

Water & Steam Boilers – Series 2

For Gas, Light Oil, & Gas/Light Oil – Fired Burners

Burner Specification & Data Sheet

Riello Oil Burners Model RL

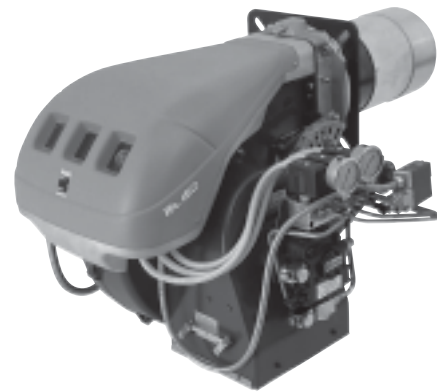


Figure 1 Model RL28 – 50 dimensions

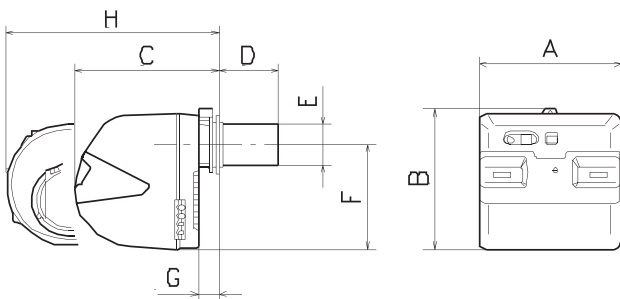
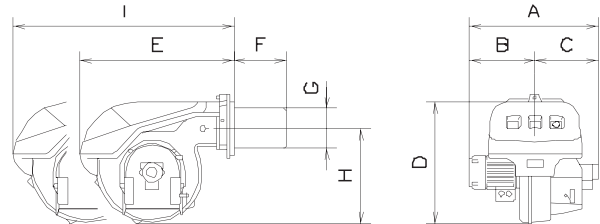


Figure 2 Model RL70 – 130 dimensions



Burner Model Number	A	B	C	D	E	F	G	H	Approx. Wt. (pounds)
RL28/2	18.75	18.75	18.44	8.50	5.50	13.88	2.13	26.50 - 31.75	80
RL38/2	18.75	18.75	18.44	8.50	5.50	13.88	2.13	26.50 - 31.75	84
RL50/2	18.75	18.75	18.44	8.50	5.50	13.88	2.13	26.50 - 31.75	86
RL28/M	18.75	18.75	18.44	9.50	5.50	13.88	2.13	26.50 - 31.75	86
RL38/M	18.75	18.75	18.44	9.50	5.50	13.88	2.13	26.50 - 31.75	90
RL50/M	18.75	18.75	18.44	9.50	5.50	13.88	2.13	26.50 - 31.75	92

Burner Model Number	A	B	C	D	E	F	G	H	I	Approx. Wt. (pounds)
RL70/2	22.81	11.69	11.19	21.88	29.75	9.88	7.06	16.94	37.44 - 42.75	132
RL100/2	23.56	12.31	11.31	21.88	29.75	9.88	7.06	16.94	37.44 - 42.75	139
RL130/2	24.63	13.31	11.31	21.88	29.75	9.88	7.06	16.94	37.44 - 42.75	146
RL70/M	26.13	11.69	14.47	21.88	29.75	10.72	7.06	16.94	37.44 - 42.75	143
RL100/M	26.13	12.31	14.47	21.88	29.75	10.72	7.06	16.94	37.44 - 42.75	150
RL130/M	27.75	13.31	14.47	21.88	29.75	10.72	7.06	16.94	37.44 - 42.75	157



