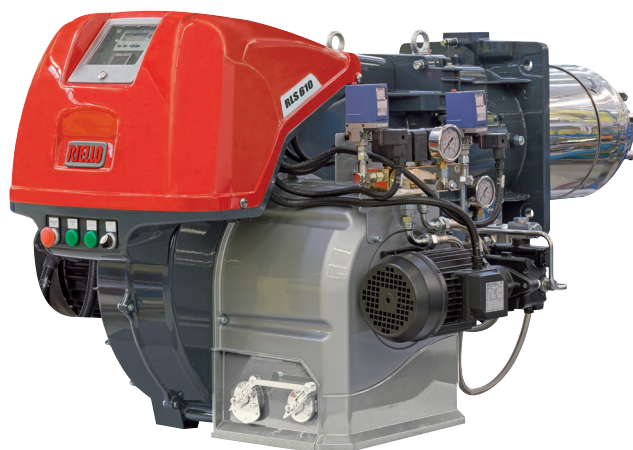


RLS 310÷610/E MX SERIES

The RLS/E-MX series of 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 1200 to 6155 kW, and they have been designed for use in hot water boilers, overheated water boilers as well as steam boilers. They are equipped with Siemens LMV26, which is able to manage the air-fuel ratio by independent servomotors in order to obtain a perfect output control and to assure a correct combustion and safe operation on all modulation range. 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 burner can, therefore, supply with precision the demanded power, guaranteeing an high efficiency system level and the stability setting, obtaining fuel consumption and operating costs reduction.

The combustion head guarantees reduced polluting emissions ($\text{NO}_x < 60 \text{ mg/kWh}$ on gas operation). An exclusive design guarantees low sound emissions, low electrical consumption, easy use and maintenance.

