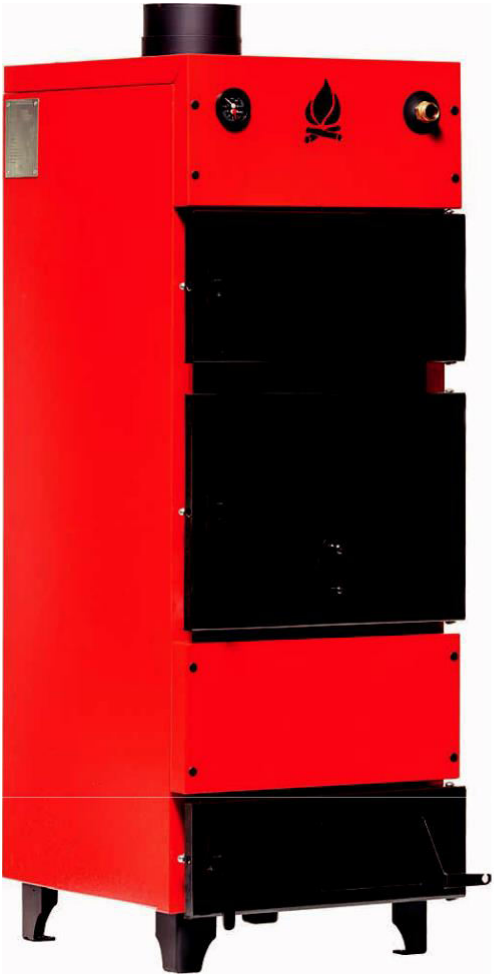
INSTALLATION AND
USER MANUAL

SOLID FUEL BOILER



MIKLOS STEEL STOVE
www.miklossteel.ro

WARNING! STRICTLY COMPLY!

 In order to protect against acid condensation and to avoid the formation of tars that attack the boiler body, it is mandatory to correctly install some of the following equipment: thermal mixing valve or thermostatically controlled recirculation pump (bypass pump)

 The working temperature of the boiler must be in the range of 70 - 85 °C and the minimum return temperature must be 60 °C.

 Use dry fuel (2 year old wood), quality fuel with max. 20% moisture and non-wood biomass with max. 10% moisture.

 When sizing the boiler, the correct calculation of the heat demand must be taken into account, do not oversize the boiler!

 The chimney must be properly dimensioned with a minimum flue draught of 20 Pa, insulated, fitted with a condensation collection system and a viewing glass.

We do not recommend using a chimney made of uninsulated brick or pipe.

 The maximum working pressure of the boiler is **2 bar**!

Failure to comply with the above requirements will result in loss of warranty!!!

COMPLY WITH THE OPERATING INSTRUCTIONS!

USE ONLY RECOMMENDED FUELS!

DO NOT USE THE BOILER AS AN INCINERATOR!

DO NOT MAKE ANY MODIFICATIONS TO THE APPLIANCE!

WHEN INSTALLING THE BOILER IT IS NECESSARY TO COMPLY WITH ALL APPLICABLE LOCAL, NATIONAL AND EUROPEAN REGULATIONS (REGULATIONS, STANDARDS, TECHNICAL SPECIFICATIONS, etc.)!

Dear buyer!

You have become the owner of an ECO solid fuel boiler, an innovative and modern product with outstanding qualities and performance for central heating with hot water.

We are convinced that you have made a very good decision in choosing a boiler with exceptional technical parameters. This product can give you maximum satisfaction if you operate the boiler according to the recommendations in this manual. You are assured of a long service life if the boiler is commissioned by authorised personnel.

In order to achieve faultless operation, please study the boiler book very carefully and follow the instructions exactly!

This manual covers the assembly, installation, operation and maintenance of the product.

By studying the instructions carefully you will acquire important information to ensure that this boiler can be operated in maximum safety, thus achieving optimum performance and a long service life. In order to introduce the product on the Romanian market, and in order to comply with the essential safety requirements laid down in European directives, the boilers have been assessed by the **INTERTEK Certification Body**.

Miklos Steel Team

SERVICE CENTER CONTACT DETAILS MIKLOS STEEL SRL

Loc. Săcele, Str. P-ţa Libertăţii nr. 12, Braşov county, postal code 505600

Phone: 004-0368-80 80 80, e-mail: service@miklossteel.ro,

www.miklossteel.ro

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Please read the manual before purchasing . If you purchased this product you agree with the terms and conditions of this manual.

1. OVERVIEW

Important reminder:

- This manual is an integral and essential part of the product and must be handed to the user. It must be kept for the duration of the product's operation and handed over to the owner if the product changes ownership.
- Read this manual carefully and keep it in a safe place for future use.
- After unpacking, check and inventory the components so that they are present and intact. Packaging components must not be spilled into the environment or left within the reach of children. Before installing the ECO boiler, read the chapter "Installation instructions" carefully.
- Installation must only be carried out by authorised personnel in accordance with the regulations in force (STAS 7132-86; STAS 3417-85; Normative I 13-94; Normative I 13/1-96; PT C 9-2010; PT A1-2010; ISCIR collection; GP 051-2000; P 118-99). All indications in this manual must be observed, any deviation may cause damage without liability on the part of the manufacturer.
- In the event of malfunction of the boiler, switch it off. Never use the boiler if it is not working properly. Never use the boiler with removed or defective safety devices. In the event of a fault, only original components should be used for replacement.
- This boiler is intended for the use for which it was designed. Any other use will be considered improper.
- In order to guarantee the efficiency and safety of the boiler's operation, it is recommended that the boiler be checked annually by specialised and authorised personnel in accordance with the manufacturer's conditions.
- Before starting up, using or carrying out any maintenance work, read the instructions in this manual carefully. Most accidents result from failure to follow simple safety precautions and operating procedures.
- Never carry out cleaning or maintenance operations while the boiler is in use.
- When the boiler is first put into operation, an unpleasant smell or smoke may appear, this is normal and will disappear after a short period of use.
- The room in which the boiler is installed must be clean, dry and well ventilated at all times.
- It is forbidden for children or persons of mentally disabled persons to operate the boiler. The boiler may only be operated by trained adults and children may not be left unattended around the boiler.
- Do not touch the hot boiler with unprotected hands, use gloves. Caution! Hot parts of the boiler can cause serious burns.
- It is forbidden to use the boiler empty or partially filled with water. Using the boiler empty or partially filled with water can lead to explosion. Periodically check the water pressure in the heating system. Refill, filling the boiler with heating medium only with the boiler switched off and cold.
- It is forbidden to store flammable objects or materials on or near the boiler.
- The body of the boiler must be connected to a protective neutral to ground it and prevent the danger of electrocution in the event of failure of electrical components.

TO NOTE

It is excluded any liability of the manufacturer for damages caused by errors of installation or use and non-observance of the manufacturer's instructions.

