

INTERNATIONAL



# PRODUCT CATALOGUE INTERNATIONAL MARKETS

PROCESS BURNERS | 



# 2021

**2021** edition

**F. RIELLO**  
OFFICINA MECCANICA LEONARDO PORTO

1922



**RIELLO**

**RIELLO  
ISOTHERMO**



**RIELLO**

**RIELLO  
BURNERS**

2021

**RIELLO**

# RIELLO

RIELLO is the Italian leading brand in the production of systems and technologies for the heating of all domestic and professional spaces.

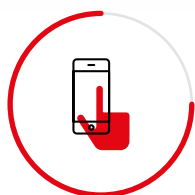
NO LIMITS

## SHAPING THE FUTURE

Every Riello product is a world. You will find in it the summary of our present and the vision of a better future.

What has made our company a world leader in the industry is its ability to anticipate the needs of the future and accelerate the pace towards a definitive transition to sustainable energy use. The resulting competitive ability is the market value that makes Riello a marketable and recognizable brand worldwide.

---



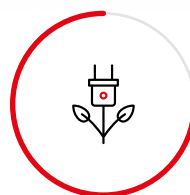
**TECHNOLOGY**



**SUSTAINABILITY**



**WINNING INDUSTRIAL  
STRATEGIES**



**USE  
OF RENEWABLE  
ENERGY**



**ACCESSION TO  
INTERNATIONAL  
REGULATIONS**



RIELLO HIGH TECHNOLOGY

## SERVICES FOR BURNERS

Riello has developed a wide range of services that will allow customers to take advantage of specialised technical support at every stage of their business, starting from product installation and throughout the system working life.

One common goal: a constant performance over time, maximizing energy efficiency and minimizing environmental impact, for the entire life cycle of the product.

- installation advice
- commissioning and adjustment
- performance check
- O<sub>2</sub> check
- regular maintenance
- intervention on request
- maintenance and repair plan
- commissioning, adjustment and initial regular maintenance package



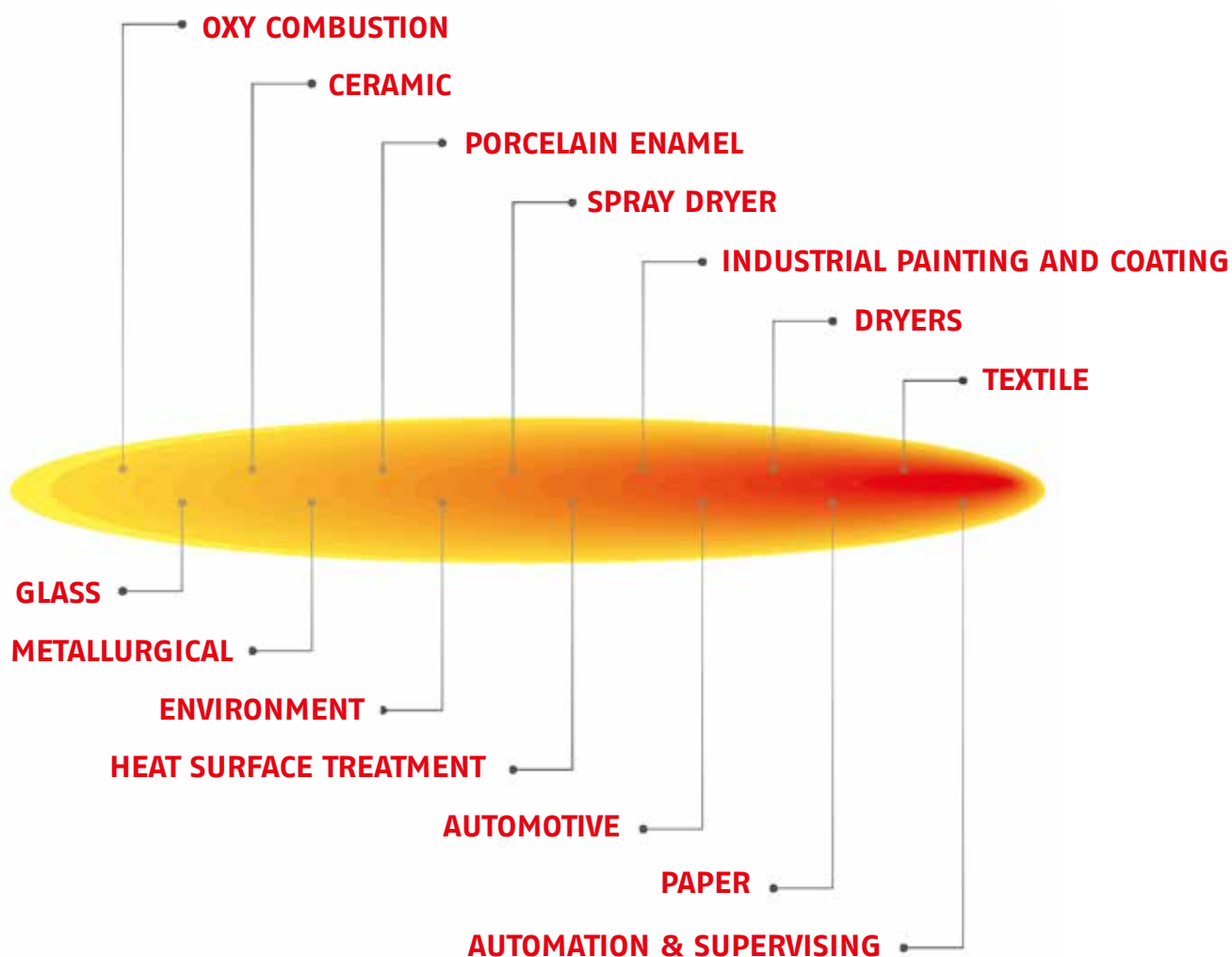
## INDUSTRIAL COMBUSTION

# SECTORS OF APPLICATION

Years of experience on the industrial combustion applications, give us the know-how to manage the challenges of a market in continuous evolution, asking for new solutions, energy saving, operating costs reduction and use of new alternative fuels.

Based on the received specifications, RIELLO develops combustion systems designed to satisfy the needs of the industrial thermal processes on which they are installed, including a proper matching of dedicated accessories and complementary devices.

---





- [ 1 ] Textile
- [ 2 ] Paper
- [ 3 ] Dryers
- [ 4 ] Industrial Painting and Coating Automotive
- [ 5 ] Heat Surface Treatment
- [ 6 ] Spray Dryers
- [ 7 ] Glass
- [ 8 ] Ceramic
- [ 9 ] Oxy-Combustion
- [ 10 ] Metallurgical
- [ 11 ] Bakery

## SYMBOLS

---

**IN ORDER TO MAKE THE PRICE LIST/CATALOGUE INCREASINGLY EASIER TO READ AND INTERPRET, RIELLO HAS INTRODUCED THE FOLLOWING SELF-EXPLANATORY SYMBOLS.**

---



By framing the QR code with a mobile device equipped with the proper reading program, you are immediately directed to the web page of the product you are viewing. From the same page, you can download the technical and commercial documentation through the "download" function.

---

**A-Z INDEX**

91	ADB
147	ANTI-VIBRATING JOINTS
107	BPM GV-BPN GV
102	BPR
99	BVA ADB ME
116	FC
147	GAS ADAPTER
20	GULLIVER BSDF
14	GULLIVER BSF
133	GULLIVER RGDF
128	GULLIVER RGF
66	GULLIVER RSDF
61	GULLIVER RSF
71	GULLIVER RS VA
96	GVA ADB
145	MB/1 SERIES
146	MB/2 SERIES
145	MBC 65/1 SERIES
112	N/TR
124	RIELLO 40 F
48	RIELLO 40 FS
55	RIELLO 40 FSD
137	RIELLO 40 G 24V
77	RS 28÷50 VA
85	RS 70 VA
25	RX 35÷150 S/PV F
38	RX 180÷310 S/PV VA
32	RX 180÷360 S/PV F
43	RX 400 S/PV VA
147	SEAL CONTROL KIT

## GENERAL INDEX

### PROCESS GAS BURNERS

11

#### LOW NOX GAS BURNERS

- 14 GULLIVER BSF
- 20 GULLIVER BSDF
- 25 RX 35÷150 S/PV F
- 32 RX 180÷360 S/PV F
- 38 RX 180÷310 S/PV VA
- 43 RX 400 S/PV VA

#### GAS BURNERS

- 48 RIELLO 40 FS
- 55 RIELLO 40 FSD
- 61 GULLIVER RSF
- 66 GULLIVER RSDF

#### AIR DUCT BURNERS

- 71 GULLIVER RS VA
- 77 RS 28÷50 VA
- 85 RS 70 VA
- 91 ADB
- 96 GVA ADB
- 99 BVA ADB ME

#### HIGH TURNDOWN RATIO BURNERS

- 102 BPR

#### HIGH SPEED BURNERS

- 107 BPM GV-BPN GV

#### VOLUMETRIC METALLIC BURNERS

- 112 N/TR

#### INCINERATORS AND POST-COMBUSTION BURNERS

- 116 FC

### GAS TRAINS

143

#### ONE-STAGE GAS TRAINS WITHOUT LEAK DETECTION CONTROL DEVICE

- 145 MB/1 SERIES
- 145 MBC 65/1 SERIES

#### TWO-STAGE GAS TRAINS WITHOUT LEAK DETECTION CONTROL DEVICE

- 146 MB/2 SERIES

#### GAS TRAIN ACCESSORIES

- 147 GAS ADAPTERS
- 147 ANTI-VIBRATING JOINTS
- 147 SEAL CONTROL KITS

### PROCESS LIGHT OIL BURNERS

123

#### LIGHT OIL BURNERS

- 124 RIELLO 40 F
- 128 RIELLO 40 G 24V
- 133 GULLIVER RGF
- 138 GULLIVER RGDF

## PROCESS GAS BURNERS

---

## PROCESS LIGHT OIL BURNERS

---

## GAS TRAINS

---





## PROCESS GAS BURNERS



## LOW NOx

Low NOx emissions, lower than Class 3 of European standard EN 676 (NOx lower than 80 mg/kWh)

## ONE-STAGE



## GULLIVER BSF

- Industrial ovens
- Paint booths
- Low-power steam generators

page 14

## TWO-STAGE



## GULLIVER BSDF

- Industrial ovens
- Paint booths
- Low-power steam generators

page 20

## PREMIX (OVENS)



## RX 35÷150 S/PV F

- Air heaters
- Steam generators
- Bakery ovens
- Textile industry
- Roasters

page 25



## RX 180÷360 S/PV F

- Air heaters
- Steam generators
- Bakery ovens
- Textile industry
- Roasters

page 32

## PREMIX (AIR DUCT)



## RX 180÷310 S/PV VA

- Paint booths
- Direct exchange industrial applications

page 38



## RX 400 S/PV VA

- Paint booths
- Direct exchange industrial applications

page 43

## PROCESS GAS BURNERS



## STANDARD

## Standard NOx emissions

## ONE-STAGE



## RIELLO 40 FS

- Convection ovens (rotary or fixed tray type)
- Bedplate ovens
- Conduction ovens
- Radiant heat ovens
- Continuous, tunnel and steam tube ovens

page 48



## GULLIVER RSF

- Industrial ovens
- Paint booths
- Low-power steam generators

page 61

## TWO-STAGE



## RIELLO 40 FSD

- Convection ovens (rotary or fixed tray type)
- Bedplate ovens
- Conduction ovens
- Radiant heat ovens
- Continuous, tunnel and steam tube ovens

page 55



## GULLIVER RSDF

- Industrial ovens
- Paint booths
- Low-power steam generators

page 66

## AIR DUCT



## GULLIVER RS VA

- Paint ovens
- Low-temperature dryers (grain, straw, wood)
- Printing machines
- Laundry machines
- Agricultural dryers (cereals, fodder, tobacco)

page 71



## RS 28÷50 VA

- Paint ovens
- Low-temperature dryers (grain, straw, wood)
- Printing machines
- Laundry machines
- Agricultural dryers (cereals, fodder, tobacco)

page 77



## RS 70 VA

- Paint ovens
- Low-temperature dryers (grain, straw, wood)
- Printing machines
- Laundry machines
- Agricultural dryers (cereals, fodder, tobacco)

page 85



## ADB

- Dryers for ceramics, bricks, refractory material
- Ovens and dryers for surface treatments
- Air heaters for printing and packaging industry
- Food industry
- Direct exchange industrial applications

page 91



## GVA ADB

- Dryers for ceramics, bricks, refractory material
- Ovens and dryers for surface treatments
- Air heaters for printing and packaging industry
- Food industry
- Direct exchange industrial applications

page 96



## BVA ADB ME

- Agricultural dryers (cereals, fodder, tobacco)
- Direct exchange industrial applications

page 99

## HIGH TURNDOWN RATIO



## BPR

- Stenters, dryers, polymerisation units for textile industry
- Dryers for ceramics, bricks, refractory material
- Dryers and ovens for surface treatments
- Air heaters and dryers for paper and printing industry
- Agricultural dryers (cereals, fodder, tobacco)




page 102

## PROCESS GAS BURNERS



## STANDARD

## Standard NOx emissions

HIGH SPEED	 <p><b>BPM GV – BPN GV</b></p> <ul style="list-style-type: none"> <li>• Ovens and dryers for ceramics, bricks, refractory material</li> <li>• Steel industry</li> <li>• Tempering furnace for glass industry</li> <li>• Air heaters for printing and packaging industry</li> <li>• Agricultural dryers (cereals, fodder and tobacco)</li> </ul> <p>page 107</p>	
METAL VOLUMETRIC BURNERS FOR RADIANT TUBES	 <p><b>N/TR</b></p> <ul style="list-style-type: none"> <li>• Ceramics, bricks, refractory material industry:             <ul style="list-style-type: none"> <li>- Roller ovens, tunnel ovens, intermittent ovens, melting ovens</li> <li>- Continuous and intermittent dryers</li> </ul> </li> <li>• Steel industry</li> <li>• Surface treatments</li> </ul> <p>page 112</p>	
INCINERATORS AND POST-COMBUSTORS	 <p><b>FC</b></p> <ul style="list-style-type: none"> <li>• Ceramics industry: post-combustors for atomizers</li> <li>• Incineration of fumes from heat treatments and metal melting ovens (steel industry)</li> <li>• Incineration of fumes from paint and solvent evaporation</li> <li>• Environment: municipal solid waste leachate treatment ovens with reduced calorific value</li> <li>• Applications that require post-combustion and/or flue gas incineration</li> </ul> <p>page 116</p>	

Low NOx gas oven burners

# GULLIVER BSF

Range code 11ACGBBWRF

PROCESS GAS BURNERS



- One-stage gas burners with low NOx emissions according to Class 3 of European standard EN 676 (NOx lower than 80 mg/kWh\*)
- Installation flexibility: adjustable head length
- High maintainability: access to components and combustion head with burner installed
- Simplified calibration: air adjustment with external gear
- High flexibility of use and adaptability to the operating conditions
- Digital control box with diagnostic function

**MAIN APPLICATIONS**

- Industrial ovens
- Paint booths
- Low-power steam generators

PROCESS LIGHT OIL BURNERS

The Riello Gulliver BSF series of One-stage gas burners, is a complete range of products developed to respond to any request for light industrial processes like bakery ovens, spray painting ovens, small steam or thermal boilers and all applications requiring a reliable, user-friendly industrial product with enhanced performance and specific functions.

The Gulliver BSF series is available in four different models, with an output ranging from 16 to 246 kW, divided in four different structures.

All models use the same components designed by Riello for the Gulliver series and have the same ventilation system and overall dimensions as the Standard one-stage gas models.

The burners are fitted with a microprocessor-based burner safety control box which supplies indication of operation and diagnosis of fault cause.

This new series can operate on 50 or 60 Hz and a 220-230 V (dual frequency).

All these burners are compliant with EN 676 Standard (Forced draught burners for gaseous fuels) and to European Directives for EMC, Low Voltage and Gas Appliance. For depressurised working field see EN 746-2 Standard.

All burners are fired before leaving the factory.

GAS TRAINS

\* The emission value is determined, according to the provisions of standard EN 676, in a standardised combustion chamber, on the average of the firing rates and standardised at the reference conditions provided for by the standard.

## TECHNICAL DATA

Description	Heat output natural gas		Electric power supply Ph/V/Hz	Total electrical power kW	Certification	Notes	Code
	kW	Nm³/h					
<b>BS1F</b>	16÷52	1,6÷5,2	1/220-230/50-60	0,135 (at 50Hz) 0,165 (at 60 Hz)	CE-0085AQ0409	(1)	<b>3761171</b>
<b>BS2F</b>	35÷92	3,5÷9,1	1/220-230/50-60	0,155 (at 50Hz) 0,200 (at 60 Hz)	CE-0085AQ0409	(1)	<b>3761271</b>
<b>BS3F</b>	65÷197	6,5÷20	1/220-230/50-60	0,355 (at 50Hz) 0,485 (at 60 Hz)	CE-0085AQ0409	(1)	<b>3761371</b>
<b>BS4F</b>	110÷246	11,0÷25	1/220-230/50-60	0,420 (at 50Hz) 0,600 (at 60 Hz)	CE-0085AQ0409	(1)	<b>3761471</b>

Net calorific value of natural gas (G20): 10 kWh/Nm³.

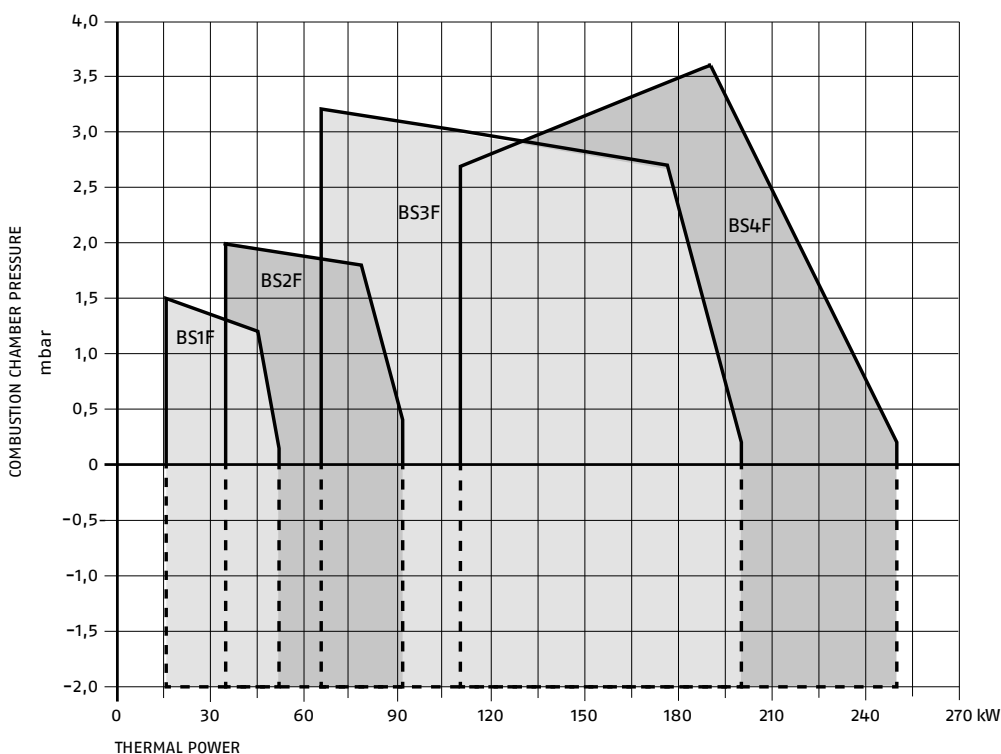
The burners comply with the 2016/426/EU Regulation, the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 676 Standard.

(1) Electrical connections with plug and socket.

## SERVICES FOR BURNERS

Burner range	Description Service	Code
<b>GULLIVER BSF</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

## FIRING RATES

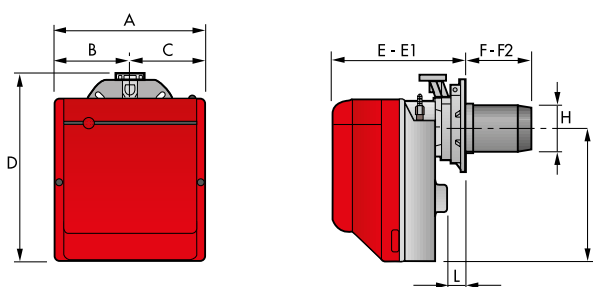


USEFUL FIRING RATES FOR CHOOSING THE BURNER

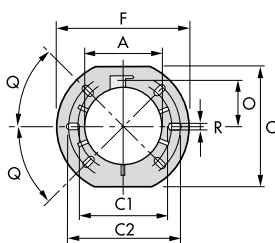
TEST CONDITIONS  
CONFORMING TO EN676  
Temperature: 20 °C  
Pressure: 1013.5 mbar  
Altitude: 0 m a.s.l.

IMPORTANT:  
For the part of the  
working field that is  
depressurised, refer to  
EN 746-2 Standard.

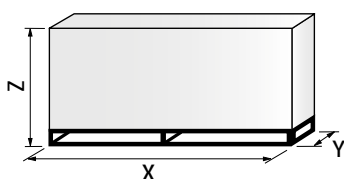
## OVERALL DIMENSIONS



Description	A mm	B mm	C mm	D mm	E mm	E1 mm	F mm	F2 mm	H mm	I mm	L mm
<b>BS1F</b>	234	122	112	295	230	276	116	70	89	210	41
<b>BS2F</b>	255	125.5	125.5	325	238	252	114	100	106	230	45
<b>BS3F</b>	300	150	150	391	262	280	128	110	129	285	45
<b>BS4F</b>	300	150	150	392	278	301	168	145	137	286	45



Description	A mm	C mm	C1 mm	C2 mm	F mm	O mm	Q °	R mm
<b>BS1F</b>	89	167	140	170	192	66	45°	11
<b>BS2F</b>	106	167	140	170	192	66	45°	11
<b>BS3F</b>	129	201	160	190	216	76.5	45°	11
<b>BS4F</b>	137	203	170	200	218	80.5	45°	11

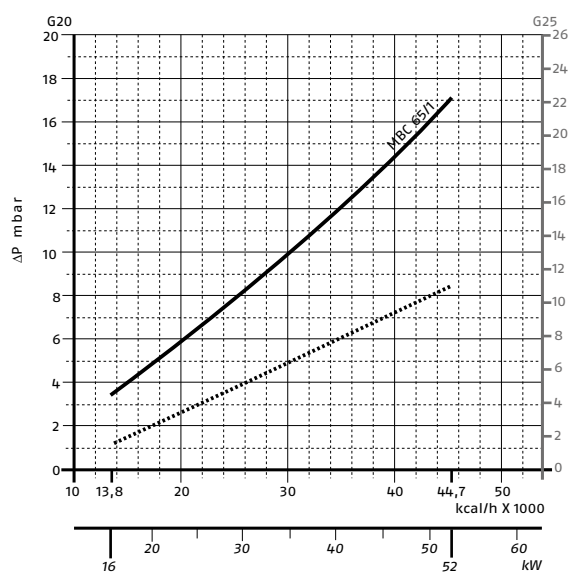


Description	X mm	Y mm	Z mm	Net weight kg
<b>BS1F</b>	395	278	350	10
<b>BS2F</b>	405	298	375	11
<b>BS3F</b>	450	345	440	15
<b>BS4F</b>	510	345	440	16.5

## PRESSURE LOSS DIAGRAMS

### MBC SERIES GAS TRAIN

#### BS1F

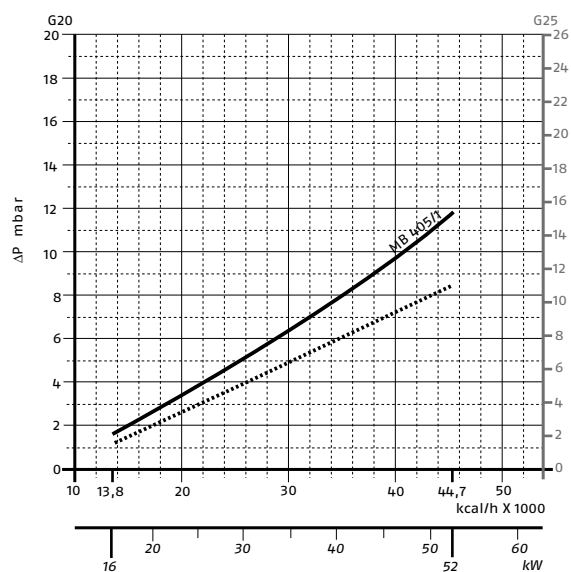


— Combustion head + gas train  
 - - - Combustion head

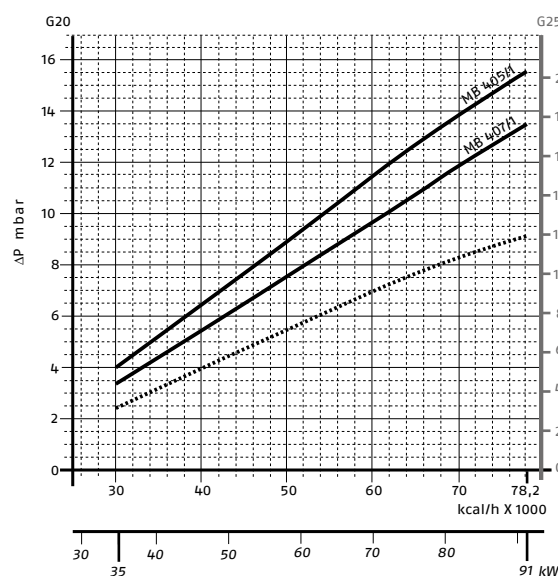
The diagrams indicate the minimum gas pressure drops of the burners equipped with the gas trains to be used (approved according to the EN 676 standard); in order to obtain the minimum pressure required at gas train inlet, combustion chamber counterpressure (expressed in mbar) must be added to this value.

**MB SERIES GAS TRAIN**

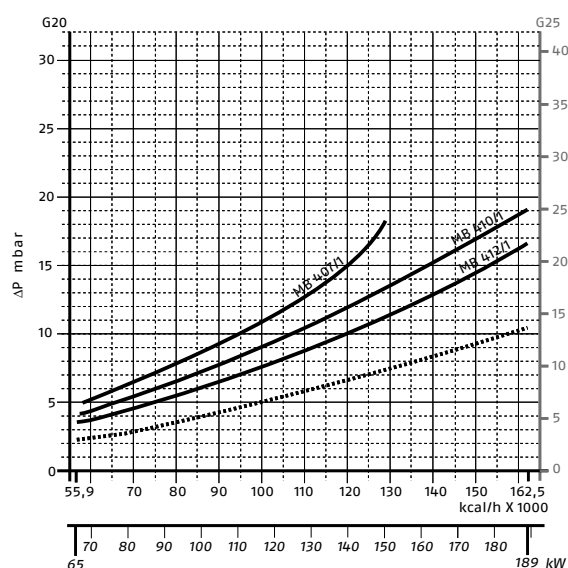
**BS1F**



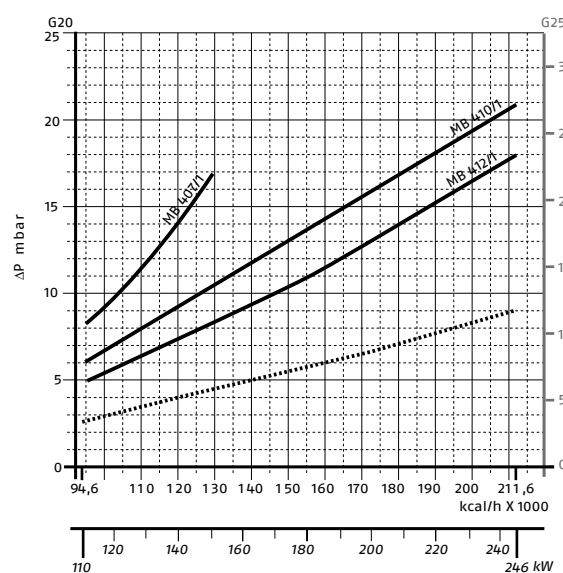
**BS2F**



**BS3F**



**BS4F**



— Combustion head + gas train  
 - - - Combustion head

The diagrams indicate the minimum gas pressure drops of the burners equipped with the gas trains to be used (approved according to the EN 676 standard); in order to obtain the minimum pressure required at gas train inlet, combustion chamber counterpressure (expressed in mbar) must be added to this value.

## GAS TRAINS

Description (1)	Code	Notes	Ø Gas train	C.T. (2)	Burner
<b>MBC SERIES ONE-STAGE GAS TRAINS</b>					
<b>MBC 65/1-F1SD 20</b>	<b>3970570*</b>	(3)	1/2"	(4)	BS1F
<b>MB SERIES ONE-STAGE GAS TRAINS</b>					
<b>MB 405/1-F1SD 20</b>	<b>3970546*</b>	(3)	1/2"	3010123	BS1F
<b>MB 405/1-F2SD 20</b>	<b>3970547*</b>	(3)	3/4"	3010123	BS2F
<b>MB 407/1-F2SD 20</b>	<b>3970544*</b>	(3)	3/4"	3010123	BS2F
<b>MB 407/1-F3SD 20</b>	<b>3970548*</b>	(3)	3/4"	3010123	BS3F-BS4F
<b>MB 410/1-F3SD 20</b>	<b>3970549*</b>	(3)	1"1/4	3010123	BS3F-BS4F
<b>MB 412/1-F3SD 20</b>	<b>3970550*</b>	(3)	1"1/4	3010123	BS3F-BS4F

(1) Please refer to "GAS TRAIN DESIGNATION" on page 144.

(2) The C.T. valve leak test control device can be supplied as accessory separately from gas train (see "GAS TRAIN ACCESSORIES").

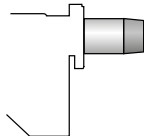
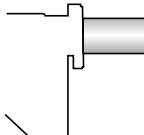



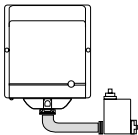

(3) With installed plug.

(4) Not available.

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

NOTE: for further information, refer to section "GAS TRAINS FOR BURNERS".

## ACCESSORIES

Drawing	Burner model	Specification	Code
		<b>EXTENDED HEAD KIT</b> 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.	
	BS2F (long)	Standard head length = 100÷114 mm - Extended head length = 170÷180 mm	<b>3001007</b>
	BS2F (extra long)	Standard head length = 100÷114 mm - Extended head length = 270÷280 mm	<b>3001008</b>
	BS3F	Standard head length = 110÷128 mm - Extended head length = 267÷282 mm	<b>3001009</b>
	BS4F	Standard head length = 145÷168 mm - Extended head length = 302÷317 mm	<b>3001016</b>
		<b>ALTERNATIVE COMBUSTION HEAD KIT (*)</b> This kit can be used to prevent combustion instability which could arise with particular heat generators. To extend the adaptability of Gulliver BSF 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.	
	BS1F	Kit code for alternative combustion head.	<b>3001059</b>
	BS2F	Kit code for alternative combustion head.	<b>3001064</b>
	BS3F	Kit code for alternative combustion head.	<b>3001060</b>
	BS4F	Kit code for alternative combustion head.	<b>3001070</b>
		<b>LPG KIT</b> For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner.	
	BS1F	Kit code for standard and extended head.	<b>3001003</b>
	BS2F	Kit code for standard and extended head.	<b>3001004</b>
	BS3F	Kit code for standard and extended head.	<b>3001005</b>
	BS4F	Kit code for standard and extended head.	<b>3001011</b>
		<b>TOWN GAS KIT</b> For burning Town Gas, a special kit is available to be fitted to the combustion head on the burner.	
	BS1F	Kit code for only standard head (**).	<b>3002727</b>
	BS2F	Kit code for standard and extended head (**).	<b>3002728</b>
	BS3F	Kit code for standard and extended head (**).	<b>3002729</b>
	All models	<b>GROUND FAULT INTERRUPTER KIT</b> 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.	<b>3001180</b>
		<b>MULTIBLOC ROTATION KIT</b> 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.	
	BS1F	Kit code for turned burner.	<b>3001179</b>
	BS2F	Kit code for turned burner.	<b>3001177</b>
	BS3F-BS4F	Kit code for turned burner.	<b>3001178</b>
	All models	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).	<b>3000945</b>

(\*) CE approval on field is required.

(\*\*) Without CE certification.



## DESIGNATION OF SERIES

Series:	R	Standard emission burner	
	B	Low NOx burners	
Fuel:	S	Natural Gas	
	SP	LPG	
	G	Light oil	
Size:			
	Optional variations:		
	F	Light industrial processes	
	Electrical supply to the system:		
		1/220-230/50-60	1/220-230V/50-60Hz

B

S

3

F

1/230/50

## STATE OF SUPPLY

Monobloc, gas burners, completely automatic, with One-stage operation fitted with:

- Fan with forward curve blades
- Cover lined with sound-proofing material
- Air damper, completely closed in stand by, with external adjustment, with no need to remove the cover
- Single phase electric motor 220 - 230 V/50 - 60 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

- Flange with insulating gasket
- Screw and nut for flange
- Screw and nuts for flange to be fixed to the heat generator
- 7-pin plug
- Remote control release kit
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue

Low NOx gas light-process burners

## GULLIVER BSDF

Range code 11ACGGBWRF



- Two-stage gas burners with low NOx emissions according to Class 3 of European standard EN 676 (NOx lower than 80 mg/kWh\*)
- Installation flexibility: adjustable head length
- High maintainability: access to components and combustion head with burner installed
- Simplified calibration: air adjustment with external gear
- High flexibility of use and adaptability to the operating conditions
- Digital control box with diagnostic function

### MAIN APPLICATIONS

- Industrial ovens
- Paint booths
- Low-power steam generators

The Riello Gulliver BSDF series of Two-stage gas burners, is a complete range of Low NOx emission products, developed to respond to any request for light industrial processes like bakery ovens, spray painting ovens, small steam or thermal boilers and all applications requiring a reliable, user-friendly industrial product with enhanced performance and specific functions. This series of burners is available in two different models with an output ranging from 80 to 249 kW, divided in two different structures.

All 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. This new series can operate on 50 or 60 Hz and 220-230 V (dual frequency).

For depressurised working field see EN 746-2 Standard.

All burners are fired before leaving the factory.

\* The emission value is determined, according to the provisions of standard EN 676, in a standardised combustion chamber, on the average of the firing rates and standardised at the reference conditions provided for by the standard.

# TECHNICAL DATA

Description	Heat output natural gas		Electric power supply Ph/V/Hz	Total electrical power kW	Certification	Notes	Code
	kW	Nm³/h					
<b>BS3DF</b>	65/80÷197	6,5/7,5÷19	1/220-230/50-60	0,355 (at 50Hz) 0,485 (at 60 Hz)	CE-0085AQ0409	(1)	<b>3761391</b>
<b>BS4DF</b>	110/140÷249	11/14÷24,6	1/220-230/50-60	0,420 (at 50Hz) 0,600 (at 60 Hz)	CE-0085AQ0409	(1)	<b>3761491</b>

Net calorific value of natural gas (G20): 10 kWh/Nm³.

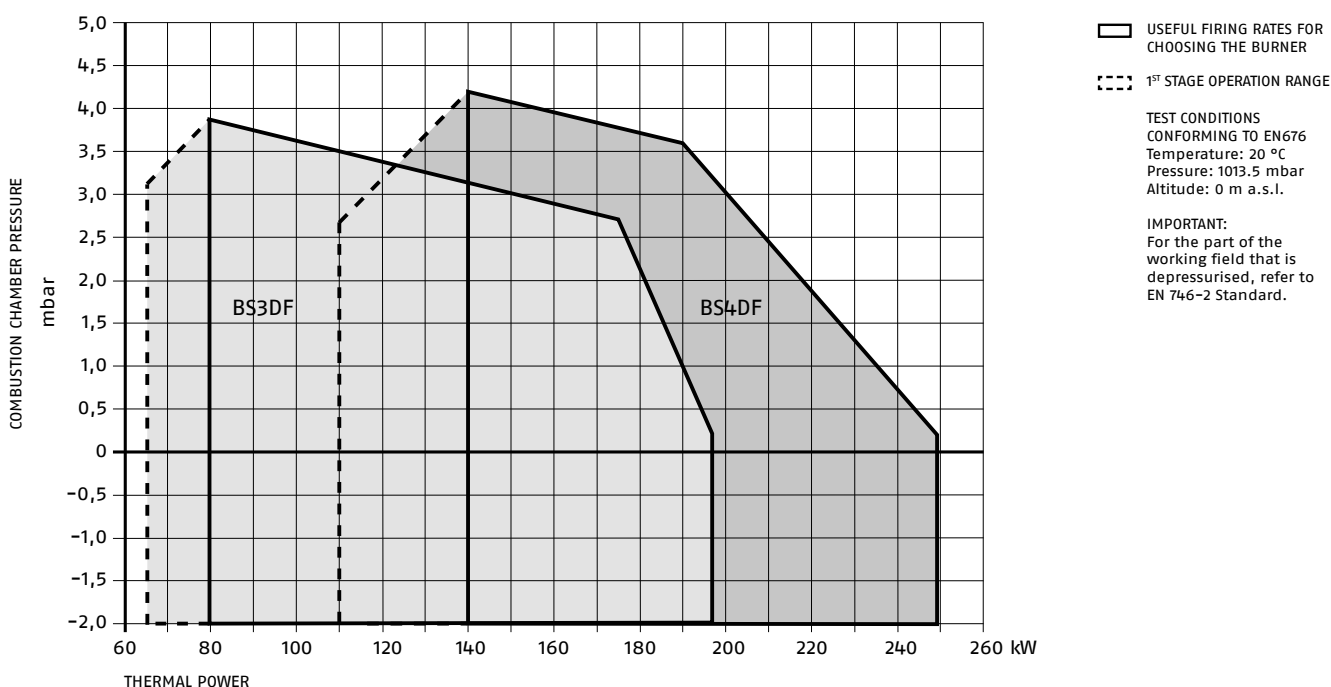
The burners comply with the 2016/426/EU Regulation, the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 676 Standard.

