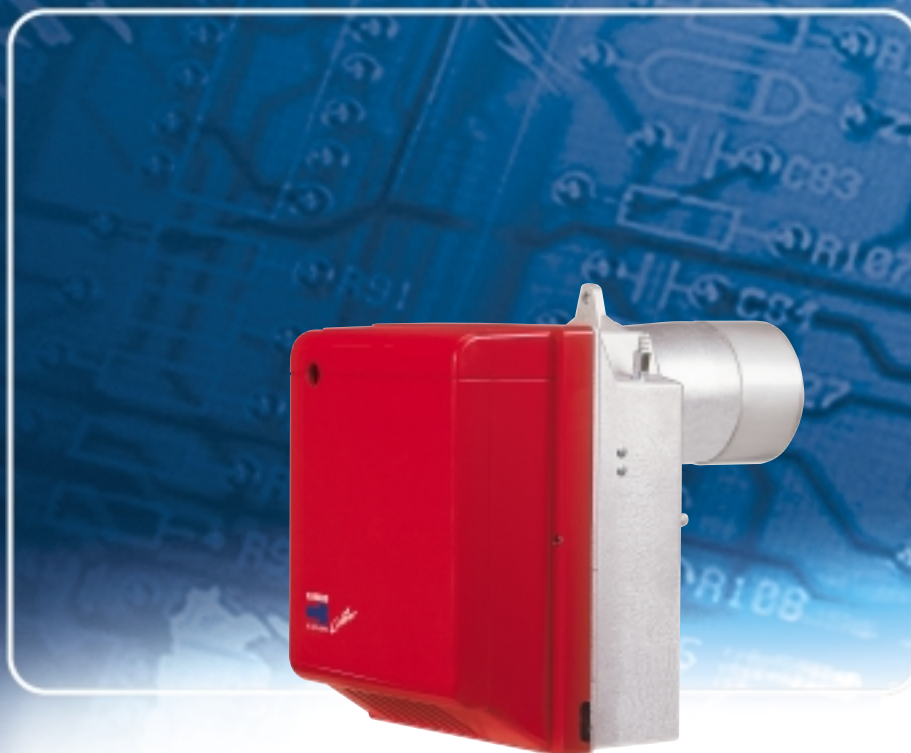


CE

RIELLO
BURNERS**ONE STAGE LIGHT OIL BURNERS****► GULLIVER RGF SERIES**

► RG1F	32,0 ÷ 60,0 kW
► RG2F	47,0 ÷ 119,0 kW
► RG3F	83,0 ÷ 178,0 kW
► RG4F	118,5 ÷ 237,0 kW



The Riello Gulliver RGF series of one stage light oil burners, is a complete range of products developed to respond to any request for light industrial processes like bakery ovens, spray painting ovens, small steam or thermal boilers and all applications which require a reliable, user-friendly industrial product with enhanced performance and specific functions.

The Gulliver RGF series is available in four different models, with an output ranging from 32 to 237 kW, divided in three different structures.

All the models use the same components designed by Riello for the Gulliver series and have the same ventilation system and overall dimensions as the previous one stage light oil models.

This new series can operate on 50 or 60 Hz and a Voltage 220 - 230 Volt (dual frequency). All these burners conform to the EN 267 Standard (Forced draught oil burners) and to European Directives for EMC, Low Voltage and Machinery. For depressurised working field see EN 746-2 Standard.

