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PELET STOVE FOR CENTRAL HEATING

DINO

DINO 24

DINO 27



→ Pellet fuel from timber biomass biofuels →

INSTRUCTIONS FOR CONNECTING, OPERATION, AND MAINTENANCE OF THE STOVE

DINO PELET STOVE FOR CENTRAL HEATING „DINO, DINO 24, DINO 27”

Heating devices (in this manual they are called “stoves”) by Alfa Plam (in this manual titled Alfa Plam) are assembled and tested in accordance with the safety and applicable measures, and regulations of the European Community.

This manual is intended for users of the stoves, contractors who install the stoves, operators and workers for stove maintenance that is shown on the front page of the manual.

If you do not understand something in this manual, please contact our professional services or an authorized service center. In doing so, always specify the number of the chapter where there is some ambiguity.

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WARNING:

IMPORTANT: Connecting the appliance to the electrical installation must be carried out by qualified and authorized persons in accordance with applicable regulations.

This appliance is not intended for use by persons (including children) with reduced physical, motor, and mental capabilities, or to persons with a limited knowledge and experience in the absence of the person responsible for their safety or care.

Children cannot be allowed to play with this appliance.

DOUBLE COMBUSTION SYSTEM

The flame obtained by proper combustion of the pellet in the stove emits the same amount of carbon dioxide (CO₂), which would be freed as a result of the natural decay of wood.

The amount of carbon dioxide (CO₂) obtained through combustion or decomposition of plant mass corresponds to the amount of carbon dioxide (CO₂) which the plant mass is able to obtain from the environment and to transform it into air and carbon of the plants during its entire lifetime.

The use of non-renewable fossil fuels (coal, oil, gas), contrary to what happens with the wood, releases into the atmosphere huge amounts of carbon dioxide (CO₂), that have been gathering up for millions of years, creating a greenhouse effect. The use of wood as fuel is therefore perfectly balanced with the environment, because the wood as a renewable fuel is in ecological harmony with nature.

Using the principle of clean combustion, we fully achieve these objectives, and so Alfa Plam has directed its development and all activities towards fulfilling this goal.

What do we consider clean combustion and how does it work?

Controlling and adjusting the primary air and injecting the secondary air causes secondary combustion, or the so-called post-combustion, which provides a secondary flame that is by its nature lighter and stronger than the primary flame. The addition of a new oxygen (inserted through the air) allows further combustion of gases that are not completely burned. This significantly increases the thermal efficiency and reduces harmful emissions of carbon monoxide (CO), because the incomplete combustion is minimized. These are the basic characteristics of these stoves and other products of Alfa Plam.

CAUTION

- The minimum installed power of the heating system must not be less than 65% of the nominal power of the stove and the maximum installed power of the heating system must not be more than 100% of the nominal power of the stove.
- The chimney, to which the stove is connected must meet the requirements provided in the user manual.
- When connecting the appliance to the chimney, never use flexible hoses instead of flue pipes.
- Regular maintenance and care, such as cleaning the stove, the flue pipes and the nozzles (of the pipes), are important to ensure safety, and especially for the sake of economy and in order to maintain the value of the stove.
- Unauthorized modification of the device is prohibited and therefore any unauthorized modification shall render the warranty null and void.

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1. THE TASK PURPOSE OF THIS MANUAL

The purpose of the instructions is to enable the user to take all the necessary measures in order to ensure safe and proper use of the stove.

1.1. UPDATING THE INSTRUCTIONS

This manual reflects a work of art at the moment when the stove was placed on the market. Therefore, Alfa Plam does not take into account the stoves that are already on the market with the appropriate technical documentation and considers them as defective or inadequate after any kind of modification, adaptation or application of new technologies to newly produced machines.

The contents of this manual should be carefully read and studied. It is necessary to strictly follow all the instructions given in this manual. All information contained in this manual is necessary for proper connection, use, and maintenance of your stove.

Therefore, this manual has to be carefully stored for the necessary instructions in the event of any problems or concerns.

If the stove is given or sold to another person, the new owner must also be given this instructions manual.

If you have lost your manual, the manufacturer can provide you with a new one.

2. RESPONSIBILITIES OF THE MANUFACTURER

In issuing these instructions, Alfa Plam **accepts no civil or legal liability, direct or indirect, due to:**

- **Accidents caused by not respecting the standards and specifications given in this manual,**
- **Accidents caused by improper handling or use of the stove by the user,**
- **Accidents resulting from modifications and repairs, which were not approved by Alfa Plam,**
- **Poor maintenance,**
- **Unforeseen events,**
- **Accidents resulting from the use of spare parts that were not original or not intended for these models of stoves.**

Responsibility for connecting is fully assumed by the installer - contractor.

2.1. GENERAL CHARACTERISTICS OF USERS

The stove must be used by adult and responsible people.

Make sure that children do not approach the stove, when it is in use, with the intention of playing.

Children must not approach the stove, while in function, with the intention of playing. This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge. If they are supervised by an elderly person who is familiar with the instructions of use. Children cannot carry out the cleaning and maintenance of the stove, if they are not supervised by an elderly person.

2.2. TRANSPORTING AND USING THE STOVE - HANDLING

When using the stove, it is necessary to be careful and not allow the stove to tilt forward. This is because the brunt of the stove is forward.

During transportation of the stove, which has to be completely safe, make sure that the forklift has the load that is greater than the weight of the stove that it is supposed to lift. Avoid twitching and jerking movements.

ALL PACKAGING SHOULD BE REMOVED SO THAT IT IS OUT OF REACH OF CHILDREN, BECAUSE THE MATERIALS THAT ARE INSIDE CAN LEAD TO CHILDREN SUFFOCATING. THESE INCLUDE PLASTIC BAGS, FILM, POLYSTYRENE, ETC.

2.3. RESPONSIBILITIES OF THE INSTALLER

Installer's responsibility is to do all the tests of the flue pipeline, air supply, and all the things that are necessary for connecting (installing) your stove.

Installer's responsibility is to adjust the stove to local regulations which apply where the stove is connected (installed).

The use of the stove must be in accordance with the instructions for use and maintenance, as well as with all the security standards that are given by the local regulations that apply where the stove is connected (installed).

The installer has to **check:**

- the type of stove to be connected,
- whether the room corresponds to the stove where the stove will be installed, which is expressed as the minimum size required for installation, set forth by the manufacturer of the stove,
- heat generator
- manufacturer's instructions regarding the requirements of smoke removal systems (ducts and pipes for smoke exhaust),
- inner cross section of the chimney, the material out of which the chimney is made, uniform cross section,
- that there are no disturbances and obstacles in the chimney,
- height and vertical extension of the chimney,
- altitude at the place of connecting the stove,
- the existence and suitability of the protective cover for the chimney that is resistant to the wind,
- the possibility of securing the external air supply and the size of the necessary openings,
- simultaneous use of stove that needs to be connected with other equipment that already exists at that place.

If the results of all checks are positive, then we can proceed with connecting the stove. Make sure you follow the instructions of the manufacturer of the stove, as well as the standards for fire protection and the safety standards provided.

When you are finished connecting, the stove has to be turned on in trial mode for at least 30 minutes to test if the stove is working properly.

When the installation and important details are completed, the installer must provide the client the following:

- Instructions for use and maintenance issued by the manufacturer of the stove (if such instructions are not provided with the stove),
- The documentation necessary to comply with the existing standards.

3. Technical Data and Product Features

| No. | Parameter | Unit | Explanation | Dino | Dino 24 | Dino 27 |
|-----|---------------------------------------|-------------------|---|------|---------|---------|
| 1 | P_{nom} | kW | the nominal heat output or a range of outputs (dependent on fuel types), rounded to the nearest one decimal place | 17,1 | 23,5 | 26,9 |
| 2 | P_{SHnom} | kW | the nominal space heat output or a range of outputs (dependent on fuel types), rounded to the nearest one decimal place | 1,1 | 2 | 2,4 |
| 3 | P_{Wnom} | kW | the nominal water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types), rounded to the nearest one decimal place | 16,0 | 21,5 | 24,5 |
| 4 | P_{part} | kW | the part load heat output or a range of outputs (dependent on fuel types) if specified, rounded to the nearest one decimal place | 7,0 | 8,4 | 8,4 |
| 5 | P_{SHpart} | kW | the part load space heat output or a range of outputs (dependent on fuel types) if specified, rounded to the nearest one decimal place | 0,9 | 1,0 | 1,0 |
| 6 | P_{Wpart} | kW | the part load water output (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, rounded to the nearest one decimal place | 6,1 | 7,4 | 7,4 |
| 7 | P_{slow} | kW | the heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, rounded to the nearest one decimal place | -- | -- | -- |
| 8 | P_{SHslow} | kW | the space heat output at slow combustion or a range of outputs (dependent on fuel types) if specified, rounded to the nearest one decimal place | -- | -- | -- |
| 9 | P_{Wslow} | kW | the water heat output at slow combustion (if an integral boiler is fitted) or a range of outputs (dependent on fuel types) if specified, rounded to the nearest one decimal place | -- | -- | -- |
| 10 | $P_{acc in}$ | kW | accumulator heat input, in kW or W for Kachelofen inset appliances only, rounded to the nearest one decimal place | -- | -- | -- |
| 11 | $T_{acc in}$ | °C | temperature at the separate heat exchanger inlet, for Kachelofen inset appliances only, rounded to the nearest integer | -- | -- | -- |
| 12 | ζ_{acc} | Pa | the flow resistance of the separate heat exchanger as used in the test, for Kachelofen inset appliances only, rounded to the nearest integer | -- | -- | -- |
| 13 | η_{nom} | % | the appliance efficiency at nominal heat output, rounded to the nearest integer | 93 | 94 | 94 |
| 14 | η_{part} | % | the appliance efficiency at part load heat output, rounded to the nearest integer | 96 | 95 | 95 |
| 15 | η_S | % | the appliance seasonal space heating efficiency at nominal heat output, rounded to the nearest integer | 82 | 84 | 83 |
| 16 | EEI | - | the energy efficiency index, rounded to the nearest integer | 124 | 126 | 125 |
| 17 | CO_{nom} (13 % O ₂) | mg/m ³ | CO emission at 13 % oxygen content at nominal heat output, rounded to the nearest integer r | 116 | 68 | 48 |
| 18 | CO_{part} (13 % O ₂) | mg/m ³ | CO emission at 13 % oxygen content at part load heat output if specified, rounded to the nearest integer | 344 | 122 | 122 |
| 19 | CO_{slow} (13 % O ₂) | mg/m ³ | CO emission at 13 % oxygen content at heat output at slow combustion if specified, rounded to the nearest integer | -- | -- | -- |
| 20 | NO_{xnom} (13 % O ₂) | mg/m ³ | NOx emission at 13 % oxygen content at nominal heat output, rounded to the nearest integer | 146 | 153 | 155 |

| | | | | | | |
|----|--|-------------------|---|----------------------|----------------------|----------------------|
| 21 | NO_xpart (13 % O₂) | mg/m ³ | NO _x emission at 13 % oxygen content at part load heat output if specified, rounded to the nearest integer | 148 | 125 | 125 |
| 22 | NO_xslow (13 % O₂) | mg/m ³ | NO _x emission at 13 % oxygen content at heat output at slow combustion if specified, rounded to the nearest integer | -- | -- | -- |
| 23 | OGC_{nom} (13 % O₂) | mg/m ³ | hydrocarbon emission at 13 % oxygen content at nominal heat output, rounded to the nearest integer | 1 | 1 | 1 |
| 24 | OGC_{part} (13 % O₂) | mg/m ³ | hydrocarbon emission at 13 % oxygen content at part load heat output if specified, rounded to the nearest integer | 4 | 2 | 2 |
| 25 | OGC_{slow} (13 % O₂) | mg/m ³ | hydrocarbon emission at 13 % oxygen content at heat output at slow combustion if specified, rounded to the nearest integer | -- | -- | -- |
| 26 | PM_{nom} (13 % O₂) | mg/m ³ | particulate matter emission at 13 % oxygen content at nominal heat output, rounded to the nearest integer | 20 | 16 | 18 |
| 27 | PM_{part} (13 % O₂) | mg/m ³ | particulate matter emission at 13 % oxygen content at part load heat output if specified, rounded to the nearest integer | 35 | 36 | 36 |
| 28 | PM_{slow} (13 % O₂) | mg/m ³ | particulate matter emission at 13 % oxygen content at heat output at slow combustion if specified, rounded to the nearest integer | -- | -- | -- |
| 29 | P_{nom} | Pa | minimum flue draught at nominal heat output, rounded to the nearest integer | 12 | 12 | 12 |
| 30 | P_{part} | Pa | minimum flue draught at part load heat output if specified, rounded to the nearest integer | 10 | 5 | 5 |
| 31 | P_{slow} | Pa | minimum flue draught at heat output at slow combustion if specified, rounded to the nearest integer | -- | -- | -- |
| 32 | P_W | kPa (bar) | the permissible maximum water operating pressure, if applicable, to be given with 1 decimal | 190 kPa (1,9 bar) | 190 kPa (1,9 bar) | 190 kPa (1,9 bar) |
| 33 | d_R | mm | the minimum distances from the rear to combustible material, rounded to the nearest integer | 100 | 100 | 100 |
| 34 | d_S | mm | the minimum distances from the sides to combustible material, rounded to the nearest integer | 200 | 200 | 200 |
| 35 | d_C | mm | the minimum distances from the top to combustible material in the ceiling, rounded to the nearest integer | 750 | 750 | 750 |
| 36 | d_p | mm | the minimum distances from the front to combustible material, rounded to the nearest integer | 800 | 800 | 800 |
| 37 | d_F | mm | the minimum distances from the front to combustible material in bottom front radiation area, rounded to the nearest integer | 1500 | 1500 | 1500 |
| 38 | d_L | mm | the minimum distances from the front to combustible material in side front radiation area, rounded to the nearest integer | 1500 | 1500 | 1500 |
| 39 | d_B | mm | the minimum distances below the bottom (not regarding feet) to combustible material, rounded to the nearest integer | 0 | 0 | 0 |
| 40 | d_{non} | mm | the minimum distances to non-combustible walls, rounded to the nearest integer | -- | -- | -- |
| 41 | s | mm | Protective insulation according to manufacture r's instructions | -- | -- | -- |
| 42 | e_{lSB} | kW | the consumption of electrical auxiliary energy at standby, to be given with 3 decimals | 0,004 | 0,004 | 0,004 |
| 43 | e_{lmax} | kW | the consumption of electrical auxiliary energy at nominal heat output, to be given with 3 decimals | 0,034 | 0,033 | 0,035 |
| 44 | e_{lmin} | kW | the consumption of electrical auxiliary energy at part load heat output, to be given with 3 decimals | 0,026 | 0,026 | 0,026 |


| | | | | | | |
|----|---|-------------------|--|------------------|----------------|----------------|
| 45 | E, f | V, Hz | Power supply voltage, frequency, rounded to the nearest integer | 230V, 50 Hz | 230V, 50 Hz | 230V, 50 Hz |
| 46 | W_{\max} | W | Maximum electric power input, rounded to the nearest integer | -- | -- | -- |
| 47 | T_{snom} | °C | the flue gas outlet temperature at nominal heat output, rounded to the nearest integer | 139 | 150 | 169 |
| 48 | T_{spart} | °C | the flue gas outlet temperature at part load heat output, rounded to the nearest integer (to be given for pellet operation only) | 78 | 91 | 91 |
| 49 | T_{class} | - | Chimney designation according to the appropriate chimney standard | T 200 G | T 200 G | T 200 G |
| 50 | $\phi_{f,g \text{ nom}}$ | g/s | the flue gas mass flow at nominal heat output, rounded to the nearest one decimal place | 13,2 | 13,0 | 14,6 |
| 51 | $\phi_{f,g \text{ part}}$ | g/s | the flue gas mass flow at part load heat output rounded to the nearest one decimal place (to be given for pellet operation only) | 6,1 | 7,2 | 7,2 |
| 52 | V_h | m ³ /h | The standing air loss, if specified, rounded to the nearest one decimal place | -- | -- | -- |
| 53 | CON or INT | - | whether the appliance is capable of continuous operation (CON), whether the appliance is capable of intermittent operation (INT) | INT | INT | INT |
| 54 | d_{out} | mm | the diameter of the flue gas outlet, rounded to the nearest integer | 80 | 80 | 80 |
| 55 | L, H, W | mm | the overall dimensions of the appliance (length, height, width), rounded to the nearest integer ^a | 574 x 1237 x 568 | | |
| 56 | m | kg | Mass of the appliance, rounded to the nearest integer | 193 | 193 | 193 |
| 57 | m_{chim} | kg | the maximum load of a chimney the appliance may carry, to be rounded to the nearest integer | 0 | 0 | 0 |
| 58 |  | - | meaning "read and follow the user operating instructions" | | | |

