Grant SpiraPod Outdoor Enclosure

For Grant Spira Wood Pellet Boilers

Installation Instructions

Part No. DOC.46 Rev.04 19/05/17

EC Declaration of Conformity

In accordance with BS EN ISO/IEC 17050-1:2004

We	Grant Engineering (IRL)
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Declare that

Equipment:	Floor Standing External Enclosure with integral Wood Pellet Hopper
Model Name/Number:	Grant SpiraPod

In accordance with the following EC Directives:

2006/42/EC	Conforms with the requirements of the Machinery Directive.
2006/95/EC	Conforms with the safety objectives of the Low Voltage Directive and it's amending Directives
2004/108/EC	Conforms with the essential protection requirements of the Electromagnetic Compatibility Directive and it's amending Directives

Has been designed and manufactured to the following Specifications:

EN60335-1:2012	Household and similar electrical appliances. Safety – General requirements.
EN60335-2-102:2006+A1:2010	Household and similar electrical appliances. Safety. Particular requirements for gas, oil and sold fuel burning appliances having electrical connections.
EN55014-1:2006	Electromagnetic Compatibility. Requirements for household appliances.
EN303-5:2012	Heating Boilers for solid fuels. Manually or automatically stoked. Nominal heat output up to 500kW.
MCS008	Product Certification scheme requirements - Biomass

CE

Important Note for Installers

After installing the boiler leave these Installation Instructions with the appliance. Also leave both the Installation and Servicing Instructions and the User Instructions (supplied with the boiler) with the householder.

This appliance is deemed a controlled service and specific regional statutory requirements may be applicable.

Contents

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

WARNING
Warning of possible human injury as a consequence of not following the instructions in the “warning”

CAUTION
Caution concerning likely damage to equipment or tools as a consequence of not following the instructions in the “Caution”

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

1. Introduction

1.1 Grant SpiraPod Outdoor Enclosure

Figure 1-1: Front/right side view of Grant SpiraPod

1.2 Description

The Grant SpiraPod is a weatherproof housing for the external installation of the Standard Grant Spira 5/18, 6/26 or 9/36 wood pellet burning condensing boilers. It is constructed from 1.0mm, 1.5mm, and 2mm thick Galvanised steel, finished with a polyester powder coating in 'Grant Grey'.

It is supplied fully assembled, with the pellet hopper and pellet auger fitted, ready for the installation of the Grant Spira boiler. The integral pellet hopper has a capacity is 180 kg.

The Grant SpiraPod incorporates several doors and covers to allow easy access to the boiler for the installation commissioning and servicing of the boiler contained within.

1.3 Pellet Hopper

The Grant SpiraPod pellet hopper has a capacity of approximately 180 kg. This is accessed by lifting the hinged hopper lid on the top of the SpiraPod so that pellets can be tipped into the hopper by the user. **The hinged hopper lid is fitted with two gas struts to assist with opening and closing. This lid MUST BE CLOSED after filling to prevent any water/rain entry**

The hopper is fitted with a contents sensor. This detects when the level of pellets in the hopper falls to a pre-set minimum level (approximately 20 kg) and, if a bulk pellet store is used, triggers the operation of either a bulk store auger, or vacuum system, to deliver pellets from the bulk store. If no bulk store is used, the contents sensor will stop the burner operating when the minimum pellet level is reached.

Topping up the hopper with more pellets will automatically operate the contents sensor and the burner will restart (if there is a demand for the boiler to run). The hopper must be topped up with a further 10kg (total of at least 30kg) of pellets to restart the boiler.

The electrical connection to the boiler is made to the 4-way electrical plug on the factory-fitted 'flying lead' from the Spirapod wiring centre, located at the front of the pellet hopper. Refer to both Section 8 of these Installation Instructions and Section 8 of the Spira Installation & Servicing Instructions for electrical connection details.

1.4 Flue System

The design of the Grant SpiraPod allows for the standard Grant Biomass flue system to be used. Refer to Section 7 of these Installation Instructions and also Section 7 of the Installation & Servicing Instructions supplied with the boiler.

1.5 Frost Protection

The Grant SpiraPod is supplied with a factory fitted frost protection thermostat. This is located inside the SpiraPod enclosure on the rear of the SpiraPod wiring centre (located at the front of the pellet hopper). Refer to Figure 1-2. It is pre-wired to the boiler SpiraPod electrical wiring centre and factory set to 2°C.

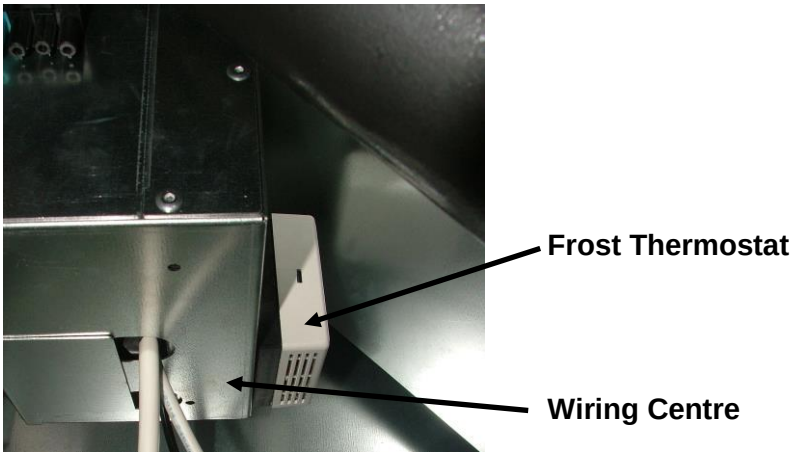

Figure 1-2: Location of frost thermostat

Grant recommends the use of a Pipe Thermostat (not supplied) in conjunction with the Frost thermostat to avoid unnecessary and wasteful overheating of the property. This pipe thermostat should be located on the boiler return pipe and set to operate at 25°C. Refer to the Section 8 of the Installation & Servicing Instructions supplied with the boiler for details of the pipe thermostat electrical connections.

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.

1.6 Access

The SpiraPod enclosure is fitted with the following means of access:

- A pair of hinged doors (with lockable door catch*) at the front – for access to the boiler for routine cleaning (emptying the ash pan), access to boiler/burner controls and the Vacuum system controls (if fitted).

- A hinged hopper lid (with lockable door catch*) on the top left side – to allow pellets to be tipped into the hopper by the user.

- A hinged cover panel (with internal catch) on the top right side – to allow access to the top of the boiler for Commissioning and Servicing.

- A removable door panel (with lockable door catch*) at the rear – to allow access to the electrical wiring centre and rear of boiler for commissioning and servicing.

* These door catches can be fitted with a small padlock (not supplied) if required.

To unlock and open any of the above, unlock/remove the padlock (if fitted). Rotate the knob of the catch clockwise to unlatch and open the front door or pellet hopper lid. On the rear access door panel rotate the knob anticlockwise to unlatch and remove. Close and lock the door, lid or panel using the reverse of the above procedure.

2. Technical Data

2.1 Technical Specification

Weight – excluding boiler (empty pellet hopper)	200 kg
Weight – excluding boiler (full pellet hopper)	380 kg
Weight – full pellet hopper and Spira 5-18 and 6-26 boiler (full)	663 kg
Weight – full pellet hopper and Spira 9-36 boiler (full)	702 kg

For further technical data refer to Section 2 of the Installation & Servicing Instructions supplied with the Spira boiler.

2.2 Pump Specification (Sealed System Kits only)

Make and Model	**Wilo Yonos PARA RS 15/7.0 RKC FS 130 12**
Construction	
Pump housing	Cast iron (with cataphorisis treatment)
Impeller	PP composite with GF 40%
Pump Shaft	Stainless Steel
Bearing	Carbon, metal impregnated
Protection Class	IPx4D
Insulation Class	F
Motor Protection	Integrated
Performance	
Max Delivery Head	7.2m @ Q = 0 m^3/h
Max Volume Flow	3.3 0 m^3/h
Minimum Suction Head @ 50/95°C	0.5/4.5m
Power Consumption @ 1 – 230V	3 – 45W
Nominal Motor Power	37W
Current @ 1 – 230V	0.028 – 0.44 A
EEI	≤ 0.20
Speed	800 – 4650 rpm
Settings	ΔP-variable (1 – 7m head) and Constant Speed (I, II and III)
Application	
Maximum Static Pressure	PN6
Temperature Range @ Max Ambient Temperatures	Max Ambient temperature 57°C: 0 to 95°C Max Ambient temperature 59°C: 0 to 90°C Max Ambient temperature 67°C: 0 to 70°C
Approved Fluids	Heating Water Water/Glycol – Max 1:1 (above 20% check pumping data)

Energy Efficiency Index

The Grant Spira sealed system kits are supplied with a Wilo Yonos PARA circulating pump that complies with the Energy Related Products (ErP) Directive requirement that all glandless circulating pumps have an Energy Efficiency Index (EEI) of not more than 0.23 from the 1st August 2015.

