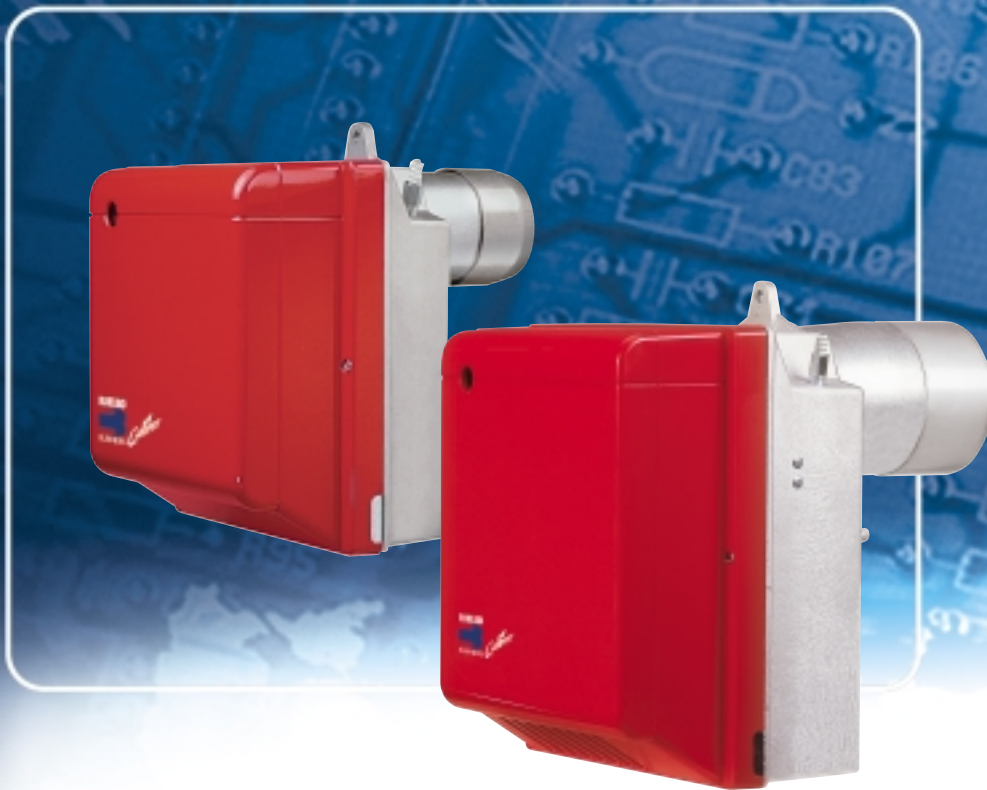


**TWO STAGE LIGHT OIL BURNERS**

▶ **GULLIVER RGD SERIES**

▶ <b>RG1RKD</b>	14/17 ÷ 60 kW
▶ <b>RG2D</b>	42/49 ÷ 118 kW
▶ <b>RG3D</b>	65/83 ÷ 178 kW
▶ <b>RG4D</b>	106/130 ÷ 237 kW
▶ <b>RG5D</b>	95/142 ÷ 296 kW



The Riello Gulliver RGD series of two stage light oil burners, is a complete range of products developed to respond to any request for home heating. The Gulliver RGD series is available in five different models, with an output ranging from 14 to 296 kW, divided in four different structures.

All the models use the same components designed by Riello for the Gulliver series. The high quality level guarantees safe working.

In developing these burners, special attention was paid to reducing noise, to the ease of installation and adjustment, to obtaining the smallest size possible to fit into any sort of boiler available on the market.

The two stage working guarantees high level of thermal unit efficiency.

All the models are approved by the EN 267 European Standard and conform to European Directives for EMC, Low Voltage, Machinery and Boiler Efficiency.

All the Gulliver RGD burners are fired before leaving the factory.



