

NextBAT® for higher efficiency and lower emissions

The next generation of Best Available Technology standards (BAT) will be presented in the coming waste incineration BREF in 2013. The revised BREF will set new and higher standards for waste-to-energy plants in terms of higher efficiency and lower emissions.

NextBAT® is the Scandinavian solution to the next generation of Best Available Technology.

Babcock & Wilcox Vølund and Götaverken Miljö have a long tradition for focus on high efficiency and low emissions, and together we have a solution for future waste-to-energy plants.

Higher plant efficiency with NextBAT®

A waste-to-energy plant's level of efficiency in recovering energy from waste is measured by the R1 formula. High overall energy efficiency ensures maximum substitution of fossil fuels and thereby reduces the impact of greenhouse gases (GHG).

NextBAT® ensures that plant owners achieve a high R1 rate because of our unique technologies:

- DynaGrate® is the most advanced grate on the market renowned for its maximum burnout.
- Water-cooled wear zone minimizes slag built-up in the combustion zone.
- Inconel® in furnace walls provides high protection against corrosion.
- ACC (Advanced Combustion Control) maintains a stable combustion process by controlling the coefficient of resistance and combustion air.
- CFD simulation is an effective method for achieving the most efficient design and heat transfer in the boiler.
- RESOX™ is a unique technology for decreasing the corrosion rate for super heaters or for allowing higher steam temperature thereby increasing the electricity production.
- The flue gas condenser recovers an additional 20-25% of energy by condensing the water vapour.

NextBAT®

FROM CRANE TO STACK



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| ① Water-cooled DynaGrate® | ①7 Condensing scrubber stage with ADIOX® packing |
| ② Separately cooled wear zone in furnace | ①8 Final particle removal |
| ③ Combustion chamber with Inconel clad walls | ①9 Reheater |
| ④ Ignition control with air | ②0 Emission monitoring equipment |
| ⑤ Advanced flame front control | ②1 Flue gas fan |
| ⑥ VoluMix™ zone in 1st pass | ②2 Heat exchangers in condensing system |
| ⑦ Inconel clad 1st and 2nd boiler pass | ②3 Absorption heat pump |
| ⑧ On-line Boiler Washing System™ | ②4 District heating system |
| ⑨ Integrated baffle walls in 3rd pass | ②5 Buffer tanks |
| ⑩ Evaporator section | ②6 Waste water treatment |
| ⑪ Superheater sections | ②7 CUTNOX™ and RESOX™ |
| ⑫ Economizer sections | ②8 Turbine/generator |
| ⑬ Dust removal | ②9 Condenser |
| ⑭ Quenching | ③0 Deaerator/feed water tank |
| ⑮ Acid scrubber stage with ADIOX® packing | ③1 Feed pump |
| ⑯ Alkaline scrubber stage with ADIOX® packing | ③2 Feed water heat exchangers |

From crane to stack NextBAT® technologies:

Unique and reliable technologies that bring several environmental benefits:

- ADIOX® is a widely recognized method to remove dioxins and prevent memory effect.
- CUTNOX™ reduces the initial NOx-formation at combustion by injecting water and air into the furnace.
- MERCOX™ removes mercury, primarily at plants with a high level of metallic mercury in the flue gas.
- Multi scrubber - a compact and highly effective wet flue gas cleaning system.
- VoluMix™ forms a complete burnout in the gas phase by injecting secondary air into the combustion zone.
- WESP removes ultra-fine particles and aerosols.