Table 1

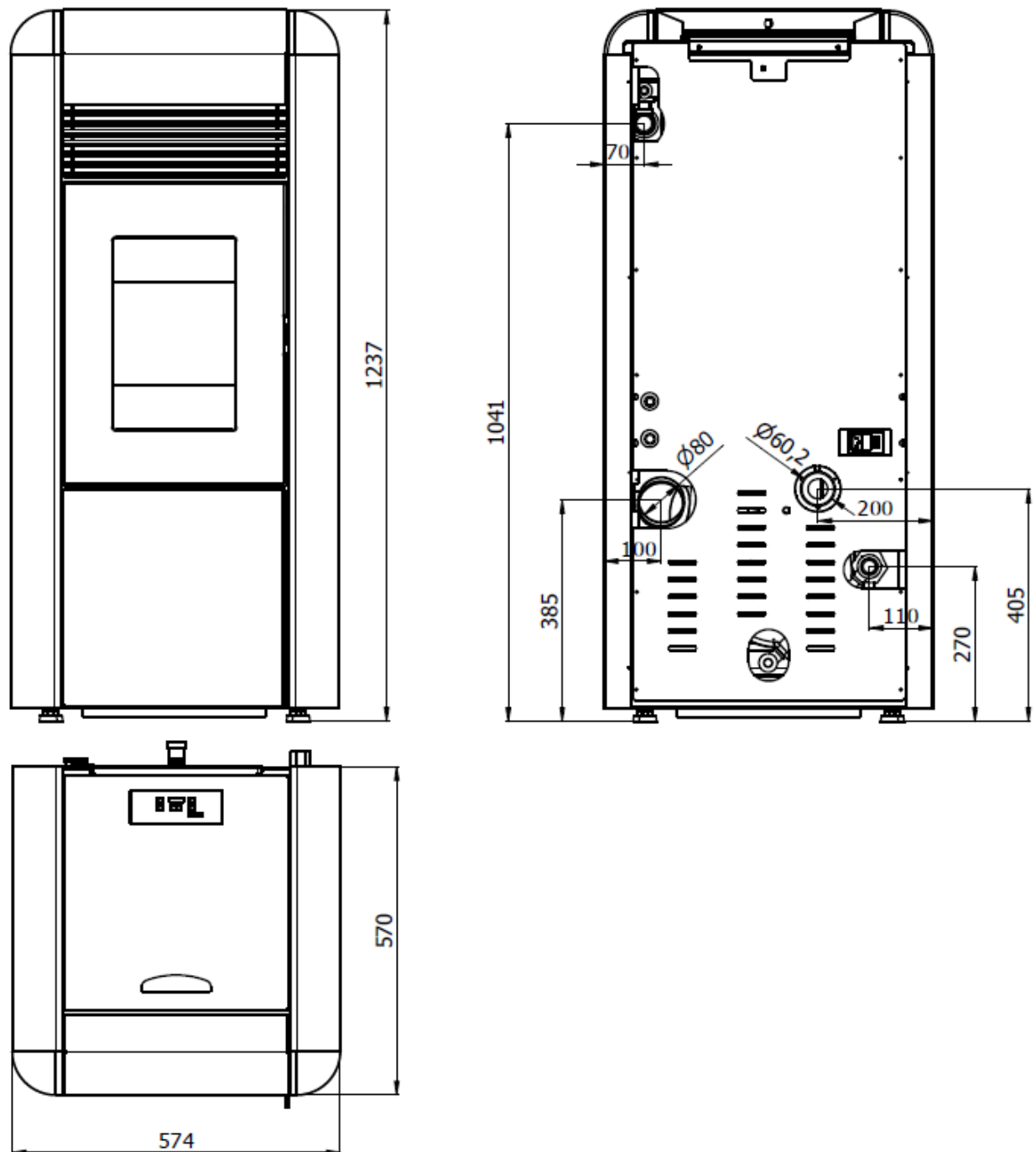


Figure 1 - Dino,Dino 24, Dino 27 - Dimensions

4. INSTALLATION – STOVE INSTALLATION

Responsibility for the work carried out at the place of connection is entirely on the user.

Before one turns the stove on, the installer must meet all legal standards of safety, as well as the following requirements:

- to check that setting up the stove complies with local, national, and European regulations,
- that the location of setting up the stove meets the requirements set forth in this manual,
- to set up the flue pipes,
- that air intake matches the type of the installed stove,
- that the electrical connections are not set up using temporary and/or not insulated electrical cables,
- to evaluate the effectiveness of grounding electrical systems,
- to always use personal protective equipment and all means of protection that are prescribed by local regulations,
- to always provide sufficient service space required for any maintenance and repair of stoves

4.1. INSTALLING THE STOVE

We recommend you to unpack the stove only when the stove is set up in the position where it will be connected.

The stove is on the plastic pins that have M10 bolts (4 items), that are threaded into the stove base. At the screws there are M10mm threaded nuts to the plastic parts. The legs are wound up all the way to the base of the stove. After unpacking the stove, when you put it in a place where it will be located, it is necessary to unscrew all the legs, so that a total height from the floor to the base of the stove is about 25mm. When you are done with nivelation of the stove that needs to stand horizontally, tighten the nuts with a 17 wrench, which needs to approach the base of the furnace, and at the same time hand-holding the

plastic part of the legs, tighten the nut. The height of about 25mm from the floor to the base is needed for better circulation of air and cooling the stove. In this way you protect the stove from overheating and you extend its life.

The appliance shall be installed on the floors with an adequate load-bearing capacity. If an existing construction does not meet this prerequisite, suitable measures (e.g. load distributing plate) shall be taken to achieve it.

If the surrounding walls and/or floors are made of materials that are **not resistant to heat**, then one should use adequate protection using the insulating material that does not burn.

In order to protect the building construction against the risk of fire, flammable elements (such as walls, doors, furniture, home appliances...) must be kept on the safe distance from the stove: minimum 100 mm from the rear side, 200 mm from the lateral sides and 800 mm from the front side. Always leave at least 350 mm between the rear side of the stove and the wall to allow for proper air circulation, or for the air to flow properly in that area. To protect the floor if it is made of combustible materials (wood, parquet, linoleum, laminates, carpets...), we suggest you put a metal plate under the stove on the floor with the thickness of 3-4 mm that will stretch 300 mm in front of the stove. Any elements made from wood (e.g. beams) or other combustible material located near the stove should be protected/covered with fireproof material.

Leave enough clearance for maintenance work.

If the stove is installed in a kitchen with a trellis for drawing out air or if it is placed in the room with appliances that use solid fuel (such as a wood burning stove), always make sure that the amount of inlet air in the room is sufficient to ensure safe operation of the stove.

If a smoke channel goes through the ceiling, it should be properly thermally insulated using the protection out of insulating materials that does not burn. When the stove is set up into place, it should be levelled using pins.

DANGER !

The exhaust gas Armour **must not be** connected to:

- the smoke pipe used by another heat generator (boilers, furnaces, fireplaces, stoves, etc.),
- the air drawing system (grilles, ventilation openings, etc), even if the system is inserted into the drain pipe.

DANGER !

It is forbidden to install shut-off valves for the flow (draft) of air (flap valves that can prevent airflow or disable drafts).

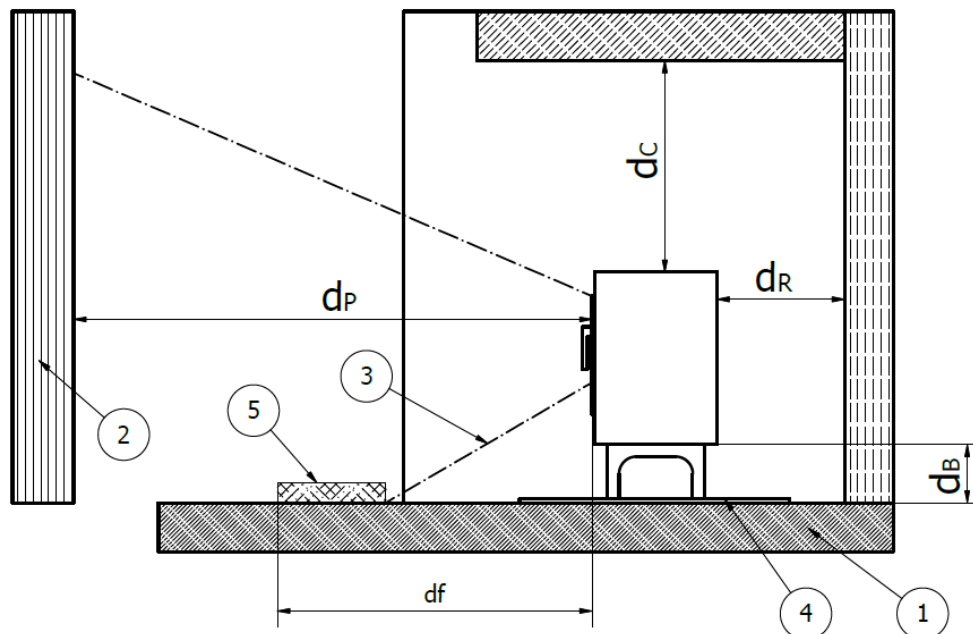
ATTENTION

If the ejection path of smoke creates such a bad draft, of a bad flow of air (many curves, improper completion of the ejection of smoke, constriction, etc.) discharge of smoke can be bad, or in a situation like this smoke discharging is not as good as it could be.

The smoke ejection system from the stove operates under negative pressure in the stove chamber and with mild pressure from the smoke drain pipe. It is very important that the smoke extraction system is hermetically closed (sealed). This requires the use of a smooth tube on the inside. First of all you must carefully study the plan and structure of the room when the smoke extraction pipe is set up through the walls and roof, so that the installation of pipes is performed properly in accordance with the standards of fire protection.

You should first ensure that the room where the stove is located has enough air for combustion. It is advisable to periodically performs check so as to ensure that the combustion air comes right up to the combustion chamber. The stove operates at 230 V ~ 50 Hz. Make sure that the electrical cord is not underneath the furnace, to be away from the stove, to be away from hot spots, and not to touch any sharp edges that it could interdict. If the stove is electrically overloaded, this can lead to shortening of the lifetime of the electronics of the stove.

Never turn off the power supply by pulling the plug when there is a burning flame in the stove. This could jeopardize the proper functioning of the stove.



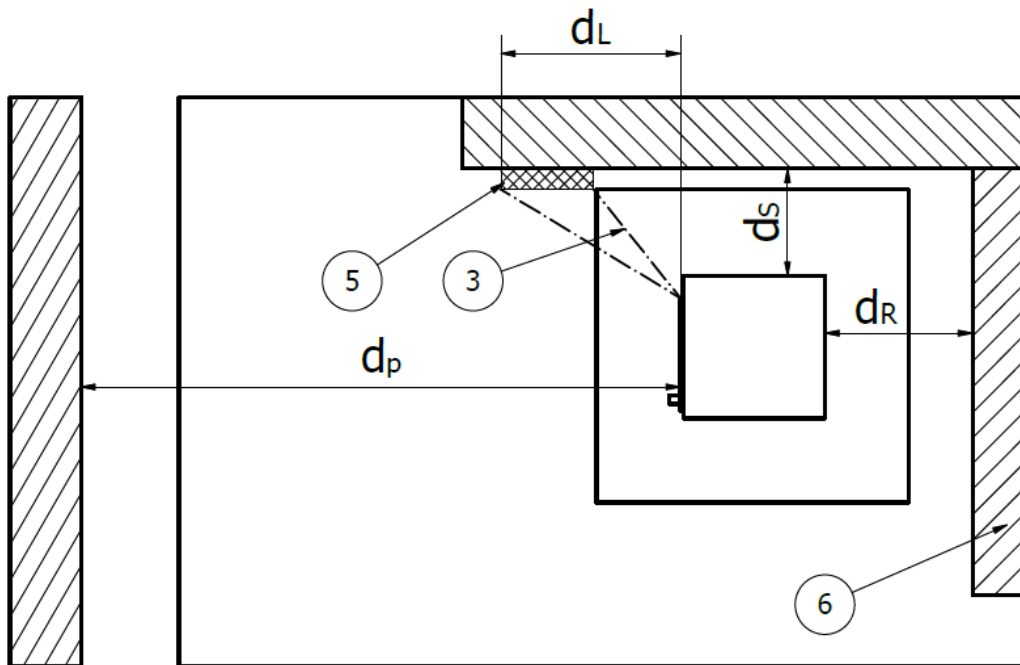


Figure 2 - All minimum safety clearances are listed on the technical nameplate, DO NOT use lower values than those specified (view CE MARKING INFORMATION).

| | | |
|--|-------|---------|
| Bottom (which is 0mm in case of appliances without feet) | d_B | 0 mm |
| Floor in Front | d_F | 1500 mm |
| ceiling | d_C | >750 mm |
| rear | d_R | 100 mm |
| side | d_S | 200 mm |
| Side radiation area | d_L | 1500 mm |
| front | d_P | 800 mm |

Table 2

| | |
|----|---|
| 1. | Trihedron floor |
| 2. | Trihedron-like front plate |
| 3. | Radiation area |
| 4. | Floor protection plate |
| 5. | Critical area (65K superseded due to radiation) |
| 6. | Trihedron walls |

Table 3

4.2. INSTRUCTIONS FOR COMBUSTION AND VENTILATION

Combustion air must be supplied to the rooms where the stove is installed. The room must be constantly ventilated. An fresh air opening must be located in the lower part of the room and air should enter through it.

A) Supply of combustion air by means of a pipeline through the basement. This connection option leads to a preheating of the combustion air, which is useful for a good and clean combustion. The installation of pipelines in the basement is simple.

B) Supply of combustion air through the basement. The combustion air is preheated. The basement space must be separated from the ventilation system of the house and open to the outside. High levels of dust and moisture should be avoided.

C) Supply of combustion air from above. Air supply from above can only be performed with tested chimney systems. In this case, it is necessary to calculate the dimensions of the chimney!

D) Supply of combustion air directly from outside. If combustion air is directly supplied through the outer wall, it shall be only be slightly preheated, which is unfavorable for a clean combustion. In this case there is also risk of condensation!

NOTE: We do not recommend these versions of air supply! However, if you use these options, consult a qualified professional.

In the room where the heating device is installed, it is necessary to ensure sufficient supply of fresh air. If the windows and doors are hermetically sealed or if there are air-extracting devices, such as hoods, hair dryers, fans etc., in the room where the stove is installed, combustion air (fresh air) must be supplied from outside. In any case, this should be discussed with a competent chimney sweep before installing the stove.

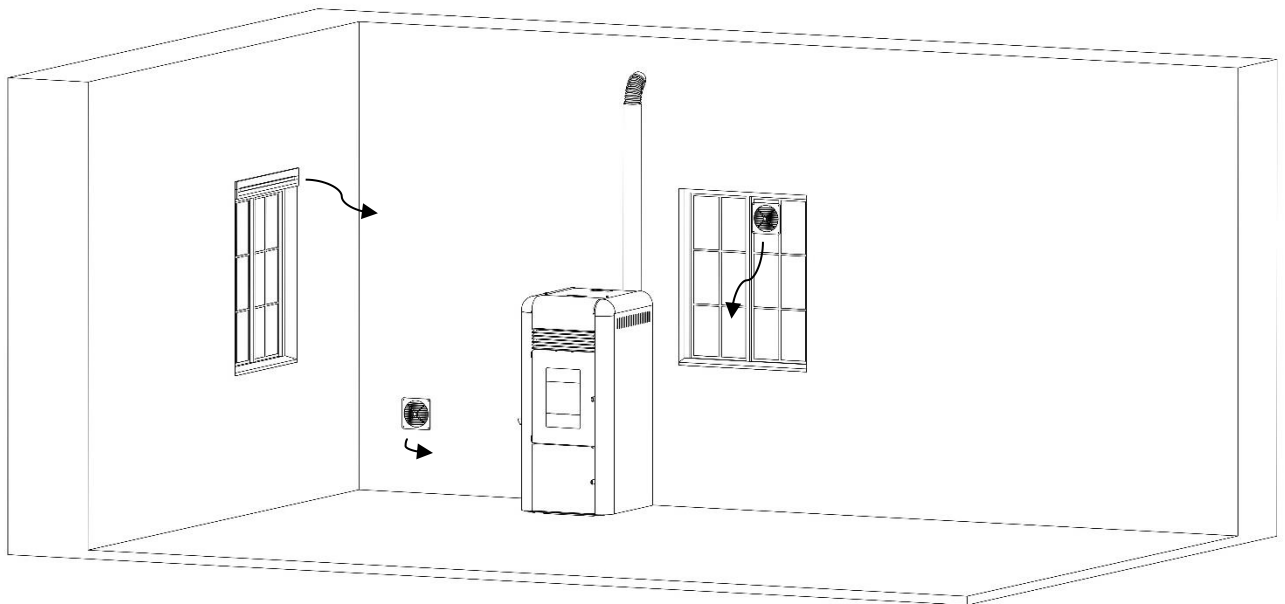


Figure 3 - Supply of fresh air in the room where the stove is installed

4.3. THE SMOKE EXHAUST SYSTEM

The smoke exhaust must be carried out in accordance with existing standards (EN 13384). Exhaust gas tube should be well sealed (see Figures 4-12).

For smoke exhaustion, one can also use classic brick chimneys while flues can also be made of pipes that need to be well insulated (double wall) and sealed, to avoid creating condensation in them.

The drain tube absolutely must not be connected to other systems of any kind, such as the systems where the smoke is removed from the combustion chamber, exhaust grilles or air distribution system, etc. Also, the smoke exhaust must not be set up in enclosed or semi-enclosed areas such as garages, narrow corridors, underground passages, or at any other places where there is smoke. When the stove is connected to the exhaust gas pipeline, it is necessary to bring professional chimneysweep to verify that the chimney does not even have the tiniest cracks or fissures. If in the exhaust gas chimney there are such cracks, the pipe for smoke exhaustion must be wrapped in insulation for proper functioning.

A dumper in the flue gas ways is always forbidden for appliances having a forced fan assisted air supply.

