BIODOM

BIODOM X18 - X50

Installation and user manual



CUSTOMER COPY

WARRANTY CARD

PRODUCT TYPE		SERIAL NUMBER	
SELLER		DATE OF SALE	
INVOICE NO.			

CUSTOMER

Name and surname	
Street and house number	
Town and postcode	
Phone/mobile	
E-mail address	

Customer's consent to the use of personal data

Pursuant to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, by providing or filling in my personal and other data (name and surname, residential address, phone number and e-mail address) I declare that I have been informed of, agree to and expressly permit the use of my personal data for business purposes – for management and processing in the database of Biodom 27 d.o.o. and for communication by telephone, post and electronic means, whereby Biodom
27 d.o.o. may use various communication channels (e.g. telephone, ordinary mail, e-mail).
By signing, the customer/user permits Biodom 27 d.o.o. to pass on the above personal data to authorised third parties (contractual partners), but only for the purposes arising from this document. Biodom 27 d.o.o. undertakes to protect the personal data of the customer/user against disclosure and transfer to unauthorised persons.
Biodom 27 d.o.o. collects and processes the personal data obtained in accordance with the provisions of the law governing the protection of personal data.

By signing this Warranty Card, I as the customer/user voluntarily, expressly, knowingly and unambiguously give my consent to the management and processing of the above personal data for the business purposes of Biodom 27 d.o.o. The customer/user may withdraw the consent to the management and processing of his/her personal data at any time.

Customer's declaration of acquaintance with the instructions for correct use and maintenance and with the warranty conditions of the product

As the customer/user, I declare that I have been informed of:
- the basic characteristics of the purchased log boiler;
- the instructions for use, maintenance and installation of the log boiler;
- the safety warnings for the user;
- how to clean and maintain the log boiler properly;
- the components that require additional maintenance;
- the operating modes of the boiler;
- the instructions on when to call a service technician and whom to contact in the event of a boiler fault.

As the customer/user, I declare that I have been informed of the boiler alarm states listed in the instructions for use, maintenance
and installation of the boiler. I am also aware of the extent to which I can take care of the maintenance and correct operation of the boiler myself and of the faults for which a service technician must be called. If, after being called by the customer/user, the service technician performs an activity on the heating appliance that the customer/user should have performed himself/herself, such an intervention shall be charged to the customer/user.

SIGNATURE OF THE END CUSTOMER/USER: _____

INSTALLATION OF THE APPLIANCE

(TO BE COMPLETED BY THE INSTALLATION COMPANY)

Date of installation	
Name of the installation company	
Street and house number	
Town and postcode	
Phone/mobile	
E-mail address	
Installer's name and surname	
Serial number	
Installer's stamp and signature	

Remarks:

_____

_____

_____

_____

_____

COMMISSIONING OF THE APPLIANCE

(TO BE COMPLETED BY THE AUTHORISED SERVICE COMPANY)

Date of commissioning	
Name of the authorised company	
Street and house number	
Town and postcode	
Phone/mobile	
E-mail address	
Service technician's name and surname	
Serial number	
Service technician's stamp and signature	

Remarks:

_____

_____

_____

_____

PLEASE RETURN THIS COMPLETED AND SIGNED WARRANTY CARD TO BIODOM 27 d.o.o.

WARRANTY CARD

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SELLER		DATE OF SALE	
INVOICE NO.			

CUSTOMER

Name and surname	
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SIGNATURE OF THE END CUSTOMER/USER: _____

INSTALLATION OF THE APPLIANCE

(TO BE COMPLETED BY THE INSTALLATION COMPANY)

Date of installation	
Name of the installation company	
Street and house number	
Town and postcode	
Phone/mobile	
E-mail address	
Installer's name and surname	
Serial number	
Installer's stamp and signature	

Remarks:

_____

_____

_____

COMMISSIONING OF THE APPLIANCE

(TO BE COMPLETED BY THE AUTHORISED SERVICE COMPANY)

Date of commissioning	
Name of authorised company	
Street and house number	
Town and postcode	
Phone/mobile	
E-mail address	
Service technician's name and surname	
Serial number	
Service technician's stamp and signature	

Remarks:

_____

_____

_____

_____

Dear customer,

Thank you for purchasing a BIODOM X gasification boiler. These instructions are intended for the correct and economical installation and operation of the product. Before installing and using the product, read this manual carefully and keep it throughout the service life of the product. The installation, maintenance and servicing of this boiler may only be carried out by qualified professionals. When installing the boiler, selecting the room, designing the water circuit and the chimney, this manual and the mandatory regulations must be observed.

Carry out maintenance and cleaning work on your heating system regularly. Details are given later in this manual. This will ensure not only the reliable operation of your heating system, but also its efficient, low-emission operation.

Depending on the amount of fuel in the upper chamber, the output of your boiler will vary between 100% of the rated boiler output and a reduced value, depending on how much heat your heating system can take up and how much the boiler itself can deliver. We therefore strongly recommend installing a buffer tank. The buffer tank ensures the operational reliability of the appliance, improves heating response and energy saving, and protects the boiler against condensation caused by low inlet/outlet temperatures and against condensation of wood gases, which ensures efficient, low-emission operation of your boiler. The buffer tank must be installed with a three-way valve between the flow and return pipes of the boiler so that a higher boiler inlet temperature is maintained at all times.

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1. INTRODUCTION AND DELIVERY

Biodom X is a welded steel boiler designed for efficient burning of logs and used for heating buildings and producing domestic hot water. Main features and advantages of the gasification boiler:

- Fully electronic combustion control. Operation is controlled by an electronic board with useful functions, and the induced-draught flue gas fan runs according to the desired boiler outlet temperature. Fan speed modulation ensures accurate control of the boiler outlet temperature and high comfort. The heating circuit pumps always run at higher boiler temperatures, which reduces condensation and protects the heating surfaces of the boiler. The control panel has an additional contact for connecting a room thermostat. The control panel switches off the fan and pump when there is no more fuel in the firebox and warns the user. If the boiler temperature exceeds 110 °C, the control panel switches off the fan, the heating circuit pump keeps running, the system and boiler are protected, and the boiler warns the user.

A DHW tank can be integrated into the system, and the DHW pump can be controlled by the boiler's original control panel. When the loading door is opened, the induced-draught fan automatically switches to maximum speed for better flue gas extraction.

- Double-layer loading chamber: the dry inner surface with protective shields in the gasification chamber improves the gasification process and extends the service life of the boiler.

- Advantages of the flue gas fan: the induced-draught fan eliminates draught problems and keeps the combustion chamber under negative pressure at all times. It allows easy adjustment of primary and secondary air, which increases boiler efficiency. Automatic re-ignition of the wood is possible if a minimum amount of embers is still present in the firebox.

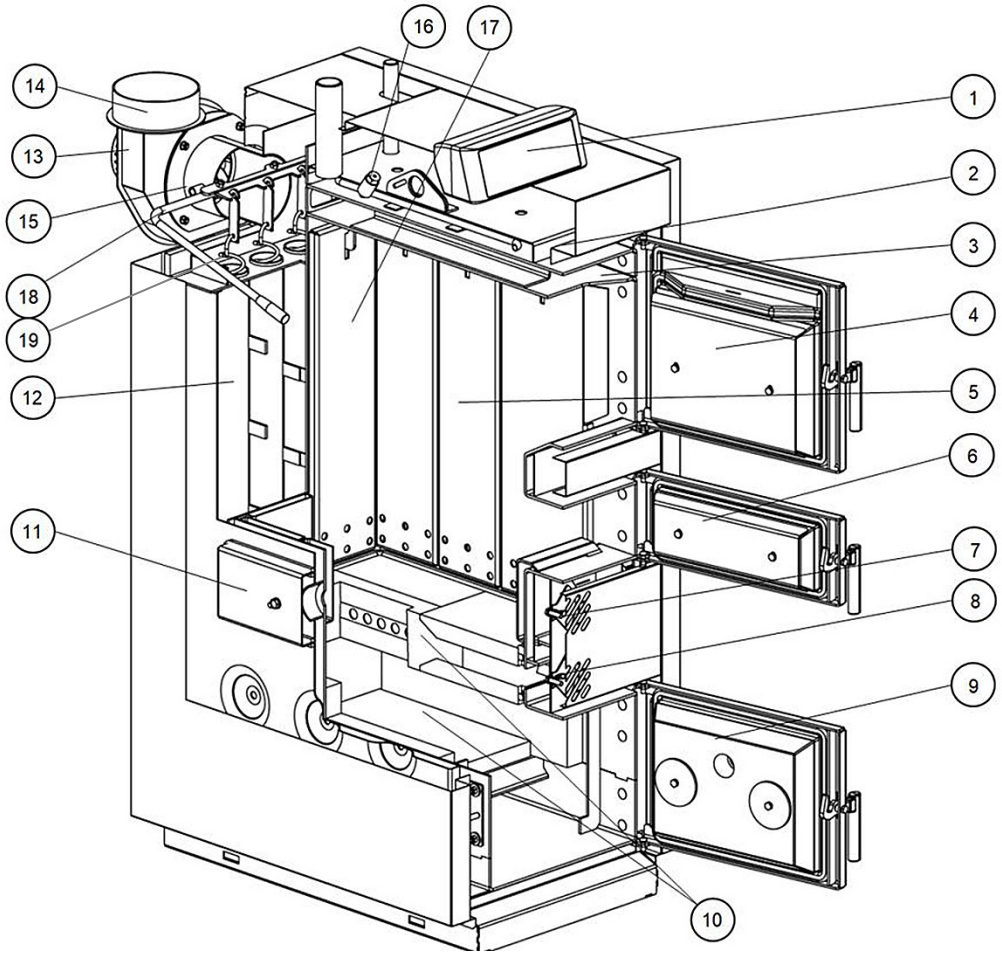
- Primary and secondary air control: manual adjustment of the primary and secondary air quantity helps to improve combustion and flue gas emissions. The primary and secondary air dampers are factory-set for each model for optimum combustion.

- High-temperature-resistant refractory burner: the special cast high-alumina refractory burner with reinforcing additives against thermal stress and moisture can operate at up to 1600 °C and ensures good mixing of the wood gas with secondary air, which improves combustion and emissions.

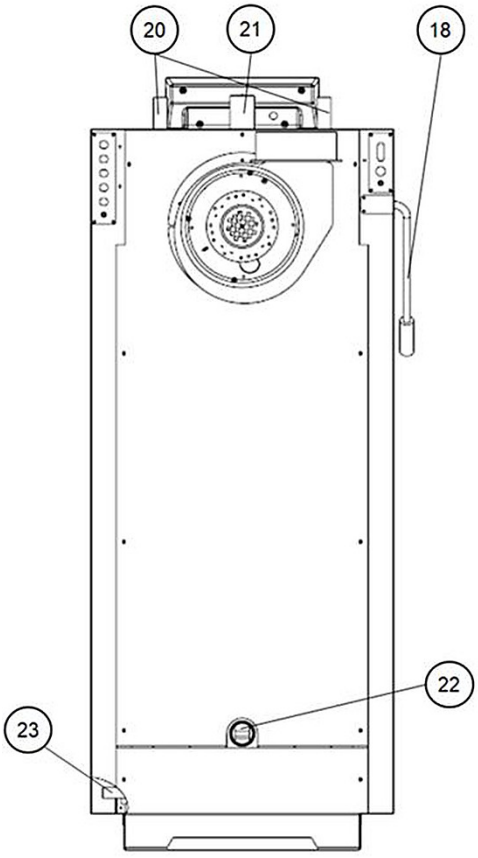
- High efficiency thanks to an enlarged heating surface: additional water-cooled surfaces in the combustion section, designed on the principle of three horizontal flue gas passes, increase heat transfer and lower the flue gas temperature; average efficiency is 90%.

- Built-in cooling loop for overheating protection: a copper-pipe cooling loop is built into the boiler. The inlet and outlet connections of this cooling loop are on the outside, on top of the boiler. For correct operation of the safety system, a thermal safety valve must be fitted that is activated at high water temperature. Regardless of whether the hydraulic circuit is open (vented) or sealed (pressurised), a safety valve must be used in the system to meet the requirements of the relevant European standard for this product and to ensure the safety of the entire heating installation and of the boiler itself.

The Biodom X log boiler is supplied in a single package on a wooden pallet, complete with control panel, fan, manual, cleaning brush, fuel scraper and the control system, which is factory-fitted.



1 *Control panel*
2 *Door switch*
3 *Flue by-pass*
4 *Front loading door*
5 *Fuel chamber (gasification)*
6 *Ignition and cleaning door*
7 *Primary air damper*
8 *Secondary air damper*
9 *Front ash door*
10 *Refractory chamber and burner*
11 *Primary air manifold*
12 *Heat exchanger tubes*
13 *Induced-draught fan*
14 *Flue outlet*
15 *Flue gas temperature sensor*
16 *Boiler sensor*
17 *Loading chamber protective plates*
18 *Flue tube cleaning lever*
19 *Turbulators*
20 *Cooling loop connection for safety valve (3/4")*
21 *Flow (hot water outlet) (1 1/2")*
22 *Return (1 1/2")*
23 *Filling/draining (1/2")*



2. SAFETY WARNINGS

2.1. Basic safety instructions

- Never put yourself at risk; your own safety always comes first.
- Keep children away from the boiler room and fuel store.
- Observe all instructions regarding operation, maintenance, servicing and cleaning.
- The heating system may only be installed and commissioned by an authorised installer.

Professional installation and commissioning are essential for safe and economical operation.

- Never modify the heating or flue system yourself.
- Never close or remove safety valves.

2.2. Warning signs

DANGER - Risk of poisoning

- Make sure the boiler has enough combustion air.
- Ventilation systems, central vacuum systems, extractor fans, air conditioners, flue gas blowers, dryers or similar equipment must not draw air from the boiler room and create negative pressure in it.
- The boiler must be connected tightly to the chimney by a flue pipe.
- Clean the chimney and flue pipe regularly.
- Sufficient air must be supplied to the boiler room. The boiler room must be ventilated.

DANGER – Risk of electric shock

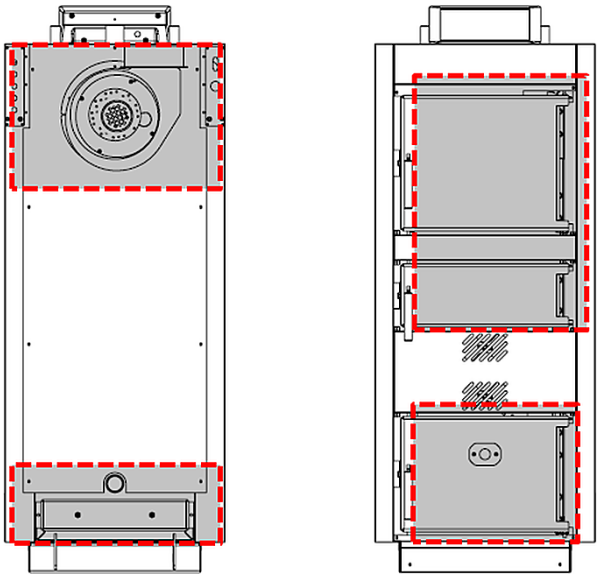
- Switch off the system before working on the boiler.
- The appliance must be earthed!
- The electrical installation of the boiler must be carried out by an authorised installer in accordance with mandatory regulations and codes of practice and with the instructions given in this manual.

DANGER – Risk of explosion or fire

- Never burn petrol, diesel or other explosive substances in the boiler or fuel store.
- Never use liquids or chemicals to light the wood.
- Do not store flammable materials in the boiler room.
- Do not hang laundry in the boiler room.
- Always keep all boiler doors closed.
- Store firewood in another room or leave a clearance of at least 80 cm between the boiler and the woodpile.

DANGER – Risk of burns

- Do not touch the flue connection and flue gas pipes.
- Do not touch the surfaces of the doors (except the door handles), the rear cleaning covers, the flue connection or the working surfaces of the boiler while it is firing – these parts are marked with a red rectangle on the right.
- Do not reach into or clean the inside of the boiler until it has cooled down completely.



CAUTION – Sharp edges

Risk of cuts from sharp edges.

