



Solid fuel-burning stove * THERMO LAVA *



INSTRUCTION FOR INSTALLATION AND OPERATION

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Dear customer,

First of all we would like to thank you for having chosen us and your trust in us will not be failed, as Thermo stava is, due to its design and characteristics, the leading product in category of the similar products due to its features and design. Become introduced with its characteristics and possibilities, read the Instruction carefully and follow it in order to avoid irregularitiries in the stove operation.

Yours sincerely,



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1. INTRODUCTORY NOTES

Read the instructions carefully and follow the rules and recommendations. Hereinafter you will find the data regarding the stove itself, as well as the recommendations for the installation and maintenance of the stove.

The efficiency of a stove depends on its correct installation, which must be carried out by a professional following the highest standards and the safety regulations in force.

The place you intend to install the stove must have sufficient airspace and the floor and surrounding object must be made of a non-flammable material.

Pay attention to the bearing capacity of the floor. In case that the floor cannot endure the weight of the stove, it is necessary to reinforce it or set additional girders respecting advices of experts. Moreover, if there is a flammable floor, it must be protected by an insulating plate (steel, brass, marble, stone, etc.), which extends at least 50 cm from the front and at least 15 cm from the sides.

Do not place armchairs, seats, curtains or any other flammable objects unmentioned here within 100 cm from the stove, as well as within 70 cm on the sides, and 40 cm from the back side.

The cast iron parts are protected by heat resistant paint and during the first few exploitations smoke and smells which are products of paint stabilization occur. The room has to be properly ventilated. Avoid the presence of children, pregnant women, and persons with breathing problems during the first few lightings of the stove.

The stove is to work with the doors closed. Open the door only in the case of fuel addition. Open the door slowly in order to equalize the pressure. Abrupt door opening can cause smoke suppression. Add fuel only when ember is created and when there is no intense flame.

Avoid using the stove under circumstances of unfavorable weather conditions and strong wind.

The stove is heated during operation, so take the necessary measures of precaution. The door handle is heated during operation so use a glove when opening the door. Do not touch hot parts of the stove (above all cast parts, plate, and visible brass parts).

Children should not be allowed to play near the stove or handle it.

When filling the system with liquid, make sure that there is no air left. Do not use the stove without liquid in the system.

Provide continuous flow of fresh air into the room where the stove is installed because combustion uses the oxygen from the room.

Do not allow overheating of the stove parts because the stove will not be safe then and its exploitation duration will be shortened.

Do not use the stove for the combustion of waste, in appropriate and unrecommended fuels.

Parts of packing should be properly disposed. Elements from cardbox, wood or plastic which are entered into the furnace space should be taken out before putting the stove into operation. Be careful when taking out the packaging because wooden bars are connected with nails.

Dispose the stove you no longer wish to use at locations envisaged for such disposal, respecting ecological regulations and local requirements for disposal of waste materials.

Only the spare parts which are allowed by the manufacturer are to be installed on the stove. No changes must be made on the stove.

IN CASE OF NON-OBSERVANCE OF THE MANUFACTURER'S INSTRUCTIONS, THE MANUFACTURER DISCLAIMS ALL RESPONSIBILITIES FOR POSSIBLE DAMAGE.

2. TECHNICAL FEATURES

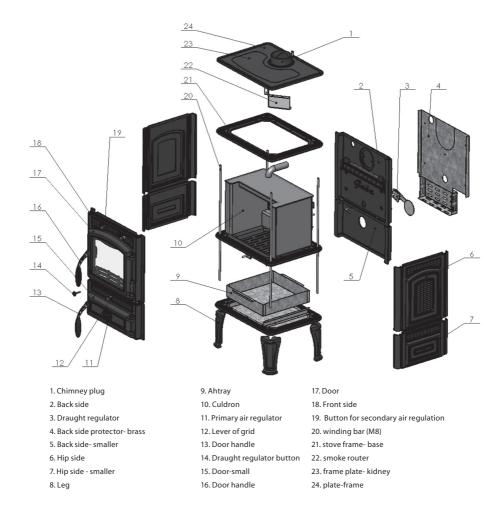
Definition: solid fuel-burning stove tested according to: EN 13240

