

80 Water & steam boilers

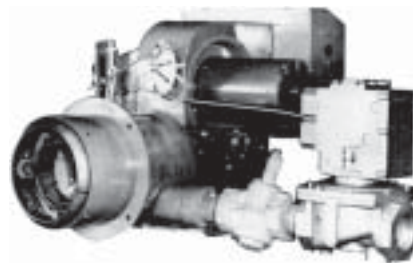
for use with Gas, Light Oil, & Gas/Light Oil - Fired Burners

Burner specifications and data

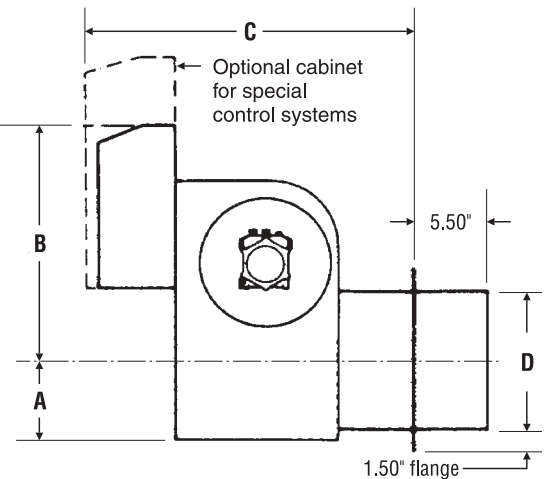
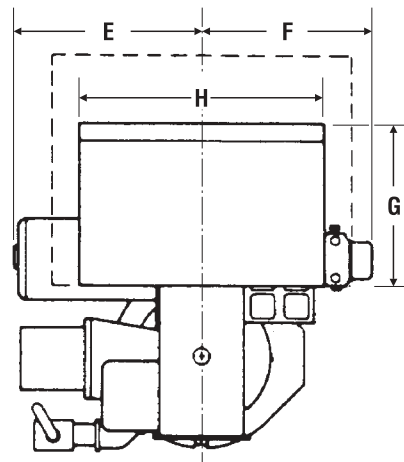
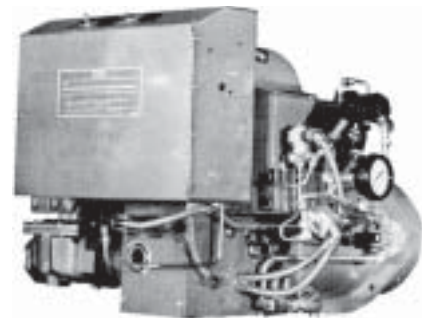
Gordon-Piatt burners

Model **WR** *Flame retention type, for gas, light oil or combination gas/oil firing*

Model **WR-Gas**



Model **WR-Gas/Oil**



Dimensions (inches)

Burner model number	A	B	C	D	E	F	G	H	Approximate shipping weight
WR6.2	6.00	14.50	26.00	6.00	11.63	11.88	13.00	16.00	160
WR6.3	6.00	14.50	26.00	6.00	11.63	11.88	13.00	16.00	165
WR8.1	6.00	14.50	26.00	8.00	11.63	11.88	13.00	16.00	230
WR8.2	6.50	15.25	28.50	8.00	13.50	14.50	13.00	16.00	250



Boiler model number	Burner Input (forced draft)		Positive pressure in firebox In. w.c.	Standard burner model designation			Standard combustion control			Standard control system			Burner motor 3450 RPM	
	No. 2 oil GPH	Gas MBH		Gas	Light oil	Gas/Light oil	Gas	Light oil	Gas/Light oil	Gas	Light oil	Gas/Light oil	H.P.	Standard voltage
680	5.50	789	0.29	WR6.2-G	WR6.2-O	WR6.2-GO	RM7895A	R8184G	RM7895C	B	F4B	B/F4B	1/3	120/60/1
780	6.50	937	0.28	WR6.3-G	WR6.3-O	WR6.3-GO	RM7895A	R8184G	RM7895C	B	F4B	B/F4B	1/2	120/60/1
880	7.50	1084	0.28	WR8.1-G	WR8.1-O	WR8.1-GO	RM7895A	R8184G	RM7895C	H	F4S	H/F4S	3/4	120/60/1
980	8.50	1232	0.28	WR8.1-G	WR8.1-O	WR8.1-GO	RM7895A	R8184G	RM7895C	H	F4S	H/F4S	3/4	120/60/1
1080	9.60	1379	0.27	WR8.1-G	WR8.1-O	WR8.1-GO	RM7895A	R8184G	RM7895C	H	F4S	H/F4S	3/4	120/60/1
1180	10.60	1527	0.27	WR8.2-G	WR8.2-O	WR8.2-GO	RM7895A	R8184G	RM7895C	H	F4S	H/F4S	3/4	120/60/1
1280	11.60	1674	0.26	WR8.2-G	WR8.2-O	WR8.2-GO	RM7895A	R8184G	RM7895C	H	F4S	H/F4S	1	120/60/1