For this purpose, the tubes that can be used are solid and made of painted steel (minimum thickness 1.5 mm) or from stainless steel (minimum thickness 0.5 mm).

The smoke extraction system (chimney) out of metal pipes must have a grounding in accordance with existing standards and regulations. **Grounding is required by law.**

The grounding connection must be separated from the grounding for the stove.

The smoke exhaustion pipe must be done according to the standards in terms of dimensions and materials used for its construction (Figure 4).

- A) The top of the chimney is resistant to wind
- B) Maximum cross section is 15 x 15 cm or a 15-cm diameter, with the maximum height of 4-5 m.
- C) Gasket
- D) Inspection hole - for control

Flue pipes that are in poor shape, or are made out of inappropriate materials (asbestos cement, galvanized sheet, etc. with rough or porous surfaces) are inadequate and jeopardize the proper functioning of the stove.

The smoke can be drained through a classic smoke pipe (see next Figure), provided that it meets the following requirements:

- Check the maintenance of the drain flue pipes or chimneys. If the smoke drain pipe is old it should be replaced with a new one. If the chimney is damaged it is good to repair it or rebuild it by inserting a steel pipe that is properly insulated with mineral wool.

- The smoke can be discharged directly into the smoke pipe (chimney) only if it has a cross-section of up to 15 x 15 cm, or a diameter of up to 15 cm, and if there is a cover for checking and cleaning.

- **If the chimney has a larger cross section** than 15x15cm, or a diameter greater than 15cm, a possible increased regulation of draft (its decrease) in the chimney can be made in three ways:

1. If in the bottom of the chimney there is an opening for cleaning it should be partially open.
2. Insert a steel pipe in the chimney with a diameter of 10cm, if there is a possibility for such reparation of the chimney.
3. By adjusting certain parameters in the stove. This adjustment must be done only by an authorized service of Alfa Plam.

- Make sure that the connection to home chimney is properly sealed.

- Avoid contact with material that burns easily (such as wooden beams), and in all cases they should be isolated with anti-fire material (see Figure 5).

- A) Mineral wool
- B) Steel pipes
- C) A baffle plate.

The stove is designed to be connected to the chimney flue pipes with a diameter of 80mm. If you are not using a standard chimney, but you have a new chimney, or you are modifying the existing one, use insulated stainless pipes (double wall) of the diameter of the flue pipe given in Table 1. Flexible pipes are not permitted.

| SYSTEM TYPE | DIAMETER mm | SYSTEM MARK |
|--|-------------|-------------|
| Pipe length less than 5 m | 100 | acceptable |
| Pipe length more than 5 m | 120 | required |
| To be installed in places above 1,200 meters above sea level | 120 | recommended |

Table 4

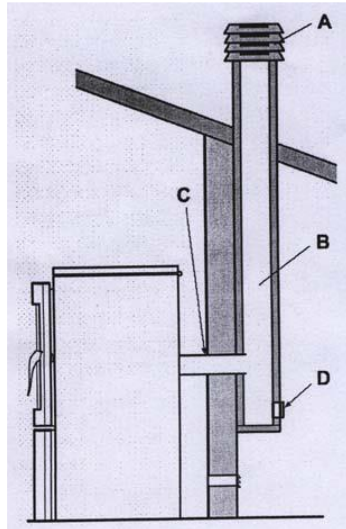


Figure 4

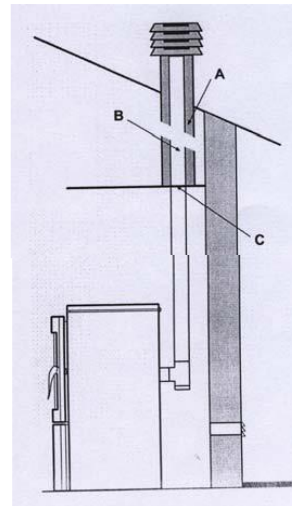


Figure 5

When using the connecting pipe between the stove and the flue drain pin, be sure to use a "T" connector (as shown in Figures 6), with the clean-out cover (cap) next to the stove. Applying the "T" connector must enable the collection of ash, which is produced inside the tube, and the smoke drain pipe must occasionally be cleaned without having to remove the tube. The smoke is under mild pressure and therefore it is required to check the cover (cap) for cleaning the exhaust gas system that is perfectly sealed and it remains so after each cleaning. Make sure to perform the same sequence for assembly and check the condition of the seals.

Install the flue pipes pursuant to Figure 6b.

It is strictly recommended to avoid the use of horizontal extensions, and if necessary, make sure that the pipe is not bent but that it has the slope of at least 5%. The horizontal part of the drain flue pipes must not in any case exceed the length of 3 m.

A maximum length of 5m is allowed for flue pipes with a diameter of 80 mm up to the entrance to the chimney. Each knee is calculated as 1 extra meter of length. So, for example, if we have three curves with a diameter of 80 mm, they shall modify by 3 m. the length of the flue pipes with a diameter 80 mm. That means that can you install only 2 more meters of straight pipes up to the entrance of the chimney to achieve the maximum 5m length of flue pipes with a diameter of 80mm. After that, you need to use higher values, i.e. you should switch to flue pipes or use a chimney with a larger cross-section, for example 100 - 120 mm.

When connecting the stove to the chimney using fittings, one must install a knee with a hole for cleaning (Figure 6a). Using the knee with an opening for cleaning allows for regular cleaning, without the need to dismantle the pipes. Drain gases in the chimney connector are under mild pressure so it is necessary to check that the cover for cleaning the ashes is completely sealed and to seal it after each cleaning. Please make sure everything is properly returned to its place, and check the condition of the seals.



Figure 6a: Cleaning elements

Ideal vacuum primarily depends on the absence of barriers such as narrowing and/or corner connectors. It is recommended that the knees are 30°, 45°, and 90°. Knee at 90° shall be three-fold (**Figure 6b**).

In any case, it is necessary to ensure that the initial part of the vertical flue pipe has the length of at least 1.5 m. Only in this way can you achieve the proper removal of flue gases.

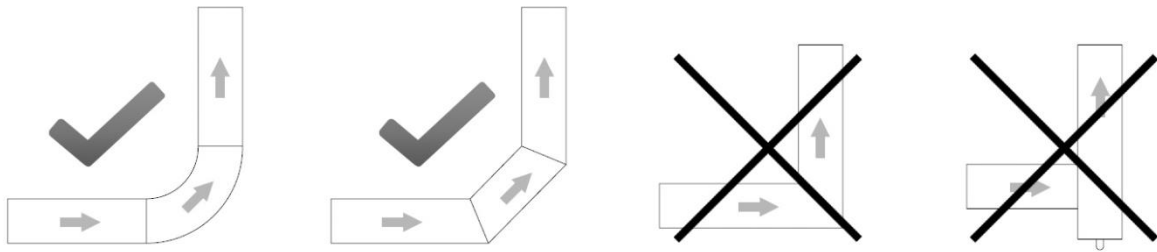


Figure 6b:

In Figure 6b left, we show how a complete (top) is supposed to look like when you have two chimneys next to each other, and in Figure 7, right, how not to do the end part.

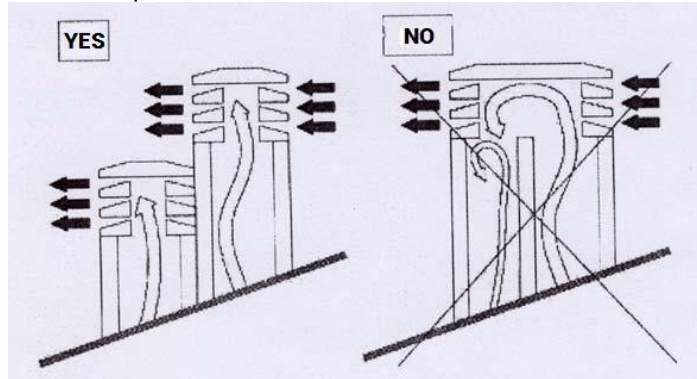
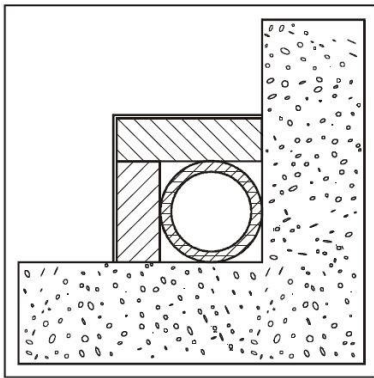
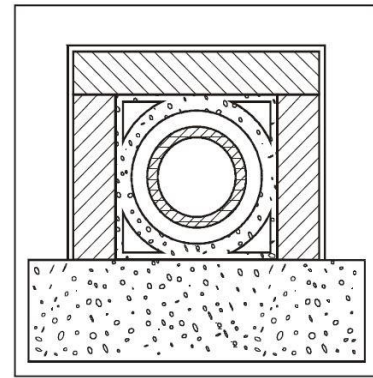


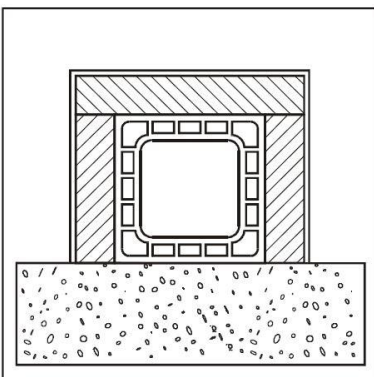
Figure 7



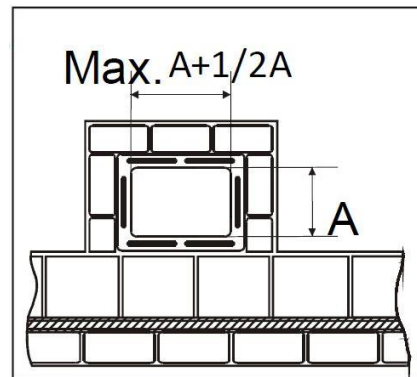
AISI 316 steel chimney with double insulated chamber, made of material resistant to 200°C. Optimal efficiency 100%



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%

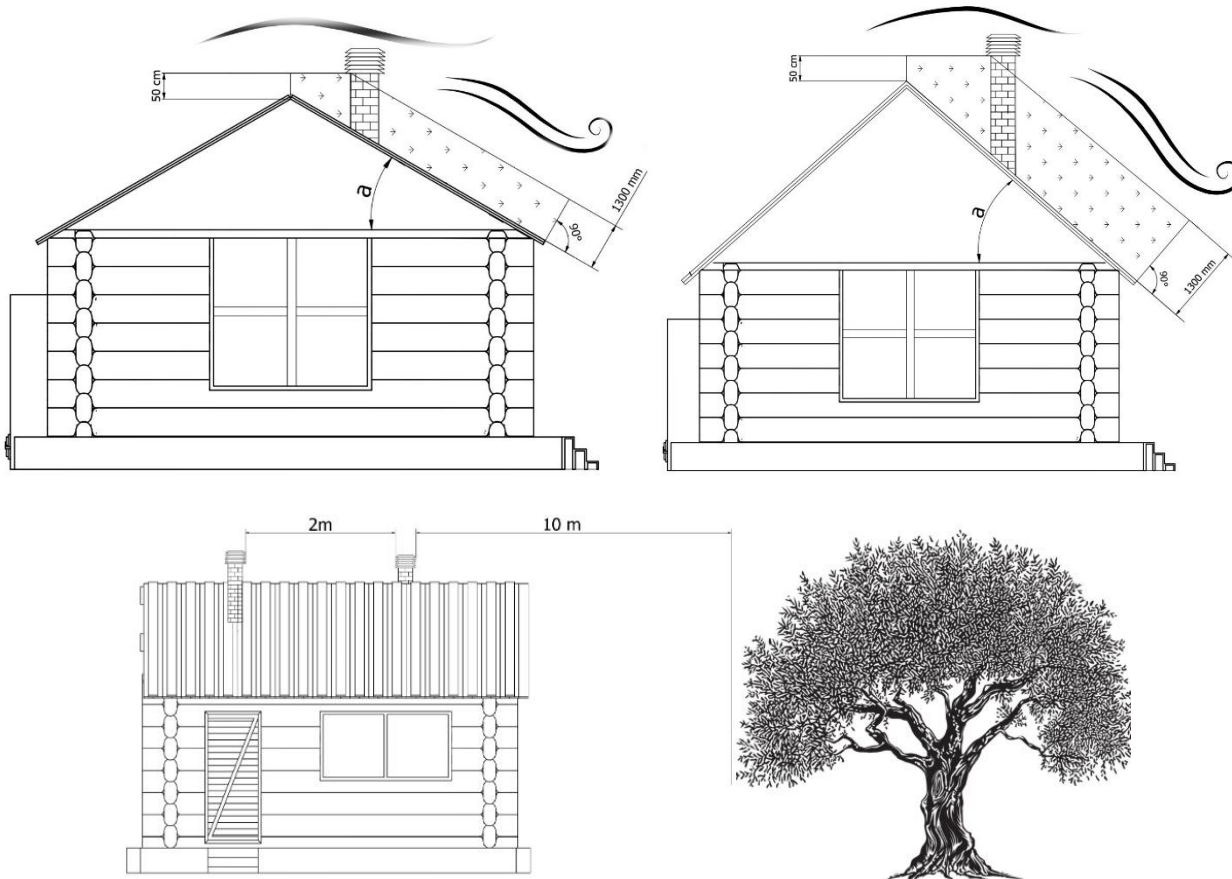


Figure 8 - Chimney - positioning and distance

4.4. INSULATION AND THE DIAMETER OF THE OPENING (HOLE) ON THE ROOF (OR IN THE WALL)

Once you determine the position of the stove, it is necessary to make a hole through which a smoke pipe must pass. This varies depending on the type of installation, diameter of the exhaust gas pipe (see Table 4) and the type of wall or roof for the tube to pass. See Table 2. Insulation needs to be made out of mineral wool with a nominal density greater than 80 kg/m².

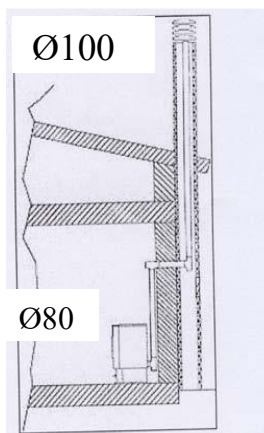


Figure 9

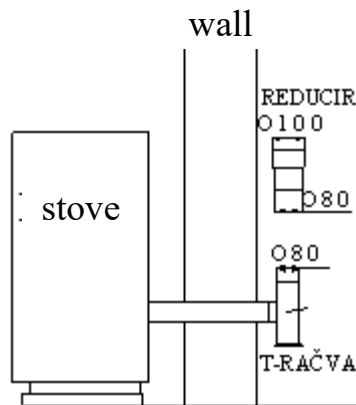


Figure 10

1. Armature 80 > 100
2. A hose fitting with a T shape

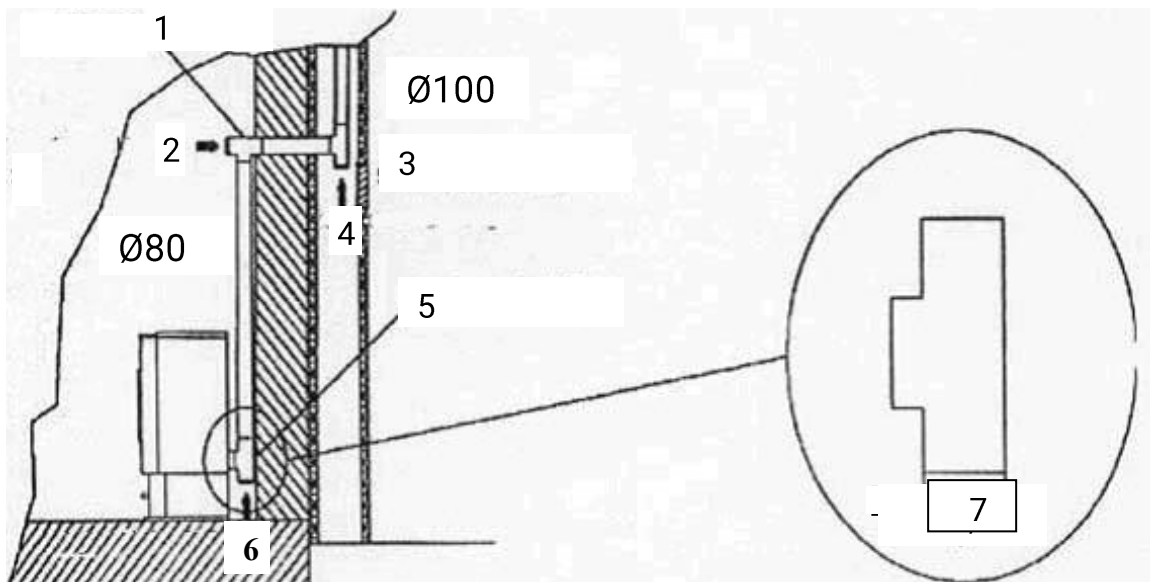


Figure 11

1. A hose fitting with a T shape - a T connector pipeline
2. Cleaning direction
3. Opening, a window for servicing/inspection
4. Cleaning direction
5. A hose fitting with a T shape - a T connector pipeline
6. Cleaning direction
7. A pressure lid for cleaning (plug-in)

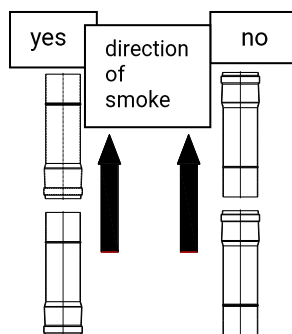


Figure 12: Mounting the flue pipe

| Insulation thickness mm | | Diameter of the smoke exhaust pipe (mm) | |
|---|-----|--|-------|
| | | D.80 | D.100 |
| | | Diameters of the holes (holes) to be made (mm) | |
| The walls are made of wood, or in any case, flammable, or parts that are flammable. | 100 | 150 | 170 |
| Concrete wall or a roof | 50 | 100 | 120 |
| A wall or a brick roof | 30 | 100 | 120 |

Table 5: Insulation thickness for the part of the system that passes through the wall or roof

Above all it is necessary to provide the PERFECT AIRFLOW (draft) in pipes for smoke exhaustion that has to be free, without any obstacles, such as different narrowing or corners. All displacements of the axis must have a tilted orbit with a maximum angle of 45 degrees from the vertical, while 30 degrees is the best solution. This displacement would be best done near the top of the chimney resistant to the wind.

