

CE

RIELLO
B
BURNERS

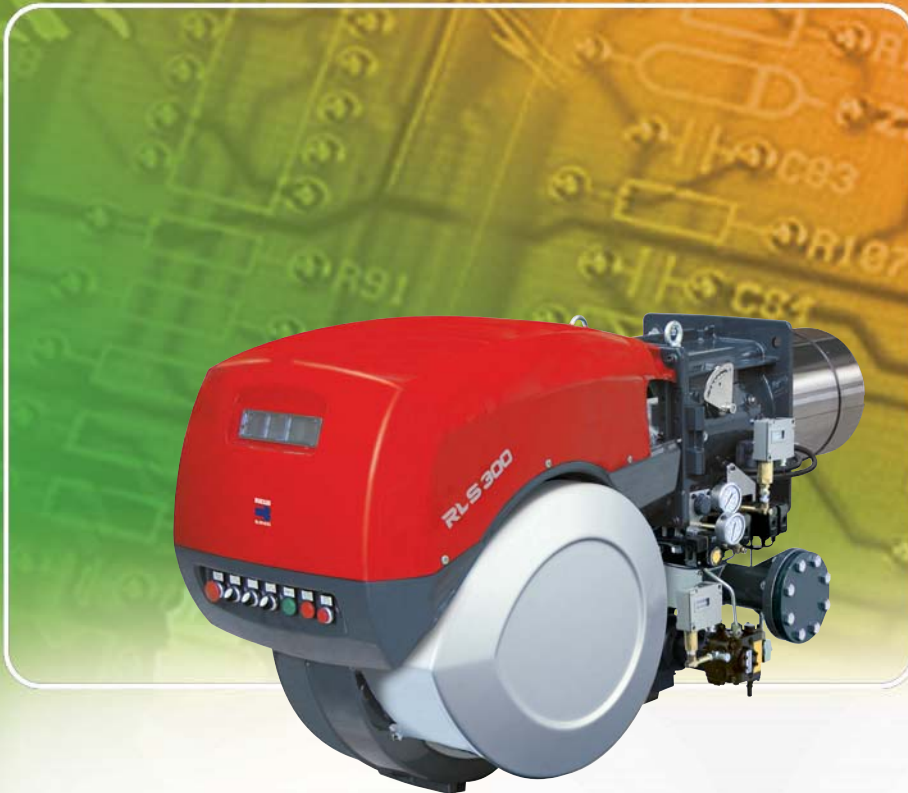


LOW NO_x DUAL FUEL BURNERS

▶ RLS/E MX SERIES

▶ RLS 300/E MX 600/1250 ÷ 3650 kW

▶ RLS 400/E MX 1000/2000 ÷ 4500 kW



RLS/E MX series 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 600 to 4500 kW, and they have been designed for use in hot water boilers, overheated water boilers as well as steamboilers. Operation can be "two stage progressive" or alternative "modulating" 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 innovative combustion head, adjustment system ensures perfect movement during modulation as well as reducing noise and pollutants.



TECHNICAL DATA

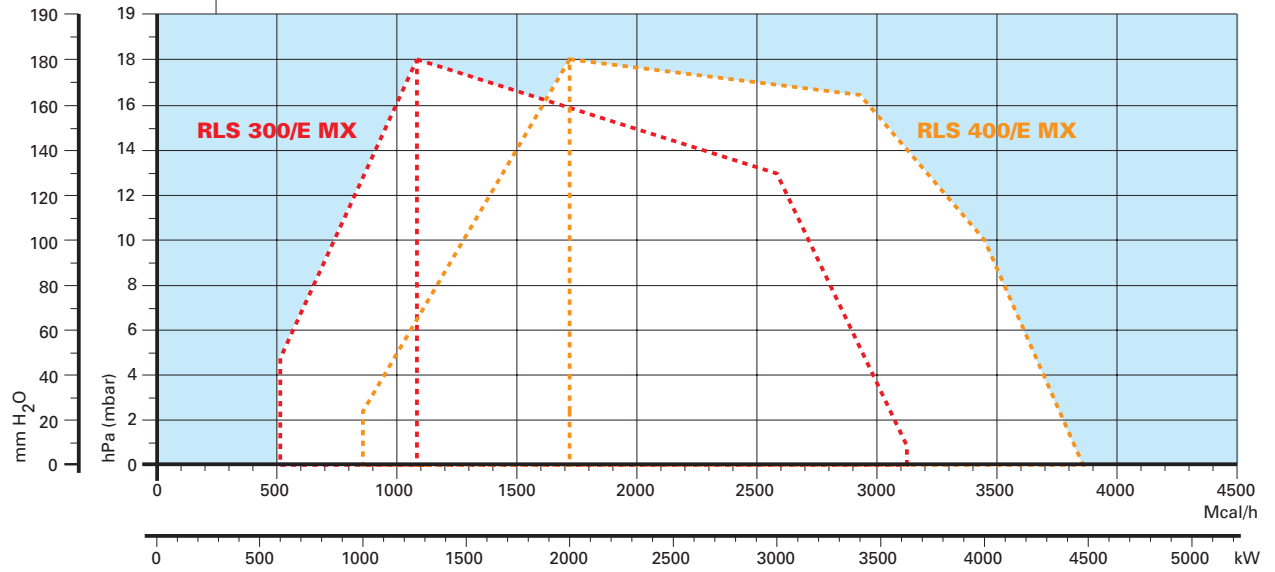
| Model | | | ▼ RLS 300/E MX | ▼ RLS 400/E MX |
|---------------------------------|--------------------------|--------------------------|-----------------------------------|------------------|
| Burner operation mode | | | two stages progressive/modulating | |
| Modulation ratio at max. output | | | 1 ÷ 4 | |
| Servomotor | run time | type | SQM 48 (OIL and GAS) | |
| | | s | | |
| Heat output | | kW | 600/1250 ÷ 3650 | 1000/2000 ÷ 4500 |
| | | Mcal/h | 516/1075-3139 | 860/1720-3870 |
| Working temperature | | | °C min./max. 0/60 | |
| Light Oil | net calorific value | kWh/kg | 11,86 | |
| | density | kg/l | 0,82 | |
| | viscosity at 20°C | mm ² /s (cSt) | 4-6 | |
| | delivery | kg/h | 50/105-308 | 84/169-380 |
| Pump | | type | TA4 | |
| | delivery | kg/h | 870 (20 bar) | |
| Atomised pressure | | | bar 12 | |
| Fuel temperature | | | max. °C 50 | |
| Fuel pre-heater | | | NO | |
| G20 | net calorific value | kWh/Nm ³ | 10 | |
| | density | kg/Nm ³ | 0,71 | |
| | gas delivery | Nm ³ /h | 60/125-365 | 100/200-450 |
| G25 | net calorific value | kWh/Nm ³ | 8,6 | |
| | density | kg/Nm ³ | 0,78 | |
| | gas delivery | Nm ³ /h | 70/145-424 | 116/232-523 |
| LPG | net calorific value | kWh/Nm ³ | -- | |
| | density | kg/Nm ³ | -- | |
| | gas delivery | Nm ³ /h | -- | |
| Fan | | | type reverse blade fan wheels | |
| Air temperature | | | max °C 60 | |
| Electrical supply | | | Ph/Hz/V 3/50/400 (±10%) | |
| Auxiliary electrical supply | | | Ph/Hz/V 1/50/430 (±10%) | |
| Control box | | | type included in LMV51 | |
| Total electrical power | | | 6,5 | 9,5 |
| Auxiliary electrical power | | | kW 2 | |
| Heaters electrical power | | | kW -- | |
| Protection level | | | IP 54 | |
| Pump motor electrical power | | | kW 1,5 | |
| Rated pump motor current | | | A 3,7 | |
| Pump motor start up current | | | A 7xIn | |
| Pump motor protection level | | | IP 54 | |
| Fan motor electrical power | | | 4,5 | 7,5 |
| Rated fan motor current | | | 9,1-15,8 | 17,5 - 30 |
| Fan motor start up current | | | 51-86 | 113 - 195 |
| Fan motor protection level | | | IP 54 | |
| Ignition transformer | | | type N.A. | |
| | | | V1 - V2 230 V - 2 x 5 kW | |
| | | | I1 - I2 1,9 A - 35 mA | |
| Working | | | intermittent (1 stop each 24 h) | |
| Sound pressure | | | 83 | 85 |
| Sound power | | | W N.A. | |
| Light Oil | CO emission | mg/kWh | < 10 | |
| | grade of smoke indicator | N° Bacharach | < 2 | |
| | CxHy emission | mg/kWh | < 2 | |
| | NOx emission | mg/kWh | < 185 | |
| G20 | CO emission | mg/kWh | < 10 | |
| | NOx emission | mg/kWh | < 80 | |
| Directive | | | 90/396 - 89/336 - 73/23 EEC | |
| Conforming to | | | EN 267 - EN 676 | |
| Certification | | | CE in progress | |

Reference conditions: Temperature: 20°C - Pressure: 1000 mbar - Altitude: 100 m a.s.l. - Noise measured at a distance of 1 meter.

Since the Company is constantly engaged in the production improvement, the aesthetic and dimensional features, the technical data, the equipment and the accessories can be changed.
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FIRING RATES



Useful working field for choosing the burner

Modulation range

Firing rate in progress

Test conditions conforming to EN 676:

Temperature: 20°C
 Pressure: 1000 mbar
 Altitude: 100 m a.s.l.