- Always wear protective gloves when working on the boiler.

WARNING

Damage to property

- Adverse external influences, such as insufficient combustion air or unsuitable fuel, can cause serious combustion faults (e.g. sudden ignition of the gasification gases or flashback) that can lead to a serious accident!
- Do not use the heating system if any of its components has come into contact with water.
- In the event of water damage, have the heating system inspected by an authorised service technician, who will replace damaged parts if necessary.

2.3. What to do in an emergency

What to do in the event of fire

- Switch off the heating system.
- Call the fire brigade.
- Use approved fire extinguishers.

What to do if you smell smoke

- Switch off the heating system.
- Close the doors to living areas.
- Ventilate the boiler room.

3. NOTE ON GASIFICATION AND CORRECT CHOICE OF FUEL – WOOD

Wood and gasification: it is very important that wood gasification boilers operate under special conditions. The average boiler temperature should be about 70–80 °C. At lower temperatures the gasification process does not run correctly, which results in higher fuel consumption and lower heat output.

Drying the wood in the loading chamber (gasification chamber) is an essential stage of the gasification process. At lower boiler temperatures the wood does not reach the right temperature, so the whole process does not run correctly. The main heat source in the loading chamber is the wood gas flame produced during gasification. If the main conditions for correct gasification are not met, neither the quality nor the quantity of the wood gas will be adequate.

Correct fuels: only firewood may be burned in the gasification boiler. The wood must be dry. It is important to know that the calorific value of wood depends mainly on its moisture content. The water content of the wood must be between 12 and 20%. The water content can easily be measured with a simple moisture meter available in shops.

Firewood must be split and cut to size so that it fits into the loading chamber. Unsplit logs and square-cut pieces are not suitable for burning. The length of the logs should be as close as possible to the depth of the loading chamber. Larger logs must be sawn into smaller pieces so that they fit the loading chamber as well as possible. It is best to split logs before stacking them for drying.

The calorific value of the firewood should be between 15 and 17 MJ/kg. Recommended fuels:

WOOD	Calorific value per 1 kg		
	kcal	MJ	kWh
Spruce	3900	16,2	4,5
Pine	3800	15,8	4,4
Birch	3750	15,5	4,3
Oak	3600	15,1	4,2
Beech	3450	14,4	4

For boiler operation in full gasification mode with optimised efficiency

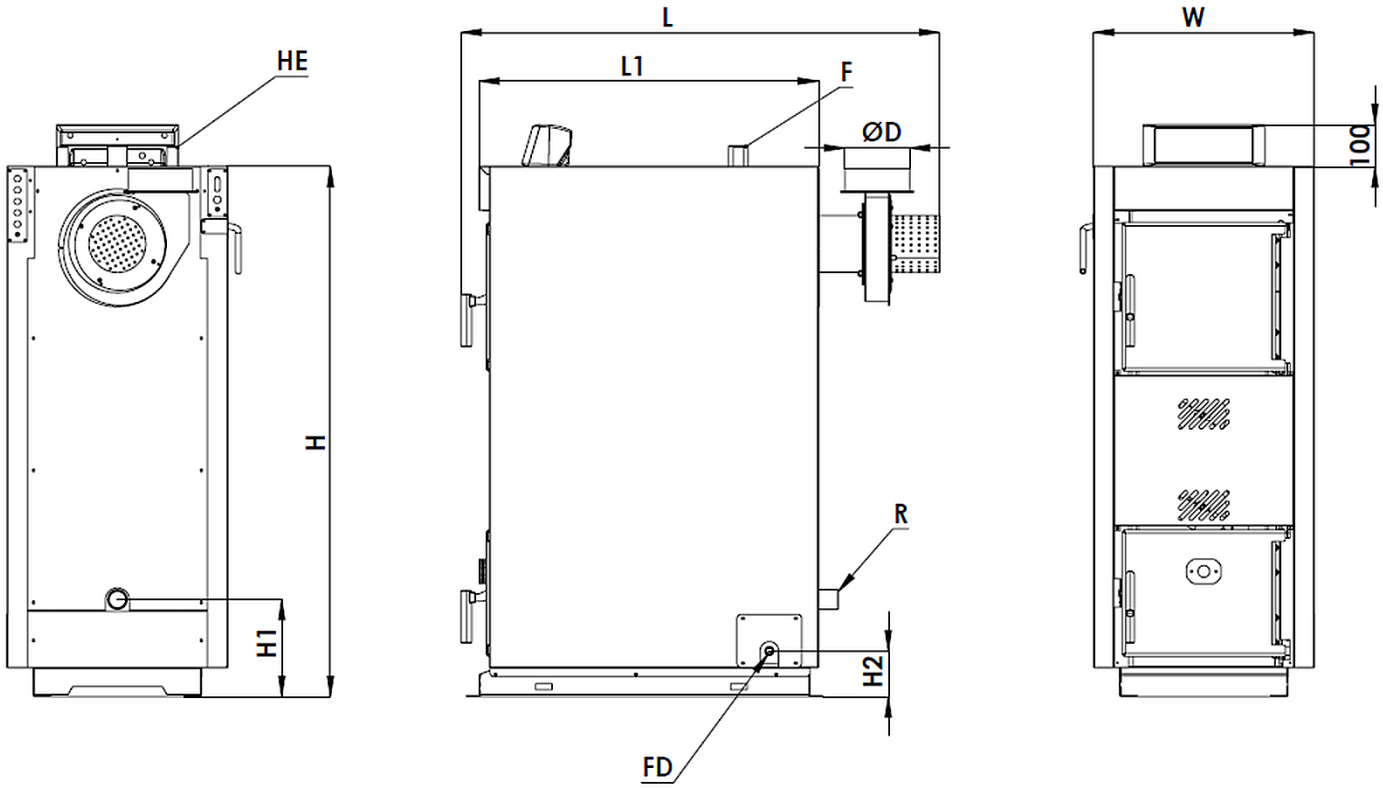
- The boiler inlet and outlet temperatures should be as high as possible (average values should be 70–80 °C).
- Use dried logs meeting the parameters above.
- Fill the fuel chamber completely and operate the boiler at the declared maximum output. The boiler must not operate continuously at an output below 50% of its rated output. The most environmentally friendly operation of this boiler is achieved at rated output.
- Use a buffer tank whose size matches the heat output of the boiler.
- Clean the boiler surfaces regularly and prevent excessive build-up of deposits; this will have a positive effect on boiler operation.
- All the precautions listed above will also reduce condensation and tar formation on the boiler surfaces, especially in the loading chamber, thus protecting the boiler material against corrosion and extending its service life.

4. TECHNICAL DATA

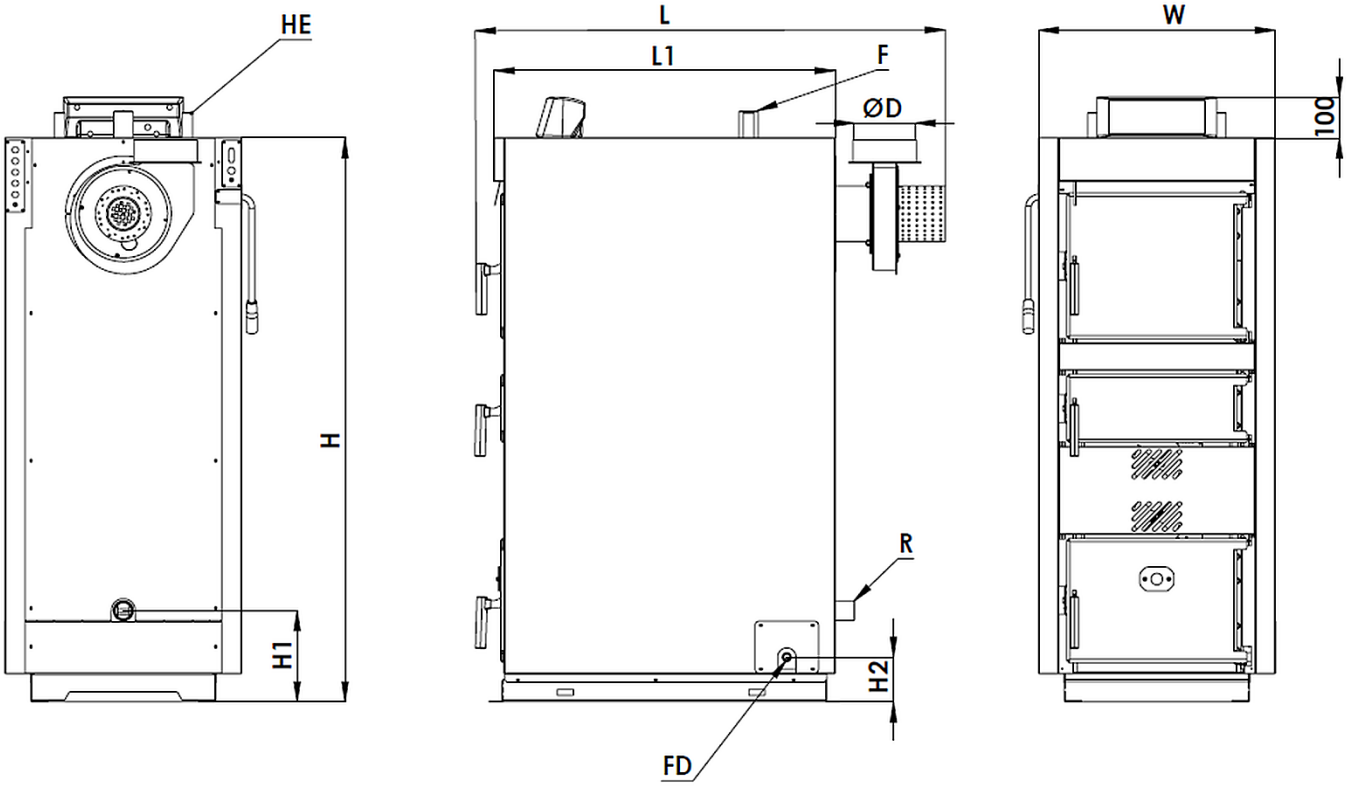
Model		BIODOM				
Type		**X 18**	**X 25**	**X 32**	**X 40**	**X50**
Log boiler description		Welded steel log boiler for dry wood, with pyrolytic combustion principle and negative pressure in the combustion chamber, generated by an induced-draught fan on the flue pipe.				
Fuel		Dry wood logs				
Rated output	kW	18	25	32	40	48
Net weight	kg	405	465	480	580	680
Water content	l	72	87	91	124	155
Heating surface	m2	2,60	3,10	3,25	4,30	5,50
Combustion chamber volume	dm3	90,0	120,0	130,0	140,0	220,0
Maximum log length	cm	50,0				60,0
Loading opening size (H x W)	mm	280x320	280x370		350x370	350x470
Flue gas temperature	°C	< 150				
Required chimney draught (min.–max.)	Pa	8 - 23				
	mbar	0,08 - 0,23				
Temperature range	°C	65 - 90				
Maximum operating temperature	°C	100				
Minimum return water temperature	°C	65 (recommended)				
Safety system activates at	°C	95				
Maximum operating pressure	bar	3				
Water connections (F/R)	R	1 1/2"				
Cooling loop dimensions (HE)	R	3/4"				
Filling and draining connection dimensions	R	1/2"				
External boiler dimensions						
H	mm	1325	1425	1475	1545	1545
H1	mm	240				
H2	mm	125				
W	mm	545	595	595	595	695
L1	mm	840	855	855	855	1050
L	mm	1160	1175	1175	1175	1270
D	mm	160				
Electrical connection		230 V / 50 Hz				
Power consumption	W	50	55	55	60	60

Fuel type		Dry wood logs
Burn time with full loading chamber	Hours	6 to 8
Required wood properties		Permitted water content 12–20%
		Average calorific value 15,000–17,000 kJ/kg
Permitted log dimensions		Diameter 7 cm to 15 cm

X18



X 25 - X50



5. INSTALLATION

5.1. Handling the product

BIODOM X is a heavy product, so take care when moving the boiler into the room where it will be installed. To avoid damage during transport, move the boiler with a forklift or pallet truck. Use the transport bearers of the wooden pallet.

NOTICE – Damage to property
• Do not use hard or sharp objects when removing the boiler packaging, so as not to damage the casing.

5.2. Choice of room

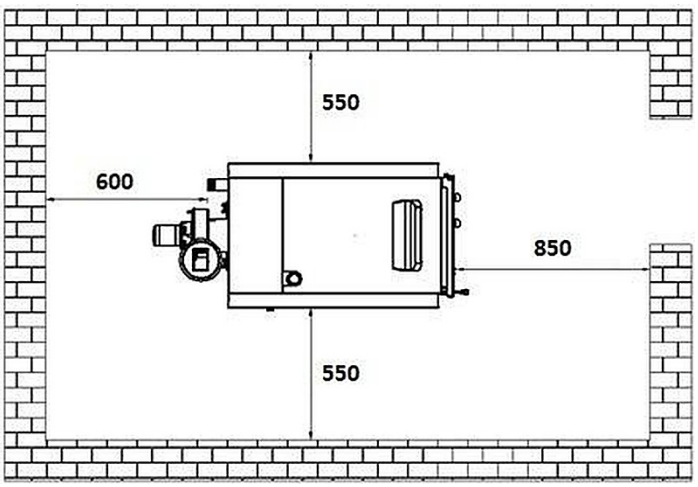
The boiler must be installed in a separate boiler room intended solely for heating. The boiler room must be large enough for installing, firing and maintaining the boiler. A sufficient supply of fresh combustion air must be ensured, and the chimney must provide adequate draught for this boiler type and comply with the building requirements given in this manual and in the mandatory regulations. Never install the boiler outdoors or on balconies, in living areas such as the kitchen, living room, bathroom or bedroom, or in rooms containing explosive or flammable materials.

The boiler room must have ventilation openings: one no more than 40 cm below the ceiling and the other no more than 50 cm above the floor. These ventilation openings must always be kept open. The upper opening must be at least 40x40 cm and the lower one at least 30x30 cm. All hydraulic and electrical installations must be carried out by authorised personnel in accordance with mandatory regulations. Solid fuels must be stored at least 80 cm from the boiler. We recommend storing logs in another room. The boiler must be installed on a concrete base made of fire-resistant material. The minimum base dimensions are given in the following table:

Model		X-18	X-25	X-32	X-40	X-50
Height	mm	50				
Width	mm	550	600			700
Length	mm	850	900			1100

5.3. Clearances around the boiler

At least the following clearances must be kept around the boiler (in mm):



5.4. Circulation pump

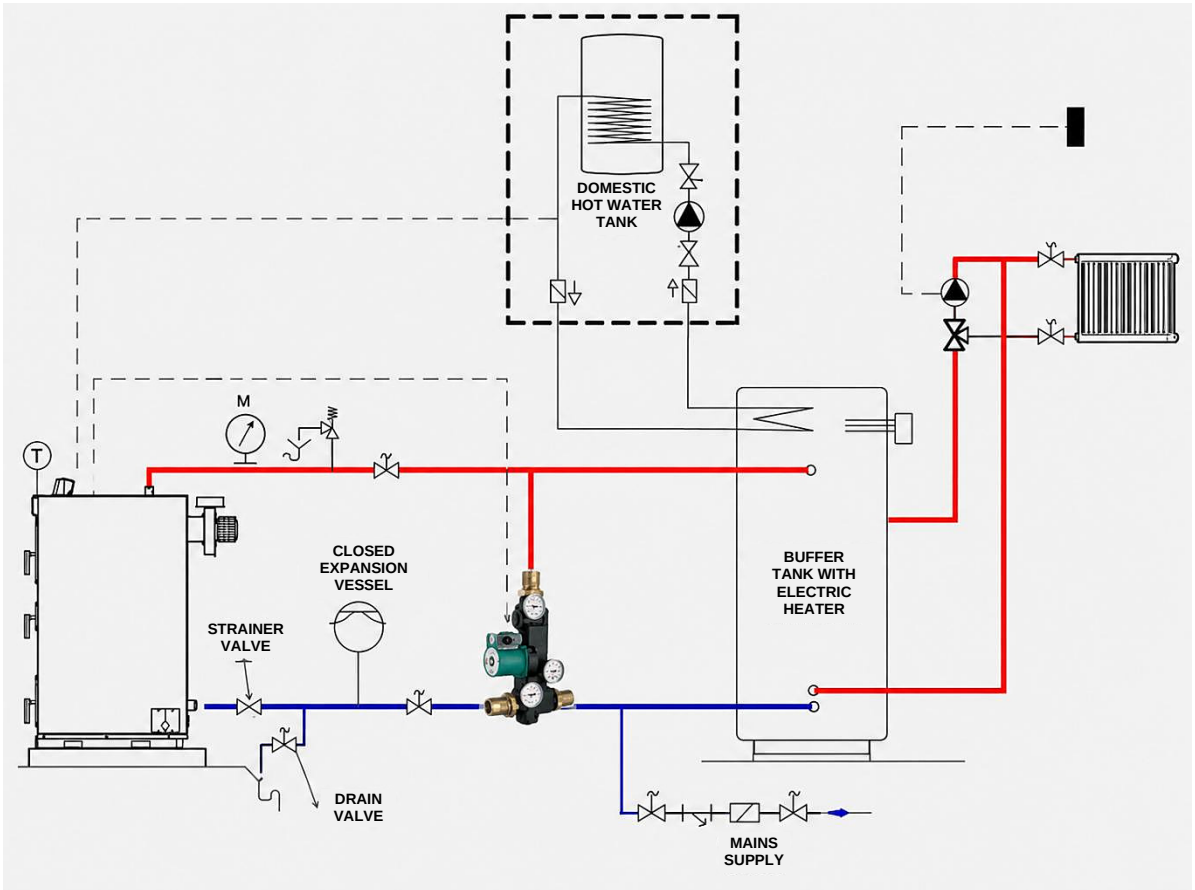
We recommend a forced water circulation system with a sufficiently powerful circulation pump. The correct position of the pump in the hydraulic circuit is shown in the system diagrams in this manual. The boiler switches the pump on and off automatically according to the program stored in the PCB. The circulation pump must therefore be controlled by the control panel. The pump wiring is at the rear of the boiler. The pump starts automatically when the boiler water temperature exceeds the pump set value and switches off automatically when the temperature falls below this value. This function helps to prevent condensation in the boiler and chimney.

