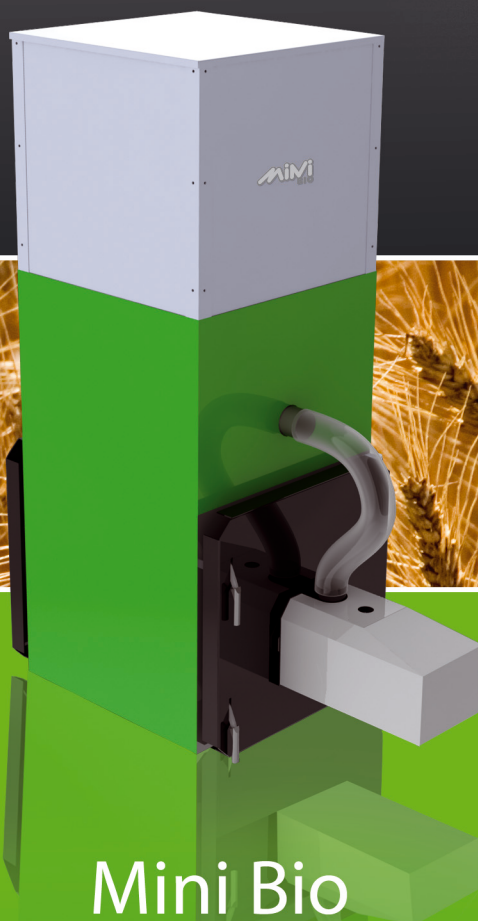


KOSTRZEWA®



Mini Bio 10, 20 [kW]

Service manual



Pellets



Oats



Declaration
of Conformity



Smart boilers



Dear user of KOSTRZEWA's equipment! !

We want to take this opportunity to thank you for choosing our equipment. You have selected the highest quality product of the company known and appreciated throughout the country.

The Kostrzewa company was established in 1978. Since the beginning of activity they are dealing with the production of fossil fuels and biomass-fired boilers for central heating applications. Within their 30 years' activity the company improves and upgrades their equipment so as to be a leader among the Polish manufacturers of solid fuel-fired boilers.

The implementation and designing department for new technologies was created in the company to continually improve the equipment and implement the new technologies. We want to contact with each customer by an intermediary of the companies, which will professionally represent our company.

Your opinion on the activities of our company and our partners is very important to us. Striving to continuously improve the level of our products, we ask you to make any comments about our products and service rendered by our Partners.

Have the warm and comfortable days through the whole year!

KOSTRZEWA sp.j.

Dear Users of Mini Bio Boiler.

Please remember to read this service manual of the boiler before connecting it and operation. It is to ensure the safe and proper operation

Before installing and starting up the boiler you should:

1. Check that the boiler has not been damaged during transport.
2. Check completeness of the supply.
3. Compare the nameplate data with the data from the warranty card.
4. Before starting up the boiler check that the connection to the central heating system and the flue is in accordance with manufacturer's recommendations.

Basic principles for the safe operation of the boiler!

- Do not open the door during operation of the boiler.
- Do not allow the fuel tank to be emptied completely.
- Watch out for hot boiler surfaces..

For your safety and comfortable use of the boiler, please return the PROPERLY COMPLETED (CONTAINING ALL ENTRIES AND SEALS) last copy of the warranty card and the boiler quality and completeness certificate (the last page of this service and installation manual) to the following address:

SERWIS KOSTRZEWA
ul. Przemysłowa 1, 11-500 Giżycko, POLAND
woj. warmińsko – mazurskie
tel. +48 87 428 53 51 or +48 87 428 11 34
e-mail: serwis@kostrzewa.com.pl

Sending back the warranty card will allow us to register you in our database of Mini Bio users and provide fast and reliable service.

IMPORTANT !!!

PLEASE NOTE THAT FAILING TO RETURN THE WARRANTY CARD OR RETURNING THE WARRANTY CARD AND BOILER QUALITY AND COMPLETENESS CERTIFICATE INCORRECTLY FILLED WITHIN TWO WEEKS FROM THE DATE OF THE BOILER INSTALLATION, HOWEVER NOT LONGER THAN TWO MONTHS FROM THE PURCHASE DATE, RESULTS IN THE LOSS OF WARRANTY FOR THE HEAT EXCHANGER AND ALL COMPONENTS OF THE BOILER. THE LOSS OF WARRANTY WILL CAUSE THE DELAY IN PERFORMING REPAIRS AND NECESSITY TO COVER THE COSTS OF ALL BOILER REPAIRS WITH TRAVEL COSTS OF THE SERVICE PERSONNEL INCLUSIVE.

Thank you for your understanding.
Yours sincerely,
SERWIS KOSTRZEWA

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1.1 Description of the design and appropriation of the Mini Bio Boiler

Brief characteristics of the Mini Bio boiler

Innovative, one of the smallest on the market, MINI BIO boiler to burn pellets and oats **** is a new „look in Poland and Europe” at the automatic burning of solid fuels - pellets with a diameter of 6 to 8 mm, or alternatively cereals (oats) ****, while maintaining low emission performances, meeting the environmental standards in the European Union

It is the optimal device intended for installation in residential buildings in which boiler rooms occupy the very little space or do not exist at all. The surfaces of heated residential buildings may range from 50 - 150 m² *****

The main advantages of the MINI BIO boiler are its minimal footprint and easy operation, involving the filling of the main fuel tank with fuel and pressing the START button. Messages are displayed on a large graphic display. Within a few minutes the device will automatically fire up, automatically select the operating parameters and will tend automatically to maintain a constant temperature in rooms and hot water.

The device is made of four parts. The whole boiler is rectangular in shape with dimensions 600x600x1660 mm. The first part is a circular steel flue heat exchanger of high efficiency. By using the 3T design method the exchanger is of very small dimensions. It is made of high quality boiler steel of P265GH grade and with a thickness of 4 - 5 mm. The second part is a Platinum Bio burner, which can burn the pellets 6-8 mm thick, with the additional option of cereals (oats). The structural components of the burner are made of heat-resistant steel of H25N20S2 grade, withstanding the temperatures up to 1150 ° C. Owing to application of the adjustment method called Fuzzy Logic II generation, and energy-efficient components, the burner consumes much less energy during operation than other burners available on the Polish market. With an automatic modulation of Fuzzy Logic II generation the burner combusts less quantity of fuel by about 30%. The third part is a reservoir which is placed on the boiler heat exchanger so as to not occupy any additional space in the room. Tank capacity is 180l. In standard, the tank is fitted with the water protection system that protects against the possibility of flame reversal (burnback). The fourth part is the controller of the whole building heating system operation. It is designed for people who appreciate the ease of use and easy to read menus, and also a high level of designing and technological advancement. The inner jacket of the boiler is made of high quality boiler steel of P265GH grade. The burner components are made from heat resisting steel of H25N20S2 grade, withstanding the temperatures up to 1150 ° C. The fuel tank is made from galvanized sheet - zinc coating inhibits the corrosion of the fuel tank. The 5 year's warranty for durability of the device enables to reduce its operating and maintenance costs in a long period of operation.

Mini Bio Boiler control system can control:

- Boiler pump (mixing)
- 1 – 16 weather controlled * heating circuits (heaters or floor heating)
- Domestic hot water *
- Room temperature *

Useful features :

- you do not have to remember the date of the next service inspection - the display will show a message (optional).
- Statistics - this function allows you to view, eg.
 - minimum, maximum and average burner output
 - minimum, maximum and average fuel consumption.
- Temperature parameters are presented in the form of digits and graphs on a large graphical display. And many other useful features – (optional).
- If you want to heat the factory floor, or other industrial facility that needs customized parameters - you can change them in an extended service mode. Boiler operation and comfort of its operation can be compared to the boiler with an oil burner.

* with Unicontrolmix installed

*** depending on the load

**** Option should be included in the order for the burner

***** Depending on the demand in thermal energy

1.2 Fuel characteristic

Pellets

Prepared according to DIN 51731

- granulation 5 – 8 mm
- recommended calorific value 17500 – 19500 kJ/kg
- ash content max. 1.5 %
- moisture content max. 12 %
- specific gravity (density) 1.0 – 1.4 kg/dm³

Oats

- moisture below 12%

NOTE!!!

It is recommend to use fuels from proven sources. Fuel should have adequate moisture and have a low content of fine fractions. Pay special attention to the mechanical impurities (stones, etc.) which deteriorate the combustion process and may result in the device failure.

Kostrzewa Company will not accept any liability for the device failure or abnormal combustion due to the use of improper fuel.

1.3 Transportation and supply specification

During transportation the Mini Bio boiler must be protected from tilting and displacement on the vehicle by means of belts and wedges.

The boiler must be kept indoor, at dry rooms.



NOTE!!!

The boiler must be transported in a vertical position.

Mini Bio boiler comes in two parts, protected with cardboard and protective film. The first part includes: boiler heat exchanger, fuel tank with a cover, furnace door and rear door, fuel feeder, thermal insulation of mineral wool and the boiler casing made of painted steel sheet. The second part consists of the Platinum Bio burner with control system and flexible feeding tube. Before installation, check the completeness of the supply and its technical condition.

2. Technical data of Mini Bio boiler

PARAMETR	SI	Mini Bio 10 kW	Mini Bio 20 kW
Thermal power range (pellets)	kW	3,3-10	6-20
Thermal power range (oats)*	kW	2-9	6-17
Control method		Fuzzy Logic II	Fuzzy Logic II
Boiler class acc. To PN-EN 303-5		3	3
Efficiency	%	>90	>90
Water capacity	l	48	90
Max. working pressure	bar	2	2
Max. working temperature	°C	85	85
Testing pressure	bar	4	4
Flue draft	mbar	0.15-0.25	0.15-0.25
Flue gas temperature @ rated thermal power	°C	140	160
Flue gas temperature @ min. thermal power	°C	90	90
Flue gas mass flow @ rated thermal power	kg/s		
Flue gas mass flow @ min. thermal power	kg/s		
Resistance of water flow through boiler	mbar		
Minimum temperature of water returning to boiler	°C	45	45
Approximate fuel (pellet) consumption @ rated output	kg/h	3	6
Approximate fuel (pellet) consumption @ minimum output	kg/h	1	2
Approximate fuel (oat) consumption @ rated output *	kg/h	3.7	7.4
Approximate fuel (oat) consumption @ minimum output *	kg/h	1.2	2.4
Boiler depth	mm	810	910
Boiler width	mm	602	702
Boiler height	mm	1660	1640
Weight	kg	200	270
Flue diameter	mm	135	160
Supply/return stub pipe diameter	cal	G1"	G 1,1/4"
Fuel tank volume	l	230	240
Charging hole dimensions	mm	557x557	657x657
Power supply	V	230	230
Max. power consumption (during firing up)	W	360	360
*at 10% moisture content			

NOTE!!!

The manufacturer reserves the right to change design and documentation of the boiler connected with its constant modernization and improvement.

Basic components of Mini Bio boiler

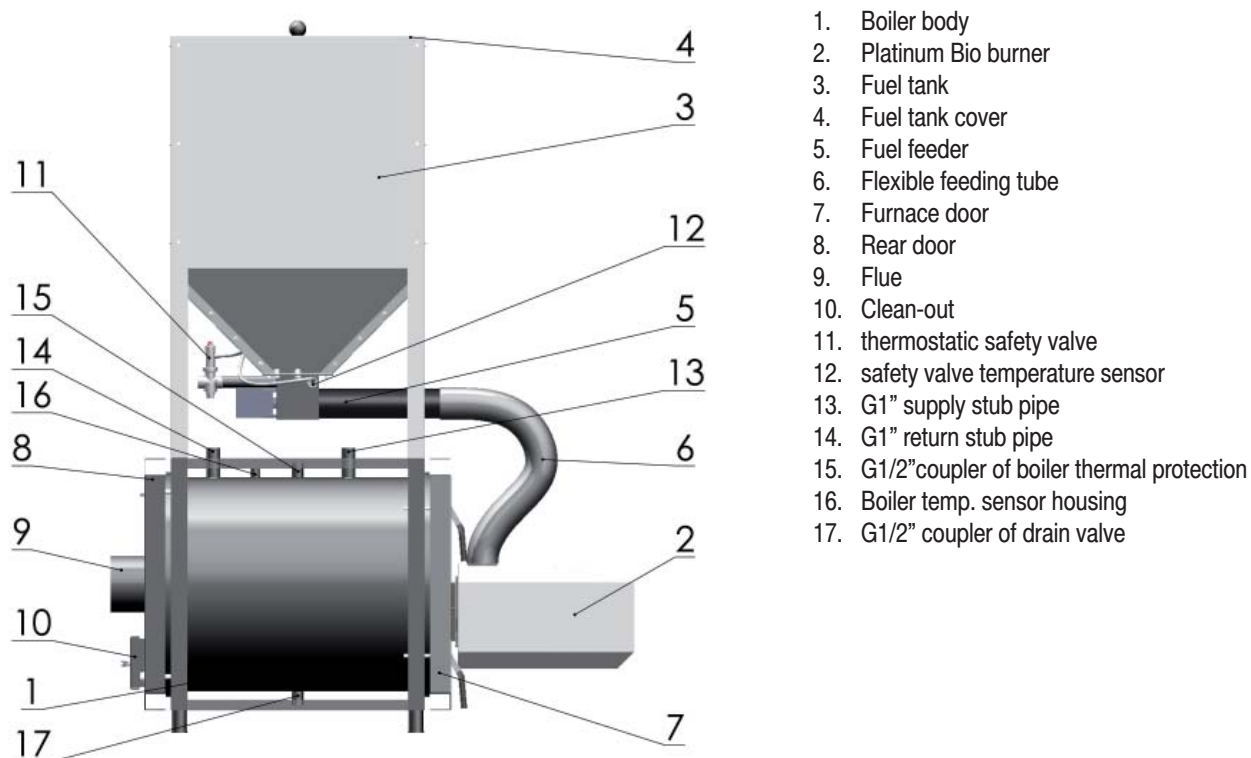


Figure 01. Basic components of Mini Bio boiler

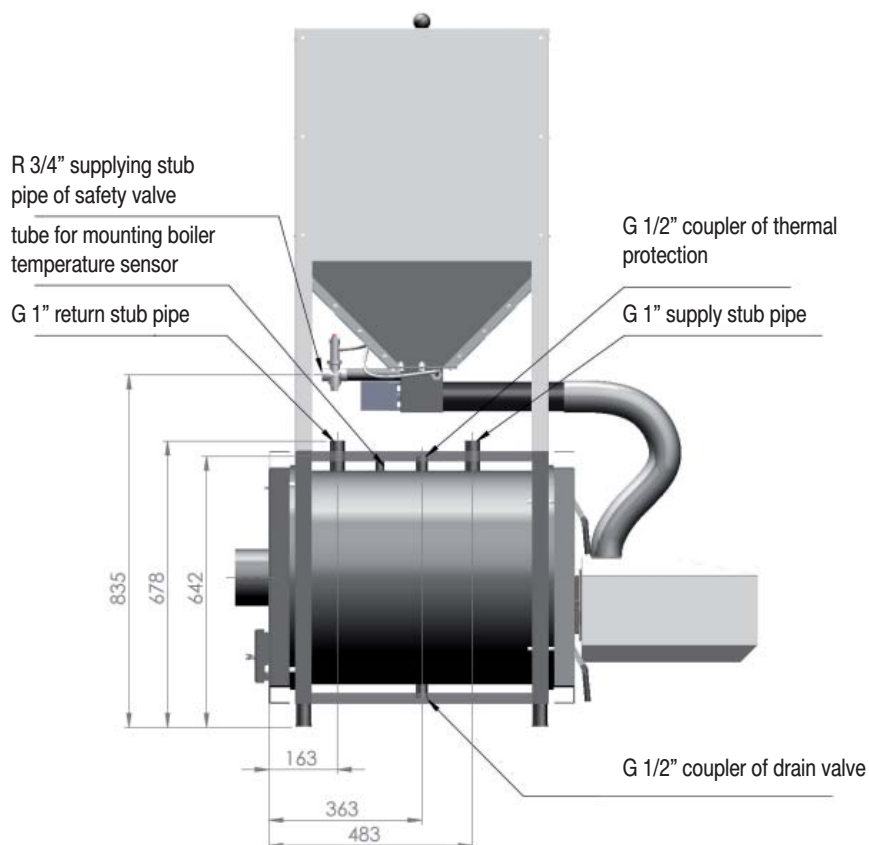


Figure 02. Location and dimensions of connecting stubs.

Standard accessories:

Mini Bio boiler

Platinum Bio burner

Platinum Bio control system

Boiler temperature sensor

Thermostatic safety valve

Service manual

Auxiliary accessories:

Room temperature sensor

Domestic hot water sensor

Solar Module - (independent control of two solar collectors mounted in different directions in relation to the sun)

Pellets Mix Module - (weather control 2x central heating + DHW + sensors)

Pellets Buffer Module (storage tank maintenance)

4.1 Regulations, standards and recommendations

The boiler room should meet the conditions of the building law in force at the site of the boiler installation. In Poland, these provisions are treated by the standard PN-B-02411: 1987, and the regulation of the Minister of Infrastructure of 07 April 2009 on the technical requirements to be met by buildings and their location. (Journal of Laws No. 56, item. 461)". The boiler room should meet the requirements of fire protection and occupation health and safety.