FUEL SUPPLY

▶ GAS TRAIN

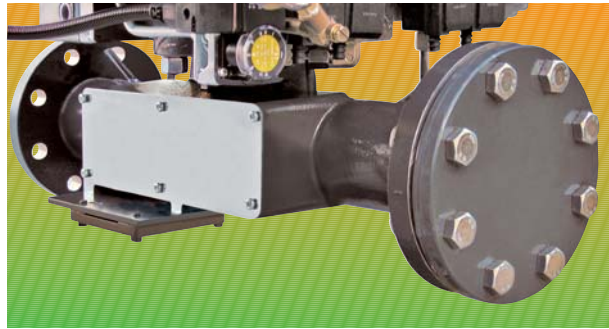
The burners are fitted with a butterfly valve to regulate the fuel, controlled by the main management module of burner through a high precision servomotor.

Fuel can be supplied either from the right or left sides, on the basis of the application requirements.

A maximum gas pressure switch stops the burner in case of excess pressure in the fuel line.

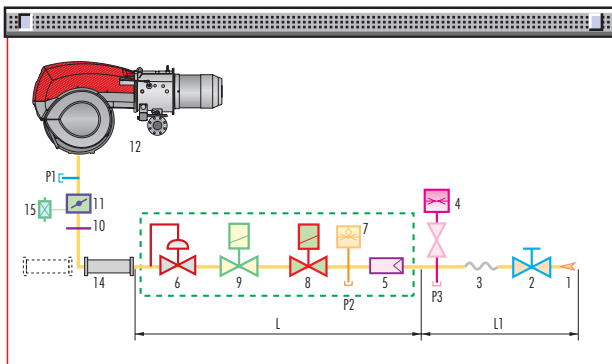
The gas train can be selected to best fit system requirements depending on the fuel output and pressure in the supply line.

The gas trains are "Composed" type (assembly of the single components) without seal control. This function is included in the burner management module.

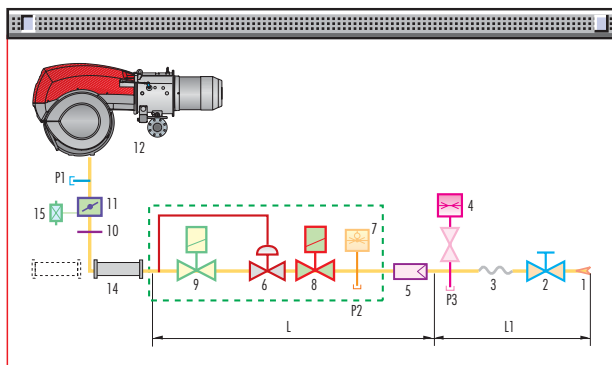


Example of the RLS/E MX gas adjustment butterfly valve equipped with an adapter type "L".

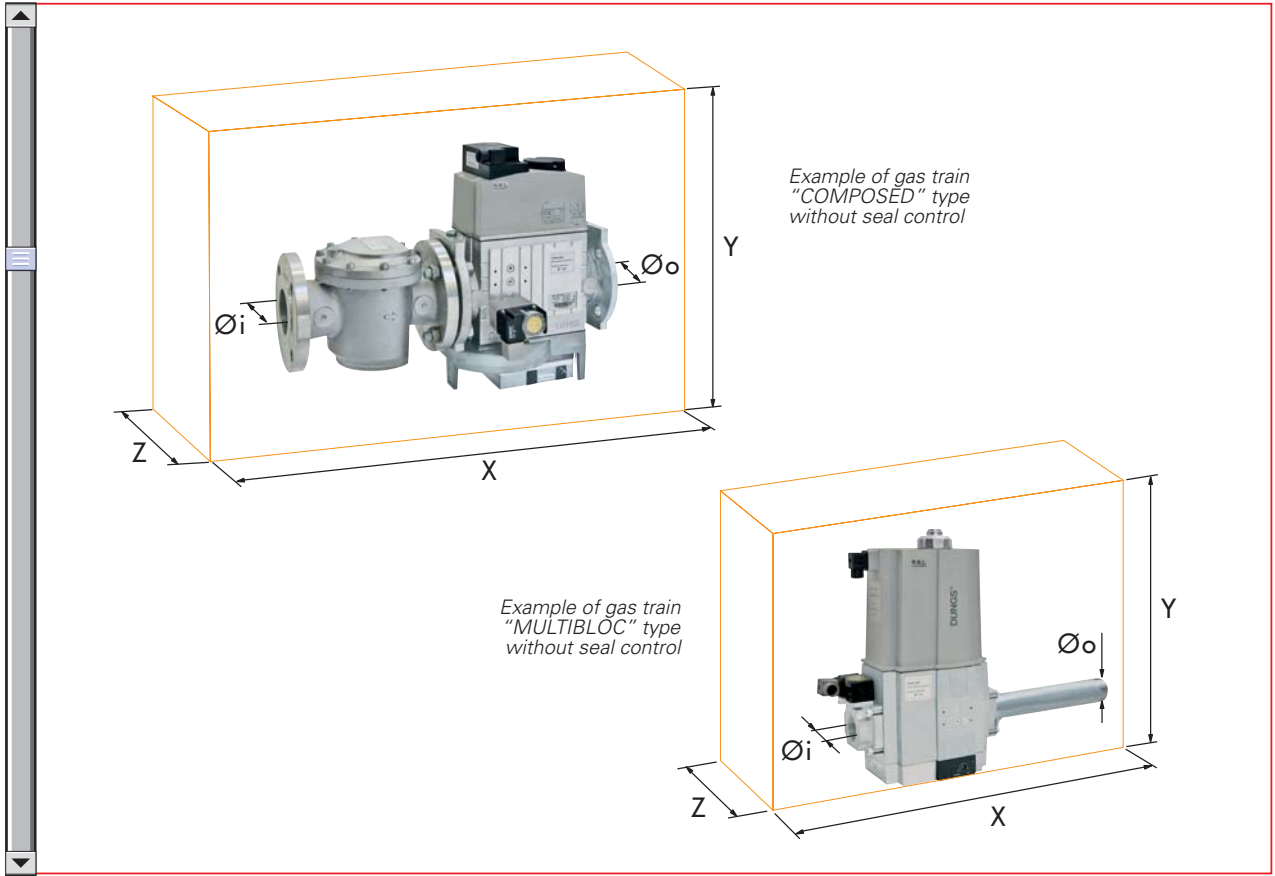
MULTIBLOC gas train type MBC 1200



COMPOSED gas train



| | |
|----|---|
| 1 | Gas input pipework |
| 2 | Manual valve |
| 3 | Anti-vibration joint |
| 4 | Pressure gauge with pushbutton cock |
| 5 | Filter |
| 6 | Pressure regulator (vertical) |
| 7 | Minimum gas pressure switch |
| 8 | VS safety solenoid (vertical) |
| 9 | VR regulation solenoid (vertical) Two settings: - firing output (rapid opening) - maximum output (slow opening) |
| 10 | Gasket and flange supplied with the burner |
| 11 | Gas adjustment butterfly valve |
| 12 | Burner |
| 14 | Gas train-burner adapter |
| 15 | Maximum gas pressure switch |
| P1 | Combustion head pressure |
| P2 | Pressure downstream from the regulator |
| P3 | Pressure upstream from the filter |
| L | Gas train supplied separately, with the code given in the table |
| L1 | Installer's responsibility |



Gas trains are approved by standard EN 676 together with the burner.

The overall dimensions of the gas train depends on how they are constructed. The following table shows the maximum dimensions of the gas trains that can be fitted to RLS 300-400/E MX burners, intake and outlet diameters and seal control if fitted.

The maximum gas pressure of gas train "Multibloc" type is 360 mbar, and that one of gas train "Composed" type is 500 mbar.

MULTIBLOC guarantees a range of pressure toward the burner from 3 to 60 mbar. For version DN 65 and DN 80 is from 20 to 40 mbar. The range of pressure in the MULTIBLOC with flange can be modified choosing the stabiliser spring (see gas train accessory).

| | Name | Code | Ø i | X mm | Y mm | Z mm | Seal Control |
|---------------------------------|---------------------------|---------|--------|------|------|------|--------------|
| MULTIBLOC GAS TRAINS | MBC 1200 SE 50 | 3970221 | 2" | 573 | 161 | 425 | (*) |
| | MBC 1900 SE 65 FC | 3970222 | DN 65 | 583 | 237 | 430 | (*) |
| COMPOSED GAS TRAINS | MBC 3100 SE 80 FC | 3970223 | DN 80 | 633 | 240 | 500 | (*) |
| | MBC 5000 SE 100 FC | 3970228 | DN 100 | 733 | 350 | 576 | (*) |

(*) the seal control is managed by the electronic cam LMV51



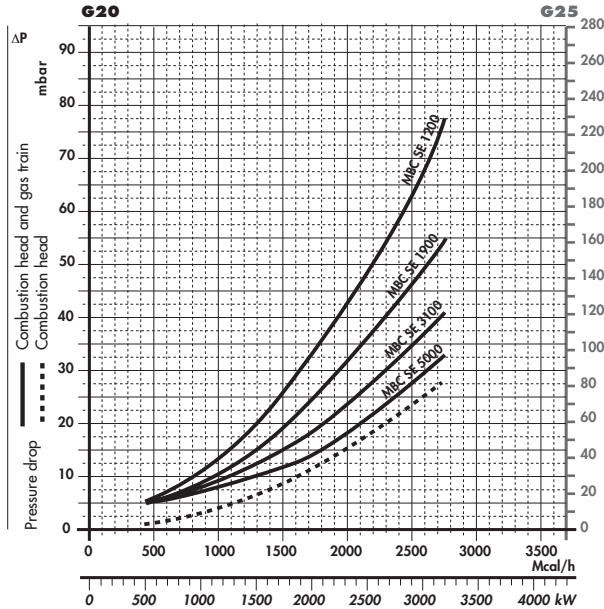


PRESSURE DROP DIAGRAM

The diagrams indicate the minimum pressure drop of the burners with the various gas trains that can be matched with them; at the value of these pressure drop add the combustion chamber pressure. The value thus calculated represents the minimum required input pressure to the gas train.

