



**WEIL-McLAIN®**

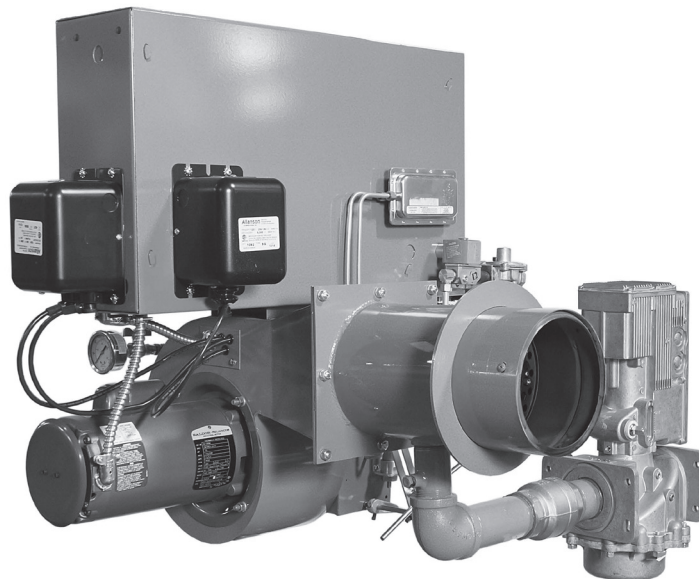
# 94

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

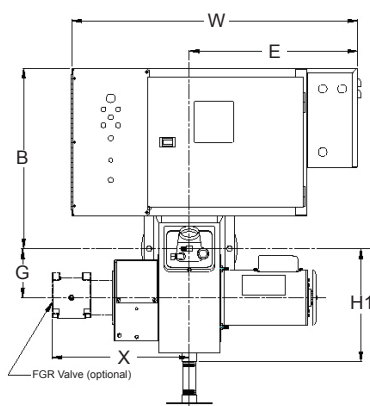
## Burner specifications and data

# Webster burners

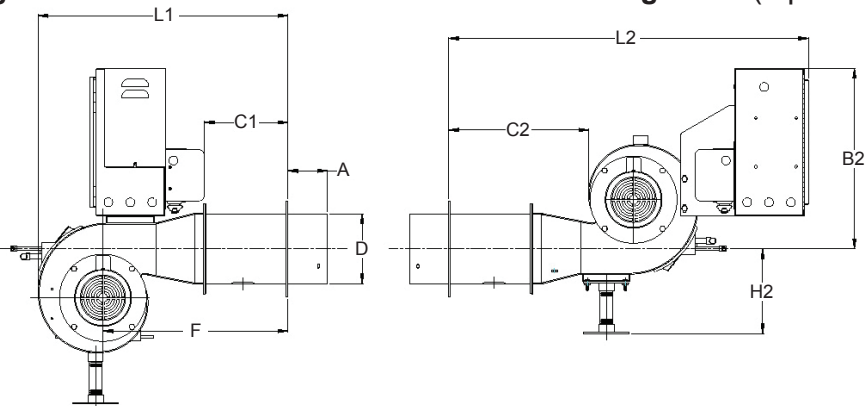
Model **WJB** *Flame retention type, for gas, light oil or combination gas/oil firing*



**WJB Standard Arrangement**



**Inverted Arrangement (Optional)**



### Dimensions (inches)

Burner model	A	B1	B2	C1	C2	D	E	F**	G	H1***	H2***	L1*	L2	W***	X**
<b>WJB1</b>	4	18-3/8	18-3/8	8-1/4	14-3/8	7-1/4	11-7/16	18-15/16	5	15-11/16	11-3/8	26-5/8	36-15/16	21-7/8	13-3/4
<b>WJB2</b>	4	19-1/16	18-1/2	9-1/2	14	9-1/8	17-3/4	20	6-5/8	19	12-1/8	28-5/8	39-1/4	30-11/16	24-1/4
<b>WJB3</b>	4	19-15/16	19-9/16	15-5/16	19-1/4	11-1/4	23-1/4	26-15/16	8-5/16	22-1/2	14-3/4	38-1/4	48	36-3/4	29-1/2

\* Add 1/4 " to Dimension L1 for heavy oil burners. Use Dimension L2 for alternate control cabinet location.

