



*THE FIRST TALKING HEATER / BOILER*

INSTALLATION, USE AND MAINTENANCE GUIDE

**ECOTHERM H20 18 - COMPACT 18**

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### “CE” DECLARATION OF CONFORMITY

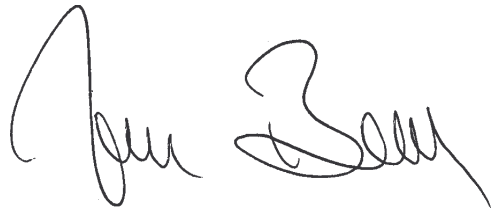
In accordance with the following directives:

European Directive	73/23/EEC and its amending directive	93/68/EEC
	89/336/EEC and its amending directives	93/68/EEC 92/31/EEC 93/97/EEC

Thermorossi S.p.A., Via Grumolo 4 - ARSIERO (VI), declares that the heater H2O and the boiler Compact have been designed and manufactured in compliance with the safety requirements of the standards for EC marking.  
This declaration refers to the entire range of the specified series.

ARSIERO , 5th June 2007

**THERMOROSSI S.p.A.**



# 1 INTRODUCTION

## 1.1 GENERAL GUIDELINES

This installation, use and maintenance guide is an integral and essential part of the product and must be kept by the user. Before commencing with the installation, use and maintenance of the product, carefully read all the instructions contained in this booklet. At the time of installation of the appliance all local regulations, including those that refer to national and European regulations, must be observed. The Manufacturer highly recommends carrying out all the maintenance operations described in this manual. This appliance must only be used for its intended purpose. Any other use is considered incorrect and therefore hazardous; consequently, the user shall be totally liable for the product if used improperly. Installation, maintenance and repairs must be carried out by personnel with professional qualifications and in compliance with current regulatory standards and in accordance with the instructions of the manufacturer of the appliance. Use only original spare parts.

Incorrect installation or poor maintenance could injure or damage people, animals or things; in this case the manufacturer shall be relieved of all responsibility. Before commencing any cleaning or maintenance operation ensure that the appliance has been disconnected from the mains power supply by means of the main system switch or some other disconnecting device installed upstream from the appliance. The product must be installed in locations suitable for fire-fighting and furnished with all the services (power and outlets) which the appliance requires for a correct and safe operation. Any repairs or actions carried out on any systems, components or internal parts of the appliance, or on any of the accessories supplied with it, that are not specifically authorised by Thermorossi s.p.a, will automatically void the warranty and the manufacturer's responsibility, pursuant to D.P.R. 224 of 24/05/1988, art. 6/b. Use only original Thermorossi spare parts. If the appliance is sold or transferred to another user ensure that the guide is handed over with it.

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## 1.2 SAFETY GUIDELINES



### PERSONAL INJURY

This safety symbol identifies important messages throughout the manual. Read the information marked by this symbol carefully as non-observance of this message can cause serious injury to persons using the heater/boiler.



### DAMAGE TO PROPERTY

This safety symbol identifies messages or instructions that are fundamental for the heater/boiler and system to function well. Failure to observe these symbols could result in serious damage to the heater/boiler and system.



### INFORMATION

This safety symbol signals instructions that are important for the good operation of the heater / boiler or heating system. The appliances will not function correctly if the instructions are not observed correctly.

## 1.3 STANDARDS AND RECOMMENDATIONS

**NORMATIVE REFERENCES** :national and international standards used as reference guides for the design, industrialization and production of the products:

- European Directive 73/23/EEC
- European Directive 93/68/EEC
- European Directive 89/336/EEC
- standard CEI 61/50
- standard CEI EN 60204
- standard CEI 64-8 (IEC 364)



### RECOMMENDATIONS

Before using the appliance, carefully read every section of this instruction manual as knowledge of the information and the regulations contained in it are essential for a correct use of the appliance.

The entire operation concerning the connection of the electric panel must be carried out by expert personnel; no responsibility will be accepted for damages, even to third parties, if the instructions for installation, use and maintenance of the appliance are not followed scrupulously. Modifications made to the appliance by the user or on his behalf, must be considered to be under his complete responsibility. The user is responsible for all the operations required for the installation and maintenance of the appliance before and during its use.

### GENERAL WARNINGS



**Caution:** the appliance must be connected to a system provided with a PE conductor (in compliance with the specifications of 73/23/EEC, 93/98/EEC, concerning low voltage equipment).

Before installing the appliance check the efficiency of the earth circuit of the power supply system.

**Caution:** the power supply line must have a section which is suitable for the power of the equipment. The cable section must in any case be no less than 1.5 mm<sup>2</sup>. The appliance must be powered with a voltage of 220/240 V and 50 Hz. Voltage variations which exceed 10% of the nominal value can cause poor functioning or damage the electrical device. Position the appliance so that the electric power plug is easily accessible. Voltage variations less than 10% of the nominal value can cause lighting and use problems. Apply a current regulator.

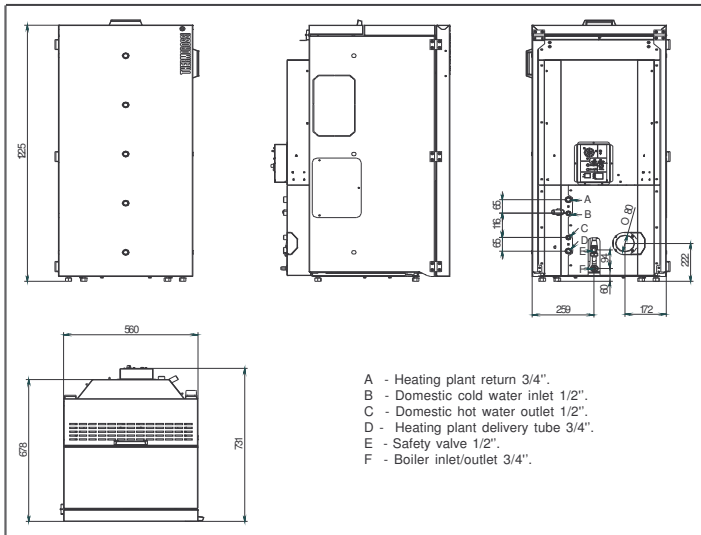
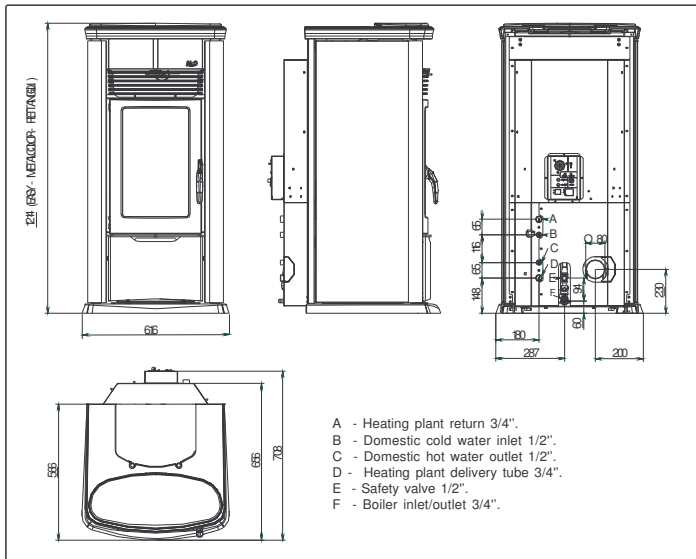
Ensure that a suitable differential switch is installed upstream from the equipment.

## 1.4 TRANSPORTATION AND STORAGE

**TRANSPORTATION AND HANDLING** The boiler body must always be in a vertical position when handled and exclusively by means of trolleys. Take special care to protect the electric panel, the glass, the ceramics and all the fragile parts from mechanical impact which could damage them and their correct functioning.

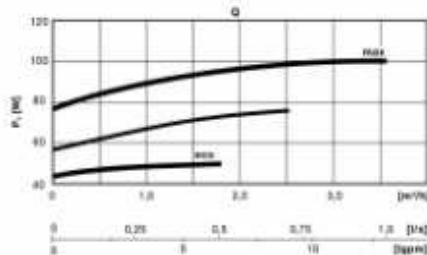
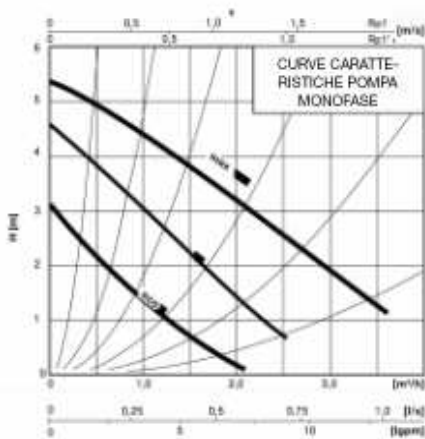
**STORAGE** : The heater / boiler must be stored in a humid-free environment and sheltered from the weather; do not place the heater / boiler directly on the floor. The Company denies all responsibility for damage caused to wood floors or floors made from any other material. It is inadvisable to store the heater / boiler for long periods of time.

## 2 TECHNICAL CHARACTERISTICS \*



\* The volume of domestic hot water refers to max combustion power and temperature of water flowing into the heat exchanger at 20 °C and water flowing out of the heat exchanger at 60 °C.

### CHARACTERISTIC CURVES OF SINGLE-PHASE PUMP



\* All the data are based on the appliance fuelled with Austrian standard ÖNORM M 7135 type-approved pellets.

### 3 GENERAL DESCRIPTION

#### 3.1 OPERATING TECHNOLOGY

Your heater / boiler has been constructed to satisfy in full all your heating and practical needs. Top-grade components and functions managed with microprocessor technology guarantee high reliability and optimal performance.

#### 3.2 PELLETS

The appliance is fuelled by pellets, that is, cylinders of compressed sawdust; this will make it possible for you to enjoy to the full the heat of the flame without having to manually stoke the combustion.

The pellets are cylinders of compressed sawdust having a 6 mm diameter and a maximum length of 20 mm. They have a humidity content of max. 8%, a thermal value 4000/4500 Kcal/Kg and a density of approx. 620-630 Kg/m<sup>3</sup>.



The use of fuel which does not comply with the description given above immediately voids the heater / boiler warranty. Do not use the appliance as an incinerator, at the risk of voiding the warranty.

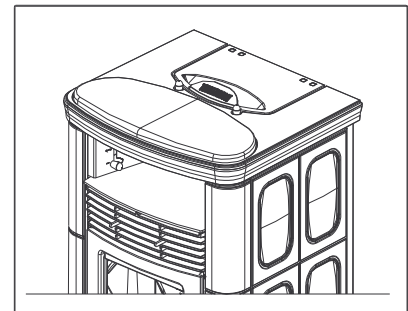
#### 3.3 THE FEEDBOX



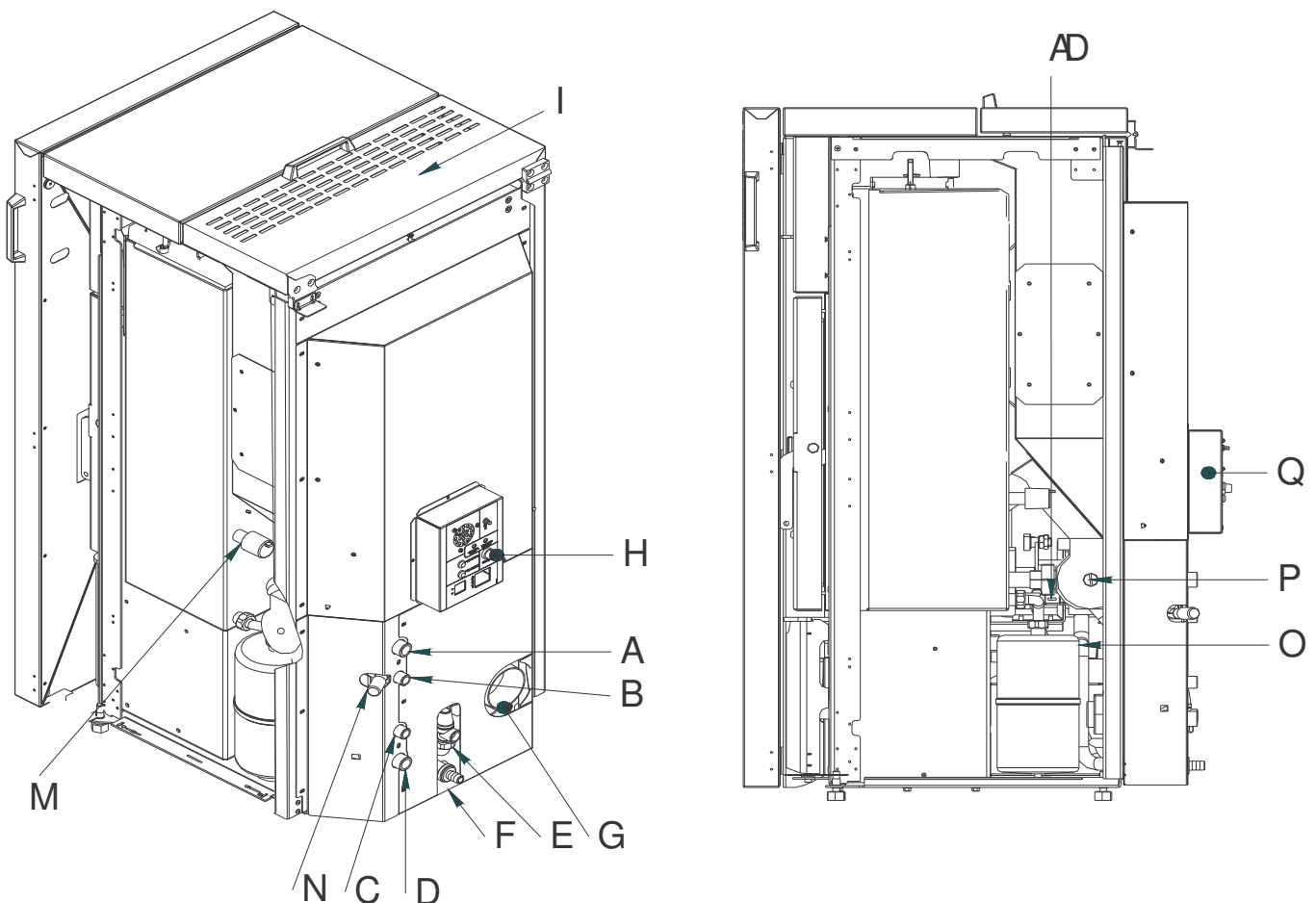
The feedbox is situated in the top part of the heater / boiler. The maximum load capacity of the tank is approximately 43 Kg, but varies according to the specific weight of the pellets.

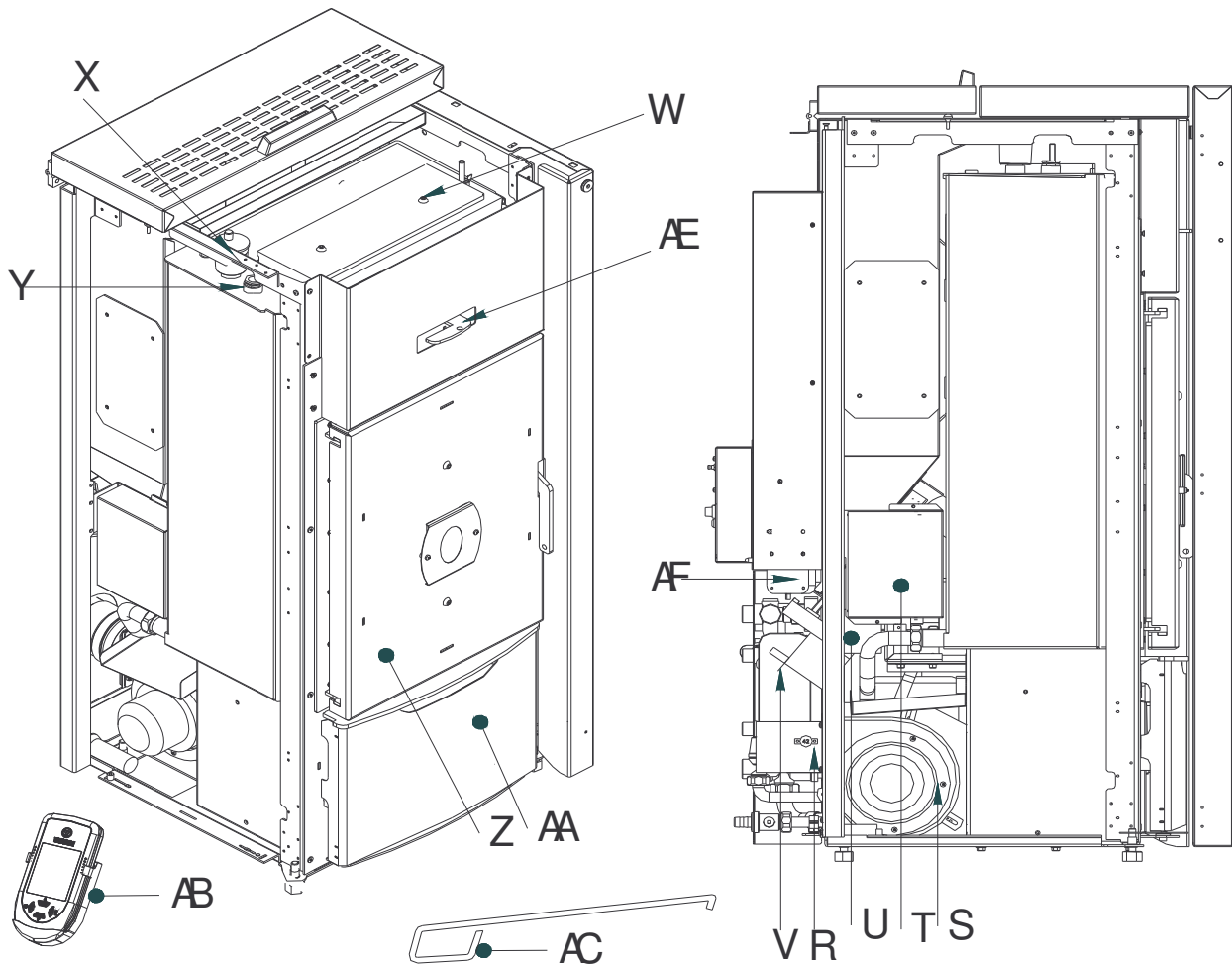


The manufacturer recommends emptying the hopper and vacuuming the screw feeder zone once a month and during the summer period. Take special care when loading the hopper as the screw feeder at its base is in motion.



#### 3.4 MAIN COMPONENTS OF HEATER MOD. H20 AND BOILER MOD. COMPACT





- A :** Heating plant return  
**B :** Domestic cold water inlet 1/2".  
 (only with Domestic Water Kit - optional -)  
**C :** Domestic hot water outlet 1/2".  
 (only with Domestic Water Kit - optional -)  
**D :** Heating plant delivery tube 3/4".  
**E :** Safety valve 3 bar 1/2".  
**F :** Boiler Inlet - Outlet 3/4".  
**G :** Smoke exhaust pipe  
**H :** Safety thermostat 100 ° C.  
**I :** Pellet hopper .  
**M :** Pressure transducer.  
**N :** System Inlet  
 (only with Domestic Water Kit - optional -)  
**O :** Expansion tank 2.5 l for protection of the  
 boiler only.  
**P :** System circulating pump.  
**Q :** Back panel of heater.
- R :** Thermostat 42 ° C.  
**S :** Smoke suction unit  
**T :** Electronic power board.  
**U :** Burner cleaning motor  
**V :** Pellet loading motor.  
**W :** Tube bundle inspection cover.  
**X :** Automatic relief valve.  
**Y :** Pocket for heating system PTC sensor  
 and thermostat bulb 100 ° C reset.  
**Z :** Patented burner.  
**AA :** Ash pan.  
**AB :** Aladino radio control  
**AC :** Riddling tool.  
**AD :** Spark plug.  
**AE :** Spiral tube scraper.  
**AF :** Smoke side pressure switch.

## 4 INSTALLATION

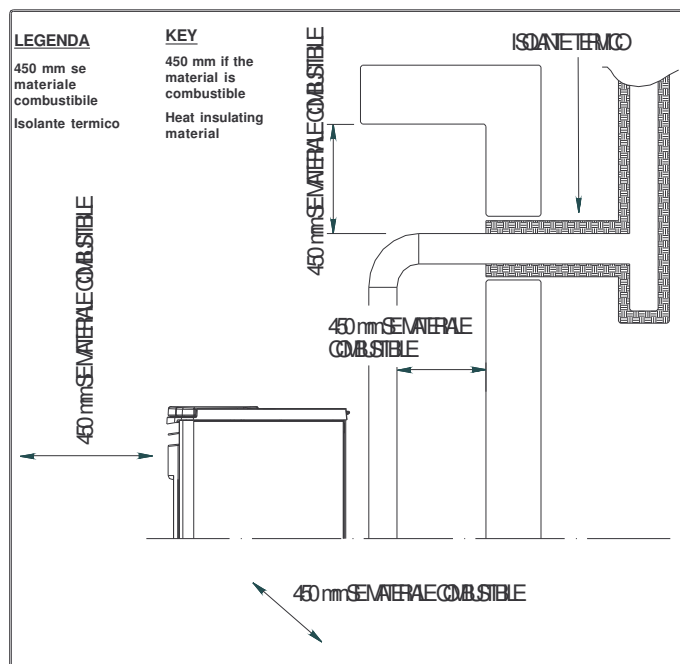


### 4.1 HEATER / BOILER LOCATION

**CAUTION** : Always use trolleys to move the appliance and the appliance must always be in a vertical position. The casing for the H2O is packed separately. To unpack the Compact, once the wood crate has been removed, remove the casing (in reverse order as set out in par.4.2.3). Remove the screw at the base of the heater / boiler and remove the base from the bottom pallet. Follow the general guidelines set out in paragraph 1.1 to the letter. Above all ensure that the flooring of the room where the heater / boiler will be installed is capable of bearing the weight of the appliance plus the weight of the water contained in it and the weight of the pellets in the hopper.

**CAUTION:** The room in which the appliance will operate must be adequately ventilated (minimum air intake 1300 m<sup>3</sup>/h).

The heater / boiler must be positioned at a minimum safe distance from walls and furnishings. This distance will have to be increased considerably if the objects surrounding the appliance are inflammable (matchboarding, furniture, curtains, picture frames, sofas, etc...). The recommended minimum distances are illustrated in the drawing below on the right. Installation in the vicinity of heat-sensitive materials is only permitted if suitable insulating protection is placed between the object and the appliance (ref. Uni 10683).



