High Performance Combustion Systems for Steam Generation

Providing high reliability and efficient combustion systems.

Meeting Tomorrow’s Environmental Needs Today

Applications
- Watertube Boilers
  - packaged boilers
  - field erected boilers
- Fully Packaged Combustion Systems
- Low NOx Boiler Retrofits
- Coal to Natural Gas Conversions
- Once Through Steam Generators (OTSG)

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Thermal Power for Steam Generation

FIVES NORTH AMERICAN and FIVES PILLARD
To provide the highest value to our customers, we have joined the capabilities of Fives Pillard and Fives North American Combustion. Combined, we offer a wealth of experience and technologies for steam generation and boiler applications.

HIGHEST EFFICIENCY in the INDUSTRY
At any NOx emission level, our combustion systems use lowest volume of FGR, often avoiding FGR use where others demand it, thereby minimizing operating costs.

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HIGH RELIABILITY and UPTIME
Robust equipment designed for years of low maintenance, trouble-free operation.

EASE of RETROFIT
Combustion systems are designed to simplify boiler retrofits. Most can be accomplished within existing boiler ports and windbox designs.

LOWEST TOTAL INSTALLED COSTS
It’s not just initial capital cost, our systems are available with a fixed price start-up, minimizing tail end project risk.

HIGH PERFORMANCE CONTROLS
PLC control for easy integration into plant-wide data systems. Advanced control system technology provides detailed system monitoring and extended diagnostic information. Precise mass flow control for the highest efficiency operation with minimum emissions performance deviations. Safety PLC implementations provide state-of-the-art performance reliability and system troubleshooting.

FIVES NORTH AMERICAN’s MAGNAFLAME GLE
- Proven performance in OTSG applications
- NOx emissions from 12 ppm to 5 ppm
- Highest water / fuel ratio in the industry
- Over 250 installations in the US, Canada, and Middle East

FIVES NORTH AMERICAN’s MAGNAFLAME LE
- Our flagship lean premix, ultra low NOx product
- Packaged and field erected boiler applications
- Lowest FGR requirements in the industry for minimum operating cost
- Gaseous fuel flexibility with consistent low NOx performance
- Lean premix design allows for minimum NOx even with combustion air preheat

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FIVES PILLARD’s GRC LONOXFLAM G2
- Front and tangential fired boilers
- Adaptable flame shape
- Multi-fuel capability; natural gas, RFG up to 80% H2, liquid fuels
- Refractory-free design
- Hundreds of customized boiler installations worldwide

FIVES NORTH AMERICAN’s 6131 - G
- The standard for 50,000 lb/h OTSG’s with thousands of global installations
- Ideal for oilfield development where crude oil is the only available fuel for steam generation
- Simple robust, and easily maintained design

WORLD CLASS RESULTS
- USA / Texas
  Packaged boiler: 8.3 ppm NOx / 20 ppm CO achieved over 6.1:1 turndown, with 20% FGR
- Netherlands
  Multi burner boiler: 29 ppm NOx with 10% FGR
- United Arab Emirates
  Packaged boiler: 28 ppm NOx with no FGR
- Canada and USA / Oil Fields
  Steam generator: 12 ppm NOx without FGR, 5 ppm NOx with 20% FGR
- USA / North Dakota
  Multi burner boiler: 33 ppm NOx with 550 F air preheat and RFG, no FGR

Global Presence

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Magna-Flame GLE Burner Emissions Performance - Kern County Steam Generators

NOx (ppb - dry, corrected to 3% stack O2) vs. Stack O2 (% - wet)

- GLE system without FGR
- GLE system with FGR
- GLE-5 system with FGR

High Reliability and Uptime
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Ease of Retrofit
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Lowest Total Installed Costs
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High Performance Controls
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