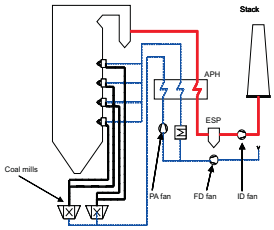
Herningværket multifuel concept

The advanced BWE combustion technologies
Multi fuel installation at Herning CHP plant in Denmark

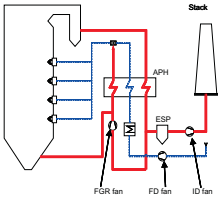
1982



4 x 2 coal/oil burners

The original boiler design was operated for 20 years on coal.

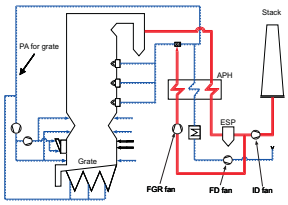
2000



4 x 2 gas/oil burners

The first retrofit included 8 new WR oil and gas

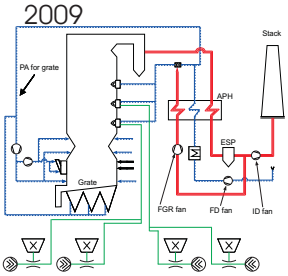
2002



3 x 2 gas/oil burners

The retrofit enables about 45% load on biomass.

2009



1 x 2 gas/oil burners
2 x 2 gas/oil/wood dust burners
1 x vibration grate for wood chips
Biomass load up to 90%

In 1982 BWE designed and supplied Herningværket, a coal and oil fired CHP plant in Jutland. The plant operated on coal up to 2000 when BWE converted it into oil and gas firing.

In year 2002 BWE, installed a bio grate firing system at the plant, enabling firing of wood chips. The bio retrofit main components comprised:

- A new pressure part design for the bottom part of the furnace
- A vibration stoker grate
- A booster for the secondary air system for the over grate combustion air.
- Extension of the C&I system

The plant is equipped with a shredder capable of making the chips directly from timber, a large storage facility and a reception area with weighing facilities for incoming trucks. The system capacity is approx. 80 trucks per day.

The next step in the development of the plant from purely fossil fired to mainly biomass fired was taken in November 2008

Vibration grate at test assembly in workshop.

when Dong Energy awarded BWE the contract for the supply and installation of 4 multi-fuel Low-NOx burners. The new burners will be able to fire NG, HFO and dust from biomass (wood pellets) reducing the CO_2 emission of the plant by 325,000 tons/year compared to 100% coal firing.

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, Gas-Gas Heaters and Flue Gas Desulphurization.

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

Fuel		1982 Coal HFO	2000 Natural gas HFO	2002 Natural gas HFO Wood chips	2009 Natural gas HFO Wood chips Wood pellets
Steam data	Bar	115	115	115	115
	°C	525	525	525	525
	kg/s	118	118	118	118
Max load	%	100	100	100	100
- with bio*	%			45	90
Min load	%	30	30	30	30
NOx (boiler exit)	mg/m^{3}N**	650 450	150 450	225(N-gas) 450(HFO) 350(Bio)	225(N-gas) 450(HFO) 350(Bio)

* Contribution of max load ** 3 Vol%O_2-dry for N-gas - 6 Vol%O_2-dry for other fuels

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