

## RLS 1000-1200/E-EV SERIES

The well-known RLS 300-800/E-EV MX Burner Series, till now available up to 8 MW, has been upgraded with two new powerful burner models, the RLS 1000-1200/ E-EV models that extend his max output up to 12 MW and make the Burner Series even more complete and suitable for matching with the various Heat and Steam Generators in today's market.

The New Burner Models take the reliability of combustion and the solidity typical of Riello's Burners and match them with the most advanced solutions on Power Output Control and Ventilation Technology; as result a 12 MW output is supplied with a User Friendly monoblock machine assuring easiness of installation and servicing, and safe operation.

An easy access to internal components is ensured by the burner opening hinge.

The New Dual Fuel Models are available with Modulating operation that can be managed through Electronic Cam, for great performance and efficiency, and through Variable Speed Drive technology, to obtain both low noise emissions and electrical Power Saving.

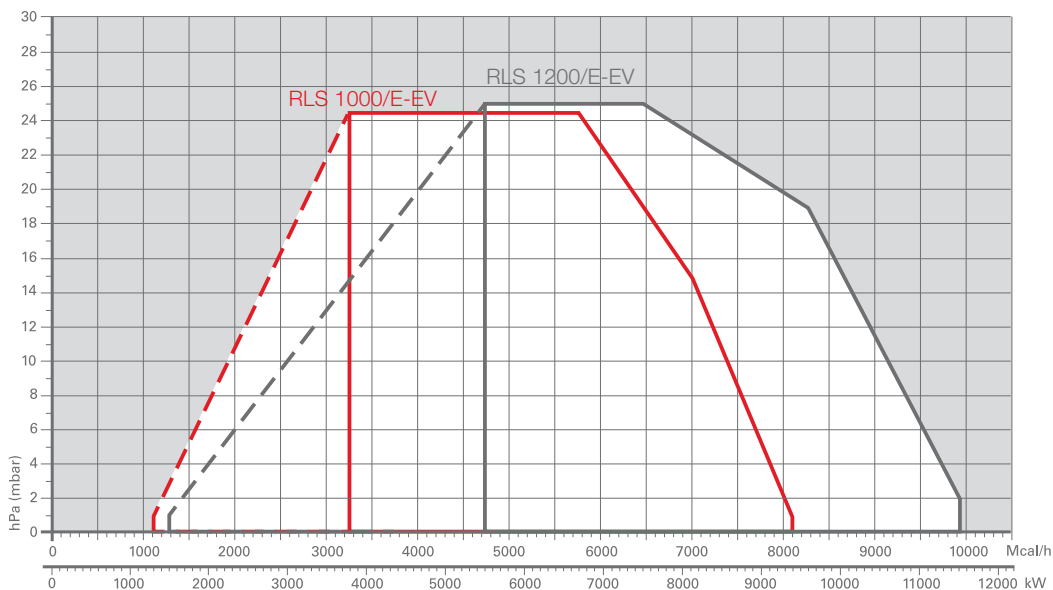
The demanded power is supplied with precision, guaranteeing high efficiency and setting stability, obtaining fuel consumption and operating costs reduction.

RLS 1000-1200/E-EV models allow, at the gas side, Low NOx environmentally friendly emissions, according to the Class 3 of EN676 European Standard.



RLS 1000/E	1300/3800 ÷ 9400 kW
RLS 1200/E	1500/5500 ÷ 11500 kW
RLS 1000/EV	1300/3800 ÷ 9400 kW
RLS 1200/EV	1500/5500 ÷ 11500 kW

