

KETCHIKAN GATEWAY BOROUGH SCHOOL DISTRICT AGENDA
STATEMENT

No. 10 a.

MEETING OF January 25, 2023

Item Title:

CONSENT CALENDAR:

Motion to approve a contract with Schmolck Mechanical Contractor regarding Kayhi Phase two, Boiler 1 replacement.

REVIEWED BY:

[X] Superintendent
[X] Finance
[X] Maintenance

SUBMITTED BY Al Jacobson, Maintenance Director

CONTACT:

Al Jacobson 907 225 2146
Name Phone

APPROVED FOR SUBMITTAL


Superintendent

SUMMARY STATEMENT:

The School Board is being asked to approve a contract with Schmolck Mechanical Contractor regarding Kayhi Phase two, boiler 1 replacement. KGBSD entered a competitive IFB bidding process on Dec 9th, 2022. On January 4th, 2023 Schmolck Mechanical was identified as low bidder. No protests were received by the January 16, 2023 deadline.

ISSUE: Board Policy governs the district’s purchasing and contracting procedures. Board Policy requires Board approval for expenditures and financial obligations over \$25,000.00.

BACKGROUND:

In 1993 during the remodel and construction of Ketchikan High School 3 series 94 boilers were installed. With Boilers 1 and 2 being 15 section boilers designed to heat the building. Boiler 3 is a 15 section boiler originally designed to offset the heating demand of Mike Smithers Swimming pool. In 2019 and 2020 we experienced casting failures in Boilers 1 and 2. Successful repairs were made only to have casting failures in other sections occur. A phase 1 plan to replace Boiler 2 with 2 smaller more efficient Weil-Mclain series 88 heating plants (2a and 2b) was realized in 2020, construction was completed in the winter of 2020/21. With a very successful proof of concept completed. Phase 2 (1a and 1b) will show an even better fuel savings relegating boiler 3 to emergency standby status. Confidence is high this will give Kayhi 30 plus years of service life to its new heat generation system.

ATTACHMENTS:

- D Weil-McLain_88-Series2_Brochure; Weil-McLain_94-Series3_Brochure

RECOMMENDATION:

Approval of the contract with Schmolck Mechanical Contractor regarding Kayhi Phase two, Boiler 1 replacement.

FISCAL NOTE*

[] N/A EXPENDITURE
REQUIRED: \$ 354,235.00

RECOMMENDED ACTION:

“I move that the Board of Education **approve a contract with Schmolck Mechanical Contractor regarding Kayhi Phase two, Boiler 1 replacement in the amount of \$354,235.00.**”

88™ Series 2 Commercial Boiler
Weil-McLain®



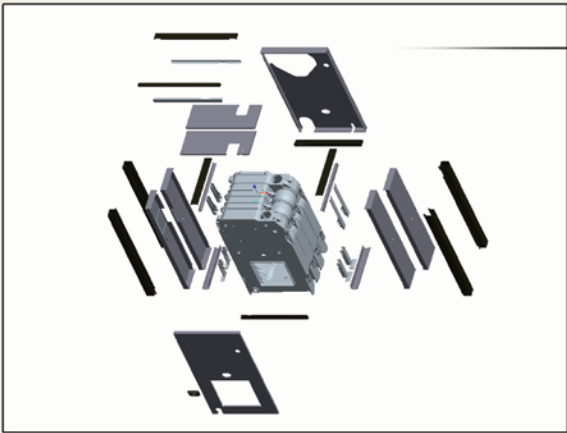
Gas, Oil & Gas/Oil
Water or Steam
MBH: 996-5,845
Combustion Eff.: Up to 87.5%

- **Up to 85.7% Thermal Efficiency**
- **Water or Steam**
- **Gas, Oil or Gas/Oil**
- **Complies to LEED**
- **Packaged or Knock-down**



WEIL-McLAIN®
www.weil-mclain.com





NEW Jacket design:

- Modular jacketing and toolless jacket panels for easy access
- 3 inches of insulation to minimize jacket losses, maximizing thermal efficiencies
- Modular side panels for ease of assembly
- High temperature site glass grommets
- Part number labels on all components for easy assembly

NEW Efficiencies!

- 85.7% Thermal Efficiencies (see ratings)
- HXT-bars optimize heat transfer



NEW clean-out plates:

- ¼ inch thick solid steel plates
- Coated Woven Fiberglass reusable gasket
- Reusable - cleaning after cleaning

Backwards Compatible:

- Can use up to 50% Series 2 iron on a Series 1 block without consulting Weil-McLain® – no need to stock both!

