



A.D. METALNA INDUSTRIJA VRANJE
Radnicka 1

SOLID FUEL FURNACE

For occasional use

VULKAN AND VULKAN S



OWNER'S MANUAL INSTALLATION AND OPERATION

ENG_v.2.0

GENERAL INFORMATION

It is generally necessary to comply with applicable national building rules and regulations applying to fireplaces, and all relevant local, national, and European standard and regulations.

Important to read before use:

- In order for your fireplace stove to function properly, it is important that you read our manual carefully and comply strictly with instructions contained here.
- Use only the recommended types of fuel. Regulation 1. BImSchV referring to approved list of fuels is to be followed.
- Necessary pressure difference (draft) in normal working load should be approximately 12 Pa. When pressure exceeds 15 Pa, built-in flue damper control should be used.
- Sufficient fresh air incoming to the fireplace hearth should be ensured in the room in which the fireplace is to be positioned. If windows and doors are tightly sealed or if other devices, such as exhaust fans, clothes dryers, venting systems or other such devices exhaust air from room with fireplace, then fresh combustion air should be supplied from outside if needed. In this regards, before installing fireplace, consulting authorized organization dealing with chimney safety is necessary in any case.
- No inflammable material should be stored in ash can. Ashes should not build up above the height of lateral sides of the ash can.
- Door of hearth and ash compartment should always be closed (except when starting fire, adding woods and ashes removal) in order to prevent warm air to be drawn out of the fireplace opening.
- Fireplace stove must not be altered, unless change is done with our offered and verified original parts of equipment, and if works are carried out by qualified service team of our factory.
- In case of fire in the chimney, door of stove should be closed and outside air kit set to zero! Never extinguish chimney fire with water. Water steam creates in strokes in chimney, which can cause explosion. In case of chimney fire call fire brigade!
- In case of a problem, close all air ducts and do not add fuel to stove until problem is solved!

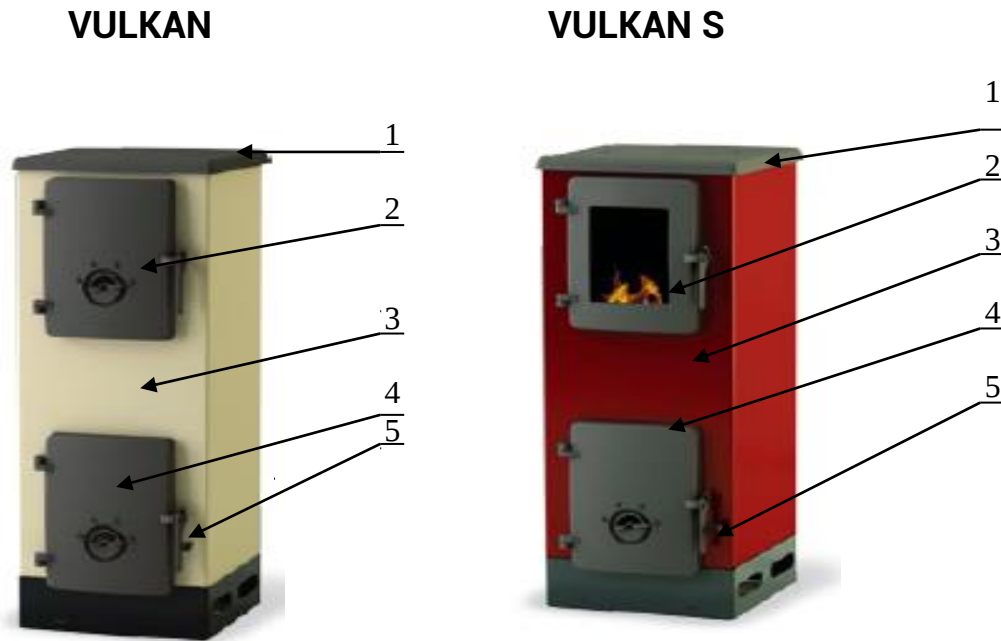


Figure 1
Solid fuel furnace

1. Furnace panel
2. Door of hearth
3. Furnace coat
4. Ash compartment
5. Grate vibrator

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1. Technical data

	VULKAN	VULKAN S
- Width.....	340 mm	340 mm
- Depth.....	360 mm	360 mm
- Height.....	885 mm	885 mm
- Nominal heat power.....	4,17 kW	4,17 kW
- Chimney pipe connection diameter.....	120 mm	20 mm
- Height from floor to chimney pipe axis.....	776 mm	776 mm
- Stove weight.....	81 kg	81 kg
-utilization rate (wood).....	78,3 %	
- Use of chimney.....	multiple	
- Waste air current.....seasoned wood:.....	6,13 g/s	
- Waste air temperature.....seasoned wood:.....	197,2 °C	
- Necessary pressure difference.....seasoned wood:.....	12 Pa	

2. Furnace description

Furnace is made of sheet-metal parts with cast iron grate, cast iron plate and cast iron door. Hearth is coated with replaceable fire clay plates.