5.5. Rules for the hydraulic circuit

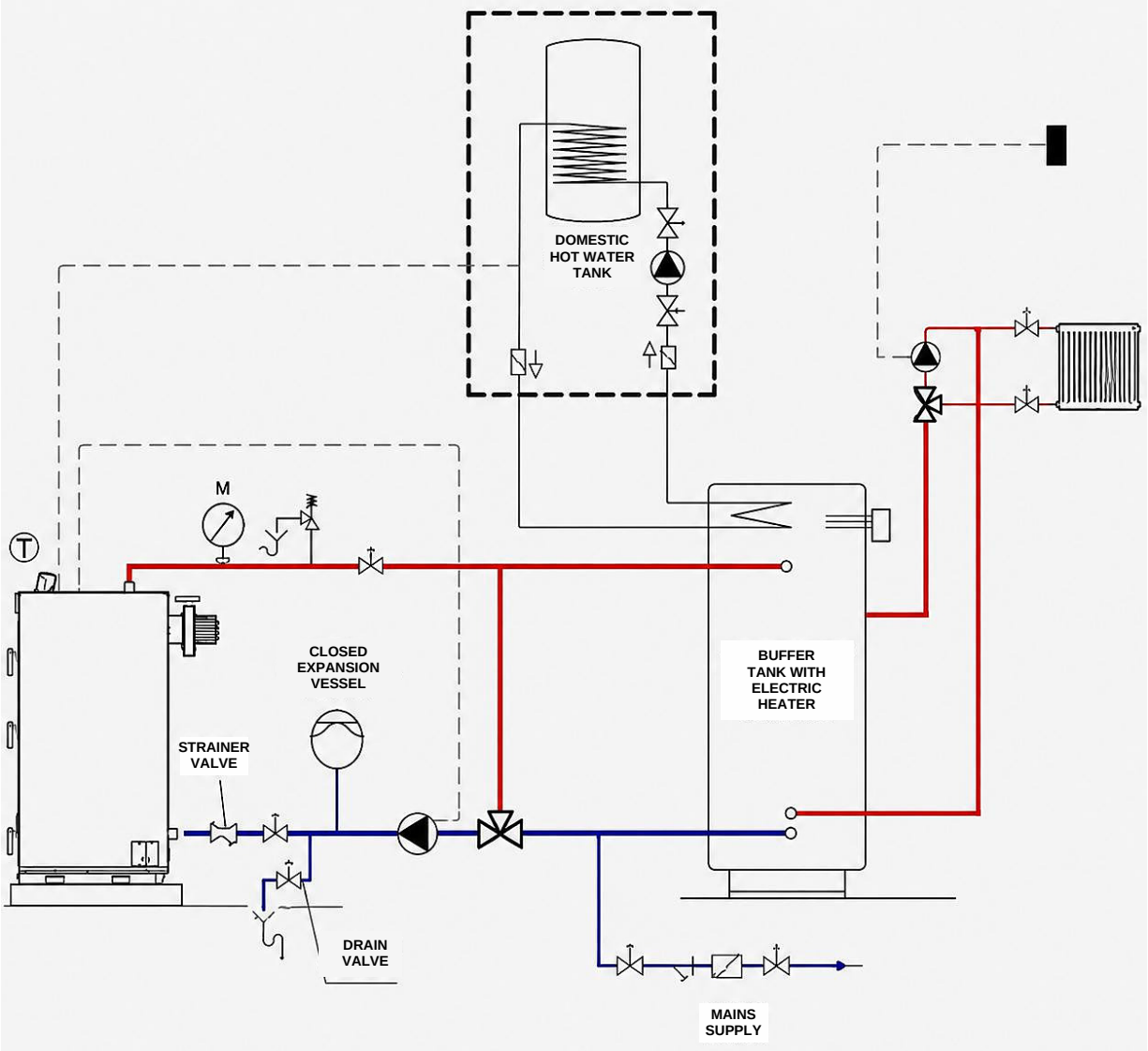
Ideally, the boiler should be installed in a pressurised heating circuit together with a buffer tank and a closed expansion vessel according to the following diagram.

If you install the boiler together with a buffer tank and a regulating unit with built-in flow control, you will achieve higher heating system efficiency, greater comfort and better protection of the system components. We therefore recommend following the installation diagram with regulating units available on the market (e.g. Laddomat-21, Regulus Thermovar LK810). For correct sizing of the regulating unit and buffer tank in relation to your boiler and the total heated area, follow the instructions of the regulating unit manufacturer.

We recommend a heat storage volume of 50 to 70 litres per kW of boiler output if the system is based solely on wood heating and is not combined with oil or gas heating. In any case, this volume must not be less than 25 litres per kW of boiler output.



For the diagram above:
- The electrical output for the circulation pump must be connected to the pump of the regulating unit, and the pump activation temperature must be set to the minimum value on the boiler control panel.
- The boiler outlet temperature must always be set to 80 to 90 °C to charge the buffer tank.
- The system pump between the buffer tank and the radiators must be controlled externally, preferably by a room thermostat that can be purchased by the end user. If necessary, or for greater comfort with regard to the system water temperature, a manually adjustable three-way valve can be added to the radiator system between the flow and return lines.
- The DHW pump is controlled by the boiler; the DHW thermostat is fitted as standard. If a regulating unit cannot be installed, the following diagram can be implemented with a buffer tank:
- A thermostatic three-way valve matching the boiler flow connection size (65 °C) must be installed between the boiler flow and return pipes.
- The electrical output for the circulation pump must be connected to the pump in the bypass line, and the pump activation temperature must be set to the lowest value on the boiler control panel. -
The boiler outlet temperature must always be set to 80 to 90 °C to charge the buffer tank.



NOTICE - Heating circuit safety

- Install a ½" safety valve with a maximum opening pressure of 3 bar.
- Install a pressure gauge to monitor and check the water pressure in the system. When the water is cold, the system pressure must be set to 1–1.5 bar.

WARNING - Risk of corrosion

- Your boiler is highly resistant to corrosion. However, all metal surfaces in the entire heating circuit, such as pipework and radiators, must be protected against corrosion. Oxygen in the heating water can cause rust through oxidation and consequently loss of material on ferrous metal surfaces.

  During the first filling, all oxygen (air) must be removed from the system. In general, oxidation will not
- be a problem if all measures are observed during the first filling. Oxidation occurs when fresh water is added to the system while the boiler is operating. Leaks in the system cause oxygen to enter the heating water. The minimum water pressure in the pressurised heating circuit must therefore always be above atmospheric pressure. In addition, the pressure must be checked regularly.

CAUTION - For new installations

- The system must be sized and designed so that topping up with fresh water is kept to a minimum. Make sure that no part of the system is made of gas-permeable material. The water for the first filling and all top-up water must be filtered (with synthetic or metal mesh filters with a filtration rating of at least 50 microns) to prevent sludge formation and corrosion caused by deposits. The minimum water pressure in the heating circuit must always be above atmospheric.

CAUTION – New boiler installed in an old heating circuit

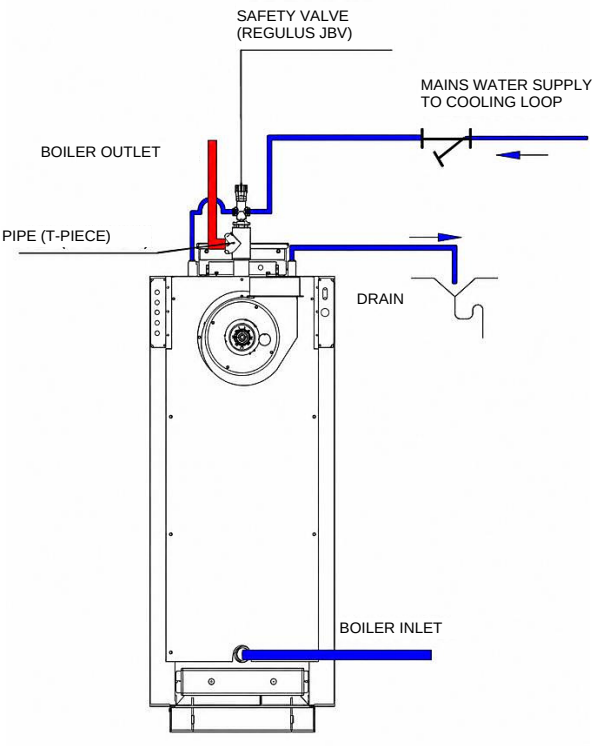
- In old systems that have been in use for a long time, a protective layer (black magnetite) has formed on all metal surfaces in contact with water. This layer protects the system against further corrosion. When a new boiler is installed in such an old system, the new parts with bare metal surfaces, especially the boiler surfaces, inevitably become the sacrificial anode of the entire heating system – in other words, they are the first to corrode. The following precautions must therefore be taken when installing a new boiler in an old system:
- If the old system has an open expansion tank, it can be converted into a pressurised system with all the necessary safety measures.
- The old system must be thoroughly flushed and all particles deposited on the surfaces removed.
- An air separator with manual venting must be installed at the highest point of the system.

5.6. Overheating protection

The boiler has a built-in copper cooling loop for overheating protection. When installing the boiler, the 3/4" cooling loop connections (inlet and outlet) on top of the boiler must be used for the safety circuit of the boiler and the entire heating system. The thermal safety valve must be purchased separately and installed according to the diagram below:

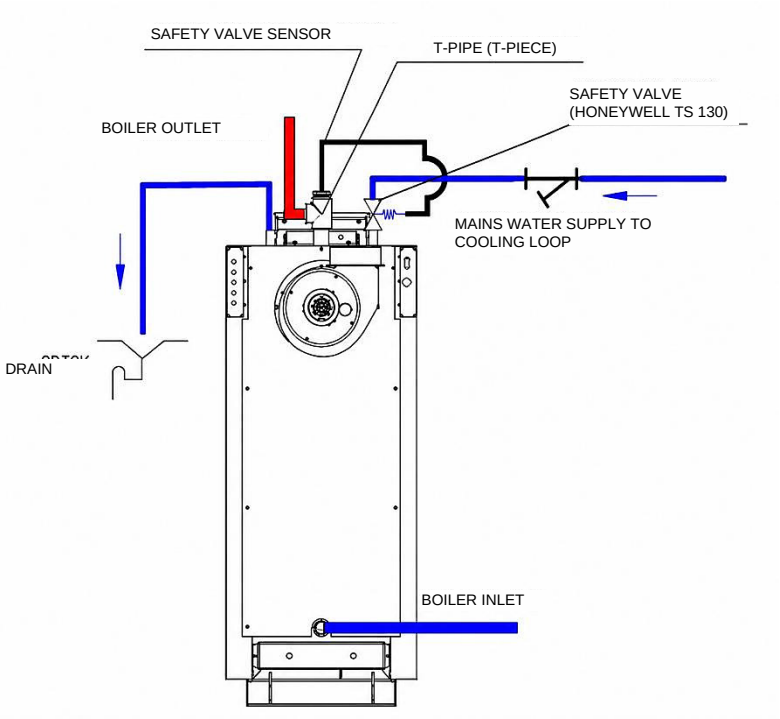
If the boiler water temperature exceeds 95 °C, the thermostat of the safety valve lets cold mains water flow through the safety cooling loop. The cold water circulating

through the coil cools the water in the boiler. When the boiler temperature drops below the safe limit, the safety valve stops the flow of cold mains water and the boiler returns to normal operation. The valves on the mains water connections of the safety heat exchanger must always be open. Cold water must never be fed directly into the boiler to remedy overheating, as this would cause serious damage to the boiler body. The warranty does not cover damage found to be caused by feeding cold water directly into a hot boiler or by improper use.



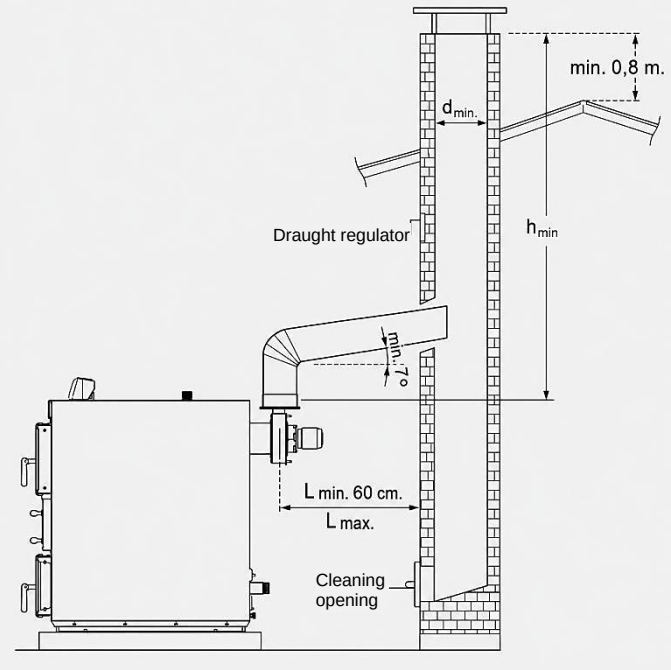
NOTICE

- The cold water pressure for the safety heat exchanger must be reduced to 2 bar before the safety valve inlet.



