

## RL SERIES

The RL series of burners covers a firing range from 154 to 2700 kW, and it has been designed for use in low or medium temperature hot water boilers, hot air or steam boilers, diathermic oil boilers.

Operation is "two stage"; the burners are fitted with a microprocessor-based control panel, which supplies indication of burner status and fault causes.

Optimisation of sound emissions is guaranteed by the special design of the air suction circuit **and by incorporated sound proofing material**. The elevated performance of the fans and combustion head, guarantee flexibility of use and excellent working at all firing rates.

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:**

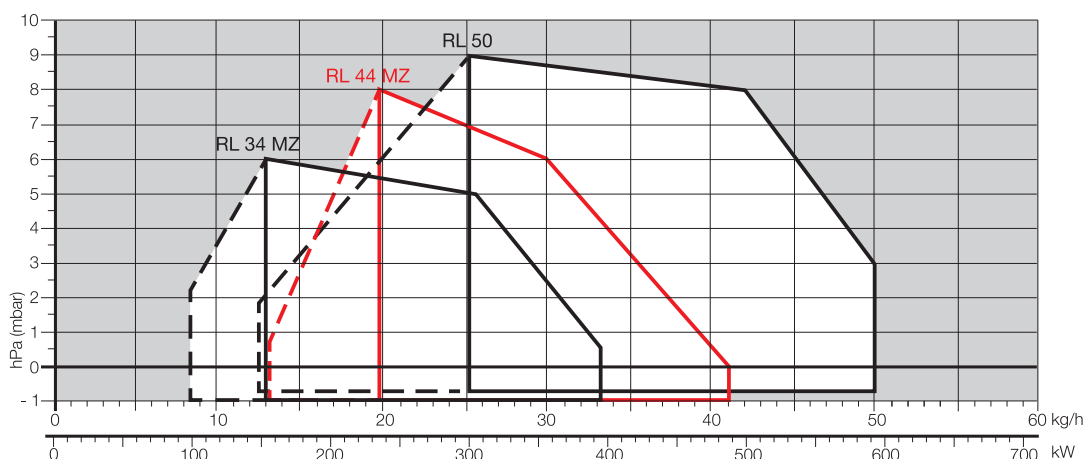
A RIELLO burner (Heat Generator), where it is matched with a water-based boiler (Heater Housing) with a nominal output  $\leq 400$  kW, providing heat for heating purposes and heat to deliver sanitary hot water, can be installed:

- 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 34 MZ	97/154 ÷ 395 kW
RL 44 MZ	155/235 ÷ 485 kW
RL 50	148/296 ÷ 593 kW
RL 64 MZ	206/391 ÷ 830 kW
RL 70	255/474 ÷ 830 kW
RL 100	356/711 ÷ 1186 kW
RL 130	486/948 ÷ 1540 kW
RL 190	759/1423 ÷ 2443 kW
RL 250 MZ	600/1250 ÷ 2700 kW