Burner specifications and settings

Table 1 Burner data — #2 Fuel oil — Modulating

Boiler Model Number	Burner Model Number	Combustion Head Setting	Combustion Air Settings		Servo Motor Cam Position Settings						Oil Nozzles			Oil Pressure			Flame Inversion Kit	Fuel Independent Motor Driven			
														Supply PSIG	Low Fire PSIG	High Fire PSIG		3450 RPM			
			Low Fire	High Fire	Blue	Orange	Red	1	2	3	Qty.	KG/H	Brand	Type	Spray Angle	Suntec Type		Gear GPH			
488R	RL28/M	1	28	90	0	15	90	—	—	—	1	40	Bergonzo	A4	45°	286	105	170	YES	AL95	32.0
488	RL28/M	2	28	90	0	15	90	—	—	—	1	40		A4	45°	286	105	190	YES	AL95	32.0
588	RL38/M	0	30	70	0	15	90	—	—	—	1	50		A4	45°	290	145	220	YES	AL95	32.0
688	RL50/M	3	28	63	0	17	92	—	—	—	1	60		A4	45°	290	80	180	YES	AL95	32.0
788	RL50/M	4	24	90	0	17	90	—	—	—	1	70		A4	45°	290	80	210	YES	AL95	32.0
888	RL70/M	2	2.5	6.3	—	—	—	130	0	42	1	80		A4	45°	290	100	195	YES	J7C	60.8
988R	RL70/M	2	1.8	7.0	—	—	—	130	0	40	1	80		A4	45°	290	100	200	YES	J7C	60.8
988	RL70/M	3	1.8	7.0	—	—	—	130	0	40	1	80		A4	45°	290	100	210	YES	J7C	60.8
1088R	RL70/M	5	3.0	9.0	—	—	—	130	0	40	1	90		A4	45°	290	80	180	YES	J7C	60.8
1088	RL70/M	6	3.0	9.0	—	—	—	130	0	40	1	90		A4	45°	290	80	190	YES	J7C	60.8
1188	RL100/M	0	3.0	5.5	—	—	—	130	0	30	1	90		A4	45°	320	110	240	YES	J7C	60.8
1288	RL100/M	0	3.0	6.5	—	—	—	130	0	30	1	100		A4	45°	310	120	240	YES	J7C	60.8
1388	RL100/M	2	3.0	7.0	—	—	—	130	0	30	1	110		A4	45°	280	70	210	YES	J7C	60.8
1488	RL130/M	0	2.5	6.0	—	—	—	130	0	38	1	110		A4	45°	300	80	200	YES	J7C	60.8
1588	RL130/M	0	2.5	7.0	—	—	—	130	0	38	1	110		A4	45°	320	80	230	YES	J7C	60.8
1688R	RL130/M	0	2.0	7.5	—	—	—	130	0	38	1	120		A4	45°	320	80	230	YES	J7C	60.8
1688	RL130/M	0	2.0	8.0	—	—	—	130	0	35	1	130		A4	45°	280	80	210	YES	J7C	60.8
1788	RL130/M	9	5.0	7.5	—	—	—	130	0	55	1	130		A4	45°	320	170	235	YES	J7C	60.8
1888	RL130/M	9	3.5	9.0	—	—	—	130	0	20	1	130		A4	45°	360	160	260	YES	J7C	60.8