2.3 Dimensions

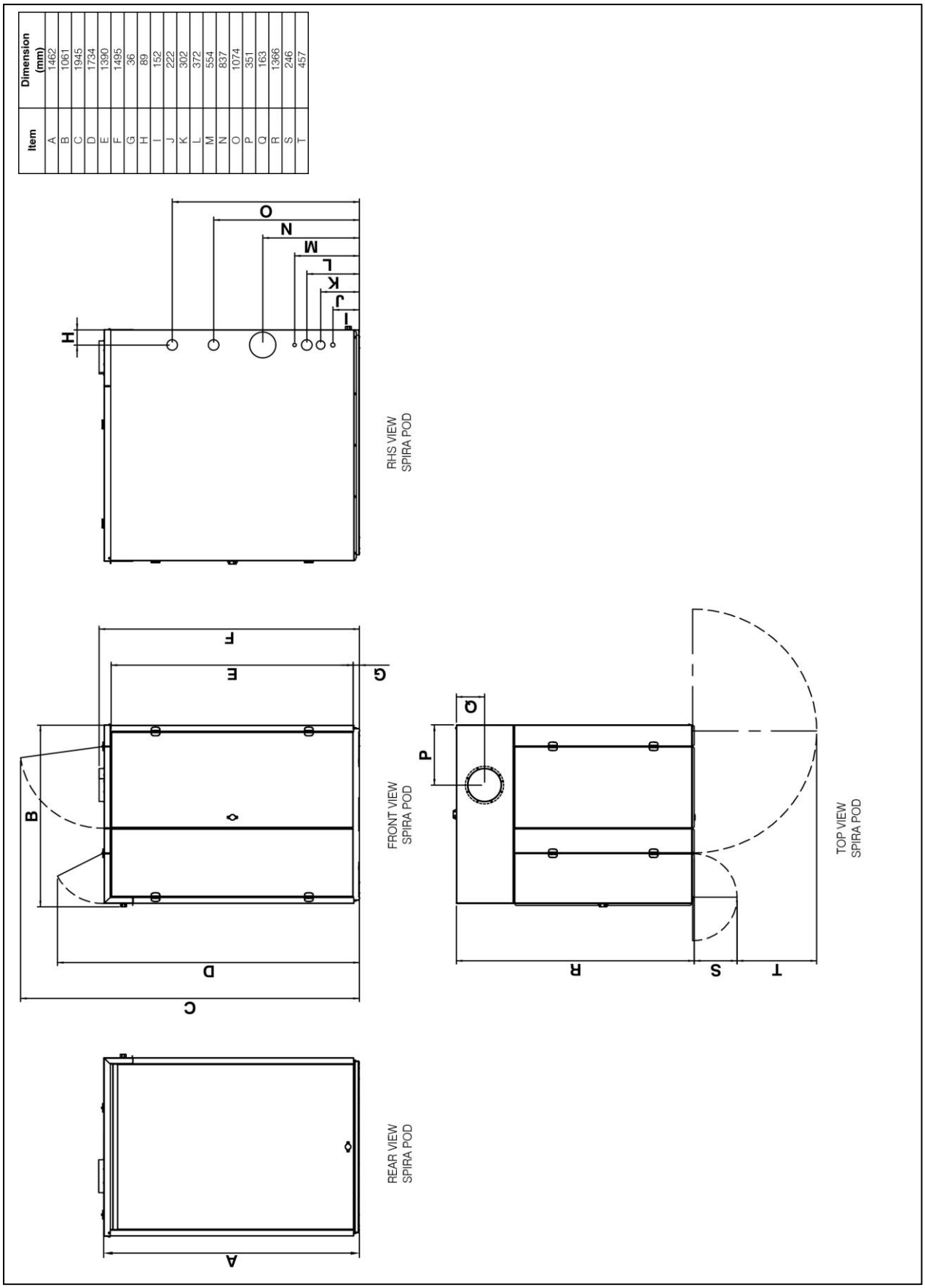

Figure 2-1. SpiraPod overall dimensions

3. Installation Information

3.1 Regulations

The Installation of a Grant SpiraPod and Spira wood pellet boiler must be in accordance with the Building Regulations and any local Byelaws, Water Regulations, British Standards and any other relevant legislation. Refer to Section 4 of the boiler Installation & Servicing Instructions boiler for further details.

Refer to Local Building regulations for minimum distances between the SpiraPod and combustible materials.

Check with the Local Authority regarding the possible need for Planning Permission for an external boiler.

3.2 Boiler location

The Grant SpiraPod can be installed either against the building or 'free standing' some distance away from the building. Refer to Figures 7-4 and 7-5.

If the ‘free standing’ option is chosen, then the boiler flue system must be at least 2300mm away from any buildings or structure that are higher than the flue outlet. See Figure 7-4. If this distance cannot be achieved, then the SpiraPod will have to be located with the right hand side close to or against the building and the flue system extended such that the terminal is above the eaves of the roof. Refer to Figure 7-5.

The Grant SpiraPod must be positioned such that sufficient clearance is provided for maintenance, servicing and filling the pellet hopper. In particular the following minimum clearances are required around the SpiraPod:

- Rear: 800mm (to remove panel and access to rear of boiler/hopper)
- Front:1500mm (to open doors and install/commission/service boiler)
- Pellet hopper side: 600mm (to access pellet hopper and open pellet hopper lid)

3.3 Base

The Grant SpiraPod must stand on a solid, level non-combustible surface capable of supporting both the weight of the boiler when full of water, and the weight of the enclosure/pellet hopper when full of pellets. Refer to Section 2 of these Installation Instructions for weights.

Grant recommends a prepared concrete standing (at least 150mm thick) with a smooth finish on the top extending beyond the enclosure base at least 100mm all around.

3.4 Installation of SpiraPod

The Grant SpiraPod is supplied fully assembled, with the pellet hopper and pellet auger fitted, ready for the installation of the Grant Spira boiler.

Position the SpiraPod in the required position/orientation on the concrete base and secure it to the concrete, using suitable fixings (e.g. Rawlbolts or similar) through the two holes provided in the base at the front of the enclosure. Refer to Figure 3-1.

Eight triangular steel shims are supplied with the boiler. These can be fitted under one or more corners, as and when necessary, to level the SpiraPod (BEFORE securing it to the concrete base).

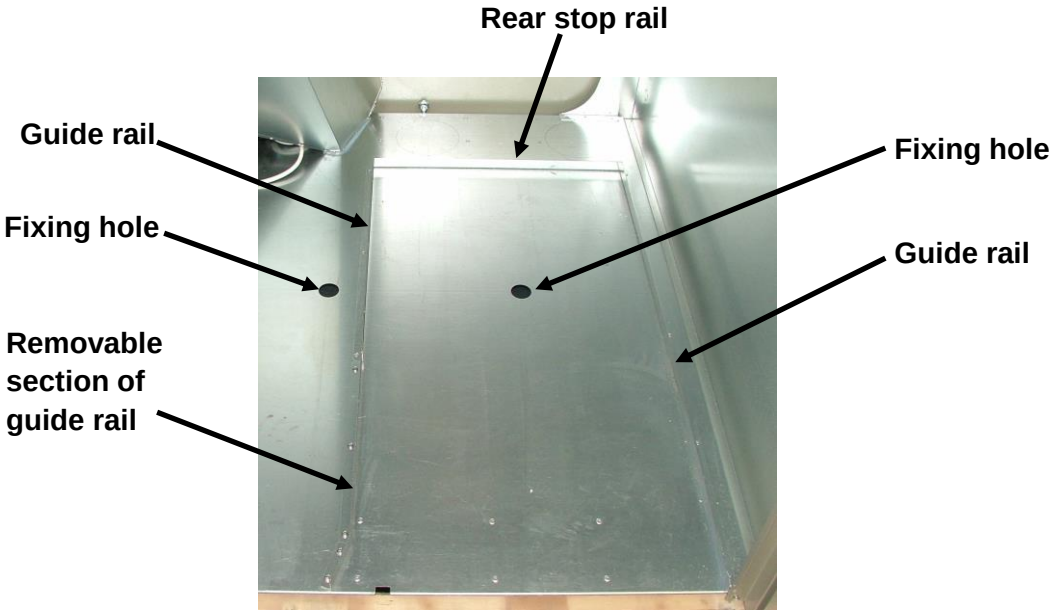

Figure 3-1. Spirapod base

3.5 Installation of the Spira boiler

With both the front doors open and the rear access panel removed:

- Remove the corner bracket from the top right hand corner of the front door opening. Refer to Figure 3-2. Keep this bracket, and the four fixing screws, as this will need to be replaced once the boiler is installed.

