

INSTRUCTIONS FOR INSTALLATION AND MANUAL

Solid fuel cooker for central heating THERMO MAG

To respected customer,

We are very pleased for your trust and your decision to buy our product.

You made a good choice, because Thermo Magnum has technical characteristics which classify it into the very top of its class, providing advantage within its competition.

Please, read carefully this instructions before you use Thermo Magnum, in order to find hints and tips for proper handling and maintenance.

We also believe that you will put your signature in the book of satisfied customers of our products.

"Milan Blagojević" AD
Smederevo

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WARNING BEFORE USE

In order to put cooker Thermo Mag in proper operation mode, it is important to read this instructions and strictly observe instructions for use and manual.

For combustion, use solid fuels like wood and briquettes. For maximal performance of the cooker, use dry wood (max. humidity 20%).

It is forbidden to put explosive devices and materials into the burner or onto the cooker hotplate.

It is forbidden to keep inflammable materials within the close vicinity of the cooker.

For proper combustion, within the normal operational mode, draught in the chimney should be 15-17 Pa. In case if draught is higher then 20Pa, it is necessary to install chimney flap.

Room in which cooker is located should be regularly ventilated due to flow of fresh air necessary for combustion.

Parts of the cooker are heated within period of operation and appropriate handling precaution is necessary. Do not allow children to handle and play in the vicinity of the cooker.

Do not allow handling with the cooker to the persons with limited physical and psychical abilities.

Do not allow pets to be close to the device.

Only spare parts approved by the manufacturer may be installed onto the cooker. One may not make any changes to the furnace.

Upon the first heating, smoke and various scents may occur, especially on the surfaces protected with the color and other anti-corrosive primers. Ventilate the room.

Thermal regulator is integral part of the cooker and set-up at the factory. Do not make any adjustments of thermal regulator by yourself.

When adding fuel, open fire door for only few degrees, wait 4-5 seconds until pressure in the burner and room comes equal, then open it wide very slowly. Do not open the door abruptly, so when flame is strong in the burner it may come out of the burner. Do not open fire door unnecessarily, always paying attention to open it when flame is weak.

In case of non-observance of these instructions for use, manufacturer will not be liable for any damage on cooker.

