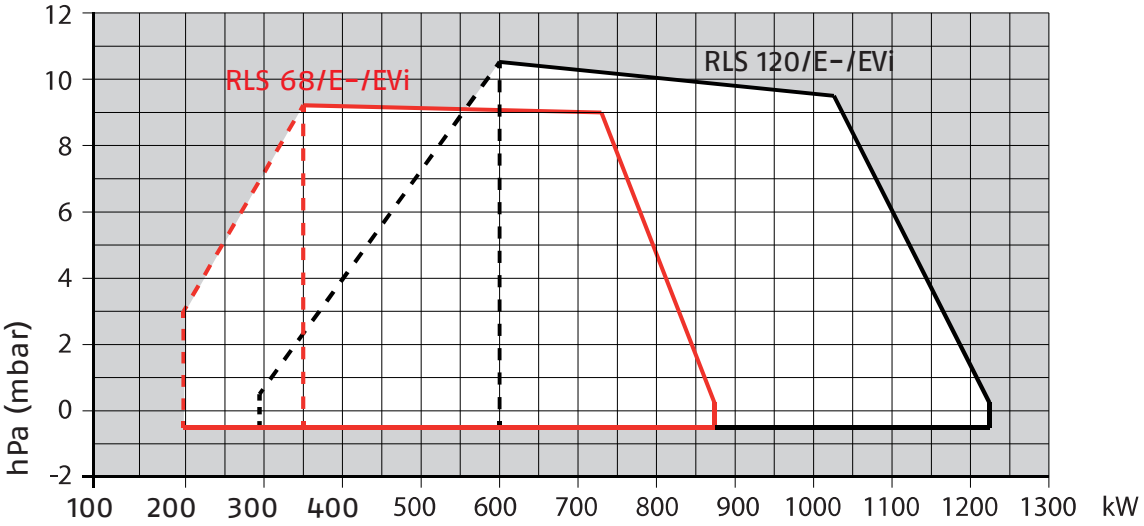
RLS 68÷200/E-EVi MX SERIES

The RLS/E-EVi MX series of burners covers a firing range from 350 to 2322 kW, and they have been designed for use in low or medium temperature hot water boilers, hot air or steam boilers, diathermic oil 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" with the installation of a PID logic regulator and respective probes.
RLS/E-EVi MX burners series guarantees high efficiency levels in all the various applications, thus reducing fuel consumption and running costs.
The RLS/EVi MX models, are available to operate with Variable Speed Drive technology based on the control of a Frequency Inverter that modifies the air flow through the motor speed variation; they leave the factory with the inverter installed on the fan motor, already settled for the startup and ready to operate correctly without any need of additional adjustments.
Optimisation of sound emissions is guaranteed by the special design of the air suction circuit and by **incorporated sound proofing material**.

RLS 68/E-EVi MX	195/350 ÷ 871	kW
RLS 120/E-EVi MX	290/595 ÷ 1224	kW
RLS 160/E-EVi MX	421/947 ÷ 1845	kW
RLS 200/E-EVi MX	401/1400 ÷ 2322	kW

