

RS – RLS 1300–1600–2000/M-/E-/EV Series

Gas and Dual Fuel Burners

Product Overview

HIGH POWER MONOBLOCK GAS, DUAL FUEL, LOW NO_x AND YELLOW FLAME BURNERS

RS 1300-1600-2000/M-/E-/EV BLU AND YELLOW FLAME

RLS 1300-1600-2000/M-/E-/EV

The high power monoblock Burners Series RS-RLS, in the 13-20 MW range, are the result of intensive activities of technical research and considerable investment, carried out in recent years, that allowed the highest levels of technological development to be achieved in the Industrial Burners context, confirming the historical leadership of Riello in this important area of energy management.

These Burners for Gas and Dual Fuel applications, take the reliability of combustion and the solidity typical of Riello's Burners and match them with the most advanced solutions on Power Output Control and Ventilation Technology; they are available in various air-fuel ratio control configurations, including Modulating operation through Electronic Cam for higher performance and efficiency and through Variable Speed Drive technology to obtain both low noise emissions and electrical Power Saving.

Using an Advanced Combustion Technology, in order to reach Low NO_x emissions values, they guarantee an environmentally friendly operation.

The remarkable results of performance, quality and reliability, are now consolidated by a product layout revision and updating, able to summarize and concentrate the best technological expertise of Riello, giving as result a User Friendly monoblock machine, with the capability to meet the market needs, assuring easiness of installation and servicing and safe operation.

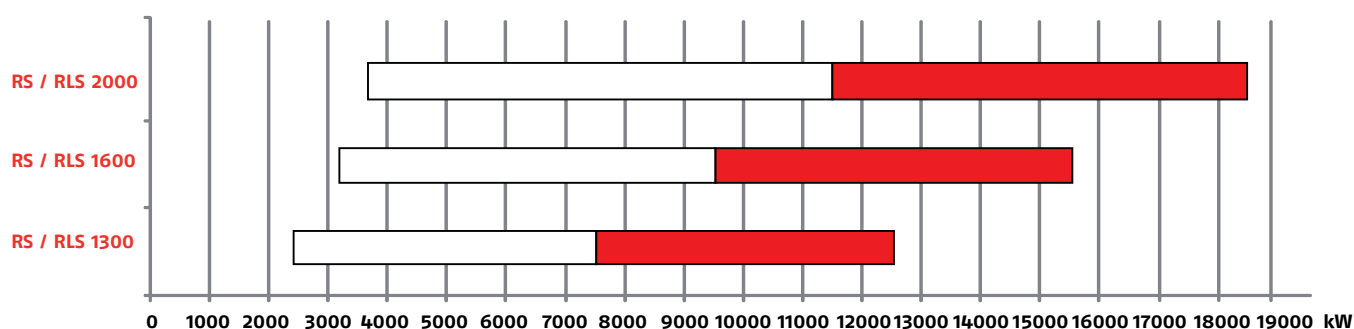
A unique and easily recognizable Family-line is distinguishing now this successful range of products, increasing his statement in the Industrial Burners context.



FEATURES AND ADVANTAGES

- Easy installation and servicing thanks the monoblock configuration
- Various configuration available for Oil, Gas or Dual Fuel combustion
- Low NOx emissions conforming to Class 3 EN 676
- Low noise emissions thanks to the efficient ventilation circuit and sound proofing solutions
- Easy access to internal components by burner opening hinge
- Energy saving and long life of oil pump assured by a dedicated pump motor on Dual Fuel models
- Modulating Operation for both fuels, Light Oil and Gas, with the installation of a PID logic Controller
- Continuous operation available as a standard on Electronic cam models, upon request on Mechanical cam models
- Optional oxygen control suitable for /EV versions
- Pilot ignition burner with dedicated gas train.

FIRING RATES



Test conditions conforming to EN 267 - EN 676
 Temperature : 20° C - Pressure: 1013,5 mbar - Altitude: 0 m a.s.l.
 Models with higher output available on demand.

□ Modulation field
 ■ Selection field

The models of RS-RLS are excellently covering the 13 - 20 MW power range, providing the ideal solution for matching to Heating Boilers, Steam Generators and Industrial Process Plants.

