

WEIL-McLAIN



Available in individual sections ...
with factory-assembled sections ...
or as complete package units.

AMERICA'S MOST COMPLETE LINE OF CAST IRON BOILERS
RESIDENTIAL ... COMMERCIAL ... INDUSTRIAL ... INSTITUTIONAL

88

BOILER- BURNER UNITS

For Light Oil,
Gas and
Gas-Light Oil

ALSO H-88 FOR
APPROVED BURNERS

PRESSURIZED FOR
FORCED DRAFT VENTING
OR CHIMNEY DRAFT

NET LOAD RANGE

HOT WATER:
690,000 to
4,035,000 BTU/Hr.

STEAM:
2,483 to
15,008 sq. ft.



Net ratings are approved by
The Hydronics Institute



Built in accordance
with the requirements
of the ASME Boiler and
Pressure Vessel Code

88

BOILER AND
BOILER-BURNER
UNITS

WEIL-McLAIN
MICHIGAN CITY INDIANA

The Weil-McLain 88 is available as a boiler-burner unit complete with light oil burner (BL unit), gas burner (BG unit), or combination gas-light oil burner (BGL unit). It is also available as a boiler only without burner (H unit). H unit ratings are certified by I-B-R when the boiler is fired with burners tested by Weil-McLain. Refer to the Trade Price Schedule for list of approved burners.

The 88 is designed for efficient, trouble-free heating in apartments, schools, churches, offices, and other commercial and institutional buildings. The boiler is available for water or steam with net I-B-R ratings from 690,000 to 4,035,000 BTU/Hr.

The unit features forced draft firing at over 82% operating efficiency with light oil. It is available in individual sections, with factory-assembled sections, or as a fire-tested package unit. Outstanding design and construction features include provision for multiple tankless water heaters, patented section sealing method, Hydro-Wall design, large 9-inch top port opening, insulated steel jacket, built-in air eliminator in water boilers, simplified piping, no refractory combustion chamber, no separate base and, of course, Weil-McLain cast iron construction.

Forced Draft Firing

The 88 boiler is pressurized for forced draft firing and therefore does not require a chimney for draft ... a 3-foot stub vent above the roof is sufficient. This feature is particularly valuable in replacement installations since an existing chimney with insufficient draft because of low height or poor construction is not a problem. Other advantages of a forced draft boiler are: No mechanical draft equipment is required, boiler room space requirements are reduced, and a pressurized boiler is more efficient.

88 DESIGN FEATURES



- 1 **Forced draft firing** with light oil, gas, or combination gas-light oil.
- 2 **Cast iron sections** for corrosion resistance and long life ... made gastight with sealing rope.
- 3 **Hydro-Wall design** with water circulating completely around the combustion area ... no refractory combustion chamber, no separate base.
- 4 **Patented section sealing method** assures a watertight seal ... reduces installation time.
- 5 **Simplified piping** reduces installation time. No return header necessary ... largest 88 for steam requires only four risers.
- 6 **Built-in air eliminator** in water boilers ... air is diverted to the expansion tank through a 1-inch tapping located next to the supply outlet.
- 7 **Multiple tankless heaters.** Up to eight heaters can be installed on the left side of the largest 88 water boiler.
- 8 **Built-in horizontal flueway** eliminates the need for a separate sheet-metal collector hood.
- 9 **Extra-large 9-inch top port opening** forms internal header for better water circulation ... large steam area assures rapid production of dry steam.
- 10 **Steel jacket** with durable powder-coat finish in Weil-McLain blue ... completely insulated ... designed for fast installation.
- 11 **Designed for easier cleaning** ... all heating surfaces can be cleaned from the left side of the boiler.

HYDRO-WALL DESIGN

SEALING ROPE



The 88 boiler has a water-backed combustion area with water circulating completely around the firebox. Integral baffles and heat pins in the flue passages increase flue gas velocity for greater heat transfer and maximum operating efficiency.

In addition, Hydro-Wall section design permits lower height, reduces heat loss through the bottom of the boiler, and permits installation on any floor.

The cast iron sections are not face-ground; the tough outer skin is retained to protect against corrosion.

