

Steam Generation Solutions



Proven Steam Generation Solutions from John Zink Hamworthy Combustion.

For more than a century, the Coen and Hamworthy Combustion brands have stood for the most advanced science and technology in oil and gas combustion. Today, Coen and Hamworthy Combustion products are a part of John Zink Hamworthy Combustion, where we combine our technological expertise, vast resources and industry experience to provide the world's most advanced selection of innovative steam generation solutions. This includes burner, igniter, safety system and ancillary products, all designed to deliver optimal environmental and economic performance.

- + Safe, reliable and efficient combustion equipment
- + Engineering expertise
- + Comprehensive solutions for standard or complex applications
- + Complete package options
- + Superior customer service

Custom Engineering and Superior Support

With innovative technology solutions and extensive experience from an unrivaled installed base, our engineering experts have the resources to meet your combustion needs. From fundamental burner products to complex systems and complete package options, we develop customized solutions for your specific application and can provide turnkey installation, helping you meet even the toughest requirements. After installation, our team of dedicated in-house engineers and our network of factory-trained field technicians are available worldwide to provide immediate evaluations and service, keeping your system performing reliably and efficiently for years to come.

- + Installation supervision and start-up assistance
- + Emissions compliance pre-testing
- + Instrumentation calibration for efficiency and safety
- + Inspections and preventative maintenance
- + Emergency service and spare parts
- + Parts recommendations and equipment evaluations
- + Operator training / education



Advanced Research, Development and Testing

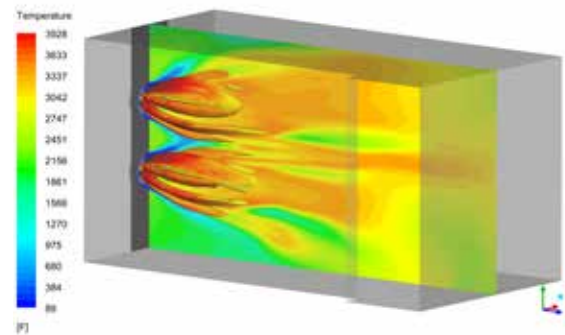
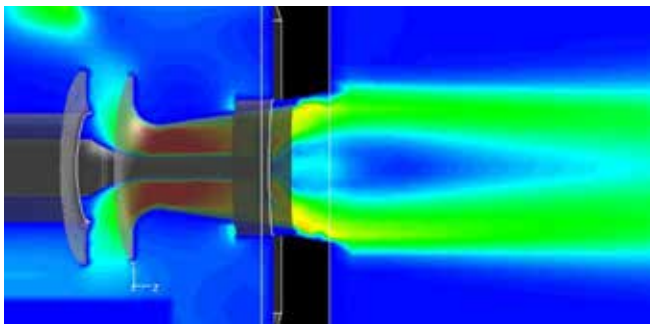
Our industry-leading design engineering and product development includes full-scale burner testing, simulation and modeling techniques, offering an in-depth analysis of current combustion systems as well as engineered solutions to maximize performance.

Research and Development

Our research and development test center is the largest and most advanced testing complex of its kind. This exclusive resource allows us to push innovation and gain expertise while measuring performance in a full-scale setting, replicating near real-world conditions.

Modeling Services

Using state-of-the-art computational fluid dynamics (CFD) modeling techniques, we can maximize your facility's operating performance and achieve your emission requirements. With CFD analysis, we can predict and improve: air distribution, flame characteristics and pollutant formation for optimal combustion.



Customers come from around the globe to our International Research and Development Test Center.



The **Variflame™** burner delivers high-efficiency performance in gas-fired package boilers with NOx emissions as low as 20 ppm (41 mg / Nm³) at 3 percent O₂.

Low NOx Burners

- + Advanced designs
- + Rugged construction
- + Dependable performance
- + Ideal for single or multi-burner applications

We have the most burner installations in the industrial steam generation industry, making Coen and Hamworthy Combustion brand burners a preferred choice for reliable, proven low NOx performance.

We offer a range of burner designs to accommodate variable fuels, emission levels, boiler types and flame geometry. Our low NOx burners efficiently lower NOx emissions by minimizing the amount of flue gas recirculation (FGR) required. They can easily achieve 30 ppm (62 mg / Nm³) to as low as 20 ppm (41 mg / Nm³) firing gas, with some applications meeting these levels without the need for FGR. These burners can also achieve NOx levels of 40 to 80 ppm (82 to 164 mg / Nm³) firing light oil and 190 to 220 ppm (400 to 450 mg / Nm³) firing heavy fuel oil.