# TECHNICAL DATA

Model		▼ RG1RKD	▼ RG2D	▼ RG3D	▼ RG4D	▼ RG5D
<b>Burner operation mode</b>		Two stage				
<b>Modulation ratio at max. output</b>		--				
<b>Servomotor</b>	<b>run time</b>	--				
	<b>type</b>	--				
<b>Heat output</b>	<b>kW</b>	14/17 - 60	42/49 - 118	65/83 - 178	106/130 - 237	95/142 - 296
	<b>Mcal/h</b>	12/14,6 - 51,6	36,1/42,1 - 101,4	55,9/71,4 - 153	91,2/111,8 - 203,8	81,7/122,1 - 254,6
	<b>kg/h</b>	1,2/1,45 - 5	3,6/4,1 - 10	5,5/7 - 15	9/11 - 20	8/12 - 25
<b>Working temperature</b>		°C min./max. 0/40				
<b>Net calorific value</b>		kWh/kg 11,8				
<b>Viscosity</b>		kcal/kg 10200				
<b>Pump</b>		mm <sup>2</sup> /s (cSt) 4 ÷ 6 (at 20°C)				
<b>Pump</b>	<b>type</b>	R.B.L.				
	<b>delivery</b>	kg/h 30 (at 12 bar)				35 (at 12 bar)
<b>Atomised pressure</b>		bar 8 ÷ 15				
<b>Fuel temperature</b>		max. °C 50				
<b>Fuel pre-heater</b>		YES	NO			
<b>Fan</b>		type Centrifugal with forward curve blades				
<b>Air temperature</b>		max. °C 40				
<b>Electrical supply</b>		Ph/Hz/V 1/50/230 ±10%				
<b>Auxiliary electrical supply</b>		Ph/Hz/V --				
<b>Control box</b>		type R.B.L. 553 SE	R.B.L. 552 SE	R.B.L. 552 SE	R.B.L. 552 SE	R.B.L. 552 SE
<b>Total electrical power</b>		kW 0,290	0,180	0,390	0,390	0,470
<b>Auxiliary electrical power</b>		kW --				
<b>Heaters electrical power</b>		kW 0,12 (PTC)	--	--	--	--
<b>Protection level</b>		IP 40				
<b>Pump motor electrical power</b>		kW --				
<b>Rated pump motor current</b>		A --				
<b>Pump motor start up current</b>		A --				
<b>Pump motor protection level</b>		IP --				
<b>Fan motor electrical power</b>		kW 0,09	0,09	0,15	0,15	0,25
<b>Rated fan motor current</b>		A 0,85	0,9	1,9	2	2,1
<b>Fan motor start up current</b>		A 3,4	3,6	7,6	8	8,4
<b>Fan motor protection level</b>		IP 20				
<b>Ignition transformer</b>		type Incorporated in the control box				
		V1 - V2 (-) - 8 kV				
		I1 - I2 (-) - 22 mA				
<b>Operation</b>		Intermittent (at least one stop every 24 h)				
<b>Sound pressure</b>		dB (A) 60	61	64	64	71
<b>Sound power</b>		W --				
<b>CO emission</b>		mg/kWh <60				
<b>Grade of smoke indicator</b>		N° Bacharach <1				
<b>C<sub>x</sub>H<sub>y</sub> emission</b>		mg/kWh <10 (after the first 20 s)				
<b>NO<sub>x</sub> emission</b>		mg/kWh <250				
<b>Directive</b>		89/336/EEC, 73/23/EEC, 98/37/EEC, 92/42/EEC				
<b>Conforming to</b>		EN 267				
<b>Certification</b>		DIN-Reg.-Nr. 5G237/98	DIN-Reg.-Nr. 5G263/98	CE-0036 0298/00	DIN-Reg.-Nr. 5G266/98	CE-0036 0325/01