## FIRING RATES



Useful working field for choosing the burner

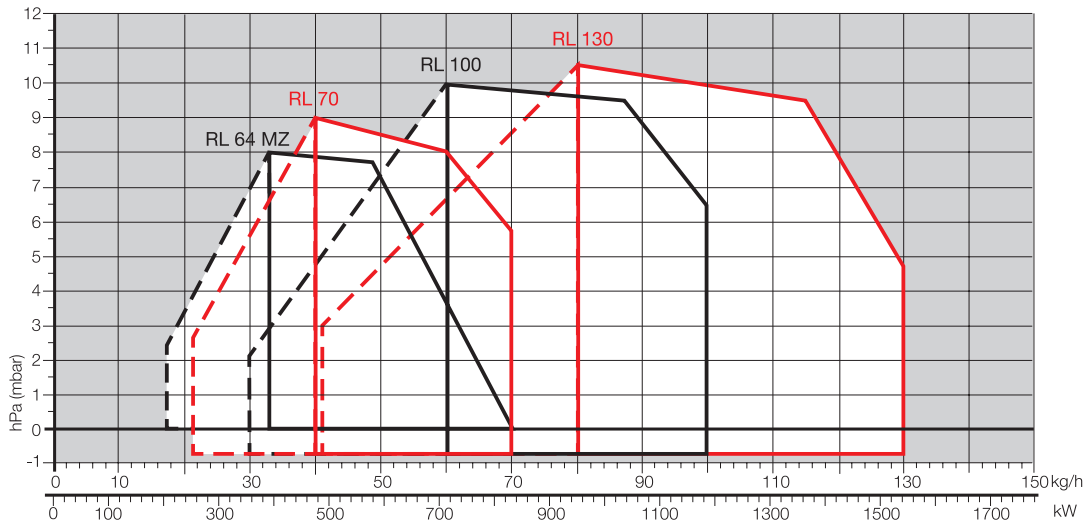
Modulation range

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

# Two Stage Light Oil Burners

## RL SERIES

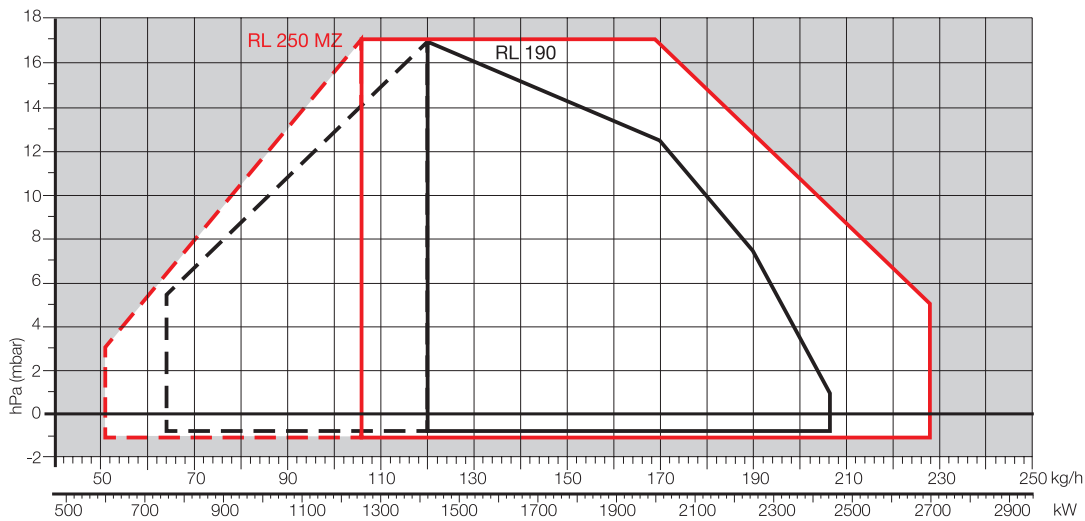
### FIRING RATES



□ Useful working field for choosing the burner

--- Modulation range

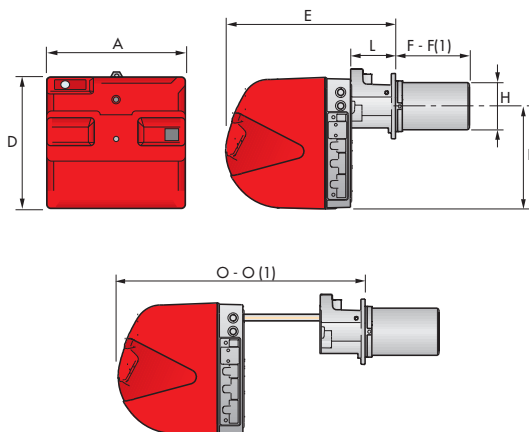
Test conditions conforming to EN267  
 Temperature: 20°C  
 Pressure: 1013,5 mbar  
 Altitude: 0 m a.s.l.



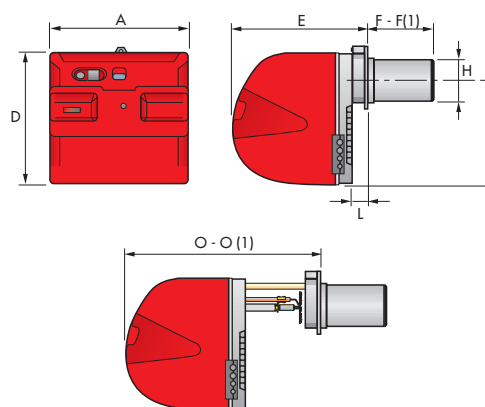
## Overall dimensions (mm)

