SOLUÇÕES DE AQUECIMENTO A BIOMASSA

Pellet-run Boilers

Instruction Manual

English

Models

Automatic boilers

18 kW, 24 kW and 30 kW

Read these instructions carefully before installing, using and servicing the unit.

The product is supplied with this instruction manual.

Mod. 440-F

Thank you for purchasing a SOLZAIMA unit.

Please read this manual carefully and retain it for future reference.

* All products here detailed meet the requirements of the EU Construction Products Regulation (Reg. No. 305/2011) and meet EC; conformity approval.

* The pellet-run boilers are manufactured in compliance with European standard EN 303-5:2012.

* SOLZAIMA is not responsible for any damage to units installed by non-qualified personnel;

* SOLZAIMA is not responsible for any damage to units not installed and used in compliance to the instructions included in this manual;

* All local regulations, including but not limited to national and European standards, must be observed when installing, operating and servicing the unit;

* For assistence, please contact the unit's supplier or installer. Remember to provide the serial number of your boiler, which is detailed on the identification plate located on the back panel of the unit, as well as on the sticker found on the plastic cover of this manual.

*The technical service must be performed by the unit Installer or Supplier, except on situations where the assessment performed by the installer or service engineer determines that SOLZAIMA should be contacted, if required.

contact technical assistance

www.solzaima.pt

apoio.cliente@solzaima.pt

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3750-071 Aguada de Cima

Águeda – Portugal

Contents

Solzaima

Solzaima's vision has always been to provide the cleanest, renewable and more cost-effective energy. This is why we have been dedicated to manufacturing biomass heating equipment and solutions for the past 35 years.

Due to its persistence and the unconditional support of its network of partners, Solzaima is currently leader in the production of biomass heating systems, best illustrated by its water heat recovery central heating units and its range of pellet stove fires and boilers.

We deliver biomass heating units to approximately 20,000 homes every year. This effectively demonstrates consumers' interest in more ecological and economic solutions.

Solzaima was awarded the international Quality Certificate ISO 9001 and the Environmental Certificate ISO 14001.

1. Package content

Solzaima ships the unit with the following components:

- Automatic Boiler (18 kW or 24 kW or 30 kW);
- Instruction manual;
- Power cable;
- Linear cleaning motor arm protection.

1.1. Unpacking the Boiler

To unpack the unit, first remove the retractable bag covering the cardboard box. Then, lift out the cardboard box and remove the bag containing the boiler and the styrofoam blocks. Finally, unscrew the four parts securing the unit to the wood pallet.

2. Safety precautions ⚠

Solzaima is not liable for any damages to the unit if the specified precautions, warnings and operating procedures are not followed.

Units manufactured by Solzaima are easy to operate and special attention was given to their components in order to protect users and installers against accidental damages.

The units must only be installed by an authorised engineer, who should supply the client with a relevant statement of conformity and who shall be liable for the final installation and consequent product good operating conditions.

This unit must be used according to its intended use as specified by the manufacturer. The manufacturer is excluded from all liability, by contract or by tort, caused by injury to people, animals or property arising from misuse or faulty installation or servicing.

After removing the packaging, verify the contents to check its integrity and completeness. If the package contents does not correspond to the

parts list specified on item 1, please contact the entity from whom you purchased the unit.

All the unit's components guarantee its operation and energy efficiency and should only be replaced with original parts provided by an authorised technical assistance centre

The unit must be serviced at least once a year by the installation engineer.

This manual is provided with the product. Please keep it beside the unit.

For your safety, we recommend that:

- You fully read and understand the information detailed in this manual before handling the pellet-run boiler, which is a biomass heating unit.
- You make sure the hydraulic circuit was correctly assembled and connected to the water supply before turning on the pellet-run boiler.
- The boiler is not intended for use by children or persons with limited physical, sensory or mental capabilities, nor by those lacking experience and knowledge, unless under direct supervision or instruction.
- Do not touch the boiler when barefoot, nor when any part of your body is wet or humid.
- Do not tamper with safety or adjustment features without the manufacturer's authorization;
- Do not cover or reduce the size of the vents at the installation area;
- The pellet-run boiler requires good air supply to guarantee correct combustion; as such, if the unit is kept in an air tight environment or is exposed to other existing sources of air extraction, its correct functioning may be impeded.
- The existence of vents is a requisite for proper combustion;
- Do not leave the packing materials near children;
- When the unit is operating normally, the boiler door cannot be opened.
- Avoid direct contact with parts of the unit that tend to become hot during operation;
- Check the existence of any obstructions on the fume duct before turning on the unit after a long period of inactivity;

- This pellet-run boiler is intended for residential use, within a protected environment. Safety systems may intervene to shut down the boiler. If this occurs, contact technical assistance. In any circumstances should you attempt to interfere with the safety systems;
- The pellet-run boiler is a biomass heating unit equipped with an electric fume extractor. The occurrence of any power failure during its use may prevent fume extraction and the room will be filled with smoke. For this reason, you should have a natural fume extraction system, like a chimney, available;
- Solzaima offers an optional safety system that allows you to connect your boiler to a UPS unit, thus avoiding problems related to a power failure and ensuring that the fume extractor will continue to operate under such conditions until the complete extraction of all fumes;
- If you intend to use your boiler when leaving it unattended or while you are away from home, it is advised that you utilise the safety system specified above to guarantee its safe functioning in the eventuality of a power failure;
- While in operation, NEVER disconnect the electric plug of your pellet-run boiler. Seeing as the boiler's fume extractor is power-operated, disconnecting the plug would prevent the extraction of combustion fumes;
- Your unit must be disconnected from the mains for servicing. Before doing this, the unit must be totally cooled down (if operating before);
- Never touch the interior of the boiler without first disconnecting it from the power mains;
- The maximum water temperature (set-point temperature) that the user can set for the boiler is 80°C. In the event of the boiler reaching a temperature of 95ºC, it will automatically switch off and activate a corresponding alarm.

3. Technical specifications

FEATURES	18 kW Boiler	24 kW Boiler	30 kW Boiler	Units
Weight	373	386	386	kg
Height	1355	1355	1355	mm
Width	677	677	677	mm
Depth	1110	1110	1110	mm
Diameter of the fume discharge pipe	100	100	100	mm
Reservoir capacity	45	45	45	kg
Maximum heating capacity	410	545	660	m^3
Maximum thermal power (water)	18	24	29	kW
Minimum thermal power (water)	5,7	5,7	5,7	kW
Minimum fuel consumption	1.3	1.3	1.3	kg/h
Maximum fuel consumption	4.4	5.3	6,1	kg/h
Rated electrical current	110	110	110	W
Electric power at start-up (<10 min.)	410	410	410	W
Rated voltage	230	230	230	V
Nominal frequency	50	50	50	Hz
Thermal yield at rated thermal power	90,1	90.2	90.4	%
Thermal yield at reduced thermal power	87,8	87,8	87,8	%
Max. gas temperature	102	112	122	ºC
Min. gas temperature	74	74	74	ºC
CO emissions at rated thermal power	0.01	0.02	0.02	%
CO emissions at reduced thermal power	0.03	0.03	0.03	%
Draught in the chimney	12	12	12	Pa
Unit water volume	60	60	60	L
Fume extractor sound level	54	54	54	dB(A)

Table 1 – Technical specifications

Tests performed using wood pellets with a heating capacity of 4.9 kWh/kg. The above information was obtained during product homologation tests performed at independent laboratories accredited for pellet unit tests.

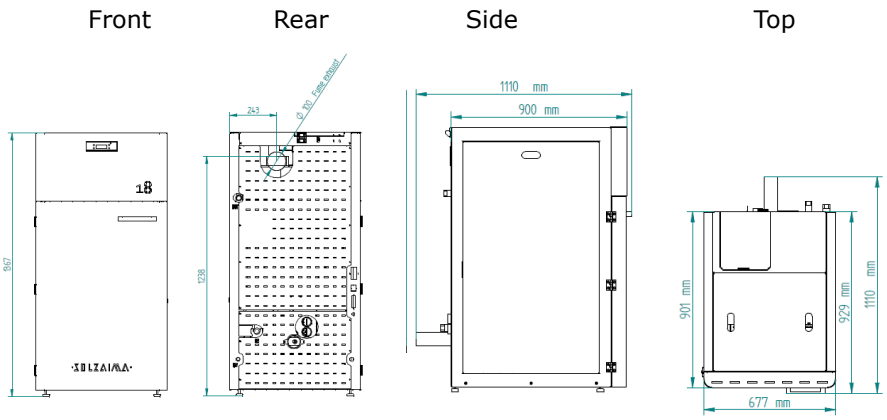


Figure 1 – Dimensions of automatic pellet-run boiler.

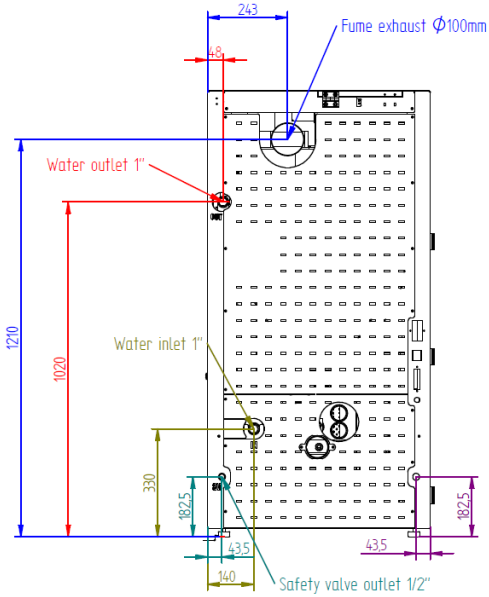


Figure 2 – Hydraulic connections of the automatic pellet-run boiler.

4. Installation of the pellet-run boiler

Before installing, please perform the following steps:

- Upon reception, check the product for completeness and to determine that is does not show any damage signs. Any damages or defects should be checked before the unit is installed.
- The unit is equipped with four height adjustable feet at its base, allowing for simple adjustments when installing on non-flat surfaces.

Figure 3 – Adjustable feet

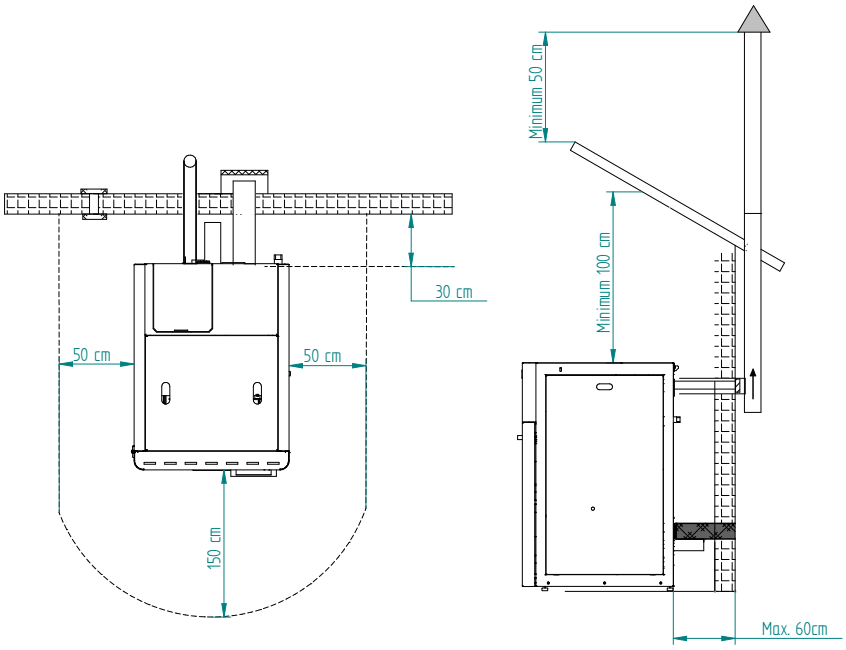
- Remove the instruction manual from the package and hand it over to the client.
- Connect a 100 mm diameter pipe between the boiler's combustion gases output and the fume extraction pipe leading out of the building (e.g. through the chimney) – please check diagrams in point 4.
- If a tube is used for combustion air inlet from the outside, it shall be no longer than 60cm horizontally or present offsets (such as bends);
- Carry out the hydraulic installation (please consult point 4.5)
- Connectthe 230 VAC power cable to an grounded socket.
- The unit's remote control has a programmable thermostat. Optionally, a conventional external programmer may be used (not included) to automatically define the unit's operating periods.

5. Installation requirements

The minimum distance required between the pellet-run boiler and any highly flammable surfaces is found specified in 4.

The top of the boiler must be at a distance of at least 100 cms from the ceiling, especially in rooms with ceilings composed of flammable materials.

The base supporting the boiler cannot be of flammable material. As such, adequate protection should always be used.



a) b)

Figure 4 – Minimum distances from all surfaces: a) upper view of the unit's installation; b) side view of the unit's installation

Warning!

Keep combustible and flammable materials at a safe distance.

5.1. Installation of pipes and fume exhaust systems:

- The exhaust pipe must have been designed for this purpose, in compliance to the location requirements and in accordance with any applicable regulations.
- ⚠ Important! An inspection-"T", fitted with a hermetic lid, must be attached to the end of the boiler's exhaust pipe to allow for the regular inspection of the system, as well as the discharge of heavy dust and condensates.
- As indicated in Figure 4, the exhaust duct must be assembled so as to permit its cleaning and maintenance through the inspection points.
- Under normal operating conditions, the combustion gas flow should create a draught of 12 Pa one meter above the chimney neck.
- The boiler must not share the chimney with any other equipment.
- The pipes located outside the boiler's working area must have an internal diameter of 100 mm and be of double stainless steel insulation.
- **The fume exhaust pipe may generate condensation, so we recommend that the appropriate systems for collecting condensates should be installed.**

5.2. Installation without a shaft

Figure 5 and 6 illustrate the basic requirements when installing the boiler's chimney. A "T" should be included at the base of the piping system for the purpose of periodic inspections and annual maintenance, as exemplified. Double-walled stainless steel insulated pipes must be used and properly fastened to avoid condensation.

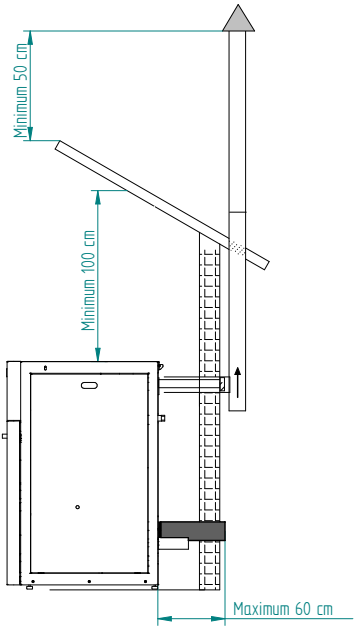
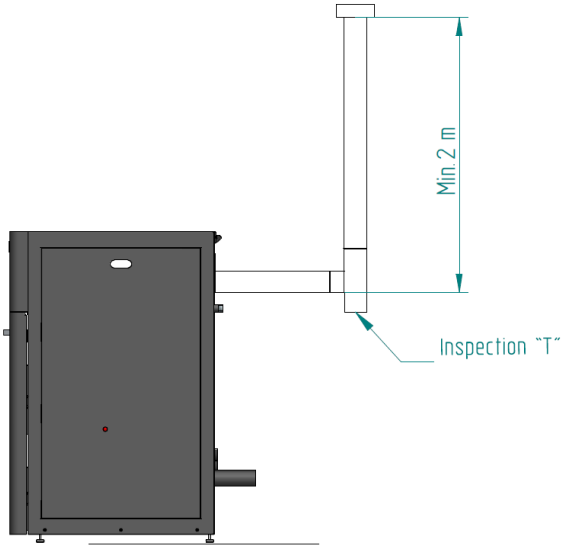


Figure 5 – Side view of the boiler installation without a shaft, highlighting the inspection point.



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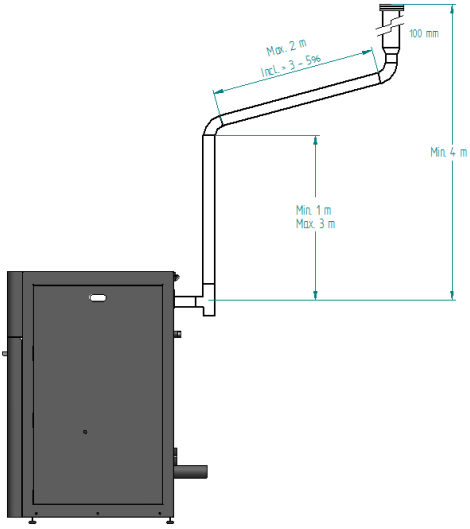

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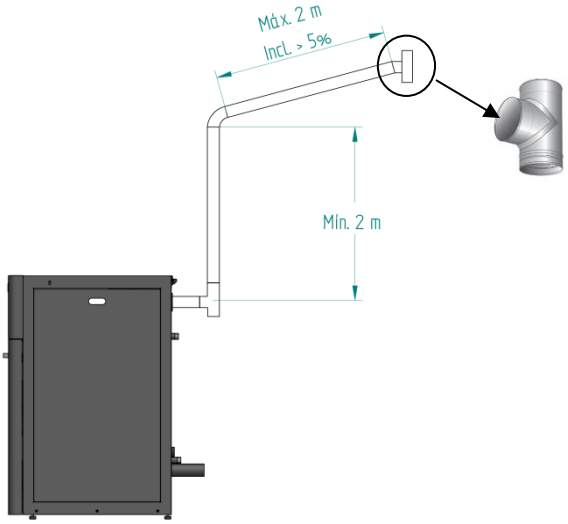


c)

Figure 6 – Examples of standard installations.

⚠ Failure to comply with the requirements here detailed may prevent the correct operation of the unit. Follow all the instructions presented on the diagrams.