### FIRING RATES



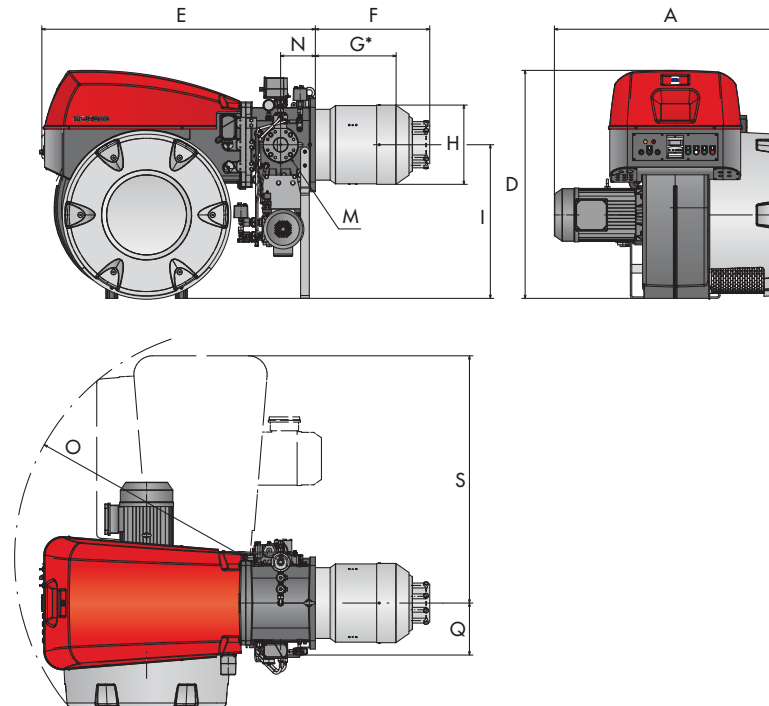
Useful working field for choosing the burner  
 Modulation range  
 Test conditions conforming to EN676  
 Temperature: 20°C  
 Pressure: 1013,5 mbar  
 Altitude: 0 m a.s.l.

# Low NOx Modulating Dual Fuel Burners

## RLS 1000-1200/E-EV SERIES

### Overall dimensions (mm)

#### BURNER

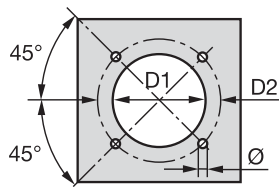


#### BURNER - BOILER MOUNTING FLANGE

MODEL	A	D	E	F	G*	H	I	M	N	O	Q	S
▶ RLS 1000/E-EV	1223	1311	1574	674	485	413	884	DN80	200	1330	299	1422
▶ RLS 1200/E-EV	1293	1311	1574	658	464	456	884	DN80	200	1330	299	1422

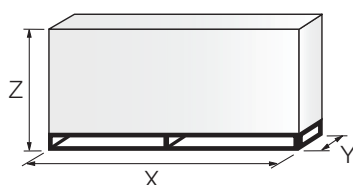
\* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

#### BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RLS 1000/E-EV	418	608	M20
▶ RLS 1200/E-EV	470	608	M20

#### PACKAGING



MODEL	X	Y	Z	kg
▶ RLS 1000/E-EV	2400	1400	1595	550
▶ RLS 1200/E-EV	2400	1400	1595	600

# Low NOx Modulating Dual Fuel Burners

## RLS 1000-1200/E-EV SERIES

# Specification

## 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 /B Two stage /M Modulating - Mechanical cam /P Proportioning air/gas valve /E Electronic cam /EV Electronic cam predisposed for variable speed (with inverter)
Emission:	C11 or ... Class 1 EN267 - EN676 C22 or MZ Class 2 EN267 - EN676 C33 or BLU Class 3 EN267 - EN676 C23 or MX Class 2 EN267 - Class 3 EN676 C13 Class 1 EN267 - Class 3 EN676
Head length:	TC standard head TL extended head
Flame control system:	FS1 Standard (1 stop every 24 h) FS2 Continuous working (1 stop every 72 h)
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/50-60Hz 110/50-60 110V/50-60Hz

R	LS	1200	/E	C13	TC	FS1	3/400/50	230/50-60
BASIC DESIGNATION					EXTENDED DESIGNATION			

# Low NOx Modulating Dual Fuel Burners

## RLS 1000-1200/E-EV SERIES

### Specification

#### STATE OF SUPPLY

Monoblock forced draught gas burner with modulating operation, fully automatic, made up of:

- High performance fan with reverse curve blades
- Air suction circuit lined with sound-proofing material
- Air damper for air setting controlled by a high precision servomotor
- Air pressure switch
- Fan starting motor at 2800 rpm, three-phase 230/400 - 400/690 V with neutral, 50Hz
- Separate light oil pump
- Low emission combustion head, that can be set on the basis of required output, fitted with:
  - stainless steel end cone, resistant to corrosion and high temperatures
  - ignition pilot burner with gas train
  - flame stability disk
- Maximum gas pressure switch, with pressure test point, for halting the burner in the case of over pressure on the fuel supply line
- Module for air/fuel setting and output modulation with incorporated PID control of temperature or pressure of the heat generator (LMV 51.100 on RLS/E, LMV 52 on RLS/EV)
- Burner safety control included on Electronic Cam device
- Infrared flame detector
- Star/triangle starter for the fan motor
- Main electrical supply terminal board
- Burner on/off switch
- Auxiliary voltage led signal
- Burner working led signal
- Contacts motor and thermal relay with release button
- Motor internal thermal protection
- Motor failure led signal
- Burner failure led signal and lighted release button
- Emergency button
- Coded connection plugs-sockets
- Burner opening hinge
- Lifting rings
- IP 54 electric protection level
- Gears pump for high pressure fuel supply
- Pump starting motor
- Oil safety valves
- Valve unit with double oil safety valve on the output circuit and double safety valve on the return circuit
- Oil/Gas selector
- Flame inspection window.

#### Standard equipment:

- 1 flange gasket
- 4 screws for fixing the flange
- 1 thermal screen
- 4 screws for fixing the burner flange to the boiler
- 2 flexible pipes for connection to the oil supply network
- 2 nipples for connection to the pump with gaskets
- Seal control pressure switch (for installation on gas train)
- DN 80 gas supply connector for gas train connection
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

## RLS 1000-1200/E-EV SERIES

### Available models

#### Burners

CODE	MODEL	HEAT OUTPUT			TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
		(kW)	LIGHT OIL (kg/h)	NATURAL GAS (Nm <sup>3</sup> /h)			
20034416	RLS 1000/E C13 TC FS1 3/400/50 230/50-60	1300/3800-9400	110/320-793	130/380-940	26 (oil) 23 (gas)	in progress	(1)
20034412	RLS 1200/E C13 TC FS1 3/400/50 230/50-60	1500/5500-11500	126/464-970	150/550-1150	31 (oil) 27 (gas)	in progress	(1)
20034417	RLS 1000/E C13 TC FS1 3/400/50 230/50-60	1300/3800-9400	110/320-793	130/380-940	26 (oil) 23 (gas)	in progress	(1)
20034421	RLS 1200/E C13 TC FS1 3/400/50 230/50-60	1500/5500-11500	126/464-970	150/550-1150	31 (oil) 27 (gas)	in progress	(1)

Net calorific value light oil: 11,8 kWh/kg; 10.200 kcal/kg - Viscosity at 20°C: 4-6 mm<sup>2</sup>/s (cSt).

Net calorific value G20 gas: 10 kWh/Nm<sup>3</sup>; 8.600 kcal/Nm<sup>3</sup> - Density: 0,71 kg/Nm<sup>3</sup>.

The burners of RLS/E-EV series are in according to 2009/142 EC - 89/336 (2004/108) - 73/23 (2006/95) - 92/42 EC Directive and EN 267 - 676 Norm.

(1) - The burners are factory set for FS1 operation (1 stop every 24 h) but they can be switched to FS2 operation (continuous - 1 stop every 72 h) by changing the parameters through the AZL unit menu.

#### Gas Trains

GAS TRAIN CODE*	GAS TRAIN MODEL	NATURAL GAS BURNER (type)	ADAPTER (code)	NOTE
3970221	MBC 1200 SE 50	RLS 1000/E-EV	3000826	(1)
3970146	CB 50/1			(1)
3970222	MBC 1900 SE 65 FC	RLS 1000-1200/E-EV	3010221	(1)
3970147	CBF 65/1			(1)
3970223	MBC 3100 SE 80 FC	RLS 1000-1200/E-EV	3010222	(1)
3970148	CBF 80/1			(1)
3970224	MBC 5000 SE 100 FC	RLS 1000-1200/E-EV	3010223	(1)
3970149	CBF 100/1			(1)

\* gas train are 230V/50Hz - 220V/60Hz electrical supply

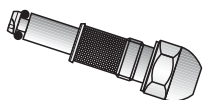
(1) Gas Train without seal control. The seal control function is managed by LMV control box, by installation on gas train of pressure switch supplied, as standard equipment, with the burner. To select the gas train please refer to the technical data leaflet and/or instruction manual.

# Low NOx Modulating Dual Fuel Burners

## RLS 1000-1200/E-EV SERIES

### Burner accessories

#### Nozzles



The oil nozzle must be ordered separately as accessory; for more information please contact Riello Burners Commercial and Technical Department, our Application Engineers will be pleased to help you.

