

Edel AIR

Domestic hot water heat pump
using exterior or non-heated ambient air



Installation manual



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

Edel 200 AIR D/2
Ref. 353420

Edel 270 AIR D/2
Ref. 353430

Edel 270 AIR DE/2
Ref. 353431

Edel 200 AIR C/2
Ref. 353703

Edel 270 AIR C/2
Ref. 353704



*
BVCert. 6020118

**Made in
France**



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Edition n° 24.50

* Concerns Edel 353420, 353430, 353431, 353703, 353704 models.

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Preserving these documents

• This manual and all other relevant documents should be given to the system user.

The system user should keep these manuals for future reference.

1 - SAFETY



• **Any intervention on the thermodynamic water heater should only be performed by qualified personnel.**

• **Follow the safety instructions!**

• **Any intervention on the refrigeration circuit must be made by a qualified person who holds a Category 1 certificate of fitness.**

Refrigerant R290, contained in the heat pump circuit, does not pose an environmental hazard but is flammable.

→ **Refrigerant R290 is odorless.**

→ **Do not damage the refrigeration circuit tubes.**

→ **Do not handle flame or other flammable sources inside the device.**

→ **In the event of a leakage of the refrigerant, unplug the plug, ventilate the room and contact the customer service.**

→ **Do not pierce or burn the appliance: the recovery of the fluid is mandatory in case of intervention on the refrigeration circuit.**

Danger of death by electrocution

Touching live electrical wires can cause severe injury.

- Before undertaking any work on the appliance, ensure to switch off the power supply to the appliance.
- Ensure that there is no possibility of the power supply becoming active again.

Danger of injury or death due to the absence of, or defective, safety devices.

Absence of safety devices can be dangerous and may result in burns or other injuries. Injuries could be caused by pipes bursting for example.

The information provided in this document does not represent all of the diagrams required for a professional installation of the safety devices.

- Install all required safety devices in the circuit.
- Inform the user of where the safety devices are placed, and how they work.
- Follow all relevant national and international health and safety rules and regulations.

Danger resulting from improper use

Any work carried out by an unqualified person can result in damage to the installation or in physical injury.

- Do not perform any maintenance work on this appliance unless you are a qualified professional.

Intended use and applicable areas of use

This appliance is intended for use as an appliance for domestic hot water production.

The intended use of the appliance includes the following points:

- following the instructions for operating, installing, and maintaining this appliance and all other parts and components of the system.
- ensuring the compliance with all conditions of inspection and maintenance which are listed in this manual.

Humidity and water splashes

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

Rules and regulations (directives, laws, and standards)

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.

- This appliance should not be used by: children under 8 years old; anyone with reduced physical, sensory or mental capabilities; or by anyone who has 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.
- Children should be supervised to ensure that they do not play with the appliance.
- Cleaning and maintenance of the appliance should not be undertaken by children without proper supervision.
- Children aged 3 to 8 years are only allowed to turn on the tap connected to the domestic hot water heat pump.

A method of disconnection ensuring a complete cut-off according to Category III conditions must be installed in the fixed piping to conform to installation regulations.

Protect the appliance with:

- an 10 A (D-curve) or 16 A (C-curve) all-pole circuit breaker with a contact opening of at least 3 mm.
- a protective circuit breaker with a 30 mA differential.

WARNING

Do not use any methods to accelerate the defrosting or cleaning process other than those recommended by the manufacturer.

The appliance must be stored in a room which does not contain a perpetual flame or other source of ignition (for example: open flame, gas powered appliances or electric radiators in use).

Do not pierce or burn.

Warning: refrigerant fluids may be odourless.

The product is not intended to be operated at an altitude greater than 2000 m.

Water may drain from the discharge pipe of the pressure limiting device. This pipe should be kept open to open air.

- Verify that the ventilation openings are not obstructed.
- A **new** pressure-relief valve (not included) **must** be installed and set to 6 bar on the domestic cold water supply of the appliance. The use of a membrane valve is recommended.
- The pressure-relief drainage outlet should be installed in a frost-free place and in a downward sloping position.

Maintenance - Troubleshooting

- Drainage : Turn off the power supply and the cold water, open the hot water valves and then set the safety group to the drainage position.
- The pressure-relief valve should be activated regularly so as to eliminate limescale and check for blockages.
- If the electrical supply cable is damaged, it must be replaced by the manufacturer, their customer service technicians, or by a qualified professional to avoid risk of injury.
- See the § «Dimensions» and the § «Installation» of this manual to find the necessary dimensions for proper installation of this appliance.
- See the § «Hydraulic connections» of this manual to find the minimum and maximum water pressures and temperatures.
- Repair and maintenance of electrical components must include initial safety checks and component inspection procedures.
- If there is a defect that could compromise safety, then no power supply should be connected to the product until it is satisfactorily processed. If the defect cannot be corrected immediately but must be allowed to work then an adequate interim solution must be used. This must be reported to the equipment owner so that all parties are informed.
- Initial security controls must include:
 - Discharge of capacitors: Discharge safely to avoid sparking.
 - Verification that no electrical components are energized and that no wiring is exposed during system charging, recovery or purging.
 - That there is continuity of connection to the ground.

Repair of intrinsically safe components

Intrinsically safe components are the only components that can be used in the presence of a flammable atmosphere. The equipment used must be properly sized.

2 - RECOMMENDATIONS



The appliance can only function when filled with water. Never turn on the appliance if the tank has not been properly filled with water and completely purged of air.

2.1 - Storage



STORAGE PRECAUTIONS:

- Admissible storage and transport temperatures of the domestic hot water heat pump are from -5°C to +35°C (up to 45°C storage temperature).

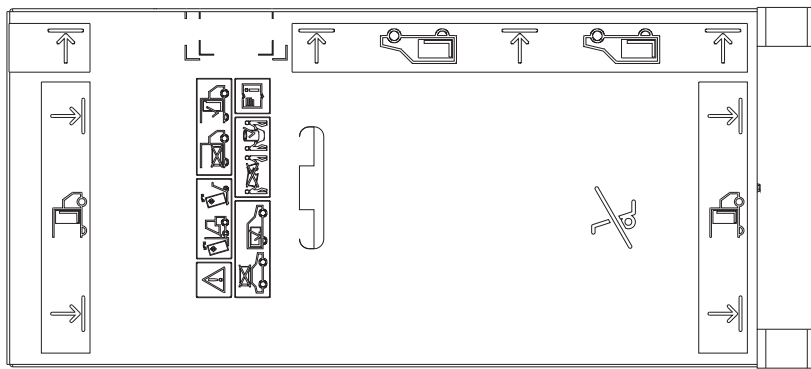
2.2 - Transport



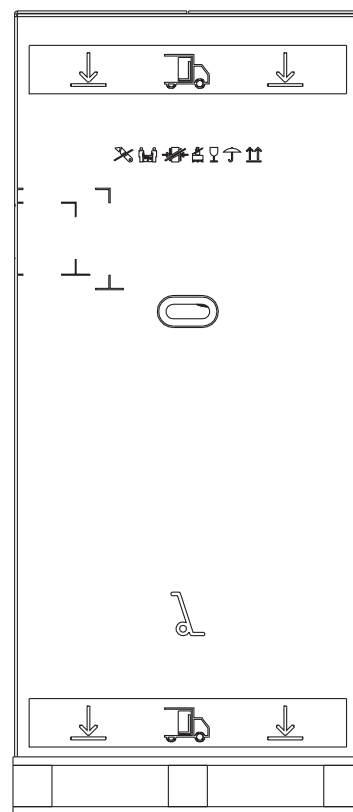
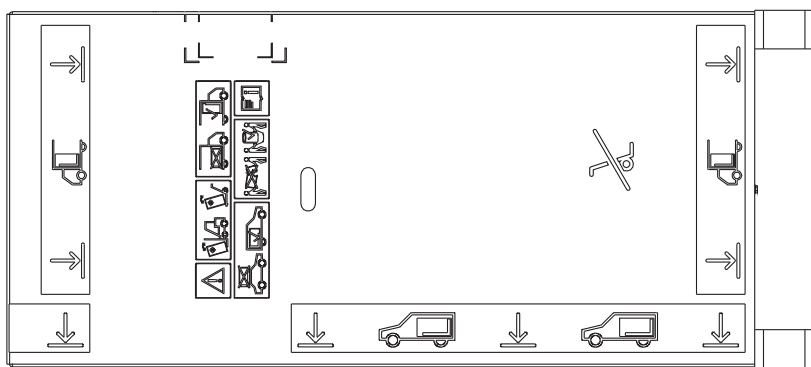
The product can be tilted on a 90° face. This is indicated on the cardboard packaging.

In case of horizontal transport, the product must be tilted gradually. It is forbidden to tilt the product on the other sides.

Forbidden



Accepted



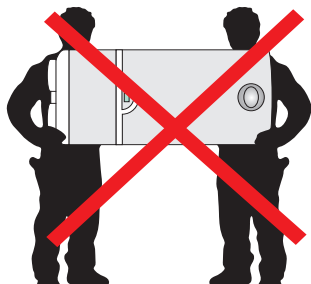
We do not guarantee the damage caused by a transport or handling of the product that is not in accordance with our recommendations.

2.3 - Handling

The appliance is supplied with a transport bag, to facilitate handling to the installation site.

Admissible transportation positions :

All other transport positions are forbidden.



Non-admissible transportation positions :



The upper covers of the appliance are not made to withstand force and should not be used for handling purposes.



All other transport positions are FORBIDDEN.



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



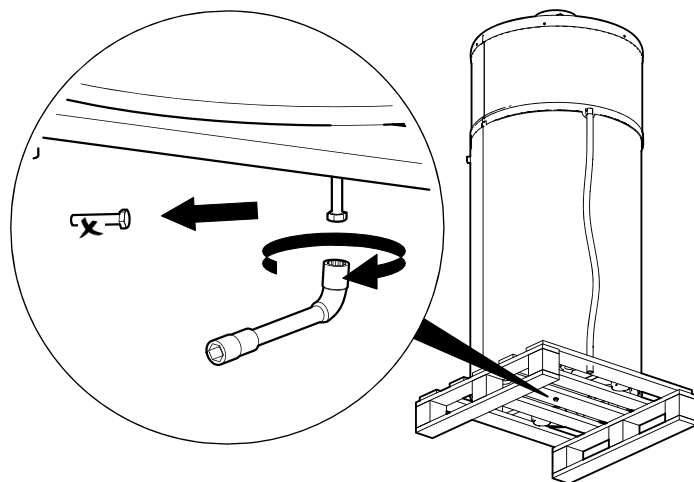
Once the domestic hot water heat pump is installed in its definitive position, it is imperative to wait 60 minutes before it is turned on.

2.4 - Contents of packaging

- 1 domestic hot water heat pump.
- 1 documentation packet containing 1 installation and user manual, and 1 warranty form, two dielectric fittings and 3 adjustable feet.
- 1 transport bag.

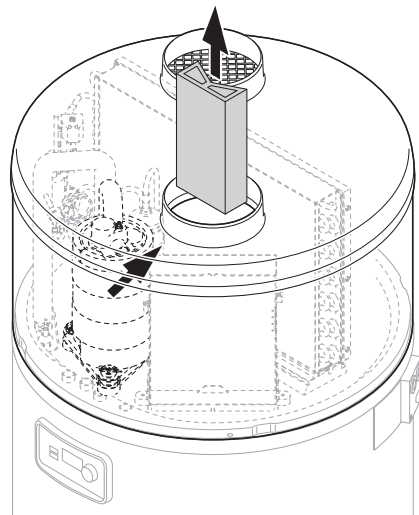
2.5 - Unpacking

- Remove cardboard packaging.
- Remove the centring cardboard.
- Remove the bag of accessories and the transport bag.
- Without tilting the appliance, use the appropriate tool to remove the screw from underneath the wooden pallet.
- Use the transport bag to move the appliance to its final location.



Keep the transport bag out of the reach of children (risk of suffocation).

- Remove the inner and outer compressor .



2.6 - Symbols used



Caution : contains a flammable refrigerant fluid.
Please make sure to respect the installation and handling precautions.



Consult the installation manual before all work on the product: handling, installation, use and maintenance.



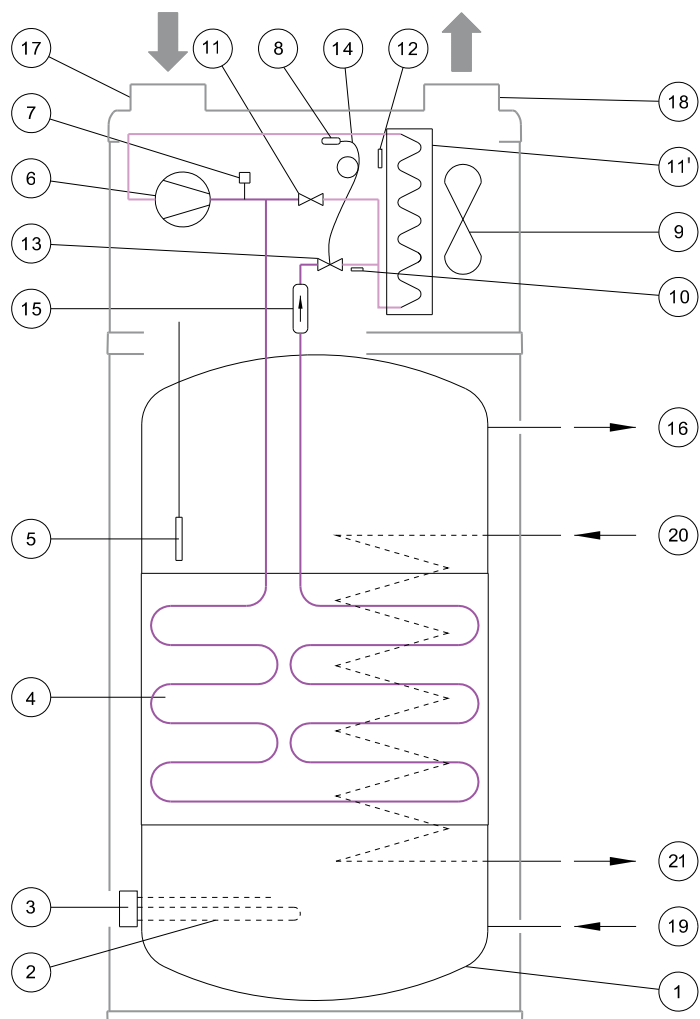
Contains controlled substances, do not dispose of in the garbage. In case of disposal, please respect the regulations for the recovery of electrical and electronic equipment.

3 - OPERATING PRINCIPLE

The domestic hot water heat pump is a small-capacity heat pump dedicated to the production of domestic hot water.

The appliance uses the air for the capture of calories and then the bonuses to the water of the tank.

That is made possible by the use of refrigerant fluid allowing the transfer from one medium to another. This appliance has the particularity of operating on the R290 gas, guaranteeing good thermodynamic performance and negligible environmental impact.

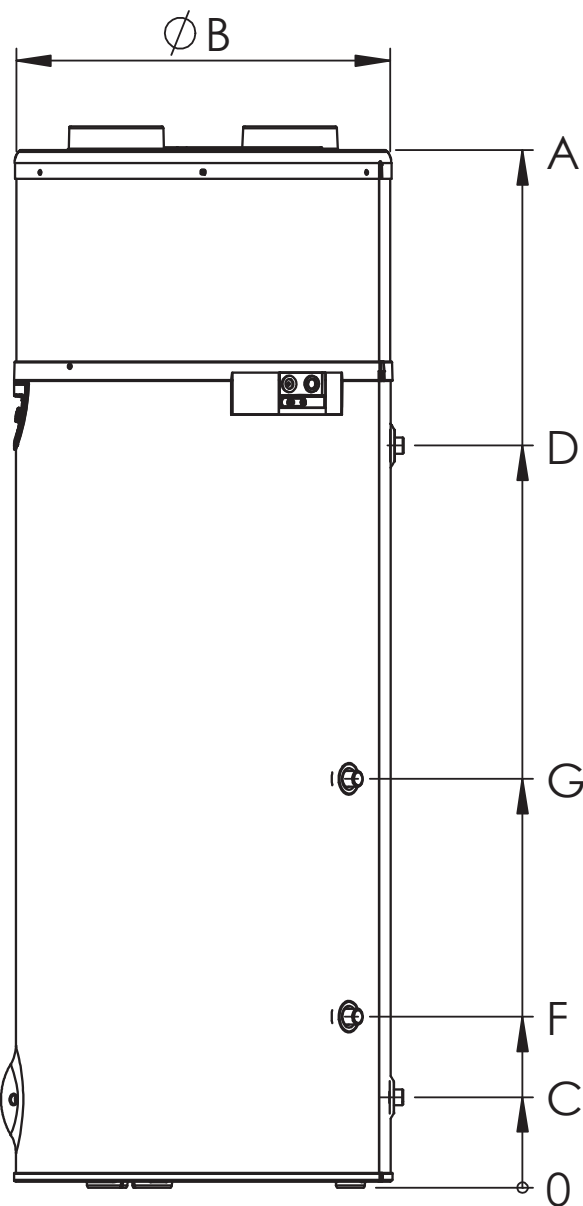


Mark	Description	Mark	Description
1	Tank	11'	Evaporator
2	Electrical resistance	12	Air sensor
3	Safety aquastat	13	Expansion valve
4	Capacitor	14	Capillary expansion valve
5	Domestic hot water sensor	15	Drying filter
6	Compressor	16	Domestic hot water outlet
7	Pressure switch	17	Air inlet
8	Expansion valve bulb	18	Air outlet
9	Fan	19	Domestic cold water inlet
10	Evaporator sensor	20	Exchanger inlet*
11	Defrosting valve	21	Exchanger outlet*

* Only for models with exchanger

4 - PRESENTATION

4.1 - Dimensions



Mark	Description	200L D/2	270L D/2	270L DE/2	200L C/2	270L C/2
A	Overall height (mm)	1460	1780	1780	1460	1780
B	Tank diameter (mm)	630	630	630	630	630
C	Height cold water inlet (mm)	153	153	153	153	153
D	Height hot water outlet (mm)	921	1243	1243	921	1243
	Connection position (mm)	Back	Back	Back	Back	Back
F	Height exchanger outlet (mm)			288		
G	Height exchanger inlet (mm)			688		

