



Pele Max

Industrial boiler



User manual Maintenance and installation

Pele Max

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Safety provisions



During the use of the boiler, its individual parts: chimney, door, individual points of the body – can heat up and cause burns if touched.



Do not allow children to touch or use the boiler without adult supervision.



The boiler can be operated by a capable adult who has carefully familiarized himself with this instruction.



Only a qualified specialist can install the boiler and connect it to the heating and electrical systems.



If you suspect that the boiler has malfunctioned, please contact the organization that installed the boiler or the manufacturer's representative. Do not under any circumstances use a malfunctioning boiler.



Improperly connected and used boiler can cause injury or death.

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1. Introduction

1.1 General information

Pelle Max models consist of five horizontal heat exchangers, which form a very large area of the heat exchanger, which allows to achieve a higher efficiency factor than 90%. Pelle Max boilers can be used to burn pellets in fully automatic mode or solid fuel in semi-automatic mode. Before connecting the boiler to the heating system, read this manual carefully and make sure that all boiler components and equipment are working properly.

Pelle Max boilers are designed for industrial use for heating various rooms. The boilers belong to the so-called low-temperature boilers category, i.e. the average temperature of the heat carrier cannot exceed 90°C, and the maximum operating pressure - 1.5 bar.

The manufacturer has the right to make minor changes that do not significantly affect the quality of the combustion process and the operation of the boiler.

1.2 Standards and regulations

The boiler must be installed and operated in compliance with the legal requirements of the country to which it is supplied. It must be installed in accordance with the requirements of the maintenance and installation instructions.

Otherwise, the manufacturer assumes no responsibility and does not guarantee repair for any defects.

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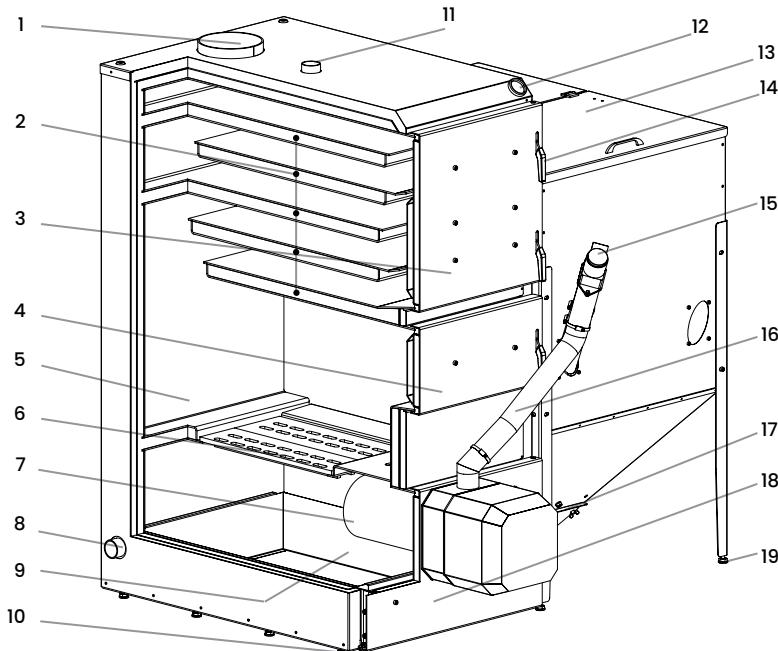
2. Technical parameters

Models and power output		50 kW	70 kW	100 kW
Heated area	Max m ²	500	700	1000
Combustion chamber depth	mm	680	680	980
Combustion chamber load	l/dm ³	105	145	280
Rotary modulated pellet burner	kW	10-50	15-70	20-100
Heat exchanger area	m ²	6	7,8	11,8
Combustion chamber opening size	cm	50x26	60x26	70x26
Number of horizontal heat exchangers	pcs	5	5	5
Volume of water in the boiler	l	142	180	280
Weight	kg	500	650	890
Chimney inner-outer diameter	mm	185/195	185/195	200/210
Fuel chamber capacity	500/700/1000 l/dm ³			
Lowest operating temperature	60° C			
Highest operating temperature	90° C			
Heating efficiency	90%			
Hydraulic connections size	G2 inch			
Highest operating pressure	1,5 bar			
Required draft in the chimney	>20 Pa			

