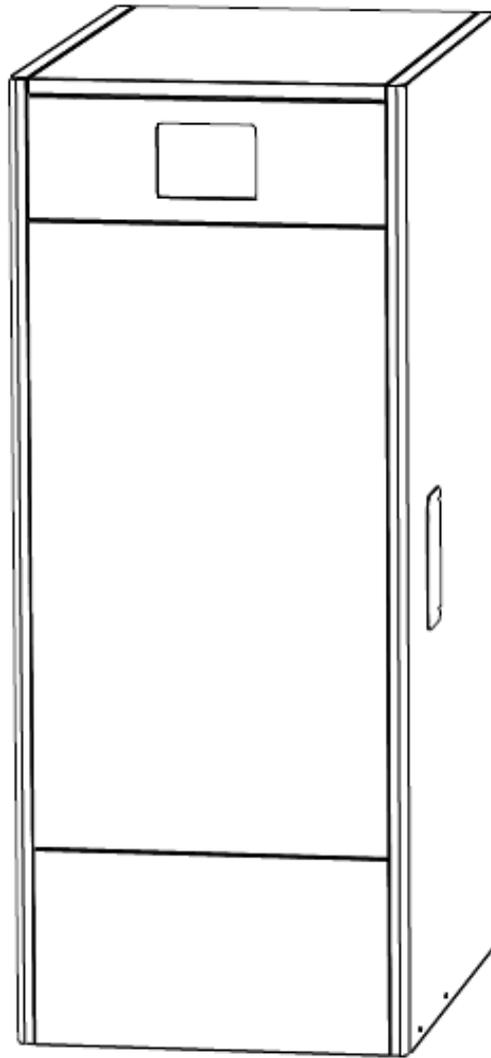


INSTALLATION AND OPERATING INSTRUCTIONS

→ EKOHEAT



Thank you for choosing a **EKOPOWER** heating boiler. You have chosen from a range of **EKOPOWER** products designed to provide efficient and sustainable heating for the ideal level of comfort for your home.

This manual forms an essential part of the product and it must be given to the end user. We recommend you read the warnings and recommendations in the manual carefully, as they contain important information on the safety, use and maintenance of the installation.

These boilers must be installed by qualified personnel only, in accordance with the local legislation and following the manufacturer's instructions.

Start-up of these boilers and any maintenance operations must only be carried out by **EKOPOWER's** Authorised Technical Assistance Services.

Incorrect installation of these boilers could result in damage to people, animals or property, and the manufacturer will hold no liability in such cases.

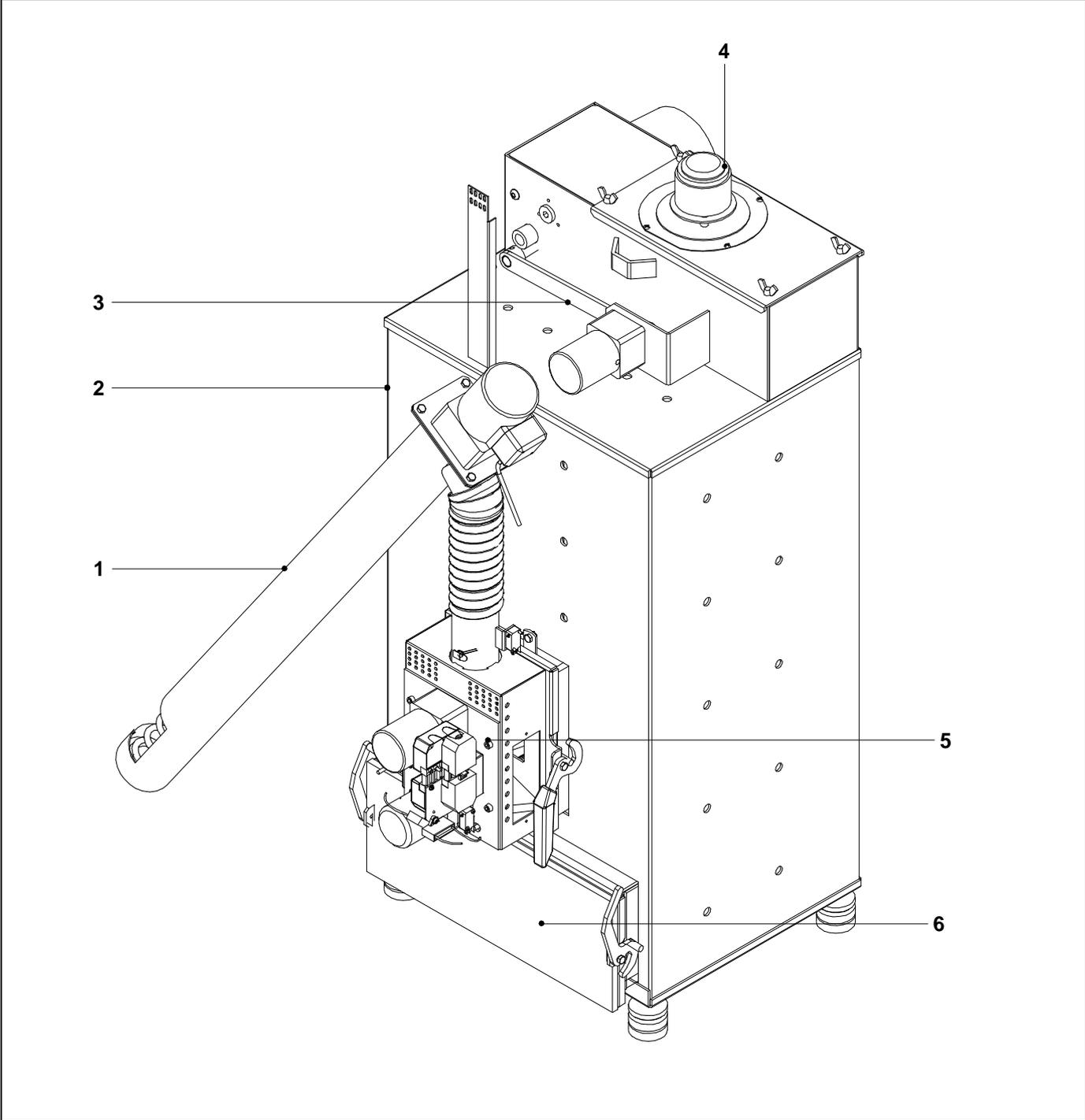
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CONTENTS

	<u>Page</u>
1 LIST OF COMPONENTS	2
2 CONTROL COMPONENTS	3
3 INSTALLATION INSTRUCTIONS	4
3.1 LOCATION	4
3.2 HYDRAULIC INSTALLATION	4
3.3 INSTALLING A SANIT HOT WATER TANK (OPTIONAL)	5
3.4 FUEL	5
3.5 INSTALLING THE RESERVE TANK	6
3.6 ELECTRICAL CONNECTION	7
3.7 COMBUSTION PRODUCT REMOVAL	7
3.8 EXAMPLE OF A RADIATOR HEATING INSTALLATION	8
3.9 EXAMPLE OF A HEATING INSTALLATION WITH RADIATORS AND A DHW STORAGE TANK	9
3.10 EXAMPLE OF A ZONED HEATING INSTALLATION	10
3.11 EXAMPLE OF AN INSTALLATION WITH A BUFFER TANK FOR 2 UNDERFLOOR HEATING CIRCUITS AND A DHW TANK	10
3.12 EXAMPLE OF INSTALLATION WITH THE MS HYDRAULIC KIT	12
3.13 EXAMPLE OF INSTALLATION WITH THE DMS HYDRAULIC KIT	13
3.14 EXAMPLE OF A HEATING INSTALLATION WITH RADIATORS AND BACK-UP FOR A SOLAR INSTALLATION FOR DHW PRODUCTION	14
4 EXTERNAL CIRCULATION KIT	16
4.1 LIST OF COMPONENTS	16
4.2 ELECTRICAL CONNECTION FOR THE CIRCULATING PUMP	16
4.3 HYDRAULIC INSTALLATION OF THE EXTERNAL CIRCULATION KIT	17
5 STARTING UP THE BOILER	19
5.1 PRIOR WARNINGS	19
5.2 FILLING THE INSTALLATION	19
5.3 ELECTRICAL CONNECTION	19
5.4 START-UP	19
5.5 INSTALLATION DELIVERY	19
6 DIGITAL DISPLAY:	20
7 OPERATION	21
7.1 SELECTING THE BOILER SETPOINT TEMPERATURE	21
7.2 SELECTING THE DHW SETPOINT TEMPERATURE (WITH HOT WATER TANK ONLY)	21
7.3 CHANGING THE OPERATING SETTINGS	22
8 "INFO" DISPLAY	22
9 CONFIGURATION MENU	23
9.1 CLEANING SETTINGS	23
9.2 TIME PROGRAMMER	24
9.3 FEED AUGER CALIBRATION	25
9.4 BURNER LUBRICATION	27
9.5 LANGUAGE/IDIOMA/LANGUE	27
9.6 DATE AND TIME	27
10 SERVICE MENU	28
10.1 FUEL (0.1-7.0 KG.)	29
10.2 FUEL FOR IGNITION (0-200 GR.)	29
10.3 BURNER CLEANING DEVICE MOVEMENT (38-42 SEC.)	29
10.4 FAN FUNCTIONING	31
10.5 MINIMUM POWER (%)	31
10.6 MAXIMUM POWER (%)	31
10.7 DHW CIRCUIT	31
10.8 MINIMUM PUMP TEMPERATURE (0-60°C)	32
10.9 MANUAL ASH CLEANING	32
10.10 MODEL SELECTION	32
10.11 AUTO-TEST	32
10.12 RESET DEFAULT CONFIGURATION	32
10.13 NEW SOFTWARE	32
11 CLEANING THE ASH DRAWER	33
12 SAFETY CUT-OUTS	34
12.1 BURNER CUT-OUT	34
12.2 NO FLAME CUT-OUT	34
12.3 TEMPERATURE SAFETY CUT-OUT	34
13 SHUTTING DOWN THE BOILER	34
14 BOILER MAINTENANCE	35
14.1 BOILER AND FLUE MAINTENANCE FREQUENCIES	35
14.2 CLEANING THE BURNER	36
14.3 LUBRICATING THE BURNER CLEANING DEVICE	37
14.4 DRAINING THE CONDENSATION WATER	38
14.5 BOILER WATER CHARACTERISTICS	38
14.6 CLEANING THE VENT.	39
15 TECHNICAL CHARACTERISTICS	40
16 DIAGRAMS AND MEASUREMENTS	41
17 ELECTRICAL DIAGRAM	44
17.1 BOILER	44
17.2 BURNER	43
18 CIRCULATING PUMP FLOW CURVES	44

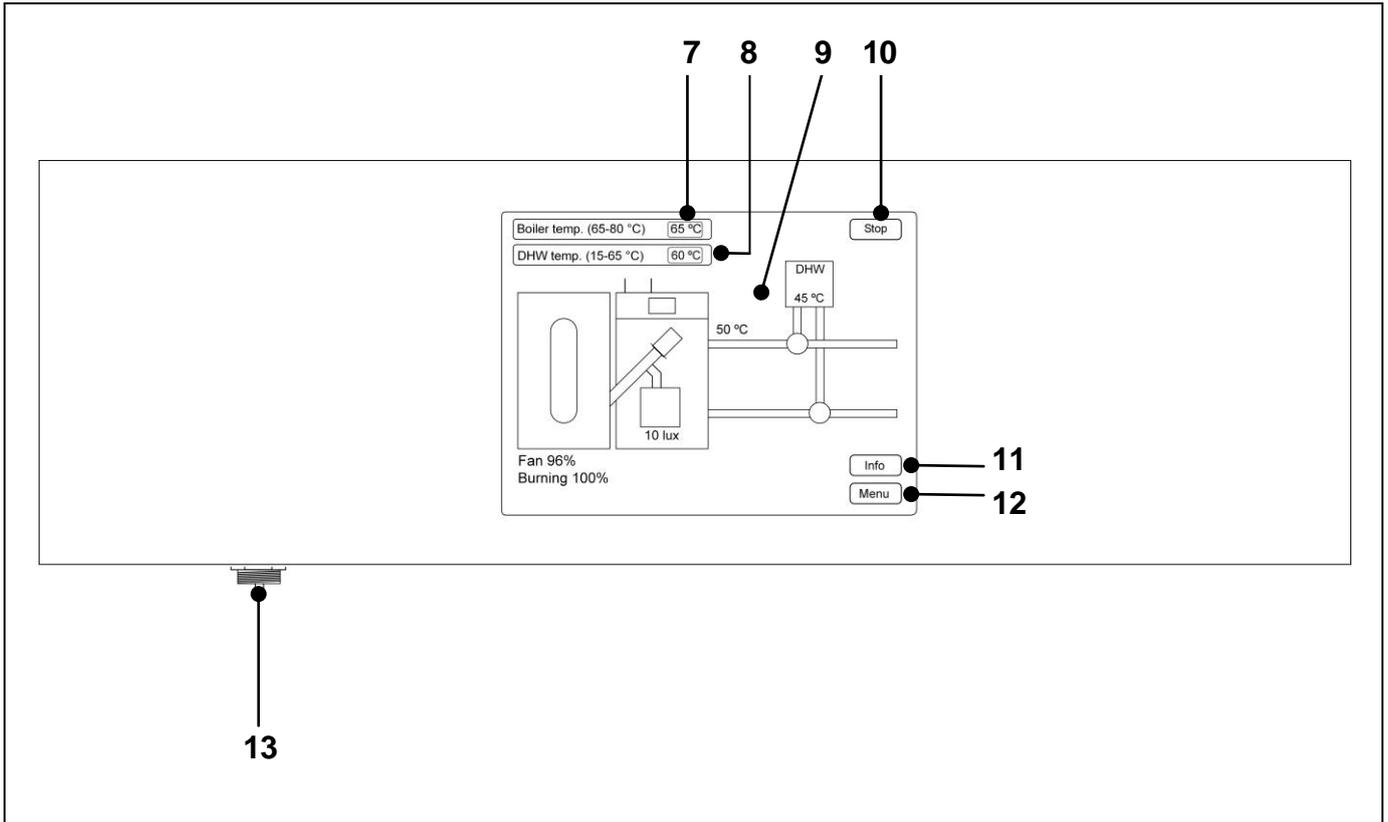
19 SETTINGS FOR SENSORS **ERROR! BOOKMARK NOT DEFINED.**
20 ALARM CODES 45
21 GUARANTEE CONDITIONS 46

LIST OF COMPONENTS



- 1. Feed auger.
- 2. Heat exchanger.
- 3. Vent cleaning device.
- 4. Fan.
- 5. Burner.
- 6. Ash drawer.

1 CONTROL COMPONENTS



7. Boiler temperature selector:

This is used to select the boiler set point temperature.

8. DHW temperature selector:

This is used to select the desired domestic hot water set point temperature.

9. Digital display:

This is the boiler functioning display, where all the operating information, settings and values appear. This display is also used to access the appliance's configuration and technical settings. The temperatures detected by the sensors, the flame lux level and the combustion values can all be viewed during functioning. If any malfunctioning should occur, an error description will appear on the visual display.

10. START touch button:

Touch this symbol to start up or switch off boiler functioning.

11. INFO touch button:

Touch this symbol to access boiler information.

12. MENU touch button:

Touch this symbol to access the different boiler menus.

13. Safety thermostat:

This ensures the boiler temperature does not exceed 110°C, by cutting off the electrical supply.

2 INSTALLATION INSTRUCTIONS

The boiler must be installed by personnel authorised by the relevant national authorities, in compliance with the applicable laws and regulations.

This boiler is suitable for heating water to a temperature below boiling point at atmospheric pressure. It must be connected to a heating installation and/or a domestic hot water distribution network, which must always be compatible with its performance and power.

This appliance must only be used for the purpose for which it has been expressly designed. Any other use is considered unsuitable and therefore hazardous. The manufacturer shall not be considered liable under any circumstances for damage caused by unsuitable, erroneous or irrational use.

Remove all the packaging and check the contents are complete. In case of doubt, do not use the boiler. Contact your supplier. Keep the packaging elements out of reach of children, as they can be dangerous.

When you no longer wish to use the boiler, disable the parts that could be a potential source of hazard.

2.1 Location

The boiler must be installed in a sufficiently ventilated site, away from humidity. It must be located so that the air grilles on the premises are not obstructed and normal boiler maintenance is possible even if it is placed between items of furniture. One metre of free space must be left above the boiler for this purpose.

2.2 Hydraulic installation

The hydraulic installation must be made by qualified personnel. The applicable installation legislation is to be complied with, and the following recommendations should also be taken into account:

- **It is obligatory and essential to install the external circulation kit supplied by EKOPOWER** with the boiler, to prevent any water condensation in the heat exchanger. To correctly install the boiler, carefully follow the instructions given in the section *“Installing the external circulation kit”* . If this requirement is not complied with, EKOPOWER’s guarantee of the appliance will automatically be null and void.
- The inside of the installation piping should be thoroughly cleaned before switching on the boiler.
- We recommend inserting cut-off valves between the installation piping and the boiler to simplify maintenance tasks.
- Leave a free space around the boiler for carrying out any maintenance and repair operations.
- Drain valves and suitable devices for correctly bleeding the air from the circuit during the boiler filling stage should be fitted.
- Install all the necessary safety elements (expansion vessel, safety valve, etc.) to comply with the applicable regulations for the installation.
- If the boiler is installed at a lower height than the heating installation, it is recommendable to create a siphon at the boiler outlet, to prevent the installation from heating up due to natural convection when heating is not required.

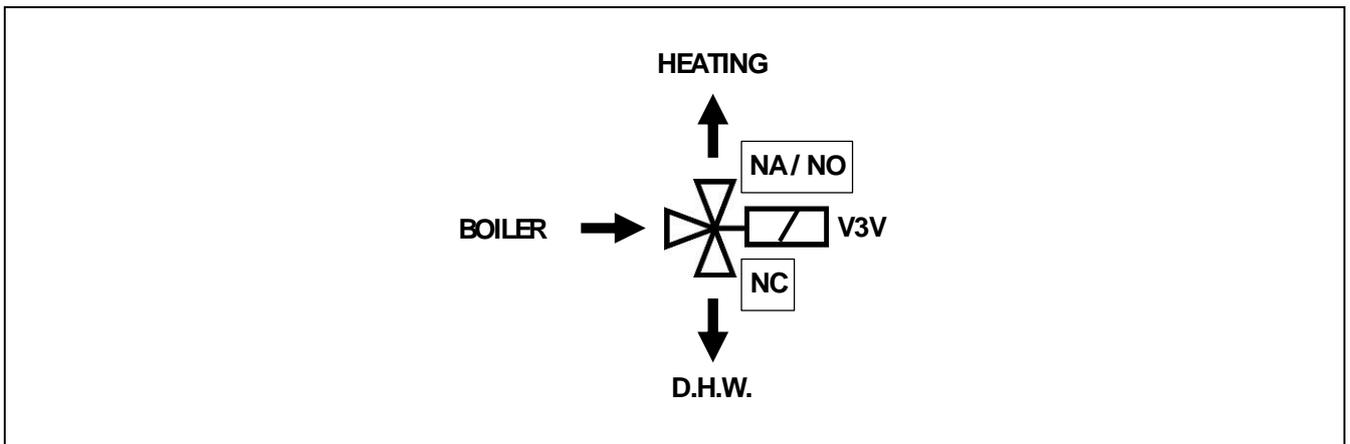
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2.3 Installing a **Sanit** hot water tank (Optional)

The procedure for suitably connecting a **Sanit** DHW tank to the **Ekoheat** boiler is as follows:

- **Unplug the boiler from the mains.**
- Connect a DHW temperature sensor (supplied optionally) to the sensor terminal strip **J2** (Sa; terminals **10** and **11**) (see "*Electrical Diagram*" page 44).
- Insert the temperature sensor bulb in the bulb-holder sheath provided on the hot water tank.
- Connect the 3-way DHW diverter valve to the supply terminal strip **J1** (V3V; terminals **3** and **6**) (see "*Electrical Diagram*" page 44).

