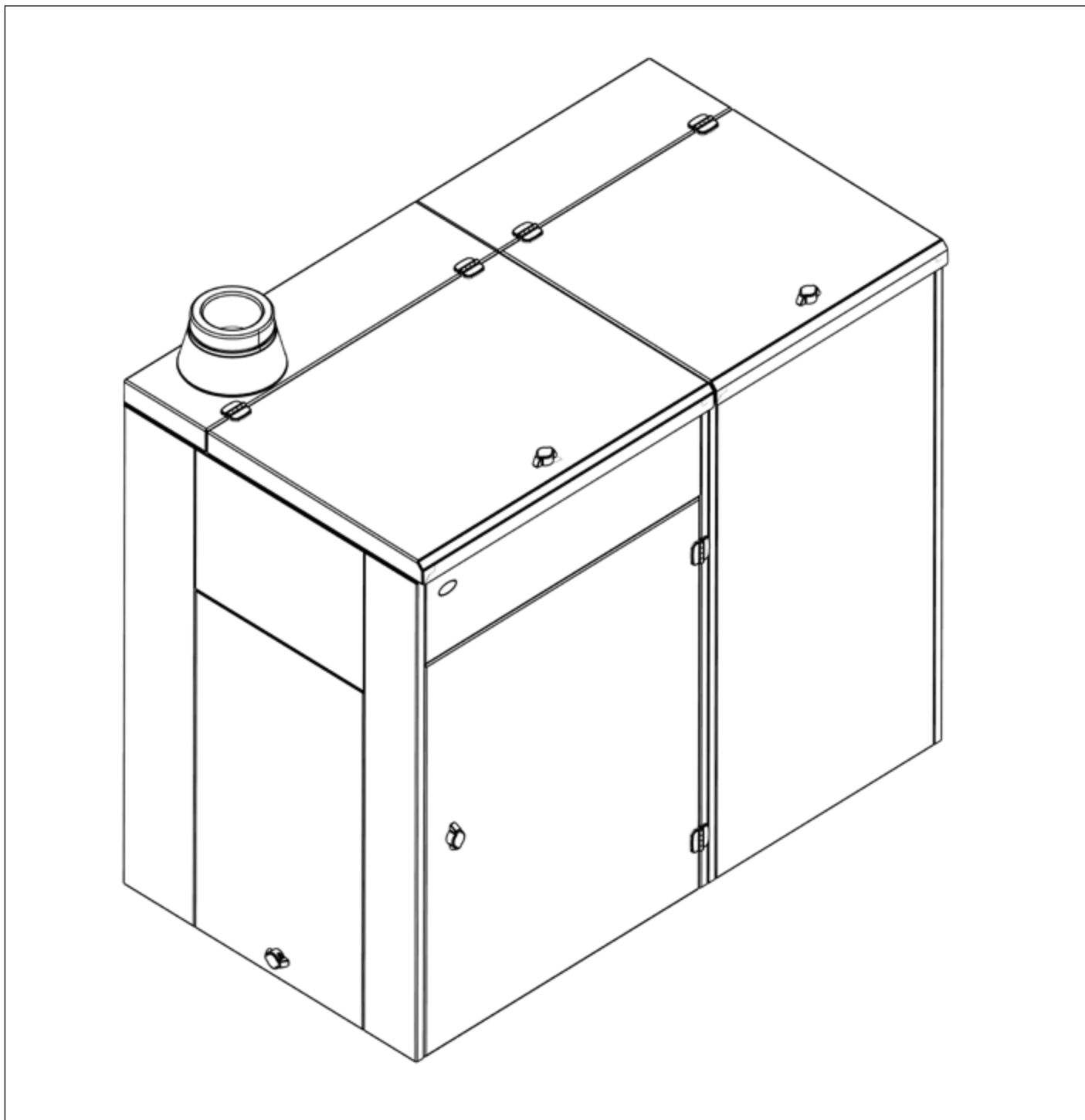


# Grant External Vecta

## 4-16kW Condensing Wood Pellet Boiler and Side Pellet Store

### User Instructions



### Important Note for Installers

This guide is intended to assist and instruct the user in the operation of the Grant External Vecta wood pellet boiler.

A separate manual is available to the installer for the installation, servicing and commissioning of the boiler.

### Special Text Formats

The following special text formats are used in this manual for the purposes listed below:



**Warning of possible human injury as a consequence of not following the instructions in the warning.**



**Caution concerning likely damage to equipment or tools as a consequence of not following the instructions in the caution.**



**Used for emphasis or information not directly concerned with the surrounding text but of importance to the reader.**



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This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

# 1 About your Boiler

## General

Your Grant External Vecta wood pellet boiler should only be installed, commissioned and serviced by an Installer who has undergone specific product training by Grant Engineering (UK) Limited.

### 1.1 Condensing Boiler Operation

During the combustion process, hydrogen and oxygen combine to produce heat and water vapour. The water vapour produced is in the form of superheated steam that contains heat that is locked up in the flue gases. A conventional boiler cannot recover any of this heat and this energy is lost to the atmosphere through the flue.

The Grant External Vecta condensing wood pellet boiler contains an extra (secondary) heat exchanger which is designed to recover much of the heat normally lost by a conventional boiler through the flue system. It does this by cooling the flue gases and extracting more heat from them, pre-heating the cooler water returning to the boiler from your heating system. Even when not operating in a condensing mode, this additional heat exchanger ensures that your Grant Vecta boiler will still operate at an extremely high efficiency.

### 1.2 Access

Your External Vecta wood pellet boiler is fitted with the following:

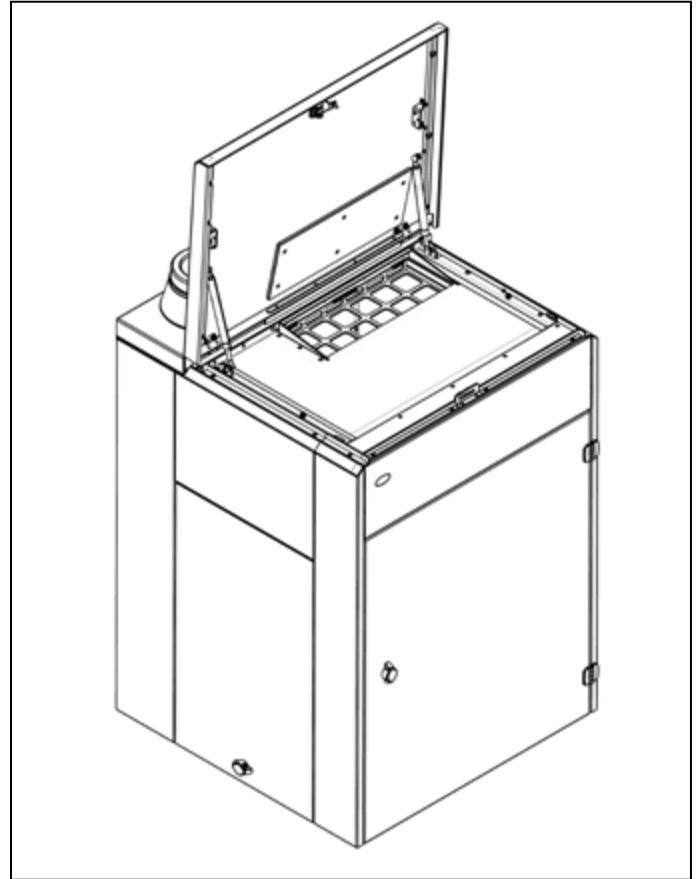
- A hinged front door. This door allows access to the boiler for routine cleaning (emptying the ash pan) and also the boiler control panel.
- A hinged hopper lid on the top of the boiler casing. This allows access to the boiler pellet hopper to top up the pellet level when required.
- A removable side access panel on the left side of the boiler. This should only be opened by either a Grant trained installer or service engineer.

Each of the above is fitted with a door catch can be locked, if required, by fitting a small padlock (not supplied with the boiler).