RLS 68÷200/E-EVi MX SERIES

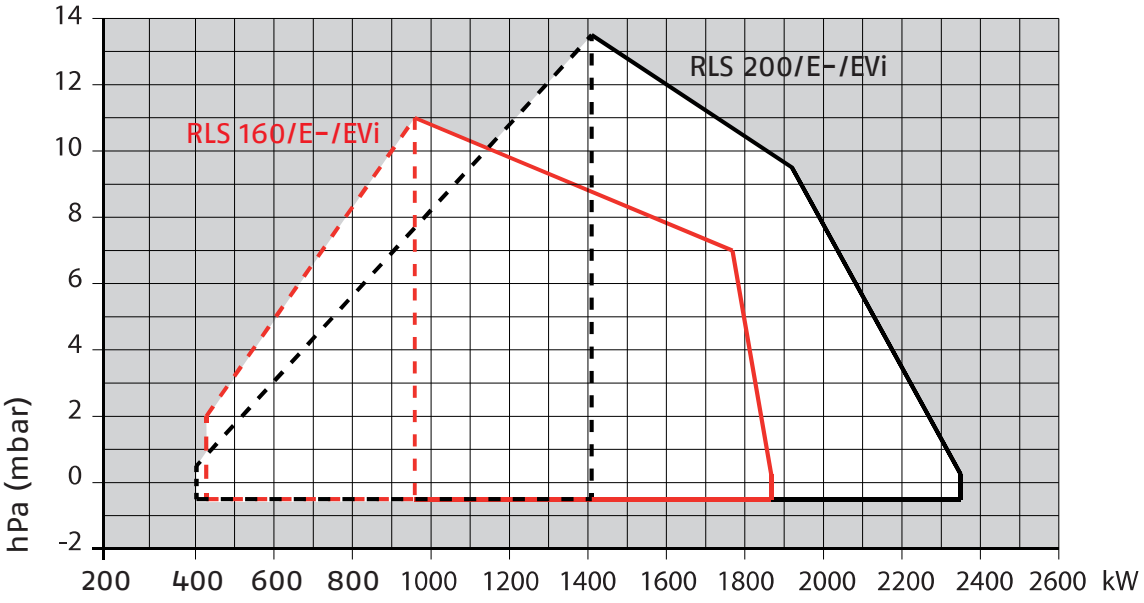
FIRING RATES



Useful working field for choosing the burner

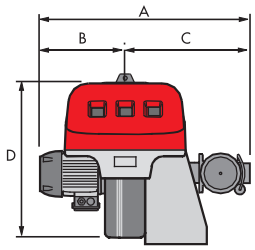
Modulation range

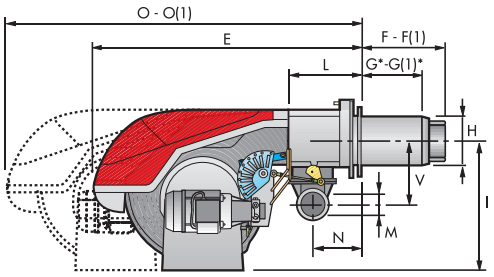
Test conditions conforming to EN267- EN676
Temperature: 20°C
Pressure: 1013,5 mbar
Altitude: 0 m a.s.l.



Overall dimensions (mm)

BURNER

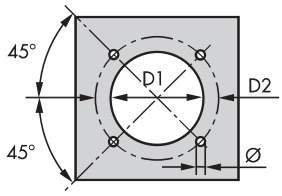




MODEL	A	B	C	D	E	F – F(1)	G* – G(1)*	H	I	L	M	N	O – O (1)	V
RLS 68/E-EVi MX	745	350	395	585	860	260 – 395	200 – 335	189	430	214	2"	134	1161 – 1300	221
RLS 120/E-EVi MX	765	370	395	585	860	260 – 395	200 – 335	189	430	214	2"	134	1161 – 1300	221
RLS 160/E-EVi MX	895	415	480	615	880	373 – 503	272 – 402	221	445	221	2"	141	1440 – 1575	262
RLS 200/E-EVi MX	935	455	480	615	880	373 – 503	272 – 402	221	445	221	2"	141	1440 – 1575	262

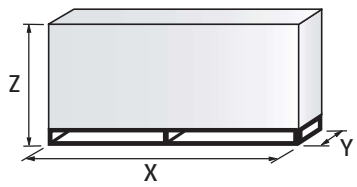
(1) Length with extended combustion head.
* Maximum depth of the boiler door including the depth of the burner flange insulating gasket.

BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RLS 68-120/E-EVi MX	195	275 – 325	M12
▶ RLS 160-200/E-EVi MX	230	325 – 368	M16

PACKAGING



MODEL	X (1)	Y	Z	kg
▶ RLS 68/E-EVi MX	1400	975	645	115
▶ RLS 120/E-EVi MX	1400	975	645	120
▶ RLS 160/E-EVi MX	1400 – 1500 (2)	975	645	135
▶ RLS 200/E-EVi MX	1400 – 1500 (2)	975	645	135

(1) Length with standard and extended combustion head.
(2) Length with extended combustion head.