⚠The boilers operate with the combustion chamber in depression, which is why it is absolutely necessary that they include a fume exhaust pipe to adequately extract combustion gases.

Fume duct material: The tubing must consist of 0.5 mm thick rigid stainless steel, with fastening joints attaching the different sections and accessories.

Insulation: The fume ducts must be double-walled and insulated to make sure that fumes do not cool down going outwards, which would cause an inadequate circulation and condensation that may damage the unit.

Output "T-tube" : Always attach a regulator "T-tube" to the output of the boiler.

Windproof terminal: A windproof terminal must always be installed to avoid the backflow of fumes.

Chimney draught: The figures below show three standard diagrams, specifying adequate lengths and diameters. Any other type of installation must guarantee a draught of 12 Pa (0.12mbars) measured when hot and at the maximum power.

Ventilation: To ensure the boiler's optimum operation, **the installation location should be fitted with an air vent, with a minimum cross-section of 100 cm^2, preferably close to the unit's back panel**. The boiler includes a circular pipe (∅ 50mm) that may be routed to the exterior of the house.

5.3. Installation with a shaft

As shown in Figure 7, the pellet-run boiler is installed with a ∅ 100 mm exhaust pipe directed up the chimney. If the chimney is too large, an 80 mm-wide pipe should be installed at the fume outlet.

A "T"-tube must be attached to the base of the piping to allow for periodic inspections and annual maintenance, as illustrated in Figure 7.

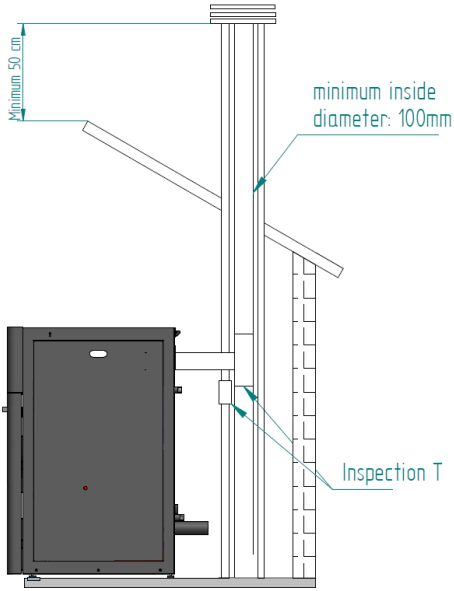


Figure 7 – Side view of the boiler installation with a shaft, highlighting the inspection point.

It is recommended that the boiler not be used during adverse weather conditions that may seriously disrupt the unit's fume extraction capacity (this is especially the case with very strong winds).

If you do not use the unit for a long time, check it to make sure that the flue pipes are clear before lighting the fire.

6. Hydraulic Installation

* Chapter 12 (installation diagrams) includes diagrams illustrating the range of possible connections that may be used in the installation of a central heating system, with or without the feature of heating water for domestic use;

* The pellet-run boiler comes equipped with a circulating pump, an expansion tank (with a volume of 10 litres, in the case of the 18kW model, and of 16 litres, in the case of the 24kW and 30kW models) with a pre-charge pressure of 1.0 bar, as well as a 3 bar safety valve;

* Operating pressure is between 1 and 1.5 bars;

* To empty the unit, attach a "T-tube" with a tap to the outlet (connected to the household sewage); the safety valve (3 bar) outlet
must also be connected to the household sewage;

* The heat transporting fluid must consist of water mixed with an anti-corrosion, non-toxic product added in the quantity recommended by the manufacturer. If there exists any risk of freezing in the space where the boiler is installed, or within its fluid pipes, the installation engineer must add the manufacturer's recommended quantity of anti-freeze agent to the circulating fluid, in order to avoid freezing at the absolute minimum expected temperature.

6.1. Operating mode for radiator/Buffer tank

⚠ IMPORTANT! The boiler is programmed to work directly for radiators, in case you want to install the boiler with a buffer or AQS tank, we recommend changing the temperature "OFF" of the circulation pump by placing the same temperature as the deposit or 1 °C higher than this temperature, should disable the "hYDRO Menu" modes "Modulating Pump"

and "hydro independent" and switch the mode display "Auto" to "Manual" mode and select the power 5 (Fire 5).
For these changes is necessary to access the "Installer Menu" on the display, please request a password manufactures.

7. Fuel

The boiler must be exclusively fuelled by *pellets.* No other fuel may be used.
Use only*pellets* certified by standard EN 14961-2 grade A1, **6mm in diameter** and a length between **10-30mm**.

The pellets may have a maximum humidity of 8% their weight. To guarantee a good combustion, the *pellets* must maintain these characteristics so they should be stored in a dry place.
The use of *pellets* of varied quality reduces the boiler's efficiency and leads to an inadequate combustion process.
You should always use certified pellets and must not forget to test a sample before buying large bulks.

The physical/chemical properties of the pellets (calibre, friction, density and chemical composition) may vary within specific tolerances and according to each manufacturer. Please note that this may cause alterations to the feeding process and, consequently, the need for different doses (more or less pellets).
The boiler's pellet dosage can be adjusted during the start-up phase and at the power thresholds of± 25% (see the manual – temporary and power settings)

Warning!
The unit must NOT be used as an incinerator.

8. Use of the pellet-run boiler

Recommendations

Before starting up the unit, please check the following:

- Guarantee that the boiler is properly connected to the power mains by means of the 230 VAC power cable.

Figure 8 – Electric power plug.

- Check to see whether the *pellet* reservoir is supplied with pellets. Inside the*pellet* reservoir is a safety grid to prevent users from reaching theworm screw.
- Always check whether the burner is unblocked before igniting the boiler.

⚠ **The boiler's combustion chamber, as well as its doors, are made of iron plate painted with high temperature resistant paint. Fumes are released during the initial burning sessions due to the curing of this paint.**

Avoid touching the unit during its first burn to prevent leaving permanent marks on the paint. The paint goes through a more plastic phase during the curing process. The curing of the paint occurs at approximately 300ºC and for 30 minutes.

Ensure that the hydraulic circuit was correctly assembled and is connected to the water supply;

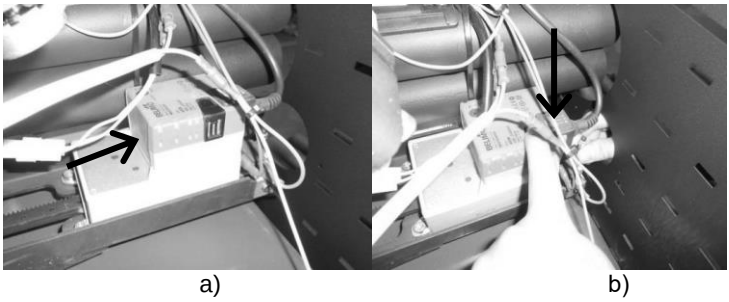
You should check that there is sufficient ventilation in the room where the unit is installed, otherwise it will not work properly. You should therefore check to see whether there are other heating air-consuming units in the room (e.g. gas units, oil boilers, etc.), which should not be used simultaneously with the unit.

The pellet-run boiler is equipped with a sensor probe for measuring room temperature. This probe is attached to the grid located on the back panel of the unit (Figure 9). For a good reading of the room temperature, avoid the contact between the end of the probe and the unit chassis. You may also attach the probe to the wall beside the unit.

Figure 9 – Room temperature sensor probe

⚠ At the first start of the boiler or After some time without use, the linear cleaning motor might create some mechanical resistance to movement, hindering its proper functioning. Before putting the boiler into operation you must press the black button, in the upper zone of the motor (fig. 10-a), and holding the button (fig. 10-b), move the arm repeatedly

back and forth (as shown in the figures 10-c and d) until it returns to work normally.



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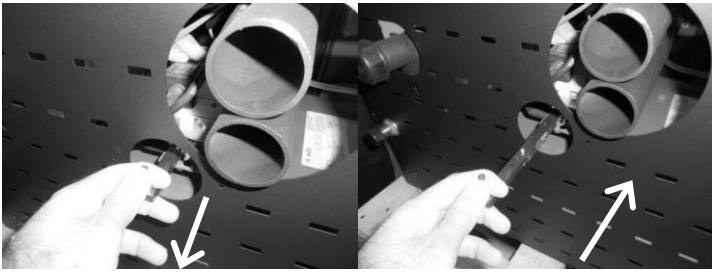


c) d)

Figure 10 – The cleaning motor

Nota: The cleaning motor arm of the boiler backs to clean the burner as shown in Figure 11.

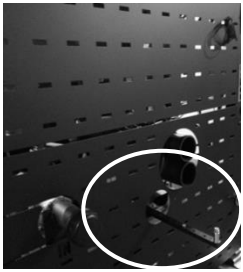


Figure 11 – The cleaning motor

9. Remote Control

9.1. Remote control and display

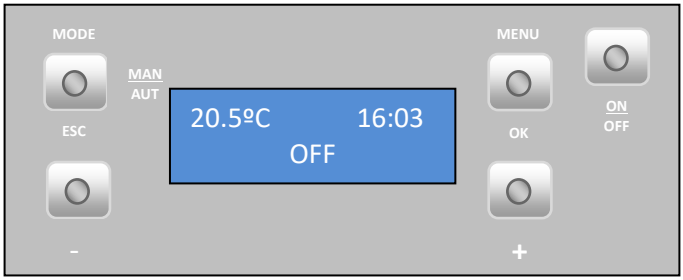


Figure 12 – Command panel and display

a) Key to toggle between manual and automatic mode and exit menus (esc).

b) Key to access menus and confirmation key (ok).

c) Key to start/stop the unit operation and reset error messages

d) Key to scroll the menus to the left, to increase and reduce the fan flow and increase or reduce the set-point temperature.

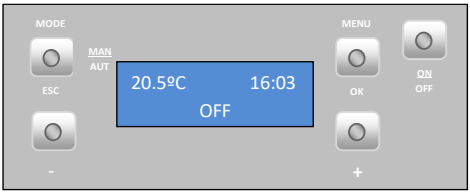
e) Key to scroll menus to the right and increasing and to reduce the unit's power.

Figure 13 – Command panel buttons

10. Display information summary

10.1. Menu

Menu indicating the room temperature in ºC, the time and that the boiler is "OFF".



"Auto" mode: in this mode, the unit shall be turned on at maximum power until reaching a temperature of 1ºC above the temperature selected (set point temperature). Upon reaching the set temperature, the unit changes to minimum operating power.

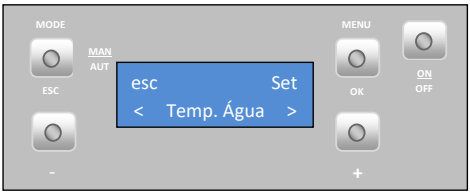
The set-point temperature can be set between 5 and 35ºC by pressing the "-" key.

The "+" key allows the user to set the ventilation speed between 1-5 and automatic mode.

10.2. Water temperature

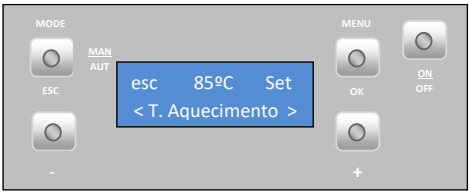
Press the Menu key twice to set the water temperature;

"Temp. Agua" (Water Temp.) appears on the display. Press Set to see the "T. Aquecimento" (Heating T.) menu.



- Heating temperature

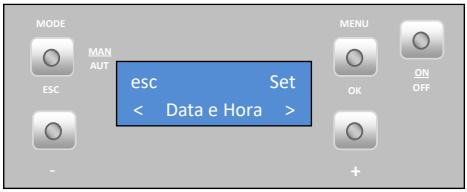
To set the desired **heating temperature** press “set”; the display starts to flash. Press the “+” or “-“ key to select the desired value and then “ok” to confirm. Press the "+" key to go to the "Temperatura de sanitários" (Bathroom Temperature) menu.



- Bathroom temperature **(this mode is disabled)**

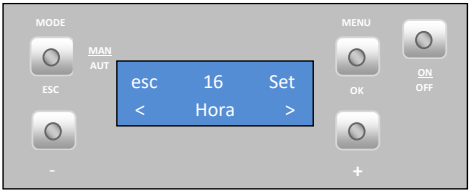
10.3. Date/Time

To set the **date and time**: press the Menu key twice and "Dia e Hora" (Date and Time) appears on the display. Press "set" to see the "Hora" (Time) menu.



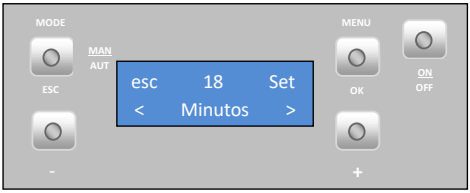
- Time

To set the **time** press “set”. The display starts to flash. Press the “+” or “-“ key to select the desired time and then “ok” to confirm. Press the "+" key to go to the "Minutos" (Minutes) menu.



- Minutes

To set the **minutes** press “set”. The display starts to flash. Press the “+” or “-“ key to select the desired minutes and then “ok” to confirm. Press the "+" key to go to the "Dia" (Day) menu.

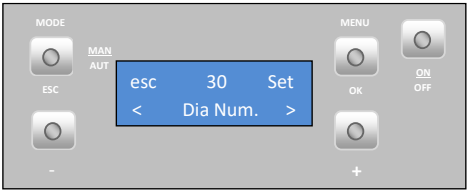


- Day

To set the **weekday** press “set”. The display starts to flash. Press the “+” or “-“ key to select the desired day and then “ok” to confirm. Press the "+" key to go to the "Dia Num." (Day Number) menu.

- Day of the month

To set the **day of the month** press “set”. The display starts to flash. Press the “+” or “-“ key to select the desired day and then “ok” to confirm. Press the "+" key to go to the "Mês" (Month) menu.

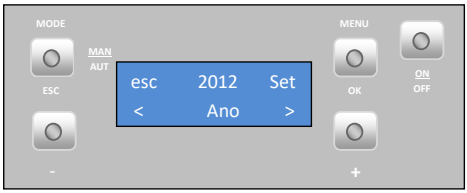


- Month

To set the **Month** press “set”. The display starts to flash. Press the “+” or “-“ key to select the desired Month and then “ok” to confirm. Press the "+" key to go to the "Ano" (Year) menu.

- Year

To set the **year** press “set”. The display starts to flash. Press the “+” or “-“ key to select the desired year and then “ok” to confirm. Press "esc" to return to the "Dia e Hora" (Date and Time) menu then "+" scroll to the next menu. The Crono (Timer) menu appears.

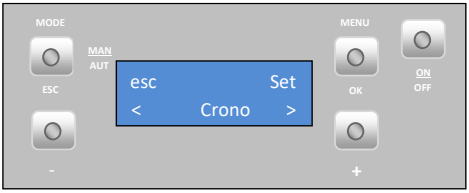


10.4. Timer

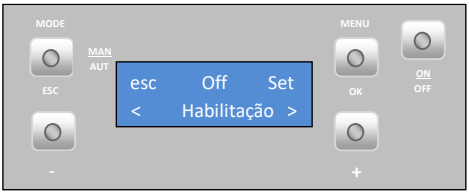
The boiler is equipped with a timer that allows it to be programmed to turn on or off at a specified time of day.

- Activation

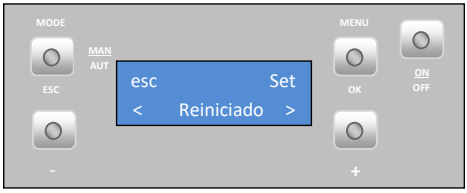
To **activate the timer** press “set”. The "Habilitação" (Activation) menu appears. The timer may only be activated after setting the configurations, as shown in the following paragraph.



To **activate the timer mode** press "set". The display starts to flash. Press the "+" or "-" key to select the "On" or "Off" and then "ok" to confirm. Press the "+" key to go to the "Reiniciado" (Reset) menu.

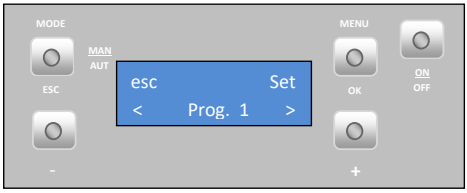


This menu allows you to delete any programme settings. To do this, press "set". The "Confirmar?" (Confirm?) prompt appears. Press "set" again to confirm that you want to delete the settings or "esc" to exit.

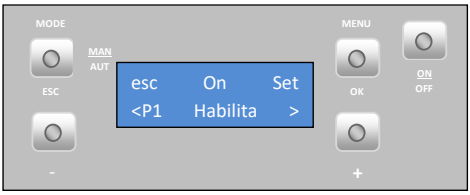


The unit's **programmer** lets you choose from 6 different programmes for each day of the week.

To setup **programmes "P1" to "P6"**, select the desired programme using the "-"e "+" keys, and press "set" to select. "P1 Habilitação" (P1 Activation) menu appears.

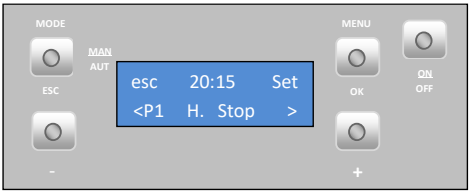


Press "set" again and when the display starts to flash, press "+" or "-" to select "On" or "Off". Press "ok" to confirm the selection. Press the "+" key to go to the "P1 A. Inicio" (P1 A. Start) menu.

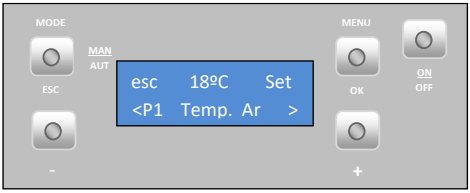


To set the **starting time** in Programme 1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired time and then "ok" to confirm. Press the "+" key to go to the "P1 A. Stop" menu.

