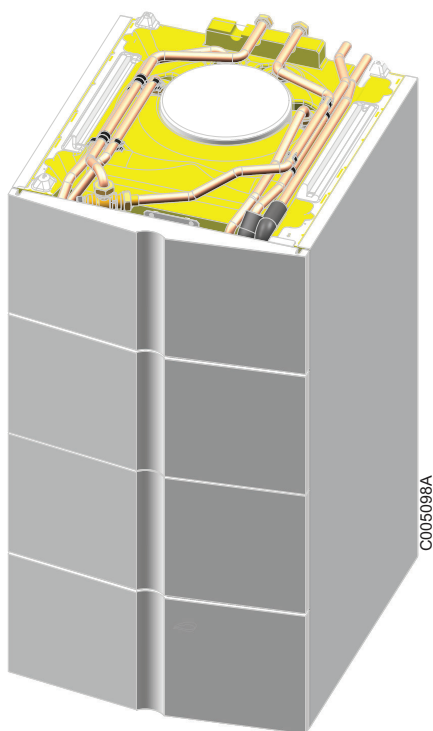


Solar domestic hot water calorifier

E200 SHL



Installation and Service Manual

Contents

1	Safety instructions and recommendations	4
1.1	Safety instructions	4
1.2	Recommendations	6
1.3	Liabilities	7
1.3.1	Manufacturer's liability	7
1.3.2	Installer's liability	7
2	About this manual	8
2.1	Symbols used	8
2.1.1	Symbols used in the manual	8
2.1.2	Symbols used on the equipment	8
2.2	Abbreviations	8
3	Technical specifications	10
3.1	Homologations	10
3.1.1	Certifications	10
3.1.2	Factory test	10
3.1.3	Directive 97/23/EC	10
3.2	Technical specifications	10
3.2.1	Characteristics of the DHW calorifier	10
3.2.2	Specifications of the DHW sensor	11
3.2.3	Specifications of the solar sensor	11
3.2.4	Specifications of the solar collector sensor	12
3.3	Main dimensions	12
4	Technical description	14
4.1	General description	14
4.2	Operating principle	15
4.2.1	Skeleton Diagrams	15

	4.3	Main parts	16
	4.4	Standard delivery	16
	4.5	Accessories	16
5		Before installation	17
	5.1	Regulations governing installation	17
	5.2	Choice of the location	17
	5.2.1	Type plate	17
	5.2.2	Positioning of the appliance	18
	5.3	Positioning the appliance	18
6		Installation	21
	6.1	Fitting the DHW sensor	21
	6.2	Installing the solar sensor	21
	6.3	Installing the domestic hot water temperature sensor - Cable routing	22
	6.4	Installing and connecting the solar expansion vessel	22
	6.4.1	For an installation with a boiler placed on top of the tank	22
	6.4.2	To install the tank next to a boiler	24
	6.5	Hydraulic connections	24
	6.5.1	Primary solar water circuit connections	24
	6.5.2	Connecting the primary boiler circuit	26
	6.5.3	Hydraulic connection of the secondary drinking water circuit	26
	6.6	Electrical connections	29
	6.6.1	Recommendations	29
	6.6.2	Connecting the DHW heating pump	30
	6.6.3	Connecting the domestic hot water sensor	30
	6.6.4	Connecting the solar control system	30
	6.6.5	Terminal block	31
	6.7	Filling the system	32
	6.7.1	Filling the domestic hot water circuit	32
	6.7.2	Filling the primary boiler circuit	32
	6.7.3	Filling the primary solar circuit	32
7		Commissioning	37
	7.1	Check points before commissioning	37
	7.1.1	Hydraulic circuits	37
	7.1.2	Electrical connection	38

	7.2	Commissioning procedure	38
	7.2.1	Setting procedure EGC 17/29 (See the installation and service manual for the boiler)	39
8		Installation shutdown	40
	8.1	Antifreeze protection	40
	8.2	Shutting down the solar control system	40
9		Checking and maintenance	41
	9.1	General instructions	41
	9.2	Safety valve or safety unit	41
	9.3	Cleaning the casing material	41
	9.4	Checking the magnesium anode	41
	9.5	Descaling	42
	9.6	Removing and remounting the inspection trap	42
	9.6.1	Removing the inspection trap	42
	9.6.2	Reassembling the inspection trap	43
	9.7	Cleaning the plate heat exchanger	43
	9.8	Inspection and maintenance of the solar circuit	45
	9.8.1	Adding heat transporting fluid	45
	9.9	solar regulator	45
	9.9.1	Electricity supply	46
	9.10	Maintenance of the thermostatic mixing valve	46
	9.11	Draining the installation	47
	9.12	Specific maintenance operations	47
	9.13	Maintenance form	48
10		Spare parts	49
	10.1	General	49
	10.2	Spare parts	50
11		Appendix – Information on the Ecodesign and Energy Labelling Directives	53

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.



CAUTION

1. Turn off the domestic cold water inlet.
2. Open a hot water tap on the installation.
3. Open a safety unit valve.
4. When the water stops flowing, the appliance has been drained.

**CAUTION****Pressure limiter device**

- ▶ The pressure limiter device (safety valve or safety unit) must be operated regularly in order to clear out any limescale deposits and ensure that it is not blocked.
- ▶ The pressure limiter device must be connected to a discharge pipe.
- ▶ As water may flow from the discharge pipe, it must be kept open to the air, in a frost-free environment, in a continuous downward gradient.

For the type, characteristics and connection of the pressure limiter device, please refer to the section entitled Connecting the domestic hot water tank to the drinking water network in the installation and service manual for the domestic hot water tank.



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

**CAUTION**

Allowance must be made for a means of disconnection in the fixed pipes in accordance with the regulations on installations.

**CAUTION**

If a power cord is provided with the appliance and it turns out to be damaged, it must be replaced by the manufacturer, its after sales service or persons with similar qualifications in order to obviate any danger.

**CAUTION**

Respect the maximum water inlet pressure to ensure correct operation of the appliance, referring to the chapter "Technical Specifications".

**CAUTION**

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

**CAUTION**

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

**CAUTION**

Do not neglect to service the appliance. Service the appliance regularly to ensure that it operates correctly.

**WARNING**

Only qualified professionals are authorised to work on the appliance and the installation.

**WARNING**

Heating water and domestic water must not come into contact with each other. Domestic water must not circulate via the exchanger.

- ▶ To take advantage of the guarantee, no modifications must be made to the appliance.
- ▶ To reduce heat losses as much as possible, insulate the pipes.

Casing components

Only remove the casing for maintenance and repair operations. Put the casing back in place after maintenance and repair operations.


Instructions stickers

The instructions and warnings affixed to the appliance must never be removed or covered and must remain legible during the entire lifespan of the appliance. Immediately replace damaged or illegible instructions and warning stickers.

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  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.

2 About this manual

2.1 Symbols used

2.1.1. Symbols used in the manual

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.

2.1.2. Symbols used on the equipment



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



Dispose of the used products in an appropriate recovery and recycling structure.



2.2 Abbreviations

- ▶ **CFC:** Chlorofluorocarbon
- ▶ **DHW:** Domestic hot water
- ▶ **PCU:** Primary Control Unit - PCB for managing burner operation

- ▶ **SCU:** Secondary Control Unit - control panel PCB

3 Technical specifications

3.1 Homologations

3.1.1. Certifications

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

- ▶ Low voltage directive 2014/35/EU.
Reference Standard: EN 60.335.1.
Reference Standard: EN 60.335.2.21.
- ▶ Electromagnetic compatibility directive 2014/30/EU.
Reference Standards: EN 50.081.1, EN 50.082.1, EN 55.014

3.1.2. Factory test

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

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

3.1.3. Directive 97/23/EC

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

3.2 Technical specifications

3.2.1. Characteristics of the DHW calorifier

DHW tank E200 SHL		
Primary circuit (Heating water)		
Maximum operating temperature	°C	95
Maximum operating pressure	bar (MPa)	3 (0.3)
Primary circuit (Solar circuit fluid)		
Maximum operating temperature	°C	135
Maximum operating pressure	bar (MPa)	6 (0.6)
Exchanger capacity	l	8.4

DHW tank E200 SHL		
Exchange surface	m ²	1.25
Secondary circuit (domestic water)		
Maximum operating temperature	°C	95
Maximum operating pressure	bar (MPa)	10 (1.0)
Water content	l	220
Top up volume	l	54
Solar volume	l	166
Weight		
Shipping weight (Foam coated domestic hot water tank)	kg	109

Performances related to the boiler type		Gas fired floor-standing condensing boiler ⁽¹⁾	
		25 kW	17/29 kW
Power exchanged	kW	28	28
Flow per hour ($\Delta T = 35^{\circ}\text{C}$) ⁽²⁾	l/h	690	690
Specific flow ($\Delta T = 30^{\circ}\text{C}$) ⁽³⁾	l/min	19	19
Draw-off capacity ⁽³⁾	l/10 mm	190	190
Stand-by losses $\Delta T = 45 \text{ K } q_{a45}$ (EN 625)	W	117	117
Maintenance consumption Q_{pr} (EN 12897)	kWh/24h	2.26	2.26
Q_p : Primary flow rate	m ³ /h	0.80	0.80
(1) Depending on the country in which the boiler is installed (2) Domestic cold water inlet: 10 °C - Domestic hot water outlet: 45 °C - Domestic hot water set point: 65 °C (3) Domestic cold water inlet: 10 °C - Domestic hot water outlet: 40 °C - Primary circuit (heating water): 80 °C - Calorifier temperature: 60 °C			

3.2.2. Specifications of the DHW sensor



Tolerance: +/- 5 Ohm

Temperature in °C	10	20	25	30	40	50	60	70	80
Resistance in ohm	19691	12474	10000	8080	5372	3661	2536	1794	1290

3.2.3. Specifications of the solar sensor



Tolerance: +/- 5 Ohm

Temperature in °C	-10	-5	0+	5	10	15	20	25	30	35	40	45	50	55	60
Resistance in ohm	961	980	1000	1019	1039	1058	1078	1097	1117	1136	1155	1175	1194	1213	1232

Temperature in °C	65	70	75	80	85	90	95	100	105	110	115
Resistance in ohm	1252	1271	1290	1309	1328	1347	1366	1385	1404	1423	1442

