RLS/M MZ SERIES

The RLS/M MZ series of burners covers a firing range from 550 to 2460 kW, and they have been designed for use in hot or superheated water boilers, hot air or steam generators, 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 MZ series burners guarantees high efficiency levels in all the various applications, thus reducing fuel consumption and running costs.
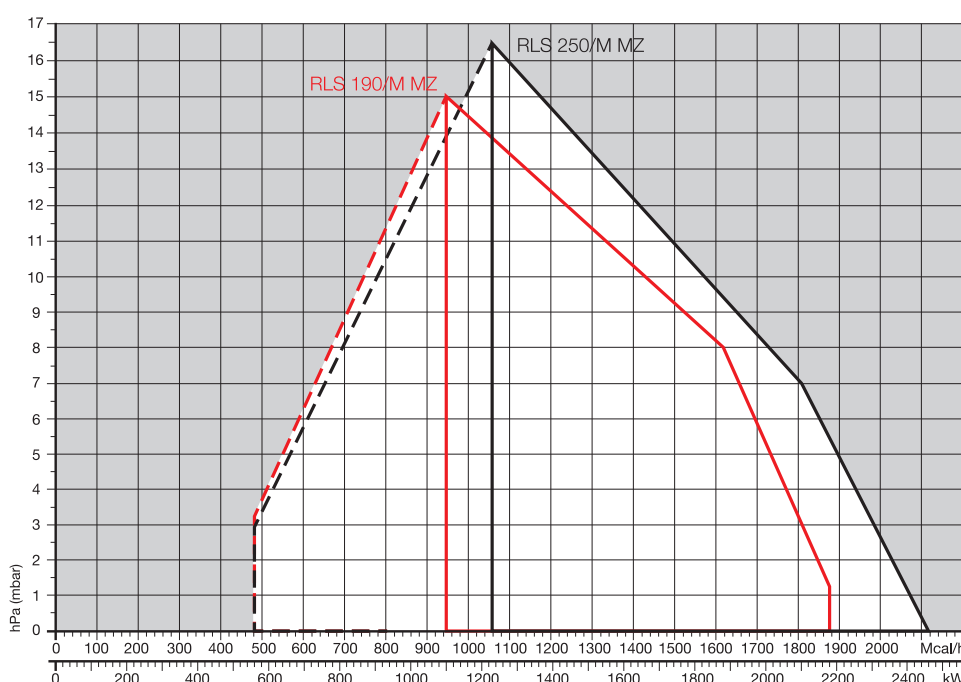
Optimisation of sound emissions is guaranteed by the special design of air suction circuit and the use of sound proofing material.

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

RLS 190/M MZ	550/1100 ÷ 2150 kW
RLS 250/M MZ	550/1230 ÷ 2460 kW

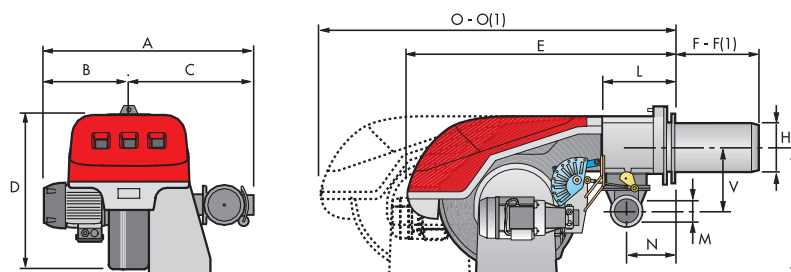## FIRING RATES

Useful working field for choosing the burner

Modulation range

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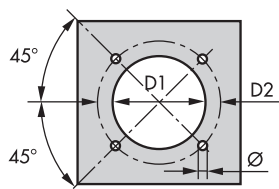Altitude: 0 m a.s.l.

RLS/M MZ SERIES

Overall dimensions (mm)

BURNER

MODEL	A	B	C	D	E	F – F (1)	H	I	L	M	N	O – O (1)	V
▶ RLS 190/M MZ	843	366	477	555	863	412 – 542	222	430	237	Rp2	141	1442 – 1587	186
▶ RLS 250/M MZ	904	427	477	555	863	412 – 542	222	435	237	Rp2	141	1442 – 1587	186

(1) Length with extended combustion head.