(1) Electrical connections with plug and socket.

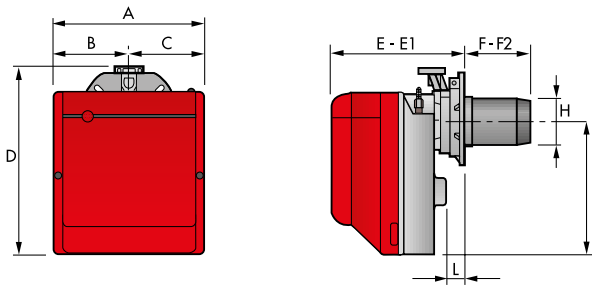
# SERVICES FOR BURNERS

Burner range	Description Service	Code
<b>GULLIVER BSDF</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

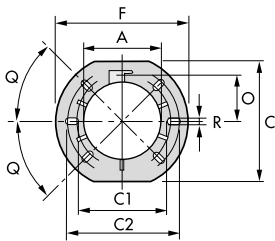
# FIRING RATES



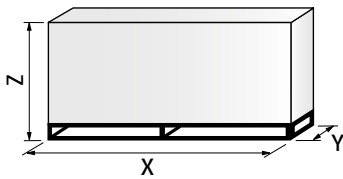
## OVERALL DIMENSIONS



Description	A mm	B mm	C mm	D mm	E mm	E1 mm	F mm	F2 mm	H mm	I mm	L mm
<b>BS3DF</b>	300	150	150	391	262	280	128	110	129	285	45
<b>BS4DF</b>	300	150	150	392	278	301	168	145	137	286	45



Description	A mm	C mm	C1 mm	C2 mm	F mm	O mm	Q °	R mm
<b>BS3DF</b>	129	201	160	190	216	76.5	45°	11
<b>BS4DF</b>	137	203	170	200	218	80.5	45°	11

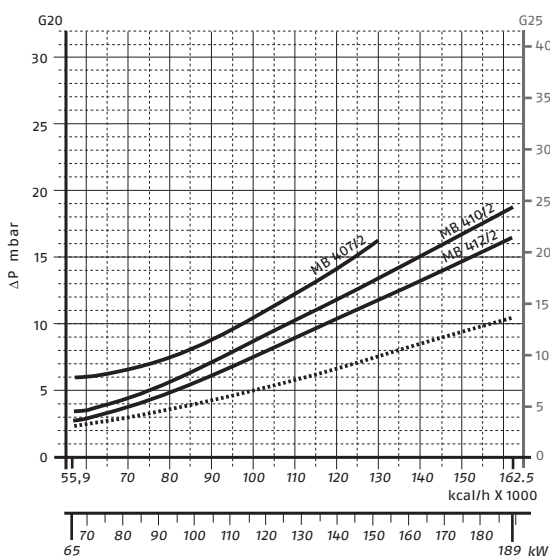


Description	X mm	Y mm	Z mm	Net weight kg
<b>BS3DF</b>	450	345	440	16
<b>BS4DF</b>	510	345	440	18

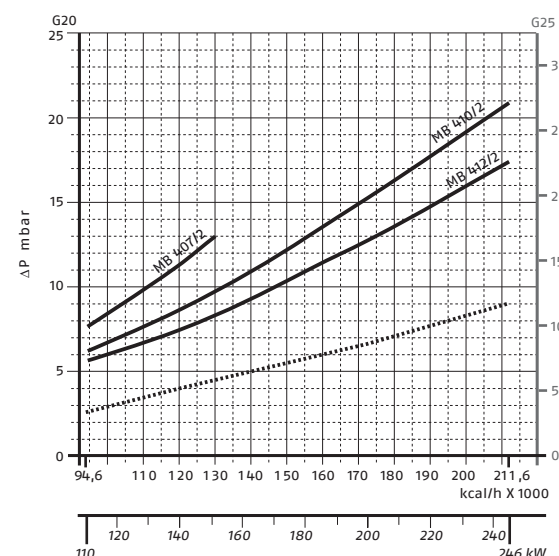
## PRESSURE LOSS DIAGRAMS

### MBC SERIES GAS TRAIN

BS3DF



BS4DF



— Combustion head + gas train  
 --- Combustion head

The diagrams indicate the minimum gas pressure drops of the burners equipped with the gas trains to be used (approved according to the EN 676 standard); in order to obtain the minimum pressure required at gas train inlet, combustion chamber counterpressure (expressed in mbar) must be added to this value.

## GAS TRAIN

Description (1)	Code	Notes	Ø Gas train	C.T. (2)	Burner
<b>MB 407/2-F3SD 20</b>	<b>3970541*</b>	(3)	3/4"	3010123	BS3DF
<b>MB 410/2-F3SD 20</b>	<b>3970542*</b>		1"1/4	3010123	BS3DF-BS4DF
<b>MB 412/2-F3SD 20</b>	<b>3970543*</b>		1"1/4	3010123	BS3DF-BS4DF

(1) Please refer to "GAS TRAIN DESIGNATION" on page 144.

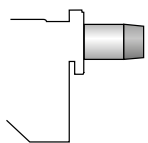
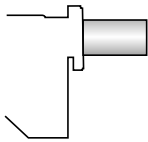



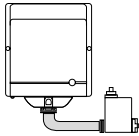

(2) The C.T. valve leak test control device can be supplied as accessory separately from gas train (see "GAS TRAIN ACCESSORIES").

(3) With installed plug.

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

NOTE: for further information, refer to section "GAS TRAINS FOR BURNERS".

## ACCESSORIES

Drawing	Burner model	Specification	Code
		<b>EXTENDED HEAD KIT</b> 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.	
	BS3DF	Standard head length = 110÷128 mm - Extended head length = 267÷282 mm	<b>3001009</b>
	BS4DF	Standard head length = 145÷168 mm - Extended head length = 302÷317 mm	<b>3001016</b>
		<b>ALTERNATIVE COMBUSTION HEAD KIT (*)</b> This kit can be used to prevent combustion instability which could arise with particular heat generators. To extend the adaptability of Gulliver BS 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.	
	BS3DF	Kit code for alternative combustion head.	<b>3001060</b>
	BS4DF	Kit code for alternative combustion head.	<b>3001070</b>
		<b>LPG KIT</b> For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner.	
	BS3DF	Kit code for standard and extended head.	<b>3001005</b>
	BS4DF	Kit code for standard and extended head.	<b>3001011</b>
	BS3DF	<b>TOWN GAS KIT</b> For burning Town Gas, a special kit is available to be fitted to the combustion head on the burner. Kit code for standard and extended head (**).	<b>3002729</b>
	All models	<b>GROUND FAULT INTERRUPTER KIT</b> 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.	<b>3001180</b>
	All models	<b>MULTIBLOC ROTATION KIT</b> 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.	<b>3001178</b>
	All models	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).	<b>3000945</b>

(\*) CE approval on field is required.

(\*\*) Without CE certification.

## DESIGNATION OF SERIES

Series:	R	Standard emission burner	
	B	Low NOx burners	
Fuel:	S	Natural Gas	
	SP	LPG	
	G	Light oil	
Size:			
	Optional variations:	D	Two-stage output operation
		F	Light industrial processes
		M	Two-stage progressive of fully modulating
Electrical supply to the system:		1/220-230/50-60	1/220-230V/50-60Hz

B

S

3

FD

1/230/50

## STATE OF SUPPLY

Monobloc, gas burners, completely automatic, with One-stage operation fitted with:

- Fan with forward curve blades
- Cover lined with sound-proofing material
- Air damper with 1st and 2nd stage adjustment (2nd stage external adjustment, with no need to remove the cover)
- Driven by an electric servomotor
- Single phase electric motor 220 - 230 V/50 - 60 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 with insulating gasket
- 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 premix gas light-process burners

## RX 35÷150 S/PV F

Range code 11AJP5BWRF



- Premix gas burners
- NOx emissions according to Class 3 of European standard EN 676 (NOx lower than 80 mg/kWh\*)
- Compact flame (Riello patented combustion head with metal fiber mesh)
- Modulation with variable rpm brushless motor
- Operation with natural gas and LPG

### MAIN APPLICATIONS

- Air heaters
- Steam boilers
- Bakery ovens
- Textile industry
- Roasters
- Convection (rotary or fixed panel type), plate, conduction and radiant heat ovens
- Continuous, tunnel and steam tube industrial ovens.

The RX S/PV F gas burner series with linear flame for light process applications has been designed and developed by Riello, based on the premix combustion technology.

The adopted technical solutions represent the best answer to obtain low pollutant emissions, high performance and wide modulating turn down ratio. The in-depth study of fluid dynamics and the use of innovative porous materials has allowed a flame to be distributed throughout the length of the combustion zone and stability even in environments characterized by turbulence and internal recirculations.

The sealed fans equipped with brushless motors allow speed variations. Moreover, the use of proportional valves guarantees a perfect control of the power output and reduced electrical consumption.

The use of certified components and the easy maintenance makes RX gas burner a highly reliable product.

The microprocessor control box, integrated with the valve, has been developed exclusively for RIELLO.

RX S/PV F series is strongly oriented to customer needs: burners are customized for each specific application.

The premix models are therefore not orderable as standard products but only in the versions assuring a matching to target applications.

A wide range of configurations is available to comply with every customer specification involving industrial ovens.

The complete autonomy of each burner guarantees the optimization of the temperature distribution inside the oven and simplifies the design of the overall industrial plant.

Use of the RX S/PV F range is addressed to convection ovens, of the type rotary or with fixed pans, in plates, conductive and irradiation, as well as industrial ovens of continuous type, tunnel and tube type of steam. Also possibility of replacement on electric ovens is available.

\* The emission value is determined, according to the provisions of standard EN 676, in a standardised combustion chamber, on the average of the firing rates and standardised at the reference conditions provided for by the standard.

## TECHNICAL DATA

Description	Heat output kW	Fuel	Main application	Electric power supply Ph/V/Hz	Combustion head assembly	External modulation	Notes	Code
<b>RX 35 S/PV F</b>	6÷40	Natural gas/LPG	Tunnel ovens	1/230/50-60	Not included	0-10 V	(1)(4)	<b>20042815</b>
<b>RX 70 S/PV F</b>	10÷40	Natural gas/LPG	Ovens	1/230/50	Included	0-10 V	(1)(2)(3)	<b>20140590</b>
<b>RX 70 S/PV F</b>	10÷40	Natural gas/LPG	Ovens	1/230/50	Included	3 points	(1)(2)(3)	<b>20144823</b>
<b>RX 70 S/PV F</b>	14÷70	Natural gas/LPG	Ovens	1/230/50-60	Included	3 points	(1)(2)	<b>20026963</b>
<b>RX 150 S/PV F TC</b>	25÷145	Natural gas/LPG	Thermal cycle ovens	1/230/50-60	Included	3 points	(1)(2)	<b>20138689</b>
<b>RX 150 S/PV F TL</b>	25÷145	Natural gas/LPG	Thermal cycle ovens	1/230/50-60	Not included	0-10 V	(1)(4)	<b>20139759</b>

(1) External modulation signal as per factory setting. Refer to the installation manual for compatibility with other types of signals.

(2) With spacer.

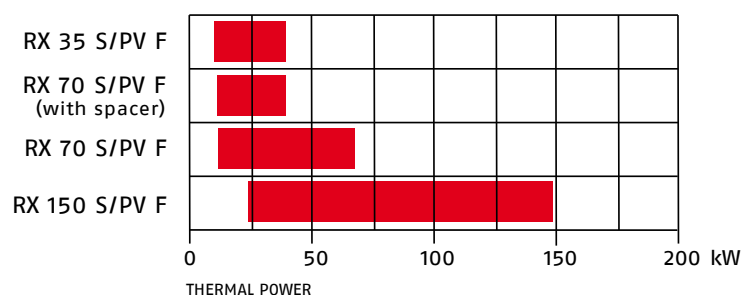
(3) With spacer.

(4) Combustion head provided as an accessory.

## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>RX 35÷150 S/PV F</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

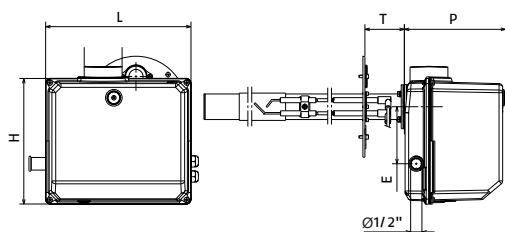
## BURNER OUTPUTS





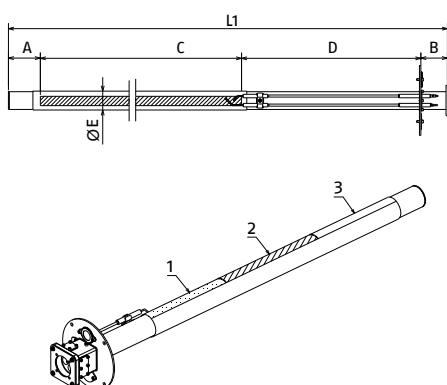
## OVERALL DIMENSIONS

## RX 35 S/PV F



Description	H mm	L mm	P mm	E mm	T mm
<b>RX 35 S/PV F</b>	249	288	201	113	78

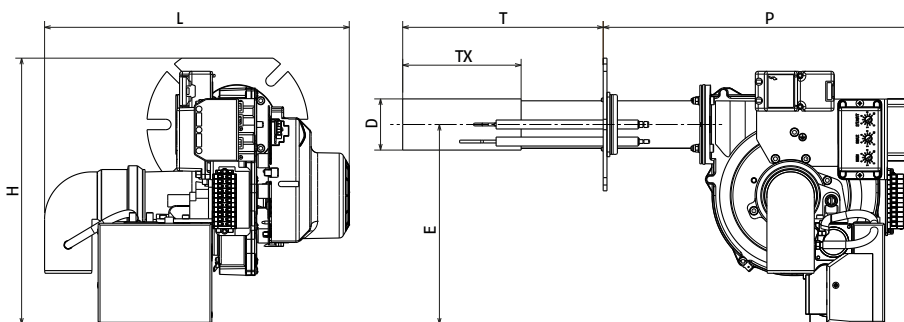
## RX 35 S/PV F - COMBUSTION HEAD



Description	A mm	B mm	C mm	D mm	ØE mm	L1 mm
<b>COMBUSTION HEAD ASSEMBLIES</b>						
<b>20110452</b>	106	85	1000	518	50	1709
<b>20110544*</b>	106	85	1000	518	60	1709
<b>20095286</b>	106	85	1206	518	50	1915
<b>20095407*</b>	106	85	1206	518	60	1915
<b>20045263</b>	106	85	1400	518	50	2110
<b>20134436*</b>	106	85	1400	518	60	2110
<b>20131416</b>	106	85	1506	518	50	2215
<b>20131419*</b>	106	85	1506	518	60	2215

(\*) The three-flame version can be used when it is necessary to adapt the temperature inside the oven. The combustion head assembly is characterized by three zones (1-2-3) that can deliver a different power output. The adjustment of these zones is carried out in easy way using screws on the modulator.

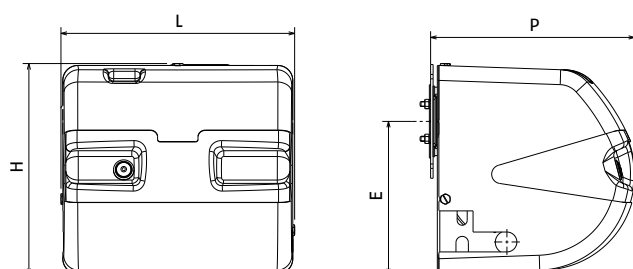
## RX 70 S/PV F - COMBUSTION HEAD INCLUDED



Description	H mm	L mm	P mm	T mm	TX mm	D mm	E mm
<b>RX 70 S/PV F*</b>	280	320	325	212	125	54	210
<b>RX 70 S/PV F</b>	280	313	225	296	185	67	210

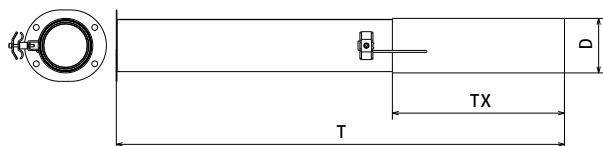
(\*) With spacer.

## RX 150 S/PV F



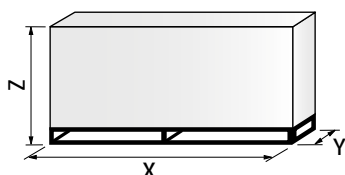
Description	H mm	L mm	P mm	E mm
<b>RX 150 S/PV F TC</b>	340	380	330	247
<b>RX 150 S/PV F TL</b>	340	380	330	247

## RX 150 S/PV F – COMBUSTION HEAD



Description	Combustion head assembly	D mm	T mm	TX mm
<b>COMBUSTION HEAD</b>				
<b>RX 150 S/PV F TC</b>	<b>INCLUDED IN BURNER CODE</b>	84	392	265
<b>RX 150 S/PV F TL</b>	<b>20048844</b>	84	690	265

TX combustion zone length.




Description	X mm	Y mm	Z mm
<b>RX 35 S/PV F**</b>	395	315	305
<b>RX 70 S/PV F*</b>	590	395	305
<b>RX 70 S/PV F</b>	590	395	305
<b>RX 150 S/PV F TC</b>	778	398	476
<b>RX 150 S/PV F TL**</b>	778	398	476

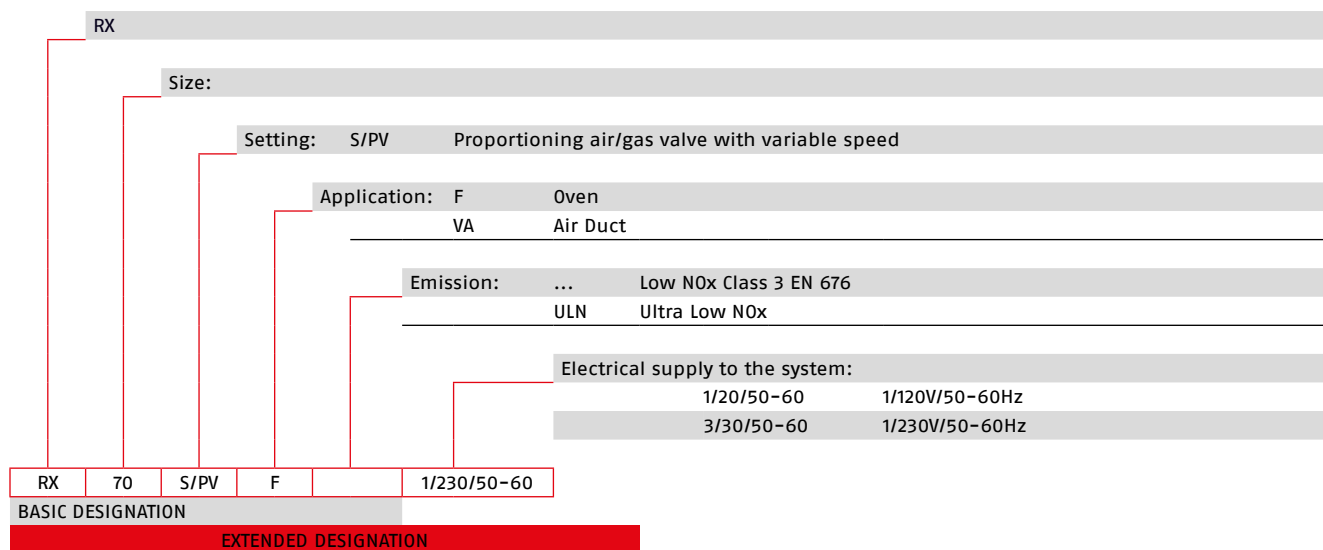
(\*) With spacer.

(\*\*) Combustion head not included.

## ACCESSORIES

Drawing	Burner model	Specification	Code
	RX 35 S/PV F	<p>It is used to simplify the wiring harness in the plants with a large number of installed burners.</p> <p>This accessory consists of an I/O module contained in an IP65 metal box (called sub-panel). The sub-panel can manage from 1 to 4 burners and can be connected in "sequence" using the bus connection cable for a maximum of 31 sub-panels (124 burners in all).</p> <p>By means of the BUS system, for each connected burner, is it possible to manage : burner ON/OFF, signaling of burner operation or lock-out. Thanks to the configuration parameters adjustable via dip-switches, the system is easy to set up both in case of new installation and replacement. In order to guarantee the plant safety, the device is equipped with a Watch-Dog timer system; If the module does not receive commands for a longer time than the set time, the WatchDog Alarm will be triggered and the burners will be switched off (thermostat opening) to avoid system damages.</p> <ul style="list-style-type: none"> <li>- Modbus Slave module on RS-485 net</li> <li>- MODBUS RTU/MODBUS ASCII</li> <li>- 8-digital input channels</li> <li>- 4-digital output channels with relay (2 SPDT format + 2 SPST format)</li> <li>- Communication parameters set via dip-switch</li> <li>- Watch-Dog alarm</li> <li>- Remote configuration</li> <li>- Remote configuration</li> <li>- LED signaling on the front side for power supply and communication</li> <li>- LED signaling on the front side for digital inputs and outputs</li> <li>- Connection to extractable terminals</li> </ul>	<b>On demand</b>

## DESIGNATION OF SERIES



## STATE OF SUPPLY

RX S/PV F series is strongly oriented to customer needs: burners are customized for each specific application. The premix models are therefore not orderable as standard products but only in the versions assuring a matching to target applications.

A wide range of configurations is available to comply with every customer specification involving industrial ovens. The complete autonomy of each burner guarantees the optimization of the temperature distribution inside the oven and simplifies the design of the overall industrial plant.

## Available power output:

- From 5 to 60 kW

## Available electrical supply:

- 1/230/50-60
- 1/120/50-60

## Fuel:

- Natural Gas
- LPG

## Operating mode:

- One-stage
- Two-stage Progressive
- Modulating

## Modulation signal input:

- 0-10 V
- 4-20 A
- 3-point modulation or Up/Down

## Aesthetic

- With cover
- Without cover

## Combustion head

- Cylindrical or frontal shaped head
- One or three different combustion zones
- Customizable length and cross section

## Other:

- Variable speed brushless motor
- Compact proportional valve
- Diagnostic via PC
- Possibility of canalize the air circuit
- Possibility of discharge in the environment
- Programmable pre-purging, post-purging, safety time
- BUS management
- Wide modulating turn down ratio up to 1:8 with shutdowns/starts-up
- On field or EN 676 certification

## EXISTING APPLICATIONS

Tunnel oven (pizza) – RX 35 S/PV



Tunnel oven (piadina) – RX 35 S/PV



Tunnel oven (piadina) – RX 35 S/PV



Coffee roaster – RX 35-70 S/PV



Industrial fryer – RX 70 S/PV



Low NOx premix gas light-process burners

## RX 180÷360 S/PV F

Range code 11AIPSBWRF



- Premix gas burners
- NOx emissions according to Class 3 of European standard EN 676 (NOx lower than 80 mg/kWh\*)
- Compact flame (Riello patented combustion head with metal fiber mesh)
- Modulation with variable rpm brushless motor
- Operation with natural gas and LPG

### MAIN APPLICATIONS

- Air heaters
- Steam boilers
- Bakery ovens
- Textile industry
- Roasters
- Convection (rotary or fixed panel type), plate, conduction and radiant heat ovens
- Continuous, tunnel and steam tube industrial ovens.

The RX S/PV F gas burner series with linear flame for light process applications has been designed and developed by Riello, based on the premix combustion technology.

The adopted technical solutions represent the best answer to obtain low pollutant emissions, high performance and wide modulating turn down ratio. The in-depth study of fluid dynamics and the use of innovative porous materials has allowed a flame to be distributed throughout the length of the combustion zone and stability even in environments characterized by turbulence and internal recirculations.

The sealed fans equipped with brushless motors allow speed variations. Moreover, the use of proportional valves guarantees a perfect control of the power output and reduced electrical consumption.

The use of certified components and the easy maintenance makes RX gas burner a highly reliable product.

The microprocessor control box, integrated with the valve, has been developed exclusively for RIELLO.

RX S/PV F series is strongly oriented to customer needs: burners are customized for each specific application.

The premix models are therefore not orderable as standard products but only in the versions assuring a matching to target applications.

A wide range of configurations is available to comply with every customer specification involving industrial ovens.

The complete autonomy of each burner guarantees the optimization of the temperature distribution inside the oven and simplifies the design of the overall industrial plant.

Use of the RX S/PV F range is addressed to convection ovens, of the type rotary or with fixed pans, in plates, conductive and irradiation, as well as industrial ovens of continuous type, tunnel and tube type of steam. Also possibility of replacement on electric ovens is available.

\* The emission value is determined, according to the provisions of standard EN 676, in a standardised combustion chamber, on the average of the firing rates and standardised at the reference conditions provided for by the standard.

## TECHNICAL DATA

Description	Heat output kW	Fuel	Main application	Electric power supply Ph/V/Hz	Combustion head assembly	External modulation	Note	Code
<b>RX 180 S/PV F TC</b>	30÷180	Natural gas/LPG	Thermal cycle ovens	1/230/50-60	Included	3 points	(1)(3)	<b>20135846</b>
<b>RX 180 S/PV F TL</b>	30÷180	Natural gas/LPG	Thermal cycle ovens	1/230/50-60	Not included	0-10 V	(1)(4)	<b>20137565</b>
<b>RX 250 S/PV F TC</b>	42÷250	Natural gas/LPG	Thermal cycle ovens	1/230/50-60	Included	3 points	(1)(3)	<b>20134866</b>
<b>RX 250 S/PV F TL</b>	42÷250	Natural gas/LPG	Thermal cycle ovens	1/230/50-60	Not included	0-10 V	(1)(4)	<b>20137510</b>
<b>RX 360 S/PV F</b>	65÷360	Natural gas	Thermal cycle ovens	1/230/50	Included	3 points	(1)(2)(3)	<b>20148871</b>
<b>RX 360 S/PV F</b>	65÷360	LPG	Thermal cycle ovens	1/230/50	Included	3 points	(1)(2)(3)	<b>20171627</b>

(1) External modulation signal as per factory setting. Refer to the installation manual for compatibility with other types of signals.

(2) Equipped with ignition pilot.

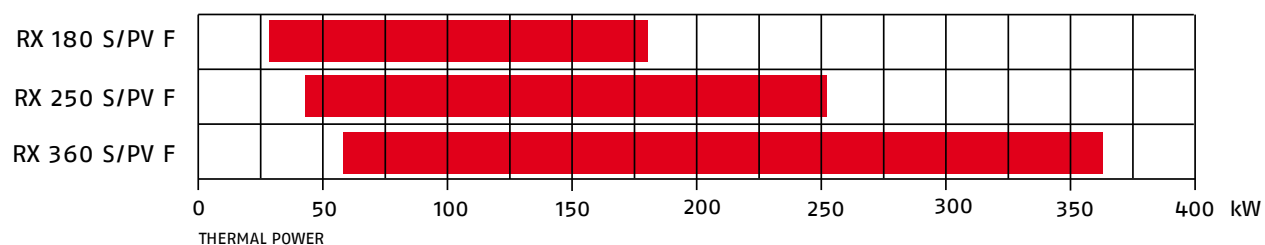
(3) With spacer.

(4) Combustion head provided as an accessory.

## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>RX 180÷360 S/PV F</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017472</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017481</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017488</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017496</b>

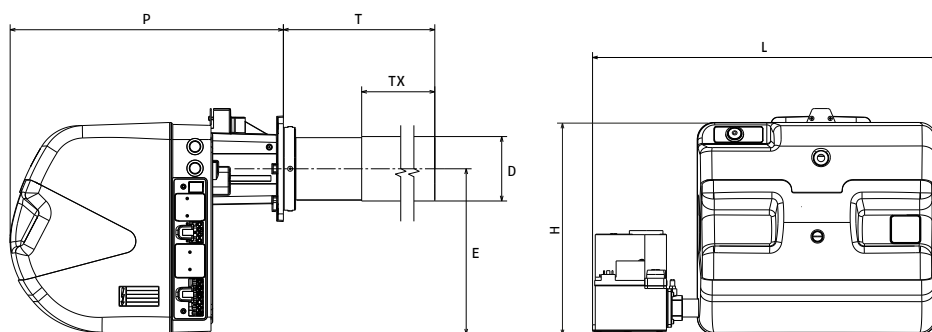
## BURNER OUTPUTS



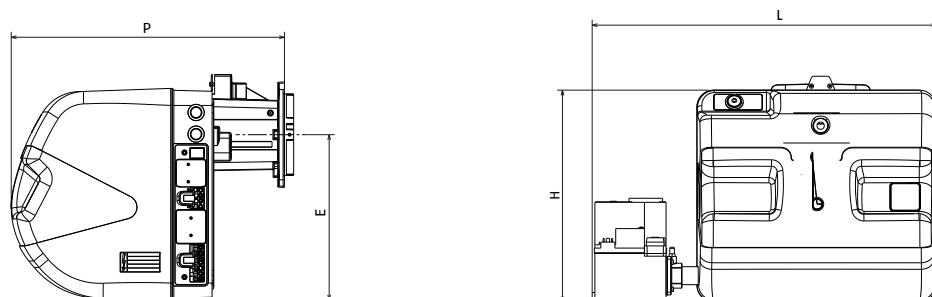


## OVERALL DIMENSIONS

RX 180-250 S/PV F TC

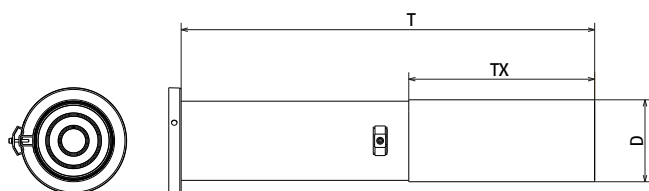


RX 180-250 S/PV F TL



Description	H mm	L mm	P mm	T mm	TX mm	D mm	E mm
RX 180 S/PV F TC	390	640	503	465	320	119	306
RX 250 S/PV F TC	390	640	503	465	320	119	306
RX 180 S/PV F TL	390	640	503	-	-	-	306
RX 250 S/PV F TL	390	640	503	-	-	-	306

RX 180-250 S/PV F - COMBUSTION HEAD

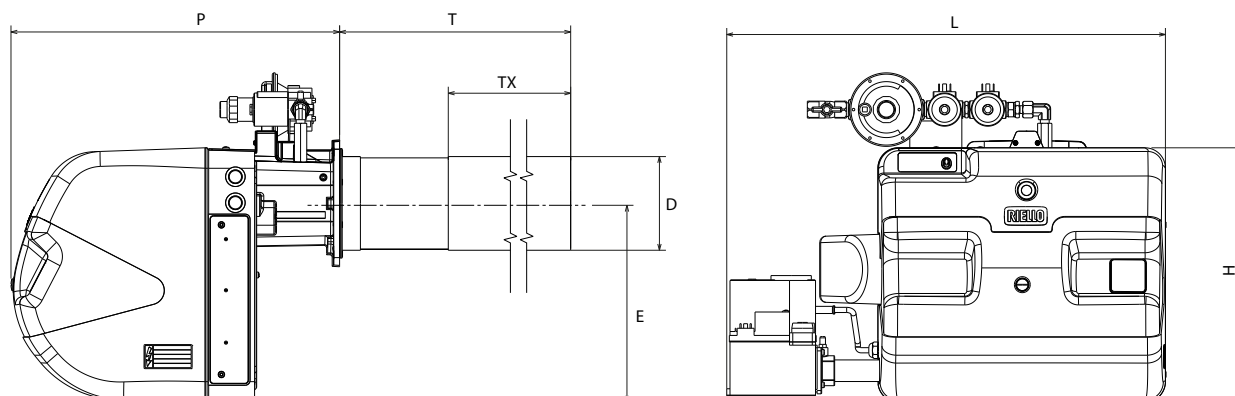


Description	Combustion head assembly	D mm	T mm	TX mm
<b>COMBUSTION HEAD</b>				
RX 180 S/PV F TC	<b>INCLUDED IN BURNER CODE</b>	119	160	460
RX 250 S/PV F TC	<b>INCLUDED IN BURNER CODE</b>	119	160	460
RX 180 S/PV F TL	<b>20028729</b>	119	600	250
RX 180 S/PV F TL	<b>20054833</b>	119	500	150
RX 250 S/PV F TL	<b>20058677</b>	119	690	250

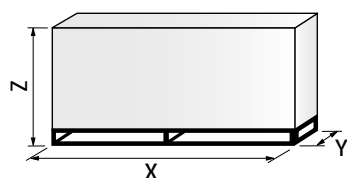
TX Combustion zone length.



## RX 360 S/PV F



Description	H mm	L mm	P mm	T mm	TX mm	D mm	E mm
<b>RX 360 S/PV F</b>	390	675	502	635	410	144	306



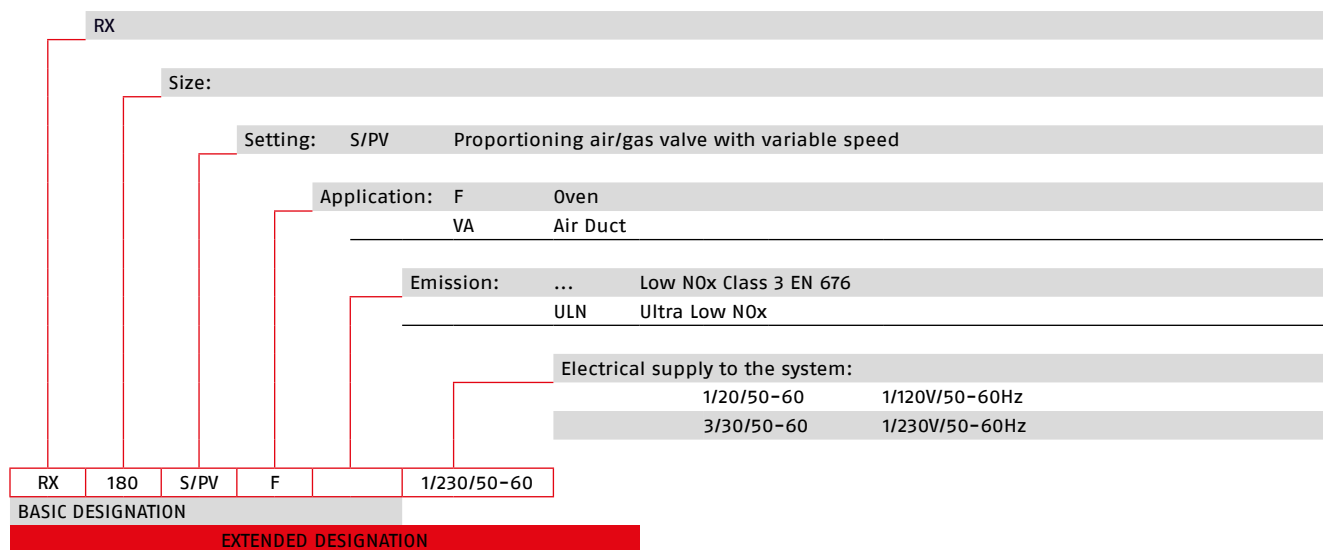
Description	X mm	Y mm	Z mm
<b>RX 180 S/PV F TC</b>	730	550	530
<b>RX 250 S/PV F TC</b>	730	550	530
<b>RX 180 S/PV F TL*</b>	730	550	530
<b>RX 250 S/PV F TL*</b>	730	550	530
<b>RX 360 S/PV F</b>	1218	564	485

(\*) Combustion head not included.

## ACCESSORIES

Drawing	Burner model	Specification	Code
		<b>POWER CONTROLLER</b> To obtain modulating operation, the RX S/PV F series of burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range.	
	RX 180 S/PV F	RWF50.2 - Basic version with 3 position output.	<b>20094733</b>
	RX 250 S/PV F	RWF50.2 - Basic version with 3 position output.	<b>20094733</b>
	RX 360 S/PV F	RWF50.2 - Basic version with 3 position output.	<b>20086840</b>
	All models	<b>TEMPERATURE PROBE</b> The temperature probe to be fitted to the power controller must be chosen based on the application. Temperature probe type PT 100 (-100÷500 °C)	<b>3010110</b>
	All models	<b>PRESSURE PROBE</b> The pressure probe to be fitted to the power controller must be chosen based on the application.	
		Pressure (0÷2,5 bar) with 4÷20 mA output	<b>3010213</b>
		Pressure (0÷16 bar) with 4÷20 mA output	<b>3010214</b>
		Pressure (0÷25 bar) with 4÷20 mA output	<b>3090873</b>
	All models	<b>PC INTERFACE KIT</b> A special kit is available for the connection with a PC and the indication of hours of operation, number and types of blocks, number of engine revolutions and parameters safety.	<b>On demand</b>
	All models	<b>DISPLAY AND OPERATING UNIT</b> The AZL 21 LCD display Kit is suitable to be connected to the LME 71 control box in order to get indication of the operating status, to activate the diagnostic functions and to change the password-protected parameters (carried out only by qualified personnel).	<b>20109292</b>

## DESIGNATION OF SERIES



## STATE OF SUPPLY

RX S/PV F series is strongly oriented to customer needs: burners are customized for each specific application. The premix models are therefore not orderable as standard products but only in the versions assuring a matching to target applications.

A wide range of configurations is available to comply with every customer specification involving industrial ovens. The complete autonomy of each burner guarantees the optimization of the temperature distribution inside the oven and simplifies the design of the overall industrial plant.

