

# GRANT WOOD PELLET RANGE



High efficiency condensing biomass boilers with outputs from 6kW to 36kW



## FEATURES:

- Up to 97% efficient
- Award winning condensing heat exchanger
- Automatic pellet feed and ignition
- Integrated pellet store
- Rapid ignition system
- Modulating Burner
- 125mm conventional flue
- Flue box with integral fan/draught stabiliser
- Automatic wash system for condensing unit
- Under normal running conditions requires servicing once per year



## Grant Profile



### The Company

With an established history of over 35 years designing, manufacturing and supplying a wide range of highly efficient and reliable heating products, Grant has become a firm favourite for many householders and engineers, when choosing a new or replacement heating system. From the award winning Vortex range of oil-fired condensing boilers to the latest renewable technologies, Grant has focused on providing cost effective solutions to the problem of rising energy costs.

### Quality design

Despite the sophisticated technology employed in the development of new products, Grant's design engineers have kept true to the original concept of simplicity in installation and maintenance, which are essential ingredients of today's heating systems.

Grant products are manufactured from the highest quality materials and designed not just to meet, but to exceed all relevant performance and environmental standards. Backed by highly efficient administration and Grant's comprehensive warranty schemes, the Company is also focused on providing an exceptional after-sales service for all of its customers.

### Designs for the future

The Company has achieved an enviable reputation within the heating industry for its high-efficiency approach to new concepts.

Although most domestic houses will continue to be heated by gas, oil or electricity well into the future, there is a growing awareness that we all need to do more to reduce our dependency on fossil fuels.

Grant has, over recent years, been involved in the development of a range of renewable products which now features, solar thermal, solar photovoltaics (PV), air source heat pumps and wood pellet boilers.

All Grant products have been developed to compliment each other, giving a complete green home heating solution.

### Rest assured

When you order from any of Grant's stockists you can feel secure in the knowledge that you are purchasing the best quality and most reliable product from a long established independent heating specialist.

Grant's policy has always been, and always will be, total commitment to the environment we live in and the customers we serve.



# Wood Pellet Boiler Technology

## Contents

### Doing our bit for the environment

Renewable energy has a key role to play in reducing CO<sub>2</sub> emissions, thereby giving us smaller carbon footprints.

Using a green heating method in the home can lessen the amount of harmful carbon dioxide being released into the atmosphere, which will ultimately minimise the long-term Greenhouse effects on the Earth's climate.



### Wood Pellet Boiler design

Wood pellet boilers are an environmentally friendly, safe and convenient way of heating the home, using wood pellets as fuel.

However, they differ from traditional solid fuel boilers. Apart from the green aspect, the units are fully automatic and behave more like an oil or gas boiler, using advanced controls which cleverly regulate the amount of fuel being delivered to the burner to match the heat demand on the boiler. The fuel is fed to the burner via an auger connected to the adjacent pellet store/hopper. This can, in turn, be automatically supplied from a bulk pellet store which can vary in size.

The process of burning wood produces ash, so wood pellet boilers normally require a certain amount of regular cleaning and maintenance, which can be tedious. Grant has, however, found a better solution with their unique 'self cleaning' boiler design, reducing the need for cleaning to once a year under normal running conditions.

### The Grant approach

In this eco-aware climate, Grant feel it is imperative to provide both householders and installers with innovative green options for home heating.

The brief behind the Grant Spira Wood Pellet Boiler range was to ensure installation is straightforward, daily operation easy and maintenance as effortless as possible, whilst guaranteeing the same high quality and efficiency everyone expects from Grant products.

The Grant Spira Wood Pellet Boiler range was recently awarded Best Renewable Energy Product 2011 by the Sustainable Energy Authority of Ireland (SEAI).



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# Wood Pellet Fuel

## What are wood pellets?

Wood pellets are cylindrical in shape and made from compressed sawdust, which is often the waste product from the timber industry (e.g. sawmills). They are fused by the natural lignin present in dry wood. It strengthens the wood as well as having water proofing properties.

Pellets have a very low moisture content, which helps consistent combustion efficiency, as during the burning of fuel, any water content must be evaporated before combustion can occur. This process requires energy, and therefore reduces overall system efficiency. Pellets are additionally very dense. Both these qualities make them a good source of energy.

