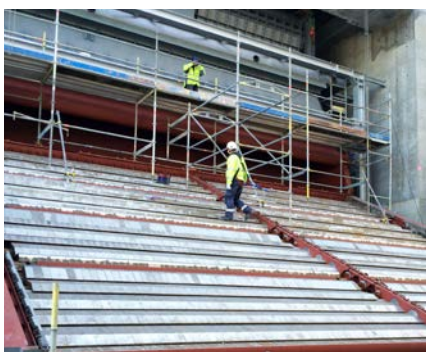


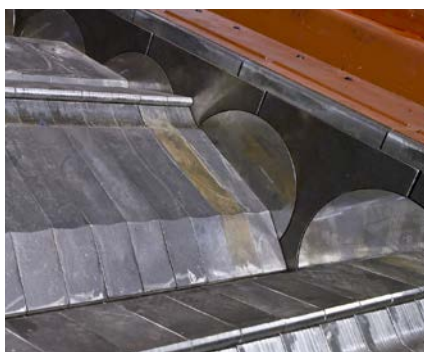
Advanced DynaGrate® Combustion Grates for Waste-to-Energy

The DynaGrate® combustion grate is state-of-the-art Vølund™ technology available from Babcock & Wilcox Renewable (B&W). Our high-quality advanced combustion grates are ideal for waste-to-energy applications. The DynaGrate combustion grate provides excellent performance, low maintenance costs, and incorporates Vølund low-wear design technology. DynaGrate combustion grates are available in both air-cooled and water-cooled designs.

With the DynaGrate technology we can meet the rigorous demands for waste-fired plants, which require a high level of accessibility, fuel flexibility, and energy recovery, under environmentally sound conditions.



Installation of two 35 tonne per hour DynaGrate combustion grates at CopenHill, Denmark.



The unique design and movement of the DynaGrate combustion grate minimizes maintenance and optimizes fuel burnout.



Our DynaGrate technology is renowned for its unique:

- **Movement:** strong agitation of the fuel bed results in an excellent burn out of the waste fuel.
- **Design:** there is no contact between the moving parts. This design allows minimum impact of mechanical forces and minimizes the need for spare parts.
- **Cooling system:** a fully integrated air or water cooling system ensures stable operation and high availability of the combustion system.

Capacity of up to 55 metric tons with our modular DynaGrate combustion grate

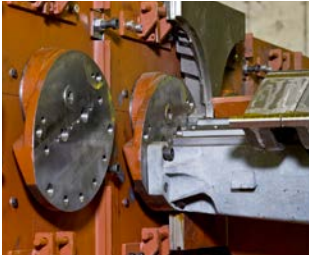
Our twelve-meter-wide grate module has a capacity of up to 55 metric tons of waste per hour. It is designed for a wide array of waste types, with extreme variations in calorific values.

Individual combustion sections mean better control

The DynaGrate combustion grate is available with one or two combustion lanes, depending on the plant's capacity requirements. There are four separate combustion sections in each lane, providing individual control of the speed and excess air in each section. This means flexible control of a total of four or eight individual grate sections.

Features and Benefits

- Combustion of all types of untreated waste
- Biomass co-firing capability
- Optimal fuel bed agitation enables uniform and efficient combustion with a high burnout rate
- Unique combustion control and fast stoker response
- No contact between the grate bars and side liners, which means:
 - Limited wear
 - Reduced mechanical forces to which the grate is exposed during operation
 - Removed concern of metal fusion, as encountered on traditional grates with forward/backward motion
- 4 to 55 t/h capacity



The DynaGrate provides excellent performance with low maintenance costs.



Water-cooled DynaGrate with cooling integrated in shaft.



Underside views of grate.

Unique design provides optimal agitation of the fuel bed

The grate resembles a staircase. The individual steps — the grate bars — are alternately placed horizontally and vertically. These grate bars are mounted on shafts. As the grate bars of one shaft interfere with the bars of the adjoining shaft, a continuous grate carpet is formed. When the shaft turns 60 degrees in opposite directions, the steps change from vertical to horizontal and from horizontal to vertical. This produces a wave-like longitudinal movement, which in turn produces optimal turnover of the fuel bed.

Ideal for the combustion of most waste, even cans and metals

B&W Renewable's DynaGrate combustion grate can handle a wide variety of waste. A unique feature is its ability to process waste containing large amounts of metals while maintaining efficient operation, a significant financial benefit. The DynaGrate combustion grate features a very high combustion efficiency obtained with greater energy recovery to produce electricity and heat while limiting environmental emissions.

Optional water-cooled DynaGrate combustion grate

Our patented, water-cooled DynaGrate combustion grate provides superior grate durability for combusting high calorific waste, which can cause high thermal stresses in the grate. The cooling for the combustion grate is independent of primary air.

Mechanically, the air-cooled and water-cooled versions are comparable. The movement pattern works similarly, and they have the same process advantages. The grate bar is machined as a hollow section with channels designed to convey cooling water to the areas with the highest heat load.

Additional features and benefits of the water-cooled DynaGrate combustion grate include:

- Large variation in fuel compositions and heating values
- Suitable for high calorific waste up to 20 MJ/kg
- Operation at low excess air means:
 - Cooling for the combustion grate is independent of primary air
 - High thermal efficiency
 - Low nitrogen oxides (NOx) formation
- Minimal grate siftings and less metal in air hoppers
- Combination of water-cooled and air-cooled grates
- Long lifetime, less wear on parts, and lower maintenance costs

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RENEWABLE | ENVIRONMENTAL | THERMAL

Established in 1867, Babcock & Wilcox is a global leader in renewable, environmental and thermal technologies and services for power and industrial applications.

For more information or to contact us, visit our website at www.babcock.com.