Dynaswirl-LN™ Burners

The Dynaswirl-LN burner offers maximum reliability and low emissions for oil and gas firing multi-burner boilers.



QLN® Burner

QLN (Quantum Low NOx®) burners deliver low NOx without flue gas, and are the proven choice for Once Through Steam Generator (OTSG) applications.



The ultra-low NOx RMB™ (Rapid Mix Burner) can cut costs and space requirements, providing a proven alternative to the catalytic control of NOx emissions.

Ultra-Low NOx Burners

- + Compact flames
- + Reliable operation
- + Easy-to-use controls
- + Excellent burner turndown

Our ultra-low NOx burners help you meet the most stringent emissions requirements year after year. We have proven experience in developing efficient, reliable and safe ultra-low NOx burner technologies, products and systems for the steam generation industry. Our innovative burners are designed to efficiently lower NOx emissions by minimizing the amount of FGR required.

We offer several ultra-low NOx burner models that can meet a range from 15 ppm (31 mg / Nm³) to less than 5 ppm (10 mg / Nm³) NOx depending upon your emission requirements. Our burners can achieve the ultra-low NOx levels you require, in most cases eliminating the need for back-end selective catalytic reduction (SCR) equipment.



ECOjet® Burner

The ECOjet ultra-low NOx burner offers extremely reliable performance and high turndown.



QLN-II™ Burner

The QLN-II burner delivers ultra-low NOx performance with low excess air, low burner pressure drop and low FGR rates.

Specialty Combustion Products

Low Calorific Gas

Our Low Calorific Value (LCV) burners are designed to combust fuels with mass flows too large for conventional burners such as blast furnace gas. This allows low pressure waste and process gases to be used for sole or joint power generation. Our unique burner design uses air velocity to mix LCV gas into the furnace for complete combustion and low CO levels.

Solid Fuels

The use of by-products as a source of energy can replace fossil fuels and minimize difficult disposal problems. Our combustion systems can be found throughout the world serving the agricultural, food processing, forest products, and pulp and paper markets for low-cost energy generation.

Back-End Cleanup

In addition to providing leading burner technology for a variety of applications, we also offer complete Selective Catalytic Reduction (SCR) systems for new or existing boilers. Our systems can accommodate a wide range of reagents, temperatures and configurations.

Safety Systems, Combustion Controls and Ancillary Products

- + Enhanced flame scanning technology
- + Pre-designed or custom control systems with operator interface
- + Standard or custom-engineered burner management system
- + Wide range of Distributive Control Systems (DCS) or Programmable Logic Controller (PLC) platforms
- + Predictive Emissions Monitoring (PEM)

Because plants often need more than a burner to solve their challenges, we also offer state-of-the-art equipment to support our burners, including burner management systems, control systems, flame scanners, valve piping skids, cooling air blower skids and combustion air fans. Each system is engineered for an individual plant's specific requirements and evaluated for fuel-firing configuration, individual burner characteristics, operation requirements and operator interface preference.



BMS and Control Panels



Fuel Piping and Blower Skids



Tens of thousands of burners installed worldwide, in a wide range of industries.



Exceptional Experience

Today's industrial enterprises are challenged to expand capacity while meeting ever-increasing safety, efficiency and performance standards. Through our Coen and Hamworthy Combustion brand products, John Zink Hamworthy Combustion is world-renowned for reliability, efficiency and innovation in combustion system applications and installations. We have been an innovative force in combustion systems - delivering technological expertise, design excellence, practical application and quality research and development with proven performance. Today, we continue the advancement of combustion equipment and technology to meet existing and emerging challenges in markets around the globe.



Reliable Support

Our worldwide service organization is the largest, most technically advanced team of its kind. Our experts are trained in the latest technologies to evaluate existing systems for upgrades and retrofits, to troubleshoot operations (with emergency call-out 24/7), and to help plan your next turnaround or outage. With our Preventative Maintenance (PM) program, we can also help you reduce unplanned downtime, avoid possible emergency call-outs, and ensure maximum availability and extended operating life of your equipment.

Learn more about how we can help improve the safety and performance of your operation. Contact us today.



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