### BURNER

RL 34 - 44 MZ



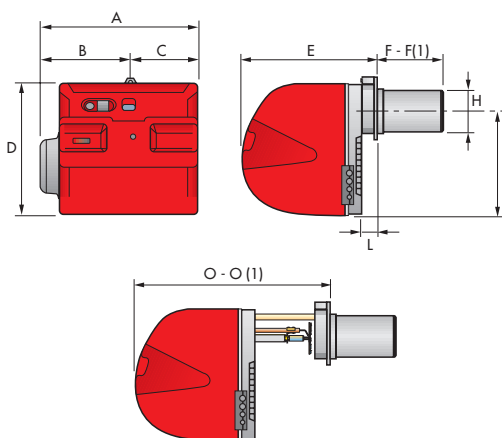
RL 50



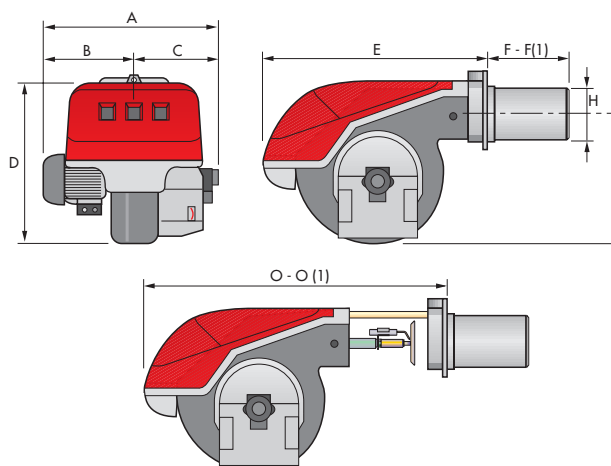
MODEL	A	D	E	F - F(1)	H	I	L	O - O(1)
▶ RL 34 MZ	442	422	508	216 - 351	140	305	138	780 - 915
▶ RL 44 MZ	442	422	508	216 - 351	152	305	138	780 - 915
▶ RL 50	476	474	468	216 - 351	152	352	52	672 - 807

(1) dimension with extended head

RL 64 MZ



RL 70 - 100 - 130 - 190 - 250 MZ



MODEL	A	B	C	D	E	F - F(1)	H	I	L	O - O(1)
▶ RL 64 MZ	538	300	238	490	477	250 - 385	179	335	60	680 - 815
▶ RL 70	580	296	284	555	680	250 - 385	179	430	-	951 - 1086
▶ RL 100	599	312	287	555	680	250 - 385	179	430	-	951 - 1086
▶ RL 130	625	338	287	555	680	250 - 385	189	430	-	951 - 1086
▶ RL 190	756	366	390	555	712	370 - 530*	222	430	-	1166 - -
▶ RL 250 MZ	910	432	478	555	705	378 - 528*	222	436	-	1163 - -

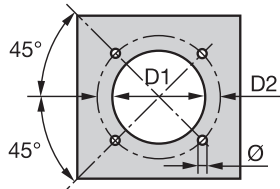
(1) dimension with extended head  
 \* by installation of extended head kit

# Two Stage Light Oil Burners

## RL SERIES

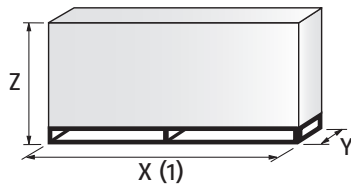
### Overall dimensions (mm)

#### BURNER - BOILER MOUNTING FLANGE



MODEL	D1	D2	Ø
▶ RL 34 MZ	160	224	M8
▶ RL 44 MZ	160	224	M8
▶ RL 50	160	224	M8
▶ RL 64 MZ	185	275-325	M12
▶ RL 70	185	275-325	M12
▶ RL 100	185	275-325	M12
▶ RL 130	195	275-325	M12
▶ RL 190	230	325-368	M16
▶ RL 250 MZ	230	325-368	M16

