



DYD

岱鼎燃烧

产品手册

Product Manual

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让燃烧完美而简约
Make The Combustion Perfect And Simple



ENTERPRISE INTRODUCTION

企业介绍

DYDTEC Group is specialized in combustion industry. Our products and services include industrial burner, combustion system, flame treatment system, air heater, heat exchanger, project renovation for combustion safety, energy saving and low nitrogen, maintenance of combustion system. We see us as a solution provider in the combustion industry and can satisfy the needs from customers.

Over 10 years expanding, DYDTEC has supplied thousand of combustion systems and air heaters. We have rich application experiences in various industries including automotive, environment protection, industrial drying, light industry and heavy industry.

Our product applies the European standard EN746 and American standard NFPA86.

DYDTEC entered overseas market in 2016, we have successfully exported our products to the areas including US, EU, Africa, Asia and Pacific.

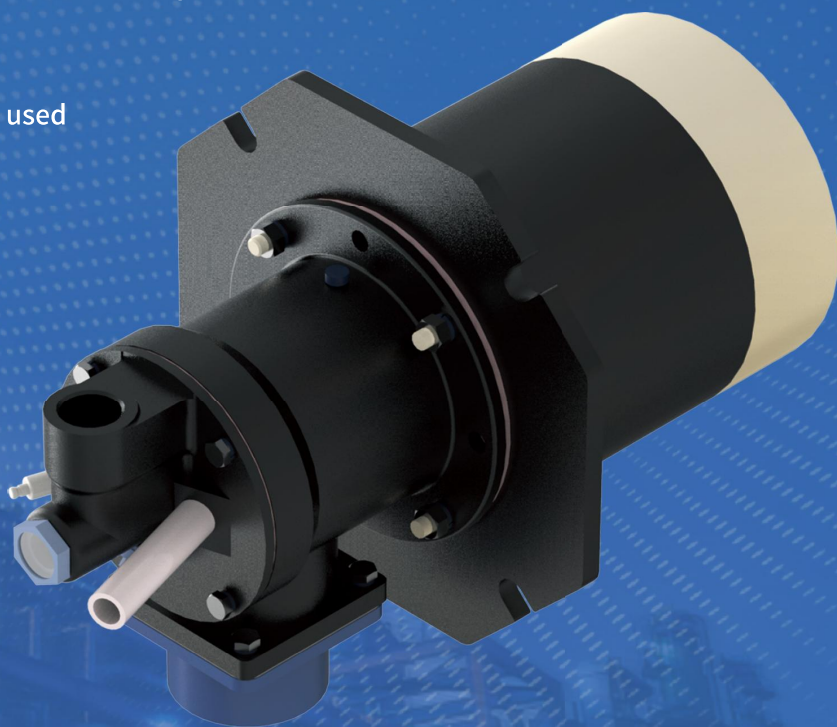
With our motto of faith, DYDTEC is dedicated to be excellent, honest, diligent, responsible. We have become the industrial combustion market leader in China and we are ambitious to become an outstanding brand worldwide in the field of industrial combustion in the next decade.



TECFG BURNER

TECFG Gas Burner is a high-precision temperature control burner designed by DYDTEC for medium and high temperature industrial applications. Tecflame is a nozzle mixing burner with the characteristics of high flame velocity, ultra wide power regulation range, sufficient and stable combustion and high heat transfer efficiency. It is widely used, such as ceramic shuttle kiln, glass tempering furnace, tempering furnace, quenching furnace, annealing furnace, RTO, thermal oxidation furnace, drying furnace, preheating furnace, etc.

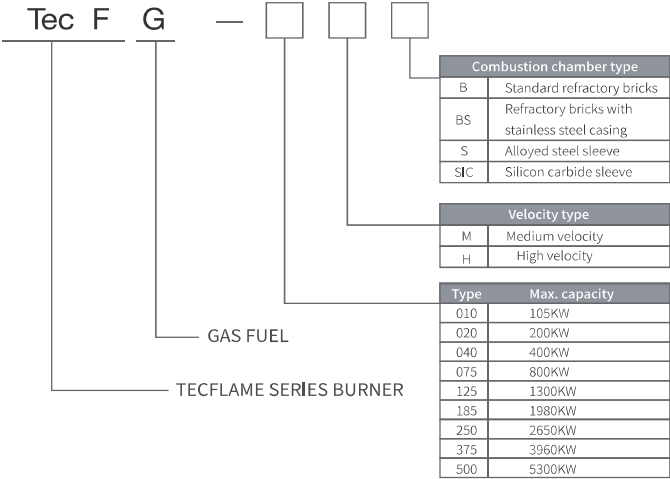
- Capacity range: 105kw-5300kw
- Regulation ratio 50:1
- Applicable maximum combustion chamber temperature 1540 °C
- Maximum flame velocity 150m/s
- Preheating combustion air can be used
- Low CO and NOx emissions
- Direct ignition with spark plug
- Applicable to natural gas and LPG



TECFG



Model Definition



Parameters

Model	Max.capacity KW	Min.capacity KW	Required gas pressure (Max. capacity) Pa		Required combustion air pressure (Max. capacity) Pa	Flame length mm		Maximum flow rate of flue gas m/s	Maximum tem- perature of combustion air °C	
			NG	Propane		NG	Propane			
TECFG-010M	105	2	400	400	1300	460	490	75	300	
TECFG-010H			1900	2200	2800	360	435	150		
TECFG-020M	200	4	400	980	1020	780	970	75		
TECFG-020H			2050	3000	3240	750	765	150		
TECFG-040M	400	8	700	580	1200	1150	1150	75		
TECFG-040H			2550	2880	3480	970	1100	150		
TECFG-075M	800	16	500	600	680	1630	1700	75		
TECFG-075H			2100	2150	2520	1350	1400	150		
TECFG-125M	1300	26	550	520	1560	2680	2680	75	150	
TECFG-125H			2450	2520	3960	1900	2300	150		
TECFG-185M	1980	40	600	600	1400	3200	3200	75		
TECFG-185H			2300	2300	2900	2550	2950	150		
TECFG-250M	2650	50	600	600	1200	3800	3800	75		
TECFG-250H			2740	2740	3360	3200	3550	150		
TECFG-375M	3960	80	600	600	1100	3670	4750	75		
TECFG-375H			2500	2500	3900	2200	2800	150		
TECFG-500M	5300	105	600	600	1850	4300	5500	75		
TECFG-500H			1950	1950	4200	2200	2800	150		
.....	For more model parameters, please consult DYDTEC.									
	Data measurement conditions:standard combustion chamber,natural gas & combustion supporting air temperature 20°C,15% excess air volume,combustion chamber back pressure 0Pa.。									

Description

Velocity selection:

Medium velocity: the flame length is long and the air pressure difference of combustion air is low.

High velocity: the flame length is short and the pressure difference of combustion air is high, which can form a temperature field with smaller temperature difference and higher temperature uniformity in the furnace.

It is suggested that the medium velocity burner should be preferred under the condition of meeting the requirements of flame size and without high temperature control accuracy.

Combustion chamber type:

Refractory brick: combustion chamber temperature ≤ 1540 °C

Refractory brick with steel sleeve: combustion chamber temperature ≤ 1540 °C, fiber light furnace wall (the temperature of any contact point between metal steel sleeve and furnace wall must be lower than 750 °C)

Silicon carbide sleeve: combustion chamber temperature ≤ 1200 °C

Alloyed steel sleeve: combustion chamber temperature ≤ 950 °C and combustion air temperature ≤ 300 °C

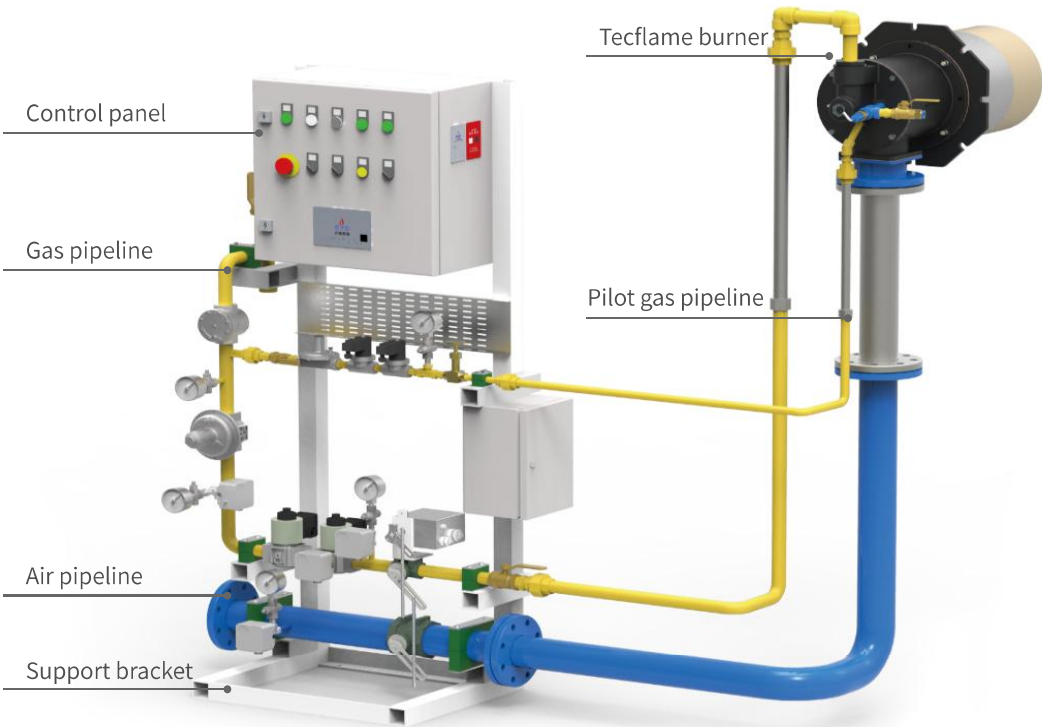
Flame monitoring type :

UV is suitable for all burners.

