



NTFB's mission is to provide world class customer support and quality combustion equipment through innovation & cost effective combustion solutions while meeting environmental & sustainability objectives.



# Customized Combustion Solutions

NTFB offers customized combustion solutions for mid to large-size single and multiple burner systems for watertube boiler and fired furnace projects. We have over 150 operational installations worldwide. Our burners are specifically designed as part of a system, integrating the furnace configuration, fuels and unique project characteristics, to ensure stability, low maintenance, and optimum combustion.

# Specialities

Single or multiple-fuel burners for natural gas, refinery gas, LPG, waste gases, and light to heavy oil.

Efficient, energy saving designs resulting in minimum excess air requirements for maximum fuel savings.

100% reliable ignition through NTFB's unique 14,000 Volt ignition system.

Flame stability at all loads, due to the burner's inner core low air velocity design, coupled with the burner spinner's unique variable pitch inclining arc blade design.

Low NOx emissions down to single digit levels, combined with other low NOx technologies for levels as low as 3 to 5 ppm, if required.

Field adjustable gas spud design for fast startup. Each spud element can be individually adjusted, and possibly inspected and removed, while the burner is running.

Auto fuel changeover between gas and oil without shutdown.



## Safety and Quality

At NTFB, our primary commitment is to safety and quality. Our fuel piping assemblies, controls, and burner management comply with standards NFPA 85, AWS, ASME B31.1, and FM. ASME B31.3, CSA B149.3, CE, and TUV are available on request.

[www.ntfb.com](http://www.ntfb.com)



# The Engineering Team

NTFB Engineering uses the most current CFD design tools to virtually simulate optimal fuel and air distribution. In addition, all our new designs are tested at our R&D facility.

We adapt to your projects as they change.

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# Global Manufacturing

NTFB's Quality Control Program oversees every stage of our global manufacturing process. With over 40 years of engineering experience working with qualified combustion equipment manufacturers in the U.S. and abroad, we offer high quality burner systems at competitive prices.

# Single Point of Contact

We partner with boiler manufacturers, engineering contractors and consultants to bring our customers a single point of contact in our turnkey projects.

We provide training opportunities to allow our partners to use their own service provider to maintain their combustion equipment. We also, however, provide our own specialized service as requested.



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# The Industries We Serve

- Petrochemical and Refineries
- Power Plants
- Pulp and Paper Mills
- Universities
- Food Processing
- Metal Industries
- Manufacturing
- Heating Plants

