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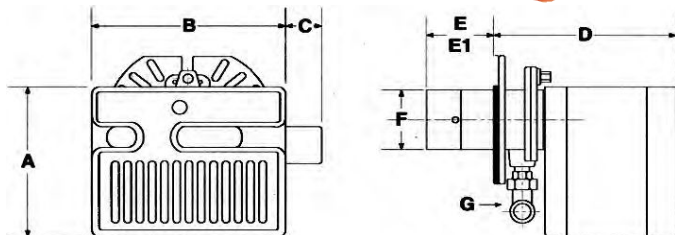
Water & steam boilers
for use with Gas, Light Oil, &
Gas/Light Oil – Fired Burners

Burner specifications and data

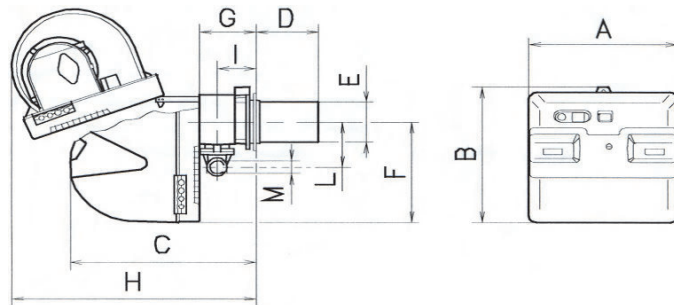
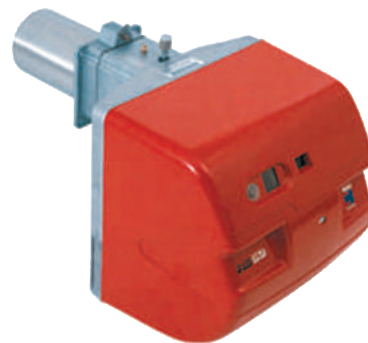
Riello burner

Models **G & RS** *Flame retention burner for gas firing*

Model
G400 - G900



Model
RS 28 - 50



Dimensions (inches)

Burner model number	A	B	C	D*	E	F	G	Approximate shipping weight
G400	10.31	12	—	15.69	10.69	4.13	0.75	38
G750	11.75	13.75	—	17.69	4.13	4.94	0.75	90
G900	11.75	13.75	3.75	17.69	4.13	4.94	1.00	95

* For total distance to front of boiler add for burner mounting plate spacer:
G400: 2.00"
G750, G900: 2.38"

Dimensions (inches)

Burner model number	A	B	C*	D	E	F
RS28/1	18.75	18.69	22.88	8.5	5.50	19.63
RS28/1	18.75	18.69	22.88	8.5	5.50	19.63
RS28/M	18.75	18.69	22.88	8.5	5.50	19.63
RS38/M	18.75	18.69	22.88	8.5	5.50	19.63
RS50/M	18.75	18.69	22.88	8.5	5.50	19.63

Burner model number	G	H*	I	L	M	Approximate shipping weight
RS28/1	6.44	31.88	4.25	6.63	1.50	82
RS28/1	6.44	31.88	4.25	6.63	1.50	88
RS28/M	6.44	31.88	4.25	6.63	1.50	84
RS38/M	6.44	31.88	4.25	6.63	1.50	86
RS50/M	6.44	31.88	4.25	6.63	1.50	91

* For total distance to front of boiler, add 5.75" for burner mounting plate spacer.



