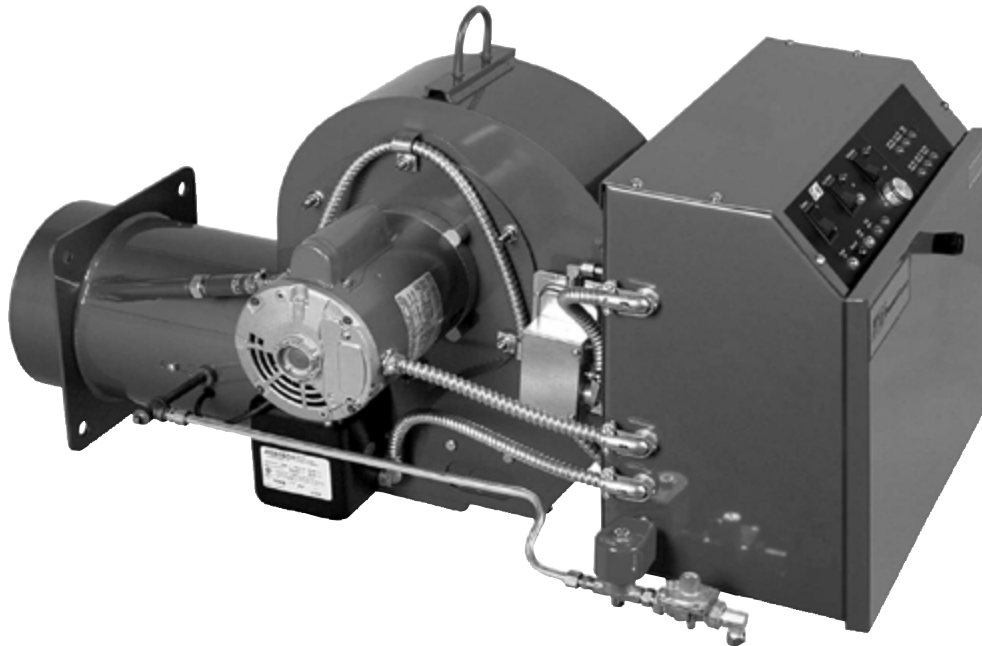
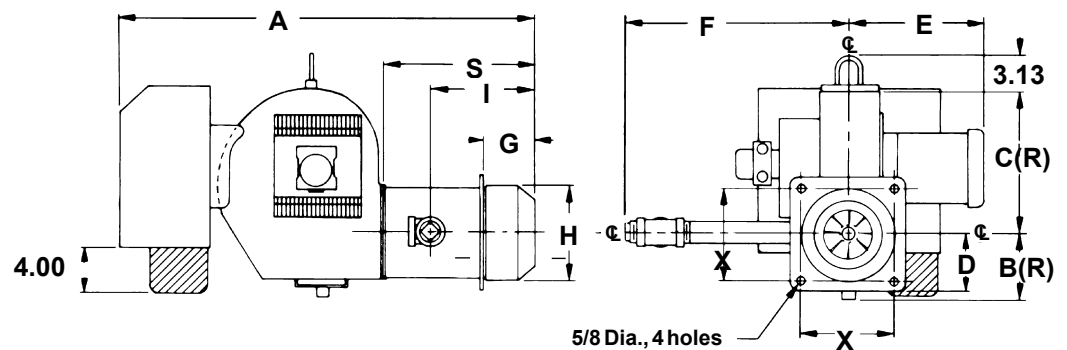


## Water & Steam Boilers – Series 3 Burner Specification and Data Sheet

### Power-Flame Model WCR Gas/Oil Burners



**Figure 1** Model WCR



Note: Add .38 to "H" dim for size of opening in boiler front plate.

Burner Model Number	A	B(R)	C(R)	D	E	F*	G	H	I	S	X	Approximate Weight
WXCR1	37.75	6.13	14.00	4.63	14.00	20.00	3.25	7.25	7.38	12.63	7.25	175-200
WCR2	39.13	6.13	14.00	5.25	14.00	20.00	4.00	8.75	8.50	13.38	8.50	220-300
WCR3	44.00	7.00	15.25	6.00	16.00	22.38	5.00	10.13	11.50	15.50	10.00	360-400
WCR4	50.00	7.31	17.69	7.00	18.50	28.00	6.00	12.13	14.25	19.13	12.00	500-550
WCR5	50.00	7.31	17.69	7.00	18.50	26.50	6.00	12.13	14.25	19.13	12.00	550-650