#### PACKAGING

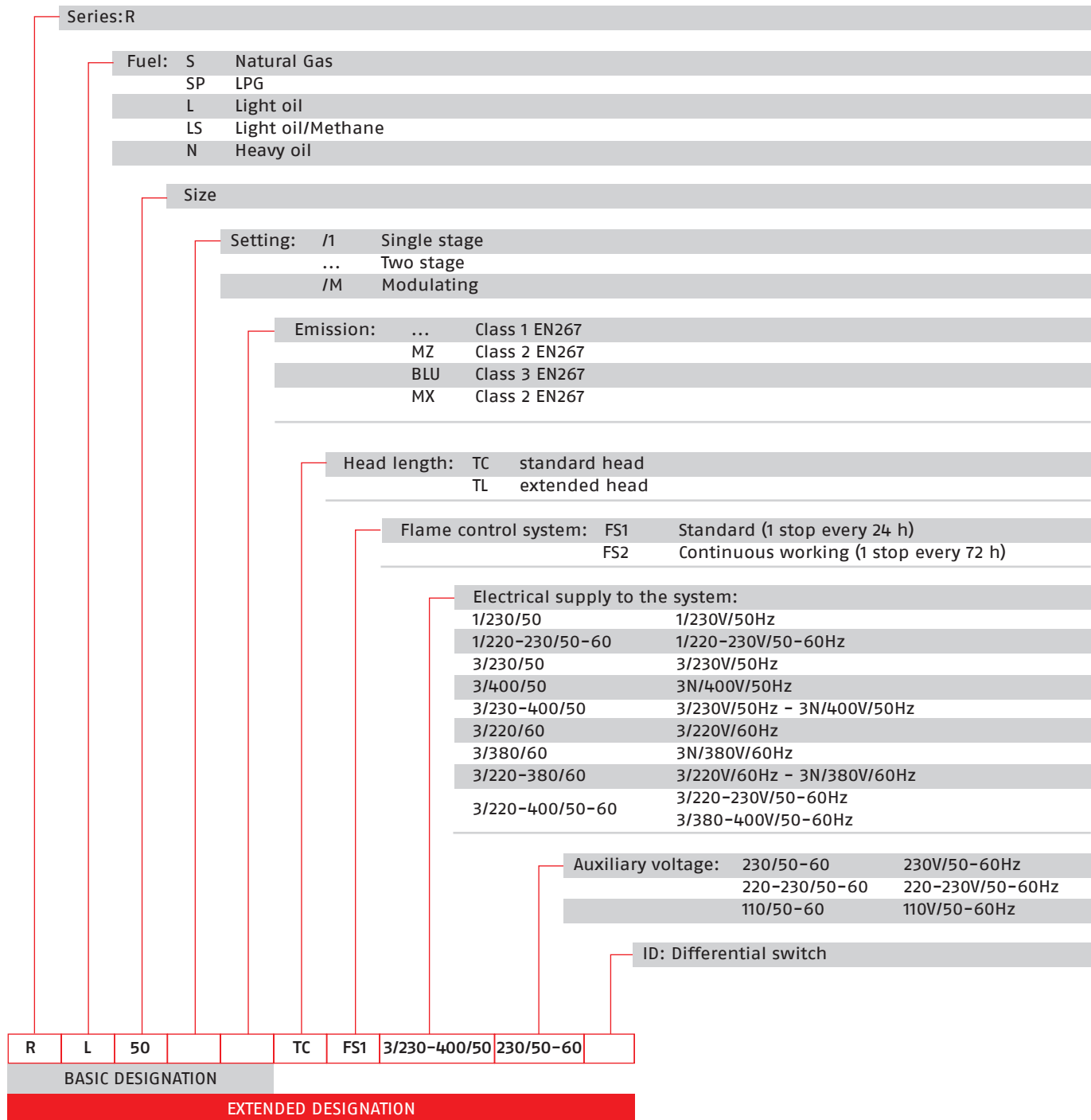


MODEL	X (1)	Y	Z	kg
▶ RL 34 MZ	1010	520	510	32
▶ RL 44 MZ	1010	520	510	33
▶ RL 50	1200	520	502	39
▶ RL 64 MZ	1200	560	520	42
▶ RL 70	1410	692	655	60
▶ RL 100	1410	692	655	63
▶ RL 130	1410	692	655	66
▶ RL 190	1410	985	655	75
▶ RL 250 MZ	1410	1040	655	140

(1) Length with short and extended head

# Specification

## DESIGNATION OF SERIES



# Specification

## STATE OF SUPPLY

### RL 34 MZ – 44 MZ models

Monoblock forced draught oil burner with two stage operation, fully automatic, made up of:

- Air suction circuit **with sound proofing material**
- High performance fan with straight blades
- Air damper for air setting controlled by an adjustable hydraulic ram
- Starting motor at 2800 rpm, single-phase / 220-230V / 50-60Hz or three-phase 380-400V / 50-60Hz
- Combustion head, that can be set on the basis of required output, fitted with:
  - stainless steel end cone, resistant to corrosion and high temperatures
  - ignition electrodes
  - flame stability disk
- Exclusive patented HCS (Housing Cooling System) with high thermal insulation and air circulation with continuous air volume refresh for an active cooling system and avoid heat transfer to the electrical component housing
- Gears pump for high pressure fuel supply, fitted with:
  - filter
  - pressure regulator
  - connections for installing a pressure gauge and vacuumeter
  - internal by-pass for single pipe installation
- Valve unit with an oil safety valve and two delivery oil valves on the output circuit
- Photocell for flame detection
- Microprocessor-based burner safety control box, with diagnostic function
- Plugs and Sockets for electrical connection, accessible from the external of the cover
- Burner on/off switch
- Flame inspection window
- 1<sup>st</sup> – 2<sup>nd</sup> stage manual 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
- 2 Plugs for electrical connection (RL 34-44 MZ single-phase)
- 3 Plugs for electrical connection (RL 44 MZ three-phase)
- 2 slide bar extensions (for the extended head models)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

