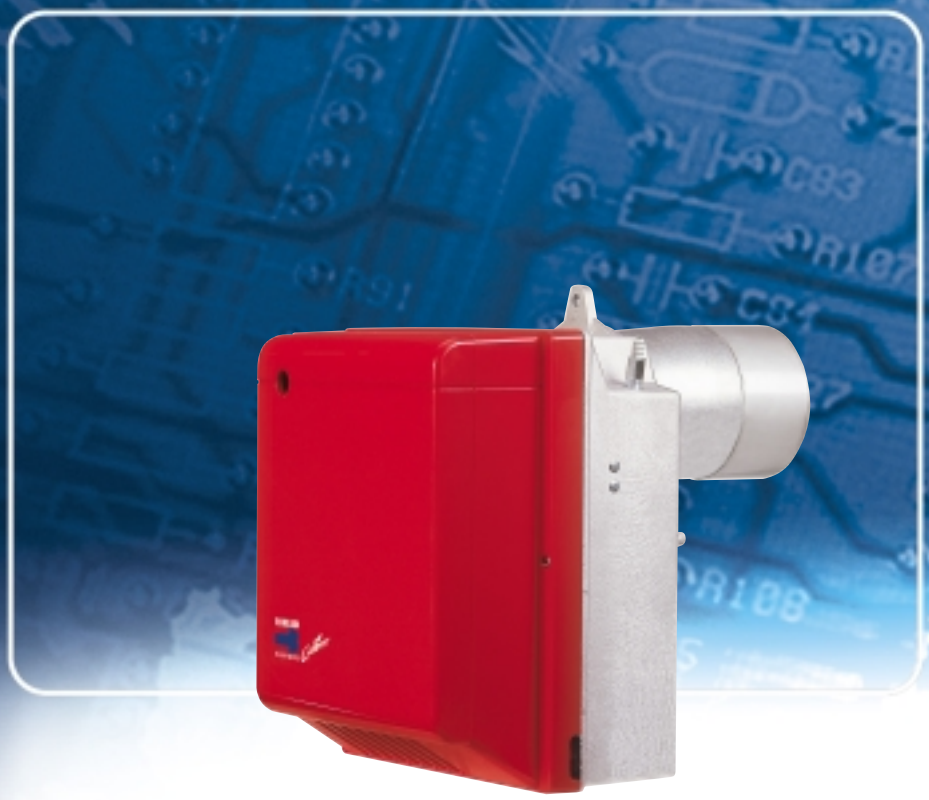
RIELLO BURNERS

CE

TWO STAGE LIGHT OIL BURNER

GULLIVER RGDF SERIES | **RG5DF** 95/142 ÷ 296 kW



The Riello Gulliver RG5DF is a new model of one stage light oil burner, 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.
This model uses the same components designed by Riello for the Gulliver series and has the same ventilation system and overall dimensions as the previous two stage light oil model.
This new burner can operates on 50 or 60 Hz and a Voltage 220 - 230 Volt (dual frequency).
It is 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.
The Gulliver RG5DF burner is fired before leaving the factory.

