

FlexFire Line Type Burners

FlexFire series Gas Burners are designed to operate in low temperature applications where high turndown ratio and shorter flame length is required.

Flexfire series burners are modular, with each 300mm module it generates upto 300KW output depending on the headpressure. The burners modules are available in both aluminium and cast iron.

FlexFire burners are ideal for low temperature applications like air handling units, spray dryers, industrial ovens etc.

Flexfire burners are integrated directly into the ductwork of an existing heating, ventilation, and air conditioning (HVAC) system or industrial process for low temperature applications.

The burners are designed to ensure efficient combustion, producing a short and steady flame that heats the air passing through the duct.

This heated air is then distributed throughout the system to maintain or increase the temperature of the process or environment. Duct burners are used in various heating applications to enhance thermal efficiency and ensure precise temperature control.

Applications

Air handling units

Spray drying

Grain drying

Industrial ovens

Paint baking ovens

Curing rooms

Preheating

applications

Industrial dryers

Operating Principle

Flexfire burners are modular in design and can range from 150kW to 15 MW depending on the applications.

Flexfire burners work on excess air operation

Burners can be configured for

- On-Off firing
- High - Low
- Modulating

Burners can run on following fuels

- Natural Gas
- Lpg
- Bio-CNG

Burner nominal rating operation where gas pressure is less than 45mbar.

Combustion air pressure is at 20mbar.

Burner design allows for low NOx emission.

Available Configurations

NBD	FBD
Open back Modules	Closed Back Modules
Used in applications where heating large volume of fresh air is required.	Used in recirculating process air, direct fired applications.
Free Oxygen should be greater than 19% for nominal operation.	Free Oxygen can be less than 19% as combustion air is provided.
Available sizes: Straight, I, H, X assembly	Available sizes: Straight, I, H, X assembly

FEATURES

Improved temprature uniformity

Wide range of turndown ratio 1:30

Modular Design

Low NOx emission

Easy setup and operation



Fig. FBD Burner in recirculating drying oven

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Venturi Air-Gas Mixer

Introducing the AEROBLEND Series Air/Gas mixers.

A cutting-edge venturi-type air gas mixer designed to adapt to your engines fuel requirement.

Engineered for precision, the mixer seamlessly blends air and gas, ensuring optimal ratios for efficient and controlled combustion.

AEROBLEND series air/gas ratio mixers are available in DN100, DN 140 & DN200 to cater various engine sizes.

AEROBLEND mixers are integrated with mechanical flow control valves for optimal gas ratio control.

The static mixer design allows for low maintenance and long working life.

Size	Engine Load (KW)	
	Min	Max
AERO-100	120	250
AERO-140	250	500
AERO-200	500	1250

FEATURES

Optimal Air-Gas mixing

Suitable for wide range of dual fuel generators

Lightweight design

Integrated flow control valve for fine tuning of gas flow

Easy setup and operation

Built to withstand demanding industrial environments

Precise air-gas mixing for optimal combustion.

Operating Principle

AEROBLEND Works on the venturi principle.

The engine creates suction vacuum which draws air through the air intake.

