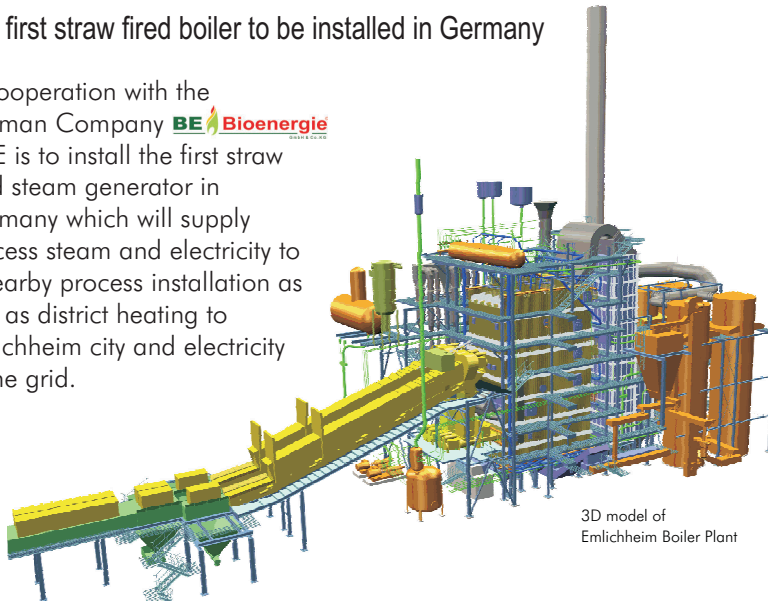


BEKW Bioenergiekraftwerk Emsland Strawfired Boiler



The first straw fired boiler to be installed in Germany

In cooperation with the German Company **BE Bioenergie** BWE is to install the first straw fired steam generator in Germany which will supply process steam and electricity to a nearby process installation as well as district heating to Emlichheim city and electricity to the grid.



3D model of Emlichheim Boiler Plant

The boiler

The boiler is of the drum type with natural circulation. BWE has developed a straw firing system adaptable to different types of squared bales such as Heston and CLAAS. The straw bales are conveyed through the fire barriers to the scarifiers. From here the scarified straw is fed on to the water cooled vibration grate where it is burned.



Water cooled vibrating grate

The water cooled vibrating grate designed by BWE ensures homogeneous and stable combustion of untreated biomass such as straw bales, wood chips, cotton residuals, olive, etc.

The fuel can either be introduced by spreaders (wood chips, cotton residuals, nut shells, etc.) or straw feeders (baled fuels like straw). The water cooled vibrating grate is part of the evaporator system of the boiler ensuring an optimal utilization of the fuel. The technology can be used for steam generators having a fuel input typically in the range from 50 MJ/s to 120 MJ/s.

Steam Data

To reach a high efficiency and thereby an economically feasible plant without compromising the availability of the boiler, BWE recommends steam data in the range of 90 – 120 bar pressure, 500 – 540 °C steam temperature and a feed water temperature in the range of 180 – 220 °C. Depending on the size, a boiler with a reheat section can be supplied.

Fuel mixing

Emlichheim will be a 100 % straw fired plant. In other plants co-firing with other types of biomass like wood chips has been realized. The share of co-firing depends on the properties of the fuels. Due to the feeding system a minimum of 50% of the heat input must be from straw. The average moisture content of the fuel mix must not exceed 35% w/w.

BWE Scope of Supply

BWE is responsible for the conceptual, basic and detailed design of the boiler and surrounding steel structure. BWE designs, manufactures, supplies and installs the complete straw feeding lines as well as the water cooled vibrating combustion grate. Furthermore BWE will assist during the assembly and installation of the boiler and auxiliary equipment as well as during the commissioning.

World leader in steam power technology

Burmeister & Wain Energy A/S has specialized in the development and design of advanced steam boiler plants for utility and biomass fired power stations.

Furthermore, BWE designs a wide range of auxiliary power station equipment such as the BWE Low-NOx coal/oil/N-gas/biomass burners, Air Preheaters and Gas-Gas Heaters.

BWE is part of the Italian STF S.p.A. Group.

Key figures, steam generator:

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|-------------------------|--|
| Steam data: | 67 t/h, 112 bar & 522 °C |
| Boiler efficiency: | 92% |
| Heat input: | 49.9 MJ/s (straw only, support firing not necessary) |
| Foot print: | 25.2 x 43.2 m |
| Height of boiler house: | 28 m |

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