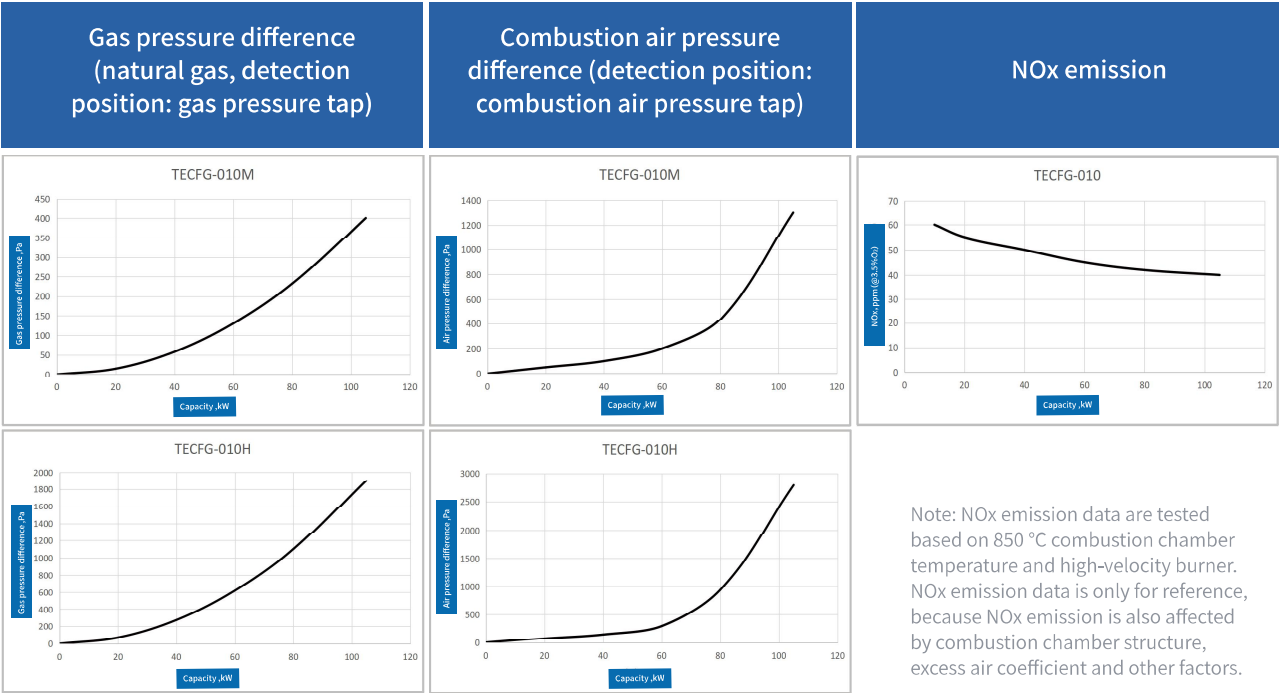
Flame rod can be used for tecfg-40.20.10 models (and the combustion air is lower than 150 °C)

Application

The Tecflame burner is widely used for different high temperature processes.
The typical configuration of a single burner is shown below:

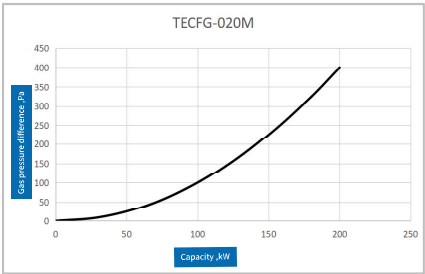


TECFG-010 Data Curve

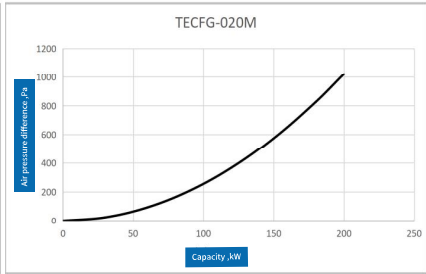


TECFG-020 Data Curve

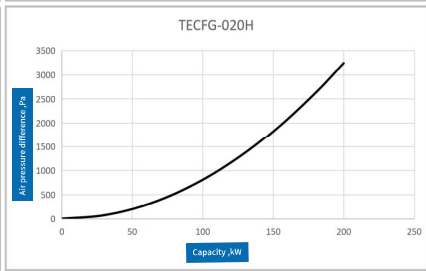
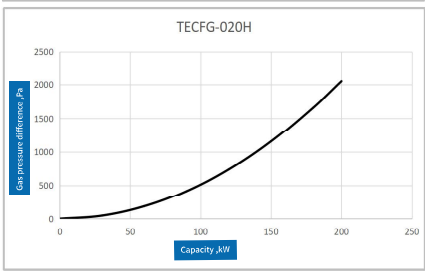
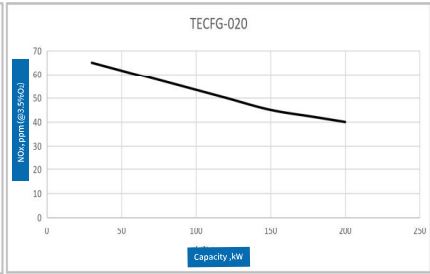
Gas pressure difference
(natural gas, detection
position: gas pressure tap)



Combustion air pressure
difference (detection position:
combustion air pressure tap)



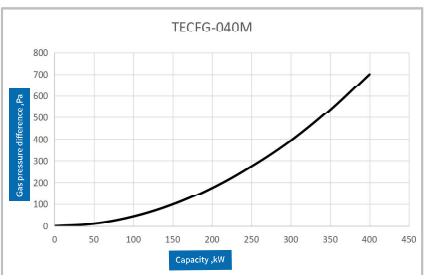
NOx emission



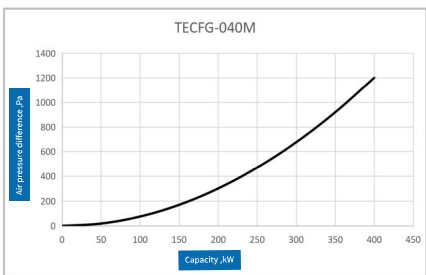
Note: NOx emission data are tested based on 850 °C combustion chamber temperature and high-velocity burner. NOx emission data is only for reference, because NOx emission is also affected by combustion chamber structure, excess air coefficient and other factors.

TECFG-040 Data Curve

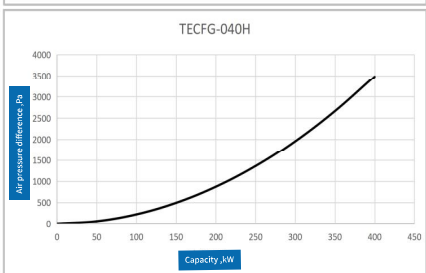
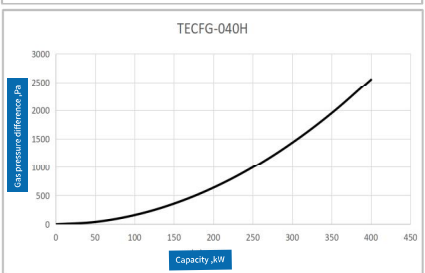
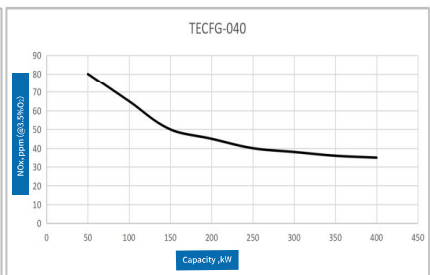
Gas pressure difference
(natural gas, detection
position: gas pressure tap)



Combustion air pressure
difference (detection position:
combustion air pressure tap)

