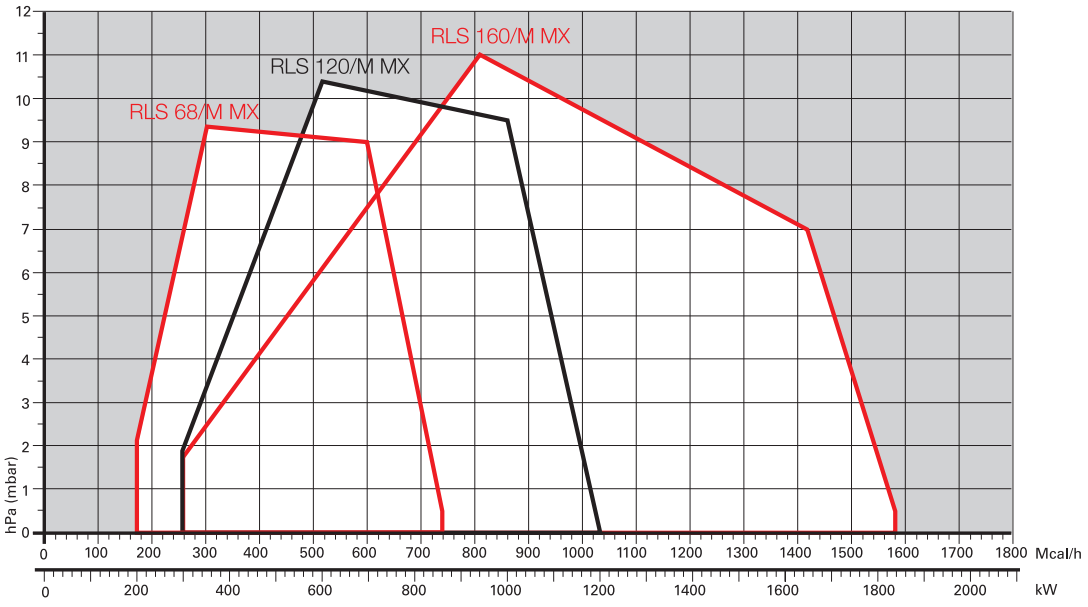
RLS/M MX SERIES

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

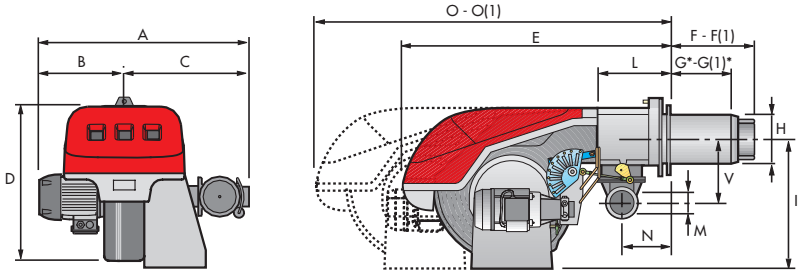
FIRING RATES



LOW NOx
DUAL FUEL

Overall dimensions (mm)

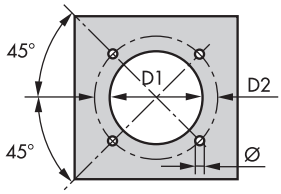
BURNER



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

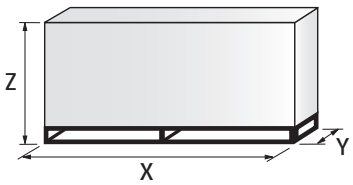
(1) Length with extended combustion head.
* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

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/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
- ... Two stage
- /M Modulating
- /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

ID : Differential switch

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

BASIC DESIGNATION

EXTENDED DESIGNATION

LOW NOx DUAL FUEL

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.

Available models

Burners

CODE	MODEL	HEAT OUTPUT (kW)	HEAT OUTPUT LIGHT OIL (kg/h)	HEAT OUTPUT NATURAL GAS (Nm³/h)	TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
3898010	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	
3898011	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	
3898020	RLS 68/M MX TC FS2 3/230-400/50 230/50-60	200/350-860	17/30-73	27/40-100	2,2	CE 0085BP0175	
3898021	RLS 68/M MX TL FS2 3/230-400/50 230/50-60	200/350-860	17/30-73	27/40-100	2,2	CE 0085BP0175	
3898110	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	
3898111	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	
3898120	RLS 120/M MX TC FS2 3/230-400/50 230/50-60	300/600-1200	25/50-101	37/70-140	3,0	CE 0085BP0175	
3898121	RLS 120/M MX TL FS2 3/230-400/50 230/50-60	300/600-1200	25/50-101	37/70-140	3,0	CE 0085BP0175	
3898210	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	
20011635	RLS 160/M MX TC FS1 3/230/50 230/50-60	300/930-1840	25/78-155	30/93-184	6,0	CE 0085BN0625	
3898211	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	
20011642	RLS 160/M MX TL FS1 3/230/50 230/50-60	300/930-1840	25/78-155	30/93-184	6,0	CE 0085BN0625	
3898220	RLS 160/M MX TC FS2 3/400/50 230/50-60	300/930-1840	25/78-155	30/93-184	6,0	CE 0085BN0625	
20011644	RLS 160/M MX TC FS2 3/230/50 230/50-60	300/930-1840	25/78-155	30/93-184	6,0	CE 0085BN0625	
3898221	RLS 160/M MX TL FS2 3/400/50 230/50-60	300/930-1840	25/78-155	30/93-184	6,0	CE 0085BN0625	
20011645	RLS 160/M MX TL FS2 3/230/50 230/50-60	300/930-1840	25/78-155	30/93-184	6,0	CE 0085BN0625	

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 2009/142 - 2004/108 - 2006/95 - EC Directive and EN 267 - 676 Norm.