Outside coating is made of enamel.

Fresh combustion air ducts are located on the hearth door and ash can door.

3. Air control

Outside air control is located on hearth door and ash compartment door.

Air control duct located on the hearth door allows ignition and fuel combustion.

Ash compartment should not be over filled. In order to allow free flow of air, ashes should be removed regularly.

Secondary air control duct is located on the hearth door. Secondary air supplies oxygen needed for clean combustion (full combustion of byproducts). Bad oxygen inlet causes increased harmful emissions, which could cause chimney blockage.

3.1. Primary air

Reliable fuel combustion is achieved with primary combustion air intake. Intake of this air is regulated with primary air control duct located on ash can door (figure 2, position 7). Air control kit on ash container door (figure 2, position 7) illustrates direction of closing and opening of the duct with numbers from 0 (closed) – 3 (max). When igniting fire the duct should be open on maximum (position 3). NOTE: In order to avoid overheating of the furnace, fuel quantity must not exceed 1.1 kg of dry seasoned wood per hour, when air combustion intake is properly positioned.

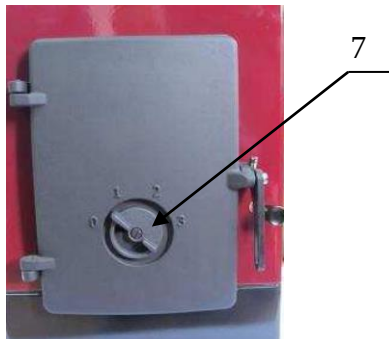


Figure 2

3.2. Using handle located on the hearth door

Handle on the hearth door is hot during furnace operation, and opening and closing of the hearth door is possible only with a special key provided in the furnace tool kit (see figure 3).



Figure 3

3.3. Secondary air

3.3.1. Regulation of the secondary air in the furnace type VULCAN

Secondary air control is shown on figure 4, position 8.

Numbers from 0 to 3 can be found around air control kit. When turning the kit towards 0, intake of secondary air reduces, and turning the kit towards 3 increases intake of secondary air.



Figure 4

3.3.2. Secondary air in the furnace type VULCAN S

In this type of furnaces the fire door has a ceramic glass, resistant to high temperatures.

The entrance of secondary air is set to provide quality fuel combustion.

4. Installation of furnace

Installation of furnace must strictly comply with applicable building codes and firefighting requirements. Place where furnace is to be installed must be horizontal and with sufficient bearing power, otherwise, appropriate measures on even load distribution should be taken. If floor is made of flammable material (wood, plastic, textile, etc.) sheet metal plates, copper plates or plates made of similar inflammable material must be inserted under furnace. This ground surface must extend around furnace for minimum 50 cm. Clearance between furnace and surrounding furniture and other objects made of wood, plastic or other flammable material must be minimum 30 cm on sides and 25 cm on the back side of furnace. Clearance between flammable materials and front fuel load opening must be minimum 80 cm.

Sufficient clearance must be maintained between furnace and surrounding flammable materials (with wooden forms, furniture, curtains, etc.)

Nothing should be placed or mounted above the furnace if cast iron panel is used.

When installing outlet pipes for used air, minimum 40 cm of clearance must be maintained between pipes and flammable materials.

Prior to connecting outlet pipe to chimney, consulting authorized organization dealing with chimney safety is necessary. Connection of furnace to chimney is carried out with binding sections in accordance with DIN 1298 or DIN EN 1856-2. Make sure that chimney connections do not outstand in waste air and gas outlet cross section and that connections are firmly and properly fastened. DIN-1 18160 must generally be complied with.

