

KALI KO

Thermodynamic water heater

TWH 200E

TWH 300E

TWH 300EH



C003182-B



Installation and Service Manual

Declaration of conformity

The device complies with the standard type described in the EG declaration of conformity. It was manufactured and commissioned in accordance with European directives.

The original declaration of conformity is available from the manufacturer.

Contents

1	Safety instructions and recommendations	6
1.1	Safety instructions	6
1.1.1	Installation	6
1.1.2	Hydraulic connections	6
1.1.3	Electrical connections	7
1.1.4	Internet Site	7
1.1.5	Miscellaneous	8
1.2	Recommendations	8
1.3	Liabilities	9
1.3.1	Manufacturer's liability	9
1.3.2	Installer's liability	9
1.4	Safety data sheet: R-134a refrigerant	10
1.4.1	Product identification	10
1.4.2	Hazard identification	10
1.4.3	Composition / Information on the ingredients	10
1.4.4	First aid	10
1.4.5	Fire prevention measures	11
1.4.6	In the event of accidental spillage	11
1.4.7	Handling	11
1.4.8	Personal protection	12
1.4.9	Considerations on disposal	12
1.4.10	Regulations	12
2	About this manual	13
2.1	Symbols used	13
2.2	Abbreviations	13
3	Technical specifications	14
3.1	Homologations	14
3.1.1	Certifications	14
3.1.2	Directive 97/23/EC	14
3.1.3	Factory test	14
3.2	Technical specifications	15
3.2.1	Characteristics of the appliance	15
3.2.2	Heating time of the DHW tank depending on the air temperature	15
3.2.3	Max domestic hot water set point reached by the heat pump depending on the air temperature	16

4	Technical description	17
	4.1 General description	17
	4.2 Main parts	18
	4.3 Operating principle	18
5	Installation	20
	5.1 Regulations governing installation	20
	5.2 Package list	20
	5.2.1 Standard delivery	20
	5.2.2 Accessories	20
	5.3 Storage and transport	21
	5.3.1 Transport	21
	5.4 Choice of the location	22
	5.4.1 Type plate	22
	5.4.2 Positioning of the appliance	22
	5.4.3 Main dimensions	26
	5.5 Positioning the appliance	28
	5.5.1 Unpacking the appliance	28
	5.5.2 Positioning the appliance	28
	5.5.3 Levelling	29
	5.6 Hydraulic connections	29
	5.6.1 Connecting the calorifer to the domestic water circuit (secondary circuit)	29
	5.6.2 Connection to a boiler (Version EH)	31
	5.6.3 Connection to solar collectors (Version EH)	33
	5.7 Condensates discharge	35
	5.8 Installing the control system in the living room	35
	5.8.1 Choose a location	35
	5.8.2 Operations to be carried out on the thermodynamic DHW tank	36
	5.8.3 Installing the control system in the living room	37
	5.9 Electrical connections	38
	5.9.1 Recommendations	38
	5.9.2 Connecting the hydraulic back-up (Version EH)	38
	5.9.3 Access to the connection terminal HP/HC	39
	5.9.4 Connection with HP/HC signal connected	40
	5.9.5 Connection with timer programming	42
	5.9.6 Connection with timer programming and photovoltaic signal	43

	5.10	Electrical principle diagram	44
	5.11	Filling the thermodynamic DHW tank	45
6		Commissioning	46
	6.1	Control panel	46
	6.1.1	Description of the keys	46
	6.1.2	Description of the display	46
	6.1.3	Browsing in the menus	48
	6.2	Check points before commissioning	48
	6.3	Putting the appliance into operation	49
	6.3.1	Commissioning	49
	6.4	Checks and adjustments after commissioning	49
	6.5	Choosing the operating mode	49
	6.6	Reading out measured values	50
	6.6.1	Measurements menu	50
	6.6.2	Counters	50
	6.7	Modifying the installer parameters	52
	6.7.1	Access to parameters	52
	6.7.2	List of the parameters	53
	6.7.3	Control system sequence	54
	6.7.4	Return to the factory settings	54
7		Switching off the appliance	56
	7.1	Installation shutdown	56
	7.2	Antifreeze protection	56
8		Checking and maintenance	57
	8.1	General instructions	57
	8.2	Maintenance operations to be performed	58
	8.2.1	Refrigerant circuit	58
	8.2.2	Hydraulic circuit	58
	8.2.3	Aeraulics	58
	8.2.4	Impressed current anode	58
	8.2.5	Checking the safety valve or unit	58
	8.2.6	Descaling	59
	8.2.7	Cleaning the condensates discharge duct	59

8.3	Accessing the bottom inspection trap	60
8.4	Maintenance form	61
9	Troubleshooting	62
9.1	Messages (Code type bxx or Exx)	62
9.1.1	Messages (type code b.X.X)	62
9.1.2	Messages (type code E.X.X)	64
9.2	Message and error history	65
9.2.1	Err error display	66
9.2.2	bL blockage display	66
9.2.3	Reset error and blockage history	66
10	Spare parts	67
10.1	General	67
10.2	Spare parts	67
10.2.1	Heat pump	67
10.2.2	DHW tank	69

1 Safety instructions and recommendations


1.1 Safety instructions




DANGER

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

1.1.1. Installation




- ▶ Allow the space necessary for the correct installation of the appliance:
 - ▶  See chapter Positioning of the appliance (Installation and Service Manual).

1.1.2. Hydraulic connections

- ▶ The appliance is intended to be connected permanently to the mains water supply.
- ▶ Maximum / minimum water pressure at the inlet:
 - ▶  See chapter Technical specifications.
- ▶ The pressure limiter device must be started up regularly in order to remove any limescale deposits and check that it is not blocked.
- ▶ Draining: Turn off the domestic cold water inlet. Open a hot water tap in the system and then open the safety unit valve. When the water stops flowing, the appliance has been drained.

- ▶ A pressure reducer (not provided) is necessary when the mains pressure exceeds 80% of the calibration of the safety valve or unit. It will be installed upstream of the appliance.
- ▶ As water may run out of the discharge pipe on the pressure limiter device, the discharge pipe must be kept open to the open air.
- ▶ Connect the pressure limiter device to a drainage pipe, kept in the open air, in a frost-free environment, on a continuous downward slope.

1.1.3. Electrical connections

- ▶ Allowance must be made for a means of disconnection in the fixed pipes in accordance with the regulations on installations.
- ▶ If the mains power lead is damaged it must be replaced by the original manufacturer, the manufacturer's dealer or another competent person to prevent hazardous situations.
- ▶ This appliance must not be powered via an external switch such as a timer or be connected to a circuit that is regularly switched on and off by the electricity supplier.
- ▶ Install the appliance according to national regulations on electrical installation.
- ▶ Wiring diagram:  See chapter Electrical principle diagram (Installation and Service Manual).
- ▶ Connecting the appliance to the mains electricity:  See chapter Electrical connections (Installation and Service Manual).
- ▶ Fuse type and calibre:  See chapter Electrical connections (Installation and Service Manual).

1.1.4. Internet Site



The user guide and the installation manual can also be found on our internet site.

1.1.5. Miscellaneous



DANGER

If smoke is released or in case of refrigerant leak:

1. Do not use a naked flame, do not smoke, do not operate electrical contacts or switches (doorbell, light, motor, lift, etc..).
2. Open the windows.
3. Switch the appliance off.
4. Avoid contact with the refrigerant. Danger of frost injuries.
5. Trace possible leaks and seal them immediately.



WARNING

Depending on the settings of the appliance:

- ▶ Do not touch the refrigeration connection pipes with your bare hands while the appliance is running. Risk of being burnt.



CAUTION

- ▶ Do not neglect to service the appliance.
- ▶ In order to limit the risk of being scalded, the installation of a thermostatic mixing valve on the domestic hot water flow piping is compulsory.

1.2 Recommendations



WARNING

Only certified professionals having received adequate training are permitted to work on the appliance and the installation.



WARNING

Before any work, switch off the mains supply to the appliance.

1.3 Liabilities

1.3.1. Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various applicable European Directives. They are therefore delivered with **CE** marking and all relevant documentation.

In the interest of customers, we are continuously endeavouring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice.

Our liability as the manufacturer may not be invoked in the following cases:

- ▶ Failure to abide by the instructions on using the appliance.
- ▶ Faulty or insufficient maintenance of the appliance.
- ▶ Failure to abide by the instructions on installing the appliance.

1.3.2. Installer's liability

The installer is responsible for the installation and commissioning of the appliance. The installer must respect the following instructions:

- ▶ Read and follow the instructions given in the manuals provided with the appliance.
- ▶ Carry out installation in compliance with the prevailing legislation and standards.
- ▶ Perform the initial start up and carry out any checks necessary.
- ▶ Explain the installation to the user.
- ▶ If a maintenance is necessary, warn the user of the obligation to check the appliance and maintain it in good working order.
- ▶ Give all the instruction manuals to the user.

1.4 Safety data sheet: R-134a refrigerant

1.4.1. Product identification

- ▶ Refrigerant name: R-134a

1.4.2. Hazard identification

- ▶ Effects harmful to health:
 - The vapours are heavier than air and may lead to asphyxia owing to reduced oxygen levels.
 - Liquefied gas: Contact with the liquid may cause serious frost and eye injuries.
- ▶ Product classification: This product is not classified as a "hazardous preparation" according to European Union regulations.



CAUTION

If refrigerant is mixed with air, it may lead to pressure surges in the refrigeration pipes and cause an explosion and other hazards.

1.4.3. Composition / Information on the ingredients

- ▶ Chemical nature: 1,1,1,2-Tetrafluoroethane R-134a.
- ▶ Ingredients that may lead to hazardous situations:

Substance name	Concentration	CAS number	CE number	Classification	GWP
1,1,1,2-Tetrafluoroethane R-134a	100 %	811-97-2	212-377-0		1300

1.4.4. First aid

- ▶ **If inhaled:** Evacuate the subject from the contaminated area and take him into the open air.
If feeling unwell: Call a doctor.
- ▶ **In the event of contact with the skin:** Treat frost injuries as burns. Rinse in abundant water, do not remove clothing (risk of adhesion to the skin).
If skin burns appear, call a doctor immediately.

- ▶ **In the event of contact with the eyes:** Rinse immediately in water, holding the eyelids well apart (at least 15 minutes). Consult an ophthalmologist immediately.

1.4.5. Fire prevention measures

- ▶ Appropriate extinguishing agents: All extinguishing agents can be used.
- ▶ Inappropriate extinguishing agents: None to our knowledge. In the event of fire nearby, use the appropriate extinguishing agents.
- ▶ Specific hazards:
 - Rise in pressure.
In the presence of air, an inflammable mixture may form under certain temperature and pressure conditions
 - Toxic and corrosive vapours may be released by the effect of the heat.
- ▶ Special intervention methods: Cool the volumes exposed to heat with water spray.
- ▶ Protection of the firemen:
 - Full facepiece self-contained breathing apparatus
 - Complete body protection.

1.4.6. In the event of accidental spillage

- ▶ Individual precautions:
 - Avoid contact with the skin and eyes
 - Do not intervene without appropriate protective equipment
 - Do not inhale the vapours
 - Evacuate the hazardous area
 - Stop the leakage
 - Eradicate all sources of ignition
 - Ventilate the spillage area mechanically (Risk of asphyxia).
- ▶ Cleaning / Decontamination: Allow residual product to evaporate.

1.4.7. Handling

- ▶ Technical measures: Ventilation.

- ▶ Precautions to be taken:
 - No smoking
 - Prevent the accumulation of electrostatic charges
 - Work in a well ventilated place.

1.4.8. Personal protection

- ▶ Respiratory protection:
 - If insufficient ventilation: AX type cartridge mask
 - In confined spaces: Full facepiece self-contained breathing apparatus.
- ▶ Hand protection: Protective gloves in leather or nitrile rubber.
- ▶ Eye protection: Safety glasses with side protection.
- ▶ Skin protection: Clothing made mostly of cotton.
- ▶ Industrial hygiene: Do not drink, eat or smoke at the place of work.

1.4.9. Considerations on disposal

- ▶ Product waste: Consult the manufacturer or the supplier for information on recovery or recycling.
- ▶ Soiled packaging: Reuse or recycle after decontamination. Destroy in authorised installations.



WARNING

Disposal must be done in compliance with prevailing local and national regulations.

1.4.10. Regulations

- ▶ EC Regulation 842/2006: Fluorinated greenhouse gases under the Kyoto Protocol.

2 About this manual

2.1 Symbols used

In these instructions, various danger levels are employed to draw the user's attention to particular information. In so doing, we wish to safeguard the user's safety, highlight hazards and guarantee correct operation of the appliance.

**DANGER**

Risk of a dangerous situation causing serious physical injury.

**WARNING**

Risk of a dangerous situation causing slight physical injury.

**CAUTION**

Risk of material damage.



Signals important information.



Signals a referral to other instructions or other pages in the instructions.



Before installing and commissioning the device, read carefully the instruction manuals provided.

2.2 Abbreviations

- ▶ **HP:** Heat pump
- ▶ **DHW:** Domestic hot water
- ▶ **LP:** Low pressure
- ▶ **HP:** High pressure
- ▶ **CFC:** Chlorofluorocarbon
- ▶ **Qpr:** Static losses (Thermal losses from the DHW tank when it is off for 24 hours)
- ▶ **COP:** Performance coefficient
- ▶ **HP/HC:** Peak hours / Off-peak hours

3 Technical specifications

3.1 Homologations

3.1.1. Certifications

■ Electrical compliance / Marking CE

This product complies to the requirements to the european directives and following standards:

- ▶ 2006/95/EC Low Voltage Directive
Reference Standard: EN 60.335.1.
- ▶ 2004/108/EC Electromagnetic Compatibility Directive
Reference Standard: EN 50.081.1 / EN 50.082.1 / EN 55.014.

3.1.2. Directive 97/23/EC

This product conforms to the requirements of european directive 97 / 23 / EC, article 3, paragraph 3, on pressure equipment.

3.1.3. Factory test

Before leaving the factory, each appliance is tested for the following:

- ▶ Water tightness
- ▶ Air tightness
- ▶ Electrical safety.

3.2 Technical specifications

3.2.1. Characteristics of the appliance

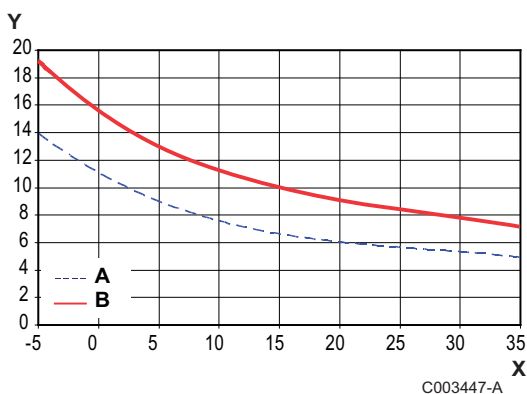
Model		TWH 300 E	TWH 300 EH	TWH 200 E
Capacity	litres	270	260	215
Output (HP) -Air temperature = 15°C	W	1700	1700	1700
Absorbed electrical power (HP)	W	500	500	500
COP (1)		2.94	2.75	2.90
Nominal air flow rate ($\Delta P = 25 \text{ Pa}$) ⁽¹⁾	m ³ /h	320	320	320
Electrical resistor output	W	2400	2400	2400
Operating pressure	bar (MPa)	10 (1,0)	10 (1,0)	10 (1,0)
Power supply voltage	V	230	230	230
Circuit breaker	A	16	16	16
Exchanger surface	m ²	-	1.00	-
Continuous output $\Delta T = 35 \text{ K}$ (2) (3)	litres per hour	-	955.6	-
Flow rate over 10 minutes with $\Delta T = 30 \text{ K}$ (2)	l/10 mm	-	420	-
Vmax ⁽¹⁾	litres	388	383	281.9
Pes ⁽¹⁾	W	34	36	30
Maximum length of the air connection Diameter 160 mm ⁽⁴⁾	m	26	26	26
R134a refrigerant	kg	1.45	1.45	1.45
Weight (empty)	kg	105	123	92

(1) Value obtained with an air temperature of 7 and a water inlet at 10 °C, as per EN16147 based on Specification LCIE N°103-15/B:2011
 (2) Domestic cold water input at 10°C - Primary inlet temperature at 80°C
 (3) Output: 34.1 kW
 (4) The installation of suction and backflow conduits on the heat pump lessens its performance

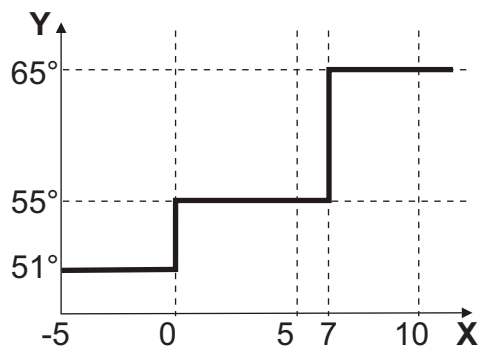
3.2.2. Heating time of the DHW tank depending on the air temperature

Scenario for complete heating of the DHW tank

- A** Heating time for a set point of 51°C
- B** Heating time for a set point of 62°C
- Y** Heating time (Hours)
- X** Air temperature (°C)



