

Pellet Uni

Pellet fuel boiler



User manual Maintenance and installation

Pellet Uni

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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.

Pellet Uni

1. Introduction

1.1 General information

Pellet Uni boilers are characterized by an exceptionally large heat exchanger, allowing to achieve an efficiency of more than 90 percent, and very good automatic rotary pellet burners with wide control options.

Before connecting the boiler to the heating system carefully read this manual to ensure that all boiler components and equipment are working properly.

Pellet Uni boilers are designed for heating private residential houses, commercial and auxiliary premises. 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.

Pellet Uni

2. Technical parameters

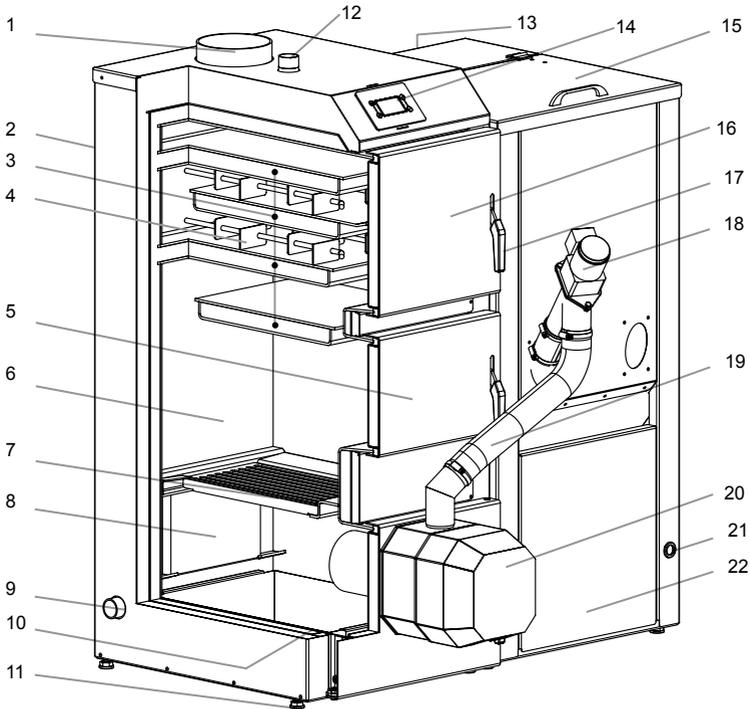
Models and power output		12 kW	16 kW	20 kW	26 kW	36 kW*
Heated area	max m ²	120	160	200	260	360
Combustion chamber depth	mm	455	455	455	505	505
Combustion chamber load	l/dm ³	55	55	65	84	93
Rotary modulated pellet burner	kW	4-16	4-16	5-20	6-26	8-36
Heat exchanger area	m ²	2,2	2,6	2,9	3,4	3,7
Combustion chamber opening size	cm	29x23	29x23	34x23	39x23	44x23
Horizontal heat exchanger number	pcs	3	4	4	4	4
Volume of water in the boiler	l	59	63	68	80	85
Weight	kg	260	280	310	360	380
Required draft in the chimney	Pa	12	13	14	15	15
Lowest operating temperature	60° C					
Highest operating temperature	90° C					
Heating efficiency	90%					
Chimney inner-outer diameter	150/160 mm					
Hydraulic connections size	G 1 ¹ / ₄ inch					
Highest operating pressure	1,5 bar					
Fuel chamber capacity	230/350 l/dm ³					

* Pellet Uni 36 kW boiler does not have 5 class certificate

Pellet Uni

3. Construction

3.1 Boiler components



- 1. Chimney
- 2. Control unit
- 3. Heat exchanger
- 4. Turbulators
- 5. Cleaning door
- 6. Combustion chamber
- 7. Cast iron grates
- 8. Ceramics
- 9. Reverse branch pipe
- 10. Ash box
- 11. Adjustable legs

- 12. Supply branch pipe
- 13. Boiler thermal fuse
- 14. Control panel
- 15. Pellet chamber lid
- 16. Cleaning door
- 17. Door handle
- 18. Pellet feeder
- 19. Flexible pellet feeder hose
- 20. Rotary burner
- 21. Burner cable location
- 22. Pellet chamber maintenance cover