The hydraulic installation for the 3-way DHW diverter valve should be made so that the heating circuit can flow through the valve when it is in rest position (not energised):



For correct hydraulic installation of the hot water tank, carefully follow the assembly and connection instructions enclosed with the same.

2.4 Fuel

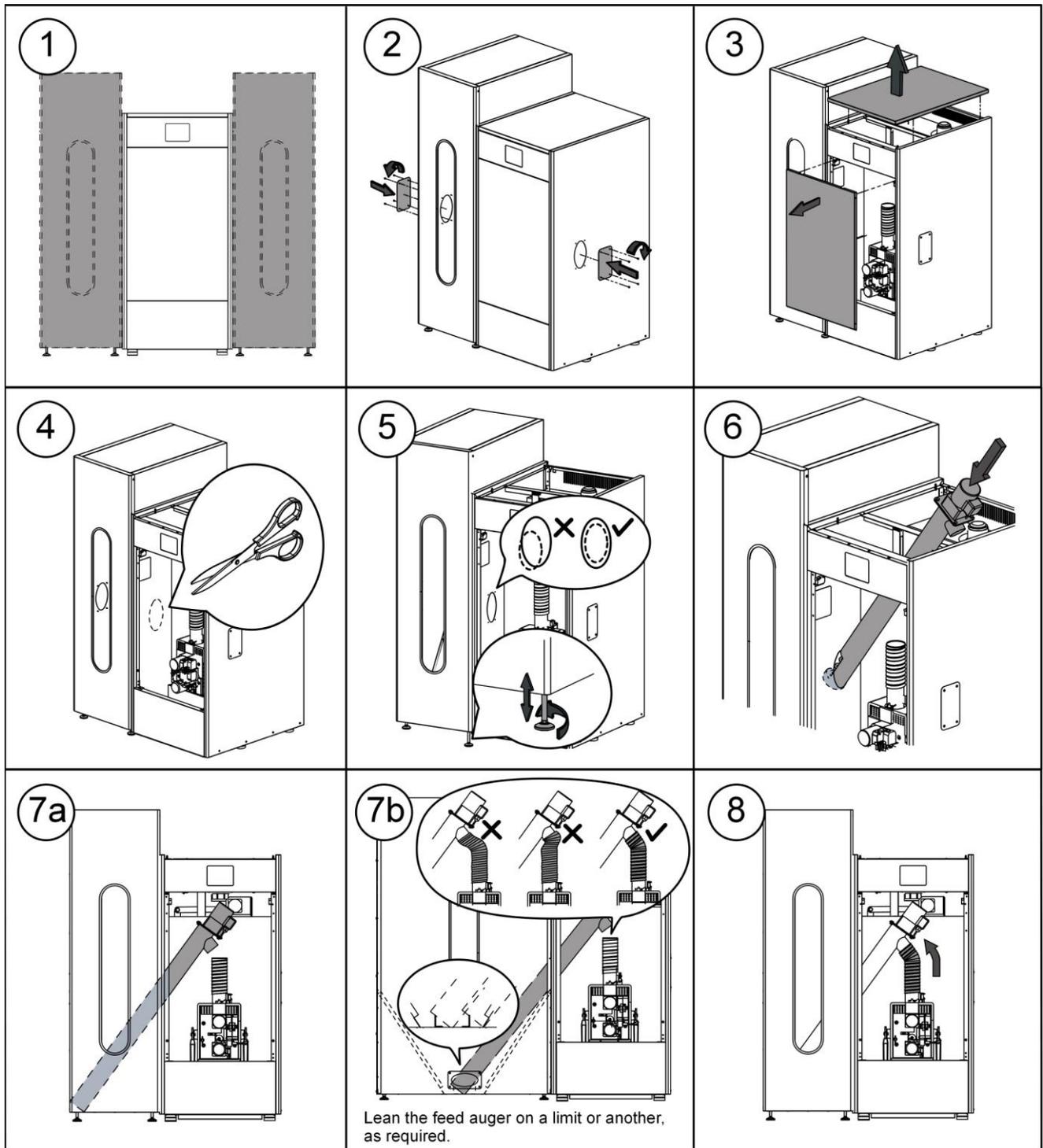
The **EkoHeat** boiler must be fuelled by **EN PLUS** certified wood pellet. The **EN PLUS** certificate assures that the fuel's humidity levels and calorific value are ideal for optimum boiler functioning. If this requirement is not complied with, **EKOPOWER**'s guarantee of the appliance will automatically be null and void.

The following points should be taken into account for correct fuel storage:

- The stored pellets should be kept dry all year round.
- The applicable legislation in each country for correct fuel storage must be complied with.

2.5 Installing the reserve tank

EKOPOWER supplies a reserve tank for storing the pellets with the boiler. The tank is reversible and can be mounted on either the left or right side of the boiler. It is also equipped with adjustable feet for height regulation.



IMPORTANT: Ensure the height of the elliptical holes on the sides of the boiler and on the reserve tank coincide, for correct insertion of the feed auger. To do this, make the necessary adjustments for height (using the adjustment feet) and depth (correctly positioning the reserve tank).

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2.6 Electrical Connection

The **EkoHeat** boiler is equipped with a 230 V~ 50 Hz mains connection plug. **The socket should have an appropriate earth connection.**

The terminal strip **J1** includes terminals for connecting the feed auger, the external circulation kit circulating pump, an ambient thermostat and the 3-way diverter valve for the optional DHW circuit. The terminal strip **J2** includes terminals for connecting a sensor for the optional DHW circuit. This sensor must be supplied by **EKOPOWER**.

For correct connection of the burner, the burner connections should be made to terminal strips **J3** and **J4** (see "*Electrical Diagram*" page 44).

IMPORTANT: Before carrying out any work on the boiler's electrical installation, always ensure it is disconnected from the mains.

2.7 Combustion product removal

The **EkoHeat** boiler is a biomass boiler and it is essential for it to be connected to a flue, i.e. a smoke duct able to create a pressure drop (which in this case should be between 0.15 and 0.20 mbar), in compliance with the applicable laws to this regard.

The combustion product exhaustion ducts must be installed by qualified personnel and must comply with the regulations in force. For the flue to create a pressure drop, the following recommendations should be taken into account:

- It should be suitably insulated.
- It should be independently located, with a separate flue for each boiler.
- It should be vertical, avoiding any angles greater than 45°.
- It should always have the same diameter. It is recommendable for it to be circular, and never any narrower than the boiler outlet.
- **It is obligatory to install a fume inspection plate with condensation collection, to remove the condensation generated in the flue.** Otherwise, the condensation may reach the inside of the boiler and cause irreparable damage, **which would not be covered by EKOPOWER's guarantee. The condensation pipe should lead to a drain outlet**, as a large amount of water may be generated. This connection must be made in compliance with the regulations for draining off condensation water to the drain network.
- **It is recommended to install a draught stabiliser** to prevent any pressure drop variations in the flue due to atmospheric conditions, which could affect correct boiler combustion. **This draught stabiliser must be installed below the fume inspection plate to prevent any leakage of combustion gases.**

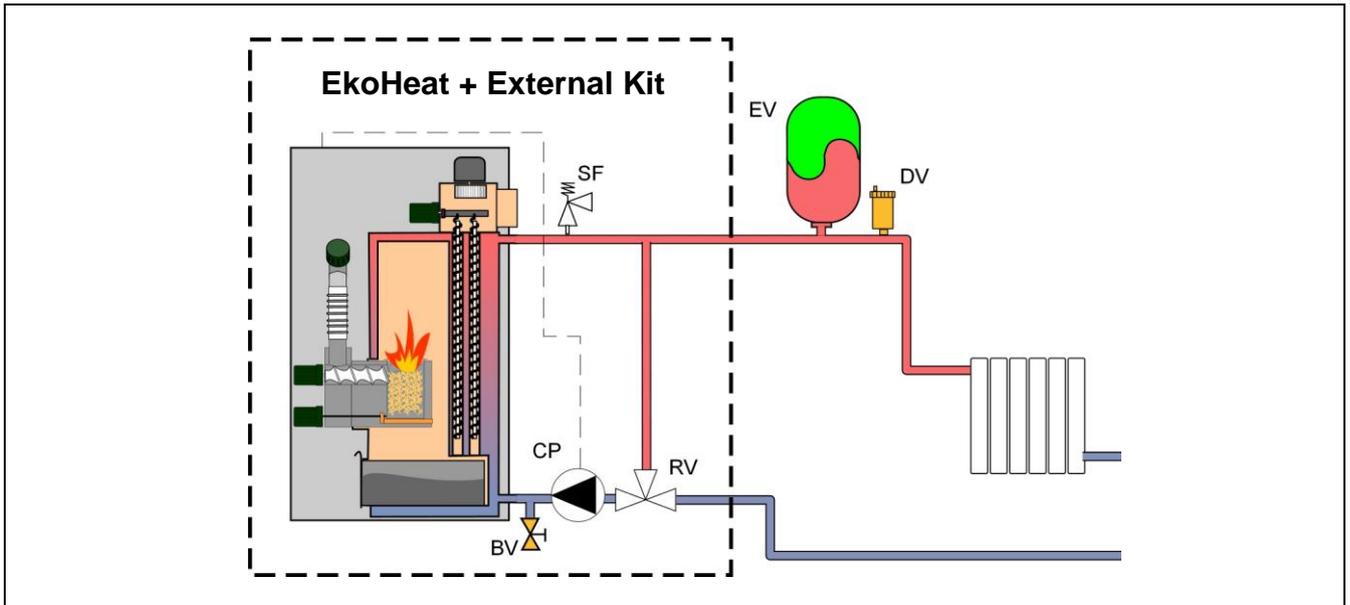
2.8 Example of a radiator heating installation

The **EkoHeat** boiler is equipped with an electronic control that can govern a radiator heating circuit, with an external circulation kit to prevent condensation in the heat exchanger.

The external circulation kit consists of:

- Circulating pump.
- 55°C 3-way anti-condensation valve.
- Safety valve, calibrated to 3 bar.
- Boiler blow-off valve.

The figure below shows an example of a hydraulic diagram of a radiator heating installation:



- SF:** Heating safety valve.
- CP:** Circulating pump.
- RV:** Anti-condensation return valve.
- EV:** Expansion vessel.
- DV:** Drain valve.
- BV:** Blow-off valve.

IMPORTANT: Fit drain valves and devices for correctly bleeding the air from the heating circuit.

IMPORTANT: Before any servicing, disconnect the boiler from the mains.

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2.9 Example of a heating installation with radiators and a DHW storage tank.

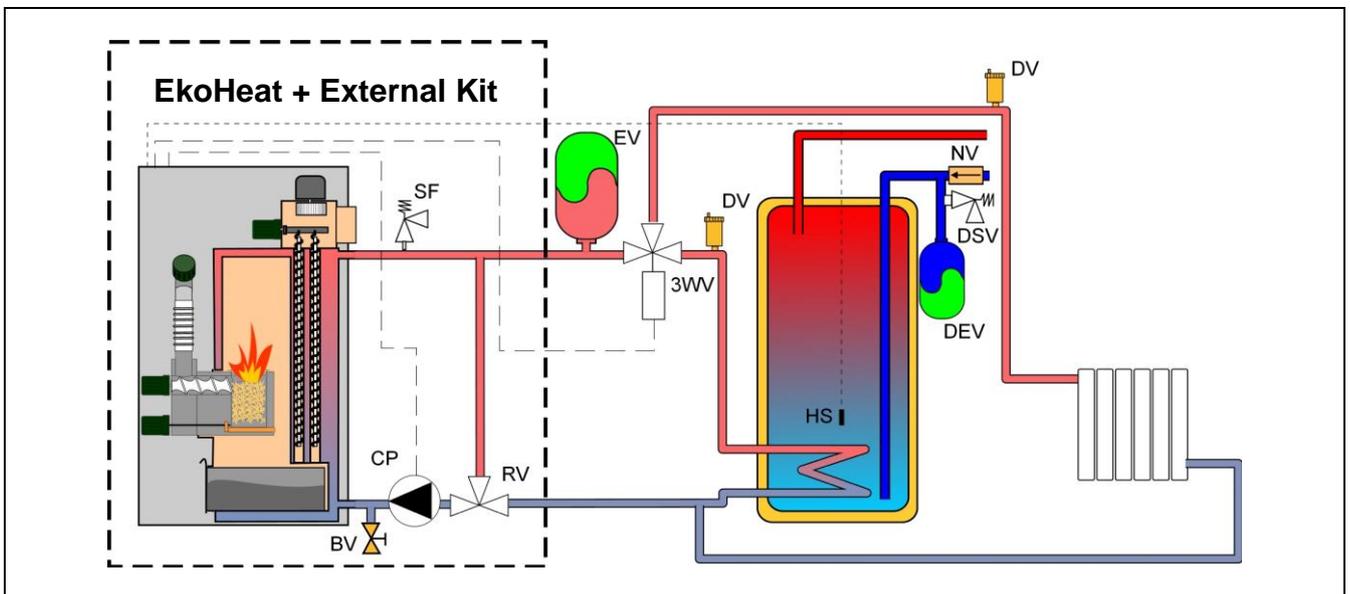
The **EkoHeat** boiler is equipped with an electronic control that can govern a radiator heating circuit, an external circulation kit to prevent condensation in the heat exchanger and, optionally, a DHW storage tank loading circuit.

The external hydraulic kit consists of:

- Circulating pump.
- 55°C 3-way anti-condensation valve.
- Safety valve, calibrated to 3 bar.
- Boiler blow-off valve.

To control a DHW circuit, connect a DHW sensor from the hot water tank to the boiler (optionally supplied by **EKOPOWER**) and a 3-way diverter valve (see "Electrical Diagram" page 44).

The figure below shows an example of a hydraulic diagram for a heating installation with radiators and a DHW tank:



- SF:** Heating safety valve.
- CP:** Circulating pump.
- RV:** Anti-condensation return valve.
- EV:** Expansion vessel.
- DV:** Drain valve.
- BV:** Blow-off valve.
- 3WV:** 3-way diverter valve.
- HS:** Hot water tank sensor.
- NV:** Non-return valve.
- DSV:** DHW safety valve.
- DEV:** DHW expansion vessel.

IMPORTANT: Fit drain valves and devices for correctly bleeding the air from the heating circuit.

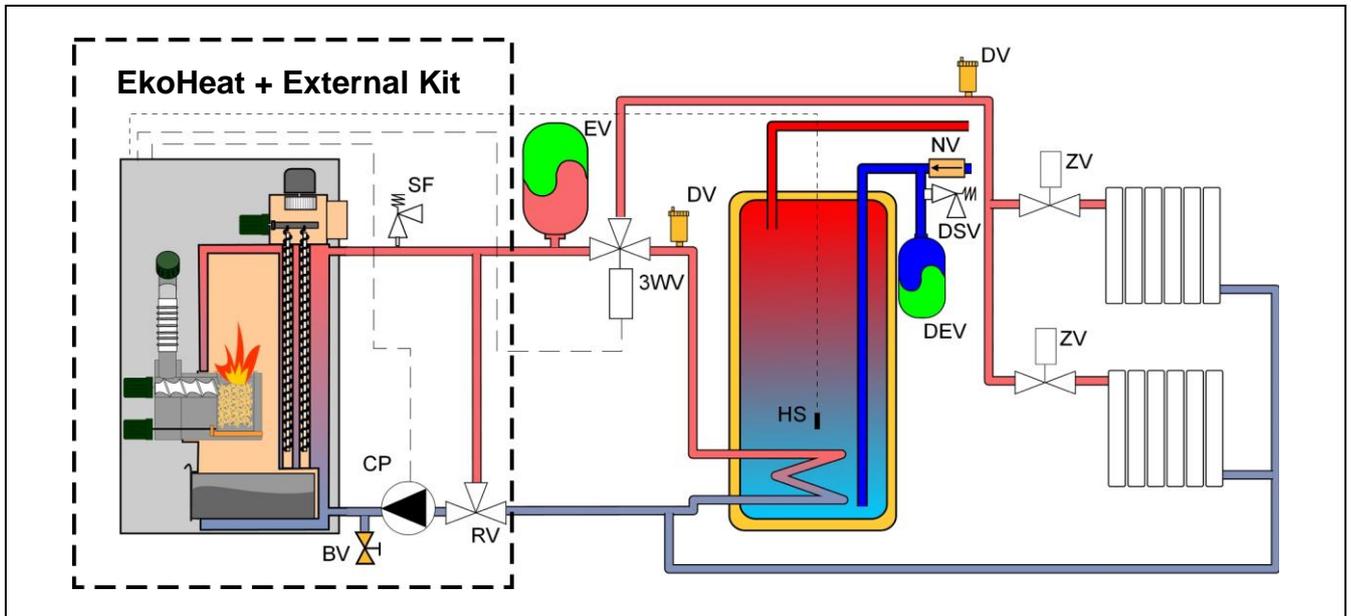
IMPORTANT: Before any servicing, disconnect the boiler from the mains.

IMPORTANT: The 3-way DHW valve should be fitted to enable the flow to the heating circuit when it is not activated.

2.10 Example of a zoned heating installation

Apart from the examples described in the previous sections, the **EkoHeat** boiler can be fitted in an installation with several separate heating zones, by installing the suitable control devices for each zone, e.g. zone valves controlled by ambient thermostats fitted in each of the zones to be controlled.

Two or more radiator zones can be controlled with any of the previous installation diagrams. The figure below shows an example of a hydraulic diagram for a heating installation with two radiator zones and a DHW tank:



- SF:** Heating safety valve.
- CP:** Circulating pump.
- RV:** Anti-condensation return valve.
- EV:** Expansion vessel.
- DV:** Drain valve.
- BV:** Blow-off valve.
- 3WV:** 3-way diverter valve.
- HS:** Hot water tank sensor.
- NV:** Non-return valve.
- DSV:** DHW safety valve.
- DEV:** DHW expansion vessel.
- ZV:** Zone valve with micro switch.

IMPORTANT: Fit drain valves and devices for correctly bleeding the air from the heating circuit.

IMPORTANT: Before any servicing, disconnect the boiler from the mains.

IMPORTANT: The 3-way DHW valve should be fitted to enable the flow to the heating circuit when it is not activated.

