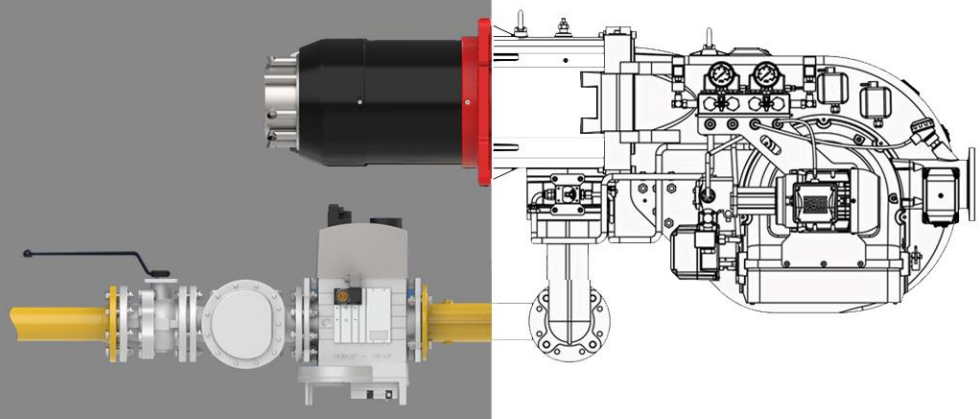
PACKMAN
Industrial Group

Last update: 31/07/2022

Electronic modular Gas & Dual Fuel burner
mono-bloc version; from 160 to 17000 kW

www.packmangroup.com
www.raadmanburner.com

A LOOK TO THE FUTURE



More than

48 Years of Reliability

History

The PACKMAN Company was established in February of 1975. This company started its official activity in the field of construction of High-Pressure Vessels such as Hot-Water Boilers, Steam Boilers, Pool Coil Tanks, Softeners and Heat Exchangers from 1984. As the first supplier of Hot water boilers with high quality and standard mark, PACKMAN has started exporting its products to countries such as Uzbekistan, United Arab Emirates and other countries in the region. Currently, PACKMAN honorfully is one of the largest producers of hot-water and steam boilers in the Middle East. After 40 years of experience in the field of heating industry, especially boilers and burners, this group started his activity on January 2011 in the area of burners with brand of RAADMAN. The main objective of this group was improvement and development of industrial burners in order to produce high quality and highly efficient industrial burners with optimum operation in the Middle East. Based on technical knowledge and engineering design of industrial burners, PACKMAN Corporation started the production of low, medium and big sized industrial burners. By the efforts of engineers of R&D department, the burner's combustion improved significantly and as a consequence, the production of burners developed rapidly. Gas, Light oil (LFO), Heavy oil (HFO) and dual/triple fuel burners with different firing ranges were produced and tested successfully.

Nowadays, the burners of this company cover a firing range of 100 to 60000 kW. Multi stage, modular and Low NOx burners (generally lower than 80 mg/kWh and individually lower than 40 mg/kWh) are available for various domestic and industrial applications in the following classifications:

1- Multi stage burner (ECO Series), from 100 – 6200 kW
2- Mono block modular burners (MB series), from 160 – 17000 kW (The topic of this catalogue)
3- Dual block burners (DB-Series), form 1000 – 32000 kW
4- Premixed and post mixed burners (PE and PM Series): From 100 – 4000 kW
5- Water tube burners (WT series), From 3200-60000 kW

R LG B-M-255/*/FGR

Option: FGR*

Blank: NOx class: II acc to EN-676

LN: Low NOx with Class III acc to EN-676

Reference of approximate Capacity x 10 kW

Operation:

Blank:	Two Stage or One Stage
M:	Natural Gas, LPG: Modular Light Oil, Heavy Oil: Two/Three Stage Progressive
M/M:	Natural Gas, LPG: Modular Light Oil, Heavy Oil: Modular

B: Burner

Type of Fuel

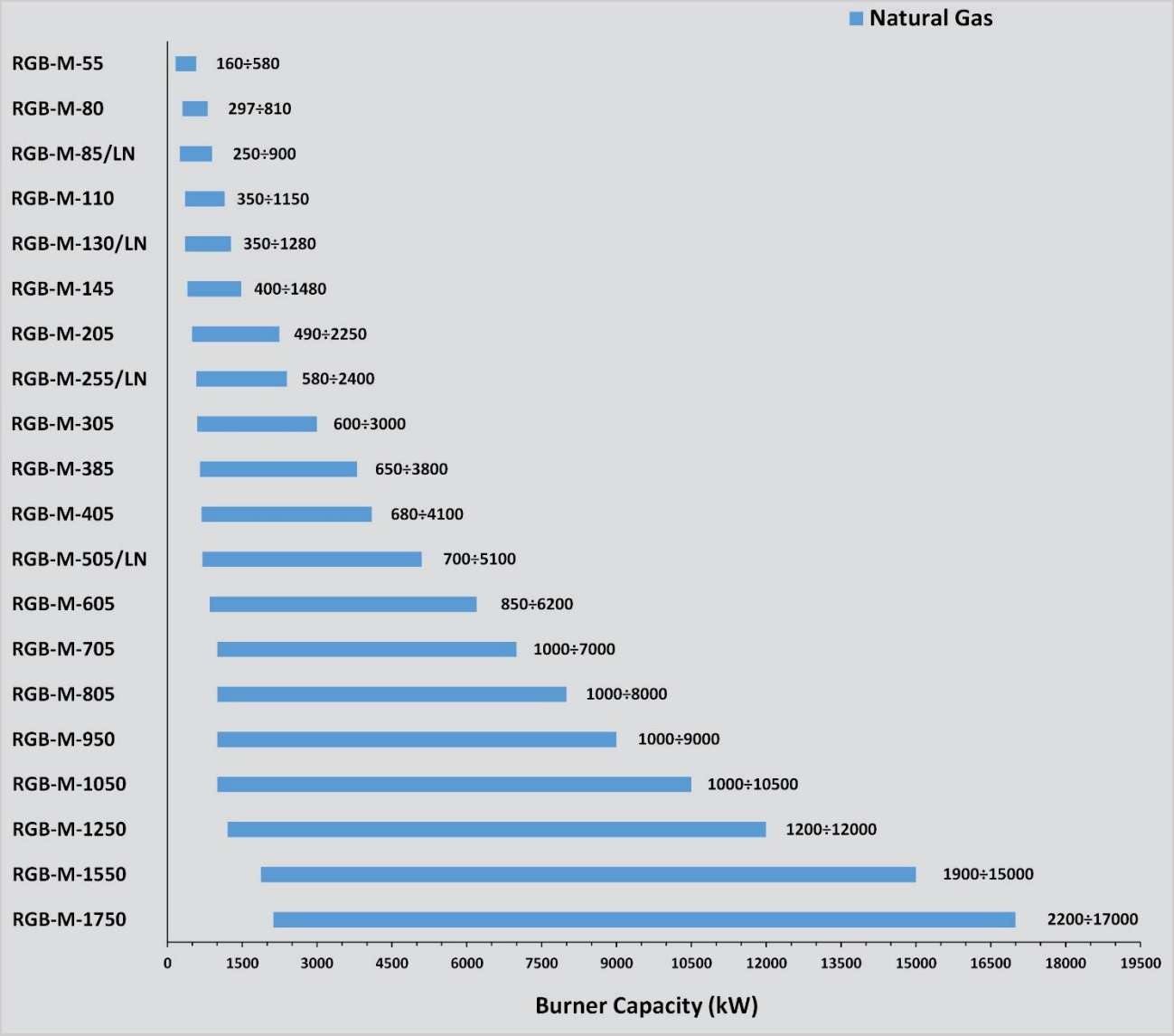
G:	G=Natural gas
GP:	G=Natural gas, P=Propane
LG:	L=Light oil, G=Natural gas
LGP:	L=Light oil, G=Natural gas, P=Propane
LHG:	L=Light oil, H=Heavy oil, G=Natural gas
LHGP:	L=Light oil, H=Heavy oil, G=Natural gas, P=Propane

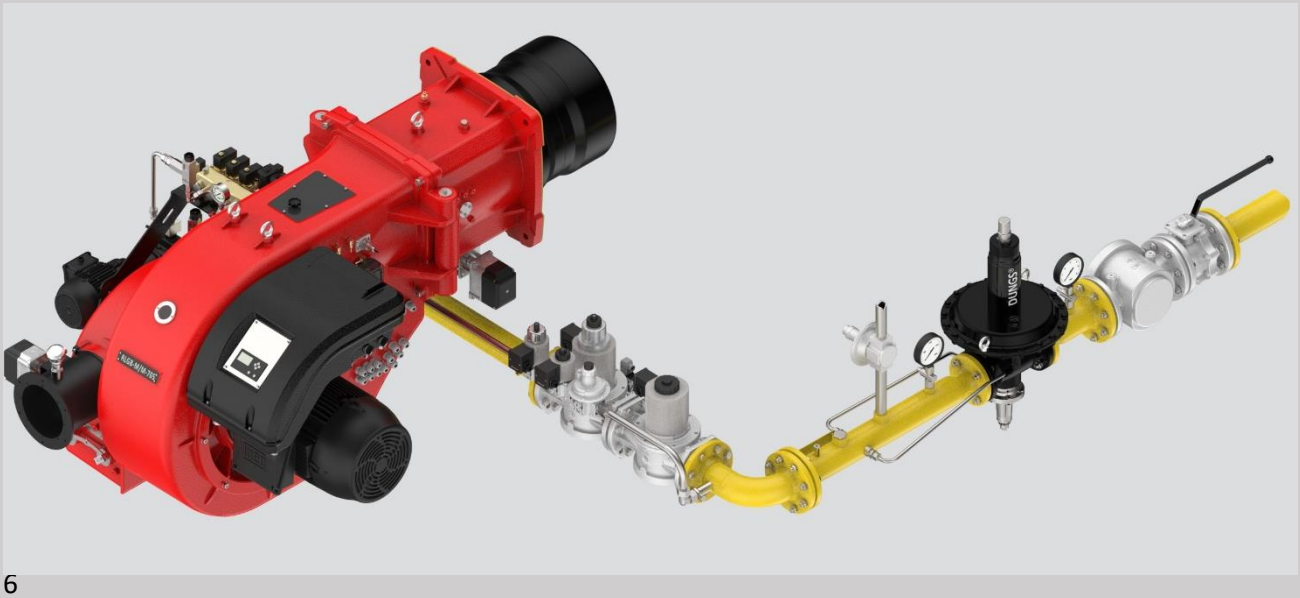
Product Family Name: RAADMAN

*FGR=Flue Gas Recirculation

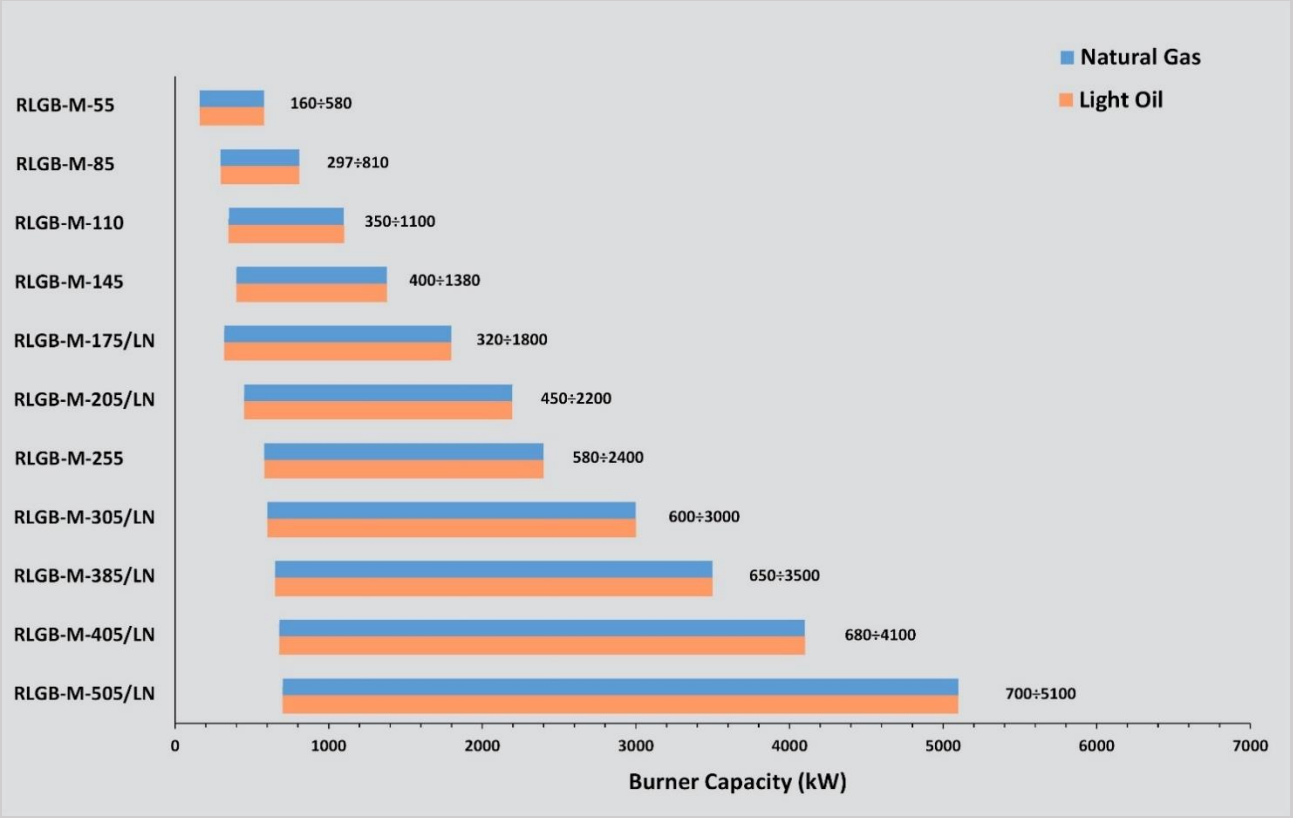
Firing Ranges:

Gas burners (RGB-M Series):

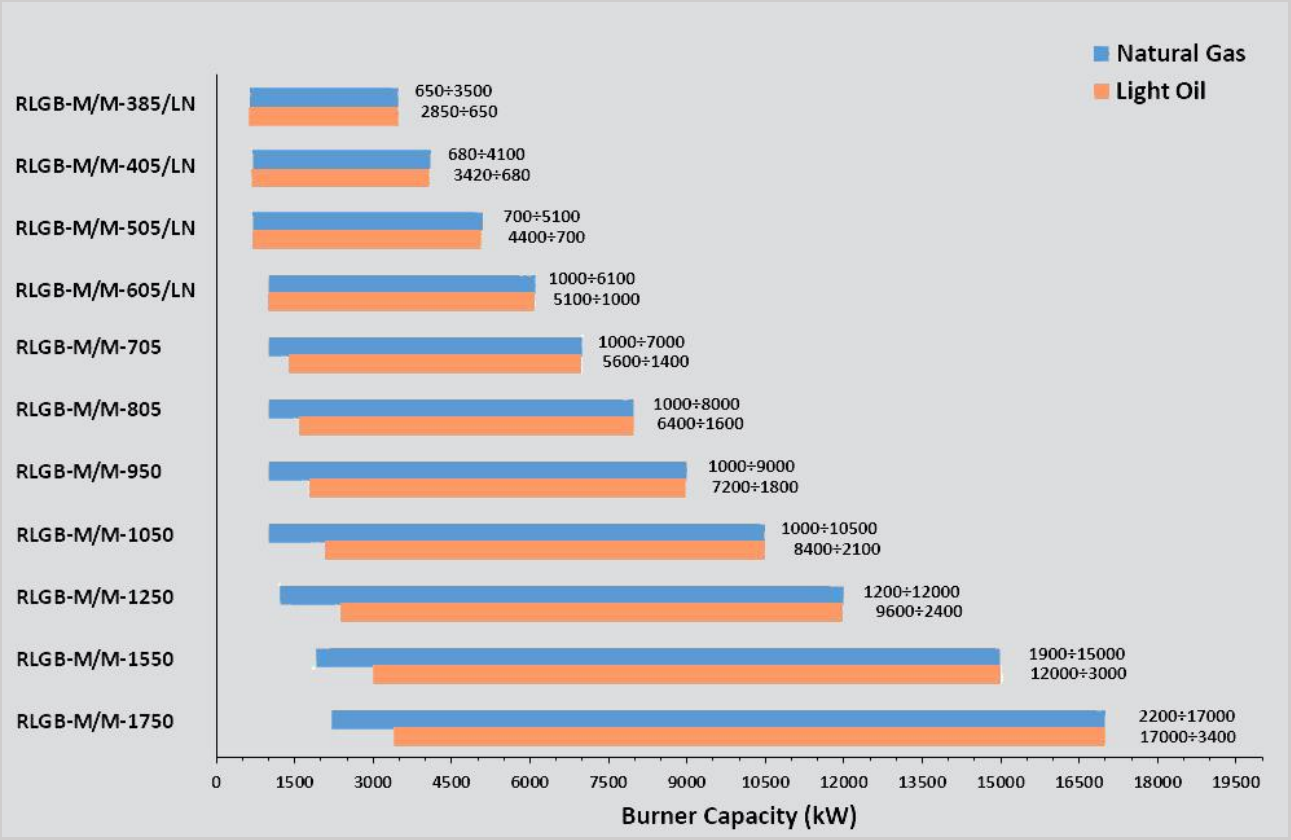




Dual Fuel burners (RLGB-M Series):



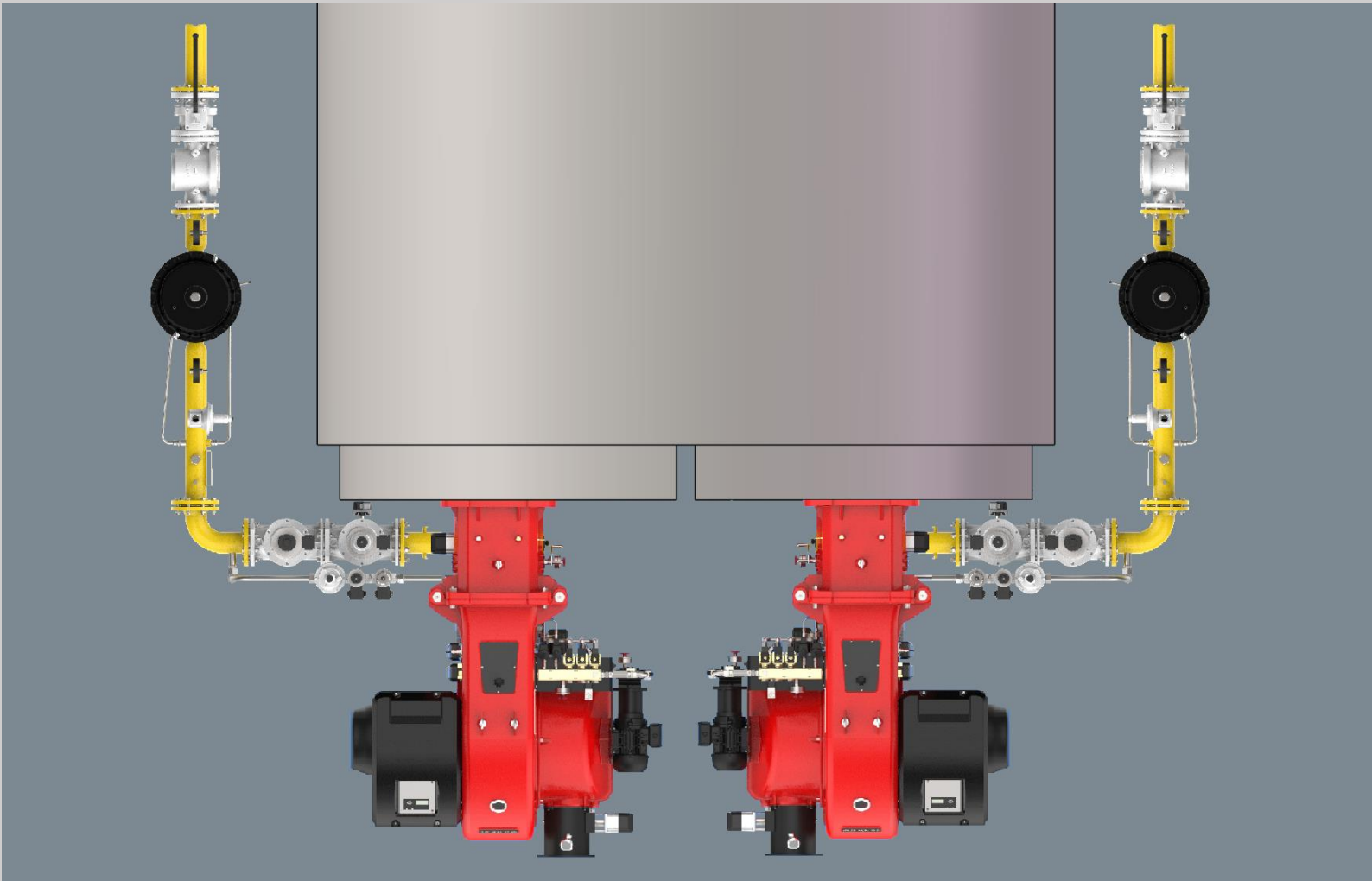
Dual Fuel burners (RLGB-M/M Series)



Classification of RAADMAN Modular Burners

Technical and Functional Features

- Highly efficient gas/oil burners for domestic and industrial application
- Compatible with all types of combustion chambers according to EN303 standard
- Designed for maximize efficiency and fuel cost savings
- Based on Iran national standard ISIRI-7595 and ISIRI 7594 (BS-EN676 and BS-EN267) for gas and oil fuel, respectively.
- Compact design with enclosed aluminum air housing
- High-quality with low-emissions combustion
- Sound proofing materials incorporated in the air suction circuit
- Full electronic modular operation with air/gas ratio control
- Ability of running with Variable Speed Drive (VSD) for reduction in noise level and increase the life expectancy of fan wheel motor.
- Ability of working with either of pressure based or Air/steam atomizers in dual fuel version.
- Ability of running with FGR technology for further reduction in NOx level (option)
- Light weight and optimized geometry
- Simple Installation, adjustment and maintenance



Electronic modular operation

Fossil fuel burners are often used as the principal medium for delivering energy to industrial furnaces and Boilers. Increasing focus on reducing energy costs has led manufacturers to concentrate on new burner design techniques and important advances in efficiency gains have been made over the years. As one of the most effective strategies are burner management and control systems.

Fully modulating burners are designed to safely operate throughout its firing range from high fire to low fire. The most common turndown ratings in commercial boilers range from 1-3 up to 1-10. Turndown is how far the burner firing rate can be lowered and still effectively fire. High turndown is used to reduce the burner cycling and maintain a consistent temperature or pressure in the boiler. This is crucial if the boiler is used in an industrial process that requires a consistent temperature or pressure.

Each RAADMAN burners with identification of –M- or –M/M- are equipped with an electronic microprocessor management panel, which controls the air damper servomotor as well as the fuel servomotors. Using electronic modulation, hysteresis is prevented by the precise control of the separated in independent servomotors and the software linked by can-BUS.

The high precision regulation is due to the absence of mechanical clearance normally found in mechanical regulation cams on traditional modulating burners. The LAMTEC Burner Tronic BT300 or Etamatic OEM as well as Siemens LMV2/3, LM51/52 as the most popular brands, are frequently used in RAADMAN Modular burners. There burner Control Systems combines the benefits of an electronic fuel/air ratio controller with an electronic burner control unit. Up to five motorized actuators can be assigned to modulate air and fuel drives with the option of an additional module to add variable speed drive control for the combustion air fan.

Additional modules are available for field bus interfacing, load control and dual fuel operation.

These modular systems include many standard burner functions as standard; these include: integrated valve proving, ambient temperature compensation, flame monitoring and operating hours and system start-up counters. Oxygen trim, CO control, load control and dual fuel functionality are all available options that are used to further enhance system benefits, flexibility and efficiency. These controllers particularly suited for use on mono-bloc burners.

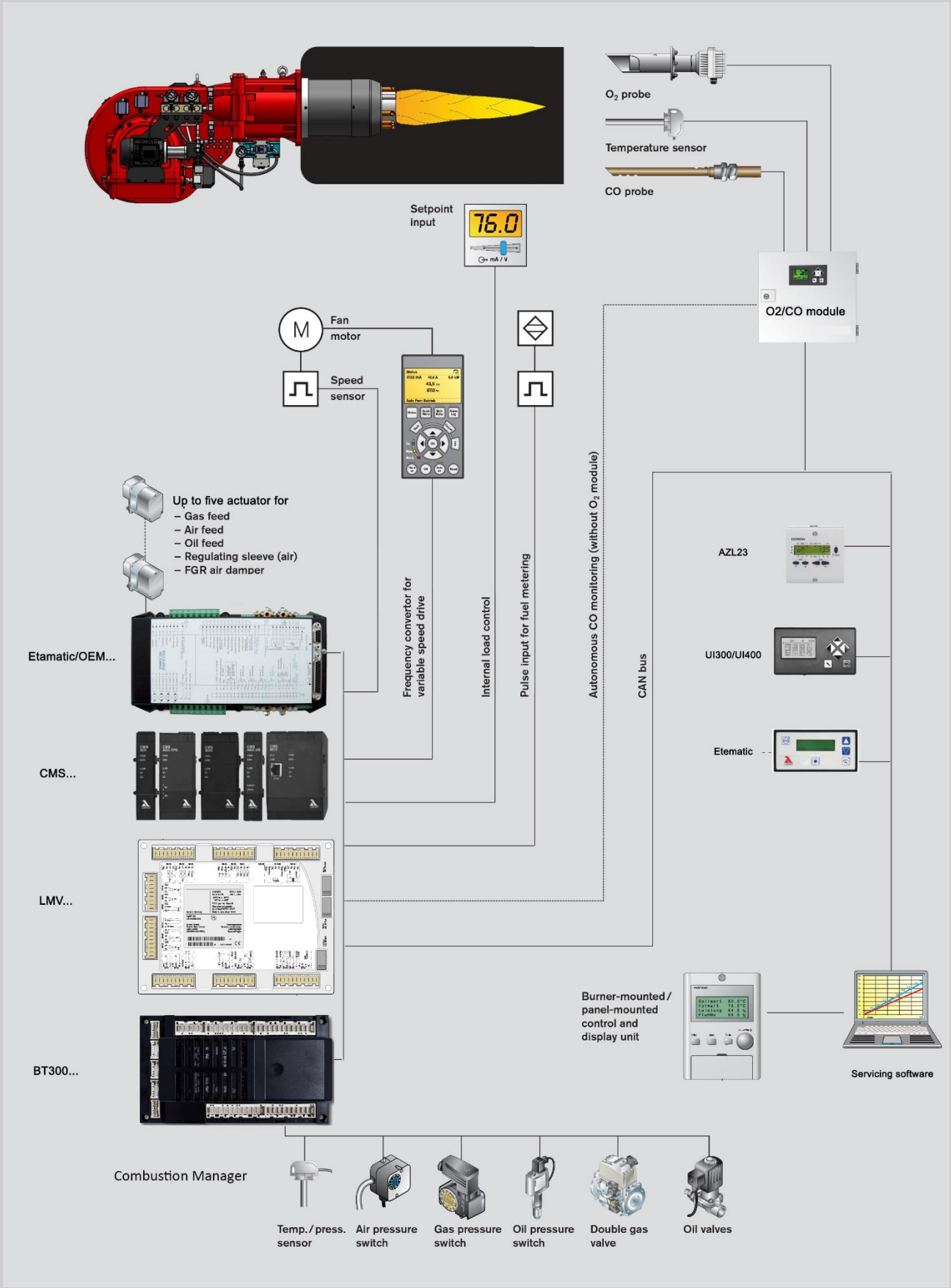
The fuel/air ratio curves and operating parameters are set and adjusted using either the UI300 HMI or AZL50 for LAMTEC and Siemens respectively or using their LSB Remote Software's. The fuel/air ratio can be optimized to compensate for combustion variables by implementing oxygen trim or CO control to ensure the burner operates to its maximum possible efficiency.