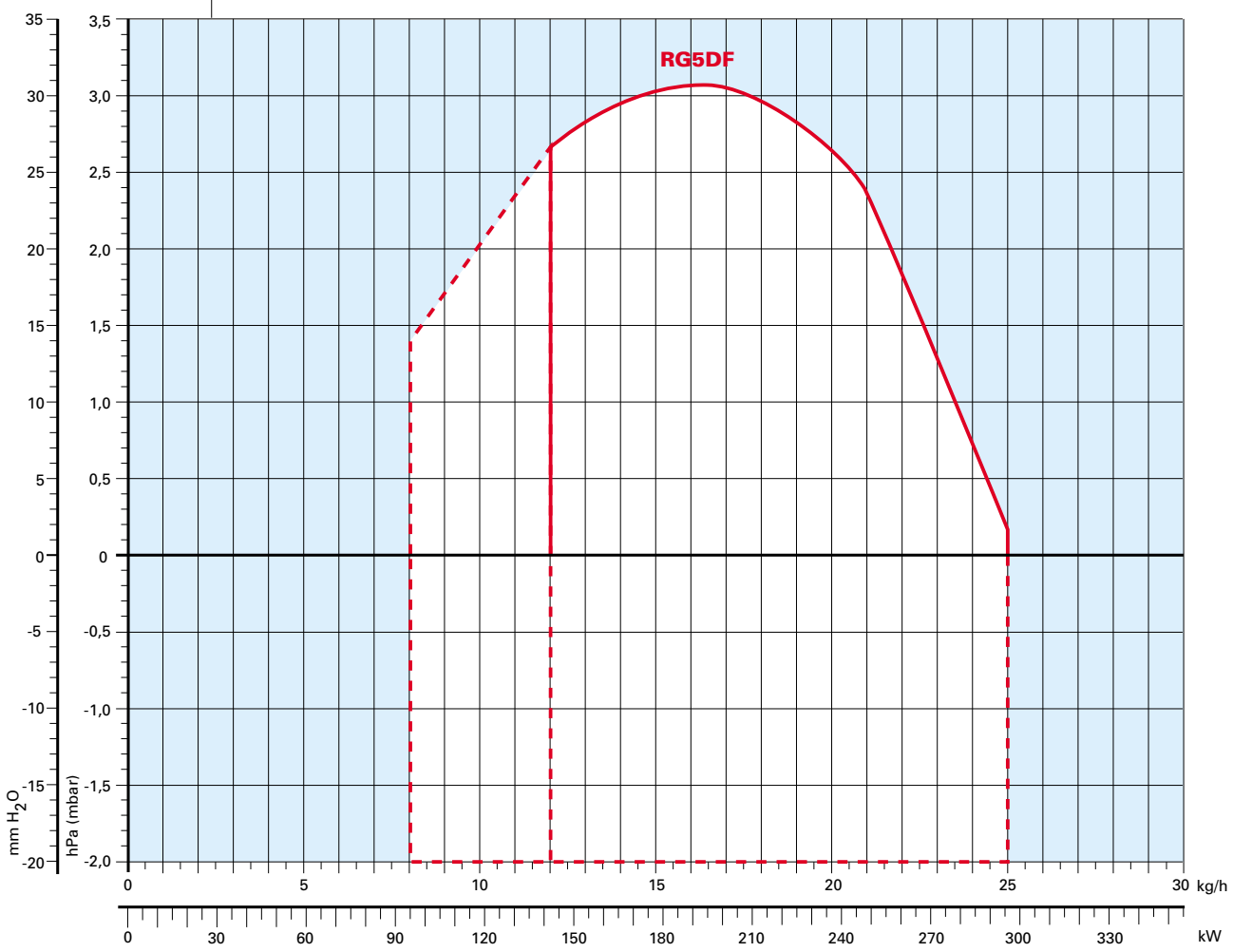
TECHNICAL DATA

	Model			RG5DF
	Burner operation mode			Two stage
	Modulation ratio at max. output			--
	Servomotor	run time	type	--
			s	--
	Heat output		kW	95/142 - 296
			Mcal/h	81,7/122,1 - 254,5
			kg/h	8/12 - 25
	Working temperature		°C min./max.	0/40
Fuel / air data	Net calorific value		kWh/kg	11,8
			kcal/kg	10200
	Viscosity		mm^2/s (cSt)	4 ÷ 6 (at 20°C)
	Pump	delivery	type	R.B.L.
			kg/h	35 (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 data	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	0,400 (at 50 Hz) - 0,575 (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	0,25
	Rated fan motor current		A	1,8 (at 50 Hz) - 2,6 (at 60 Hz)
	Fan motor start up current		A	7,2 (at 50 Hz) - 10,4 (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)
Emissions	Sound pressure		dB (A)	71
	Sound power		W	--
	CO emission		mg/kWh	10
	Grade of smoke indicator		N° Bacharach	<1
	C_xH_y emission		mg/kWh	<10 (after the first 20 s)
	NOx emission		mg/kWh	190
Approval	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.

FIRING RATES



Useful working field for choosing the burner

1st stage operation range

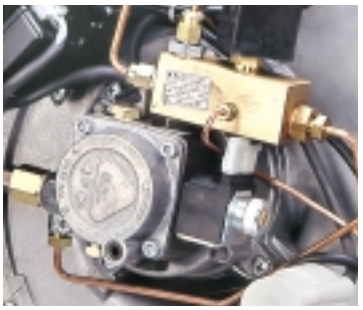
Test conditions conforming to EN 267:
Temperature: 20 °C
Pressure: 1013 mbar
Altitude: 0 m a.s.l.