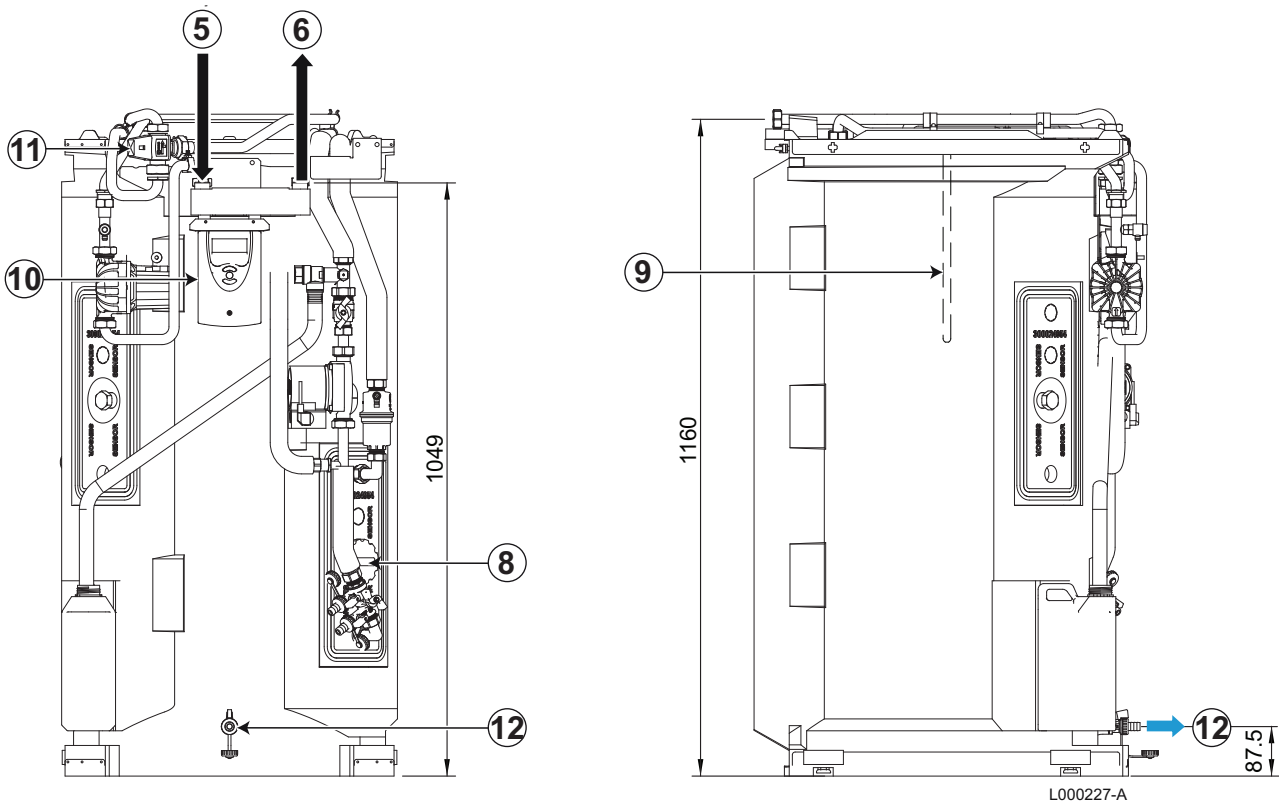
3.2.4. Specifications of the solar collector sensor

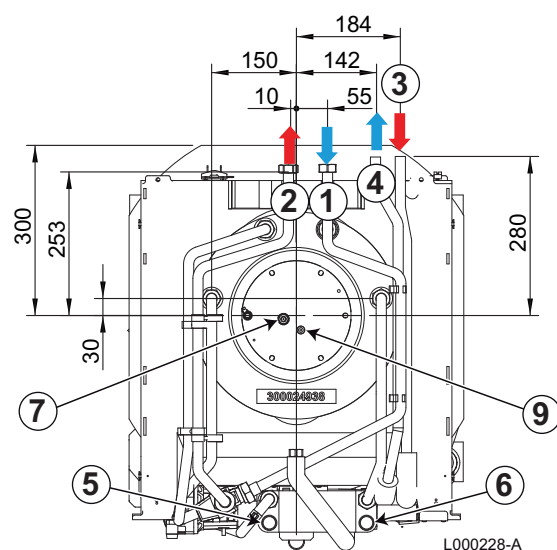
i Tolerance: +/- 5 Ohm

Temperature in °C	-10	-5	0+	5	10	15	20	25	30	35	40	45	50	55	60
Resistance in ohm	55047	42158	32555	25339	19873	15699	12488	10000	8059	6535	5330	4372	3605	2989	2490

Temperature in °C	65	70	75	80	85	90	95	100	105	110	115
Resistance in ohm	2084	1753	1481	1256	1070	915	786	677	586	508	443

3.3 Main dimensions





- ① Domestic cold water inlet G 3/4"
- ② Mixed domestic hot water outlet G 3/4"
- ③ Primary solar return Diameter 18 mm
- ④ Primary solar flow Diameter 18 mm
- ⑤ Primary boiler flow G 3/4"
- ⑥ Primary boiler return G 3/4"
- ⑦ Sacrificial anode
- ⑧ Position solar sensor
- ⑨ Location for domestic hot water sensor
- ⑩ Solar regulator
- ⑪ Domestic hot water thermostatic mixing valve
- ⑫ DHW drain valve G 1/2"

4 Technical description

4.1 General description

Main parts:

- ▶ The tank is made of high quality steel and is lined with food safety quality enamel vitrified at 850°C, which protects the tank from corrosion.
- ▶ The tank is protected against corrosion by a magnesium anode which should be checked every 2 years and replaced if need be.
- ▶ The heat exchanger with plates is a device that allows water/water exchanges.
- ▶ The appliance is insulated by CFC-free polyurethane foam, which reduces heat losses to a minimum.
- ▶ The outside casing is made of painted steel sheeting.
- ▶ The solar control system.
- ▶ The thermostatic mixing valve.

The E200 SHL domestic hot water tank is available exclusively in combination with the boilers listed below. It cannot be used as an independent DHW tank:

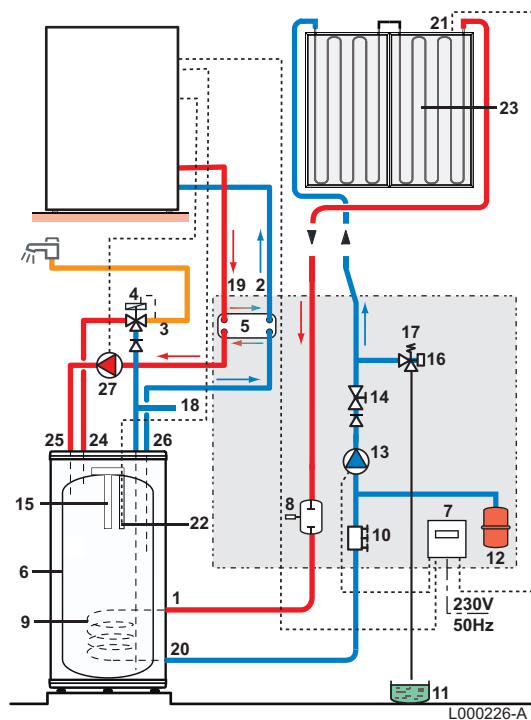
- ▶ EGC 25
- ▶ EGC 25 BE
- ▶ EGC 17/29
- ▶ GSCR 25



Energy labels, product data files and technical data on product packages can be found on our internet site.

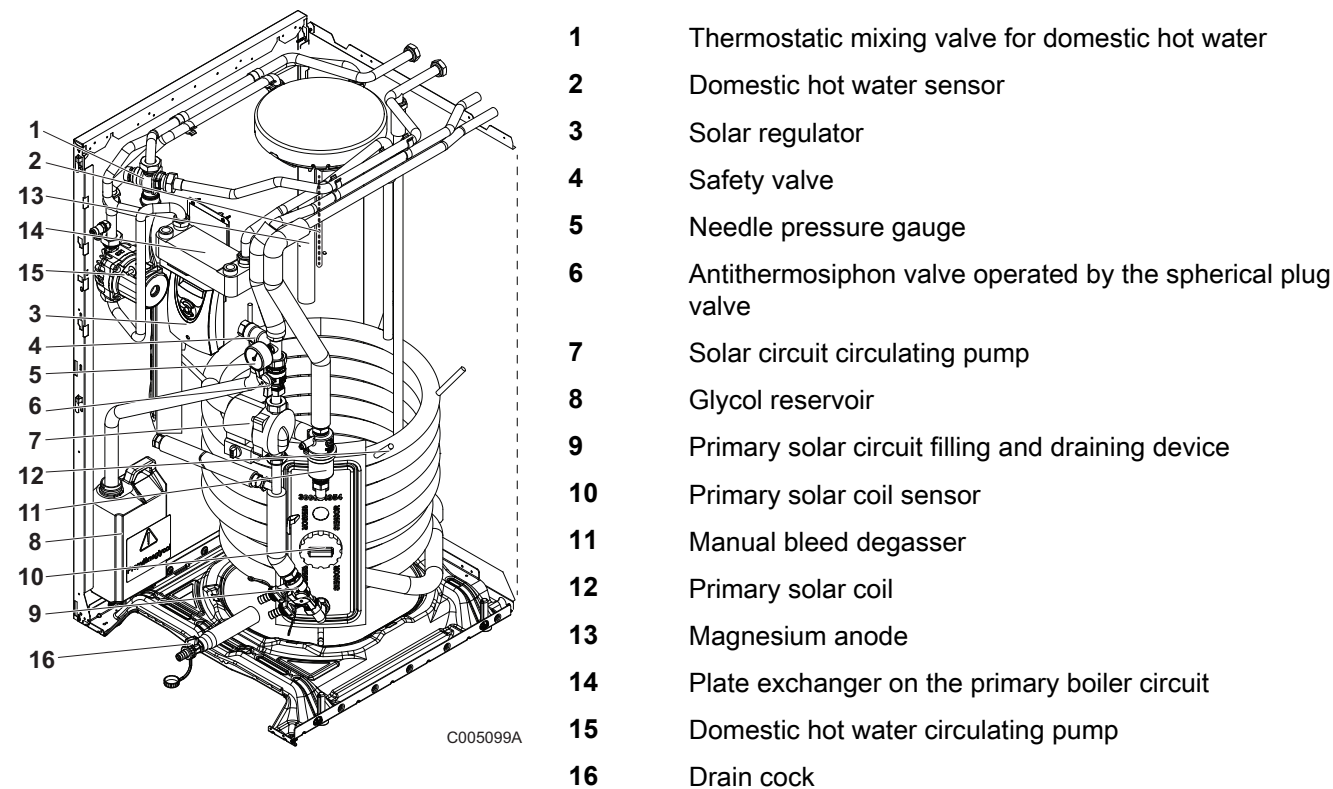
4.2 Operating principle

4.2.1. Skeleton Diagrams



- | | |
|----|---|
| 1 | Primary solar return |
| 2 | Primary boiler flow |
| 3 | Mixed secondary domestic hot water flow |
| 4 | Domestic hot water thermostatic mixing valve |
| 5 | Plate heat exchanger |
| 6 | Domestic hot water tank |
| 7 | Solar regulator |
| 8 | Manual bleed degasser + Solar circuit air vent |
| 9 | Primary solar coil |
| 10 | Primary solar circuit filling and draining device |
| 11 | Glycol reservoir |
| 12 | Solar expansion vessel |
| 13 | Solar circuit circulating pump |
| 14 | Antithermosiphon valve operated by the spherical plug valve |
| 15 | Magnesium anode |
| 16 | Needle pressure gauge |
| 17 | Safety valve |
| 18 | Domestic cold water inlet |
| 19 | Primary boiler return |
| 20 | Primary solar flow |
| 21 | Solar collector temperature sensor |
| 22 | Domestic hot water sensor |
| 23 | Solar collectors |
| 24 | Domestic hot water outlet |
| 25 | DHW return |
| 26 | Domestic cold water flow |
| 27 | Domestic hot water circulating pump |

4.3 Main parts



4.4 Standard delivery

The delivery includes:

- ▶ Complete calorifier
- ▶ Domestic hot water sensor
- ▶ Solar sensor probe
- ▶ Board SCU-S191
- ▶ Connecting cable PCU-SCU
- ▶ ICA simulation connector
- ▶ Domestic cold water temperature sensor cable
- ▶ Domestic cold water temperature sensor
- ▶ Solar expansion vessel 12 l (Compulsory, To be ordered separately)
- ▶ Installation and Service Manual
- ▶ User Guide

4.5 Accessories

Description	package
Solar expansion vessel18 l	JA74

5 Before installation

5.1 Regulations governing installation

**CAUTION**

Installation of the appliance must be done by a qualified engineer in accordance with prevailing local and national regulations.

**CAUTION**

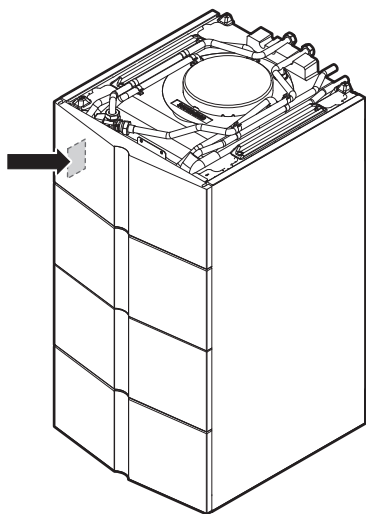
France: The installation must comply in all matters to the standards and rules which govern the work and interventions in individual and collective homes, and other constructions.

