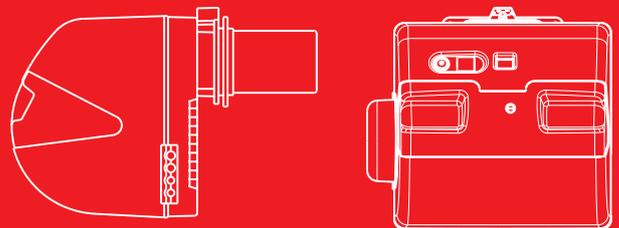




RL/1 Blu Series

One Stage Low NOx Oil Burners

RL 25/1 BLU 115 ÷ 260 kW



The new RL/1 BLU series represents Riello's last step of innovation in terms of Low NOx technology applied to light oil burners.

The series includes one model, with an output ranging from 115 to 260 kW.

This new burner has been re-designed for use in hot or superheated water boilers, hot air, steam generators or diathermic oil boilers.

The burners are fitted with a microprocessor-based control panel, which supplies indication of burner status and fault causes.

A new, more compact and handable case has been designed, keeping overall dimensions compact in order to ensure an easier servicing and maintenance.

The elevated performance of the forward-blades fan, together with a new innovative combustion head, guarantee flexibility of use and excellent working at all firing rates always with Low NOx emissions.

Guidelines for installation of burners in conformity to EU Regulation:

A RIELLO burner (Heat Generator), where it is matched with a water-based boiler (Heater Housing) with a nominal output ≤ 400 kW, providing heat for heating purposes and heat to deliver sanitary hot water, can be installed:

- With boilers (heater housings) already in service in the field, for replacement of identical products, in conformity to Article 1, paragraph 2, point (G) of the EU Regulation No. 813/2013;
- With boilers (heater housings) on a new installation.