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

TECHNICAL DATA

Model			▼ RG1F	▼ RG2F	▼ RG3F	▼ RG4F
Burner operation mode			One stage			
Modulation ratio at max. output			--			
Servomotor	run time	type	--			
		s	--			
Heat output		kW	32 - 60	47 - 119	83 - 178	118,5 - 237
		Mcal/h	27,5 - 51,6	40,4 - 102,3	71,4 - 153,1	102 - 203,8
		kg/h	2,7 - 5	4 - 10	7 - 15	10 - 20
Working temperature		°C min./max.	0/40			
Net calorific value		kWh/kg	11,8			
		kcal/kg	10200			
Viscosity		mm ² /s (cSt)	4 ÷ 6 (at 20°C)			
Pump	delivery	type	Riello made by SUNTEC			
		kg/h	30 (at 12 bar)			
Atomised pressure		bar	8 ÷ 15			
Fuel temperature		max. °C	50			
Fuel pre-heater			NO			
Fan		type	Centrifugal with forward curve blades			
Air temperature		max. °C	40			
Electrical supply		Ph/Hz/V	1/50 - 60/220 - 230 ±10%			
Auxiliary electrical supply		Ph/Hz/V	--			
Control box		type	R.B.L.552 SE			
Total electrical power		kW	0,155 (at 50 Hz) - 0,200 (at 60 Hz)	0,165 (at 50 Hz) - 0,220 (at 60 Hz)	0,380 (at 50 Hz) - 0,520 (at 60 Hz)	0,370 (at 50 Hz) - 0,510 (at 60 Hz)
Auxiliary electrical power		kW	--			
Heaters electrical power		kW	--			
Protection level		IP	40			
Pump motor electrical power		kW	--			
Rated pump motor current		A	--			
Pump motor start up current		A	--			
Pump motor protection level		IP	--			
Fan motor electrical power		kW	0,09	0,09	0,15	0,15
Rated fan motor current		A	0,7 (at 50 Hz) - 0,9 (at 60 Hz)	0,75 (at 50 Hz) - 1,0 (at 60 Hz)	1,7 (at 50 Hz) - 2,35 (at 60 Hz)	1,65 (at 50 Hz) - 2,3 (at 60 Hz)
Fan motor start up current		A	2,8 (at 50 Hz) - 3,6 (at 60 Hz)	3,0 (at 50 Hz) - 4,0 (at 60 Hz)	6,8 (at 50 Hz) - 9,4 (at 60 Hz)	6,6 (at 50 Hz) - 9,2 (at 60 Hz)
Fan motor protection level		IP	20			
Ignition transformer		type	Incorporated in the control box			
		V1 - V2	(-) - 8 kV			
		I1 - I2	(-) - 16 mA			
Operation			Intermittent (at least one stop every 24 h)			
Sound pressure		dB (A)	60	61	64	64
Sound power		W	--			
CO emission		mg/kWh	15	5	6	6
Grade of smoke indicator		N° Bacharach	<1			
CxHy emission		mg/kWh	<10 (after the first 20 s)			
NOx emission		mg/kWh	220	137	180	150
Directive			89/336/EEC, 73/23/EEC, 98/37/EEC			
Conforming to			EN 267, EN 746-2			
Certification			In progress			

Reference conditions:

Temperature: 20 °C

Pressure: 1013 mbar

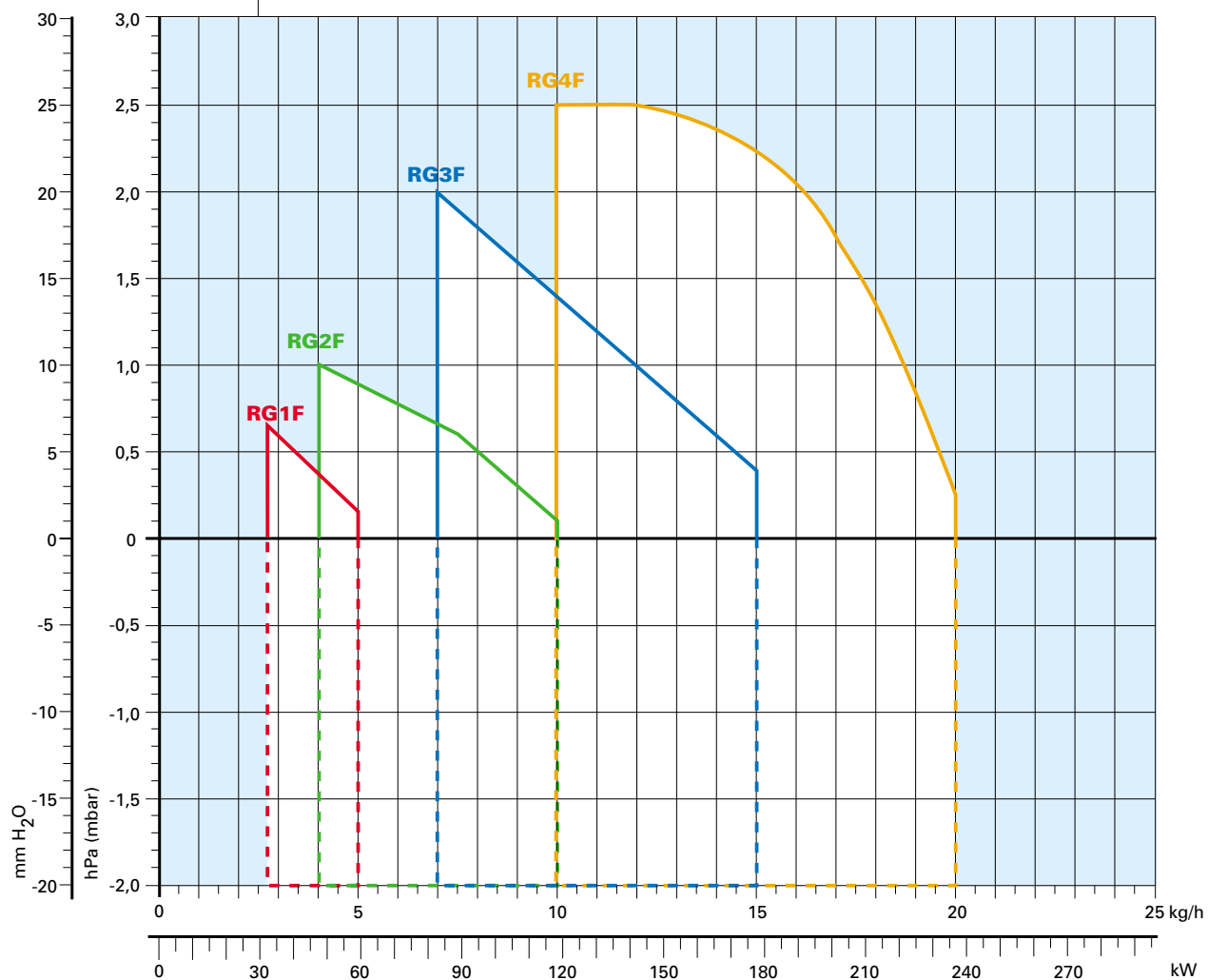
Altitude: 0 m a.s.l.