*		
*		
15.5		
9		
6,5		
71 - 78		
2		
4		
10		
82		
120 150		
190 - 250		
0.1		
155kg		
340x286		
366x270x266		
540 x 946 x 493		

* Hearth door is closed automatically
 * Hearth door is not closed automatically

Accessory: glove

3.INSTALLATION



The stove is connected to the flue via appropriate smoke pipes so that the adequate tightness and smoke flow to the flue. The smoke pipe must not be set too deep into the flew in order not to decrease the surface of the cross-section and by that disturb the draught in the flue.

The stove offers possibility of exhaust of smoke gasses from the upper (position 1) or back (position 2) side of the stove via appropriate couplings.

As a standard, a lid is set on the vack side, and the coupling for connection with the

smoke pipes is assembled on the upper side. The lid and the coupling are connected via bolts.

In case you want to set the smoke drain on the back side, unscrew the bolts which connect the drain lid and the back side of the stove and fix the smoke drain coupling at that location. Connect the lid with the plate-frame via bolts (position 24) at the envisaged place. Take care that the sealings which are located on the lid and the coupling are in cannals and sufficiently tightened so that the smoke does not pass.

Connecting the cauldron to the central heating system

Thermo Lava has a cauldron with a pipe exchanger which has been made from high-quality cauldron steel. The couplings for water are pipes of 1", made from the same material.



Picture 2

The stove is primarily intended for heating via separation of warm water. For the intake and the exhaust of the water into the system the couplings of 1" on the cauldron are envisaged. The stove can be assembled on to the open or closed heating system, as shown on the pictures 3, 4 and 5. For the closed system there are two recommended ways of connection, depending from the pump position.

Inherent part of the derived installation is the valve for thermal exhaust which serves as a thermal fuse for possible overheating. Valve for thermal exhaust Caleffi 544 ½ which is shown on the picture 2 is recommended.

Valve for thermal exhaust with double effect is great at solving safety problems in

heating installations for stoves and fireplaces which use solid fuel as a source of heat. This is a device which contains a valve for thermal exhaust and a valve for charging, the two acting simultaneously on the remote sensor control. This device is connected to the exhaust and hydro network (charging) while achieving critical temperature and creates circulation of cold water in the system until the temperature decreases under the value to which the sensitive element reacts. At that moment, the exhaust and the charging are simultaneously closed. This is how the device also functions in the case of the sensitive element's breakdown.

Note: Thermal fuse is not a part of the product and is not delivered with the product. Guarantee for the stoves is valid exclusively with the installed thermal fuse..

With the both ways of assembly to the closed central heating system, a closed expansion vessel. The volume of this vessel is determined on the basis of the cauldron capacity, and the set ratio is 1kW: 1l. the volume of the expansion vessel is determined as

V = 0.07xV water [1],

Where Vwater is the volume of water in complete facility.

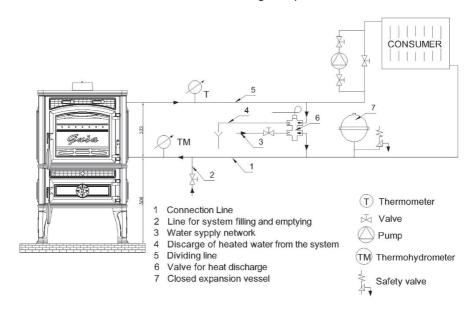
Regarding assembly to the open central heating system, the expansion vessel has to possess an overflow pipe as seen in the picture 5.

Open expansion vessel is set vertically above the highest heating body.