Pellet Uni

3. Construction

3.2 Boiler

The boiler heat exchanger consists of three main zones. There are four horizontal heat exchangers (4) in the area of the upper door (three in the 12 kw boiler). The cleaning door 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 fuel loading door (6). This chamber is designed to use cheaper solid fuel and is loaded manually. The middle and lower chambers are separated by cast iron bars (8). It is recommended to remove the herds during continuous use of pellets. A rotary pellet burner (10) is installed in the service door and a pull-out ash box (12) is placed for ash removal. The rear boiler wall of the pellet combustion chamber is protected by a heat-resistant ceramic plate (9), which also serves as a catalyst. The boiler control panel (2) is mounted on the front of the boiler and the electronic controller (3) is mounted on the rear of the pellet chamber. 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. Under the boiler finish is an insulating layer of glass wool, which protects against heat loss through the boiler's outer walls. The double doors 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. The boiler control unit (3) is installed in the rear part of the pellet chamber, all boiler control sensors are connected to it. The control unit is equipped with an emergency thermal fuse (STB). 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 pressing the fuse button manually and only after identifying and eliminating the fault.

Pellet Uni

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 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 chamber is filled with pellets by opening the lid. The fuel in the chamber falls down to the bottom, where it is supplied to the burner with the help of a spiral (screw) feeder (18) through a protective hose (19). Opening the chamber maintenance cover (21) allows access to the cleaning opening. It is designed to periodically clean the accumulated pellet dust, which reduces the performance of the pellet conveyor.

3.4 Burner

Pellet Uni boilers use a „Kipi Rot Power“ rotary pellet burner that can burn lower quality pellets. 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.

Pellet Uni

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 on 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.

Pellet Uni

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

Pellet Uni boilers are delivered to the buyer fully assembled. The boiler and pellet container are delivered packed on one pallet and are fixed with screws. The burner, the pellet feeding mechanism and the control unit are delivered packed in a cardboard package. Pellet Uni boilers can be equipped with different sized pellet containers from 230 liters to 350 liters in volume. Standard equipment:

1. Pellet universal boiler Pellet Uni.
2. Pellet chamber (size to order).
3. Burner „Kipi Rot Power“.
4. „Plum 920“ controller and 3 m long boiler sensor.
5. 1.5 meter pellet feeder (not assembled).
6. Turbulators.

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

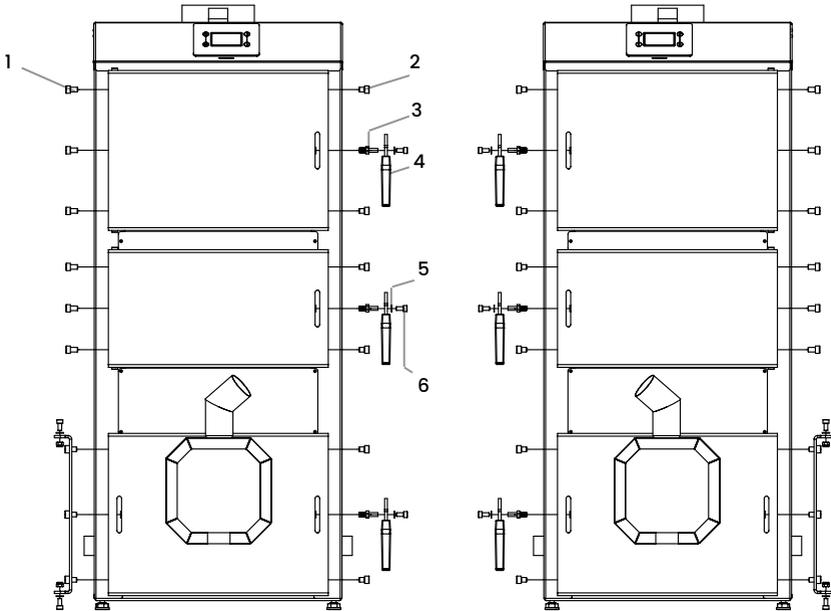
4.2 Location and position of boiler and pellet chamber

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. Pushing is done by setting the height of the boiler and the chamber with adjustable feet, so that the return water pipe of the boiler hits the hole on the side of the pellet chamber. In order to prevent the handle of the boiler installation valve from pushing the fuel container to the boiler, the valve handle is screwed on the opposite side of the boiler. The door opening direction can be changed.