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

FUEL SUPPLY

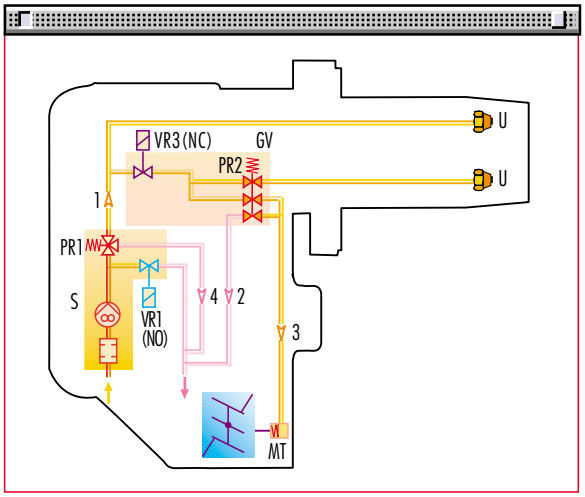
HYDRAULIC CIRCUIT

The burner has a geared pump R.B.L. with double safety valve on the return circuit.



Fuel pump

RG5DF



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

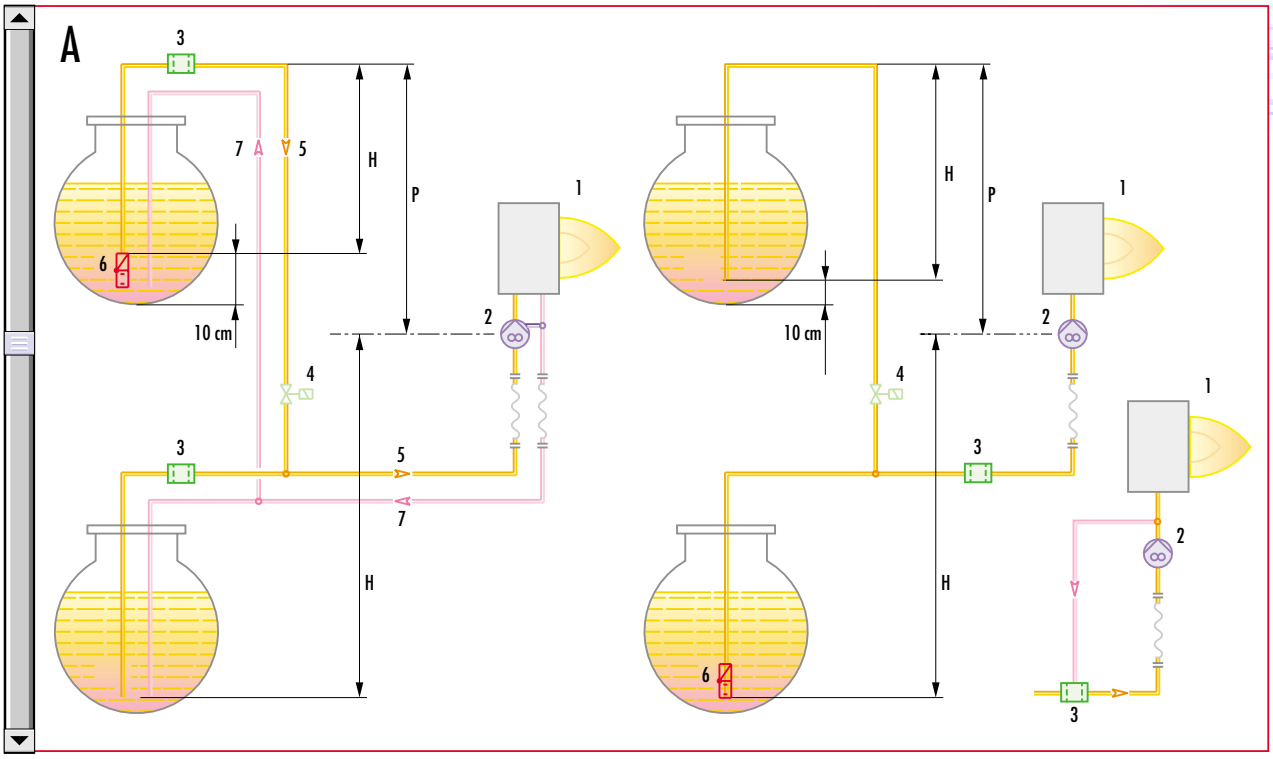
Fuel feed to the burner can be from the right or the left side on all models.