BURNER - BOILER MOUNTING FLANGE

Model	D1	D2	Ø
▶ RLS 190/M MZ	230	325 – 368	M16
▶ RLS 250/M MZ	230	325 – 368	M16

PACKAGING
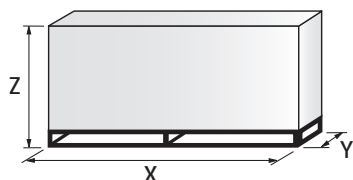
Model	X	Y	Z	kg
▶ RLS 190/M MZ	1400	975	645	95
▶ RLS 250/M MZ	1400	1000	765	100

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	190	/M	MZ	TC	FS1	3/400/50	230/50

BASIC DESIGNATION

EXTENDED DESIGNATION

RLS/M MZ SERIES

Specification

STATE OF SUPPLY

Monoblock forced draught 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/M MZ SERIES

Available models

Burners

CODE	MODEL		HEAT OUTPUT			TOTAL ELECTRICAL POWER (kW)	CERTIFICATION	NOTE
				LIGHT OIL (kg/h)	NATURAL GAS (Nm³/h)			
			(kW)					
3488110	RLS 190/M MZ TC	FS1 3/400/50 230/50-60	550/1100-2150	46/93-181	55/110-215	6,0	CE 0085BP0439	
20011625	RLS 190/M MZ TC	FS1 3/230/50 230/50-60	550/1100-2150	46/93-181	55/110-215	6,0	CE 0085BP0439	
20052642	RLS 190/M MZ TL	FS1 3/400/50 230/50-60	550/1100-2150	46/93-181	55/110-215	6,0	CE 0085BP0439	
3482810	RLS 250/M MZ TC	FS1 3/400/50 230/50-60	550/1230-2460	46/104-208	55/123-246	7,5 (oil) 6,0 (gas)	CE 0085CM0153	
20004704	RLS 250/M MZ TC	FS1 3/230/50 230/50-60	550/1230-2460	46/104-208	55/123-246	7,5 (oil) 6,0 (gas)	CE 0085CM0153	
20052649	RLS 250/M MZ TL	FS1 3/400/50 230/50-60	550/1230-2460	46/104-208	55/123-246	7,5 (oil) 6,0 (gas)	CE 0085CM0153	

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 MZ series are in according to 90/396 – 2014/30/UE – 2014/35/UE – EC Directive and EN 267 – 676 Norm.

DUAL FUEL

RLS/M MZ SERIES

Available models

Gas Trains

GAS TRAIN				VPS CODE	ADAPTER CODE	
CODE	MODEL	Ø	C.T.		RLS 190/M	RLS 250/M
3970180*	MB 415/1 – RT 30	Rp 1" ½	–	3010123	3000843	
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"	–	3010123	□	□
3970225**	MBC 1200/1 CT RSM 60	Rp 2"	◆	–	□	□
3970222*	MBC 1900/1 – FSM 40	DN 65	–	3010123	3000825	
3970226**	MBC 1900/1 CT FSM 40	DN 65	◆	–		
3970223*	MBC 3100/1 – FSM 40	DN 80	–	3010123	3000826	
3970227**	MBC 3100/1 CT FSM 40	DN 80	◆	–		
3970224*	MBC 5000/1 – FSM 80	DN 100	–	3010123	●	3000826 + 3010370
3970228**	MBC 5000/1 CT FSM 80	DN 100	◆	–	●	
3970145*	CB 512/1 – RSM 30	Rp 1" ½	–	3010123	3000843	
20045589**	CB 512/1 CT RSM 30	Rp 1" ½	◆	–		
3970146*	CB 520/1 – RSM 30	Rp 2"	–	3010123	□	□
3970160**	CB 520/1 CT RSM 30	Rp 2"	◆	–	□	□
20044659*	CB 525/1 – RSM 30	Rp 2"	–	3010123	□	□
20044660**	CB 525/1 CT RSM 30	Rp 2"	◆	–	□	□
3970147*	CB 5065/1 – FSM 30	DN 65	–	3010123	3000825	
3970161**	CB 5065/1 CT FSM 30	DN 65	◆	–		
3970148*	CB 5080/1 – FSM 30	DN 80	–	3010123	3000826	
3970162**	CB 5080/1 CT FSM 30	DN 80	◆	–		
3970149*	CB 50100/1 – FSM 30	DN 100	–	3010123	3000826 + 3010370	
3970163**	CB 50100/1 CT FSM 30	DN 100	◆	–		
20015871*	CB 50125/1 – FSM 30	DN 125	–	3010123	3000826 + 3010224	
3970196**	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.