Boiler model number	Burner Input	Positive pressure in firebox In. w.c.	Standard burner model designation		Standard combustion control	Standard control system		Burner motor H.P.		Standard motor voltage	
	Gas MBH		On-Off	LHL/MOD		On-Off	LHL/MOD	On-Off	LHL/MOD	On-Off	LHL/MOD
380	346	0.28	40 G400	–	RMG88.620A1	00	–	1/8	–	120/60/1	–
480	491	0.28	40 G750	–	RMG88.620A1	00	–	1/8	–	120/60/1	–
580	639	0.28	40 G750	–	RMG88.620A1	00	–	1/8	–	120/60/1	–
680	787	0.27	–	40 G900	RMG88.620A1	–	LHL	1/8	–	–	120/60/1
780	935	0.27	RS28/1	RS28/M	LFL 1.335	00	LHL/MOD	1/2	1/2	120/60/1	120/60/1
880	1082	0.27	RS28/1	RS28/M	LFL 1.335	00	LHL/MOD	1/2	1/2	120/60/1	120/60/1
980	1230	0.27	RS38/1	RS38/M	LFL 1.335	00	LHL/MOD	1/2	1/2 or 3/4	120/60/1	120/60/1 or 3 phase*
1080	1378	0.26	RS38/1	RS38/M	LFL 1.335	00	LHL/MOD	1/2	1/2 or 3/4	120/60/1	120/60/1 or 3 phase*
1180	1526	0.26	–	RS50/M	LFL 1.335	–	LHL/MOD	–	3/4	–	3 phase*
1280	1674	0.26	–	RS50/M	LFL 1.335	–	LHL/MOD	–	3/4	–	3 phase*
* 208/60/3, 240/60/3, 480/60/3, 575/60/3 burner motor voltage must be specified											

Standard Gas Control Components and Sizes in Inches - On-Off								
Boiler model number	Manual hand valve	Low gas pressure switch	Gas pressure regulator	Operating gas valve	Operating gas valve (with proof of closure)	Safety gas valve	Manual checking gas valve	High gas pressure switch
380	3/4	Optional	3/4	3/4	Optional	3/4	Optional	Optional
480 - 580	1	Standard	1	1	Optional	1	1	Optional
780	1	Standard	1	1	Optional	1	1	Standard
880 - 1080	1 1/2	Standard	1 1/2	1 1/2	Optional	1 1/2	1 1/2	Standard

Standard Gas Control Components and Sizes in Inches - 2 Stage & Modulating								
Boiler model number	Manual hand valve	Low gas pressure switch	Gas pressure regulator	Operating gas valve	Operating gas valve (with proof of closure)	Safety gas valve	Manual checking gas valve	High gas pressure switch
680	1	Optional	1	1	Optional	1	1	Optional
780 - 1280	1 1/2	Standard	1 1/2	1 1/2	Optional	1 1/2	1 1/2	Standard

- Notes**
- 1 Burner capacities listed for elevations up to 2,000 feet. For higher elevations, contact local Weil-McLain distributor/agent or sales office.
 - 2 Gas ratings based on natural gas with heating value of 1,000 Btu per cubic foot and specific gravity of 0.60. Gas burners for other gases are available. Consult local Weil-McLain distributor/agent or sales office.
 - 3 Boiler-burner unit to be adjusted to achieve +0.10 inches W.C. pressure at flue collar, resulting in positive pressure in firebox as listed.
 - 4 Minimum gas pressures listed are subject to variations due to job conditions. Gas burners for other gas pressures are available. Consult local Weil-McLain distributor/agent or sales office.
 - 5 All gas train sizes shown are based on a supply pressure to the regulator of 7 inches W.C. Optional trains are available for other pressures upon request.
 - 6 All settings and pressures shown are for initial start-up. Final values should be confirmed with combustion analysis.
 - 7 Gas Control Systems:
 - OO: On - Off operation. Single-position air damper
 - LHL: Low-high-low-off firing conditions - two-position air & 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.
 - 8 120/60/1 control circuit is used for all burners
 - 9 All 3 phase models require a separate 120/60/1 control voltage supply.
 - 10 All units require a single SPDT controller for LHL firing rate operation.
 - 11 Models 780 through 1280 require a 120v bumping type signal or PID control type for modulation.
 - 12 Models 780 through 1280 include a motor relay or contactor