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.

This document contains confidential and proprietary information of RIELLO S.p.A. Unless authorised, this information shall not be divulged, nor duplicated in whole or in part.

FIRING RATES



Useful working field for choosing the burner

Test conditions conforming to EN 267:

Temperature: 20°C
Pressure: 1013 mbar
Altitude: 0 m a.s.l.

IMPORTANT: For the part of the working field that is depressurised, refer to EN 746-2 Standard.



FUEL SUPPLY

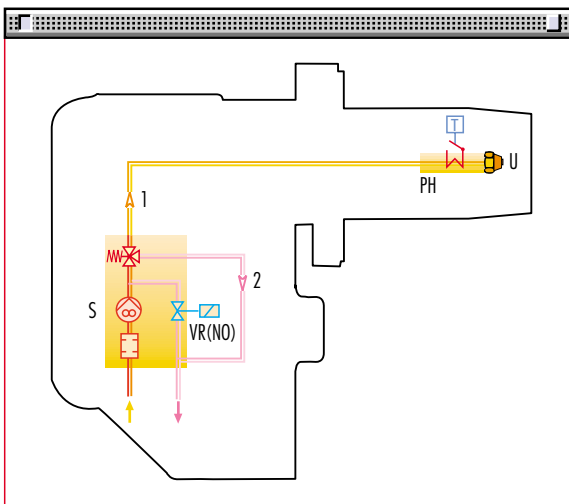
► HYDRAULIC CIRCUIT

All the burners have a geared pump with safety valve on the return circuit.
The RG1F, RG2F, RG3F and RG4F models are fitted with a Riello pump made by Suntec.



Fuel pump

RG1F - RG2F - RG3F - RG4F



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

S	Pump with filter and pressure regulator on the delivery pipe
VR(NO)	Oil return valve on the delivery pipe
1	Oil input pipe to the nozzle
2	Oil return pipe from the regulator
3	Oil delivery pipe to the air damper hydraulic jack
PH	Oil pre-heater with thermostat (where provided)
U	Nozzle