Technical Data

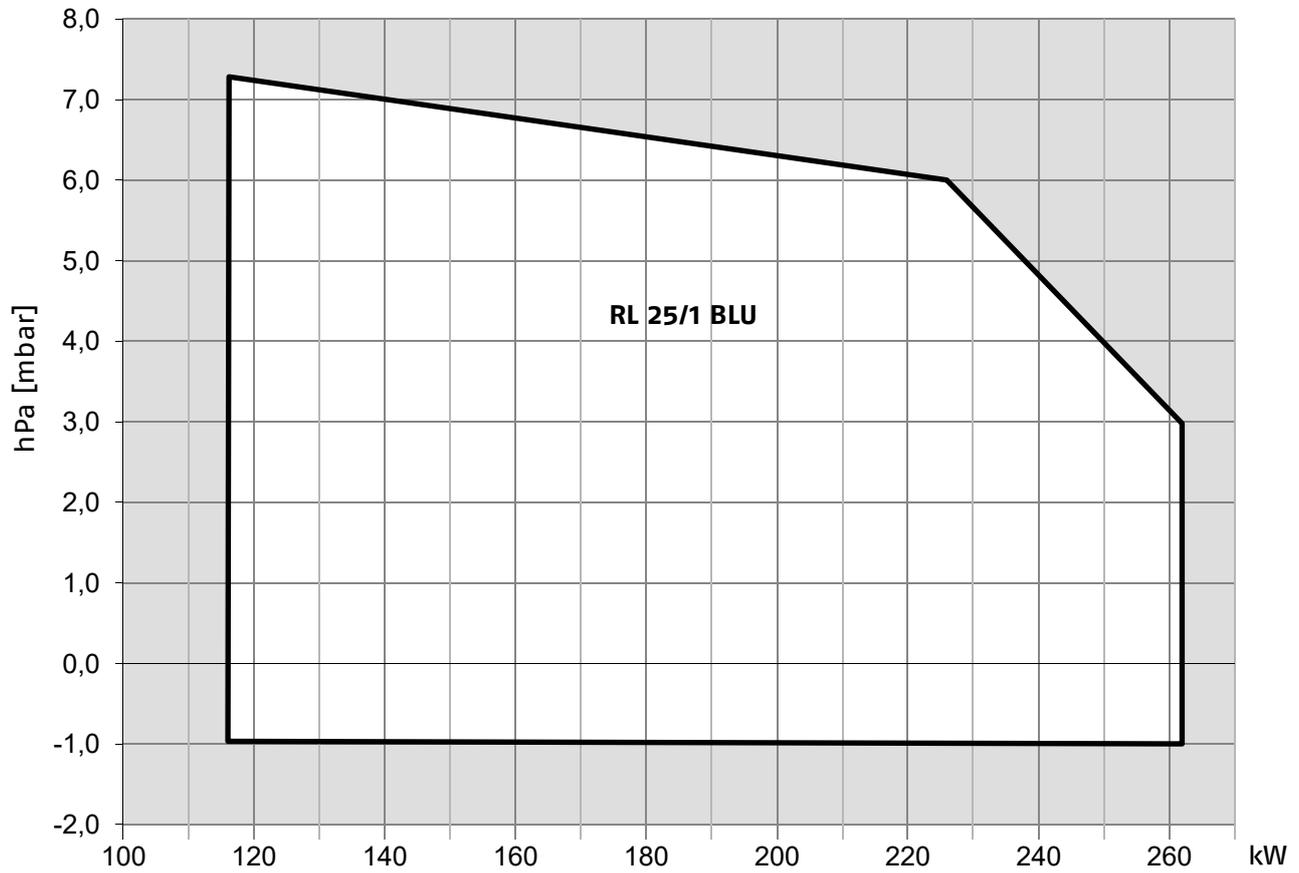
| MODEL | | RL 25/1 BLU | |
|--|--------------------|--------------------|---|
| Power | | kW | 115 - 260 |
| Delivery | | Mcal/h | 99 - 224.4 |
| | | kg/h | 10 - 22 |
| Fuel | | | Light oil |
| Max. viscosity at 20 °C: | | | 6 mm ² /s (1.5°E - 6 cSt) |
| Net Calorific Value | | kWh/kg | 11.8 |
| | | Mcal/kg | 10.2 (10,200 kcal/kg) |
| Density | | kg/dm ³ | 0.82 - 0.85 |
| Operation | | | - Intermittent (min. 1 stop in 24 hours) - One-stage (all - nothing) |
| Pump | - Output at 12 bar | kg/h | 45 |
| | - Pressure range | bar | 8 - 25 |
| | - Fuel temperature | °C max | 60 |
| Nozzles | | No. | 1 |
| Standard applications | | | Boilers: water, steam, diathermic oil |
| Room temperature | | °C | 0 - 40 |
| Combustion air temperature | | °C max | 60 |
| EMISSIONS | | | |
| Noise levels | Sound pressure | dB (A) | 71 |
| | Sound power | dB (A) | 82 |
| ELECTRICAL DATA | | | |
| Electrical power | | 1 Ph | 1 N ~ 230 50 Hz |
| Motor | | rpm | 2800 |
| | | V | 230 |
| | | W | 300 |
| | | A | 2.4 |
| Fan motor capacitor | | µF | 12.5/450 |
| Ignition transformer | V1 - V2 | | 220-240V - 2x12kV |
| | I1 - I2 | | 0.2A - 30mA |
| Single-phase max. absorbed electric power main electrical supply | | W max | 550 |
| Protection level | | | IP 54 |
| APPROVAL | | | |
| Directive/ Regulation | | | 2006/42/EC - 2014/30/EU - 2014/35/EU |
| Conforming to | | | EN 267 |

Reference conditions:

Ambient temperature 20°C - Gas temperature 15°C - Barometric pressure 1.013 mbar - Altitude 0 m a.s.l.

Sound pressure measured in manufacturer's combustion laboratory, with burner operating on test boiler and at maximum output. The sound power is measured with the "Free Field" method, as per EN 15036, and according to an accurate "Accuracy: Category 3" measurement, as described in EN ISO 3746.