Standard Gas Control Components and Sizes in Inches						
Boiler model number	Manual hand valve (point of field connection)	Gas pressure regulator	Safety gas valve	Motorized operating gas valve	Diaphragm operating gas valve	Manual checking gas valve
680	1	1	1	Optional	1	1
780	1 1/4	1 1/4	1 1/4	Optional	1 1/4	1 1/4
880 & 980	1 1/4	1 1/4	1 1/4	1 1/4	N.A.	1 1/4
1080 & 1180	1 1/2	1 1/2	1 1/2	1 1/2	N.A.	1 1/2
1280	1 1/2	1 1/2	1 1/2	1 1/2	N.A.	2

- Notes**
- 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.
 - 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.
 - 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.
 - 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.
 - Manifold pressures and combustion air settings shown are for initial start-up. Final pressure and air settings should be determined after checking actual gas flow and combustion readings.
 - Gas Control Systems:
 - B (OO): On-off operation, single-position air.
 - H (LHO): On-off operation, low fire start, high fire run. Two-position air controlled by damper arm on motorized gas valve.
 - H4 (LHL): Low-high-low-off firing conditions. Two-position air controlled by damper arm on motorized gas valve.
 - E2 (MOD): On-off operation, with proven low fire start and full modulating firing conditions with combustion air control. Proportional motor drives fuel metering valve and combustion air damper according to the firing conditions. Fixed damper pre-purge.
 - Light Oil Control Systems:
 - F4B (RALFS): On-off operation, reduced air, low fire start, high fire run. Two-position air, two-position oil.
 - F4S (LHO): On-off operation, low fire start, high fire run. Two-position air, two-position oil.
 - F4S (LHL): Low-high-low-off firing conditions. Two-position air, two-position oil.
 - F6R (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 the firing conditions. Fixed damper pre-purge.

Burner Specification and Data Sheet



Boiler 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.		Initial air damper setting Inches		Oil nozzles					Oil pressures PSIG			Fuel unit Burner-motor driven 3450 RPM	
			Min.	Max.	Low fire	High fire	Qty	GPH @ 100 PSIG	Brand	Type	Spray angle	Pump capacity	High fire	Low fire	Type	Gear GPH
680	3.10	3.40	6.70	14.00	--	3/4	2	1.75	Hago	ES	60°	300	250	100	B2TA-8249	33
780	2.10	3.20	5.30	14.00	--	1/2	3	1.35	Hago	ES	60°	300	260	100	B2TA-8249	33
880	3.10	2.80	5.90	14.00	3/16	5/8	3	1.50	Delavan	B	60°	300	280	110	B2TA-8249	33
980	3.20	3.50	6.70	14.00	3/8	7/8	3	1.65	Delavan	B	60°	300	295	100	B2TA-8249	33
1080	2.40	3.80	6.20	14.00	7/16	1	3	2.00	Hago	P	60°	300	255	100	B2TA-8249	33
1180	2.90	4.10	7.00	14.00	3/16	3/4	1 2	2.25 2.00	Hago	P	60°	300	290	105	B2TA-8249	33
1280	1.50	4.30	6.50	14.00	1/4	7/8	1 2	2.50 2.25	Hago	P	60°	300	275	105	B2TA-8249	33