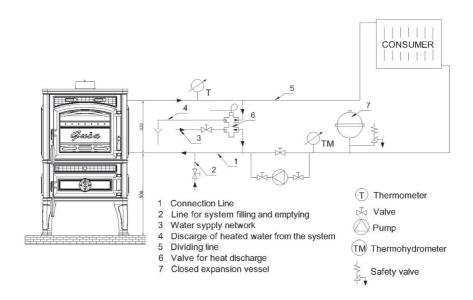
Note: The assembly and commissioning have to be done exclusively by an expert who guarantees correct operation of the complete heating system. In case of a badly projected system and possible errors created during the expert's work which can cause irregular stove operation, complete material responsibility will be set upon the person to whom the assembly was entrusted, and not the producer, representative or the stove seller.

Important

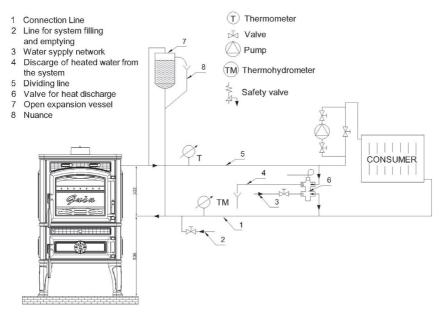
- All couplings must be well tight and screwed. Prior to commissioning, complete installation should be questioned with water under 2,5 bar pressure.
- When installing safety valve pay attention to direct connection with waterworks and sewer, as well as to the fact that the valves (faucets) have to be always open.
- •If reinforced hose for connection to the sewer is used, it has to be put away from the flank and back side of the stove, because of the high temperatures.



Picture.3 Scheme of closed system



Picture.4 Scheme of closed system



Picture.5 Scheme of open system

4 FLUE

Special attention must be paid to the quality of the flue which must be made in accordance with the standards. The flue must be regularly maintained. The stove is connected to the flue through a connection, with the appropriate smoke pipes, so that the proper tightness and smoke flew to the flue are secured. The smoke pipe must not be positioned too deep in the flue so as not to decrease the surface of the cross-section and, in that manner, disturb the draft in the flue.

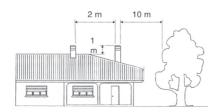
The draught in the flue

An inadequate draught is exclusively the main reason behind most complaints of poor stove operation! Necessary draught for this type of stove is 12±2 Pa.

<u>A lower value</u> does not permit proper combustion with the consequent formation of carbon deposits and excessive production of smoke, which, being unable to flow to the exterior will escape through the grills or door.

If the draught value is too high, combustion will be too fast, with the consequent dispersion of the heat through the flue. If the draught is greater than 15Pa, the elements for draught reduction should be installed.

4.1 General characteristics



To facilitate the draught in the flue, the chimney must be rising at least one metre above the ridge of the roof. The surrounding objects must not cover the flue. (Picture 6)

The dimensions of the chimney may vary on the basis of the model of flue. However, to guarantee good disposal of the fumes, the section of the air passage at its exit must always be twice the size of the section of the flue itself, and furthermore the cap of the chimney must never obstruct the draught.

The chimney guarantees the conveyance of the fumes outwards even when there are strong horizontal winds and stops them from being blown back down the chimney.

Bad maintenance of chimney is the cause of flue obstruction, due to the breaking and detachment of plaster, refractory bricks etc. of which the flue is made, as well as due to the combustion product deposits and intrusion of foreign objects.

Chimney must have sufficient heat insulation, otherwise it can lead to condensation.

The internal parts of the whole flue should have a smooth surface, and the material used should be thermaly and chemically resistant to combustion products. For all obscurities regarding flue problems, consult expert services and chimney-swepers.

5. WOOD

Only burn dry wood! You must not only select quality wood but it must also be dry at the moment in which you use it.

Remember that the calorific power of the wood drops considerably as the presence of humidity, which means that a large part of the heat produced is used to evaporate the water and, furthermore, the risks of obstruction increase rapidly with the condensation of the vapors in the flue.