Firing Rate



RL 25/1 BLU

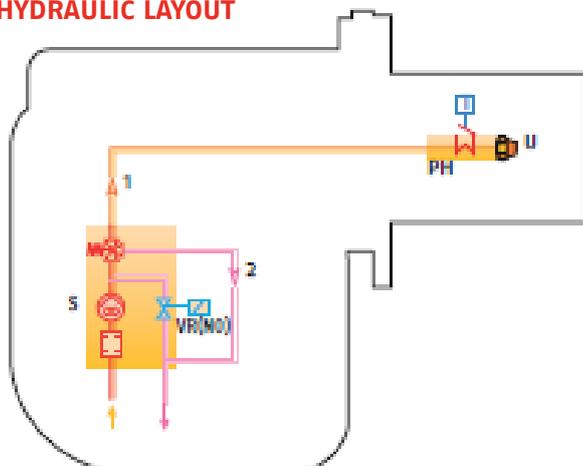


Useful working field
for choosing the
burner

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

Fuel Supply

HYDRAULIC LAYOUT



| | |
|---------|--|
| S | Pump with filter and pressure regulator on the delivery pipe |
| VR (NO) | Oil return valve normally open |
| 1 | Oil input pipe to the nozzle |
| 2 | Oil return pipe from the regulator |
| PM | Oil pre-heater with thermostat (where provided) |
| U | Nozzle |

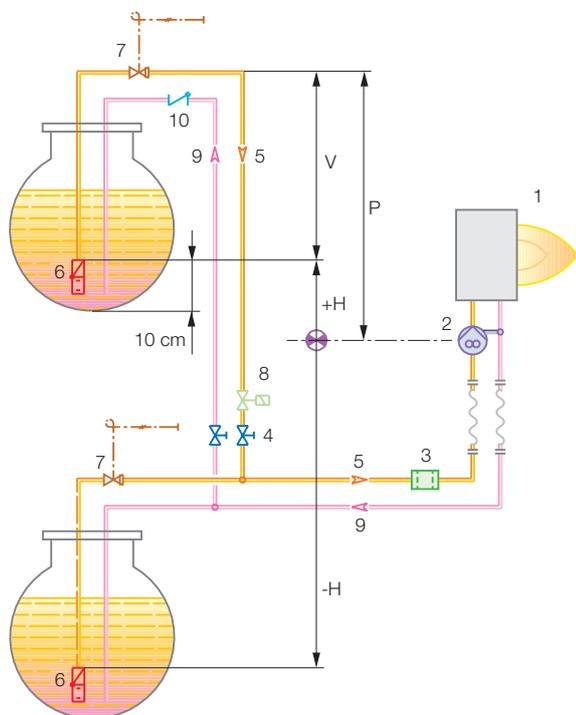
DIMENSIONING OF THE FUEL SUPPLY LINES

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

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

MAXIMUM EQUIVALENT LENGTH FOR THE PIPING L[m]

| Diameter piping | ø8 mm | ø10 mm | ø12 mm |
|-----------------|-----------|-----------|----------|
| +H, -H (m) | L max (m) | L max (m) | Lmax (m) |
| +4,0 | 52 | 134 | 160 |
| +3,0 | 46 | 119 | 160 |
| +2,0 | 39 | 104 | 160 |
| + 1,0 | 33 | 89 | 160 |
| +0,5 | 30 | 80 | 160 |
| 0 | 27 | 73 | 160 |
| -0,5 | 24 | 66 | 144 |
| -1,0 | 21 | 58 | 128 |
| -2,0 | 15 | 43 | 96 |
| -3,0 | 8 | 28 | 65 |
| -4,0 | 3 | 12 | 33 |



| | |
|----|---|
| H | Difference in height pump-foot valve |
| ø | Internal pipe diameter |
| P | 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 |

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 circuit produces low noise levels with high performance pressure and air output, in spite of the compact dimensions.