To open either the front door or hinged hopper lid, simply unlock/remove any padlock (if fitted) and rotate the knob of the catch clockwise to unlatch it.

### 1.3 Pellet Hopper

The pellet hopper is an integral part of the boiler and is accessed for filling by opening the hinged hopper lid on the top. Refer to Figure 1. The hopper lid must be closed for the boiler to operate.



**Figure 1:** Front/left side view of the boiler - hopper lid open

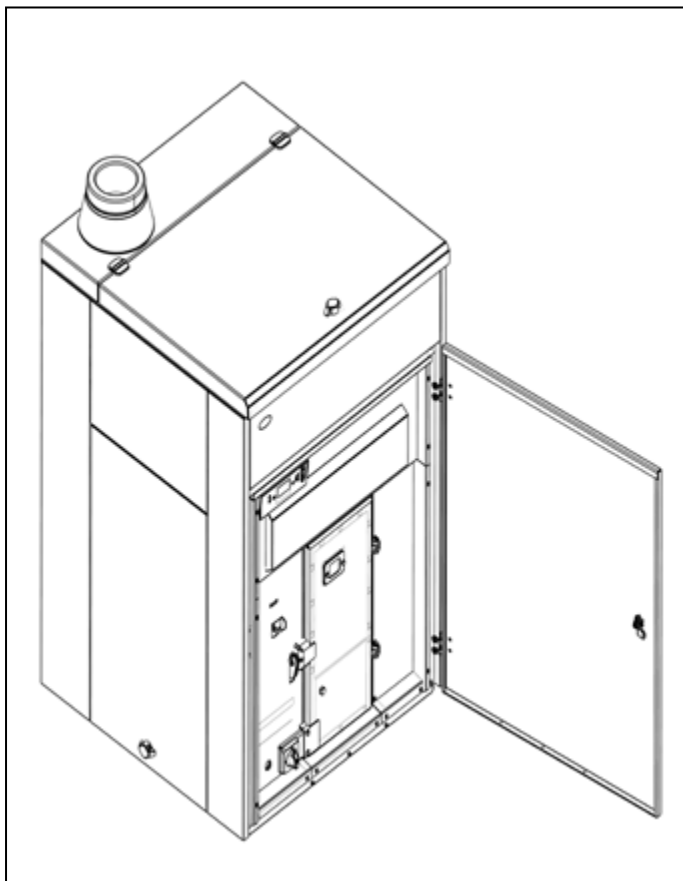
The maximum capacity of the pellet hopper is 80kg. The pellet hopper is fitted with a contents switch. This automatically detects when the level of pellets in the hopper falls to a pre-set minimum value.

At this point the LCD screen will flash and display the 'Fuel Low Warning' message (refer to Section 3). The Grant logo indicator (located inside your house), will also flash slowly to indicate the pellet level has fallen to the pre-set minimum.

As soon as this happens the hopper should be topped up with more pellets. This will automatically cancel the flashing Grant logo indicator and the flashing 'Fuel Low Warning' message on the control panel LCD screen.

If the pellet hopper is not topped up at this point, the boiler will continue to operate for a short period before the burner is automatically stopped. The Grant logo indicator will continue to flash slowly, with the flashing 'Low Fuel Warning' message on the control panel LCD screen, to indicate the lack of pellets in the boiler.

If this happens, simply top up the hopper with more pellets. A minimum of 20kg of pellets will operate the contents switch and automatically re-start the burner (as long as there is a demand for the boiler to run).



**Figure 2:** Front/left side view of boiler - door open

### 1.4 Topping up the Pellet Hopper

When required (see Section 1.3 above), the boiler pellet hopper can be easily topped as follows:

- Open the hinged front door of the boiler casing to access the control panel.
- To do this, first unlock/remove any padlock (if fitted) and rotate the knob of the catch clockwise to unlatch it and open the door.
- Set the ON/STANDBY switch on the control panel to STANDBY. If the boiler is operating at the time, wait for the boiler to complete the burner shut down sequence.
- Then open the hinged hopper lid on the top of the boiler casing. Unlock/remove any padlock (if fitted) and rotate the knob of the catch clockwise to unlatch it and lift the lid until it is fully open.
- Tip pellets from a bag into the opening at the top right rear of the boiler. A minimum of 20kg of pellets (i.e. two 10kg bags) is sufficient to operate the contents switch. However, it is recommended to completely fill the pellet hopper up to the grille in the hopper opening.
- When the topping up is completed, close the hinged hopper lid (and refit the padlock if required).
- Set the ON/STANDBY switch on the control panel to ON. The boiler will then re-start (as long as there is a demand to do so from the heating system controls).



## NOTE

**BEFORE** opening the lid to top up the pellet hopper, always set the ON/STANDBY switch to STANDBY, and wait for the boiler to complete the shut down sequence.

The LCD screen will indicate 'Standby' when the shut down sequence is completed. Reset the ON/STANDBY switch to ON after top up is completed.



## CAUTION

**After topping up the hopper, always ensure that the pellet hopper lid is closed as the safety cut-out switch will prevent the boiler from operating if the lid is open. The hopper should only be filled to the point where it is still possible to close the hopper lid. When filling the hopper, ensure no foreign debris enters the hopper.**

### 1.5 Hopper Lid Cut-out Switch

The hinged hopper lid is fitted with a safety cut-out switch.

The lid **MUST BE CLOSED** for the boiler to operate. If the lid is opened for longer than FIVE seconds, whilst the boiler is operating, the burner will be automatically shut down.

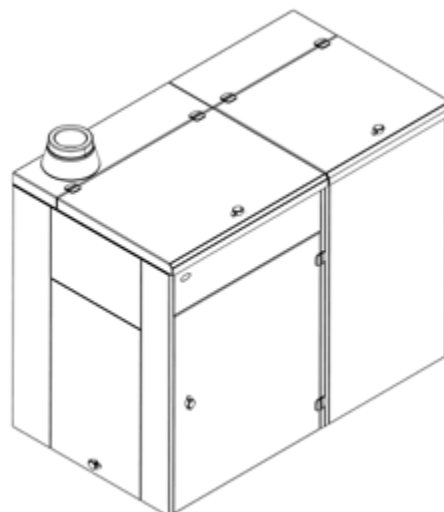
The control panel LCD screen will flash and indicate a 'Hopper Lid Open' fault. Closing the hopper lid automatically resets the cut-out switch but the control panel LCD screen will continue to flash, now indicating a 'Safety Flap Closed' fault. After 30 seconds this fault message will automatically disappear, the burner will complete the shut down sequence and then restart.

### 1.6 Side Pellet Store

If fitted with your Grant External Vecta boiler, the optional side pellet store is designed to provide an increased storage capacity, allowing the boiler to run for longer periods before topping-up of the boiler pellet hopper and side pellet store is required.

The capacity of the side pellet store is 140kg. With the 80kg capacity of the boiler pellet hopper this gives a total pellet storage capacity of 220kg.

This side pellet store is located against the right hand side of the boiler. Refer to Figure 3.



**Figure 3:** Boiler with optional side pellet store fitted

The boiler pellet hopper is fitted with a contents switch. Refer to Section 1.3. When the level of the pellet in the hopper falls to a pre-set minimum value the control panel LCD screen will show 'Fuel Low Warning' and the remote Grant logo indicator (located inside your house), will also flash (slowly) to indicate that the pellet level in the boiler hopper has fallen to the pre-set minimum.

Pellets will be automatically transferred from the side pellet store to the boiler pellet hopper. This will continue until the contents switch in the boiler pellet hopper is satisfied, at which point the side pellet store auger will stop. Both the 'Fuel Low Warning' on the control panel LCD screen and the slow flashing remote Grant logo indicator will be automatically cancelled.



## NOTE

**The boiler pellet hopper will not be completely filled by the side pellet store. The auger will only transfer pellets to the boiler pellet hopper until the contents switch is satisfied.**

The side pellet store is also fitted with a contents switch. The side pellet store auger will only operate when this contents switch indicates there are sufficient pellets in the side pellet store. If this level drops below the minimum to activate the contents switch, the auger will no longer operate to transfer pellets to the boiler pellet hopper.