Standard Equipment

All Boilers:

- ASME 80 PSI rated cast iron sections
- Insulated steel jacket
- Power burner for light oil, gas or gas/light oil (except H-XX88)
- Burner mounting plate with refractory (except H-XX88)
- Cast iron flue collar with built-in breaching damper
- Observation ports on front and back sections
- Cleanout plates with reusable gaskets
- Flue brush
- HXT-bars
- 3 inches of insulation (except front panel)

Water Boilers

- 30 PSI ASME relief valve
- Combination high limit and low limit with manual reset control
- Combination pressure/temperature 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

Optional Equipment

- Factory assembled sections
- Burner mounting plate with refractory for "H" units
- Intermediates with tankless heater opening
- Tankless heaters for domestic hot water (water or steam boilers)
- Tankless heater opening cover plates
- Low water cutoffs
- Barometric dampers
- Side inspection tappings with plugs – 2 per section
- Dual-range manometer
- Optional burners and burner controls

Ratings

Model	I=B=R			I=B=R Net Rating				Flue Outlet (Dia)	Combustion Efficiency		Thermal Efficiency	
	Oil Input GPH	Gas Input MBH	Gross Output MBH	Steam MBH	Steam Sq. Ft.	Water MBH	Boiler H.P.		OIL	GAS	OIL	GAS
488R®	6.9	996	827	620	2,583	719	24.7	10 in.	87.5	84.8	85.6	83.1
488®	7.0	1,010	839	629	2,621	730	25.1	10 in.	87.5	84.8	85.6	83.1
588®	9.4	1,356	1,126	845	3,521	979	33.6	10 in.	87.0	84.4	85.6	83.1
688®	11.8	1,701	1,413	1,072	4,469	1,229	42.2	10 in.	86.7	84.1	85.6	83.1
788®	14.2	2,046	1,700	1,311	5,463	1,478	50.8	12 in.	86.5	83.9	85.6	83.1
888®	16.6	2,382	1,987	1,543	6,427	1,728	59.4	12 in.	86.3	83.7	85.6	83.1
988R®	17.2	2,482	2,062	1,601	6,671	1,793	61.6	14 in.	86.2	83.7	85.6	83.1
988®	18.8	2,737	2,274	1,766	7,358	1,977	67.9	14 in.	86.2	83.7	85.6	83.1
1088R®	20.0	2,887	2,399	1,863	7,763	2,086	71.7	14 in.	86.2	83.6	85.6	83.1
1088®	21.5	3,082	2,561	1,988	8,283	2,227	76.5	14 in.	86.2	83.6	85.6	83.1
1188®	23.5	3,428	2,848	2,211	9,213	2,477	85.1	14 in.	86.1	83.5	85.7	83.1
1288®	26.0	3,773	3,135	2,434	10,147	2,726	93.7	14 in.	86.0	83.5	85.7	83.1
1388®	28.5	4,119	3,422	2,657	11,071	2,976	102.2	14 in.	86.0	84.4	85.7	83.1
1488®	31.0	4,464	3,709	2,880	12,000	3,225	110.8	16 in.	86.0	83.4	85.7	83.1
1588	33.0	4,809	3,996	3,102	12,925	3,475	119.4	16 in.	85.9	83.3	85.7	83.1
1688R	34.5	4,979	4,137	3,212	13,383	3,597	123.6	16 in.	85.9	83.3	85.7	83.1
1688®	35.5	5,155	4,283	3,325	13,854	3,724	127.9	16 in.	85.9	83.3	85.7	83.1
1788®	38.0	5,494	4,570	3,548	14,783	3,974	136.5	18 in.*	85.9	83.3	85.7	83.1
1888®	40.5	5,845	4,857	3,771	15,713	4,123	145.1	18 in.*	85.9	83.3	85.7	83.1

- Burner input based on maximum of 2,000 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.
- Stack gas volume at outlet temperature
- With 0.10" WC positive pressure at flue collar.
- 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-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 115. Steam ratings are based on the following allowances: 488 and 588 - 1333; 688 - 1323; 788 - 1300; 888 - 1289; and 988 through 1888 - 1288. An additional allowance should be made for gravity hot water systems or for unusual piping and pick-up loads. Consult Weil-McLain® representative.
- Flue collar connection is oval, 16 1/8" x 19 7/8"