3.2.3. Max domestic hot water set point reached by the heat pump depending on the air temperature



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Y Max domestic hot water temperature (°C)
X Air temperature (°C)

4 Technical description

4.1 General description

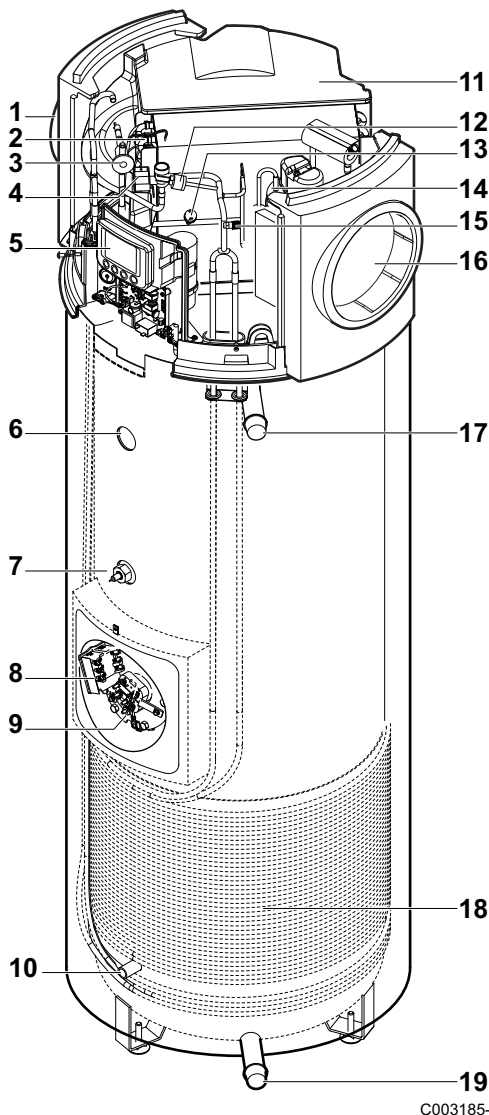
The DHW tanks in the **TWH** range have the following characteristics:

- ▶ Floor-standing thermodynamic storage DHW tank
- ▶ Thermodynamic unit extracting energy from unheated ambient air or outside air
- ▶ Control panel with display of the volume of water heated and hourly programming
- ▶ Heat exchanger for connection to a boiler or a solar circuit (Version EH)
- ▶ Steatite electrical resistor 2.4 kW
- ▶ Enamelled tank protected by impressed current anode
- ▶ Very thick insulation (0% CFCs)

The thermodynamic water heater is a hot water tank that can be heated by:

- ▶ The Heat Pump (up to 65°C)
- ▶ The electric heating resistance (Electrical back-up - AUTO and Boost mode) (up to 70°C)
- ▶ The additional heat exchanger (Version EH)

4.2 Main parts



- | | |
|----|---|
| 1 | Fan |
| 2 | Evaporator |
| 3 | Expansion valve |
| 4 | Solenoid valve for defrosting |
| 5 | Regulation |
| 6 | temperature sensor |
| 7 | Impressed current anode |
| 8 | Safety thermostat |
| 9 | Steatite electrical resistor |
| 10 | temperature sensor |
| 11 | Air conduits |
| 12 | High pressure (HP) pressure switch |
| 13 | Low pressure (LP) pressure switch |
| 14 | Compressor |
| 15 | Pressure measurement point - High pressure (HP) |
| 16 | Ventilation grid |
| 17 | Domestic hot water outlet |
| 18 | Condenser |
| 19 | Cold water inlet |

4.3 Operating principle

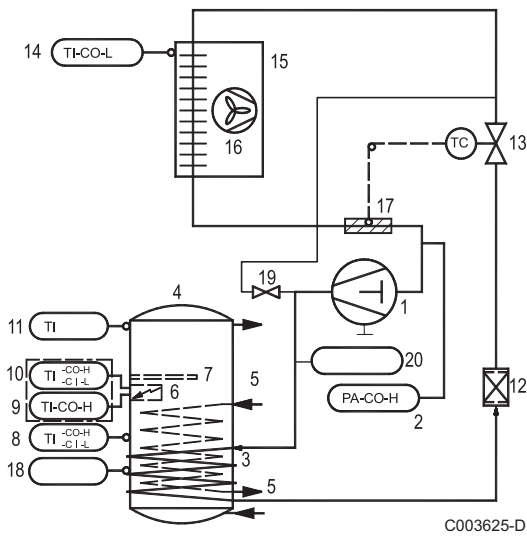
The thermodynamic DHW tank uses unheated ambient air or outside air to prepare DHW.

The refrigerant circuit is a closed circuit in which the R-134a refrigerant plays the role of an energy carrier.

The heat from the intake air is transferred to the refrigerant in the finned heat exchanger at a low evaporation temperature.

The refrigerant is sucked in by a compressor in vapour form, which raises it to a higher pressure and temperature and sends it to the condenser. In the condenser, the heat extracted in the evaporator and some of the energy absorbed by the compressor are released into the water.

The refrigerant is depressurised in the thermostatic expansion valve and is cooled. The refrigerant can again extract the heat contained in the inlet air into the evaporator.



- 1 Compressor
- 2 Low pressure (LP) pressure switch
- 3 Condenser
- 4 Domestic hot water tank
- 5 Heat exchanger (Version EH)
- 6 Steatite electrical resistor
- 7 Impressed current anode
- 8 Temperature regulator (HP)
- 9 Limiting thermostat
- 10 Temperature regulator (Electric heating resistance)
- 11 Sensor tube
- 12 Filter-drier
- 13 Thermostatic expansion valve
- 14 Ambient air thermostat
- 15 Evaporator
- 16 Fan
- 17 Expansion valve bulb
- 18 Sensor tube
- 19 Solenoid valve for defrosting
- 20 High pressure (HP) pressure switch

5 Installation

5.1 Regulations governing installation



CAUTION

Installation and maintenance of the appliance must be done by a qualified professional in accordance with prevailing statutory texts and codes of practice.

5.2 Package list

5.2.1. Standard delivery

The delivery includes:

- ▶ The thermodynamic DHW tank (x1)
- ▶ Dielectric connection (delivered in the instructions bag for the DHW tank) (2x)
- ▶ Lip gasket (2x)
- ▶ Condensate evacuation hose (1x)
- ▶ Instructions + Kyoto Protocol sticker (1x)
- ▶ Hose holding clip (1x)
- ▶ The user instructions
- ▶ The installation and maintenance instructions

5.2.2. Accessories

Accessories	package
Galvanised 90° elbow (Diameter 160 mm)	EH 77
Adapter sleeve (Diameter 160 mm)	EH 205
Insulated flexible duct (Diameter 160 mm - Length 3 m)	EH 206
Set of 2 retaining clamps (Diameter 160 mm)	EH 207
Passing through walls (Diameter 160 mm) + Closing plate	EH 208
Outside grid (Diameter 160 mm) (aluminium)	EH 209
PPE duct (Diameter 160 mm - Length 2x1 m) + 2 sleeves	EH 272
290° elbows (PPE) (Diameter 160 mm) + 2 sleeves	EH 273
2 sleeves PPE (Diameter 160 mm)	EH 274
Roof outlet Black (Diameter 160 mm)	EH 275
Tightness bed plate for flat roof (Diameter 160 mm)	EH 276
Tightness bed plate for sloping roof 25 to 45° (Diameter 160 mm)	EH 277

Accessories	package
Reduced elbow kit	EH 434
Connection kit for safety unit	ER 208
Outside grate for taking in and discharging air (Diameter 160 mm)	EH 558

5.3 Storage and transport



CAUTION

- ▶ Have 2 people available.
- ▶ Use a 3-wheel hand truck.
- ▶ Handle the appliance with gloves.
- ▶ The appliance cover cannot be used for transport operations. The cover is not capable of withstanding heavy weights.
- ▶ Model 300 : Allow a minimum room height of approximately 2.15 m
Model 200 : Allow a minimum room height of approximately 1.84 m.

- ▶ The thermodynamic DHW tank must be stored and transported in its packaging and not filled with water.
- ▶ Ambient transport and storage temperatures admissible: from -20 to +60°C.

5.3.1. Transport



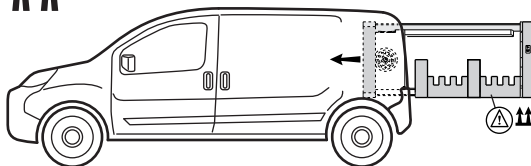
We recommend shipping the appliance vertically.

It is possible to ship the appliance horizontally **over short distances** but only on its back.



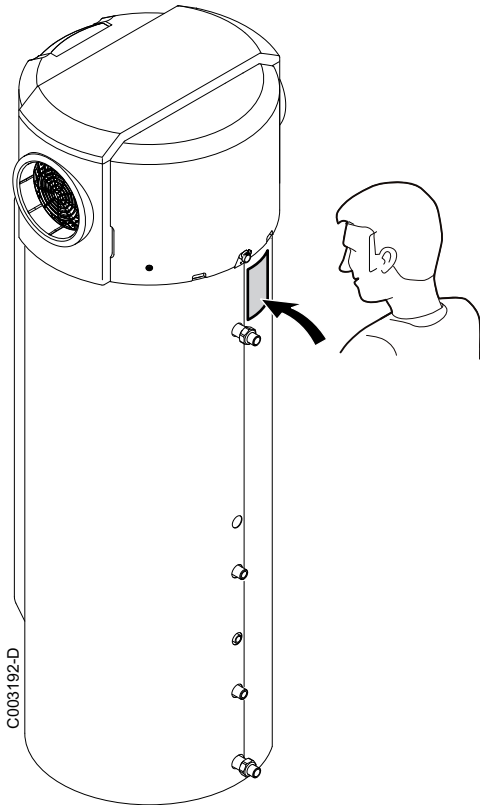
CAUTION

The appliance must never be stacked or laid on another side; it may otherwise malfunction or break down.



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5.4 Choice of the location



5.4.1. Type plate

- ▶ The type plate must be accessible at all times.
- ▶ The type plate identifies the product and provides the following information:
 - Appliance type
 - Manufacturing date (Year - Week)
 - Serial number.

5.4.2. Positioning of the appliance



CAUTION

When installing the appliance, respect the IP21 environmental rating.



CAUTION

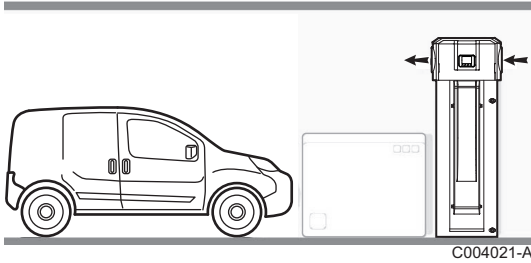
- ▶ Do not install the thermodynamic water heater in premises exposed to gas, vapours or dust.
- ▶ The appliance must not take in air containing solvents or explosive materials.
- ▶ The air taken in must in no event be dusty.
- ▶ Adequate thermal insulation in relation to adjacent living spaces is recommended.
- ▶ Temperature of the ambient air or of the air taken in by the heat pump for optimum running: from 10 to 35°C.

- ▶ Install the appliance in a dry, frost-free room at a minimum temperature of 7°C.
- ▶ Install the appliance on a flat, solid surface.

- ▶ Install the appliance on a base frame. The base frame must at all times present sufficient resistance to the load.

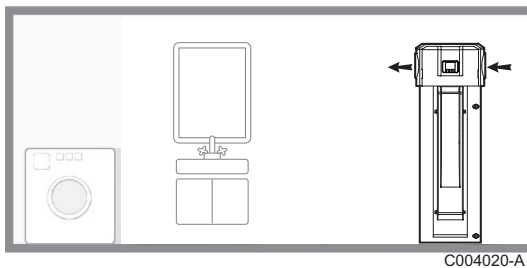
■ **Advised positions**

Garage:



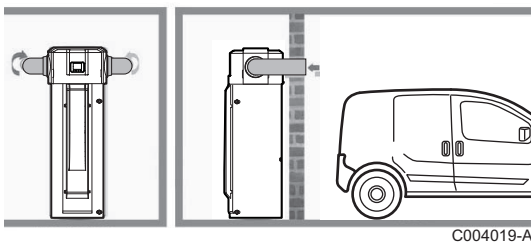
- ▶ Unheated room.
- ▶ Enables recovery of the free energy released by your vehicle's engine when switched off after use or by household appliances in operation.

Laundry room:



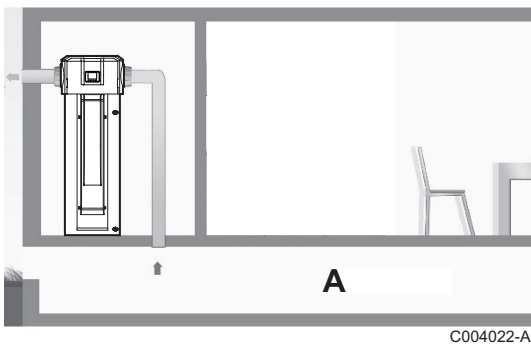
- ▶ Unheated room.
- ▶ Enables the dehumidification of the room and recovery of the energy wasted by washing and drying machines.

Habitable room:



- ▶ Can obtain free heat from the garage.

Via crawl space:

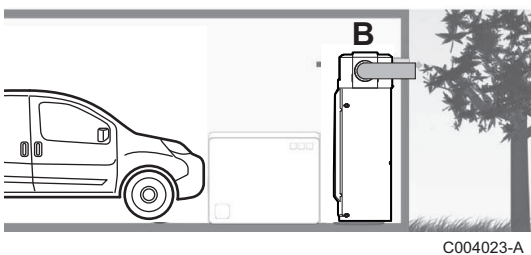


- ▶ Connection to the crawl space is possible if the volume is greater than 30 m³.
- ▶ The crawl space must be frost-free (temperature > 1°C).



If the crawl space is poorly insulated, thermal losses from the home will be greater.

Via outside air:



- ▶ Connection to the outside air may lead to overconsumption of electricity if the outside air temperature falls outside the operating range.
- ▶ Minimum distance to be observed for the ducts if intake and backflow are done on the same façade: 700 mm.



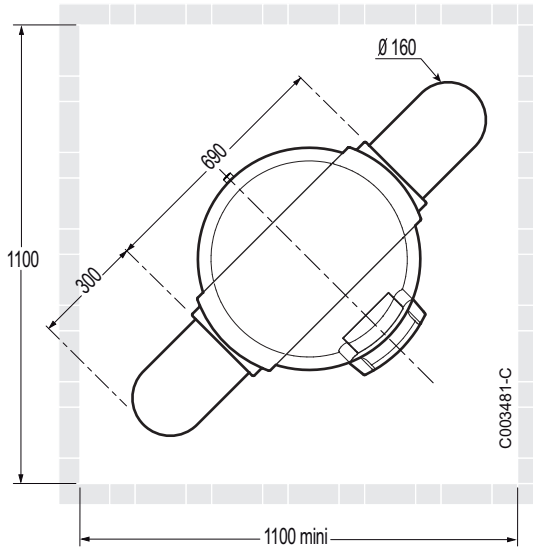
Risk of discomfort in the Eco operating mode.

Cupboard:

- ▶ With EH77 or EH273: 1100 mm x 1100 mm - Ducted version. Be sure to make the aeraulic connections absolutely leakproof in order to prevent the cupboard from losing heat.



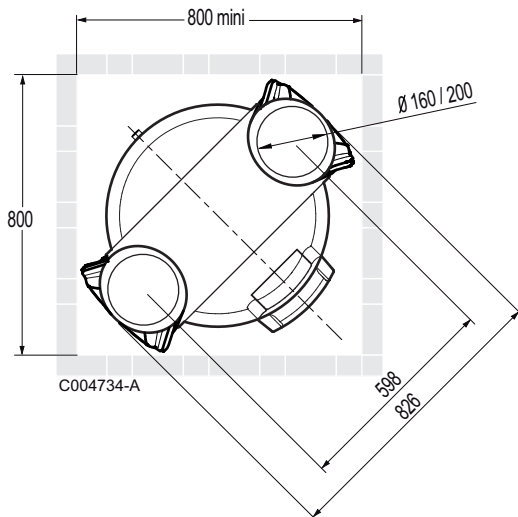
We strongly recommend installing the control system in the living room.



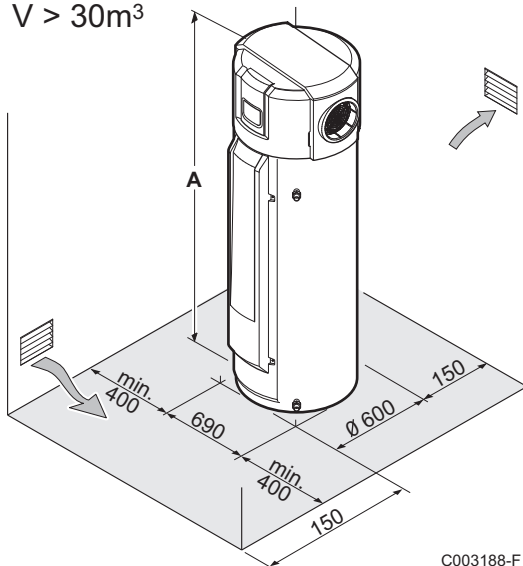
- ▶ With EH434 (Reduced elbow kit): 800 mm x 800 mm - Ducted version. Be sure to make the aeraulic connections absolutely leakproof in order to prevent the cupboard from losing heat.



