

## GULLIVER BSD SERIES

The Riello Gulliver BSD series of two stage 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 four different models with an output ranging from 16 to 250 kW, divided in four different structures.

All the models use the same components designed by Riello for the Gulliver series. The high quality level guarantees safe working. The burners are fitted with a microprocessor-based burner safety control box which supplies indication of operation and diagnosis of fault cause.

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 working guarantees high level performance from the thermal unit. All the models are approved by the EN 676 European Standard and conform to European Directives, Gas Appliance, EMC, Low Voltage, Boiler Efficiency. All the Gulliver BSD burners are tested before leaving the factory.

### Guidelines for installation of burners in conformity to EU Regulation:

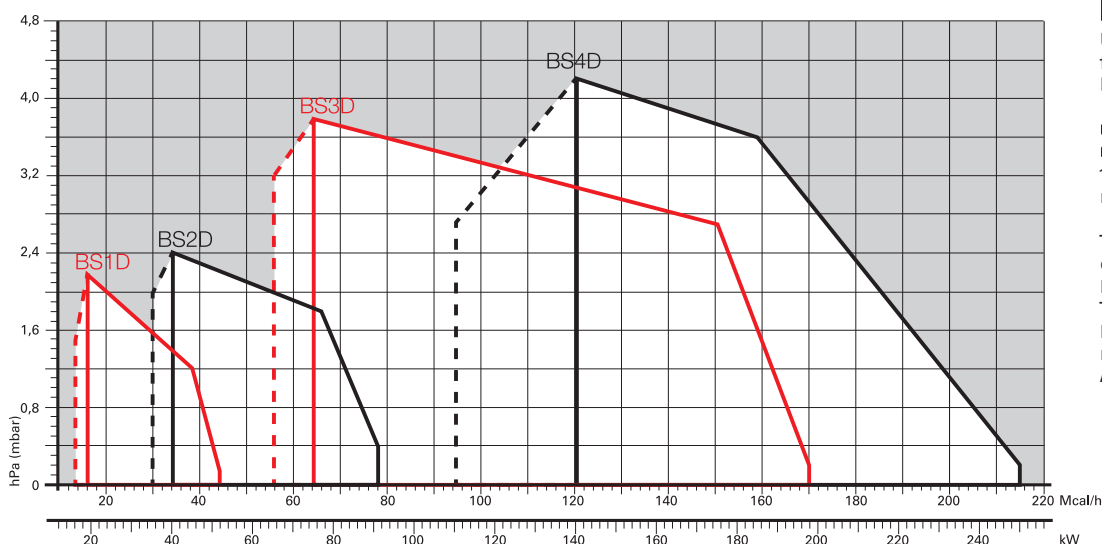
A RIELLO burner (Heat Generator), where it is matched with a water-based boiler (Heater Housing) with a nominal output  $\leq 400$  kW, providing heat for heating purposes and heat to deliver sanitary hot water, can be installed:

- 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.



BS1D	16/19	÷	52	kW
BS2D	35/40	÷	92	kW
BS3D	65/80	÷	197	kW
BS4D	110/140	÷	249	kW

## FIRING RATES



Useful working field for choosing the burner

1<sup>st</sup> stage operation range

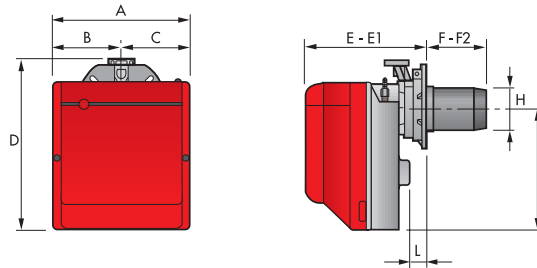
Test conditions conforming to EN676  
 Temperature: 20°C  
 Pressure: 1013,5 mbar  
 Altitude: 0 m a.s.l.

# Low NOx Two Stage Gas Burners

## GULLIVER BSD SERIES

### Overall dimensions (mm)

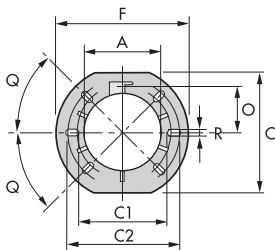
#### BURNER



MODEL	A	B	C	D	E	E1	F - F(1)	F2 - F2(1)	H	I	L
▶ BS1D	234	122	112	295	230	276	116	70	89	210	41
▶ BS2D	255	125,5	125,5	325	238	252	114 - 270	100 - 280	106	230	45
▶ BS3D	300	150	150	391	262	280	128 - 267	110 - 282	129	285	45
▶ BS4D	300	150	150	392	278	301	168 - 302	145 - 317	137	286	45

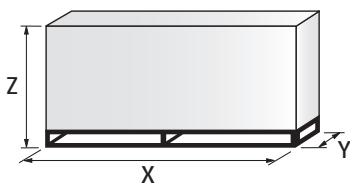
(1) Dimension with extended head

#### BURNER - BOILER MOUNTING FLANGE



MODEL	A	C	C1	C2	F	O	Q	R
▶ BS1D	89	167	140	170	192	66	45°	1
▶ BS2D	106	167	140	170	192	66	45°	1
▶ BS3D	129	201	160	190	216	76,5	45°	1
▶ BS4D	137	203	170	200	218	80,5	45°	1