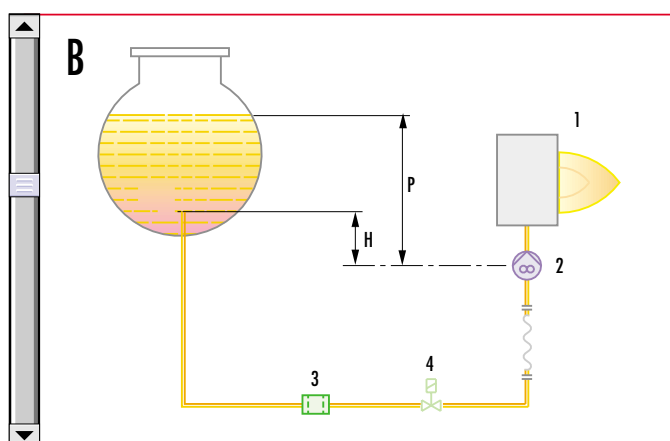
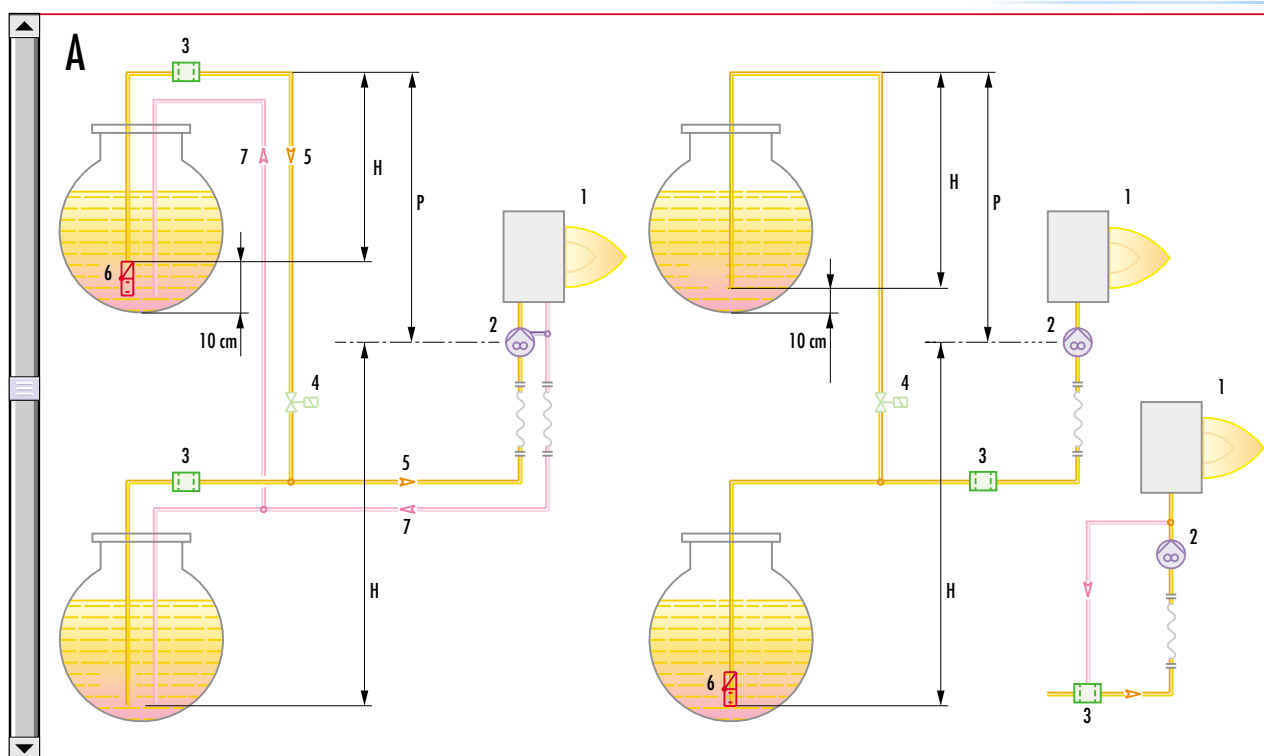


SELECTING THE FUEL SUPPLY LINES

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 _{max} (m)	L _{max} (m)	L _{max} (m)	L _{max} (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	-	-



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



Air suction (RG5S)



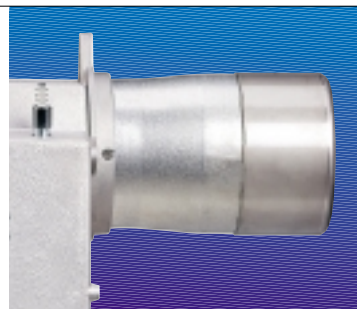
COMBUSTION HEAD

All models allow 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.

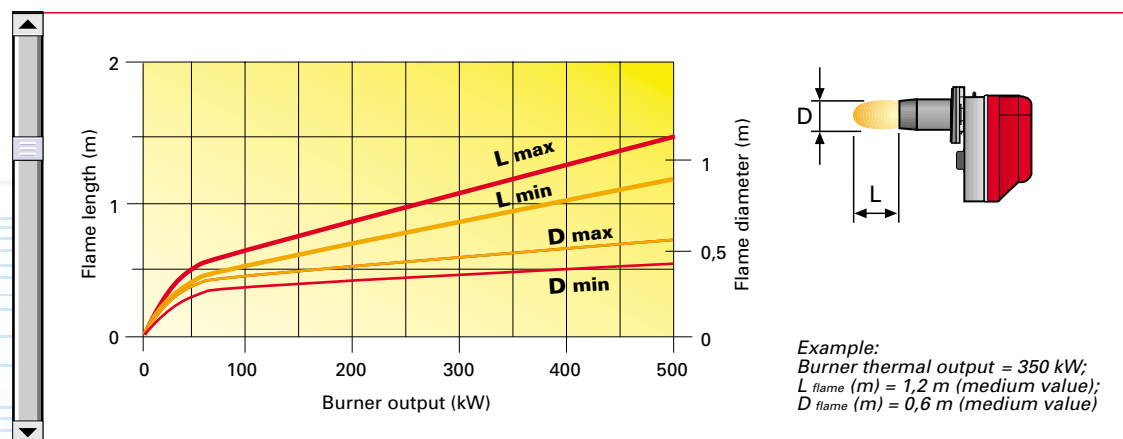
Depending on the type of generator, you should check the correct penetration of the head into the combustion chamber.