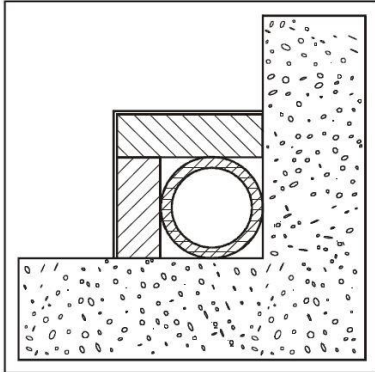
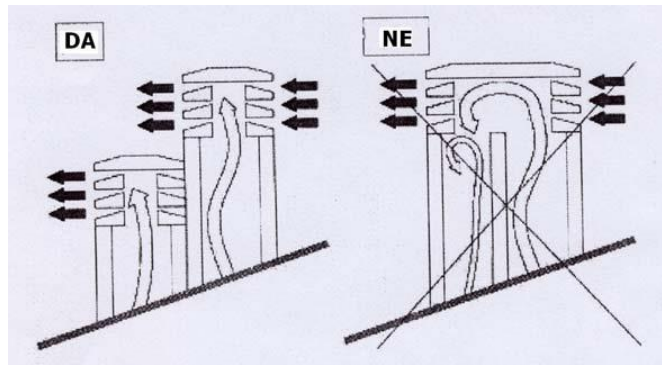
Chimney dimensioning is carried out in accordance with DIN EN 13384.

In accordance with **regulations (the wind resistant top of the chimney, distances and stove placing)**, the distances shown in Table 1 must be met:

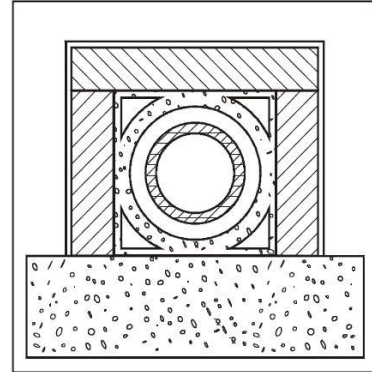
Roof inclination	Distance between the roof ridge cover and the chimney	Minimum height of the chimney measured at the upper opening (at the chimney outlet)
α	Distance in meters	Height in meters
15°	Less than 1.85 m More than 1.85 m	0.50 above the roof ridge cover 1.00 meter from roof pitch
30°	Less than 1.50 m More than 1.50 m	0.50 above the roof ridge cover 1.30 meters from the roof pitch
45°	Less than 1.30 m More than 1.30 m	0.50 above the roof ridge cover 2.00 meters from the roof pitch
60°	Less than 1.20 m More than 1.20 m	0.50 above the roof ridge cover 2.60 meters from the roof pitch

Table 1

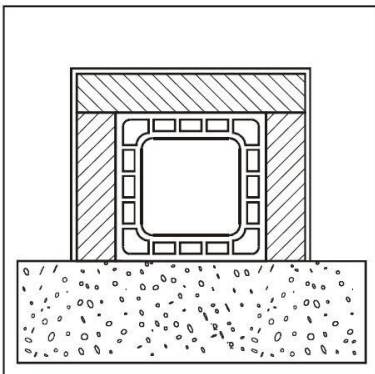
However, it is obligatory to provide an initial vertical extension (elongation) of 1.5 m (minimum) in order to provide a proper smoke discharge.



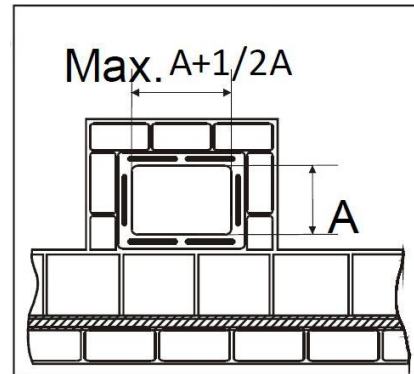
AISI 316 steel chimney with double insulated chamber, made of material resistant to 400°C. Optimal efficiency 100%