Notes

- 9** Gas/Oil Control Systems:
- B/F4B (OO/RALFS): Combines gas and light oil characteristics listed above.
 - H/F4S (LHO/LHO): Combines gas and light oil characteristics listed above.
 - H4/F4S (LHL/LHL): Combines gas and light oil characteristics listed above.
 - E2/F6R (MOD/MOD): Combines gas and light oil characteristics listed above.
- 10** 120/60/1 control circuit is used for all burners.
- 11** Control circuit transformer is available as an option.
- 12** Motor contactor will be furnished for all units.
- 13** Combustion Controls:
- a) R8184G combustion control uses cadmium cell for flame detector to monitor oil burner flame, also furnishes intermittent ignition.
 - b) RM7895 flame safeguard control uses ultraviolet electronic flame detector to monitor gas or oil burner flame and provides pre-purge programming. "A" models provide intermittent pilot; "C" models provide interrupted pilot and RUN/TEST switch.
 - c) RM7840M, E110/EPD390 flame safeguard control monitors the oil or gas burner flame, provides pre-purge and post-purge programming. Timed low fire start is provided by means of timing built into control. Control is used with UL on-off (low fire start) systems. Ultraviolet sensitive electronic flame detector is standard with infrared detector available.
 - d) RM7840L, E110/EPD160 flame safeguard control monitors the oil or gas burner flame, provides pre-purge and post-purge programming, provides switching necessary to allow firing rate motor to be driven to both low fire and high fire positions, prevents start-up if pre-ignition interlocks are open and has low fire start proving circuit. In the event pre-ignition interlock circuit or running interlock circuit does not "prove", system will lock out on safety. Control is standard equipment with IRI – modulating (proven low fire start) system. Ultraviolet sensitive electronic flame detector is standard with infrared detector available.
 - e) RM7800L, E110/EP160 flame safeguard control monitors the oil or gas burner flame with digital readout control system, provides pre-purge and post-purge programming, provides switching necessary to allow firing rate motor to be driven to both low fire and high fire position, prevents start-up if pre-ignition interlocks are open and has low fire start proving circuit. In the event pre-ignition interlock circuit or running interlock circuit does not "prove", system will lock out on safety. Ultraviolet sensitive electronic flame detector is standard with infrared detector available.
- Airflow safety switch is standard for all gas and combination gas/light oil units.
- 14** Burners will be completely assembled and wired (except gas train) and factory test-fired.
- 15** Burners listed by Underwriters Laboratories, Inc., state of Connecticut, Fire Marshal state of Massachusetts, city of New York MEA, and others.
- 16** Special controls can be provided to meet other code requirements not listed. Consult your local Weil-McLain distributor/agent or sales office.
- 17** Electric gas pilot will be furnished as standard equipment on all gas and combination gas/light oil units. Direct spark ignition is standard for light oil units. Direct spark ignition is available as an option for combination gas/light oil units. Consult your local
- 18** Weil-McLain distributor/agent or sales office.



Flame Safeguards Provided with Listed Control Systems by Code

LIGHT OIL BURNERS

Boiler model number	UL				FM				CSD-1				IRI			
	OO	LHO	LHL	MOD	OO	LHO	LHL	MOD	OO	LHO	LHL	MOD	OO	LHO	LHL	MOD
680-780	R8184G	R8184G	R8184G	RM7895A	RM7895A	RM7895A	RM7895A	RM7895A	R8184G	R8184G	R8184G	RM7895A	RM7895C	RM7895C	RM7895C	RM7840L
880-1280	--	R8184G	R8184G	RM7895A	--	RM7895A	RM7895A	RM7895A	--	RM7895A	RM7895A	RM7895A	--	RM7895C	RM7895C	RM7840L

GAS BURNERS

Boiler model number	UL				FM				CSD-1				IRI			
	RALFS	LHO	LHL	MOD	RALFS	LHO	LHL	MOD	RALFS	LHO	LHL	MOD	RALFS	LHO	LHL	MOD
680-780	RM7895A	RM7895A	RM7895A	RM7895A	RM7895C	RM7895C	RM7895C	RM7895C	RM7895A	RM7895A	RM7895A	RM7895A	RM7895C	RM7895C	RM7895C	RM7840L
880-1280	--	RM7895A	RM7895A	RM7895A	--	RM7895C	RM7895C	RM7895C	--	RM7895A	RM7895A	RM7895A	--	RM7895C	RM7895C	RM7840L

COMBINATION GAS/OIL BURNERS

Boiler model number	UL				FM				CSD-1				IRI			
	OO/ RALFS	LHO	LHL	MOD	OO/ RALFS	LHO	LHL	MOD	OO/ RALFS	LHO	LHL	MOD	OO/ RALFS	LHO	LHL	MOD
680-780	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7895C	RM7840L
880-1280	--	RM7895C	RM7895C	RM7895C	--	RM7895C	RM7895C	RM7895C	--	RM7895C	RM7895C	RM7895C	--	RM7895C	RM7895C	RM7840L



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