We strongly recommend installing the control system in the living room.



V > 30m³



	TWH 200E	TWH 300E	TWH 300EH
A (mm)	1690	2000	2000

- ▶ To ensure adequate access and facilitate maintenance, allow sufficient space around the appliance.
- ▶ Model 200: Allow a minimum distance of 0.4 m at both sides of the appliance and a minimum room height of around 1.84 m for operation without air ducts.
- ▶ Model 300: Allow a minimum distance of 0.4 m at both sides of the appliance and a minimum room height of around 2.15 m for operation without air ducts.

■ Pipe length



CAUTION

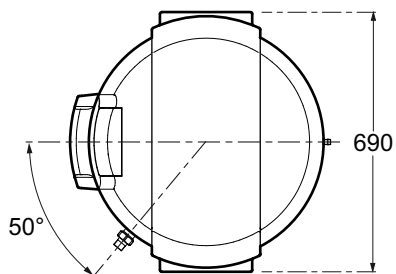
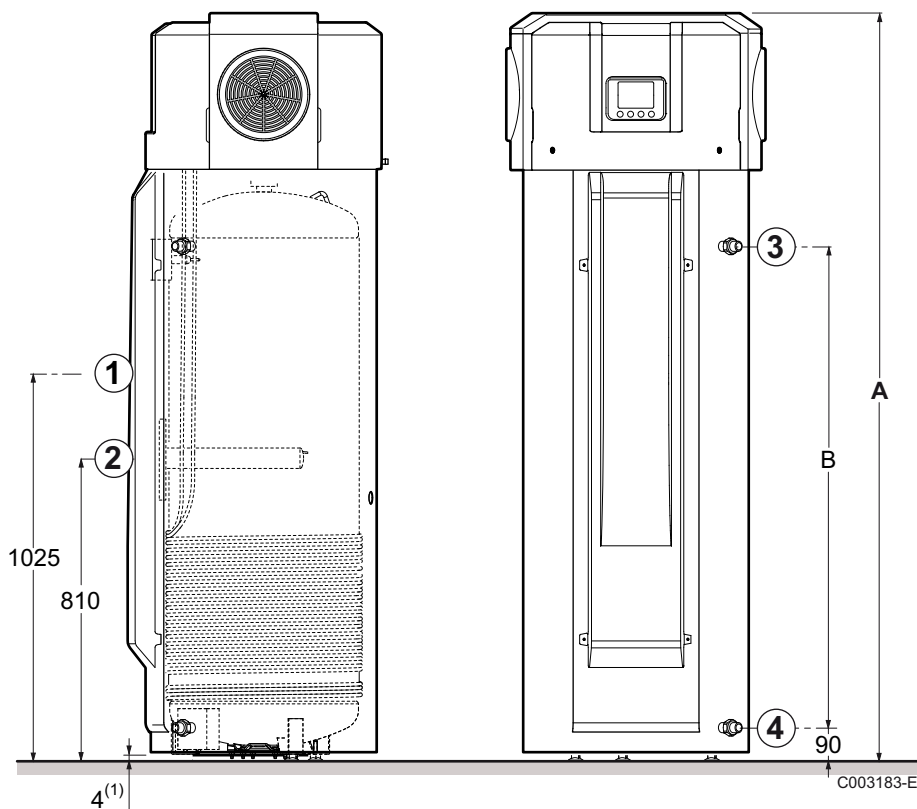
Do not use accessories that may cause considerable pressure drops (extraction grid with mosquito screen, partially extended flexible duct, etc.). If the pressure drops are greater, the performance of the appliance will be impaired and the loading times increased.

Maximum length of the air connection	m
diameter 160 mm	26

Accessories	package	Equivalent length in m
Galvanised 90° elbow (Diameter 160 mm)	EH77	1.0
Adapter sleeve (Diameter 160 mm)	EH205	1.5
Insulated flexible duct (Diameter 160 mm - Length 3 m)	EH206	3.0
Passing through walls (Diameter 160 mm) + Closing plate	EH208	7.0
Outside grid (Diameter 160 mm) (aluminium)	EH209	8.0
PPE duct (Diameter 160 mm - Length 2x1 m) + 2 sleeves	EH272	0.2
290° elbows (PPE) (Diameter 160 mm) + 2 sleeves	EH273	0.2
Roof outlet Black (Diameter 160 mm)	EH275	2.0
Reduced elbow kit	EH434	6.0
Outside grate for taking in and discharging air (Diameter 160 mm)	EH558	1.0

5.4.3. Main dimensions

■ TWH 200E - TWH 300E

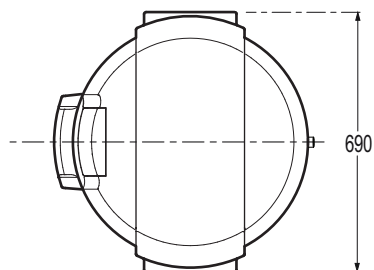
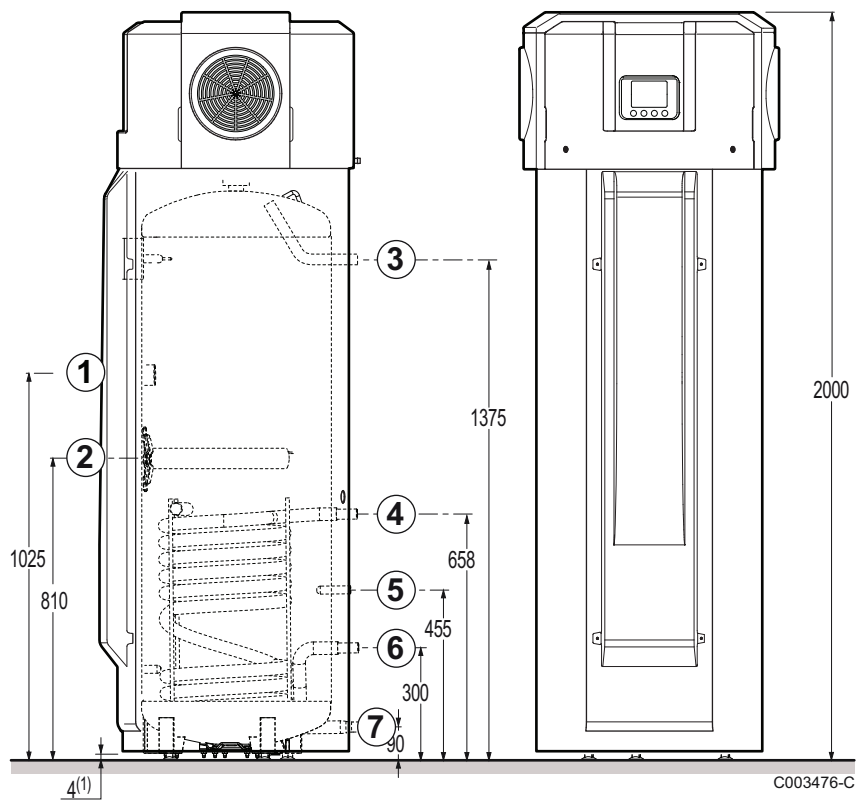


- ① Impressed current anode
- ② Steatite electrical resistor 2.4 kW
- ③ Domestic hot water outlet G 3/4"
- ④ Domestic cold water inlet G 3/4"
- (1) Adjustable feet

👉 See chapter "Positioning the appliance", page 28

	TWH 200E	TWH 300E
A	1690	2000
B	974	1287

■ TWH 300EH



- ① Impressed current anode
 - ② Steatite electrical resistor 2.4 kW
 - ③ Secondary domestic hot water flow G 3/4"
 - ④ Solar exchanger or boiler inlet G 3/4"
 - ⑤ Sensor tube for solar or boiler sensor
 - ⑥ Solar exchanger or boiler outlet G 3/4"
 - ⑦ Domestic cold water inlet G 3/4"
 - (1) Adjustable feet
- ☞ See chapter "Positioning the appliance", page 28

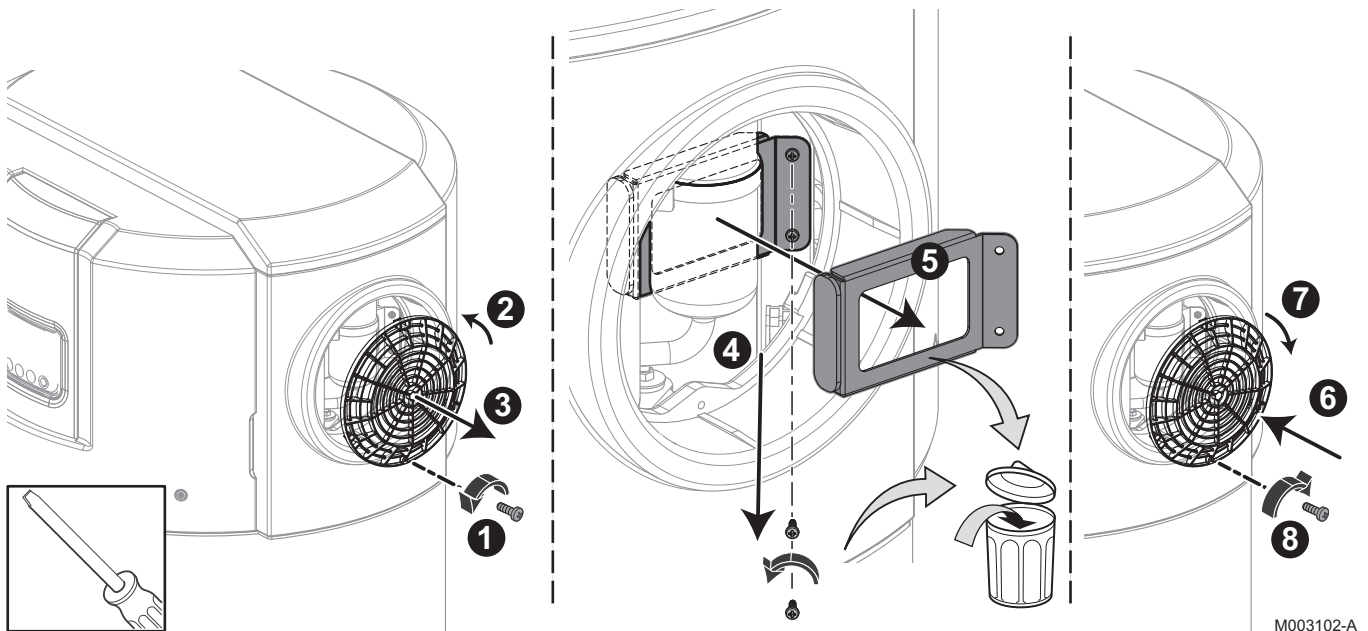
5.5 Positioning the appliance

5.5.1. Unpacking the appliance



CAUTION

Remove all packaging materials. Check that the contents are intact. If you notice a defect, do not use the appliance and contact the supplier.



1. Remove the retaining screw from the fan grille.
2. Turn the grille anticlockwise.
3. Remove the fan grille.
4. Unscrew the 2 screws from the compressor support part.
5. Remove the compressor support part and discard it.
6. Put the grille back in place.
7. Turn the grille clockwise to fit it back into its housing.
8. Put the retaining screws in place.

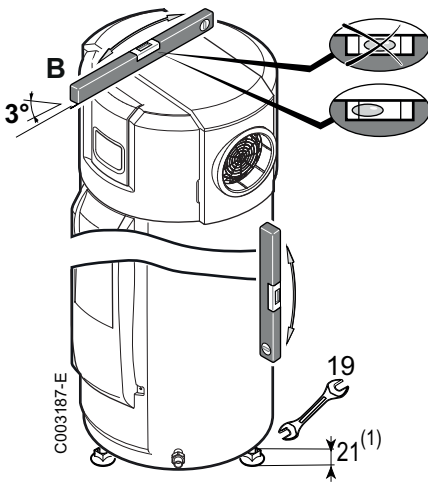
5.5.2. Positioning the appliance

Refer to the instructions affixed to the packaging of the appliance

5.5.3. Levelling

i To improve condensates evacuation, we recommend tilting the appliance slightly backwards.

1. Level the appliance using the adjustable feet.
 (1) Adjustable feet, Basic dimension 4 mm
 Can be adjusted from 4 mm to 21 mm



5.6 Hydraulic connections



CAUTION

Before making the hydraulic connections, it is essential to rinse the circuit to get rid of any particles that may damage certain units (safety valve, pumps, valves, etc.).
 If rinsing has to be done using an aggressive product, neutralise the rinsing water before disposing of it in the waste water network.



Using hoses which are too short or too rigid encourages the transmission of vibrations and the production of noises.

Version EH: Make all the hydraulic connections for the DHW tank using flexible pipes.

5.6.1. Connecting the calorifer to the domestic water circuit (secondary circuit)

When making the connections, it is imperative that the standards and corresponding local directives are respected.

■ Specific precautions

Before making the connection, **rinse the drinking water inlet pipes** in order not to introduce metal or other particles into the appliance's tank.

**CAUTION**

Do not connect the domestic hot water connection directly to copper pipes in order to prevent galvanic couples in iron/copper (risk of corrosion). It is compulsory to fit the domestic hot water connection with a dielectric connection (Supplied).

■ Safety valve or safety unit

**CAUTION**

In accordance with safety rules, a safety unit calibrated to 7 bar must be mounted on the DHW tank's domestic cold water inlet.

7 bar safety valve (0.7 MPa).

- ▶ Integrate the safety valve in the cold water circuit.
- ▶ Install the safety valve close to the calorifer in a place which is easy to access.

■ Size

- ▶ The diameter of the safety unit and its connection to the DHW tank must be at least equal to the diameter of the DHW tank's domestic cold water inlet.
- ▶ No isolating devices must be fitted between the valve or the safety unit and the DHW tank.
- ▶ The outlet pipe in the valve or safety assembly must not be blocked.

To avoid restricting the flow of water in the event of overpressure:

- ▶ The safety device drain pipe must have a uniform and sufficient gradient and its diameter must be at least equal to that of the outlet opening of the safety device (to prevent the flow of water being hindered if the pressure is too high).
- ▶ The cross section of the discharge pipe from the safety unit must be at least equal to the cross section of the opening of the safety unit outlet.

■ Isolating valves

Hydraulically isolate the primary and secondary circuits using stop valves to facilitate maintenance operations on the unit. The valves make it possible to carry out maintenance on the calorifer and its components without draining the entire installation.

These valves are also used to isolate the calorifer unit when conducting a pressurised check on the leak tightness of the installation if the test pressure is greater than the admissible operating pressure.

**CAUTION**

If the mains pipes are made of copper, fit a sleeve made of steel, cast iron or any other insulating material between the tank's hot water outlet and the pipes to prevent corrosion to the connection.

■ Connecting the domestic cold water

Make the connection to the cold water supply according to the hydraulic installation diagram.

Install a water drain in the boiler room and a funnel-siphon for the safety unit.

The components used for the connection to the cold water supply must comply with the prevailing standards and regulations in the country concerned. Fit a one-way valve to the domestic cold water circuit.

■ Pressure reducer

If the mains pressure exceeds 80% of the calibration of the valve or safety unit (e.g. 5,5 bar (0,55 MPa) for a safety unit calibrated to 7 bar (0,7 MPa)), a pressure reducer must be installed upstream of the appliance. Install the pressure reducer downstream the water meter in such a way as to ensure the same pressure in all of the installation pipes.