In this instance, when the boiler pellet hopper contents switch detects a low fuel level, no pellets will be transferred to the boiler pellet hopper. The control panel LCD screen will show 'Fuel Low Warning' and the remote Grant logo Indicator (located inside your house), will also flash (slowly) to indicate that the pellet level in the boiler hopper has fallen to the pre-set minimum.

If the boiler pellet hopper is not topped up at this point, the boiler will continue to operate for a short period before the burner is automatically stopped.

Topping up the boiler pellet hopper with at least 20kg of pellets will operate the contents switch and automatically re-start the burner (as long as there is a demand present for the boiler to run). Both the 'Fuel Low Warning' on the boiler control panel LCD screen and the slow flashing Grant logo will be automatically cancelled.



## NOTE

**In order to maximise the combined pellet storage capacity of the boiler and side pellet store, it is recommended that both the boiler pellet hopper and the side pellet store are filled to the top when topping-up with pellets.**

The boiler (and side store) hinged lid must be closed to activate the lid safety cut-out switch or the burner will not operate. Refer to Section 1.5.



## NOTE

**The hinged lids on BOTH the boiler and the optional side pellet store (if fitted) MUST BE CLOSED for the boiler to operate. If either the boiler hopper lid or side pellet store lid is opened for longer than FIVE seconds, whilst the boiler is operating, the burner will be automatically shut down.**

## 1.7 Boiler Operation

The burner output is determined by the delivery rate of the pellets via the pellet feed auger (inside the pellet hopper). This is automatically controlled by the boiler control system. During commissioning the boiler control parameters will have been checked and adjusted as necessary by your Installer.



## WARNING

**Do not adjust or modify the appliance in any way as to do so could cause malfunction of the appliance, injury to persons or death or result in a potential fire hazard. Only an Installer, who has completed the Grant UK training course, should carry out any work on the appliance.**

Once commissioned by a Grant trained Installer, your Grant External Vecta boiler will operate automatically to provide heating and domestic hot water (if you have a hot water cylinder fitted), as long as:

- There are sufficient pellets of the correct type in the pellet hopper (refer to Section 2)
- The heating system controls are set to ON and calling', i.e. the programmer and room thermostat are on.
- The boiler ON/STANDBY switch on the control panel is set to ON (refer to Section 3)

If your appliance is controlled by a remote programmer and/or a room thermostat, it will provide heating and (when fitted) hot water during the ON periods as set on the programmer, when either the room thermostat and/or the hot water cylinder thermostat are calling'.



## WARNING

**Certain external surfaces of the boiler will be hot to touch when in operation, due care is needed.**

## 1.8 Cleaning

The burner, located within the boiler combustion chamber, incorporates a brazier where the combustion of the wood pellets takes place. This brazier is fitted with a self-cleaning system to prevent a build-up of ash and clinker. This operates automatically after a pre-set period has elapsed.

The heat exchanger of the Grant Vecta boiler has a self-cleaning system to keep the heat exchanger tubes clear of ash build-up.

The Grant Vecta is a condensing boiler and, as such, has a second (condensing) heat exchanger. Refer to 'Condensing Boiler Operation' (Section 1.1) for more details on how this works. This second heat exchanger is fitted with a 'wash down' system to keep the tubes clear of any ash build-up.

As with the brazier cleaning system, the heat exchanger cleaning systems are operated automatically after a pre-set period has elapsed and also whenever power is reconnected to the boiler.



## CAUTION

**Even with the automatic cleaning systems, it is vitally important that the boiler ash pan is regularly emptied and the boiler regularly serviced. Refer to Section 11 of these instructions for further information on cleaning and servicing your boiler.**

## 2 About your Fuel

### Wood Pellets

Your Grant Vecta boiler is designed to run on 6mm diameter EN Plus Grade A1 wood pellets (conforming to EN14961-2).



## CAUTION

**ONLY EN Plus Grade A1 (EN14961-2) wood pellets MUST be used with your Grant Vecta boiler. These pellets must be bark and sand free AND approved by Grant BEFORE being used in your Vecta boiler.**

Failure to use approved pellets will invalidate the product guarantee. If you are in any doubt over which pellets are suitable please contact Grant UK for assistance.



### **Correct grade of pellets. Meets EN Plus Grade A1**

Correct diameter and length with no dust and minimum bark content.



### **Poor quality pellets. Not pressed correctly causing them to easily disintegrate. DO NOT USE!**

Auger will be unable to consistently deliver these pellets from the hopper to the burner, resulting in pellet lighting problems.



### **Pellets too dark in colour. High bark content. DO NOT USE!**

These will cause excessive sand in ash resulting in clinker blocking air holes, poor combustion and jamming of the brazier cleaning system.



### **Pellets too short in length. DO NOT USE!**

Auger will not be able deliver these pellets at the correct rate to the burner, affecting the input (and output) of the boiler and the combustion.



### **Pellets with high dust content. DO NOT USE!**

Auger will not be able deliver these pellets from the hopper to the burner, resulting in pellet lighting problems.

# 3 Boiler Control Panel

The boiler control panel is located at the upper left corner of the boiler (behind the hinged front door of the boiler). Refer to Figure 4.

To unlock/open the front door of the boiler, first unlock and remove the padlock (if fitted). Rotate the knob of the catch clockwise to unlatch and open the front door.

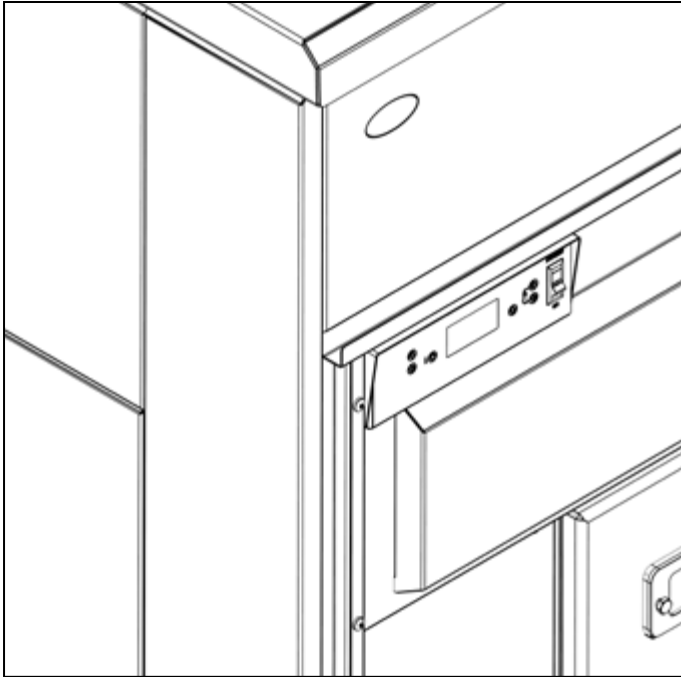


Figure 4: Control panel

The boiler control panel has the following (refer to Figure 5):

- 'ON/STANDBY' switch
- LCD screen
- Boiler control setting buttons

The control panel is used by the Installer or Grant Service Engineer to check and adjust the boiler settings during commissioning or servicing.

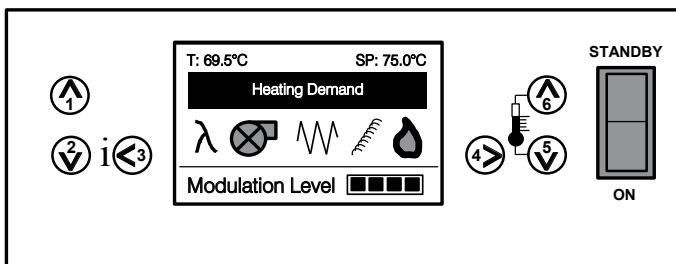


Figure 5: Boiler Control Panel

## 3.1 ON/STANDBY Switch

The function of this switch is to switch the boiler ON or OFF when required. This switch interrupts the switched live supply to the burner from the heating system controls, i.e. the remote programmer and room thermostat. This switch **MUST** be left in the ON position during normal operation of the boiler.