\* Required for installation of standard control components



# Burner specifications and settings

**Table 1** Burner data

Boiler Model Number	Burner Input		Positive Pressure In Firebox In. 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	
488	6.9	960	2.5	WXCR1-G-12	WXCR1-O	WXCR1-G0-12	MEP230/UV	R7284P/CC	MEP562/UV	LHL	LHL	LHL	44624	44624	44624	240/60/1
588	9.1	1280	2.44	WCR2-G-20A	WCR2-OA	WCR2-G0-20A	MEP230/UV	R7284P/CC	MEP562/UV	LHL	LHL	LHL	1	1	1	240/60/1
688	11.4	1600	2.43	WCR2-G-20A	WCR2-OA	WCR2-G0-20A	MEP230/UV	R7284P/CC	MEP562/UV	LHL	LHL	LHL	1	1	1	240/60/1
788	13.8	1920	2.42	WCR2-G-20B	WCR2-OB	WCR2-G0-20B	MEP562/UV	R7284P/CC	MEP562/UV	LHL	LHL	LHL	1.5	1.5	1.5	3-Phase*
888	16	2240	2.4	WCR2-G-20B	WCR2-OB	WCR2-G0-20B	MEP562/UV	R7284P/CC	MEP562/UV	LHL	LHL	LHL	1.5	1.5	1.5	3-Phase*
988	18.2	2560	2.39	WCR2-G-20B	WCR2-OB	WCR2-G0-20B	YB110/UV	R7284P/CC	YB110/UV	LHL	LHL	LHL	1.5	1.5	1.5	3-Phase*
1088	20.5	2880	2.38	WCR3-G-25B	WCR3-OB	WCR3-G0-25B	YB110/UV	MEP562/UV	YB110/UV	LHL	LHL	LHL	3	3	3	3-Phase*
1188	23	3200	2.37	WCR3-G-25B	WCR3-OB	WCR3-G0-25B	YB110/UV	YB110/UV	YB110/UV	LHL	LHL	LHL	3	3	3	3-Phase*
1288	25	3520	2.36	WCR3-G-25B	WCR3-OB	WCR3-G0-25B	YB110/UV	YB110/UV	YB110/UV	LHL	LHL	LHL	3	3	3	3-Phase*
1388	27.5	3840	2.35	WCR3-G-25B	WCR3-OB	WCR3-G0-25B	YB110/UV	YB110/UV	YB110/UV	LHL	LHL	LHL	3	3	3	3-Phase*
1488	29.5	4160	2.34	WCR4-G-25	WCR4-OA	WCR4-G0-25	YB110/UV	YB110/UV	YB110/UV	MOD	MOD	MOD	5	5	5	3-Phase*
1588	32	4480	2.33	WCR4-G-25	WCR4-OA	WCR4-G0-25	YB110/UV	YB110/UV	YB110/UV	MOD	MOD	MOD	5	5	5	3-Phase*
1688	34.5	4800	2.31	WCR4-G-30	WCR4-OB	WCR4-G0-30	YB110/UV	YB110/UV	YB110/UV	MOD	MOD	MOD	5	5	5	3-Phase*
1788	36.5	5120	2.3	WCR4-G-30	WCR4-OB	WCR4-G0-30	YB110/UV	YB110/UV	YB110/UV	MOD	MOD	MOD	5	5	5	3-Phase*
1888	39	5440	2.28	WCR5-G-30	WCR5-O	WCR5-G0-30	YB110/UV	YB110/UV	YB110/UV	MOD	MOD	MOD	7.5	7.5	7.5	3-Phase*

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

\*\* High Turndown (HTD) is available on all MOD G and GO models where YB110/UV becomes the standard combustion control

## Notes for Table 1 and Table 2

- 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 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.
- Tee pressures shown are for initial start-up. Final pressure should be determined after checking actual gas flow and combustion readings.
- 120/60/1 control circuit is used for all burners.
- Control circuit transformer is available as an option.
- Motor relay or contactor will be furnished for all units.
- Airflow safety switch is standard for all gas and combination gas/light oil units.
- Burners will be completely assembled and wired (except gas train) 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.
- 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 Weil-McLain distributor/agent or sales office.
- Gas Control Systems:
  - LHL** Low-high-low-off firing conditions. 488-1388: two-position air controlled by damper arm on motorized gas valve, fixed damper pre-purge. 1488-1888: 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. Fixed damper pre-purge on 488-1388, open damper pre-purge on 1488-1888.



# Burner specifications and settings (continued)

**Table 2** Gas train components and flame safeguards

Boiler Model Number	Pressure Drop Thru Gas Train Inches W.C.	Manifold Pressure Inches W.C.*	Gas Pressure Required At Gas Control Inlet Inches W.C.*		Gph @ 100 Psig	Bypass Oil System	Oil Nozzle (One Per Unit)			Oil Pressures Psig	
			Min.	Max.			Brand**	Type	Spray Angle	Pump Capacity Psig	High Fire Pump Pressure
488	1	4.25	5.25	14	4.5	No	Delavan	Solid	80	300	298
588	1.1	3.1	4.2	14	5.5	No	Delavan	Solid	80	300	274
688	1.39	3.31	4.7	14	7	No	Delavan	Solid	80	300	265
788	2	3.8	5.8	14	8.5	No	Delavan	Solid	80	300	235
888	2.73	4.27	7	14	10	No	Delavan	Solid	80	300	256
988	3.57	4.74	8.31	14	11	No	Delavan	Solid	80	300	230
1088	2.2	3.6	5.8	14	14	Yes	Del. Variflo	BPS	80	300	292
1188	2.43	3.87	6.3	14	14	Yes	Del. Variflo	BPS	80	300	270
1288	2.92	4.18	7.1	14	16	Yes	Del. Variflo	BPS	80	300	244
1388	3.49	4.51	8	14	18	Yes	Del. Variflo	BPS	80	300	232
1488	4.11	3.11	7.22	14	18	Yes	Del. Variflo	BPS	80	300	269
1588	4.77	3.24	8.01	14	20	Yes	Del. Variflo	BPS	80	300	256
1688	2.34	3.38	5.72	14	22	Yes	Del. Variflo	BPS	80	300	246
1788	2.68	3.53	6.21	14	24	Yes	Del. Variflo	BPS	80	300	275
1888	3.01	3.69	6.7	14	24	Yes	Del. Variflo	BPS	80	300	264