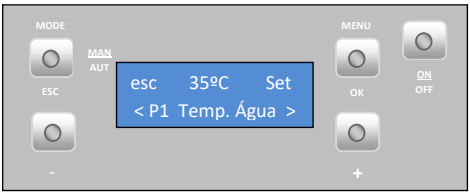
To set the **stopping time** in P1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired time and then "ok" to confirm. Press the "+" key to go to the "P1 Temp. Ar" (P1 Air Temp.) menu.



To set the **set point room temperature** in programme 1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired temperature and then "ok" to confirm. Press the "+" key to go to the "P1 Temp. Ar" (P1 Water Temp.) menu.



To set the **water set point temperature** (only for the **backboiler model**) of P1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired temperature and then "ok" to confirm.
Press the "+" key to go to the "P1 Fire" menu.



To set the **set point room temperature** in programme 1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired temperature and then "ok" to confirm. Press the "+" key to go to the "P1 Dia" (P1 Day) menu.

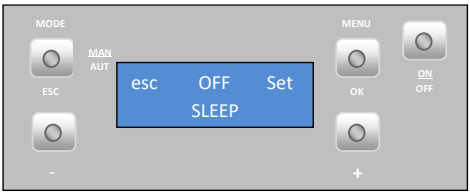
To select the **days of the week** that you want the P1 programme to run, press "set" and then select the day of the week using the "-" and "+" keys. Press "set". The display starts to flash. Select "On" or "Off" using the "-" and "+" keys. Press "ok" to confirm the selection. Press the "esc" key to go to the "P1 Dia" (P1 Day) menu. Press "esc" twice and then "+" to access the "Configurações" (Configuration) menu.

Repeat the above steps for programmes P2 to P6.

Note: After setting up the programmes, please remember to activate them on the "Habilitações" (Activation) menu.

10.5. Sleep

The "Sleep" menu allows you to set the time you want the unit to turn off.

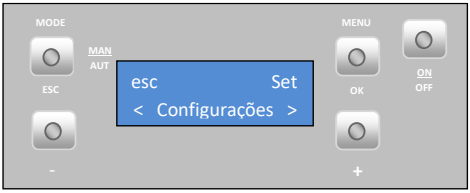


Press "set". The display starts to flash. Select the desired time using the "-" and "+" keys. After choosing the time, press "ok" to confirm. Press "esc" to return to the menu and "+" to go to the configuration menu.

10.6. Configuration menu

To modify the boiler's **settings**, press “Set”.

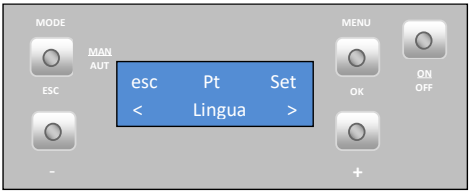
The "Língua" (Language) menu appears allowing you to select the language.



- Language

To select the**language**, press "set". Using the "+" or "-" keys, select the desired language (**Pt** – Portuguese; **Nl** – Dutch; **Gr** – Greek; **It** – Italian; **En** – English; **Fr** – French; **Es** – Spanish; **De** – German). Press "ok" to confirm.

Press the "+" key to go to the "eco" menu.



- Eco mode

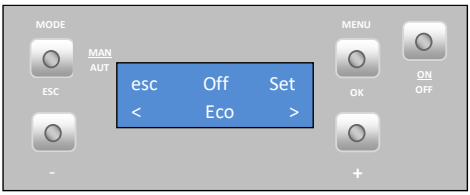
When you activate the mode "ECO" with the Thermostat function, the boiler operates at full power until the thermostat open contact (NO) and passing operating at minimum power during a predetermined time interval (Shutdown delay time: factory setting : 20 minutes). After this time, the boiler is turned off. From the beginning of boiler shutdown phase we have to count another predetermined time interval (delay time Starup: default value: 20 minutes), so that when the thermostat closes the contact (NC), Pass to activation phase.

Startup delay time (waiting time On) is the waiting time after the thermostat contact close (NC), to enable the boiler.

Shutdown delay time (waiting time Off) is the waiting time after the thermostat contact open (NO) to switch off the boiler.

To activate the eco mode, press "set". The display starts to flash. Select "On" or "Off" using the "-" and "+" keys. Press "set" to confirm the selection.

Press "esc" to return to the previous menu and "+" to go to the "Iluminação" (Lighting) menu.



- Lighting

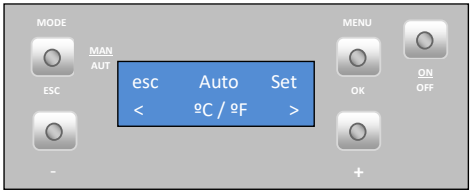
To select **lit screen**, press "set". The display starts to flash. Press the "+" or "-" key to select the time at which you want the screen to light up, or choose "On" to keep the light on at all times. Press "ok" to confirm. Press the "+" key to go to the "Tons" (Tones) menu.

- Tones

To activate the **key tone**, press "set". The display starts to flash. Press the "+" or "-" key to select "On" or "Off". Press "ok" to confirm. Press the "+" key to go to the "ºC/ºF" menu.

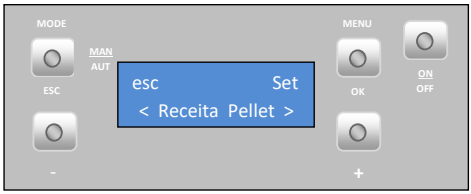
- Temperature unit (ºC/ºF)

To select **ºC / ºF**, press "set". The display starts to flash. Press the "+" or "-" key to select "ºC", "ºF" or "Auto",and then "ok" to confirm. Press the "+" key to go to the "Receita Pellet" (Pellet Qty) menu.



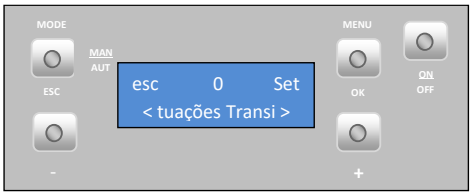
- Pellet quantity

Press "set" to see the "Actuações transitórias" (Temporary settings) menu.



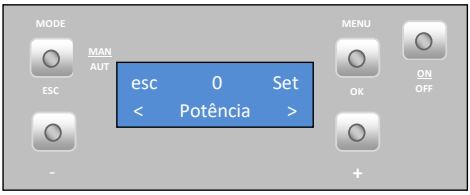
- Temporary settings

This feature allows you to increase or decrease by 25% the **amount of pellets at start-up**. Press "set". The display starts to flash. Press "+" or "-" to increase or decrease (between -5 to +5), accordingly. Each unit must be multiplied by 5 to obtain the correct percentage. Press "ok" to confirm. Press the "+" key to go to the "Actuações de Potência" (Power settings) menu.



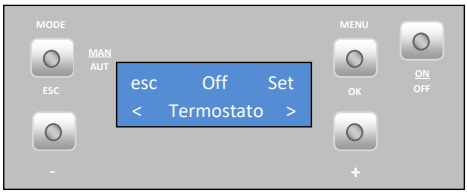
- Power settings

This feature allows you to increase or decrease by 25% the amount of pellets at each power level. Press "set". The display starts to flash. Press "+" or "-" to increase or reduce (from -5 to +5), accordingly. Each unit must be multiplied by 5 to obtain the correct percentage. Press "ok" to confirm. Press "esc" to return to the "Receita de pellets" (Pellet Qty) menu and "+" to go to the "Termostato" (Thermostat) menu.



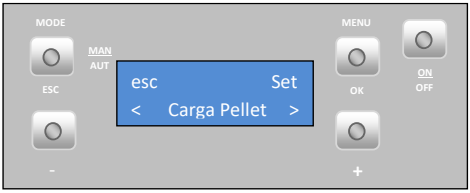
- Thermostat

This feature allows you to enable or disable **the room temperature thermostat**. Press "set"; the display starts to flash. Press the "+" or "-" key to select the "On" or "Off" and then "ok" to confirm. Press the "+" key to go to the "Carga Pellet" (Pellet loading) menu.



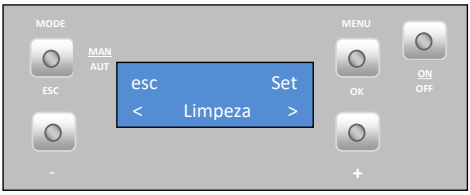
- Pellet loading

This feature allows you to enable the **worm drive** to fill the channel when it is empty to keep the unit running. Press "set"; the "ok" option appears. Press "ok" to activate the drive (the "habilitada" (Activated) message appears) and "esc" to stop it. Press the "+" key to go to the "Limpeza" (Cleaning) menu.



- Cleaning

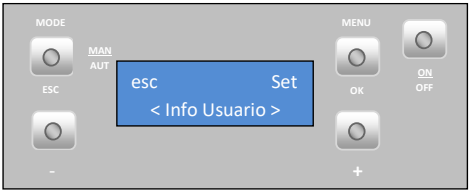
This feature allows you to **clean** the burning basket manually. Press "set"; the "ok" message appears. Press "ok" to start the cleaning; the "Habilitada" (Activated) message appears. When you wish to stop, press "ok". Press the "+" key to go to the "Técnico" (Technical) menu.

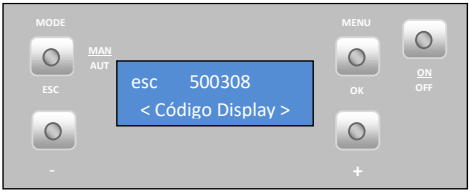


The technical menu is not available to the end user since it includes exclusively factory settings that must never be changed.

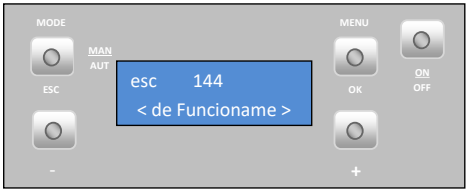
10.7. User Info

This menu allows the user to visualise information about the boiler. Press "set"; the "Código de Ficha" (File Code) menu appears. Display software/firmware code Press the "+" key to go to the "Horas Funcionamento" (Operating Hours) menu.

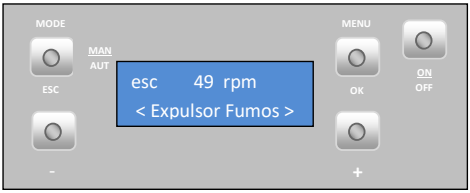




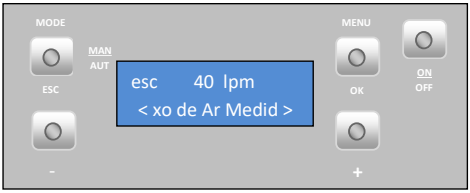
This menu indicates the number of hours the boiler has been operating.



Fume extractor operating speed (rotation per minute).

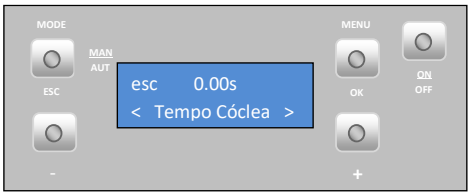


Airflow measured by the air probe.

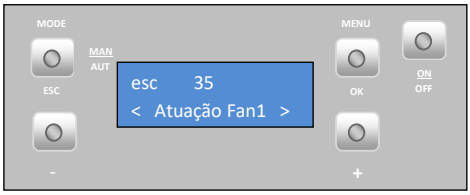


Fume temperature.

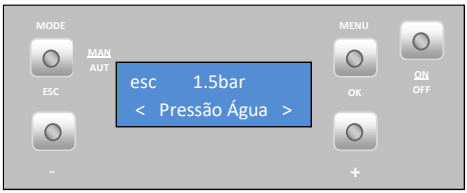
Worm drive rotation time ("On").



Ventilation power level.



Hydraulic circuit pressure



11. Start-up

To start up the pellet-run boiler, press the start/stop button for 3 seconds. The display should indicate "Acendimento" (Lighting) until this completion of this phase.

The *pellets* will be pushed through the supply channel into the burning basket (combustion chamber), where they will be ignited using a heater coil. This process may take between 10 and 15 minutes, depending on whether the *pellet* transport worm screw has been previously loaded with fuel or is empty. Upon completion of the ignition phase, the word "On" should appear on the *display*.

12. Stoppage

The unit stop sequence is activated by pressing the “On/Off” key for 3 s. The display shows the **“desactivação”** (deactivation) message until this phase is completed. The extractor will remain active until the fume temperature reaches 59 ºC.

13. Turn off the unit

The unit should only be disconnected after stoppage.
Make sure that the display indicates **“Off”**. If necessary, disconnect the power cable from the mains.

14. Instructions for removing the side covers

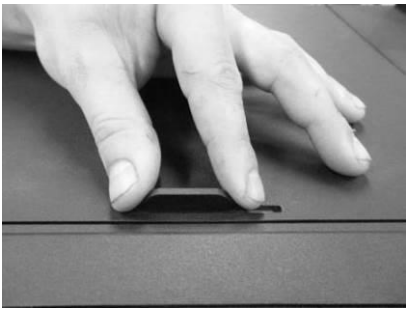
14.1. Remove side covers

Lift the cover, pulling up and forward, thus removing it from the upper and frontal slots. Do the opposite to assemble the unit.

Figure 14 – Removal of side covers

15. Pellet reservoir lid

The pellet reservoir is opened by sliding the bolt sideways (Figure 15-a) and then lifting up the lid (Figure 15-b).



b)

b)

Figure 15 – Opening the lid

16. Filling the pellet reservoir

1 – Open the pellet reservoir lid located at the top of the unit, as shown in Figure15-b.

2 – Pour the pellets into the reservoir, as shown in Figure 16.

Figure 16 – Refilling the pellet reservoir

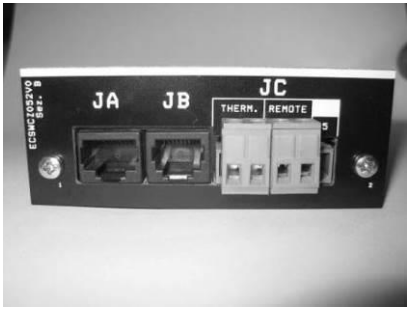
3 – Turn on the unit and close the lid of the reservoir, pressing down as shown in Figure 15.

17. Installation and operation using remote command (chrono-thermostat) – not included with the boilers

The pellet-run boilers are mass produced with a command *display*. Alternatively, the units can be operated using a generic remote command unit (chrono-thermostat). **Note:** the remote command unit normally comes accompanied by a manual. An interface must be installed in order to use the remote command (17–c).

a)

b)



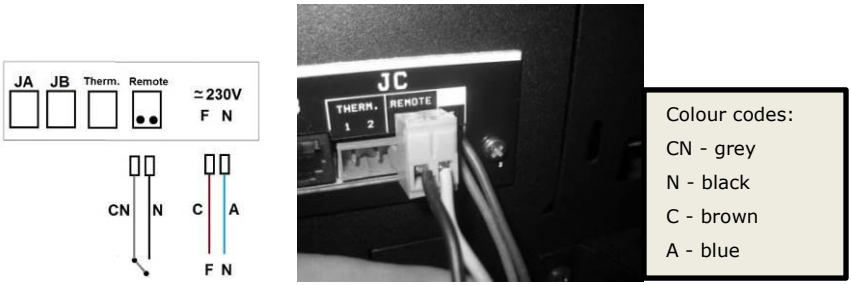
c)

Figure 17 – Remote command unit (chrono-thermostat) and connection interface – both not included.

This board has two entries "remote" and "therm" to conect the chrono-thermostat into the "remote" the user of the start (closed contact NC) and stop (open contact NO) the boiler.

If connecting into the "thermostat" This will only change the power of the machine between minimum output (open contact NO) and maximum power (closed contact NC).

Note: the external command, as a rule, comes with a manual. In the case of wireless remote control is necessary to connect the two wires as shown in the following figure:



a) b)

Figure 18 – Wireless remote command connection

For the **wired** remote control, the black and grey wires must be connected to the receiver as shown in the following figure.

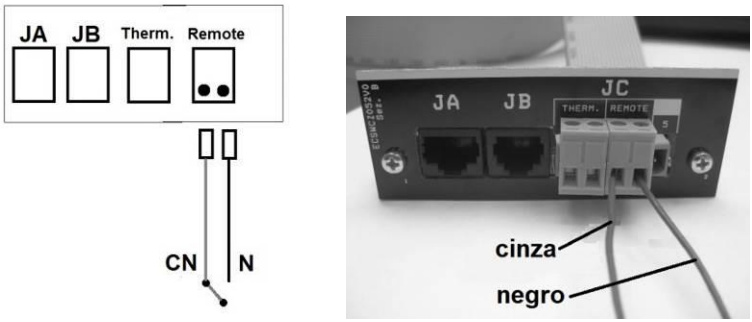


Figure 19 – Wired remote command connection

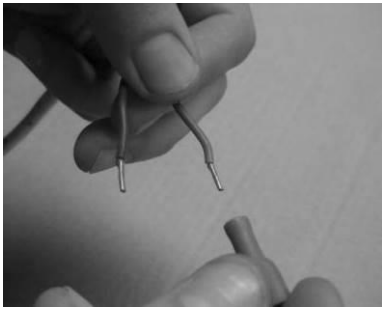
18. Instructions for remote control assembly

1 – Turn off the equipment at the main power switch and remove the right-hand side of the pellet-run boiler.

2 – Remove the unit's terminals phase (F) and neutral (N).

a)

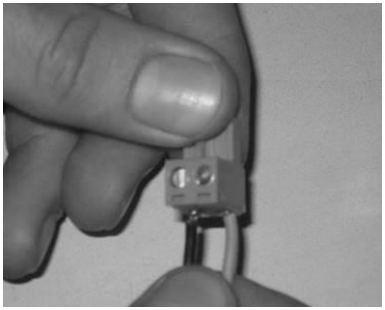
3 – Rivet the terminals of the 220V wire supplying power the transmitter.