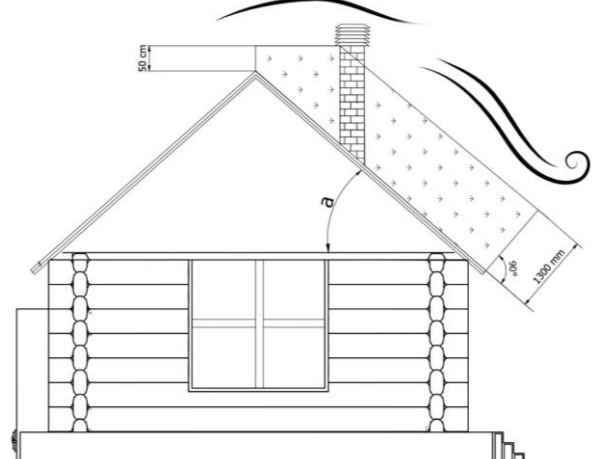
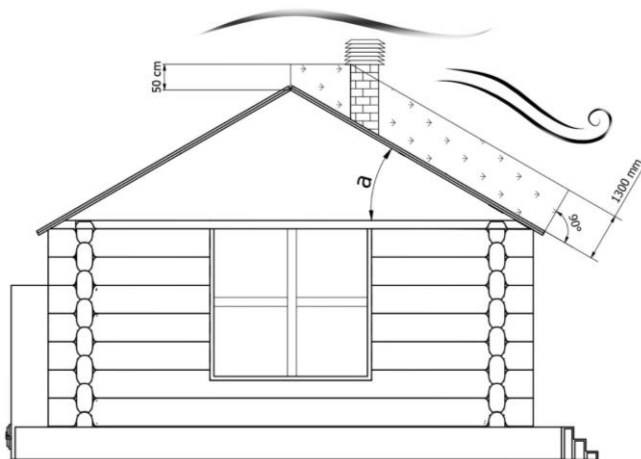
Fireproof chimney with double insulated chamber and an outer lining of lightweight concrete. Optimal efficiency 100%

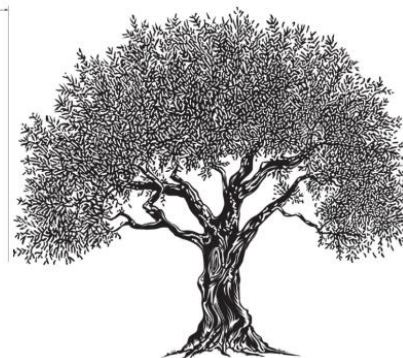
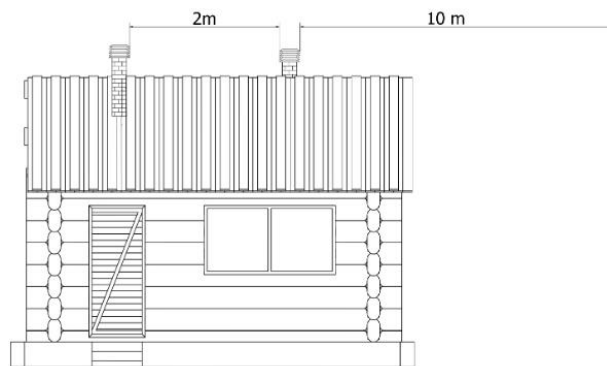


Traditional clay chimney with recesses. Optimal efficiency 80%



It is forbidden to use chimney pipes that have a rectangular internal cross-section with a ratio that differs from the plan. Modest efficiency 40%





Chimney - positioning and distance

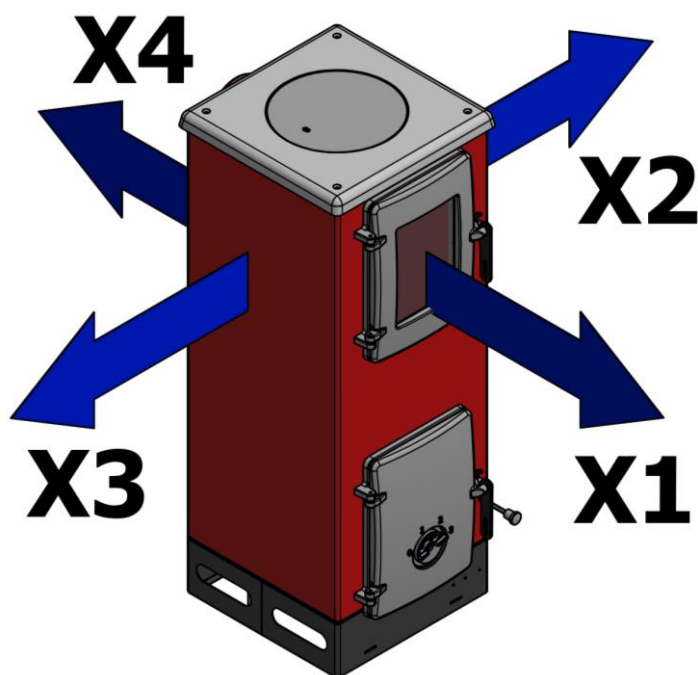
In order to achieve optimal furnace output, installation must be carried out properly and perfect chimney function must be ensured. Existing chimney pressure should be tested prior to furnace operation. Testing is done with a lighted candle placed in front of chimney opening. Chimney draft is sufficient if candle flame twists towards the opening. Slight twisting of flame indicates insufficient chimney draft.