2.11 Example of an installation with a buffer tank for 2 under floor heating circuits and a DHW tank.

The **EkoHeat** boiler is equipped with an electronic control that can govern a radiator heating circuit, an external circulation kit to prevent condensation in the heat exchanger and, optionally, a DHW storage tank loading circuit. In an installation with a buffer tank, the

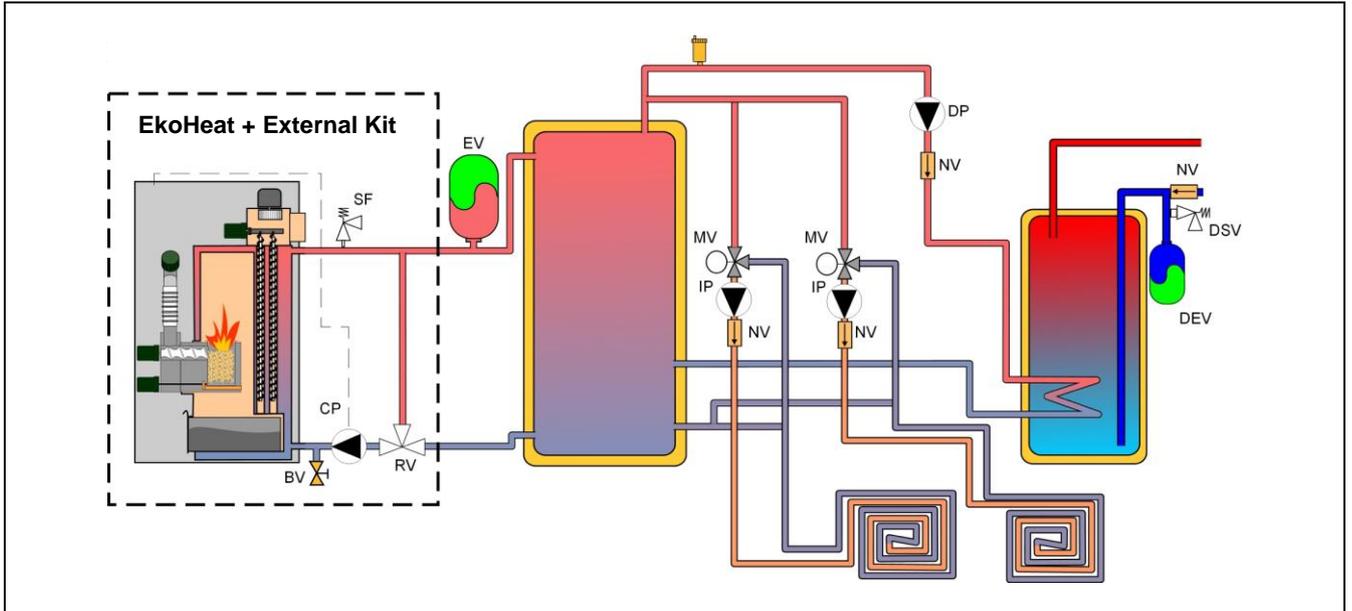
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components installed after the buffer tank are not controlled by the boiler control panel. Suitable control devices for each installation need to be installed for them to function correctly.

The external hydraulic kit consists of:

- Circulating pump.
- 55°C 3-way anti-condensation valve.
- Safety valve, calibrated to 3 bar.
- Boiler blow-off valve.

The figure below shows an example of an installation with a buffer tank for 2 underfloor heating circuits and a DHW tank.



- SF:** Heating safety valve.
- CP:** Circulating pump.
- RV:** Anti-condensation return valve.
- EV:** Expansion vessel.
- DV:** Drain valve.
- BV:** Blow-off valve.
- NV:** Non-return valve.
- DSV:** DHW safety valve.
- DEV:** DHW expansion vessel.
- DP:** DHW tank feed pump.
- IP:** Underfloor heating circuit impeller pump.
- MV:** Underfloor heating mixing valve.

IMPORTANT: Fit drain valves and devices for correctly bleeding the air from the heating circuit.

IMPORTANT: Before any servicing, disconnect the boiler from the mains.

IMPORTANT: The components installed after the buffer tank are not controlled by the boiler control panel.

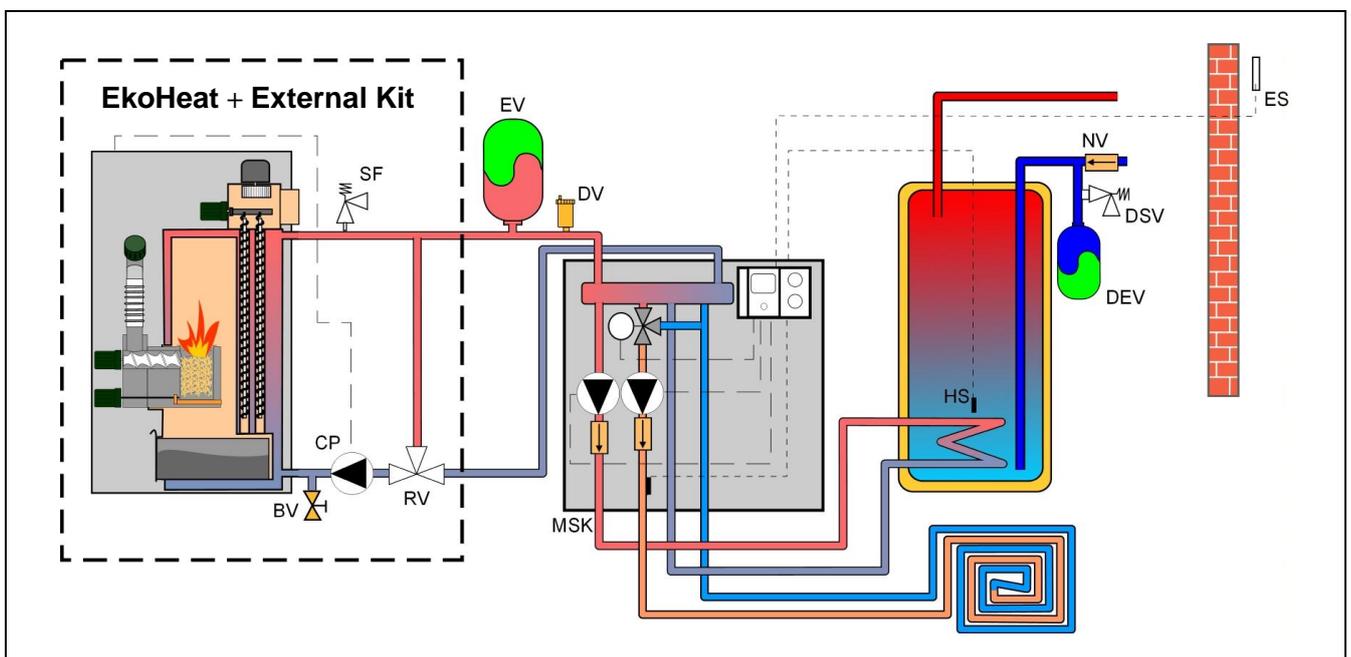
2.12 Example of installation with the MS Hydraulic Kit

The **EkoHeat** boiler is equipped with an electronic control able to govern a heating circuit via an external circulation kit to prevent condensation, and, optionally, an **MS hydraulic kit** supplied by **EKOPOWER** may also be acquired and installed, for installation and control of an underfloor heating circuit and a DHW storage circuit. The **MS hydraulic kit** includes a central electronic adjustment unit, to manage the functioning of the kit components independently from the boiler control panel.

The external hydraulic kit consists of:

- Circulating pump.
- 55°C 3-way anti-condensation valve.
- Safety valve, calibrated to 3 bar.
- Boiler blow-off valve.

The figure below shows an example of installation with an MS hydraulic kit:



- SF:** Heating safety valve.
- CP:** Circulating pump.
- RV:** Anti-condensation return valve.
- EV:** Expansion vessel.
- DV:** Drain valve.
- BV:** Blow-off valve.
- NV:** Non-return valve.
- DSV:** DHW safety valve.
- DEV:** DHW expansion vessel.
- MSK:** MS hydraulic kit.
- HS:** MS hydraulic kit hot water tank sensor.
- ES:** External sensor.

IMPORTANT: Fit drain valves and devices for correctly bleeding the air from the heating circuit.

IMPORTANT: Before any servicing, disconnect the boiler from the mains.

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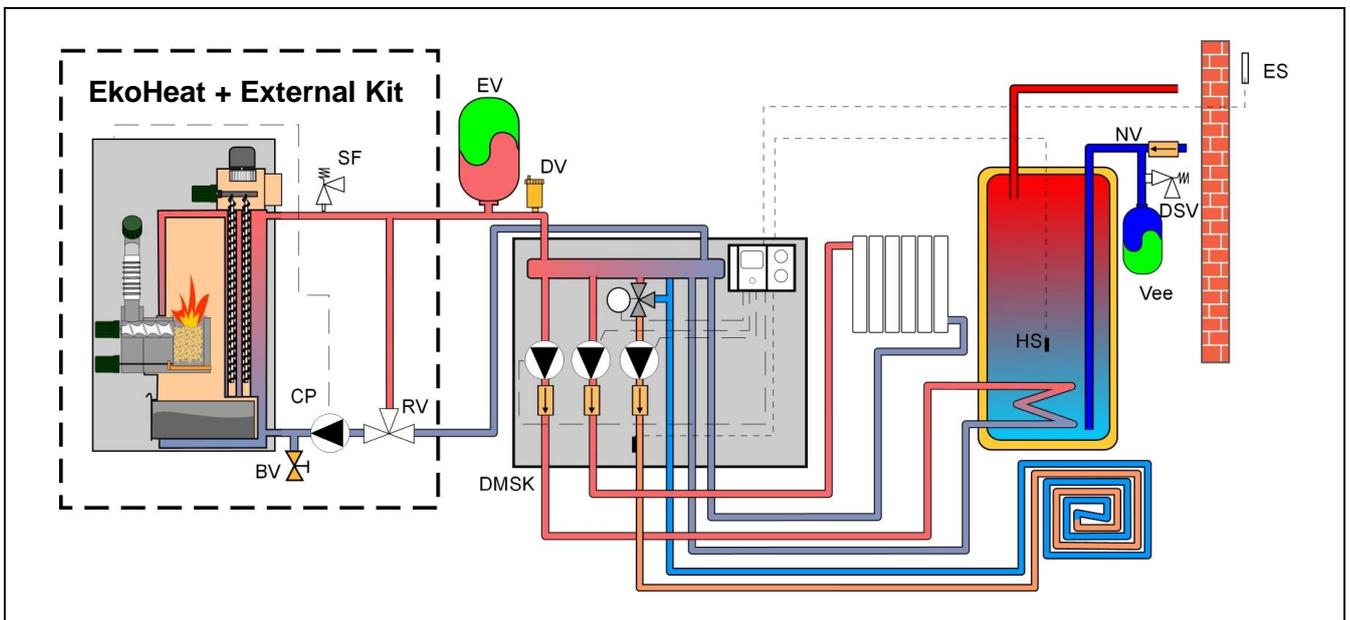
2.13 Example of installation with the DMS Hydraulic Kit

The **EkoHeat** boiler is equipped with an electronic control able to govern a heating circuit via an external circulation kit to prevent condensation, and, optionally, a **DMS hydraulic kit** supplied by **EKOPOWER** may also be acquired and installed, to install and control a radiator heating circuit and a DHW storage circuit. The **DMS hydraulic kit** includes a central electronic adjustment unit, to manage the functioning of the kit components independently from the boiler control panel.

The external hydraulic kit consists of:

- Circulating pump.
- 55°C 3-way anti-condensation valve.
- Safety valve, calibrated to 3 bar.
- Boiler blow-off valve.

The figure below shows an example of installation with a DMS hydraulic kit:



- SF:** Heating safety valve.
- CP:** Circulating pump.
- RV:** Anti-condensation return valve.
- EV:** Expansion vessel.
- DV:** Drain valve.
- BV:** Blow-off valve.
- NV:** Non-return valve.
- DSV:** DHW safety valve.
- DEV:** DHW expansion vessel.
- DMSK:** DMS hydraulic kit.
- HS:** MS hydraulic kit hot water tank sensor.
- ES:** External sensor.

IMPORTANT: Fit drain valves and devices for correctly bleeding the air from the heating circuit.

IMPORTANT: Before any servicing, disconnect the boiler from the mains.

2.14 Example of a heating installation with radiators and back-up for a solar installation for DHW production.

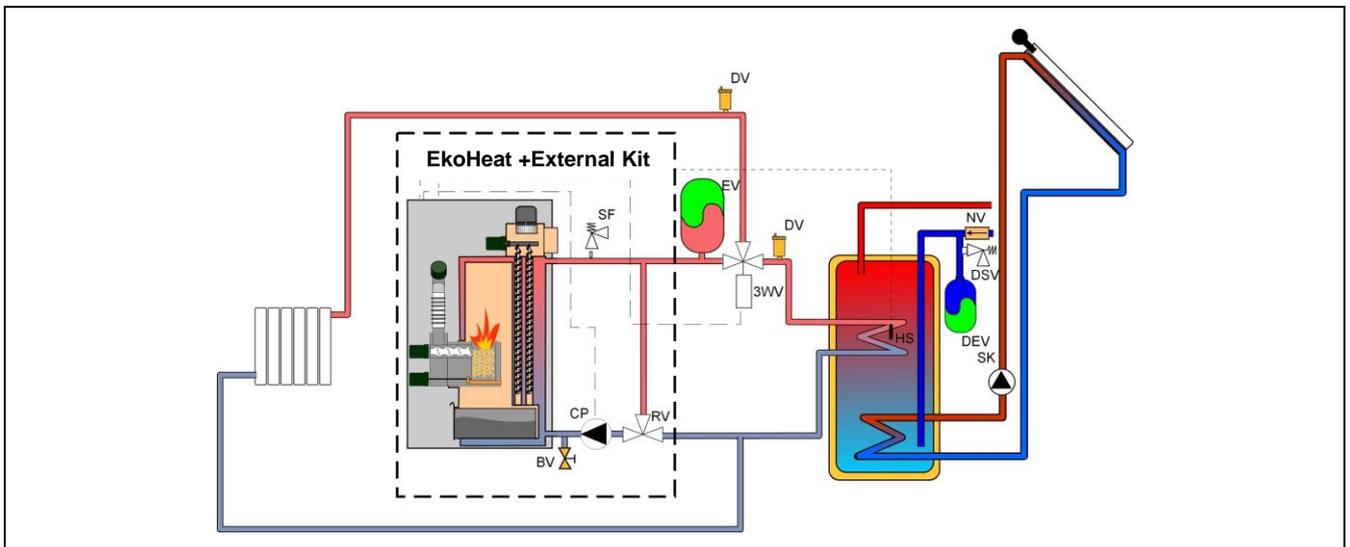
The **EkoHeat** boiler is equipped with an electronic control that can govern a radiator heating circuit, an external circulation kit to prevent condensation in the heat exchanger and, optionally, a back-up circuit for a solar installation for DHW production by storage. The solar circuit must be controlled by a specific device, separate from the boiler.

The external hydraulic kit consists of:

- Circulating pump.
- 55°C 3-way anti-condensation valve.
- Safety valve, calibrated to 3 bar.
- Boiler blow-off valve.

To control the back-up circuit for the solar DHW circuit, connect a DHW sensor from the hot water tank to the boiler (optionally supplied by **EKOPOWER**) and a 3-way diverter valve (see "*Electrical Diagram*" page 44).

The figure below shows an example of a hydraulic diagram of a heating installation with radiators and a solar circuit back-up system:



- SF:** Heating safety valve.
- CP:** Circulating pump.
- RV:** Anti-condensation return valve.
- EV:** Expansion vessel.
- DV:** Drain valve.
- BV:** Blow-off valve.
- NV:** Non-return valve.
- DSV:** DHW safety valve.
- DEV:** DHW expansion vessel.
- 3WV:** 3-way diverter valve.
- HS:** Hot water tank sensor.
- SK:** Solar circuit hydraulic kit.

IMPORTANT: Fit drain valves and devices for correctly bleeding the air from the heating circuit.

IMPORTANT: Before any servicing, disconnect the boiler from the mains.

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IMPORTANT: The 3-way DHW valve should be fitted to enable the flow to the heating circuit when it is not activated.

3 EXTERNAL CIRCULATION KIT

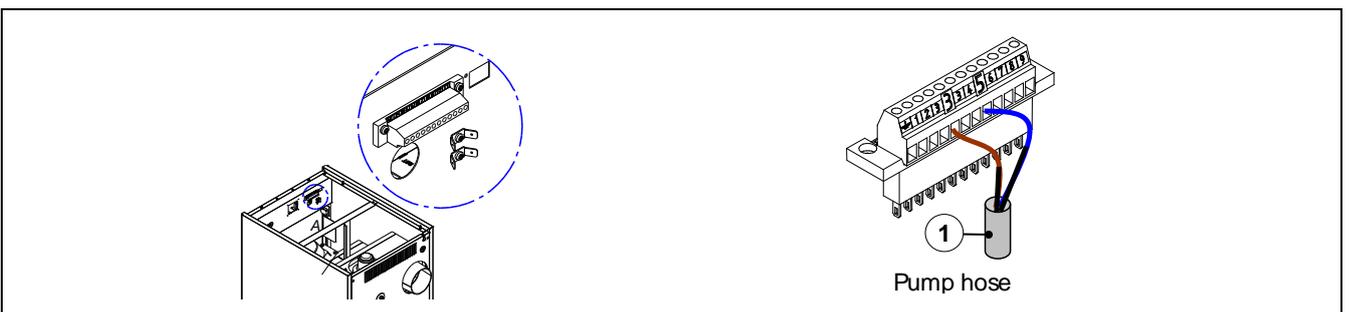
3.1 List of components

The following components are supplied in the external circulation kit box, for correct installation on the boiler: Before proceeding to mount the kit, carefully check that all the components on the following list have been supplied:

COMPONENTS BAG	RETURN VALVE SUB-UNIT	3-WAY VALVE SUB-UNIT
<p>1 Pump hose. 2 MM buttress (2 units). 3 1" black seal (2 units). 4 1" Belpa seal (5 units). 5 Safety valve.</p>	<p>6 Return valve sub-unit.</p>	<p>7 3-way valve. 8 Return bend.</p>
SAFETY VALVE SUB-UNIT	HEATING PIPES	CIRCULATING PUMP
<p>9 Safety valve sub-unit.</p>	<p>10 Long boiler pipe (TL). 11 Short boiler pipe (TC).</p>	<p>12 Circulating pump.</p>