- The fuel used must be with max. 20% humidity, straw briquettes or non-wood biomass, with calorific value: 4000 - 4400 Kcal/Kg. humidity max. 10%.
- Soot, tar and acid condensate may form during the combustion process. In order to reduce the amount of these, the boiler must be operated at optimum parameters (the temperature of the thermal agent in the boiler must be 75 - 85 °C and the temperature of the return thermal agent at least 60 °C
- The boiler can be located on the same level as the heating rooms or in the basement, and can operate with gravity (natural) or forced (pumped) circulation. The boiler may not be placed in living rooms or in access corridors.
- Sufficient space must be provided for fuel storage in strict compliance with fire regulations.
- Flooring, ceilings and walls must be made of fireproof materials in accordance with current standards.
- The plant rooms must be provided with fresh air intake with a section of 400 cm² . Mechanical air evacuation is not allowed.
- The flue gas ducts must be well sealed and insulated, have a minimum cross-section according to the "technical data" table, and the chimney must be high enough to ensure a correct boiler draught.
- The boiler shall be installed with an open or closed expansion vessel of appropriate size.
- A closed expansion vessel may be used if the operation of the recirculation pump is ensured by fitting a UPS for central heating plants (it is an uninterruptible power supply for central heating plants, automated, which ensures the operation of the pump in case of power cuts and the boiler can be protected against overheating) and fitting a second pressure valve on the installation, in addition to the one to be fitted on the boiler.
- No shut-off or throttling devices shall be fitted on the safety pipes connecting the boiler to the expansion vessel.
- Periodically the flue gas flue shall be cleaned through the upper door. Flue gas cleaning shall only be carried out when the boiler is switched off and allowed to cool.
- By construction the boiler has an ash drawer. Ash must be discharged from the ash pan whenever necessary (overloading with ash reduces the air supply to the boiler). This operation should only be carried out when the boiler is off and cold.
- The installation and commissioning will be carried out by ISCIR authorized personnel (according to PT C9/2010), complying with the requirements of the technical book of the product.
- ECO boilers in operation must be supervised. ECO boilers are designed for hot water heating systems. They are used for gravity or forced circulation (pump) heating of houses, workshops, domestic buildings, halls, greenhouses.
- The boilers are of different power, and form a family of products from which you can choose the boiler with the optimum power for your needs.

These boilers were built for burning solid fuels, for example:
- firewood, waste wood (not chipboard), sawdust briquettes, straw briquettes, coal (not COKE).

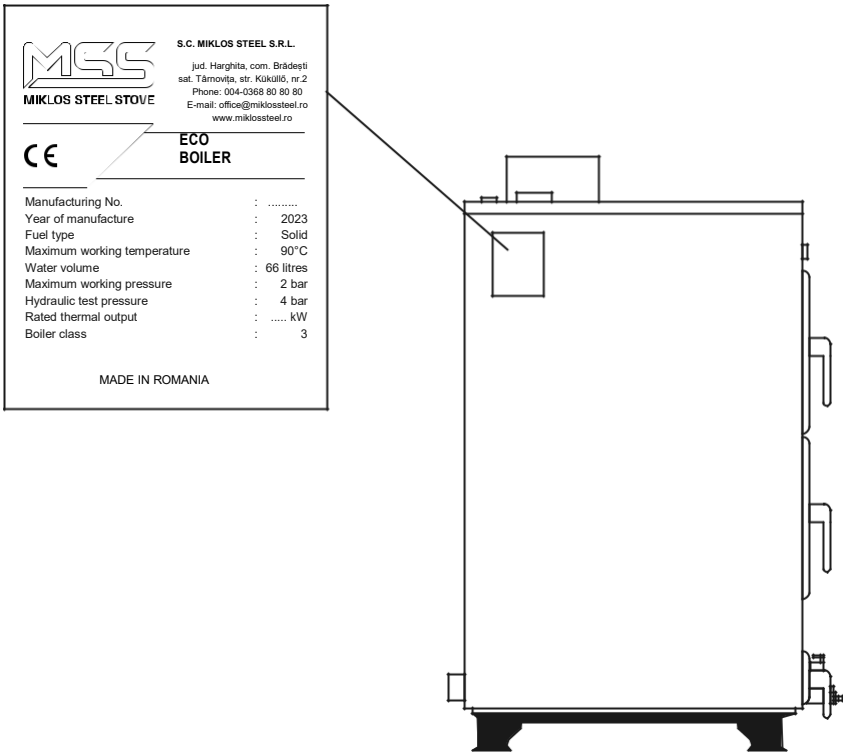
The boilers are simple to use, with large feed doors and water-cooled grate.

Carrying out minimum regular maintenance ensures that the boiler operates in optimum parameters.

THE INSTALLATION IS NOT FOR USE WITH COKE!

1.1. APPLIANCE IDENTIFICATION

Each boiler is provided with an identification plate

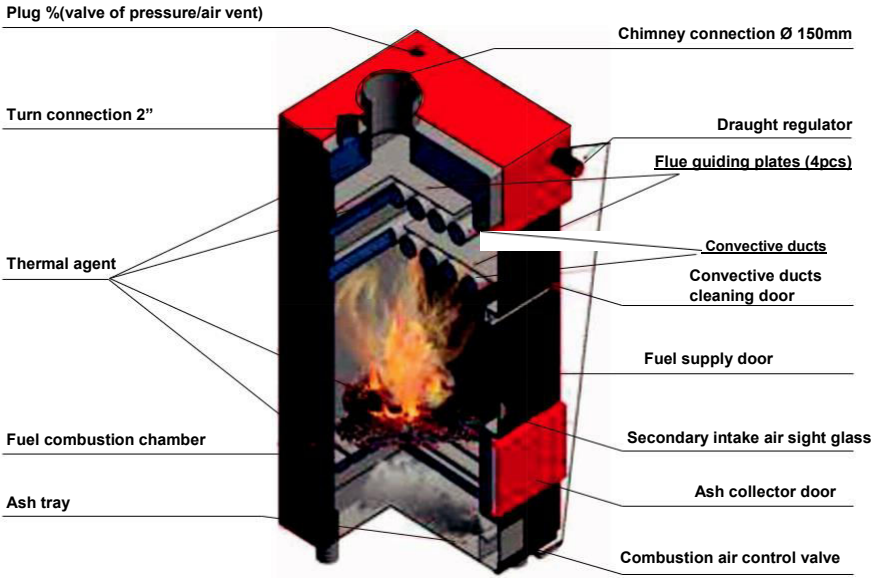


2. TECHNICAL DATA

Technical data of ECO type boilers:

Model	ECO 27 kW	ECO 37 kW	ECO 47 kW
Rated thermal output [kW]	27	37	47
Weight [kg]	215	272	330
Height [mm]	1470	1470	1470
Width [mm]	480	530	580
Depth [mm]	540	590	660
Water volume [l]	66	76	88
Furnace dimensions (H x W x D) [mm]	500x380x400	500x430x450	500x480x520
Maximum working pressure		2 bar	
Test pressure		4 bar	
Maximum temperature of thermal agent		90 °C	
Efficiency (solid)		>80%	
Average flue gas temperature		225 °C	
Recommended fuel	Straw briquettes Biomasa	with max 10% humidity with max. 20% humidity	
Combustion chamber wall thickness		5 mm	
Heat exchanger wall thickness		3 mm	
Required draught at base of chimney		20±2 Pa	
Chimney connection		Ø 150 mm	
Turn/return connection		2”	
Temperature sensor connection		1/2”	
Draught regulator connection		3/4”	
Filling/drain connection		1/2”	
Draught regulator, thermometer		yes	
Distance reported to adjacent combustible material			
Rear		400 mm	
Left/right side		400 mm	
Ceiling		1500 mm	
Front	1000 mm		
Floor (flammable)	800 mm		

3. CONSTRUCTIVE PRESENTATION



3.1. BOILER BODY

The boiler body consists of an outer and an inner jacket, which is made of welded sheet steel. The boiler has three doors for easy use. The middle door is used to feed fuel to the furnace, which is fitted with a sight glass to regulate the secondary air.

The lower door is used to remove ashes and slag produced during operation, while the air required for combustion can be adjusted via the inlet flap.

