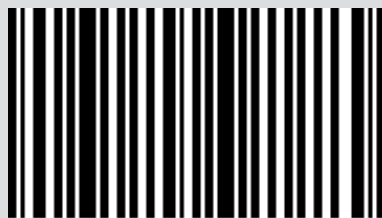




PELLET STOVE
LOTUS
HYDRO MODEL

Translation of original instructions



8901228900

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INTRODUCTION

Dear Customer,

our products are designed and manufactured in compliance with European reference Standards for construction products (EN13240 wood-burning stoves, EN14785 pellet-burning appliances, EN13229 fireplaces/wood-burning inserts, EN 12815 wood-burning cookers), with high quality materials and extensive experience in the transformation processes. The products also meet the essential requirements of Directive 2006/95/EC (Low Voltage) and Directive 2004/108/EC (Electromagnetic Compatibility).

To get the best performance, we suggest you read the instructions in this manual carefully.

This installation and use manual forms an integral part of the product ensure that the manual is always supplied with the appliance, even if it changes owner. If the manual is lost, you can request another copy from the local technical service or download it directly from the company website.

All local regulations, including those regarding national and European regulations, must be observed when the appliance is installed.

In Italy, for the installation of systems with biomass below 35KW, refer to ministerial decree D.M. 37/08, and the qualified installation technician with the appropriate requisites must issue a certificate of compliance for the system installed. (By system one means Stove+Chimney+Air inlet).

REVISIONS TO THE PUBLICATION

The content of this manual is strictly technical and the property of RED.





No part of this manual may be translated into other languages and/or adapted and/or reproduced, even in part, in other mechanical or electronic forms, photocopies, recordings or other, without the prior written authorisation from RED.

The company reserves the right to make changes to the product at any time without prior notice. The proprietary company reserves its rights according to the law.

CARE OF THE MANUAL AND HOW TO CONSULT IT

- Take care of this manual and keep it in an easily accessible place.
- Should the manual be misplaced or ruined, request a copy from your retailer or directly from the authorised Technical Assistance Department. It can be downloaded from the company website.
- The “**text in bold**” must be read with particular care.
- “The *“text in italics”* draws attention to other sections in this manual or clarifications.
- “NOTE” provides the reader with additional information.

SYMBOLS USED IN THE MANUAL

	ATTENTION: Read the relative message with care as failure to observe the information provided could result in serious damage to the product and put the persons who use it at risk.
	INFORMATION: failure to comply with these provisions will compromise the use of the product.
	OPERATING SEQUENCES: sequence of buttons to be pressed to access the menus or change settings.
	MANUAL carefully read this manual or the relative instructions.



SAFETY PRECAUTIONS

- **Installation, electrical connection, function test and maintenance must only be carried out by authorised and qualified personnel.**
- **Install the product in accordance with all local and national legislation and regulations in force in the region or state.**
- **A bad use or improper maintenance of the product can bring to a serious risk of explosion in the combustion chamber.**
- Only use the fuel recommended by the manufacturer. The product must not be used as an incinerator.
- It is strictly forbidden to use alcohol, petrol, liquid fuel for lanterns, diesel, bio-ethanol, fluids for lighting charcoal or similar liquids to light/rekindle the flame in these devices. Keep these flammable liquids well away from the appliance when in use.
- Do not put any fuel other than wood pellets in the hopper.
- The instructions provided in this manual must always be complied with to ensure the product and any electronic appliances connected to it are used correctly and accidents are prevented.
- **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 have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.**
- The user, or whoever is operating the product, must read and fully understand the contents of this installation guide before performing any operation. Errors or incorrect settings can cause hazardous conditions and/or poor operation.
- Do not climb on or lean on the product.
- Do not put linen on the product to dry. Any drying racks or similar objects must be kept at a safe distance from the product. **Fire hazard.**
- *All liability for improper use of the product is entirely borne by the user and relieves the Manufacturer from any civil and criminal liability.*

1-WARNINGS AND WARRANTY TERMS

- Any type of tampering or unauthorised replacement with non-original spare parts could be hazardous for the operator's safety and relieves the company from any civil and criminal liability.
- Many of the surfaces of the product get very hot (door, handle, glass, smoke extraction pipes, etc.). **Avoid coming into contact with these parts without adequate protective clothing or suitable means, such as gloves with thermal protection** or "cold handle" operating systems.
- **It is forbidden to operate the product with the door open or the glass broken.**
- **The doors/covers on the appliance must remain closed when it is not used.**
- The product must be powered by an electrical system that is equipped with an effective earthing device.
- Switch the product off in the event of a fault or malfunction.
- Accumulated unburned pellets in the burner after each "failed start-up" must be removed before lighting again. Check that the burner is clean and positioned properly before lighting again.
- **Shut the stove down in the event of a breakdown or bad running and contact the engineer immediately.**
- **Pellets must not be fed manually into the burner – this wrong behaviour can generate an abnormal amount of unburned gas, with a risk of explosion in the chamber.**
- **Accumulated unburnt pellets in the burner after a failed ignitions must be removed before lighting.**
- Failure too clean and maintain the brazier can result in improper running and explosions within the stove. Make sure you remove and clear the holes in the brazier and any loose encrustations every time you empty the ash from the stove or every time you have a failed ignition. Make sure that the holes in the brazier are never reduced in size as this will affect the safe performance of the stove if not maintained.
- Do not wash the product with water. The water could get inside the unit and damage the electrical insulation and cause electric shocks.

1-WARNINGS AND WARRANTY TERMS

- A carbon monoxide alarm must be fitted in the room where the appliance is sited Refer too ADJ part 2.34 through too 2.36 page 41 (**ONLY FOR UK**).
- If there is a fire in the flue pipe, extinguish the stove, disconnect it from the power supply and never open the door. Then contact the competent authorities.
- Do not light the stove with flammable materials if the ignition system breaks down.
- Do not stand for a long time in front of the product in operation. Do not overheat the room you are in and where the product is installed. This could cause injuries and health problems.
- Install the product in a location that does not present a fire hazard and is equipped with power and air supplies and smoke extractors.
- In the event of fire in the chimney, turn off the device, disconnect it from the mains electricity and do not open the hatch. Then contact the competent authorities.
- The product and the cladding must be stored in a dry place and must not be exposed to weathering.
- It is recommended not to remove the feet that support the product in order to guarantee adequate insulation, especially if the flooring is made of flammable materials.
- In the event of a malfunction with the ignition system, do not force it to light by using flammable materials.
- Special maintenance must only be performed by authorised and qualified personnel.
- Assess the static conditions of the surface on which the weight of the product will rest and provide suitable insulation if it is made of flammable material (e.g. wood, fitted carpet or plastic).
- Live electrical parts: only power the product after completing assembly.
- Disconnect the product from the 230V power supply before performing any maintenance operation.
- **IF ANY SMOKE SPILLAGE IS SEEN WITHIN THE ROOM OR THE APPLIANCE SUFFERS FROM AN EXPLOSIVE IGNITION PLEASE TURN OFF THE APPLIANCE, VENTILATE THE ROOM AND CONTACT THE INSTALLER/SERVICE ENGINEER IMMEDIATELY.**

1-WARNINGS AND WARRANTY TERMS

INFORMATION

- In case of any problems, get in touch with your dealer, or a qualified engineer authorised by MCZ, and if a repair is necessary, insist on the use of original spare parts.
- Use only the fuel recommended by MCZ (for Italy pellets with a diameter of 6 mm and for other European countries with a diameter of 6-8 mm) and provided only with an automatic supply system.
- Periodically check and clean the smoke outlet ducts (connection to the flue pipe).
- Accumulated unburnt pellets in the burner after repeated failed ignitions must be removed before lighting.
- The pellet stove is not a cooking appliance.
- Always keep the cover of the fuel hopper closed.
- Keep this instruction manual carefully because it must stay with the stove throughout its working life. If the stove is sold or transferred to another user, always make sure that the booklet goes with the product.
- If it gets lost, ask MCZ or your authorised dealer for another copy.

INTENDED USE

The product only works with wood pellets and must be installed indoors.

WARRANTY CONDITIONS

The company guarantees the product, **with the exception of elements subject to normal wear** (listed on the following page), for a period of **2 (two) years** from the date of purchase attested by:

- a document to serve as proof of purchase (invoice and/or receipt) that shows the name of the vendor and the date on which the purchase was made;
- forwarding of the completed certificate of guarantee within 8 days of purchase.

Furthermore, the product must be installed and started by specialised personnel who must, where provided, issue a declaration of conformity of the plant and of the proper functioning of the product, for the warranty to be valid and effective.

We recommend functionally testing the product before completion with the relevant finishes, where provided (claddings, painting of walls, etc.).

Installations not meeting the current standards, improper use and lack of maintenance as expected by the manufacturer, void the product warranty.

The guarantee is valid on the condition that the instructions and warnings contained in the use and maintenance manual are observed, and therefore the product is used correctly.

The replacement of the entire system or the repair of one of its components does not extend the guarantee period, and the original expiry date remains unchanged.

The guarantee covers the replacement or free repair **of parts recognised as being faulty at source due to manufacturing defects.**

In order to activate the product warranty the commissioning document which is supplied with the appliance and also is available as a download from the Specflue website must be filled in correctly and returned within 14 days (ONLY FOR UK).

1-WARNINGS AND WARRANTY TERMS

EXCLUSIONS

The guarantee does not cover malfunctions and/or damage to the appliance that arise due to the following causes:

- Damage caused during transportation or relocation
- all parts that develop faults due to negligence or improper use, incorrect maintenance, installation that does not comply with the manufacturer's instructions (always refer to the installation and use manual provided with the appliance)
- incorrect dimensioning with regards to the use or faults in the installation or failure to adopt the necessary devices to guarantee proper execution
- improper overheating of the equipment, use of fuels not conforming to the types and quantities indicated in the instructions provided
- further damage caused by incorrect user interventions in an attempt to fix the initial fault
- worsening of the damage due to the continued use of the equipment by the user, once the defect has been noticed
- in the presence of a boiler, any corrosions, incrustations or breaks caused by water flow, condensation, hardness or acidity of the water, improperly performed descaling treatments, lack of water, mud or limescale deposits
- inefficiency of chimneys, flues or parts of the plant affecting the equipment
- damage caused by tampering with the appliance, atmospheric agents, natural disasters, vandalism, electrical discharges, fires, faults in the electric and/or hydraulic system.
- Failure to have stove maintenance performed on an annual basis by an authorised technician or qualified personnel will result in the loss of the warranty.

Also excluded from this guarantee are:

- parts subject to normal wear such as gaskets, glass, claddings and cast iron grids, painted, chrome-plated or gilded parts, handles and electric cables, bulbs, indicator lights, knobs, all parts which can be removed from the hearth.
- Variations in colour of the painted or ceramic/serpentine parts and craquelure ceramics as they are natural characteristics of the material and product use.
- masonry work
- plant parts (if present) not supplied by the manufacturer

Any technical interventions on the product to eliminate the above-said defects and consequent damages must be agreed upon with the Technical Assistance Centre, who reserves the right to accept the relative appointment or not. However, said interventions will not be carried out under warranty but as technical assistance to be granted at part of any eventual and specific agreed conditions and in accordance with the fee in force for the work to be carried out.

The user will also be charged for any costs incurred to remedy the incorrect technical interventions, tampering or damage to the appliance, not attributable to original faults.

Save for the legal or regulatory limits, the guarantee does not cover the containment of atmospheric and acoustic pollution.

The company declines all liability for any damage which may be caused, directly or indirectly, to persons, animals or objects as a consequence of non compliance with any prescription specified in the manual, especially warnings regarding installation, use and maintenance of the appliance.

1-WARNINGS AND WARRANTY TERMS

SPARE PARTS

In the event of a malfunction, consult the retailer who will forward the call to the Technical Assistance Service.

Use only original spare parts. The retailer or service centre can provide all necessary information regarding spare parts. We do not recommend waiting for the parts to be worn before having them replaced. It is important to perform regular maintenance.



The company declines all liability if the product and any other accessory is used improperly or modified without authorisation.

All parts must be replaced with original spare parts.

WARNINGS FOR THE CORRECT DISPOSAL OF THE PRODUCT.

The owner is the sole party responsible for demolishing and disposing of the product. This must be performed in compliance with laws related to safety and environmental protection in force in his/her country.

At the end of its working life, the product must not be disposed of as urban waste.

It must be taken to a special differentiated waste collection centre set up by the local authorities or to a retailer that provides this service. Separating and recycling prevents potential negative effects on the environment and health (often caused by inappropriately disposing of product parts). It also allows materials to be recovered in order to obtain significant savings in energy and resources.

1-WARNINGS AND WARRANTY TERMS

RULES FOR INSTALLATION

The product is a boiler that uses wood pellets.

Below is a list of the European regulations regarding the installation of the product:

EN 303-5:2012: Solid fuel boilers, with manual or automatic loading, nominal thermal power of 500 kW - Terminology, requisites, tests and marking.

EN 12828 Heating systems design.

Electrical systems with rated voltage not exceeding 1000 V AC and 1500 V DC.

EN 1443 General chimney regulation

EN 1856-1 metal smoke ducts

EN 1856-2 metal smoke extraction channels

EN 1457 chimneys - Interior terracotta / ceramic flues

EN 13384-1 Chimneys - Thermal and dynamic fluid calculation methods - Part 1: Chimneys connected to a single appliance

Below are some applicable regulations for Italy:

UNI 10683:2012 Heat generators fuelled by wood or other solid bio-fuels - Test, installation, control and maintenance (for thermochemical power at the firebox lower than 35kW)

UNI/TS 11278 general technical regulation for the choice of smoke duct/flue

UNI 10847:2000 Smoke extractor systems for liquid and solid fuelled generators - Maintenance and control - Guidelines and procedures

UNI 8065 water treatment in civil plants.

UNI 9182 Hot and cold (sanitary) air supply and distribution systems.

UNI CTI 8065 WATER TREATMENT IN THERMAL PLANTS FOR CIVIL USE

The hydraulic circuit to which the boiler is connected must compulsorily provide a circulation pump sized to ensure adequate flow of the heat carrying fluid in any situation.

Installation must be carried out with reference to the diagram of the heating system prepared in accordance with the standards and local recommendations in force:

In any case, respect:

For the heating appliance

Local requirements concerning the chimney connection.

Local requirements for fire-fighting standards.

For electrical parts - **EN 60335 "Safety of electrical household appliances and similar**

Part 1 - General requirements

Part 2 - Special regulations for appliances with gas, gas oil and solid fuel burners with electrical connections.

SPECIFICATIONS FOR ITALY

Fire-prevention standard: **M.D. 28/04/2005** circ. no. 52 and of **Ministry of Health 20/04/1982** point 5.1

2-INSTALLATION



The instructions in this chapter refer explicitly to the Italian installation regulation UNI 10683. In any case, always observe the domestic regulations in force.

PELLETS

Wood pellets are manufactured by hot-extruding compressed sawdust which is produced during the working of natural dried wood. The compactness of the material is guaranteed by the lignin contained in the wood itself and allows pellets to be produced without glue or binders.

The market offers different types of pellets with characteristics that vary according to the wood mixtures used. The most common diameter on the market is 6 mm (although 8 mm diameter is available too) with a length, on average, of between 3 and 40 mm. A good quality pellet has a density of between 600 and 750 or more kg/metres cubed and a water content that accounts for 5 to 8% of its weight. Pellets have technical advantages besides being an ecological fuel, as the wood residue is used completely, thereby achieving cleaner combustion than that of fossil fuels.

Good-quality wood has a calorific value of 4.4 kW/kg (15% moisture, after about 18 months of seasoning), whereas that of pellets is 4.9 kW/kg. To ensure good combustion, the pellets must be stored in a dry place and protected from dirt. Pellets are usually supplied in 15 kg bags, therefore, storing them is very convenient.



15 Kg BAGS OF FUEL

Good quality pellets guarantee good combustion, thereby decreasing harmful emissions into the atmosphere.



The poorer the quality of the fuel, the more often the internal parts of the brazier and combustion chamber must be cleaned.

The main quality certifications for pellets currently available on the European market guarantee that the fuel complies with class A1/A2 according to EN14961-2. These certifications include, for example, **ENplus**, **DINplus**, **Ö-Norm M7135**, and in particular, guarantee the following characteristics:

- calorific value: 4.6 ÷ 5.3 kWh/kg.
- Moisture content: ≤ 10% of the weight.
- Percentage of ash: max 1.5% of the weight.
- Diameter: 6±1/8±1 mm.
- Length: 3÷40 mm.
- Content: 100% untreated wood without the addition of binding substances (max 5% bark).
- Packaging: in sacks made from ecologically compatible or biologically decomposing material.



The company strongly recommends using certified fuel for its products (ENplus, DINplus, Ö-Norm M7135). Poor quality pellets or others that do not comply with the characteristics specified previously may compromise the operation of your product and can therefore render the guarantee and product liability invalid.

2-INSTALLATION

PRECAUTIONS REGARDING INSTALLATION



IMPORTANT!

Product installation and assembly must be carried out by qualified personnel.

The product must be installed in a suitable place that allows easy access for it to be opened regularly and for routine maintenance to be performed.

The installation area must be:

- suitable to enable the appliance to operate correctly.
- Equipped with an adequate smoke extraction system.
- Equipped with adequate ventilation from outside.
- Equipped with 230V 50 Hz power supply with an EC compliant earthing system.



IMPORTANT!

The product must be connected to a chimney that expels the smoke at the highest point of the building.

The chimney must be of suitable dimensions, caulked, and fitted with a condensation collector for collecting the water vapour that can form due to the high performance of the appliance and the consequently low temperatures of the outgoing fumes.

The chimney must comply with regulations in force.

The holes of the external air inlet and the smoke outlet pipe must be drilled before positioning the product.

THE OPERATING AREA

The boiler must be installed indoors in an area well protected from atmospheric elements.

The surface on which it stands and/or support points must have sufficient load bearing capacity to support the total weight of the appliance, its accessories and covers.

To ensure the appliance works well, we recommend installing the boiler detached from any walls or furniture, and with good air circulation to allow effective ventilation for the appliance. The product should be located in an area that allows sufficient space for normal use and maintenance operations.

The volume of the room should be no less than 15 m³.

It is essential that an adequate outdoor air intake is provided that supplies the air for combustion needed for the product to function correctly.

These air inlets must be arranged so that it is impossible for them to be obstructed.

Protect the inlets with grilles, metal mesh, etc., without reducing the net cross-section.



Remember that the ventilation grilles always have the useful cross-section in cm² indicated on one side. When choosing the grille and size of the inlet, check that the useful cross-section of the grille is larger or equal to the section required for product operation.

The flow of air between the outside and the room of installation may be direct, through an inlet in an external wall of the building; or indirect, through the intake of air from rooms adjoining and connecting permanently with the room of installation. Adjoining areas may not include sleeping areas, garages or general areas that present a fire hazard.

For air ducts, up to 3m increase the cross-section by approximately 5%, while for ducts that run for longer increase it by 15%.



IMPORTANT!

The air flow can also be drawn from an adjoining room to that of the room where the product is installed, provided the air can flow freely through permanent openings to the outside; avoid connection to sleeping areas and rooms that present a fire hazard in general.

2-INSTALLATION

POSITIONING AND RESTRICTIONS

In the case of simultaneous installation with other heating appliances, provide appropriate air inlets for each one (according to the instructions of each product).