**Grant Wood Pellet boilers can only be used with 6mm approved premium pellets such as Verdo and Balcas Brites** with attributes as follows:

- ◆ Moisture content below 10%
- ◆ Calorific value of 4.8 - 5.2kWh/kg
- ◆ Ash content of <1% (Low)
- ◆ Bulk density of around 650kg/m<sup>3</sup>
- ◆ Chlorine content of 0.03% or less
- ◆ No additives



**Using pellets which do not meet Grant's specification from an unapproved supplier will invalidate your boiler warranty. If you are in any doubt, please contact Grant before purchasing your pellets.** There is also an approved wood pellet supplier list featured on the Grant website, under the 'product section'.

## Renewable fuel

As the sawdust is a waste product e.g. from sawmill industries, or has been sourced from a managed forest (i.e. where trees are planted to replace the ones cut down), wood pellets are classed a renewable carbon neutral source of fuel.

## How are pellets delivered?

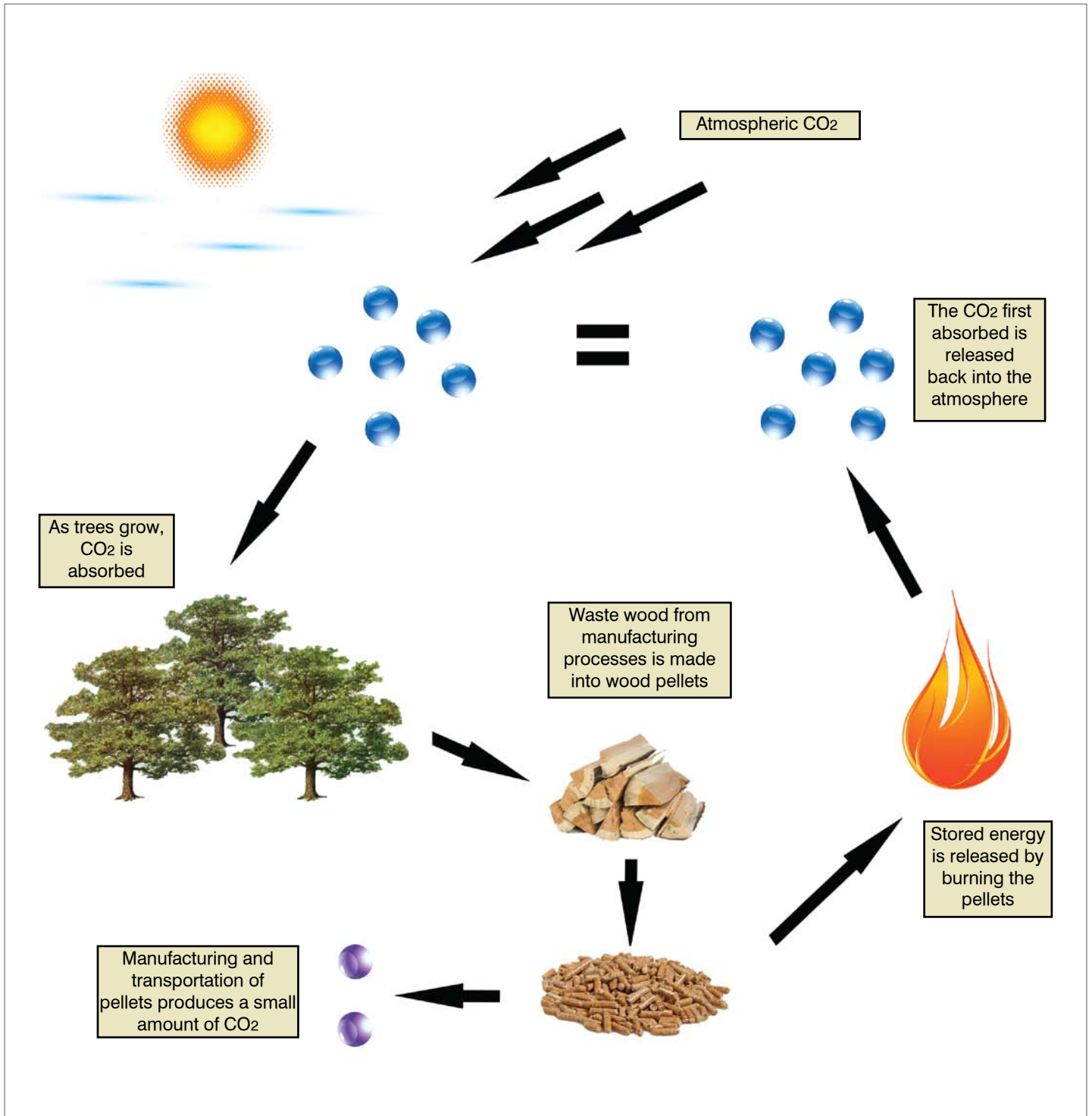
Wood pellets can be bought in bags (various sizes but typically around 10kg), or alternatively they are delivered in bulk load (around one to five tonnes at a time) by tanker and blown into the hopper through a flexible hose. Buying pellets in bulk works out far less expensive than in bags.



