

Vortex Series

Split Flame Low NOx Burners

The High-Performance Low NOx Wall Firing Solution



FOSTER  WHEELER

Harnessing Innovation. Delivering Excellence.



The leading technology for optimal wall-fired coal combustion and lower emissions

Innovative design with only three moving components provides maximum reliability

Measurable airflow allows for accurate balancing and lower emissions

Vortex Series low NOx burners and overfire air registers

Foster Wheeler's low NOx burners and overfire air registers were developed to address the environmental and operational needs of utility and industrial power producers. The Vortex Series design features numerous solutions to the many age-old problems that have plagued low NOx wall-fired coal burners.

Reliability with performance

Each Vortex Series dual zone low NOx burner or overfire air register has only **THREE*** key moving components as compared to the hundreds found on other designs. This greatly improves long-term reliability and reduces maintenance costs while providing the control required for efficient low NOx combustion.

Axial swirl control

This rigid one-piece axial swirler assembly generates a powerful vortex and recirculation pattern for effective fuel-air mixing as compared to paddle-type radial vanes and all their associated linkage.

Individual register airflow indication

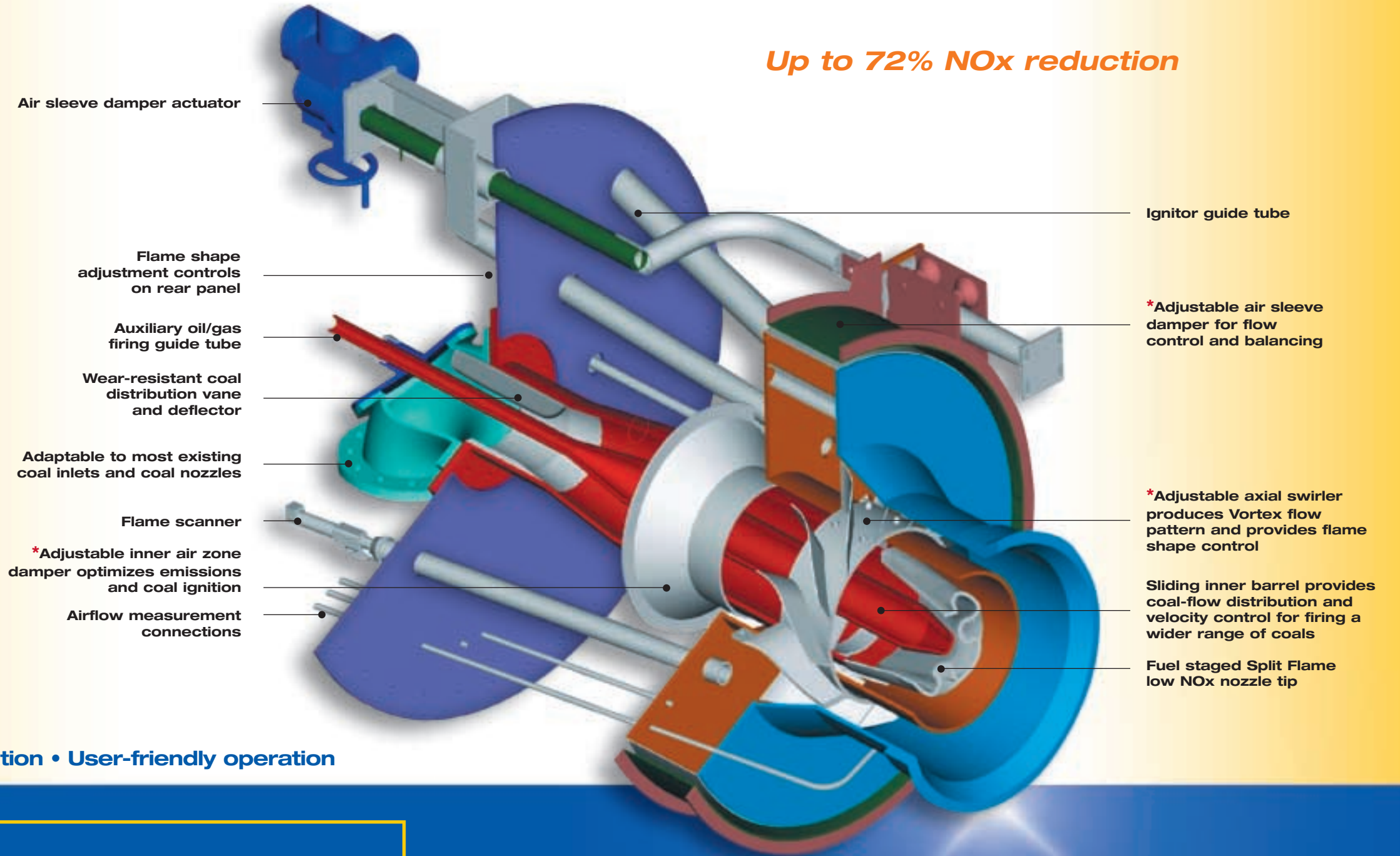
Positive and repeatable indication of airflow to "each" burner or overfire air port has always been a challenge for low NOx burner suppliers. Vortex Series registers were designed to have airflow measurement indication without the use and limitations associated with pitot type airflow measurement devices.