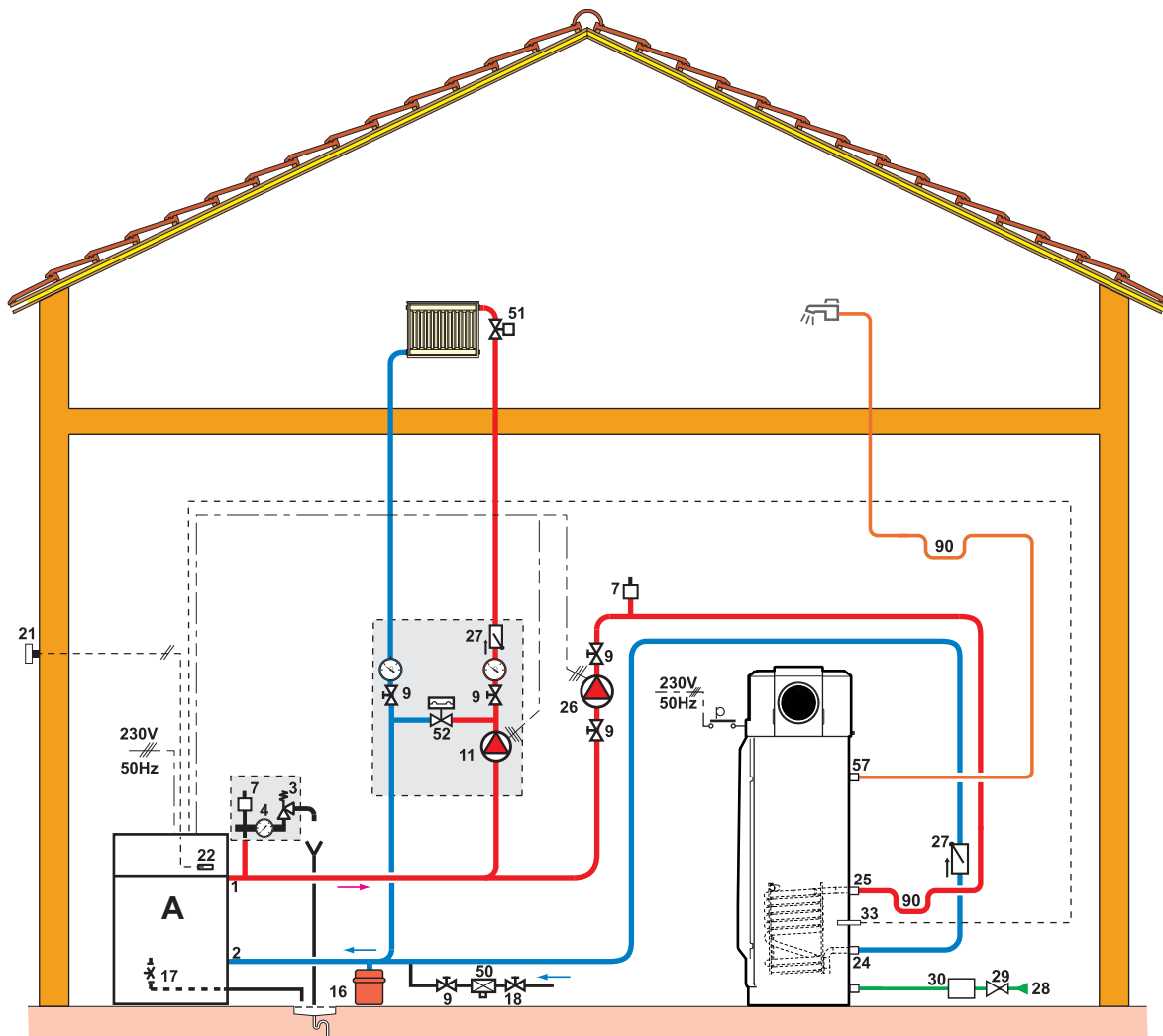
■ Measures to take to prevent hot water flow return

Fit a one-way valve to the domestic cold water circuit.

5.6.2. Connection to a boiler (Version EH)

**CAUTION**

Before making the water connections of the heating circuit and domestic hot water tank heat exchanger, it is imperative to rinse the circuits to remove any particles which might damage the components (safety valve, pumps, valves, ...).



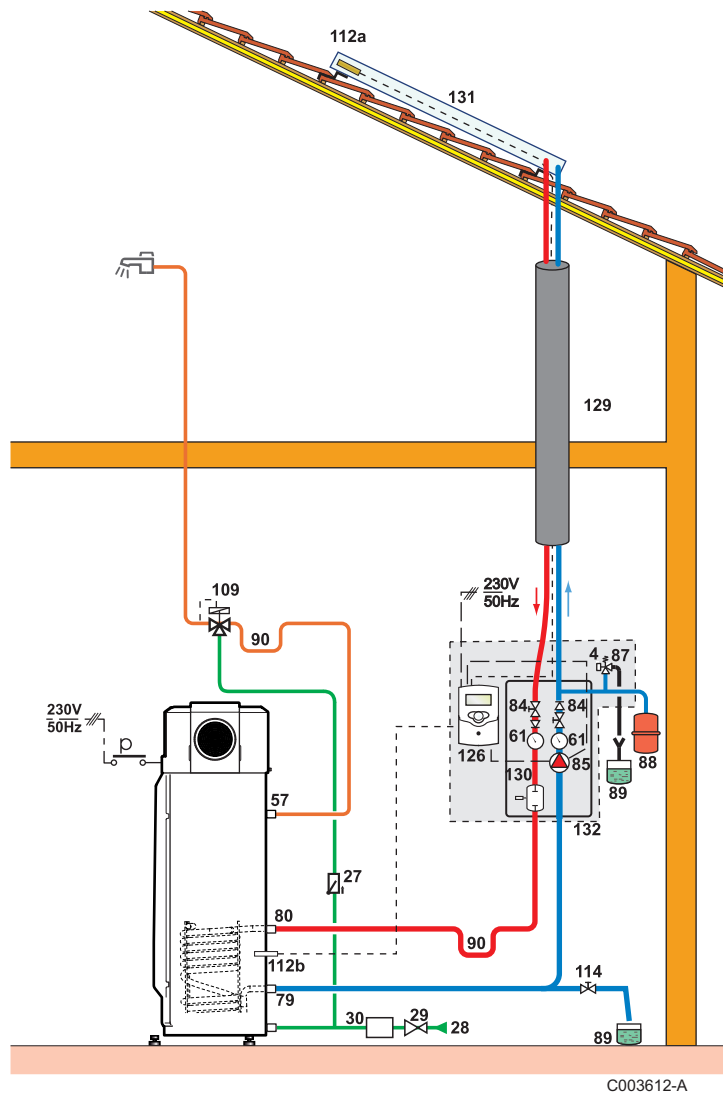
C003613-B

- | | |
|-----------|--|
| A | Boiler |
| 1 | Heating flow |
| 2 | Heating return |
| 3 | Safety valve |
| 4 | Pressure gauge |
| 7 | Automatic air vent |
| 9 | Isolating valve |
| 11 | Heating pump |
| 16 | Expansion vessel |
| 17 | Drain cock |
| 18 | Filling the heating circuit |
| 21 | Outside sensor |
| 22 | Boiler sensor |
| 24 | DHW calorifier exchanger primary inlet |
| 25 | DHW calorifier heat exchanger primary outlet |
| 26 | DHW pump |
| 27 | Non-return valve |
| 28 | Domestic cold water inlet |

- 29 Pressure reducer
- 30 Safety unit
- 33 DHW sensor
- 50 Disconnecter
- 51 Thermostatic valve
- 52 Differential valve (only with module fitted with a 3-speed pump)
- 57 Domestic hot water outlet
- 90 Anti-thermosiphon loop

5.6.3. Connection to solar collectors (Version EH)

CAUTION
Limit the domestic hot water temperature to 60°C.

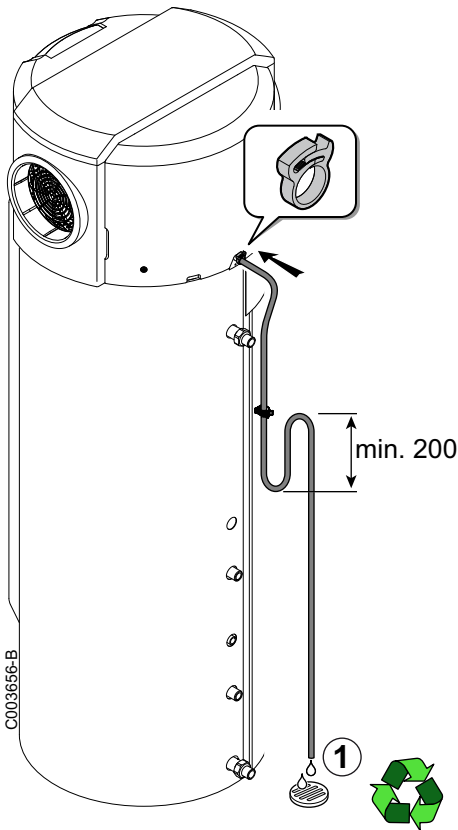


C003612-A

4 Pressure gauge

27	Non-return valve
28	Domestic cold water inlet
29	Pressure reducer
30	Safety unit
57	Domestic hot water outlet
61	Thermometer
79	Primary solar exchanger outlet on the DHW calorifier
80	Primary solar exchanger inlet on the DHW calorifier
84	Stop valve with releasable non-return valve
85	Primary solar circuit pump
87	Safety valve calibrated at 6 bar
88	Solar expansion vessel
89	Heat transfer fluid container
90	Anti-thermosiphon loop (= 10 x Pipe diameter)
109	Domestic hot water thermostatic mixing valve
112a	Solar sensor probe
112b	Solar DHW sensor
114	Primary solar circuit filling and draining device
126	Solar regulator
129	Insulation
130	Manual bleed degasser
131	Solar collectors
132	Complete solar station with solar regulator

5.7 Condensates discharge



1. Mount a siphon in the condensates discharge pipe.



CAUTION

If there is no siphon, problems with condensates discharge may arise when the compressor is running.

2. Mount the flow collector.
3. Fit the clamp to the flow header.

5.8 Installing the control system in the living room

The control system is mounted as standard on the heat pump. It is possible to install the control system in the living room for greater comfort.

- ▶ The user can remotely control programming of DHW production.
- ▶ The user is informed directly if the installation malfunctions in any way.

5.8.1. Choose a location

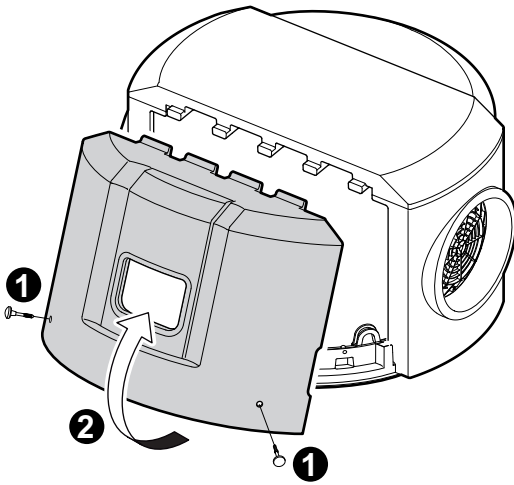
Install the control system against an internal wall around 1.5 metres from the floor in the carefully chosen pilot room.

Locations in the room that are not recommended:

- ▶ Encased
- ▶ Exposed to solar radiation.

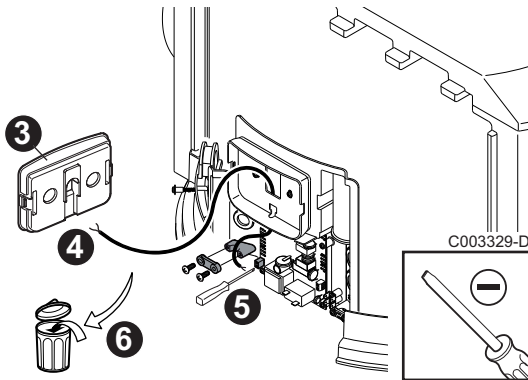
5.8.2. Operations to be carried out on the thermodynamic DHW tank

1. Unscrew the 2 screws.
2. Remove the front cover.



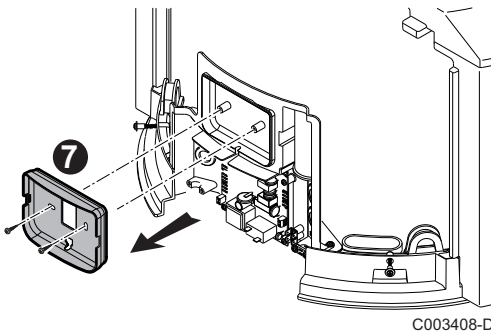
C003254-C

3. Separate the control system command module from its base.
4. Disconnect the command module (2 wires).
5. Unscrew the 2 fastening wires on the base.
6. Remove the wire and discard it.

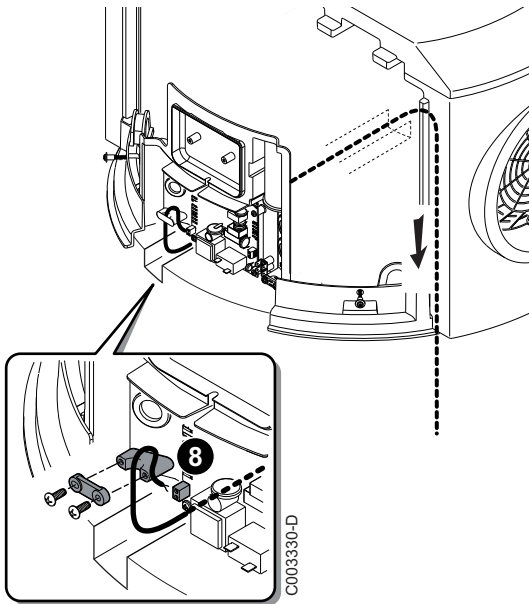


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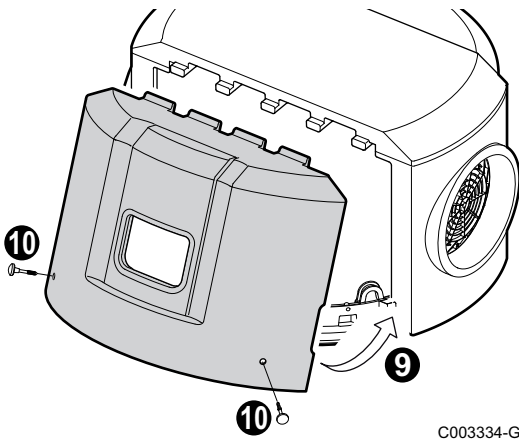
7. Unscrew the 2 fastening screws on the base of the control panel and remove the base.



C003408-D

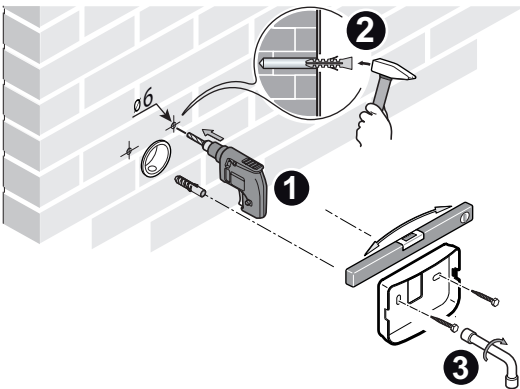


8. Connect the 2 wires for connecting the command module at the appliance end (not supplied).

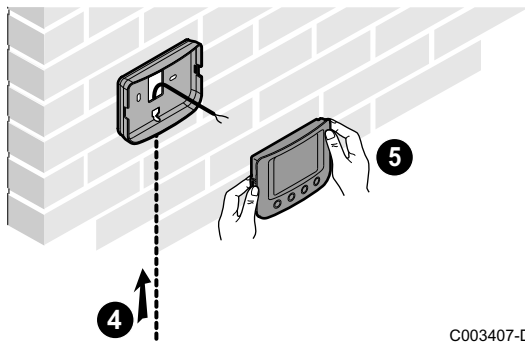


9. Replace the front cover.
10. Tighten the 2 screws.

5.8.3. Installing the control system in the living room



1. Drill 2 holes with a \varnothing of 6 mm.
2. Put the plugs in place.
3. Attach the wall support.



4. Connect the 2 wires on the command module.
5. Put the control system module in place.

5.9 Electrical connections

5.9.1. Recommendations



WARNING

- ▶ Only qualified professionals may carry out electrical connections, always with the power off.
- ▶ Do not connect the power supply directly to the HP/HC contact.

The earthing shall comply with local standards.

Power the appliance with a circuit that includes a 16 A omnipolar circuit breaker, D curve type, with a gap of more than 3 mm.


The DHW tank is delivered with a 3G cable. If the power cable is damaged, it must be replaced by the manufacturer, its after sales service or persons with similar qualifications in order to obviate any danger.

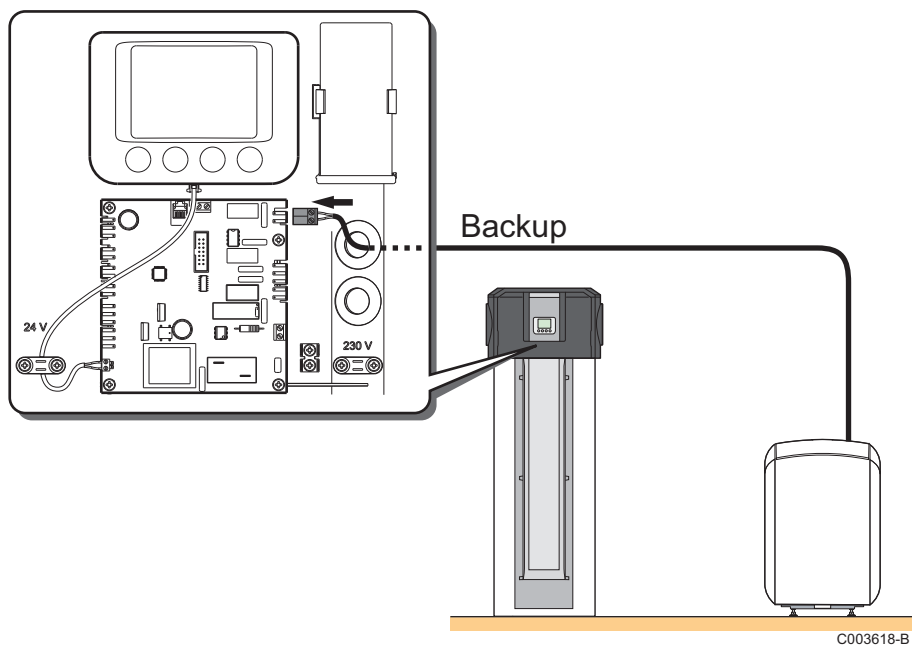
The electricity supply is connected to the mains by connection cable (~230 V, 50 Hz) and electrical plug.

