

SINGLE-STAGE LIGHT OIL BURNERS

▶ **REG SERIES**

▶ REG 35.3	21 ÷ 38 kW
▶ REG 35.3 R	21 ÷ 38 kW
▶ REG 35.5	27 ÷ 60 kW
▶ REG 35.5 R	27 ÷ 60 kW



The REG series of single stage light oil burners, is available in two models with an output ranging from 21 to 60 kW, in a single structure.

The models are available with or without casing and with or without pre-heater. These models are distinguished by their compact size.

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

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

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

All the REG series of burners are fired before leaving the factory.



TECHNICAL DATA

Model		▼ REG 35.3	▼ REG 35.3 R	▼ REG 35.5	▼ REG 35.5 R
Setting		Single-stage			
Servo-motor	type	--			
	run time	s			
Heat output	kW	21 - 38	21 - 38	27 - 60	27 - 60
	Mcal/h	18 - 32,7	18 - 32,7	23,2 - 51,6	23,2 - 51,6
	kg/h	1,8 - 3,2	1,8 - 3,2	2,3 - 5	2,3 - 5
Working temperature	°C min/max	0/40			
Net calorific value	kWh/kg	11,8			
	kcal/kg	10.200			
Viscosity at 20°C	mm ² /s (cSt)	4 ÷ 6			
Pump	type	kg/h at 12 bar			
	delivery	bar			
Atomised pressure	°C	8 ÷ 15			
Light oil temperature		50			
Fuel pre-heater	type	NO	YES	NO	YES
Fan	°C max	forward tilted blades			
Air temperature	Ph/Hz/V	40			
Electrical supply	Ph/Hz/V	1/50/230 ±10%			
Aux. electrical supply	type	--			
Control box	kW	R.B.L.535 SE	R.B.L.535R SE	R.B.L.535 SE	R.B.L.535R SE
Total electrical output	A	0,17	0,22	0,17	0,22
Total rated current	IP	0,7	1,1	0,7	1,1
Protection level	kW	40			
Electric motor output	A	0,17	0,17	0,17	0,17
Rated motor current	A	0,7	0,7	0,7	0,7
Motor take-off current	IP	3	3	3	3
Motor protection level		20			
Ignition transformer		incorporated in the control box			
Operation	dB(A)	intermittent (at least one halt every 24 h)			
Sound pressure	mg/kWh	53	54	53	54
CO emissions	N° Bach.	<60			
Grade of smoke indicator	mg/kWh	<1			
C _x H _y emissions	mg/kWh	<10 AFTER THE FIRST 20"			
NO _x emissions		<250			
Directives		89/336/CEE, 73/23/CEE, 98/37/CEE, 92/42/CEE			
Conforming to:		EN 267			
Certifications		5G098/97	5G098/97	5G097/97	5G097/97

Reference conditions:

Temperature: 20 °C

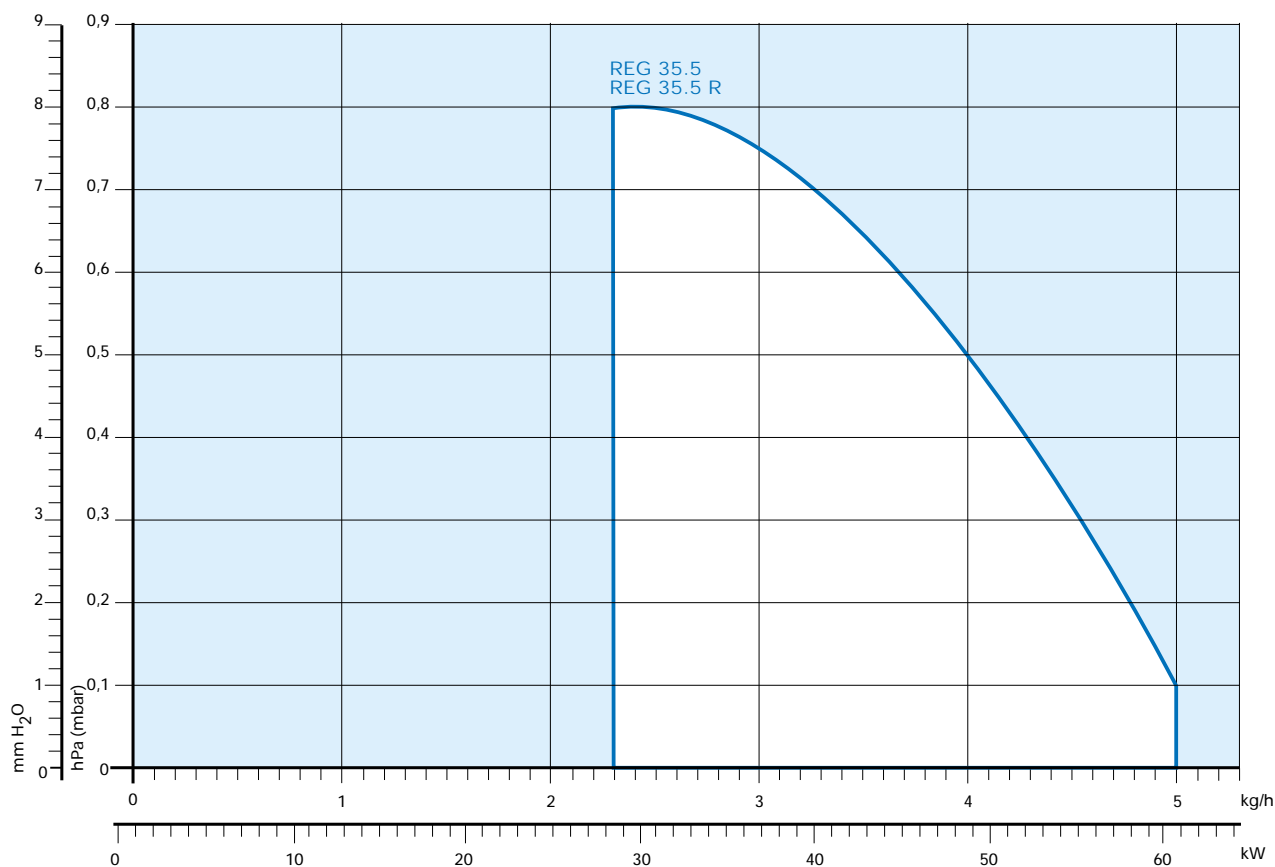
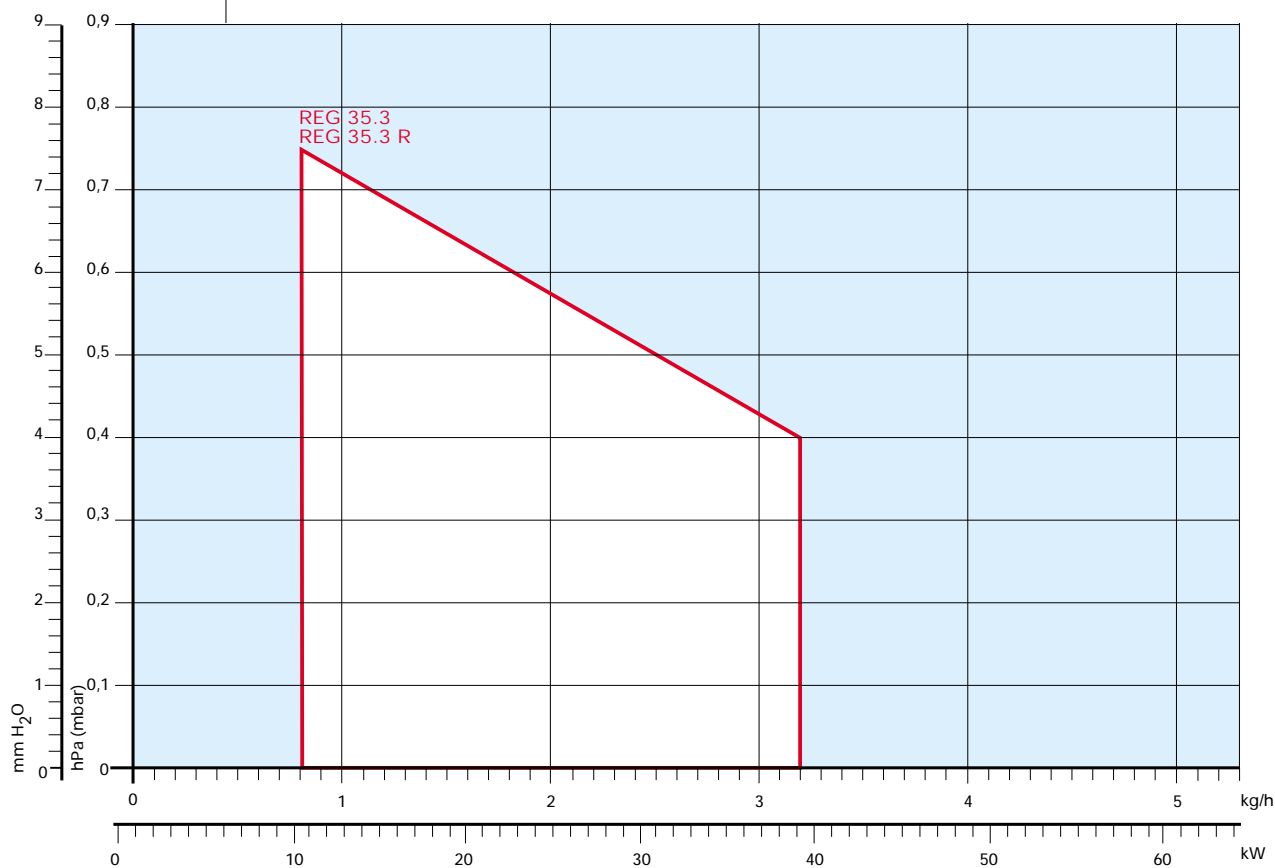
Pressure: 1013.5 mbar