COOKER DESCRIPTION

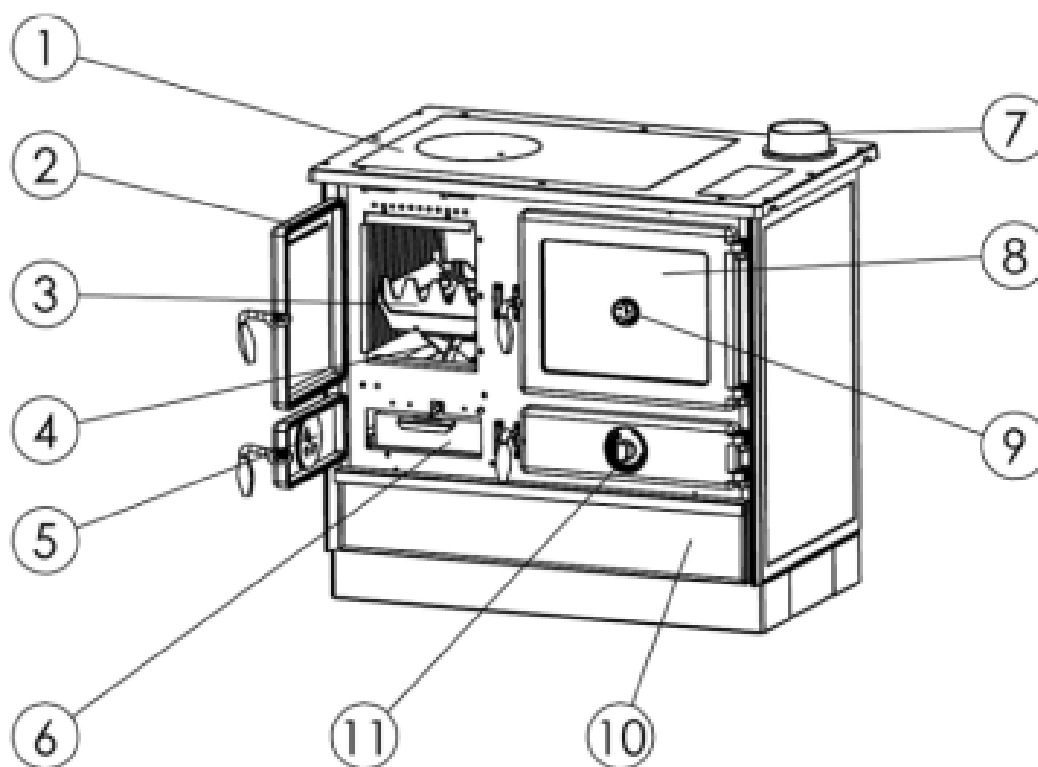


Figure 1. Integral parts of the Thermo Magnum cooker

- 1 – hotplate
- 2 – fire door
- 3 – grate
- 4 – grate lifter
- 5 – ashtray door
- 6 – ashtray
- 7 – fume outlet
- 8 – oven door
- 9 - thermometer
- 10 - drawer
- 11 – thermo-regulator button

Solid fuel cooker for central heating Thermo Mag is made and tested according to the European standard EN 12815. Figure 1 shows appearance of cooker with integral parts important for handling and use. Table 1 gives its technical characteristics.

Table1. Technical characteristics

No.	Technical characteristics	
1.	Nominal thermal power (kW)	17
2.	Efficiency (%)	
	wood	89
	brown coal	85
3.	Thermal power transferred to water (kW)	10
4.	Thermal power transferred to environment (kW)	7

5. The average CO value (taken from 13% O₂):

wood		0,070% \triangleq 0,875 g/m ³
brown coal		0,081% \triangleq 1,013 g/m ³
6. Dust emission:

wood		0,055 g/m ³
brown coal		0,070 g/m ³
- 7 Dimensions – W x H x L (mm) 1070x850x600
- 8 Dimensions of firebox W x H x L (mm) 230x280x370
- 9 Dimensions of oven – W x H x L (mm) 350x265x465
- 10 Quantity of water in boiler (l) 11
- 11 Diameter of fume outlet (mm) 120/130
- 12 Water adapters (") 1
- 13 Draught (Pa) 15 -17
- 14 Average flue gases temperature (°C) 224
- 15 Maximal water temperature (°C) 90
- 16 Recommended fuel drvo, briketi
- 17 Consumption at nominal power(kg/h) 4.5
- 18 Max. working pressure (bar) 2

Solid fuel cooker for central heating is intended for heating of residential premises. Valve for thermal exhaustion is integral part of installation which serves as overheating valve. Thermal valve **Caleffi 544 1/2** is recommended and displayed on Figure 2.

Comment: Thermal valve is not part of the product and not supplied with it. Boiler guarantee is valid exclusively with built-in thermal valve.



Figure 2

Solid fuel cooker for central heating Thermo Magnum possesses boiler of 11l capacity which is made of boiler metal sheets of standardized dimensions. Such manufacture improves boiler life span. Water adapters are 1". Fire door (fig. 1, pos. 2) is cast and has thermal-resistant transparent glass. Ashtray door (fig., 1, pos. 5) is cast and has auxiliary air flow regulator.

Oven door is cast and has thermal-resistant glass with temperature gauge. Area below oven is intended for mechanism which serves for primary manual regulation and it is not intended for opening (handle is decorative element, it does not serve for door opening below the oven)

INSTALLATION OF COOKER

Cooker **may not** be placed in the close vicinity of wooden elements, air-condition devices or plastic parts of the furniture, because it transmits (during combustion) high working temperature which distributes at the external surface of the cooker. Minimal distance between cooker and surrounding elements is 50 cm, and from inflammable materials is 140 cm.

If foundation on which cooker will be located is made of easily-inflammable materials (wood, warm floor, laminate...) it is necessary to install special protection larger then the base of the cooker. - for lateral width of 10 cm or more, in front of 50 cm or more.

Cooker is to be connected with the chimney by appropriate smoke pipes through adapter on the upper side of the cast plate, in order to provide adequate tightness and smoke flow from the cooker to the chimney. Fume outlet may not be installed too deep into the chimney in order not to reduce surface of cross-section thus preventing draught in the chimney.

Prior to installation of cooker, check chimney draught since it is one of key factors for proper operation. Draught depends on integrity of the chimney and meteorological conditions.