The HP/HC connection is made on the terminal block.

5.9.2. Connecting the hydraulic back-up (Version EH)

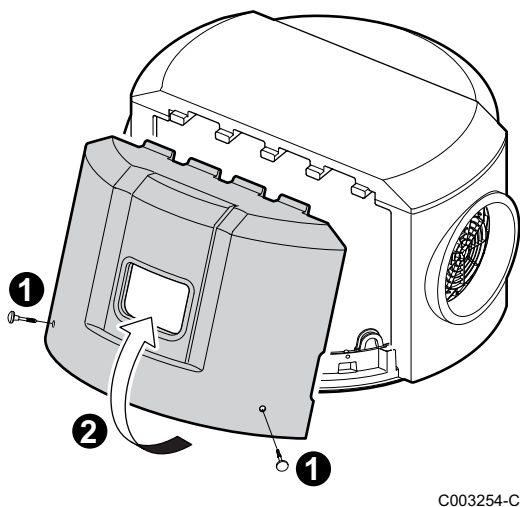
1. Remove the front cover.

 See chapter "Installing the control system in the living room", page 35

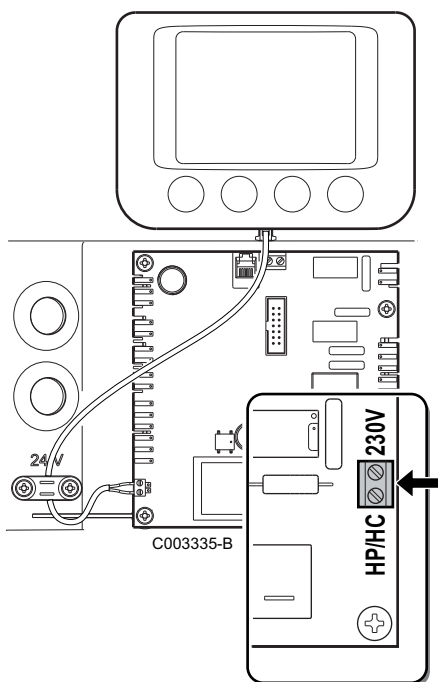


2. Access to the PCB.
3. Connect the boiler back-up connector (boiler back-up). To set the boiler inlet, refer to the boiler instruction manual.

5.9.3. Access to the connection terminal HP/HC



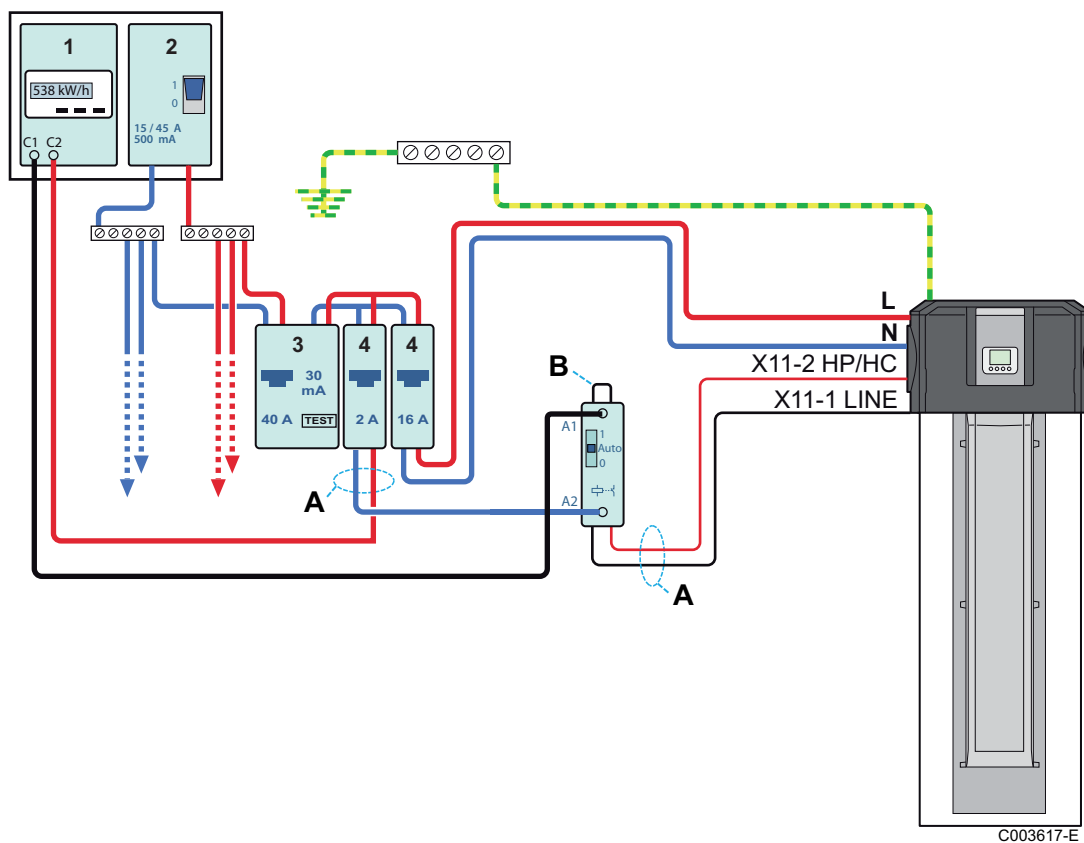
1. Unscrew the 2 screws.
2. Remove the front cover.



3. Access to the PCB.
4. Make the electrical connection using a cable with a cross section of 1,5 mm².

5.9.4. Connection with HP/HC signal connected

- Shunt connection with HP/HC relay (Dry contact in the heat pump)

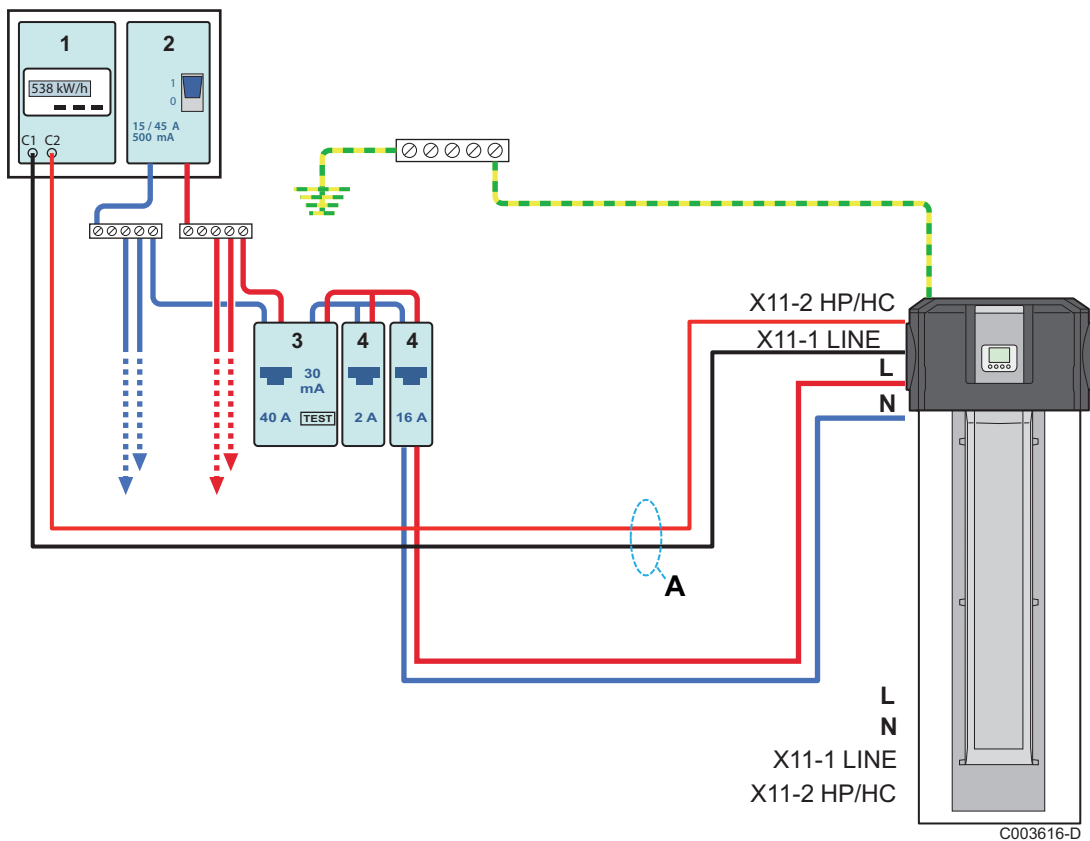


1 Meter

- 2 Connection circuit breaker
- 3 AC type differential switch
- 4 Circuit breaker
- A Power cable 1,5 mm²
- B Shunt 1,5 mm²

- ▶ Set parameter **P04** to 2.
- ▶ The heat pump and additional heating are not permitted to operate in Peak Hours
- ▶ Rapid Boost heating at one touch
- ▶ The 2 signal wires must be routed as far as the appliance's box

■ **Connection to the meter with direct HP/HC contact (Dry contact or voltage in the heat pump)**

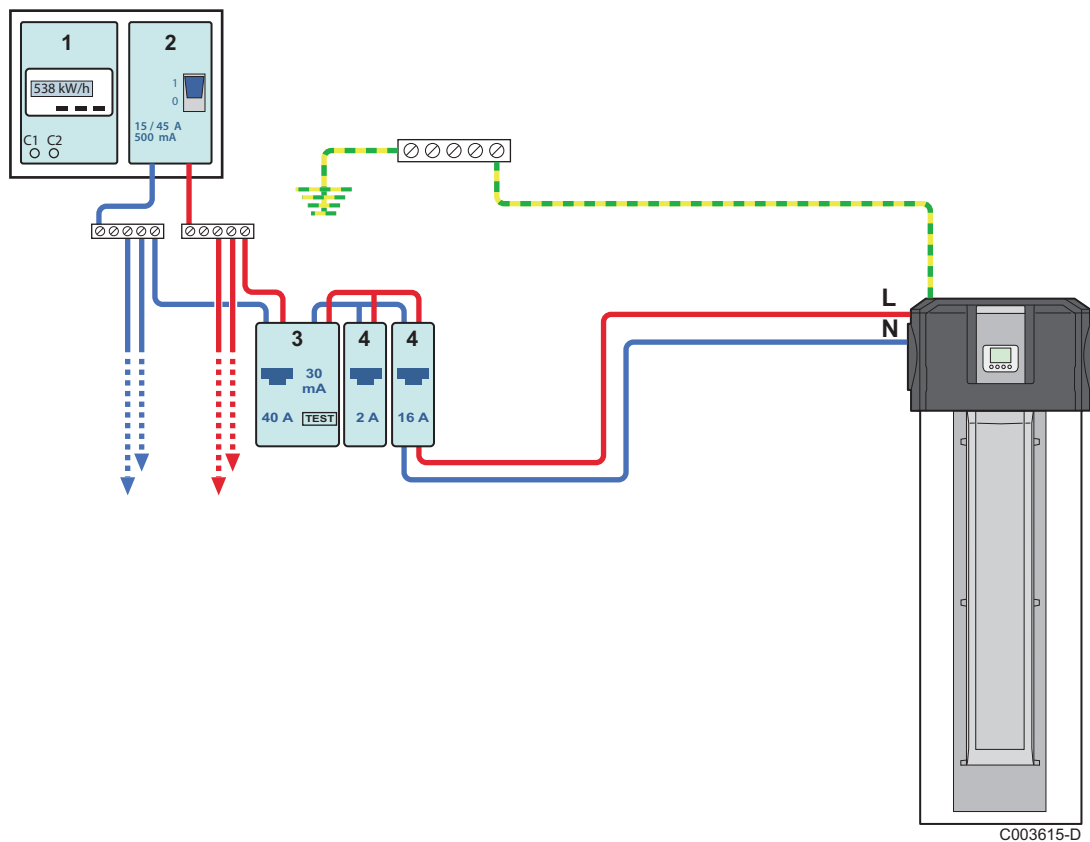


- 1 Meter
- 2 Connection circuit breaker
- 3 AC type differential switch
- 4 Circuit breaker
- A Power cable 1,5 mm²

- ▶ Set parameter **P04** to 2.
- ▶ The heat pump and additional heating are not permitted to operate in Peak Hours
- ▶ Rapid Boost heating at one touch

- ▶ The 2 signal wires must be routed as far as the appliance's box

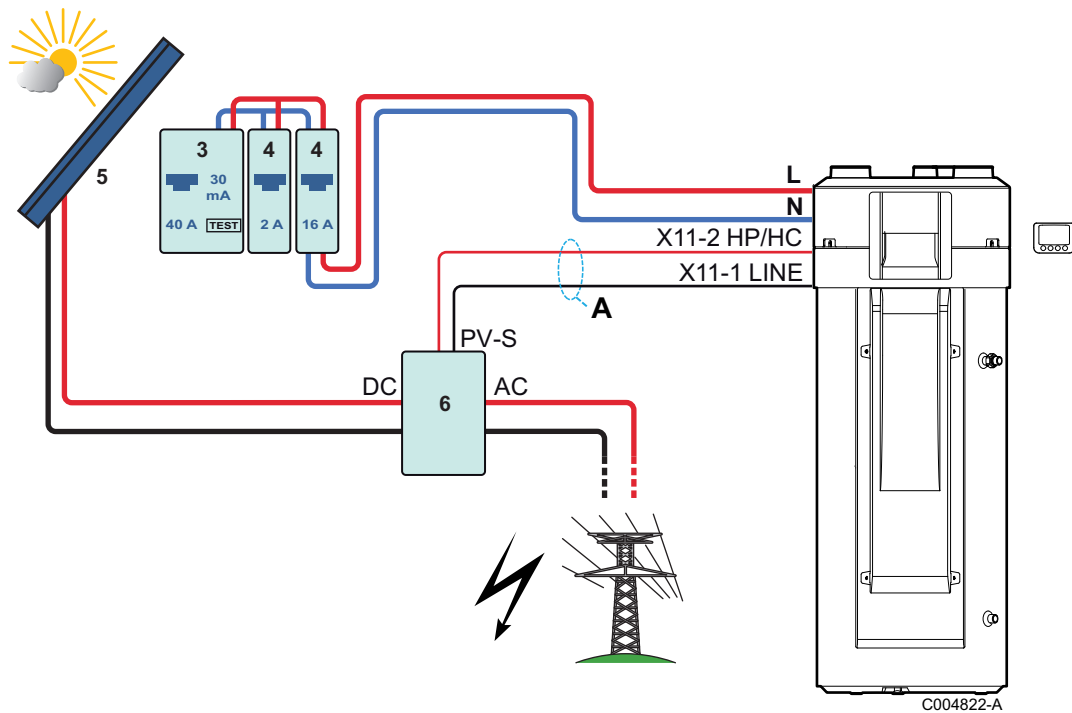
5.9.5. Connection with timer programming



- 1 Meter
- 2 Connection circuit breaker
- 3 AC type differential switch
- 4 Circuit breaker

- ▶ Easy to install
- ▶ Opt for hourly programming to take advantage of the HP/HC tariff

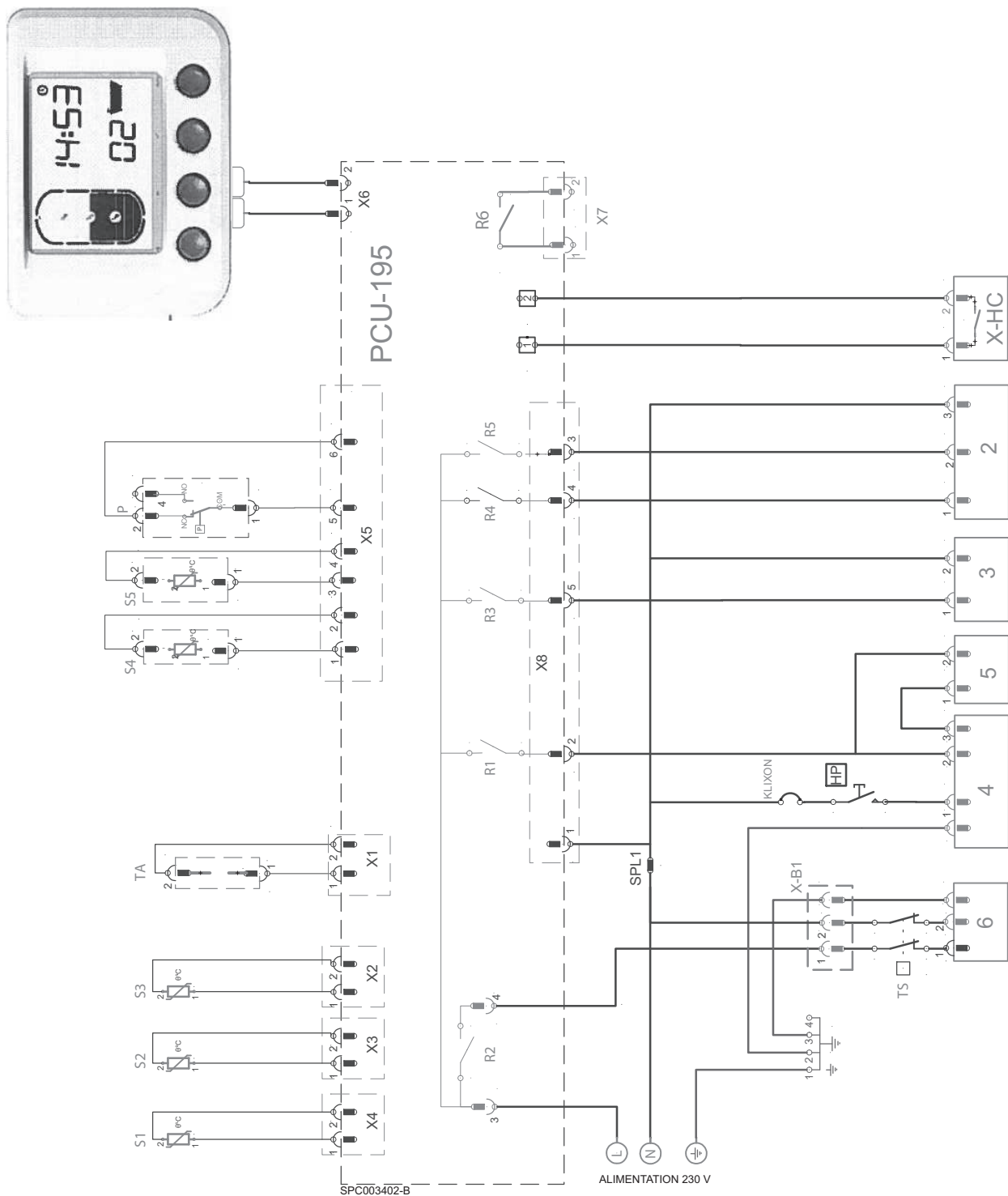
5.9.6. Connection with timer programming and photovoltaic signal



- 3 AC type differential switch
- 4 Circuit breaker
- 5 Photovoltaic panel
- 6 Inverter
- A Power cable 1,5 mm²

- ▶ The heat pump and electrical backup are allowed to operate depending on the time program.
- ▶ The heat pump will start to heat at the temperature of 62 °C (parameter P.07) when the photovoltaic signal is actif.
- ▶ If the photovoltaic signal is actif when the contact is open, set the parameter P.04 on 3.
- ▶ If the photovoltaic signal is actif when the contact is closed, set the parameter P.04 on 4.