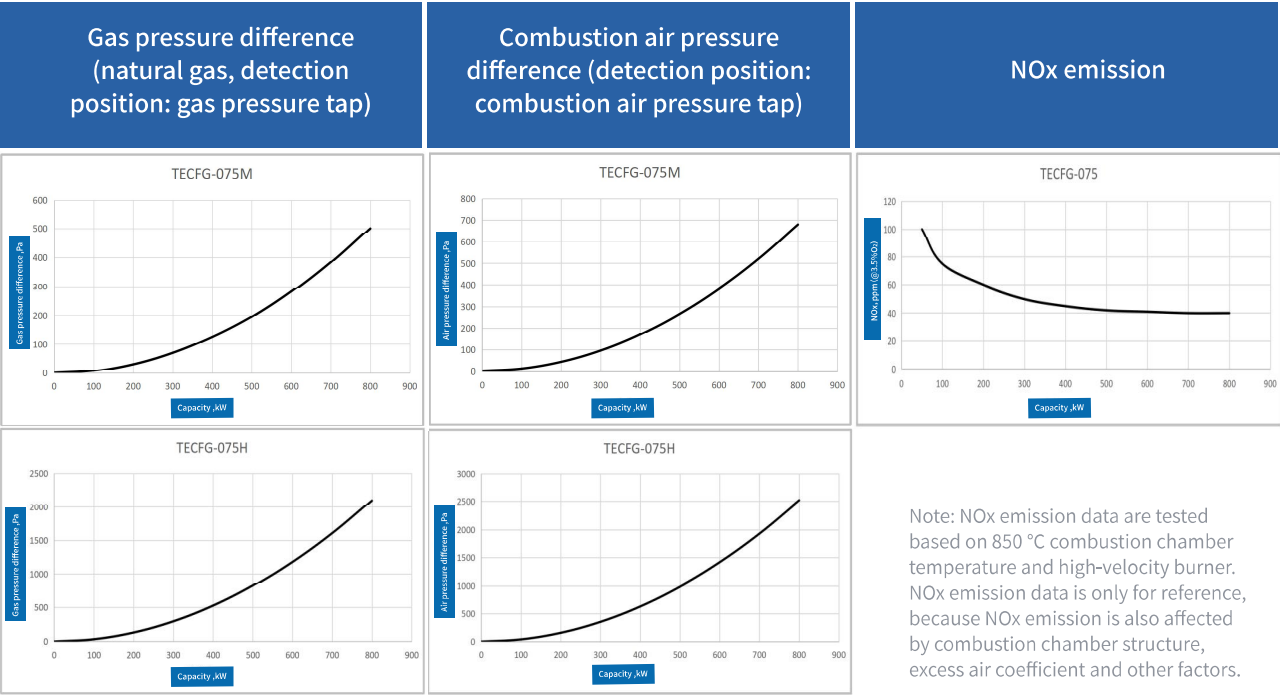


NOx emission

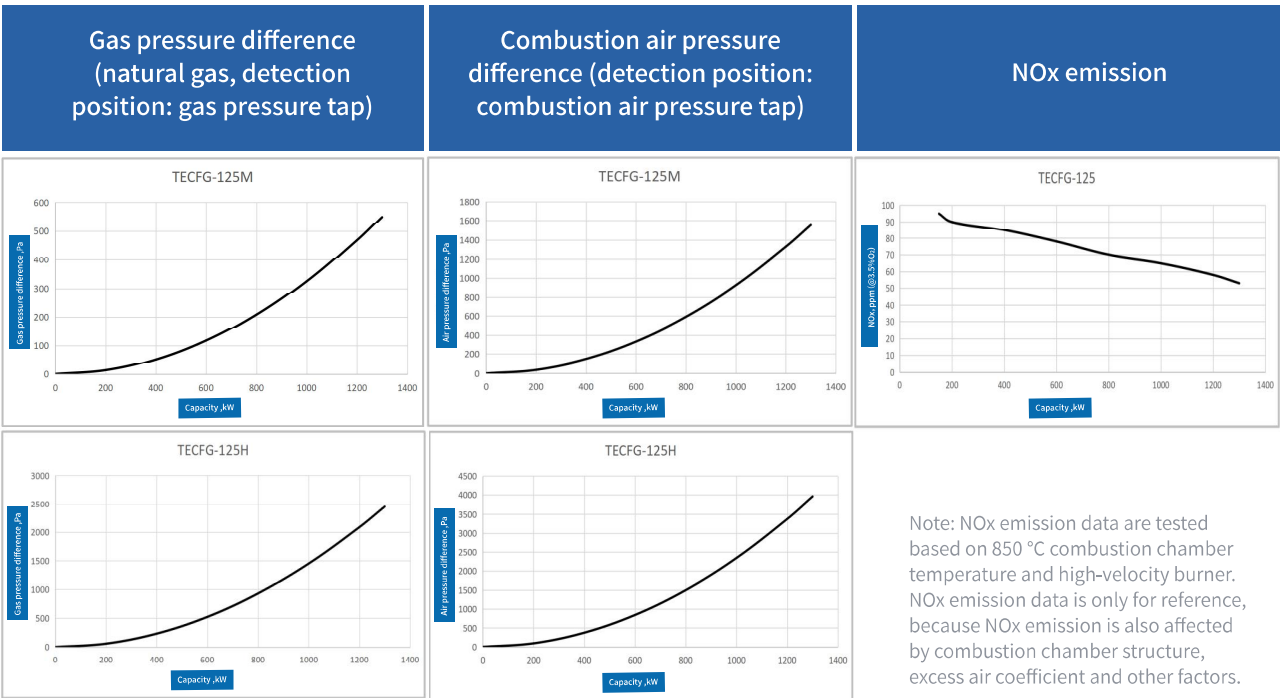


Note: NOx emission data are tested based on 850 °C combustion chamber temperature and high-velocity burner. NOx emission data is only for reference, because NOx emission is also affected by combustion chamber structure, excess air coefficient and other factors.