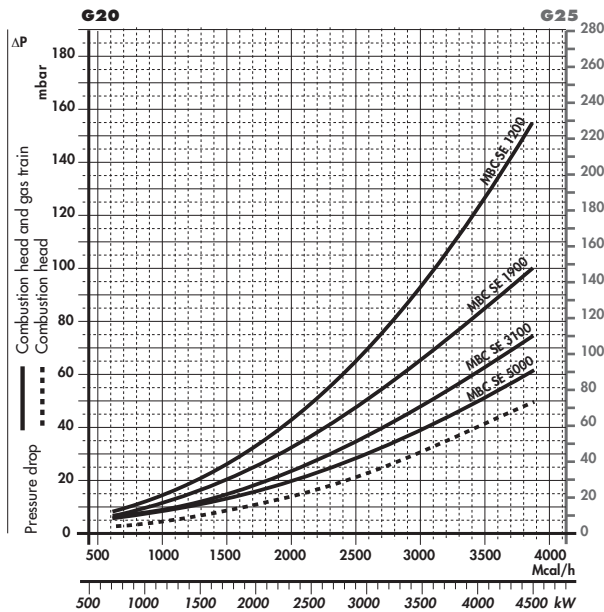
NATURAL GAS

RLS 300/E MX



| Gas train | Code | Adapter | Seal Control |
|--------------------|---------|---------------|--------------|
| MBC 1200 SE 50 | 3970221 | 3000826 (I) | -- |
| MBC 1900 SE 65 FC | 3970222 | 3010221 (I) | -- |
| MBC 3100 SE 80 FC | 3970223 | 3010222 (I) | -- |
| MBC 5000 SE 100 FC | 3970228 | 3970223 (I) | -- |

RLS 400/E MX



| Gas train | Code | Adapter | Seal Control |
|--------------------|---------|---------------|--------------|
| MBC 1200 SE 50 | 3970221 | 3000826 (I) | -- |
| MBC 1900 SE 65 FC | 3970222 | 3010221 (I) | -- |
| MBC 3100 SE 80 FC | 3970223 | 3010222 (I) | -- |
| MBC 5000 SE 100 FC | 3970228 | 3970223 (I) | -- |

Pressure drop diagram in progress.

note Please contact the Riello Burner Technical Office for different pressure levels from those above indicated and refer to the technical manual for the correct choice of the spring.

SELECTING THE FUEL SUPPLY LINES

The following diagram enables pressure drop in a pre-existing gas line to be calculated and to select the correct gas train.

The diagram can also be used to select a new gas line when fuel output and pipe length are known. The pipe diameter is selected on the basis of the desired pressure drop. The diagram uses methane gas as reference; if another gas is used, conversion coefficient and a simple formula (on the diagram) transform the gas output to a methane equivalent (refer to figure A). Please note that the gas train dimensions must take into account the back pressure of the combustion chamber during operations.

Control of the pressure drop in an existing gas line or selecting a new gas supply line.

The methane output equivalent is determined by the formula fig. A on the diagram and the conversion coefficient.

Once the equivalent output has been determined on the delivery scale (\dot{V}), shown at the top of the diagram, move vertically downwards until you cross the line that represents the pipe diameter; at this point, move horizontally to the left until you meet the line that represents the pipe length.

Once this point is established you can verify, by moving vertically downwards, the pipe pressure drop of on the bottom scale below (mbar).

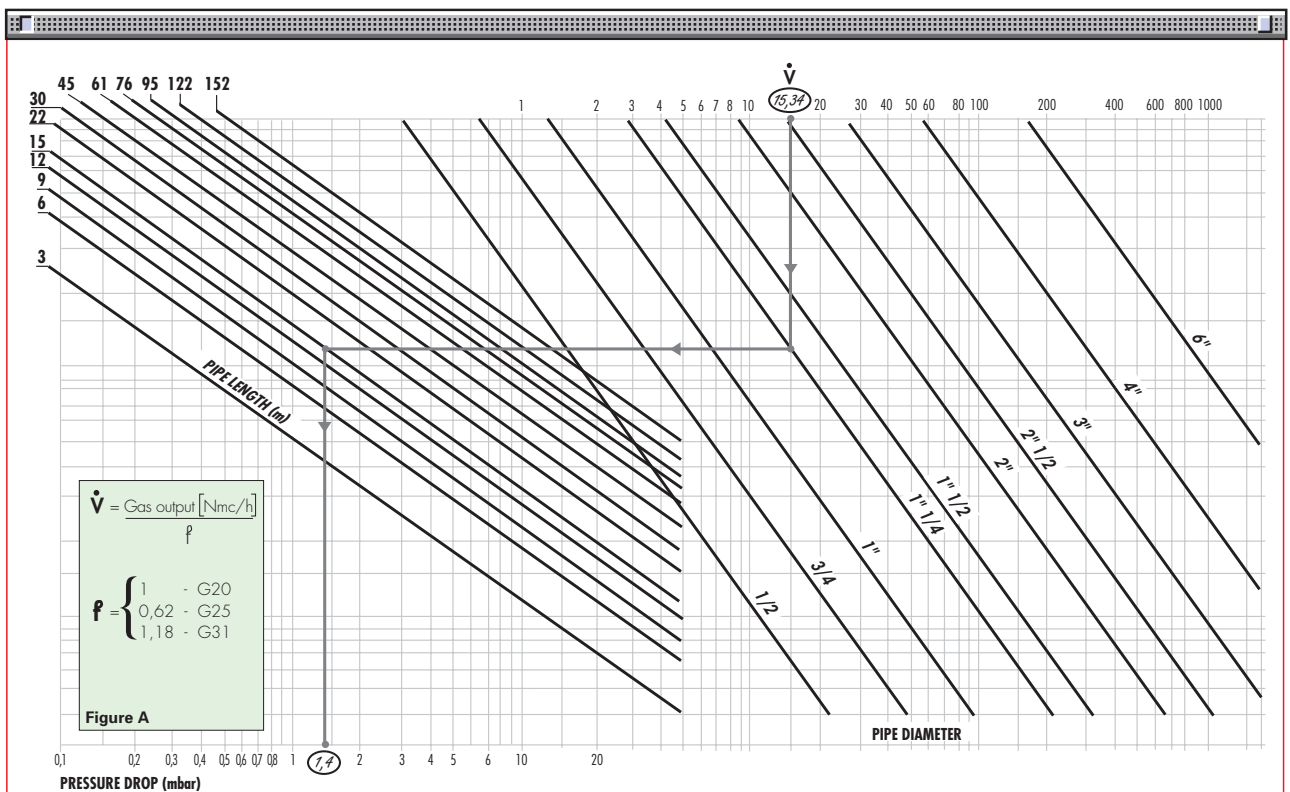
By subtracting this value from the pressure measured on the gas meter, the correct pressure value will be found for the choice of gas train.

Example:

| | |
|-----------------------------|---------------------|
| - gas used | G25 |
| - gas output | 9.51 mc/h |
| - pressure at the gas meter | 20 mbar |
| - gas line length | 15 m |
| - conversion coefficient | 0.62 (see figure A) |

- equivalent methane output $\dot{V} = \left[\frac{9.51}{0.62} \right] = 15.34 \text{ mc/h}$

- once the value of 15.34 has been identified on the output scale (\dot{V}), moving vertically downwards you cross the line that represents 1" 1/4 (the chosen diameter for the piping);
- from this point, move horizontally to the left until you meet the line that represents the length of 15 m of the piping;
- move vertically downwards to determine a value of 1.4 mbar in the pressure drop bottom scale;
- subtract the determined pressure drop from the meter pressure, the correct pressure level will be found for the choice of gas train;
- correct pressure = (20-1.4) = 18.6 mbar



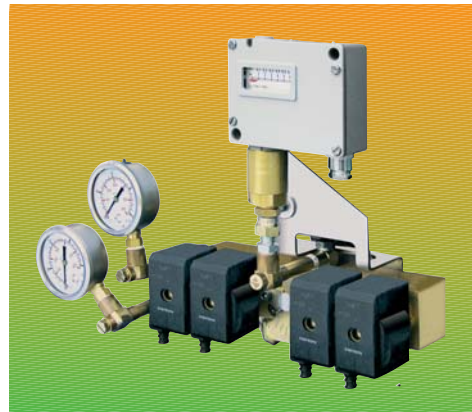


HYDRAULIC CIRCUIT

The hydraulic circuit of the RLS/E MX series of burners is characterised by a fuel pump with an independent motor. The burners have two safety valves for the light oil, one on the delivery circuit and one on the return circuit; the use of a nozzle with shut-off needle gives even further safety.

A three way valve is associated to the actuator for opening and closing the nozzle needle, and a servo-driven pressure variator on the return circuit gives utmost precision to the amount of fuel burnt.