If two hearths are installed on one floor (multiple use), distance between connections must be minimum 50 cm.

If chimney draft is too strong, it can be controlled (reduced) by flue damper control kit, built in outlet pipe. Maximum reduction of chimney draft is achieved when flue damper is positioned 90° C versus outlet connection pipe axes (see figure 5).

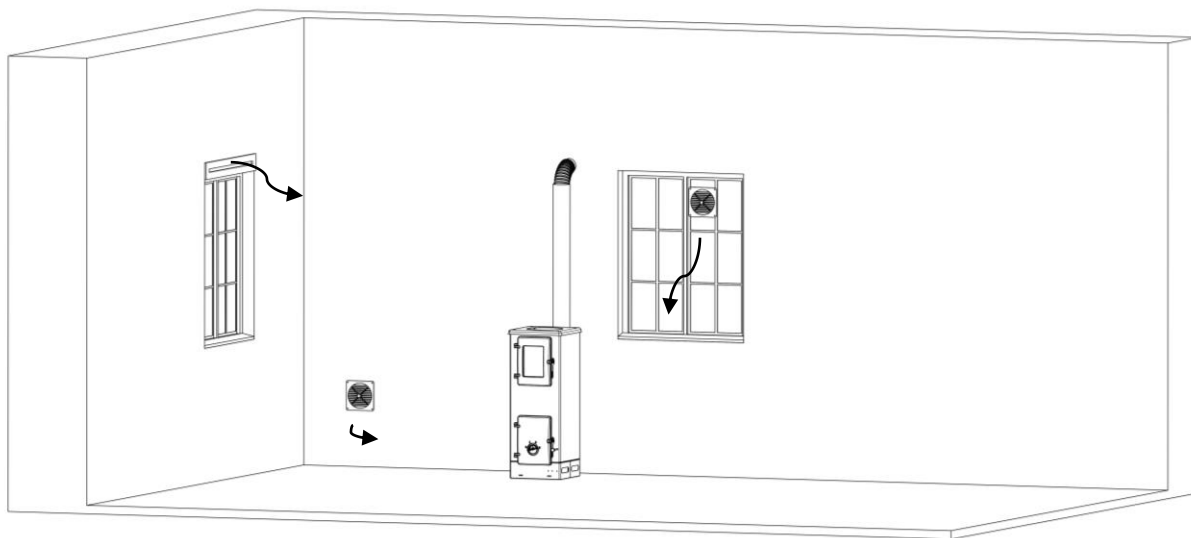


Figure 5



X1	90cm
X2	90cm
X3	90cm
X4	30cm

All minimum safety distances are indicated on the product data plate, DO NOT use lower values than specified (see INFORMATION ON CE MARKING).



Supply of fresh air in the room where the stove is installed

5. Operating furnace

Prior to initial operation, wipe all enamel surfaces with damp cloth to avoid stains.

After reading Operation manual you may start operating furnace.

Open windows because anticorrosion protection releases odors and smoke during initial operation. This is considered normal and will stop shortly. Ensure proper air circulation. If needed turn on a fan for better air circulation. Maximum temperature load should be maintained for at least one hour. If maximum temperature is not obtained during initial operation, odors and smoke may occur again later.

Pregnant women and children should not be in the room during the initial operation.

Keep in mind that certain furnace parts (outlet pipe, fuel load door, hearth door, etc.) are hot during furnace operation and may cause burns. Keep children away from furnace. During initial operation add small quantities of fuel three times in order to prevent fireclay cracking.

5.1. Initial operation and operating furnace

- Open primary air control duct to maximum (figure 2, position 7)

- Open hearth door
- Insert wood wool, chippings or paper
- Put two logs above
- Light fire
- Close hearth door
- Open door on ashes compartment
- Close vertical grate (figure 7 position 10)
- Let wood burn out and close door on ashes compartment.

When chippings establish hot bed of embers, open door and add fuel in the hearth and adjust primary and secondary air control according to type of fuel. Never add new fuel when there is flame!

Air control duct on ashes compartment should be in marked position (1 - 3) (see figure 6).



Figure 6

When adding fuel, open hearth door slowly to avoid smoke entering the room.

Nominal heat power is achieved in accordance with the following table.