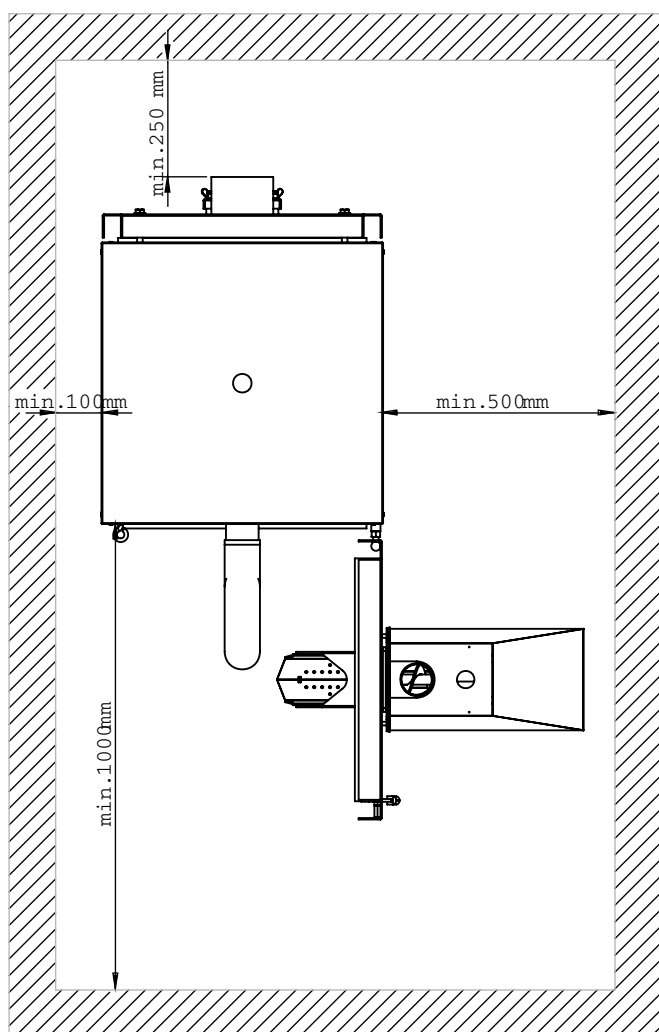


Figure. 03. Boiler situation in the boiler room.

4.2 Requirements for boiler room

- The boiler should be placed in a separate room, possibly centrally in relation to the heated rooms.
- The entrance door to the boiler room should be opened to the outside of the room and must be made of non-combustible materials with a width of at least 0.8 m
- The floor in the boiler room should be made of non-combustible materials or covered with steel sheet of 0.7 mm in thickness to a distance of at least 0.5 m from the edge of the boiler. The boiler should be placed on a foundation made of non-combustible materials, projecting 0.05 m above floor level with the foundation hardware in the form of steel angles.
- The room in which the boiler is installed should absolutely be fitted with artificial lighting, but natural lighting is also recommended.
- The boiler distance from the dividing structures of the building should be such as to allow access during maintenance, cleaning and maintenance.
- The minimum distance of the boiler front from the opposite wall: 1 m.
- The minimum height of the boiler room: 2.2 m; the height of 1.9 m is permitted in existing buildings with an appropriately provided ventilation (delivery-exhaust).
- The boiler installation in the wet rooms or with higher humidity is strictly prohibited. The accelerated corrosion process can quickly lead to the boiler destruction.

4.3 Ventilation

- The boiler room should have a non-closed air delivery channel with the area of at least 200 cm².
- The exhaust channel should have a cross section of not less than 14x14 cm, with the inlet opening in the boiler room ceiling, led out above the roof and situated next to the chimney. The inlet opening into the exhaust channel should have the free cross-section equal to the channel cross-section.
- Ventilation ducts should be made from non-combustible materials.
- Application of mechanical ventilation is forbidden.

NOTE!!!

There is a danger of carbon monoxide CO intoxication when the boiler is in a room with insufficient inflow of fresh air.

4.4 Safe distance from flammable materials

- During installation and operation of the boiler keep a safe distance of 200 mm from flammable materials;
- In case of flammable materials of C3 flammability degree, which are quick and easy to burn even after removal of ignition sources (such as paper, paperboard, cardboard, wood, plastics), the said distance is doubled, ie. to 400 mm;
- If flammability is not known, the safe distance should also be doubled

Flammability degree Building materials of building compounds and products	Building materials and products
A – noncombustible	sandstone, concrete, bricks, fire-protection plaster, mortar, ceramic tiles, granite
B – slow-burning	wood-cement boards, glass fiber, mineral Insulation
C1 – slow-burning	beechwood, oak wood, Plywood
C2 – moderately-burning	pine, larch and spruce wood, cork, Sawn wood planks, Rubber floor lining
C3 – easily-burning	Asphaltic board, celuloid compounds, polyurethane, Polystyrene, polyethylene, plastic, etc.

4.5 Chimneys

Chimneys are designed to remove flue gases to the outside in a reliable manner and draw the air for combustion. The chimney draft necessary for this purpose is conditional on:

- temperature difference between hot flue gas and cold air;
- effective height of the chimney;
- chimney cross-section ($\geq 100 \text{ cm}^2$);
- chimney execution (possibly smooth internal surfaces) and the tightness of joints;

The effective chimney height is the height difference between the highest furnace and the chimney outlet. The effective height of individual chimneys must be at least of 4 m, and in the case of the common chimneys for solid and liquid fuels it must be at least of 5 m. The height difference between the two furnaces cannot be greater than 6.5 m.

4.6 Selection of a chimney

In most cases, the selection of a chimney based on an approximate method or chimney manufacturer's diagrams is sufficient. In special cases (adverse pressure and temperature dependence; large volume of flue gas) the chimneys are calculated according to BS EN 13384-1:2008.

The diagrams of chimneys contain such input values as the chimney conduction thermal resistance, roughness of the chimney inner walls, flue conduction thermal resistance and coefficients of hydraulic resistance when changing directions of the tubes. The diagrams of the manufacturers include the relationship between the rated capacity of the heating unit and the effective height of the chimney for the various cross-sections of the chimney. The diagrams will vary depending on the used fuel (eg. oil, gas, wood), design of furnaces (eg. pressure boiler with a fan burner), flue gas temperature and type of load.

4.7 Chimneys for solid fuel-fired boilers

It should be noted that the solid fuel-fired furnaces with a rated thermal output $> 20 \text{ kW}$ and w/o fan need their own chimney. For the solid fuel-fired boiler the cross-section of the chimney should be $16 \text{ cm} \times 16 \text{ cm}$ (in Poland for at least $14 \text{ cm} \times 14 \text{ cm}$). When the cross-section is different, then the flue gas flows too slow and cools down too much. This in turn leads to problems with the draft and formation of deposits in the chimney. These deposits damage the wall, if sulfuric acid and water vapor contained in flue gas cool below the dew point temperature. For the solid fuel-fired furnaces the single-layer chimneys made from brick, often occurring in old buildings, can be used. Currently the three-layer chimneys with a smooth surface and good thermal insulation are applied.

4.8 Flue

Flues according to DIN 18160, connect a boiler with a chimney. They can be made as the exhaust pipes or as flue gas ducts. Exhaust pipes are pipes and fittings, which are distributed in the premises. Flue gas ducts comply with the fire-protection requirements for chimneys and are often made from the same material as the main chimney. The connecting units should be as short as possible and placed with an upslope to the chimney to avoid heat losses and additional resistance. They can not be lead onto other floors. Exhaust pipes should not be laid in the rooms, in which the furnaces cannot be mounted, besides they also should not be mounted in the walls and ceilings.

NOTE!!!

Before installing the flue must pass technical inspection and acceptance by a chimney sweeper.

4.9 Connecting to heating system

A solid fuel-fired boiler must be installed in accordance with the regulations by an authorized company. Commissioning of the boiler must be carried out by the trained staff of the manufacturer, possessing the appropriate manufacturer's license.

Liability for proper installation of the boiler and its repairs rests on the installation and maintenance company trained by the manufacturer and having its authorization. Any manipulation performed on the electrical part of the boiler or connecting any downstream control devices may invalidate the warranty. The repair and overhaul of the boiler can only be carried out by the installation and maintenance company trained by the manufacturer. The fact of the boiler installation completion and heating test performance must be recorded in the warranty card of the boiler. Central heating installation should be performed according to the design.



NOTE!!!

Before connecting the boiler to the heating system, the boiler and installation should be rinsed with water to remove contaminants, which could cause damage.

4.10 Connecting to electric wiring system

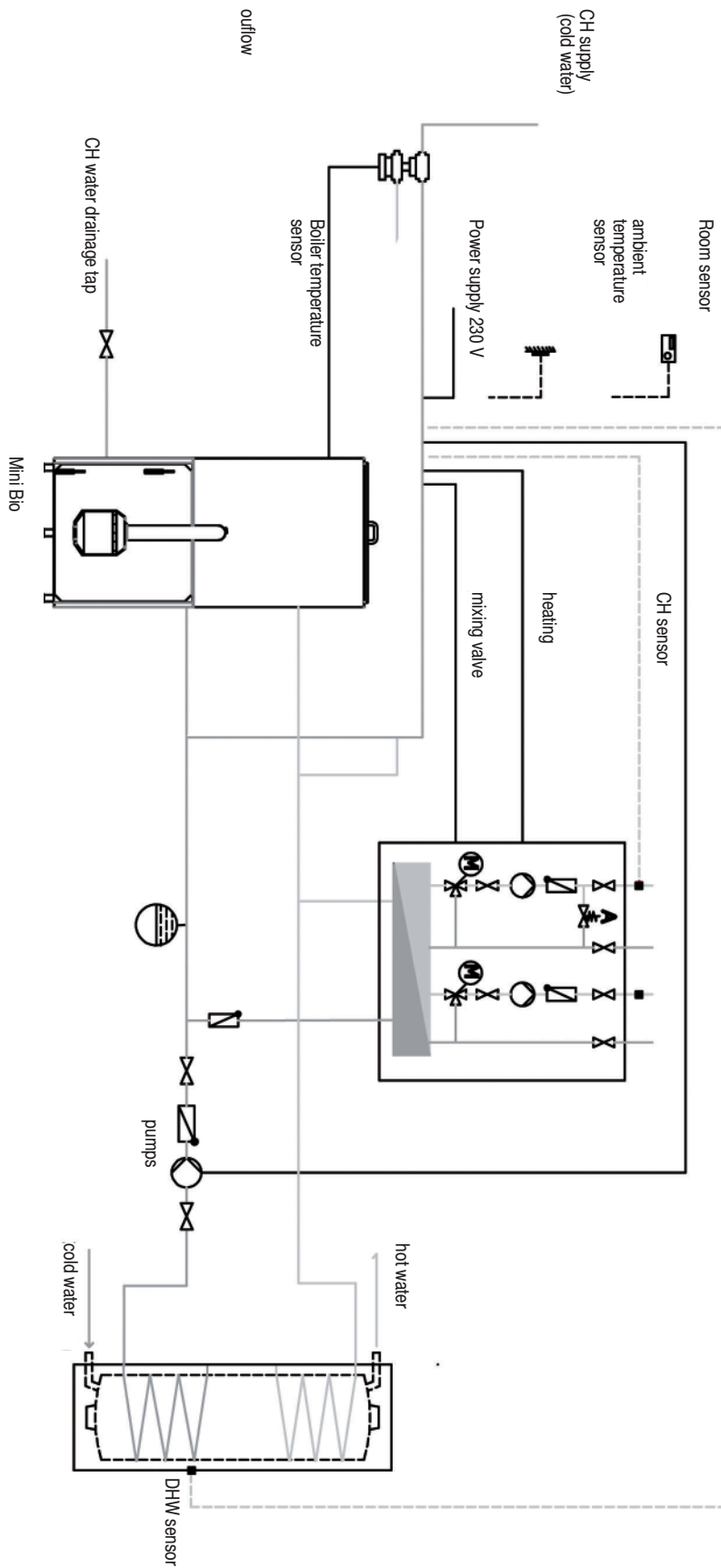
The boiler room in which the boiler is mounted must be fitted with 230V/50Hz electrical installation. The electrical installation should be terminated with a plug-in socket with an earthing contact. The socket should be mounted in an easily accessible place at a safe distance from heat sources. It is advisable to perform a separate circuit supplying the boiler.



NOTE!!!

The electrical installation should be performed by the qualified personnel having proper licenses.

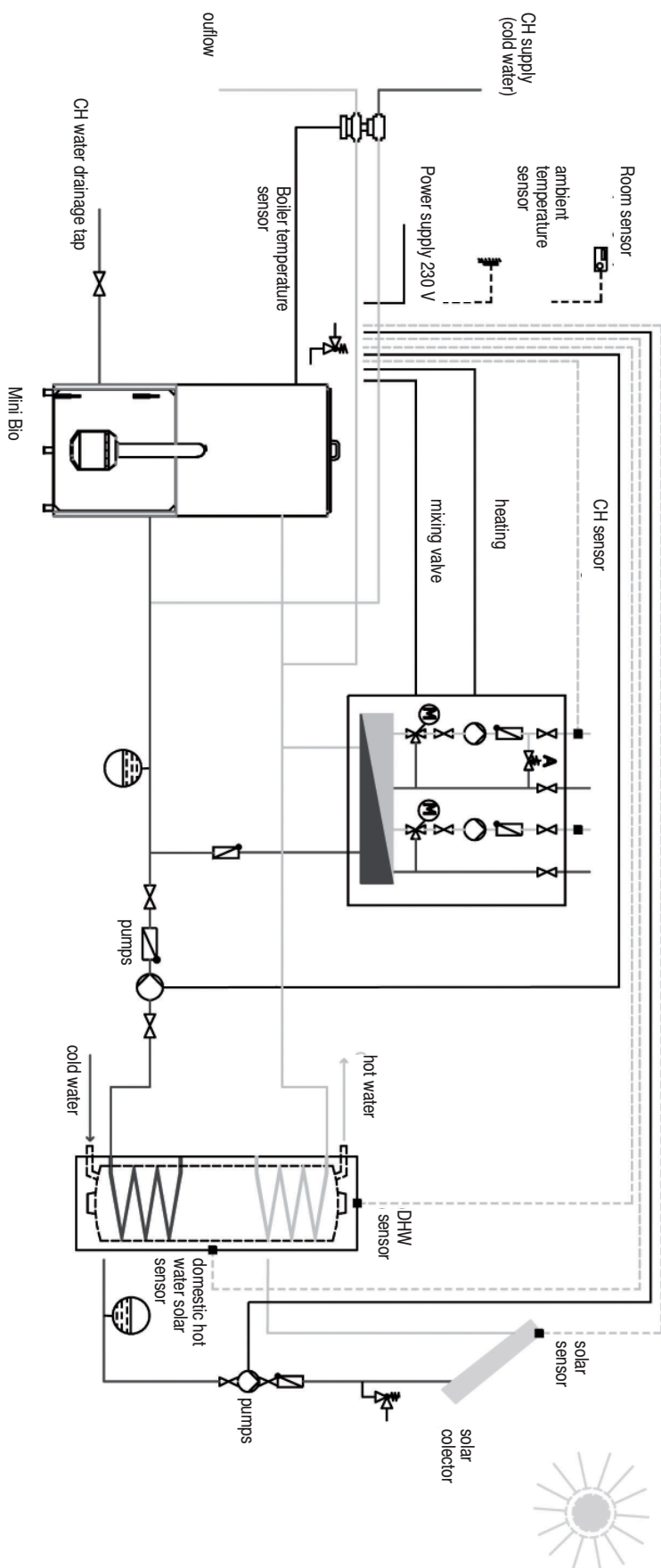
4. Boiler location and installation Mini Bio



NOTE!!!

