



A short Introduction of PACKMAN Modular Gas Burners

RGB-M Series or RAADMAN mono-block modular gas burners, covering a firing range from 190 to 25000 kW, are designed for a wide range of domestic and industrial applications. All RAADMAN modular burners are equipped with AUTOFLAME, 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. 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 fuel cost and emissions.

RGB-M-1250 (1200-12000 kW)

RGB-M-1250 is an electronic modular gas burner with high turn down ratio (1:10) designed for high-capacity industrial applications. The values of CO and NOx during burner operation are lower than 30 and 120 mg/kWh, respectively. Therefore, the burner's NOx class of II is reported and approved. Compacting design, mono-block- with Al casing, silent operation due to injected sound proofing material, backward fan wheel and considerable turn down ratio are the most important advantages of this burner.

Burner Certificate

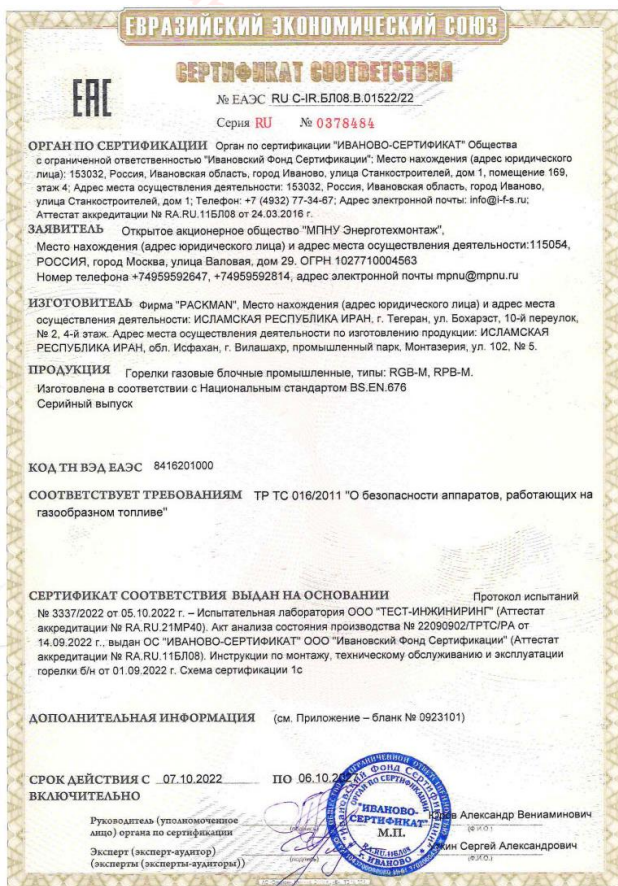


Figure 1 - Burner certification based on the Eurasian Conformity (EAC), Equal to the BS-EN 676 international standard.



Figure 2 - Burner certification based on the Iran national standard ISIRI-7595, Equal to the BS-EN 676 international standard.

Figure 3 - Burner certification based on the Iran national standard ISIRI-7595, Equal to the BS-EN 676 international standard



General Dimension

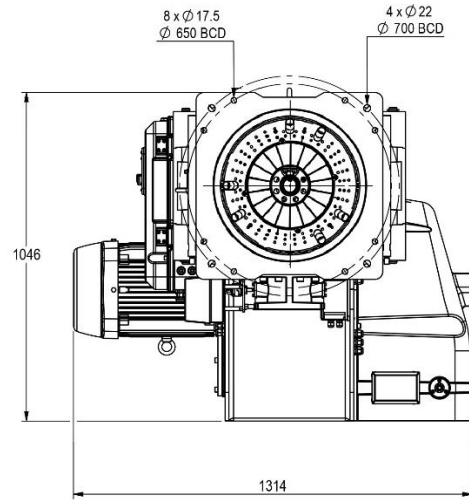
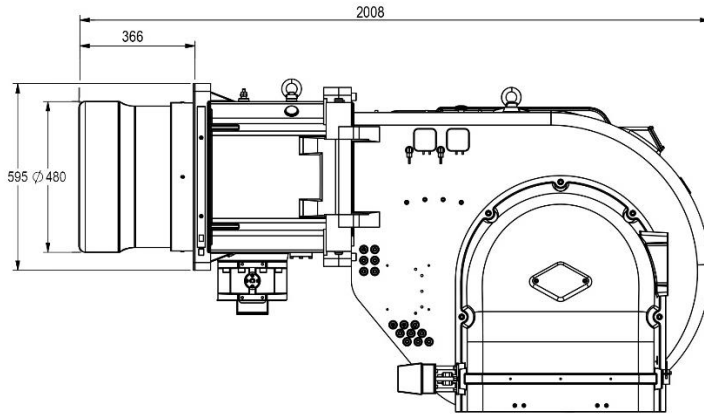