Type of fuel	Fuel quantity	Combustion time	Air control duct on ashes ompartment	Chimney draft control
	Kg	H	Position	Position
Seasoned wood	1,6	1,5	3	2

Use only natural seasoned wood. Seasoned wood should be in logs 17 cm long.

Polished, painted, veneered and impregnated wood or wood treated with glue is not allowed for use. This voids every guarantee and responsibility of the manufacturer. Use dry seasoned wood (20 % of moisture). As rule, wood is dry after being

stored in dry place with good air circulation for two years. Wet wood uses energy for drying and has low caloric value and accumulates creosote in chimney pipes and chimney.

Bad chimney condition (e.g. bad weather) may cause problems and smoke may not be eliminated completely. In such case it is not allowed to operate furnace due to security issues.

5.2. Furnace maintenance and cleaning

Whole furnace should regularly be checked by competent personnel. Hearth, chimney pipes and chimney must be cleaned regularly, several times per year and at least once during heating season.

Regular maintenance and cleaning is crucial for proper and reliable operation of furnace. Enamel surfaces should be cleaned only when cold. Clean furnace with water and soft cloth. In certain conditions, clean furnace with soap. Cleaning frequency depends on type of fuel, duration and usage of furnace.

Ash can should be regularly emptied prior to each operation (figure 7, position 11). 1-2 times per week clean grate (figure 7, position 9).

In case that air duct get blocked by byproducts, these must be removed immediately. In this case pull grate out and clean it (figure 7).

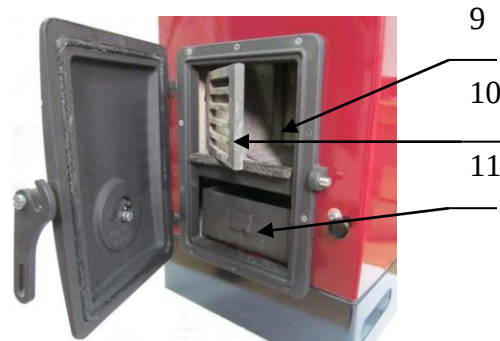


Figure 7

Grate vibrating is carried out with handle as shown on figure 8.



Figure 8

6. General information

If you comply with installation and operation manual, this furnace will be a reliable heating source. All problems with your furnace may be resolved by our service. In case of problems or mistakes in operation, please contact our service. They will help you with ordering spare parts too.

7. Information on Use and Transport

During the stove relocation make sure that the stove remains in balance, therefore avoid sudden movements.

Before any movement is done, check whether the forklift has the load capacity greater than the weight of the stove in question: the operator is in charge of lifting the load.

Pay attention that the children do not play with the packaging components for safety reasons.

8. Frequently Asked Questions

The ignition problems:

- Open the primary air and if necessary, open the ashpan door slightly,
- Use well-dried wood logs,
- Check whether the flue pipes are well-connected,
- Check the draught in the chimney,
- Check whether the ashes and the combustion residue have clogged the exhaust pipes or the firebox grate.

Glass gets dirty very quickly:

- Wet wood logs: use dry firewood (10-20% relative humidity),
- Check whether the ashes and the combustion residue have clogged the exhaust pipes or the grate,
- Inappropriate firewood,
- The stove does not have sufficient pull (see the connection and the chimney),

- Setting is not well-adjusted: if the secondary air inlet is closed, the glass gets dirty quickly,
- There is a condensate inside the combustion chamber.
- In the first few ignitions the formation of condensate is expected, as the materials covering the stove contain moist,
- Check whether the chimney size is too big and whether the flame reaches the chimney top.

9. The Nameplate

The nameplate is attached to the back or the bottom of stove, containing serial number that should be listed for each order.

10. INFORMATION ON THE DISPOSAL (DISCARDING) AND DISASSEMBLY (DISMANTLING) OF THE STOVE

The disassembly and disposal of (an old, used) stove is the sole responsibility of the owner of the stove.

The owner of the stove must observe the applicable legal regulations of his own country related to the safety and protection of the environment. The disassembly and disposal of the stove may be delegated to a third party provided that this third party is a company authorized for the collection and disposal of such materials.

NOTICE: *In all cases you must observe the applicable legal regulations of the country in which the stove is installed, related to the disposal of such materials (things) and, if necessary, report the disposal of such things.*

CAUTION

The disposal of the stove at public places represents a serious threat to people and animals. In such cases, the owner shall be liable for any injuries of people and animals.

When the stove is disassembled, the EC mark, this Manual and any other documents related to the stove must be destroyed.