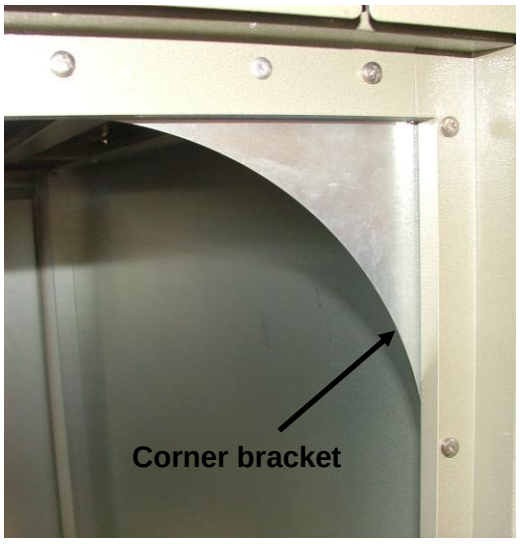

Figure 3-2. Top right corner bracket

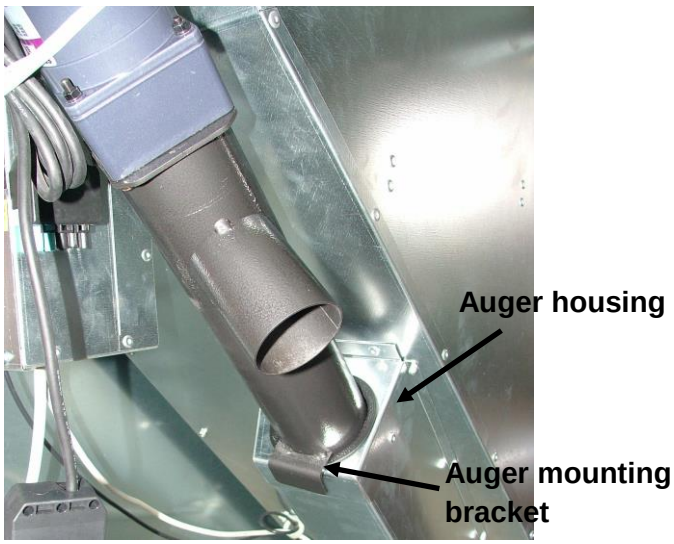

Figure 3-3. Auger mounting bracket

IMPORTANT

BEFORE fitting the boiler into the SpiraPod, It is essential that the pellet auger is rotated, as detailed below, to ensure that the end of the auger outlet does not come into contact with the side of the boiler during the installation process.

- The auger is not fastened to the pellet hopper but is held in position by a bracket that fits over the auger housing. Refer to Figure 3-3.

- To rotate the auger; grasp the auger motor and auger outlet and carefully pull the auger out by about 50mm until the auger mounting bracket is clear of the auger housing. Refer to Figure 3-4.

Figure 3-4. Pull auger out from housing

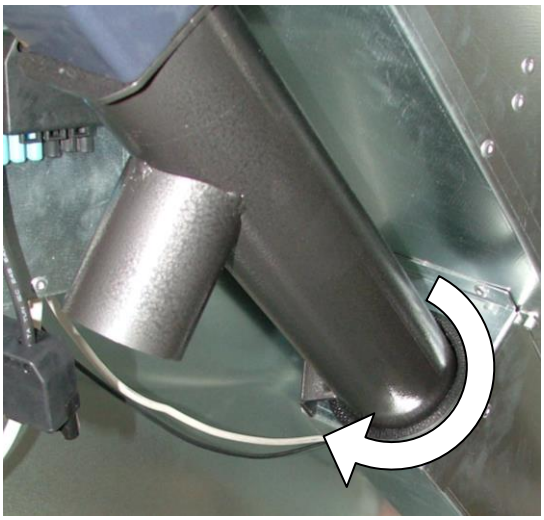

Figure 3-5. Rotate auger clockwise

- Rotate the auger clockwise until the auger outlet is facing directly downwards. Carefully allow the auger to fall back into the auger housing until the bracket rests on the end of the auger housing with the outlet still pointing directly downwards. Refer to Figure 3-5.

- Remove the burner from the combustion chamber door of the boiler, taking care not to damage the white gasket between the door and burner. Refer to Section 11.7 of the Installation & Servicing Instructions supplied with the boiler for guidance on removing the burner.

- Lightly lubricate the base area (using WD40 or similar lubricant). Do not use washing up liquid, or anything similar, for this purpose as this may stain the base of the SpiraPod.

- Position the boiler inside the SpiraPod, with the combustion chamber door facing forwards, and align the sides with the two guide rails on the SpiraPod base. Refer to Figure 3-1

- Carefully push the boiler towards the back of the SpiraPod enclosure until the rear edge of the boiler base reaches the stop rail at the back.

  NOTE: This process may be easier if a rope or similar (e.g. a lifting strop) is placed around the base of the boiler and out of through the rear of the enclosure. The boiler can then be simultaneously pulled and pushed into position against the rear stop rail.

- Once in position it is not necessary to secure the boiler down to the base of the SpiraPod enclosure.

- Remove and discard the front section of the left hand guide rails, to allow the boiler combustion chamber door to fully open. Unscrew and remove the rail fixing screws to remove this section of guide rail only.

- Fit the pellet feed tube to the burner so that the open end faces towards the left. Refer to Section 4.1.1 of the Installation & Service Instructions supplied with the boiler for details on the fitting of the pellet feed tube.

- Refit burner to the combustion chamber door and reconnect the two plugs from the boiler control panel. Refer to Section 11.9 of the Installation & Service Instructions supplied with the boiler.

- Fit the pellet feed tube thermostat lead onto the thermostat terminals. Refer to Section 10.5 of the Installation & Service Instructions supplied with the boiler for details on the fitting of the pellet feed tube thermostat lead.

- Connect the 6-way plug, on the flying lead from the pellet auger motor, to the upper socket on the left side of the burner. Refer to Section 8 of the Installation & Service Instructions supplied with the boiler for details of the plug connections.

- Refit the corner bracket to the top right corner of the door opening using the four screws previously removed.

- Reposition the auger back in its original position in the auger housing. Ensure that the auger mounting bracket is correctly fitting over the end of the auger housing. Refer to Figure 3-3.

- Connect one end of the pellet delivery hose to the outlet of the pellet auger. Connect the other end to the connector section of the pellet feed tube.

3.6 Fan Box and Flue Starter

With the boiler in the correct position, fit the fan box to the flanged flue outlet on the back of the boiler. To do this, first fit the starter section to the fan box using the four screws provided (already fitted) in the four sides of the fan box. Refer to Figure 3-6.

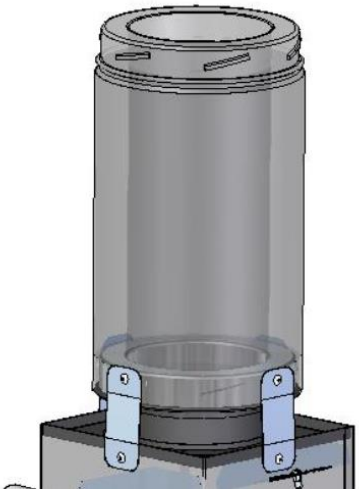

Figure 3-6. Flue starter section

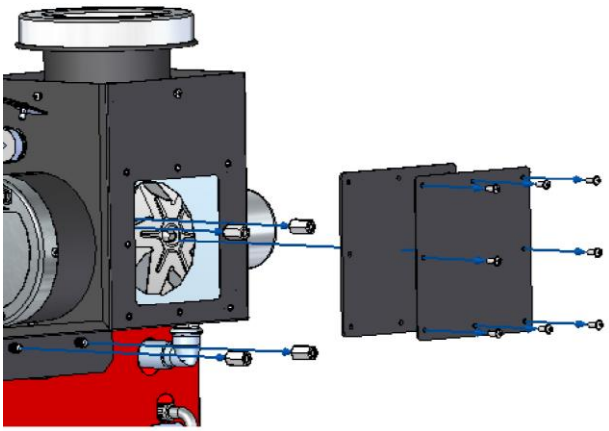

Figure 3-7. Fan box access panel.

Then, secure the fan box in place as follows:

- Remove the nuts and washers from the four studs around the fan box inlet.

- Remove the access panel from the rear face of the fan box. Refer to Figure 3-7.

- Check the circular neoprene gasket in place on the fan box.

- Feed the flue starter section up through the flue opening in rear top section of SpiraPod casing.

- Locate the four studs through the corresponding holes in the gasket/fan box.

- Two of the studs pass through the flange at the base of the fan box. The other two are inside the fan box and are reached via the rear access opening.

- Secure the fan box using the nuts and washers previously removed.

- When tightening the nuts, ensure that the fan box and flue starter section is vertical and the neoprene gasket is evenly compressed to give an adequate seal between the fan box and the flanged boiler outlet.

- Replace the access panel on the rear of the fan box and secure with the screws previously removed.

- Fit the 5-way plug from the flue fan/solenoid into the socket at the top right rear of the boiler. Ensure that the plug is pushed fully home.

A Storm Collar (Grant Ref. WPB/SCIRL) is supplied with the SpiraPod. Carefully bend the collar until the two outward facing flanges meet. Loosely fix the two flanges together using the two screws and nuts supplied with the collar.

Fit the collar over the flue starter and position it in contact with the top surface of the SpiraPod enclosure. Secure in position by tightening the screws. Finally, seal the storm collar to the flue/SpiraPod casing using a suitable mastic sealant

Refer to Section 7 of these Installation Instructions and also Section 7 of the Spira Installation & Servicing Instructions for full details on the flue system installation.