3.2 Electrical connection for the circulating pump

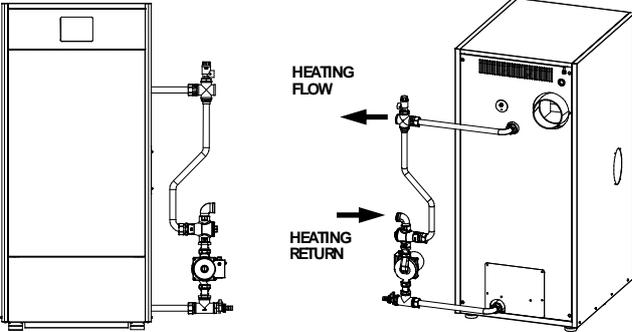
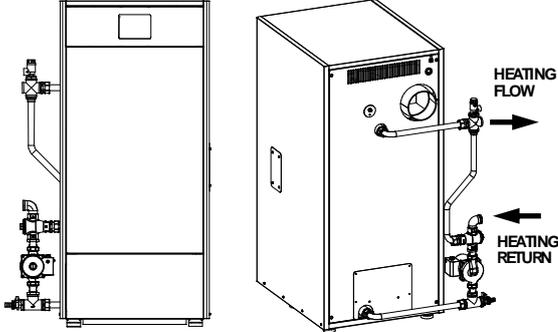
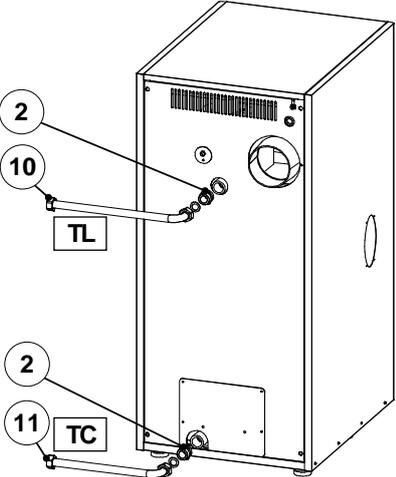
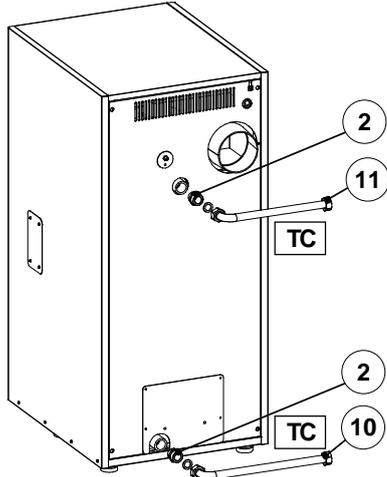
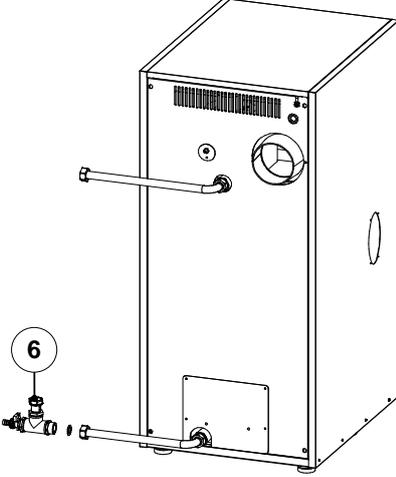
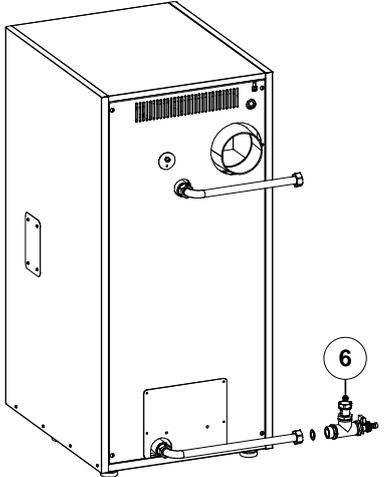
Connect the Molex connector on the hose (1) supplied in the component bag to the circulating pump (12). Connect the other end of the cable to connection strip J1 on the boiler (BC; terminals 3 and 5), as described in the "Electrical Diagram" page 44.



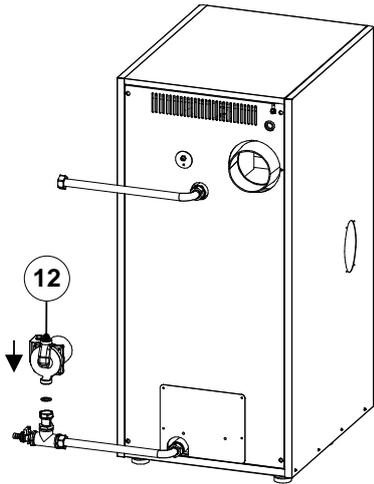
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3.3 Hydraulic installation of the external circulation kit

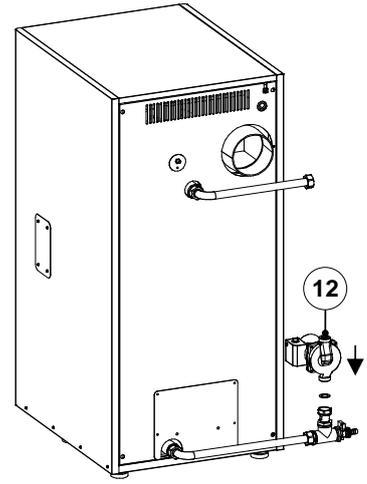
The **External Circulation Kit** can be mounted in 2 different positions, on the right or to the left of the boiler. Carefully follow the assembly instructions given below, in accordance with the selected position:

FITTING THE KIT ON THE RIGHT	FITTING THE KIT ON THE LEFT	
<p style="text-align: center;">Final installation</p>	<p style="text-align: center;">Final installation</p>	
		
<p>Boiler flow and return pipes</p>		
	<ul style="list-style-type: none"> - Remove the red caps from the boiler flow and return sockets. - Mount and seal the numbered components and heating pipes in the figure in the position indicated. 	
<p>Return valve sub-unit</p>		
	<ul style="list-style-type: none"> - Fit the return sub-unit. 	

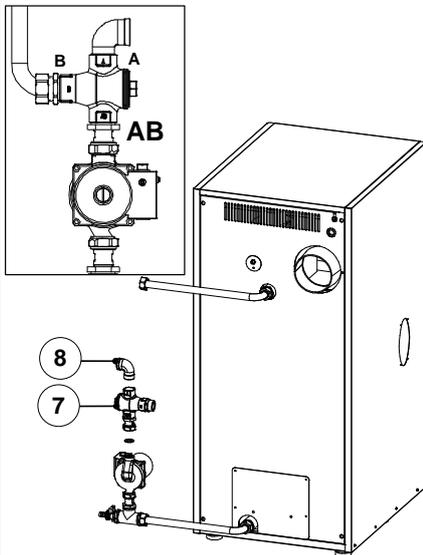
Circulating pump



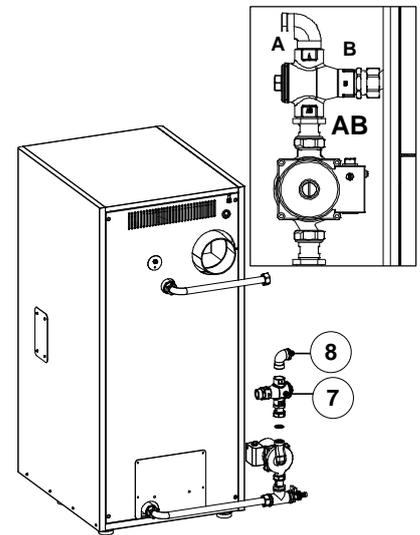
- Fit the circulating pump ensuring the flow is in **the direction** shown in the figure, using the **black rubber seals**.



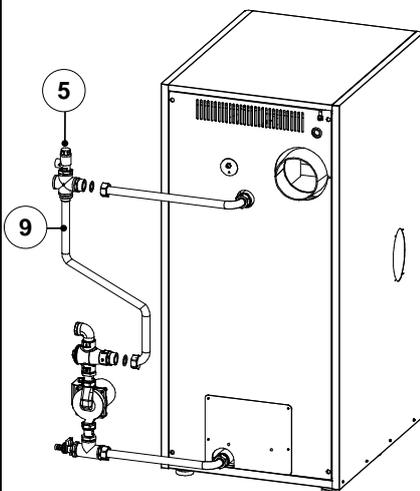
3-way valve sub-unit



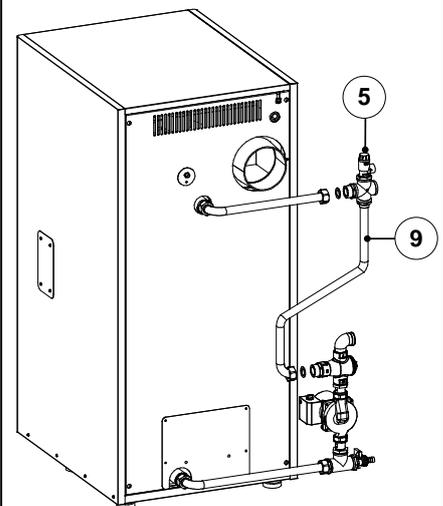
- Fit the 3-way valve sub-unit and **ensure the socket "AB" is connected** to the pump (see detail).
- Seal the return bend in the desired position.



Safety valve sub-unit



- Fit the safety valve sub-unit as shown in the figure.
- Seal the safety valve in the desired position.



4 STARTING UP THE BOILER

4.1 Prior warnings

Repair and maintenance of the boiler must be carried out by a qualified professional, authorised by **EKOPOWER**. For optimum functioning and conservation of the boiler, it should be serviced annually.

Carefully read this instruction manual and keep it in a safe, easily-accessible place. **EKOPOWER** will not be liable for any damages caused by failure to follow these instructions.

Before any servicing, **disconnect the boiler from the mains.**

4.2 Filling the installation

The hydraulic installation must include a fill valve, a manometer, drain valves and the necessary hydraulic components for correctly filling the installation.

To fill the installation, open the fill valve until the installation manometer shows a pressure of 1 - 1.5 bars. The installation must be filled slowly, bleeding the air from the water circuit using the drain valves provided on the same. Close the fill valve after filling.

IMPORTANT: Switching on the boiler with no water inside could result in serious damage.

4.3 Electrical Connection

The **EkoHeat** boiler is supplied with a mains connection plug.

4.4 Start-up

In order for the **guarantee to be valid**, the boiler must be started up by **personnel authorised by EKOPOWER**. Before beginning start-up, the following must be complied with:

- The boiler must be plugged in to the mains.
- The installation must be filled with water (the pressure must be between 1 and 1.5 bar).
- The reserve tank must be filled with fuel.

The start-up sequence is as follows:

- Check the flue is correctly installed using a condensation inspection plate and a draught stabiliser.
- Check the external hydraulic anti-condensation kit is correctly installed.
- Check the reserve tank and the feed auger are correctly installed. **The feed auger must be calibrated for correct boiler functioning** (See *"Feed Auger Calibration"* page 25). Check the right type of fuel is being used (it must be **EN PLUS**).
- If the installation has flow and return valves, check they are open.

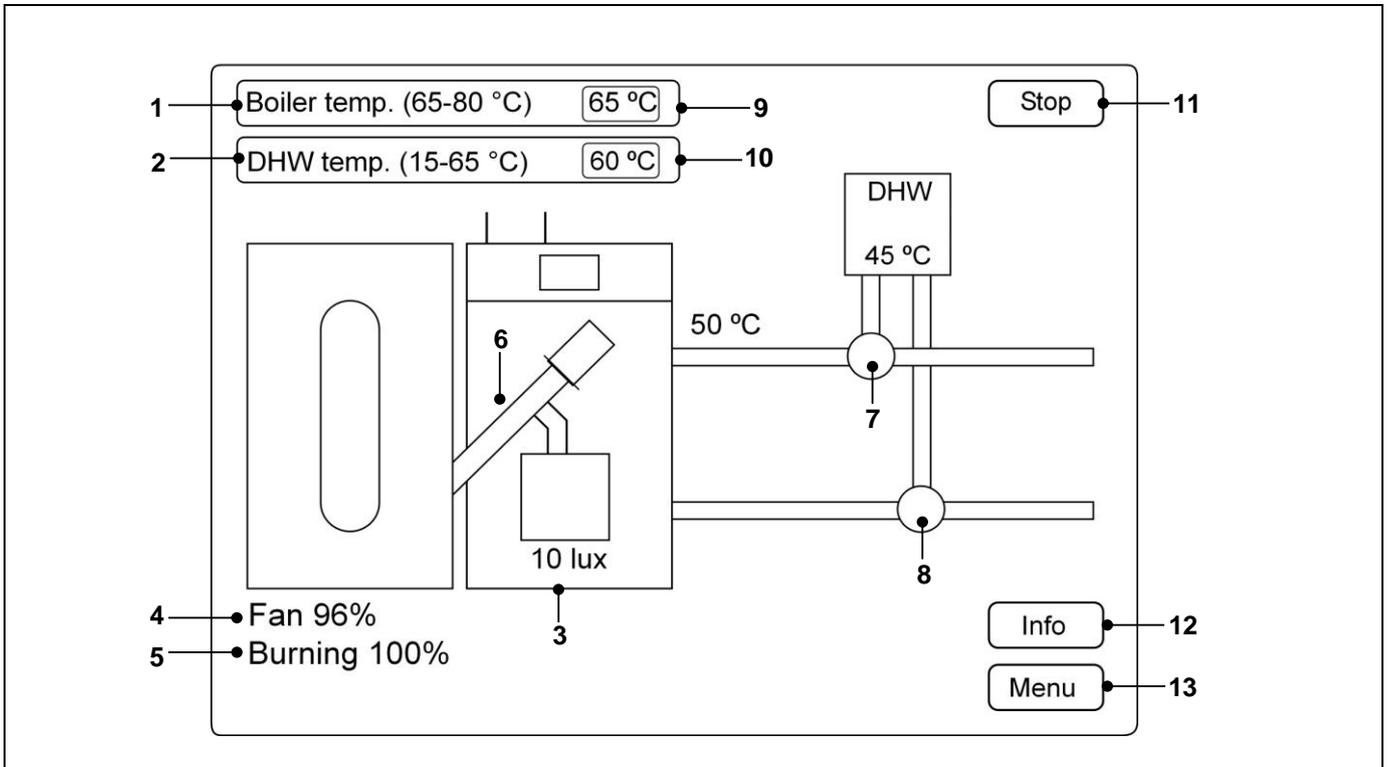
4.5 Installation delivery

After the initial start-up, the Technical Assistance Service will explain to the user how the boiler functions, making any observations they consider relevant.

The installer is responsible for clearly explaining to the user the functioning of any control or regulation device forming part of the installation but not supplied with the boiler.

5 DIGITAL DISPLAY:

The **EkoHeat** boiler is equipped with a digital touch display for viewing and adjustment of the different boiler settings. The different settings shown on the initial display and the touch buttons for browsing and/or adjusting the different setpoints are shown below:



The different settings shown on the initial display are shown in the table below:

1	Boiler setpoint temperature.
2	Temperature setpoint for the domestic hot water stored in the tank. (Only with the DHW tank installed and enabled).
3	Flame level detected in the burner.
4	Percentage fan functioning.
5	Percentage boiler modulation.
6	Feed auger functioning.
7	DHW functioning. (Only with the DHW tank installed and enabled).
8	Circulating pump functioning.

The different touch buttons on the initial display are shown in the table below:

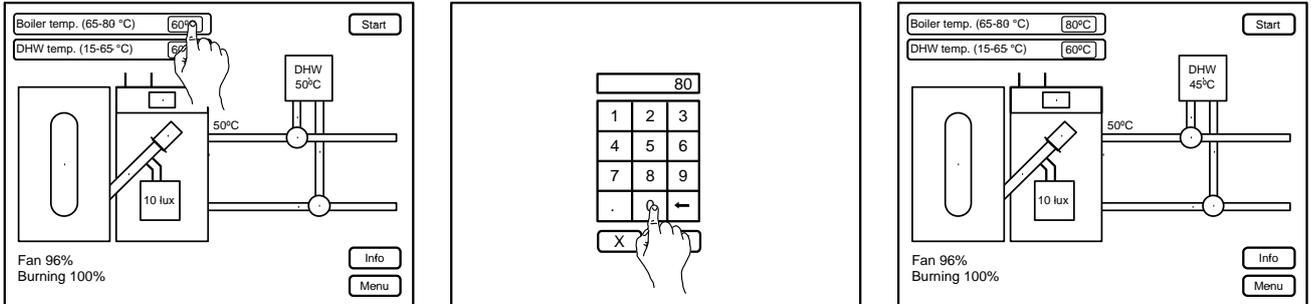
9	Touch button for adjusting the boiler temperature setpoint.
10	Touch button for adjusting the DHW temperature setpoint. (Only with the DHW tank installed and enabled).
11	Touch button for Starting/Stopping boiler functioning.
12	Touch button for accessing the Info display.
13	Touch button for accessing the Menu display.

6 OPERATION

6.1 Selecting the boiler setpoint temperature

To select the desired boiler functioning temperature, touch the boiler temperature setpoint adjustment button. When you touch this button the numerical temperature adjustment display will appear. Select the desired value and touch the OK button to save the value. Check that the value shown on the boiler temperature setpoint indicator is as desired.

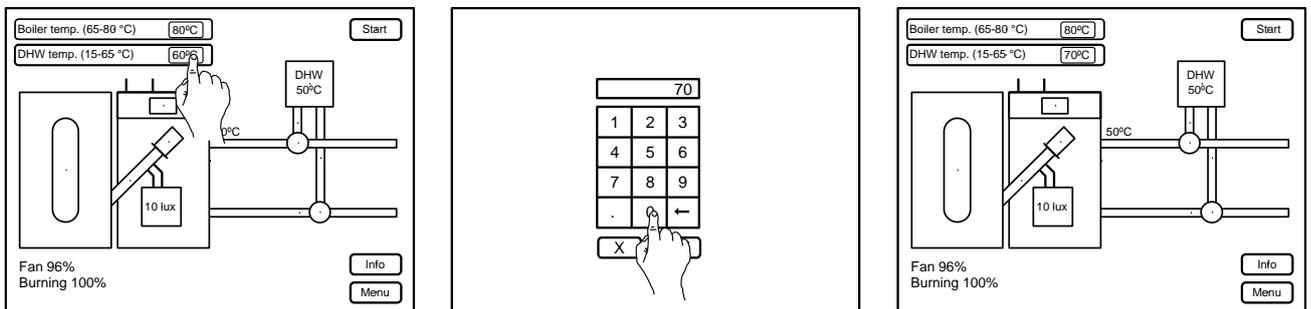
The permitted boiler setpoint temperature range is 65 - 80°C.



6.2 Selecting the DHW setpoint temperature (with hot water tank only)

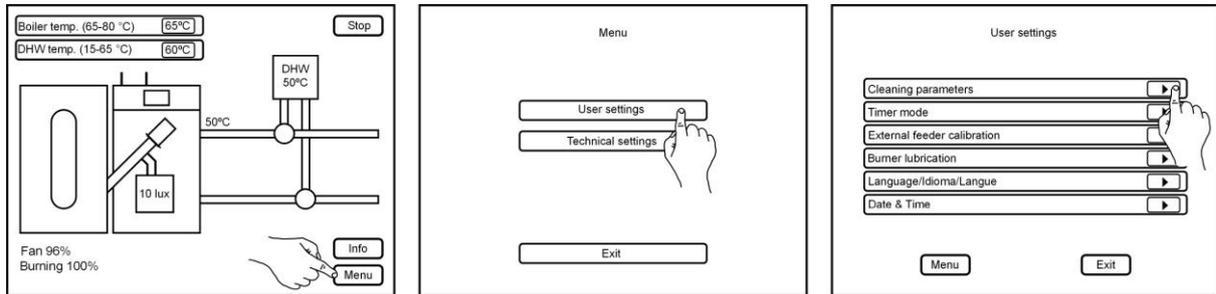
To select the desired DHW functioning temperature, touch the DHW temperature setpoint adjustment button. When you touch this button the numerical temperature adjustment display will appear. Select the desired value and touch the OK button to save the value. Check that the value shown on the DHW temperature setpoint indicator is as desired.

