

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.

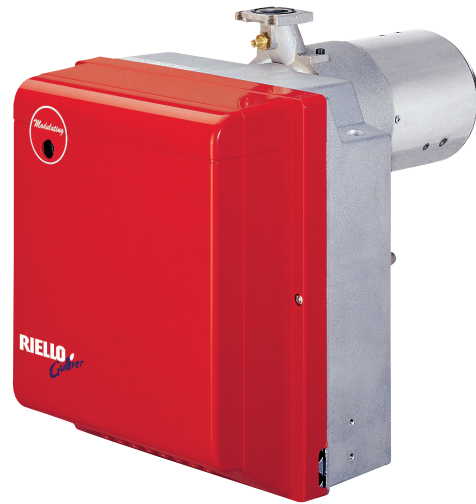
This series of burners is available in three different models with an output ranging from 49 to 250 kW, divided in three different structures.

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.

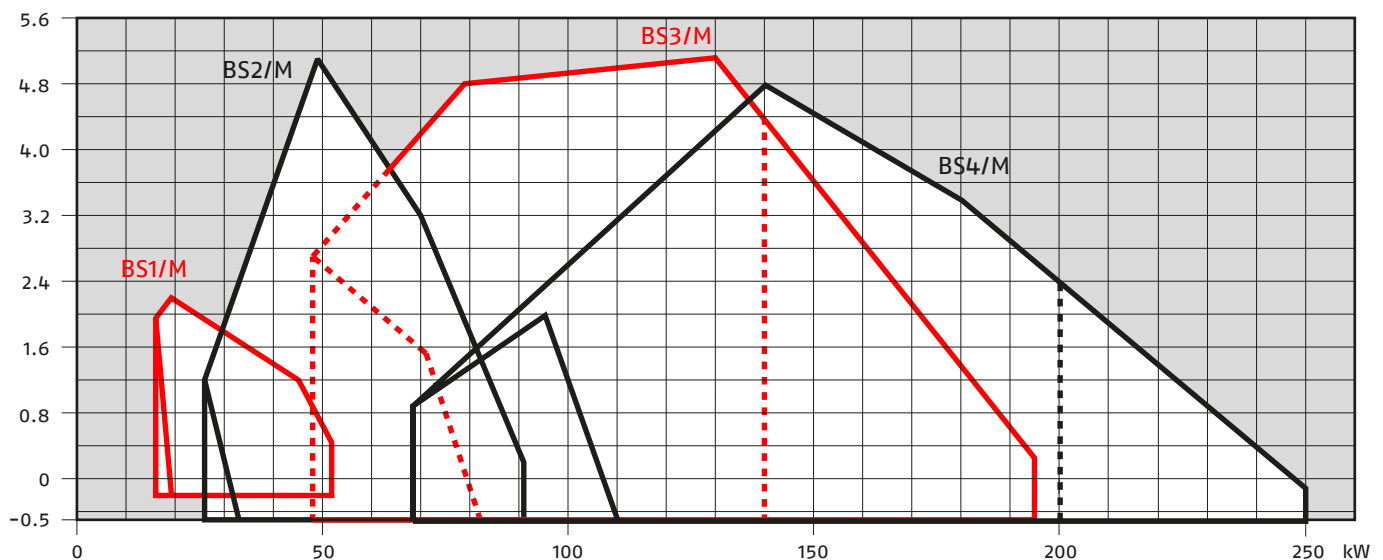
Two stage operation guarantees high level performance from the thermal unit. All the models are approved by the EN 676 European Standard, conform to European Directives, Gas Appliance, EMC, Low Voltage, Boiler Efficiency.

All the Gulliver BS/M burners are tested before leaving the factory.



| | | |
|-------|----------|--------|
| 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

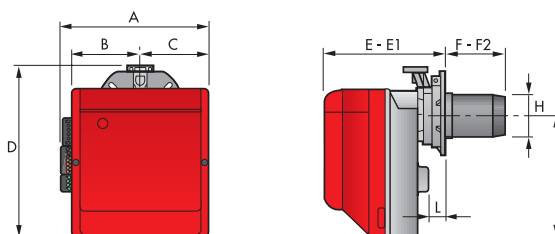
Test conditions conforming to EN676
 Temperature: 20°C
 Pressure: 1013,5 mbar
 Altitude: 0 m a.s.l.

Low NOx Two Stage Progressive and Modulating Gas Burners

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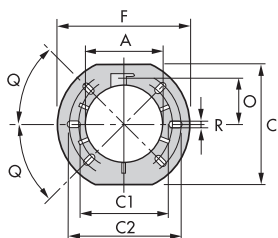
Overall dimensions (mm)

BURNER



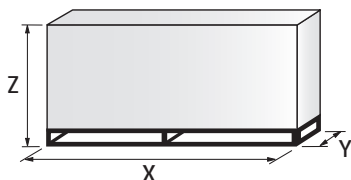
| MODEL | A | B | C | D | E | E1 | F | F2 | H | I | L |
|------------|-----|-------|-------|-----|-------|-----|-------|-----|------|-----|----|
| ▶ BS1/M | 285 | 125,5 | 125,5 | 316 | 234,5 | - | 116,5 | - | 89,5 | 230 | 8 |
| ▶ BS2/M | 285 | 125,5 | 125,5 | 325 | 238 | 252 | 114 | 100 | 106 | 230 | 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 |