The product cannot be installed (except for sealed or closed operation appliances with external ducted combustion air intake):

- **in bedrooms or bathrooms;**
 - **in rooms where there are liquid fuel appliances with continuous or intermittent operation that draw the combustion air from the room they are installed in;**
 - **in rooms where there are B-type gas heating appliances, with or without domestic hot water production and interconnecting rooms;**
 - **where another heating appliance is installed without an independent air flow.**
- It is forbidden to place the product in an explosive atmosphere.**

MINIMUM DISTANCES

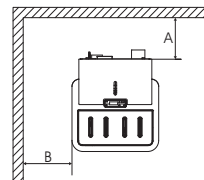
It is recommended to install the stove detached from any walls and/or furniture, with a minimum clearance to allow effective aeration of the appliance and a good distribution of heat in the room. Observe the distances from flammable or heat-sensitive objects (sofas, furniture, wood panelling, etc..) as specified below. The front distance from flammable materials must be at least as set out in the product's technical data table.

If particularly delicate objects are present, such as furniture, curtains or sofas, increase the stove clearance accordingly.



If the floor is made of wood, it is recommended to fit a floor protection sheet in compliance with the Standards in force in the country of installation.

LOTUS	Non-flammable walls	Flammable walls
Hydro	A = 5 cm B = 5 cm	A = 10 cm B = 10 cm



If the floor is made of combustible material, it is recommended to use protection made of non-combustible material (steel, glass...) that also protects the front from falling combusted material during cleaning operations.

The appliance must be installed on a floor with adequate load capacity.

If the existing construction does not meet this requirement, one must take appropriate measures (for example a load distribution plate).

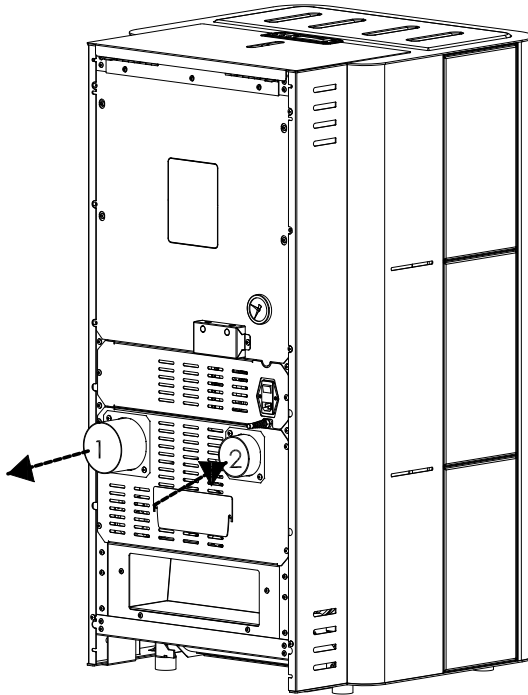
2-INSTALLATION

CONNECTION OF THE SMOKE EXHAUST DUCT

When making the hole for the passage of the smoke discharge pipe, one must take into account the possible presence of flammable materials. If the hole must be made through a wooden wall or thermolabile material, the **INSTALLER MUST** first of all use the appropriate wall fitting (minimum diameter 13 cm) and suitably insulate the pipe of the product that passes through it using adequate insulating materials (1.3 - 5 cm thick with minimum thermal conductivity $0.07 \text{ W/m}^{\circ}\text{K}$).

The same minimum distance must be applied if the pipe of the product must pass through vertical or horizontal sections near the thermolabile wall.

It is recommended to use an insulated double-wall pipe in external sections in order to prevent condensation from forming. The combustion chamber works in negative pressure.



REAR VIEW OF A PELLET STOVE (EXAMPLE)

- 1) SMOKE OUTLET
- 2) COMBUSTION AIR INLET

2-INSTALLATION

FOREWORD

This chapter on the Smoke Flue has been produced in reference to the prescriptions of European regulations (EN13384 - EN1443 - EN1856 - EN1457).

The chapter provides indications for installing an efficient and correct smoke flue but is under no circumstances to substitute the regulations in force, which the qualified technician must be in possession of. Check with local authorities whether there are any restrictive regulations in force regarding the intake of air for combustion, the smoke extraction system, the flue or the chimney.

The company declines all liability relating to the poor functioning of the boiler if this is due to the use of an insufficiently sized flue in violation of regulations in force.

SMOKE FLUE

The flue or chimney is of great importance for the proper operation of a solid fuel-burning heating appliance with natural draught, as modern heating appliances have high efficiency with cooler flue gasses and consequently less draught, it is therefore essential that the flue is built up to standard and always kept in perfect working order. A flue that serves a pellet/wood fuelled appliance must be at least category T400 (or greater if the appliance requires, and resistant to soot fires. Smoke must be extracted through a single flue made of insulated steel (A) or an existing flue that complies with the intended use (B).

A simple air shaft in cement must be suitably lined. In both solutions there must be an inspection cap (AT) and/or inspection hatch (AP) - FIG.1.

It is prohibited to connect more than one wood/pellet or any other type of appliance (vent cowlng...) to the same flue.

The stove must be connected to a flue pipe or an internal or external vertical duct conforming to EN 1856-1-2 to suit the appliance and types of fuels to be burnt – refer to detailed guidance in sections 2, 3 and 4 in ADJ (ONLY FOR UK).

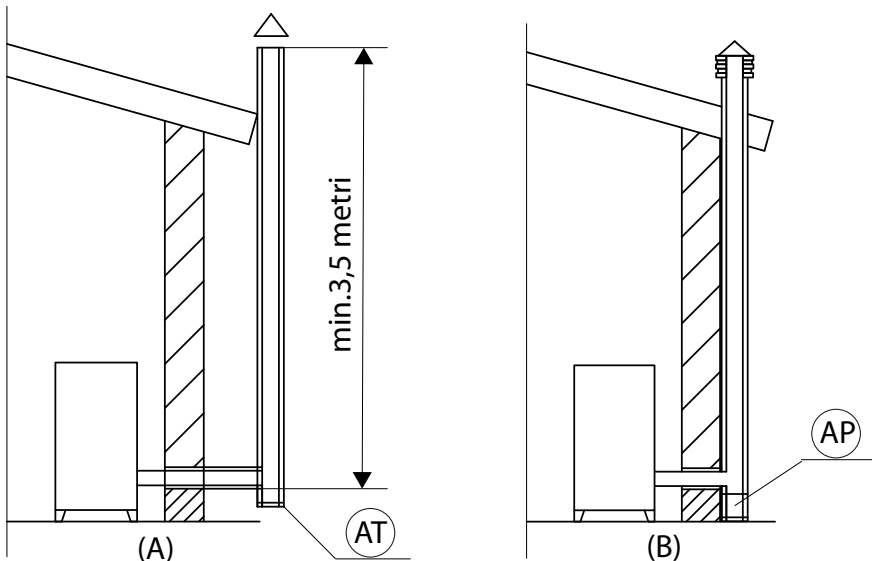


FIGURE 1 - SMOKE FLUE

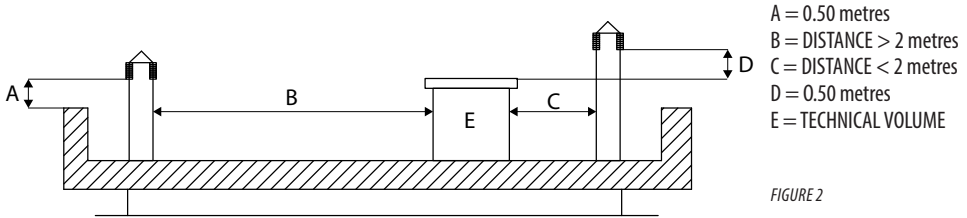
2-INSTALLATION

TECHNICAL CHARACTERISTICS

Have the efficiency of the flue checked by an authorised technician.

The flue must be sealed against flue gasses, in a vertical direction without narrowing, be made with materials impermeable to smoke, condensation, thermally insulated and suitable to resist normal mechanical stress over time (we recommend fireplaces made of A/316 or refractory material with insulated round section double chamber). Be suitably insulated externally to avoid condensation and reduce smoke cooling. It should be separated from combustible or flammable materials with an air gap or insulating materials: check the distance specified by the manufacturer of the fireplace according to EN1443. The chimney opening must be in the same room as the appliance, or at most in the adjoining room, and have a soot and condensation collection chamber beneath the opening, and be accessible via a watertight metal hatch.

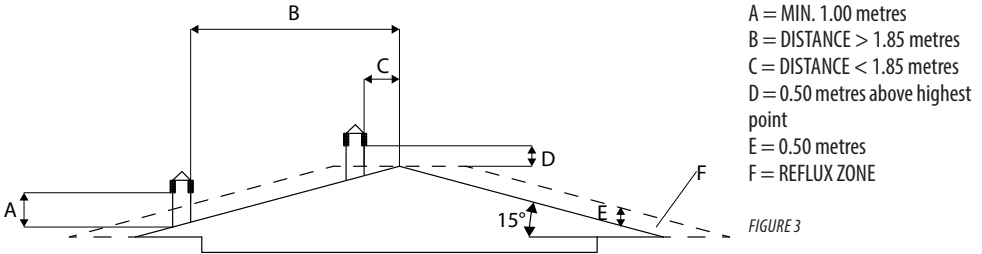
FLAT ROOF



- A = 0.50 metres
- B = DISTANCE > 2 metres
- C = DISTANCE < 2 metres
- D = 0.50 metres
- E = TECHNICAL VOLUME

FIGURE 2

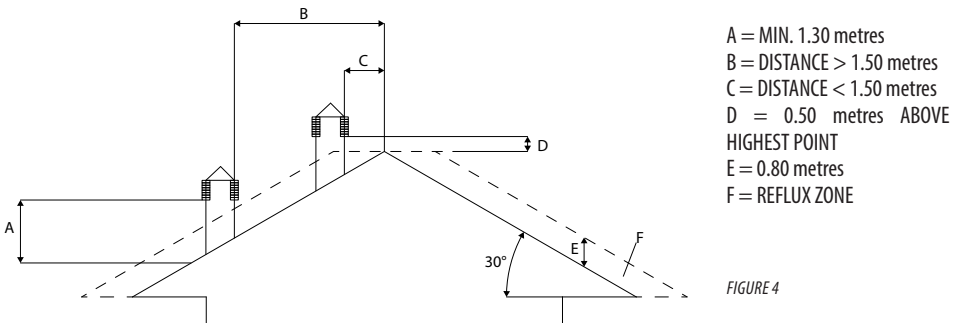
ROOF AT 15°



- A = MIN. 1.00 metres
- B = DISTANCE > 1.85 metres
- C = DISTANCE < 1.85 metres
- D = 0.50 metres above highest point
- E = 0.50 metres
- F = REFLUX ZONE

FIGURE 3

ROOF AT 30°



- A = MIN. 1.30 metres
- B = DISTANCE > 1.50 metres
- C = DISTANCE < 1.50 metres
- D = 0.50 metres ABOVE HIGHEST POINT
- E = 0.80 metres
- F = REFLUX ZONE

FIGURE 4

2-INSTALLATION

ROOF AT 60°

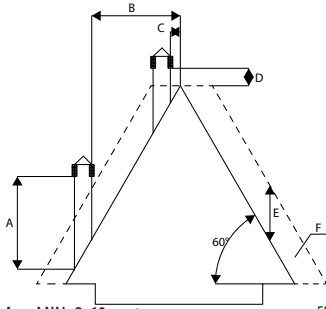


FIGURE 5

- A = MIN. 2.60 metres
- B = DISTANCE > 1.20 metres
- C = DISTANCE < 1.20 metres
- D = 0.50 metres ABOVE HIGHEST POINT
- E = 2.10 metres
- F = REFLUX ZONE

ROOF AT 45°

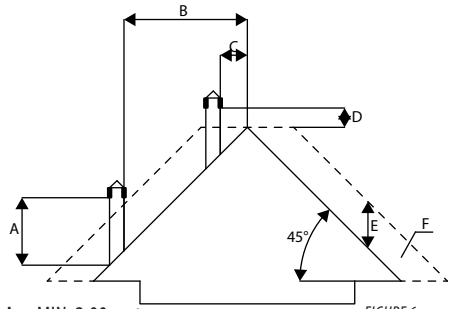


FIGURE 6

- A = MIN. 2.00 metres
- B = DISTANCE > 1.30 metres
- C = DISTANCE < 1.30 metres
- D = 0.50 metres ABOVE HIGHEST POINT
- E = 1.50 metres
- F = REFLUX ZONE

DIMENSIONING

The drop in pressure (draft) of a flue depends on its height. Check the drop in pressure with the values indicated in the technical characteristics. The minimum height of the chimney is 3.5 meters.

The interior cross-section of the flue can be circular (best variation), square or rectangular (the ratio between the interior sides must be ≤ 1.5) with the sides joined with a minimum radius of 20 mm. The dimension of the cross-section must be **minimum $\varnothing 100\text{mm}$** .

The cross-sections/lengths of the chimneys shown in the technical data tables are indications for correct installation. Any alternative configurations must be correctly dimensioned in accordance with the general method of calculation of UNI EN13384-1 or other proven efficiency methods.

Below is a list of some flues available on the market:

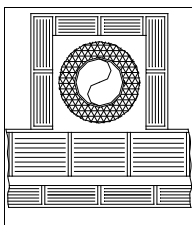
Steel chimney AISI 316 with double chamber insulated with ceramic fibre or equivalent resistant up to 400°C.

Refractory chimney with double insulated chamber and external lightweight concrete cladding with cellular material such as clay.

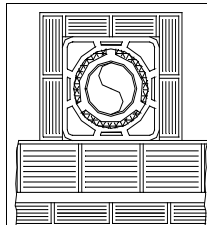
Traditional square-section clay chimney with insulating empty inserts.

Avoid products with an internal rectangular section where the larger side is 1.5 times the smaller side (e.g. 20x40 or 15x30).

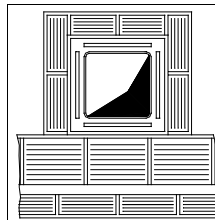
EXCELLENT



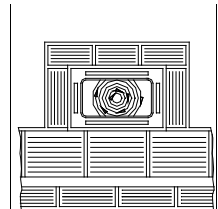
GOOD



POOR



VERY POOR



2-INSTALLATION

MAINTENANCE

The flue must be kept clean, since the deposit of soot or unburned oils reduces the cross-section reducing the draft and thus compromising the efficient functioning of the heater and, if large build-ups accumulate, can catch fire. The flue and chimney must be cleaned and checked by a skilled chimney sweep at least once a year. Once the check/maintenance has been performed, request a signed report stating that the system is safe.

Failure to clean the system jeopardises its safety.

CHIMNEY

The chimney is a crucial element for the heating appliance to work properly: we recommend a wind proof chimney (A), see Figure 7.

The area of the opening for smoke extraction must be at least double the cross-section of the smoke duct/flue system, and arranged so that smoke extraction is ensured even in strong wind. The chimney must prevent rain, snow or animals from entering the chimney. The height of outflow into the atmosphere must be beyond the reflux zone created by the shape of the roof or any obstacles near the outlet (see Figures 2-3-4-5-6).

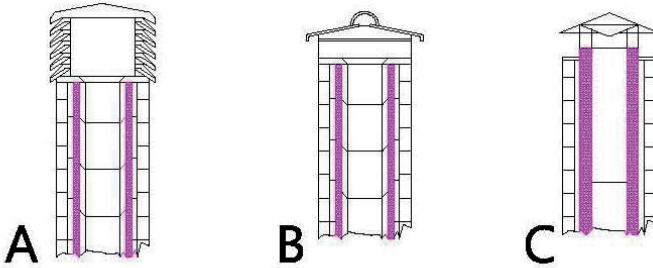
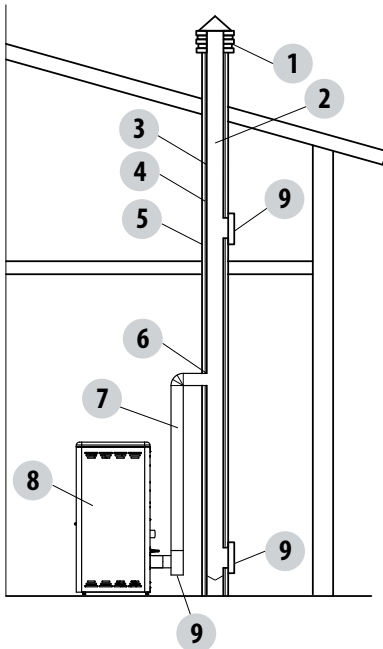


FIGURE 7

CHIMNEY COMPONENTS



KEY:

- (1) CHIMNEY
- (2) REFLUX CHANNEL
- (3) SMOKE DUCT
- (4) THERMAL INSULATION
- (5) OUTSIDE WALL
- (6) CHIMNEY CONNECTION
- (7) SMOKE CHANNEL
- (8) HEAT GENERATOR
- (9) INSPECTION ACCESS PANEL

FIGURE 8

2-INSTALLATION

EXTERNAL AIR INLET

It is mandatory to provide an adequate external air intake that supplies the combustion air required for the product to work properly. The flow of air between the outside and the installation room may be direct, through an inlet in an external wall of the room; or indirect, via air intake from adjoining rooms and connecting permanently with the installation room (see Figure 9 b). Adjoining areas may not include sleeping areas, garages or general areas with a fire hazard. During installation one must check the minimum clearances required for air intake from outside. Take into account the presence of doors and windows that could interfere with the proper flow of air to the stove (see diagram below).

The air intake must have a minimum total net area of 80 cm²: the surface must be increased accordingly if within the room there are other active generators (for example: electric fan for stale air extraction, kitchen hood, other stoves, etc...), which could cause cause depression in the room. One must verify that, with all the equipment on, the pressure drop between the room and the outside does not exceed a value of 4 Pa (also for Oyster appliances if combustion air has not been suitably ducted outside). If necessary increase the intake section of the air inlet, which must be made at floor level and always protected with a bird-proof outer protection grid and in such a way that it cannot be obstructed by any object.

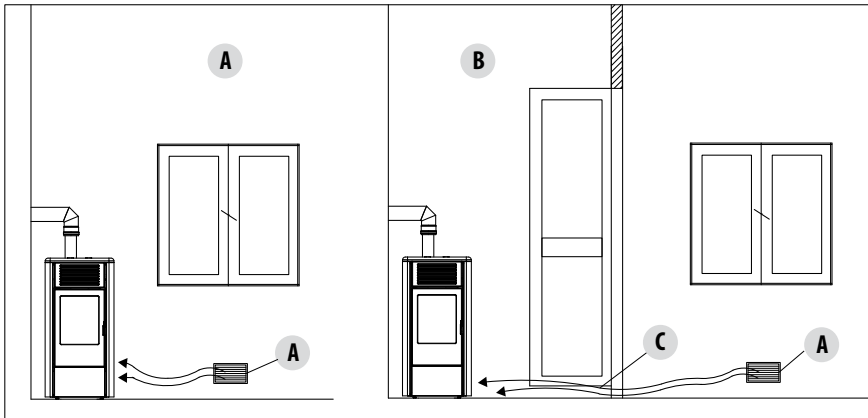
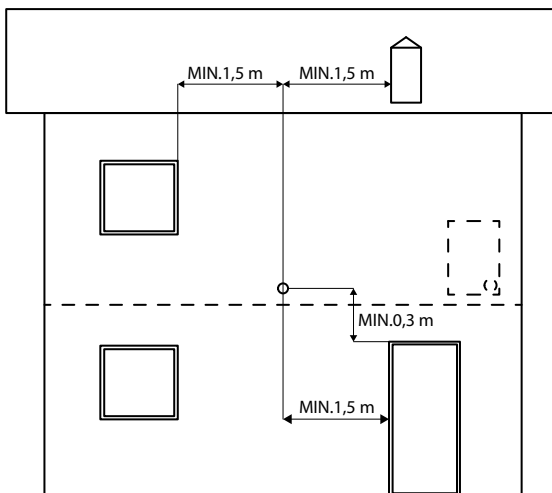


FIGURE 9 A - DIRECTLY FROM OUTSIDE

FIGURE 9 B - INDIRECTLY FROM THE ADJACENT ROOM



A=AIR INLET
B=ROOM TO BE VENTILATED
C=INCREASE OF THE GAP UNDER THE DOOR

It is possible to connect the air required for combustion directly to the outside air inlet, with a pipe of at least Ø50mm, with maximum length of 3linear metres; each pipe bend shall be considered equivalent to a linear metre. To attach the pipe see the back of the stove.