Figure 4 - Burner Dimensions- AL Body

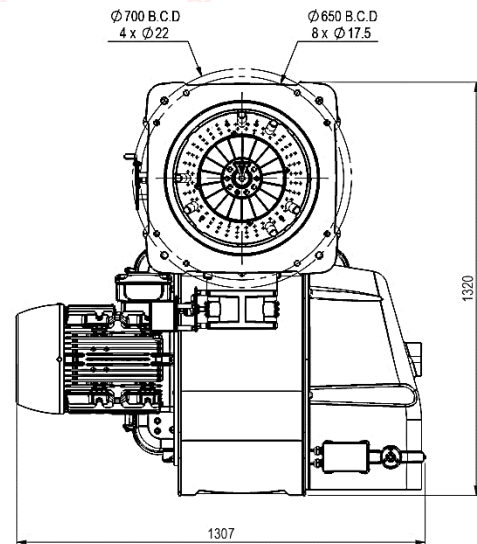
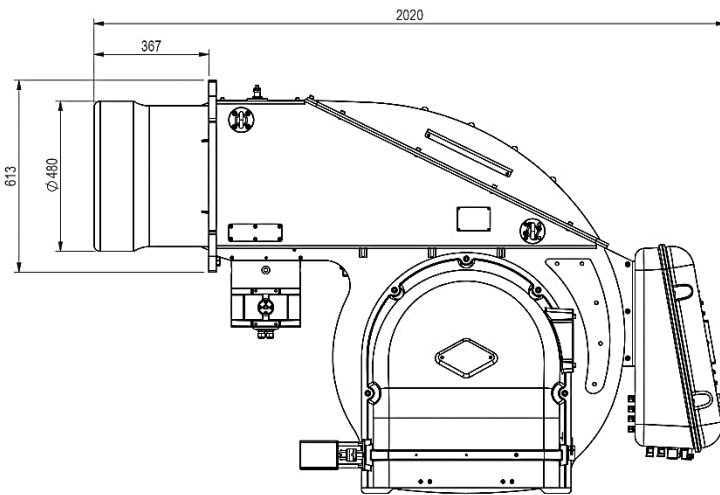


Figure 5 - Burner Dimensions- Cast Iron Body

Notice: Any illegal copy or any kind of partial reversed engineering could be followed by the owner; and this company has the authority to track it by LAW.