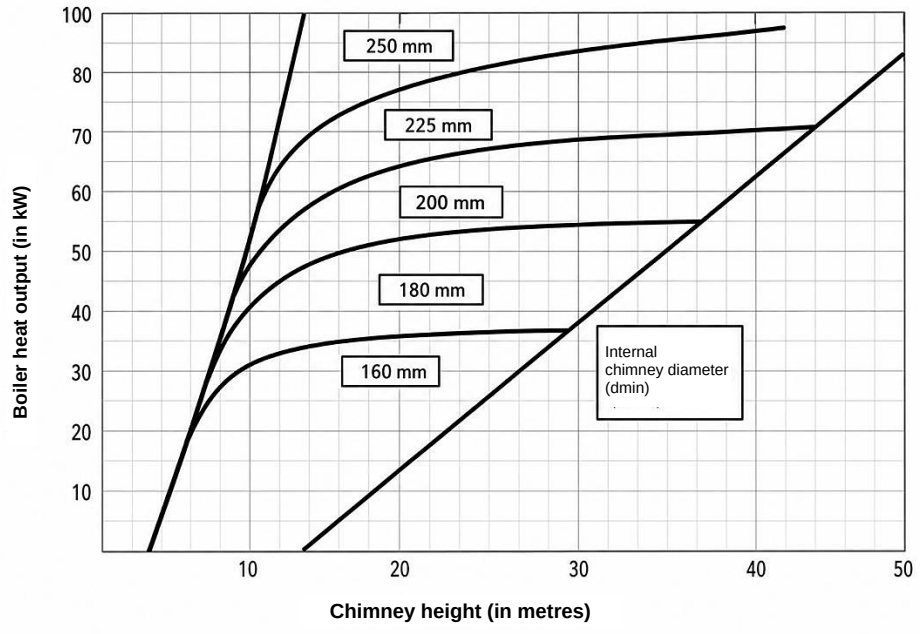
5.7. Chimney connection

The boiler must be connected to a chimney that provides at least the minimum required draught. The flue pipe between the boiler and the chimney must be insulated with glass wool. The flue pipe and chimney must be made of steel or an equivalent material suitable for temperatures of around 400 °C. For good combustion and efficiency, all joints of the flue system must be sealed. The flue pipe must be connected to the chimney by the shortest route and in accordance with the dimensions given in the following diagram. Horizontal sections and parts that increase pressure losses, such as elbows, must be avoided.



Vertical single-wall pipes must not be used as a chimney. The chimney must have an inner and an outer shell. The outer shell may be made of steel or brick. Stainless steel is preferred for the inner chimney elements because of corrosion. The space between the inner and outer shells of the chimney must be insulated to prevent condensation of the flue gases.

There should be a steel cleaning cover at the bottom of the chimney that seals without leakage. The length of the flue pipe between the boiler and the chimney must not exceed ¼ of the chimney height. The cross-section of the flue pipe and chimney must not be smaller than the boiler flue gas outlet connection. The total height and minimum internal diameter of the chimney depending on the boiler output are given in the following diagram, unless mandatory regulations specify otherwise.



5.8. Electrical installation and wiring

The boiler is supplied with 230 V. In installations where the voltage is lower than 205 V or higher than 230 V, a voltage regulator must be used. The wall socket must be effectively earthed and installed no more than 50 cm from the boiler, with a circuit breaker with a contact gap of at least 3 mm. 3x1.5 TTR cables must be used if
new electrical wiring is required.

WARNING

All electrical installation work must be carried out by authorised persons in accordance with mandatory regulations and codes of practice. The control panel on the boiler may only be opened by qualified personnel. The warranty does not
cover damage resulting from unauthorised interference with the electrical installation or the control panel.

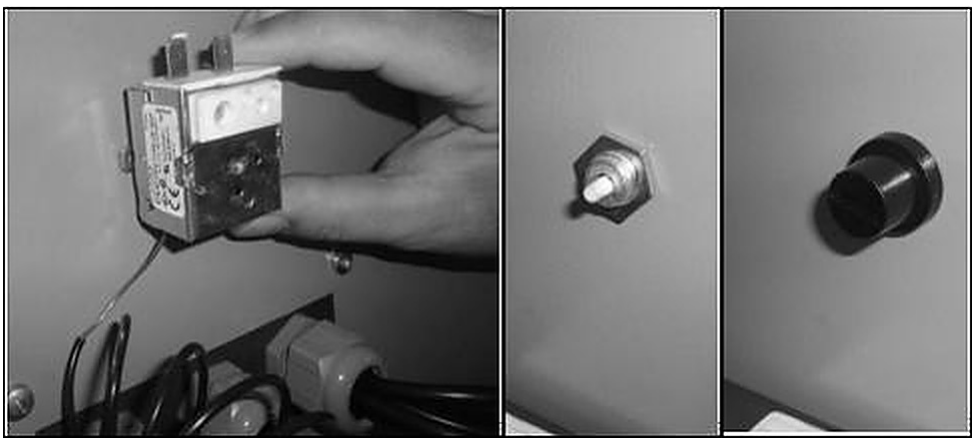
Follow the instructions below to complete the assembly of the equipment supplied with the boiler:

1. Remove the top casing of the boiler. Before fixing the control panel to the top part, first route all wires and the sensor cable through the holes in the top panel. Fix the control panel to the casing with the four M5 screws supplied with the boiler.

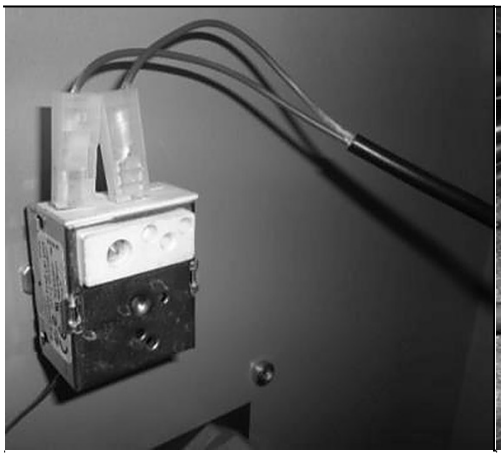


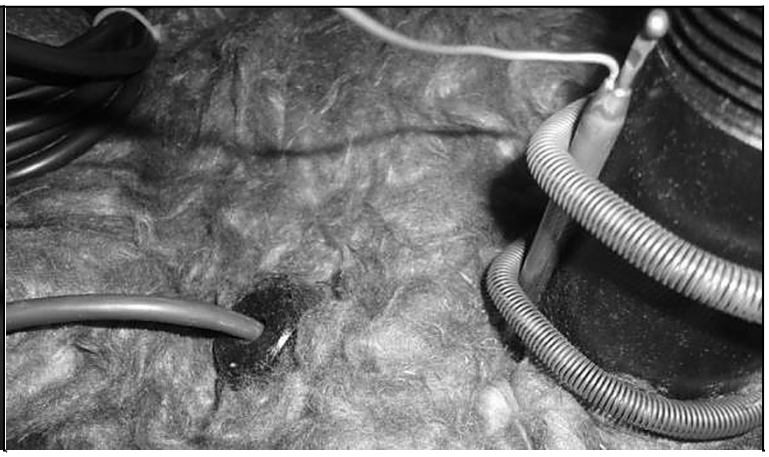


2. Fix the safety thermostat to the top panel and insert its reset button through the corresponding hole in the top cover behind the control panel. Secure the thermostat with the original washer and plastic cap as shown in the following figures.



3. Connect both ends of the safety thermostat wire from the control panel to the safety thermostat terminals as shown in the following figure. Fix the safety thermostat bulb to the boiler hot water outlet pipe using the spring supplied in the accessory pack. Insert the NTC sensor of the boiler thermostat (from the control panel) into the immersion pocket on top of the boiler in front of the hot water outlet pipe.

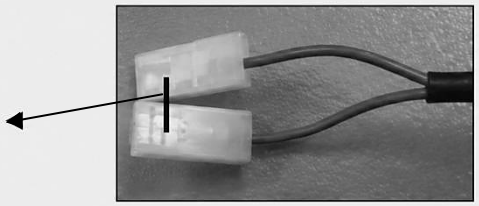




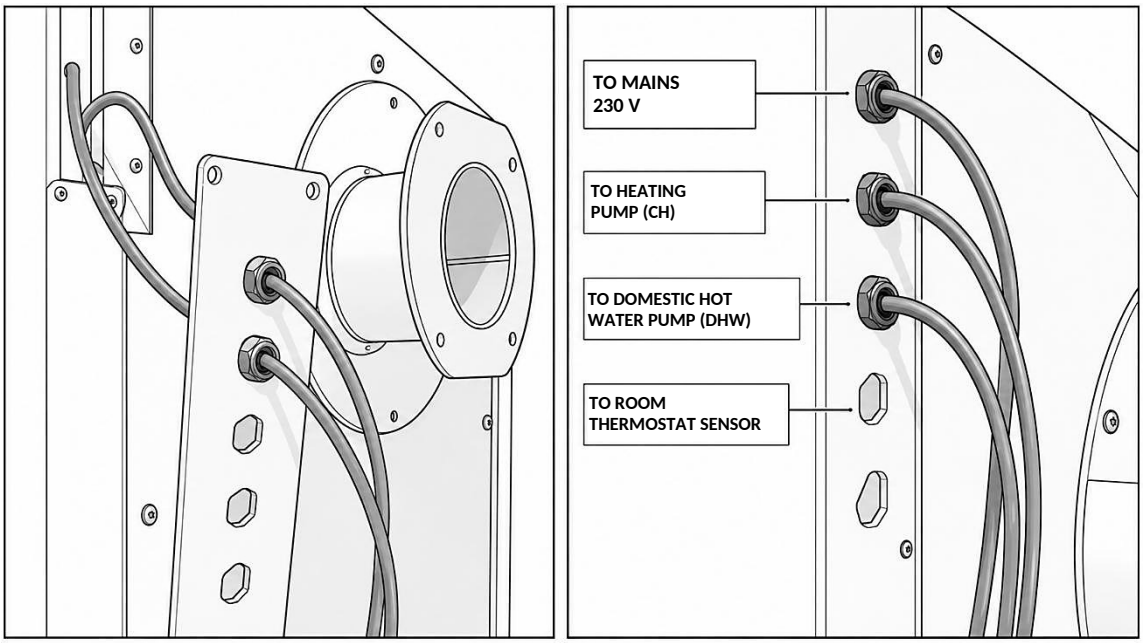
NOTICE – Wiring

Note on wiring markings: each terminal on the control panel is marked with the name of the corresponding equipment. Make sure you connect each item to the correct terminal.

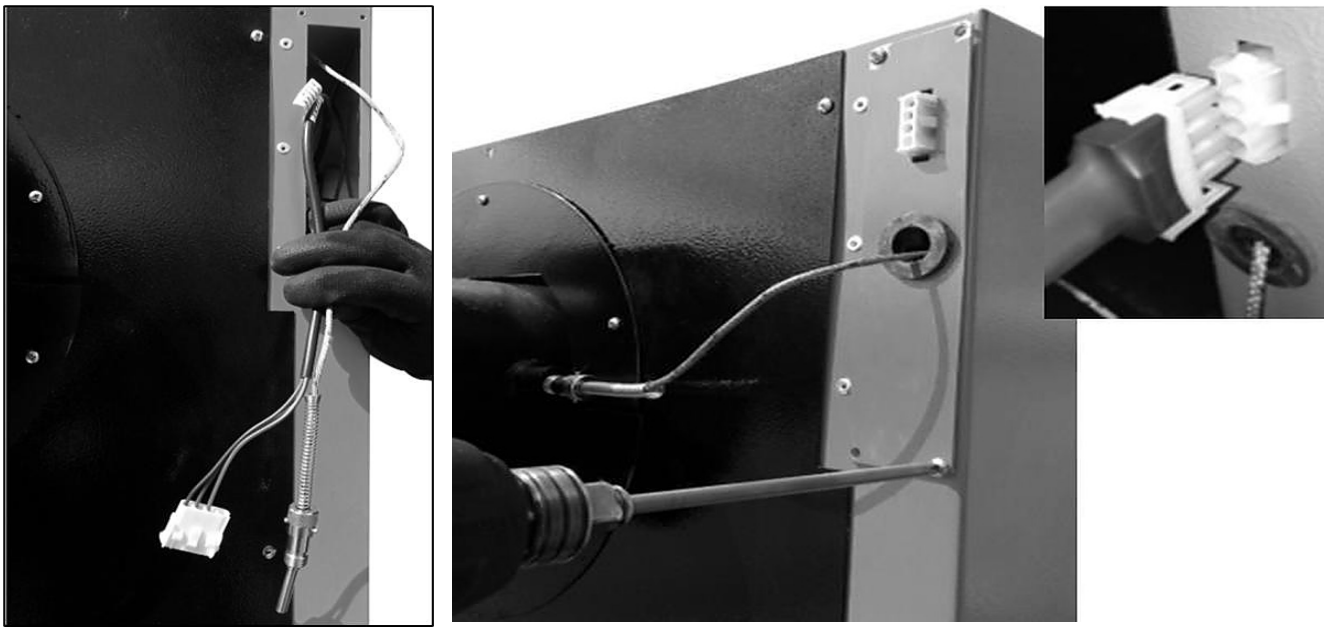
POMPA	boiler pump
VENTILATOR	flue gas fan
MAIN POWER SUPPLY	230 V power supply
DHW TANK PUMP	DHW tank pump
ODA TERMOSTATI ***ROOM THERMOSTAT***	room thermostat (jumper if not used)
EMNİYET TERMOSTATI ***SAFETY LIMITER***	STB safety thermostat
KAPI KONTAK	door switch
NTC DHW TANK SENSOR (SV)	DHW tank sensor (long)
NTC BOILER SENSOR	boiler sensor (short)



4. There are left and right cable ducts with openings at the rear of the boiler. These cable ducts allow easy connection of the cables to the connection points. Route the cables from the control panel outwards through the cable ducts, use cable clips and fix the cables and clips to the cable duct cover. Then fit the covers to the casing as shown in the following figures. If you use a DHW tank, fit the "PTV NTC" sensor to the DHW tank (enable the DHW function on the control panel – see the next chapter).

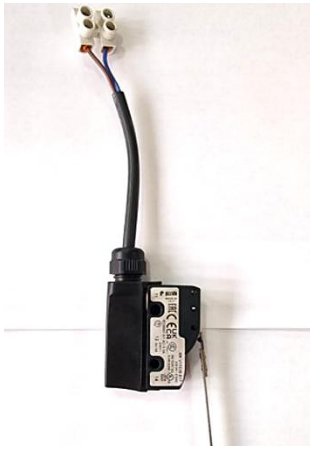


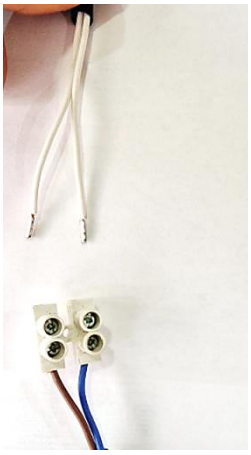
5. Fix the fan wiring from the control panel, which ends in a female connector, to the other cable duct cover as shown in the following figure. Connect the fan wiring with the male connector at its end to the female connector fixed to the cable duct cover. For the flue gas sensor, fit the rubber grommet to the cable duct cover, having first routed the sensor through the rubber grommet in the side panel of the boiler.

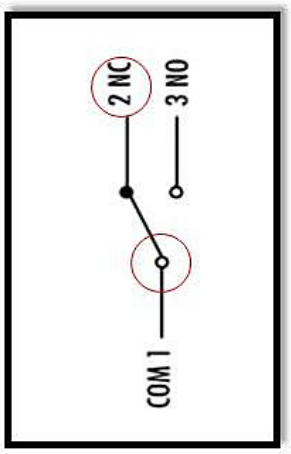


6. Make the electrical connection of the door switch according to the figures below. The switch and the switch cable

are connected at the factory. Connect only the wires from the control panel to the switch cable terminals. The contact element of the switch must always be located between the boiler casing and the front door. Otherwise, if the contact element is located in front of the door, the switch itself may be damaged when the front door is opened.







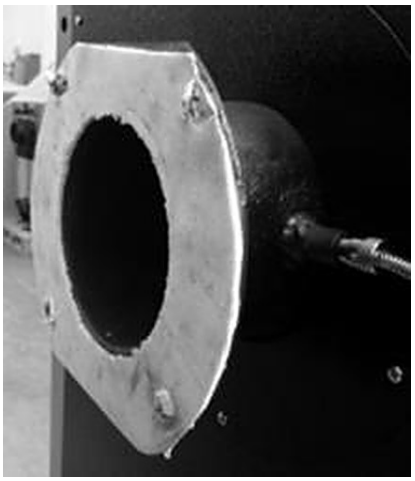
7. Fit and secure the top panels in their original positions between the side panels.