\*\* On units with FGR for NOx reduction, FGR valve will emerge from side of burner opposite blower motor.

\*\*\* Extra ground clearance & width may be required for the addition of FGR. Consult factory for details.



Boiler Model Number	Burner Input		Positive Pressure in Firebox Inches w.c.	Standard burner model designation			Standard combustion control			Standard control system			Burner motor 3450 RPM			Standard motor voltage
	No. 2 oil GPH	Gas MBH		Gas	Light oil	Gas/ Light oil	Gas	Light oil	Gas/ Light oil	Gas	Light oil	Gas/ Light oil	Gas	Light oil	Gas/ Light oil	
894	17.60	2540	0.175	WJB2	WJB2	WJB2	RM7897C	RM7897C	RM7897C	LFS	LFS	LFS	1	1	1	1 phase
994	20.00	2887	0.215	WJB2	WJB2	WJB2	RM7897C	RM7897C	RM7897C	LFS	LFS	LFS	1 1/2	1 1/2	1 1/2	1 phase
1094	22.50	3247	0.255	WJB2	WJB2	WJB2	RM7897C	RM7897C	RM7897C	LFS	LFS	LFS	1 1/2	1 1/2	1 1/2	1 phase
1194	25.00	3608	0.295	WJB2	WJB2	WJB2	RM7897C	RM7897C	RM7897C	LFS	LFS	LFS	1 1/2	1 1/2	1 1/2	1 phase
1294	27.5	3969	0.335	WJB2	WJB2	WJB2	RM7897C	RM7897C	RM7897C	LFS	LFS	LFS	2	2	2	3 phase
1394	30.0	4330	0.375	WJB2	WJB2	WJB2	RM7897C	RM7897C	RM7897C	LFS	LFS	LFS	2	2	2	3 phase
1494	32.5	4691	0.415	WJB2	WJB2	WJB2	RM7840L	RM7840L	RM7840L	M	MR	M - MR	2	2	2	3 phase
1594	35.0	5052	0.465	WJB2	WJB2	WJB2	RM7840L	RM7840L	RM7840L	M	MR	M - MR	3	3	3	3 phase
1694	37.5	5412	0.485	WJB2	WJB2	WJB2	RM7840L	RM7840L	RM7840L	M	MR	M - MR	3	3	3	3 phase
1794	40.0	5773	0.525	WJB2	WJB2	WJB2	RM7840L	RM7840L	RM7840L	M	MR	M - MR	5	5	5	3 phase
1894	42.5	6134	0.565	WJB3	WJB3	WJB3	RM7840L	RM7840L	RM7840L	M	MR	M - MR	5	5	5	3 phase
1994	45.0	6495	0.605	WJB3	WJB3	WJB3	RM7840L	RM7840L	RM7840L	M	MR	M - MR	5	5	5	3 phase
2094	47.5	6856	0.650	WJB3	WJB3	WJB3	RM7840L	RM7840L	RM7840L	M	MR	M - MR	5	5	5	3 phase
2194	50.0	7216	0.750	WJB3	WJB3	WJB3	RM7840L	RM7840L	RM7840L	M	MR	M - MR	5	5	5	3 phase
2294	53.0	7649	0.850	WJB3	WJB3	WJB3	RM7840L	RM7840L	RM7840L	M	MR	M - MR	5	5	5	3 phase
2394	55.0	7938	0.950	WJB3	WJB3	WJB3	RM7840L	RM7840L	RM7840L	M	MR	M - MR	5	5	5	3 phase
2494	60.0	8660	1.050	WJB3	WJB3	WJB3	RM7840L	RM7840L	RM7840L	M	MR	M - MR	7 1/2	7 1/2	7 1/2	3 phase
2594	65.0	8890	1.150	WJB3	WJB3	WJB3	RM7840L	RM7840L	RM7840L	M	MR	M - MR	7 1/2	7 1/2	7 1/2	3 phase

\* Gas pressures shown are for standard gas train arrangement. Contact Weil-McLain for alternate gas trains to support other pressures.