Altitude: 100 m a.s.l.

Noise was measured in the boiler room behind the burner 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

Test conditions conforming to EN 267:
 Temperature: 20°C
 Pressure: 1013.5 mbar
 Altitude: 100 m a.s.l.



FUEL SUPPLY

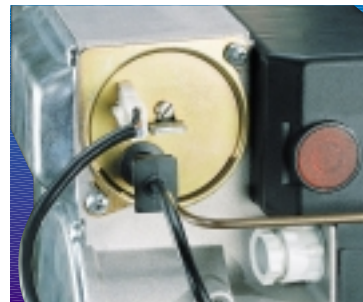


HYDRAULIC CIRCUITS

All the burners have a Riello geared pump, with a safety valve on the return circuit, and are available with or without the light oil pre-heater.

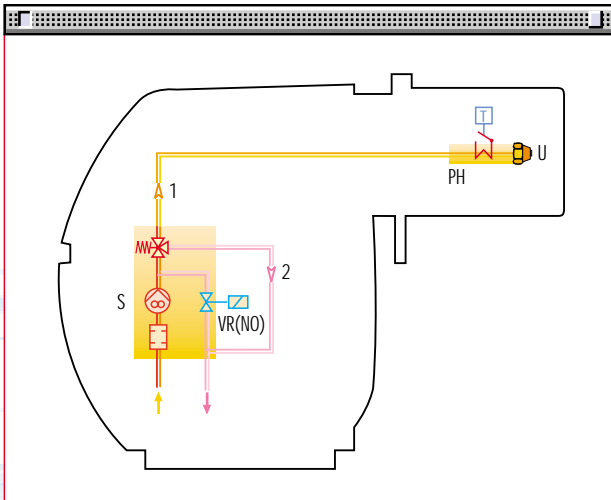


Fuel pump



Model with pre-heater

REG 35.3 - REG 35.3 R - REG 35.5 - REG 35.5 R



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
PH	Oil pre-heater with thermostat (where provided)
U	Nozzle