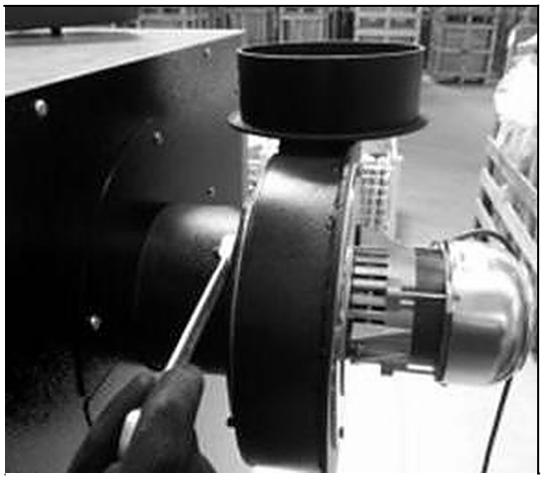
5.9. Installing the induced-draught fan

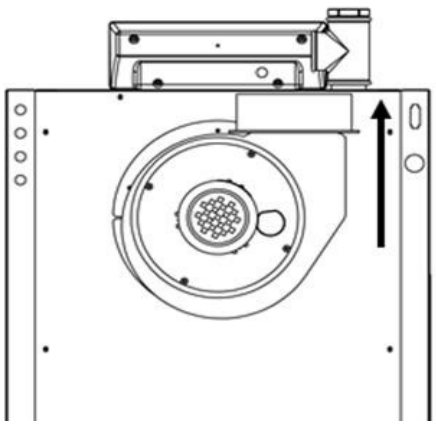
Fix the fan and fan guard assembly to the smoke box cover as shown in the figure on the right. First fit the gasket supplied with the boiler between the fan guard and the smoke box cover.

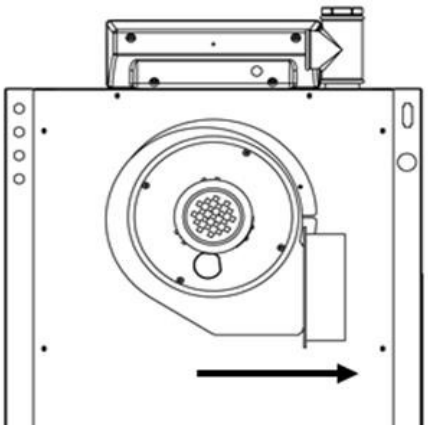
When fitting the fan BRACKET, you can choose the direction of the chimney connection, as shown in the following figures. The default direction of the fan chimney connection is vertical, as shown in the figure on the left. A horizontal chimney connection is also possible:











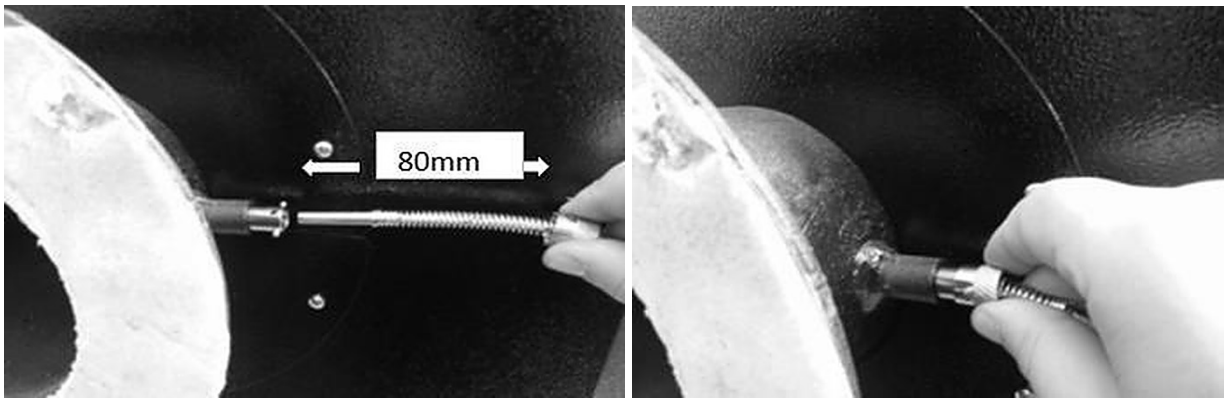
5.10. Installing the flue gas temperature sensor

The thermocouple used in the boiler is "K Tip".

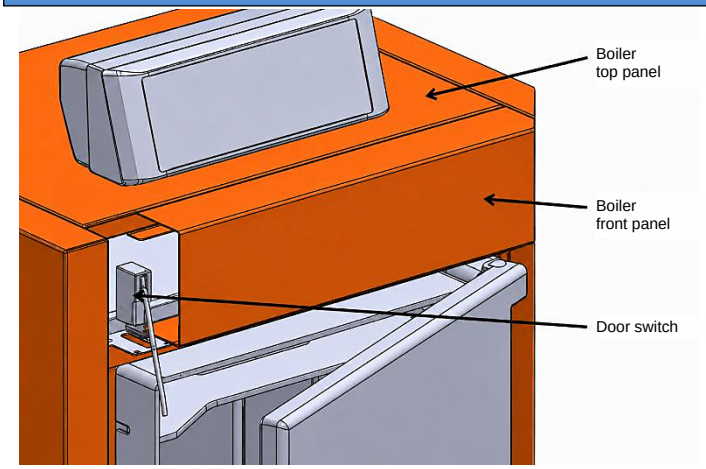
1. Pull the flue gas sensor out through the opening in the side panel as described above. Remove the supplied sensor sleeve from the flue gas sensor and screw it into the seat on the fan volute housing.

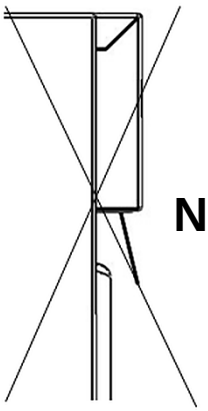


2. Turn the nut on the flexible part of the sensor to move it away from the sensor head. The distance should be at least 80 mm. Then insert the sensor into the immersion pocket, push it fully home and tighten the nut to secure both. Make sure the sensor is correctly fitted.



NOTICE - Door switch position





NO!

The door switch is hidden behind the front panel of the boiler. When the loading door is opened, the switch sets the fan to maximum speed and the smoke is diverted into the bypass duct at the top of the boiler. When the door is closed, the switch deactivates this fan mode. Do not remove the front panel when installing the boiler; carry out all wiring through the top panel of the boiler.

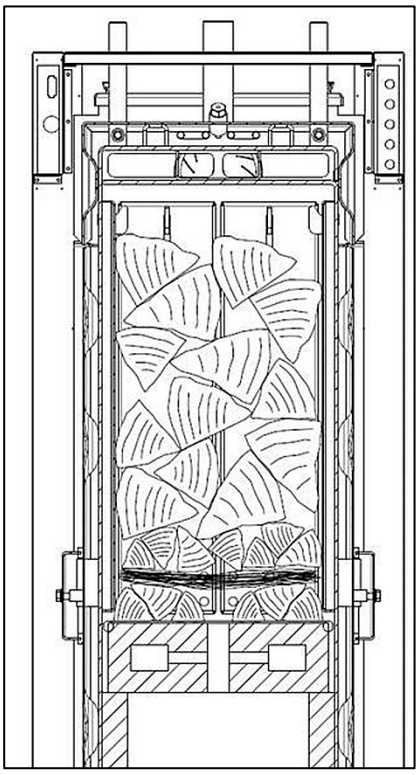
6. OPERATION

6.1. Before the first ignition

Before the boiler is operated for the first time, the hydraulic circuit must be ready for operation. Fill the pressurised circuit with fresh mains water via the filling/draining connection at the rear of the boiler or via a filling line in the circuit. To vent the system, use the air vent valves on the hydraulic circuit and radiators and the spring-loaded relief valve at the boiler hot water outlet. While filling the system, check all valves and fittings on the pipework for leaks. Before each ignition, check that:

- The boiler and circuit are filled with water and the hydraulic pressure is within the required range.
- All valves on the pipework are open.
- There is sufficient chimney draught.
- The control panel is connected to the power supply. The panel is in standby.

6.2. Ignition

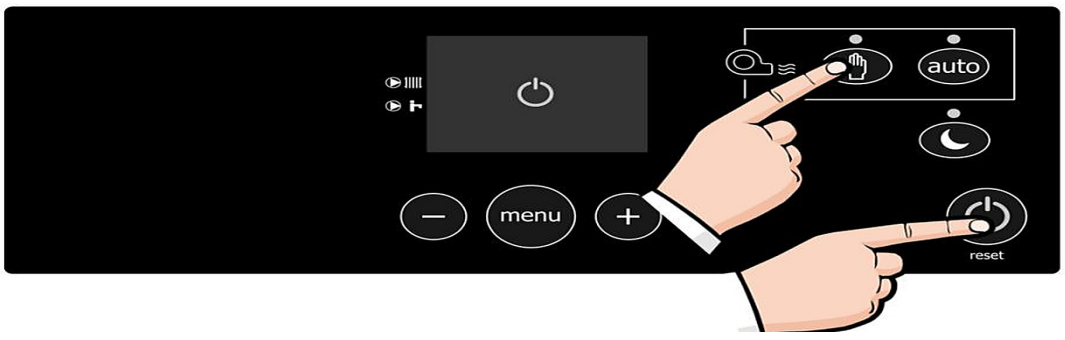


- Before ignition, switch on the control panel by pressing the ON/OFF button for at least 3 seconds and set the fan to level 3 or 4. When the control panel is switched on, the fan does not run, but all safety functions are active. The fan can be operated in manual mode by pressing the FAN MANUAL key.
- Open the upper fuel loading door. Through the upper door, place small logs on the burner so that the burner nozzle remains open, as shown in the figure. Place some cardboard on top of them. Place some more small logs on the cardboard. Then fill the rest of the loading chamber with logs up to 5 cm below the top of the chamber, as shown in the figure. Close the upper door.

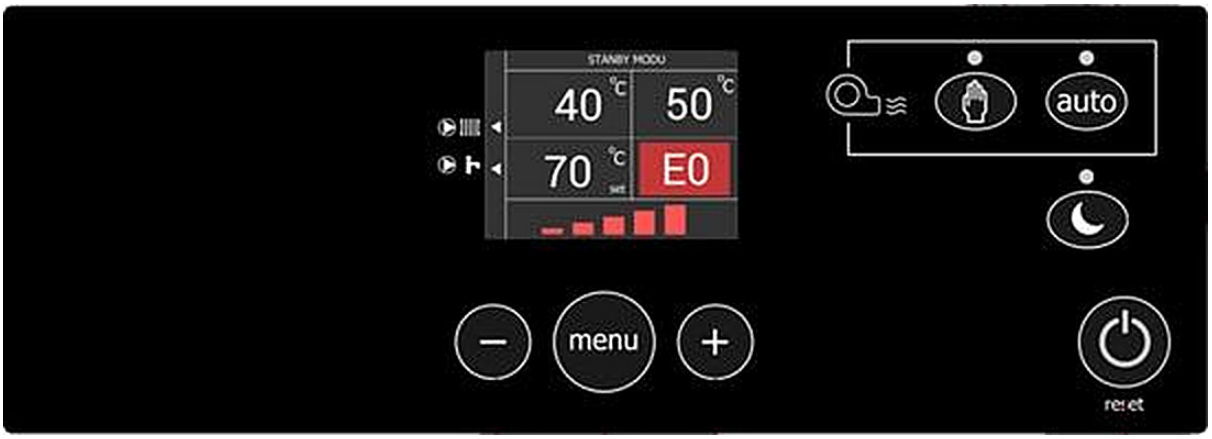
- Open the ignition door (middle door) and light the cardboard. Leave the ignition door open for about 5–10 minutes until a strong bed of embers forms.

- The primary and secondary air dampers are located behind the front middle panel and are factory-set to the appropriate values for each model to ensure efficient and clean combustion.

- For modulating operation, press the "AUTO" key or leave the boiler in "MANUAL" mode at the desired fan level.



6.3. Door switch function



When the loading door is opened, the fan starts running at maximum speed. The “U1” symbol starts flashing on the LCD display.

6.4. Adding logs

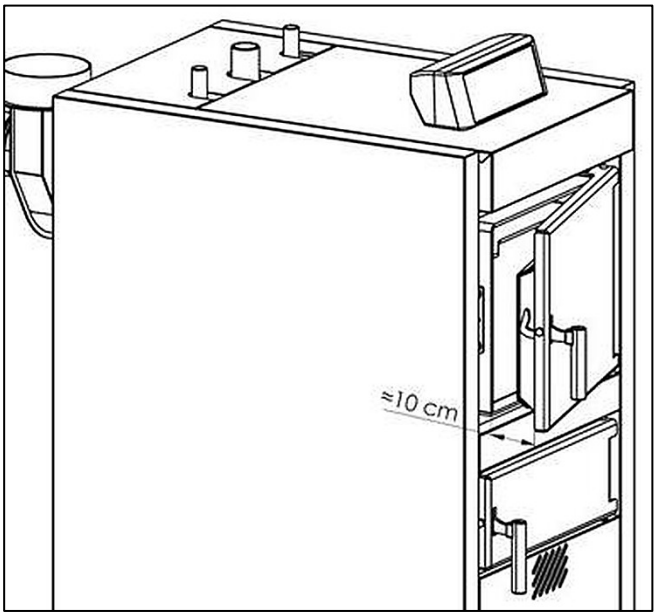
Open the middle door and check the fuel in the boiler. If the fuel has burned down, open the loading door, fill the boiler with firewood and close the door.

WARNING

When adding logs, do not open the door fully at once. First open the door slightly for 3–4 seconds to activate the door switch and let the accumulated flue gas leave the boiler through the chimney. Then open the door fully.

Never open the lower door while the boiler is operating.

When filling the firebox, pay attention both to the depth of the loading chamber and to the thickness of the upper refractory door. If the log size does not match these limits, the loading door may be difficult to close and lock. Make sure that the loading door can be closed without additional force; otherwise it may be damaged. Always use logs of the correct size when refilling the chamber. The recommended fuel sizes are given in the technical data section. When loading, always place the logs parallel to the depth of the chamber.



