

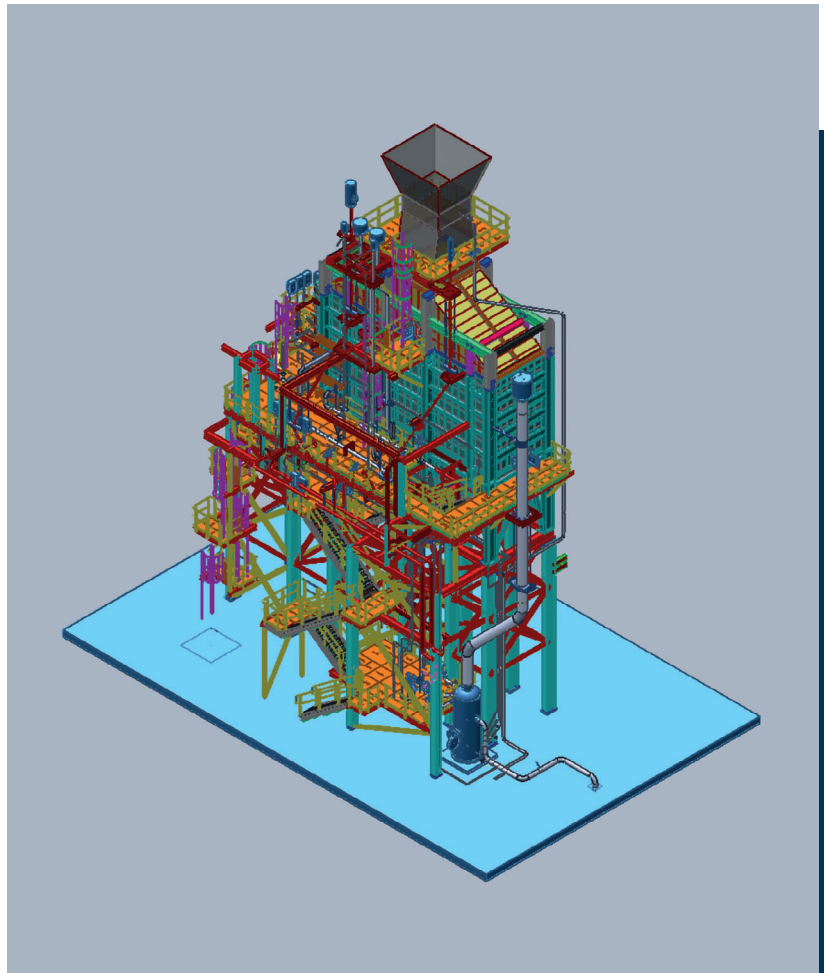
Small Vertical Once Through Boilers

by John Cockerill

Features

The OTB (Once Through Boilers) technology has been developed by John Cockerill over many years and is an important addition for the small worldwide HRSG market (for Gas Turbines less than 100 MW). Key features of this technology are:

- Complete de-coupling of combustion turbine and steam cycle
- Starts and stops are performed independently from GT in dry operation mode with no by-pass stack and no diverter damper
- Unrestricted GT start up without holding time from steam cycle
- Maintains gas turbine quick start capability
- Fast steam cycle startup and shutdown capability
- Simplified boiler design while providing greatest flexibility
- Dovetails very well with intermittent renewable energy
- Dry running OTB with properly equipped SCR system can control GT emissions in open cycle
- Modular box construction provides the shortest erection time and lowest installed cost



Applications

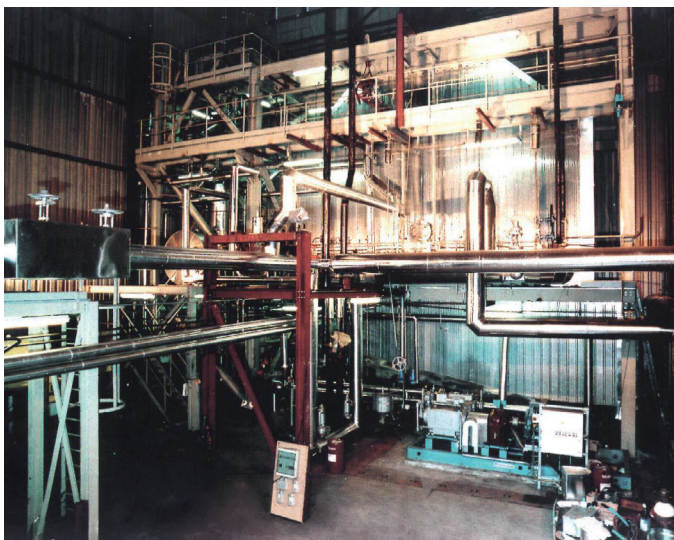
The OTB is very well suited to the following applications:

- Conversion from Simple Cycle to Combined Cycle (Compact Footprint, Vertical Arrangement, No By-pass Stack)
- Flexible Combined Cycle Power Projects (Daily Cycling)
- Decentralization (Smaller Power Plants) and renewables integration
- CHP (Industrial & District Heating)
- FLNG Applications
- Floating Power Barges
- Off-Shore Platforms
- Cogeneration



Experience

- John Cockerill is a specialized Original Equipment Manufacturer of HRSGs with over 700 installations since 1967
- John Cockerill has developed OTB technology since 1998
- OTB Test Plant was put in operation in John Cockerill workshops, Belgium
- John Cockerill has added key OTB staff in 2018 with over 45 years of OTB experience



Key Benefits

Key Benefits for our Customers can be summarized as follows:

- **Lowest Boiler Capital Cost** on a supply and install basis
- **Lowest Lifecycle Cost** due to the simplicity of the product
- **Most Flexible Operation** for today's demanding operating modes
- **Small Footprint and Light Weight** for floating power and conversions to combined cycle
- **Provided by John Cockerill Energy** a world leader in boiler technology with a long operating history & exceptional abilities

John Cockerill Energy

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