## Specification

### STATE OF SUPPLY

RL 50 - 64 MZ - 70 - 100 - 130 - 190 - 250 MZ models

Monoblock forced draught oil burner with two stage operation, fully automatic, made up of:

- Air suction circuit lined with sound-proofing material
- Fan with reverse curve blades (RL 50 - 70 - 100 - 130 models) or straight blades (RL 64 MZ - 190 - 250 MZ models)
- Air damper for air setting controlled by an adjustable hydraulic ram (or by a servomotor for the RL 250 MZ)
- Starting motor at 2800 rpm, three-phase 400V with neutral, 50Hz
- Combustion head, that can be set on the basis of required output, fitted with:
  - stainless steel end cone, resistant to corrosion and high temperatures
  - ignition electrodes
  - flame stability disk
- Gears pump for high pressure fuel supply, fitted with:
  - filter
  - pressure regulator
  - connections for installing a pressure gauge and vacuumeter
  - internal by-pass for single pipe installation
- Valve unit with an oil safety valve and two delivery oil valves on the output circuit
- Photocell for flame detection
- Microprocessor-based burner safety control box, with diagnostic function
- Burner on/off switch
- Flame inspection window
- 1<sup>st</sup> - 2<sup>nd</sup> stage manual 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
- Fairleads for electrical connections (RL 50 models)
- 2 slide bar extensions (for the extended head models and the RL 190 - 250 MZ models)
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

# Two Stage Light Oil Burners

## RL SERIES

### Available models

CODE	MODEL					HEAT OUTPUT		TOTAL ELECTRICAL POWER (kW)	NOTE
						(kW)	(kg/h)		
3470210	RL 34 MZ	TC	FS1	1/220-230/50-60	220-230/50-60	97/154-395	8,3/13-33,6	0,6	(1)
3470211	RL 34 MZ	TL	FS1	1/220-230/50-60	220-230/50-60	97/154-395	8,3/13-33,6	0,6	(1)
3470310	RL 44 MZ	TC	FS1	1/220-230/50-60	220-230/50-60	155/235-485	13/20-41	0,7	(1)
3470311	RL 44 MZ	TL	FS1	1/220-230/50-60	220-230/50-60	155/235-485	13/20-41	0,7	(1)
3470340	RL 44 MZ	TC	FS1	3/220-400/50-60	220-230/50-60	155/235-485	13/20-41	0,75	(1)
3470341	RL 44 MZ	TL	FS1	3/220-400/50-60	220-230/50-60	155/235-485	13/20-41	0,75	(1)
3474632	RL 50	TC	FS1	3/230-400/50	230/50-60	148/296-593	12,5/25-50	0,75	(1)
3474633	RL 50	TL	FS1	3/230-400/50	230/50-60	148/296-593	12,5/25-50	0,75	(1)