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3. Construction

3.1 Boiler components



- | | |
|------------------------|----------------------------------|
| 1. Chimney | 11. Supply branch pipe |
| 2. Heat exchanger | 12. Thermometer |
| 3. Cleaning door | 13. Pellet filling cover |
| 4. Fuel loading door | 14. Door handle |
| 5. Combustion chamber | 15. Pellet feeder |
| 6. Cast iron grates | 16. Flexible pellet feeding hose |
| 7. Rotary burner | 17. Chamber maintenance cover |
| 8. Reverse branch pipe | 18. Bottom door |
| 9. Ash box | 19. Adjustable feet |
| 10. Adjustable legs | |

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3. Construction

3.2 Boiler

The boiler consists of 3 main zones. Five horizontal heat exchangers (2) are located in the area of the upper door. The upper door (3) is used when it is necessary to clean the surface of the heat exchanger. There is a solid fuel combustion chamber in the area of the middle door (4). This chamber is designed to use cheaper solid fuel and is loaded manually. The middle and lower chambers are separated by cast iron grates (6). When using pellets continuously, it is recommended to remove the grates. A rotary pellet burner (7) is installed in the area of the lower door (18) and a pull-out ash box (9) is placed for ash removal. The internal heat exchanger body of the boiler is made of bent and welded heat-resistant steel sheets, and the finish is made of powder-coated sheets. An insulating layer of glass wool is installed under the boiler finish, which protects against heat loss through the external walls of the boiler. Double doors with flame ridges are sealed with heat-insulating material and painted with heat-resistant paint. Gases generated during combustion are removed through the chimney pipe (1) installed in the upper part of the boiler. All the sensors that are needed to control the combustion and heating of the boiler are connected to the boiler controller, which can be mounted on the side of the boiler. The STB is located at the top of the controller. When the boiler overheats, it disconnects the supply of pellets and the operation of the fan. All other functions remain active.



The STB can only be reset by manually pressing the fuse button.

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3. Construction

3.3 Pellet chamber

The pellet chamber is designed to store fuel and supply it to the boiler in automatic mode. The supply system can be on the left or right side of the boiler, depending on the need. When installing the fuel supply system (screw feeder) it is necessary to consider the installation side and select the location of the bracket and screw hole sealing parts. The fuel chamber can be installed in another desired place, but the installation must ensure the automatic delivery of pellets from the feeder to the burner. The fuel in the chamber falls down to the bottom, where it is fed to the burner through a protective hose with the help of a helix (screw) feeder. The bottom of the container is equipped with a maintenance cover for periodic cleaning of pellet dust, which reduces the performance of the pellet conveyor.

3.4 Burner

Pelle Max boilers use a „Kipi Rot Power“ rotary pellet burner, which can burn pellets of lower quality. This is a high quality, long lasting burner of the new generation with an automatic ignition and cleaning system. The combustion chamber of the burner has a rotating mechanism. Thanks to this design, slag is not allowed to form in the burner, it is easier to remove slag, and the combustion chamber of the burner works over the entire area. The burner has a mechanism for regulating the ratio of primary and secondary air, which greatly increases the efficiency of the burner. Reliable construction, quality components and quality ceramic spark plugs will allow you to use this burner for a long time. More information is available in the burner manual.

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3. Construction

3.5 Controller

The boilers are equipped with the latest "Plum" controller. The controller is a modern electronic device designed to control the operation of a pellet boiler, using the display of an optical flame intensity sensor. The device is compact and easy to install. It can control central heating and hot water circuits and the operation of up to five heating circuits. The temperature of the heating circuits can be determined by the data received from the main temperature sensor or by separate room temperature sensors for each of the circuits. Also, the compatibility with standard room thermostats allows you to maintain a comfortable temperature in all premises (rooms). The controller can turn on the backup boiler (gas or liquid fuel).

The controller can operate according to preset parameters or "Fuzzy logic" operating principle.

