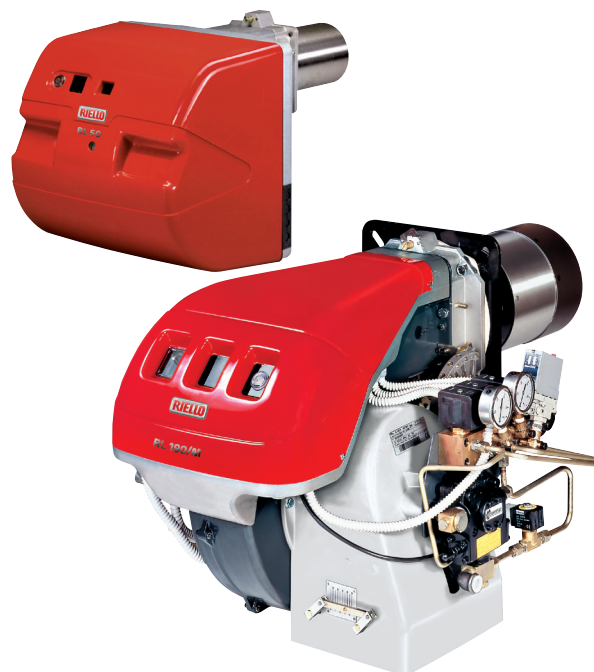


## RL/M SERIES

The RL/M series of burners covers a firing range from 166 to 2431 kW, and they have been designed for use in hot or superheater water boilers, hot air or steam generators, diathermic oil boilers. Operation can be "two stage progressive" or, alternatively, "modulating" with the installation of a PID logic regulator and respective probes. RL/M series burners guarantees high efficiency levels in all the various applications, thus reducing fuel consumption and running costs. Optimisation of sound emissions is guaranteed by the use of fans with forward inclined blades and sound deadening material incorporated in the air suction circuit. The exclusive design ensures reduced dimensions, simple use and maintenance. A wide range of accessories guarantees elevated working flexibility. **Guidelines for installation of burners in conformity to EU Regulation:**

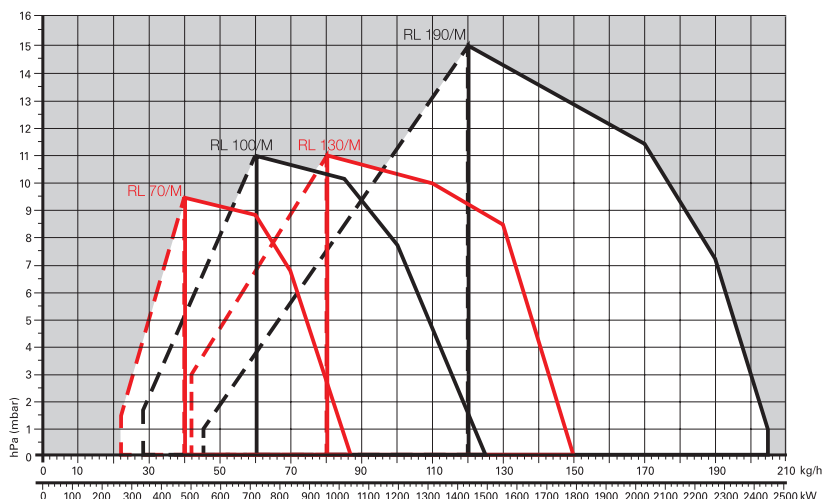
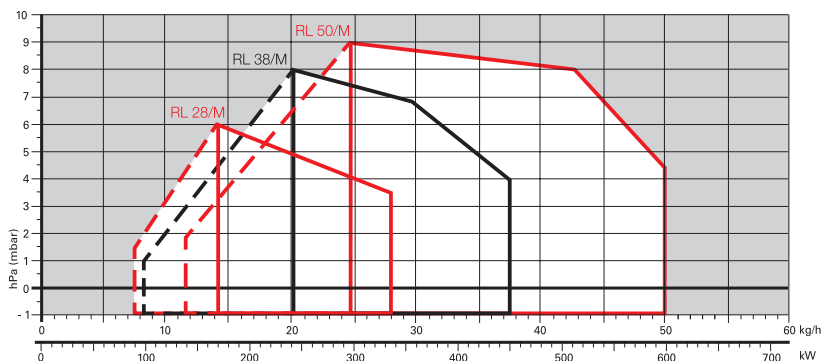
A RIELLO burner (Heat Generator), where it is matched with a water-based boiler (Heater Housing) with a nominal output  $\leq 400$  kW, providing heat for heating purposes and heat to deliver sanitary hot water, can be installed:

- 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, if they have emissions complying with the requirement of Annex II, paragraph 4 of the EU regulation No. 813/2013.