3474680	RL 50	TC	FS1	3/208-230/380-460/60	230/50-60	148/296-593	12,5/25-50	0,75	(1)
3474681	RL 50	TL	FS1	3/208-230/380-460/60	230/50-60	148/296-593	12,5/25-50	0,75	(1)
3470410	RL 64 MZ	TC	FS1	3/230-400/50	230/50-60	206/391-830	17,4/33-70	1,4	(1)
3470411	RL 64 MZ	TL	FS1	3/230-400/50	230/50-60	206/391-830	17,4/33-70	1,4	(1)
3475032	RL 70	TC	FS1	3/230-400/50	230/50-60	255/474-830	21,5/40-70	1,4	(2)
3475033	RL 70	TL	FS1	3/230-400/50	230/50-60	255/474-830	21,5/40-70	1,4	(2)
3475034	RL 70	TC	FS1	3/230-400/50	230/50-60	255/474-830	21,5/40-70	1,4	(1) (2)
3475035	RL 70	TL	FS1	3/230-400/50	230/50-60	255/474-830	21,5/40-70	1,4	(1) (2)
20057368	RL 70	TC	FS1	3/208-230/380/60	230/50-60	255/474-830	21,5/40-70	1,4	(2)
3475081	RL 70	TL	FS1	3/208-230/380/60	230/50-60	255/474-830	21,5/40-70	1,4	(2)
3475232	RL 100	TC	FS1	3/230-400/50	230/50-60	356/711-1186	30/60-100	1,8	(2)
3475233	RL 100	TL	FS1	3/230-400/50	230/50-60	356/711-1186	30/60-100	1,8	(2)
3475234	RL 100	TC	FS1	3/230-400/50	230/50-60	356/711-1186	30/60-100	1,8	(1) (2)
3475280	RL 100	TC	FS1	3/220/380-460/60	230/50-60	356/711-1186	30/60-100	1,8	(2)
3475281	RL 100	TL	FS1	3/220/380-460/60	230/50-60	356/711-1186	30/60-100	1,8	(2)
3475432	RL 130	TC	FS1	3/230-400/50	230/50-60	486/948-1540	41/80-130	2,6	(2)
3475433	RL 130	TL	FS1	3/230-400/50	230/50-60	486/948-1540	41/80-130	2,6	(2)
3475434	RL 130	TC	FS1	3/230-400/50	230/50-60	486/948-1540	41/80-130	2,6	(1) (2)
3475435	RL 130	TL	FS1	3/230-400/50	230/50-60	486/948-1540	41/80-130	2,6	(1) (2)
20057368	RL 130	TC	FS1	3/220/380-460/60	230/50-60	486/948-1540	41/80-130	2,6	(2)
3475481	RL 130	TL	FS1	3/220/380-460/60	230/50-60	486/948-1540	41/80-130	2,6	(2)
3475613	RL 190	TC	FS1	3/400/50	230/50-60	759/1423-2443	64/120-206	5,87	(2)
20052627	RL 190	TL	FS1	3/400/50	230/50-60	759/1423-2443	64/120-206	5,87	(2)
20011008	RL 190	TC	FS1	3/230/50	230/50-60	759/1423-2443	64/120-206	5,87	(2)
3475614	RL 190	TC	FS1	3/400/50	230/50-60	759/1423-2443	64/120-206	5,87	(1) (2)
3475680	RL 190	TC	FS1	3/460/60	220/60	759/1423-2443	64/120-206	5,87	(2)
20011009	RL 190	TC	FS1	3/220/60	220/60	759/1423-2443	64/120-206	5,87	(2)
3470010	RL 250 MZ	TC	FS1	3/230-400/50	230/50-60	600/1250-2700	51/106-228	7,2	(2)
20052629	RL 250 MZ	TL	FS1	3/400/50	230/50-60	600/1250-2700	51/106-228	7,2	(2)
20016419	RL 250 MZ	TC	FS1	3/380/60	220/60	600/1250-2700	51/106-228	7,2	(2)