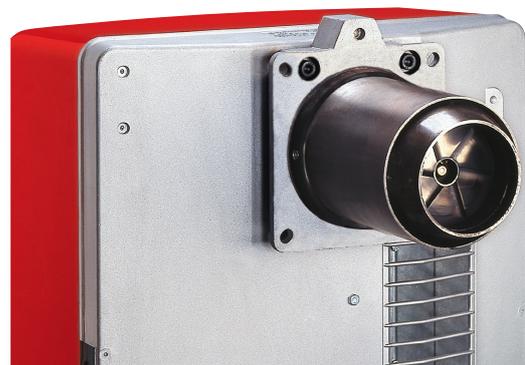
The use of reverse curve blades and sound-proofing material keeps noise level very low.

Combustion Head

The combustion head has been designed to create partial smoke recirculation; this way, thanks to lower temperatures reached, NOx emissions are reduced, taking the value below the level allowed by the strictest norms.

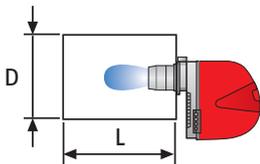
Depending on the type of generator, check that the penetration of the head into the combustion chamber is correct.

The internal positioning of the combustion head can easily be adjusted to the maximum defined output by adjusting a screw fixed to the flange.

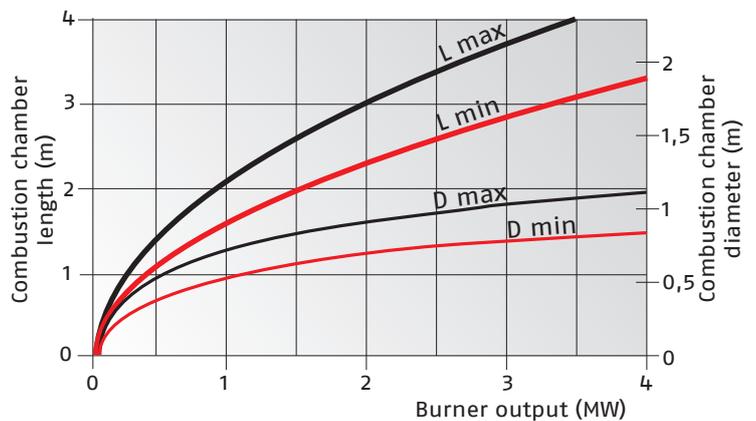


Example of a RL/1 BLU burner combustion head

DIMENSIONS OF THE COMBUSTION CHAMBER



Example:
 Burner thermal output = 2000 kW;
 L combustion chamber (m) = 2.7 m (medium value);
 D combustion chamber (m) = 0.8 m (medium value)



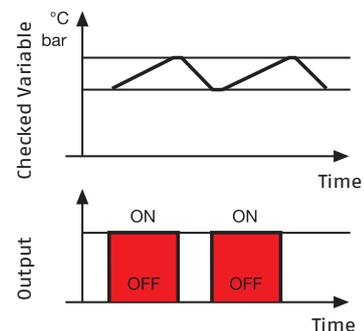
Operation

BURNER OPERATION MODE

RL/1 burners are one stage working.

On "one stage" operation, the burner adjusts output to the requested level, by varying between ON-OFF phases (see picture A).

