



Technical and operational documentation

SMART EKO PLUS 12-30

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Introduction

Dear Customer, thank you for purchasing a heating boiler from METAL-FACH Technika Grzewcza Sp. z o. o. We hope that the operation of the device will meet your expectations and provide a lot of satisfaction. The heating boiler has been designed and manufactured in accordance with applicable norms and standards, guaranteeing safe and reliable operation. Operation in strict compliance with the recommendations contained in the instructions attached to the device will ensure optimal and reliable operation of the central heating boiler for many years. The product is not intended for use by persons with reduced physical / mental fitness or lacking experience and knowledge, if these persons are supervised or instructed by a person responsible for their safety. Operation by children is prohibited.

Symbols used in the manual



ATTENTION!

Very important information, always familiarize yourself with it if it appears in a given place.



TIP!

It is worth familiarizing yourself with this information, it makes operation easier.

Introductory activities

(User)

Activities to be performed during the acceptance of the METAL-FACH Technika Grzewcza Sp. z o.o. boiler:

 METAL-FACH <small>TECHNIKA GRZEWICZA</small>		Technika Grzewcza Sp. z o.o. 16-100 Sokółka ul. Sikorskiego 66 tel/fax 85 711-94-54 www.metalfachtg.com.pl	
KOCIOŁ GRZEWICZY SMART EKO PLUS			
Typ kotła	SMART EKO PLUS	Przylączne elektryczne	
Model		Klasa kotła	
Nr fabryczny		Dopuszcz. ciśnienie [bar]	
Data produkcji		Temp. max. [°C]	
Moc nominalna [kW]		Poj. Wodna [L]	
Zakres mocy [kW]		Pobór mocy praca/rozpalanie [W]	
Typ pracy		Kategoria kotła	
Obciążenie cieplne			
Rodzaj paliwa	Węgiel kamienny zgodny z pkt. 5.3 (Tablica 9) normy PN-EN 303-5:2021-09 <small>(wartość opałowa >28 MJ / kg; wilgotność ≤ 11% w stanie roboczym; zawartość popiołu ≤ 7% w stanie roboczym; masy w stanie suchym; zawartość części lotnych: 15-20% w stanie roboczym; masy w stanie suchym)</small>		
			

- carefully check the completeness of the delivered boiler (Chapter: Boiler equipment) and whether the boiler has not been damaged during transport,
- compare the nameplate mounted on the boiler casing on the left or right side with your order,
- read the instruction manual carefully - it contains information necessary for the correct use of the boiler.

In case of any problems, please contact the service department or an authorized service center of METAL-FACH Technika Grzewcza Sp. z o.o.. These persons have the appropriate training and access to original parts enabling the correct performance of service activities and assembly of METAL-FACH Technika Grzewcza Sp. z o.o. boilers, confirmed by a certificate issued at the company's headquarters.

General information

(User)

The Technical and Operation Documentation is one of the parts of the product, delivered together with the purchased central heating boiler. The Technical and Operation Documentation contains data on the construction and assembly as well as the method of use of boilers with a retort burner of the SMART EKO PLUS series. Careful reading of the content of the operating instructions ensures the correct and safe use of our boiler.



ATTENTION!

The user is advised to follow all instructions regarding the device contained in this Technical and Operational Documentation, the Warranty Terms and Conditions and in generally applicable legal regulations.

The boilers are delivered assembled. They are set up and permanently attached to the pallet. Additional protection is provided in the form of foil packaging.

During transport of the boiler, it should be secured against shifting or rotation on the cargo bed of the vehicle using securing equipment, e.g. belts. Transport of boilers should be carried out in accordance with the rules for the transport of materials. Loading and unloading should be carried out using lifting equipment (forklift) with a lifting capacity of more than 1000 kg.

Application

(User | Installer)

The boilers are designed for heating residential buildings such as single-family and multi-family houses, utility buildings, public utility buildings, and domestic hot water. They are equipped with an automatic fuel supply system. Thanks to the use of modern design solutions, the SMART EKO PLUS boiler achieves high efficiency. Correct operation and achieving the full capabilities of the boiler depends on the quality of the installation, appropriate chimney draft, correct operation and maintenance of the boiler.



ATTENTION!

The boilers are designed to operate in open and closed water systems with gravity or forced circulation, equipped with safeguards in accordance with the requirements of the applicable standard PN-B-02413 Heating and District Heating and a closed system in accordance with the standard PN-EN 12828 Heating systems in buildings. Design.

Boiler equipment

(User)

The scope of delivery includes both basic and additional elements, depending on the order placed. Upon receipt, the product should be carefully inspected to ensure that it has not been damaged during transport and to check the completeness of the equipment. The elements included in the basic and additional equipment are described below.

Basic equipment:	Unit of measurement	Quantity
Central heating boiler	pcs	1
Microprocessor controller – supports (see controller operating instructions)	pcs	1
Fuel supply system with burner	set	1
Fuel tank	pcs	1
Boiler cleaning tools:		
- poker		
- brush		
- scraper	set	1
Boiler leveling feet	pcs	4
Blowing fan	pcs	1

Documentation:	Unit of measurement	Quantity
Technical and operational documentation of the boiler	pcs	1
Controller user manual and warranty card	pcs	1
Blower fan user manual and warranty card	pcs	1
Fuel feeder instruction manual (complete)	pcs	1



ATTENTION!

The user should carefully read the operating instructions for the regulator, fan and feeder together with the burner.



ATTENTION!

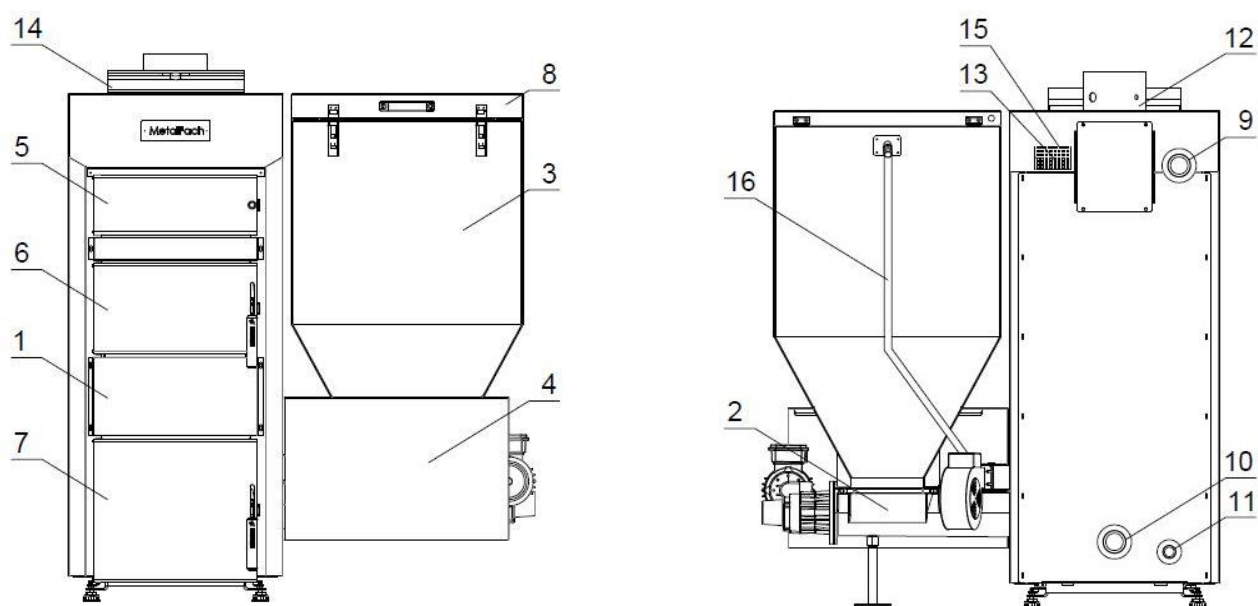
METAL-FACH Technika Grzewcza Sp. z o. o. reserves the right to introduce changes to the technical parameters, equipment and specifications of the goods offered without prior notice.