An additional control panel located in the living room or another room and an additional module with a Lambda sensor can be connected to the boiler controller.

Controlling the boiler is easy and simple. The controller can be used in households and small industrial facilities. It is possible to monitor and control the combustion process of the boiler by connecting to the controller via the Internet.

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3. Construction

Module A. Standard equipment



Control of fan, smoke pump, automatic supply and ignition of pellets, control of heating and water circuit pumps, control of mixing pump and valve, control of room and outdoor temperature sensors, control of smoke temperature sensor, summer and winter mode, emergency shutdown, possibility to connect Lambda sensor, additional boiler control, audible emergency signal, possibility to set working time modes.

Module B. (Additional)



Management of storage capacity and additional circuit.

Module C. (Additional)



Control of two additional contours.

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4. Boiler installation

4.1 Boiler set

Pelle Max boiler models are delivered to the buyer fully assembled. The boiler and pellet container are delivered packed on separate pallets, fixed to the pallet soles with screws. The burner, the pellet feeding mechanism and the control unit are delivered packed in a cardboard package.

Standard equipment:

1. Pellet boiler Pelle Max.
2. Pellet chamber.
3. Cleaning tools.
4. „Kipi Rot Power“ rotary pellet burner.
5. „Plum 850“ controller and 3 m long boiler sensor.
6. 1.5 meter pellet feeder mechanism (not assembled).

Pelle Max boilers are only sold complete with „Kipi Rot Power“ burner and „Plum“ controller.

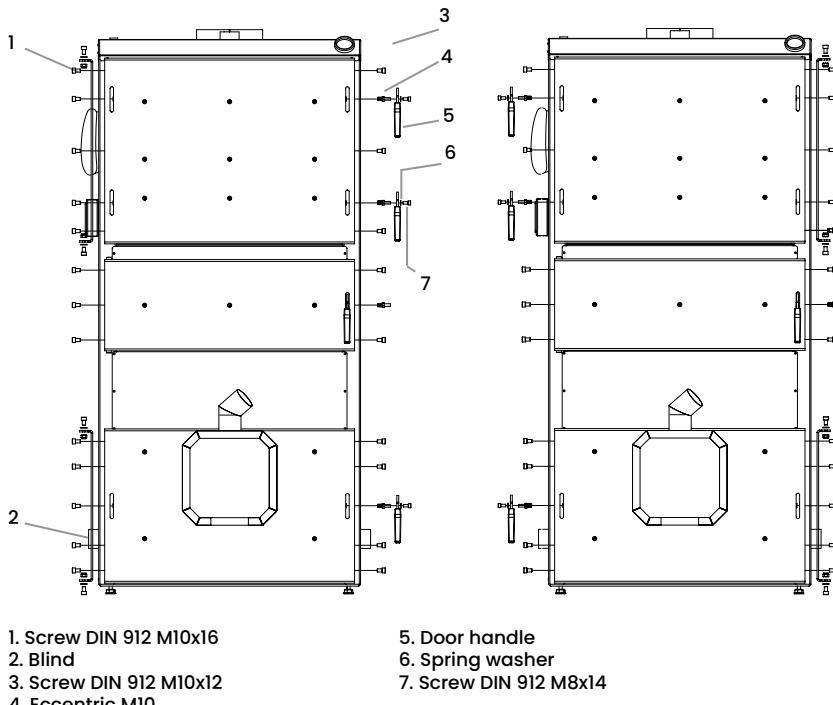
4.2 Location and position of boiler and pellet chambers

The boiler and pellet chamber must be placed on a hard, smooth and non-flammable dry surface. It should be convenient to access the rotary burner, control unit, pellet chamber, screw feeder, ash collector and other mechanisms. The pellet chamber can be installed in the desired position, but it can also be pushed right next to the boiler. The door opening direction can be changed.