# The Carbon Cycle

## Wood pellets are carbon neutral

When trees grow, they absorb atmospheric carbon dioxide. During the burning of wood, carbon dioxide which was initially absorbed, is released back into the atmosphere. In essence, this provides no overall increase in the level of atmospheric CO<sub>2</sub>. If the tree was to die naturally, it would still break down and thus eventually release the same amount of CO<sub>2</sub> back into the atmosphere. The burning of wood pellets just speeds up this process. It is more commonly known as the Carbon Cycle (shown below).



# Grant Spira Wood Pellet Boilers

## Unique and efficient condensing models

The new highly efficient Grant Spira Condensing Wood Pellet Boilers utilise Grant's award winning patented stainless steel turbulator baffle system.

The units are available in outputs of 6-26kW with an efficiency of 97.4% gross, and 9-36kW with an efficiency of 93.1% gross. They come complete with a 110kg pellet store/hopper and feed auger, which automatically supplies the Spira with fuel.

## How the boiler works

On start up the auger feeds the wood pellets from the hopper into the burner where it is lit by an ignition element. The burner output modulates to achieve the set temperature by controlling the feed rate of pellets. The fan in the burner propels hot gas generated from the fuel into the Spira's primary heat exchanger. The heat energy is then transferred to water from the central heating system, before being circulated around house to radiators/underfloor.

It is important to note that in modern pellet boilers, up to 20% of the energy that is produced is lost to the atmosphere through waste gases exhausted by the flue system, The Spira has a unique secondary condensing heat exchanger which has been designed to capture some of this lost latent heat energy, so it can maintain extremely high efficiencies.

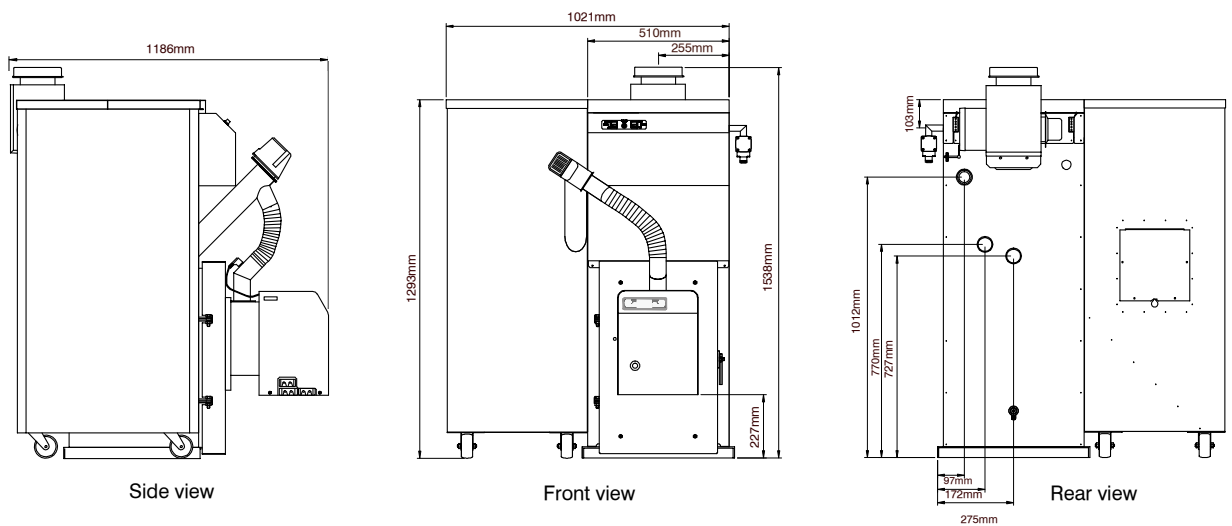
The boiler's fully automatic cleaning system will periodically wash the condensing unit of any debris in the tubes and also activate the brazier within the burner to clear the combustion chamber of ash build up, which reduces maintenance time.