Firing Rate

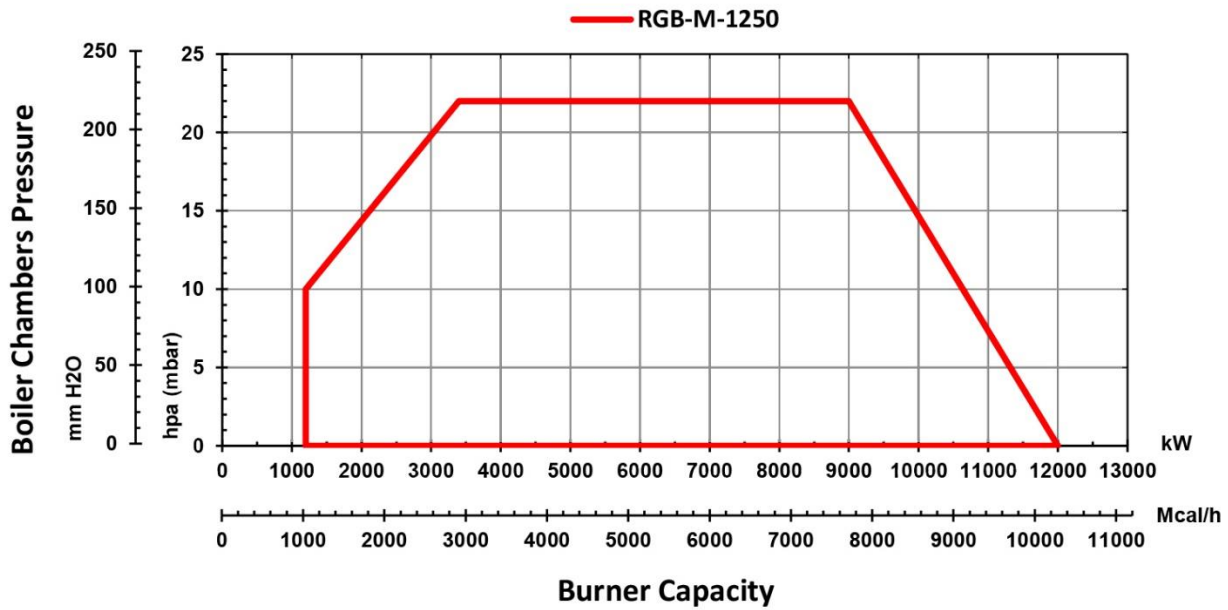


Figure 6 - Burner Firing Diagram



The firing rate diagram has been obtained considering ambient temperature of 20°C and atmospheric pressure of 1013 mbar (Sea level condition) according to the BS-EN 267 & BS-EN 676.



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.

RGB-M-1250 Technical and Functional Features

- Highly efficient gas burners for domestic and industrial applications.
- Light weight and optimized geometry.
- Compatible with all types of combustion chambers according to EN303 standard.
- Simple Installation, adjustment and maintenance.
- Modular operation
- Ability to work based on Air-Fuel control curve.
- Easy access to internal components
- Engineered for maximize efficiency and fuel cost savings.
- Designed in accordance with 7595 Iran national standard and EAC (BS-EN676)
- Suitable for firetube, firebox and water tube boilers.
- Equipped with high quality and reliable electronic devices.



Table 1 - RGB-M-1250 Combustion Specification

Item	Description
Fuels:	Natural Gas
Gas capacity**:	1200-12000 kW
operation:	Electronic modular system
Gas pollution:	II class of NOx according to BS-EN 676
Certificates: Certificate No:	ISIRI 7595, EAC 6374915975, 0378484
Other abilities:	<div style="text-align: right;">   </div> <ul style="list-style-type: none"> - Low excess air operation. - Ability to run according to the Air/fuel ratio curve. - Ability of Communication with external systems via DTI. - Independent ignition point position for safe burner starts. - Adjustable pre-purge and post purge time. - Absence of joint clearance using linkage-less actuators avoiding mechanical hysteresis. - Easy commissioning using modular human interface. - Parameter's indication. - History of errors. - Mono-bloc configuration. - Including valve proving system. - Use of a third actuator for movement of mechanical head for better combustion especially in lower capacities. - High turn down ratio for avoiding any shut down in low required loads. - Economical price using central burner controllers (With improved technology and ease of use, combustion plant is becoming even more economical as: NO additional burner controller is required, less installation work with less errors, NO additional cost for valve proving, Taking less time for commissioning and service work) <p><u>Options**:</u></p> <ul style="list-style-type: none"> - Ability to install a variable speed drive for avoiding any impact in startup - Ability of running with O₂, CO, CO₂, NO and SO₂ sensors. - Ability of working with FGR for further reduction in the NOx level. - Ability of working with LPG with LPG kit.

