



METAL-FACH
HEATING TECHNOLOGY



Technical and operational documentation

SEG EKO | SEG EKO PLUS

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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 use of the device will meet your expectations and provide you with much satisfaction. The heating boiler was designed and manufactured in accordance with applicable norms and standards, guaranteeing safe and reliable operation. Operation with strict adherence to the recommendations contained in the manual 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 capabilities or lack of experience and knowledge, if they 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 read it if it appears in a given place.



TIP!

It is worth reading this information, it makes it easier to use.

Introductory steps (User)

Activities to be performed when accepting the METAL-FACH Technika Grzewcza Sp. boiler. z o. o. .:

- check whether the delivered boiler is complete (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,

METAL-FACH		Jacek Kucharewicz 16-100 Sokółka ul. Sikorskiego 86 tel/fax 85 711-94-54 www.metalfachtg.com.pl	
Kocioł grzewczy SEG EKO 12			
Typ kotła	SEG EKO 12	Przyłącze 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 prac/rozpalanie [W]	
Rodzaj paliwa	Węgiel kamienny sortymentu Gr II klasy a1 zgodnie z pkt. 6.3 (Tablica 7) normy PN-EN 309-6:2012 wartość opałowa: > 26MJ/kg; wilgotność: 11% w stanie roboczym; zawartość popiołu: 2-7% w stanie roboczym masy w stanie suchym; zawartość części lotnych: 15-30% w stanie roboczym masy w stanie suchym		
CE			

METAL-FACH		Jacek Kucharewicz 16-100 Sokółka ul. Sikorskiego 86 tel/fax 85 711-94-54 www.metalfachtg.com.pl	
Kocioł grzewczy SEG EKO PLUS 15			
Typ kotła	SEG EKO PLUS 15	Przyłącze 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 prac/rozpalanie [W]	
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CE			

- carefully - it contains information needed for the proper use of the boiler.

If you encounter any problems, please contact the service department or the authorized service of METAL-FACH Technika Grzewcza Sp. z o. o. These people have appropriate training and access to original parts enabling proper

service and installation of METAL-FACH Technika Grzewcza Sp. boilers. z o. o., confirmed by a certificate issued at the company's headquarters.

General information **(User)**

Technical and Operational Documentation is one of the parts of the product, it is delivered together with the purchased central heating boiler. The Technical and Operational Documentation contains data on the construction, assembly and use of boilers with a retort burner of the SEG EKO PLUS and SEG EKO series. Careful reading of the user manual will ensure 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 Conditions and generally applicable legal regulations.

The boilers are delivered assembled. They are set and attached to the pallet permanently. Additional security measures are used in the form of foil packaging. When transporting the boiler, it should be secured against shifting or rotation on the car's cargo bed using safety equipment, e.g. belts. Transport of boilers should be carried out in accordance with the rules regarding the transport of materials. Loading and unloading must be carried out using lifting equipment (forklift) with a capacity of more than 1000 kg.

Application **(User | Installer)**

The boilers are intended for heating residential buildings such as: single-family and multi-family houses, farm buildings, public utility buildings, and hot water. They are equipped with an automatic fuel feeding system. Thanks to the use of modern design solutions, the SEG EKO PLUS and SEG EKO boilers achieve high efficiency. Correct operation and achievement of the boiler's full capabilities depend on the quality of the installation, appropriate chimney draft, and proper operation and maintenance of the boiler.



ATTENTION!

The boilers are intended for operation in open and closed water systems with gravity or forced circulation, with protections in accordance with the requirements of the applicable standard PN-B-02413 Heating and District Energy and a closed system in accordance with the standard PN-EN 12828 Heating installations in buildings. Projects.

**Boiler equipment
(User)**

The scope of delivery includes both basic and additional elements, depending on the order placed. Upon receipt, carefully inspect the product to check whether it has been damaged during transport and check whether the equipment is complete. The elements of the basic and additional equipment are described below.

Basic equipment:	Unit of measurement	Quantity
Central heating boiler	pcs.	1
Microprocessor controller – (see controller user manual)	pcs.	1
Blowing fan	pcs.	1
Fuel feeding system with burner	set .	1
Fuel tank	pcs.	1
Boiler cleaning tools: • poker • brush • scraper	set.	1
Boiler leveling feet	pcs.	4
Documentation:	Unit of measurement	Quantity
Technical and operational documentation of the boiler	pcs.	1
User manual and warranty card for the controller	pcs.	1
Instruction manual and warranty card for the blower fan	pcs.	1
Fuel feeder user manual (set)	pcs.	1



ATTENTION!

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



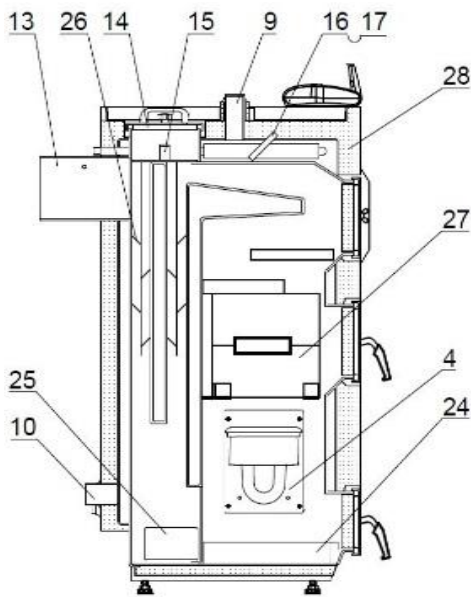
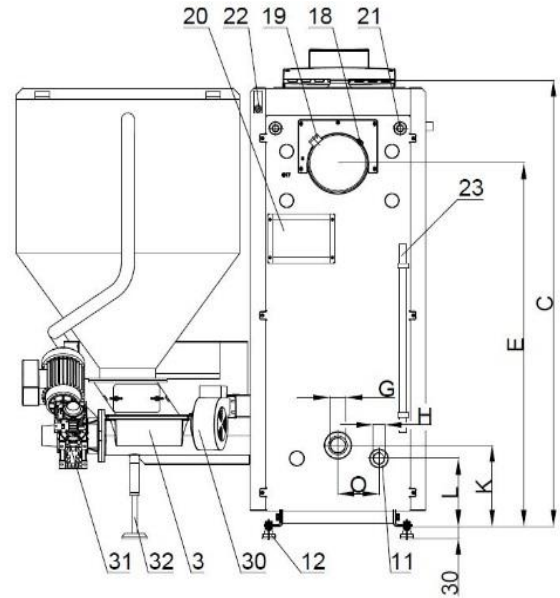
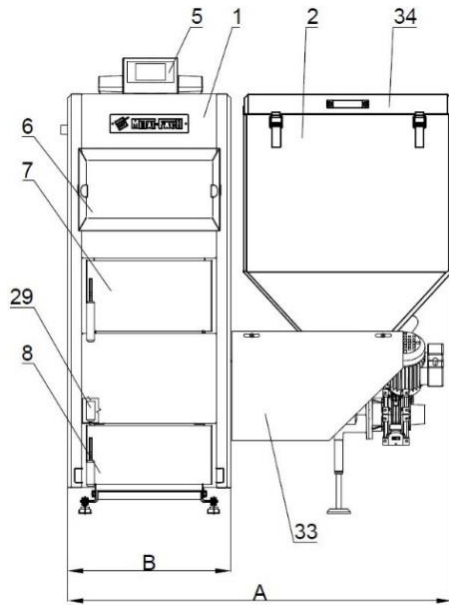
ATTENTION!