Basic elements of boiler construction

(User | Installer)

The water body is made as a welded construction from certified P265GH steel sheets with a thickness of 5 mm (for the furnace elements) and S235JR with a thickness of 4 mm (for the water jacket elements). The automatic feeder supplies fuel to the retort burner placed in the combustion chamber on the side of the boiler. A ceramic plate is placed above the burner, in the combustion chamber part ceramic plates are placed on the vertical walls. The convection part of the boiler consists of horizontal water channels in which the flue gas swirlers are placed. The boiler exchanger is insulated with mineral wool covered with thin-walled sheet metal. The bottom of the boiler is water-cooled. The flue gas flue with a diameter of ϕ outside = 160 mm (in power outputs of 12, 15, 20, 25 kW, 180 mm - 30 kW), does not have a throttle, it is adjustable - it can be mounted vertically or horizontally. The ash pan for combustion waste is located under the burner. The steel door is lined with insulation boards from the inside. The boiler is equipped with the following connectors: supply and return of boiler water with a diameter of G 1 ½", a water drain connector with a diameter of G ¾", a connector for the regulator sensor and STB. The operation of the boiler and the combustion process are controlled by a microprocessor regulator.

SMART EKO PLUS boiler



Legend:

- | | |
|---------------------------|---|
| 1. Exchanger | 9. Supply connector with thread G1 1/2" |
| 2. Feeder-burner assembly | 10. Return pipe with thread G 1 1/2" |
| 3. Fuel tank | 11. Drain connector with thread G3/4" |
| 4. Feeder cover | 12. The pipe |
| 5. Clean door | 13. Boiler temperature sensor mounting sleeve |
| 6. Inspection door | 14. Driver |
| 7. Ash pan door | 15. Electric bushing |
| 8. Tray cover | 16. Pressure equalization unit |

Technical data of the SMART EKO PLUS 12-30 boiler**(User | Installer)**

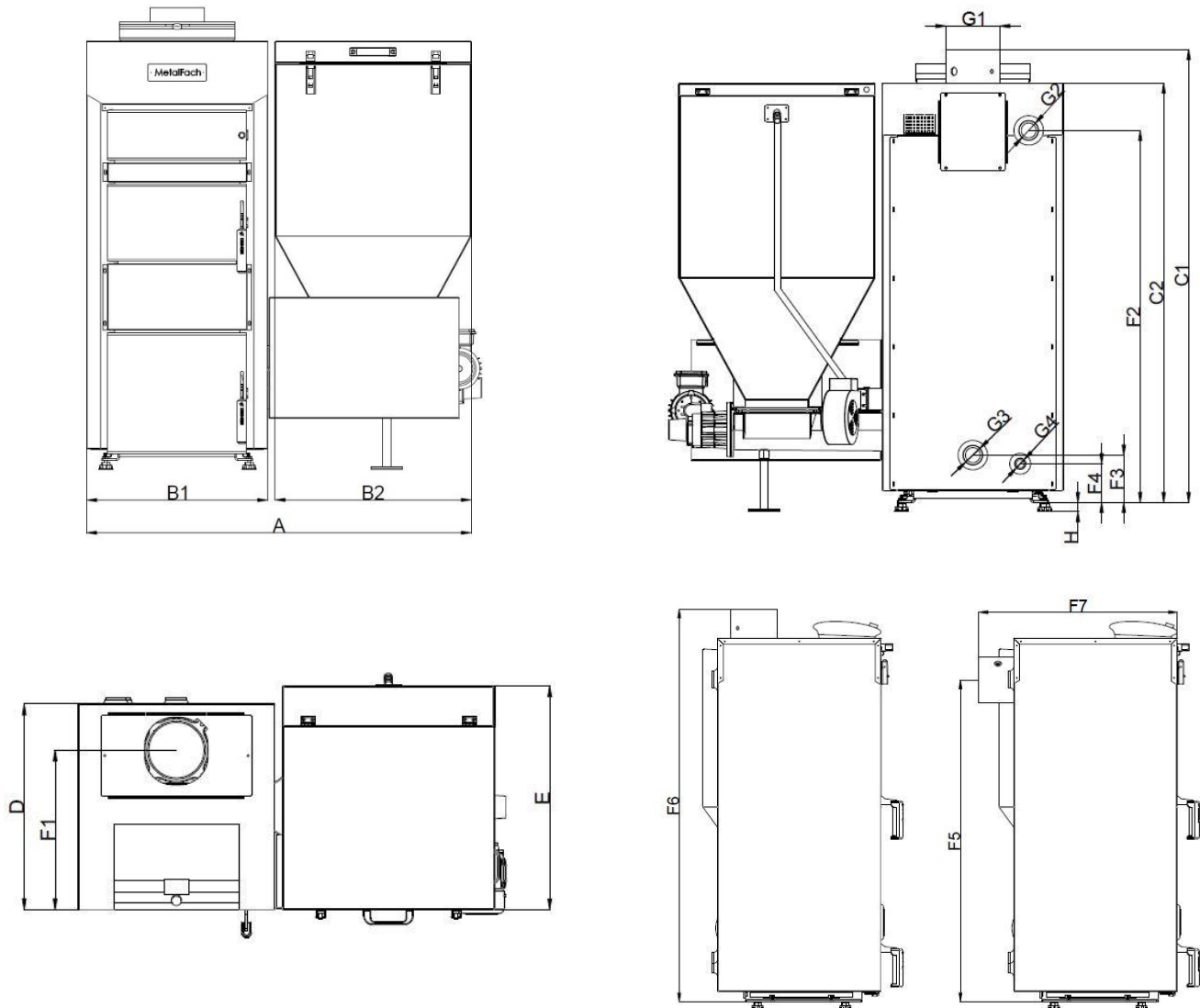
Parameters		SMART EKO PLUS				
		12	15	20	25	30
Nominal thermal power	[kW]	12	15	20	25	30
Boiler power range	[kW]	3,6-12	4,5-15	6-20	7,5-25	9-30
Heating surface	[m ²]	-	-	-	-	-
Water capacity	[L]	48	48	60	71	80
Maximum operating pressure	[bar]	3	3	3	3	3
Maximum operating temperature	[°C]	80	80	80	80	80
Test pressure	[bar]	4.5	4.5	4.5	4.5	4.5
Boiler class	[-]	5	5	5	5	5
Boiler efficiency	[%]	91	91	91	91	91
Fuel tank capacity	[L]	200	200	200	200	2 00
Fuel	[-]	Hard coal in accordance with point 5.3 (table 9) of the PN EN 303-5:2021-09 standard				
Electrical connection	[-]	5A;~230V;50Hz				
Electric power consumption	[W]	350	350	350	350	350
Electric power consumption (momentary during ignition)	[W]	1050	1050	1050	1050	1050
Temperature controller setting range	[°C]	60-80 (every 1 °C)				
Required chimney draft	[Pa]	16	18	20	21	22
Exhaust gas mass flow	[g/s]	8.2	9.6	13.6	16.3	19.12
Boiler weight	[kg]	370	380	405	480	-

*Boiler weight +/- 5kg.

Dimensions of the SMART EKO PLUS 12-30 boiler

(User | Installer)

SMART EKO PLUS 12-30 boiler



Dimensions	SMART EKO PLUS				
	12	15	20	25	30
A	1135	1135	1135	1185	1300
B1	535	535	535	585	585
B2	580	580	580	580	580
C1	1340*	1340*	1400*	1400*	1485
C2	1240*	1240*	1300*	1300*	1395
D	560	560	630	720	720
E	610	610	630	630	630
F1	435	435	505	595	580
F2	1100*	1100*	1155*	1155*	1255
F3	140*	140*	140*	140*	140
F4	115*	115*	115*	115*	115
F5	1100*	1100*	1155*	1155*	1190
F6	1340*	1340*	1400*	1400*	1485
F7	680	680	760	845	870
G1	160	160	160	160	180
G2	G11/2"	G11/2"	G11/2"	G11/2"	G11/2"
G3	G11/2"	G11/2"	G11/2"	G11/2"	G11/2"
G4	G3/4"	G3/4"	G3/4"	G3/4"	G3/4"
H	30	30	30	30	30

*The dimension does not include the height of the boiler leveling feet



ATTENTION!

The boilers have 30 mm high feet.

Automation, safety and regulation

(User | Installer)

1. The boiler automation allows you to set:

See the operating instructions for the electronic regulator.

2. Thermal sensor

Mechanical STB protection is placed in the boiler and protects the heating system from overheating. It is set to 95 °C. Above this temperature it turns off the fan, while turning on the central heating and domestic hot water pumps.

Fuel

(User)

The fuel for firing boilers equipped with a screw feeder and a retort burner is hard coal in accordance with point 5.3 (table 9) of the PN EN 303-5:2021 standard

- calorific value: > 28MJ/kg;
- humidity: ≤11% in working condition;
- Ash content: 2 - 7% in working dry mass;
- Volatile matter content: 15-30% in working dry mass.