Pellet Uni

4. Boiler installation

4.3 Changing the door direction



1. Screw DIN 912 M10x16
2. Screw DIN 912 M10x12
3. Eccentric M10

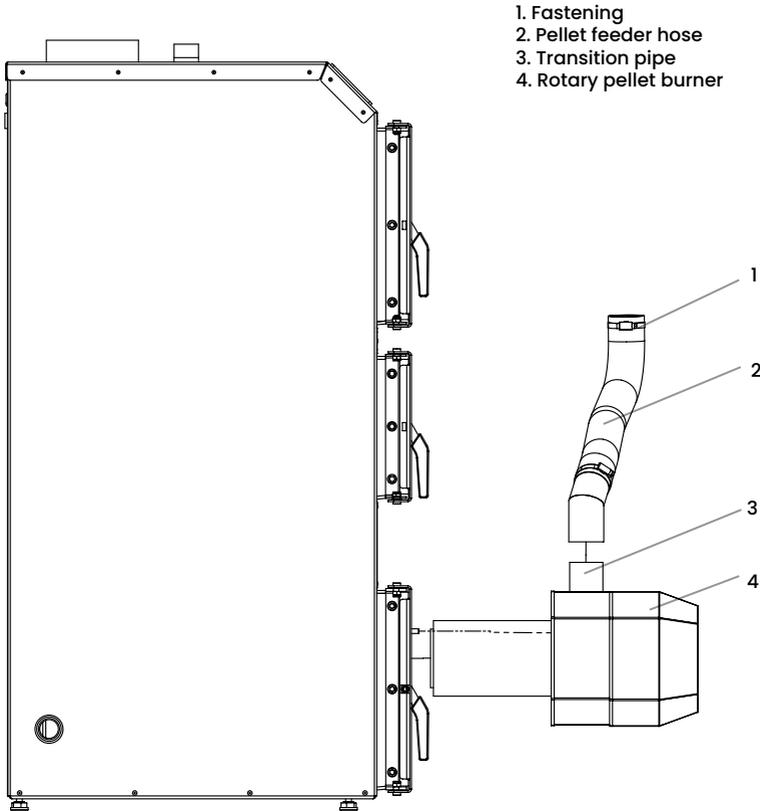
4. Door handle
5. Spring washer
6. Screw DIN 912 M8x14

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.

Pellet Uni

4. Boiler installation

4.4 Installation of a rotary pellet burner

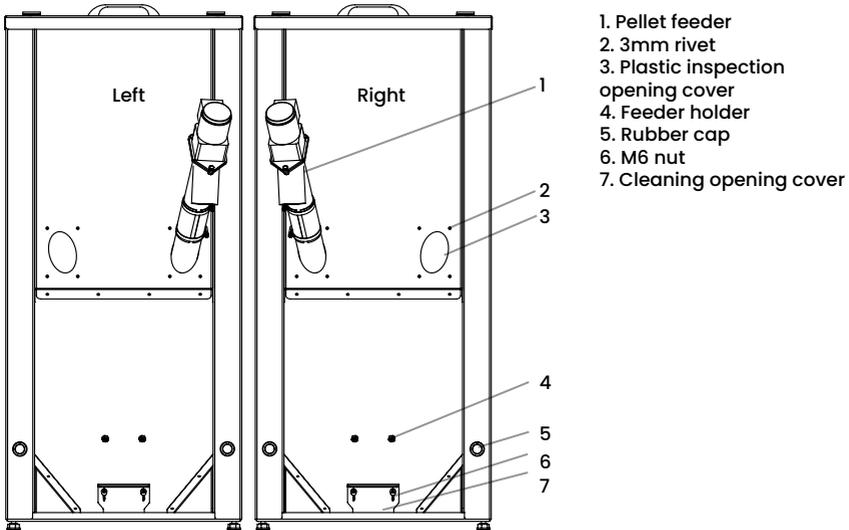


The rotary pellet burner (4) is supplied together with components in a cardboard box. The burner is fixed on the door with M8 nuts. The pipe (3) and the pellet feeder hose (2) are inserted, the pellet feeder hose is tightened with clamps (1).