**DANGER**

Temperature limit at draw-off points: we would remind you that the maximum domestic hot water temperature at the draw-off point is subject to particular regulations in the various countries where the appliance is sold in order to protect the consumer. Such regulations must be observed when installing the appliance

5.2 Choice of the location

5.2.1. Type plate



C005100A

The type plate must be accessible at all times.
The type plate identifies the product and provides the following information:

- ▶ DHW calorifier type
- ▶ Manufacturing date (Year - Week)
- ▶ Serial number.

5.2.2. Positioning of the appliance

The installer must respect the following instructions:

- ▶ Install the appliance in frost-free premises.
- ▶ Place the appliance on a base frame to facilitate cleaning of the premises.
- ▶ Install the appliance as close as possible to the drawing off points in order to minimise energy losses through the pipes.

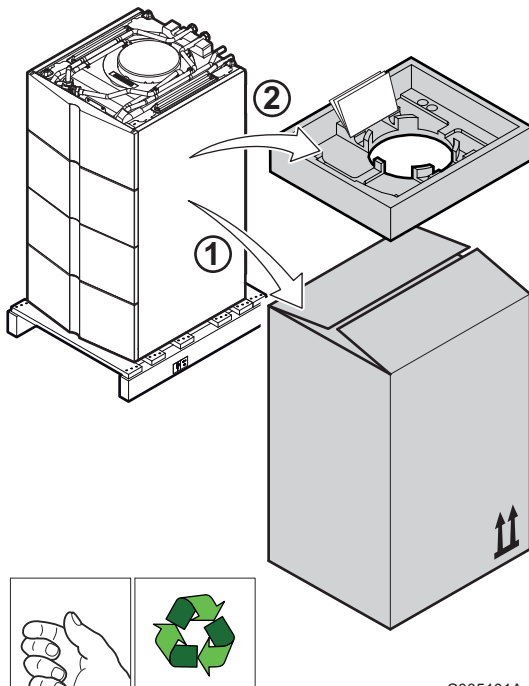
5.3 Positioning the appliance



CAUTION

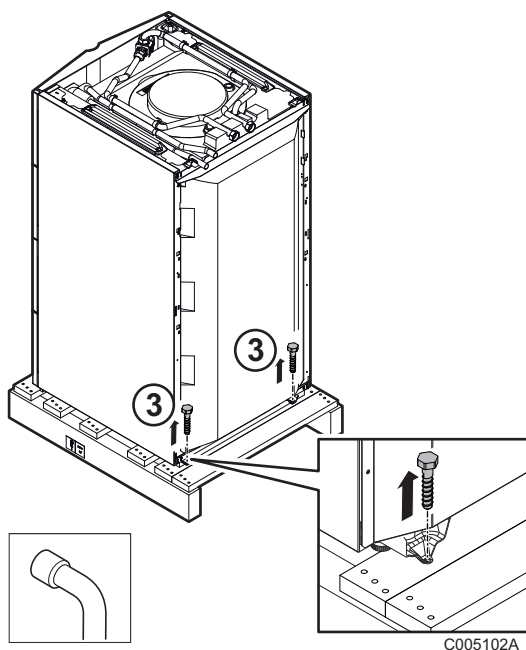
- ▶ Have 2 people available.
- ▶ Handle the appliance with gloves.

1. Remove the packaging from the DHW calorifier, leaving the calorifier on the pallet used for transport.
2. Remove the protective packaging.

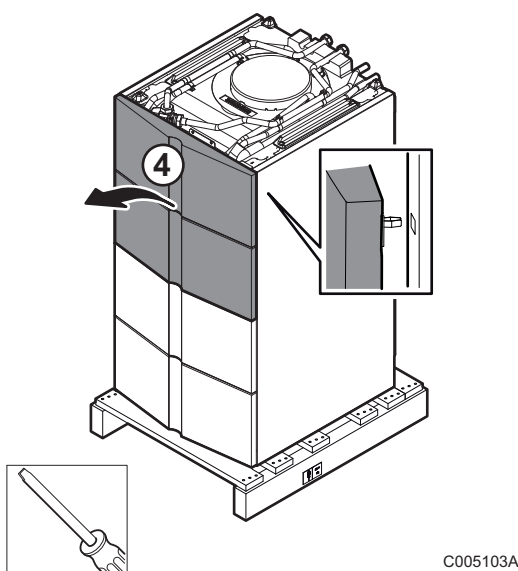


C005101A

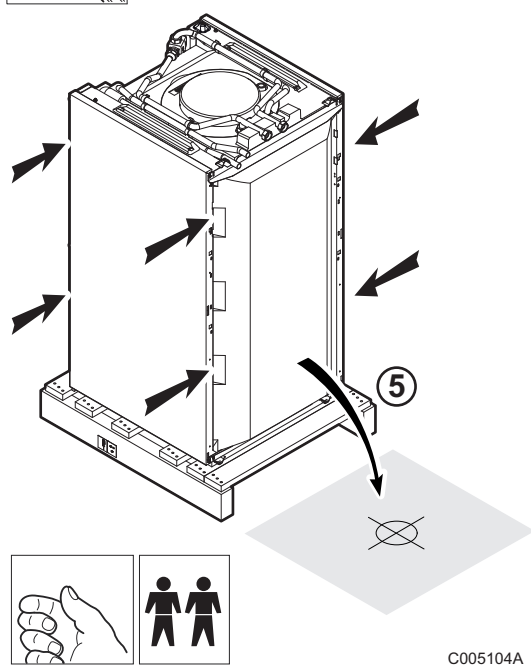
3. Remove the 2 screws securing the calorifier to the pallet.



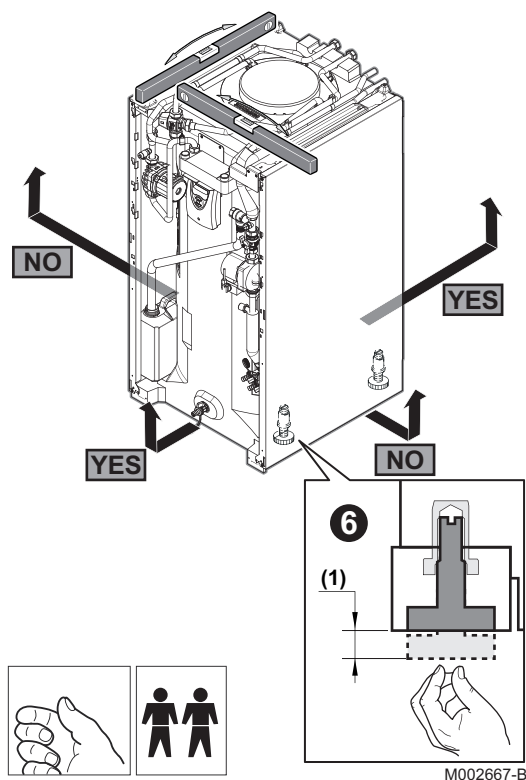
4. Remove the front panels by pulling firmly from both sides.



5. Lift the calorifier and position it in its operating location.

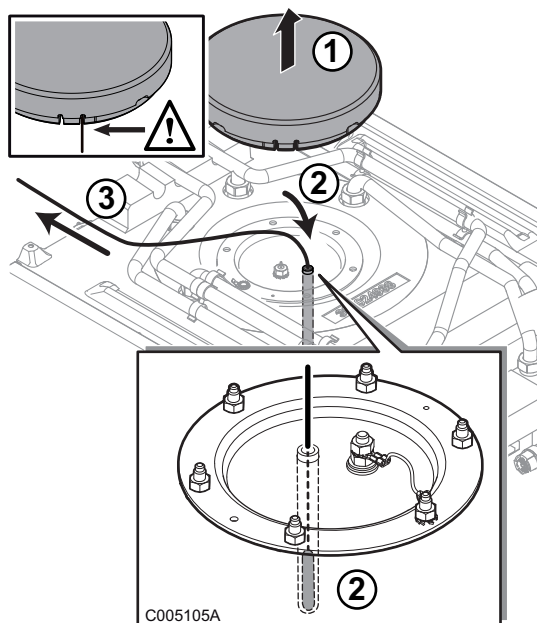


6. Level the appliance using the adjustable feet.
(1) Adjustment range: 0 to 20 mm



6 Installation

6.1 Fitting the DHW sensor

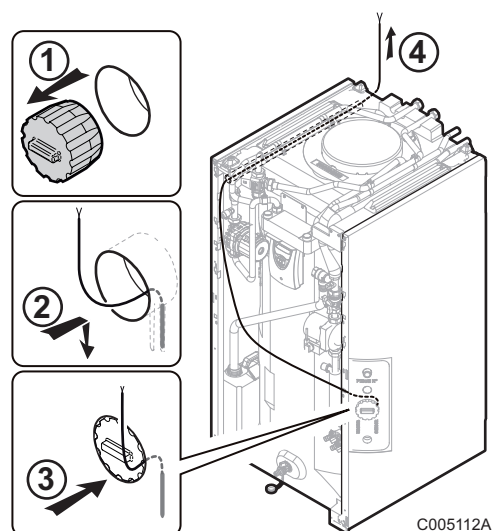


1. Remove the inspection trap insulation.
2. Install the DHW sensor in the bottom of its housing.
3. Route the cable to the back of the tank (Left-hand side).



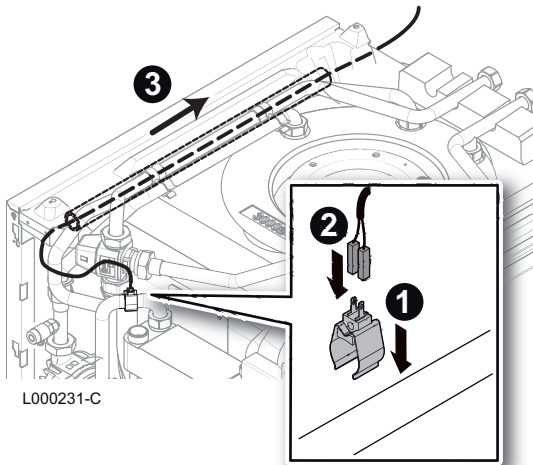
Column installation (boiler on top of the DHW tank):
Discard the inspection trap insulation in place and replace it with the foam insulation delivered with the DHW tank

6.2 Installing the solar sensor



1. Remove the plastic plug.
2. Put the solar sensor in place.
3. Put the plastic plug back in place.
4. Connect the solar control system.