Requirements for boiler rooms and boiler installation

(User | Installer)

In Poland, boiler rooms built for solid fuel should meet the requirements of the standard PN-87/B-02411 "Boiler rooms built for solid fuel" and Journal of Laws 2015.0.1422. They have been divided into two types:

1. For small boiler rooms up to 25kW, the following requirements should be met:

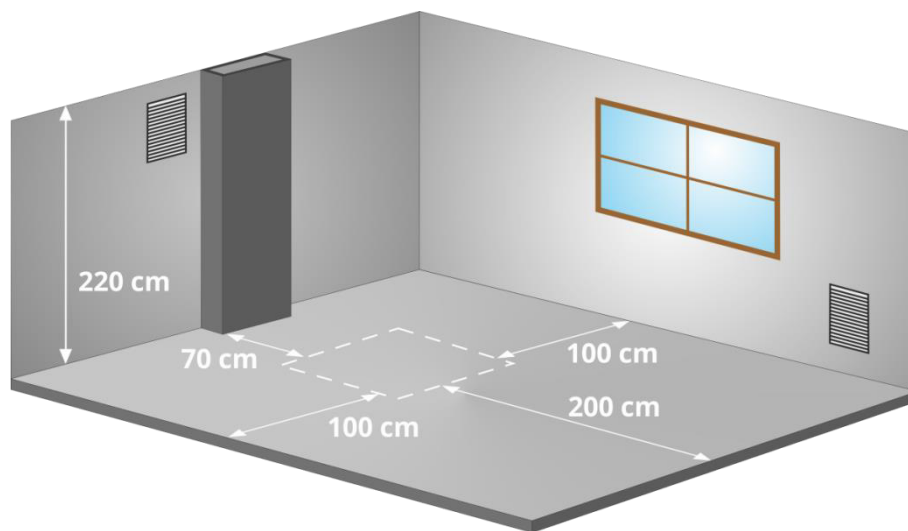
- the boiler should be placed as centrally as possible in relation to the heated rooms and in a separate room;
- the material from which the floor in the boiler room is made should be non-flammable, in the case of flammable material the floor should be covered with 0.7 mm thick steel sheet at a distance of at least 50 cm from the edge of the boiler; the boiler should be placed on a foundation made of non-flammable materials, protruding 0.05 m above the floor level and edged with steel angles;
- There should be artificial lighting in the room, but natural lighting is also recommended;
- the positioning of the wheel in the room should allow free access to the boiler during cleaning and maintenance; the distance of the back of the boiler from the wall should not be less than 70 cm, the side of the boiler from the wall not less than 100 cm, and the front of the boiler from the opposite wall not less than 200 cm;
- the height in new buildings should be at least 220 cm, in the case of existing buildings the height of the boiler room is at least 190 cm, with proper ventilation (supply and exhaust);
- supply ventilation should be provided by means of a non-closing opening with a minimum cross-section of 200 cm² and located no higher than 100 cm above the floor;
- exhaust ventilation should be carried out using an exhaust duct made of non-flammable material with a minimum cross-section of 14 x 14 cm with an inlet opening under the ceiling of the boiler room; the exhaust duct should extend above the roof and be placed near the chimney; the exhaust duct must not have any devices that would allow it to be closed;
- the cross-section of the chimney should be no less than 20 x 20 cm;
- There should be a floor drain in the floor of the boiler room;
- the optimal place for storing fuel is a separate room located near the boiler room;
- ash and slag should be collected in appropriate containers that can be emptied daily.

2. Boiler rooms with a thermal power of 25 kW or more should additionally meet the following requirements:

- the distance of the boiler furthest from the chimney, with gravity draft, cannot exceed 50 cm of the chimney height;

- the fuel storage and slag storage should be located next to the boiler room at a storage height of up to 220 cm with a free space above the fuel of at least 50 cm;
- devices and equipment allowing vertical and horizontal transport of fuel and slag should be taken into account;
- the fuel storage room should have natural, unforced ventilation, allowing for one full air exchange per hour in the fuel storage room and three full air exchanges per hour in the slag storage room;
- the entrance door to the boiler room should be non-flammable (fire resistance class EI30), minimum width 90 cm, opening outwards; they should have a handle-less closing system enabling them to be opened outwards under pressure, inwards using a handle;
- the requirements for ventilation are the same as for boiler rooms with lower power; additionally, in boiler rooms with power exceeding 400 kW, in addition to the supply and exhaust ventilation, there should be mechanical ventilation, switched on periodically when fuel is being charged and boilers are being deslagged, ensuring at least 10 full air changes per hour;
- in the boiler room, natural lighting should be provided, illuminating the boiler from its front, and the area of the windows should be at least 1/15 of the floor area of the boiler room; half of the installed windows should be openable; electric lighting and an electrical socket with a voltage not exceeding 24 V should also be located in the room;
- there should be a sewage well in the floor to allow for cooling of the water, and its capacity should be equal to the water capacity of the largest boiler, but not greater than 2 m³;
- in the boiler room, the heat pipes should be insulated;
- The boiler setup with the minimum required distances is shown in the boiler room diagram below.

Minimum distances for setting the boiler in the boiler room





ATTENTION!

Mechanical exhaust ventilation should not be used in the boiler room.



ATTENTION!

Ensuring a sufficient supply of fresh air to the boiler room will enable efficient fuel combustion.



ATTENTION!

It is important to prevent the formation of excessive amounts of carbon dioxide in the room.



ATTENTION!

More detailed information on the requirements for the construction of boiler rooms can be found in the Regulation of the Minister of Infrastructure of 12 March 2009.



TIP!

The above-mentioned provisions are guidelines that need to be verified as the regulation is subject to amendment.

Boiler installation

(User | Installer)

An important element of the installation is the correct positioning and leveling of the SMART EKO PLUS boiler, these boilers do not require special foundations. Leveling the boiler is facilitated by adjustable feet. The boiler must stand vertically.

1. Check that the set includes four feet.
2. Level the boiler with the help of a spirit level. If the boiler is in a horizontal position, the installation of feet is not required.
3. Screw the four feet into the designated holes.
4. Use a spirit level to level the boiler.



ATTENTION!

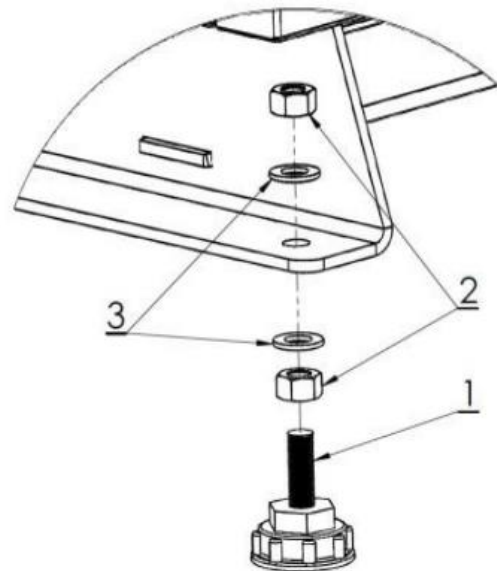
An incorrectly leveled boiler may be damaged.

**ATTENTION!**

It is unacceptable to place the boiler in a damp or wet room, as this accelerates corrosion, quickly leading to the destruction of the boiler.

Method of installing the boiler leveling feet

1. Adjusting foot, pcs. 4
2. M10 nut, pcs. 8
3. Washer Ø10, pcs. 8



The boiler should be placed on a heat-insulating, non-flammable base, which should be 2 cm larger than the boiler base on each side. If the boiler is located in the basement, it is recommended that it is placed on at least 5 cm of foundation. The strength of the base, as well as fire protection conditions are key guidelines when positioning the boiler in the right place, these include:

- 20 cm safe distance from flammable materials,
- 40 cm for flammable materials with a flammability class of C3,
- 40 cm if flammability rating is unknown.

Flammability level of building materials and products	Building materials and products
A - Non-flammable	Sandstone, concrete, bricks, fireproof plaster, mortar, ceramic tiles, granite
B - Difficult to burn	Wood-cement boards, glass fibers, mineral insulation
C1 - Difficult to burn	Beech wood, oak wood, plywood
C2 - Medium Burning	Pine, larch and spruce cork, sawn wood boards, rubber floor coverings
C3 - Easily combustible	Asphalt plywood, celluloid masses, polyurethane, polystyrene, polyethylene, plastic, PVC

Connecting the boiler to the heating system

(Installer)

The boiler should be connected to the central heating system by a company authorized by the manufacturer, and the correct connection should be confirmed on the warranty card attached to this manual. The boiler should be connected according to the manufacturer's recommendations, in accordance with this manual.