6.5. Control panel user interface

The control panel has the following functions:

1) Display:
   a) Actual boiler temperature
   b) Desired boiler temperature
   c) Actual flue gas temperature
   d) Fan operating mode and speed
   e) Circulation pump status
   f) DHW pump status
   g) Warnings and errors
   h) Parameter settings in the submenu
   i) Boiler operating function (manual mode, automatic mode, night mode)

2) Allows the following parameters to be set in "MENU" mode:
   a) Boiler set temperature
   b) Domestic hot water (DHW) set temperature
   c) Buffer tank set temperature
   d) Fan speed in manual mode
   e) Maximum fan speed in automatic mode (if required)
   f) Work and pause time in sleep mode (if required)
   g) Fan overrun safety time (if required)

3) Control:
   a) Boiler temperature according to the set value
   b) DHW tank temperature according to the set value
   c) Buffer tank temperature according to the set value
   d) Automatic operation of the central heating (CH) pump
   e) Automatic operation of the DHW/buffer pump
   f) Fan speed modulation for optimum efficiency
   g) Option to use a room thermostat
   h) External burner on/off (optional, e.g. pellet burner)

4) Safety functions:
   a) If the boiler temperature reaches 100 °C, the fan switches off and the CH pump keeps running. The panel warns the user with an audible alarm. When the boiler temperature falls below 95 °C again, the alarm switches off and the boiler returns to normal operation.
   b) External bimetallic safety thermostat for additional safety, activated if the boiler temperature exceeds 110 °C. In accordance with European regulations, this thermostat is reset manually.
   c) Fuse for overcurrent protection, located at the rear of the control panel.
   d) All settings are stored in the memory of the electronic board, even in the event of a power failure.
   e) Self-diagnostic system
   f) Error history
   g) Error and ignition counters

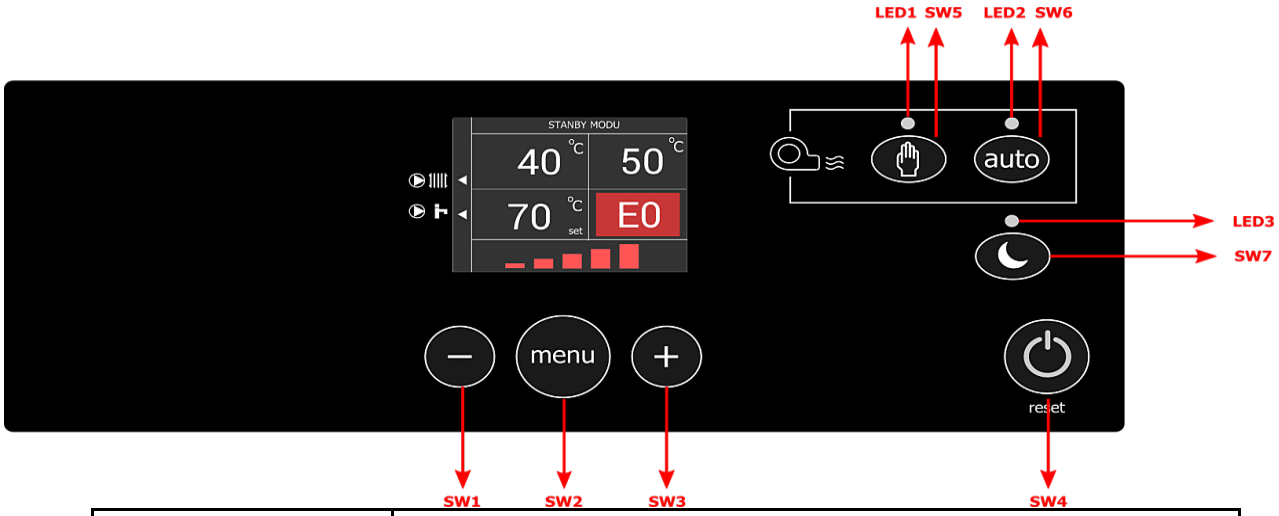
5) Energy-saving functions:

a) The circulation pump switches off at boiler temperatures below 40 °C. This protects the boiler against excessive condensation (this parameter can be adjusted).

b) Fan speed modulation according to the desired boiler temperature saves energy and fuel.

c) SLEEP mode keeps the boiler at a minimum flame without shutting down completely during periods when a high temperature is not needed. This saves energy and avoids having to relight the boiler in the morning. It allows the following parameters to be set in "MENU" mode:

6.5.1. Description of the user interface



SW1	Decrease button
SW2	MENU button
SW3	Increase button
SW4	Reset button
SW5	Manual start button
SW6	Automatic start button
SW7	Sleep mode button
LED1	Manual mode LED indicator
LED2	Automatic mode LED indicator
LED3	Sleep mode LED indicator

A long press of the RESET button (SW4) switches the controller on.

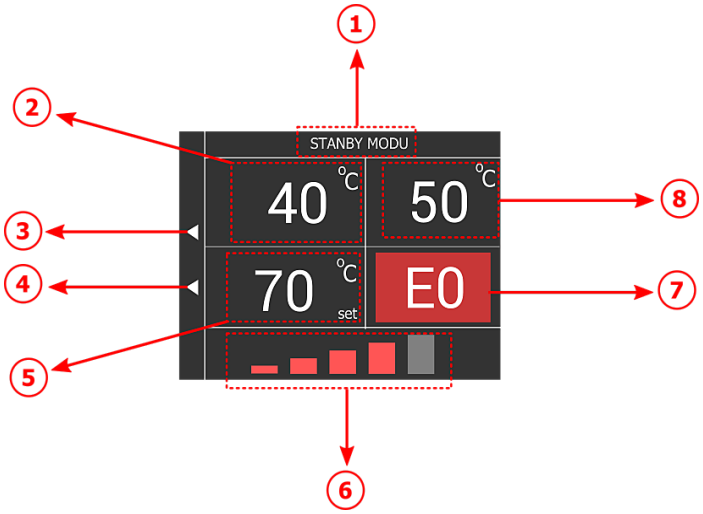
The boiler temperature is set with the – (SW1) and + (SW3) buttons.

The boiler can be started in manual mode with the MANUAL button (SW5). When the boiler is on, the MANUAL button (SW5) is also used to set the fan power (0-1-2-3-4-5-0).

The controller can be switched to automatic mode with the AUTO button (SW6). If the user does not switch to automatic mode manually, the system will later switch automatically depending on the boiler temperature.

Sleep mode is activated with the SLEEP button (SW7). LED3 indicates that sleep mode is active.
The user menu is entered by pressing the MENU button (SW2).

6.5.2. Display



1. Operating mode display: shows the currently active operating mode of the controller.
2. Boiler temperature display: shows the current boiler temperature.
3. Pump 1 activation indicator: lit when pump 1 is on.
4. Pump 2 activation indicator: lit when pump 2 is on.
5. Boiler set temperature: shows the target temperature.
6. Fan status indicator: shows the current fan power.
7. Warning and error display: shows warning and error codes.
8. Buffer/DHW temperature: shows the temperature of the buffer tank or domestic hot water (DHW).

6.6. Standby

In this mode the controller is completely switched off and the display is dark. For safety reasons the controller only controls the pumps.

If you are not using the boiler, put it into standby by holding down the RESET button (SW4) for a longer time, and do not disconnect the power supply. You can switch back to OFF mode by pressing the RESET button (SW4) for a longer time.

6.7. Operating mode

While loading logs and lighting the fire, you can leave the control panel in STAND-BY or OFF mode.

Once a steady flame has been achieved, switch on the control panel by pressing the RESET button (SW4) and press the MANUAL button (SW5) to start operation.

6.8. Switching on the control panel

Pressing the RESET button (SW4) for three seconds switches the control panel on. The LCD display lights up and the current boiler temperature is shown.

At the first start-up, the fan can be operated in manual mode. By pressing the manual fan button (SW5), you can set the fan speed to the lowest level so that the fire builds up in a short time.

Setting the fan operating mode

The fan speed can be set manually in five steps or set to »AUTO« mode. In this case, the electronic board adjusts the fan speed according to the set and actual boiler temperature.

When the control panel is switched on, the system is in OFF mode. Press the »MANUAL« or »AUTO« fan control button to select the fan operating mode.

Fan in manual mode:
When you press this button, the fan runs continuously at the selected constant speed:

- 1 press: fan ON, minimum speed
- 2 presses: level 2
- 3 presses: level 3
- 4 presses: level 4
- 5 presses: maximum speed
- 6 presses: fan OFF again

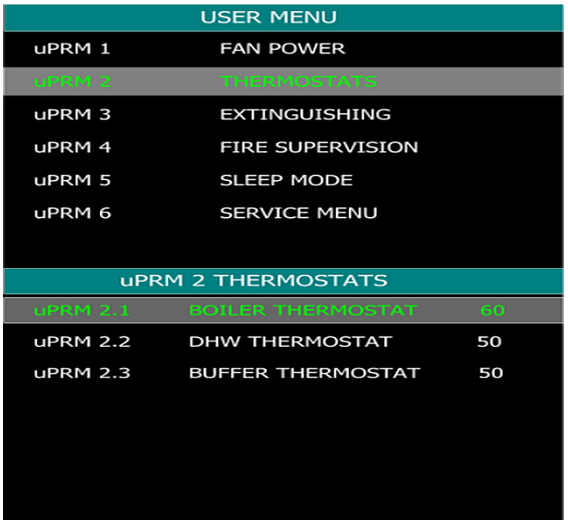
The system tries to detect a fire based on the rise in water temperature. When the system detects a fire, it switches to stabilization mode to intensify combustion.

Fan in automatic mode:

When you press this button, the system switches to Work mode, the other modes are cancelled and the fan starts operating in modulating mode according to the boiler outlet temperature, controlled by the software.

6.9. Setting the boiler outlet water temperature

The desired boiler outlet water temperature can be set as follows:

• press the MENU button (SW2) once • use the – (SW1) and + (SW3) buttons to select the THERMOSTATS menu and press the MENU button (SW2) again. Select BOILER THERMOSTAT and press MENU again • use the – (SW1) and + (SW3) buttons to set the desired outlet water temperature • press the MENU button (SW2) to save, or the RESET button (SW4) to cancel without saving • press the RESET button (SW4) to exit the menu	

NOTE

Thermostat setting shortcut:
To set the desired boiler outlet water temperature, you can press the (+) SW3 or (–) SW1 button directly without entering the menu.
The boiler outlet water temperature can be set in the range from 60 °C to 95 °C.

If installed and activated, the domestic hot water (DHW) and buffer tank thermostats can be set using the same procedure.

6.10. Setting the maximum fan speed (FAN AUTO mode only)

If you select automatic fan mode as described on the previous page, you can set the maximum fan speed. The control panel allows the maximum speed in fan modulation mode to be set. If you consider the amount of air too high for your chimney and fuel type, you can reduce the maximum fan speed. The fan will then operate between the minimum speed and the newly set maximum speed. This function helps to reduce fuel consumption.

Procedure for setting the maximum fan speed:

1. Press the MENU button
2. Select FAN POWER and press MENU to enter the submenu, then press MENU again and set the value with the (–) SW1 and (+) SW3 buttons
3. The maximum speed can be set between 1 and 5 by pressing the buttons

To save the setting, press the MENU button again. To exit the menu, press the RESET button (SW4).

6.11. Automatic fan switch-off function (fan overrun safety time)

When you switch on the control panel with the ON/OFF button, the fan starts automatically regardless of the boiler temperature. The fan then runs according to your settings – the electronic board modulates the speed between the minimum and the default or newly set maximum speed. When the temperature reaches the set value, the system automatically activates the Fire Supervision function. The fan speed is set according to parameter uPRM4.3 POWER. The fan stops for the time set by uPRM4.1 WAIT TIME (in minutes) and then runs for the time uPRM4.2 WORK TIME (in minutes).

If the boiler outlet water temperature drops by more than the value uPRM3.1 DELTA T, the electronic board switches to Extinguishing mode and the fan continues to run for a predefined safety time (uPRM3.2 FAN OFF TIME). If the boiler temperature does not rise during this time, the control panel assumes that there is no more fuel in the combustion chamber, the fan switches off and the controller goes to OFF mode with error U2 (Fuel Exhausted Error).
If the outlet water temperature rises again for any reason during this safety time, the fan switches on again and the system returns to Work mode.
Warnings and errors can be reset by switching the system to Standby mode and then switching it on again.

WARNING
The pump runs as long as the boiler outlet water temperature is above the set value. The pump is always off when the boiler temperature is below the set value.

6.12. SLEEP mode settings

Night mode can be used when radiator heating is not required and you do not intend to shut down the boiler permanently. This function allows you to keep a small fire bed in the combustion chamber so that the boiler does not have to be restarted from scratch.
In this mode the fan switches on and off at preset time intervals so that it runs only enough to maintain a minimum flame in the combustion chamber. Depending on the user settings, the fan runs for uPRM4.2 WORK TIME minutes at uPRM4.3 POWER speed and then stops for uPRM4.1 WAIT TIME minutes. These time intervals can be reset in the menu.

6.13. SLEEP mode

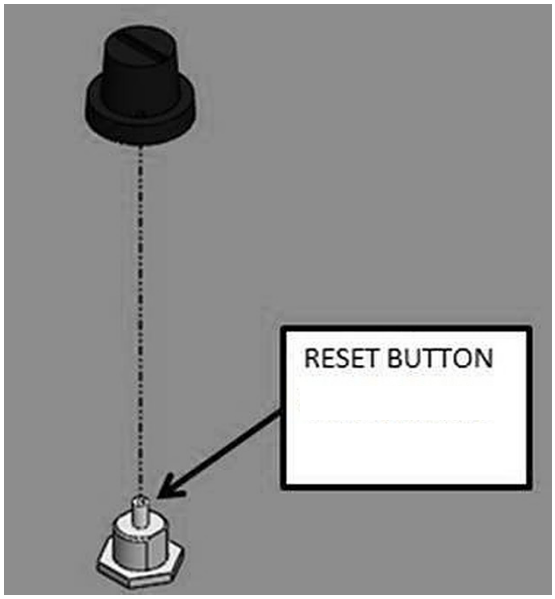
To activate SLEEP mode, press the SLEEP button (SW7) on the control panel. When this mode is selected, the system switches to SLEEP mode and the fan runs at uPRM4.3 POWER speed.
As described above, we recommend using this mode mainly at night when radiator heating is not needed. To exit SLEEP mode and return to normal operation, press the SLEEP button again.

6.14. Flue gas temperature sensor function

When the actual flue gas temperature exceeds the set value, the controller starts to reduce the fan speed to lower the gas temperature. Conversely, when the flue gas temperature falls below the set value, the controller increases the fan speed.
The fan modulates according to the flue gas temperature to keep it within set limits. If the flue gas temperature exceeds the maximum set value, the fan stops to protect the motor and chimney against overheating, even if the boiler water temperature has not yet reached the set value. No warning is displayed in this case.
When the flue gas temperature falls below the maximum set value again, the boiler returns to normal operation.

6.15. Safety shutdowns

If the boiler temperature reaches 100 °C for any reason, the fan switches off and the central heating (CH) pump keeps running. The control panel warns the user with a high-temperature icon on the LCD display and an audible alarm. When
the boiler temperature falls below 95 °C again, the error
can be cleared by switching the boiler to STANDBY mode and then switching it on again.



If the boiler temperature reaches 110 °C, this means there is a problem with the printed circuit board (PCB) of the control panel or with the sensors. In this case, the additional safety thermostat stops the boiler as external protection. The safety thermostat bulb is fitted on the boiler hot water outlet pipe under the top panel, and the reset button is on top of the panel under a plastic cap.

If the boiler temperature is above 110 °C, the fan switches off and the pump stays on to protect the system against very high temperatures. Error code **E1** appears on the LCD display. In this case we recommend calling the BIODOM authorised service to inspect the control panel and the associated equipment.

The safety thermostat has a manual reset, so it must be reset manually as soon as the problem has been resolved. The control panel is then reset by pressing the ON / OFF button.

6.16. Switching off the boiler

The control panel is switched off by pressing the RESET button (hold the button down for at least 3 seconds), and the boiler goes into standby (STAND-BY).

WARNING
To stop the fire, set the primary and secondary air controls to »0«. Never switch off the control panel while there is a fire in the combustion chamber. After each burn period, before reloading the combustion chamber and lighting, the control panel must be reset by pressing the ON/OFF button.

6.17. Error codes and indicators

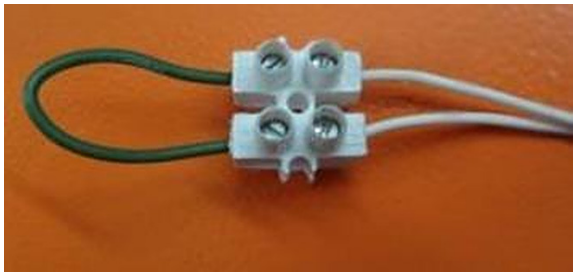
Code	DESCRIPTION
E1	Overheating error: safety thermostat input is interrupted (open circuit).
E2	NTC1 error: NTC1 sensor (boiler sensor) is damaged.
E3	NTC2 error: NTC2 sensor (DHW or buffer tank sensor) is damaged.
E4	Flue gas sensor error: flue gas sensor is damaged.
E5	NTC1 error: NTC1 sensor (boiler sensor) is overheated.
E6	NTC2 error: NTC2 sensor (DHW or buffer tank sensor) is overheated.
E7	Flue gas sensor error: flue gas sensor is overheated.