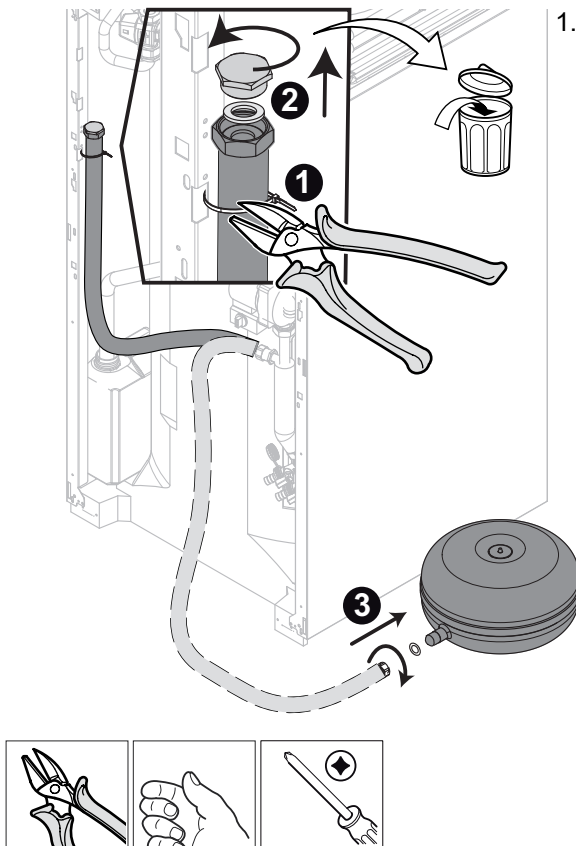
6.3 Installing the domestic hot water temperature sensor - Cable routing



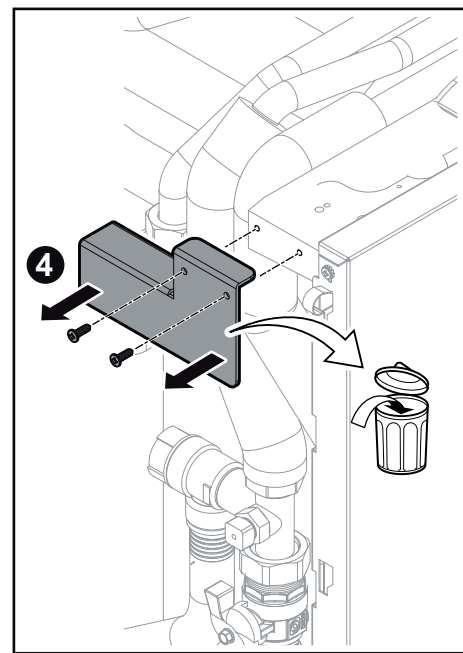
1. Clip the domestic hot water temperature sensor on to the plate exchanger outlet. (The domestic hot water temperature sensor can be found in the instruction pack.)
2. Fit the connectors for the domestic hot water temperature sensor.
3. Route the cable through the cable feed-through to the back of the DHW tank.

6.4 Installing and connecting the solar expansion vessel

6.4.1. For an installation with a boiler placed on top of the tank

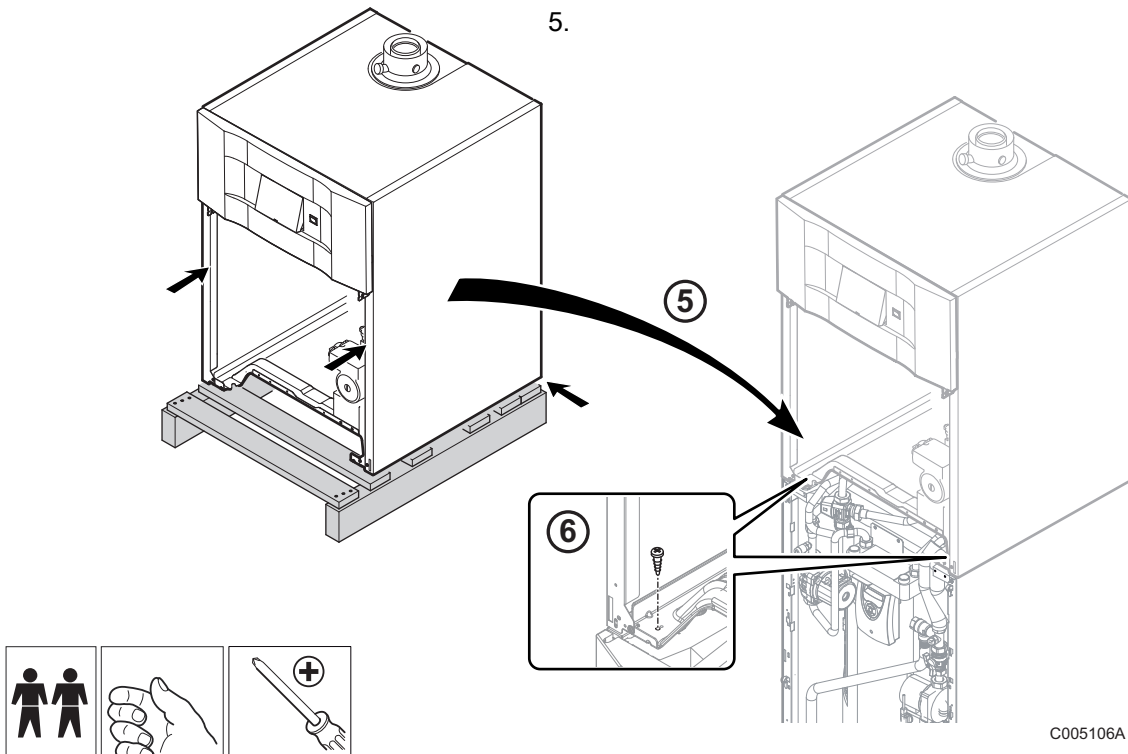


1.




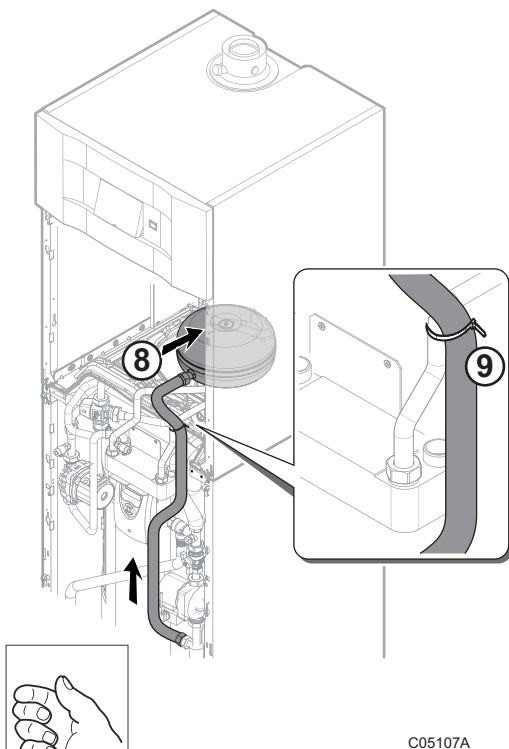
- Detach the hose by cutting the clamp.
2. Remove the protective plug and the sheet gasket.

3. Use the sheet gasket provided in the instructions pack for the DHW tank to connect the hose to the expansion vessel and position it on the floor.
4. Remove the holding plate.
- 5.



Position the boiler on the DHW tank.

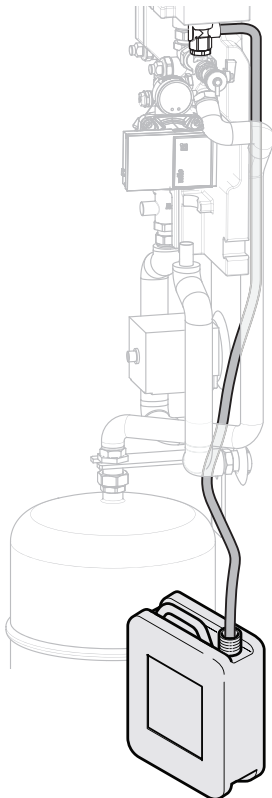
6. Put the 2 screws in place at the front to attach the boiler to the DHW tank.
7. Put the connection pipes in place.
 Refer to the assembly and connection instructions for the JA9 kit.
8. Put the expansion vessel in place inside the boiler.
9. Secure the pipes using a self-tightening clamp.



6.4.2. To install the tank next to a boiler

 Refer to the connecting kit manual.

6.5 Hydraulic connections



L000613-A

6.5.1. Primary solar water circuit connections



CAUTION

When switched off, the temperature in the collectors can exceed 150 °C.



CAUTION

To protect against frost, use a water-propylene glycol mixture as the heat transporting fluid.



CAUTION

Due to the high temperatures, the use of propylene glycol and the pressure in the primary solar circuit, the primary solar water connections must be made with the utmost care, in particular with regard to insulation and watertightness.



CAUTION

The pressure in the solar circuit can rise to 6 bar (0.6 MPa) maximum.



CAUTION

Protection of the environment

Place a container of sufficient volume under the drain pipe and the valve discharge pipe.



CAUTION

Safety valve discharge pipe

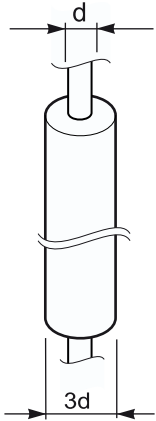
- ▶ Pipe length 2 m max.
- ▶ closing up impossible
- ▶ DN 20
- ▶ fitted with constant slope towards the drain

■ Pipe insulation



CAUTION

To protect the insulation against mechanical damage, bird picking and UV light, add extra protection for the heat insulation sleeves in the roof area by using an aluminium sheet sleeve or aluminium adhesive tape. This additional protection must be sealed with silicone.



M001704-A

- ▶ If different copper pipes are used, the insulation must be:
 - Resistant to constant temperatures up to 150 °C in the collector zone and the hot outlet and also down to - 30 °C.
 - Insulation preferably waterproof and continuous.
 - with a thickness equal to the tube diameter and with a K coefficient of 0.04 W/mK.



50 % reduction of the insulation is permitted when passing through the roof and walls.

- ▶ Recommended materials for temperatures up to 150 °C:
 - Duo-Tube
 - DuoFlex
 - Armaflex HT
 - mineral wool
 - glass fibre

■ Solar expansion vessel

- ▶ The expansion vessel compensates for variations in the volume of heat transporting fluid caused by temperature variations. The total amount of heat transporting fluid in the collector is absorbed when the safety of the installation is compromised (power cut in full sunshine) and when the installation reaches its shutdown temperature. In this case, some of the heat transporting fluid is converted into gas and moves the fluid from the collector to the expansion vessel. As the collector no longer contains any heat transporting fluid, the installation is no longer at risk. If, at the end of the afternoon, for example, the temperature drops, the gas undergoes a condensation process and is converted back into heat transporting fluid.
- ▶ The pre-inflation pressure in the expansion vessel pushes the heat transporting fluid back to the collector. On start-up after installation, a degassing process, which lasts 3 min, is initiated. Any air bubbles present are picked up and evacuated by the Airstop system. The installation is once again fully operational.
- ▶ Expansion vessels are resistant to the heat transporting fluid and are selected primarily according to the number of collectors. When the number of solar collectors is high, the expansion vessels are mounted in parallel.

Content of the solar expansion vessel		
	Calculation formula	Example
Pre-inflation pressure (P₀)	$(H_{st}/10) + 0.3 + P_d + P$ H _{st} : Static height of the solar installation P _d : Thermal expansion pressure of the heat-exchanging medium (depends on T _{max}) P: Heating pump load (depends on its location)	P₀ = 1.6 bar (0.16 MPa) H _{st} = 10 m P _d = 0.3 bar (0.03 MPa) P = 0 bar (0.0 MPa)
Max final pressure (P_e_{max})	0.9 x PSV PSV: Calibration of the safety valve	P_e_{max} = 5.4 bar (0.54 MPa) PSV = 6 bar (0.6 MPa)



The expansion vessel provided meets the requirements of all configurations recommended with 2–3 flat collectors. With more than 3 flat collectors and with tubular collectors, calculations must be made.

6.5.2. Connecting the primary boiler circuit



Refer to the connecting kit manual.

6.5.3. Hydraulic connection of the secondary drinking water circuit

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

The tanks inside the domestic hot water tanks can run at a maximum operating pressure of 10 bar (1 MPa). The recommended operating pressure is under 7 bar (0.7 MPa).

■ 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.

■ Provision for Switzerland

Make the connections according to the instructions of the Société Suisse de l'Industrie du Gaz et des Eaux. Comply with local instructions from water distribution plants.

■ Safety valve



CAUTION

In compliance with the safety rules, fit a safety valve to the domestic cold water tank inlet.

France: We recommend NF-marked hydraulic membrane safety control units.

All countries except Germany: 0.7 MPa safety valve (7 bar).

Germany: 10 bar safety valve (1.0 MPa) maximum.

- ▶ 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 calorifer must be at least equal to the diameter of the domestic cold water inlet on the calorifer.
- ▶ There must be no cut-off element between the valve or the safety unit and the domestic hot water calorifer.
- ▶ 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.

Germany: Define the dimensions of the safety valve in accordance with the DIN 1988 standard.