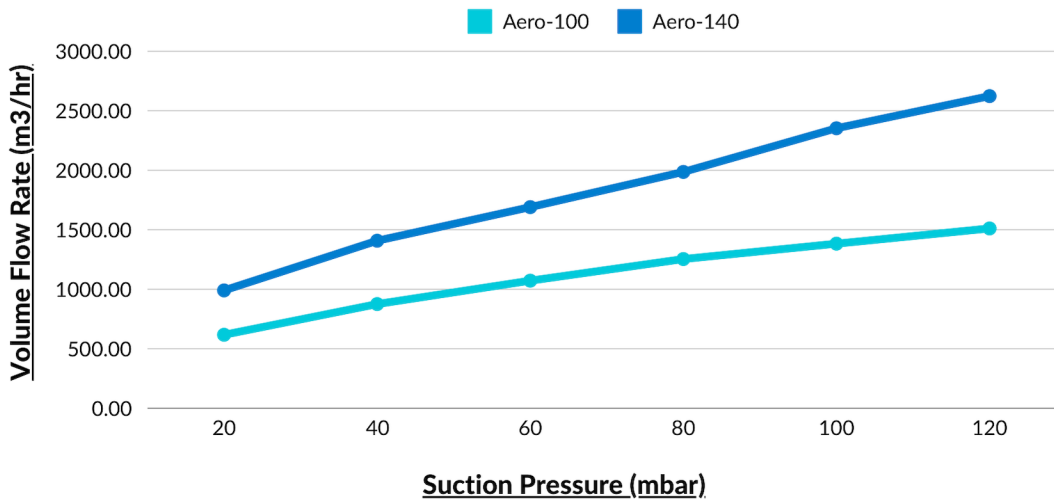
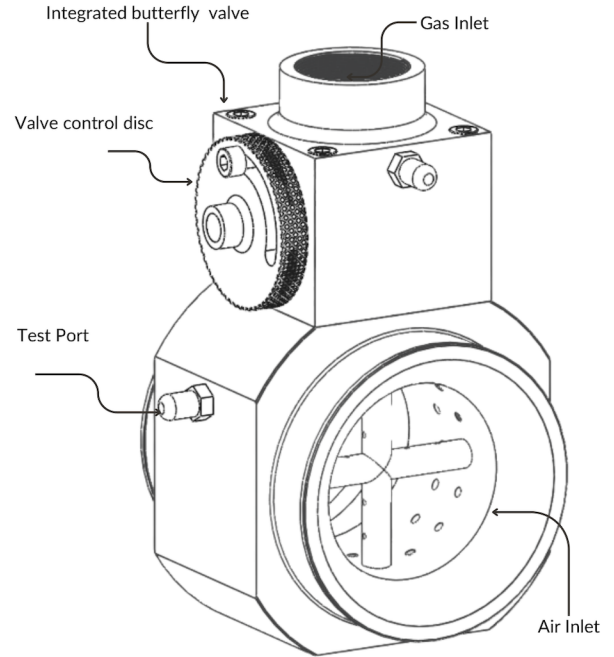
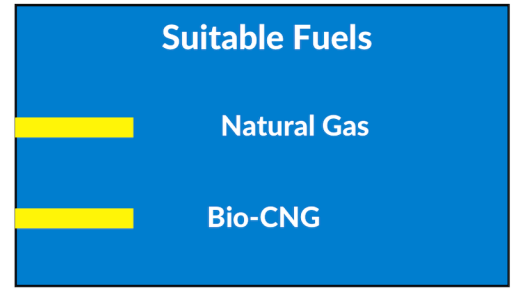
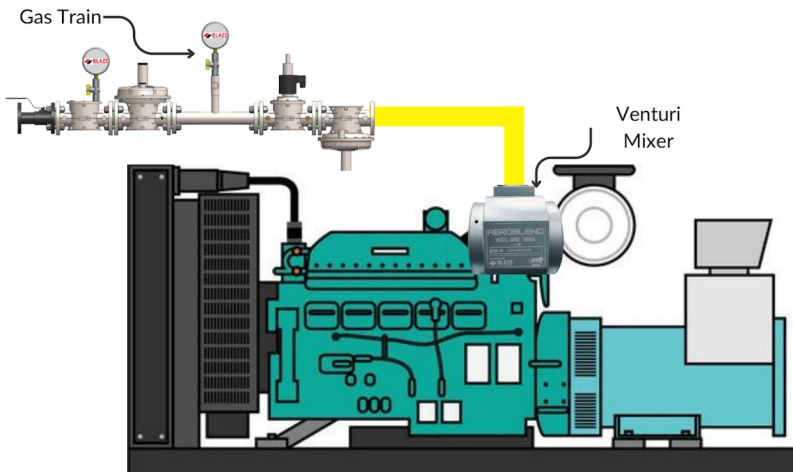
Venturi effect creates vacuum at the throat of the mixer which sucks gas through the inlet holes. The inlet holes are designed for maintaining optimal air-fuel ratio.

Gas inlet at the throat is designed to create uniform air/gas mixing which is released at the mixture outlet to the engine.