Code	DESCRIPTION
U1	**Door open (not used on this model)**
U2	**Fuel exhausted**
U3	**Maintenance time reached**

6.18. Room thermostat

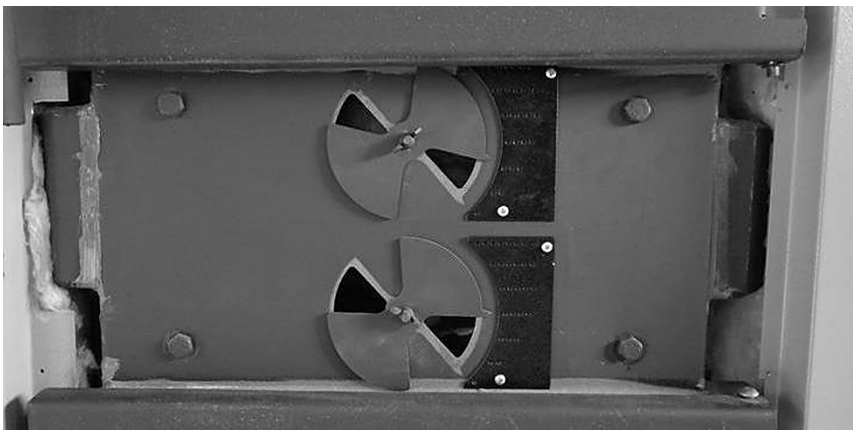
A room thermostat can be connected to the room thermostat terminals (where the jumper is) outside the control panel. If you do not use a room thermostat, leave the jumper as it is. When the desired room temperature is reached:

1. The fan and pump are switched off
2. If the boiler temperature meanwhile exceeds the sPAR8 value, the pump switches on and runs until the boiler temperature falls below sPAR8 again.



6.19. Primary and secondary air adjustment

The primary and secondary air dampers are located behind the front middle panel. The primary and secondary air are factory-set for optimum operation of each model to ensure efficient and clean combustion. We therefore do not recommend changing these settings.



6.20. Operating modes

6.20.1. Standby mode

In this mode the controller is completely switched off and the display is dark. For safety reasons the controller only controls the pumps.
If you are not using the boiler, leave it in standby mode by pressing and holding the ESCAPE button (SW4), and do not switch off the power supply. You can switch back to OFF mode by pressing and holding the ESCAPE button (SW4).
If errors are displayed, standby mode must be activated to reset the error state.

6.20.2. OFF mode

When the boiler is not firing, the display in this mode shows the system status, errors and warnings.

6.20.3. Manual mode

When the MANUAL button (SW5) is pressed in OFF mode, ignition starts in manual mode. The desired fan speed can be set by pressing the button repeatedly (0-1-2-3-4-5-0). When the system detects a fire, it automatically switches to stabilization mode.

6.20.4. Stabilization mode

At the start of stabilization mode, the controller stores the manually set fan power and operates at this power. Over time, it increases the fan power by one level until the system reaches maximum power. If the temperature rises above a certain level during this time, the system switches to Work mode without waiting for the time to elapse.

WARNING
If you press the AUTOMATIC button (SW6) in OFF mode, manual mode or stabilization mode, the system switches directly to Work mode. You can use this function if you are sure that the fire is strong enough to keep burning without problems.

6.20.5. Work mode

The fan power is adjusted according to the boiler temperature. The highest boiler temperature reached in this mode is recorded by the controller. The recorded value cannot be higher than the boiler set temperature. If the boiler sensor temperature drops by more than uPRM3.1 DELTA T from the recorded value, Extinguishing mode starts.
If the boiler sensor temperature exceeds uPRM2.1 BOILER THERMOSTAT, the Fire Supervision function is activated, which cools the boiler while maintaining combustion. When Fire Supervision is active, the fan speed is set to uPRM4.3 POWER. The fan runs for uPRM4.2 WORK TIME minutes and then switches off for uPRM4.1 WAIT TIME minutes.

6.20.6. Extinguishing mode

Because of the significant drop in water temperature, the system checks whether there is still fuel in the boiler. When the extinguishing process starts, the system stores the temperature. The fan speed is increased to maximum to revive the fire if fuel is still present.

If the temperature does not rise within uPRM3.2 FAN OFF TIME minutes, the system switches to OFF mode with the »No fuel« warning. If the temperature rises sufficiently, the system returns to Work mode.

7. HEALTH AND SAFETY INFORMATION

7.1. Control of substances hazardous to users' health

For the types of materials and their use in your boiler, see the table below:

PAINTS:	
General-purpose black paint	NOT USED
High-temperature black paint	Boiler body
Powder coating	All casings
INSULATION AND SEALS	
Rock wool insulation board Glass wool insulation board	NOT USED Boiler body
Ceramic fibre rope and tape	Loading door burner and loading door
Ceramic fibre board CFC-free	Loading door
polyurethane spray/foam Refractory casting	NOT USED Burner
Asbestos products	NOT USED
ADHESIVES	
High-temperature adhesive compound	Loading door, burner
Fireclay cement	NOT USED
Gas jointing compound	NOT USED

Special data sheets for these materials are available from the manufacturer on request, but in all cases the following material handling and first-aid procedures must be observed.

7.2. Paints, sealants, ceramic fibre boards

- These materials contain organic solvents and must be used in a well-ventilated area away from open flames. Avoid contact with skin, eyes, respiratory tract or mouth. Use barrier cream or gloves to protect the skin and safety goggles to protect the eyes against accidental contact.
- Small amounts can be removed from clothing or skin with paint remover or hand cleaner. If inhaled, move the casualty to fresh air. If swallowed, drink fresh water. In case of eye contact, rinse the eyes with clean water and seek medical attention.

7.3. Sharp edges

- Take care when handling sheet metal parts without protected or folded edges.

7.4. Lifting the boiler

- Take care when lifting the boiler, as it can weigh several hundred kilograms. The exact data are given on the product rating plate.

7.5. Insulation

- Avoid contact with skin and eyes and avoid inhaling dust.
- If you cut insulation, do so in a well-ventilated room, with protected hands, safety goggles and a disposable dust mask.
- In the event of a skin reaction or eye irritation, stop work and seek medical attention.

7.6. Pressurised parts of the heating system

- While the boiler is operating, avoid contact with pressurised parts of the heating system. These hazardous parts are:
    - Boiler casing
    - Inlet and outlet connections
    - Safety lines
    - Buffer tank
    - DHW tank
    - Pressure relief devices installed on the heating system
- Never attempt to drain water from the heating system while the boiler is operating.
- Never fill or cool the boiler directly with cold water when it is hot.

7.7. High-temperature surfaces

- Avoid contact with high-temperature parts and surfaces such as:
    - Boiler front door
    - Water flow and return connections (even if insulated), safety connections
    - Flue connection
    - Connection between chimney and flue connection
    - Circulation pumps, expansion vessels

7.8. Boiler room

- Make sure the boiler room is easily accessible from outside in the event of a hazard in the heating system. Do not leave solid fuels or auxiliary materials (wood chips, paper, etc.) closer than 80 cm to the boiler, as they may ignite.
- Do not cover the fresh air openings, as they are very important for combustion.

7.9. Flue gases

- When the front loading door is opened, a small amount of gas may escape from the front of the boiler. Never inhale this gas.
- If you add solid fuel while there is a fire in the loading chamber, protect your hands and face.
- Wear protective gloves if necessary.

7.10. Fuel ignition

- Do not remove fuel from the loading chamber while it is still burning.
- Do not attempt to extinguish burning wood with water or other liquids.
- Do not leave the loading door open while there is a fire in the boiler.
- Only solid fuels whose properties are given in the Technical data section may be burned in your boiler.
- Never use other solid fuels that could damage boiler parts,
  nor liquid or gaseous fuels.

8. CLEANING AND MAINTENANCE

The boiler must be cleaned regularly and properly every 3 to 5 days. Ash accumulating in the ash pan and loading chamber, together with condensate and tar, reduces the heat output of the boiler and shortens its service life due to overheating and damage, as the deposits insulate the heat transfer surfaces.

WARNING

For cleaning and periodic maintenance, always allow the boiler to cool down sufficiently after switching off before opening the ash door. Always wear heat-resistant gloves and protective clothing when handling ash.

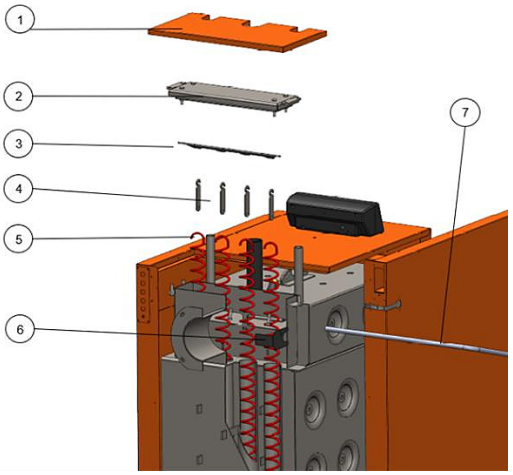
Clean the boiler as follows:

1. First switch on the fan.
2. Open the upper (and middle, if fitted) door and use the cleaning brush supplied with the boiler to sweep the ash through the opening in the refractory burner.
3. Switch off the fan.
4. Close the upper (and middle, if fitted) door and open the front lower door. Remove the cleaning cover and use the cleaning brush supplied with the boiler to clean the ash inside and the flue tubes. All deposits will fall into the combustion chamber. Refit the cleaning cover in its position.
5. Open the rear cleaning cover at the bottom. Clean out the ash accumulated in the combustion chamber
   (in the ash pan, on the lower water-cooled heating surface (damper) and on the bottom) using the ash
   scraper supplied with the boiler. If tar has built up, clean all surfaces.
6. Remove the flue gas sensors and clean the soot off the sensor head. After cleaning, check that the sensor is correctly fitted.

To clean the smoke box and flue tubes:

7. Remove the top panel (1) and the cleaning cover on top of the smoke box (2). The springs of the turbulator blades (5) and the hinge hooks (4) are attached to the metal plate (3). Unscrew the metal plate and, after releasing element (6), pull the cleaning lever (7) out of the boiler; the turbulator blades can then be removed. Thoroughly clean all turbulator blades and flue tubes, including the smoke box. Use the supplied cleaning brush for cleaning. After cleaning, reassemble all parts in reverse order.





WARNING
Do not move or remove the refractory materials of the combustion chamber.

8. Tar forms during gasification; its amount depends on the type of wood, its moisture content and the boiler inlet and outlet temperatures. The loading chamber (gasification chamber) must therefore be cleaned with a scraper at least once a month.

Maintenance

Before each heating season we recommend calling the BIODOM authorised service to check the condition of the boiler, the heating system, the electrical connections and the chimney. Do not attempt to carry out maintenance work without the help of qualified persons.
Periodic inspections:

- Check the water pressure. If the pressure is below the system set pressure, top up with water. Before topping up, the water must be softened to prevent corrosion in the heating circuit and boiler.
- Test the safety valve at least once a year.
- Check that the boiler front door closes properly. Replace the ceramic fibre sealing ropes if necessary. When replacing a rope, first apply high-temperature-resistant adhesive to the surface on which the rope will be placed.
- Check the condition of the refractory material of the door. If it is damaged, the door surface temperatures will be higher. In this case the refractory material must be replaced to save energy and prevent further cracks.
- Check the condition of the ceramic fibre rope around the burner in the loading chamber. Replace it if necessary.
- Regularly inspect the chimney, flue pipes, flue pipe joints and seals to make sure that smoke and flue gases do not escape and circulate through the ventilation system of your home. If you notice smoke or flue gas escaping, replace the pipe immediately.
- Check the wiring on the control panel and the wiring from the control panel to the heating circuit pump and
  the fan.
- Check the seal in front of the fan.
- Check the glass fibre ropes under the rear cleaning cover and replace them if necessary. Check
- the boiler and pump wiring.

Daily maintenance	**Weekly maintenance**	**Monthly maintenance**	**Annual maintenance**
Check the burner nozzle opening	Cleaning and ash removal	Clean the flue gas sensor	Check the primary air openings behind the protective plates
	Check the safety valve and its connection	Clean the heat exchanger tubes	Clean the bypass passage
	Check the system pressure		Check the door and burner sealing rope
			Clean the induced-draught fan impeller

9. WARRANTY CONDITIONS

OVERVIEW:

To claim under the warranty, the user must follow the instructions in this document, in particular:

- Use the boiler in accordance with its intended purpose and the conditions in the instructions for use;
- Maintain the boiler regularly and properly;
- Observe all safety measures and applicable regulations;
- Avoid any unprofessional interference with the boiler;
- Use only original spare parts or spare parts approved by the manufacturer.

WARRANTY PERIOD:

BIODOM 27 d.o.o. provides a 24-month warranty period for the boiler, starting on the date of delivery of the product to the consumer, in accordance with applicable legislation. The warranty period is subject to correct installation and first commissioning of the boiler, which must be carried out by an authorised service.

The start of the 24-month warranty period is the date of the first commissioning, but no later than the date falling 12 months after the day of delivery of the product to the consumer.
If the first commissioning is carried out more than 12 months after delivery of the product, the 24-month warranty period is deemed to have started 12 months after the day of delivery of the product.

The warranty does not cover defects or damage found to be caused by incorrect installation, unprofessional commissioning, unauthorised interference or failure to follow the manufacturer's instructions.
These provisions do not limit or exclude the consumer's statutory rights under the mandatory warranty and the guarantee of conformity of goods.

GENERAL WARRANTY CONDITIONS:

- During the warranty period, BIODOM 27 d.o.o. will, through the authorised service, rectify free of charge any defects that prevent the product from functioning as intended, no later than within
  30 days of the day on which the manufacturer or authorised service receives the request for rectification of the defect;
- The deadline for rectifying the defect may be extended by the minimum time necessary to complete the repair or replacement, but by no more than an additional 15 days. The consumer must be informed of the number of days of extension and the reasons for it before the original 30-day deadline expires;
- If the defect is not rectified within this deadline, the manufacturer must replace the product free of charge with an identical, new and faultless product;
- If the manufacturer does not repair the product or replace it with a new one within this deadline, the consumer may demand a refund of the full purchase price or a proportional reduction of the purchase price;
- If the non-conformity of the product appears less than 30 days after its delivery, the consumer may demand a refund of the amount paid.

CLAIMING UNDER THE WARRANTY:

The warranty is valid provided that:

- The customer has a valid document (invoice) issued by the seller.
- The heating appliance has been installed by a qualified and/or trained person who assesses whether the appliance meets all the technical characteristics of the system in which it will be installed, and the installation must strictly comply with the requirements given in the instructions.
- The gasification log boiler is used in accordance with the instructions for use.

The beneficiary may submit a warranty claim to the manufacturer BIODOM 27 d.o.o. or to the authorised service GIPO d.o.o. When reporting a defect, the product data, serial number and as precise a description as possible of the defect or malfunction must be provided.

PERIOD OF AVAILABILITY OF SERVICE AND SPARE PARTS

After the warranty period has expired, BIODOM 27 d.o.o. provides, against payment, repair and maintenance of the product as well as spare parts and connecting elements for at least three years after the warranty period has expired.

CONSUMER RIGHTS UNDER THE WARRANTY

If a product for which a mandatory warranty has been issued does not meet the specifications or does not have the properties stated in the warranty card or in the relevant advertising message, the consumer may first demand that the defect be rectified free of charge.

If the defect is not rectified within the statutory deadline, the manufacturer must replace the product free of charge with an identical, new and faultless product. If the manufacturer does not repair the product or replace it with a new one within the statutory deadline, the consumer may demand a refund of the full purchase price or a proportional reduction of the purchase price.

For a replaced product or a replaced essential part of the product, the manufacturer issues a new warranty card. The costs of material, spare parts, labour, transfer and transport of the product incurred in rectifying the defect or replacing the product with a new one are borne by the manufacturer.
In the event of non-conformity of goods, the consumer has the statutory right to assert warranty claims against the seller free of charge. The warranty does not exclude the consumer's rights arising from the mandatory guarantee of conformity of goods.

THE WARRANTY DOES NOT APPLY TO OR COVER DAMAGE CAUSED BY:

- Weather, chemical or electrochemical influences, lightning strikes, elemental accidents and/or natural disasters, improper use of the product, insufficient maintenance, modifications to or tampering with the product, unsuitability or inefficiency of the chimney and other causes not related to the product, such as incorrect or unsuitable installation;
- Burning of materials that do not correspond to the type of material specified in these instructions;
- Any damage caused by or during transport; the goods received must therefore be carefully inspected on delivery. If they are damaged, the seller must be informed immediately and the damage recorded on the acceptance document or delivery note;
- If commissioning was carried out by a company not duly authorised for Biodom products;
- If the product has been tampered with or repaired by an unauthorised person;
- If the user does not follow the instructions for use and maintenance;
- If errors or faults occur on the Biodom heating appliance due to defects in equipment from other manufacturers.

