water activated
	compressor working		heating activated
	power level		keypad locked
			installer menu

##### 2 9 character message

##### 3 Current comfort mode

	Programming active		Comfort mode		Eco mode
	Frost protection mode		Holiday mode		

##### 4 Day of the week: (1= Monday; 2= Tuesday...)

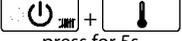
##### 5 Display zone: temperatures, pressure, settings, time...

## A4.2 - Menus

Menus (and sub-menus)	access buttons
<b>menu USER</b>	
<b>menu INSTALLER</b> <i>(Display here under will be shown or hidden according to product configuration)</i> <ul style="list-style-type: none"> <li>- HP CIRC : Setting the speed of HP circulating pump</li> <li>- CIRC.PUMP : Setting the speed of heating circulating pump</li> <li>- OUTS.TMAX : Outside temperature on the warmest day</li> <li>- OUTS.TMIN : Outside temperature on the coldest day</li> <li>- BACKUP : Choice of back-up</li> <li>- HEAT CURV 1 : Setting the heat curve 1</li> <li>- HEAT TMAX. : Heat curve 1 setpoint on the coldest day</li> <li>- HEAT TMIN : Heat curve 1 setpoint on the warmest day</li> <li>- HEAT CURV 2 : Setting the heat curve 2</li> <li>- TMAX HEAT 2 : Heat curve 2 setpoint on the coldest day</li> <li>- TMIN HEAT 2 : Heat curve 2 setpoint on the warmest day</li> <li>- SHARING : Activation of priority sharing</li> <li>- ANTI_BACT : Activation of anti-bacteria function</li> </ul>	 + 
<b>menu EXPERT</b> <ul style="list-style-type: none"> <li>- SETTINGS : Access to all parameters</li> <li>- DISPLAY : State of operation of the pilot</li> <li>- DATA CALC : Temperatures and time delays in progress</li> <li>- COUNTERS : Operation counters</li> <li>- CONFIGURA. : Choice of circuits and their controls</li> <li>- AIR BLEED : Activation of a special air purge cycle</li> <li>- MANUAL : Manual operation of component for diagnostics</li> <li>- COMMISSIO: Access to the set-up</li> <li>- MODBUS : Remote control setting up</li> <li>- SOFTWARE : Manage software version</li> </ul>	 + 

Press  to exit the menus and sub-menus.

## A4.3- Actions to be activated using a combination of buttons

Action	combination of buttons
<b>Reset counters to zero</b> Certain counters cannot be reset to zero. Only the counters which can be reset are affected by this action.	in the «counters» menu  press for 5s
<b>Reset to default settings</b> (return to factory settings)	in the «settings» menu  press for 5s

**NOTES :**



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