DP MaxSolo

Solution

DP CleanTech

Creating value from waste

DP MaxSolo

The DP MaxSolo is a core product in DP Cleantech's portfolio, consisting of a specialized, single-fuel 'high pressure high temperature' biomass boiler. Whether it is a 'soft' fuel such as wheat straw, or a 'hard' fuel such as wood, all components of the MaxSolo are specifically designed to maximize the performance from a chosen fuel.

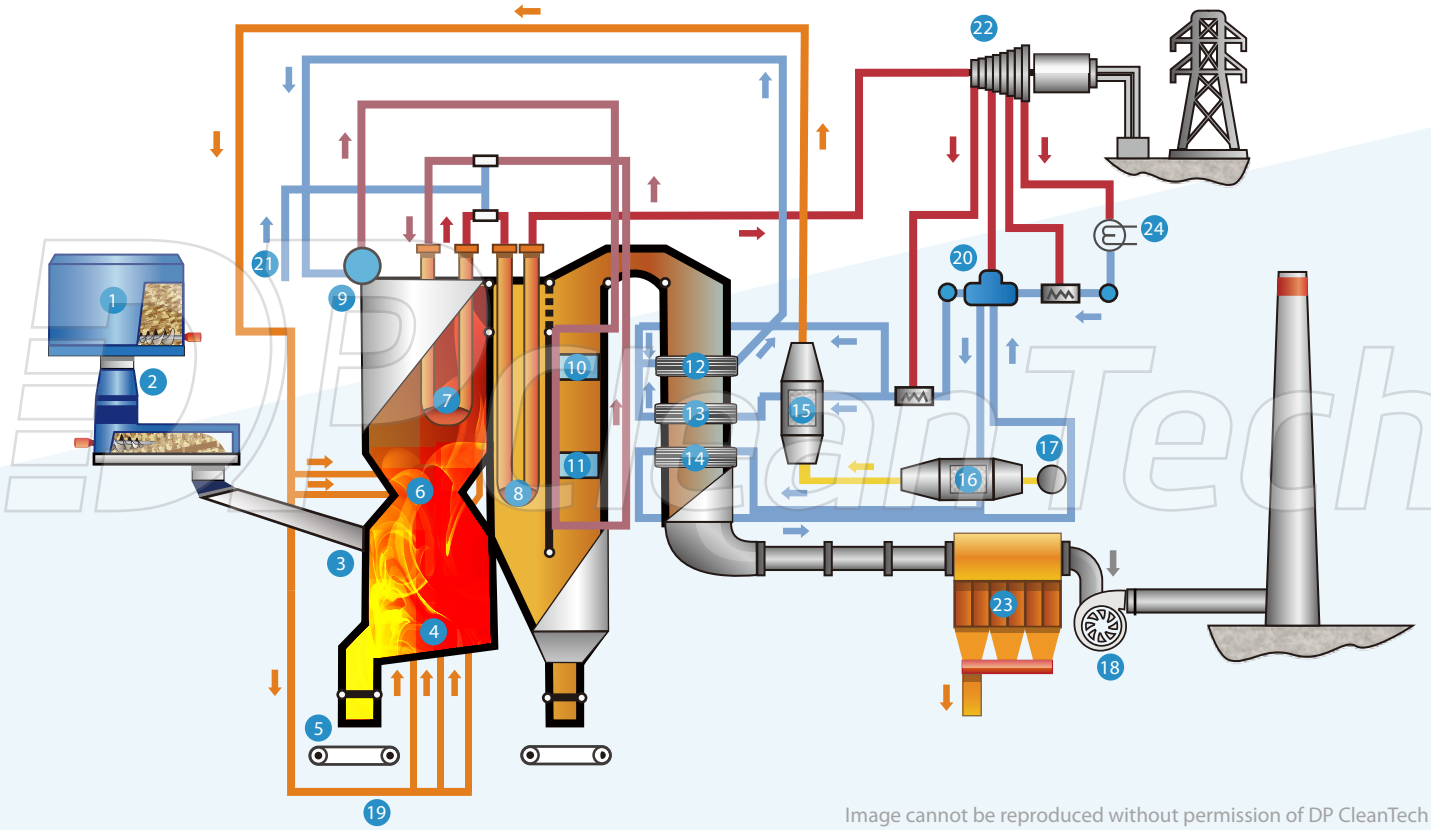
As with all DP's boiler products, the starting point for optimizing the performance is a profound knowledge of the fuel characteristics. Such characteristics will impact the design of the feeding system; the combustion grate and the specific boiler parameters. DP's expertise in fuel analysis is a key aspect of our total solution approach.

A boiler that is fine-tuned to cater to one fuel and its individual characteristics is even more important when dealing with varying fuel quality. With every aspect of the MaxSolo Boiler expressly designed to get the most out of a particular fuel, problems of fuel quality can be addressed at the outset, and then minimized in the design. This allows overall plant performance and efficiency to remain exceptionally high, even when fuel quality cannot be guaranteed.