The burner and fuel/air ratio controller can be adjusted for a wide range of combustion tasks by setting parameters. In the case of BT300, Etamatic OEM or LMV2/3/5, oil and gas can be set to start with and without a pilot burner. The integrated valve proving system can be run before ignition or after the shutdown of the burner. In the case of operation with gas, starting without pre-purge is possible in accordance with BS-EN676 and BS-EN 267.

Key features and benefits include:

- Integrated linkage-less control, burner flame safeguard and modulation PID control
- Single or dual fuel (or multi fuel) application
- Controls up to 5 independent actuators for optimal efficiency in low NOx burner application.
- Integrated PID temperature/ pressure controller with auto tune for extremely accurate process control
- Variable Speed Drive control with actual RPM speed sensor provides reliable, efficient and safe control of the combustion air blower
- Optional O_2-CO trim
- Integrated gas valve proving system that checks for leak on every burner cycle for increased safety.
- Up to 10 programmable points per fuel-air ratio curve for greater flexibility and tighter control
- 999 highly repeatable actuator position for precise control
- Digital positioning feedback from actuators ensure unmatched repeatability
- Independent ignition position
- Ability of being connected to building management system using different type of protocols
- World-wide approvals and technical supports

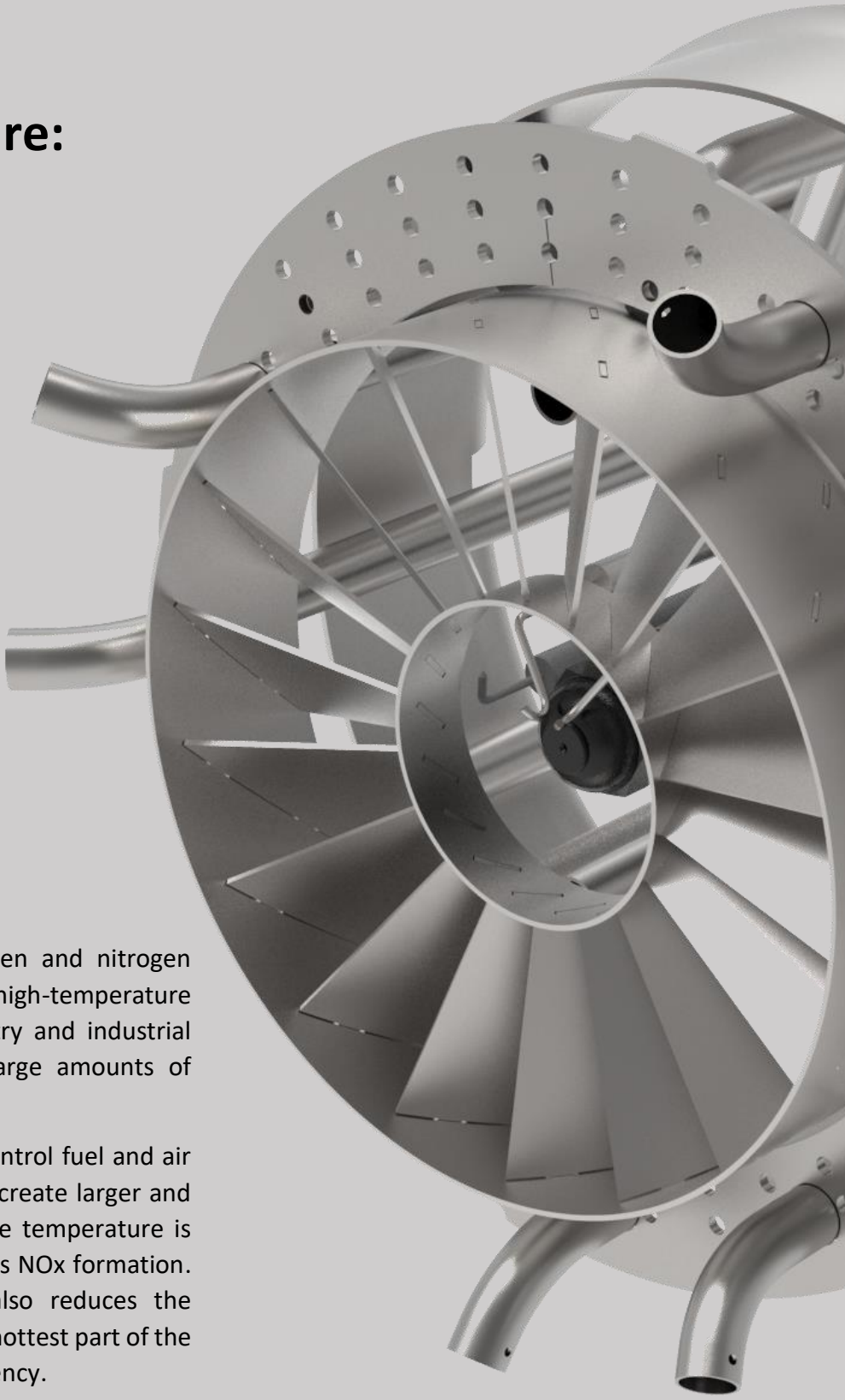
Burner Management System overview



A look to the future:

With Low-NOx burners

NOx gases play an important role in the formation of smog, producing the brown haze often observed over cities, particularly during the summer. When exposed to the UV rays in sunlight, NOx molecules break apart and form ozone (O3). The problem is made worse by the presence in the atmosphere of volatile organic compounds (VOC), which also interact with NOx to form dangerous molecules. Ozone at the ground level is a serious pollutant, unlike the protective ozone layer much higher up in the stratosphere.



Nitrogen oxides form when oxygen and nitrogen from the air interact during a high-temperature combustion event. Heating industry and industrial burners, in particular, produce large amounts of nitrogen oxides.

The idea of Low NOx burners is control fuel and air mixing at each burner in order to create larger and more branched flames. Peak flame temperature is thereby reduced, and results in less NOx formation. The improved flame structure also reduces the amount of oxygen available in the hottest part of the flame thus improving burner efficiency.

FGR Technology

Flue gas recirculation (FGR) can be a highly effective technique for lowering NOx emissions from burners, and it's relatively inexpensive to apply. Most of the early FGR work was done on boilers, and investigators found that recirculating up to 25% of the flue gases through the burner could lower NOx emissions to as little as 25% of their normal levels.

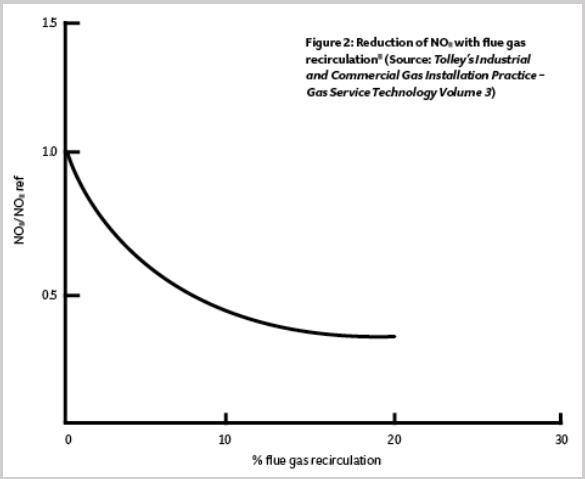
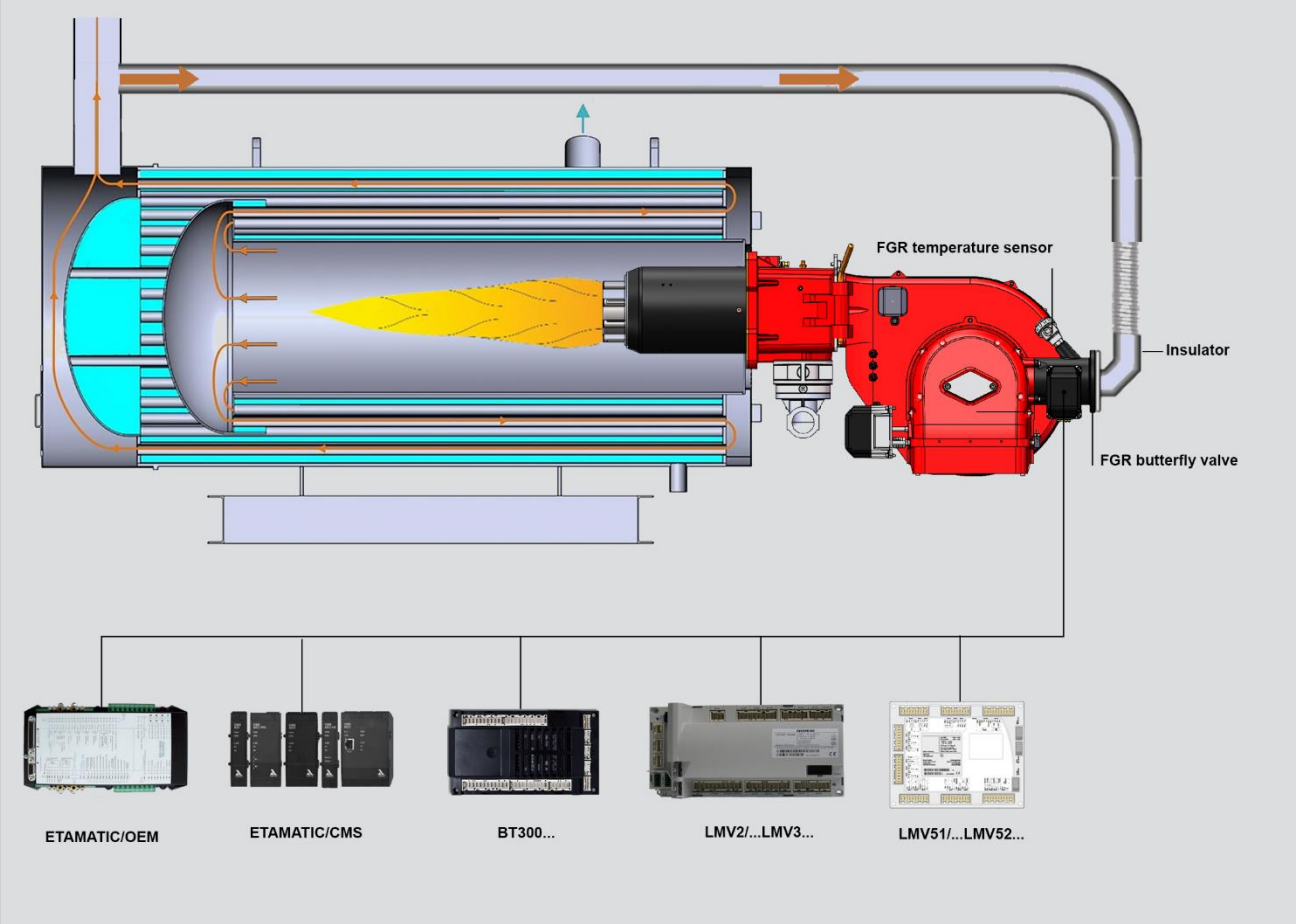


Figure 2: Reduction of NO_x with flue gas recirculation[8] (Source: *Tolley's Industrial and Commercial Gas Installation Practice – Gas Service Technology Volume 3*)

With FGR technology, consisting of a temperature sensor and flue gas damper with an actuator connected to a flange, a portion of the exhaust (flue) gas circulates back into the combustion zone to decrease the flame temperature and reduce the flame nitrogen-oxide (NOx).

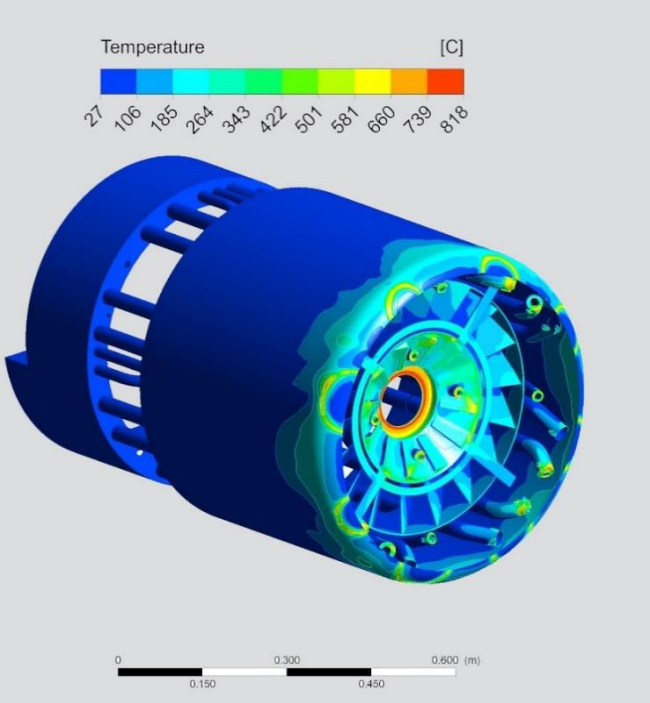
When FGR is used, because of reduction in radiation heat transfer, boiler efficiency may decrease typically in the range of 0.25 percent to 1 percent, depending on the amount of FGR added. Plant experience shows that the combination of low NOx burners with re-burning using FGR system reduces the NOx level to approximately lower than 40 mg/kWh.



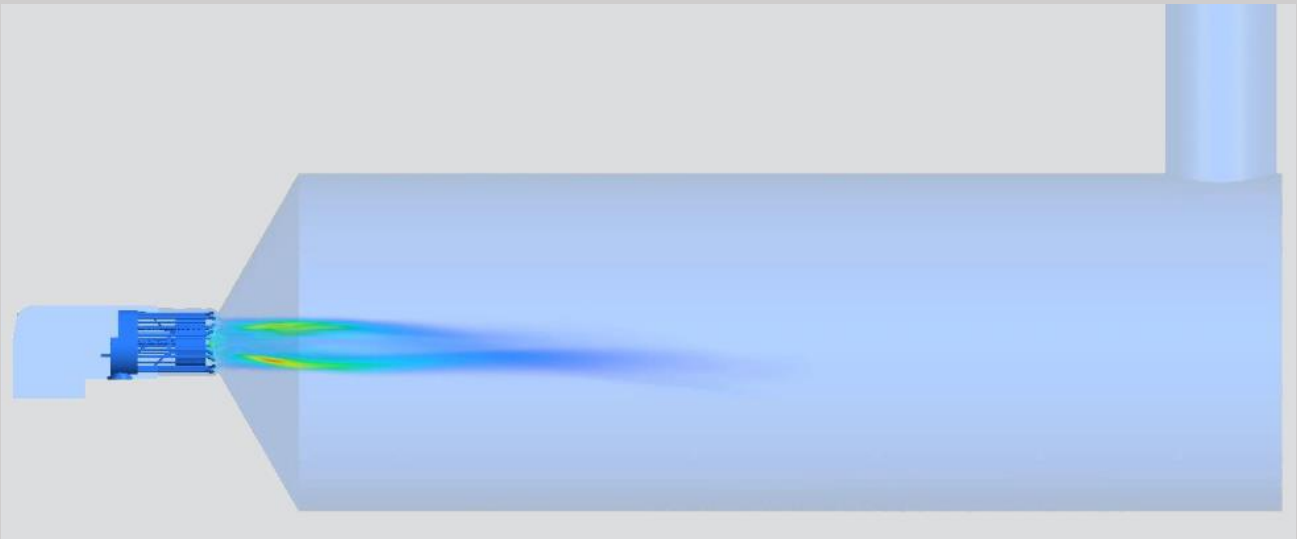
We are delighted to gratefully guarantee the best performance of our productions in order to meet our customer demands.

CFD experts in R&D department

Industry relies on heat from the burners in all combustion systems. Optimizing burner performance is critical to complying with stringent emissions requirements and to improve industrial productivity. Engineers involved in designing and building advanced combustion equipment for the hydrocarbon process industries routinely use Advanced CFD to advance new burner technology. The science and technology of CFD has matured to the point where performance predictions are made with a degree of confidence from models covering a wide range of complex furnace, burner, and reactor geometries. While tremendous advances have been made in understanding the fundamentals of combustion, the remaining challenges are complex.



To make improvements, it is critical to understand the dynamics of the fuel fluid flow and the flame and its characteristics. Computational Fluid Dynamics offers a numerical modeling methodology that helps in this regard. Commercial CFD codes utilize a standard approach to simulate chemical kinetics, which approximate the consumption and production of chemical species. This causes the engineer to use simplifying assumptions about the chemistry considered in the simulation. CFD can help engineers to optimize flow through orifices, blades and swirlers to achieve a homogenous mixture of air and gas.

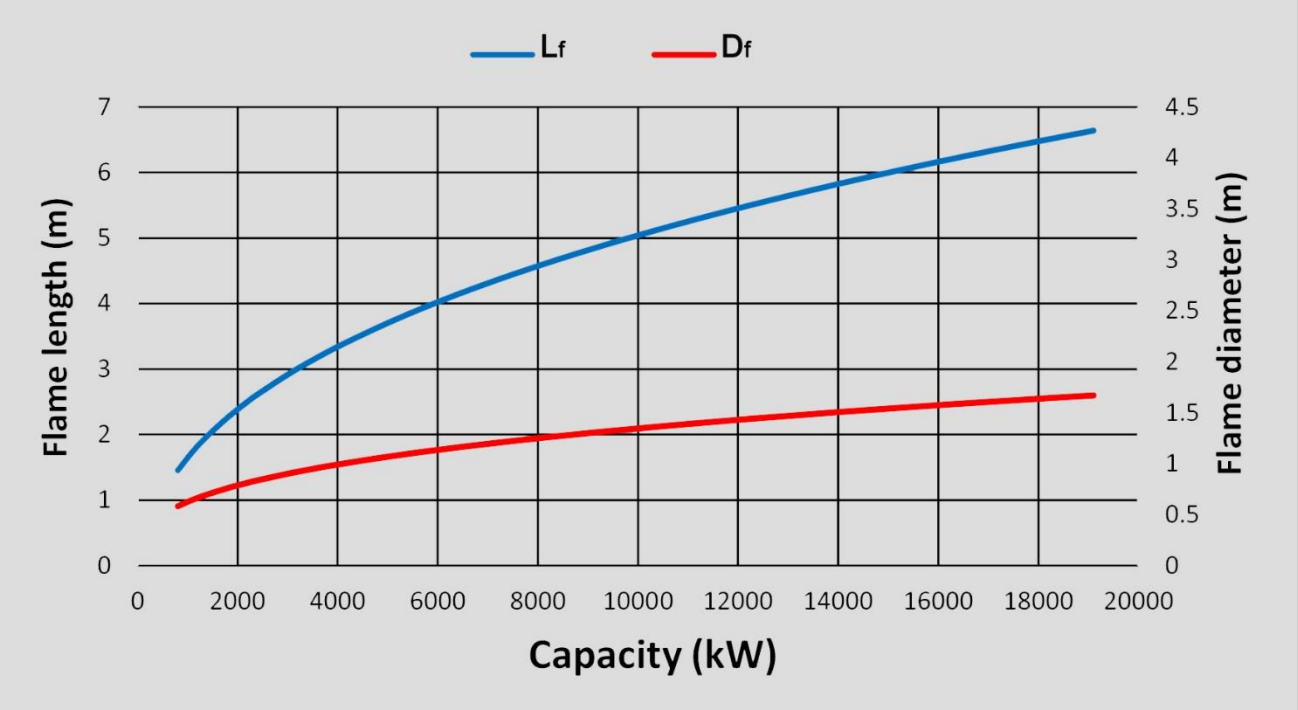


Ventilation system:

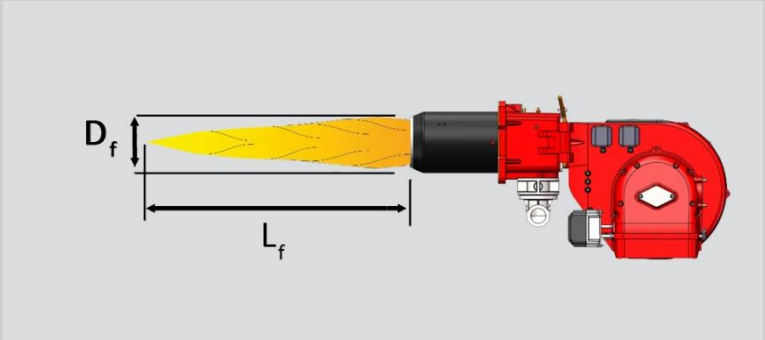
The Fan blade design is the result of extensive research and analysis resulting in high-performing and efficient centrifugal fans. Our R&D team will make sure our fans will comply with all safety certifications at the design stage, to make sure the fans are stable, reliable, and safe.

Thanks to improved CFD simulations and FEM analysis, blade design is optimized from both a structural and aerodynamic point of view simultaneously, also helping to provide customized solutions for market requirements. Our team surveys cover complex step-by-step analysis of a centrifugal fan from its design to an advanced CFD & FEA simulation, including FSI and modal analysis.

Flame Dimension

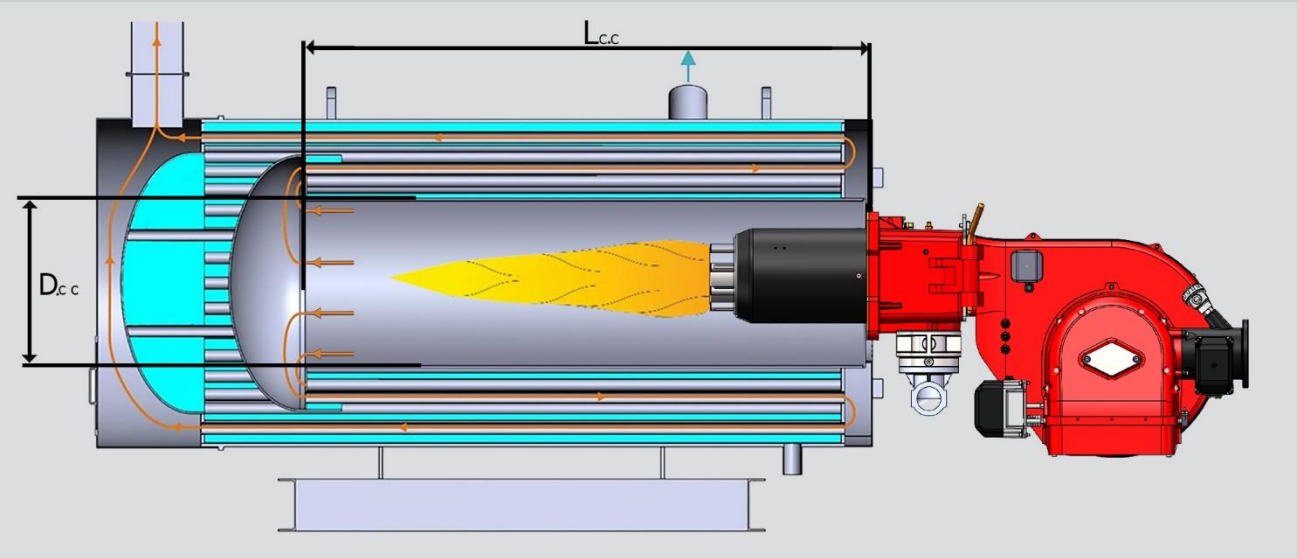


The flame dimensions which play an effective role in the burner efficiency and influence their compatibility to the boiler combustion chamber geometry, are presented in the above diagram.



SUGGESTED COMBUSTION CHAMBER DIMENSIONS:

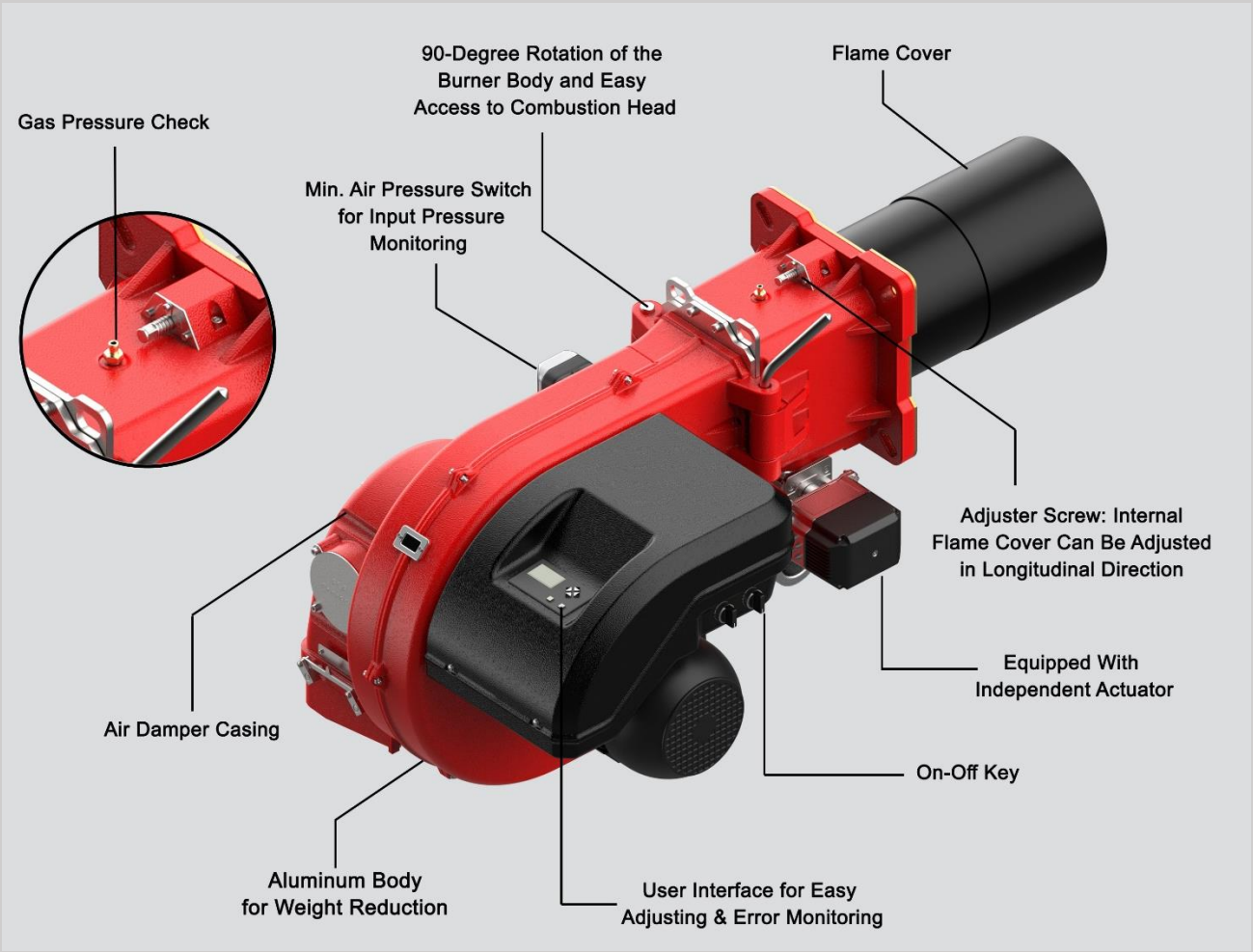
The raadman burners can be appropriately selected for all boilers which are designed according to the BS-2790, BS-855, EN-303, BS-EN 12953-3. It is recommended that a flame fill 90% of combustion chambers at its maximum output.