Pellet Uni

4. Boiler installation

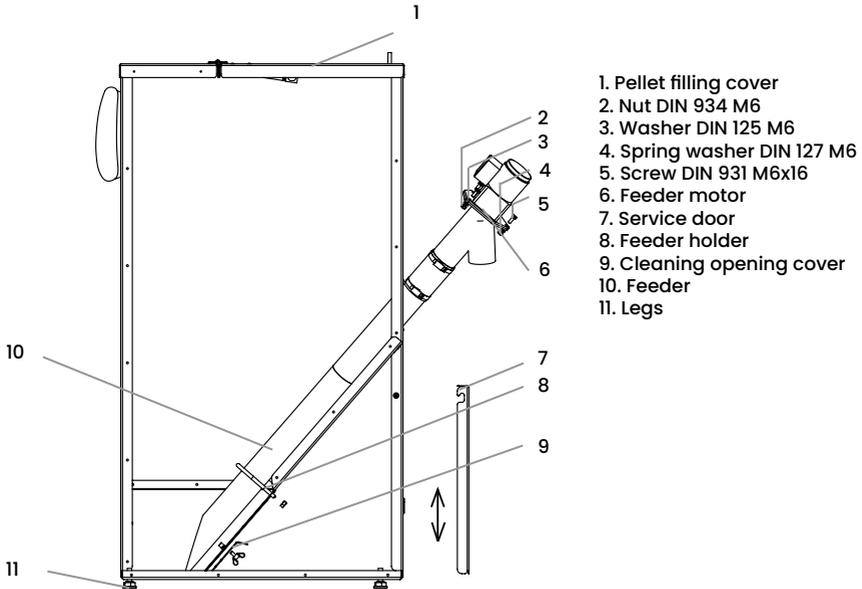
4.5 Installation of the pellet chamber



The pellet chamber can be installed on the left side, or the 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 conveyor mounting direction, the fixing position of the plastic inspection opening cover (3) is fixed with rivets (2) (Fig. 4.4). The pellet feeder is fixed with a holder (4), which is fixed to the chamber with M8 nuts. It is recommended to pass the wires from the control unit to the rotary burner through the holes covered with a rubber cap (5) in order to protect the wires.

Pellet Uni

4. Boiler installation



The supplied pellet feeder (10) is longer and can be shortened according to the customer's needs to achieve the specified requirements. The pellet feeder (spiral) screw is shortened to the same length as the pellet feeder. The screw is attached to the coupling of the pellet feeder motor (6) and the motor with the attached screw is attached to the pellet feeder. A flexible hose is connected to the inlet of the pellet 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 chimney must be installed to meet the requirements of the country where it is installed. The recommended chimney draft is 15–20 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 boiler flue pipe must be connected to the flue 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.

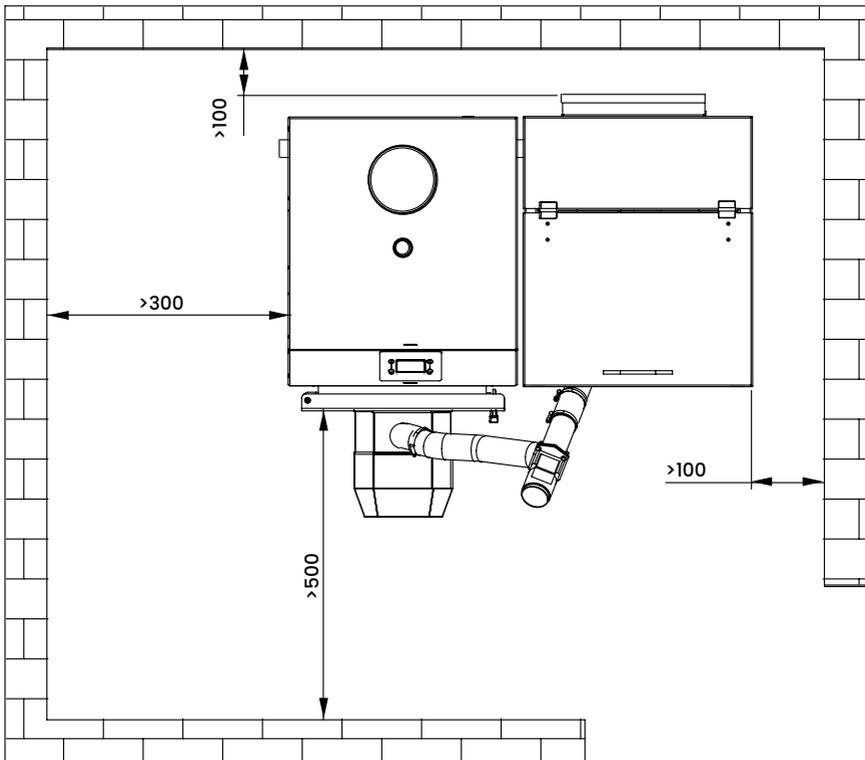
In order to extend the service life of the boiler and to ensure adequate comfort of use, it is necessary to follow such an installation scheme that ensures the maintenance of the working temperature of the boiler not below 60°C.