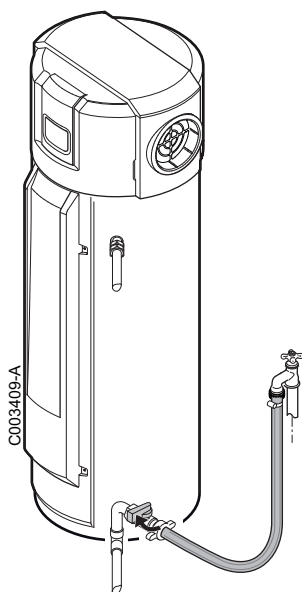
5.10 Electrical principle diagram



- ① Control panel
- ② Fan
- ③ Solenoid valve for defrosting
- ④ Compressor
- ⑤ Condenser
- ⑥ Electric heating resistance

⏏	Earth
L	Live
N	Neutral
P	Pressure switch
R1 - R6	Relay
S4	Evaporator sensor
S5	Room sensor
SPL1	Splice
TA	Impressed current anode
TS	Safety thermostat
X1	Connecting the impressed current anode
X2-S3	Bottom DHW temperature sensor
X3-S2	Middle DHW temperature sensor
X4-S1	Top DHW temperature sensor
X5	Room sensor, Evaporator, Pressure switch
X6	Control panel connection
X7	Hydraulic back-up command terminal board
X8	Command terminal board
X-B1	Electrical back-up command terminal board
X-HC	Pricing information input (HP-HC). Allows authorisation of domestic hot water production depending on the setting of the HP/HC input

5.11 Filling the thermodynamic DHW tank

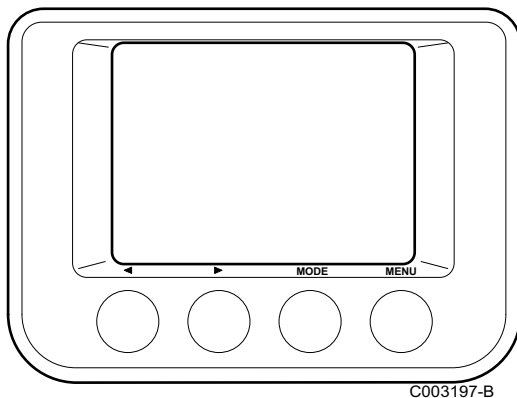


1. Open a hot water tap.
2. Open the cold water tap located on the safety unit. Ensure that the drainage valve on the unit is closed.
3. When the water overflows through the hot water tap, the appliance is full. Close the hot water tap.

6 Commissioning

6.1 Control panel

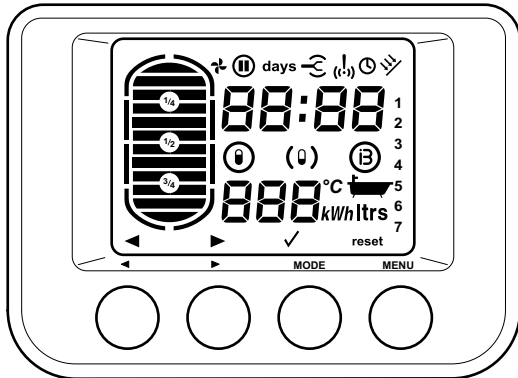
6.1.1. Description of the keys



C003197-B

- ◀ - ▶ Browse keys
- MODE** Operating mode selection key
- MENU** Key to access the various menus

6.1.2. Description of the display







C003186-I

- Quantity of domestic hot water available (depending on the set point input)
- Parameter settings
- Alarm
- Comfort period active or Clock programming
- Display of the date (day:month) or the time (hour:minutes) depending on the selected menu
- 1 2 3 4 5 6 7 Display of the day of the week (1=Monday, 2=Tuesday, etc.)
- Digital display
- Number of baths available (40 °C)
- ltrs** Quantity of water (litres)
- Reduces set values
- Increases set values
- Confirm key
- reset** Reset the control system after a breakdown
- Automatic mode or Comfort mode
- Eco mode
- Boost mode
- days** Holiday mode

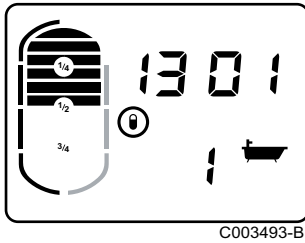
- Ⓜ + Ⓟ Boost function active via the HP/HC inlet
- Ⓧ + Ⓟ Boost function active via the HP/HC inlet
- Ⓜ days + Ⓟ Boost function active via the HP/HC inlet

■ DHW production mode indicator

The main display indicates the domestic hot water production mode.


Display	Domestic hot water production	Description
	Heat pump	The 2 segments of the tank flash simultaneously when domestic hot water production is handled by the heat pump
	Electrical back-up	The right-hand segment of the tank flashes when domestic hot water production is handled by electrical back-up
	Hydraulic additional heating	The left-hand segment of the tank flashes when domestic hot water production is handled by hydraulic back-up (Version EH)
	Heat pump + Electrical back-up + Hydraulic additional heating	The 2 segments of the tank flash alternately when domestic hot water production is handled by the heat pump, by electrical back-up and by hydraulic backup (EH version)

■ Indicator of the water volume available

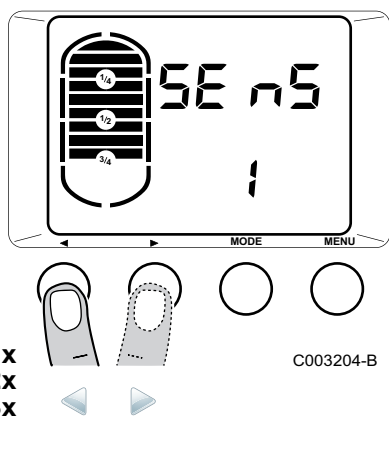
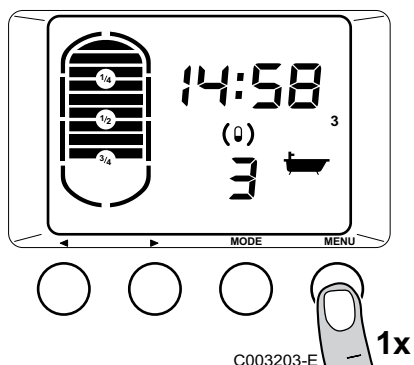


When producing domestic hot water, the display indicates the number of baths available and the level to which the tank is filled (quantity of hot water available).

- ▶ The number of baths is calculated based on a domestic hot water temperature of 40°C.
- ▶ The level to which the tank is filled is calculated according to the set point temperature.
- ▶ Set the 2 parameters, **P.18** and **P.19**, according to the appliance model.

 See chapter: "Modifying the installer parameters", page 52

6.1.3. Browsing in the menus



1. Press the **MENU** key. The **SE nS 1** menu is displayed (Temperature measurement).

2. Use the ◀ and ▶ keys to scroll through the menu (See table below).

3. To access the selected menu, press the **MODE** key (✓).

4. To go back to the previous display, press the key **MENU**.

5. To go back by the main display, press once key **MENU**.

Accessing the menu	Menu	Description	See chapter
1x MENU	SE nS 1	Measurements menu	☞ "Reading out measured values", page 50
1x ▶	CL OC 2	Setting the time and the date	☞ Refer to the user instructions
2x ▶	Pr oG 3	Modify an hourly programme	☞ Refer to the user instructions
3x ▶	Co un 4	Meters	☞ "Counters", page 50
4x ▶	PA rA 5	Setting parameters	☞ "Reading out measured values", page 50
5x ▶	Er bL 6	Failure history	☞ "Message and error history", page 65
6x ▶	Co dE 7	Installer parameters	☞ "Modifying the installer parameters", page 52

6.2 Check points before commissioning

- ▶ Check that the thermodynamic DHW tank is full of water.
- ▶ Check the seals.
- ▶ Check that the safety devices are operating correctly.
- ▶ Check the operating mode.

6.3 Putting the appliance into operation

6.3.1. Commissioning



CAUTION


Initial commissioning must be done by a qualified professional.



CAUTION

After positioning the appliance, wait **one hour** before starting it up.

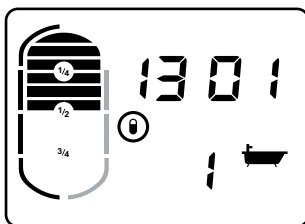
Carry out the commissioning operations in the following order:

1. Connect to the mains.
2. Check that no error codes or messages are shown on the display. The domestic hot water set point temperature is set to 55°C in comfort mode.
3. Select the **Boost** operating mode.
 See chapter: "Choosing the operating mode", page 49
4. The compressor starts up after 120 seconds if DHW production is required.

6.4 Checks and adjustments after commissioning

- ▶ Check the leak tightness of the connections.
- ▶ Check the temperature of the 3 DHW temperature sensors to ensure that the appliance operates correctly. If the readout values are incorrect, check the positioning of the sensors in the sensor tube.
- ▶ A few days after start up of the appliance, a visual inspection must be made to check for any leaks in the water system or any blockages in the condensates runoff.

6.5 Choosing the operating mode



C003493-B

The operating mode is shown on the main display.

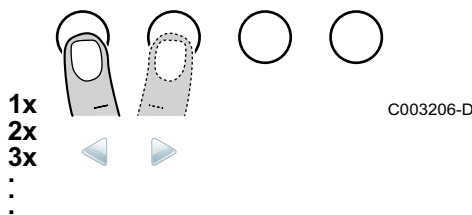
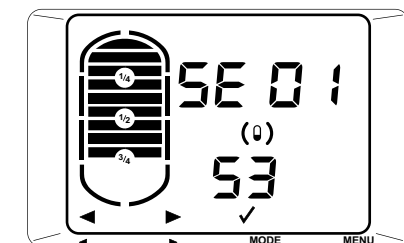
1. To change the operating mode, press the **MODE** key several times until the symbol corresponding to the desired operating mode appears on the display.

Display	Operating mode	Description
Ⓢ	Automatic or Comfort	Comfort programme activated Domestic hot water production is handled by the heat pump and by electrical back-up if necessary (+ Hydraulic back-up for EH version). If domestic hot water production is not satisfied by the compressor after a modifiable time delay (factory setting: 5 hours - Parameter P23), the back-ups start up.
Ⓢ	Eco	Reduced programme activated. Domestic hot water production is handled by the heat pump alone. After the compressor stops, the displayed quantity of domestic hot water available may not be complete (Ⓢ).
Ⓢ	Boost	Forced operating activated Domestic hot water production is handled simultaneously by the heat pump and the electrical back-up for a modifiable period (factory setting: 6 hours).
Ⓢ days	Vacation	Holiday period Shutting down domestic hot water production. The domestic hot water temperature is kept at 10°C.

6.6 Reading out measured values

6.6.1. Measurements menu

1. Press once the **MENU** key. The **SE nS 1** menu is displayed.
2. Press the **MODE** key to go to the Measurements menu. The **SE 01** menu is displayed.
3. Use the **◀** and **▶** keys to switch from one measurement to another.

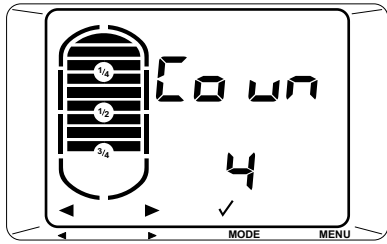


Parameters	Description	Unit
SE 01	Top DHW temperature sensor	°C
SE 02	Middle DHW temperature sensor	°C
SE 03	Bottom DHW temperature sensor	°C
SE 04	Room sensor	°C
SE 05	Evaporator temperature sensor	°C
SE 06	Electricity tariff:	
	▶ HP1: Peak hours	
	▶ HC0: Off-peak hours	
SE SW	Operating status / sub-status of the control system sequence	
SP 1	Back-up setpoint	°C
SP 2	Compressor setpoint	°C

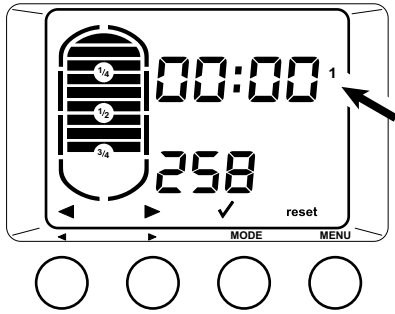
6.6.2. Counters

■ Displaying the counters

1. Press once the **MENU** key. The **SE nS 1** menu is displayed.



C004186-A



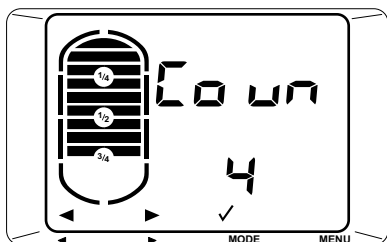
C003210-C

2. Press the ► key 3 times. The **Co un 4** menu is displayed.
3. Press the **MODE** ✓ key to go to the Counters menu. The number of the counter is shown to the right of the display.
4. Use the ◀ and ▶ keys to switch from one counter to another (See table below).
5. To exit this menu, press the **MODE** ✓ key.
6. To go back to the main display, press the **MENU** button.

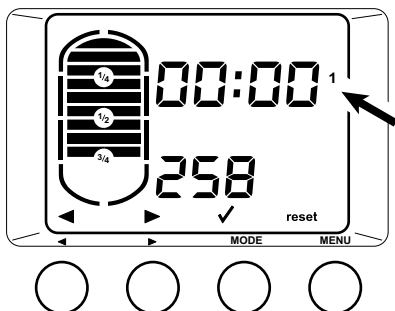
Meter	Description	Unit
1	Total electric energy input for DHW production	kWh
2	Electric energy input by the compressor in the last 24 hours The counter is reset at 00:00 hours every day	Wh
3	Electric energy input by the electrical back-up in the last 24 hours The counter is reset at 00:00 hours every day	Wh
4	Number of hours operation of the hydraulic backup	h
5	Number of hours powered up	h
6	Instantaneous output	W

■ Resetting the counters

1. Press once the **MENU** key. The **SE nS 1** menu is displayed.
2. Press the ► key 3 times. The **Co un 4** menu is displayed.
3. Press the **MODE** ✓ key to go to the Counters menu. The number of the counter is shown to the right of the display.

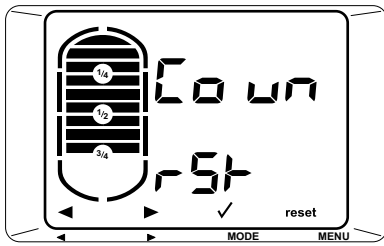


C004186-A



C003210-C

4. Use the ◀ and ▶ keys to switch from one counter to another.
5. Press the **reset** key to reset the meter displayed to zero.