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

Basic elements of boiler construction a **(User | Installer)**

The water body is made as a welded structure from certified steel sheets P265GH, 5 mm thick (for the furnace elements) and S235JR, 4 mm thick (for the water jacket elements). The automatic feeder supplies fuel to the retort burner located in the combustion chamber on the side of the boiler. There is a ceramic plate above the burner, and in the combustion chamber part, ceramic plates are placed on the vertical walls. The convection part of the boiler consists of vertical water channels in which exhaust gas swirlers are placed. The boiler exchanger is insulated with mineral wool covered with thin-walled sheet metal. The bottom of the boiler is not water-cooled. The exhaust gas flue with a diameter $\phi_{out} = 180$ mm does not have a throttle. The ash pan for combustion waste is located under the burner. The steel door is lined with insulating boards from the inside. The boiler is equipped with feed and return connections for boiler water with a diameter of G 1 1/2", a water drain pipe with a diameter of G 3/4", a regulator and STB sensor connector. The SEG EKO PLUS boiler is equipped with an automatic ignition system. The boiler operation and combustion process are controlled by a microprocessor regulator.

SEG EKO, SEG EKO PLUS boiler



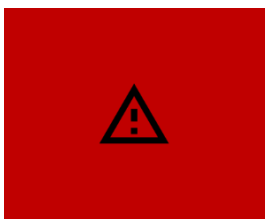
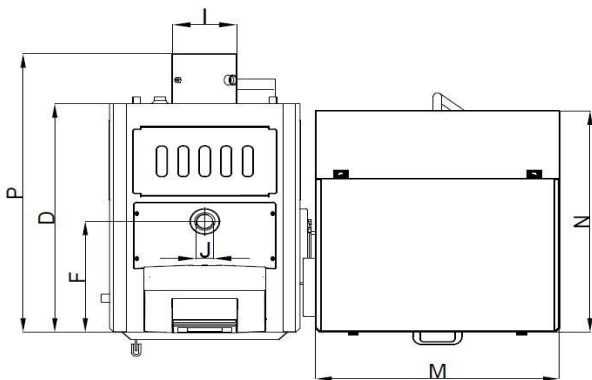
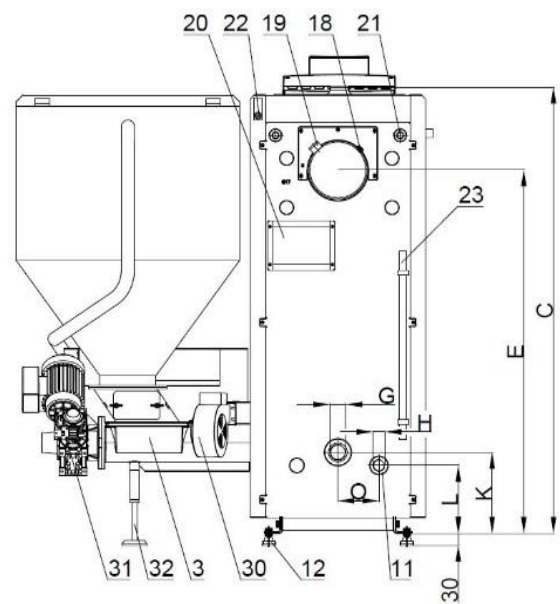
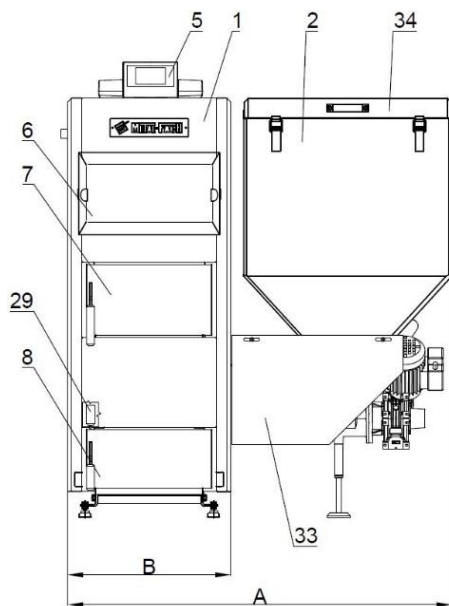
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| <ul style="list-style-type: none"> 1. Exchanger 2. Fuel tank 3. Feeder-burner assembly 4. Feeder-burner assembly 5. Controller 6. The door is clean 7. Inspection doors 8. Ash pan doors 9. Supply connector with thread . G1 1/2" 10. Return connector with thread . G 1 1/2" | <ul style="list-style-type: none"> 11. Drain connector with thread . G3/4" 12. Adjustable foot 13. Chopuch 14. Upper cleanout 15. Cover 16. Sensor sleeve _ boiler temp 17. STB sleeve 18. Sensor sleeve _ exhaust gas temp 19. Lambda probe sleeve 20. Lambda probe box 21. Cooling coil connector | <ul style="list-style-type: none"> 22. Wiring harness 23. Cleaning kit 24. Ash pan drawer 25. Lower cleanout 26. Exhaust gas swirlers 27. Screens 28. Thermal isolation 29. Limit switch 30. Fan 31. Gear motor 32. Feeder support 33. Feeder cover 34. Hopper cover |
|--|--|---|

Boiler technical data (User | Installer)

Parameters	SI unit	Boiler model				
		SEG EKO 12	SEG EKO 15	SEG EKO 20	SEG EKO 26	SEG EKO 34
			SEG EKO PLUS 15	SEG EKO PLUS 20	SEG EKO PLUS 26	
Nominal thermal power	[kW]	12	15	20	26	34
Boiler power range	[kW]	3,6-12	4,5 - 15	6 - 20	7,8 - 26	10,2 - 34
Heating surface	[m ²]	2,1	2,1	2,54	2,85	3,11
Water capacity	[L]	66	66	74	83	95
Maximum working 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	[%]	≤93,8	≤92,6	≤93,4	≤93,0	≤90,8
Fuel tank capacity	[L]	190	190	290	350	350
Fuel	[-]	Hard coal grade Gr II class a1 in accordance with point 5.3 (Table 7) of the PN EN 303-5:2012 standard				
Electrical connection	[-]	2A; ~230V; 50Hz				
Electrical connection	[-]		5A; ~230V; 50Hz			
Electrical power consumption	[W]	350	350	350	350	350
Electrical power consumption (temporary when firing up)	[W]	1050 *	1050 *	1050 *	1050 *	1050 *
Temperature controller setting range	[°C]	60-80 (every 1°C)				
Chimney draft required	[Pa]	22	24	26	28	31
Exhaust gas mass flow	[g/s]	6,4	7,9	11,2	14,1	19,5
Calculated flow resistance ΔT [10K]	[mbar]	-	-	-	-	-
Calculated flow resistance ΔT [20K]	[mbar]	-	-	-	-	-
Boiler weight	[kg]	438	448	510	539	551

*Boiler weight +/- 5kg.

