



High-pressure/high-performance biomass steam generator technology

OUR COMPLETE SOLUTION IS CENTERED ON OUR PATENTED TECHNOLOGIES.

Opting team has developed an innovative integrated steam generator high performance, modern and proven technologies to prepare, condition and combust biomass, with common power plant technology (boiler, turbine, generator etc...) to produce high efficient and green renewable energy.

The combination of its BCS to condition the wood and organic material feeding its powder burner that is fitted in a compact A or D -Type watertube.

The D type watertube boilers which are designed with a large steam drum at the top, vertically connected to a smaller water drum (or "mud drum") at the bottom, via multiple steam-generating tubes which carry feed water (providing the main heat transfer surfaces for the production of steam).

The 'D-type' is the most common type of small- to medium-sized boilers, similar to the one shown in the schematic diagram. It consists of a large steam drum vertically connected to a smaller water drum via multiple steam-generating tubes. These are surrounded by walls made up of larger water-filled tubes, which make up the furnace. They are especially well-suited for high-pressure, superheated steam applications with larger capacities very compact could be packaged in the form of a container and ship to the site hence requiring less interference and installation time and effort on site. Mostly these boilers could be completely tested and certified stamped in the work shop prior to shipping

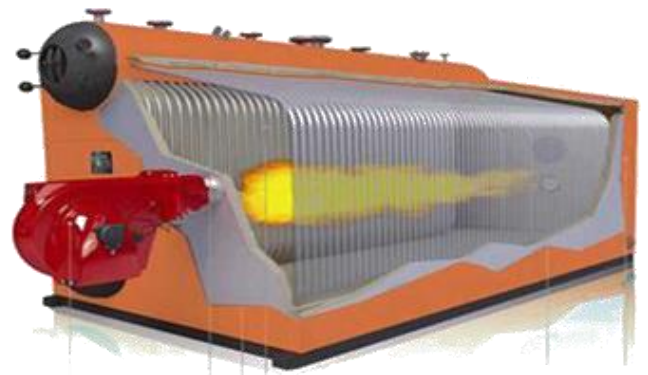
The A-Type package boilers are also offered with an increased capacities (up to 300 000 lb/hr) with a super heated possibility up to 900 psia, and in certain special case with higher operating pressures when required.

The A-Type, given its large design capacities, is also well suited for cogeneration and has been adapted particularly to solid fuel firing (with special bottom furnace).

Typical industries include utility cogeneration power plant, manufacturing & processing facilities, pulp & paper, chemical, and petrochemical.

The A or D Type Design typical Features:

- Capacities: Up to 300 000 lb/hr of super heated steam.
- Design pressures: 250 psig to 900 psig.
- Radiant and convective with steam temperatures up to 550°C.
- Water wall design.
- Superior steam quality (1 ppm) using proprietary separation technology.
- Operates with biomass conditioned powder and using natural gas, #2 thru #6 oil as an auxiliary fuel.
- Special bottom furnace for solid fuel firing.
- Indoor or outdoor designs.



Benefits of our A-Type Boiler Design:

- Compact
- High performance
- Modular to give flexibility and availability
- High turn down
- Minimum bottom ash generated
- Innovative automatic ash removal
- Supplied with proper BMS allowing multiple fuel operation and control
- Reliable source of high quality, dry, saturated steam (up to 99.9%).
- Supplied with auxiliaries including super heater and dust burner
- equipped with automatic biomass powder dosing system
- Excellent long-term reliability to meet industrial and utility applications.
- Can be shipped by road or train with its balanced weight distribution.
- Boiler system components (burner, controls, economizer, soot blower, emissions options)
- Designed specifically to provide ease of operation.
- Hybrid fuel
- Cost effective



COMPACT BIOMASS POWER GENERATION

(CAPACITIES RANGE FROM 2 TO 10 MW)

Using its BCS Fuel Preparation, Conditioning, Combustion, Steam and Power Generation Systems, Opting have the optimal solution in order to provide the lower OPEX power plant installations.

