Gaudi

Gaudi Ultra-Low NOx Burner Selection Guide

Fully Premixed · Ultra-Low Nitrogen · Choose Gaodi

Gaudi - The Pioneer of Ultra-Low NOx Combustion

Aspiring to become a globally respected "national brand" in the field of ultra-low nitrogen oxide combustion.

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COMPANY PROFILE

Shanghai Bylindo Thermal Energy Equipment Co., Ltd. is a high-tech environmentally friendly manufacturing enterprise specializing in the research, development, production, and sales of ultra-low nitrogen burners. The company is headquartered in Shanghai, China's economic hub, and is equipped with modern advanced production facilities and a team of experienced technical professionals. The company manufactures a wide range of burner products primarily used in gas boilers, heating furnaces, hot air furnaces, organic heat carrier furnaces, and other heating equipment. These products are widely applied in industrial heating, petroleum equipment, chemical smelting, and other fields. The company possesses strong independent R&D capabilities in the ultra-low nitrogen combustion sector, and its Gaudi brand ultra-low nitrogen burners have played a significant role in China's current environmental governance efforts.

Since its inception, the company has adhered to the business philosophy of "putting heart into every product." Emphasizing scientific research and development, the company has invested heavily in cutting-edge combustion technology R&D, obtaining multiple invention patents. It has also established long-term cooperative partnerships with Tongji University and the Thermal Energy College of Shanghai Jiao Tong University. Leveraging the academic strengths of these institutions and combining them with the company's extensive market experience, it maintains strict standards for its products. Each product model undergoes multiple rounds of screening and rigorous testing to ensure safety and stability. The company places great emphasis on quality management, adopting advanced production line processes and strictly adhering to the ISO9001 quality management system. Every step, from production to inspection and final delivery, is meticulously controlled. The company is committed to ensuring that every Gaudi brand burner leaving the factory meets the highest quality standards and earns the trust of its users. This relentless pursuit of excellence has made the Gaudi brand a trusted name among customers.

At this new starting point and on this new journey, the company will continue to uphold the philosophy of "putting people first and pursuing innovation." Driven by the mission to meticulously craft every product, the Gaudi team will face challenges head-on, continuously innovate, and strive to surpass expectations. The company aims to develop more efficient and environmentally friendly burners, making Chinese manufacturing a globally recognized name in the field of ultra-low nitrogen burners.

Fully Premixed · Ultra-Low Nitrogen · Choose Gaodi

ENTERPRISE CULTURE

01

Core Philosophy

People-Oriented, Truth-Seeking &

Innovation

02

Corporate Vision

Revitalizing National Brands

03

Corporate Values

Pursuing Excellence in Quality,

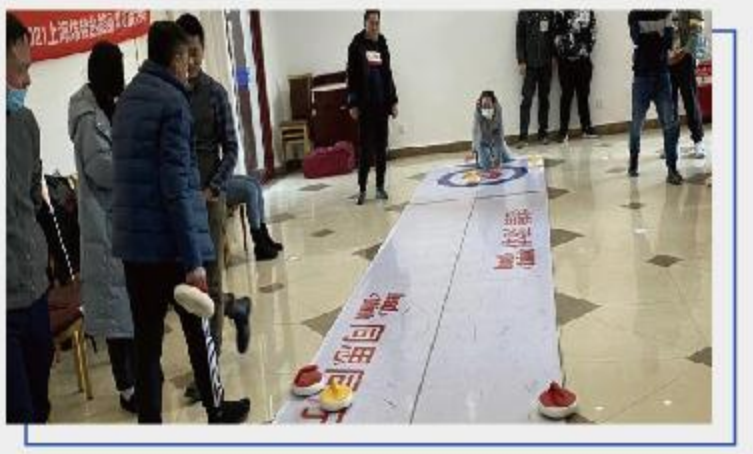
Showcasing the Essence of Enterprise

04

Corporate Spirit

Serving Every Customer, Empowering

Every Employee



CORPORATE IDENTITY


公司
o., Ltd


以人为本 求实创新
企业精神
服务好每一位客户，成就每一位员工
价值观
追求品质卓越，尽显企业精华
愿景
振兴民族品牌
Gaudi
Build a Clean Sky
责任
诚信
共赢

Fully Premixed · Ultra-Low Nitrogen · Choose Gaodi

QUALIFICATIONS&HONOURS

营业执照

（副本）

登记机关

上海炜锦热能设备有限公司

AAA级信用企业

ISO 9001

质量管理体系认证证书

上海炜锦热能设备有限公司

ISO 9001

环境管理体系认证证书

上海炜锦热能设备有限公司

ISO 9001

职业健康安全管理体系认证证书

上海炜锦热能设备有限公司

信用等级证书

上海炜锦热能设备有限公司

AAA级信用企业

实用新型专利证书

实用新型专利证书

实用新型专利证书

实用新型专利证书

实用新型专利证书

申长雨

商标注册证

Gaudi

核定使用商品(第11类)

注册人

注册地址

注册有效期限

局长签发 李建昌

高新技术企业

证书

企业名称：上海炜锦热能设备有限公司　　证书编号：GR202331002089

发证时间：2023年11月15日　　有效期：三年

批准机关：

燃油（气）燃烧器型式试验证书

Type Testing Certificate for Oil/Gas Burner

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Type Testing Certificate for Oil/Gas Burner

FORMATION MECHANISM

During the combustion process, oxygen (O_2) and nitrogen (N_2) in the air react through different pathways to form nitrogen oxides (NOx). Among these pollutants, nitric oxide (NO) and nitrogen dioxide (NO_2) have the most significant impact, contributing to air pollution and posing health risks to humans.

Research on NOx formation during combustion reveals that nitrogen oxides are primarily generated through three major pathways:

1.Thermal NOx

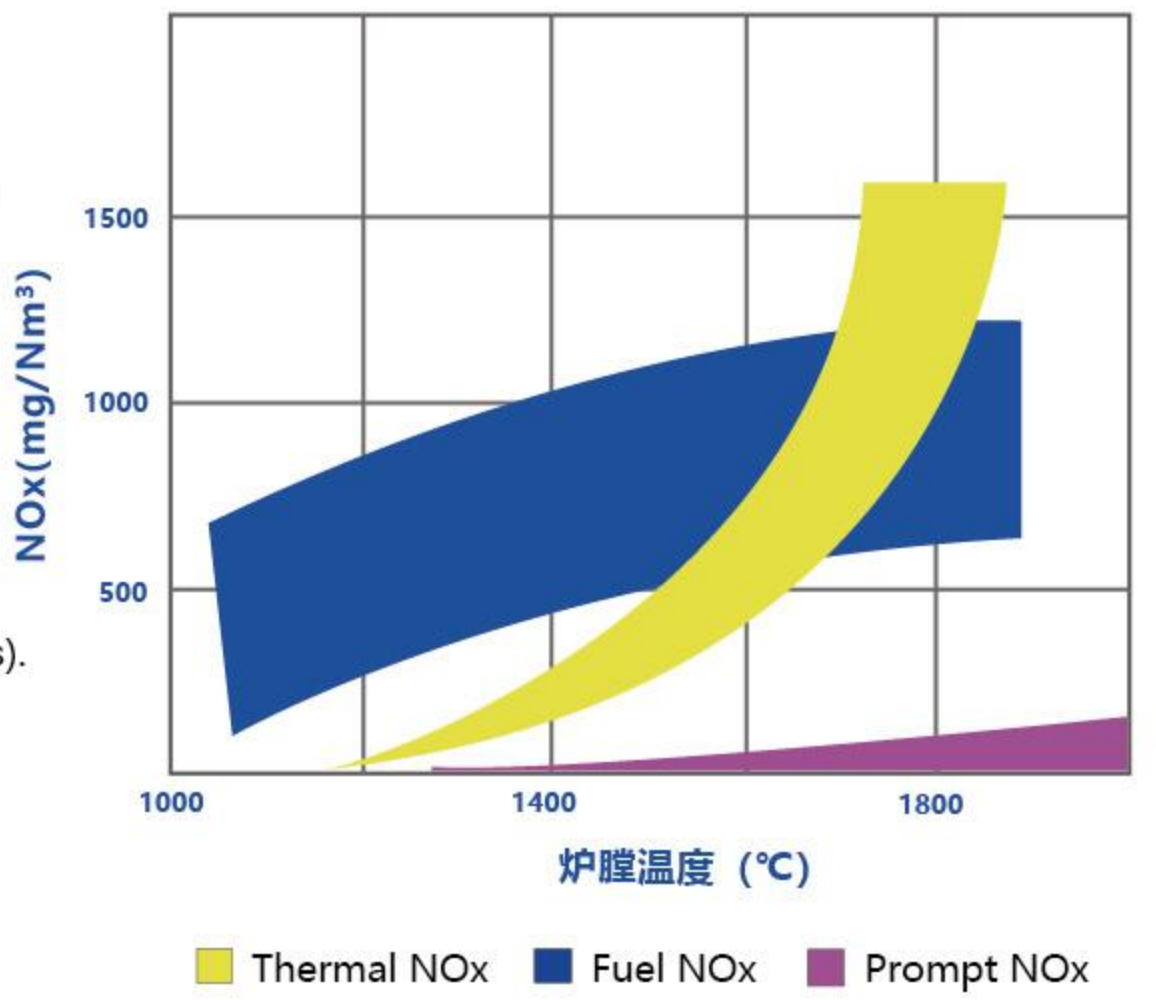
Primarily related to combustion temperature during burning.

2.Prompt NOx

Associated with the speed of chemical reactions.

3.Fuel NOx

Dependent on the nitrogen content in the fuel (generally negligible in most cases).



The primary technology currently used to lower boiler nitrogen oxide emissions is low-nitrogen combustion.

Premixed combustion technology

In this method, fuel gas and air are premixed before combustion. The burner head employs surface combustion, ensuring the flame is evenly distributed across the combustion surface. Due to the lower flame temperature, nitrogen oxide (NOx) emissions can be reduced to below 27 mg/m³.

FGR Technology

This technology primarily utilizes a low-NOx burner design, where a portion of the flue gas is extracted from the boiler exhaust and recirculated back to mix with the fuel and air for combustion. By diluting the air and reducing the oxygen concentration, it lowers the flame temperature, thereby achieving reduced nitrogen oxide (NOx) emissions.

Internal Flue Gas Recirculation (IFGR) Technology

This technology utilizes a specially designed burner head to internally recirculate flue gas within the combustion chamber, allowing it to mix back into the flame for secondary combustion. By doing so, it effectively reduces nitrogen oxide (NOx) emissions.

Pursuing perfection has always been Gaudí's consistent style. Providing customers with first-class products is our mission. Through continuous innovation and leading cutting-edge technology, we contribute to the advancement of "Made in China." We look forward to collaborating with you!

Fully Premixed 50-520kW Series

50-520KW

Fully Premixed 700-3000kW Series

700-3000KW

FGR Integrated Burner Series

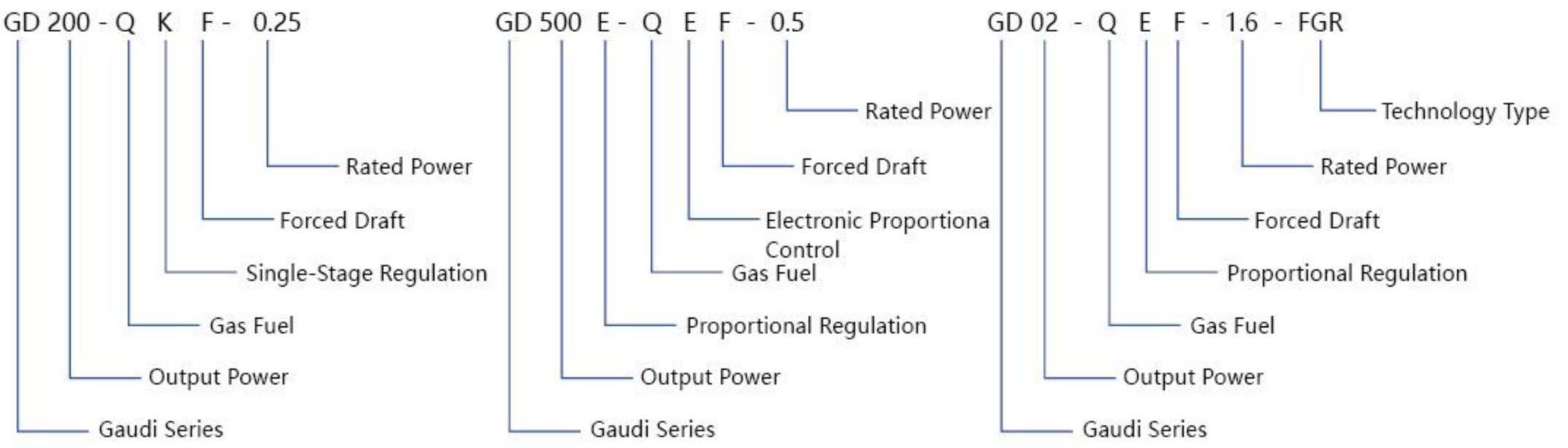
800-6520KW

FGR External Recirculation Burner Series

8000-16500KW

MODE OF OPERATION

高迪超低氮燃烧器符号释义



Ultra-Low NOx Burner Operation Modes

Single-Stage / Two-Stage Operation

- Single-stage operation: The burner operates in an on-off mode. Once the burner's adjustment settings are completed, its output power is fixed (though it may vary slightly due to external conditions), meaning the burner has only one operating point. The burner's start-stop is controlled by a TC (thermostat or pressure switch) on the control circuit.
- Two-stage operation: The burner operates in a low-fire / high-fire mode, meaning it has two operating points—it can run at either low-fire (1st stage) or high-fire (2nd stage). The burner's operation is controlled by two devices on the control circuit: a TC (thermostat or pressure switch) and a T2 (second-stage controller or switch) to regulate its operating state.