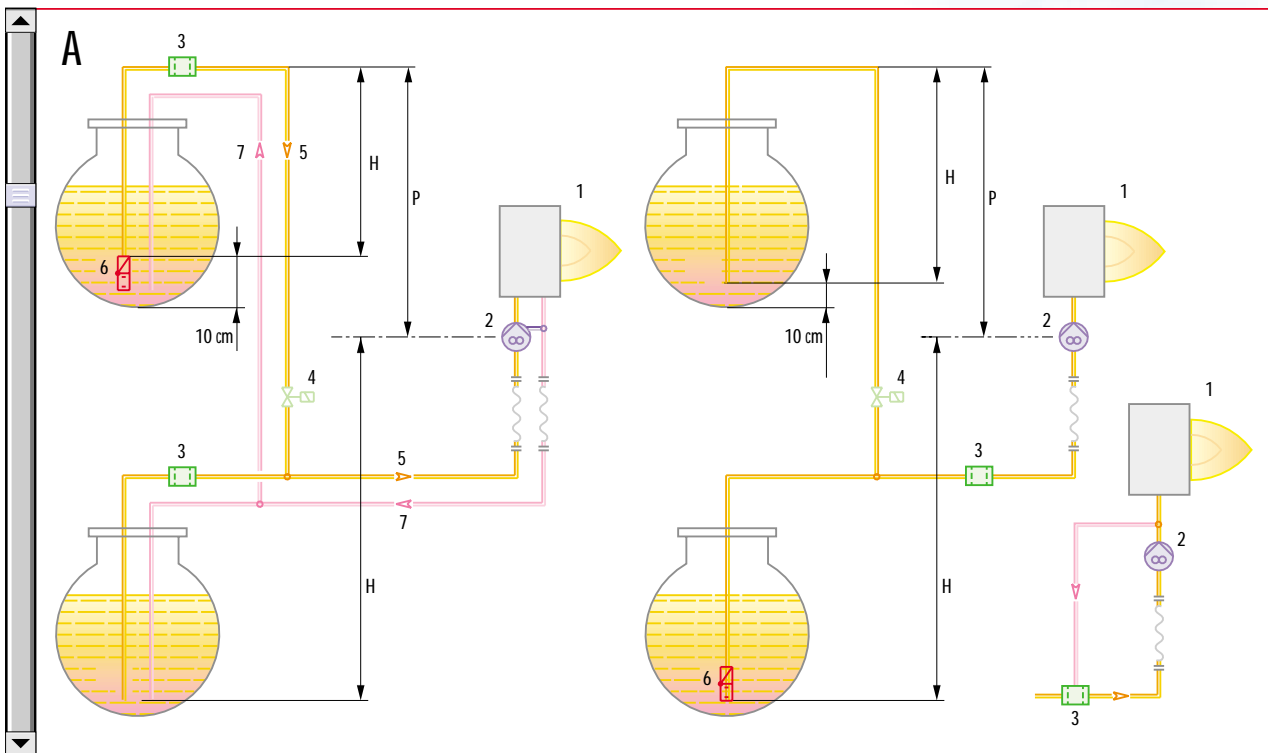


DIMENSIONING OF THE FUEL SUPPLY LINES

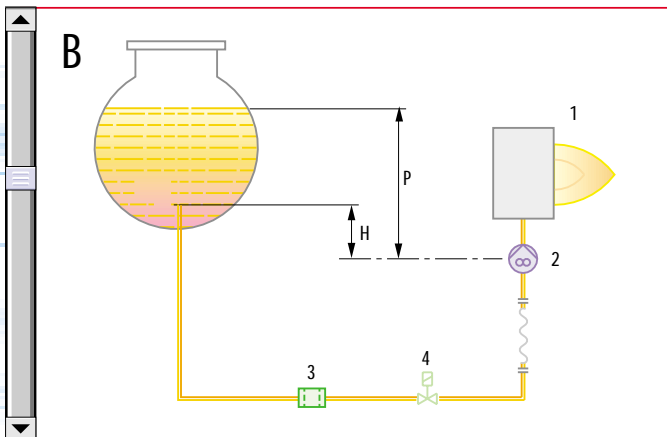
The fuel feed must be completed with the safety devices required by the local regulations in force.

