

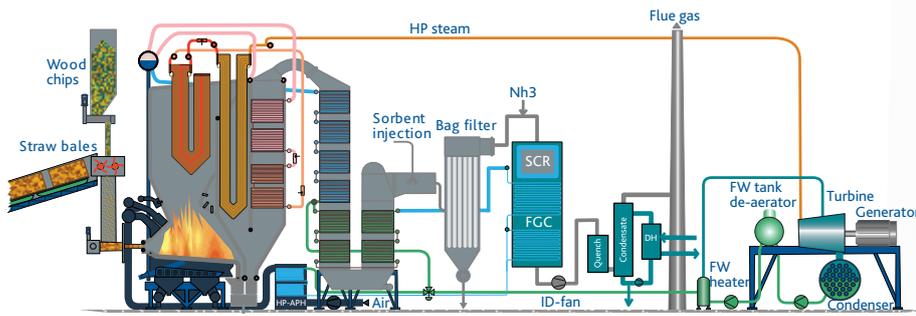


Case stories - BWE Boilers

# LISBJERG STRAW-FIRED BIOMASS PLANT, DK



# CASE STORIES - BWE BOILERS



AffaldVarme Aarhus chose a BWE Boiler for the straw fired biomass plant extension located in Aarhus, DK. The plant extension has a plant capacity of 37 MWe + 77 MWth and has a net plant efficiency of 103.2%. The contract was awarded in October 2014 and was completed during summer 2017.

## The plant

The Lisbjerg combined heat and power plant (Lisbjerg CHP) was built for production of electricity and heat for the national grid. Lisbjerg CHP is a straw fired power station that combines the environmental benefits of renewable power and heat generation with more local economic benefits and fuel sourcing.

## The boiler

The BWE Boiler is of the drum type with natural circulation. The straw feeding system and patented scarifier developed by BWSC is adaptable to different types of square bales such as Heston and CLAAS. The straw bales are conveyed through four sets of straw feeding lines to the boiler. The boiler is designed and optimized to operation with corrosive and sticky ash caused by cereal straw combustion. Hence super heaters are designed as slagging super heaters using austenitic material grade.

## Water-cooled vibrating grate

The water cooled vibrating grate designed by BWSC ensures homogeneous and stable combustion of untreated biomass and can handle fuels such as straw, wood chips, cotton residuals, olive cake, etc. The main fuel used on Lisbjerg CHP is supplied in straw bales and fed in via the bale openers and the stoker feeders. The water cooled vibrating grate is part of the evaporator system of the boiler and this design ensures the optimal utilization of the fuel with a minimum of maintenance.

## Fuel mixing

Lisbjerg CHP is built for 100% straw-firing. With a heat input of up to 110 MJ/s this is equivalent to an annual consumption of straw in the range of 230,000 tons thereby producing 37 MWe, an output equivalent to 70,000 homes. At the same time, the plant delivers district heating to more than 32,000 households in the municipality of Aarhus. The plant is designed to operate with up to 50% wood chips as an auxiliary fuel.

## Boiler scope of supply

BWSC is responsible for design, manufacturing, supply, installation and commissioning of the biomass boiler island including fuel feeding system, bottom ash and auxiliary systems.

### Boiler data

Nominal heat input	110 MWth (approx. 1 Heston bale per minute)
Fuel efficiency	103.2% (LHV)
Steam production	40 kg/s
Pressure/temperature	110 bar/540°C
Stack temperature	40°C