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4. Boiler installation

4.3 Changing the door direction

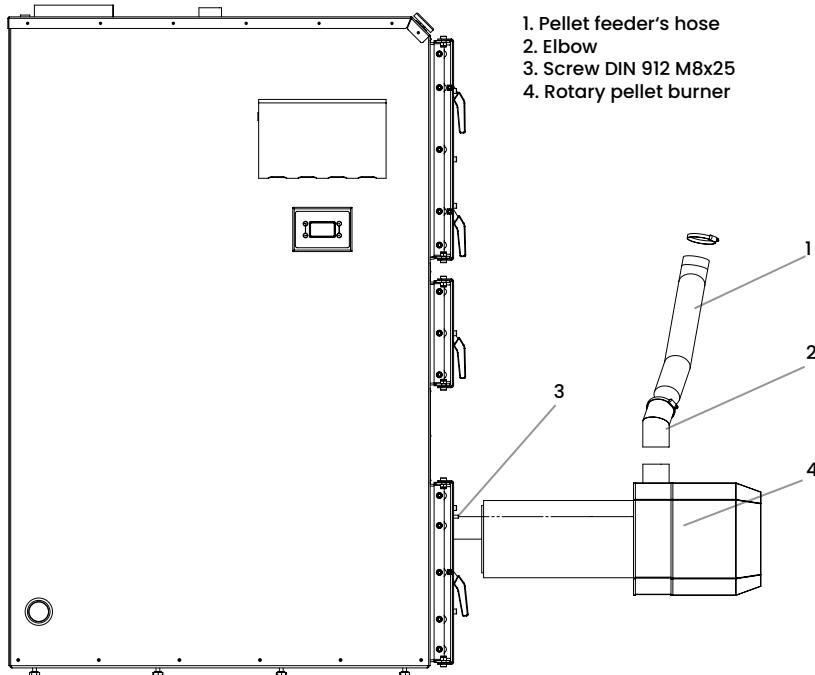


The direction of the middle door is changed by turning the door together with the hinge (hinges) away from the boiler body and screwing it on the opposite side of the boiler. The door handle is unscrewed, turned over and screwed back. The direction of the lower and upper doors is changed by turning the door away from the hinge. The hinge is unscrewed from the boiler body and screwed on the opposite side of the boiler. The door is screwed to the hinge, and the door handle is unscrewed from the door and screwed back to the opposite side of the door.

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4. Boiler installation

4.4 Installation of a rotary pellet burner

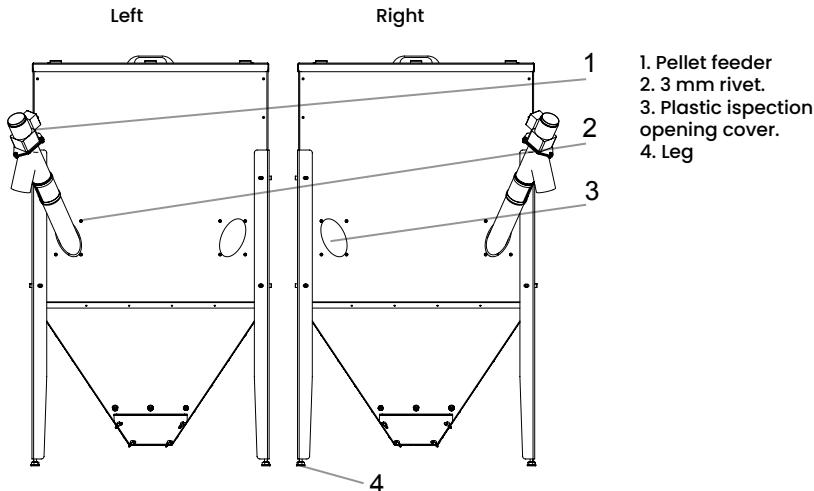


The rotary pellet burner together with components is supplied in a cardboard box. The burner is fixed on the lower door with M8 nuts (3). Attach the elbow (2) and the pellet feed hose (1).

