

RLS 68÷160/M MX SERIES

The RLS/M MX series of burners covers a firing range from 350 to 1840 kW, and they have been designed for use in low or medium temperature hot water boilers, hot air or steam boilers, diathermic oil boilers.

Operation is "two stage" at the oil side and "modulating" at the gas side with the installation of a PID logic regulator and respective probes.

RLS/M MX series burners guarantees high efficiency levels in all the various applications, thus reducing fuel consumption and running costs.

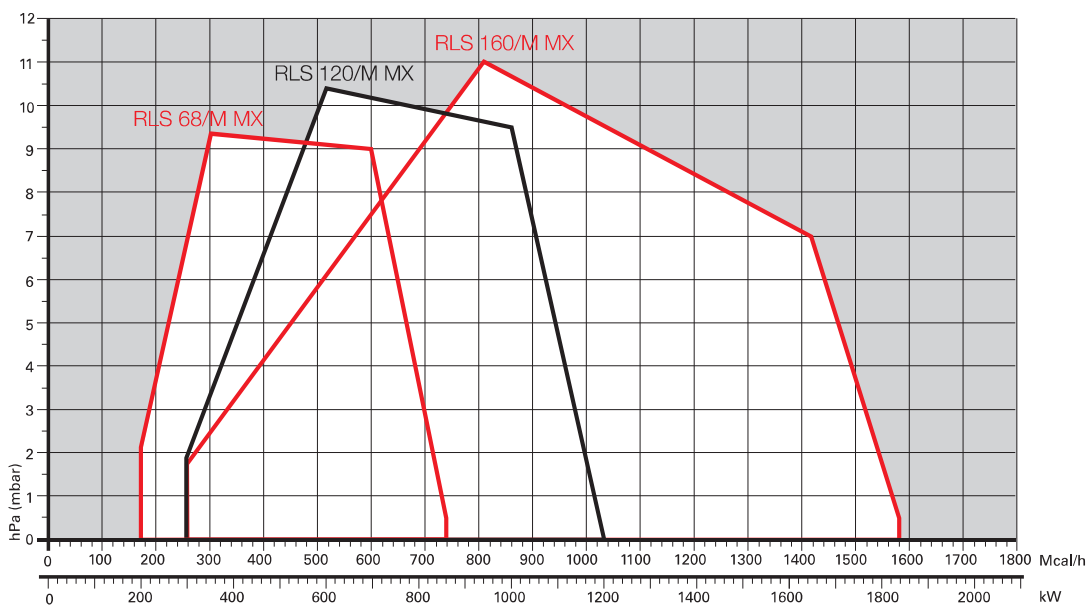
Optimisation of sound emissions is guaranteed by the special design of air suction circuit and the use of sound proofing material.

The exclusive design ensures reduced dimensions, simple use and maintenance. A wide range of accessories guarantees elevated working flexibility.



RLS 68/M MX	200/350 ÷ 860	kW
RLS 120/M MX	300/600 ÷ 1200	kW
RLS 160/M MX	300/930 ÷ 1840	kW

FIRING RATES

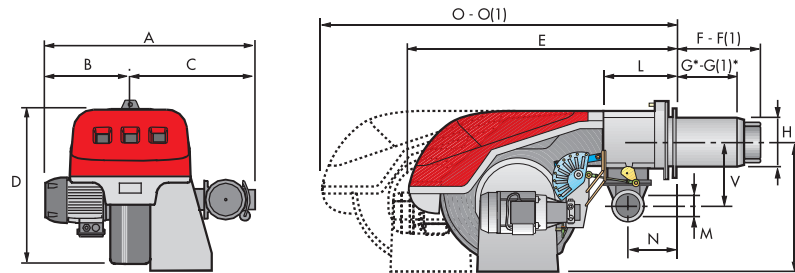


Low NOx Modulating Dual Fuel Burners

RLS 68÷160/M MX SERIES

Overall dimensions (mm)

BURNER

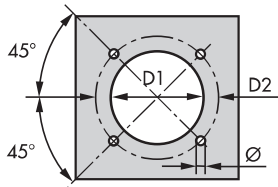


MODEL	A	B	C	D	E	F - F(1)	G* - G(1)*	H	I	L	M	N	O - O (1)	V
► RLS 68/M MX	691	296	395	555	840	260 - 395	200 - 335	189	430	214	2"	134	1161 - 1300	221
► RLS 120/M MX	733	338	395	555	840	260 - 395	200 - 335	189	430	214	2"	134	1161 - 1300	221
► RLS 160/M MX	843	366	477	555	863	373 - 503	272 - 402	221	430	237	2"	141	1442 - 1589	186

(1) Length with extended combustion head.