Adaptability

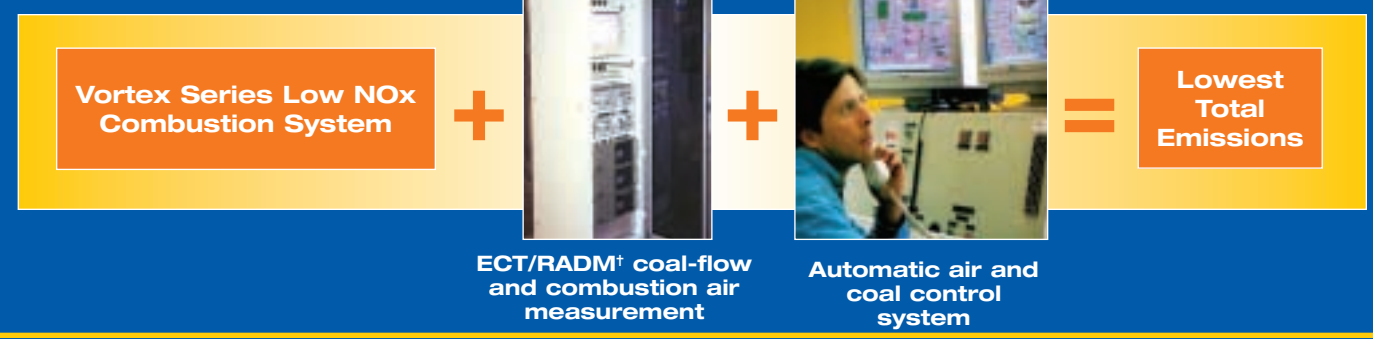
Vortex Series registers were developed to be adaptable to include non-Foster Wheeler coal nozzles and various inlet elbows. This register upgrade provides long term reliability and the all-important airflow measurement and control capability.

Low emissions • High value • Airflow indication • User-friendly operation

Up to 72% NOx reduction

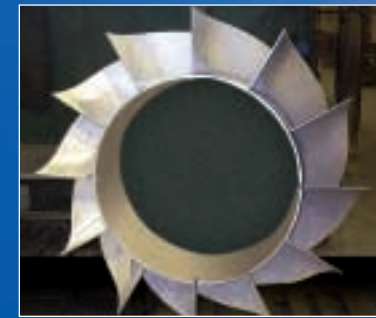


Foster Wheeler's optional fuel injection system for power boilers

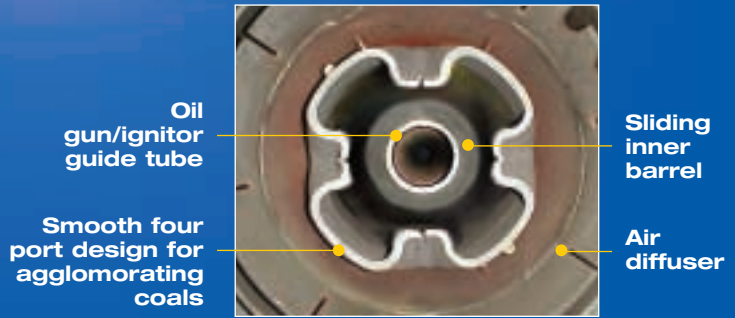


The Vortex Series Axial Swirler is more effective than paddle-type radial vanes

Axial Swirl Generator



Fuel Staged Split Flame Low NOx Nozzle



† ECT: Electric Charge Transfer RADM: Register Air Distribution Measurement

Combustion Support Services

- Combustion solutions for tangential (TLN), wall (VS/SF LNB) and arch-fired systems, including coal, oil and gas
- Fuel switching studies, biomass, pet coke, etc. including emission predictions
- Mechanical design, controls and structural engineering
- Boiler thermal performance engineering expertise
- Tangential, wall-fired and arch-fired field service and installation expertise
- Ball mill and vertical-shaft pulverizer engineering expertise
- Full-scale flow-modeling laboratory
- Computational combustion and flow analysis expertise
- Combustion system performance upgrades to existing tangential, wall and arch-fired systems
- Complete fuels-testing laboratory facility
- Complete emission and boiler-testing services
- ECT[†] on-line, real time coal-flow distribution, velocity and fineness measurement
- Wall-fired RADM[†] (w/VS LNB) and CADM[†] (T-fired) on-line real time airflow measurement system
- Automatic air to fuel biasing control systems
- On-line adjustable coal-flow distribution control devices
- Complete parts support department

[†] ECT: Electric Charge Transfer
RADM: Register Air Distribution Measurement
CADM: Compartment Air Distribution Measurement

Foster Wheeler Worldwide Offices



Foster Wheeler is an internationally renowned engineering and construction company providing services and products to a broad range of industries including oil and gas, refining, chemical, petrochemical, pharmaceutical, biotechnology, healthcare, and power generation. Our reputation for safely delivering quality projects on time and within budget is well recognized in the industries we serve. We have proven expertise in managing large, complex projects, strong relationships with our clients, and cutting-edge processes and technologies.

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