According to the regulations (the top of the chimney resistant to wind, distance, and placement of the stove) the distances shown in Table 3 must be met:

| Roof slope: | The distance between the ridge and the chimney cap | Minimum height of the chimney measured at the top slot (at the back of the chimney) |
|-------------|--|---|
| α | Distance in meters | Height in meters |
| 15° | less than 1.85 m greater than 1.85 m | 0,50 m above the ridge 1,00 m from the slope of the roof |
| 30° | less than 1.50 m less than 1.50 m | 0,50 m above the ridge 1,30 m from the slope of the roof |
| 45° | less than 1.30 m greater than 1.30 m | 0,50 m above the ridge 2,00 m from the slope of the roof |
| 60° | less than 1.20 m greater than 1.20 m | 0,50 m above the ridge 2,60 m from the slope of the roof |

Table 6

However, it is required to provide an initial vertical extension of 1,5 m (minimum) in order to provide proper discharge of smoke.

4.5. COMBUSTION AIR SUPPLY (Figure 13)

The air required for combustion, which is taken from the environment, must be supplied by a single ventilation grill mounted on the outer wall of the room. This will ensure better combustion and thus lower consumption of pellets. It is not recommended to have outside air drawn directly from the tube, as it will reduce the efficiency of combustion. A ventilation shaft must always be equipped with one ventilation grille on the outer side as protection from rain, wind, and insects.

This hole must be made on the outer wall of the room where the stove is located.

The supply of combustion air from the garage, a warehouse for combustible materials, or from a room where there are risks of fire is prohibited.

The opening of the outer supply of combustion air *must not be connected* by pipes.

If the room has some other devices for heating, the supply of combustion air must ensure the amount of air that is required for proper operation of the device.

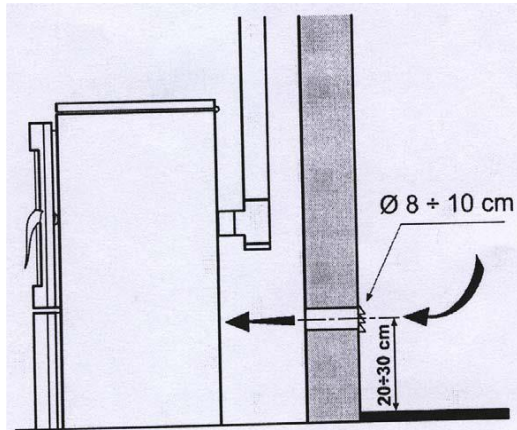


Figure 13: Minimum gaps for setting up ventilation grilles.

For proper and safe placement of ventilation grilles see data given in Table 7. These are the minimum distances from each airspace or smoke extraction. This value can change the configuration of the air pressure. It should correspond to the ordering to secure that the open window draws outside air, depriving the stove of it.

| Ventilation grid must be set up at least | | |
|--|-------------------|--|
| 1 m | under | doors, windows, gas exhausts, air chambers, etc. |
| 1 m | horizontally from | |
| 0.3 m | above | |
| 2 m | from | the smoke exhaust |

Table 7: The minimum distance for the supply of combustion air

4.6. CONNECTING THE POWER

These stoves are connected to electricity. Our stoves have electrical cables that are suitable for medium temperature. If you need to replace the power cord (if it is damaged, for example) then consult with our authorized technical staff. Before you plug in the electric stove note the following:

- That the characteristics of electrical systems correspond to the information that is specified in the data on the identification plate on the stove.

- If the smoke extraction system is metal, it must have a grounding terminal in accordance with the existing standards and legislation. **Grounding is the law.**

- The electrical cable must not at any time reach a temperature that is 80°C above the ambient temperature. When the stove is installed and placed in its spot, a bipolar switch or socket must be easily accessible.

- If the stove is not used for a long time, unplug it or switch to the switch off (0) position.

In the event of failure or malfunction, turn off the stove right away or switch to a switch off (0) position and contact an authorized service center.

5. IMPORTANT INSTRUCTIONS

THE FOLLOWING INSTRUCTIONS ARE REQUIRED FOR THE SAFETY OF PEOPLE, ANIMALS, AND PROPERTY.

We wish to inform the installer of the stove on some of the general guidelines which must be followed for proper installation and for proper stove mounting. These standards are required, but not completely. For further and more detailed information one needs to read the rest of this instructions manual.

- Plug the stove into an outlet that is grounded. Figure 14
- The switch on the rear of the stove is set to position 1. Figure 15
- Do not allow children or pets to be near the stove.
- Use pellets only, not other fuel.
- Notify all users about the potential risks and dangers and teach them how to handle the appliance.
- If the stove is placed on a wooden floor, then it is recommended to isolate the pedestal on which it stands.

The stove operates with a combustion chamber, which is in the negative pressure. **Therefore, make sure that the smoke is well thermally insulated.**

When the stove is turned on for the first time then, due to the stabilization process a small amount of paint (not harmful to health) that covers the stove vaporizes. It is therefore necessary to air the room so that it is cleared from the fumes.

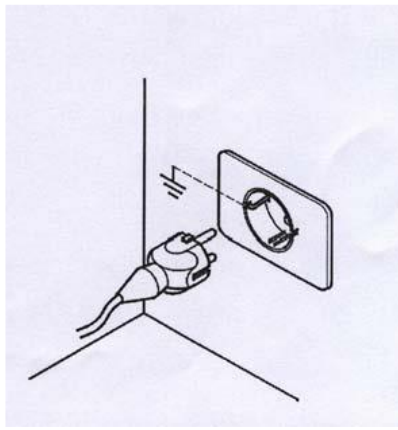


Figure 14



Figure 15

6. WARNING SAFETY MEASURES FOR STAFF MAINTENANCE

The contractors who work in maintenance, in addition to following all safety measures, must:

- Always use safety equipment and personal protective equipment,
- Turn off the power supply before they start working,
- Always use the appropriate tools,
- Before they begin any work on the stove they need to keep in mind that it should be cold and that the ashes should be cold as well. They need to make sure the handles are cold as well.

- NEVER TURN THE STOVE ON if there is just one of the safety devices that is defective, improperly set up or it does not work at all.

- Do not make modifications of any kind, for any reason, other than those permitted and explained by the manufacturer himself.

- Always use original spare parts. Never wait until the components wear out before you replace them.

Replacing the worn parts, or the components of the stove before they stop working contributes to the prevention of damage caused by accidents due to sudden failure, or breaking of the components, which can lead to serious consequences for people and/or property located around the stove.

- Clean the firebox before lighting the stove.

- Make sure there is no condensation. If condensation occurs it shows that there is water from the cooling smoke.

We recommend you find the possible causes to be able to establish a regular and correct operation of the stove.

6.1. WARNING SAFETY MEASURES FOR THE USER

The place where the stove is to be set up, called the mounting place, must be prepared by local, national, and European regulations.

The stove is a "heating machine" and while it is on **it has outer surfaces that are very hot or that achieve very high temperatures.**

This stove is designed to burn fuel from pressed wood mass (a pellet with a diameter of 6 mm, with the length of 40 mm, with maximum moisture 8-9%).

It is therefore very important to pay attention to the following when the stove is on:

- Do not approach and touch the glass on the door, there is a BURNING HAZARD

- Do not approach and touch the smoke drain pipe, there is a BURNING HAZARD

- Do not do any cleanups

- Do not open the door because the stove is working properly only when it is sealed

- Do not throw away the ashes when the stove is ON

- Children and pets need to stand away from the stove

- FOLLOW ALL INSTRUCTIONS GIVEN IN THIS MANUAL

Likewise, the proper use of biofuel pellets means:

- Only use the fuel that meets the manufacturer's instructions,

- Always follow the maintenance plan for the stove,

- Clean the stove every day (only when the stove and the ash are cold),

- Do not use the stove in case of any defects or abnormalities, in the case of unusual noise and/or suspected faults,

- Do not spray water on the stove, even when firefighting,

- Do not turn off the stove by pulling the plug. Use the button on the board to turn off,

- Do not tilt the stove, IT MAY BECOME UNSTABLE,

- Do not use the stove as a support or a holder. Never leave the tank lid open.

- Do not touch the dyed parts of the stove while it is ON,

- Do not use wood or coal as a fuel, **but only the pellet** with the following characteristics: diameter of 6 mm, maximum length 40 mm, maximum moisture content 8-9%,

- Do not use the stove to burn waste,

- Always perform all operations with maximum security measures.

7. SAFETY GUIDELINES FOR IGNITION AND CLEANING OF THE STOVE

- For turning the stove ON never use gasoline, kerosene or any other flammable liquid. Keep these types of fluid away from the stove while it is running,

- Never turn the stove ON if the glass is damaged. Do not strike the glass or the door so that they do not get damaged,
- While the stove is ON, do not open the door to clean the glass. Clean the glass only when the stove is cold, using a cotton cloth or paper towel and a glass cleaner,
- Make sure the stove is secure to prevent any movement,
- Make sure that the ash box is inserted and that it is fully closed, so that the doors are leaning properly on the box,
- Make sure the stove door is firmly closed while the stove is ON,
- Use a vacuum cleaner to pull the ashes from the stove only when the stove is completely cool,
- Never use abrasive cleaners for cleaning the surface of the stove.

7.1. ROUTINE CLEANING AND MAINTENANCE DONE BY THE USER OF THE STOVE

Use a drum shaped vacuum cleaner that can facilitate cleaning the stove. The vacuum cleaner must have a filter that will prevent the sucked dust to go back into the room where the stove is located.

Before you get started with routine maintenance, including cleaning, take the following precautions:

- Turn off the stove from the power supply before you start doing anything,
 - Before you start doing anything make sure the stove and the ash are cool,
 - Use the vacuum cleaner to vacuum up the ash from the combustion chamber **every day**,
 - Using the vacuum cleaner carefully clean the firebox **every day** (after each use and when the stove is cool)
- Always make sure the stove and the ashes are cool.**

- FIREBOX (box-shaped) - it burns the pellets made out of wood mass. See Figure 16. It is recommended that the firebox be vacuum cleaned after each use, **every day** (when the stove is cool). Every day, it is recommended to take out the firebox and to make sure that there is no residual ash at the bottom of it, as well as unburned pellets that were collected at the bottom of the firebox. Then put the firebox back and set it firmly into place to ensure the safe running of the stove. The firebox must sit straight - horizontal, it must not be tilted! The sealing tape from the underside of the firebox must be in its place, and must not be damaged.

If you are not sure, do not hesitate to call an authorized service center for explanation and additional information, since the manufacturer does not know what the situation is with the connection and maintenance of the stove and gives no warranty for the connection of the stove and its maintenance.

The manufacturer does not assume any responsibility for damage caused by third parties.

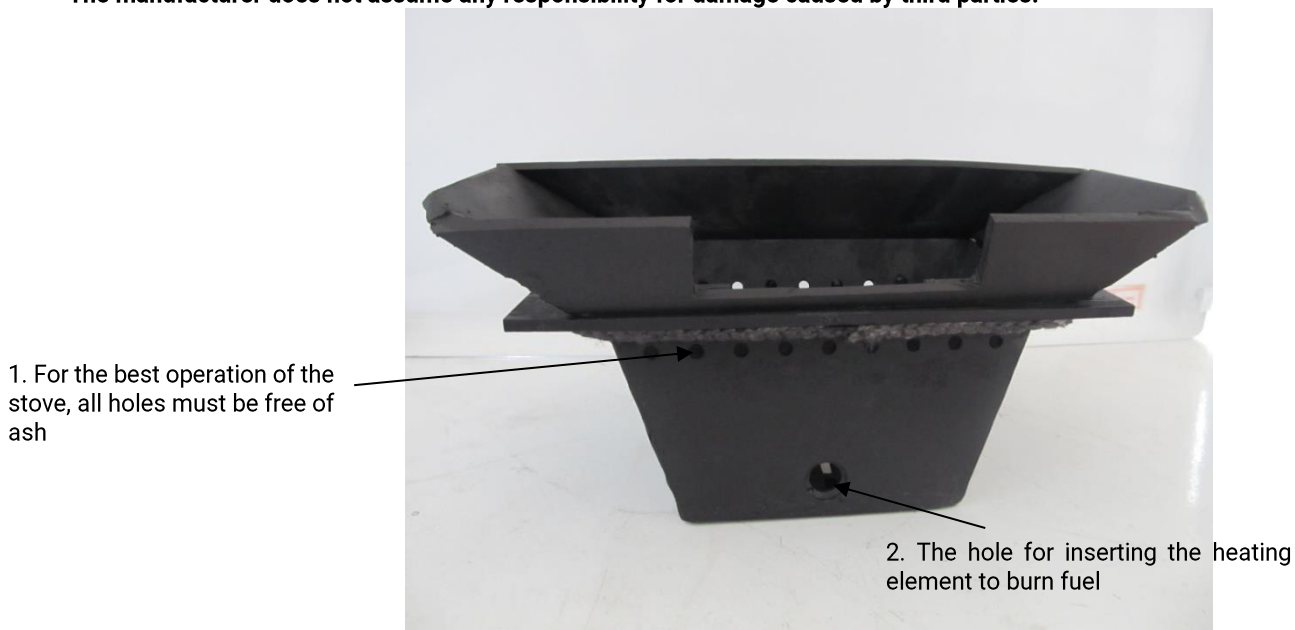


Figure 16

The ash container should be vacuumed or emptied if it is full.

Make sure the stove and the ash are cool.

Upper ash container must be cleaned **every or every other day**, by vacuuming or by simply throwing the ashes away. This will get rid of any impurities that remain inside when the pellets are burning. The container then has to be returned to its proper place. Never put a pellet that has not burned in the ash container.

Lower ash container must be cleaned **once every seven or 10 days**, by vacuuming or by simply throwing the ashes away. Before that, loosen the two butterfly nuts. This will get rid of any impurities that remain inside when the pellets are burning.

At the same time, use a vacuum cleaner to suck up the ash in the smoke chamber through an opening in the front of the boiler bottom ash tray.

The container then has to be returned to its proper place.

- SMOKE PIPES IN THE BOILER

They need to be cleaned manually with a special key for every 40-50 kg of spent pellets (one full tank of pellet). First use the key to lift up small round lids with openings, two of them, that are located on the cover of the stove at the top. Using the same key go into the openings of the lever - the pins which are connected to the cleaning levers, and dust them a few times by lifting them up and putting them down, as shown in Figure 17.

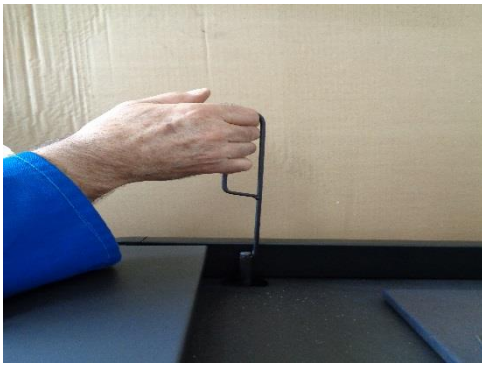


Figure 17

- UPPER SMOKE CHAMBER

Should be manually cleaned for every 90-100 kg of spent pellets (two full tanks). Lift the tank lid for the pellet. In the tank, in the upper front part, under the lid, there is a button for the chamber cleaning mechanism. By pulling the mechanism button a few times back and forth you will clean the chamber. Do not worry if the mechanism moves slowly, if it scratches, or gets caught. This is how it cleans the chamber.

Clean the stove only when it is cold. At the end of the cleaning, push the button all the way back (pull it) so that you can see the button and the bar of the cleaning mechanism. See Figure 18.

-OPENING AND CLOSING OF THE DOOR OF THE FURNACE AND ASH PAN LID

Always keep the furnace door closed tight while the furnace is working.

Furnace doors with glass should be opened when the furnace is off or is cold.

Place the prong of the opening and closing handle (with plastic protection) which is delivered with the furnace, into the prong of the handrail placed on the furnace door. The furnace door is opened by lifting the handrail and pulling forward.

In the process of closing of the furnace door, the handrail for opening and closing has to be lifted, into the position it had been in before the door is opened. In this way, the handrail prong does not bump into the vertical molding. In the process of closing the furnace door, do not keep the handrail lowered because the prong of the handrail will nick the molding, potentially damaging it.

The correct handrail position during furnace door closing is shown in figure 18a, and the incorrect position is shown in figure 18b.