## Available power output:

- From 5 to 60 kW

## Available electrical supply:

- 1/230/50-60
- 1/120/50-60

## Fuel:

- Natural Gas
- LPG

## Operating mode:

- One-stage
- Two-stage progressive
- Modulating

## Modulation signal input:

- 0-10 V
- 4-20 A
- 3-point modulation or Up/Down

## Aesthetic

- With cover
- Without cover

## Combustion head

- Cylindrical or frontal shaped head
- One or three different combustion zones
- Customizable length and cross section

## Other:

- Variable speed brushless motor
- Compact proportional valve
- Diagnostic via PC
- Possibility of canalize the air circuit
- Possibility of discharge in the environment
- Programmable pre-purging, post-purging, safety time
- BUS management
- Wide modulating turn down ratio up to 1:8 with shutdowns/starts-up
- On field or EN 676 certification

## EXISTING APPLICATIONS

Coffee roaster



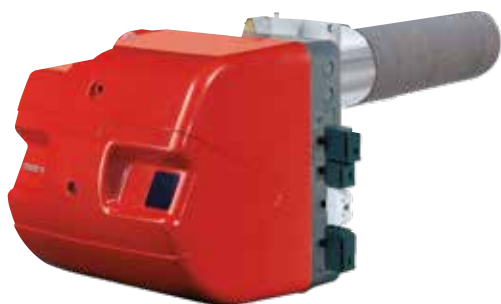
Air heaters (air handling units)



Low NOx air duct premix gas burners

## RX 180÷310 S/PV VA

Range code 11AIPBWRP



- Premix gas burners
- NOx emissions according to Class 3 of European standard EN 676 (NOx lower than 80 mg/kWh\*)
- Compact flame (Riello patented combustion head with metal fiber mesh)
- Modulation with variable rpm brushless motor
- Operation with natural gas and LPG

### MAIN APPLICATIONS

- Paint booths
- Direct exchange industrial applications

The Riello RX 180÷310 S/PV VA series of modulating premix gas burner, is a range of product developed to respond to direct exchange application (e.g paint booth).

The RX 180÷310 S/PV VA series is available in four different models, with an output ranging from 22 to 310 kW.

The burners are fitted with a micro-processor based safety control which supplies indication of operation and diagnosis fault cases. Burners can operate on 50 or 60 Hz (dual-frequency).

Also combustion head over a wide range of different lengths are available, meeting every application needs.

Burners can operate with LPG also by means of a simple regulation on the gas valve.

\* The emission value is determined, according to the provisions of standard EN 676, in a standardised combustion chamber, on the average of the firing rates and standardised at the reference conditions provided for by the standard.

## TECHNICAL DATA

Description	Heat output kW	Electric power supply Ph/V/Hz	Total electrical power kW	Notes	Code
<b>RX 180 S/PV VA</b>	25÷180	1/230/50~60	0.51	(1)(3)	<b>On demand</b>
<b>RX 250 S/PV VA</b>	42÷250	1/230/50~60	0.51	(1)(3)	<b>On demand</b>
<b>RX 290 S/PV VA</b>	42÷290	1/230/50~60	0.51	(1)(2)(3)	<b>On demand</b>
<b>RX 310 S/PV VA</b>	50÷310	1/230/50~60	0.51	(1)(3)	<b>On demand</b>

(1) 0-10V external modulation

(2) This maximum power is obtained only with depression exchange channels.

(3) The burner operates correctly with internal pressures in the channel of between -3 and +2 mbar and with maximum variations of +/- 1 mbar. The air speed inside the channel must be higher than 4 m/s.

## COMBUSTION HEAD MATCHING

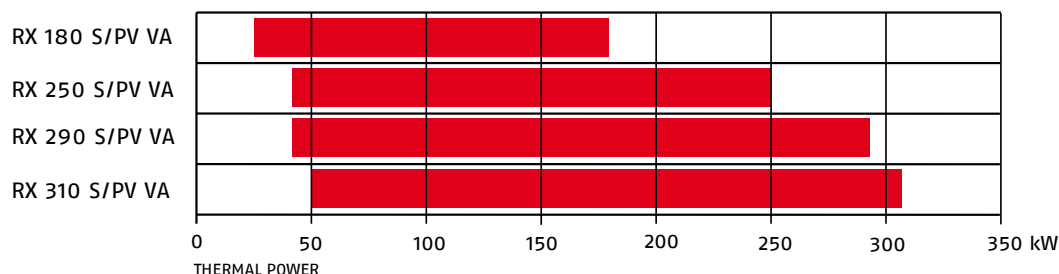
Description	Combustion head assembly code	Length mm	Note
<b>RX 180 S/PV VA</b>	20025306	T = 1000	
	3151000	T = 1000	
	3151002	T = 1250	
<b>RX 250 S/PV VA</b>	3151003	T = 1470	
<b>RX 290 S/PV VA</b>	20085194	T = 1000 High temperature	(1)
<b>RX 310 S/PV VA</b>	20069560	T = 1250 High temperature	(1)
	20085180	T = 1470 High temperature	(1)

(1) To be used with air temperature inside the channel higher than 100°C.

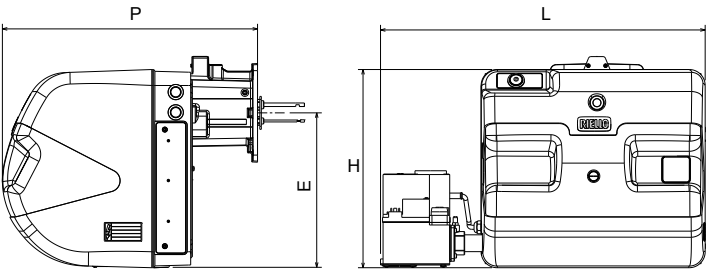
## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>RX 180÷310 S/PV VA</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017472</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017481</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017488</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017496</b>

## BURNER OUTPUTS

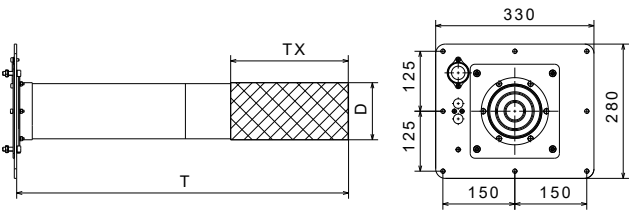


OVERALL DIMENSIONS



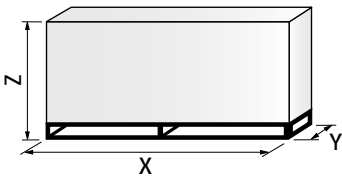
Description	H mm	L mm	P mm	E mm
<b>RX 180 S/PV VA</b>	390	640	503	306
<b>RX 250 S/PV VA</b>	390	640	503	306
<b>RX 290 S/PV VA</b>	390	640	503	306
<b>RX 310 S/PV VA</b>	390	640	503	306

COMBUSTION HEAD

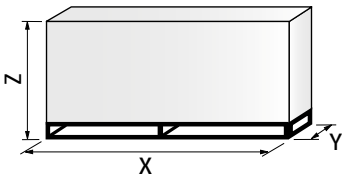


Description	T mm	TX mm	D mm
<b>COMBUSTION HEAD</b>			
<b>20025306</b>	1000	250	119
<b>20085194-3151000</b>	1000	350	119
<b>3151002-20069560</b>	1250	350	119
<b>3151003-20085180</b>	1470	350	119

TX Flame zone length.





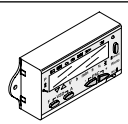


Description	X mm	Y mm	Z mm
<b>RX 180 S/PV VA</b>	1000	485	500
<b>RX 250 S/PV VA</b>	1000	485	500
<b>RX 290 S/PV VA</b>	1000	485	500
<b>RX 310 S/PV VA</b>	1000	485	500



Description	X mm	Y mm	Z mm
<b>COMBUSTION HEAD</b>			
<b>T = 1000 mm</b>	1065	345	283
<b>T = 1250 mm</b>	1315	345	283
<b>T = 1470 mm</b>	1535	345	283
<b>T = 1570 mm</b>	1635	345	283

## ACCESSORIES

Drawing	Burner model	Specification	Code
	All models	<b>POWER CONTROLLER</b> To obtain modulating operation, the RX S/PV F series of burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range. RWF50.2 - Basic version with 3 position output.	<b>20094733</b>
	All models	<b>TEMPERATURE PROBE</b> The temperature probe to be fitted to the power controller must be chosen based on the application. Temperature probe type PT 100 (-100÷500 °C)	<b>3010110</b>
	All models	<b>PRESSURE PROBE</b> The pressure probe to be fitted to the power controller must be chosen based on the application. Pressure (0÷2,5 bar) with 4÷20 mA output	<b>3010213</b>
		Pressure (0÷16 bar) with 4÷20 mA output	<b>3010214</b>
		Pressure (0÷25 bar) with 4÷20 mA output	<b>3090873</b>
	All models	<b>GAS VALVE SPACE SAVING KIT</b> A special kit is available for gas valve space saving.	<b>20016843</b>
	All models	<b>DIAGNOSTIC SOFTWARE KIT</b> A special kit is available that identifies the life of the burner by connecting to a PC indicating hours of operation, number and types of blocks, number of engine revolutions and parameters safety.	<b>On demand</b>
	All models	<b>DISPLAY AND OPERATING UNIT</b> The AZL 21 LCD display Kit is suitable to be connected to the LME 71 control box in order to get indication of the operating status, to activate the diagnostic functions and to change the password-protected parameters (carried out only by qualified personnel).	<b>20109292</b>

## DESIGNATION OF SERIES

RX		Size:		Setting:		Application:		Emission:		Electrical supply to the system:	
				S/P	Proportioning air/gas valve	F	Oven	...	Low NOx Class 3 EN 676	1/120/50-60	1/120V/50-60Hz
				S/PV	Proportioning air/gas valve with variable speed	VA	Air Duct	ULN	Ultra Low NOx	1/230/50-60	1/230V/50-60Hz
				S/E	Electronic Cam						
				S/EV	Electronic Cam predisposed for variable speed (with inverter)						

## EXISTING APPLICATIONS

Paint booth





Low NOx air duct premix gas burners

## RX 400 S/PV VA

Range code 21AAPTBWRF



- Premix gas burners
- NOx emissions according to Class 3 of European standard EN 676 (NOx lower than 80 mg/kWh\*)
- Compact flame (Riello patented combustion head with metal fiber mesh)
- Modulation with variable rpm brushless motor
- Operation with natural gas and LPG

### MAIN APPLICATIONS

- Paint booths
- Direct exchange industrial applications

The Riello RX 400 S/PV VA series of modulating premix gas burner, is a range of product developed to respond to direct exchange application (e.g paint booth).

The RX 400 S/PV VA series is available with an output ranging from 45 to 400 kW.

The burners are fitted with a micro-processor based safety control which supplies indication of operation and diagnosis fault cases. Burners can operate on 50 or 60 Hz (dual-frequency).

Also combustion head over a wide range of different lengths are available, meeting every application needs.

Burners can operate with LPG also by means of a simple regulation on the gas valve.

\* The emission value is determined, according to the provisions of standard EN 676, in a standardised combustion chamber, on the average of the firing rates and standardised at the reference conditions provided for by the standard.

## TECHNICAL DATA

Description	Heat output kW	Electric power supply Ph/V/Hz	Total electrical power kW	Note	Code
<b>RX 400 S/PV VA</b>	45÷400	1/230/50-60	1,0	(1)(3)	<b>On demand</b>

(1) 0-10V external modulation

(3) The burner operates correctly with internal pressures in the channel of between -3 and +2 mbar and with maximum variations of +/- 1 mbar. The air speed inside the channel must be higher than 4 m/s.

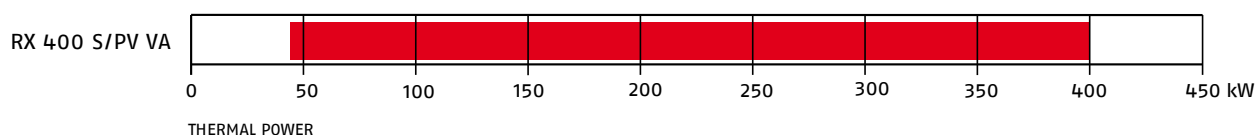
## COMBUSTION HEAD MATCHING

Description	Combustion head assembly code	Length mm
<b>RX 400 S/PV VA</b>	3151000	T = 1000
	3151001	T = 1250
	3151004	T = 1570

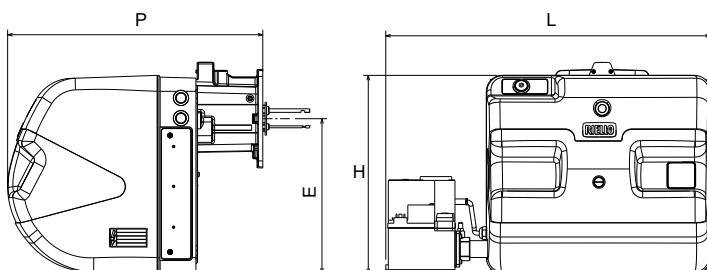
## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>RX 400 S/PV VA</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017472</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017481</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017488</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017496</b>

## BURNER OUTPUT

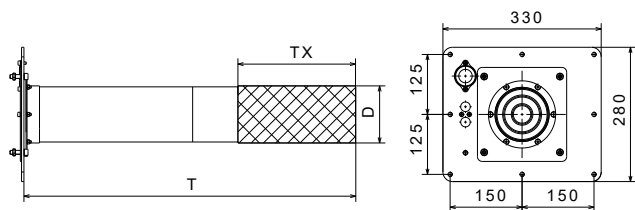


## OVERALL DIMENSIONS



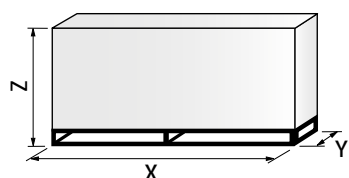
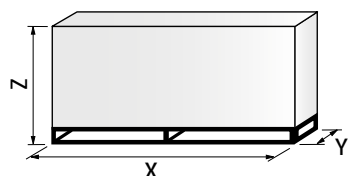
Description	H mm	L mm	P mm	E mm
<b>RX 400 S/PV VA</b>	457	707	524	353

## COMBUSTION HEAD



Description	T mm	TX mm	D mm
<b>COMBUSTION HEAD</b>			
<b>3151000</b>	1000	350	119
<b>3151001</b>	1250	450	119
<b>3151004</b>	1570	450	119

TX Flame zone length.



Description	X mm	Y mm	Z mm
<b>RX 400 S/PV VA</b>	1000	485	500

Description	X mm	Y mm	Z mm
<b>COMBUSTION HEAD</b>			
<b>T = 1000 mm</b>	1065	345	283
<b>T = 250 mm</b>	1315	345	283
<b>T = 1570 mm</b>	1635	345	283

## ACCESSORIES

Drawing	Burner model	Specification	Code
	RX 400 S/PV VA	<b>POWER CONTROLLER</b> To obtain modulating operation, the RX S/PV F series of burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range. RWF50.2 - Basic version with 3 position output.	<b>20086840</b>
	RX 400 S/PV VA	<b>TEMPERATURE PROBE</b> The temperature probe to be fitted to the power controller must be chosen based on the application. Temperature probe type PT 100 (-100÷500 °C)	<b>3010110</b>
	RX 400 S/PV VA	<b>PRESSURE PROBE</b> The pressure probe to be fitted to the power controller must be chosen based on the application.	
		Pressure (0÷2,5 bar) with 4÷20 mA output	<b>3010213</b>
		Pressure (0÷16 bar) with 4÷20 mA output	<b>3010214</b>
		Pressure (0÷25 bar) with 4÷20 mA output	<b>3090873</b>
	RX 400 S/PV VA	<b>GAS VALVE SPACE SAVING KIT</b> A special kit is available for gas valve space saving.	<b>20016843</b>
	RX 400 S/PV VA	<b>DIAGNOSTIC SOFTWARE KIT</b> A special kit is available that identifies the life of the burner by connecting to a PC indicating hours of operation, number and types of blocks, number of engine revolutions and parameters safety.	<b>On demand</b>
	RX 400 S/PV VA	<b>DISPLAY AND OPERATING UNIT</b> The AZL 21 LCD display Kit is suitable to be connected to the LME 71 control box in order to get indication of the operating status, to activate the diagnostic functions and to change the password-protected parameters (carried out only by qualified personnel).	<b>20109292</b>

## RX

Size:

Setting:	S/P	Proportioning air/gas valve
	S/PV	Proportioning air/gas valve with variable speed
	S/E	Electronic Cam
	S/EV	Electronic Cam predisposed for variable speed (with inverter)

Application:	F	Oven
	VA	Air Duct

Emission:	...	Low NOx Class 3 EN 676
	ULN	Ultra Low NOx

Electrical supply to the system:	
1/120/50-60	1/120V/50-60Hz
1/230/50-60	1/230V/50-60Hz

RX	400	S/PV	VA		1/230/50-60
----	-----	------	----	--	-------------

**BASIC DESIGNATION**

EXTENDED DESIGNATION

- Flange for gas valve
- Screws to fix the valve
- Gas valve
- 2, 4 and 7-pole plugs
- Gas pipe (only for RX 400 S/PV VA)
- Hood protection (only for RX 400 S/PV VA)
- Fixing screw
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

**EXISTING APPLICATIONS**

Paint booth



Standard gas light-process burners

## RIELLO 40 FS

Range code 11AAGBAWRF



- One-stage gas burners for light process applications
- Robust structure, aluminium body and metal sheet cover for component protection
- Microprocessor control box with diagnostic function and remote reset
- Ease of installation
- Flange coupling system in maintenance position
- Combustion air calibration through damper
- Electrical protection level IP X0D (IP 40)

### MAIN APPLICATIONS

- Convection ovens (rotary or fixed tray type)
- Bedplate ovens
- Conduction ovens
- Radiant heat ovens
- Continuous, tunnel and steam tube ovens

The Riello 40 FS series of One-stage gas burners, is a complete range of products developed to respond to any request for light industrial application. The Riello 40 FS series is available in five different models, with an output ranging from 11 to 220 kW, divided in four different structures.

All models use the same components designed by Riello for the Riello 40 FS series. The high quality level guarantees safe working. The Riello 40 FS burners are fitted with a microprocessor – based control box, with diagnostic functions.

In developing these burners, special attention was paid to reducing noise, to the ease of installation and adjustment and to obtain the smallest size possible to fit into any sort of boiler available on the market.

All models are approved by the EN 676 European Standard and are compliant with European Directives for EMC, Low Voltage, Machinery and Boiler Efficiency.

All burners are tested before leaving the factory.

## TECHNICAL DATA

Description	Heat output natural gas		Electric power supply Ph/V/Hz	Total electrical power kW	Certification	Note	Code
	kW	Nm³/h					
MODELS FOR NATURAL GAS APPLICATIONS							
FS3	11÷35	1,1÷3,5	1/230/50	0,15	CE-0476CT2714	(1)	3756506
FS5	23÷58	2,3÷5,8	1/230/50	0,15	CE-0476CT2714	(1)	3756606
FS8	46÷93	4,6÷9,3	1/230/50	0,15	CE-0476CT2714	(1)	3756706
FS10	42÷116	4,2÷11,6	1/230/50	0,13	CE-0476CT2714	(1)	3756435
FS15	81÷175	8,1÷17,5	1/230/50	0,13	CE-0476CT2714		3756803
FS20	81÷220	8,1÷22	1/230/50	0,25	CE-0476CT2714	(1)	3756935

Net calorific value of natural gas (G20): 10 kWh/Nm³.

The burners comply with the 2016/426/EU Regulation, the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 676 Standard.

(1) Electrical connections with plug and socket.

Description	Heat output LPG		Electric power supply Ph/V/Hz	Total electrical power kW	Certification	Note	Code
	kW	Nm³/h					
MODELS FOR LPG APPLICATIONS							
FSP10	42÷116	1,6÷4,4	1/230/50	0,13	CE-0063AP6680	(1)	3756439
FSP20	81÷220	3,1÷8,5	1/230/50	0,25	CE-0063AP6680	(1)	3756939

Net calorific value of natural gas (G31): 25,8 kWh/Nm³.

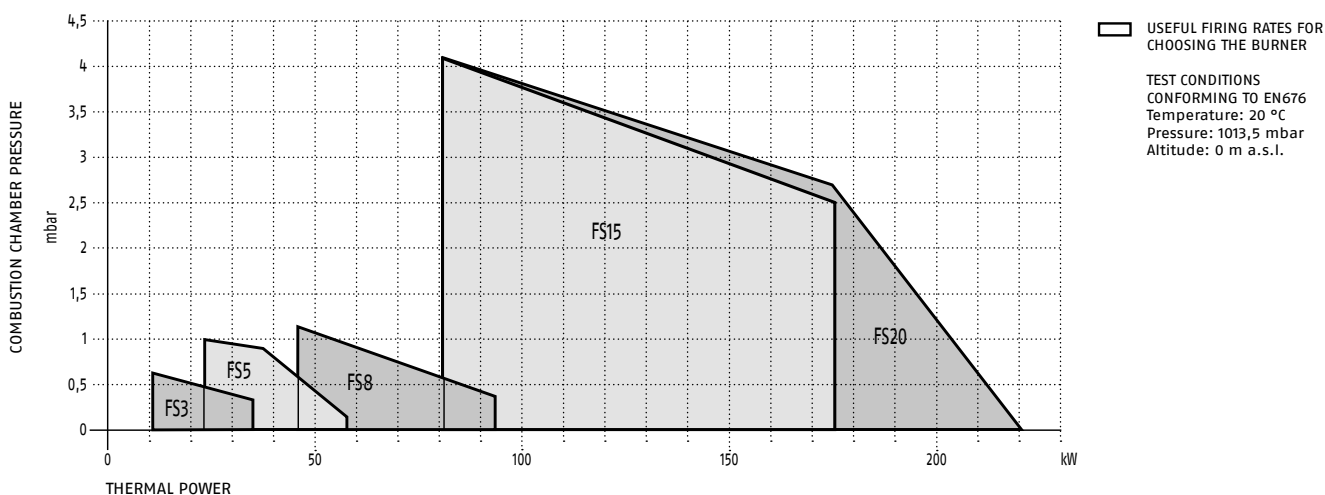
The burners comply with the 2016/426/EU Regulation, the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 676 Standard.

(1) Electrical connections with plug and socket.

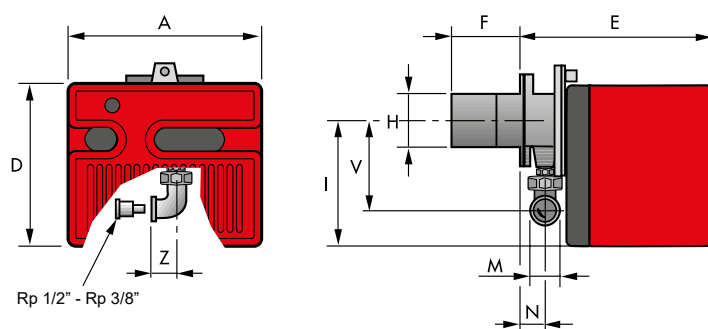
## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>RIELLO 40 FS</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

## FIRING RATES



## OVERALL DIMENSIONS

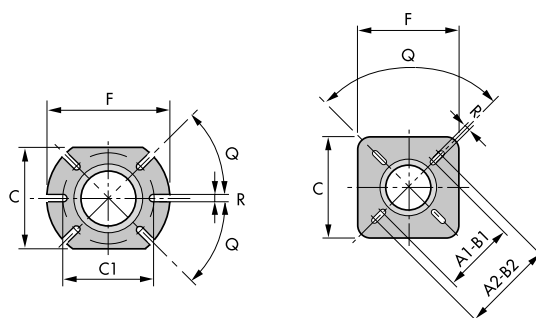


Description	A mm	D mm	E mm	F mm	H mm	I mm	M	N mm	V mm	Z mm
<b>FS3</b>	252	215	230	100	91	165	Rp 3/8"*	37	132	25
<b>FS5</b>	272	233	295	100	91	180	Rp 1/2"	48	138	28
<b>FS8</b>	305	262	347	110	105	204	Rp 3/4"	61	142	33
<b>FS10</b>	305	262	346	110	105	204	Rp 1/2"	61	142	33
<b>FS15</b>	350	298	389	120	125	230	Rp 3/4"	67	152	33
<b>FS20</b>	350	298	389	120	125	230	Rp 3/4"	67	152	33

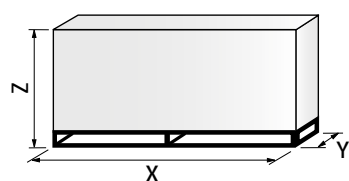
\* With reduction nipple, standard equipment on R40 FS3.

FS3 ÷ FS10

FS15 - FS20



Description	A1 mm	A2 mm	B1 mm	B2 mm	C mm	C1 mm	F mm	Q	R mm
<b>FS3</b>	-	-	-	-	140	130	170	45°	10
<b>FS5</b>	-	-	-	-	140	130	170	45°	10
<b>FS8</b>	-	-	-	-	160	130	185	45°	11
<b>FS10</b>	-	-	-	-	160	130	185	45°	11
<b>FS15</b>	155	200	155	200	170	-	170	90°	11
<b>FS20</b>	155	200	155	200	170	-	170	90°	11

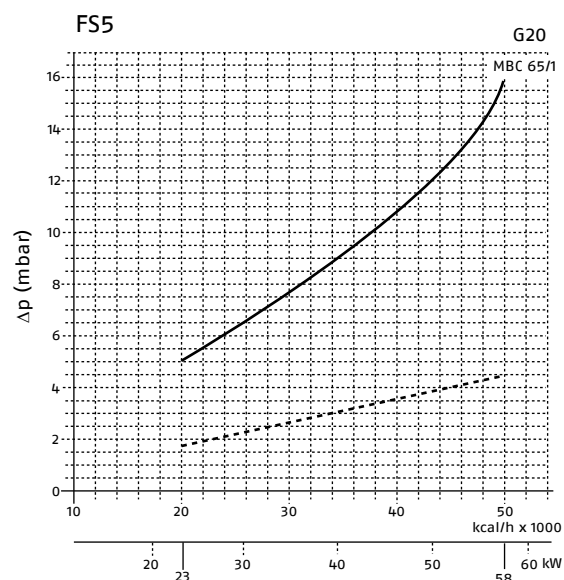
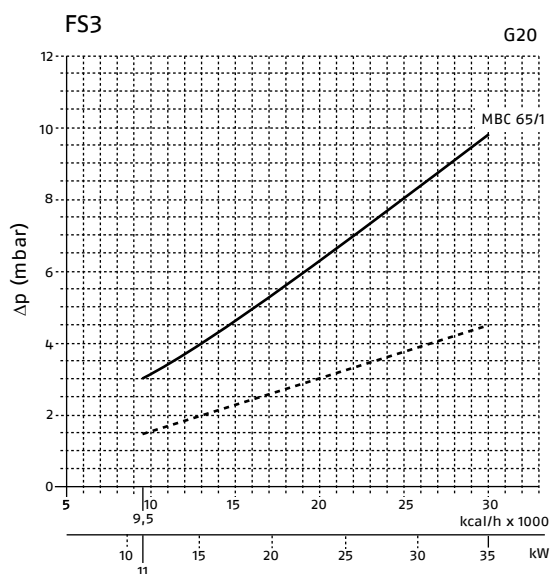


Description	X mm	Y mm	Z mm	Net weight kg
<b>FS3</b>	375	335	310	9.5
<b>FS5</b>	445	355	335	11
<b>FS8</b>	483	495	330	13
<b>FS10</b>	483	495	330	16
<b>FS15</b>	535	535	375	19
<b>FS20</b>	535	535	375	20

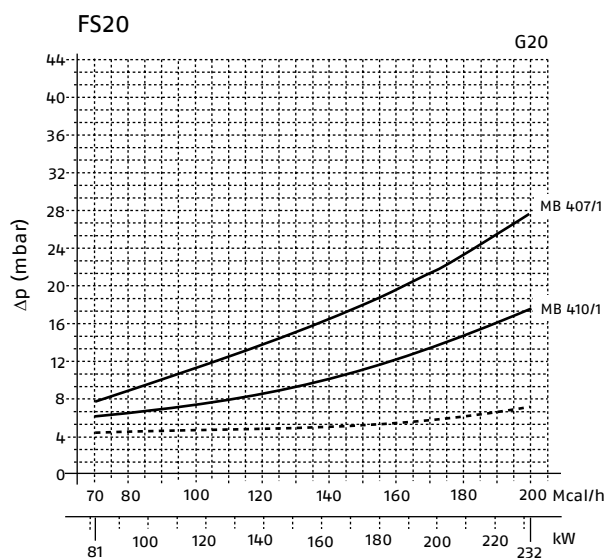
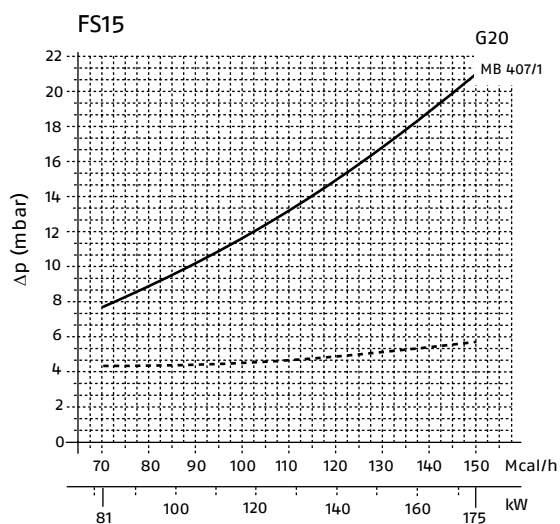
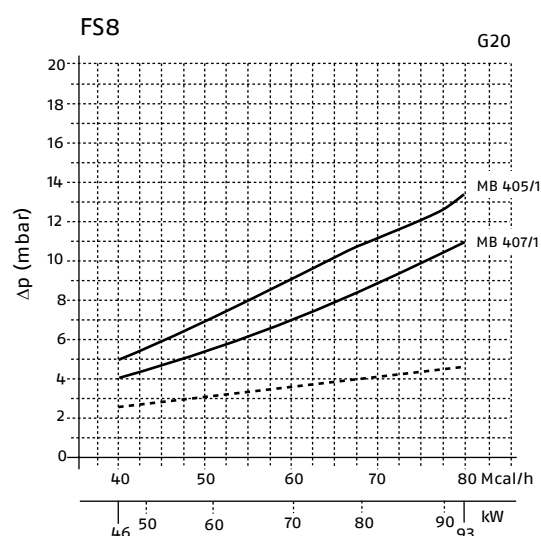
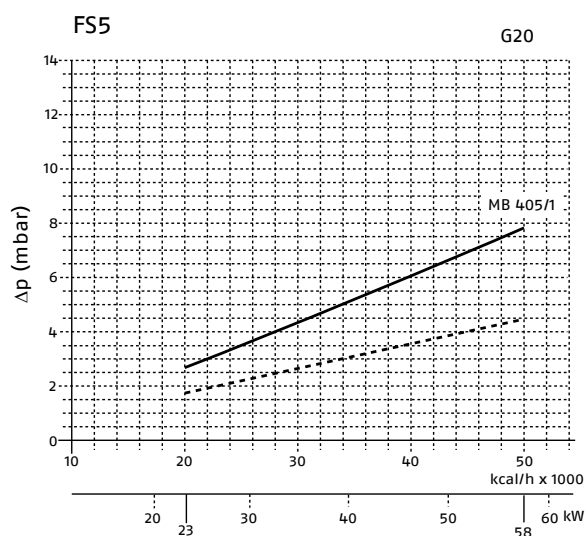


## PRESSURE LOSS DIAGRAMS

## MBC SERIES GAS TRAINS



## MB SERIES GAS TRAINS



— Combustion head + gas train  
 - - - Combustion head

The diagrams indicate the minimum gas pressure drops of the burners equipped with the gas trains to be used (approved according to the EN 676 standard); in order to obtain the minimum pressure required at gas train inlet, combustion chamber counterpressure (expressed in mbar) must be added to this value.

## GAS TRAINS

Description (1)	Code	Notes	Ø Gas train	C.T. (2)	VPS kit code (3)	Burner	
						Natural gas	LPG
MBC SERIES ONE-STAGE GAS TRAINS							
MBC 65/1-RSD 20	3970569*	(5)	½"	-	(4)	FS3-FS5	FS3-FS5
MB SERIES ONE-STAGE GAS TRAINS							
MB 405/1-RSD 20	3970530*	(5)(6)	½"	-	3010123	FS5-FS8-FS10	FS5-FS8-FS10
MB 407/1-RSD 20	3970531*	(5)(6) (7)	¾"	-	3010123	FS8-FS10 FS15-FS20	FS8-FS10 FS15-FS20
MB 410/1-RSD 20	3970532*	(5)	1"	-	3010123	FS20	FS20

(1) Please refer to "GAS TRAIN DESIGNATION" on page 144.

(2) C.T. indica il dispositivo di controllo tenuta valvole gas (obbligatorio, secondo EN 676, per potenze superiori a 1200 kW).

(3) Valve leak detection control device. Supplied separately from the gas train (see "GAS TRAIN ACCESSORIES" paragraph for both 50 Hz and 60 Hz codes).

(4) Not available.

(5) With installed plug (if the plug is not necessary, remove it in accordance with gas train instruction manual indication).

(6) FS8-FS10 using natural gas, the gas train can be combined only in case of burnt output lower than 80 kW.

(7) FS20 using natural gas, the gas train can be combined only in case of burnt output lower than 180 kW.

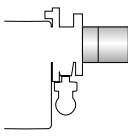

\* 230V/50Hz - 220V/60Hz electrical supply.

NOTE: for further information, refer to section "GAS TRAINS FOR BURNERS".

Key to symbols:

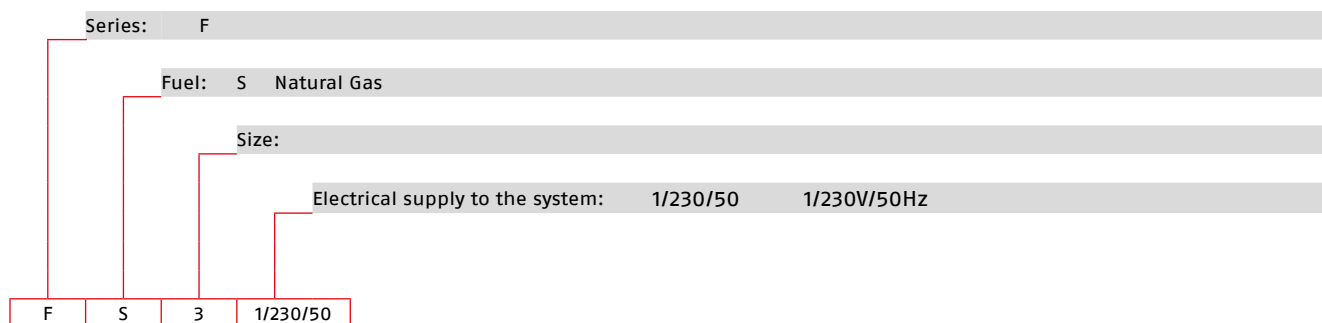
- Gas train not equipped with leak detection control device; this device can be ordered separately - see VPS column - and installed later.

## ACCESSORIES

Drawing	Burner model	Specification	Notes	Code
		<b>EXTENDED HEAD KIT</b> 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.		
	FS3-FS5	Standard head length = 100 mm - Extended head length = 125 mm		3000820
	FS8	Standard head length = 110 mm - Extended head length = 170 mm		3001064
	FS8	Standard head length = 110 mm - Extended head length = 278 mm		3000920
	FS15-FS20	Standard head length = 120 mm - Extended head length = 280 mm		3000873
	FS3-FS5 FS8-FS15	<b>REMOTE RESET CONTROL KIT FOR MG 557/3/5 CONTROL BOX</b> The MG 557 control box can be remotely released using an electric command kit. This kit must be installed in conformity with the local authority.		3002750
	FS15-FS20	<b>CONTINUOUS VENTILATION KIT</b> If the burner requires continuous ventilation in the stages without flame, a special kit is available.		3010094
		<b>INLET AIR ASPIRATION KIT</b> This kit allows to channel the external air directly into the burner.		
	FS3	Kit code for inlet air aspiration.	(1)	20027571
	FS5	Kit code for inlet air aspiration.	(1)	20027576
	FS8	Kit code for inlet air aspiration.	(1)	20027578
	FS10	Kit code for inlet air aspiration.	(1)	20159837
	FS15-FS20	Kit code for inlet air aspiration	(1)	20159751
		<b>LPG KIT</b> For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner.		
	FS3	Kit code for standard and extended head.		3000881
	FS5	Kit code for standard and extended head.		3000882
	FS8	Kit code for standard and extended head.		3000927
	FS10	Kit code for standard and extended head.		3000884
	FS15	Kit code for standard and extended head.		3000885
	FS20	Kit code for standard and extended head.		3000886
		<b>TOWN GAS KIT</b> For burning town gas, a special kit is available to be fitted to the combustion head on the burner.		
	FS3	Kit code for standard and extended head.		3000888
	FS5	Kit code for standard and extended head.		3000889
	FS8	Kit code for standard and extended head.		3000890
	FS10	Kit code for standard and extended head.		3000891
	FS20	Kit code for standard and extended head.		3000893
		<b>END CONE WITH TURBULATOR DISK</b> The end cone turbulator disk reduces the flame length. It is suitable for oven application (CO emissions) and short boiler chamber.		
	FS5	Lengthening compared to standard head + 15 mm		3000916
	FS8	Lengthening compared to standard head + 18 mm		3000917
	FS10	Lengthening compared to standard head + 18 mm		3000918
	FS20	Lengthening compared to standard head + 23 mm		3000919
	FS5-FS8 FS10-FS20	<b>GROUND FAULT INTERRUPTER KIT</b> 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.		3001180
	All models	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).		3000945
	FS10-FS15-FS20	<b>PC INTERFACE KIT</b> 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.		3002719

(1) By applying this kit, the combustion air is drawn in from outside, so there can be significant setting variations with respect to the original configuration and the instructions on the burner manual, therefore, it is recommended to adjust combustion according to the kit instruction.