Electronic Proportional Modulation:

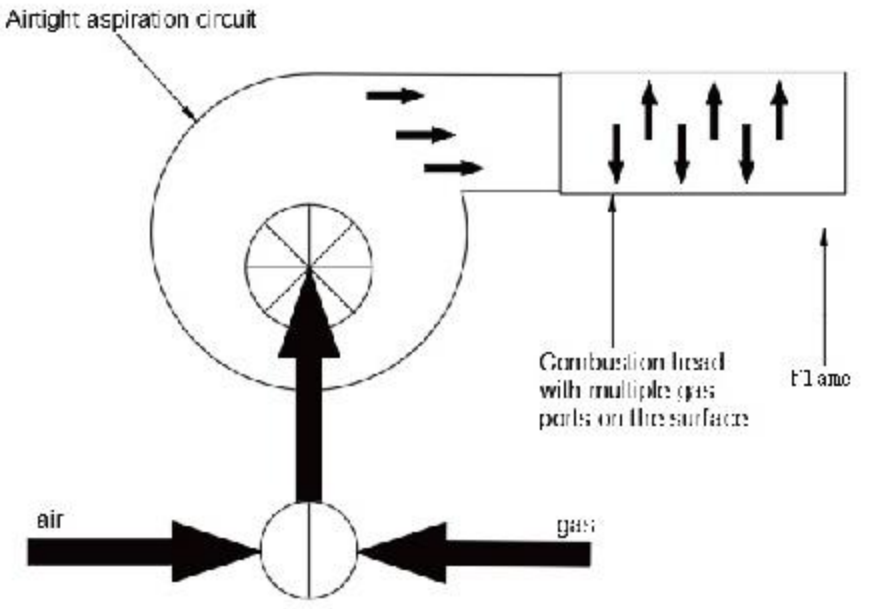
- Continuous Modulation – The burner can operate at any point within its capacity range, with output continuously adjusting to match the system's heating demand for optimal balance.
- Air-Gas Synchronization – A unique control system ensures precise, simultaneous adjustment of air and gas, enabling high combustion efficiency, stability, and low emissions.
- Self-Diagnostic Function – The system detects abnormalities or shutdowns and displays error codes for quick troubleshooting and fault identification.
- Runtime Monitoring & Data Logging – Tracks operating hours, stores historical records, and allows password-protected access (with tiered permissions) via software for system analysis.
- AZL Digital Programmer with LCD Interface – Features an integrated touchscreen/keypad for setting operating points, optimizing parameters, and automatically refreshing.
- Precision PID Load Control –Auto-optimized performance curves adapt to seasonal changes. Pre-configured curves can be directly selected and activated, eliminating repetitive manual adjustments.

PRODUCT RANGE

The Di Ultra-Low NOx Surface Burner adopts an imported fan and a specially designed metal surface head. Through the imported mixing fan, air and gas are perfectly blended and then delivered to the surface head for environmentally friendly and highly efficient combustion. Equipped with a high-precision Honeywell constant pressure valve, it ensures optimal air-fuel ratio coordination for precise adjustment, guaranteeing efficient combustion along with safety and stability.

The Di Ultra-Low NOx Surface Burner offers customizable surface heads based on on-site working conditions and power requirements, including multi-hole surface heads, woven surface heads, and sintered surface heads.

Burner Operation Schematic



Features of the Di Fully Premixed Ultra-Low NOx Burner:

- Uniform Flame & Ultra-Low Emissions – The flame is evenly distributed around the burner head, ensuring complete combustion with low flame temperatures, enabling ultra-low NOx emissions (<15 ppm).
- Constant Air-Fuel Ratio Technology – Precise control of gas and air prevents imbalance due to reduced air supply, ensuring safe and stable combustion.
- High-Efficiency Premixing – Equipped with an imported variable-frequency high-pressure premix fan, featuring anti-static properties, strong backpressure resistance, and excellent mixing performance for high combustion efficiency.
- Low Gas Pressure Requirement – Operates effectively at gas pressures as low as 2 kPa, ensuring stable combustion power and adaptability to various field conditions.
- Unique Ignition System Design – Simplified for easy maintenance and long-term servicing.
- Aesthetic Ambient Light Strips – Enhances both functionality (quick status identification) and visual appeal of the equipment.

Fully Premixed 50-520KW Series

Power Rane 50-520KW

Product Characteristics

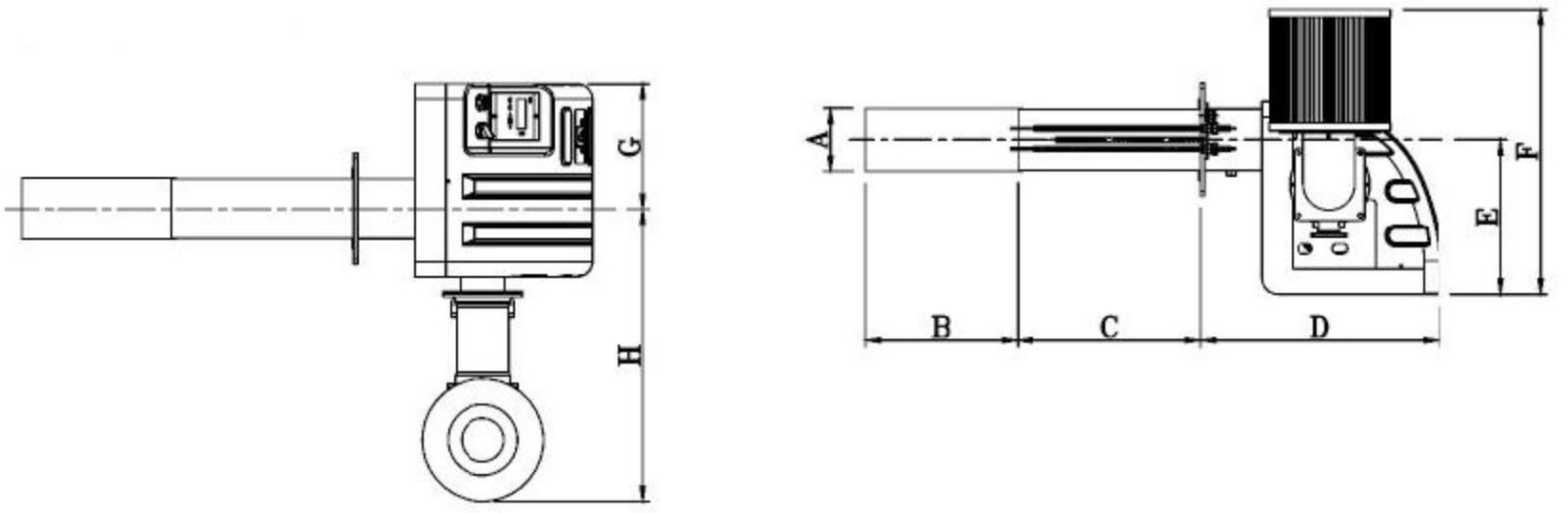
1.Ultra-low nitrogen emission: low nitrogen emission （NOx<30mg/m³）。
2.High efficiency of combustion: through the electronic ratio adjustment system, it can realize the best air-fuel ratio of air and gas, and make the combustion more efficient.
3.Energy-saving combustion: air-fuel ratio constant technology, gas and air are totally mixed, the combustion is safe and stable.
4.Strong adaptability: Adopting pre-mixing before fan, high air pressure, can be applied to low pressure gas, wide range of application, only need a smaller furnace to achieve low nitrogen, suitable for most boilers.
5.Safety in use: Adopting flame detection system for real-time detection, gas air pressure protection, as well as gas leakage protection and operation fault display, make the whole combustion process safer.
6.Maintenance Convenience: one-piece design, convenient for subsequent maintenance