4.2 - Technical specifications and performances

		Edel 200 AIR D/2	Edel 270 AIR D/2	Edel 270 AIR DE/2	Edel 200 AIR C/2	Edel 270 AIR C/2
Heat pump performance						
Nominal volume	L	200	270	265	200	270
Max. input power (HP*+back-up)	W	1900	1900	1900	1900	1900
Air temperature range	°C	-7 à +45	-7 à +45	-7 à +45	-7 à +45	-7 à +45
DHW* temperature with HP*	°C	30 à 60	30 à 60	30 à 60	30 à 60	30 à 60
Max. heat pump power consumption	W	700	700	700	700	700
Air flow rate	m³/h	320 à 400	320 à 400	320 à 400	320 à 450	320 à 450
Indoor sound power level**	dB(A)	49,8	49,8	49,8	49,8	49,8
Outdoor sound power level**	dB(A)	37,9	37,9	37,9	37,9	37,9
Refrigerant	-/kg	R290 / 0,15	R290 / 0,15	R290 / 0,15	R290 / 0,15	R290 / 0,15
Global warming potential	kg	0,450 kg CO ₂ equivalent	0,450 kg CO ₂ equivalent	0,450 kg CO ₂ equivalent	0,450 kg CO ₂ equivalent	0,450 kg CO ₂ equivalent
Type of air connection	-	Exterior or ambient air	Exterior or ambient air	Exterior or ambient air	Exterior or ambient air	Exterior or ambient air
Normative Data (EN 16147)						
Draw cycle	-	L	L	L	M	L
COP* (outdoor air +7°C)	-	3,19	3,14	3,0	3,17	3,3
Reserve capacity	W	23	25	27	23	25
Hot water reference temperature	°C	54,20	53,8	53,7	53,3	54,5
Heating time	-	7 h 04	10 h 15	9 h 26	6 h 59	10 h 15
Energy class	-	A+	A+	A+	A+	A+
Seasonal energy efficiency	%	132	130	125	136	137
V40	L	247,4	349,3	334,5	259	364,3
V40 td	L	614	650,4	693	305	693,5
COP* (ambient air +15°C)	-	3,37	3,47	3,23	2,91	3,58
Dimensions and connections						
Dimensions	mm	Ø 630 x H 1460	Ø 630 x H 1780	Ø 630 x H 1780	Ø 630 x H 1460	Ø 630 x H 1780
Weight when empty	kg	55	63	68	55	63
Air connection diameter (intake / exhaust)	mm	160	160	160	160	160
Max. length for air ducts	m	flexible tube : 6m rigid pipe : 12m (intake + exhaust)	flexible tube : 6m rigid pipe : 12m (intake + exhaust)	flexible tube : 6 m rigid pipe : 12 m (intake + exhaust)	flexible tube : 10m rigid pipe : 20m (intake + exhaust)	flexible tube : 10m rigid pipe : 20m (intake + exhaust)
Connection diameter for DCW* and DHW*	inch	M3/4"	M3/4"	M 3/4"	M3/4"	M3/4"
Electrical power supply	V - Hz	230 V - 50 Hz	230 V - 50 Hz	230 V - 50 Hz	230 V - 50 Hz	230 V - 50 Hz
Protection rating	-	IPX4	IPX4	IPX4	IPX4	IPX4
Circuit breaker	A	10 (D-curve) or 16 (C-curve)	10 (D-curve) or 16 (C-curve)	10 (D-curve) or 16 (C-curve)	10 (D-curve) or 16 (C-curve)	10 (D-curve) or 16 (C-curve)
Tank						
Materials / protection	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Maximum service pressure	MPa	0,6 (6 bar)	0,6 (6 bar)	0,6 (6 bar)	0,6 (6 bar)	0,6 (6 bar)
Max. condensates flow rate	L/h	0,3	0,3	0,3	0,3	0,3
Built-in electrical back-up power (87°C safety setting)	W	1200	1200	1200	1200	1200
Max.temp with electrical back-up	°C	65	65	65	65	65
Hydraulic heat exchanger	m² - kW			0,8 - 20		
Diameter of heat exchanger connection	inches			M 3/4"		

* DHW = Domestic Hot Water
DCW = Domestic Cold Water
COP = Performance efficiency

HP = Heat pump

** Sound power level tested in semi-anechoic chamber.

4.3 - EU declaration

This device complies with international electrical safety standards IEC 60335-1, IEC 60335-2-21, 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.

5 - INSTALLATION

5.1 - Placement and positioning

5.1.1- Placement choice

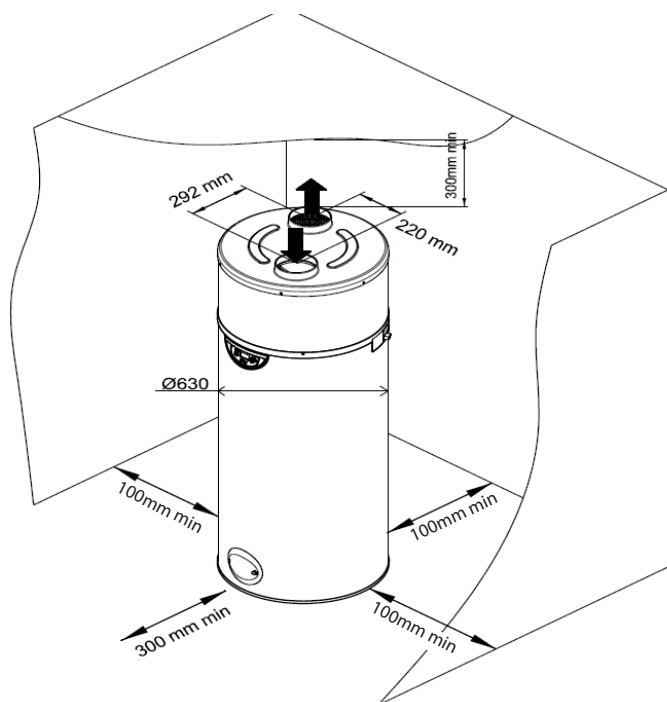


INSTALLATION PRECAUTIONS :

- **The appliance must not be installed near a perpetual flame or other source of ignition.**
- **The appliance must be installed in such a way so as to avoid mechanical damage to the appliance.**
- **It is PROHIBITED to install the appliance:**
 - Outside.
 - In rooms exposed to frost, where the temperature is less than 5°C, including when the appliance is operating.
 - In rooms where there is any risk of explosion due to gas, pollution or dust.
 - Avoid placing the appliance close to bedrooms to minimise noise pollution.
 - Do not install the air intake nozzle near a vapour exhaust (minimum distance of 0,6 m).
- **It is PROHIBITED :**
 - To let the appliance operate using air intake which contains solvents or explosive materials.
 - To use air intake which contains grease, dust or aerosol particles.
 - To connect vented exhaust hoods to the ventilation system.
 - To use air intake containing combustion materials from a boiler.

5.1.2- Positioning and anchoring

- To ensure the proper functioning of the domestic hot water heat pump and to facilitate maintenance work, a space must be left free around the appliance, as well as a minimum ceiling height so that the hood can be removed.

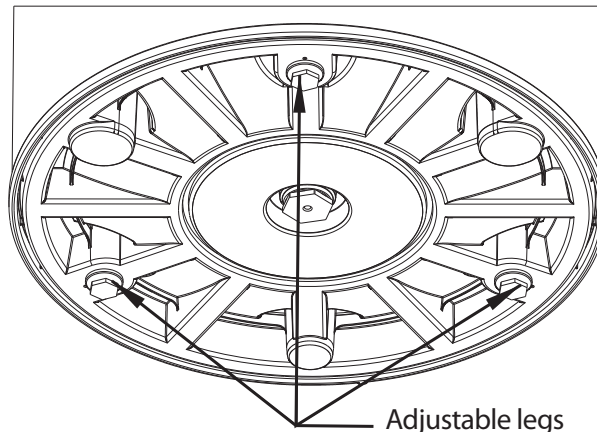


- The floor must be able to support the weight of the domestic hot water heat pump (weight of the domestic hot water heat pump filled with water 200 l / 270 l = 260 kg / 335 kg).

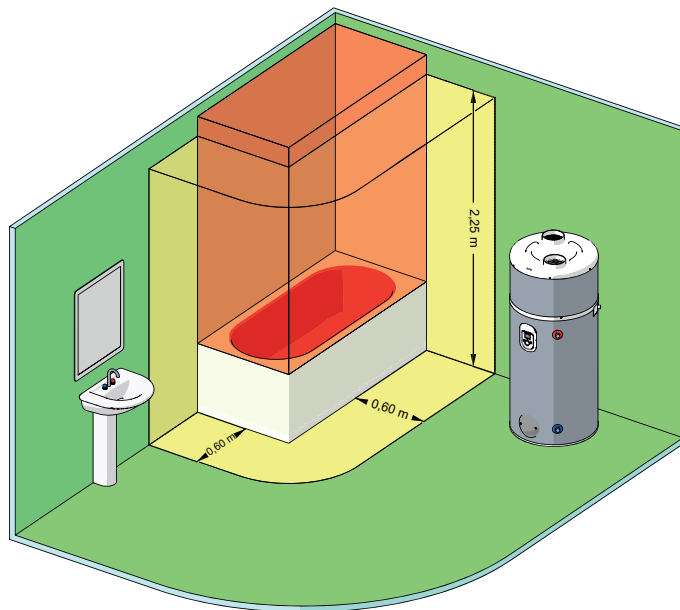


The vertical position of the domestic hot water heat pump must be strictly respected. If not, there is a risk of condensates leaking and resulting in a water leak at the base of the appliance.

For this purpose, use the three adjustable legs provided in the pocket of the manual (see below).



In a bathroom, it is forbidden to install the appliance at less than 60 cm from the bathtub/shower water area.)



5.2 - Air connection

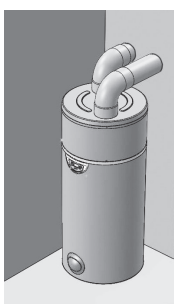
5.2.1 - Without piping

If installed without piping, the appliance must be installed in non-heated premises (of at least 20 m³ and away from neighbouring heated rooms).

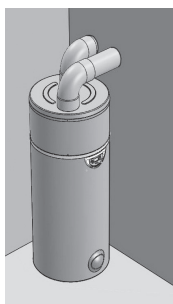
- If the space available under the ceiling is less than 60cm in height above the water heater, it is recommended to install an elbow at the air outlet and direct it towards the back or the sides.
- The domestic hot water heat pump enables heat to be recovered from the floor of non-heated, partially underground premises such as a workshop or garage.
- The domestic hot water heat pump allows the dehumidifying and cooling of rooms such as utility rooms or cellars.

5.2.2 - With piping

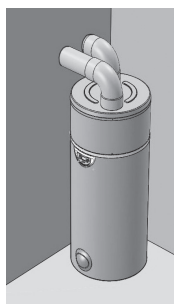
The heat pump can operate over a large air temperature range (from -7°C to +45°C). The appliance extracts calories from exterior air. Partial piping (using only 1 pipe) onto exterior air should be avoided as in the winter it can cause the room to become significantly colder.



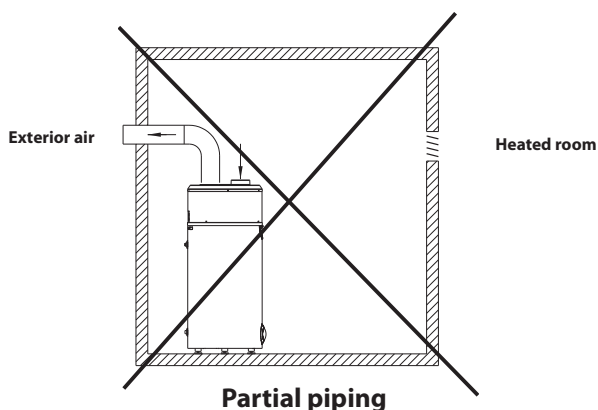
piping at the back



piping on the right



piping on the left



Partial piping

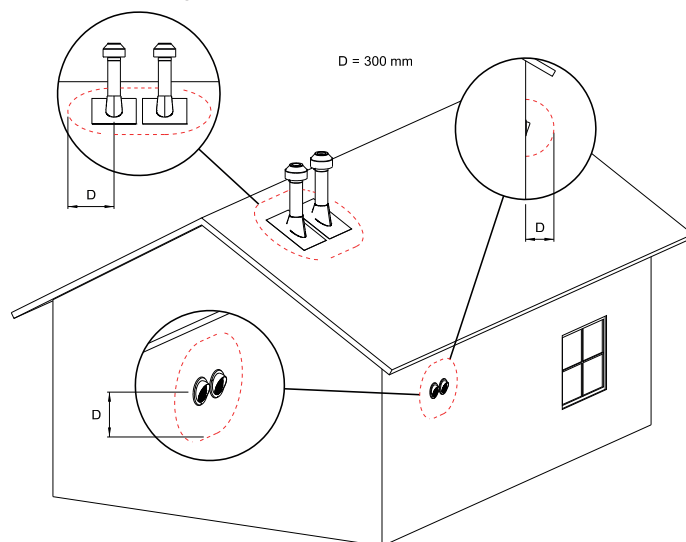


Total maximum length Ø160 :

Edel D: • 6 m of flexible hose
• 12 m of semi rigid piping
Edel C: • 10 m of flexible hose
• 20 m of semi rigid piping
1 elbow = 1 m

The **domestic hot water heat pump** must be connected using **insulated** air ducts with an interior diameter of 160 mm. 90° Ø160 mm PVC elbows allow you to rotate the position of the pipes connected to the appliance through 360°.

It is recommended to maintain a distance of 300mm around the terminals (see diagram below).



It is forbidden to connect the domestic hot water heat pump on the same conduit as the VMC.

It is forbidden to connect several domestic hot water heat pumps on a common conduit.

Salty air is particularly corrosive and often loaded with salt particles, which can accelerate the degradation of materials, which is why we advise against installing our appliances in areas close to the coast.

5.2.3- Piping accessories

Piping accessories are available to order and are designed for a simple and efficient domestic hot water heat pump connection.

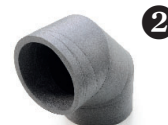
The pipes **1** (Ref. 730011) and the foam elbows **2** (Ref. 730012), are semi-rigid, light and thermally insulated.

They are assembled using an assembly connector. **4** (Ref. 730014).

If over 1 m long, the pipes must be anchored to the wall using a collar. **3** (Ref. 730013).

The stainless steel horizontal terminal **5** (Ref. 730015), is equipped with a protective grill and requires 190 mm drilling.

Rep.	Description
1	Semi-rigid pipe Ø 160 mm - lg 2 m
2	Insulated 90° elbow Ø 160 mm
3	Collars for attaching to wall (set of 2)
4	Connectors for insulated pipes (set of 2)
5	Horizontal terminal for insulated pipe Ø 160/190 Outdoor



5.3 - Hydraulic connections

- A new pressure-relief valve (not included) must be installed and set to 6 bar on the domestic cold water supply of the appliance. We would recommend a membrane valve.

The membrane valve system must conform to national and domestic standards and regulations in effect.

- The pressure-relief valve should be installed as close as possible to the appliance's cold water inlet and the water flow should **never be hampered by any accessory** (valve, pressure-reducer, etc...)
- The pressure-relief valve drainage outlet must be installed in a frost-free place, in a downward-sloping position.
- The pressure-relief valve drainage outlet should be sized according to building regulations and must never be obstructed. It should be connected to a vertical draining pipe, using a funnel which allows an open space of at least 20mm and which is at least equal in diameter to the appliance's piping connection.
- If the pressure of the domestic cold water supply is higher than 5 bar, a pressure-reducer should be installed above the pressure-relief valve near the starting point of the installation (a pressure of 4-5 bar is recommended).
- It is advised to fit a shut-off valve above the pressure-relief valve.
- For installations equipped with:
 - piping of a small diameter
 - ceramic plate valves

A domestic water expansion vessel, or anti-hammer valves which are adapted to the installation should be installed as close as possible to the shut-off valve.

• The following materials should be used for the domestic hot water circuit:

- copper
- stainless steel
- brass
- plastic

If the materials used in the domestic hot water circuit are incompatible, corrosion damage may occur.

Consequently, the appliance should always be connected to copper domestic hot water pipes **with a cast-iron or steel link, or with dielectric fittings** (supplied) to avoid an iron/copper galvanic bridge.

- Thoroughly flush the supply line piping before connecting the appliance to the domestic installation so as not to introduce any particles, metallic or other, into the appliance.
- Respect the standards in effect in the country of use, notably hydraulic regulations and pressure safety regulations.
- The maximum temperature of domestic hot water at taps should never exceed 50°C for washing and 60°C for other uses. Install suitable thermostatic mixing valves to avoid any risk of scalding.
- The appliance must operate with water between 12°F and 30°F. With particularly hard water (TH>25°F) it is advised to use a water softener.
- If any of these points have been neglected the warranty will be null and void (values given are for water at a temperature of 20°C). (See DTU-60-1 for more information).

Resistivity	<2200 Ω.cm or >4500 Ω.cm	
Complete alkalimetric title	< 1,6 meq/L	8°F
CO ₂	> 15mg/L	-
Calcium (Ca ⁺⁺)	< 1,6 meq/L	8°F
Sulfates (SO ₄ ⁻)	> 2 meq/L	10°F
Chlorides (Cl ⁻)	> 2 meq/L	10°F
Sulfates and Chlorides(SO ₄ ⁻ +Cl ⁻)	> 3 meq/L	15°F

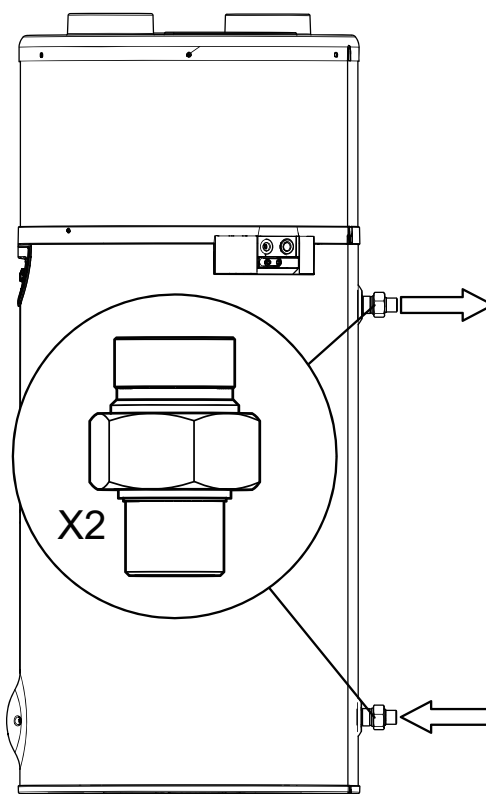


We strongly advise against looping the water through the plumbing system. This appliance is not designed for this type of connection. Any recirculation loop will result in a significant drop in the water temperature in the cylinder.