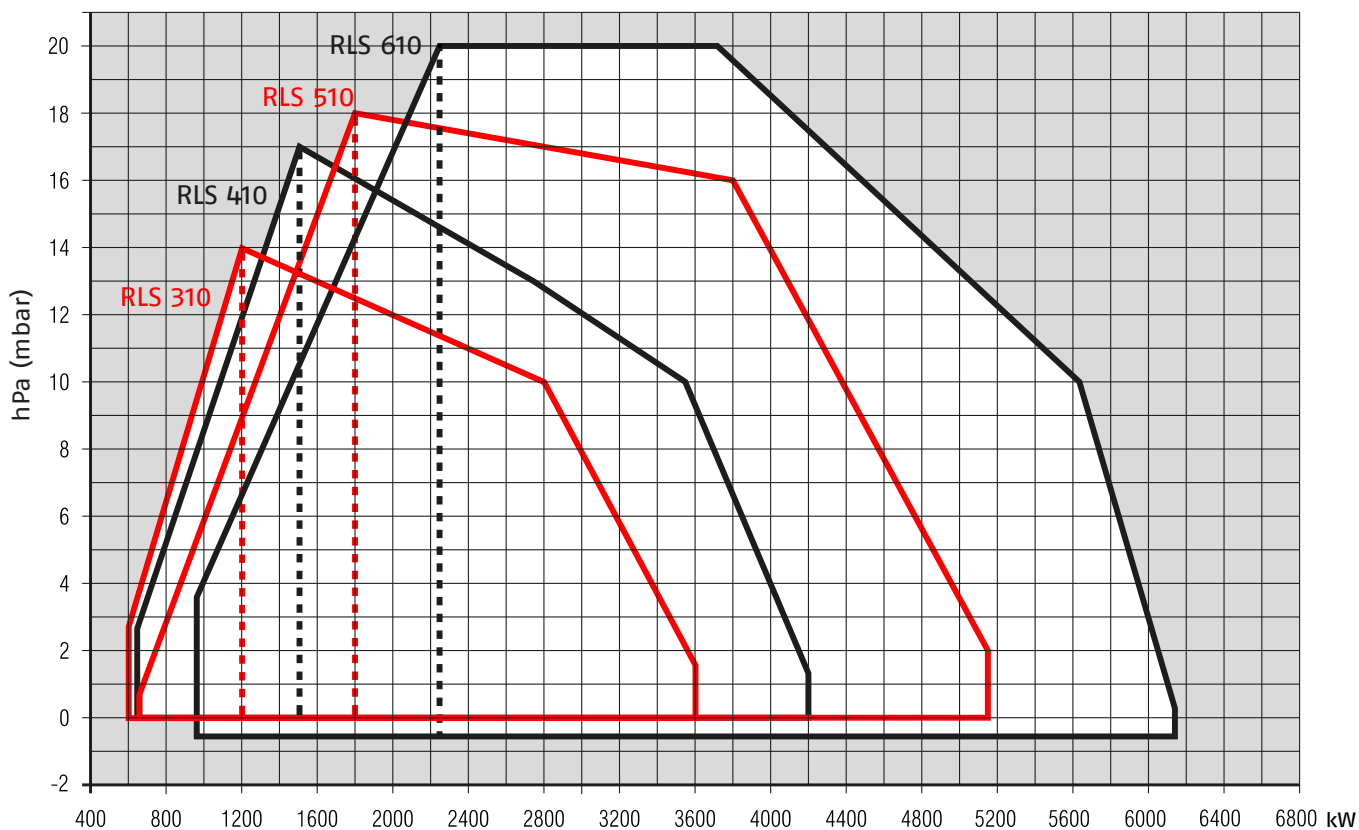


RLS 310/E MX	600/1200 ÷ 3600 kW
RLS 410/E MX	640/1500 ÷ 4200 kW
RLS 510/E MX	660/1800 ÷ 5170 kW
RLS 610/E MX	1000/2200 ÷ 6155 kW

Low NOx Modulating Dual Fuel Burners

RLS 310-610/E MX SERIES

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.

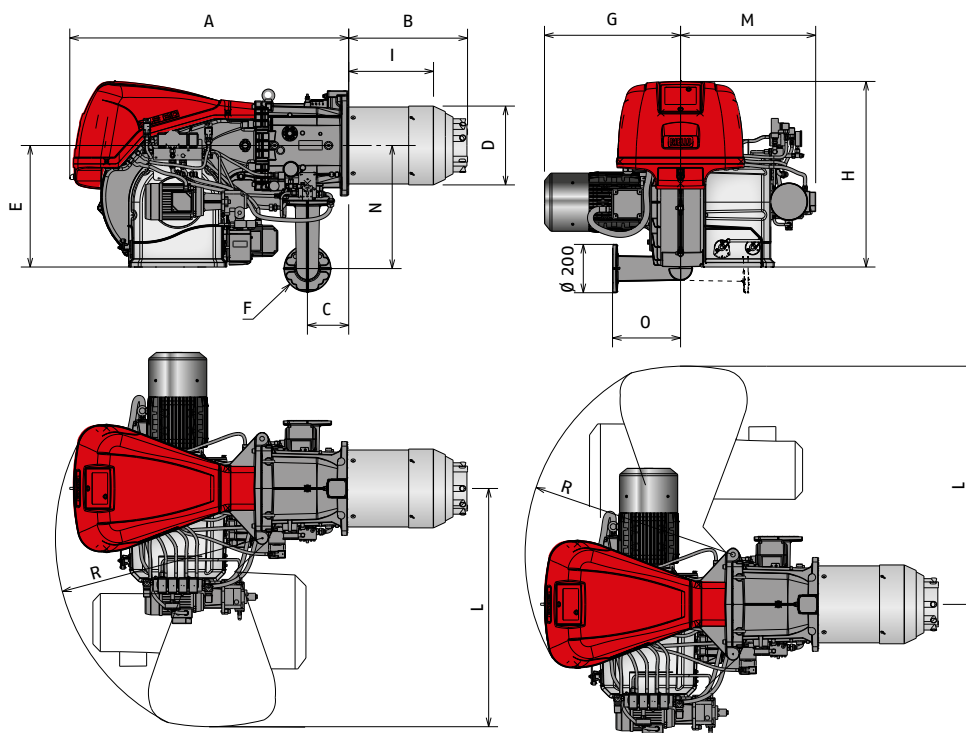
Low NOx Modulating Dual Fuel Burners

RLS 310-610/E MX SERIES

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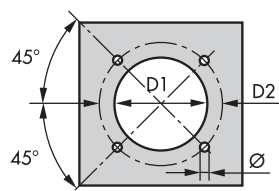
Overall dimensions (mm)