The permitted boiler setpoint temperature range is 15 - 65°C.

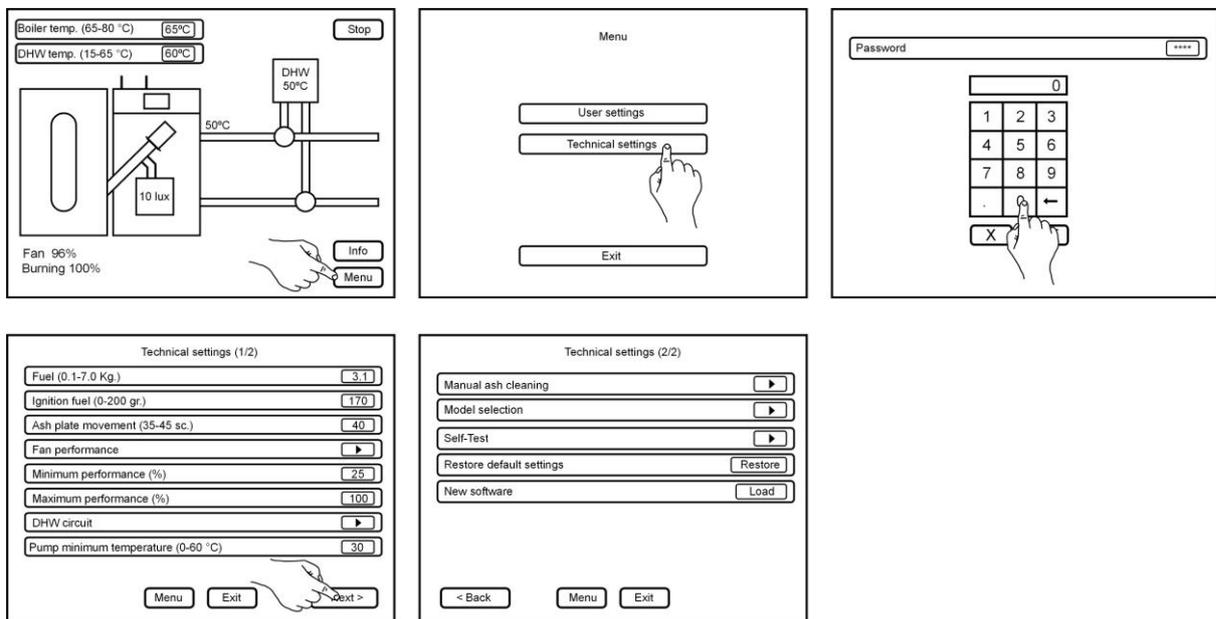


6.3 Changing the operating settings

The boiler adjustment settings are located on the menu display, on the "Configuration" and "Service" menus. To access the settings on the "Configuration" menu, press "Menu" and then "Configuration". When any setting has been accessed on a display, you can return to the previous level by pressing the "Back" button.



To access the "Service Menu" display press "Menu" and then "Service". Type in the access code (1234 by default) to access the technical settings.



7 "INFO" DISPLAY

The "Info" display shows a numbered series of information settings for the particular features of the boiler supplied. This data can be very useful for identifying the boiler. These settings are described in the table below:

Setting	Description
Operating hours	Counter showing the hours the boiler has been operating.
Number of ignitions	Counter showing the number of times boiler ignition has taken place. (Use the " Reset " button to set the two counters to "0".)
Software version	Identification number for the software version the electronic control is working with.
Control card ID	Identification serial number of the electronic control.
Boiler model	Selected boiler model.

EKOHEAT

8 CONFIGURATION MENU

This menu is used to adjust the settings connected with boiler functioning. **It is the recommended menu for the boiler user.**

The table below shows the settings on the "Configuration" menu.

Setting	Description
Cleaning settings	Functioning options for the burner and fan cleaning devices.
Time programmer	Time programmer options, when the clock is used to switch the boiler on and off.
Feed auger calibration	Procedure for calibrating the feed auger. This calibration is required for the boiler to function correctly.
Burner lubrication	Procedure for lubricating the burner cleaning device.
Language	Language selection.
Date and time	Date and time adjustment.

The following sections describe the functioning of each of the menu options in detail.

8.1 Cleaning settings

All the operating settings for the different automatic boiler cleaning devices can be adjusted from this display. The table below provides a description of these settings, the boiler components controlled by each one and their defect values:

Setting	Description	Default value		
		900	1500	2500
Fume cleaning interval (0-120 min.)	Minutes elapsing between each fan cycle for cleaning the boiler fumes.	45		
Fume cleaning time (0-60 sec.)	Time in seconds during which the fan is started up for fume cleaning.	10		
Burner cleaning interval (0.5-6.0 Kg.)	Kilograms of fuel burned before the burner cleaning device and vent cleaning device start up.	1.5	1.9	2.3

IMPORTANT: Incorrect modification of these settings can cause boiler malfunctioning. Ensure the setting to be changed has been set to the correct value before changing it.

8.2 Time programmer

The **EkoHeat** has a daily time programmer to control the times at which the boiler switches on and off. 5 different periods during the day can be enabled. The steps for configuring the programmer are as follows:

Timer mode

Timer mode (Yes/No) Yes

Period	Start (HH:MM)	Stop (HH:MM)
Period 1	00:00	00:00
Period 2	00:00	00:00
Period 3	00:00	00:00
Period 4	00:00	00:00
Period 5	00:00	00:00

Reset Save and restart

< Back Menu Exit

- Enable the time programmer operating mode by selecting **“YES”** for the *“Time programmer (Yes/No)”* setting. The boiler will start up and stop according to the times programmed. No time periods are programmed and the boiler will function continuously throughout the day.
- Select the hour and minutes for the start of the period and the hour and minutes for the end of this period (there must be a minimum of 01:30 hours between boiler start-up and switch-off).
- Adjust the periods required, to a maximum of five periods.
- Touch the *“Save and restart”* button to complete the operation.
- Touch the *“Reset”* button to set all the periods to zero and disable the time programmer operating mode.

When the time programmer mode is enabled, the symbol "  " will appear at the top right of the initial display to indicate the boiler is functioning in this mode. With the boiler in this operating mode, touch the *“Start/Stop”* button to disable the time programmer.

IMPORTANT: Each of the boiler switch-on/switch-off periods must last at least 01:30 hours.

EKOHEAT

8.3 Feed auger calibration

This display is used to calibrate the fuel feed auger required for correct boiler functioning. **It is essential for the boiler feed auger to be calibrated on start-up and whenever the fuel supplier is changed** (not all suppliers provide granules of the same density and size). Calibrating the boiler feed auger adjusts the optimum amount of pellets required to supply the burner and produce the correct power and combustion.

If the fuel in the reserve tank runs out, fill the feed auger with pellets again. To do this, follow the calibration instructions up to point 8. In this case it will not be necessary to calibrate the feed auger again, unless you change your pellet supplier.

A weighing scale and a suitable pellet collection container are required for this calibration procedure. The steps for correctly calibrating the feed auger are as follows:

1 Open the front panel of the boiler.

2 Insert a weighing scale into the feed auger.

3 Close the front panel.

4 Touchscreen interface showing boiler temperature (65-80 °C) at 80°C, DHW temperature (15-65 °C) at 70°C, DHW 50°C, Fan 0% Stopped, 10 lux, and buttons for Info and MeQ.

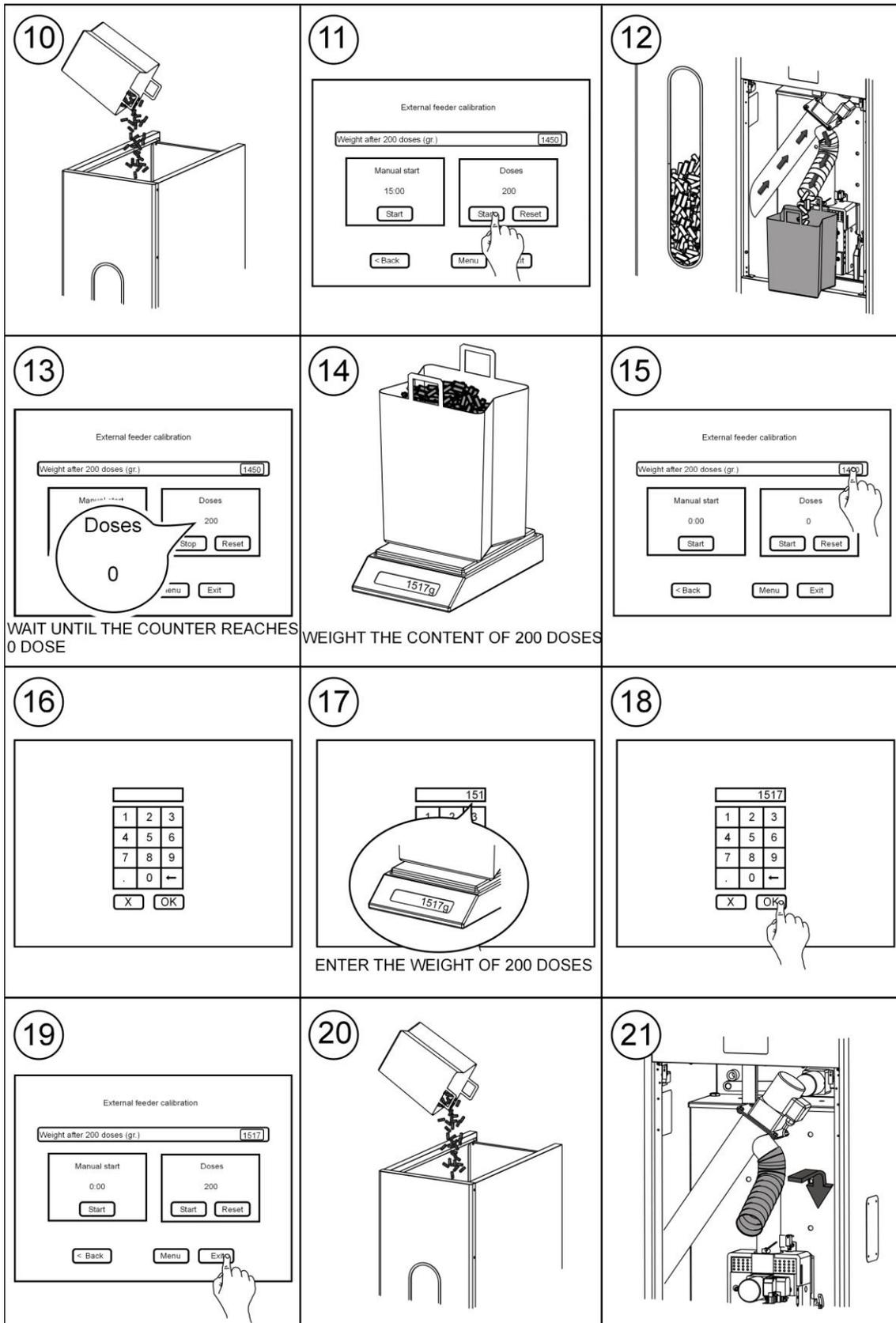
5 Menu screen with options: User settings, Technical settings, and Exit.

6 User settings menu with options: Cleaning parameters, Timer mode, External feeder calibration, Burner lubrication, Language/Idioma/Langue, and Date & Time. Buttons for Menu and Exit are at the bottom.

7 External feeder calibration screen showing Weight after 200 doses (gr.) at 1450. Manual start is 0:00. Doses is 200. Buttons for Start, Stop, Start, and Reset are present. Bottom buttons: < Back, Menu, Exit.

8 Diagram showing the feed auger with a weighing scale and a pellet collection container. Text: Leave working the feed auger for 15 minutes.

9 External feeder calibration screen showing Weight after 200 doses (gr.) at 1450. Manual start is 15:00. Doses is 200. Buttons for Start, Stop, Start, and Reset are present. Bottom buttons: < Back, Menu, Exit.



WAIT UNTIL THE COUNTER REACHES 0 DOSE

WEIGHT THE CONTENT OF 200 DOSES

ENTER THE WEIGHT OF 200 DOSES

This process must be carried out twice to ensure the correct amount of pellets have been added.

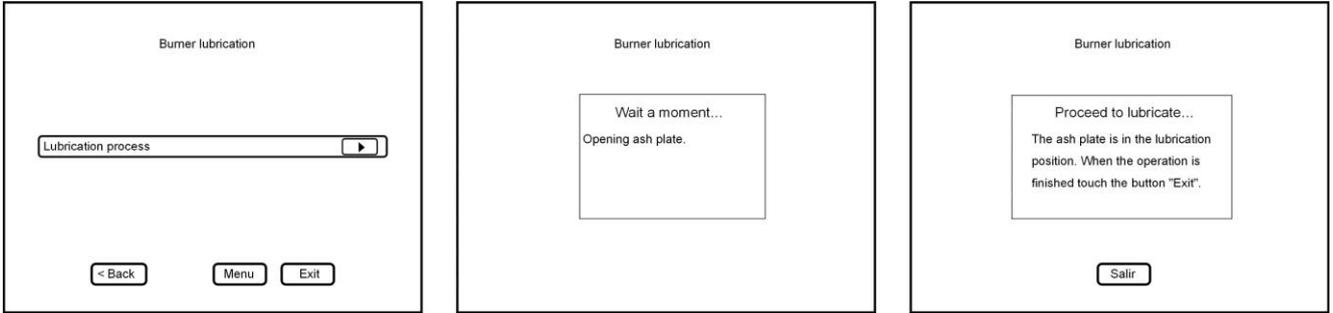
IMPORTANT: Calibrate the feed auger before starting up the boiler for the first time.

IMPORTANT: Calibrate it again whenever you change your fuel supplier.

EKOHEAT

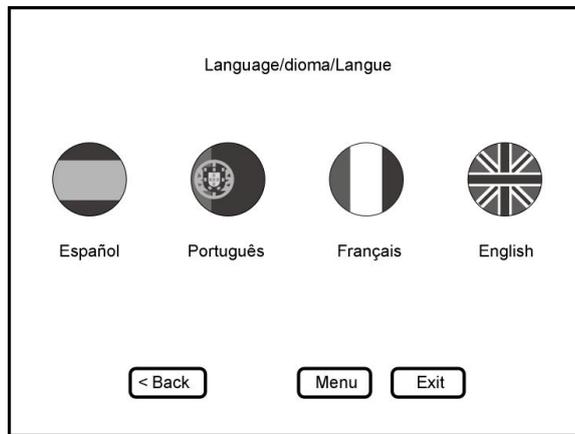
8.4 Burner lubrication

This display is used to position the burner for correctly carrying out the lubrication maintenance operation for the burner cleaning device (see *"Boiler maintenance" page 37*).



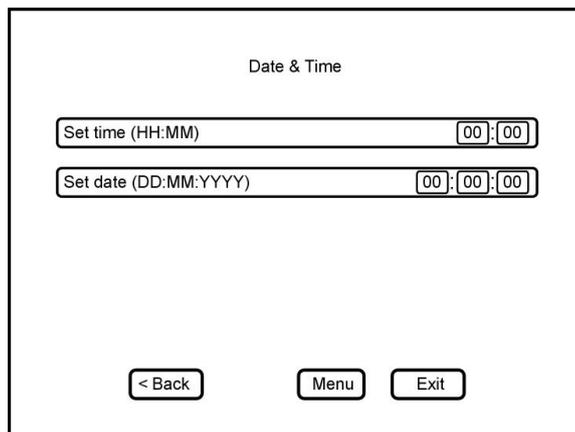
8.5 Language/Idioma/Langue

This display is used to change the language.



8.6 Date and time

This display is used to change the date and time shown on the boiler.



IMPORTANT: These settings need to be entered if you wish to use the time programmer.

9 SERVICE MENU

This menu is used to adjust the technical settings for boiler functioning. As the settings on this menu are technical and can affect boiler safety, we highly recommend that they are only adjusted by sufficiently technically qualified personnel.

The table below shows the settings on the "Service" menu.

Setting	Description
Fuel (0.1-7.0 Kg.)	Fuel consumed at full power, in kilograms.
Fuel for ignition (0-200 gr.)	Amount of fuel required for boiler ignition, in grams.
Burner cleaning device movement (38-42 sec.)	Time required for the burner cleaning device to close, in seconds.
Fan functioning	Percentage fan functioning for each of the boiler modulation percentages.
Minimum power (%)	Minimum modulation required for burner functioning.
Maximum power (%)	Maximum modulation at which the burner functions.
DHW circuit	DHW circuit control settings. (only with DHW water tank).
Minimum pump temperature (0-60 °C)	The circulating pump will start up when the boiler temperature exceeds this value.
Manual ash cleaning	Manual activation of the ash cleaning device operating cycles.
Model selection	This setting is used to select the boiler model to be governed by the electronic control.
Auto-test	This button is used to access the display of the values read on input and on manual activation of the boiler relay outputs.
Reset default configuration	For resetting the boiler's default settings.
New software	For updating the electronic control software version.

The following sections provide a detailed description of the functioning of each of the menu options.

IMPORTANT: We recommend that only authorised technical personnel access this menu. Unsuitable modification of these settings can cause malfunctioning and even damage to the boiler.

EKOHEAT

9.1 Fuel (0.1-7.0 Kg.)

This setting is used to adjust the amount of pellets, in kilograms, consumed by the boiler at full power in one hour. This setting is connected with the boiler model (power) and the calorific power of the pellet used.