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



Gulliver burner combustion head

Dimensions of the flame



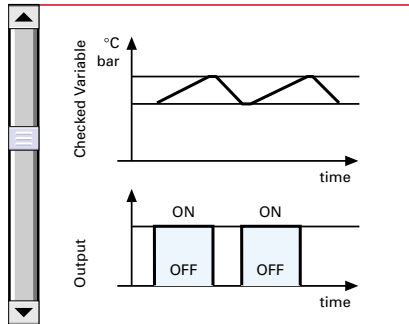
ADJUSTMENT



BURNER OPERATION MODE

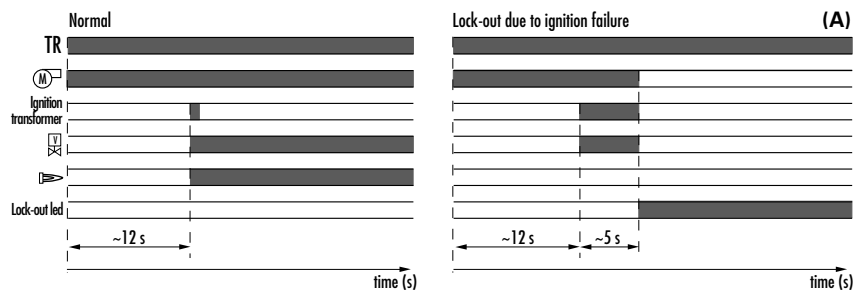
All these models are one stage operation.

"One stage" operation



Air damper adjustment

START UP CYCLE



(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 Ignition.