The combustion air inlet flap is made in such a way that it is possible to fit the draught regulator, whose sensor is connected to the 3/4" connection. Installation is recommended to be carried out by a specialist! We recommend placing the boiler on a steel plate to avoid the ash falling on the floor when cleaning the boiler.

3.2. GRATES

The water-cooled grate is made of pipe suitable for the size of the boiler and is of high strength.

3.3. JACKET

The boiler body has an outer shell of thermal insulation, which is protected with steel sheeting, secured with screws.
For the purpose of aesthetic presentation of the boiler, the boiler body is painted with heat resistant paint and the outer jacket with electrostatic powder paint.

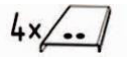
3.4. ACCESSORIES

The boiler is supplied with the following accessories:

Instructions for installation, commissioning, use and maintenance 1 pc.

Automatic draught regulator 1 pc

Termomanometer 1 pc

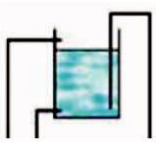


Smoke guide plates 4 pcs

Ashtray 1 pc

3.5 ACCESSORIES RECOMMENDED AS MANDATORY

Safety relief valve 2 bar (2 pcs)



- Open expansion vessel **or**

- Open expansion vessel

- Recirculation pump and/or circulation pump **or**

- Thermal mixing valve

TV 60ºC(25, 32, 40)- on return

TV 72ºC(25, 32, 40)- on turn

- 2-way thermostatic cooling valve **or**

- Thermal power plant UPS

4. INSTALLATION, COMMISSIONING

The boiler may only be installed in rooms in which there is a possibility of connection to a chimney of suitable size and to the heating system. Within 1.5 m of the boiler the floor and walls must be made of fireproof material.

The installer/contractor is responsible for the correct installation of the boiler.

The manufacturer **IS NOT responsible** for damage caused by improper installation/operation of the boiler. The boiler must be protected (against overheating and overpressure) in order not to exceed the permissible operating parameters.

WARNING!!! The maximum working pressure of the boiler is 2 bar!

4.1. CHIMNEY AND REQUIRED DRAUGHT

Recommendation as mandatory:

- The chimney should be double insulated (stone wool is recommended), equipped with a condensate collection system (drip tray) and inspection door. The flue shall be provided with manholes and inspection ports which close tightly by means of heat-insulating metal covers or doors, located at the beginning of the flue at changes of direction. A manhole with a watertight door for inspection and cleaning shall be provided at the base of the flue and a drain for condensate shall be provided at the bottom of the flue.

- We do not recommend the use of a chimney made of brickwork (especially uncoated) or uninsulated pipe (to prevent the flue gas temperature from falling below the dew point temperature and to ensure the necessary draught)

- It is not recommended to extend the masonry chimney through uninsulated sheet metal chimneys, as they cause a cold zone which prevents draught

- The minimum height of the chimney (thermally insulated) should be 8,5 m from the floor. When determining the correct height, the boiler power, roof slope, distance from the roof ridge, positioning in relation to other tall buildings and even climatic conditions are taken into account.

- The chimney shall be insulated from combustible parts of the building in accordance with the relevant technical regulations, so that it does not lead to fires due to the transmission of heat or escape of hot gases, flames, sparks.

- If the chimney passes through combustible, i.e. temperature-sensitive materials, the protective measures in accordance with STAS 6793-86 and standard P118-99 must be complied with.

- Before connecting the boiler, the chimney must be checked and cleaned by a specialist.

- We suggest that you call or consult a specialist to connect the boiler to the chimney. The connecting elements (rosette, pipes) must be fitted tightly, durably, to avoid leakage of smoke and in such a way that they do not block the chimney passage section.

- The pipes must be at least the diameter of the boiler tube.

- The use of a chimney specific to each boiler is recommended. If the same chimney is used for more than one heater, the size of the chimney must allow for this. The check must be carried out by a specialist.

- The connection of the boiler to the chimney must allow for regular checking and cleaning. The connection must be made on the shortest possible route between the boiler and the chimney. It is recommended that horizontal pipes should not exceed 1.5 m in length and should slope upwards towards the chimney by at least 15°. The ducts (flue gas pipes) are inserted into each other in the direction of the flue gas flow. At the inlet to the chimney, the flue pipe or elbow shall be inserted into a wall flue pipe. The wall pipe must not extend beyond the inner edge of the chimney. It is recommended that one of the flue pipes is fitted with a viewing window.

- It is prohibited to connect appliances that run on gaseous fuels to the chimney to which the boiler is connected.

- Rooms fitted with well-sealed doors and windows cannot in all cases ensure a proper air supply to the boiler. Fresh air for combustion can also be supplied from other rooms or from outside. In these cases you must ensure a constant supply of fresh air by repeated airing, or by equipping the room with a separate air intake. Contact a specialist for useful advice in this respect.

Volume of air required for combustion:

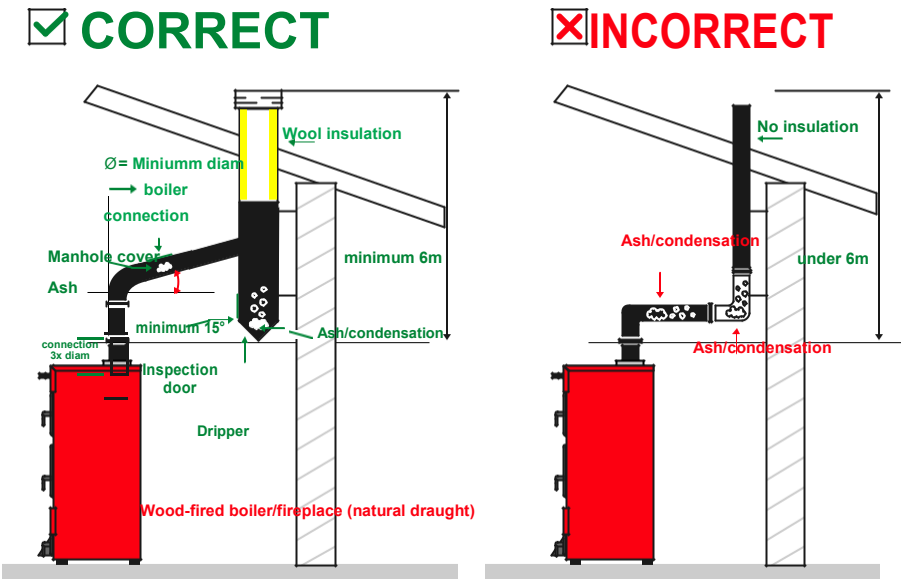
ECO 27	**40 m3/h**
ECO 37	**60 m3/h**
ECO 47	**80 m3/h**

- Exhausters in the same room as solid fuel power plants can cause draught problems.
- **It is forbidden to pass the flue gas duct through other rooms,** right-angled bends should be avoided. No more than one curved elbow shall be used to connect the boiler to the chimney. The first diverter or elbow shall be fitted at a minimum distance of 3 times the diameter of the chimney connection.

The chimney must be constructed in accordance with the regulations in force according to STAS 6793 and STAS 3417 by authorised personnel.