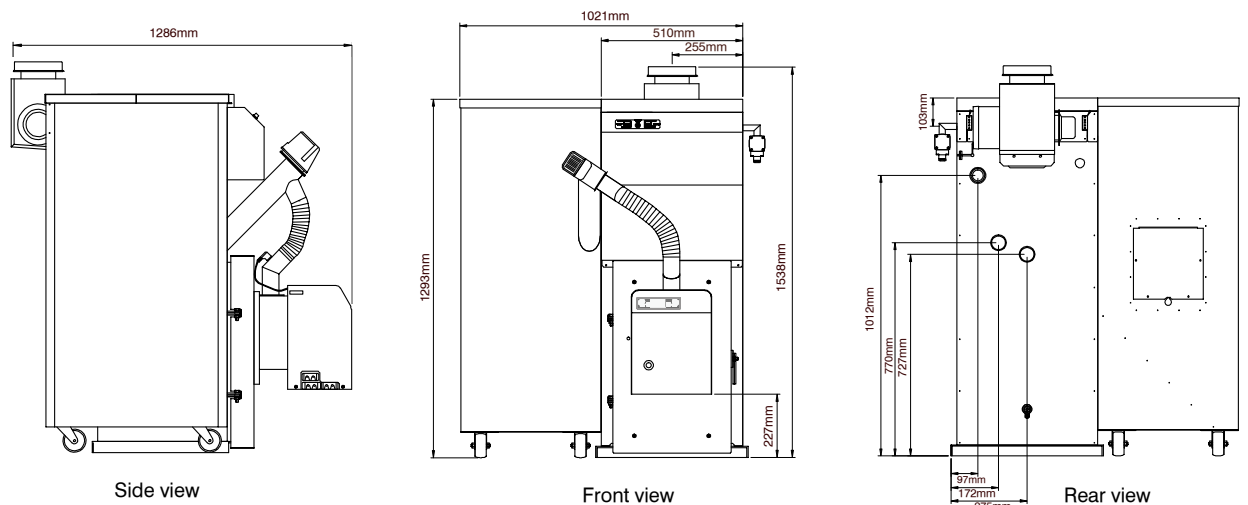
## Technical data

Model	WPS626	WPS936
Output	6-26kW	9-36kW
Weight (without/with store)	226kg / 268kg	256kg / 298kg
Chimney	125mm (5")	125mm (5")
Wash system (condensing unit)	15mm compression	15mm compression
Flow/Return connection	1" female	1 1/4" female
Condensate drain	1 1/4" female	1 1/4" female
Water content	51.5 litres	60 litres

### Grant Spira 6-26kW boiler and hopper



### Grant Spira 9-36kW boiler and hopper



# Black Chimney system

## Grant Black Chimney System

The Grant Spira has its own 'Black' chimney system. This 125mm (5") vertical conventional stainless steel, twin wall insulated chimney system specifically designed for use with Grant pellet boilers. It has been fabricated to cope with continuous operating temperatures up to 200°C although the typical flue gas temperature produced by the Spira is much lower than this. The system is designed so that the stainless steel outer case is load bearing and stainless steel inner liner is free to expand independently to accommodate temperature change.

Available with a range of extension pieces and bends, the system can easily be assembled to suit a wide variety of installations.

## Features

- ◆ Twist-lock bayonet jointing system. Secured by locking bands.
- ◆ Advanced corrosion resistant design and construction uses laser welded stainless steel inner liner and case.
- ◆ The 25mm high efficiency Superwool blanket maintains flue gas temperature, maximising efficiency, improving flue draught on start up and minimising condensation.
- ◆ Low external case temperature.
- ◆ Inner liner held by the male locking collar but free to expand and contract with temperature by up to 18mm through the female collar.
- ◆ The inner liner has an inward bead at the female end which acts as a capillary break preventing moisture being drawn through the joint.

## Assembly

Black sections are joined together by placing the female collar of one section over the corresponding male collar of the preceding section then locking by rotating the upper section clockwise. It is vital that all flue gas carrying components are installed with the external collar pointing upwards. An arrow on the label indicates the flue gas direction.