RLS 68÷200/E-EVi 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	/EVi	MX	TC	FS1	3/400/50	230/50

BASIC DESIGNATION

EXTENDED DESIGNATION

Specification

STATE OF SUPPLY

Monoblock forced draught Low NOx dual fuel burner with two stage progressive or modulating operation at the gas and oil 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 controlled by a high precision servomotor
- starting motor at 2800 rpm, three-phase 400V with neutral, 50Hz
- Fan motor with installed Frequency Inverter to modify the air flow, on the RLS/EVi MX models
- 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
- flame control panel
- UV photocell for flame detection
- burner on/off 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.
- digital Burner management system for air/fuel setting; with output PID modulation control as accessory
- AZL Display Interface, for combustion system commissioning and monitoring
- electronic cam for controlling the system safety
- valve unit with double oil safety valve on the output circuit and a safety valve on the return circuit (RLS 68/E-EVi MX); double oil safety valve on the return circuit (RLS 120-160-200/E-EVi MX)

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 (W)	CERTIFICATION	NOTE
20073915	RLS 68/E MX TC FS1 3/230-400/50 230/50-60	195/350-871	16/29-73	20/35-87	1880 (oil) 1800 (gas)	CE 0085CS0238	(1)
20073918	RLS 120/E MX TC FS1 3/230-400/50 230/50-60	290/595-1224	24/50-95	29/60-123	2588 (oil) 2588 (gas)	CE 0085CS0238	(1)
20073920	RLS 160/E MX TC FS1 3/400/50 230/50-60	421/947-1845	35/80-155	42/95-185	6646 (oil) 5249 (gas)	CE 0085CS0238	(1)
20081721	RLS 200/E MX TC FS1 3/400/50 230/50-60	401/1400-2322	34/118-96	40/140-232	7705 (oil) 6638 (gas)	CE 0085CS0238	(1)
20070471	RLS 68/EVi MX TC FS1 3/400/50 230/50-60	195/350-871	16/29-73	20/35-87	1880 (oil) 1800 (gas)	CE 0085CS0238	(1)
20070476	RLS 120/EVi MX TC FS1 3/400/50 230/50-60	290/595-1224	24/50-95	29/60-123	2588 (oil) 2588 (gas)	CE 0085CS0238	(1)
20070482	RLS 160/EVi MX TC FS1 3/400/50 230/50-60	421/947-1845	35/80-155	42/95-185	6646 (oil) 5249 (gas)	CE 0085CS0238	(1)
20081715	RLS 200/EVi MX TC FS1 3/400/50 230/50-60	401/1400-2322	34/118-96	40/140-232	7705 (oil) 6638 (gas)	CE 0085CS0238	(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/E-EVi MX series are in according to 2014/30/EU - 2014/35/EU - 2006/42/CE Directives.
Before using EMI filter and ferrite kit, verify the installation or contact Riello Burners Commercial and Technical Department.
(1) with plug & socket

Available models

Gas Trains

GAS TRAIN			ADAPTER CODE			
CODE	MODEL	Ø	RLS 68	RLS 120	RLS 160	RLS 200
3970258	MB 410/1 - RT 52	Rp 1" ¼	3010126		●	●
3970554	MB 410/1 - RT 20	Rp ¾"			●	●
3970600	MB 410/1 - RT 52	Rp ¾"	3000824 + 3000843		●	●
3970230	MB 410/1 - RSM 20	Rp ¾"			●	●
3970256	MB 412/1 - RT 52	Rp 1" ½				●
3970144	MB 412/1 - RT 20	Rp 1" ½	3000843			●
3970231	MB 412/1 - RSM 20	Rp 1" ½				●
3970180	MB 415/1 - RT 30	Rp 1" ½				
3970250	MB 415/1 - RT 52	Rp 1" ½	3000843			
3970232	MB 415/1 - RSM 30	Rp 1" ½				
3970181	MB 420/1 - RT 30	Rp 2"				
3970257	MB 420/1 - RT 52	Rp 2"				
3970233	MB 420/1 - RSM 30	Rp 2"	□			
20137718*	VGD 50/1 - RT 122 (1)	Rp 2"				
20140762*	VGD 65/1 - FT 122	DN 65 (2)	3000826			
20140763*	VGD 80/1 - FT 122	DN 80	3000826			
20169193*	VGD 100/1 - FT 122	DN 100	●	●	●	●
20169195*	VGD 125/1 - 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) Additional flange kit code 20185515 needed for seal control function.
(2) øin = DN 65, øout = 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.
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

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

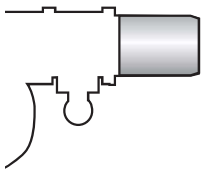
NOTE: each burner needs N° 1 nozzle.