Boiler dimensions
(User | Installer)



ATTENTION!
Boiler feet are available:
- from SEG EKO 12 to SEG EKO PLUS 34
- from SEG EKO PLUS 15 to SEG EKO PLUS 26
Their height is 30 mm.

Type	SEG EKO 12	SEG EKO 15	SEG EKO 20	SEG EKO 26	SEG EKO 34
		SEG EKO PLUS 15	SEG EKO PLUS 20	SEG EKO PLUS 26	
A	1250	1250	1250	1250	1300
B	532	532	532	532	582
C	1160*	1160*	1356*	1413*	1413*
D	705	705	745	796	796
E	907*	907*	1104*	1160*	1160*
F	349	349	359	409	409
G	G11/2"	G11/2"	G11/2"	G11/2"	G11/2"
H	G3/4"	G3/4"	G3/4"	G3/4"	G3/4"
I	180	180	180	180	180
J	G11/2"	G11/2"	G11/2"	G11/2"	G11/2"
K	213*	213*	247*	245*	245*
L	213*	213*	207*	205*	205*
M	680	680	680	680	680
N	707	707	720	776	776
O	125	125	125	125	125
P	867	867	905	955	955

*The dimensions do not include the height of the boiler leveling feet.

Security automation and regulation

(User | Installer)

1. The boiler automation allows you to set:

See the operating instructions for the electronic controller.

2. Thermal sensor

The mechanical STB protection is located in the boiler and protects the heating system against overheating. It is set to 95 °C. Above this temperature, the fan turns off, while the central heating and hot water pumps are turned on.

Fuel

(User)

The fuel for firing boilers equipped with a screw feeder and a retort burner is hard coal of the Gr II class a1 class in accordance with point 5.3 (Table 7) of the PN EN 303-5:2012 standard

- calorific value: > 28MJ/kg;
- humidity: ≤11% in working condition;
- ash content: 2 - 7% in working condition, dry weight;
- volatile matter content: 15-30% in working condition, dry weight;

Requirements for the boiler room and boiler installation

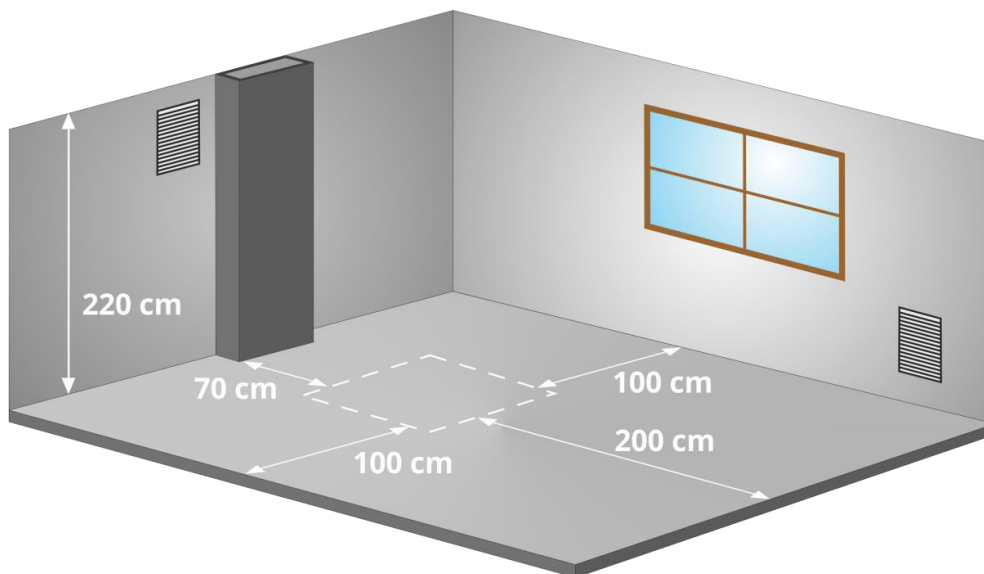
(User | Installer)

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 are divided into two types:

1. For small boiler rooms up to 25 kW of power, the following requirements should be met:
 - the boiler should be located 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 will be made should be non-flammable; in the case of flammable material, the floor should be covered with a 0.7 mm thick steel sheet at a minimum distance of 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, natural lighting is also recommended;
 - placing the wheel in the room should allow free access to the boiler during cleaning and maintenance; the distance from the back of the boiler to 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;
 - supply and exhaust) ensured ;
 - supply ventilation should take place through an unclosed opening with a cross-section of at least 200 cm² and located up to a maximum of 100 cm above the floor level;
 - exhaust ventilation should be provided through 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 be led above the roof and placed near the chimney; there cannot be devices on the exhaust duct that allow it to be closed;
 - the cross-section of the chimney should be not less than 20 x 20 cm;
 - there should be a floor drain in the floor of the boiler room;
 - the optimal place for fuel storage 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 should additionally meet the following requirements:
 - the distance of the furthest boiler 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 hall at a storage height of up to 220 cm with a free space above the fuel of at least 50 cm;

- devices and equipment enabling vertical and horizontal transport of fuel and slag should be taken into account;
- the fuel storage room should have natural, unforced ventilation, enabling one complete air exchange per hour in the fuel storage room and three complete air changes per hour in the slag storage room;
- entrance doors to the boiler room should be non-flammable (fire resistance class 0.5), minimum width 80 cm, opening outwards; they should have a handleless closing system enabling them to be opened outwards under pressure and inwards using a handle;
- ventilation requirements are the same as for boiler rooms with lower power; Additionally, in boiler rooms with a power exceeding 400 kW, in addition to the supply and exhaust ventilation, there should be mechanical ventilation, switched on periodically when feeding fuel and removing slag from the boilers, ensuring a minimum of 10 full air changes per hour;
- in the boiler room, natural lighting should be taken into account, illuminating the boiler from its front, and the window area should be at least 1/15 of the boiler room floor area; half of those installed 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 allowing for water cooling, and its capacity should be equal to the water capacity of the largest boiler, but not more than 2 m³;
- in the boiler room, heat pipes should be insulated;
- Boiler positioning with the minimum required distances is shown in the boiler room diagram below.

Minimum distances for placing the boiler in the boiler room





ATTENTION!

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



ATTENTION!

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



ATTENTION!

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



ATTENTION!

More detailed information regarding the requirements for the construction of a boiler room can be found in the Regulation of the Minister of Infrastructure of March 12, 2009.



TIP!

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

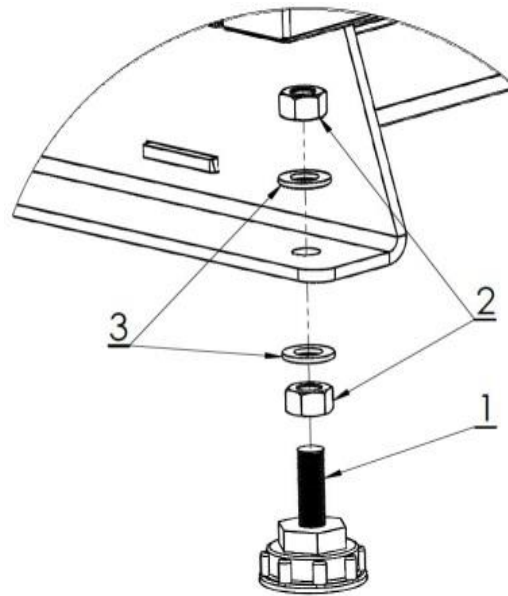
Boiler installation
(User | Installer)

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

1. Check whether the set includes four feet.
2. Use a spirit level to level the boiler in relation to the ground. 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

How to install boiler leveling feet

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



ATTENTION!