To accomplish all the functions of the system some additional modules available from the manufacturer must be purchased:

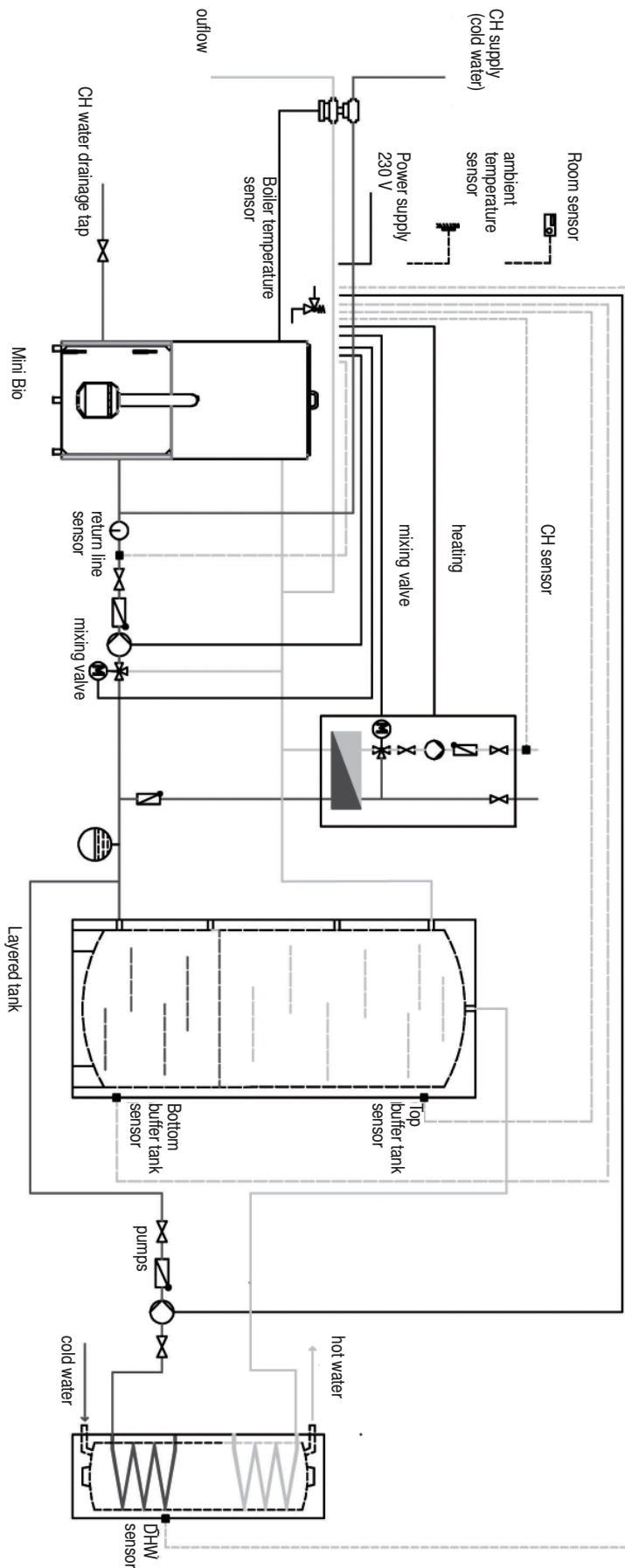
www.kostrzewa.com.pl



NOTE!!!
 To accomplish all the functions of the system some additional modules available from the manufacturer must be purchased:
www.kostrzewa.com.pl

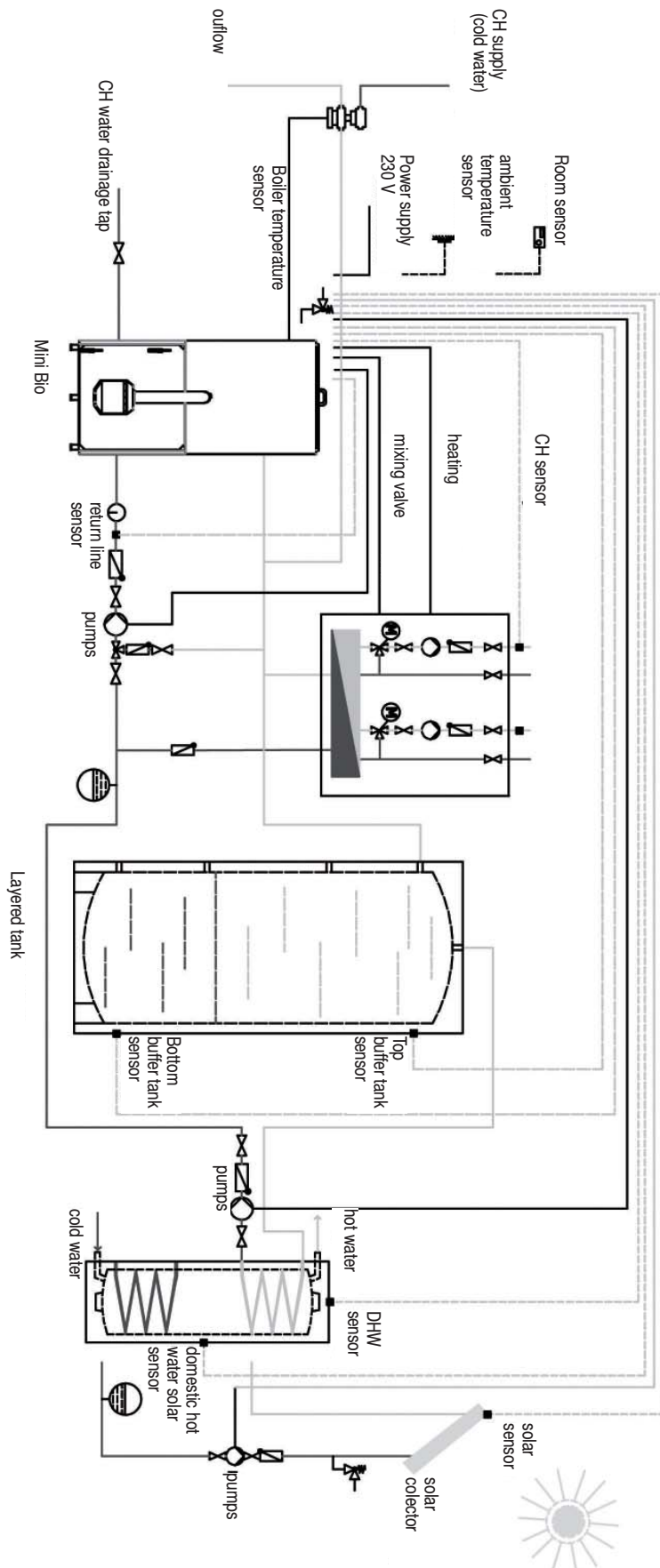
02. Mini Bio installation diagram - 2 C.H circuits + DHW+ solar collector - closed system

4. Boiler location and installation Mini Bio



NOTE!!!

To accomplish all the functions of the system some additional modules available from the manufacturer must be purchased:
www.kostrzewa.com.pl



NOTE!!!

To accomplish all the functions of the system some additional modules available from the manufacturer must be purchased:
www.kostrzewa.com.pl

04. Mini Bio installation diagram - 2 C.H circuits + HTW + solar collector + Bufor - closed system

While using the Mini Bio boiler, keep in mind... !

- The boiler can be operated only by adult persons familiarized with the above service manual. Children cannot stay close to the boiler without presence of adult persons.
- When it comes to penetration of flammable gases or vapors to the boiler room or during the work, at which an increased risk of fire or explosion occurs (gluing, painting, etc.) the boiler should be switched off before starting the work
- It is prohibited to use flammable liquids to fire up the boiler, the boiler must be fired up automatically.
- It is prohibited to use open flames or flammable materials near a connected unit. Fire hazard.
- When cleaning the boiler, it must be switched off (OFF position).
- When opening the door do not stand in front of the opened hole.
- Watch out for hot surfaces of the boiler - there is a risk of burns.
- During operation, the boiler cannot be overheated.
- Do not place any flammable objects on the boiler or in its immediate vicinity.
- When removing ash from the boiler any flammable materials cannot be present in a distance of 1500mm to the minimum from the boiler. Ash should be deposited into the fireproof tanks with a cover
- It is forbidden to make up cold water into the hot boiler.
- During operation of the boiler at a temperature lower than 60°C the dew formation on the steel heat exchanger may occur and thereby the corrosion due to low temperature, which shortens the life of the heat exchanger. Therefore, the temperature during operation of the boiler must be at least 60°C.
- The boiler room should be kept clean and dry. The items not connected with the boiler operation should not be present there.
- Any defects should be removed immediately.
- In winter, there should be no interruption in heating, which could cause freezing of water in the system or its parts. This can lead to very serious damage to the boiler and installation.
- After the heating season, clean the boiler and smoke duct thoroughly, drain and clean the fuel tank.
- At voltage decay in the power network the supervision over the boiler is recommended.
- Any tampering with electrical part or changing the boiler design are prohibited.

6.1 Mini Bio boiler commissioning

Commissioning of the boiler must be carried out only by the service personnel trained by the manufacturer, with a current certificate of an authorized service performer of Kostrzewa company. The current certificates are presented at <http://www.kostrzewa.com.pl> under the service tab. Completion of installation and heating test performance must be recorded in the Warranty Card.

The completed warranty card should be mailed by the user to the address of the manufacturer to register the user in the company system.

SERWIS KOSTRZEWA

ul. Przemysłowa 1, 11-500 Giżycko, POLAND

woj. warmińsko – mazurskie

tel. +48 87 428 53 51 or +48 87 428 11 34

e-mail: serwis@kostrzewa.com.p

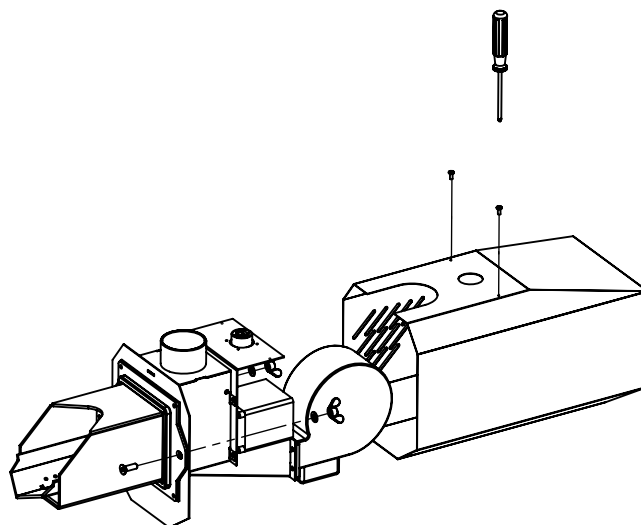


Figure 04. Disassembly of Platinum Bio Burner cover

6.2 Installation of Platinum Bio burner

1. Unscrew the two screws fastening the burner cover (Fig.4)
2. Remove the burner cover, unscrew the two wing nuts and remove the two screws
3. Install the burner in the boiler by screwing it with two wing nuts (Fig. 5).
4. Mount the burner cover screwing it with two screws
5. Fit the flexible hose to the feeder pipe of the boiler and secure with a band clip.
6. Fit the flexible hose to burner pipe and secure with a band clip.

More information about Platinum Bio Burner
- Platinum Bio Burner service manual

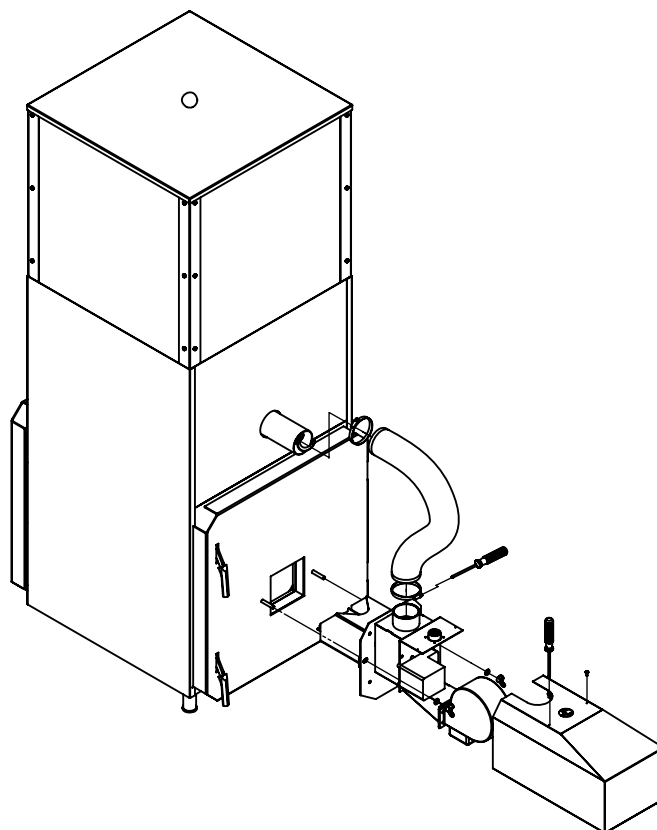


Fig. 05. Installation of Platinum Bio burner

6. Mini Bio boiler commissioning

6.3 Before starting the boiler you should

- Check the installation condition.
- Feed the fuel into the tank in such a way to be able to put the cover thereon
- Make sure that there are not any foreign objects in the fuel (stones, steel elements, etc.)
- Insert the grate proper for the fuel burned.
- In service mode, set the feeding times and the maximum amount of air (see the service of Platinum Bio burner)
- Feed the fuel from the tank (see the service manual of Platinum Bio burner) until the fuel is transferred via a flexible pipe.
- Turn off the fuel feeding and hold the ON push-button.
- When changing the fuel eg. from pellets to oats you should:
 - Turn off the boiler
 - Wait until the boiler cools down
 - Remove the grate for pellets and clean the grate cover (Fig.7)
 - install the grate proper to burn oats (pay attention to precise adherence of the grate to the burner cover)
 - set the feeding times and the max. amount of air according to the table shown to the right.
 - Start up the boiler
- After the heating season the boiler should be:
 - turned off and disconnected from the mains
 - thoroughly clean the heat exchanger and burner
 - protect against moisture by installing moisture-absorbing material inside,
 - remove the fuel from the tank,
 - clean the flue

Working settings of Platinum Bio burner for 10 kW

Pellets *	30% thermal power:	100% thermal power:
Feeding time	1.5	5
Air	8	13
Oats **	30% thermal power:	100% thermal power:
Feeding time	2	7
Air	9	14
* According to DIN 51731 ** at 10% moisture content 10%		

Working settings of Platinum Bio burner for 20 kW

Pellets *	30% thermal power:	100% thermal power:
Feeding time	3	10
Air	12	19
Oats **	30% thermal power:	100% thermal power:
Feeding time	4	14
Air	18	28
* According to DIN 51731 ** at 10% moisture content 10%		

NOTE!!!

The flue should be checked and cleaned by a chimney sweeper who has the proper licenses at least once a year. (Regulation of the Minister of Internal Affairs and Administration on fire protection of buildings, other civil structures and sites, dated. 16/06/2003; amendment as of 11.06.2006, the Journal of Laws 80/06)

7. Cleaning and maintenance of Mini Bio

NOTE!!! Cleaning and maintenance of the Mini Bio boiler can be performed only when the burner is turned off, cooled down and disconnected from the mains.

Watch out for hot surfaces of the boiler - there is the risk of burns.

Cleaning and maintenance of Mini Bio boiler

To maintain the high efficiency of the boiler it must be kept clean and maintained on a regular basis. To this end you should utilize the cleaning tools supplied with the boiler. Soot, tar deposits and ash from the combustion chamber, flame tubes and Platinum Bio burner grate should systematically be removed. The boiler should be cleaned according to the degree of contamination, but no less frequently than every two weeks. Remove ash, depending on the degree of the combustion chamber filling.

NOTE!!!

During combusting oats much more quantity of ash is formed than in case of pellets.

Necessary steps:

1. Turn off the boiler (wait for the complete extinction of the burner), disconnect the boiler from the mains and wait until the boiler cools down.
2. Remove ash from the combustion chamber.
3. Using a ramrod clean the flame tubes and the combustion chamber (Fig.6)
4. Unscrew the plug and remove the deposits from the clean-out (Fig.7)
5. Remove the grate from the burner and clean it (pay attention to free flow of the aeration holes.) Clean the cover of the burner grate (Fig.8)
6. Clean the door sealing.