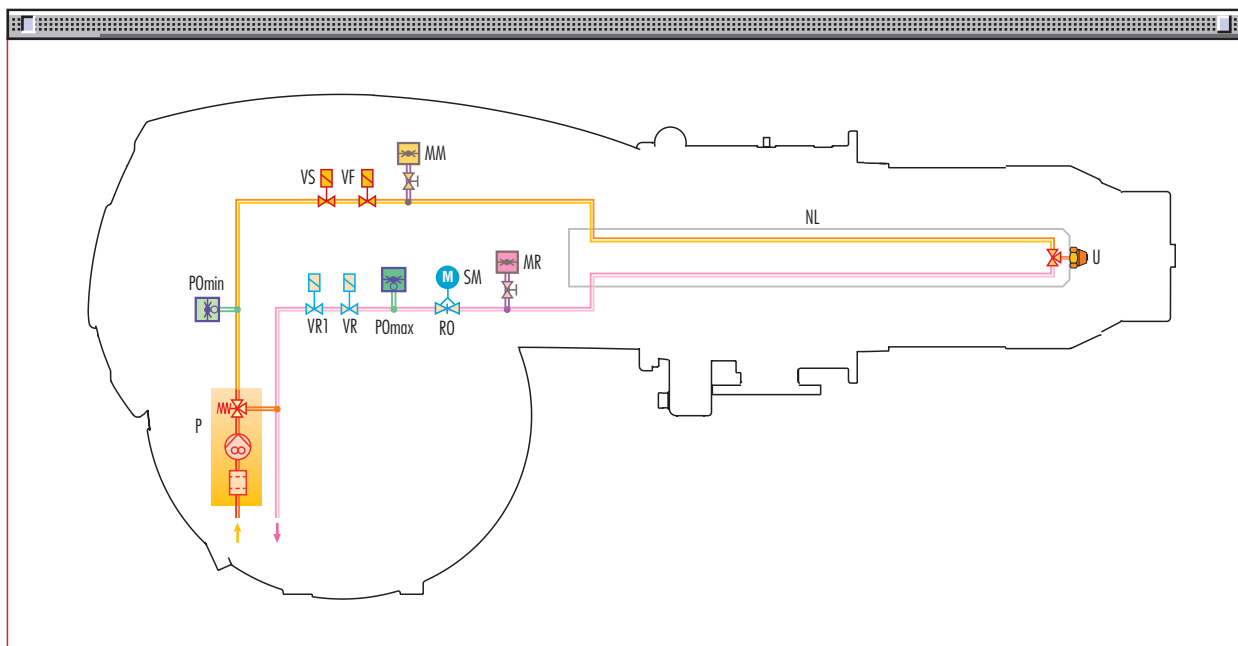
A minimum pressure switch on the oil delivery line means that the burners are suitable, from a hydraulic point of view, for use in steam generators that correspond to TRD 604 (Germany), NBN (Belgium) standards. For further information on RLS/E MX burners series versions with "continuous operation" contact Riello Burners Technical Office.



Example of the RLS/E MX burner hydraulic circuit

| | |
|--------|--|
| P | Pump with filter and pressure regulator |
| PO min | Min. oil pressure switch on the delivery circuit |
| VF | Operating valve |
| VS | Safety valve on the delivery circuit |
| MM | Pressure gauge on the delivery circuit |
| NL | Nozzle pipe |
| U | Nozzle |
| AT | Actuator for opening and closing the nozzle needle |
| MR | Pressure gauge on the return circuit |
| SM | Servomotor |
| RO | Pressure regulator on the return circuit |
| PO max | Max. oil pressure switch on the return circuit |
| VR | Safety valve on the return circuit |
| VR1 | Safety valve on the return circuit |

EN 267 > 100 Kg/h (TRD 604, NBN)



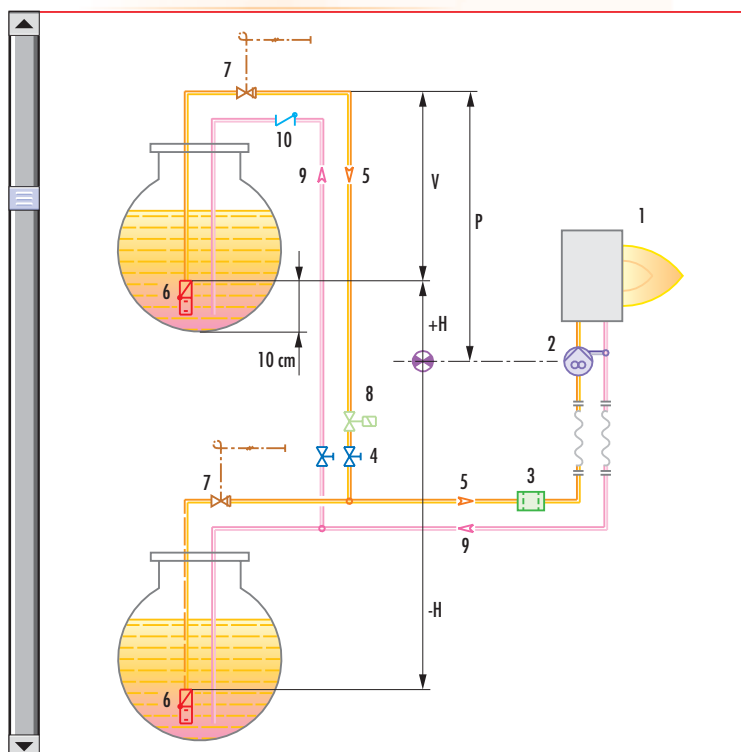


▶ SELECTING THE FUEL SUPPLY LINES

The fuel feed must be completed with the safety devices required by the local norms.

The table shows the choice of piping diameter, depending on the difference in height between the burner and the tank and their distance.

| MAXIMUM EQUIVALENT LENGTH FOR THE PIPING L[m] | | |
|---|----------------------|----------------------|
| Model | ▼ RLS/E MX | |
| Diameter piping | Ø1/2" | Ø 3/4" |
| +H, -H (m) | L _{max} (m) | L _{max} (m) |
| +2,0 | 25 | 85 |
| +1,5 | 23 | 80 |
| +1,0 | 20 | 70 |
| +0,5 | 18 | 65 |
| 0 | 15 | 60 |
| -0,5 | 12 | 50 |
| -1,0 | 10 | 45 |
| -1,5 | 8 | 35 |
| -2,0 | 5 | 30 |
| -3,0 | 3 | 15 |



| | |
|----|---|
| H | Difference in height pump-foot valve |
| Ø | Internal pipe diameter |
| P | Max. height 10 m |
| V | Height 4 m |
| 1 | Burner |
| 2 | Burner pump |
| 3 | Filter |
| 4 | Manual shut off valve |
| 5 | Suction pipework |
| 6 | Bottom valve |
| 7 | Remote controlled rapid manual shut off valve (compulsory in Italy) |
| 8 | Type approved shut off solenoid valve (compulsory in Italy) |
| 9 | Return pipework |
| 10 | Check valve |

▶ **note** With ring distribution oil systems, the feasible drawings and dimensioning are the responsibility of specialised engineering studios, who must check compatibility with the requirements and features of each single installation.



VENTILATION

The ventilation unit comes with a sound proofing radial regulating system.

All the burners in the RLS/E MX series are fitted with fans with

reverse curve blades, which give excellent performance and are fitted in line with the combustion head. The air flow and sound-deadening materials used in the construction are designed to reduce sound emissions to the minimum and guarantee high levels of performance in terms of output and air pressure.

A high precision servomotor through the main management module installed on each burner of RLS/E MX series, controls the air dampers position constantly, guaranteeing an optimal fuel-air mix.



Example of a sound proofing radial regulating system



COMBUSTION HEAD

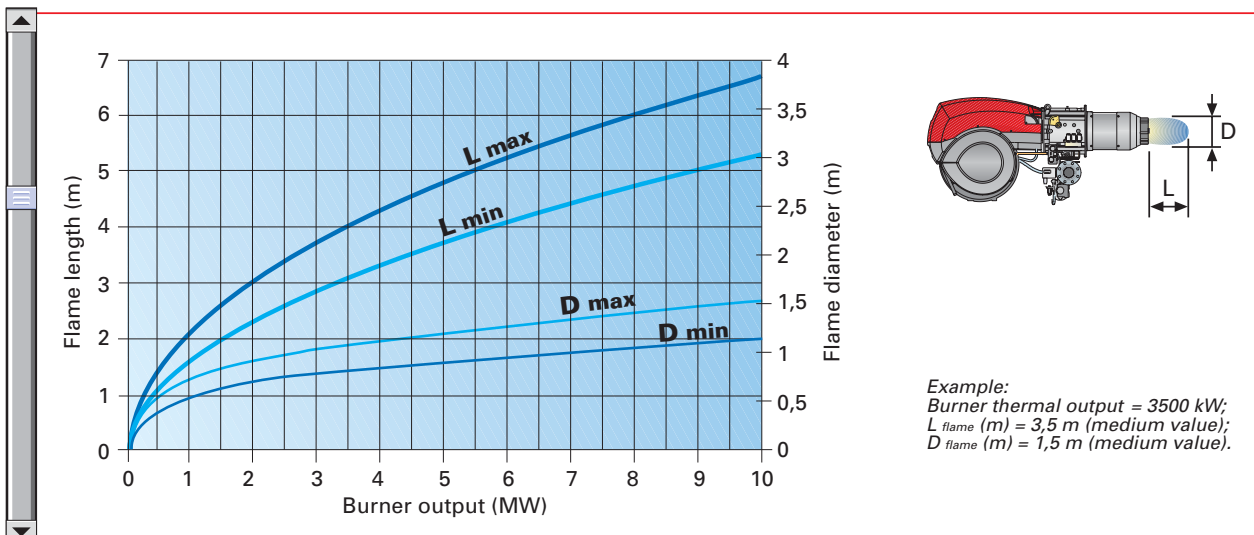
The innovative combustion head adjustment system ensures perfect movement during modulation as well as reducing noise and pollutants.

Simple adjustment of the combustion head allows to adapt internal geometry of the head to the output of the burner. The same adjustment servomotor for the air damper also varies, depending on the required output, the setting of the combustion head, through a simple lever. This system guarantees excellent mix on all firing rates range.