### 4.2 MOUNTING HEATER / BOILER CASING.

#### 4.2.1 MOUNTING METALCOLOR / EASYCASING FOR HEATER H2O

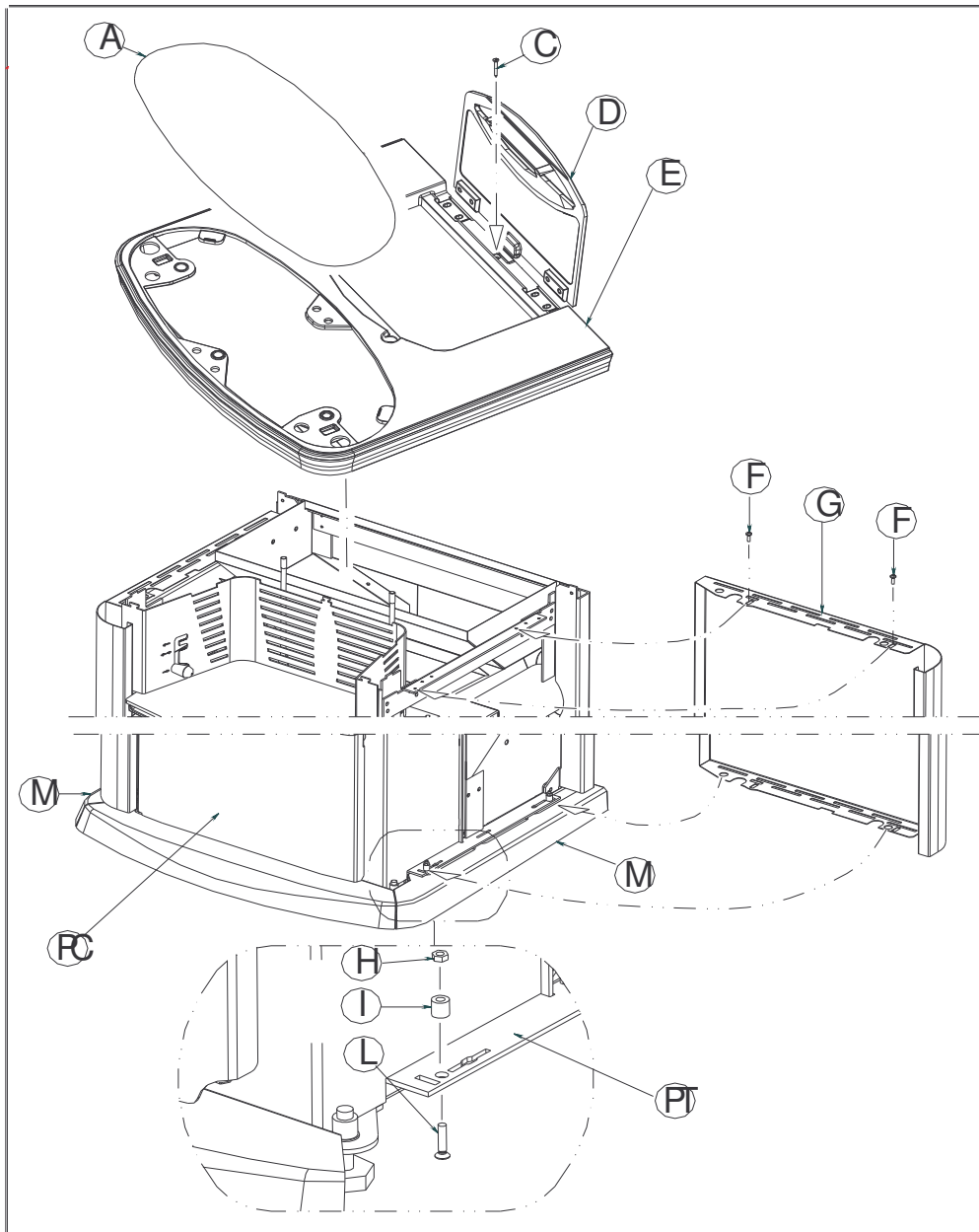
After positioning and levelling the heater by raising or lowering the mounting feet, connecting it to the heating system and to the electrical system (see par.4.4 , 4.5 , 4.6 , 4.7 , 4.8 , 4.9 , 4.10, 4.11 ), proceed to mount the casing as illustrated:

Carry out the procedure described below and follow the drawing on the next page:

- Remove the cover (A) .
- Open the cover(D) , remove the screw (C) and remove the cover (E).
- Fasten the 4 spacers (I) with the supplied nuts M4 (H) and screws M4x16 (L) to the lower base.
- Adjust the heater mounting feet and position the kickplates (M) as illustrated, making sure that the kickplates are inserted under the plate (PT); then check that the door can be easily removed (PC) and if necessary raise the feet.
- Mount the side panels by firstly inserting the lower holes on the spacers (I) that were fastened beforehand.
- Fasten the screws (F) to lock the side panels (G).
- Mount the cast iron cover (E) , the cover (A) and fasten the screw (C) .

The casing on the EASY model is factory-mounted before being packaged. To move the heater from the pallet the casing and the 2 screws that secure the heater to the wood pallet must firstly be removed.





#### 4.2.2 MOUNTING RECTANGULAR CERAMIC TILE CASING FOR HEATER H20.

After positioning and levelling the heater by raising or lowering the mounting feet, connecting it to the heating system and to the electrical system (see par.4.4 , 4.5 , 4.6 , 4.7 , 4.8 , 4.9 , 4.10, 4.11 ), proceed to mount the casing as illustrated:

-Open the cover (D) and undo and remove the screw (C), then remove the cover (E) (figure 1).

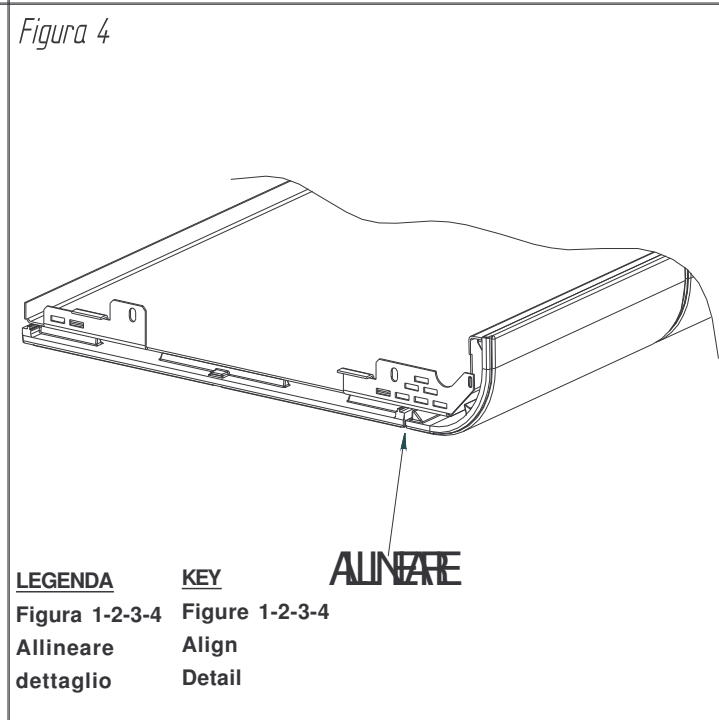
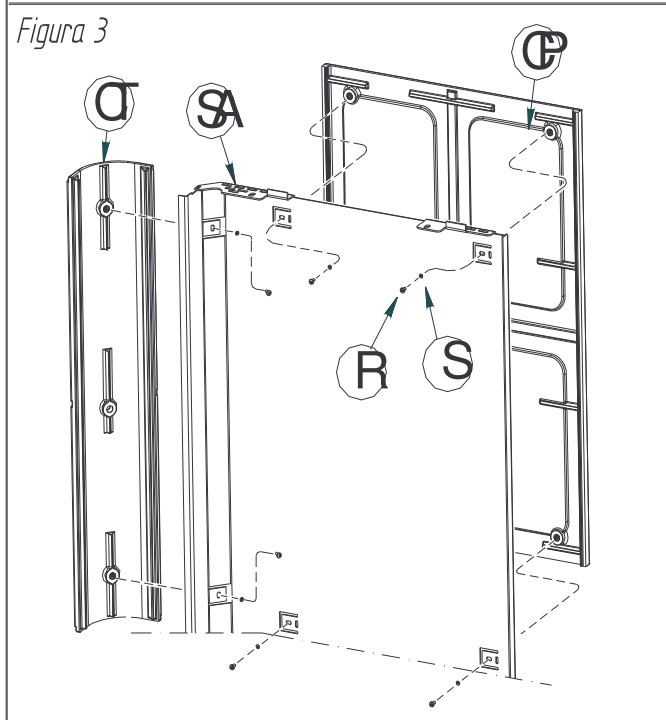
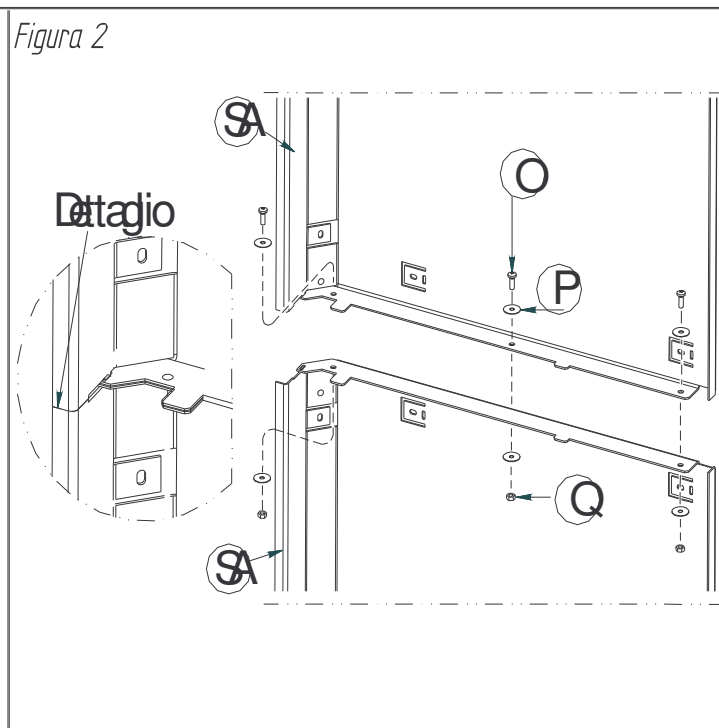
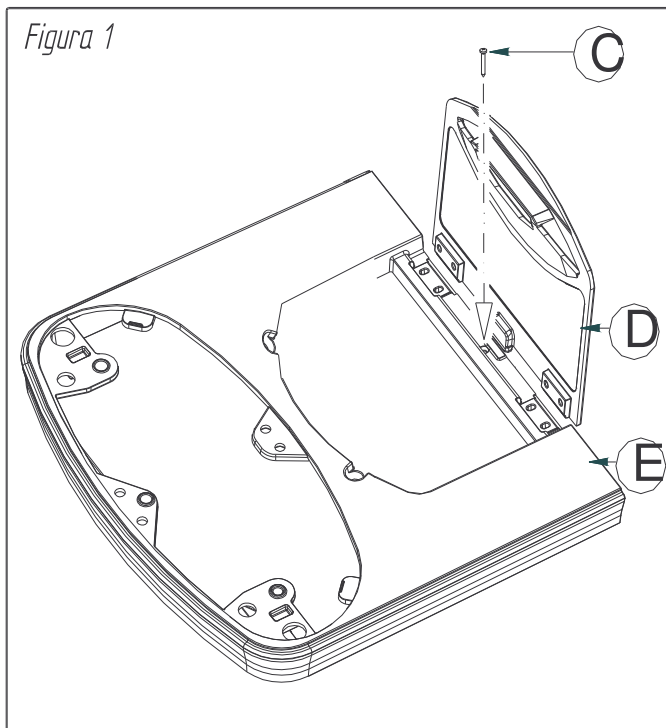
Unpack the ceramic casing then proceed to secure the flat ceramic tiles with rectangular decor (CP) and the convex ceramic tiles (CT) to the steel backing plates (SA) :

-Fasten the steel backing plates to each other using the screws M4x12 (O), the washers d.4 (P), the nuts M4 (Q) (see figure 2). Place the elements on a flat surface ( e.g. a table) to secure them and make sure that the edges match up (see detail figure 2 )

-Next fasten the flat tiles to the steel backing plate using the screws M3 x 6 (R) and washers d.3 (S) provided (see figure 3): to carry out this operation place the flat tiles on a table and lay the steel backing plate (SA) on top, then fasten them with screws and washers. Handle the ceramic tiles with extreme care to prevent accidental breakages.

-Then secure the convex ceramics to the steel backing plate with the screws M3 x 6 (R) and washers d.3 (S) (see figure 3): to carry out this operation fasten the ceramics to the steel support (SA) with screws and washers as illustrated in figure 4 and adjust their alignment with the flat ceramics. Handle the ceramic tiles with extreme care to prevent accidental breakages.

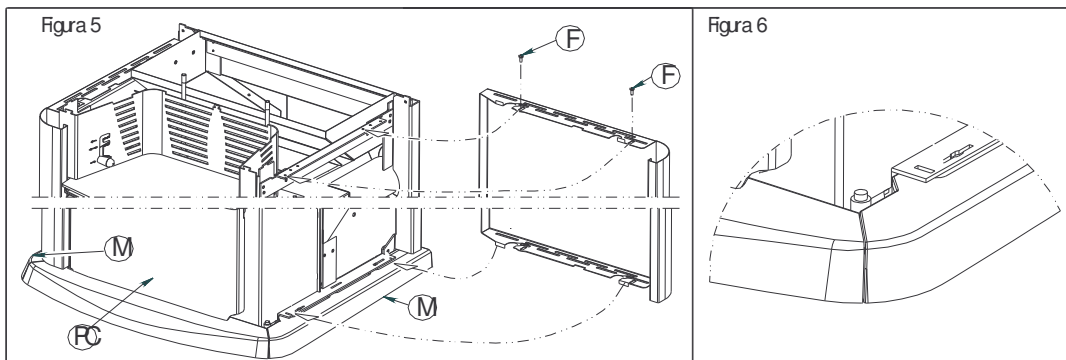
-Do not tighten the screws M3x6 (R) excessively as this could damage the ceramic tiles; this damage is not covered by warranty.



- Adjust the heater mounting feet.
- Position the kickplates (**M**) (figure 5 and figure 6 ), then check that the door (**PC**) can be removed and if necessary raise the mounting feet, mount the side with ceramic tiles by firstly inserting the bottom folds on the base and fastening with the 2 screws (**F**) at the top.
- Next mount the cover (**E**) and secure it with the screw (**C**) (figure 1) .
- Lastly position the ceramic top.

It is important to take special care when mounting the ceramic side panels (**CP**) and the sheet metal support (**SA**) in order to prevent irregular bending which could cause breakages not covered by warranty.

Small imperfections on the surfaces of the ceramics such as: dimples, shivering and slight colour variations are normal characteristics of handcrafted ceramics which make each piece unique. Remove any stickers from the brass bushes to facilitate screwing in the screws M3.

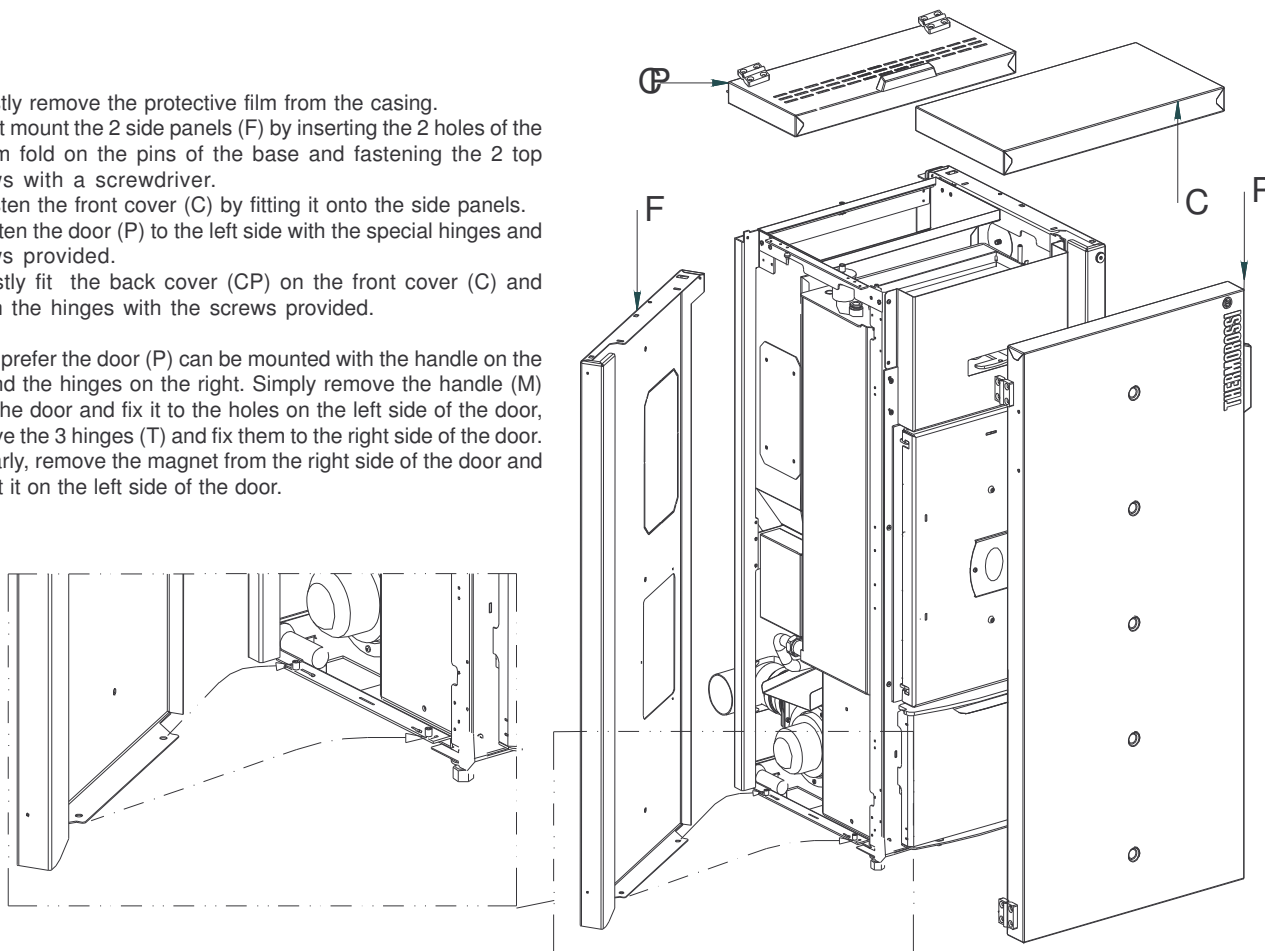


#### 4.2.3 HOW TO MOUNT THE COMPACT BOILER CASING

After positioning and levelling the boiler by raising or lowering the mounting feet, connecting it to the heating system and to the electrical system (see par.4.4 , 4.5 , 4.6 , 4.7 , 4.8 , 4.9 , 4.10, 4.11 ), proceed to mount the casing as illustrated below:

- Firstly remove the protective film from the casing.
- Next mount the 2 side panels (F) by inserting the 2 holes of the bottom fold on the pins of the base and fastening the 2 top screws with a screwdriver.
- Fasten the front cover (C) by fitting it onto the side panels.
- Fasten the door (P) to the left side with the special hinges and screws provided.
- Lastly fit the back cover (CP) on the front cover (C) and fasten the hinges with the screws provided.

If you prefer the door (P) can be mounted with the handle on the left and the hinges on the right. Simply remove the handle (M) from the door and fix it to the holes on the left side of the door, remove the 3 hinges (T) and fix them to the right side of the door. Similarly, remove the magnet from the right side of the door and mount it on the left side of the door.

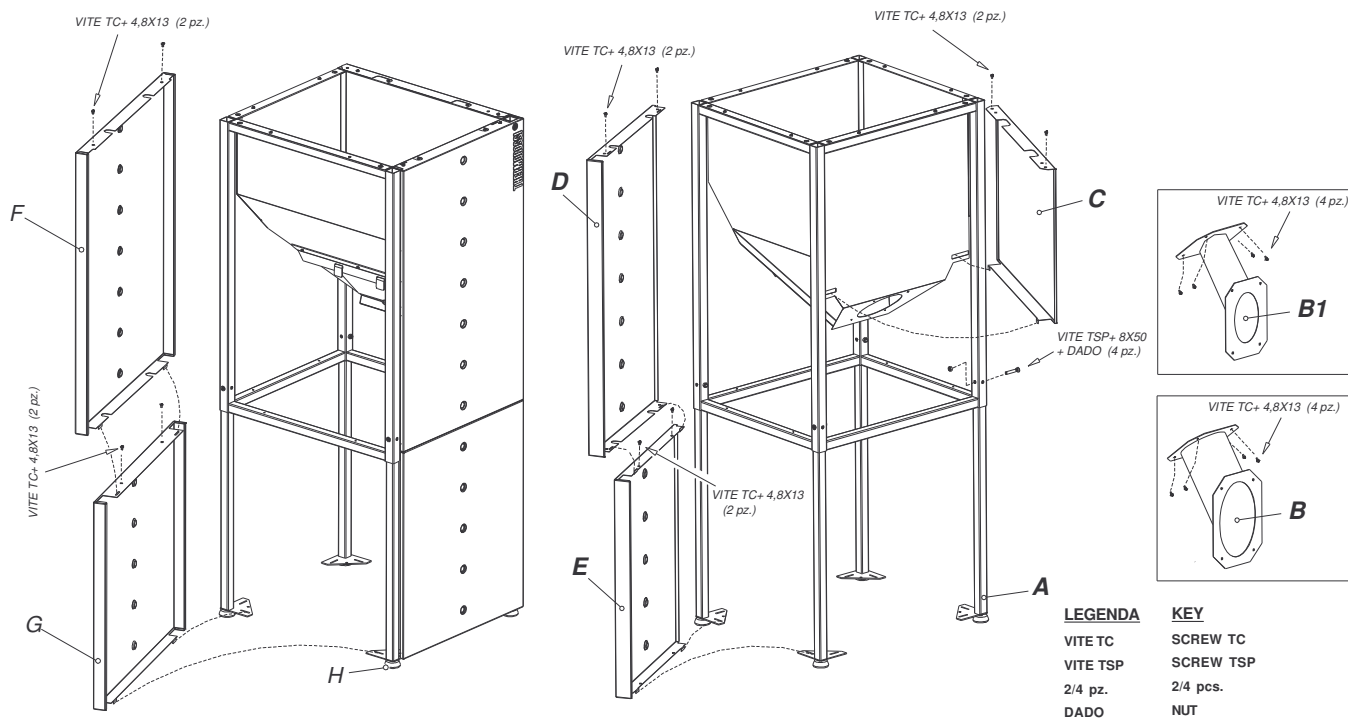


#### 4.2.4 HOW TO INSTALL ADDITIONAL HOPPER (OPTIONAL) WITH COMPACT BOILER.

To increase the boiler's autonomy of operation it is possible to install one or two additional hoppers at the sides of the boiler. Each additional hopper can hold up to 100 Kg of pellets.