ATTENTION!

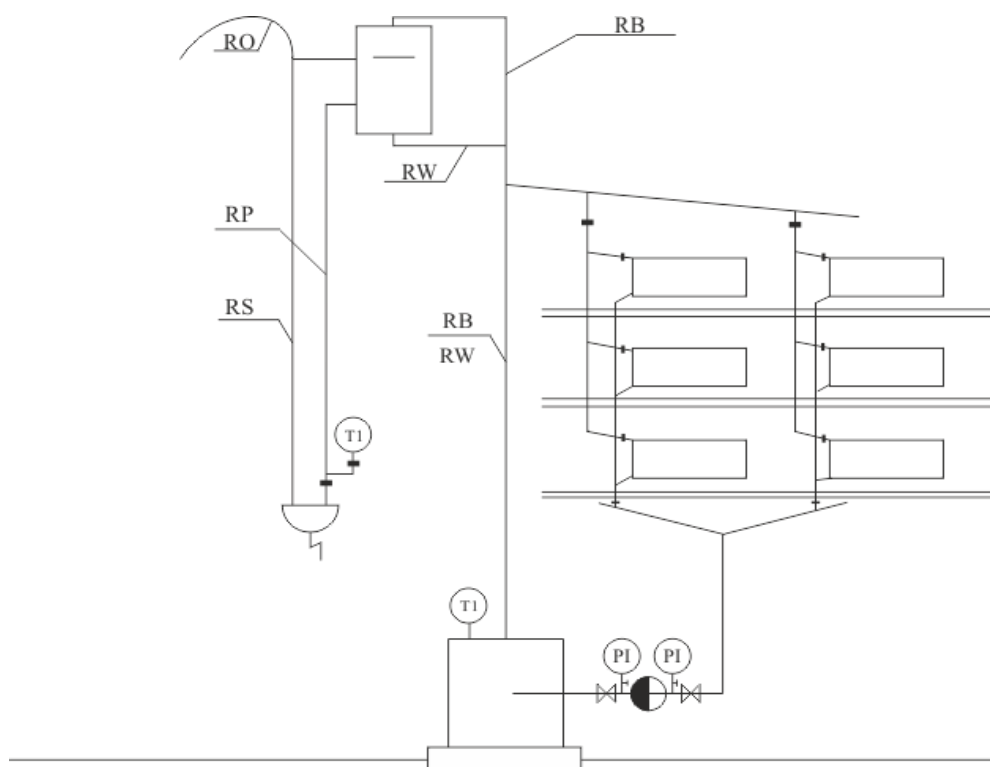
It is recommended that the first start-up of the boiler be performed in accordance with the guidelines contained in the Technical and Operation Documentation by a person with valid authorizations.

Information on persons authorized to start up the boiler is available from the Manufacturer at +48 85 711 94 54 ext. 17.

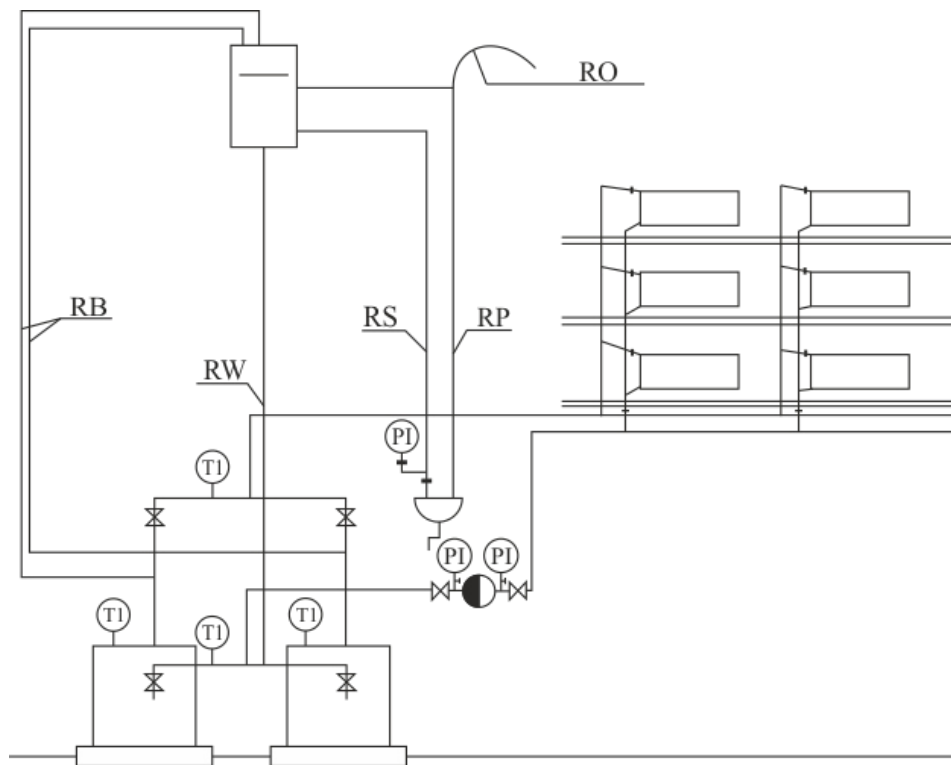


ATTENTION!

The temperature of the water returning from the installation to the central heating boiler should not be lower than 45°C.

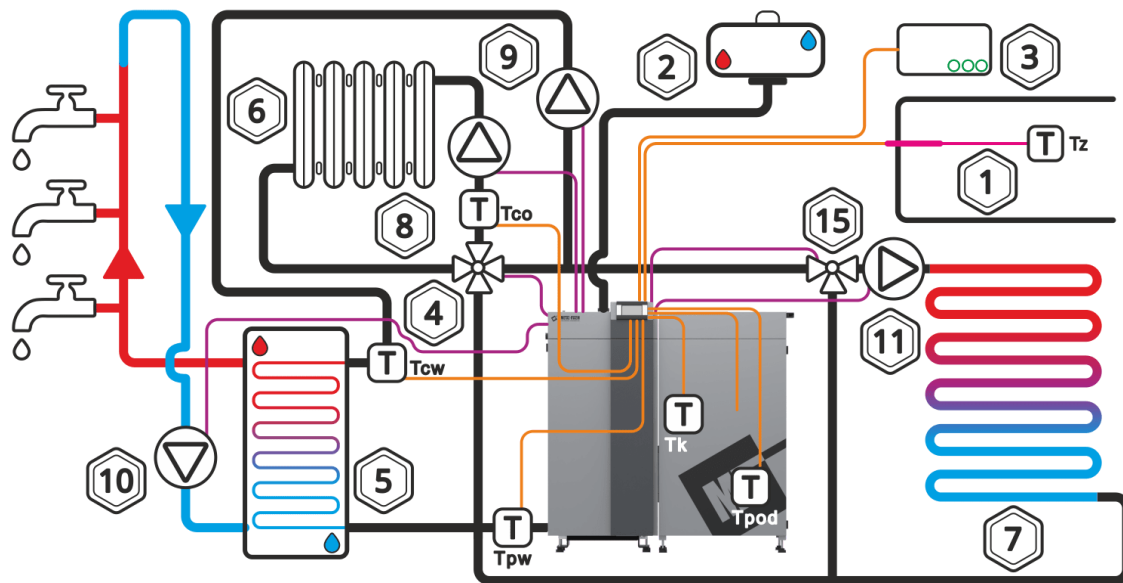
Connection diagrams of boilers to the heating system in accordance with the PN - 91/B - 02420 standard


Designation	Description
RO	Vent pipe
RW	Expansion pipe
RS	Signal pipe
RP	Overflow pipe
RB	Safety pipe
T1	Temperature
P1	Pressure

Connection diagrams of boilers to the heating system in accordance with the PN - 91/B - 02420 standard


Designation	Description
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Connecting the boiler to the heating system