- **Warning! Insufficient draught chimneys will worsen the performance of the boiler, on the contrary, a large draught will cause thermal inertia phenomena!**

CONNECTION TO THE CHIMNEY



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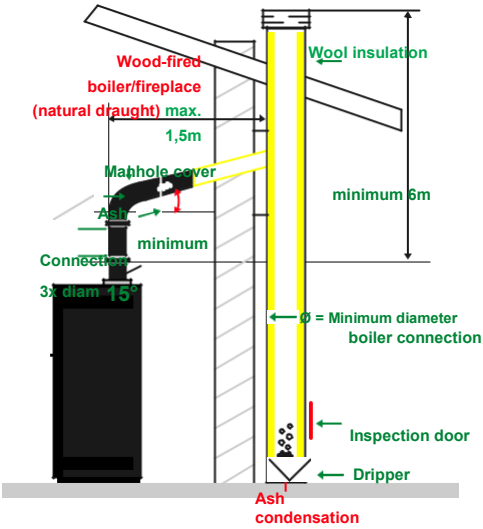

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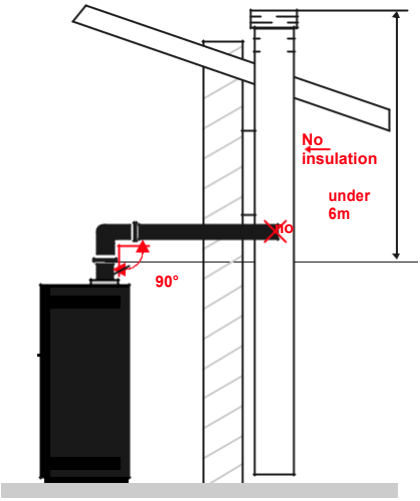

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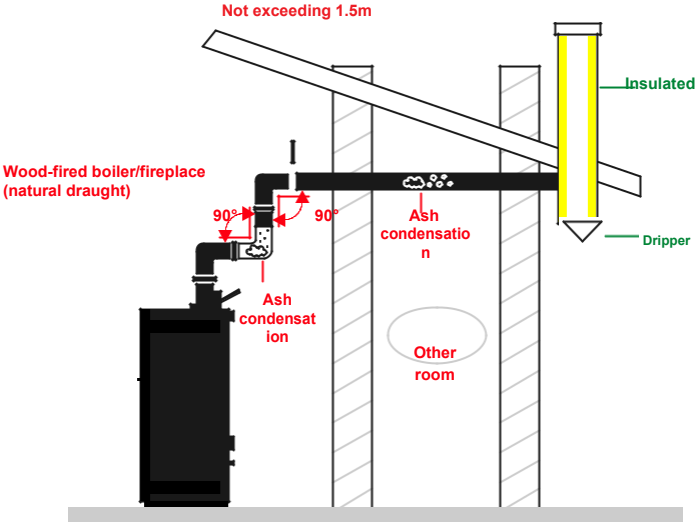
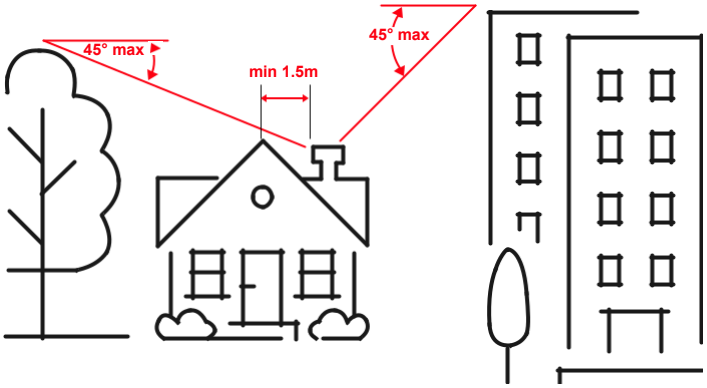
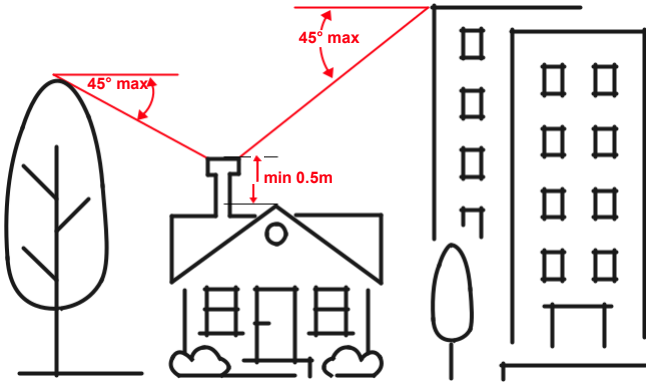


CHIMNEY LOCATION:





4.2. HEATING SYSTEM

The hot water heating system connected to the boiler - based on the plans of the installation engineer - is recommended to be done by a specialist. The boiler can be connected to a gravity or forced (pump) system. The boiler can be connected to an open or closed system with the restriction that the hydrostatic pressure does not exceed 2 bar. Connection to the plant is via two 2" plugs.

Closed system

If the boiler is connected to a closed system, the following components must be fitted:

- Safety relief valve (2 pcs 2 bar valves)
- Closed expansion vessel
- Recirculation pump
- Thermal safety valve (where there is cooling coil and mains water) or UPS for boilers, ensuring the operation of the pump for recirculation of the thermal agent in case of power failure.

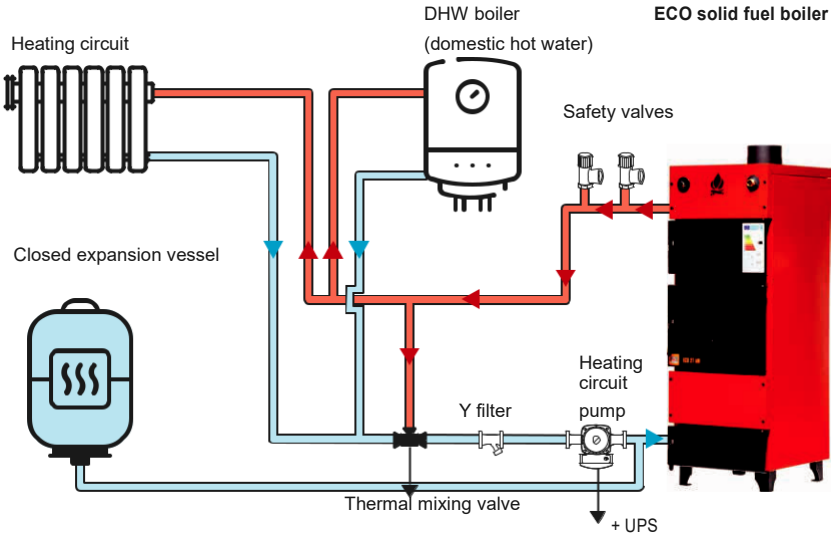
The closed expansion vessel should be sized according to the amount of water in the plant and boiler to take up water and system expansions.

Closed vessel capacity calculation:

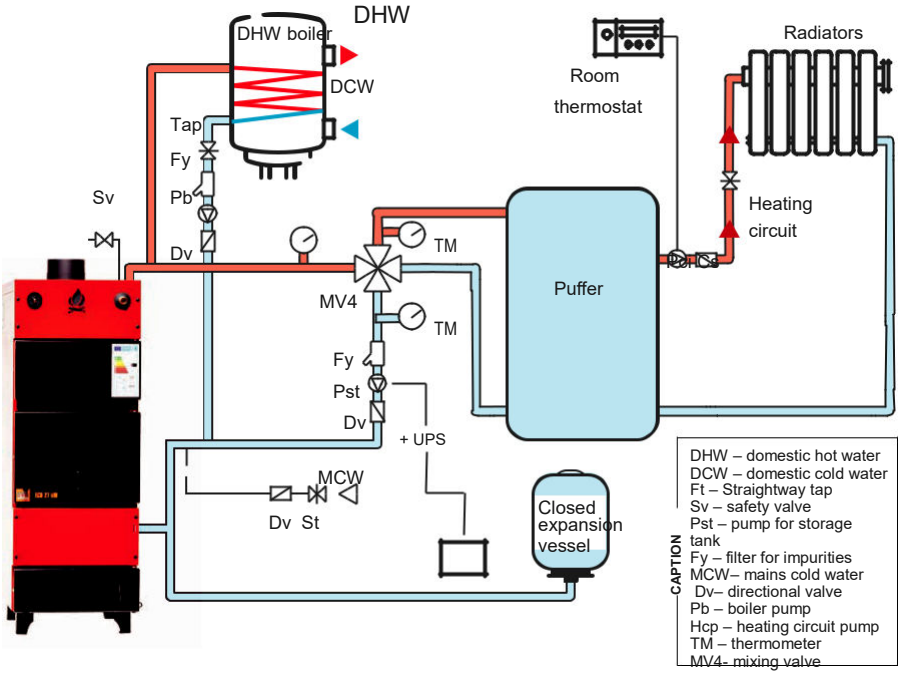
Q= v x (P1 + B) / B x 1,3 ; where:
Q – vessel capacity
P1 – hydrostatic pressure [kPa]
B – pressure difference (50 kPa)
v – volume of water in the system after heating v = G x Δv
G – mass of water [kg] 1,3 – safety factor Δv – increase in volume of water at a given temperature (e.g. at Δt = 80ºC Δv =0,0355 [l/kg])

At least once a year the integrity of the expansion vessel "membrane" and the air pressure in the expansion vessel should be checked.

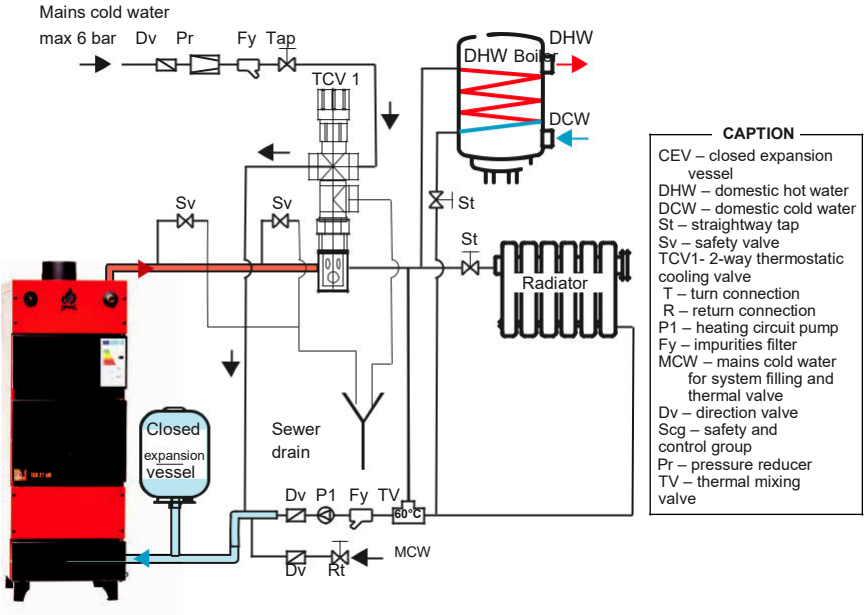
4.2.1. SIMPLIFIED INSTALLATION DIAGRAM, CLOSED HEATING SYSTEM WITH ACM BOILER



4.2.2. INSTALLATION DIAGRAM OF CLOSED HEATING SYSTEM WITH ACM PREPARATION BOILER AND PUFFER



4.2.3 HYDRAULIC CONNECTION DIAGRAM WITH CLOSED EXPANSION VESSEL, 2-WAY THERMOSTATIC COOLING VALVE AND BOILER WITH STORAGE TANK (ONLY IF A PERMANENT WATER SUPPLY FROM THE MAINS IS PROVIDED - EXCLUDING HYDROPHORE)



Open system:

The open expansion vessel shall be mounted at the highest point of the plant, but not more than 20 m in height, measured from the water inlet pipe to the boiler and as close as possible to the vertical axis of the boiler. It shall be thermally insulated and protected against frost.

The bottom of the expansion vessel shall be at least 1,5 m above the highest level of the plant;

If the boiler is connected to an open system, the following components must be fitted:

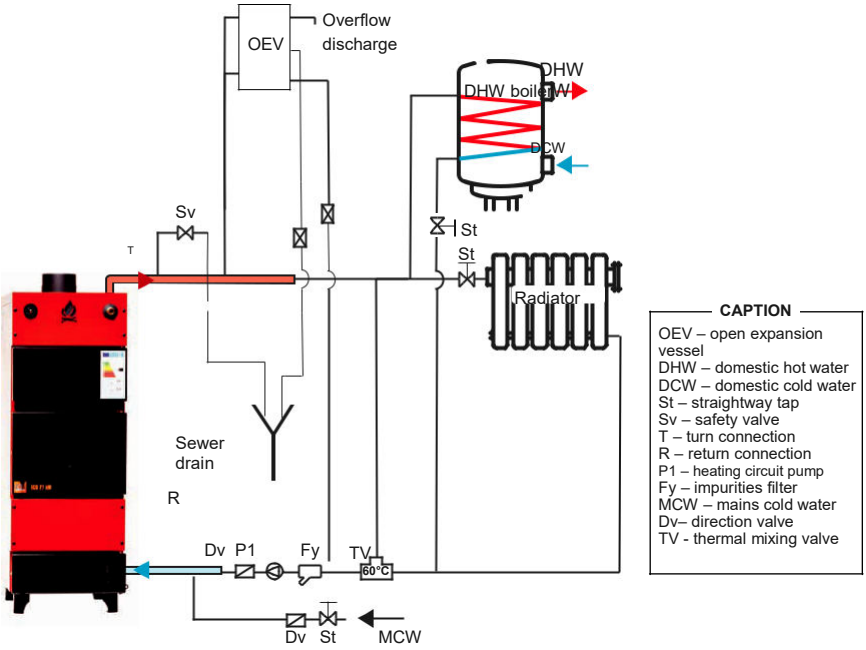
- Safety relief valve (at least a 2 bar valve)
- Open expansion vessel
- Recirculation pump

Hydraulic balancing of the plant is necessary to ensure that all heating appliances are supplied in optimum conditions. This is achieved by:

- the choice of pipe routes;
- sizing the pipes;
- the use of circulation pumps.

The open expansion vessel is absolutely necessary in installations with gravity circulation (thermosiphoning).

4.2.4. HYDRAULIC CONNECTION DIAGRAM WITH OPEN EXPANSION VESSEL AND BOILER WITH STORAGE TANK



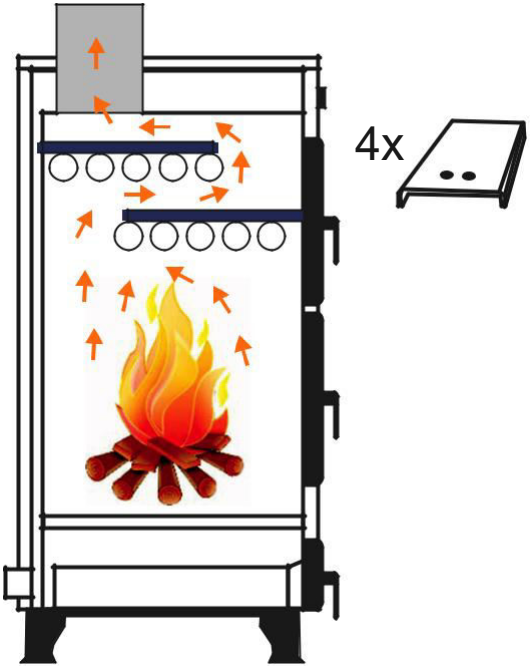
4.2.5. ENSURING THE MINIMUM TEMPERATURE ON THE BOILER RETURN:

It is important that the temperature of the thermal agent on the return does not fall below 60°C. Below this temperature the phenomenon of tar deposition occurs.

