GULLIVER BS/M SERIES

The Riello Gulliver BS/M series of two stage, progressive or modulating gas burners, is a complete range of Low NOx emission products, developed to respond to any request for home heating, conforming to the most severe standards regarding the reduction of polluting emissions.
This series of burners is available in three different models with an output ranging from 49 to 250 kW, divided in three different structures. All the models use the same components designed by Riello for the Gulliver series. The high quality level guarantees safe working. In developing these burners, special attention was paid to reducing noise, the ease of installation and adjustment, to obtaining the smallest size possible to fit into any sort of boiler available on the market. Two stage operation guarantees high level performance from the thermal unit. All the models are approved by the EN 676 European Standard, conform to European Directives, Gas Appliance, EMC, Low Voltage, Boiler Efficiency. All the Gulliver BS/M burners are tested before leaving the factory.

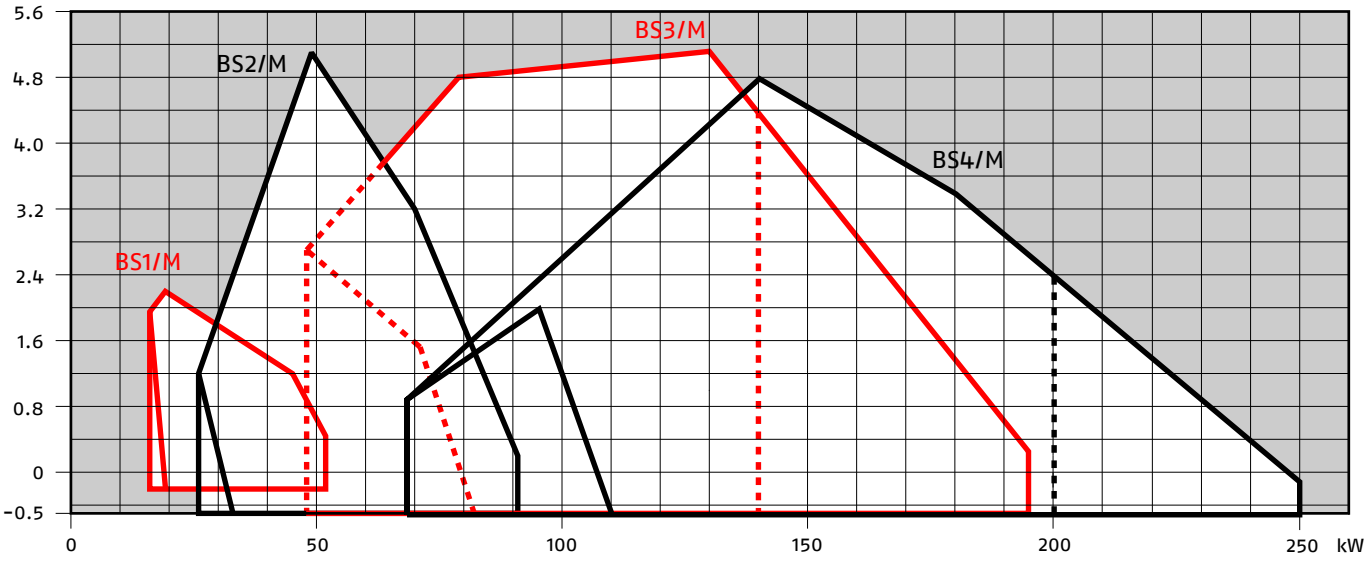
Guidelines for installation of burners in conformity to EU Regulation:

A RIELLO burner (Heat Generator), where it is matched with a water-based boiler (Heater Housing) with a nominal output ≤ 400 kW, providing heat for heating purposes and heat to deliver sanitary hot water, can be installed:

- With boilers (heater housings) already in service in the field, for replacement of identical products, in conformity to Article 1, paragraph 2, point (G) of the EU Regulation No. 813/2013;
- With boilers (heater housings) on a new installation, if they have emissions complying with the requirement of Annex II, paragraph 4 of the EU regulation No. 813/2013.

BS1/M	16/19	÷	52	kW
BS2/M	26/49	÷	91	kW
BS3/M	48/79	÷	195	kW
BS4/M	68/140	÷	250	kW

FIRING RATES



Useful working field for choosing the burner

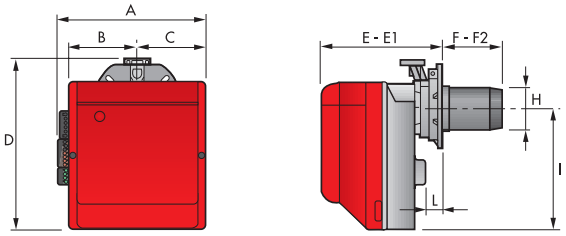
Modulation range

Test conditions conforming to EN676
Temperature: 20°C
Pressure: 1013,5 mbar
Altitude: 0 m a.s.l.