Example of a RLS/E MX burner combustion head

Flame dimensions



ADJUSTMENT



BURNER OPERATION MODE

Each RLS/E MX series burner is equipped with an electronic microprocessor management panel, which controls the air damper servomotor as well the fuel servomotors.



Main management module for RLS/E MX series

Hysteresis is prevented by the precise control of the two servomotors and the software link by can - bus.

The high precision regulation is due to the absence of mechanical clearance normally found in mechanical regulation cams on traditional modulating burners.

In the RLS/E MX series burner the standard working is two stage progressive and the PID regulator, to control the boiler temperature or pressure, is available as accessories.

For the burner commissioning the display and operating unit (AZL) is necessary whereas PID regulator is enough to visualize burner combustion data and to change the set point.

The burner can run for a long time on intermediate output settings (see fig. A).

The display and operating unit (AZL) can shows all operational

parameters in real time, so as to keep a constant check on the burner:

- servomotor angle
- required set-point and actual set-point
- burner stage
- error checking, self diagnostic fault analysis.

| Electronic cam management table | |
|--|--------------------------------------|
| Function | LMV 51 |
| Intermittent operation | ● |
| Continuous operation | ● |
| Intermittent operation flame detector | Ionisation Probe |
| Continuous operation flame detector | Ionisation Probe / Infrared Detector |
| Numbers of regulating servomotors | 4 |
| Stepper actuators | ● |
| Variable Speed Drive (VSD) | -- |
| Input O ₂ probe | -- |
| Buil in O ₂ regulator | -- |
| Single fuel operation | ● |
| Double fuel operation (different timing for oil and gas) | ● |
| Gas valve proving system | ● |
| Built in temperature pressure PID regulator | ○ |
| Remote Unit Control (max. distance: m.) | 100 |
| Fuel meter | -- |
| Output Load Efficiency with digital signal | ● |
| Efficiency Indicator with capacity of flow meter | -- |
| External e-Bus Interface (AZL) | ○ |
| Commissioning PC Interface (AZL) | ○ |
| Commissioning Interface Display (AZL) | ○ |

- Included in supply
- As accessory

"Modulating" operation

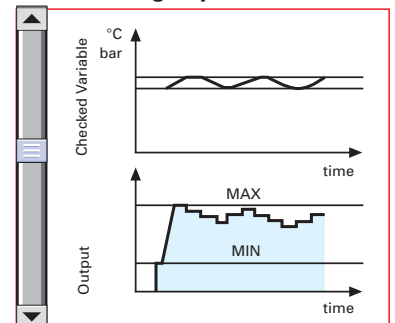


Figure A

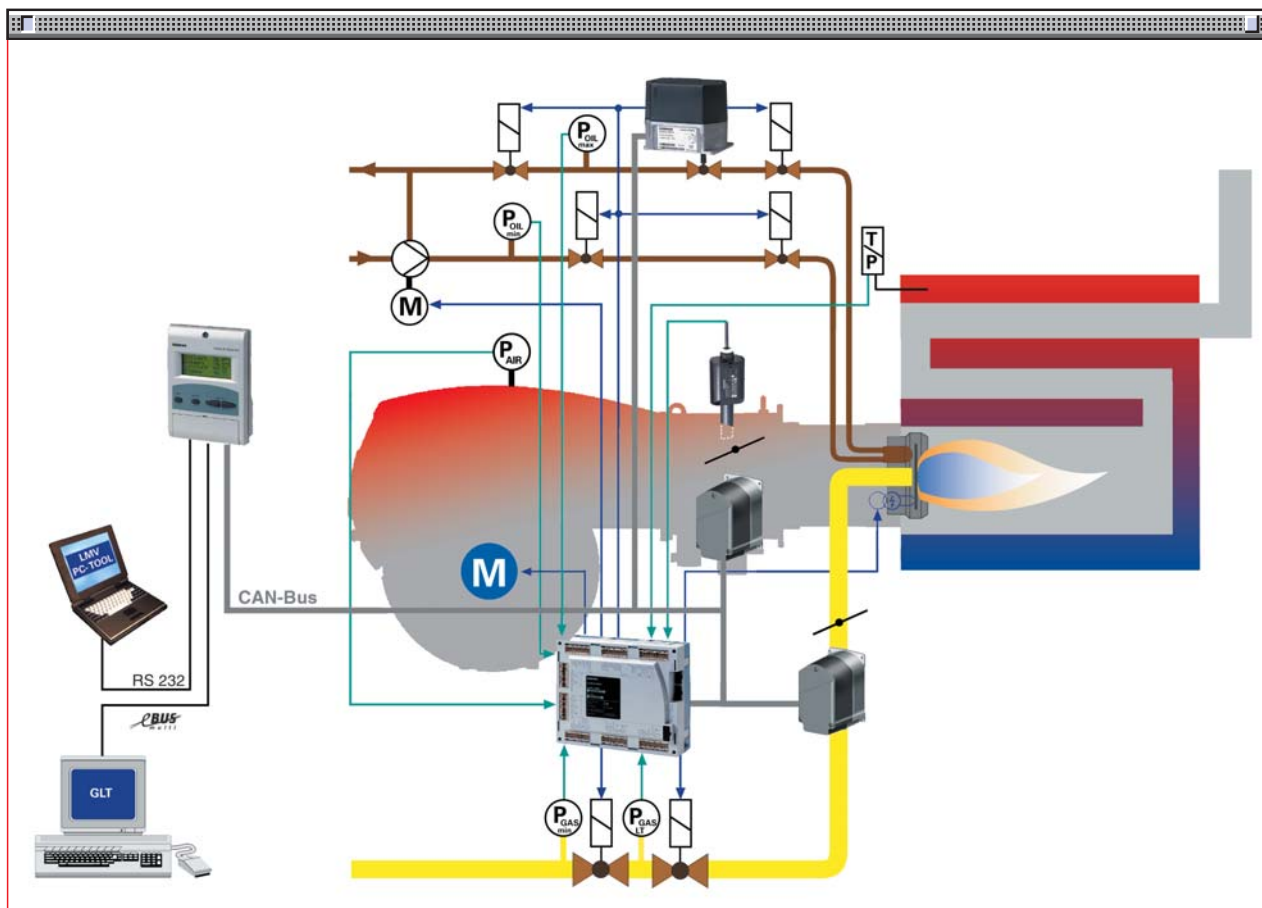


Burner management system

The new electronic cam is a microprocessor based burner management system with matching system components for the control and supervision of forced draft burners.

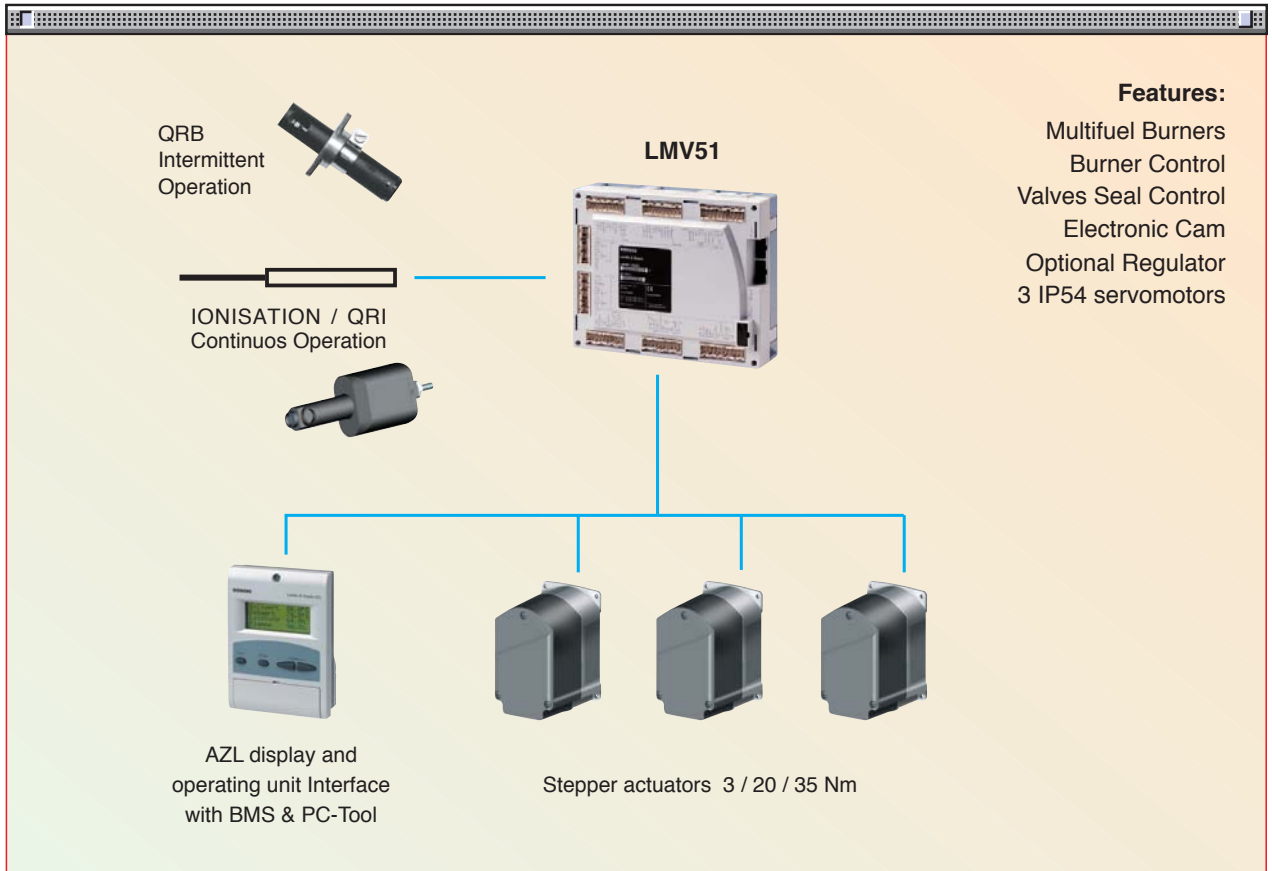
The system components are interconnected via a bus system.