Capacity (litres)	Dimension of the valve Min. dimension of the inlet connection	Heating output (kW) (max)
< 200	R or Rp 1/2	75
200 to 1000	R or Rp 3/4	150

- ▶ Fit the safety valve above the calorifer to avoid draining the tank during servicing.
- ▶ Install a drainage valve at the lowest point on the calorifer.

■ 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 calorifier and its components without draining the entire installation.

These valves are also used to isolate the calorifier 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.



Refer to the installation and maintenance instructions of the boiler

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.

- ▶ In regions where the water is very hard ($TH > 20^\circ f$), we recommend fitting a softener. Water hardness must always be between $12^\circ F$ and $20^\circ F$ to be capable of providing effective protection against corrosion. The softener does not bring about a derogation from our warranty provided that it is approved and set pursuant to the codes of practice and is regularly inspected and maintained.

■ 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.

6.6 Electrical connections

6.6.1. Recommendations



WARNING

- ▶ Only qualified professionals may carry out electrical connections, always with the power off.
- ▶ Earth the appliance before making any electrical connections.

Make the electrical connections of the appliance according to:

- ▶ The instructions of the prevailing standards,
- ▶ The instructions on the circuit diagrams provided with the appliance,
- ▶ The manufacturer's instructions.

Belgium: The earthing must comply with the RGIE standard.

Germany: The earth connection shall comply with standard VDE 0100.

France: The earth connection shall comply with standard NFC 15-100.

Other countries: The earthing shall comply with local standards.



CAUTION

- ▶ Separate the sensor cables from the 230/400 V circuit cables.
- ▶ The installation must be fitted with a main switch.

Power the appliance via a circuit which includes a remote omnipolar switch with a gap of more than 3 mm.

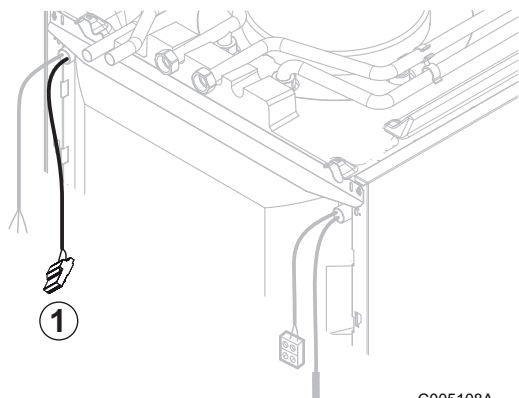
The appliance is delivered pre-wired.

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



The electrical plug must be accessible at all times.

6.6.2. Connecting the DHW heating pump



Connect the DHW heating pump to the corresponding terminal block on the boiler (Terminal X4).

👉 See chapter: "Terminal block", page 31

6.6.3. Connecting the domestic hot water sensor

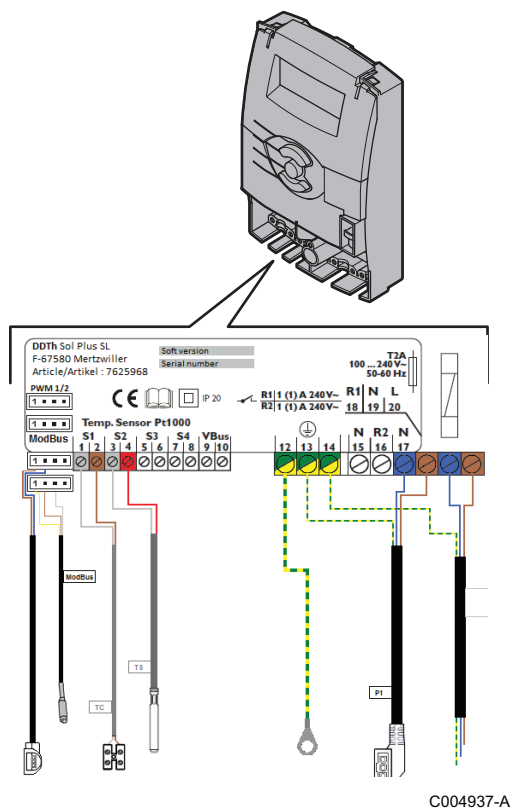
Connect the DHW sensor to the corresponding terminal block on the boiler (Terminal S.ECS).

👉 See chapter: "Terminal block", page 31.

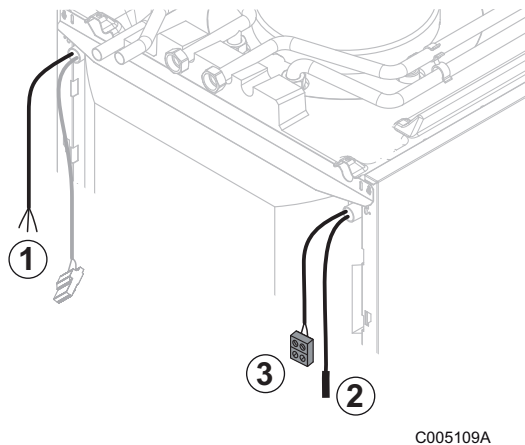
6.6.4. Connecting the solar control system

■ Solar control system terminal block

The solar control system is pre-wired in the factory as shown in the illustration opposite.



■ Connecting the solar control system to the boiler PCB



- ① Prepare the mains connection.

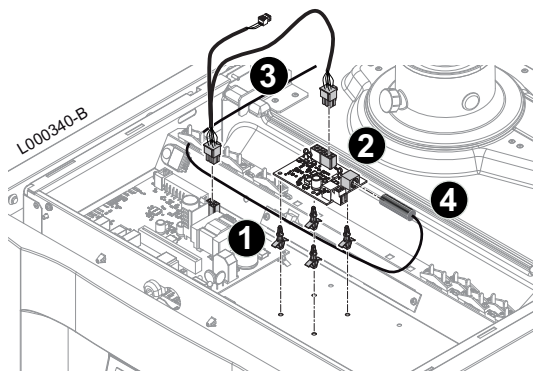


DANGER

The solar control system is connected to the mains during the solar circuit flushing / filling phases.

- ② Mount the SCUS-191 PCB provided with the tank on the boiler.
 ➡ See paragraph: Mounting the SCUS-191 PCB on the boiler.
 Connect the MODBUS cable.
 ➡ See chapter: "Terminal block", page 31
- ③ Connect the solar collector sensor to the insulating screw joint.

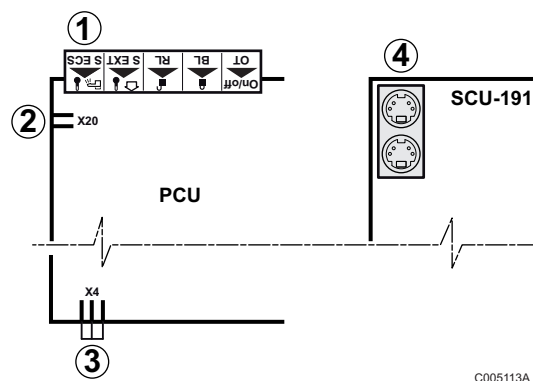
■ Mounting the SCUS-191 PCB on the boiler



1. Put the 4 PCB supports in place.
2. Slot the SCUS-191 PCB onto the PCB supports.
3. Connect the SCUS-191 PCB to the PCU PCB on the boiler using the cable provided with the tank. Insulate the remaining connector.
4. Connect the MODBUS cable on the solar control system to the SCUS-191 PCB.

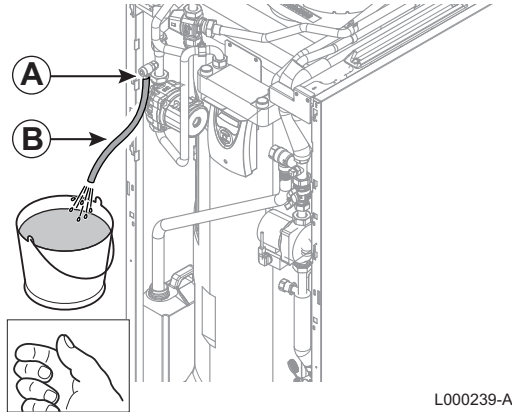
6.6.5. Terminal block

■ Gas fired floor-standing condensing boiler



- ① **S.ECS:** Connect the DHW sensor
- ② **X20:** Connect the plate exchanger sensor
- ③ **X4:** Connect the DHW pump
- ④ Connect the solar control system

6.7 Filling the system



6.7.1. Filling the domestic hot water circuit

- A** Bleeding tap
B Flexible discharge pipe

1. Rinse the domestic circuit.
2. Open a hot water tap.
3. Completely fill the domestic hot water calorifier via the cold water inlet pipe, leaving the hot water valve open.
4. Close the hot water valve when the water flow is regular, without noise in the pipes.
5. Carefully vent all of the DHW pipes by repeating steps 2 to 4 for each hot water tap.
 Venting the domestic hot water calorifier and the mains network helps to prevent noises and banging caused by trapped air moving through the pipes during draw-off.
6. Vent the tank exchanger circuit using the bleed valve provided for this purpose.
7. Check the safety devices (particularly the valve or safety unit), referring to the instructions provided with these components.



CAUTION

During the heating process, a certain amount of water may flow through the valve or safety unit, this is caused by water expansion. This phenomenon is completely normal and must in no event be hindered. This phenomenon is perfectly normal and must in no circumstances be hindered.

6.7.2. Filling the primary boiler circuit

Carefully vent the exchanger circuit in the domestic hot water tank.



Refer to the installation and maintenance instructions of the boiler

6.7.3. Filling the primary solar circuit

Ensure that the solar control system is ready for connection to the mains.



CAUTION

It is essential to fill the solar circuit with heat transporting fluid.

**CAUTION**

When switched off, the temperature in the collectors can exceed 180 °C.

**CAUTION**

Check the tightness of all fittings in the installation at a minimum of 5 bar (0.5 MPa).

■ Rinsing and filling**CAUTION**

Before filling the installation, check the preload of the expansion vessel according to the static height.
(**Preload** = static Height/10 + 0.3 bar (1.0 + 0.03 MPa)).

**CAUTION**

Check the installation of the collector sensor.

Filling pressure

The filling pressure must be more than 0.5 bar (0.05 MPa) above the expansion vessel pre-load pressure.

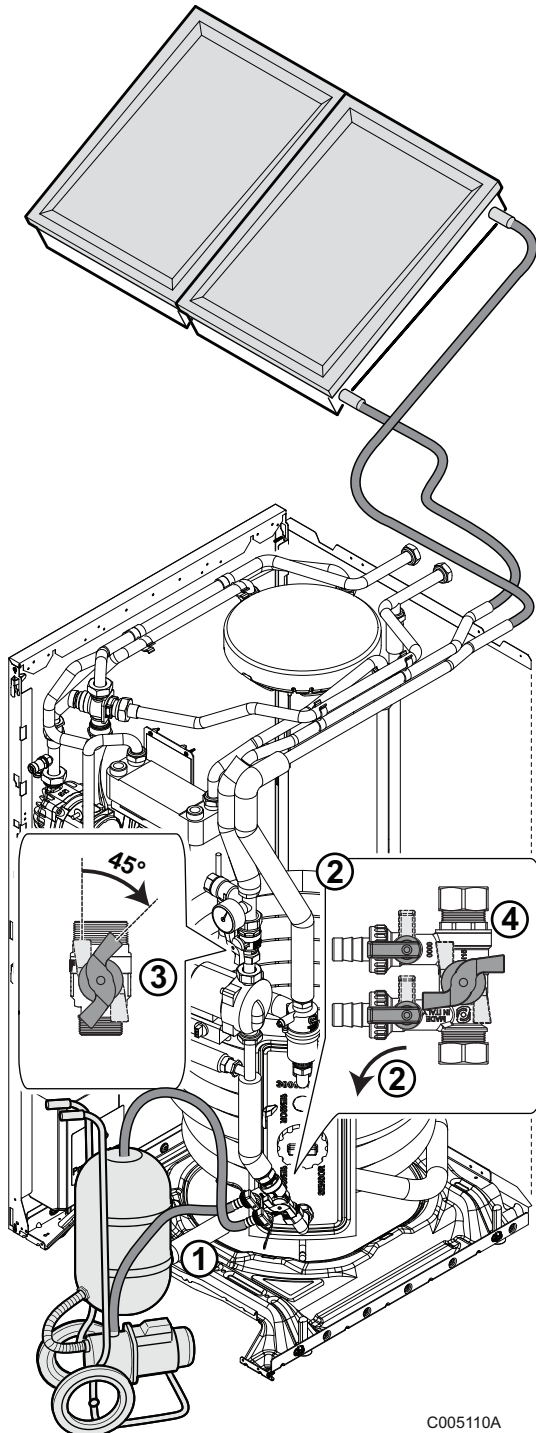
**CAUTION**

Do not use a manual filling pump.