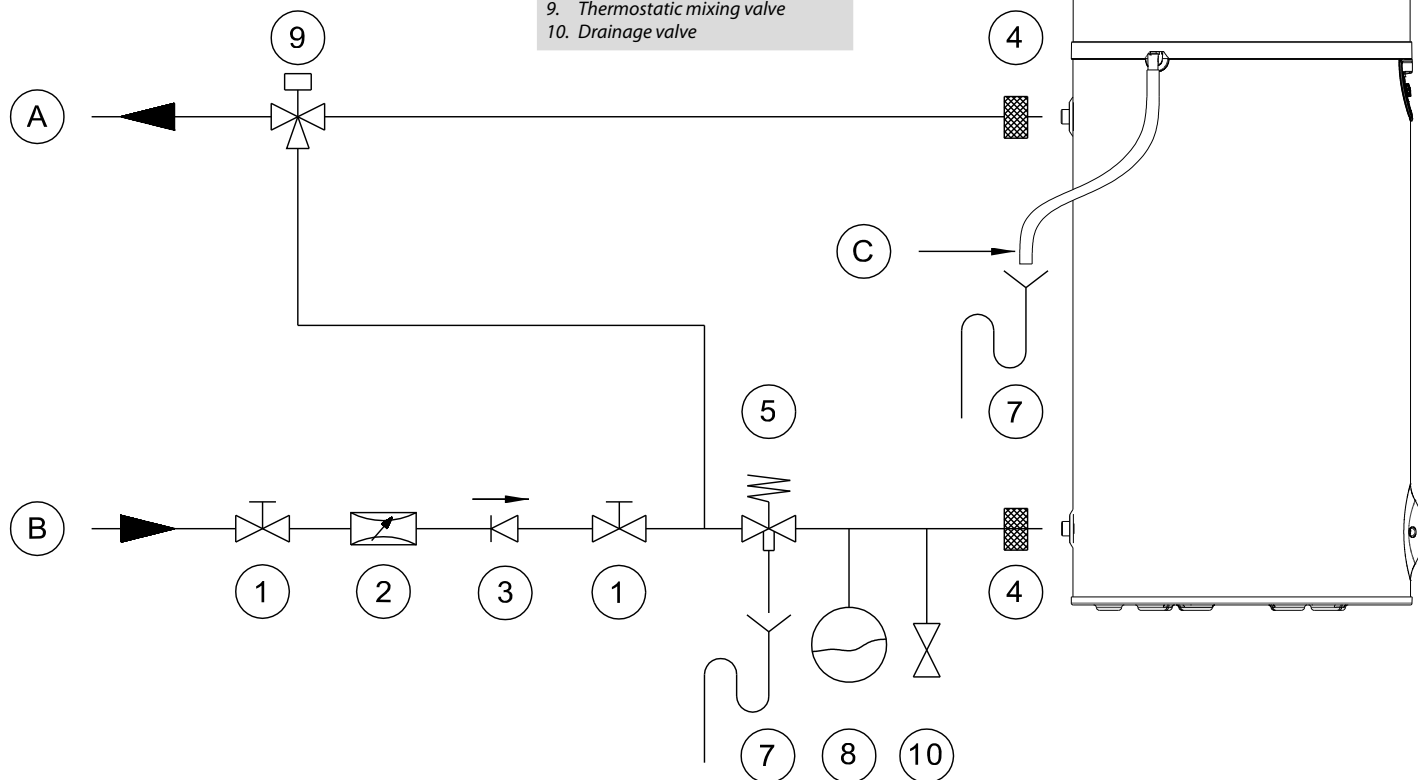
The guarantee will not apply if, in the event of an incident, these points have been neglected or if the quality of the water has not allowed correct treatment in accordance with the legislation.

Domestic water connections must not be connected directly to the pipes. They must be fitted with a dielectric fittings (supplied with the appliance).



- A. Domestic Hot Water (DHW)
- B. Domestic Cold Water (DCW)
- C. Condensate drainage hose

- 1. Stop valve
- 2. Pressure reducing valve
- 3. Check-valve
- 4. Dielectric fittings (supplied)
- 5. Pressure relief membrane valve
- 7. Run-off siphon
- 8. Domestic water expansion vessel
- 9. Thermostatic mixing valve
- 10. Drainage valve

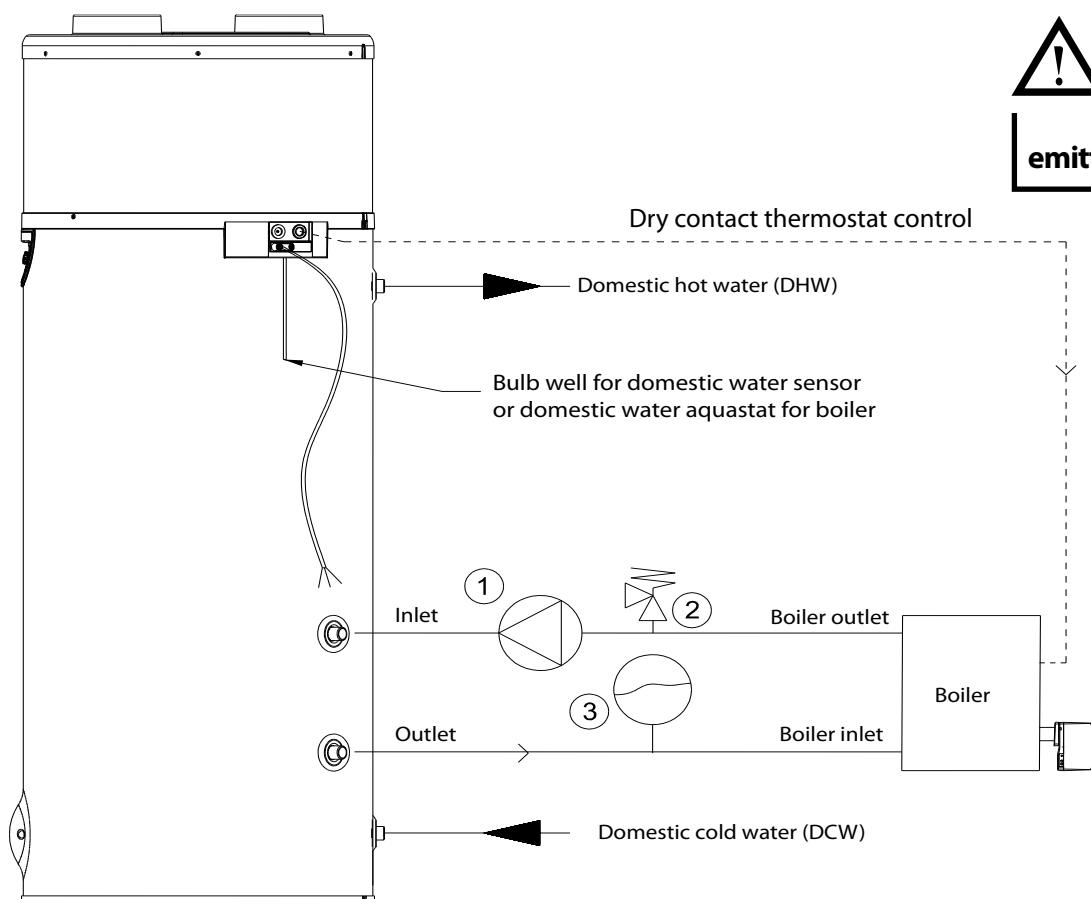


The heat exchanger inside the tank cannot be used to heat any emitter.

Dry contact thermostat control

Domestic hot water (DHW)

Bulb well for domestic water sensor or domestic water aquastat for boiler



- 1. Boiler circulator
- 2. Boiler pressure relief valve
- 3. Boiler expansion vessel

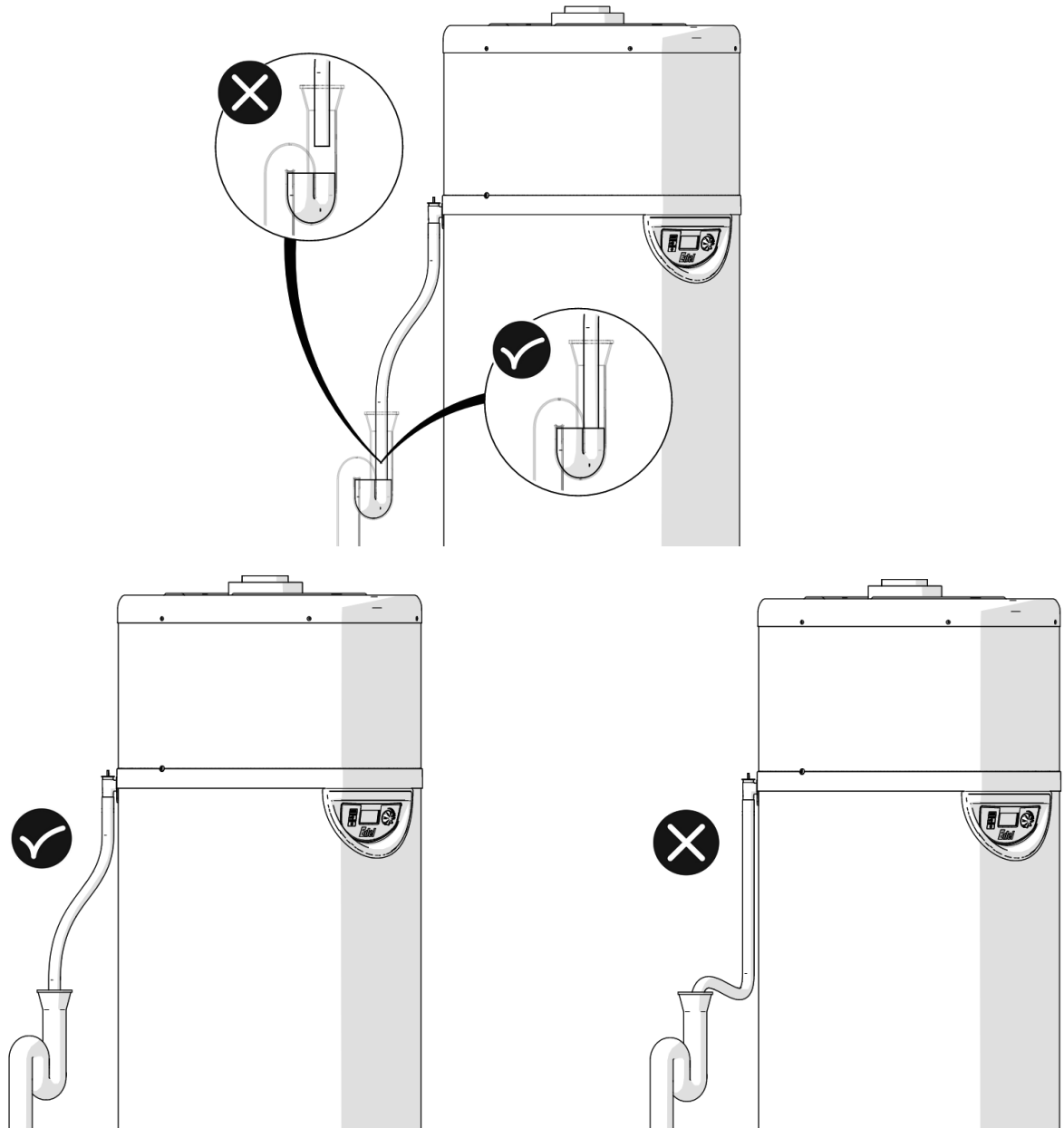
5.4 - Condensates drainage

The cooling of the air circulating in the evaporator can lead to the formation of condensate, the quantity of which varies according to the level of humidity in the air.

Condensate must be evacuated via a drain pipe at the rear of the appliance to a waste water drain.

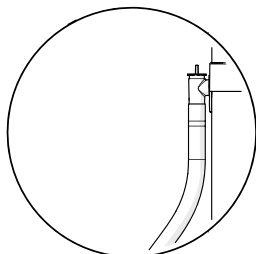
To ensure correct drainage, the following points must be observed:

- Drainage must be via a siphon (the hose must not be used as a siphon) to the waste water system ;
- Fill the siphon with water ;
- The drain pipe must be immersed in the water in the siphon ;
- A minimum 3° slope must be maintained ;
- It is forbidden to bend the hose ;
- Do not connect to a nipple.



The siphon is essential, as if it is connected directly to the waste water, rising sewage can damage the appliance's refrigeration circuit!

The condensate plug, supplied in the documentation packet, is fitted to the overflow of the condensate discharge tee.



It is compulsory:

- On a ducted installation, during the building air-tightness test, to prevent air leaks.
- For installations with a long duct or in collective ducts, coupled with an anti-depression siphon, it prevents noise caused by water being sucked into the siphon.

For an unducted installation or one with a short length of duct, it is not necessary to use the plug.

5.5 - Electrical connections



Do not connect the Domestic hot water heat pump to a power line that has been previously used for a boiler with an automatic peak/off-peak time control. The domestic hot water heat pump must be connected to a power supply at all times and the peak/off-peak time control must be managed using the programming on the control panel, or through use of an independent cable. Grounding is mandatory.

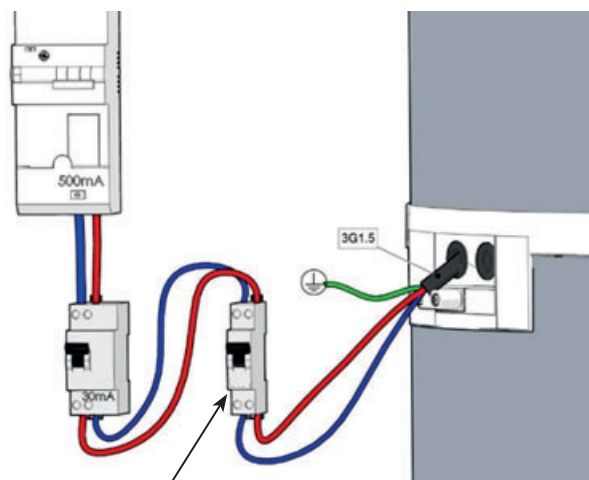
Power supply: 230V single phase + ground

The power supply should comply with all regulations in effect in the country of installation, as well as the NFC 15-100 standard.

A means of disconnection providing a complete break under category III conditions must be provided in the fixed pipework in accordance with the installation rules.

The domestic hot water heat pump power supply must be protected by a dedicated circuit breaker. The value of this circuit breaker must be adapted to the power rating of the domestic hot water heat pump.

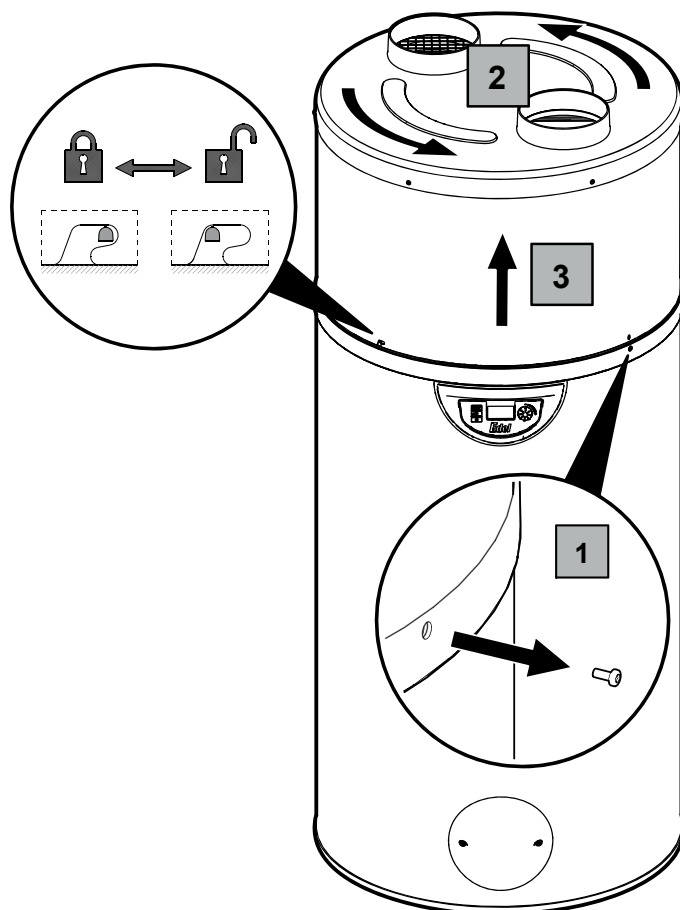
At the very least, we recommend using a 10 A D-curve circuit breaker to protect the power supply dedicated to the domestic hot water heat pump. They can also be connected to a line protected by a conventional 16 A C-curve circuit breaker.



10 A (D-curve) or 16 A (C-curve)

If the power cable is damaged, it must be replaced by the manufacturer, its after-sales service or a similarly qualified person in order to avoid a hazard.

5.5.1 - Remove the top cover



5.5.2 - External control



Only an external «dry contact», voltage-free connection is authorised. Otherwise, there is a risk of damage to the electronic circuit board.



It is not advised to operate the Domestic hot water heat pump during off-peak hours to optimise performance.

It is not necessary to connect the electricity meter's timer switch to program the Domestic hot water heat pump for peak/off-peak time operation.

The appliance's control panel can be used to program time slots for the Domestic hot water heat pump or for the electrical back-up to run (see § «Programming» for daily programming options).

5.5.2.1 - Peak/off-peak hours contact

It is possible to connect the dry contact from the electricity counter to the domestic hot water heat pump without programming from the control panel.

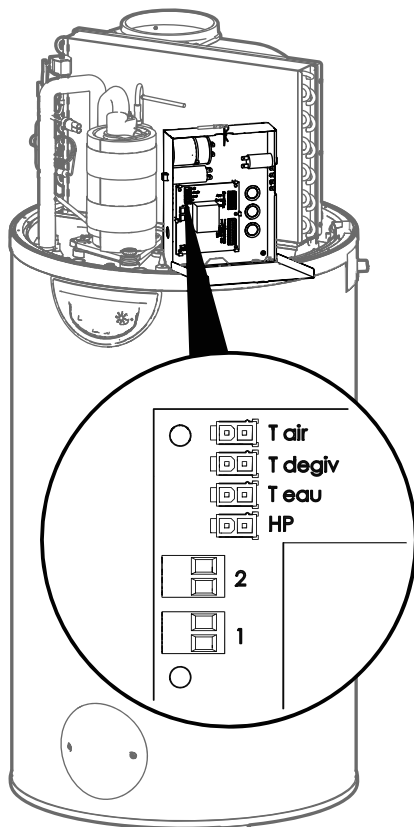
- Switch open = Load shedding
- Switch closed = Normal functioning

The level of load shedding can be chosen from the control panel of the appliance (see § 5.9.2.4 Load shedding).

By default the electrical resistance does not operate during peak hours.