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4. Boiler installation

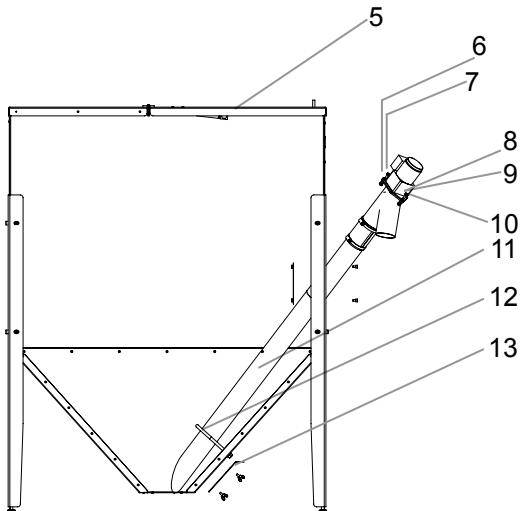
4.5 Installation of the pellet chamber



Before installing the chamber, carefully read point 4.4 of the instructions. The pellet chamber can be installed on the left, or right side of the boiler or in another desired location. The feed opening of the pellet feeder must be as high as possible above the rotary burner in order to successfully feed the pellets into the burner. The main requirement is that there must be no suspended granules in the flexible hose. The pellet feeder must be directed towards the burner. After choosing the direction of installation of the feeder, the plastic inspection opening cover (3) is fixed with screws (2). The pellet feeder is fixed with a bracket (12), which is fixed to the chamber with M8 nuts.

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4. Boiler installation



- 5. Pellet chamber lid
- 6. Nut DIN 934 M6
- 7. Washer DIN 125 M6
- 8. Spring washer DIN 127 M6
- 9. Screw DIN 931 M6x16
- 10. Pellet feeder motor
- 11. Pellet feeder
- 12. Pellet feeder holder
- 13. Maintenance door

The pellet feeder (11) included in the package is longer and can be shortened according to the customer's needs. The pellet feeder screw is shortened to the same length as the pellet feeder. The screw is attached to the coupling of the pellet feeder motor (10) and the motor with the attached screw is attached to the pellet feeder. A flexible hose is connected to the inlet of the feeder and the other end of the hose is connected to the elbow of the rotary burner. If the hose prevents the middle door from opening, the elbow can be shortened.

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4. Boiler installation

4.6 Connecting the boiler to the chimney

The flue must be installed to meet the requirements of the country where it is installed. The recommended smoke draft is 20 Pa. The chimney must be used in temperature class T600. If there is too much draft in the chimney, a draft regulator should be installed. The flue pipe of the boiler must be connected to the chimney itself with a rigid steel connection of suitable cross-section and shape.

The connection of the solid fuel boiler to the chimney must be properly insulated to prevent burns.

4.7 Connecting the boiler to the central heating system



Delegate the work of connecting the boiler to properly qualified specialists.

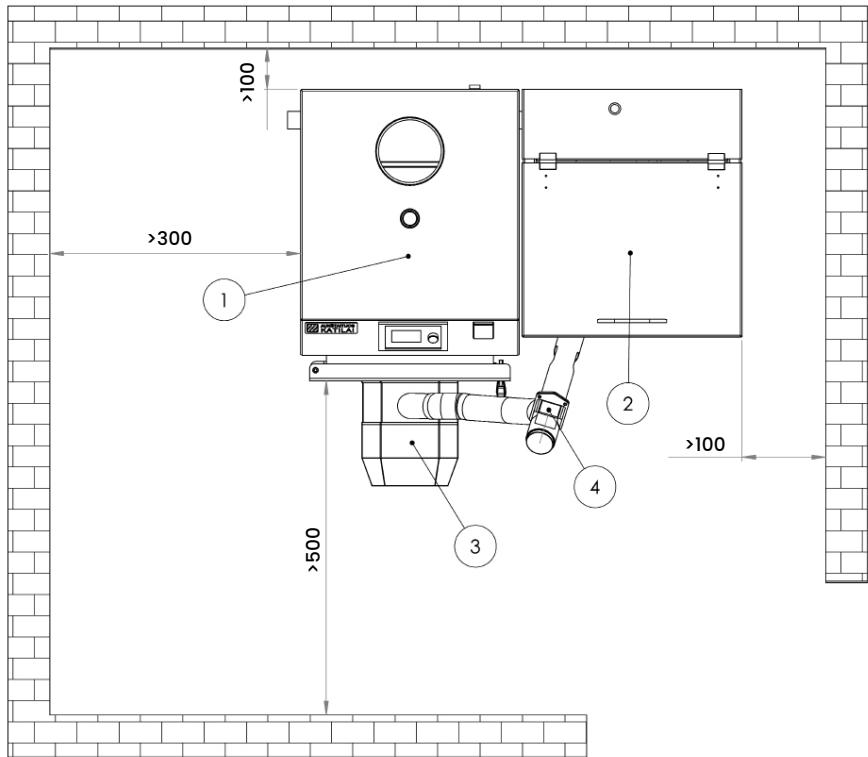
In order to extend the service life of the boiler and to ensure adequate comfort of use, it is necessary to follow such an installation scheme that ensures the maintenance of the working temperature of the boiler not below 60°C.