Communication between the individual bus users takes place via a reliable system-based data bus. All safety-related digital outputs of the system are permanently monitored via a contact feedback network.



Example of burner management system in dual fuel burner configuration

Electronic Cam Platform



START UP CYCLE

RLS 300-400/E MX

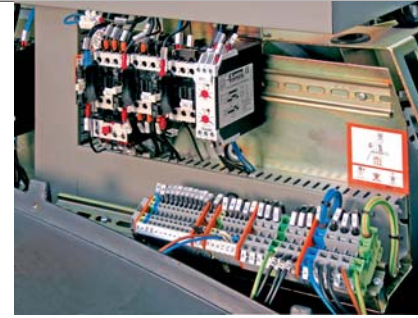


- 1 - Closing thermostat
- 2 - Closing thermostat
- 3 - Fan motor working
- 4 - Ignition transformer
- 5 - Valves open
- 6 - Actuators
- 7 - Flame max. - min.



WIRING DIAGRAMS

Electrical connections must be made by qualified and skilled personnel, according to the local norms.

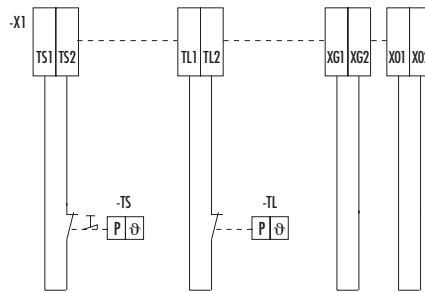
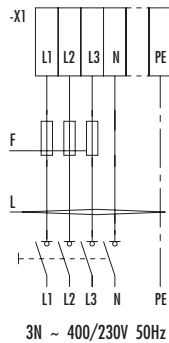


Example of the terminal board for electrical connections

THREE PHASE SUPPLY TO THE POWER CIRCUIT AND CONNECTING THE AUXILIARY CONTROLS

RLS 300-400/E MX

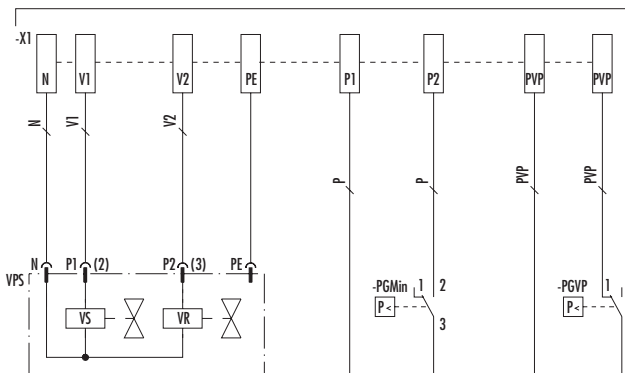
Triggering / Safety devices



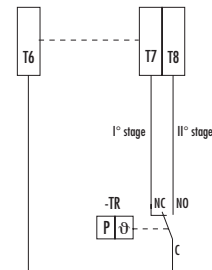
- X1** - General supply terminal board
- TS** - Safety thermostat
- TL** - Threshold thermostat
- F** - Fuse (see table A)
- L** - Lead section (see table A)

CONNECTION OF THE PROBES FOR THE CONTROLLED PARAMETER AND DATA CONNECTION FOR THE VARIOUS MODULES (Accessories)

Gas valve + PVP leak detection

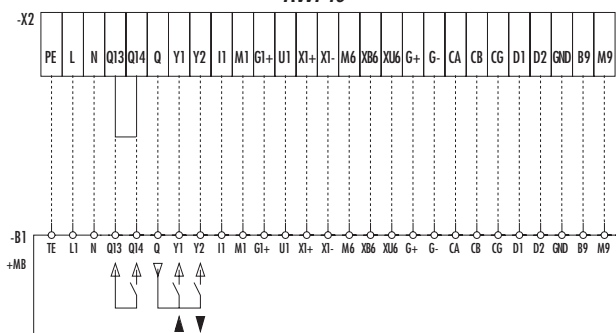


Power regulation with 3-position contact

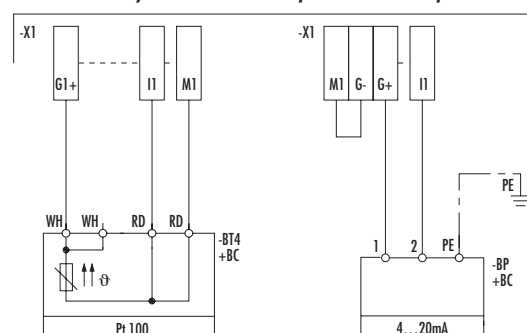


- TR** - High/Low flame setting thermostat
- VPS** - Seal control
- VS** - Safety valve
- VR** - Adjustment valve
- BT4** - Temperature probe
- BP** - Pressure probe
- PGVP** - Gas pressure switch for leak detection control device
- PGMin** - Minimum gas pressure switch
- X1** - Main supply terminal strip
- X2** - Terminal strip for RWF40 connection
- MB** - Burner terminal board

RWF40

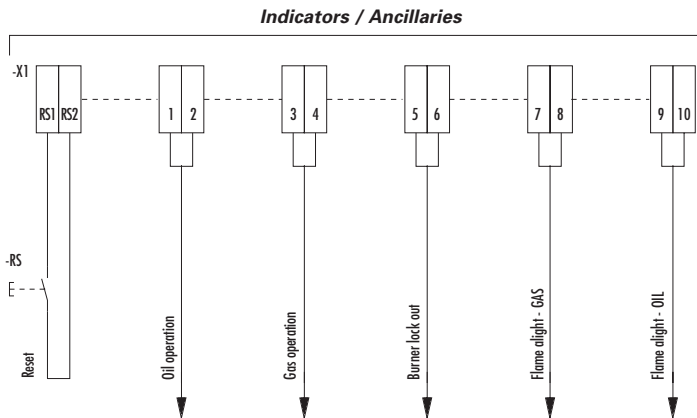


Possibility of modulation input with Riello probe



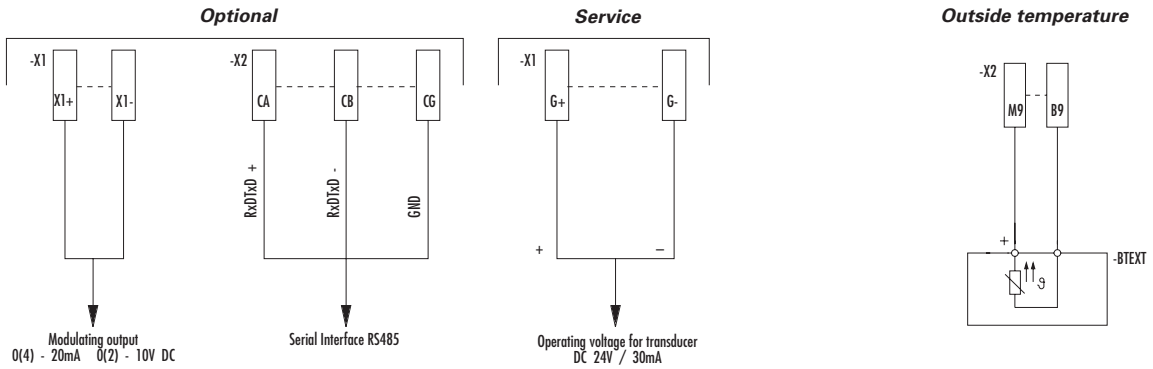


OPTIONAL CONNECTION

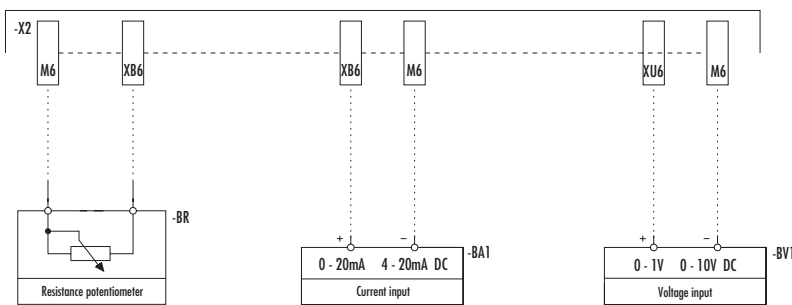


X1 - Main supply terminal strip
RS - Remote lock-out reset button

OPTIONAL CONNECTION POWER REGULATOR

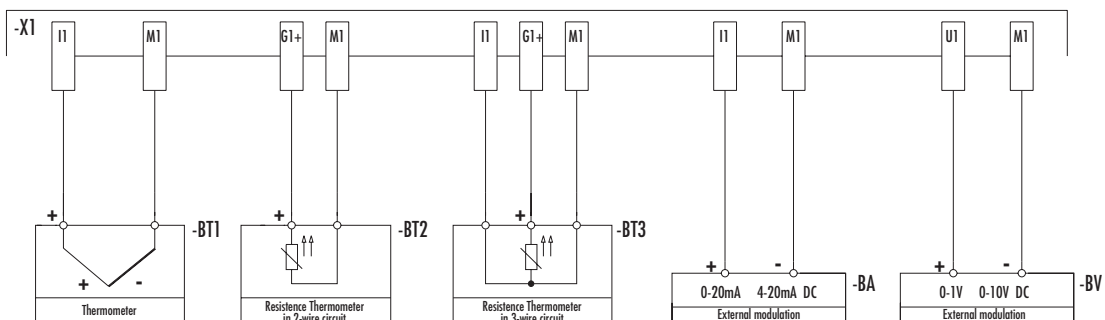


Possibility of setpoint input and setpoint shift



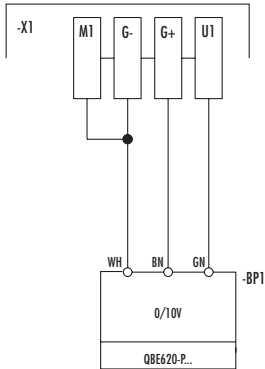
- BA** - DC input 0...20mA, 4...20mA
- BA1** - DC input 0...20mA, 4...20mA for modifying the remote setpoint
- BR** - Resistance potentiometer
- BT1** - Thermocouple probe
- BT2** - Probe with 2 wires
- BT3** - Probe with 3 wires
- BTEXT** - Outside temperature
- BV** - DC voltage input 0...1V, 0...10V
- BV1** - DC voltage input 0...1V, 0...10V for modifying the remote setpoint
- X1** - Main supply terminal strip
- X2** - Terminal strip for RWF40 connection