Fit the 5-way plug from the flue fan/solenoid valve into the socket at the top right rear of the boiler. Ensure that the plug is fully pushed home. See Figure 4-1 in the Spira Installation & Servicing instructions.

Fit the solenoid head (fitted to the same 5-way plug as the lead from the flue fan motor) on to the valve shaft of the wash system solenoid (located at the upper left rear of the boiler) and secure with the steel clip provided.

4. Pipework

Refer to Section 4 of the Installation & Servicing Instructions supplied with the boiler.

4.1 General

Remove the rear door panel for access to the rear of the boiler to make all the pipe connections.

4.2 Flow and Return connections

The flow and return connections are located at the rear of the boiler. Refer to Section 2.4 of the Spira Installation & Servicing Instructions supplied with the boiler for details.

The flow and return pipework can exit the SpiraPod enclosure either

a) Through the pre-cut openings provided in the 'wall side' (left side when viewed from the rear of the SpiraPod – refer to Figure 2-1) and through the wall, when installed against the building, or

b) Down through the base at the rear of the SpiraPod, for 'freestanding' installations, using one or both of the 150mm diameter pre-cut openings provided. Refer to Figure 4-1.

Push out the 'knock-out' from the required holes taking care not to distort the side casing panel or base in the process.

If a Grant Sealed System kit is to be fitted, then refer to Section 6 of these Installation Instructions.

For condensate disposal pipework details, refer to Section 5 of these Installation Instructions.

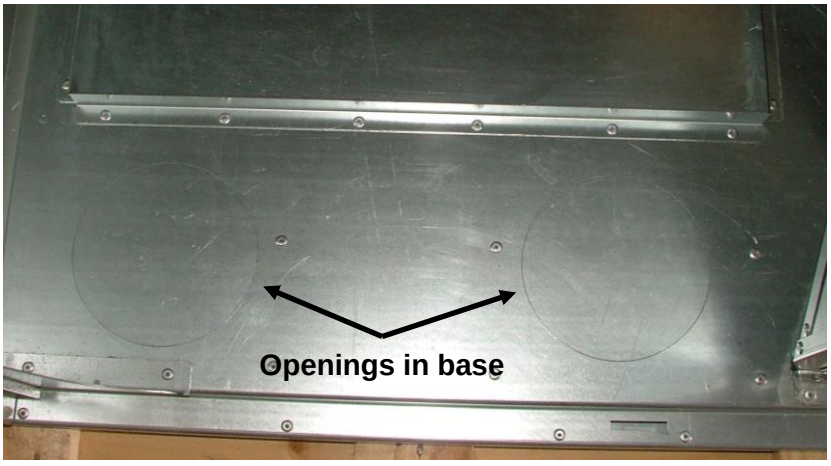

Figure 4-1. Location of pre-cut openings in SpiraPod base

4.3 Cold Water Connection (Wash System)

Connect a 15mm cold water supply pipe to the compression connection on the inlet to the double check valve, located on the solenoid valve (mounted on a bracket on the rear of the boiler).

4.4 Condensate Connection

The1¼" BSP female condensate outlet connection is located at the rear of the boiler. Refer to Section 5 of the Installation & Servicing Instructions supplied with the boiler for the location of this connection and details on condensate disposal pipework.

4.5 Drain Cock

A connection is provided at the bottom rear of the boiler for the fitting of the ½" drain cock supplied with the boiler. Refer to Section 4 of the Installation & Servicing Instructions supplied with the Boiler.

Do not fit the drain cock directly into this connection if using the Grant Sealed System kit, but refer to Section 6 of these Installation Instructions for further details.

5. Condensate Disposal

Refer to Section 5 of the Installation & Servicing Instructions supplied with the boiler.

5.1 General Requirements

When in condensing mode the Grant Spira condensing wood pellet boiler produces condensate from the water vapour in the flue gases. This condensate is slightly acidic with a ph value of around 6.

Provision must be made for the safe and effective disposal of this condensate using one of the following methods:

a) Into a soil stack – either directly or via an existing waste system.
b) Into an external gulley.

Refer to Section 5 of the Installation & Servicing Instructions supplied with the boiler for full details on the requirements for a condensate discharge pipe.

NOTE
Due to the volume of wash-down water/condensate it is not recommended to discharge into a purpose made soakaway.

5.2 Condensate Trap

All condensate disposal pipes must be fitted with a trap whether they are connected internally or externally to a domestic waste system/soil stack or run externally to a gully or hopper.

Every Grant Spira boiler is supplied with a trap and this MUST be used. Refer to Section 5.6 of the boiler Installation & Servicing Instructions for further details on the installation of the condensate trap.

6. Sealed System Kit (Optional)

Refer to Section 6 in the Installation & Servicing Instructions supplied with the boiler.

6.1 Sealed System Kit Contents

There are two sealed system kit for use with the Grant SpiraPod, depending on which boiler is being used, as follows:

Item Description	Quantity	
	Spira 5/18 & 6/26	Spira 9/36
7m High efficiency circulating pump	1	1
22mm pump valves	2	n/a
28mm pump valves	n/a	2
Pump cable c/w moulded plug	1	1
1" Male Iron x 22mm compression connector	2	n/a
1¼" Male Iron x 1" reducer	n/a	2
1" Male Iron x 28mm compression connector	n/a	2
24 litre expansion vessel	1	1
Black Iron Tee	1	1
Expansion vessel hose	1	1
22mm pipe manifold c/w connections for AAV and PRV	1	n/a
28mm pipe manifold c/w connections for AAV and PRV	n/a	1
AAV	1	1
Tee assembly c/w pressure gauge	1	1
Filling loop kit	1	1

NOTE: The 2.5 bar PRV is supplied with the Grant Spira boiler, and not in the sealed system kits.

6.2 Fitting Sealed System Kit

To fit either of the two sealed system kits, follow the procedure below:

- Fit the Black Iron tee into the ½" BSP socket (Drain Cock connection) at the bottom rear of the boiler, using a suitable thread sealant. Position the elbow such that the centre connection of the 'Tee' points towards the right (when viewed from the rear of the SpiraPod).

- Fit the ½ BSP male thread, on the end of the flexible expansion vessel hose, into the centre connection of the 'Tee', using a suitable thread sealant.

- Fit the drain cock (supplied with the boiler) into the open end of the 'Tee', using a suitable thread sealant, such that the drain cock outlet faces downwards.

- Check the expansion vessel change pressure. Refer to Refer to Section 6 of the Spira Installation & Servicing Instructions supplied with the boiler for further details.

- From the front of the SpiraPod, position the 24 litre expansion vessel under the pellet hopper with the expansion vessel connection uppermost and facing towards the rear of the SpiraPod.

- Working from the front of the SpiraPod, fit the ¾" BSP connection of the flexible expansion vessel hose to the vessel using the black rubber washer supplied and tighten the nut.

- Fit one of the 1" BSP MI x 22mm connectors (1¼" Male Iron reducer and 1"x 28mm connector for the Spira 9/36) in the Flow connection at the rear of the boiler using a suitable thread sealant.

- Fit the pressure relief valve (PRV) and automatic air vent (AAV) into their respective connections on the manifold pipe using a suitable thread sealant. Position the PRV such that the outlet faces to the left (when viewed from the back of the SpiraPod).

- Fit the manifold pipe end into the compression section of the 1" BSP MI x 22mm connector (28mm connector for the Spira 9/36). Refer to Figure 6-1.

- Complete the flow pipe by fitting a 22mm compression or Tectite elbow (28mm on the Spira 9/36), to be supplied by Installer, on the open end of the manifold pipe.

  Position the elbow such that the flow pipe passes either:
  a) Directly through the side of the SpiraPod enclosure (using the semi cut opening provided), or
  b) Downwards and out though a suitable lower opening in the SpiraPod enclosure

- Fit the second of the 1" BSP MI x 22mm connectors (1¼" Male Iron reducer and 1"x 28mm connector for the Spira 9/36) in the Return connection at the rear of the boiler using a suitable thread sealant.

- Fit the flow pipe into the compression section of the 1" BSP MI x 22mm connector (28mm connector for the Spira 9/36). Refer to Figure 6-1. Use either a 22mm pipe (28mm on the Spira 9/36) with a swept bend, or two straight length of copper with either a 22mm compression or Tectite elbow (28mm on the Spira 9/36).

- Fit both 22 mm pump valves (28mm on the Spira 9/36) to the circulating pump using the sealing washers supplied.

- Fit the pump assembly in the return pipe ensuring that the pump shaft is horizontal and the pump motor is facing away from the rear of the boiler. The flow arrow on the body of the pump must face in the direction of flow i.e. towards the boiler return connection.

- Fit a 15mm copper discharge pipe to the outlet of the pressure relief valve, using the nut and olive supplied.

- Route the PRV discharge pipe through one of the holes in the right hand side panel to discharge in a safe but visible low level position above ground level.

- The circulating pump should be wired into the heating system controls wiring centre. Refer to Section 8 of the Installation & Servicing Instructions supplied with the boiler for details of the wiring connections.

- The pressure gauge and filling loop should be installed in a convenient position inside the building.