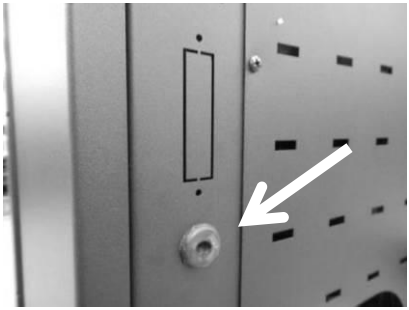


b)

c)

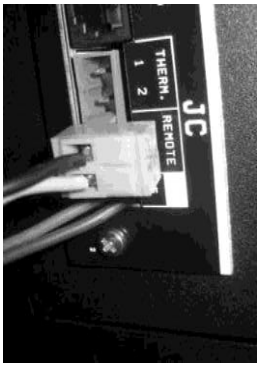
4 – Attach the wires to the connector of the ON/OFF contact (Figure 20-d); Direct these same wires through the cable gland into the interior of the boiler (Figure 20 – e);





d) e)

5 – Connect the plug of the remote command (On/Off contact) to the "Remote" socket (Figure 20);.



f) g)

Figure 20 - Installation of the chrono-thermostat

19. Installation of the external silo

Solzaima's automatic wood pellet boiler has an internal tank with a capacity of 45kg of wood pellets. Solzaima's optional storage unit allows you to increase by about 200kg the amount of wood pellets available, significantly increasing the autonomy of the boiler.

The optional storage unit set includes:

- Storage unit;
- Casters for moving the storage unit;
- Worm drive channel to transport the pellets into the boiler's internal tank;
- Electric power enginer to rotate the worm drive screw;
- Circuit board with wiring included;
- pellet level sensor of the storage unit

Together with the storage unit a connection kit to the boiler is provided and it includes:

- Instruction manual;
- Storage unit instruction manual;
- Flexible hose with metal bracket to connect the storage unit to the boiler;
- Cable to connect the storage unit level sensor and Pellet level sensors for the boiler's internal tank to the circuit board;
- Cable for electrical connection of the deposit;
- Ramp to put inside the boiler's tank;
- Parts for the rear and lateral fixation of the storage unit to the boiler;
- Screws for attaching the level sensors to the tank of the boiler.

Description of operation

When the level sensors of the boiler's internal tank ceases to detect pellets (the sensor lights go off) the electric power engine of the storage unit is triggered, by rotating the worm drive screw of the storage unit. Thus the pellets are transported from the storage unit to the boiler's internal tank. The electric power engine will run continuously until the sensors in the boiler's tank detect pellets again (sensor lights turn on). When this happens, the electric power engine stops.

Thus, the storage unit system will be triggered each time the pellets level in the boiler's tank is low, preventing the boiler's flame is extinguished due to the lack of pellets.

In the storage unit, there is also a sensor that detects the level of pellets. When the pellets level is low, the sensor will cease to detect the pellets (the sensor light goes off) and will appear on the display a message of troubleshooting. After 40 seconds will appear on the boiler's display na alarm signal (code A15) and the boiler shuts down. The electric power engine keeps running, fueling the boiler's internal tank until the sensors detect pellets.

To restart the boiler, you will have to refill the storage unit with pellets

(at least until the level sensor detects pellets) and reset the error (see automatic boiler instruction manual).

The wood pellet storage unit can be installed on either the left or right side of the boiler. By default, it is configured to be installed on the right side of the boiler.

⚠ For greater ease you should proceed to the assembly and adjustment of the storage unit before installing the boiler.

Adjusting the height of the boiler

With the boiler placed in its final position, and before starting the installation of the storage unit, you should level the boiler and put it at the same height of the storage unit. To do so, you should place the storage unit beside the boiler (left or right) and adjust the leveling feet of this until it is aligned with the storage unit by the upper zone, as shown in the following pictures.

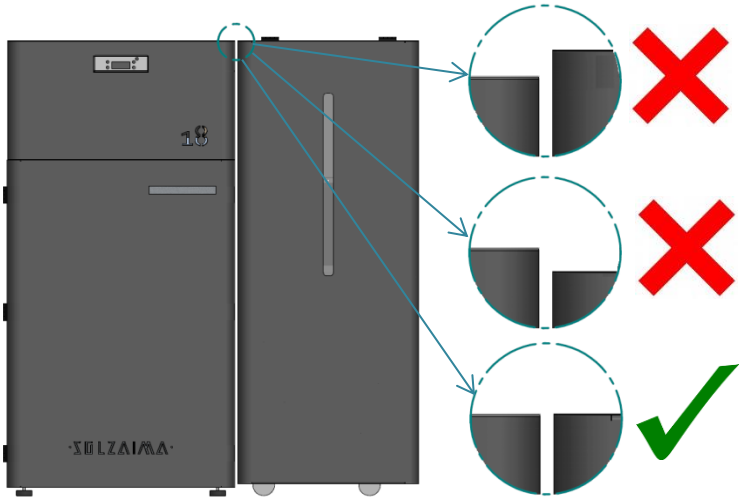
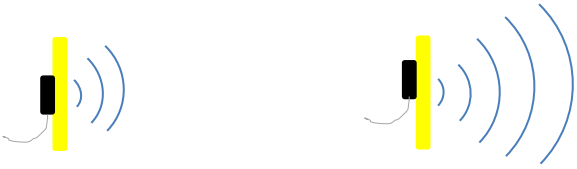


Figure 21 – Adjusting the height of the boiler

Adjusting the sensor's response time and sensitivity

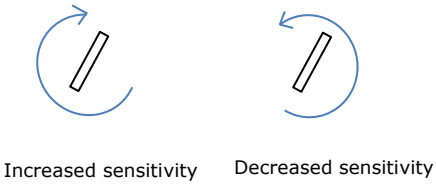
You can adjust the pellet level sensor's sensitivity. The higher the sensitivity, the better the sensors will detect the pellets in their proximity to send an electric signal to the control circuit board.



a) b)

Figure 22 – Difference between a level sensor with low sensitivity (a) and high sensitivity one (b)

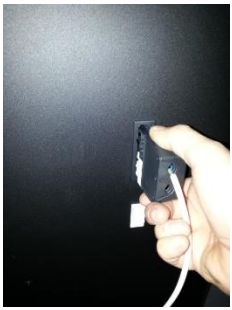
To set the sensor to the required sensitivity rotate the knob (Figure 23-a) clockwise to increase the sensitivity or counter clockwise to decrease it (Figure 23-b).



a) b)

Figure 23 – Adjusting the level sensor sensitivity

1 – To adjust the sensitivity must connect the tank to the boiler using the cable Kit.



a)

b)

d)

e)

Figure 24 – Connecting the sensors to the circuit board

2 – Next, you should remove the storage unit's level sensor. By default, it comes installed on the left side of the storage unit (the storage unit is set up by default to be installed on the right side of the boiler). To do this, loosen the screws of the part that supports the sensor and remove the set.

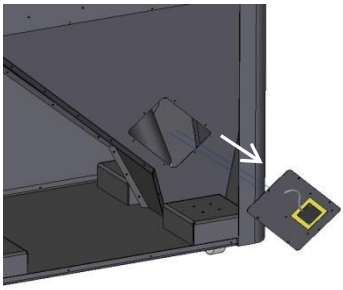


Figure 25 – Removing the storage unit's level sensor

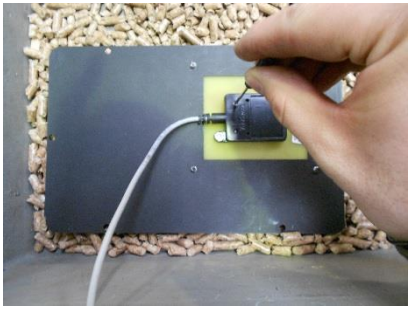
3 – With the sensors already connected to the circuit board, you must connect the boiler to the mains.

4 – You should put some pellets in a container, and next to the boiler, perform the sensitivity adjustment, as described in the following steps:

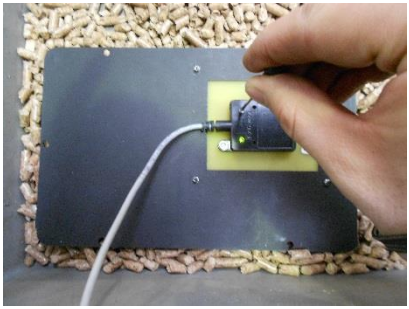
- put the sensor over the pellets;

Figure 26 – Placement of the sensor over the pellets

- Rotate the adjustment knob counter clockwise so that the lights go out (if they are not already out) -



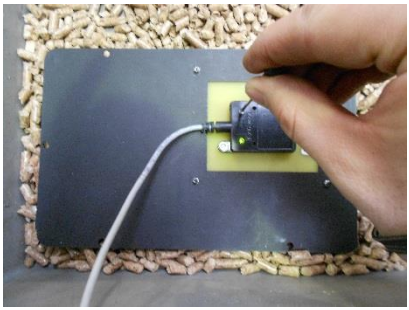
a)



b)

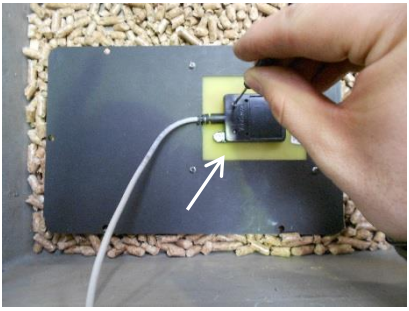
Figure 27-a – and then, slowly rotate clockwise until the lights come on -

a)

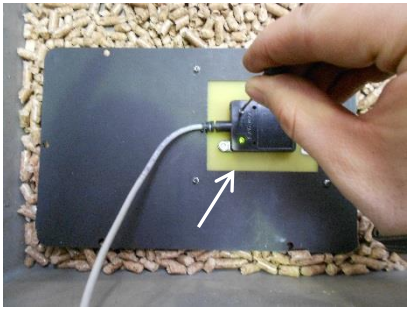


b)

Figure 27 – b and c.



a)



b)

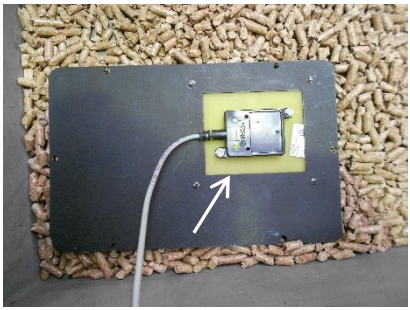
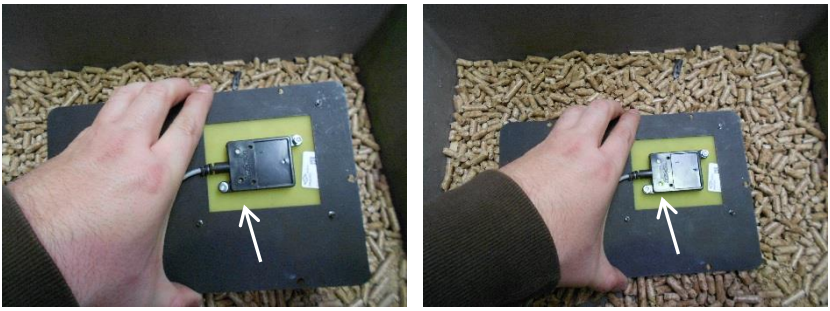


Figure 27 – Adjustment of the sensor sensitivity

- Then, with the light of the sensor on, you should move the sensor away from the pellets and check that the light go out (Figure 28-a) and re-approach and check that the light come on when approaching the pellets (Figure 28-b)



a) b)

Figure 28 – Adjustment of the sensors sensitivity

- If the light do not go out when moving the sensor away from the pellets or do not come on when approaching, re-adjust the sensitivity of the sensor and repeat the test.

- You shall perform the sensitivity adjustment for both the boiler's tank level sensors and for the storage unit's level sensor.

You can also adjust the sensor's response time, to set the time the sensor waits before sending the signal to the circuit board upon detecting the pellets. This setting can be made directly on the storage unit electronic circuit board, on the upper right corner, using the same

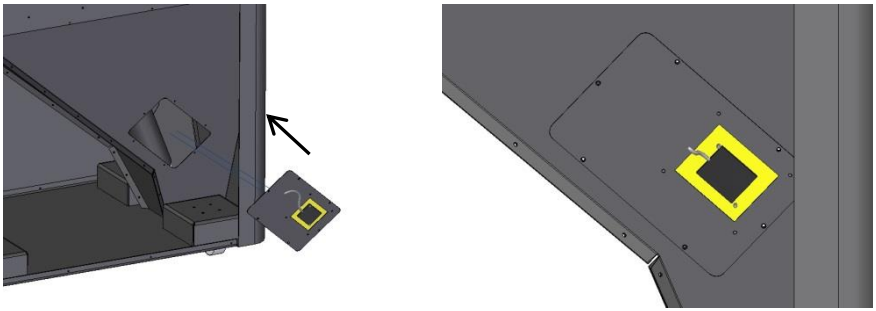
procedure used for adjusting the sensitivity – rotate clockwise to increase the response time and counter clockwise to decrease the response time.

⚠ The response time should be set to the minimum value

Installing the storage unit on the right side of the boiler

The level sensor of the storage unit must always be installed on the side closest to the boiler.

1 – If you want to install the storage unit on the right side of the boiler you must install the level sensor on the left side of the storage unit, in the same place where he comes assembled by default. Before, you should disconnect the plug of the cable connected to the circuit board, to facilitate the assembly. To fasten it, you should use the screws previously removed, and put it in the position shown in Figure 29-b.



a) b)

Figure 29 – Installing the sensor level in the storage unit

2 – Then, you should install the ramp to drop the pellets in the boiler's internal tank. For this, you should start by removing the right side cover of the boiler's tank – removing the 4 screw securing it (Figure 30).

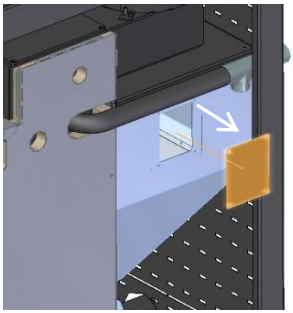
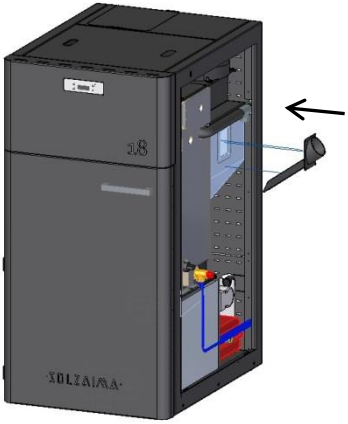
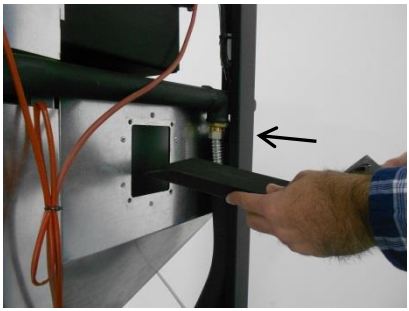


Figure 30 – Removing the lateral cover of the boiler's tank

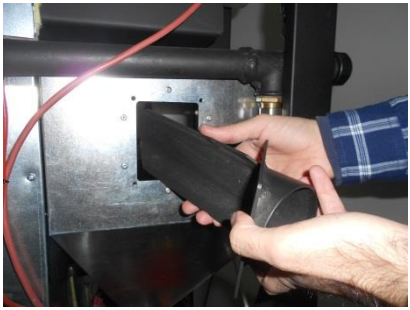
3 – To assemble the ramp to drop the pellets you should insert it in the tank, as shown in the following pictures, and fasten it with the screws previously removed.