#### PACKAGING



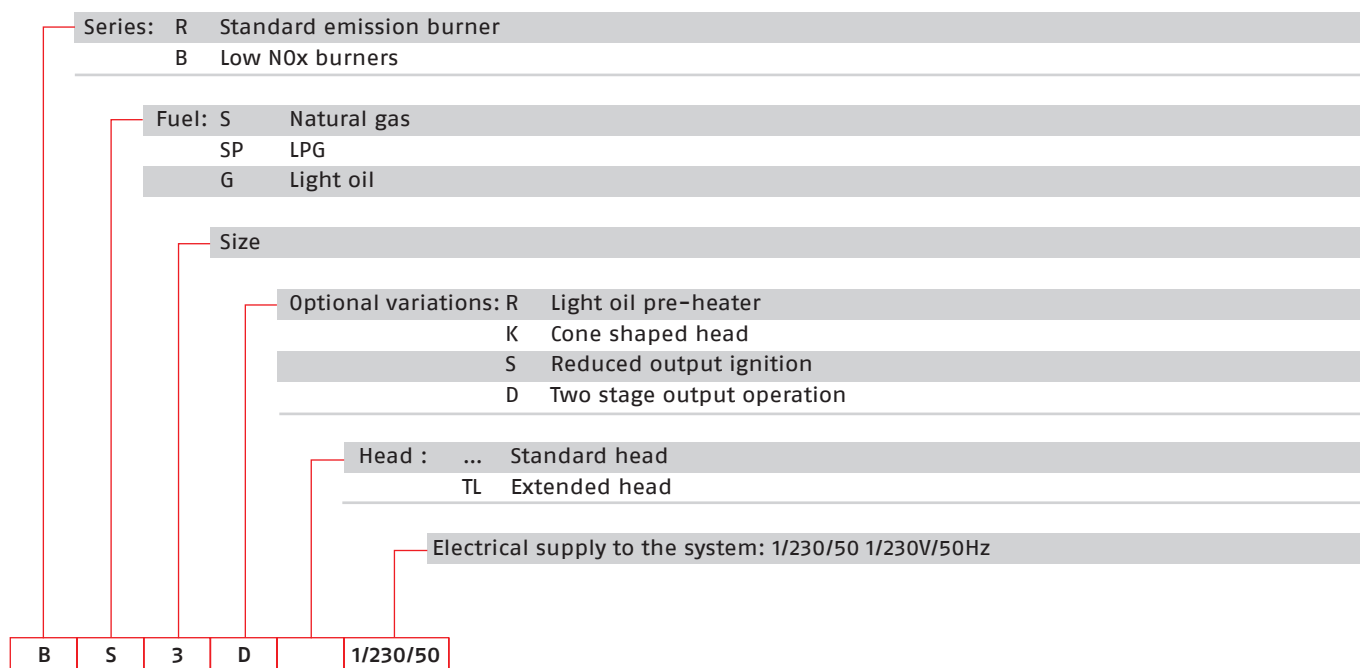
MODEL	X - X(1)	Y - Y(1)	Z - Z(1)	kg - kg(1)
▶ BS1D	395	278	350	11
▶ BS2D	405 - 593	298 - 300	375 - 380	12 - 14
▶ BS3D	450 - 713	345	440 - 445	16 - 18
▶ BS4D	510 - 713	345	440 - 445	18 - 20

(1) Dimension with extended head

## GULLIVER BSD SERIES

# Specification

## DESIGNATION OF SERIES



## STATE OF SUPPLY

Monoblock, gas burners, completely automatic, two stage operation, made up of:

- Fan with forward curve blades
- Cover lined with sound-proofing material
- Air damper, completely closed in stand by, driven by an electric servomotor
- Air damper with 1st and 2nd stage adjustment (2nd stage external adjustment, with no need to remove the cover)
- 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
- Microprocessor-based burner safety control box, with diagnostic and remote reset functions
- Protection filter against radio interference (included into burner safety control box)
- IP X0D (IP 40) electric protection level.