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

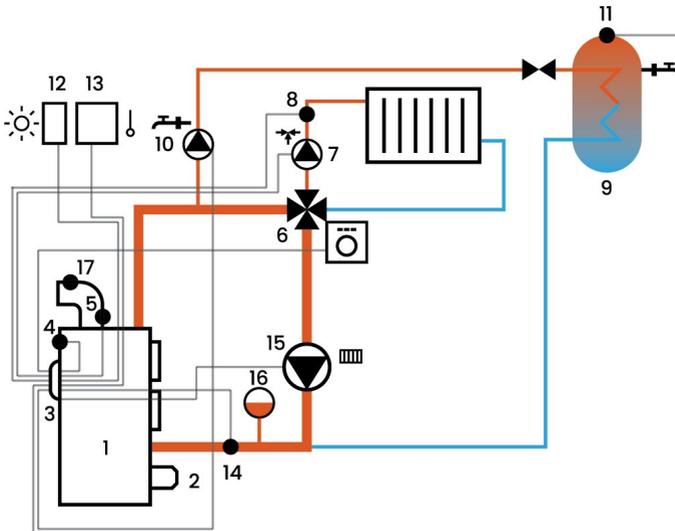


Pellet Uni

4. Boiler installation

4.9. Recommended connection diagrams

For new heating systems



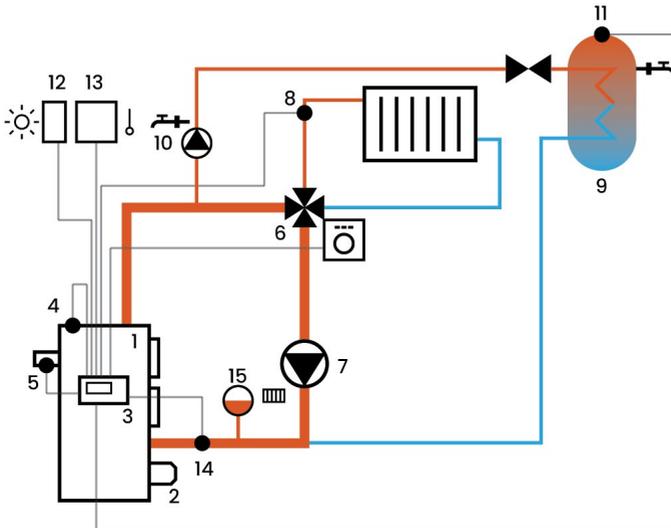
Scheme with a four-way valve controlling the circuit of the heating system

1. Boiler
2. Burner
3. Controller
4. Boiler temperature sensor CT4
5. Smoke temperature sensor
6. Four-valve motor
7. Heating circuit pump
8. Circuit temperature sensor
9. Hot water reservoir
10. Hot water pump
11. Hot water sensor
12. Air temperature sensor CT4-P
13. Room thermostat ecoSTER200 or standard room thermostat
14. Return temperature sensor (not necessary for the system to work)
15. Boiler pump
16. Expansion reservoir
17. Chimney draft regulator

Pellet Uni

4. Boiler installation

For old gravity heating systems



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

1. Boiler
2. Burner
3. Controller
4. Boiler temperature sensor CT4
5. Smoke temperature sensor
6. Four-valve motor
7. Boiler pump
8. Circuit temperature sensor
9. Hot water reservoir
10. Hot water pump
11. Hot water sensor
12. Air temperature sensor CT4-P
13. Room thermostat ecoSTER200 or standard room thermostat
14. Return temperature sensor (not necessary for the system to work)
15. Expansion reservoir

Pellet Uni

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 container. 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.