Gas burners (RGB-M Series)

Gas burners (RGB-M Series):

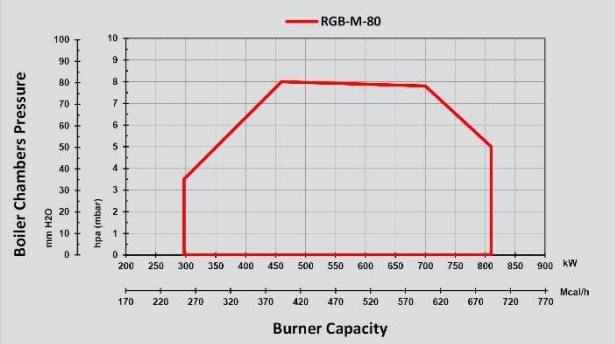
RGB-M Series or RAADMAN Modular gas burners, covering a firing range from 160 to 17000 kW, are designed for a wide range of domestic and industrial applications. All RAADMAN modular burners are equipped with LAMTEC or SIEMENS electronic control system with capability of full air/gas ratio control throughout entire burner operating range. These burners have been tested and evaluated based on Iran national standard ISIRI-7595 (BS-EN 676). According to performed experiments, the values of CO even in low excess air operation is lower than 30 mg/kWh (In some cases, values close to zero have also been reported). The precise design of combustion head results a full gas-air mixture that guarantees high efficiency levels in all various applications. Burner superior design accompanied by high quality electronic devices have also resulted a further improvement in boiler's performance in order to decrease the fuel cost and emissions.



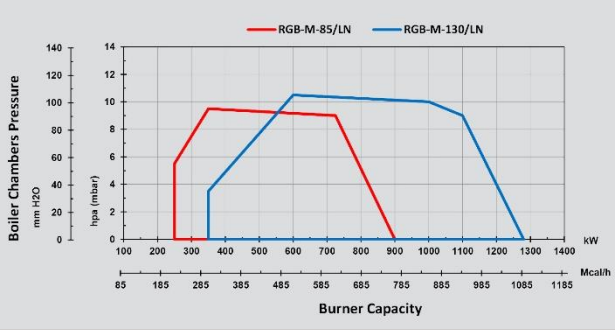
Burner Selection: Capacity and Working diagram

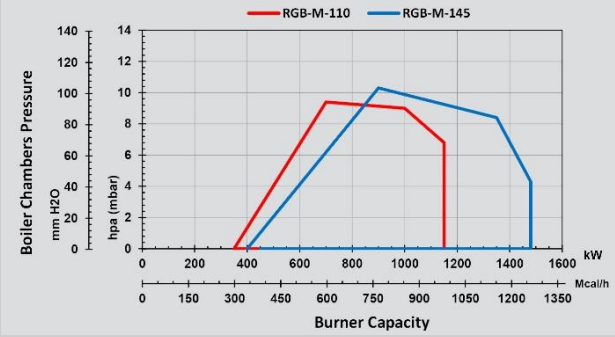
Modulating Gas Burner

Burner	Capacity (kW)	Turn down	Burner	Capacity (kW)	Turn down
RGB-M-55	NG:160-580	1:3	RGB-M-80	NG:297-810	1:3



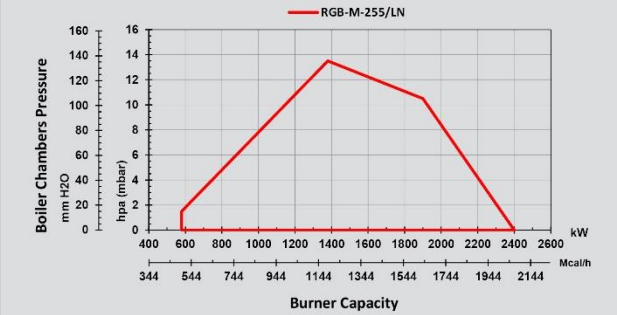
Burner	Capacity (KW)	Turn down	Burner	Capacity (KW)	Turn down
RGB-M-85/LN	NG:250-900	1:3	RGB-M-110	NG: 350-1150	1:3
RGB-M-130/LN	NG:350-1280	1:3	RGB-M-145	NG: 400-1480	1:4



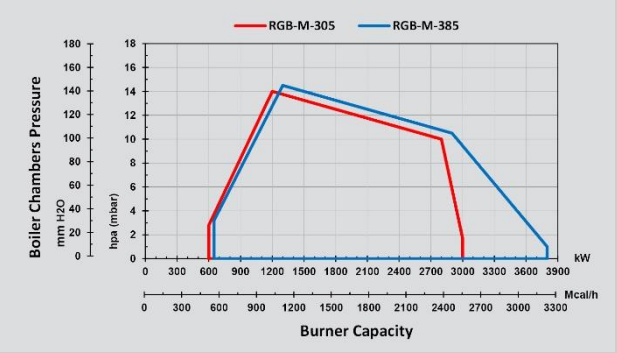


Burner	Capacity (KW)	Turn down
RGB-M-205	NG:490-2250	1:4

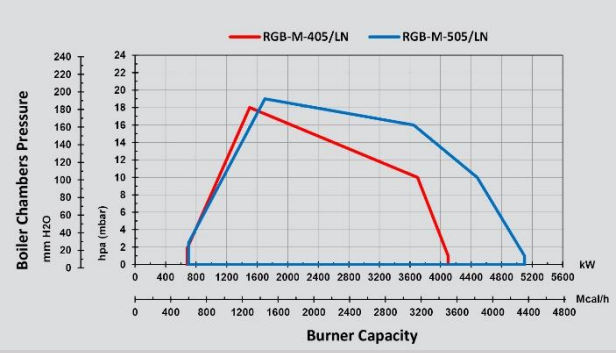
Burner	Capacity (KW)	Turn down
RGB-M-255/LN	NG:580-2400	1:4



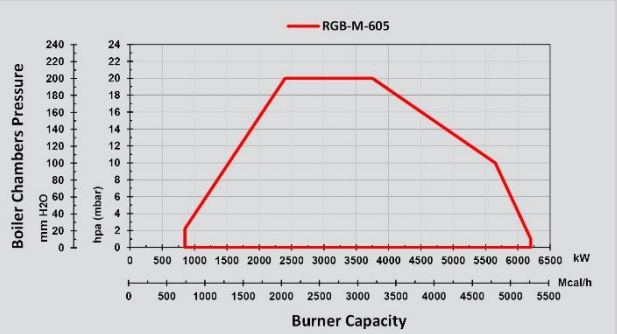
Burner	Capacity (KW)	Turn down
RGB-M-305	NG:600-3000	1:5
RGB-M-385	NG:650-3800	1:5



Burner	Capacity (KW)	Turn down
RGB-M-405/LN	NG:680-4100	1:6
RGB-M-505/LN	NG:700-5100	1:7



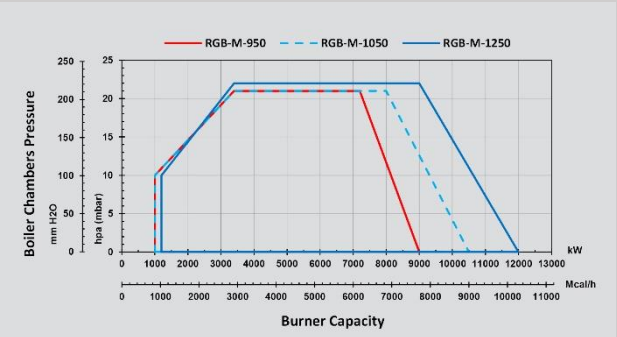
Burner	Capacity (KW)	Turn down
RGB-M-605	NG: 850-6200	1:7



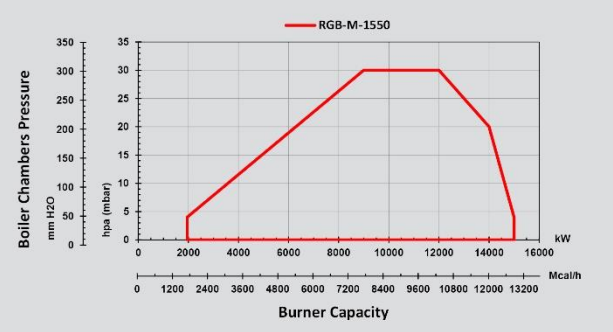
Special Note:
Working diagrams for gasous fuel burners are certified in accordance with BS-EN 676.
The firing rate diagram has been obtained considering the ambient temperature of 20°C and atmospheric pressure of 1013 mbar (Sea level condition).

Burner	Capacity (KW)	Turn down
RGB-M-705	NG: 1000-7000	1:7
RGB-M-805	NG: 1000-8000	1:8*

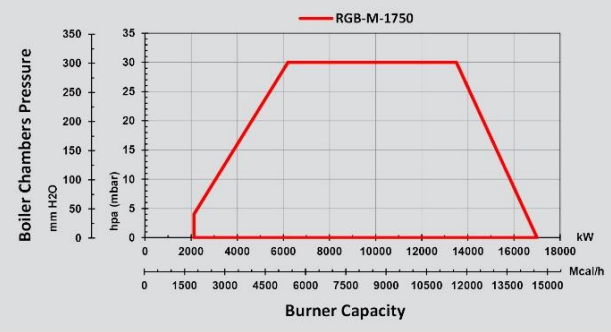
Burner	Capacity (KW)	Turn down
RGB-M-950	NG: 1000-9000	1:9*
RGB-M-1050	NG: 1000-10500	1:10*
RGB-M-1250	NG: 1200-12000	1:10*



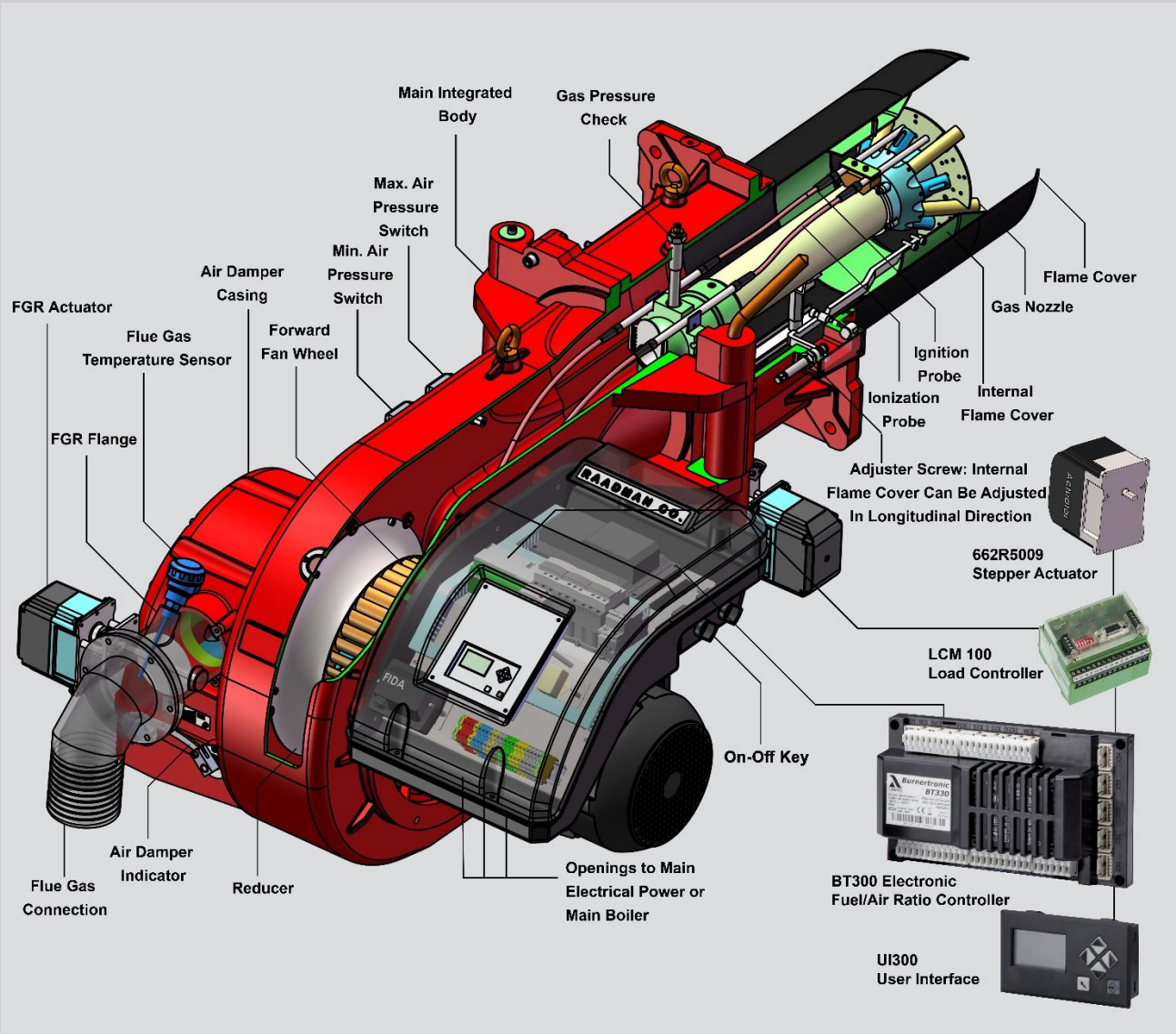
Burner	Capacity (KW)	Turn down
RGB-M-1550	NG: 1900-15000	1:8*



Burner	Capacity (KW)	Turn down
RGB-M-1750	NG: 2200-17000	1:8*



* Special note: Turn-down ratio higher than (1:8, 1:9, 1:10, etc.) are accessible for the burner with the head actuator. Otherwise, without a head actuator, the max turn-down ratio is 1:6.



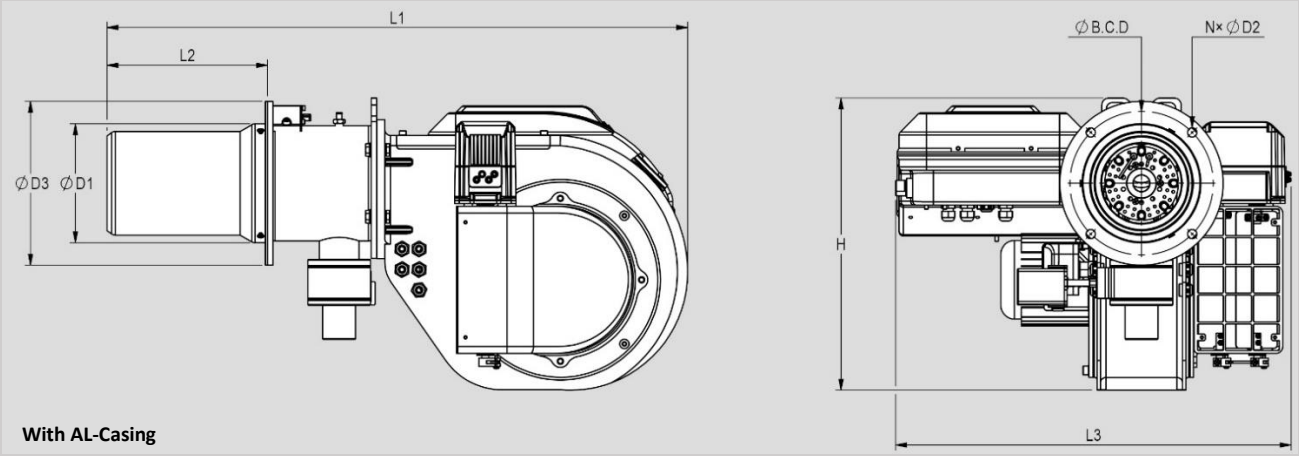
Technical data: RGB-M Series

- N.G operation: Electronic Modular

Power system		Power management system				
Burner	Motor(kW/PH/V/HZ/rpm)	Controller		Actuator (N.M)		
		Brand	Model	Air	Fuel	Head
RGB-M-55	0.75/3/380-400/50/2840	LAMTEC	BT320	1.2	0.8	--
RGB-M-80	1.1/3/380-400/50/2840	LAMTEC	BT320	1.2	1.2	--
RGB-M-85/LN	1.5 /3 /380-400 /50 /2840	LAMTEC	BT320			--
		SIEMENS	LMV3…	1.2	1.2	
RGB-M-110	1.5 /3 /380-400 /50 /2840	LAMTEC	BT320			--
		SIEMENS	LMV3…	1.2	1.2	
RGB-M-130/LN	2.2 /3 /380-400 /50 /2840	LAMTEC	BT320			--
		SIEMENS	LMV3…	3	1.2	
RGB-M-145	2.2 /3 /380-400 /50 /2840	LAMTEC	BT320			--
		SIEMENS	LMV3…	3	1.2	
RGB-M-205	4 /3 /380-400 /50 /2840	LAMTEC	BT320			--
		SIEMENS	LMV3…	3	1.2	
RGB-M-255/LN	5.5 /3 /380-400 /50 /2840	LAMTEC	BT320			--
		SIEMENS	LMV3…	3	1.2	
RGB-M-305	7.5 /3 /380-400 /50 /2900	LAMTEC	BT320			--
		SIEMENS	LMV3…	3	1.2	
RGB-M-385	7.5 /3 /380-400 /50 /2900	LAMTEC	BT320			--
		SIEMENS	LMV3…	3	1.2	
RGB-M-405/LN	11 /3 /380-400 /50 /2900	LAMTEC	BT320	9	1.2	--
		SIEMENS	LMV3…	10	1.2	
RGB-M-505/LN	11 /3 /380-400 /50 /2900	LAMTEC	BT320	9	1.2	--
		SIEMENS	LMV3…	10	1.2	
RGB-M-605	15 /3 /380-400 /50 /2900	LAMTEC	BT320	9	1.2	--
		SIEMENS	LMV3…	10	1.2	
RGB-M-705	18.5 /3 /380-400 /50 /2840	LAMTEC	BT320	9	3	--
		SIEMENS	LMV 3…	10	3	
RGB-M-805	18.5 /3 /380-400 /50 /2840	LAMTEC	ETAMATIC-OEM	20	6	20
		SIEMENS	LMV 5…	20	3	
RGB-M-950	22 /3 /380-400 /50 /2840	LAMTEC	ETAMATIC-OEM	20	6	20
		SIEMENS	LMV5…	20	3	
RGB-M-1050	22/3 /380-400 /50 /2840	LAMTEC	ETAMATIC-OEM	20	6	20
		SIEMENS	LMV 5…	20	3	
RGB-M-1250	30/3 /380-400 /50 /2840	LAMTEC	ETAMATIC-OEM	20	6	20
		SIEMENS	LMV 5…	20	3	
RGB-M-1550	45/3 /380-400 /50 /2900	LAMTEC	ETAMATIC-OEM	20	6	30
		SIEMENS	LMV 5…	20	3	37
RGB-M-1750	55/3 /380-400 /50 /2900	LAMTEC	ETAMATIC-OEM	20	6	30
		SIEMENS	LMV 5…	20	3	37

General Dimension of RGB-M-Series

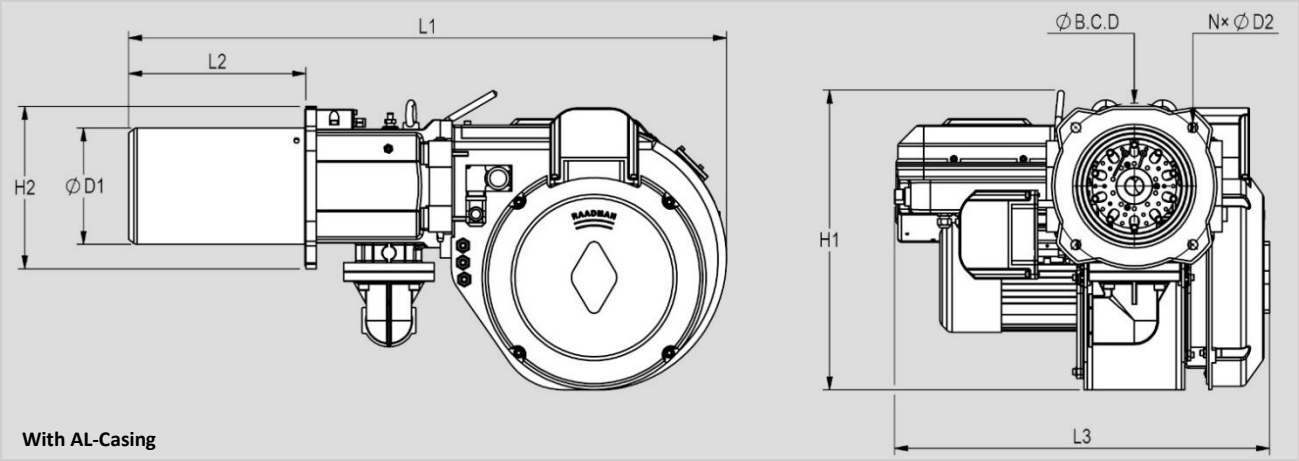
RGB-M-55



With AL-Casing

Burner Type	L_1	L_2	L_3	H	D_1	D_2	D_3	N	B.C.D
RGB-M-55	850	235	576	427	178	13.5	240	4	210

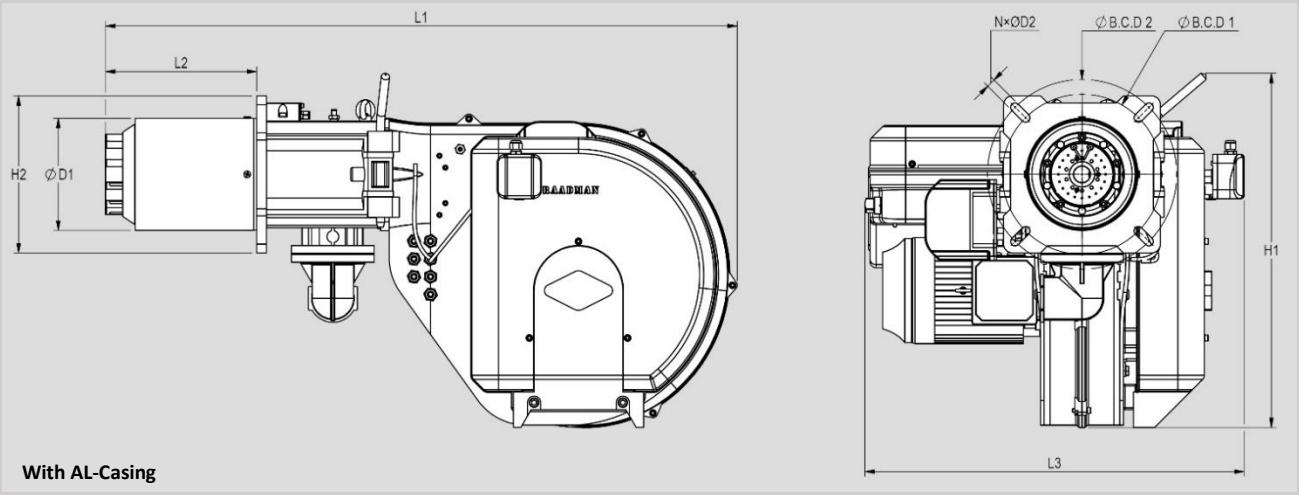
RGB-M-80



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C.D
RGB-M-80	921	273	578	461	254	183	15	4	255

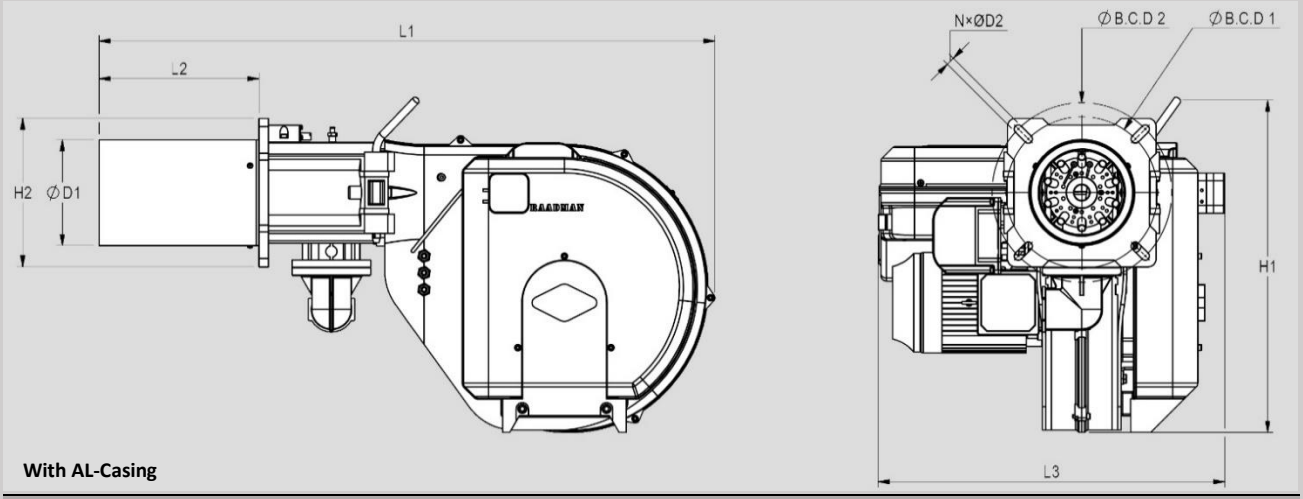
RGB-M-85/LN, RGB-M-130/LN



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C.D.1	B.C.D.2
RGB-M-85/LN	1068	255	641	598	265	193	15	4	270	320
RGB-M-130/LN	1072	260	586	598	265	193	15	4	270	320