Recommended humidity of wood is up to 20%.

Damp wood not only burns badly but also makes the lighting of the fire difficult and damages the flue. The water vapor transports condensible products such as acetic acid, alcohol, methyl alcohol and tars which contribute to the formation of incrustations which are detrimental for the efficiency of your stove. Deposits in the flue may cause fire.

Fresh cut wood is useless as a fuel. Actually a considerable part of the energy produced is only used to evaporate the water, which is up to 75% in young wood without bark.

ABSOLUTELY NEVER USE:

Green or damp wood, treated wood (railway sleepers, plywood off-cuts, painted wood, etc.), low-grade anthracite and coke.

THE USE OF THE ABOVE LISTED MATERIALS AND DAMAGES CAUSED BY THEM ANNUL ANY FORM OF GUARANTEE AND THE MANUFACTURER DECLINES ALL RESPONSIBILITY.

6. CLEANING THE STOVE

We recommend removing the ash produced every day. Never allow the ash to accumulate to the point where it touches the grate; this would obstruct the circulation of primary air and slowly suffocate the fire.

When cleaning the outside surfaces of the stove, avoid abrasive products which would damage the protective paint. Do not use chemicals that contain diluent, because the cast parts are protected by heat resistant paint.

Panoramic door glass should be cleaned with normal detergent and exclusively after getting cold. After cleaning, rinse with pure water and dry. To clean the parts in tiles use non-abrasive detergents, water and a soft cloth which do not damage the glaze.

7. CONSUMABLES

The following are considered consumables and therefore not covered by the warranty:

all gaskets, the parts in ceramic hardened glass, the facing of the hearth, the paints, the ceramics and the parts with chemical coating (chrome, nickel, zinc parts). The warranty

does not cover damages caused by improper installation, incorrect connection not in compliance with the instructions which accompany the product, or breakdowns caused by tempering from unqualified or unauthorized personnel.

8. SUMMER PAUSE AND RECCOMENDATIONS FOR THE SEASON

After you have cleaned the hearth, the chimney and flue, trying to eliminate completely the ash and other residuals, you must close the hearth door and its regulators; in case that you are disconnecting the device from the flue, you must close its openings in order to enable operation of other devices connected to the same flue.

The cleaning of the flue should be done at least once a year. Check the state of gaskets and replace them if necessary.

If there is dampness in the room where the stove has been placed, we advise you to put absorbent salts into the hearth.

9. SOLUTIONS OF THE PROBLEMS

9.1 The appliance does not work

Check that the entrance of the chimney has been carried out perfectly.

Check whether the dimensions of the chimney are correct and appropriate for the appliance.

Check whether the flue is well isolated from thermo agents and made according to the standards.

The doors of the stove must be well sealed.

9.2 Difficulty in lighting the fire

Open the primary air and smoke regulator.

Use very dry wood.

Air the room in order to have a great quantity of oxygen.

The flue must be appropriated to the appliance used.

9.3 Smoke comes out

Check if the primary air register is open.

Check if the entrance of the chimney leaks.

Check if the ash or other residuals have obstructed the draining pipe.

- Check if there is sufficient air flow.
- Check the draft in the flue.
- Check the gaskets.

9.4 The glass gets dirty in a short time

Damp wood: use dry wood (max.20% moisture)

Wrong fuels (see allowed materials)

Too much fuel in the hearth space

Insufficient draft (see connection to the flue)

Wrong regulation of the registers: if the secondary air register is closed, the glass gets dirty in a short time.

9.5 Condensation

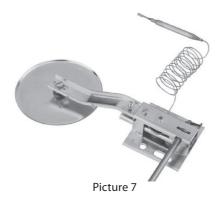
During the initial lightings the condensation is normal, because the covering materials contain dampness.

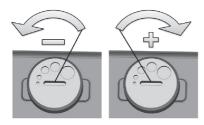
If the problem goes on, check the wood you use; it must not be damp or badly dried.

