Titanium™ ISB Intelligent Heat Transfer Management

The importance of intelligent heat transfer

Proper management of the boiler heat transfer surfaces is an often neglected process in power generation. Sootblowing optimization has become an important, low cost tool for increasing efficiency and maximizing unit output. Power plants are challenged to minimize the cost of operation while maximizing unit availability. An increasing number of plant owners are implementing advanced systems for improved boiler performance that include optimizing combustion and reducing emissions.

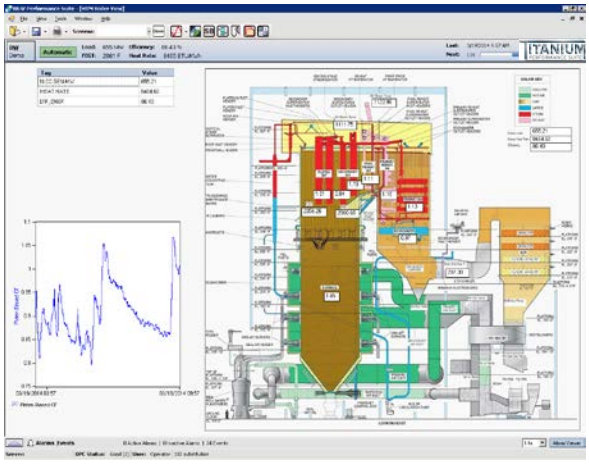
Performance-based intelligent sootblowing (ISB) provides power plants with a cost-effective method of achieving unit cleanliness and performance by optimizing boiler heating surfaces while reducing costs such as fuel usage, maintenance, sootblowing medium management, and tube failures due to sootblower erosion. By targeting the specific areas that have reduced heat transfer, sootblowing can be applied as necessary to maintain unit performance. This is achieved using a unit-specific boiler heat transfer model to calculate real-time heat transfer efficiency for every heat trap component in the unit, including the furnace.

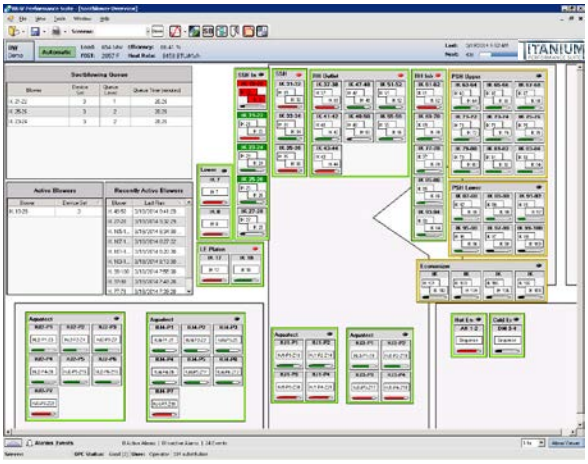
Put performance in the driver's seat

Now you can optimize your sootblowing on the basis of quantitative, measured conditions in which the heating surface cleanliness drives sootblowing. The Titanium™ ISB system from Babcock & Wilcox (B&W) enables intelligent sootblowing of your boiler. The Titanium system incorporates B&W's boiler design and modeling expertise to provide critical performance information and surface cleanliness factors for improved sootblower control. The system provides real-time analysis of slagging and fouling effects on local heat transfer and how that impacts overall boiler performance. This analysis produces effective cleaning strategies that are automated through the Titanium expert system. The result is an industry-proven solution to boiler cleaning that optimizes system performance and provides quick returns on your investment.

Heat Transfer Manager™ is at the heart of the system

At the core of the Titanium sootblower optimization system is B&W's Heat Transfer Manager™ model. Heat Transfer Manager is a custom fit performance model of your unit. It is based on B&W's boiler design technology – a technology that has evolved during 150 years of designing, analyzing and operating boilers. The Heat Transfer Manager model allows the Titanium system to determine actual boiler and heating surface performance in real time. This critical information, combined with other operating variables are integral to the customization feature of the Titanium system. The Titanium system determines where and when to blow soot, and is integrated with the sootblowing control system to automatically optimize cleaning of the furnace and convection passes.





The Titanium interface displays information in a simple and easy to use format which can be customized to the user's preference.

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Features of Titanium ISB

The Titanium system is designed with a user-friendly graphical interface that permits easy set-up and configuration. Among the design features that B&W has incorporated in the system are:

- Unit specific model – the Heat Transfer Manager module is configured specific to your boiler for accurate modeling of boiler performance and heating surface cleanliness
- Provides boiler efficiency, heat rate and furnace exit gas temperature (FEGT) data
- Windows server-based system
- Integrates easily with distributed control systems (DCS), third-party sootblower control systems, and historians via many industry-standard communication protocols
- Operates in advisory mode or closed-loop sootblower control
- Captures and implements best operating practices
- Includes a data historian for trending and analysis

Additional features now available with Titanium include:

- Server/client-based functionality
- NERC CIP compliance
- Internal OPC server
- Improved graphing capabilities
- Custom alarms
- Custom calculation and control scheme development
- Individual sootblowing capabilities
- Sootblower effectiveness calculations
- Sootblowing queuing system
- Screen customization
- Historical rule viewer
- Multi-unit sootblowing coordination
- Advanced rule features

Benefits of an intelligent system

B&W's Titanium system offers many advantages compared to the conventional time-based manual sequencing of sootblowers:

- Blowing can be focused where it is needed most with potential for savings in steam usage
- Reduced blowing of heating surfaces associated with sootblower steam erosion to reduce wear
- Reduced or optimized sootblower maintenance
- Improved superheat and reheat temperature control
- Improved control of heating surface fouling and slagging
- Consistency of unit performance across changes in operators
- Allows for dynamic sootblowing control based on boiler load or changes in operating parameters

For more information about B&W's Titanium intelligent sootblowing system for your boiler, contact your nearest B&W sales and service office.

Babcock & Wilcox
20 South Van Buren Avenue
Barberton, Ohio, U.S.A. 44203
Phone: +1 330.753.4511

www.babcock.com

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