### Standard equipment:

- Sliding flange
- Flange insulation screen
- Screws and nuts for fixing the flange to the boiler
- 7-pin plug
- 4-pin plug
- Remote control release kit
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

# Low NOx Two Stage Gas Burners

## GULLIVER BSD SERIES

### Available models

#### Burners

CODE	MODEL	HEAT OUTPUT		TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
		(kW)	NATURAL GAS (Nm <sup>3</sup> /h)			
3761558	BS1D	1/230/50	16/19 - 52	1,6/1,9 - 5,2	0,150	CE - 0085 AQ0409 (1)
3761658	BS2D	1/230/50	35/40 - 92	3,5/4 - 9	0,180	CE - 0085 AQ0409 (1)
3761618	BS2D TL	1/230/50	35/40 - 92	3,5/4 - 9	0,180	CE - 0085 AQ0409 (1)
3761758	BS3D	1/230/50	65/80 - 197	6,5/8 - 20	0,350	CE - 0085 AQ0409 (1)
3761718	BS3D TL	1/230/50	65/80 - 197	6,5/8 - 20	0,350	CE - 0085 AQ0409 (1)
3761858	BS4D	1/230/50	110/140 - 249	11/14 - 25	0,530	CE - 0085 AQ0409 (1)
3761818	BS4D TL	1/230/50	110/140 - 249	11/14 - 25	0,530	CE - 0085 AQ0409 (1)

Net calorific value G20: 10 kWh/Nm<sup>3</sup> - Density: 0,71 kg/Nm<sup>3</sup>.

Net calorific value LPG: 25,8 kWh/Nm<sup>3</sup> - Density: 2,02 kg/Nm<sup>3</sup>.

The burners of BS 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.

#### Gas Trains

	GAS TRAIN	GAS TRAIN	NATURAL GAS		LPG		NOTE
	CODE *	MODEL	BURNER (TYPE)	ADAPTER (CODE)	BURNER (TYPE)	ADAPTER (CODE)	
MULTIBLOC	3970539	MB 405/2 - F1SD 20	BS1D		BS1D		(1)
	3970540	MB 405/2 - F2SD 20	BS2D		BS2D		(1)
	3970538	MB 407/2 - F2SD 20	BS2D		BS2D		(1)
	3970541	MB 407/2 - F3SD 20	BS3D - BS4D		BS3D - BS4D		(1)
	3970542	MB 410/2 - F3SD 20	BS3D - BS4D		BS3D - BS4D		
	3970543	MB 412/2 - F3SD 20	BS3D - BS4D		BS3D - BS4D		

Please see Designation of Gas Train Series in the page before the Catalogue index.

\* Gas trains are 230V/50Hz - 220V/60Hz electrical supply.

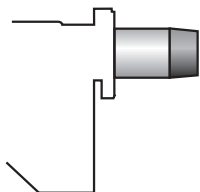
(1) With installed plug.

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.

## Burner accessories

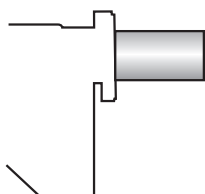
### Extended head kit



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
▶ BS1D	70 ÷ 116	1500 ÷ 160	20031875
▶ BS2D (long)	100 ÷ 114	170 ÷ 180	3001007
▶ BS2D (extra long)	100 ÷ 114	270 ÷ 280	3001008
▶ BS3D	110 ÷ 128	267 ÷ 282	3001009
▶ BS4D	145 ÷ 168	302 ÷ 317	3001016

### Alternative combustion head kit



This kit can be used to prevent combustion instability which could arise with particular heat generators.

To extend the adaptability of Gulliver BSD burners to any sort of application, alternative combustion heads have been developed.

These heads cause a very limited increase in NOx emissions, due to the slower air flow.

BURNER	KIT CODE (*)
▶ BS1D	3001059
▶ BS2D	3001064
▶ BS3D	3001060
▶ BS4D	3001070

(\*) CE approval on field is required

### LPG kit



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

BURNER	KIT CODE FOR STANDARD HEAD	KIT CODE (*)	KIT CODE FOR EXTENDED HEAD
▶ BS1D	3001003	3002734	3001003
▶ BS2D	3001004	3002735	3001004
▶ BS3D	3001005	3002736	3001005
▶ BS4D	3001011	3002737	3001011

(\*) Kit for LPG with Butane amount over 30%, without CE certification

### Town Gas kit



For burning Town Gas, a special kit is available to be fitted to the combustion head on the burner, as shown in the following table.

BURNER	KIT CODE FOR STANDARD HEAD (*)	KIT CODE FOR EXTENDED HEAD (*)
▶ BS1D	3002727	-
▶ BS2D	3002728	3002728
▶ BS3D	3002729	3002729

(\*) Without CE certification

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### Burner accessories

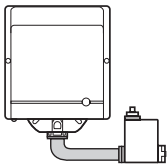
#### Ground fault interrupter kit



A "Ground fault interrupter kit" is available as a safety device in case of electrical system fault. It is supplied with burners with pin plug.

BURNER	KIT CODE
► BS1D – BS2D – BS3D – BS4D	3001180

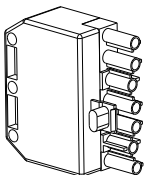
#### Multibloc rotation kit



There is a special kit available that can be used to install the burner turned 180°. This kit is designed to ensure the gas train valve properly.

BURNER	KIT CODE
► BS1D	3001179
► BS2D	3001177
► BS3D – BS4D	3001178

#### 7-pin plug kit



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

BURNER	KIT CODE
► BS1D – BS2D – BS3D – BS4D	3000945

### 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 for 50 Hz operation	KIT CODE for 60 Hz operation
► MB/2 type	3010123	20050030