In order to avoid this phenomenon, it is recommended to install a mixing valve or by-pass pump with thermostat and/or a puffer (storage tank). Consult an authorised installer for this.

4.2.6. LAYING OF GUIDE PLATES AND CHIMNEYS

Fitting the 4 guide plates to the water jacket:



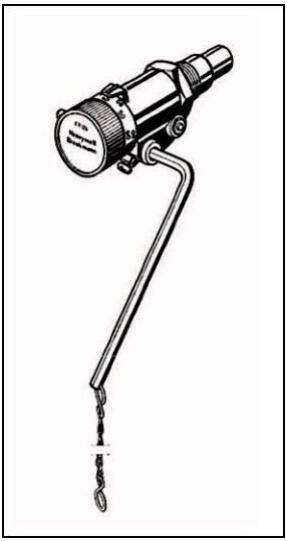
4.3. HYDRAULIC CONNECTION (WATER FILLING)

After installation the system must be filled with water through the filling/drain connection. The filling tap is connected to the boiler on the bottom rear side via the ¾" connection. The filling tap can be used to fill or drain the water from the system. Before starting to fill the installation, the radiators valves must be opened. Filling is started slowly and is considered full when water appears at the expansion tank overflow. In the case of closed system installations after water has appeared at the aerators, the aerators must be closed and filling continued until the desired pressure is reached. Filling of the system is completed by closing the tap at the water connection, after which the boiler filling tap is closed.

It is recommended that the first filling is carried out by an authorised installer!

5. THERMOSTATIC DRAUGHT REGULATOR

The boiler operation is controlled and regulated by the thermostatic draught regulator. The



draught regulator automatically controls the combustion air intake into the boiler, thus controlling the intensity of the fire to keep the water at the desired temperature, resulting in fuel savings and increased autonomy.

Installation instructions:

Screw the ¾" fitting into the hole on the boiler. Tighten and secure carefully so that the arrow is above and in the middle. Insert the retaining ring into the slot on the thermostat body, install the hex handle into it, and tighten the retaining screw. Install the chain into the hex handle. If you disassemble the regulator be sure to reassemble it in the same position. Turn the thermostat to 60ºC, lock the hex handle with a slight tilt towards the floor so that the chain is on the same axis as the chain hole in the boiler air inlet flap.

Adjust the length of the chain between the regulator and the boiler air intake flap.

When the boiler reaches a temperature of 60ºC leave a few minutes for the regulator to stabilise and adjust the chain so that the air inlet flap is closed and the chain is stretched. After this you can adjust the thermostat to the desired temperature. If the boiler has not passed a minimum value (approx. 30ºC) and the regulator is set to 60ºC, the chain must be stretched and the air inlet flap opened.

6. EXPLOITATION

The correct use of the boiler is more than a simple obligation to fire the boiler, it also requires supervision, cleaning and maintenance as well as regular checks of the central heating system. Before making the fire make sure that the installation is completely filled with water and check that the taps are in the correct position. In the case of pumped heaters, check that they are powered. Failure to do so may cause the boiler to malfunction, as if more cold water accidentally enters a heated boiler.

6.1. IGNITION USING SOLID FUEL

Starting a fire in the boiler can be done in the following ways:

a) Open the furnace door (feed door), and above the pipe grate insert a sufficient amount of fuel (chips) and pieces of paper. Light the fuel and wait a few minutes for the amount of fuel introduced to burn and to form the bed of fire. After the bed of fire has formed, the furnace is filled with briquettes or wood (load a maximum of 60% of the furnace volume) and the doors are closed.

b) In the case of top ignition, which is practised for longer burning, fill the boiler furnace with fuel, max. 60% of volume. Place a sufficient quantity of fuel (wood chips) and pieces of paper on the layer of wood and/or briquettes and ignite. After the fuel has been ignited, close the fuel door and supply the required primary air through the adjustable orifice and the grates. Adjust the thermostatic draught regulator to the desired boiler water value, recommended working values are 75-85 ºC.

From this point on, the boiler is operated by the draught regulator according to the temperature of the thermal agent.

The combustion air absorbed through the flap on the ash pan door is distributed under the fireplace and directed between the pipes into the flame formation zone.

The boiler does not require any further intervention other than to feed the fuel and remove the combustion residues.

Depending on the quality of the fuel, more ash may form after combustion and must be removed periodically to ensure efficient combustion.

CAUTION! The use of gasoline or other flammable liquids is strictly prohibited!

Recommended solid fuel consumption per hour by boiler type

Name	ECO 27	ECO 37	ECO 47
Wood (kg)	6-7	9-10	11-12
Sawdust briquettes (kg)	5-6	7-8	9-10
Straw briquettes (kg)	6-7	9-10	11-12
Briquettes from sunflower residues (kg)	5-6	7-8	9-10

- Firewood with 20-22% moisture content, calorific value 13-14 MJ/kg
- Sawdust briquettes, moisture 8-10%, calorific value 18-19 MJ/kg,
- Straw briquettes, moisture 8-10%, calorific value 14-15 MJ/kg,
- Sunflower residue briquettes, moisture 5-8%, calorific value 17-18 MJ/kg.

The use of higher quantities of these fuels may cause instabilities in the boiler operation.

7. MAINTENANCE

7.1 SOLID FUEL

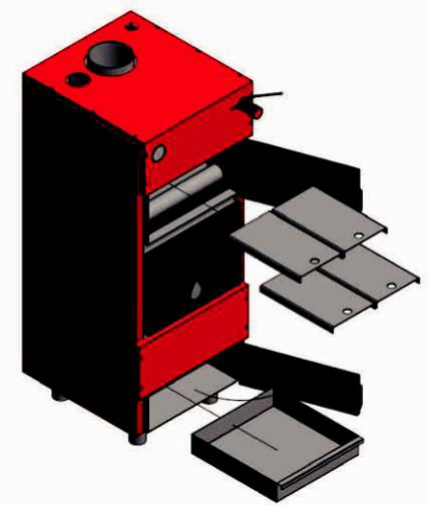
A properly designed and impeccably executed hot water central heating system does not require any special maintenance, but it is necessary to ensure regular cleaning of the boiler.

With the help of a scraper and a brush it is easy to clean the deposits on the inside wall of the boiler and on the heat exchanger even on a daily basis. For maximum efficiency, the boiler should be cleaned every 2-3 days at most.
The grate pipes at the bottom of the boiler should also be cleaned of deposits.
During the heating season it is recommended to use a product that removes tar deposits in the combustion chamber and less accessible areas (at least once per heating season).
Before each start-up it is recommended to clean the combustion chamber and the slag collector.

- It is forbidden to store deposits in the boiler room.
- It is recommended to check the water quantity and pressure in the system daily. If necessary, replenish the losses.

The heating power of the boiler depends very much on the quality of the fuel used, but the heating process must also be experienced and practised.

Mounting the 4 guide plates on the water jacket results in the boiler operating at a higher efficiency! (they can be removed for maintenance).
See diagram 4.2.6.