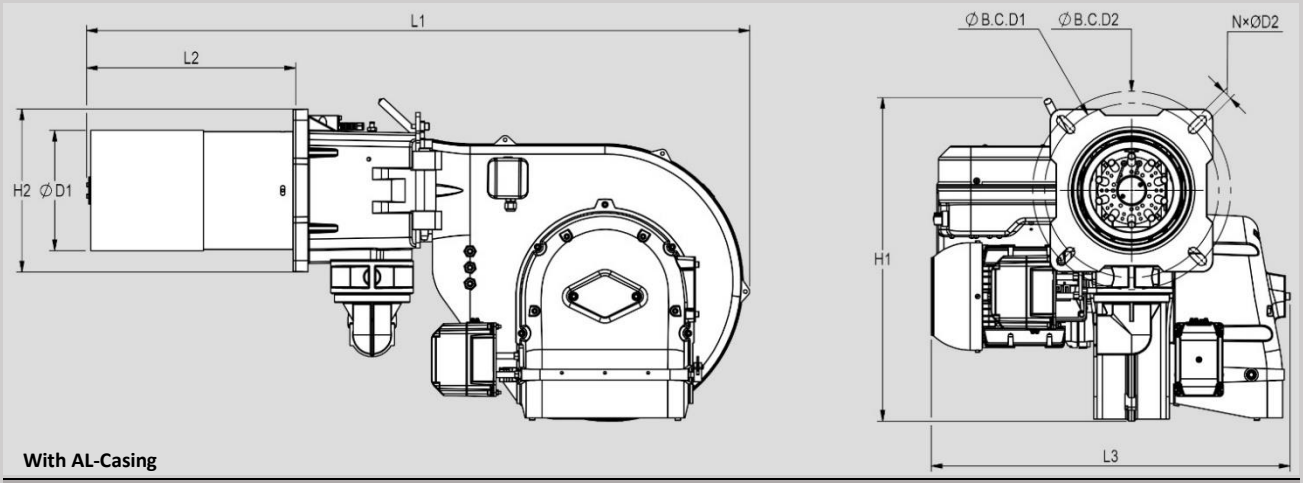
RGB-M-110, RGB-M-145



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C.D.1	B.C.D.2
RGB-M-110	1066	254	638	598	265	184	15	4	270	320
RGB-M-145	1097	285	638	598	265	194	15	4	270	320

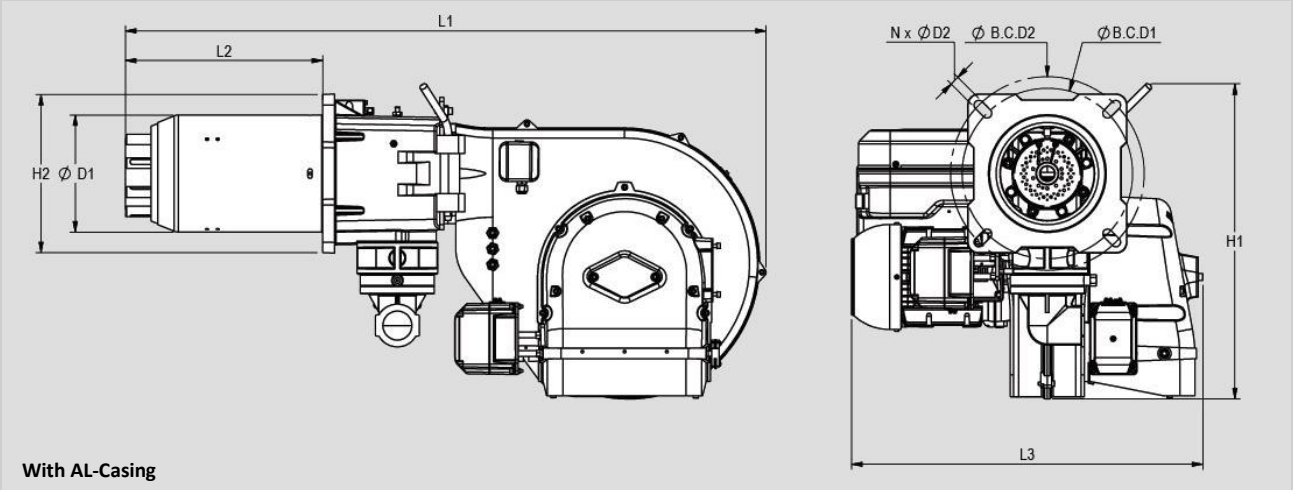
RGB-M-205



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C.D.1	B.C.D.2
RGB-M-205	1229	387.5	665	598	301	223	18	4	323	367

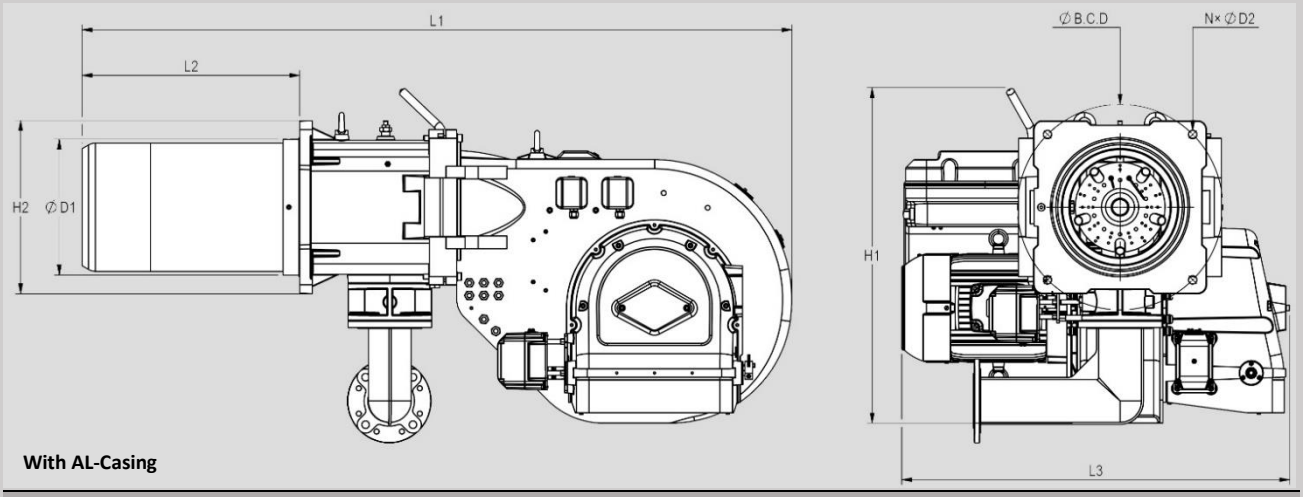
RGB-M-255/LN



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C.D.1	B.C.D.2
RGB-M-255/LN	1214	374	762	598	300	226	18	4	323	368

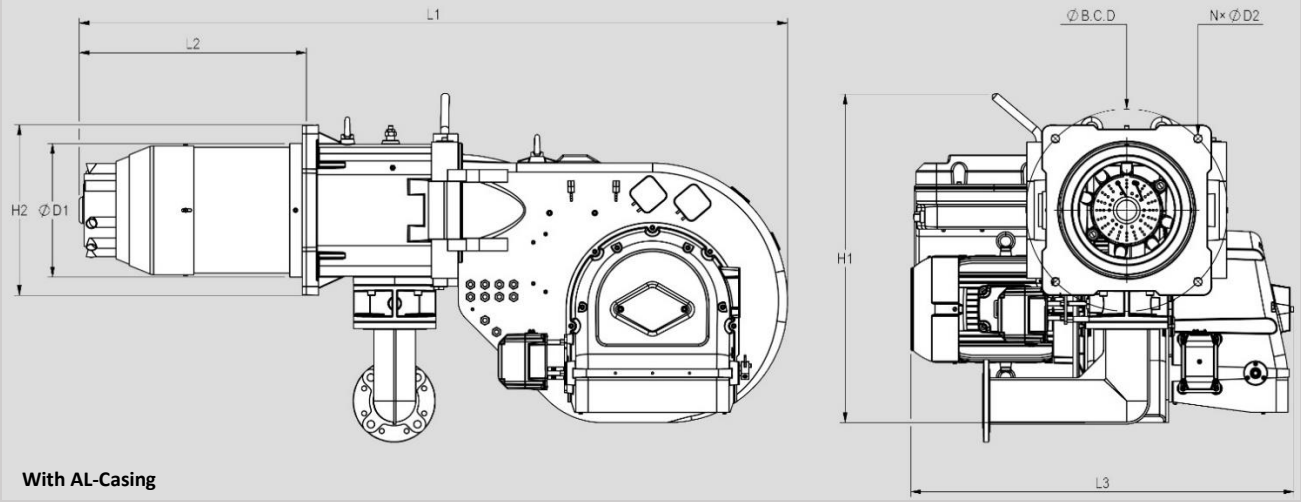
RGB-M-305, RGB-M-385



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C. D
RGB-M-305	1689	519.5	927	741	413	328	20	4	490
RGB-M-385	1689	519.5	927	741	413	328	20	4	490

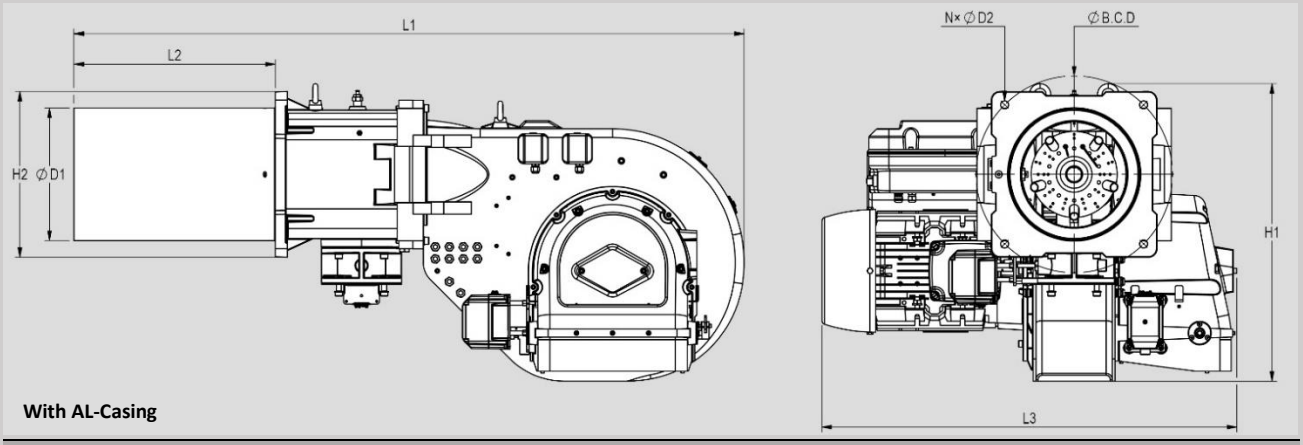
RGB-M-405/LN, RGB-M-505/LN



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C. D
RGB-M-405/LN	1721	552	930	798	413	328	20	4	490
RGB-M-505/LN	1721	552	930	798	413	328	20	4	490

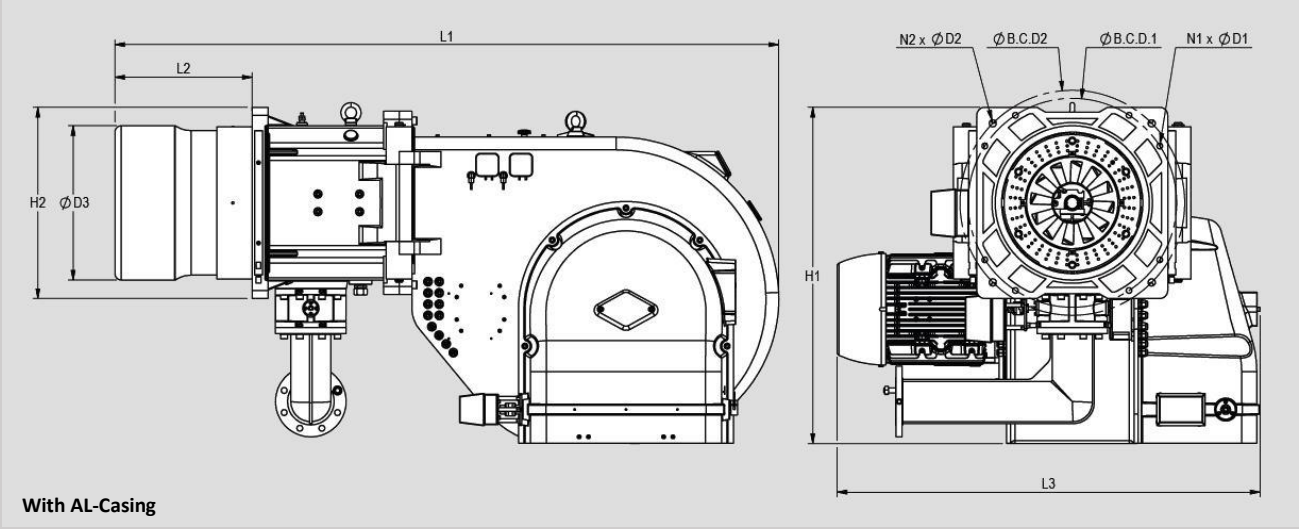
RGB-M-605



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C. D
RGB-M-605	1671	502	1035	741	413	334	20	4	490

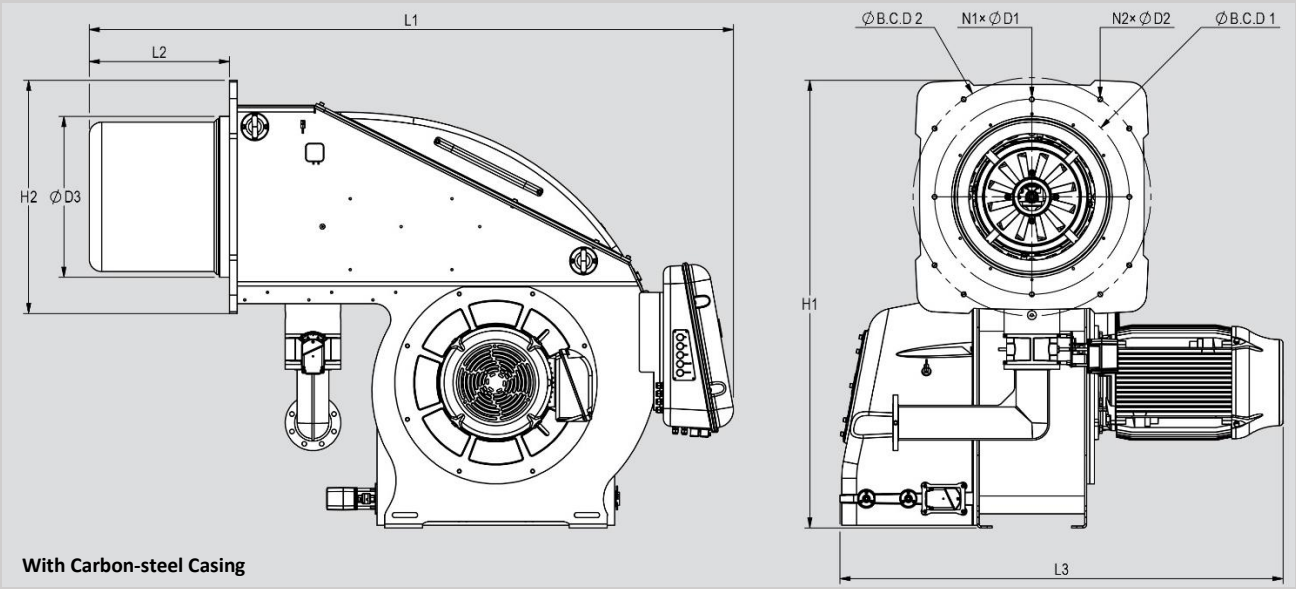
RGB-M-705, RGB-M-805, RGB-M-950, RGB-M-1050, RGB-M-1250



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	D_3	N_1	N_2	B.C.D1*	B.C.D2*
RGB-M-705	1830	363	1123	960	501	----	22	405	---	4	----	590
RGB-M-805	1830	363	1123	960	501	----	22	405	---	4	----	590
RGB-M-950	2069	428	1328	1046	595	17.5	22	484	8	4	650	700
RGB-M-1050	2069	428	1328	1046	595	17.5	22	484	8	4	650	700
RGB-M-1250	2062	421	1314	1046	595	17.5	22	490	8	4	650	700

RGB-M-705, RGB-M-805, RGB-M-950, RGB-M-1050, RGB-M-1250, RGB-M-1550, RGB-M-1750



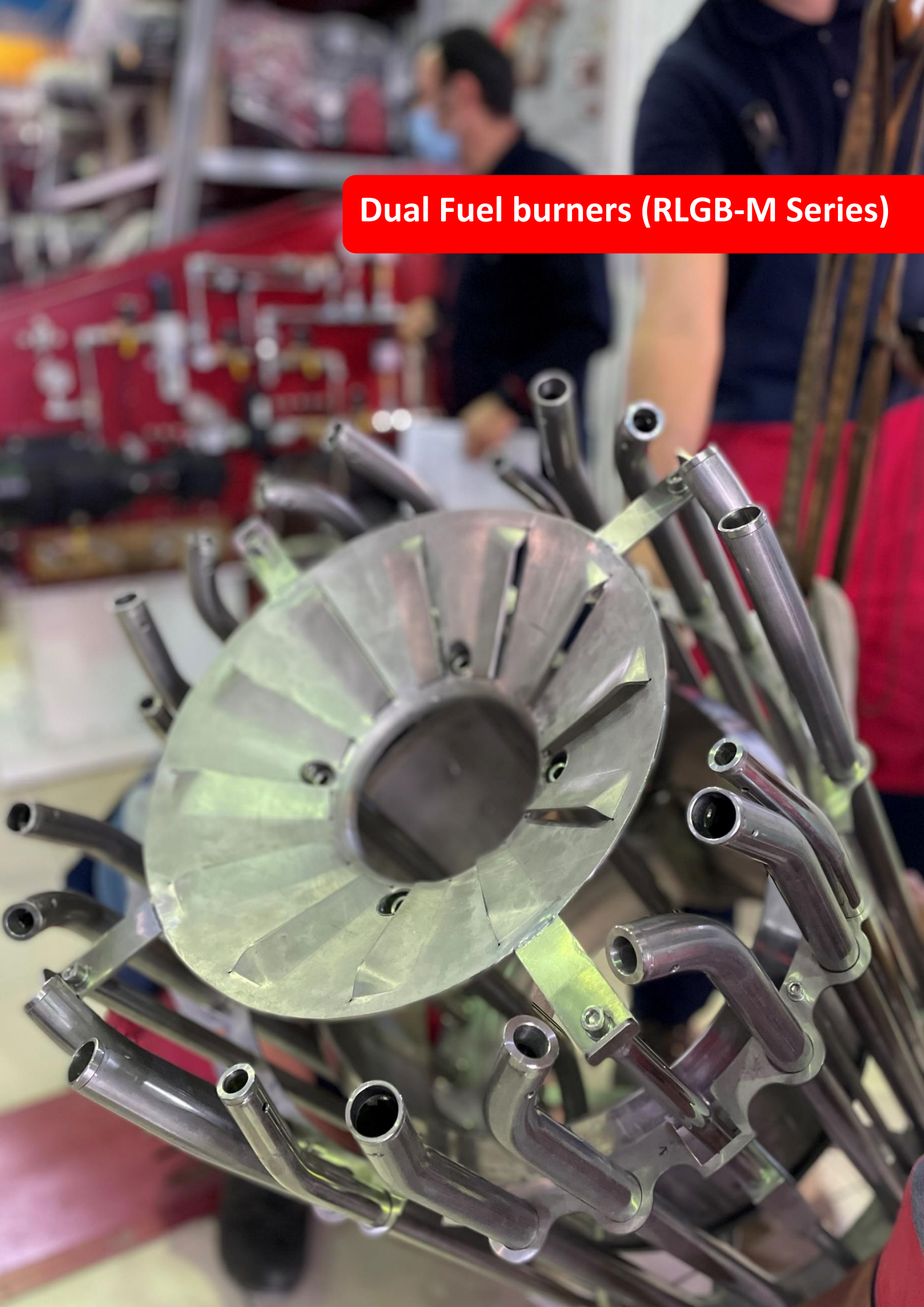
With Carbon-steel Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	D_3	N_1	N_2	B.C.D1*	B.C.D2*
RGB-M-705	2122	363	1123	960	501	----	22	405	---	4	----	590
RGB-M-805	2122	363	1123	960	501	----	22	405	---	4	----	590
RGB-M-950	2361	428	1328	1046	595	17.5	22	484	8	4	650	700
RGB-M-1050	2361	428	1328	1046	595	17.5	22	484	8	4	650	700
RGB-M-1250	2354	421	1314	1046	595	17.5	22	490	8	4	650	700
RGB-M-1550	2548	555	1752	1768	921	17	17	635	4	8	770	940.5
RGB-M-1750	2548	555	1752	1768	921	17	17	635	4	8	770	940.5

*** Note:**

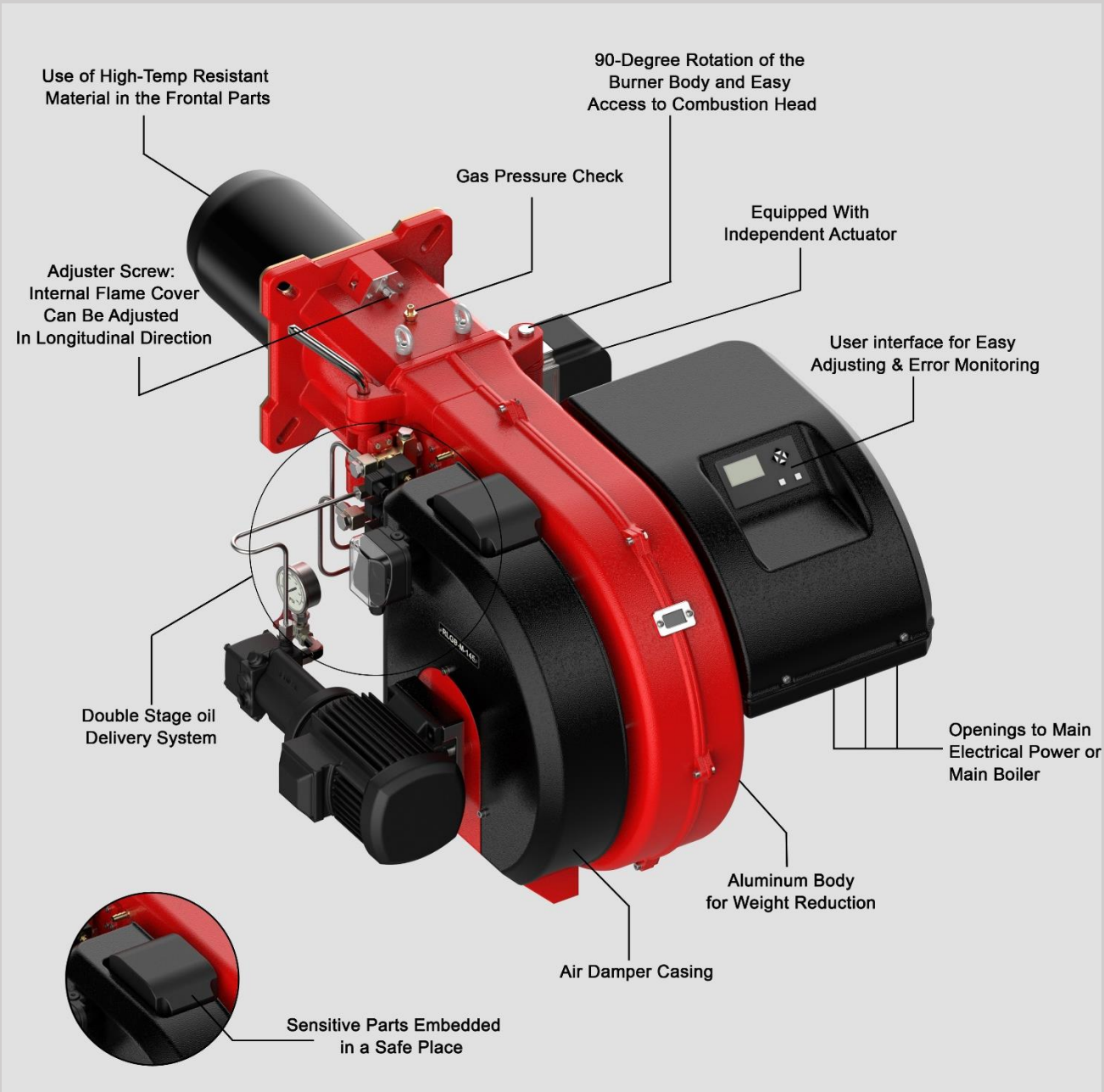
For the hole patterns of the burner flange, kindly refer to the burner technical proposals while placing an order.

Dual Fuel burners (RLGB-M Series)



Dual Fuel burners (RLGB-M Series):

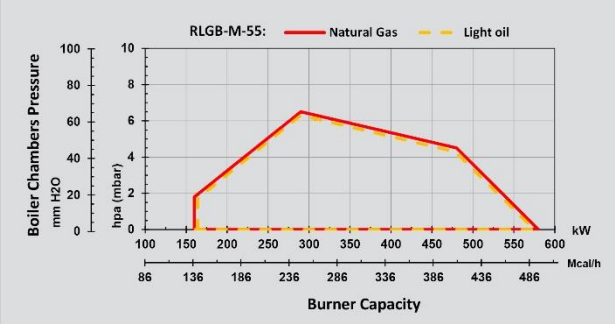
RLGB-M Series or RAADMAN Modulating dual fuel burners, covering a firing range from 700 to 17000 kW, are designed for a wide range of domestic and industrial applications. These burners have been tested and evaluated based on Iran national standard ISIRI-7595 (BS-EN 676) and ISIRI-7594 (BS-EN 267) for gas and oil operation respectively. According to performed experiments, the values of CO during low excess air operation is lower than 30 mg/kWh (in some cased very close to Zero). The precise design of their combustion head results a full gas-air mixture that guarantees high efficiency levels in all various applications. These burners are equipped with LAMTEC and SIEMENS control system with capability of full air/gas ratio control throughout entire burner operating range as well as devices of well-known European companies such as Dungs, Kromschroder and Suntec. Burner superior design accompanied by high quality electronic devices have also resulted a further improvement in boiler's performance in order to decrease fuel cost and emissions.