For stoves installed in studio flats, bedrooms and bathrooms (where allowed), it is mandatory to connect the combustion air outside. In particular for sealed stoves the connection must be sealed in order not to compromise the overall sealed characteristic of the system.

FIGURE 10

2-INSTALLATION

DISTANCE (metres)	The air inlet must be at a distance of:	
1.5 m	UNDER	Windows, doors, smoke outlets, cavities,
1.5 m	HORIZONTALLY	Windows, doors, smoke outlets, cavities,
0.3 m	ABOVE	Windows, doors, smoke outlets, cavities,
1.5 m	AWAY	from smoke outlet

CONNECTION TO FLUE

The connection between the flue and the appliance must be via a smoke duct that conforms with EN 1856-2. The connecting section must extend no more than 4 m horizontally, with a maximum incline of 3% and containing a maximum of 3 90° bends (accessible for inspection - do not count the T joint at the appliance outlet).

The diameter of the smoke duct must be equal to or greater than that of the appliance outlet (Ø 80 mm).

TYPE OF DEVICE	SMOKE DUCT
Minimum vertical length	1.5 metres
Maximum length (with 1 accessible 90° bend)	6.5 metres
Maximum length (with 3 accessible 90° bends)	4.5 metres
Maximum number of accessible 90° bends	3
Horizontal sections (minimum incline 3%)	4 metres

Use smoke ducts with a diameter of 80mm or 100mm depending on the type of system, with silicone gaskets or similar gaskets that can withstand the high operating temperatures of the appliance (min. T200 class P1). **The use of flexible metal tubes in fibre cement or aluminium is prohibited. For direction changes, we always recommend the use of a T joint** with an inspection cap allowing easy access for cleaning the tubes. Always ensure that the inspection cap is replaced and hermetically sealed with the seal in tact after cleaning.

It is prohibited to connect more than one appliance to the same smoke duct, or the discharge from overhead cowlings. It is prohibited to extract the products of combustion directly through the wall, whether into indoor spaces or outdoors.

The smoke duct must be a minimum distance of 400 mm from flammable or heat-sensitive structures.

SUPPLEMENTARY ISTRUCTIONS ONLY FOR UK

FOR CONNECTION TO THE FLUE PIPE, NOT MORE THAN 150mm OF HORIZONTAL PIPE MUST BE USED AND NOT MORE THAN 4 x 45° bends MUST BE USED. In accordance with UK Building Regulations .

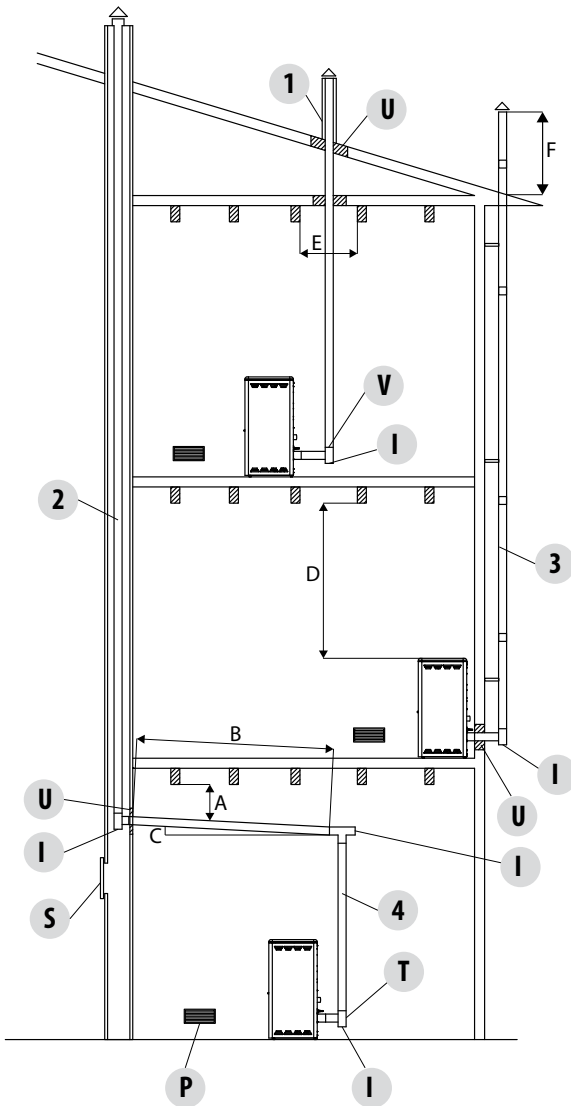
All exterior flue or flue used internally above 1.8m should be twin wall insulated pipe installed in accordance with ADJ reference page 23 section 1.31 and 1.32 and 1.33 & Hetas regulations.

The external fluepipe must have internal dimensions of a minimum of 150mm, and maximum 180mm.

Check with suitable instruments that there is a minimum draught of 5 Pa. on low fire and 10pa on high fire. The flue must always run under negative pressure and a cold flue pull of – 2>3 pascals must be secured.

2-INSTALLATION

EXAMPLES OF CORRECT INSTALLATION



1. Installation of $\varnothing 150\text{mm}$ flue with hole for the passage of the tube increased by:
 minimum 100 mm around the tube if next to non flammable parts such as cement, brick, etc.; or
 minimum 300 mm around the tube (or as prescribed by data tags) if next to flammable parts such as wood etc.
 In both cases, install suitable insulation between the flue and the ceiling.

Always check and respect the data tags on the flue, in particular the minimum safety distances from combustible materials.

The previous rules also apply for holes made in walls.

2. Old flue, minimum pipe $\varnothing 100\text{mm}$ with the inclusion of an external access door for chimney cleaning.

3. External flue made of insulated stainless steel pipes, i.e. with double walls minimum $\varnothing 100\text{mm}$: all securely mounted on the wall. With wind-proof chimney. See fig. 7 type A.

4. Ducting system using T joints that allow easy access for cleaning without having to remove the tubes

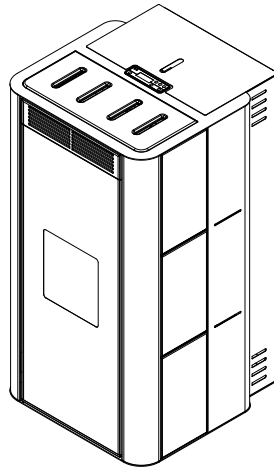
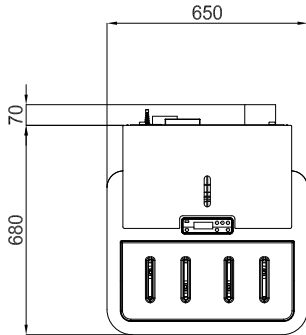
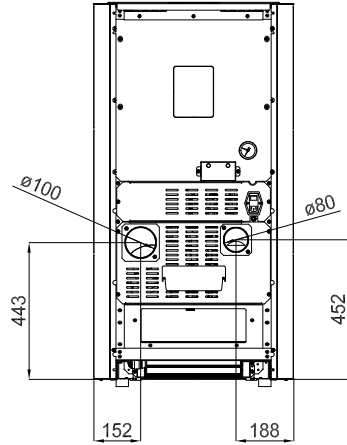
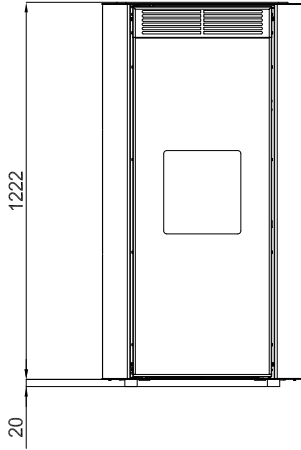
FIGURE 11

U = INSULATING
 V = ANY REDUCTION FROM 100 TO 80 MM
 I = INSPECTION CAP
 S = INSPECTION ACCESS PANEL
 P = AIR INLET
 T = T JOINT WITH INSPECTION CAP

A = MINIMUM 40 MM
 B = MAXIMUM 4 M
 C = MINIMUM 3°
 D = MINIMUM 400 MM
 E = HOLE DIAMETER
 F = SEE FIG.2-3-4-5-6

3-DRAWINGS AND TECHNICAL SPECIFICATIONS

DRAWINGS AND CHARACTERISTICS LOTUS HYDRO DIMENSIONS (in cm)



3-DRAWINGS AND TECHNICAL SPECIFICATIONS

TECHNICAL CHARACTERISTICS	LOTUS HYDRO
Nominal output power::	24,8 kW (21328 kcal/h)
Nominal output power (water)::	22,7 kW (19522 kcal/h)
Minimum output power:	6,0 kW (5160 kcal/h)
Minimum output power (water):	5,0 kW (4300 kcal/h)
Efficiency at Max	91.6%
Efficiency at Min	95.1%
Temperature of exhaust smoke at Max	120 °C
Temperature of exhaust smoke at Min	70 °C
Particulate/OGC / Nox (13%O ₂)	7 mg/Nm ³ - 5.4 mg/Nm ³ - 138 mg/Nm ³ (13% O ₂)
CO at 13% O ₂ at Min and at Max	0,024% – 0,008%
CO ₂ at Min and at Max	5,8% - 9,5%
Permissible max. water pressure	2,5 bar (250 kPa)
Recommended draught at Max power	0,10 mbar - 10 Pa***
Recommended draught at Min power	0,02 mbar - 2 Pa
Mass of smoke	17,1 g/sec
Hopper capacity	106 litri
Type of pellet fuel	Pellet diameter 6-8 mm and size 3/40 mm
Pellet hourly consumption	Min ~ 1.2 kg/h* - Max ~ 5.2 kg/h*
Autonomy	At min ~ 60 h* - At max ~ 14 h*
Heatable volume m ³	533/40 – 609/35 – 711/30 **
Combustion air inlet	External diameter 80 mm
Smoke outlet	External diameter 100 mm
Air inlet	80 cm ²
Rated electrical power (EN 60335-1)	120 W (Max 430 W)
Supply voltage and frequency	230 Volt / 50 Hz
Net weight	210 kg
Weight with packaging	230 kg
Distance from combustibile material (rear)	100 mm
Distance from combustibile material (sides)	100 mm

* Data that may vary depending on the type of pellets used

** Volume that can be heated, according to the power requirement per m³ (respectively 40-35-30 Kcal/h per m³)

***Value recommended by the manufacturer (non-binding) for optimal product operation

Tested according to EN 14785 in accordance with European regulation for Construction Products (EU 305/2011).

4-INSTALLATION AND ASSEMBLY

PREPARATION AND UNPACKING

The Lotus stove is supplied complete with all its electrical and mechanical components and factory-tested:

Open the package and remove the two screws between the bracket and the stove that fasten the bracket to the pallet.

Set the stove in the pre-selected place, making sure this complies with the requirements. The stove body or unit must always be kept in a vertical position when handled and moved by using carts only. Pay particular attention that its door and its

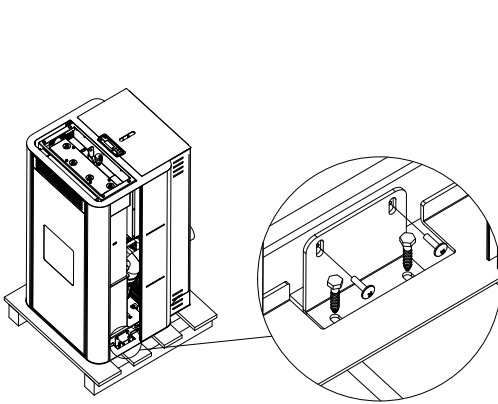


FIGURE 1 - REMOVING THE PACKAGE SCREWS

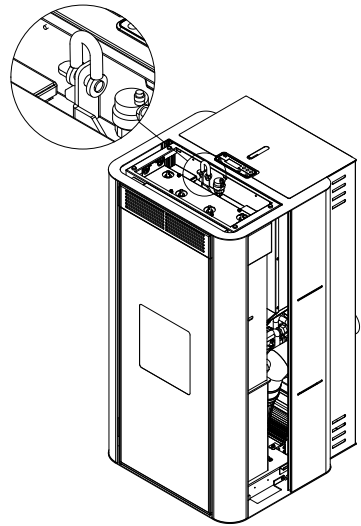


FIGURE 2 - HOOK FOR HANDLING

glass are protected from knocks that might compromise their integrity.

Always handle the product with care. If possible, unpack the stove near the chosen place of installation. The materials that make up the packaging are neither toxic nor harmful, and so require no particular disposal measures.

The product, as shown in figure 2, is equipped with a hook to ease handling.

After removing the packaging make sure that the stove is complete and not damaged:
if in doubt contact the dealer.

The product packaging contains the following documents:

- Instructions booklet
- Annex G - Technical inspection report for heat system with heat output below 35 kW.
- Warranty

4-INSTALLATION AND ASSEMBLY

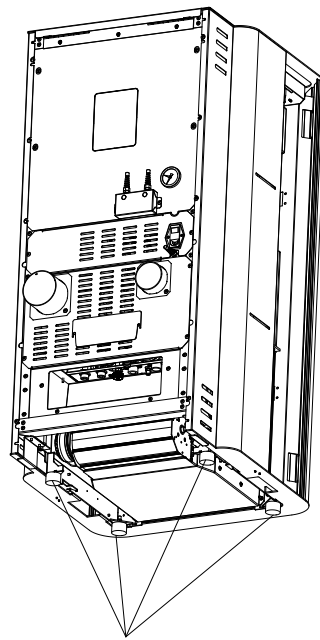
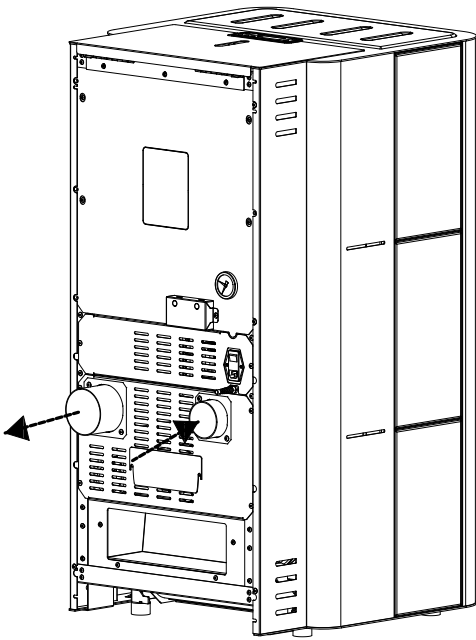
Therefore, the end user is responsible for product storage, disposal or possible recycling in compliance with the relative applicable laws. Position the product without its cladding and connect it to the chimney. Once the connections are complete, assemble the cladding (steel sides).

If the product must be connected to an exhaust pipe that goes through the rear wall (to enter the chimney), make sure not to force it in. Adjust the 4 feet (J) to level the stove so that the smoke exhaust and the pipe are coaxial. The ceramic sides must not be fitted when the feet are adjusted as this is carried out inside the cladding.



Attention!!

If the stove smoke outlet is forced or used improperly to lift it or position it, the operation of the stove can be damaged irreparably.



1. TURN THE FEET CLOCKWISE TO LOWER THE PRODUCT.
2. TURN THE FEET ANTI-CLOCKWISE TO RAISE THE PRODUCT.

FOOT J

4-INSTALLATION AND ASSEMBLY

ASSEMBLING THE CLADDING

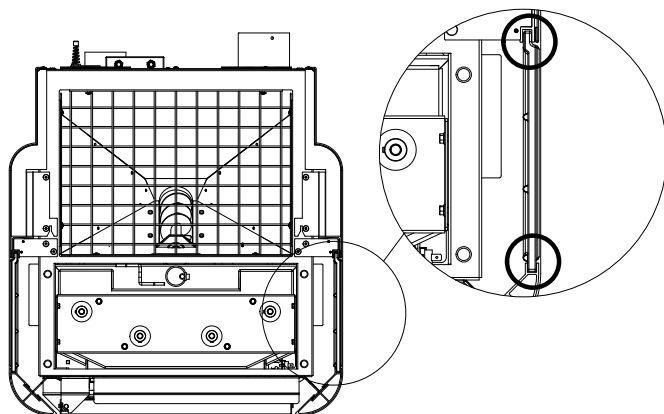
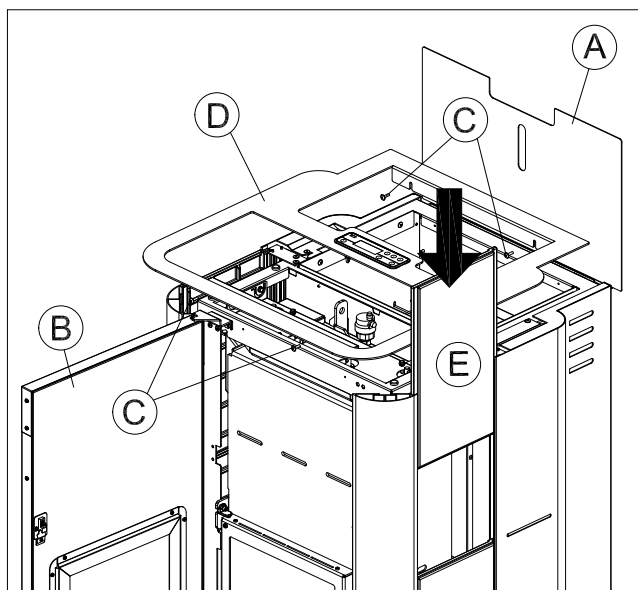
ASSEMBLING THE SIDE PANELS

The product is supplied with the ceramic panels packaged separately, therefore unpack all the parts before proceeding with the assembly. Follow the sequence below to assemble the panels:

- lift pellet loading lid **A**.
- Open door **B**.
- Remove the two front screws **C** and the two rear screws **C**.
- Remove lid **D**.
- At this point take the three ceramic (side) panels **E** and insert them as shown in the figure.