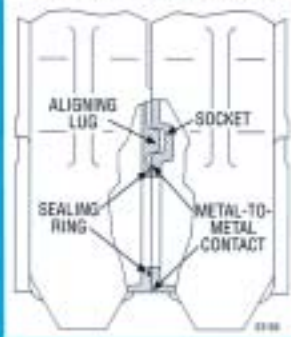
The sealing rope between the cast iron sections of the 88 boiler assures the permanent gastight seal required for forced draft firing. The sections have a grooved seal strip for the rope. When installed, the outer edge of the rope is visible between sections so the boiler can be checked for tightness. The rope is compressible to allow for expansion and contraction of the sections. Sealing rope - a standard feature of all Weil-McLain commercial boilers - will not crack, is impervious to heat and moisture, and will last the life of the boiler.

NO REFRACTORY COMBUSTION CHAMBER

A refractory combustion chamber is not required for the 88 boiler because the combustion area is entirely surrounded by water, and flame retention burners do not require hot refractory for combustion. This feature saves the cost of combustion chamber material and the labor to install it ... and there is no future replacement cost.

Patent No. 3,626,908

SECTION SEALING



Modern elastomer sealing rings in the port openings assure a permanent watertight seal. Because of the elasticity of the material (unlike metal push nipples) the seals prevent leaks caused by thermal expansion and contraction.

Port openings feature captured seal design - a machined closed groove assures uniform compression of the sealing ring and protects the seal from contaminants.

Aligning lugs and sockets assure proper section alignment during assembly.

SIDE CLEANING



The 88 boiler can be entirely cleaned from the left side by removing the upper side jacket panels. The steel plates are backed with insulation and are easily removed to expose the flue passages for thorough cleaning and inspection.

MULTIPLE TANKLESS WATER HEATERS



Tankless heaters for the 88 boiler are installed in the left side of the boiler in intermediate sections with heater openings.

Multiple heaters offer these advantages: (1) increased domestic hot water, (2) hot water at different temperatures, and (3) one heater for snow-melting application.

DOMESTIC WATER HEATER CAPACITIES TANKLESS HEATERS*

Heater Number	**Intermittent Draw GPM @ 100° Average Temperature Rise	**Continuous Draw GPM @ 100° Temperature Rise	Inlet and Outlet Tapings
820	8.5 GPM	8.0 GPM	3/4"

*Weil-McLain ratings.
 **Gallons of water per min. heated from 40° to 140° with 200°F boiler water temp.
 ***Continuous draw—no recovery period.

SECTION ASSEMBLY—FOR TANKLESS HEATERS

Boiler No.	Maximum No. of Heaters	Section Assembly All heaters must be on left side of boiler.
488-W&S	1	RF-TI-I-BA
588-W&S	2	RF-TI-I-TI-BA
688-W&S	2	RF-TI-I-TI-I-BA
788-W&S	3	RF-TI-I-TI-I-TI-BA
888-W&S	3	RF-TI-I-TI-I-TI-I-BA
988-W&S	4	RF-TI-I-TI-I-TI-I-TI-BA
1088-W&S	4	RF-TI-I-TI-I-TI-I-TI-I-BA
1188-W&S	5	RF-TI-I-TI-I-TI-I-TI-I-TI-BA
1288-W	5	RF-TI-I-TI-I-TI-I-TI-I-TI-I-BA
1288-S	4	RF-TI-I-TI-I-SI-I-TI-I-TI-BA
1388-W	6	RF-TI-I-TI-I-TI-I-TI-I-TI-TI-BA
1388-S	6	RF-TI-I-TI-I-TI-I-SI-TI-I-TI-TI-BA
1488-W	6	RF-TI-I-TI-I-TI-I-TI-I-TI-I-TI-BA
1488-S	5	RF-TI-I-TI-I-TI-I-SI-I-TI-I-TI-I-BA
1588-W	7	RF-TI-I-TI-I-TI-I-TI-I-TI-I-TI-BA
1588-S	7	RF-TI-I-TI-I-TI-I-TI-I-TI-I-TI-TI-BA
1688-W	7	RF-TI-I-TI-I-TI-I-TI-I-TI-I-TI-I-BA
1688-S	7	RF-TI-I-TI-I-TI-I-SI-TI-I-TI-I-TI-I-BA
1788-W	8	RF-TI-I-TI-I-TI-I-TI-I-TI-I-TI-I-TI-BA
1788-S	8	RF-TI-I-TI-I-TI-I-TI-I-TI-I-TI-I-TI-TI-BA
1888-W	8	RF-TI-I-TI-I-TI-I-TI-I-TI-I-TI-I-TI-I-BA
1888-S	6	RF-TI-I-TI-I-SI-I-TI-I-TI-I-TI-I-TI-BA

W = Water Boiler; S = Steam Boiler
 RF = Front Section; BA = Back Section; I = Intermediate Section
 TI = Intermediate Section with Tankless Heater Opening
 SI = Steam Intermediate Section with Top Outlet

TANKLESS HEATER LOCATIONS—If TI sections are ordered, it is important to position them in the boiler section assembly exactly as shown by the TI symbols in the table above to assure proper operation. There are heater knockouts in the jacket panel for the first two TI sections only (counting from the front). Other tankless heater openings must be cut by the installer.

