

Industrial Combustion Solutions



World class technology, experience, products, and services.

Committed to providing innovative solutions in combustion.



Fives North American

YOUR SOURCE FOR EFFICIENT and EFFECTIVE COMBUSTION

The combustion system is often one of the most critical aspects of the manufacturing process. At Fives North American we understand the complex variables associated with combustion. Our expertise in these processes allows us to help our customers improve plant performance and gain the competitive edge they need in today's marketplace.

Since 1917, we've partnered with leading industrial manufacturers from around the world. These partnerships have led to a greater understanding of what can be achieved through optimizing the combustion system. Through the results we've delivered, our customers have come to know Fives North American as one of the most trusted names in combustion worldwide.

Fives North American understands your needs.

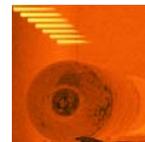
- An in-depth understanding of heat transfer, both rate and uniformity, and its idiosyncrasies
- Application expertise across a wide variety of industries
- Understanding of the process trade-offs that are critical when striving to maximize fuel efficiency, throughput, and quality while minimizing emissions

Fives North American has the talent and equipment to deliver the right solution.

- Thermal plant construction and installation capability to deliver turnkey performance
- Expertise in combustion supervision, management, and code compliance
- Field Service, maintenance, operator training programs, and safety audits
- Best-in-class application-specific products and advanced controls

Fives North American delivers results that will help you improve your competitiveness.

- Improve fuel efficiency
- Lower emissions
- Increase production processes
- Improve productivity
- Reduce downtime
- Reduce labor costs
- Meet safety and code requirements





DELIVERING SOLUTIONS TO INDUSTRY

Combustion expertise across a broad range of industries.



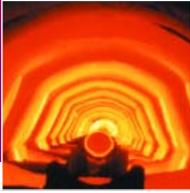
Fives North American's combustion expertise is strengthened through our involvement in a broad range of industries.

It's through this diverse experience that we've gained an unparalleled knowledge in combustion processes and technology. Whatever your industry, we will help make your combustion system work smarter for you.



- | | | |
|-------------|----------------|----------------------|
| AIR HEATING | FORGING | OIL FIELDS |
| ALUMINUM | FOOD | PAPER DRYING |
| BOILERS | GLASS | IRON ORE PELLETIZING |
| BRICK | GYPHUM BOARD | STEEL STRIP |
| CERAMICS | HEAT TREATMENT | STEEL REHEAT |
| COPPER | INCINERATION | PIPE ANNEALING |
| ETHANOL | | |





THE OPTIMUM IN COMBUSTION SYSTEMS

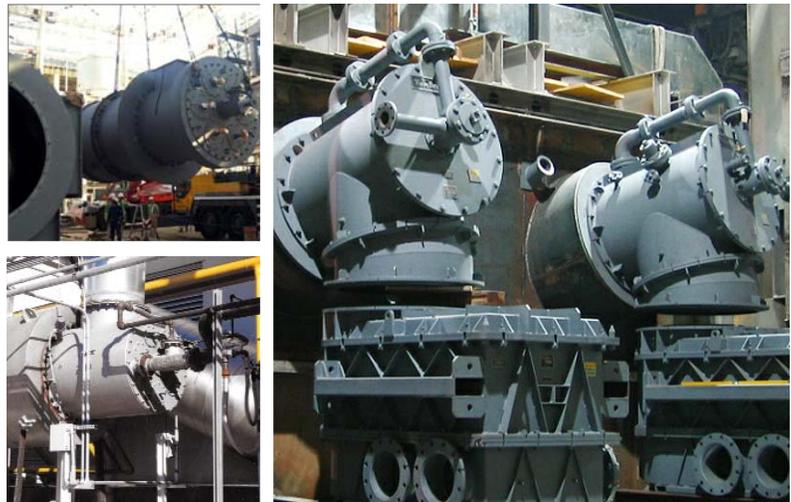
The largest range of industrial burners.

Fives North American offers burners for almost every gas or liquid fuel-fired industrial application and is the world leader in fuel-efficient and ultra-low NOx systems.