## Reference conditions:

Temperature: 20 °C

Pressure: 1013,5 mbar

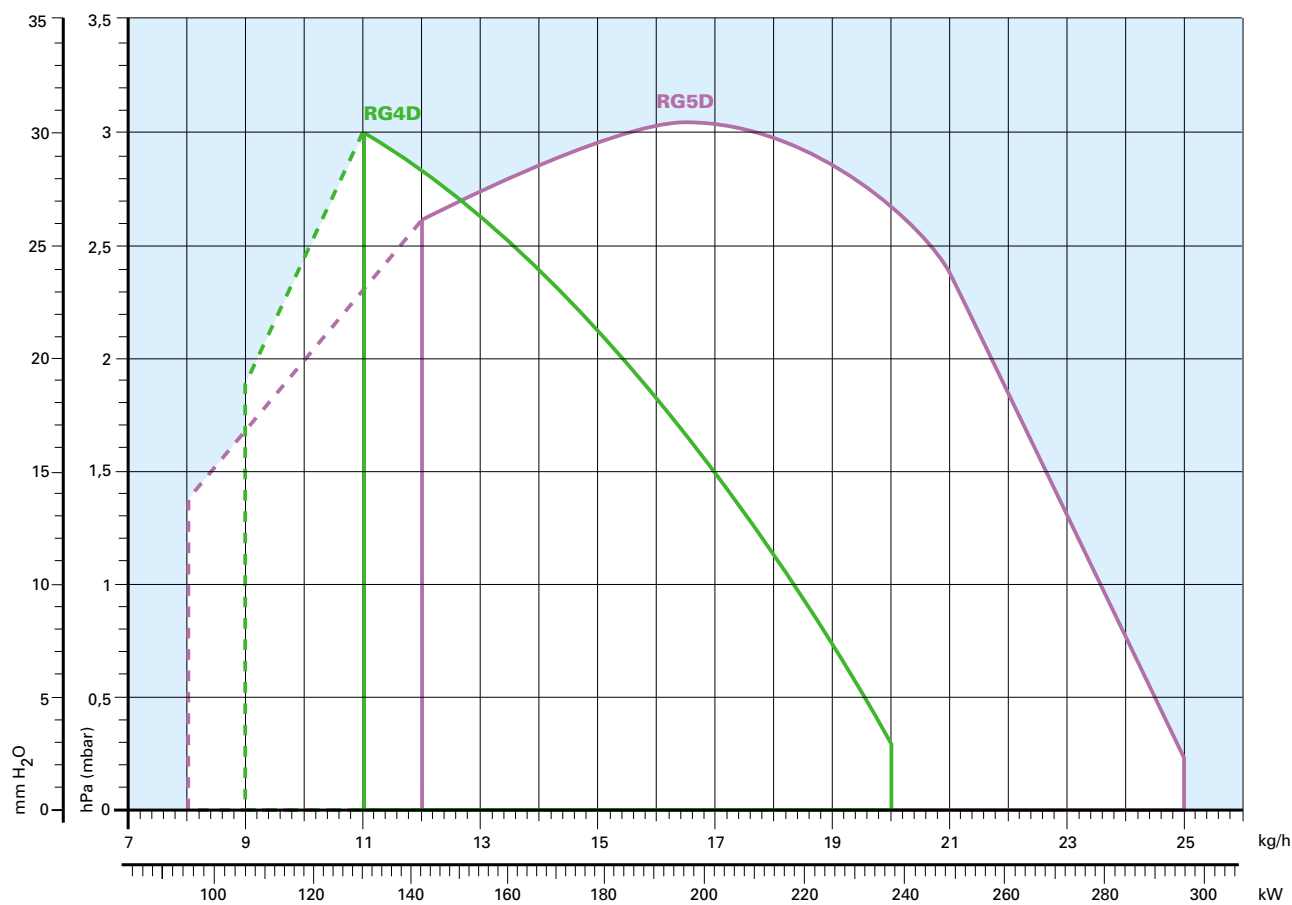
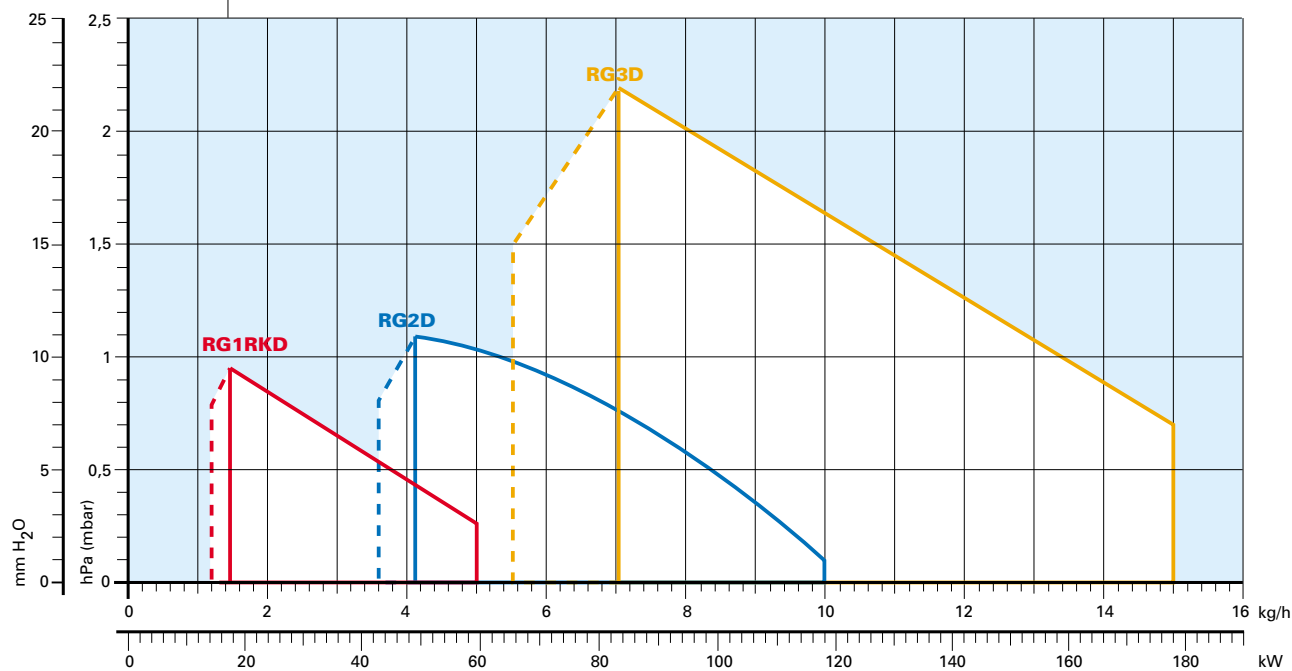
Altitude: 100 m a.s.l.