## DESIGNATION OF SERIES



## STATE OF SUPPLY

Monoblock, gas burners, completely automatic, with One-stage settings fitted with:

- Fan with forward curve blades
- Cover lined with sound-deadening material
- Metallic and fixed air damper with adjustment
- 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 flame control box, with diagnostic functions
- IP X0D (IP 40) electric protection level. IP X0D (IP 40) electric protection level.

## STANDARD EQUIPMENT

- Flange insulation screen
- Screws and nuts for fixing the flange to the boiler
- 7-pole socket
- Hinge
- Reduction nipple Rp 1/2" - Rp 3/8" (for R40 FS3 only)
- Grommet
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue

## Standard gas light-process burners

**RIELLO 40 FSD**

Range code 11AAGGAWRF



- Two-stage gas burners for light process applications
- Robust structure, aluminium body and metal sheet cover for component protection
- Microprocessor control box with diagnostic function and remote reset
- Ease of installation
- Flange coupling system in maintenance position
- Combustion air calibration through damper
- Electrical protection level IP X0D (IP 40)

**MAIN APPLICATIONS**

- Convection ovens (rotary or fixed tray type)
- Bedplate ovens
- Conduction ovens
- Radiant heat ovens
- Continuous, tunnel and steam tube ovens

The Riello 40 FSD series of Two-stage gas burners, is a complete range of products developed to respond to any request for light industrial process.

The Riello 40 FSD series is available in two different models, with an output ranging from 23 to 220 kW, divided in two different structures.

All models use the same components designed by Riello for the Riello 40 FSD series.

The high quality level guarantees safe working.

The Riello 40 FSD burners are fitted with a microprocessor – based control box, with diagnostic functions.

In developing these burners, special attention was paid to reducing noise, to the ease of installation and adjustment and to obtain the smallest size possible to fit into any sort of boiler available on the market.

All models are approved by the EN 676 European Standard and are compliant with European Directives for EMC, Low Voltage, Machinery and Boiler Efficiency.

All burners are fired before leaving the factory.

# TECHNICAL DATA

Description	Heat output natural gas		Electric power supply Ph/V/Hz	Total electrical power kW	Certification	Notes	Code
	kW	Nm³/h					
<b>FS5D</b>	12/23÷58	1,2/2,3÷5,8	1/230/50	0.11	CE-0476CT2714	(1)	<b>3758705</b>
<b>FS20D</b>	58/81÷220	5,8/8,1÷22	1/230/50	0.25	CE-0476CT2714	(1)	<b>3759105</b>

Net calorific value of natural gas (G20): 10 kWh/Nm³.

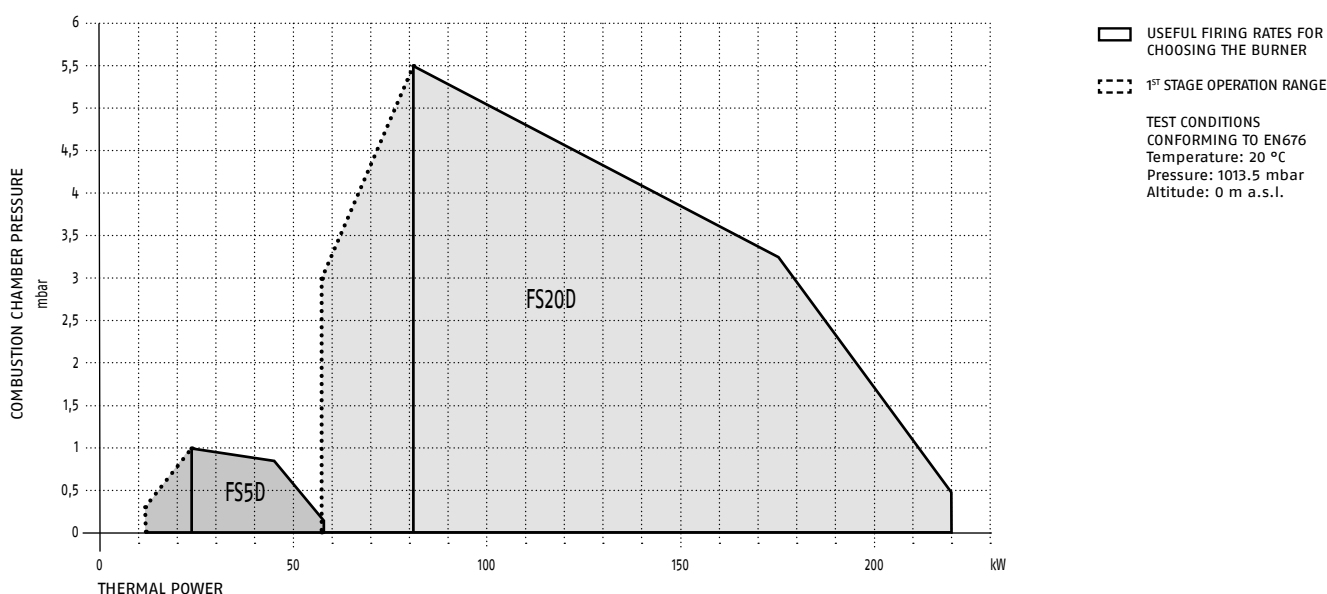
The burners comply with the 2016/426/EU Regulation, the 2014/30/EU – 2014/35/EU – 2006/42/EC Directives and the EN 676 Standard.

(1) Electrical connections with terminal block.

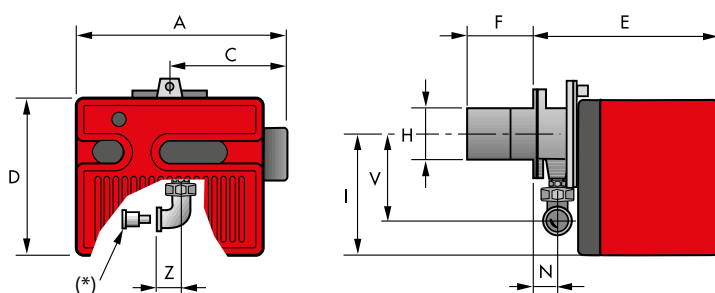
# SERVICES FOR BURNERS

Burner range	Description service	Code
<b>RIELLO 40 FSD</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

# FIRING RATES



## OVERALL DIMENSIONS

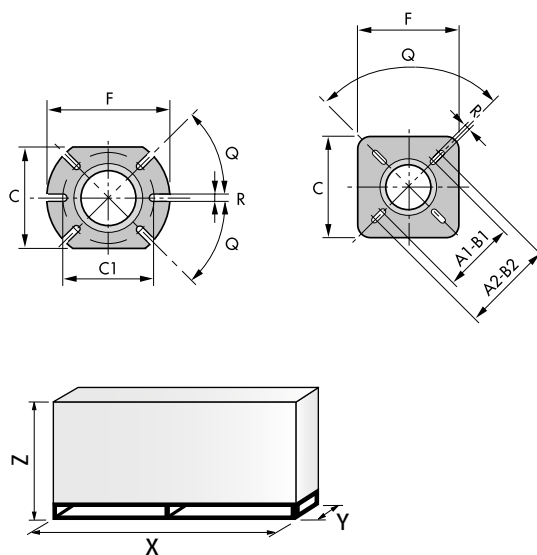


Description	A mm	C mm	D mm	E mm	Fv	H mm	I mm	N mm	V mm	Z mm
<b>FS5D</b>	306	170	233	295	100	91	180	48	138	28
<b>FS20D</b>	413	238	298	389	120	125	230	67	152	33

(\*) With reduction nipple.

FS5D

FS20D

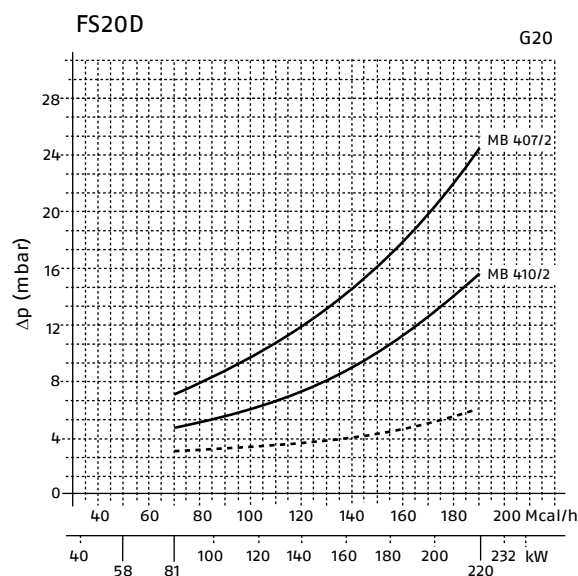
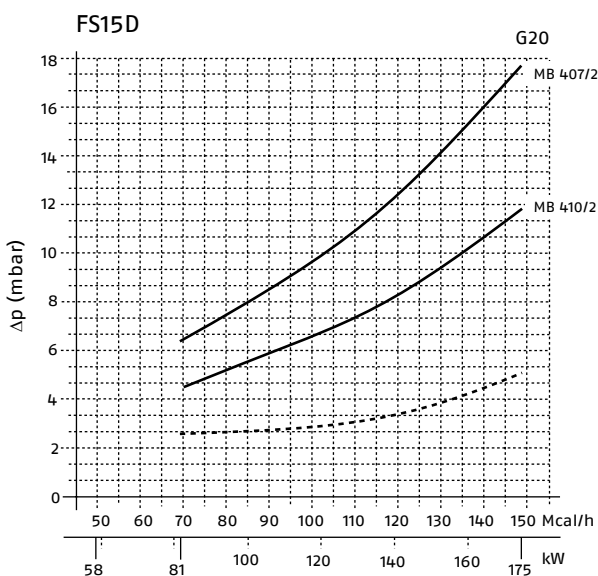
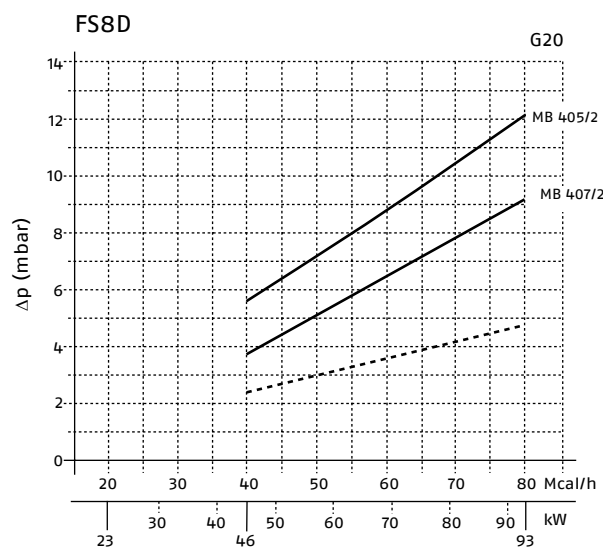
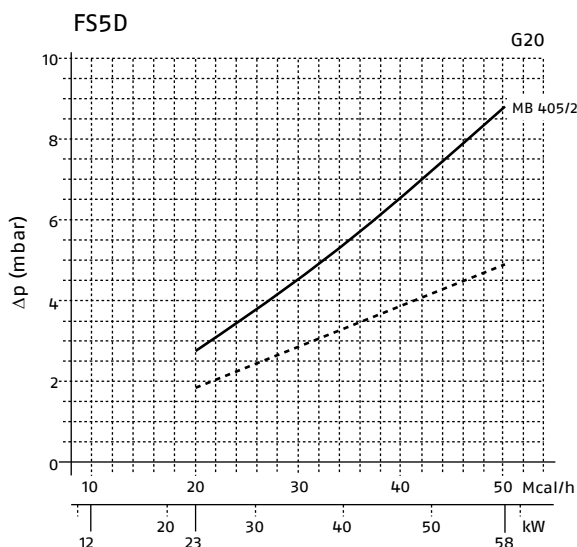


Description	A1 mm	A2 mm	B1 mm	B2 mm	C mm	C1 mm	F mm	Q	R mm
<b>FS5D</b>	-	-	-	-	140	130	170	45°	10
<b>FS20D</b>	155	200	155	200	170	-	170	90°	11

Description	X mm	Y mm	Z mm	Net weight kg
<b>FS5D</b>	445	355	335	10
<b>FS20D</b>	535	535	375	20

# PRESSURE LOSS DIAGRAMS

## MB SERIES GAS TRAINS



— Combustion head + gas train  
 --- Combustion head

The diagrams indicate the minimum gas pressure drops of the burners equipped with the gas trains to be used (approved according to the EN 676 standard); in order to obtain the minimum pressure required at gas train inlet, combustion chamber counterpressure (expressed in mbar) must be added to this value.

## GAS TRAINS

Description (1)	Code	Notes	Ø Gas train	C.T. (2)	VPS kit code (3)	Burner
<b>MB SERIES TWO-STAGE GAS TRAINS</b>						
<b>MB 405/2-RSD 20</b>	<b>3970084</b>	(5)	1/2"	-	3010123	FS5D
<b>MB 407/2-RSD 20</b>	<b>3970537</b>	(5)(6)	3/4"	-	3010123	FS20D
<b>MB 410/2-RSD 20</b>	<b>3970534</b>	(5)(6)	1"	-	3010123	FS20D

(1) Please refer to "GAS TRAIN DESIGNATION" on page 144.

(2) C.T. indica il dispositivo di controllo tenuta valvole gas (obbligatorio, secondo EN 676, per potenze superiori a 1200 kW).

(3) Valve leak detection control device. Supplied separately from the gas train (see "GAS TRAIN ACCESSORIES" paragraph for both 50 Hz and 60 Hz codes).

(4) Not available.

(5) With installed plug (if the plug is not necessary, remove it in accordance with gas train instruction manual indication).

(6) FS20D using natural gas, the gas train can be combined only in case of burnt output lower than 180 kW.

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

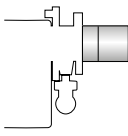
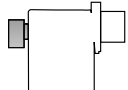

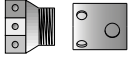




NOTE: for further information, refer to section "GAS TRAINS FOR BURNERS".

Key to symbols:

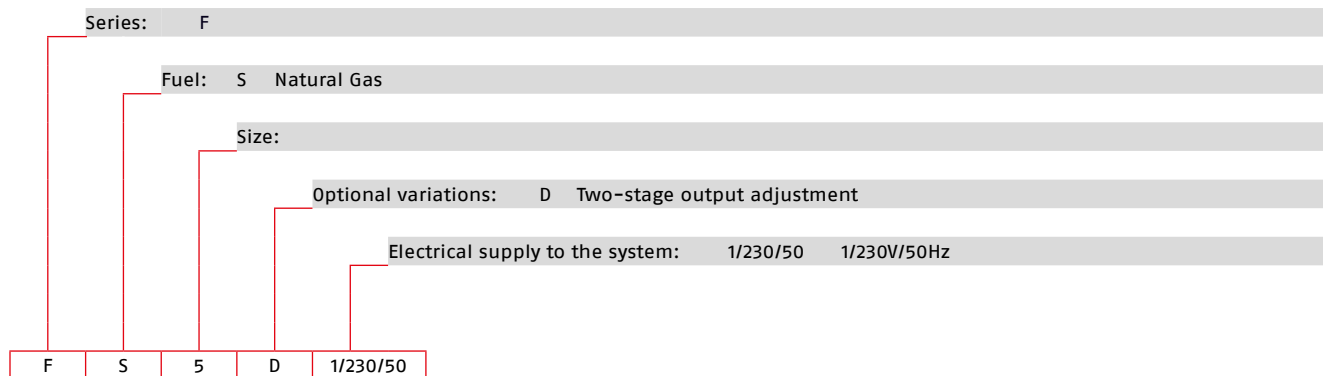
- Gas train not equipped with leak detection control device; this device can be ordered separately - see VPS column - and installed later.



## ACCESSORIES

Drawing	Burner model	Specification	Code
	FS5D	<b>EXTENDED HEAD KIT</b> 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. Standard head length = 100 mm - Extended head length = 125 mm	<b>3000820</b>
	FS20D	Standard head length = 120 mm - Extended head length = 280 mm	<b>3000873</b>
	FS5D	<b>REMOTE RESET CONTROL KIT FOR MG 557/3/5 CONTROL BOX</b> The MG 557 control box can be remotely released using an electric command kit. This kit must be installed in conformity with the local authority.	<b>3002750</b>
	FS20D	<b>CONTINUOUS VENTILATION KIT</b> If the burner requires continuous ventilation in the stages without flame, a special kit is available.	<b>3010094</b>
	FS5D	<b>LPG KIT</b> For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner. Kit code for standard and extended head.	<b>3000882</b>
	FS20D	Kit code for standard and extended head.	<b>3000886</b>
	FS5D	<b>TOWN GAS KIT</b> For burning town gas, a special kit is available to be fitted to the combustion head on the burner. Kit code for standard and extended head.	<b>3000889</b>
	FS20D	Kit code for standard and extended head.	<b>3000894</b>
	FS5D	<b>END CONE WITH TURBULATOR DISK</b> The end cone turbulator disk reduces the flame length. It is suitable for oven application (CO emissions) and short boiler chamber. Lengthening compared to standard head + 15 mm	<b>3000916</b>
	FS20D	Lengthening compared to standard head + 23 mm	<b>3000919</b>
	All models	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).	<b>3000945</b>
	FS20D	<b>PC INTERFACE KIT</b> 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.	<b>3002719</b>

## DESIGNATION OF SERIES



## STATE OF SUPPLY

Monoblock, gas burners, completely automatic, with Two-stage settings fitted with:

- Fan with forward curve blades
- Metallic cover
- Air damper, open in stand by, driven by an electric servomotor
- Air damper with 1st and 2nd stage adjustment
- 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
- 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 MG 557 (with diagnostic, remote reset, continuous purge integrated, recycle, post-purge)
- IP X0D (IP 40) electric protection level.

## STANDARD EQUIPMENT

- Insulating gasket
- Screws and nuts for fixing the flange to the boiler
- Hinge
- Cable grommet
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue

Standard gas light-process burners

## GULLIVER RSF

Range code 11ACGBAWRF



- One-stage gas burners
- Suitable for remote reset.
- Compact size.
- Ease of maintenance.
- Simplified calibration: air regulator with external gear.
- High flexibility of use and adaptability to the operating conditions.
- Digital control box with diagnostic function.

### MAIN APPLICATIONS

- Industrial ovens
- Paint booths
- Low-power steam generators

The Riello Gulliver RS5F, is a new model of the series of One-stage gas burners, developed to respond to any request for light industrial processes like bakery ovens, spray painting ovens, small steam or thermal boilers and all applications requiring a reliable, user-friendly industrial product with enhanced performance and specific functions.

The Gulliver RS5F series has an output ranging from 160 to 330 kW, uses the same components designed by Riello for the Gulliver series and have the same ventilation system and overall dimensions as the standard one-stage gas model.

The burners are fitted with a microprocessor-based burner safety control box which supplies indication of operation and diagnosis of fault cause.

This new burner can operate on 50 or 60 Hz and 220-230 V (dual frequency); it is compliant with the EN 676 Standard (Forced draught burners for gaseous fuels) and to European Directives for EMC, Low Voltage and Machinery.

All burners are fired before leaving the factory.

## TECHNICAL DATA

Description	Heat output natural gas		Electric power supply Ph/V/Hz	Total electrical power kW	Certification	Notes	Code
	kW	Nm³/h					
<b>RS5F</b>	160÷330	16,0÷33,0	1/220-230/50-60	0,43 (at 50 Hz) 0,60 (at 60 Hz)	CE-0085BM0114	(1)	<b>3761971</b>

Net calorific value of natural gas (G20): 10 kWh/Nm³.

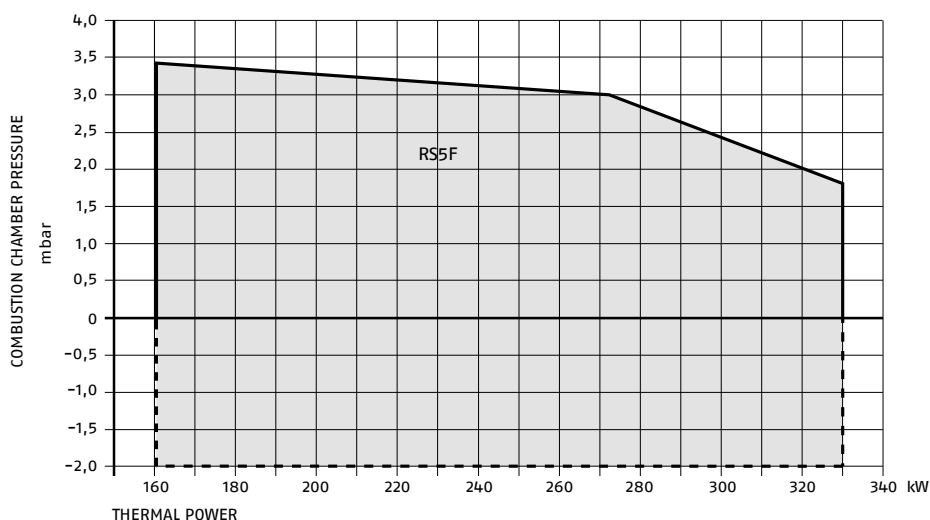
The burners comply with the 2016/426/EU Regulation, the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 676 Standard.

(1) Electrical connections with plug and socket.

## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>GULLIVER RSF</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

## FIRING RATES

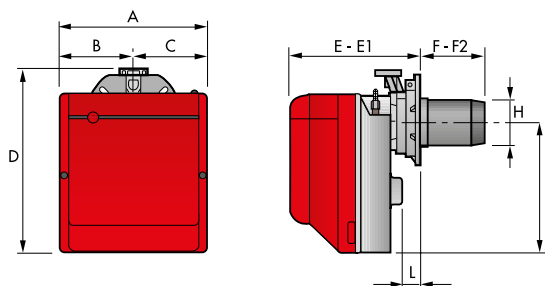


USEFUL FIRING RATES FOR CHOOSING THE BURNER

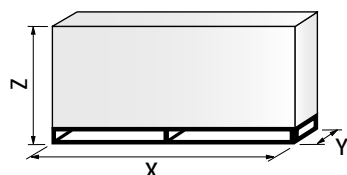
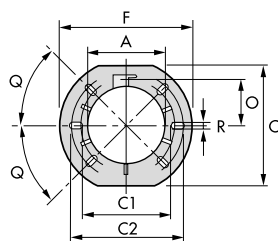
TEST CONDITIONS  
CONFORMING TO EN676  
Temperature: 20 °C  
Pressure: 1013,5 mbar  
Altitude: 0 m a.s.l.

IMPORTANT:  
For the part of the  
working field that is  
depressurised, refer to  
EN 746-2 Standard.

## OVERALL DIMENSIONS



Description	A mm	B mm	C mm	D mm	E mm	E1 mm	F mm	F2 mm	H mm	I mm	L mm
<b>RS5F</b>	300	150	150	392	278	300	225	203	137	286	45



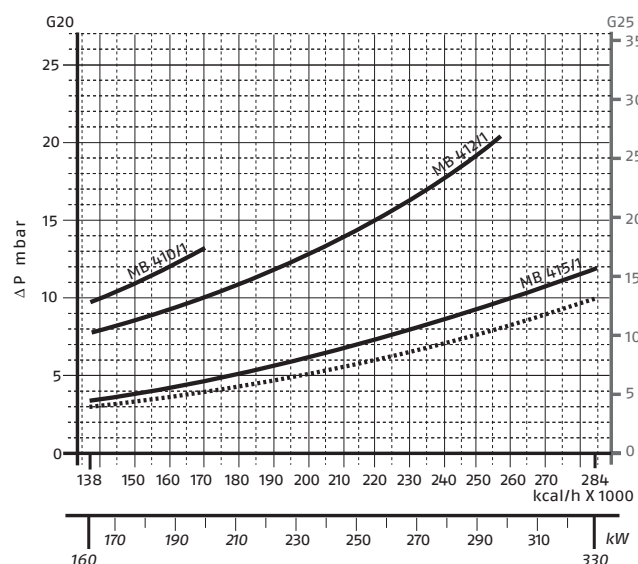
Description	A mm	C mm	C1 mm	C2 mm	F mm	O mm	Q mm	R mm
<b>RS5F</b>	137	203	170	200	218	80.5	45°	11

Description	X mm	Y mm	Z mm	Net weight kg
<b>RS5F</b>	600	345	430	18

## PRESSURE LOSS DIAGRAMS

### MB SERIES GAS TRAINS

#### RS5F



— Combustion head + gas train  
 --- Combustion head

The diagrams indicate the minimum gas pressure drops of the burners equipped with the gas trains to be used (approved according to the EN 676 standard); in order to obtain the minimum pressure required at gas train inlet, combustion chamber counterpressure (expressed in mbar) must be added to this value.

## GAS TRAINS

Description (1)	Code	Notes	Ø Gas train	C.T. (2)	Burner
<b>MB SERIES ONE-STAGE GAS TRAINS</b>					
MB 410/1-F3SD 20	<b>3970549*</b>	(3)(4)	1"	3010123	RS5F
MB 412/1-F3SD 20	<b>3970550*</b>	(3)(5)	1"¼	3010123	RS5F
MB 415/1-F3SD 30	<b>3970558*</b>	(3)	1"½	3010123	RS5F

(1) Please refer to "GAS TRAIN DESIGNATION" on page 144.

(2) The C.T. valve leak test control device can be supplied as accessory separately from gas train (see "GAS TRAIN ACCESSORIES").

(3) With installed plug.

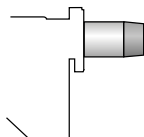


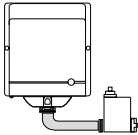

(4) Using natural gas, the gas train can be combined only in case of burnt output lower than 200 kW.

(5) Using natural gas, the gas train can be combined only in case of burnt output lower than 300 kW.

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

NOTE: for further information, refer to section "GAS TRAINS FOR BURNERS".

## ACCESSORIES

Drawing	Burner model	Specification	Code
	RS5F	<b>EXTENDED HEAD KIT</b> Burners standard head can be transformed into "extended head" versions by using the special kit. Standard head length = 203÷225 mm - Extended head length = 302÷317 mm	<b>3001016</b>
	RS5F	<b>LPG KIT</b> For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner. Kit code for standard and extended head.	<b>3001011</b>
	RS5F	<b>GROUND FAULT INTERRUPTER KIT</b> 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.	<b>3001180</b>
	RS5F	<b>MULTIBLOC ROTATION KIT</b> 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.	<b>3001178</b>
	RS5F	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).	<b>3000945</b>

## DESIGNATION OF SERIES

Series:	R	Standard emission burner
	B	Low NOx burners
Fuel:	S	Natural Gas
	SP	LPG
	G	Light oil
Size:		
Optional variations:		
Electrical supply to the system:		
1/220-230/50-60    1/220-230V/50-60Hz		

R	S	5	F	1/230/50
---	---	---	---	----------

## STATE OF SUPPLY

Monobloc, gas burners, completely automatic, with One-stage operation fitted with:

- Fan with forward curve blades
- Cover lined with sound-proofing material
- Air damper, always open in stand by, with external adjustment, with no need to remove the cover
- Single phase electric motor 220-230 V, 50-60 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

- Flange with insulating gasket
- Screw and nut for flange
- Screw and nuts for flange to be fixed to the heat generator
- 7-pin plug
- Remote control release kit
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue

Standard gas light-process burners

## GULLIVER RSDF

Range code 11ACGGAWRF



- Two-stage gas burners
- Suitable for remote reset
- Compact size
- Ease of maintenance
- Simplified calibration: air regulator with external gear
- High flexibility of use and adaptability to the operating conditions
- Digital control box with diagnostic function

### MAIN APPLICATIONS

- Industrial ovens
- Paint booths
- Low-power steam generators

Riello Gulliver RS5DF is a new model of the series of Two-stage gas burners, characterized for its small dimensions in spite of its high combustion performance.

It has been developed to respond to any request for light industrial processes like bakery ovens, spray painting ovens, small steam or thermal boilers and all applications requiring a reliable, user-friendly industrial product with enhanced performance and specific functions.

This model uses 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.

This new burner can operate on 50 or 60 Hz and 220-230 V (dual frequency); it is compliant with EN 676 Standard (Forced draught burners for gaseous fuels) and to European Directives for EMC, Low Voltage and Machinery.

For depressurised working field see EN 746-2 Standard.

All burners are fired before leaving the factory.



## TECHNICAL DATA

Description	Heat output natural gas		Electric power supply Ph/V/Hz	Total electrical power kW	Certification	Notes	Code
	kW	Nm³/h					
<b>RS5DF</b>	160/208÷345	16/20,8÷34,5	1/220-230/50-60	0,45 (at 50 Hz) 0,60 (at 60 Hz)	-	(1)	<b>3761991</b>

Net calorific value of natural gas (G20): 10 kWh/Nm³.

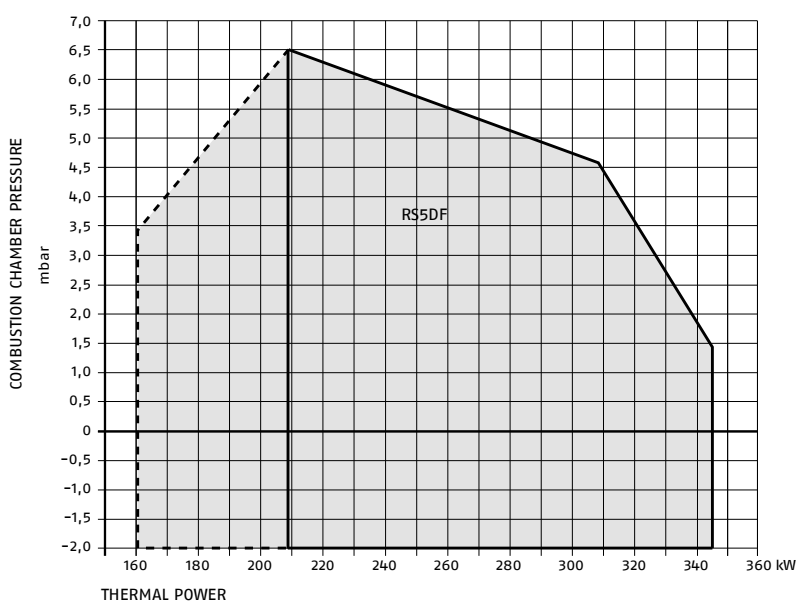
The burners comply with the 2016/426/EU Regulation, the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 676 Standard.

(1) Electrical connections with plug and socket.

## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>GULLIVER RSDF</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

## FIRING RATES



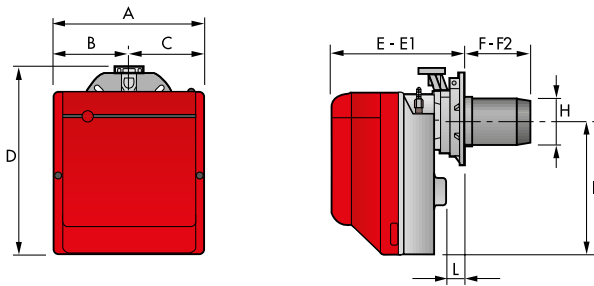
USEFUL FIRING RATES FOR CHOOSING THE BURNER

1<sup>ST</sup> STAGE OPERATION RANGE

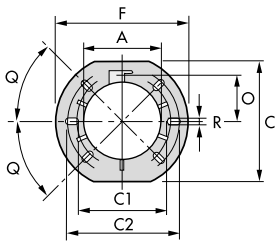
TEST CONDITIONS  
CONFORMING TO EN676  
Temperature: 20 °C  
Pressure: 1013,5 mbar  
Altitude: 0 m a.s.l.

IMPORTANT:  
For the part of the  
working field that is  
depressurised, refer to  
EN 746-2 Standard.

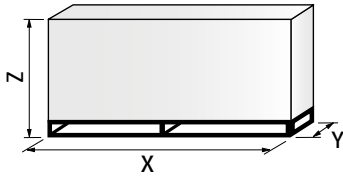
OVERALL DIMENSIONS



Description	A mm	B mm	C mm	D mm	E mm	E1 mm	F mm	F2 mm	H mm	I mm	L mm
RS5DF	300	150	150	392	278	300	203	225	137	286	45



Description	A mm	C mm	C1 mm	C2 mm	F mm	O mm	Q	R mm
RS5DF	137	203	170	200	218	80.5	45°	11

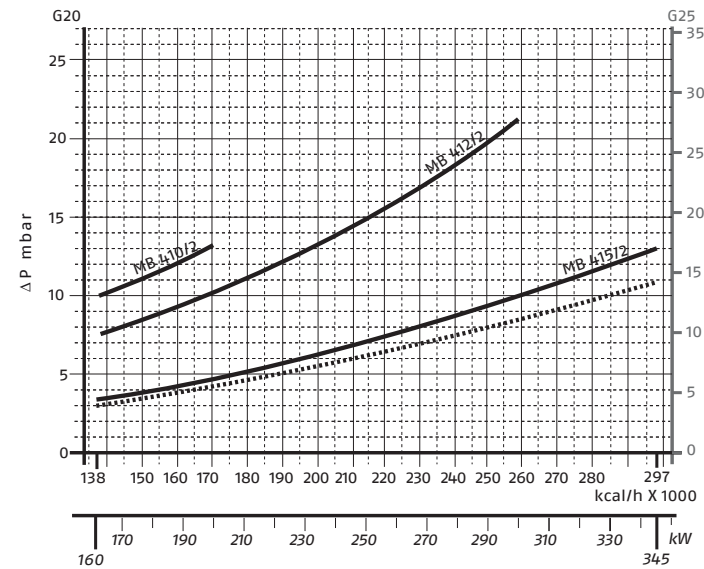


Description	X mm	Y mm	Z mm	Net weight kg
RS5DF	600	345	430	18

PRESSURE LOSS DIAGRAMS

MB SERIES GAS TRAINS

RS5DF



— Combustion head + gas train  
- - - Combustion head  
The diagrams indicate the minimum gas pressure drops of the burners equipped with the gas trains to be used (approved according to the EN 676 standard); in order to obtain the minimum pressure required at gas train inlet, combustion chamber counterpressure (expressed in mbar) must be added to this value.

## GAS TRAINS

Description (1)	Code	Notes	Ø Gas train	C.T. (2)	Burner
MB 410/2-F3SD 20	<b>3970542*</b>	(3)(4)	1"¼	3010123	RS5DF
MB 412/2-F3SD 20	<b>3970543*</b>	(5)	1"¼	3010123	RS5DF
MB 415/2-F3SD 20	<b>3970582*</b>		1"½	3010123	RS5DF

(1) Please refer to "GAS TRAIN DESIGNATION" on page 144.

(2) The C.T. valve leak test control device can be supplied as accessory separately from gas train (see "GAS TRAIN ACCESSORIES").

(3) With installed plug.

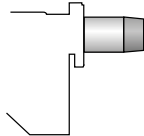


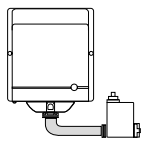

(4) Using natural gas, the gas train can be combined only in case of burnt output lower than 200 kW.

(5) Using natural gas, the gas train can be combined only in case of burnt output lower than 300 kW.

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

NOTE: for further information, refer to section "GAS TRAINS FOR BURNERS".

## ACCESSORIES

Drawing	Burner model	Specification	Code
	RS5DF	<b>EXTENDED HEAD KIT</b> Burners standard head can be transformed into "extended head" versions by using the special kit. Standard head length = 203÷225 mm - Extended head length = 302÷317 mm	<b>3001016</b>
	RS5DF	<b>LPG KIT</b> For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner. Kit code for standard and extended head.	<b>3001011</b>
	RS5DF	<b>GROUND FAULT INTERRUPTER KIT</b> 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.	<b>3001180</b>
	RS5DF	<b>MULTIBLOC ROTATION KIT</b> 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.	<b>3001178</b>
	RS5DF	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).	<b>3000945</b>

## DESIGNATION OF SERIES

Series:	R	Standard emission burner
	B	Low NOx burners
Fuel:	S	Natural Gas
	SP	LPG
	G	Light oil
Size:	5	
Optional variations:	D	Two-stage output operation
	F	Light industrial processes
	R	Light oil pre-heater
	K	Cone shaped head
	S	Reduced output ignition
Electrical supply to the system:	1/220-230/50-60	1/220-230V/50-60Hz

R	S	5	FD	1/230/50
---	---	---	----	----------

## STATE OF SUPPLY

Monobloc, gas burners, completely automatic, with One-stage operation fitted with:

- Fan with forward curve blades
- Cover lined with sound - proofing material
- Air damper, with 1st and 2nd stage adjustment, driven by an electric servomotor
- Single phase electric motor 220-230 V/50-60 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 with insulating gasket
- 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

## Standard air duct gas burners

**GULLIVER RS VA**

Range code 11ACAHAWRF



- Air duct gas burners
- Main applications: processes with direct exchange at low temperature (e.g. paint booths)
- Various combustion heads available, to be combined according to the output produced and the pressure in the channel
- Pre-assembled head unit with fixing plate to the booth included
- Modulating ratio up to 1:8
- Operation at 50 and 60 Hz
- Excellent flame stability and smooth combustion
- Ease of use
- Reduced flame length

**MAIN APPLICATIONS**

- Paint ovens
- Low-temperature dryers (grain, straw, wood)
- Printing machines
- Laundry machines
- Agricultural dryers (cereals, fodder, tobacco)

Riello series RS 5 VA of monoblock air duct burner is designed for the installation in low-medium temperature direct air heating system, such as painting booths ones.