Filling

Recommended heat-exchanging fluid.

1. Pressurise the installation.
2. Progressively close the return valve.
3. Set the ball valve to 45°
4. Close the bypass.



C005110A

**CAUTION**

As the heat transporting fluid leaks much more easily than water, carry out a visual check on the tightness of all fittings and gaskets after a few hours' operation at normal operating pressure.



In small installations, use the heat transporting fluid carrying drum as the receptacle to collect run-off from the safety valve.

**CAUTION**

The solar installation has been designed in such a way that total draining of the collectors is impossible. Therefore it is imperative to flush and fill the solar installation with heat transfer fluid.

**CAUTION**

Do not carry out rinsing in the event of direct solar radiation (vapor formation) or if there is risk of freezing (risk of deteriorations).

When commissioning, the solar installation must be flushed thoroughly to remove grit, deposits and any flux residue.

Flushing time: approximately 15 minutes

Flushing fluid: Heat Transporting Fluid

1. Connecting the filling station .
2. Open the draining and filling valves.
3. Set the ball valve to 45°.
4. Close the bypass.
5. Start up the filling pump.
6. Connect the solar control system to the mains.
7. Stop the solar heating pump.
Set the solar parameters
 Refer to the installation and maintenance instructions of the boiler.
8. Allow the heat transporting fluid to circulate around the installation for 15 minutes.
9. Progressively close the return valve to obtain 5 bar (0.5 MPa).
10. Close the draining and filling valves.
11. Stop the filling pump.
12. Open the bypass.
13. Reset the ball valve to 0°.
14. Vent the solar circuit.
 refer to the chapter on "Venting the circuit"

■ Leak test

The system must be tested for leaks with the heat transfer fluid when flushing is finished.

- ▶ Testing pressure: 5 bar (0.5 MPa)

► Test time: **minimum 1 hour**

In the absence of air in the solar circuit, the test pressure must not decrease.

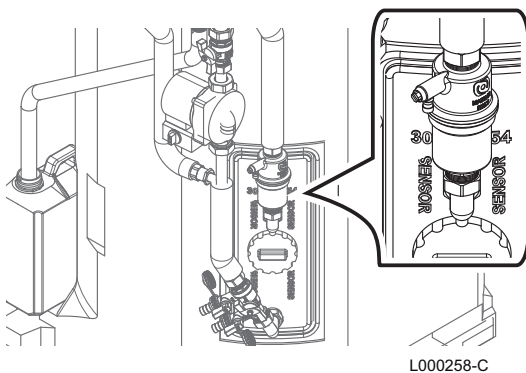
When the test time has elapsed, allow the pressure in the system to rise until it triggers the safety valve (operating check).



CAUTION

The heat transporting fluid leaks very easily. Tests under pressure do not guarantee that there are no leaks once the installation has been filled with heat transporting fluid under pressure. For this reason, we recommend an additional leak test when the system is filled and working.

■ **Venting the circuit**



1. Switch on the circulating pump. air bubbles move towards the bleed points (Airstop system and manual air vent).
2. Stop the circulating pump.
3. Open all the bleed valves to expel the air then close them again.



CAUTION

Depending on the fluid temperature and system pressure, when the degassing screw is opened, the fluid may spurt out with some force. If the water temperature is high, be careful: **RISK OF SCALDING / BURNS.**

Repeat the operation several times; alternate operation of the pump assists degassing.



CAUTION

Bleeding must be continued until pressure variations can no longer be detected at the pressure gauge, or when starting or stopping the pump. If loss of pressure continues, add heat transfer fluid in accordance with the filling instructions.



The needle may move as the pump modulates.



CAUTION

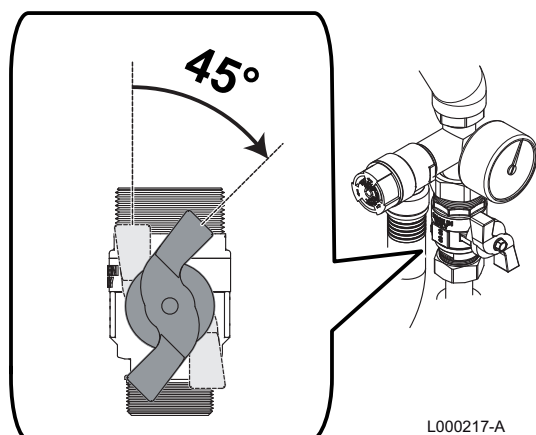
After a few days of operation at high working temperature, bleeding should be repeated. This bleeding is necessary because small air bubbles form in the propylene glycol at high working temperatures.



CAUTION

For systems installed in the winter, it is advisable to bleed them again in the summer.

■ Anti-thermosiphon valve



The check valve is included in the ball valve on the red thermometer and it is characterized by an opening pressure of 200 mm water column.

- ▶ To fill, degass and rinse the installation, the ball valve must be set to 45 °. The ball in the valve lifts the check valve.
- ▶ When the installation is operating, the ball valve must be **returned to the vertical position**.

The antithermosiphon valve operates when the stop cock is in the open position.

7 Commissioning

7.1 Check points before commissioning

7.1.1. Hydraulic circuits

■ Secondary circuit (domestic water)

Inspect all the connections in the system for leaks.

There are different fitting versions:

- ▶ ESBE mixing valve with protective cap.
- ▶ BARBERI mixing valve with central locking bolt.

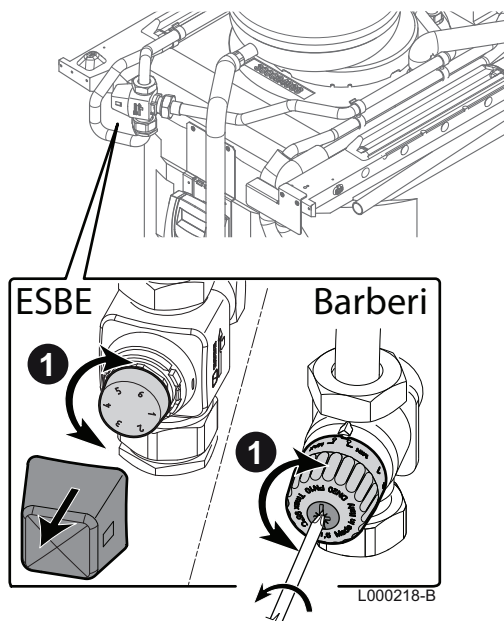
Check the temperature setting on the thermostatic mixer valve:

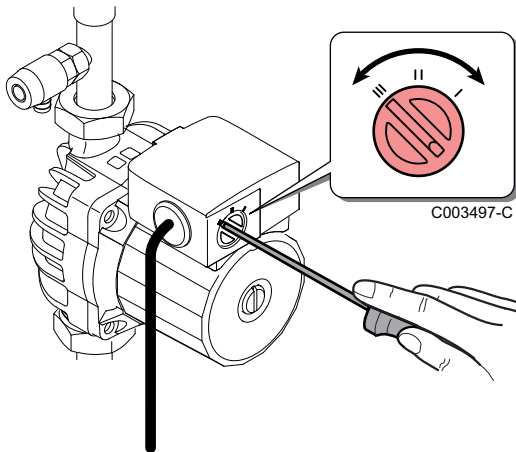
1. Remove the cap or unscrew the central screw, depending on the version.
2. Set the domestic hot water thermostatic mixing valve to the required temperature to avoid scalding when running domestic hot water. The mixing valve is set in the factory for a DHW outlet temperature of 50°C (position 4).



The mixer valve can be set in the range between 35°C and 60°C, 6 levels in steps of 5°C.

3. Refit the protective cap or lock the central screw, depending on the version.





Setting the speed of the heating pump:

- ▶ Set the pump speed on II using a flat screwdriver.

■ Primary boiler circuit

Inspect all the connections in the system for leaks.

Refer to the connecting kit manual.

■ Primary solar circuit

Set the speed of the solar circuit circulating pump

See chapter: Operating principle, Solar circuit circulating pump



WARNING

If the temperature in the solar collectors is higher than 120°C, the control system operates in safety mode. Wait until the evening before start-up or cool down (cover) the solar collectors.



WARNING

The solar control system is governed by the boiler control system.

Refer to the installation and maintenance instructions of the boiler.

7.1.2. Electrical connection

- ▶ Check that the sensors are correctly fitted and connected.
- ▶ Check the electrical connections, particularly the earth.

7.2 Commissioning procedure



CAUTION

Initial commissioning must be done by a qualified professional.

7.2.1. Setting procedure EGC 17/29 (See the installation and service manual for the boiler)

Depending on the boiler version, an error message **S.E.9** **S.U.28** may appear.

- ▶ Access the installer settings (See section 6.7.3. - Modification of the installer-level parameters).
- ▶ Modify the value of the parameter **dF:6**
- ▶ Modify the value of the parameter **dU:8**
- ▶ Exit the installer menu.



The boiler restarts.

- ▶ Access the installer settings (See section 6.7.3. - Modification of the installer-level parameters).
- ▶ Modify the value of the parameter **P.17** **P.18** **P.19** (See section 6.7.1. - Parameter descriptions, Setting the fan speeds in accordance with the gas type).
- ▶ Exit the installer menu.



CAUTION

During the heating process, a certain amount of water may flow through the valve or safety unit, this is caused by water expansion. This phenomenon is completely normal and must in no event be hindered.

Once the DHW tank has been connected to the mains, the unit is managed from the boiler control panel.

When in use, no direct action is needed on the DHW tank.



M003223-A

8 Installation shutdown

8.1 Antifreeze protection

**WARNING**

Do not switch off the mains supply.

- ▶ Antifreeze protection is guaranteed.

8.2 Shutting down the solar control system

**CAUTION**

Do not shut down power to the control system or drain the heat-exchanging fluid.

The system is designed in such a way that no special precautions are necessary during long periods of absence in summer.

The solar control system protects the installation from overheating.

9 Checking and maintenance

9.1 General instructions



CAUTION

- ▶ Maintenance operations must be done by a qualified engineer.
- ▶ Only original spare parts must be used.

9.2 Safety valve or safety unit

The safety valve or unit on the domestic cold water inlet must be operated at least **once a month** to ensure proper operating and to prevent from any overpressure which may that may damage the domestic hot water calorifier.



WARNING

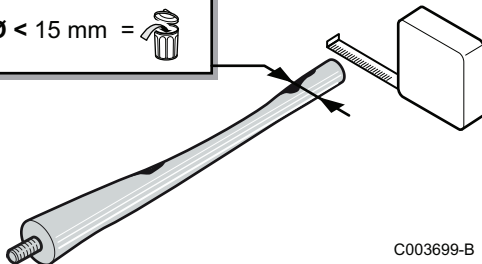
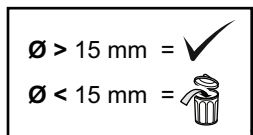
Failure to abide by this maintenance rule may damage the domestic hot water calorifier and void its warranty.




9.3 Cleaning the casing material

Clean the outside of appliances using a damp cloth and a mild detergent.