Firstly unpack the hopper then assemble it as follows:

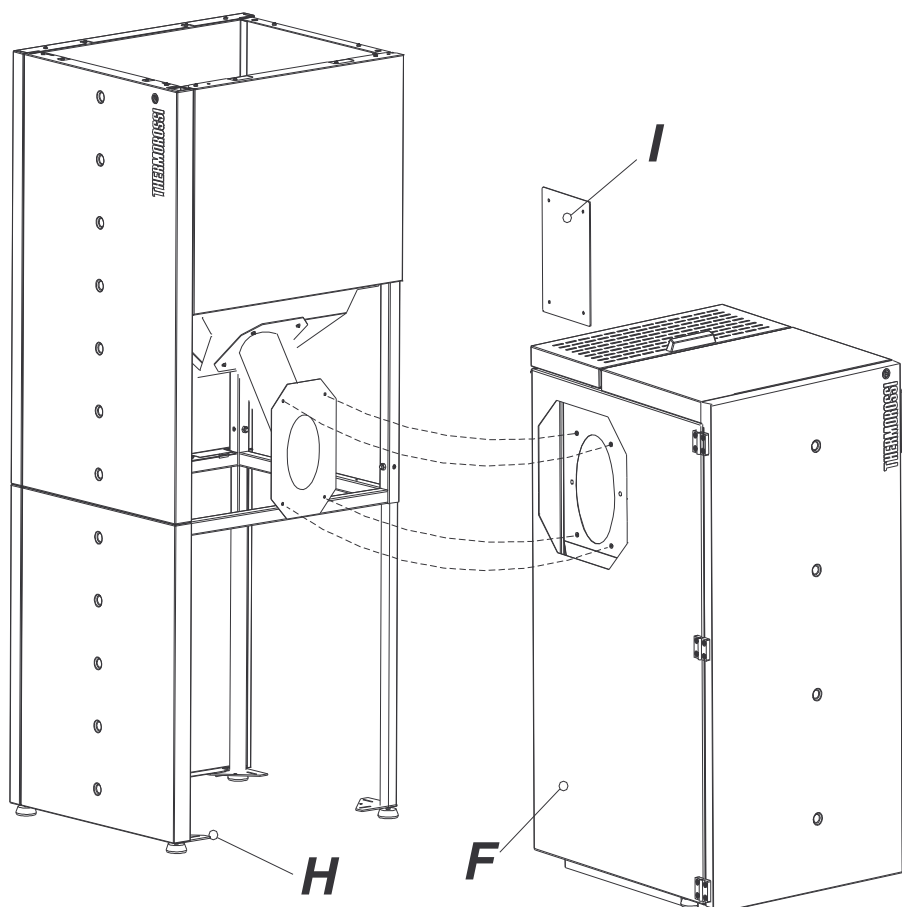
- Fasten the 4 telescopic legs (A) using the screws provided (screws TSP+ 8x50).
- Fasten the pellet chute (attention: use chute B1) to the hopper using the screws provided (screws TC+4.8x13).
- Mount the panel (C) by inserting the bottom folds on the holes of the hopper, and then securing it using the screws provided (screws TC+4.8x13).
- Similarly fasten the panel (E) using the screws provided (screws TC+4.8x13).
- Then mount the panel (D) by lining up the lower rectangular holes on the panel folds (E) and fastening them using the screws provided (screws TC+4.8x13).
- The panels (D) and (E) can be mounted either to the right or to the left of the pellet chute (B1); if mounted on the right the additional hopper will have to be mounted to the right of the boiler. .
- Fix the panel (G) by firstly inserting the holes on the bottom on the mounting feet then securing them with the screws provided (screws TC+4.8x13).
- Next mount the panel (F) by inserting the bottom folds on the holes in the panel (G).



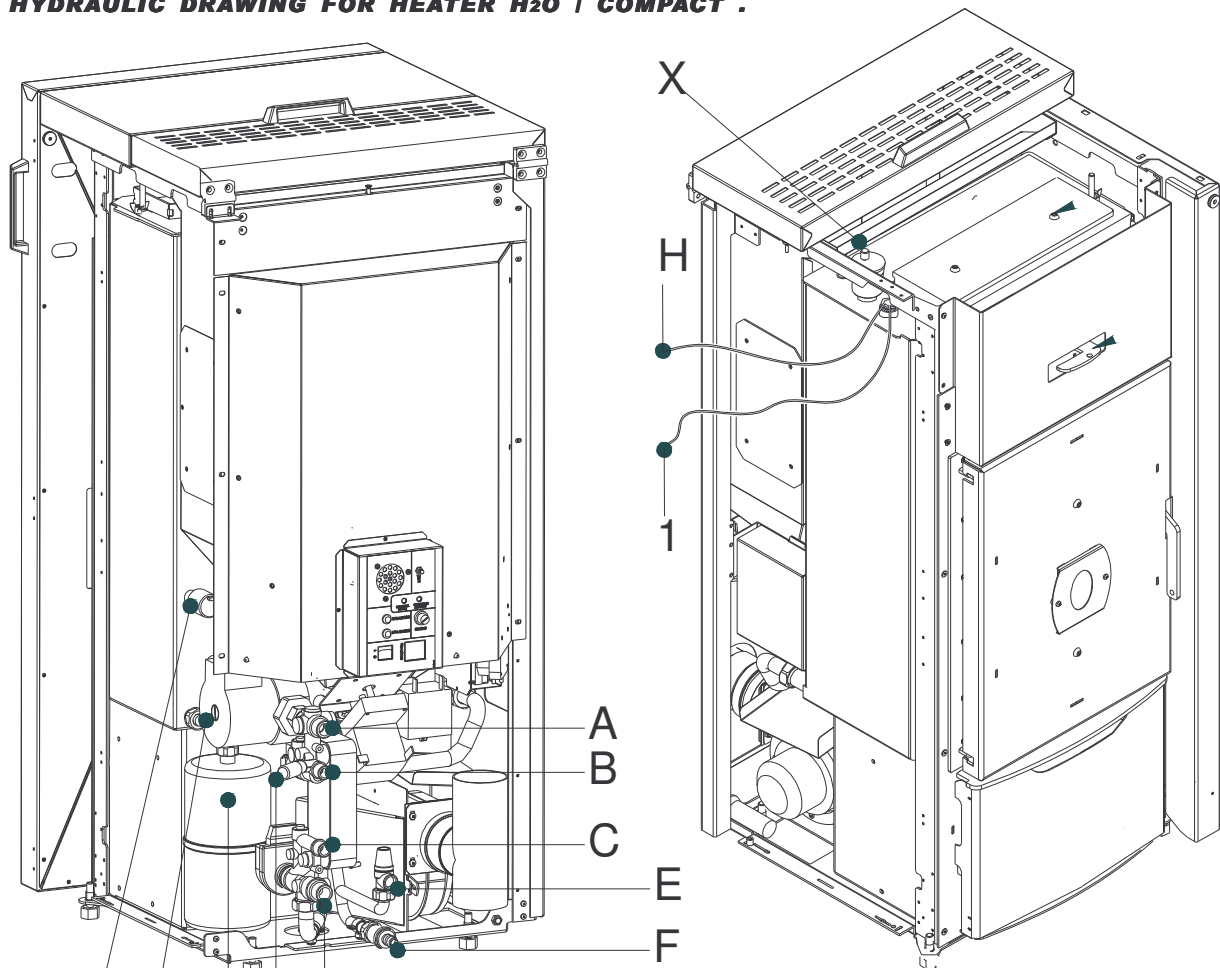
#### 4.2.5 HOW TO FASTEN THE ADDITIONAL HOPPER (OPTIONAL) TO COMPACT BOILER.

After having mounted the additional hopper fasten the hopper to the boiler:

- Remove the octagonal portion of precut sheet metal from the side (F) of the boiler
- Remove the cap (I) from the hopper by undoing the screws fastened to it.
- Move the additional tank up against the boiler by adjusting the mounting feet (H) until the assembly is satisfactory.
- Fasten the assembly using the screws previously removed from the cap (I).



**4.3 HYDRAULIC DRAWING FOR HEATER H<sub>2</sub>O | COMPACT .**

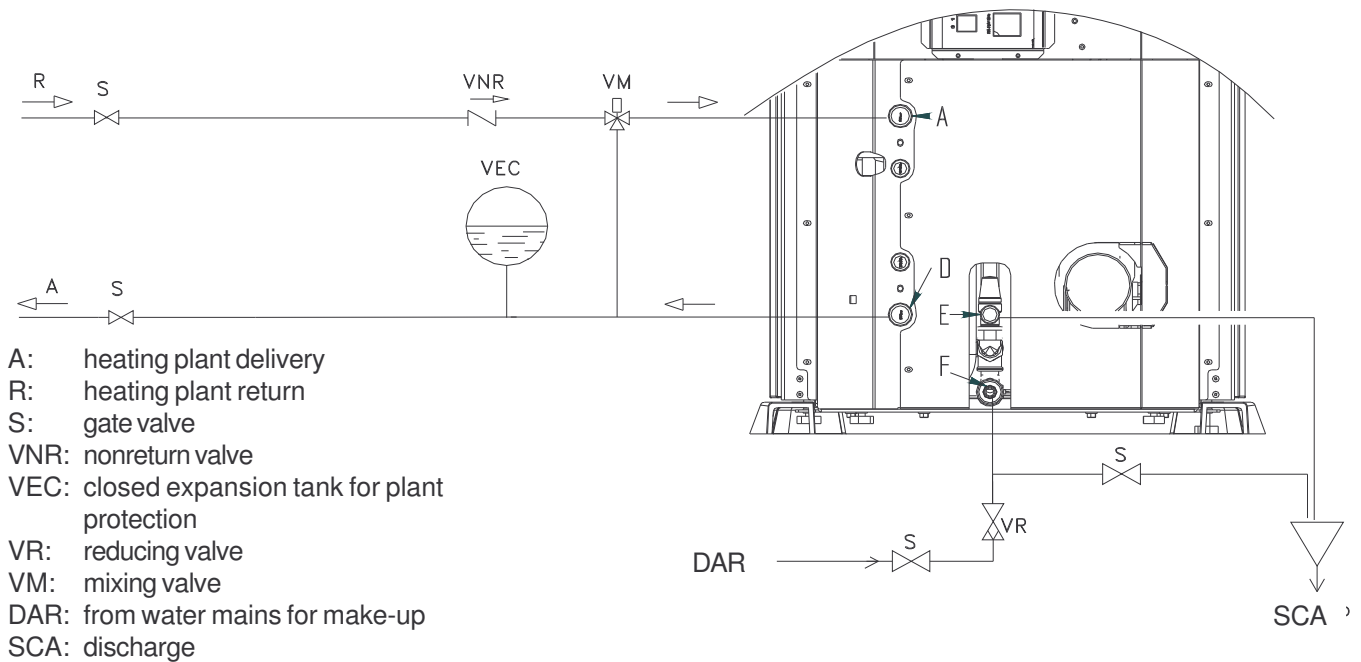


- M P O N D**
- A :** Heating plant return
  - B :** Domestic cold water inlet 1/2". (only with Domestic Water Kit - optional -)
  - C :** Domestic hot water outlet 1/2". (only with Domestic Water Kit - optional -)
  - D :** Heating plant delivery tube 3/4".
  - E :** Safety valve 3 bar 1/2".
  - F :** Boiler Inlet - Outlet 3/4". (only with Domestic Water Kit - optional -)
  - H :** Safety thermostat 100° C.
  - M :** Pressure transducer.
  - N :** System Inlet
  - O :** Expansion tank 2.5 l for protection of the boiler only .
  - P :** System circulating pump.
  - X :** Automatic relief valve.
  - 1 :** Boiler sensor

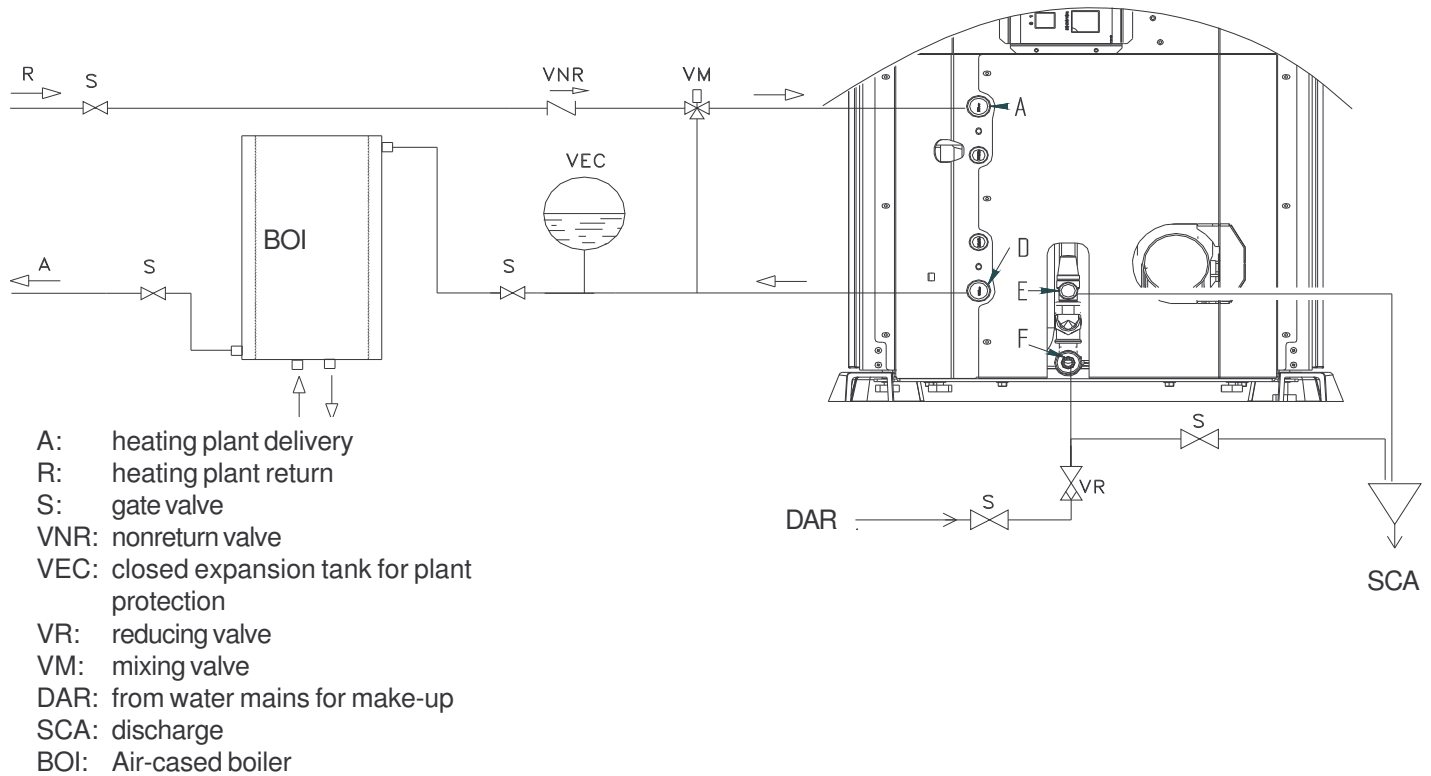


**CAUTION:** FOR THE DELIVERY, RETURN, MAKE-UP AND DISCHARGE CONNECTIONS USE FLEXIBLE TUBES HAVING A LENGTH OF AT LEAST 70 CM TO FACILITATE MOVING THE APPLIANCE FOR MAINTENANCE.  
**CAUTION:** A CONNECTION MUST BE MADE BETWEEN THE SAFETY VALVE AND THE OUTLET TO PREVENT DAMAGING MATERIALS SURROUNDING THE BOILER/HEATER WHEN THE VALVE IS ACTIVATED.  
 (SEE PAR. 4.4 - 4.5 - 4.6 - 4.7 - 4.8 - 4.9 ).

**4.4 EXAMPLE OF HYDRAULIC DRAWING FOR H<sub>2</sub>O | COMPACT ONLY HEATING .**

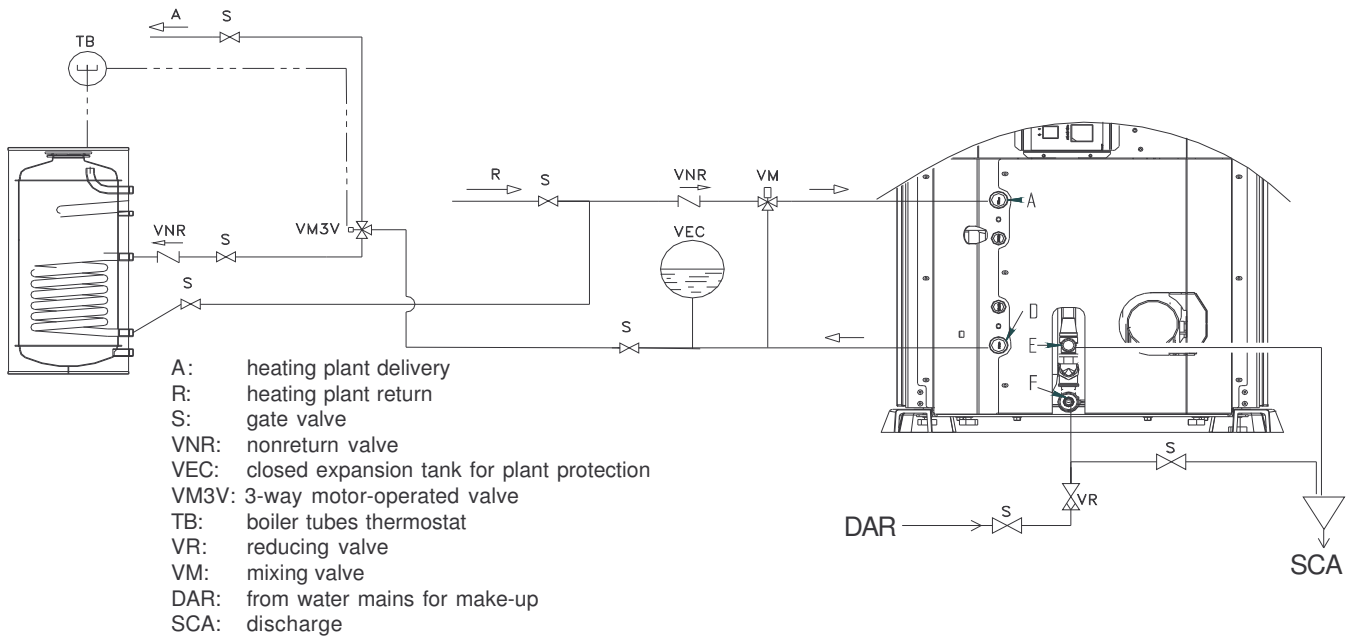


**4.5 EXAMPLE OF HYDRAULIC DRAWING FOR H<sub>2</sub>O | COMPACT WITH AIRCASED BOILER TUBES**



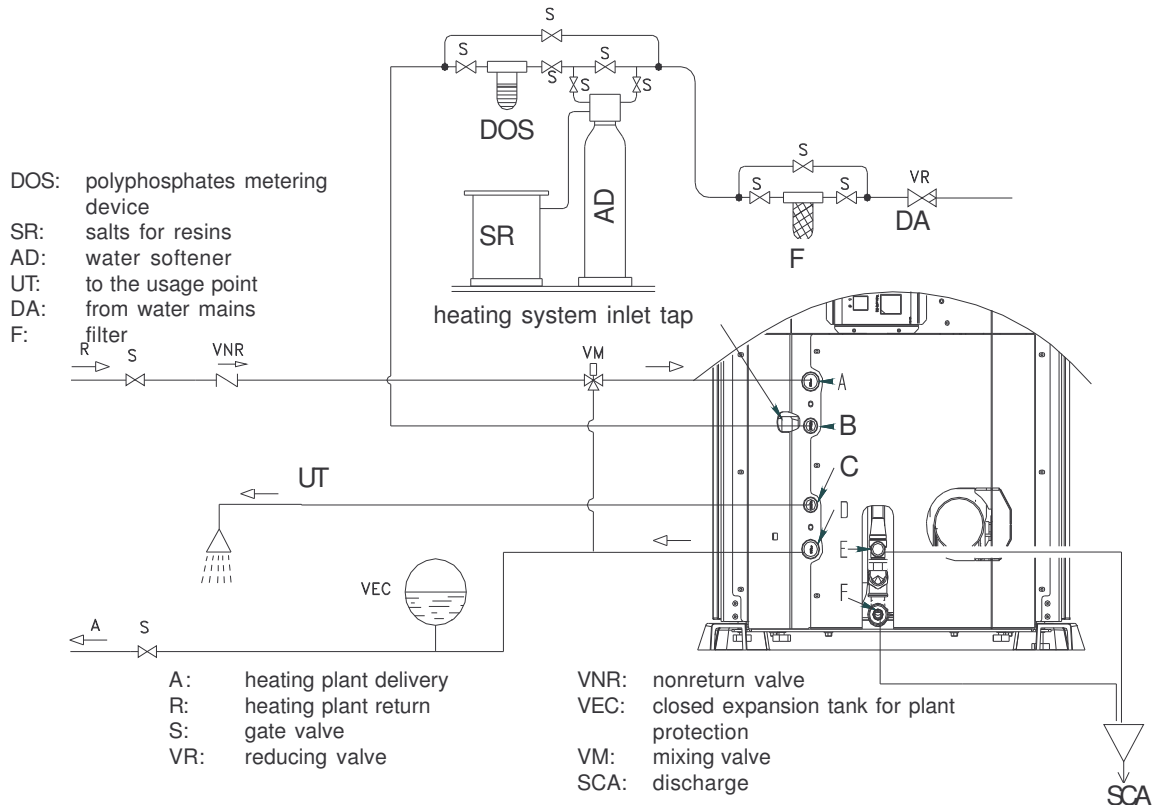
CAUTION : The water temperature in the boiler tubes in this case is not adjustable and depends on the systems's delivery temperature, that is the max temperature t setting.