Table 2 Burner data — #2 Fuel oil — Two-stage firing

Boiler Model Number	Burner Model Number	Combustion Head Setting	Combustion Air Settings		Qty.		Oil Nozzles			Oil Pressure	Fuel Independent Motor Driven	
			Low Fire	High Fire			Brand	Type	Spray Angle		Supply PSIG	3450 RPM
			GPH @ 100 PSIG	Suntec Type	Gear GPH							
488R	RL28/2	1	25	45	1/1	3.25/2.25	Delavan	B	60°	170	AL65C	22.0
488	RL28/2	2	25	50	1/1	3.25/2.25	Delavan	B	60°	192	AL65C	22.0
588	RL38/2	1	25	45	1/1	4.0/3.5	Delavan	B	60°	162	AL65C	22.0
688	RL50/2	2	27	75	1/1	4.5/5.0	Delavan	B	60°	180	AL65C	22.0
788	RL50/2	4	30	75	1/1	5.5/6.0	Delavan	B	60°	172	AL65C	22.0
888	RL70/2	1	2.0	6.0	1/1	6.5/6.5	Delavan	B	60°	180	AJ4CC	52.5
988R	RL70/2	0	2.5	9.0	1/1	6.5/6.5	Delavan	B	60°	200	AJ4CC	52.5
988	RL70/2	1	2.5	9.0	1/1	7.5/7.5	Delavan	B	60°	175	AJ4CC	52.5
1088R	RL70/2	4	3.0	9.0	1/1	7.5/7.5	Delavan	B	60°	200	AJ4CC	52.5
1088	RL70/2	5	3.0	9.0	1/1	8.5/8.0	Delavan	B	60°	174	AJ4CC	52.5
1188	RL100/2	3	2.5	5.0	1/1	9.0/9.0	Delavan	B	60°	195	AJ4CC	52.5
1288	RL100/2	5	3.0	6.0	1/1	10.0/10.0	Delavan	B	60°	200	AJ4CC	52.5
1388	RL100/2	6	3.0	6.5	1/1	11.0/11.0	Delavan	B	60°	200	AJ4CC	52.5
1488	RL130/2	0	3.0	5.7	1/1	12.0/12.0	Delavan	B	60°	200	AJ4CC	52.5
1588	RL130/2	0	3.0	7.0	1/1	12.0/12.0	Delavan	B	60°	200	AJ4CC	52.5
1688R	RL130/2	0	3.3	7.5	1/1	13.0/13.0	Delavan	B	60°	170	AJ4CC	52.5
1688	RL130/2	0	3.3	8.0	1/1	13.0/13.0	Delavan	B	60°	220	AJ4CC	52.5
1788	RL130/2	9	3.5	7.0	1/1	15.0/15.0	Delavan	B	60°	220	AJ4CC	52.5
1888	RL130/2	9	4.0	7.0	1/1	15.0/15.0	Delavan	B	60°	230	AJ4CC	52.5



Burner specifications and settings *(continued)*

Table 3 Burner data — General

Boiler Model Number	Burner Input	Positive Pressure In Firebox	Standard Burner Model Designation		Standard Combustion Control	Standard Control System		Burner Motor H.P. 3400 RPM		Standard Motor Voltage	
	No. 2 Oil		LHL	MOD		Note 13	LHL	MOD	LHL	MOD	LHL
	GPH	Inches W.C.									
488R	6.90	.89	RL28/2	RL28/M	LAL 2.25	LHL	MOD	1/2	1/2	120/60/1	120/60/1
488	7.00	1.00	RL28/2	RL28/M	LAL 2.25	LHL	MOD	1/2	1/2	120/60/1	120/60/1
588	9.40	.84	RL38/2	RL38/M	LAL 2.25	LHL	MOD	1/2 or 3/4	1/2 or 3/4	120/60/1 or 3 phase*	3 phase*
688	11.80	.72	RL50/2	RL50/M	LAL 2.25	LHL	MOD	3/4	3/4	3 phase*	3 phase*
788	14.20	.65	RL50/2	RL50/M	LAL 2.25	LHL	MOD	3/4	3/4	3 phase*	3 phase*
888	16.60	.85	RL70/2	RL70/M	LAL 2.25	LHL	MOD	1 1/2	1 1/2	3 phase*	3 phase*
988R	17.20	.80	RL70/2	RL70/M	LAL 2.25	LHL	MOD	1 1/2	1 1/2	3 phase*	3 phase*
988	18.80	.80	RL70/2	RL70/M	LAL 2.25	LHL	MOD	1 1/2	1 1/2	3 phase*	3 phase*
1088R	20.00	.82	RL70/2	RL70/M	LAL 2.25	LHL	MOD	1 1/2	1 1/2	3 phase*	3 phase*
1088	21.50	.82	RL70/2	RL70/M	LAL 2.25	LHL	MOD	1 1/2	1 1/2	3 phase*	3 phase*
1188	23.50	.82	RL100/2	RL100/M	LAL 2.25	LHL	MOD	2 1/2	2 1/2	3 phase*	3 phase*
1288	26.00	.81	RL100/2	RL100/M	LAL 2.25	LHL	MOD	2 1/2	2 1/2	3 phase*	3 phase*
1388	28.50	.89	RL100/2	RL100/M	LAL 2.25	LHL	MOD	2 1/2	2 1/2	3 phase*	3 phase*
1488	31.00	.86	RL130/2	RL130/M	LAL 2.25	LHL	MOD	3	3	3 phase*	3 phase*
1588	33.00	.86	RL130/2	RL130/M	LAL 2.25	LHL	MOD	3	3	3 phase*	3 phase*
1688R	34.50	.863	RL130/2	RL130/M	LAL 2.25	LHL	MOD	3	3	3 phase*	3 phase*
1688	35.50	.83	RL130/2	RL130/M	LAL 2.25	LHL	MOD	3	3	3 phase*	3 phase*
1788	38.00	.82	RL130/2	RL130/M	LAL 2.25	LHL	MOD	3	3	3 phase*	3 phase*
1888	40.50	.85	—	RL190/M	LAL 2.25	—	MOD	—	5 1/2	3 phase*	3 phase*