# Power Burners

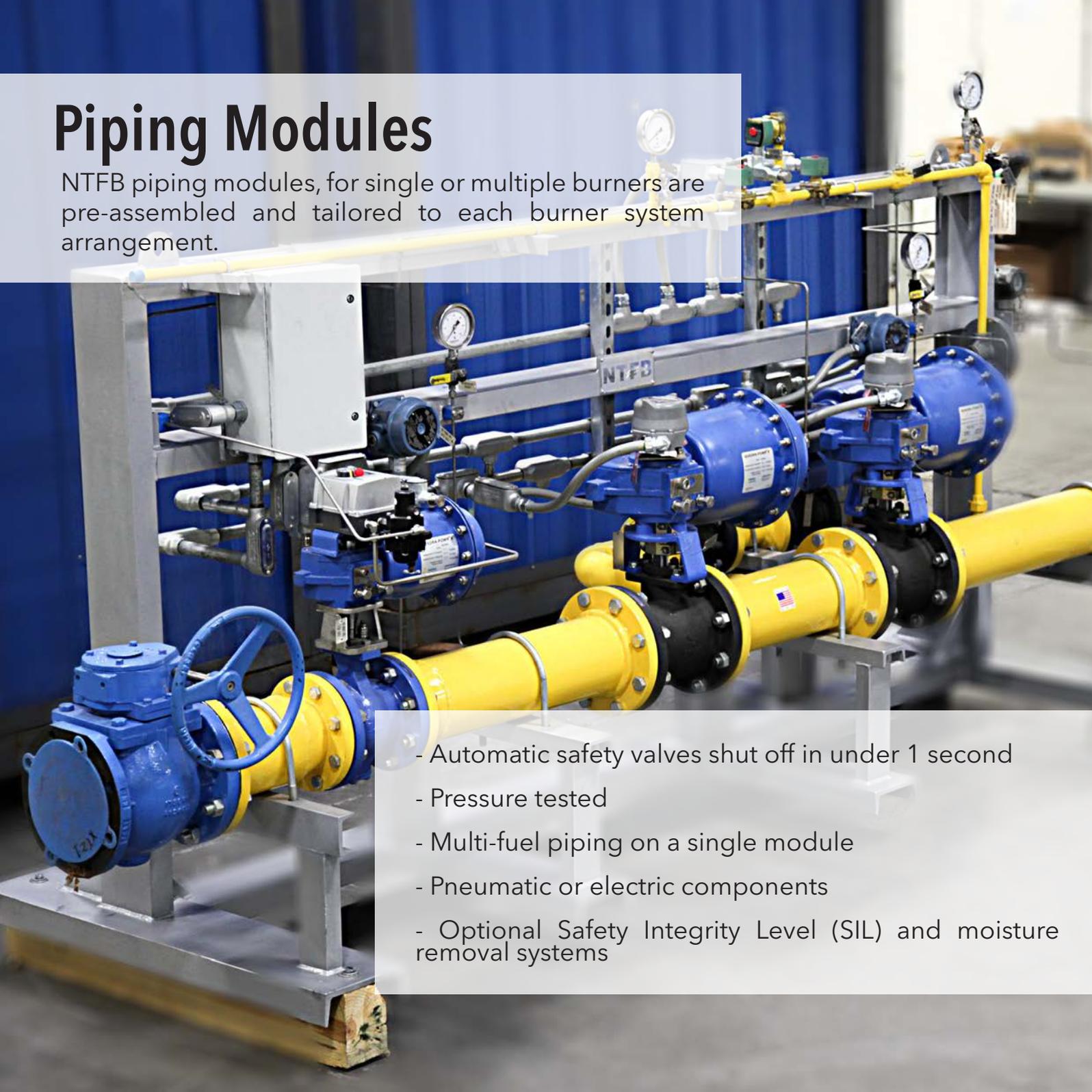
NTFB power burners are designed for efficiency and reliability, resulting in low maintenance and operational costs. In addition, our burners' advanced mixing, swirl, and injector patterns create the desired flame characteristics within the furnace to minimize emissions.

## Features

- Multi-fuel Systems
- Multi-burner Applications
- Environmentally Compliant - Low NO<sub>x</sub>, CO, VOC and PM
- High Turndown Ratio
- S.S. Burner Throats for Low Maintenance and High Reliability
- Fine-tuning through Online Adjustments
- High Flame Stability
- Oil Atomizer Retract Mechanisms
- State of the Art Ignition Systems, Fixed or Retractable

# Piping Modules

NTFB piping modules, for single or multiple burners are pre-assembled and tailored to each burner system arrangement.

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- Automatic safety valves shut off in under 1 second
  - Pressure tested
  - Multi-fuel piping on a single module
  - Pneumatic or electric components
  - Optional Safety Integrity Level (SIL) and moisture removal systems

# Control Systems

NTFB control systems are custom engineered for each application to meet your specific requirements. We offer Allen-Bradley, SIEMENS, Fireye and Honeywell hardware with a user friendly interface for simple, safe, and reliable operation, all per NFPA 85 recommendations.

## Features

- Touch screen interface
- Allen-Bradley, SIEMENS PLC, or customer specific
- Solid state, loop controller, PLC, and DCS platforms
- Burner Management System (BMS)
- Combustion Control System (CCS)
- Factory Acceptance Test (FAT)
- NEMA 4 enclosures, with NEMA 4X or explosion proof options

# Retrofit Projects for Oil and Gas

NTFB fully adaptable burners and flexible engineering team support retrofit projects by providing documentation, project management and start-up with outstanding training programs.

Our burners can be adapted to produce short and wide flames or long and narrow flames to fit the various boiler furnace dimensions found in new boilers and retrofit markets.