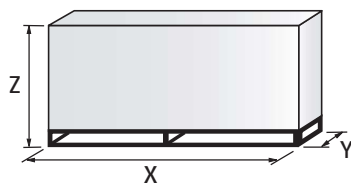
* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
► RLS 68-120/M MX	195	275 - 325	M12
► RLS 160/M MX	230	325 - 368	M16

PACKAGING



MODEL	X (1)	Y	Z	kg
► RLS 68/M MX	1400	975	645	115
► RLS 120/M MX	1400	975	645	120
► RLS 160/M MX	1400	975	645	135

(1) Length with standard and extended combustion head.

RLS 68÷160/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:	
Setting:	/1 Single 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) /EVi Electronic cam with integrated inverter
Emission:	... or C11 Class 1 EN267 - EN676 MZ or C22 Class 2 EN267 - EN676 BLU or C33 Class 3 EN267 - EN676 MX or C23 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/Intermittent (at least 1 stop every 24 h) FS2 Continuous (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 3/400V/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 230V/50Hz 110/50-60 110V/50-60Hz

R	LS	160	/M	MX	TC	FS1	3/400/50	230/50
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BASIC DESIGNATION

EXTENDED DESIGNATION

LOW NOx DUAL FUEL

Low NOx Modulating Dual Fuel Burners

RLS 68÷160/M MX SERIES

Specification

STATE OF SUPPLY

Monoblock forced draught Low NOx dual fuel burner with two stage operation at the oil side and two stage progressive or modulating operation at the gas side, with a specific kit, fully automatic, made up of:

- air suction circuit lined with sound-proofing material
- centrifugal fan with high performance and low sound emissions
- air damper for air flow setting and butterfly valve for regulating gas output controlled by a servomotor with variable cam
- starting motor at 2800 rpm, three-phase 400V with neutral, 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
 - gas distributor
 - flame stability disk
- maximum gas pressure switch to stop the burner in the case of excess pressure on the fuel supply line
- minimum air pressure switch stops the burner in case of insufficient air quantity at the combustion head
- gears pump for high pressure fuel supply
- pump starting motor
- oil safety valves
- two oil valves (1st and 2nd stage)
- burner safety control box
- UV photocell for flame detection
- burner on/off selection switch
- manual or automatic output increase/decrease selection switch
- Oil/Gas selector
- flame inspection window
- slide bars for easier installation and maintenance
- protection filter against radio interference
- IP 44 electric protection level.

Standard equipment:

- 1 gas train flange
- 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
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

RLS 68÷160/M MX SERIES

Available models

Burners

CODE	MODEL					HEAT OUTPUT			TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
						(kW)	LIGHT OIL (kg/h)	NATURAL GAS (Nm ³ /h)			
20147784	RLS 68/M MX	TC	FS1	3/230-400/50	230/50-60	200/350-860	17/30-73	27/40-100	2,2	CE 0085BP0175	(1)
20147785	RLS 68/M MX	TL	FS1	3/230-400/50	230/50-60	200/350-860	17/30-73	27/40-100	2,2	CE 0085BP0175	(1)
20147786	RLS 120/M MX	TC	FS1	3/230-400/50	230/50-60	300/600-1200	25/50-101	37/70-140	3,0	CE 0085BP0175	(1)
20147788	RLS 120/M MX	TL	FS1	3/230-400/50	230/50-60	300/600-1200	25/50-101	37/70-140	3,0	CE 0085BP0175	(1)
20147789	RLS 160/M MX	TC	FS1	3/400/50	230/50-60	300/930-1840	25/78-155	30/93-184	6,0	CE 0085BN0625	(1)
20147790	RLS 160/M MX	TL	FS1	3/400/50	230/50-60	300/930-1840	25/78-155	30/93-184	6,0	CE 0085BN0625	(1)

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/M MX series are in according to 2016/426/EU - 2014/30/EU - 2014/35/EU - 2006/42 CE Directive and EN 267 - 676 Norm.

Due to the improvement of the technical specification of some products, some burner codes have been changed. The table below summarizes the correspondence between the previous and the new code.

MODEL					NEW CODE		OLD CODE	
RLS 68/M MX	TC	FS1	3/230-400/50	230/50-60	20147784	(1)	3898010	(2)
RLS 68/M MX	TL	FS1	3/230-400/50	230/50-60	20147785	(1)	3898011	(2)
RLS 120/M MX	TC	FS1	3/230-400/50	230/50-60	20147786	(1)	3898110	(2)
RLS 120/M MX	TL	FS1	3/230-400/50	230/50-60	20147788	(1)	3898111	(2)
RLS 160/M MX	TC	FS1	3/400/50	230/50-60	20147789	(1)	3898210	(2)
RLS 160/M MX	TC	FS1	3/400/50	230/50-60	20147790	(1)	3898211	(2)

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/M series are in according to 2016/426/EU - 2014/30/EU - 2014/35/EU - 2006/42 CE Directive and EN 676 Norm.