One of the simplest ways for checking of draught in chimney is by candle flame, as described on figure 3. Candle flame is to be put close to adaptor opening of chimney and if it flickers toward opening, draught is satisfactory (figure 3.2). Weak flickering of the flame is indicator of weak draught (figure 3.1).

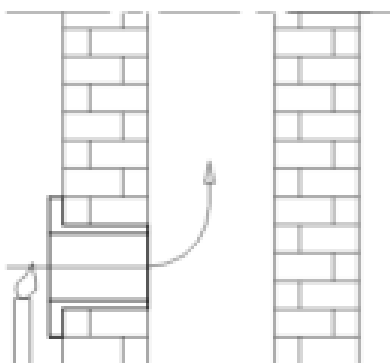


Fig 3.1

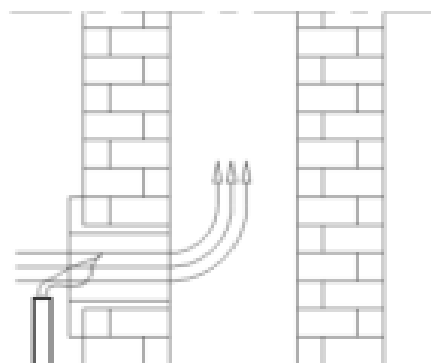


Fig 3.2

If draught in chimney is weak (Figure 3.1), check correctness of the chimney. Chimney should be located in the interior of the room, and if it is on external walls of the room, chimney insulation is highly recommended.

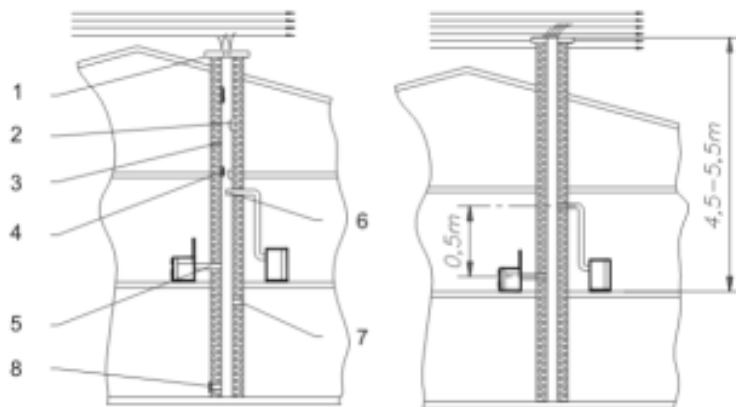
Faults of the chimney may be (figure 4.1):

1. Weak windshield,
2. Strange body or bulges in the chimney,
3. Chimney chaps,
4. Accumulated tar,
5. Non-tightness of adapters and cleaning openings,
6. Smoke pipe installed too deep,
7. Fireplace without door or some other opening on chimney and non-tightness of connecting and other cleaning openings.
8. Non-tightness of connecting and cleaning openings.

Distance between two adapters on the same chimney must be minimum 50 cm (Figure 4.2).

On figure 4.2 example of proper chimney is described.

Devices which use gas as a fuel may not be connected to the very same chimney.



Installation of cooker into the system for water heating

- For water inlet and outlet within the system of floor (central) heating are provided with adapters on boiler 1".
- Thermo Magnum may be mounted on closed or open system of central heating.

Installation on closed central heating system

One of the aspects of mounting installations is depicted on figure 5.

- Safety valve must be installed in the vicinity of boiler and must be adjusted for pressure of max. 3 bars. External guide of safety valve must be as shorter as

possible and may not have possibility to be closed. Within this guide, also, there may not be single valve or any other armature.

- Closed expansion vessel is to be mounted in the vicinity of boiler and its safety guide is short. Volume of this vessel is determined according to the capacity of boiler and regarding ratio 1kW:1l.

- Installation of thermal valve in its provided place on the boiler is mandatory. We recommend thermal valve Caleffi 544.