FACTORY-ASSEMBLED 88

The 88 boiler is also available with sections, burner mounting plate, and flue collar factory-assembled ... only the jacket, burner, and controls are packed separately. Individual sections as well as the assembled block are hydrostatically tested before shipment.

Lifting hooks are cast on the sides of the front and back sections so the assembled boiler can be lifted by crane or hoist. Steel skids on the bottom of the boiler permit moving the unit with pipe rollers.

THE 88 BOILER IS ALSO AVAILABLE AS A FACTORY FIRE-TESTED PACKAGE UNIT - CONSULT APPLICATIONS ENGINEERING DEPARTMENT.



STANDARD EQUIPMENT

Cast Iron Sections
Insulated Steel Jacket
Flame Retention Burner for Light Oil, Gas, or Gas-Light Oil (except H-88)
Burner Mounting Plate with Refractory (except H-88)
Cast Iron Flue Collar with Built-In Breeching Damper
Observation Ports on Front and Back Sections
Side Cleanout Plates
Flue Brush

WATER BOILERS

30 PSI ASME Relief Valve (boilers tested for 50 PSI working pressure)

Combination High-Limit and Low-Limit Control
Combination Pressure-Temperature-Altitude Gauge
Nipple and 5" x 6" Reducing Coupling (1288 - 1888 boilers only)
Built-in Air Eliminator

STEAM BOILERS

15 PSI ASME Safety Valve - Side Outlet
Low-Limit and High-Limit Pressure Controls
Steam Pressure Gauge
Siphon
Gauge Cocks, Glass, and Guards

ADDITIONAL EQUIPMENT

Factory-Assembled Sections
Burner Mounting Plate with Refractory for "H" Units
Tankless Heaters—for Water or Steam
Heater Opening Cover Plates
Intermediate Section with Opening for Tankless Heater

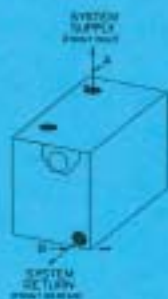
Water Level Controls and Low-Water Cutoffs
Barometric Dampers
1½" Side Inspection Tappings with Plugs—2 Per Section
Dual-Range Manometer
Optional Burners and Burner Controls—See Trade Price Sheet

In the interest of continual improvement in products and performance, Weil-McLain reserves the right to change specifications without notice.

RECOMMENDED PIPING CONNECTIONS

NOTE: Supply and return sizes for water boilers refer to minimum size of pipe connected to boiler for 20° or higher temperature drop between supply and return. The total pressure drop through the 1888 boiler using the nipple and 5" x 6" reducing coupling will not exceed ¼ PSI at these flow rates; for smaller boilers the pressure drop will be less.

WATER BOILERS



Boiler Size	Pipe Size*	
	A (Supply)	B (Return)
488	3"	3"
588 thru 788	4"	4"
888 thru 1188	5"	5"
1288 thru 1888	6"	6"

* For minimum of 30 pipe diameters from boiler.
▲ Nipple and 5" x 6" reducing coupling furnished as standard equipment.