\* Gas pressure shown are for standard gas train arrangement      \*\* Primary manufacturer. For alternate nozzles, contact Power-Flame  
 \*\*\* 70° spray angle standard, 60° or 80° approved and available upon request

Standard Gas Control Components And Sizes In Inches									
Boiler Model Number	Manual Hand Valve	Low Gas Pressure Switch	Gas Pressure Regulator	Combination Gas Valve And Regulator	Motorized Operating Gas Valve	Motorized Operating Gas Valve (With Proof Of Closure)	Safety Gas Valve	Manual Checking Gas Valve	High Gas Pressure Switch
488	1-1/4	Optional	Optional	1-1/4	1-1/4	Optional	1-1/4	1-1/4	Optional
588	1-1/2	Optional	Optional	1-1/2	1-1/2	Optional	1-1/2	1-1/2	Optional
688	2	Optional	Optional	2	2	Optional	2	2	Optional
788	2	Optional	Optional	2	2	Optional	2	2	Optional
888	2	Optional	Optional	2	2	Optional	2	2	Optional
988	2	Optional	Optional	2	2	Optional	2	2	Optional
1088	2	Standard	2	—	2	Optional	2	2	Standard
1188-1588	2	Standard	2	—	2	Optional	2	2	Standard
1688-1888	2-1/2	Standard	2-1/2	—	2-1/2	2	2-1/2	2-1/2	Standard

\* Combination operating gas valve and regulator also serves as safety gas valve.

17. Light Oil Control Systems:

**LHL** Low-high-low-off firing conditions. Two-position air, two-position oil. Fixed damper pre-purge on 488-1288. Open damper pre-purge on 1388-1888.

**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 on 488-1088R, open damper pre-purge on 1088-1888.

18. Gas/Light Oil Control Systems:

**LHL/LHL** Combines gas and light oil characteristics listed above. Open damper pre-purge on 988-1888.

**MOD/MOD** Combines gas and light oil characteristics listed above. Open damper pre-purge on 988-1888.



# Burner specifications and settings (continued)

**Table 3** Flame safeguards

Flame Safeguards Provided with Listed Control Systems by Code								
GAS BURNERS								
Boiler Model Number	UL		FM		CSD-1		AXA (FORMER IRI)	
	LHL	MOD	LHL	MOD	LHL	MOD	LHL	MOD
488-688	MEP230	MEP230	MEP230	MEP230	MEP230	MEP230	MEP562	YB110
788-888	MEP562	MEP562	MEP562	MEP562	MEP562	MEP562	MEP562	YB110
988-1388	YB110	YB110	YB110	YB110	YB110	YB110	YB110	YB110
1488-1888	YB110	YB110	YB110	YB110	YB110	YB110	YB110	YB110

LIGHT OIL BURNERS								
Boiler Model Number	UL		FM		CSD-1		AXA (FORMER IRI)	
	LHL	MOD	LHL	MOD	LHL	MOD	LHL	MOD
488-588	R7284P	R7284P	R7284P	R7284P	R7284P	R7284P	MEP230	YB110
688-988	R7284P	R7284P	R7284P	R7284P	R7284P	R7284P	MEP230	YB110
1088	MEP562	MEP562	MEP562	MEP562	MEP562	MEP562	YB110	YB110
1188-1888	YB110	YB110	YB110	YB110	YB110	YB110	YB110	YB110

COMBINATION GAS/OIL BURNERS								
Boiler Model Number	UL		FM		CSD-1		AXA (FORMER IRI)	
	LHL	MOD	LHL	MOD	LHL	MOD	LHL	MOD
488-688	MEP562	MEP562	MEP562	MEP562	MEP562	MEP562	MEP562	YB110
788-888	MEP562	MEP562	MEP562	MEP562	MEP562	MEP562	MEP562	YB110
988-1388	YB110	YB110	YB110	YB110	YB110	YB110	YB110	YB110
1488-1888	YB110	YB110	YB110	YB110	YB110	YB110	YB110	YB110

## Notes for Table 3

### 1. Combustion Controls:

- R7284P** Uses cadmium cell for flame detector to monitor oil burner flame, also furnishes intermittent ignition.
- MEP230, MEP562** Uses ultraviolet electronic flame detector to monitor gas or oil burner flame and provides pre-purge programming. "MEP230" models provide intermittent pilot; "MEP562" models provide interrupted pilot and RUN/CHECK switch. Programmable post-purge.
- YB110** 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. Ultraviolet sensitive electronic flame detector is standard with infrared detector available.