These burners are strongly performing when used in applications with:

- High recirculation ratio: the embedded air fan ensure the right oxidizer air flow rate
- High variability of the air flow to be treated: combustion head is crossed by homogeneous oxidizing air flow ensuring the right air/fuel ratio in every point of the combustion head
- Presence of impurities in the air to be treated: the protection of the combustion head from the primary air flow avoid depositing of impurities on the combustion module, preserving efficiency and durability over the time.

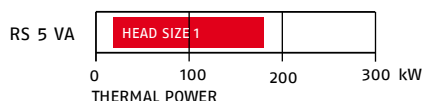
## SERVICES FOR BURNERS

Burner range	Description service	Code
GULLIVER RS VA	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017472</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017481</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017488</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017496</b>

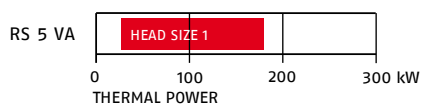
## COMBUSTION HEAD MATCHING

Burners fire rate depends on the size of fitted head and on the pressure in the duct section.

AIR DUCT PRESSURE = 0÷3 mbar

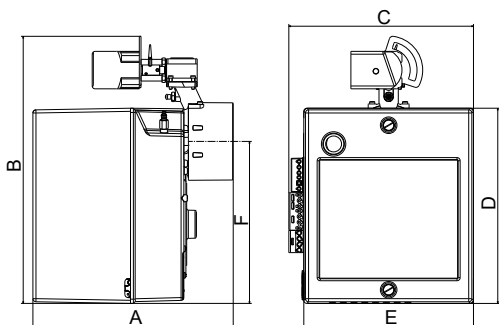


AIR DUCT PRESSURE = 3÷6 mbar



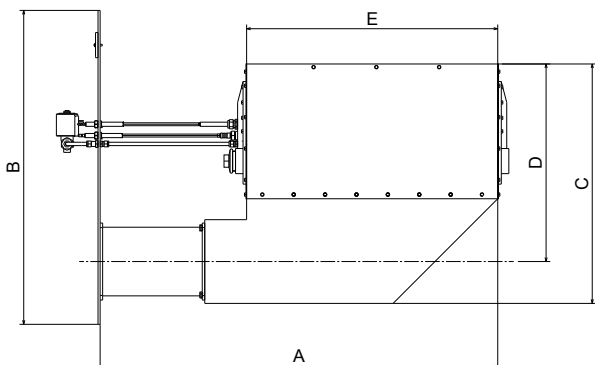
## OVERALL DIMENSIONS

RS5 VA



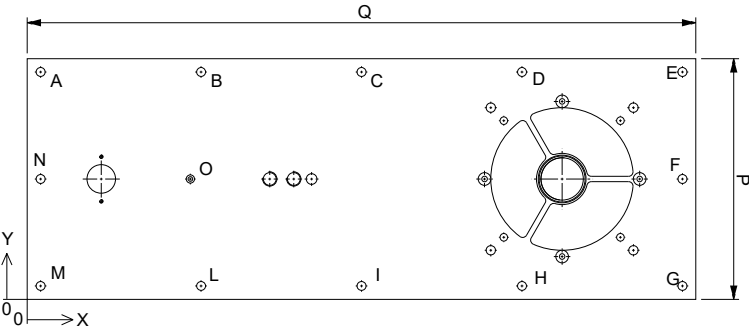
Description	A mm	B mm	C mm	D mm	E mm	F mm
<b>RS 5 VA</b>	<b>353</b>	<b>471</b>	<b>325</b>	<b>344</b>	<b>302</b>	<b>286</b>

## COMBUSTION HEAD ASSEMBLY

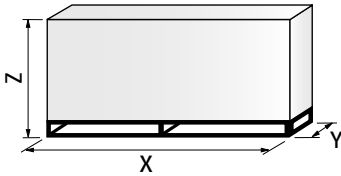


Head size	A mm	B mm	C mm	D mm	E mm
1/250	661	750	574	453	307
1/750	1161	750	574	453	307

FIXING PLATE

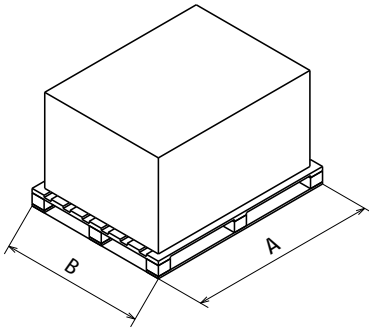


Holes	X mm	Y mm	∅ mm	Q mm	P mm
A	15	255	10	750	270
B	195	255	10	750	270
C	375	255	10	750	270
D	555	255	10	750	270
E	735	255	10	750	270
F	735	135	10	750	270
G	735	15	10	750	270
H	555	15	10	750	270
I	375	15	10	750	270
L	195	15	10	750	270
M	15	15	10	750	270
N	15	135	10	750	270
O	183	135	5.2	750	270



Description	X mm	Y mm	Z mm	Net weight kg
<b>RS 5 VA</b>	460	505	340	17

The ventilation structures are shipped in cardboard boxes with the overall dimensions shown in the table. The weight of the ventilation structure, complete with packaging.

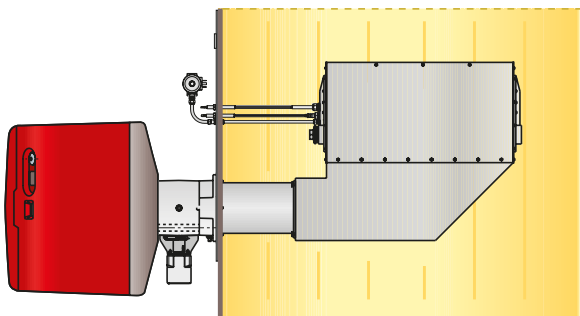


Head size	A mm	B mm
<b>1/250</b>	1200	800
<b>1/750</b>	1590	790

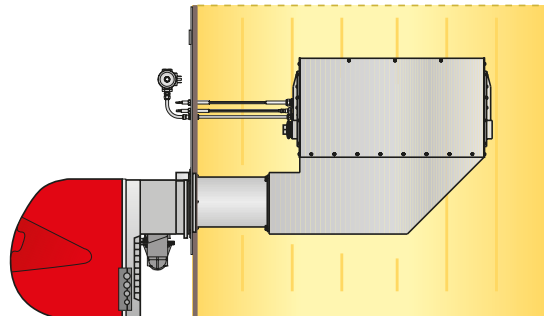
The head assemblies are shipped on pallets with the dimensions shown in the table.

## STANDARD CONFIGURATION

L1 - Angle configuration with combustion head developed in horizontal in primary air duct



L2 - Angle configuration with combustion head developed in vertical in primary air duct



## AVAILABLE BURNERS STRUCTURE

Description		RS5 VA
Fuel	Natural gas	●
	LPG	●
Electrical supply	230/1/50	●
	220-230/1/60	◆
Auxiliary	230/50-60	●
	110/50-60	◆
Configuration	L1 - Angle configuration with combustion head developed in horizontal in primary air duct	●
	L2 - Angle configuration with combustion head developed in vertical in primary air duct	◆
Operation	Two-stage/Fixed Air	●

Key to layout:

● Standard.

◆ On Demand. For more informations about product codes, please contact Riello Commercial and Technical departments, our Application Engineers will be pleased to help you.

## AVAILABLE COMBUSTION HEAD ASSEMBLY

The table shows the possible combinations between the structures and the combustion heads available. Burner output values are to be considered with ignition pilot off and with the following reference conditions: ambient temperature 20 °C, gas temperature 15 °C, pressure barometric 1013 mbar, altitude 0 m s.l.m.

Combustion head size	Length mm	p<3 mbar (*)	p>3 mbar (*)	Pmin kW	Pmax kW
1	250	RS 5 VA	RS 5 VA	20	180
	750				

(\*) Please refer to the pressure in the air duct section.

In case of applications with negative duct pressure and/or for more informations about product codes, please contact Riello Commercial and Technical departments, our Application Engineers will be pleased to help you.



## DESIGNATION OF SERIES

Series:		R					
Fuel:		S Natural Gas					
		L Light oil					
		LS Light oil/Natural Gas					
		N Heavy oil					
Size:							
Setting:		/1 Single stage					
		Two-stage					
		/M Modulating-Mechanical cam					
Application:		VA Air Duct					
Emission:		... or C01 Class 1 EN676					
		MZ Class 2 EN676					
		BLU Class 3 EN676					
		MX Class 3 ENE676					
Electrical supply to the system:							
		1/230/50 1/230V/50Hz					
		3/230/50 3/230V/50Hz					
		3/400/50 3N/400V/50Hz					
		3/230-400/50 3/230V/50Hz - 3N/400V/50Hz					
		3/220/60 3/220V/60Hz					
		3/380/60 3N/380V/60Hz					
		3/220-380/60 3/220/60Hz - 3N/380V/60Hz					
Auxiliary voltage:		230/50-60 230V/50-60H					
		110/50-60 110V/50-60Hz					
R	S	5		VA		3/230-400/50	230/50-60
BASIC DESIGNATION				EXTENDED DESIGNATION			

## STANDARD EQUIPMENT

- Screws to fix the flange
- Thermal screen
- Plugs for 4-5-6-7 poles electrical connections
- Flexible piping for ignition pilot
- Pilot gas train assembly
- Pilot gas train fixing fittings with main gas train
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

## EXISTING APPLICATIONS

Air heater for printing machine



## Standard air duct gas burners

**RS 28÷50 VA**

Range code 21AAAHAWRF



- Air duct gas burners
- Various combustion heads available, to be combined according to the output produced and the pressure in the channel
- Pre-assembled head unit with fixing plate to the booth included
- Modulating ratio up to 1:8
- Operation at 50 and 60 Hz
- Excellent flame stability and smooth combustion
- Ease of use
- Reduced flame length

**MAIN APPLICATIONS**

- Paint ovens
- Low-temperature dryers (grain, straw, wood)
- Printing machines
- Laundry machines
- Agricultural dryers (cereals, fodder, tobacco)

Riello series RS 28-38-50 VA and RS 28-38-50/M VA of monoblock air duct burner is designed for the installation in low-medium temperature direct air heating system, such as painting booths ones.

These burners are strongly performing when used in applications with:

- High recirculation ratio: the embedded air fan ensure the right oxidizer air flow rate
- High variability of the air flow to be treated: combustion head is crossed by homogeneous oxidizing air flow ensuring the right air/fuel ratio in every point of the combustion head
- Presence of impurities in the air to be treated: the protection of the combustion head from the primary air flow avoid depositing of impurities on the combustion module, preserving efficiency and durability over the time.

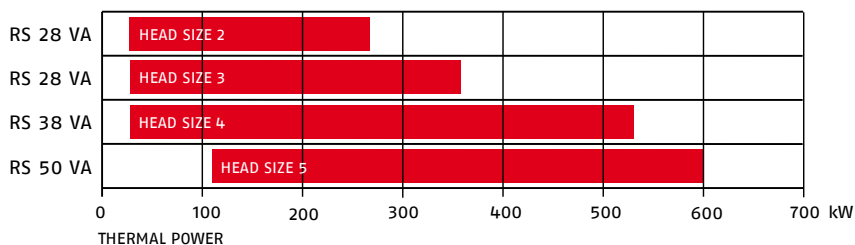
## SERVICES FOR BURNERS

Burner range	Description service	Code
RS 28÷50 VA	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017472</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017481</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017488</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017496</b>

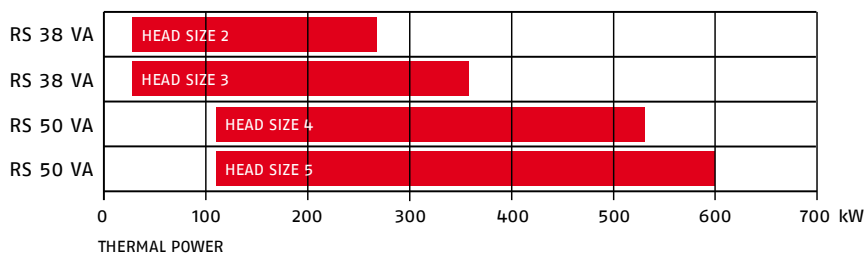
## COMBUSTION HEAD MATCHING

Burners fire rate depends on the size of fitted head and on the pressure in the duct section.

AIR DUCT PRESSURE = 0÷3 mbar

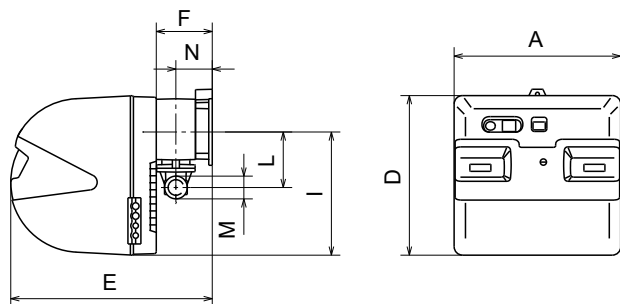


AIR DUCT PRESSURE = 3÷6 mbar



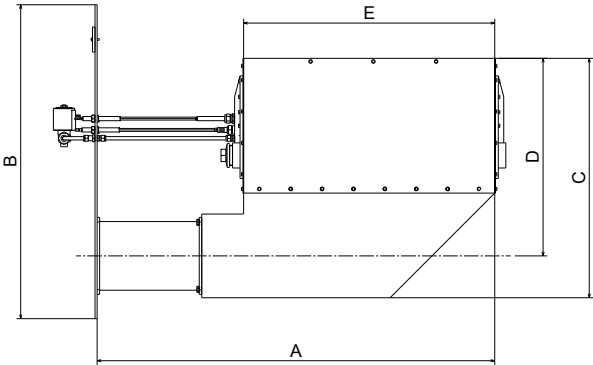
## OVERALL DIMENSIONS

RS28-38-50 VA



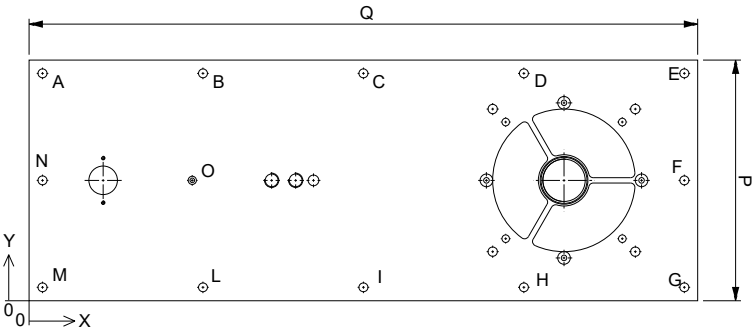
Description	A mm	D mm	E mm	F mm	I mm	L mm	M mm	N mm
RS 28 VA	476	474	580	164	352	168	1" 1/2	108
RS 38 VA	476	474	580	164	352	168	1" 1/2	108
RS 50 VA	476	474	580	164	352	168	1" 1/2	108

COMBUSTION HEAD ASSEMBLY

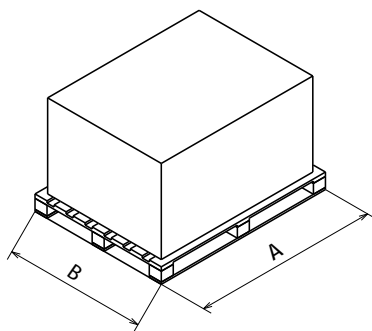
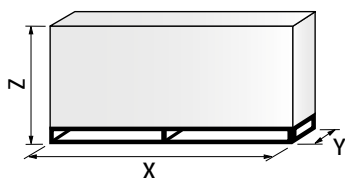


Head size	A mm	B mm	C mm	D mm	E mm
<b>2/110</b>	656	750	574	451	450
<b>2/250</b>	796	750	574	451	450
<b>2/350</b>	896	750	574	451	450
<b>2/500</b>	1046	750	574	451	450
<b>2/750</b>	1296	750	574	451	450
<b>2/1000</b>	1546	750	574	451	450
<b>3/250</b>	946	750	574	451	600
<b>3/350</b>	1046	750	574	451	600
<b>3/500</b>	1196	750	574	451	600
<b>3/750</b>	1446	750	574	451	600
<b>3/1000</b>	1696	750	574	451	600
<b>4/110</b>	1106	750	574	451	900
<b>4/250</b>	1246	750	574	451	900
<b>4/500</b>	1496	750	574	451	900
<b>4/750</b>	1746	750	574	451	900
<b>4/1000</b>	1996	750	574	451	900
<b>4/1500</b>	2496	750	574	451	900
<b>5/250</b>	1546	750	574	451	1200
<b>5/500</b>	1796	750	574	451	1200
<b>5/750</b>	2046	750	574	451	1200
<b>5/1000</b>	2296	750	574	451	1200
<b>5/1500</b>	2796	750	574	451	1200

FIXING PLATE



Holes	X mm	Y mm	Ø mm	L mm	P mm
<b>A</b>	15	255	10	750	270
<b>B</b>	195	255	10	750	270
<b>C</b>	375	255	10	750	270
<b>D</b>	555	255	10	750	270
<b>E</b>	735	255	10	750	270
<b>F</b>	735	135	10	750	270
<b>G</b>	735	15	10	750	270
<b>H</b>	555	15	10	750	270
<b>I</b>	375	15	10	750	270
<b>L</b>	195	15	10	750	270
<b>M</b>	15	15	10	750	270
<b>N</b>	15	135	10	750	270



Description	X mm	Y mm	Z mm	Net weight kg
<b>RS 28 VA</b>	872-1007	550	540	38
<b>RS 38 VA</b>	872-1007	550	540	40
<b>RS 50 VA</b>	872-1007	550	540	41

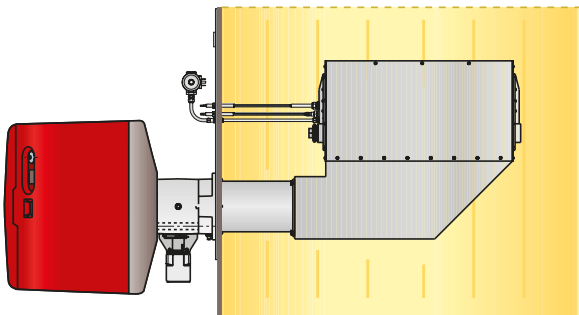
The ventilation structures are shipped in cardboard boxes with the overall dimensions shown in the table. The weight of the ventilation structure, complete with packaging.

Head size	A mm	B mm
<b>2/110</b>	1190	790
<b>2/250</b>	1000	800
<b>2/350</b>	1190	790
<b>2/500</b>	1200	800
<b>2/750</b>	1800	800
<b>2/1000</b>	1800	800
<b>3/250</b>	1200	800
<b>3/350</b>	1190	790
<b>3/500</b>	1400	1000
<b>3/750</b>	1800	800
<b>3/1000</b>	2200	800
<b>4/110</b>	1590	790
<b>4/250</b>	1400	1000
<b>4/250</b>	1390	790
<b>4/500</b>	1800	800
<b>4/750</b>	2200	800
<b>4/1000</b>	2200	800
<b>4/1500</b>	2690	790
<b>5/250</b>	1800	800
<b>5/500</b>	2200	800
<b>5/750</b>	2200	800
<b>5/1000</b>	2600	800
<b>5/1500</b>	3400	886

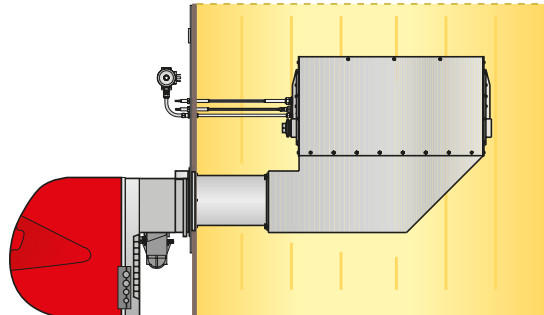
The head assemblies are shipped on pallets with the dimensions shown in the table.

## STANDARD CONFIGURATION

L1 - Angle configuration with combustion head developed in horizontal in primary air duct



L2 - Angle configuration with combustion head developed in vertical in primary air duct



## AVAILABLE BURNERS STRUCTURE

Description		RS5 VA	RS28 VA RS28/M VA	RS38 VA RS38/M VA	RS50 VA RS50/M VA	RS70 VA RS70/M VA
Fuel	Natural gas	●	●	●	●	●
	LPG	●	●	●	●	●
Electrical supply	230/1/50	●	●	●		
	220-230/1/60	◆	●	●		
	230-400/3/50		◆	●	●	●
Auxiliary	208-230/380-460/3/60		◆	◆	◆	◆
	230/50-60	●	●	●	●	●
	110/50-60	◆	◆	◆	◆	◆
Configuration	L1 - Angle configuration with combustion head developed in horizontal in primary air duct	●	●	●	●	●
	L2 - Angle configuration with combustion head developed in vertical in primary air duct	◆	◆	◆	◆	◆
Operation	Two-stage/Fixed Air	●	●	●	●	●
	Modulating/Air adjustment with mechanical cam		●	●	●	●

Key to layout:

● Standard.

◆ On Demand. For more informations about product codes, please contact Riello Commercial and Technical departments, our Application Engineers will be pleased to help you.

## AVAILABLE COMBUSTION HEAD ASSEMBLY





The table shows the possible combinations between the structures and the combustion heads available. Burner output values are to be considered with ignition pilot off and with the following reference conditions: ambient temperature 20 °C, gas temperature 15 °C, pressure barometric 1013 mbar, altitude 0 m s.l.m.

Combustion head size	Length mm	p<3 mbar (*)	p>3 mbar (*)	Pmin kW	Pmax kW
2	110	RS 28 VA	RS 38 VA	30	270
	250				
	350				
	500				
	750				
	1000				
3	250	RS 28 VA	RS 38 VA	30	360
	350				
	500				
	750				
	1000				
	1500				
4	110	RS 38 VA	RS 50 VA	30	530
	250				
	500				
	750				
	1000				
	1500				
5	250	RS 50 VA	-	110	600
	500				
	750				
	1000				

(\*) Please refer to the pressure in the air duct section.

In case of applications with negative duct pressure and/or for more informations about product codes, please contact Riello Commercial and Technical departments, our Application Engineers will be pleased to help you.

## ACCESSORIES

Drawing	Burner model	Specification	Code
	RS 28-38-50 VA	<b>POWER CONTROLLER</b> To obtain modulating operation, the burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range.. RWF50.2 - Basic version with 3 position output.	<b>On demand</b>
		RWF55.5 - Plus version; complete with RS-485 interface.	<b>On demand</b>
	RS 28-38-50 VA	<b>SIGNAL CONVERTER</b> 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. Input signal: 0/2-10 V (impedance 200 kΩ) - 0/4-20 mA (impedance 250 Ω)	<b>On demand</b>
	RS 28-38-50 VA	<b>POTENTIOMETER</b> Depending on the servomotor fitted to the burner, a three-pole potentiometer (1000 Ω) can be installed to check the position of the servomotor.	<b>On demand</b>
	RS 28-38-50 VA	<b>CONTINUOUS VENTILATION KIT</b> If the burner requires continuous ventilation in the stages without flame, a special kit is available.	<b>On demand</b>
	RS 28-38-50 VA	<b>GROUND FAULT INTERRUPTER KIT</b> A ground fault interrupter kit is available as a safety device in case of electrical system fault.	<b>On demand</b>



## DESIGNATION OF SERIES

Series:		R					
Fuel:		S Natural Gas					
		L Light oil					
		LS Light oil/Natural Gas					
		N Heavy oil					
Size:							
Setting:		/1 Single stage					
		Two-stage					
		/M Modulating-Mechanical cam					
Application:		VA Air Duct					
Emission:		... or C01 Class 1 EN676					
		MZ Class 2 EN676					
		BLU Class 3 EN676					
		MX Class 3 ENE676					
Electrical supply to the system:							
		1/230/50 1/230V/50Hz					
		3/230/50 3/230V/50Hz					
		3/400/50 3N/400V/50Hz					
		3/230-400/50 3/230V/50Hz - 3N/400V/50Hz					
		3/220/60 3/220V/60Hz					
		3/380/60 3N/380V/60Hz					
		3/220-380/60 3/220/60Hz - 3N/380V/60Hz					
Auxiliary voltage:		230/50-60 230V/50-60H					
		110/50-60 110V/50-60Hz					
R	S	28		VA		3/230-400/50	230/50-60
BASIC DESIGNATION				EXTENDED DESIGNATION			

## STANDARD EQUIPMENT

- Screws to fix the flange
- Thermal screen
- Plugs for 4 - 5 - 6 - 7 poles electrical connections
- Flexible piping for ignition pilot
- Pilot gas train assembly
- Pilot gas train fixing fittings with main gas train
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

## EXISTING APPLICATIONS

Polymerisation oven for coating plant



Polymerisation oven for coating plant



Coating plant



Coating plant



## Standard air duct gas burners

**RS 70 VA**

Range code Z1ABAHAWRF



- Air duct gas burners
- Various combustion heads available, to be combined according to the output produced and the pressure in the channel
- Pre-assembled head unit with fixing plate to the booth included
- Modulating ratio up to 1:8
- Operation at 50 and 60 Hz
- Excellent flame stability and smooth combustion
- Ease of use
- Reduced flame length

**MAIN APPLICATIONS**

- Paint ovens
- Low-temperature dryers (grain, straw, wood)
- Printing machines
- Laundry machines
- Agricultural dryers (cereals, fodder, tobacco)

Riello series RS 70 VA and RS 70/M VA of monoblock air duct burner is designed for the installation in low-medium temperature direct air heating system, such as painting booths ones.

These burners are strongly performing when used in applications with:

- High recirculation ratio: the embedded air fan ensure the right oxidizer air flow rate
- High variability of the air flow to be treated: combustion head is crossed by homogeneous oxidizing air flow ensuring the right air/fuel ratio in every point of the combustion head
- Presence of impurities in the air to be treated: the protection of the combustion head from the primary air flow avoid depositing of impurities on the combustion module, preserving efficiency and durability over the time.

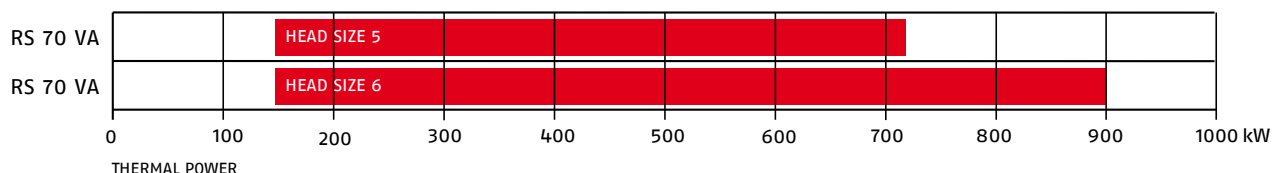
## SERVICES FOR BURNERS

Burner range	Description service	Code
RS 70 VA	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017472</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017481</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017488</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017496</b>

## COMBUSTION HEAD MATCHING

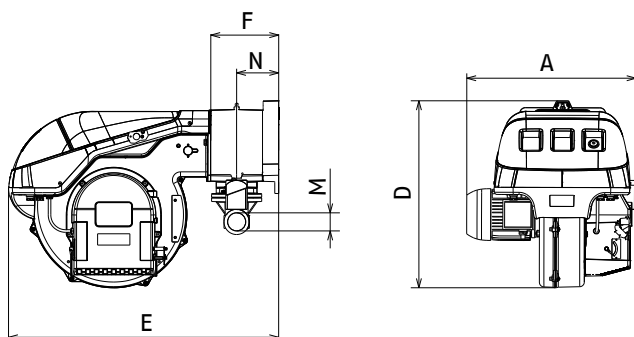
Burners fire rate depends on the size of fitted head and on the pressure in the duct section.

AIR DUCT PRESSURE = 0÷3 mbar



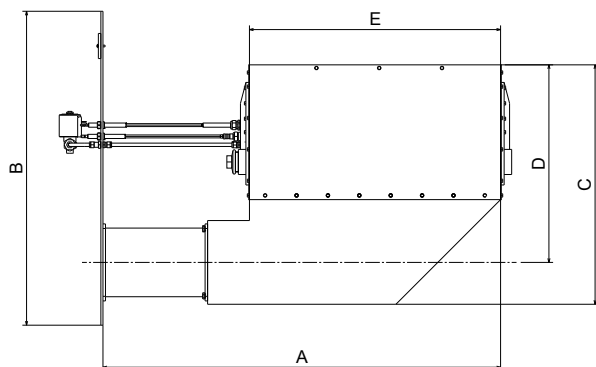
## OVERALL DIMENSIONS

RS 70 VA



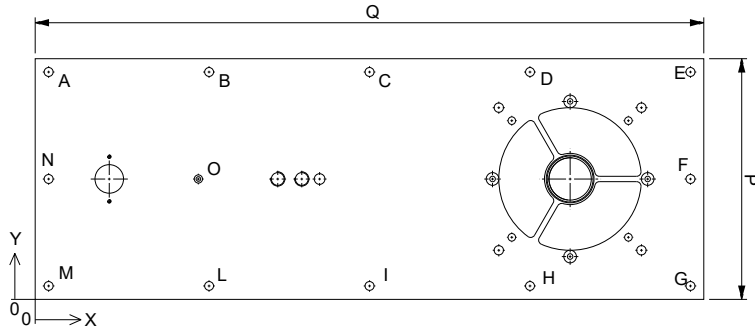
Description	A mm	D mm	E mm	F mm	M mm	N mm
<b>RS70 VA</b>	523.5	577	836	210	2"	130

## COMBUSTION HEAD ASSEMBLY

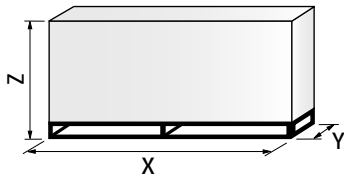


Head size	A mm	B mm	C mm	D mm	E mm
<b>5/250</b>	1746	800	574	451	1200
<b>5/500</b>	1996	800	574	451	1200
<b>5/750</b>	2246	800	574	451	1200
<b>5/1000</b>	2496	800	574	451	1200
<b>5/1500</b>	2996	800	574	451	1200
<b>6/250</b>	2046	800	574	451	1500
<b>6/500</b>	2296	800	574	451	1500
<b>6/750</b>	2546	800	574	451	1500
<b>6/1000</b>	2796	800	574	451	1500

FIXING PLATE

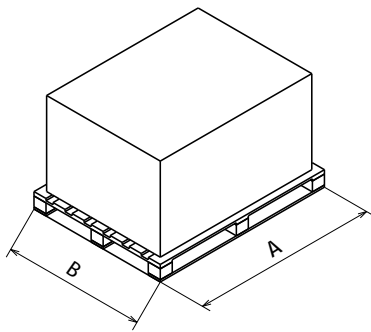


Holes	X mm	Y mm	Ø mm	L mm	P mm
A	20	330	10	800	350
B	210	330	10	800	350
C	400	330	10	800	350
D	590	330	10	800	350
E	780	330	10	800	350
F	780	175	10	800	350
G	780	20	10	800	350
H	570	20	10	800	350
I	400	20	10	800	350
L	210	20	10	800	350
M	20	20	10	800	350
N	20	175	10	800	350
O	-	-	-	800	350



Description	X mm	Y mm	Z mm	Net weight kg
<b>RS 70 VA</b>	1405	740	692	70

The ventilation structures are shipped in cardboard boxes with the overall dimensions shown in the table. The weight of the ventilation structure, complete with packaging.

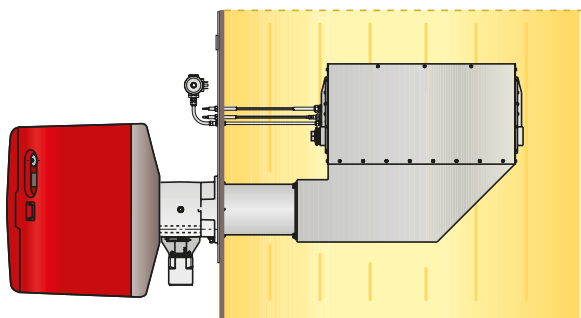


Head size	A mm	B mm
<b>5/250</b>	2200	850
<b>5/500</b>	2200	850
<b>5/750</b>	2700	850
<b>5/1000</b>	2700	850
<b>5/1500</b>	3400	940
<b>6/250</b>	2200	850
<b>6/500</b>	2700	850
<b>6/750</b>	2700	850
<b>6/1000</b>	3400	940

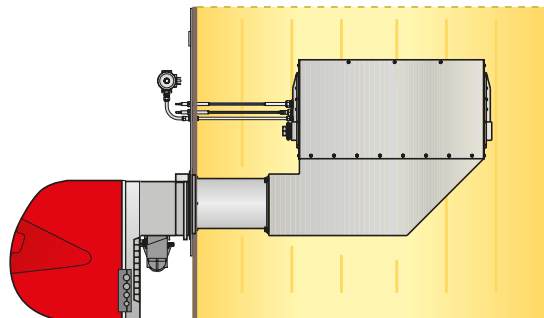
The head assemblies are shipped on pallets with the dimensions shown in the table.

## STANDARD CONFIGURATION

L1 - Angle configuration with combustion head developed in horizontal in primary air duct



L2 - Angle configuration with combustion head developed in vertical in primary air duct



## AVAILABLE BURNERS STRUCTURE

Description		RS5 VA	RS28 VA RS28/M VA	RS38 VA RS38/M VA	RS50 VA RS50/M VA	RS70 VA RS70/M VA
Fuel	Natural gas	●	●	●	●	●
	LPG	●	●	●	●	●
Electrical supply	230/1/50	●	●	●		
	220-230/1/60	◆	●	●		
	230-400/3/50		◆	●	●	●
Auxiliary	208-230/380-460/3/60		◆	◆	◆	◆
	230/50-60	●	●	●	●	●
	110/50-60	◆	◆	◆	◆	◆
Configuration	L1 - Angle configuration with combustion head developed in horizontal in primary air duct	●	●	●	●	●
	L2 - Angle configuration with combustion head developed in vertical in primary air duct	◆	◆	◆	◆	◆
Operation	Two-stage/Fixed Air	●	●	●	●	●
	Modulating/Air adjustment with mechanical cam		●	●	●	●

Key to layout:

● Standard.

◆ On Demand. For more informations about product codes, please contact Riello Commercial and Technical departments, our Application Engineers will be pleased to help you.

## AVAILABLE COMBUSTION HEAD ASSEMBLY





The table shows the possible combinations between the structures and the combustion heads available. Burner output values are to be considered with ignition pilot off and with the following reference conditions: ambient temperature 20 ° C, gas temperature 15 ° C, pressure barometric 1013 mbar, altitude 0 m s.l.m.

Combustion head size	Length mm	p<3 mbar (*)	p>3 mbar (*)	Pmin kW	Pmax kW
5	250	RS 70 VA	-	150	720
	500				
	750				
	1000				
	1500				
6	250	RS 70 VA	-	150	900
	500				
	750				
	1000				

(\*) Please refer to the pressure in the air duct section.

In case of applications with negative duct pressure and/or for more informations about product codes, please contact Riello Commercial and Technical departments, our Application Engineers will be pleased to help you.

## ACCESSORIES

Drawing	Burner model	Specification	Code
	RS 70 VA	<b>POWER CONTROLLER</b> To obtain modulating operation, the burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range.. RWF50.2 - Basic version with 3 position output.	<b>On demand</b>
		RWF55.5 - Plus version; complete with RS-485 interface.	<b>On demand</b>
	RS 70 VA	<b>SIGNAL CONVERTER</b> 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. Input signal: 0/2-10 V (impedance 200 kΩ) - 0/4-20 mA (impedance 250 Ω)	<b>On demand</b>
	RS 70 VA	<b>POTENTIOMETER</b> Depending on the servomotor fitted to the burner, a three-pole potentiometer (1000 Ω) can be installed to check the position of the servomotor.	<b>On demand</b>
	RS 70 VA	<b>CONTINUOUS VENTILATION KIT</b> If the burner requires continuous ventilation in the stages without flame, a special kit is available.	<b>On demand</b>
	RS 70 VA	<b>GROUND FAULT INTERRUPTER KIT</b> A ground fault interrupter kit is available as a safety device in case of electrical system fault.	<b>On demand</b>

## DESIGNATION OF SERIES

Series: R									
Fuel: S Natural Gas									
L Light oil									
LS Light oil/Natural Gas									
N Heavy oil									
Size:									
Setting: /1 Single stage									
Two-stage									
/M Modulating-Mechanical cam									
Application: VA Air Duct									
Emission: ... or C01 Class 1 EN676									
MZ Class 2 EN676									
BLU Class 3 EN676									
MX Class 3 ENE676									
Electrical supply to the system:									
1/230/50 1/230V/50Hz									
3/230/50 3/230V/50Hz									
3/400/50 3N/400V/50Hz									
3/230-400/50 3/230V/50Hz - 3N/400V/50Hz									
3/220/60 3/220V/60Hz									
3/380/60 3N/380V/60Hz									
3/220-380/60 3/220/60Hz - 3N/380V/60Hz									
Auxiliary voltage: 230/50-60 230V/50-60H									
110/50-60 110V/50-60Hz									
R	S	70		VA		3/230-400/50	230/50-60		
BASIC DESIGNATION									
EXTENDED DESIGNATION									



## STANDARD EQUIPMENT

- Screws to fix the flange
- Thermal screen
- Plugs for 4 - 5 - 6 - 7 poles electrical connections
- Flexible piping for ignition pilot
- Pilot gas train assembly
- Pilot gas train fixing fittings with main gas train
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

## EXISTING APPLICATIONS

Agricultural dryer



Agricultural dryer



Polymerisation oven for coating plant





## Air duct burner

## ADB

Range code 21DNABJWRF

**ADB – Head modules  
for air duct burners**



- Main module direct electrical ignition by electrode or indirect by a pilot incorporated in burner structure
- Flame detection with ionization electrode or UV cell
- Standard executions for natural gas and LPG, other fuel on request
- Turn-down ratio 15:1
- Easy to install, to start, to operate

#### MAIN APPLICATIONS

- Ceramic, brick, refractory sector: continuous and intermittent dryers.
- Surface treatment: paint ovens, enamelling ovens, dryers.
- Graphic printing and packaging: air heaters for rotogravure and flexographic printing machines, laminators, adhesive coaters.
- Dryers for cereals, fodder and tobacco, roasters.
- In general, all applications where a large exchange surface between combustion gas and process air and quick, smooth mix are required, using a gas burner with wide automatic adjustment field.