To access the electrical connections hub:

- Remove the cover and the shell.
- Remove the cover of the appliance by removing the screws which fix the shell onto the lower part of the appliance.
- Remove the black protective cover from the electronics board.



5.5.2.2 - Controlled ventilation

The domestic hot water heat pump can be used to continuously ventilate a room even if the heating cycle is complete.

To stop the fan from operating, connect a timer on a moisture sensor. Use the same procedure as for the timer switch, but connect the 2-wire cable to «Input 2» on the electronics board.

- Switch open = the fan will not operate
- Switch closed = the fan will operate

- Set the regulator to «External control ventilation mode» : **FAN MODE 3**.

5.5.2.3 - Electricity provider contact

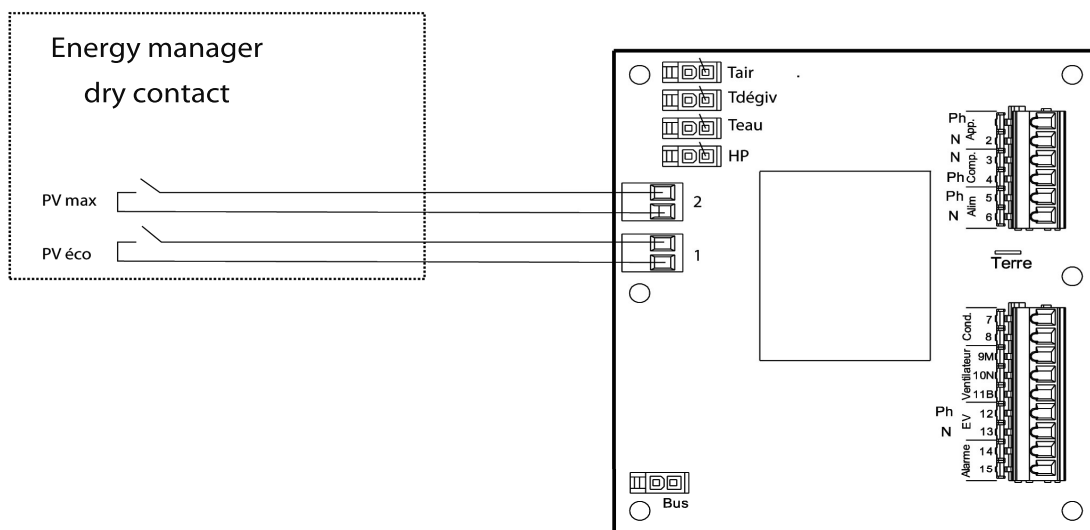
To prevent the electrical back-up from running during peak hours, connect the dry contact originating from the electricity counter, to terminal 1.

- Switch open = Back-up not allowed to run
- Switch closed = Back-up allowed to run

By choosing load shedding level 0 or 1 (see § «Load shedding»), you stop the electrical back-up alone from running (load shedding =1) or the heat pump and the electrical back-up from running (load shedding = 0).

- Pass a 0,75 mm² 2-wire cable with metal tips through a cable gland at the back of the appliance and bring the end of the cable around to the electronics board. The other end of the cable should be connected to the timer switch.
- Insert the 2-wire cable through a grommet from the electronics box.
- Connect the 2-wire cable to «Input 1» indicated on the electronics board, having already removed the existing red bridge.

5.5.2.4 - Connection to the photovoltaic function (PV)



This function enables the appliance to operate in auto-production mode, which means that it will use the energy produced by the PV function to supply the heat pump as well as the electrical back-up, and to heat the water in the tank. The connection is made between the energy manager electrical box (not supplied) and connectors 1 and 2 on the electronics board.

- Remove the protective casing.
- Remove the black cover from the electronics board.
- Connect the PV function cable to connector 1 on the electronics board.
- If the PV function regulator has two control contacts, connect them to connectors 1 and 2 on the electronics board. See § « Electrical box electrical diagram » in the appendix. .
- Terminal 1: a low level of electrical energy is produced by the PV function.
- Terminal 2: a high level of electrical energy is produced by the PV function.



CAUTION: Connectors 1 and 2 are for DRY CONTACTS ONLY. They must NEVER be connected to 230 V.

To optimise the performance of the heat pump in PV mode, we recommend programming an activation time of at least 1 hour via the energy manager.

5.5.2.5 - Back-up boiler connection for models with heat exchanger

--> Switch off the appliance

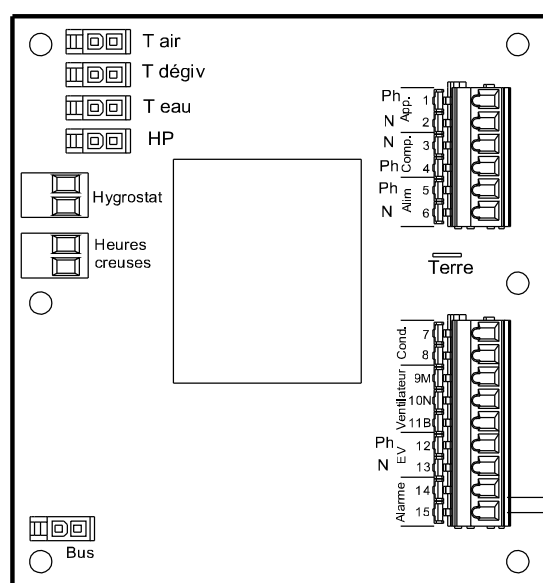
To access the electrical connections:

- Remove the cover and the shell of the appliance.
- Remove the cover by removing the screws fixing it to the shell near the lower belt of the shell.
- Remove the black protective cover on the electronic circuit board.
- Or for control using a boiler: place the sensor or domestic water aquastat in the bulb well provided for this purpose.
- Connect the voltage-free dry contact using a 2G 1.5mm² cable (with metal tip) between the output marked «14-15» on the domestic hot water heat pump's electronic circuit board and the thermostat input of the boiler.

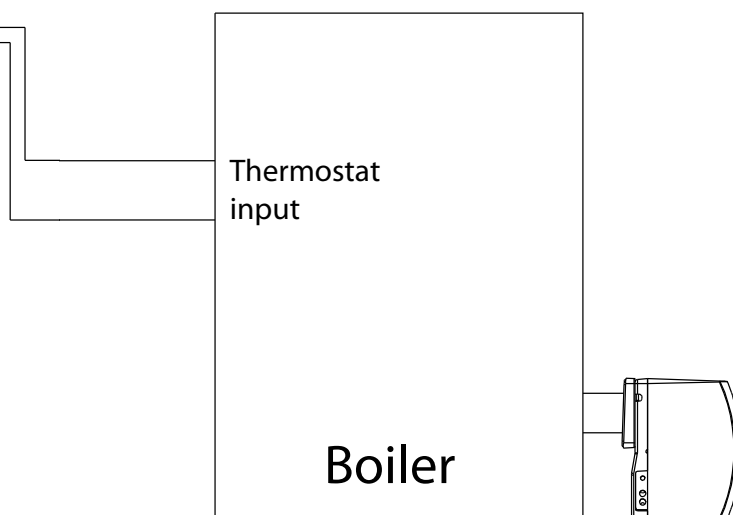
The «Alarme» output is not activated, it is instead converted to a boiler control output.

The user has the possibility to choose the operation of either the electrical back-up or of the back-up boiler (e.g., winter or summer operation).

The electrical back-up is selected by default.



**NEVER connect 230V to the boiler input.
Risk of damaging the electronic circuit board.**

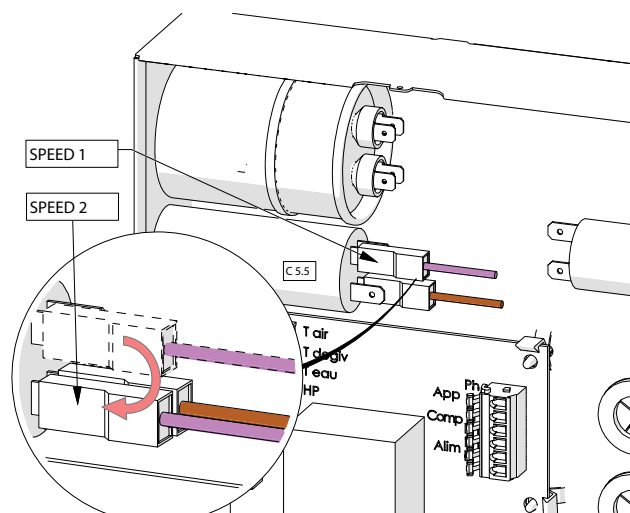


5.5.2.6 - Changing the fan speed (model with heat exchanger only)

If the domestic hot water heat pump is connected using pipes, it is necessary to adjust the fan speed to allow for the heat pump to overcome heat losses caused because of the air connections.

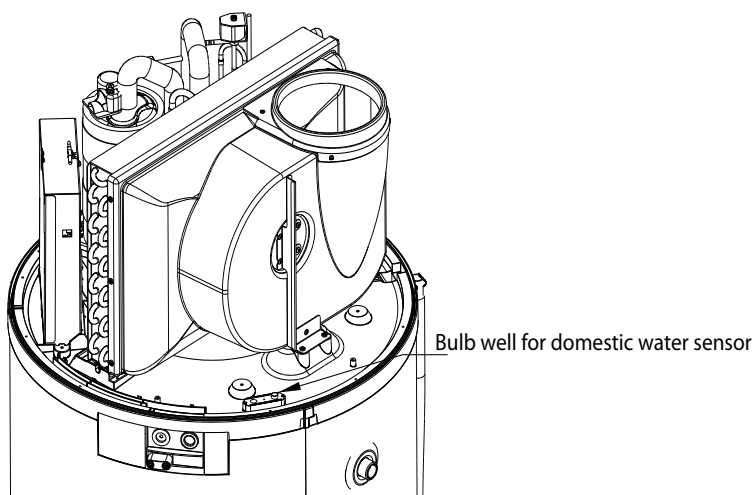
Changing of the fan speed can be done using the electrical terminal of the appliance.

The grey wire must be moved (connecting the 11B output on the circuit board to the 5.5µF capacitor) to the double input on the 5.5µF capacitor which already contains the blue wire for the fan.



5.5.2.7 - Bulb well for domestic water sensor (model with heat exchanger only)

For models with an heat exchanger, a bulb well is available to allow the back-up boiler to measure the water temperature.



6 - SET-UP AND USE



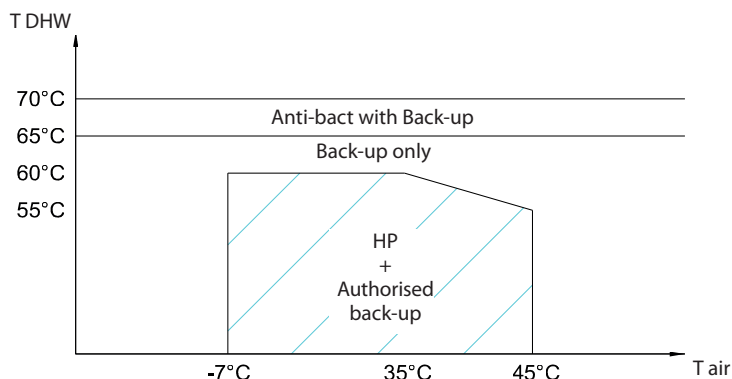
Deterioration risk: it is imperative to fill the tank with water before switching on the appliance or connecting it to the electrical supply.

- Leave the appliance unplugged.
- Open the hot water valve located at the highest point of the installation.
- Open the cold water inlet located on the safety group.
- Fill the tank until water is coming out of the hot water valve located at the highest point of the installation.
- Close the hot water valve

Before turning on the appliance, verify that the entire circuit is watertight.

The heat pump water heater operates **primarily with the heat pump** as long as the temperature of the water from the underfloor heating return flow is between -7°C and +45°C. Outside this range, the electrical back-up system heats the domestic hot water.

The temperature of the domestic hot water provided by the heat pump is adjustable to up to 60°C.

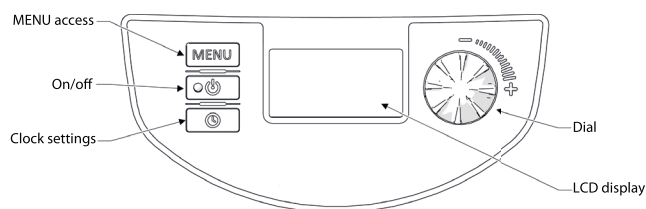


In the case of high domestic hot water consumption, the heat pump water heater has a comfort function, $T^{\circ}\text{C}_{\text{Mini}}$ which increases the heating capacity when there is less than 1/3 of the tank's volume left at over 38°C (see § « $T^{\circ}\text{C}_{\text{Mini}}$ - minimum temperature-»). There is also a setting to activate the electrical back-up if the heating time is too long.

If more domestic hot water is required from time to time, the heat pump water heater has a «**BOOST**» function (activated by the user) which ensures that the water heats to the desired temperature (for example: 50°C) quickly with the help of the heat pump and electrical back-up. This function is deactivated as soon as the required temperature is reached (for example: 50°C).

From time to time, check that there are no alerts (in case of an alert, please refer to § «Error message codes»).

6.1 - Control panel



Pictograms:



..... Compressor activated



..... Fan activated



..... Defrosting in progress



..... Electrical back-up activated



..... Domestic hot water requested



..... Comfort mode in progress



..... Eco mode in progress



..... Freeze protection mode in progress



..... Holiday mode in progress



..... Keyboard locked



..... Settings/parameters being displayed



..... PV mode activated

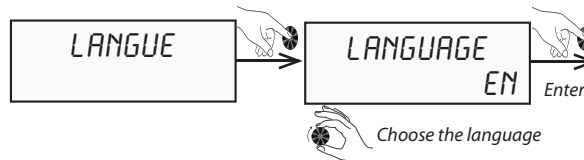
123...7.Date

6.2 - Setting the language

The language must be selected when the appliance is turned on for the first time. Turn the dial to the left and select «English». Confirm by pressing on the dial. Access to the «LANGUAGE» menu is always possible.

- Press **MENU**

- Turn the dial to scroll through the menu options:



- Press **MENU** to return to main menu.

6.3 - Setting the time and date

- Press «Clock settings»



26/09/11
17:32



--/09/11
17:32



Set the day



26/--/11
17:32



Set the month



26/09/--
17:32



Set the year



MONDAY
--:32



Set the hour



MONDAY
17:--



Set the minutes



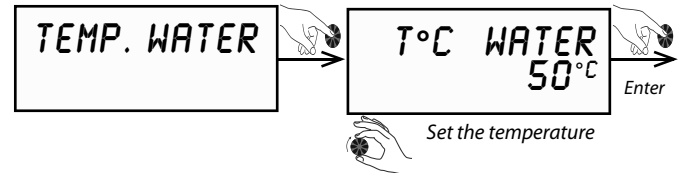
Confirm new settings

6.4 - Setting the desired water temperature

6.4.1 - PV mode inactive

The water temperature is adjustable from 30°C to 65°C. Up to 60°C, the water is heated using only the heat pump. From 60°C to 65°C, the electrical back-up takes over.

- Press **MENU**
- Turn the dial to scroll through the menu options:



- Press **MENU** to return to the main menu.
- In order to get the best results from your heat pump, it is recommended that you do not set the water temperature too high unless necessary. The default temperature is set at 55°C.

ACCU+ mode

If the domestic hot water set-point is higher than that accepted by the heat pump, the product switches to «ACCU +» mode. The «ACCU +» function increases the amount of water in the product while maintaining minimum heat pump operating time.

- In order to recover the performance test conditions the ECS probe must be raised by 10/27 cm for 200/270L tanks, the water temperature set at 53°C and the manufacturer parameter P154 must be set for 200 l to 6.

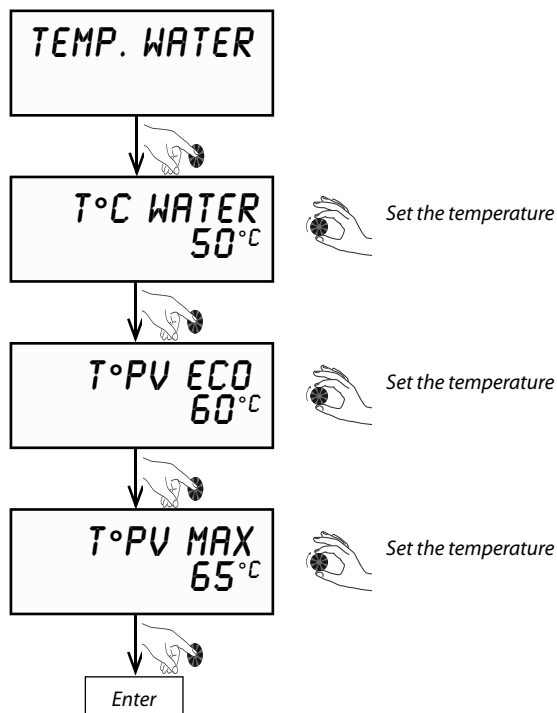


If the water temperature is set at 50°C or below, we recommend programming an anti-Legionella cycle.

6.4.2 - PV mode active

When PV mode is activated, the water temperature can be set to a higher level to favour operation during periods of photovoltaic production.

- Press **MENU**
- Turn the dial to scroll through menu options:



- Press **MENU** to return to the main menu.

The settings are available according to the following reasoning:

$$\text{TEMP} \leq \text{T}^{\circ}\text{PV ECO} \leq \text{T}^{\circ}\text{PV MAX} \leq 65^{\circ}\text{C}$$

T°PV ECO 60°C

The heat pump heats the water in the domestic hot water tank to a higher temperature than the usual hot water temperature (mode «PV ECO»)

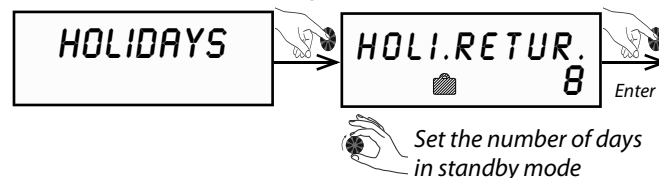
T°PV MAX 65°C

The heat pump and the electrical back-up heat the water in the domestic hot water tank to a higher temperature than the PV ECO mode (mode «PV MAX»)

6.5 - Holiday/temporary standby mode

«HOLIDAY» mode puts the appliance on standby while the frost protection mode remains active. This function can be programmed to run between 1 and 99 days, and is in effect as soon as the number of days is confirmed.

- Press **MENU**
- Turn the dial to scroll through menu options:




- Press **MENU** to return to the main menu.

«HOLIDAY» mode switches off automatically when the number of days set has ended. While in **HOLIDAY** mode the domestic hot water heat pump displays «HOLI. RETURN.» on the screen, as well as a countdown of the days remaining in standby mode.