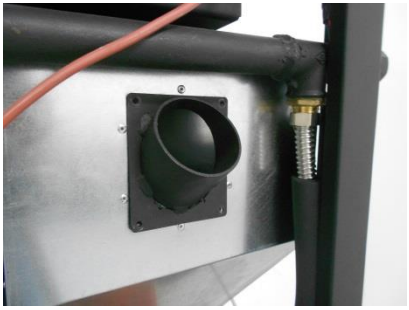
a)



b)



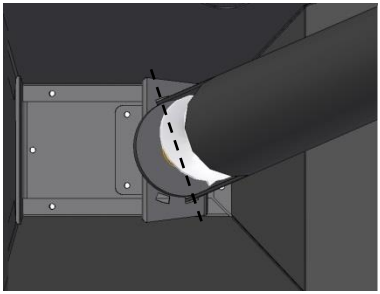
c)



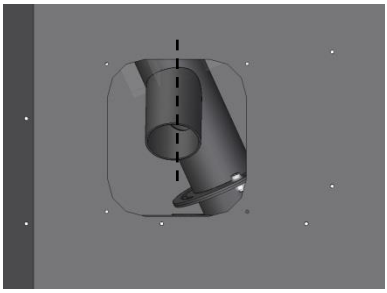
d)

Figure 31 – Assembly of the ramp to drop the pellets in the boiler's tank

4 – Before proceeding with the assembly of the storage unit, you should check if the worm drive channel is properly docked in its base. To do this, open the lid of the storage unit and check if the docking is in accordance with Figure 32-a. Also, check if the pellet's output tube is in line with the opening of the storage unit (Figure 32-b).



a)

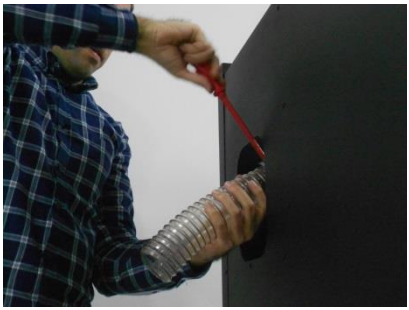


b)

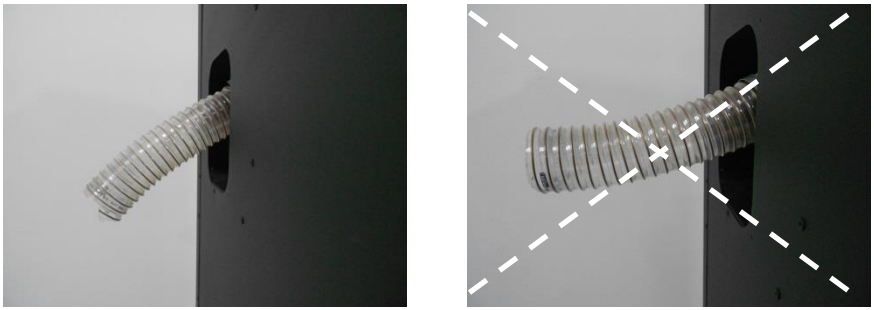
Figure 32 – Worm drive channel for storage unit installation on the right side

5 – Place the flexible hose on the storage unit's pellet output tube and attach it using the metal bracket provided. The flexible hose must make a downward curve (Figure 33-c).

a)



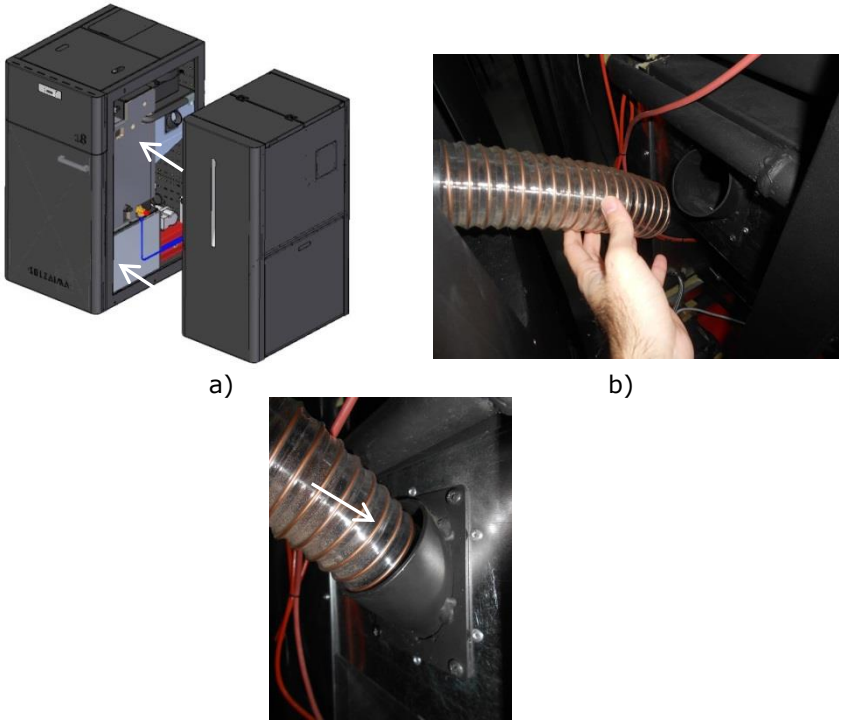
b)



c) d)

Figure 33 – Installing the flexible hose

6 – Then, you should approach the storage unit to the boiler and insert the flexible hose into the ramp to drop the pellets (Figure 34 – b e c). The storage unit must be at a spacing of 1 cm to the side of the boiler and must be aligned with this by the rear.



a) b)

c)

Figure 34 – Placing the storage unit next to the boiler (a); connecting the storage unit to the boiler's pellet tank (b e c)

7 – To make the fixing of the storage unit to the boiler you will have to remove the upper lids of the storage unit. Remove the 2 screws at the back (Figure 35-a); open the front lid and remove the 3 screws that secure the lids to the central bar (Figure 35-c).

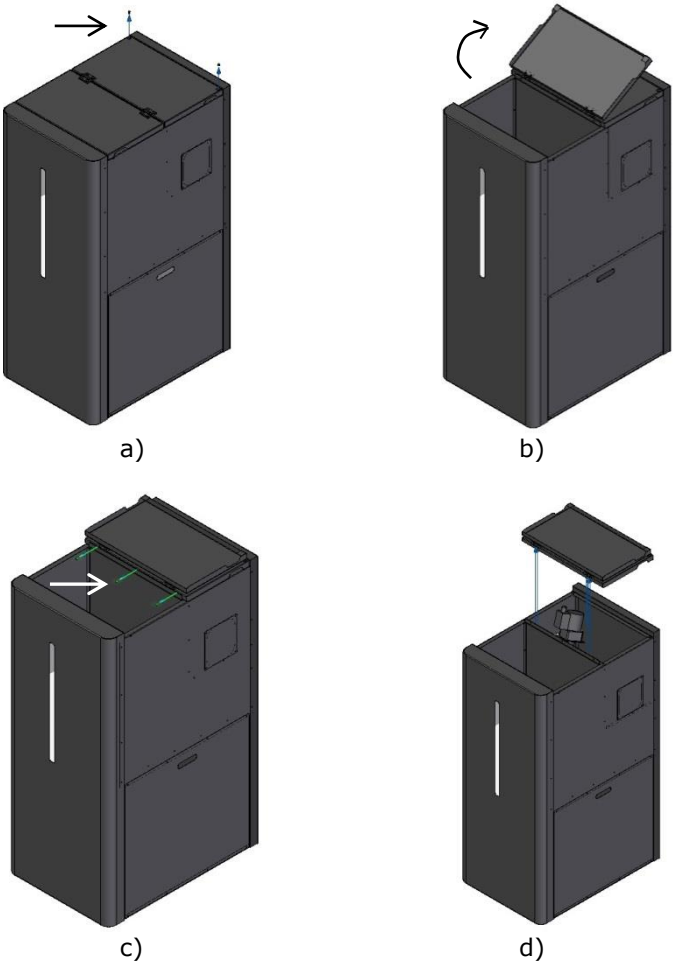
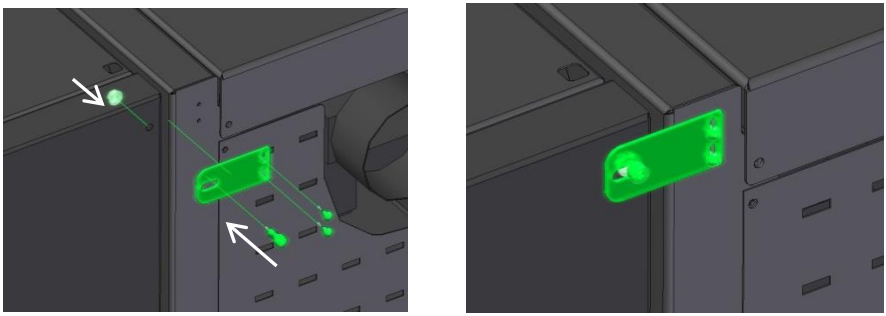


Figure 35 – Removing the upper lids

8 – After removing the lids you should secure the storage unit to the boiler assembling, at the back, the provided part, and secure it with the screws, as shown in the following figures.



a) b)

Figure 36 – Attaching and securing the storage unit to the boiler – Rear view

9 – The adjoining sides of the storage unit and the boiler should be secured in place using the screw and the mounting bracket provided.

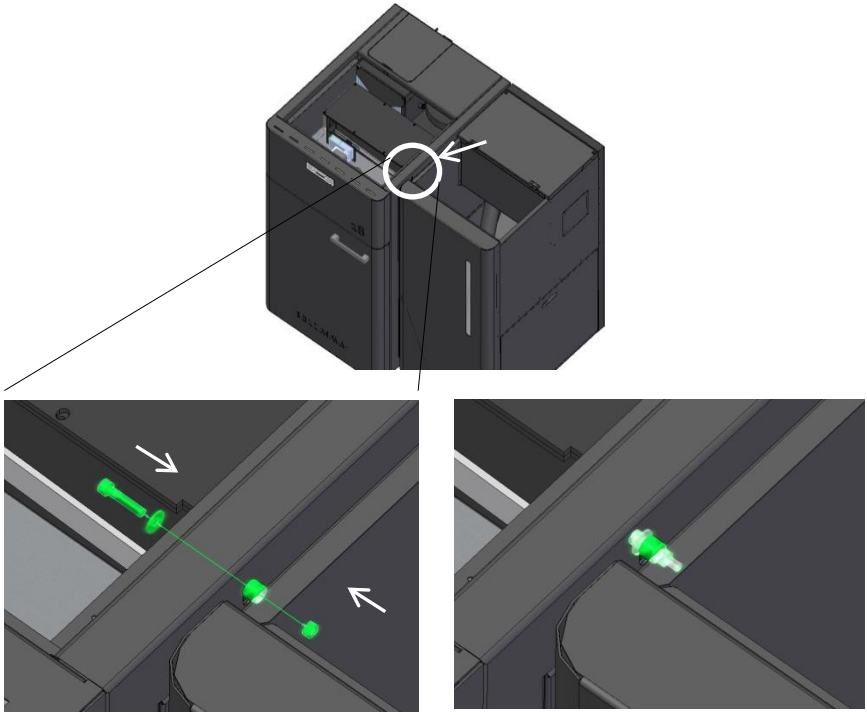


Figura 37 – Attaching and securing the storage unit to the boiler – Side view

10 - Finally, you should place the upper lids and re-attach the screws.

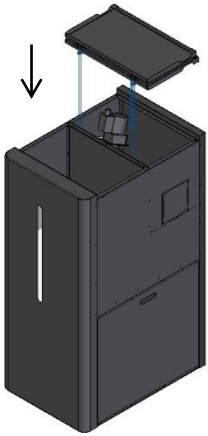


Figura 38 – Replacing the upper lids

Installing the storage unit on the left side of the boiler

The storage unit is set up by default to te installed on the right side of the boiler. If you wish to install it on the left side, please follow these steps.

1 – First, remove the upper lids by loosening and removing the two retaining screws on the rear (Figure 39-a). Then, open the front lid and remove the 3 scres (Figure 39-c) that hold the lids in place.

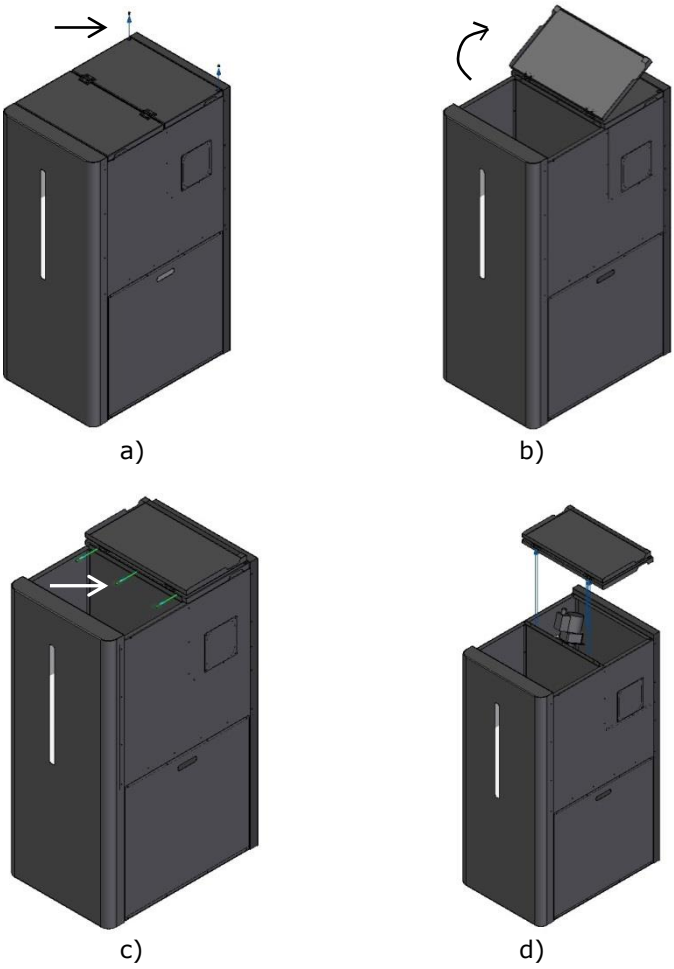
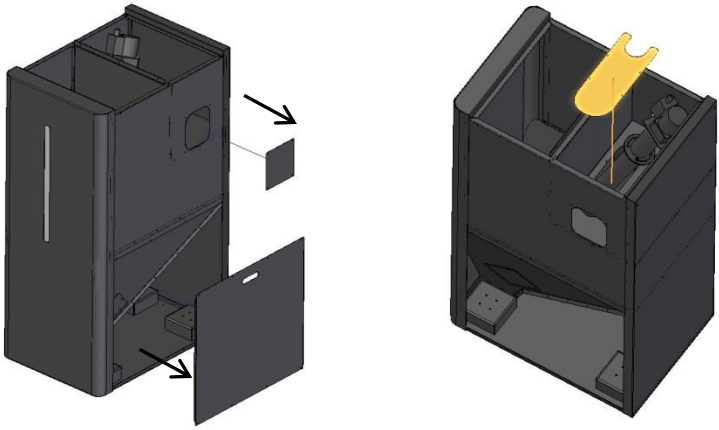


Figure 39 – Removing the upper lids

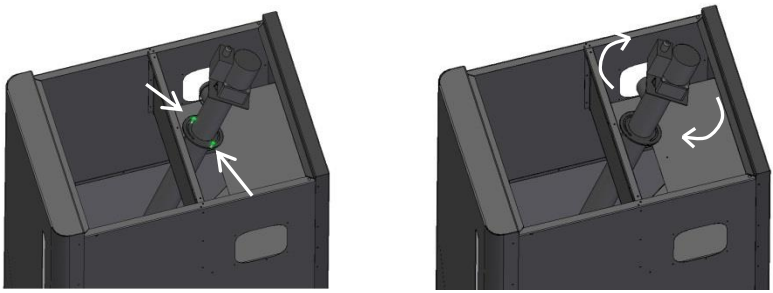
2 – Next, remove both side lids (Figure 40-a) and the retainer that holds the worm drive screw channel in place, inside the storage unit (Figure 40-b)



a) b)

Figure 40 – Removing the side lids and plate

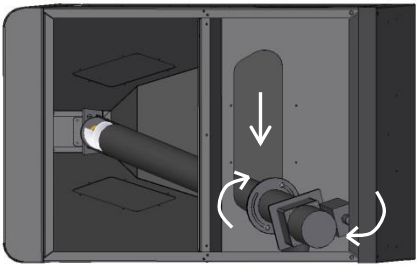
3 – To place the pellets' output on the right side of the storage unit, loosen both screws shown in Figure 41-a (you don't need to remove them completely), and rotate the channel upper assembly (including the drive's assembly) clockwise. Once the procedure is completed, retighten the two screws.



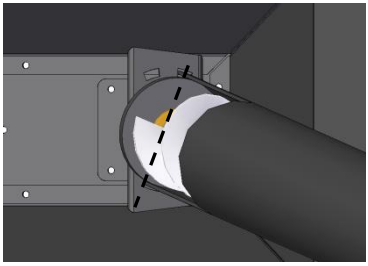
a) b)

Figure 41 – Worm drive set rotation

4 – Afterwards, you must slide the worm drive channel to the right side of the storage unit (Figure 42-a), by lifting it up and rotating it clockwise so that it fits the base aligned diagonally with the holes (Figure 42-b).

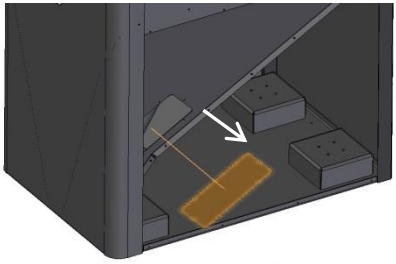


a)



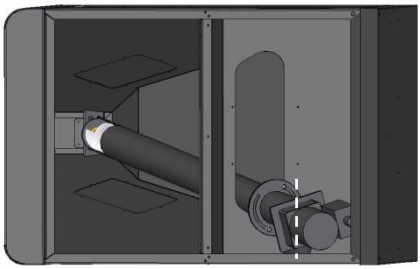
b)

You should remove the lower side lid of the storage unit to access the worm drive channel retainer to facilitate its placement at the base.