(1) With RFGO control box.

(2) With LFL control box.

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Available models

Gas Trains

CODE	GAS TRAIN			VPS CODE	ADAPTER CODE		
	MODEL	∅	C.T.		RLS 68	RLS 120	RLS 160
3970599*	MB 407/1 - RT 52	Rp ¾"	-	3010123	3000824+ 3000843	●	●
3970553*	MB 407/1 - RT 20	Rp ¾"	-	3010123		●	●
3970229*	MB 407/1 - RSM 20	Rp ¾"	-	3010123		●	●
3970258*	MB 410/1 - RT 52	Rp 1" ¼	-	3010123	3010126		●
3970554*	MB 410/1 - RT 20	Rp ¾"	-	3010123	3000824+ 3000843		●
3970600*	MB 410/1 - RT 52	Rp ¾"	-	3010123			●
3970230*	MB 410/1 - RSM 20	Rp ¾"	-	3010123			●
3970256*	MB 412/1 - RT 52	Rp 1" ½	-	3010123	3000843		
3970144*	MB 412/1 - RT 20	Rp 1" ½	-	3010123			
3970197**	MB 412/1 CT RT 20	Rp 1" ½	◆	◆			
3970231*	MB 412/1 - RSM 20	Rp 1" ½	-	3010123			
3970180*	MB 415/1 - RT 30	Rp 1" ½	-	3010123			
3970198**	MB 415/1 CT RT 30	Rp 1" ½	◆	◆			
3970250*	MB 415/1 - RT 52	Rp 1" ½	-	3010123			
3970253**	MB 415/1 CT RT 52	Rp 1" ½	◆	◆			
3970232*	MB 415/1 - RSM 30	Rp 1" ½	-	3010123			
3970181*	MB 420/1 - RT 30	Rp 2"	-	3010123		□	□
3970182**	MB 420/1 CT RT 30	Rp 2"	◆	◆	□	□	□
3970257*	MB 420/1 - RT 52	Rp 2"	-	3010123	□	□	□
3970252**	MB 420/1 CT RT 52	Rp 2"	◆	◆	□	□	□
3970233*	MB 420/1 - RSM 30	Rp 2"	-	3010123	□	□	□
3970234**	MB 420/1 CT RSM 30	Rp 2"	◆	◆	□	□	□
20137718*	VGD 50/1 - RT 122	Rp 2"	-	3010123+ 20186306		□	
20169190**	VGD 50/1 CT RT 122	Rp 2"	◆	◆		□	
20140762*	VGD 65/1 - FT 122	DN 65 (1)	-	3010123		3000826	
20169191**	VGD 65/1 CT FT 122	DN 65 (1)	◆	◆		3000826	
20140763*	VGD 80/1 - FT 122	DN 80	-	3010123		3000826	
20169192**	VGD 80/1 CT FT 122	DN 80	◆	◆		3000826	
20169193*	VGD 100/1 - FT 122	DN 100	-	3010123	●	●	●
20169194**	VGD 100/1 CT FT 122	DN 100	◆	◆	●	●	●
20169195*	VGD 125/1 - FT 122	DN125	-	3010123	●	●	●
20169196**	VGD 125/1 CT FT 122	DN125	◆	◆	●	●	●

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

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

(1) ∅in = DN 65, ∅out = DN 80.

C.T. Gas valve leak detection control device:

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

◆ gas train equipped with leak detection control device.

VPS Valve leak detection control device. Supplied separately from the gas train (please see Gas train accessories paragraph for both 50 Hz and 60 Hz codes).

● Not available.

□ Additional adapter not necessary, the gas train may be connected directly to the burner.

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Burner accessories

Nozzles type 60° B



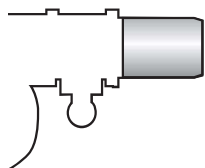
The nozzles must be ordered separately. The following table shows the features and codes on the basis of the maximum required fuel output.

NOTE: each burner needs N° 2 nozzles.

BURNER	RATED DELIVERY kg/h (*)	GPH	NOZZLE
▶ RLS 68-120/M MX	21,2	5,00	3042192
	23,3	5,50	3042202
	25,5	6,00	3042212
	27,6	6,50	3042222
	29,7	7,00	3042232
	31,8	7,50	3042242
	33,9	8,00	3042252
	36,1	8,50	3042262
	38,2	9,00	3042586
	40,3	9,50	3042282
	42,4	10,00	3042292
	46,7	11,00	3042312
	50,9	12,00	3042322
	55,1	13,00	3042332
▶ RLS/M MX	59,4	14,00	3042352
	63,6	15,00	3042362
	67,9	16,00	3042382
	72,1	17,00	3042392
	76,4	18,00	3042412
	80,6	19,00	3042422
	84,8	20,00	3042442
▶ RLS 160/M MX	93,3	22,00	3042462
	101,8	24,00	3042472
	110,3	26,00	3042482
	118,8	28,00	20018051

(*) Nozzle rated delivery is referred to atomized pressure

Extended head kit



"Standard head" burners can be transformed into "extended head" versions, by using the special kit. The kits available for the various burners, giving the original and the extended lengths, are listed below.