**4.6 EXAMPLE OF HYDRAULIC DRAWING FOR H<sub>2</sub>O HEATER / COMPACT WITH BOILER COILS**



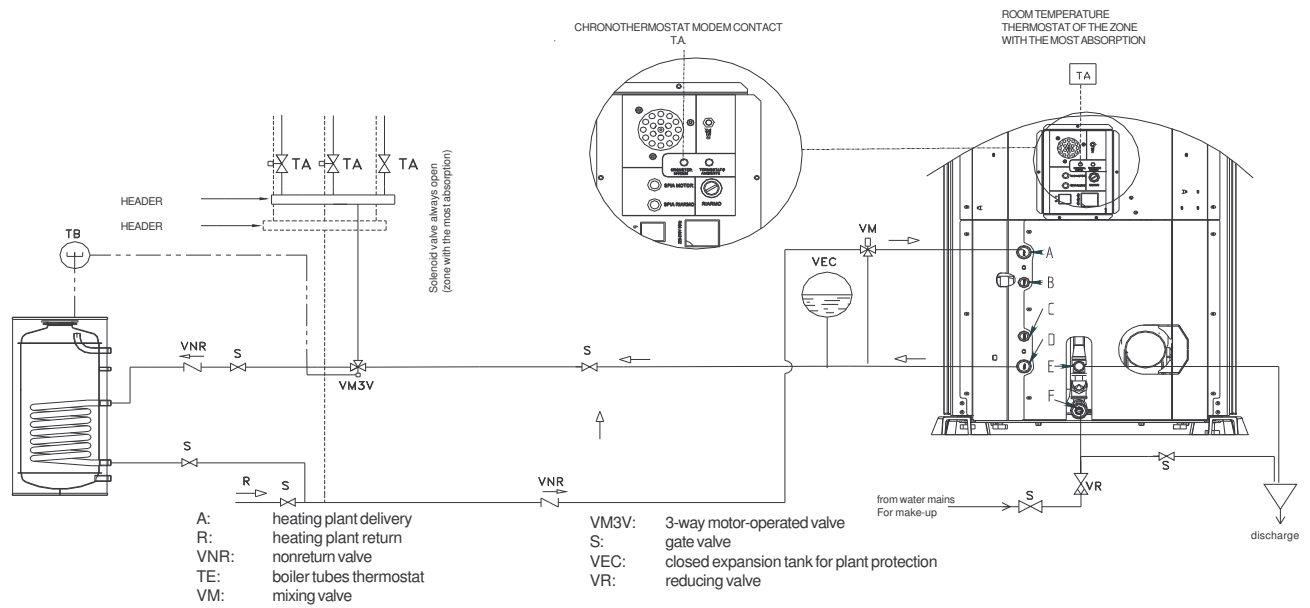
In order to guarantee correct absorption of the heat produced by the generator is it advisable to use a boiler tube with volume and heat exchange capacity suitable for the power of the generator.

**4.7 EXAMPLE OF HYDRAULIC DRAWING FOR H<sub>2</sub>O ICOMPACT WITH “KIT FOR THE PRODUCTION OF INSTANT DOMESTIC HOT WATER “ (OPTIONAL).**



The diverting valve switches the water to the plate heat exchanger of the “Domestic hot water production kit “ when the flow switch detects the passage of water towards the usage point and when the boiler temperature exceeds 61° C. When there is a request for hot water the boiler operates at maximum steady state power level. See also paragraph 5.1.8.

#### 4.8 EXAMPLE OF HYDRAULIC DRAWING FOR H2O ICOMPACT WITH HEADER SYSTEM AND ZONE VALVES.

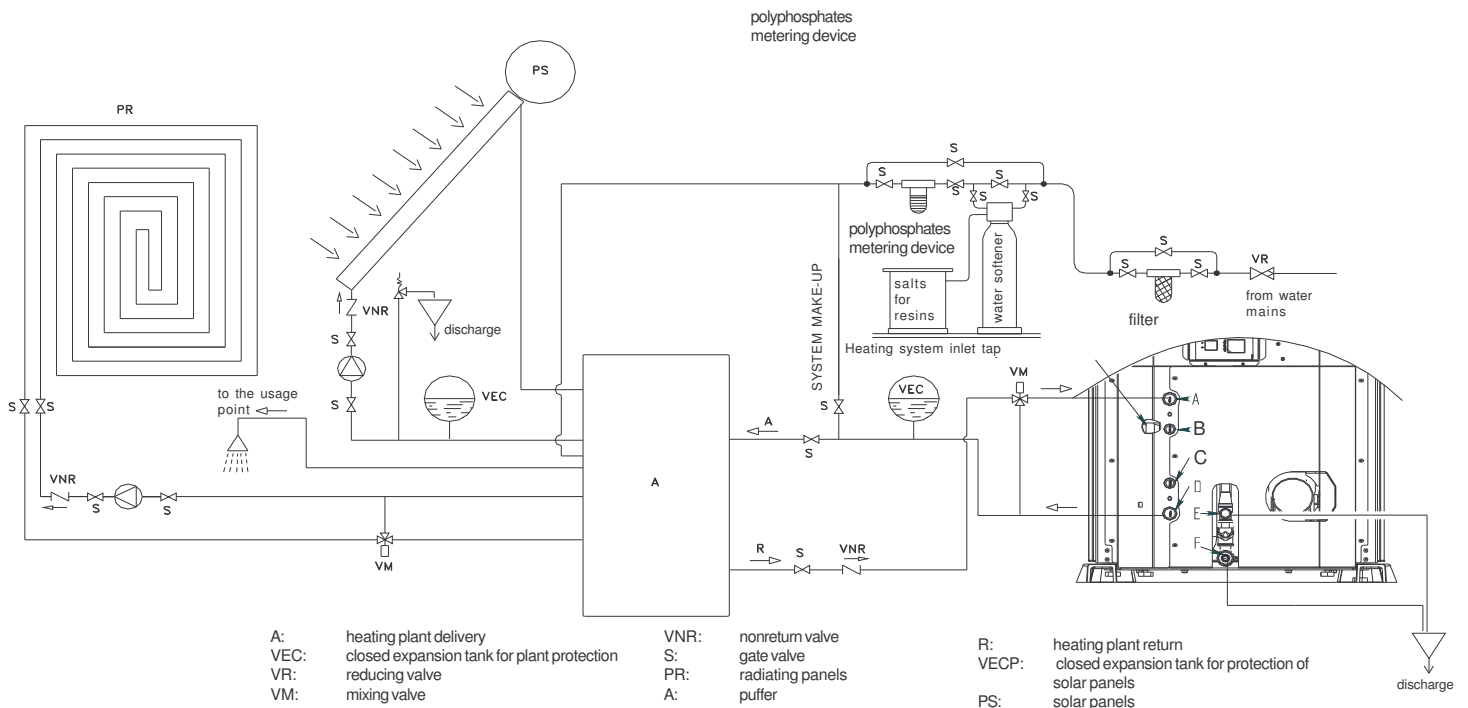


Remarks: Heat must be dissipated; the solenoid valve must be open for the following reasons:

- to prevent the generator from continually switching on and off due to inevitable slight heat loss at the header
- to prevent the generator from raising the water temperature by a few degrees each time it is switched off then back on until it shuts down due to exceeding the maximum threshold temperature of 98°C (manually reset thermostat).

We recommend, in order to adjust the room temperature to the temperature at which the valve opened, connecting the room temperature thermostat to the CHRONOTHERMOSTAT - MODEM terminal (clean contact COM-NO see par. 6) that permits the machine to be shut off by an external contact and consequently also started up again by an external contact. Using this system the generator will only be activated if there is a real request for heat from the zone and the continual switching off due to temporary lowering of temperature due to the tubing and possibly the header will be avoided. More than one parallel room temperature thermostats can be connected to the chronothermostat modem terminal. In this way the zone that closes the contact (request for heat) before the others automatically makes the generator start up.

#### 4.9 EXAMPLE OF HYDRAULIC DRAWING FOR H2O ICOMPACT WITH PUFFER SYSTEM WITH SOLAR PANELS AND HEATING WITH RADIATING PANELS.





## 4.10 INSTRUCTIONS FOR EXECUTING HYDRAULIC SYSTEM.

### Instructions for closed system

Systems with closed expansion tank, must be provided with :

- a) safety valve
- b) thermal relief valve or thermal safety outlet (positive safety )
- c) closed expansion tank
- d) circulating pump activation thermostat (included in the panel of the central heating cooker).
- e) acoustic alarm activation thermostat
- f) acoustic alarm
- g) pressure gauge thermometer
- h) circulation system

**These devices must be installed on the generator's delivery tube, within not more than 1 metre from the machine.**

**The safety valve** must be connected to the highest part of the heat generator or the outlet tube, next to the generator. The length of the section of tube between the generator fitting and the safety valve must not be more than one metre. There must be no cocks that can cut off the tube connecting the safety valve to the heat generator and the section must not be less than the inlet section of the safety valve or the sum of the inlet sections if there are several valves that head a single tube, at any point whatsoever along its length. The outlet tube of the safety valve must be installed in such a way that it does not prevent the normal functioning of the valves and will not cause injury to persons ; the outlet must be located as close as possible to the safety valve and be accessible and visible. The diameter of the outlet tube must not in any case be less than the diameter of the safety valve outlet fitting. The outlet fitting diameter is the minimum internal diameter of the valve outlet upstream from any existing internal threading. The valve discharge pressure, equal to the calibration pressure and increased by the overpressure, must not exceed the maximum working pressure of the heat generator. The designer must ensure that the maximum pressure existing at every point of the system does not exceed the maximum working pressure of each of its components. The discharge capacity of the safety valve must be calculated according to the prescriptions set out in UNI 10412/2. The diameter of the minimum net cross section of the valve inlet must in any case be not less than 15 mm. **The maximum working pressure of the closed expansion tank** must not be less than the calibration pressure of the safety valve, plus the specific overpressure of the valve itself, with any difference in height between the tank and the valve taken into account, and the pressure generated by the functioning of the pump. The capacity of the expansion tank or tanks is evaluated according to the overall capacity of the plant as per the design. The closed expansion tanks must comply with current regulations governing pressure appliances in terms of design, construction, conformity assessment and utilization.



**The rated volume of the closed expansion tank must be sized in relation to the expansion volume of the water in the system.** The heat generator must be connected directly to the plant's expansion tank or group of expansion tanks with a tube having an internal diameter no less than 18 mm. The connecting tube, which may consist of plant parts, must not be fitted with any shutoff cocks or have reduced sections. One three-way on-off valve may be installed for connecting the tank to the atmosphere for maintenance operations. This device must be protected against accidental manoeuvres. The connecting tube must be fitted in such a way that no scaling or deposit points are created. If several heat generators power a single system or secondary circuit, each heat generator must be connected directly to the system's expansion tank or group of expansion tanks sized overall for the total volume of water contained in the same plant or independent circuit. When it is necessary to separate the single heat generator from the expansion tank or group of expansion tanks, then a three-way tap having the same characteristics as those listed above must be installed on the tube that connects the generator to the expansion tank, in order to ensure that the generator is in any case connected either with the expansion tank or with the atmosphere in every position. The expansion tanks, connecting tubes, the vent and smoke exhaust pipes must be protected against freezing in areas where this could occur. The solution adopted for this purpose must be described in the project. Given that the circulation of the water in the heat generator must be maintained in any system and in all operating conditions within the limits prescribed by the supplier of the generator, in closed expansion tank heating systems, in which the circulation of the water is assured by means of an electric pump, the pump stopping must not cause, in any operating condition, the temperature to rise above the limit prescribed in these instructions.

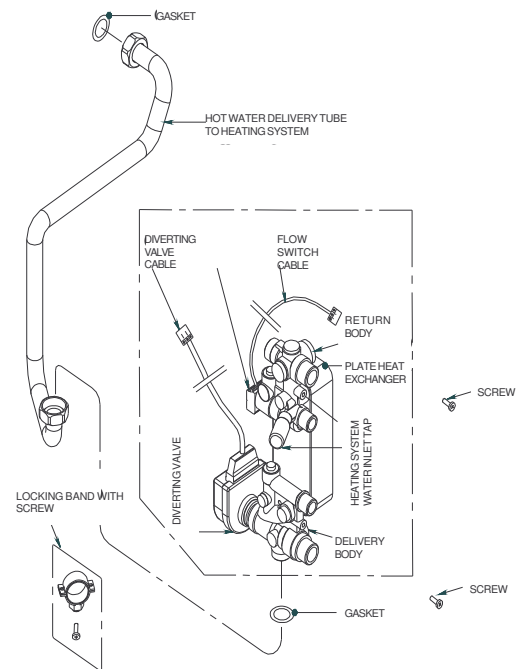
**The previous chapter does not replace UNI 10412/2 to which it makes reference . The qualified installer must in any case be fully aware of this standard and its amending versions.**

#### 4.11 MOUNTING THE KIT FOR THE PRODUCTION OF INSTANT DOMESTIC HOT WATER (OPTIONAL) .

The heater H<sub>2</sub>O / boiler Compact can be supplied with a "Kit for the production of instant domestic hot water" (see par. 4.7) . When a tap is turned on, the "flow switch" commands the "diverting valve" to convey the hot water from the boiler to the plate heat exchanger .

The temperature of the domestic hot water obtained in this way is roughly 10° - 15° lower than the temperature in the boiler as indicated on the handheld radio control and in any case within the limits indicated in par. 2. **Hot water is not available when the boiler is switched off. When the boiler switched on, upon a request for hot water, it operates at the maximum steady state level of combustion: the diverting valve only conveys the water to the plate heat exchanger if the temperature in the boiler is above 61°.** The manufacturer recommends installing a water softener to ensure an optimal life of the plate heat exchanger (see par. 4.7). It is also advisable to regularly clean and check the plate heat exchanger. The Kit for the production of instant domestic hot water comprises:

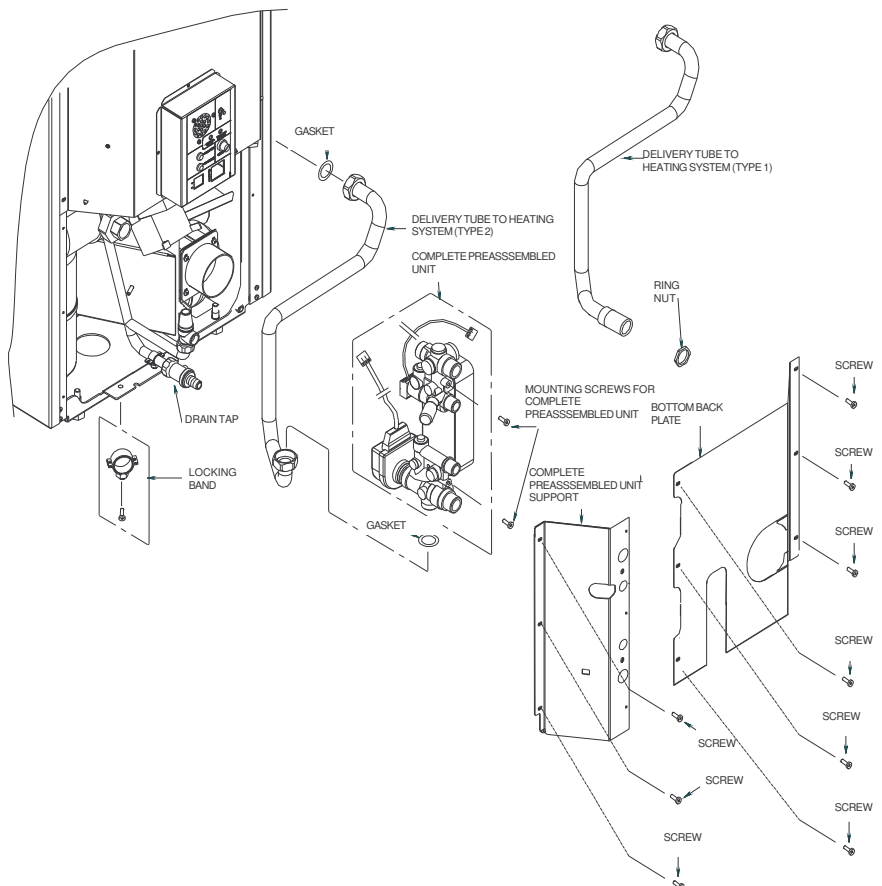
- 2 Gaskets.
- 1 Hot water delivery tube to the heating system.
- 1 Flow switch cable.
- 1 Diverting valve cable.
- 1 Complete Unit, preassembled, consisting of a plate heat exchanger, heating system inlet tap, diverting valve, flow switch, brass delivery body, brass return body.
- 2 screws for fastening the unit.
- 1 complete locking band .



##### 4.11.1 HYDRAULIC INSTALLATION FOR "KIT FOR THE PRODUCTION OF INSTANT DOMESTIC HOT WATER "

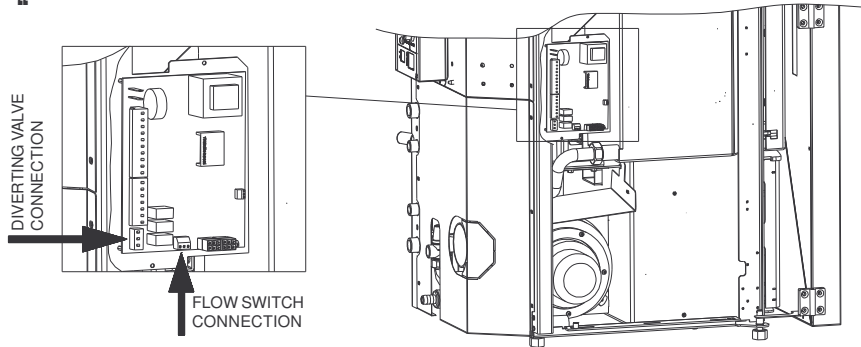
Installation of the "Kit for the production of instant domestic hot water" must be made as indicated below:

- Empty the boiler completely by acting on the "drain tap" and empty or shut off the system.
- Remove the ring nut from the "delivery tube to heating system (type 1)".
- Remove, by acting on the indicated screws, the "bottom back plate" and the "complete preassembled unit support".
- Next remove the "delivery tube to heating system (type 1)" fastened to the boiler.
- Fasten the "locking band" as indicated.
- Fasten the "delivery tube to heating system (type 2)" with the corresponding gasket.
- Connect the "complete preassembled unit" to the "delivery tube to heating system" and to the circulating pump of the boiler with the corresponding gaskets.
- Next fasten the "preassembled unit support" with the corresponding screws.
- Firmly fasten the "complete preassembled unit" with the "screws for mounting the complete preassembled unit" to the "complete preassembled unit support".
- Lastly fasten the "bottom back plate".
- Then make the hydraulic connections between the heater / boiler and the system and fill up with water.



**CAUTION: CHECK CAREFULLY THAT THE "HEATING SYSTEM WATER INLET TAP" IS CLOSED BEFORE MAKING THE HYDRAULIC CONNECTIONS BETWEEN THE BOILER AND SYSTEM.**

#### 4.11.2 ELECTRICAL INSTALLATION FOR “ KIT FOR THE PRODUCTION OF INSTANT DOMESTIC HOT WATER “



CAUTION: CONNECT, AS INDICATED, THE CONNECTORS SUPPLIED WITH THE KIT FOR THE PRODUCTION OF INSTANT DOMESTIC HOT WATER. THIS OPERATION MUST BE CARRIED OUT WITH THE “ MAIN SWITCH 0-1 “ INSTALLED AT THE BACK IN POSITION “ 0 “.

### 5 USE OF THE HEATER / BOILER



The appliance, when operating, is hot to the touch and the glass in particular is extremely hot: take care not to touch hot parts.

#### 5.1 HANDHELD RADIO CONTROL

##### 5.1.1 DESCRIPTION OF THE HANDHELD RADIO CONTROL AND THE BACK PANEL FOR HEATER H20 / BOILER COMPACT

###### INTRODUCTION

The handheld radio control is the control instrument for your heater / boiler that will permit you to manage Ecotherm and its functions. The radio control is a user-friendly way of interacting with the main heater settings and, when required, of accessing the various other control commands. In both cases the Manufacturer recommends you read the following pages carefully so that you will know how to make the best use of your appliance. Keep in mind that radio wave transmissions can be affected by the surrounding environment: the presence of thick walls can reduce the transmission that normally extends to 6-7 metres.



The first time you start the insert the radio control must be connected to the power supply by means of the battery charger provided ( charge for at least 12 hours: see para. 7.4), as the rechargeable batteries could be partially or completely flat). The heater / boiler must be energised and the switch turned to position “1”.

##### 5.1.1.1 HANDHELD RADIO CONTROL

A description of the buttons and indicators on the radio control follows:

The handheld radio control consists of a plastic shell on which is installed a backlit LCD display with control buttons, interface card and rechargeable batteries: the backlighting switches off temporarily during use in order to reduce energy consumption which consequently extends the duration of the charge.

The two main control buttons are identified by the fan symbol °C (2) and by the flame symbol (1). The flame button (1) sets the appliance power, and the 5 available power levels are indicated by the progressive lighting of the 5 bars in sequence (7)

It is possible to select AUTOMATIC operating mode by means of the word AUTO (see paragraph 5.1.11.4).

The shutdown cycle appears on the display when all the power bars are off.

The button (2), commands the setting for the temperature of the water in the boiler. The setting range is between 65 °C and 73 °C.

##### 5.1.1.2 BUTTONS AND INDICATORS OF THE HANDHELD RADIO CONTROL

**(1) Insert on/off and flame adjustment button.** When you press this button the appliance (10) switches to ON / RUNNING / STOP / OFF. Press repeatedly to activate up to 5 bars (7) and the AUTO indicator is activated (8 automatic).

RUNNING- phase during which the appliance operates at the power appearing on the display (10).

ON - start up phase: during this phase (lasts approx. 20 minutes ) the appliance is self-adjusted independently from the settings.

STOP - temporary shut down phase : if the cycle is in automatic or manual operating mode the switch-off temperature is 80°C. The restart up phase occurs at 68°C.

OFF - shut down phase. As soon as the OFF symbol appears the smoke suction unit operates for a certain amount of time before placing the heater / boiler in stand-by mode.

**(2) Button for setting water temperature in boiler.** Press this button to set the temperature for the appliance to reach; The setting range is between 65 °C and 73°C. This value is displayed on the readout (10). If you press this button repeatedly the following values appear in sequence on the readout (10): T max 65.....T max 66.....T max 73.....T max 65.

**(3) (4) Auxiliary buttons for room temperature setting**

Press button (3) to lower the temperature. Use button (4) to raise the set temperature level. As will be explained below their operation is ensured whether you select the AUTO cycle or the Manual cycle. The set temperature appears in zone 9 of the display. The room temperature, however, appears in zone 5 of the display.

**(5) “Room temperature detected by the radio control’s temperature sensor” indicator .**

**(6) Circulating pump on indicator ,** this symbol indicates that the system circulating pump is operating. If it is present it indicates that the circulating pump is operating (it is activated when the temperature in the boiler exceeds 61°C), if it is not present then the circulating pump is not operating.

**(7) “Combustion level ” indicator**

**(8) “AUTO”CYCLE ACTIVE indicator**

**(9) “Room temperature setting” indicator :** this is the room temperature that you wish to reach by means of buttons 3 and 4.

