

TECHNICAL SPECIFICATION

Plant Specifications

Electrical Power Output (rated)	80 to 100kW
Generating Voltage/Frequency	415V / 3 Phase / 50Hz
Grid Protection	Software G59 Compliant
Fuel Type	Biomass
Thermal Output	200 to 250kW
Heat Output Format	Hot Water up to 90°C
Operation	Fully Automated Continuous Output



BRITISH MADE

Talbot's manufacture a wide range of biomass and waste to energy combustion systems producing warm air, hot water, steam, electricity or any combination of these.

AGENTS STAMP

Efficiency

Overall efficiency is over 80%. Electrical efficiency is over 20%; 2-3 times greater than steam based systems at this size.

Fuel Specification

Fuel must be biomass with a recommended moisture content of less than 25% but can be up to 40%. An increase in moisture content will give an increase in fuel consumption. The particle size of the fuel can be anything up to 30mm³.

Emissions

The Biomass Generator is compliant with Environmental Protection Act regulations, under the Clean Air Act. Very low emissions levels are achieved without the use of flue gas scrubbing equipment for uncontaminated biomass fuels; this results in minimal combustion equipment maintenance.

Operational Availability

The BG100 can be operational for approximately 8000 hours per annum.





100kW Electricity
200kW Thermal

Biomass Generator. Harnessing the power of nature



Biomass & waste to energy solutions

The Biomass Generator

Ten years of research and development have been completed to produce this small-scale biomass fuelled combined heat and power unit. The system utilises well-proven technology incorporating clean hot air for turbine operation with special features and a unique combustion process.

The Biomass Generator (BG100) is a highly efficient technology capable of producing 100kW of renewable electricity and 200kW of renewable heat. The system is run on biomass which can be considered as solar energy stored in the chemical bonds of trees and plants, making it a renewable and sustainable source of energy.

The BG100 is capable of utilising a wide range of biomass fuels; these include forestry and agricultural residues, wood chips, wood pellets and energy crops such as coppiced

willow, grown as a short rotation crop, and Miscanthus (elephant grass).

The size makes the BG100 ideal for installation on farms, large estates, woodworking factories and anywhere where there is a readily available source of fuel. This technology will lead to added value for crops and will offer an effective end use for energy crops. It will also provide an opportunity to the agricultural community for a much needed, viable diversification option.

Due to the system being factory made, on-site installation is kept to a minimum; installation of the BG100 is therefore a relatively quick and simple procedure.

Renewable energy income opportunity

A significant return can be received from the sale of the energy produced. This includes revenue from the sale of the electricity, including Renewables Obligation Certificates (ROCs) due to the renewable nature of biomass energy and sale of the heat energy. The heat produced can be used to

provide heating and hot water for surrounding buildings or can be sold to increase the Biomass Generator's income.

The 100kW of renewable electricity and the 200kW of renewable heat produced by the system will lead to a carbon dioxide emission reduction of around 600 tonnes per unit each year; this is compared to emissions from fossil fuel fired heat and electricity production. This is a significant saving which will greatly benefit the environment by reducing the release of carbon dioxide, a greenhouse gas, into the atmosphere.

The BG100 is a small, compact system designed for on-site power production. Transport of fuel is minimised through the utilisation of on-site or local fuel sources, achieving further emission reductions directly related to the use of this system.



Harper Adams University College
- location of a BG100 installation.



Processed biomass fuel ready to be
fed into a biomass energy system.



Stafford based Talbot's is the UK's leading manufacturer of biomass energy systems. A world leader in the ongoing development of biomass energy technology, the company has over 4,000 working installations as far a field as the USA, Canada, Europe, Asia, Russia and Australia.

Established 30 years ago by Bob Talbot, who was prompted to produce his first wood-fired boiler after the oil crisis and three day week of the mid-70s; the company is still very much a family concern today.



Biomass Turbine Generator



Combustor

BIOMASS GENERATOR FEATURES

Energy outputs

- **100kW electrical energy for sale to the grid or for own use.**
- **200kW thermal energy can provide a continuous source of heat for a wide variety of applications such as large farmhouses, hotels, country estates or commercial properties.**
- **Containerised in two standard shipping containers.**

Easy to use controls

Despite the sophisticated level of programming that is possible, making Talbott's Biomass Generator so flexible, the controls are easy to understand and operate. Computer controlled combustion – ensures that the system is fed with the right amount of fuel to maintain the required energy output. Remote monitoring of controls and notification of alarms is possible.

High temperature combustor for maximum efficiency

A triple pass ceramic lined high temperature combustion zone - helps to maximise efficiency and because Talbott's achieve such a steady, high combustion temperature, it is possible to use fuels with a higher moisture content than would otherwise have been possible.

High combustion temperatures ensure clean combustion, meeting all environmental standards. Step grate system with auto de-asher – ensures even burn throughout combustion chamber for improved efficiency.



Flexible fuel loading

Bunker fuel storage systems for ease of loading by a variety of methods, additional storage capacity and silos available on request. Robust, variable fuel mechanism – allows varying sized specified biomass to be fed into the boiler.

Highly efficient biomass turbine generator

The indirect fired micro turbine is an integral part of the BG100. High speed direct drive engine coupled to power electronics to provide high levels of engine efficiency and remove the need for a reduction gear box and the losses associated with it.



BG100 showing 'Bunker':