Technical Parameters

Product Model	Output Power (KW)	Gas Flow Rate m3/h	Gas Pressure Kpa	Motor Power (W)	Power supply	Control Mode
GD100-QKF-0.2	50-100	5-12	2-5	280	1N AC 50HZ 220V	One-tier
GD200-QKF-0.25	70-200	7-25	2-5	500	1N AC 50HZ 220V	One-tier
GD350-QKF-0.3	100-360	10-36	2-5	500	1N AC 50HZ 220V	Two-tier
GD350E-QEF-0.45	100-360	10-36	2-5	500	1N AC 50HZ 220V	Electronic Ratio Tuning
GD500E-QEF-0.5	180-520	18-52	2-5	930	1N AC 50HZ 220V	Electronic Ratio Tuning

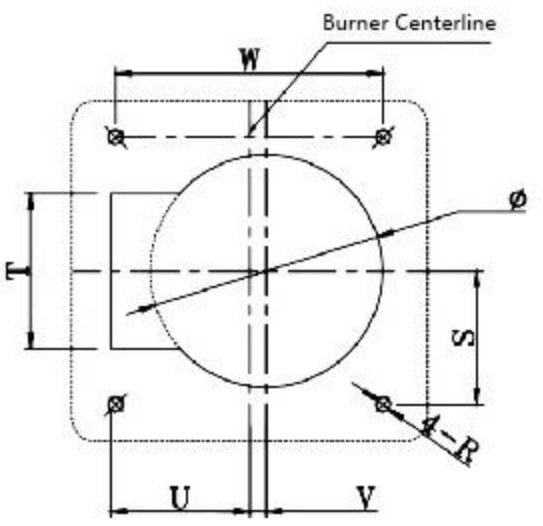
External Dimension

External Dimension: mm



Product Model	A	B	C	D	E	F	G	H
GD100-QKF-0.2	100	213	200	470	305	563	245	574
GD200-QKF-0.25	100	354	200	470	305	563	245	577
GD350-QKF-0.3	125	413	350	470	305	563	245	577
GD350E-QEF-0.45	125	413	350	470	305	563	245	577
GD500E-QEF-0.5	125	531	500	470	305	563	245	577

Boiler Opening Dimensions: mm



Product Model	φ	T	W	V	U	S	R
GD100-QKF-0.2	123	100	170	15	78	85	M12
GD200-QKF-0.25	150	100	173	11	90	86	M12
GD350-QKF-0.3	150	100	173	11	90	86	M12
GD350E-QEF-0.45	150	100	173	11	90	86	M12
GD500E-QEF-0.5	150	100	173	11	90	86	M12

Fully Premixed 700-3000KW Series

Power Rane 700-3000KW

Product Characteristics

1.Ultra-low nitrogen emission: low nitrogen emission （NOx<30mg/m³）。

2.High efficiency of combustion: through the electronic ratio adjustment system, it can realize the best air-fuel ratio of air and gas, and make the combustion more efficient.

3.Energy-saving combustion: air-fuel ratio constant technology, gas and air are totally mixed, the combustion is safe and stable.

4.Strong adaptability: Adopting pre-mixing before fan, high air pressure, can be applied to low pressure gas, wide range of application, only need a smaller furnace to achieve low nitrogen, suitable for most boilers.

5.Safety in use: Adopting flame detection system for real-time detection, gas air pressure protection, as well as gas leakage protection and operation fault display, make the whole combustion process safer.

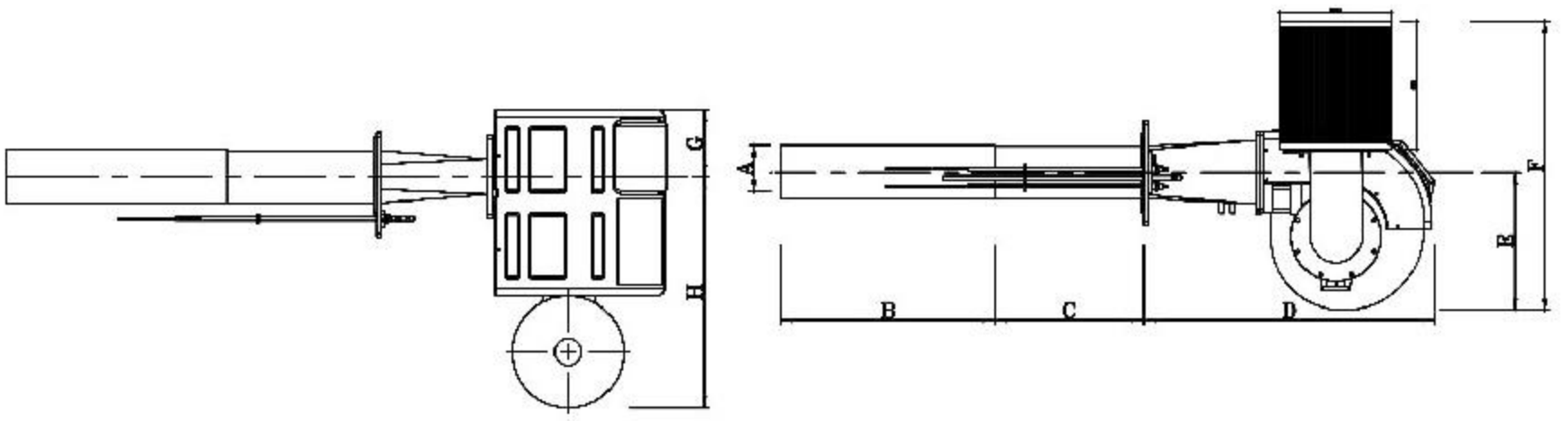
6.Maintenance Convenience: one-piece design, convenient for subsequent maintenance

Technical Parameters

Product Model	Output Power (KW)	Gas Flow Rate m3/h	Gas Pressure Kpa	Motor Power (W)	Power supply	Control Mode
GD700E-QEF-0.8	220-750	22-75	5-7	1120	1N AC 50HZ 220V	Electronic Ratio Tuning
GD1000E-QEF-1.0	300-1150	30-115	5-7	2600	3N AC 50HZ 380V	Electronic Ratio Tuning
GD1600E-QEF-1.6	450-1550	45-155	7-10	3000	3N AC 50HZ 380V	Electronic Ratio Tuning
GD2000E-QEF-2.1	700-2350	70-235	7-10	3000	3N AC 50HZ 380V	Electronic Ratio Tuning
GD3000E-QEF-2.8	950-3000	95-295	10-15	7500	3N AC 50HZ 380V	Electronic Ratio Tuning

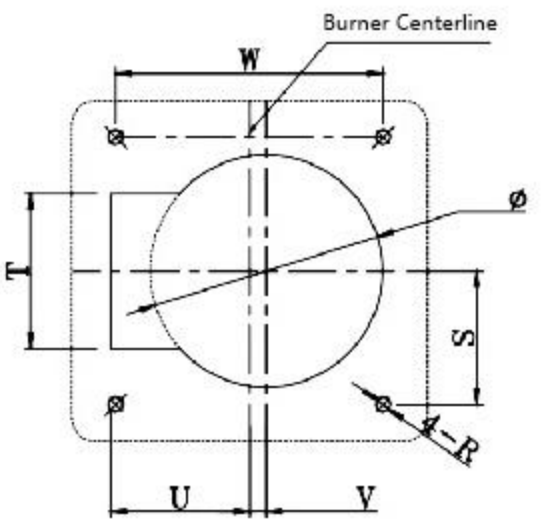
外形尺寸图

External Dimension: mm



Product Model	A	B	C	D	E	F	G	H
GD700E-QEF-0.8	144	720	400	800	370	770	180	620
GD1000E-QEF-1.0	144	950	400	800	370	770	180	620
GD1600E-QEF-1.6	200	1310	500	800	405	890	270	620
GD2000E-QEF-2.1	245	1210	500	980	450	765	300	885
GD3000E-QEF-2.8	295	1210	500	980	465	1205	357	885