RL 28/M	90/166 ÷	332 kW
RL 38/M	101/237 ÷	450 kW
RL 50/M	130/296 ÷	593 kW
RL 70/M	261/474 ÷	1043 kW
RL 100/M	332/711 ÷	1482 kW
RL 130/M	498/948 ÷	1779 kW
RL 190/M	534/1423 ÷	2431 kW

## FIRING RATES



Useful working field for choosing the burner



Modulation range

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

# Modulating Light Oil Burners

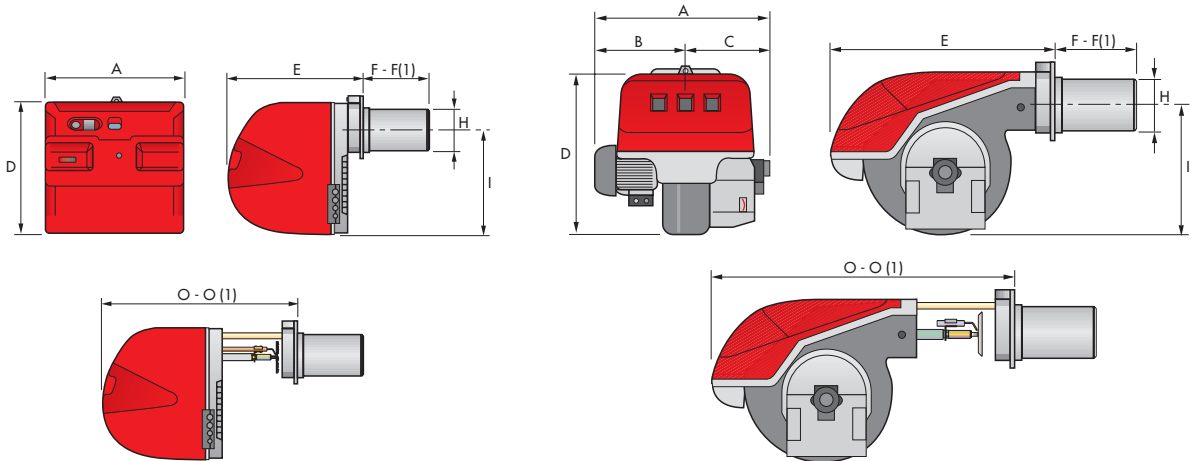
## RL/M SERIES

### Overall dimensions (mm)

#### BURNER

RL 28/M - 38/M - 50/M

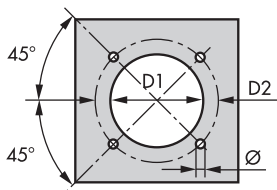
RL 70/M - 100/M - 130/M - 190/M



MODEL	A	B	C	D	E	F - F (1)	H	I	O - O (1)
▶ RL 28/M	476	-	-	474	468	241 - 351	140	352	672 - 807
▶ RL 38/M	476	-	-	474	468	241 - 351	140	352	672 - 807
▶ RL 50/M	476	-	-	474	468	241 - 351	152	352	672 - 807
▶ RL 70/M	663	296	367	555	680	272 - 385	179	430	951 - 1086
▶ RL 100/M	679	312	367	555	680	272 - 385	179	430	951 - 1086
▶ RL 130/M	705	338	367	555	680	272 - 385	189	430	951 - 1086
▶ RL 190/M	813	366	447	555	712	370	222	430	1166

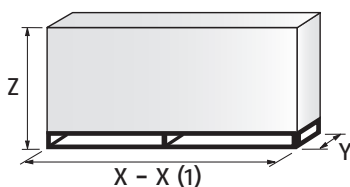
(1) Length with extended combustion head.

#### BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RL 28/M	160	224	M8
▶ RL 38/M	160	224	M8
▶ RL 50/M	160	224	M8
▶ RL 70/M	185	275 - 325	M12
▶ RL 100/M	185	275 - 325	M12
▶ RL 130/M	195	275 - 325	M12
▶ RL 190/M	230	325 - 368	M16

#### PACKAGING



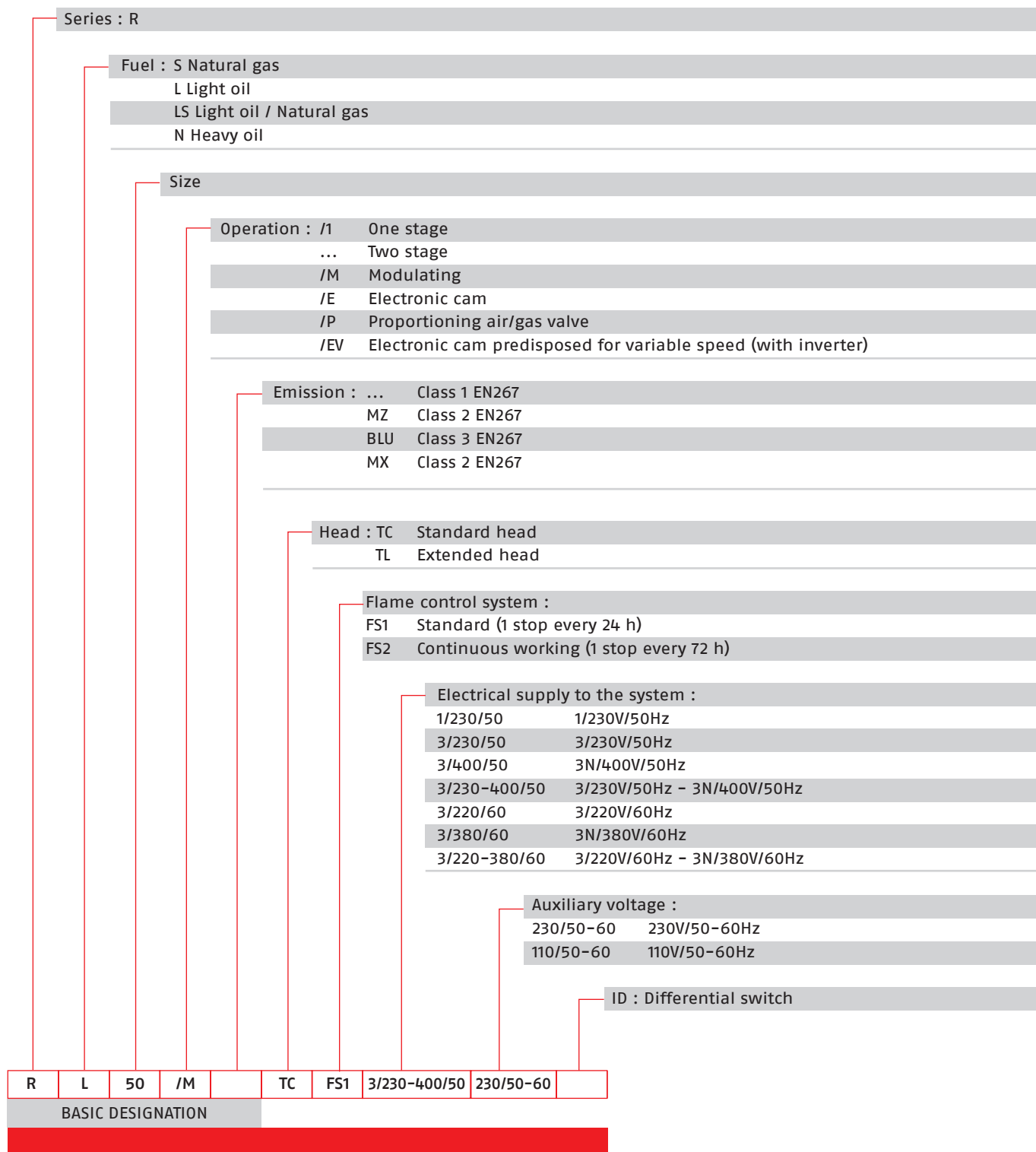
MODEL	X - X (1)	Y	Z	kg
▶ RL 28/M	872	540	550	39
▶ RL 38/M	872	540	550	41
▶ RL 50/M	872	540	550	42
▶ RL 70/M	1150	792	600	65
▶ RL 100/M	1150	792	600	68
▶ RL 130/M	1150	792	600	71
▶ RL 190/M	1200	800	850	95

(1) Length with extended combustion head.