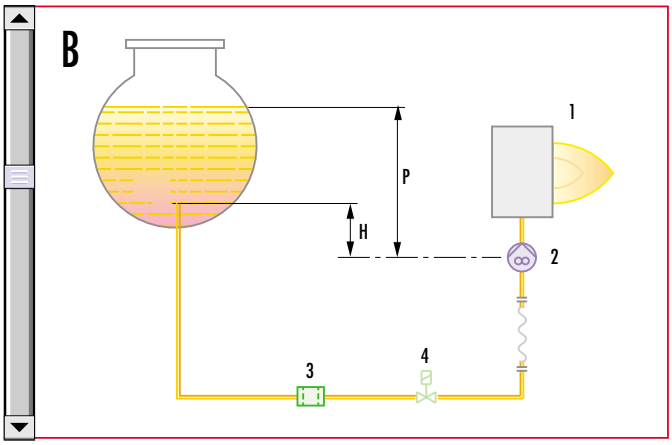
SELECTING THE FUEL SUPPLY LINES

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]				
	▼ Type A system		▼ Type B system	
Pipe size	Ø8mm	Ø10mm	Ø8mm	Ø10mm
H (m)	Lmax (m)	Lmax (m)	Lmax (m)	Lmax (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

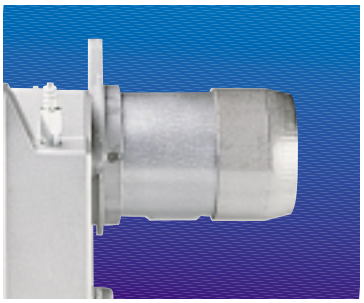
The ventilation circuits always ensure low noise levels with high performance of pressure and air delivery, inspite of their compact size.

Combustible air suction

COMBUSTION HEAD

The RGDF burner allows you to choose the length of the combustion head.

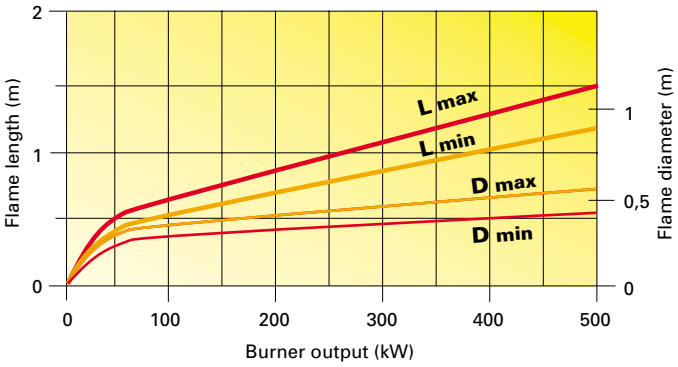
This choice depends on the thickness of the front wall and the type of the boiler.
Depending on the type of generator, you should check the correct penetration of the head into the combustion chamber.
Simple adjustment to the combustion head allows adapting internal geometry of the head to the maximum rated output of the burner.

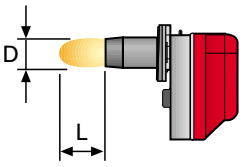


Combustion head

Combustion head

Dimensions of the flame





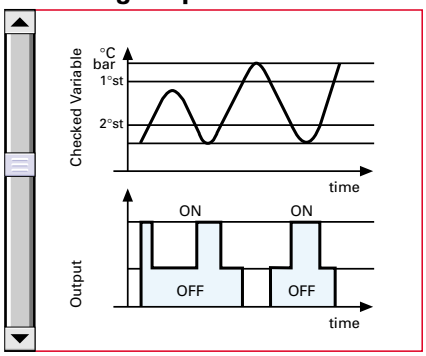
Example:
Burner thermal output = 350 kW;
L_{flame} (m) = 1,2 m (medium value);
D_{flame} (m) = 0,6 m (medium value)