6.6 - BOOST function

(for occasional use and guaranteed comfort)

The **BOOST** function temporarily forces the electrical back-up and the heat pump to operate at the same time to speed up heating time during a heating cycle. The electrical back-up symbol  flashes while it is activated.

- Press **MENU**
- Turn the dial to scroll through the menu options:
- Press **MENU** to return to the main menu.



The screen will blink for a few minutes and any actions on the keys will make it blink again

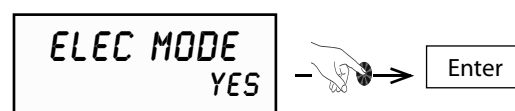
The **BOOST** function is automatically deactivated as soon as the set temperature is reached (end of heating cycle).

6.7 - Electric mode

(for operation using the electrical back-up)

Electric mode «ELEC MODE» uses only the electrical back-up to heat the water in the domestic hot water heat pump. It provides a back-up option if for any reason the heat pump is not running (piping not connected, dusty renovation work being carried out near the appliance...)

- Press **MENU**
- Turn the dial to scroll through menu options:



- Press **MENU** to return to the main menu.

The screen will blink for a few minutes and any actions on the keys will make it blink again

6.8 - Back-up type

BACK UP

- Press the thumbwheel to change the back-up



APPT. ELEC.

- Turn the thumbwheel to change the back-up

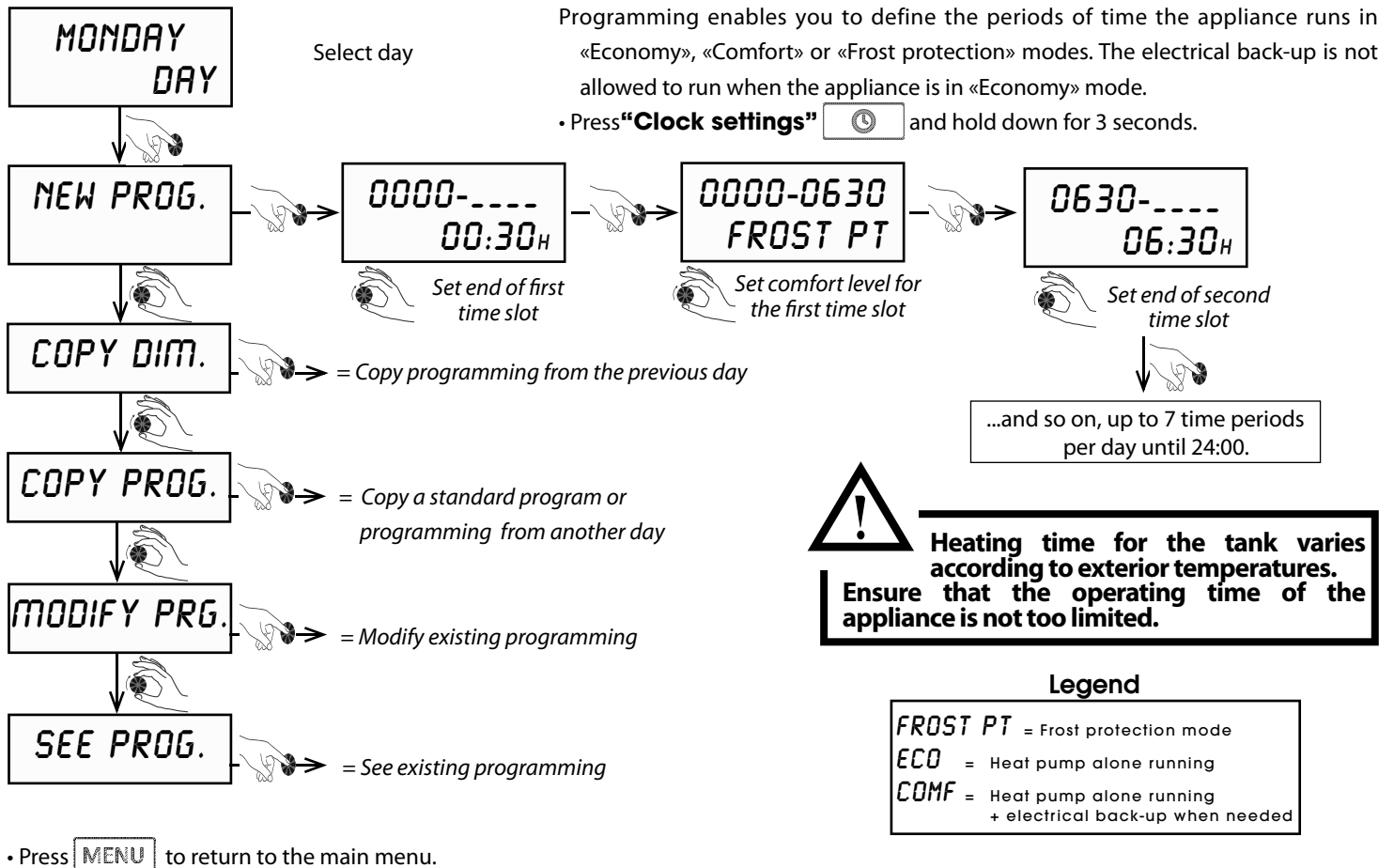
or

APPT. CHAUD.

- Press the thumbwheel to confirm

Note : The symbol  or  appears according to the choice of back-up.

6.9 - Programming



6.10 - Installer menu

It may be necessary to adjust certain temperature settings to optimise the performance of the **domestic hot water heat pump**, depending on how the appliance is installed.

Accessing the installer menu:

- Press **MENU**
- Turn the dial until the screen displays «**INSTALLER MENU.**»
- Press the «**Clock settings**» and «**Menu**» buttons **simultaneously**
- **Keep both buttons pressed down** for 3 sec. until the screen displays «**PV MODE**»

MODE PV

To activate photovoltaic operation

SETTINGS

To adjust the installation settings

RESET PAR.

To go back to default settings

DISPLAY

To display temperatures of sensors and inlets

COUNTERS

To set the meters running, count start-ups, etc.

6.10.1 - PV mode

Parameter	Description	Unit	Time range	Factory setting
MODE PV	Activation of photovoltaic mode	-	yes no	no
PRIORITY	Interval of anti-legionellosis cycles	-	yes no	yes

1. If the **PV mode** regulator is connected to connectors 1 and 2 on the electronics board, **PV mode** must be activated.

- The electrical energy which is produced is stored in the form of hot water. The PV function can be set to two different levels of production.
- **PV ECO** = the lower level of the photovoltaic energy production. The heat pump generates a higher water temperature. The hot water temperature must be somewhere between the regular hot water temperature and 60°C (factory setting = 60°C).
- **PV MAX** = the higher level of photovoltaic electricity production. The heat pump and electrical back-up generate a higher water temperature. The hot water temperature must be somewhere between the **eco mode** hot water temperature and 65°C (factory setting = 65°C).

2. Turn the dial to set the mode:

- **Menu** → **INST. MENU** → **PV mode**.

3. Select «**Yes**»

4. Press the dial to confirm.

5. Press **Menu**.

6. Set the domestic hot water temperature.

7. Turn the dial to select the primary function:

- **Menu** → **INST. MENU** → **MODE PV** → **PRIORITY**

- **Yes:** the signals from connectors 1 and 2 take precedence over **eco** and **frost protection** modes.
- **No:** The **eco** and **frost protection** modes take precedence over the signals from connectors 1 and 2.

Note:

If **PV mode** is chosen as the primary function, the domestic hot water will also be heated during non-selected time periods, e.g. in **holiday mode** and outside of the programmed time slots. If you only wish the domestic hot water to be heated during authorised time slots, adjust the settings to **No**.

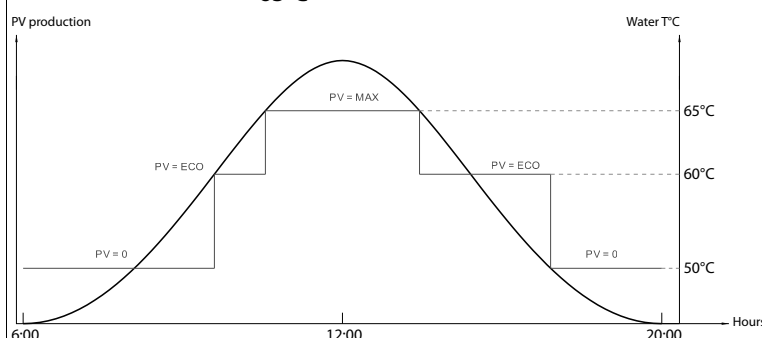
8. Press the dial to confirm your choice.

For products which are equipped with an extra thermal heat exchanger, no boiler request is sent when the heat pump is switched on. Only the electrical back-up is on, to use the energy produced by the PV function.

Example : T°C water = 50°C + T°PV ECO

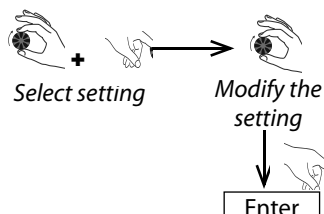
= 60 °C + T°PV MAX

= 65°C



6.10.2 - Adjusting the operating settings

SETTINGS

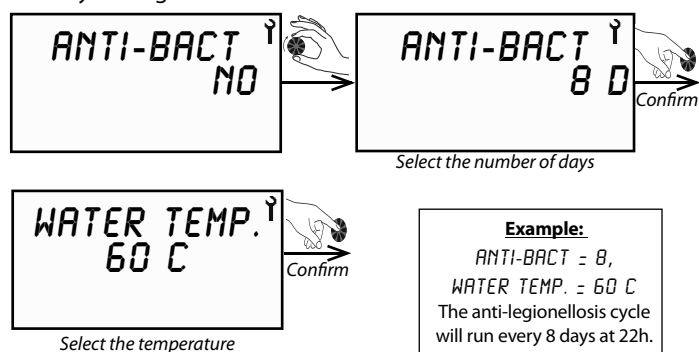


Parameter	Description	Unit	Time range	Factory setting
ANTI-BACT	Time interval for anti-legionellosis cycle	days	0-99	0
FAN MODE	Ventilation mode	-	1,2,3	1
T°C MINI	Min. temp for electrical back-up	-	0 or 1	0
SHEDDING	Load shedding level	-	0,1,2	1
MAX. TIME	Max. heating time	hours	No, auto, 1 to 24	No

• Press **MENU** to return to the main menu.

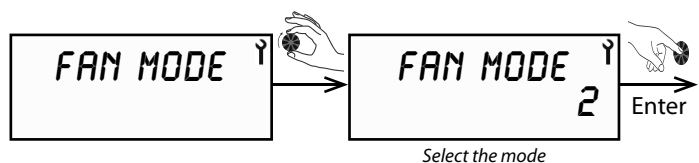
6.10.2.1 - ANTI-BACT Anti-legionellosis cycle

Factory setting - **ANTI BACT = NO**
 Factory setting - **WATER TEMP. = 60 C**



- Press **MENU** to return to the main menu.
- If the set temperature for domestic hot water is already 60°C (see § «Setting the desired water temperature»), there will be no anti-legionellosis cycle as it is already running continuously.
- If a cycle is interrupted by a period where the back-up is not allowed to run (electricity provider signal or programmed time slots) it will relaunch during the next authorised period.
- No anti-legionellosis cycle except when returning from holidays and after a frost protection period of more than 3 days.
- During the anti-legionellosis cycle the temperature is raised between 55°C and 70°C by the heat pump.

6.10.2.2 - FAN MODE



Factory setting= **1**

- MODE 1** = Standard mode, automatic ventilation
MODE 2 = Forced ventilation, max speed and for performance testing
MODE 3* = Ventilation activated during water heating periods and ventilation regulated by an external control (such as a moisture sensor)

The external control should be connected to connector 2 on the electronics board in the domestic hot water heat pump. (See appendix for electrical diagram)

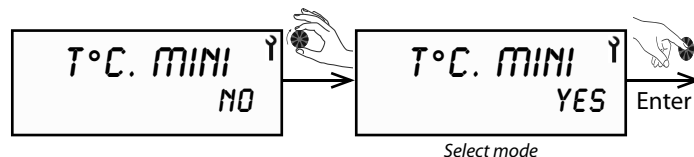
*If PV mode is activated, controlled ventilation (FAN MODE 3) is not available.

- Press **MENU** to return to the main menu.

* Manual changeover for models with heat exchanger.

6.10.2.3 - T°C. MINI Minimum temperature

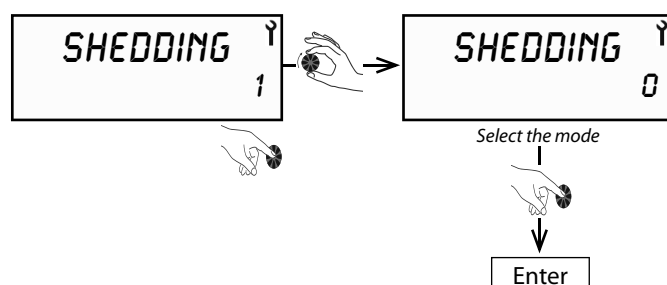
The electrical back-up can be activated at the same time as the heat pump to prevent the water temperature from going below a minimum comfort level of 38°C. The electrical back-up will start up and raise the water temperature to 43°C, and then it will switch off and the heat pump will complete the heating cycle.



- This function is deactivated by default.
- In case of load shedding the «T°C mini» function is not activated.
- Press **MENU** to return to the main menu.

6.10.2.4 - LOAD SHEDDING Level authorised during peak hours

When load shedding is activated you can choose to prevent certain elements from running (Electrical resistance and compressor).



If load shedding is switched on:

MODE 0 = No element is allowed to operate

MODE 1 = Only the heat pump is allowed to operate

MODE 2 = The heat pump and back-up are allowed to operate (neutralising the «peak hours» function)

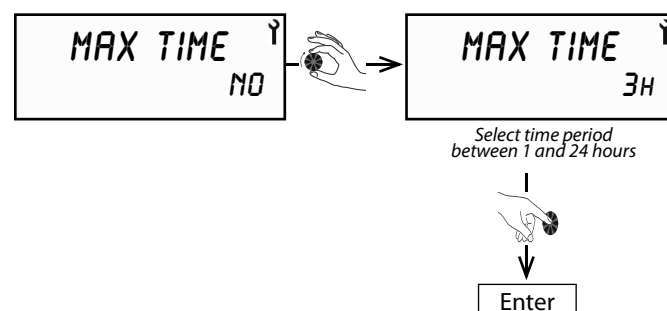
If the PV function is activated, load shedding cannot be done through the peak/off-peak hours dry contact. In this case the timer must be programmed (see § «Programming»).

- Press **MENU** to return to the main menu.

6.10.2.5 - MAX TIME Max heating time

It is possible to select the length of the desired heating time. The domestic hot water heat pump can automatically use the electrical back-up at the same time as the heat pump to speed up the heating time of the tank.

If you choose **MAX TIME = AUTO**, the heating time is limited to a maximum of 5h during off-peak hours.



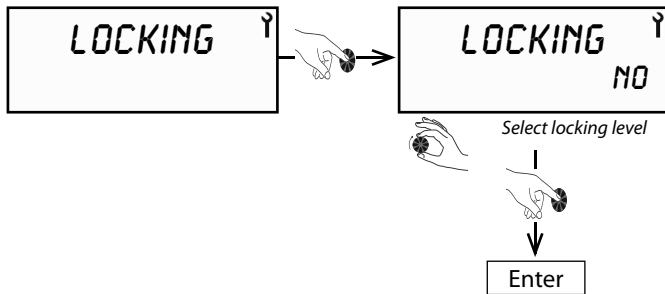
- This function is deactivated by default.
- Press **MENU** to return to the main menu.

6.10.3 - Locking the keyboard

Permanent and automatic locking

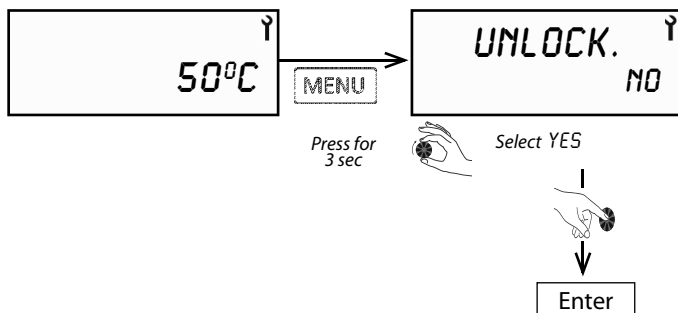
The «**LOCKING**» menu enables you to create three possible levels of locking for accessing the menus.

In the «**Installer**» menu turn the dial to «**LOCKING**».

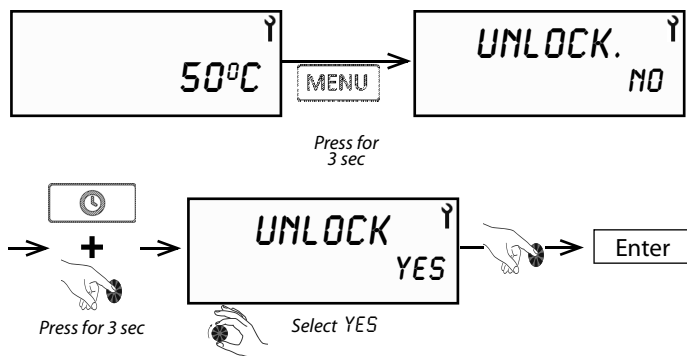


NO = Locking is **not** activated, but manual locking is possible by pressing **MENU** for 3 seconds.

AUTO = To lock menu access with temporary unlocking (60 seconds) press **MENU** for 3 seconds.



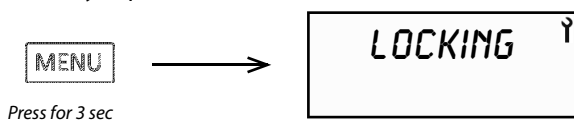
PRO = To lock access to menus with temporary unlocking (300 seconds) is possible by pressing **MENU** for 3 seconds, and then **⌚** and **⏸** buttons for 3 seconds.



•When locking is activated, it is only possible to access unlocking and to reset the alarm.

Manual locking from the main screen

Manual locking is possible from the main screen without gaining access through the «**Installer**» menu provided that locking settings are not already in place.