6.2 Filling the Sealed System

Check the air charge pressure in the expansion vessel BEFORE filling the system

The Charge pressure must always be slightly greater than the maximum static head of the system. Refer to Section 6 of the Spira Installation & Servicing Instructions.

Fill the heating system with water, as detailed in Section 6.2 of the Spira Installation & Servicing Instructions. The system fill pressure (when cold) should exceed the vessel charge pressure by 0.2bar.

Check the operation of the Pressure Relief Valve, as detailed in Sections 6.4 respectively of the Spira Installation & Servicing Instructions.

6.3 Connecting the Circulating Pump

The pump is supplied with a 3-core mains cable fitted with a moulded plug to provide a safe but easy connection at the pump. First check that the plug is fully pushed onto the socket on the pump. Note that the plug will only fit onto the pump socket one way.

Connect the pump cable to the heating system controls wiring centre. For connection details, refer to Section 8 of the Installation & Servicing Instructions supplied with the boiler. Ensure that the three wires of the pump cable are connected as follows:

Brown:	Live
Blue:	Neutral
Yellow/Green:	Earth

WARNING

Before making any electrical connections to the hopper wiring centre, ensure that the electrical supply is isolated at the fused spur serving the controls and boiler, and that the fuse has been removed and the isolator is locked off.

Do NOT connect the electrical supply to the hopper, using the 4-way plug and socket, until ALL plug connections have been correctly made between the hopper, boiler and (if fitted) the bulk pellet store. Refer to Section 8.2 of these Installation Instructions for further details.

WARNING

Always check that the power to the boiler is isolated before disconnecting the plug from the pump.

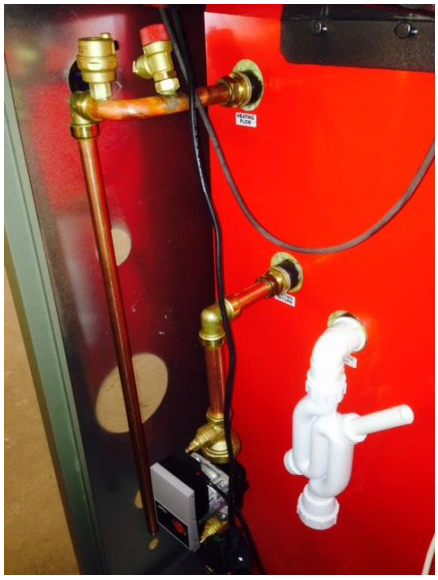

Figure 6-1. Sealed system kit

6.4 Setting the Circulating Pump

Wilo Yonos PARA RKC circulating pumps have two possible setting modes:

- Constant speed with three pump speed settings (I, II and III)
- Variable pressure (Δp-v) with pump head adjustable between 1 and 7m head

Figure 6-2 shows the pump control panel with the red selector knob.

Constant Speed Mode (I, II, III)

This is the default setting of the pump and as such is recommended by Grant for heating systems. In this mode the pump speed is not automatically regulated (as with the Variable Pressure Mode), but operates constantly at one of the three possible speeds (set using the red selector knob on the pump control panel).

Variable Pressure Mode (Δp-v)

In this mode the electronic control changes the differential pressure setpoint to be maintained by the pump in a linear fashion between Hs (the value set using the red selector knob on the pump control panel) and ½ Hs. The differential setpoint varies linearly with the volume flow Q.

Indicator LED

The pump is fitted with an indicator LED. This is located around the circumference of the red selector knob. See Figure 6.2 below. This indicates the operating status of the pump and will be illuminated green when the pump is operating normally. This indicator LED can assist in diagnosing and rectifying faults. Refer to Section 6.5 of these Installation Instructions for further details.

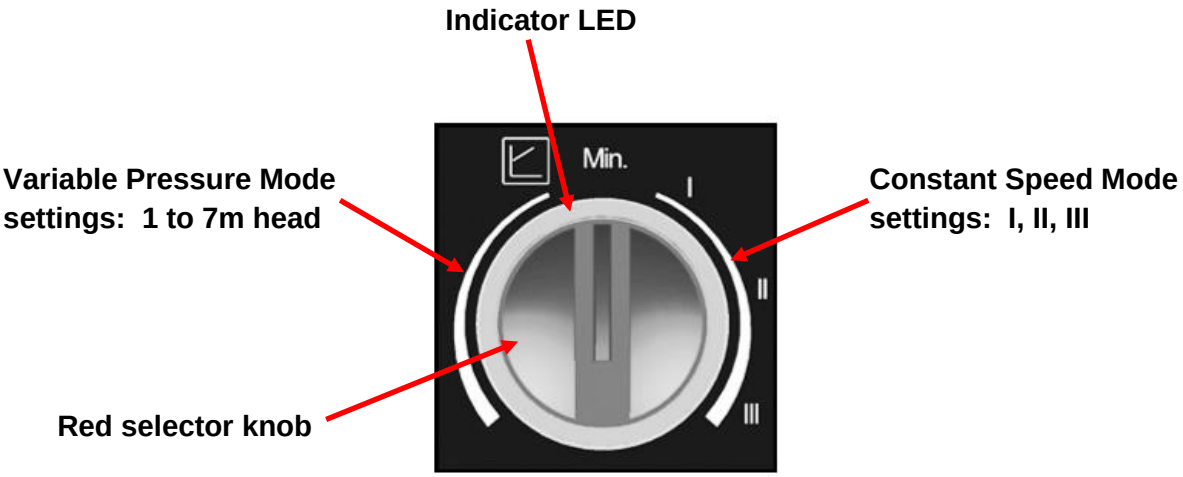

Figure 6-2. Pump control panel with red selector knob and LED indicator

To set the pump to one of the two operating modes proceed as follows:

Constant Speed Mode (I, II, III)

Grant recommends this operating mode for the pump.

To set the pump to the 'Constant Speed' mode, the pointer on the red selector knob must be set to the RIGHT of the mid position. See Figure 6.2 above.

Set it to point at the required speed setting, I, II or III as required, ensuring that there is adequate flow to distribute the heat from the boiler whilst avoiding high water velocities causing noise in the pipework.

Variable Pressure Mode (Δp-v)

To set the pump to the 'Variable Pressure' mode the pointer on the red selector knob must be set to the LEFT of the mid position. See Figure B above. The further anticlockwise it is set the greater the pressure head setting of the pump – from 1m to 7m head.

If this mode is to be used, set the selector knob at a pressure that represents the maximum pressure (head) loss for the heating system in question.

6.5 Circulating Pump Fault Diagnosis

The Indicator LED, located around the circumference of the red control knob, can assist in diagnosing and rectifying a fault with the pump. See the table below.

LED condition	Meaning	Diagnostic	Cause	Remedy
Green	Pump operating	Pump runs according to the red knob setting	Normal operation	N/A
Flashes Red and Green	Pump is operating but stopped	Pump restarts by itself after fault has disappeared	Undervoltage Voltage<160V OR Overvoltage Voltage>253V	Check supply voltage is 195V<V<253V
			Overheating: temperature inside motor too high	Check water and ambient temperature
Flashes Red	Pump not operating	Pump stopped (blocked)	Pump does not restart itself due to a permanent failure	Replace pump
LED off	No power supply	No voltage to pump control electronics	Pump is not connected to power supply	Check cable connection
			LED is damaged	Check if pump is running
			Electronics are damaged	Replace pump

6.6 Recycling and Disposal of Circulating Pump

This circulating pump must not be disposed of in normal domestic waste as most of the materials used in it's construction can be recycled. For details on how to responsibly dispose of this pump please go to www.wilo.com/recycling.

7. Flue System

Refer to Section 7 in the Installation & Servicing Instructions supplied with the boiler.

7.1 Air Supply

The Grant Spira boiler draws air for both combustion and the draught stabiliser from within the SpiraPod enclosure. This has been designed to provide sufficient ventilation for this purpose, even when all covers and doors are in place/closed. These ventilation openings are located along the lower edge of the front hinged doors and along the top of the removable rear door. Refer to Figure 7-1.

No extra ventilation openings should be made in the SpiraPod enclosure.

IMPORTANT
The ventilation openings provided in the SpiraPod enclosure must be kept clear at all times for the boiler to operate safely and correctly.

In winter conditions, a build-up of snow around the SpiraPod can obstruct the ventilation openings and affect the operation of the boiler. Ensure that heavy snow is cleared away from around the SpiraPod as soon as possible.

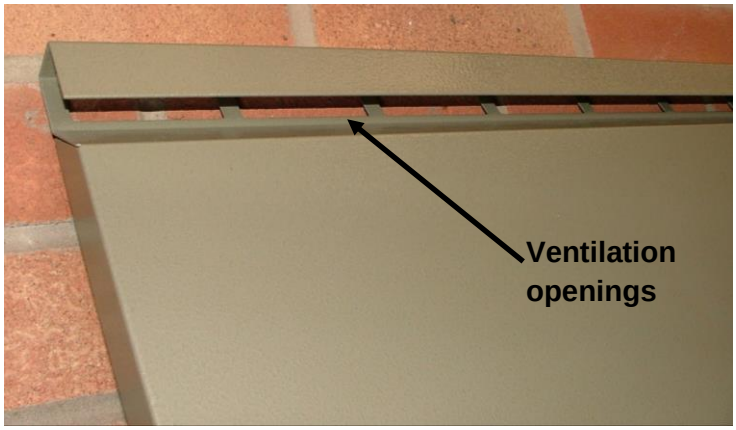

Figure 7-1. Location of air inlets in removable rear door

7.2 Flue Terminal Position and Clearances

The flue installation must be in accordance with the requirements of The Building Regulations Approved Document J for appliances burning solid fuel.