ADB and burner series are designed to be installed in all the applications requiring the heating of process air and its mixing with the combustion products.

These burners can be properly classified as "open-back air draught burners"; the most appreciated features of ADB burners are the extreme versatility and the modular structure.

ADB burner modules are available in two different configurations:

- LLD Low potentiality by surface unit 75 kW every 152 mm
- LD High potentiality by surface unit 150 kW every 152 mm

In order to allow the correct burner operation, the process air directly involved in the combustion is required to comply to the following specifics:


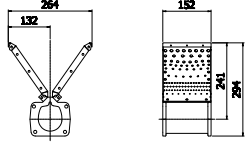

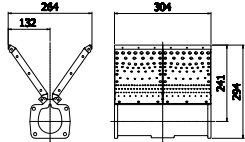

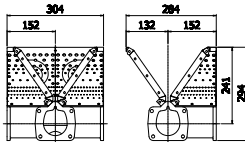

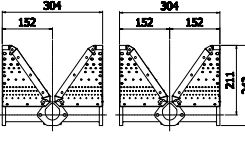
- Oxygen content  $\geq 19\%$
- Speed of the air flow around the burner head between 10 and 20 m/s

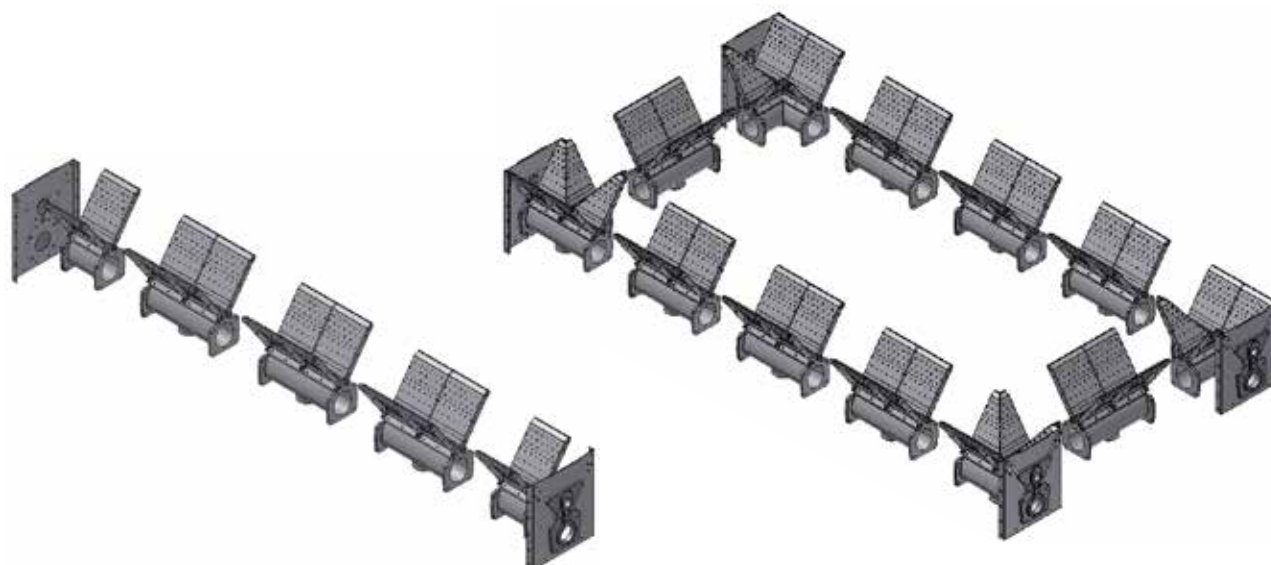
The pressure drop generally created by these burners is about 2,5 mbar; the burners guarantee the same efficiency either in pressure or in suction condition.

The burner head structure is completely made in Nickel-Chrome alloys, allowing an upstream temperature  $\leq 450^{\circ}\text{C}$  and a downstream temperature  $\leq 800^{\circ}\text{C}$  ( $\leq 200^{\circ}\text{C}$  upstream and  $\leq 450^{\circ}\text{C}$  downstream in the standard version).


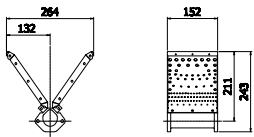

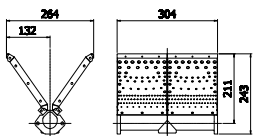

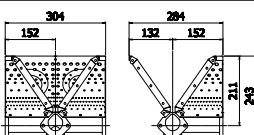

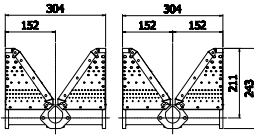
Particular attention is finally dedicated to the maximum reduction of the CO content and of the NOx emissions.

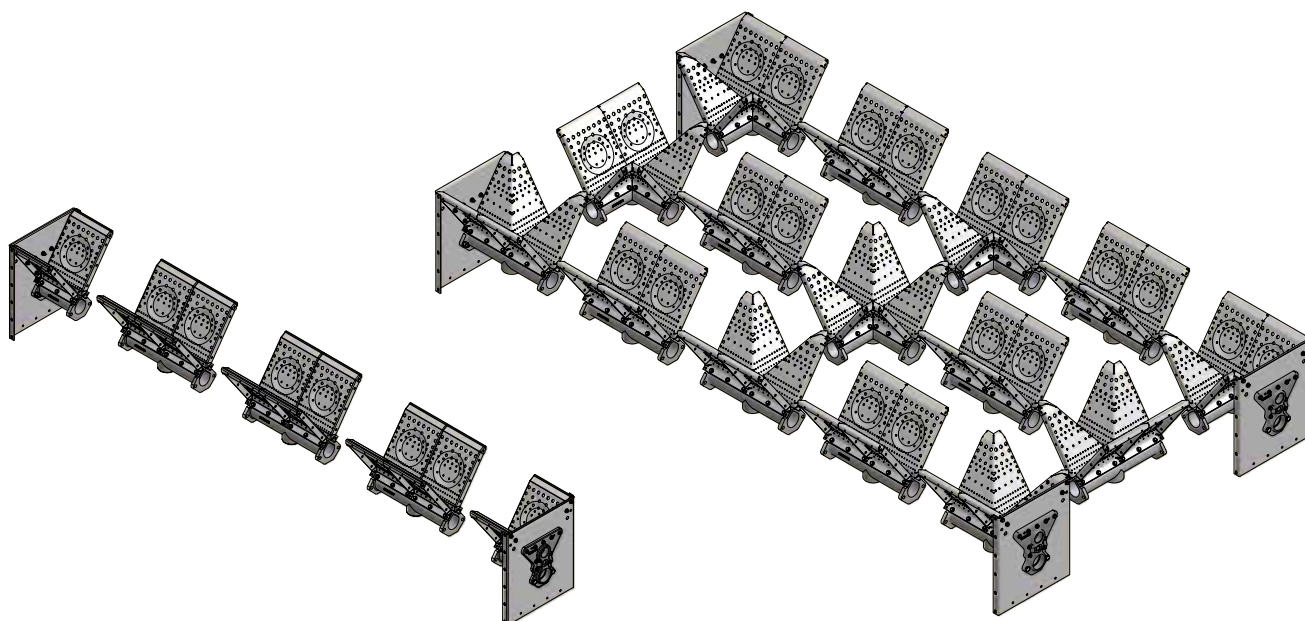
## CONFIGURATION EXAMPLES ADB/O LLE

Drawing	Specification	Burner output kW	Overall dimensions
	Straight LLD 6"	75	
	Straight LD 6"	150	
	Straight D 6"	225	
	Straight LLD 12"	150	
	Straight LD 12"	300	
	Straight D 12"	450	
	Tee LLD 12x6"	225	
	Tee LD 12x6"	450	
	Tee D 12x6"	675	
	Cross LLD 12x12"	300	
	Cross LD 12x12"	600	
	Cross LD 12x12"	900	


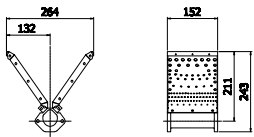

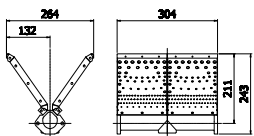

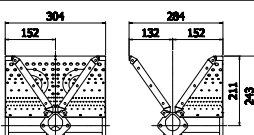

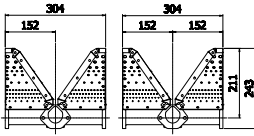


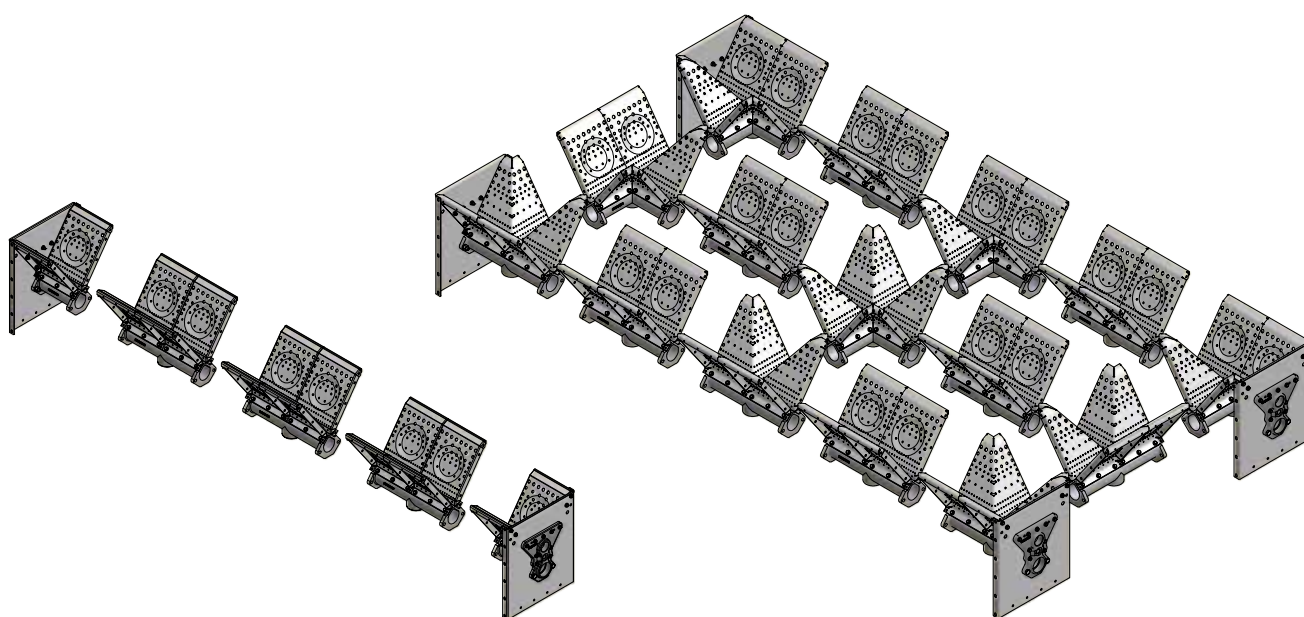
## CONFIGURATION EXAMPLES ADB/S LE

Drawing	Specification	Burner output kW	Overall dimensions
	Straight LLD 6"	75	
	Straight LD 6"	150	
	Straight LLD 12"	150	
	Straight LD 12"	300	
	Tee LLD 12x6"	225	
	Tee LD 12x6"	450	
	Cross LLD 12x12"	300	
	Cross LD 12x12"	600	



## CONFIGURATION EXAMPLES ADB/S LLE

Drawing	Specification	Burner output kW	Overall dimensions
	Straight LLD 6"	75	
	Straight LD 6"	150	
	Straight LLD 12"	150	
	Straight LD 12"	300	
	Tee LLD 12x6"	225	
	Tee LD 12x6"	450	
	Cross LLD 12x12"	300	
	Cross LD 12x12"	600	





## SERVICES FOR BURNERS

Burner range	Description service	Code
ADB	Installation advice	27017470
	Commissioning and adjustment	27017474
	Performance Check	27017475
	Regular maintenance	27017483, 27017484
	Intervention on request (4h)	27017485
	Intervention on request (8h)	27017486
	Maintenance and repair plan	27017489, 27017490
	Commissioning and adjustment with initial regular maintenance package	27017497, 27017498

## EXISTING APPLICATIONS

Agricultural dryer



Painting (metal sheet drying)



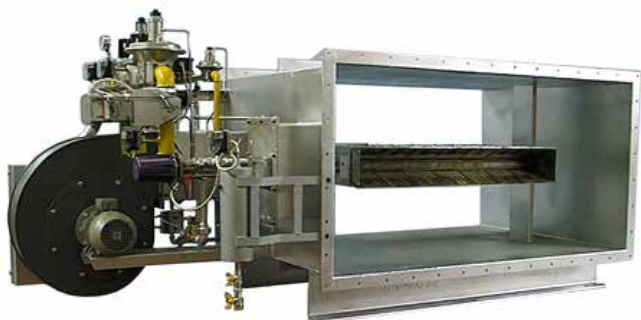
Dryer



## Air duct burners

## GVA ADB

Range code 21DNAAKWRF



- Main module direct electrical ignition by electrode or indirect by a pilot incorporated in burner structure
- Flame detection with ionization electrode or UV cell
- Standard executions for natural gas and LPG, other fuel on request
- Turn-down ratio 15:1
- Easy to install, to start, to operate

## MAIN APPLICATIONS

- Ceramic, brick, refractory sector: continuous and intermittent dryers.
- Surface treatment: paint ovens, enamelling ovens, dryers.
- Graphic printing and packaging: air heaters for rotogravure and flexographic printing machines, laminators, adhesive coaters.
- Dryers for cereals, fodder and tobacco, roasters.
- In general, all applications where a large exchange surface between combustion gas and process air and quick, smooth mix are required, using a gas burner with wide automatic adjustment field.

ADB and GVA ADB gas burner series are designed to be installed in all the applications requiring the heating of process air and its mixing with the combustion products.

These burners can be properly classified as "open-back air draught burners"; the most appreciated features of ADB and GVA ADB burners are the extreme versatility and the modular structure.

ADB burner modules are available in two different configurations:

- LLD Low potentiality by surface unit 75 kW every 152 mm
- LD High potentiality by surface unit 150 kW every 152 mm

GVA ADB burners combine ADB modules with the accessories necessary for the correct burner operation (i.e. gas train, control box). The supply can also include, if requested, the process air duct to be directly connected to the customer's plant.

In order to allow the correct burner operation, the process air directly involved in the combustion is required to comply to the following specifics:

- Oxygen content  $\geq 19\%$
- Speed of the air flow around the burner head between 10 and 20 m/s

The pressure drop generally created by these burners is about 2,5 mbar; the burners guarantee the same efficiency either in pressure or in suction condition.

The burner head structure is completely made in Nickel-Chrome alloys, allowing an upstream temperature  $\leq 450^{\circ}\text{C}$  and a downstream temperature  $\leq 800^{\circ}\text{C}$  ( $\leq 200^{\circ}\text{C}$  upstream and  $\leq 450^{\circ}\text{C}$  downstream in the standard version).

Particular attention is finally dedicated to the maximum reduction of the CO content and of the NOx emissions.

## SERVICES FOR BURNERS

Burner range	Description service	Code
GVA ADB	Installation advice	27017470
	Commissioning and adjustment	27017474
	Performance Check	27017475
	Regular maintenance	27017483, 27017484
	Intervention on request (4h)	27017485
	Intervention on request (8h)	27017486
	Maintenance and repair plan	27017489, 27017490
	Commissioning and adjustment with initial regular maintenance package	27017497, 27017498

## EXISTING APPLICATIONS

Agricultural dryer



Dryer (spray dryer)



Dryer (paper)





Dryer for ceramic tiles (spray dryer)



Dryer (spray dryer)



Dryer (rock wool)



Biomass pyrolysis and gasification (reduction of pollutants)



Thermal recuperative post-combustor (reduction of pollutants in the process air)



Thermal recuperative post-combustor (reduction of pollutants in the process air)





## Air duct burners

**BVA ADB ME**

Range code 21DNAJWRF

**BVA ADB ME.P****BVA ADB ME**

- Ignition of the main burner through integrated pilot
- Flame detection with ionization electrode (one for length up to 1200 mm, two for higher burner lengths) or with UV cell (optional)
- Standard executions for Natural gas and LPG, other fuels on request
- Regulations are: Modulating gas and High-Low Flame
- Optional floating or analog thermoregulator to be installed (if requested) inside the control panel
- Complete version with gas train according to EN 746-2 (other regulations on demand) and control panel
- Max inlet comburent air temperature: 70°C

**MAIN APPLICATIONS**

- Agricultural dryers (cereals, fodder, tobacco)
- Direct exchange industrial applications

BVA ADB air duct burners series has been designed for all the applications requiring the direct heating of ducted air, regardless of the industrial process type.

The supply includes a modular air duct burner properly dimensioned and assembled in order to guarantee the most performing heat exchange between the ducted air and the combustion products.

An air box in reinforced stainless or carbon steel is placed in the bottom part of the burner body; the air box, with a modular structure, houses the special combustion air fans dimensioned for the duct burner feeding.

The gas train is positioned directly below the air box, while the junction box (containing the ignition transformer and the terminal board) is to be fixed on one of the sides of the burner structure.

The control panel, including the multicore cable for the connection with the junction box, is supplied separately (standard cable length 5 m, other lengths on demand).

The ignition is operated by a dedicated pilot burner; the two main combustion phases (ignition and operation) are managed by flame control positioned inside of the control panel.

Supporting feet for vertical installations are available on demand.

Available burner operations:

- Modulating (gas): adjustment of the fuel flow rate operated by floating or analog (optional) motorized valve; combustion air flow rate is set for combustion at maximum capacity. Max. ÷ min. ratio: 10:1.
- High-low flame: two-step adjustment of the fuel flow rate (maximum capacity or lower capacity); combustion air flow rate is set for combustion at maximum capacity. Max. ÷ min. ratio: 7:1.

## TECHNICAL DATA

Description	Max. burner output [kW]	Overall dimensions			No. of flame detection electrodes	Gas train inlet diameter	Fans	
		Length [mm]	Width [mm]	Height [mm]			no.	Electric power (each) [kW]
BVA ADB 0,4 ME	400	640	270	1500	1	1"	1	1.1 (0.75)
BVA ADB 0,6 ME	600	795	270	1500	1	1"½	1	1.5
BVA ADB 0,8 ME	800	945	270	1500	1	1"½	1	1.5
BVA ADB 1,0 ME	1000	945	270	1500	1	1"½	1	1.5
BVA ADB 1,2 ME	1200	945	270	1500	1	1"½	1	2.2
BVA ADB 1,5 ME	1500	1249	270	2000	1	1"½	1	2.2
BVA ADB 1,75 ME	1750	1249	270	2000	1	2"	1	2.2
BVA ADB 2 ME	2000	1553	270	2000	1	2"	1	3
BVA ADB 2,5 ME	2500	1857	270	2000	1	2"	1	3
BVA ADB 2,5 MET	2500	1486	337	2000	1	2"	1	3
BVA ADB 3 ME	3000	2465	270	2000	1	2"	2	2.2
BVA ADB 3,2 ME	3200	2465	270	2000	1	DN65	2	2.2
BVA ADB 3,5 ME	3500	3073	270	2000	1	DN65	2	2.2
BVA ADB 4 ME	4000	3681	270	2000	2	DN65	2	3
BVA ADB 5 ME	5000	3681	270	2000	2	DN65	2	3
BVA ADB 6 ME	6000	4593	270	2000	2	DN80	3	3
BVA ADB 3 ME.P	3000	1249	890	2000	2x1	2"	2	2.2
BVA ADB 4 ME.P	4000	1857	890	2000	2x1	DN65	2	3
BVA ADB 5 ME.P	5000	2465	890	2000	2x1	DN65	2	3
BVA ADB 6 ME.P	6000	3073	890	2000	2x1	DN80	4	2.2
BVA ADB 7 ME.P	7000	3681	890	2000	2x2	DN80	4	3
BVA ADB 8 ME.P	8000	3681	890	2000	2x2	DN80	4	3
BVA ADB 9 ME.P	9000	4593	890	2000	2x2	DN100	6	3
BVA ADB 10 ME.P	10000	4593	890	2000	2x2	DN100	6	3
BVA ADB 11 ME.P	11000	4593	890	2000	2x2	DN100	6	3
BVA ADB 14 ME.P	14000	4593	890	2000	2x2	DN100	6	3
BVA ADB 16 ME.P	16000	4593	890	2000	2x2	DN100	6	3

## SERVICES FOR BURNERS

Burner range	Description service	Code
BVA ADB ME	Installation advice	27017470
	Commissioning and adjustment	27017474
	Performance Check	27017475
	Regular maintenance	27017483, 27017484
	Intervention on request (4h)	27017485
	Intervention on request (8h)	27017486
	Maintenance and repair plan	27017489, 27017490
	Commissioning and adjustment with initial regular maintenance package	27017497, 27017498

## EXISTING APPLICATIONS

Agricultural dryer (BVA ADB 1.5 ME)



Agricultural dryer (BVA ADB 1.5 ME)



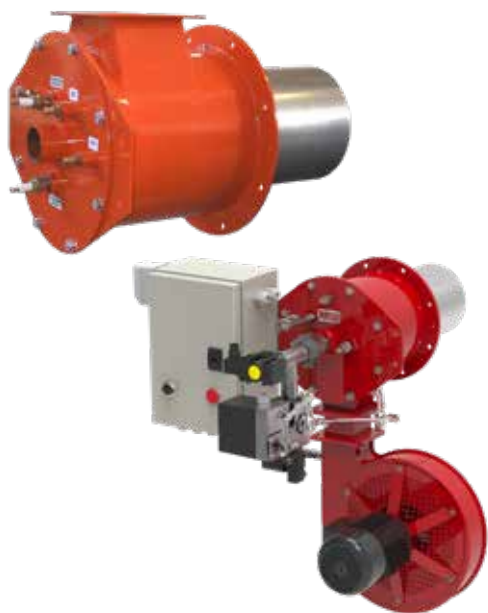
Agricultural dryer (BVA ADB 1.5 ME.P)



## High turndown ratio burners

**BPR**

Range code 21DNEBLWRF



- High turndown ratio gas burners (up to 50:1)
- Use in direct and indirect exchange applications
- Highly resistant material structure
- Operation with natural gas and LPG (other fuels on request)
- Version with main accessories included available
- Highly customisable configuration according to the specifications required by the installation
- On-off, two-stage or modulating operation

**MAIN APPLICATIONS**

- Ceramic, Tile, Refractory industries: Roller dryers, Tunnel dryers, Continuous and intermittent dryers
- Textile industry: Stenter, Dryers, Polymerising devices, Print dryers
- Surface treatment: Dryers/kilns and paint ovens
- Paper industry: Air heaters for Drying hoods
- Converting industry: Air heaters for Rotogravure and Flexographic printing machinery, Adhesive coating machines
- Food industry: Cereal dryers, Roasting machines
- Tobacco drying

The gas burners of the "BPR" series have a light and handy structure, reduced overall dimensions and this is why they are ideal for all the installations requiring a compact and silent combustion unit with high turndown ratio.

The burner structure is in painted carbon steel; parts in contact with the flame are in refractory steel and in Nickel Chrome alloys. Externally to the burner, with a layout that depends on installation requirements, the following are located: the gas train, the combustion air fan and the flame control box.

Maximum power is 1450 kW, while minimum power can be up to 5 kW.

The completely automatic operation allows for different controls such as on-off, high-low flame, modulating on gas or modulating on air ratio. These latter allow to obtain a turndown ratio of up to 50:1 with neutral combustion chamber.

The burner can be supplied in the following versions:

- Installed inside the duct (duct-type);
- Installed outside the duct;

According with customers needs, special executions, that can include complete equipment of combustion system, can be developed.

## TECHNICAL DATA

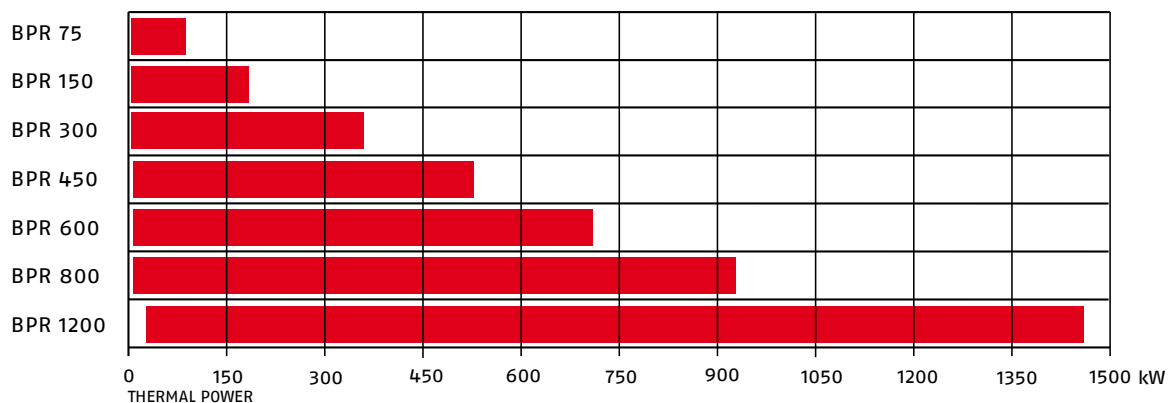
Description	Power range kW	Fuel	Turndown ratio	Operation	Max air excess	Flame diameter mm	Flame length mm	Gas supply pressure mbar	Air supply pressure mbar
<b>BPR 75</b>	5-87	Natural gas/LPG	18:1	Modulating	50% at 87 kW	160	600	30	8
<b>BPR 150</b>	6-175	Natural gas/LPG	30:1	Modulating	50% at 175 kW	200	600	10	10
<b>BPR 300</b>	9-350	Natural gas/LPG	40:1	Modulating	50% at 350 kW	250	600	40	10
<b>BPR 450</b>	18-525	Natural gas/LPG	30:1	Modulating	50% at 325 kW	300	600	20	10
<b>BPR 600</b>	18-700	Natural gas/LPG	25:1	Modulating	50% at 700 kW	350	700	35	17
<b>BPR 800</b>	18-930	Natural gas/LPG	50:1	Modulating	50% at 930 kW	350	1000	35	17
<b>BPR 1200</b>	30-1450	Natural gas/LPG	30:1	Modulating	50% at 1450 kW	350	1200	35	17

The above data refer to maximum power conditions. The pressure values are approximate, the gas values refer to natural gas.  
 Flame dimensions are referred to 30% air excess condition.  
 Performance data and dimensions are guidelines only.  
 Other versions are available on demand by means a special execution request.

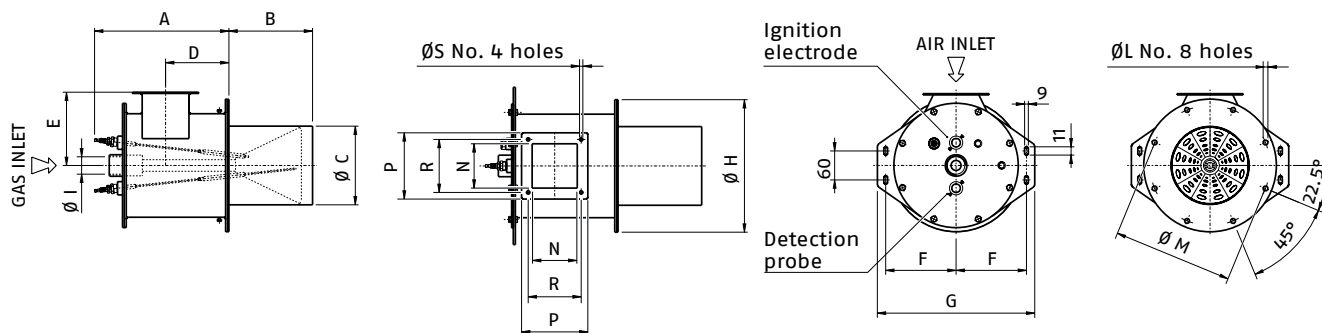
## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>BPR</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017472</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017481</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017488</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017496</b>

## FIRING RATES (COMBUSTION HEAD)



## OVERALL DIMENSIONS



Description	A mm	B mm	ØC mm	D mm	E mm	F mm	G mm	ØH mm	ØI mm	ØL mm	ØM mm	N mm	P mm	R mm	ØS mm	Net weight kg
<b>BPR 75</b>	270	210	110	140	120	120	270	220	3/4"	9.5	195	66	105	85	7	22
<b>BPR 150</b>	270	205	145	145	150	140	310	250	1"	9.5	225	66	105	85	7	38
<b>BPR 300</b>	320	205	190	150	180	170	380	320	1" 1/2	11.5	290	114	160	128	9	45
<b>BPR 450</b>	370	215	220	200	220	195	430	370	1" 1/2	11.5	340	140	190	165	10	48
<b>BPR 600</b>	370	215	220	200	220	195	430	370	1" 1/2	11.5	340	140	190	165	10	48
<b>BPR 800</b>	370	215	220	200	220	195	430	370	1" 1/2	11.5	340	140	190	165	10	52
<b>BPR 1200</b>	392	215	220	200	220	195	430	370	1" 1/2	11.5	340	140	190	165	10	56

NOTE: the weight in the table refers to the combustion head only.

## STANDARD EQUIPMENT

- Turndown ratio up to 50:1
- Thermal steel flame tube
- Direct spark ignition, ionisation-type flame detection
- Standard versions are for natural gas and LPG. Versions for other gases available on request
- Available as complete unit, with gas train with right or left hand layout
- Single phase or 3 phase motor, 50/60 Hz.
- Easy to install, start, operate
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.



## EXISTING APPLICATIONS

Textile (stenter)



Coating plant



Air heaters (trolley sterilisation)



Industrial fabric washing



Dryer (pharmaceutical industry)



Belt dryer (drying and roasting)



Dryer (fodder)



Dryer (food)



Drying and polymerisation oven (plastic/rubber immersion)



Industrial application with direct exchange (BPR TR)



Textile application with radiant tube (BPR TR)



Textile application with radiant tube (BPR TR)





## High speed burners

**BPM GV-BPN GV**

Range code 21DNDAAOWRF



- Direct spark ignition and ionization electrode or UV flame detection, depending on the burner model
- Multifuel combustion head for Natural gas and LPG, lean gas and gases with low calorific value (on demand)
- Turn down ratio up to 35:1
- Available as packaged execution, with gas train according to EN746-2 (other standards on demand), on right or left hand
- Easy to install, start and operate

**MAIN APPLICATIONS**

- Ceramic, brick, refractory sector:
  - Roller ovens, tunnel ovens, intermittent ovens, melting ovens;
  - Continuous and intermittent dryers.
- Steel industry
- Surface treatments
- Glass industry: tempering ovens
- Graphic printing and packaging: air heaters for rotogravure and flexographic printing machines, laminators, adhesive coaters.
- Food sector: dryers for cereals, roasters.
- In general, all applications with strong positive or negative pressure where an automatic gas burner with wide adjustment field is required.

BPM GV and BPN GV series are composed of air draught burners able to operate with different fuels such as natural gas, LPG, lean gas and gases with low calorific value (on demand). Burner operation can be automatic or semiautomatic; all burners are equipped with ignition by electrode and ionization probe for flame detection.

The BPM GV and BPN GV series can be properly classified as a "high/average speed gas burner", with exhaust gases speed coming out from the combustion chamber up to 100 m/s (or higher, according to the outlet diameter of the burner head cone).

The burners are compatible with a combustion air temperature up to 100 °C and cover a firing range between 2 kW and 3.500 kW. Thanks to the extreme flexibility, BPM GV and BPN GV burners can operate with a turndown up to 35:1.

A dedicated version (BPM GV-T and BPN GV-T series) is available for installations on kilns requiring the combustion gases to reach distances of 6÷8 m without any flame flexion. These burners are compatible with a speed of the exhaust gases coming out from the combustion chamber up to 150 m/s (or higher, according to the outlet diameter of the burner head cone) and cover a firing range between 6 kW and 190 kW.

In case of processes requiring highly oxidizing combustion, BPN GV S/O AT series (compatible with a combustion air temperature up to 550 °C) is available. These burners, covering a firing range between 20 kW and 1.500 kW, are equipped with UV flame detection and can operate with a turndown ratio up to 1:15.

## TECHNICAL DATA

Description	BPM 2 GV S	BPM 3 GV S	BPM 5 GV S	BPN 7 GV S	BPN 18 GV S	BPN 60 GV S	BPN 100 GV S	BPN 150 GV S	BPN 300 GV S
Min. output	2 kW	3 kW	5 kW	5 kW	10 kW	10 kW	20 kW	88 kW	175 kW
Max. output	23 kW	46 kW	58 kW	190 kW	500 kW	850 kW	1160 kW	1750 kW	3500 kW
Fuel	Natural Gas - LPG								
Burner cone material	Silicon Carbide or Concrete Casting					Concrete casting			
Cone outlet diameter (Silicon carbide)	Ø30÷50 mm	Ø38 mm	Ø40÷60 mm	Ø40÷65 mm	Ø50÷85 mm	-	-	-	-
Max. excess air	100% at 11,5 kW	100% at 23 kW	100% at 29 kW	100% at 95 kW	100% at 250 kW	100% at 425 kW	100% at 580 kW	100% at 875 kW	100% at 1750 kW
Max. excess gas	35% at 23 kW	35% at 46 kW	35% at 58 kW	35% at 190 kW	35% at 500 kW	35% at 850 kW	35% at 1160 kW	35% at 1750 kW	35% at 3500 kW

The above data refer to maximum power conditions. The pressure values are approximate, the gas values refer to natural gas.  
 Technical characteristics are given as an indication and may be subject to modifications.  
 NOTE: other versions are available on demand.

Description	BPM 5 GV-T .25	BPM 5 GV-T .33	BPN 7 GV-T .33	BPN 7 GV-T .48
Min. output	6 kW		10 kW	
Max. output	58 kW		190 kW	
Fuel	Natural Gas - LPG		Natural Gas - LPG	
Burner cone material	Silicon Carbide		Silicon Carbide	
Cone outlet diameter	Ø 25 mm	Ø 33 mm	Ø 33 mm	Ø 48 mm
Max. excess air	100% at 29 kW		100% at 96 kW	
Max. excess gas	35% at 58 kW		35% at 190 kW	

The above data refer to maximum power conditions. The pressure values are approximate, the gas values refer to natural gas.  
 Technical characteristics are given as an indication and may be subject to modifications.  
 NOTE: other versions are available on demand.

Description	BPN 60 GV S/O AT.181	BPN 100 GV S/O AT.200	BPN 150 GV S/O AT.240	BPN 250 GV S/O AT.240
Min. output	20 kW	20 kW	20 kW	100 kW
Max. output	300 kW	523 kW	850 kW	1500 kW
Fuel	Natural Gas - LPG	Natural Gas - LPG	Natural Gas - LPG	Natural Gas - LPG
Burner cone material	Silicon Carbide	Silicon Carbide	Silicon Carbide	Silicon Carbide
Cone outlet diameter	Ø 181 mm	Ø 200 mm	Ø 240 mm	Ø 240 mm
Max. excess air	100% at 150 kW	100% at 260 kW	100% at 425 kW	100% at 750 kW
Max. excess gas	35% at 300 kW	35% at 523 kW	35% at 850 kW	35% at 1500 kW

The above mentioned performance data are described at their maximum power. Pressure showed are guidelines only.  
 Gas pressures are refer to Methane and LPG.  
 NOTE: other versions are available on demand.