BURNER OPERATION MODE

The RS - RLS 1300-1600-200/M series of burners can have "two-stage progressive" or "modulating" operation.



Output regulator

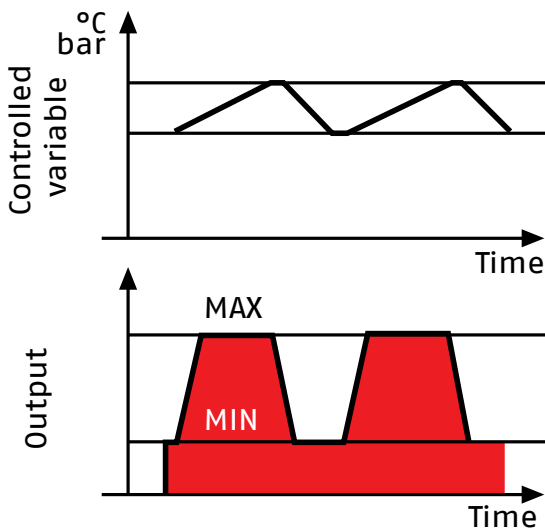


Analog 4-20 mA or 0 - 10V converter for remote modulation

On "two-stage progressive" operation, the burner gradually adapts the output to the requested level, by varying between two pre-set levels (see picture A).

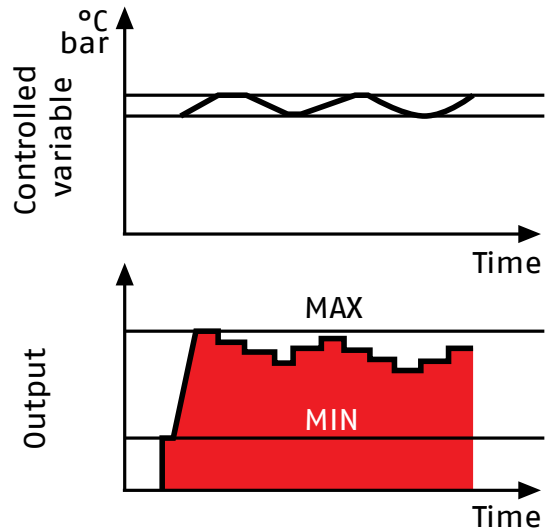
On "modulating" operation, normally required in steam generators, in superheater boilers or diathermic oil burners, a specific regulator and probes are required. These are supplied as accessories that must be ordered separately. The burner can work for long periods at intermediate output levels (see picture B).

"TWO-STAGE PROGRESSIVE" OPERATION



Picture A

"MODULATING" OPERATION



Picture B

BURNER OPERATION MODE

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



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. For the burner commissioning it is necessary to use the AZL unit display, included in the standard equipment.

In the RLS 1300-1600-2000/E-/EV burners, the PID regulator to control the boiler temperature or pressure is included in the control box. The burner can work for a long time on intermediate output settings (see picture A).

In the RLS/EV series variable speed drive control (VDS) and Oxygen control are obtained by installation of a special kit.

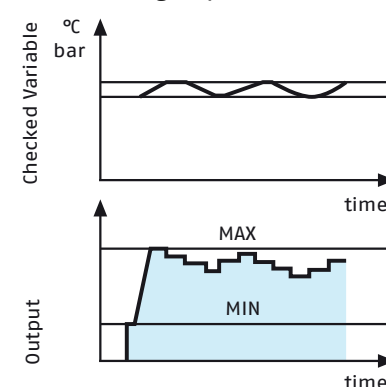
The display and operating unit (AZL) shows all operational parameters in real time, so as to keep a constant check on the burner:

- servomotor angle
- required set-point and actual set-point
- fuel consumption (RLS/EV)
- smoke and environmental temperature (RLS/EV)
- O₂ value (RLS/EV)
- error checking, self diagnostic fault analysis.