Refer to Section 7.2 of the Installation and Servicing Instructions supplied with the boiler for details on the correct location of flue terminals.

7.3 Boiler Flue Connection

The Grant Spira boiler is supplied with a flue fan box with a factory fitted starter section 300mm long. Refer to Section 3.6 of these Installation Instructions for details on the fitting of the fan box and starter section to the boiler.

7.4 Inspection Pipe

An Inspection pipe (Grant Ref. WPB/IPOM) is supplied with the Grant Spira boiler. This must be fitted to the flue starter section. Refer to Section 7 of the Spira Installation and Servicing Instructions for details on how to connect flue components together. The inspection pipe should be positioned such that the circular cover plate faces towards the left side or rear of the SpiraPod/boiler.

This Inspection pipe incorporates a weatherproof cover under which is a flue inspection hatch and combustion test point. Refer to Figures 7-2 and 7-3.

Figure 7-2. Flue inspection pipe

Figure 7-3. Pipe with cover removed

IMPORTANT
The combustion test point in the flue inspection pipe must NOT be used to monitor and adjust the % CO_2 when commissioning the Spira boiler. The combustion test point, located at the left rear corner of the rear access cover (on the secondary heat exchanger) must only be used for this purpose. Refer to Section 10.4 of these Installation Instructions for further details.

To access the flue inspection hatch, remove the circular outer cover. To do this, turn the knob in the centre of the outer cover approximately one turn anticlockwise and pull the cover away from the inspection pipe. Replace the cover using the reverse procedure, turning the knob approximately one turn clockwise to secure the cover in place.

To remove the flue inspection hatch, turn the knurled knob (in the centre of the hatch) approximately one turn anticlockwise and pull the hatch out of the flue. Replace the hatch using the reverse procedure turning the knurled knob approximately one turn clockwise to secure it in the flue.

7.5 Flue Systems

When installed in the SpiraPod the Grant Spira boiler can be fitted with one of two possible flue system options.

7.5.1 'Freestanding' Flue System

Where the SpiraPod is located away from the property a short 'freestanding' flue system can be used. The minimum length of vertical flue that can be used is 1m. When selecting a location for the SpiraPod/boiler, it is necessary to site the flue terminal such that the plume of wet combustion products from the flue does not cause a nuisance or affect the use of either the householders' dwelling or that of any neighbours.

In this situation the flue terminal must be at least 2300mm from any adjacent buildings or structures (e.g. walls). Refer to Figure 7-4. If the terminal is within this distance, then the flue system must be extended such that the terminal is located at least 600mm above the adjacent building or structure in question.

7.5.2 'High Level' Flue System

Where the SpiraPod is located against or near (within 2300mm) of a building then the flue system should be installed up the outside, and supported by, the wall of that building with the terminal at least 600mm above the point where it passes the roof. Refer to Figure 7-5.

WARNING
No horizontal section or no bend greater than 45° should be used as these can cause a build-up of ash and condensate in the flue.

7.6 Flue System Support

The weight of a tall flue system is considerable. It must NOT be carried by the flue connection on the appliance, but requires independent support using one or more of the various flue support options available in the Grant 'Biomass' Flue system.

Refer to Section 7 of the Spira Installation & Servicing Instructions for full details of the flue support options available.

7.7 Flue Notice Plate

The Building Regulations Approved Document J requires a notice plate that conveys essential information regarding the flue installed, to be permanently displayed.

A suitable self-adhesive notice plate is supplied with the Grant 'Biomass' flue system and this must be completed by the installer and displayed in an unobtrusive but obvious position e.g. on the inside of the front door of the SpiraPod enclosure.