GULLIVER BS/M SERIES

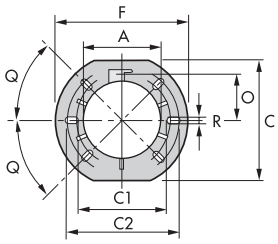
Overall dimensions (mm)

BURNER



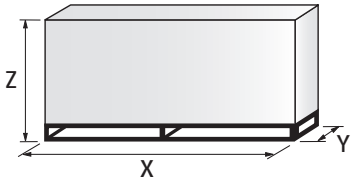
MODEL	A	B	C	D	E	E1	F	F2	H	I	L
▶ BS1/M	285	125,5	125,5	316	234,5	-	116,5	-	89,5	230	8
▶ BS2/M	285	125,5	125,5	325	238	252	114	100	106	230	18
▶ BS2/M TL	285	125,5	125,5	325	238	252	184	170	106	230	18
▶ BS3/M	330	150	150	391	262	280	128	110	129	285	21
▶ BS3/M TL	330	150	150	391	262	270	285	267	129	285	21
▶ BS4/M	330	150	150	392	278	301	168	145	137	286	21
▶ BS4/M TL	330	150	150	392	278	301	325	302	137	286	21

BURNER - BOILER MOUNTING FLANGE



MODEL	A	C	C1	C2	F	O	Q	R
▶ BS1/M	89,5	167	140	170	192	66	45°	11
▶ BS2/M	106	167	140	170	192	66	45°	11
▶ BS2/M TL	106	167	140	170	192	66	45°	11
▶ BS3/M	129	201	160	190	216	76,5	45°	11
▶ BS3/M TL	129	201	160	190	216	76,5	45°	11
▶ BS4/M	137	203	170	200	218	80,5	45°	11
▶ BS4/M TL	137	203	170	200	218	80,5	45°	11

PACKAGING



MODEL	X	Y	Z	kg
▶ BS1/M	405	328	375	12
▶ BS2/M	405	328	375	12
▶ BS2/M TL	583	318	365	14
▶ BS3/M	450	375	440	16
▶ BS3/M TL	510	375	440	18
▶ BS4/M	510	375	440	18
▶ BS4/M TL	610	383	367	20

GULLIVER BS/M SERIES

Specification

DESIGNATION OF SERIES

Series:	R	Standard emission burner
	B	Low NOx burners
Fuel:	S	Natural gas
	SP	LPG
Size		
Optional variations: /M		Two stage progressive of fully modulating
Head :	...	Standard head
	TL	Extended head
Electrical supply to the system: 1/230/50 1/230V/50Hz		

B	S	3	/M		1/230/50

STATE OF SUPPLY

Monobloc, gas burners, completely automatic, high/low progressive operation mode or fully modulating by using a regulator:
- Fan with forward curve blades
- Cover lined with sound proofing material
- Microprocessor-based burner safety control box, with diagnostic and remote reset functions
- Servomotor to drive the air damper to fully closed position at stand by, low and high fire position
- Single phase electric motor 230 V, 50 Hz
- Combustion head fitted with:
  - stainless steel head cone, resistant to high temperatures
  - ignition electrodes
  - ionisation probe
  - gas distributor
  - flame stability disk
- Flame inspection window
- Adjustable air pressure switch, with graduated selector, to guarantee burner lock out in the case of insufficient combustible air
- Protection filter against radio interference
- IP X0D (IP 40) electric protection level.

Standard equipment:
- Flange with insulating gasket
- Screws and nuts for flange to be fixed to boiler
- Screw and nut for flange
- Blue plastic tube
- G 1/8 union elbow
- 4-pin plug
- 7-pin plug
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

GULLIVER BS/M SERIES

Available models

Burners

CODE	MODEL		HEAT OUTPUT (kW)	HEAT OUTPUT NATURAL GAS (Nm³/h)	TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
20096670	BS1/M	1/230/50	16/19 - 52	1,6/1,9 - 5,2	0,140	CE - 0085 BN0609	(1)
3762250	BS2/M	1/230/50	26/49 - 91	2,6/4,9 - 9,1	0,180	CE - 0085 BN0609	(1)
20052610	BS2/M TL	1/230/50	26/49 - 91	2,6/4,9 - 9,1	0,180	CE - 0085 BN0609	(1)(2)
3762350	BS3/M	1/230/50	48/79 - 195	4,8/7,9 - 19,5	0,350	CE - 0085 BN0609	(1)
3762370	BS3/M TL	1/230/50	48/79 - 195	4,8/7,9 - 19,5	0,350	CE - 0085 BN0609	(1)(2)
3762450	BS4/M	1/230/50	68/140 - 250	6,8/14 - 25	0,530	CE - 0085 BN0609	(1)
20052613	BS4/M TL	1/230/50	68/140 - 250	6,8/14 - 25	0,530	CE - 0085 BN0609	(1)(2)

Net calorific value G20: 10 kWh/Nm³ - Density: 0,71 kg/Nm³.
The burners of BS/M series are in according to 2016/426/EU - 2014/30/EU - 2014/35/EU - 2006/42 EC Directive and EN 676.
(1) With plug and socket.
(2) Head Length: see quote F-F2 in the Overall Dimensions table.