C004187-B

6. Confirm using key **MODE** ✓.
7. To exit this menu, press the **MODE** ✓ key.
8. To go back to the main display, press the **MENU** button.

6.7 Modifying the installer parameters



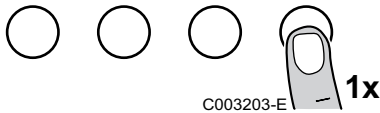
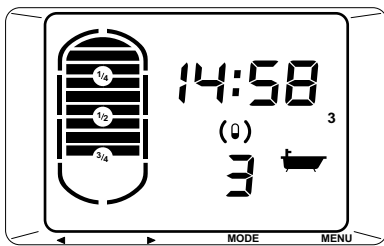
CAUTION

Modification of the factory settings may be detrimental to the functioning of the appliance.

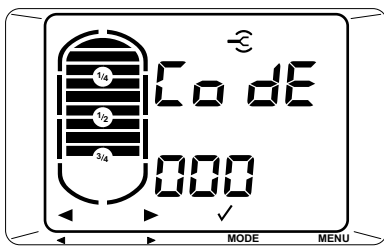
6.7.1. Access to parameters

To prevent input errors, access to this menu requires the use of the access code **012**.

1. Press once the **MENU** key. The **SE nS 1** menu is displayed.
2. Press the ► key 6 times. The **Co dE** menu is displayed.

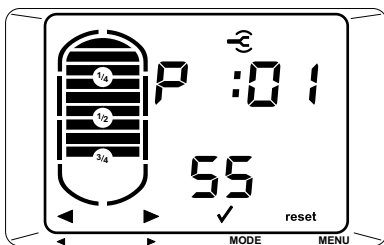


C003203-E



C004192-A

3. Enter the access code **012** using the ◀ or ▶ keys.
4. Press the **MODE** ✓-key for the menu. The parameter **P.1** displays.



C003211-B

5. Scroll through the parameters using the ◀ or ▶ key.
6. To modify a parameter, press the **MODE** ✓ key. The parameter value flashes.
7. Set the desired value using the ◀ or ▶ key.
8. Confirm using key **MODE** ✓.

6.7.2. List of the parameters

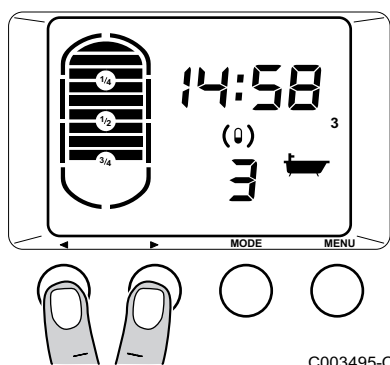
Parameters	Description	Adjustment range	Factory setting
P 01	DHW setpoint in Auto mode	25 to 70 °C	55 °C
P 02	DHW set point in Eco mode	25 to 65 °C	55 °C
P 04	Choice of mode for the DHW Comfort period: <ul style="list-style-type: none"> ▶ 0 = Use the time programs. ▶ 1 = Use the electricity tariff information input. Tells you whether or not domestic hot water production is permitted (HP1 = not permitted => Contact closed, HC0 = permitted => Contact open). ▶ 2 = Use the electricity tariff information input. Tells you whether or not domestic hot water production is permitted (HP1 = not permitted => Contact open, HC0 = permitted => Contact closed). ▶ 3 = Use the time programs. The status of the electricity tariff information input is used to activate the Boost function with compressor only (HP1 = Boost deactivated => Contact closed, HC0 = Boost activated => Contact open). ▶ 4 = The status of the electricity tariff information input is used to activate the Boost function with compressor only (HP1 = Boost activated => Contact open, HC0 = Boost deactivated => Contact closed). ▶ 5 = The status of the electricity tariff information input is used to activate the Boost function with compressor and back-up (HP1 = Boost deactivated => Contact closed, HC0 = Boost activated => Contact open). ▶ 6 = The status of the electricity tariff information input is used to activate the Boost function with compressor and back-up (HP1 = Boost activated => Contact open, HC0 = Boost deactivated => Contact closed). 	0 - 6	0
P 05	Automatic switch to summer time (last Sunday in March) and winter time (last Sunday in October): <ul style="list-style-type: none"> ▶ 0 = Function not active (for countries where the time change is done on other dates or is not in use) ▶ 1 = Function activated 	0 - 1	1
P 07	DHW setpoint in Boost mode	40 to 70 °C	62 °C
P 17	Protection by impressed current anode <ul style="list-style-type: none"> ▶ 0 = Deactivation ▶ 1 = Activation 	0 - 1	1
P 18	Water volume contained in the DHW tank (x 10 l)	6 - 255	27
P 19	Water volume for one bath (l)	10 - 255	120
P 20	Maximum duration of the Boost mode (h)	1 - 10	6
P 22	Back-up type <ul style="list-style-type: none"> ▶ 0 = None ▶ 1 = Electrical back-up ▶ 2 = Hydraulic additional heating 	0 - 2	1
P 23	Time delay for starting the electrical or hydraulic back-up in Automatic mode (Hours)	0 - 10	5
P 24	Compressor start-up time (seconds)	60 - 255	120
P 26	Antilegionella function. The tank is overheated every Saturday from 1 o'clock to 6 o'clock (65 °C). <ul style="list-style-type: none"> ▶ 0 = Off ▶ 1 = Activated outside holiday periods ▶ 2 = Always activated 	0 - 1	0
P 27	Compressor cut-off hysteresis in relation to the set point for the bottom domestic hot water temperature sensor (only in Auto or Boost mode)	5 - 15	10

Parameters	Description	Adjustment range	Factory setting
P 28	Maximum DHW temperature (bottom sensor) for compressor cut-off (°C) (only in Auto or Boost mode)	35 - 50	45
P 29	Minimum duration of compressor operation (minutes)	3 - 10	3
P 30	Anti-short-cycle period between 2 compressor start-ups (minutes)	5 - 10	5
P 31	Hydraulic additional heating ▶ 0 = contact R6 closed if there is an additional hydraulic heating request ▶ 1 = contact R6 opened if there is an additional hydraulic heating request	0 - 1	0
P 32	DHW setpoint used for the antilegionella function	55 to 70 °C	65 °C
P 52	Difference in temperature between the tank temperature and the set point before restarting the compressor	1 to 15 °C	3 °C
P 57	Minimum room temperature for compressor operation	-5 to 20 °C	-5 °C
P 58	Maximum room temperature for compressor operation	20 to 35 °C	35 °C

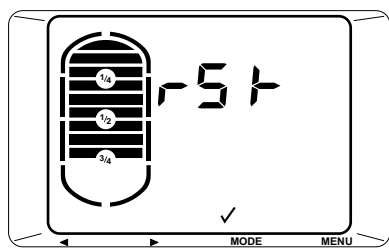
6.7.3. Control system sequence

Control system sequence		
Status	Sub-status	Operation
0	0	Appliance off
	7	Compressor post-operation
1	1	Anti-short cycle activated
	2	Wait for the start-up condition for domestic hot water production
	3	Start-up of the fan and the defrosting valve
2	5	Compressor starts
	6	Defrosting
3	1	Anti-short cycle activated
	4	Additional heating starts
	7	Compressor post-operation
4	5	Compressor starts
	6	Defrosting
9	--	Blockage state

6.7.4. Return to the factory settings



1. Press the ◀ and ▶ keys **simultaneously** for 5 seconds. The rSt menu is displayed.



C004193-A

2. Press the **MODE** ✓ key to carry out a TOTAL RESET of all parameters.

7 Switching off the appliance

7.1 Installation shutdown




CAUTION

Try to avoid switching off the appliance in order to maintain protection against corrosion. The appliance's frost protection continues to be activated.

7.2 Antifreeze protection

In the event of extended absence (holiday), programme the corresponding number of days. The temperature of the water in the tank is maintained at 10°C.

 Refer to the user instructions.

8 Checking and maintenance

8.1 General instructions

**CAUTION**

Installation and maintenance of the appliance must be done by a qualified professional in accordance with prevailing statutory texts and codes of practice.

**CAUTION**

Before working on the appliance, ensure that it is switched off and safe.

**CAUTION**

Check the discharge on the compressor condenser for single phase voltages.

**CAUTION**

Before working on the cooling circuit, switch off the appliance and wait a few minutes. Some equipment such as the compressor and the pipes can reach temperatures higher than 100°C and high pressures, which may cause serious burns.



When the appliance is switched off, the fan continues to run by inertia for around one minute.

Maintenance operations are important for the following reasons:

- ▶ To guarantee optimum performance
- ▶ To extend the life of the equipment
- ▶ To provide an installation which offers the customer optimum comfort over time.

**CAUTION**

At no time allow water to get into the control components. Before starting cleaning, disconnect the mains power plug or switch off the appliance.

8.2 Maintenance operations to be performed

8.2.1. Refrigerant circuit

No maintenance is required on the refrigerant circuit in the thermodynamic water heater.

8.2.2. Hydraulic circuit

Check the watertightness of the water connections.

8.2.3. Aeraulics

■ Cleaning the evaporator



DANGER

Risk of injury on the sharp-edged fins.



CAUTION

Do not distort or damage the fins.

- ▶ Clean the evaporator at regular intervals using a soft-haired brush.
- ▶ Carefully realign the fins using a suitable comb if they are bent.

■ Cleaning the fan

Check the cleanliness of the fan 1 time per year. Clogging by dust and other particles impairs the heat pump's performance.

8.2.4. Impressed current anode

No maintenance operations are required on an impressed current anode.



The appliance's control panel must be switched on to ensure operation of the impressed current anode.

8.2.5. Checking the safety valve or unit

Operate the safety valve or unit at least **1** time per month to check that it is running correctly. This check provides forewarning of any excess pressure that may damage the DHW tank.



WARNING

Failure to abide by this maintenance rule may cause damage to the DHW tank and void its warranty.

8.2.6. Descaling



Use a new leak tight seal on the inspection trap.

In hard water regions, we recommend asking the installer to carry out an annual **descaling** operation on the DHW tank's exchanger in order to maintain its performance.

1. Turn off the domestic cold water inlet.
2. Drain the DHW tank.
3. Open a hot water tap.
4. Open the valve on the safety unit.
5. Remove the insulation from the inspection hatch.
6. Pull out the DHW sensor.
7. Remove the inspection trap (13 mm spanner).
8. Remove the 2 bulbs from the safety thermostat.
9. Remove the limescale deposited in the tank in the form of sludge or strips. Keep the limescale on the walls of the tank: it provides effective protection against corrosion and enhances the DHW tank's insulation.
10. Then replace all the parts in reverse order.

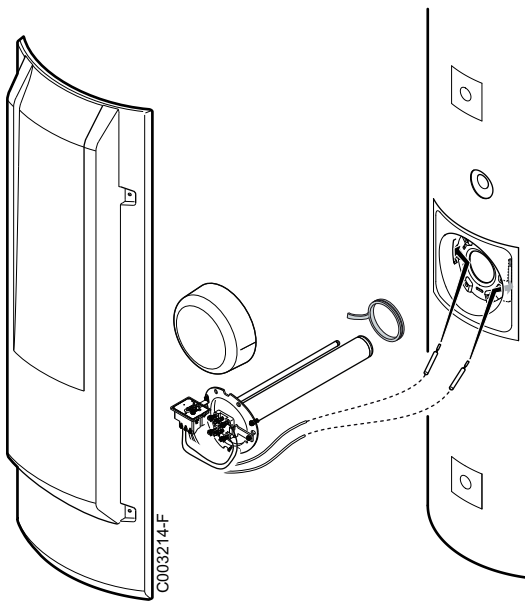


Each time it is opened, the lip gasket must be replaced to guarantee tightness. Place the gasket's positioning tab towards the outside of the DHW tank.

11. After each intervention, ensure that the installation is watertight.



The screws retaining the visit trap must be tightened to 6 N·m +1/-0. Use a torque wrench.



8.2.7. Cleaning the condensates discharge duct

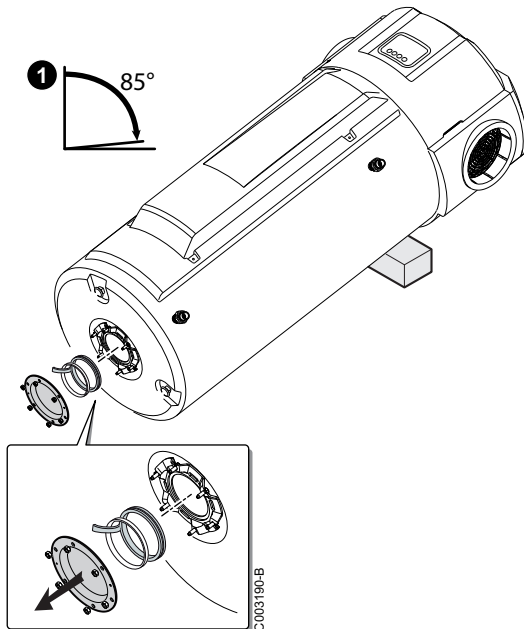
Check the cleanliness of the condensates discharge pipe. An obstruction by dust may cause poor condensates flow or even a risk of excessive accumulation of water.



DANGER

Risk of the heat pump malfunctioning.

8.3 Accessing the bottom inspection trap



i Have a lip gasket and a retainer ring on hand for the inspection hatch.

1. Disconnect the mains supply.
2. Drain the DHW tank.
3. Open a hot water tap.
4. Open the valve on the safety unit.
5. Set the appliance to repair position **1**.
6. Check the extent of scaling in the tank and on the exchanger.
Keep the limescale on the walls of the tank: it provides effective protection against corrosion and enhances the DHW tank's insulation.
Remove limescale deposits from the bottom of the tank.
Remove limescale deposits from the exchanger to guarantee its performance.
7. Fit the unit together.



CAUTION

Each time it is opened, the lip gasket + retainer ring unit must be replaced to guarantee tightness.
Place the gasket's positioning tab towards the outside of the DHW tank.

8. After reassembly, check the tightness of the lower flange.



The screws retaining the visit trap must be tightened to 6 N·m +1/-0. Use a torque wrench.

9 Troubleshooting

9.1 Messages (Code type bxx or Exx)

9.1.1. Messages (type code **b.X.X**)


In the case of failure, the control panel displays a message and a corresponding code.

1. Make a note of the code displayed.
The code is important for the correct and rapid diagnosis of the type of failure and for any technical assistance that may be needed.
2. Disconnect and reconnect the mains cable.
The appliance will restart only when the malfunction has been corrected.
3. If the code is displayed again, correct the problem by following the instructions in the table below:

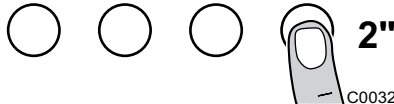
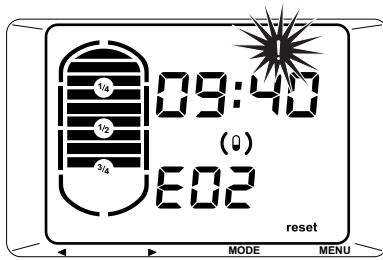
Code no.	Description	Checking / solution
b00	Parameter error on the PCU PCB	Reset the parameters
b01	Pressure switch alarm Note: DHW production is handled by back-up if back-up enabled	<ul style="list-style-type: none"> ▶ Check the power supply to the compressor ▶ Check the pressure switch connection
b02	Maximum DHW temperature exceeded Note: DHW production is not covered (by the compressor or the back-up)	<ul style="list-style-type: none"> ▶ Check the connection on the top DHW sensor ▶ Check that the back-up is not running permanently
b03	The room temperature is higher than 35°C. The compressor is outside its operating range. Note: DHW production is handled by back-up if back-up enabled.	<ul style="list-style-type: none"> ▶ Modify the parameters according to the instructions in the manual. ▶ The compressor will handle DHW production once the room temperature is less than 35°C.
b04	The room temperature is less than -5°C. Note: DHW production is handled by back-up if back-up enabled.	<ul style="list-style-type: none"> ▶ Modify the parameters according to the instructions in the manual. ▶ The compressor will handle DHW production once the room temperature is higher than -5°C.
b25	The bottom DHW temperature sensor is short circuited	<p>Bad connection</p> <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted <p>Sensor fault</p> <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary

Code no.	Description	Checking / solution
b26	The bottom DHW temperature sensor is open	<p>Bad connection</p> <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted <p>Sensor fault</p> <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary
b27	The top DHW temperature sensor is short circuited	<p>Bad connection</p> <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted <p>Sensor fault</p> <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary
b28	The top DHW temperature sensor is open	<p>Bad connection</p> <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted <p>Sensor fault</p> <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary
b32	The impressed current anode is in open circuit.	<ul style="list-style-type: none"> ▶ Check that the connection cable between the SCU PCB and the anode is not severed ▶ Check that the anode is not broken ▶ Check that the DHW tank is correctly filled with water <p>Remarks:</p> <ul style="list-style-type: none"> ▶ Domestic hot water production has stopped but can nonetheless be restarted using key reset (For 72 hours) ▶ Protection against corrosion is not ensured
b33	The impressed current anode is short-circuited.	<ul style="list-style-type: none"> ▶ Check that the connection cable between the PCU PCB and the anode is not short-circuited ▶ Check that the anode is not short-circuited <p>Remarks:</p> <ul style="list-style-type: none"> ▶ Domestic hot water production has stopped but can nonetheless be restarted using key reset (For 72 hours) ▶ Protection against corrosion is not ensured
b40	Measurement error on the domestic hot water temperature sensors. Remarks:	<p>The 3 sensors do not measure the same value</p> <ul style="list-style-type: none"> ▶ Check the location of the sensors. <ul style="list-style-type: none"> ▶ This message is only displayed on initial commissioning. ▶ This message disappears after 10 minutes or when you press the ✓ key.
E.r.r b.w.s	No communication between the control panel and the PCU board.	<ul style="list-style-type: none"> ▶ Check the wiring between the control panel and the PCU board.
i.n.i.t i2	No communication between the control panel and the PCU board.	<ul style="list-style-type: none"> ▶ Check the wiring between the control panel and the PCU board.