An incorrectly leveled boiler may be damaged.



ATTENTION!

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

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

- 20 cm safe distance from flammable materials,
- 40 cm for flammable materials with flammability grade C3,
- 40 cm if the flammability level is not known.

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

Connection of the boiler with the heating installation
(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 and in accordance with these instructions.



ATTENTION!

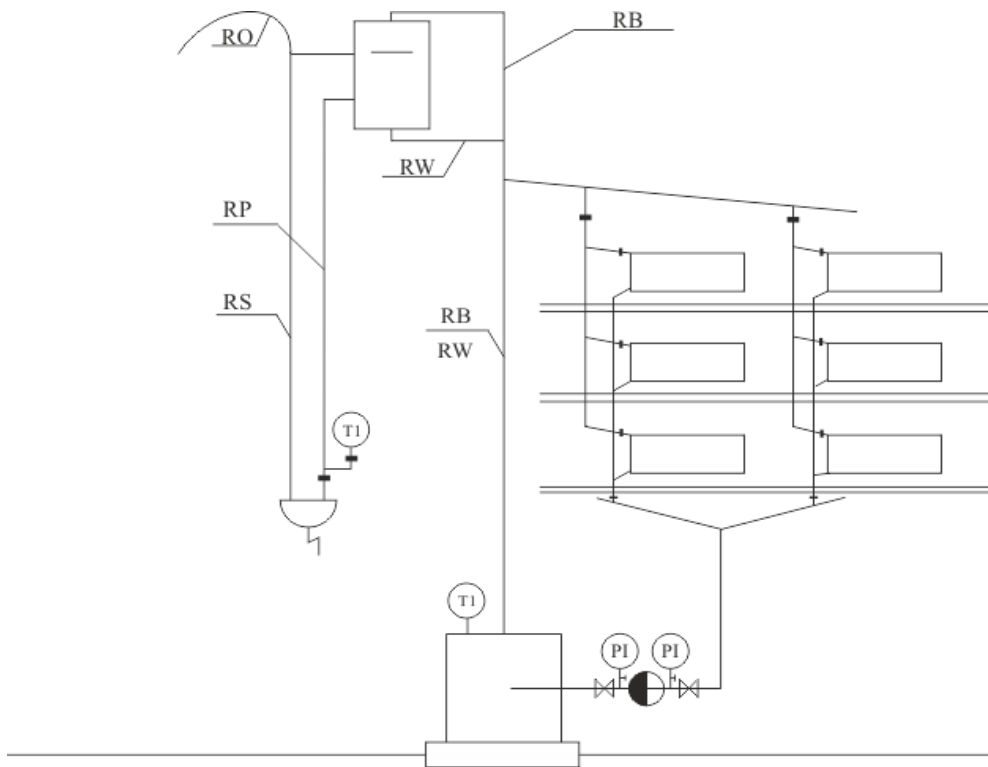
It is recommended that the boiler be started for the first time in accordance with the guidelines contained in the Technical and Operational Documentation by a person with valid authorizations - (Information on persons authorized to start the boiler is available from the Manufacturer - tel. +48 85 711 94 54 ext. 17).



ATTENTION!

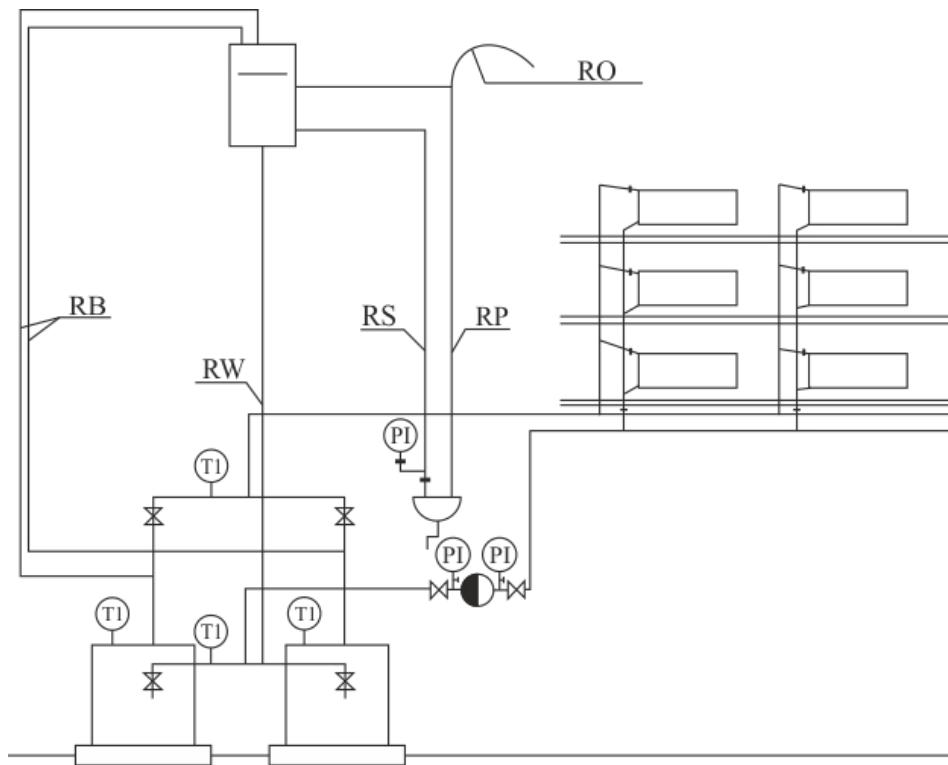
The temperature of water returning from the installation to the central heating boiler should not be lower than 45°C.