8. BREAKDOWNS

Breakdowns	Possible cause	Remedy
Loud noise during combustion.	air in system	try venting the system.
Smoke leaks near the door.	- loose sealing cord - damaged sealing cord - insufficient chimney draught	- clean the sealing cord in the boiler doors and grease the sealing cord with graphite oil. - replace - check chimney with a specialist
Tar deposits inside the does not combustion chamber, the boiler provide the nominal efficiency, the fuel does not burn completely.	- dirty or rough chimney walls - insufficient chimney draught	- check chimney with a specialist - clean the boiler
The boiler is knocking when fired with coal.	Insufficient air in the furnace, inadequate draught	This is a natural phenomenon that occurs as a result of the build-up of flue gases. Adjust the draught to provide more air for combustion.
Boiler does not reach the set temperature Low useful output	- Insufficient water in the system; - pump flow too high; - undersized boiler; - poor fuel quality; - insufficient draught; - air inlet blocked - boiler not cleaned - incorrect ignition	- refill - adjust pump speed; - design problem; - change fuel; - new or cleaned chimney; - cleaning - see chapter "Operation"
High boiler water temperature, but low water temperature in heating elements	- high hydraulic resistance in the heating system - Wrongly mounted mixing boiler thermostat valve between the turn and return of the boiler	- increased pump speed - change of connection position
High water temperature in the boiler and boiler boiling	- oversized boiler, undersized heating elements, undersized water pump - difficult temperature control	- design problem; - pump speed is adjusted; - chimney section too large; - adjustment of combustion air flap and draught regulator;
Condensation forms in the fuel chamber and black liquid comes out of the feed door	- boiler power higher than required - the water temperature in the boiler is too low	- put less fuel in the fuel tank - increase the operating water temperature so that the return temperature is at least 60ºC
Smoke emissions at the boiler chimney connection	- insufficient draught.. - dirty or rough chimney flue walls;	- chimney problems - clean chimney

9. USEFUL INFORMATION

- Designing your heating system is the job of the installation engineer and a good design is also a guarantee that you have a good and safe system.
- It is forbidden to remove hot water from the system! A boiler or heat exchanger is connected to this boiler to produce domestic hot water. In the case of underfloor heating, a heat exchanger must also be used.
- To ensure optimal boiler operation, it must be ensured that the temperature of the heat return agent does not fall below 60°C. Otherwise, tar deposits will occur and a 1 mm layer of tar reduces the efficiency by 7-8%.
- During operation, ensure that the water temperature in the system does not exceed 80-85°C. The maximum allowable temperature is 90°C.
- During operation of the boiler it is forbidden to fill or empty the water in the system.
- Filling, emptying is recommended to be done only at max. 30°C.
- Condensation may form on the body of the cold boiler, especially at the first ignition, which in contact with slag and ashes turns into a black liquid. As the boiler heats up, this stops.
- If the water temperature reaches 90°C, it is advisable to close the air vents and stop the fuel supply.
- In the heating season and when the outside temperature is below freezing and the boiler is not on for a longer period, to avoid damage by freezing, the system should be drained of water, or filled with special antifreeze.
- We do not accept liability for damage/accidents resulting from improper installation and use (not in accordance with the instructions) of the boiler.

10. OTHER PRESCRIPTIONS

- The boiler may only be installed in premises where there is no danger of fire and explosion. The boiler should be installed in a room where it is easily accessible and fresh air access is sufficient.
- Within 1.5 m of the boiler the floor and walls must be made of fireproof material. We recommend placing a steel plate under the boiler body, which exceeds the boiler size at the front by 0.6m and at the rear by 0.6m.
- It is recommended to store fuel in the boiler room for one day only, at least 1.5m away from the boiler.
- Use paper, wood shavings to light the fire! It is forbidden to use flammable liquids (gasoline, diesel, thinner, alcohol, etc.) to light the fire in the boiler. At the beginning of the heating season or after a longer break in operation, it is advisable to check the boiler flue pipe (if it is properly secured) before putting it into operation.

11. WARRANTY CONDITIONS

1.1. The warranty of the appliance is conditional on commissioning by ISCIR authorised companies approved by the manufacturer (commissioning by an authorised person guarantees the customer that the product is properly installed and operates within the parameters required by the manufacturer, without endangering his life and safety).

1.2. When purchasing the product, the buyer is obliged to check that the warranty certificate is completed with all the necessary data, signed and stamped by the seller; at the same time, to request data on the correct transport, storage, installation, use and maintenance of the product, in addition to those specified in the technical book. All our products are accompanied by technical books (with instructions for installation, maintenance and operation), a warranty certificate and a declaration of conformity.

1.3. If you discover any manufacturing defects or product non-conformities, please contact us immediately. It is important that you do so before you start fitting the product or using the product (where/if applicable);

1.4. Installation, operation and maintenance shall be carried out in accordance with the manufacturer's requirements as set out in the user manual/instructions accompanying the product. If you notice that the technical documentation accompanying the product is missing, report this to the seller.

1.5 The warranty is valid only in Romania.

2. DURATION OF THE WARRANTY:

2.1. The warranty period is 2 years, starting from the date the product is first put into service (no later than 3 months from the date of purchase) by authorised technical personnel and extended by the period elapsing from the date of complaint until the date of compliance. Defects due to incorrect transport, storage, assembly, use or maintenance, use of incompatible or non-original parts, faults or modifications made by the installer and/or purchaser are not covered by the warranty.

2.2. Unless otherwise specified, the average period of use of the products purchased from the selling shops shall be the same as the period of the warranty given for those products under the conditions of transport, handling, storage, assembly and operation.

3. WARRANTY REPAIR/REPLACEMENT:

3.1 The appliance warranty is conditional upon commissioning by ISCIR authorised service companies approved by the manufacturer (commissioning by an authorised person guarantees the customer that the product is properly installed and operates within the parameters required by the manufacturer, without endangering his life and safety).

3.2 The remedy of product faults or the replacement of faulty products within the warranty period, which are not attributable to the consumer, shall be carried out within a maximum of 15 calendar days from the time when the economic operator became aware of the faults. In the case of hidden defects, the maximum period (15 days) shall run from the date of completion of the technical expert's report.

3.3 The warranty by repair or by replacement covers any material or manufacturing defect during the warranty period if the installation, commissioning and maintenance of the products is carried out by authorised personnel in accordance with the manufacturer's instructions, so that due to installation and maintenance, the product does not suffer damage that would impair its proper functioning or cause it to be taken out of service.

3.4 It is recommended that the product be brought into conformity primarily by repair (it is a non-displaceable product and in most cases it can be brought into conformity without significant inconvenience to the consumer). The customer may also choose to replace the product unless the corrective measure chosen would be impossible or, compared to the other available corrective measure, would impose costs on the seller that would be disproportionate.

3.5 If the non-conformity is remedied by repair, the period of time provided for in the commercial durability warranty shall be extended by the time the goods are out of service from the time the non-conformity is brought to the guarantor's attention until the actual delivery of the goods in normal use to the consumer.

3.6 If the non-conformity is remedied by replacement, for goods replacing non-conforming goods, the period of time provided for in the commercial durability warranty shall begin to run from the date of replacement.

4. LOSS OF WARRANTY:

The product warranty becomes void or unenforceable under the following conditions:

4.1 Defects due to improper handling and transportation.

4.2 The claimed defect is due to faulty installation by unauthorized personnel and not complying with the manufacturer's requirements. The correct sizing and installation of the product shall be carried out by authorised personnel on the basis of an installation plan.

4.3 Lack of commissioning by ISCIR authorised personnel.

4.4 Installation of the product outside Romania. When buying the product, the buyer is obliged to check the warranty certificate with all the necessary data, signature and stamp by the seller; at the same time, he can ask for data regarding the correct transport, storage, installation, use and maintenance of the product, apart from those specified in the technical book. In order to benefit from the rights provided by the warranty, the buyer must present the seller with the warranty certificate, the commissioning report and the original purchase document, as well as a detailed description of the defect found (if possible, photos of the product installation and the defect will help greatly to reduce the time needed to solve the problem).