Possibility of modulation input

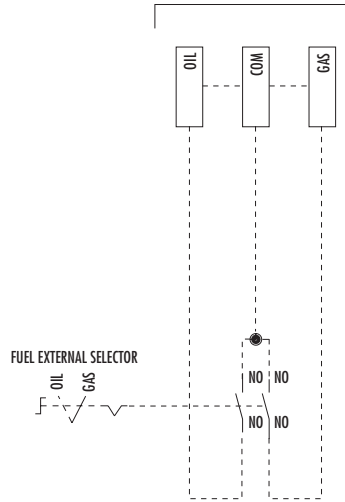




Modulation input with QBE620-P..



Fuel remote selector



X1 - Main supply terminal strip
BP1 - Pressure probe

The following table shows the supply lead sections and the type of fuse to be used.

| Model | | ▼ RLS 300/E MX | ▼ RLS 400/E MX |
|-------|-----------------|----------------|----------------|
| F | A | 16 aM | 25 aM |
| L | mm ² | 4 | 6 |

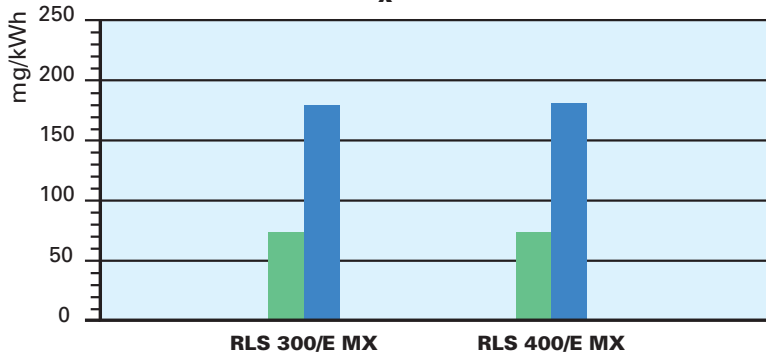
Table A



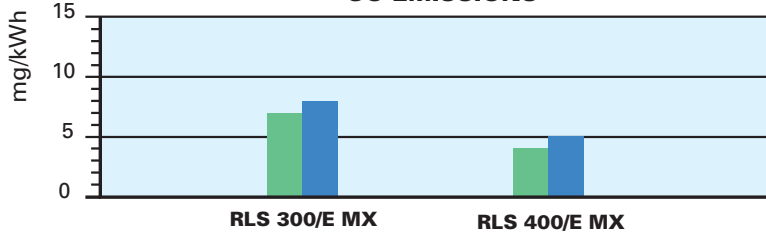
EMISSIONS



NO_x EMISSIONS

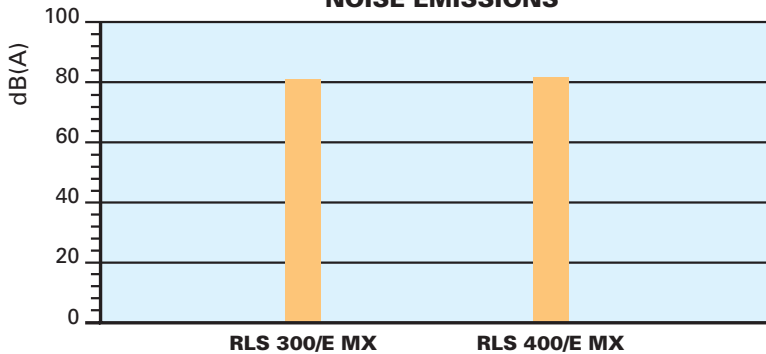


CO EMISSIONS



Gas working
Light oil working

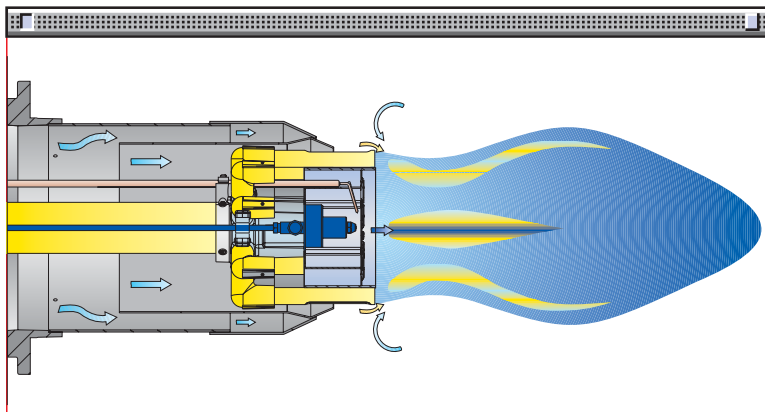
NOISE EMISSIONS



The emission data has been measured in the various models at maximum output, according to EN 676 and EN 267 standard.

The RLS/E MX series combustion head reduce polluting emissions thanks to their special design which optimises the air fuel mix.

Combustion head operating diagram of RLS/E MX series



In the RLS/E MX series part of the gas is distributed through outlets which the remaining gas is injected directly into the centre of the flame. This prevents no homogeneous concentrations in the flame with areas of high oxidation, producing very stable flame with gradual and progressive combustion as the flame develops, thus giving polluting emission values below even the most restrictive norm values.

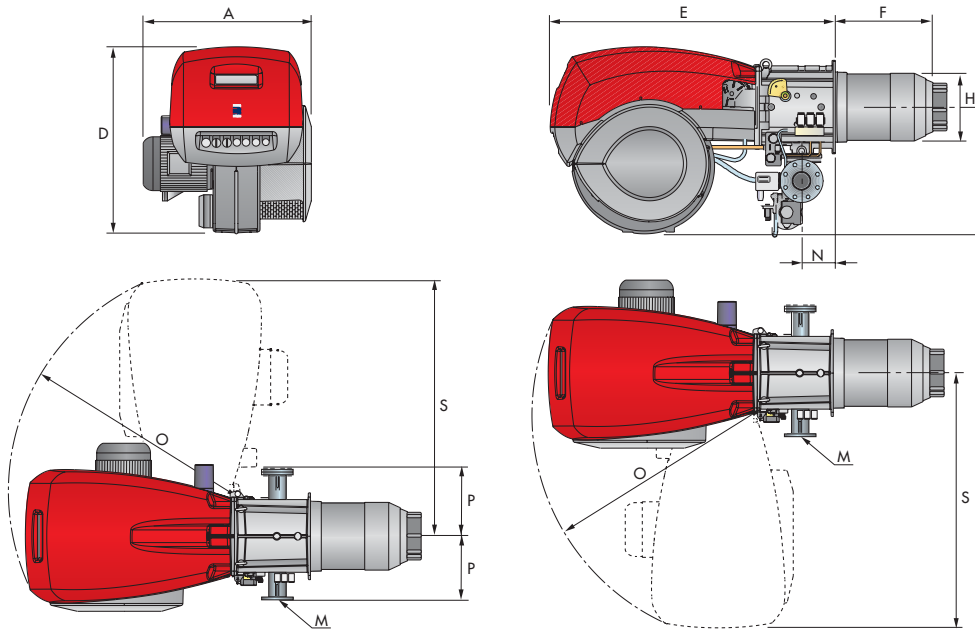




OVERALL DIMENSIONS (mm)

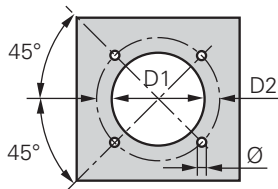
BURNER

RLS 300-400/E MX



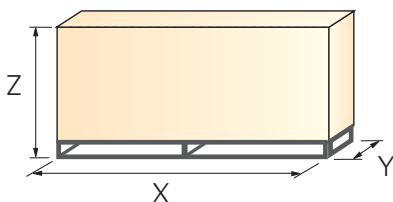
| Model | A | D | E | F | H | I | M | N | O | S | P |
|----------------|-----|-----|------|-----|-----|-----|------|-----|------|------|-----|
| ▶ RLS 300/E MX | 720 | 890 | 1325 | 510 | 313 | 605 | DN80 | 164 | 1055 | 1175 | 320 |
| ▶ RLS 400/E MX | 775 | 890 | 1325 | 510 | 313 | 605 | DN80 | 164 | 1055 | 1175 | 320 |

BURNER - BOILER MOUNTING FLANGE



| Model | D1 | D2 | Ø |
|----------------|-----|-----|-----|
| ▶ RLS 300/E MX | 380 | 452 | M18 |
| ▶ RLS 400/E MX | 380 | 452 | M18 |

PACKAGING



| Model | X | Y | Z | kg |
|----------------|------|-----|-----|-----|
| ▶ RLS 300/E MX | 1960 | 970 | 940 | 240 |
| ▶ RLS 400/E MX | 1960 | 970 | 940 | 250 |

INSTALLATION DESCRIPTION

Installation, start up and maintenance must be carried out by qualified and skilled personnel. All operation must be performed in accordance with the technical handbook supplied with the burner.

