Doosan Lentjes

PROJECT PROFILE: CFB, Ukraine

Starobeshevo

Circulating fluidised bed combustion

Doosan Lentjes provided the first circulating fluidised bed-based boiler island, including design, supply, construction and commissioning, for the Starobeshevo anthracite-fired power station in the Ukraine.

DELIVERABLES

- Design, supply, construction and commissioning of CFB boiler island

CHALLENGES

- Refurbishment of damaged boiler after a serious fire
- Scale up of compact bottom supported design from 100 MWe to 210 MWe
- Design to low reactive, high ash anthracite and anthracite culm (sludge)

BENEFITS

- Utilisation of low quality anthracite sludge
- Compact design saving cost and space while maintaining sufficient space for operation, maintenance and repair

Efficient CFB Boiler technology to handle low quality fuel

In 2000 Doosan Lentjes was awarded the contract for the first circulating fluidised bed (CFB)-based boiler island at the Donbasenergo power station in Donezk, Ukraine.

The 210 MWe boiler followed the Tisova CFB compact design, incorporating water-cooled integrated fluidised heat exchangers and integrated seal pots. The combustor, the heat exchangers and the back pass are designed as compact units and are completely bottom supported.

After award in the year 2000 and subsequent commissioning, the plant has now been in successful operation for many years.

Key Project Data

Customer	Donbasenergo	
Location of power plant	Starobeshevo, Ukraine	
Main fuels	Biomass (anthracite, anthracite sludge)	
Award date	2000	
Plant output	1 x 210 MWe	
Thermal capacity	616 MWth	
Live steam	670/ 538 t/h 545/ 542 °C , 134/ 25 bar	
Feedwater	244 °C	
Minimum load	40%	
Design fuel LHV Ash Moisture Volatiles Sulphur	**Anthracite** 25.1 MJ/ kg 16.7% 7.0% 4.0% 2.1%	**Anthracite sludge** 12.9 MJ/kg 50.6% 8.0% 5.0% 1.2%
Emissions (acc to 6% 02 dry) SO_2 NO_x CO Dust Flue gas temperature	 200 mg/m³ (STP) 200 mg/m³ (STP) 250 mg/m³ (STP) 30 mg/ m³ (STP) 130 °C	
Thermal efficiency (acc. DIN 1942)	90.5%	

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Doosan Lentjes is a global provider of processes and technologies for energy production from renewable and fossil fuels. Our specific areas of expertise include circulating fluidised bed boilers, key technology for the generation of energy from waste, and flue gas cleaning systems. We have been pioneering energy solutions for 90 years and convert over 9 million tonnes of waste into energy each year.

Doosan Lentjes is part of a powerful combination of companies united under the Doosan Group to deliver complementary technologies, skills and value to customers the world over.

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