Lock-out due to ignition failure

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



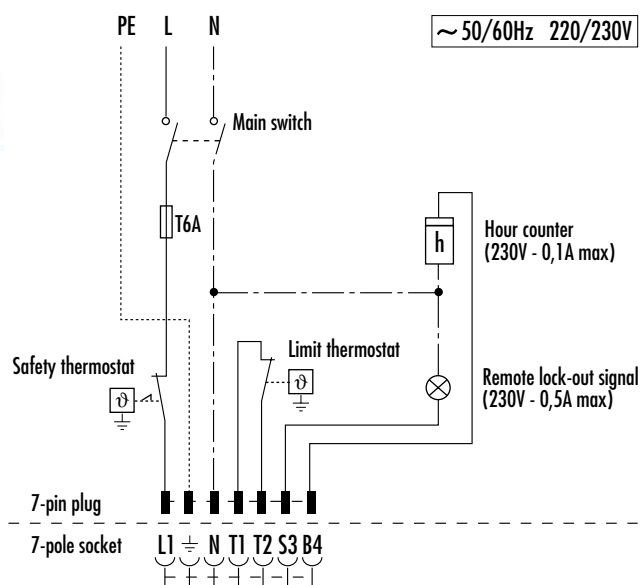
WIRING DIAGRAMS

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



Control box fitted with ignition transformer

► "ONE STAGE" OPERATION



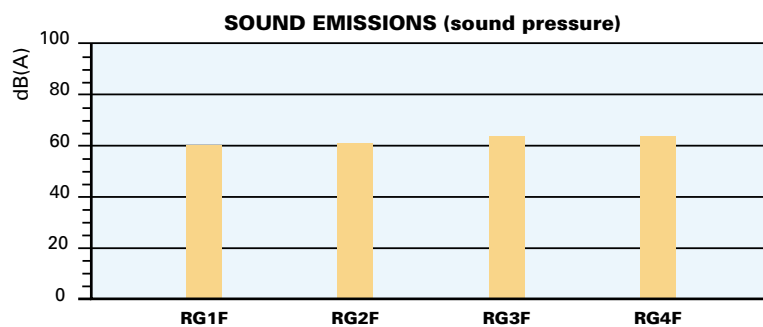
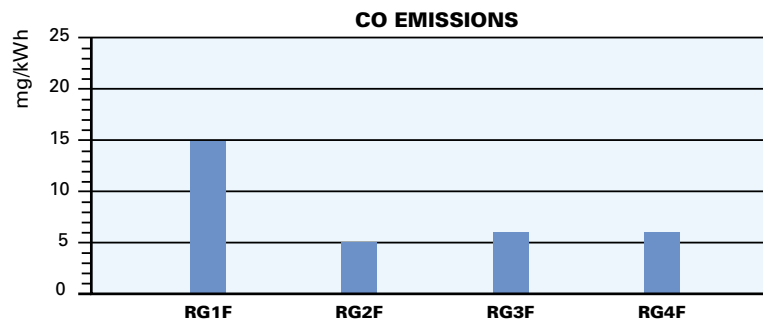
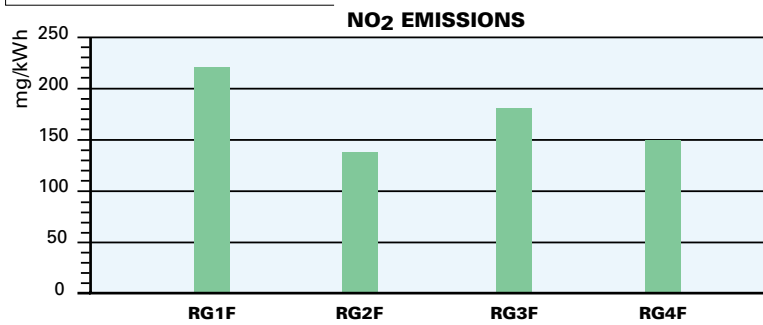
The following table shows the supply lead sections and types of fuse to be used.

Model	▼ RG1F	▼ RG2F	▼ RG3F	▼ RG4F
F A	220-230V T6	220-230V T6	220-230V T6	220-230V T6
L mm ²	1	1	1	1

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. In order to protect the components from environment dust special seals have been fitted on the cover.



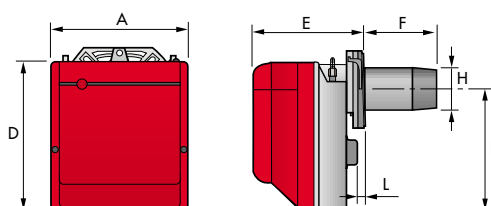


OVERALL DIMENSIONS (mm)

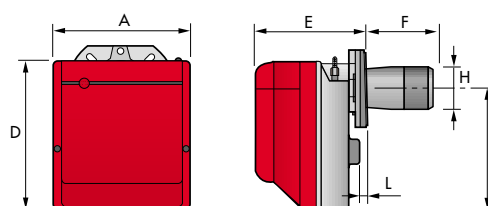
These models are distinguished by their reduced size, in relation to their outputs, which means they can be fitted to any boiler on the market.

BURNER

GULLIVER RG1F



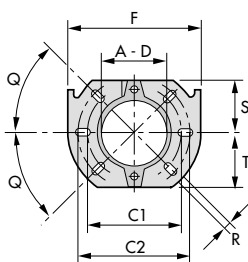
GULLIVER RG2F, RG3F, RG4F



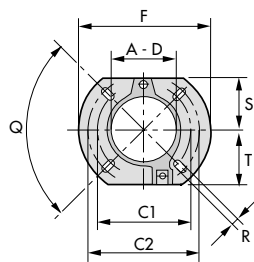
Model	A	D	E	F	H	I	L
► RG1F	234	254	196	93	84	210	4
► RG2F	255	280	202	115	95	230	10
► RG3F	300	345	228	142	123	285	12
► RG4F	300	345	228	142	125	285	12

BURNER-BOILER MOUNTING FLANGE

RG1F - RG2F

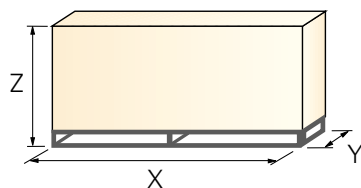


RG3F - RG4F



Model	A	C1	C2	D	F	Q	R	S	T
► RG1F	91	130	150	91	180	45	11	72	72
► RG2F	106	140	168	106	189	45	11	83	83
► RG3F	127	160	190	127	213	90	11	99	99
► RG4F	127	160	190	127	213	90	11	99	99

PACKAGING



Model	X	Y	Z	kg
► RG1F	343	268	310	13
► RG2F	353	288	340	13
► RG3F	420	335	420	15
► RG4F	420	335	420	18

INSTALLATION DESCRIPTION



Skilled and qualified personnel must perform installation, start up and maintenance. A nozzle is fitted to the burner and used for fire tests in the factory. If necessary, change the nozzle on the basis of the maximum output of the boiler.