**(10) Display zone where the following appear:** operating phases, programming, MENU ...<i>..

**(11) Clock**

**(12) Day of the week**

**(13) Battery charge level**

**(14) “Chronothermostat enabled-disabled” indicator**

**(15) (16) On-off indicators for the programming phase .**

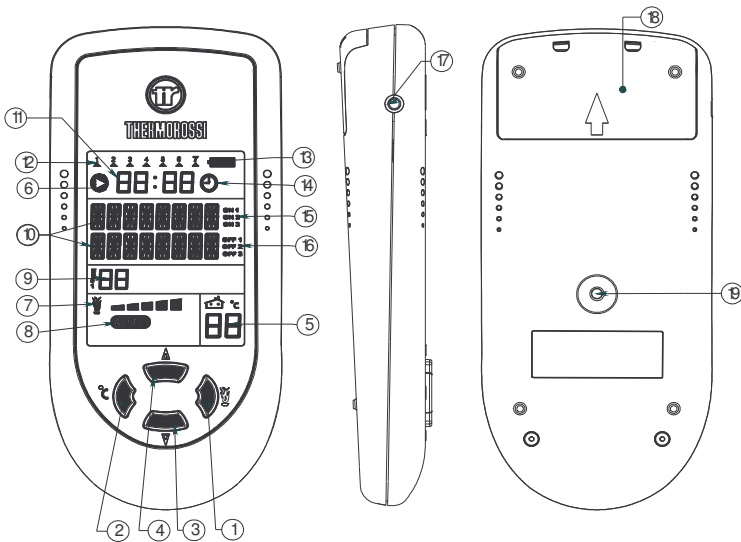
**(17) Battery charger connection.**

**(18) “Code selector ” and “Battery compartment” cover**

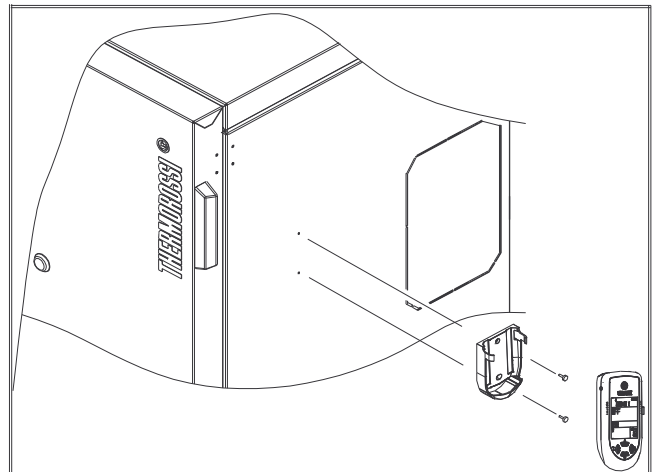
**(19) “MENU” selection button** To access the main menu press the button marked 19. Press button 19 repeatedly to scroll the adjustment, setting and programming windows (see para. 5.1.2 , 5.1.3 , 5.1.4 , 5.1.5 ,5.1.6 , 5.1.7 , 5.1.8, 5.1.9, 5.1.10, 5.1.11, 5.1.12) . This button can also carry out DATA ANALYSIS functions: fundamental control function for updating data.

After having carried out the DATA ANALYSIS all the data will be updated: it is normal for the temperature sensor to detect temperatures which are slightly different to the real ones: variations caused by the environment in which the radio control is positioned. To exit the main menu without having to scroll all the possible adjustments/ functions, simply press button (1) to return to operating status of the heater H20 / boiler Compact.

The handheld radio control can be fastened, by means of the wall mount, to the predrilled holes on the left or right side panel of the Compact 18 (to fasten the radio control to the boiler use 2 screws d.2.9 not supplied, see figure bottom right).



**Mounting the radio control on the casing:**  
The manufacturer recommends disabling the room temperature thermostat on the handheld radio control (see par.5.1.11.3).



### 5.1.1.3 HEATER / BOILER BACK PANEL

**20 Red push button:** press and hold down for approx. 2 seconds to increase the combustion power. One or more acoustic signals correspond to each power step selected:

-1 power bar                    -- 1 acoustic signal  
 -2 power bars                  -- 2 acoustic signals

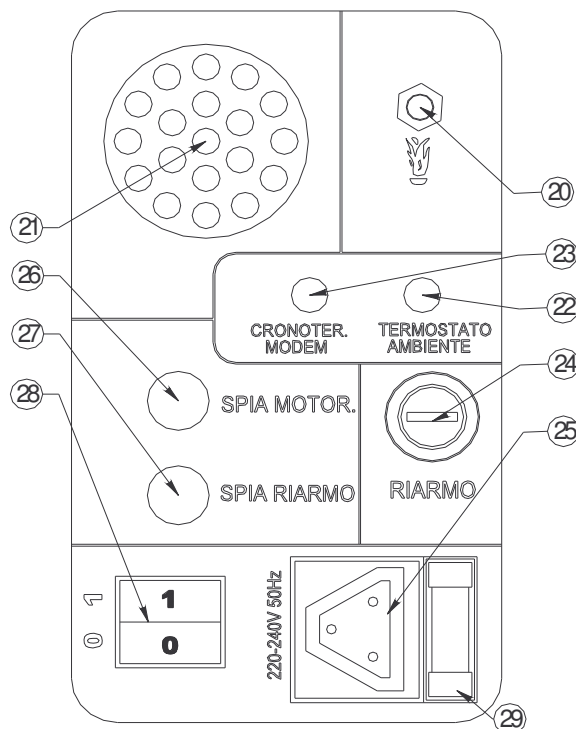
-----  
 -5 power bars                  -- 5 acoustic signals

If you press once again the acoustic signals will not sound: this means that after 5 seconds the heater / boiler will set itself in OFF mode and consequently shut down. It is not possible to select the AUTO cycle. The radio control, several minutes after the last power variation, executes a DATA ANALYSIS then displays the new setting.

**21 Loudspeaker for voice alarms/information:** the heater / boiler gives information on its status and any active alarms through this loudspeaker.

**22 Power outlet for additional room temperature connection.**(see para. 6.1)  
 (additional room temperature thermostat not supplied )

**23 Power outlet for additional chronothermostat connection.**(see para. 6.2)  
 (additional chronothermostat not supplied )



**24 Overtemperature thermostat button cap.**

In the event of overtemperature this safety thermostat stops the loading of pellets. When it is activated LED 27 comes on. To restart the heater you have to wait until the water inside it cools down, then verify the cause for the overheating, remove the cause, unscrew the protective cap and press the button (24).

**25 Electrical power outlet for heater / boiler 220-240V 50Hz.**

**26 Loading motor test LED.** The light must come on when the pellet screw feeder starts.

**27 Reset thermostat tripped indicator light.** This LED comes on when the reset thermostat is activated.

**28 Main switch 0-1**

**29 General fuse 3.15 A.**

### 5.1.1.4 BUTTON 19, MENU AND FUNCTIONS

Button 19 allows you to access a MENU where you can make full use of all the radio control functions. When the button is pressed repeatedly the following words appear in sequence :

- TIME** .. to set the day of the week the hour and minutes.
- CHRONO** .. to set the chronothermostat.
- BAR** .. to view the water pressure in the boiler.
- VOLUME** .. to set the volume level for the vocal alarms.
- LANGUAGE** .. to select the language (Italian, English...)
- SUMMER** .. to operate the boiler in summer mode (only with optional domestic hot water kit, see par.5.1.8).
- LEVEL** .. to vary the rotating speed of the smoke suction unit, the fuel consumption does not change.
- DATA ANALYSIS** updates and exchanges data between the generator and the radio control

To access the functions in each submenu press the left button (2), edit the parameter with buttons (3) and (4), and confirm by pressing button (1).

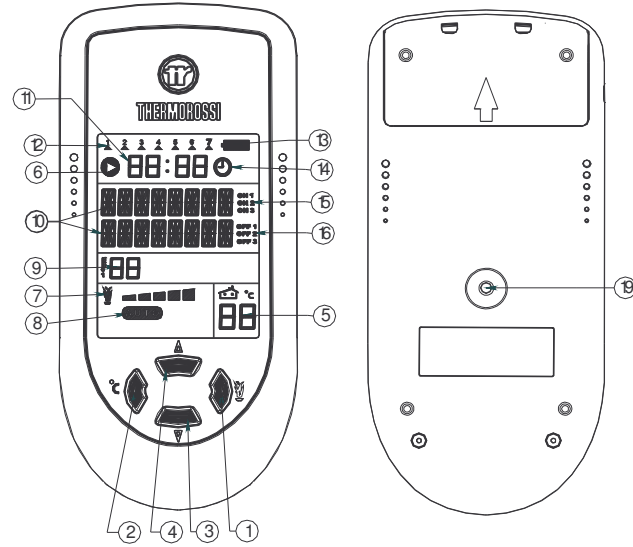
### 5.1.2 DAY AND TIME SETTING

The heater / boiler must be energised and the switch at the back turned to position "1" (see image 5.1.1.3).

To set the clock and the day of the week carry out the procedures described below. Press the button (19) on the back of the radio control until the word **TIME** appears. Press the button (2). The word **DAYS** will appear on the display, and the indicator (12) will start to blink.

Press the button (3) and/or (4) to set the number that corresponds to the current day. The **1** symbol corresponds to Monday, the **2** symbol to Tuesday ....

and the symbol **7** to Sunday. To confirm the selection press the right button (1). Next the word **HOURL** will appear on the display, and the hour indicator (11) will start to blink. Press button (3) and/or (4) to set the current time. To confirm the selection press the button (1). Next the word **MINUTES** will appear on the display and the minute indicator (11) will start to blink. Press buttons (3) and/or (4) to set the current minutes. To confirm the selection press the button (1). The day and time setting is now completed: at this point the heater / boiler operating status will appear on the display.



### 5.1.3 CHRONOTHERMOSTAT: ON/OFF PROGRAMMING.

The heater / boiler must be energised and the switch at the back turned to position "1". The weekly programming can be executed with the help of the handheld radio control. It is possible to set up to 3 on-off cycles for each day from Monday to Sunday.

To access the programming mode press the button (19) on the back of the radio control repeatedly until the word **CRONO** appears. Press button (3) or (4) to enable/disable the program setting (symbol (14) present / absent): this function is useful if you wish to disable the established weekly program setting.

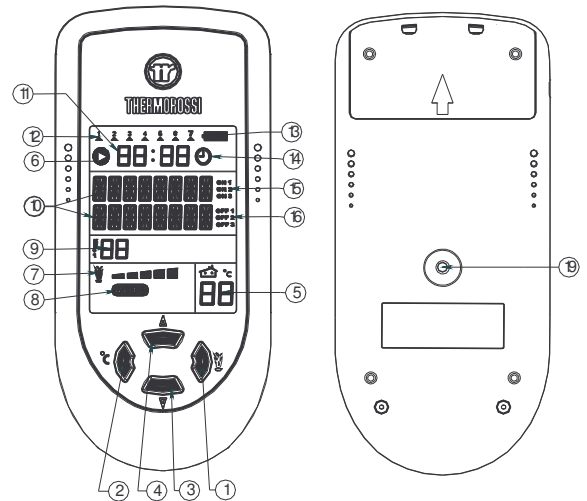
To program the heater / boiler you need to access the chronothermostat function by pressing the button (2): the LED **1** (12) comes on (this indicates that Monday, the first day of the week, is being programmed).

The text **ON1** of the indicator (15) comes on and the word **HOURS** appears on the display.

Press button (3) and/or (4) to enter the hour of the first cycle start time. To confirm the selection press the button (1). The word **MINUTES** will appear on the display. Press button (3) and/or (4) to enter the minutes of the first cycle start time. To confirm the selection press the button (1). Next the text **OFF1** (indicator (16)) will appear on the display. Proceed using buttons (3), (4) and (1) as indicated above to set **HOURS** and **MINUTES** for the cycle end time. At this point the first on-off cycle for Monday has been entered. It is then possible to set the second on-off cycle for Monday (indicated by the texts **ON2** and **OFF2**) and the third on-off cycle for Monday (indicated by the texts **ON3** and **OFF3**). Now program the on-off cycles for the remaining days of the week up to and including Sunday. When the programming mode

is active (symbol (14) present) the minimum operating value at cycle on (combustion power - ventilation speed) is the same minimum operating value that was set before the last cycle off.

If the second on-off cycle is not required simply set the ON2 time as 00:00 and the OFF2 time as 00:00.



In the event of a programmed cycle on always ensure that the brazier is clean: failure to keep the brazier clean can reduce the life of the spark plug.

#### 5.1.4 VOICE INFORMATION VOLUME CONTROL

*The heater / boiler must be energised and the switch at the back turned to position "1".*

Your heater / boiler informs you on its operating status and on any problems that could arise by means of voice messages. Select the volume level for the voice messages by carrying out the following procedure. When the insert is in the **POWER OFF**, **POWER ON** or **RUNNING** status simply press the button (19) until the word **VOLUME** appears on the display (10). Press button (2) and the word **SELECT** appears on the display: the introductory music plays. Press button (4) repeatedly and the + symbol appears (to increase the volume). Press button (3) repeatedly and the - symbol appears (to lower the volume). To confirm the volume selection press the button (1). The heater then returns to its previous **POWER ON** or **RUNNING** or **POWER OFF** status.

#### 5.1.5 LANGUAGE SELECTION

*The heater / boiler must be energised and the switch at the back turned to position "1".*

Press the MENU' button (19) repeatedly until the word **ITALIAN** appears on the display (10). To change the display language proceed as follows: Press button (2) and the **SELECT ITALIAN** text appears on the display. Press the button (4) repeatedly to select German, English, French, Spanish. Once you have selected the desired language press button (1): The handheld radio control carries out a data analysis, that is, an update of the new language.

#### 5.1.6 OPERATING LEVEL SETTING

*The heater / boiler must be energised and the switch at the back turned to position "1".*

Your appliance is delivered with an excellent program installed that favours combustion yield; the program is called **Level 1**. If you are using pellets with a higher than normal incidence of residues after combustion in the brazier, alternative levels may be selected:

**Level 2** : this program increases the smoke suction unit speed acceleration.

**Level 0** : when using lightly-compressed pellets and/or flue outlets with very high vacuum, over 2 mm water column.

**The pellet consumption value is not affected by the operating level settings.**

Select the required level by acting as follows:

Press the (19) button on the back of the radio control repeatedly until the text indicating the preset heater / boiler level appears on the display (**Level 1** or **Level 2**). Press the button (2) and the word **SELECT** appears on the display (10). To change the operating level hold down button (3) and press button (4). By holding down button (3) and pressing button (4) repeatedly the level changes in the following sequence: **Level 2**... ..**Level 1**.



The level selection can be made with the heater / boiler **OFF** or **ON**. If the change is made while the insert is running the difference in the flame will be apparent. It is mandatory to pay particular care when selecting the most appropriate operating cycle for your installation. After the selection of the operating cycle a thorough cleaning of the brazier is mandatory.

#### 5.1.7 WATER PRESSURE IN THE GENERATOR

The water pressure in the generator can be viewed on the radio control, see par. 5.2.

### 5.1.8 DOMESTIC HOT WATER PRODUCTION (SUMMER CYCLE).

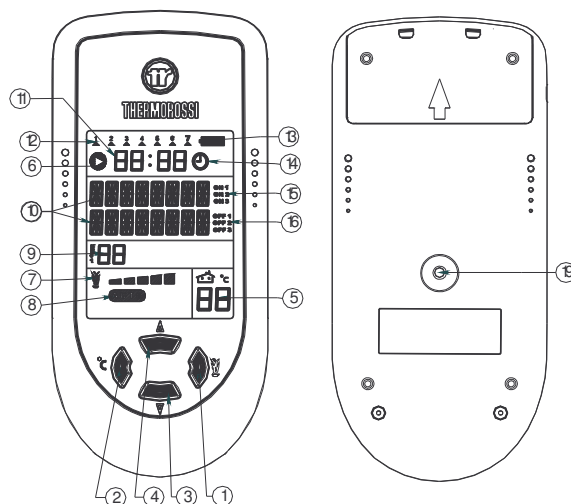
With this function it is possible, independently from all other factors, switch the diverting valve of the Domestic hot water kit (optional) permanently to the plate heat exchanger (see par. 4.10): in the SUMMER CYCLE the heat produced by the heater / boiler is used exclusively to produce domestic hot water. The boiler pump is activated when the temperature exceeds 61 °C.

To view and either enable or disable the SUMMER CYCLE function press button (19) at the back of the radio control until the text "SUMMER OFF" appears. Press button (3) and/or button (4) to enable or disable the SUMMER CYCLE. To quit this menu press button (19) repeatedly until the text DATA ANALYSIS appears.

One of the following will appear on the display:

**SUMMER ON** —> *the heat is transmitted exclusively to the plate heat exchanger.*

**SUMMER OFF** —> *the heat is transmitted to the plant generator delivery with priority to the plate heat exchanger (optional) when present.*



### 5.1.9 DATA ANALYSIS

The radio control and the heater / boiler interact systematically and regularly : this interchange of data is referred to as **DATA ANALYSIS**. This is a function that is regularly activated by the radio control to update values such as : *temperatures, operating modes, activation of the circulating pump.....etc.* The updating takes place regularly and often for the most important values such as *water temperature in the generator*, whereas for less important values such as *room temperature* it takes place every few minutes.

It may be that the values appearing on the display do not correspond to the state of the heater / boiler: this situation is completely normal and it is corrected as soon as the **DATA ANALYSIS** function is activated.

Press button (19) repeatedly to execute the DATA ANALYSIS. The updating process involves all the variables if button (19), when the words DATA ANALYSIS appear, is held down for at least one second. If the DATA ANALYSIS is not successful, repeat the operation by holding down button (19) for a few seconds and then releasing it. The **DATA ANALYSIS** process can take from a minimum of 10 seconds to a maximum of 40 seconds.

The duration is variable because it depends on the type of disturbances (radio wave frequencies, electromagnetic disturbances, etc...) present in the environment.

If the electromagnetic disturbances present in the environment exceed those permitted by EC type approval standards and legislation for appliances the manufacturer declines all responsibility for any appliance that does not perform to optimal levels.

Examples of activation of the DATA ANALYSIS function:

-If the combustion power variation occurs through the manual control (par. 5.1.1.3) installed at the back of the heater / boiler, a few minutes later the radio control executes a DATA ANALYSIS and displays the new settings.

-If the data transmission codes need to be changed (par. 10) to make the variations effective it is mandatory to execute a DATA ANALYSIS by holding down button (19) for at least one second.



## 5.1.10 TRANSMISSION - RECEPTION ALARMS

If a problem arises with the communication between the handheld radio control and the heater / boiler the following messages could appear on the display:

- OFF** : the radio control is located at a distance that is greater than the radio control's radius of action. It is quite possible and normal for external causes to make this word appear momentarily while the heater is operating.
- OFF** : the heater / boiler has shut down and does not appear to be powered by electricity.

## 5.1.11 INFORMATION ABOUT HOW THE GENERATOR WORKS

### 5.1.11.1 DESCRIPTION OF THE OPERATING FUNCTIONS

The main operating phases are the following:

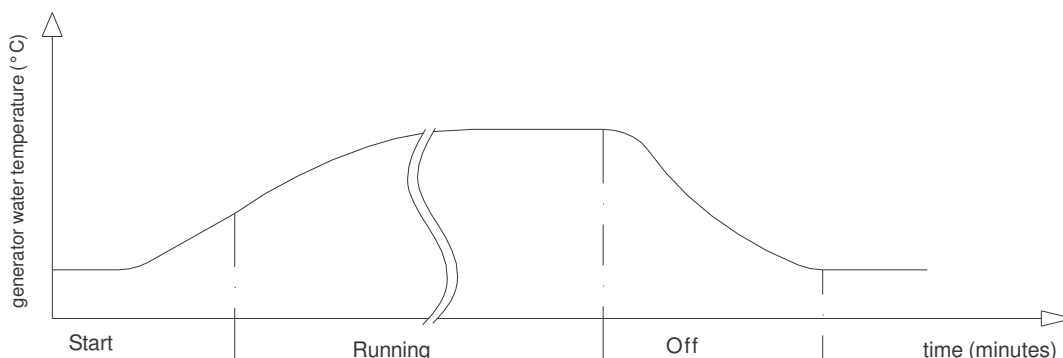
- ON** —> identifies the start up phase  
**RUNNING** —> identifies the operating phase  
**OFF** —> identifies the shut down phase  
**STOP** —> identifies the phase in which the boiler / heater exceeds a temperature of 80°C.

**ON** : has a duration of approx. 20 minutes, during this time the generator is programmed to light the flame. For this reason the generator will not accept power variations in the firebox. The possibility of the generator not executing the lighting correctly can be attributed to the following factors: cleanliness of the generator, smoke exhaust particularly cold, sudden surges and drops in the electric power supply, fuel is moist or does not comply with the specifications (see par. 3.2) .

**RUNNING**: the duration depends on the ability of the system to receive heat. The generator's operating status is indicated on the radio control.

**OFF** : has a duration of approx. 20 minutes, in this phase the generator is switched off until a new "on" phase is initiated. The aim is to make the pellet embers in the burner die out completely.  
The temperature of the generator will drop until the system is completely cooled down.

**STOP** : If the temperature of the generator exceeds the 80°C threshold, the momentary shut off, identified as STOP, is activated. In this situation the generator is reactivated by means of a new start up phase, as soon as the temperature drops below 68°C.  
The STOP phase indicates that in time the generator will execute a new start up phase: the generator shut down is only temporary.



### 5.1.11.2 SETTING RANGE

The heat transfer takes place according to the principle of anticondensation, that is by activating the pump at a threshold that, in this specific case, is 61°C. Activating the pump at a lower threshold would lead to the formation of acid condensation which is harmful for the life of the generator. The lowest temperature value in the setting range is 61°C.

The maximum temperature (Tmax) possible for selection is 73°C; once this value is exceeded the machine runs at the minimum steady state level. The STOP phase trips if the 80°C limit is exceeded.

The maximum temperature (Tmax) can be selected by means of the °C button (2)(SEE PAR. 5.1.1.2) on the radio control. This temperature can be set between 65°C and 73°C. Every time you press the button you will notice the text Tmax appear on the screen followed by the value in figures.

### 5.1.11.3 ROOM TEMPERATURE THERMOSTAT

One of the numerous functions of the radio control is the possibility of detecting the temperature in the zone where it is located. We recommend using the wall mount to prevent accidental falls and subsequent damage not covered by warranty.

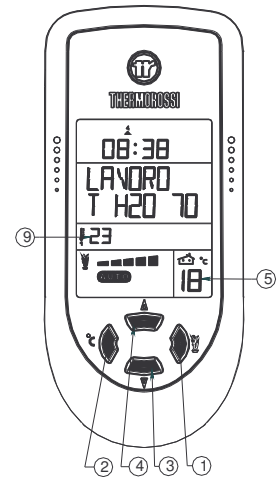
The thermostat has the following important function :

It interrupts operation of the circulating pump and sets the heater / boiler at the minimum steady state power level once the preset temperature has been reached. The temperature setting must take into account the influence of the lighting of the display backlighting that temporarily offsets the real temperature reading by a few degrees; the correct reading value will appear approximately 40 minutes after the display switches off. The temperature value detected by the room temperature thermostat compared to the real value can vary by  $\pm 1.5\text{ }^{\circ}\text{C}$ . Even the placement of the thermostat in a particular position can influence the real reading of the temperature.

The temperature readout is indicated by the symbol (5) ; the required room temperature can be adjusted by means of buttons (3) and (4). During the start up phase the temperature value is not updated. The temperature value transmitted to the heater / boiler does not change instantly when there are sudden changes in the room temperature, but it is updated regularly every 4 minutes or so.