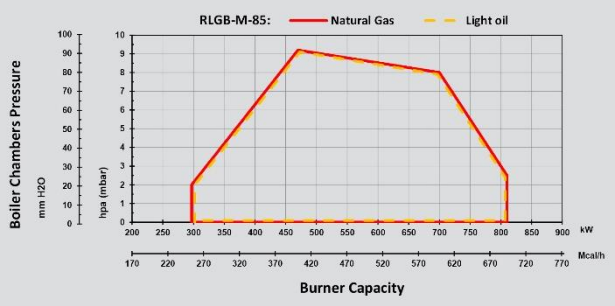
Burner Selection: Capacity and Working diagram

Modulating Dual-fuel Burner

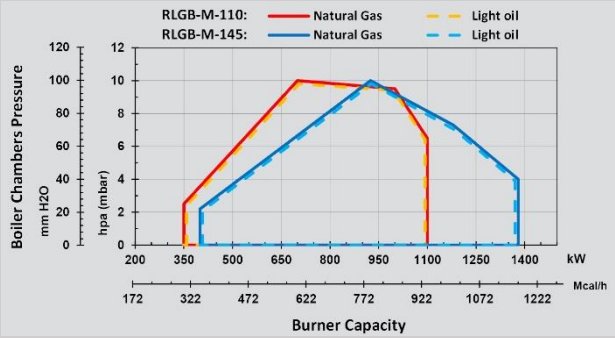
Burner	Capacity (kW)	Turn down
RLGB-M-55	NG:160-580	1:3
	LFO: 160-580	1:3



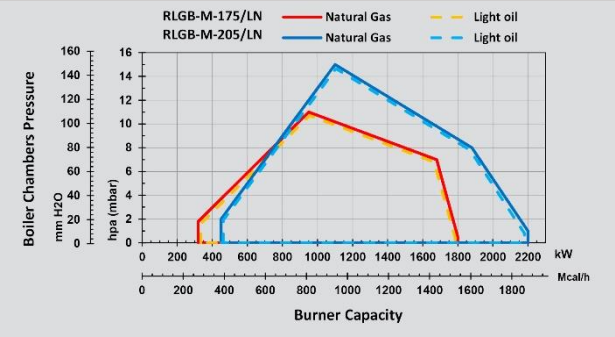
Burner	Capacity (kW)	Turn down
RLGB-M-85	NG:297-810	1:3
	LFO: 297-810	1:3



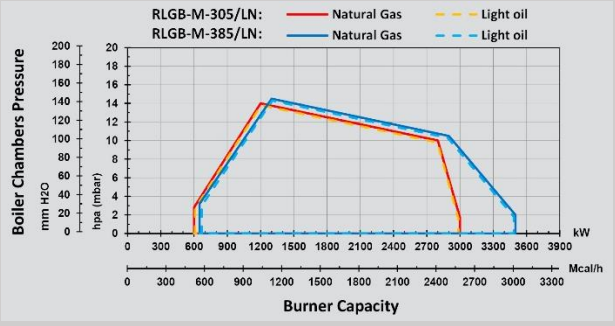
Burner	Capacity (KW)	Turn down
RLGB-M-110	NG: 350-1100	1:3
	LFO: 350-1100	1:3
RLGB-M-145	NG: 400-1380	1:4
	LFO:400-1380	1:4



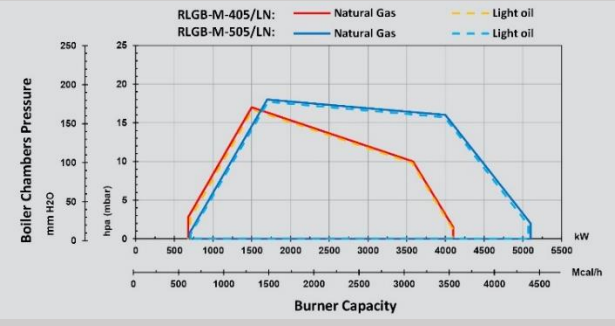
Burner	Capacity (kW)	Turn down
RLGB-M-175/LN	NG:320-1800	1:5
	LFO: 320-1800	1:5
RLGB-M-205/LN	NG:450-2200	1:5
	LFO:450-2200	1:5



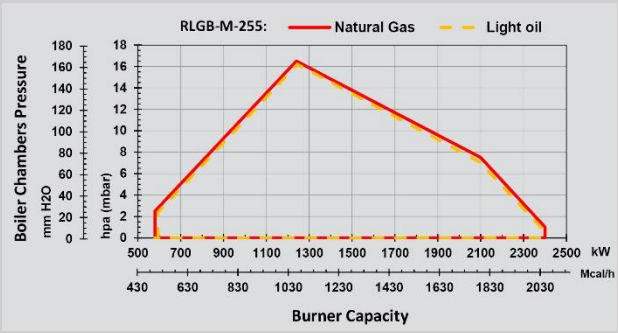
Burner	Capacity (kW)	Turn down
RLGB-M-305/LN	NG:600-3000	1:5
	LFO: 600-3000	1:5
RLGB-M-385/LN	NG:650-3500	1:5
	LFO:650-3500	1:5



Burner	Capacity (KW)	Turn down
RLGB-M-405/LN	NG: 680-4100	1:6
	LFO: 680-4100	1:6
RLGB-M-505/LN	NG: 700-5100	1:7
	LFO:700-5100	1:7

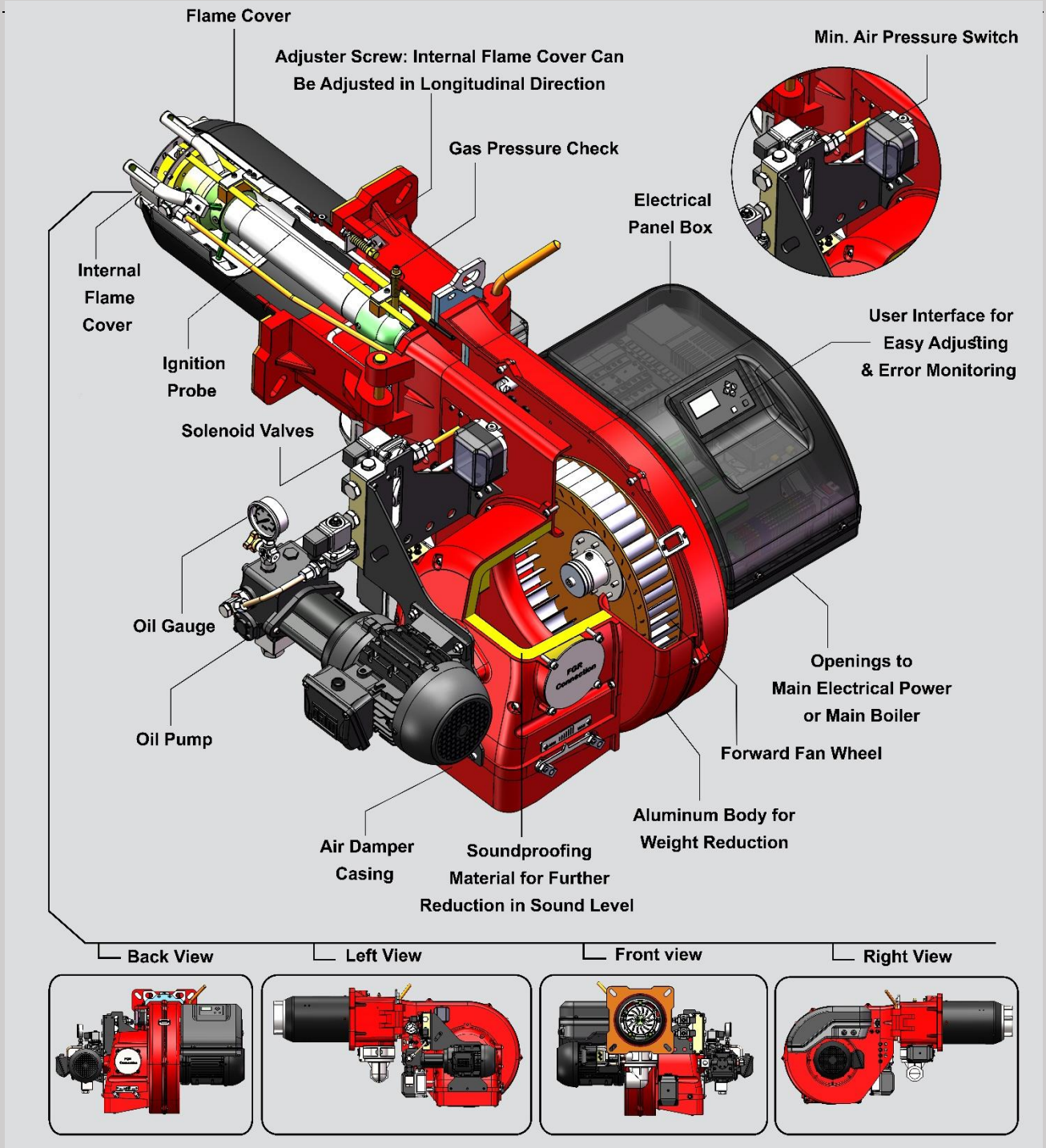


Burner	Capacity (KW)	Turn down
RLGB-M-255	NG:580-2400	1:4
	LFO:580-2400	1:4



The working diagrams for natural gas and light fuel oil are certified in accordance with BS-EN 676 and BS-EN 267 respectively.

The firing rate diagram has been obtained considering the ambient temperature of 20°C and atmospheric pressure of 1013 mbar (Sea level condition).



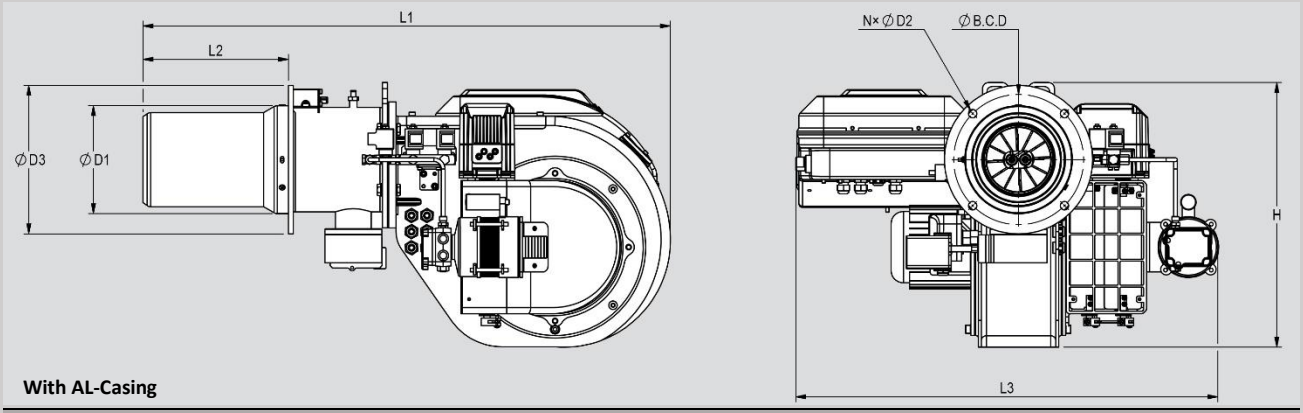
Technical data: RLGB-M-Series

- N.G operation: Electronic Modular
- LFO operation: II or III Stage

Power system		Power management system				
Burner	Motor(kW/PH/V/HZ/rpm)	Controller		Actuator(N.M)		
		Brand	Model	Air	Fuel	Head
RLGB-M-55	0.75 /3 /380-400 /50 /2840	LAMTEC	BT340	1.2	0.8	--
RLGB-M-85	1.1 /3 /380-400 /50 /2840	LAMTEC	BT340	1.2	1.2	--
RLGB-M-110	1.5 /3 /380-400 /50 /2840	LAMTEC	BT340	1.2	1.2	--
		SIEMENS	LMV2…			
RLGB-M-145	2.2 /3 /380-400 /50 /2840	LAMTEC	BT340	3	1.2	--
		SIEMENS	LMV2…			
RLGB-M-175/LN	4 /3 /380-400 /50 /2840	LAMTEC	BT340	3	1.2	--
		SIEMENS	LMV2…			
RLGB-M-205/LN	5.5 /3 /380-400 /50 /2840	LAMTEC	BT340	3	1.2	--
		SIEMENS	LMV2…			
RLGB-M-255	5.5 /3 /380-400 /50 /2840	LAMTEC	BT340	3	1.2	--
		SIEMENS	LMV2…			
RLGB-M-305/LN	7.5 /3 /380-400 /50 /2940	LAMTEC	BT340	3	1.2	--
		SIEMENS	LMV2…			
RLGB-M-385/LN	7.5 /3 /380-400 /50 /2940	LAMTEC	BT340	3	1.2	--
		SIEMENS	LMV2…			
RLGB-M-405/LN	11 /3 /380-400 /50 /2940	LAMTEC	BT340	9	1.2	--
		SIEMENS	LMV2…	10		
RLGB-M-505/LN	11 /3 /380-400 /50 /2940	LAMTEC	BT340	9	1.2	--
		SIEMENS	LMV2…	10		

General Dimension of RLGB-M-Series

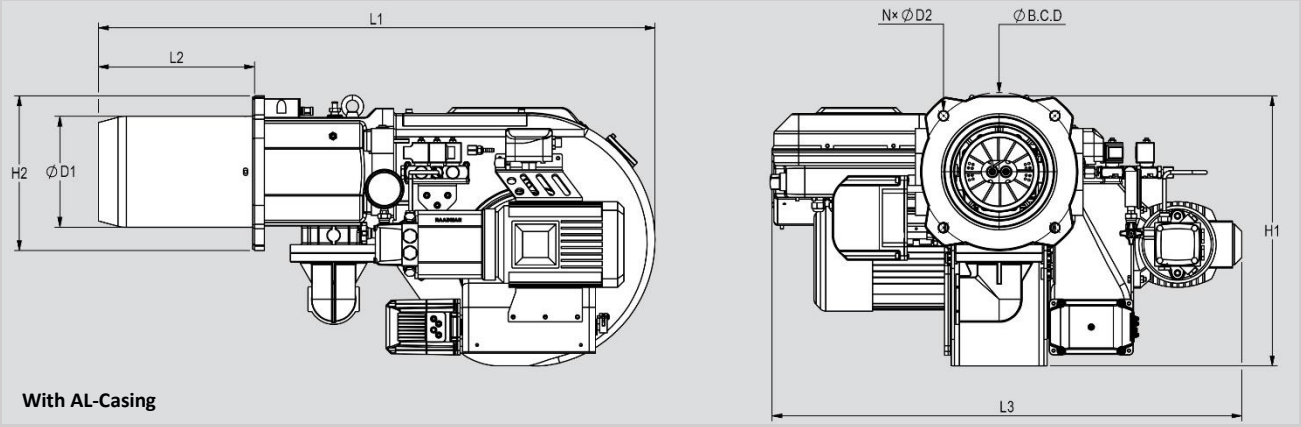
RLGB-M-55



With AL-Casing

Burner Type	L_1	L_2	L_3	H	D_1	D_2	D_3	N	B.C. D
RLGB-M-55	853	235	685	427	178	13.5	240	4	210

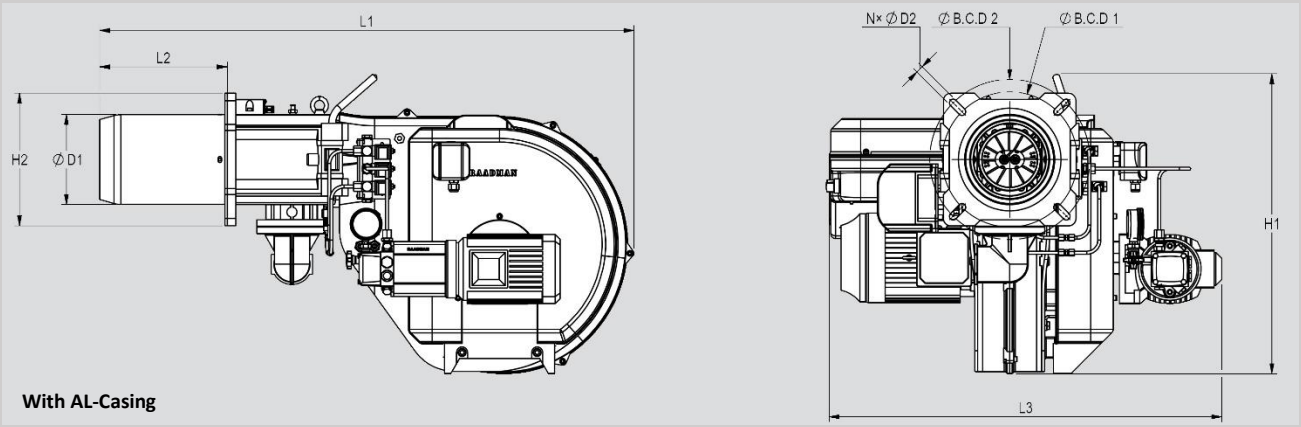
RLGB-M-85



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C. D
RLGB-M-85	871	222.5	763	436	250	179	15	4	255

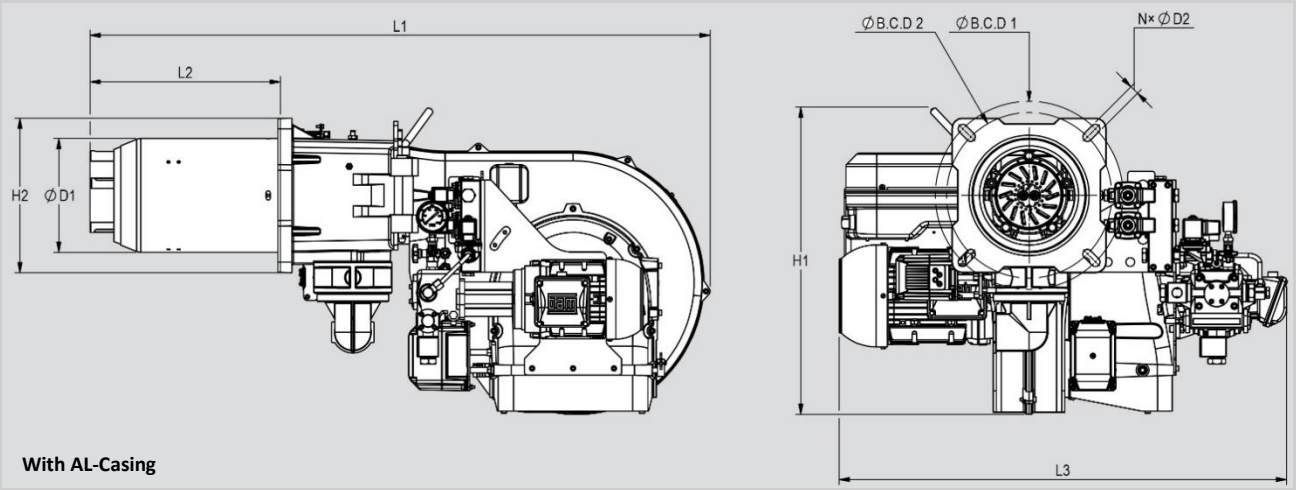
RLGB-M-110, RLGB-M-145



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C.D1	B.C.D2
RLGB-M-110	1068	255.5	791	598	265	184	15	4	270	320
RLGB-M-145	1068	255.5	791	598	265	184	15	4	270	320

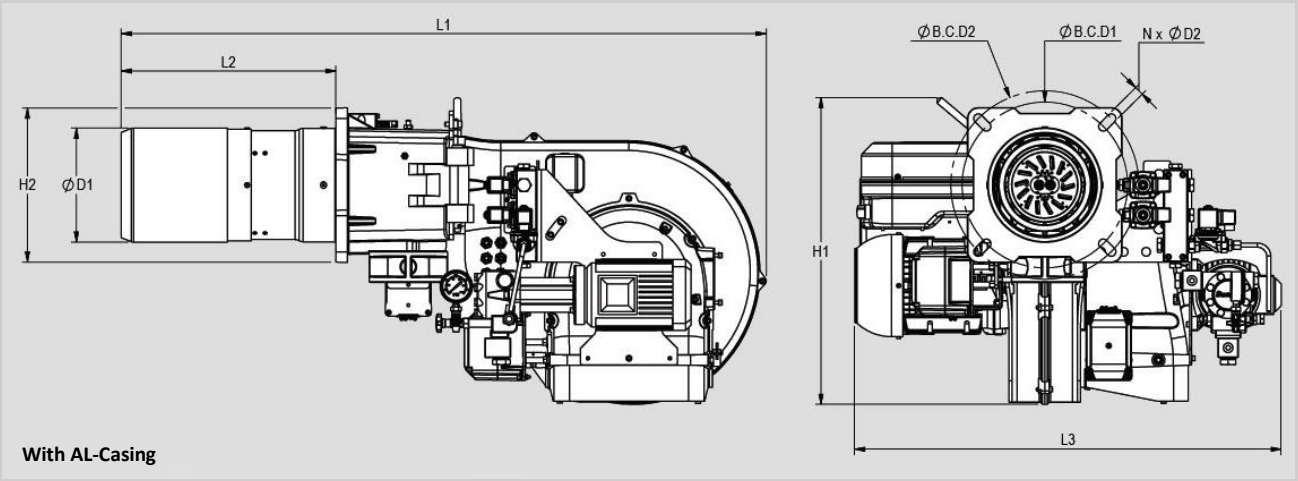
RLGB-M-175/LN, RLBB-M-205/LN



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C.D1	B.C.D2
RLGB-M-175/205/LN	1213	373	875	598	302	226	18	4	323	367

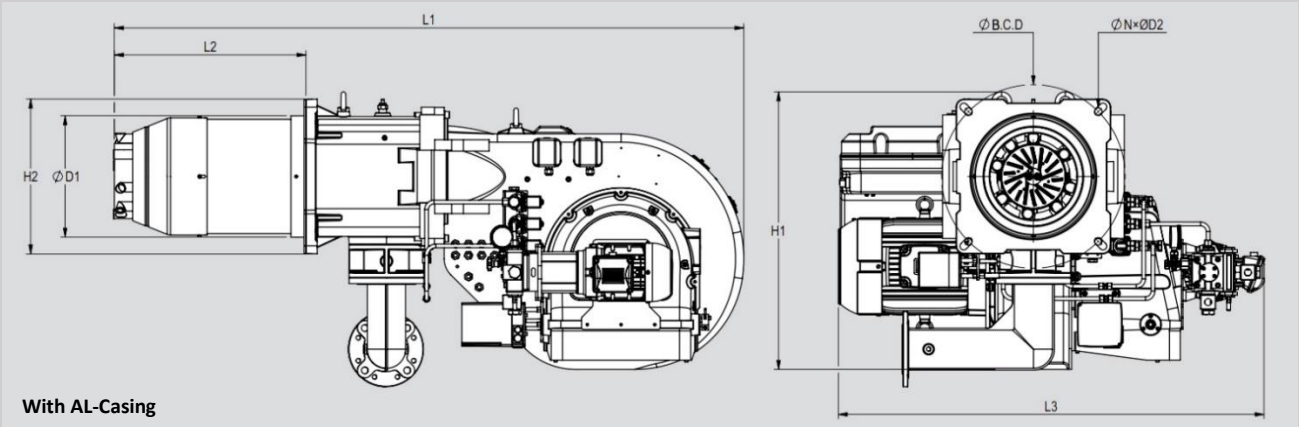
RLGB-M-255



With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C.D1	B.C.D2
RLGB- M-255	1260	419	833	598	302	223	18	4	323	367

RLGB-M-305/LN, RLGB-M-385/LN, RLGB-M-405/LN, RLGB-M-505/LN, RLGB-M-605/LN

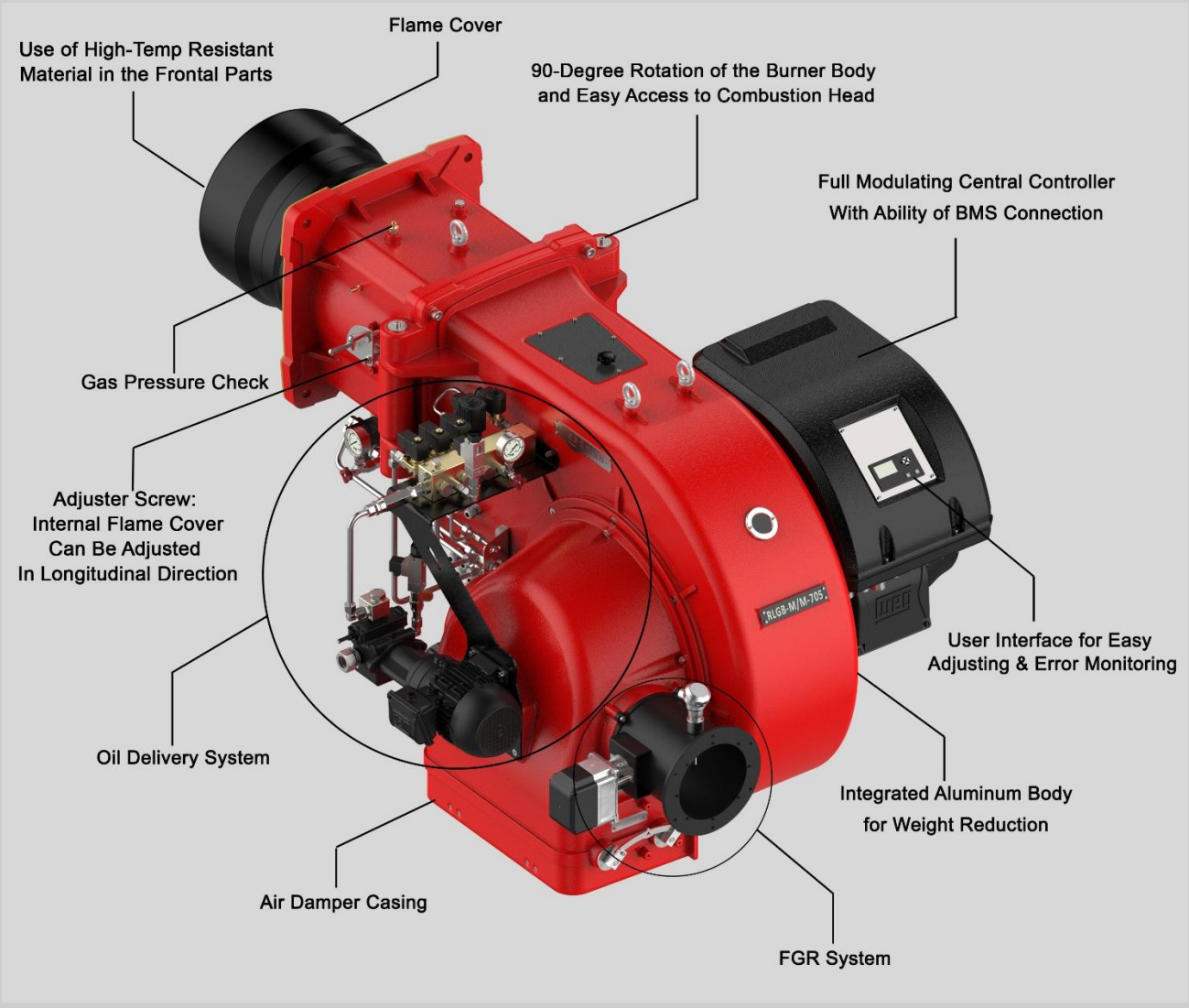


With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C. D
RLGB-M-305/LN	1683	514	1137	741	413	328	20	4	490
RLGB-M-385/LN	1683	514	1137	741	413	328	20	4	490
RLGB-M-405/LN	1683	514	1249	741	413	328	20	4	490
RLGB-M-505/LN	1683	514	1249	741	413	328	20	4	490
RLGB-M-605/LN	1680	511.5	1245	741	413	340	20	4	490