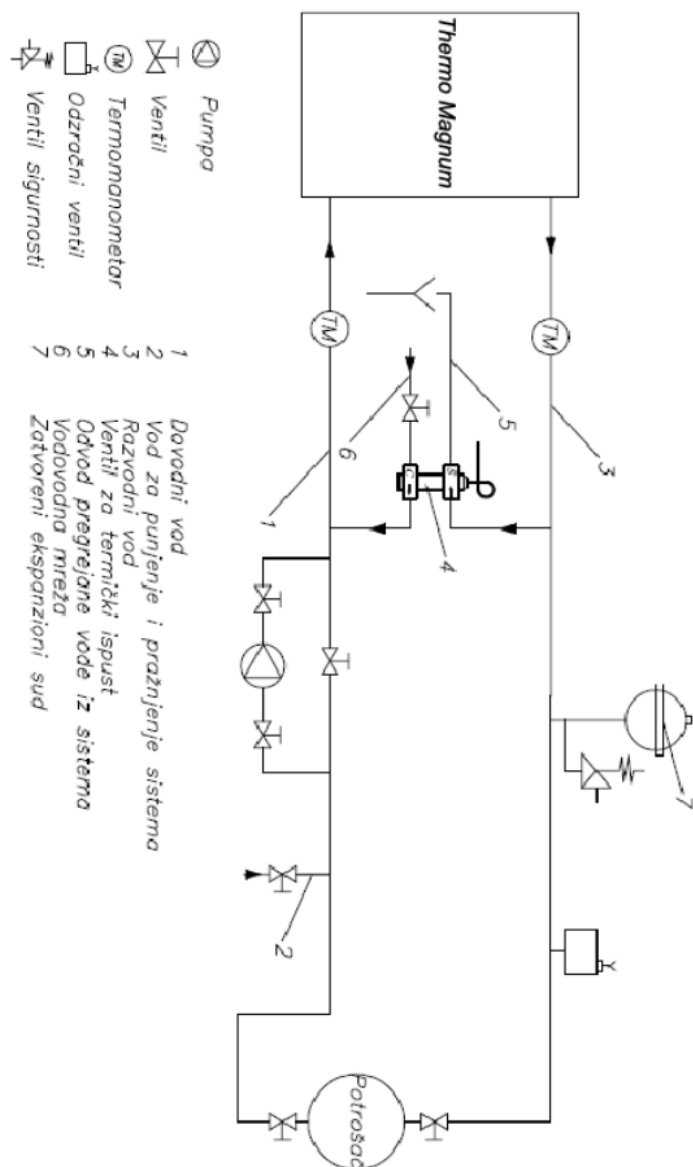


Figure 5
Scheme of closed central heating system

Pump
Valve
Thermo-manometer

Air-exhaust valve
Safety valve
1 Intake valve
2 Guide for gilling and discharging the system
3 Distribution guide
4 Thermal exhaust valve
5 Drainage for overheated water from the system
6 Aqueduct network
7 Closed expansion vessel

Installation of open central heating system

One of the aspects of installation is depicted on figure 6.

At this system, starting guides are to be mounted in sequence, safety distribution guide of expansion vessel and boiler valve, and on starting guide of the system boiler valve, pump and valve are to be installed. Directly below opened expansion vessel, short connection should be installed between safety distribution guide and safety retracting guide, which provides freezing of water during winter in the expansion vessel.

On safety distribution and safety retracted guide, there may not be any armature. Expansion vessel itself must possess overflow pipe as seen on scheme on figure 6. Volume of expansion vessel is determined by the pattern:

$V = 0,07 \times V_{\text{water}}$, (l), where V_{water} is volume of water in entire power plant.

Open expansion vessel is to be installed vertically above the highest heating body. At the opened system of heating, gravitation system of heating is possible.

Note:

Installing and putting into operation of entire system is to be checked exclusively by trained person who guarantee proper operation of entire heating system. In case of poorly designed system and eventual omissions in installation by that person, complete material responsibility shall bear exclusively the person entrusted for the installation of the heating system, not the manufacturer, representative or retailer of the boiler.

Important

- Cooker installation should be carried out by skilled person according to the appropriate design. Structure of cooker enables connection on closed or opened heating system. All connections must be well sealed and tightened. Prior to putting into operation, complete installation should be tested with water under pressure of 3 bar.
- Upon installation of safety valve, pay attention to direct connection with water supply network and sewage, as well as on the fact that valves (taps) always must be open.

- If reinforced hose for connection with drainage outlet is used, it must be away from the back side of the cooker.

Upon first ignition, it is necessary to test accuracy of the valves by short-time pre-heating up to 100°C, to test accuracy of draught regulators and installation for distribution of hot water to radiators, as well as radiators themselves.