The chimney must not have defects and it must not cool down the gas draining too quickly.

Attention: The manufacturer exclusively uses materials which are not hazardous to health. The manufacturer reserves the right to make modifications to the appearance, to the dimensions or to the models themselves without previous notice.

10. DRAUGHT REGULATION





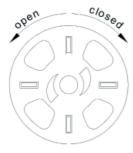
Picture 8.1

Picture 8.2

The combustion speed, and with that, the quantity of the heat that the stove emits, depend on the combustion air quantity which is brought into the space under roast. Regulation of the air quantity is automatically achieved via draught regulator Rathgeber which is set on the back side of the stove (picture 7), or manually, by turning the button on the front side of the stove which is connected to the draught regulator (picture 1 position 14).

The button is turned with accessory equipment and has two final positions:

- 1. turning to the final position in direction shown on the picture 8.1 minimal draught is obtained:
- 2. Turning to the final position in direction shown on the picture 8.2 maximum draught is obtained:

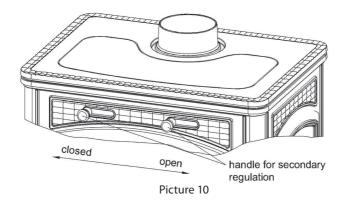


Picture 9

Primary air control is set in closed position and should be held in that position during the stove operation. When it is closed, the regulater prevents the air flow from the front side under the grid, by which the combustion intensity is automatically regulated with the draught regulator, which is located on the back side of the furnace. If, for some reason, the combustion is hard, due to weather conditions or increased fuel moisture (wood, coal), the primary air regulator may be opened, but then you have to control combustion and not allow overheating of water. We recommend you to open the regulator prior adding the fuel in order to decrease the possibility of smoke returning to the room. (Picture 9)

11. SECONDARY AIR CONTROL

By moving the regulator located above the door horizontally, regulation of secondary air is performed. When the regulator is open (handle moved to the right), it allows better wood combustion. It is possible to adjust wanted combustion via this regulator.



Regulator has to be open during stove operation because the glass will stay clean this way. (picture 10)

12. FIRE SAFETY

During the installation of the stove the following safety measures are to be followed:

- a) In order to ensure sufficient thermal insulation, respect the minimum safety distance from objects or furnishing components flammable and sensitive to heat (furniture, wooden objects, fabrics etc.) and from materials with flammable structure. All the minimum safety distances have to be respected and lower values must NOT be used.
- b) In front of the chimney stove there must not be any flammable object or building material, sensitive to heat, at less than 100 cm distance. If the stove is installed on a foundation made of flammable materials, the foundation must be covered with fireproof plates.
- c) If the product is installed on a floor which is not completely fire resistant, one must foresee a fireproof background, for example a steel platform dimensions according to the local regulations. The platform must stick out 30 cm sideways and 50 cm in front of the door.
 - d) No flammable components must be present above the stove.

The chimney stove must operate exclusively with the ash drawer inserted. The solid residue of the combustion (ashes) must be collected in a hermetic container, resistant to fire. The stove must never be ignited when there is gas or steam emissions (e.g. glue, gasoline, etc.). Never deposit flammable materials near the stove. During the combustion there will be a spread of thermal energy which warms up the surfaces, the door, the fireplace glass, the handles and knobs, the smoke pipe and the front side of the stove. Please avoid the contact with these parts without gloves or the relevant tools.

Warn children of the danger and keep them away during the operation of the stove.

The use of a wrong or wet fuel causes the formation of creosote deposits in the flue and will fuel a chimney fire.

FIRST-AID MEASURES

Should any fire arise in the stack or in the flue:

- a) Close the feeding door and the ash drawer door;
- b) Close the regulators of combustion air;
- c) Extinguish the fire using carbon dioxide fire-fighting means CO2 or "S" dry powder;
- d) Seek immediate intervention of FIRE BRIGADE.