Integrated butterfly valve is fitted to maintain precise AIR-GAS ratio in case of different gas quality and engine performance.

Test ports provided can be utilized to measure suction pressure from the engine.

AEROBLEND Mixer are available in various sizes which allows for various volumetric flows to be attained thus catering to various engine capacities.



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Mass Flow Meters



Next Generation Gas flow meters

Azbil Gas flow meters are compact, high-accuracy mass flow meters. It accurately measures the mass flow rate at 0°C, 1atm pressure, with no effect to changes in pressure .

The gas flow meters offer a wide range of functionality, such as instantaneous and integrated flow rate indication, event output, analog output.

Azbil flow meter offer wide rangeability and also supports air ratio control and energy management of burners.

FEATURES

Compact Design

High Accuracy

Suitable for burner application

Low pressure loss

Easy gas flow measurement

Built to withstand demanding industrial environments

Self-diagnosis capability

High Accuracy, high response measurement

Gas flow meter's thermal flow sensor with a compact body gives high accuracy +/- 4% RD. It also eliminates the need for correction of measured values that are generally affected by change in temperature and pressure, due to mass flow measurement.

Suitable for burner application

Due to the structure of the flow meter, the pressure loss is minimal, the flow meter is most suitable for burner applications that are sensitive to pressure loss.

Compact body, IP54 protective structure

With compact and protective structure of IP54, the CMG series can be installed without any restrictions.

Easy gas flow measurement

The gas flow meter's digital display of instantaneous/integrated flow rate is visible from a distance, and measurement status indicated by Hi, Lo, Over, Alarm LEDs. Other function settings include, setting upper and lower limit alarms, using contact and analog signals as external output for effective flow management.

Free directions for mounting and indication

Unlike conventional flow meters, Azbil gas flow meter does not require straight piping at upstream and downstream sides. Indication direction can also be changed, allowing easy mounting in any direction.

Self-diagnosis function

The self self-diagnosis function is effective for troubleshooting

Specifications:

Model	CMG150	CMG250	CMG400	CMG500
Connection	DN15 Rc	DN25 Rc	DN40 Rc	DN50 Rc
Suitable gas	Natural gas			
Measurement range(m ³ /h)	0.5-4.0	3.0-30.0	8.0-80.0 15.0-150.0	8.0-80.0 15.0-150.0
Rated voltage	24V DC, 220V AC			
Sampling cycle	100ms+/- 10%			
Momentary flow output	1-5V DC output 4-20 mA output Output range: 0 to measurement range upper limit(changeable by parameter setting)			
Applicable pressure	Pressure code"0" model: 0-1bar Pressure code"1" model: 0-10bar			
Protection	IP54			

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BLAZE
COMBUSTION SYSTEMS

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Take a step towards sustainability

With our Retrofit kit for process heating systems

Our Expertise

Converting your boiler system to gas-fired is a smart move towards greater efficiency, reduced operational costs, and a smaller environmental footprint.

At Blaze Combustion Systems, we offer comprehensive retrofit conversion kit that ensure a seamless transition by converting existing heavy and light oil fired system to natural gas fired system.

Our offerings

With over 30 years of experience in the industry and 400+ successful installations our team of experts offer conversion of the following oil fired systems.

Horizontal 3-pass smoke tube boiler

Vertical coil type boiler

Thermic fluid heater

Hot water generator

Hot air generator

Our Conversion kits are custom built after evaluation of the existing system to evaluate the changes required to the heating systems to ensure safe, reliable and efficient operations.

Our Process



Assessment & Planning

Our experts conduct a detailed assessment of your existing boiler system and fuel usage to develop a customized conversion plan that meets your specific needs.



Design & Engineering

We design the conversion system, including all necessary modifications to accommodate gas fuel, ensuring compliance with industry standards and safety regulations.



Installation

Our skilled service engineers carry out the installation process, including the integration of gas burners, fuel supply lines, and control systems.



Testing & Commissioning

After installation, we perform rigorous testing before commissioning to ensure your new gas-fired system operates efficiently and safely.



Training & Support

We provide comprehensive training for your staff on operating and maintaining the new system, along with ongoing support to ensure optimal performance.