STEAM BOILERS

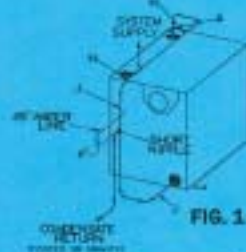


FIG. 1

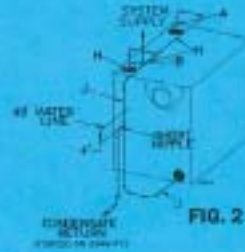


FIG. 2

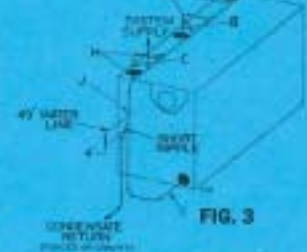


FIG. 3

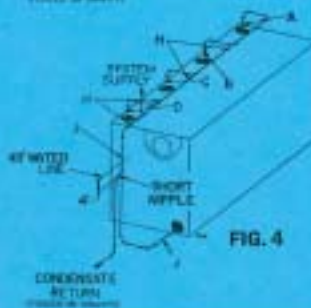


FIG. 4

Fig. No.	Boiler Size	Riser Pipe Size				Header* K	Casing† J
		A	B	G	D		
1	488	4"			4"	2½"	
1	588 and 688	5"			5"	2½"	
2	788	4"	4"		6"	2½"	
2	888	5"	5"		6"	2½"	
2	988 and 1088	5"	5"		8"	2½"	
2	1188	5"	5"		8"	4"	
3	1288 thru 1488	6"	5"	5"	8"	4"	
3	1588 and 1688	5"	5"	5"	10"	4"	
4	1788 and 1888	5"	5"	5"	10"	4"	

*24" minimum from waterline to header.

88 BURNERS



Burners for the 88 are designed and engineered to match the firing characteristics of the boiler. Several major brands of advance-design burners are available for firing light oil, gas, or combination gas-light oil (see table below).

All burners are the flame retention type, assuring optimum control of the fuel and air mixture for outstanding operating performance and maximum efficiency.

All burners are certified by UL. Optional controls and burners can be furnished to meet all insurance specifications and state and local code requirements.

REFER TO APPROPRIATE WEIL-McLAIN BURNER SPECIFICATION SHEETS FOR COMPLETE DETAILS. OR CONSULT WEIL-McLAIN REPRESENTATIVE.



Burner Mounting Plate—The standard-equipment steel plate is bolted to the front section and is equipped with refractory material that fits around the burner blast tube.

Both front and back sections have an observation port to permit close study of the flame.

BURNER MODELS

BURNERS FOR LIGHT OIL, GAS, OR COMBINATION GAS-LIGHT OIL

Boiler No.	Model	Power-Flame*	Gas/air Port	Carburetor**	Beckett**	
488	WJB1	WCR1	WR8	702CRD	CF1400	
588				801CRD	CF2300	
688		WCR2		1050FFH	CF2500	
788				1150FFH	CF3500	
888	WJB2	WCR3	WR10	Not Available	Not Available	
988						WCR4
1088						
1188						
1288						
1388						
1488						
1588						
1688						
1788						
1888						

*Power-Flame model WJA gas burner available for 488 through 788.
 **Carburetor and Beckett burners available for light oil only.

INTEGRAL FLUE GAS COLLECTOR, FLUE COLLAR



A horizontal flueway, cast into the boiler sections, serves as a flue gas collector. This feature eliminates the need for a separate sheet-metal collector hood.

The standard-equipment cast iron flue collar has a built-in breeching damper that can be locked in any position to maintain positive pressure over fire.

SHORT DRAW RODS—OPTIONAL INSPECTION TAPPINGS



Boiler sections are designed for faster assembly with multiple sets of short draw rods instead of a single, long rod with expansion washers. Short draw rods—a standard feature of Weil-McLain commercial boilers—permit a faster, strain-free assembly.

Inspection tappings (1/4") with brass plugs are optional for front, back, and intermediate sections at the bottom and at the crown sheet.

INSULATED JACKET

A steel jacket is standard equipment for the 88. The jacket is lined with a 1-inch blanket of fiberglass and is clear of the floor to prevent rust. The jacket can be installed after all piping connections have been made.