Figure 13c shows the opening and closing of the ash pan lid. When the prong of the handrail for opening and closing is placed into the opening of the ash pan handrail prong which is connected to the ash pan lid, it is not necessary to turn the handrails upward-downward, but to pull forward-backward, so that the lid would open or close.



Figure 18



Figure 18a – correct position



Figure 18b – incorrect position

-GLASS DOOR (check and clean periodically):

Make sure the stove and the ash are cool. Clean the glass with a soft cloth. Glass is made from pyroceramics resistant to high temperatures. In case of damage, before re-using the stove, replace the glass. The glass must be replaced only by the authorized persons.

Smoke exhaust fan area should be checked and cleaned every six months.

Make sure the stove and the ash are cool.

Cleaning the interior flue exhaust is done by first removing the cover on the bottom of the box for the ashes and inserting the vacuum cleaner hose through that hole, as to vacuum out the remaining ashes, Figure 19.

Lower flue exhaust
(lower ash box)

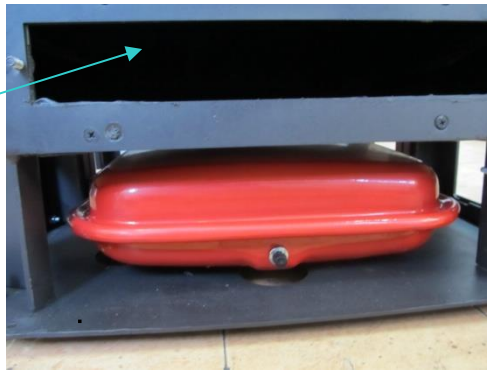


Figure 19

- GENERAL CLEANING AT THE END OF THE HEATING SEASON

Make sure the stove and the ash are cool - unplug the stove from the power supply.

At the end of the heating season, to be safe, unplug the stove from the power supply. It is important to clean and check the stove, as explained in the above points.

Make sure the stove and the ash are cool.

After prolonged use, it is possible that the asbestos tape for sealing the door separates. This sealing tape sticks to the door with silicone resistant to high temperatures. To resolve this, tape the back of it using an adhesive that is resistant to high temperatures. This is very important for good sealing of the doors.

7.2. CLEANING AND MAINTENANCE (for employees who do maintenance)

FLUES - CHIMNEY should be cleaned every six months or after burning two tons of pellets.

Make sure the stove and the ash are cool.

The smoke channel (chimney) is resistant to wind and has to be checked and cleaned every year, best at the beginning of the heating season. It is best to pay the authorized professional contractors for their cleaning. The places that need special attention when cleaning are shown in Figure 20.

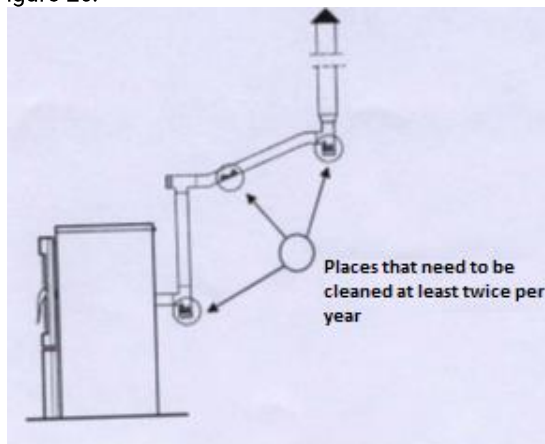


Figure 20: Places that need to be cleaned at least twice a year

7.3. SPECIAL MAINTENANCE

Your stove is a heat generator that uses pellets as solid biofuel. This is why you should do special maintenance once a year. This is best done at the beginning of the heating season.

The purpose of the special maintenance is to ensure proper and efficient operation of the stove.

8. IMPORTANT SAFETY INFORMATION

You have purchased a product of the highest quality.

The manufacturer is always at your service to provide you with all the information you may need regarding the stove and instructions for assembly and installation in your geographical conditions. Properly connecting the stove, according to these instructions, is very important to prevent the danger of fire and any defects.

The stove works with a combustion suction pressure. **Therefore, make sure that the smoke is well thermally insulated.**

DANGER!

In case of fire in the smoke exhaust pipe take all the people and pets out of the room, unplug the power supply using the power switch in the house or remove the plug from the wall (plug must always be easily accessible and free of obstacles), and immediately call the fire department.

DANGER!

You cannot use conventional firewood.

DANGER! : The regular firewood cannot be used.

DANGER! : Do not use the stove to burn waste.

DANGER! : Do not place the pellets manually in the burner.

DANGER! : In order to avoid water freezing, turn on the stove when the outside temperature drops below 0°C. There is a safety anti-freeze function installed in the stove that activates the pump whenever the temperature of the boiler falls below 5°C.

DANGER! : Many of the surfaces of the product may become very hot (door, handle, glass, smoke extraction pipes, etc.). Be careful, especially with children. Avoid coming into contact with these parts without adequate protective clothing with thermal protection. During working phase, do not put the bag of pellets to into contact with the product while filling the pellet hopper.

9. THE PELLETT QUALITY IS VERY IMPORTANT

The pellet quality is very important!The stove is designed to use pellets. Since various types and dimensions of pellets appear on the market, it is important to choose pellets that do not contain impurities, and which are compact and do not produce dust (uses pellet which meets the European standard, minimum EN plus A2).Consult your supplier about the type of pellet, whose size must be 3,15-40 mm and cross section is 6 mm. **The proper functioning of the stove depends on the type and quality of the pellet.**

Under no circumstances shall the manufacturer be responsible for the poor operation of the stove due to the use of poor quality pellets.

 **Attention**

If sawdust or small – decomposed pellets are put into the funnel-shaped part of the stove i.e. the fuel tank, these may block the pellet feeding. Such pellets may obstruct the operation of the gear motor driving the pellet feeding mechanism, or they may damage the gear motor. If you see any such small, decomposed pellets at the bottom of the pellet tank or at the bottom of the screw conveyor when the tank is empty, vacuum them with the vacuum cleaner by inserting the vacuum cleaner hose through the openings of the pellet grate. Or even better, every one or one and a half months vacuum clean the tank bottom in the above described way when the tank has a little quantity of pellet.

9.1. STORING THE PELLETT

Pellets must be stored in a dry place which is not too cold. Cold and wet pellets (with a temperature of around 5 °C) decrease the thermal power of the fuel and require additional stove cleaning.

 **Attention**

People with damaged spine and pregnant women should avoid raising pellet bags.

The manufacturer denies any responsibility for any damages or poor operation of the stove due to the use of poor quality pellets.

 **Attention**

The pellet must conform to DIN 51731, DIN plus, Ö-Norm M-7135 or other comparable European standards.

 **Attention**

THE PELLETT MUST NOT BE KEPT NEAR THE STOVE. Keep them at least half a metre away from the stove.

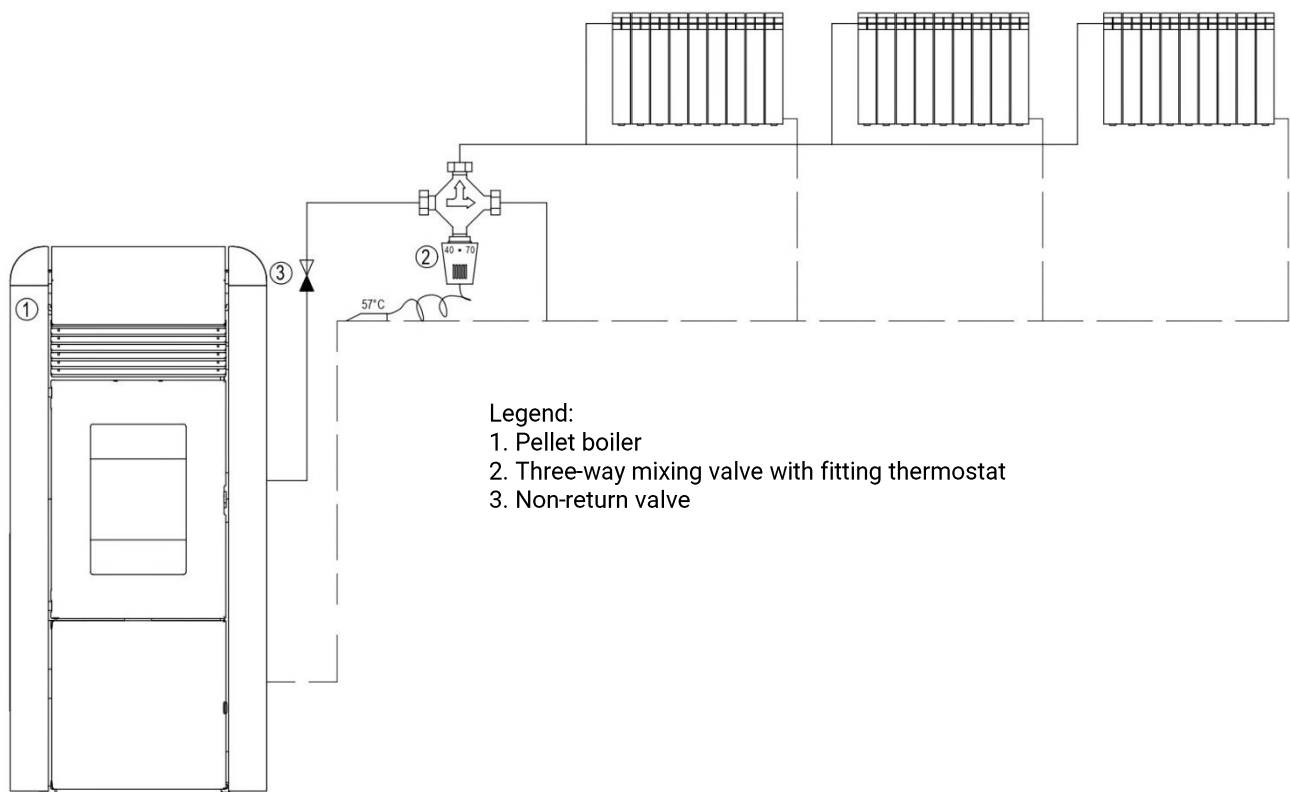
When handling pellets, make sure that pellets do not spill.

If you pour the sawdust into the pellet tank, you may block the pellet loading system.

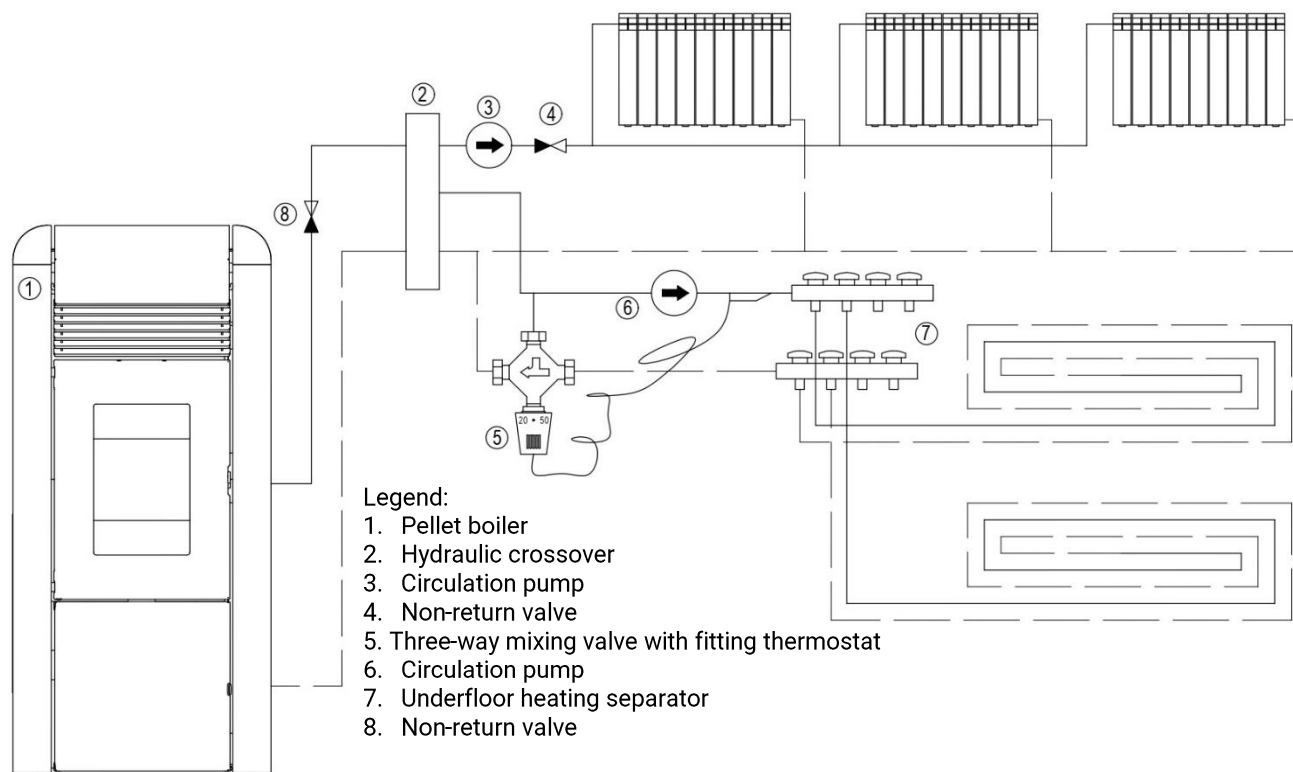
10. CONNECTING THE HYDRAULIC INSTALLATIONS

In order to reduce the risk of condensation, it is recommended to use a three-way mixing valve with a fitting thermostat when installing the stove.

10.1. Scheme of the hydraulic installation of a pellet boiler (radiator heating)



10.2. Scheme of the hydraulic installation of a pellet boiler (radiator and floor heating)



IMPORTANT:

Connecting the stove on a hydraulic installation can be done exclusively by qualified technicians, who can do this in accordance with applicable regulations of the country in which the installation is done.

ALFA PLAM disclaims all liability in case of a material or bodily harm, in the event of failure, poor functioning, if the above recommendations are not followed.

The stove is designed for central heating.

The stove is prepared for a closed heating system. Follow the SRPS guidelines.

The back of the boiler with the connectors is given in Figure 21.

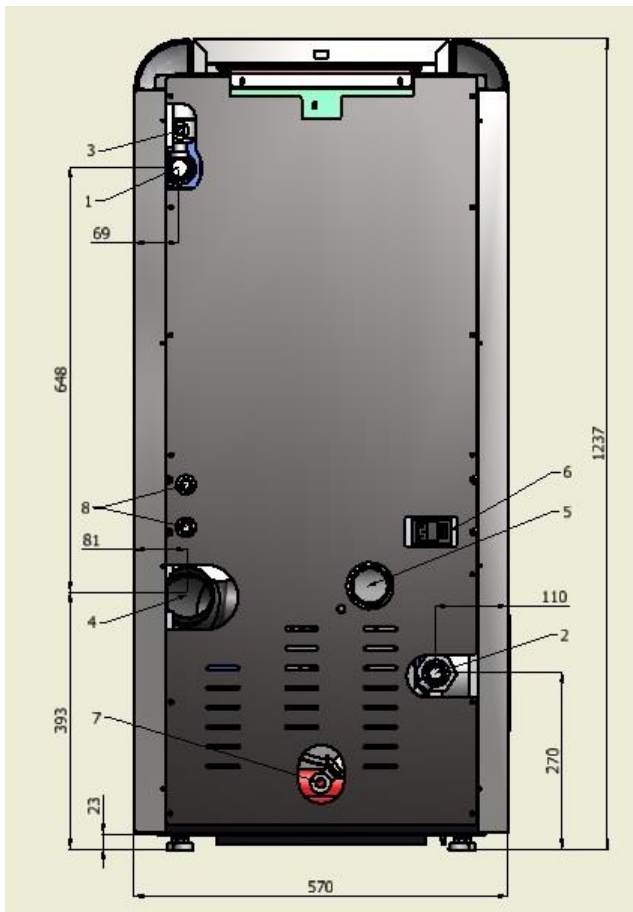


Figure 21

1. Water outlet 1
2. Pipe of return water
3. Pipe of safety valve
4. Flue connection 80
5. Primary air pipe
6. Main switch
7. Draining valve 1/2"
8. Security thermostats

11. PRESSURE AND RETURN PIPE

Outputs of the pressure and return pipes on the boiler are 1" and you cannot reduce them or taper to the first bifurcation. Use a 1" steel pipe or a copper pipe with the outside diameter of Ø28mm or greater.

When installing, strictly observe the slopes of pipes as they need to be at 0.5% (5mm. per meter of pipe) and the venting system (boiler, pipes, radiators).

Set up a thermo hydrometer at the pressure line to show the water pressure in the system and the water temperature at the back end of the boiler.

12. BUILT-IN COMPONENT OF THE STOVE

- In the stove, there are the following built-in components:

- Safety valve
- Circulation pump
- Automatic air valve
- Expansion container and
- Charging and discharging tap

For this reason there is no need to install these components again. The stove is complete, which is a great advantage most all of because there is no need for additional space for the listed components.

12.1. SAFETY VALVE

It is set up under the lid of the stove on the pressure line. Input connection is R1/2". It opens with water pressure of 2.5 bar. You can get to it by removing the right lateral side, when you are looking at the stove.

The output safety valves whose connection protrudes through the rear wall above the pressure line should be put into the sewer pipes.