## WARNING

**This switch does NOT isolate the electrical supply to the burner.**

## 3.2 Control Panel LCD Screen

This displays information about the boiler operating condition and also allows the installer to check and adjust the boiler control settings.

### 3.2.1 'Home Screen' Display

This is the normal display on the LCD screen and indicates the following information about the boiler:

- The current boiler temperature (top left corner)
- The boiler 'Setpoint' temperature (top right corner)
- Heating demand present or not (upper centre)
- Functions in operation (mid centre) – Lambda sensor, Fan, Ignition element, Auger, Flame on.
- Operating sequence stage (bottom left)
- Modulation indicator (bottom right) – e.g. 4 segments = 100%, 3 segments = 75%, etc.

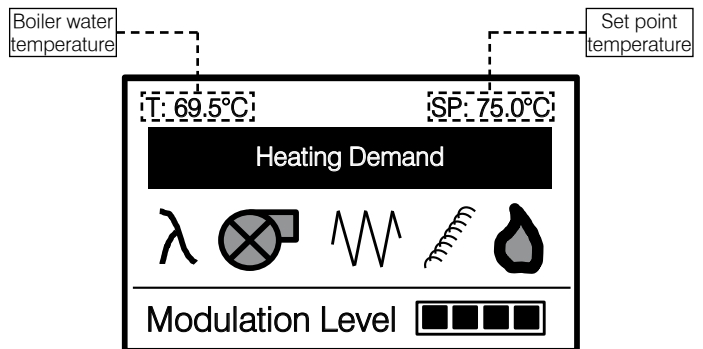


Figure 6: Control panel LCD screen



### 3.2.2 Setpoint Temperature

The 'Setpoint' temperature (SP) is constantly displayed in the top right corner of the control panel LCD screen. Refer to Figure 6.

The 'Setpoint' temperature is set by the Installer during commissioning, using buttons 5 and 6, within the range 55°C to 75°C. Refer to Figure 6. Typically it will be set to 70-75°C. This is the 'target' temperature setting about which the modulation of the boiler output will operate.

- At 5°C or more **below** the set point temperature: the boiler is in 100% power mode.
- At 5°C above the set point temperature: the boiler has reached minimum output.

The 'Setpoint' temperature is **NOT** the temperature at which the burner stops. The maximum boiler temperature at which the burner will cut out is factory set in the boiler control settings. This can, if required, be adjusted by the Installer or Grant Service Engineer. Refer to Figure 6.

#### To adjust the boiler 'Setpoint' temperature (when in 'Home Screen') – refer to Figure 7

- Press button 4
- Adjust 'Setpoint' temperature by pressing button 5 (to decrease) or button 6 (to increase)
- Press button 4 to confirm the new setting and return to the 'Home Screen' display

The boiler 'Setpoint' temperature can be set between 55°C and 75°C. The factory default setting is 75°C.

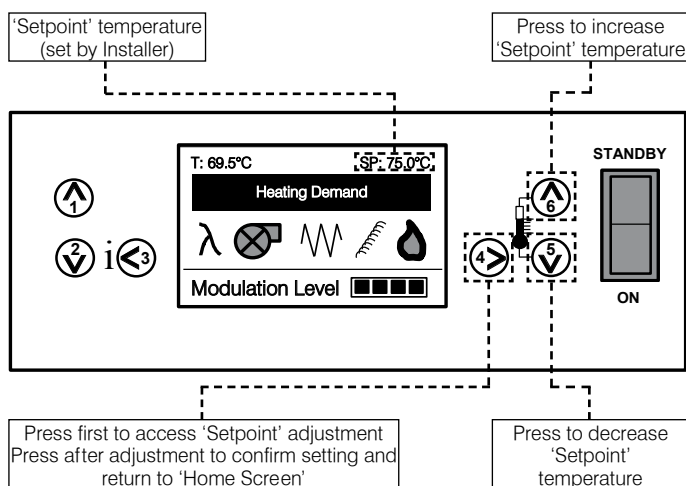


Figure 7: Boiler control panel - 'Setpoint' temperature adjustment

### 3.2.3 Boiler Water Temperature

The boiler water temperature (T) is constantly displayed in the top left corner of the control panel LCD screen. Refer to Figure 6. This is the actual temperature of the water in the boiler at that point in time.



**When the burner cuts out the temperature will continue to rise as the heat from the flame is transferred to the system water in the boiler.**

### 3.2.4 Boiler Operating Modes

At any point during the start-up, running and shutting down of the boiler, the boiler operating mode is shown across the bottom of the control panel LCD screen. Refer to Figure 8.

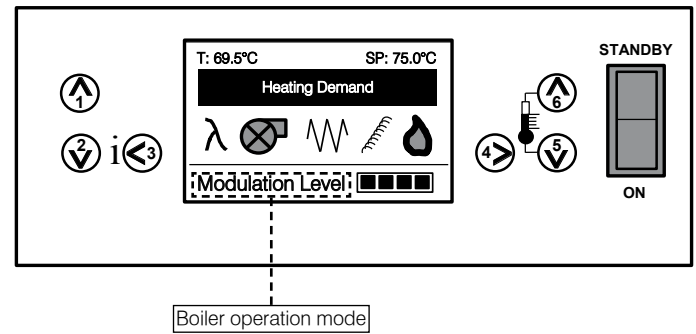


Figure 8: Boiler control panel LCD screen - boiler operating mode indication

This can be one of several modes, depending on the operation of the boiler at the time it is viewed, as follows:

- **Standby** – Boiler is in standby mode, awaiting a signal from the heating system controls and/or for the burner ON/STANDBY switch to be set to ON to start the boiler.
- **Wait Pre Load Brazier** – Period for initial loading of pellets into the burner brazier to enable the burner to be lit.
- **Lighting** – Period of time taken for the pellets to light
- **Flame Stabilisation** – Period of time allowed for the flame to stabilise.
- **Lighting Feed Reduced** – Period of time when small amounts of pellets are added to build up the flame in the brazier.
- **Modulation Level** – Burner is now firing. The output modulation is shown on the modulation indicator. Refer to Figure 9.
  - If four segments are showing: output = 100%
  - If three segments are showing: output = 75%
  - If two segments are showing: output = 50%
  - If one segment is showing: output = 25%.
- **Turning Off Brazier** – Burn down period to remove any pellets remaining in the brazier.
- **Wait Post Purge** – Period of time during which the fan continues to run to purge combustion gases from the boiler.

### 3.2.5 Operating Symbols

There are five symbols that can be displayed on the control panel LCD screen. These indicate what within the boiler is active at any point when the boiler is running.

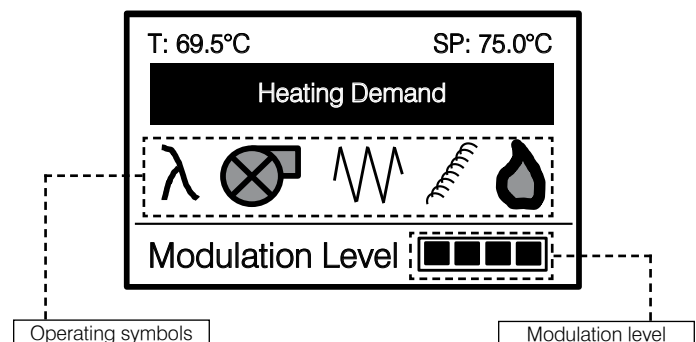


Figure 9: Burner control panel LCD screen - operating symbols and modulation level

The function indicated by each of these 'Operating symbols' is as follows (left to right):

- Lambda sensor operating
- Fan running
- Ignition element on
- Pellet auger running
- Burner alight



**Not all operating symbols will be displayed at the same time. Only those indicating a function in operation at that moment will be shown on the control panel LCD screen.**

### 3.2.6 Service Indicator

The boiler control panel will indicate when a service is required by showing the word 'Service' on the control panel LCD screen.