Gas Trains

MULTIBLOC

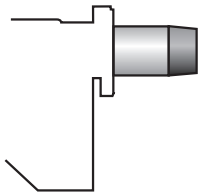
GAS TRAIN CODE *	GAS TRAIN MODEL	NATURAL GAS BURNER (TYPE)	NATURAL GAS ADAPTER (CODE)	LPG BURNER (TYPE)	LPG ADAPTER (CODE)	NOTE
20105417	CG 120/P - FS2D 00	BS1/M		BS1/M		(1)(2)
3970587	CG 120/P - F2SD 00	BS2/M		BS2/M		(1)(2)
3970588	CG 220/P - F3SD 00	BS3/M - BS4/M		BS3/M - BS4/M		(1)(2)

Please see Designation of Gas Train Series in the page before the Catalogue index.
* Gas trains are 230V/50Hz - 220V/60Hz electrical supply.
(1) With installed plug.
(2) Gas maximum inlet pressure 100 mbar.
The valve seal control device is compulsory (conforming to EN 676) on gas trains to burners with a maximum output over 1200 kW.

To select the gas train please refer to the technical data leaflet and/or instruction manual.

Burner accessories

Extended head kit



Burners standard head can be transformed into "extended head" versions by using the special kit.
Here the KITS available for the various burners are listed, showing the original and the extended lengths.

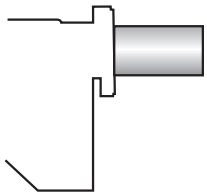
BURNER	STANDARD HEAD LENGTH (mm)	EXTENDED HEAD LENGTH (mm)	KIT CODE
▶ BS1/M (long)	70 ÷ 116	114 ÷ 160	20097850
▶ BS2/M (long)	100 ÷ 114	170 ÷ 180	3002722
▶ BS2/M (extra long)	100 ÷ 114	270 ÷ 280	3002723
▶ BS3/M	110 ÷ 128	267 ÷ 282	3002724
▶ BS4/M	145 ÷ 168	302 ÷ 317	3002725

LPG kit

For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner, as shown in this table.

BURNER	KIT CODE FOR STANDARD HEAD	KIT CODE FOR EXTENDED HEAD
▶ BS1/M	3001003	3001003
▶ BS2/M	3002711	3002711
▶ BS3/M	3002712	3002712
▶ BS4/M	3001011	3001011

Alternative combustion head kit



To extend the adaptability of Gulliver BS/M burners to any sort of application, alternative combustion heads have been developed, for example, to overcome situations of combustion instability which could arise with certain heat generators.
These heads cause a very limited increase in N0x emissions, due to the slower air flow.

BURNER	KIT CODE (*)
▶ BS1/M	3001059
▶ BS2/M	3001064
▶ BS3/M	3001060
▶ BS4/M	3001070

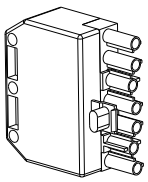
(*) CE approval on field is required

Ground fault interrupter kit

A "Ground fault interrupter kit" is available as a safety device in case of electrical system fault.

BURNER	KIT CODE
▶ BS1/M - BS2/M - BS3/M - BS4/M	3001180

7-pin plug kit



If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).

BURNER	KIT CODE
▶ BS1/M - BS2/M - BS3/M - BS4/M	3000945

Burner accessories

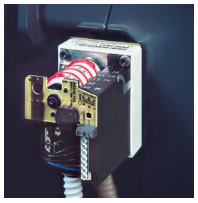
Accessories for modulating operation

To obtain modulating operation, the BS/M series of burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range.
For remote setpoint use RWF 55.

BURNER	REGULATOR TYPE	REGULATOR CODE
▶ BS1/M - BS2/M - BS3/M - BS4/M	RWF 50.2	20102002
	RWF 55.5	20101966

The relative temperature or pressure probes fitted to the regulator, must be chosen on the basis of the application.

BURNER	PROBE TYPE	RANGE (°C) (bar)	PROBE CODE
▶ BS1/M - BS2/M BS3/M - BS4/M	Temperature PT 100	-100 ÷ 500°C	3010110
	Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214



Depending on the servomotor fitted to the burner, a three-pole potentiometer (1000 Ω) can be installed to check the position of the servomotor.

BURNER	CODE
▶ BS1/M - BS2/M - BS3/M - BS4/M	3010109

Modulating operation can also be obtained with an analog control signal converter and a feedback three-pole potentiometer.
Alternatively, the potentiometer can be used to check the servomotor position.

BURNER	TYPE (INPUT SIGNAL)	CODE
▶ BS1/M - BS2/M BS3/M - BS4/M	0/2 - 10 V (impedance 200 KΩ) 0/4 - 20 mA (impedance 250 Ω)	3091380

PC interface kit

To connect the RMG control box to a personal computer for the transmission of operation, fault signals and detailed service information, an interface adapter with PC software are available.

BURNER	CODE
▶ BS1/M - BS2/M - BS3/M - BS4/M	3002719

Gas train accessories

Seal control kit

To test the valve seals on the gas train, a special "seal control kit" is available.

GAS TRAIN	CODE
▶ CG/P type	20185149