12.2. CIRCULATION PUMP

A high-quality Wilo RS 25/6 – circulation pump has been built into the stove on the return line of R1". The power of the pump is 93W. It is turned on and off by the electronics by the set water temperature.

The pump shaft has to be in a horizontal position. For this reasons, when connecting with the installation make sure that the pump does not turn around! Firmly hold galvanized bolt at the end of the back side.

You can reach the pump by removing the left lateral side, when you are looking at the stove.

Note:

If the stove and the pump have been idle for a long time (a month, for example), the pipe shaft can stick to the base, it may not move the water, or it can burn out. If when starting the stove when the water in the boiler heats up the water pump does not start, if the radiators do not heat up when the set temperature is reached, if you do not hear the murmur of water (moving), or if the boiler temperature rises and radiators are not warming, remove the left lateral side as indicated in the previous paragraph,

and get to the pump. Put a cloth under the pump and using a flat screw driver with the tip width of 5 - 7mm, unscrew the short screw from the front of the pump. There will be a little bit of water coming from the pump, which is normal. Push the screw driver into the opening of the pump, reach the groove of the pump shaft and rotating the screwdriver and the shaft to the right and left break in the pump shaft. Put the pump screw back in its place into the opening of the pump and tighten it. Make sure that the rubber from under the screw does not come out.

12.3. AUTOMATIC AIR VALVE

There is an automatic air valve on the pressure line under the lid. It is suppose to drain the air out from the boiler. You can get to it by removing the right lateral side, when you are looking at the stove.

The cap valve must be loose, not tight, so that the air can come out of the boiler and installations smoothly.

12.4. EXPANSION VESSEL

There is an expansion vessel built into the stove with a volume of 10 litres. Its function is to stabilize the pressure in the boiler and in the heating installation. The factory set pressure in the vessel is 1 bar.

12.5. CHARGING AND DISCHARGING TAP

As its name says, this is a charging and discharging tap.

It is located in the back side, down.

The input connection is a R1/2", while the output has an extension for the hose.

13. INSTALLING AND IGNITING

Before the combustion starts entire system of central heating should be water-filled, well-vented, and the stove properly connected to the chimney, as discussed in previous counts.

Recommended operating pressure of water is 1 to 1.9 bar. Best to be within the limits of 1.2 to 1.6 bar.

The test pressure can be up to 1.9 bar.

NOTE:

The stove must not be used without water. It must be tied to the installation to which the consumers are connected (radiators) with minimum power of 8 kW.

14. PRACTICAL INSTRUCTIONS AND TIPS FOR THE USE OF THE HEATING SYSTEM

- All connections must be well sealed and fastened. There must be no leakage of water.
- Before you turn the stove on for the first time, the complete installation shall be tested with water at a maximum pressure of 1.9 bar.
- It is preferred that the water be at least once released out of the system due to the dirt which is located in the system.
- Make sure that all valves between the stove and the installation are open.
- Make sure that all the air from the boiler and installation is released before placing the boiler in operation. For this reason, the installation should be filled with water slowly so that the air manages to get out of the installation.
- During the ignition and cooling phase, the stove can expand and contract, and at the same time you can hear little crackling. This is absolutely normal, because the structure is made of steel and this certainly can not be regarded as a disadvantage.

Basic programming that is done in the factory guarantees proper operation and prevents overheating problems when you first turn on the stove, and for later as well.

15. PELLET LOADING

In order to load the hopper with pellet, we need first to open two lids. First, lift the upper lid and then, open the lower lid of the hopper by turning the handle counter clockwise. Load the wood pellets in the tank. Tank capacity is approximately three bags of 15 kg, a total of 45 kg of pellets. After loading, close the lid.

Note:

-It is necessary to close the lower lid properly. Press the lid, turn the handle clockwise and assure that lid is firmly closed. Make sure that the sealing tape of the lower lid is firmly in contact with the pellet hopper. The properly closed lid ensure the better combustion. The bottom lid is shown as on the following pictures:

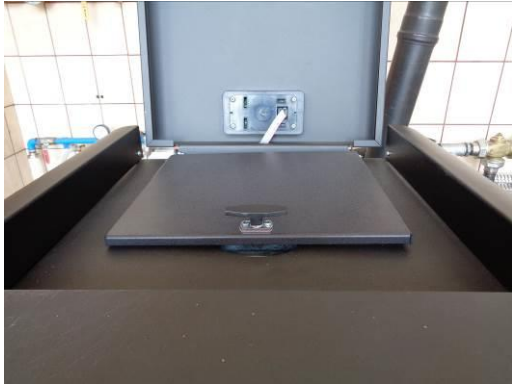


Figure 22



Figure 23

Do not remove the hopper safety grid! During loading the wood pellets, prevent the bag come in contact with hot surfaces.

16. CONTROL SYSTEM OF THE STOVE

A modern control system **is built into the stove**, which enables safe, efficient and reliable control over the operation of the stove and maximum functional utilization of the stove.

It is characterized by:

- simplicity of setting up and use,
- simple and direct user functions,
- reliable and flexible functional software specially developed for pellets burning appliances,
- advanced features available to installers, for adapting stove to different configurations and installations.

16.1. ELECTRIC CONNECTIONS SCHEME

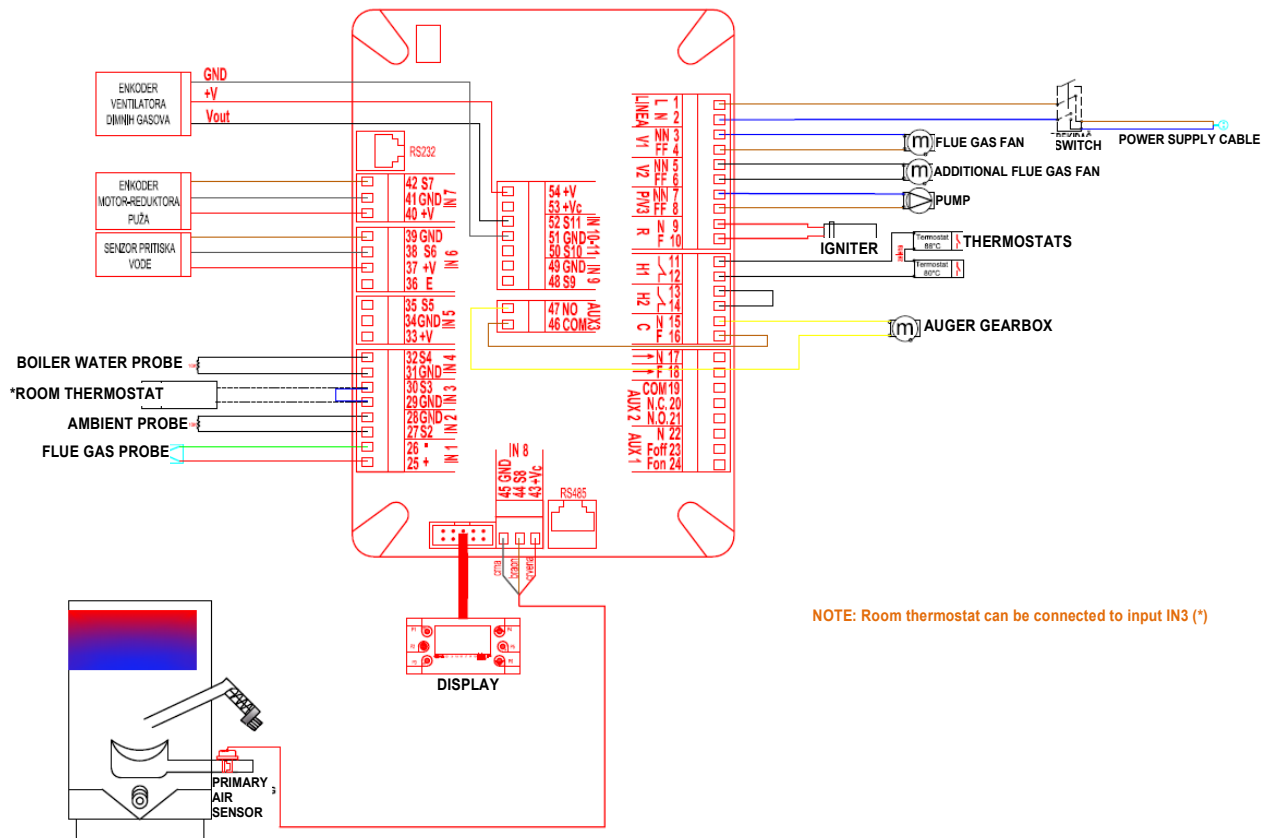


Figure 24

16.2. CONTROL PANEL (DISPLAY) - BUTTONS AND FUNCTIONS

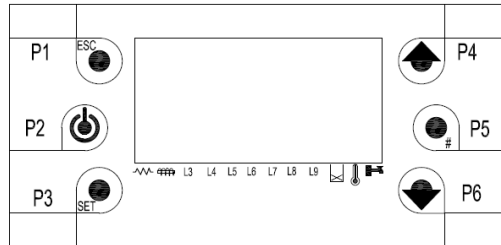


Figure 25

Buttons:

| Button | Function | Description |
|--------|---------------------------------------|--|
| P2 | On/Off | Turning the stove on/off by pressing and holding the button for more than 3 seconds after the acoustic signal |
| | Unlocking | When the system is in the blocked state, by pressing and holding the button for more than 3 s after the acoustic signal, the system is unblocked |
| P4 | Changing values | Changing values and settings in menus and submenus |
| P6 | Navigating through menus and submenus | Navigating (changing) the menus and submenus |
| | Visualizations | Access to the visualization menu |
| P1 | Esc | Leaving the current menu or submenu |
| P3 | Menu | Entering the menu or submenu |
| | Modify | Allows a modification in the menu |
| | Set | Saves (records) data in the menu |
| P5 | Reset system maintenance 2 Function | Resets the timer (only if this option is activated) |
| | Manual Stanby | By pressing the button for more than 3 seconds, the system goes into Standby mode |

Table 8

LED symbols:

| | | |
|----------------------|---|----|
| Igniter | LED is on: Igniter is on | |
| Auger | LED is on: Auger is active | |
| Pump | LED is on: Pump is active | L3 |
| Aux 1 output | LED is on: Aux 1 output is activated | L4 |
| Additional engine | LED is on: Additional engine is activated | L5 |
| Aux 2 output | LED is on: Aux 2 output is activated | L6 |
| Aux 3 output | LED is on: Aux 3 output is activated | L7 |
| Not active | | L8 |
| Not active | | L9 |
| Pellets level sensor | LED is on: No pellets | |
| External thermostat | LED is on: Contact is open | |
| Sanitary water tap | LED is on: There is a need for sanitary water | |

Table 9

Display:

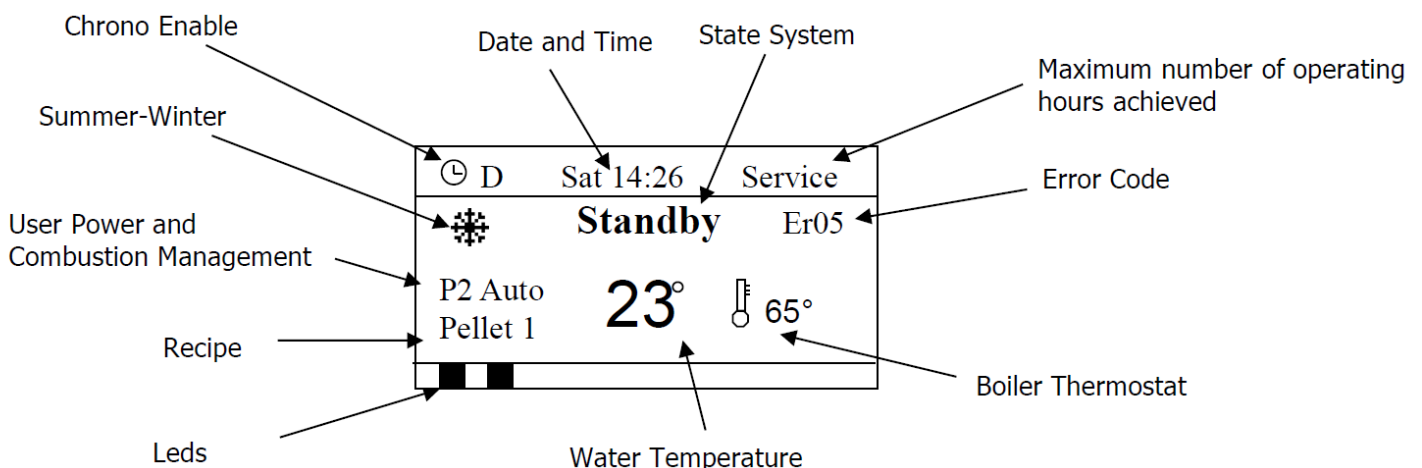


Figure 26

- Displays:

- Time and date
- Chrono mode D-Daily, W-Weekly, We-Week-End
- System power (P1, P2, P3, P4 i P5)
- Recipe (Pellet 1)
- System state (Check Up, Ignition, Stabilization, Run Mode, Modulation, Standby, Safety, Extinguishing, Recover Ignition, Block, Off)
- **Errors (Alarms):**
When an error (alarm) occurs, the system is shifted to the Block state.

| Error (alarm) code | Error (alarm) description |
|--------------------|--|
| Er01 | Safety thermostat activated |
| Er02 | Safety pressure switch activated |
| Er03 | Turning off due to the too low temperature of flue gases |
| Er04 | Turning off due to excessive water temperature in the boiler |
| Er05 | Turning off due to excessive flue gas temperature |
| Er06 | Safety thermostat activated on the auger housing |
| Er07 | Encoder error. Missing signal |
| Er08 | Encoder error. Inability to adjust number of revolutions |
| Er09 | Water pressure too low |
| Er10 | Water pressure too high |
| Er11 | Error due to internal clock problem |
| Er12 | Turning off due to unsuccessful ignition |
| Er15 | Power failure longer than 50 minutes |
| Er16 | Communication error RS485 |
| Er17 | Airflow regulator error |
| Er18 | No pellets |
| Er25 | Cleaning engine error |
| Er39 | Airflow regulator broken |
| Er41 | Minimum airflow in the CHECK UP stage has not been reached |
| Er42 | Maximum airflow achieved |
| Er47 | Auger encoder signal error |
| Er48 | Error due to the inability to adjust the speed of the auger |
| Er52 | Module I/O I2C Error |

Table 10

- **Other messages:**

| | |
|-----------------------|---|
| Sond | This message displayed in the Check-Up stage indicates that the temperature at one or more probes is equal to the minimum value (0°C) or the maximum value (depends on the probe type). Ensure that the probe is not open (0°C) or in short circuit (the maximum value on the temperature scale). |
| Service | This message informs you that the planned number of work hours is reached and that it is necessary to call the service. |
| Clean | This message informs you that the planned number of work hours is reached and that general cleaning of the stove is necessary. |
| Block Ignition | This message appears when the system turns off while it is still in the ignition stage. The system will stop working only when it enters the Run Mode. |
| Link Error | This message informs you that there is no communication between the LCD display and the controller of the stove. |
| Standby Man | Appears if the system is in Standby mode due to the pressed button P5 |

Table 11

- **Visualizations:**

By pressing the P4 and P6 buttons the visualization menu is entered. In this menu you can see the values of some system parameters.

| | |
|-----------------------|---|
| L3 On P1 Pump | LED number and output status of the pump |
| L4 Off Safety Valve | LED number and output status Aux 1 |
| L5 Off Out not used | LED number and output status of the additional engine |
| L6 On Load Engine | LED number and output status Aux 2 |
| L7 Off Out not used | LED number and output status Aux 3 |
| Exhaust T.:103 | Flue gases temperature (°C) |
| Water T.: 55 | Water temperature (°C) |
| Buffer T.: 52 | *Buffer temperature (°C) |
| Room T.: 21 | Room temperature (°C) |
| Pressure: 1548 | *Pressure of water in the boiler (mbar) |
| Air Flux: 680 | Primary air flow rate (cm/s) |
| Speed Fan: 1000 | Speed/voltage of flue gas engine (rpm/V) |
| Auger ON: 800 | Speed/voltage of auger engine (rpm/V) |
| Product Code 448-0000 | System code |
| FSYD01000135.0.2 | Controler firmware version |

Table 12

*In case the stove configuration has no installed probes these values are not visible.

16.3. MENU

The menu contains the User Menu and the Technical Menu.

The Technical Menu contains the settings and setup, through which the manufacturer can modify the parameters and configuration of the system. The Technical Menu is not available to the user but only to the authorized representative of the manufacturer.

User Menu (User menu)

By pressing the **P3** button the User Menu is entered.

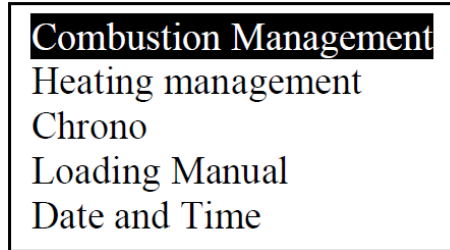


Figure 27

P4 and **P6** buttons are used to select the desired menu or submenu. Then, by pressing the **P3** button the desired menu or submenu is entered.