Control box management table

Function	LMV 51.1	LMV 52.2
Intermittent operation	●	●
Continuous operation	●	●
Intermittent operation flame detector	Infrared Detector	Infrared Detector
Continuous operation flame detector	Infrared Detector	Infrared Detector
Numbers of regulating stepper actuators	4	5
Variable Speed Drive (VSD)	-	○
Input O ₂ probe	-	○
Built 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	●	●
External analog modulation	on demand	●
Analog input signal for preset load	●	●
Analog 4÷20 mA output load signal	●	●
Efficiency Indication	-	○
External e-Bus Interface (AZL)	●	●
Commissioning PC Interface (AZL)	○	○
Commissioning Interface Display (AZL)	●	●

“Modulating” operation



Picture A

- Included in supply
- As accessory

Control box management version table

	RLS/E version	RLS/EV version
LMV 51.1	●	
LMV 52.2		●

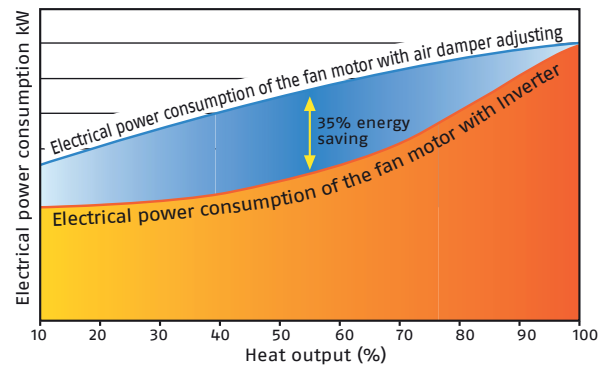
FAN SPEED CONTROL (ON DEMAND)

The inverter device fitted to the RLS/EV series burner acts on the electrical supply frequency of the fan motor to adjust the air flow through the motor speed variation.

The main advantages of speed control:

- lower sound emissions
- electric power saving.

The fan motor supplies just the necessary air flow, thus reducing sound emissions and avoiding energy loss due to the air damper regulation mechanism. The inverter technology can save up to 35% of the energy costs. A safety device to verify the correct speed of the motor is mounted on the air suction circuit of the burner.