Standard Gas Control Components and Sizes in Inches									
Boiler Model Number	Manual hand valve	Low gas pressure switch	Gas pressure regulator	Solenoid operating gas valve	Motorized operating gas valve	Motorized operating gas valve (with proof of closure)	Safety gas valve	Manual checking gas valve	High gas pressure switch
894-1494	Yes	Yes	Yes	Yes	Yes	--	--	--	Yes
1594	Yes	Yes	Yes	Yes	Yes	--	--	--	Yes
1694-1994	Yes	Yes	Yes	Yes	Yes	--	--	--	Yes
2094-2294	Yes	Yes	Yes	Yes	Yes	--	--	--	Yes
2394-2594	Yes	Yes	Yes	Yes	Yes	--	--	--	Yes

## Notes

- Burner capacities listed for elevations up to 1,000 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 the 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:
  - LHO: On-off operation, low fire start, high fire run. 894-1894 – two-position air controlled by damper arm on motorized gas valve, fixed damper pre-purge. 1494-1894 – two-position air controlled by separate motor, open damper pre-purge.
  - LHL: Low-high-low-off firing conditions. 894-1894 – two-position air controlled by damper arm on motorized gas valve, fixed damper pre-purge. 1494-1894 – two-position air controlled by separate motor, open damper pre-purge.
  - 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. Open damper pre-purge.

# Burner Specification and Data Sheet



Boiler Model Number	Pressure drop thru gas train Inches w.c.	Gas test tee pressure Inches w.c.	Gas pressure required at gas control inlet Inches w.c.*		Initial low fire damper settings Inches		Oil nozzle (one per unit)				Oil pressures PSIG			Fuel unit data			
			Minimum	Maximum	Top	Bottom	GPH@ 100 PSIG	Brand**	Type	Spray angle	Pump capacity	High fire	Low fire	Type	Mounting	Speed RPM	Motor H.P.
894	4.5	1.3	7	14	3/4	2	5	Delevan	Type-B	60°	310	306	100	22R221D	Brn mtd.	3450	--
994	2.3	1.8	7	14	5/8	2	6	Delevan	Type-B	45°	300	280	100	22R221D	Brn mtd.	3450	--
1094	2.9	2.1	7	14	3/4	2	6.5	Delevan	Type-B	45°	305	300	100	22R221D	Brn mtd.	3450	--
1194	3.6	1.8	7	14	13/16	2	7.5	Delevan	Type-B	45°	300	280	100	22R322D	Brn mtd.	3450	--
1294	4.4	2.2	7	14	7/8	2	8	Delevan	Type-B	60°	305	300	100	22R322D	Brn mtd.	3450	--
1394	5.2	1.7	7	14	15/16	1, 1	8.5, 9	Delevan	Type-B	60°	300	294	100	22R322D	Brn mtd.	3450	--
1494	6.2	2.5	14	28	9/16	1, 1	9, 10	Delevan	Type-B	60°	305	300	100	22R322D	Remote	3600	1/2
1594	7.2	2.8	14	28	1/2	2	10	Delevan	Type-B	60°	310	306	100	22623D	Remote	3600	3/4
1694	8.2	3.1	14	28	5/8	2	11	Delevan	Type-B	60°	300	290	100	22623D	Remote	3600	3/4
1794	5.4	3.5	14	28	1/4	3	8	Delevan	Type-B	60°	300	153	65	SG-0550	Remote	1725	1/2
1894	6.1	5.8	14	28	5/16	2, 1	8, 9	Delevan	33769	60°	300	146	65	SG-0550	Remote	1725	1/2
1994	6.8	4.7	14	28	1/4	2, 1	9, 8	Delevan	33769	60°	300	140	65	SG-0550	Remote	1725	1/2
2094	3.7	5.3	14	28	5/16	3	9.5	Delevan	33769	60°	300	162	65	SG-0550	Remote	1725	1/2
2194	4.1	5.9	14	28	3/8	3	10	Delevan	33769	60°	300	167	65	SG-0550	Remote	1725	1/2
2294	4.6	6.5	14	28	7/16	2, 1	9.5, 12	Delevan	33769	60°	300	156	65	SG-0550	Remote	1725	1/2
2394	5	7.1	14	28	1/2	2, 1	10, 12	Delevan	33769	60°	300	152	65	SG-0570	Remote	1725	3/4
2494	5.5	7.8	15	28	1/4	2, 1	12, 10	Delevan	33769	60°	300	142	65	SG-0570	Remote	1725	3/4
2594	6	8.5	16	28	5/16	3	12	Delevan	33769	45°	300	145	65	SG-0570	Remote	1725	3/4