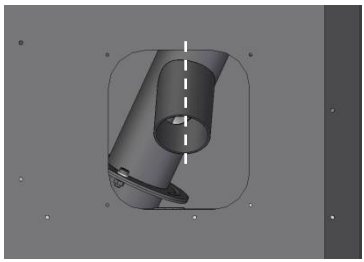


c)

When the procedure is complete, the pellet output should be perpendicular to the side panel of the storage unit.



d)

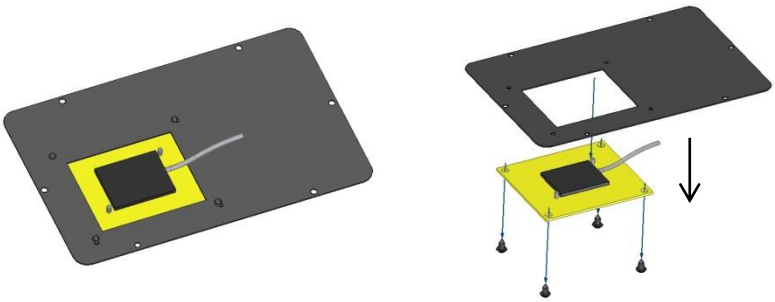


e)

Figure 42 – Sliding the channel to the right side

5 – The level sensor must be assembled on the right side of the storage unit (on the closest side to the boiler). For this, you must change the position of the sensor in the mounting plate in which it is fixed:

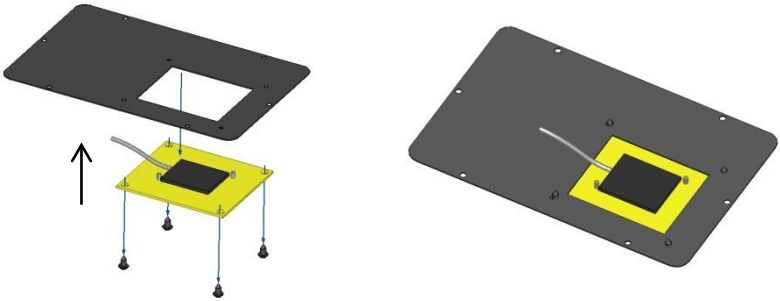
- remove the level sensor of the mounting plate, by removing the 4 screws that secure it;



a) b)

Figure 43 – Removing the level sensor from the mounting plate

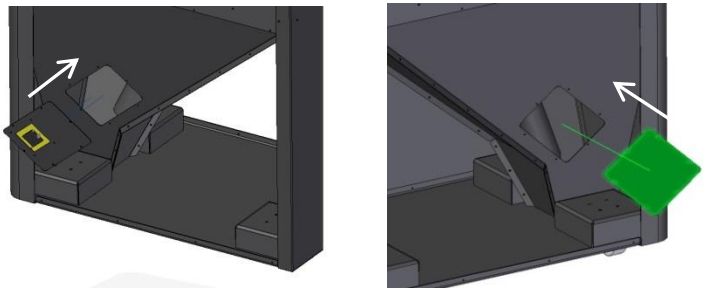
- To assemble the sensor on the opposite side of the mounting plate you should mount it as shown in the following figure:



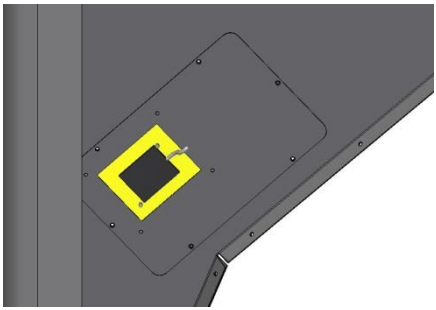
a) b)

Figure 44 – Assembling the level sensor on the mounting part

- Finally, you can mount the two mounting plates at the bottom of the storage unit, putting the plate with the level sensor on the right side and the plate without level sensor on the left side. The level sensor must be assembled as shown in Figure 45-c.



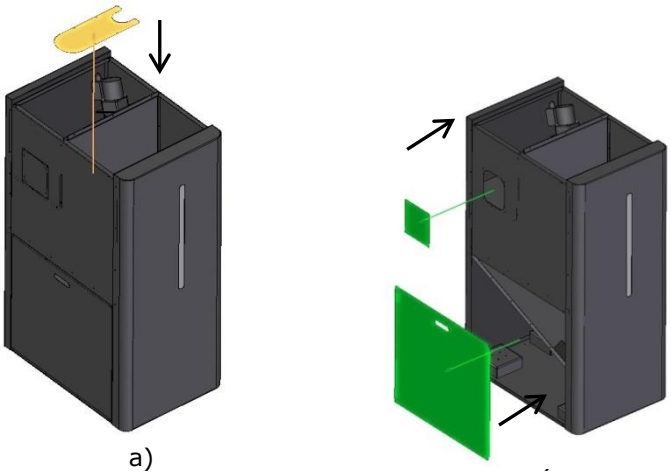
a) b)



c)

Figure 45 – Installing the pellet level sensor on the storage unit (storage unit on the left side of the boiler)

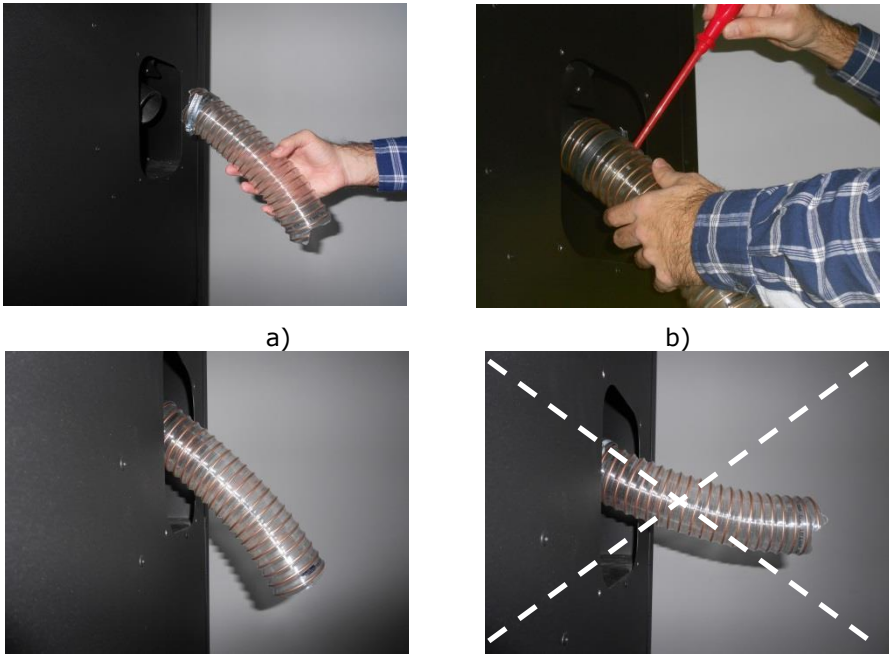
6 – Replace the worm drive channel retainer inside the storage unit (Figure 46-a). The side lids should now be attached to the left of the storage unit (Figure 46-b).



a)

Figure 46 – Installing the worm drive channel retainer and side lids

7 – You should place the flexible hose on the storage unit's output tube and attach it using the metal bracket provided. The flexible hose must make a downwards curve (Figure 47-c).

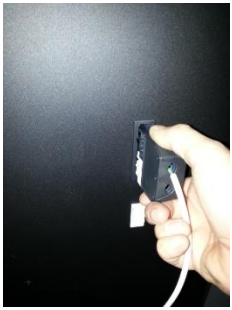


a) b)

c) d)

Figure 47 – Installing the flexible hose

8 – To adjust the sensitivity must connect the tank to the boiler using the cable Kit.



a)

b)

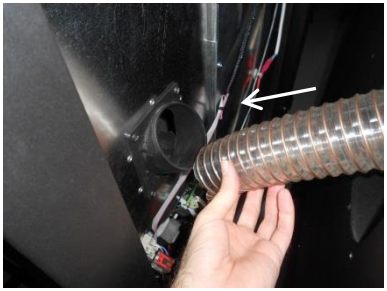
d)

e)

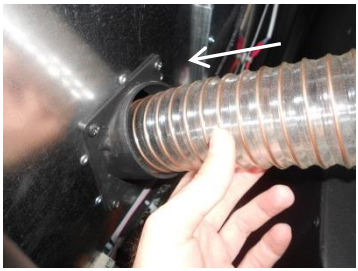
Figure 48 – Connecting the level sensor to the boiler

9 – Then, you should approach the storage unit to the boiler and insert the flexible hose into the ramp to drop the pellets (Figura 49 – b e c). The storage unit must be at a spacing of 1 cm to the side of the boiler and must be aligned with this by the rear.

a)



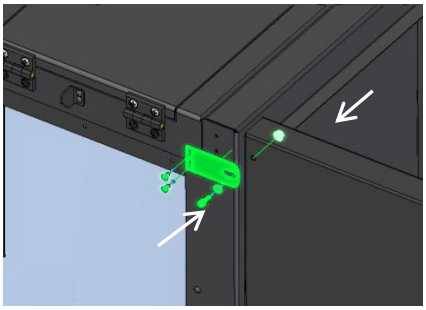
b)



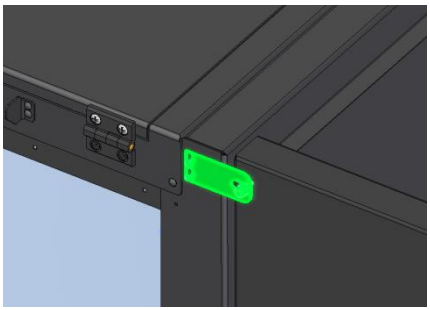
c)

Figura 49 – Placing the storage unit next to the boiler (a); connecting the storage unit to the boiler's pellet tank (b e c)

10 - Then, you should secure the storage unit to the boiler assembling, at the back, the provided part, and secure it with the screws, as shown in the following figures.



a)



b)

Figure 50 – Securing the storage unit to the boiler in the back

11 – The adjoining sides of the storage unit and the boiler should be secured in place using the screw and the mounting bracket provided.

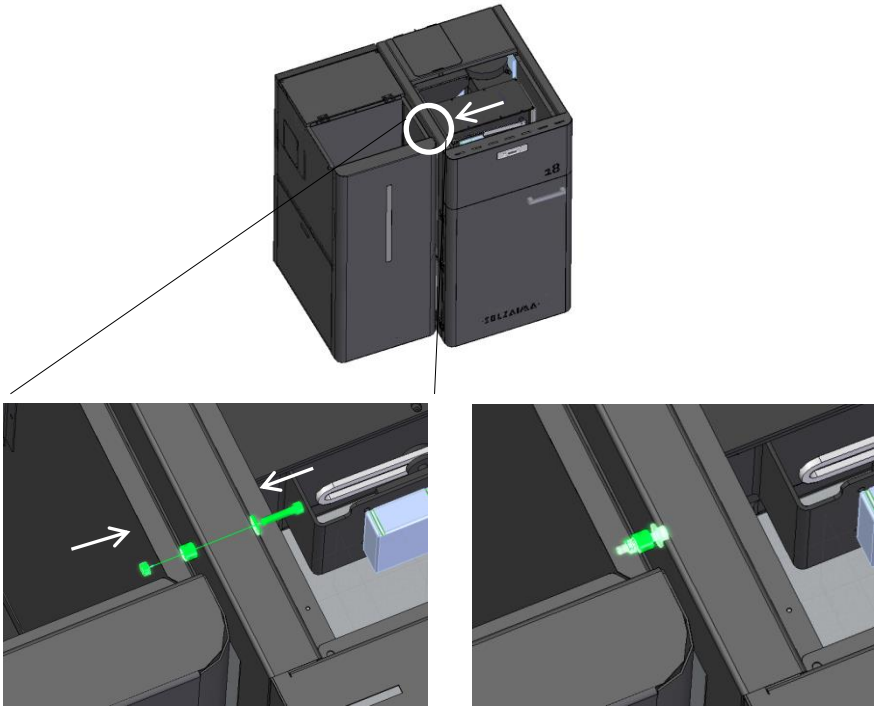


Figure 51 – Attaching and securing the storage unit to the boiler, on the side

12 – Finally, you should place the upper lids and re-attach the screws.

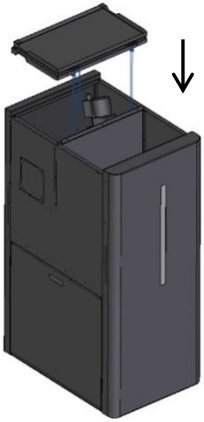
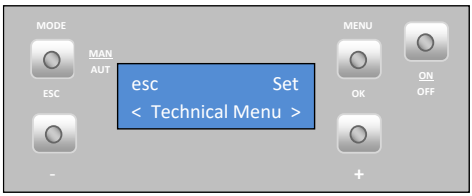


Figure 52 – Placing the upper lids

Enabling the pellet level sensor

At the end of the storage unit's installation it is necessary to activate the pellet level sensor in the boiler's display. For this, you should enter the *technical menu*. (Password only provided to authorized technical personnel)



Within this menu, you should enter the *General Settings*, and in the *Pellet Level Sensor* menu you should press *Set*, and then the keys "+" and "-" until it shows *On* on the display.

When the storage unit runs out of pellets, the level sensor sends a signal and an alarm appears in the boiler's display (A15 code). You should refill the storage unit with pellets, *reset* the alarm and restart the boiler.

Boiler startup

With the storage unit properly fixed to the boiler (right or left side) you should carry out the hydraulic connections and the connection of the boiler to the fumes outlet.

After making the connections, you should introduce some pellets inside the storage unit and start the operation of the boiler. You must observe the pellets falling from the storage unit to the boiler's internal tank and check if the level sensors work properly.

If the sensors do not work properly, you should remove them and re--adjust the sensitivity.

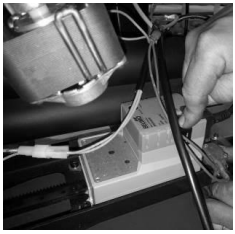
You must observe the boiler working for a time period corresponding to 3 or 4 charges of pellets and check if the pellet level does not rises above the level of the sensors.

20. Maintenance ⚠

weekly maintenance

Solzaima's pellet-run boiler includes automatic cleaning systems: one, is found in the upper part of the boiler and is meant for cleaning the fume pipes (Figure 53-a); the other, is located near the base of the burner and is meant for cleaning ashes and any other remaining residue (Figure 21-b).

a)



b)

Figure 53 – Automatic cleaning systems

Care should be taken to clean the ash drawer located in the lower part of the boiler (see label warnings and maintenance tasks in Chapter 26). To access the drawer, open the front door (Figure 54) and then the lower door of the boiler (Figure 55).

Figure 54 – Front door of the boiler

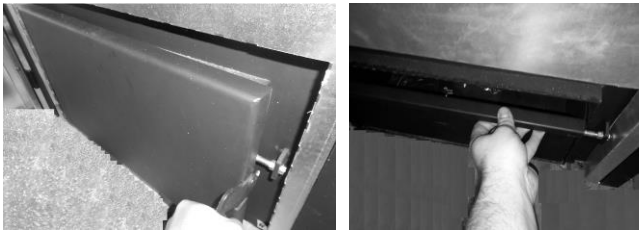
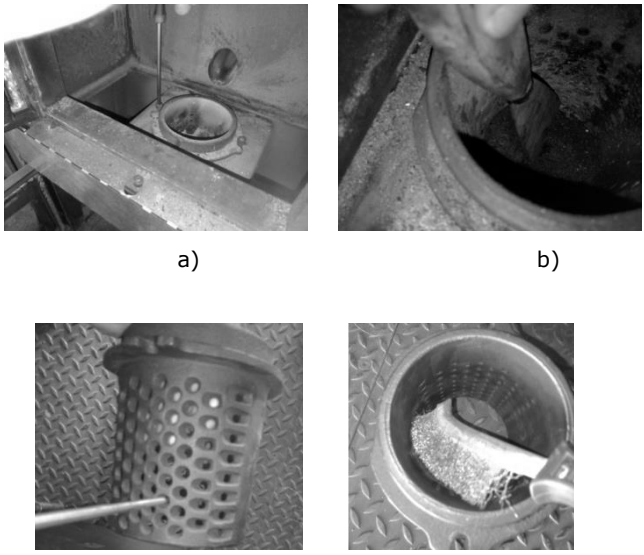


Figure 55 – Lower door and ash drawer

Note: Before cleaning the boiler, ensure that the power is turned off and that the unit is cool enough to handle, in order to prevent possible injury.

Cleaning the burner and plate

A cleaning the burner and the plate, as shown in the figures, 56-b, 56-c and 56-d to prevent obstruction of the holes in the burner or some kind of residue ashes must not be made to be gripped plate cleaning.



a) b)

c) d)

Figure 56 - Cleaning the burner and plate

WARNING! the frequency of maintenance tasks is dependent on the quality of pellets

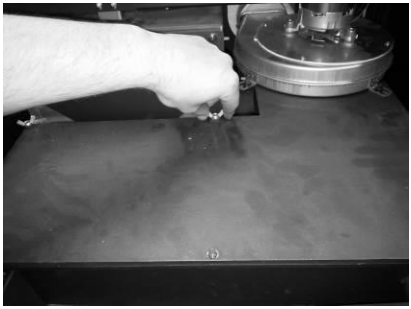
Additional cleaning

Additional cleaning should be carried out for every 2000 Kg of pellets consumed.

The boiler's air pipes and respective turbulators must be cleaned. To do this, start by opening the lid located on the top of the unit (Figura 57-a) and removing the six butterfly nuts securing the lower lid (Figura 57-b e c). Next, pull up the turbulators (Figure 57-d), also removing the spring support (Figure 57-f). A vacuum cleaner should be used to clean this area and the interior of the pipes may be cleaned using a steel brush (Figure 57-g) The turbulators and springs previously removed should also be cleaned with a steel brush.