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

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	-	-



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 ventilation circuit always ensures low noise levels with high performance concerning pressure and air delivery, although the size is very compact.



Air suction



COMBUSTION HEAD

Different lengths of the combustion head can be chosen for the REG series of burners. The choice depends on the thickness of the front panel and the type of boiler.

Depending on the type of generator, check that the penetration of the head into the combustion chamber is correct. Simple adjustment to the combustion head allows adapting internal geometry of the head to the working output of the burner.

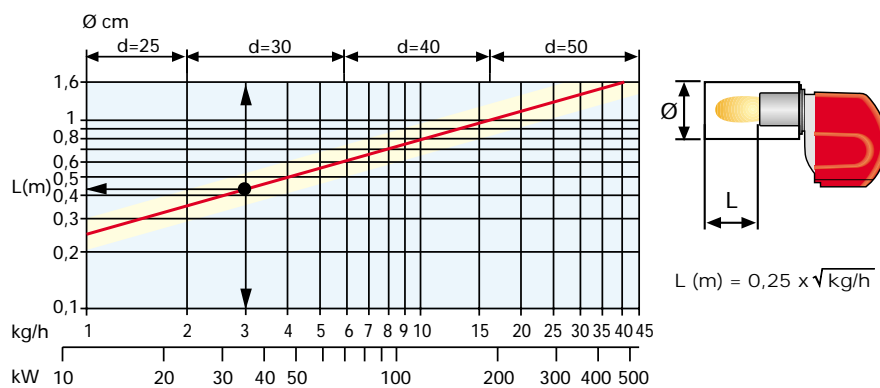


Coupling flange



Combustion head

Combustion chamber dimensions used in the test laboratory



With simple adjustments, the burner can be adapted to combustion chambers that are slightly different from those used in the tests.

Example:
burnt thermal delivery = 3 kg/h;
 L (m) = $0,25 \times \sqrt{3} = 0,43$ (m);
 $\text{Ø} = 30$ (cm)

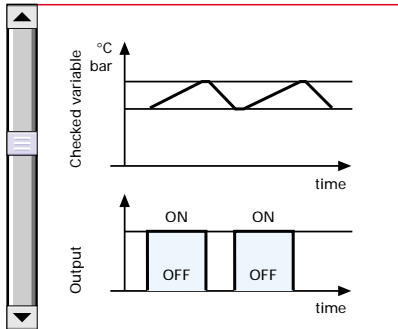
ADJUSTMENT



BURNER OPERATION MODE

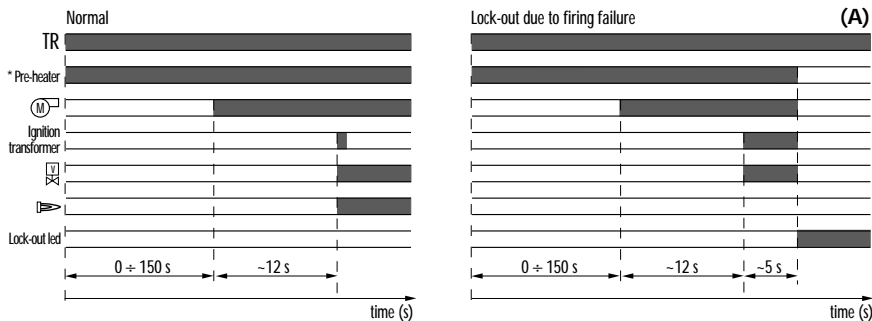
All these models are single-stage working.