Boiler Opening Dimensions: mm



Product Model	φ	T	W	V	U	S	R
GD700E-QEF-0.8	180	130	218	22.5	97.5	109	M12
GD1000E-QEF-1.0	180	130	218	22.5	97.5	109	M12
GD1600E-QEF-1.6	240	100	320	19	200	160	M14
GD2000E-QEF-2.1	290	140	320	15	172	160	M16
GD3000E-QEF-2.8	330	140	348	15	90	174	M16

FGR Integrated Burner Series

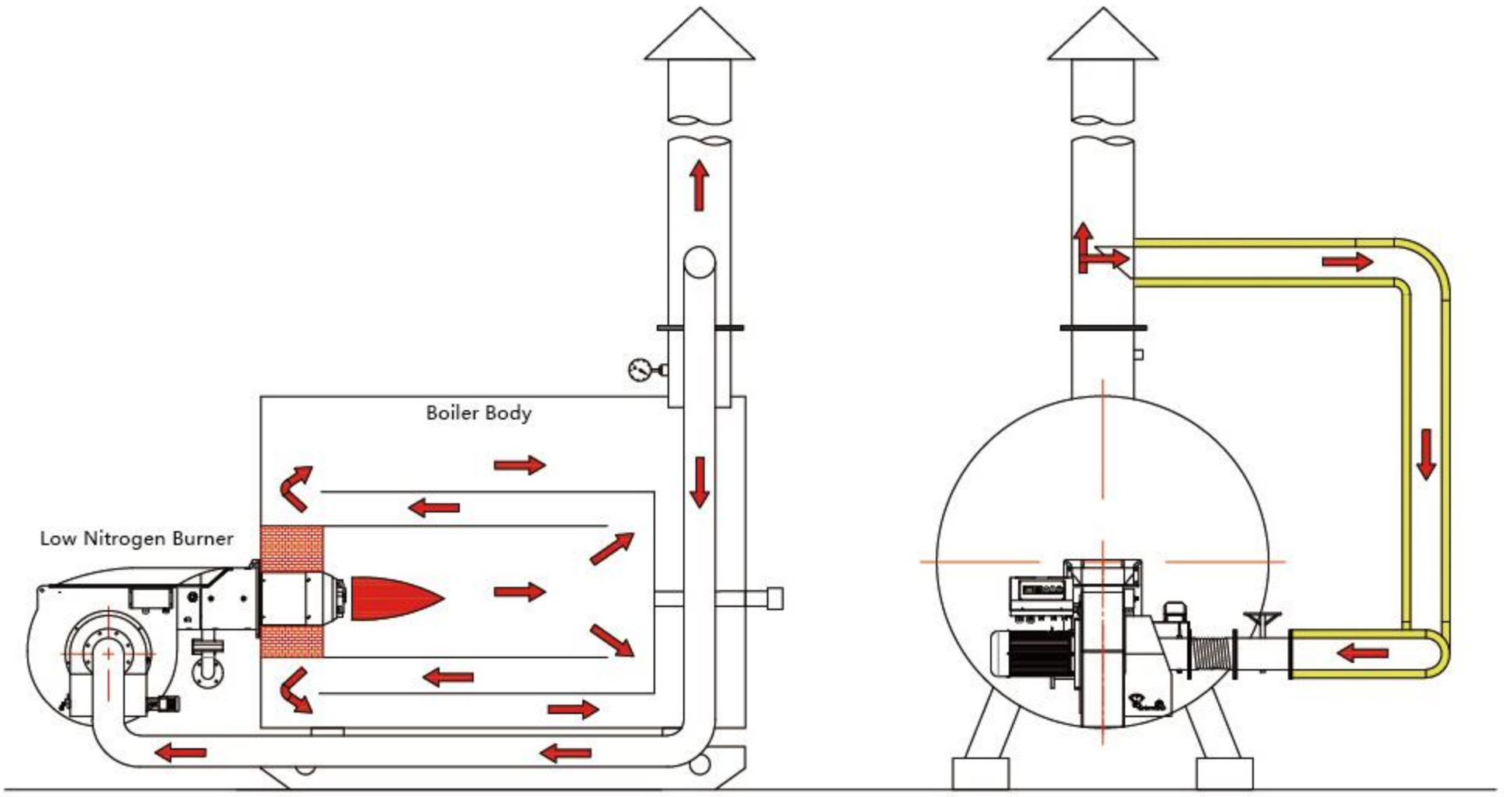
The Gaodi External Flue Gas Recirculation Burner operates by extracting a portion of the flue gas emitted from the boiler and mixing it with the combustion air before reintroducing it into the combustion chamber for reburning. Since the flue gas contains a low level of oxygen, this process reduces the oxygen concentration in the mixed combustion air. Coupled with stratified combustion technology, it further lowers the flame temperature during combustion, thereby effectively inhibiting the formation of NOx.

Power Rane 800-6520KW

Product Characteristics

1.Ultra-low nitrogen emission: low nitrogen emission （NOx<30mg/m³）。
2.High Combustion Efficiency: Achieves the optimal air-fuel ratio through an electronic proportioning system, resulting in more efficient combustion.
3.Energy-Efficient Combustion: Unique staged combustion design of the burner head allows for low nitrogen emissions with minimal flue gas.
4.Strong Compatibility: Virtually no requirements for boiler inner dimensions, suitable for most boilers.
5.Operational Safety: Equipped with a flame detection system for real-time monitoring, gas and air pressure protection, gas leakage protection, and operational fault display, ensuring a safer combustion process.
6.Ease of Maintenance: Modular design with freely selectable fans, strong back pressure resistance, easily detachable burner head, facilitating convenient post-maintenance.