Diagrams of connecting boilers to the heating installation in accordance with the PN - 91/B – 02420 standard



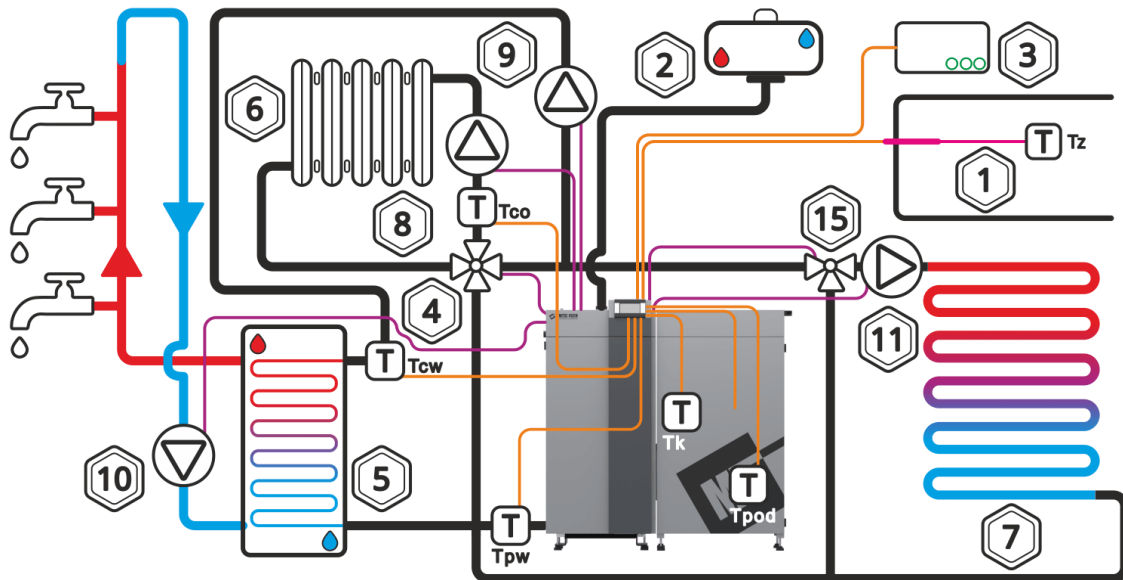
Designation	Description
RO	Vent pipe
RW	Expansion pipe
RS	Signaling pipe
RP	Overflow pipe
RB	Safety pipe
T1	Temperature
P1	Pressure

Diagrams of connecting boilers to the heating installation in accordance with the PN - 91/B – 02420 standard



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

Connecting the boiler to the heating installation

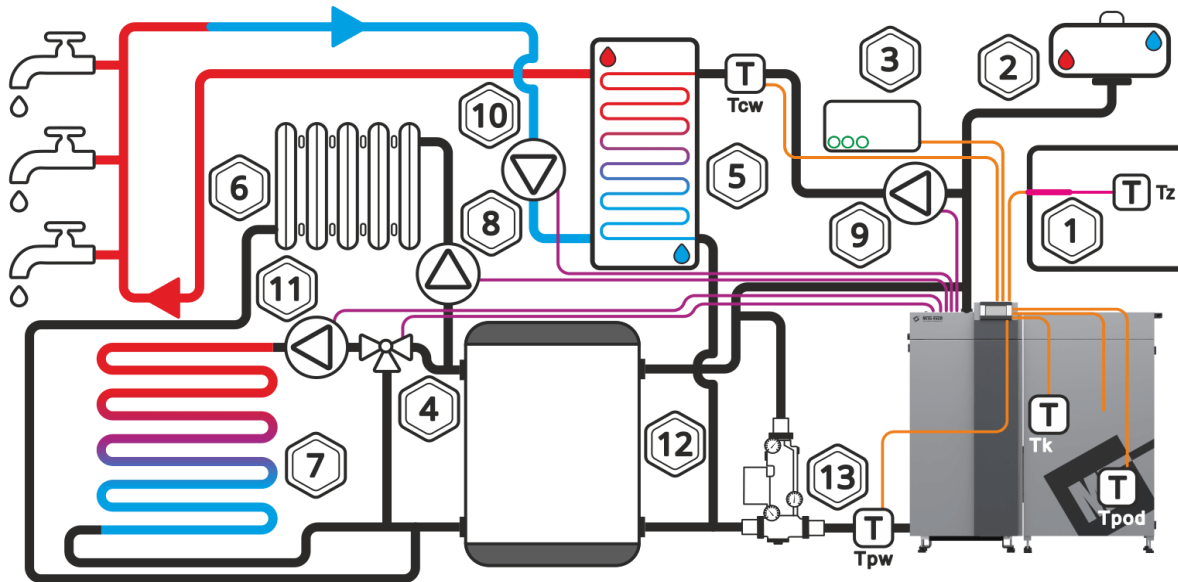


- 1. Outside the building
- 2. Expansion vessel
- 3. Room regulator
- 4. Mixer
- 5. Heater
- 6. Heating circuit
- 7. Floor heating

- 8. Central heating pump (CH)
- 9. Domestic hot water pump (CWU)
- 10. Circulation pump
- 11. Additional pump P3
- 12. Buffer
- 13. Laddomat
- 14. Heating circuit pumps 1, 2, 3, 4
- 15. Thermostatic mixing valve

Designation	Description
T	Temperature sensor
Tk	Boiler temperature sensor
Tz	Outdoor temperature sensor
Tcw	Hot water temperature sensor
Tco	Central heating temperature sensor
Tpw	Return temperature sensor to the boiler
Tpod	Feeder temperature sensor

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



- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Outside the building 2. Expansion vessel 3. Room regulator 4. Mixer 5. Heater 6. Heating circuit 7. Floor heating | <ul style="list-style-type: none"> 8. Central heating pump (CH) 9. Domestic hot water pump (CWU) 10. Circulation pump 11. Additional pump P3 12. Buffer 13. Laddomat 14. Heating circuit pumps 1,2,3,4 15. Thermostatic mixing valve |
|--|--|

Designation	Description
T	Temperature sensor
Tk	Boiler temperature sensor
Tz	Outdoor temperature sensor
Tcw	Hot water temperature sensor
Tco	Central heating temperature sensor
Tpw	Return temperature sensor to the boiler
Tpod	Feeder temperature sensor

Requirements for the expansion vessel (Installer)

Each open system heating installation should be equipped with an expansion vessel, the task of which is to absorb the increase in the volume of water filling the installation and vent it. This vessel should be installed at the highest point of the installation, if possible in a vertical line above the boiler(s). The volume of the expansion vessel can be estimated by assuming the unit capacity in relation to one kW of thermal efficiency is 1-2 dm³. The expansion vessel is equipped with a stub pipe 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 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:

- expansion vessel should have a volume of approximately 3.5% of the volume of water in the heating system including the boiler,
- each boiler should absolutely have a safety pipe and an overflow pipe,
- the installation should be equipped with a signaling and expansion pipe and a vent connector for the expansion vessel.

If several boilers are installed, each of them should be equipped with a safety pipe in accordance with the principles specified in PN-91/B02413 - protection of open system water heating installations. No shut-off valves may be installed on safety and overflow pipes, and the pipes and vessel must be protected against freezing.

Connecting the boiler to the electrical installation (Installer)

The boiler is designed to be connected to 230V/50Hz voltage. 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 installation 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 carried out only by a service trained by the manufacturer, with a current certificate of an Authorized Service Technician, Distributor of METAL-FACH Technika Grzewcza Sp. z o. o. or a person with SEP qualifications up to 1.5 kW.



ATTENTION!

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

Connecting the boiler to the chimney **(Installer)**

Smoke pipes

The purpose of the smoke ducts is to reliably discharge exhaust gases outside and suck in air enabling fuel combustion. The chimney draft required for this depends on:

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

The effective height of the chimney is the height difference between the highest fireplace and the chimney exit. 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 fireplaces cannot be greater than 6.5 m. In the case of sloping roofs, chimneys should end at the ridge (the highest edge of the roof), in the area of free wind flow. This prevents draft disturbances. Always pay attention to the position of the building in relation to other buildings.