The table below shows the default values for each boiler model:

EkoHeat	900	1500	2500
"Fuel" (Kg.)	2.2	3.1	5.0

9.2 Fuel for ignition (0-200 gr.)

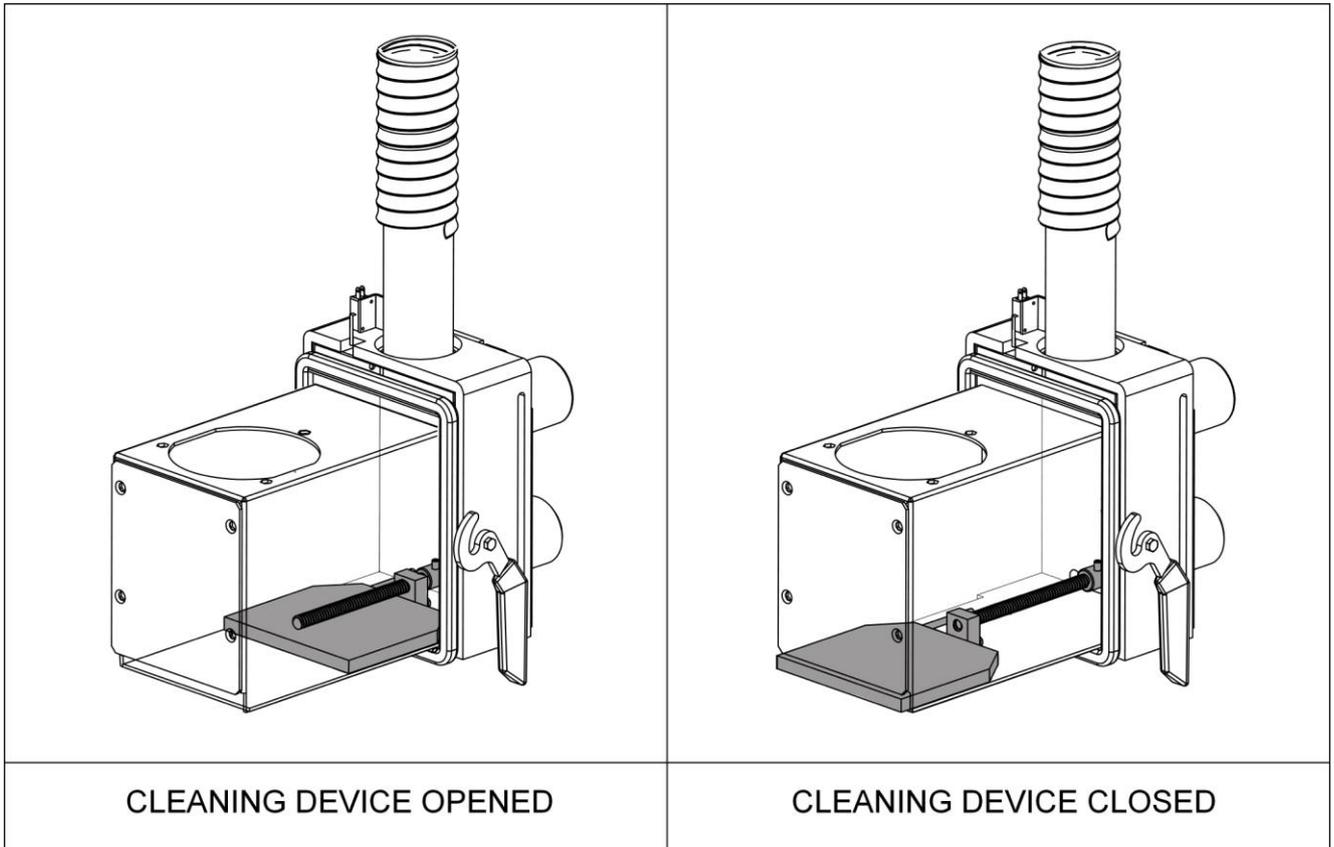
This setting is used to specify the amount of pellets required for correct burner ignition.

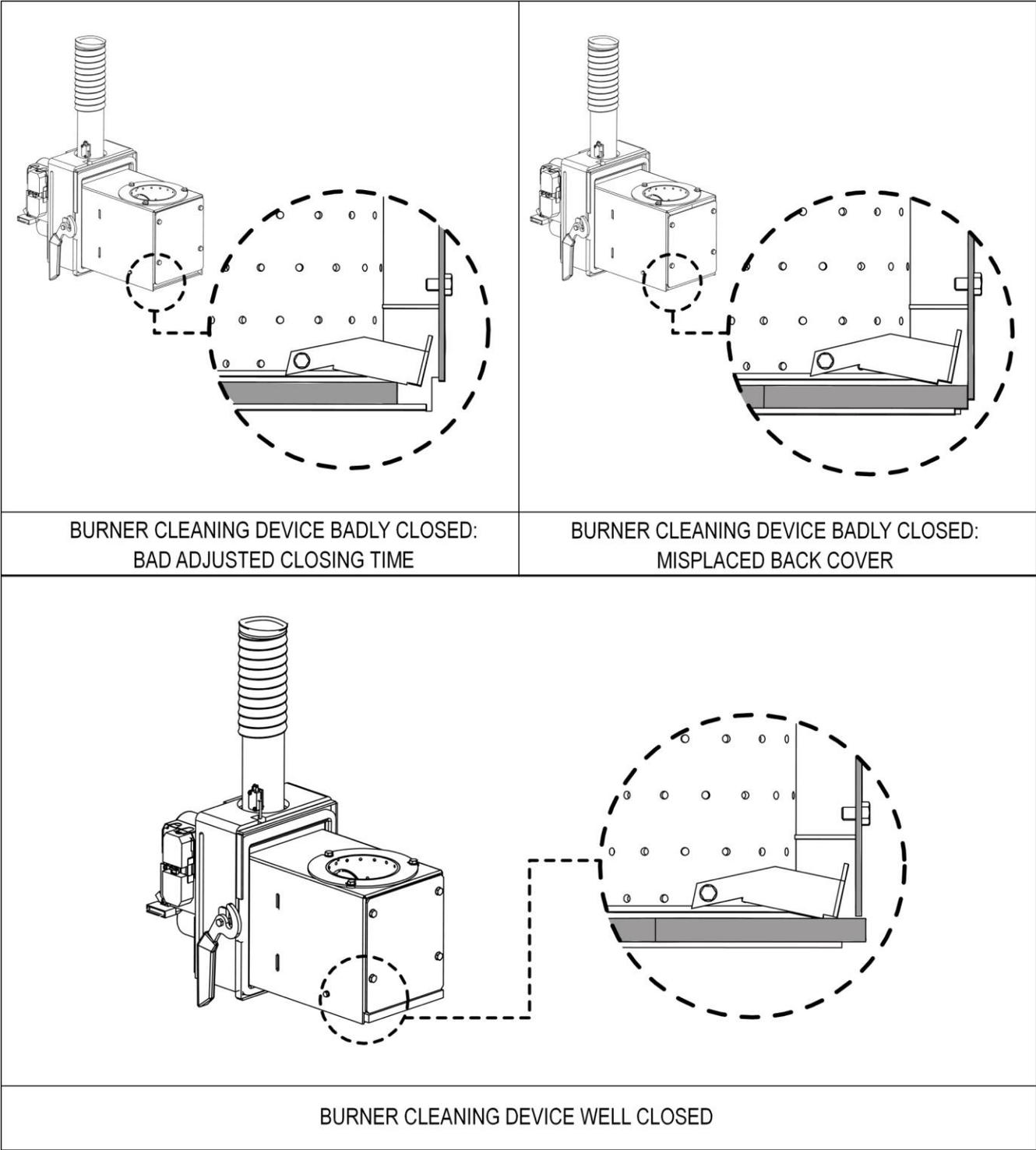
The table below shows the default values for each boiler model:

EkoHeat	900	1500	2500
Fuel for ignition (gr.)	140	140	180

9.3 Burner cleaning device movement (38-42 sec.)

This setting adjusts the time required by the burner cleaning device, in seconds, to return to its closed position after having been in open position.





IMPORTANT: After carrying out any repair or maintenance operations on the boiler, ensure the burner cleaning device is correctly positioned to its standard default value when it is in closed position.

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9.4 Fan functioning

This display is used to adjust the fan speed percentages, to ensure correct combustion values at each boiler power modulation percentage. For example, for the **EkoHeat 1500** boiler, it is established that for a power percentage of 100% the fan must run at 96% for ideal combustion.

Fan performance			
Modul. (%)	Fan (%)	Modul. (%)	Fan (%)
0	17	60	55
10	17	70	62
20	17	80	69
30	25	90	83
40	34	100	96
50	44	General	100

< Back
Menu
Exit

The settings can be adjusted separately or the “*General*” panel can be used to change all of them at once. If this setting is changed from 100 to 110, all the fan values will increase by 10%. The same operation can be used to reduce all the fan values by 10%, by changing the value to 90 on the “*General*” panel. It is recommended to modify the “*General*” panel to adjust the fan values, if required.

9.5 Minimum power (%)

This setting is used to select the minimum boiler operating power, expressed as a percentage of its nominal power.

9.6 Maximum power (%)

This setting is used to select the maximum boiler operating power, expressed as a percentage of its nominal power.

9.7 DHW circuit

The **EkoHeat** boiler can control a DHW circuit, using a 3-way valve and a DHW sensor. After making the hydraulic installation required, the following settings should be adjusted on the “*DHW circuit*” display:

Setting	Description	Default value
DHW circuit activation (Yes/No)	Setting for enabling the 3-way DHW diverter valve. To correctly install a DHW tank, carefully follow the detailed instructions given in the section “ <i>Installing a Sanit hot water tank</i> ”.	No
DHW differential (0-20°C)	The lowest temperature gradient with respect to the DHW setpoint temperature at which the hot water tank requires heating again.	10

9.8 Minimum pump temperature (0-60°C)

The circulating pump installed in the heating circuit is controlled by this setting. The circulating pump will stop if the boiler temperature drops below the value selected for this setting. This temperature is set to 30°C by default, to prevent any condensation from reaching the heat exchanger, which would cause irreparable damage.

9.9 Manual ash cleaning

This display is used to manually enable a number of ash cleaning device functioning cycles. 1 – 5 cycles can be set from this display.

9.10 Model selection

This display is used to select the boiler model. The boiler model should only be changed when the boiler's original electronic control is replaced during a repair operation.

9.11 Auto-test

This option is used to view the values for all the electronic control inputs being read at any time, and to manually enable each of the boiler powering systems. This facilitates the various maintenance operations, and error detection.

Before accessing the auto-test, stop the boiler functioning and/or disable the time programmer operating mode, if it is enabled.

Auto-test should only be accessed by qualified technical personnel authorised by EKOPOWER, as incorrect manual activation of the boiler powering systems can cause personal injury and damage to the boiler.

There are two auto-test displays:

- **"Input test"**: The real values for the electronic control inputs are displayed at each time.
- **"Relay test"**: Each of the electronic control outputs (powering systems) can be enabled sequentially.

IMPORTANT: The auto-test can only be run when the boiler is switched off and the time programmer disabled.

9.12 Reset default configuration

Touch the *"Reset default values"* button to reset the electronic control default values.

9.13 New software

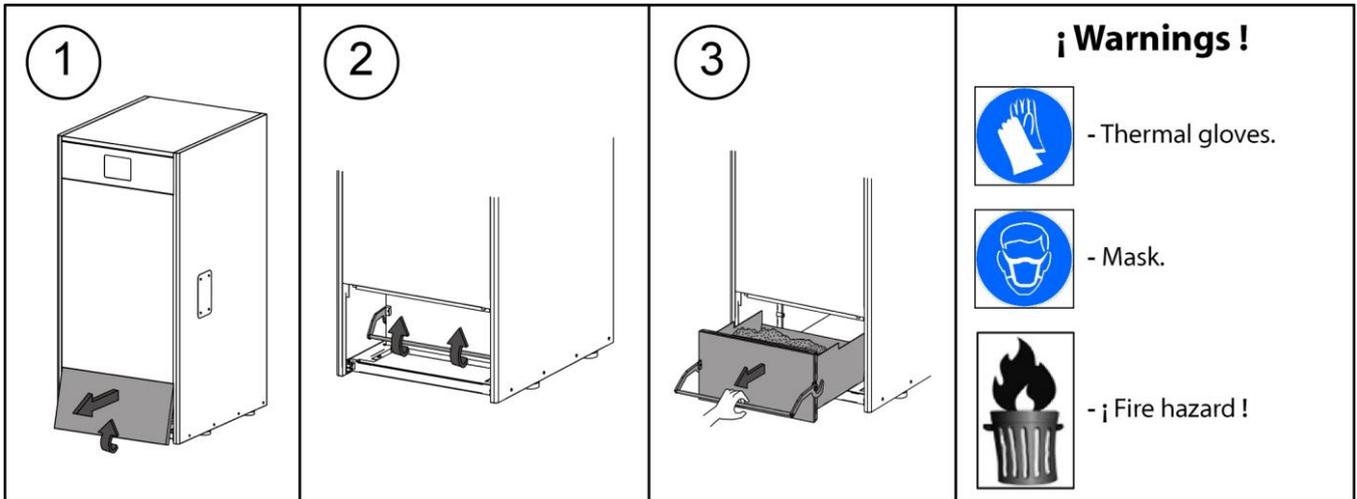
The electronic control software version can be updated using a USB storage device. **This setting is to be used by authorised personnel only.**

EKOHEAT

10 CLEANING THE ASH DRAWER

The **EkoHeat** boiler is equipped with an ash drawer, where the solid residues from the burnt fuel are collected on cleaning the burner and fume exchanger. This drawer must be regularly cleaned to prevent ash from accumulating and obstructing the vent, which would cause the boiler to switch off. It is recommended to regularly check the drawer and remove the ash that has accumulated.

EKOPOWER supplies an optional ash compacting system for incorporation to the boiler, so that the ash does not need to be removed as frequently.



Safety warnings:

For **safe handling** of the ash drawer, you should take the necessary safety precautions and wear suitable clothing to protect against possible injury. The following advice should be particularly taken into account:

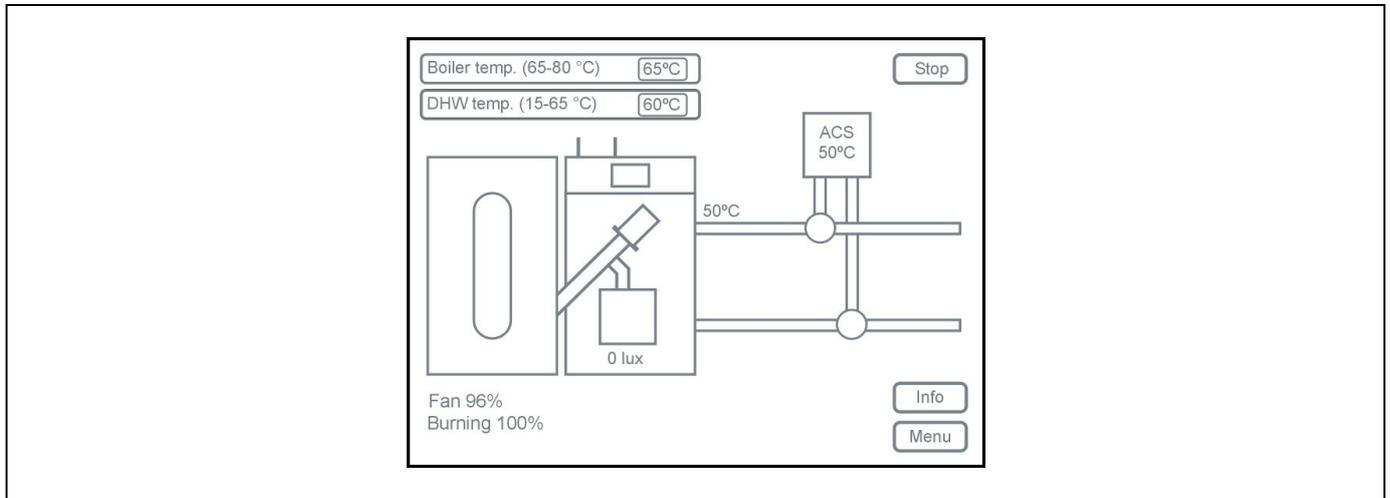
- **Switch off the boiler or ensure it is on pause** before taking out the ash drawer. If you take out the ash drawer with the boiler on pause, make sure you have replaced it before switching on the boiler again. It is recommended to take out the ash drawer when no flame is detected in the burner.
- It is recommended to wear insulating **thermal gloves** to protect your hands from any burns from hot parts of the drawer.
- It is recommended you wear a protective **mask** to avoid breathing in any ash particles, particularly in the case of people with allergies or any type of respiratory trouble, who should always wear a mask when carrying out ash removal.
- As the ash to be removed from the drawer may be burning or glowing, special precautions should be taken with regard to the type of container it is emptied into. A **metal** container is recommended, or **the ash should be totally put out** on handling, using water or another extinguishing agent.

EKOPOWER shall not be liable for any damage caused to people, animals or property as a result of incorrect handling of the ash drawer or the ash itself.

IMPORTANT: The ash drawer must only be cleaned when the boiler is switched off or on pause.

11 SAFETY CUT-OUTS

The boiler's electronic control system may activate the following safety cut-outs to stop the boiler functioning. When any of these cut-outs occur, the boiler will switch off and a description of the cut-out will appear on the display.



IMPORTANT: If any of the safety cut-outs described below should occur repeatedly, switch off the boiler and call your nearest official Technical Assistance Service.

11.1 Burner cut-out

When this cut-out occurs, the message **"E05: Burner error"** will appear on the digital display. The burner and its fuel supply will be cut off.

This occurs due to burner anomaly or excessive temperature in the burner fuel supply circuit. To unblock it, press the **"OK"** button.

11.2 No flame cut-out

When this cut-out occurs, the message **"E06: Flame defect"** will appear on the digital display. The burner and its fuel supply will be cut off.

This occurs when an insufficient flame lux level is detected by the photocell during a certain time lapse. To unblock it, press the **"OK"** button.

11.3 Temperature safety cut-out

When this cut-out occurs, the boiler digital display will switch off and the electrical supply to the electronic control will be cut off. All the boiler devices will switch off.

This occurs whenever the water in the boiler reaches a temperature of 110 °C. To unblock it, wait until the boiler temperature drops to below 90°C and press the reset button on the safety thermostat located on the underside of the electrical panel (see *"Control components" page 3*).

12 SHUTTING DOWN THE BOILER

To shut down the boiler, touch the **"Start/Stop"** button (see *"Digital display functioning" page 20*). In **shutdown mode**, the boiler will switch off. To shut down boiler functioning completely, unplug it from the mains.

13 BOILER MAINTENANCE

Various maintenance operations should be carried out at different intervals to keep the boiler in perfect working order. The yearly maintenance operations should be carried out by personnel authorised by **EKOPOWER**.