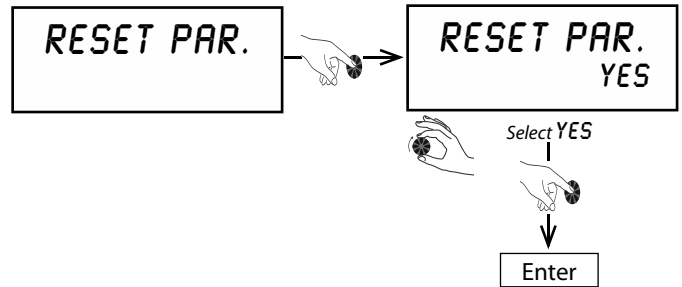


To lock manually, press **MENU** for 3 seconds.

6.10.4 - Resetting parameters

Resetting the parameters allows you to go back to the default settings.

Go to the «**Installer**», menu and turn the dial to «**RESET PAR.**».



6.10.5 - Read data

The «**READ DATA**» menu shows you, in real time, the information given by the sensors.

In the «**Installer**» menu, turn the dial to «**DISPLAY**».

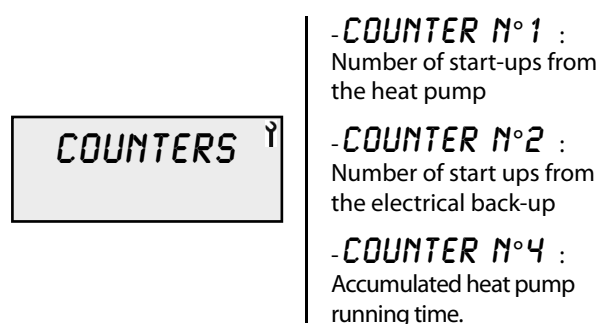
Display	Description	Reference on electronics board
WATER	Domestic hot water temperature in lower part of tank	Teau
AIR	Temperature of heat pump air intake	Tair
EVAP	Temperature of heat pump evaporator (expansion valve outlet)	Tdegiv
MODE PV (deactivated) factory settings		
SHEDDING	Off-peak hours switch (0-on; 1- off)	heures creuses
FAN CONTR.	Fan control switch (0-on; 1- off)	hygrostat
MODE PV (activated)		
PV ECO	Contact input 1 (0-open; 1- closed)	1
PV MAX	Contact input 2 (0-open; 1- closed)	2

The temperature which is permanently displayed on the screen is the set temperature and does not necessarily indicate the temperature of the water immediately available in the tank.

6.10.6 - Counters (meters)

The «**Counters**» menu shows the number of start-ups from the heat pump and the electrical back-up.

In the «**Installer**», menu turn the dial to «**COUNTERS**».



7 - MAINTENANCE AND TROUBLESHOOTING

In order to maintain efficiency and improve durability it is advised that an annual maintenance check be carried out by a qualified professional.



- Any work on the heat pump must be carried out by a qualified professional.
- Observe all health and safety rules !
- Any work on the refrigerant circuit must be carried out by a qualified professional with a Category 1 certificate of aptitude.
- It is strictly prohibited to release refrigerant gas into the atmosphere.
The refrigerant must be collected before any work is carried out on the circuit.
- Switch off the domestic hot water heat pump before opening it.
- Wait for the fan to come to a complete stop before starting work on the appliance.
- Do not get water on any of the electrical parts.
- The pressure limiting device must be operated regularly to eliminate limescale and to check for blockages.
- Check the condition of the corrosion-proof anode at minimum once per year.

In case of maintenance or if taking the **domestic hot water heat pump** out of service, please respect the environmental protection regulations regarding recovery, recycling and disposal of consumables and components.



- The R290 refrigerant in the heat pump circuit poses no risk to the environment, but it is flammable.**
- The R290 refrigerant is odourless.
 - Do not damage the pipes in the refrigerant circuit.
 - Do not handle a flame or any other flammable source on the inside of the appliance.
 - If the refrigerant is leaking, unplug the appliance, air out the room, and contact customer service.
 - Do not use any mechanical means to speed up the defrosting process.
 - Do not pierce or burn the appliance: in case of intervention on the refrigerant circuit, the refrigerant must be recovered.
 - The refrigerant circuit containing flammable refrigerant complies with national gas regulations.

.../...



.../...

→ In case of operating on the refrigerant circuit:

- 1) Secure the area you will be working in
- 2) Inform people of the potential danger involved in the work
- 3) Check that the risk of inflammation is minimised
- 4) Avoid working in a confined space; the area must be sufficiently ventilated
- 5) Check the area with an appropriate leak detector before and during the work
- 6) Place a CO₂ or dry powder extinguisher near the work area
- 7) Do not smoke



7.1 - Water circuit / Condensate draining

To check that the condensates are draining correctly:

- Remove the upper cover (see § «Electrical connections» procedure).
- Check for blockages in the drainage outlet.
- Clean the condensate recovery trough, where deposits from the air intake may have gathered.
- Clean the flexible drainage hose.

The pressure limiting device must be switched on regularly to eliminate limescale and to check for blockages.

Check that all hydraulic connections on the **domestic hot water heat pump** are watertight.

7.2 - Air intake circuit

The only maintenance work needed on the air intake circuit is to clean the evaporator (at least once per year and dependent on the quality of air intake).

If using air filters check if they are clean regularly. Clean and replace if necessary.

The fan blades are sharp-edged and may cause injury; take care not to damage or deform them.

7.3 - Electrical maintenance

It is mandatory to periodically inspect for the cleanliness and the absence of dust deposits on the electronic circuit board and the electrical terminals:

- of the compressor;
- of the electrical resistance ;
- of the different condensers.

Verify the correct tightness of all lugs. Adapt the frequency of inspection to the air quality. In a dusty environment more frequent maintenance and inspection is necessary, at minimum 1 time per year.

- Check that the wiring is not subject to wear, corrosion, excessive pressure, vibration, contact with sharp edges or any other adverse effects due to its environment.
- Maintenance must also take into account the effects of long-term continuous vibration from components such as compressor and fan



Neglecting to clean the circuit board and other electronic components in a dusty environment can lead to a risk of overheating and ignition.

7.4 - Drainage

When draining the tank, ensure that there is a large enough air inlet at the top to avoid any depression in the tank. The following materials and products should be avoided:

- Brushes with steel bristles or pads
- Scouring powder
- Any bleach-based product or chlorinated derivative

- 1) Switch off the power supply.
- 2) Shut off the cold water inlet valve on the safety group and ensure there is an air intake valve on a high point of the appliance.
- 3) Open the hot water valves.
- 4) Set the safety group to the drainage position.

7.5 - Modification

Any modification of the device is **prohibited**. Any replacement of components must be done by a professional with original parts from the manufacturer.

7.6 - Decommissioning

7.6.1 - Leak detection

In the event of a prolonged absence with the power supply to the housing and the product disconnected, ask a qualified professional to drain the product or protect it from freezing.

Under no circumstances should potential ignition sources be used for the detection or detection of refrigerant leaks. A halogen flare (or other detector using an open flame) shall not be used.

- Electronic leak detectors may be used to detect refrigerant leaks, but for flammable refrigerants, sensitivity may not be adequate or may require recalibration.
- Ensure that the detector is not a potential ignition source and is suitable for the refrigerant used. Leak detection equipment must be set to a percentage of the lower flammability limit of the refrigerant and must be calibrated for the refrigerant used. The value of 25% of the lower flammable limit is used as the maximum.
- Liquid leak detectors are also suitable for use with most refrigerants but the use of chlorine-containing detergents should be avoided as chlorine can react with the refrigerant and corrode copper from the piping.
- If a leak is suspected, all open flames must be suppressed / extinguished.

7.6.2 - Removal and evacuation

- When opening the refrigeration circuit to perform repairs - or for any other purpose - conventional procedures must be used.
- For flammable refrigerants, it is important to use best practice as flammability must be considered.

• The following procedure must be followed :

- Remove the refrigerant ;
- Purge the circuit with inert gas ;
- Evacuate to the atmosphere;
- Purge with inert gas ;
- Open the circuit by cutting or brazing.
- Refrigerant must be recovered in a suitable recovery bottle.
- The system must be purged with nitrogen without oxygen.
- This process may need to be repeated several times. Compressed air or oxygen should not be used to purge refrigerant systems.
- The purge of refrigerants must be performed by breaking the vacuum in the system with nitrogen without oxygen: By filling up until the working pressure is reached, an evacuation to the atmosphere, and finally by vacuum pulling.
- This process must be repeated until there is no more refrigerant in the circuit.
- When the last oxygen-free nitrogen charge is used, the circuit must be brought to atmospheric pressure to allow intervention.
- Ensure that the vacuum pump outlet is not near potential ignition sources and that ventilation is available.

7.6.3 - Charging process

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines should be as short as possible to minimize the amount of refrigerant they contain.
- Cylinders must be held in an appropriate position according to instructions.
- Make sure the refrigeration system is grounded before charging the system with refrigerant.
- Label the system when the load is complete (if not already done).
- Extreme precautions must be taken to not overload the refrigeration system.
- Before recharging the system, it must be pressure tested with the appropriate purge gas.
- The system must undergo a leak test at the end of the load but before commissioning. Another follow-up leak test must be performed before leaving the site.

7.6.4 - Decommissioning

- Before performing this procedure, it is essential that the technician knows the product and all its specificities.
- It is recommended to use best practices to ensure that all refrigerants are safely recovered. Before the task is performed, an oil and refrigerant sample must be taken in case an analysis is required before recycling the recovered refrigerant. It is essential that a power supply is available before the intervention begins.
- a) Familiarize yourself with the product and how it works
- b) Electrically isolate the system.
- c) Before attempting the procedure, ensure that:
 - mechanical handling equipment is disponible, if necessary, for the handling of refrigerant cylinders ;
 - all personal protective equipment is available and used correctly ;
 - the recovery process is being overridden at all times by a competent person.
 - recovery equipment and cylinders comply with appropriate standards.

- d) Perform a «pump down» on the appliance where possible.
- e) If it is not possible to vacuum, make a manifold so that the refrigerant can be removed from various parts of the system.
- f) Make sure the recovery bottle is on the scale before the start of fluid recovery.
- g) Start the recovery group and operate it according to the instructions.
- h) Do not overfill bottles (no more than 80% in volume of liquid charge).
- i) Do not exceed the maximum operating pressure of the cylinder, even temporarily.
- j) Once the cylinders have been filled correctly and the process completed, ensure that the cylinders and product are removed from the site quickly and that all isolation valves on the product(s) are closed.
- k) Refrigerant must not be loaded into another refrigeration system unless cleaned and verified.

7.6.5 - Recovery

When transferring refrigerant into the recovery bottles, ensure that only the appropriate bottles are used. Make sure you have enough bottles to recover the entire system load. All cylinders used are dedicated to the refrigerant recovered and labelled for it (i.e., special cylinders for refrigerant recovery). Cylinders must be complete with pressure relief valve, associated shut-off valves and in good working condition. Empty recovery cylinders are evacuated and, if possible, cooled prior to recovery.

- Recovery equipment must be in good working order with all instructions at hand and must be suitable for recovery of all refrigerants including, where applicable, flammable refrigerants. In addition, a set of calibrated scales must be available and in good working order.
- Hoses must be complete with leak-free disconnects and in good condition. Before using the recovery machine, verify that it is in good working order, has been properly maintained and that all associated electrical components are sealed to prevent ignition in the event of a refrigerant leak. Consult the manufacturer if in doubt.
- The recovered refrigerant must be returned to the supplier in the appropriate recovery bottle and the transfer note filled in correctly. Do not mix refrigerants in recovery units and especially not in recovery bottles.
- If compressors or compressor oils need to be replaced, make sure they have been vacuum pulled to an acceptable level to ensure they are not left in the flammable refrigerant lubricant. Vacuum pulling must be done before the compressor is returned to the supplier. Only electric heating of the compressor body should be used to accelerate this process. When oil is drained from a system, it must be done safely.

7.6.6 - Recycling and Disposal

- The product must be labelled indicating that it has been taken out of service and emptied of the refrigerant.
- The label must be dated and signed.
- Ensure that there are labels on the product indicating that it contains a flammable refrigerant.

Entrust the disposal of the packaging to the installer who installed the product.



The above symbol requires:

- Do not dispose of the product with the household waste.
- Dispose of the product at a collection point for used electrical and electronic equipment.

7.7 - Troubleshooting



• No hot water

Check that:

- The volume of water consumed is not higher than the volume in the tank.
- The time period that the appliance operates is not too short (12h minimum if connected to piping).
- The water temperature is not set too low.
- There is no recirculation pump.
- The presence and proper positioning of inlet pipe. The absence or incorrect placement of a pipe may reduce the supply capacity of the hot water tank.

• The heat pump is not working

Check that:

- The desired water temperature is higher than the temperature of the water in the tank.
- The appliance is connected to a power supply.
- The green light is on.
- The appliance is not in holiday mode (symbol ).
- The device is not blocked by a signal peak hours.
- The air intake or ambient temperature is under -7°C or over +45°C (ELEC MODE displayed).
- The timer has not been programmed to stop the appliance from operating («Frost protection» symbol on .
- The appliance is not in load shedding mode.
- An error message is displayed on the screen (see § Error message codes).


• Condensates are not draining (water present under the appliance)

Check that:

- The drainage system is not blocked. Clean if necessary.
 - Remove the cover (see § «External control» procedure).
 - Check the opening.
- The tubes do not have bends or "U" shapes that could collect water.
- The end of the tube gives out onto open air.
- The tank is properly positioned (vertical position and no tilting).

• Electrical back-up is not working

Check that:

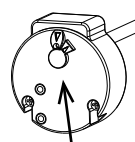
- Your electricity provider or your timer is not preventing the appliance from functioning («Frost protection» symbol on .
- A heat-limiting safety thermostat for electrical back-up has not been activated after over-heating (>87°C). If this is the case, reset it.

Before resetting, check:

- That the heating element does not have limescale.
- Clean or replace if necessary.



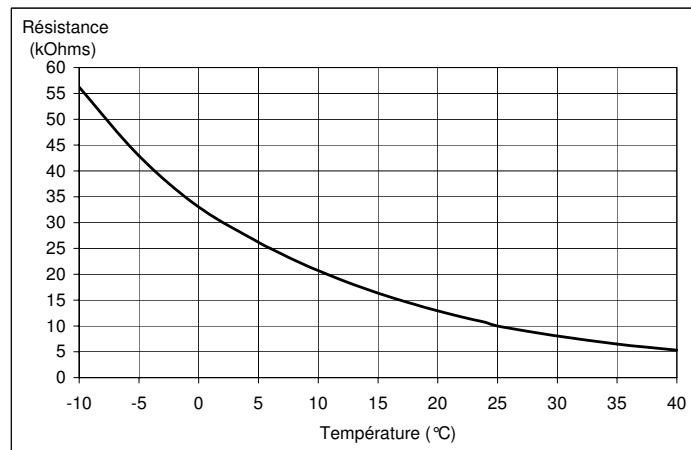
**Do not adjust settings
on safety aquastat**



Reset button
(87°C) on safety
aquastat

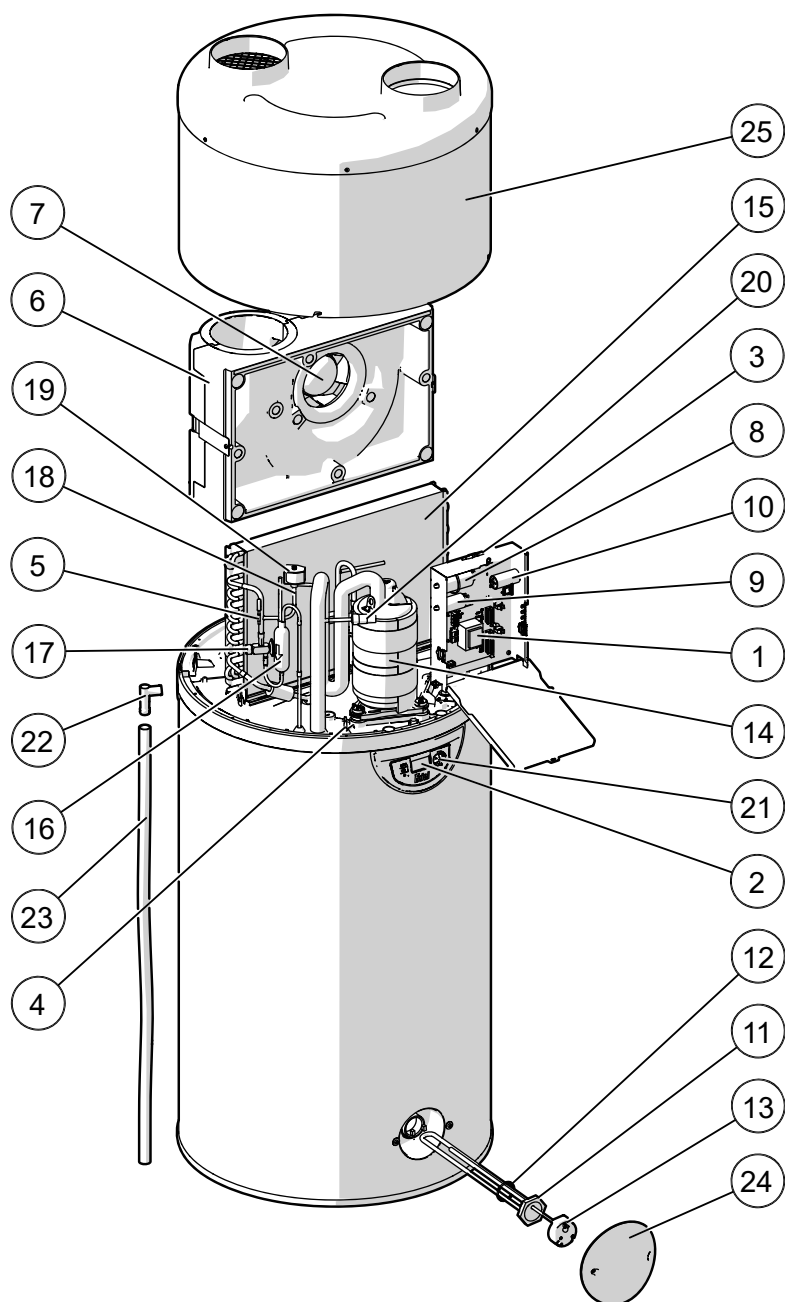
7.8 - Sensor data

All 4 sensors have the same ohmic values.