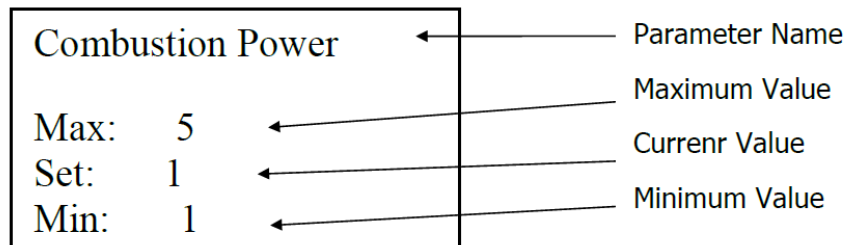


Figure 28

To increase or decrease the parameter value, press the **P4** or **P6** buttons. To save a new parameter value, press the **P3** button. To cancel all modifications and return to the old values, press the **P1** button.

After the parameter value has been changed, the new value is sent to the main controller.

If the transfer is not successful, the following message appears on the display:

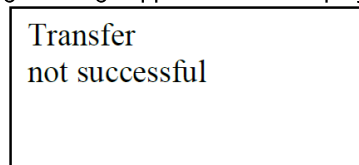


Figure 29

In this case, it is necessary to modify it once more.

The User Menu contains several menus and submenus.

By pressing the **P3** key the User Menu is entered and the following list of submenus is displayed:

| Menu | Description |
|-----------------------|--|
| Combustion Management | Menu for modification of combustion power, calibration of work gear engine and flue gas engine |
| Heating Management | Menu for modification the setpoints for temperature of water in the boiler, buffer and other heating parameters. |
| Chrono | Menu for selecting chrono program mode and boiler on/off times |
| Manual Load | Menu for manual loading of the auger. It is only feasible when the system is in the OFF state |
| Time and Date | Menu for setting time and date |
| Remote Control | Radio-command activation menu |
| Language | Menu for changing the language on the control panel |
| Keyboard Menu | Menu for adjusting the contrast and brightness of the LCD panel |
| System Menu | Menu for accessing technical settings |

Table 13

16.3.1. COMBUSTION MANAGEMENT MENU

This is a menu for the modification of parameters that determine the combustion of the stove. It contains several submenus. The menu is entered by pressing the **P3** button, and the following submenus are listed:

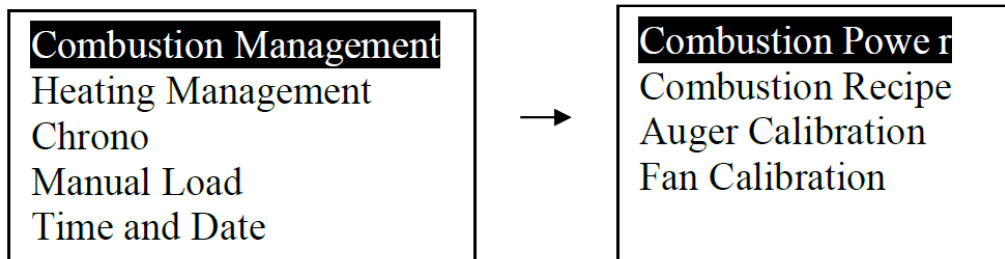


Figure 30

16.3.1.1. COMBUSTION POWER

Menu for setting the system's combustion power in manual or automatic mode (if available). In manual mode, the user can adjust the desired combustion power by himself.

| Combustion | Description |
|---------------------------------------|---|
| 1-5 (Combustion power 1, 2, 3, 4 i 5) | Power is set manually by selecting Power 1, 2, 3, 4 or 5. |
| Auto | Power is set automatically by the system |

Table 14

The Combustion Power menu is entered by pressing the **P3** button.

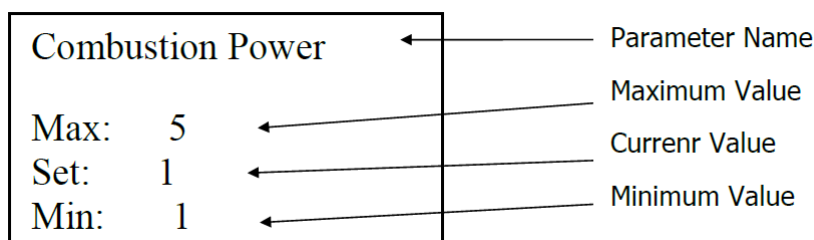


Figure 31

The desired combustion power is selected via the **P4** and **P6** buttons. Press the **P3** button to save the newly set value of the parameter. To cancel all modifications and return to the old values, press the **P1** button.

16.3.1.2. COMBUSTION RECIPE

Menu for selecting the combustion recipe. If only one recipe is set at the factory, this menu is not visible.

16.3.1.3. AUGER CALIBRATION

Menu for changing the feeding rate of the auger. The system has 10 calibration steps (from -5 to +5, the factory default is 0). The calibration effect is valid in the operating mode and in the modulation. For each step, the value is increased or decreased by 5%.

Example: Calibration value = -2; $(-2 \times 5\% = -10\%)$ - means that the calibrated values of the auger speed will be reduced by 10% compared to the factory values.

| | | | | | | |
|-------------------|---------|---------|----------|----------|----------|---------|
| Factory settings | C03=600 | C04=900 | C05=1200 | C06=1600 | C07=2000 | C11=600 |
| Calibrated values | C03=540 | C04=810 | C05=1080 | C06=1440 | C07=1800 | C11=540 |

Table 15

16.3.1.4. Combustion Fan Calibration

Menu for changing the number of revolutions of the flue gas fan. The system has 10 calibration steps (from -5 to +5; the factory default is 0). The calibration effect is valid in the operating mode and in the modulation. For each step, the value is increased or decreased by 5%.

Example: Calibration value = +3; $(+3 \times 5\% = +15\%)$ - means that the calibrated values of the fan speed of the flue gas fans will be increased by 15% compared to the factory values.

| | | | | | | |
|-------------------|----------|----------|----------|----------|----------|----------|
| Factory settings | U03=1000 | U04=1200 | U05=1400 | U06=1600 | U07=1800 | U11=900 |
| Calibrated values | U03=1150 | U04=1380 | U05=1610 | U06=1840 | U07=2070 | U11=1030 |

Table 16

Note: The calibration of the auger and flue gas fan must not be performed without prior consultation of an authorized service or representative of the manufacturer.

16.3.2. HEATING MANAGEMENT MENU

This is a menu for modifying parameters that determine the heating performance of the boiler. It contains several submenus. The menu is accessed by pressing the **P3** button and the following submenus appear:

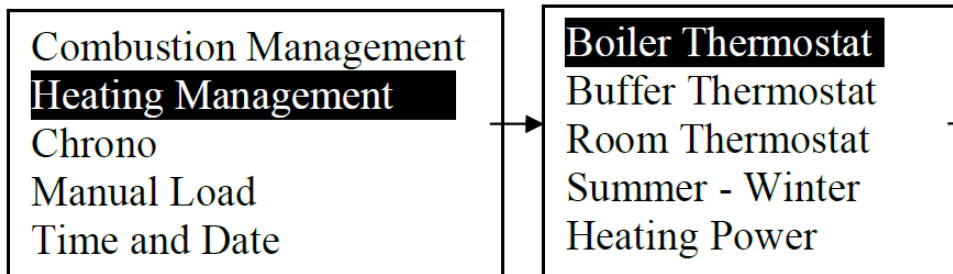


Figure 32

16.3.2.1. Boiler Thermostat

A menu that allows you to adjust the set water temperature in the boiler. The temperature range of the water in the boiler can be adjusted from 30°C to 80°C. By adjusting the set water temperature, the boiler will operate at the set power until it reaches the set water temperature in the boiler. When the set water temperature is reached in the boiler, the boiler goes into the state of modulation and continues to operate at minimum power.

16.3.2.2. Buffer Thermostat

Menu that allows the buffer temperature to be modified. This menu is only active if the buffer is installed.

16.3.2.3. Room Thermostat

In this menu, the set ambient probe temperature is modified. By pressing **P4** and **P6** buttons within Heating Management menu we select Room Thermostat. The Room Thermostat menu is entered by pressing the **P3** button.

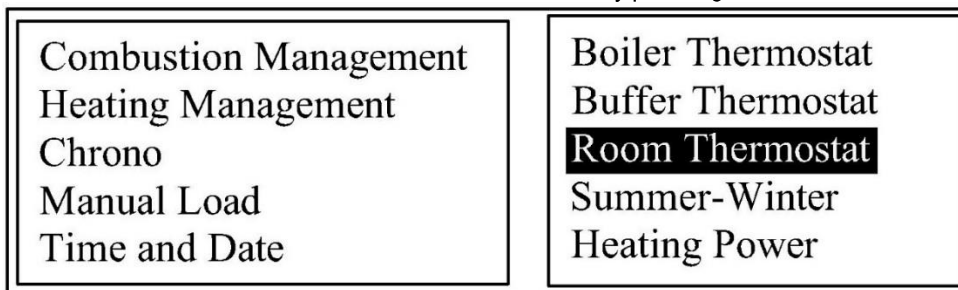


Figure 33

Again, by pressing **P4** and **P6** we select Set value and enter it by pressing **P3**. The ambient temperature setting range is from 10°C to 40°C. Press the **P3** button to save the newly set value of the parameter. To cancel all modifications and return to the old values, press the **P1** button.

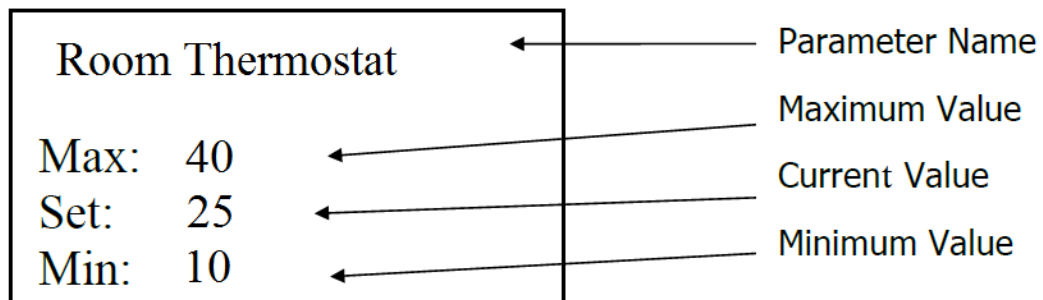
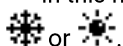


Figure 34

16.3.2.4. Summer – Winter

In this menu, the functionalities of the stove are changed depending on the season. The display shows one of two symbols:



16.3.2.5. Heating Power

This menu is not active.

16.3.2.6. Remote Keyboard

This menu allows control via radio room thermostat. It must be activated by pre-setting a specific parameter.

16.3.3. CHRONO MENU

In this menu the system on/off times are set, i.e. the programmed operation of the stove is set for precisely determined periods of time.

It contains two submenus:

- Modality
- Programming

16.3.3.1. Modality

By entering the Chrono menu, two submenus appear, namely Modalities and Programming.

Via **P4** and **P6** buttons one of the submenus can be selected, and then accessed by pressing the **P3** button. Entering the Modality menu displays the following:

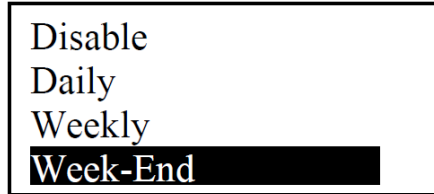


Figure 35

Description of the settings in the Modality menu:

| Description | Buttons | Display on the screen |
|--|-----------|-----------------------|
| Selected modality flashes | | |
| Entering the mode of changes | P3 | |
| Selection of required modality | P4 and P6 | |
| Canceling changes and return to the old modality | P1 | |
| Saving changes | P3 | |
| Exit menu | P1 | |

Table 17

16.3.3.2. Programming

After accessing the Chrono Menu, there are two submenus, Modality and Programming.

Via **P4** and **P6** buttons one of the submenus can be selected and then accessed by pressing the **P3** button. After entering the Programming menu the following screen appears:

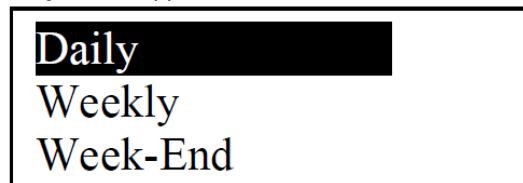


Figure 36

Description of settings in the Programming menu:

| Selection of program | Buttons | Display on the screen |
|------------------------------|---------|-----------------------|
| Selected program flashes | | |
| Entering submenu | P3 | |
| Choosing the desired program | P4 i P6 | |
| Exit menu | P1 | |

Table 18

There are three separate types of programming. For example, if Daily program is activated, other programs remain unchanged. **After completion of the programming, it is necessary to select the desired modality in the Modality menu to enable the system to be turned on/off during the specified time periods.**

Description of the settings of the desired program in the Chrono menu:

| CHRONO PROGRAM | Buttons |
|--|----------|
| After selecting the desired program, select the time period for turning on/off | P4 or P6 |
| Entering the change mode (selected time flashes) | P3 |
| Change of time | P4 or P6 |
| Saving the change in the program | P3 |
| Turning on the program (✓ appears) or turning of the program (✓ disappears) | P5 |
| Exit | P1 |

Table 19

There are three types of programs that can be chosen:

- Daily program - the week day is selected and the system on and off times are programmed. There are three time ranges for each day.

| | | |
|--|--|--|
| | | |
|--|--|--|

Figure 37

- Weekly program - system on/off times are programmed for the whole week. There are three time ranges for setting up.

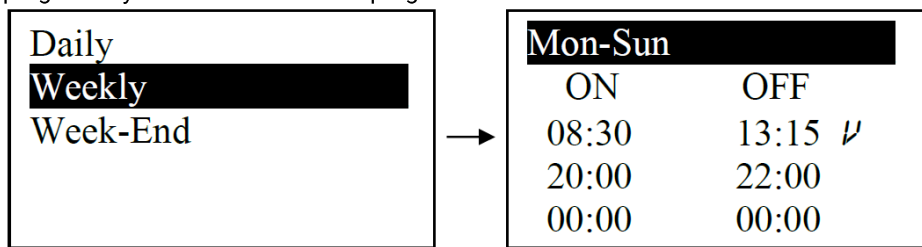


Figure 38

- Weekend program - is selected between two periods "Monday-Friday" and "Saturday-Sunday". For both periods there are three time ranges for setting.

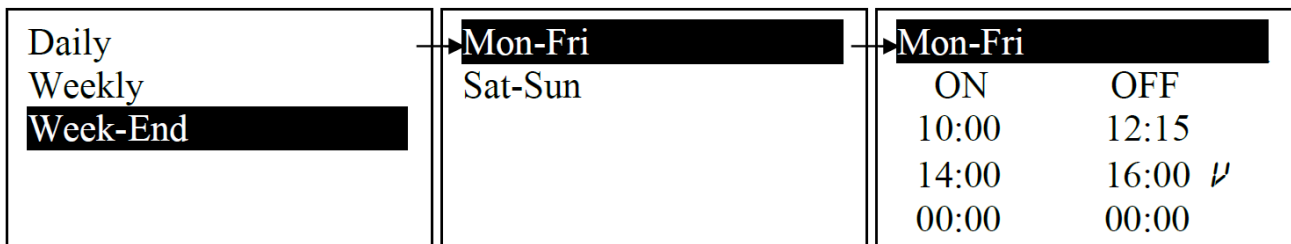


Figure 39

16.3.3.3. Manual Pellets Loading Menu

This menu allows manual turning on/off of pellets dosing. This operation can be done only when the boiler is in OFF state.

16.3.4. MANUAL LOADING MENU

This menu allows manual pellets loading when the stove is commissioned for the first time.

To perform this operation, the system needs to be in OFF state.

16.3.5. TIME AND DATE MENU

This menu allows you to set the exact time and date.

By pressing the **P4** and **P6** buttons, the hours, minutes, years, months and days are set.

The change mode is entered by pressing the **P3** button, while **P4** and **P6** buttons are used for changing the value.

Changes are saved by pressing the **P3** button and then one can leave the menu by pressing the **P1** button.

16.3.6. REMOTE CONTROL MENU

This menu allows you to activate or deactivate the remote control - Remote Control SYTX. Remote control is not provided as factory setting.

16.3.7. LANGUAGE SELECTION MENU

This menu allows you to change the language on the LCD display.

16.3.8. DISPLAY MENU

| Menu | Description |
|-------------------|---|
| Set contrast | Menu for setting contrast on the LCD display |
| Set Minimum Light | Menu for setting brightness on the LCD displeja |

Table 20

16.3.8.1. Setting Contrast

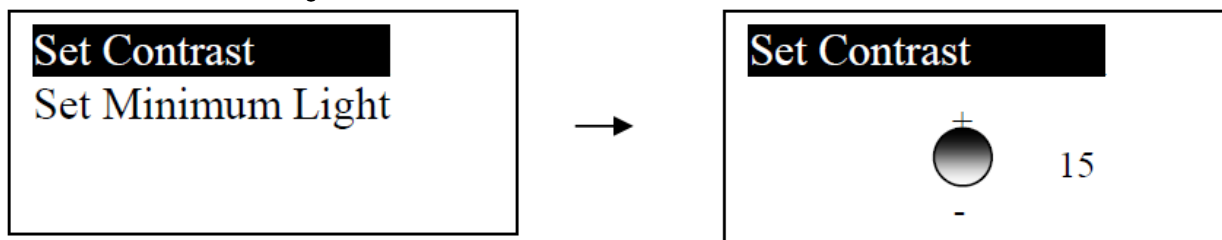


Figure 40

Via **P4** and **P6** buttons contrast is increased or decreased.

By pressing the **P3** button, the changes are saved and one can exit the menu.