## RL/M SERIES

# Specification

## DESIGNATION OF SERIES



# Modulating Light Oil Burners

## RL/M SERIES

### Specification

#### STATE OF SUPPLY

Monoblock forced draught oil burners, two stage progressive or modulating operation with a kit, made up of:

- Air suction circuit lined with sound-proofing material
- Fan with reverse curve blades (forward curve blades on the 190/M model)
- Air damper for air setting and automatic oil output regulator controlled by a servomotor with variable cam
- Combustion head, that can be set on the basis of required output
- Gears pump for high pressure fuel supply
- Valve unit with a double oil safety valve on the output circuit and safety valve on the return circuit; double safety valve on the return circuit for models RL 100/M, RL 130/M, RL 190/M and for all models in the TRD-72, NBN version
- Safety oil pressure switch
- Minimum oil pressure switch in the output circuit for the TRD-72, NBN versions
- Photocell for flame detection
- Burner safety control box
- Burner on/off switch
- Flame inspection window
- Manual or automatic output increase/decrease switch
- Slide bars for easier installation and maintenance
- Protection filter against radio interference
- IP 44 electric protection level.

#### 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
- 4 screws for fixing the burner flange to the boiler
- 1 thermal screen
- Wiring loom fittings for electrical connections
- 2 slide bar extensions (for the extended head models and the RL 190/M model)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

### Available models

#### Burners

CODE	MODEL					HEAT OUTPUT		TOTAL ELECTRICAL POWER (kW)	NOTE
						(kW)	(kg/h)		
20166492	RL 28/M	TC	FS1	1/230/50	230/50-60	90/166-332	7,5/14-28	0,4	(1)
20166495	RL 28/M	TL	FS1	1/230/50	230/50-60	90/166-332	7,5/14-28	0,4	(1)
20167453	RL 28/M	TC	FS1	1/220-230/60	230/50-60	90/166-332	7,5/14-28	0,4	(1)
20166497	RL 38/M	TC	FS1	3/230-400/50	230/50-60	101/237-450	8,5/20-38	0,6	(1)
20166499	RL 38/M	TL	FS1	3/230-400/50	230/50-60	101/237-450	8,5/20-38	0,6	(1)
20167456	RL 38/M	TC	FS1	3/208-230/380-460/60	230/50-60	101/237-450	8,5/20-38	0,66	(1)
20166502	RL 50/M	TC	FS1	3/230-400/50	230/50-60	130/296-593	11/25-50	0,8	(1)
20166504	RL 50/M	TL	FS1	3/230-400/50	230/50-60	130/296-593	11/25-50	0,8	(1)
20167458	RL 50/M	TC	FS1	3/208-230/380-460/60	230/50-60	130/296-593	11/25-50	0,66	(1)

## RL/M SERIES

## Available models

### Burners

CODE	MODEL					HEAT OUTPUT		TOTAL ELECTRICAL POWER (kW)	NOTE
						(kW)	(kg/h)		
20166463	RL 70/M	TC	FS1	3/230-400/50	230/50-60	261/474-1043	22/40-88	1,4	(1)
20166476	RL 70/M	TL	FS1	3/230-400/50	230/50-60	261/474-1043	22/40-88	1,4	(1)
20166481	RL 100/M	TC	FS1	3/230-400/50	230/50-60	332/711-1482	28/60-125	2,1	(1)
20166484	RL 100/M	TL	FS1	3/230-400/50	230/50-60	332/711-1482	28/60-125	2,1	(1)
20167439	RL 100/M	TC	FS1	3/220/380-460/60	230/50-60	332/711-1482	28/60-125	2,1	(1)
20167440	RL 100/M	TL	FS1	3/220/380-460/60	230/50-60	332/711-1482	28/60-125	2,1	(1)
20166486	RL 130/M	TC	FS1	3/230-400/50	230/50-60	498/948-1779	42/80-150	2,6	(1)
20166487	RL 130/M	TL	FS1	3/230-400/50	230/50-60	498/948-1779	42/80-150	2,6	(1)
20167441	RL 130/M	TL	FS1	3/220/380-460/60	230/50-60	498/948-1779	42/80-150	2,6	(1)
20166490	RL 190/M	TC	FS1	3/400/50	230/50-60	534/1423-2431	45/120-205	5,5	(1)
20166488	RL 190/M	TC	FS1	3/230/50	230/50-60	534/1423-2431	45/120-205	5,5	(1)
20169222	RL 190/M	TC	FS1	3/460/60	220/60	534/1423-2431	45/120-205	5,5	(1)
20169231	RL 190/M	TL	FS1	3/400/50	230/50-60	534/1423-2431	45/120-205	5,5	(1)