Operation Schematic Diagram



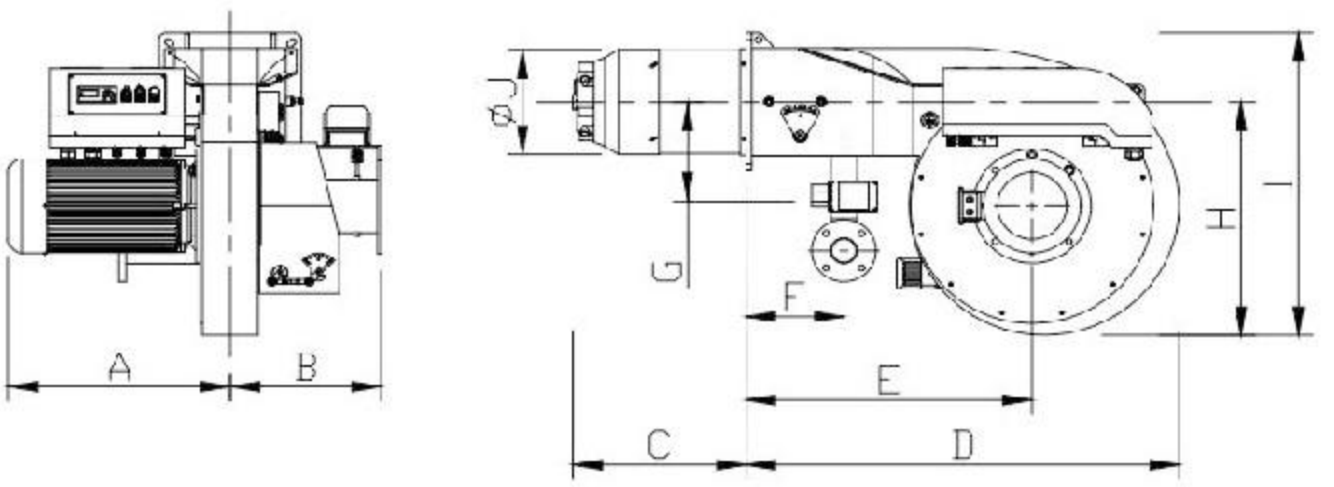
Technical Parameters

Ton	Product Model	Output Power (KW)	Gas Flow Rate m3/h	Gas Pressure Kpa	FGR Interface	Motor Power (KW)	Control Mode
1	GD01-QEF-1.3-FGR	200-910	20-91	7-10	DN125	3.0	电子比调
2	GD02-QEF-1.6-FGR	420-1730	42-173	7-10	DN150	5.5	电子比调
3	GD03-QEF-2.6-FGR	560-2690	56-270	7-10	DN150	11.0	电子比调
4	GD04-QEF-2.8-FGR	690-3200	69-310	7-10	DN150	11.0	电子比调
6	GD06-QEF-4.2-FGR	96-4880	96-450	10-15	DN200	18.5	电子比调
8	GD08-QEF-6.3-FGR	1530-6520	150-640	10-15	DN250	25.0	电子比调

FGR Integrated Burner Series

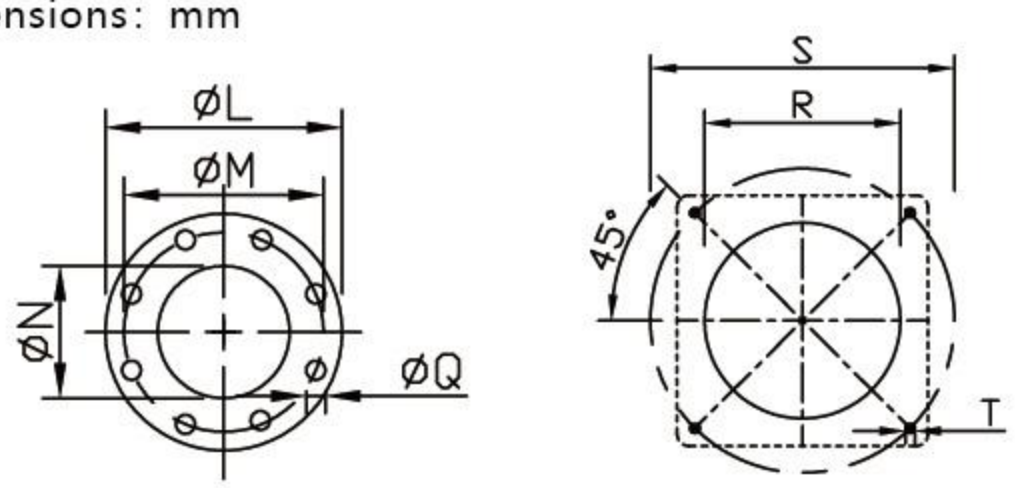
External Dimension

External Dimension: mm



Product Model	A	B	C	D	E	F	G	H	I	J
GD01-QEF-1.3-FGR	471	421	378	1139	730	246	673	673	828	220
GD02-QEF-1.6-FGR	471	421	378	1139	730	246	673	673	828	220
GD03-QEF-2.6-FGR	611	433	498	1245	822	281	695	695	900	311
GD04-QEF-2.8-FGR	611	433	498	1245	822	281	695	695	900	311
GD06-QEF-4.2-FGR	690	533	527	1428	931	316	790	790	1030	326
GD08-QEF-6.3-FGR	732	533	527	1428	961	336	795	795	1053	364

Boiler Opening Dimensions: mm



FGRImport(GD02-08) Boiler Opening Dimensions

Product Model	L	M	N	Q	R	S	T
GD01-QEF-1.3-FGR	250	210	DN125	18	230	375	M16
GD02-QEF-1.6-FGR	285	240	DN150	23	230	375	M16
GD03-QEF-2.6-FGR	285	240	DN150	23	330	509	M20
GD04-QEF-2.8-FGR	285	240	DN150	23	330	509	M20
GD06-QEF-4.2-FGR	340	295	DN200	23	350	590	M20
GD08-QEF-6.3-FGR	395	350	DN250	23	400	650	M20

FGR External Recirculation Burner Series

Power Rane 8000-16500KW

Product Characteristics

1.Ultra-low nitrogen emission: low nitrogen emission （NOx<30mg/m³）。

2.High Combustion Efficiency: Achieves the optimal air-fuel ratio through an electronic proportioning system, resulting in more efficient combustion.

3.Energy-Efficient Combustion: Unique staged combustion design of the burner head allows for low nitrogen emissions with minimal flue gas.

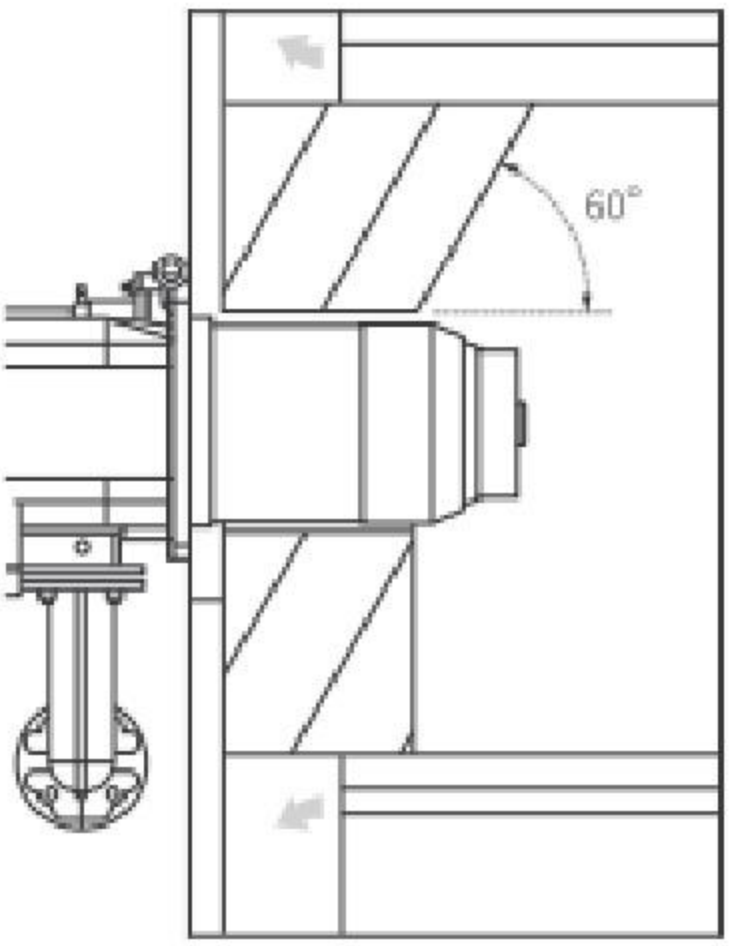
4.Strong Compatibility: Virtually no requirements for boiler inner dimensions, suitable for most boilers.