After drilling the boilerplate, using the supplied gasket as template, prepare a suitable lifting system and, after hooking onto the rings, fix burner to boiler.



BURNER SETTING

- ▶ Install the nozzle, choosing this on the basis of the maximum boiler output and following the diagrams included in the burner instruction handbook.
- ▶ Check the position of the electrodes
- ▶ Adjust the combustion head



HYDRAULIC AND ELECTRICAL CONNECTIONS AND START UP

- ▶ Install the gas train to the burner flange choosing the right adapter code if the gas train and burner hinge are situated to the same size.
- ▶ Connect the ends of the flexible pipes to the suction and return pipework using the supplied nipples.
- ▶ Make the electrical connections to the burner following the wiring diagrams included in the instruction handbook.
- ▶ Prime the pump by turning the motor.
- ▶ Proceed with the start up regulating before the gas side, so the oil side.
- ▶ On start up, check:
 - Gas pressure at the combustion head (to the max. and min. output)
 - Pressure pump (to the max. and min.)
 - Combustion quality, in terms of unburned substances and excess air.



BURNER ACCESSORIES



Accessories for modulating operation

To obtain modulating operation, the RLS/E 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 300-400/E MX | RWF 40 Basic version with 3 position output | 3010356 |
| RLS 300-400/E MX | RWF 40 High version with additional modulating output and RS 485 Interface | 3010357 |

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 300-400/E MX | Temperature PT 100 | -100 ÷ 500°C | 3010110 |
| RLS 300-400/E MX | Pressure 4 ÷ 20 mA | 0 ÷ 2,5 bar | 3010213 |
| RLS 300-400/E MX | Pressure 4 ÷ 20 mA | 0 ÷ 16 bar | 3010214 |

Display and Operating Unit (AZL)

This tool is needed for combustion system commissioning and monitoring.

The AZL has 3 ports:

- Port for the basic unit: CAN bus including power supply for the AZL
- Port for the PC
- Port for the BMS.

The AZL offer the following choices:

- Interface PC (COM1)
- Gateway BMS on
- Gateway BMS off.

The CAN connection on the basic unit can simultaneously be combined with only one of the two parts, either "Interface PC" or "Gateway BMS".



| Display and Operating Unit (AZL) | |
|----------------------------------|----------------|
| Burner | Code |
| RLS 300-400/E MX | 3010355 |

Sound proofing box

If noise emission needs reducing even further, sound-proofing boxes are available, as given in the following table:



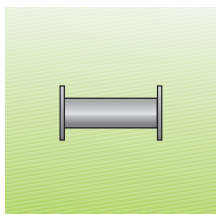
| Sound proofing box | | |
|--------------------|----------|----------------|
| Burner | Box type | Box code |
| RLS 300-400/E MX | C7 | 3010376 |





GAS TRAIN ACCESSORIES



Adapters

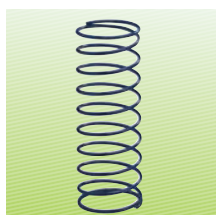
Below are given the adapters than can be fitted on the various burners:



| Adapters | | | | |
|------------------|-----------|--------------|--|----------------|
| Burner | Gas train | Adapter type | Dimensions | Adapter code |
| RLS 300-400/E MX | MBC 1200 | | 2"  DN 80 | 3000826 |
| | MBC 1900 | | DN 65  DN 80 | 3010221 |
| | MBC 3100 | | DN 80  DN 80 | 3010222 |
| | MBC 5000 | | DN 100  DN 80 | 3010223 |

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:



| Stabiliser spring | | |
|-------------------|---------------------------|----------------|
| Gas train | Spring | Spring code |
| MBC 1900 | White from 4 to 20 mbar | 3010381 |
| | Red from 20 to 40 mbar | 3010382 |
| MBC 3100 | Black from 40 to 80 mbar | 3010383 |
| MBC 5000 | Green from 80 to 150 mbar | 3010384 |

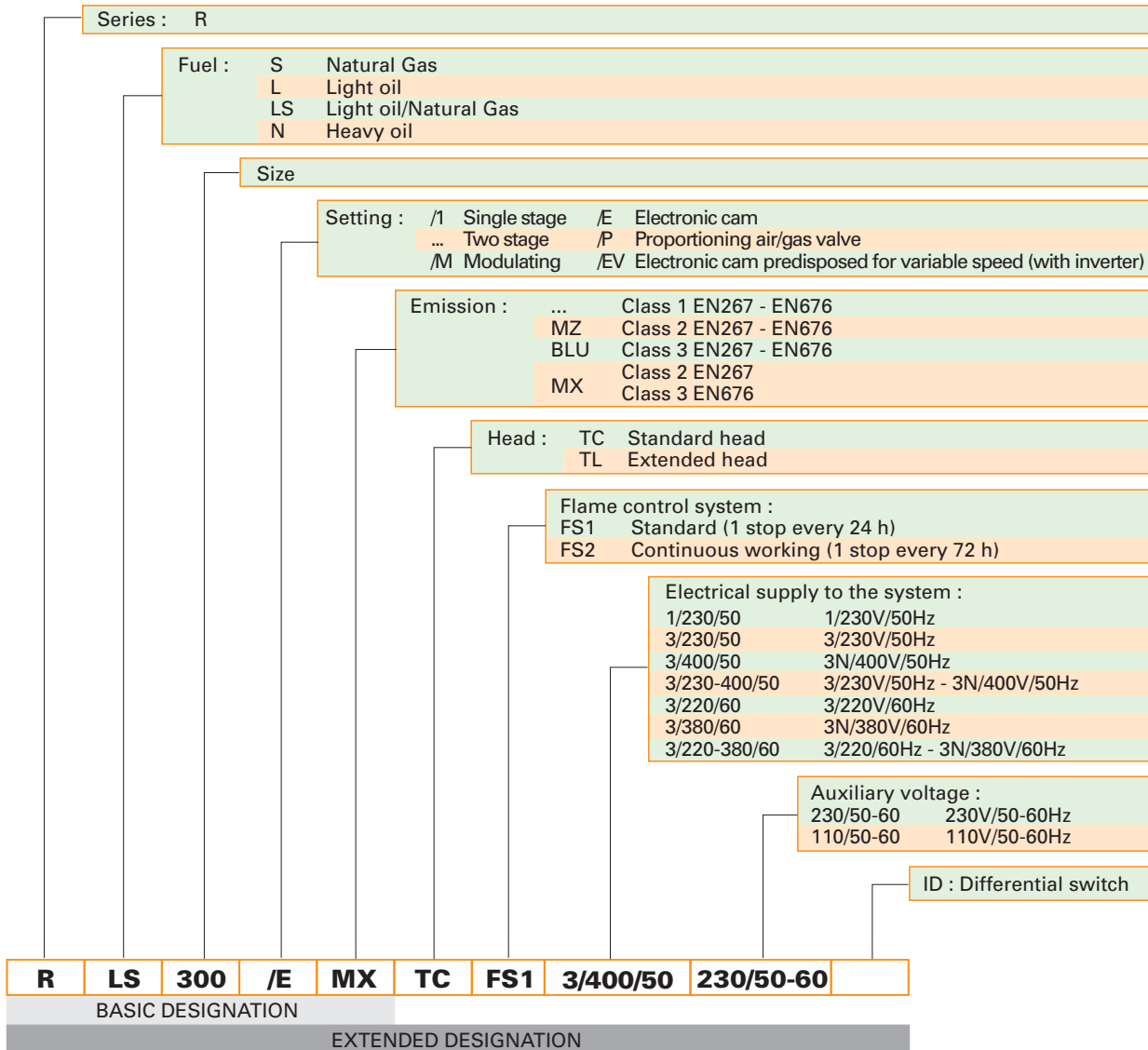
Please refer to the technical manual for the correct choice of spring.



SPECIFICATION

A specific index guides your choice of burner from the various models available in the RLS/E MX series. Below is a clear and detailed specification description of the product.

DESIGNATION OF SERIES



AVAILABLE BURNER MODELS

RLS 300/E MX TC FS1 3/400/50 230/50-60

RLS 400/E MX TC FS1 3/400/50 230/50-60

Other versions are available on request.



▶ **PRODUCT SPECIFICATION**

Burner

Monoblock forced draught gas burner with modulating operation, fully automatic, made up of:

- Fan with reverse curve blades high performance with low sound emissions
- 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
- 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
- Module for air/fuel setting and output modulation with separated PID control of temperature or pressure, available as accessory for RLS/E MX model
- Electronic cam for controlling the system safety
- Infrared flame detector
- Star/triangle starter for the fan motor (only for RLS 400/E MX model)
- 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.

Conforming to:

- 89/336/EEC directive (electromagnetic compatibility)
- 73/23/EEC directive (low voltage)
- 90/396/EEC directive (gas)
- EN 676 (gas burners).

Standard equipment:

- 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 accessories to be ordered separately:

- Pressure probe 0 ÷ 2.5 bar
- Pressure probe 0 ÷ 16 bar
- Temperature probe -100 ÷ 500°C
- RWF 40 for RLS/E MX
- Display and operating unit (AZL)
- Sound proofing box
- Adapter
- Stabiliser spring.



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