

## RLS 500÷800/M MX SERIES

RLS/M MX burners are characterised by a modular monoblock structure that means all necessary components can be combined in a single unit thus making installation easier, faster and, above all, more flexible.

The series covers a firing range from 1120 to 8000 kW, and it has been designed for use in hot water boilers, overheated water boilers as well as steam boilers.

Operation can be “two stage progressive” or alternatively “modulating”, for both fuels, light oil and gas, with the installation of a PID logic regulator .

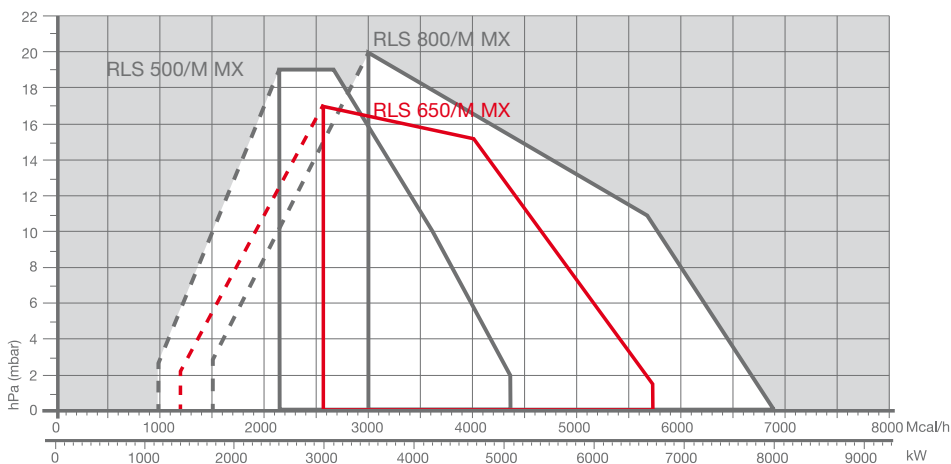
The mechanical cam device of regulation allows to catch up a high modulation ratio on all firing rates range. The burners can, therefore, supply with precision the demanded power, guaranteeing a high efficiency system level and the stability setting, obtaining fuel consumption and operating costs reduction.

The combustion head guarantees reduced polluting emissions (NOx < 80 mg/kWh on gas operation). An exclusive design guarantees low sound emissions, low electrical consumption, easy use and maintenance.



RLS 500/M MX	1120/2500 ÷ 5050 kW
RLS 650/M MX	1430/3000 ÷ 6550 kW
RLS 800/M MX	1750/3500 ÷ 8000 kW

### FIRING RATES



Useful working field for choosing the burner



Modulation range

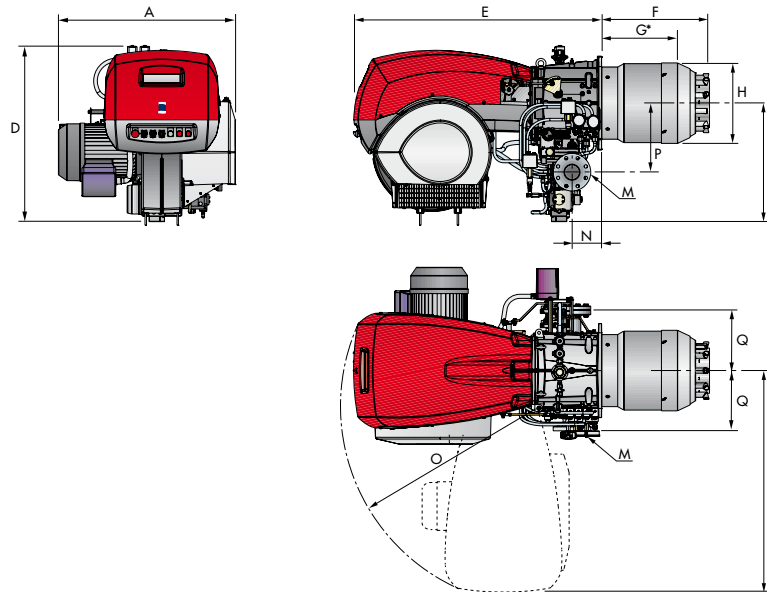
Test conditions conforming to EN267-EN676  
 Temperature: 20°C  
 Pressure: 1013,5 mbar  
 Altitude: 0 m a.s.l.