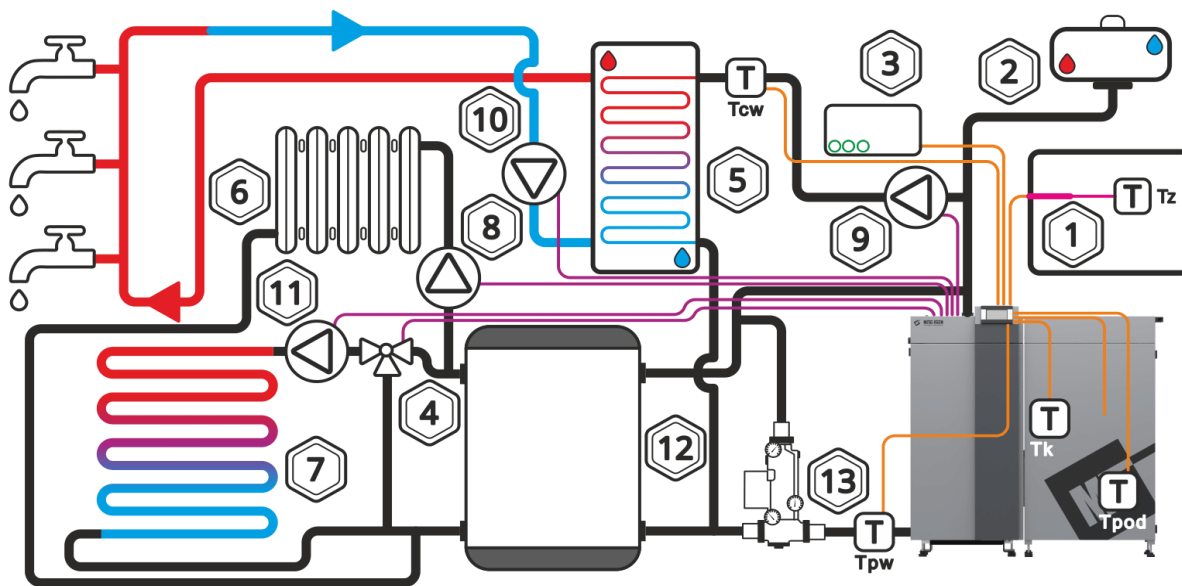


Legend

- | | |
|-------------------------|--------------------------------------|
| 1. Outside the building | 8. Central heating pump (CH) |
| 2. Expansion tank | 9. Domestic hot water pump (DHW) |
| 3. Room regulator | 10. Circulation pump |
| 4. Mixer | 11. Additional pump P3 |
| 5. Heater | 12. Buffer |
| 6. Heating circuit | 13. Laddomat |
| 7. Underfloor heating | 14. Heating circuit pumps 1, 2, 3, 4 |
| | 15. Thermostatic mixing valve |

Designation	Description
T	Temperature sensor
Tk	Boiler temperature sensor
Tz	Outside temperature sensor
Tcw	Domestic hot water temperature sensor
Tco	Central heating temperature sensor
Tpw	Boiler return temperature sensor
Tpod	Feeder temperature sensor

Connecting the boiler to the heating system with a laddomat and buffer



Legend

- | | |
|-------------------------|-----------------------------------|
| 1. Outside the building | 8. Central heating pump (CH) |
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Designation	Description
T	Temperature sensor
Tk	Boiler temperature sensor
Tz	Outside temperature sensor
Tcw	Domestic hot water temperature sensor
Tco	Central heating temperature sensor
Tpw	Boiler return temperature sensor
Tpod	Feeder temperature sensor

Expansion tank requirements

(Installer)

Each open system heating system should be equipped with an expansion tank, the task of which is to take over the increase in the volume of water filling the system and to vent it. This tank should be installed at the highest point of the system, if possible in a vertical line above the boiler (boilers).

the expansion tank can be estimated by assuming that the unit capacity in relation to one kW of thermal output is 1-2 dm³.

The expansion tank is equipped with a nozzle for connecting the rising safety pipe, the falling safety pipe and the overflow pipe and the connected vent. The diameter of the vent pipe and the overflow pipe is at least:

$$d = 15 + 1,39 \sqrt{\dot{Q}} \quad [\text{mm}]$$

\dot{Q} - boiler efficiency [kW]

The most important requirements for safety devices are as follows:

- the expansion tank should have a volume of approximately 3.5% of the volume of water in the heating system, including the boiler,
- each boiler must have a safety pipe and an overflow pipe,
- the installation should be equipped with a signal and expansion pipe as well as a venting connector for the expansion tank.

In the case of multiple boilers, each of them should be equipped with a safety pipe in accordance with the principles given in PN-91/B02413 - protection of open water heating systems. No shut-off valves may be installed on safety and overflow pipes, and the pipes and the vessel must be protected against freezing.

Connecting the boiler to the electrical installation

(Installer)

The boiler is designed for connection to 230V/50Hz. The installation should be performed by a qualified person. The 230V/10A connection socket with grounding should be easily accessible. The boiler power supply and the boiler room lighting should have a different circuit.

The completion of the assembly and the heating test must be recorded in the Warranty Card. The completed Warranty Card should be sent to the manufacturer's address by the user in order to register the user in the company's system.



ATTENTION!

The first start-up of the boiler must be performed only by service personnel trained by the manufacturer, with a current certificate of an Authorized Service Technician, Distributor of METAL-FACH Technika Grzewcza or a person with SEP qualifications up to 1.5kW.



ATTENTION!

All pumps, mixer, relay, igniter, etc. are not included in the controller equipment.

Connecting the boiler to the chimney

(Installer)

Smoke pipes

The purpose of smoke ducts is to reliably discharge exhaust fumes and draw in air for fuel combustion. The chimney draft required for this depends on:

- temperature difference between hot exhaust gases and cold air,
- effective chimney height,
- chimney cross-section not less than 20 x 20 cm,
- construction of the chimney (internal surfaces as smooth as possible) and tightness of the joints.

The effective height of a chimney is the difference in height between the highest firebox and the chimney outlet. The effective height of individual chimneys must be at least 4 m, and of common chimneys for solid and liquid fuels, at least 5 m. The difference in height between two fireboxes must not exceed 6.5 m. In the case of sloping roofs, chimneys should end within the ridge (the highest edge of the roof), in the area of free wind flow. This avoids draft disruptions. Always pay attention to the location of the building in relation to other buildings.

Selecting a chimney

In most cases, the approximate method or selection according to the chimney manufacturer's diagrams is sufficient for selecting a chimney. In special cases (unfavourable pressure and temperature dependencies, large volume of exhaust gases), chimneys are calculated according to the applicable standard. Low exhaust gas temperature at the nominal boiler power may cause the emission of moist exhaust gases, soot deposition, insufficient chimney draft. This may lead to dampness and corrosion of brick chimneys. It is recommended to use a chimney liner:

- in new buildings, a ceramic flue gas discharge system that is resistant to condensate, thermally insulated and has a condenser is recommended ,
- In existing buildings, it is recommended to modernise the brick chimney by using a single- or double-walled stainless steel chimney system (designed for solid fuel boilers).

The pipe

The boiler is connected to the chimney by means of a flue and a flue pipe. The flue pipe consists of pipes and fittings that are installed in rooms. Flue pipes meet fire protection requirements for chimneys and are often made of the same material as the main chimney. Smoke pipes should be made of non-flammable products. The flues or casing of smoke pipes should meet the requirements specified in the Polish Standard concerning fire tests of small chimneys. It is permissible to make the casing from 12 cm thick solid bricks, built on cement-lime mortar, with external plaster or pointing. Connectors should be as short as possible and installed with a rise to the chimney in order to avoid heat loss and additional resistance. They cannot be led to other floors. Flue pipes should not be installed in rooms where fireplaces cannot be installed, and they should also not be placed in walls and ceilings. Due to the low temperature of exhaust gases, in order to protect the chimney from moisture and draft limitation, acid-resistant or ceramic chimney liners should be used, with condensate draining to a drain grate. A distance of at least 6 m should be maintained between the chimney and the nearest edge of the tree crown.

Starting the boiler

(User | Installer)



ATTENTION!

The controller settings are subject to any adjustment due to the variety of existing central heating installations, the building's heat demand as well as the fuel's calorific value. The user sets the boiler's operating parameters himself. This operation is not subject to service.

Before lighting the fire in the boiler, check whether the central heating installation has been carried out correctly and whether it is properly filled with water – until it overflows through the overflow pipe from the expansion tank .

To fill the entire installation or replenish losses, the most suitable water would be softened water/chemically treated water, distilled water or rainwater.

In addition, check whether the self-cleaning pellet burner is cleaned of any unburned fuel, ash and slag from the previous burning and whether the ash has been removed from the ash pan.

During the lighting period, all doors should be closed. After reaching a stable flame, switch the regulator to automatic operation, causing the automatic fuel feeder and fan to start.

Set the desired boiler operating temperature, usually 70-80 °C. From this moment on, the boiler will operate automatically, according to the settings that the user sets on the controller by following the controller operating instructions, intended for the user and attached to this manual.

Periodically, through the inspection door, check the combustion process. Ash and slag from the burnt fuel gradually fall into the container in the ash pan, causing the burner to self-clean. If a piece of slag gets stuck between the boiler wall and the burner, remove it with a rake or hook.