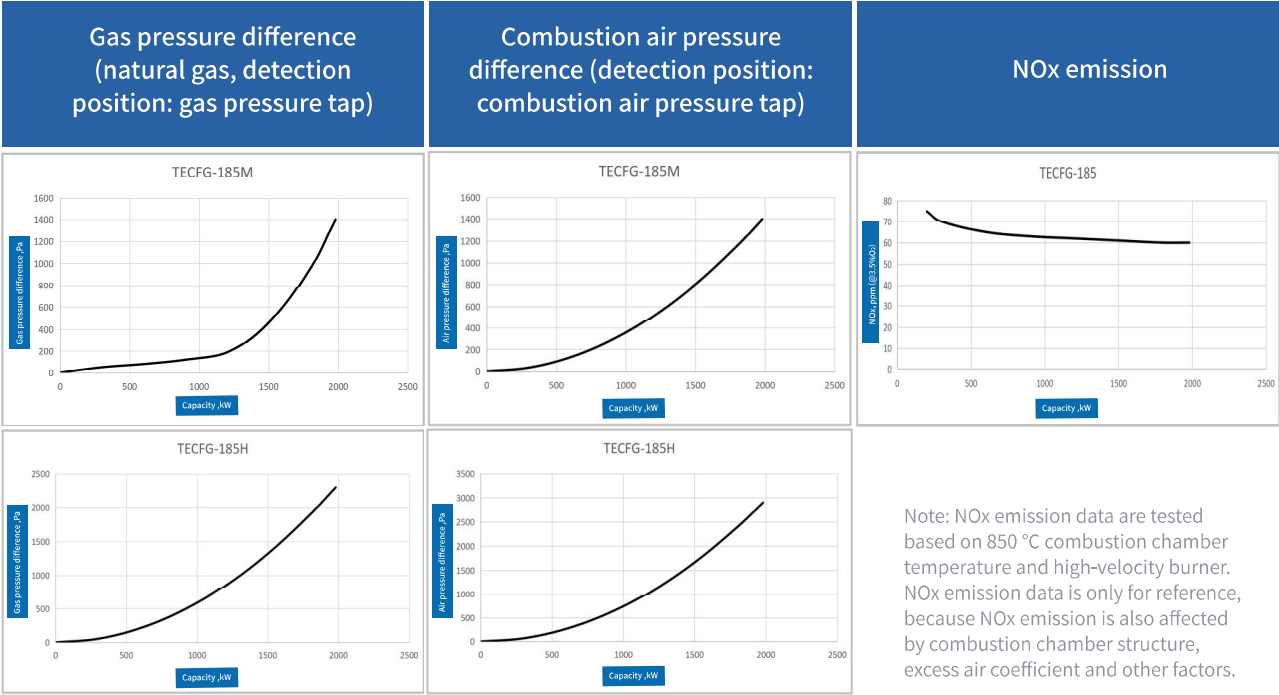
TECFG-075 Data Curve



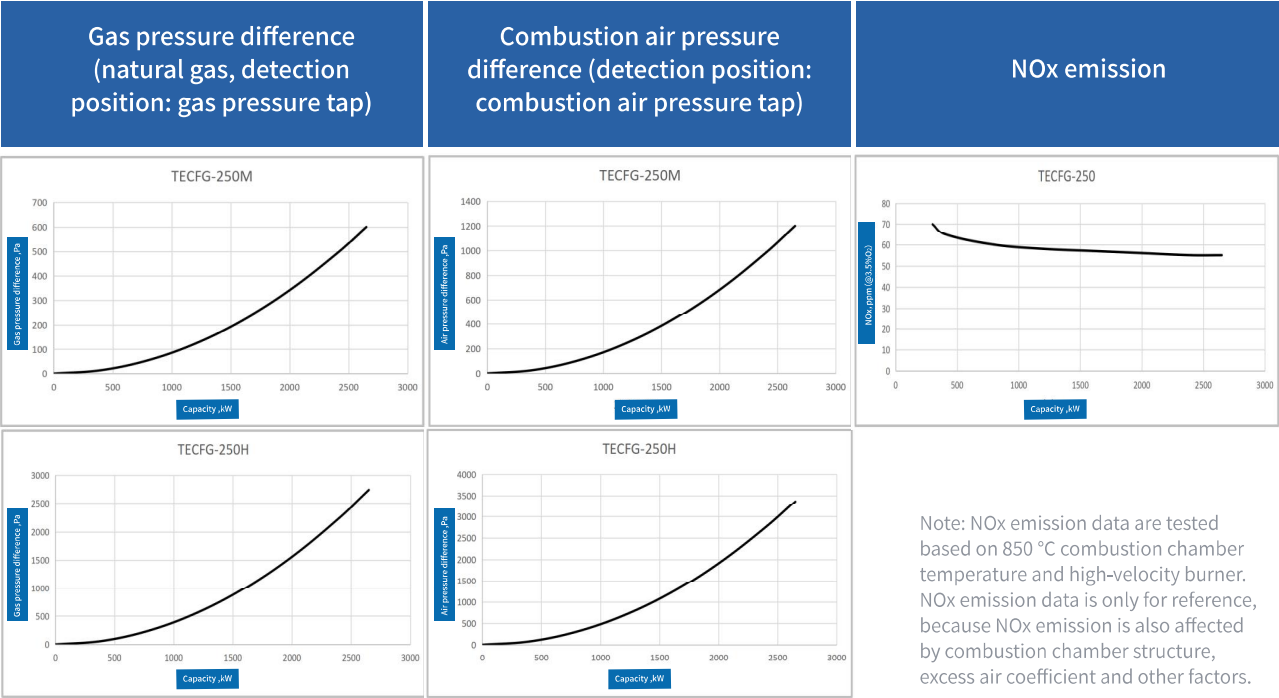
TECFG-125 Data Curve



TECFG-185 Data Curve

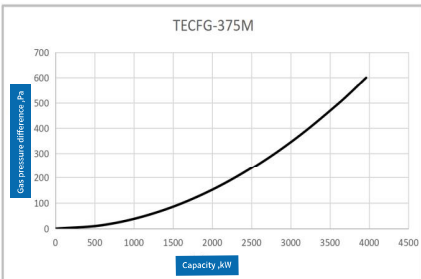


TECFG-250 Data Curve

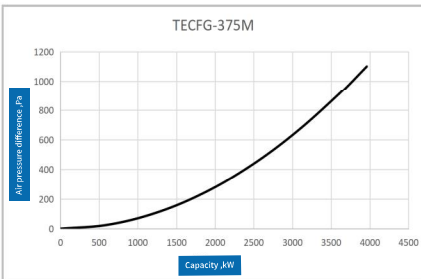


TECFG-375 Data Curve

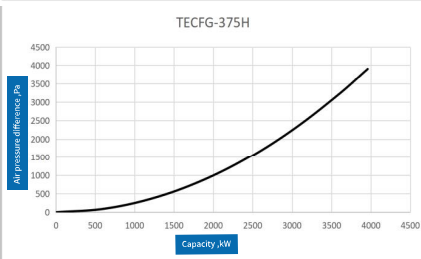
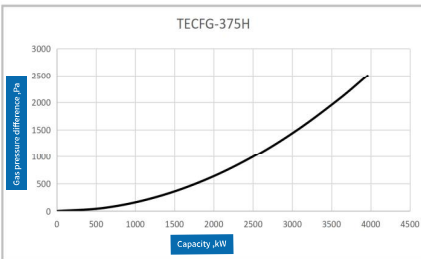
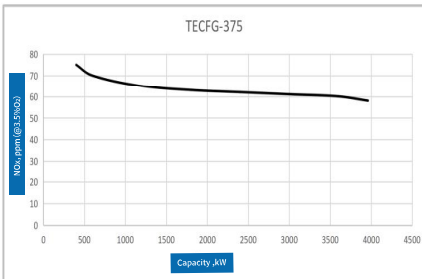
Gas pressure difference
(natural gas, detection
position: gas pressure tap)



Combustion air pressure
difference (detection position:
combustion air pressure tap)



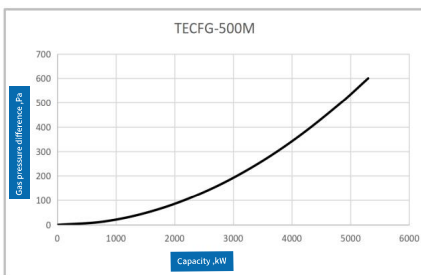
NOx emission



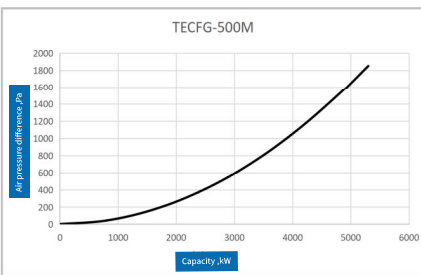
Note: NOx emission data are tested based on 850 °C combustion chamber temperature and high-velocity burner. NOx emission data is only for reference, because NOx emission is also affected by combustion chamber structure, excess air coefficient and other factors.

TECFG-500 Data Curve

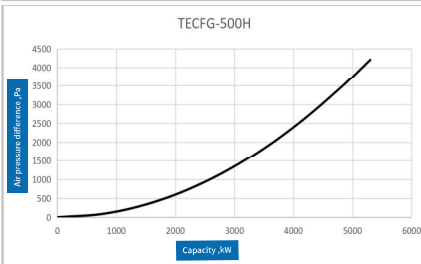
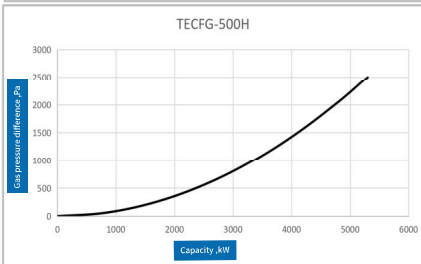
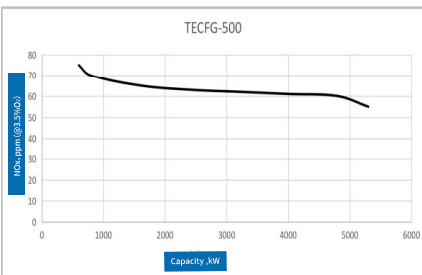
Gas pressure difference
(natural gas, detection
position: gas pressure tap)



Combustion air pressure
difference (detection position:
combustion air pressure tap)



NOx emission

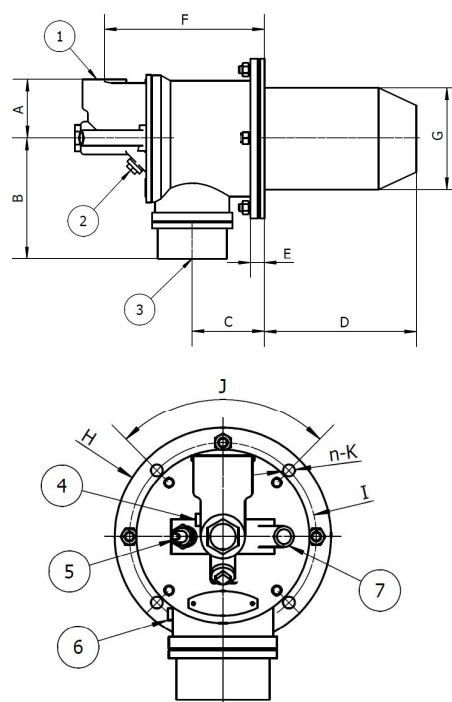


Note: NOx emission data are tested based on 850 °C combustion chamber temperature and high-velocity burner. NOx emission data is only for reference, because NOx emission is also affected by combustion chamber structure, excess air coefficient and other factors.