DP MaxSolo Solution Advantages and Benefits

- **Optimizes combustion of single fuel types through tailored engineering**
- **Performance proven and guaranteed**
- **Cost effectively addresses NOx emissions as an integral part of the design**
- **Cost competitive**
- **Is an extension of existing proven high performance product developed in Denmark**
- **Extended life cycle**
- **Can address a variety of single fuel types through the design of specific components**
- **Lower total cost of ownership**

DP MaxSolo Boiler Solution



1. Wood chip silo
2. Dosing silo
3. Spreader
4. Vibrating grate
5. Slag conveyor
6. Combustion chamber
7. Superheater 3
8. Superheater 4
9. Steam drum
10. Superheater 1
11. Superheater 2
12. Economizer
13. High pressure flue gas cooler
14. Low pressure flue gas cooler
15. High pressure air preheater
16. Low pressure air preheater
17. FD fan
18. ID fan
19. Preheated combustion air
20. Deaerator
21. Water for atemperators
22. Turbine
23. Bag filter
24. Condenser

- Specially designed feeding system for efficient handling of single fuel types
- Grate modifications to improve burnout of low quality fuel, and reduce the carbon content of residue, thereby increasing boiler efficiency
- Corrosion resistant materials reduce degradation and increases product life cycle
- Proven efficiency of high pressure, high temperature technology

Designed Performance Parameters (30MW power plant solution)

Main Steam Flow	Main Steam Pressure	Main Steam Temperature	Feed Water Temperature	Fuel Consumption	Boiler Efficiency	Annual Operation Hours	Plant Consumption	Plant Efficiency
130 t/h	92 bar	540°C	210°C	25 tph	＞91%	＞8000h	10%	＞33%

Integrated NOx Reduction Technology with optional SNCR system

Boiler Size	Biomass Solution Type	Emission
130tph	Typical Biomass Solution	300mg/M3
	DP Solution	200mg/M3 (EU standard)
	DP Solution + SNCR	100mg/M3 (National China Standard)

Figures based on straw fuel standards

How is DP CleanTech different?

DP is a fuel expert

The importance of fuel in the economics of a power plant cannot be overestimated. DP designs the solution starting with a deep understanding of the fuel characteristics, to deliver solutions which are the most efficient possible with the available fuel.

DP provides integrated solutions

The performance of DP power plants is guaranteed because DP considers all elements of power plant operation to ensure that the solution is designed to perform optimally, right from the beginning. DP can design the power plant and manage the whole process to ensure that the solutions are fully integrated and properly implemented across all aspects of the operation.

DP understands the economics of biomass power plants

Unlike many providers, DP has great experience in power plant economics, and is dedicated to designing cost competitive solutions that provide long term value and economic viability.

DP invests in the future

DP conducts ongoing R&D to ensure that its solutions are proactively addressing the changing needs of our customers, and remain as the most efficient, performance guaranteed solutions in the market.

Research & Development

The DP MaxSolo is based on the proven design of the 130tph (1*30MW) biomass boiler solution. This advanced biomass direct combustion technology was developed in Europe and has been used successfully in more than 40 power plants in China.

DP has many years of operating experience and extensive operational data. This data, together with fuel data from DP's proprietary Biomasslab are major inputs to our ongoing research and development. Improving the performance of our products for an ever increasing range of fuel types is essential to meet the demands of our clients and the opportunities in the biomass industry.

DP's Global Engineering Services experts have tested and optimised the technology for reliability and performance, and all our products are designed for easy integration and installation. To ensure reliability and quality, specific modifications are developed and proved out before being incorporated in projects. DP also has the expertise - through our Flue Gas Cleaning division based in the UK - to provide solutions that address the increasingly stringent requirements for reducing NOx emissions.

About DP CleanTech

- DP CleanTech designs, engineers, manufactures and commissions biomass and waste-to-energy power plants, providing complete solutions for turning waste materials into clean energy.
- DP CleanTech has over 70 biomass power plant references around the world using high pressure, high temperature technology originally developed in Denmark.
- DP CleanTech built the first biomass power plant in China and is responsible for over 30% of the biomass power plants operating in China today.
- DP CleanTech is recognized as a world leader in the biomass clean energy field.

MATERIALS

The quality of materials and manufacturing are guaranteed to meet prevailing international standards. By utilizing proven corrosion resistant materials and technology, we significantly extend the product lifecycle thereby enhancing the cost effectiveness of all our boiler products.

MANUFACTURING

DP has its own manufacturing facility in Europe as well as a longstanding and trusted global supply chain. Designs are tailored according to customer needs and are built using modular components, allowing greater flexibility to manage costs.

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www.dpcleantech.com

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