The regulator protects the boiler against: exceeding the permissible water temperature in the boiler, embers flowing back into the fuel feeder and switches off the entire system in the event of a fuel shortage.

There is a sensor located on the feeder pipe that responds in the event of flame flashback from the burner to the feeder.

In such a case, the fan is immediately switched on, the feeder (located in the burner) starts working continuously and the feeder in the feed pipe from the container is stopped.

The boiler user should carefully read the operating instructions for the microprocessor controller intended for the user.

When starting the boiler when cold or for the first time, the "boiler sweating" phenomenon may occur. This gives the impression of a leak. In such a case, an intensive burning process (70-80°C) should be carried out to dry and heat the boiler and the chimney for up to 2-3 days.

In order to increase the life of the boiler, it is recommended to maintain the water temperature in the boiler at no less than 60 °C. In this situation, maintaining an appropriately low temperature in the radiators in the autumn and spring period can be achieved, among other things, by:

- correct selection of the boiler for the size of the heated rooms,
- using three- or four-way mixing valves between the water supply and return, controlled manually or automatically.

Maintaining the continuity of the burning process requires periodic refilling of the tank with fuel. The frequency of refilling depends on the intensity of the burning process and should be determined individually based on experience.

On average, refilling occurs every 1-3 days. Empty the ash pan with the same frequency.

Lack of fuel causes the combustion process to stop permanently and requires re-lighting the boiler.

In order to save fuel, the combustion chamber and convection channels of the boiler should be kept clean. In the combustion chamber, the walls and smoke tubes should be cleaned through the combustion and ash pan doors and the cleanout.



ATTENTION!

Remember to close the feeder cover tightly.



ATTENTION!

When opening the door, do not stand in front of the boiler, as this may result in burns.

When using the boiler, please remember

(User)

- the boiler may only be operated by adults who are familiar with the operating instructions;
- It is forbidden for children to stay near the boiler without the presence of adults;
- if flammable gases or vapours enter the boiler room or during work that increases the risk of fire or explosion (gluing, painting, etc.), the boiler must be switched off before starting such work;
- when cleaning carbon deposits in the burner or gutter, the boiler should be turned off ("STOP" position);
- when adding fuel to the tank, the boiler must be turned off ("STOP" position);
- do not use flammable liquids to light the boiler, the boiler should light automatically (using an igniter);
- before cleaning the boiler, the device must be turned off ("STOP" position) and allowed to cool down;
- During operation, the boiler must not be overheated in any way;
- no flammable objects may be placed on the boiler or in its immediate vicinity;
- when removing ash, flammable materials must not be located at a distance less than 150 cm from the boiler;
- the ashes should be placed in ovenproof containers with lids;
- when the boiler is operated at a temperature lower than 60°C, the steel exchanger may condense and thus cause corrosion due to the low temperature, which shortens the life of the exchanger; therefore, the temperature during boiler operation must be at least 60°C;
- At the end of the heating season, the boiler and the smoke pipe should be thoroughly cleaned;
- the boiler room should be kept clean and dry.



ATTENTION!

The product is not intended for use by persons with reduced physical/mental abilities or lacking experience and knowledge, unless they are supervised or instructed by a person responsible for their safety.



ATTENTION!

Any independent interference with the electronics or construction of the boiler is prohibited.

Boiler cleaning and maintenance

(User)



ATTENTION!

The boiler may only be cleaned when the device is disconnected from the power supply.

In order to save fuel, the combustion chamber and convection channels of the boiler should be kept clean. The walls and shelves in the combustion chamber should be cleaned through the cleaning and inspection doors. The boiler exchanger and ash pan should also be cleaned regularly.

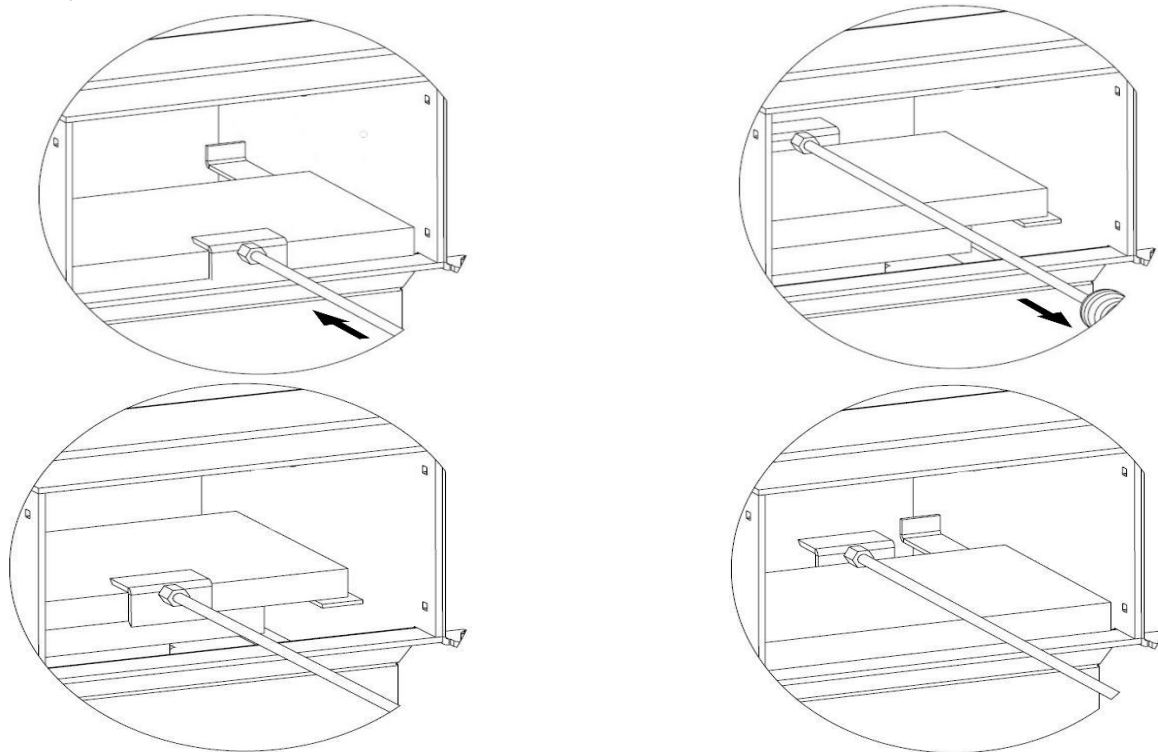
Cleaning should be done using wire brushes on extension cords. The above activities should be done during the boiler's periodic standstill, preferably every 100 hours of boiler operation. Thorough cleaning of the boiler should be done once a month.

If necessary, these activities should be performed more often.

Flame control and lighting

To allow access to the firebox (for cleaning or lighting), the ceramic plate must be moved (using the set included with the boiler) towards the rear wall of the boiler.

After completing the above-mentioned activities, the plate should be moved to its original position.



Instructions for disposing of the boiler after its service life has elapsed

(User)

Before scrapping the boiler, all electronic components must be disconnected from it. They are subject to disposal in accordance with the principles of European Directive 2002/96/EC regarding the use of electronic and electrical equipment. For correct disposal, contact the manufacturer of electronic components according to the above-mentioned European Directive.

The steel elements from which the boiler is made should be scrapped in designated places (scrap collection point).



ATTENTION!

A used boiler intended for scrapping and its components should not be disposed of with general waste.

Spare parts list

(User | Installer)

Spare parts	Article
Sensors	Boiler sensor
	Feeder sensor
	DHW sensor
Drivers	Plum 860Pxx regulator, TECH regulator
Fans	RMS120, RMS120MAX
Feeder	Gear motor with engine
	Feeder motor
	Feeder auger
Instrumentation	Rubber grommet
	Tank gasket
	Flap seal
	Feeder seal
	Door handle

Examples of device failure

(User)

Before you call for service, read the most frequently asked questions.



ATTENTION!

In the event of an unjustified service call, the customer covers the costs of labor and travel, the price list is available at www.metalfachtg.com.pl/kontakt-z-serwisem



TIP!

Online report: www.metalfachtg.com.pl/zglos-problem-online

Infoline: +48 85 711 94 54 ext. 17

FAQ: www.metalfachtg.com.pl/kontakt-z-serwisem

Instructional videos: <https://www.youtube.com/@mf.metalfachtg>

Condition and warranty

User Declaration:

I hereby declare that the boiler (hereinafter also referred to as the "device") was delivered to me in accordance with the order, new and complete. The Seller familiarized me with the operation of the device and provided me with complete documentation (including in particular: Technical and Operational Documentation containing, among others, the instructions installation and operation of the device, warranty conditions). I acknowledge the manufacturer's recommendation to subject the device to regular annual technical inspections, which should be confirmed in the warranty card.