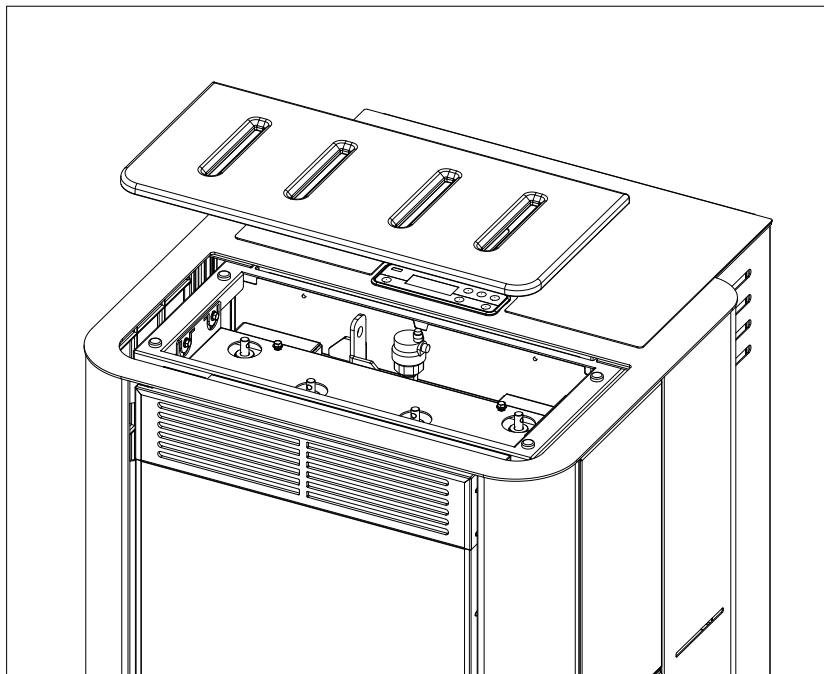
The six ceramic side panels belonging to the kit, are all the same and therefore can be inserted equally on the right or left of the stove. One must pay utmost attention when inserting them as the two insertion screws, on the ceramic and on the stove, are different and therefore have a direction (detail below).



4-INSTALLATION AND ASSEMBLY

ASSEMBLING THE TOP

The top does not require particular fastening as it is only rested on the structure of the product in line with the relative vibration dampers. So once panels **E** have been fitted and piece **D** reassembled and fastened with the four screws **C** one can install the ceramic top.



5-PLUMBING CONNECTION

PLUMBING CONNECTION

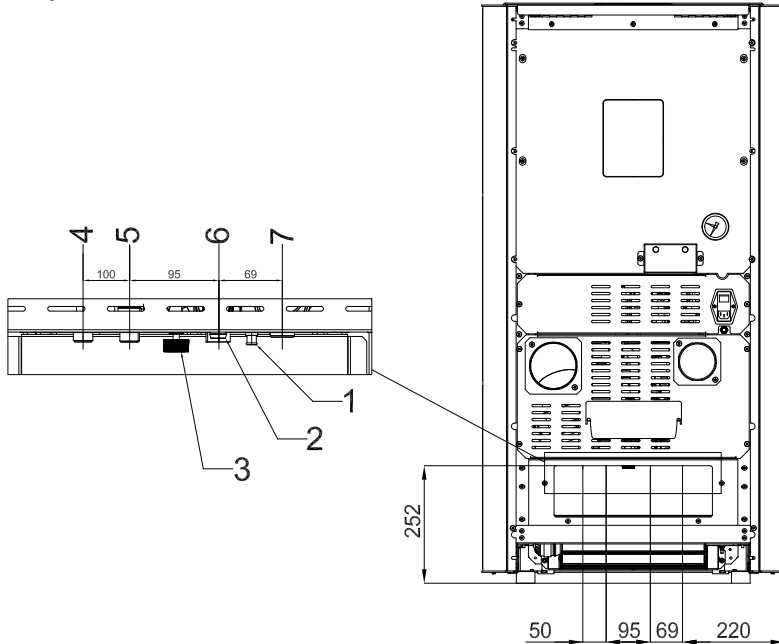


IMPORTANT!

If installation of the product involves interaction with another, pre-existing system complete with heating equipment (gas boiler, methane boiler, diesel boiler, etc.), contact qualified personnel, who subsequently will be responsible for conformity of the system in compliance with the applicable law in force.

The Company declines all responsibility for damage to persons or things in the event of failed or incorrect operation, if the aforementioned warnings are not complied with.

It is important that **ONLY** qualified engineers are used to fit and commission the appliance in **ALL** cases. The installing engineer **MUST** hold a QCF recognised biomass qualification. Any company using sub-contractors **MUST** ensure they also hold the relevant qualifications (**ONLY FOR UK**).



1	OUTLET	5	1/2" G MALE DOMESTIC WATER INLET
2	SAFETY VALVE	6	3/4" G MALE HEATING RETURN
3	FILLING	7	3/4" G MALE HEATING DELIVERY
4	1/2" G MALE DOMESTIC WATER OUTLET		

Make the connections to the corresponding fittings shown in the diagram above. Make sure the pipes are not placed under tension or undersized.



IMPORTANT!!!

FLUSH THE ENTIRE SYSTEM BEFORE CONNECTING THE BOILER IN ORDER TO REMOVE RESIDUES AND DEPOSITS.

Always install gate valves upstream from the boiler so as to disconnect it from the plumbing system should it be necessary to move it, or when it requires routine and/or special maintenance.

Connect the boiler using hoses so that the boiler is not too strictly connected to the system, and to allow slight movements.

5-PLUMBING CONNECTION

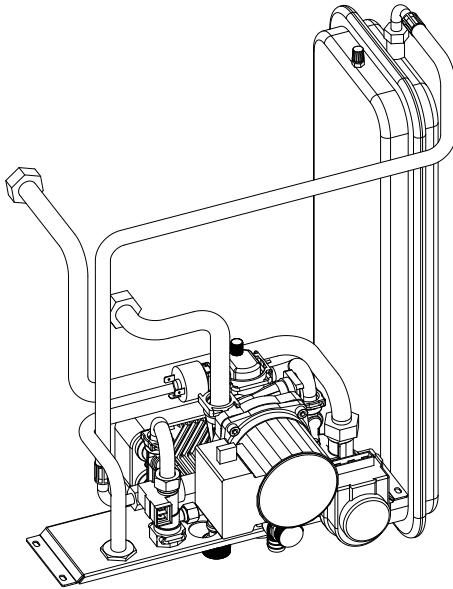
HYDRAULIC KIT

The boiler is equipped with a complete kit for the production of domestic water made up of:

- Plate heat exchanger
- A 3-way diverter valve
- Flow switch
- Pipes and fittings for connection

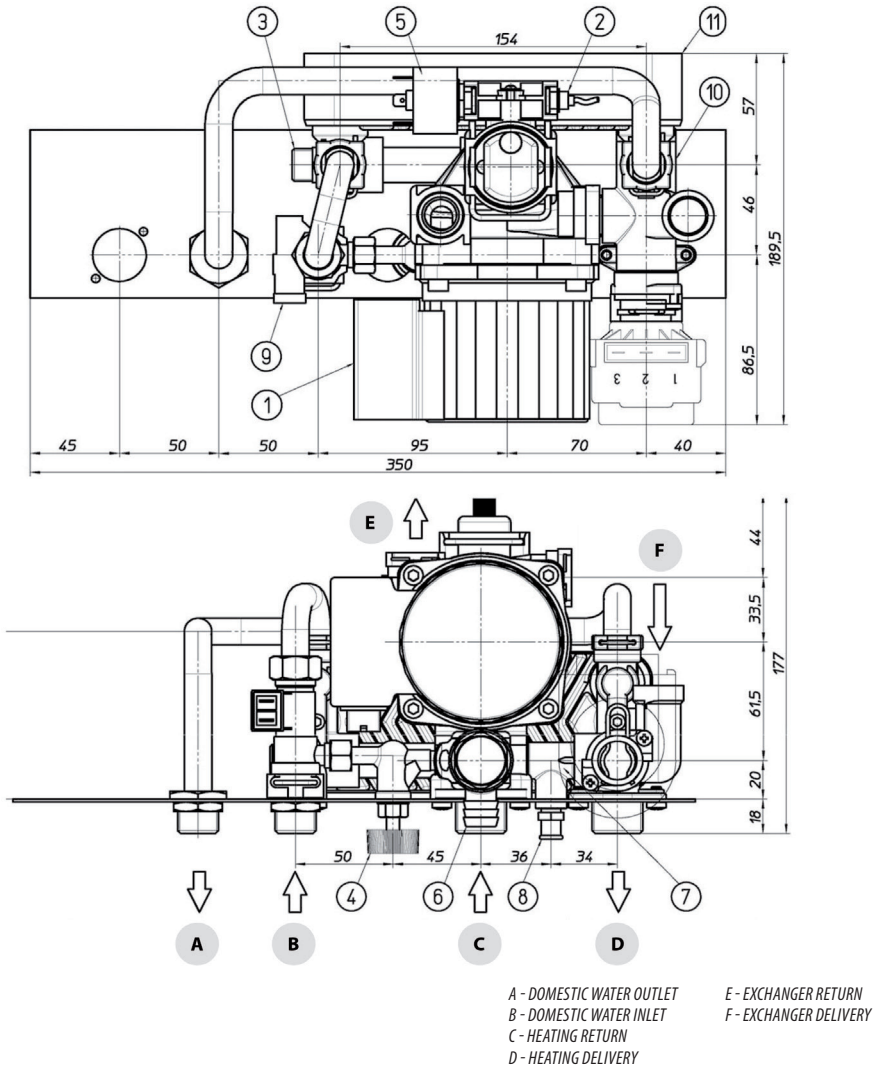
The kit comes preassembled by the manufacturer and it is designed to heat domestic water directly from the home water supply system. When hot water is required and the tap is turned, the internal water flow switch will send a signal to the diverter valve to channel the hot water contained in the boiler to the plate heat exchanger. The temperature of the domestic water highly depends on the temperature of the water inside the heating system. This can be calculated to a good degree of accuracy by taking 10°-15°C away from the value shown on the stove control panel (which is the temperature of the water in the boiler).

If the boiler is in ECOSTOP mode and domestic water is required, after 30 seconds from the request the boiler will automatically begin the start-up process to heat the water inside the boiler and subsequently the domestic hot water.



1	PUMP
2	PRESSURE GAUGE CONNECTION
3	EXPANSION TANK CONNECTION
4	FILLING TAP
5	PRESSURE SWITCH
6	SAFETY VALVE
7	BYPASS VALVE
8	DRAINING TAP
9	FLOW SWITCH
10	3-WAY VALVE
11	EXCHANGER

5-PLUMBING CONNECTION



The safety valve (6) is always connected to a water draining pipe. The pipe must be adequate to support the water's high temperature and pressure.

5-PLUMBING CONNECTION

SYSTEM WASHING

Fit suitable gate valves on the heating system pipes.

To protect the heating system from harmful corrosion, fouling or deposits, it is of the utmost importance, before installing the product, to wash the system in compliance with UNI-CTI 8065, using appropriate products such as, for example, Sentinel X300 (new systems), X400 and X800 (old systems) or Fernox Cleaner F3.

Complete instructions are provided with the products but, for further clarifications, please directly contact the manufacturer SENTINEL PERFORMANCE SOLUTIONS LTD or Fernox COOKSON ELECTRONICS. After flushing the system, to protect it against corrosion and deposits, we recommend the use of inhibitors such as Sentinel X100 or Fernox Protector F1.

It is important to check the concentration of the inhibitor after each change to the system and during maintenance as prescribed by manufacturers (specific tests are available at dealers).

The discharge of the safety valve must be connected to a collecting funnel for conveying the possible dredges in case of intervention.



Attention: Failure to clean the heating system and to add a suitable inhibitor will void the warranty of the equipment and other accessories such as for example pumps and valves.

SYSTEM FILLING

Filling must be carried out slowly so that air bubbles can get out via the purposely placed outlets on the heating system. In closed circuit heating systems the loading pressure of the system when cold and the expansion tank preloading pressure must be the same.

- In **open** tank heating systems, there is direct contact between the circulating liquid and air. During the heating season the end user must regularly check the level of water circulating in the expansion tank. The content of water in the recycling system must be kept constant. Practical experience demonstrates that the water level must be inspected regularly every 14 days to maintain the water content almost constant. In the event one needs to add water one must carry out the filling process when the boiler has cooled down to room temperature. These precautions aim to prevent the onset of a thermal stress of the steel body of the boiler.
- In systems equipped with an open tank the water pressure in the boiler - when the system is cold - must not fall below 0.3 bar;
- The water used for filling the heating system must be decontaminated and without air.



Attention!

Do not mix the heating water with antifreeze or anticorrosion substances in the wrong concentrations! It can damage the seals and cause the onset of noise during operation.

The manufacturer declines all responsibility if the damage caused to persons, animals or things is a result of failure to comply with the above.

Once all plumbing connections have been carried out, proceed with the inspection of the seals under pressure, by filling the boiler.

This operation must be done carefully observing the following steps:

- open the radiator, boiler and system air valves;
- gradually open the system filling tap making sure that any automatic air valves installed on the system work properly;
- close the radiator air valves as soon as water starts to come out;
- on the system pressure gauge check that the pressure reaches a value of approximately 1 bar (applicable only for systems equipped with a closed tank - refer to any standards or local regulations that allow it); for open tank systems refilling takes place automatically via the same tank;
- close the system loading tap and then bleed air again via the radiator air valves;
- check tightness of all connections;
- after having started the boiler for the first time and heated up the system, stop the pumps and repeat the air bleeding operations;

5-PLUMBING CONNECTION

- let the system cool down and if needed take the water pressure back to 1 bar (applicable only for systems equipped with a closed tank - refer to any standards or local regulations that allow it); for open tank systems refilling takes place automatically via the same tank;



NOTE

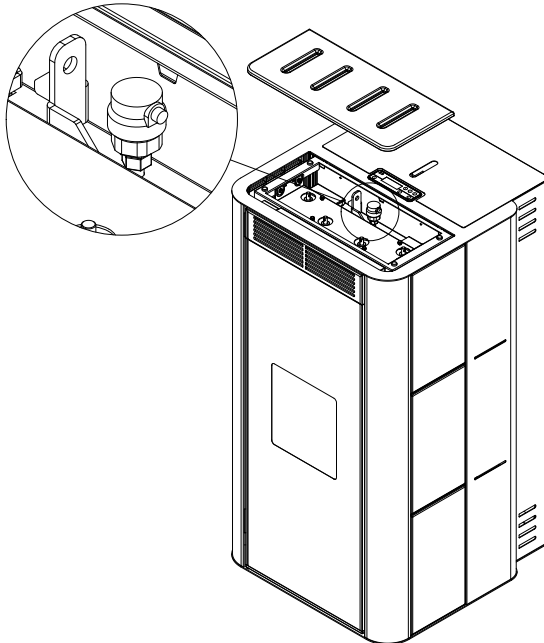
In systems equipped with a closed tank, where possible, the water pressure in the heating system - when the system is cold - must be no less than 1 bar; if under this value, act on the system filling tap. The operation must be carried out when the system is cold.

The system pressure gauge enables to monitor the pressure in the circuit.

To fill the system, the boiler is fitted with a tap (4), with a check valve, to load the heating system manually. During this operation, any air in the system is released via the air valve located in the upper part of the boiler.

To ensure the valve vents, it is advisable to loosen the side cap (see figure)
The filling pressure of the system **WHEN COLD** must be 1 bar.
Upon completion of this filling operation, **always** close the tap.

AIR VALVE WITH SIDE CAP
LOOSENED BY 1 TURN



6-ELECTRICAL CONNECTIONS

GENERAL PRECAUTIONS

Electrical safety of the system is ensured only when it is properly connected to an efficient earthing system made in compliance with the safety standards in force: gas, water or heating systems pipes are not suitable as earth connections.

One must check this essential safety requirement; if in doubt, request an accurate inspection of the electrical system to be carried out by qualified personnel, because the boiler manufacturer is not responsible for any damage caused by failure to earth the system.

Have professionally qualified personnel check the electrical system is suitable for the maximum power absorbed by the heating system, ensuring in particular that the diameter of cables is appropriate for the power absorbed by the loads.

The use of any component that is powered by electricity entails compliance with some basic rules such as:

- do not touch the appliance with wet and/or damp body parts and/or bare feet;
- do not pull the electric cables;
- do not leave the appliance exposed to weathering (rain, sun, etc.);
- do not allow the appliance to be used by children or inexperienced persons.

230V electrical power supply connection

Installation of the boiler accessory electrical components requires electrical connection to a **230 V – 50 Hz** mains: This connection must be state of the art according to the CEI standards in force.



Hazard!

Electrical installation must be carried out by a qualified technician only.

Before performing connections or any operation on the electrical parts, always disconnect the power supply and make sure it cannot be accidentally reconnected.

Please note that the boiler electrical power line must be fitted with a bipolar switch with a contact gap greater than 3 mm, easy to access, in order to make any maintenance operations quick and safe.

The power cable must be replaced by authorised technical personnel. Failure to comply with the provisions listed above may compromise the safety of the appliance.

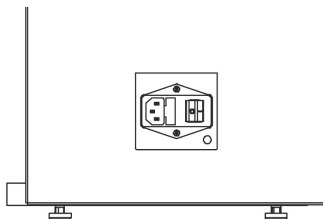
ELECTRICAL CONNECTION

First connect the power cable to the side of the stove and then to a wall socket.

The main switch at the side must only be activated to switch the stove on; otherwise, it is advisable to keep it off.



It is recommended to disconnect the power cable when the stove is not used.

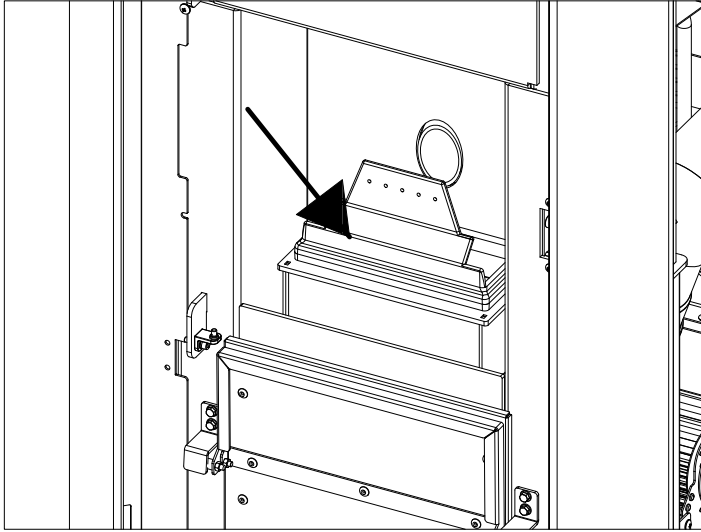


ELECTRICAL CONNECTION OF THE STOVE.

7-INITIAL START-UP

GENERAL PRECAUTIONS

Remove all components that could burn from the brazier and glass (manual, various adhesive labels and any polystyrene).
Check that the brazier is positioned correctly and rests properly on the base.



The first start-up may not be successful as the feed screw is empty and does not always manage to load the required amount of pellets in the brazier in time for the fire to be regularly ignited.



CANCEL THE FAILED START-UP ALARM STATUS BY PRESSING AND HOLDING KEY 1 (ESC). REMOVE THE PELLETS FROM THE BRAZIER AND REPEAT START-UP.

If a flame does not ignite after a number of failed start-ups, even though the pellet supply is correct, make sure the brazier is set in place correctly, which must be **interlocked in its seat and free from any ash deposits**. If no anomaly is found during this inspection, there may be a problem with the product components or installation may not be correct.



REMOVE THE PELLETS FROM THE BRAZIER AND CONTACT AN AUTHORISED TECHNICIAN.



Avoid touching the stove during the initial start-up, as the paint in this stage hardens; by touching the paint, the steel surface may be exposed.

If necessary, touch up the paint with the spray can in the original colour (see the "Accessories for pellet stoves" section).