Consumer rights are not affected by the warranty offered.

Consumables (wearing parts) are only covered by the warranty if they are defective at the time of purchase. For the product to function properly, to ensure that it is covered by the warranty and that it is within the average period of use/operation, we recommend that the wearing parts listed below are checked at the beginning of the operating season and at the end of the season (twice a year) and replaced if necessary.

WEARING/CONSUMABLE PARTS (for a fee):

- Heat resistant cord (door seal).
- Door handle + locking system (roller, nut, etc.)
- Secondary combustion air inlet sight glass + actuating and fixing knob
- Ash drawer (ash collector)
- Guide plates (the 4 plates placed on the convective paths)

The parts listed above, due to overheating, aggressive external influences, frequency of use or improper use, have a service life shorter than the service life of the heat exchanger.

If these parts do not show visible manufacturing defects at the time of sale, they are not covered by the warranty.

MANUFACTURER SERVICE DEPARTMENT CONTACTS:

- Customer service analyst 0368/808080 / 0799.309.000 - mail: service@miklossteel.ro
- Service manager: 0720.100.040 - mail: janos@miklossteel.ro
- Automation manager (electrical, electronics) 0799.409.409

WARRANTY CERTIFICATE

PRODUCT: Solid fuel boiler ECO.....SERIES:.....
MANUFACTURER: SC MIKLOS STEEL SRL
SELLER (name and address):.....
.....
BUYER (name and address):.....
.....
TAX DOCUMENT NO. (invoice/receipt):.....

BOILER BODY WARRANTY PERIOD: 2 YEARS
AVERAGE LIFE OF THE PRODUCT: 10 YEARS.
SERVICE PROCEDURE: RECONDITIONING OR REPLACEMENT.

The product has a commercial warranty (under the conditions specified in the warranty statements and related advertising) as well as a legal warranty of conformity (if the lack of conformity occurs within 2 years, calculated from the delivery of the product) in accordance with GEO 140/28.12.2021.

1.The warranty by repair or replacement covers any material or manufacturing defect, which would occur during the warranty period, if the installation, commissioning and maintenance of the products is carried out by authorized personnel in accordance with the manufacturer's instructions, so that due to installation and maintenance, the product does not suffer damage that would affect its proper functioning, or would cause it to be taken out of service; bringing it into conformity will be done first by repairing the product.

2. The warranty is valid only in Romania.

3. The warranty period is 2 years, starting from the date of the first commissioning of the product by authorised technical personnel and extending by the period from the date of the complaint until the date of bringing the product into conformity or replacement. Defects due to incorrect transport, storage, assembly, use or maintenance, use of incompatible or non-original parts, faults or modifications made by the installer and/or purchaser are not covered by the warranty.

4. The appliance warranty is conditional on its commissioning by ISCIR approved service companies.

5. The remedy of any product defects or the replacement of products that do not correspond within the warranty period, which are not attributable to the consumer, shall be carried out within a maximum of 15 calendar days from the time when the economic operator became aware of the defects. In the case of hidden defects, the maximum period (15 days) shall run from the date of completion of the technical expert's report.

6. When buying the product, the buyer is obliged to check that the warranty certificate is completed with all necessary data, signed and stamped by the seller; he may also request data on the correct transport, storage, installation, use and maintenance of the product.

7. In order to benefit from the warranty rights, the purchaser is obliged to present this warranty certificate, the commissioning report and the original purchase document as well as a detailed description of the defect to the seller. If the warranty documents are not presented, have been altered or damaged, no warranty is given.

8. In the case of defects for which repair is extra-guaranteed, the supplier may, on request, carry out the necessary repairs against payment.

9. By signing this certificate, the buyer agrees with the contents of this document and declares that he has taken over the product in good condition, has understood the obligations incumbent on him in order to benefit from the warranty granted by the seller, according to the legislation in force. Consumer rights are not affected by the warranty offered.

SIGNATURE AND STAMP OF THE MANUFACTURER	SIGNATURE AND STAMP OF THE SELLER	BUYER'S SIGNATURE
		

MENTIONS AND INTERVENTIONS ON THE PRODUCT

No.	Product name	Date of complaint	Complained fault	Service activity performed	Date of repair	Service unit (signature, stamp)	Signature of owner	Remarks
1.								
2.								
3.								
4.								

DECLARATION OF CONFORMITY

(in accordance with ANNEX IV of European Directive 2014/68/EC)

CE

We, the manufacturer S.C. MIKLOS STEEL S.R.L., with registered office in Târnovița, str. Küküllő, nr. 2, Jud. Harghita, C.U.I. RO 26115187, J19/460/2009 declare that the products:

☐ **SOLID FUEL BOILER ECO 27 kW**
☐ **SOLID FUEL BOILER ECO 37 kW**
☐ **SOLID FUEL BOILER ECO 47 kW**

EQUIPMENT IDENTIFICATION:

Manufacturing number.....	_____
Year of manufacture.....	20___
Maximum working pressure.....	2 bar
Test pressure.....	4 bar
Energy efficiency (%).....	>80
Maximum temperature of the thermal agent...	90°C
Fuel.....	solid

comply with essential safety requirements and are manufactured in accordance with:

- Government Decision: HG no. 123/2015 - EUROPEAN DIRECTIVE 2014/68/EU
- Standard SR EN 303-5:2012 - HEATING BOILERS

Conformity assessment procedure applied: module B. Certification body: INTERTEK INDUSTRY SERVICES ROMANIA IISR - OCPP - NOBO 2725
Address: Calea Rahovei, nr. 266-268, corp 61, etaj 1, Sector 5, Bucharest.
No and date of certification : IISR-B-DT-0034 / 20233

Date / Place
_____ / Târnovița

General Manager
Miklós Csaba

MIKLOS STEEL SRL • TÂRNOVIȚA, STR. KUKULLO NR.2 • HR. • ROMANIA
MSS
MIKLOS STEEL STOVE
J19/460/2009
RO26115187

user's copy

DECLARATION OF CONFORMITY

(conform cu ANEXA IV din Directiva Europeană 2014/68/EC)

CE

We, the manufacturer S.C. MIKLOS STEEL S.R.L., with registered office in Târnovița, str. Küküllő, nr. 2, Jud. Harghita, C.U.I. RO 26115187, J19/460/2009 declare that the products:

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EQUIPMENT IDENTIFICATION:

Manufacturing number.....	_____
Year of manufacture.....	20___
Maximum working pressure.....	2 bar
Test pressure.....	4 bar
Energy efficiency (%).....	>80
Maximum temperature of the thermal agent...	90°C
Fuel.....	solid

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Conformity assessment procedure applied: module B. Certification body: INTERTEK INDUSTRY SERVICES ROMANIA IISR - OCPP - NOBO 2725
Address: Calea Rahovei, nr. 266-268, corp 61, etaj 1, Sector 5, Bucharest.
No and date of certification : IISR-B-DT-0034 / 2023

Date / Place
_____ / Târnovița

General Manager
Miklós Csaba

manufacturer's copy

Manufactured
in Romania

Inspired from fire

MIKLOS STEEL STOVE

S.C. MIKLOS STEEL S.R.L.

J19/460/2009, CUI: RO 26115187

Com. Brădești, Sat Târnovița
Str. Kükülló, Nr.2, Jud. Harghita
Phone/Fax: 004-0368 80 80 80

www.miklossteel.ro