Throughout our long history, we have accumulated an unparalleled depth of combustion performance know-how: from combustion chemistry through air-fuel mixing, flame stabilization, shaping, and emissions minimizations, to acoustic control.

Burners

- 197 standard models
- 50,000 to 400,000,000 Btu/hr
- Fuels: gas, oil, and combination
- Oxidants: cold air, preheated air, oxygen, oxygen-enriched
- Direct-fired and radiant tube
- Premix and nozzle mix
- Regenerative and recuperative
- Lowest emissions
- Custom burner design capability



BROAD OFFERING OF ANCILLARY PRODUCTS

The best combustion system performance requires proper selection and operation of all the combustion hardware. Our complete line of blowers, valves, regulators, and controls allows us to build the best system to meet your needs.



Valves

- Air, oxygen, fuel
- Manual or motorized
- Control or shutoff
- Safety shutoff valves

Accessories

- Metering orifices
- Recuperators
- Gauges, transmitters

Blowers

- Single or multistage
- Direct, coupled, or belt drive
- Hot air
- Filters, silencers

Regulators

- Pressure-reducing
- Fixed or variable ratios



State-of-the-Art COMBUSTION and PROCESS CONTROLS

Optimal combustion systems demand advanced controls.

Fives North American offers a comprehensive array of industrial process control services and products.

Our systems provide Level I process control and data acquisition and Level II model-based supervisory control and information management. Applying the best available technology, our systems help our customers become more successful in today's competitive environment.

The Best Available Products Today

- Standard products full line of electronic temperature, fuel/air ratio, flow control, and combustion safeguard products
- Relay-based systems, fast-engineered multi-burner flame safeguard, and process control products
- PLC- and PC-based systems, custom-engineered process control and process information solution

Information Management

- Data acquisition
- Batch reports
- Graphical user interfaces
- Material tracking interfaces

Combustion Control

- Flame supervision
- Burner management
- Fault handling
- Fuel/air ratio control

Process Control

- Material handling
- Recipe-based control
- Model-based control





Fully Integrated COMBUSTION, CONTROL, FURNACE DESIGN & BUILD

The single source for complete furnace retrofits and upgrades.

Through our North American Construction Services division, we provide our customers with one source for complete retrofits and upgrades.

Large or small, from concept to completion, our team of project engineers, project managers, and site supervision personnel offers expert services for all your combustion needs.

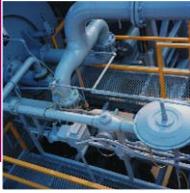


No matter the scope, we have what it takes to get the job done.

Services include

- Furnace and heater evaluation, design, fabrication, erection, installation, and startup
- Refractory and insulation specification, supply, and installation
- Combustion and integrated control system installation
- 24-hour on-call maintenance and repairs





MAXIMIZE PERFORMANCE

Our services will provide a combustion system of the highest performance.

FivesNA Offers a Wide Range of Services

We work with our clients to ensure plans for new or retrofit systems are well-designed and we offer startup and life cycle support

Consulting and Process Evaluation

Through customized, on-site studies/audits, Fives North American will help you determine the best solution to meet your goals.

- Feasibility studies
- Combustion system audits
- Fuel efficiency programs
- Code compliance audits
- Heat balance studies
- Process performance and control studies



Field Service and Maintenance

- Thermal system commissioning
- Troubleshooting
- Emergency field service
- System tuneups
- Installation supervision or assistance

Seminars and Training

- Operation and maintenance training programs
- Combustion seminars – your facility or ours
- *North American Combustion Handbook*, Vols. I & II





Fives North American Delivers

We are committed to providing our customers with innovative solutions for all their industrial combustion process needs. Our creative energy and engineering expertise come together to provide the best in combustion technology, supplying breakthrough new products, end-point technology, and solutions that improve your facility's performance – and your bottom line.

We provide our customers with full-service support. End-to-end, we ensure every customer is completely satisfied. From initial consultations through field installation and service, Fives North American delivers total customer support.



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