Dimension

TECFG-010MS/HS (Weight:12kg)

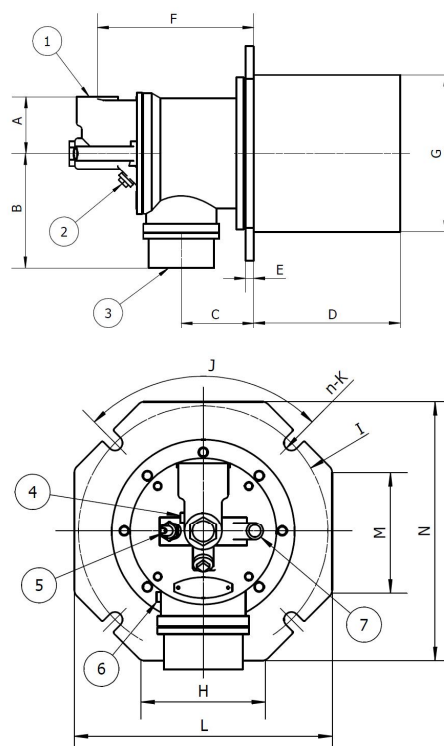
- 1) Gas inlet Rp3/4"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet Rp2"
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"



Unit, mm										
A	B	C	D	E	F	G	H	I	J	n-K
55	121	93	181	17	178	Φ89	Φ162	Φ136	90°	4-Φ12

TECFG-010MBS/HBS (Weight:22kg)

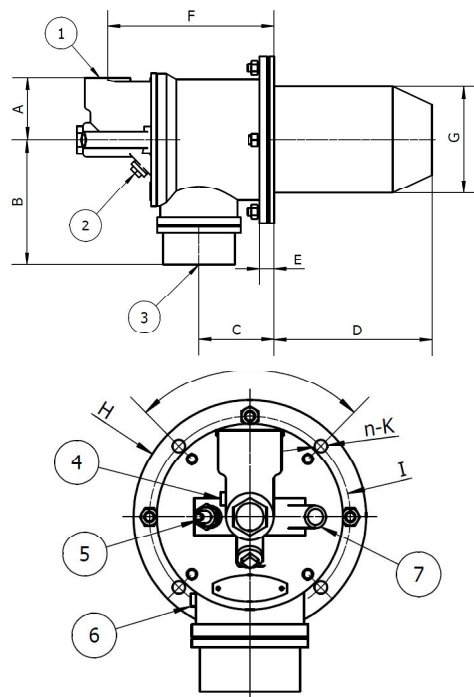
- 1) Gas inlet Rp3/4"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet Rp2"
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"



Unit, mm													
A	B	C	D	E	F	G	H	L	I	J	n-K	M	N
55	121	99	200	12	184	Φ165	117	238	Φ236	90°	4-Φ14	117	238

TECFG-020MS/HS(Weight:16kg)

- 1) Gas inlet Rp1"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet Rp2.5"
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"

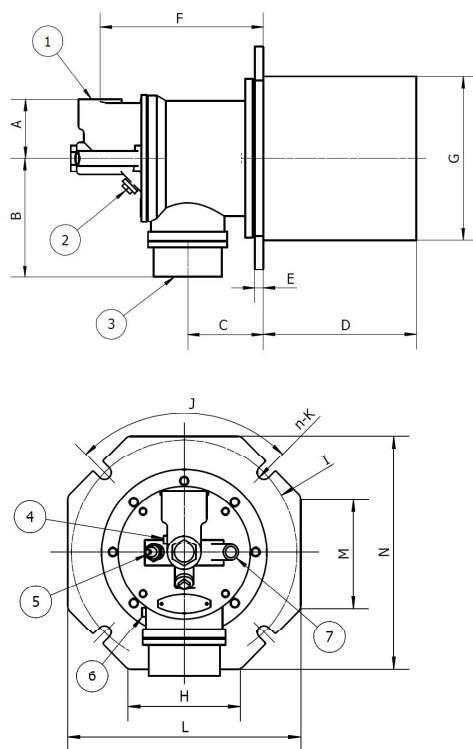


Unit, mm

A	B	C	D	E	F	G	H	I	J	n-K
70	152	96	223	17	200	Φ114	Φ190	Φ165	90°	4-Φ12

TECFG-020MBS/HBS(Weight:32kg)

- 1) Gas inlet Rp1"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet Rp2.5"
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"

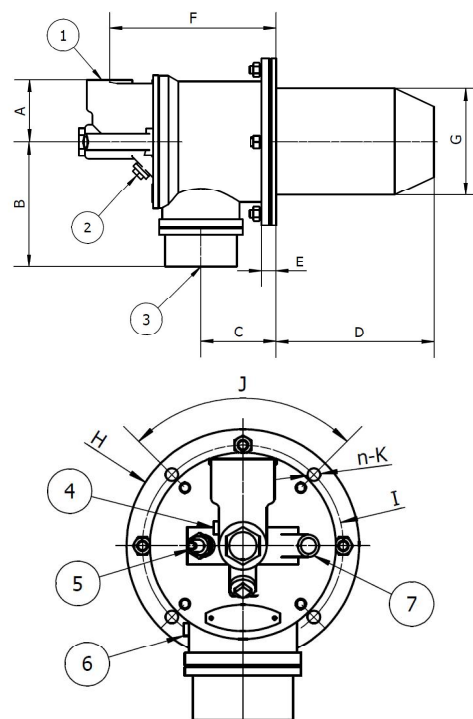


Unit, mm

A	B	C	D	E	F	G	H	L	I	J	n-K	M	N
70	152	102	223	12	206	Φ200	133	290	Φ270	90°	4-Φ18	129	290

TECFG-040MS/HS(Weight:21kg)

- 1) Gas inlet Rp1.5"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet Rp3"
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"

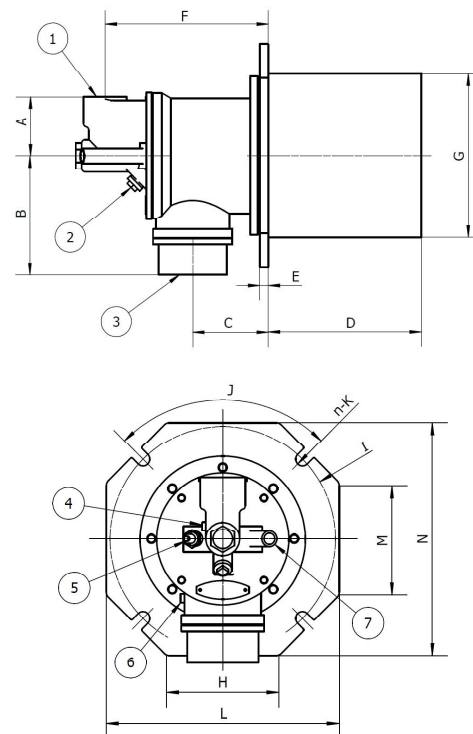


Unit, mm

A	B	C	D	E	F	G	H	I	J	n-K
82	166	99	220	19	220	Φ141	Φ220	Φ190	90°	4-Φ12

TECFG-040MBS/HBS(Weight:40kg)

- 1) Gas inlet Rp1.5"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet Rp3"
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"

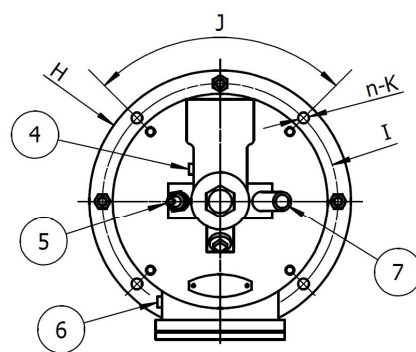
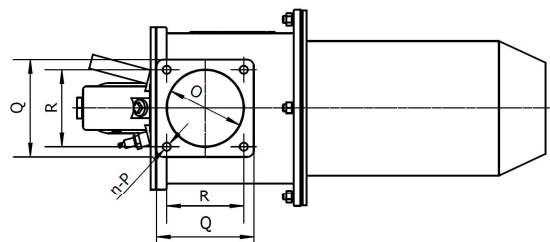
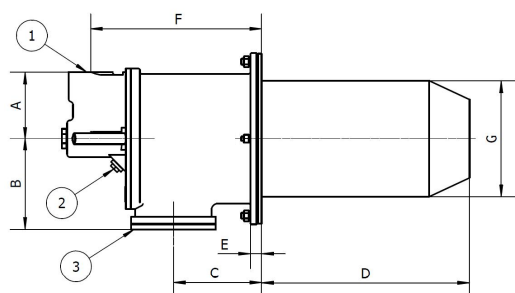


Unit, mm

A	B	C	D	E	F	G	H	L	I	J	n-K	M	N
82	166	105	212	12	227	Φ227	149	310	Φ310	90°	4-Φ18	149	310

TECFG-075MS/HS(Weight:45kg)

- 1) Gas inlet Rp2"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet (supplied with companion flange)
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"