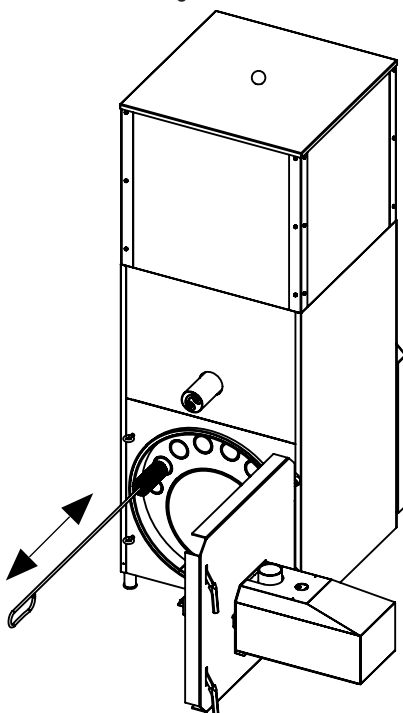


Fig. 06. Flame tube cleaning

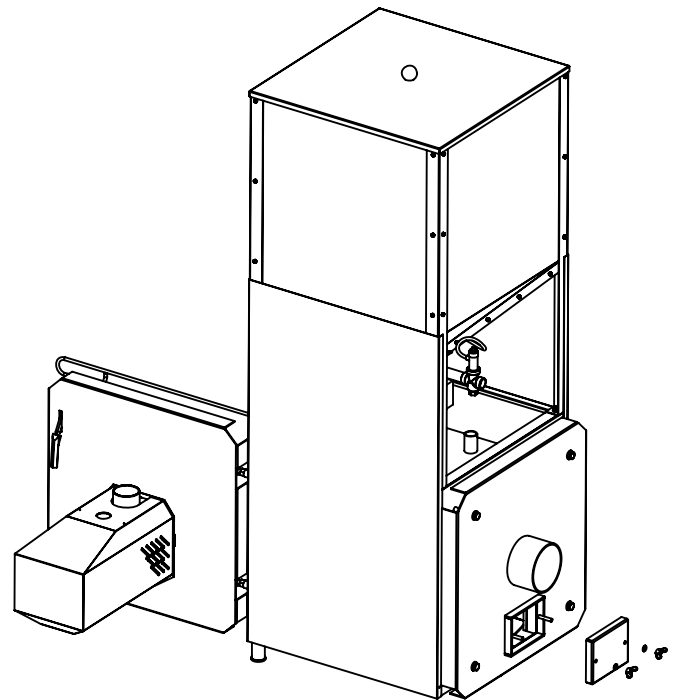


Fig. 07. Clean-out

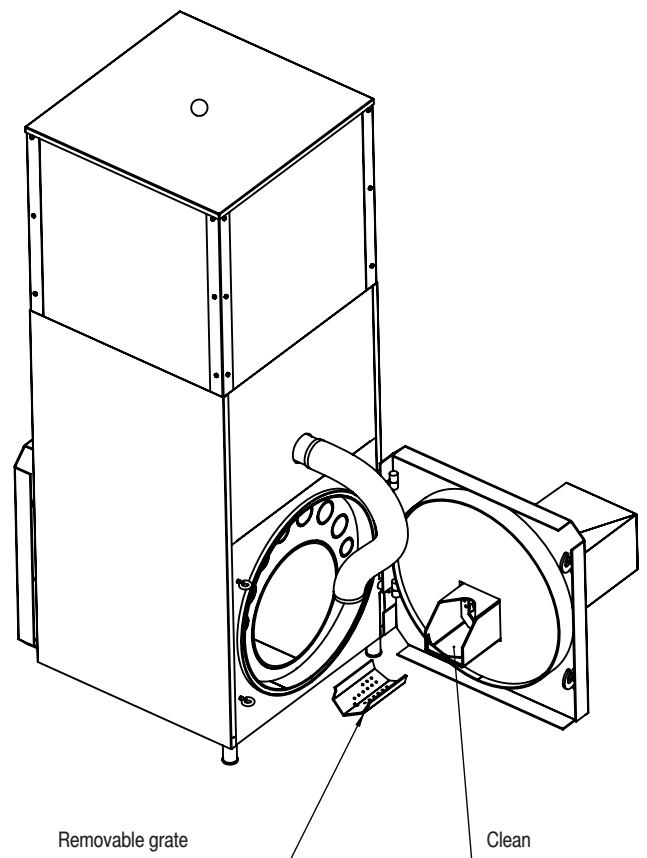
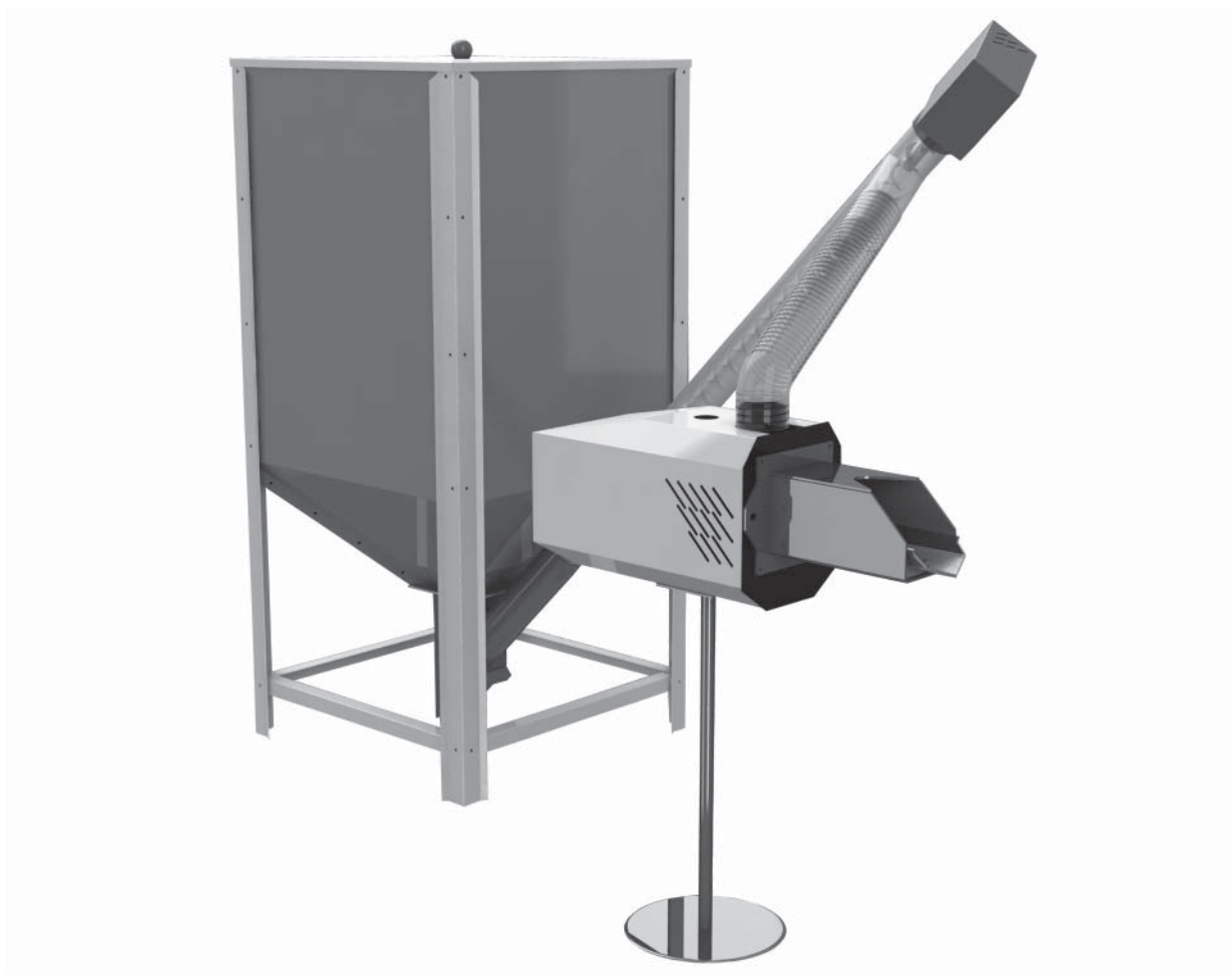


Fig. 08. Burner cleaning

Failure type	Probable reason	Possible reason/suggested remedy
No readings on the controller display	<ul style="list-style-type: none"> Lack of power supply Incorrect connection of plugs and controller wires 	<ul style="list-style-type: none"> Check boiler connection to power supply Check for proper installation of plugs and connections of the controller
One of the control panel buttons is out of service	<ul style="list-style-type: none"> Control panel failure 	<ul style="list-style-type: none"> Repair the control panel
Automatic fuel ignition does not operate	<ul style="list-style-type: none"> Improper connection of the heater or photocell. Clogged outlet of hot air Very moist fuel Defected heater Defected photocell 	<ul style="list-style-type: none"> Check for proper connections of the plugs and wires of the heater and photocell (including connectors) Clean the igniter orifice Change or dry the fuel Replace the heater Replace the photocell
Smoke from the door	<ul style="list-style-type: none"> No draft Clogged flue Clogged Exchange channels Damaged sealing rope 	<ul style="list-style-type: none"> Clean the channels Replace the sealing rope
Water appears in the boiler	<ul style="list-style-type: none"> No draft Very moist fuel Leaky boiler heat exchanger 	<ul style="list-style-type: none"> Improper chimney installation Change or dry the fuel To check the heat exchanger, the boiler should be turned off for 8 hours and water wiped off. If water still accumulates after 8 hours, call the manufacturer's service.
Boiler does not reach the set temperature	<ul style="list-style-type: none"> Improperly chosen boiler for the building Wrong localization of the temperature sensor of the water returning to the boiler Failure of sensors Set low boiler output 	<ul style="list-style-type: none"> Check for proper selection of the boiler Check the location of the return sensor (in this place water circulation should be present). Check the sensors Check the feeding times and the blower power



Palnik Platinum Bio

9.1 Description of design and appropriation of Platinum Bio burner

Self-cleaning Platinum Bio burner is a new „look in Poland and Europe” at the automatic burning of solid fuels - pellets with a diameter of 6 to 8 mm, or alternatively cereals (oats)*, while maintaining low emission performances, meeting the environmental standards in the European Union. It is the optimal device designed to co-operate with existing coal boilers with manual loading, and oil or gas boilers. The burners can also be mounted to a new central heating boilers using an adapter **, without losing the warranty.

The burner is free from defects of the hopper-gravity pellet burners, in which ash and sinter must be removed by hand.

The main advantage of the burner is its easy operation, involving the filling of the main fuel tank with fuel and depressing the START button. Messages are displayed on the large graphic display. Within a few minutes the device will fire up automatically, automatically selects the operating parameters and will tend automatically to maintain a constant temperature in rooms and hot water.

Features of Platinum Bio burner

- Automatic burner activation
- automatic modulation of Fuzzy Logic II generation burner
- flame control by means of a photocell
- low thermal inertia during start up and stoppage
- low power consumption
- optional control of up to 15 heating circuits (heaters and floor heating)
- burner working temperature control - provides the highest level safety
- 3 phases of fuel ignitron eliminate the gas explosions during firing up
- AUTOSTART function in case of voltage decay – provides the highest level safety
- 3 phases of fuel ignitron eliminate the gas explosions during firing up
- AUTOSTART function in case of voltage decay – last settings memory
- air division into the primary and secondary one have reduced CO emissions to the level of emission from gas and oil burners
- burner efficiency >94,5%
- soot number = 0
- auto-cleaning function, automatically removes the deposit from the burner grate – this function is not present in the hopper-gravity burners
- Oats – burner design allows to combust cereals (oats) – option

NOTE!!!

The 5 year's warranty for durability of the device enables to reduce its operating and maintenance costs in a long period of operation.

Platinum Bio burner control system can control:

- boiler (mixing)
- 1 – 16 weather controlled * heating circuits (heaters or floor heating) **
- Domestic hot water ***

Useful functions of Platinum Bio control system:

You don't have to remember about the term of the next service inspection - the proper message will be displayed - optional

Statistics

- function allows you to view, eg.
- minimum, maximum and average output of the burner
- minimum, maximum and average fuel consumption.

Temperature parameters

Are presented in the form of digits and graphs on the large graphic display and many other useful features - option

If you want to heat the factory floor, or other industrial facility that needs custom parameters - you can change them in extended service mode.

* Option should be included in the order for the burner

** burner can be fitted to any new or used solid fuel, liquid or gas-fired boiler, without interfering the design of the device. Installation is via an adapter, which is available on request at KOSTRZEWA sp.j.

*** with Unicontrolmix installed

9.2 Fuel characteristic

Pellets Prepared according to DIN 51731

- granulation 5 – 8 mm
- recommended calorific value 17500 – 19500 kJ/kg
- ash content max. 1.5 %
- moisture content max. 12 %
- specific gravity (density) 1.0 – 1.4 kg/dm³

Oats

- Fuel moisture below 15%



NOTE!!!

We recommend using fuels from certain sources. Fuel should have adequate moisture and have a low content of fine fractions. Pay special attention to the mechanical impurities (stones, etc.) which deteriorate the combustion process and may result in the device failure.

Kostrzewa company cannot be held liable for device failure or abnormal combustion due to the use of improper fuel.

9.3 Transport and specification of Platinum Bio burner supply

During transportation the Mini Bio boiler must be protected from tilting and displacement on the vehicle by means of belts and wedges. The boiler must be kept indoor, at dry rooms.

Platinum Bio burner comes in three parts, protected with cardboard and protective film.

The set is composed of:

- fuel tank with cover
- fuel feeder
- Platinum Bio burner with control system and flexible feeding pipe.

Before installation, check the completeness of the supply and its technical condition.

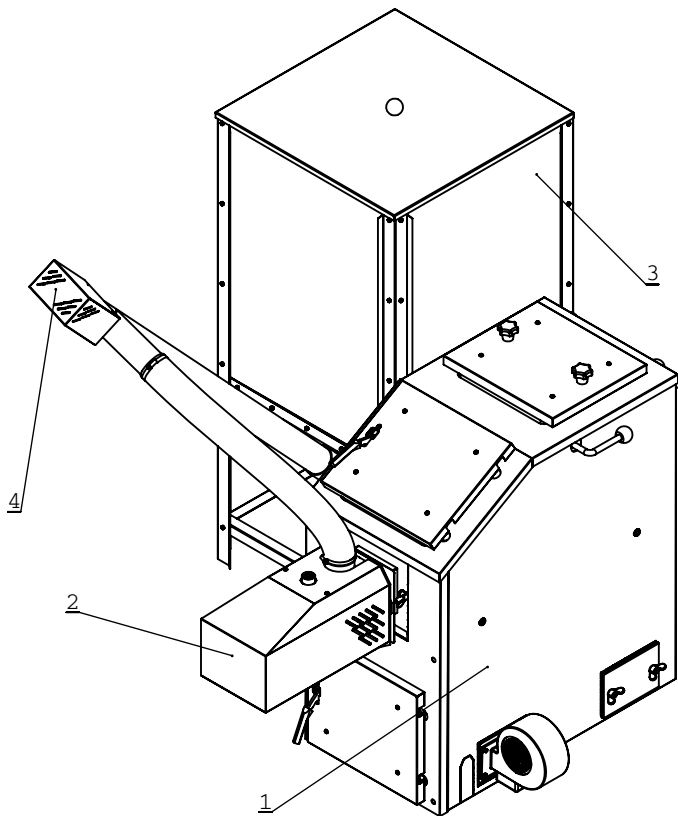
10. Technical data of Platinum Bio Burner

PARAMETR	SI	Palnik Platinum Bio 16	Palnik Platinum Bio 24	Palnik Platinum Bio 32
Heating power range for pellets	kW	4 – 16	7 – 24	9,6 – 32
Heating power range for oats*	kW	3,6 – 14,4	6,3 – 21,6	8,6 – 28,8
Efficiency	%	>94,5	>94,5	>94,5
CO emissivity	ppm	<200	<200	<200
Weight	kg	14	14,5	15,5
Standard feeder length	m	1,3 – 1,6	1,3 – 1,6	1,3 – 1,6
Feeder length (option)	m	2.0; 2.5; 3.0	2.0 ; 2.5 ; 3.0	2.0 ; 2.5 ; 3.0
Fuel		pelety	pelety	pelety
Fuel diameter	mm	6 - 8	6 - 8	6 - 8
Fuel (option) moisture to 15%	%	owies	owies	owies
Supplying voltage	V	230	230	230
Average power consumption	W	30	35	39
Protection degree		IP 40	IP 40	IP 40
Standard tank dimensions - width, depth, height	mm	600x600x1400	600x600x1400	600x600x1400
Standard tank volume	L	305	305	305
Tank dimensions, top - width, depth, height	mm	600x600x1900	600x600x1900	600x600x1900
Tank volume with top	L	485	485	485

* moisture below 15%

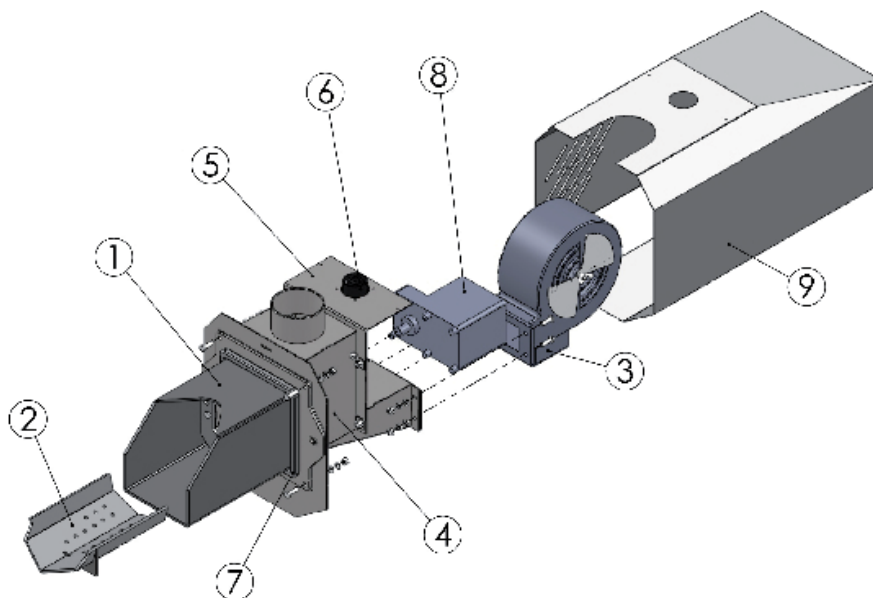
NOTE!!!

The manufacturer reserves the right to change design and documentation of the boiler connected with its constant modernization and improvement.



1. Exemplary exchanger
2. Platinum Bio burner
3. Fuel tank
4. Fuel feeding assembly

Fig. 09 Basic components of the unit



1. burner body
2. combustion chamber
3. fan
4. burner cover (worm + igniter)
5. actuator mounting plate
6. electrical connection board
7. sealing rope
8. motoreductor
9. burner cover

Fig. 10 Description of Platinum Bio burner design

While using the Platinum Bio Burner, keep in mind ...

- The boiler can be operated only by adult persons familiarized with the above service manual. Children cannot stay close to the boiler without presence of adult persons.
- When it comes to penetration of flammable gases or vapors to the boiler room or during the work, at which an increased the risk of fire or explosion occurs (gluing, painting, etc.) the boiler should be switched off before starting the work.
- It is prohibited to use flammable liquids to fire up the boiler, the boiler must be fired up automatically.
- It is prohibited to use open flames or flammable materials near a connected unit. Fire hazard..
- When cleaning the boiler, it must be switched off (OFF position).
- Watch out for hot surfaces of the boiler - there is a risk of burns.
- Do not place any flammable objects on the boiler or in its immediate vicinity.
- Any defects should be removed immediately.
- After the heating clean the burner thoroughly, drain and clean the fuel tank.
- At voltage decay in the power network the supervision over the burner is recommended.
- Any tampering with electrical part or changing the burner design are prohibited.