"ONE STAGE" OPERATION

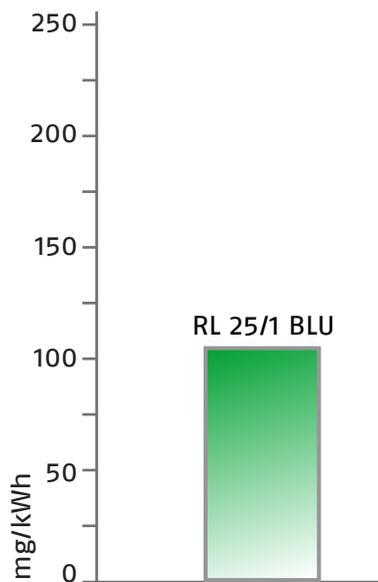


Picture A

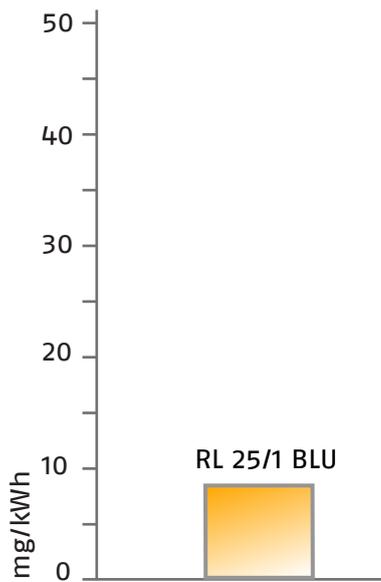
Emissions

The emissions of NO₂ and CO have been measured at minimum and maximum output according to EN 267 standard. Sound emissions have been measured at maximum output.

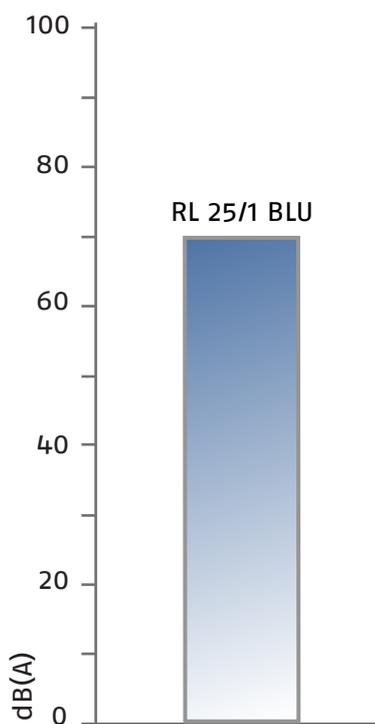
NO₂ EMISSIONS



CO EMISSIONS

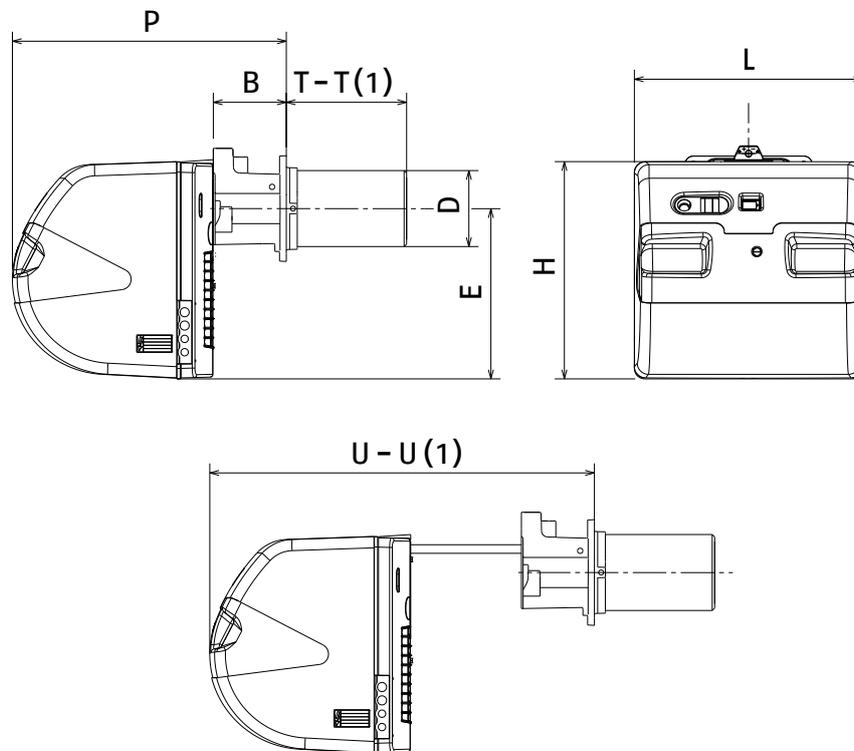


NOISE EMISSIONS



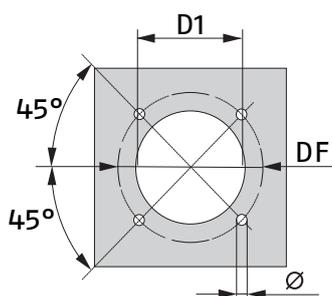
Overall Dimensions (mm)