** Reference conditions: Ambient temperature 20°C - Gas temperature 15°C - Barometric pressure 1013 mbar - Altitude 0 m



Power System		
Item	Specification	Brand*
Main motor	30 kW, 3 Phase, B35, 380-400 Volt, 50 Hz, 2900 rpm	WEG, ITALMOTORS, ABB
Soft Starter	ABB-PSTX30-690-70	ABB
Other accessories	Box + other electrical accessories	SCHNEIDER

Table 2 - Burner Equipment and Accessories

Burner Management System		
Item	Specification	Brand*
Mini Mk8 M.M. Module (Main controller)	4 Channel with Burner Management Control, 7" full color touch screen	AUTOFLAME
Air actuator	Large Servo Motor, 230V 50/60Hz, Metal Housing (Head actuator) 25Nm, 18ft lbs - Supplied with 2off PG11 Glands	AUTOFLAME
Head actuator	Large Servo Motor, 230V 50/60Hz, Metal Housing (Head actuator) 25Nm, 18ft lbs - Supplied with 2off PG11 Glands	AUTOFLAME
Fuel actuator	Small Servo Motor, 230V 50Hz (Fuel actuator) 4Nm, 3ft lbs - Supplied with 2off PG11 Metal Glands	AUTOFLAME
Flame scanner	MM80004/HS High Sensitivity, End/Side View UV Scanner	AUTOFLAME



There is no priority in choosing the control system and it is possible to change the control system based on the inventory and customer request.

Ignition System		
Item	Specification	Brand*
Gas Transformer	Fida Ignition Transformer 1 Wire	FIDA
Gas pilot	Appropriate for 1250 series	PACKMAN CO.
Other Components		
Item	Specification	Brand*
Air pressure switch	LGW 10 A2, 1-10 mbar	DUNGS
Boiler chamber pressure switch (Max switch)	LGW 50 A2, 2.5-50 mbar	DUNGS

* Though these brands are common in this type of burner, they would may change based on available components in the market or according to the policy of Packman Co.



Table 3 - Recommended Gas Train

Standard Gas Train: Separated items, DN 100, Lower than 500 mbar			
Item	QTY	Specification	Brand*
Multi-block Solenoid Valve	1	MBE-VB-80, Working Pressure, 700 mbar Valve Drive VD-V-AC, Valve Drive VD-R-AC DN80	DUNGS
Pressure transmitter	1	PS-50/200	DUNGS
GF 60100/4	1	Gas Filter, Max operating pressure = 6 bar, DN 100	DUNGS
FRSBV DN25	1	Safety pressure relief, Max operating pressure =1 bar, DN 25	DUNGS
MVD 207/5 (Safety pilot valve)	1	Solenoid valve, Single stage gas valve, Fast opening fast closing, Max operating pressure=360 mbar, Rp ¾	DUNGS
MVDLE 207/5 (Main pilot valve)	1	Solenoid valve, Single stage gas valve, Slow opening fast closing, Max operating pressure = 360 mbar, Rp ¾	DUNGS
FRS 507	1	Pressure regulator with spring P max=500 mbar, Rp ¾	DUNGS
MVD 207/5** (Vent valve)	1	Solenoid valve, Single stage gas valve, Fast opening fast closing, Max operating pressure=360 mbar, Rp ¾	DUNGS
GW 500 A6	2	Gas pressure switch, Range: 100-500 mbar - with plug	DUNGS
GW 50 A6	1	Gas pressure switch, Range: 5-50 mbar - with plug	
Pressure indicator	1	Range: 0-600 mbar, Rp ½	
Pressure indicator	1	Range: 0-250 mbar, Rp ½	
Collector 1	1	DN 100 - DN 80	
Collector 2	1	DN 80 - DN 100	

* Though these brands are common in this type of burner, they would may change based on available components in the market (such as MADAS, SIEMENS, etc.) or according to the policy of Packman Co.

**Optional (Depending on customer's request)