12.1 Platinum Bio burner commissioning

Commissioning of the boiler must be carried out only by the service personnel trained by the manufacturer, with a current certificate of an authorized service performer of Kostrzewa company. The current certificates are presented at <http://www.kostrzewa.com.pl> under the service tab.

Completion of installation and heating test performance must be recorded in the Warranty Card.

The completed warranty card should be mailed by the user to the address of the manufacturer to register the user in the company system.

SERWIS KOSTRZEWA

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e-mail: serwis@kostrzewa.com.pl

12.2 Installation of Platinum Bio burner

1. Unscrew the two screws fastening the burner cover (Fig.12)
2. Remove the burner cover (5), unscrew the two wing nuts (2) and remove the two screws (4) with two washers (3).
3. Install the burner (9) in the adapter (12) screwing it with two wing nuts (10) with washers (11) (Fig.13). The adapter (12) with the burner (9) should be mounted in the boiler with two wing nuts (7) with washers (8).
4. Mount the burner cover (13) screwing it with screws (6)
5. Insert the feeder tube (17) into the fixing tube (19) (Fig. 14.).
6. Fit the flexible hose (16) to the feeder pipe (17) and secure with a band clip (15)
7. Fit the flexible hose (16) to burner pipe (18) and secure with a band clip (14).

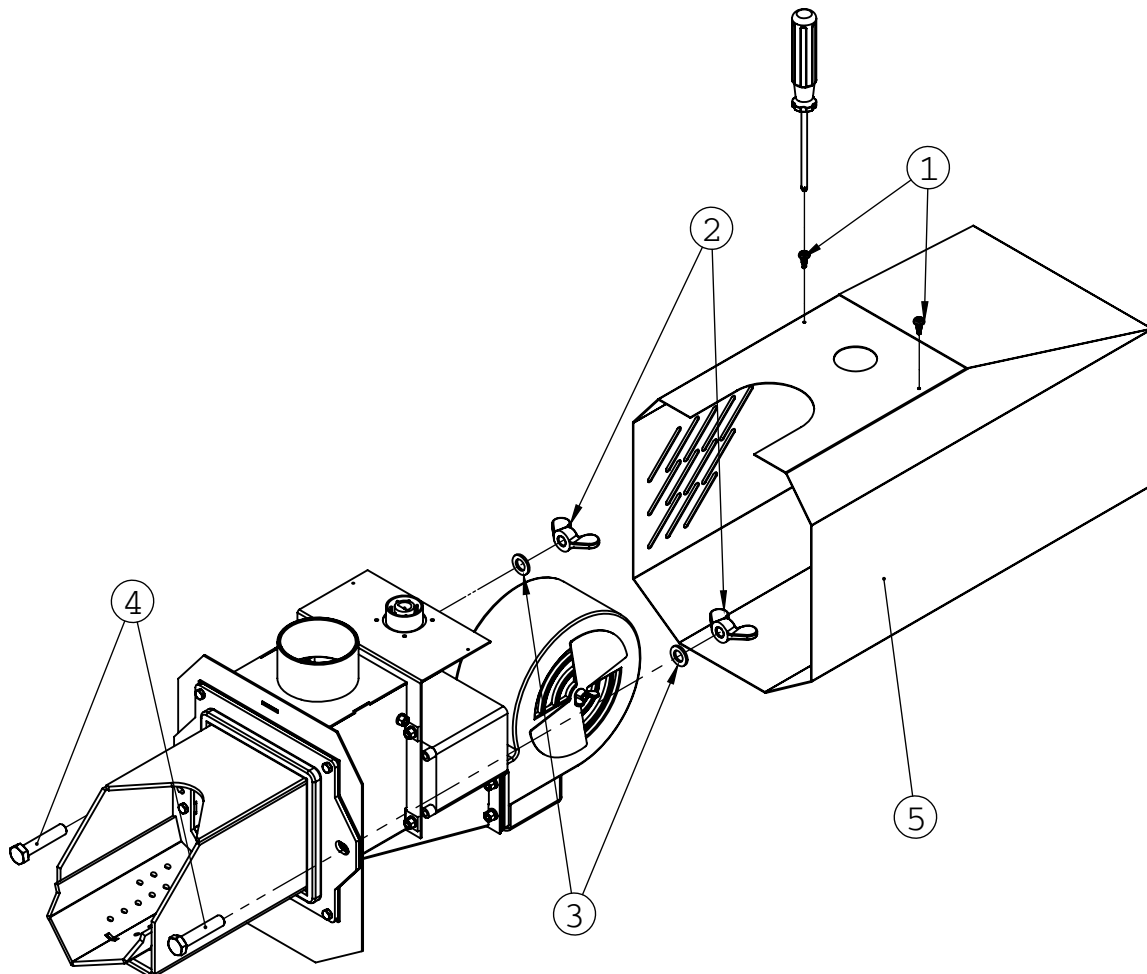


Fig. 12 Disassembly of Platinum Bio burner cover

12. Starting up the Platinum Bio Burner

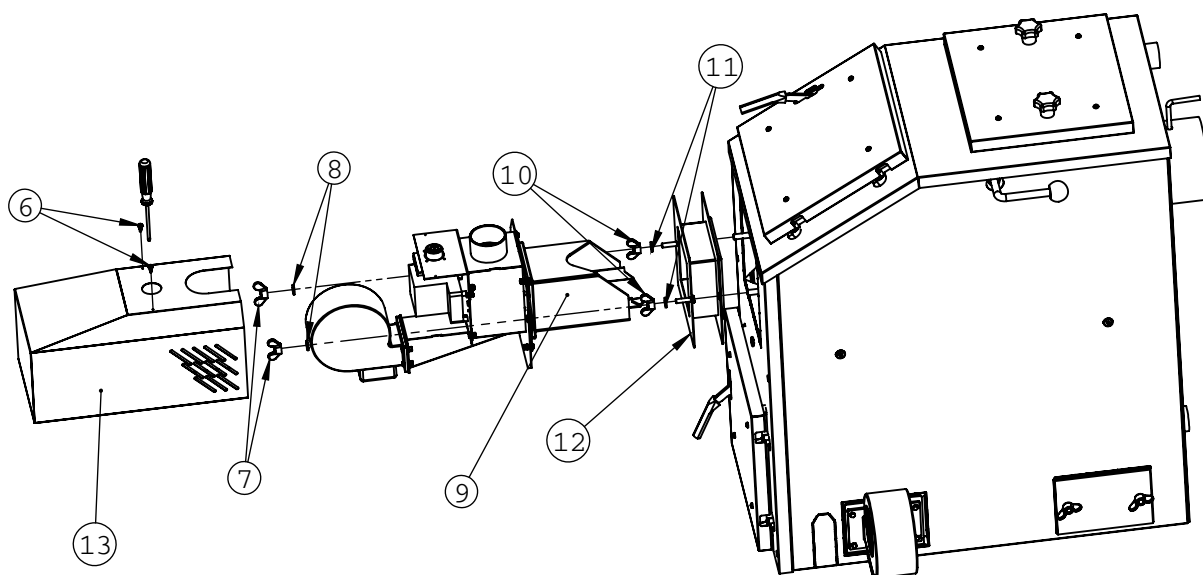


Fig. 13 Installation of Platinum Bio burner.

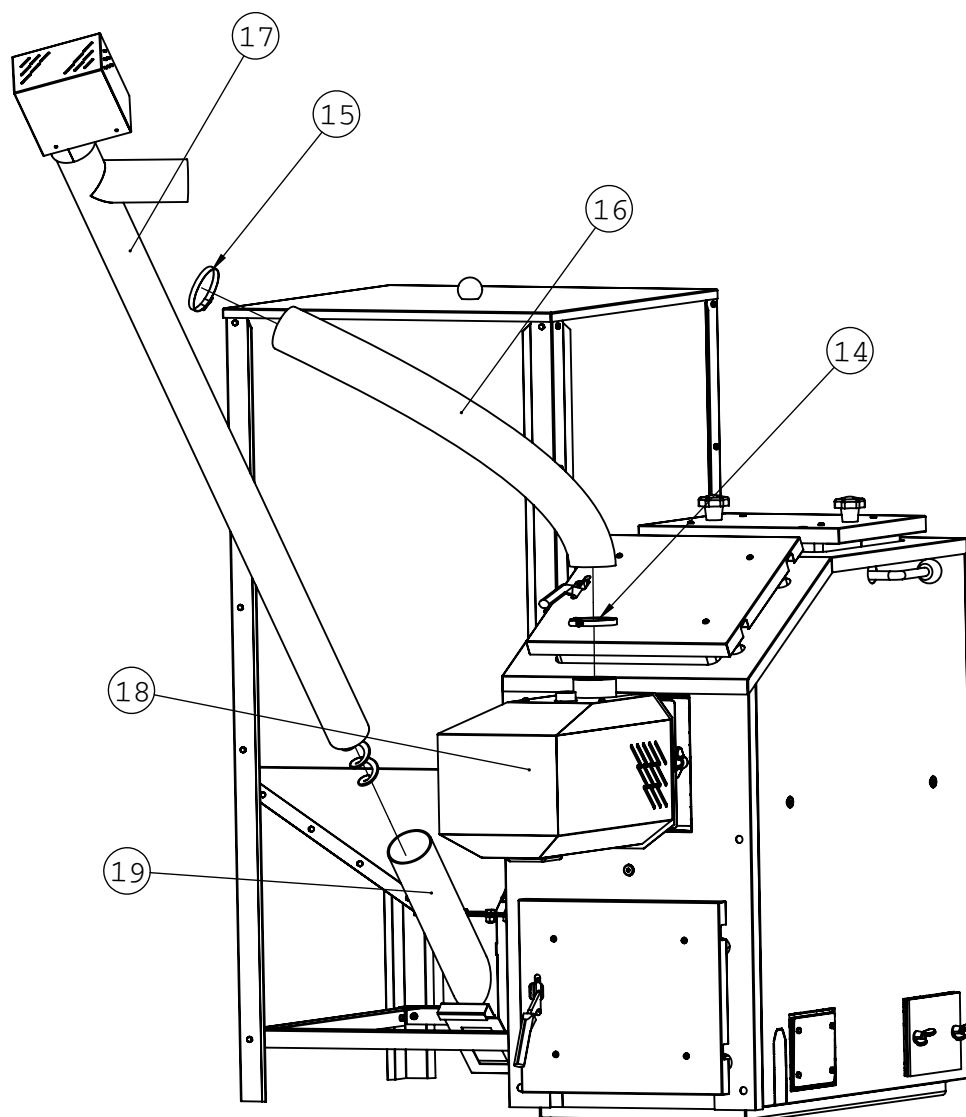
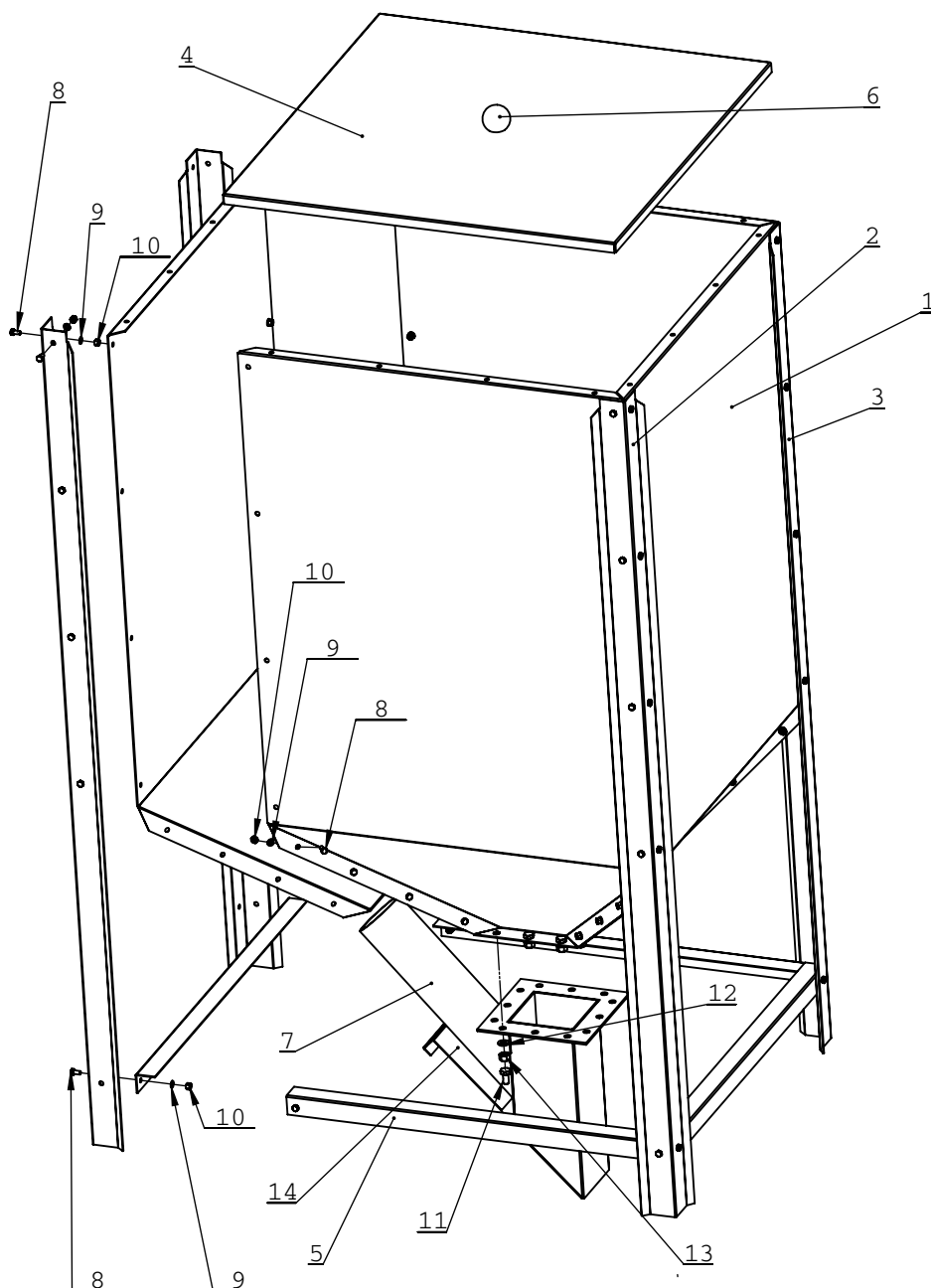


Fig. 14 Feeder installation.

12.3 Tank installation (Fig. 15)

1. Screw the sides (1), front legs (2) and rear legs (3) using M5 screws (8), M5 washers (9), M5 nuts (10).
2. Screw the braces (5).
3. Screw the feeder attachment to the tank (7) using M8 screws (11), M8 washers (12) and M8 nuts (13).
4. Pull out the cleanout plug (14) in order to clean the feeder attachment (7).



Tank components		
No.	name	Quantity
1	Tank side	4
2	Tank leg / front	2
3	Tank leg / rear	2
4	Cover	1
5	Bracket	4
6	Holder	1
7	Fedder attachment	1
8	M5 screw	56
9	M5 washer	56
10	M5 nut	56
11	M8 screw	12
12	M8 washer	12
13	M8 nut	12
14	Clean-out plug	1

Fig. 15 Tank installation.

12. Starting up the Platinum Bio Burner

12.4 Before starting up the burner you should:

- Check the installation condition.
- Feed the fuel into the tank in such a way to be able to put the cover thereon.
- Make sure that there are not any foreign objects in the fuel (stones, steel elements, etc.).
- Insert the grate proper for the fuel burned.
- In service mode, set the feeding times and the maximum amount of air.
- Feed the fuel from the tank until it is transferred via a flexible pipe.
- Turn off the fuel feeding and hold the ON push-button.
- When changing the fuel e.g. from pellets to oats you should:
 - Turn off the boiler
 - Wait until the boiler cools down
 - Remove the grate for pellets and clean the grate cover (Fig.8)
 - install the grate proper to burn oats (pay attention to precise adherence of the grate to the burner cover).
 - set the feeding times and the max. amount of air according to the table 2.
 - Start up the boiler
- After the heating season the burner should be:
 - Turned off and disconnected from the mains.
 - Cleaned thoroughly, and
 - remove fuel from the tank

Working settings of Platinum Bio burner for 10 kW

Pellets *	30% thermal power:	100% thermal power:
Feeding time	1.5	5
Air	8	13
Oats **	30% thermal power:	100% thermal power:
Feeding time	2	7
Air	9	14
* According to DIN 51731 ** at 10% moisture content 10%		

Working settings of Platinum Bio burner for 20 kW

Pellets *	30% thermal power:	100% thermal power:
Feeding time	3	10
Air	12	19
Oats **	30% thermal power:	100% thermal power:
Feeding time	4	14
Air	18	28
* According to DIN 51731 ** at 10% moisture content 10%		



NOTE!!! Cleaning and maintenance of the Platinum Bio Burner can be performed only when the burner is turned off, cooled down and disconnected from the mains. Watch out for hot surfaces of the burner - there is the risk of burns.

NOTE!!!

To maintain high efficiency of the burner it should be cleaned and maintained on a regular basis. Soot, tar deposit and ash in the burner grate, Should be removed on a regular basis.

NOTE!!!

Quantity of ash generated during oats combustion is considerably greater than during combustion of pellets.