#### Accessories for modulating operation

The Module for air/fuel setting (LMV 51.100 on RLS/E, LMV 52 on RLS/EV) includes the output modulation with incorporated PID control of temperature or pressure of the heat generator.

The relative temperature or pressure probe fitted to the regulator must be chosen as accessory on the basis of the application.



BURNER	PROBE TYPE	RANGE (°C) (bar)	CODE
► All models	Temperature PT 100	-100 ÷ 500°C	3010110
	Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214

#### Display and Operating Unit (AZL)



The AZL, Display and Operating Unit, is included in RLS 1000-1200/E-EV models. This tool is needed for combustion system commissioning and monitoring. A specific version with Russian language is available as accessory.

BURNER	KIT CODE
► All models *	3010469

\* for Russian language only

#### Variable Speed Drive (VSD) for RLS/EV series only



The motor speed variation for the RLS/EV burners series is obtained thanks to a frequency converter: variable speed drive (VSD). It always must be ordered with RLS/EV series.

BURNER	MAX POWER (kW)	KIT CODE
► RLS 1000/EV	22	3010468
► RLS 1200/EV	30	20030338

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### Burner accessories

#### Kit efficiency with oxygen control kit (for RS/EV only)



The kit includes two temperature sensors: one for air and one for exhaust gas detection. They must be wired to oxygen control kit interface to allow the LMV 52 efficiency calculation. The value is showed on AZL display.

BURNER	KIT CODE
► All models	3010377

#### PC Interface Software (ACS 450)



PC tool for convenient programming and burner settings, process visualization, data recording, selection of AZL language, software update AZL.

BURNER	CODE
► All models	3010388

#### Oxygen Control kit (QGO<sub>2</sub>) for RS/EV series only



The QGO<sub>2</sub> is an oxygen analyzer with relevant probe which controls and supervises the residual oxygen content in exhaust gases.

BURNER	KIT CODE
► All models	3010378

#### Sound proofing box



If noise emission needs reducing even further, sound-proofing boxes are available.

BURNER	AVERAGE NOISE REDUCTION [dB(A)] (*)	BOX CODE
► All models	10	3010401

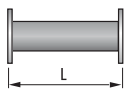
(\*) according to EN 15036-1 standard

# Low NOx Modulating Dual Fuel Burners

## RLS 1000-1200/E-EV SERIES

### Gas train accessories

#### Adapters



In certain cases, an adapter must be fitted between the gas train and the burner, when the diameter of the gas train is different from the set diameter of the burner. Below are given the adapters that can be fitted on the various burners:

BURNER	GAS TRAIN	ADAPTER TYPE	DIMENSIONS	L mm	ADAPTER CODE
► All models	CB 50/1 MBC 1200 SE 50	I	2"  DN 80	300	3000826
	CBF 65/1 MBC 1900 SE 65 FC	I	DN 65  DN 80	400	3010221
	CBF 65/1 MBC 1900 SE 65 FC	I	DN 65  DN 80	10	3010369
	CBF 80/1 MBC 3100 SE 80 FC	I	DN 80  DN 80	400	3010222
	CBF 100/1 MBC 5000 SE 100 FC	I	DN 100  DN 80	400	3010223
	CBF 100/1 MBC 5000 SE 100 FC	I	DN 100  DN 80	50	3010370

#### Stabiliser spring



To vary the pressure range of the gas train stabilisers, accessory springs are available. The following table shows these accessories with their application range. Please refer to the technical manual for the correct choice of spring.

GAS TRAIN	SPRING	SPRING CODE
► MBC 1900 SE 65 FC ► MBC 3100 SE 80 FC MBC 5000 SE 100 FC	White from 4 to 20 mbar	3010381
	Red from 20 to 40 mbar	3010382
	Black from 40 to 80 mbar	3010383
	Green from 80 to 150 mbar	3010384
► CBF 65/1 - CBF 80/1	Red from 25 to 55 mbar	3010133
► CBF 100/1	Red from 25 to 55 mbar	3010134
► CBF 65/1 - CBF 80/1	Black from 60 to 110 mbar	3010135
► CBF 100/1	Black from 60 to 110 mbar	3010136
► CBF 65/1 - CBF 80/1	Pink from 100 to 150 mbar	3090456
► CBF 100/1	Pink from 100 to 150 mbar	3090489