9.4 Checking the magnesium anode

Check the condition of the anode at the end of the first year. After the first check, determine the frequency of future checks on the basis of anode wear. The magnesium anode must be checked at least every 2 years.



1. Remove the inspection hatch.
 See chapter: "Removing the inspection trap", page 42.
2. Descale the calorifier if necessary.  See chapter: "Descaling", page 42.
3. Measure the diameter of the anode.
 Replace the anode if its diameter is less than 15 mm.
4. Reassemble the anode/inspection hatch unit.
 See chapter: "Reassembling the inspection trap", page 43.

9.5 Descaling

In regions with hard water, annual descaling of the appliance is recommended in order to maintain its performance.

9.6 Removing and remounting the inspection trap

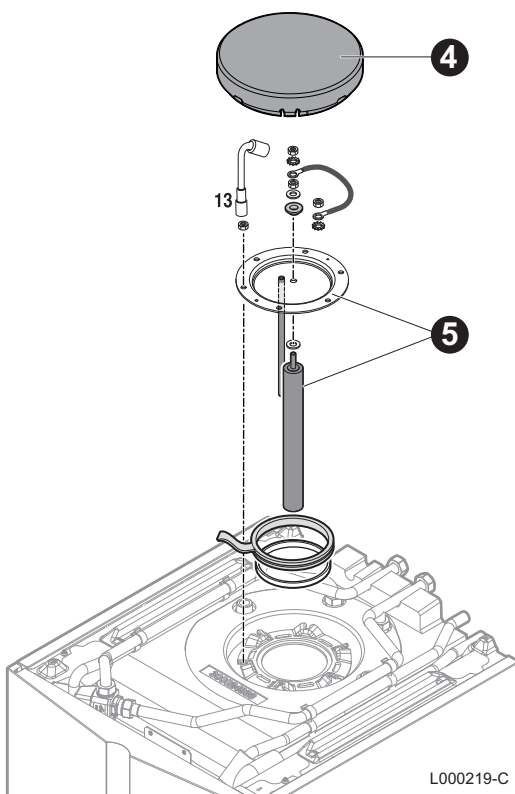


CAUTION

To guarantee tightness, the gasket unit must be replaced each time the hatch is opened.

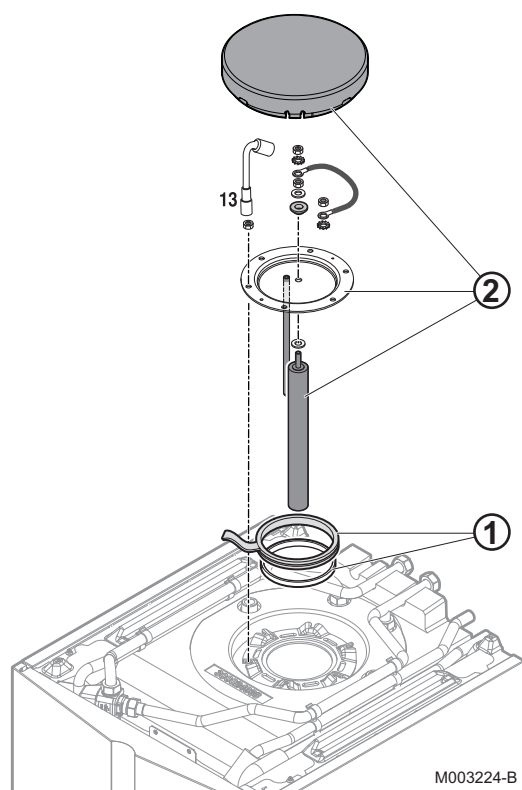
- ▶ Have a lip gasket and a retainer ring on hand for the inspection hatch.

9.6.1. Removing the inspection trap



1. Turn off the domestic cold water inlet.
2. Open a hot water tap.
3. Open the valve on the safety unit.
4. Lift the insulation .
5. Remove the inspection trap (13 mm spanner).

9.6.2. Reassembling the inspection trap



1. Replace the lip gasket + retainer ring unit and place it in the inspection opening, taking care to position the tab on the lip gasket outside the domestic hot water calorifier.



CAUTION

Each time it is opened, the lip gasket + retainer ring unit must be replaced to guarantee tightness.

2. Fit the unit together.



CAUTION

Use a torque wrench.

Torque applied to the anode: 6 N·m.

The flange mounting bolts must not be excessively tight.



Approximately 6 N·m is obtained by holding the box spanner by the small lever.

3. After reassembly, check the watertightness of the lateral flange.
4. Switch on.



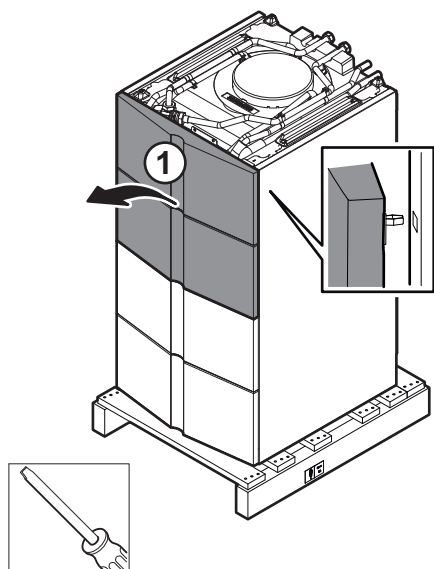
See chapter: "Commissioning procedure", page 38.

9.7 Cleaning the plate heat exchanger

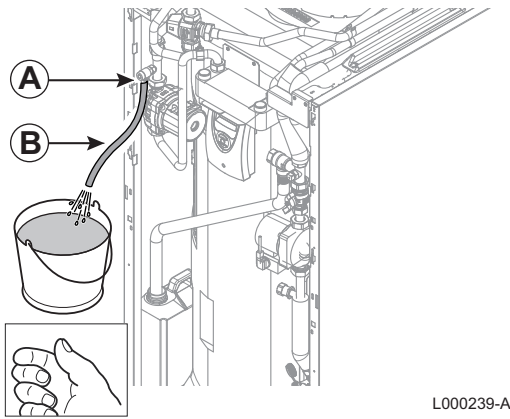



We recommend cleaning the plate exchanger annually in order to maintain optimal performance.

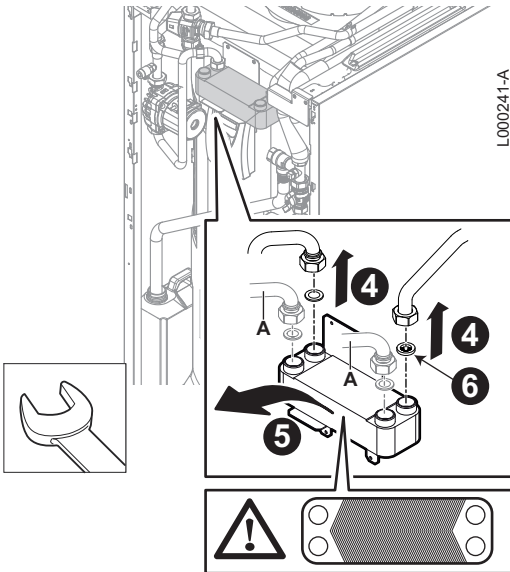
1. Remove the front panels by pulling firmly from both sides.



C005115A



2. Turn off the domestic cold water inlet.
Open the drainage valve (bottom of the DHW tank).
Open the DHW vent above the DHW pump.
Drain the plate exchanger on the boiler side
 Refer to the installation and maintenance instructions of the boiler.



3. Remove the inlet and outlet pipes from the plate exchanger (A=Boiler side).
4. Clean the plate exchanger with a descaling product (e.g. citric acid with a pH of approximately 3).
Rinse with clean water.
5. Refit the plate exchanger on the DHW tank, following the steps in the reverse order.




CAUTION

Follow the mounting direction for the plate exchanger.

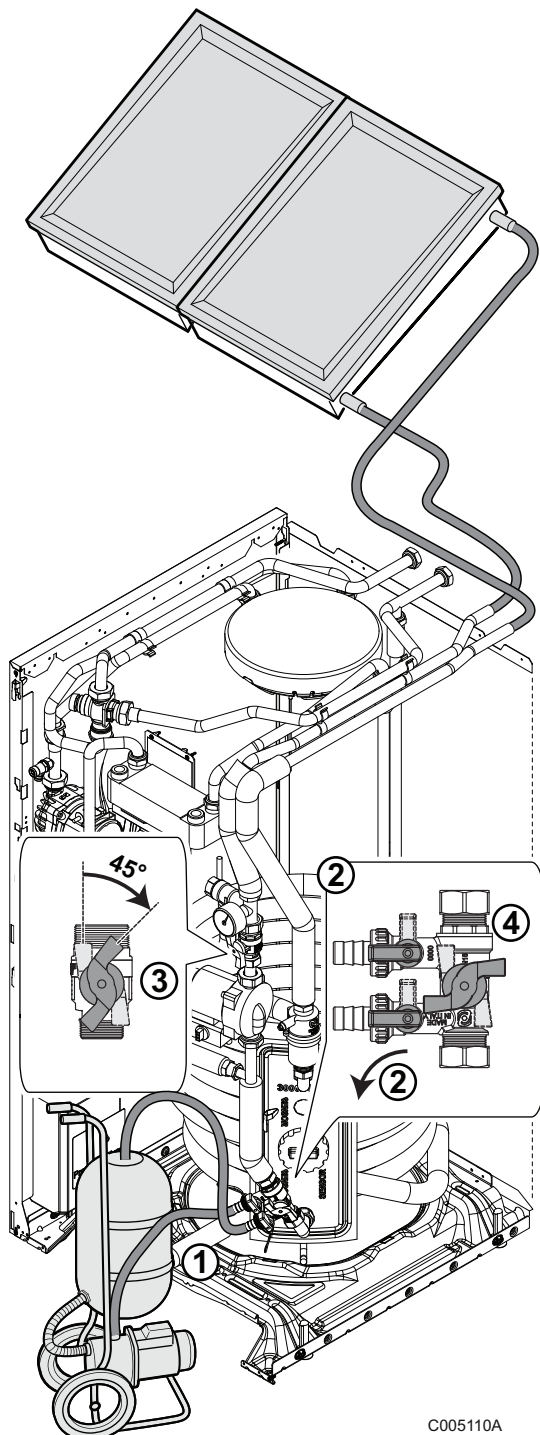
6. After filling the installation, switch the boiler on.

9.8 Inspection and maintenance of the solar circuit

9.8.1. Adding heat transporting fluid

 See chapter: "Filling the primary solar circuit", page 32


1. Close the bypass.
2. Progressively close the return valve.



C005110A

9.9 solar regulator

The solar control system is governed by the boiler control system. All parameters and settings on the solar control system are managed from the boiler control panel.

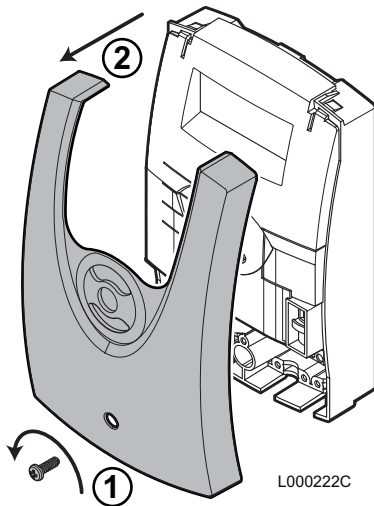
 Refer to the installation and maintenance instructions of the boiler.