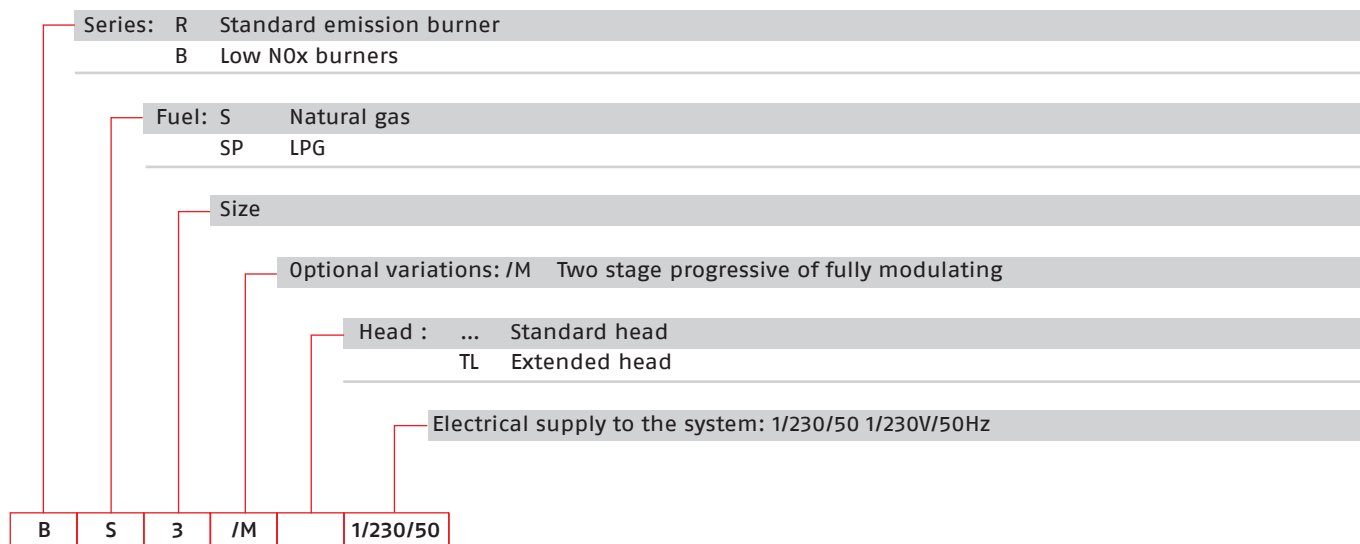
PACKAGING



| 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 |

Specification

DESIGNATION OF SERIES



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.

Low NOx Two Stage Progressive and Modulating Gas Burners

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Available models

Burners

| CODE | MODEL | HEAT OUTPUT | | TOTAL ELECTRICAL POWER (kW) | CERTIFICATION | NOTE |
|----------|-------------------|--------------|----------------------------------|-----------------------------|------------------|--------|
| | | (kW) | NATURAL GAS (Nm ³ /h) | | | |
| 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 EN 676.
 (1) With plug and socket.
 (2) Head Length: see quote F-F2 in the Overall Dimensions table.

Gas Trains

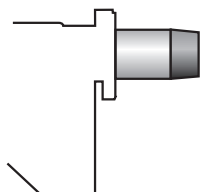
| GAS TRAIN | GAS TRAIN | NATURAL GAS | | LPG | | NOTE |
|-----------|--------------------|---------------|----------------|---------------|----------------|------|
| | | BURNER (type) | ADAPTER (code) | BURNER (type) | ADAPTER (code) | |
| 3970587 | CG 120/P - F2SM 02 | BS2/M | | BS2/M | | (1) |
| 3970588 | CG 220/P - F3SM 02 | BS3/M - BS4/M | | BS3/M - BS4/M | | (1) |

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.
 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.

GULLIVER BS/M SERIES

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 |

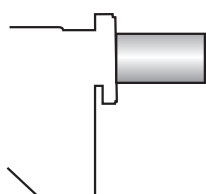
LPG kit



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 NOx emissions, due to the slower air flow.

| BURNER | KIT CODE |
|---------|----------|
| ▶ BS1/M | 3001059 |
| ▶ BS2/M | 3001064 |
| ▶ BS3/M | 3001060 |
| ▶ BS4/M | 3001070 |

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 |

Low NOx Two Stage Progressive and Modulating Gas Burners

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Burner accessories

Accessories for modulating operation



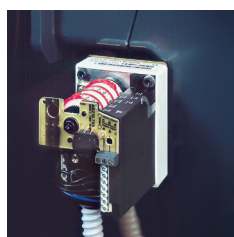
To obtain modulating operation, the BS/M series of burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range.

| BURNER | REGULATOR TYPE | REGULATOR CODE |
|---------------------------------|----------------|----------------|
| ► BS1/M - BS2/M - BS3/M - BS4/M | RWF 40 | 3001078 |



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 | POTENTIOMETER KIT CODE |
|---------------------------------|------------------------|
| ► BS1/M - BS2/M - BS3/M - BS4/M | 3010109 |

PC interface kit



To connect the 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 | KIT 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 | KIT CODE |
|-------------|----------|
| ► CG/P type | 20021563 |