(1) with plug and socket (2) with terminal board

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 series are in according to 2014/30/EU - 2014/35/EU - 2006/42 CE Directive and EN 267 Norm.

**WARNING:** nozzles are supplied as accessories that must be ordered separately; please refer to the "Burner Accessories" section.



## Burner accessories

### Nozzles



The nozzles must be ordered separately. The following table shows the features and codes on the basis of the maximum required fuel output.

NOTE: each burner needs N°2 nozzles.

BURNER	NOZZLE TYPE	GPH	RATED OUTPUT (kg/h)			NOZZLE CODE
			at 10 bar	at 12 bar	at 14 bar	
▶ RL 34 MZ	60°A	1,00	4,1	4,5	4,9	3042078
▶ RL 34 MZ	60°A	1,25	4,7	5,2	5,6	3042094
▶ RL 34 MZ	60°A	1,50	5,7	6,3	6,8	3042108
▶ RL 34 MZ	60°A	1,75	6,7	7,3	7,9	3042114
▶ RL 34 MZ	60°A	2,00	7,7	8,5	9,2	3042124
▶ RL 34 MZ	60°A	2,50	9,6	10,6	11,5	3042144
▶ RL 34 MZ	60°A	3,00	11,5	12,7	13,8	3042148
▶ RL 34 MZ	60°A	3,50	13,5	14,8	16,1	3042164
▶ RL 34 MZ	60°A	4,00	15,4	17	18,4	3042174
▶ RL 34 MZ	60°A	4,50	17,3	19,1	20,7	3042184
▶ RL 44 MZ	45°A	1,50	5,7	6,3	6,8	20011655
▶ RL 44 MZ	45°A	1,75	6,7	7,3	7,9	20011658
▶ RL 44 MZ	45°A	2,00	7,7	8,5	9,2	20011662
▶ RL 44 MZ	45°A	2,50	9,6	10,6	11,5	20011666
▶ RL 44 MZ	45°A	3,00	11,5	12,7	13,8	20011669
▶ RL 44 MZ	45°A	3,50	13,5	14,8	16,1	20011672
▶ RL 44 MZ	45°A	4,00	15,4	17	18,4	20011674
▶ RL 44 MZ	45°A	4,50	17,3	19,1	20,7	20009760
▶ RL 44 MZ	45°A	5,00	19,2	21,2	23	20011677
▶ RL 44 MZ	45°A	5,50	21,1	23,3	25,3	20011678
▶ RL 44 MZ	45°A	6,00	23,1	25,5	27,7	20011679
▶ RL 50	60°B	3,00	11,5	12,7	13,8	3042158
▶ RL 50	60°B	3,50	13,5	14,8	16,1	3042162
▶ RL 50 - 64 MZ	60°B	4,00	15,4	17	18,4	3042172
▶ RL 50 - 64 MZ	60°B	4,50	17,3	19,1	20,7	3042182
▶ RL 50 - 64 MZ - 70	60°B	5,00	19,2	21,2	23	3042192
▶ RL 50 - 64 MZ - 70	60°B	5,50	21,1	23,3	25,3	3042202
▶ RL 50 - 64 MZ - 70	60°B	6,00	23,1	25,5	27,7	3042212
▶ RL 50 - 64 MZ - 70	60°B	6,50	25	27,6	30	3042222
▶ RL 64 MZ - 70 - 100	60°B	7,00	26,9	29,7	32,3	3042232
▶ RL 64 MZ - 70 - 100	60°B	7,50	28,8	31,8	34,6	3042242
▶ RL 64 MZ - 70 - 100	60°B	8,00	30,8	33,9	36,9	3042252
▶ RL 64 MZ - 70 - 100	60°B	8,50	32,7	36,1	39,2	3042262
▶ RL 64 MZ - 70 - 100 - 130	60°B	9,50	36,5	40,3	43,8	3042282
▶ RL 64 MZ - 70 - 100 - 130 - 190	60°B	10,00	38,4	42,4	46,1	3042292
▶ RL 64 MZ - 70 - 100 - 130 - 190	60°B	11,00	42,3	46,7	50,7	3042312
▶ RL 64 MZ - 100 - 130 - 190 - 250 MZ	60°B	12,00	46,1	50,9	55,3	3042322
▶ RL 64 MZ - 100 - 130 - 190 - 250 MZ	60°B	13,00	50	55,1	59,9	3042332

To be continued in the following page

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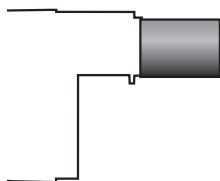
## Burner accessories

### Nozzles

Continued from the previous page

BURNER	NOZZLE TYPE	GPH	RATED OUTPUT (kg/h)			NOZZLE CODE
			at 10 bar	at 12 bar	at 14 bar	
▶ RL 64 MZ - 100 - 130 - 190 - 250 MZ	60°B	14,00	53,8	59,4	64,5	3042352
▶ RL 64 MZ - 100 - 130 - 190 - 250 MZ	60°B	15,00	57,7	63,6	69,2	3042362
▶ RL 64 MZ - 100 - 130 - 190 - 250 MZ	60°B	16,00	61,5	67,9	73,8	3042382
▶ RL 64 MZ - 130 - 190 - 250 MZ	60°B	17,00	65,4	72,1	78,4	3042392
▶ RL 130 - 190 - 250 MZ	60°B	18,00	69,2	76,4	83	3042412
▶ RL 130 - 190 - 250 MZ	60°B	19,00	73	80,6	87,6	3042422
▶ RL 130 - 190 - 250 MZ	60°B	20,00	76,9	84,8	92,2	3042442
▶ RL 190 - 250 MZ	60°B	22,00	84,6	93,3	101,4	3042462
▶ RL 190 - 250 MZ	60°B	24,00	92,2	101,8	110,6	3042472
▶ RL 190 - 250 MZ	60°B	26,00	99,9	110,3	119,9	3042482
▶ RL 190 - 250 MZ	60°B	28,00	107,6	118,8	129,1	20018051
▶ RL 250 MZ	60°B	30,00	110,4	122	132,4	3042502
▶ RL 250 MZ	60°B	32,00	117,8	130,1	150,1	3042512
▶ RL 250 MZ	60°B	35,00	128,8	142,1	154,5	3042522

### Extended heads

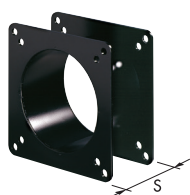


"Standard head" burners can be transformed into "extended head" versions, by using the special kit. The kits available for the various burners, giving the original and the extended lengths, are listed below.