BURNER



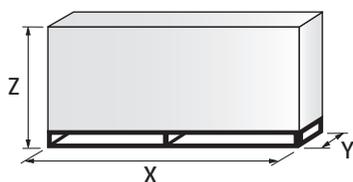
| MODEL | B | D | E | L | H | P | U | T | T(1) | U(1) |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| RL 25/1 BLU | 130 | 140 | 305 | 442 | 416 | 508 | 788 | 200 | 280 | 788 |

BURNER - BOILER MOUNTING FLANGE



| MODEL | D1 | DF | Ø |
|-------------|-----|-----|----|
| RL 25/1 BLU | 160 | 224 | M8 |

PACKAGING



| MODEL | X | Y | Z | kg |
|-------------|------|-----|-----|----|
| RL 25/1 BLU | 1190 | 492 | 510 | 40 |

Burner Accessories

NOZZLES

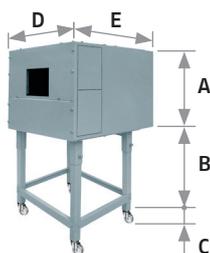


The nozzles of RL 25/1 BLU burners are chosen on the basis of the maximum output required from the application.

NOTE: each burner needs N° 1 nozzle.

| GPH | RATED DELIVERY [kg/h] at 8 Bar | RATED DELIVERY [kg/h] at 20 Bar | DELAVAN 60°A CODE | MONARCH 60°PLP CODE |
|------|-----------------------------------|------------------------------------|----------------------|------------------------|
| 2.25 | 7.4 | 11.9 | 3042134 | 3041132 |
| 2.50 | 8.2 | 13.4 | 3042144 | 3041142 |
| 3.00 | 9.9 | 16.1 | 3042148 | 3041152 |
| 3.50 | 11.5 | 18.8 | 3042164 | 3041162 |
| 4.00 | 13.2 | 21.5 | 3042174 | 3041172 |
| 4.50 | 14.8 | 24.0 | 3042184 | 3041182 |
| 5.00 | 16.5 | 26.8 | 3042194 | 3041192 |
| 5.50 | 18.1 | 29.5 | 3042204 | 3041202 |
| 6.00 | 19.8 | 32.2 | 3042214 | 3041212 |

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 |
|-------------|-------------|-----------|-------------------|-----------|-----------|-----------|----------------|----------|
| RL 25/1 BLU | C1/3 | 650 | 372 - 980 | 110 | 690 | 770 | 10 | 3010403 |

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

DEGASING UNIT



To solve problem of air in the oil sucked, two versions of degassing unit are available.

| BURNER | FILTER | FILTERING DEGREE (µm) | DEGASING UNIT CODE |
|-------------|----------------|--------------------------|-----------------------|
| RL 25/1 BLU | With filter | 50 - 75 | 3010055 |
| | Without filter | - | 3010054 |

CONNECTION FLANGE KIT



A kit is available for use where the burner opening on the boiler is of excessive diameter.

| BURNER | (mm) | KIT CODE |
|-------------|-------------------------|----------|
| RL 25/1 BLU | 170 (internal diameter) | 3010138 |
| | 300 (external diameter) | |

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 |
|-------------|----------|
| RL 25/1 BLU | 3002719 |

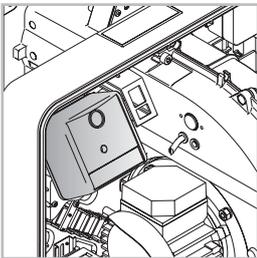
VOLT FREE CONTACT KIT



A volt free contact kit is available for installation onto the burner. It can be used for a remote interface between burner operating signals. Every burner can be equipped with a single kit to remote the flame presence signal and the burner lockout indication.