Via **P1** button one can exit the menu without saving the changes.

16.3.8.2. Set Minimum Light

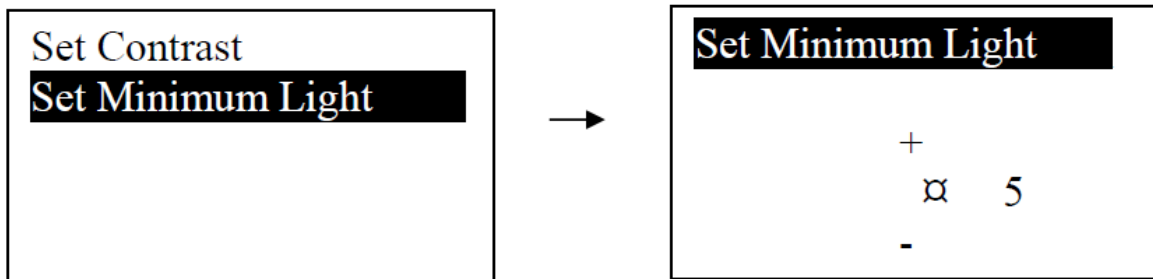


Figure 41

Via **P4** and **P6** buttons brightness is increased or decreased (min 0, max 20).
 By pressing the **P3** button, the changes are saved and one can exit the menu.
 Via **P1** button one can exit the menu without saving the changes.

16.3.9. SYSTEM MENU

This menu allows access to technical settings. Access is password protected and allowed only to authorized technical staff.

16.4. STOVE IGNITION AND FUNCTIONAL CONDITIONS

The stove is switched on by pressing the **P2** button for more than 3 seconds. After that you can find the following functional conditions of the stove:

| |
|--|
| Check Up |
| In the check up stage, the initial check of the input signals of the stove and the correctness of the probes is performed. At this stage, the flue gas fan runs at the maximum speed and the auger and igniter are switched off. The check up stage takes a few seconds and after a successful check, the ignition stage starts. |
| Ignition |
| The ignition stage consists of the following four sub-stages: - Preheating stage - Pellet preloading stage - Fixed ignition stage - Variable ignition stage For the entire duration of the ignition stage, the IGNITION message is shown on the display. There are no special tags for sub-stages. |
| Ignition Preheating |
| At this stage, the igniter is started before the pellets inserting starts. In order to make burn the pellets as efficient as possible, it is desirable that the igniter is already heated at the moment when the pellets inserting starts. At this stage, the igniter is active and the auger is inactive. The flue gas fan runs at a lower speed to accelerate the ignition of the igniter. |
| Ignition Preload |
| At this stage, the initial insertion of pellets occurs, i.e. the auger inserts a certain quantity of pellets that is necessary for ignition. At this stage, the igniter, auger and flue gas fan are active. |
| Ignition – Fixed Stage |
| This stage is a fixed time period of 180 seconds and in case the conditions for stove ignition are reached before the end of this stage, it will always last until the stove is switched to the stabilization stage only after the expiration of a fixed period of time. At this stage, the igniter, auger and flue gas fan are active. |
| Ignition – Variable Stage |
| This stage occurs after a fixed ignition stage. The duration of this stage is a variable time period that lasts up to the moment when the ignition conditions are met, or until the flue gas temperature has reached at 45°C. When the conditions for igniting the boiler is met before the end of this stage, it is interrupted and the next stage - the stabilization stage starts. At this stage, the igniter, auger and flue gas fan are active. |
| Stabilization |
| The stabilization stage is a transient state between the ignition stage and the stage of operation. This stage occurs when the ignition condition is met, i.e. when the flue gas temperature reaches 45°C. It lasts for three minutes and during this time the auger, flue gas fan and igniter are active. |
| Run Mode |
| After the stabilization stage, the stove operation stage starts. At this stage, there are five power levels that can be adjusted. At this stage, the igniter is switched off while the auger, flue gas fan and pump are active and operate at different intensities depending on the power level of the stove. The stove works at a given power until the modulation conditions are met. |
| Modulation |
| The stove goes into the state of modulation when one of the three conditions is fulfilled: 1. When the stove reaches the set water temperature 2. When the stove reaches the set ambient temperature 3. When the flue gas temperature reaches a value greater than 200°C |

In the state of modulation, the stove works at minimum power - power 1, until the temperature decreases below the limit value.

Standby

The stove goes into Standby when one of the two conditions is met:

1. When the boiler reaches the set water temperature, it goes into modulation and continues to increase the water temperature by inertia up to the value 4°C higher than the set water temperature in the boiler.

2. When an external (room) thermostat is responding

In Standby mode, the pellets insertion stops and the stove is switched off. The stove is switched on again when the water temperature in the boiler is reduced by 4°C below the set value or when the room thermostat is deactivated.

Safety

Safety state occurs when the flue gas temperature exceeds 230°C and when the water temperature in the boiler reaches 85°C. At this stage, pellets insertion stops until the flue gas temperature is below 230°C or the water temperature in the boiler is below 85°C. If the temperature is not reduced in the next 60 seconds, the boiler goes into the Alarm state and sends the **Er04** or **Er05** message.

Extinguishing

The stove is switched off by pressing the P2 button for more than 3 seconds. Then an extinguishing stage occurs in which the insertion of pellets is stopped and the flue gas fan and pump work at the maximum capacity in order to cool the boiler down as soon as possible. The minimum duration of the extinguishing stage is 300 seconds, and the condition for switching off the stove completely is when the flue gas temperature is less than 70°C.

OFF

In this state, the stove is switched off, i.e. no outlet on the stove (flue gas fan, pump, igniter and auger) is not active.

Block

The Block state occurs in the event of an error or an alarm. In the Block state, the exhaust fan, the auger and the igniter are off. Hold down the **P2** button for 3 seconds to exit: if there are no more block conditions or there is no cause of alarm, the system will turn off.

Recover Ignition

The stove goes into this stage in two cases:

1. If the power supply is interrupted during the operation and the flue gas temperature is greater than 45°C.
2. Pressing the main switch at the moment the stove is in the extinguishing stage.

Table 21

16.5. POSSIBLE PROBLEMS AND SOLUTIONS

| Message on display | Description | Possible causes | Resetting the error | Possible solutions to the cause of the alarm |
|--------------------|--|---|---|--|
| Er01 | Safety thermostat activated | High water temperature in the boiler | Wait until the stove completely cools down and then unscrew the plastic cap on the thermostat on the back of the stove and press the reset button | Check the correctness and functionality of the pump |
| | | Faulty or poorly connected pump | | Contact a service |
| | | Faulty thermostat | | |
| Er02 | Safety pressure switch activated | Flue gas extraction obstruction | Press and hold the P2 button for more than 3 seconds | Check the level of dirt in the flue pipes and chimney |
| | | Incorrect installation of chimney | | Contact a service |
| | | Faulty pressure switch | | |
| Er03 | Turning off due to the too low temperature of flue gases | Poor combustion (too little or too much pellets in the firebox) | Wait until the stove turns off and then press the P2 button for more than 3 seconds | Check the size of the pellets |
| | | Pellets storage is empty | | Check the amount of dirt in the chamber |
| | | Faulty flue gas probe | | Check the condition of the flue pipes Contact a service |
| Er05 | Turning off due to excessive water temperature in the boiler | Flue gas temperature exceeds the limit | Wait until the stove turns off and then press the P2 button for more than 3 seconds | Insufficient heat transfer - contact the service |
| | | Flue gases extraction obstruction | | Check the filthiness of the flue pipe outlet and the chimney |
| | | Faulty flue gas probe | | |

| | | | | |
|------|--|---|---|--|
| Er07 | Encoder error | Missing encoder signal | Wait until the stove turns off and then press the P2 button for more than 3 seconds | Contact a service |
| Er08 | Encoder error | Flue gas fan does not react | Wait until the stove turns off and then press the P2 button for more than 3 seconds | Contact a service |
| | | Flue gas fan works at speed different than set | | |
| Er11 | Clock error | Problems with internal clock | Press and hold the P2 button for more than 3 seconds | Check the accuracy of the set time |
| | | Insufficient internal battery capacity | | Verify the correct programming in Chrono mode |
| Er12 | Failed ignition of the stove | Stove ignition error | Wait until the stove turns off and then press the P2 button for more than 3 seconds | Contact a service |
| | | During the ignition stage, the corresponding flue gas temperature is not achieved | | Check the condition and quality of the used pellets |
| | | Faulty flue gas probe | | Check the filthiness and draft in the flue pipe outlet |
| Er15 | Power supply failure | Power outage during boiler operation | Press and hold the P2 button for more than 3 seconds | Contact a service |
| | | | | Check system and installation correctness |
| Er16 | Communication error between electronics and display | Display cable interrupted | Press and hold the P2 button for more than 3 seconds | Check the cable and the display cable connectors |
| | | Display cable connector damaged | | Contact a service |
| Er17 | Primary air flow meter error | The primary air flow meter does not adjust the boiler operation | The stove continues to operate without adjusting the primary air. To reactivate the flow meter, turn off the stove. Wait until the stove turns off and then press the P2 button for more than 3 seconds | Check the filthiness of the pipe for primary air supply |
| | | | | Check the filthiness and the draft in the flue pipe outlet and chimney |
| Er39 | Primary air flow meter sensor is damaged | Faulty sensor | The stove continues to operate without adjusting the primary air | Contact a service |
| Er41 | Minimum airflow in the CHECK UP stage has not been reached | Presence of some obstacle or large impurities in the primary air inlet pipe | Wait until the stove turns off and then press the P2 button for more than 3 seconds | Check and clean the primary air inlet pipe |
| | | Flue pipe outlet obstruction | | Check filthiness and draft in flue pipes and chimney |
| | | Poorly closed doors in the ignition stage | | Check that the door of the chamber closes well |
| Er42 | Primary air flow is higher than maximum allowed value | Too much supplied air | Wait until the stove turns off and then press the P2 button for more than 3 seconds | Contact a service |
| | | | | Check the primary air inlet pipe |
| | | | | Check filthiness and draft in flue pipes and chimney |
| | | | | Contact a service |

Table 22

17. SAFETY MEASUREMENTS

The stove is equipped with the following safety devices:

- PRESSURE REGULATOR

Checks the pressure in the chimney. It stops the spiral conveyor of the pellets when the drain is clogged or when there is pressure (wind).

- FLUE GASES TEMPERATURE SENSOR

Checks the temperature of flue gases that allow the stove to be turned ON or stop the ignition if the flue gas temperature drops down below the programmed value.

- CONTACT THERMOSTAT ON THE SNAIL BASE

When the temperature goes over the set safety value the stove will turn off immediately.

- BOILER CONTACT THERMOSTAT

When the temperature goes over the set safety value the stove will turn off immediately.

- WATER TEMPERATURE SENSOR

When the water temperature comes close to the stop-temperature (80 ° C) the sensor triggers the stove to do a series of cooling cycles or turns the stove off automatically using the ECO-STOP in order to prevent blocking of the above-described capillary temperature sensor.

- ELECTRIC SAFETY

The stove is protected from high current disturbances using standard fuses that are located in the main switch on the back side of the stove and on the control panel - the motherboard.

- FLUE GASES FAN

If the fan stops, the motherboard immediately blocks the supply of pellets and an alarm signal will show.

- GEAR MOTOR

When the gear motor stops working, the stove keeps on working until the flame, due to the lack of oxygen, goes out and until the stove reaches the minimal cooling level.

- INTERRUPTION OF ELECTRICITY

If there is a short interruption of electricity the stove automatically starts to cool down.

- NO IGNITION

If there is no flame when you turn the stove on the stove goes into an alarming state.

18. FAULTS - CAUSES – SOLUTIONS

| PROBLEMS | POSSIBLE CAUSES | SOLUTIONS |
|---|--|--|
| Wooden granules are not put into the firebox, in the combustion chamber. | <ol style="list-style-type: none"> 1. The wooden granules tank is empty. 2. The infinity spiral is blocked. 3. The gear motor of the infinity spiral is defective. 4. Electronic card is defective. | <ol style="list-style-type: none"> 1. Fill the tank 2. Empty the tank and unblock the spiral - snail 3. <i>Change the gear motor</i> 4. <i>Change the electronic card</i> |
| Moisture builds up in the boiler | <ol style="list-style-type: none"> 1. Condensation of flue gases | <ol style="list-style-type: none"> 1. Compare the total power of the installed radiators with the power of the stove. If the total power of the installed radiators is greater than the total power of the stove delivered to the water, replace the furnace with a stronger one, or adjust the number of radiators to the power of the stove. |
| Moisture builds up in the boiler | <ol style="list-style-type: none"> 1. Condensation of flue gases | <ol style="list-style-type: none"> 1. Compare the total power of the installed radiators with the power of the stove. If the total power of the installed radiators is greater than the total power of the stove delivered to the water, replace the furnace with a stronger one, or adjust the number of radiators to the power of the stove. |
| The flame is out or the stove turns off automatically. | <ol style="list-style-type: none"> 1. The wooden granules tank is empty. 2. The combustion chamber is not supplied with the wooden granules. 3. Safety probe intervention for the wooden granules temperature. 4. The doors are not closed properly or the glass sealing is worn out. 5. Inadequate wooden granules. 6. Poor supply of wooden granules. 7. The combustion chamber is empty. 8. The chimney is clogged. 9. Interference of failure of the pressure switch. 10. The smoke vacuum motor is defective. | <ol style="list-style-type: none"> 1. Fill the tank with wooden granules. 2. See last instruction. 3. Let the stove cool off completely and turn in back on again. If the problem persists call technical support. 4. Close the door or change the glass sealing with original sealing. 5. Change the type of the wooden granules and pick the type that is approved by the manufacturer. 6. Check the dosage and settings. 7. Clean the combustion chamber as instructed in the manual. 8. Clean the smoke channel. 9. Change the pressure switch. 10. <i>Check the motor and change if needed.</i> |
| It worked for a couple of minutes but then it turned off. | <ol style="list-style-type: none"> 1. The ignition phase is not over. 2. Check if there is an electricity interruption. 3. The smoke channel is clogged. 4. Interference of failure of the pressure switch. 5. The spark plug is damaged. | <ol style="list-style-type: none"> 1. Try igniting again. 2. See last instruction. 3. The smoke channel is clogged. 4. <i>Check or change the probe.</i> 5. <i>Check or change the spark plug.</i> |
| Wooden granules are settling in the combustion chamber. | <ol style="list-style-type: none"> 1. Lack of air for combustion. 2. Wet or inadequate wooden granules. 3. The smoke vacuum system motor is defective. | <ol style="list-style-type: none"> 1. Clean the combustion chamber and check if all the openings are clear. Do the standard cleaning of the combustion chamber and the smoke channel. Check if air flow is clogged. Check the gaskets on the door. |

| | | |
|--|--|--|
| The glass on the door is dirty and the flame is weak. | | <ol style="list-style-type: none"> 2. Change the type of the wooden granules. 3. Check the motor and change if needed. |
| The smoke vacuum motor is defective. | <ol style="list-style-type: none"> 1. The stove is not receiving the electricity. 2. The motor is defective. 3. Motherboard is defective. 4. The control panel is defective. | <ol style="list-style-type: none"> 1. Check the main power supply and resistance to melting. 2. Check the motor and condenser; change if needed. 3. <i>Change the electronic card.</i> 4. <i>Change the control panel.</i> |
| In automatic mode the stove works at maximum capacity all the time. | <ol style="list-style-type: none"> 1. The thermostat is programmed to the maximum position. 2. The thermostat for outside air always checks the cool air. 3. The probe that checks the temperature is defective. 4. The control panel is defective or not working. | <ol style="list-style-type: none"> 1. Set the thermostat temperature again. 2. Change the probe position. 3. <i>Check the probe and change if needed.</i> 4. <i>Check the control panel and change if needed.</i> |
| The stove does not turn on | <ol style="list-style-type: none"> 1. Check if there is an electricity interruption. 2. The wooden granules probe is blocked. 3. The pressure switch is not working (says it is blocked). 4. The smoke vacuum or smoke supply channel is clogged. | <ol style="list-style-type: none"> 1. Make sure the plug is in and check if the main switch is in I position. 2. Unblock the probe by checking the thermostat in the back. If it blocks again <i>change the thermostat.</i> 3. Change the pressure switch. 4. Clean the smoke channel. |

Table 23

19. INFORMATION ON DISPOSAL (THROWING AWAY) AND DISMANTLING (PULLING APART) THE STOVE

Dismantling and throwing away, or disposing of an old used stove is the sole responsibility of the owner.

The owner of the stove must abide by the regulations in his/her country related to the safety and environment protection. Dismantling and disposing of the stove may be left to a third party to do if the third party is a company authorized to collect and dispose of such materials.

NOTICE: *In all cases you must abide by the applicable regulations of the country where the stove is installed regarding disposal of such materials (things) and, if necessary, report the disposal of such items.*

ATTENTION

Dismantling the stove must be done only when the chamber of the stove is not working and when the stove is unplugged from power (no power supply).

- *pull out all electric parts,*
- *throw away the battery and electronic cards in the proper garbage cans in accordance with the standards.*
- *separate the batteries you are keeping from the electric cards,*
- *dismantle the stove with the help from an authorized company*

ATTENTION

Disposing of the stove in public places poses a serious risk for people and animals. In such cases it is always the responsibility of the owner if a person or an animal gets hurt.

When the stove is dismantled, this manual and all other documents related to the stove must be destroyed.