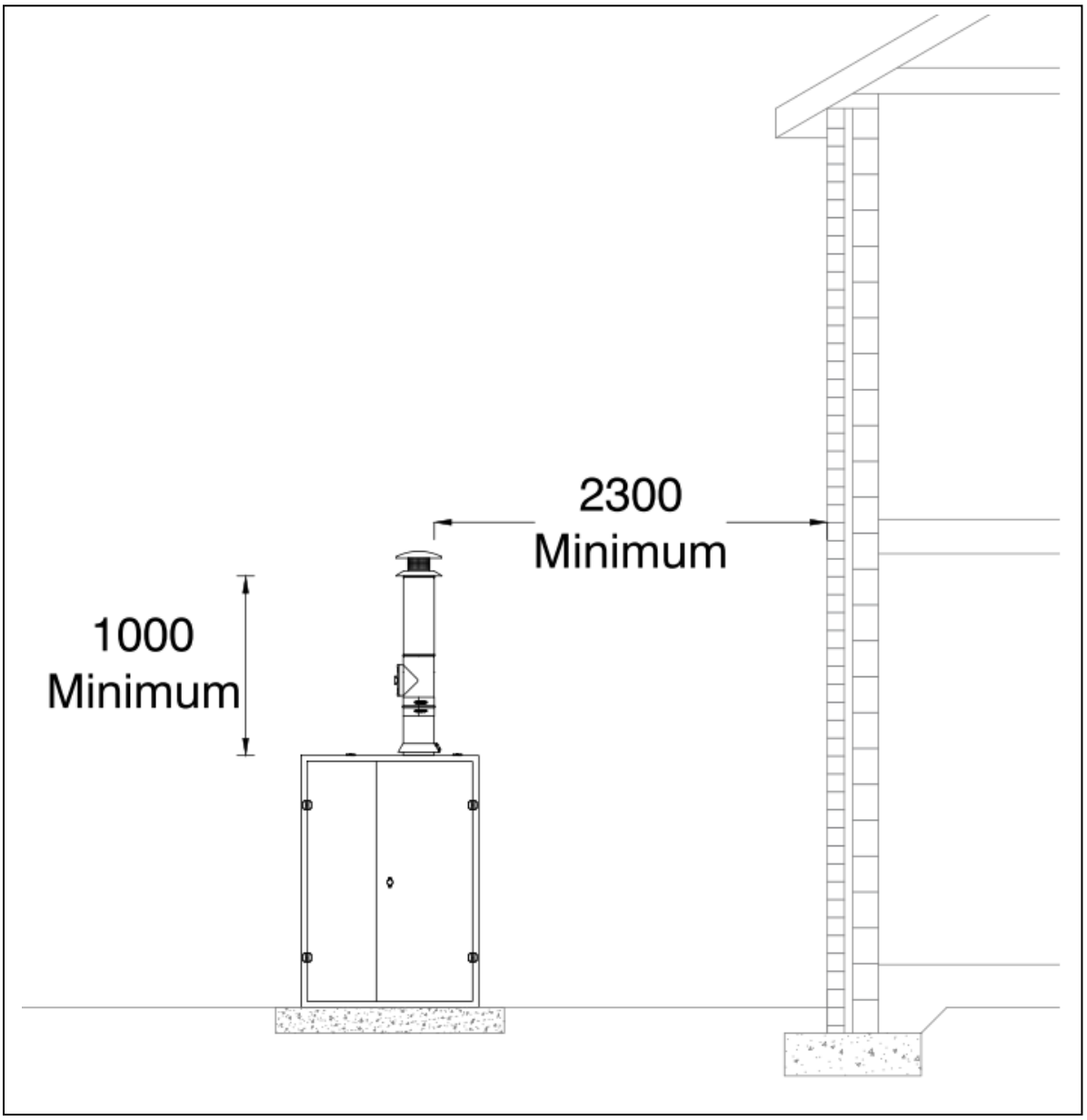

Figure 7-4. Freestanding flue system requirements

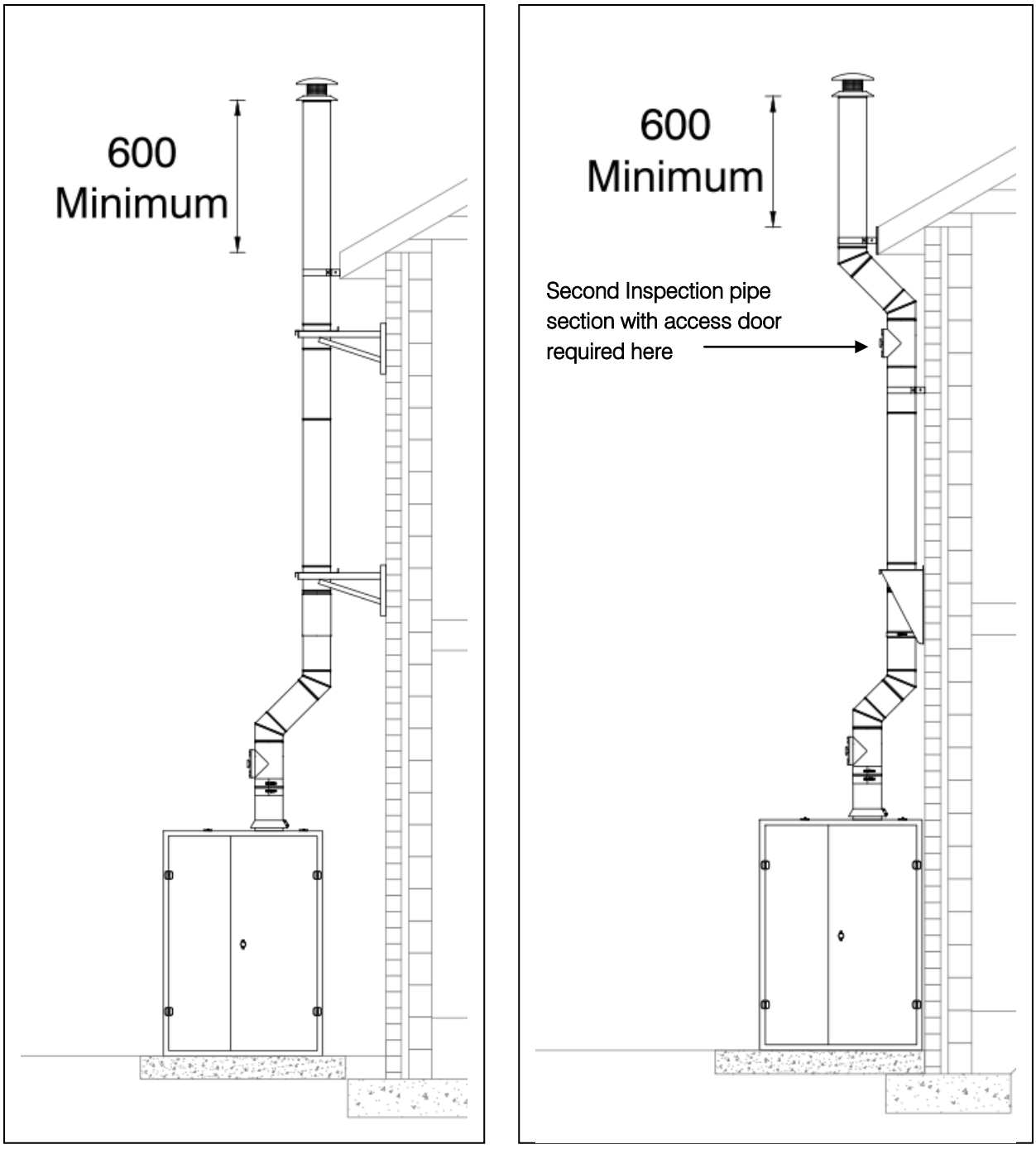

Figure 7-5. External flue system arrangements

8. Electrical

Refer to Section 8 in the Installation & Servicing Instructions supplied with the boiler.

8.1 General Requirements

The Grant Spira wood pellet boiler requires a 230 V ~50 Hz electrical supply. The unit should be connected to a mains power supply that is protected by a 30mA RCD.

WARNING

As a stationary appliance not fitted with a means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

A fused double pole switch, with contact separation of at least 3mm in both poles, should be used for connection to the mains electrical supply, serving the boiler and heating system controls only. If a Grant BioVac pellet feed system is to be fitted to the SpiraPod then refer to the wiring information provided in the Electrical section of the BioVac Installation Instructions.

For the UK, the electrical installation must be carried out by a competent installer in accordance with the requirements of the Electricity at work Regulations 1989 and BS7671:2008 – IET Wiring Regulations 17th Edition (including all amendments). All the wiring and supplementary earth bonding external to the boiler must be in accordance with the above mentioned wiring regulations.

Any heating system controls, e.g. room thermostat, frost thermostat, etc. connected to this boiler must be suitable for use on mains voltage.

The boiler requires a permanent mains supply and separate switched lives (one each for the heating and hot water control) to operate the boiler. For details of heating and hot water system controls refer to Section 8.4 and Figures 8-9 or 8-10 in the Installation & Servicing Instructions supplied with the boiler.

Do NOT interrupt the permanent supply to the hopper/boiler with any external controls.

8.2 Electrical Connections

The electrical wiring centre, located at the front of the SpiraPod hopper (refer to Figure 8-1), is fitted with two prewired flying leads with factory-fitted plugs, as follows:

- 4-way plug – for connection of the permanent live, earth and neutral and also the switched live from the heating controls system.
- 5-way plug – to connect the SpiraPod to the boiler.

A 6-way plug, to connect either a bulk pellet store auger or Grant BioVac vacuum system to the SpiraPod and boiler, is fixed to the left side of the wiring centre enclosure. Refer to Figure 8-1.

For Installations with a Bulk Pellet Store

If a bulk pellet store is to be used:

- Ensure that the electrical supply to the SpiraPod and boiler is isolated.
- Undo the two screws and remove the wiring centre cover.
- Remove the factory-fitted link from between terminals 5 and 6. Refer to Figure 8-2.
- Replace the wiring centre cover and fasten in place using the two screws previously removed.
- Connect the 6-way connector on the pre-wired flying from either the bulk pellet auger or Grant BioVac system to the 6-way plug on the side of the wiring centre.
- If using the Grant BioVac system, refer to the installation instructions supplied with the system for further details on its installation and operation.

6-way plug – for connection of bulk store auger or Grant BioVac system

Figure 8-1. Wiring centre

Remove this link (between terminals 5 and 6) when either bulk store auger or Grant BioVac system is used

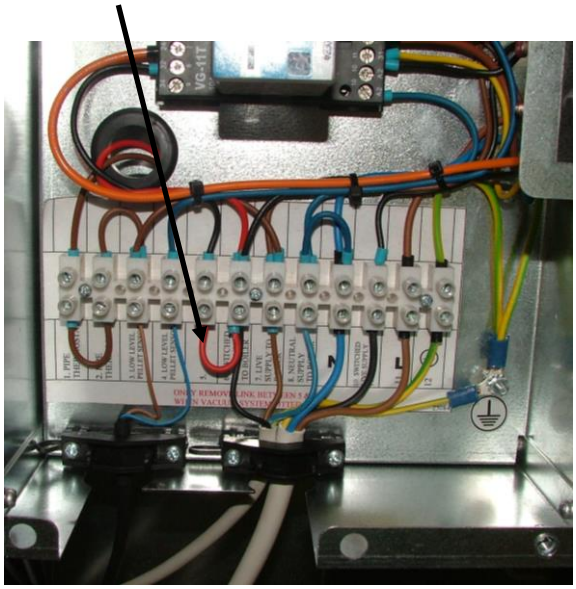

Figure 8-2. Wiring centre with cover removed

8.3 Connecting the Power Supply

Before making any electrical connections to the hopper (by connecting the 4-way plug and socket together) ensure that all the plug connections have been correctly made between the hopper, boiler and (if fitted) the bulk pellet supply system, as detailed in Section 8.3 of the Installation & Servicing Instructions supplied with the boiler.

The boiler requires a permanent mains supply and a switched live supply to control the boiler. For details of Controls refer to Section 8.4 and Figures 8-9 or 8-10 in the Installation & Servicing Instructions supplied with the boiler.

Do NOT interrupt the permanent supply to the hopper/boiler with any external controls.

The power supply cable and flex should be at least 0.75mm^2 PVC.

Connect the mains supply using the following procedure:

1. Press down on the small catch (between the two parts of the factory-fitted 4-way plug/socket connector) to release it.
2. Separate the two parts and remove the cover from the male 4-way plug.
3. Connect the flex to the 4-way male plug as follows:
   - Terminal L2 – Switched live (from heating system controls)
   - Terminal N – Mains neutral
   - Terminal (earth) – Mains earth
   - Terminal L1 – Mains (permanent) live
4. Replace the cover, ensuring outer sheath of the flex is held in the cable grip of the plug, and secure using the screws previously removed.
5. Connect the other end of the 4-core flex to the either the heating system controls wiring centre or junction box. Refer to either Figure 8-9 or 8-10, as appropriate, for details of the connections required.
6. Fit the two parts of the 4-way connector back together. Ensure the plug and socket are fully pushed together until the small catch clicks into place.

WARNING

The Grant SpiraPod and Spira boiler contains electrical switching equipment and must be earthed. Also, any bulk pellet store and pellet delivery system (Vacuum system or auger) must also be earthed.

8.4 Heating System Controls

The boiler can be used in conjunction with typical heating control system, e.g. 'S-Plan' or 'Y-Plan' type controls. Refer to Figures 8-9 and 8-10 in the Installation & Servicing Instructions for typical control system wiring diagrams.

Frost Protection

The Grant SpiraPod is supplied with a factory fitted frost protection thermostat. This is located inside the SpiraPod enclosure on the rear of the SpiraPod wiring centre (located at the front of the pellet hopper). Refer to Figure 1-2. It is pre-wired to the boiler SpiraPod electrical wiring centre and factory set to 2°C.