BURNER



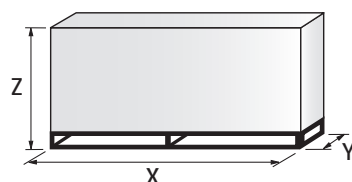
MODEL	A	B	C	D	E	F	G	H	I	L	M	N	O	R
► RLS 310/E MX	1190	507	178	313	520	DN65	490	790	340	1015	576	528	290	890
► RLS 410/E MX	1190	507	178	313	520	DN65	508	790	340	1015	576	528	290	890
► RLS 510/E MX	1190	507	178	313	520	DN65	508	790	340	1015	576	528	290	890
► RLS 610/E MX	1190	510	178	334	520	DN65	580	790	360	1015	576	528	290	890

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
► RLS 310/E MX	335	452	M18
► RLS 410/E MX	335	452	M18
► RLS 510/E MX	335	452	M18
► RLS 610/E MX	350	452	M18

PACKAGING



MODEL	X	Y	Z	kg
► RLS 310/E MX	2040	1180	1125	300
► RLS 410/E MX	2040	1180	1125	300
► RLS 510/E MX	2040	1180	1125	300
► RLS 610/E MX	2400	1400	1595	320

LOW NOx
DUAL FUEL

Low NOx Modulating Dual Fuel Burners

RLS 310-610/E MX 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	310	/E	MX	TC	FS1	3/400/50	230/50-60		
BASIC DESIGNATION										
EXTENDED DESIGNATION										

RLS 310-610/E MX SERIES

Specification

STATE OF SUPPLY

Monoblock forced draught dual fuel burners with modulating operation, fully automatic, made up of:

- High performance fan with low sound emissions, 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 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 electrodes
 - 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
- Digital Burner management system for air/fuel setting; with output PID modulation control as accessory
- AZL Display Interface, for combustion system commissioning and monitoring
- LMV26 Electronic cam for controlling the system safety
- UV flame sensor
- Star/delta starter or direct starter
- 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 for gas train adaptor
- 1 adaptor for gas train
- 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
- 8 gas nozzles (only for RLS 310/E)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Low NOx Modulating Dual Fuel Burners

RLS 310-610/E MX SERIES

Available models

Burners

CODE	MODEL			HEAT OUTPUT			TOTAL ELECTRICAL POWER (kW)	CERTIFICATION
				(kW)	LIGHT OIL (kg/h)	NATURAL GAS (Nm ³ /h)		
20087643	RLS 310/E MX	TC FS1	3/230/50	600/1200-3600	50/100-305	60/120-360	10,9 (oil) 9,1 (gas)	In progress
20082946	RLS 310/E MX	TC FS1	3/400/50	600/1200-3600	50/100-305	60/120-360	10,9 (oil) 9,1 (gas)	In progress
20087644	RLS 310/E MX	TC FS1	3/400/50	600/1200-3600	50/100-305	60/120-360	10,9 (oil) 9,1 (gas)	In progress
20087645	RLS 410/E MX	TC FS1	3/230/50	640/1500-4200	55/126-352	64/150-420	12,6 (oil) 10,8 (gas)	In progress
20087646	RLS 410/E MX	TC FS1	3/400/50	640/1500-4200	55/126-352	64/150-420	12,6 (oil) 10,8 (gas)	In progress
20084376	RLS 410/E MX	TC FS1	3/400/50	640/1500-4200	55/126-352	64/150-420	12,6 (oil) 10,8 (gas)	In progress
20083562	RLS 510/E MX	TC FS1	3/400/50	660/1800-5170	55/195-435	66/180-517	15,8 (oil) 14 (gas)	In progress
20080180	RLS 610/E MX	TC FS1	3/400/50	1000/2200-6155	86/185-516	100/220-615,5	18,8 (oil) 17 (gas)	In progress

Net calorific value light oil: 11,8 kWh/kg; 10.200 kcal/kg - Viscosity at 20°C: 4-6 mm²/s (cSt).