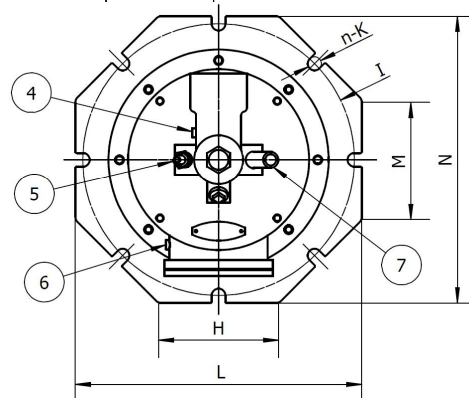
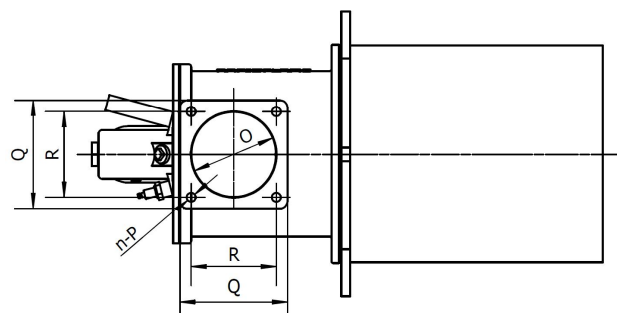
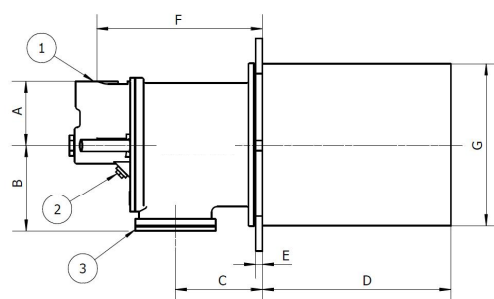


Unit, mm

A	B	C	D	E	F	G	H	I	J	n-K	O	n-P	R	Q
114	155	150	354	19	291	Φ199	Φ292	Φ263	90°	4-Φ12	Φ115	4-Φ12	114	144

TECFG-075MBS/HBS(Weight:80kg)

- 1) Gas inlet Rp2"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet (supplied with companion flange)
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"

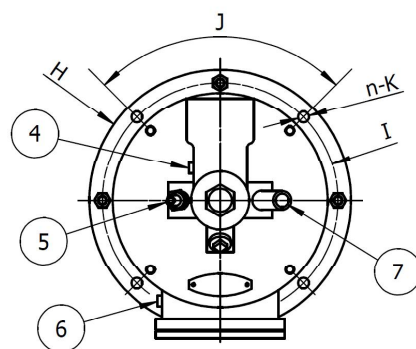
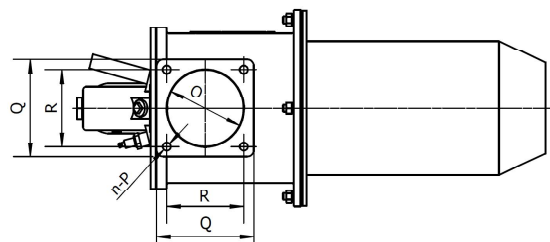
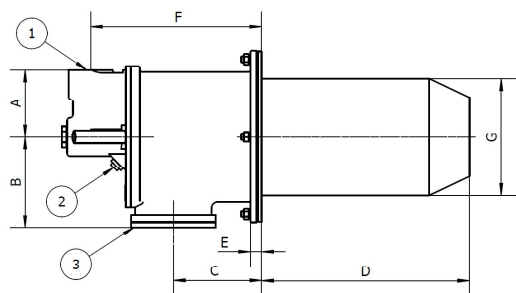


Unit, mm

A	B	C	D	E	F	G	H	L	I	n-K	M	N	O	n-P	R	Q
114	155	156	338	12	297	Φ290	159	380	Φ360	8-Φ18	159	380	Φ115	4-Φ12	114	144

TECFG-125MS/HS(Weight:63kg)

- 1) Gas inlet Rp2"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet (supplied with companion flange)
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"

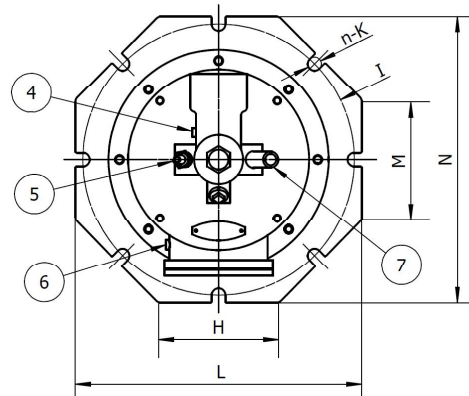
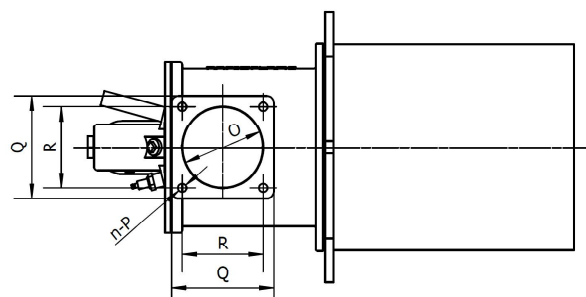
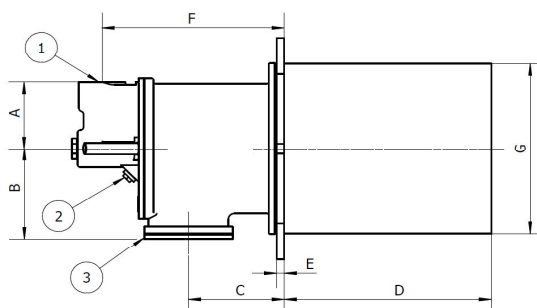


Unit, mm

A	B	C	D	E	F	G	H	I	J	n-K	O	n-P	R	Q
114	174	172	395	24	353	Φ254	Φ340	Φ300	90°	4-Φ12	Φ169	4-Φ12	190	216

TECFG-125MBS/HBS(Weight:116kg)

- 1) Gas inlet Rp2"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet (supplied with companion flange)
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) Combustion air pressure tap Rp1/8"
- 7) UV mounting hole R1/2"



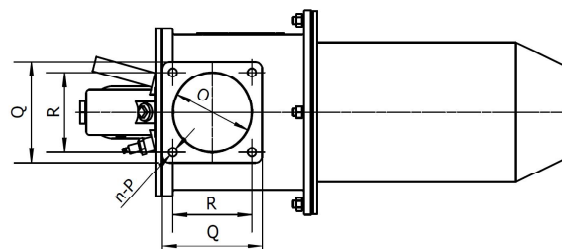
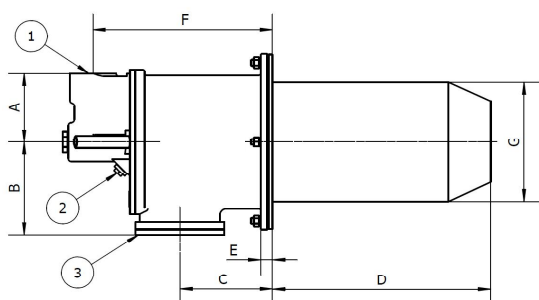
Unit, mm

A	B	C	D	E	F	G	H	L	I	n-K	M	N	O	n-P	R	Q
114	174	178	390	12	359	Φ350	189	470	Φ442	8-Φ18	189	470	Φ169	4-Φ12	190	216

TECFG-185MS/HS(Weight:98kg)

TECFG-250MS/HS(Weight:100kg)

- 1) Gas inlet Rp3"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet (supplied with companion flange)
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) UV mounting hole R1/2"
- 7) Combustion air pressure tap Rp1/8"



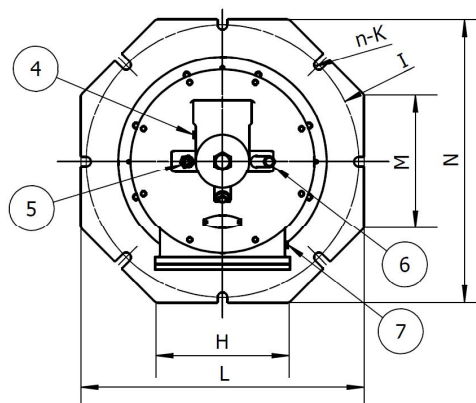
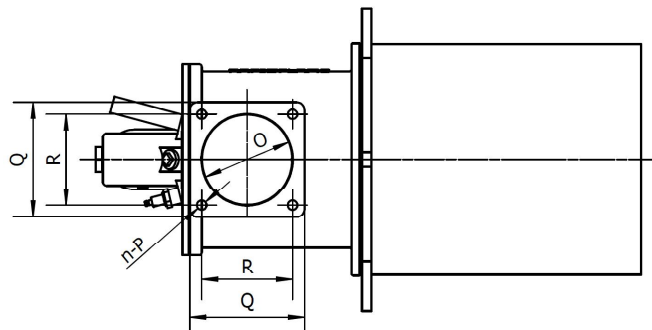
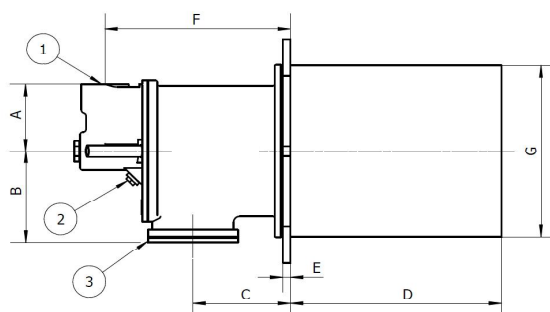
Unit, mm