Date and legible signature of the User

Scope of warranty:

1. Liability under the warranty covers only defects resulting from causes inherent in the device at the time of its delivery to the User.
2. The warranty for the device is provided by the manufacturer (also referred to as the "Guarantor"): Jacek Kucharewicz conducting business activity under the name of METAL-FACH Technika Grzewcza Sp. z o.o., 16-100 Sokółka, st. Sikorskiego 66, NIP: 545-182-60-12, REGON 050073833, telephone +48 85 711 94 54 ext. 17.
3. Under the guarantee, the User is entitled to free repair of the device if the device defects are revealed during the guarantee period. If the Guarantor determines that the device or its parts cannot be repaired, the Guarantor reserves the right to replace the device or its parts with new ones.

Warranty period:

For the device (boiler) – 2 years from the date of sale, but no longer than 36 months from the date of its production except:

- a) exchanger – which is guaranteed for 5 years from the date of sale;
- b) moving elements, cast iron, mechanical, worm – for which the warranty is 1 year from the date of sale;
- c) consumables (including sealing cord, gaskets, vermiculite , fireclay), electrical components, screw securing the worm clutch, cotter pins – which are not covered by the warranty.

Terms of use of the guarantee:

1. Installing the device in accordance with the Technical and Operational Documentation (in particular connecting the boiler to a correctly executed installation, performing the first start-up in accordance with the device manufacturer's guidelines, using devices protecting the boiler against the return of cold water (four-way valve with actuator, ice-breaker , etc.).
2. Returning a copy of the properly completed warranty card, signed and stamped by the seller, to the Manufacturer's address within 30 days from the date of sale of the device.
3. Presentation of a correctly completed warranty card (signed and stamped by the seller) when submitting a complaint and substantiation of the circumstances of purchase of the device (e.g. receipt, invoice). In the event of loss of the warranty card by the User, a duplicate will not be issued.
4. The User must comply with the recommendations contained in the Technical and Operational Documentation of the device.
5. The first start-up of the boiler, within 6 months from the date of installation of the device by the installer in accordance with the guidelines contained in the Technical and Operational Documentation, by a person with valid authorizations (Information on persons authorized to start the boiler is available from the Guarantor +48 85 711 94 54 ext. 17), confirmation of this fact in the warranty card and sending a start-up report to the Guarantor. The first start-up of the boiler is a paid service and its cost is covered by the User.
6. Carrying out annual inspections of the device, in accordance with the guidelines contained in the Technical and Operational Documentation, by specialist companies with appropriate authorizations (a sample list of specialist

companies is available from the Manufacturer - at +48 85 711 94 54 ext. 17) and recording their performance in the warranty card. The inspection of the device is a paid service.

7. Performing service on the device (e.g. device adjustment, cleaning, measurements, exhaust gas analysis) by specialist companies with appropriate authorizations (an example list of specialist companies is available from the Manufacturer - at +48 85 711 94 54 ext. 17), in accordance with the guidelines included in the Technical and Operational Documentation and recording service services in the warranty card. The User may report the need for service interventions to the Guarantor (Hotline +48 85 711 94 54 ext. 17, www.metalfachtg.pl/zglos-problem-online). The service is subject to payment.
8. Warranty repairs are to be carried out only by specialist companies with appropriate authorisations (a list of specialist companies is available from the Guarantor - tel. +48 85 711 94 54 ext. 17), and recorded in the warranty card.
9. Use of spare parts and consumables that meet the parameters specified by the manufacturer. It is recommended to use original parts.
10. The warranty covers the territory of the Republic of Poland.

The warranty does not cover device defects resulting from:

1. Failure by the User to comply with the conditions contained in the Technical and Operational Documentation and, among others, the instructions contained therein regarding the transport, assembly, operation, use and maintenance of the device;
2. Improper storage and transportation by the User;
3. Damage to device components due to the use of improper electrical voltage by the User. In the case of powering the device directly or indirectly through generators, UPS systems or devices, the User should consult the parameters of the power supply devices with the manufacturer;
4. Device defects caused by a faulty heating installation connected to the device;
5. Overheating of the boiler by the User;
6. The User connects the boiler to a closed system without using an appropriate cooling device;
7. The User uses inappropriate, poor quality fuel;
8. Any unauthorized modifications to the device made by the User

Complaints procedure:

1. If you notice that the device is not operating correctly, before filing a complaint, make sure that everything has been done in accordance with the Technical and Operational Documentation.
2. The User should report the need to repair the device under warranty immediately, preferably within 7 days from the date of noticing the defect. The report can be made directly to the Seller or to the Guarantor (www.metalfachtg.pl/zglos-problem-online or hotline +48 85 711 94 54 ext. 17).
3. It is recommended to refrain from using the faulty device.
4. The user is obliged to provide free access to the device (in particular, enabling removal of the device casing and access to valves).
5. Warranty repairs will be performed by the Guarantor or a specialist company indicated by the Guarantor.
6. The obligations arising from the warranty will be fulfilled within 14 working days from the date the device is made available (at the place of installation) by the User.
7. The date of making the device available is agreed between the User and the Guarantor.
8. Depending on the scope of the repair, it may be performed at the User's, at the place of installation of the device, or at the plant of the Guarantor or a specialist company performing the activities on behalf of the Guarantor.
9. The repair performed under warranty must be confirmed in the warranty card.
10. The warranty is extended by the time during which the user was unable to use the device due to a defect in the device covered by the warranty.
11. The warranty does not exclude, limit or suspend the buyer's rights arising from the provisions on warranty for defects in the sold item.

Confirmation of inspection, warranty repair, service

Date of execution	Description of activities performed	Signature and stamp of the contractor
-------------------	-------------------------------------	---------------------------------------

1.

2.

3.

4.

5.

6.

Date of execution	Description of activities performed	Signature and stamp of the contractor
-------------------	-------------------------------------	---------------------------------------

7.

8.

9.

10.

11.

12.

EC/EU Declaration of Conformity

Producer:	Product name and purpose:
METAL-FACH Technika Grzewcza Sp. z o.o. st. Sikorskiego 66 16-100 Sokółka NIP 545-182-60-12	Steel central heating boiler for solid fuel with automatic fuel feeding.
	Type: SMART EKO PLUS
	Factory number:
Year of production:	

The above mentioned subject of this EU declaration of conformity complies with the applicable requirements of the Union harmonisation legislation .

Reference documents:
<ol style="list-style-type: none"> 1. Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery 2. Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility 3. Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment. 4. Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits 5. /Commission Regulation (EU) 2015/1189 Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products 6. /Commission Regulation (EU) 2015/1187 Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products 7. /Commission Regulation (EU) 2015/863 (ROSHIII) Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment 8. /Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006

Technical documentation :

1. Standard PN-EN 303-5:2021-09 Heating boilers for solid fuels with manual and automatic fuel feeding with a nominal power up to 500 kW.
2. PN EN 1708-1:2020 Welding Basic solutions for welded steel joints Part 1. Pressure-bearing components.
3. PN EN 60335-1 2012 Household and similar electrical appliances - Safety - Part 1: General requirements.
4. PN EN 60335-2-102 2006/A1:2010- Household and similar electrical appliances - Safety - Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections.
5. PN EN 61000-6-2:2008 Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments.
6. PN EN 61000-6-3:2008/A1:2012 Electromagnetic compatibility (EMC) -- Part 6-3. Generic standards - Emission standard for residential, commercial and light-industrial environments.
7. PN-EN IEC 63000:2019-01 Technical documentation for the assessment of electrical and electronic products with regard to the restriction of hazardous substances.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The product is marked with the following marks:

Place and date:



Sokółka, 02.2024

Approving Persons:

Chairman of the Board:
Jacek Kucharewicz

 **PREZES-ZARZADU**
Jacek Kucharewicz

Production Director:
(Person authorized to prepare
technical documentation)

Elias Kasperuk

 **DYREKTOR
PRODUKCJI**

Elias Kasperuk

Warranty card

Central heating boiler with power [kW]:

Type:

Number:

Production date of the boiler:

Boiler sale date:

Buyer's name and surname:

Buyer's address

Date of purchase and stamp

Customer Signature

I accept the warranty terms:



Personal data provided in this form are processed by Jacek Kucharewicz conducting business activity under the name METAL-FACH Technika Grzewcza Sp. z o.o., 16-100 Sokółka, st. Sikorskiego 66, NIP: 545-182-60-12, telephone +48 85 711 94 54 ext. 17 in order to implement the provisions contained in the warranty conditions - in accordance with the Act of 29 August 1997 on the Protection of Personal Data (consolidated text: Journal of Laws of 2014, item 1182). The user has the right to access the content of his personal data, to correct it, to submit a request to discontinue processing of data and to object to data processing in cases indicated by law. All correspondence concerning the processing of personal data should be sent to the following address: METAL-FACH Technika Grzewcza Sp. z o.o., 16-100 Sokółka, st. Sikorskiego 66. Providing personal data is voluntary. In accordance with the Act of 29 August 1997 on the Protection of Personal Data (consolidated text: Journal of Laws of 2014, item 1182), we inform you that the personal data provided in this form will be protected against access by unauthorized persons.