With the help of a specialist, make sure that the condition of the boiler, automation, plumbing connections, flue tightness and components are working properly. In a closed heating system, there must be a thermal expansion compensation vessel of suitable capacity (at least 10% of the total liquid volume in the system). Safety valves or valves that restrict flow in this system are prohibited. Recommended connection schemes are presented in subsection 4.9.

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4. Boiler installation

4.8. Boiler position in the boiler room

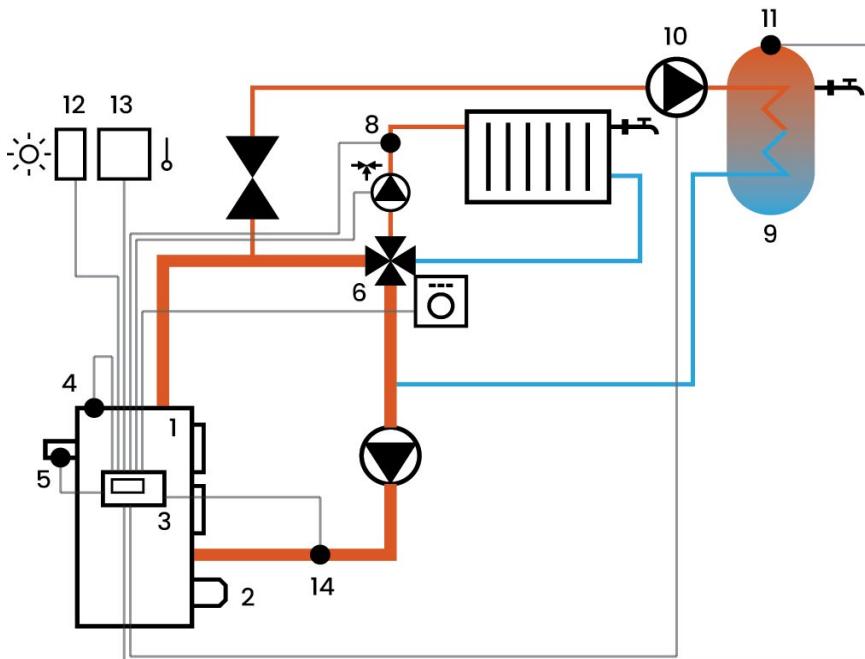


1. Pellet boiler
2. Pellet chamber
3. Burner
4. Pellet feeder

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4. Boiler installation

4.9 Recommended connection diagrams



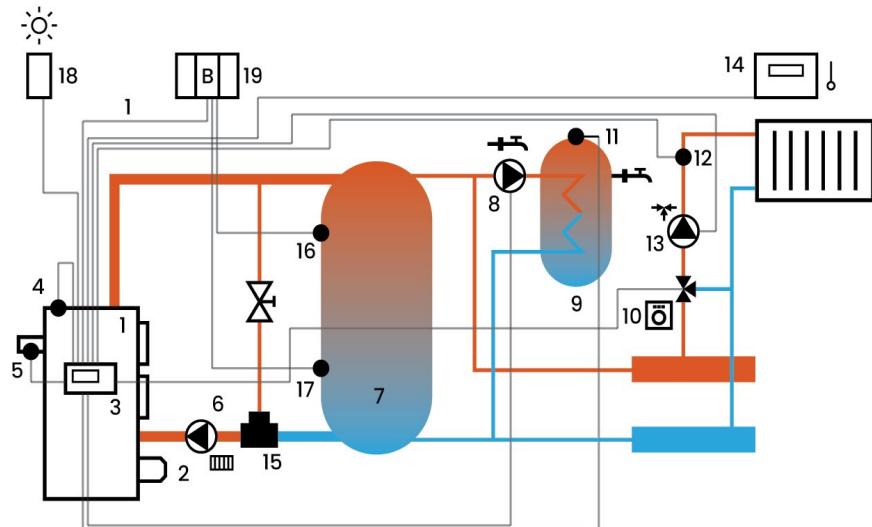
Scheme with a four-way valve controlling the circuit of the heating system.