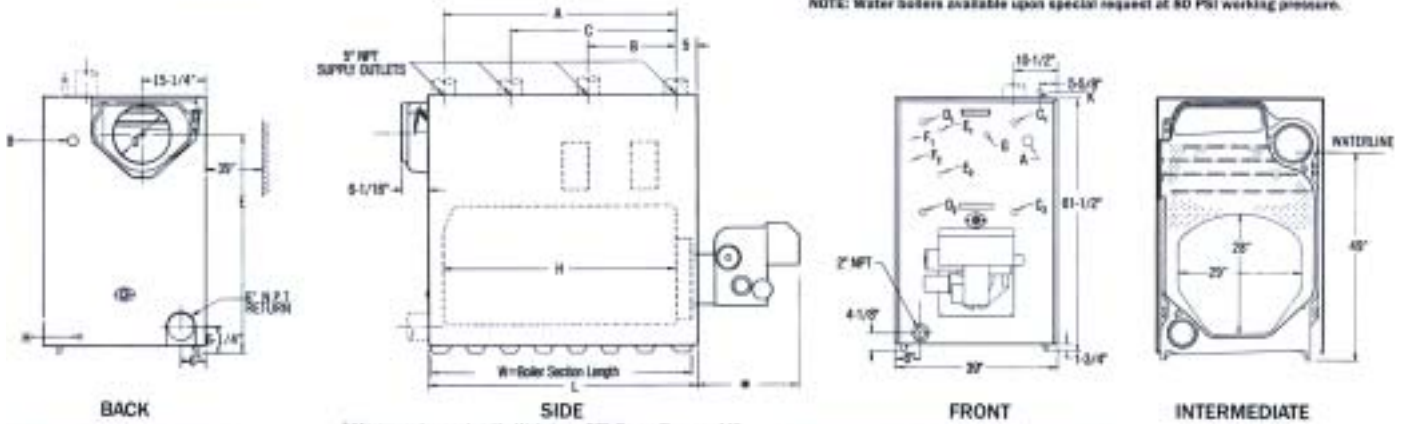
RATINGS



Boiler Unit Number Steam or Water	I-B-R Burner Capacity Δ		Gross I-B-R Output MBH Δ	Net I-B-R Ratings Δ			Boiler HP	Net Firebox Volume Cu. Ft.	Stack Gas Volume CFM Δ	Positive Pressure in Firebox \square	Approx. Shipping Wt. (Lbs.) Boiler Only	Boiler Water Content Gals. (water boiler)	I-B-R Vent Dia. Inches
	Light Oil GPH Δ	Gas MBH Δ		Steam Sq. Ft.	Steam MBH Δ	Water MBH Δ							
▲ 488R*F	6.9	998	754	2,483	596	690	23.7	11.02	370	.42	2,650	109	10
▲ 488*F	7.0	1,010	810	2,533	608	704	24.2	11.02	378	.43	2,650	109	10
▲ 588*F	9.4	1,357	1,084	3,388	813	943	32.4	14.45	507	.44	3,210	132	10
▲ 588*F	11.8	1,703	1,358	4,275	1,026	1,181	40.6	18.08	639	.46	3,770	155	10
▲ 788*F	14.2	2,049	1,632	5,225	1,254	1,419	48.8	21.61	772	.47	4,335	178	12
▲ 888*F	16.6	2,396	1,904	6,154	1,477	1,658	56.9	25.14	906	.49	4,895	201	12
▲ 988R*F	17.2	2,482	1,991	6,442	1,546	1,731	59.5	28.67	954	.45	5,450	224	14
▲ 988*F	18.8	2,713	2,176	7,038	1,689	1,892	65.0	28.67	1,031	.50	5,450	224	14
▲ 1088R*F	20.0	2,887	2,304	7,454	1,789	2,003	68.8	32.20	1,101	.49	6,020	247	14
▲ 1088*F	21.5	3,103	2,452	7,933	1,904	2,132	73.2	32.20	1,184	.52	6,020	247	14
▲ 1188*F	23.3	3,382	2,724	8,813	2,115	2,369	81.4	35.73	1,299	.53	6,580	270	14
▲ 1288*F	25.0	3,753	3,000	9,704	2,329	2,609	89.6	39.26	1,443	.55	7,145	293	14
▲ 1388*F	28.5	4,113	3,270	10,579	2,539	2,843	97.7	42.79	1,588	.56	7,705	315	14
▲ 1488*F	31.0	4,474	3,550	11,483	2,756	3,087	106.0	46.32	1,735	.58	8,270	339	16
▲ 1588*F	33.0	4,763	3,820	12,358	2,966	3,322	114.1	49.85	1,854	.59	8,830	362	16
▲ 1688R*F	34.5	4,979	3,980	12,875	3,090	3,461	118.9	53.38	1,945	.59	9,390	385	16
▲ 1688*F	35.5	5,124	4,090	13,229	3,175	3,557	122.2	53.38	2,002	.61	9,390	385	16
▲ 1788*F	38.0	5,485	4,370	14,138	3,393	3,800	130.5	56.91	2,152	.62	9,955	408	18
▲ 1888*F	40.5	5,845	4,640	15,008	3,602	4,035	138.6	60.44	2,303	.64	10,515	431	18

- ▲ Substitute "BL" for light oil, "BG" for gas, "BGL" for gas-light oil, or "H" for boiler only for use with approved burners. Add prefix "A" to designate for factory-assembled BS (example ABL-488). Substitute "P" for "D" for fire-tested package unit (example PL-488). Boilers with "R" in model number are furnished with reduced ratings.
- Substitute "S" for steam, "W" for water.
- For Intermediate section(s) and tankless heater(s) add suffix "(number required) TH"; for T-Intermediate section(s) with cover plate(s) only add suffix "(number required) TIF".
- Δ Burner input based on maximum of 3,000 ft. altitude - for higher altitudes consult Weil-McLain representative.
- ** No. 2 Fuel Oil - Commercial Standard Spec. CS75-56. Heat value of oil = 140,000 BTU/G.
- MBH refers to thousands of BTU per hour.