DO NOT EXTINGUISH FIRE USING WATER JETS.

When the fire has been extinguished, let the flue be checked by an expert to find possible cracks and permeable points.

13. AIR ENTRANCE INTO THE INSTALLATION PLACE DURING COMBUSTION

As the stoves take their combustion air from the installation place, it is essential that a sufficient quantity of air is introduced in the installation room itself.

In case of hermetic doors and windows (for example houses built according to the energy saving criteria) it is possible that the air entrance is not guaranteed, compromising the draught, the welfare and the security of the people. It is necessary to guarantee a further air entrance through an external air intake which is to be positioned nearby appliance or through air connection towards outside or near the ventilated room.

The entrance of air for combustion into the installation place must not be closed during the operation of the stove. It is absolutely necessary that in the environment in which the stove operates there is sufficient air for combustion, i.e. up to 20 m3/h.

An extraction hood (aspirator) installed in the same room or in a room nearby, causes depression which causes bad combustion and smoke inhalation with hazardous consequences to people.

14. ALLOWED/FORBIDDEN FUEL

The allowed fuel is made of wood logs and dark coal. One must use only logs of dry wood (water content max. 20 %). One must load at maximum 2 or 3 logs of wood simultaneously. The wood pieces should have a length of 30-40 cm and a maximum circumference of 30-35 cm.

The wet wood makes ignition more difficult because it requires a greater quantity of energy to evaporate the existing water. The humid content has the disadvantage that, with the temperature lowering, the water condensates first in the hearth and then in the chimney.

Among the others, the following cannot be burnt: remainders of coal, scraps of bark and panels, humid wood or treated with varnishes, plastic materials, materials of organic origin; in this case the warranty on the equipment expires.

Variety	Kg/m³	Kwh/Kg moistness 20%		
Beech	750	4,0		
Oak	900	4,2		
Elm	640	4,1		
Poplar	470	4,1		
Larch*	660	4,4		
Spruce*	450	4,5		
Scots pine *	550	4,4		

^{*} wood not suitable for burning

Paper and carton must be used only for ignition.

The combustion of wastes is FORBIDDEN and it may damage the stove and the chimney, causing health damages and spread of bad smell.

The wood is not a fuel which allows a continuous operation of the appliance, as a consequence the heating all over the night is not possible.

ATTENTION: the continuous and protracted use of aromatic wood (eucalyptus, myrtle etc.) quickly damages the cast iron parts of the product.

15. LIGHTING

IMPORTANT: The first time that the appliance is lit, there will be an odor given off which disappears after a short use. It must be ensured that, in any case, a good ventilation of the environment exists. Upon the first ignition we suggest loading a reduced quantity of fuel and gradually increasing the calorific value of the equipment. The odors and smoke are regular occurrences which originate from the stabilization of paint with which the parts have been protected, that is why it is necessary that the room is ventilated.

Therefore, it is extremely relevant to take these easy steps during the lighting:

- 1. Make sure that a sufficient air change is assured in the room where the appliance is installed.
- 2. During the first starts, do not load excessively the combustion chamber (at least half the quantity indicated in the instructions manual) and keep the fire continuously ON for at least 6-10 hours with the regulators less open than the value indicated in the instructions manual.
- 3. During initial ignitions do not place any objects on the stove or allow their contact with painted surfaces.
- 4. After you have finished "warming up", you can use your product according to the manual, without sudden heating with the overload.
- 5. For lighting of fire, we suggest using small pieces of wood with paper or other allowed lighting means. It is FORBIDDEN to use any liquid matter, such as alcohol, gas, oil etc.

16. REGULAR EXPLOITATION

IMPORTANT: due to the fact the door of the hearth has a remarkable size, we suggest you to open the door very slowly, to avoid the exit of smokes and flames.

For safety reasons the door of the hearth can be opened during the stove operation only for the loading of the fuel. The hearth door must always remain closed during operation.