It is good practice to guarantee effective ventilation in the room during the initial start-up, as the stove will emit some smoke and smell of paint.



ATTENTION!

Please ensure the brazier is clear of ALL pellets and ash build up following any failed ignitions. Failure to clear out the brazier prior to resetting may result in further failed ignitions or in certain conditions an explosive ignition.

Do not stand close to the product and air the room. The smoke and smell of paint will disappear after about an hour of operation, however, remember they are not harmful in any case.

The stove will be subject to expansion and contraction during the start-up and cooling phases, therefore light creaking noises may be heard.

7-INITIAL START-UP

This is absolutely normal as the structure is made of laminated steel and must not be considered a defect.

It is extremely important to make sure the product is not immediately overheated and the temperature is increased gradually, initially using low power.

This will prevent damaging the ceramic or serpentine tiles, the welds and the steel structure.



DO NOT EXPECT HEATING EFFICIENCY IMMEDIATELY!!!

ATTENTION!

If during operation or initial ignition you encounter smoke spillage in to the room from the appliance or the flue then please switch off the appliance, ventilate the room and contact the installation / service engineer immediately.

OPENING/CLOSING THE DOOR



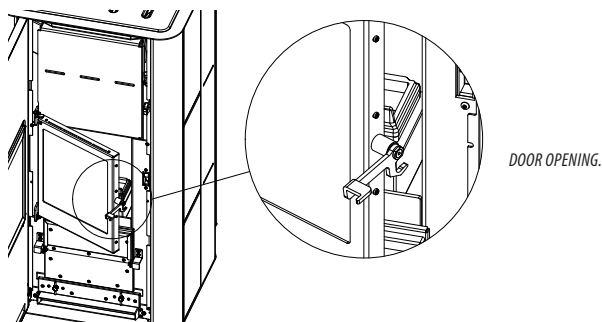
ATTENTION!

The door must be closed properly for the stove to work correctly.



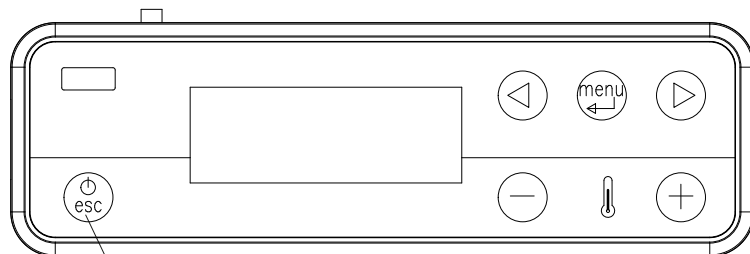
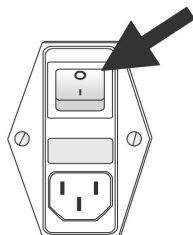
"Use suitable Personal Protective Equipment (e.g. gloves) to open the stove door.

To open the door, lift the hook, as shown in the figure"



SETTINGS TO BE CARRIED OUT BEFORE THE INITIAL START-UP

Once the power cable is connected in the rear part of the stove, turn the switch, also placed at the rear, to position (I). To switch the stove on or off press key **1** on the control panel.



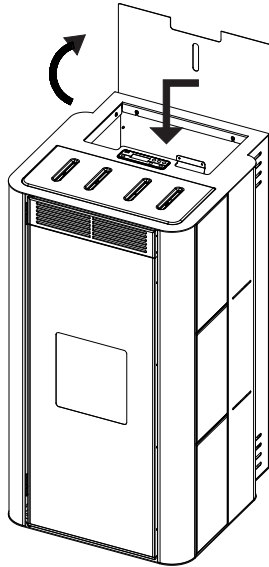
7-INITIAL START-UP

LOADING THE PELLETS

Fuel is loaded by lifting the cover on the upper part of the product. Slowly pour the pellets into the hopper.

Be careful as the cover could become very hot.

LIFT THE COVER.

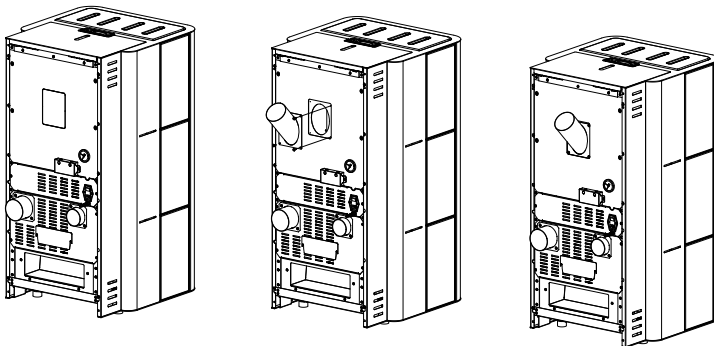


INSERT THE PELLETS.



No other type of fuel other than pellets, in compliance with above-mentioned specifications, is to be inserted into the hopper.

DUCT FOR ADDITIONAL TANK (optional)



One can purchase a duct to be fixed, via four screws, to the rear of the stove in line with the first square then round knock-out panel to be removed.

This duct allows to insert the pellets into the hopper via an additional hopper (not supplied).

7-INITIAL START-UP

SAFETY

PROCEDURE TO FOLLOW IF ANY SMOKE SPILLAGE IS SEEN WITHIN THE ROOM OR THE APPLIANCE SUFFERS FROM AN EXPLOSIVE IGNITION PLEASE TURN OFF THE APPLIANCE, VENTILATE THE ROOM AND CONTACT THE INSTALLER/SERVICE ENGINEER IMMEDIATELY.

User Training

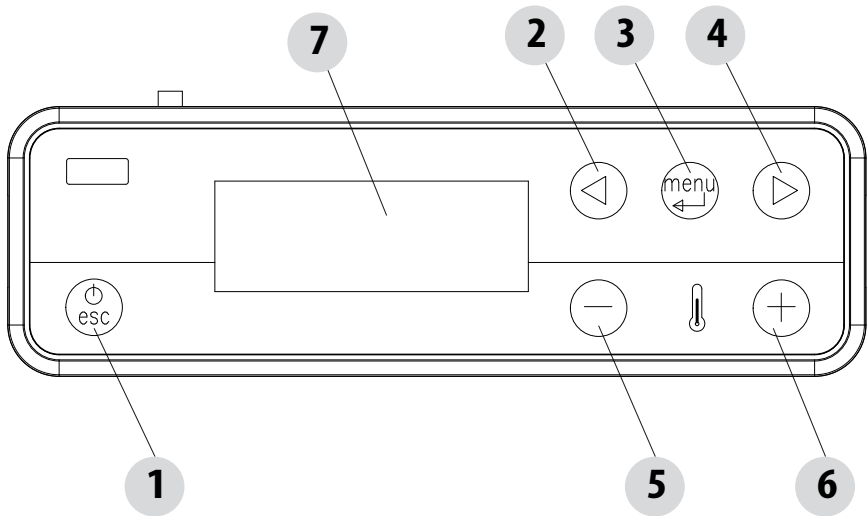
In ALL cases the installation and commissioning engineer MUST carry out a thorough handover of the appliance to the homeowner / end user. The following elements should be covered to the satisfaction of the end user. Failure to do this may result in unsafe use of the appliance:

- Explanation of the appliance and how it works
- Necessity to maintain ventilation to the appliance and the issues that may arise otherwise
- Fuel useage and supply
- How to light the appliance safely
- What to do in the event of failed ignitions
- What to do in the event of alarms (in particular those generated when the appliance runs out of fuel)
- How to maintain the appliance correctly and the importance of carrying out these tasks each month
- It is good practise to agree a date for the first annual service
- Explain the importance of the CO alarm in accordance with approved document J of the building regs (ONLY FOR UK)
- Explain the need for the flue draft stabiliser and its position within the flue system (ONLY FOR UK)
- Discuss the use of secondary heating systems if applicable
- Explain how the remote control or room stats operate and their optimal positioning
- Explain the need for the appliance data plate in accordance with approved document J of the building regulations (ONLY FOR UK)
- The commissioning process and paperwork should also be explained to the homeowner. A copy of the base settings on the commissioning paperwork should also be left with the appliance (ONLY FOR UK).

8-MENU ITEMS AND OPERATION

CONTROL PANEL DISPLAY

Menu items



KEY

- | | |
|---|--|
| 1. Stove lighting/shutdown | 5. Decrease set temperature/programming functions. |
| 2. Scrolling of programming menu to decrease. | 6. Increase set temperature/programming functions. |
| 3. Menu | 7. Display. |
| 4. Scrolling of programming menu to increase. | |

MAIN MENU

It is accessed by pressing key 3 (menu). The items that are accessed are:

- Date and Time
- Timer
- Sleep (only with the stove on)
- Settings
- Info

Date and time setting

To set the date and time act as follows:

- Press the "menu" button.
- Select "Date and Time".
- Select by pressing "menu"
- Scroll with the arrows and select the variables to be modified one at a time: Day, Hours, Minutes, Day number, Month, Year.
- Select "menu" to confirm.
- Modify with the + - keys.
- Finally press "menu" to confirm and "esc" to exit.

8-MENU ITEMS AND OPERATION

PROGRAMMED MODE (TIMER) - Main menu



Setting the current day and time is essential for the proper operation of the timer.

There are six TIMER programmes, for each one the user can decide the start-up and shutdown time as well as the day of the week in which it is active.

When one or more programmes are active, the panel alternately displays the stove status and TIMER "n" whereby "n" is the number relating to the activated timer programmes, separated from each other with a dash

Example:

TIMER 1 Timer programme 1 active.

TIMER 1-4 Timer programmes 1 and 4 active.

TIMER 1-2-3-4-5-6 Timer programmes all active.

EXAMPLE OF PROGRAMMING

With stove on or off:

- access the MENU,
- scroll to TIMER with the <> arrows,
- press the "Menu" key
- the system proposes "P1" (Press the <> keys for the subsequent timers P2,P3, P4, P5, P6)
- to activate "P1" press the "Menu" key
- press + - and select "ON"
- confirm with the "Menu" key

At this point it will propose 00:00 as starting time, with key + - adjust the starting time and press the "menu" key to confirm.

The next step proposes a shutdown time of 10 minutes above that set for start-up: press the + key and adjust the shutdown time, confirm with the "menu" key.

Subsequently the system proposes the days of the week in which to activate or deactivate the previously set timer. With the - or + key highlight with the white background the day in which one wishes to activate the timer and confirm with the "menu" key. If no day of the week is confirmed as active, in turn the timer programme will not appear active in the status screen.

Continue to program the following days or press "ESC" to exit. Repeat the procedure to program the other timers.

PROGRAMMING EXAMPLES:

P1			P2		
on	off	day	on	off	day
08:00	12:00	mon	11:00	14:00	mon
Stove on from 08:00 to 14:00					

P1			P2		
on	off	day	on	off	day
08:00	11:00	mon	11:00	14:00	mon
Stove on from 08:00 to 14:00					

P1			P2		
on	off	day	on	off	day
17:00	24:00	mon	00:00	06:00	tue
Stove on from 17:00 on Monday to 06:00 on Tuesday					

8-MENU ITEMS AND OPERATION

NOTES FOR TIMER OPERATION

- Start-up with the timer always takes place with the last temperature and ventilation settings (or with default 20°C and V3 settings in the event they have never been changed).
- Start-up time ranges from 00:00 a 23:50
- If the shutdown time is not already memorised, it proposes a start-up time in + 10 minutes.
- A timer programme switches the stove off at 24:00 of one day and another programme switches it on at 00:00 of the next day: the stove stays on.
- A programme proposes a start-up and shutdown in times included within another timer programme: if the stove is already on, start will not have any effect, while OFF will switch it off.
- In the stove on and timer active condition, press the OFF key and the stove will switch off, it will switch on automatically at the next time set on the timer.
- In the stove off and timer active condition, press the ON key and the stove will switch on, it will switch off at the time set on the active timer.

SLEEP FUNCTION (main menu)

The sleep function is activated only when the stove is switched on and allows to quickly set a time at which the product must switch off.

To set the Sleep function act as follows:

- Enter MENU
- Scroll to SLEEP with the <> arrows
- Press Menu
- With the + - keys adjust the desired shutdown time.

The panel proposes a shutdown time of 10 minutes from the current time, adjustable with key 4 until the next day (I can therefore delay the shutdown for up to a maximum of 23 hours and 50 minutes).

If the SLEEP function is active with the TIMER active the first has priority over the latter, therefore the stove will not switch off at the time set on the timer but instead by the time established by the sleep function, even if later than the time set on the timer.

ADJUSTMENTS MENU

To access the adjustments menu act as follows:

- Press the + - keys
- Scroll with the <> arrows and select "Set Room T" or "Set Water T" or "Exchanger Speed"
- Press "menu" to enter the chosen option.
- Modify with the + - keys.
- Press "menu" to confirm and "esc" to exit.

8-MENU ITEMS AND OPERATION

SETTINGS MENU

The SETTINGS menu allows to act on the stove operating mode:

- a. Language.
- b. Cleaning (displayed only when the stove is switched off).
- c. Feed screw loading (displayed only when the stove is switched off).
- d. Tones.
- e. External thermostat (activation).
- f. Auto Eco (activation).
- g. Eco-Shutdown T (default 10 minutes).
- h. pump on T (default 50°C).
- i. Auxiliary boiler (default deactivated).
- j. Pellet recipe.
- k. Smoke rpm % ventilation.
- l. Maximum power (1-5 - default 5).
- m. Components test (displayed only when the stove is switched off)
- n. "Chimney sweep" function (activated only when the stove is switched on, for field emissions test).
- o. System configuration.
- p. Season.
- q. Technical menu.

NOTE: Some of the items listed above cannot be activated in certain "system configurations".

a - Language

To select the language act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "language" using the arrows.
- Press "menu" to confirm.
- With the + - keys select the language of interest (IT/EN/DE/FR/ES/NL/PL/DA)
- Press "menu" to confirm and "esc" to exit.

b - Cleaning

To select "Cleaning" (only when the stove is switched off) act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Cleaning" using the arrows.
- Press "menu" to confirm.
- Select "On" with the + - keys.
- Press "menu" to confirm and "esc" to exit.

c - Feed screw loading

Allows to fill the pellets loading system. It can only be activated with the stove switched off, it displays an 180" countdown after which the feed screw stops automatically, as when exiting the menu.

To select "Feed screw loading" (only when the stove is switched off) act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Feed screw loading" using the arrows.

8-MENU ITEMS AND OPERATION

- Press "menu" to confirm.
- Select "Enable" with the + - keys.
- Press "menu" to confirm and "esc" to exit.

d - Tones

This function is disabled by default, so to enable act as follows:

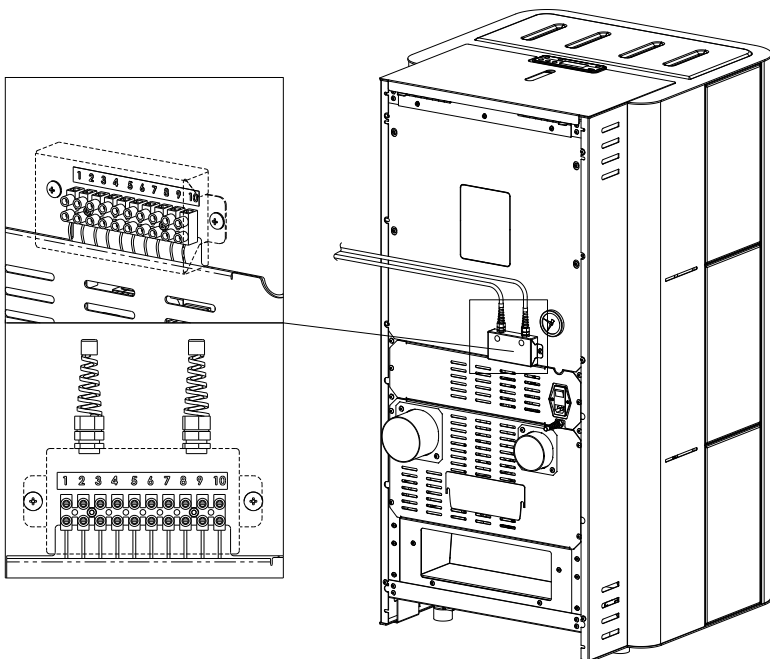
- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "tones" using the arrows.
- Press "menu" to confirm.
- Select "On" with the + - keys.
- Press "menu" to confirm and "esc" to exit.

e - External thermostat (see relative chapter)

EXTERNAL THERMOSTAT (not included with the boiler, to be provided by the user)

The temperature of the stove can also be controlled by an external room thermostat. It is located in a central position of the room where the stove is installed. It provides a closer match between the heating temperature requested of the stove and what it actually provides.

POS.1-2 EXTERNAL THERMOSTAT	POS.8 THREE-WAY VALVE NEUTRAL
POS.3-4 PUFFER/BOILER PROBE	POS.9 THREE-WAY VALVE NEUTRAL (domestic)
POS.5 EARTHING	POS.10 THREE-WAY VALVE NEUTRAL (heating)
POS.6-7 ADDITIONAL BOILER (MAX 100 mA)	(*) DISCONNECT INTERNAL THREE-WAY VALVE AND FLOW SWITCH



8-MENU ITEMS AND OPERATION

Connect the cables from the external thermostat to points 1-2 of the terminal block on the stove.
Once the thermostat has been connected one must enable it.

In order to do this, proceed as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows.
- Select by pressing "menu".
- Scroll once again to "External thermostat" using the arrows.
- Select by pressing "menu".
- Press the - + buttons.
- Select "On" to activate the external thermostat.
- Press the "menu" button to confirm.
- Press the "esc" button to exit.

f - Auto-Eco activation

To select the Auto-Eco function act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Auto-Eco" using the arrows.
- Press "menu" to confirm.
- Select "On" with the + - keys.
- Press "menu" to confirm and "esc" to exit.

g - Eco Shutdown t

To select the Eco - shutdown t function act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Eco - shutdown t" using the arrows.
- Press "menu" to confirm.
- Enter the minutes with the + - keys.
- Press "menu" to confirm and "esc" to exit.

AUTO ECO MODE (see section 8f and 8g)

To activate the "Auto Eco" mode and adjust the time refer to section 8 f and 8 g respectively.

The possibility to adjust the "ECO shutdown t" comes from the need to ensure proper operation in the various rooms the stove can be installed in and prevent continuous shutdowns and start-ups in the event the temperature is subject to sudden changes (air currents, poorly insulated rooms, etc.).

The ECO shutdown procedure is activated automatically when all the power demand devices involved in the "system configuration" are satisfied: room probe/external thermostat (configurations 1-2-3), flow switch (configuration 2), puffer thermostat/ntc (10 kΩ B3435) (configuration 4-5) or boiler thermostat/ntc (10 kΩ B3435) (configuration 2-3). If all devices present are satisfied the "ECO shutdown t" time decrease starts (by default 10 minutes, it can be changed within the "Settings menu"). During this stage the panel displays ON with a small flame and alternately Chrono (of active) - Eco active. The minutes indicating the countdown for the Eco Stop are shown at the top of the display. The flame goes into P1 and stays there until the programmed "Eco shutdown t" time has elapsed and if the conditions are still satisfied, it goes into the shutdown stage. The ECO switch off countdown resets if one of the devices boosts power again.

8-MENU ITEMS AND OPERATION

When switch off starts the panel displays: Off - Eco Active - small flashing flame.

Once the stove has reached the off condition, the panel displays OFF-ECO with the extinguished flame symbol.