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

1<sup>st</sup> stage operation range

**Test conditions conforming to EN 267:**  
 Temperature: 20 °C  
 Pressure: 1013,5 mbar  
 Altitude: 100 m a.s.l.





# FUEL SUPPLY

## HYDRAULIC CIRCUIT

All the burners have a geared pump R.B.L. with double safety valve on the return circuit; the model RG1RKD is equipped by light oil pre-heater PTC type.

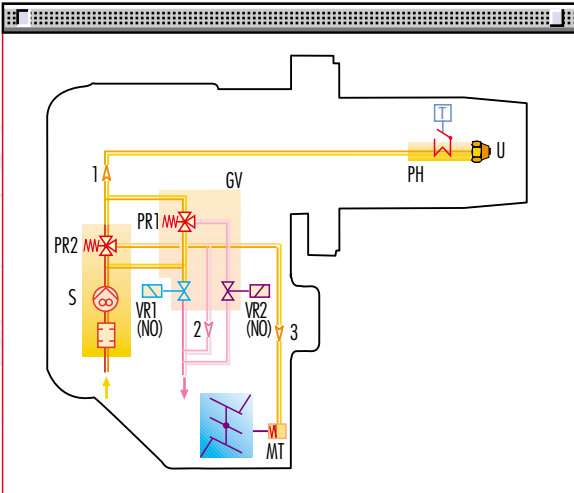


Fuel pump

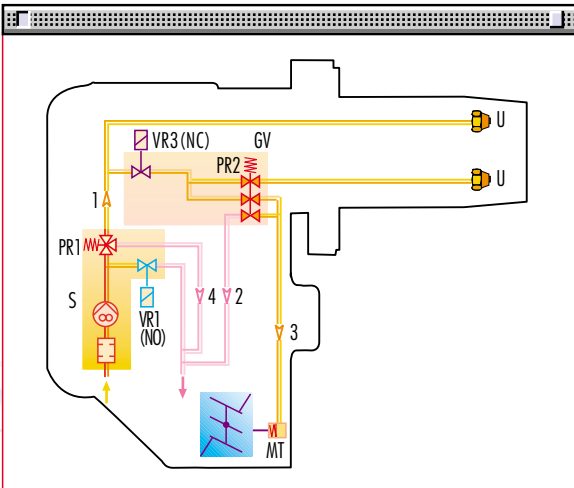


Fuel pump (RG5D)

### RG1RKD - RG2D - RG3D - RG4D



### RG5D



S	Pump with filter and pressure regulator on the delivery pipework
VR1(NO)	1 <sup>st</sup> stage oil return valve normally open
VR2(NO)	2 <sup>nd</sup> stage oil return valve normally open
VR3(NC)	2 <sup>nd</sup> stage oil return valve normally closed
1	Oil delivery pipe to the nozzle/s
2	Oil return pipe from the 2 <sup>nd</sup> stage regulator
3	Oil delivery pipe to the air damper hydraulic jack
4	Oil return pipe from the 1 <sup>st</sup> stage regulator
MT	Air damper hydraulic jack for the 2 <sup>nd</sup> stage
PR1	1 <sup>st</sup> stage oil regulator
PR2	2 <sup>nd</sup> stage oil regulator
PH	Oil pre-heater with thermostat (where provided)
GV	Valve unit
U	Nozzle

Fuel feed to the burner can be from the right or the left side on all models.