Available models

Gas Trains

GAS TRAIN CODE	GAS TRAIN MODEL	GAS TRAIN Ø	GAS TRAIN C.T.	VPS CODE	ADAPTER CODE RLS 68	ADAPTER CODE RLS 120	ADAPTER CODE 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"	◆	-	-	-	-
3970221*	MBC 1200/1 - RSM 60	Rp 2"	-	3010367	-	-	-
3970225**	MBC 1200/1 CT RSM 60	Rp 2"	◆	-	-	-	-
3970222*	MBC 1900/1 - FSM 40	DN 65	-	3010367	3000825		
3970226**	MBC 1900/1 CT FSM 40	DN 65	◆	-			
3970223*	MBC 3100/1 - FSM 40	DN 80	-	3010367	3000826		
3970227**	MBC 3100/1 CT FSM 40	DN 80	◆	-			
3970145*	CB 512/1 - RSM 30	Rp 1" ½	-	3010367	3000843		
20045589**	CB 512/1 CT RSM 30	Rp 1" ½	◆	-			
3970146*	CB 520/1 - RSM 30	Rp 2"	-	3010367	-	-	-
3970160**	CB 520/1 CT RSM 30	Rp 2"	◆	-	-	-	-
20044659*	CB 525/1 - RSM 30	Rp 2"	-	3010367	-	-	-
20044660**	CB 525/1 CT RSM 30	Rp 2"	◆	-	-	-	-
3970147*	CB 5065/1 - FSM 30	DN 65	-	3010367	3000825		
3970161**	CB 5065/1 CT FSM 30	DN 65	◆	-			
3970148*	CB 5080/1 - FSM 30	DN 80	-	3010367	3000826		
3970162**	CB 5080/1 CT FSM 30	DN 80	◆	-			
3970148*	CB 50100/1 - FSM 30	DN 100	-	3010367	3010370 + 3000826		
3970162**	CB 50100/1 CT FSM 30	DN 100	◆	-			
3970148*	CB 50125/1 - FSM 30	DN 125	-	3010367	●	3010224 + 3000826	
3970162**	CB 50125/1 CT FSM 30	DN 125	◆	-	●		

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.
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.

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.

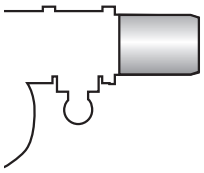
NOTE: each burner needs N° 2 nozzles.

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
▶ RLS/M MX	42,4	10,00	3042292
	46,7	11,00	3042312
	50,9	12,00	3042322
	55,1	13,00	3042332
	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
	93,3	22,00	3042462
	101,8	24,00	3042472
▶ RLS 160/M MX	110,3	26,00	3042482
	118,8	28,00	20018051

(*) Nozzle rated delivery is reffered to atomized pressure

Burner accessories

Extended head kit

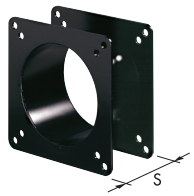


"Standard head" burners can be transformed into "extended head" versions, by using the special kit. The kits available for the various burners, giving the original and the extended lengths, are listed below.

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

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.

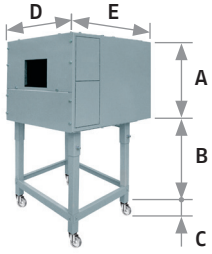
BURNER	KIT CODE
▶ RLS/M MX	20098337

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. 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 68-120-160/M MX	C4/5	850	160 - 980	110	980	930	10	3010404

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

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.

BURNER	REGULATOR TYPE	REGULATOR CODE
▶ RLS 68/M - 120/M MX	RWF 40	3010212
▶ RLS 160/M MX	RWF 40	3010414

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)	CODE
▶ RLS 68/M - 120/M MX	0/2 - 10 V (impedance 200 KΩ) 0/4 - 20 mA (impedance 250 Ω)	on demand
▶ 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"

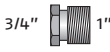
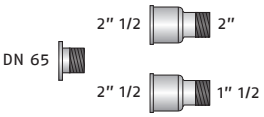
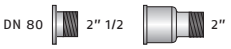
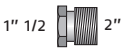
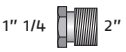
In certain cases, the use of the burner on reverse flame boilers can be improved by using an additional Pipes Kit.

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

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
	31	3000824
	300	3000825
	300	3000826
	35	3000843
	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
▶ MBC 1900/1 - 3100/1	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
	Grey	140 - 200	3090992

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
▶ MBC/1 type	3010367	20029057
▶ CB/1 type	3010367	20029057