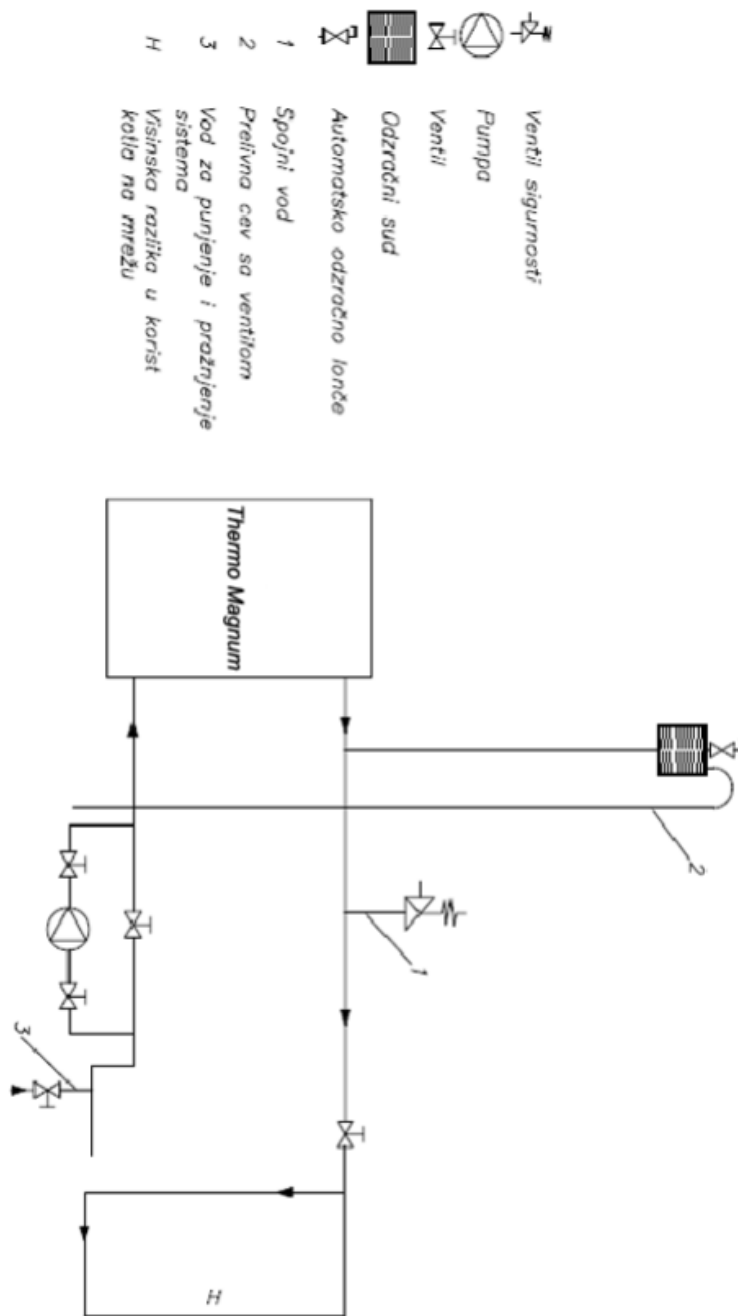


Figure 6
Scheme of open central heating system

Safety valve
Pump
valve
Air exhaust valve
Automatic air exhaust valve

1 Connection guide
2 Overflow duct with valve
3 Filling and discharging system
H Altitude difference on behalf of boiler towards network

MANAGING COOKER OPERATION

Pace of combustion, as well as quantity of heat transmitted by the cooker, depends on the quantity of primary air for combustion which is brought into the area below burner. Regulation of quantity of primary air is provided automatically using draught regulator **Rathgeber** (figure 7).