BURNER	STANDARD HEAD LENGTH (mm)	EXTENDED HEAD LENGTH (mm)	KIT CODE
▶ RLS 68-120/M MX	260	395	3010360
▶ RLS 160/M MX	373	503	3010441 *

* Kit to be used on burners recognizable by a serial number that is over or equal to 02426XXXXXX, for burners with a serial number that is under or equal to 02416XXXXXX please use the Kit coded 3010340

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Burner accessories

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
► RLS/M MX	102	3000722

Ground fault interrupter kit



A "Ground fault interrupter kit" is available as a safety device for electrical system fault.

BURNER	KIT CODE
► RLS/M MX	20098337

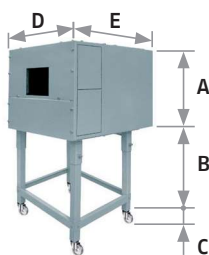
Continuous ventilation kit



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

BURNER	KIT CODE
► RLS/M MX	3010094

Sound proofing box



If noise emission needs reducing even further, sound-proofing boxes are available. When a lower "B" dimension is required, it is available the Box Support Kit code 20065135 which allows to reduce it at the fixed dimension of 55 mm. The sound-proofing boxes are 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 68-120-160/M MX	C4/5	850	160 - 980	110	980	930	10	3010404

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

Clean contacts kit

BURNER	KIT CODE
► RLS 68-120/M MX	20123294

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Burner accessories

Accessories for modulating operation



To obtain modulating operation, the RLS/M MX series of burners requires a regulator with three point outlet controls. The following table lists the accessories for modulating operation with their application range. For remote setpoint use RWF 55.

BURNER	REGULATOR TYPE	REGULATOR CODE
▶ RLS 68/M - 120/M MX	RWF 50.2	20082208
	RWF 55.5	20099657
▶ RLS 160/M MX	RWF 50.2	20099869
	RWF 55.5	20099905

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
▶ RLS/M MX	Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873



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.

BURNER	TYPE (INPUT SIGNAL)	KIT CODE
▶ RLS 68/M - 120/M MX	0/2 - 10 V (impedance 200 KΩ)	-
	0/4 - 20 mA (impedance 250 Ω)	
▶ RS 160/M MX	0/2 - 10 V (impedance 200 KΩ) 0/4 - 20 mA (impedance 250 Ω)	3010415

Depending on the servomotor fitted to the burner, a three-pole potentiometer (1000 Ω) can be installed to check the position of the servomotor. The KITS available for the various burners are listed below.

BURNER	POTENTIOMETER KIT CODE
▶ RLS 68/M - 120/M - 160/M MX	3010416



Head kit for "reverse flame chamber"



In certain cases, the use of the burner on reverse flame boilers can be improved by using an additional Pipes Kit.

BURNER	KIT CODE (*)
▶ RLS 68/M MX	20006401
▶ RLS 120/M MX	20006402
▶ RLS 160/M MX	3010249

(*) CE approval on field is required







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RLS 68÷160/M MX SERIES

Gas train accessories

Adapters

When the diameter of the gas train is different from the set diameter of the burners, an adapter must be fitted between the gas train and the burner. Below are given the available adapters; please see on the Gas Train list the correct adapter codes to select.

ADAPTER	LENGTH mm	ADAPTER CODE
 3/4" 1" 1/2	31	3000824
 DN 65 2" 1/2 2"	300	3000825
 2" 1/2 1" 1/2		
 DN 80 2" 1/2 2"	300	3000826
 1" 1/2 2"	35	3000843
 1" 1/4 2"	35	3010126

Stabiliser spring



Accessory springs are available to vary the pressure range of the gas train stabilisers. 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
▶ VGD/1 series	Neutral	0 - 22	20181839
	Yellow	15 - 120	20141900
	Red	100 - 250	20141901

Seal control kit



To test the valve seals on the gas train, a special "seal control kit" is available. The valve seal control device is compulsory (EN 676) on gas trains to burners with a maximum output over 1200 kW. The seal control is type VPS 504.

GAS TRAIN	KIT CODE for 50 Hz operation	KIT CODE for 60 Hz operation
▶ VGD 50/1	3010123+20186306	20050030+20186306
▶ VGD 65/1 - 80/1 - 100/1 - 125/1	3010123	20050030