

PROJECT PROFILE: Waste-to-energy, the Netherlands

Harlingen

Waste-to-energy



In 2009, Doosan Lentjes was awarded the contract to deliver essential components for the waste-to-energy plant located in Harlingen, the Netherlands. This included engineering, procurement, construction and commissioning of grate, boiler and balance of plant (BoP) equipment.

DELIVERABLES

- Water-cooled counter-reciprocating grate
- Boiler with additional integrated gas-fired superheater
- Balance of plant (BoP)

CHALLENGES

- Delay in permitting process required provisional storage of manufactured equipment
- Boiler design adapted to requirements of adjacent existing power block

BENEFITS

- Reduced operating costs
- High flexibility for changing waste qualities with water cooled grate bars
- Integrated project management team approach successful in a complex environment
- Very high efficiency based on high steam parameters and combined use of heat and power
- Environment-friendly energy recovery from pre-treated waste

High plant availability and low operating costs

The Harlingen waste-to-energy (WtE) plant treats municipal and other pre-treated waste for the Dutch province of Friesland. It is built close to an underground saline plant for salt production. The steam produced is exported to a combined heat and power station, and the condensate returned to the site. Overall process efficiency exceeds 80%.

The combustion unit uses an integrated additional gas-fired superheater to

avoid high temperature corrosion while maintaining optimum boiler efficiency. This reduces operating costs and results in high plant availability. Doosan Lentjes supplied, installed and commissioned the grate, boiler and balance of plant.

The combination of environment-friendly energy recovery from pre-treated waste and the combined utilisation of the steam for power generation and process heat ensures high efficiency.



Key Project Data

Customer	RECB.V. (subsidiary of Afvalsturing friesland N.V., Omrin')
Location of power station	Harlingen, the Netherlands
Award date	2009
Main fuels	municipal solid waste, bulky waste, pre-treated waste
Total plant capacity	nominal 230,000 t/a ; max. 280,000 t/a
Nom. heating value	13 MJ/kg
Number of lines	1
Thermal capacity	100MW _{th} + 16MW _{th} gas-fired superheater
Steam pressure	87 bar
Steam temperature	460°C
Flue gas treatment	ESP, fabric filter with BiCar injection, SCR



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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 millions of tonnes of waste into valuable 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.

Doosan Babcock

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