Net calorific value: 11,8 kWh/kg - 10200 kcal/kg - Viscosity at 20°C: 4-6 mm<sup>2</sup>/s (cSt).

The burners of RL/M series are in according to 2014/30/EU - 2014/35/EU - 2006/42 EC Directive and EN 267.

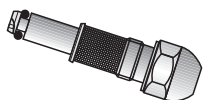
(1) with RFG0 control box

Due to the improvement of the technical specification of some products, some burner codes have been changed. The table below summarizes the correspondence between the previous and the new code.

MODEL		NEW CODE	OLD CODE
RL 28/M	TC FS1 1/230/50	20166492 (1)	3471002
RL 28/M	TL FS1 1/230/50	20166495 (1)	3471003
RL 28/M	TC FS1 1/220-230/60	20167453 (1)	3471080
RL 38/M	TC FS1 3/230-400/50	20166497 (1)	3471402
RL 38/M	TL FS1 3/230-400/50	20166499 (1)	3471403
RL 38/M	TC FS1 3/208-230/380-460/60	20167456 (1)	3471480
RL 50/M	TC FS1 3/230-400/50	20166502 (1)	3471602
RL 50/M	TL FS1 3/230-400/50	20166504 (1)	3471603
RL 50/M	TC FS1 3/208-230/380-460/60	20167458 (1)	3471680
RL 70/M	TC FS1 3/230-400/50	20166463 (1)	3477012
RL 70/M	TL FS1 3/230-400/50	20166476 (1)	3477013
RL 100/M	TC FS1 3/230-400/50	20166481 (1)	3477212
RL 100/M	TL FS1 3/230-400/50	20166484 (1)	3477213
RL 100/M	TC FS1 3/220/380-460/60	20167439 (1)	3477280
RL 100/M	TL FS1 3/220/380-460/60	20167440 (1)	3477281
RL 130/M	TC FS1 3/230-400/50	20166486 (1)	3477412
RL 130/M	TL FS1 3/230-400/50	20166487 (1)	3477413
RL 130/M	TL FS1 3/220/380-460/60	20167441 (1)	3477481
RL 190/M	TC FS1 3/400/50	20166490 (1)	3477811
RL 190/M	TC FS1 3/230/50	20166488 (1)	20011022
RL 190/M	TC FS1 3/460/60	20169222 (1)	3477880
RL 190/M	TL FS1 3/400/50	20169231 (1)	20052628

### Burner accessories

#### Return nozzles type A3, A4 45°



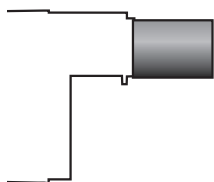
The following list shows the features and codes on the basis of the maximum required fuel output.

NOTE: each burner needs N° 1 nozzle.

BURNER	RATED OUTPUT kg/h	A3 NOZZLE CODE	A4 NOZZLE CODE
▶ RL 28/M	15	3009850	-
▶ RL 28/M - 38/M	20	3009851	-
▶ RL 28/M - 38/M - 50/M	30	3009852	-
▶ RL 38/M - 50/M - 70/M	40	3009853	20067277
▶ RL 50/M - 70/M	50	3009854	20067279
▶ RL 70/M - 100/M	60	3009855	20067281
▶ RL 70/M - 100/M	70	3009856	20067283
▶ RL 100/M - 130/M	80	3009857	20067284
▶ RL 100/M - 130/M	90	3009858	20067285
▶ RL 100/M - 130/M	100	3009859	20067286
▶ RL 130/M	110	3009860	20067287
▶ RL 130/M - 190/M	120	3009861	20067288
▶ RL 130/M - 190/M	130	3009862	20067289
▶ RL 190/M	140	3009863	20067290
▶ RL 190/M	150	20059496*	20067291
▶ RL 190/M	160	3009864	20067293
▶ RL 190/M	180	3009865	20067295
▶ RL 190/M	200	3009866	20067297

\* 60° Angle

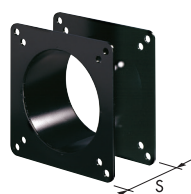
#### Extended head kit



"Standard head" burners can be transformed into "extended head" versions, by using the special kit.