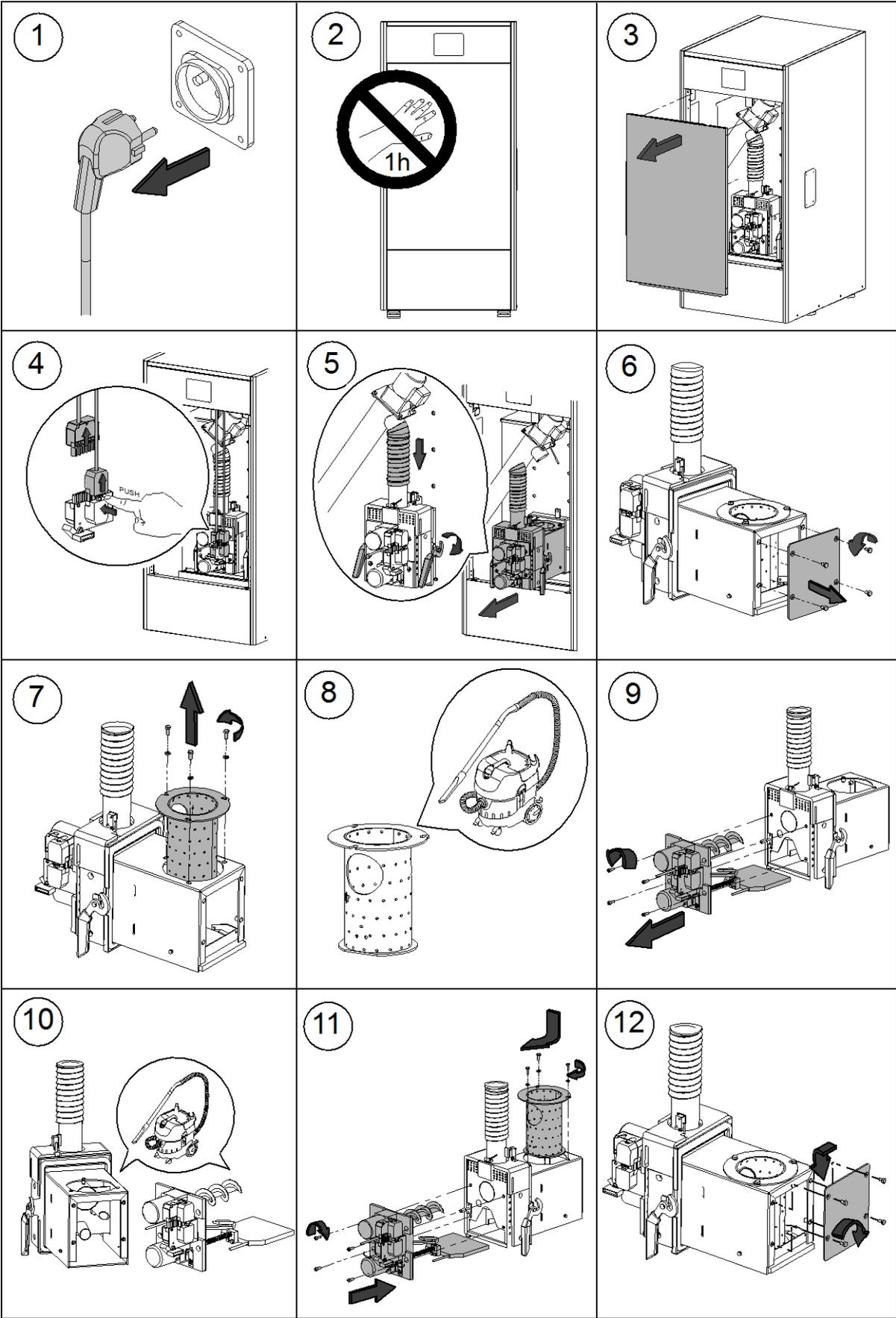
13.1 Boiler and flue maintenance frequencies

The most important aspects to be checked are as follows:

Nº	Operation	Frequency
1.	Check the pellet storage.	weekly
2.	Clean the ash in the ash drawer.	as required
3.	Check the boiler visually.	weekly
4.	Lubricate the burner cleaning device.	as required
5.	Check the feed auger is correctly calibrated.	as required
6.	Check and clean the boiler fume circuit.	yearly
7.	Check and clean the flue. The flue must be free of any obstacles and have no leaks.	yearly
8.	Clean the burner.	yearly
9.	Check the expansion vessel. It must be full, according to its reference plate.	yearly
10.	Check the seal between the burner and the boiler.	yearly
11.	Check the pipe circuits are correctly sealed.	yearly
12.	Check the water pressure in the heating installation. In cool mode , it should be between 1 and 1.5 bar.	yearly

13.2 Cleaning the burner.

The following procedure is recommended for correctly cleaning the burner:

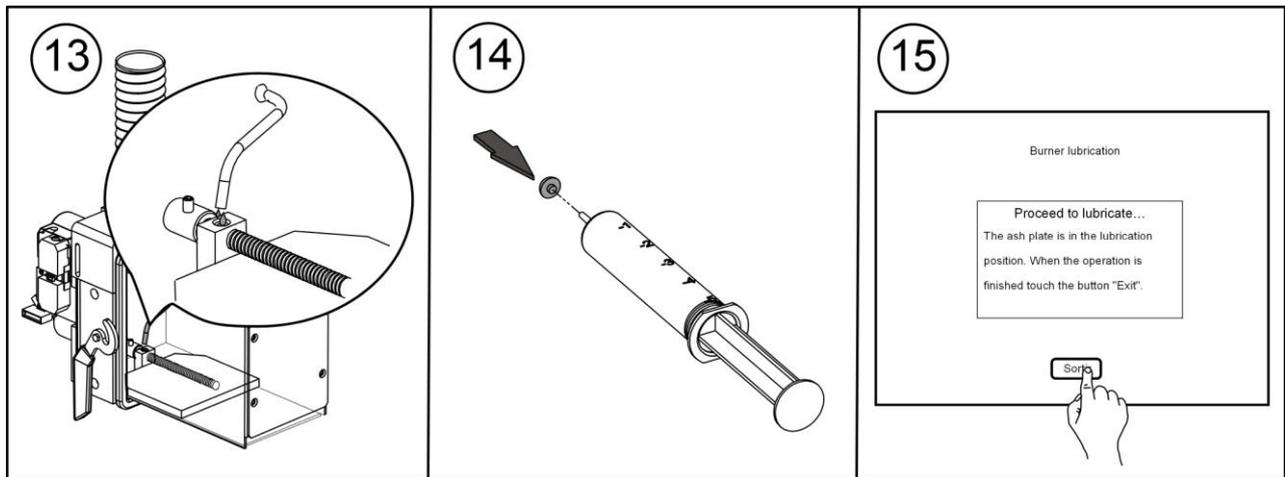


EKOHEAT

13.3 Lubricating the burner cleaning device.

The following procedure is recommended for correct lubrication of the burner cleaning device:

<p>1</p>	<p>2</p>	<p>3</p>
<p>4</p>	<p>5</p>	<p>6</p>
<p>7</p>	<p>8</p>	<p>9</p>
<p>10</p>	<p>11</p>	<p>12</p>



IMPORTANT: Do not begin to add grease to the device until “Lubricate now” appears on the display. (This is the time required for correct positioning of the device).

IMPORTANT: The burner cleaning device can only be lubricated when the boiler is switched off and the time programmer disabled.

IMPORTANT: The burner cleaning device should be lubricated if an unpleasant noise is heard. It should be done each year on the annual overhaul, at the least.

13.4 Draining the condensation water

Draining of condensation water from the flue should not be altered in any way and it must be kept free of obstructions.

13.5 Boiler water characteristics

In areas with water hardness of over 25-30°FH, treated water must be used in the heating installation to avoid any scale deposits on the boiler. It should be noted that even a few millimetres of scale will greatly reduce the boiler’s heat conductivity, causing a major drop in performance.

Treated water must be used in the heating circuit in the following cases:

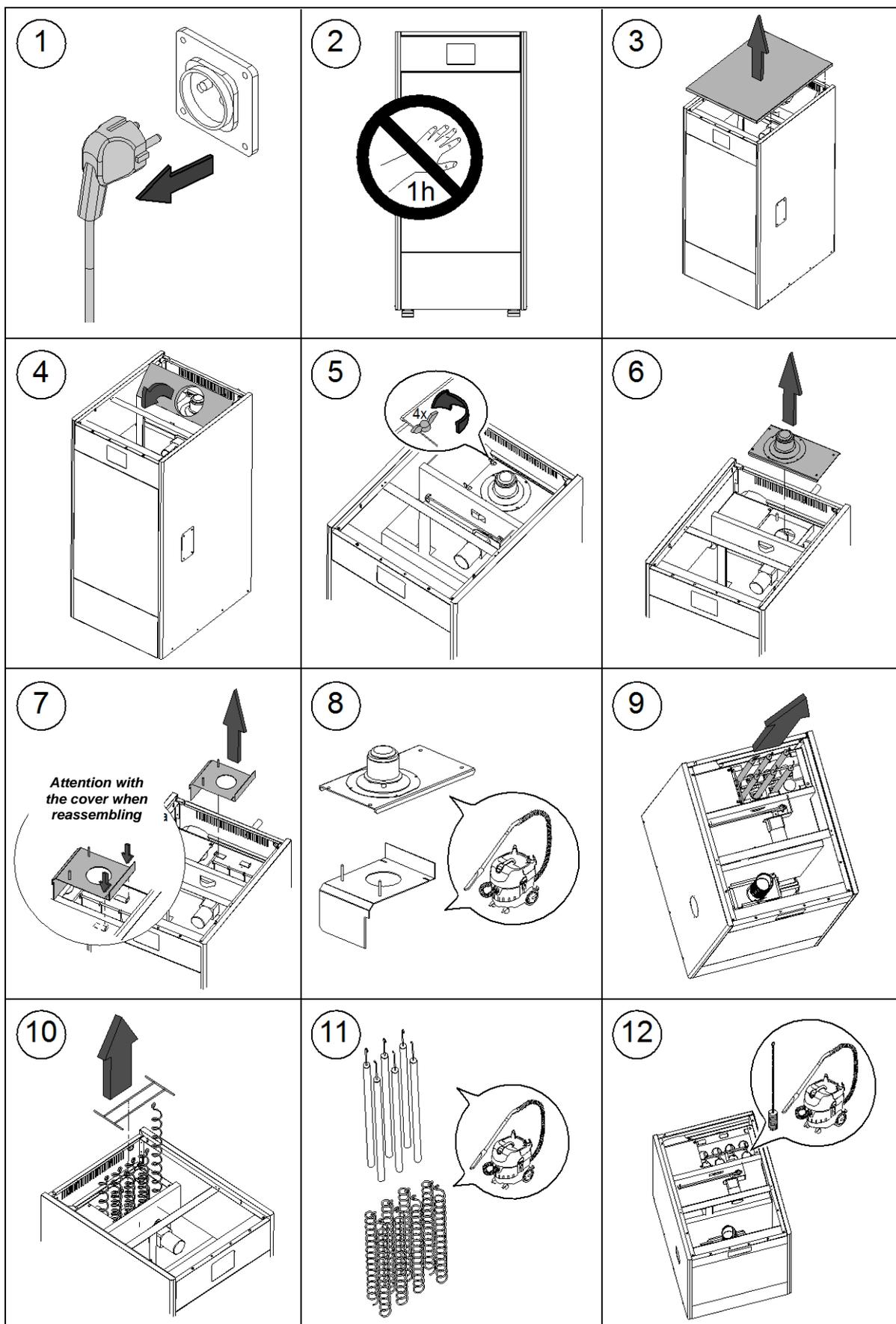
- Very large circuits (containing a large amount of water).
- Frequent filling of the installation.

If repeated partial or total draining of the installation is necessary, we recommend filling it with treated water.

EKOHEAT

13.6 Cleaning the vent.

The following procedure is recommended for correctly cleaning the vents:



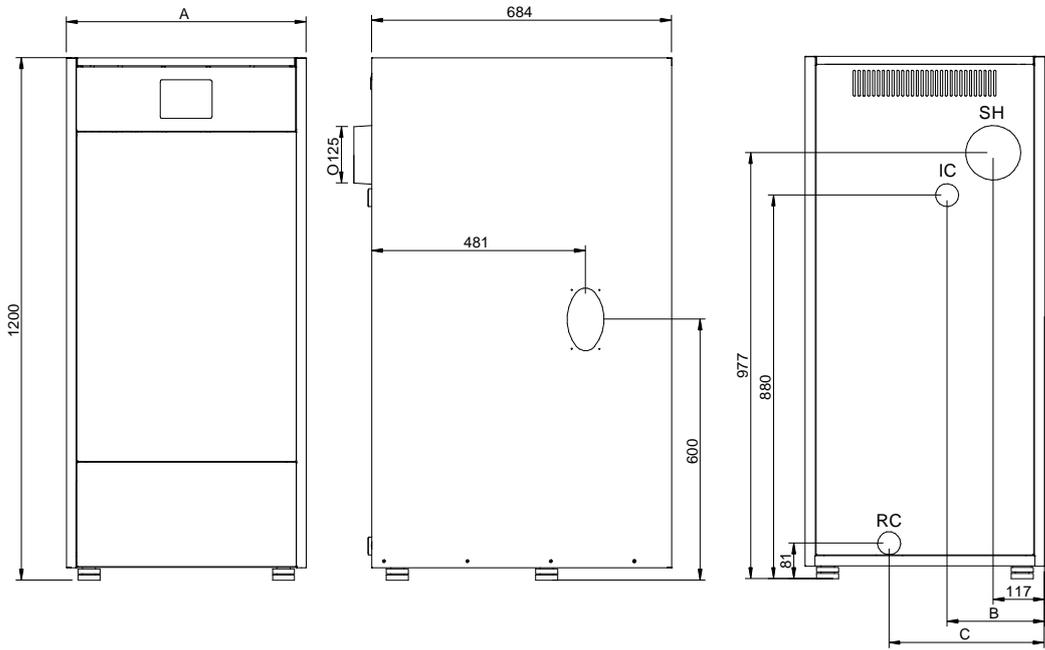
14 TECHNICAL CHARACTERISTICS

MODEL		EkoHeat 900	EkoHeat 1500	EkoHeat 2500
Maximum output power	kW	9.4	15	24.9
Performance at maximum power	%	92.4	95.5	93.1
Minimum output power	kW	2.5	3.9	6.1
Performance at minimum power	%	88.3	91.5	91.2
CO at maximum power (10% O ₂)	mg/m ³	326	79	140
OGC (organic gaseous substances) at maximum power (10% O ₂)	mg/m ³	14	<6	6
Particle content at maximum power (10% O ₂)	mg/m ³	26	17	18
CO at minimum power (10% O ₂)	mg/m ³	362	145	83
OGC (organic gaseous substances) at minimum power (10% O ₂)	mg/m ³	15	<6	6
Classification (as per EN 303-5)	-	Class 3		
Maximum operating pressure	bar	3		
Max. operating temperature	°C	110		
Water content	litres	46	55	73
Minimum flue draught	mbar	0.15		
Maximum flue draught	mbar	0.20		
Electrical supply	-	230 V~, 50 Hz, 1.5 A		
Fume outlet diameter	mm	125	125	150
Fuel	-	6-8 mm wood pellet. Maximum length 35 mm.		
Fuel water content	%	7		
Minimum return temperature	°C	Flow -15°C		
Pressure drop on water side (dT = 20 K)	mbar	1	3	5
Weight (net)	Kg	190	211	284

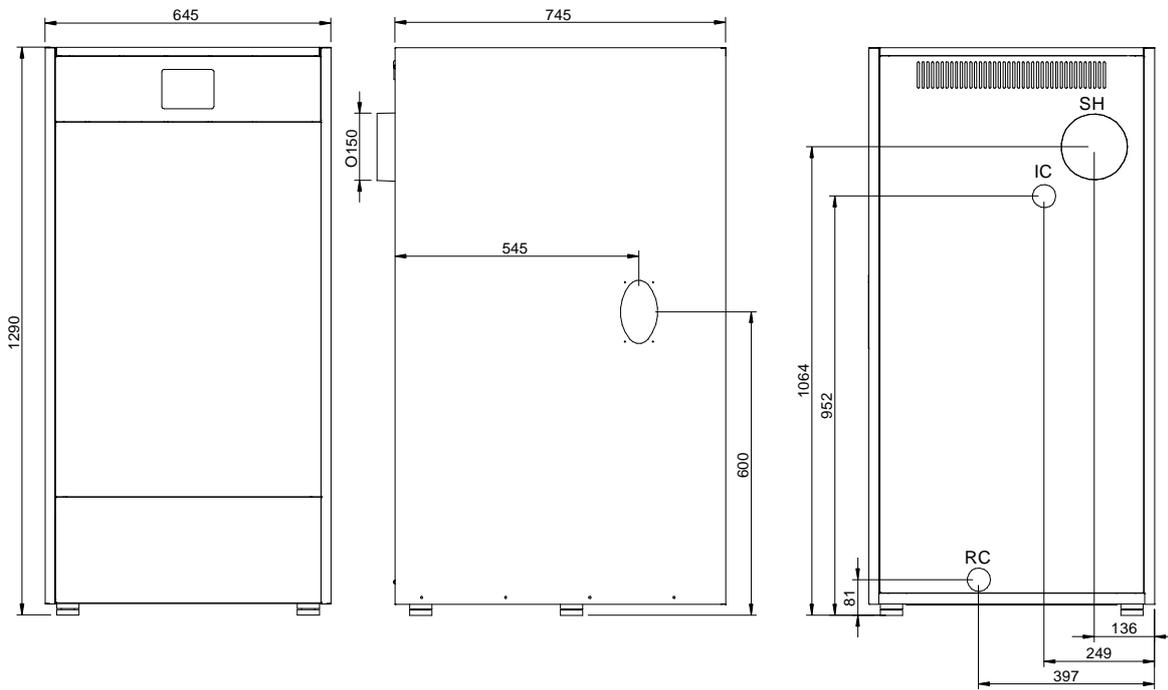
EKOHEAT

15 DIAGRAMS AND MEASUREMENTS

EkoHeat 900 / 1500



EkoHeat 2500



IC: Heating flow.

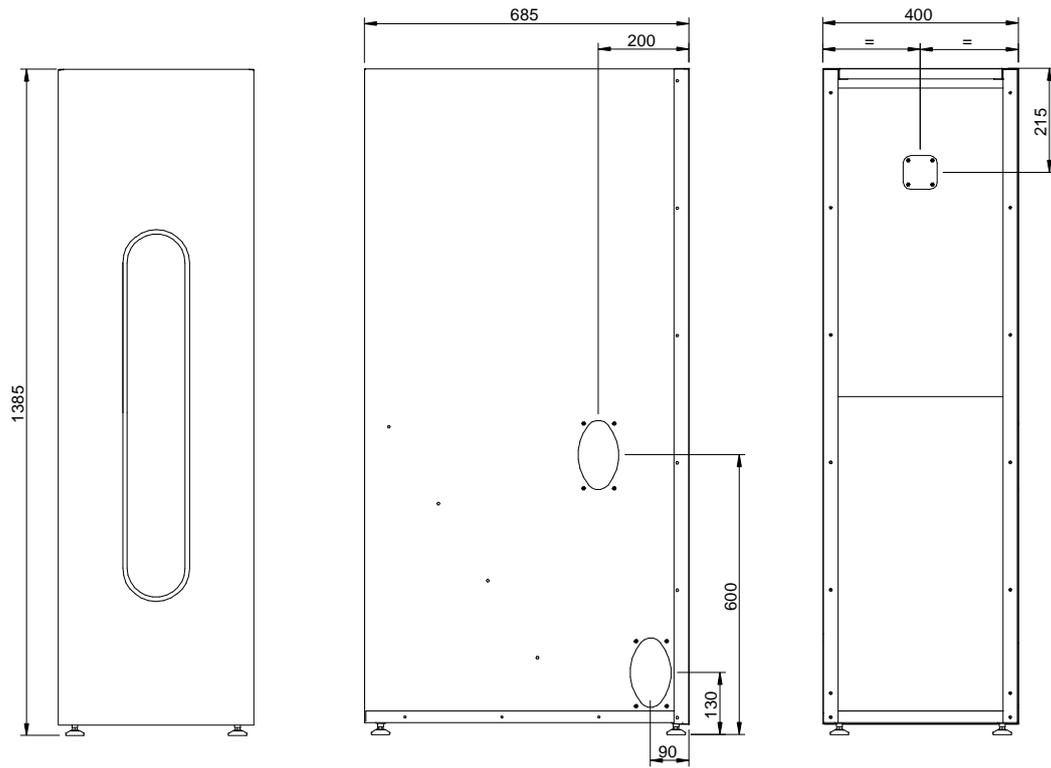
RC: Heating Return.

SH: Fume outlet.