This will occur after a pre-set period of pellet auger running time has elapsed. When you see the 'Service' message on the burner control panel LCD screen you should contact your Grant Approved Installer and arrange for your boiler to be serviced.

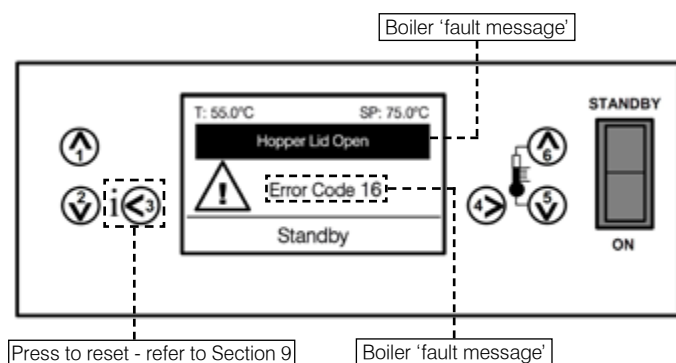
### 3.2.7 Low Fuel Indicator

The boiler control panel will indicate when the minimum level of pellets in the pellet hopper has been reached (as detected by the pellet hopper contents switch). The LCD screen will flash and display the 'Fuel Low Warning' message. The remote Grant logo indicator (located inside your house) will also flash slowly to indicate the pellet level has fallen to the pre-set minimum.

When you see the remote Grant logo indicator flashing slowly, and the boiler control panel LCD screen flashing with the 'Fuel Low Warning' message displayed, the hopper (and optional side pellet store – if fitted) should be topped up with more pellets. If the hopper is not topped up at this point, the boiler will stop operating after a short time. Refer to Section 2.

### 3.2.8 Fault Messages and Error Codes

The boiler control panel LCD screen will also indicate that a fault has occurred with the boiler by displaying both a 'Fault Message' and 'Error Code'.



**Figure 10:** Boiler 'fault message' and 'error code'

The following 'Fault Messages' and 'Error Codes' can be displayed on the control panel LCD screen:

Fault message	Error code	Fault message	Error code
Safety relay fault	1	Hopper lid open	16
Failed pellet lighting	2	Burner fan ignition rate	17
Safety charge pipe stat	3	Burner fan failed	18
Overheat thermostat	4	False flame	19
Servo motor blocked	8	EN60730 fault (PCB fault)	20
Flue fan ignition rate	10	Safety flap open	21
Flue fan failed	11	Safety flap closed	22
Water flow switch	12	APS fault	23
Fuel low	13	Safety monitor	24
Safety shutdown	14	Auger monitor fault	24
Door open	15	Ignition monitor fault	24

For further details on the 'Error Messages', and what to do if your boiler will not start, refer to Section 9.

### 3.3 Information and Service information Display

If required, these displays can be accessed from the 'Home Screen' as follows:

- Press button 3(i) once 'Information' screen is displayed, showing  
Flame lux: %  
Fan Speed: RPM
- Press button 3(i) again 'Oxygen Level' screen is displayed, showing  
Target level: %  
Actual level: %
- Press button 3(i) again 'Service Information' screen is displayed, showing  
Run time: Hrs.  
Service in: Hrs.
- Press button 3(i) again to return to 'Home Screen' display

## 4 Boiler Overheat Thermostat

This is a built-in safety device, located at the lower front of the boiler (inside the front door of the boiler). Refer to Figure 11. This will automatically shut down the boiler in the event of it overheating.

If this device should operate, it will be indicated on the control panel LCD screen with the fault message 'Overheat Thermostat' and error code 4 will be displayed. The thermostat can be manually reset once the boiler has cooled down.

To reset:

- Switch the boiler ON/STANDBY switch to STANDBY and allow the boiler to cool down.
- Open the front door to access the thermostat.
- Unscrew the plastic cap and press the reset button until it clicks and replace the cap.
- Then press button 3 on the boiler control panel to reset the controls.
- Switch the boiler ON/STANDBY switch back to ON for the boiler to operate.

If this thermostat continually operates there may be a fault. If so, contact your Grant Approved Installer for assistance.

## 5 Electrical Isolator Switch

This is a built-in safety device, located at the lower front of the boiler (inside the front door of the boiler). Refer to Figure 11. When set to OFF (O) it isolates all electrical supplies to the boiler.

It must be set to OFF (O) before the combustion chamber door can be opened to remove the ash pan or clean the boiler.

With the combustion chamber door fully closed it must be set to ON (I) for the boiler to operate.

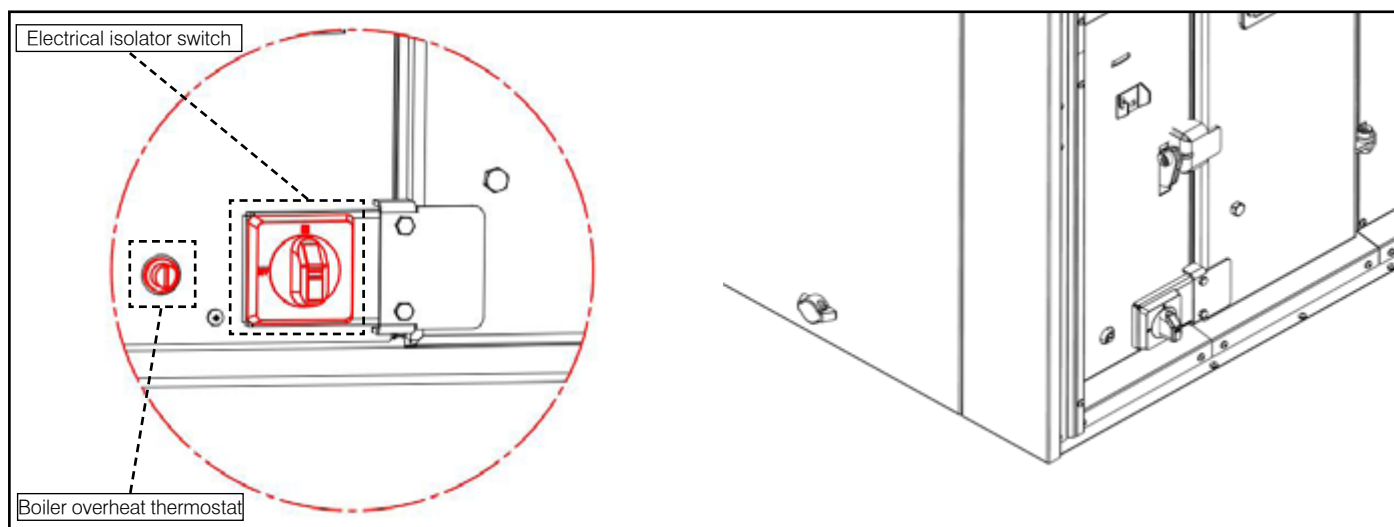


Figure 11: Overheat thermostat and electrical isolator switch

## 6 Safety Charge Pipe Thermostat

This is a built-in safety device, located in the pellet feed system within the boiler. This will automatically shut off the pellet supply, and thus the boiler, in the event of high temperatures being detected in the pellet feed system.

To reset: Switch the boiler ON/STANDBY switch to STANDBY and allow the boiler to cool down. Then press button 3 on the boiler control panel to reset the controls. If this thermostat continually operates there may be a fault. If so, contact your Grant Approved Installer for assistance.

## 7 The Grant Logo Indicator

The remote Grant logo indicator (supplied with the boiler) should have been located in a convenient and visible position within your house. It has been designed to help you easily identify the following boiler conditions:

### Logo illuminated (low brightness):

Indicates the following

- The electrical power supply is connected to the boiler and it is switched on
- There is no demand from the heating system controls for the boiler to operate

AND/OR

- The ON/STANDBY switch on the boiler control panel is set to OFF

This does not indicate that the boiler is operating or that the burner is firing. Refer to Section 8.