Net calorific value G20 gas: 10 kWh/Nm³; 8.600 kcal/Nm³ - Density: 0,71 kg/Nm³.

The burners of RLS/E MX series are in according to 2009/142 EC - 2004/108 - 2006/95 - EC Directive and EN 267 - 676 Norm.

RLS/EV - /EVi models with Variable Speed Drive System are available on demand.

For more information, please contact Riello Burners Commercial and Technical Department.

RLS 310-610/E MX SERIES

Available models

Gas Trains

CODE	GAS TRAIN		ADAPTER CODE			
	MODEL	Ø	RLS 310	RLS 410	RLS 510	RLS 610
3970250*	MB 415/1 - RT 52	Rp 1" 1/2	3000826 + 20064220	●	●	●
3970257*	MB 420/1 - RT 52	Rp 2"	3000826 + 20042324	●	●	●
3970221*	MBC 1200/1 - RSM 60	Rp 2"	3000826 + 20042324			
3970222*	MBC 1900/1 - FSM 40	DN 65	3010221			
3970223*	MBC 3100/1 - FSM 40	DN 80	3010222			
3970224*	MBC 5000/1 - FSM 80	DN 100	3010222 - 3010370			
3970145*	CB 512/1 - RSM 30	Rp 1" 1/2	3000826 + 20064220	●		●
3970146*	CB 520/1 - RSM 30	Rp 2"	3000826 + 20042324			●
20044659*	CB 525/1 - RSM 30	Rp 2"	3000826 + 20042324			
3970147*	CB 5065/1 - FSM 30	DN 65	3010221			
3970148*	CB 5080/1 - FSM 30	DN 80	3010222			
3970149*	CB 50100/1 - FSM 30	DN 100	3010223 - 3010370			
20015871*	CB 50125/1 - FSM 30	DN 125	3010224			

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

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

** 230V/50Hz electrical supply.

The valves seal control device is compulsory (conforming to EN 676) on gas trains to burners with a maximum output over 1200 kW.

The seal control function is managed by REC control box, by installation on gas train of a pressure switch (please see Gas train accessories paragraph).

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

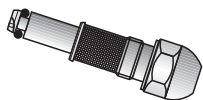
● Not available.

Low NOx Modulating Dual Fuel Burners

RLS 310-610/E MX SERIES

Burner accessories

Nozzles



Return nozzles without needle are used on RLS/E 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	RATED DELIVERY (kg/h)	NOZZLE CODE
► RLS 310-410/E MX	150	3009363
► RLS 310-410/E MX	200	3009364
► RLS 310-410/E MX	225	3009365
► RLS 310-410/E MX	250	3009366
► RLS 310-410/E MX	275	3009367
► RLS 310-410/E MX	300	3009368
► RLS 410/E MX	325	3009369
► RLS 410/E MX	350	3009370
► RLS 410/E MX	375	3009371
► RLS 410/E MX	400	3009372
► RLS 410/E MX	425	3009373
► RLS 510/E MX	350	3045495
► RLS 510/E MX	400	3045499
► RLS 510/E MX	450	3045501
► RLS 510/E MX	500	3045503
► RLS 610/E MX	350	3045495
► RLS 610/E MX	450	3045501
► RLS 610/E MX	550	3045505
► RLS 610/E MX	600	3045507

For more information please contact Riello Burners Commercial and Technical Department, our Application Engineers will be pleased to help you.

Low NOx Modulating Dual Fuel Burners

RLS 310-610/E MX SERIES

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Burner accessories

Accessories for modulating operation

POWER CONTROLLER



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

BURNER	REGULATOR TYPE	REGULATOR CODE
► All models	RWF 50.2 - Basic version with - 3 position output	20073595
► All models	RWF 55.5 - Complete with RS-485 interface	20074441
► All models	RWF 55.6 - Complete with RS-485/ PROFIBUS interface	20074442

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
► All models	Temperature PT 100	-100 ÷ 500°C	3010110
► All models	Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
► All models	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214

Continuous ventilation kit



If the burner requires continuous ventilation in the stages without flame, a special kit is available as given in the following table:

BURNER	CODE
► RLS 310-410-510-610/E	20077810

Pc interface kit



To connect the control panel to a personal computer for the transmission of operation, fault signals and detailed service information, an interface adapter with PC software are available.