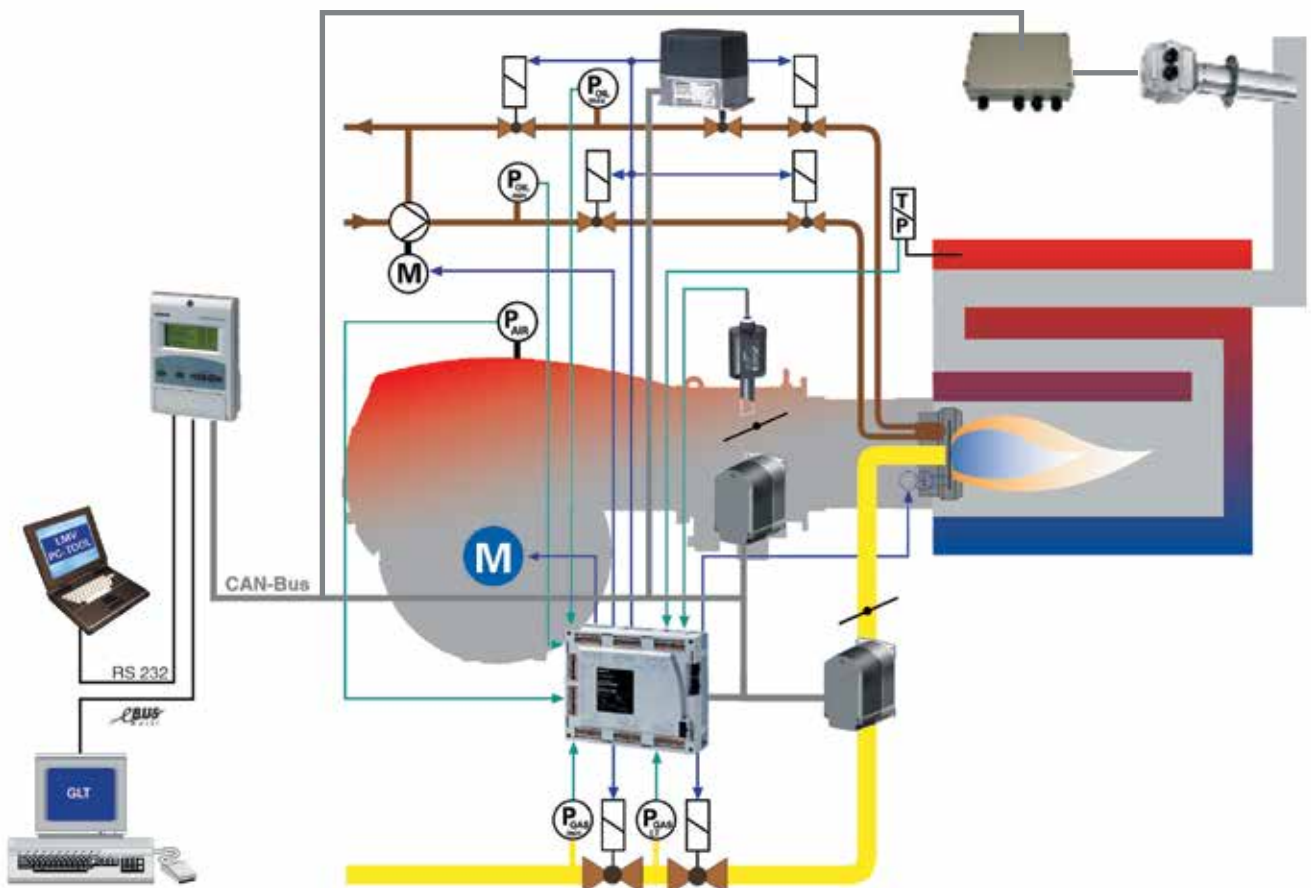
BURNER MANAGEMENT SYSTEM

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 e contact feedback network.



Example of burner management system in dual fuel burner configuration

STANDARD BURNER MODELS

EMISSIONS	MODELS	OPERATION (*)		
		/M	/E	/EV
Class 3 EN 676 Gas	RS 1300 BLU	•	•	•
	RS 1600 BLU	•	•	•
	RS 2000 BLU	•	•	•
Class 1 EN 676 Gas	RS 1300 C01	•	•	•
	RS 1600 C01	•	•	•
	RS 2000 C01	•	•	•
Class 3 EN 676 Gas Class 1 EN 267 Oil	RLS 1300 C13	•	•	•
	RLS 1600 C13	•	•	•
	RLS 2000 C13	•	•	•
Class 1 EN 676 Gas Class 1 EN 267 Oil	RLS 1300 C11	•	•	•
	RLS 1600 C11	•	•	•
	RLS 2000 C11	•	•	•

(*) /M = Two stage progressive - Modulating mechanical cam

/E = Two stage progressive - Modulating electronic cam

/EV = Modulating electronic cam - Variable speed drive

Riello Burners a world of experience in every burner we sell.

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Across the world, Riello sets the standard in reliable and high efficiency burner technology.

With burner capacity from 5 kW to 48 MW, Riello gas, oil, dual fuel and Low Nox burners deliver unbeatable performance across the full range of residential and commercial heating applications, as well as in industrial processes.

With headquarter in Legnago, Italy, Riello has been manufacturing premium quality burners for over 90 year. The manufacturing plant is equipped with the most innovative systems of assembling lines and modern manufacturing cells for a quick and flexible response to the market.

Besides, the Riello Combustion Research Centre, located in Angiari, Italy, represents one of the most modern facility in Europe and one of the most advanced in the world for the development of the combustion technology.

Today, the company's presence on worldwide markets is distinguished by a well-constructed and efficient sales network, alongside many important Training Centres located in various countries to meet its customers' needs. Riello has 13 operational branches abroad (in Europe, America and Asia), with customers in over 60 countries.



[2]

[1] BURNERS PRODUCTION PLANT
S. PIETRO, LEGNAGO (VERONA) - ITALIA

[2] HEADQUARTER BURNERS DIVISION
S. PIETRO, LEGNAGO (VERONA) - ITALIA

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