# Low NOx Modulating Dual Fuel Burners

## RLS 500÷800/M MX SERIES

### Overall dimensions (mm)

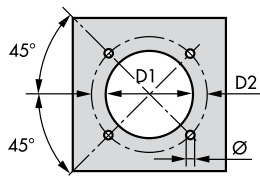
#### BURNER



MODEL	A	D	E	F	G*	H	I	M	N	O	P	Q	S
▶ RLS 500/M MX	900	890	1325	544	390	370	605	DN80	164	1055	342	320	1175
▶ RLS 650/M MX	880	950	1325	562	360	410	630	DN80	164	1055	427	320	1190
▶ RLS 800/M MX	940	937	1325	558	382	428	630	DN80	164	1055	427	320	1190

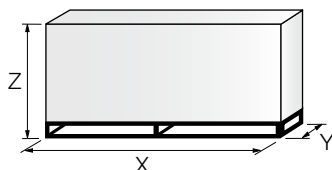
\* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

#### BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RLS 500/M MX	390	452	M18
▶ RLS 650/M MX	440	495	M18
▶ RLS 800/M MX	440	495	M18

#### PACKAGING



MODEL	X	Y	Z	kg
▶ RLS 500/M MX	1960	970	1100	280
▶ RLS 650/M MX	2035	1195	1130	320
▶ RLS 800/M MX	2035	1195	1130	320

# Low NOx Modulating Dual Fuel Burners

## RLS 500÷800/M MX SERIES

# Specification

## DESIGNATION OF SERIES

Series : R										
Fuel : S Natural gas										
L Light oil										
LS Light oil / Natural gas										
N Heavy oil										
Size										
Operation : /1 One stage										
/B Two stage										
/M Modulating - Mechanical cam										
/E Electronic cam										
/P Proportioning air/gas valve										
/EV Electronic cam predisposed for variable speed (with inverter)										
Emission : ... Class 1 EN267 - EN676										
MZ Class 2 EN267 - EN676										
BLU Class 3 EN267 - EN676										
MX Class 2 EN267										
Class 3 EN676										
Head : 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 3/220V/60Hz - 3N/380V/60Hz										
Auxiliary voltage :										
230/50-60 230V/50-60Hz										
110/50-60 110V/50-60Hz										
R	LS	300	/M	MX	TC	FS1	3/400/50	230/50-60		
BASIC DESIGNATION										
EXTENDED DESIGNATION										

# Low NOx Modulating Dual Fuel Burners

## RLS 500÷800/M MX SERIES

### Specification

#### STATE OF SUPPLY

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

- High performance fan with forward 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, 400V, 50Hz
- 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 electrodes
  - ignition by gas pilot with gas train for RLS 650 and RLS 800 models
  - flame stability disk
- Mechanical cam with gas and oil modulator
- Maximum gas pressure switch, with pressure test point, to stop the burner in the case of over pressure on the fuel supply line
- Flame control panel for controlling the system safety - 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
- Light oil gears pump for high pressure fuel supply
- Dedicated pump starting motor
- Valve unit with double oil safety valve on the output circuit and double safety valve on the return circuit
- Maximum an minimum oil pressure switches
- Oil pressure gauges on supply and return oil lines
- 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)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

## RLS 500÷800/M MX 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)			
3899612	RLS 500/M MX TC FS1 3/400/50 230/50-60	1120/2500-5050	95/211-426	112/250-505	15 (oil) 13 (gas)	CE 0085CL0207	(1)
20026139	RLS 650/M MX TC FS1 3/400/50 230/50-60	1430/3000-6550	121/253÷552	143/300÷655	23,5 (oil) 19,5 (gas)	CE 0085CL0422	(2)
3911112	RLS 800/M MX TC FS1 3/400/50 230/50-60	1750/3500-8000	148/295-675	175/350-800	26 (oil) 24 (gas)	CE 0085CL0422	(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>.

(1) according to 90/396 - 89/336 (2004/108) - 73/23 (2006/95) - 92/42 EC Directive and EN 267 - 676 Norm.

(2) according to 2009/142 EC - 73/23 (2006/95) EC - 89/336 (2004/108) - 92/42 EC Directive and EN 267 - 676 Norm.

