

## Bowland Bioenergy - *Technical Information*

### **Pdf 1. WOOD CHIP BURNERS**

These boilers occupy the medium to very large power output sector. There are many different makes and models on the market. It is essential to use a supplier who is able to provide both good equipment and high quality service.

They are designed to be housed in a dedicated boiler room with an adjacent fuel store. The better boilers are equipped with control systems which enable automatic ignition of the fuel when initiated by their integrated timer. Modulation of the heat output is possible, enabling the boiler to operate at reduced output when desired. Once heat is no longer required, the boiler shuts down and the fire is extinguished until next required.

When used in conjunction with a heat accumulator the boiler can work more efficiently by preventing frequent relighting.

Fuel is usually moved by one of two methods, either from the bottom of the store by means of a screw auger which is controlled by the heat demand. Occasionally chips can lock together forming a bridge when fuel is removed by the auger. A rotary arm mounted above the auger ensures fuel flows to the boiler whenever it is required. This type of store is normally constructed in such a way that fuel deliveries can be made by tipping vehicle which is the quickest and cheapest option allowing a choice of vehicles.

Wood chip occupies approximately 4.5m<sup>3</sup> per tonne, whilst pellets need 1.6m<sup>3</sup> for the same weight. This means that a much larger store is required for wood chip than for pellets. A relatively new development is installation of equipment which takes fuel from the top of the store thus obviating any bridging. An additional benefit is that all the moving parts are above the fuel chip which allows for easy access for maintenance.

Although wood chips are less susceptible than pellets to degradation from water, it is still very important to keep the fuel dry to ensure efficient combustion.

Wood chip boilers are often used in conjunction with heat accumulators which allow the boiler to work more efficiently by operating for longer, less frequent burn times. Peaks in the heat load such as domestic hot water demands for baths and simultaneous heating can be met very well by using accumulators.

As a general rule wood chip fuel works most effectively in medium to large boilers with bigger units providing better overall efficiency. Larger boilers are usually more tolerant of variations in fuel quality and size variability.

Small boilers which are claimed to work reliably with wood chips have recently been developed in the range. It is understood that these boilers require smaller than usual fuel chips with a very limited size spectrum but detailed information is currently unavailable.

### **Combined heat and power boilers**

These boilers only operate effectively on a large industrial scale when linked in to district heating schemes or where heat is required in large quantities for industrial processes. Various claims as to the effectiveness of smaller CHP plants have been made by their manufacturers. So far these claims remain to be supported by operational evidence. Only 20% of the output is produced as electricity and it is essential that a market be found for the 80% heat energy if the boiler is to work cost effectively.

Bowland Bioenergy, based in Lancashire, produces dried wood chips – and supplies wood pellets – for wood burning boilers. The company was founded in 2005 and has grown to be one of the North's leading biomass companies. Wood fuel of the highest quality (BS EN 14961) is produced year-round and the company was the first biomass supplier to achieve the prestigious HETAS Accreditation for wood chip.

Bowland Bioenergy Ltd, Smithfield Farm, Twiston Lane, Downham, Clitheroe, BB7 4DF.

Telephone: 01200 440437      Email: [info@bowlandbioenergy.co.uk](mailto:info@bowlandbioenergy.co.uk)

Please visit our website [www.bowlandbioenergy.co.uk](http://www.bowlandbioenergy.co.uk)

