REFERENCE SHEET

HEAT RECOVERY
BIOMASS
PRIMARY FUELS
SOLID RESIDUES
LIQUID & GASEOUS RESIDUES

JFE Engineering Group
Standardkessel Baumgarte

BIOMASS POWER PLANT LÜNEN, GERMANY

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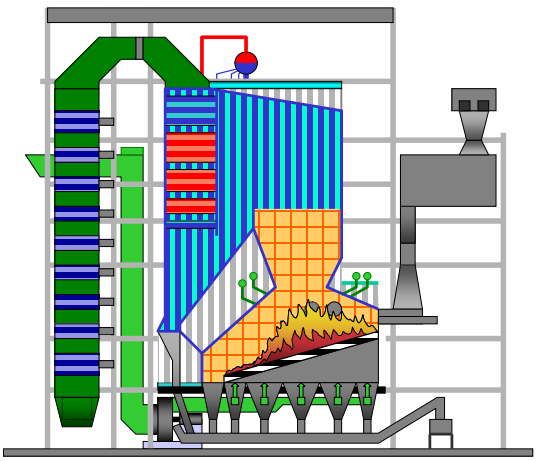
Fuel	Wood (A1 - A4)
Low Heating Value (min./max./nom.)	10.0 / 16.0 / 13.4 MJ/kg
Fuel Throughput (min./max./nom.)	15 / 24 / 18 t/h
Rated Thermal Input	67 MW
Electrical Power Output	20 MW
Steam Capacity	80 t/h
Steam Temperature	462 °C
Steam Pressure	69 bar
Feed Water Temperature	130 °C
Rated Flue Gas Volume	97,200 m³/h i.N.
FG-Temperature	170 °C
Operating Approval	17. BImSchV
Type of Boiler	Natural Circulation
Year of commissioning	2006



THE TASK

The ecological advantages of the biomass-fired power plant are considerable. During the combustion of the wood no more greenhouse gas is released than the wood has absorbed and stored during its growth. The CO_2-neutral combustion saves the environment, in comparison with energy produced by conventional means, approximately 100,000 metric tons of CO_2 per annum. The biomass-fired power plant was approved in a procedure with the involvement of the public in accordance with the 4th Federal Imission Protection Ordinance and is subject to the requirements of the limit values of the 17th Federal Imission Protection Ordinance. It clearly meets the necessary imission protection standards, and the pollutant content in the flue gas is constantly measured and recorded. The flue gases that arise during the combustion of wood and in the boiler plant, heat water to generate steam are subjected to treatment in the flue gas cleaning plant. In that way, for example sulphur compounds, heavy metals, dust and ultra-fine dust particles can be filtered out. The residual matter left behind contains fly ash, grate ash and filter dust. The ashes are stored dust-tight, transported away and disposed of.

THE SOLUTION

So that the waste wood can be burned in the power plant it must first of all be treated. This happens in the waste wood treatment plant in the Lippe works. The waste wood is first of all crushed, freed of iron parts and other extraneous material, mixed and stored. From the store-houses the biomass passes along a 178 metre long conveyor belt via a filling bunker into the grate stoker unit. The wood burns at over 850 degrees centigrade. The hot flue gases heat up water in a water-tube boiler to generate steam. This passes into a condensing turbine for the generation of electricity. With the help of cooling water, the 'worked off' steam then condenses in a wet cooling tower. The flue gases produced during combustion are cleaned by means of a waste-gas system using a dry process.

SCOPE OF SUPPLY

Turn-key Biomass Power Station

- Grate System
- Steam Generator
- Flue Gas Treatment Plant
- Water-Steam Cycle
- Electrical Instrumentation and Control System
- Auxiliary Equipment

ENGINEERING SERVICES

- Engineering
  incl. Licensing Engineering and Engineering for official Permits
- Assembly and Commissioning
- Trial-Run