Dual Fuel burners (RLGB-M/M Series)

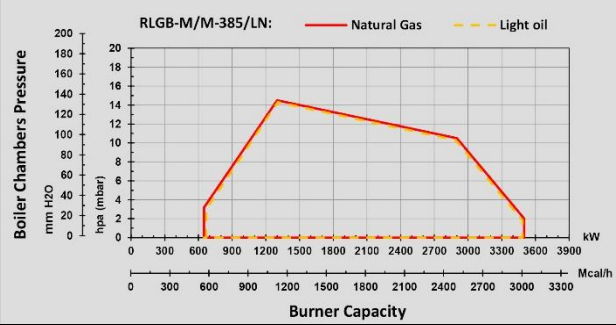
Dual Fuel burners (RLGB-M/M Series):



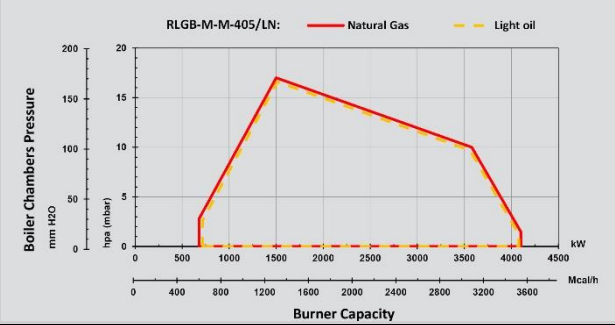
Burner Selection: Capacity and Working diagram

Modulating Dual-fuel Burner

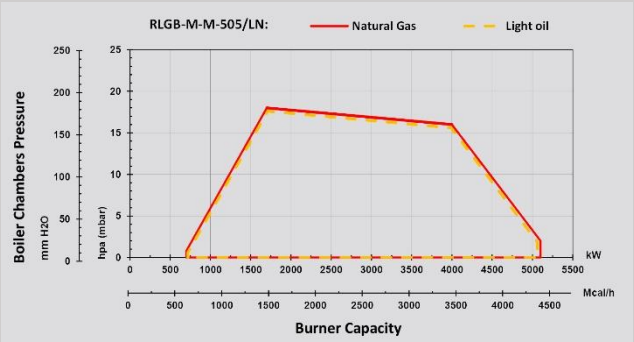
Burner	Capacity (kW)	Turn down
RLGB-M/M-385/LN	NG:650-3500 LFO: 650-3500	1:5 1:5



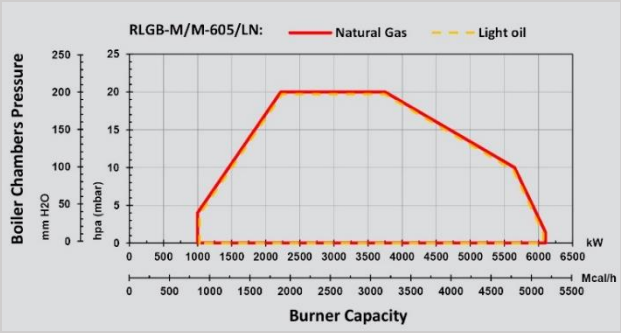
Burner	Capacity (KW)	Turn down
RLGB-M/M-405/LN	NG:680-4100 LFO: 680-4100	1:6 1:6



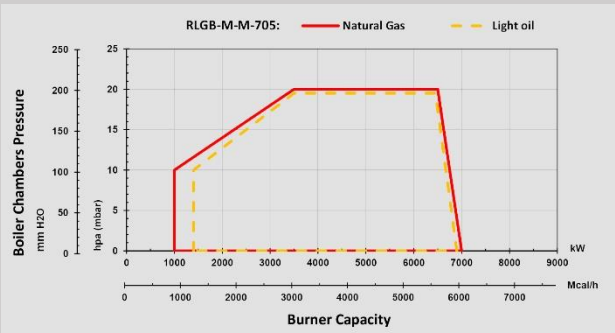
Burner	Capacity (KW)	Turn down
RLGB-M/M-505/LN	NG: 700-5100 LFO: 700-5100	1:7 1:7



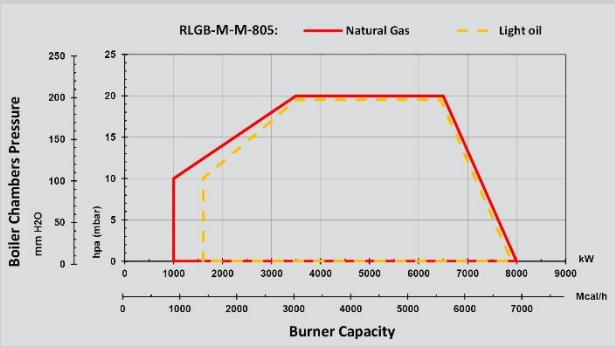
Burner	Capacity (KW)	Turn down
RLGB-M/M-605/LN	NG: 1000-6100 LFO: 1000-6100	1:6 1:6



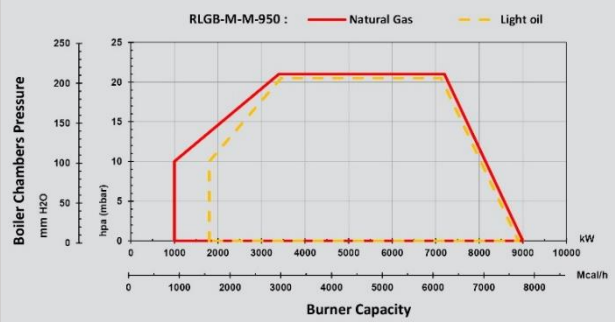
Burner	Capacity (kW)	Turn down
RLGB-M/M-705	NG:1000-7000 LFO: 1400-7000	1:7 1:5



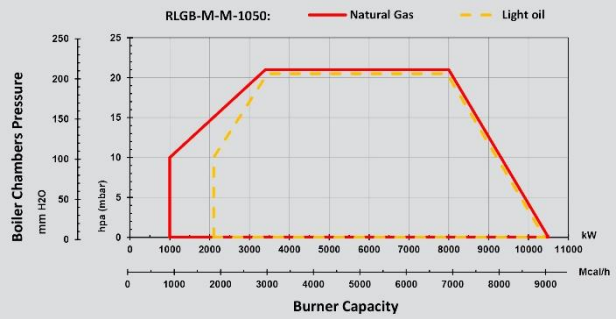
Burner	Capacity (KW)	Turn down
RLGB-M/M-805	NG:1000-8000 LFO: 1600-8000	1:8* 1:5



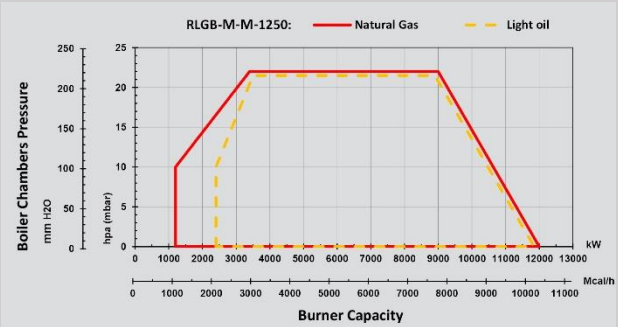
Burner	Capacity (KW)	Turn down
RLGB-M/M-950	NG: 1000-9000	1:9*
	LFO: 1800-9000	1:5



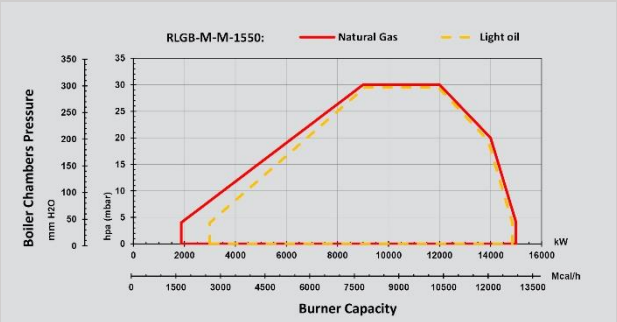
Burner	Capacity (KW)	Turn down
RLGB-M/M-1050	NG:1000-10500	1:10*
	LFO: 2000-10500	1:5



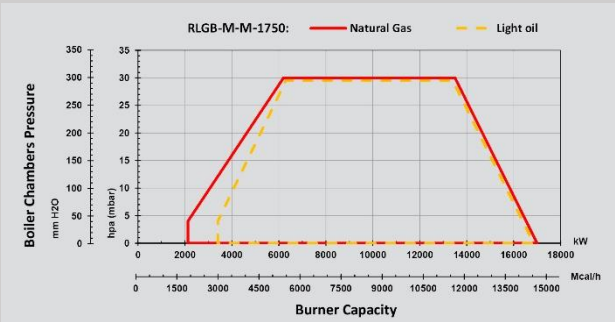
Burner	Capacity (kW)	Turn down
RLGB-M/M-1250	NG:1200-12000	1:10*
	LFO:2400-12000	1:5



Burner	Capacity (kW)	Turn down
RLGB-M/M-1550	NG:1900-15000	1:8*
	LFO: 3100-15000	1:5



Burner	Capacity (kW)	Turn down
RLGB-M/M-1750	NG:2200-17500	1:8*
	LFO:3500-17000	1:5



* Special note: Turn-down ratio higher than (1:8, 1:9, 1:10, etc.) are accessible for the burner with the head actuator. Otherwise, without a head actuator, the maximum turn-down ratio is 1:6.

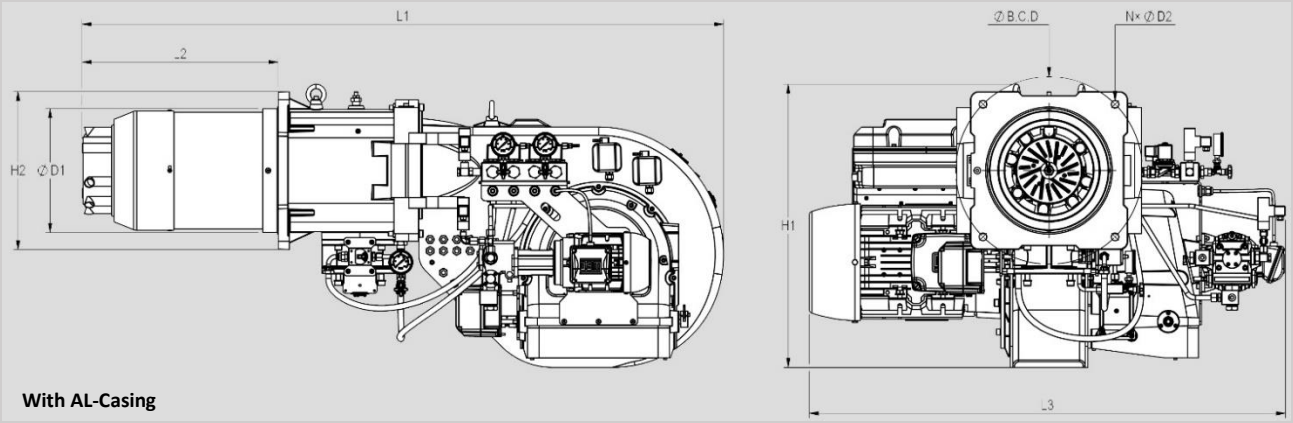
Technical data: RLGB-M/M-Series

- N.G operation: Electronic Modular
- LFO operation: Electronic Modular

Power system		Power management system				
Burner	Motor(kW/PH/V/HZ/rpm)	Controller		Actuator (N.M)		
		Brand	Name	Air	Fuel	Head
RLGB-M/M-385/LN	7.5 /3 /380-400 /50 /2840	LAMTEC	BT340	3	3	--
		SIEMENS	LMV2…			
RLGB-M/M-405/LN	11 /3 /380-400 /50 /2840	LAMTEC	BT340	9	3	--
		SIEMENS	LMV2…	10		
RLGB-M/M-505/LN	11 /3 /380-400 /50 /2840	LAMTEC	BT340	9	3	--
		SIEMENS	LMV2...	10		
RLGB-M/M-605/LN	15 /3 /380-400 /50 /2840	LAMTEC	BT340	9	3	--
		SIEMENS	LMV2…	10		
RLGB-M/M-705	18.5/3 /380-400 /50 /2840	LAMTEC	BT340	9	3	--
		SIEMENS	LMV2…	10		
RLGB-M/M-805	18.5/3 /380-400 /50 /2840	LAMTEC	ETAMATIC-OEM	20	6	20
		SIEMENS	LMV5…		20	
RLGB-M/M-950	22/3 /380-400 /50 /2840	LAMTEC	ETAMATIC-OEM	20	6	20
		SIEMENS	LMV5…		20	
RLGB-M/M-1050	22/3 /380-400 /50 /2840	LAMTEC	ETAMATIC-OEM	20	6	20
		SIEMENS	LMV5…		20	
RLGB-M/M-1250	30/3 /380-400 /50 /2840	LAMTEC	ETAMATIC-OEM	20	6	20
		SIEMENS	LMV5…		20	
RLGB-M/M-1550	45/3 /380-400 /50 /2900	LAMTEC	ETAMATIC-OEM	20	6	30
		SIEMENS	LMV5…		20	37
RLGB-M/M-1750	55/3 /380-400 /50 /2900	LAMTEC	ETAMATIC-OEM	20	6	30
		SIEMENS	LMV5		20	37

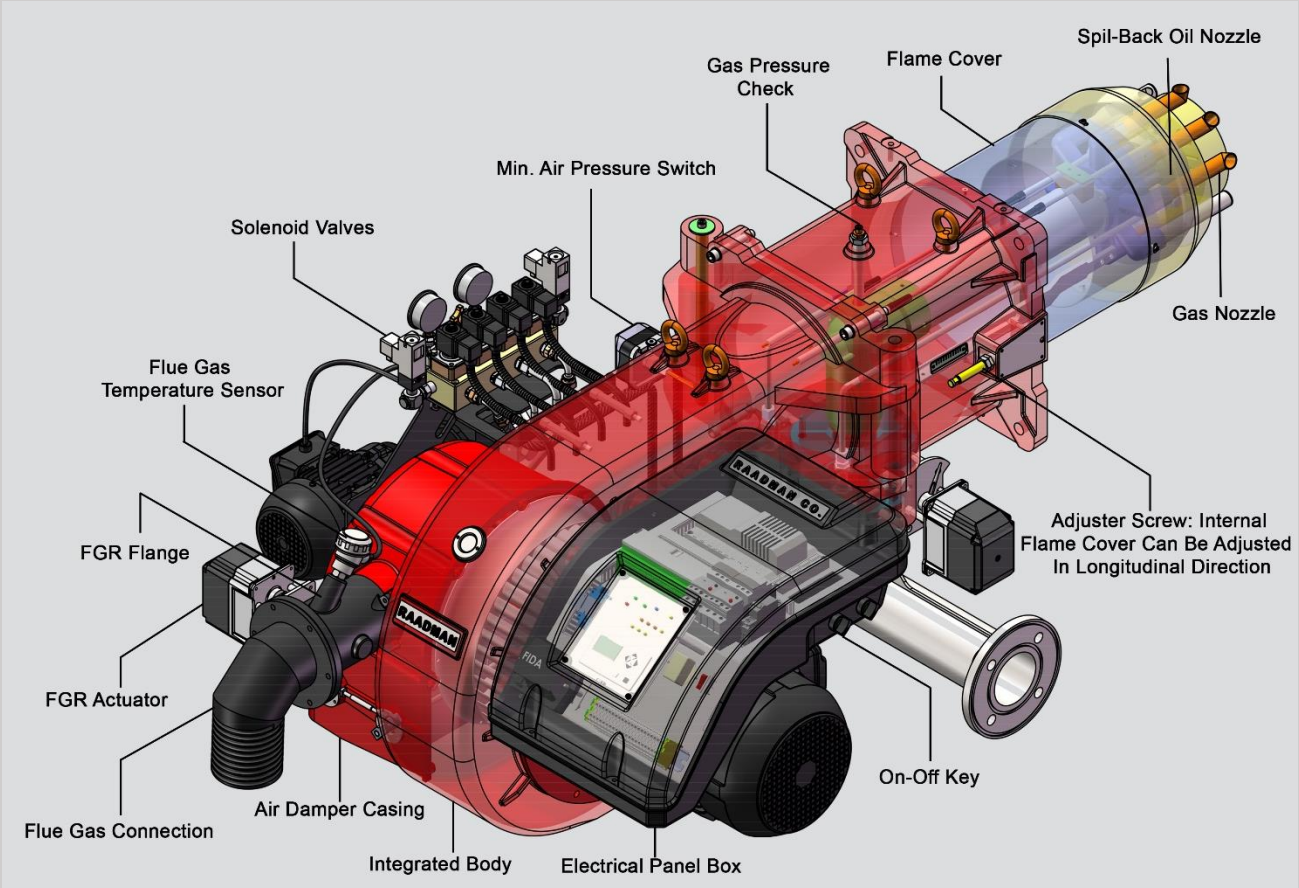
General Dimension of RLGB-M/M-Series

RLGB-M/M-385/LN, RLGB-M/M-405/LN, RLGB-M/M-505/LN, RLGB-M/M-605/LN

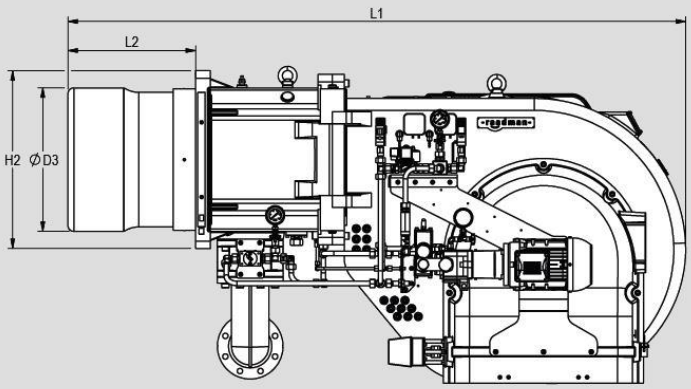


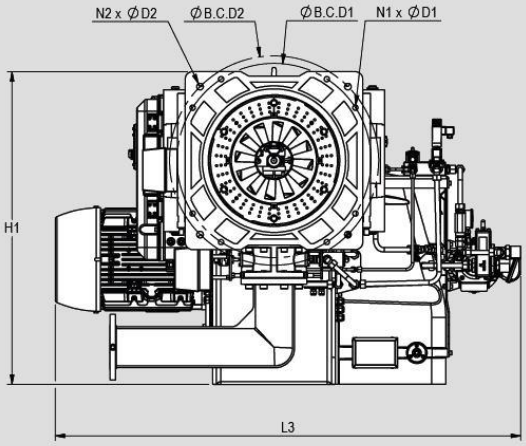
With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	N	B.C. D
RLGB-M/M-385/LN	1683	514	1249	741	413	328	20	4	490
RLGB-M/M-405/LN	1683	514	1249	741	413	328	20	4	490
RLGB-M/M-505/LN	1683	514	1249	741	413	328	20	4	490
RLGB-M/M-605/LN	1680	511.5	1245	741	413	340	20	4	490



RLGB-M/M-705, RLGBM/M-805, RLGB-M/M-950, RLGB-M/M-1050, RLGB-M/M-1250



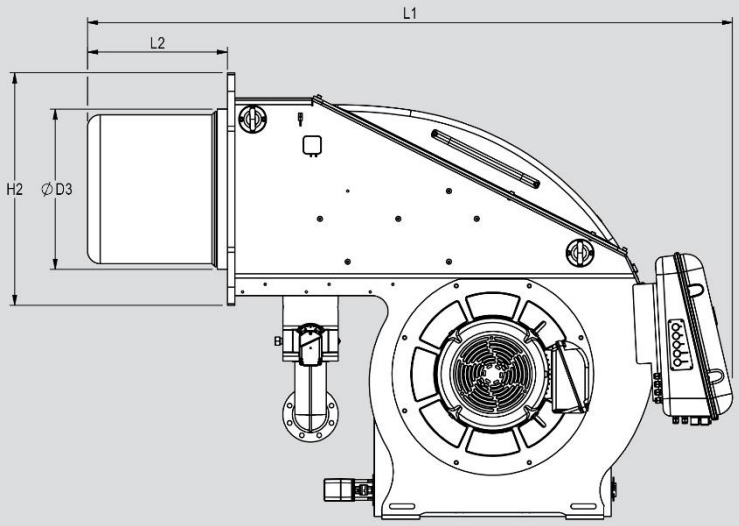


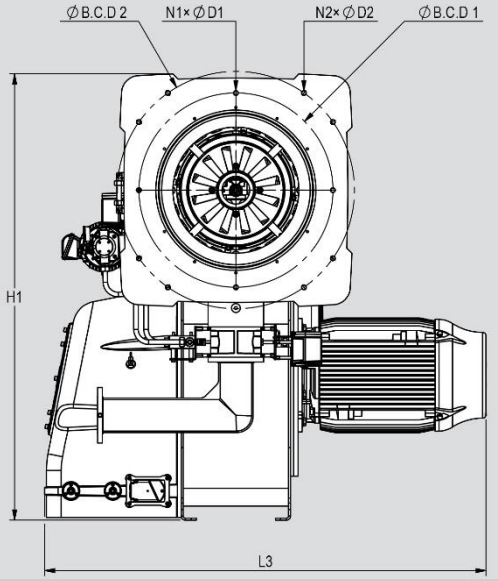
With AL-Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	D_3	N_1	N_2	B.C.D1*	B.C.D2*
RLGB-M/M-705	1830	363	1371	960	502	----	22	405	---	4	----	590
RLGB-M/M-805	1830	363	1371	960	502	----	22	405	---	4	----	590
RLGB-M/M-950	2069	428	1559	1046	595	17.5	22	484	8	4	650	700
RLGB-M/M-1050	2069	428	1559	1046	595	17.5	22	484	8	4	650	700
RLGB-M/M-1250	2062	428	1609	1046	595	17.5	22	490	8	4	650	700

RLGB-M/M-705, RLGBM/M-805, RLGB-M/M-950, RLGB-M/M-1050, RLGB-M/M-1250

RLGB-M/M-1550, RLGB-M/M-1750





With Carbon-Steel Casing

Burner Type	L_1	L_2	L_3	H_1	H_2	D_1	D_2	D_3	N_1	N_2	B.C.D1*	B.C.D2*
RLGB-M/M-705	2122	363	1123	960	501	---	22	405	---	4	----	590
RLGB-M/M-805	2122	363	1123	960	501	---	22	405	---	4	----	590
RLGB-M/M-950	2361	428	1312	1046	595	17.5	22	480	8	4	650	700
RLGB-M/M-1050	2361	428	1312	1046	595	17.5	22	480	8	4	650	700
RLGB-M/M-1250	2354	420	1312	1046	595	17.5	22	496	8	4	650	700
RLGB-M/M-1550	2548	555	1752	1768	921	17	17	635	4	8	770	940.5
RLGB-M/M-1750	2548	555	1752	1768	921	17	17	635	4	8	770	940.5

*** Note:** For the hole patterns of the burner flange, kindly refer to the burner technical proposals while placing an order.


PACKMAN

Gas train components

Ball valve: To isolate the system from any other train in boiler room (Excluded from the burner gas train)

Filter: To protect rest of the system from any debris or dust that may be carried with gas stream. Debris may for example consist of parts accidently left in the pipe during construction.

Regulator: To keep the input pressure of a fluid to a desired value at its output. Based on the input pressure of the gas line, they are divided in two categories: Low pressure regulator, High pressure regulator.

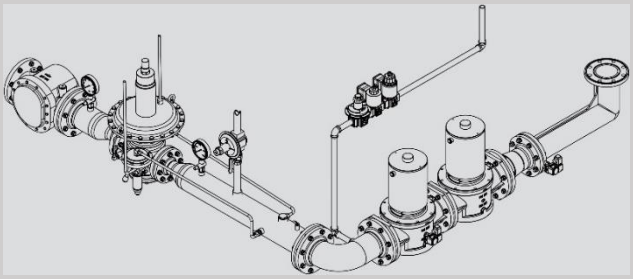
Safety Valve: Single-stage solenoid valve, normally when closed, fast opening, fast closing, manual limitation of flowing gas volume by adjusting main volume.

Main valve: Single-stage solenoid valve, normally when closed, slow opening, fast closing. Opening time adjustment with fast stroke range, Main volume adjustment.

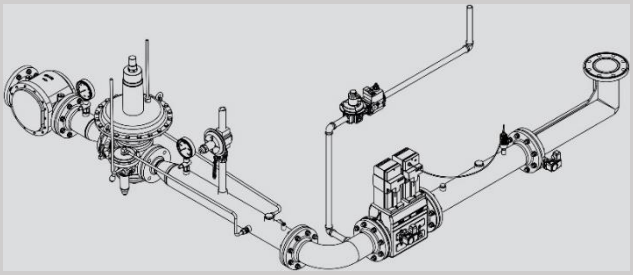
Based on ISIR-7595 and ISIRI-7594 (BS-EN 676 and BS-EN 267), any burners higher than 70 Kw must include two gas valves for further safety operation.

Gas train selection

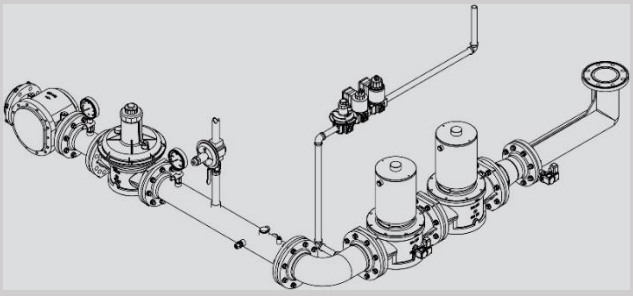
High-pressure gas supply, standard version
Used when:
Input pressure is between 360 mbar and 4 bar.
The total pressure loss in gas valves, Butterfly gate valve and combustion chamber resistance does not exceed 200 mbar.