A	B	C	D	E	F	G	H	I	J	n-K	O	n-P	R	Q
115	204	229	494	25	456	Φ304	Φ390	Φ350	45°	8-φ12	φ202	4-φ12	220	252

TECFG-185MBS/HBS(Weight:182kg)

TECFG-250MBS/HBS(Weight:185kg)

- 1) Gas inlet Rp3"
- 2) Pilot gas inlet Rp3/8"
- 3) Combustion air inlet (supplied with companion flange)
- 4) Gas pressure tap Rp1/8"
- 5) Spark plug
- 6) UV mounting hole R1/2"
- 7) Combustion air pressure tap Rp1/8"



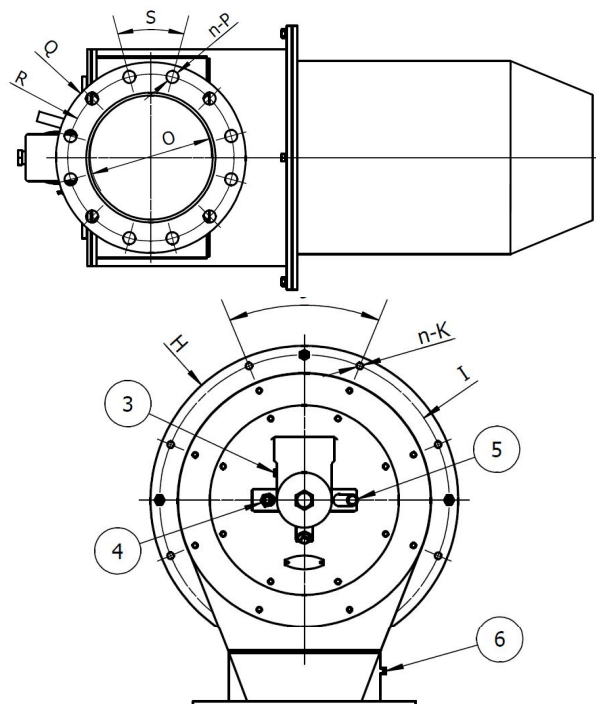
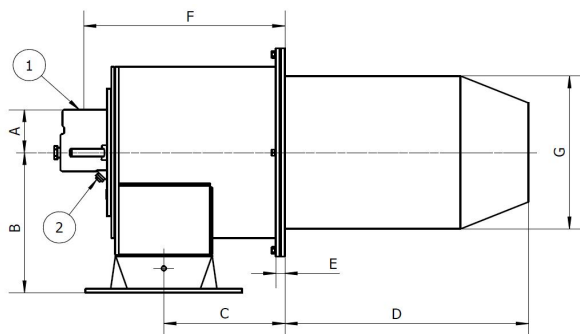
Unit, mm

A	B	C	D	E	F	G	H	L	I	n-K	M	N	O	n-P	R	Q
115	204	235	494	12	437	Φ400	249	530	Φ510	8-φ18	249	530	φ202	4-φ12	220	252

TECFG-375MS/HS(Weight:135kg)

TECFG-500MS/HS(Weight:138kg)

- 1) Gas inlet Rp3"
- 2) Pilot gas inlet Rp3/8"
- 3) Gas pressure tap Rp1/8"
- 4) Spark plug
- 5) UV mounting hole R1/2"
- 6) Combustion air pressure tap Rp1/8"



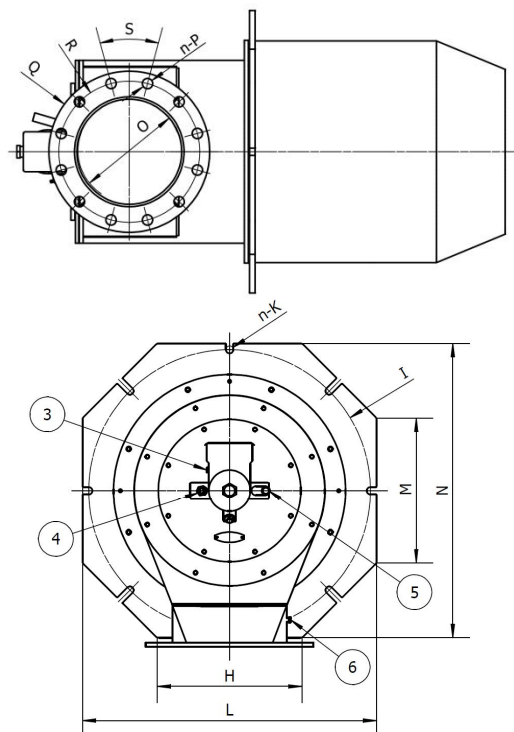
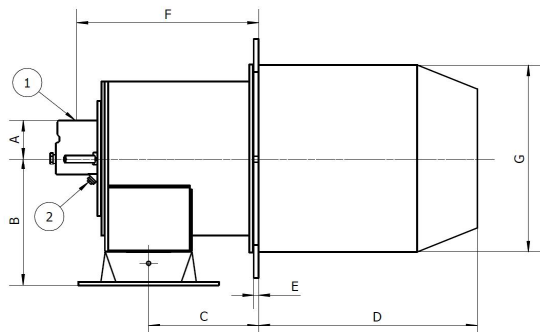
Unit, mm

A	B	C	D	E	F	G	H	I	J	n-K	O	n-P	R	Q	S
115	377	313	630	25	520	Φ411	Φ560	Φ527	45°	8-φ12	φ258	12-φ26	Φ355	Φ405	30°

TECFG-375MBS/HBS(Weight:321kg)

TECFG-500MBS/HBS(Weight:325kg)

- 1) Gas inlet Rp3"
- 2) Pilot gas inlet Rp3/8"
- 3) Gas pressure tap Rp1/8"
- 4) Spark plug
- 5) UV mounting hole R1/2"
- 6) Combustion air pressure tap Rp1/8"



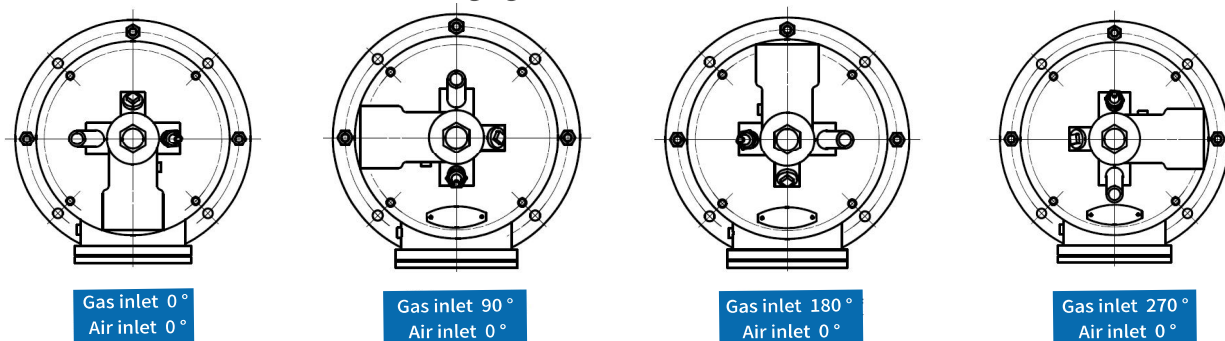
Unit, mm

A	B	C	D	E	F	G	H	L	I	n-K	M	N	O	n-P	R	Q	S
115	377	313	630	14	524	Φ557	349	710	Φ680	8-φ18	349	710	φ258	12-φ26	Φ680	Φ680	30°

Installation

Direction of inlet

The angle between the gas inlet and the air inlet can be rotated and adjusted to the appropriate position by 90°, as shown in the following figure:



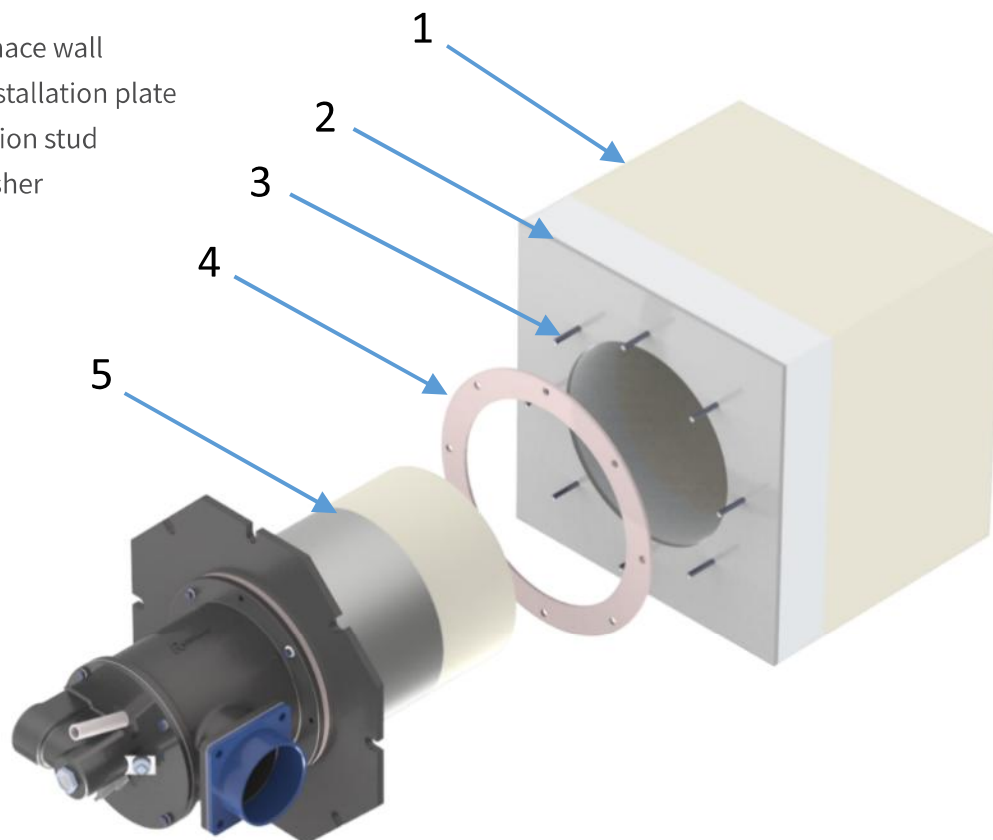
Factory setting: 180° for gas inlet and 0° for air inlet.

Installation direction

Tecfg burner can be installed by side or top mounting, and side mounting is more recommended.

Diagram

- 1 Isolation of furnace wall
- 2 Furnace wall installation plate
- 3 Burner installation stud
- 4 Installation washer
- 5 Burner



installation steps

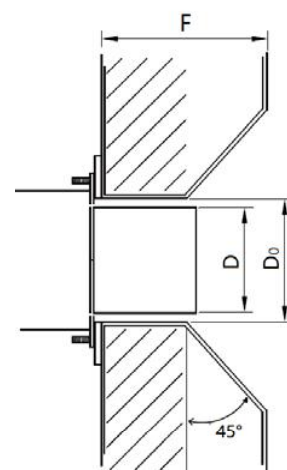
- Place the sealing gasket (No. 4) on the furnace wall;
- Position the burner (No. 5) on the mounting stud (No. 3) and fix it with nuts. When the burner brick extends into the mounting hole and moves inward, check to avoid damage to the refractory fiber insulation layer and displacement of the sealing gasket;
- Tighten the nuts on the furnace wall flange and keep them loose, so that the burner bricks of the burner can expand and contract freely during the heating process;
- Connect the fuel gas and air pipelines on the burner;
- Formulate appropriate first drying curve of kiln according to refractory materials;
- When the temperature rises to the maximum operating temperature, fully tighten the nut;
- After the first hot commissioning, repair the cracks and damaged parts immediately. In general, the cracks around the burner on the furnace wall shall be regularly detected and repaired to prevent hot gas from leaking from the cracks and causing damage to the metal parts of the furnace and burner;
- When using burner bricks with metal sleeves, appropriate measures shall be taken to isolate the high temperature in the furnace.

Mounting hole requirements

Before the installation of burner, holes shall be reserved on the furnace wall according to the size of refractory bricks. To facilitate installation, the opening size must be at least 20mm larger than the outer diameter of the refractory brick, and the recommended opening size D_0 range is $(D+20)^{+8}_0$ mm.

An expansion gap shall be reserved between the refractory brick / fire casing and the rigid material of the furnace wall, and shall be filled and tamped with aluminum silicate fiber cotton.

When the thickness of the furnace wall is greater than the length of the refractory brick / fire casing, the excess part shall be at the bell mouth with an included angle of 45° along the flame flow direction inside the furnace wall (as shown in the figure), so as to avoid the scouring of the furnace wall by the high-temperature flame.

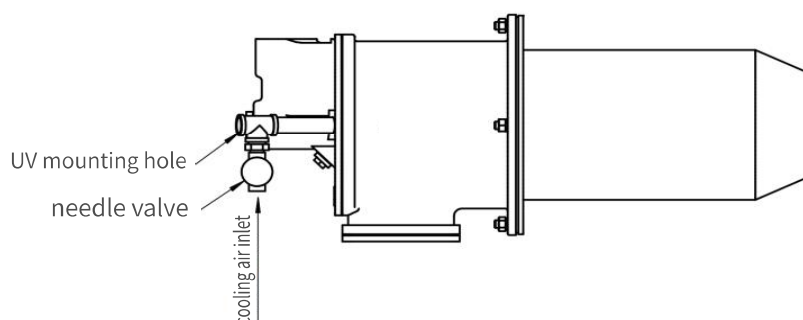


Installation notes

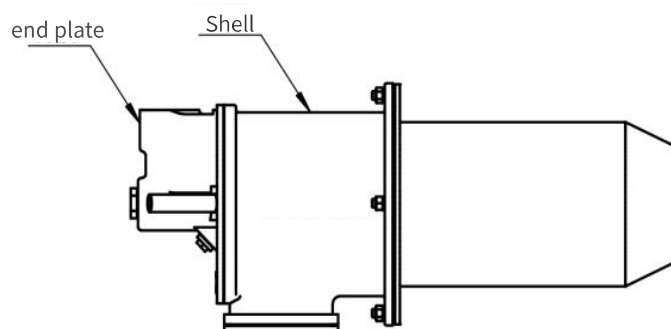
- An expansion gap shall be reserved between the refractory brick / fire casing and the rigid material of the furnace wall, which shall be filled and tamped with aluminum silicate fiber cotton;
- The fiber gasket is used for sealing between the burner mounting flange and the furnace wall mounting plate;
- After the furnace is used for the first time at the design temperature, please check the shrinkage of the fiber around the refractory brick / fire casing, and refill the gap with the refractory fiber to ensure good sealing;
- Flexible compensation connecting pipe must be used in the pipeline system of combustion supporting air and gas;
- It is recommended to reserve ignition holes and flame monitoring holes on the top of burner bricks;
- The burner must be installed correctly as required to avoid abnormal heat transfer.

Operating notes

- If UV cooling air is set, the air volume shall be set with a needle valve to regulate the flow, and the cooling air flow shall not exceed 5nm³/h, so as to avoid the high temperature of the mixing cone caused by the full combustion of the flame in the mixing cone due to the excessive UV cooling air volume, which will affect the service life.



- When the burner is in normal use, the surface temperature of the burner shell and end plate is lower than 60 °C.



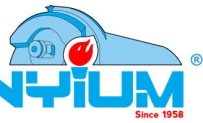
- When the burner is shut down, if the temperature in the combustion chamber is higher than 500 °C, a small amount of combustion air shall be reserved to reduce the temperature of the burner.
- All installation, maintenance, ignition and setting must be operated by professional technicians in strict accordance with the latest local standards and specifications. In order to avoid personal and property damage, please strictly comply with the requirements in the operation manual.
- Operators must wear appropriate protective clothing (shoes, safety helmet).
- In order to avoid the risk of burns or high-voltage electric shock when the burner is in ignition stage or high-temperature operation stage, the operator must avoid any contact with the burner.
- All simple or complex maintenance can only be allowed under shutdown status.
- Product improvement and specification parameters are subject to change without notice.

Accessories

NO.	Name	Type	Applicable burner	Photos
1	Flame rod	RP-FL-RFG020	TECFG-020 TECFG-040	
2	Spark plug	RP-SE-RFG020	TECFG-020 TECFG-040	
		RP-SE-RFG075	TECFG-075 TECFG-125 TECFG-185 TECFG-250 TECFG-375 TECFG-500	
3	Washer	BL-RF-20GK	TECFG-020(MBS/HBS)	
		BL-RF-40GK	TECFG-040(MBS/HBS)	
		BL-RF-75GK	TECFG-075(MBS/HBS)	
		BL-RF-125GK	TECFG-125(MBS/HBS)	
		BL-RF-250GK	TECFG-185(MBS/HBS)	
			TECFG-250(MBS/HBS)	
		BL-RF-500GK	TECFG-375(MBS/HBS)	
			TECFG-500(MBS/HBS)	
		BL-RF-20GK	TECFG-020(MS/HS)	
		BL-RF-40GK	TECFG-040(MS/HS)	
		BL-RF-75GK	TECFG-075(MS/HS)	
		BL-RF-125GK	TECFG-125(MS/HS)	
		RFG250-8	TECFG-185(MS/HS)	
			TECFG-250(MS/HS)	
		RFG500-7	TECFG-375(MS/HS)	
			TECFG-500(MS/HS)	



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