Grant recommends the use of a Pipe Thermostat (not supplied) in conjunction with the Frost thermostat to avoid unnecessary and wasteful overheating of the property. This pipe thermostat should be located on the boiler return pipe and set to operate at 25°C.

Refer to the Section 8 of the Installation & Servicing Instructions supplied with the boiler for details of the pipe thermostat electrical connections.

9. Grant SpiraVac System (Optional)

9.1 General

The Grant SpiraPod can be fitted with an optional Vacuum system (the Grant SpiraVac system) to automatically convey wood pellets from a bulk pellet store into the SpiraPod hopper.

The Grant SpiraVac system can be fitted to the SpiraPod on initial installation of the boiler or at a later date if required.

Full Installation & User instructions are supplied with the Grant SpiraVac system. Please refer to these instructions before proceeding to install the Grant SpiraVac system into a Grant SpiraPod.

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10. Commissioning

Refer to Section 10 in the Installation & Servicing Instructions supplied with the boiler.

10.1 General

On completion of the installation, the boiler must be commissioned as detailed in Section 10 of the Installation & Servicing Instructions. To carry out this work, the following means of access are available:

- The burner, combustion chamber and boiler control panel are accessed via the outward opening hinged double doors on the front of the SpiraPod enclosure.
- The primary and secondary heat exchangers, shaker system and wash system are accessed via the removable top right cover panel.
- The flue fan, draught stabiliser, pipework connections, electrical wiring centre and expansion vessel are all accessed via the removable rear cover panel.
- The pellet hopper is accessed via the hinged lid on the top left of the SpiraPod enclosure.

10.2 Circulating Pump Setting (Sealed System Kit only)

Set the circulating pump, using the red selector knob, as described in Section 6.4 of these Installation Instructions.

10.3 Combustion Chamber Draught

The combustion chamber draught must be checked and adjusted (where necessary) as detailed in Section 10.9 of the Installation & Servicing Instructions supplied with the boiler.

IMPORTANT
The draught should be checked with all SpiraPod access panels fitted and doors closed.

To do this, use the following procedure:

- First open both the hinged front doors to gain access to the front of the boiler.
- Allow the boiler to run for a period of 15 minutes, until the boiler and flue system are warmed up and ensure the burner display is showing 'BURNER FIRING 100%'.
- Remove the screw from the draught test point, located to the left of the burner on the combustion chamber door. Refer to Section 10.9 of the Spira Installation & Servicing Instructions for details.
- After setting the zero on the draught gauge, insert the end of the draught gauge sample tube into the test point on the door. Ensure that it is pushed through the door insulation and into the combustion chamber.
- Close both front doors, carefully routing the rubber draught gauge sample tube under the bottom edge of the door (there is a small cut out at the bottom of the left hand door) and place the draught gauge on the top of the SpiraPod casing so that the draught reading can be seen from the rear of the SpiraPod.
- Remove the SpiraPod rear door panel.
- Adjust the draught stabiliser and fan box slider plate, as described in Sections 10.9.2 and 10.9.3 in the Spira Installation & Servicing Instructions, to achieve a draught reading of between 0.1 and 0.15mbar (0.04 to 0.06 in.wg) with the draught stabiliser flap open as little as possible.
- After each adjustment temporarily replace the rear door panel to check the draught with all the SpiraPod access panels and doors closed.
- Refit the rear door panel when the correct draught and stabiliser flap opening is achieved.

10.4 Flue Gas Analysis

Check and adjust the %CO_2 in the flue gases, as detailed in Section 10.10 of the Installation & Servicing Instructions supplied with the boiler.

IMPORTANT
The % CO_2 should be checked with all SpiraPod access panels fitted and doors closed.

To do this, use the following procedure:

- Open the top hinged cover panel of the SpiraPod to gain access to the top of the boiler. Remove the boiler top casing panel.

- Ensure the burner display is showing 'BURNER FIRING 100%'.

- Remove the screw from the combustion test point, located at the left rear corner of the rear access cover (on the secondary heat exchanger). Refer to Section 10.10 of the Spira Installation & Servicing Instructions for details.

IMPORTANT
The combustion test point in the flue inspection pipe must NOT be used to monitor and adjust the % CO_2 when commissioning the Spira boiler. Only use the combustion test point at the left rear corner of the rear access cover (on the secondary heat exchanger) for this purpose.

- Insert the analyser probe as far as possible to ensure that the SpiraPod top hinged cover panel can be fully closed whilst the analyser probe is in place. Then close the top hinged cover panel.

- Close both front doors, carefully routing the analyser sample tube under the bottom edge of the door and place the analyser on the top of the SpiraPod casing so that the % CO_2 reading can be seen when the hinged front doors are closed.

- With the front hinged doors of the SpiraPod closed, monitor the % CO_2 for a few minutes to see the maximum and minimum values reached. The % CO_2 measured should range between a maximum of 12% and a minimum of 10%.

- If necessary the % CO_2 may have to be adjusted to be within these limits by altering the burner fan speed setting. Always close the doors after adjusting the burner fan setting. Refer to Section 10.10 of the Spira Installation & Servicing Instructions for guidance on adjusting the fan speed setting.

- After each fan speed adjustment temporarily close the hinged doors to check the % CO_2 with all the SpiraPod access panels and doors closed.

NOTE
It is essential to continue to monitor the combustion chamber draught whilst adjusting the %CO_2 in the flue gases and to adjust the draught stabiliser to keep it within the required limits. Refer to Section 10.3 of these Installation Instructions.

IMPORTANT
Always replace the test point screw and the boiler top casing panel after combustion testing. Do not overtighten the test point screw.

11. Servicing

Refer to Section 11 in the Installation & Servicing Instructions supplied with the boiler.

11.1 General

It is essential that Grant Spira boilers are serviced at regular intervals of no longer than 12 months OR when *'Service'* is shown on the burner control panel display – whichever comes FIRST.

The boiler must be serviced as detailed in Section 11 of the Installation & Servicing Instructions supplied with the boiler. To carry out this work, the following means of access are available:

- The burner, combustion chamber and boiler control panel are accessed via the outward opening hinged double doors on the front of the SpiraPod enclosure.
- The primary and secondary heat exchangers, shaker system and wash system are accessed via the removable top right cover panel.
- The flue fan, draught stabiliser, pipework connections, electrical wiring centre and expansion vessel are accessed via the removable rear cover panel.
- The pellet hopper is accessed via the hinged lid on the top left of the SpiraPod enclosure.

11.2 Routine Cleaning

The ash pan (located inside the combustion chamber) MUST be periodically emptied by the user. Refer to Section 1.5 of the Installation & Servicing Instructions.

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

Servicing and replacement of parts must only be carried out by a Grant Approved installer, or Grant Service Engineer, who has successfully completed the Grant Spira wood pellet boiler training course. Details of every service should be entered in the Service log section of the User Instructions.

WARNING
Before starting any work on the boiler, or on the pellet storage and supply installation, please read the health and safety information in Section 14 of the Installation & Servicing Instructions supplied with the boiler.

11.3 Combustion Testing

To ensure safe and efficient operation of the boiler, it is essential that the boiler combustion chamber draught and $\%CO_2$ in the flue gases are re-checked and adjusted as necessary when servicing the boiler.

IMPORTANT
Both the draught and % CO_2 should be checked with all the SpiraPod access panels fitted and doors closed.

Refer to Sections 10.3 and 10.4 of these Installation Instructions for guidance on how to do this.

12. Spare Parts

Spare parts list for the Grant SpiraPod to be confirmed.

13. Health and Safety Information

Refer to Section 12 in the Installation & Servicing Instructions supplied with the boiler.

14. Guarantee

You are now the proud owner of a Grant SpiraPod outdoor enclosure for your Grant Spira wood pellet boiler from Grant Engineering (UK) Limited, which has been designed to give years of reliable, trouble free, operation.

Grant Engineering (UK) Limited guarantees the manufacture of both the boiler and outdoor enclosure, including all electrical and mechanical components, for a period of **twelve months from the date of installation**[3], provided that the boiler and outdoor enclosure has been installed in full accordance with the installation and servicing instructions issued.

This will be extended to a total period of **two years** if both the boiler and outdoor enclosure is registered with Grant Engineering (UK) Limited **within thirty days of installation**[3] and it is serviced at regular intervals[2].

For full Terms and Conditions please refer to Section 16 of the Installation & Servicing instructions supplied with your Grant Spira boiler.

Registering the product with Grant Engineering (UK) Limited

Please register both your wood pellet boiler and outdoor enclosure with Grant Engineering UK Limited **within thirty days of installation**[3]. To do so visit www.grantuk.com and follow the links to the 'Homeowners Zone', where you can register your boiler and outdoor enclosure for a further **twelve months** guarantee (giving **two years** from the date of installation). This does not affect your statutory rights[1].

Foot notes:

1. Your statutory rights entitle you to a one year guarantee period only.
2. Your wood pellet boiler must be regularly serviced as per the installation and servicing instructions, (even when the guarantee has expired) to prolong the lifespan and ensure it is operating safely and efficiently.
3. The guarantee period will commence from the date of installation, unless the installation date is more than six months from the date of purchase, in which case the guarantee period will commence six months from the date of purchase.

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