## Notes

### 8 Light Oil Control Systems:

LHO: On-off operation, low fire start, high fire run. Two-position air, two-position oil. Fixed damper pre-purge on 894-1194, open damper pre-purge on 1294-1894.

LHL: Low-high-low-off firing conditions. Two-position air, two-position oil. Fixed damper pre-purge on 894-1194, open damper pre-purge on 1294-1894.

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. Open damper pre-purge.

### 9 Gas/Light Oil Control Systems:

LHO/LHO: Combines gas and light oil characteristics listed above.

LHL/LHL: Combines gas and light oil characteristics listed above.

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 starter or contactor will be furnished for all burners.

### 13 Combustion Controls:

- R7284P combustion control uses cadmium cell for flame detector to monitor oil burner flame, also furnishes intermittent ignition.
- RM7897 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.
- RM7840L, E110/EPD170 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.
- RM7800L, E110/EP170 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.



## Notes

- 14 Airflow safety switch is standard for all gas and combination gas/light oil units.
- 15 Burners will be completely assembled and wired (except gas train) and factory test-fired.
- 16 Burners listed by Underwriters Laboratories, Inc., state of Connecticut, Fire Marshal state of Massachusetts, city of New York MEA, and others.
- 17 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.
- 18 Direct spark ignition is standard on light oil units 894-1794. Electric-gas pilot is standard on gas and combination gas/light oil units and on light oil units 1894-2594. Direct spark ignition is optional on combination gas/light oil units. Consult your local Weil-McLain distributor/agent or sales office.

### Flame Safeguards Provided with Listed Control Systems by Code

#### GAS BURNERS

Boiler model number	UL			FM			CSD-1			IRI		
	LHO	LHL	MOD	LHO	LHL	MOD	LHO	LHL	MOD	LHO	LHL	MOD
894-1394	RM7897C	RM7897C	RM7840L	RM7897C	RM7897C	RM7840L	RM7897C	RM7897C	RM7840L	RM7897C	RM7897C	RM7840L
1494-1894	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L
1994-2594	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L

#### LIGHT OIL BURNERS

Boiler model number	UL			FM			CSD-1			IRI		
	LHO	LHL	MOD	LHO	LHL	MOD	LHO	LHL	MOD	LHO	LHL	MOD
894-994	RM7897C	RM7897C	RM7840L	RM7897C	RM7897C	RM7840L	RM7897C	RM7897C	RM7840L	RM7840L	RM7840L	RM7840L
1094-1194	RM7897C	RM7897C	RM7840L	RM7897C	RM7897C	RM7840L	RM7897C	RM7897C	RM7840L	RM7840L	RM7840L	RM7840L
1294-1894	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L
1994-2594	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L

#### COMBINATION GAS/OIL BURNERS

Boiler model number	UL			FM			CSD-1			IRI		
	LHO	LHL	MOD	LHO	LHL	MOD	LHO	LHL	MOD	LHO	LHL	MOD
894-1394	RM7897C	RM7897C	RM7840L	RM7840L	RM7840L	RM7840L	RM7840L	RM7840L	RM7840L	RM7840L	RM7840L	RM7840L
1494-1894	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L
1994-2594	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L	N / A	N / A	RM7840L