| BURNER | KIT CODE |
|-------------|----------|
| RL 25/1 BLU | 3010419 |

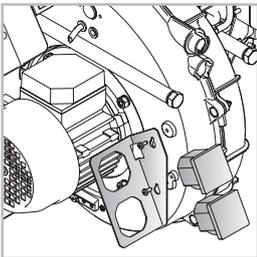
POST-VENTILATION KIT



To have 20 s ventilation after opening of thermostats chain, a special kit is available.

| BURNER | KIT CODE |
|-------------|----------|
| RL 25/1 BLU | 3010453 |

HOURS COUNTER KIT



To measure the burner working time a hours counter kit is available.

| BURNER | KIT CODE |
|-------------|----------|
| RL 25/1 BLU | 3010450 |

GROUND FAULT INTERRUPTER KIT



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

| BURNER | KIT CODE |
|-------------|----------|
| RL 25/1 BLU | 3010448 |

PROTECTION KIT (ELECTROMAGNETIC INTERFERENCES)

When the burner is installed in a room particularly subject to electromagnetic interference (signals emitted over 10 V/m) due for example to INVERTER presence or in systems where the lengths of the thermostat connections is over 20 meters, this specific protection kit is available as an interface between the thermostatic controls and the burner.

| BURNER | KIT CODE |
|-------------|----------|
| RL 25/1 BLU | 3010386 |

Specification

DESIGNATION OF SERIES

A specific index guides your choice of burner. Below is a clear and detailed specification description of the product.

| | | | |
|----------------------------------|--|--------------|---|
| 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 C01 | Class 1 EN267 |
| | | MZ or C02 | Class 2 EN267 |
| | | BLU or C03 | Class 3 EN267 |
| | | MX or C02 | Class 2 EN267 |
| 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 | 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 | 3/220/60Hz - 3N/380V/60Hz |
| Auxiliary voltage: | | 230/50-60 | 230V/50-60H |
| | | 110/50-60 | 110V/50-60Hz |

| | | | | | | | | |
|-------------------|---|----|----|----------------------|----|-----|----------|-----------|
| R | L | 25 | /1 | BLU | TC | FS1 | 1/230/50 | 230/50-60 |
| BASIC DESIGNATION | | | | EXTENDED DESIGNATION | | | | |

AVAILABLE BURNER MODELS

| BURNER MODELS | HEAD LENGTH | FLAME CONTROL SYSTEM | ELECTRICAL SUPPLY | AUXILIARY VOLTAGE |
|---------------|-------------|----------------------|-------------------|-------------------|
| RL 25/1 BLU | TC | FS1 | 1/230/50 | 230/50-60 |
| RL 25/1 BLU | TL | FS1 | 1/230/50 | 230/50-60 |

Other versions are available on request.

PRODUCT SPECIFICATION

Monoblock forced draught Low NOx oil burner with one stage operation, made up of:

- Air suction circuit lined with sound-proofing material
- High performance fan with forward blades
- New Low NOx combustion head technology
- Gears pump for high pressure fuel supply
- UV sensor for flame detection
- Microprocessor-based burner safety control box, with diagnostic function
- Burner ON/OFF switch
- Flame inspection window
- Slide bars for easier installation and maintenance
- Protection filter against radio interference
- IP X0D (IP 54) electric protection level.

Conforming to:

- 2014/30 EU directive (electromagnetic compatibility)
- 2014/35 EU directive (low voltage)
- 2006/42 EC directive (machine)
- EN 267 (light oil norm).

Standard equipment:

- 2 flexible pipes for connection to the oil supply network
- 2 gaskets for the flexible pipes
- 2 nipples for connection to the pump
- 1 thermal screen
- 4 screws for fixing the burner flange to the boiler
- Wiring loom fittings for electrical connections
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

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



[1]

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.



[2]

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.

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

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

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