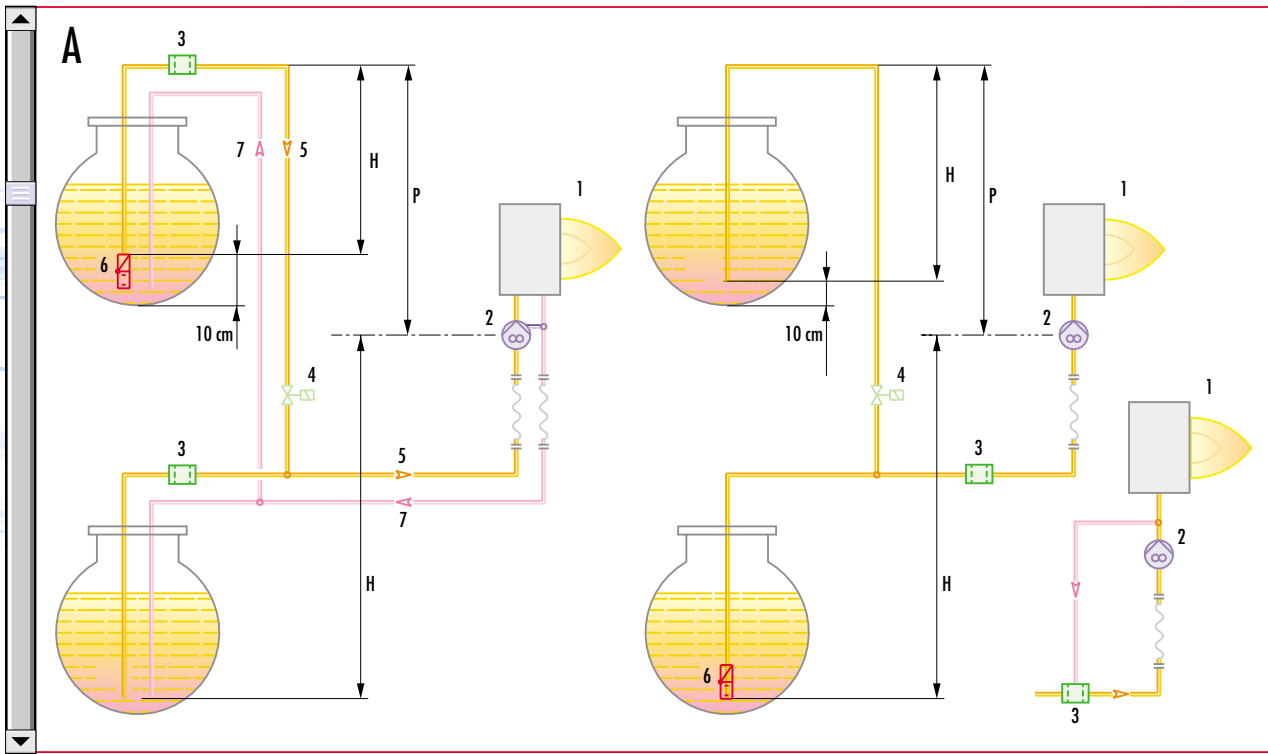


## SELECTING THE FUEL SUPPLY LINES

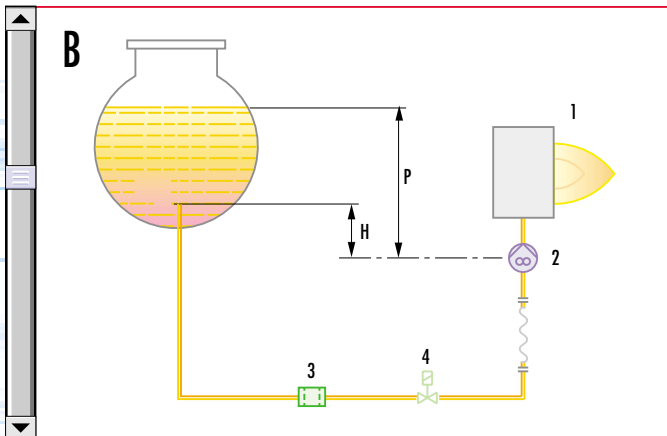
The fuel feed must be completed with the safety devices required by the local regulations in force.

