

WASTE-TO-ENERGY PLANT

EfW at Sakra Jurong Island, Singapore



Together with Halla Energy & Environment and Hyundai-HEC Joint Venture we are building a new waste-to-energy plant for Sembcorp Ltd. The plant will be located in Sakra, an industrial area on the Jurong Island in Singapore.

The new facility will produce approx. 197 tonnes of steam per hour using around 1,150 tonnes of industrial and commercial waste per day as fuel. The waste is collected by Sembcorp's solid waste management operations and amounts to roughly 14% of Singapore's total daily tonnage of waste bound for processing.

The plant will use industrial and commercial waste as fuel to produce energy in the form of steam, which will then be supplied to chemical and petrochemical companies on Jurong Island. There will be two boiler lines, which can each process 575 tonnes of waste daily.

Babcock & Wilcox Vølund is licensor, subcontractor and supplier of 2 X DynaGrate®, Inconel clad wear zones and boiler design.

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DynaGrate® – Ideal for combustion of all waste

DynaGrate® is our state-of-the art combustion grate, one of the most advanced combustion grates on the waste-to-energy market today, and is based on 40 years of cutting-edge development.

DynaGrate® handles all types of waste and has the possibility of biomass co-firing. It is unique in that it can process waste containing large amounts of cans and metal and still operate with high efficiency. Different from classical forward / backward acting grates there is no problem with fusion of metal on top of the grate bars. This is a major operating and financial benefit as the DynaGrate® will ensure stability and maximum plant uptime.

SCOPE OF SUPPLY

Babcock and Wilcox Vølund has supplied:

- Design of boiler, firing equipment, clinker pusher, and auxiliary equipment.
- 2 x water-cooled DynaGrate®.
- Inconel-cladded water-cooled wear zones.



DynaGrate® seen from ash outlet. Feeding pusher inlet is at the top of the grate.

Plant design data		
Process parameters	Values	Units
Waste capacity	2x24	t/h
Heat value, range	9.7 - 15.7	MJ/kg
Steam output	2x98.5	t/h
Steam temperature	403	°C
Steam pressure	53.5	Bar
Boiler outlet flue gas temp.	190	°C
Feed water temperature	150	°C
LOI in slag	≤ 3	%

Flue gas values*: After cleaning	Values	Units
NO _x **	350	mg/Nm ³
CO**	100	mg/Nm ³

* All values refer to 11% O₂ dry gas

** 1-hour average