BURNER	RATED OUTPUT kg/h	A3 NOZZLE CODE	A4 NOZZLE CODE
▶ RLS/E-EVi MX	40	3009853	20067277
▶ RLS/E-EVi MX	50	3009854	20067279
▶ RLS/E-EVi MX	60	3009855	20067281
▶ RLS/E-EVi MX	70	3009856	20067283
▶ RLS/E-EVi MX	80	3009857	20067284
▶ RLS/E-EVi MX	90	3009858	20067285
▶ RLS/E-EVi MX	100	3009859	20067286
▶ RLS/E-EVi MX	110	3009860	20067287
▶ RLS/E-EVi MX	120	3009861	20067288
▶ RLS/E-EVi MX	130	3009862	20067289
▶ RLS/E-EVi MX	140	3009863	20067290
▶ RLS/E-EVi MX	150	20059496*	20067291
▶ RLS/E-EVi MX	160	3009864	20067293
▶ RLS/E-EVi MX	180	3009865	20067295
▶ RLS/E-EVi MX	200	3009866	20067297

* 60° Angle

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/E-EVi MX	260	395	-
▶ RLS 160/E-EVi MX	373	503	-
▶ RLS 200/E-EVi MX	373	503	-

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/E-EVi MX	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.

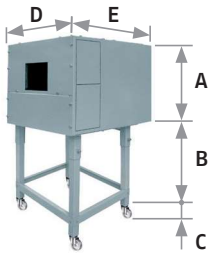
BURNER	KIT CODE
▶ RLS/E-EVi MX	3010094

Ground fault interrupter kit

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

BURNER	KIT CODE
▶ RLS/EVi MX	20098337

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/E-EVi MX RLS 160-200/E-EVi MX	C4/5	850	160 - 980	110	980	930	10	3010404

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

OCI412 interface kit

Interface kit between the LMV 26 and a Modbus system, such as a building automation and control system (BACS).
The Modbus interface is based on the RS-485 standard.

BURNER	KIT CODE
▶ RLS/E-EVi MX	3010437

Burner accessories

Accessories for modulating operation

To obtain modulating operation, the RLS/E-EV 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/E-EVi 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/E-EVi MX	Temperature PT 100	-100 ÷ 500°C	3010110
▶ RLS/E-EVi MX	Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
▶ RLS/E-EVi MX	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214
▶ RLS/E-EVi MX	Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873

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/E-EVi MX	20006401
▶ RLS 120/E-EVi MX	20006402
▶ RLS 160/E-EVi MX	3010249
▶ RLS 200/E-EVi MX	20035848

(*) CE approval on field is required

PC Interface kit

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

BURNER	KIT CODE
▶ RLS/E-EVi MX	3010436

EMI Filter and Ferrite

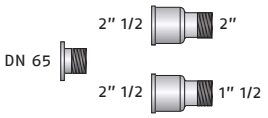
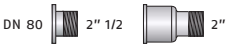
The KIT is required in case of Residential installations with direct connection in a public network (according to EN55014-1).
NOT required in case of Industrial installations with connection in a dedicated network (according to EN61000-6-4).

BURNER	KIT CODE
▶ RLS 68-120/E-EVi MX	20122917
▶ RLS 160-200/E-EVi MX	20122922

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
	50	3010370
	320	3010224

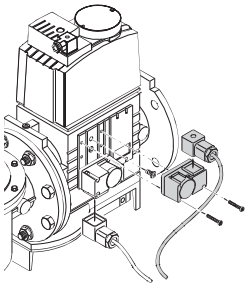
Stabiliser spring

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

Gas train accessories

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.
The PVP is included as standard equipment on RLS 120/E-EVi-160/E-EVi-200/E-EVi MX models.

GAS TRAIN	KIT CODE
▶ All MB models, VGD 65/1 - 80/1 - 100/1 - 125/1	3010344 (*)
▶ VGD 50/1	3010344 + 20185515 (**)

(*) Code 3010344 not necessary for RLS 120-160-200/E-EVi, where it is included as a standard.
(**) Code 20185515 always needed in case of seal control needed for VGD 50/1 gas train. Code 3010344 not necessary for RLS 120-160-200/E-EVi, where it is included as a standard.