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

MAXIMUM EQUIVALENT LENGTH OF THE PIPEWORK L[m]				
Pipe size	Type A system		Type B system	
	Ø8mm	Ø10mm	Ø8mm	Ø10mm
H (m)	L <sub>max</sub> (m)	L <sub>max</sub> (m)	L <sub>max</sub> (m)	L <sub>max</sub> (m)
0	35	100	-	-
0,5	30	100	10	20
1,0	25	100	20	40
1,5	20	90	40	80
2,0	15	70	60	100
3,0	8	30	-	-
3,5	6	20	-	-



### Type of system that can be installed



H	Difference in height
Ø	Internal pipe diameter
P	Difference in height ≤ 4 m
1	Burner
2	Pump
3	Filter
4	Shut-off solenoid valve
5	Suction pipework
6	Bottom valve
7	Return pipework





## VENTILATION

The different ventilation circuits always ensure low noise levels with high performance of pressure and air delivery, inspite of their compact size.



Combustible air suction



## COMBUSTION HEAD

The RGD series of burners allows you to choose the length of the combustion head.

This choice depends on the thickness of the front wall and the type of the boiler.

Depending on the type of generator, you should check the correct penetration of the head into the combustion chamber.

Simple adjustment to the combustion head allows adapting internal geometry of the head to the maximum rated output of the burner.

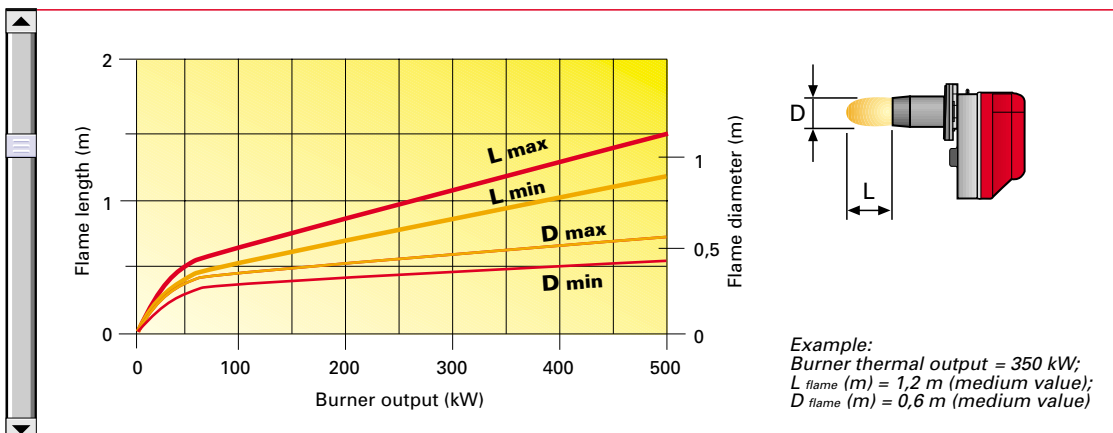


Combustion head



Combustion head (RG5D)

### Dimensions of the flame



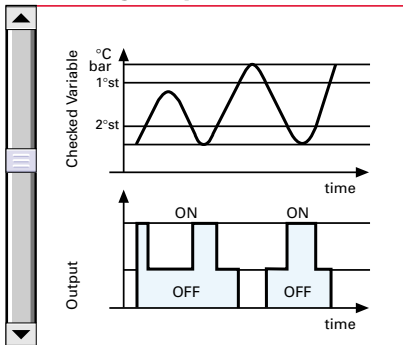
# ADJUSTMENT



## BURNER OPERATION MODE

All these models have two stage output operation at 2 pressure levels (each having its respective pressure regulator) except for the RG5D model, which has 2 nozzles (one for each stage) that work at the same pressure.