Burner Specification and Data Sheet



Burner Specifications and Data Sheet – On-Off																
Boiler model number	Burner model number	Pressure drop thru gas train In. w.c.	Manifold pressure In. w.c.	Gas pressure required at gas control inlet Inches w.c.		Combustion head setting	Combustion air settings		Servo motor cam positions fuel settings							
				Min.	Max.		Low fire	High fire	Blue	Orange	Red	n5	n3	st2	st1	st0
380	40 G400	3.96	2.07	6.02	14.00	4.0	–	4.25	–							
480	40 G750	1.74	2.30	4.04	14.00	1.0	–	3.0	–							
580	40 G750	4.25	2.60	6.85	14.00	2.0	–	3.8	–							
680	–	–	–	–	–	–	–	–	–							
780	RS28/1	4.68	2.29	6.98	14.00	4.0	–	4.0	–							
880	RS28/1	1.45	2.77	4.45	14.00	5.0	–	5.0	–							
980	RS38/1	1.66	2.00	3.81	14.00	3.0	–	4.0	–							
1080	RS38/1	2.62	2.258	4.94	14.00	4.0	–	5.0	–							

Burner Specifications and Data Sheet – Low-High-Low or Full Modulation																
Boiler model number	Burner model number	Pressure drop thru gas train In. w.c.	Manifold pressure In. w.c.	Gas pressure required at gas control inlet Inches w.c.		Combustion head setting	Combustion air indications		Servo motor cam positions fuel settings							
				Min.	Max.		Low fire	High fire	Blue	Orange	Red	n5	n3	st2	st1	st0
680	40 G900	3.49	3.45	6.94	14.00	4.0	2.0	8.0	–			10	60	65	15	0
780	RS28/M	1.00	2.29	3.47	14.00	4.0	20	70	0	15	90	–				
880	RS28/M	0.96	2.77	4.36	14.00	5.0	25	80	0	15	90	–				
980	RS38/M	1.58	2.00	4.53	14.00	3.0	25	70	0	15	90	–				
1080	RS38/M	1.85	2.258	5.09	14.00	4.0	25	80	0	15	90	–				
1180	RS50/M	2.38	1.904	4.28	14.00	5.0	20	60	0	15	90	–				
1280	RS50/M	2.72	2.17	5.10	14.00	3.0	25	70	0	15	90	–				

Flame Safeguards Provided with Listed Control Systems by Code								
Boiler model number	UL		FM		CSD-1		IRI	
	00	LHL/MOD	00	LHL/MOD	00	LHL/MOD	00	LHL/MOD
380 - 580	RMG88	—	—	—	RMG88	—	—	—
680	—	RMG88	—	—	—	RMG88	—	—
780 - 1280	LFL 1.335		LFL 1.335		LFL 1.335		LFL 1.335	

- Notes**
- 13** Combustion Controls:
 - Siemens RMG88 620A1 flame safeguard control monitors the gas burner flame with LED diagnostic display, provides pre-purge and necessary safety interlocks. Communication port available for statistical data download.
 - Siemens LFL 1.335 flame safeguard control monitors the oil or gas 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. Flame rod is standard
 - 14** Other flame safeguards make and models available upon request on units 780 through 1280.
 - 15** Air flow switch is standard for all units.
 - 16** Burners will be completely assembled and wired (except gas train) and factory test fired.
 - 17** 40 Series G and RS burners listed by Underwriters Laboratories, Inc. for US and Canada.
 - 18** RS burners listed by Fire Marshall Commonwealth of Massachusetts, City of New York MEA and others.
 - 19** Special controls can be provided to meet other code requirements not listed. Consult local Weil-McLain distributor/agent or sales offices.
 - 20** Models 380 through 680 will be provided with direct spark ignition. Electric gas pilot is not available.
 - 21** Models 780 through 1280 will be provided with interrupted electric gas pilot.
 - 22** 40 Series G burner motors run at 3250 RPM. R Series burner motors run at 3400 RPM.
 - 23** Combustion air damper position indicator reads 0-90° on RS28-50 and is found internally.
 - 24** Air settings adjusted on cam profile on 2 stage and modulating models.



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