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

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 190/M MZ	42,4	10,00	3042292
	46,7	11,00	3042312
▶ RLS 190/M MZ RLS 250/M MZ	48,37	12,00	3042322
	52,79	13,00	3042332
	56,86	14,00	3042352
	60,92	15,00	3042362
	64,98	16,00	3042382
	69,04	17,00	3042392
	73,10	18,00	3042412
	77,16	19,00	3042422
	81,22	20,00	3042442
	89,34	22,00	3042462
	97,47	24,00	3042472
	101,53	26,00	3042482
	105,59	28,00	20018051
▶ RLS 250/M MZ	122	30,00	3042502
	130,1	32,00	3042512
	142,1	35,00	3042522

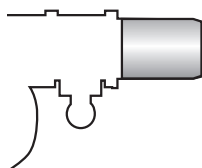(*) Nozzle rated delivery is reffered to atomized pressure

LPG kit

For burning LPG gas, a special kit is available to be fitted to the combustion head on the burner, as given in the following table:

BURNER	KIT CODE FOR "STANDARD HEAD" (*)	KIT CODE FOR "EXTENDED HEAD" (*)
▶ RLS 190/M MZ	3091796	3091796
▶ RLS 250/M MZ	in progress	in progress

(*) Without CE certification

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 190/M MZ	412	542	3010440 *
▶ RLS 250/M MZ	412	542	20029376

* 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 3010366

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 190/M − 250/M MZ	102	3000722

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 190/M − 250/M MZ	3010094

Accessories for modulating operation

To obtain modulating operation, the RLS/M MZ 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	TYPE	KIT CODE
▶ RLS 190/M − 250/M MZ	RWF 50.2	20099869
	RWF 55.5	20099905

PROBE

The relative temperature or pressure probes fitted to the regulator must be chosen on the basis of the application.
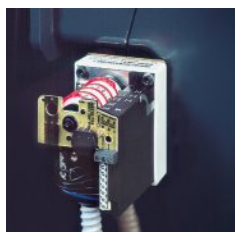
TYPE	RANGE (°C) (bar)	KIT CODE
Temperature PT 100	−100 ÷ 500°C	3010110
Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214
Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873

ANALOG CONTROL SIGNAL CONVERTER

| BURNER	TYPE (INPUT SIGNAL)	KIT CODE
▶ RLS 190/M − 250/M MZ	0/2 − 10 V (impedance 200 KΩ) 0/4 − 20 mA (impedance 250 Ω)	3010415

POTENTIOMETER KIT

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	KIT CODE
▶ RLS 190/M − 250/M MZ	3010416

RIELLO

Burner accessories

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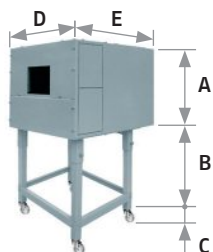
If noise emission needs reducing even further, sound-proofing boxes are available. In case of generator heights, where a lower dimension "B" is required, ask for the Box Support Kit code 20065135. The useful dimensions are 40 mm less than the total dimensions indicated in the table (A, D, E). Not suitable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

BURNER	BOX TYPE	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	BOX CODE
▶ RLS 190–250/M MZ	C4/5	850	160 – 980	110	980	930	10	3010404

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

Ground fault interrupter kit

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

BURNER	KIT CODE
▶ RLS 190–250/M MZ	20098337

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	LENGTH mm	ADAPTER CODE
DN 65 — 2" 1/2 — 2" / 2" 1/2 — 1" 1/2	300	3000825
DN 80 — 2" 1/2 — 2"	300	3000826
1" 1/2 — 2"	35	3000843
DN 100 — DN 80	50	3010370
	320	3010224

Gas train accessories

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
▶ MB/1 type	3010123	20050030
▶ MBC/1 type	3010123	20050030
▶ CB/1 type	3010123	20050030

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 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
	Grey	140 – 200	3090992
▶ CB 50100/1	Red	25 – 55	3010134
	Black	60 – 110	3010136
	Pink	100 – 150	3090489
	Grey	140 – 200	3092174
▶ CB 50125/1	Red	25 – 55	3010315
	Yellow	30 – 70	3010316
	Black	60 – 110	3010317
	Pink	100 – 150	3010318