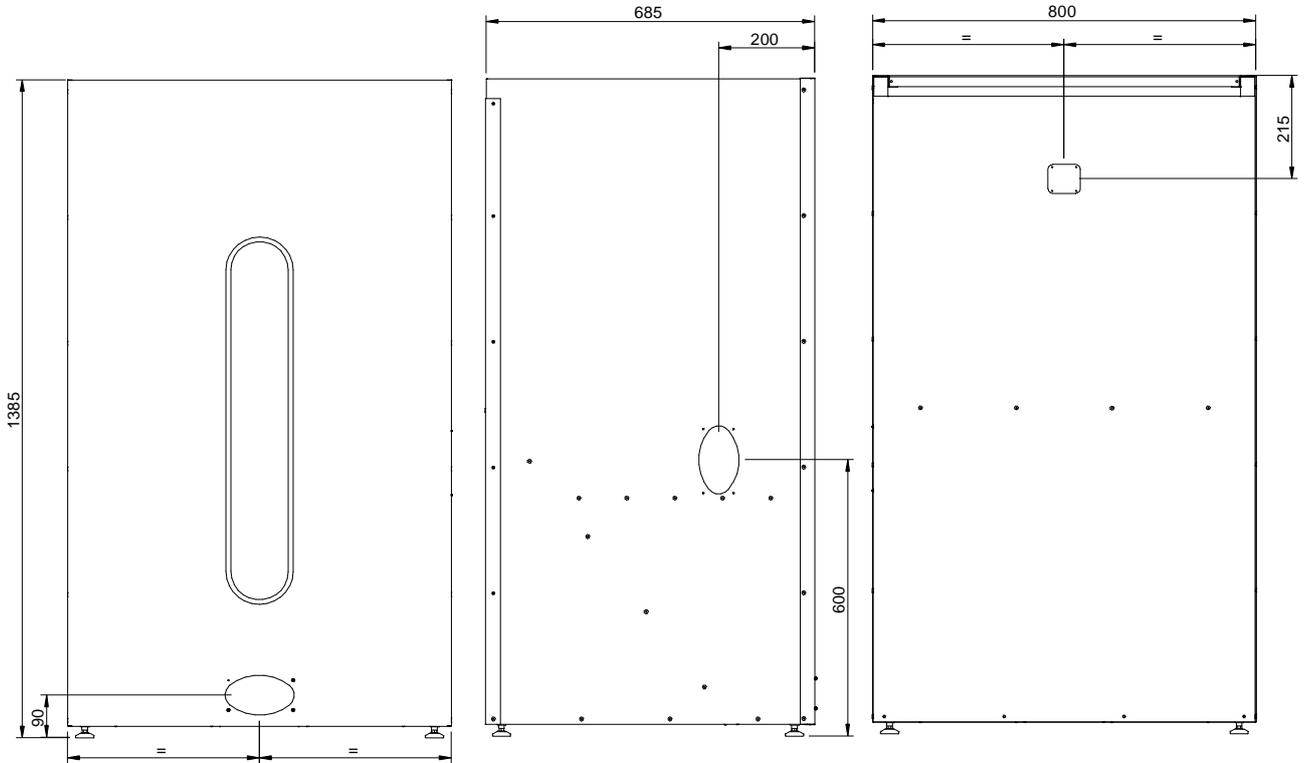
		Dimensions (mm)			
		IC / RC	A	B	C
EkoHeat 900	1" H		475	222	290
EkoHeat 1500	1" H		545	290	355

EkoHeat 2500	1 1/4" H	-	-	-
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Reserve tank S

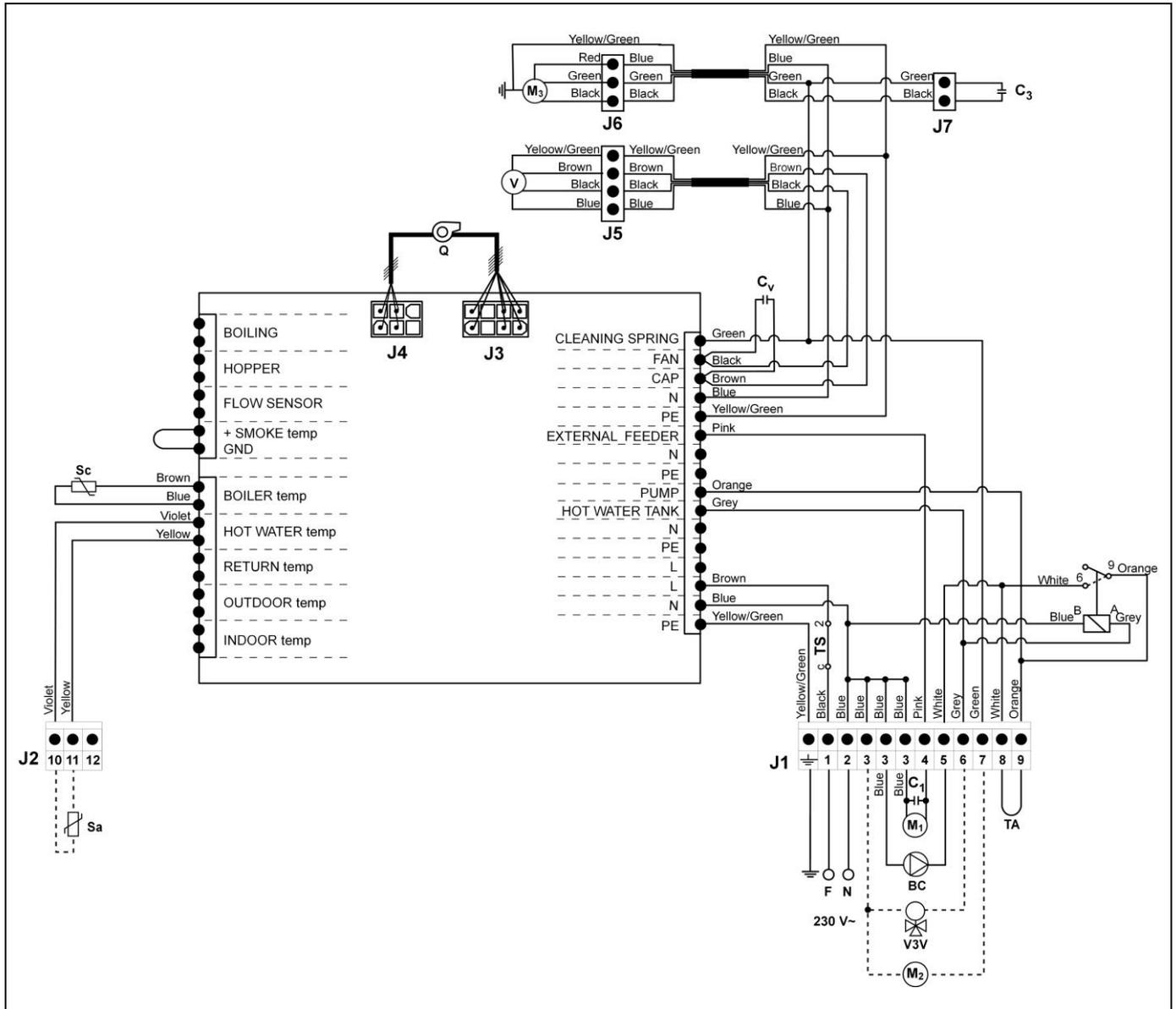


Reserve tank L



16 ELECTRICAL DIAGRAM

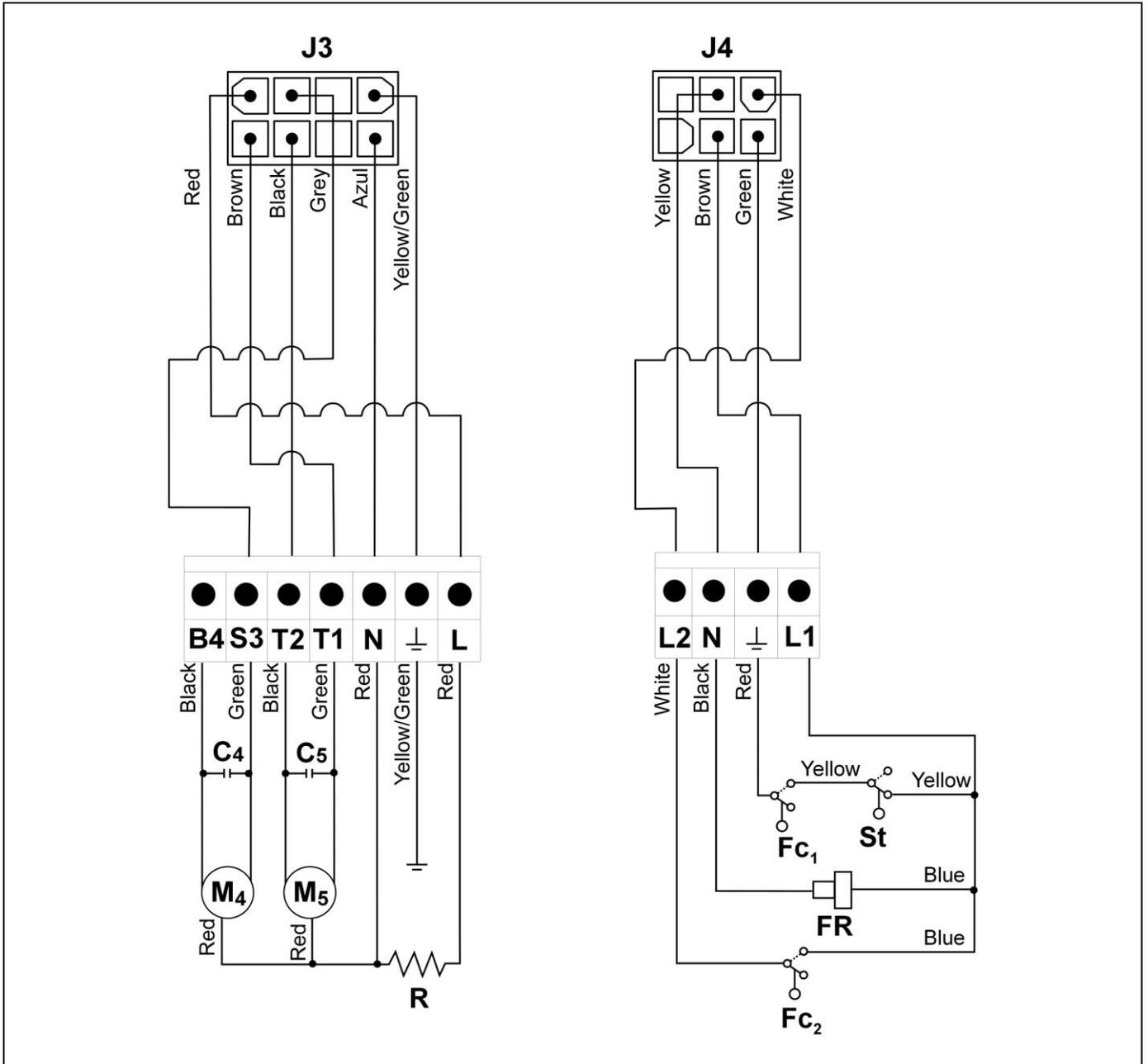
16.1 Boiler



- M₁**: Feed auger motor.
- C₁**: Feed auger capacitor.
- BC**: Circulating pump.
- V3V**: 3-way DHW valve.
- V**: Fan.
- C_v**: Fan capacitor.
- M₂**: Ash drawer compressor motor.
- M₃**: Vent cleaning device motor.
- C₃**: Vent cleaning device motor capacitor.
- TA**: Air thermostat.
- SA**: DHW sensor.
- Sc**: Boiler sensor.
- J1**: Supply connector.
- J2**: Sensor connector.
- J3**: Burner output connector.
- J4**: Burner input connector.
- J5**: Fan connector.
- J6**: Vent cleaning device motor connector.
- J7**: Vent cleaning device motor capacitor connector.

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16.2 Burner



J3: Burner output connector.

R: Element.

C4: Burner feed motor capacitor.

M4: Burner feed motor.

C5: Burner feed motor capacitor.

M5: Burner cleaning device motor.

J4: Burner input connector.

St: Temperature sensor.

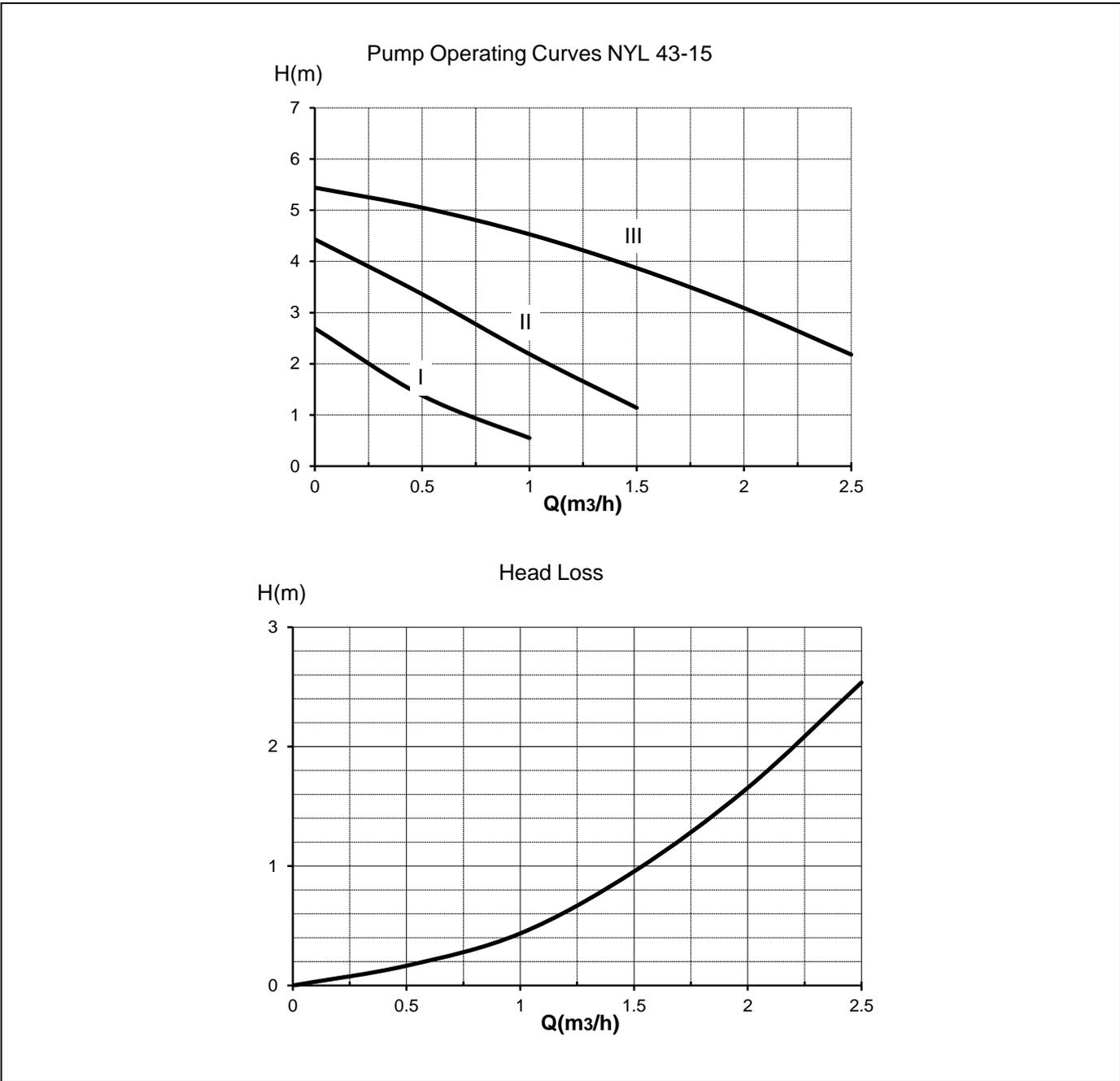
Fc1: Burner limit switch installed.

FR: Photocell.

Fc2: Burner cleaning device limit switch open.

17 CIRCULATING PUMP FLOW CURVES

The graphs below can be used to obtain the hydro motive pressure available in the installation at the external circulation kit output, taking the boiler pressure drop + external kit and pump functioning curves into account. The first graph shows the three functioning curves for the three circulating pump speeds, and the second graph shows the boiler pressure drop curve with the kit installed.



EKOHEAT

18 SENSOR SETTINGS

The table below shows the electrical resistance values for each temperature on the sensors connected to the boiler. To correctly measure these values, the sensors must be electrically disconnected from their corresponding terminal block:

NTC SENSORS (10 KΩ at 25 °C)			
R (ohms)	Temp. (°C)	R (ohms)	Temp. (°C)
230.973	-40	2.052	70
131.054	-30	1.514	80
76.919	-20	1.134	90
46.589	-10	861	100
29.054	0	662	110
18.615	10	515	120
12.229	20	406	130
10.000	25	323	140
8.222	30		
5.648	40		

19 ALARM CODES

The **EkoHeat** boiler has an electronic control that performs continuous self-testing to detect any boiler malfunctioning. When the electronic control detects a functioning error, this is indicated by an alarm code on the display. The table below shows a list of the alarm codes that may appear:

COD E	ALARM	CAUSE	ACTION
E01	CA boiler sensor.	The boiler sensor is not connected or is faulty.	Call the Technical Assistance Service.
E02	CC boiler sensor.	The boiler sensor has shorted.	Call the Technical Assistance Service.
E05	Burner error.	The burner is incorrectly fitted to the boiler.	Check the burner is correctly fitted to the boiler.
		The flashback safety thermostat has detected a temperature of over 120°C and has cut out boiler functioning.	Call the Technical Assistance Service.
E06	Flame detection.	The photocell is not detecting the flame.	Check the fuel content in the reserve tank. Calibrate the feed auger. If this error message appears repeatedly, call the Technical Assistance Service.
E07	Burner cleaning device.	The burner cleaning device has not completed the cleaning cycle.	Call the Technical Assistance Service.

20 GUARANTEE CONDITIONS

EKOPOWER's commercial guarantee covers the standard functioning of the products manufactured by **EKOPOWER** in accordance with the following conditions and time periods:

1. This **commercial guarantee** is valid for the following periods, as from the **start-up date**:

2 Years for electric and hydraulic elements: pumps, valves, etc.

5 Years for heat exchangers.

During the 2-year period following the start-up date, **EKOPOWER** will carry out any repairs of original flaws or defects totally free of charge.

After these 2 years have elapsed and until the end of the guarantee period, labour costs and call-out charges will be payable by the user.

2. The annual overhaul is not included in the terms of this guarantee.

3. The **start-up** and **annual overhaul** are to be carried out by personnel authorised by **EKOPOWER**.

4. The **commercial guarantee** will be null and void in the following cases:

- If the **annual overhaul** by personnel authorised by **EKOPOWER** has not been carried out.

- If the boiler has not been installed in accordance with the applicable laws and regulations for this type of appliance.

- If the boiler has not been started up immediately after its installation, by personnel authorised by **EKOPOWER**.

Failures due to misuse or incorrect installation, use of non-suitable power or fuel, supply with water with physical or chemical properties causing incrustation or corrosion, incorrect handling of the appliance and, in general, for any reason beyond **EKOPOWER's** control, are excluded from this guarantee.

This guarantee does not affect the consumer's rights as stipulated by law.

Note: Start-up is included in the price of the boiler. **The call-out charge is not included.**