- | | |
|----------------------------------|----------------------------------|
| 1. Boiler | 7. Heating circuit pump |
| 2. Burner | 8. Circuit temperature sensor |
| 3. Controller | 9. Hot water reservoir |
| 4. Boiler temperature sensor CT4 | 10. Hot water pump |
| 5. Smoke temperature sensor | 11. Hot water sensor |
| 6. Four-way valve engine | 12. Air temperature sensor CT4-P |

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4. Boiler installation

4.9 Recommended connection diagrams



Scheme with storage capacity.

- 1. Boiler
- 2. Burner
- 3. Controller
- 4. Boiler temperature sensor
- 5. Smoke temperature sensor
- 6. Boiler pump
- 7. Storage reservoir
- 8. Hot water pump
- 9. Hot water reservoir
- 10. Mixing valve motor
- 11. Hot water temperature sensor
- 12. Room circuit temperature sensor
- 13. Perimeter pump
- 14. Room thermostat ecoSTER200 with room thermostat function
- 15. Thermostatic three-way valve for backflow protection
- 16. Accumulator reservoir high temperature sensor
- 17. Accumulator reservoir low temperature sensor
- 18. Air temperature sensor
- 19. Additional module B.

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4. Boiler installation

4.10 Installing the controller



Installation, commissioning and tuning of the controller can only be performed by certified specialists.

The controller is delivered in a cardboard package and installed in the rear part of the pellet box.

The electrical wiring diagrams of the controller are provided together with the controller manual.



The temperature sensor is installed in the socket at the back of the boiler. When installing the temperature sensor in the boiler, it is necessary to lock the sensor in the sleeve to prevent accidental removal. If the temperature sensor falls out of the sleeve, the boiler may boil.

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4. Boiler installation

4.11 Starting the burner and controller



When starting up the boiler for the first time, a certified specialist must train the user on how to use the heating system.

During the start-up, the “Declaration” for the operation of the burner is signed and the “Warranty” sheet is issued.

“Kipi Rot Power” carries out pellet burner start-up, warranty and post-warranty service

**JSC “Degus”, info@protingesiluma.lt,
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The manufacturer is not responsible for the quality of boiler operation and malfunctions if the user starts the burner and controller himself. We recommend entrusting the burner start-up work to a certified specialist.

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5. Using the boiler

5.1 General information and safety

Pelle Max are universal boilers designed to use both pellets in automatic mode and cheaper solid fuel using manual loading. Pellets are ignited with the help of a ceramic burner. Solid fuel is ignited manually. The combustion process of both pellets and solid fuel is controlled by the controller, but the type of fuel is selected manually on the control panel.



Use the boiler safely and follow the basic safety and boiler operation rules.

- Check the operation of the safety valve (max. 1.5 bar) and open the shut-off valves between the heating boiler and the heating system.
- Check the water pressure in the system.
- The heating system must be filled with water and bled.
- Do not use flammable liquids such as gasoline, paint thinners etc. when starting solid fuel.
- Do not burn plastic, rubber and other air-polluting waste.
- The smoke extraction system must be reliably connected and tight.
- Unmaintained chimney, insufficient draft can cause carbon monoxide poisoning.
- Carry out maintenance work on the boiler only after it has cooled down.



If you suspect that the boiler or the heating system is not working properly, stop using it and contact a specialist.

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5. Using the boiler

5.2 Boiler fuel

Primary fuel: pellets. Secondary fuel: firewood, sawdust briquettes, peat briquettes, coal.