“Single-stage” operation



Air damper adjustment

FIRING



* Only model with pre-heater.

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

Correct operations

- 0s The burner begins the firing cycle.
- 0s-12s Pre-purge with the air damper open.
- 12s Ignition.

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

Lock-out due to firing failure

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



ELECTRICAL CONNECTIONS *to be made by the installer*

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

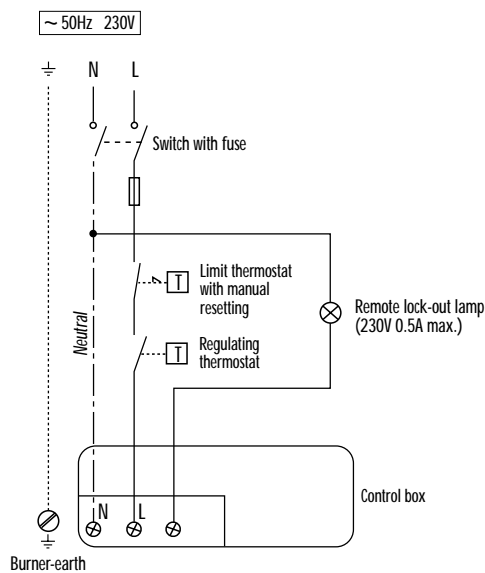
The burners are connected electrically through the terminal board incorporated in the control box which is easily accessible.

The wiring diagram is printed on the lid of the control box.



Appliance fitted with an ignition transformer

▶ " SINGLE-STAGE " OPERATIONS



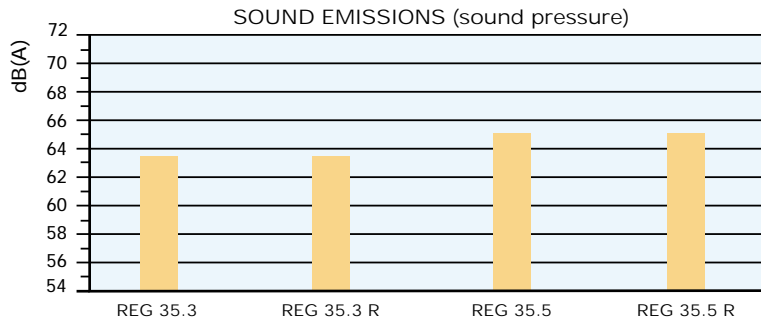
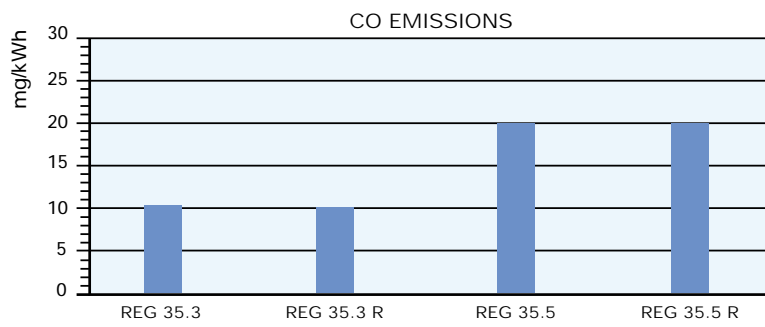
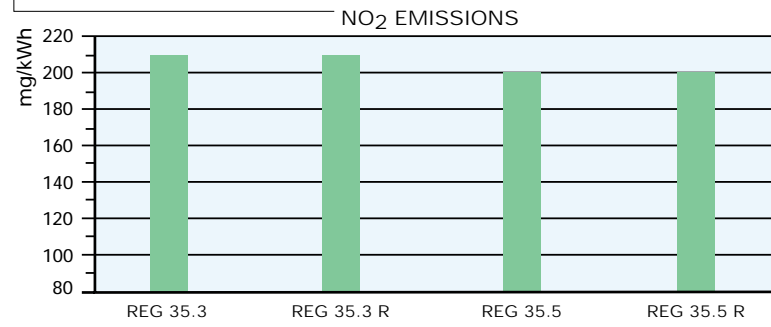
The following table shows the supply lead sections and types of fuse to be used.