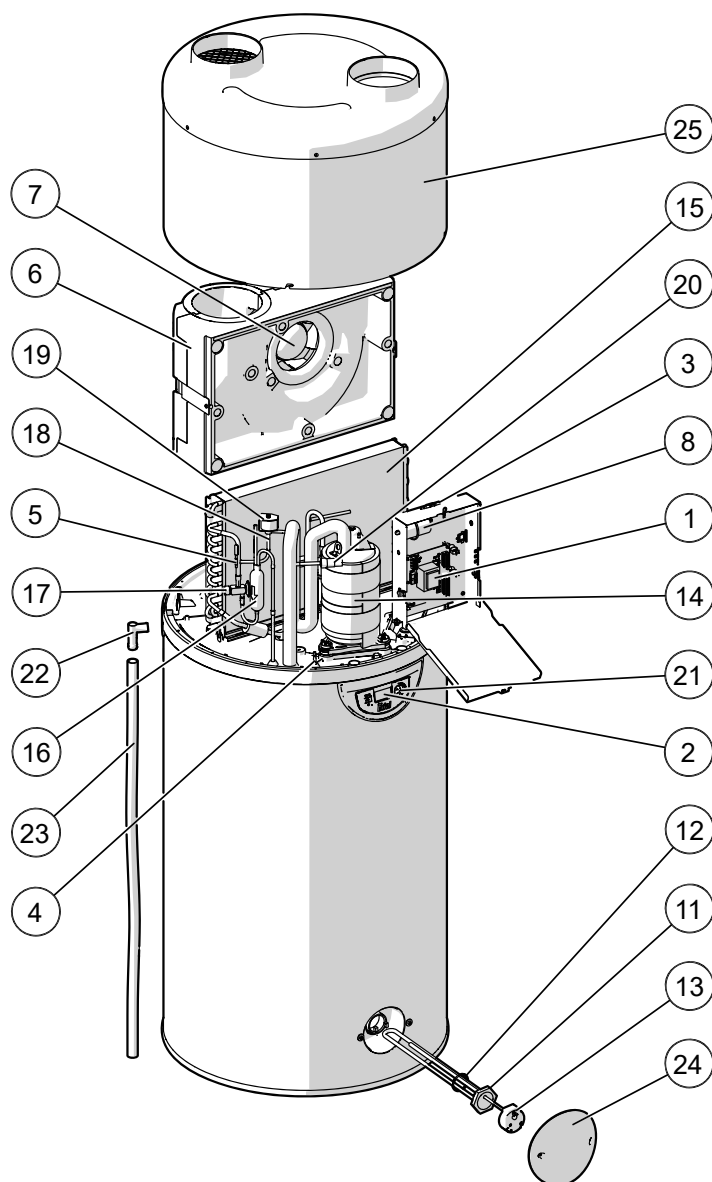


7.9 - List of spare parts

Edel 200-270 AIR D-DE



Edel 200-270 AIR C



Nota : availability of spare parts :

The spare parts of our products are kept available for 10 years, from the date of stop of mass production, except events beyond our control.

Rep	Edel 200 AIR D/2	Edel 270 AIR D/2	Edel 270 AIR DE/2	Edel 200 AIR C/2	Edel 270 AIR C/2	Description
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Regulation / display

1	B1242088	B1242088	B1242088	B1242088	B1244096	C3 electronic circuit board controller
2	B4992570	B4992570	B4994474	B4992570	B4992570	Programmed display
3	B1244576	B1244576	B1244576	B1244576	B1244576	Temperature sensor - lg 460 mm
4	B1244577			B1244577		Temperature sensor - lg 700 mm
4'		B1244575	B1244575		B1244575	Temperature sensor - lg 1200 mm
5	B4993072	B4993072	B4993072	B4993072	B4993072	Defrosting sensor kit

Electrical

6	B4995444	B4995444	B4995444	B4995445	B4995445	Fan kit
7	B1244647	B1244647	B1244647	B1244454	B1244454	Ø 190 Fan
8	B1244220	B1244220	B1244220	B1244220	B1244220	15 µF capacitor
9	B1244663	B1244663	B1244663			5,5 µF capacitor
10	B4993053	B4993053	B4993053			2 µF capacitor
19	B1239212	B1239212	B1239212	B1239212	B1239212	650 mm coil
not visible	B1244251	B1244251	B1244251	B1244251	B1244251	Electrical supply cable
not visible	B4993827	B4993827	B4993827	B4993825	B4993825	AC cabling kit

Thermodynamic components

14	B4995095	B4995095	B4995095	B4995095	B4995095	Compressor kit
15	B4993831	B4993831	B4993831	B4993831	B4993831	Finned heat exchanger
16	B1472871	B1472871	B1472871	B1472871	B1472871	Drying filter
17	B1472917	B1472917	B1472917	B1472917	B1472917	Thermostatic expansion valve
18	B1239261	B1239261	B1239261	B1239261	B1239261	Integrated solenoid valve
20	B1244424	B1244424	B1244424	B1244424	B1244424	Pressure switch
not visible	B1973127	B1473127	B1473127	B1973127	B1973127	Refrigerant loading pipe

Electrical back-up

11	B4992886	B4992886	B4992886	B4992886	B4992886	1200W heating element + gasket kit
12	B1657722	B1657722	B1657722	B1657722	B1657722	Heating element seal
13	B1239160	B1239160	B1239160	B1239160	B1239160	Aquastat

Casing

21	B1758866	B1758866	B1758866	B1758866	B1758866	Control panel dial
22	B1759620	B1759620	B1759620	B1759620	B1759620	Condensate T-pipe
23	B4948423	B4948423	B4948423	B4948423	B4948423	PVC pipe 18x23 : length 1.8 m
24	B1759551	B1759551	B1759551	B1759551	B1759551	Heating element cover
25	B4994065	B4994065	B4994065	B4994065	B4994065	Insulated hood
not visible	B4994426	B4994426	B4994426	B4994426	B4994426	Acoustic Cover Kit
not visible	B1759346	B1759346	B1759346	B1759346	B1759346	Adjustable foot

Hydraulic

not visible	B1135130	B1135130	B1135130	B1135130	B1135130	Dielectric fittings
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7.10 - Error message codes: errors, solutions and operating in case of error

N.B. : Errors can be dismissed by briefly pressing the dial (manual reset)

Display	Error	Probable causes	Solutions	Temporary operation measures while waiting for the problem to be solved
<i>MEMO/BUS</i>	<ul style="list-style-type: none"> •Electronic board defect •Bus wire defect •Display screen defect 	<ul style="list-style-type: none"> •Voltage too high on electrical network •Wiring error during electrical connection (connection to electricity provider or moisture sensor.) •Damage during transportation 	<ul style="list-style-type: none"> •Replace main electronics board or •Replace display screen board 	<ul style="list-style-type: none"> •Appliance non-functional
<i>T_AIR</i>	<ul style="list-style-type: none"> •Air temperature sensor defect (Temperature of air intake) 	<ul style="list-style-type: none"> •Sensor not functioning •Sensor unplugged from board •Sensor cable damaged 	<ul style="list-style-type: none"> •Replace sensor 	<ul style="list-style-type: none"> •Heat pump non-functional •Electrical back-up heats water to 43°C (38°C minimum)
<i>T_DEFROST</i>	<ul style="list-style-type: none"> •Evaporator sensor defect (defrosting temperature) 	<ul style="list-style-type: none"> •Sensor not functioning •Sensor unplugged from board •Sensor cable damaged 	<ul style="list-style-type: none"> •Replace sensor 	<ul style="list-style-type: none"> •Heat pump non-functional •Electrical back-up heats water to 43°C (38°C minimum)
<i>T_WATER</i>	<ul style="list-style-type: none"> •Tank water sensor defect 	<ul style="list-style-type: none"> •Sensor not functioning •Sensor unplugged from board •Sensor cable damaged 	<ul style="list-style-type: none"> •Replace sensor 	<ul style="list-style-type: none"> •Heat pump non-functional
<i>CLOCK</i>	<ul style="list-style-type: none"> •Clock/timer defect 	<ul style="list-style-type: none"> •Voltage too high on electrical network •Damage during transportation 	<ul style="list-style-type: none"> •1-Press «clock settings» and set date and time •2-If the error message does not disappear, replace the electronics board 	<ul style="list-style-type: none"> •Programmed heating periods are no longer valid: the water is maintained continuously at the standard set temperature (if no signal or control is connected to the «external control» switch)
<i>OVER PRESS</i>	<ul style="list-style-type: none"> •Heat pump pressure too high 	<ul style="list-style-type: none"> •No water in the tank •Water is too hot (>75°C) •Water sensor removed from tank •Defective water sensor 	<ul style="list-style-type: none"> •Check that the tank has been properly filled with water and purged of air •Change the water sensor •Check that the water sensor is in the right position in the tank 	<ul style="list-style-type: none"> •Heat pump is non-functional •Must be manually reset
<i>FREQ. DEFRO.</i>	<ul style="list-style-type: none"> •Defrosting too often 	<ul style="list-style-type: none"> •Insufficient airflow •Air inlet/ outlet blocked •Ventilation duct blocked •Air duct is too long or has too many elbows •Evaporator clogged 	<ul style="list-style-type: none"> •Set the fan at max speed (<i>FAN MODE 2</i>) •Check that the air is circulating properly throughout the piping circuit •Check pipe lengths: <ul style="list-style-type: none"> -6 m total length of flexible hose -12 m total length of rigid piping •Check the condition of all filters on air ducts •Check that the evaporator is clean 	<ul style="list-style-type: none"> •Heat pump non-functional •Electrical back-up heats water to 43°C (38°C minimum)
<i>LOW PRES.</i>	<ul style="list-style-type: none"> •Heat pump pressure too low 	<ul style="list-style-type: none"> •Insufficient airflow •Air inlet/ outlet blocked •Ventilation duct blocked •Fan blocked or out of order •Evaporator clogged •Ice on evaporator 	<ul style="list-style-type: none"> •Check that the fan is working •Check that air is circulating properly through the piping circuit •Check pipe lengths: <ul style="list-style-type: none"> -6 m total length of flexible hose -12 m total length of rigid piping •Check the state of all filters on air ducts •Check that the evaporator is clean 	<ul style="list-style-type: none"> •Heat pump non-functional •Electrical back-up heats the water to 43°C (38°C minimum)
<i>OVERHEAT</i>	<ul style="list-style-type: none"> •Domestic hot water overheating (water temperature >87°C) 	<ul style="list-style-type: none"> •Defective water sensor •Water sensor removed from tank 	<ul style="list-style-type: none"> •Check that the sensor is in the right position in the tank 	<ul style="list-style-type: none"> •Heat pump non-functional •Resets automatically

Display	Error	Probable causes	Solutions	Temporary operation measures while waiting for the problem to be solved
ERR.01	•Incorrect temperature sensor reading	•The air and defrosting sensors are inverted on the electronics board •The defrosting and water sensors are inverted on the electronics board •The defrosting sensor is connected to the air input, the air sensor is connected to the water input, the water sensor is connected to the defrosting input	•Reposition the temperature sensors correctly on the main electronics board	•Heat pump non-functional
	•Incorrect reading from the defrosting sensor	•The defrosting sensor is not properly connected to the tube and is measuring air	•Reposition the defrosting sensor properly in the tube	
	•The heat pump has run out of refrigerant fluid	•There is a leak in the refrigerant circuit	•Find and repair the leak before filling the refrigerant circuit	
	•The expansion valve is not working	•The expansion valve bulb is damaged or broken due to work being carried out on the appliance, or it being in contact with a part that vibrates	•Replace the expansion valve	
	•The compressor is not working and safety temperature is activated	•Defect in compressor	•Replace the compressor	
ERR.02	•Incorrect temperature sensor readings	•The air and water sensors are inverted on the electronics board •The defrosting sensor is connected to the air input, the air sensor is connected to the water input, the water sensor is connected to the defrosting input	•Reposition the temperature sensors properly on the main electronics board	•Appliance non-functional
ERR.03	•Incorrect temperature sensor readings	•The defrosting sensor is connected to the air input, the air sensor is connected to the water input, the water sensor is connected to the defrosting input	•Reposition the temperature sensors properly on the main electronics board	•Appliance non-functional
ERR.04	•Incorrect defrosting and water sensor readings	•The defrosting and water sensors are inverted on the electronics board	•Reposition the temperature sensors properly on the main electronics board	•Heat pump non-functional
ALARME EPC	•The display screen electronics board has a memory problem	•The display screen of the electronics board is damaged	•Replace the display screen of the electronics board	•Appliance non-functional
ERR.08	•Incorrect defrosting sensor readings	•The defrosting sensor is defective	•Replace the sensor	•Appliance in alternative mode
ANTI BAC	• The anti-legionellosis cycle is not validated	•Sub-draft too high	•Restart a cycle	•Unit on
		•Set temperature too high	•Reduce cycle set temperature	
		•Failure of the resistance	•Clean the resistance •Replace the resistance	
		•Electrical back-up not allowed	•Authorize electrical back-up	
STORE+ ELEC MODE BOOST	• Activation of a function involving the use of the electrical back-up	•This is not a defect, only an information message.		

8 - WARRANTY

The tank is guaranteed against breakage for a period of five (5) years, starting from the date the appliance was activated, if the warranty form was sent back to the manufacturer. In the absence of this document, the date of manufacture will be used to determine the start date of the warranty. If the tank is broken, the whole appliance will be replaced.

The other parts are guaranteed for a period of two (2) years starting from the date the appliance was activated, if the warranty voucher was sent back to the manufacturer. In the absence of this document, the date of manufacture will be used to determine the start date of warranty.

The appliance is guaranteed against all manufacturing defects, provided that it was installed by a qualified professional using our instruction manuals, the C15-100 standard for electrical connections. A defective part does not warrant the whole appliance being replaced. The warranty only extends to parts which we identify as being defective due to manufacturer defect.

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 for replacement parts ends at the same time as the appliance warranty.

The warranty only applies to the appliance and its components, and excludes any part or installation external to the appliance.

Regular maintenance of the appliance by a trained professional is essential for ensuring sustained use and durability. In the absence of regular maintenance, the warranty will not apply.

If an appliance is presumed to have been the cause of any damage, the appliance and the damage must be left as they are and not tampered with.

8.1 - Limitations of warranty

8.1.1 - 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 domestic hot water heat pump 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.

8.1.2 - Exclusion from warranty

8.1.2.1 - Use

Cases (not limited to) where the warranty is void:

- The water supply being other than cold domestic water, (such as rainwater or other water from a well), or which has particularly hostile or abnormal properties which do not comply with the national regulations and current standards in effect.
- The appliance being switched on before it is filled with water.

8.1.2.2 - Handling

Cases (not limited to) where the warranty is void:

- 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.
- Damage occurring in the appliance when it has been switched on less than an hour after it has been leaning to the side or laid flat.

8.1.2.3 - Installation site

Cases (not limited to) where the warranty is void:

- Placing the appliance where it can be subject to frost or other adverse weather conditions.
- Non-compliance with the instructions in the manual when installing the appliance.
- Installing the appliance on a surface which cannot bear its weight when filled with water.
- Installing the appliance in a room with a volume of less than 20 m³ where there is no piping for air intake and exhaust.
- Installing the appliance at an angle which does not allow condensates to flow out properly.

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

8.1.2.4 - Electrical connections

Cases (not limited to) where the warranty is void:

- Faulty electrical connection which does not comply with the current national installation standards.
- Not following the connection diagrams in the instruction manual.
- Power supply being significantly under or over the required voltage.
- Failure to comply with supply cable standards.
- Absence of, or insufficient, electrical protection throughout the appliance (fuse/ circuit-breaker, grounding, etc.).
- Damage which results from deactivating the electrical back-up aquastat and/or the heat pump.

8.1.2.5 - Hydraulic connections

Cases (not limited to):

- Reversing the hot/cold water connections.
- Water pressure higher than 6 bar.
- Absence of, incorrect fitting of, or obstruction of, a pressure-relief valve.
- Not fitting the pressure-relief valve directly onto the cold water inlet of the appliance.
- Fitting a pressure-relief valve which does not comply with the current national standards (NFD 36-401).
- Installing a previously-used pressure-relief valve.
- Tampering with the pressure-relief valve.
- Abnormal levels of corrosion caused by an incorrect hydraulic connection (direct contact between iron and copper) without a sleeve (cast-iron, steel or insulator).
- External corrosion caused by the piping not being properly sealed or by condensates not draining off properly.
- Improper connection of the condensates recovery system.

No claim for compensation may be made for damage which has occurred as a result of not installing thermostatic mixing valves onto the appliance.

8.1.2.6 - Accessories

- The warranty does not cover defects resulting from:
 - Installation of accessories which do not comply with manufacturer recommendations.
 - Use of accessories not provided by the manufacturer.

8.1.2.7 - Maintenance

Cases (not limited to) where the warranty is void:

- Not maintaining the appliance, and not changing the anode in due time.
- Not maintaining the pressure-relief valve, resulting in excessive pressure.
- Absence of a pressure-reducing valve.
- Not maintaining the evaporator or the condensates draining system.
- Abnormal levels of limescale on heating elements or safety devices.
- Not using parts supplied by the manufacturer.
- Protective outer casing being subjected to any external damage.