*208/60/3, 240/60/3, 480/60/3, 575/60/3 burner motor voltage must be specified

Notes for Table 1, Table 2 and Table 3

- Burner capacities listed for elevations up to 2,000 feet. For higher elevations, consult local Weil-McLain distributor/agent or sales office.
- Light oil ratings based on No. 2 fuel oil with heating value of 140,000 Btu per gallon.
- Boiler-burner unit to be adjusted to achieve +0.10 inches W.C. pressure at the flue collar, resulting in positive pressure in firebox as listed.
- All settings and pressures shown are for initial start-up. Final values should be confirmed with combustion analysis.
- Burner settings shown are for initial start-up. Follow burner manual to adjust burner using combustion test instruments as directed.
- Light Oil control Systems:
 - LHL: Low-high-low-off firing conditions – two position air and fuel controlled by separate motor, open damper pre-purge.
 - MOD: On-off operation with proven low fire start and full modulating firing conditions. Proportional motor drives fuel metering valve and combustion air damper according to firing conditions; open damper pre-purge.
- 120/60/1 control circuit is used for all burners.
- All 3 phase models require a separate 12/60/1 control voltage supply.
- Two stage units require a single SPDT controller for LHL firing rate operation.
- Modulating units 488R to 788 require a 120v bumping type signal or PID control type for modulation.
- Modulating units 888 to 1888 require a 4 – 20mA, 0 – 10vdc or 135 ohm signal for modulation.
- Motor relay or contactor is standard on all units.
- Combustion Controls:
 - Siemens LAL 2.25 flame safeguard control monitors the oil burner flame with visual diagnostic window, provides pre-purge and post purge, provides switching necessary to allow firing rate motor to be driven to both low fire and high fire positions, prevent start up if pre-ignition interlocks are open and has low fire start proven circuit. In the event pre-ignition interlock circuit or running interlock circuit does not “prove”, system will lock out on safety. Infrared detector is standard.
- Other flame safeguards available upon request.
- Control circuit transformer is available as an option.
- Airflow safety switch is standard only on models 888 thru 1888.
- Burners will be completely assembled and wired and factory test-fired.
- Burners listed by Underwriters Laboratories, Inc., state of Connecticut, Fire Marshal state of Massachusetts, city of New York MEA, and others.
- Special controls can be provided to meet other code requirements not listed. Consult your local Weil-McLain distributor/agent or sales office.
- All units will be provided with direct spark ignition. Electric gas pilot is not available.
- Combustion air damper position indicator reads 0 – 90° on RL28 – 50 and is found internally.
- Combustion air damper position indicator reads 0 – 9 on RL70-190 and is found externally.
- On all modulating units air settings adjusted on cam profile.



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