The unit must be installed correctly in accordance with the manufacturer's instructions and applicable laws. Installation must be carried out by qualified personnel designated by the manufacturer or representative/dealer A1/A2 (and/or under their supervision and responsibility), who assume full responsibility for the final installation and subsequent correct operation of the installed product.

- A representative/dealer is any natural or legal person authorised to sell the articles to the end users of this warranty.

Biodom 27 d.o.o. guarantees that all its products are made of materials of the highest quality and by work processes that ensure perfect efficiency. If, during normal use,

any part proves to be defective or malfunctioning, it must be replaced.

PARTS SUBJECT TO NORMAL WEAR AND NOT COVERED BY THE WARRANTY:

- Seals and cast-iron parts that show no sign of a fault attributable to a manufacturing defect;
- Changes in colour, cracks and small dimensional changes are not grounds for complaint and do not constitute a reason for rejection, as they result from the natural characteristics of the materials.

SERVICE DURING THE WARRANTY PERIOD

The authorised service for warranty service work on BIODOM products is: GIPO d.o.o.

Warranty repairs are carried out by the authorised service GIPO d.o.o. in accordance with the conditions of this warranty and applicable legislation.

Contact:
GIPO, montaža in servis, d.o.o.
BIODOM representative for Slovenia
OIC Hrpelje 4a
6240 Kozina, Slovenia
T: +386 (0)5 662 67 54
E: montaza@biodom27.si

The warranty is valid in the territory of the Republic of Slovenia.

The manufacturer or authorised service may provide the consumer with free use of a similar replacement product for the duration of the repair. If the manufacturer does not provide a replacement product, the consumer is entitled to claim compensation for the damage suffered due to the inability to use the product, in accordance with applicable legislation.

Data sheet in accordance with the requirements of Commission Regulation (EU) 2015/1189

Model identifier: **BIODOM X 18** Stoking: manual
the boiler should be operated with a hot water storage tank with a volume of at least **689** (*) litres Condensing boiler: YES Solid fuel cogeneration boiler: no Combination boiler: no

Fuel	Preferred fuel (only one):	Other suitable fuels:	η_s [x %]:	Seasonal space heating emissions			
				PM	OGC	CO	NO_x
				[x] mg/m^3			
Wood logs, moisture content ≤ 25 %	**yes**	no	**79,6**	**28**	**13**	**164**	**189**
Wood chips, moisture content 15–35 %	no	no					
Wood chips, moisture content > 35 %	no	no					
Compressed wood in the form of pellets or briquettes	no	no					
Sawdust, moisture content ≤ 50 %	no	no					
Other woody biomass	no	no					
Non-woody biomass	no	no					
Bituminous coal	no	no					
Brown coal (including briquettes)	no	no					
Coke	no	no					
Anthracite	no	no					
Briquettes of mixed fossil fuel	no	no					
Other fossil fuel	no	no					
Briquettes of mixed biomass (30–70 %)/fossil fuel	no	no					
Other blend of biomass and fossil fuel	no	no					

Characteristics when operating with the preferred fuel only:

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Useful heat output				Useful efficiency			
At nominal heat output	P_n(***)	**19,3**	kW	At nominal heat output	η_n	**83,4**	%
At [30 %/50 %] of nominal heat output, if applicable	P_p	**N/A**	kW	At [30 %/50 %] of nominal heat output, if applicable	η_p	**N/A**	%
For solid fuel cogeneration boilers: electrical efficiency				**Auxiliary electricity consumption**			
				At nominal heat output	el_{max}	**0,050**	kW
At nominal heat output	$\eta_{el,n}$	**0,00**	%	At [30 %/50 %] of nominal heat output, if applicable	el_{min}	**N/A**	kW
				Of incorporated secondary emission abatement equipment, if applicable		**N/A**	kW
				In standby mode	P_{SB}	**0,002**	kW

Contact details: BIODOM 27 d.o.o., OIC Hrpelje 4A 6240 Kozina: Tel.: +386 (0)5 6801 456

(*) Storage tank volume = 45 × P_r × (1 – 2.7/P_r) or 300 litres, whichever is higher, with P_r indicated in kW. (**) Storage tank volume = 20 × P_r, with P_r indicated in kW.
(***) For the preferred fuel, P_n equals P_r.
(****) PM = particulate matter, OGC = organic gaseous compounds, CO = carbon monoxide, NO_x = nitrogen oxides.

Model identifier: **BIODOM X 25**

Stoking: manual
the boiler should be operated with a hot water storage tank with a volume of at least **1003.5** (*) litres Condensing boiler: YES

Solid fuel cogeneration boiler: no Combination boiler: no

Fuel	Preferred fuel (only one):	Other suitable fuels:	ηs [x %]:	Seasonal space heating emissions			
				PM	OGC	CO	NO_x
				[x] mg/m^3			
Wood logs, moisture content ≤ 25 %	**yes**	no	**79,3**	**28**	**17**	**144**	**189**
Wood chips, moisture content 15–35 %	no	no					
Wood chips, moisture content > 35 %	no	no					
Compressed wood in the form of pellets or briquettes	no	no					
Sawdust, moisture content ≤ 50 %	no	no					
Other woody biomass	no	no					
Non-woody biomass	no	no					
Bituminous coal	no	no					
Brown coal (including briquettes)	no	no					
Coke	no	no					
Anthracite	no	no					
Briquettes of mixed fossil fuel	no	no					
Other fossil fuel	no	no					
Briquettes of mixed biomass (30–70 %)/fossil fuel	no	no					
Other blend of biomass and fossil fuel	no	no					

Characteristics when operating with the preferred fuel only:

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Useful heat output				Useful efficiency			
At nominal heat output	P_n(***)	**25**	kW	At nominal heat output	η_n	**82,9**	%
At [30 %/50 %] of nominal heat output, if applicable	P_p	**N/A**	kW	At [30 %/50 %] of nominal heat output, if applicable	η_p	**N/A**	%
For solid fuel cogeneration boilers: electrical efficiency				**Auxiliary electricity consumption**			
				At nominal heat output	el_{max}	**0,055**	kW
At nominal heat output	$\eta_{el,n}$	**0,00**	%	At [30 %/50 %] of nominal heat output, if applicable	el_{min}	**N/A**	kW
				Of incorporated secondary emission abatement equipment, if applicable		**N/A**	kW
				In standby mode	P_{SB}	**0,002**	kW

Contact details: BIODOM 27 d.o.o., OIC Hrpelje 4A 6240 Kozina: Tel.: +386 (0)5 6801 456

(*) Storage tank volume = 45 × P_r × (1 – 2.7/P_r) or 300 litres, whichever is higher, with P_r indicated in kW. (**) Storage tank volume = 20 × P_r, with P_r indicated in kW.
(***) For the preferred fuel, P_n equals P_r.
(****) PM = particulate matter, OGC = organic gaseous compounds, CO = carbon monoxide, NO_x = nitrogen oxides.

Model identifier: **BIODOM X 32**

Stoking: manual
the boiler should be operated with a hot water storage tank with a volume of at least **1314** (*) litres Condensing boiler: YES
Solid fuel cogeneration boiler: no Combination boiler: no

Fuel	Preferred fuel (only one):	Other suitable fuels:	ηs [x %]:	Seasonal space heating emissions			
				PM	OGC	CO	NO_x
				[x] mg/m^3			
Wood logs, moisture content ≤ 25 %	**yes**	no	**79,3**	**27**	**19**	**159**	**189**
Wood chips, moisture content 15–35 %	no	no					
Wood chips, moisture content > 35 %	no	no					
Compressed wood in the form of pellets or briquettes	no	no					
Sawdust, moisture content ≤ 50 %	no	no					
Other woody biomass	no	no					
Non-woody biomass	no	no					
Bituminous coal	no	no					
Brown coal (including briquettes)	no	no					
Coke	no	no					
Anthracite	no	no					
Briquettes of mixed fossil fuel	no	no					
Other fossil fuel	no	no					
Briquettes of mixed biomass (30–70 %)/fossil fuel	no	no					
Other blend of biomass and fossil fuel	no	no					

Characteristics when operating with the preferred fuel only:

Item	Symbol	Value	Unit
Useful heat output			
At nominal heat output	P_n(***)	**32**	kW
At [30 %/50 %] of nominal heat output, if applicable	P_p	**N/A**	kW
For solid fuel cogeneration boilers: electrical efficiency			
At nominal heat output	$\eta_{el,n}$	**0,00**	%

Item	Symbol	Value	Unit
Useful efficiency			
At nominal heat output	η_n	**82,7**	%
At [30 %/50 %] of nominal heat output, if applicable	η_p	**N/A**	%
Auxiliary electricity consumption			
At nominal heat output	el_{max}	**0,055**	kW
At [30 %/50 %] of nominal heat output, if applicable	el_{min}	**N/A**	kW
Of incorporated secondary emission abatement equipment, if applicable		**N/A**	kW
In standby mode	P_{SB}	**0,002**	kW

Contact details: BIODOM 27 d.o.o., OIC Hrpelje 4A 6240 Kozina: Tel.: +386 (0)5 6801 456

(*) Storage tank volume = 45 × P_r × (1 – 2.7/P_r) or 300 litres, whichever is higher, with P_r indicated in kW. (**) Storage tank volume = 20 × P_r, with P_r indicated in kW.
(***) For the preferred fuel, P_n equals P_r.
(****) PM = particulate matter, OGC = organic gaseous compounds, CO = carbon monoxide, NO_x = nitrogen oxides.

Data sheet in accordance with the requirements of Commission Regulation (EU) 2015/1189

Model identifier: **BIODOM X40**

Stoking: manual
the boiler should be operated with a hot water storage tank with a volume of at least **1699** (*) litres Condensing boiler: YES
Solid fuel cogeneration boiler: no Combination boiler: no

Fuel	Preferred fuel (only one):	Other suitable fuels:	ηs [x %]:	Seasonal space heating emissions			
				PM	OGC	CO	NO_x
				[x] mg/m^3			
Wood logs, moisture content ≤ 25 %	**yes**	no	**79,2**	**25**	**22**	**177**	**190**
Wood chips, moisture content 15–35 %	no	no					
Wood chips, moisture content > 35 %	no	no					
Compressed wood in the form of pellets or briquettes	no	no					
Sawdust, moisture content ≤ 50 %	no	no					
Other woody biomass	no	no					
Non-woody biomass	no	no					
Bituminous coal	no	no					
Brown coal (including briquettes)	no	no					
Coke	no	no					
Anthracite	no	no					
Briquettes of mixed fossil fuel	no	no					
Other fossil fuel	no	no					
Briquettes of mixed biomass (30–70 %)/fossil fuel	no	no					
Other blend of biomass and fossil fuel	no	no					

Characteristics when operating with the preferred fuel only:

Item	Symbol	Value	Unit
Useful heat output			
At nominal heat output	P_n(***)	**40**	kW
At [30 %/50 %] of nominal heat output, if applicable	P_p	**N/A**	kW
For solid fuel cogeneration boilers: electrical efficiency			
At nominal heat output	$\eta_{el,n}$	**0,00**	%

Item	Symbol	Value	Unit
Useful efficiency			
At nominal heat output	η_n	**82,7**	%
At [30 %/50 %] of nominal heat output, if applicable	η_p	**N/A**	%
Auxiliary electricity consumption			
At nominal heat output	el_{max}	**0,060**	kW
At [30 %/50 %] of nominal heat output, if applicable	el_{min}	**N/A**	kW
Of incorporated secondary emission abatement equipment, if applicable		**N/A**	kW
In standby mode	P_{SB}	**0,002**	kW

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(*) Storage tank volume = 45 × P_r × (1 – 2.7/P_r) or 300 litres, whichever is higher, with P_r indicated in kW. (**) Storage tank volume = 20 × P_r, with P_r indicated in kW.
(***) For the preferred fuel, P_n equals P_r.
(****) PM = particulate matter, OGC = organic gaseous compounds, CO = carbon monoxide, NO_x = nitrogen oxides.

Model identifier: **BIODOM X 50**

Stoking: manual
the boiler should be operated with a hot water storage tank with a volume of at least **2124** (*) litres Condensing boiler: YES

Solid fuel cogeneration boiler: no Combination boiler: no

Fuel	Preferred fuel (only one):	Other suitable fuels:	ηs [x %]:	Seasonal space heating emissions			
				PM	OGC	CO	NO_x
				[x] mg/m^3			
Wood logs, moisture content ≤ 25 %	**yes**	no	**79,3**	**24**	**25**	**194**	**190**
Wood chips, moisture content 15–35 %	no	no					
Wood chips, moisture content > 35 %	no	no					
Compressed wood in the form of pellets or briquettes	no	no					
Sawdust, moisture content ≤ 50 %	no	no					
Other woody biomass	no	no					
Non-woody biomass	no	no					
Bituminous coal	no	no					
Brown coal (including briquettes)	no	no					
Coke	no	no					
Anthracite	no	no					
Briquettes of mixed fossil fuel	no	no					
Other fossil fuel	no	no					
Briquettes of mixed biomass (30–70 %)/fossil fuel	no	no					
Other blend of biomass and fossil fuel	no	no					

Characteristics when operating with the preferred fuel only:

Item	Symbol	Value	Unit
Useful heat output			
At nominal heat output	P_n(***)	**48**	kW
At [30 %/50 %] of nominal heat output, if applicable	P_p	**N/A**	kW
For solid fuel cogeneration boilers: electrical efficiency			
At nominal heat output	$\eta_{el,n}$	**0,00**	%

Item	Symbol	Value	Unit
Useful efficiency			
At nominal heat output	η_n	**82,5**	%
At [30 %/50 %] of nominal heat output, if applicable	η_p	**N/A**	%
Auxiliary electricity consumption			
At nominal heat output	el_{max}	**0,060**	kW
At [30 %/50 %] of nominal heat output, if applicable	el_{min}	**N/A**	kW
Of incorporated secondary emission abatement equipment, if applicable		**N/A**	kW
In standby mode	P_{SB}	**0,002**	kW

Contact details: BIODOM 27 d.o.o., OIC Hrpelje 4A 6240 Kozina: Tel.: +386 (0)5 6801 456

(*) Storage tank volume = 45 × P_r × (1 – 2.7/P_r) or 300 litres, whichever is higher, with P_r indicated in kW. (**) Storage tank volume = 20 × P_r, with P_r indicated in kW.
(***) For the preferred fuel, P_n equals P_r.
(****) PM = particulate matter, OGC = organic gaseous compounds, CO = carbon monoxide, NO_x = nitrogen oxides.

CE EU DECLARATION OF CONFORMITY

BIODOM 27 d.o.o. declares under its sole responsibility that the following products:

Product description:	Solid fuel hot water boiler
Model:	Biodom X18
	Biodom X25
	Biodom X32
	Biodom X40
	Biodom X50

comply with the following standards:

EN ISO 12100-1:2004 and A1:2010
EN ISO 12100-2:2004 and A1:2010
EN 303-5:2012
EN 60204-1:2006 and A1:2010
EN 61000-6-3:2007
EN 61000-6-2:2005
EN 61000-3-3:A1 2002
EN 61000-3-3:A2 2006

and with the directives and delegated regulations of the European Commission:

2006/42/EC on machinery
2006/95/EC on low voltage equipment
2004/108/EC on electromagnetic compatibility, (EU) 2015/863
2009/125/EC

Manufacturer's name: **BIODOM 27 d.o.o.**
Manufacturer's address: **OIC Hrpelje 4A, 6240 Kozina**

Kozina,

Date: 15.07.2024

Biodom27 d.o.o.
Director: Jan Kavčič

BIODOM 27 d.o.o.
OIC Hrpelje 4a, 6240 Kozina

Podpis odgovorne osebe in žig

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