Before opening the hearth door, open the primary air regulator, open the door slowly, load the fuel, close the door and after about 5 or 10 minutes close the primary air control.

Never overload the stove (compare the technical table - max. quantity of loadable fuel).

The warranty does not cover the damages due to overheating of the equipment.

17. OPERATION IN TRANSITION PERIODS

During transition periods when the external temperatures are higher, or if there is a sudden increase of temperature it can happen that the combustion gases inside the flue cannot be completely sucked out.

The exhaust gases do not come out completely (intense smell of gas). In this case, shake the grating more frequently and increase the air for the combustion. Then, load a reduced quantity of fuel in order to permit a rapid burning and the stabilization of the draft.

Then, check whether all openings for the cleaning and the connections to the stack are air-tight. In case of doubt, do not operate the stove.

18. CLEANING

Let the installation of your stove, the connection to chimney and the ventilation be checked by your chimney sweeper. For the cleaning of enameled surfaces use soap water or non-aggressive and materials who are not chemically abrasive. Clean the glass with a detergent and water, and the glass has to be dry prior using the stove. Do not use abrasive matters that can damage the glass surface.

IMPORTANT: It is possible to use exclusively spare parts clearly authorized and offered by the manufacturer. In case of need please apply to our dealer!

THE APPLIANCE CAN NOT BE MODIFIED WITHOUT PRODUCER'S CONSENT! Clean the stove, pipes, and the flue regularly.

18.1 CLEANING OF THE FILLE

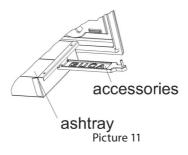
A correct lighting, the burning of a proper fuel, the loading of the suggested quantity of fuel, the right adjustments of the secondary air control, the sufficient draught of the chimney and the presence of air for the combustion, are essential for the good operation of the appliance.

The appliance must be completely cleaned at least once a year or every time it is needed (in case of bad working and low yield). The cleaning must be carried out exclusively when the stove is cold.

This operation should be carried out by a chimney sweeper who can simultaneously perform an audit of the flue (checking possible deposits). During the cleaning, it is necessary to remove from the appliance the ash drawer and the smokes pipes.

18.2 CI FANING OF THE GLASS

Thanks to a specific entry of the secondary air, the building of deposit on the glass of the door is slowed down in a remarkable way. However, the building of the deposits cannot be avoided with the use of solid fuels such as wet wood, and this is not to be considered a defect of the appliance.



IMPORTANT:

The cleaning of the glass must be carried out only and exclusively with cold appliance to avoid the glass breaking. Do not use abrasive or chemically aggressive products when cleaning the hearth glass.

GLASS BREAKING: Considering that the glass is manufactured for temperatures up to $700\,^{\circ}$ C it should not be subjected to thermal shocks. The break can be caused by mechanic shocks,

(hits or violent closure of the door, etc.). Therefore, its replacement is not included in the warranty.

18.3 CLEANING OF THE ASH DRAWER

The stove has a hearth grate and an ash drawer for the collection of ashes. We suggest you to empty regularly the ash drawer and to avoid filling it up totally, in order not to overheat the grate.

ATTENTION: The ashes removed from the hearth have to be stored in a container made of fire-resistant material equipped with an air-tight cover. The container has to be placed on a fire-resistant floor. Use accessory tools for ash drawer discharge.

The accessory tools are used also for ember and ash drawer dispersion, as shown in the picture 11.

19. Recommendations for environmental protection

Product

- The device is made of recycable material. Before storing to waste, observe the valid laws on protection of environment.
 - Use only the recommended types of fuel.
- The incineration of organic and inorganic waste is forbidden (plastic, textile, oiled wood, painted wood etc.) because it discharges carcenogenic and other detrimental materia.

Packaging:

- Packaging material is 100% recyclable.
- When storing to waste, oibserve the local regulations.
- Packaging material (plastic bags, styrofoam etc.) should be held out of the reach of children, since it is a potential source of danger.