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 drawn filled and the “Warranty” sheet is issued. Commissioning of the “Kipi Rot Power” pellet burner, warranty and post-warranty service are carried out by certified specialists. You can find the list of specialists at www.aukstaitijoskatilai.lt or call: +370 683 333 88.

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.

Pellet Uni

5. Using the boiler

5.1 General information and safety

Pellet Uni is universal boiler 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, 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.

Pellet Uni

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. i.e. Control is carried out with the help of the controller panel or remotely by connecting to the controller via the Internet. To set the fully automatic mode when burning with pellets, use the control wheel to 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.

Pellet Uni

5. Using the boiler



In case of low heat demand (spring/autumn) or too high draft of the chimney, the natural air intake through the fan may cause too intense combustion and boiler overheating (See 3.3.).



Before starting to burn solid fuel, make sure that the cast iron grates are in the correct position (“VVVVV”). 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 feeding conveyor. The cleaning hole 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.

Pellet Uni

6. Boiler warranty card

Model _____

Designated power output _____

Serial No. _____

Production year _____

Boiler start-up date _____

Comments

Pellet Uni

7. Burner warranty card

Burner type/model _____

Serial No. _____

Purchase date _____

Comments

Signature, stamp

Pellet Uni

7. Burner warranty card

(Filled during service)

Service and repair by the protocol of the burner

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

Pellet Uni

8. Certificate



BANDYMŲ
ISO/IEC 17025

Nr. LA01056

BANDYMŲ SERTIFIKATAS

Nr. 01/19-ST

Išdavimo data	2019 m. spalio 28 d.
Bandymų data	2019 m. gegužės 13 d. – spalio 4 d.
Gamintojas	UAB „Aukštaitijos katilai“, Linų g. 85, LT-20174 Ukmergė, Lietuva
Užsakovas	UAB „Aukštaitijos katilai“, Linų g. 85, LT-20174 Ukmergė, Lietuva
Bandymų objektas	Vandens šildymo katilai
Tipas/Modelis	PELLET UNI 12, PELLET UNI 16, PELLET UNI 20, PELLET UNI 26
Kuro tiekimo principas	Automatinis
Kuras	Medienos granulės
Bandymų metodas	LST EN 303-5:2012
Lapų skaičius	1

Bandymų rezultatai	PELLET	PELLET	PELLET	PELLET	
	UNI 12	UNI 16	UNI 20	UNI 26	
Vardinė šiluminė galia	12,7	15,6	19,5	24,3	kW
CO (10 % O ₂)	253	257	262	269	mg/m ³ (max. 500 mg/m ³)*
NO _x (10 % O ₂)	153	148	142	134	mg/m ³ (max. --- mg/m ³)*
C ₂ H ₄ (10 % O ₂)	7	6	6	5	mg/m ³ (max. 20 mg/m ³)*
Dulkės (10 % O ₂)	21	19	17	14	mg/m ³ (max. 40 mg/m ³)*
Naudingumo koeficientas	91,1	90,5	89,7	88,7	% (min. 88,4 %)*
Mžiausia šiluminė galia	3,8	4,7	5,9	7,3	kW
CO (10 % O ₂)	177	212	259	317	mg/m ³ (max. 500 mg/m ³)*
NO _x (10 % O ₂)	163	153	140	123	mg/m ³ (max. --- mg/m ³)*
C ₂ H ₄ (10 % O ₂)	8	8	10	11	mg/m ³ (max. 20 mg/m ³)*
Dulkės (10 % O ₂)	38	35	30	24	mg/m ³ (max. --- mg/m ³)*
Naudingumo koeficientas	88,3	88,6	89,0	89,6	% (min. --- %)*

* Ribinės vertės atitinka LST EN 303-5:2012 standarto 5 klasės reikalavimus.