When the room temperature reaches the value set in the thermostat the appliance runs at the minimum power level (indicated by the appearance of a black bar). The power can, however, be increased and switched off by simply disabling the thermostat. If the temperature limit of  $80\text{ }^{\circ}\text{C}$  is reached in the generator in minimum position, the STOP function is activated to avoid excessive overheating and system malfunctions.

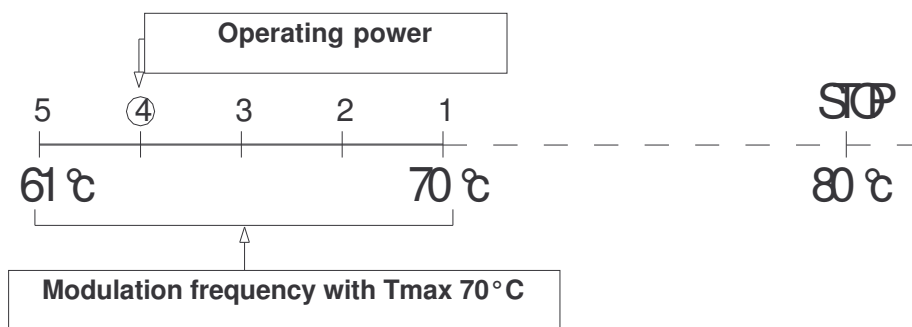
**Important :** The room temperature thermostat can be disabled. To disable the thermostat simply press on the setting button until OFF appears and replaces the set temperature. **Important :** If you have a Compact generator we recommend positioning the radio control near the generator. In this case detecting the temperature in the heat control unit is unnecessary, consequently the thermostat should be disabled.

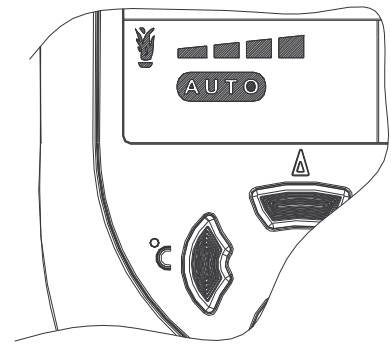
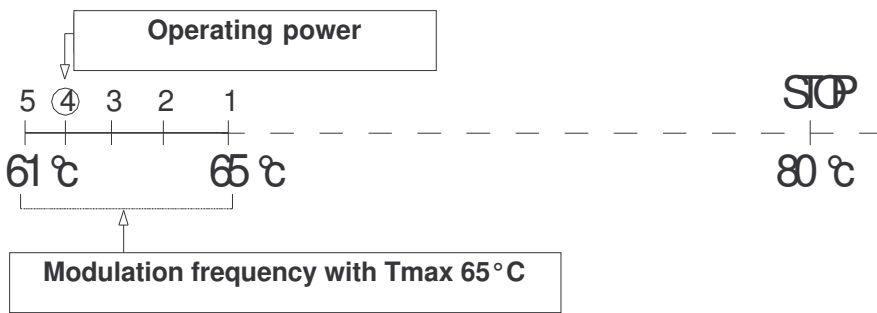


### 5.1.11.4 AUTOMATIC OPERATING CYCLE

In the automatic operating cycle the generator expresses its maximum flexibility of operation while optimising fuel consumption. To activate the AUTO cycle, select the power bars until the word AUTO appears. During the **AUTO** cycle the heater / boiler self-regulates the combustion according to the water temperature in the boiler set with button (2) . If for example the temperature ( T<sub>max</sub> ) is set at  $70\text{ }^{\circ}\text{C}$  the five speed levels will be automatically distributed between  $61\text{ }^{\circ}\text{C}$  and  $70\text{ }^{\circ}\text{C}$  so that with a temperature set at  $70\text{ }^{\circ}\text{C}$  the heater / boiler is at its minimum power level. The minimum level can be adjusted by means of button (2). If the t<sub>max</sub> value is increased or reduced by means of button (2) all the power levels will be redistributed along the full temperature range. We therefore recommend finding the best T<sub>max</sub> value in order to optimise the full potential of the produced heat.

If for example the T<sub>max</sub> is set at a high temperature, let's say  $73\text{ }^{\circ}\text{C}$ , the appliance will attempt to reach that level as quickly as possible by modulating the power as it approaches the set temperature. It is not necessary to set high t<sub>max</sub> temperatures when the ambient conditions do not require them. Time and experience in using the appliance will give you the possibility of determining which are the most appropriate SET POINTS for your needs. If the combustion power is not absorbed by the system above a temperature of  $80\text{ }^{\circ}\text{C}$  the appliance will temporarily shut down and the word STOP will appear in the display. Reactivation will occur automatically when the temperature drops to  $68\text{ }^{\circ}\text{C}$ .

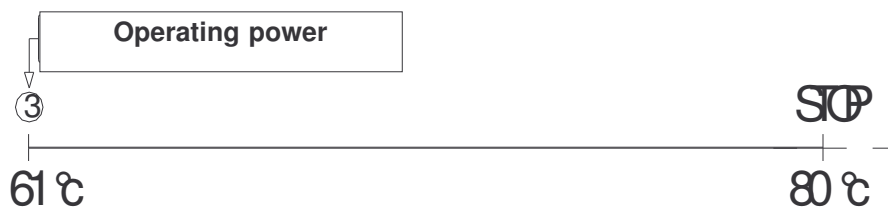




### 5.1.11.5 MANUAL OPERATING CYCLE

The manual cycle is indicated on the display by the power bars. The power expressed in this cycle remains always constant independently from the power absorbed by the system. As always, the system's circulating pump is activated at the anticondensation temperature, that is above 61° C.

In this case as well, a T max temperature can be set, above which the heater / boiler will operate at the minimum steady state power level. If an excessive power level is set for the absorption of the system above the temperature of 80° C the heater / boiler will temporarily shut off and the word STOP will appear on the display (10). Reactivation will occur automatically when the temperature drops to 68° C.



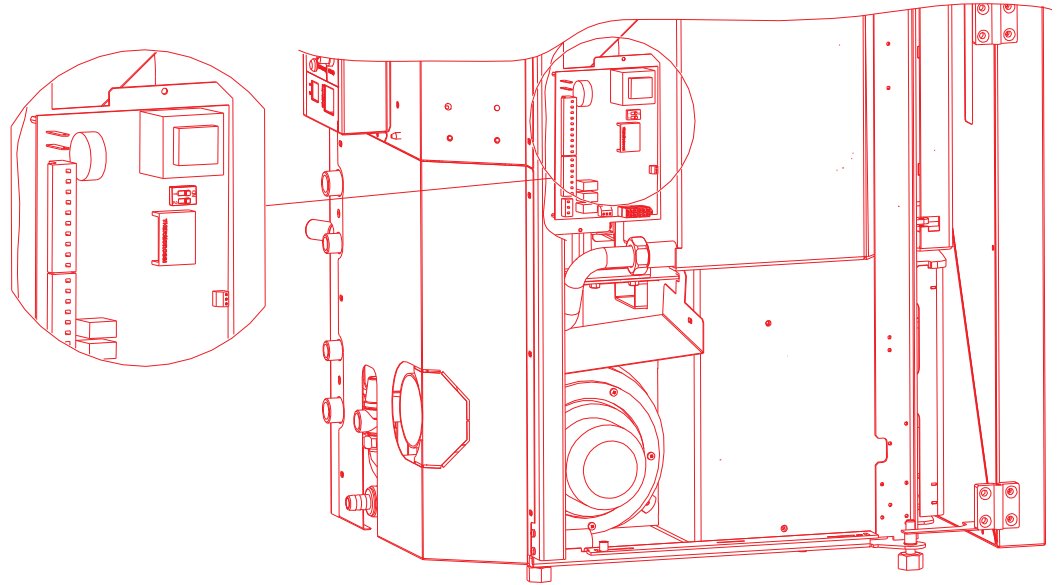
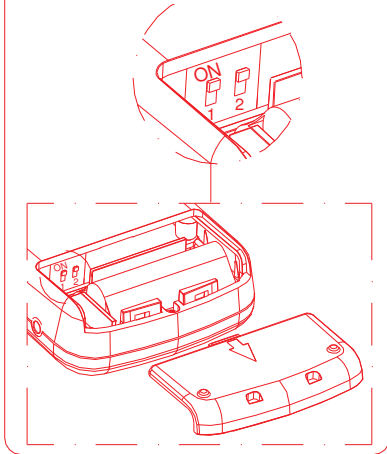
The ROOM TEMPERATURE THERMOSTAT function can also be enabled/disabled in the manual operating cycle.  
See Para. 5.1.11.3.

### 5.1.12 TRANSMISSION CODES SETTING

If several heaters / boilers are installed in close locations it may be necessary to set different transmission codes. The change of code must be made both on the motherboard inserted in the heater / boiler and in the handheld radio control. To access the board in the heater remove the left side panel as indicated in par. 4.2 and in the boiler remove the side cover. Next remove the board cover by loosening the two screws as indicated in the figure on the next page.

The codes must be identical, and for this purpose you could use the numbers marked on the microswitches as reference. Once the new code has been set, execute a forced **DATA UPDATE** by repeatedly pressing the button (19) located on the back of the radio control until the **DATA ANALYSIS** text appears: once the text appears hold down the button (19) for 5 seconds then release it. This procedure executes a complete resetting of the transmission codes.

**CODE SELECTOR FOR  
HANDHELD RADIO  
CONTROL CONTROLLED BY  
RADIO WAVES**



**5.1.13 CARE AND MAINTENANCE OF THE RADIO CONTROL**

The radio control has been designed and produced to the strictest standards and must be handled with great care. If you observe the guidelines set out below, the radio control will provide a long trouble-free performance:

- Protect the radio control against humidity! Precipitation, humidity and liquids corrode the electronic circuits. If the radio control is wet, disconnect it immediately from a power source, remove the battery, open it and allow it to dry at room temperature.
  - Do not use or store the radio control in dusty or dirty environments. The dust/dirt could damage the movable parts of the radio control.
  - Do not store the radio control in very hot environments. High temperatures could shorten the life of the electronic devices, damage the batteries and deform or even melt plastic parts. -Do not store the radio control in cold environments. When it heats up (when it returns to normal operating temperature), humidity could form inside it and damage the electronic circuits.
  - Do not drop the radio control, do not hit or bump it and do not shake it. Actions such as these could damage the internal circuits of the device.
  - Do not use corrosive chemical substances, caustic solutions or detergents to clean the radio control.
- All the above guidelines apply equally to the radio control, the battery, the battery charger, and all the accessories.

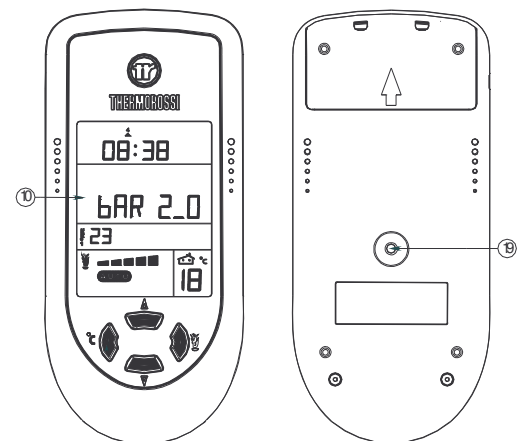


While the handheld radio control is being charged it is quite normal for haphazard segments to appear on the display(see par. 7.4) ; once the radio control is disconnected and after execution of the data analysis the segments disappear.

**5.2 BOILER WATER PRESSURE CONTROL**

The appliance is equipped with a pressure transducer that allows you to check the water content level and pressure in the hydraulic circuit. To view the pressure of the water in the boiler press the button (19) repeatedly until the word BAR appears on the display: after a few moments the value of the pressure appears on the display expressed in bars (see figure on the right).

If the pressure in the circuit drops to values that are too low caused for example by the loss of fluid through tubes or other areas, the pressure transducer detects a pressure that is too low and communicates the fact by means of the vocal alarm “**Insufficient water pressure**”. In this case the appliance stops feeding pellets and the smoke exhaust operates for a few minutes to discharge any combustion products. The alarm resets automatically if the pressure returns to a value above 0.3 bar. The recommended pressure inside the boiler must be 0.8-1 bar. The pressure level must remain below 3 bar because above this limit a safety valve calibrated at 3 bar trips and discharges the water under pressure (see hydraulic installation diagram).




**CAUTION:** a connection must be made between the safety valve and the outlet to prevent damaging materials surrounding the boiler/heater when the valve is activated ( see para. 4.4 , 4.5 , 4.6 , 4.7 , 4.8 , 4.9 ).

### 5.3 SWITCHING ON THE HEATER H2O / BOILER COMPACT



Before using the heater / boiler check that all the movable parts are in place; also remove any labels and stickers from the glass to avoid having permanent traces remain on the surfaces. Verify that the electric and hydraulic connections have been made perfectly. Check also (during all the operating phases) that the firebox door and the ash pans are always firmly closed.

Then carry out the following operations:

- Check that the hydraulic system has been correctly executed and has an adequate closed expansion tank to guarantee maximum safety. The expansion must be calculated as specified in UNI 10412/2. Any damage to the plant and/or appliance will not be covered by warranty. **The presence of the expansion tank in the heater / boiler guarantees protection against thermal expansion only and exclusively of the heater / boiler.**
- Power up the appliance and turn the switch installed at the back of the heater / boiler to position "1" (= ON). Make sure that the batteries of the handheld radio control are charged (the symbol  indicates that the batteries are charged). If the batteries are flat charge them using the battery charger provided for 12 hours.
- Fill the system using the inlet tap (see par. 4.3 , 4.4 , 4.5 , 4.6 , 4.7 , 4.8 , 4.9 , 4.10, 4.11).
- Do not overdo the pressure in the appliance during the make-up phase : max pressure 1 bar. The reading of the pressure is executed as explained in para. 5.2.
- The water fill phase must be simultaneous with the air purge. The purge operation is carried out using a screwdriver or a punch on the purge valve (to accelerate the system filling times)( see par. 4.3 ).
- Connect the smoke exhaust to the appliance : we recommend against using aluminium tubes and we recommend always using sealing gaskets. Further information is given in paragraph 8 of this use and maintenance booklet.
- Load the pellets into the hopper .
- Press the button **(1)** to begin the start up phase and the word **ON** will appear on the display. Press the button **(1)** repeatedly to set the appliance in **AUTO** or manual operating mode. The mode will be activated at the end of the start up phase. Press button **(2)** to adjust the water temperature in the boiler that you wish to reach (see par. 5.1). During the 20 minutes of the start up phase any set thermal power level is ignored to deal with correct fill up and suction values preset by the Manufacturer. The electric heater will begin to heat up and a few minutes after the start of operation the first pellet feed will begin. This occurs because the screw feeder has to fill up because it is completely empty. The first time the heater / boiler is started up the start up phase will have to be carried out twice for this very reason. Before beginning the second start up phase empty and vacuum the brazier.
- Once again check the pressure inside the appliance and if necessary purge any existing air bubbles from the valve provided for this purpose.



CAUTION : The start up phase (word **ON** appearing on the display) takes approx. 20 minutes during which the heater / boiler ignores any commands transmitted to it. After this time has elapsed the word **RUNNING** appears on the display. When the machine is in the running phase the combustion can be adjusted manually or in **AUTO** mode.



CAUTION : The circulator pump begins operating as soon as the temperature in the boiler reaches 61°C.  
CAUTION : If the appliance does not start up correctly check that the brazier and electric heater are clean. It is extremely important to ensure that the tube lodging of the electric heater is clean; there must be no deposits or dust. The operation must be carried out with a good vacuum cleaner.

### 5.4 ADJUSTING THE COMBUSTION OF THE HEATER H2O / BOILER COMPACT

The thermal value is adjusted through 2 buttons (1) and (2) described in para. 5.1.

5.4.1 COMBUSTION ADJUSTMENT IN MANUAL MODE (see para. 5.1.11.5).

5.4.2 COMBUSTION ADJUSTMENT IN AUTOMATIC MODE (see para. 5.1.11.4).



CAUTION : The manufacturer denies all responsibility for the life of the electrical heater if subjected to excessive start ups. It is advisable, therefore, to set the correct power level to avoid this danger.

### 5.5 SHUTTING OFF THE HEATER H2O / BOILER COMPACT

To shut off the heater / boiler simply zero the power bars on the display.

DO NOT shut off the heater by disconnecting the generator from the electric power outlet. This operation could generate smoke that may not be evacuated due to the construction characteristics of your system's smoke discharge tube and chimney.

The shut down time for the smoke exhaust is roughly 25 minutes.

## 5.6 SETTING THE ROOM TEMPERATURE THERMOSTAT H2O / COMPACT

For the management of the thermostat see para. 5.1.11.3.

## 6 ADDITIONAL ROOM TEMPERATURE THERMOSTAT / ADDITIONAL CHRONOTHERMOSTAT (not supplied)

The handheld radio control ensures that your heater / boiler is provided with all the required programming and temperature adjustment functions:

Two connectors are located on the back of the heater / boiler near the electric power socket.

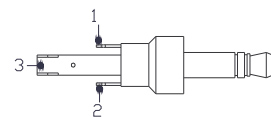
They refer to two operating modes:

→ With the room temperature thermostat.

→ With the chronothermostat or modem.

Procure a jack where the 2 wires are to be welded as illustrated in the diagram:

**Use only contacts 1 and 2, do not use contact 3.**



Contacts 1-2 are defined as "CLEAN" contacts and they must never be fed with 220 V. If the board is energised with 220V or with voltages exceeding 6 V the control board will be permanently damaged and will not be covered by the GUARANTEE.

### 6.1 OPERATING WITH THE ADDITIONAL ROOM TEMPERATURE THERMOSTAT (NOT SUPPLIED )

It is possible to install an additional room temperature thermostat by connecting it to the back of the heater / boiler, by inserting a jack in the socket marked "THERMOSTAT" (see drw. para. 5.1.1.3). This is a stereo jack, it is not supplied with the heater / boiler but is readily available in electrical or stereophonic equipment stores. It has a clean contact, that is a low voltage contact. The operating principle is as follows:

-When the environment reaches the set temperature the thermostat closes the contact and the heater / boiler runs at the minimum combustion power: the situation is described by the appearance of the 1st power bar on the display. Simultaneously, the circulator pump is shut off and a few minutes later the symbol disappears from the display on the radio control.

-When the room temperature drops the thermostat opens the contact and the heater / boiler returns to its original position in terms of thermal power.



**Caution:** N.C. (normally closed) contacts must be used for the connection to the additional room temperature thermostat. Contacts 1-2 of the cronothermostat mod. "Perry". **Do not energise with 220V as this will irreparably damage the control board.**

### 6.2 OPERATING WITH THE ADDITIONAL CHRONOTHERMOSTAT (NOT SUPPLIED )

It is possible to install, as an alternative to the room thermostat, a chronothermostat that must be connected by means of a jack to the back of the heater / boiler in the socket marked "CHRONOTHERMOSTAT" (see drw. para.5.1.1.3). Using this outlet when the chronothermostat contact closes the ON cycle starts, whereas when the contact opens the OFF cycle starts. When the chronothermostat is active, the appliance can not be shut off except from the additional chronothermostat.



**CAUTION:** The manufacturer denies all responsibility for the life of the electrical heater if subjected to excessive start ups. Consequently, it is advisable to set the chronothermostat appropriately to avoid this danger .

**CAUTION:** Use N.O. (normally open) contacts for the connection to the chronothermostat. Contacts 1-3 of the cronothermostat mod. "Perry". **Do not energise with 220V as this will irreparably damage the control board.**

**CAUTION:** In the event of connections to the chronothermostat Thermorossi shall not be held responsible for the heater not starting up, smoke leaks, breakage of the lighting component. In the event of a programmed cycle on always ensure that the brazier is clean:

## 7 CLEANING AND MAINTENANCE

### 7.1 FOREWORD



Before beginning any maintenance operation ensure that the appliance is in the OFF phase and disconnect it from the electric power outlet.

Your pellet heater / boiler ECOTHERM is a solid fuel generator : it requires frequent controls and general cleaning operations. This will guarantee regular operation and optimal output at all times. If the product is unused for a prolonged period of time it is mandatory to inspect the smoke channel and outlet to ensure that there are no obstructions before use .

### 7.2 CLEANING AND MAINTENANCE OF HEATER H2O | BOILER COMPACT

• **EVERY day** and whenever necessary clean the burner .

**CAUTION** : *Clean the burner regularly and thoroughly using a vacuum cleaner, and particularly in the area around the spark plugs: this will guarantee correct functioning of the appliance.*

**CAUTION** : *When carrying out this operation avoid knocking or bumping the insulation on the door of the Compact as it could break and this damage is not covered by warranty.*

• **EVERY day** and whenever necessary clean the glass (only for H2O) .

• **EVERY day** use the riddling tool provides to push and pull the tube scraper 4-5 times (fig.2).

Open the door to the Compact boiler to access the tube scraper.

• **EVERY week** and whenever necessary vacuum the ash from the compartment C1 (fig. 6).

• **EVERY week** and whenever necessary empty the ash from the pan C2 (fig. 6).

• **EVERY 2 weeks** and whenever necessary clean out the smoke exhaust tee at the mouthpiece of the appliance.

• **EVERY 2 weeks** and whenever necessary vacuum the ash from the compartment C3 (fig. 5).

To access the compartments C1 , C2 , C3 , you must firstly remove the bottom door F (fig. 3.) by firstly pressing the handle downwards, rotating the cover outwards and sliding it upwards: now yo can access compartments C1 , C2 .

To access compartment C3 firstly remove compartment C2 (fig.5. and fig.6) : to access the boiler ash pans you must firstly open the external door.

•**EVERY month** and whenever necessary vacuum the dust deposited at the bottom of the empty hopper.



**Caution: to guarantee correct and optimal combustion it is very important to correctly and hermetically close ash pans C1, C2, C3 after maintenance operations to avoid various situations while it is operating, such as: tripped smoke exhaust pressure switch: "SMOKE EXHAUST CLOGGED ", FAILED START UP.**

•**EVERY 2 weeks** and whenever necessary clean the tube bundle chamber by removing the inspection cap as shown in figure 1. Caution: Take special care when handling the cover and avoid knocking or dropping it ; accidental breakage of the insulation is not covered by warranty.

• **AT THE END OF THE WINTER SEASON OR WHENEVER NECESSARY** we recommend thoroughly cleaning the firebox and drawers of the appliance using brushes and vacuum cleaner.

•**AT LEAST ONCE A MONTH** and whenever necessary check the smoke exhaust to ensure that it is free from ash deposits, particularly in the initial sections that could have a smaller section.