All operations must be carried out as described in the technical handbook supplied with the burner.



► BURNER SETTING

- The air damper can be regulated without removing the burner cover.
- Head setting area is easily accessible and the operation is simple thanks to a graduated scale.



► MAINTENANCE AND ELECTRICAL CONNECTIONS

- The maintenance position is easily carried out by hooking the burner to the flange after removing it from the fixing screw (except for RG3F and RG4F models).
- The nozzle holder can be serviced through the rear cover without detaching the burner from the boiler.
- The 7-pole socket is incorporated in the control box. The 7-pin plug is also supplied for connection to the boiler.

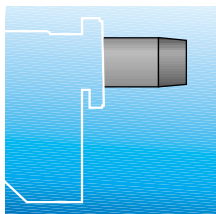




BURNER ACCESSORIES

Extended head kit

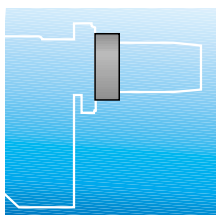
"Standard head" burners can be transformed into "extended head" versions by using the special kit. Below the KITS available for the various burners are listed, showing the original and the extended lengths.



Extended head kit			
Burner	Standard head length (mm)	Extended head length (mm)	Kit code
RG1F	93	163	3000963
RG2F	115	180	3000964
RG2F	115	300	3000967
RG3F	142	210	3000965
RG3F	142	300	3000968
RG4F	142	210	3000966
RG4F	142	300	3000969

Spacer kit

By using the special accessories, the burner can be withdrawn to reduce head penetration into the combustion chamber.



Spacer kit		
Burner	Spacer thickness S (mm)	Kit code
RG1F	15	3007931
RG2	25	3000672
RG3F - RG4F	25	3000673

Pre-heater kit

There is a special kit available (only for RG1F model) that, when installed in the combustion head, allows fuel to be heated so as to assure regular burner firing and operation. It can basically be used in special atmospheric conditions (low temperatures), with high diesel oil viscosity and with low deliveries. Refer to the instructions supplied with the "pre heater kit" for installation.

This kit must be installed in conformity with laws and local regulations.

Pre-heater kit	
Burner	Kit code
RG1F	3001083

Remote control release kit for the 550 SMD control box

There is a special kit available that, when mounted on the 550 SMD control box, lets you reset the burner by remote control.

This kit must be installed in conformity with laws and local regulations.



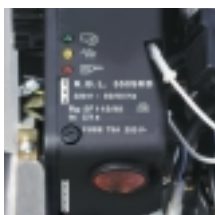
Remote control release kit for the 550 SMD control box	
Burner	Kit code
RG1F - RG2F - RG3F - RG4F	3001072

Control box 550 SMD and sensor flame

On request, we can supply the control box used on the Low NOx models, which is interchangeable with the one fitted.

This control box has the following features:

- Spark restoration function
- Switch for burner post-ignition/recycling
- Led signalling the various working stages
- Post-combustion lock-out
- Socket for remote resetting.



Control box 550 SMD and sensor flame	
Burner	Kit code
RG1F - RG2F - RG3F - RG4F	3001168 + 3007492

Tester

The tester controls the correct working of the burner components in the GULLIVER series. It can be fitted to all the light-oil models.

It is made up of two parts: a control instrument and a "control box" which replaces and simulates the one on the burner.

This tester is very simple to use: just replace the burner control box with the tester to check correct working of the motor, valve, pre-heater and flame probe (only photo-resistance).

This device has a display showing the levels that have been measured, a selection switch for selecting the component to be tested and four switches to be used in the various working stages of the burner.












The following control boxes can be tested:

- 550 SMD
- 552 SE



Tester	
Burner	Kit code
RG1F - RG2F - RG3F - RG4F	3087211



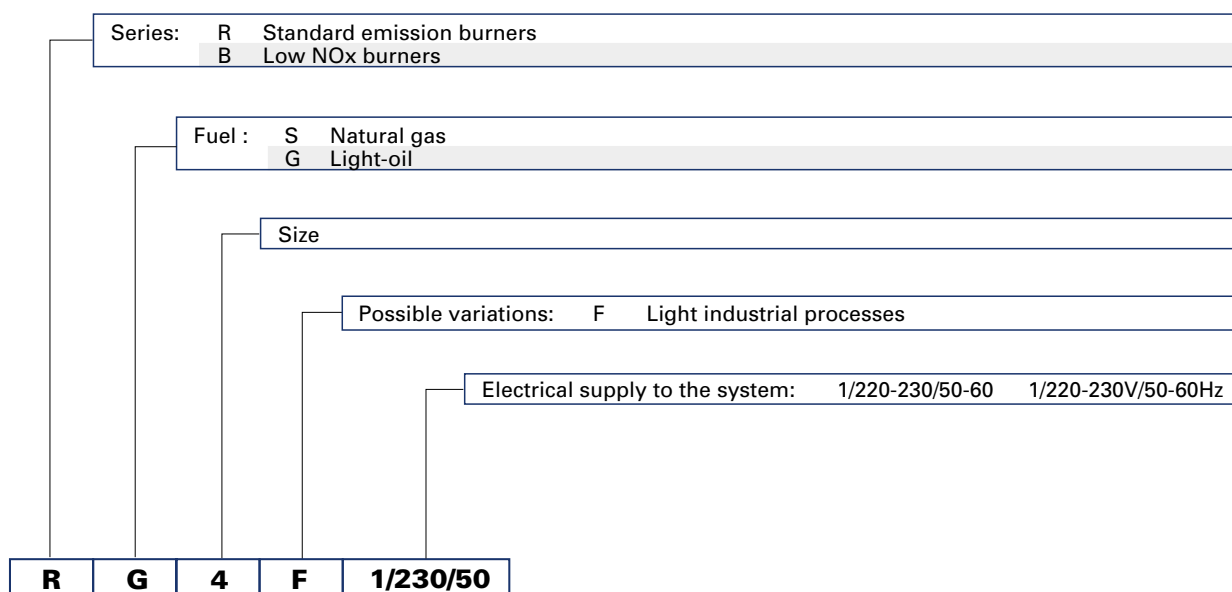
Direct testing	Measurements
 MOTOR The switch feeds the motor.	 L1-N Main voltage (230 V)
 VALVE The switch feeds electromagnetic winding of the coil. A red led signals excitation stage, and a green led signals retainer stage.	  Pre-heater current consumption
 PRE-HEATER The switch feeds the light oil pre-heater; a green led signals the thermostat cut-in.	  Secondary voltage (low voltage)
 TRANSFORMER The switch feeds the firing transformer inside the control box and excites the oil valve.	  Photo-resistance current consumption



SPECIFICATION

A special index will help you choose the right burner from the RGF models available.
There is also a clear and detailed product specification and description.

DESIGNATION OF SERIES



AVAILABLE BURNER MODELS

RG1F	1/220-230/50-60
RG2F	1/220-230/50-60
RG3F	1/220-230/50-60
RG4F	1/220-230/50-60



▶ **PRODUCT SPECIFICATION**

Burner:

Completely automatic monobloc light oil burners, with one stage operation fitted with:

- Fan with forward curve blades
- Cover lined with sound - proofing material
- Air damper, always open in stand by, with external adjustment, without need to remove the cover
- Single phase electric motor 220 - 230 V, 50 - 60 Hz
- Combustion head fitted with:
 - stainless steel head cone, resistant to high temperatures
 - ignition electrodes
 - flame stability disk
- Geared pump for fuel supply, fitted with:
 - filter
 - pressure regulator
 - attachments for fitting a pressure gauge and vacuum meter
 - internal by-pass for preparing for single-pipe installations
- Fuel feed solenoid valve incorporated in the pump
- Photocell for flame detection
- Electronic flame control equipment
- Light oil nozzle
- IP 40 protection level
- PTC fuel pre-heater (optional)

Approval:

- EN 267 Standard
- EN 746-2 Standard (for the part of the working field that is depressurised)

Conforming to:

- Directive 89/336/EEC (electromagnetic compatibility)
- Directive 73/23/EEC (low voltage)
- Directive 98/37/EEC (machinery)

Standard equipment:

- Flange with insulating gasket
- Screw and nuts for flange
- 7-pin plug
- Screw and nuts for flange to be fixed to the heat generator
- Flexible oil pipes with nipples
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue

Available accessories to be ordered separately:

- Extended head kit
- Spacer kit
- Pre - heater kit
- Remote control release kit for the 550 SMD control box
- Control box 550 SMD and sensor flame
- Tester.



RIELLO S.p.A. - Via degli Alpini, 1 - 37045 LEGNAGO (VR) Italy

Tel. ++39.0442630111 - Fax ++39.044221980

Internet: <http://www.rielloburners.com> - E-mail: rburners@rielloburners.com



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.
This document contains confidential and proprietary information of RIELLO S.p.A.
Unless authorised, this information shall not be divulged, nor duplicated in whole or in part.