BURNER	'STANDARD' HEAD LENGTH (mm)	'EXTENDED' HEAD LENGTH (mm)	KIT CODE
▶ RL 34 MZ	216	351	3010426
▶ RL 44 MZ	216	351	3010425
▶ RL 50	216	351	3010075
▶ RL 64 MZ	250	385	3010114
▶ RL 70	250	385	3010114
▶ RL 100	250	385	3010115
▶ RL 130	250	385	3010116
▶ RL 190	370	530	3010444 *
▶ RL 250 MZ	378	528	3010422

\* Kit to be used on burners recognizable by a serial number that is over or equal to 02426XXXXX, for burners with a serial number that is under or equal to 02416XXXXX please use the Kit coded 3010197

### Spacer kit

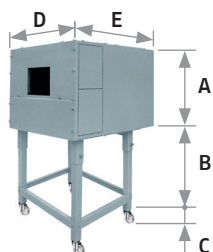


If burner head penetration into the combustion chamber needs reducing, varying thickness spacers are available, as given in the following table:

BURNER	SPACER THICKNESS S (mm)	KIT CODE
▶ RL 34 MZ - 44 MZ - 50	110	3010095
▶ RL 64 MZ - 70 - 100 - 130	135	3010129
▶ RL 190 - 250 MZ	102	3000722

## Burner accessories

### Sound proofing box

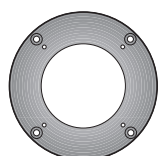


If noise emission needs reducing even further, sound-proofing boxes are available. When a lower "B" dimension is required, it is available the Box Support Kit code 20065135 which allows to reduce it at the fixed dimension of 55 mm. The sound-proofing boxes are not suitable for outdoor use.

BURNER	BOX TYPE	A (mm)	B (mm) min-max	C (mm)	D (mm)	E (mm)	[dB(A)] (*)	BOX CODE
RL 34 MZ - 44 MZ								
▶ RL 50 - 64 MZ	C1/3	650	372 - 980	110	690	770	10	3010403
RL 70 - 100 - 130								
▶ RL 190	C4/5	850	160 - 980	110	980	930	10	3010404
▶ RL 250 MZ	C7	1255	160 - 980	110	1140	1345	10	3010376

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

### Connection flange kit



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

BURNER	KIT CODE
▶ RL 34 MZ - 44 MZ - 50	3010138

### Degasing unit



With single pipe systems, you can find air in the oil sucked by the pump that comes from the oil itself due to negative pressure or to a faulty seal. To solve this problem, we recommend fitting a degasing unit near the burner. Two versions are available with or without filter:

BURNER	DEGASING UNIT WITH FILTER CODE (*)
▶ RL 34 MZ - 44 MZ - 50 - 64 MZ	3010055
▶ RL 70 - 100 - 130 - 190 - 250 MZ	

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

### Volt free contact kit



A volt free contact kit is available for installation onto the burner. It can be used for a remote interface between burner operating signals. Every burner can be equipped with a single kit to remote the flame presence signal and the burner lockout indication.

BURNER	KIT CODE
▶ RL 34 MZ - 44 MZ - 64 MZ	3010419

### PC interface kit



To connect the control box to a personal computer for the transmission of operation, fault signals and detailed service information, an interface adapter with PC software are available.

BURNER	KIT CODE
▶ RL 34 MZ - 44 MZ - 50 - 64 MZ - 70 - 100 - 130 - 190 - 250 MZ	3002719

# Two Stage Light Oil Burners

## RL SERIES

### Burner accessories

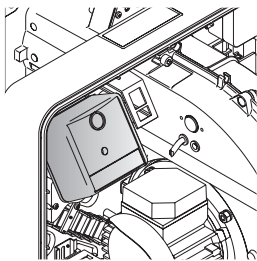
#### Ground fault interrupter kit



A "Ground fault interrupter kit" is available as a safety device for electrical system fault.

BURNER	KIT CODE
► RL 34 MZ - 44 MZ	3010448

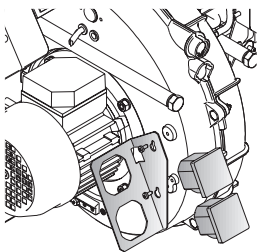
#### Post-ventilation kit



To have 20 s ventilation after opening of thermostats chain, a special kit is available.

BURNER	KIT CODE
► RL 34 MZ - 44 MZ	3010453

#### Hours counter kit



To measure the burner working time a hours counter kit is available.

BURNER	KIT CODE
► RL 34 MZ - 44 MZ	3010450

#### Protection kit (electromagnetic interferences)

When the burner is installed in a room particularly subject to electromagnetic interference (signals emitted over 10 V/m) due for example to INVERTER presence or in systems where the lengths of the thermostat connections is over 20 meters, this specific protection kit is available as an interface between the thermostatic controls and the burner.

BURNER	KIT CODE
► All models	3010386

#### 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 34 MZ	319	429	3010178
► RL 44 MZ	319	429	3010179