If the causes of the problem are still present after several attempts at automatic start-up, the appliance goes into lockdown mode (also called failure).

 see chapter: "Messages (type code **E.X.X**)", page 64

9.1.2. Messages (type code **E.X.X**)



C003212-B

- The display shows :
 - The symbol (!)
 - The symbol **reset**
 - The fault code (for example **E02**).
- After correcting the failure, press the **reset** key for 2 seconds. If the error code continues to display, search for the cause in the error table and apply the solution.

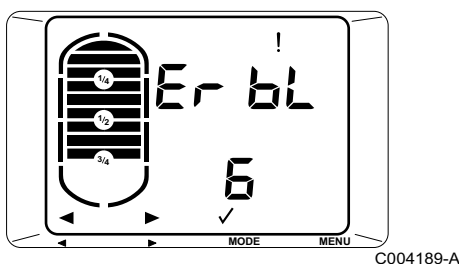
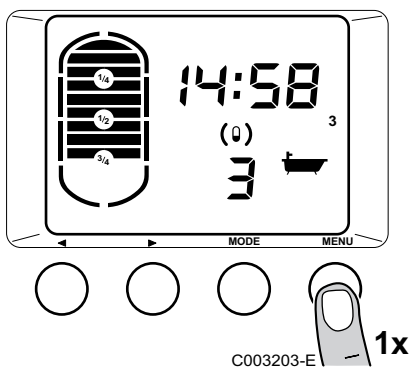
Code no.	Description	Checking / solution
E00	The parameter storage unit on the PCU electronic board is defective	Replace the PCU PCB
E01	The middle DHW temperature sensor is short circuited Note: DHW production is not covered	Bad connection <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted Sensor fault <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary
E02	The middle DHW temperature sensor is open Note: DHW production is not covered	Bad connection <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted Sensor fault <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary
E04	The room temperature sensor is short circuited Note: DHW production is handled by back-up if back-up enabled	Bad connection <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted Sensor fault <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary
E05	The room temperature sensor is open Note: DHW production is handled by back-up if back-up enabled	Bad connection <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted Sensor fault <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary

Code no.	Description	Checking / solution
E06	The evaporator temperature sensor is short circuited Note: DHW production is handled by back-up if back-up enabled	Bad connection <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted Sensor fault <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary
E07	The evaporator temperature sensor is open Note: DHW production is handled by back-up if back-up enabled	Bad connection <ul style="list-style-type: none"> ▶ Check whether the sensor is connected ▶ Check the link and the connectors ▶ Check that the sensor has been correctly fitted Sensor fault <ul style="list-style-type: none"> ▶ Check the Ohmic value of the sensor ▶ Replace the sensor if necessary
E08	Malfunction on the defrosting function Note: DHW production is handled by back-up if back-up enabled	<ul style="list-style-type: none"> ▶ Check activation of the defrosting solenoid valve ▶ Check the position of the temperature sensor in the evaporator ▶ Check that the fan is working correctly ▶ Check that the condensates can flow freely
E09	The low pressure pressure switch alarm sounds for more than 120 seconds Note: DHW production is handled by back-up if back-up enabled	<ul style="list-style-type: none"> ▶ Check the position of the temperature sensor in the evaporator ▶ Check that the fan is working correctly ▶ Check that the condensates can flow freely
E10	The low pressure pressure switch alarm has been tripped more than 3 times during the last 24 hours Note: DHW production is handled by back-up if back-up enabled	<ul style="list-style-type: none"> ▶ Check the position of the temperature sensor in the evaporator ▶ Check that the fan is working correctly ▶ Check that the condensates can flow freely ▶ Check the refrigerant load

9.2 Message and error history

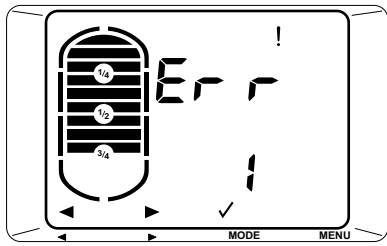
The **Er bL 6** menu is used to consult the last 16 messages and the last 16 errors displayed by the control panel.

1. Press once the **MENU** key. The **SE nS 1** menu is displayed.
2. Press the **▶** key 5 times. The **Er bL 6** menu is displayed.



3. Press the **MODE** **✓** key to go to this menu.

Accessing the menu	Menu	Description
1x ▶	Err	Error history
2x ▶	bL	Blockage history
3x ▶	CLr	Reset error and blockage history



C004190-A

4. The **Err** menu is displayed with the number of errors that have occurred.
5. To go back to the previous display, press the key **MENU**.

9.2.1. Err error display

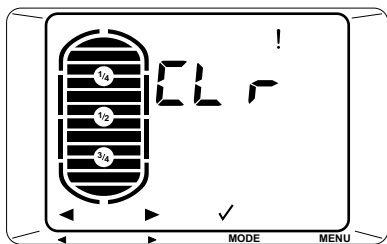
1. When the **Err** menu is displayed, press the **MODE** ✓ key.
2. The code **E.X.X** for the last error that occurred is displayed as are its time and date alternately.
3. - Press the **MODE** (✓) key to access details of the error.
 - Use the ◀ and ▶ keys to browse the error list.
 - Use the **MENU** key to go back to the error list.

9.2.2. bL blockage display

1. When the **bL** menu is displayed, press the **MODE** ✓ key.
2. The code **b.X.X** for the last blockage that occurred is displayed as are its time and date alternately.
3. - Press the **MODE** (✓) key to display the details of the error.
 - Use the ◀ and ▶ keys to scroll through the blockage list.
 - Use the **MENU** key to go back to the blockage list.

9.2.3. Reset error and blockage history

1. When the **Err bL** menu is displayed, press the **MODE** ✓ key.
2. The error and blockage history are reset.



C004191-A

10 Spare parts

10.1 General

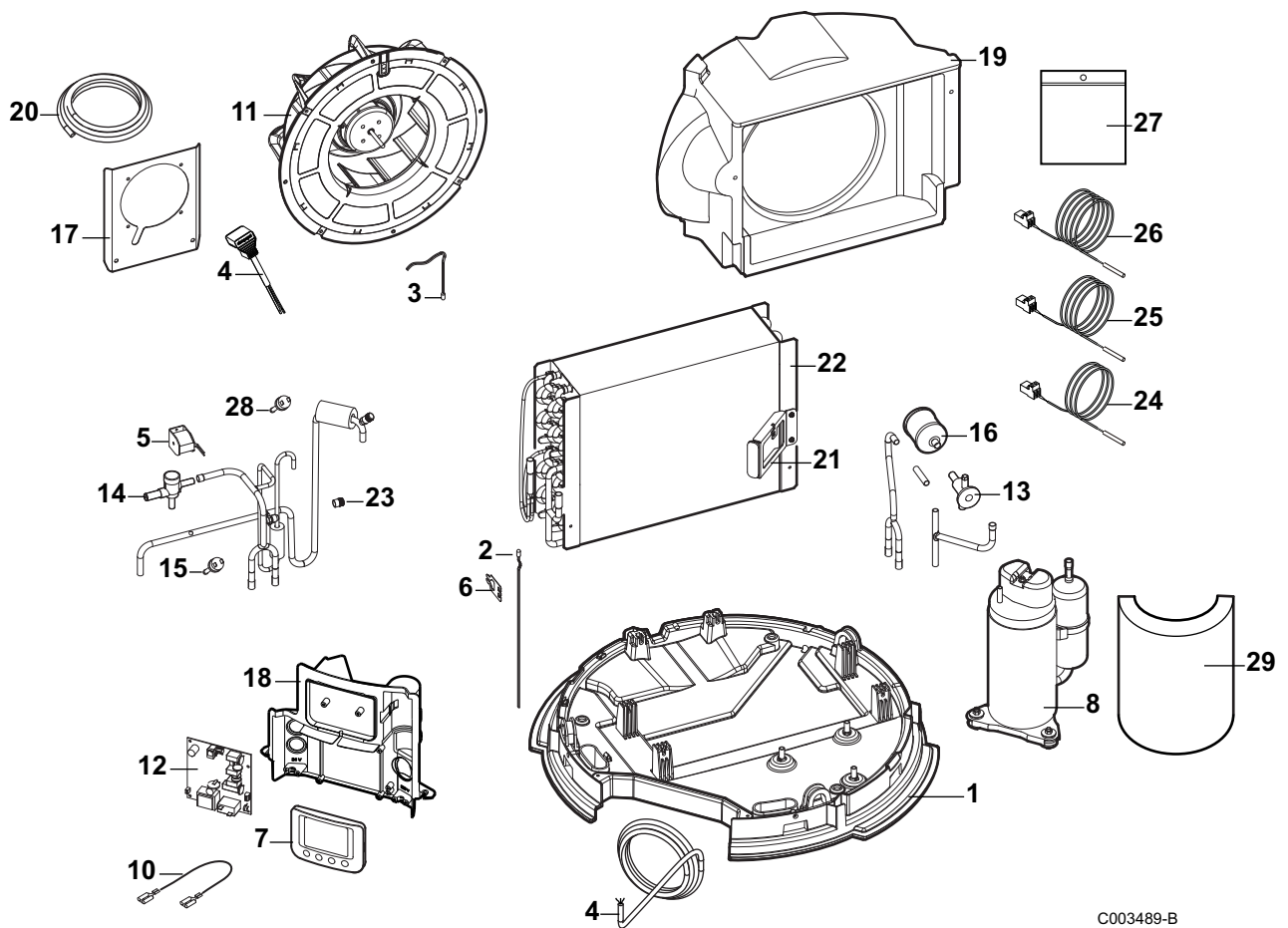
When it is observed subsequent to inspection or maintenance work that a component in the appliance needs to be replaced, use only original spare parts or recommended spare parts and equipment.



To order a spare part, give the reference number shown on the list.

10.2 Spare parts

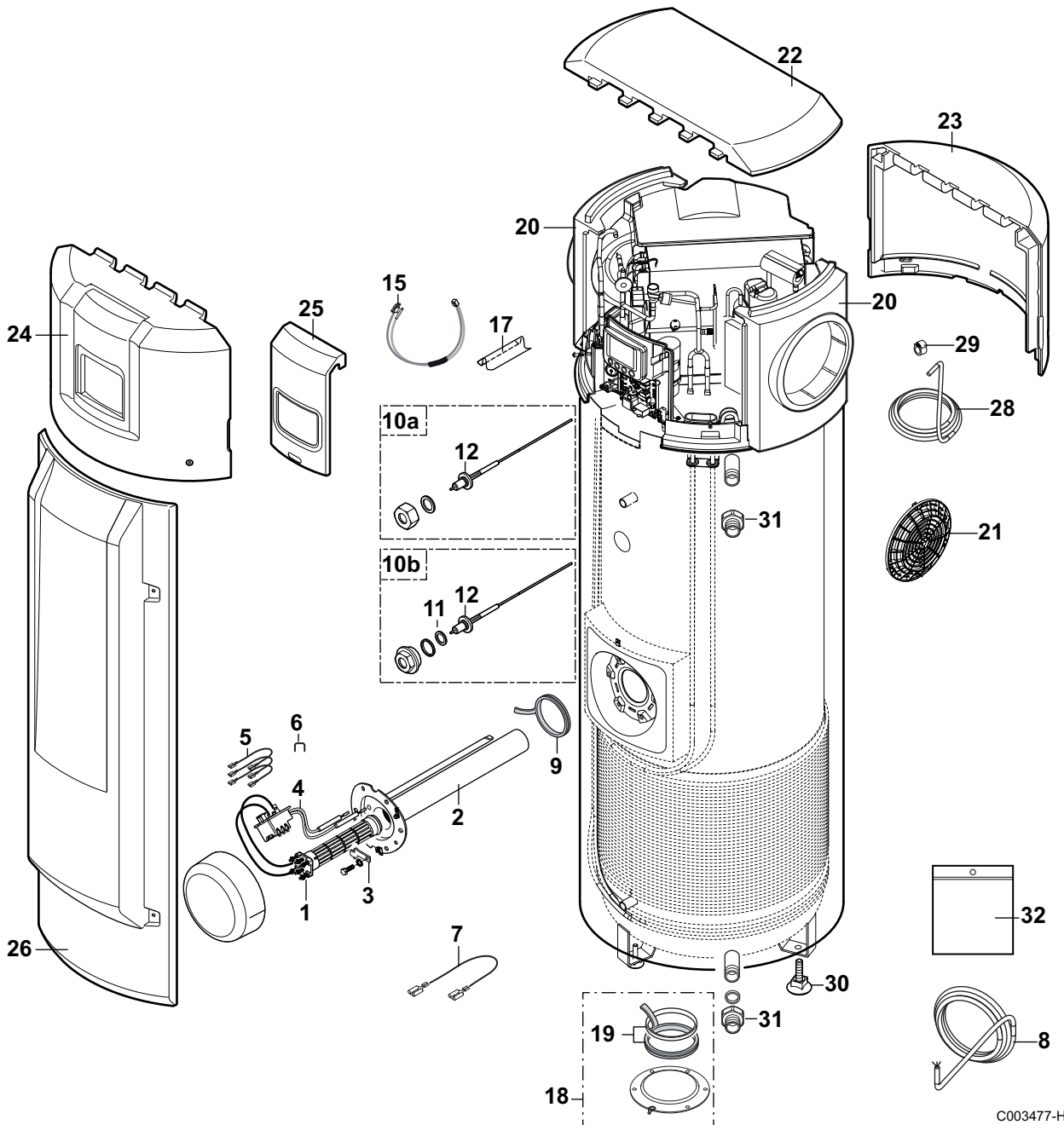
10.2.1. Heat pump



C003489-B

Markers	Reference	Description
1	SFH41000	Base frame
2	7606446	Air sensor
3	SFH22039	Evaporator sensor
4	SFH32178	Electrical harness
5	SFH24053	Coil
6	SFH40173	Sensor bracket
7	SFH31034	Command module
8	SFH20050	Compressor
10	SFH33170	Earthing connector
11	SFH37008	Motorised fan
12	SFH31306	Control system board
13	SFH23108	Expansion valve
14	SFH24052	Solenoid valve
15	SFH22234	LP pressure switch
16	SFH21038	Filter drier
17	SFH40172	Fan bracket
18	SFH41001	Control panel bracket
19	SFH41002	Air duct
20	SFH98172	Foam gasket
21	SFH40171	Compressor bracket
22	SFH25298	Heat exchanger
23	SFH12102	Valve plug
24	SFH22056	Tank sensor 0.5 m + Connector
25	SFH22057	Tank sensor 1.5 m + Connector
26	SFH22058	Tank sensor 2 m + Connector
27	200020513	Screw bag Heat pump
28	7611992	Wired high pressure (HP) pressure switch
29	7610320	Compressor insulation

10.2.2. DHW tank



C003477-H

Markers	Reference	Description
1	7614973	Heating element
2	97862390	Housing for heating element
3	7607345	Fastening plate
4	95363327	Thermostat
5	200011080	Connection cable - Black (x3)
6	300019070	Connection bridge
7	89534902	Earth wire
8	300025717	Power supply cable
9	95013133	Lip gasket diameter 82 mm
10a	200021118	Connection G 3/4" ACI complet As of serial number 193

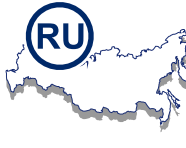
Markers	Reference	Description
10b	200019797	Connection G1" 1/2 ACI complet From serial number 101 to serial number 192
11	300014305	O-ring 14x4 EPDM
12	200011550	Titanium anode
15	300025716	ACI anode cable
17	95365613	Contact spring for pocket
18	89525501	Complete top mounting
19	89705511	Gasket 7 mm + Retainer ring 5 mm
20	300025193	Nozzle
21	300025194	Grill
22	300025192	Top cover
23	200020278	Back cover + Spacers + Screw
24	200020279	Front cover + Spacers + Screw
25	300025216	Panel strap
26	300025930	Front cover 200E
26	300025931	Front cover 300E / 300EH
28	94994712	Pipe PVC diameter 16x12
29	S101017	Pipe clamp 135
30	97860646	Adjustable foot M10x35 (3x)
31	300025648	Dielectric connection 3/4"
32	200020217	Screws for casing

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19/01/2015



300026515-001-05

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