Chimney selection

In most cases, an approximate method or selection according to the chimney manufacturer's diagrams is sufficient to select a chimney. In special cases (unfavorable pressure and temperature relationships, large volume of exhaust gases), chimneys are calculated in accordance with the applicable standard. Low exhaust gas temperature at the boiler's nominal power may result in the emission of wet flue gases, soot deposition, and insufficient chimney draft. This may lead to moisture and corrosion of brick chimneys. It is recommended to use a chimney liner:

- in new buildings, a ceramic flue gas discharge system resistant to condensate, thermally insulated and with a condenser is recommended ,
- in existing buildings, it is recommended to modernize the brick chimney by using a single- or double-wall chimney system made of stainless steel (intended for solid fuel boilers).

Chopuch

The boiler is connected to the chimney by a flue and a smoke duct. A flue consists of pipes and fittings that are placed in rooms. Flues meet fire protection requirements for chimneys and are often made of the same material as the main chimney. Smoke ducts should be made of non-flammable products. The ducts or casing of smoke ducts should meet the requirements specified in the Polish Standard for fire tests of small chimneys. It is allowed to make the casing of 12 cm thick full brick, built on cement-lime mortar, with external plaster or grouting. Connectors should be as short as possible and placed with a slope towards the chimney to avoid heat loss and additional resistance. They cannot be led to other floors. Exhaust gas pipes should not be placed in rooms where fireplaces cannot be installed, and they should not be placed in walls or ceilings. Due to the low temperature of exhaust gases, acid-resistant or ceramic chimney inserts with condensate drainage to the sewage grate should be used to protect the chimney against moisture and reduce draft. 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 freely adjustable due to the variety of existing central heating installations, the building's heat demand as well as the calorific value of the fuel. The user sets the boiler operating parameters himself. This activity is not subject to service.

Before lighting a fire in the boiler, check whether the installation has been carried out correctly and whether it is properly filled with water - until it is poured through the overflow pipe from the expansion vessel .

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

Additionally, check whether the retort burner is cleaned of the remains of unburned fuel, ash and slag from previous burning and whether ash has been removed from the ash pan.

When lighting, close all doors. After achieving a stable flame, switch the regulator to automatic operation, starting the automatic fuel feeder and fan.

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

Periodically check the burning process through the inspection door. Ash and slag from the burned fuel gradually fall into the ash container, causing the burner to self-clean. If a piece of slag gets stuck between the boiler wall and the burner, it should be removed with a grapple or a hook.

The regulator protects the boiler against: exceeding the permissible water temperature in the boiler, embers returning to the fuel feeder, and turns off the entire system in the event of lack of fuel.

On the feeder pipe, between the retort burner and the fuel tank, there is a sensor that reacts when the embers return from the burner to the feeder. In such a case, the fan is immediately turned off and the feeder is started continuously until the burning or smoldering coal is pushed out of the feeder and the retort burner into the ash pan.

The boiler user should carefully read the operating instructions for the microprocessor regulator intended for the user. When starting a cold boiler or for the first time, the phenomenon of "boiler sweating" may occur. Appearing to be leaking. In such a case, an intensive burning process (70-80 ° C) should be carried out to dry and heat the boiler and the chimney flue for up to 2-3 days.

To increase the boiler's life, it is recommended to maintain the exhaust gas temperature at 180 ° C above the ambient temperature, and the water temperature in the boiler should not be lower than 60 ° C. In this situation, maintaining an appropriately low temperature in the radiators in the autumn and spring period can be achieved, among others, by:

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

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, it is replenished every 1-3 days. Empty the ash container with the same frequency.

Too little fuel in the tank causes dust when the cover is opened during boiler operation. Lack of fuel causes the combustion process to permanently stop and requires re-ignition in the boiler.

To save fuel, keep the combustion chamber and boiler convection channels clean. In the combustion chamber, the walls and fireplaces should be cleaned through the cleaning and inspection doors.



ATTENTION!

Remember to close the feeder cover tightly.



ATTENTION!

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

Please remember this when using the boiler

(User)

- the boiler may only be operated by adults who have read the operating instructions;
- children are prohibited from staying near the boiler without the presence of adults;
- if flammable gases or vapors enter the boiler room or during work during which there is an increased risk of fire or explosion (gluing, painting, etc.), the boiler should be turned off before starting the 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 should be turned off ("STOP" position);
- flammable liquids must not be used to light the boiler, the boiler should ignite automatically (using an igniter);
- before cleaning the boiler, the device should be turned off ("STOP" position) and cooled down;
- the boiler must not be overheated in any way during operation;
- flammable objects must not be placed on the boiler or in its immediate vicinity;
- when removing ash, flammable materials cannot be closer than 150 cm from the boiler;
- ash should be placed in heat-resistant dishes with a cover;
- when the boiler is operated at a temperature lower than 60°C, condensation of the steel exchanger may occur and thus cause corrosion as a result of the low temperature, which shortens the life of the exchanger; therefore, the temperature during boiler operation must be at least 60°C;
- after the end of the heating season, the boiler and the smoke duct 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 capabilities or lack of experience and knowledge, unless these persons are supervised or instructed by a person responsible for their safety.



ATTENTION!

Any independent interference in the electronics or the structure of the boiler is prohibited.

Cleaning and maintenance (User)



ATTENTION!

The boiler can only be cleaned with the device disconnected from the electrical network.

To save fuel, keep the combustion chamber and boiler convection channels clean. In the combustion chamber, clean the walls and shelves through the cleaning and inspection doors. The boiler exchanger and ash pan are also regularly cleaned.

Cleaning should be done using wire brushes on extension cords. The above activities should be performed during periodic boiler shutdown, preferably every 100 hours of boiler operation. The boiler should be thoroughly cleaned once a month.

Instructions for decommissioning the boiler after its service life has expired (User)

Before scrapping the boiler, disconnect all electronic components from it. They are disposed of in accordance with the European Directive 2002/96/EC concerning the consumption of electronic and electrical equipment. For proper disposal, please contact the manufacturer of electronic components in accordance with the above-mentioned European Directive. Steel elements from which the boiler is made should be scrapped in designated places (scrap collection).