To restart from ECO the following conditions must be satisfied simultaneously:

- Power demand
- After 5 minutes from the beginning of shutdown.
- $TH_2O < TSetH_2O$.
- If the domestic hot water (DHW) demands power the first 5' are ignored and the stove restarts as needed.

NOTE: In configuration 4 - 5 the Auto Eco mode is enabled automatically. Even when one sets the "summer" function in configuration 2 - 3 it is enabled automatically. In the cases where it is designed to be active, it is not possible to deactivate the mode.

h - Pump On T

This menu item allows to adjust the pump activation temperature.

To select the Pump On T function act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Pump On T" using the arrows.
- Press "menu" to confirm.
- Modify the °C with the + - keys.
- Press "menu" to confirm and "esc" to exit

i - Auxiliary boiler

One must install an additional module (optional) to enable start-up of an auxiliary boiler in the event the stove is switched off or in alarm conditions. By default this function is deactivated, if needed activate it to access the settings menu.

j - Pellet Recipe

This function is for adapting the stove to the pellets that are being used. In fact, as there are several types of pellets on the market, stove operation is extremely variable depending on the fuel quality. In the event the pellets tend to clog the brazier due to an excessive load of fuel or in the event the flame is always high even at low powers and, vice versa if the flame is low one can decrease/increase the amount of pellets in the brazier:

The available values are:

-3 = Decrease by 30% compared to factory settings.

-2 = Decrease by 20% compared to factory settings.

-1 = Decrease by 10% compared to factory settings.

0 = No variation.

1 = Increase by 5% compared to factory settings.

2 = Increase by 10% compared to factory settings.

3 = Increase by 15% compared to factory settings.

To change the recipe act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Pellet recipe" using the arrows.
- Press "menu" to confirm.

8-MENU ITEMS AND OPERATION

- Modify the % with the + - keys.
- Press "menu" to confirm and "esc" to exit

k - Smoke rpm % ventilation

If the installation presents difficulties for smoke evacuation (no draught or no pressure in the duct), the smoke and ash expulsion speed can be increased. This change resolves all the potential problems related to pellets clogging in the brazier and deposits forming at the bottom of the brazier itself caused by poor quality fuel or fuel that produces a lot of ashes. The values available are from -30% to +50% with variations of 10 percentage points at a time. The variation in negative can be used in case the flame is too low

To change the parameter act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Smoke rpm variation" using the arrows.
- Press "menu" to confirm.
- Modify the % with the + - keys.
- Press "menu" to confirm and "esc" to exit

l - Maximum power

It allows to set the maximum flame limit at which the stove can operate to reach the set temperature target.

To change the power act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Maximum power" using the arrows.
- Press "menu" to confirm.
- Change the power from 01 to 05 with the + - keys
- Press "menu" to confirm and "esc" to exit

m - Components test

It can only be carried out with the stove switched off, it allows to select the components to be tested:

- **Spark plug:** it is turned on for a fixed time of 1 minute during which the panel displays the countdown seconds.
- **Feed screw:** it is powered for a fixed time of 1 minute during which the panel displays the countdown seconds.
- **Extractor:** it is activated at 2500 rpm for a fixed time of 1 minute during which the panel displays the countdown seconds.
- **Exchanger:** it allows to carry out the test in V5 for a fixed time of 1 minute during which the panel displays the countdown seconds.
- **Pump:** it is activated for a fixed time of 10 seconds during which the panel displays the countdown.
- **3 way:** the 3 way valve is activated for a fixed time of 1 minute during which the panel displays the countdown seconds.

To activate the "Components test" function (only when the stove is switched off) act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Components test" using the arrows.
- Press "menu" to confirm.
- Select the test to be performed with the + - keys
- Press "menu" to confirm and "esc" to exit

8-MENU ITEMS AND OPERATION

n - Chimney sweep function

This function can be activated only when the stove is on and with power output and heating operation power with parameters P5, with fan (if present) in V5. Any loading/smoke ventilation percentage corrections must be taken into account. This status lasts 20 minutes, the countdown is displayed on the panel. During this interval the thermostat/puffer/room set point/H₂O set point are not taken into account, only the safety shutdown at 85°C remains active. At any time the technician can interrupt this stage by quickly pressing the on/off key.

To activate the "Chimney sweep" function act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to the "Chimney sweep" function using the arrows.
- Press "menu" to confirm.
- Select "On" with the + - keys (Off by default)
- Press "menu" to confirm and "esc" to exit

o - System configuration

To change the system configuration act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "System configuration" using the arrows.
- Press "menu" to confirm.
- Change the configuration from 01 to 05 with the + - keys
- Press "menu" to confirm and "esc" to exit.

8-MENU ITEMS AND OPERATION

p - Season

In configurations 2 and 3, by enabling the "summer" function, the deviation of the 3-way valve to the heating system is inhibited in order to prevent the radiators from heating up, therefore the flow is always directed towards the domestic hot water (DHW).

By activating the "summer" option one automatically enables the auto-eco function (it cannot be deactivated). The room probe/external thermostat are not taken into account.

To change the function act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Season" using the arrows.
- Press "menu" to confirm.
- Select "Summer" or "Winter" with the + - keys.
- Press "menu" to confirm and "esc" to exit.

q - Technical menu

To access the technical menu one must contact an assistance centre as one needs a password to enter.

To intervene on the "technical menu" act as follows:

- Press the "menu" button.
- Scroll to "Settings" using the arrows
- Press "menu" to confirm.
- Scroll to "Technical menu" using the arrows.
- Press "menu" to confirm.
- Select "Product Type", "Service", "Parameters", "Sanitary Parameters", "Meters memories", "Enable fan" and "Puffer data".
- Press "menu" to confirm and "esc" to exit

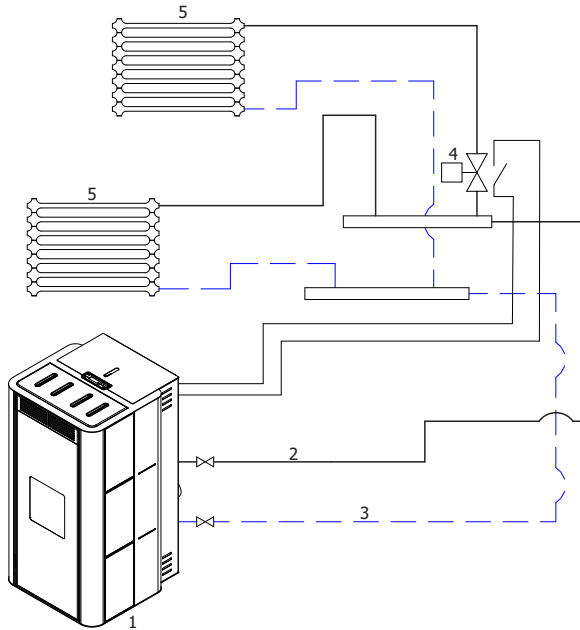
8-MENU ITEMS AND OPERATION

SYSTEM CONFIGURATIONS

Upon installation, the product must be set according to the type of system, selecting the appropriate parameter in the "SETTINGS" menu. The possible configurations are 5, as described below:

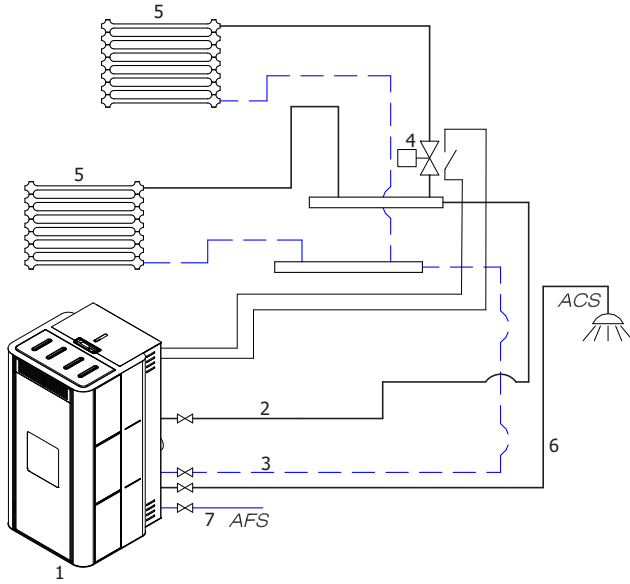
Configuration	Description
1	Room temperature management via the stove probe or by enabling the external room thermostat.
2	2.1 Room temperature management via the stove probe or by enabling the external room thermostat; instantaneous hot domestic water production with plate heat exchanger (FACTORY CONFIGURATION).
	2.2 Room temperature management via the stove probe or by enabling the external room thermostat; instantaneous hot domestic water production for boiler or storage tank with thermostat (optional). DISCONNECT INTERNAL THREE-WAY VALVE AND FLOW SWITCH
3	Room temperature management via stove probe or enabling the external room thermostat; boiler hot domestic water production with ntc probe (10 k Ω B3435). DISCONNECT INTERNAL THREE-WAY VALVE AND FLOW SWITCH
4	External Puffer management controlled by thermostat.
5	External Puffer management controlled by ntc probe (10 k Ω B3435).

CONFIGURATION 1

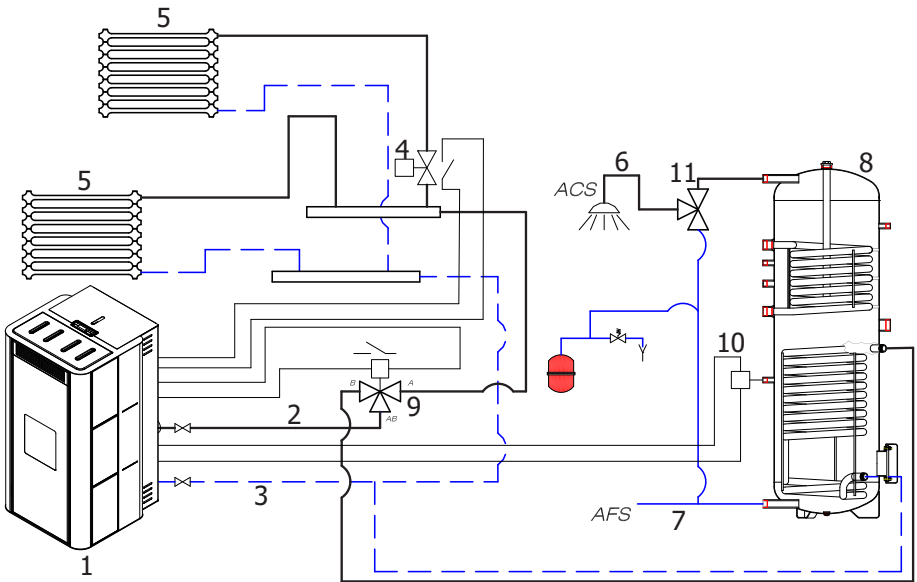


8-MENU ITEMS AND OPERATION

CONFIGURATION 2.1 (FACTORY SETTING)



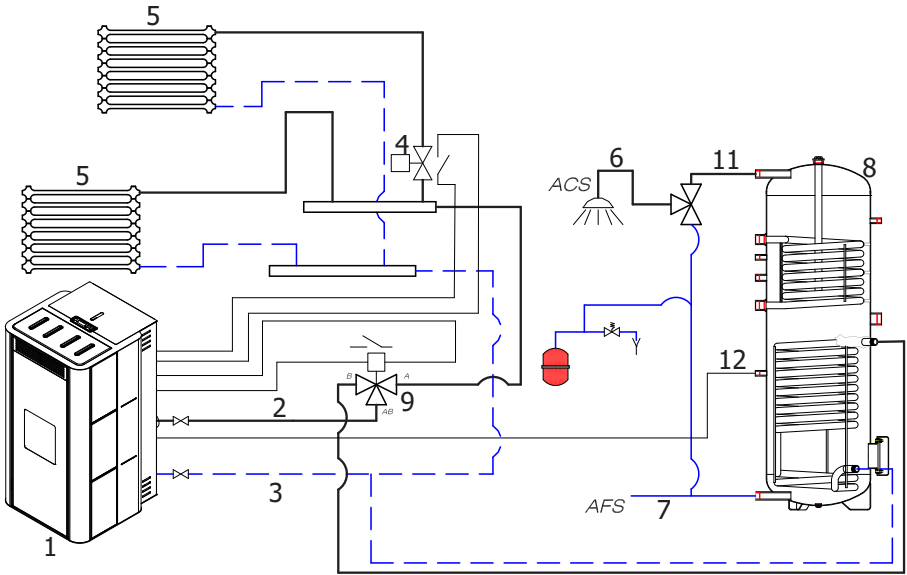
CONFIGURATION 2.2 (*)



(*) DISCONNECT INTERNAL THREE-WAY VALVE AND FLOW SWITCH

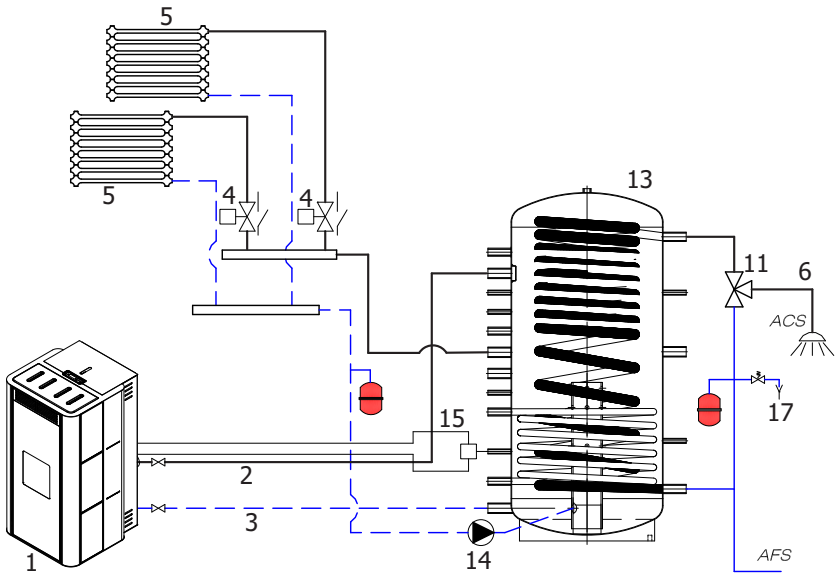
8-MENU ITEMS AND OPERATION

CONFIGURATION 3 (*)



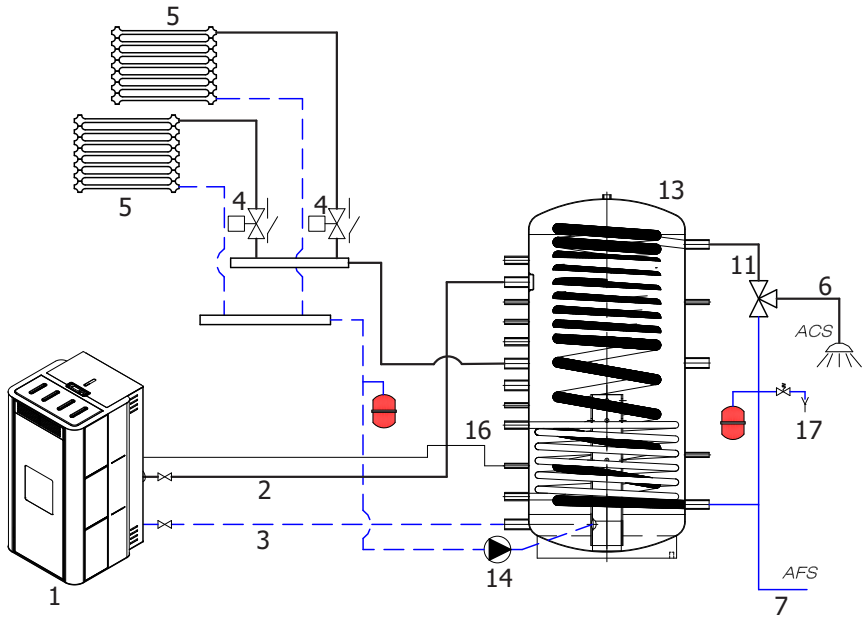
(*) DISCONNECT INTERNAL THREE-WAY VALVE AND FLOW SWITCH

CONFIGURATION 4



8-MENU ITEMS AND OPERATION

CONFIGURATION 5



1	LOTUS
2	HEATING DELIVERY
3	HEATING RETURN
4	ZONE VALVES
5	HEATING BODIES
6	DOMESTIC HOT WATER
7	COLD DOMESTIC WATER
8	DOMESTIC WATER BOILER
9	DIVERTER VALVE
10	BOILER THERMOSTAT
11	THERMOSTATIC MIXING VALVE
12	DOMESTIC WATER 10 kΩ β3434 NTC PROBE
13	HEATING PUFFER
14	HEATING SYSTEM CIRCULATOR
15	PUFFER THERMOSTAT
16	PUFFER 10 kΩ β3434 NTC PROBE
17	SAFETY VALVE

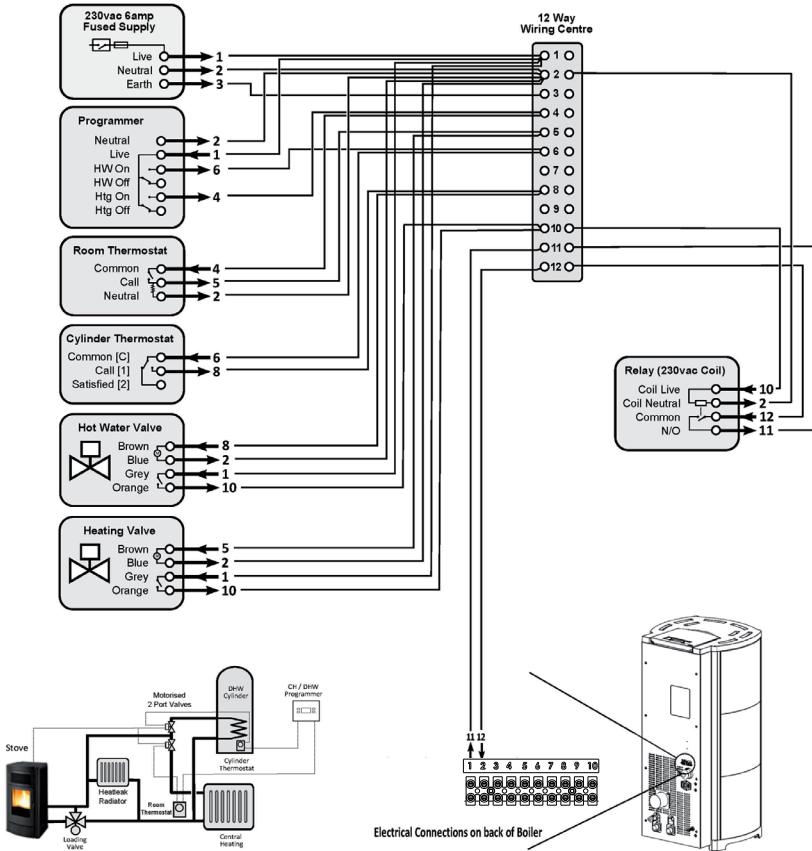
8-MENU ITEMS AND OPERATION

ONLY FOR UK

RED Hydro Stoves (Active System) LOTUS HYDRO

Wiring for S-Plan Systems

These notes must be read in conjunction with the full installation instructions



Simplified Schematic of S-Plan System

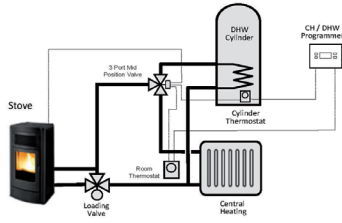
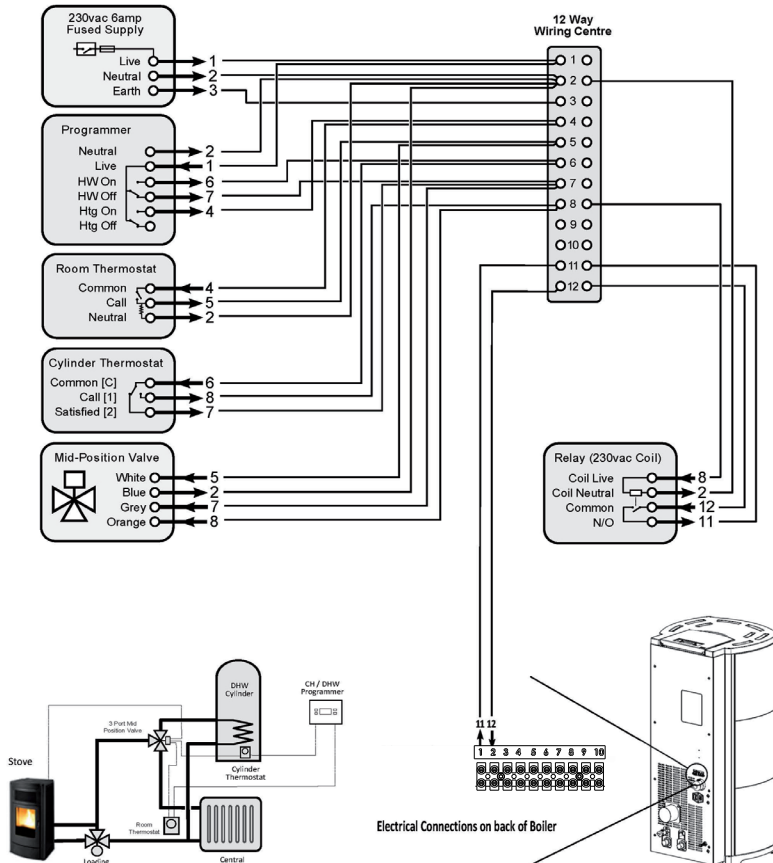
WARNING: The external thermostat terminals on MCZ stoves and boilers are volt-free. **On no account must a mains voltage signal be connected.**