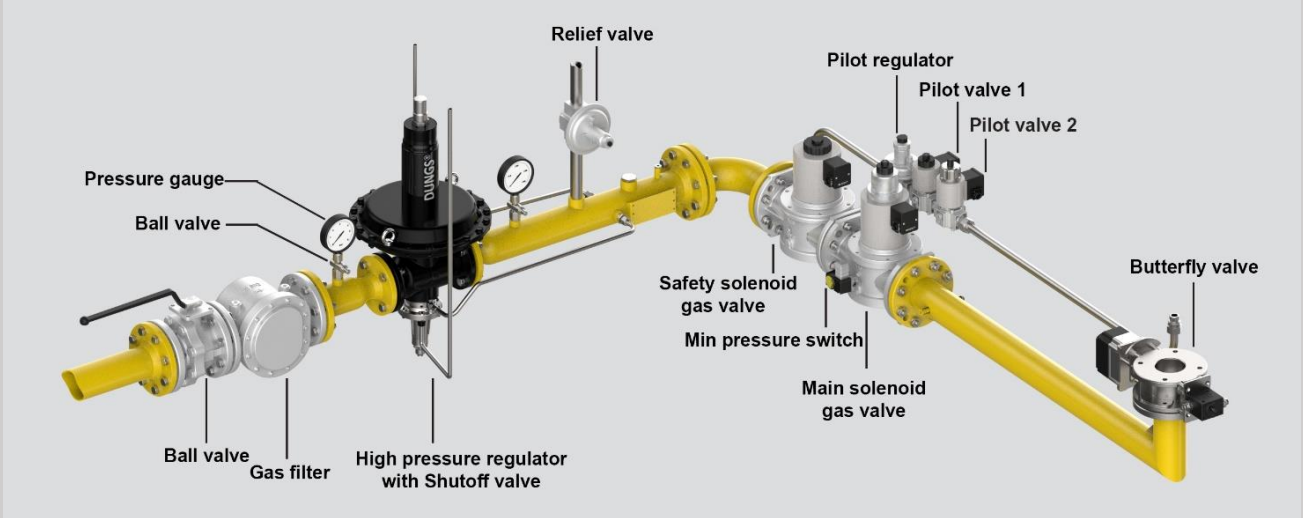


High-pressure gas supply, Multi bloc version
Used when:
Input pressure is between 360 mbar and 4 bar.
The total pressure loss in gas valves, Butterfly gate valve and combustion chamber resistance does not exceed 350 mbar.



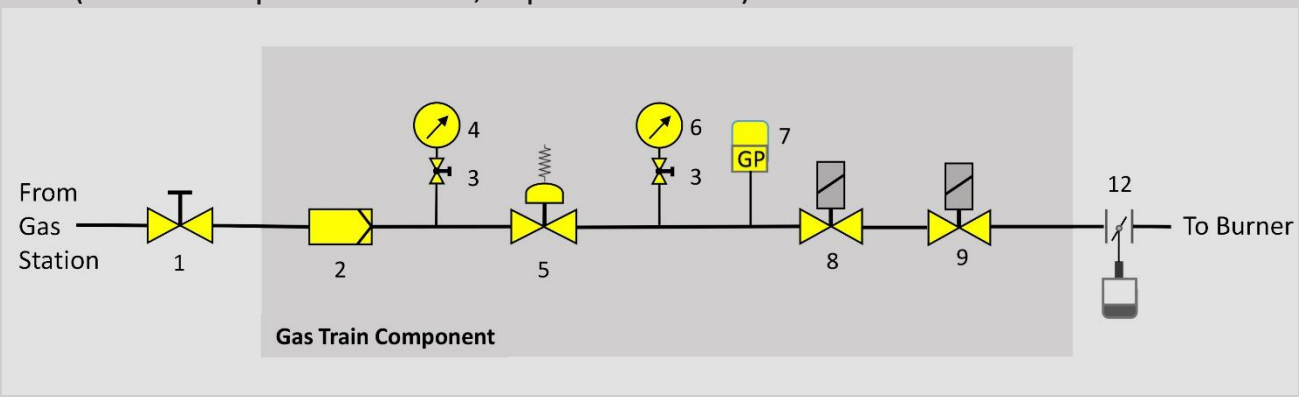
Low-pressure gas supply
Input pressure is < 360 bar
The total pressure loss in gas valves, Butterfly gate valve and combustion chamber resistance does not exceed 200 mbar.



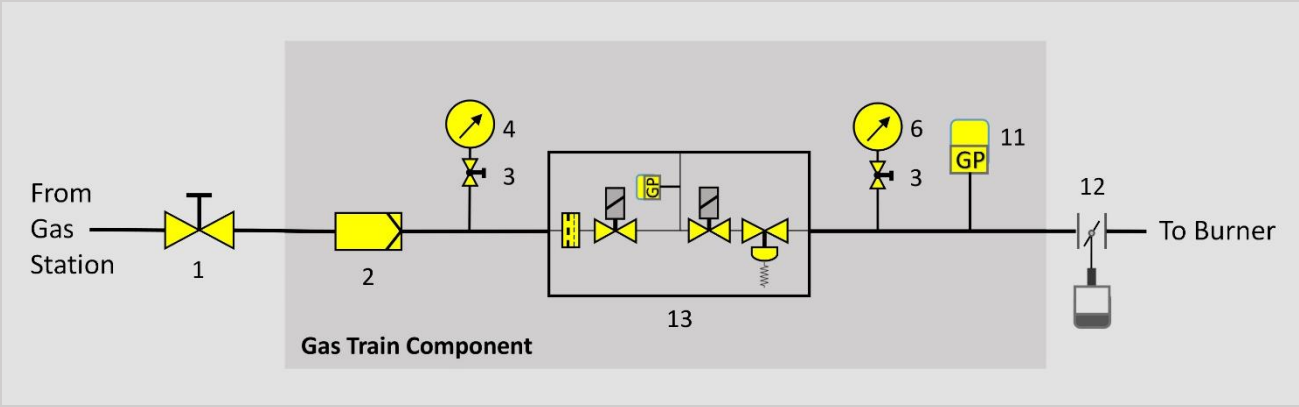


Gas Train Diagram

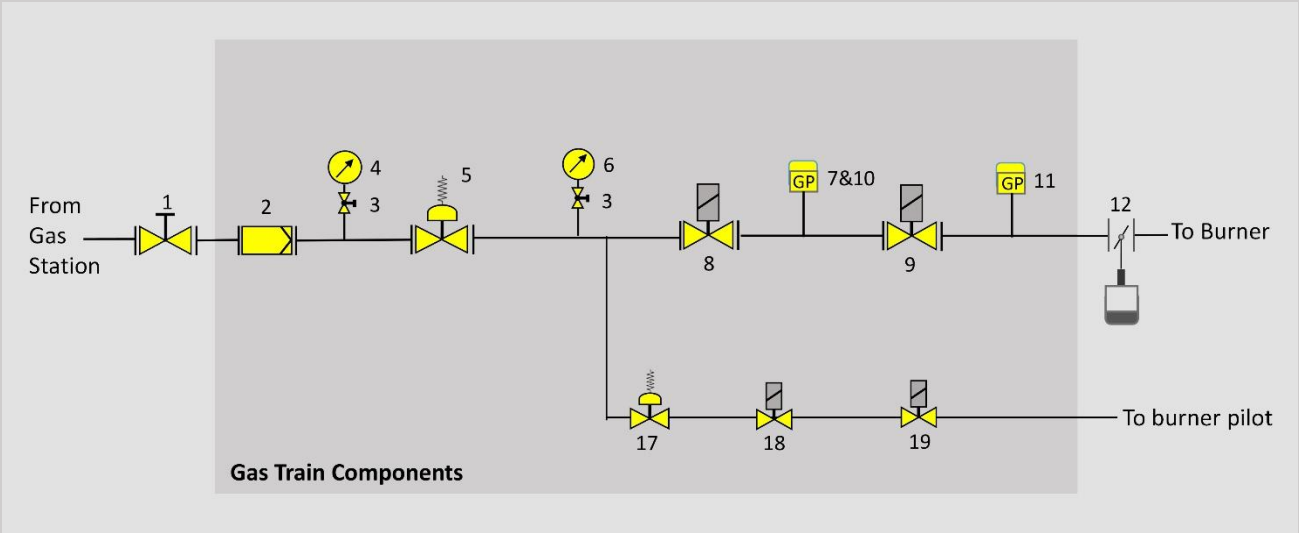
GT1 (Pressure input<360 mbar, separated items)



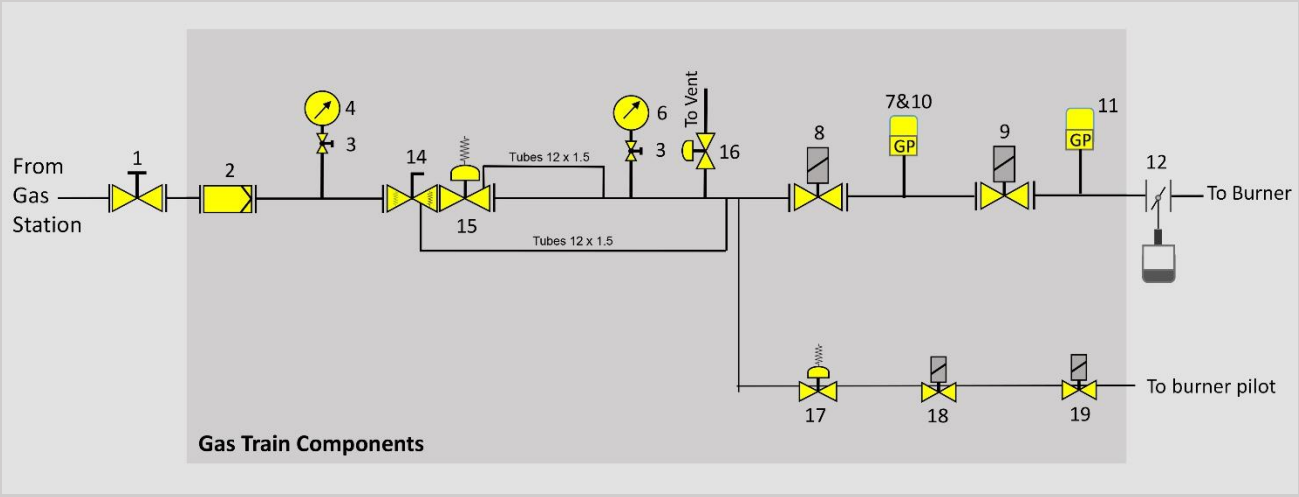
GT2 (Pressure input<360 mbar, multi bloc gas train)



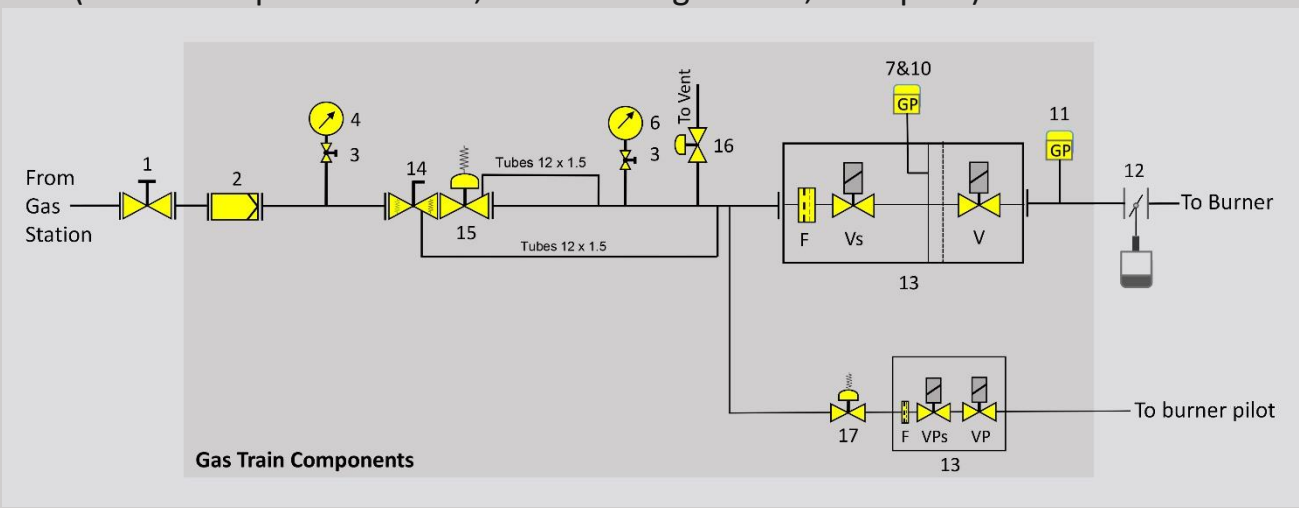
GT3 (Pressure input<360 mbar, separated gas train, with pilot)



GT4 (Pressure input>360 mbar, separated gas train, with pilot)



GT5 (Pressure input>360 mbar, multi block gas train, with pilot)



1: Ball valve
2: Gas filter
3: Push button valve
4: Pressure Gauge
5: Pressure regulator (Low-pressure)
6: Pressure Gauge
7: Min gas pressure switch
8: Safety gas valve
9: Main gas valve
10: Leak Test gas pressure switch
11: Max gas pressure switch
12: Butterfly valve
13: Multi-Block Solenoid Valve
14: Shut-off valve
15: High pressure regulator
16: Relief valve
17: Pilot regulator
18: Pilot valve 1
19: Pilot valve 2

Gas Train Size

RGB-M Series					
	Gas model	Gas train size	Main Solenoid valve size	ΔP B. V	ΔP C.H* (mbar)
RGB-M-55	GT-1	Rp 1 ½	Rp 1 ½	2	7.2
	GT-2	Rp 1 ½	Rp 1 ½		
RGB-M-80	GT-1	Rp 1 ½	Rp 1 ½	2	10.3
	GT-2	Rp 1 ½	Rp 1 ½		
RGB-M-85/LN	GT-1	Rp 1 ½	Rp 1 ½	2	11.7
	GT-2	Rp 1 ½	Rp 1 ½		
RGB-M-110	GT-1	Rp 2	Rp 2	2	9
	GT-2	Rp 2	Rp 2		
RGB-M-130/LN	GT-1	Rp 2	Rp 2	2	22.5
	GT-2	Rp 2	Rp 2		
RGB-M-145	GT-1	Rp 2	Rp 2	2	8.6
	GT-2	Rp 2	Rp 2		
RGB-M-205	GT-1	Rp 2	Rp 2	3	14.5
	GT-2	Rp 2	Rp 2		
RGB-M-255/LN	GT-1	DN65	DN65	3	24.9
	GT-2	Rp 2	Rp 2		
RGB-M-305	GT-1	DN65	DN65	4	20.6
	GT-2	Rp 2	Rp 2		
RGB-M-385	GT-1	DN80	DN80	4	31.7
	GT-2	DN65	DN65		
RGB-M-405/LN	GT-1	DN80	DN80	4	47
	GT-2	DN65	DN65		
RGB-M-505/LN	GT-1	DN80	DN80	4	56
	GT-2	DN65	DN65		
RGB-M-605	GT-1	DN80	DN80	4	62.8
	GT-2	DN65	DN65		
RGB-M-705	GT-3	DN100	DN100	4	80
	GT-4	DN80	DN80		
RGB-M-805	GT-3	DN100	DN100	5	72
	GT-4	DN80	DN80		
RGB-M-950	GT-3	DN100	DN100	5	76
	GT-4	DN80	DN80		
RGB-M-1050	GT-3	DN100	DN100	5	100
	GT-4	DN80	DN80		
RGB-M-1250	GT-4	DN100	DN100	5	126
	GT-5	DN100	DN100		
RGB-M-1550	GT-4	DN100	DN100	7	110
	GT-5	DN100	DN100		
RGB-M-1750	GT-4	DN100	DN100	7	120
	GT-5	DN100	DN100		

RLGB-M Series

	Gas model	Gas train size	Main Solenoid valve size	ΔP B. V	ΔP C.H* (mbar)
RLGB-M-55	GT-1	Rp 1 ½	Rp 1 ½	2	14
	GT-2	Rp 1 ½	Rp 1 ½		
RLGB-M-85	GT-1	Rp 1 ½	Rp 1 ½	2	6.2
	GT-2	Rp 1 ½	Rp 1 ½		
RLGB-M-110	GT-1	Rp 2	Rp 2	2	9
	GT-2	Rp 2	Rp 2		
RLGB-M-145	GT-1	Rp 2	Rp 2	2	13
	GT-2	Rp 2	Rp 2		
RLGB-M-175/LN	GT-1	Rp 2	Rp 2	3	17
	GT-2	Rp 2	Rp 2		
RLGB-M-205/LN	GT-1	DN65	DN65	3	21.5
	GT-2	Rp 2	Rp 2		
RLGB-M-205/LN	GT-1	DN65	DN65	3	27.8
	GT-2	Rp 2	Rp 2		
RLGB-M-305/LN	GT-1	DN65	DN65	4	23
	GT-2	Rp 2	Rp 2		
RLGB-M-385/LN	GT-1	DN80	DN80	4	27.3
	GT-2	DN65	DN65		
RLGB-M-405/LN	GT-1	DN80	DN80	4	44
	GT-2	DN65	DN65		

RLGB-M/M Series

	Gas model	Gas train size	Main Solenoid valve size	ΔP B. V	ΔP C.H* (mbar)
RLGB-M/M-385/LN	GT-1	DN65	DN65	4	31.4
	GT-2	DN65	DN65		
RLGB-M/M-405/LN	GT-1	DN80	DN80	4	47
	GT-2	DN65	DN65		
RLGB-M/M-505/LN	GT-1	DN80	DN80	4	56
	GT-2	DN65	DN65		
RLGB-M/M-605/LN	GT-1	DN80	DN80	4	62.8
	GT-2	DN65	DN65		
RLGB-M/M-805	GT-3	DN100	DN100	5	72
	GT-4	DN80	DN80		
RLGB-M/M-950	GT-3	DN100	DN100	5	76
	GT-4	DN80	DN80		
RLGB-M/M-1050	GT-3	DN100	DN100	5	100
	GT-4	DN80	DN80		
RLGB-M/M-1250	GT-4	DN100	DN100	5	126
	GT-5	DN100	DN100		
RLGB-M/M-1550	GT-4	DN100	DN100	7	110
	GT-5	DN100	DN100		
RLGB-M/M-1750	GT-4	DN100	DN100	7	120
	GT-5	DN100	DN100		

*Combustion head

Special Note:

The above gas train sizes are proposed based on the costumer's requests and the limits of the projects while placing an order. Therefore, we kindly ask the readers that assume this information as an initial and most likely offers.

Experience the resplendence of precision and conformity with us!

Modular oil delivery system

Generally, two types of atomizing principle are utilized in raadman modular oil burners:

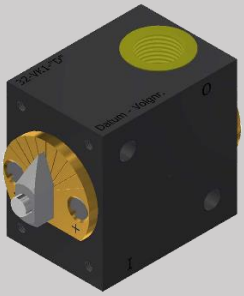
Pressure based spill back lances/atomizers:

All raadman pressure based atomizing modular oil burners are equipped with a burner lance and a fly-back oil atomizer. The burner-lance is especially suitable for use in or on an oil burner and is designed to operate spill back atomizers with integrated shut-off needle. The strong spring on the actuating rod pushes the needle in closed position. This ensures a reliable shut-off under all circumstances.

Fuel, branched off from the supply line actuates the piston for opening, either controlled by two external solenoid valves or by one 3/2 solenoid valve. The piston has a fixed travel. While opening, the needle inside the atomizer is retracted in the correct position by means of a spring at the back of the atomizer against a fixed stop on the needle itself.

During the pre-purge period of the burner, the needle is keeping the orifice closed and the fuel circulates through the lance at pre-set supply and return pressure. On energizing both solenoid valves and the 3/2 solenoid valve, even after long idle intervals, there is immediate atomization guaranteeing perfect ignition.

The burner-lance is suitable for supply pressures from 20 up to 40 bar and fuel temperatures up to 140°C.



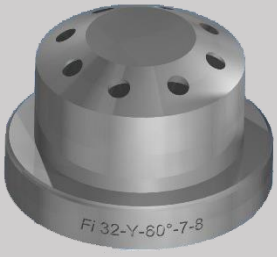
Air or Steam lances/atomizers

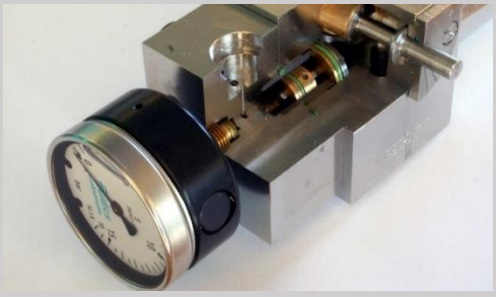
All raadman air/steam atomizing modular oil burners are equipped with a special burner lance and an air/steam atomizer. The burner-lance is designed to operate 32-Y atomizers with compressed air or steam.

The strong spring on the actuating rod pushes the needle in closed position. Compressed air, controlled by an external 3/2 solenoid valve, actuates the piston for opening. The piston has a fixed travel, pulling the needle in the correct position when it opens.

During the pre-purge period of the burner, the needle is keeping the central orifice in the reverse disc closed. On energizing the 3/2 solenoid valve, even after long idle intervals, there is immediate atomization guaranteeing perfect ignition.

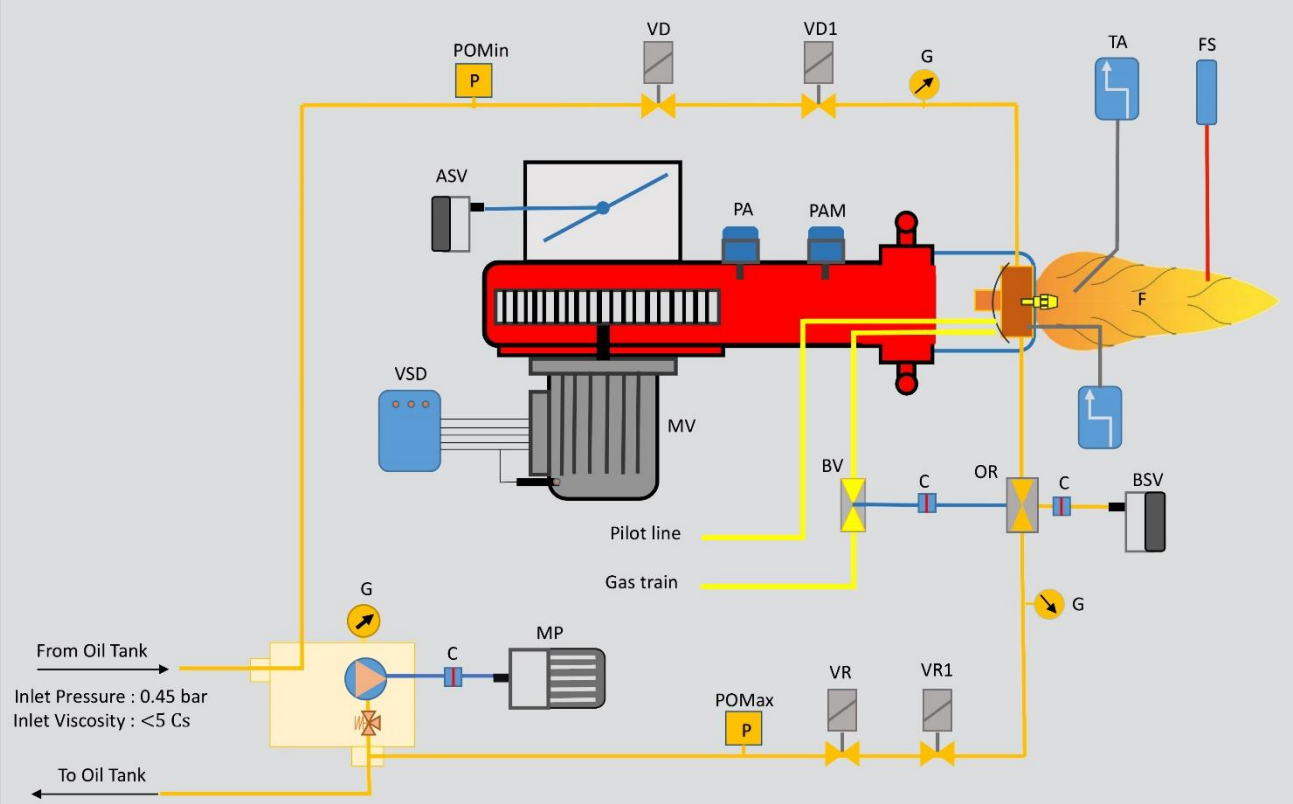
The burner-lance is suitable for supply pressures up to 16 bar and fuel temperatures up to 140°C.