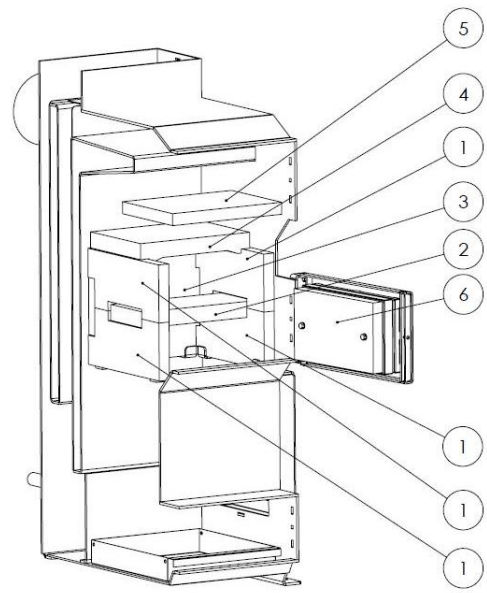
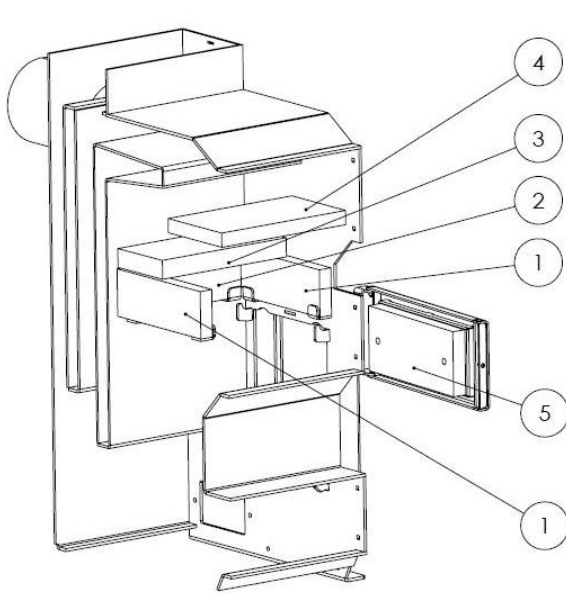


ATTENTION!

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
Fans	RMS-120, RMS-140MAX fan
Feeder	Geared motor with motor Motor for the feeder Feeder screw
Instrumentation	Rubber grommet Gasket for the tank Flap seal Gasket for the feeder Door handle



Boiler power	12	15	Boiler power	20	26	34
No.			No.			
1	SEG15 B-01	SEG15 B-01	1	SEG20 B-01	SEG26 B-01	SEG34 B-01
2	SEG15 B-02	SEG15 B-02	2	SEG20 B-05	SEG26 B-05	SEG34 B-05
3	SEG15 B-03	SEG15 B-03	3	SEG20 B-02	SEG26 B-02	SEG34 B-02
4	SEG15 B-04	SEG15 B-04	4	SEG20 B-03	SEG26 B-03	SEG34 B-03
5	SEG15 B-05	SEG15 B-05	5	SEG20 B-04	SEG26 B-04	SEG34 B-04
			6	SEG20 B-05	SEG26 B-06	SEG34 B-06

Examples of device failure
(User)

Before calling the service, please read the most frequently asked questions.



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



Hotline: +48 85 711 94 54 ext. 17



Instructional videos: www.youtube.com/c/METALFACHTechnikaGrzewcza



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

Terms of warranty (User)

User Statement:

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 a complete set of documentation (including in particular: Technical and Operational Documentation containing, among others, instructions for installation and operation of the device, warranty conditions). I acknowledge the manufacturer's recommendation that the device be subjected to regular annual technical inspections, which should be confirmed in the warranty card.

Date and legible signature of the User

Warranty scope:

1. Liability under the warranty covers only defects resulting from reasons 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 called the "Guarantor"): Jacek Kucharewicz , running a business under the name METAL-FACH Technika Grzewcza Sp. z o. o., 16-100 Sokółka, ul. Sikorskiego 66, NIP: 545-182-60-12, REGON 050073833, phone +48 85 711 94 54 ext. 17.
3. Under the warranty, the User is entitled to have the device repaired free of charge if device defects are revealed during the warranty period. If the Guarantor finds it impossible to repair the device or its parts, the Guarantor reserves the right to replace the device or its parts with a new one.

Guarantee 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 for:

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

Terms of use of the warranty:

1. Installing the device in accordance with the Technical and Operational Documentation (in particular, connecting the boiler to a properly installed 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 an actuator, icedomat, etc.)
2. Sending a copy of the correctly 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. When submitting a complaint, presenting a correctly completed warranty card (signed and stamped by the seller) and substantiating the circumstances of the purchase of the device (e.g. receipt, invoice). If the User loses the warranty card, a duplicate will not be issued.
4. The User follows the recommendations contained in the Technical and Operational Documentation of the device.
5. Performing the first boiler start-up, 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) , confirming this fact in the warranty card and sending the commissioning 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 (an example 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 paid service.
7. Performing service of the device (e.g. device adjustment, cleaning, measurements, exhaust gas analyses) 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), in accordance with the guidelines contained in the Technical Documentation Ruchowa and recording service services in the warranty card. The User may report the need for service interventions to the Guarantor (Helpline +48 85 711 94 54 ext. 17, www.metalfachtg.pl/zglos-problem-online). The service is available for a fee.
8. Warranty repairs are carried out only by specialist companies with appropriate authorizations (the list of specialist companies is available from the Guarantor - tel. +48 85 711 94 54 ext. 17), and they are 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 contained therein, among others: instructions regarding transport, assembly, operation, operation and maintenance of the device;
2. Inappropriate storage and transport by the User;
3. Damage to device components due to the use of incorrect electrical voltage by the User. If the device is powered directly or indirectly by 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. Unauthorized modifications to the device by the User.

Complaint procedure:

1. If incorrect operation of the device is found, before submitting 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. Reports may be made directly to the Seller or 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 defective 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 business 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 place, at the place of installation of the device, or at the Guarantor's plant or a specialist company performing activities on behalf of the Guarantor.
9. Any 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 and 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:

METAL-FACH Technika Grzewcza Sp. z o. o .
 Street Sikorskiego 66
 16-100 Sokółka
 NIP 545-182-60-12

Product name and purpose:

Steel central heating boiler for solid fuel with automatic fuel charging.

Type: SEG ECO | SEG EKO PLUS

Factory number:

Year of production:

Reference documents:

1. Ecodesign requirements for energy-related products - Commission Regulation (EU) No 2015/1189
2. Electromagnetic Compatibility Directive -2014/30/EU
3. Directive 2006/42/EC Machinery.
4. Directive 2010/30/EU labeling of energy-related products - Commission Regulation (EU) No 2015/1187

Technical Documentation:

1. Standard PN-EN 303-5:2012 Solid fuel heating boilers with manual and automatic fuel charging with a nominal power of up to 500 kW.
2. PN EN ISO 12100:2012 Safety of machines Basic concepts, general design principles Part 1: Basic terminology, methodology.
3. PN EN 1708-1:2010 Welding Basic solutions for steel welded joints Part 1: Pressure elements.
4. PN EN ISO 9606-1:2014-02 Welding Examination of welders Constantly.
5. PN EN 60335-1:2012 Household and similar electrical equipment Safety in use Part 1: General requirements.
6. PN EN 60335-2-102:2006/A1:2010 - Household and similar electrical appliances - Safety in use - Part 2-102: Particular requirements for appliances burning gas, oil and solid fuels and having electrical connections.
7. PN EN 61000-6-2:2008 - Electromagnetic compatibility (EMC) - Part 6-2: General standards - Immunity in industrial environments
8. PN EN 61000-6-3:2008/A1:2012 Electromagnetic compatibility (EMC) - Part 6-3: General standards - Emission standard for residential, commercial and light industrial environments.