- Consult Burner Specification Sheets for gas pressure required.
 - + Gross I-B-R ratings have been determined under the I-B-R provision governing forced draft boiler/burner units.
 - ‡ Net I-B-R ratings are based on net installed radiation of sufficient quantity for the requirements of the building and nothing need be added for normal piping and pick-up. Water ratings are based on a piping and pick-up allowance of 1.15. Steam ratings are based on the following allowances: 488 and 588 - 1.33; 688 - 1.32; 788 - 1.30; 888 - 1.28; and 988 through 1888 - 1.28. An additional allowance should be made for gravity hot water systems or for unusual piping and pick-up loads. Consult Weil-McLain representative.
 - *** Stack gas volume at outlet temperature.
 - With 0.10" WC positive pressure at fire collar.
- NOTE: Water boilers available upon special request at 80 PSI working pressure.**



DIMENSIONS

Boiler No.	Safety Tappings No. & Size ¹		Relief Tappings No. & Size ¹		Dimensions (Inches)							
	Steam	Water	Steam	Water	A	B	C	D	E	H	L	W
488	2-5"	2-5"	1-6"	1-6"	23			10	54%	23%	32%	30
588	2-5"	2-5"	1-6"	1-6"	31			10	54%	31%	40%	38
688	2-5"	2-5"	1-6"	1-6"	39			10	54%	39%	48%	46
788	2-5"	2-5"	1-6"	1-6"	47			12	53%	47%	56%	54
888	2-5"	2-5"	1-6"	1-6"	55			12	53%	55%	64%	62
988	2-5"	2-5"	1-6"	1-6"	63			14	52%	63%	72%	70
1088	2-5"	2-5"	1-6"	1-6"	71			14	52%	71%	80%	78
1188	2-5"	2-5"	1-6"	1-6"	79			14	52%	79%	88%	86
1288	3-5"	2-5"	1-6"	1-6"	87	39 1/2		14	52%	87%	96%	94
1388	3-5"	2-5"	1-6"	1-6"	95	47 1/2		14	52%	95%	104%	102
1488	3-5"	2-5"	1-6"	1-6"	103	55 1/2		16	51%	103%	112%	110
1588	3-5"	2-5"	1-6"	1-6"	111	63 1/2		16	51%	111%	120%	118
1688	3-5"	2-5"	1-6"	1-6"	119	71 1/2		16	51%	119%	128%	126
1788	4-5"	2-5"	1-6"	1-6"	127	79 1/2	18 1/2	18 1/2	51%	127%	136%	134
1888	4-5"	2-5"	1-6"	1-6"	135	87 1/2	18 1/2	18 1/2	51%	135%	144%	142

¹Use recommended piping connections.
²For 18" diameter branching, flue collar is oval (18" x 36 1/4")

CONTROL TAPPINGS

Location	Size	Steam	Water
A	2"	Safety Valve and/or Skin Tapping	High-Limit Control
B	2"	Safety Valve	Pressure Relief Valve
C ₁	1"	—	Combination High-Limit and Low-Limit Control
C ₁ & C ₂	1"	Alternate Water Level Controls	Alternate Low-Water Cutoff
D ₁ & D ₂	1"	Water Level Controls	Low-Water Cutoff
E ₁ & E ₂	1/2"	Gauge Glass	—
F ₁ & F ₂	3/8"	Iry Cock Tappings	—
G	3/8"	Pressure Limit Control, Pressure Operating Control, and Pressure Gauge	Combination Pressure-Temperature-Altitude Gauge
H	3/8"	Drain	Drain
K	1"	—	Piping to Compression Tank or Automatic Air Vent

* Bushed to 1/2".



Locate our Sales Offices by visiting our website:
www.weil-mclain.com

Weil-McLain
 500 Blaine Street
 Michigan City, IN 46360-2388