#### Gas Trains

GAS TRAIN CODE*	GAS TRAIN MODEL	NATURAL GAS BURNER (type)	ADAPTER (code)	NOTE
3970222	MBC 1900 SE 65 FC	RLS 500-650-800/M MX	3010221	(1)
3970147	CBF 65/1			(1)
3970226	MBC 1900 SE 65 FC CT	RLS 500-650-800/M MX	3010221	(2)
3970161	CBF 65/1 CT			(2)
3970223	MBC 3100 SE 80 FC	RLS 500-650-800/M MX	3010222	(1)
3970148	CBF 80/1			(1)
3970227	MBC 3100 SE 80 FC CT	RLS 500-650-800/M MX	3010222	(2)
3970162	CBF 80/1 CT			(2)
3970224	MBC 5000 SE 100 FC	RLS 500-650-800/M MX	3010223	(1)
3970149	CBF 100/1			(1)
3970228	MBC 5000 SE 100 FC CT	RLS 500-650-800/M MX	3010223	(2)
3970163	CBF 100/1 CT			(2)

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

(1) without seal control

(2) seal control included

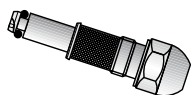
To select the gas train please refer to the technical data leaflet and/or instruction manual.

# Low NOx Modulating Dual Fuel Burners

## RLS 500÷800/M MX SERIES

### Burner accessories

#### Nozzles



Return nozzles without needle are used on RLS/M MX burners. The nozzle must be ordered as accessory. The following table shows the features and codes on the basis of the maximum required fuel output.

BURNER	NOZZLE TYPE	RATED DELIVERY (kg/h)	NOZZLE CODE
▶ RLS 500/M MX	N2	350	3045495
▶ RLS 500/M MX	N2	400	3045499
▶ RLS 500/M MX	N2	450	3045501
▶ RLS 500/M MX	N2	500	3045503
▶ RLS 650/M MX	N2	350	3045495
▶ RLS 650/M MX	N2	450	3045501
▶ RLS 650/M MX	N2	550	3045505
▶ RLS 650/M MX	N2	600	3045507
▶ RLS 800/M MX	B5	375	3009332
▶ RLS 800/M MX	B5	550	3009346
▶ RLS 800/M MX	B5	650	3009352
▶ RLS 800/M MX	B5	750	3009356

#### Accessories for modulating operation

##### POWER CONTROLLER



To obtain modulating operation, the RLS/M MX series of burners requires a regulator.

BURNER	REGULATOR TYPE	REGULATOR CODE
▶ RLS 500-650-800/M MX	RWF 40 Basic version with 3 position output	3010356
▶ RLS 500-650-800/M MX	RWF 40 High version with additional modulating output and RS 485 Interface	3010357

##### PROBE



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

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

##### ANALOG CONTROL SIGNAL CONVERTER



BURNER	TYPE (INPUT SIGNAL)	CODE
▶ All models	0/2 - 10 V (impedance 200 KΩ) 0/4 - 20 mA (impedance 250 Ω)	3010390

## Burner accessories

### POTENTIOMETER



BURNER	KIT CODE
All models	3010402

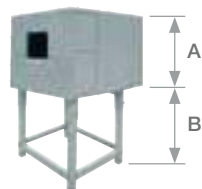
It is necessary for analogic control signal converter operation.

### Fuel remote selection kit



BURNER	KIT CODE
► All models	3010372

### Sound proofing box



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

BURNER	BOX TYPE	A (mm)	B (mm) min-max	[dB(A)] (*)	BOX CODE
► All models	C7	1255	160 - 980	10	3010376

(\*) Average noise reduction according to EN 15036-1 standard

### Spacer kit



If burner head penetration into the combustion chamber needs reducing, varying thickness spacers are available, as given in the following table:

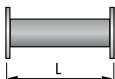
BURNER	SPACER THICKNESS S (mm)	KIT CODE
► All models	180	20008903

# Low NOx Modulating Dual Fuel Burners

## RLS 500÷800/M MX 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 than can be fitted on the various burners:

BURNER	GAS TRAIN	ADAPTER TYPE	DIMENSIONS	L mm	ADAPTER CODE
▶ All models	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

\* with and without seal control

#### 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 (CT)* ▶ MBC 3100 SE 80 FC (CT)* MBC 5000 SE 100 FC (CT)*	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

\* with and without seal control

#### Seal control



BURNER	GAS TRAIN	CODE
▶ All models	MBC type	3010367
▶ All models	CB-CBF type	3010125