Model	▼ REG 35.3	▼ REG 35.3 R	▼ REG 35.5	▼ REG 35.3 R
F A	6	6	6	6
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.



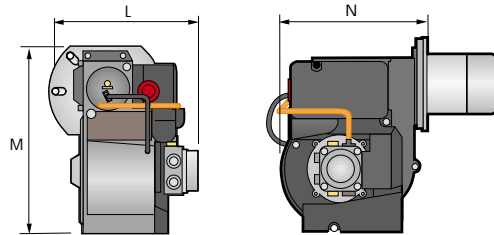
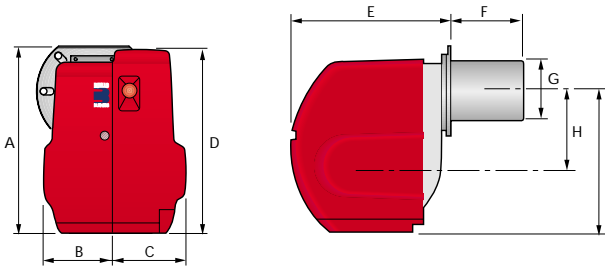
OVERALL DIMENSIONS (mm)

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

BURNERS

REG 35.3 - REG 35.3 R

REG 35.5 - REG 35.5 R

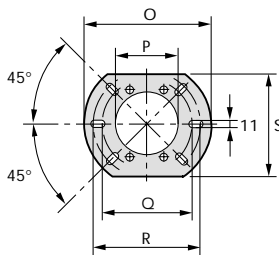


Model	A *	B *	C *	D *	E *	F **	G	H	I *	L	M	N
▶ REG 35.3	301/304	84/84	140/140	280/283	243/243	82-112	89	121.5	212/215	215,5	279	211
▶ REG 35.3 R	301/304	84/84	140/140	280/283	243/243	82-112	89	121.5	212/215	215,5	279	211
▶ REG 35.5	301/304	84/84	140/140	280/283	243/243	80-110	89	121.5	212/215	215,5	279	211
▶ REG 35.5 R	301/304	84/84	140/140	280/283	243/243	80-110	89	121.5	212/215	215,5	279	211

* Top cover only / Top and bottom cover.

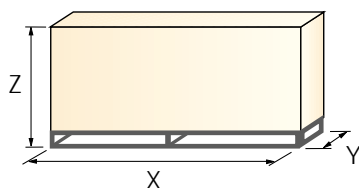
** The combustion head is available in 2 different lengths.

BURNER-BOILER MOUNTING FLANGE



Model	O	P	Q	R	S
▶ REG 35.3	170	95	130	150	130
▶ REG 35.3 R	170	95	130	150	130
▶ REG 35.5	170	95	130	150	130
▶ REG 35.5 R	170	95	130	150	130

PACKAGING



Model	X	Y	Z	kg
▶ REG 35.3	337	300	210	9,5
▶ REG 35.3 R	337	300	210	9,5
▶ REG 35.5	337	300	210	9,5
▶ REG 35.5 R	337	300	210	9,5

INSTALLATION DESCRIPTION

Skilled and qualified personnel must perform installation, start up and maintenance.

A nozzle is fitted to the burner 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 in accordance with the technical handbook supplied with the burner.



BURNER SETTINGS

▶ The head setting area is easily accessible and the operation is aided by a graduated scale.

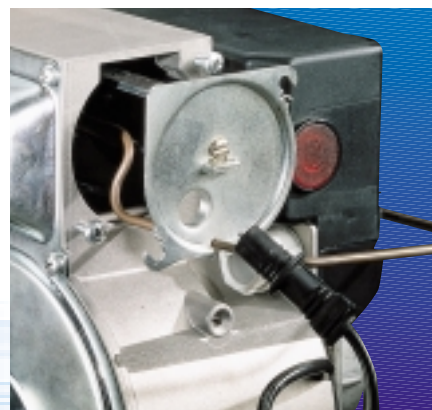


▶ The air damper is easy to set; if the casing is fitted it makes no difference to air delivery.