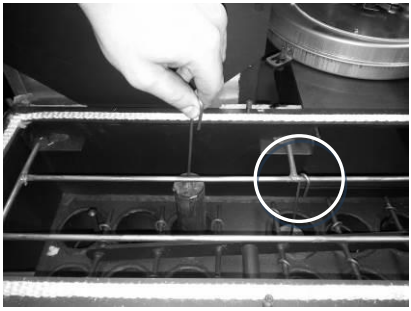
To reinstall the turbulators, execute in reverse the above procedure shown in the figures.

a)

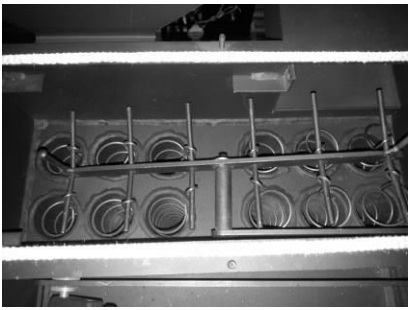


b)

c)



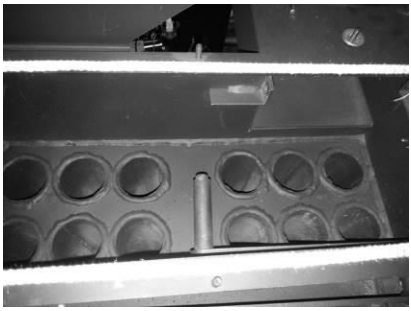
d)



e)

f)

g)



h)

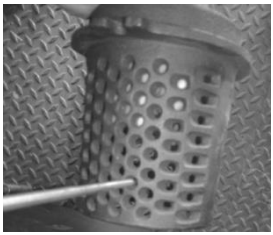
Figure 57 – Cleaning of air pipes and turbulators

Cleaning the burner and plate

A cleaning the burner and the plate , as shown in the figures, 58-b, 568c and 58-d to prevent obstruction of the holes in the burner or some kind of residue ashes must not be made to be gripped plate cleaning.

a)

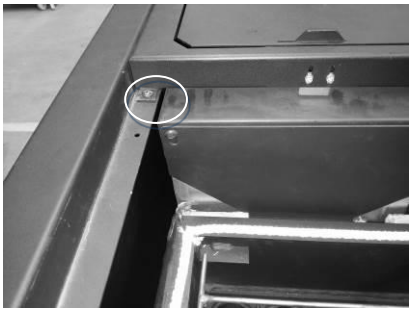
b)



c) d)

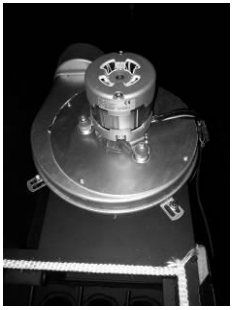
Figure 58 - Cleaning the burner and plate

In the event that fume extraction is not operating under the best conditions, the extractor should be cleaned as illustrated in Figure 59 and Figure 60. In any case, it is recommended that this procedure be carried out at least once a year.



a) b)

Figure 59 – Remove the screws securing the upper lid, both in the front and back of the boiler, to access the extractor



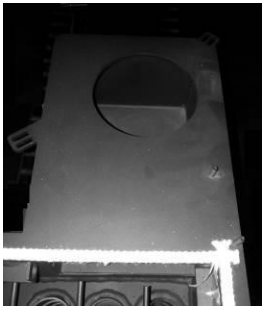


Figure 60 – Remove the screws of the extractor and vacuum the air flow area

Note: you must annually to check the pre-charge of the expansion vessel, check security valve and the liquid state of the hydraulic circuit.

WARNING! the frequency of maintenance tasks is dependent on the quality of pellets

21. Alarms / failures / recommendation list

Alarm	Code		Troubleshooting
Ignition failure	A01	Maximum time 1800 sec	- empty worm drive channel – restart the unit - heater resistor burnt - ignition – replace resistor - linear motor resistor burnt - faulty micro switch - the burning basket has been incorrectly installed - linear cleaning motor is blocked - fume temperature not exceed the activation setting
No flame or lack of pellets	A02	Fume temperature below 45 °C	- Pellet reservoir is empty
Excess heat in the pellet drum	A03	110 °C	- the fan is not working – call for assistance - faulty thermostat - call for assistance - machine with faulty ventilation
Excess fume temperature	A04	Over 260 ºC	- fan not working or set to a low power level – increase the level to maximum (if the problem persists, call assistance) - insufficient extraction - excess of pellets - faulty fume probe
Pressure switch alarm	A05	The door is open, lack of draught or extractor fault for 120 sec	- close the door and clear the error message on the faulty pressure regulator - Obstruction of the exhaust pipe or faulty extractor
Air mass probe	A06	40 Ipm delta for 3600 sec	- pipes with insufficient extraction or obstructed pipes
The door is open	A07	Door open for 120 seconds	- close the door - clear the error message - air mass sensor damaged
Fume extractor is faulty	A08	Connection failure	- check connection - check the smoke extractor is not blocked
Fume probe failure	A09	Connection failure	- check connection - smoke probe damaged
Pellet resistance error	A10	Connection failure	- check connection - resistance damaged
Worm drive error	A11	Connection failure	- check connection - Worm motor damaged
Pellet level alarm	A15		- check connection - put pellets in the external silo (only active in automatic boilers)
Water pressure outside operating range	A16		- check connection - check pressure in the hydraulic circuit - adjust pressure in the hydraulic circuit (working range 0.5 to 2.9 bar)
Excess water temperature	A18	95 ºC	- check connection - check if the pump works - purge hydraulic circuit - check if the heat sinks are open

Table 2 - list of alarms

Important note: all alarms cause the machine to shut down. The alarm must be reset and restarted. To reset the unit, press the "On/Off" button for 10 seconds until the alarm sounds.

- Troubleshooting

Troubleshooting
Maintenance "Service"
Air mass probe failure
Low pellet level
The door is open
Air temperature probe failure
Water temperature probe failure
Water pressure sensor fault
Water pressure close to being outside operating range

Table3 **-** List of anomalies

Important notice: The maintenance anomaly (the "service" message appears on the display) indicates that the unit has exceeded 2100 operating hours. The unit must be serviced; only then hour meter can be restarted (Technical menu) and the warning cleared. This anomaly does not influence the normal operation of the boiler, it is merely a warning.

Important notice: when the alarm "A16" is triggered, you can check the pressure reading on the unit. To do so, press the "Mode" button for 10 seconds to access the standard menus. You have a 2-minute window to access the "info usuario" (user info) menu and check the pressure reading at the unit.

Important notice: you can only reset error messages that are flashing on the display. If the error message is steady on the display, press the "Mode" button once.

Important notice: the anomalies do not cause the unit to shut down.

WARNING!

In case of an emergency, switch the unit off using the standard shutdown procedure.

⚠ WARNING!

THE UNIT WILL BE HOT DURING OPERATION, SO YOU NEED TO BE ESPECIALLY CAREFUL OF THE DOOR HANDLE.

22. Installation Diagrams

Simple connection only the central heating radiators

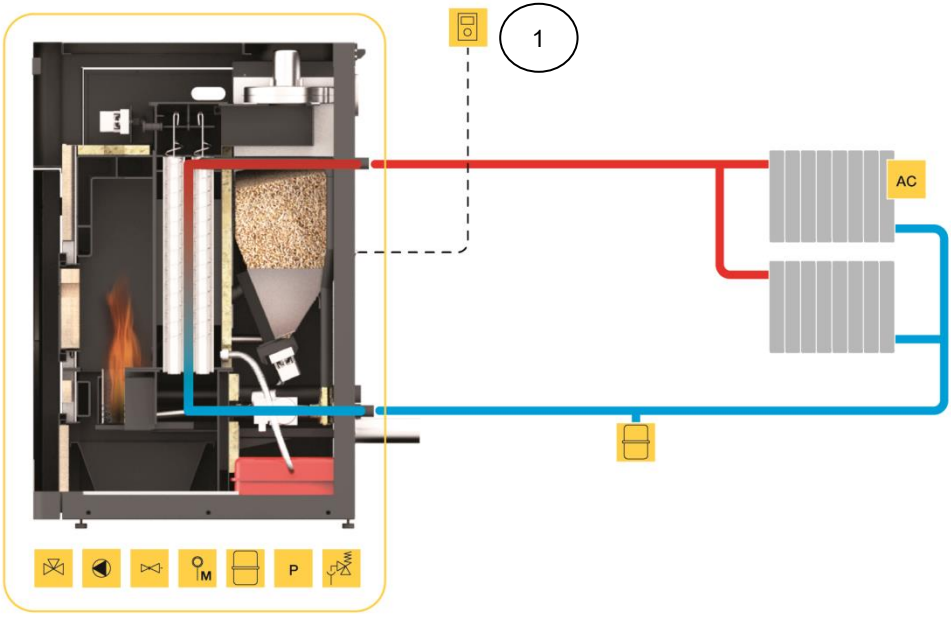


Figure 62 – Simple connection only the central heating radiators

Note:

- The chrono-thermostat should have 1 to 2 ° C of hysterisis. 1
- Hydro independiente "On" (water temperature controlled regulation)
- Modulating pump "On"
- Water sensing inhibition "On"
- Alternative hydro shutdown "On"
- Pump "On" = 50 ° C
- Pump "Off" = 50 ° C

We can set / change according to the customer's discretion to another temperature.

Connection to central heating radiators and sanitary water combined with solar panel

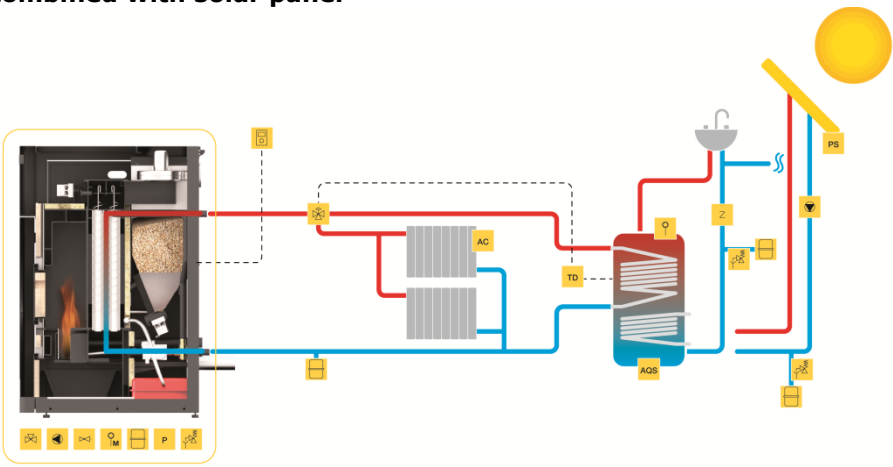


Figure 62 – Connection to central heating radiators and sanitary water combined with solar panel

Example: electrical connection of a thermostat (ambient air monitoring) of a differential thermostat connected to the deposit and three-way valve to a relay box

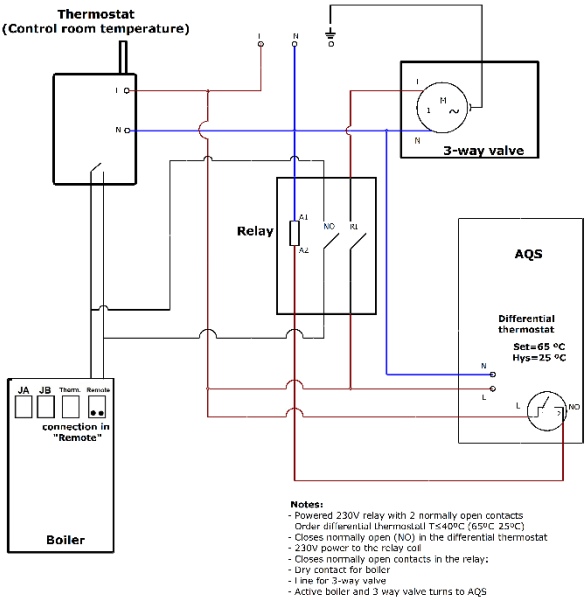


Figura 63 – electrical connection of a thermostat (ambient air monitoring) of a differential thermostat connected to the deposit and three-way valve to a relay box

Connection to central heating radiators with another boiler support and sanitary water combined with solar panel

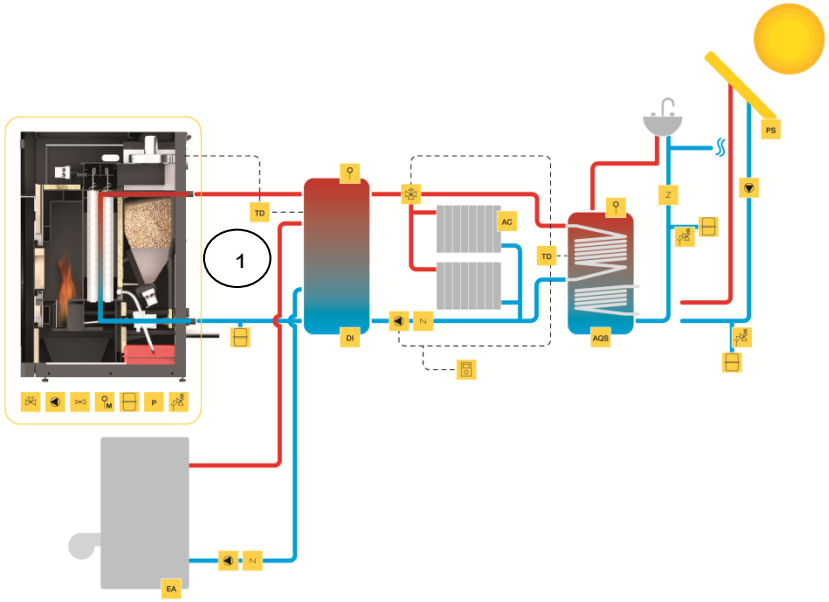


Figura 64 – Connection to central heating radiators with another boiler support and sanitary water combined with solar panel

Note:

- The chrono-thermostat Earth leakage must have a hysterisis of 15 to 25 ° C.

1

- Hydro independiente "Off" (water temperature controlled regulation), put the boiler in "manual" mode and power nivle to "5"
- Modulating pump "On"
- Water sensing inhibition "On"
- Alternative hydro shutdown "On"
- Pump "On" = 50 ° C
- Pump "Off" = same or thermostat temperature 1 ° C below the temperature differential thermostat

When using the generator with differential thermostat the machine must be connected in the CONNECTION "Remote".

Calculation deposits of inertia: the boilers for pellets is recommended that the buffer tank has 20l/kW.

Connecting underfloor heating in conjunction with another boiler support and sanitary water combined with solar panel

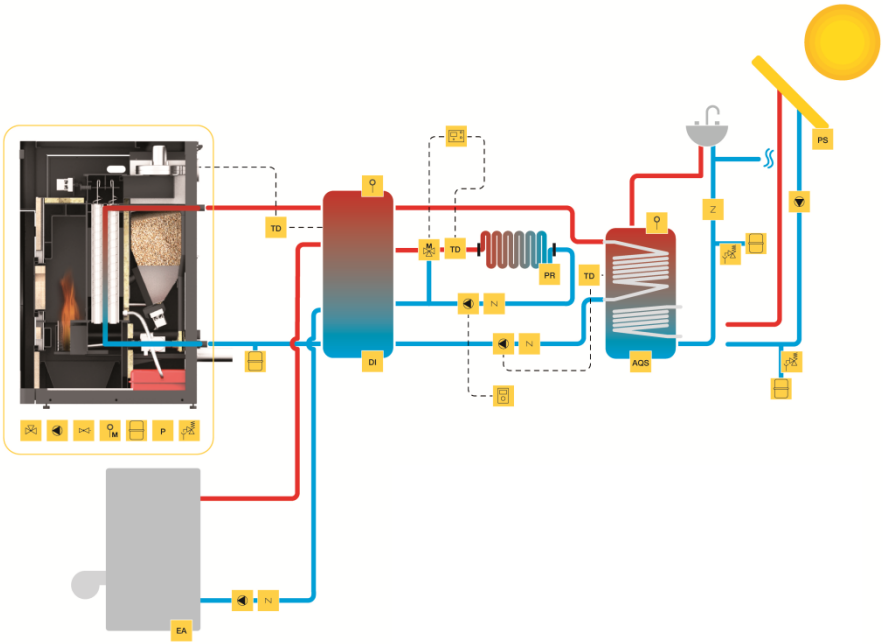


Figura 65 – Connecting underfloor heating in conjunction with another boiler support and sanitary water combined with solar panel

Simbology

EA	Fuel backup equipment (gas, diesel)	Z	Non-return valve	3-way motorised valve	Mixing valve	Ambient thermostat
DI	Inertia deposit	Circulating pump	Automatic air vent	Anti-condensation valve	Hot water
AQS	Sanitary hot waters	P	Pressure sensor	Manual air vent	Thermal security valve	Cold water
PS	Solar panel	TD	Differential thermostat	Closed expansion vessel	Security pressure valve	Electrical connections
AC	Central heating	PR	Radiant heated floor	Drain valve	Underfloor heating controller