### Logo illuminated (high brightness):

Indicates the following

- The electrical power supply is connected to the boiler and it is switched on
- There is a demand from the heating system controls for the boiler to operate

AND

- The ON/STANDBY switch on the boiler control panel is set to ON
- This does not necessarily indicate that the boiler is operating or that the burner is firing. Refer to Section 8.

### Logo flashing (slow flash):

Indicates a low pellet level – when the minimum level of pellets in the pellet hopper has been reached. Top up pellet hopper without delay. Refer to Sections 1 and 3.2.7.

### Logo flashing (fast flash):

Indicates ash pan needs emptying – empty ash pan without delay. Refer to Section 11.

## 8 Lighting the Boiler

### To start your boiler

- First, ensure that the electrical supply to the boiler is switched on and that the electrical isolator switch is set to ON (I). Refer to Section 5.
- Then check that the heating system controls (programmer and room thermostat) are operating and are calling for heat. This will be indicated by the remote Grant logo indicator (located inside your house) being illuminated and the 'Heating Demand' message being displayed on the boiler control panel LCD screen. Refer to Figure 12.
- Finally, set the ON/STANDBY switch on the boiler control panel to ON. The fan will start and pellets will be delivered to the burner for it to start.
- The boiler will now light automatically after a short ignition period.
- After completing the start-up sequence, the burner should be firing.
- Initially the boiler will operate at 25% output (indicated by one segment on the modulation indicator on the control panel LCD screen) for 25 seconds.
- The output will then increase to 50% for the next 25 seconds (indicated by two segments), then 75% for 25 seconds (three segments) and then 100% output (indicated by four segments on the modulation indicator).
- When the burner is firing the lambda symbol (at the left hand end of the control panel LCD screen) will be continually flashing to indicate that the lambda control is operating.
- Set the heating (CH) and hot water (HW) functions on your programmer to 'Timed'. The boiler will now operate during the 'ON' periods set on the programmer.

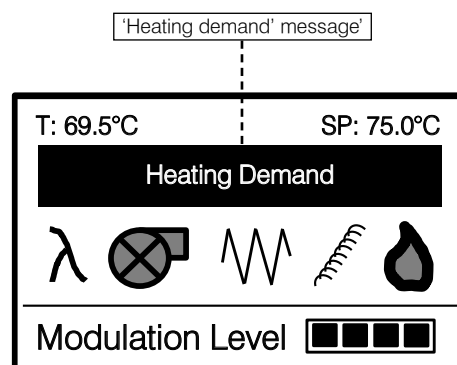


Figure 12: LCD 'heating demand' message



## NOTE

**If the boiler ON/STANDBY switch is set to STANDBY during the initial pellet pre-load period, the pellet feed will stop and the burner will go into post purge. The fault message 'False flame' (and error code 19) will show on the control panel display screen. The burner will then complete the shut-down sequence before it can start-up again, even if the ON/STANDBY switch is reset to ON.**

**If the ON/STANDBY switch is set to STANDBY during the start-up sequence, but AFTER the pellet pre-load is finished, then the burner will immediately enter and complete the shut-down sequence before it can start-up again, even if the ON/STANDBY switch is reset to ON.**

# 9 If your Boiler fails to Start

If you experience a problem with your boiler, it may be due to something quite simple and by making a few checks you can quickly rectify it for yourself. If your boiler fails to light, please follow the procedure given below, starting with STEP 1:

<b>STEP 1</b>	<p>Is the boiler control panel LCD screen blank?</p> <p>NO      Go to STEP 2</p> <p>YES      Check the following:</p> <ul style="list-style-type: none"> <li>• Is the electrical supply to boiler and heating system controls switched on at fused spur?</li> <li>• Has the fuse in the fused spur blown?</li> <li>• Is the boiler electrical isolator switch set to ON (I)? Refer to Section 5.</li> </ul> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 2</b>	<p>Is there a FAULT MESSAGE on the boiler control panel LCD screen? Refer to Section 3.2.8.</p> <p>NO      Go to STEP 3</p> <p>YES      Go to STEP 4</p>
<b>STEP 3</b>	<p>Is the Grant logo illuminated (high brightness) and 'Heating Demand' displayed on the control panel LCD screen?</p> <p>NO      Check the following:</p> <ul style="list-style-type: none"> <li>• Is the boiler STANDBY/ON switch set to the ON position? If not, then set it to ON.</li> <li>• Is there a sufficient quantity of pellets in the pellet hopper? If not, top up the hopper with pellets.</li> <li>• Are the heating system controls (programmer, room thermostat, etc.) 'calling' for heat? If not, set controls to call for heat.</li> </ul> <p>YES      Check the boiler water temperature (T) on the burner control panel LCD screen.</p> <ul style="list-style-type: none"> <li>• The boiler water temperature may have exceeded 80°C.</li> </ul> <p>If so, there is NO fault but the boiler is waiting for the system temperature to drop below the set point (SP) temperature minus 5°C before firing again.</p> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 4</b>	<p>Which FAULT MESSAGE is showing on the LCD screen?</p> <p>Is the fault message one of the following?</p> <ul style="list-style-type: none"> <li>• Error Code 14 Safety Shutdown</li> <li>• Error Code 19 False Flame</li> <li>• Error Code 20 EN60730 Fault</li> <li>• Error code 21 Safety Flap Open</li> <li>• Error Code 22 Safety Flap Closed</li> </ul> <p>NO      Go to STEP 5</p> <p>YES      These faults should self-reset. If the fault persists contact your Installer for assistance</p>
<b>STEP 5</b>	<p>Was the fault message FAILED PELLET LIGHTING displayed on the LCD screen?</p> <p>NO      Go to STEP 6</p> <p>YES      Check the following:</p> <ul style="list-style-type: none"> <li>• The brazier is not blocked with ash. If so remove all ash from brazier.</li> <li>• Press button 3 on boiler control panel to reset the control</li> </ul> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 6</b>	<p>Was the fault message SAFETY CHARGE PIPE STAT displayed on the LCD screen?</p> <p>NO      Go to STEP 7</p> <p>YES      Press button 3 on boiler control panel to reset the safety charge pipe thermostat</p> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 7</b>	<p>Was the fault message OVERHEAT THERMOSTAT displayed on the LCD screen?</p> <p>NO      Go to STEP 8</p> <p>YES      Check the following:</p> <ul style="list-style-type: none"> <li>• Has the boiler overheat thermostat tripped? Remove cap to check.</li> <li>• If yes, press the thermostat reset button. Refer to Section 4.</li> <li>• Press button 3 on boiler control panel to reset control</li> </ul> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 8</b>	<p>Was the fault message SERVO MOTOR BLOCKED displayed on the LCD screen?</p> <p>NO      Go to STEP 9</p> <p>YES      Check the following:</p> <ul style="list-style-type: none"> <li>• Is the brazier blocked with ash/clinker? If yes remove the blockage.</li> <li>• Press button 3 on boiler control panel to reset control</li> <li>• Reset STANDBY/ON switch to ON.</li> <li>• Is the correct grade of pellets being used? If not, empty the hopper and refill with correct grade of pellet.</li> </ul> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>