5.3 Using the boiler in automatic mode

A properly connected boiler can operate autonomously, in fully automatic mode, taking into account the current heat demand. The combustion process is controlled according to the data captured by the burner photodetector. The burning intensity of the burner is automatically regulated, the temperature of the boiler is changed according to the preset parameters. It is possible to control the burner depending on the time of day, outdoor temperature, hot water demand, summer or winter time etc. Control is carried out with the help of the controller panel, or remotely by connecting to the controller via the Internet. In order to set the fully automatic mode when burning with pellets, select: Menu->Boiler settings->Operating mode and select the „Pellets“ parameter. During continuous autonomous pellet heating, it is recommended to remove cast iron grates from the combustion chamber of the boiler. More information about the controller can be found in the controller manual.

5.4 Using the boiler in manual mode (solid fuel)

The solid fuel burning process and the operation of the entire boiler room are controlled by the same controller. To start burning solid fuel, select: Menu->Boiler settings->Operating mode with the controller wheel and select the „Grates“ parameter. The controller will start supplying air for burning solid fuel, but will continue to fully control all boiler control processes.

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5. Using the boiler



In the case of low heat demand (spring/autumn) or too high draft of the chimney, due to the natural air inflow through the fan, combustion may be too intense and the boiler may overheat.

Before starting to burn solid fuel, make sure that the cast iron grates are in the correct position ("VVVVVV"). When stacked in reverse, wood fractions and ash fall, clogging the gaps. In this case, the boiler loses its traction and power, the grates fold.

5.5 Maintenance

Boiler maintenance. Boiler maintenance and cleaning is carried out periodically. Periodicity is provided as needed. With a well-balanced system, the boiler is cleaned once a month. The heat exchanger is cleaned by opening the upper door.

Ash cleaning from the ashtray is carried out as needed, depending on the type of fuel used and ash content. Overfull ashtray can interfere with the correct operation of the burner.

Maintenance of the pellet feeder. The cleaning opening can be accessed by opening the maintenance cover of the pellet chamber. It is designed to periodically clean the accumulated pellet dust, which reduces the performance of the pellet conveyor.

Burner maintenance. Cleaning the tube blower. When the burner is operating, some combustion products can enter the space between this tube and the outer tube through the vents in the burner tube. Depending on the type of fuel used, this component should be cleaned approximately every six months. The burner maintenance steps are described in the burner manual.

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6. Boiler warranty card

Model _____

Designated power output _____

Serial No. _____

Production year _____

Boiler start-up date _____

Comments

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7. Burner warranty card

Burner type/model _____

Serial No. _____

Production year _____

Purchase date _____

Comments

Signature, stamp

* Filled at the point of sale

Performance guarantee (for the performance of the annual inspection in accordance with the terms of the guarantee)

Date, signature of the representative of the point of sale , stamp

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7. Burner warranty card

Service and repair by the protocol of the burner

Maintenance/ service date	Specification	Signature and stamp of the representative of the seller



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8. Warranty conditions

When selling the boiler, the seller must familiarize the buyer with the terms of the warranty:

1. The manufacturer provides:

- 6-year warranty for the tightness of the boiler heat exchanger.
- 2-year warranty for the included parts.
- 2-year warranty for the burner.

2. After the service after 2 years of using the burner, the warranty is extended to 3 years.

3. The boiler installation scheme must ensure a return water temperature of at least 60°C.

4. Boiler connection must be performed only by a qualified specialist.

5. During the warranty period, the manufacturer undertakes to carry out free of charge elimination of malfunctions, if they occurred due to the fault of the manufacturer.

6. The warranty does not apply to:

- Failure to submit purchase documents and a stamped warranty sheet.
- Violation of installation, operating instructions or warranty conditions requirements.
- In case of mechanical damage to the boiler.
- After determining that the boiler has been repaired by an outsider.
- In case of natural disasters.

7. Defects detected during the warranty period will be eliminated within 21 working days from the date of the complaint.

8. Costs related to service calls and repairs, if it is determined that the warranty conditions have been violated, are covered by the buyer.