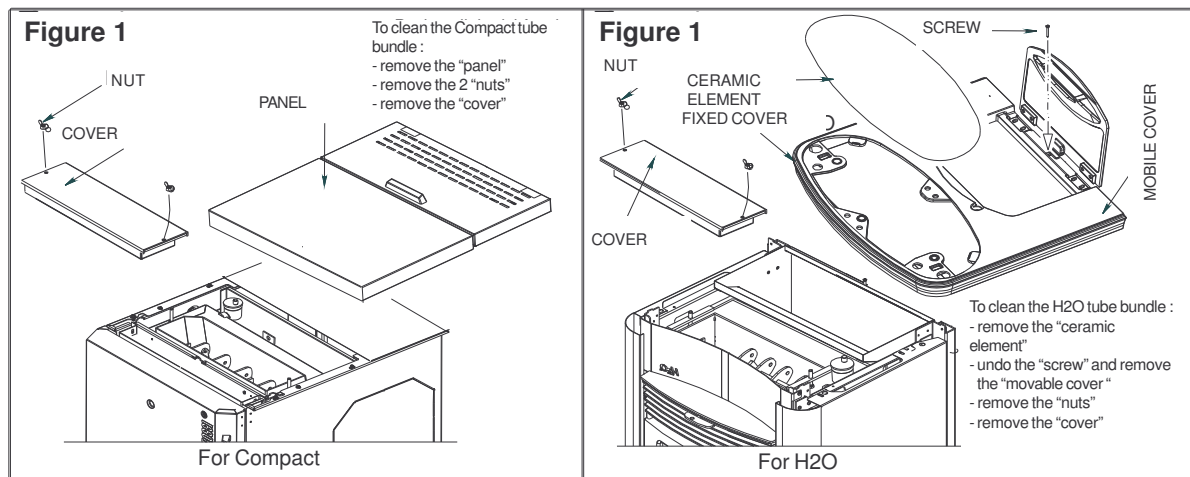
•**AT LEAST TWICE A YEAR** clean the flue outlet. If there are any horizontal sections, inspect them and clean out any ash and soot deposits before they block the passage of the flue gases. Also clean behind the combustion chamber shell: to access this area remove the bolts and shift the back wall forward (see fig. 4).

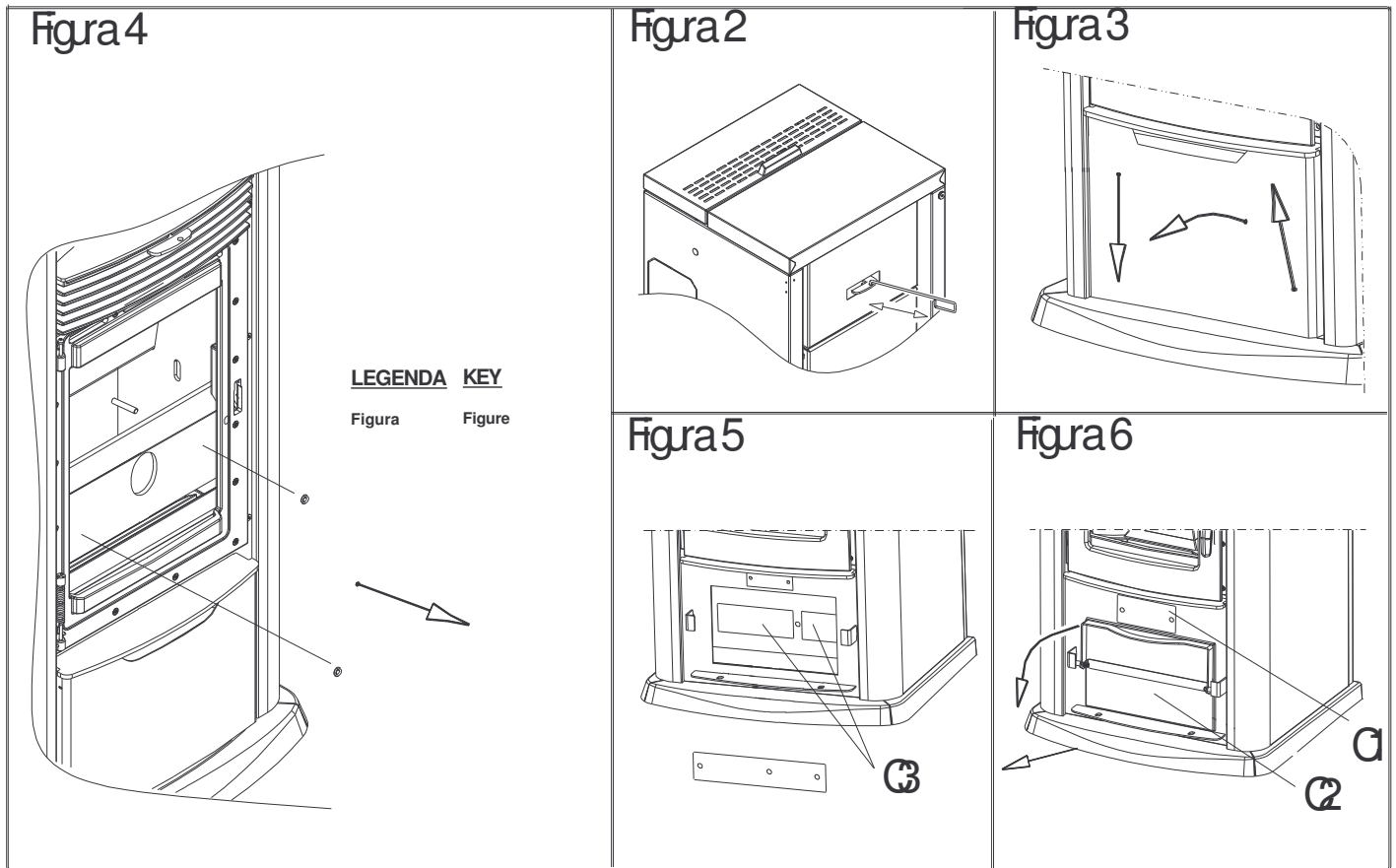


A vacuum device facilitates removal of the ash. Use a damp cloth or a scrunched up piece of newspaper, dampened and rolled in the ash, to wipe the glass until it is perfectly clean. Do not clean the glass while the heater H2O is operating. Remember that the heater must be completely cooled down before the side panel can be cleaned with a soft cloth and water.



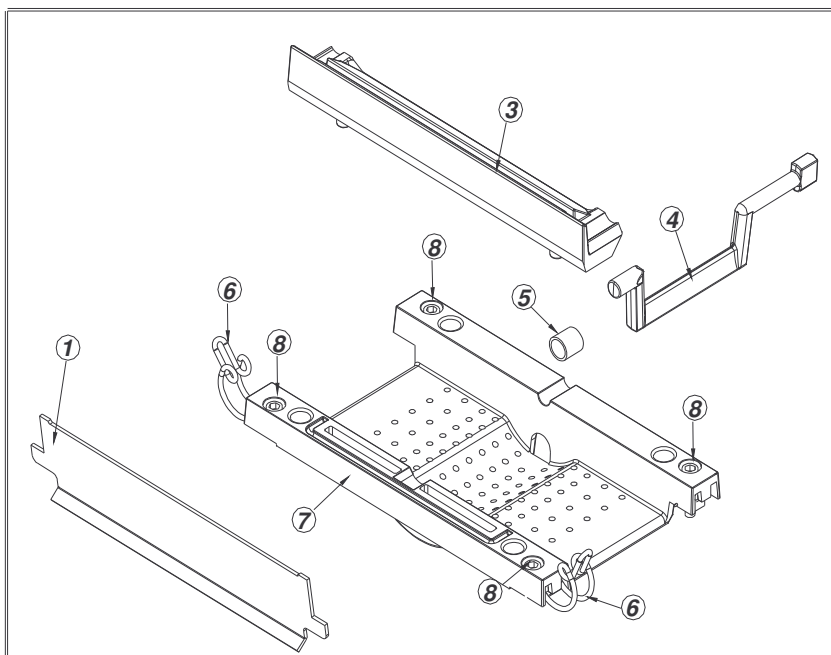
**Caution: A daily deposit of soot and combustion residues on the glass is quite normal. It is also normal to find partially or totally unburned pellets in the ash pan.**





**CAUTION :** Any cracks on the insulation of the Compact door do not affect the operation of the boiler.

### 7.3 PATENTED SELF-CLEANING BURNER (no° VI2004A000014)



The heater H2O / boiler Compact is fitted with a patented new concept burner that can guarantee high performance and automatic optimal cleaning of the burner thanks to the special technology applied to it. **The combustion generates the separation of the flame into 2 flame fronts: this is to guarantee the optimal exploitation of the combustion chamber walls, always badly utilised in other pellet appliances.** Manual cleaning of the chamber is consequently to an absolute minimum.

To remove the chamber after having removed the back (see para.7.2) act as follows:

- Remove the blade (1) (only present in the H2O).
- Open the latches (6).
- Remove the chute (3).
- Remove the riddler (4) and bearing (5).
- Remove the screws (8) and remove the brazier

To replace the brazier carry out the same actions in reverse order.

**In the OFF phase the cleaning time for the brazier, the movement of the riddler (4) is set at roughly 20 minutes.**

**It is normal to find partially burned embers at the sides of the burner.**

**CAUTION :** Clean the burner regularly and thoroughly using a vacuum cleaner, and particularly in the area around the spark plugs: this will guarantee correct functioning of the appliance (para. 7.2).



## 7.4 CHARGING THE BATTERY OF THE HANDHELD RADIO CONTROL

As soon as the symbol (13) on the display begins to blink, as shown in the drawing, the battery needs to be charged. While it is being charged and consequently while it is connected to the electrical power mains the symbol (13) blinks continuously even when the batteries of the radio control are completely charged.

This operation is necessary as otherwise the communication between the heater / boiler and the handheld radio control could be cut off. If the communication is cut off see paragraph 5.1.1.3 for an explanation on how to switch off the heater / boiler with the auxiliary control located at the back of the appliance. If the batteries go flat the time will have to be reprogrammed whereas the heater programming and other settings are maintained as permanent data. The batteries of the handheld radio control require regular recharging in relation to the amount of use made of it.

The charged batteries have a duration of 72 hours.

The batteries must be recharged using the supplied battery charger :

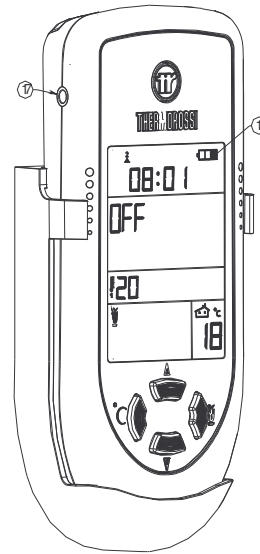
INPUT 100V-240V 50/60 Hz 0.3/A

OUTPUT 5.5V 750 ma

The battery charger must be connected to a 220-240V 50Hz power mains. To obtain a total recharge of the batteries they must be charged for at least 12 hours: charging the battery for less time could shorten the duration and life of the batteries. It is completely normal for symbols and/or lines to appear haphazardly on the display while the battery is being charged.



Caution: Use only the battery charger provided by Thermorossi. The use of any other type of battery charger will invalidate the product warranty.



## 8 SMOKE EXHAUST TUBE

•Due to the frequent accidents caused by poor operation of the flue outlets in private dwellings, we have prepared the following paragraph with the aim of facilitating the task of the installer in controlling all the parts dedicated to the elimination of the smoke produced by the combustion. The smoke exhaust must be installed in compliance with UNI7129/92, UNI 10683 and EN14785 and must respect the following reference values:

### 8.1 VENTILATION OF THE ROOMS

• It is essential for the room in which the appliance is installed to be well-ventilated, also to guarantee air for combustion in the heater / boiler. The natural air flow occurs directly through permanent apertures to the outside made in the walls of the room, or by means of single or multiple ventilation ducting.

The ventilating air must come from outside and if possible, away from sources of pollution. Indirect ventilation is also allowed by taking in air from rooms adjacent the one where the insert eater is installed taking into account all the warnings and limitations specified below.

•The apertures in the walls must comply with the following requirements:

- have an unobstructed section of at least 6cm<sup>2</sup> for each Kw of installed thermal power, with a minimum limit of 100cm<sup>2</sup>;
- be made in such a way that the vent openings, both on the inside and outside of the wall, cannot be obstructed;
- be protected with grills or similar systems in order not to reduce the section described above;
- be situated at floor-level.

•The air flow can also be obtained from an adjacent room as long as:

- the adjacent room is equipped with direct ventilation in compliance with the points described above;
- in the room to be ventilated the installed appliances are only connected to one flue outlet;
- the adjacent room is not used as a bedroom or a common area of the building;
- the adjacent room is not a room with a fire hazard, such as storage sheds, garages, combustible material store rooms, etc...;
- the adjacent room does not become a vacuum compared to the room to be ventilated due to an opposite draught effect;
- the air flow from the adjacent room to the room to be ventilated is unobstructed through the permanent apertures having an overall net section of no less than that indicated above. These apertures can be obtained by enlarging the space between the door and the floor.



This chapter is not intended to replace UNI 7129/92, UNI 10683 and EN 14785 standards to which it refers. The qualified installer must in any case be fully aware of this standard and its amending versions.

### 8.2 COMBUSTION AIR INTAKE

The air required for combustion can be taken in from the environment in which the heater H2O / boiler Compact is installed. The room where it is installed must always be adequately ventilated (1300 m<sup>3</sup>/h) .

**CAUTION:** The presence of extraction fans or similar appliances, if operating in the same room or space in which the heater H2O / boiler Compact is installed, could cause problems for the correct operation of the heater / boiler.

## 9.2 SMOKE OUTLET

•The smoke exhaust shown in the following figures is the best solution to ensure the discharge of smoke even when the fan is not operational, such as for example if there is an electrical power failure. A minimum drop of 1.5 metres is required between the T terminal on the outside of the building and the outlet at the back of the appliance, to ensure that residual combustion smoke is discharged in the case described above (Otherwise the residues would stagnate inside the firebox and be discharged out to the free atmosphere).

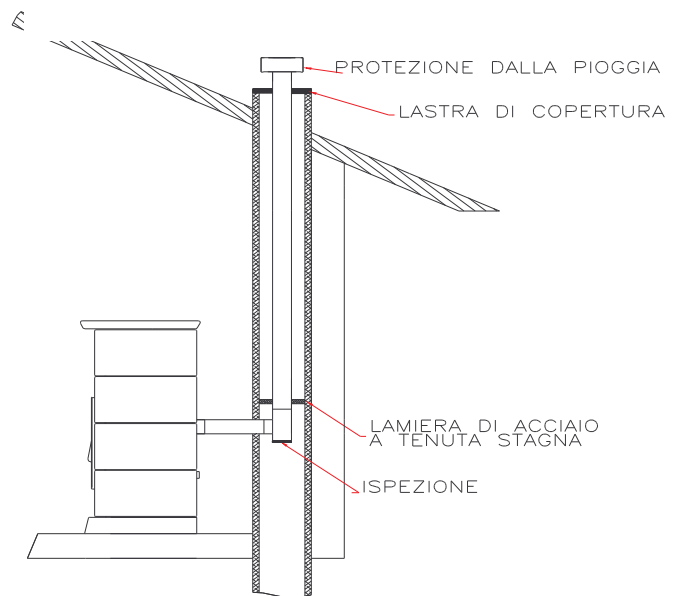
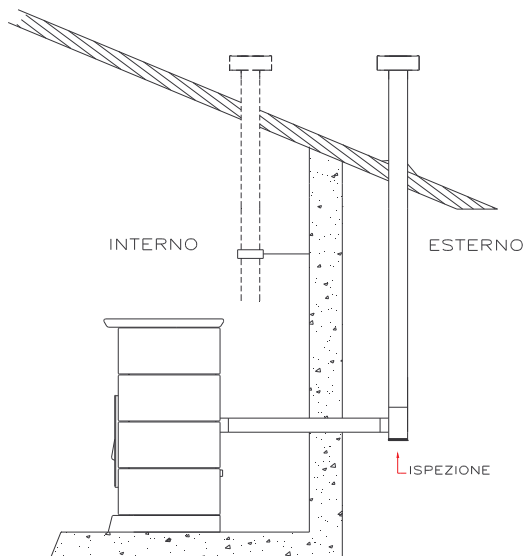
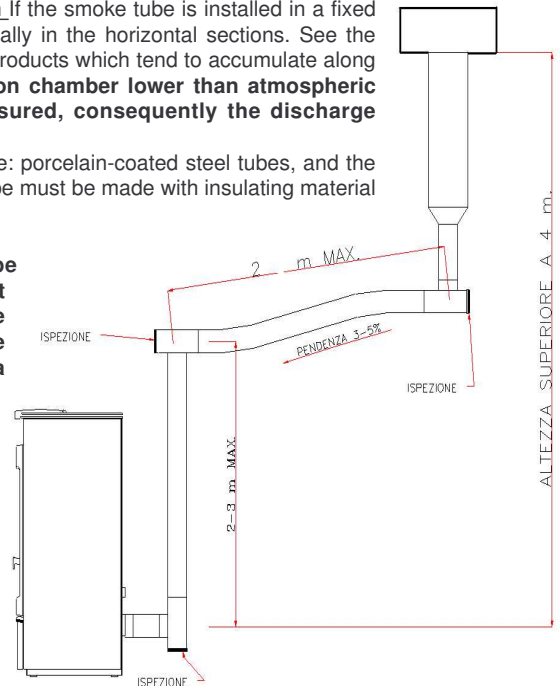
The figures below illustrate the best solution for discharging the smoke out through the roof or into the flue outlet. If you opt to discharge the smoke out through the roof it is important to operate as shown in the figure below on the left. Insert a union tee with inspection cap, connecting brackets suitable for the height of the flue outlet, flashing that crosses the roof and chimney cap to protect against bad weather conditions. If you decide to use a classic masonry outlet see the diagram below on the right. A union tee with inspection cap and suitable supporting brackets are required. If the flue outlet is too big we recommend inserting a stainless steel or porcelain-coated steel tube with a diameter not exceeding 150mm. Seal area where the inlet and outlet part of the smoke exhaust meets the wall. **It is strictly forbidden to apply mesh to the end of the outlet tube, as it could cause the heater / boiler to malfunction.** If the smoke tube is installed in a fixed position it is advisable to provide inspection openings for clean-out purposes especially in the horizontal sections. See the diagram. These openings are essential to allow for the removal of ash and unburned products which tend to accumulate along the discharge path. **The appliance operates with the pressure in the combustion chamber lower than atmospheric pressure, whereas the discharge of smoke to the chimney is slightly pressured, consequently the discharge system must be hermetically sealed.**

The smoke discharge tube must be made from suitable materials such as for example: porcelain-coated steel tubes, and the various fittings sealed with red silicone (resistant to 350°C). The outer casing of the tube must be made with insulating material (mineral wool, ceramic fiber) or use pre-insulated tubing.

**All the sections of the smoke discharge tubes and the flue outlet must be easy to inspect and remove for internal cleaning. CAUTION: if the flue outlet is not sufficiently insulated and /or if it is too long it could generate condensation. It is advisable to provide a condensation drain near the smoke outlet of the appliance. The appliance must always and only be installed in a single flue outlet system dedicated exclusively to the appliance.**



**IF THE CHIMNEY CATCHES FIRE DO NOT HESITATE TO CALL THE FIRE BRIGADE IMMEDIATELY.**



### LEGENDA

2(-3) m MAX  
PENDENZA 3-5%  
ISPEZIONE  
ALTEZZA SUPERIORE A 4 m.  
ESTERNO  
INTERNO  
PROTEZIONE DALLA PIOGGIA  
LASTRA DI COPERTURA  
LAMIERA DI ACCIAIO A TENUTA STAGNA

### KEY

2(-3) m MAX  
SLOPE 3-5%  
INSPECTION  
HEIGHT MORE THAN 4 m.  
EXTERNAL  
INTERNAL  
RAIN PROTECTION  
COVER SLAB  
WATERTIGHT STEEL SHEET

## 9 VOCAL ALARMS

The heater / boiler is programmed to communicate 4 fundamental alarms. The vocal alarm is transmitted 4 times in rapid succession. It is transmitted in the following languages: Italian, English, German, French. These situations are repeated two more times a few minutes apart. If, however, the alarm is zeroed it will not be communicated.

The alarms are :

<b>Pellets finished</b>	+ the same alarm in the other 3 languages
<b>Incorrect start up</b>	+ the same alarm in the other 3 languages
<b>General clean</b>	+ the same alarm in the other 3 languages
<b>Blocked smoke outlet</b>	+ the same alarm in the other 3 languages
<b>Insufficient water pressure</b>	+ the same alarm in the other 3 languages

In detail:

<b>Pellets finished</b>	: is communicated when the temperature during the <b>RUNNING</b> mode drops below 42 °C. This indicates that the appliance is switching off due to lack of pellets.
<b>Incorrect start up</b>	: is communicated if after the start up phase the temperature does not rise above 42°C.
<b>General clean</b>	: is indicated after the insert has operated for over 1800 hours.
<b>Blocked smoke outlet</b>	: this occurs when the smoke outlet is partially blocked.
<b>Insufficient water pressure</b>	: the pressure in the boiler has dropped below 0.3 bar. see para. 5.1.7),

To reset the alarm the fire must be out, disconnect the electric power supply, wait 2 seconds and power up the generator once again.

## 10 ELECTRICAL WIRING

If another heater / boiler is installed in the vicinity of this heater then the code selector in both the power board and the handheld radio control will have to be reset; this is necessary to prevent interferences with the operation of the two appliances. The code set in our products is standard. If you wish to alter the transmission code act on the selectors in the power board and the handheld radio control, making sure that they are set identically. (see para. 5.1.12).

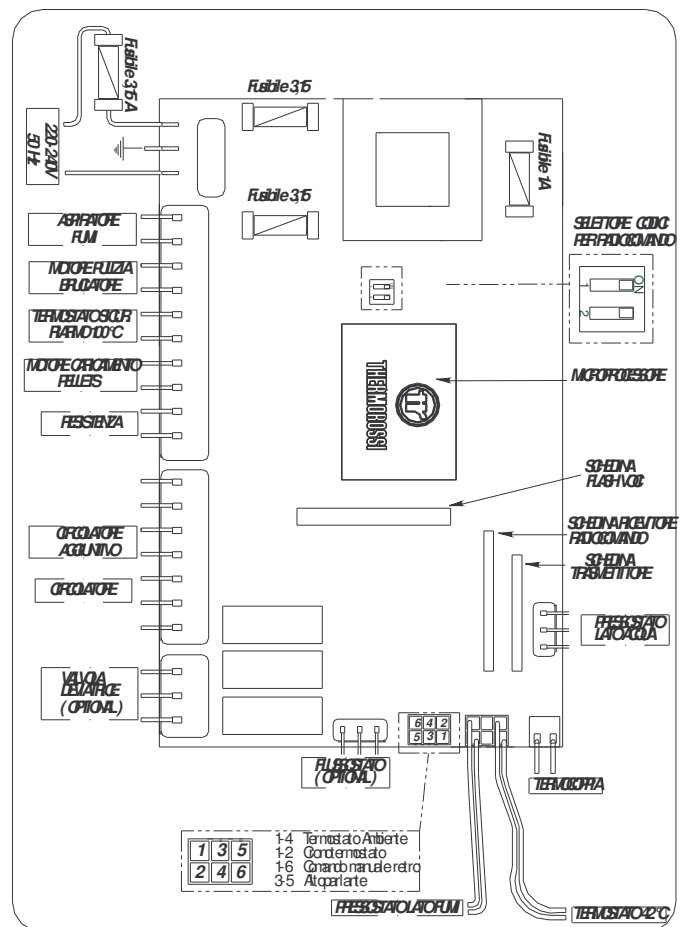
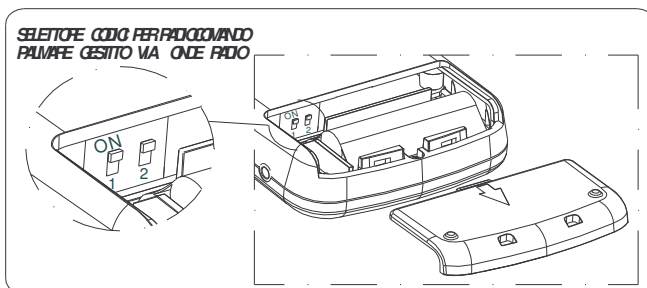
A DATA ANALYSIS of all the variables as described in para. 5.1.6 must be carried out before the change can be activated.