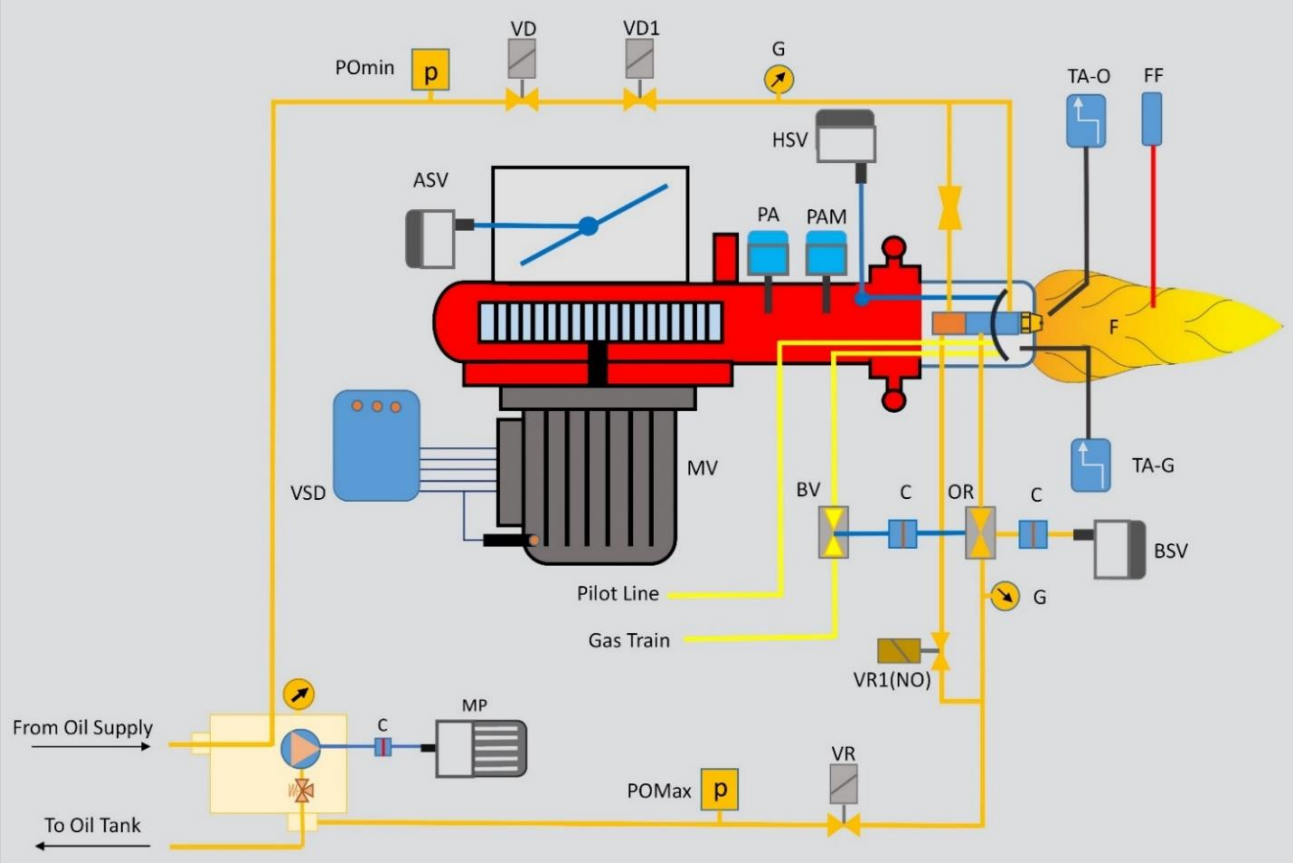


Modulating Dual Fuel Burner type:

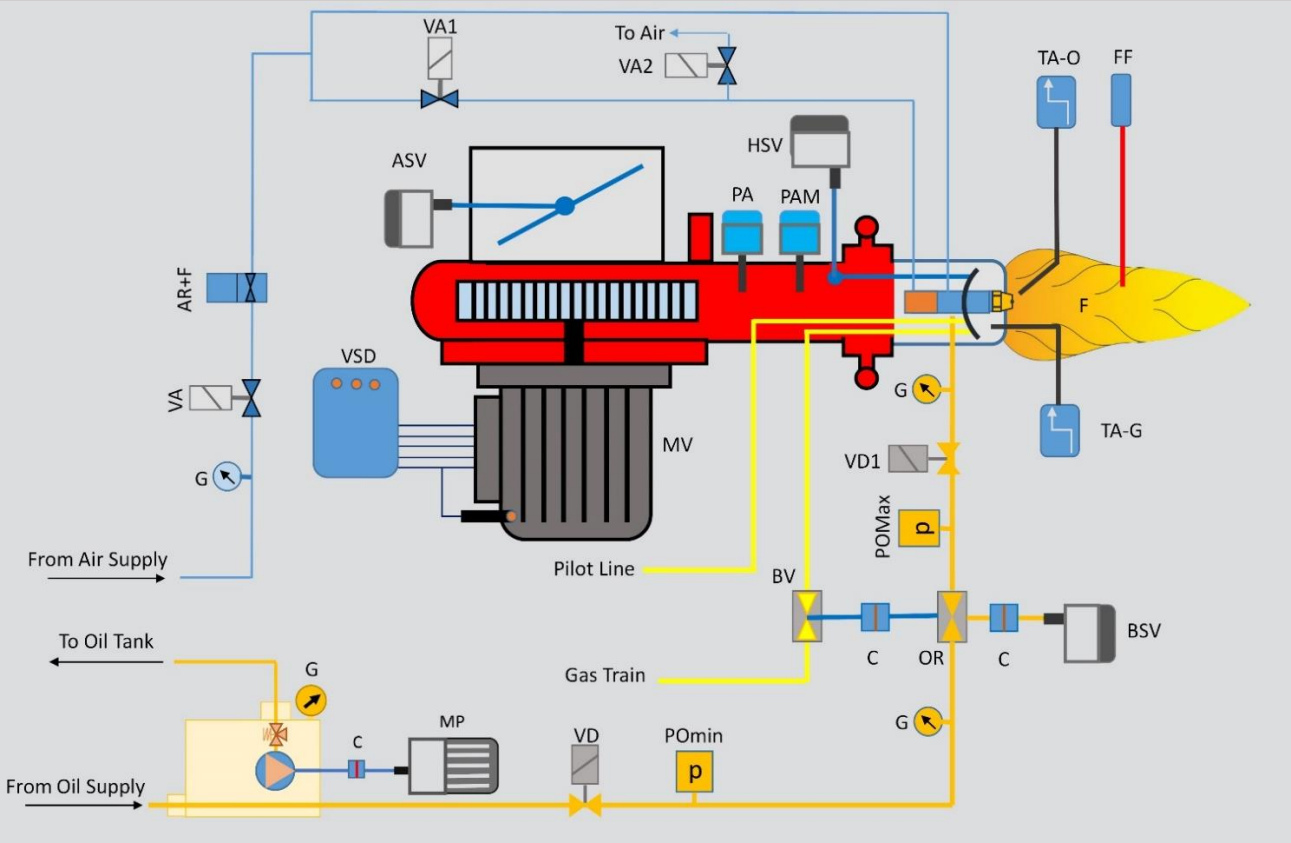
Type OL-I: (Pressure based atomizer – without closing needle)



Type OL-II: (Pressure based atomizer with closing needle)



Type OL-III: (Air/Steam Atomizing technology with closing needle)



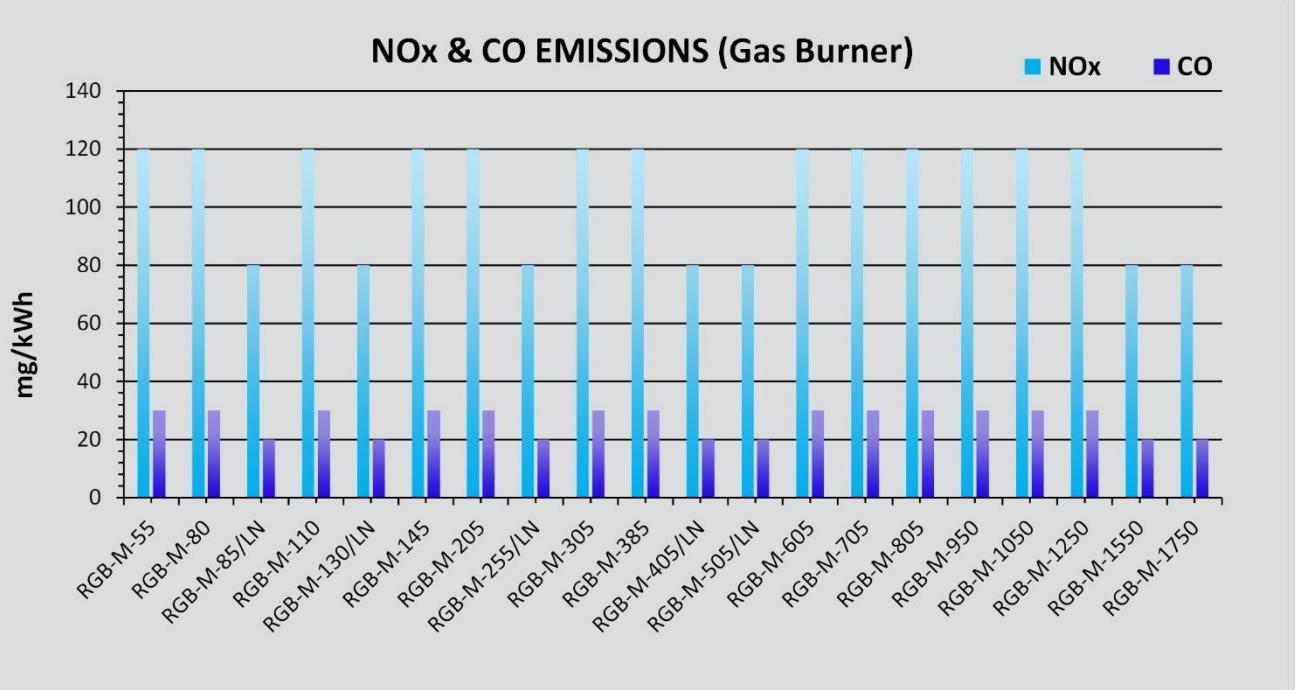
MP: Pump motor
FF: Flame sensor
VR: Return solenoid valve
VR1: Return solenoid valve
VR1(NO): Return solenoid valve (N.O)
VD: Light oil safety valve (N.C)
VD1: Light oil delivery valve (N.C)
VA1: Air solenoid valve1
VA2: Air solenoid valve2

PA: Min. Air pressure switch
PAM: Max. air pressure switch
POmin: Min oil pressure switch
POMax: Max oil pressure switch
VA: Air Valve
AR+F: Air regulator and filter
TA: Flame Scanner
FS: Flame Sensor
F: Gas or oil flame
TA-O: Oil ignition transformer

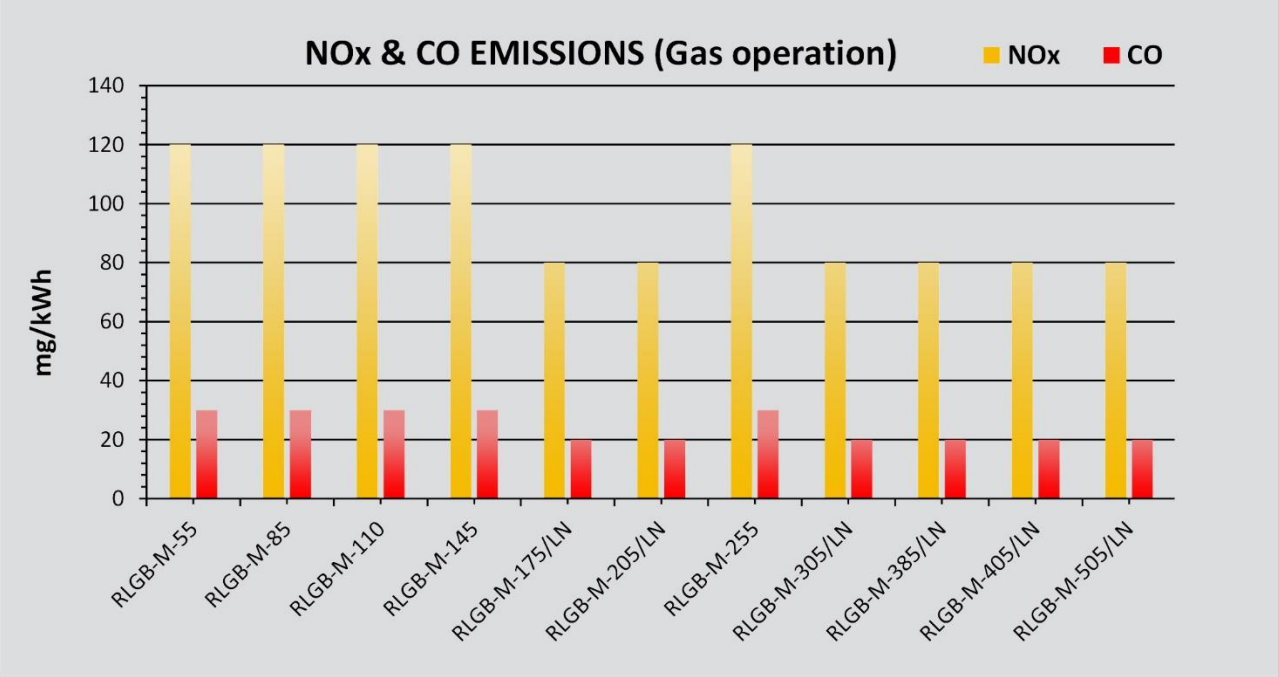
TA-G: Gas ignition transformer
BSV: Butterfly valve servomotor
ASV: Air damper servomotor
HSV: Head servomotor (Optional)
BV: Butterfly valve
OR: Oil Regulator
MV: Fan motor
VSD: Variable speed drive(optional)
C: Coupling
G: Gauge

Emissions:

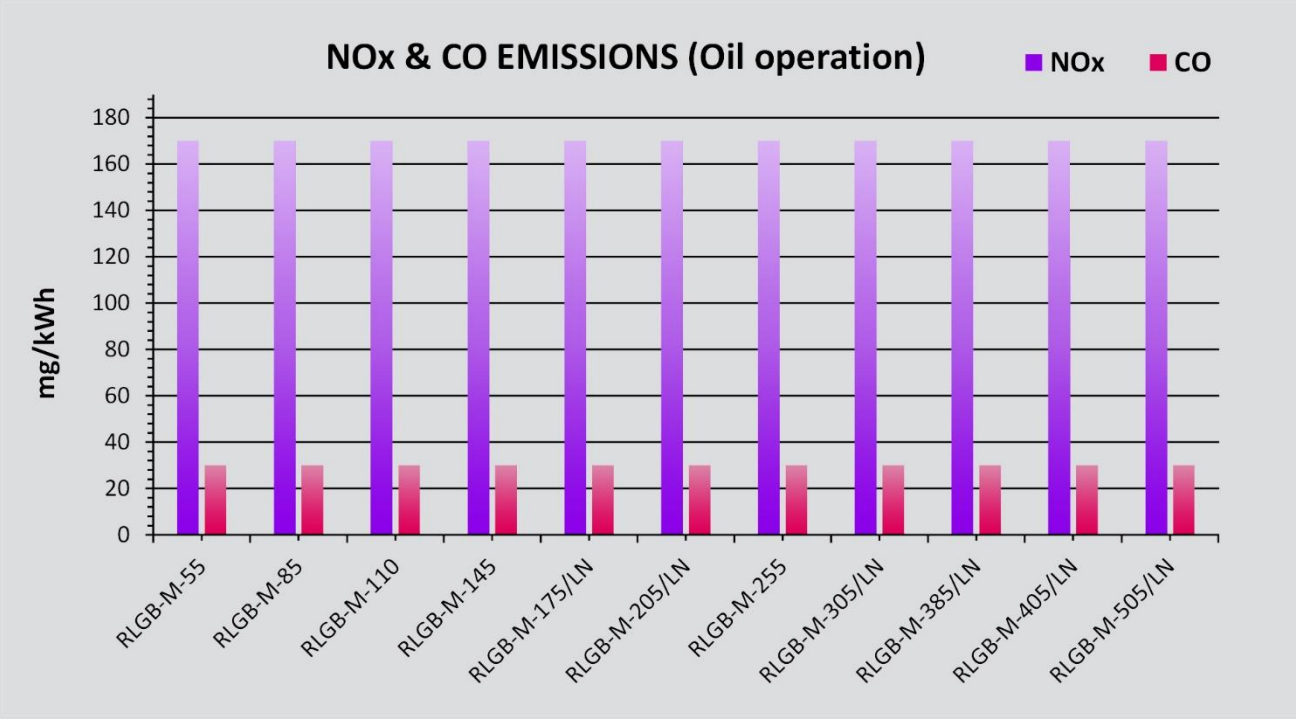
RGB-M Series:



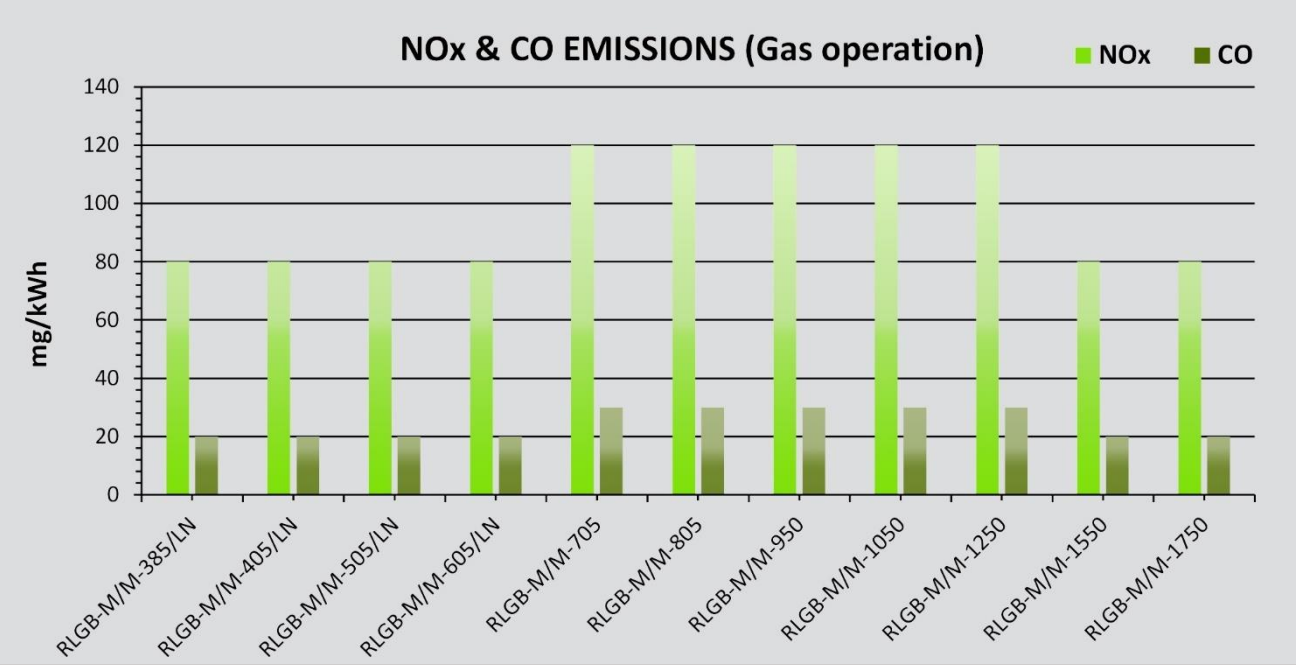
RLGB-M-Series: (Gas operation)



RLGB-M Series: (Oil operation)

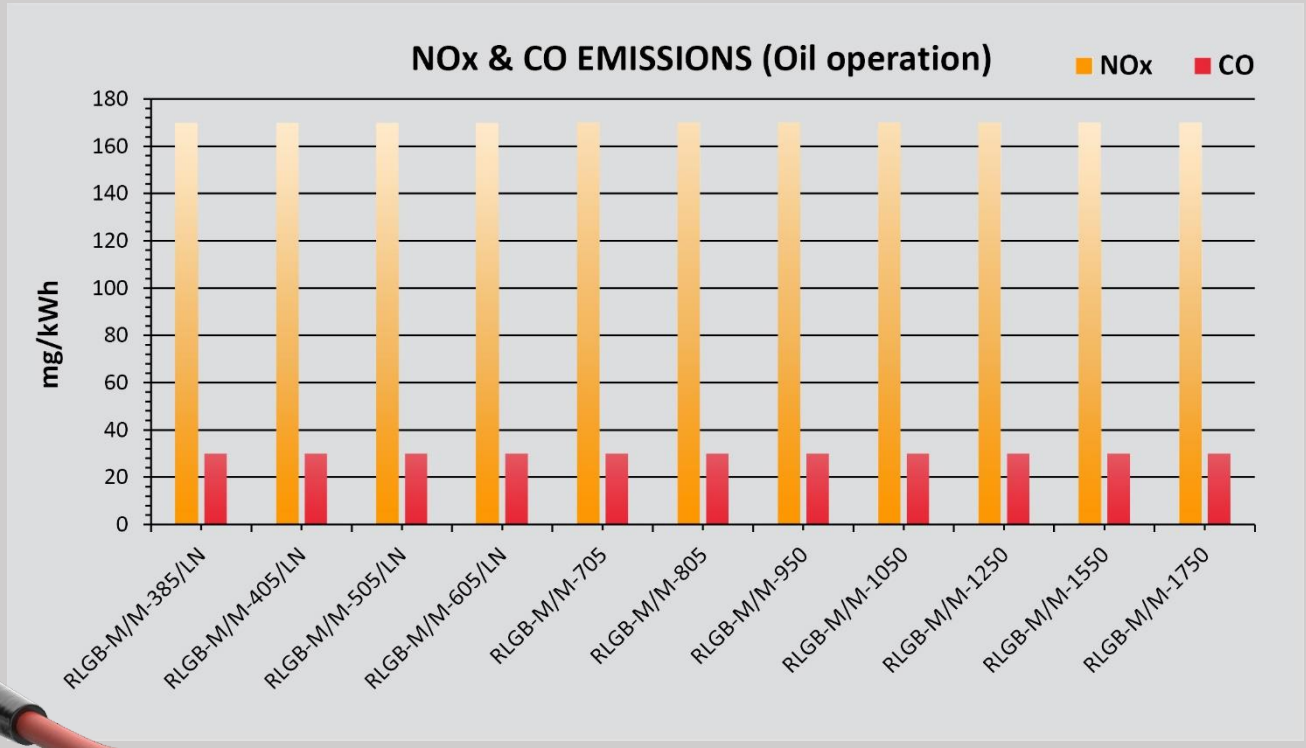


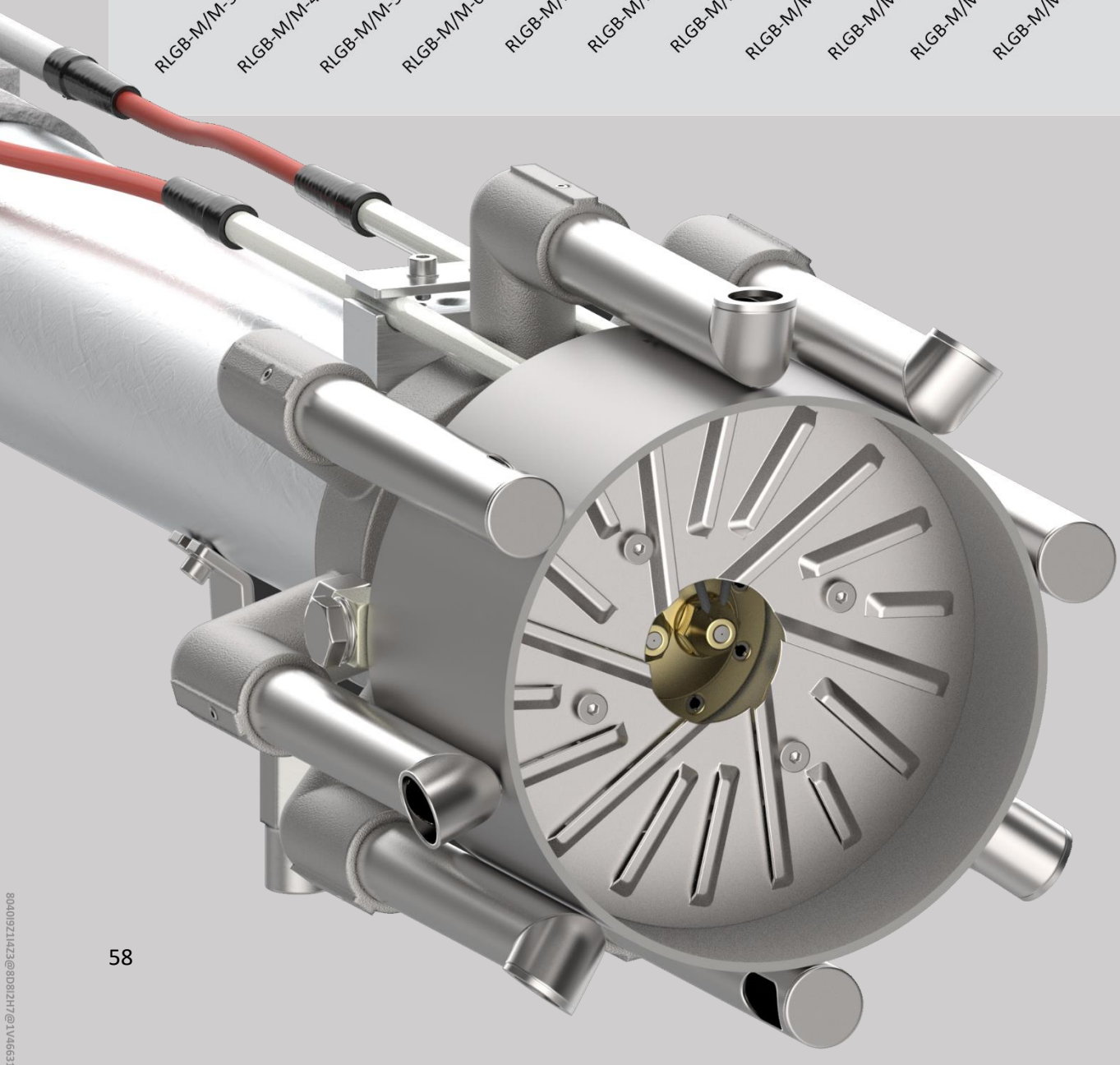
RLGB-M/M-Series: (Gas operation)



The superiority of Low NOx combustion

RLGB-M/M-Series: (Oil operation)





Extra options which could be ordered with us:

O_2-CO regulation

Combustion processes must be monitored and regulated in order to save energy and avoid damage to the environment, property and health. Based on the technology of zirconium dioxide prob, O2 trim is an innovative concept for binary burner regulation to create a dynamic and self-optimizing method which would further reduce exhaust gas losses in industrial combustion systems. Nowadays two types of trimming are common between combustion facility utilizers: O2-CO trim with Lamtec combi probes or Siemens QGO sensors

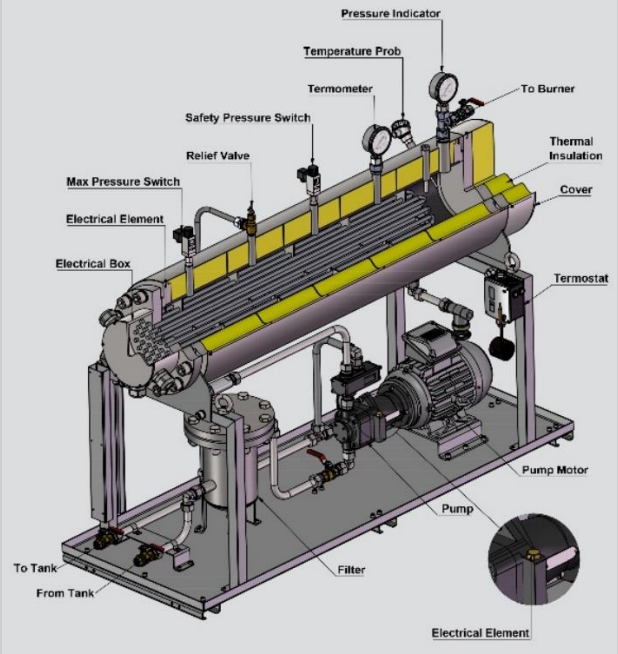
Variable Speed drive (VSD)

A variable-speed drives-VSD is a type of motor drive used in electro-mechanical drive systems to control AC motor speed and torque by varying motor input frequency and, depending on topology, to control associated voltage or current variation. VFDs may also be known as 'VFDs' (variable-frequency drive), 'AFDs' (adjustable-frequency drives), 'ASDs' (adjustable-speed drives), 'AC drives', 'micro drives', 'inverter drives' or, simply, 'drives'. Using this speed controller can reduce the electrical energy consumption up 35 %.

Oil Heater

The Packman heavy fuel oil preheaters are designed for efficiently heating heavy oil to adjust the proper viscosity for the burner. The design is based on the general conditions such as the type and properties of the heavy fuel oil, pressure requirements of the pump and temperature as well as the desired operating points in the process. Electrical heavy fuel oil heater directly heat fuel by converting electrical energy in the heating elements to thermal energy. The thermal energy is then transferred from the heating electrical elements to the fluid.

The unit skids are designed in order to prepare heavy fuel oil with max viscosity 10 Cst at 130°C and outlet pressure of 25 mbar.

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A_LOOK_TO_THE_FUTURE

Last but not the least!

Raadman modular (mono-bloc) burners cover a range of 160 up to 17000 kW generally. They can be used wherever heat is needed – in heating residences or hospitals, schools or offices, in industry or trade, on board ships and for mobile plant. They are suitable for all commonly available gas and oil types and are notable for their reliability, longevity and great economy. Nearly all burner types over the entire performance range are available in a Low NO_x version, with particularly low emission levels

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Industrial Group

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