Complaint submission

Customer data	Boiler data co	
Name and surname	Product name:	
Residential address	Model:	
Phone	Factory No.	
Purchase document no.:	Warranty period	Includes Does not include
Debt settlement document number:		

Detailed description of the fault:	
Seller's signature	

Conditions for initiating the complaint repair procedure:

1. Confirmation by the point of sale that the payment for the complained product has been made is the basis for initiating the complaint procedure.
2. The warranty card is the only basis for free repair.
3. The person filing the complaint undertakes to reimburse the costs incurred by METAL-FACH Technika Grzewcza Sp. z o.o. in the event of an unjustified call for a service team or failure to comply with points 1 or 2 (each started hour of the service technician's work PLN 70 net, travel PLN 1 net/km in both directions).
4. The legible signature of the person submitting the complaint confirms that he or she has read the basic terms and conditions of the complaint procedure.

Date of purchase and stamp	Customer Signature
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I declare that I have read the warranty terms and conditions on the basis of which I am making a complaint and I consent to the processing of my personal data for the purposes of the complaint process in accordance with the Personal Data Protection Act of 29 August 1997 (Journal of Laws No. 133, item 833).

Legible signature of the person submitting the complaint
--

The manufacturer undertakes to perform warranty repairs within 14 days from the date of receipt by the user of a written notification of damage on the manufacturer's complaint form.

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Report on the first start-up of the boiler

(Copy of METAL-FACH Technika Grzewcza)

In order to verify the purchase and to recognize the validity of the warranty, a report must be sent within 30 days of the first start-up date. This can be done by:

1. E-mail - where a scan or photo of the report will be posted.
2. Letter - in which a copy of the report will be sent to the company METAL-FACH Technika Grzewcza Sp. z o. o., the company's address is at the end of the Technical and Operational Document

Boiler	Comment
The conditions included in the DTR in the chapter "Requirements for the boiler room and boiler installation" are met.	<input type="checkbox"/>
The conditions included in the operation and maintenance manual in the chapter "Connecting the boiler to the chimney" are maintained.	<input type="checkbox"/>
Central heating system	Comment
The conditions included in the operation and maintenance manual in the chapter "Connecting the boiler to the heating system" are maintained.	<input type="checkbox"/>
The conditions contained in the Operation and Maintenance Manual in the chapter "Requirements for the expansion tank " are maintained.	<input type="checkbox"/>
There is no other source of heating. If there is, does it affect the boiler's operation and how?	<input type="checkbox"/>
Protecting the system against freezing.	<input type="checkbox"/>
Connecting elements to the electrical installation	Comment
The conditions included in the operation and maintenance manual in the chapter "Connecting the boiler to the electrical installation" are maintained.	<input type="checkbox"/>
Equipment Test	Comment
The sensors are located in the right place.	<input type="checkbox"/>
Sensor readings are consistent with the actual condition.	<input type="checkbox"/>
The direction of fan rotation is correct.	<input type="checkbox"/>
Opening the fan flap using blowing force.	<input type="checkbox"/>
The direction of rotation of the screw is correct.	<input type="checkbox"/>
Boiler start-up	Comment
The tightness of the hydraulic connection of the boiler to the installation is maintained.	<input type="checkbox"/>
Test the FIREMAN system (if installed).	<input type="checkbox"/>
Checking the connection of the fuel feeder to the boiler.	<input type="checkbox"/>
Filling the fuel tank with fuel.	<input type="checkbox"/>
Checking the fuel supply through the feeder.	<input type="checkbox"/>
Firing up the boiler in accordance with the section "Starting the	<input type="checkbox"/>

boiler".

Initial adjustment of boiler operating parameter settings. ☐Final adjustment of boiler operating parameter settings. ☐**Confirmation of user training in the field****Comment**Instructions for the user on how to safely operate the boiler are included in the chapter "When using the boiler, remember to". ☐Instruction in the operation of the boiler regulator and regulation of the combustion process. ☐Fan speed settings. ☐Boiler maintenance chapter "Cleaning and maintenance of the boiler" ☐Required fuel quality chapter "Fuel" ☐Procedure in case of emergency, chapter "Examples of device failure" ☐

Launch date

Boiler name

Boiler power [kW]

Serial number

Name and surname of service technician

Owner's name and surname

Address

Address

Company seal

Contact number

Signature

Signature

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Report on the first start-up of the boiler

(Copy of the boiler owner)

In order to verify the purchase and to recognize the validity of the warranty, a report must be sent within 30 days of the first start-up date. This can be done by:

1. E-mail - where a scan or photo of the report will be posted.
2. Letter - in which a copy of the report will be sent to the company METAL-FACH Technika Grzewcza Sp. z o. o., the company's address is at the end of the Technical and Operational Document

Boiler	Comment
The conditions included in the DTR in the chapter "Requirements for the boiler room and boiler installation" are met.	<input type="checkbox"/>
The conditions included in the operation and maintenance manual in the chapter "Connecting the boiler to the chimney" are maintained.	<input type="checkbox"/>
Central heating system	Comment
The conditions included in the operation and maintenance manual in the chapter "Connecting the boiler to the heating system" are maintained.	<input type="checkbox"/>
The conditions contained in the Operation and Maintenance Manual in the chapter "Requirements for the expansion tank " are maintained.	<input type="checkbox"/>
There is no other source of heating. If there is, does it affect the boiler's operation and how?	<input type="checkbox"/>
Protecting the system against freezing.	<input type="checkbox"/>
Connecting elements to the electrical installation	Comment
The conditions included in the operation and maintenance manual in the chapter "Connecting the boiler to the electrical installation" are maintained.	<input type="checkbox"/>
Equipment Test	Comment
The sensors are located in the right place.	<input type="checkbox"/>
Sensor readings are consistent with the actual condition.	<input type="checkbox"/>
The direction of fan rotation is correct.	<input type="checkbox"/>
Opening the fan flap using blowing force.	<input type="checkbox"/>
The direction of rotation of the screw is correct.	<input type="checkbox"/>
Boiler start-up	Comment
The tightness of the hydraulic connection of the boiler to the installation is maintained.	<input type="checkbox"/>
Test the FIREMAN system (if installed).	<input type="checkbox"/>
Checking the connection of the fuel feeder to the boiler.	<input type="checkbox"/>
Filling the fuel tank with fuel.	<input type="checkbox"/>
Checking the fuel supply through the feeder.	<input type="checkbox"/>
Firing up the boiler in accordance with the section "Starting the	<input type="checkbox"/>

boiler".

Initial adjustment of boiler operating parameter settings. ☐Final adjustment of boiler operating parameter settings. ☐**Confirmation of user training in the field****Comment**Instructions for the user on how to safely operate the boiler are included in the chapter "When using the boiler, remember to". ☐Instruction in the operation of the boiler regulator and regulation of the combustion process. ☐Fan speed settings. ☐Boiler maintenance chapter "Cleaning and maintenance of the boiler" ☐Required fuel quality chapter "Fuel" ☐Procedure in case of emergency, chapter "Examples of device failure" ☐

Launch date

Boiler name

Boiler power [kW]

Serial number

Name and surname of service technician

Owner's name and surname

Address

Address

Company seal

Contact number

Signature

Signature

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Online form



Video instructions



Website



Contact with service:

st. Sikorskiego 66, 16-100 Sokółka
Phone: +48 85 711 94 54 ext. 17
e-mail: p.czepiel@metalfach.com.pl

Producer:

METAL-FACH Technika Grzewcza Sp. z o. o.
st. Sikorskiego 66, 16-100 Sokółka
NIP: 545-182-60-12, REGON: 523566030
www.metalfachtg.com.pl