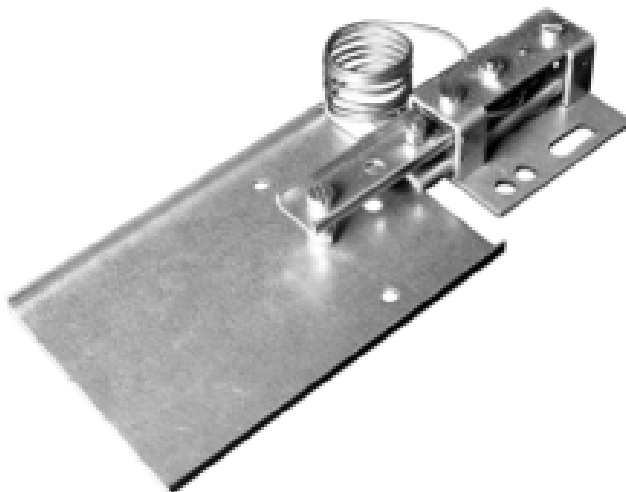


Figure 7

Upon ignition, turn regulator button into position of maximally opened flap in direction displayed on figure 8. During operation, depending on temperature, regulator flap will open and close automatically. If lower temperature then adjusted is desired, turn regulator button in desired position of minimally open flap, thus regulator flap closes. Button is to be turned with auxiliary tool as follows: longer arm of the tool is to be put into the groove of the button then turn, as desired.

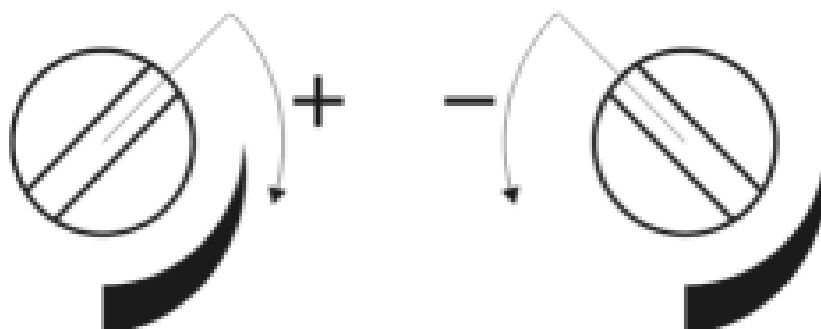


Figure 8

By grate lifter (pic. 1, pos. 4) and turning using tool which is supplied with the cooker, plate may be lifted and dropped down in desired position depending on selected operation mode (winter or summer mode).

If there are disturbances in burning (bad fuel, remaining malfunctions for proper operation of the cooker) then through auxiliary regulator, which is located on front side of the ashtray door (figure 1 position 5), we can bring some additional primary air, thus improving combustion. In that case, pay attention to temperature and pressure not to exceed prescribed values.

PROCEDURES FOR IGNITION AND LIGHTING

Prior to the first ignition, clean all enameled surfaces of the cooker by dry mop in order to avoid combustion of dirt on cooker and creation of undesirable scents.

Note:

Upon first ignition, there may be slight smoking, especially at colored surfaces. All cast parts are protected with thermo-resistant color which obtains its stability after few ignitions. Thereupon, there may be gases which could be removed by simple ventilation of the room.

Ignition in the firebox is to be carried out as follows:

- open the fire door and ashtray door,
- put into the firebox material for enkindle (chopped wood, dry paper),
- carry out enkindling,
- close the fire door and ashtray door,
- upon creation of basic cinder, put into the firebox some massive pieces of wood and close fire door. If briquettes are used, you must wait for all fuel quantity to burn, then reduce air intake to half.

For ignition and lighting, you may not use light distillate oil, gas and similar, so then conditions for origination of explosive gases may occur in smoke channels of the cooker and chimney.

For lighting, we recommend wood and briquettes.

Do not use organic waste as fuel, food residues, plastic objects, inflammable and explosive materials, whose combustion disturbs proper operation of the cooker and may induce damages and pollution of environment.

Increased external temperatures may induce weak air flow (draught) in the chimney, so it is recommended to frequently burn smaller quantities. We recommend burning every 1h with height of the fuel in the firebox up to 15cm.

After each filling, it is recommended for firebox (cooker) to burn at least 30 minutes with maximal power, in order to burn all volatile ingredients which are main reason of creation of condensate in the cooker in that stage of combustion.

For proper work of firebox (cooker) it is necessary to:

- regularly clean firebox and chimney
- regularly ventilate rooms due to good combustion
- regularly remove ash from ashtray

Accumulated gravel and non-combusted materials should be regularly removed from the burner, by cleaning set.

CLEANING AND MAINTENANCE

Through regular and proper cleaning, you enable proper operation and cooker life span.

Cleaning of external surfaces

Enameled and chrome surfaces are to be cleaned with soft mop which will not damage these surfaces. Cleaning agents of chemical origin do not damage surfaces of the cooker and may be used.