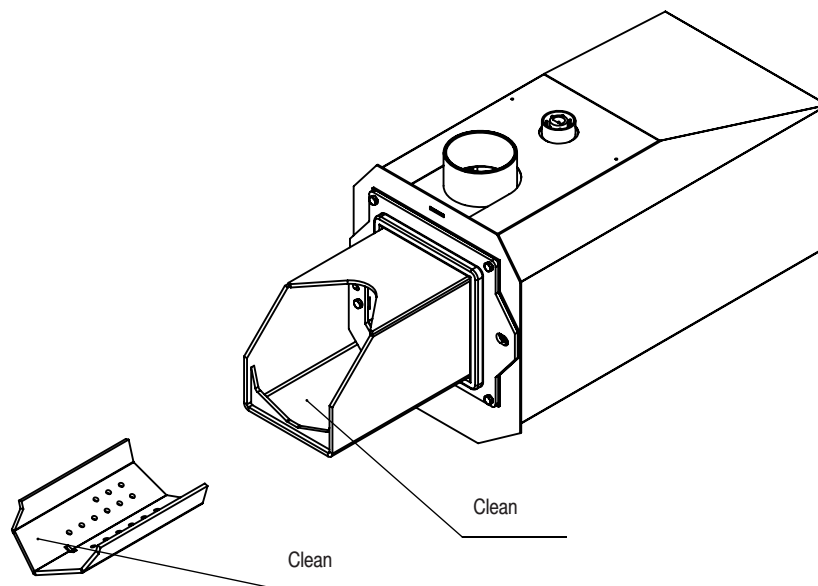
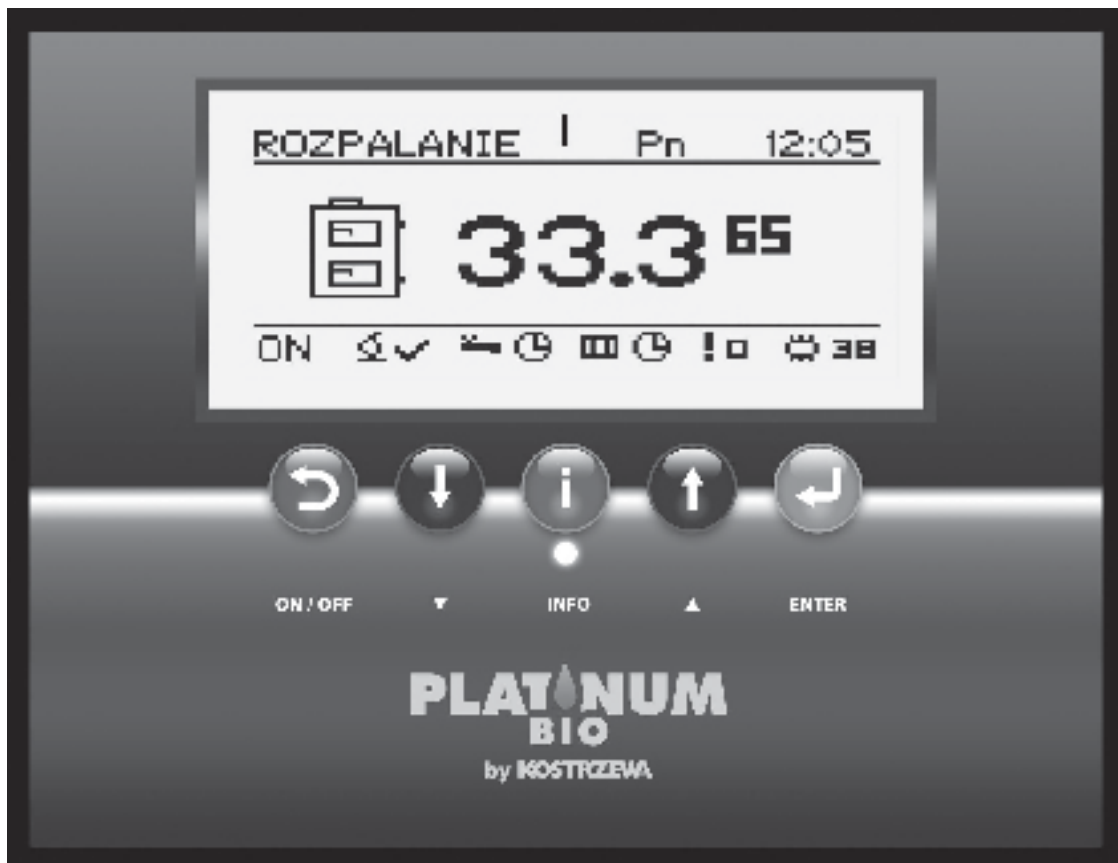


Fig. 16 Platinum Bio burner cleaning.

13. Necessary steps

1. Turn off the boiler (wait for complete extinction of the burner), disconnect the boiler from the mains and wait until the boiler cools down.
2. Disconnect the burner from the boiler and wiring system.
3. Remove the grate from the burner and clean it (pay attention to free flow of the aeration holes). Clean the cover of the burner grate (Fig.16)



Platinum Bio Controller

14.1 Introduction

The controller of the Mini Bio boiler operation is a modern microprocessor based system, which controls not only the boiler, but also the central heating system and domestic hot water. The system controls the combustion process by providing adequate amounts of air and fuel. Owing to solid state relays application the blower power is variably controlled. Thanks to the advanced operation algorithm and the possible regulation of many parameters, the system can be very flexibly adapted to the needs of the heating system.

14.2 Benefits

- Graphic display - thanks to the large FSTN graphic display operation is intuitive.
- Large fonts and icons - to improve easiness of operating the device for the elderly persons.
- Two types of menus - the simple and advanced menu. During daily operation of the device it is possible to use easily accessible simple menu.
- Info button - the controller is equipped with the function of intelligent assistance. Each parameter is described, retrieving the description is done by pressing the info button.
- The modular design of the CAN controller - owing to application of industrial CAN data bus (used mainly in the demanding automotive industry), it is possible to extend the control system. The maximum extension covers 16 heating circuits, 4 circuits of domestic hot water preparation, 4 energy buffers.
- Powerful modern 32-bit ARM processor (ARM range is widely used in mobile phones) - it enables advanced control of the algorithm of the II generation Fuzzy Logic.
- The history of alarms and errors - the controller keeps a history of 20 last errors and alarms along with a description, generation date and confirmation date.
- Clock with calendar - the clock enables to program the required room and domestic hot water temperatures in the cycle covering a week that contributes to reduction of fuel expenditures.
- Statistics - the controller stores the statistical data of the system operation, so it is possible to observe the work and reduce fuel consumption. For example, monitoring the boiler temperature and the burner output. Fuel feeder operating time.
- Beep alarm - Built-in piezoelectric speaker signals the occurrence of an alarm condition in the boiler, which increases security of the device operation.
- Restoring the factory settings - this feature allows you to restore the factory settings of the controller.

14.3 Precautions



NOTE!!!

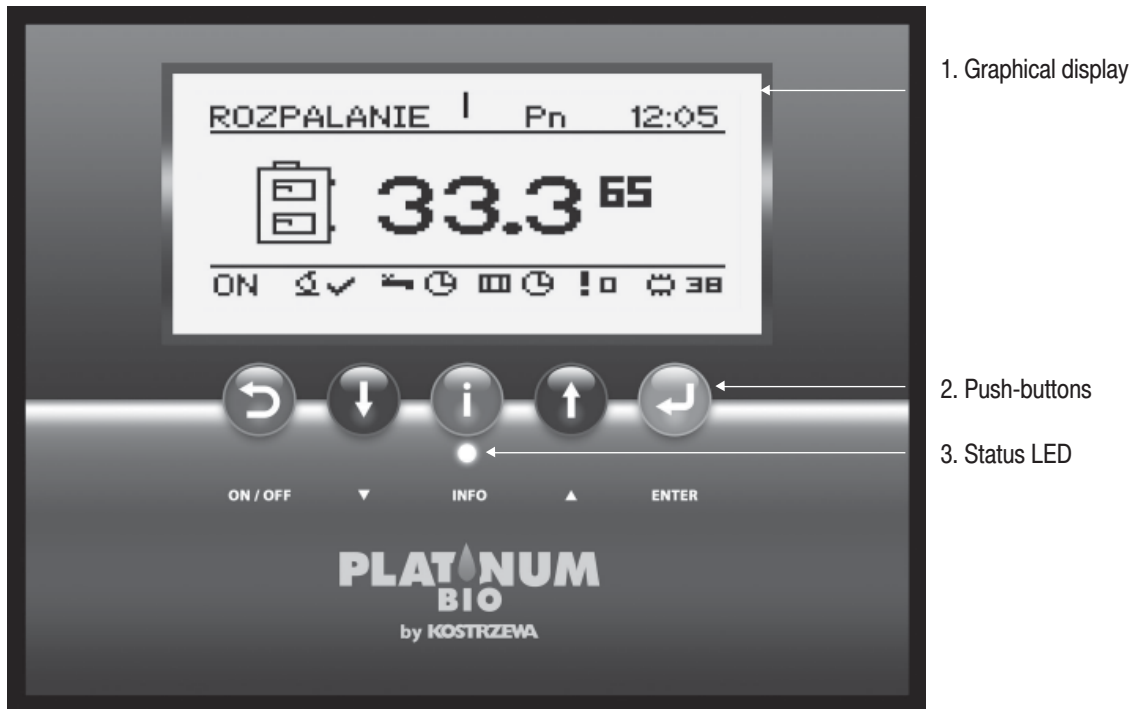
Electric shock hazard.

- Before installing or removing the device disconnect power supply in the electrical switchboard.
- Before using the appliance, carefully read all attached instructions.
- Keep the service manual and refer to it for any use of the device in the future.
- Follow all warnings and instructions contained in the service manual.
- Make sure that the device is not damaged in any way. If in doubt, do not use the device and contact the supplier.
- In case of any doubts as to safe operation of the device, you should contact the supplier.
- Pay special attention to any warning signs posted on the housing and packaging of the equipment.
- Use the device for its intended purpose.
- The device is not a toy, do not allow children to play with it.
- Do not allow your children to play with any part of the packaging of the device.
- Prevent an access to small parts such as screws, pins from children. These elements can be supplied with the equipment and if swallowed may cause suffocation of a child.
- Do not perform any mechanical or electrical changes in the device. Such changes may result in improper operation of the device which does not conform with the standards and adversely affect operation.
- Do not put any objects into the device interior through the slots (eg ventilation), it can cause a short circuit, electric shock, fire or damage equipment.
- You can not permit for water, moisture and dust penetration to the device interior, since they can cause a short circuit, electric shock, fire or damage equipment.
- Ensure proper ventilation of the device, do not cover or block any ventilation openings and ensure free flow of air around it.
- The device should be installed inside the premises unless it is prepared to outdoor operation.
- Do not allow the unit to be exposed to shocks and vibrations.
- When connecting, make sure that the mains electrical parameters correspond to the device working range.
- To avoid risk of electric shock the device must be connected to an outlet with the ground terminal. Grounding the outlet must be done properly by a qualified electrician.
- When connecting, make sure that this will not cause overloading the electrical circuit. Avoid connecting the device to the same circuit with motors and other devices causing pulse-type interferences (e.g., washing machines, refrigerators, ...)
- Before connecting any cables and peripherals to the device, it is essential to disconnect the power supply.
- To completely disconnect the unit from power supply the plug must be removed from the wall outlet, especially when it will not be used for a long time.
- Protect the power cord from damage; it should be routed in such a way to not step on it; no objects should be placed on the cable.
- All connections must be made in accordance with the electrical wiring diagram and with the national or local electrical wiring codes.
- This device does not contain any parts, which the user can replace itself. All service operations in addition to cleaning, replacement of the fuse (with the device disconnected from the mains) and setting the functions should be performed by authorized service personnel.
- Before performing any maintenance, it is essential to disconnect the unit from the mains.
- To clean the device housing do not use gasoline, solvents or other chemicals that may damage the housing. It is recommended to use soft cloth.
- If the AC power cord is damaged, absolutely do not use such a device. A damaged cord must be replaced by service personnel with the new one of the same parameters as the original cord.

14.4 Waste equipment disposal

The electronic device is made of materials, some of which are suitable for recycling. Therefore, after live expiration it must be delivered to the point of electrical and electronic equipment recovery and recycling, or be returned to the manufacturer. Equipment should not be mixed with other domestic wastes.

15.1 Control panel








Platinum Bio Controller

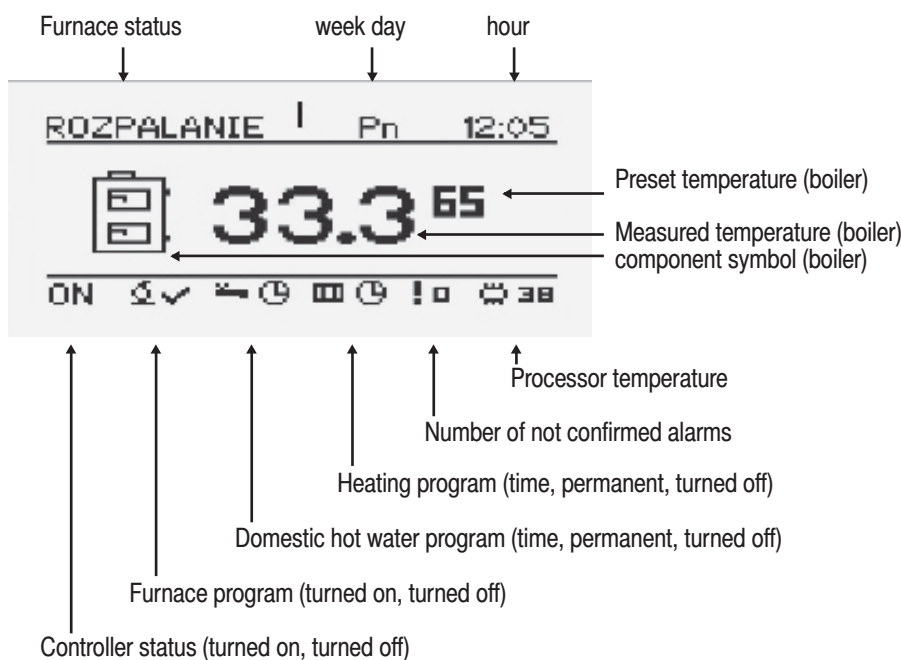
15.2 Status LED

LIGHTING DESCRIPTION	DENOTATION
Green continuous light	Controller turned off
Green flashing light	Controller turned on, burner turned off
Orange continuous light	Controller turned on, burner turned on.
Orange flashing light	Burner in service.
Red continuous light	There is an alarm to be confirmed.
Red flashing light	Active alarm.

15.3 Push-buttons

PUSH-BUTTON	FUNCTION
 Return / Esc - ON/OFF	Return one level up in the menu, giving up the parameter change. Long pressing on the main screen (> 3 seconds) changes ON / OFF status of the controller.
 Down arrow	Menu navigation, reducing the value of the edited parameter. On the main screen -> entering the simple menu.
 Info	Shows the navigation information and descriptions of the regulated parameters.
 Up arrow	Menu navigation, increasing the value of the edited parameter. On the main screen -> entering the simple menu.
 Confirmation / Enter	Access to the menu. Acceptance of the change of the value of the edited parameter. Alarm confirmation.

15.4 Graphical display



15.5 Furnace statuses

STATUS	DESCRIPTION
Turned off	Burner not in service. Service permission turned off.
Cleaning	Cleaning the burner with strong air stream.
Firing up	Fuel ignition. Supplying initial fuel dose, Activation of an igniter and blower.
Inflaming	After detecting the flame at the firing up stage supplying an additional dose of fuel and increasing the blower power to inflame the furnace
Output 1	The burner works with the first output.
Output 2	The burner works with the second output.
Modulation	The burner works with the modulated output.
Extinction	The furnace extinction. The burner feeder and blower operate until the complete disappearance of the flame.
Stop	Burner does not work but its work is permitted. The required boiler temperature is reached.

16.1 Menu navigation

The device has two types of menus:

- **Simple Menu** – provides quick access to the basic functions of the controller. Access to menu is simple by pressing „up arrow” or „down arrow” on the main screen. Description of the simple menu, see chapter „Simple Menu”
- **Main Menu** – allows you to access all the functionality of the controller (status monitoring, change of settings and service set up). Access to the main menu is performed by depressing the bush-button „Confirmation, enter” on the main screen. Description of the main menu, see chapter „Main Menu”.

Return to the main screen is possible from any screen by depressing the „Return, ESC” push-button several times.



NOTE!!!

Service menu is intended only for qualified technical personnel. Changes may cause improper operation of the system.

16.2 Turning on the controller

To turn on the controller (ON mode) depress „Return, Esc” push-button on the main screen and hold for 3 seconds, when it is in the OFF mode.

16.3 Turning off the controller

To turn off the controller (OFF mode) depress „Return, Esc” push-button on the main screen and hold for 3 seconds, when it is in the ON mode.

NOTE!!!

When you turn off the controller, depending on the prior status, the burner can still work (damping) this status should not be interrupted.

If the device is to be disconnected from the mains, wait for damping process termination, until the burner status is „off”.

16.4 Timer programs

The controller is equipped with a clock and calendar. This makes it possible to program the operation of individual heating circuit components depending on the current time and day of a week. Date and time are not reset during power failure since the controller is equipped with a battery that must be replaced every two years.