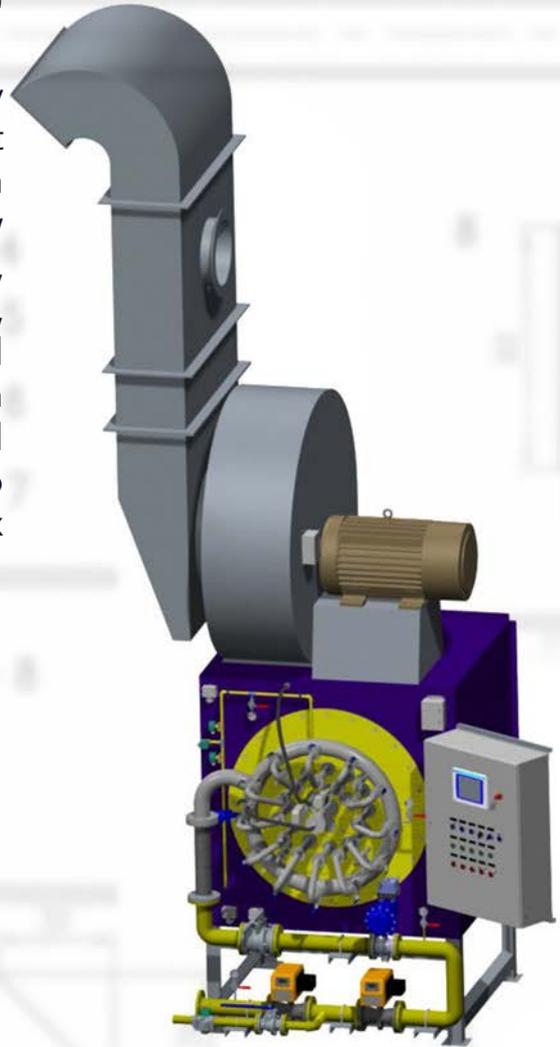
NTFB low emissions technologies and multi-fuel management systems make our burners the preferred choice for your next retrofit project.

# NTFB Packaged Burners

NTFB Packaged Burner Systems provide fully assembled solutions for new boilers or retrofit projects. Packaged burners are equipped with advanced NTFB design features, including a low NOx burner register and windbox assembly, adjustable fuel injectors, NTFB reliable igniter, mounted multi-fuel piping module, mounted BMS and CCS control system panel, and an optional forced draft mounted fan. FGR and associated auxiliary equipment are also available where further reductions in NOx emissions are required.

## Features

- Compact burner arrangement
- Easy access to control system and valves
- High turndown ratio and low excess air
- Burner sizes: 40 to 400 MMBTU/hr
- Fully assembled for easy installation
- Single, parallel, or metered combustion controls





# Duct Burners

NTFB can supply a full line of cost effective gas fired duct burner systems for new combined cycle and cogeneration power plants.

## Design Features

- Burner heat release from below 5 million BTU/hr to over 750 million BTU/hr
- Wide range of turbine exhaust flow rates
- Multiple types of gaseous fuels
- Low NO<sub>x</sub> and CO emissions
- Low oxygen content without augmenting air
- High water content without augmenting air
- High turndown ratio
- Meets NFPA 85, CSA, and other codes as specified
- Can be customized to meet your specific needs

# Selective Catalytic Reduction (SCR)

Adding SCR to an NTFB burner system can reduce NOx emissions by up to 95%, while maintaining the efficiency and operational flexibility of the boiler.

## Advantages of SCR

With SCR, there are no required changes to the burner equipment, which means that NOx levels can be lowered while maintaining system efficiency and flame stability. Similar NOx levels could alternatively be achieved by other "ultra-low NOx burners," but these systems can only reach these low NOx levels by drastically sacrificing efficiency and stability. For this reason, SCR is the most reliable, easy to use, efficient and economical method for reducing NOx emissions, and combining SCR with safe, stable, efficient NTFB low NOx burner technology is NTFB's preferred method for achieving single digit NOx levels.

- Single digit NOx levels
- Reliable
- Easy to use
- Maintains boiler efficiency
- Maintains turndown ratio
- Maintains flame stability
- Economical
- No changes required to the burner and boiler system



## High Efficiency Low NOx Burners

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