### “Two stage” operation



2<sup>nd</sup> stage air damper adjustment

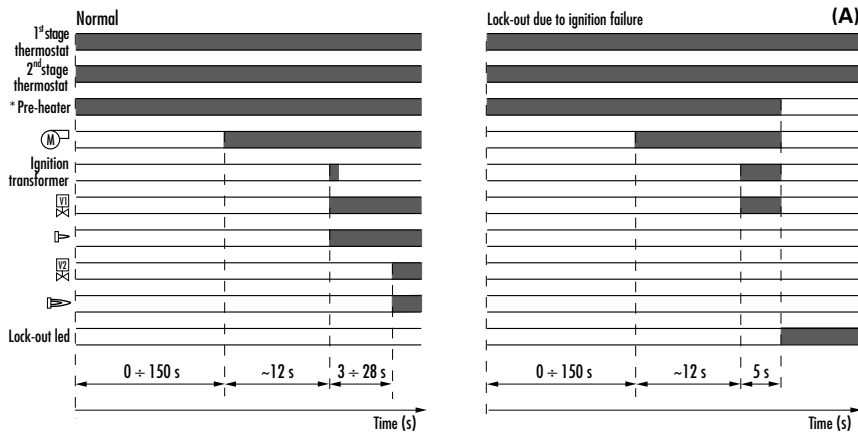


1<sup>st</sup> stage air damper adjustment



Light oil pressure adjustment

## START UP CYCLE



\* Only for RG1RKD.

(A) Lock-out is shown by a led on the appliance.

### Correct operation

- 0s The burner begins the ignition cycle.
- 0s-12s Pre-purge with the air damper open.
- 12s 1<sup>st</sup> stage ignition.
- 15s-40s 2<sup>nd</sup> stage ignition.

\* If the pre-heater is fitted (RG1RKD model), there is a further delay before pre-purge; this delay can reach 150s depending on room and fuel temperatures.

### Lock-out due to ignition failure

If the flame does not light within the safety limit (~ 5s) the burner locks-out.



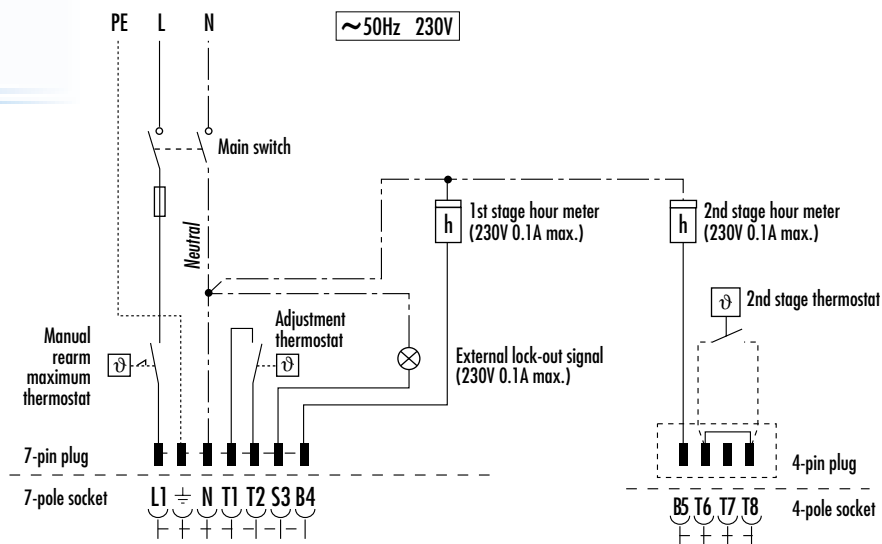
## WIRING DIAGRAMS

Electrical connections must be made by qualified and skilled personnel in conformity with the local regulations in force.