Cleaning of internal surfaces

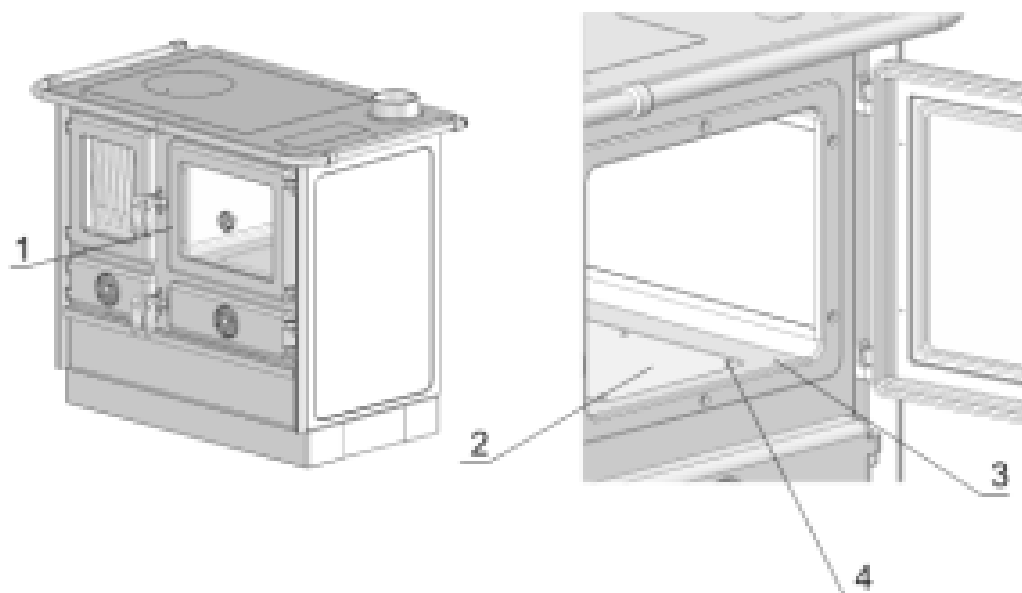
Upon cleaning of the cooker, use protective gloves. Clean internal walls of the burner and remove accumulated tar, collect particles and non-combusted pieces from the burner, clean ashtray and ash accumulated in the interior.

Glass cleaning

Upon combustion of fuel, glass surface may become dirty due to products of combustion. Glass should be cleaned when it is cold, by soft detergents. Abrasive agents damage glass thus do not use them.

Cleaning channels for flow of gas combustion products below oven

Open oven door (1), unscrew 6 screws (4) on the bottom of oven (3) and remove closure of the bottom (2). By auxiliary tool, remove tar accumulated on the bottom and below oven. After cleaning, put back the closure of the oven bottom into its original position and put and tight screws back.



Area below plate must also be maintained clean. Remove plate from the cooker and clean tar from boiler and ceiling of the oven.

GENERAL NOTES

If all instructions for installation, regulation during operation and cleaning directions given in this manual are fulfilled, cooker represents approved and safe device for using in the household.

All reclamations, evaluated as defects or weak functioning of the cooker, should report to manufacturer or authorized service by phone or in written with fiscal receipt. All contact information is given at the end of this manual.

Each defect of cooker should be removed exclusively by manufacturer or authorized service.

If unauthorized persons make any servicing or any other repairs and changes on the cooker, owner of cooker loses his right for guarantee by the manufacturer.

Procurement of spare parts is to be done exclusively through manufacturer's service, based on positions and figures in this manual or designation of mentioned.

Manufacturer does not bear any liability if customer does not observe instructions for use and installation of the cooker.

ADVICES FOR ENVIRONMENTAL PROTECTION

Packing

- Packing material may be 100 % recycled.
- Upon disposal, observe local regulations.

- Packing material (plastic bags, parts made of polystyrene-styropor etc.) should be kept away from children, since it may represent potential harm.
- Wooden battens which are the case of transport packaging are connected with nails!

Pay attention on injuries during disassemble and disposal of wooden packaging.

Product

- Device is made of materials which may be recycled. Upon disposal, observe local environmental laws.
- Use only recommended fuels.
- Combustion of non-organic and organic waste (plastic, chip, textile, oiled wood etc.) is strictly forbidden, since when combusted, they release cancerogenous and other harmful materials.