8-MENU ITEMS AND OPERATION

ONLY FOR UK

RED Hydro Stoves (Active System) LOTUS HYDRO Wiring for Y-Plan Systems

These notes must be read in conjunction with the full installation instructions



Simplified Schematic of Y-Plan System

Electrical Connections on back of Boiler

WARNING: The external thermostat terminals on MCZ stoves and boilers are volt-free. **On no account must a mains voltage signal be connected.**

8-MENU ITEMS AND OPERATION

ONLY FOR UK

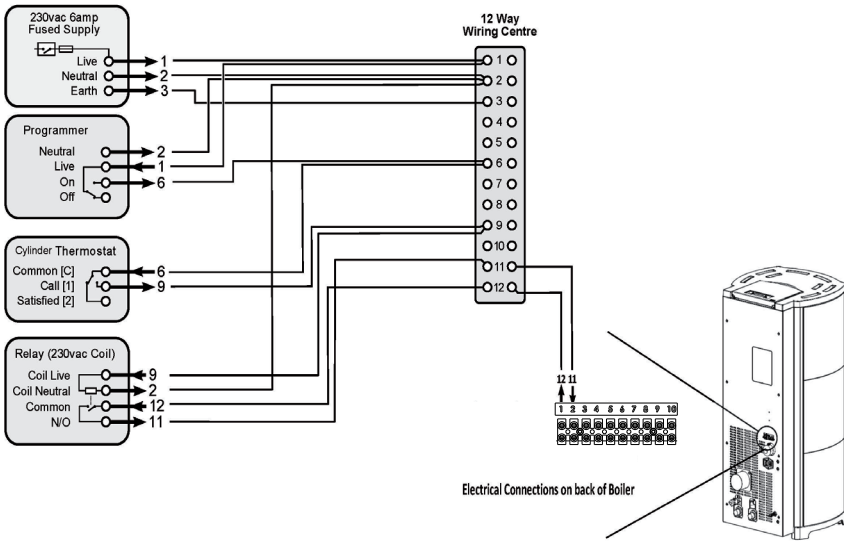
RED Hydro Stoves (Active System)

LOTUS HYDRO

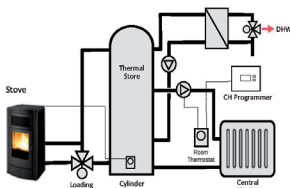
Wiring for Thermal Store or Buffer Systems where time control is by use of external programmer.

These notes must be read in conjunction with the full installation instructions

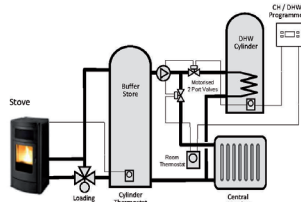
Note: Separate controls are required for operation of the Central Heating and DHW zones (not shown), and those controls are not interlocked with the stove and cylinder thermostat.



WARNING: The external thermostat terminals on MCZ stoves and boilers are volt-free. On no account must a mains voltage signal be connected.



Simplified Schematic of Thermal Store System



Simplified Schematic of Buffer Store System

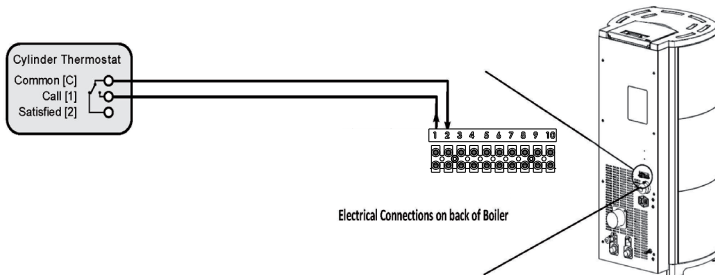
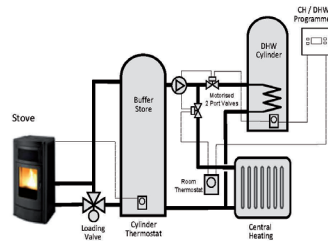
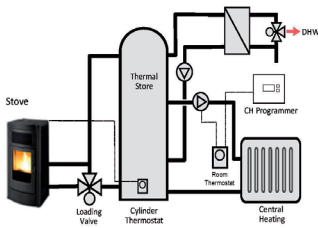
ONLY FOR UK

RED Hydro Stoves (Active System) LOTUS HYDRO

Wiring for Thermal Store or Buffer Systems where time control is by use of onboard programmer in stove.

These notes must be read in conjunction with the full installation instructions

Note: Separate controls are required for operation of the Central Heating and DHW zones (not shown), and those controls are not interlocked with the stove and cylinder thermostat.

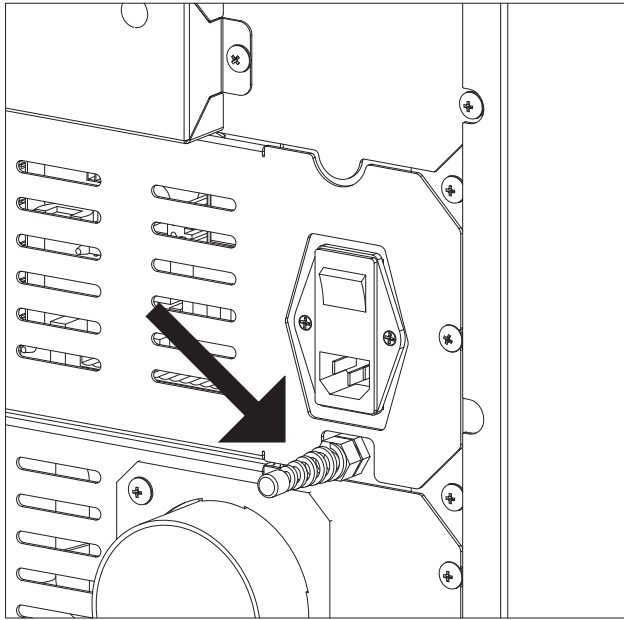


WARNING: The external thermostat terminals on MCZ stoves and boilers are volt-free.
On no account must a mains voltage signal be connected.

8-MENU ITEMS AND OPERATION

OPERATING MODE

The operating mode for hydro stoves is **AUTOMATIC** only (manual mode is not envisioned). Flame modulation is managed according to the "System configuration" of the room probe placed on the rear of the appliance (see drawing), by the external thermostat, by the boiler water temperature or by the NTC probes.




START-UP

Press key **1** (esc) to begin start-up, the control panel displays ON with a flashing flame. When the flame stops flashing the stove has reached the "power output" operating mode.

The room temperature set by default is 20°C, if one wishes to change it act as instructed in the adjustments menu; act likewise to set the heating water temperature and the room fan speed. To activate external thermostat if any see the relative section.

POWER OUTPUT

Once the start-up stage is complete the control panel will display ON with a fixed flame at level 3 . The subsequent flame modulation at lower or higher powers is managed autonomously and upon reaching the temperatures set in the "System configuration".

9-SAFETY DEVICES AND ALARMS

SAFETY DEVICES

The product is supplied with the following safety devices

PRESSURE SWITCH

Monitors pressure in the smoke duct. It is designed to shut down the pellets feed screw in the event of an obstructed flue or significant back-pressure. (wind)

SMOKE TEMPERATURE PROBE

Detects the temperature of the smoke, thereby enabling start-up or stopping the product when the temperature drops below the preset value.

CONTACT THERMOSTAT IN THE FUEL HOPPER

If the temperature exceeds the preset safety level, it immediately shuts down stove operation.

CONTACT THERMOSTAT IN THE BOILER

If the temperature exceeds the preset safety level, it immediately shuts down stove operation.

WATER TEMPERATURE PROBE

If the water temperature approaches the shutdown temperature (85°C) the probe makes the boiler perform the "OFF Stand-by" automatic shutdown.

ELECTRICAL SAFETY

The product is protected against sudden current surges by a main fuse in the power supply panel on the rear part of the product. Other fuses that protect the electronic boards are found on the latter.

SMOKE FAN

If the fan stops, the electronic board promptly shuts off the pellets supply and an alarm message is displayed.

GEAR MOTOR

If the gear motor stops, the boiler will continue to run until the flame goes out due to lack of fuel and until a minimum level of cooling is reached.

TEMPORARY POWER CUT

If the power cut lasts less than 10" the stove returns to its previous operating status; if it lasts more it carries out a cooling/restart cycle.

FAILED START-UP

If during ignition no flame develops, the boiler will go into alarm condition.

ANTIFREEZE FUNCTION

If the probe in the boiler detects a water temperature of less than 5°C, the circulation pump is automatically activated to prevent the system from freezing.

PUMP ANTI-SEIZURE FUNCTION

If the pump is not used for prolonged periods, it is activated periodically for a few seconds to prevent it from seizing up.

9-SAFETY DEVICES AND ALARMS



TAMPERING WITH THE SAFETY DEVICES IS PROHIBITED

If the product is NOT used as described in this instruction manual, the manufacturer declines all liability for any damage caused to persons and property. The manufacturer furthermore refuses to accept responsibility for damage to persons and property arising from the failure to observe all the rules contained in the manual and in particular:

- *All the necessary measures and/or precautions must be adopted when performing maintenance, cleaning and repairs.*
- *Do not tamper with the safety devices.*
- *Do not remove the safety devices.*
- *Connect the product to an efficient smoke expulsion system.*
- *Verify that the room in which the appliance will be installed is adequately ventilated.*

The product can be started-up and the automatic function of the probe restored only after having eliminated the cause that triggered the safety system. This manual will help you understand which anomaly has occurred, and explain how to intervene according to the alarm message displayed on the appliance.

9-SAFETY DEVICES AND ALARMS

ALARM ALERTS

Whenever an operating condition other than that designed for the regular operation of the stove occurs, there is an alarm condition. The control panel gives information on the reason of the alarm in progress. A sound signal is not envisioned for alarms A01-A02 only so to not disturb the user in the event of pellets running out in the hopper during the night.

Panel alert	Type of problem	Solution
A01	The fire does not ignite.	Check the level of pellets in the tank. Check that the brazier rests correctly in its seat and has no visible deposits or unburnt pellets. Check whether the ignition plug becomes hot. Empty and clean the brazier before relighting..
A02	The fire goes off abnormally.	Check the level of pellets in the hopper.
A03 Thermostat alarms	The temperature of the pellets hopper or the water temperature exceed the envisioned safety threshold.	Wait for the cooling stage to end, cancel the alarm and restart the stove setting the fuel loading at minimum (SETTINGS menu - Pellets recipe). If the alarm persists, contact the service centre. Check if the room fan works properly (if present).
A04	Smoke overheating.	The set smoke threshold has been exceeded. Reduce pellets loading (SETTINGS menu - Pellets recipe).
A05 Pressure switches alarm	Smoke pressure switch intervention or water pressure insufficient.	Verify chimney obstruction / door opening or hydraulic system pressure.
A08	Abnormal smoke fan operation.	If the alarm persists, contact the service centre.
A09	Smoke probe faulty.	If the alarm persists, contact the service centre.
A19	Water probe faulty.	Water probe disconnected / interrupted / defective / not recognised.
A20	Puffer probe alarm.	Puffer probe disconnected / interrupted / defective / not recognised.
Service	Routine maintenance alert (it does not block the system).	When this flashing message appears upon start-up, it means that the preset operating hours have elapsed before maintenance. Contact the service centre.

ALARM RESET



NEVER open the appliance door whilst the stove is either in the initial startup or on its shut down cycle, pellets will still be smoldering or therefore volatiles may be present.

ATTENTION!

If during operation or initial ignition you encounter smoke spillage in to the room from the appliance or the flue then please switch off the appliance, ventilate the room and contact the installation / service engineer immediately.

To reset the alarm one must press and hold key 1 (ESC) for a few seconds. The stove performs a check to determine if the cause of the alarm persists or not.

In the first case the alarm will still be displayed, in the second case it will go onto OFF.

If the alarm persists, contact the service centre.

9-SAFETY DEVICES AND ALARMS

NORMAL SHUTDOWN (on the panel: OFF with flashing flame)

If the shutdown key is pressed or if there is an alarm signal, the stove goes into the thermal shutdown phase which entails the automatic execution of the following stages:

- It stops pellets loading
- The room fan (if provided) maintains the set speed until the smoke T reaches 100°C, then it automatically sets itself at the minimum speed until it reaches the shutdown temperature
- The smoke fan sets itself at maximum speed and maintains it for a fixed time of 10 minutes, at the end of which if the smoke T has fallen below the shutdown threshold it switches off permanently, otherwise it sets itself at the minimum speed until it reaches such threshold before switching off.
- If the stove was shutdown regularly but, due to thermal inertia the smoke temperature exceeds the threshold again, the shutdown stage restarts at the minimum speed until the temperature goes down.

BLACKOUT WITH THE STOVE ON

In the event of a power cut (BLACKOUT) the stove behaves as follows:

- Blackout below 10": it returns to its operation in progress;
- In the event of a power cut that lasts over 10" with the stove on or in the start-up stage, when the stove is powered again it goes back to the previous operating condition with the following procedure:
 1. It cools down activating the smoke extractor at minimum power for 10' and goes onto the next point;
 2. It takes the stove back to the operating condition before the blackout.

During stage 1 the panel displays ON BLACK OUT.

During stage 2 the panel displays Start-up.

If during stage 1 the stove receives commands from the panel and thus carried out manually by the user, then the stove stops executing the blackout recovery status and proceeds to restart or shutdown as requested by the command.

BLACKOUT ABOVE 10" WITH STOVE IN SHUTDOWN STAGE

In the event there is a power cut that lasts MORE THAN 10" with the stove in the shutdown stage, when the stove is powered again it restarts in shutdown mode even if the smoke temperature has fallen under 45°C in the meanwhile. This last stage can be skipped by pressing key 1 (esc) (it goes into start-up) and by pressing it again (it recognises that the stove is switched off).

10-RECOMMENDATIONS FOR A SAFE USE



ONLY CORRECT INSTALLATION AND APPROPRIATE MAINTENANCE AND CLEANING OF THE APPLIANCE CAN GUARANTEE CORRECT OPERATION AND SAFE USE OF THE PRODUCT

We would like to inform you that we are aware of cases of malfunctioning of domestic pellet-fuelled heating products, mainly due to incorrect installation and inappropriate maintenance.

We would like to assure you that all of our products are extremely safe and certified according to European standards of reference. The ignition system has been tested with the utmost attention to enhance ignition efficiency and to prevent any type of problem, even in the worst operating conditions. In any case, like for any other pellet-fuelled product, our appliances must be installed correctly and undergo regular periodical cleaning and maintenance to guarantee safe operation. Our studies show us that malfunctioning is mainly due to the combination of part or all of the following factors:

- Brazier holes obstructed or brazier deformed, due to lack of maintenance and conditions which can cause delayed ignitions, generating an anomalous production of unburned gases.
- Insufficient combustion air due to a reduced or clogged air inlet duct.
- Use of smoke ducts nonconforming to regulatory installation requirements, failing to guarantee an adequate draught.
- Partially clogged chimney, due to lack of maintenance, reducing the draught and making ignition difficult.
- End chimneypot nonconforming to the indications of the instruction manual, and therefore not suitable to prevent potential inverse draught.
- This factor is crucial when the product is installed in especially windy areas, such as costal regions.

The combination of one or more of these factors could generate important malfunctioning conditions.

To keep this from occurring, it is fundamental to guarantee that the product is installed in compliance with standards in force.

Furthermore it is of the utmost importance to respect the following simple rules:

- Every time the brazier is removed for cleaning, it must always be put back properly in the work position before using the product, completely removing any residual filth left on the support base.
 - Pellets must never be loaded in the brazier manually, either before ignition or during operation.
 - The accumulation of unburned pellets ensuing a failed ignition must be removed before repeating ignition. Also check that they are fed correctly and that the combustion air inlet/smoke outlet are regular.
 - If ignition fails repeatedly, immediately suspend use of the product and contact a qualified technician to check its operation.
- Compliance with these indications is absolutely sufficient to guarantee proper operation and to avoid any type of problems with the product.

If the above-mentioned precautions are not taken, and during ignition the brazier is overloaded with pellets thus generating anomalous smoke in the combustion chamber, carefully follow the indications below:

- Do not disconnect electrical power to the product for any reason whatsoever: this would stop the smoke extractor, releasing smoke into the environment.
- Take the precaution of opening the windows to ventilate the installation room from any smoke in the environment (the chimney might not work properly).
- Do not open the fire door: this would compromise regular operation of the smoke extraction system to the chimney.
- Just switch the stove off by acting on the on-off button on the control panel (not the rear power supply socket button!) and move away until smoke has completely evacuated.
- Before attempting re-ignition, clean the brazier and its air passage holes completely of all deposits and unburned pellets. Put the brazier back in place, removing any residue from its support base. If ignition fails repeatedly, immediately suspend use of the product and contact a qualified technician to check its operation and the chimney.

11-CLEANING AND MAINTENANCE

Only a proper maintenance and cleaning of the product can assure you the correct functionality and a safe use of your stove.



ATTENTION!

All the cleaning operations of all parts must be performed with the product completely cold and the plug disconnected.