### LEGENDA

Selettore codici per radiocomando  
palmare gestito via onde radio  
fusibile  
aspiratore fumi  
motore pulizia bruciatore  
termostato sicur. riarmo 100°C  
motore caricamento pellets  
resistenza  
circolatore aggiuntivo  
circolatore  
valvola deviatrice (optional)  
flussostato (optional)  
termocoppia  
termostato ambiente  
cronotermostato  
comando manuale retro  
altoparlante  
pressostato lato fumi  
termostato 42°C  
termocoppia  
pressostato lato acqua  
schedina trasmettitore  
schedina ricevitore telecomando  
schedina flash voci  
microprocessore  
selettore codici per radiocomando

### KEY

Code selector for handheld radio control  
controlled by radio waves  
Fuse  
Smoke suction unit  
Burner cleaning motor  
Reset thermostat 100°C  
Pellet feed motor  
Heater  
Additional recirculating pump  
Circulating pump  
Diverting valve (optional)  
Flow switch (optional)  
Thermocouple  
Room temperature thermostat  
Chronothermostat  
Rear manual control  
Loudspeaker  
Smoke side pressure switch  
Thermostat 42°C  
Thermocouple  
Water side pressure switch  
Transmitter board  
Remote control receiver card  
Voice flash card  
Microprocessor  
Radio control code selector



## 11 INFORMATION FOR THE SKILLED TECHNICIAN

### 11.1 Main components and their operation

#### **SMOKE PRESSURE SWITCH**

This is a safety switch that stops the screw feeder motor whenever necessary. The main cause for the pressure switch tripping is a blocked flue outlet or smoke exhaust pipe. Note that it is strictly forbidden to apply any kind of mesh screen to the end of the pipe. When the holes of the mesh clog up they create a plug that trips the pressure switch which stops the pellet feeder.

#### **SCREW FEEDER MOTOR**

This motor is powered at regular on/off intervals controlled by a microprocessor. The operation of this motor is affected when:

- The motor's thermal cutout trips.
- Pellets finished.
- Safety thermostat with manual reset trips.
- The pressure switch trips due to blocked smoke exhaust.
- Intentional shut down of the heater / boiler.

#### **BURNER CLEANING MOTOR**

This device permits the creation inside the burner of a continual movement of combustion pellets and consequently an ongoing self-cleaning of the burner.

#### **SMOKE SUCTION UNIT**

This is activated when the start up signal is given. In the first two minutes it «washes» the smoke discharge tube, that is, it functions at maximum working rate. Once this time has elapsed it self-adjusts to the optimal speed. The exhaust continues to operate for approximately one hour from the time the heater / boiler is switched off to allow for the evacuation of all the smoke and for safety purposes. It stops 30' after the thermostat at 42°C opens.

#### **THERMOSTAT AT 42°C**

Its function is critical for the following reasons: When the contact closes the heater / boiler powers up and the working cycle starts. Similarly, when the contact opens the smoke exhaust stops.

#### **EXPANSION TANK 2.5l**

This is a safety device intended to compensate for the increased volume of the water in the boiler caused by the increase in the water temperature ( Note: this tank is a protection for the boiler only).

#### **SAFETY THERMOSTAT WITH MANUAL RESET**

When the temperature exceeds 98°C the pellet feed screw shuts down. A red light at the back of the appliance remains lit. Once the causes for the overtemperature have been identified and remedied the appliance can be reactivated by unscrewing the plastic cover of the thermostat located at the back of the appliance and pressing the button (the heater / boiler temperature must be below 73 °C ).

#### **GLOW PLUG**

It is activated in the START phase. Heats the air to 800°C, which assist the first combustion of the pellets present in the brazier.

#### **PRESSURE TRANSDUCER**

Detects the water pressure in the system. It is possible to verify the value by acting on the control panel as indicated in para. 5.2.

#### **AUTOMATIC PURGE VALVE**

The function of this valve is to eliminate air residues inside the heater/boiler without the need for manual intervention. Consequently problems such as the following are eliminated:

- corrosive processes caused by the oxygen.
- air pockets in the heating bodies.
- noise generated by the passage of air in the tubes.
- cavitation in the circulator pumps .

#### **SAFETY VALVE CALIBRATED AT 3 BAR**

When the calibrated pressure is reached, the valve opens and, by discharging to the atmosphere (the manufacturer recommends connecting this valve to a single outlet to avoid damaging the material surrounding the heater / boiler if it is activated ) it prevents the pressure in the system from reaching dangerous limits for the generator and for the components of the system . If it trips verify the reasons and solve the causes for the overpressure.

#### **SYSTEM CIRCULATOR PUMP**

This device conveys hot water produced by the appliance to the usage point. The pump signal described in 5.1.1.2 appears to indicate that it is operating.

### 11.2 USEFUL ADVICE FOR INSTALLATION AND OPERATION

- 1 The appliance must never be deliberately disconnected from the electric power supply. Whenever the appliance is deliberately disconnected from the electric power supply smoke could be emitted into the room and be a hazard. Similarly never switch off the appliance by suddenly cutting off the electric power supply.
- 2 Do not install the appliance with horizontal wall outlets only: evacuation of the combustion products must be guaranteed in a natural manner.
- 3 Do not install the appliance with horizontal sections only: the wall could be exposed to high wind conditions and the appliance could shut down due to back draft.
- 4 Operate the appliance at maximum for 10 hours for a complete drying and baking of the silicates contained in the enamel which covers the body of the heater.
- 5 Do not install a grill or outlet terminal which could restrain the flow of the combustion gases: this could affect the dynamic gas to the point where it would not allow the pellets to burn correctly.
- 6 Read this instruction booklet.
- 7 Keep the appliance clean and check the burner as described in this manual.
- 8 Clean the smoke outlet regularly.
- 9 Use top quality pellets: by saving 20 cents a bag you heat up to 50% less.
- 10 Maximum useable lengths of smoke exhaust tubes:  
Painted aluminized steel tubes (1.5 mm minimum thickness), Aisi 316 stainless steel tubes or 0.5 mm enamelled tubes may be used.

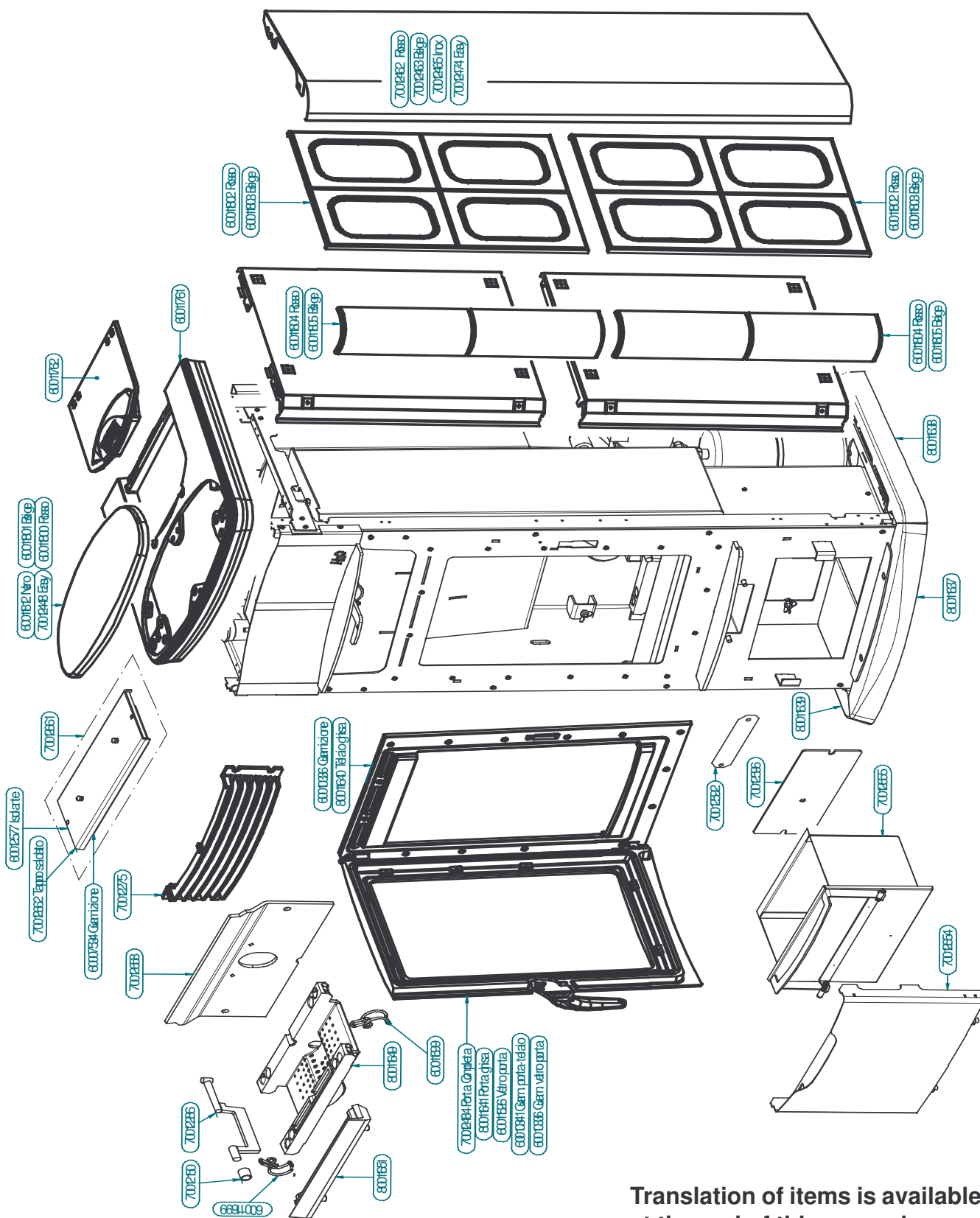
Minimum vertical length	4 m
Maximum vertical length	8 m
Length with min slope .5%	0.5 m
Maximum number of elbows at least 0.5 m apart	2

### 11.3 TROUBLESHOOTING CAUSE-SOLUTION

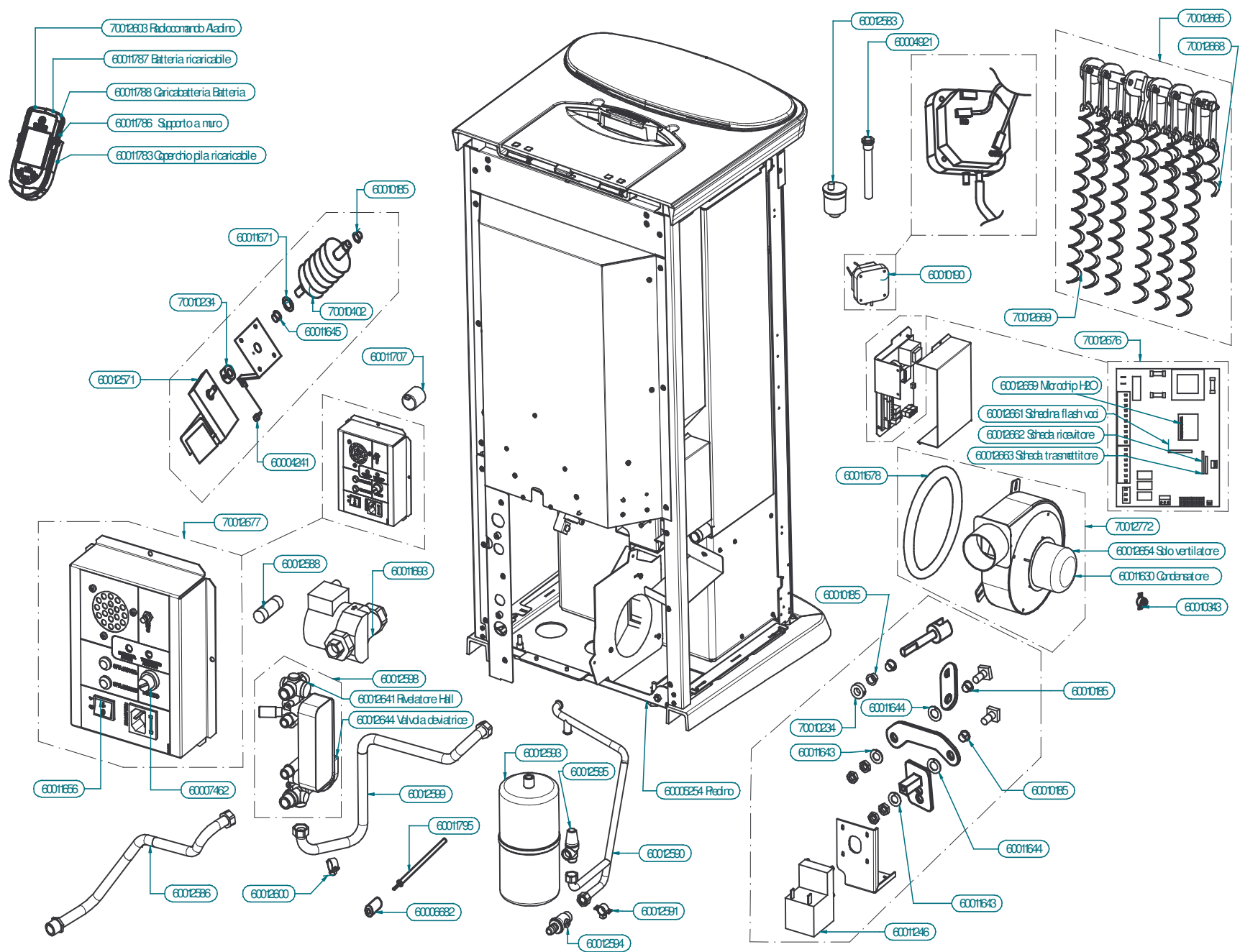
<b>PROBLEM</b>	<b>CAUSE</b>	<b>SOLUTION</b>
<b>PELLETS DO NOT DROP INTO THE BURNER.</b>	PELLET TANK IS EMPTY	FILL UP THE TANK
	FOREIGN BODY SUCH AS NAIL, NYLON, PIECE OF WOOD ON THE FEEDER SCREW ON THE BOTTOM OF THE TANK	REMOVE THE FOREIGN BODY.
	SMOKE EXHAUST NOT FREE, OR WITH TERMINAL THAT OBSTRUCTS THE PASSAGE OF SMOKE	CHECK THE SMOKE EXHAUST AS IT COULD BE DIRTY OR CLOGGED.
	OUTLET TERMINAL CLOGGED BECAUSE A GRILL OR TERMINAL HAS BEEN INSERTED WHICH PREVENTS THE FREE PASSAGE OF SMOKE.	REMOVE THE TERMINAL AND REPLACE IT WITH A MORE SUITABLE ONE.
	SUDDEN GUST OF WIND WHICH HAS MADE THE APPLIANCE GO INTO SAFETY MODE.	SWITCH THE POWER SUPPLY TO THE APPLIANCE OFF THEN BACK ON AGAIN.
<b>THE APPLIANCE ACCUMULATES PELLETS IN THE BRAZIER WHILE OPERATING.</b>	SMOKE EXHAUST NOT FREE, OR WITH TERMINAL THAT OBSTRUCTS THE PASSAGE OF SMOKE	REMOVE THE TERMINAL AND REPLACE IT WITH A SUITABLE TERMINAL. CHECK THE SMOKE EXHAUST AS IT COULD BE DIRTY OR CLOGGED
	BURNER IS DIRTY	CLEAN THE BURNER ON A MORE FREQUENT BASIS
	PELLETS WITH DEPOSIT ABOVE PERMISSIBLE LIMITS	CLEAN THE BURNER MORE OFTEN. SET OPERATING PROGRAM P2.
<b>THE APPLIANCE SMOKES</b>	OCCURS THE FIRST TIME THE HEATER IS SWITCHED ON AS THE SILICONE PAINT IS BEING BAKED	RUN THE HEATER AT FULL POWER FOR 10 HOURS TO COMPLETE THE BAKING.
	THE SMOKE EXHAUST IS NOT SEALED CORRECTLY	MAKE SURE THAT THE GASKETS HAVE BEEN FITTED TO THE SMOKE EXHAUST PIPES
	IF THE APPLIANCE STARTS TO SMOKE AFTER 25 MINUTES: DIRTY BURNER, VERY DELAYED START	CLEAN THE BURNER
	IF THE APPLIANCE STARTS TO SMOKE AFTER 25 MINUTES: DELAYED START BECAUSE THE SCREW FEEDER IS EMPTY	FILL UP THE TANK
<b>THE APPLIANCE SHUTS OFF 5 MINUTES AFTER THE END OF THE START UP CYCLE</b>	DELAYED START BECAUSE THE SCREW FEEDER IS EMPTY	FILL UP THE TANK
	DIRTY BURNER, VERY DELAYED START	CLEAN THE BURNER
<b>THE GLASS IS COVERED IN BLACK SOOT (H2O)</b>	THE APPLIANCE ACCUMULATES PELLETS IN THE BRAZIER	SEE POINT "PROBLEM-CAUSE-SOLUTION"
	NO CAUSE	"THE APPLIANCE ACCUMULATES PELLETS IN THE BRAZIER WHILE OPERATING"
	BRAZIER BLADE (SEE PARA. 7.3) NOT PLACED CORRECTLY OR MISSING	CLEAN THE GLASS MORE OFTEN PLACE THE BLADE CORRECTLY OR INSTALL IT
<b>THE APPLIANCE IS OFF BUT THERE ARE UNBURNT PELLETS IN THE BRAZIER</b>	THE TANK IS EMPTY	EMPTY THE BURNER AND FILL UP THE TANK
<b>THE APPLIANCE EXECUTES COMMANDS THAT HAVE NOT BEEN SET</b>	THERE IS ANOTHER THERMOROSI HEATER INSTALLED IN THE VICINITY OF THIS HEATER	CHANGE THE CODE SELECTOR

## 12 SPARE PARTS

### 12.1 SPARE PARTS FOR ECOTHERM H2O 18 (PART 1).

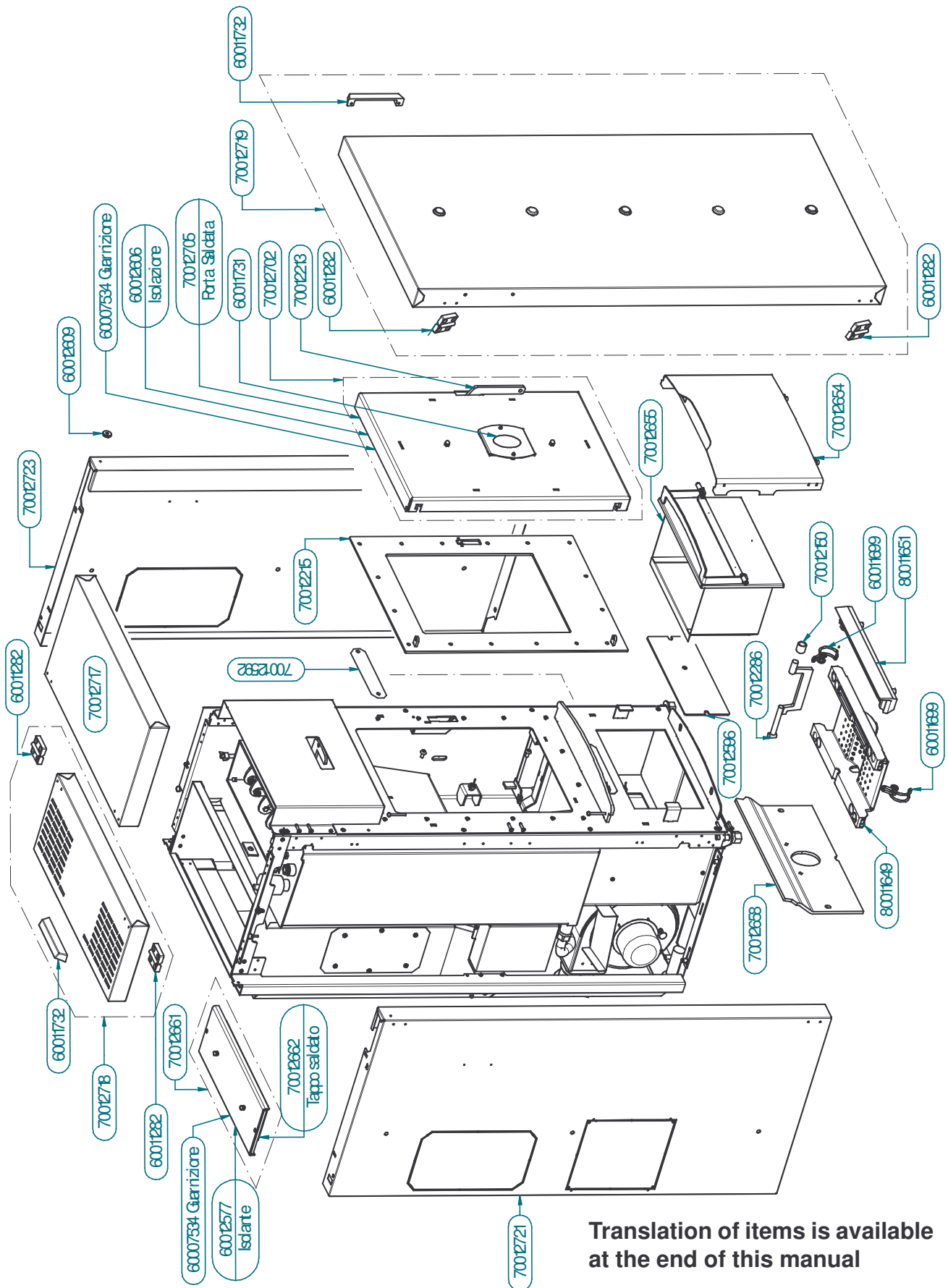


Translation of items is available at the end of this manual



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12.3 SPARE PARTS FOR ECOTHERM COMPACT 18 (PART 1).



Translation of items is available at the end of this manual