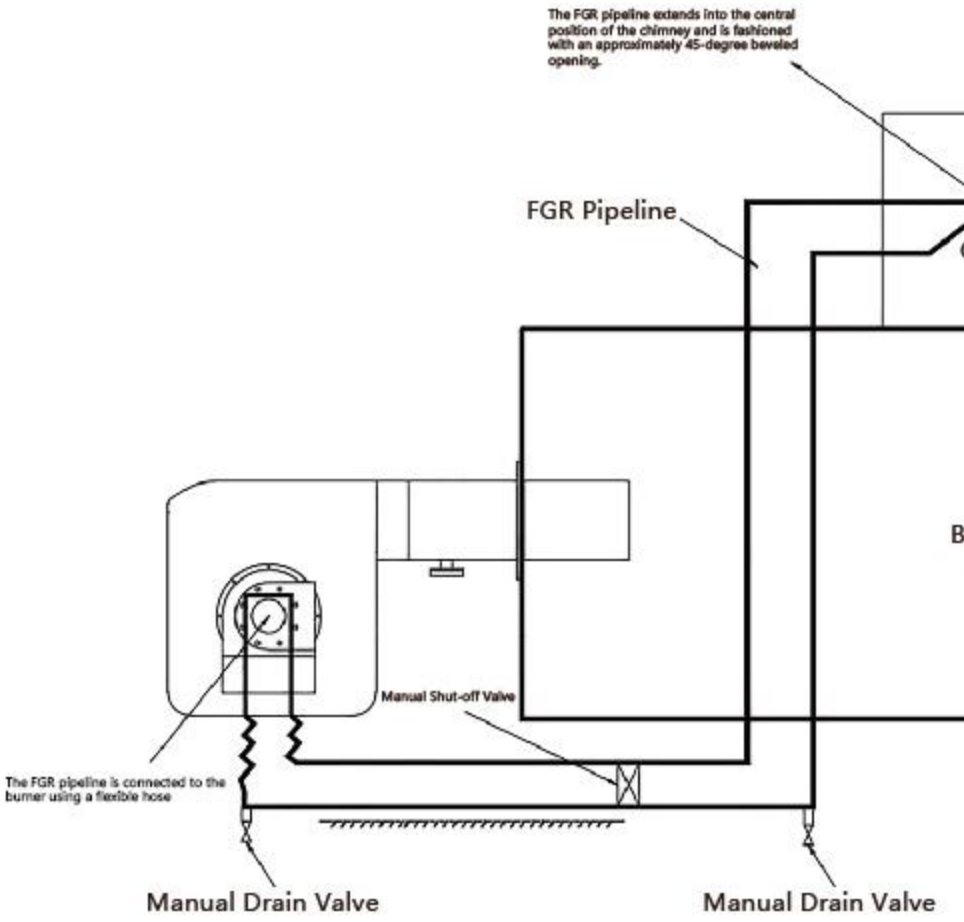
5.Operational Safety: Equipped with a flame detection system for real-time monitoring, gas and air pressure protection, gas leakage protection, and operational fault display, ensuring a safer combustion process.

6.Ease of Maintenance: Modular design with freely selectable fans, strong back pressure resistance, easily detachable burner head, facilitating convenient post-maintenance.

FGR Split-Type Burner Series

External Flue Gas Recirculation Installation Diagram



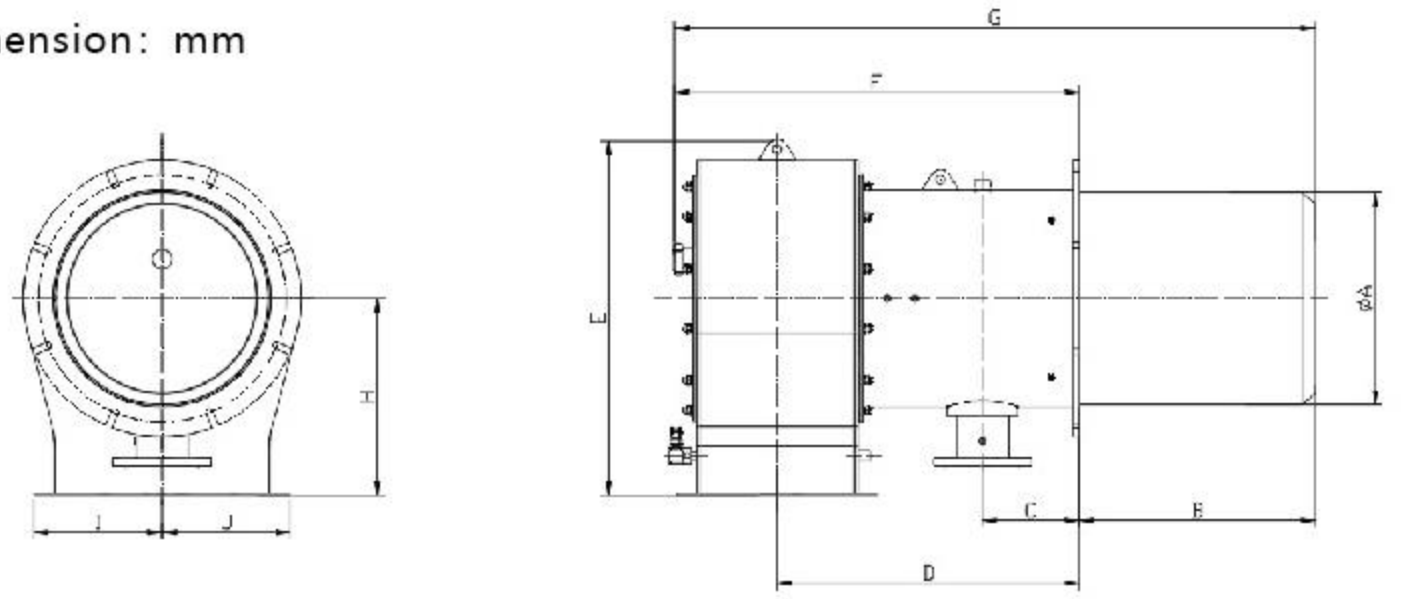


Technical Parameters

TON	Product Model	Power(kw)	Gas Flow Rate m3/h	FGR Interface	Motor Power (KW)
10.0T	GD10-QEF-7.0-FGR	1900-7900	190-790	DN300	37
15.0T	GD15-QEF-10.5-FGR	3200-12000	320-1200	DN300	55
20.0T	GD20-QEF-14.0-FGR	4400-16500	440-1650	DN300	75

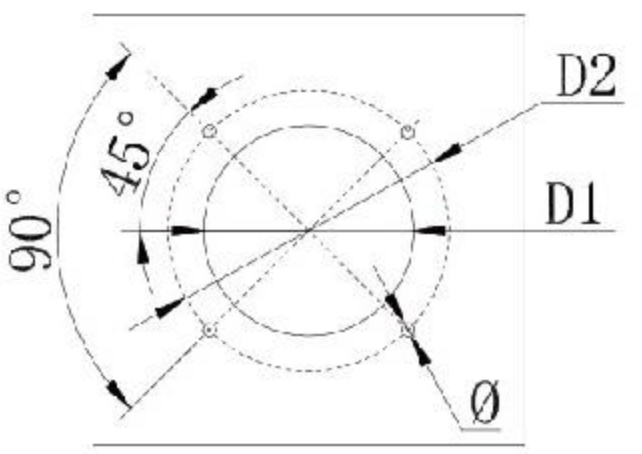
External Dimension

External Dimension: mm



Product Model	A	B	C	D	E	F	G	H	I
GD10-QEF-7.0-FGR	540	597	245	765	852	1039	1636	500	325
GD15-QEF-10.5-FGR	616	597	245	770	1040	1044	1650	570	395
GD20-QEF-14.0-FGR	616	597	245	770	1250	1044	1801	798	395