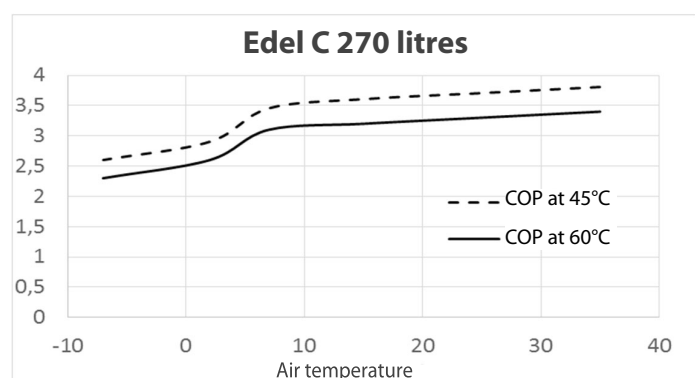
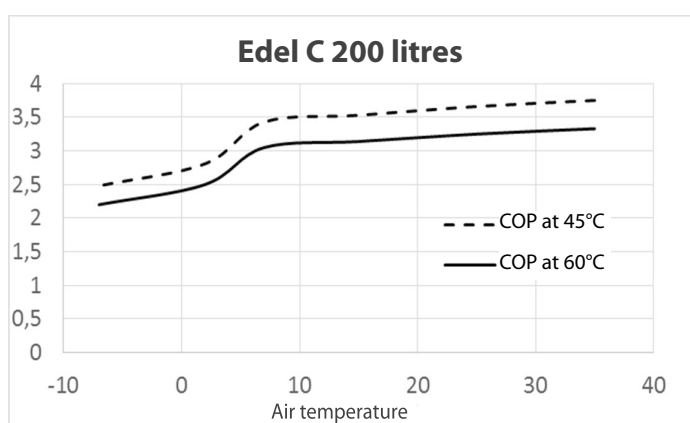
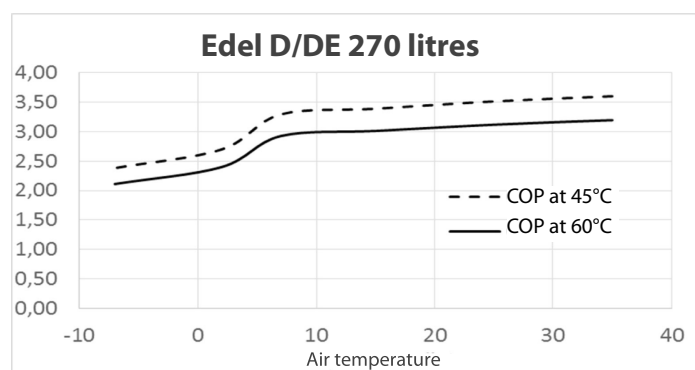
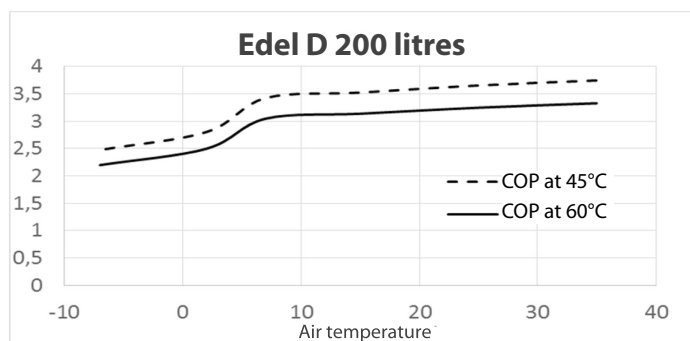
9 - APPENDICES

9.1 - Performance statistics

9.1.1 - COP development

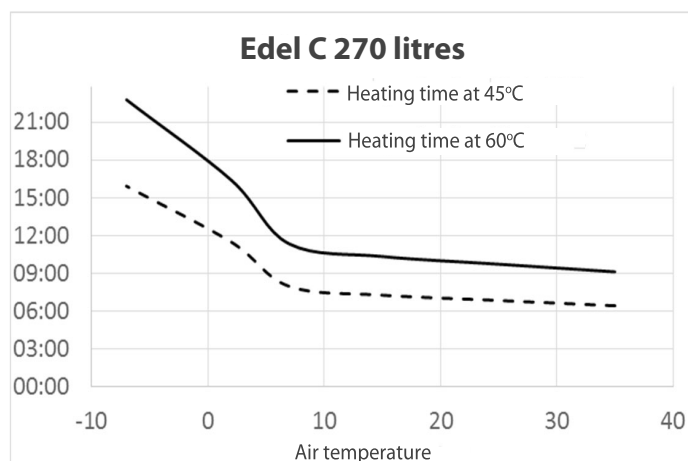
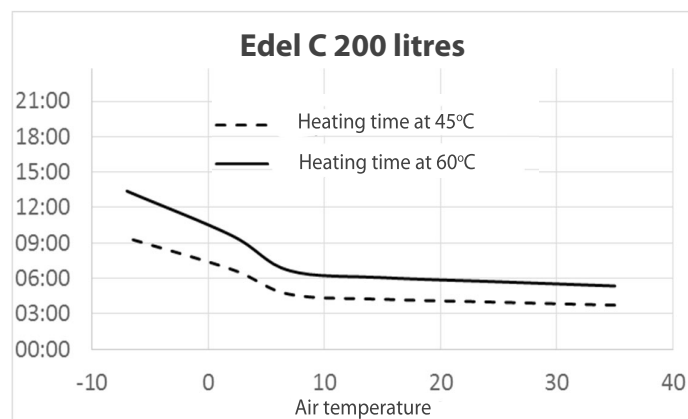
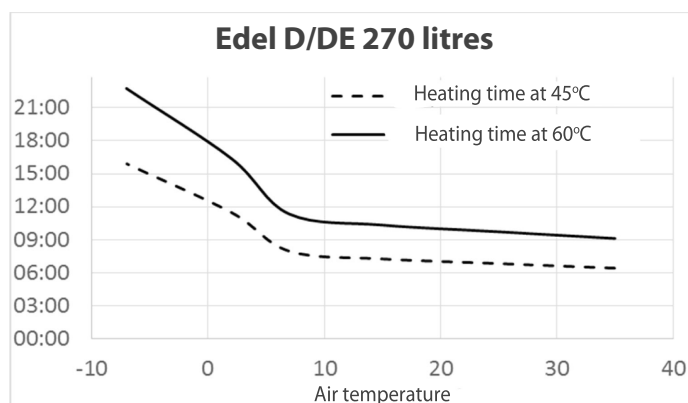
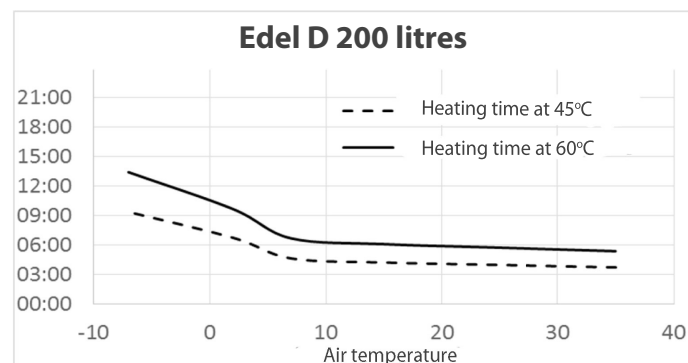
The performances are measured during a standardised heating cycle with cold water at 10°C.

This graph represents the development of the COP depending on the exterior air and the temperature of the domestic hot water.



9.1.2 - Heating time

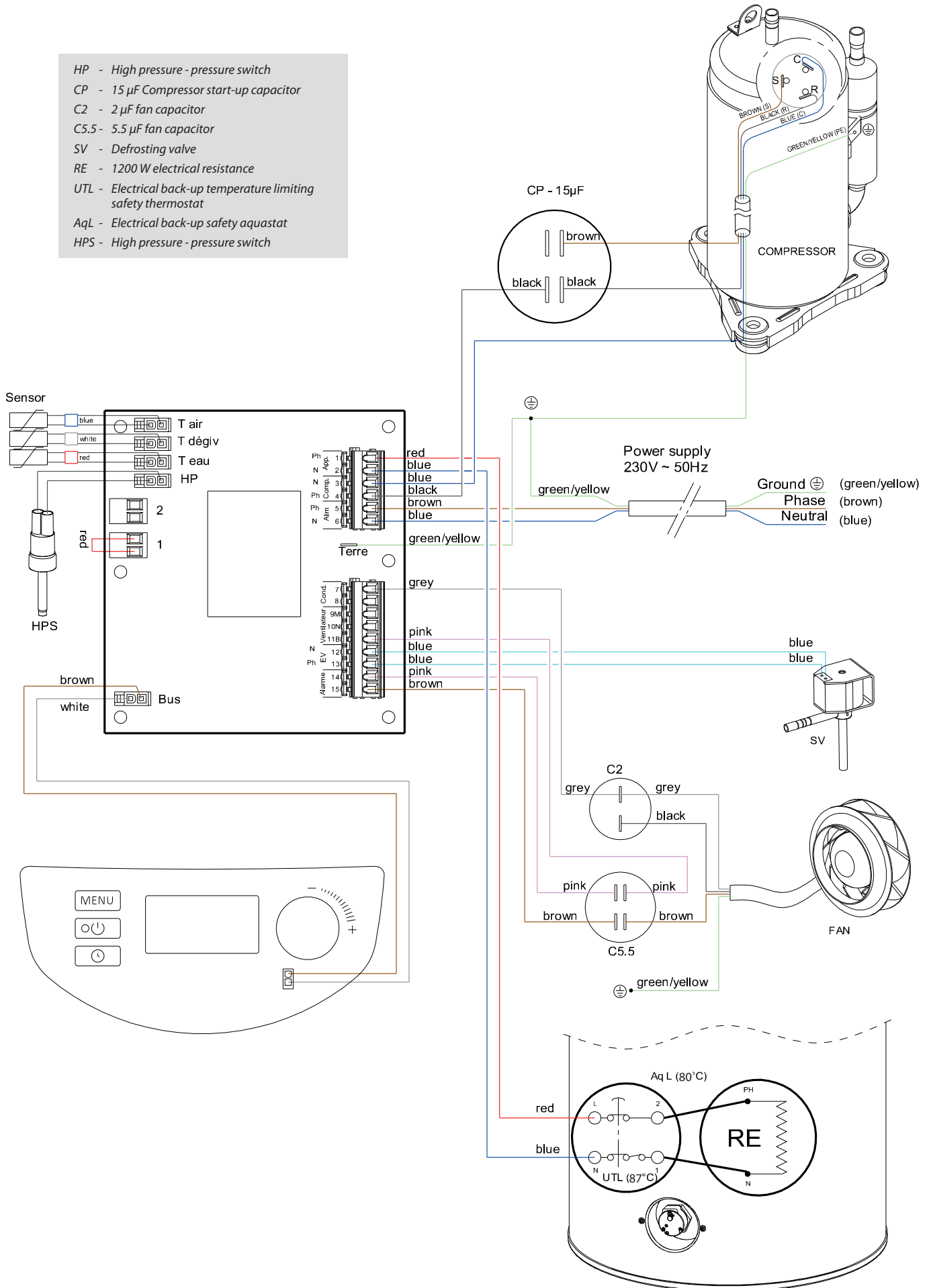
This graph represents the heating time for a full tank depending on the air and domestic hot water temperatures using the heat pump and without a back-up.



9.2 - Electrical wiring diagram

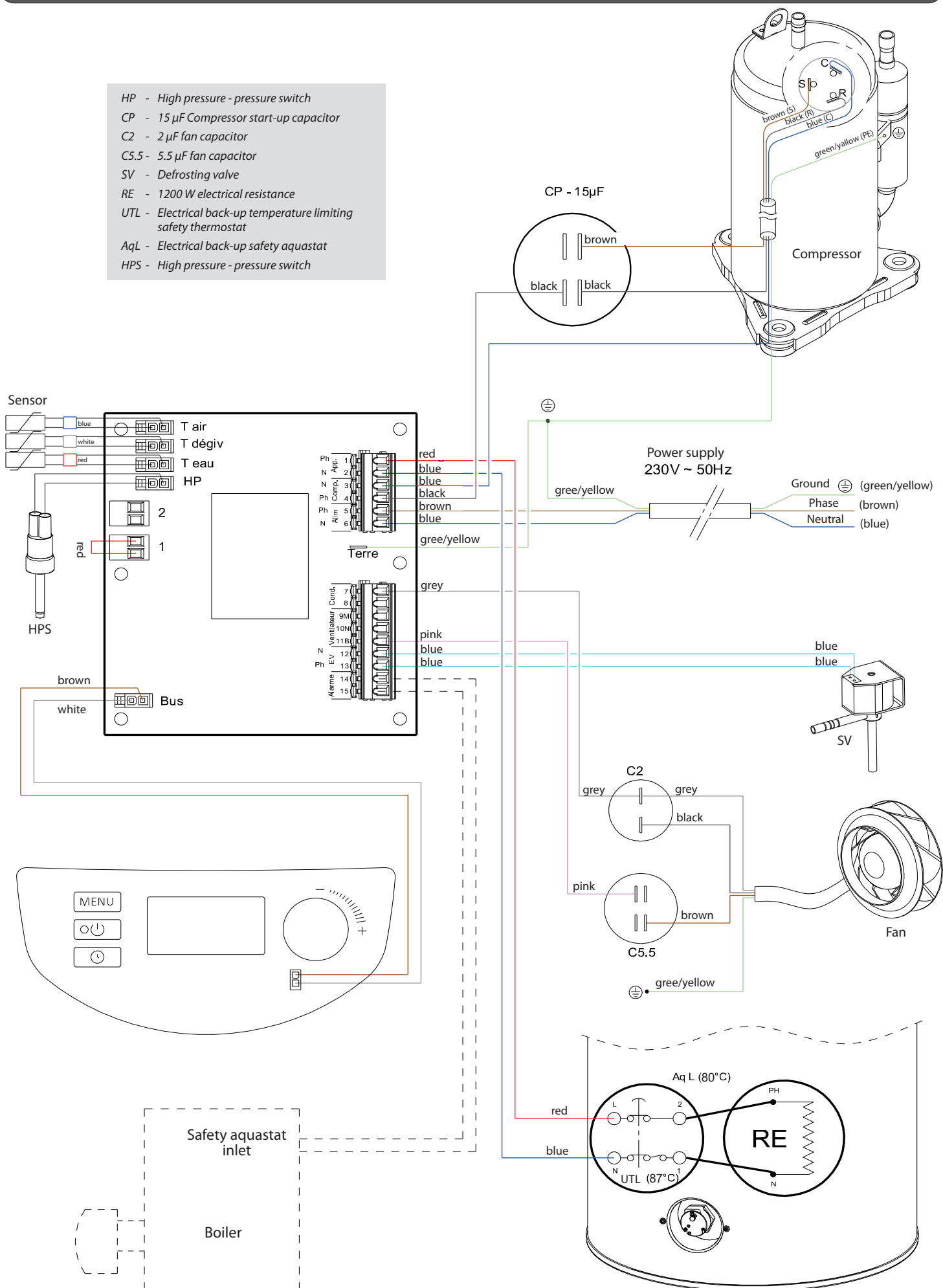
9.2.1 - Edel AIR 200/270 D/2

HP - High pressure - pressure switch
 CP - 15 μ F Compressor start-up capacitor
 C2 - 2 μ F fan capacitor
 C5.5 - 5.5 μ F fan capacitor
 SV - Defrosting valve
 RE - 1200 W electrical resistance
 UTL - Electrical back-up temperature limiting safety thermostat
 AqL - Electrical back-up safety aquastat
 HPS - High pressure - pressure switch



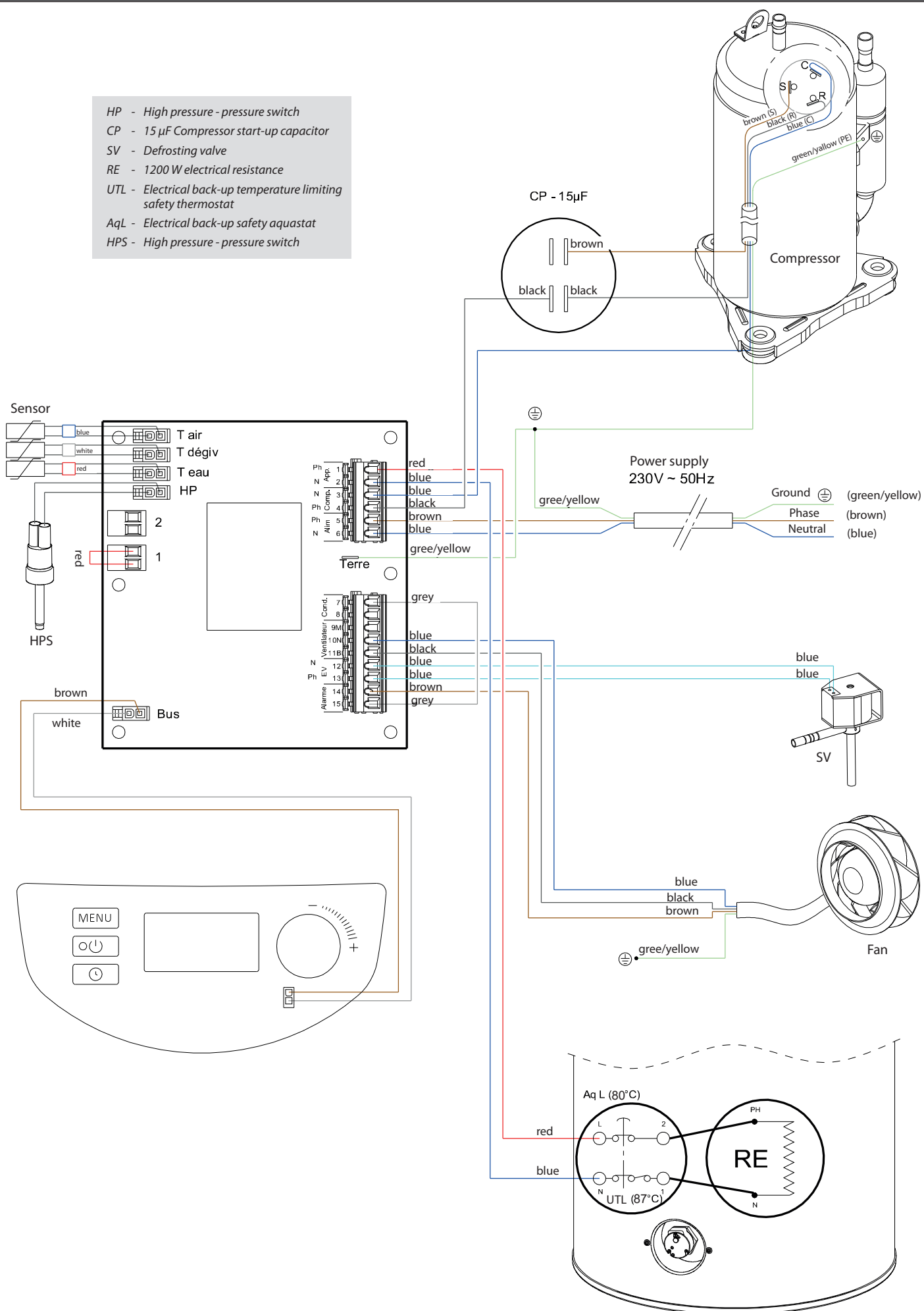
9.2.2 - Edel AIR 270 DE/2

HP - High pressure - pressure switch
 CP - 15 μ F Compressor start-up capacitor
 C2 - 2 μ F fan capacitor
 C5.5 - 5.5 μ F fan capacitor
 SV - Defrosting valve
 RE - 1200 W electrical resistance
 UTL - Electrical back-up temperature limiting safety thermostat
 AqL - Electrical back-up safety aquastat
 HPS - High pressure - pressure switch



9.2.3 - Edel AIR 200/270 C/2

HP - High pressure - pressure switch
 CP - 15 μ F Compressor start-up capacitor
 SV - Defrosting valve
 RE - 1200 W electrical resistance
 UTL - Electrical back-up temperature limiting safety thermostat
 AqL - Electrical back-up safety aquastat
 HPS - High pressure - pressure switch



NOTES



Any work carried out on the refrigerant circuit must be carried out by a qualified professional with a Category 1 certificate of aptitude. Releasing refrigerant gasses into the atmosphere is strictly prohibited. It is mandatory to collect the refrigerant fluid before carrying out any work on the circuit.

- Switch off the domestic hot water heat pump before opening it.
- Wait for the fan to come to a complete stop before undertaking any work on the appliance.



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