Programming takes place in the menu of a given circuit (e.g., hot water, heating, buffer) and for each item it proceeds in the same way.

Choice of the week's day.

Upon entering the „Timer program” menu, the day of the week flashes with arrow buttons, select the day you want to set or just check the settings of the program.

Programming.

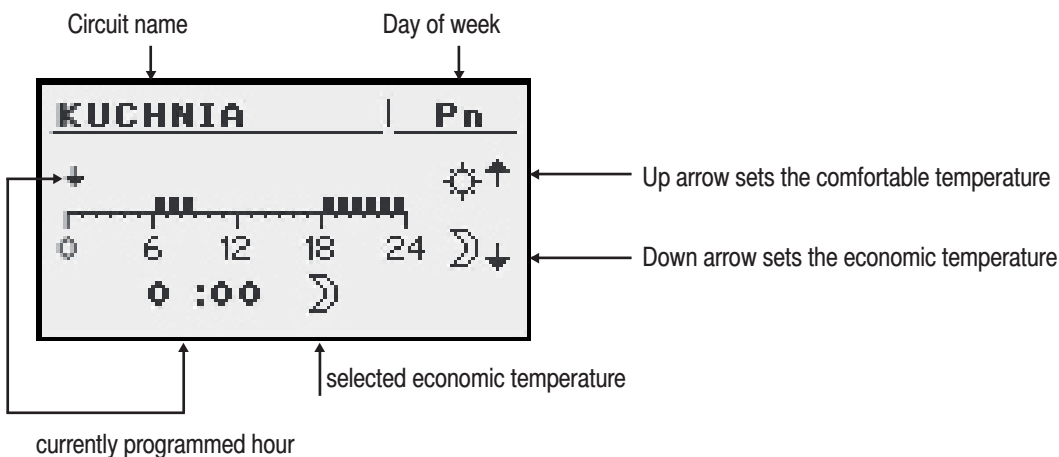
After selecting the day of the week and confirming with the enter button the indicator of the currently programmed hour starts flashing, at the same time the said hour is displayed, and next to it an icon that represents the currently selected time zone is displayed. (the symbol of the sun means comfort temperature, the moon is a symbol of the economic temperature.) To come to next hour press the down arrow (economic temperature) or the up arrow (comfort temperature). If the whole day is already programmed according to our wish, press the enter button. On approving the changes approved (or cancelling), a week's day starts flashing.

16.5 Example of programming the week's day

The controller is equipped with a clock and calendar. This makes it possible to program the operation of individual heating circuit components depending on the current time and day of a week. Date and time are not reset during power failure since the controller is equipped with a battery that must be replaced every two years. Programming takes place in the menu of a given circuit (e.g., hot water, heating, buffer) and for each item it proceeds in the same way. Choice of the week's day. Upon entering the „Timer program” menu, the day of the week flashes with arrow buttons, select the day you want to set or just check the settings of the program.

Programming. After selecting the day of the week and confirming with the enter button the indicator of the hour currently programmed starts flashing, at the same time the said hour is displayed, and next to it an icon that represents the currently selected time zone is displayed (the symbol of the sun means comfortable temperature, the moon is a symbol of the economic temperature.) To come to next hour press the down arrow (economic temperature) or the up arrow (comfort temperature). If the whole day is already programmed according to our wish, press the enter button. On approving (or cancelling) the changes, a week's day starts flashing.

The figure below shows an example of the programmed day of the week.



Economic temperature 00:00 to 6:00
 Comfortable temperature 6:00 to 9:00
 Economic temperature from 9:00 to 18:00
 Comfortable temperature from 18:00 to 24:00

NOTE!!!

The values of comfortable and economical temperatures are set in the SETTINGS menu and may be different for each of the circuits. To initiate the timer program execution it must be activated also in the SETTINGS menu.

16.6 Service password

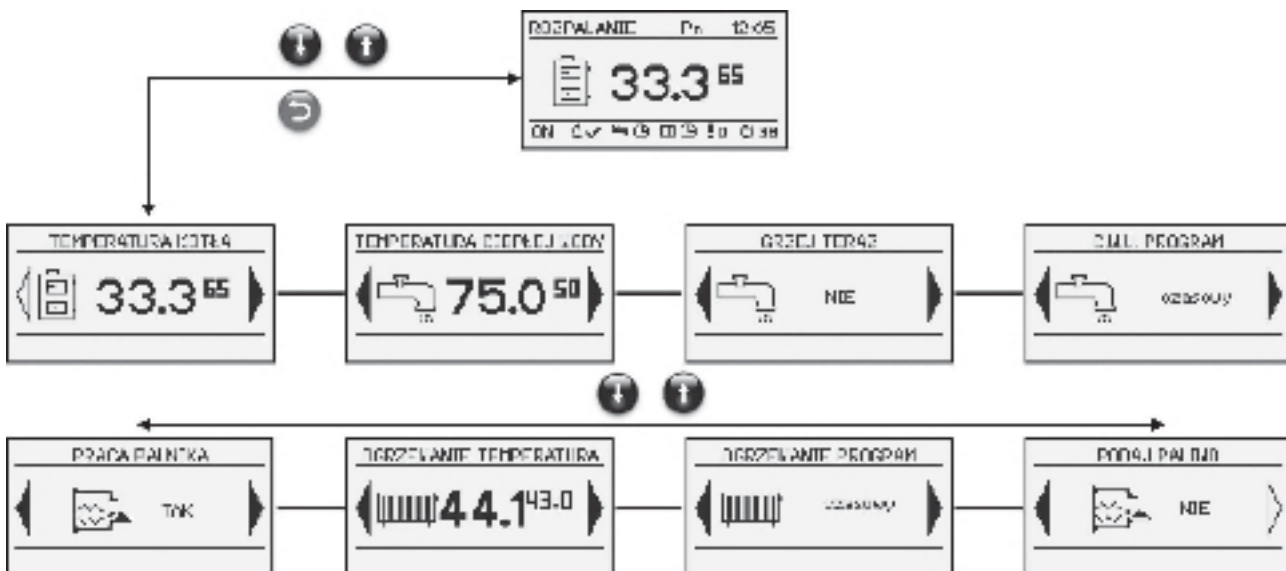
Access to service parameters is password protected. After entering the correct password, access is enabled. Access to the service parameters will be locked after a period of 10 minutes without depressing the push-buttons. The service code is the temperature of the boiler preset in the menu BOILER / SETTINGS as well as the following three letters „EST”.

NOTE!!!





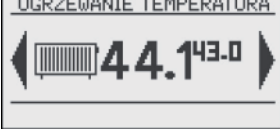
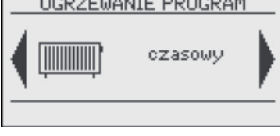


The service menu is intended for qualified technical personnel only. The changes may cause malfunction of the system.

17. Simple menu

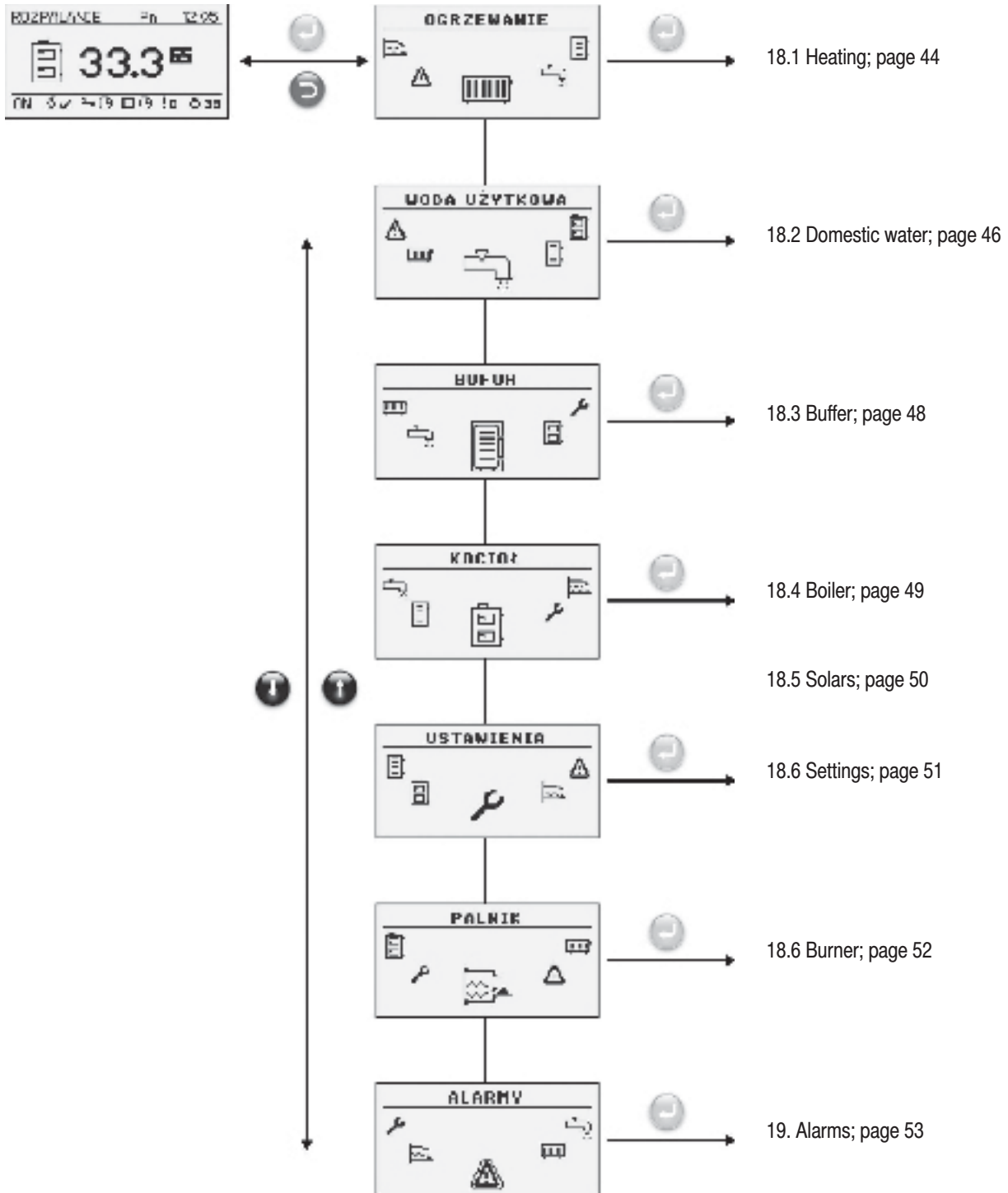
17. Simple menu



Simple menu screens

PUSH-BUTTON	FUNCTION
	<p>Shows the current temperature of the boiler (large font) and the preset temperature (small font). After pressing the ENTER button, you can set the boiler preset temperature.</p>
	<p>Shows the current temperature of hot water (large font) and the preset temperature (small font). After pressing the ENTER button, you can set the hot water preset temperature.</p>
	<p>It prepares hot water to the comfortable temperature one time regardless of the program.</p>
	<p>Domestic hot water program No.1: a) timer - according to the programmed time intervals b) constant - comfortable temperature is maintained regardless of the time intervals c) off - heating is turned off</p>
	<p>Shows the current temperature in the room No 1 (large font) and the preset value (small font). After pressing the ENTER button, you can set the desired temperature in the room.</p>
	<p>Circuit No. 1 heating program: a) timer - according to the programmed time intervals b) constant - comfortable temperature is maintained regardless of the time intervals c) off - heating is turned off</p>
	<p>Burner operation permitted. If the burner operation permission is precluded the controller controls the heating system, but it does not turn on the burner.</p>
	<p>Manual activation of the fuel feeding from the tank. Useful function when the fuel is exhausted in the tank. After refilling the fuel tank you should activate the fuel feeding function until the fuel starts to overflow from the feeding tube to the burner.</p>

Main menu

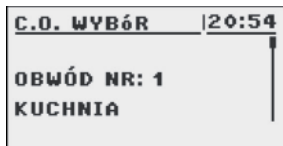


18.1 Heating



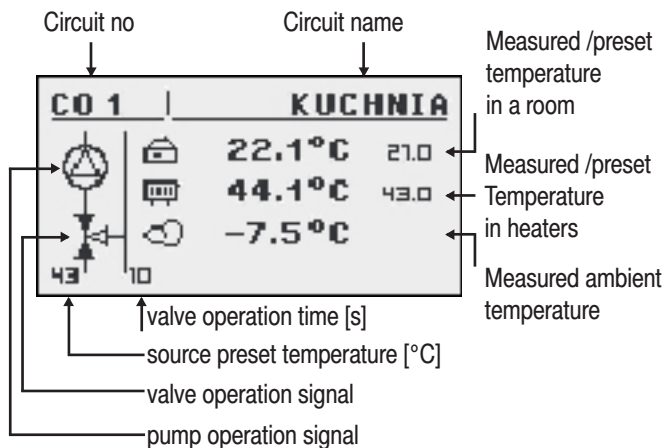
18.1.1 Circuit selection

It allows you to select a number of the central heating circuit.



18.1.2 Status

It allows you to monitor the status of the central heating system.



18.1.3 Settings

Description of the functions in the **SETTING** submenu

FUNCTION	DESCRIPTION
Comfortable temperature	Temperature preset in a room during the period of heating.
Programe	Programs: a) timer – according to programmed intervals b) constant – comfortable temperature is maintained regardless of the time intervals c) off – heating is turned off
Economic temperature	Temperature preset in a room out of the heating period.

18.1.4 Timer program

Used to configure the timer program controlling the central heating system.

Description of the timer program setting procedure is given in Chapter „Operation” - „Timer programs”.

18.1.5 Service

Used to configure the timer program to control the central heating.



NOTE!!!

The service menu is intended for qualified technical personnel only. The changes may cause malfunction of the system.

Description of the functions in the SERVICE submenu

FUNCTION	DESCRIPTION
Pump MIN temp.	The minimum calculated temperature of central heating, at which the circulation pump can operate.
Source	Determines the energy source for central heating circuit.
Max. temperature	Maximum calculated temperature for central heating.
Mixer time	Time of mixer full opening.
DHW priority	DHW priority for the given central heating circuit. The central heating pump is not operating during domestic hot water heating.
Pump test	Turns on the circulating pump regardless of other conditions.
Mixer test	Turns on the mixer actuator independently of other conditions.
Circuit name	gives name for the central heating circuit
CH temp. for -20°C	The point of the heating curve for 0°C.
CH temp. for 0°C	Punkt krzywej grzewczej dla 0°C.
CH temp. for 10°C	The point of the heating curve for 10°C.

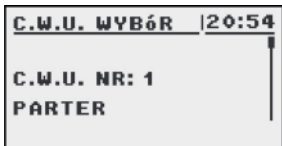
FUNCTION	DESCRIPTION
Correction factor	The correction of the central heating set temperature with regard to the temperature set in a room per each 1°C. For example, if the correction factor is set to 6°C, the preset room temperature to 20°C and the temperature measured in the room is 20.5°C, then the calculated central heating temperature will be reduced by 3°C.
Operation mode	Determines the mode of temperature presetting for central heating manual - the central heating temperature is preset manually, weather controlled - the central heating temperature is calculated from the heating curvej
Manually set TCH	Central heating preset temperature when the operating mode is set to manual
Central heating (CH) sensor	Determines whether the system uses a room sensor
Czujnik CO	Specifies whether the system contains a room sensor
Permanent pump	Yes - the pump runs after reaching the preset temperature in the room; the calculated temperature of the central heating is lowered (only if the central heating sensor and room sensor are applied) No - after reaching the preset temperature in the room the pump is turned off

18.2 Domestic water



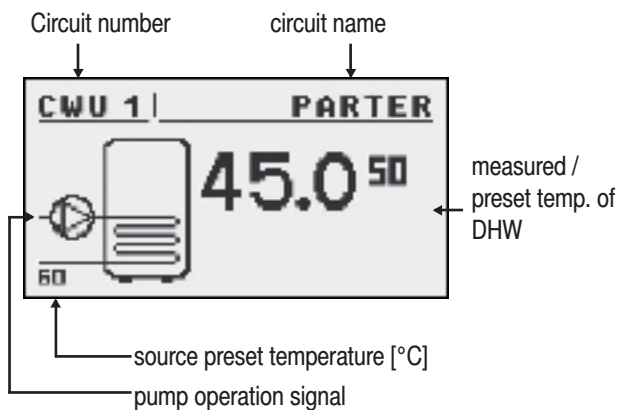
18.2.1 Circuit selection

It allows you to select the number of the domestic hot water circuit.



18.2.2 Status

It allows you to monitor the status of domestic hot water system.



18.2.3 Settings

Description of the functions in the **SETTINGS** submenu

FUNCTION	DESCRIPTION
Comfortable temp.	Preset temperature of domestic hot water during the period of heating.
Programs	Programs: a) timer – according to programmed intervals b) constant – comfortable temperature is maintained regardless of the time intervals c) off – heating is turned off
Warm now	Warms the hot water up to a comfortable temperature one time, regardless of the program.
Hysteresis	The value by which the domestic hot water temperature can be reduced.
Economic temperature	The preset temperature of hot water outside the period of heating.

18.2.4 Timer program

Used to configure the timer program controlling the domestic hot water preparation.

Description of the timer program setting procedure is given in Chapter „Operation” - „Timer programs”.