<b>STEP 9</b>	<p>Was the fault message FUEL LOW displayed on the LCD screen?</p> <p>NO      Go to STEP 10</p> <p>YES      Check the following:</p> <ul style="list-style-type: none"> <li>• Is there a sufficient quantity of pellets in the pellet hopper?</li> <li>• If not, top up the hopper pellets.</li> </ul> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 10</b>	<p>Was the fault message DOOR OPEN displayed on the LCD screen?</p> <p>NO – Go to STEP 11</p> <p>YES – Check the following:</p> <ul style="list-style-type: none"> <li>• The combustion chamber door is fully closed</li> <li>• The combustion door catch is fully engaged</li> </ul> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 11</b>	<p>Was the fault message HOPPER LID OPEN displayed on the LCD screen?</p> <p>NO      Go to STEP 12</p> <p>YES      Check the hopper lid is fully closed</p> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 12</b>	<p>Was the fault message FLUE FAN IGNITION RATE displayed on the LCD screen?</p> <p>NO      Go to STEP 13</p> <p>YES      Press button 3 on the boiler control panel to reset</p> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 13</b>	<p>Was the fault message FLUE FAN FAILED displayed on the LCD screen?</p> <p>NO      Go to STEP 14</p> <p>YES      Press button 3 on the boiler control panel to reset</p> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 14</b>	<p>Was the fault message APS FAULT displayed on the LCD screen?</p> <p>NO      Go to STEP 15</p> <p>YES      Check the following:</p> <ul style="list-style-type: none"> <li>• Switch the boiler isolator switch to OFF and then back to ON</li> <li>• On power up, the fault should self-reset</li> <li>• If not press button 3 on the boiler control panel to reset</li> </ul> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>
<b>STEP 15</b>	<p>Was the fault message SAFETY MONITOR displayed on the LCD screen?</p> <p>NO      Go to STEP 15</p> <p>YES      Press button 3 on the boiler control panel to reset</p> <p>If, after checking the above, there is still a problem then contact your Installer for assistance.</p>



## WARNING

**Do not under any circumstances enter a bulk pellet store or pellet hopper that has been in operation, because if the boiler has malfunctioned, there may be a build-up fumes within the enclosure.**

# 10 Cleaning and Servicing your Boiler

The boiler **MUST** be serviced either **ANNUALLY** or when the 'Service' message is displayed on the control panel LCD screen (refer to Section 3.2.6), whichever comes **FIRST**.

Servicing should only be carried out by a Grant trained Installer or Grant Service Engineer, and details of each service should be recorded in the Service Log - in Section 16 of these User Instructions.



## CAUTION

The ash pan (located inside the boiler combustion chamber) **MUST** be periodically emptied by the user. This simple task must be carried out when indicated by the remote Grant logo indicator, located inside your house, is flashing (fast flash). Refer to Section 7.



## CAUTION

**Failure to maintain a clean flue may result in the release of flue gases into the dwelling or damage from potential fire in the flue. It is therefore essential that your flue is cleaned annually by either a Grant trained installer or a suitably qualified chimney sweep.**



## NOTE

The amount of ash produced varies between the different pellet brands and this will affect the frequency of cleaning and maintenance required.

# 11 Emptying the Ash Pan

It is essential that the ash pan is emptied when indicated by the Remote Grant logo Indicator, flashing (fast flash).

The amount of ash produced varies between the different pellet brands and this will affect the frequency of cleaning and maintenance required.

A multi-purpose tool is supplied with the boiler for servicing and cleaning. This is used for the following functions:

- As the door catch handle – required to open the combustion chamber door
- As the ash pan carrying handle – required to remove the ash pan from the boiler
- To open the brazier catch
- To remove the brazier front plate
- To remove the brazier base plate
- To remove the brazier cotter pin

The multi-purpose tool is hung on a hook located on the panel to the left of the combustion chamber door. Always replace the tool back on this hook after use to ensure it is available when next required.

\*An ash pan carrying handle is also supplied with the boiler. This must be used in conjunction with the multi-purpose tool, to support the opposite end of the ash pan, when removing it from the boiler. Refer to Figure 15.

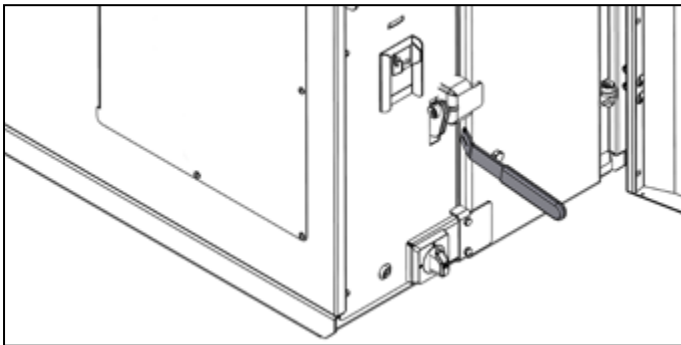


## WARNING

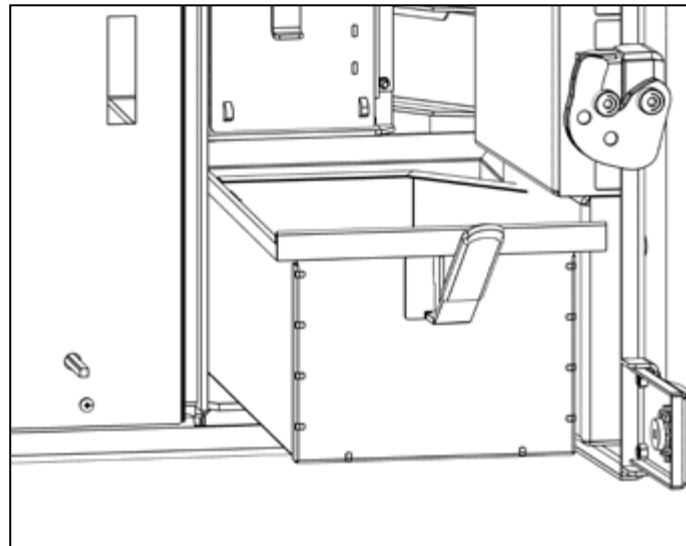
**After the boiler has been switched off (either manually, using the ON/STAND-BY switch on the control panel, or automatically by the boiler or the heating system controls) the burner needs to burn-down the remaining pellets in the brazier. Do NOT open the front combustion chamber access door AT ANY TIME until 'Standby' is showing on the control panel LCD screen.**

To empty the ash pan simply follow this procedure:

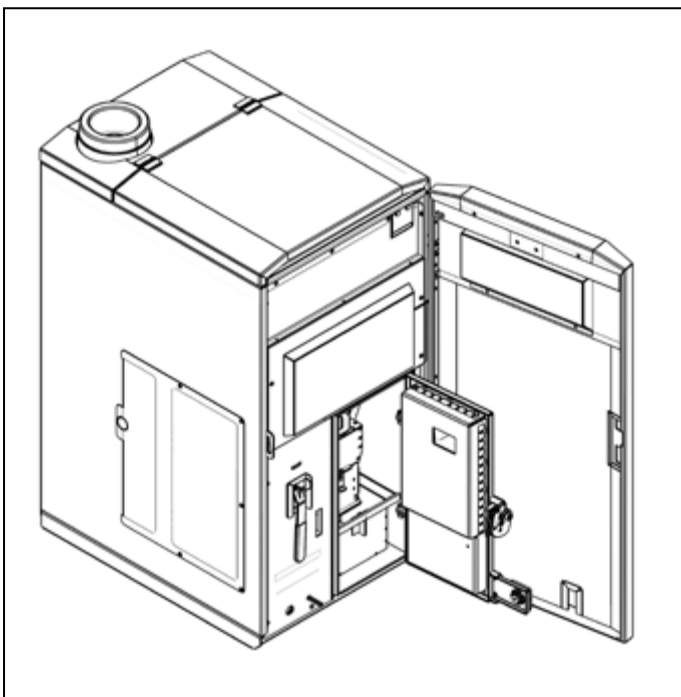
- Set the boiler STANDBY/ON switch to 'STANDBY'.
- If the boiler is running at the time, wait for it to complete the burner shut-down sequence, i.e. until 'Standby' is displayed on the control panel LCD screen.
- Wait for the boiler to cool down.
- Open the front door. Unlock/remove the padlock (if fitted), rotate the knob of the catch clockwise to unlatch and fully open the front door. Refer to Figure 14.
- Set the electrical isolator switch to OFF (O). Refer to Figure 11.
- Fit the multi-purpose tool (provided with the boiler) into slot in the combustion door catch (on the left side of the door). Refer to Figure 13.
- Lift handle to release the catch and fully open the combustion chamber door. Refer to Figure 14.