Disconnect the product from the 230V power supply before performing any maintenance operation.

The product requires little maintenance if used with certified high quality pellets.

DAILY OR WEEKLY CLEANING PERFORMED BY THE USER

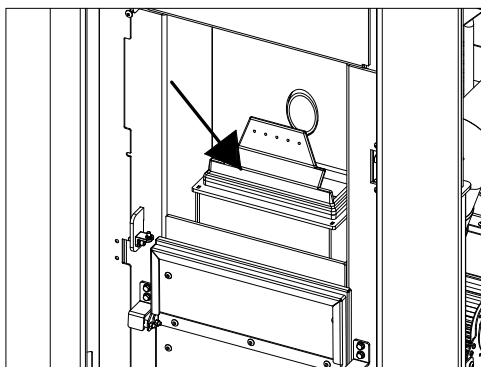
Brazier cleaning

Before ignition, always clean the brazier and remove any ash or incrustation from it that might obstruct the air flow holes, paying attention to hot ash. In the case of ignition failure, or if fuel in the tank runs out, unburned pellets may accumulate in the brazier. Always empty the residue in the brazier before each start-up. Only if ash is completely cold may a vacuum cleaner be used to remove it. In this case, use a suitable vacuum cleaner to remove small sized particles.



REMEMBER THAT ONLY A CORRECTLY POSITIONED AND CLEAN BRAZIER CAN GUARANTEE THE IGNITION AND OPTIMAL OPERATION OF YOUR PELLET PRODUCT. IN CASE OF FAILED IGNITION AND AFTER ANY OTHER LOCK STATE OF THE PRODUCT, IT IS ESSENTIAL TO EMPTY THE BRAZIER BEFORE PROCEEDING TO RESTART.

For the brazier to be cleaned properly, remove it from its housing completely and thoroughly clean all the holes and the grate on the bottom. If good quality pellets are used, you will normally only need to use a brush to restore the optimal operating conditions of the component.



CLEANING THE ASH COLLECTION COMPARTMENT

Ash tray cleaning

Remove and empty the ash tray. Wipe away any residual ash before reinserting the tray. Your experience and the quality of the pellets will determine the ash tray cleaning frequency. However, it is recommended not to exceed 2 or 3 days.

11-CLEANING AND MAINTENANCE

CLEAN THE EXCHANGER AND THE UNDERGRATE SPACE EVERY 2/3 DAYS.

Cleaning the exchanger and the undergrate space is a simple operation but very important for always maintaining performance as declared.

Therefore we recommend cleaning the internal exchanger every 2-3 days, performing these simple operations in sequence:

- **Activate the "CLEANING" function** – when the boiler is switched of press - menu, select "Settings", with the <> arrows select "Cleaning", confirm with "Menu", activate cleaning "ON" by pressing the +- keys. This procedure activates the smoke extraction fan on maximum power to expel the soot that is dislodged when the exchanger is cleaned.
- **Clean the pipe unit** – Using the cold handle supplied (the cold handle hangs inside the stove door - fig.2) shake vigorously the rods placed under the cover 5-6 times. This will remove any soot that has deposited on the exchanger smoke ducts during normal stove operation.
- **Disable the "CLEANING" function** - this function is automatically disabled after two minutes. If one needs to stop this function in advance press the "Esc" key.
- **Clean the smoke conveyor compartment (fig.3)** - The boiler is fitted with a removable ash pan designed to collect any soot and ash build-up.
- Once cleaning is complete close the cover and ash pan.



If such cleaning is not done every 2-3 days the stove could go into alarm caused by ash clogging after several hours of operation.

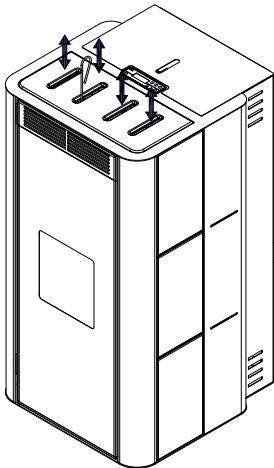


FIGURE 1

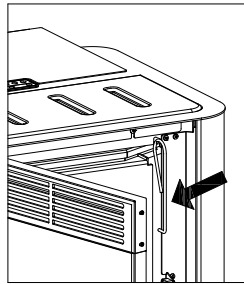


FIGURE 2

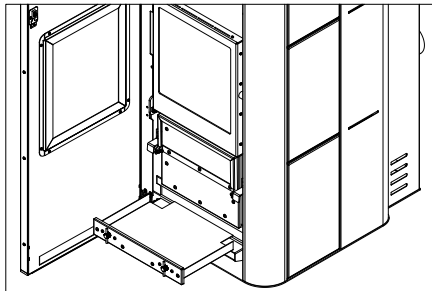


FIGURE 3

11-CLEANING AND MAINTENANCE

PERIODIC CLEANING PERFORMED BY A QUALIFIED TECHNICIAN

CLEANING THE EXCHANGER AND PIPE UNIT

CLEANING THE UPPER COMPARTMENT

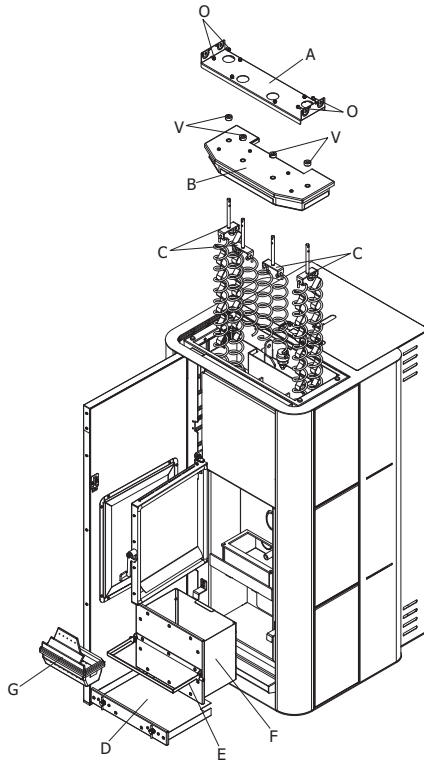
When the boiler is cold lift the ceramic top; remove screws "O" to the right and left and remove cover "A". Then remove the the fixing screws from drivers "V" and remove boiler cover "B".

At this point, remove the four turbulators "C" and using a rigid rod or a bottle brush, clean the internal pipe unit and the turbulators, removing all of the accumulated ash.

Check the cover gasket and replace it if necessary.



ATTENTION: It is advisable to carry out the cleaning of the upper exchanger at the end of the season and possibly by an authorised technician in order to also replace the gasket located below plug "B".



CLEANING THE LOWER COMPARTMENT

Remove ash pan "D" and empty it.

Lower lever "E" and extract drawer "F". Remove the ash from the drawer and if needed use a vacuum cleaner to remove any other ash or soot that has built-up under the drawer. Remove brazier "G" and clean it every 2/3 days. Check the seal of the ceramic fibre gasket on the plug and replace it if necessary.

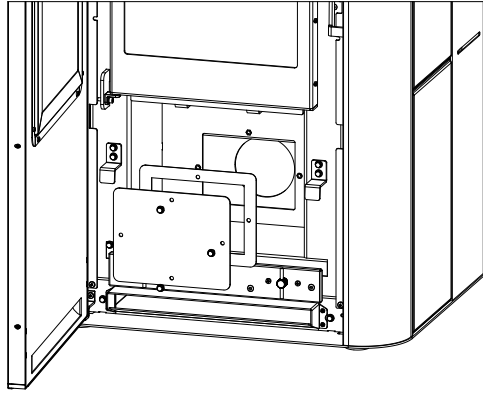
Check the seal of the door gasket and replace it if necessary.

At the end of the season one must clean the compartment under the brazier and the inside of the heat exchanger.

This general cleaning should be carried out at the end of the season in order to facilitate the general removal of all combustion residues, without waiting too long, because with time and humidity these residues can become compacted.

11-CLEANING AND MAINTENANCE

CLEANING THE SMOKE FAN COMPARTMENT



Remove the four screws that keep the plug fastened on the rear part of the stove and remove any ash deposited on the smoke fan with a vacuum cleaner.

Check the seal of the ceramic fibre gasket on the plug and replace it if necessary.

CLEANING THE SMOKE EXHAUST SYSTEM AND GENERAL CHECKS

Clean the smoke extractor system, especially around the "T" joints, elbows and any horizontal sections of the smoke duct. For information on periodically cleaning the flue, contact a skilled chimney sweep.

Check the seal of the ceramic fibre gaskets on the door of the stove. If necessary, order new replacement seals from the retailer or contact an authorized service centre to carry out this task.



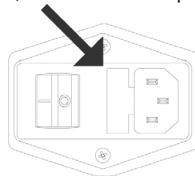
ATTENTION:

The frequency with which the smoke exhaust must be cleaned depends on the use of the boiler and the type of installation.

We recommend contacting an authorised service centre for end-of-season maintenance and cleaning as the above-mentioned operations will be performed together with a general inspection of the components.

END-OF-SEASON SHUTDOWN

At the end of season, before shutting down the boiler, we recommend completely removing pellets from the hopper with the use of a



vacuum cleaner with an extension.

The service fuse may have to be replaced if the control panel display does not go on when the product is re-started upon pressing the main switch on the rear of the boiler.

On the rear of the boiler there is a fuse compartment which is located underneath the supply socket. Use a screwdriver to open the fuse compartment and if necessary replace them (3.15 A delayed).

11-CLEANING AND MAINTENANCE

CHECKING THE INTERNAL COMPONENTS



ATTENTION!

The internal electromechanical components must only be checked by qualified personnel whose technical expertise includes combustion and electricity.

It is recommended to perform this routine maintenance annually (with a scheduled service contract), which focuses on a visual and functional verification of the internal components. The following is a summary of the necessary checks and/or maintenance for the product to work correctly.

- Gear motor
- Smoke expulsion fan
- Smoke probe
- Start-up spark plug
- Automatic resettable pellet/water thermostat
- Room/water probe
- Motherboard
- Panel - motherboard protection fuses
- Cabling

PARTS/INTERVAL	2-3 DAYS	EVERY WEEK	15 DAYS	60-90 DAYS	EVERY SEASON
Clean the brazier.*	•				
Clean the ash collection compartment with a vacuum cleaner		•			
Clean the ash pan	•				
Clean the hearth door and glass			•		
Clean the turbulators			•		
Clean the lower ash pan			•		
Clean the "T" exhaust fittings (outside the boiler)				•	
Clean the exchangers and remove ash and incrustations					•
Clean the smoke fitting					•
Circulation pump inspection					•
Hydraulic leaks inspection					•
Door gasket inspection					•
Start-up spark plug inspection					•

* WITH POOR QUALITY PELLETS CLEANING FREQUENCY MUST BE INCREASED.

12-FAULTS/CAUSES/SOLUTIONS

CHECKING THE INTERNAL COMPONENTS



ATTENTION:
GUIDE FOR THE EXCLUSIVE USE OF THE SPECIALISED TECHNICIAN.

ATTENTION:

All repairs must be carried out exclusively by a specialised technician, with the boiler switched off and the plug disconnected. The operations marked in bold type must be carried out by specialised personnel.

The manufacturer declines all liability and warranty terms expire if this condition is not complied with.

ANOMALY	POSSIBLE CAUSES	SOLUTIONS
The pellets are not fed into the combustion chamber	The pellet hopper is empty	Fill the hopper with pellets
	Sawdust has blocked the feed screw	Empty the hopper and remove the sawdust from the feed screw by hand
	Faulty gear motor	<i>Replace the gear motor</i>
	Faulty electronic board	<i>Replace the circuit board</i>
The fire goes out or the boiler stops automatically	The pellet hopper is empty	Fill the hopper with pellets
	The pellets are not fed	See the previous anomaly
	The pellet temperature safety probe has been triggered	Let the boiler cool down, restore the thermostat until the problem is resolved and switch the stove on again. If the problem persists contact technical assistance
	The door is not closed properly or the gaskets are worn	<i>Close the door and replace the gaskets with original ones</i>
	Unsuitable pellets	Change the type of pellets with those recommended by the manufacturer
	Low pellet supply	<i>Have the fuel flow checked following the booklet instructions</i>
	The combustion chamber is dirty	Clean the combustion chamber, following instructions in the manual
	Clogged outlet	Clean the smoke duct
	Faulty smoke extraction motor	<i>Check the motor and replace it, if necessary</i>
Pressure switch faulty or defective	<i>Replace the pressure switch</i>	

12-FAULTS/CAUSES/SOLUTIONS

ANOMALY	POSSIBLE CAUSES	SOLUTIONS
The stove runs for a few minutes and then switches off	Start-up phase is not completed	Repeat start-up
	Temporary power cut	Wait for the automatic restart
	Clogged smoke duct	Clean the smoke duct
	Faulty or malfunctioning temperature probes	<i>Check and replace the probes</i>
	Faulty spark plug	<i>Check the spark plug and replace it, if necessary</i>
Pellets accumulate in the brazier, the glass of the door gets dirty and the flame is weak	Insufficient combustion air	Clean the brazier and check that all the holes are clear. Perform a general cleaning of the combustion chamber and smoke duct. Check that the air inlet is not obstructed.
	Damp or unsuitable pellets	Change the type of pellets
	Faulty smoke evacuation motor	<i>Check the motor and replace it, if necessary</i>
The smoke evacuation motor does not work	The stove is not powered	Check the mains voltage and the protection fuse
	The motor is faulty	<i>Check the motor and capacitor and replace them, if necessary</i>
	Defective motherboard	<i>Replace the electronic board</i>
	Control panel broken	<i>Replace the control panel</i>
In the automatic position the stove always runs at full power	Thermostat is set to minimum	Set the thermostat temperature again.
	Room thermostat in position that always detects cold.	Change the position of the probe
	Faulty temperature probe.	<i>Check the probe and replace it, if necessary.</i>
	Faulty or malfunctioning control panel.	<i>Check the panel and replace it if necessary.</i>

12-FAULTS/CAUSES/SOLUTIONS

The boiler does not start	No power supply	Check that the plug is inserted and the main switch is in the "I" position.
	Pellet probe blocked	<i>Unblock it by acting on the rear thermostat, if it happens again contact the service centre.</i>
	Blown fuse	Replace the fuse.
	Pressure switch faulty (block alert)	Water pressure low in boiler
	Clogged smoke exhaust or smoke duct	Clean the smoke exhaust and/or the smoke duct.
	Water temperature probe triggered	Contact the service centre

ANOMALIES RELATED TO THE PLUMBING SYSTEM

No increase in temperature with boiler in operation	Incorrect combustion adjustment.	Check recipe and parameters.
	Boiler/system dirty	Check and clean the boiler.
	Insufficient boiler power.	Check that the boiler is properly sized for the requirements of the system.
	Poor pellet quality	Use quality pellets
Condensation in boiler	Incorrect temperature adjustment	<i>Set the boiler at a higher temperature</i>
	Insufficient fuel consumption.	<i>Check the recipe and/or technical parameters.</i>
Radiators cold in winter	Room thermostat (local or remote) set too low. If remote thermostat, check if it is defective.	<i>Set it at a higher temperature or replace it. (if remote)</i>
	Circulator does not run because blocked.	<i>Free up the circulator by removing the plug and turning the shaft with a screwdriver.</i>
	Circulator does not run.	<i>Check the electrical connections of the circulator; replace if necessary.</i>
	Radiators have air in them	<i>Bleed the radiators</i>

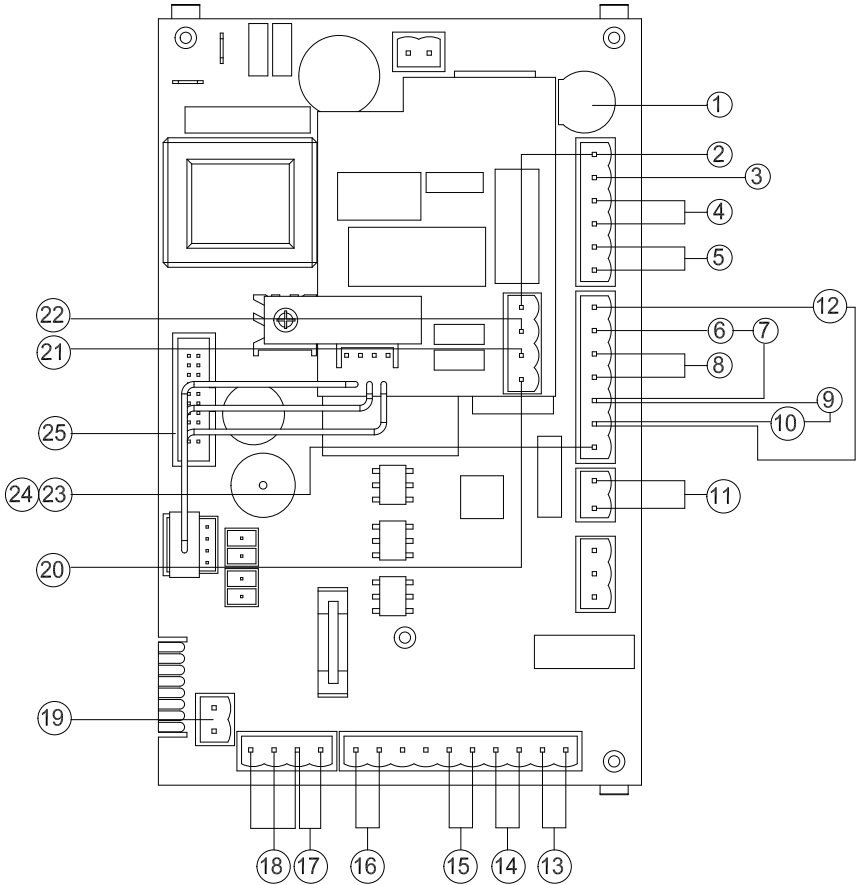


ATTENTION!

The operations in italics must be carried out by specialised personnel only.

The manufacturer declines all liability and warranty terms expire if this condition is not complied with.

13 - WIRING DIAGRAM



MOTHERBOARD WIRING KEY

- | | |
|--|---|
| 1. FUSE | 14. EXTERNAL THERMOSTAT CONNECTION (TERMINAL BLOCK) |
| 2. BOARD PHASE | 15. INTERNAL ROOM PROBE |
| 3. BOARD NEUTRAL | 16. PUFFER/BOILER PROBE CONNECTION (TERMINAL BLOCK) |
| 4. SMOKE EXPULSION FAN | 17. BOILER WATER TEMPERATURE PROBE |
| 5. ROOM FAN | 18. SMOKE EXTRACTOR FAN REVOLUTIONS CONTROL |
| 6. PELLETS SAFETY THERMOSTAT | 19. FLOW SWITCH |
| 7. WATER TEMPERATURE OVERLOAD PROTECTOR | 20. 3-WAY VALVE PHASE (HEATING) |
| 8. SPARK PLUG | 21. 3-WAY VALVE PHASE (DOMESTIC) |
| 9. WATER PRESSURE SWITCH | 22. PUMP PHASE |
| 10. AIR PRESSURE SWITCH | 23. PUMP NEUTRAL |
| 11. AUXILIARY BOILER CONNECTION (TERMINAL BLOCK) | 24. 3-WAY VALVE NEUTRAL |
| 12. FEED SCREW | 25. CONTROL PANEL |
| 13. SMOKE PROBE | |

N.B. The wiring of the individual components is fitted with pre-wired connectors of different sizes.



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