## SERVICES FOR BURNERS

Burner range	Description service	Code
BPM GV-BPN GV	Installation advice	27017470
	Commissioning and adjustment	27017474
	Performance Check	27017475
	Regular maintenance	27017483, 27017484
	Intervention on request (4h)	27017485
	Intervention on request (8h)	27017486
	Maintenance and repair plan	27017489, 27017490
	Commissioning and adjustment with initial regular maintenance package	27017497, 27017498

## EXISTING APPLICATIONS

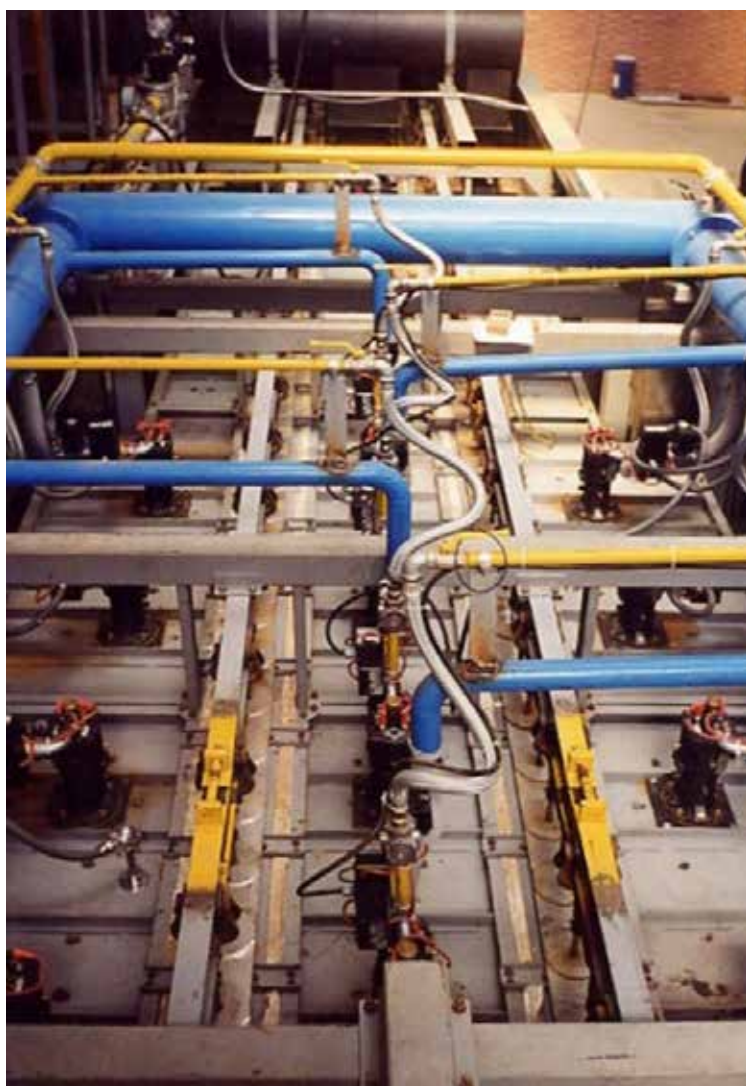
Metallurgical industry



PROCESS GAS BURNERS

PROCESS LIGHT OIL BURNERS

GAS TRAINS





Intermittent furnace (firing of ceramic parts)



Intermittent furnace (firing of ceramic parts)



Roller furnace (firing of ceramic tiles)



Regenerative thermal oxidizer



Glass industry (melting kiln combustion supply)



Glass industry (melting kiln combustion supply)



Oxy-combustion (BPM(N) M0 series)



Oxy-combustion (BPM(N) M0 series)



## Metal volumetric burners for radiant tubes

## N/TR

Range code 21DNGAPWRF



- Designed for processes with highly oxidizing combustion
- Full range of burners from 4 to 1.160 kW, with high modulation ratios (up to 30:1)
- Compact and robust structure, made of highly resistant materials
- Combustion air temperature up to 100°C
- Compatible with natural gas and LPG use (other gases upon request)
- Direct spark ignition and ionization flame detection electrode
- Available as complete version including the gas train, according to EN 746-2 on right or left hand
- Easy to install, to start, to operate

**MAIN APPLICATIONS**

- Industrial ovens with oxidising, stoichiometric or reducing combustion
- Ceramic, brick, refractory sectors:
  - Roller ovens, tunnel ovens, intermittent ovens, melting ovens.
  - Continuous and intermittent dryers.
- Steel industry
- Surface treatments
- Graphic printing and packaging: air heaters for rotogravure and flexographic printing machines, laminators, adhesive coaters.
- Glass industry: tempering ovens
- Food sector: dryers for cereals, roasters
- Tobacco drying
- In general, all applications with strong positive or negative pressure where an automatic gas burner with wide adjustment field is required

N/TR burner series is composed of air draught burners able to operate with natural gas, LPG, lean gas and gases with low calorific power (upon request).

This burner range has been designed to be installed in all the processes in which highly oxidizing combustion is needed to limit the working temperature.

The completely automatic working allows on-off regulations, high/ low flame, air/gas modulating. This last control system allows to reach turndown ratio of 30:1 with neutral combustion chambers. The burners cover a firing range between 4 kW and 1.160 kW and are compatible with a combustion air temperature up to 100 °C.

The burner is composed of a painted casting structure, with the main body in cast iron and bottom in aluminum; the parts in contact with the flame are made of refractory steel and Nickel-Chromium alloys.

The burners include ignition and flame detection electrodes, pressure taps for measuring instantaneous air and gas flow rates, flame indicator light.

## TECHNICAL DATA

Description	N 70 TR	N 140 TR	N 280 TR	N 520 TR	N 800 TR
Min. burner output	4 kW (3.500 kcal/h)	5 kW (4.300 kcal/h)	10 kW (8.600 kcal/h)	20 kW (17.200 kcal/h)	58 kW (50.000 kcal/h)
Max. burner output	70 kW (60.000 kcal/h)	160 kW (137.600 kcal/h)	280 kW (240.000 kcal/h)	520 kW (450.000 kcal/h)	1.160 kW (997.600 kcal/h)
Fuel	Natural gas/LPG	Natural gas/LPG	Natural gas/LPG	Natural gas/LPG	Natural gas/LPG
Flame tube material	Ni-Cr alloy	Ni-Cr alloy	Ni-Cr alloy	Ni-Cr alloy	Ni-Cr alloy
Flame tube diameter	Ø76 mm	Ø90 mm	Ø115 mm	Ø129 mm	Ø168,3 mm
Max. excess air	200% at 35 kW (30.000 kcal/h)	200% at 80 kW (68.800 kcal/h)	200% at 140 kW (120.400 kcal/h)	200% at 260 kW (223.600 kcal/h)	200% at 580 kW (500.000 kcal/h)
Max. excess gas	30%	30%	30%	30%	30%
Flame diameter (*)	60 mm	80 mm	100 mm	150 mm	140 mm
Flame length (*)	500 mm	700 mm	700 mm	900 mm	500 mm
Gas supply pressure (**)	40 mbar	69 mbar	50 mbar	80 mbar	45 mbar
Air supply pressure	35 mbar	18 mbar	35 mbar	40 mbar	45 mbar
Weight	8 kg	10.5 kg	28 kg	26 kg	28 kg

The characteristics described above refer to conditions of maximum potential. Pressures shown are indicative.

(\*) In stoichiometric combustion conditions.

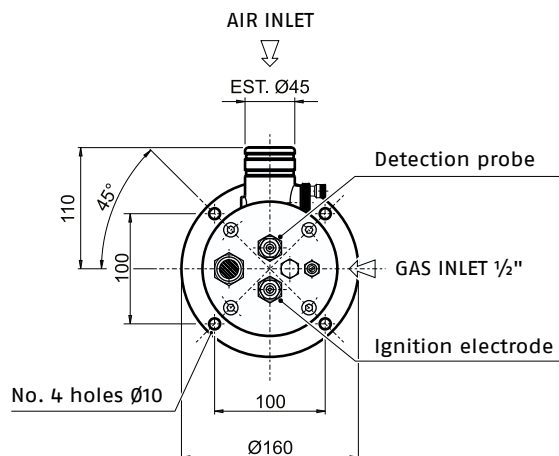
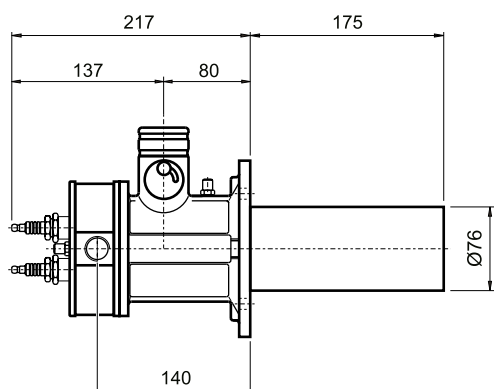
(\*\*) Pressure values indicated refer to natural gas.

## SERVICES FOR BURNERS

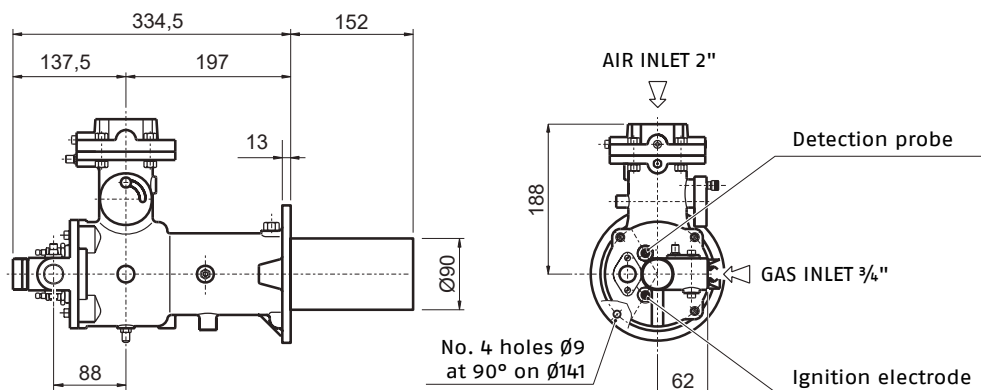
Burner range	Description service	Code
N/TR	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017474</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017483, 27017484</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017489, 27017490</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017497, 27017498</b>

## OVERALL DIMENSIONS

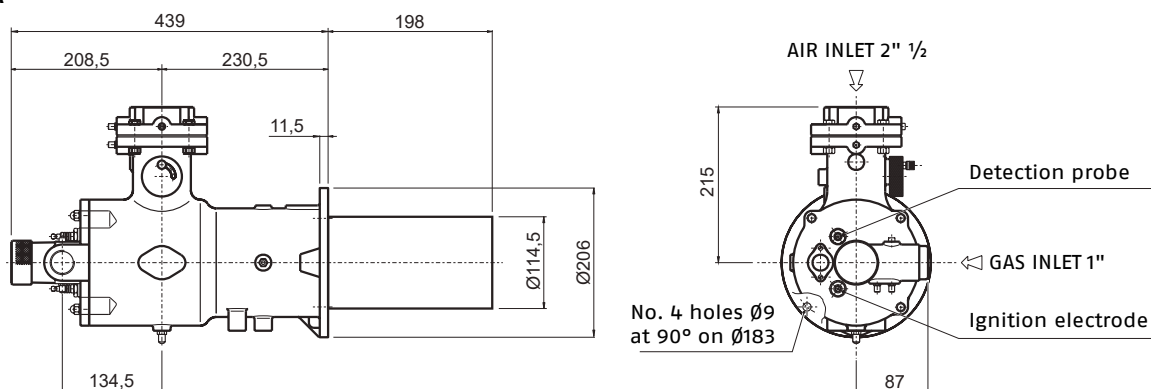
### N 70 TR



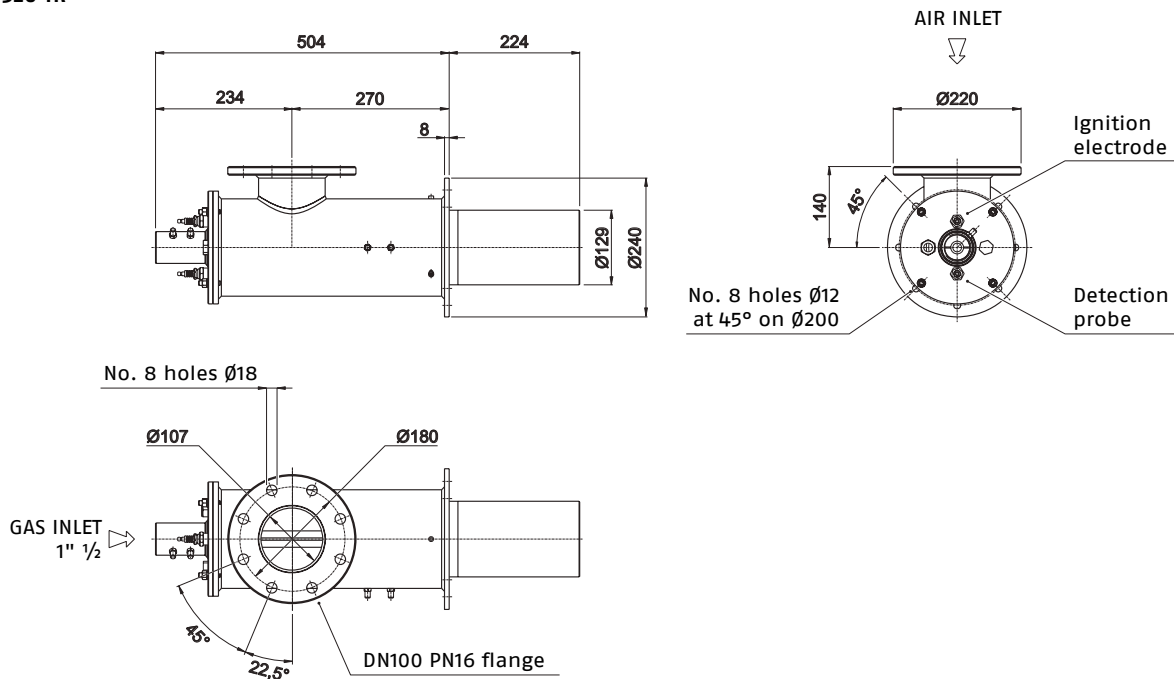
**N 140 TR**



**N 280 TR**

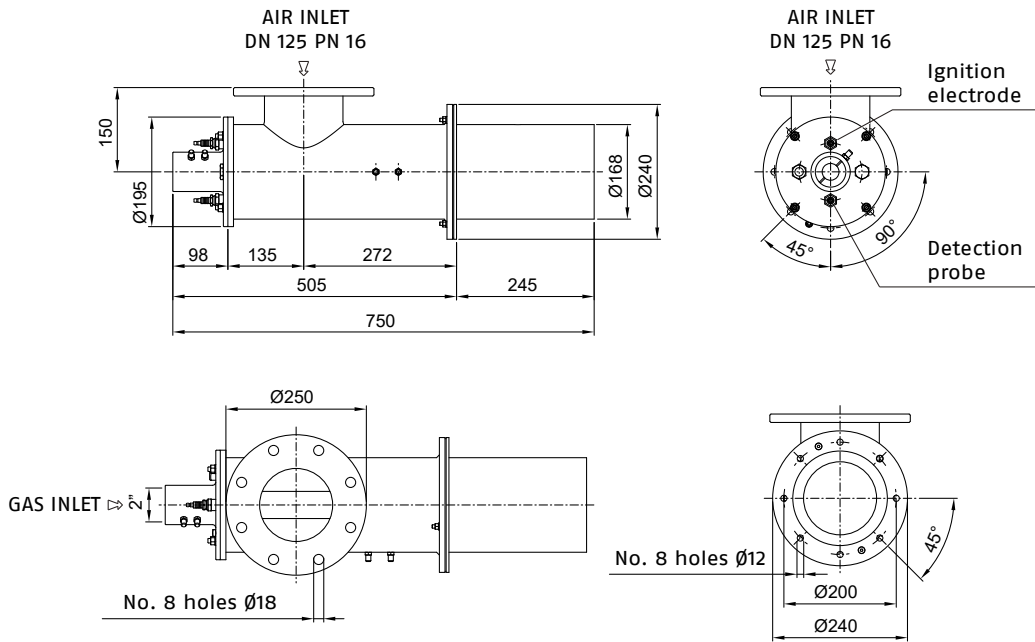


**N 520 TR**





N 800 TR



EXISTING APPLICATIONS

Dryer (drying of rubber stamps)



Surface treatment



Vaporisation after fabric printing (vaporiser)



## Incinerators and post-combustion burners

## FC

Range code 21DNFAMWRF



- Direct ignition by electrode or by dedicated pilot (on demand)
- UV cell flame detection
- Standard executions for natural gas and LPG, other fuels on request
- Operation: modulating (gas) or high-low flame
- Complete version with gas train according to EN 746-2 (other regulations if required) and control panel

**MAIN APPLICATIONS**

- Ceramics industry: post-combustors and atomizers.
- Steel industry: incineration of fumes from heat treatments or metal melting ovens.
- Surfaces treatment: incineration of fumes from paint and solvent evaporation.
- Environment: municipal solid waste leachate treatment ovens with reduced calorific value.
- In general, all types of installation where post-combustion or incineration of flue gas produced by industrial installations is required.

FC gas burner series has been developed specifically for a wide range of industrial plant systems requiring the incineration of the gases/vapours produced (needing fume-processing before being exhausted in the environment).

These burners are able to operate with natural gas, LPG and lean gases (on request).

Burner operation can be automatic or semiautomatic, with direct ignition by electrode and UV flame detection.

FC burner series covers a firing range between 12 kW and 5.860 kW. For a correct and performing combustion, these burners require compliance to the following specifics:

- inlet fumes temperature up to 1.050 °C
- outlet fumes temperature up to 1.600 °C
- inlet fumes speed between 10 m/s and 20 m/s
- inlet fumes oxygen content  $\geq 18\%$  (if not possible, oxygen content can be increased by adding clean air from the environment.)

In case of inlet fumes containing combustible substances, it is possible to use such compounds as fuel, without the need of an external supply.

The ignition electrode is fitted on the fuel lance and can be withdrawn from the back of the assembly in order to allow easy maintenance.

The burner structure is extremely resistant to heat and chemical attacks as it is entirely made of Nickel-Chromium alloys.

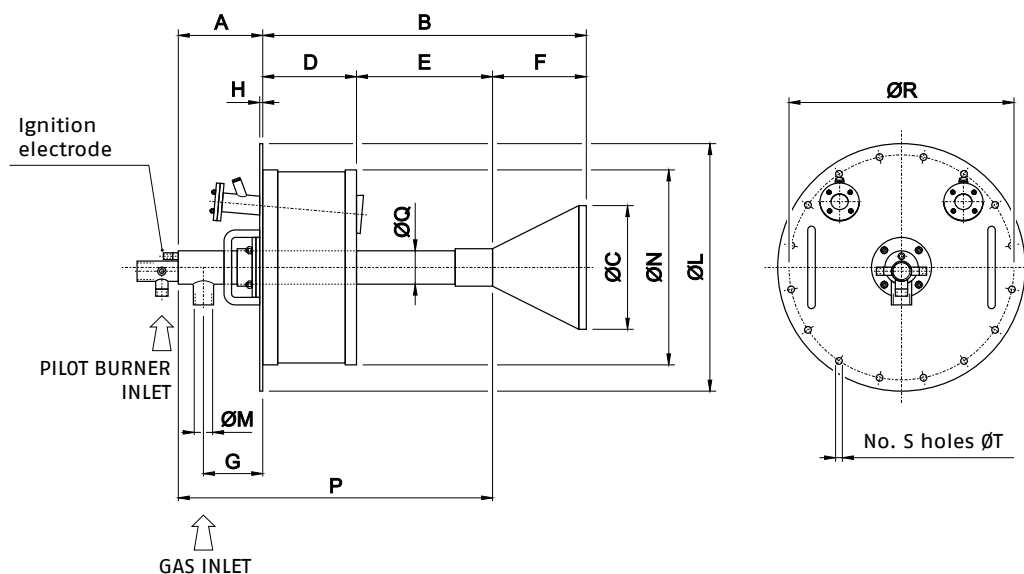
## TECHNICAL DATA

Description	Burner output		Code
	kW	Mcal/h	
FC 1	12÷110	10÷100	On demand
FC 2	15÷230	13÷195	On demand
FC 3	15÷350	13÷300	On demand
FC 4	28÷580	24÷500	On demand
FC 5	44÷870	38÷750	On demand
FC 6	50÷1,170	43÷1,000	On demand
FC 7	70÷1,460	60÷1,500	On demand
FC 8	90÷1,750	77÷1,750	On demand
FC 9	120÷2,340	103÷2,010	On demand
FC 10	150÷2,930	129÷2,520	On demand
FC 11	200÷3,810	172÷3,270	On demand
FC 12	230÷4,690	198÷4,030	On demand
FC 13	250÷5,860	215÷5,000	On demand

## SERVICES FOR BURNERS

Burner range	Description service	Code
FC	Installation advice	27017470
	Commissioning and adjustment	27017474
	Performance Check	27017475
	Regular maintenance	27017483, 27017484
	Intervention on request (4h)	27017485
	Intervention on request (8h)	27017486
	Maintenance and repair plan	27017489, 27017490
	Commissioning and adjustment with initial regular maintenance package	27017497, 27017498

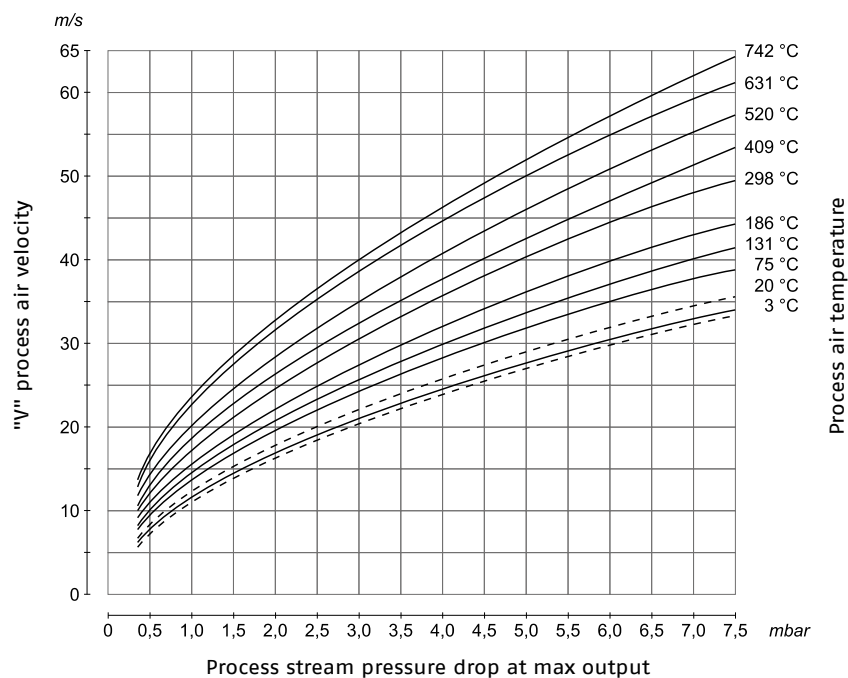
## OVERALL DIMENSIONS



Description	A mm	B mm	ØC	D mm	E mm	F mm	G mm	H mm	ØL	ØM	ØN mm	P mm	ØQ	ØR	S mm	ØT
FC 1	200	615	158	200	285	130	150	6	508	1"	400	685	63,5	450	16	14
FC 2	245	660	201	200	290	170	195	6	560	1"½	450	735	76,2	510	16	14
FC 3	245	765	304	250	295	220	195	8	610	1"½	500	790	88,9	560	16	14
FC 4	245	843	330	250	343	250	195	8	660	1"½	520	838	88,9	600	16	18
FC 5	275	928	356	250	413	265	225	8	712	2"	572	938	88,8	652	20	18
FC 6	300	1026	386	300	430	296	250	8	762	DN65	622	1030	88,8	702	20	18
FC 7	350	1005	436	300	380	325	250	8	812	DN65	672	1030	101,6	752	20	18
FC 8	380	1130	520	300	460	370	280	8	864	DN80	724	1140	101,6	804	24	18
FC 9	400	1220	570	300	500	420	300	8	914	DN80	774	1200	101,6	854	24	18
FC 10	400	1280	624	300	500	480	300	10	1016	DN100	876	1200	114,3	956	24	18
FC 11	400	1300	720	300	500	500	300	10	1118	DN100	978	1200	141,3	1058	28	18
FC 12	400	1400	820	300	580	520	300	12	1220	DN100	1080	1280	141,3	1160	28	18
FC 13	400	1510	910	300	640	570	300	12	1250	DN100	1110	1340	141,3	1190	28	18

## PRESSURE LOSS DIAGRAMS

Performance values are considered at maximum burner power. Pressure values are indicative; gas pressure values refer to the use of natural gas and LPG.



Description	FC
Minimum burner output (referred to $\Delta p = 5$ mbar)	12 kW - (10 Mcal/h)
Maximum burner output	5.860 kW - (5.000 Mcal/h)
Fuel	CH <sub>4</sub> /LPG
Combustion head materials	Ni-Cr alloy
Flame length (*)	1,000 mm
Gas supply pressure	40 mbar
Inlet fumes max. temperature	1050 °C
Outlet fumes max. temperature	1,600 °C

(\*) The flame length is closely influenced by the process air speed; the values indicated refer to a combustion air speed of 20 m/s. Technical specifications and overall dimensions are indicative.

## EXISTING APPLICATIONS

Incinerator (reduction of pollutants in the process air)



Incinerator (reduction of pollutants in the process air)



Thermal recuperative post-burner (reduction of pollutants in the process air)









## PROCESS LIGHT OIL BURNERS



## STANDARD NOx EMISSIONS

## ONE-STAGE



## RIELLO 40 F

- Convection ovens (rotary or fixed tray type)
- Bedplate ovens
- Conduction ovens
- Radiant heat ovens
- Continuous, tunnel and steam tube ovens

page 124



## GULLIVER RGF

- Industrial ovens
- Paint booths
- Low-power steam boilers

page 133

## ONE-STAGE MOBILE APPLICATIONS (24V)



## RIELLO 40 G 24V

- Machines for road applications
- Mobile air heaters
- Industrial high pressure cleaners

page 128

## TWO-STAGE



## GULLIVER RGDF

- Industrial ovens
- Paint booths
- Low-power steam boilers

page 138

Light oil light-process burners

## RIELLO 40 F

Range code 11AA0BAWRF

PROCESS GAS BURNERS



- One-stage light oil burners for light process applications
- Complete with nozzle and light oil flexible hoses
- Robust structure, aluminium body and metal sheet cover for component protection
- Ease of installation
- Flange coupling system in maintenance position
- Combustion air calibration through fixed damper
- Electrical protection level IP X0D (IP 40)

### MAIN APPLICATIONS

- Convection ovens (rotary or fixed tray type)
- Bedplate ovens
- Conduction ovens
- Radiant heat ovens
- Continuous, tunnel and steam tube ovens

PROCESS LIGHT OIL BURNERS

Riello 40 F series of One-stage light oil burners, is a complete range of products developed to respond to any request for light industrial applications.

Riello 40 F series is available in three different models, with an output ranging from 30 to 202 kW, divided in three different structures.

All models use the same components designed by Riello for Riello 40 G series.

The high quality level guarantees safe working. In developing these burners, special attention was paid to reducing noise, to the ease of installation and adjustment and to obtain the smallest size possible to fit into any sort of boiler available on the market.

All models are approved by the EN 267 European Standard and compliant with European Directives for EMC, Low Voltage, Machinery and Boiler Efficiency. All Riello 40 F burners are fired before leaving the factory.

GAS TRAINS

# TECHNICAL DATA

Description	Heat output		Electric power supply Ph/V/Hz	Total electrical power kW	Code
	kW	kg/h			
<b>F5</b>	30÷60	2,5÷5	1/230/50	0.13	<b>3451083</b>
<b>F5</b>	30÷60	2,5÷5	1/220/60	0.18	<b>3746159</b>
<b>F10</b>	54÷107	4,5÷9	1/230/50	0.17	<b>3452083</b>
<b>F10</b>	54÷107	4,5÷9	1/220/60	0.20	<b>3746260</b>
<b>F20</b>	95÷202	8÷17	1/230/50	0.32	<b>3452783</b>
<b>F20</b>	95÷213	8÷18	1/220/60	0.40	<b>3747260</b>

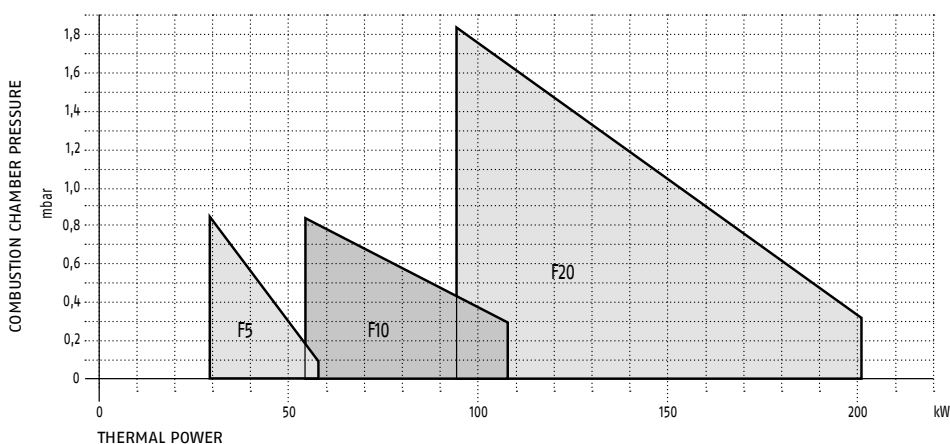
Net calorific value of light oil: 11,8 kWh/kg - Viscosity at 20°C: 4÷6 mm²/s (cSt)

The burners comply with the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 267 Standard.

# SERVICES FOR BURNERS

Burner range	Description service	Code
<b>RIELLO 40 F</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

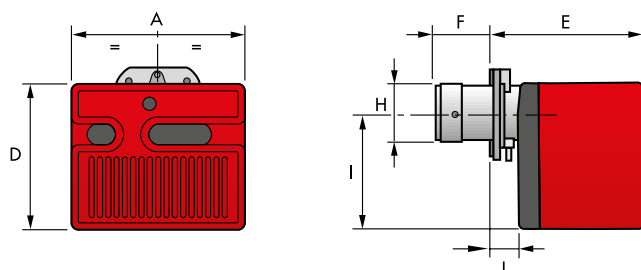
# FIRING RATES



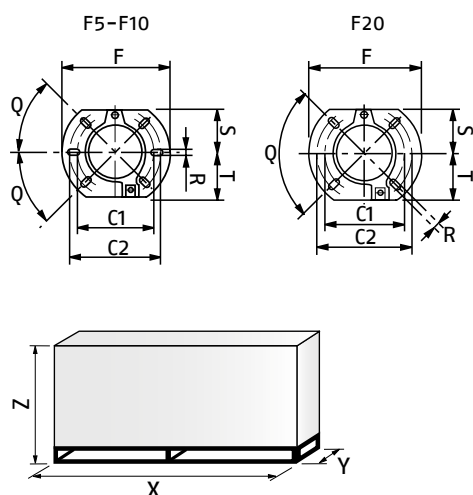
USEFUL FIRING RATES FOR CHOOSING THE BURNER

TEST CONDITIONS  
CONFORMING TO EN267  
Temperature: 20 °C  
Pressure: 1013.5 mbar  
Altitude: 0 m a.s.l.

## OVERALL DIMENSIONS



Description	A mm	D mm	E mm	F mm	H mm	I mm	L mm
<b>F5</b>	272	233	240	72	89	180	41
<b>F10</b>	305	262	265	104	105	204	44
<b>F20</b>	350	298	299	118	125	230	45



Description	C1 mm	C2 mm	F mm	Q mm	R mm	S mm	T mm
<b>F5</b>	130	150	180	45°	11	72	75
<b>F10</b>	140	170	189	45°	11	83	83
<b>F20</b>	160	190	213	90°	11	99	99


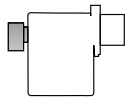



Description	X mm	Y mm	Z mm	Net weight kg
<b>F5</b>	383	315	325	12
<b>F10</b>	423	348	340	13
<b>F20</b>	483	393	377	16

## ACCESSORIES

Drawing	Burner model	Specification	Notes	Code
		<b>EXTENDED HEAD KIT</b> 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. Standard head length = 72 mm - Extended head length = 107 mm		<b>3000638</b>
	F5	Standard head length = 104 mm - Extended head length = 168 mm		<b>3000643</b>
	F10	Standard head length = 104 mm - Extended head length = 250 mm		<b>3000770</b>
	F20	Standard head length = 118 mm - Extended head length = 178 mm		<b>3000644</b>
	F20	Standard head length = 118 mm - Extended head length = 260 mm		<b>3000771</b>
		<b>SPACER KIT</b> Using the special accessories, the burner can be pulled back to reduce head penetration into the combustion chamber.		
	F5	Spacer thickness = 25 mm		<b>3000642</b>
	F10	Spacer thickness = 25 mm		<b>3000672</b>
	F20	Spacer thickness = 15 mm	(1)	<b>20103452</b>
		<b>INLET AIR ASPIRATION KIT</b> This kit allows to channel the external air directly into the burner.		
	F5	Kit code for inlet air aspiration.	(2)	<b>20027574</b>
	F10	Kit code for inlet air aspiration.	(2)	<b>20027577</b>
	F20	Kit code for inlet air aspiration.	(2)	<b>20027580</b>

(1) The application of this accessory does not allow the use of the burner head opening hinge.

(2) By applying this kit, the combustion air is drawn in from outside, so there can be significant setting variations with respect to the original configuration and the instructions on the burner manual, therefore it is recommended to adjust combustion according to the kit instruction.

Drawing	Burner model	Specification	Notes	Code
	All models	<b>HOUR COUNTER KIT FOR 530 SE AND 531 SE CONTROL BOXES</b> To measure the burner working time a hour counter kit is available.		<b>3000904</b>
	All models	<b>REMOTE CONTROL RELEASE KIT FOR 530 SE CONTROL BOX</b> The 530 SE control box can be remotely released using an electric command kit. This kit must be installed in conformity with current regulations in force.		<b>3001030</b>
	All models	<b>LIGHT OIL FILTER</b> For cleaning light oil from dirty particles and impurities filters with the following features are available. Filtering degree 60 µm (Filter made up of aluminium body and stainless steel filtering cartridge; available singularly).		<b>3006561</b>
	All models	Filtering degree 60 µm (Filter made up of aluminium cover, plastic tank and nylon filtering cartridge; available in packaging of 50 pieces).		<b>3075011</b>
	All models	<b>LIGHT OIL FILTER/DEGASSING UNIT</b> To solve problems of air or water in the oil circuit a special filter/degassing unit is available, made up of aluminium cover, plastic tank, stainless steel filtering cartridge, air release cap and water purge valve. It is available singularly. Filtering degree 100 µm.		<b>3000926</b>
	All models	<b>7-POLE SOCKET KIT FOR 530 SE AND 531 SE CONTROL BOXES</b> For burner without pre installed socket a 7-pole socket kit with cable is available.		<b>3001065</b>
	All models	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).		<b>3000945</b>

## DESIGNATION OF SERIES

Series:		F
Size:		
Electrical supply to the system:		1/230/50      1/230V/50Hz
		1/220/60      1/220V/60Hz
F	S	1/230/50

## STATE OF SUPPLY

Completely automatic monobloc light oil burners, One-stage operation, made up of:

- Fan with forward curve blades
- Metallic cover
- Fixed air damper with adjustment
- Single phase electric motor 230 V, 50 Hz
- Combustion head fitted with:
  - stainless steel head cone, resistant to high temperatures
  - ignition electrodes
  - flame stability disk
- Geared pump for fuel supply, fitted with:
  - filter
  - pressure regulator
  - attachments for fitting a pressure gauge and vacuum meter
  - internal by-pass for preparing for single-pipe installations
- Fuel feed solenoid valve incorporated in the pump
- Photocell for flame detection
- Electronic flame control equipment
- Light oil nozzle
- IP X0D (IP 40) protection level.

## STANDARD EQUIPMENT

- Two flexible pipes for connection to the light oil supply line
- Two nipples for connection to the pump
- Flange, screws and nuts for fixing
- Thermal screen
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Light oil burners for mobile applications

## RIELLO 40 G 24V

Range code 11AA0AAWRF



- One-stage light oil burners for light process applications
- Complete with nozzle and light oil flexible hoses
- Robust structure, aluminium body and metal sheet cover for component protection
- Ease of installation
- Flange coupling system in maintenance position
- Adjustable air damper fully closed when the burner is not in operation
- Motor with 24V DC power supply
- Electrical protection level IP X0D (IP 40)

### MAIN APPLICATIONS

- Machines for road applications
- Mobile air heaters
- Industrial high pressure cleaners

Riello 40 G 24V series of one-stage light oil burners, is a complete range of products developed to respond to any request for mobile applications.

Riello 40 G 24V series is available in three different models, with an output ranging from 29 to 201 kW, divided into four different structures.

All models use the same components designed by Riello for the traditional Riello 40 G series.

The high quality level guarantees safe working.

In developing these burners, special attention was paid to reducing noise, to the ease of installation and adjustment, obtaining the smallest size possible to fit into any sort of boiler available on the market.

All models are approved by EN 267 European Standard and are compliant with European Directives for EMC, Low Voltage, Machinery and Boiler Efficiency.

All burners are fired before leaving the factory.

## TECHNICAL DATA

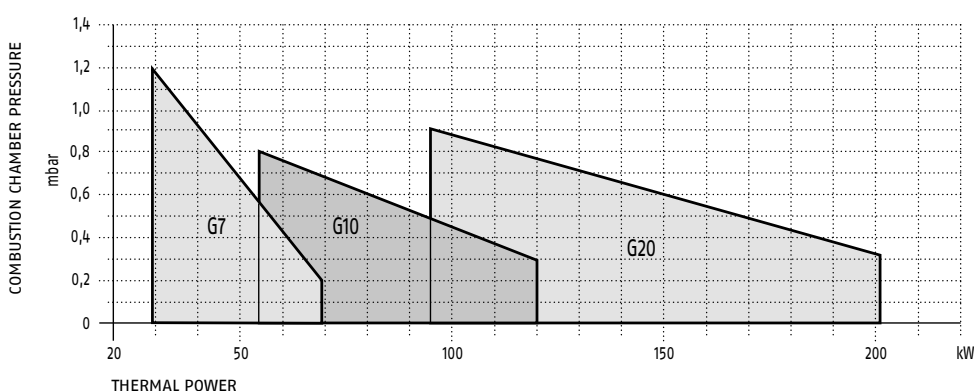
Description	Heat output		Electric power supply	Total electrical power kW	Notes	Code
	kW	kg/h				
<b>G7 24V</b>	29÷69	2.45÷5.8	24V DC	0.3	(1)(2)(3)	<b>20030878</b>
<b>G10 24V</b>	54÷120	4.5÷10.0	24V DC	0.3	(1)(2)(3)(4)	<b>20045709</b>
<b>G20 24V</b>	95÷201	8.0÷17.0	24V DC	0.3	(1)(2)(3)	<b>20030873</b>

- (1) Burner compatible with the use of light oil (max. viscosity at 20 °C: 4÷6 mm<sup>2</sup>/s).  
 (2) Burner compatible with the use of light oil and biofuel mixtures (FAME, in accordance with EN 14214) up to a maximum of 10%.  
 (3) Burner compatible with the use of kerosene (max. viscosity at 20 °C: 1,6÷6 mm<sup>2</sup>/s)  
 (4) The burner leaves the factory with the nozzle already fitted, model: Delavan W 60° - 1.75 GPH.

## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>RIELLO 40 G 24V</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

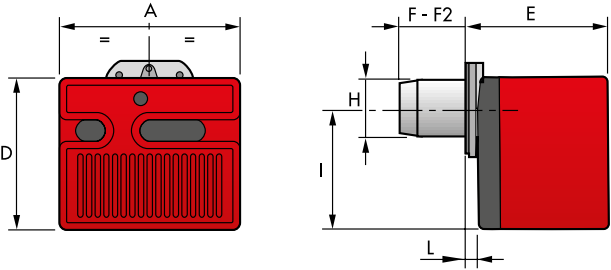
## FIRING RATES



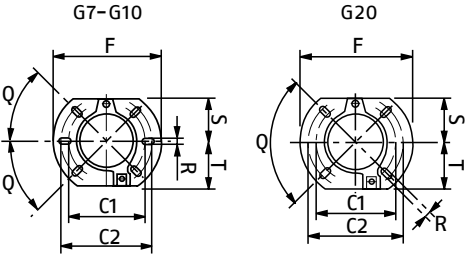
USEFUL FIRING RATES FOR CHOOSING THE BURNER

TEST CONDITIONS  
 CONFORMING TO EN267  
 Temperature: 20 °C  
 Pressure: 1013.5 mbar  
 Altitude: 0 m a.s.l.

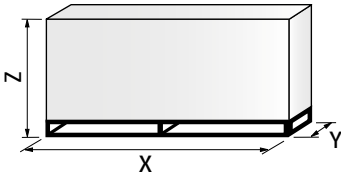
OVERALL DIMENSIONS



Description	A mm	D mm	E mm	F mm	H mm	I mm	L mm
<b>G7 24V</b>	305	262	261	73	89	204	40
<b>G10 24V</b>	305	262	261	108-260	105	204	40
<b>G20 24V</b>	350	298	295	118-260	125	230	41



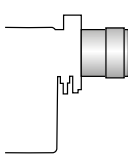
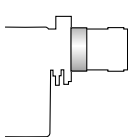


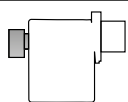



Description	C1 mm	C2 mm	F mm	Q	R mm	S mm	T mm
<b>G7 24V</b>	140	170	189	45°	11	83	83
<b>G10 24V</b>	140	170	189	45°	11	83	83
<b>G20 24V</b>	160	190	213	90°	11	99	99



Description	X mm	Y mm	Z mm	Net weight kg
<b>G7 24V</b>	423	348	340	13
<b>G10 24V</b>	423	348	340	13
<b>G20 24V</b>	483	393	377	16



## ACCESSORIES

Drawing	Burner model	Specification	Notes	Code
		<b>EXTENDED HEAD KIT</b> 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.		
	G10 24V	Standard head length = 108 mm - Extended head length = 168 mm		<b>3000643</b>
	G10 24V	Standard head length = 108 mm - Extended head length = 250 mm		<b>3000770</b>
	G20 24V	Standard head length = 118 mm - Extended head length = 178 mm		<b>3000644</b>
	G20 24V	Standard head length = 118 mm - Extended head length = 260 mm		<b>3000771</b>
		<b>SPACER KIT</b> Using the special accessories, the burner can be pulled back to reduce head penetration into the combustion chamber.		
	G7 24V	Spacer thickness = 25 mm		<b>3000642</b>
	G10 24V	Spacer thickness = 25 mm		<b>3000672</b>
	G20 24V	Spacer thickness = 15 mm	(1)	<b>20103452</b>
		<b>INLET AIR ASPIRATION KIT</b> This kit allows to channel the external air directly into the burner.		
	G7-G10 24V	Kit code for inlet air aspiration.	(2)	<b>20027577</b>
	G20 24V	Kit code for inlet air aspiration.	(2)	<b>20027580</b>
	All models	<b>HOUR COUNTER KIT FOR 530 SE AND 531 SE CONTROL BOXES</b> To measure the burner working time a hour counter kit is available.		<b>3000904</b>
	All models	<b>REMOTE CONTROL RELEASE KIT FOR 530-531 CONTROL BOXES</b> The 530-531 control boxes can be remotely released using an electric command kit. This kit must be installed in conformity with current regulations in force.		<b>3001030</b>
	All models	<b>LIGHT OIL FILTER</b> For cleaning light oil from dirty particles and impurities filters with the following features are available. Filtering degree 60 µm (Filter made up of aluminium body and stainless steel filtering cartridge; available singularly).		<b>3006561</b>
	All models	Filtering degree 60 µm (Filter made up of aluminium cover, plastic tank and nylon filtering cartridge; available in packaging of 50 pieces).		<b>3075011</b>
	All models	<b>LIGHT OIL FILTER/DEGASSING UNIT</b> To solve problems of air or water in the oil circuit a special filter/degassing unit is available, made up of aluminium cover, plastic tank, stainless steel filtering cartridge, air release cap and water purge valve. It is available singularly. Filtering degree 100 µm.		<b>3000926</b>
	All models	<b>7-POLE SOCKET KIT FOR 530 SE AND 531 SE CONTROL BOXES</b> For burner without pre installed socket a 7-pole socket kit with cable is available.		<b>3001065</b>
	All models	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).		<b>3000945</b>

(1) The application of this accessory does not allow the use of the burner head opening hinge.

(2) By applying this kit, the combustion air is drawn in from outside, so there can be significant setting variations with respect to the original configuration and the instructions on the burner manual, therefore it is recommended to adjust combustion according to the kit instruction.

## DESIGNATION OF SERIES

Series:	G
Size:	S Natural Gas
Possible variations:	R Light-oil pre-heater
	K Cone shaped head
	S Reduced output ignition
	D Two-stage output setting
Head length:	... Standard head
	TL Extended head
Electrical supply to the system:	1/230/50 1/230V/50Hz
	1/220/60 1/220V/60Hz
	24 V 24V DC

G	10			24V
---	----	--	--	-----

## STATE OF SUPPLY

Completely automatic monobloc light oil burners, One-stage operation, made up of:

- Fan with forward curve blades
- Metallic cover lined with sound-proofing material
- Air damper, completely closed in stand by, with adjustment
- 24VDC electric motor
- Combustion head fitted with:
  - stainless steel head cone, resistant to high temperatures
  - ignition electrodes
  - flame stability disk
- Geared pump for fuel supply, fitted with:
  - filter
  - pressure regulator
  - attachments for fitting a pressure gauge and vacuum meter
  - internal by-pass for preparing for single-pipe installations
- Fuel feed solenoid valve incorporated in the pump
- Photocell for flame detection
- Electronic flame control equipment
- Light oil nozzle
- IP X0D (IP 40) protection level
- Fuel pre-heater (optional)
- Reduced output ignition mechanism (optional).

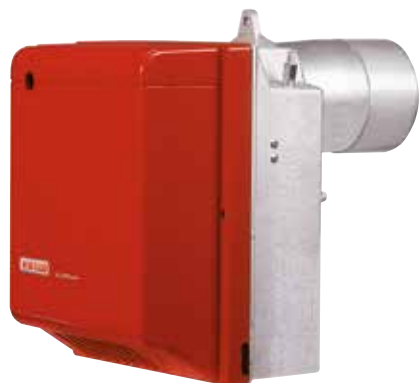
## STANDARD EQUIPMENT

- Two flexible pipes for connection to the light oil supply line
- Two nipples for connection to the pump
- Flange, screws and nuts for fixing
- Thermal gasket
- 7-pin plug (on request)
- Maintenance assembly
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Light oil light-process burners

## GULLIVER RGF

Range code 11AC0BAWRF



- One-stage light oil burners for light process applications
- Ease of maintenance
- Simplified calibration: air regulator with external gear
- High flexibility of use and adaptability to the operating conditions
- Complete with nozzle and flexible hoses for light oil

### MAIN APPLICATIONS

- Industrial ovens
- Paint booths
- Low-power steam boilers

Riello Gulliver RGF series of One-stage light oil burners, is a complete range of products developed to respond to any request for light industrial processes like bakery ovens, spray painting ovens, small steam or thermal boilers and all applications requiring a reliable, user-friendly industrial product with enhanced performance and specific functions.

Gulliver RGF series is available in four different models, with an output ranging from 32 to 237 kW, divided in three different structures.

All models share the majority of the components with the traditional Riello Gulliver RG series (including the ventilation system), maintaining the same overall dimensions.

This series can operate on 50 or 60 Hz and 220–230 V (dual frequency).

All these burners are compliant with EN 267 Standard (Forced draught oil burners) and to European Directives for EMC, Low Voltage and Machinery.

For depressurised working field please refer to EN 746–2 Standard.

All burners are fired before leaving the factory.

## TECHNICAL DATA

Description	Heat output		Electric power supply Ph/V/Hz	Total electrical power kW	Code
	kW	kg/h			
<b>RG1F</b>	32÷60	2.7÷5	1/220-230/50-60	0,155 (at 50Hz) - 0,200 (at 60 Hz)	<b>3736370</b>
<b>RG2F</b>	47÷119	4÷10	1/220-230/50-60	0,165 (at 50Hz) - 0,220 (at 60 Hz)	<b>3737770</b>
<b>RG3F</b>	83÷178	7÷15	1/220-230/50-60	0,380 (at 50Hz) - 0,520 (at 60 Hz)	<b>3739380</b>
<b>RG4F</b>	118.5÷237	10÷20	1/220-230/50-60	0,370 (at 50Hz) - 0,510 (at 60 Hz)	<b>3739680</b>

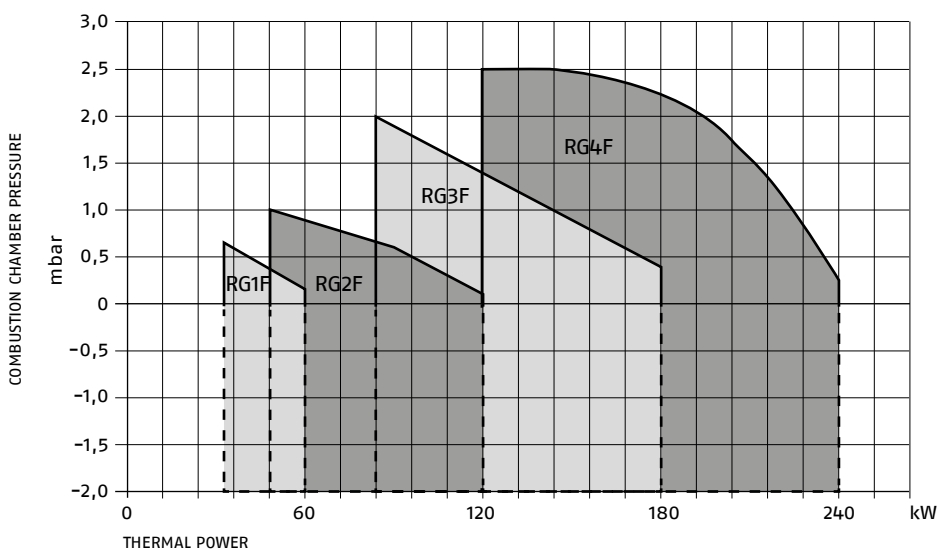
Net calorific value of light oil: 11,8 kWh/kg - Viscosity at 20°C: 4÷6 mm<sup>2</sup>/s (cSt)

The burners comply with the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 267 Standard.

## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>GULLIVER RGF</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

## FIRING RATES



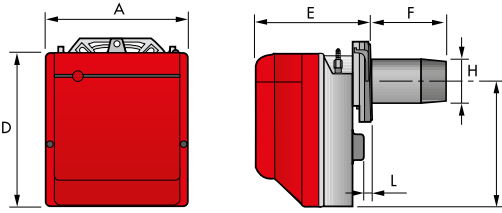
USEFUL FIRING RATES FOR CHOOSING THE BURNER

TEST CONDITIONS  
CONFORMING TO EN267  
Temperature: 20 °C  
Pressure: 1013.5 mbar  
Altitude: 0 m a.s.l.

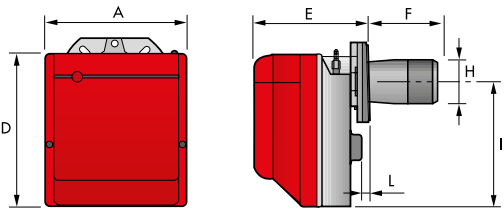
IMPORTANT:  
For the part of the working field that is depressurised, refer to EN 746-2 Standard.

OVERALL DIMENSIONS

RG1F

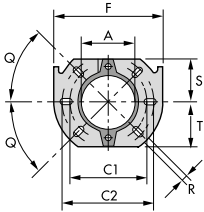


RG2F-RG3F-RG4F

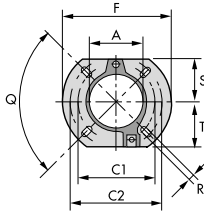


Description	A mm	D mm	E mm	F mm	H mm	I mm	L mm
<b>RG1F</b>	234	254	196	93	84	210	4
<b>RG2F</b>	255	280	202	115	95	230	10
<b>RG3F</b>	300	345	228	142	123	285	12
<b>RG4F</b>	300	345	228	142	125	285	12

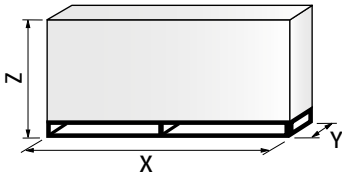
RG1F-RG2F



RG3F-RG4F

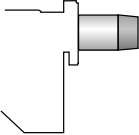
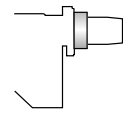





Description	A mm	C1 mm	C2 mm	F mm	Q	R mm	S mm	T mm
<b>RG1F</b>	91	130	150	180	45°	11	72	72
<b>RG2F</b>	106	140	168	189	45°	11	83	83
<b>RG3F</b>	127	160	190	213	90°	11	99	99
<b>RG4F</b>	127	160	190	213	90°	11	99	99



Description	X mm	Y mm	Z mm	Net weight kg
<b>RG1F</b>	353	278	320	13
<b>RG2F</b>	363	298	350	13
<b>RG3F</b>	430	345	430	15
<b>RG4F</b>	430	345	430	18

## ACCESSORIES

Drawing	Burner model	Specification	Code
		<b>EXTENDED HEAD KIT</b> 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.	
	RG1F	Standard head length = 93 mm - Extended head length = 163 mm	<b>3000963</b>
	RG2F	Standard head length = 115 mm - Extended head length = 180 mm	<b>3000964</b>
	RG2F	Standard head length = 115 mm - Extended head length = 300 mm	<b>3000967</b>
	RG3F	Standard head length = 142 mm - Extended head length = 210 mm	<b>3000965</b>
	RG3F	Standard head length = 142 mm - Extended head length = 300 mm	<b>3000968</b>
	RG4F	Standard head length = 142 mm - Extended head length = 210 mm	<b>3000966</b>
	RG4F	Standard head length = 142 mm - Extended head length = 300 mm	<b>3000969</b>
		<b>SPACER KIT</b> Using the special accessories, the burner can be pulled back to reduce head penetration into the combustion chamber.	
	RG1F	Spacer thickness = 15 mm	<b>3007931</b>
	RG2F	Spacer thickness = 25 mm	<b>3000672</b>
	RG3F-RG4F	Spacer thickness = 15 mm	<b>20103452</b>
	RG1F	<b>PRE-HEATER KIT</b> This kit is used only for Gulliver RG1F burner. It can be installed in special atmospheric conditions (low temperatures), with high diesel oil viscosity and with low deliveries.	<b>3001083</b>
	All models	<b>LIGHT OIL FILTER</b> For cleaning light oil from dirty particles and impurities filters with the following features are available. Filtering degree 60 µm (Filter made up of aluminium body and stainless steel filtering cartridge; available singularly).	<b>3006561</b>
	All models	Filtering degree 60 µm (Filter made up of aluminium cover, plastic tank and nylon filtering cartridge; available in packaging of 50 pieces).	<b>3075011</b>
	All models	<b>LIGHT OIL FILTER/DEGASSING UNIT</b> To solve problems of air or water in the oil circuit a special filter/degassing unit is available, made up of aluminium cover, plastic tank, stainless steel filtering cartridge, air release cap and water purge valve. It is available singularly. Filtering degree 100 µm.	<b>3000926</b>
	All models	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).	<b>3000945</b>

## DESIGNATION OF SERIES

Series:	R	Standard emission burner
	B	Low NOx burners
Fuel:	S	Natural Gas
	G	Light-oil
Size:		
	Possible variations:	F Light industrial processes
Head length:	...	Standard head
	TL	Extended head
Electrical supply to the system:		
		1/220-230/50-60 1/220-230V/50-60Hz

R	G	4	F		1/230/50
---	---	---	---	--	----------

## STATE OF SUPPLY

Completely automatic monobloc light oil burners, with One-stage operation fitted with:

- Fan with forward curve blades
- Cover lined with sound - proofing material
- Air damper, always open in stand by, with external adjustment, without need to remove the cover
- Single phase electric motor 220 - 230 V, 50 - 60 Hz
- Combustion head fitted with:
  - stainless steel head cone, resistant to high temperatures
  - ignition electrodes
  - flame stability disk
- Geared pump for fuel supply, fitted with:
  - filter
  - pressure regulator
  - attachments for fitting a pressure gauge and vacuum meter
  - internal by-pass for preparing for single-pipe installations
- Fuel feed solenoid valve incorporated in the pump
- Photocell for flame detection
- Electronic flame control equipment
- Light oil nozzle
- IP X0D (IP 40) protection level.

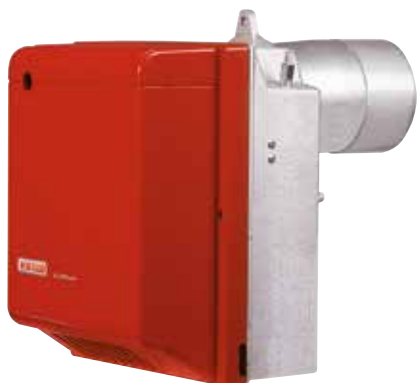
## STANDARD EQUIPMENT

- Flange with insulating gasket
- Screw and nuts for flange
- 7-pin plug
- Screw and nuts for flange to be fixed to the heat generator
- Flexible oil pipes with nipples
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Light oil light-process burners

## GULLIVER RGDF

Range code 11ACOGAWRF



- Two-stage light oil burners for light process applications
- Ease of maintenance
- Simplified calibration: air regulator with external gear
- High flexibility of use and adaptability to the operating conditions
- Complete with nozzle and flexible hoses for light oil

### MAIN APPLICATIONS

- Industrial ovens
- Paint booths
- Low-power steam boilers

Riello Gulliver RG5DF is a new model of two-stage light oil burner, developed to respond to any request for light industrial processes like bakery ovens, spray painting ovens, small steam or thermal boilers and all applications requiring a reliable, user-friendly industrial product with enhanced performance and specific functions.

All models share the majority of the components with the traditional Riello Gulliver RGD series (including the ventilation system), maintaining the same overall dimensions.

This burner can operate on 50 or 60 Hz and 220-230 V (dual frequency).

It is compliant with EN 267 Standard (Forced draught oil burners) and to European Directives for EMC, Low Voltage and Machinery. For depressurised working field please refer to EN 746-2 Standard.

All burners are fired before leaving the factory.



## TECHNICAL DATA

Description	Heat output		Electric power supply Ph/V/Hz	Total electrical power kW	Code
	kW	kg/h			
<b>RG5DF</b>	95/142÷296	8/12÷25	1/220-230/50-60	0,4 (at 50 Hz) - 0,575 (at 60 Hz)	<b>3739870</b>

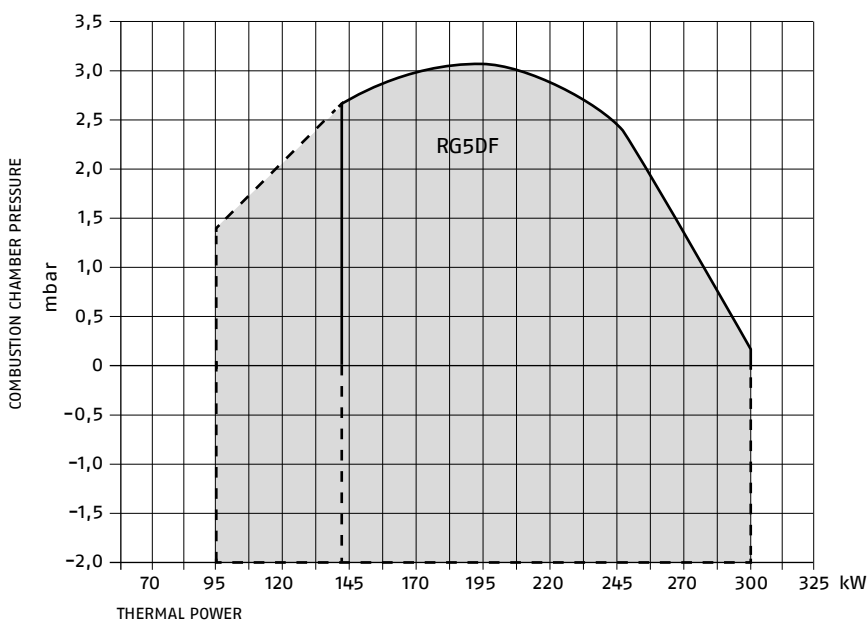
Net calorific value of light oil: 11,8 kWh/kg - Viscosity at 20°C: 4÷6 mm<sup>2</sup>/s (cSt)

The burners comply with the 2014/30/EU - 2014/35/EU - 2006/42/EC Directives and the EN 267 Standard.

## SERVICES FOR BURNERS

Burner range	Description service	Code
<b>GULLIVER RGDF</b>	Installation advice	<b>27017470</b>
	Commissioning and adjustment	<b>27017471</b>
	Performance Check	<b>27017475</b>
	Regular maintenance	<b>27017480</b>
	Intervention on request (4h)	<b>27017485</b>
	Intervention on request (8h)	<b>27017486</b>
	Maintenance and repair plan	<b>27017487</b>
	Commissioning and adjustment with initial regular maintenance package	<b>27017495</b>

## FIRING RATES

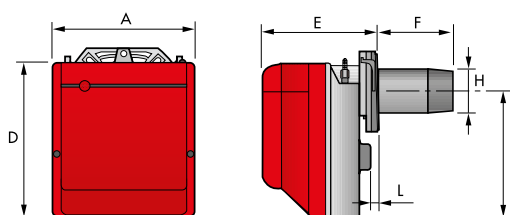


- USEFUL FIRING RATES FOR CHOOSING THE BURNER
- 1<sup>ST</sup> STAGE OPERATION RANGE

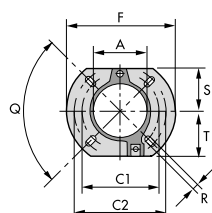
TEST CONDITIONS  
CONFORMING TO EN267  
Temperature: 20 °C  
Pressure: 1013,5 mbar  
Altitude: 0 m a.s.l.

IMPORTANT:  
For the part of the working field that is depressurised, refer to EN 746-2 Standard.

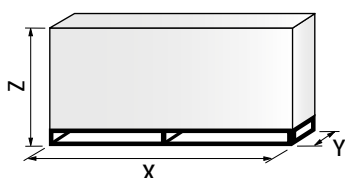
## OVERALL DIMENSIONS



Description	A mm	D mm	E mm	F mm	H mm	I mm	L mm
<b>RG5DF</b>	300	345	247	159	125	285	12.5



Description	A mm	C1 mm	C2 mm	F mm	Q	R mm	S mm	T mm
<b>RG5DF</b>	127	198	160	190	213	45°	11	99



Description	X mm	Y mm	Z mm	Net weight kg
<b>RG5DF</b>	510	345	440	18

## ACCESSORIES

Drawing	Burner model	Specification	Code
	RG5DF	<b>EXTENDED HEAD KIT</b> 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. Standard head length = 159 mm - Extended head length = 300 mm	<b>3000981</b>
	RG5DF	<b>SPACER KIT</b> Using the special accessories, the burner can be pulled back to reduce head penetration into the combustion chamber. Spacer thickness = 15 mm	<b>20103452</b>
	RG5DF	<b>LIGHT OIL FILTER</b> For cleaning light oil from dirty particles and impurities filters with the following features are available. Filtering degree 60 µm (Filter made up of aluminium body and stainless steel filtering cartridge; available singularly).	<b>3006561</b>
	RG5DF	Filtering degree 60 µm (Filter made up of aluminium cover, plastic tank and nylon filtering cartridge; available in packaging of 50 pieces).	<b>3075011</b>
	RG5DF	<b>LIGHT OIL FILTER/DEGASSING UNIT</b> To solve problems of air or water in the oil circuit a special filter/degassing unit is available, made up of aluminium cover, plastic tank, stainless steel filtering cartridge, air release cap and water purge valve. It is available singularly. Filtering degree 100 µm.	<b>3000926</b>
	RG5DF	<b>7-PIN PLUG KIT</b> If necessary a 7-pin plug kit is available (in packaging of n. 5 pieces).	<b>3000945</b>

## DESIGNATION OF SERIES

Series:	R	Standard emission burner
	B	Low NOx burners
Fuel:	S	Natural Gas
	G	Light-oil
Size:		
Possible variations:	D	Two-stage output setting
	F	Light industrial processes
Electrical supply to the system:		
		1/220-230/50-60    1/220-230V/50-60Hz

R	G	5	FD	1/230/50
---	---	---	----	----------

## STATE OF SUPPLY

Completely automatic monobloc light oil burners, with Two-stage operation fitted with:

- Fan with forward curve blades
- Cover lined with sound-proofing material
- Air damper always open in stand-by
- Air damper, with 1st and 2nd stage adjustment (2nd stage adjustment without removing the casing)
- Single phase electric motor 220 - 230 V/ 50 - 60 Hz
- Combustion head fitted with:
  - stainless steel head cone, resistant to high temperatures
  - ignition electrodes
  - flame stability disk
- Geared pump for fuel supply, fitted with:
  - filter
  - pressure regulator
  - attachments for fitting a pressure gauge and vacuum meter
  - internal by-pass for preparing for single-pipe installations
- Fuel feed solenoid valve incorporated in the pump
- Photocell for flame detection
- Electronic flame control equipment
- Light oil nozzle
- IP X0D (IP 40) protection level.

## STANDARD EQUIPMENT

- Flange with insulating gasket
- Screw and nuts for flange
- Screws and nuts for flange to be fixed to the heat generator
- Flexible oil pipes with nipples
- 7-pin plug
- 4-pin plug
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.



# GAS TRAINS

---



PROCESS GAS BURNERS

PROCESS LIGHT OIL BURNERS

GAS TRAINS

Different types and series of gas trains are available to be used in combination with RIELLO burners; the name of each gas train provides information on: series to which it belongs, size, operation, leak detection control equipment, type of junction, electrical connection, output pressure range, valve control. The information inherent in the designation of each gas train can be easily interpreted by consulting the "gas train designation rule".

## GAS TRAIN DESIGNATION

Series:		MB					
		MBC					
		VGD					
		CB					
		CG					
Size:		405	407	410	412	415	420
		65	-	-	-	-	-
		50	65	80	100	125	-
		512	520	5065	5080	-	-
		120	220	-	-	-	-
Operation:		/S	ON-OFF operation only				
		/1	One-stage mode opening				
		/2	Two-stage mode opening				
		/P	One-stage mode opening with air/gas proportional regulator				
Leak detection control:		-	0				
		CT	leak detection control device installed on the gas train				
		CQ	equipped with pressure switch for leak detection control				
Joint type:		R	threaded joint				
		F	standard flange ISO				
		F1	square flange BS1				
		F2	square flange BS2				
		F3	square flange BS3 - BS4				
Electrical connection:		T	Terminals - Terminal strip				
		SD	Domestic plug				
		SM	Medium voltage plug				
Standard output pressure range:		-	without pressure governor				
		0	with regulator and air/gas proportional pressure				
		2	with regulator and output pressure up to 20 mbar				
		3	with regulator and output pressure up to 30 mbar				
		4	with regulator and output pressure up to 40 mbar				
		5	with regulator and output pressure up to 50 mbar				
		6	with regulator and output pressure up to 60 mbar				
		8	with regulator and output pressure up to 80 mbar				
		12	with regulator and output pressure up to 120 mbar				
		15	with regulator and output pressure up to 150 mbar				
Valve control:		0	shared				
		2	separate				

MB	407	/1	-	R	SD	2	0
BASIC DESIGNATION				EXTENDED DESIGNATION			

NOTE: in compliance with the European Standard EN 676, leak detection control devices are compulsory for burners with maximum outputs over 1200 kW.

## ONE-STAGE GAS TRAINS WITHOUT LEAK DETECTION CONTROL DEVICE

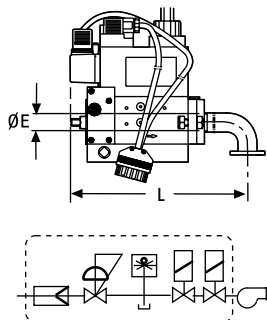
One-stage gas trains without leak detection control device include:

- gas filter
- minimum gas pressure switch
- safety valve
- one-stage adjustment valve
- pressure stabiliser

### TECHNICAL CHARACTERISTICS

- Electrical power supply: 230V/50Hz
- Activation time: 100%
- Operating ambient temperature  $-15^{\circ}\text{C}$   $+60^{\circ}\text{C}$  ( $+70^{\circ}\text{C}$  MB/1 series)
- Class A group 2
- Reference standard: DIN EN 161

### MB/1 series

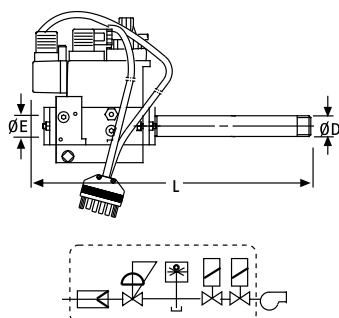


Description (1)	P. In max (mbar) (2)	P. Out (mbar) (3)	Gas network Ø E	Burner Ø D	L mm	Code
<b>MB 405/1-F1SD 20</b>	360	4-20	1/2"	fl 1	246	<b>3970546</b>
<b>MB 405/1-F2SD 20</b>	360	4-20	3/4"	fl 2	236	<b>3970547</b>
<b>MB 407/1-F2SD 20</b>	360	4-20	3/4"	fl 2	236	<b>3970544</b>
<b>MB 407/1-F3SD 20</b>	360	4-20	3/4"	fl 3	236	<b>3970548</b>
<b>MB 410/1-F3SD 20</b>	360	4-20	1" 1/4	fl 3	259	<b>3970549</b>
<b>MB 412/1-F3SD 20</b>	360	4-20	1" 1/4	fl 3	259	<b>3970550</b>
<b>MB 415/1-F3SD 30</b>	360	4-33	1" 1/2	fl 3	330	<b>3970558</b>

fl 1 Flanged connection for BS1

fl 2 Flanged connection for BS2

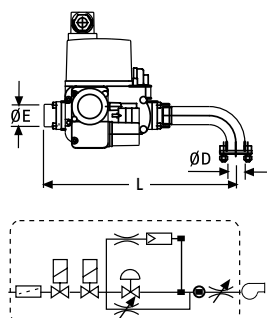
fl 3 Flanged connection for BS3-BS4-R55



Description (1)	P. In max (mbar) (2)	P. Out (mbar) (3)	Gas network Ø E	Burner Ø D	L mm	Notes	Code
<b>MB 405/1-RSD20</b>	360	4-20	1/2"	1/2"	321	(*)	<b>3970530</b>
<b>MB 407/1-RSD20</b>	360	4-20	3/4"	3/4"	371		<b>3970531</b>
<b>MB 410/1-RSD20</b>	360	4-20	1"	3/4"	405		<b>3970532</b>

(\*) Complete with 1/2" - 3/4" adapter supplied

### MBC 65/1 series



Description (1)	P. In max (mbar) (2)	P. Out (mbar) (3)	Gas network Ø E	Burner Ø D	L mm	Code
<b>MBC 65/1-RSD 20</b>	65	4-20	1/2"	1/2"	232	<b>3970569</b>
<b>MBC 65/1-F1SD 20</b>	65	4-20	1/2"	fl 1	307	<b>3970570</b>

fl 1 Flanged connection for BS1

(1) See gas train designation rule.  
 (2) Maximum train inlet gas pressure.  
 (3) Gas train outlet pressure range.

## TWO-STAGE GAS TRAINS WITHOUT LEAK DETECTION CONTROL DEVICE

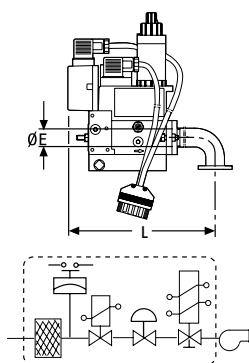
Two-stage gas trains without leak detection control device include:

- gas filter
- minimum gas pressure switch
- safety valve
- two-stage adjustment valve
- pressure stabiliser

### TECHNICAL CHARACTERISTICS

- Electrical power supply: 230V/50Hz
- Activation time: 100%
- Operating ambient temperature -15°C +60°C (+70°C MB/2 series)
- Class A group 2
- Reference standard: DIN EN 161

### MB/2 series

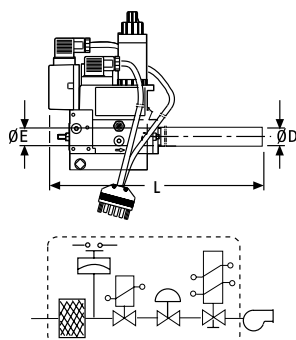


Description (1)	P. In max (mbar) (2)	P. Out (mbar) (3)	Gas network Ø E	Burner Ø D	L mm	Code
<b>MB 407/2-F3SD 20</b>	360	4-20	3/4"	fl 3	236	<b>3970541</b>
<b>MB 410/2-F3SD 20</b>	360	4-20	1" 1/4	fl 3	259	<b>3970542</b>
<b>MB 412/2-F3SD 20</b>	360	4-20	1" 1/4	fl 3	259	<b>3970543</b>
<b>MB 415/2-F3SD 20</b>	360	4-33	1" 1/2	fl 3	330	<b>3970582</b>

fl 1 Flanged connection for BS1D

fl 2 Flanged connection for BS2D

fl 3 Flanged connection for BS3D-BS4D-RS5D



Description (1)	P. In max (mbar) (2)	P. Out (mbar) (3)	Gas network Ø E	Burner Ø D	L mm	Code
<b>MB 405/2-RSD 20</b>	360	4-20	1/2"	1/2"	321	<b>3970084</b>
<b>MB 407/2-RSD 20</b>	360	4-20	3/4"	3/4"	371	<b>3970537</b>
<b>MB 410/2-RSD 20</b>	360	4-20	1"	3/4"	405	<b>3970534</b>












(1) See gas train designation rule.  
 (2) Maximum train inlet gas pressure.  
 (3) Gas train outlet pressure range.



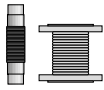
## GAS TRAIN ACCESSORIES

## GAS ADAPTERS


Adapter fitting, necessary for connecting the gas train to the burner

Drawing	Description	Specification	Code
 1/2" 3/4"	<b>Gas adapter</b>	Length = 26 mm	<b>3000842</b>
 1/2" 1" 1/2	<b>Gas adapter</b>	Length = 31 mm	<b>20044756</b>
 3/4" 1" 1/2	<b>Gas adapter</b>	Length = 31 mm	<b>3000824</b>
 1" 1/4 1" 1/2	<b>Gas adapter</b>	Length = 31 mm	<b>3010124</b>
 1" 1/4 2"	<b>Gas adapter</b>	Length = 35 mm	<b>3010126</b>
 1" 1/2 2"	<b>Gas adapter</b>	Length = 35 mm	<b>3000843</b>
 1" 1/2 3/4"	<b>Gas adapter</b>	Length = 60 mm	<b>3000823</b>
 2" 1" 1/2	<b>Gas adapter</b>	Length = 70 mm	<b>3000822</b>
 1" 1/2 2"	<b>Gas adapter</b>	Length = 65 mm	<b>20064220</b>
 2" 2"	<b>Gas adapter</b>	Length = 65 mm	<b>20042324</b>
 2" 2"	<b>Gas adapter</b>	Length = 58 mm	<b>3010495</b>

## ANTI-VIBRATING JOINTS

Drawing	Description	Specification Maximum inlet pressure 500 mbar	Code
	<b>Anti-vibrating joint GA 20</b>	Threaded joint Ø 3/4"	<b>3891033</b>
	<b>Anti-vibrating joint GA 25</b>	Threaded joint Ø 1"	<b>3891034</b>
	<b>Anti-vibrating joint GA 40</b>	Threaded joint Ø 1 1/2"	<b>3891043</b>
	<b>Anti-vibrating joint GA 50</b>	Threaded joint Ø 2"	<b>3891053</b>

## SEAL CONTROL KITS (mandatory, according to EN 676, when the maximum burner output is higher than 1200 kW )

Drawing	Description	Specification Gas valve seal control device	Notes	Code
	<b>Seal control kit</b>	For gas trains of MB/1-MB/2 series	(1)	<b>3010123</b>

(1) For 50 Hz operation, electrical protection degree: IP40.

## NOTES

## PROCESS GAS BURNERS

## PROCESS LIGHT OIL BURNERS

## GAS TRAINS

## NOTES

NOTES

PROCESS GAS BURNERS

PROCESS LIGHT OIL BURNERS

GAS TRAINS



# RIELLO

RIELLO S.p.A.  
37045 Legnago (VR)  
tel. +39 0442 630111  
fax +39 0442 630371

2021 edition

PRODUCT CATALOGUE

General Sales Conditions  
RIELLO General Sales Conditions are available at:  
<http://www.riello.it/condizioni-vendita>

**[www.riello.com](http://www.riello.com)**

Code 27018225