ADJUSTMENT

BURNER OPERATION MODE

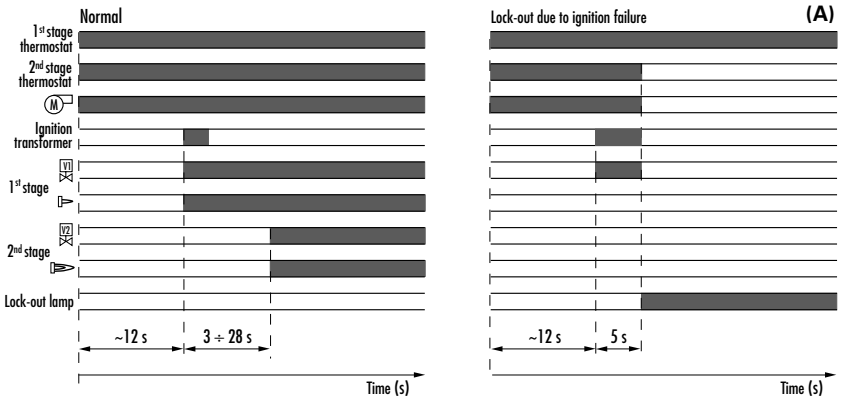
This model has two stage operation. The RG5DF model has 2 nozzles (one for each stage) that work at the same pressure.

"Two stage" operation



2nd stage 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	1st stage ignition.
15s-40s	2nd stage ignition.

Lock-out due to ignition failure

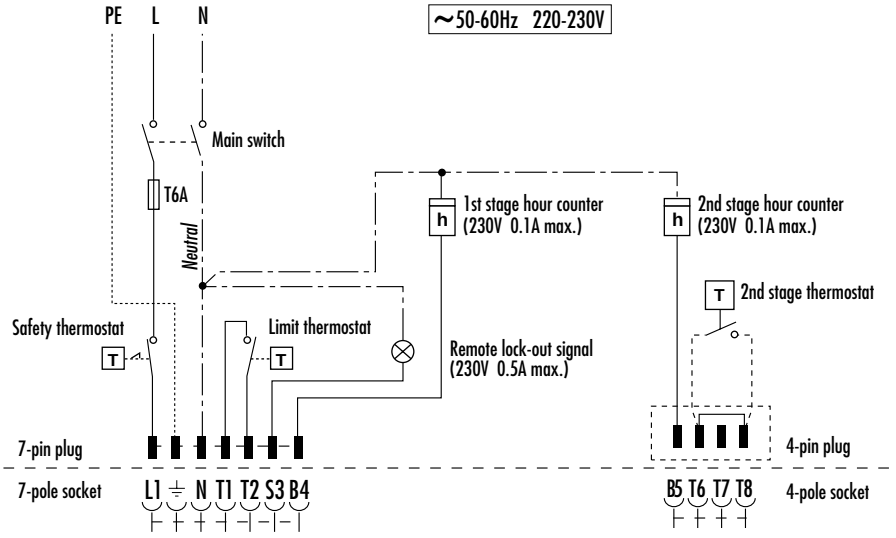
If the flame does not light within the safety limit (~ 5s) the burner locks-out.

WIRING DIAGRAMS

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

Appliance fitted with an ignition transformer

"TWO STAGE" OPERATION

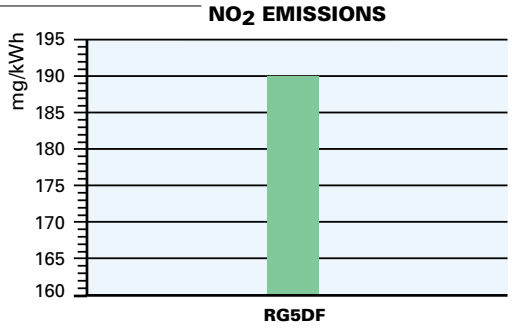


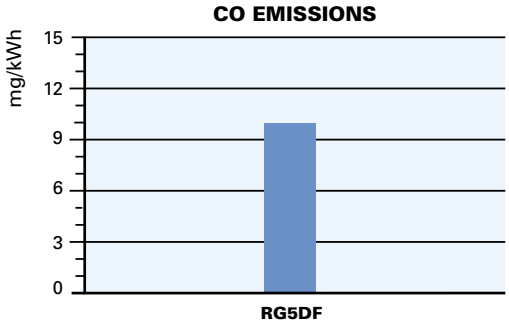
The following table shows the supply lead sections and types of fuse to be used.