Benefits of switching to Natural Gas

- Natural Gas is cost effective
- Lower Emission levels than light and heavy oil
- With Natural gas the combustion is efficient and complete
- Maintenance & spares cost negligible
- Gas-fired boilers produce fewer emissions, contributing to a cleaner environment and helping you meet regulatory requirements.
- With lower operation cost payback of the conversion is much faster

Our Conversion System

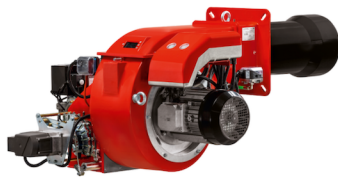
Blaze Combustion Systems provides a wide range of gas, dual fuel burners, gas trains and advanced combustion control and management systems designed and integrated in accordance to the system requirement. Our conversion system can be configured for dual fuel operation of the system.

Burners

Gas fired Burner



Low NOx Gas Burners



Blaze Burner Gun

For coil type boilers



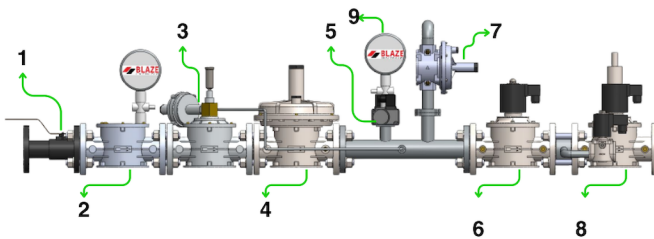
Gas fired Burner

For shell & tube type boilers



Gas Train

The purpose of gas train is to reduce inlet pressure and regulate the flow of gas according to the burner requirement. Gas train acts as a safeguard for the burner and other downstream components. Gas trains can be configured according to the requirements.



- | | |
|--------------------------|----------------------------------|
| 1 Isolation Valve | 6 Safety solenoid valve |
| 2 Gas filter | 7 Safety relief valve |
| 3 Safety shutoff valve | 8 Working solenoid valve |
| 4 Gas pressure Regulator | 9 Pressure gauge with test valve |
| 5 Pressure switch | |

Control Panel



- Control panels are relay/PLC based
- Panels are connected to existing panels
- Prewired and tested
- Wall mounted/free standing
- Other functionalities can be added according to requirement of the user.

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Introducing On-Line CO Monitoring System for direct fired burners

Ensure the safety and efficiency of your direct-fired gas burners with our state-of-the-art On-line CO Monitoring System.

Specifically designed for continuous, real-time monitoring of carbon monoxide (CO) levels, this system helps prevent dangerous CO buildup, optimizing combustion efficiency and ensuring compliance with safety regulations.



Prevalence of direct fired Burners

- **Thermal efficiency of the system reaches nearly 100%.**
- **Direct fired burner can produce more heat which results in smaller equipment size.**
- **Turndown Ratio of direct fired burners is high.**
- **Installation of direct fired burners are easier since heat exchangers are not required.**
- **Equipment life is longer than indirect burners.**
- **Temperature control is more precise.**

Benefits of On-Line CO Monitoring System

- **Enhanced Safety:** Continuous monitoring helps prevent CO poisoning and ensures a safer working environment.
- **Optimized Combustion:** Accurate CO level detection allows for fine-tuning of burner settings, improving combustion efficiency and reducing fuel consumption.
- **Regulatory Compliance:** Helps meet local and international safety standards and regulations, avoiding penalties and ensuring operational legitimacy.
- **Reduced Emissions:** Monitoring and controlling CO levels contribute to lower overall emissions, supporting environmental sustainability initiatives.
- **Operational Efficiency:** Real-time data and alarms enable quick adjustments, minimizing downtime and maintaining optimal performance.

Disadvantages of CO Generation from Direct-Fired Burners

Health Hazards: CO is a toxic gas that can cause headaches, dizziness, nausea, and in extreme cases, death, if inhaled in high concentrations.