18.2.5 Service



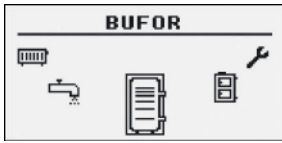
NOTE!!!

The service menu is intended for qualified technical personnel only. The changes may cause malfunction of the system.

Description of the functions in the SERVICE submenu

FUNCTION	DESCRIPTION
Source Delta	The source temperature growth in relation to the preset temperature of domestic hot water during heating.
Source	Determines the energy source for DHW.
Max. temperature	Max. temperature of domestic hot water.
Delta MIN temp.	The minimum temperature difference between the source and domestic hot water at which the pumps can operate.
Pump test	Starts the circulating pump regardless of other conditions.
Circuit name	Gives name for the domestic hot water circuit

18.3 Buffer



18.3.1 Status

18.3.2 Settings

Description of the functions in the **SETTINGS** submenu

FUNCTION	DESCRIPTION
Preset top temp.	Below this temperature the charging process starts in the upper part of the buffer.
Preset bottom temp.	Above this temperature the charging process finishes in the bottom part of the buffer.
Program	Continuous - the buffer is loaded at any time Timer - the buffer is loaded only within specified time intervals. The intervals are set in the „timer program” off - the buffer loading is turned off.

18.3.3 Timer program

Used to configure the timer program controlling the buffer loading process.

Description of the timer program setting procedure is given in Chapter „Operation” - „Timer programs”.

18.3.4 Service



NOTE!!!

The service menu is intended for qualified technical personnel only. The changes may cause malfunction of the system.

Description of the functions in the **SERVICE** submenu

FUNCTION	DESCRIPTION
Min. pump temp.	The minimum buffer temperature in the upper part, at which the circulating pumps can work.
Auto temp. Top	Determines whether the upper (minimum) temperature of the buffer is set manually or automatically. Automatic setting is based on the needs of other receivers of energy from the buffer.

18.4 Boiler



18.4.1 Status

Statistics of the boiler operation within the last 24 hours. The graph shows the boiler temperature and the burner output.

18.4.2 Settings

Description of the functions in the **SETTINGS** submenu

FUNCTION	DESCRIPTION
Temp. zadana kotła	Temperatura czynnika grzewczego w kotle jaką będzie utrzymywał regulator.

18.4.3 Service



NOTE!!!

The service menu is intended for qualified technical personnel only. The changes may cause malfunction of the system.

Description of the functions in the **SERVICE** submenu

FUNCTION	DESCRIPTION
MIN pump temp.	The temperature above which the controller can turn on the pumps
Operating mode	Boiler operating mode: a) auto - temperature is determined automatically b) continuous - the temperature is kept constant
Hysteresis	The boiler temperature must be reduced by that value to activate the burner.

18.5 Solars

18.5.1 Status

18.5.2 Settings

Description of the functions in the SETTINGS submenu

FUNCTION	DESCRIPTION
Activation Delta	The temperature difference between the collector and the heated water needed to start up the solar pump.
Deactivation Delta	The temperature difference between the collector and the heated water needed to deactivate the solar pump

18.5.3 Service

Description of the functions in the SERVICE submenu

FUNCTION	DESCRIPTION
Schemat	Determines the solar system type.
Flow [l/min]	Flow of the factor via the solar system during the pump operation. The parameter needed to calculate the power of the collectors.
Fluid heat	Specific heat of applied solar fluid given in kJ / (kg * ° C)
Water max. temp.	Max. temperature of heated water.
MAX T. collector alarm	Maximum temperature of the collectors above which the protective procedure is triggered and the alarm is generated
MIN T. collector alarm	Minimum temperature of the collectors below which the protective procedure is triggered and the alarm is generated.
Solar pump test	Starts the solar pump independently of other settings

18.6 Settings



18.6.1 Date and time

This menu is used to set the date and time of the controller.

18.6.2 Language

This menu is used to select the language of the controller menu.

18.6.3 Service



NOTE!!!

The service menu is intended for qualified technical personnel only. The changes may cause malfunction of the system.

18.6.4 Configuration of modules

This menu is used to configure the system of CAN network. Select the modules in the menu, which are connected to the network.

NOTE!!!

A detailed description of the modules and their tasks is given in the manuals of extension modules.

Brief description of extension modules

FUNCTION	DESCRIPTION
Module No. 0	3 heating circuits with numbers 2,3,4. Ambient temperature sensor.
Module No. 1	3 heating circuits with numbers 5,6,7.
Module No. 2	3 heating circuits with numbers 8,9,10.
Module No. 3	3 heating circuits with numbers 11,12,13.
Module No. 4	3 heating circuits with numbers 14,15,16.
Module No. 5	Buffer. Solars. DHW No. 2. Return temperature sensor.
Module No. 6	Not used.
Module No. 7	Not used.
Lambda module	Lambda probe module.

18.6.5 Restore factory settings

This function allows to restore the factory settings of the controller.



NOTE!!!

All factory settings will be restored, which can cause your system malfunction. After restoring the factory settings it may be necessary to reconfigure the controller.

18.7 Burner



18.7.1 Status

Animation showing the operation of the burner equipment.

18.7.2 Settings

Description of the functions in the **SETTINGS** submenu

FUNCTION	DESCRIPTION
Feed fuel	Starts the fuel feeder regardless of other functions.
Burner operation	Burner operation permission.
Fuel type	Determines the type of combusted fuel.

18.7.3 Service



NOTE!!!

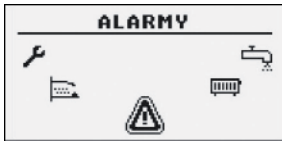
The service menu is intended for qualified technical personnel only. The changes may cause malfunction of the system.

Description of the functions in the **SERVICE** submenu

FUNCTION	DESCRIPTION
Air MIN (output 20%)	The minimum quantity of air at modulation when the burner output is 20% or at output 1.
Air MAX (output 100%)	The maximum quantity of air at modulation when the burner output is 100% or at output 2.
Feeding MAX (output 100%)	The maximum fuel feeding time at modulation when the output is 100% or at output 2, per each 20 seconds.
Output MIN	The minimum burner output at modulation.
Output MAX	The maximum burner output at modulation.
Modulation type	The way of the burner operation, modulated output (Fuzzy Logic 2) or two output levels (stepwise).
Photo threshold	The brightness in the burner, above over which the controller assumes that there is a flame.
Igniter test*	Turns on the igniters for testing.
Burner feeder test*	Turns on the burner feeder for testing.
Tank feeder test*	Turns on the tank feeder for testing.
Blower test*	Turns on the blower for testing.
Fuel volume test	Amount of fuel fed through the tank feeder during continuous operation for 1 hour
Fuel calorific value	The calorific value of fuel used (kWh / kg)
Lambda control	Determines whether the controller has to take into account the oxygen values from the lambda probe during the process of control.
Oxygen output MIN(20%)	oxygen set-point at the minimum burner output of 20%.
Oxygen output MAX(100%)	oxygen set-point at the maximum burner output of 100%.

* testing the equipment in the BURNER menu is possible only when the controller is in OFF mode.

19. Alarms



This menu contains a history of up to twenty alarms that occurred during the controller operation. The meaning of alarm codes is presented in the table below.

Alarm codes and their meaning

CODE	BRIEF DESCRIPTION	EXPLANATION
1	Processor overheating	Controller processor overheated. The reason may be inappropriate place of the controller installation.
2	No flame/fuel	The controller detected a lack of flame in the burner. The reason could be fuel depletion or flame extinction.
3	Burner overheating	The burner temperature reached its maximum value!
4	Boiler sensor short-circuit	The controller detected a short-circuit of the boiler temperature sensor. The reason may be damaged sensor or connection cable.
5	Boiler sensor interruption	The controller detected the boiler temp. sensor disconnection. The reason may be damaged sensor or connection cable.
6	Burner sensor short-circuit	The controller detected a short-circuit of the burner temperature sensor. The reason may be damaged sensor or connection cable.
7	Burner sensor interruption	The controller detected the burner temp. sensor disconnection. The reason may be damaged sensor or connection cable.
8	Boiler overheating	Boiler temperature exceeded its maximum value.
9	Processor reset	Probable controller damage! Possible loss of power.
10	STB	
11	Communication with module No. 0	
12	Communication with module No. 1	
13	Communication with module No. 2	
14	Communication with module No. 3	
15	Communication with module No. 4	
16	Communication with module No. 5	
17	Communication with module No. 6	
18	Communication with module No. 7	
19	DHW sensor short-circuit	
20	DHW sensor interruption	
21	Room sensor short-circuit	
22	Room sensor interruption	

CODE	BRIEF DESCRIPTION	EXPLANATION
23	Extinction error	
24	Communication with Lambda module	
25	Solars overheating	
26	Solars freezing	
CODES OF MODULES		
33	Short-circuit IN1 Module 0	
34	Short-circuit IN2 Module 0	
35	Short-circuit IN3 Module 0	
36	Short-circuit IN4 Module 0	
37	Short-circuit IN5 Module 0	
38	Short-circuit IN6 Module 0	
39	--	
40	--	
41	--	
42	--	
43	Short-circuit IN11 Module 0	
44	--	
45	Disconnection IN1 Module 0	
46	Disconnection IN2 Module 0	
47	Disconnection IN3 Module 0	
48	Disconnection IN4 Module 0	
49	Disconnection IN5 Module 0	
50	Disconnection IN6 Module 0	
51	--	
52	--	
53	--	
54	--	
55	Disconnection IN11 Module 0	
56	--	
57	--	
58	Overheating of module 0	
65	Short-circuit IN1 module 1	
66	Short-circuit IN2 module 1	
67	Short-circuit IN3 module 1	
68	Short-circuit IN4 module 1	

CODE	BRIEF DESCRIPTION	EXPLANATION
69	Short-circuit IN5 module 1	
70	Short-circuit IN6 module 1	
71	--	
72	--	
73	--	
74	--	
75	--	
76	--	
77	Disconnection IN1 Module 1	
78	Disconnection IN2 Module 1	
79	Disconnection IN3 Module 1	
80	Disconnection IN4 Module 1	
81	Disconnection IN5 Module 1	
82	Disconnection IN6 Module 1	
83	--	
84	--	
85	--	
86	--	
87	--	
88	--	
89	--	
90	Overheating of module 1	
97	Short-circuit IN1 module 2	
98	Short-circuit IN2 module 2	
99	Short-circuit IN3 module 2	
100	Short-circuit IN4 module 2	
101	Short-circuit IN5 module 2	
102	Short-circuit IN6 module 2	
103	--	
104	--	
105	--	
106	--	
107	--	
108	--	
109	Disconnection IN1 module 2	

CODE	BRIEF DESCRIPTION	EXPLANATION
110	Disconnection IN2 module 2	
111	Disconnection IN3 module 2	
112	Disconnection IN4 module 2	
113	Disconnection IN5 module 2	
114	Disconnection IN6 module 2	
115	--	
116	--	
117	--	
118	--	
119	--	
120	--	
121	--	
122	Overheating of module 2	
129	Short-circuit IN1 module 3	
130	Short-circuit IN2 module 3	
131	Short-circuit IN3 module 3	
132	Short-circuit IN4 module 3	
133	Short-circuit IN5 module 3	
134	Short-circuit IN6 module 3	
135	--	
136	--	
137	--	
138	--	
139	--	
140	--	
141	Disconnection IN1 module 3	
142	Disconnection IN2 module 3	
143	Disconnection IN3 module 3	
144	Disconnection IN4 module 3	
145	Disconnection IN5 module 3	
146	Disconnection IN6 module 3	
147	--	
148	--	
149	--	
150	--	

CODE	BRIEF DESCRIPTION	EXPLANATION
151	--	
152	--	
153	--	
154	Overheating of module 3	
161	Short-circuit IN1 module 4	
162	Short-circuit IN2 module 4	
163	Short-circuit IN3 module 4	
164	Short-circuit IN4 module 4	
165	Short-circuit IN5 module 4	
166	Short-circuit IN6 module 4	
167	--	
168	--	
169	--	
170	--	
171	--	
172	--	
173	Disconnection IN1 module 4	
174	Disconnection IN2 module 4	
175	Disconnection IN3 module 4	
176	Disconnection IN4 module 4	
177	Disconnection IN5 module 4	
178	Disconnection IN6 module 4	
179	--	
180	--	
181	--	
182	--	
183	--	
184	--	
185	--	
186	Overheating of module 4	
193	Short-circuit IN1 module 5	
194	Short-circuit IN2 module 5	
195	Short-circuit IN3 module 5	
196	Short-circuit IN4 module 5	

CODE	BRIEF DESCRIPTION	EXPLANATION
197	--	
198	Short-circuit IN6 module 5	
199	Short-circuit IN7 module 5	
200	Short-circuit IN8 module 5	
201	Short-circuit IN9 module 5	
202	--	
203	--	
204	--	
205	--	
206	Overheating of module 5	

20.1 General requirements

Before using the appliance, carefully read the whole attached instructions.

An Installer must be an experienced technician. Connections made with copper wire should be adapted to work at the temperatures up to +75 °C. All connections must be compatible with the electrical wiring diagram, and national or local electrical codes.



NOTE!!!

The device must be connected to a separate electrical circuit fitted with an appropriately sized overcurrent circuit breaker and RCD.

20.2 Localization

The devices are provided solely for installation in confined spaces.

After selecting the mounting location, make sure that it meets the following conditions:

- The mounting location must be free from excessive humidity and flammable or corrosive vapors.
- Installation of the unit may not be made near the high-voltage electric appliances, electric machines or welding equipment.
- Make sure ambient temperature at the installation site does not exceed 60 °C and is not be less than 0 °C. Humidity should range from 5% to 95% w/o condensation.

20.3 Connection

To ensure proper operation of the boiler it is necessary to connect the sensors and actuators to the controller, as needed. The figure shows the wiring diagram of the connected devices. The description of outputs and inputs is shown in the tables.



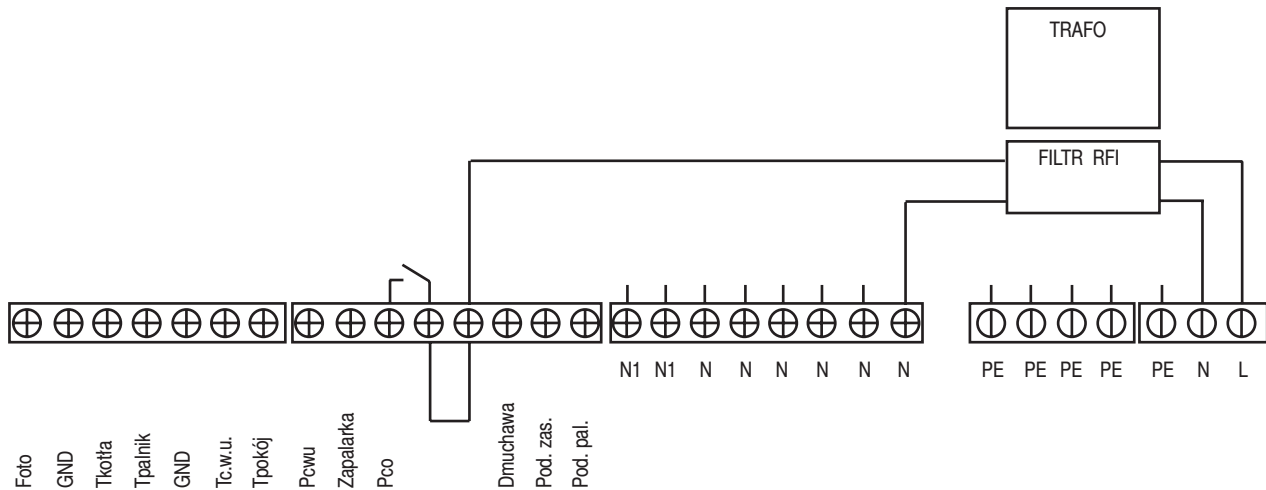
NOTE!!! Under no circumstances connect the ground wire (PE) with a neutral one (N).



NOTE!!! Connections must be done with the device disconnected from the mains. Connections should be executed by a person possessing proper relevant licenses.

20.4 Main board

Main board for L5B v 10.4 Platinum Bio version



INPUT DESCRIPTION	EXPLANATION
Foto	Brightness sensor in the burner.
Tkotła	Boiler temperature sensor.
Tpalnik	Burner temperature sensor.
Tc.w.u.	Domestic hot water temperature sensor.
Tpokój	Room temperature sensor.
GND	Electronic ground for connecting sensors.
Pcwu	Circulating pump of domestic hot water.
Zapalarka	Burner igniter.
Pco	Circulating pump of central heating.
Dmuchawa	Burner flower.
Pod.zas.	Tank feeder.
Pod.pal	Burner feeder.
N	Neutral permanent.
N1	Neutral disconnected, eg. via STB.
PE	Ground wire

PARAMETER	VALUE
Power supply	~230V/50Hz ±10%
Power consumption (controller)	<6VA
OUTPUT AMAPCITY	
Central heating pump	100W
Domestic hot water pump	100W
Igniter	400W
Blower	150W
Burner feeder	150W
Tank feeder	150W
Temperature measurement accuracy	±4°C
Sensors	NTC 10kΩ B25/85=3877K±0,75% VISHAY BCcomponents
Ambient temperature	0-60°C
Humidity	5-95% w/o condensation
Software class	A



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