Figura 66 – Simbology

23. Electrical diagram of the pellet-run boiler

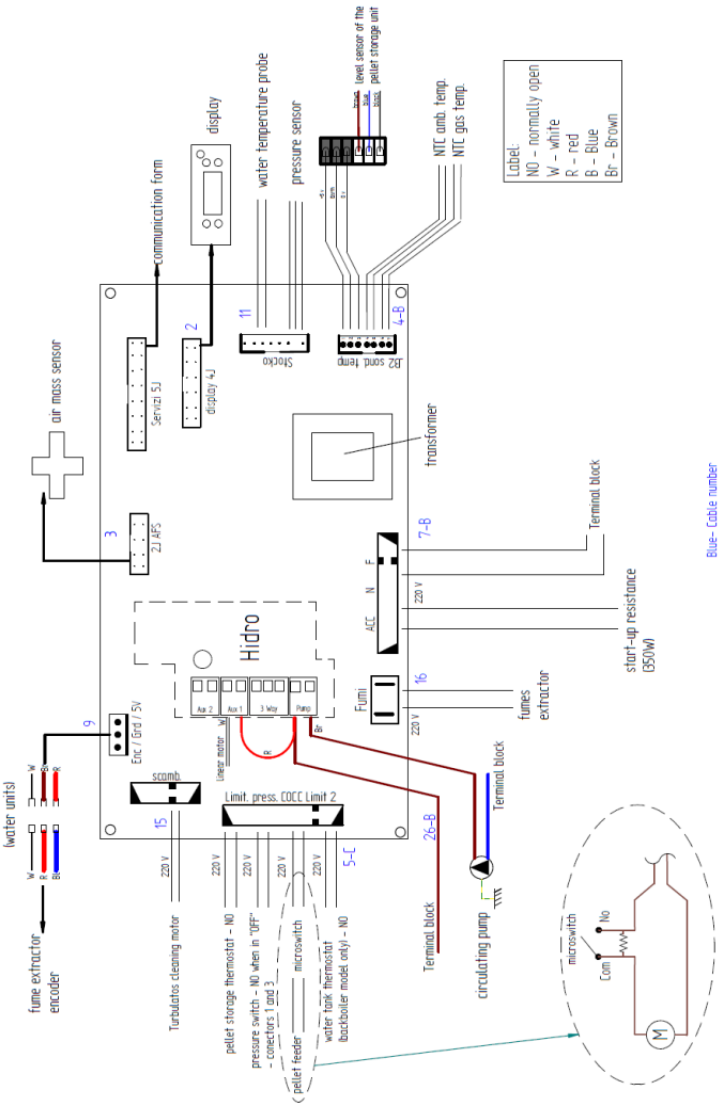


Figure 67 – Electrical diagram of the circuit board

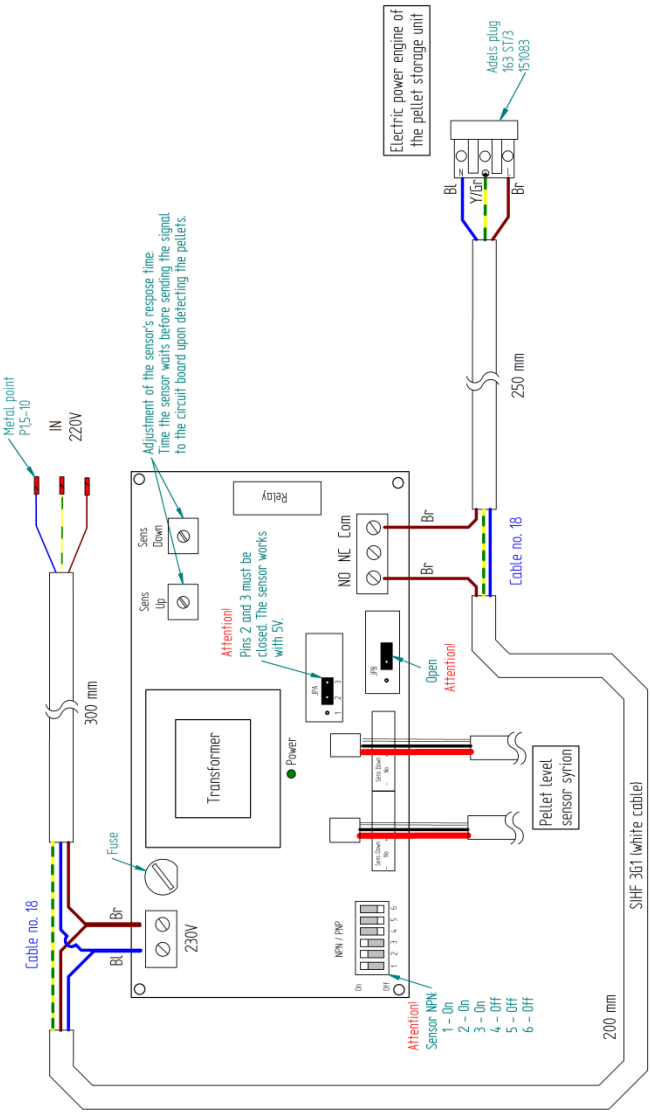
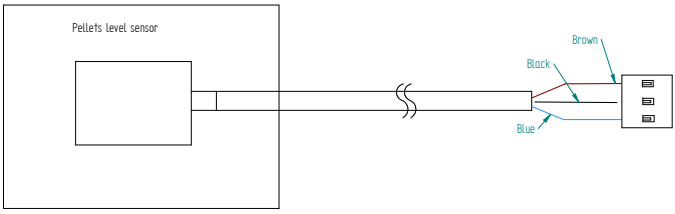
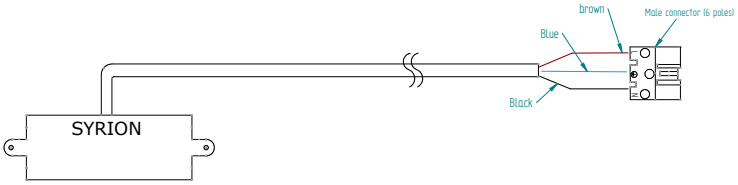


Figure 68 – Electrical diagram of the external silo's circuit board



a)



b)

Figure 69 – Level sensor

24. UPM3 25-70 (130 mm) circulating pump

Circulating pump performance graph

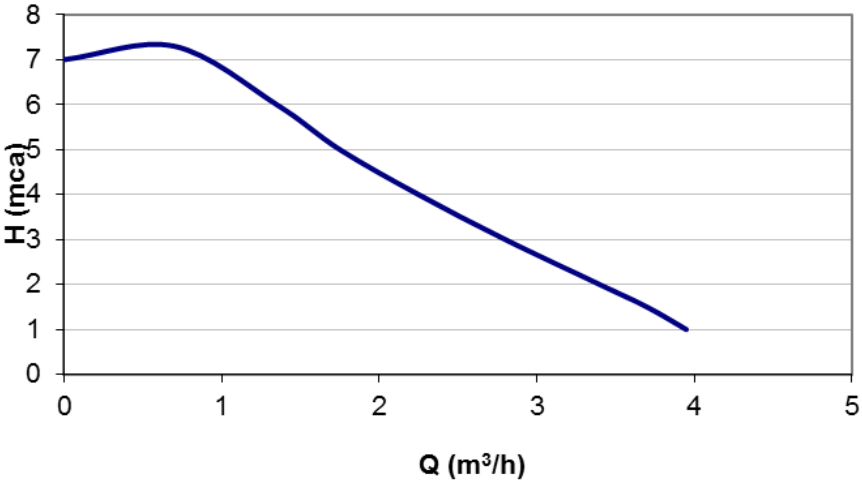


Figure 70 – Circulating pump performance graph

User interface

The user interface was designed with a single button, a red/green LED and four yellow LEDs

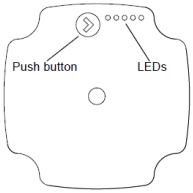


Figure 71 – User interface

When the pump is operating, the LED 1 is green. 4 yellow LEDs indicate the current performance of the pump, as shown in the following table (Figure - 72).

LED activo	Performance (%)
LED Green	0 (Standby)
LED Green + 1 LED yellow	0 - 25
LED Green + 2 LED yellow	25 - 50
LED Green + 3 LED yellow	50 - 75
LED Green + 4 LED yellow	75 - 100

Table 4 – Performance of the pump

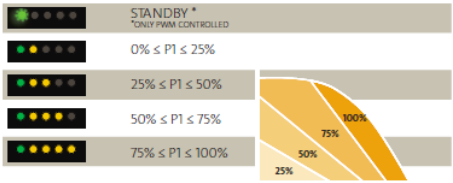


Figure 72 – Performance of the pump

Note: the pump is configured as standard at full capacity (75-100%).

Changing the setting of the pump

Can be chosen between the the view of the performance of pump and th view of settings, just press the button once.

If you need to change the pump performance, you must press the button for 2 seconds (see Figure - 73), after this action the LEDs start blinking, then you must press the button until the desired setting (see Table 5), after 10 seconds the display automatically switches to the view of performance with alteration saved.

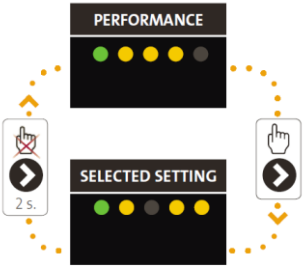


Figure 73 – Pump settings

Altura manométrica máxima (m)	Configuración
2-4	
3-5	
4-6	
5-7	

Table 5 – Pump settings

Alarms

If the pump detects one or more errors, the LED 1 changes from green to red when the alarm is activated the yellow LED indicates the type of alarm (see Table 6), if we have several alarms at the same time, the yellow LED indicates the alarm with higher priority, the priority sequence is defined on table as follows:

Display	Priority	Alarm	action
LED 1 red + LED 5 yellow 	1	Rotor is blocked	Wait or deblock the shaft
LED 1 red + LED 4 yellow 	2	Supply voltage too low	Control the supply voltage.
LED 1 red + LED 3 yellow 	3	Electrical error	Control the supply voltage or replace the pump.

Tabla 6 – Lista de alarmas

25. Maintenance plan

To ensure the smooth operation of your boiler is essential to make maintenance operations that have detailed in chapter 20 of the instruction manual or on the label with maintenance guide and cleaning. There are tasks that must be done by an authorized technician. Contact the installer. Not to lose the warranty of your device must perform all maintenance at the intervals specified in the manual, the technician who do, must complete and sign the maintenance log.

Name:	
Adress:	
Phone:	
Model:	
Serial number:	

Company/SAT: _____

Technical: _____

Dates: _____

Service hours of boiler: _____

Quantity of pellets burned: _____

Task	Check	Obs.
Clean burner and plate		
Clean smoke circuit and turbulators		
Vacuum pellet tank sawdust		
Check pressure of the expansion vessel		
Check safety valve 3 bar		
Check the fluid on the hydraulic circuit		
Clean the smoke extractor		
Check and clean the inspection T		
Clean chimney		
check the tightening of the screws		
Check engine cap pellet hopper		

Signature/stamp

Company/SAT: _____
Technical: _____
Dates: _____
Service hours of boiler: _____
Quantity of pellets burned: _____

Task	Check	Obs.
Clean burner and plate		
Clean smoke circuit and turbulators		
Vacuum pellet tank sawdust		
Check pressure of the expansion vessel		
Check safety valve 3 bar		
Check the fluid on the hydraulic circuit		
Clean the smoke extractor		
Check and clean the inspection T		
Clean chimney		
check the tightening of the screws		
Check engine cap pellet hopper		

_____
Signature/stamp

Company/SAT: _____
Technical: _____
Dates: _____
Service hours of boiler: _____
Quantity of pellets burned: _____

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Signature/stamp

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Signature/stamp

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Dates: ______________________
Service hours of boiler: ______________________
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Signature/stamp

Company/SAT: ______________________
Technical: ______________________
Dates: ______________________
Service hours of boiler: ______________________
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Check engine cap pellet hopper		

____
Signature/stamp

26. Maintenance guide label

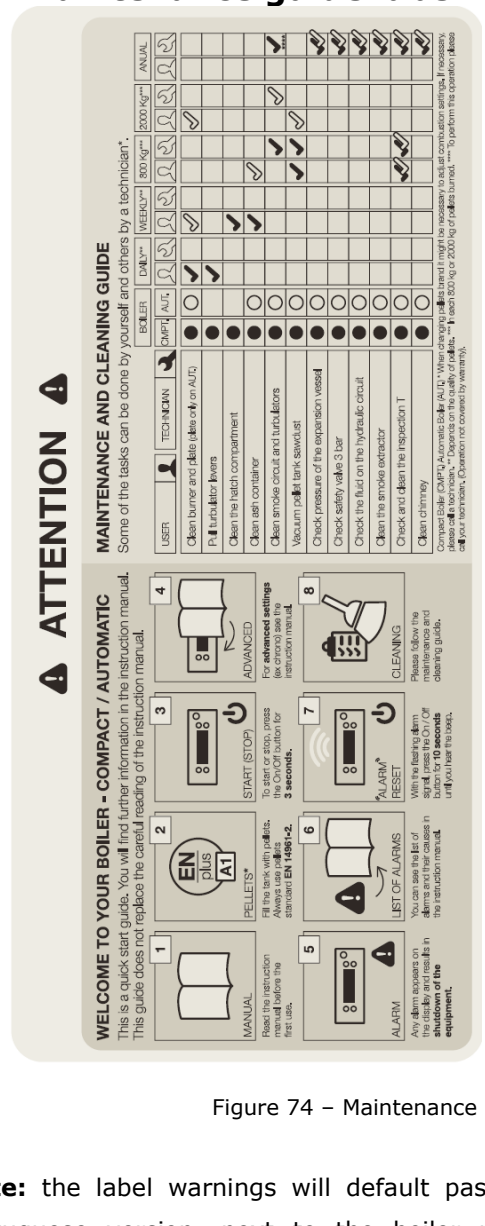

Figure 74 – Maintenance guide label

Note: the label warnings will default pasted in the boiler door in the Portuguese version, next to the boiler manual labels are in various languages (ES, EN, FR and IT) if necessary remove the label in Portuguese and paste the respective language of the country.

27. Life cycle of a pellet-run boiler

About 90% of the materials used in the manufacture of these units are recyclable, thus contributing towards a reduced environmental impact and the sustainable development of our planet. As such, units that have reached their end of useful life should be delivered to authorised waste operators. It is advised to contact your local authorities for the appropriate collection instructions.

28. SUSTAINABILITY

Solzaima designs and manufactures biomass solutions and equipment as a primary energy source. This is our contribution to the sustainability of our planet – an economically viable and environmentally-friendly alternative, following the best environmental management practices to ensure efficient carbon cycle management.

Solzaima makes all efforts to learn and to know the national forest park while efficiently responding to energy demands, taking permanent care to maintain its biodiversity and natural wealth that are essential for the quality of life on our Planet.

SOLZAIMA is a member of the **Sociedade Ponto Verde**, the entity that manages package waste, thus you can take the packaging that comes with your unit, such as plastic and cardboard, to your nearest recycling point.

SOLZAIMA is part of the **Amb3E**, the entity responsible for collecting waste electrical and electronic equipment (WEEE); as such, end-of-life units with forced ventilation systems must be taken to an appropriate WEEE-processing location. When you disassemble your unit, you can take its electrical components to your nearest WEEE collection point.

29. Glossary

Ampere (A): SI unit of measurement of electric current

bar: unit of pressure equal to exactly 100,000 Pa. This pressure is very close to standard atmospheric pressure.

cal(Calorie): equal to the amount of heat required to increase the temperature of one gram of water by one degree centigrade.

cm (centimetres): unit of measurement.

CO (carbon monoxide): Lightly flammable, colourless, odourless and very dangerous gas, due to its toxicity.

CO_2 (carbon dioxide): Gas needed by plants for photosynthesis on the one hand, and emitted into the atmosphere on the other, contributing to the greenhouse effect.

Combustion: a process for obtaining energy. Combustion is basically a chemical reaction that requires three items in order to take place: fuel, oxidant and ignition temperature.

Oxidiser: chemical substance used for combustion (essentially oxygen) which is required for it to take place.

Combustible: anything that can undergo combustion, in this case referring to wood.

Creosote: chemical compound created by combustion. This compound is sometimes deposited on the glass and shaft of the heating recovery unit.

Circuit breaker: Electromechanical device that protects a given electrical appliance.

Energy Efficiency: capacity to generate large quantities of heat with the least amount of energy possible, causing the least environmental impact and reducing the energy budget.

CO Emissions: emission of carbon monoxide gas into the atmosphere.

CO emissions (13% of O_2): carbon monoxide content corrected to 13% of O_2.

Differential Switch: protects people and property against grounding failures, preventing electric shocks and fires.

kcal (Kilocalorie): multiple unit of measurement of calories. Equivalent to 1000 calories.

kW (Kilowatt): Unit of measurement equal to 1000 watts.

mm (millimetres): unit of measurement.

mA (milliampere): unit of measurement of electric current.

Pa (Pascal): standard IS unit of pressure and tension. This unit is named after Blaise Pascal, an eminent French mathematician, physicist and philosopher.

Net Heating Value: also known as specific combustion heat. It represents the amount of heat released when a certain amount of fuel is completely burned. Net heating value is expressed in calories (or kilocalories) per unit of weight of fuel.

Rated power: Electrical power consumed from the energy source. Measured in watts.

Rated net heating value: heating capacity, i.e. the heat energy the unit transfers from energy present in the firewood – measured for a standard load of firewood over a given period of time.

Power output: a manufacturer's recommendation from tests on the equipment with firewood loads within a reasonable operating range. This power output range will present different firewood consumptions per hour.

Plumb: vertically above the installation.

Performance: expressed as a percentage of "useful energy" that can be extracted from a given system, taking into account the "total energy" of the fuel used.

Ignition temperature: temperature above which the fuel can enter into combustion.

Thermoresistant: resistant to high temperatures and thermal shock.

Glass ceramics: highly resistant ceramic material produced through controlled crystallisation of vitreous materials. Used widely in industry.

W(Watt): IS unit of power.

30. Warranty

All SOLZAIMA boilers have a 2 (two) year warranty, starting from the invoice issue date. In order for your warranty to remain valid, you must keep the invoice or receipt of purchase throughout the warranty period.

The electrical resistors have a 6 (six) month warranty.

The warranty applies only to defects in materials or manufacture.

Exclusions:

Glass fracture is not included in this warranty.

The type of fuel used and how the unit is handled are beyond SOLZAIMA's control; as such, parts in direct contact with the flame are not covered by this warranty;

The sealing ring is not included in the warranty;

The installer bears full responsibility for all problems and/or defects resulting from the installation process;

Costs incurred from moves, transport, labour, packaging, disassembly and immobilisation of the unit incurred during warranty operations shall be borne by the purchaser;

Any malfunction caused by mechanical or electrical parts not supplied by SOLZAIMA, or which are not provided for in the user manual governing heating appliances, is not covered by this warranty;

The installation of salamander stoves near medium or low voltage power lines with surges over 230V±5% may cause damage to their electrical components. As such, it is advised that a main line voltage stabiliser be installed with the salamander stove.

Note: It is generally advised that a voltage stabiliser or UPS be used to guarantee the correct functioning of all electrical components.

SOLZAIMA assumes no responsibility for damage caused by using any fuel other than pellets certified by the standard EN 14961-2, grade A1.

If the periodic maintenance of the equipment by the user or by an authorized technician is not made the machine automatically lose the warranty.