**Figure 13:** Multi-purpose tool and door catch



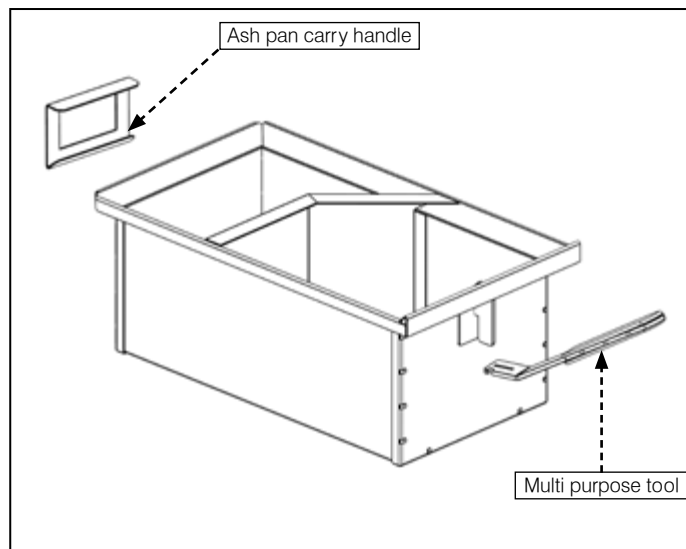
**Figure 15:** Removal of ash pan from boiler



**Figure 14:** Open combustion chamber door

## **WARNING**

Extreme care is required when emptying the ash pan as smouldering ash could be present and can cause serious damage to persons or property. Ensure the ash is disposed of in a safe manner.



**Figure 16:** Removal of ash pan from boiler

## **WARNING**

The electrical isolator switch and combustion chamber door switch automatically disconnects the power supply to the burner if the combustion chamber door is opened. **THIS DOES NOT IMMEDIATELY EXTINGUISH THE BURNER FLAME.** If the combustion chamber door is opened during or shortly after the operation of the burner there can still be a large flame from the brazier.

Using the multi-purpose tool provided with the boiler, carefully pull the ash pan forward and remove it from the boiler. Refer to Figure 15.

- When carrying the ash pan, use both the multi-purpose tool and the ash pan carrying handle (also provided with the boiler). Refer to Figure 16.
- The ash pan, once removed, can only be replaced one way. If replaced incorrectly the combustion door cannot be closed.
- Remove any remaining ash that may be left in the base of the boiler before putting the ash pan back into the combustion chamber.
- Close the combustion chamber door and ensure that the door catch is fully engaged.



## 12 Ventilation

As an open flued' appliance, the Grant External Vecta boiler draws the air required for combustion from the surroundings. The combustion air inlet to the boiler is provided by the gap along the bottom edge of the door.

**This opening must not be blocked off or obstructed in any way.**



### WARNING

**Do not attempt to 'box in' the boiler, or build a compartment around it.**

Do NOT place any combustible material against, around or on the boiler or flue pipe.

## 13 Electricity Supply

If the electricity supply fails, the boiler will cease to operate. It should automatically relight when the electrical supply is restored. However, it may first burn off any smouldering pellets still present in the brazier before starting the lighting sequence again.

If a remote programmer is connected to your boiler, it may have a 'battery back-up' of some kind that will retain the on/off time settings you previously entered. It may also resume operation with the correct time of day and thus require no re-setting of time and on/off settings when the supply is restored. Refer to the instructions supplied with your programmer for further details. It is recommended that you check that the on/off and time setting after a power failure has occurred.



### WARNING

**The electricity connections to the boiler must be earthed.**

# 14 Sealed Heating System

If your boiler is operating on sealed heating system, the installer will have adjusted the pressure in the system and should have told you the system pressure (when cold) or set it on the pressure gauge. This is normally between 0.5 and 1.0 bar, which will increase slightly when hot. If the pressure (when cold) is below the set pressure mentioned above, you can re-pressurise the system. If this is frequently required, ask your Installer or service engineer to check the heating system for leaks and to check the expansion vessel air charge.

The boiler or system will be fitted with an automatic air vent to remove any air from the system. Any trapped air in the radiators should be removed by venting the radiators using the vent screw at the top of each radiator. Only vent a radiator if the top is cool and the bottom is hot.

Excessive venting will reduce the system pressure, so only vent when necessary and check the system pressure as mentioned above. Re-pressurise the system as necessary.



## CAUTION

**The sealed system is fitted with a safety valve to release excess pressure from the system. If water or steam is emitted from the end of the safety valve discharge pipe, switch off the boiler and contact your Installer for assistance.**

### To re-pressurise the System by adding water

The procedure is as follows:

- Identify the location of the filling connection and the pressure gauge on the heating system.
- Ensure the flexible filling loop is connected and that the shut off valve connecting to the heating system is open and the double check valve (on the cold water supply) is closed.
- A valve is open when the operating lever is in line with the valve and closed when it is at right angles to it.
- Gradually open the double check valve until the water is heard to flow.

- Fill the system until the pressure gauge indicates the required pressure (between 0.5 and 1.0 bar) and then close the double check valve.
- Vent each radiator in turn, starting with the lowest one on the system to remove any air.
- Check the pressure gauge. If necessary, open the double check valve to top up the system pressure to the required value and then close the double check valve.
- Check the valves on either side of the filling loop are closed and disconnect the loop.



## WARNING

**Only add water to the system when it is cold and the boiler and pump is switched off. Do not overfill.**

### Corrosion Inhibitor

For long term protection against corrosion and scale, a suitable inhibitor should be added to the system water, such as Sentinel X100 or Fernox MB-1, in accordance with the manufacturers' instructions.

Failure to follow the above will invalidate the guarantee.

If your heating system has been topped up several times, or drained down and re-filled, it will be necessary to add corrosion inhibitor to protect against corrosion and scale in the radiators and boiler.

However, if a combined anti-freeze and corrosion inhibitor was originally added to your heating system, it will be necessary to add this to maintain the required level of frost protection as well as protect against corrosion and scale in the radiators and boiler.

Check with your Installer or Service engineer for guidance.

To protect the boiler and system from sludge build-up, Grant recommends the use of an in-line magnetic filter, such as the Grant Mag-One magnetic filter, installed in the heating return close to the boiler. This filter must be cleaned out as part of every boiler service.

# 15 Frost Protection

The Grant External Vecta boiler is supplied with a factory-fitted frost thermostat (located within the boiler casing) set to operate when the air temperature falls to 2°C.

For total system protection against freezing, particularly during extended periods without electrical power, Grant recommends the use of a combined heating system antifreeze and corrosion inhibitor, used in accordance with the manufacturer's instructions.



## NOTE

**Grant UK recommends that corrosion inhibitor and a Grant Mag-One magnetic filter should be used in the primary water system.**

# 16 Service Log

	Service 1	Service 2	Service 3	Service 4	Service 5
<b>Heating System</b>					
System pressure – check/top up					
Pressure relief valve operation - check					
Expansion vessel charge pressure – check					
Magnetic filter – inspect/clean					
Corrosion inhibitor in system – check					
<b>Flue System</b>					
Flue terminal – check condition					
Flue system – check clean					
Smoke test (Smoke test II Part J, Section E15)					
Combustion ventilation – check					
<b>Boiler</b>					
Temperature probe – check					
Overheat thermostat – check					
Primary heat exchanger – inspect/clean					
Shaker system – check operation					
Fan – inspect/clean					
Combustion chamber – inspect/clean					
Secondary heat exchanger – inspect/clean					
Wash system – inspect/clean					
Condensate trap – inspect/clean					
Condensate discharge pipe – inspect/clean					
<b>Burner</b>					
Brazier – dismantle/clean					
Photocell – inspect/clean					
Boiler settings – check					
<b>Safety devices</b>					
Hopper lid switch – check operation					
Combustion door switch – check operation					
<b>Pellet Hopper</b>					
Check for dust build-up					
Auger – check for blockages					
<b>Combustion</b>					
Combustion chamber draught – check/record					
Flue gas analysis – check/record					
<b>Customer handover</b>					
<b>Service Date</b>					
<b>Service Company</b>					
<b>Signature</b>					



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