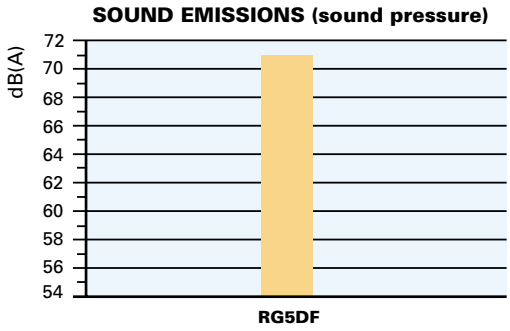
Model	RG5DF
	220-230V
F A	T6
L mm²	1

F = Fuse L = Lead section

EMISSIONS







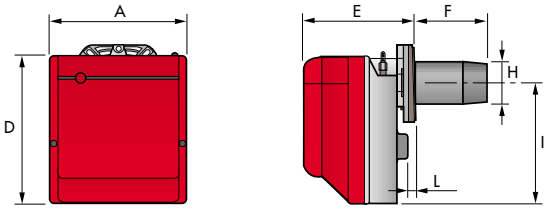
The emission data have been measured in the various models at maximum output, in conformity with EN 267 standard.

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)

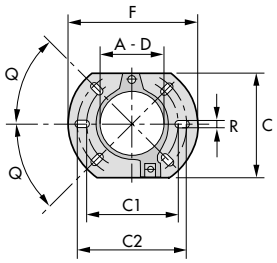
This model is distinguished by its reduced size, in relation to its output, which means it can be fitted to any boiler on the market.

BURNER



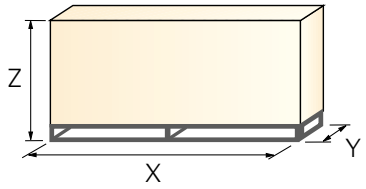
Model	A	D	E	F	H	I	L
RG5DF	300	345	247	159	125	285	12,5

BURNER-BOILER MOUNTING FLANGE



Model	A	C	C1	C2	D	F	Q	R
RG5DF	127	198	160	190	127	213	45	11

PACKAGING



Model	X	Y	Z	kg
RG5DF	500	335	430	18

INSTALLATION DESCRIPTION

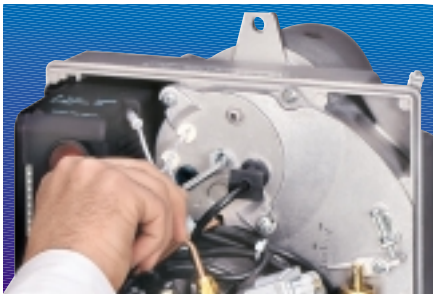
Skilled and qualified personnel must perform installation, start up and maintenance. Nozzles are fitted to the burner and used for fire tests in the factory. If necessary, change the nozzle on the basis of the maximum output of the boiler.
All operations must be carried out as described in the technical handbook supplied with the burner.

BURNER SETTING

- 2nd stage air damper position adjustment can be made without removing the burner casing.

- 1st stage air damper position adjustment.

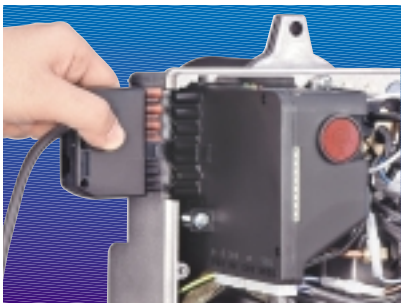
- Head setting area is easily accessible and the operation is simple thanks to a graduated scale.



MAINTENANCE AND ELECTRICAL CONNECTIONS

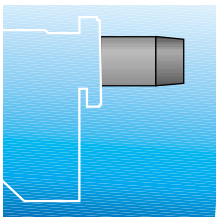
- The nozzle holder can be serviced through the rear cover, without detaching the burner from the boiler.

- The 7-pole socket is incorporated in the control box, the 4-pole socket is already connected.
  The 4 and 7-pin plugs are also supplied for connection to the boiler.



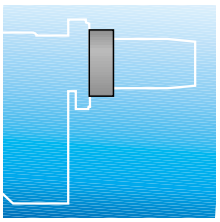
BURNER ACCESSORIES

Extended head kit
"Standard head" burner can be transformed into "extended head" version by using the special kit. Below the KIT available for the RG5DF burner, showing the original and the extended length.