BURNER	CODE
► RLS 310-410-510-610/E	(ACS410 + OCI410.30) - Service level 3010436

Low NOx Modulating Dual Fuel Burners

RLS 310-610/E MX SERIES

Burner accessories

OCI412 interface kit

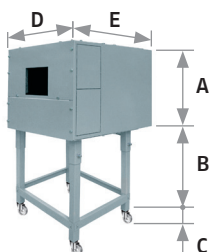


Interface kit between the REC 27.1 and a Modbus system, such as a building automation and control system (BACS).

The Modbus interface is based on the RS-485 standard.

BURNER	CODE
► RLS 310-410-510-610/E	3010437

Sound proofing box

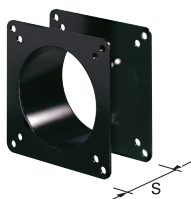


If noise emission needs reducing even further, sound-proofing boxes are available. In case of generator heights, where a lower dimension "B" is required, ask for the Box Support Kit code 20065135. The useful dimensions are 40 mm less than the total dimensions indicated in the table (A, D, E). Not suitable for outdoor use.

BURNER	BOX TYPE	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	BOX CODE
► RLS 310-410/E	C7	1255	160 - 980	110	1140	1345	10	3010376
► RLS 510-610/E	C7 Plus	1255	160 - 980	110	1240	1345	10	20085111

(*) 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)	CODE
► All models	180	20008903






Clean contacts kit

BURNER	CODE
► All models	20096377

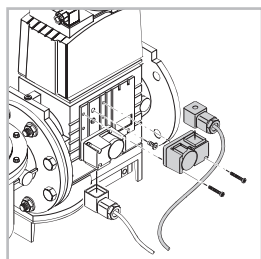
Gas train accessories

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 available adapters; please see on the Gas Train list the correct adapter codes to select.

ADAPTER				DIMENSIONS				ADAPTER CODE
				ø1 DN	ø2 DN	A mm	B mm	
1" 1/2 		2"	-	-	65	-	20064220	
2" 		2"	-	-	65	-	20042324	
DN 80 	2" 1/2		2"	-	-	300	-	3000826
				65	80	400	-	3010221
				80	80	400	-	3010222
				100	80	400	-	3010223
				125	80	320	-	3010224

PVP (pressure valve proving kit)*



The seal control function is included on Burner Digital Management System, it is only necessary to add the PVP kit on the gas train.

GAS TRAIN	CODE
► MB - CB - MBC type	3010344

Low NOx Modulating Dual Fuel Burners

RLS 310-610/E MX SERIES

Gas train accessories

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 COLOUR	SPRING Pressure range mbar	SPRING CODE
MBC 1900/1 – 3100/1 MBC 5000/1	White	4 – 20	3010381
	Red	20 – 40	3010382
	Black	40 – 80	3010383
	Green	80 – 150	3010384
CB 512/1	Red	25 – 55	3010131
	Black	60 – 110	3010157
	Pink	90 – 150	3090486
CB 520/1 – 525/1	Red	25 – 55	3010132
	Black	60 – 110	3010158
	Pink	100 – 150	3090487
CB 5065/1 – 5080/1	Red	25 – 55	3010133
	Black	60 – 110	3010135
	Pink	100 – 150	3090456
CB 50100/1	Grey	140 – 200	3090992
	Red	25 – 55	3010134
	Black	60 – 110	3010136
	Pink	100 – 150	3090489
CB 50125/1	Grey	140 – 200	3092174
	Red	25 – 55	3010315
	Yellow	30 – 70	3010316
	Black	60 – 110	3010317
	Pink	100 – 150	3010318