The inner of each section is enlarged at the male end so that the female end of the other section or fitting enters into it and overlaps. This allows any condensation to run back to the boiler without escaping from joints.

## Chimney runs

The chimney should remain as straight as possible through its vertical run to assist flow. Should it be necessary to angle the chimney run, an offset no greater than 45° to the vertical, with a run between the bends not exceeding 20% of the overall height of the chimney should be maintained. A vertical rise of 600mm should be allowed immediately above the appliance before any offsets. Reference for both guidelines can be found in the Building Regulations Document J and relevant British Standards on installations.



## IMPORTANT

ONLY THE GRANT BLACK CHIMNEY SYSTEM CAN BE USED WITH GRANT PELLET BOILERS, AS IT HAS BEEN DESIGNED TO ENABLE EFFICIENT OPERATION AND RELIABILITY. FAILURE TO COMPLY WITH THE ABOVE, MAY RESULT IN THE WARRANTY BECOMING INVALID.

## IMPORTANT

A MAXIMUM OF TWO 45° BENDS ONLY CAN BE USED IN THE CHIMNEY RUN.

## IMPORTANT

BLACK SYSTEM CHIMNEY LENGTHS CANNOT BE CUT. ADJUSTABLE EXTENSIONS MUST BE USED TO ACHIEVE DESIRED LENGTH.

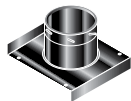


## CHIMNEY COMPONENTS

Wall Support Side Plate	<b>WP/WS</b>	Models up to 36kW
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Intermediate Top Plate	<b>WP/TP</b>	Models up to 36kW
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Raincap	<b>WP/RC</b>	Models up to 36kW
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Viton Gasket* <small>*supplied as standard with extensions and bends.</small>	<b>WP/O2</b>	Models up to 36kW
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Firestop Plate (2 piece)	<b>WP/FP</b>	Models up to 36kW
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Support Plate (2 piece)	<b>WP/SP</b>	Models up to 36kW
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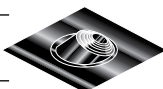
Roof Support Band	<b>WP/RS</b>	Models up to 36kW
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Guy Wire Bracket	<b>WP/GB</b>	Models up to 36kW
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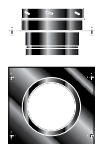
80mm-200mm Uni Flashing	<b>WP/UF200</b>	Models up to 36kW
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Storm Collar	<b>WP/SC</b>	Models up to 36kW
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Anchor Plate / Flue Adaptor	<b>WP/AP</b>	Models up to 36kW
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Extension to Flue Adaptor	<b>WP/CA</b>	Models up to 36kW
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Inspection Pipe	<b>WP/IP</b>	Models up to 36kW
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## EXTENSIONS AND BENDS

1500mm Extension	<b>WP/EXT1500</b>	Models up to 36kW
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1000mm Extension	<b>WP/EXT1000</b>	Models up to 36kW
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500mm Extension	<b>WP/EXT500</b>	Models up to 36kW
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333mm Extension	<b>WP/EXT333</b>	Models up to 36kW
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75mm-250mm Adjustable Extension	<b>WP/ADJ250</b>	Models up to 36kW
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30° Bend	<b>WP/30</b>	Models up to 36kW
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45° Bend	<b>WP/45</b>	Models up to 36kW
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Locking Band	<b>WP/O1</b>	Models up to 36kW
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## CHIMNEY ACCESSORIES

Wall Bracket 50mm	<b>WP/WB50</b>	Models up to 36kW
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Wall Bracket 50-300mm	<b>WP/WB300</b>	Models up to 36kW
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# Things to consider...

## Siting of appliance and store

Wood pellet boilers are generally larger than traditional oil or gas boilers and also require a large hopper to store fuel.

The Grant Spira is designed to be sited in a garage or store. Therefore before purchasing, it is important to consider where it will be located.

Ventilation should be provided to the boiler room to provide adequate air supply allowing the appliance and flue to operate efficiently. An air vent either directly to an external air source or vented into a room that has an external vent direct to an air source must be used.

It is also important to bear in mind that the boiler will carry out a sporadic cleaning cycle. This process will result in a temporary increase in noise level, so should also be considered when choosing a suitable location.