The product is
 marked with the
 following symbols:

Approvers:

Place: Sokółka, Date: 11/2022



DYREKTOR
 PRODUKCJI

Julian Żukowski
 Julian Żukowski

Jacek Kucharewicz
 PREZES ZARZADU
 Jacek Kucharewicz

Production director

Chairman of the Board

Warranty Card

Central heating boiler with power [kW]: _____ Type: _____

Number: _____

Central heating boiler production date: _____ Boiler sales date: _____

Buyer's name and surname: _____

Buyer's address

Date of purchase and stamp

Customer's signature

I accept the warranty conditions

√

Personal data provided in this form are processed by Jacek Kucharewicz running a business under the name METAL-FACH Technika Grzewcza Sp. z o. o., 16-100 Sokółka, ul. 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 August 29, 1997 on the protection of personal data (consolidated text: Journal of Laws . 2014, item 1182). The User has the right to access the content of his or her personal data, to correct it, to submit a request to discontinue data processing and to object to data processing in cases indicated by law. All correspondence regarding the processing of personal data should be sent to the following address: METAL-FACH Technika Grzewcza Sp. z o. o., 16-100 Sokółka, ul. Sikorskiego 66. Providing personal data is voluntary. In accordance with the Act of August 29, 1997 on the protection of personal data (uniform text: Journal of Laws of 2014, item 1182), we would like to inform you that personal data provided in this form will be protected against access by unauthorized persons.

The complaint

Customer data

Central heating boiler data

First name and last name

Product name:

Address

Model:

Telephone

No. factory

No. purchase document:

Guarantee period

Includes | Does not include

No. debt settlement
document:

Detailed description of the fault:

Seller's signature

Conditions for starting the complaint repair procedure:

1. Confirmation by the point of sale of payment for the complained product constitutes 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 to the service team, or failure to fulfill points 1 or 2 (each commenced working hour of the service technician PLN 70 net, travel PLN 1 net/km both ways).
4. A legible signature of the applicant confirms that he or she has read the basic terms and conditions of complaint procedures.

Legible signature of the person submitting the complaint

Signature of the person accepting the complaint

I declare that I have read the warranty conditions based on which I am submitting a complaint and I consent to the processing of my personal data for the purposes of the complaint process in accordance with the Act of August 29, 1997 on Personal Data Protection (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 of the user's written report of damage on the manufacturer's complaint form.

METAL-FACH Heating Technology

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Report on the first boiler start-up **(Copy of the central heating boiler owner)**

In order to verify the purchase and recognize the validity of the warranty, a report must be sent within 30 days from the date of first launch. These activities can be performed by:

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

Boiler	Fulfills	Does not meet	Comment
The conditions contained in the Operation and Maintenance Manual in the chapter "Requirements for the boiler room and boiler installation" are met.			
The conditions contained in the Operation and Maintenance Manual in the chapter "Connecting the boiler to the chimney" are met.			
Central heating system.	Fulfills	Does not meet	Comment
The conditions contained in the Operation and Maintenance Manual in the chapter "Connecting the boiler to the heating installation" are met.			
The conditions contained in the Operation and Maintenance Manual in the "Requirements for the expansion vessel " chapter are met.			
There is no other source of heating. If so, how does it affect the operation of the boiler?			
Protection of the system against freezing.			
Connecting elements with the electrical installation	Fulfills	Does not meet	Comment
The conditions contained in the Operation and Maintenance Manual in the chapter "Connecting the boiler to the electrical installation" are met.			
Equipment test	Fulfills	Does not meet	Comment
The sensors are located in the right place.			
Sensor readings are consistent with the actual condition.			
The direction of fan rotation is correct.			
Opening the fan flap using the force of the airflow.			
The direction of rotation of the screw is correct.			
Boiler start-up	Fulfills	Does not meet	Comment
The tightness of the boiler's hydraulic connection to the installation is maintained.			
Firefighter system test (if installed).			
Checking the connection of the fuel feeder to the boiler.			
Filling the fuel tank with fuel.			
Checking the fuel supply through the feeder.			
Fire up the boiler in accordance with the "Boiler start-up" chapter.			
Initial adjustment of boiler operating parameters settings.			
Final adjustment of the boiler operating parameters settings.			
Confirmation of user training in the field	Yes	No	Comment
User instructions on how to safely operate the boiler are			

METAL-FACH Heating Technology

included in the "Remember when using the boiler" chapter.			
Instructions on how to use the boiler regulator and how to regulate the combustion process.			
Fan speed settings.			
Boiler maintenance, chapter "Cleaning and maintenance of the boiler"			
Required fuel quality, chapter "Fuel"			
Procedure in emergency cases, chapter "Examples of device failure"			

Launch date	Boiler name	Boiler power [kW]	Factory number
Name and surname of the service technician		Owner's name and surname	
Address		Address	
Company stamp		Contact number	
Signature		Signature	

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Report on the first boiler start-up **(Copy of METAL-FACH Technika Grzewcza)**

In order to verify the purchase and recognize the validity of the warranty, a report must be sent within 30 days from the date of first launch. These activities can be performed by:

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2. A letter - in which a copy of the report will be sent to METAL-FACH Technika Grzewcza Sp. z o. o., the company's address is at the end of the Technical and Operational Document.

Boiler	Fulfills	Does not meet	Comment
The conditions contained in the Operation and Maintenance Manual in the chapter "Requirements for the boiler room and boiler installation" are met.			
The conditions contained in the Operation and Maintenance Manual in the chapter "Connecting the boiler to the chimney" are met.			
Central heating system.	Fulfills	Does not meet	Comment
The conditions contained in the Operation and Maintenance Manual in the chapter "Connecting the boiler to the heating installation" are met.			
The conditions contained in the Operation and Maintenance Manual in the "Requirements for the expansion vessel " chapter are met.			
There is no other source of heating. If so, how does it affect the operation of the boiler?			
Protection of the system against freezing.			
Connecting elements with the electrical installation	Fulfills	Does not meet	Comment
The conditions contained in the Operation and Maintenance Manual in the chapter "Connecting the boiler to the electrical installation" are met.			
Equipment test	Fulfills	Does not meet	Comment
The sensors are located in the right place.			
Sensor readings are consistent with the actual condition.			
The direction of fan rotation is correct.			
Opening the fan flap using the force of the airflow.			
The direction of rotation of the screw is correct.			
Boiler start-up	Fulfills	Does not meet	Comment
The tightness of the boiler's hydraulic connection to the installation is maintained.			
Firefighter system test (if installed).			
Checking the connection of the fuel feeder to the boiler.			
Filling the fuel tank with fuel.			
Checking the fuel supply through the feeder.			
Fire up the boiler in accordance with the "Boiler start-up" chapter.			
Initial adjustment of boiler operating parameters settings.			
Final adjustment of the boiler operating parameters settings.			
Confirmation of user training in the field	Yes	No	Comment
User instructions on how to safely operate the boiler are			

METAL-FACH Heating Technology

included in the "Remember when using the boiler" chapter.

Instructions on how to use the boiler regulator and how to regulate the combustion process.

Fan speed settings.

Boiler maintenance, chapter "Cleaning and maintenance of the boiler"

Required fuel quality, chapter "Fuel"

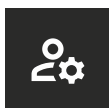
Procedure in emergency cases, chapter "Examples of device failure"

Launch date	Boiler name	Boiler power [kW]	Factory number
Name and surname of the service technician		Owner's name and surname	
Address		Address	
Company stamp		Contact number	
Signature		Signature	

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