9.9.1. Electricity supply

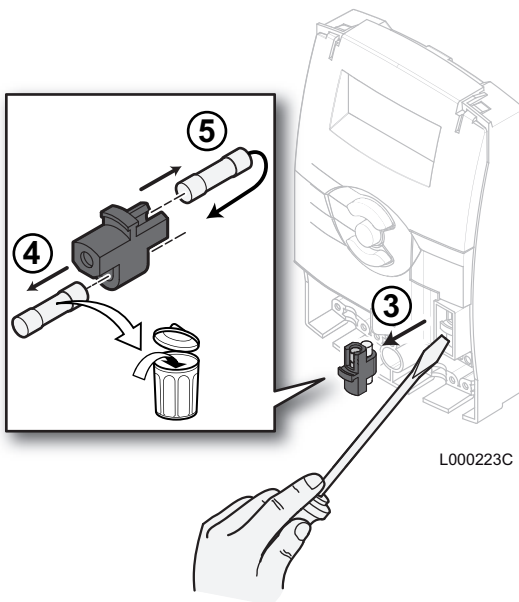
The regulator is protected by a 2 AT fuse.

■ Replacing the fuse

1. Remove the central screw.
2. Take off the fascia.



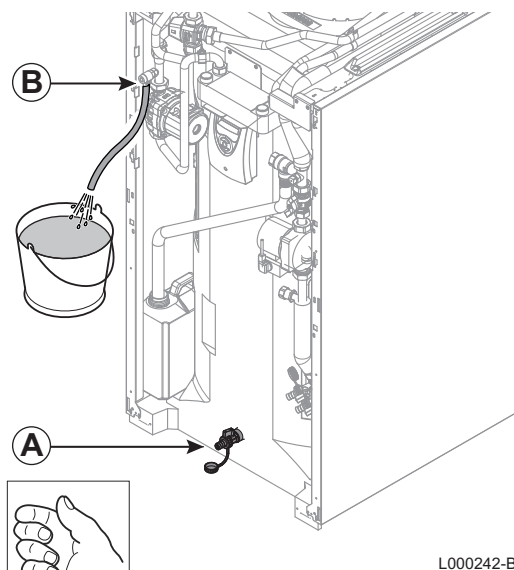
3. Remove the fuse holder from its housing.
4. Remove the defective fuse.
5. Use the emergency fuse as the replacement and re-assemble the unit.



9.10 Maintenance of the thermostatic mixing valve

The thermostatic mixer tap does not require any particular maintenance.


9.11 Draining the installation



L000242-B

A Drain cock

B Bleeding tap

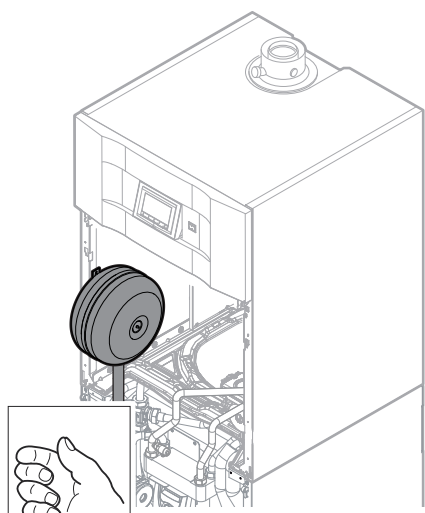
1. Turn off the domestic cold water inlet.
2. Drain the plate exchanger on the boiler side
 Refer to the installation and maintenance instructions of the boiler
3. Open the drainage valve (A).
4. When the water no longer overflows, open the venting valve to drain the water still in the plate exchanger and the pipes (B).
5. Open a hot water tap to completely drain the installation.

9.12 Specific maintenance operations



The DHW tank does not need to be drained to perform these operations.

To facilitate maintenance work, the expansion vessel can be hooked on to the bush on its bracket by its buttonhole. This helps to minimise movement on the vessel's hose and obviates putting the vessel on the ground.



C005111A

9.13 Maintenance form

[illegible]

10 Spare parts

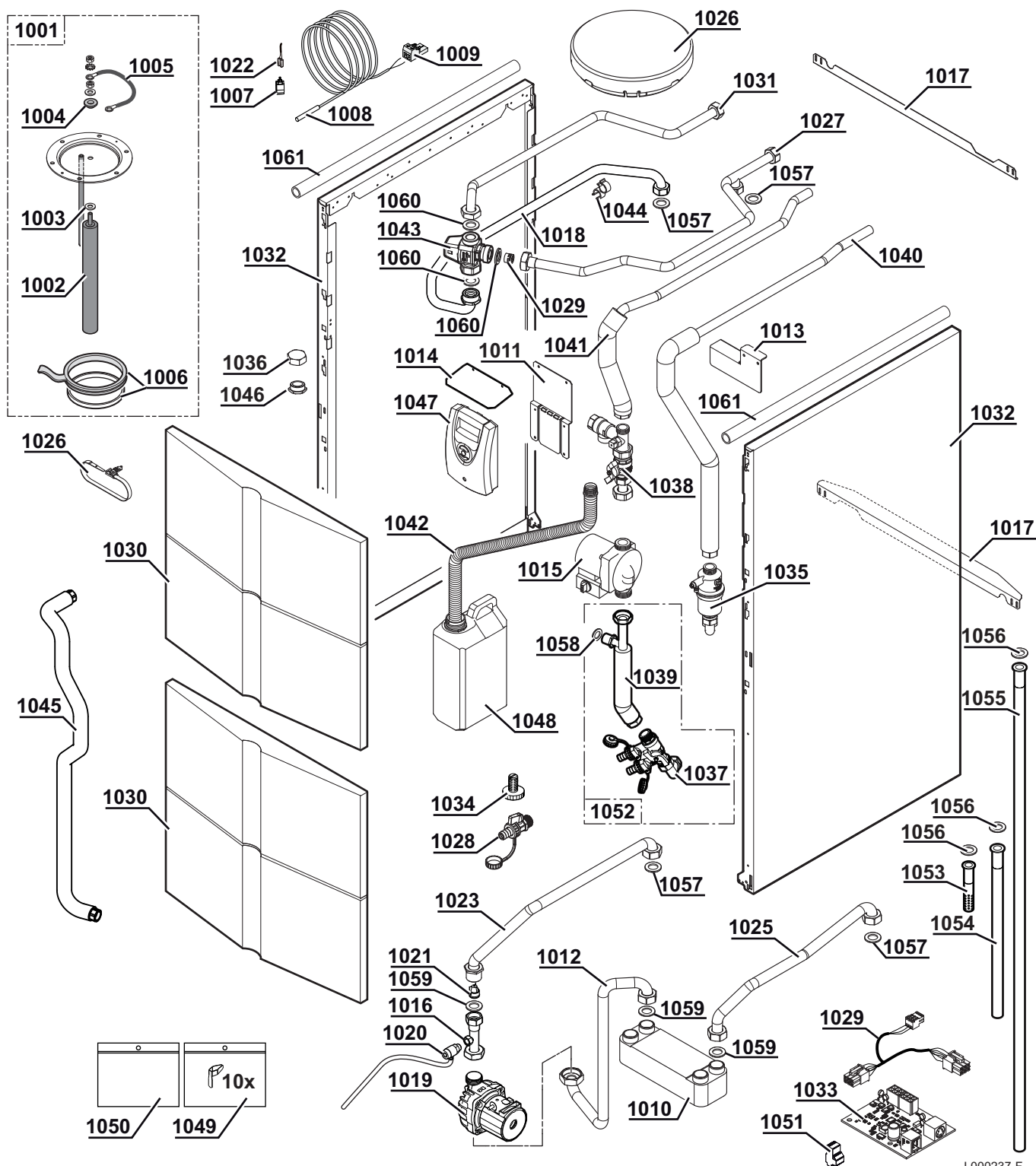
10.1 General

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



L000237-F

Markers	Reference	Description
1001	7657639	Hatch + seal + anode
1002	7615889	Magnesium anode M2<3.94
1003	95014035	Gasket diameter 35x8,5x2
1004	94974527	Nylon brace
1005	89604901	Anode earthing wire
1006	89705511	7 mm gasket + 5 mm retainer ring

Markers	Reference	Description
1007	95362441	Upper tank temperature sensor
1008	95362448	KVT60 sensor - Length 5 m
1009	300008957	2-pin domestic hot water sensor connector
1010	300024956	Plate heat exchanger
1011	300024957	Sheet metal plate for fitting the exchanger / Regulation
1012	300024961	Plate exchanger / heating pump pipe
1013	300025422	Solar pipes positioning plate
1014	300025673	Protective plate
1015	7627807	Solar circulation pump
1016	300025671	Venting pipe
1017	300025098	Cross bar stiffener
1018	300024979	DHW/mixing valve connection pipe
1019	300024986	Domestic hot water circulating pump
1020	0295174	Drain cock 1/4"
1021	200021528	Non-return valve
1022	300024887	Domestic hot water temperature sensor cable
1023	300024958	Left exchanger pipe
1024	94914302	Non-return valve CV18 / DN15
1025	300024959	Right exchanger pipe
1026	95320780	Clamp
1027	300024978	Mixing valve/domestic cold water pipe
1028	94902073	Drain cock 1/2"
1029	300024884	Interface BUS cable
1030	200019181	Front panel + Spring
1031	300024980	Mixer pipe
1032	300024463	Side panel, painted white 1113
1033	200018713	S-191 SCU board
1034	300024451	Adjustable foot M8x45
1035	300024969	Airstop/degasser
1036	94950143	Cap G3/4"
1037	300024970	Filling/draining valve + Elbow
1038	300024971	Valve + manometer + Return tap Solar
1039	300024997	Expansion vessel connection pipe
1040	300024972	Solar out tube
1041	300024974	Solar return pipe
1042	300025449	DN22 ribbed flexible hose with 3/4" connector Length 990 mm
1043	200021489	Domestic hot water thermostatic mixing valve
1044	300024977	Double pipe support D.18 - D.20
1045	300024976	1/2" ribbed flexible expansion vessel hose - Length 1000 mm
1046	115821	Brass plug G1/2"
1047	7625968	Solar regulator
1048	300019281	Glycol recovery drum 2,5L
1049	200019786	Spring kit for front panel (x10)
1050	89535529	Accessories bag
1051	88014963	2-pin connector ACI simulation
1052	200022319	Filling/draining valve + Expansion vessel connection pipe + Gasket
1053	300025677	Red plastic tube D18 - Length 102 mm - Tap nozzle
1054	7652245	Grey plastic tube D18 - Length 300 mm

Markers	Reference	Description
1055	300025682	Purple plastic tube D18 - Length 1025 mm
1056	300027465	Braided gasket 24x18,5x1,5 - AFM34
1057	300025757	Braided gasket 24x16,5x1,5 - AFM34
1058	95013059	Gasket diameter 18,5x12x2
1059	95013060	Green seal 24x17x2
1060	95013062	Green seal 30x21x2
1061	300027740	White plastic tube D25x23 - Length 530 mm

Appendix

Informations relating to the solar device

Contents

1 **Specific information** **3**
1.1 Recommendations 3
1.2 Circulation pump 3
1.3 Disposal and Recycling 3
1.4 Data relating to the solar device 3

1 Specific information

1.1 Recommendations


Note

Only qualified persons are authorised to assemble, install and maintain the installation.

1.2 Circulation pump


Note

The benchmark for the most efficient circulators is $EEI \leq 0.20$.

1.3 Disposal and Recycling


Note

Removal and disposal of the domestic hot water tank must be carried out by a qualified installer in accordance with local and national regulations.

1. Cut the electricity to the domestic hot water tank.
2. Disconnect the cables on the electrical components.
3. Close the domestic water inlet valve.
4. Drain the installation.
5. Dismantle all water connections fitted to the domestic hot water tank outlet.
6. Scrap and recycle the domestic hot water tank in accordance with local and national regulations.

1.4 Data relating to the solar device

Tab.1 Data relating to the solar device

		E 200 SHL
Solar hot water storage tank - Standing loss	W	94
Solar hot water storage tank - Storage volume	l	220
Power consumption - Pump	W	23
Power consumption - Standby	W	0.57
Annual auxiliary energy consumption (Q_{aux})	kWh	51



© Copyright

All technical and technological information contained in these technical instructions, as well as any drawings and technical descriptions supplied, remain our property and shall not be multiplied without our prior consent in writing.

10/05/2016



7654782-001-02