MAINTENANCE

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





ACCESSORIES

Cover

Besides the basic version, the boilers are also available with a plastic protective cover.

Two models of cover are available (they can be ordered separately):

- for burners installed in the standard position (a single piece)
- for burners installed upside down (two pieces)



Cover	
Version	Kit code
Standard installation	3008900
Upside down installation	3008900 + 3008902

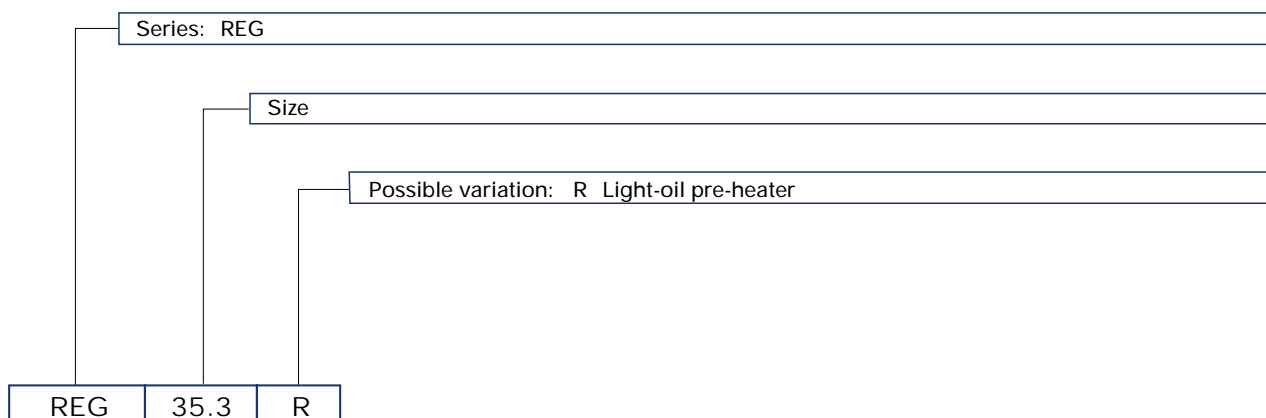
SPECIFICATION



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



DESIGNATION OF REG BURNERS



LIST OF AVAILABLE MODELS

REG 35.3	21 ÷ 38	kW
REG 35.3 R	21 ÷ 38	kW
REG 35.5	27 ÷ 60	kW
REG 35.5 R	27 ÷ 60	kW



SPECIFICATION DESCRIPTION

Burner

Monoblock fully automatic light oil burners, with single stage operations.

Fitted with:

- Fan with forward inclined blades
- Adjustable air damper
- Single phase electric motor 230 V, 50 Hz
- Combustion head, fitted with:
 - Stainless steel end cone, resistant to high temperatures
 - Ignition electrodes
 - Flame stability disk
- Geared pump for fuel supply, fitted with:
 - Filter
 - Pressure regulator
 - Connectors for installing a pressure gauge and vacuumeter
 - Internal by-pass for preparing for single pipe installation
- Fuel feed solenoid incorporated in the pump
- Photocell for flame detection
- Electronic flame control equipment
- Protective filter against radio interference
- IP 40 protection level
- Fuel heater (optional).

Approval:

- EN 267 standards.

Conforming to:

- 89/336/CEE directive (electromagnetic compatibility)
- 73/23/CEE directive (low voltage)
- 98/37/CEE directive (machinery)
- 92/42/CEE directive (efficiency).

Supplied materials:

- Two flexible pipes for connecting to the light oil supply line
- Two nipples for connecting to the pump
- Flange, screws and nuts for fixing
- Thermal screen
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

Available accessories to be ordered separately:

- Cover kit (specify if the boiler is installed in the standard position or rotated by 180°).



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

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