Appliance fitted with an ignition transformer

### ▶ "TWO STAGE" OPERATION



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

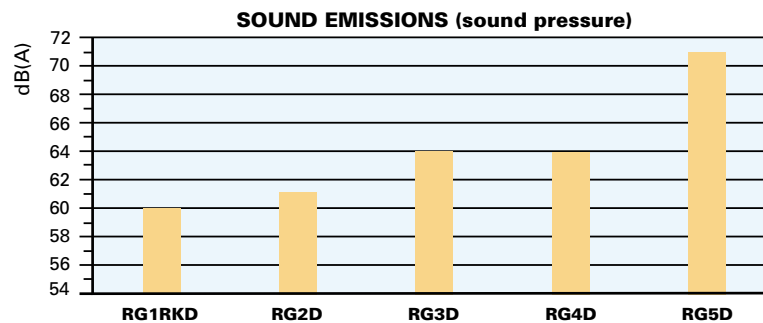
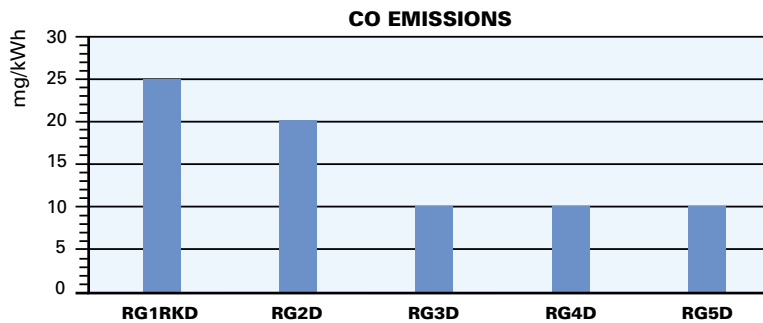
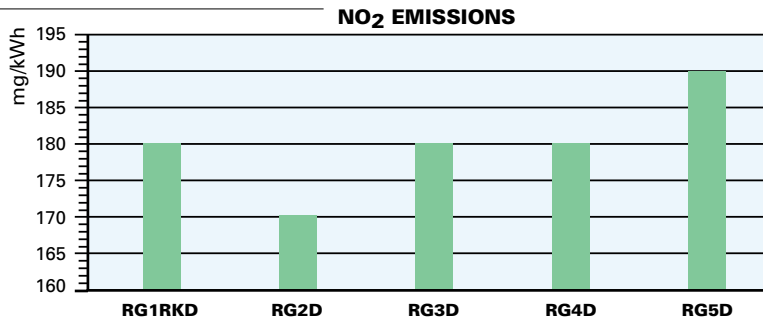
Model	▼ RG1RKD	▼ RG2D	▼ RG3D	▼ RG4D	▼ RG5D
F	230V	230V	230V	230V	230V
A	6	6	T6	T6	T6
L	1	1	1	1	1
	mm <sup>2</sup>				

F = Fuse

L = Lead section

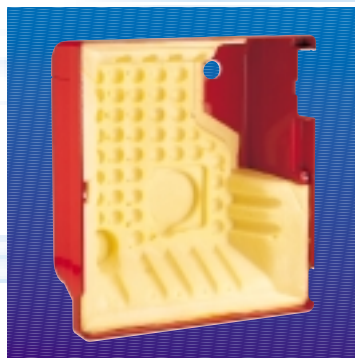


# EMISSIONS



The emission data have been measured in the various models at maximum output, in conformity with EN 267 standard.

Special attention has been paid to noise reduction. All models are fitted with sound-proofing material inside the cover.

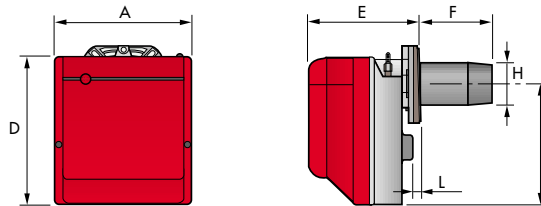




## OVERALL DIMENSIONS (mm)

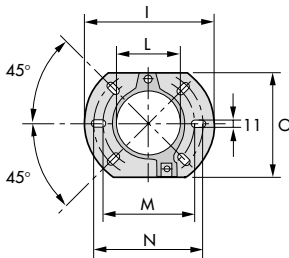
These models are distinguished by their reduced size, in relation to their outputs, which means they can be fitted to any boiler on the market.

### BURNER



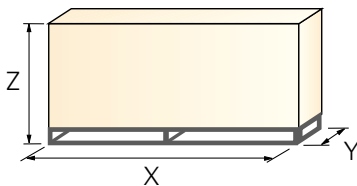
Model	A	D	E	F	H	I	L
▶ <b>RG1RKD</b>	234	254	196	111	84	210	4
▶ <b>RG2D</b>	255	280	202	115	95	230	10
▶ <b>RG3D</b>	300	345	228	142	123	285	12
▶ <b>RG4D</b>	300	345	228	142	123	285	12
▶ <b>RG5D</b>	300	345	247	159	125	285	12,5

### BURNER-BOILER MOUNTING FLANGE



Model	I	L	M	N	O
▶ <b>RG1RKD</b>	180	91	130	150	144
▶ <b>RG2D</b>	189	106	140	165	166
▶ <b>RG3D</b>	213	127	160	190	198
▶ <b>RG4D</b>	213	127	160	190	198
▶ <b>RG5D</b>	213	127	160	190	198

### PACKAGING



Model	X	Y	Z	kg
▶ <b>RG1RKD</b>	343	268	310	12
▶ <b>RG2D</b>	353	288	340	13
▶ <b>RG3D</b>	420	335	420	12
▶ <b>RG4D</b>	420	335	420	13
▶ <b>RG5D</b>	500	335	430	18