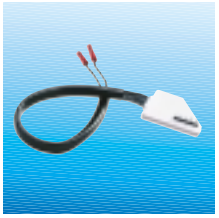
Extended head kit			
Burner	**Standard head length (mm)**	**Extended head length (mm)**	**Kit code**
RG5DF	159	300	**3000981**

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



Spacer kit		
Burner	**Spacer trickness S (mm)**	**Kit code**
RG5DF	25	**3000673**

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**
RG5DF	**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**
RG5DF	**3001168 + 3007492**

Tester

The tester controls the correct working of the burner components in the GULLIVER series.
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

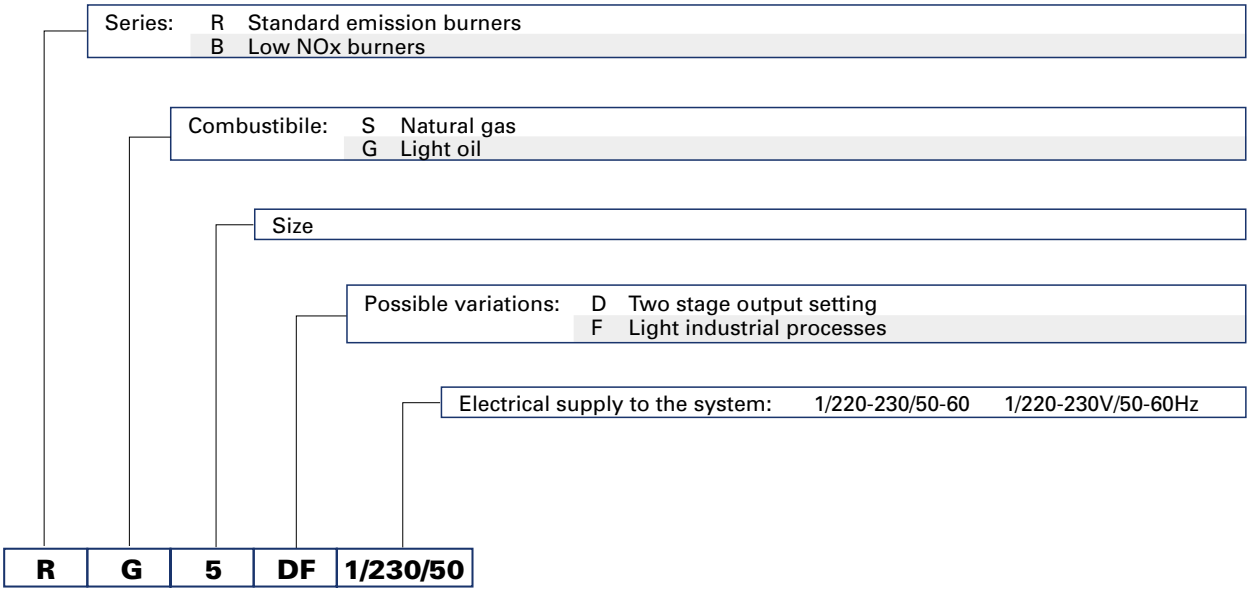
Tester	
Burner	**Kit code**
RG5DF	**3087211**

Direct testing	Measurements
(M) MOTOR The switch feeds the motor.	(V) 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.	(A) Pre-heater current consumption
PRE-HEATER The switch feeds the light oil pre-heater; a green led signals the thermostat cut-in.	(V) (M) Secondary voltage (low voltage)
TRANSFORMER The switch feeds the firing transformer inside the control box and excites the oil valve.	(A) Photo-resistance current consumption

SPECIFICATION

There is a clear and detailed product specification and description.

DESIGNATION OF SERIES



AVAILABLE BURNER MODELS

RG5DF	1/220-230/50-60

PRODUCT SPECIFICATION

Burner:

Completely automatic monobloc light oil burners, with two stage operation fitted with:
- Fan with forward curve blades
- Cover lined with sound-proofing material
- Air damper always open in stand-by
- Air damper, with 1st and 2nd stage adjustment (2nd stage adjustment without removing the casing)
- 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
- Two light oil nozzles
- IP 40 protection level.

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

Available accessories to be ordered separately:
- Extended head kit
- Spacer kit
- Remote control release kit for the 550 SMD control box
- Control box 550 SMD and sensor flame
- Tester.

Lineagrafica

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