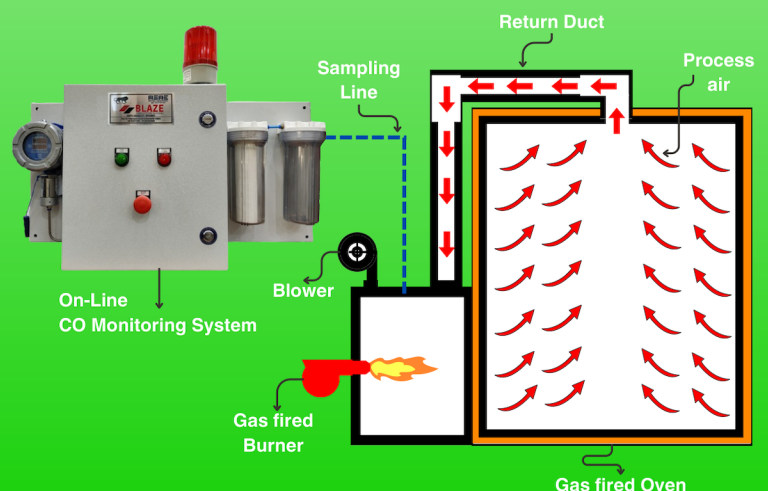
Safety Risks: Elevated CO levels pose significant safety risks, requiring robust monitoring and safety systems to prevent hazardous conditions.

Regulatory Compliance: High levels of CO emissions can lead to non-compliance with environmental and safety regulations, potentially resulting in fines and legal issues.

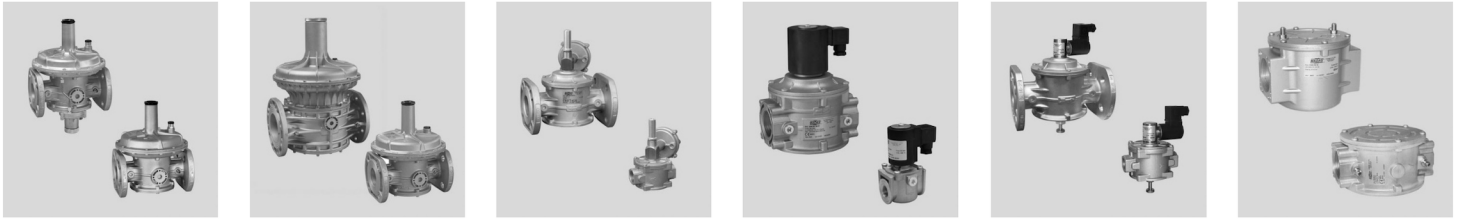
Environmental Impact: CO is a harmful pollutant that contributes to air pollution and can have adverse effects on the environment.

Efficiency Loss: Incomplete combustion that generates CO indicates inefficient fuel usage, leading to higher operating costs and lower overall efficiency.

Maintenance Issues: High CO generation can indicate burner or system malfunctions, necessitating more frequent maintenance and potentially higher costs for repairs.



Gas Safety & Pressure Regulation Components



Gas Fired Burners



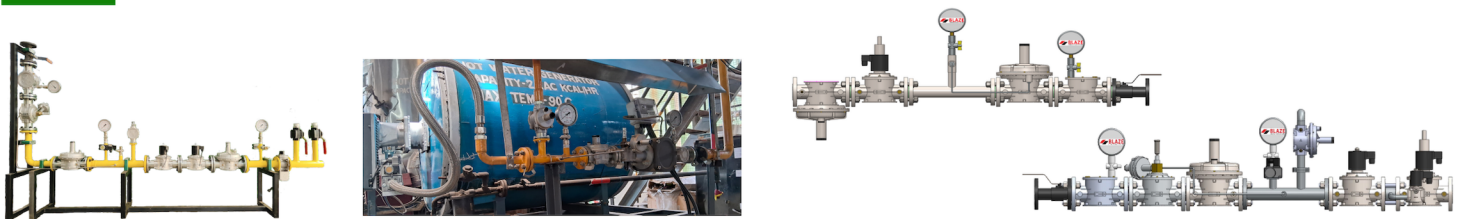
Gas Flow Meters



Smart Modulating Actuators



Gas Trains



Venturi Air-Gas Mixers