BURNER	STANDARD HEAD LENGTH (mm)	EXTENDED HEAD LENGTH (mm)	KIT CODE
▶ RL 28/M	241	351	3010120
▶ RL 38/M	241	351	3010121
▶ RL 50/M	241	351	3010122
▶ RL 70/M	272	385	3010159
▶ RL 100/M	272	385	3010160
▶ RL 130/M	272	385	3010161
▶ RL 190/M	370	526	20058084

#### Spacer kit

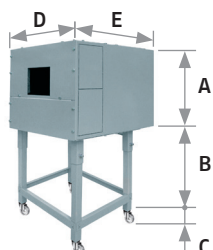


If burner head penetration into the combustion chamber needs reducing, varying thickness spacers are available, as given in the following list.

BURNER	SPACER THICKNESS S (mm)	KIT CODE
▶ RL 28/M - 38/M - 50/M	110	3010095
▶ RL 70/M - 100/M - 130/M	135	3010129
▶ RL 190/M	102	3000722

## Burner accessories

### 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 28/M - 38/M - 50/M	C1/3	650	372 - 980	110	690	770	10	3010403
▶ RL 70/M - 100/M - 130/M	C4/5	850	160 - 980	110	980	930	10	3010404

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

### Degasing unit



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

BURNER	FILTER	FILTERING DEGREE (µm)	DEGASING UNIT CODE (*)
▶ RL 28/M - 38/M - 50/M - 70/M - 100/M	With filter	50 - 75	3010055

(\*) Max capability 80 kg/h (more filters are needed for higher flow).

### Head kit for "reverse flame chamber"

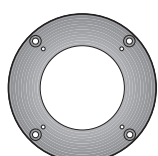


In certain cases, the use of the burner on reverse flame boilers can be improved by using an additional cylinder.

BURNER	STANDARD HEAD LENGTH WITH CYLINDER (mm)	EXTENDED HEAD LENGTH WITH CYLINDER (mm)	KIT CODE (*)
▶ RL 28/M - 38/M	319	429	3010178
▶ RL 50/M	319	429	3010179
▶ RL 70/M - 100/M	375	488	3010180
▶ RL 130/M	375	488	3010183
▶ RL 190/M	493	-	3010241

(\*) CE approval on field is required

### Connection flange kit



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

BURNER	KIT CODE
▶ RL 28/M - 38/M - 50/M	3010138

# Modulating Light Oil Burners

## RL/M SERIES

### Burner accessories

#### Accessories for modulating operation



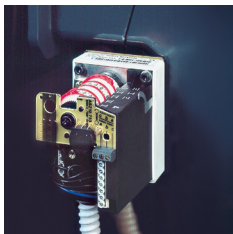
To obtain modulating operation, the RL/M series of burners requires a regulator. For remote setpoint use RWF 55.

BURNER	REGULATOR TYPE	REGULATOR CODE
▶ RL 28/M - 38/M - 50/M	RWF 50.2	20082208
▶ RL 70/M - 100/M - 130/M - 190/M	RWF 55.5	20099657



The relative temperature or pressure probes fitted to the regulator, must be chosen on the basis of the application.

BURNER	PROBE TYPE	RANGE (°C) (bar)	PROBE CODE
	Temperature PT 100	-100 ÷ 500°C	3010110
▶ RL 28/M - 38/M - 50/M	Pressure 4 ÷ 20 mA	0 ÷ 2,5 bar	3010213
▶ RL 70/M - 100/M - 130/M - 190/M	Pressure 4 ÷ 20 mA	0 ÷ 16 bar	3010214
	Pressure 4 ÷ 20 mA	0 ÷ 25 bar	3090873



Depending on the servomotor fitted to the burner, a three-pole potentiometer (1000 Ω) can be installed to check the position of the servomotor.

BURNER	POTENTIOMETER KIT CODE
▶ RL 28/M - 38/M - 50/M	3010109
▶ RL 70/M - 100/M - 130/M - 190/M	3010416