Sertifikato išdavimo pagrindas Bandymų ataskaita Nr. 01/19-ST, išd. 2019-10-28

Šiuo bandymų sertifikatu Lietuvos energetikos instituto Šiluminių įrengimų tyrimo ir bandymų laboratorija patvirtina, kad aukščiau pateikti bandymų rezultatai priskiriami išbandytiems gaminiams.



Jaunesnysis mokslo darbuotojas

Egidijus Lemanas

Laboratorijos vadovas

Nerijus Pedišius

Šis dokumentas gali būti kopijuojamas tik pilnai.

Brestlaujos g. 3 LT-44403 Kaunas

Tel. (8 37) 401 863, faksas (8 37) 351 271, el. paštas teslab@lei.lt, interneto svetainė <http://www.lei.lt>

9. Declaration of Conformity



Linų g. 85, LT-20174, Ukmergė, Lietuva
Tel. +370 683 33388
www.akatilai.lt info@akatilai.lt

ATITIKTIES DEKLARACIJA

UAB „Aukštaitijos katilai“
įmonės kodas 303081850
Linų g. 85, LT-20174, Ukmergė

deklaruojame
su pilna atsakomybe, kad

granuliniai kietojo kuro šildymo katilai,
modeliai : „**PELLET UNI**“ nuo 12 iki 36 kW

atitinka direktyvų:
97/23/EEB p. 2.3

ir standartų:
LST EN 303-5:2012
LST EN 60335-1
nuostatas ir reikalavimus.



*Aukščiau paminėta deklaracija praranda savo galiojimą,
jei struktūriniai pakitimai buvo padaryti
be gamintojo sutikimo.*

2019-04-01

UAB „Aukštaitijos katilai“,
Direktorius Darius Brasiūnas

(Parašas)

UAB „Aukštaitijos katilai“
Linų g. 85, 20174 Ukmergė

Įm.kodas 303081850
PVM kodas LT100009242414

Tel. +370 683 33388
El. p. info@akatilai.lt

Pellet Uni

10. 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.

Ceramics are not covered by the warranty.

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.

Pellet Uni

11. Efficiency and emissions

Ecodesign 2015/1189

Pellet Uni 13								
Automatic ignition - the boiler should be used with a hot water tank of at least x* liters								
Condensing boiler [no]			Solid fuel cogeneration boiler [no]			Combined boiler [no]		
Fuel	Most suitable fuel	Other suitable fuel	η_s [%]:	Seasonal space heating emissions				
				SP	GOC	CM	NO _x	
				[x]mg/m ³				
Wood pellets	Yes	No	86±3	35±10	8±5	188±10%	162±5%	
Characteristics when burning only the most suitable fuel								
Useful heat release					Heat utility			
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit
At nominal heat output	P _n	12,7	kW		At nominal heat output	η_n	91,1	%
At [30%/50%] rated heat output, if applicable	P _p	3,8	kW		At [30%/50%] rated heat output, if applicable	η_p	88,3	%
List of equivalent models				Pellet Uni 16, Pellet Uni 20, Pellet Uni 26				

SP - solid particles, GOC - Gaseous organic compounds, CM - carbon monoxide
 NO_x - nitrogen oxides, η_s - Seasonal energy consumption efficiency for space heating
 (Efficiency factor - 3%)

η_n - Seasonal energy consumption efficiency for space heating at maximum power

η_p - Seasonal energy consumption efficiency for space heating at 30% capacity

X - Chamber volume = $45 \times Pr \times (1 - 2.7/Pr)$ or 300 liters, whichever is greater, Pr is expressed in kilowatts (kW)

Y - Chamber volume = $20 \times Pr$, Pr is expressed in kilowatts (kW)

Bio Kompakt

11. Efficiency and emissions

Additional electricity consumption

At nominal heat output	el _{max}	0,054	kW
At [30%/50%] nominal heat transfer, if applicable	el _{min}	0,028	kW
Secondary abatement equipment installed, if applicable		Non applicable	kW
When operating in standby mode	P _{SB}	0,024	kW

12. Disposal of the boiler



The boiler must be disposed of in accordance with the requirements of the country where it is disposed of.