Boiler Opening Dimensions: mm



Product Model	a	a1	a2	b	b1	b2	t	t1	u	v	w
GD10-QEF-7.0-FGR	510	554	650	610	412	470	131	152	600	650	M16
GD15-QEF-10.5-FGR	520	564	660	610	422	480	131	152	670	730	M16
GD20-QEF-14.0-FGR	520	564	660	610	422	480	131	152	670	730	M16

Hot Water Boiler Case Studies










HLGK
HLGK
HLGK


斯大锅炉

Steam Boiler Case Studies




中瑞锅炉
ZHONGRUI BOILER
注意高温
小心烫伤

Low-NOx Retrofit Case Studies











Custom Engineering Solutions

CORE COMPONENTS

The components utilized in burners are critical parts that ensure proper operation and safety. Our company exclusively selects internationally renowned, top-tier brands for burner components. These high-quality parts deliver stable and reliable performance with exceptional safety, ensuring perfect compatibility with the burners. This guarantees safe, stable, and highly efficient burner operation.

Intelligent digital controller

Fan

Combustion nozzle

Controller

Infrared electric eye

Gas solenoid valve

operation panel

Intelligent digital controller

Gas solenoid valve

Gas solenoid valve

Transformer

Intelligent digital controller

Combustion nozzlel

Pressure switch

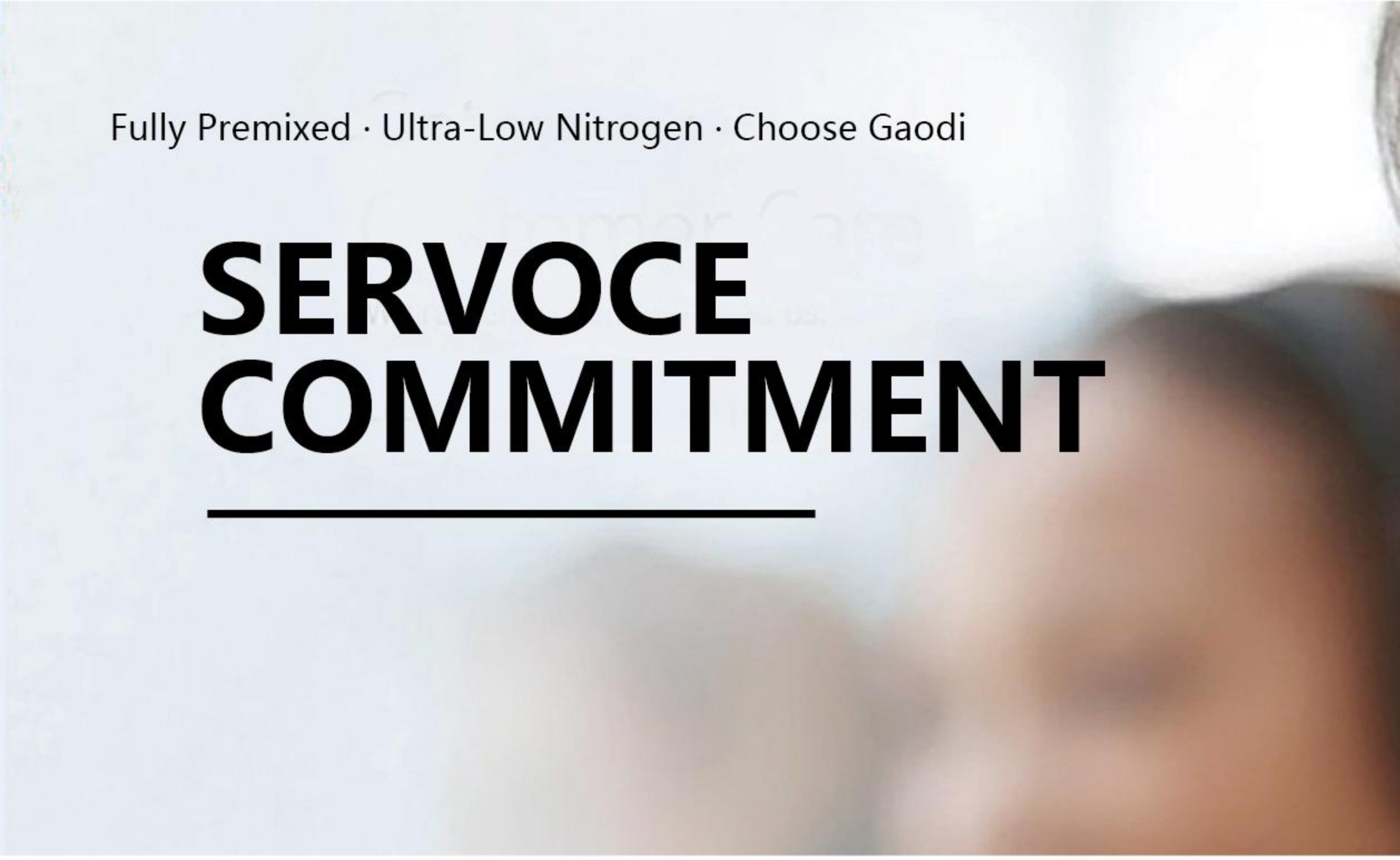
Transformer

operation panel

PARTNERSHIPS

Fully Premixed · Ultra-Low Nitrogen · Choose Gaodi

SERVOCE COMMITMENT



Shanghai Weijin Thermal Energy Equipment Co., Ltd.Since its establishment, our company has positioned product quality as the core competitiveness in the market. With all employees maintaining a strong awareness of both product quality and customer service, Weijin is committed to achieving greater success and reaching new heights in the burner industry.

Gaudi Burner guarantees that all equipment provided to users is brand new, unused, complies with the relevant terms of the contract, and meets the GB/T36699-2018 standard.

In accordance with product quality requirements, Gaudi has established a rigorous quality inspection system. The company implements strict management and control over all processes related to product quality, formulates scientific inspection procedures, and quantifies inspection criteria with clear accountability assigned to individuals. This ensures the company consistently produces qualified, high-quality products.

The company strictly controls raw materials to eliminate products without proper certification, selecting components from renowned domestic and international manufacturers. We have established stringent product process standards and maintain strong supply-demand relationships with our component suppliers.

Gaudi has implemented a regular employee quality training program to educate staff on the latest knowledge and information in quality management. This fosters a quality-conscious mindset among every employee, ensuring meticulous attention to detail in every aspect—from a single screw or wire to an entire machine. The quality inspection department follows standardized testing procedures, equipped with advanced detection tools and methods, to maintain comprehensive product testing records and prevent any substandard products from leaving the factory.

Every Gaudi burner model undergoes specialized equipment inspection and obtains certification from the China Special Equipment Inspection and Research Institute (CSEI), guaranteeing that each product delivered to customers is of excellent quality. Both now and in the future, we will continue striving to provide users with premium products and satisfactory service.

Fully Premixed · Ultra-Low Nitrogen · Choose Gaodi

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