## Pellet Storage

It is very important to ensure you have sufficient space to store the wood pellet fuel. A bulk hopper system can be employed for greater pellet storage e.g. four tonne hopper. This can be fed directly into the intermediate Grant pellet store supplied as standard with the boiler. When using larger storage, it is also important to consider vehicle access, as bulk delivery lorries need to blow pellets into the hopper.

Stores are available in internal and external versions and only an approved storage system can be used with the Grant Spira, as the pellets must be kept free of moisture. Failure to follow this instruction can result in poor boiler operation and may invalidate the warranty

## Boiler set up

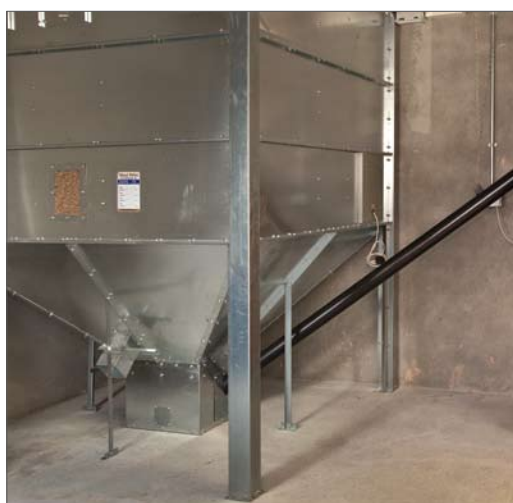
The boiler burner comes pre-set for 'Grant Approved' premium wood pellets, which ensures efficient burning with maximum temperature output. To use another approved premium wood pellet, the burner settings may need to be re-set to the particular attributes of that fuel. This will ensure the appliance operates efficiently. Contact Grant for further information.

## Looking after your pellet boiler

One of the best features of the Grant Spira is that it requires very little maintenance, compared with other wood pellet appliances.

The unit itself has an automatic wash-clean system for the condensing system to ensure it stays free of debris. It also features a self cleaning burner and combustion chamber.

As a result of the boiler's efficient operation, the ash pan only needs emptying after every three tonnes of pellets consumed and servicing just once a year (under normal operation).



Sit back, relax and leave the  
cleaning to your new  
**Grant Wood Pellet boiler!**



# General Information

## G-One Approved Installers Scheme

Grant pellet boilers **must only be fitted and commissioned by a heating installer who has been fully trained and approved by Grant under the G-One Scheme.**

Failure to comply with this may result in the product warranty becoming invalid.

For details of the Grant 2-day Wood Pellet product course at the Grant Training Academy, call: **01380 736943** or visit: **www.grantuk.com**



## Service and maintenance

As part of the installation package, your Grant Spira Wood Pellet boiler will be routinely maintained and serviced for the first two years by your G-One installer.

In the unlikely event of a problem occurring, you must first contact your G-One installer to attend the fault. If it cannot be rectified, they should telephone the Grant Customer Service Department on: **01380 736920.**



## Guarantees

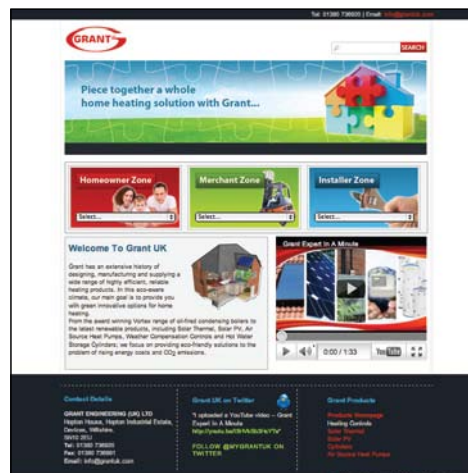
Grant Wood Pellet boilers are guaranteed for two years from the date of purchase (excluding consumable items), subject to being serviced annually and installed in accordance with the manufacturer's instructions. The heat exchanger within the Grant Spira is covered by a five year guarantee.

On completion of the installation all Grant Wood Pellet Boilers must be commissioned and the online guarantee registration submitted to Grant Engineering (UK) Ltd.

## Website

For information about other Grant products or to download brochures please visit the website at: **www.grantuk.com**

Our popular online site is regularly updated with the latest news and product developments.



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All products manufactured under I.S. EN ISO 9001 and ISO 14001.

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