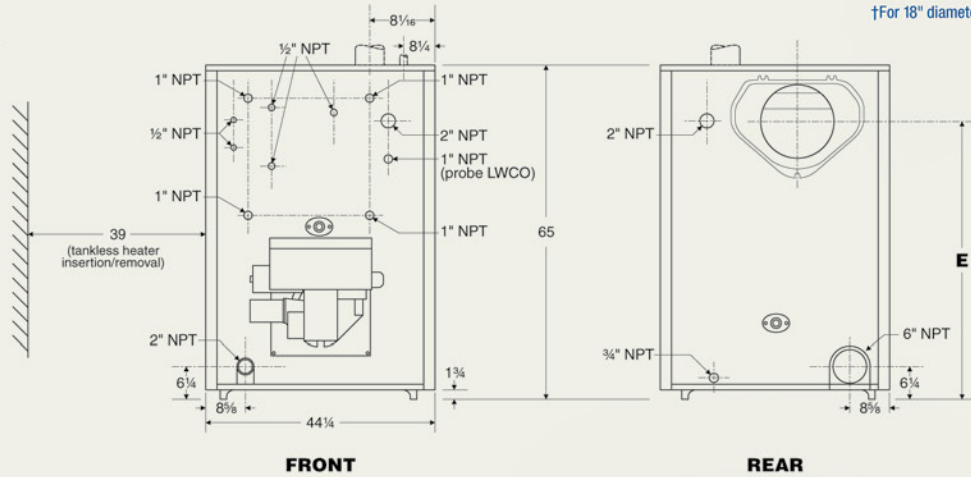
Dimensions (inches)								
Model	A	B	C	D	E	L	W	H
488®	23	—	—	10	54 ¾	34 ¾	30	23 ¾
588®	31	—	—	10	54 ¾	42 ¾	38	31 ¾
688®	39	—	—	10	54 ¾	50 ¾	46	39 ¾
788®	47	—	—	12	53 ¾	58 ¾	54	47 ¾
888®	55	—	—	12	53 ¾	66 ¾	62	55 ¾
988®	63	—	—	14	52 ¾	74 ¾	70	63 ¾
1088®	71	—	—	14	52 ¾	82 ¾	78	71 ¾
1188®	79	—	—	14	52 ¾	90 ¾	86	79 ¾
1288®	87	39 ½	—	14	52 ¾	98 ¾	94	87 ¾
1388®	95	47 ½	—	14	52 ¾	106 ¾	102	95 ¾
1488®	103	55 ½	—	16	51 ¾	114 ¾	110	103 ¾
1588®	111	63 ½	—	16	51 ¾	122 ¾	118	111 ¾
1688®	119	47 ½	—	16	51 ¾	130 ¾	126	119 ¾
1788®	127	31 ½	79 ½	18†	51 ¾	138 ¾	134	127 ¾
1888®	135	39 ½	87 ½	18†	51 ¾	146 ¾	142	135 ¾

†For 18" diameter breaching, flue collar is oval (19 1/8 x 16 1/16")

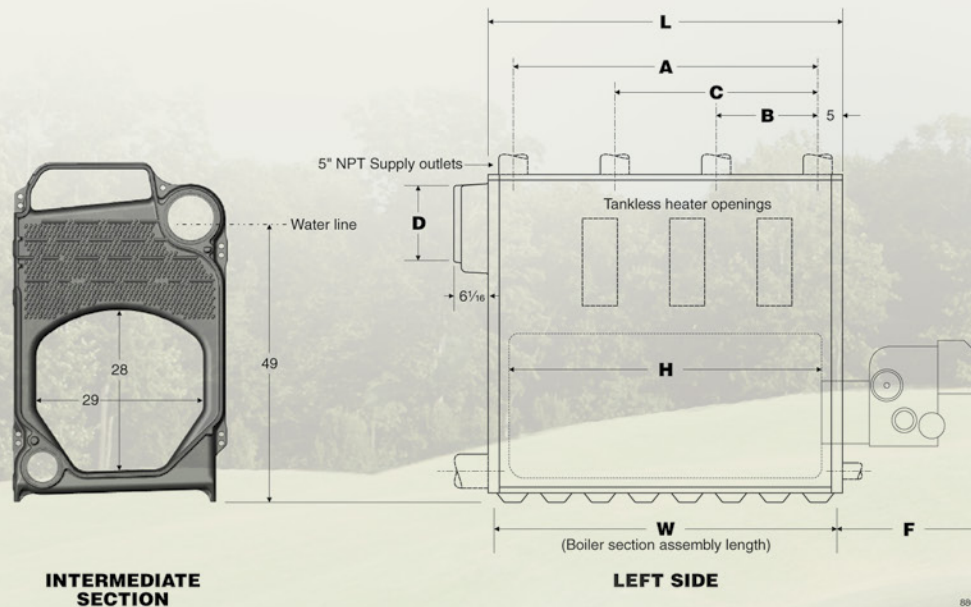
Model	Supply & return tapplings				Dimension F
	Supply tapplings (No. & size)*		Return tapplings (No. & size)*		
	Steam	Water	Steam	Water	
488R®	2-5"	2-5"	1-6"	1-6"	
488®	2-5"	2-5"	1-6"	1-6"	
588®	2-5"	2-5"	1-6"	1-6"	
688®	2-5"	2-5"	1-6"	1-6"	
788®	2-5"	2-5"	1-6"	1-6"	
888®	2-5"	2-5"	1-6"	1-6"	
988R®	2-5"	2-5"	1-6"	1-6"	
988®	2-5"	2-5"	1-6"	1-6"	
1088R®	2-5"	2-5"	1-6"	1-6"	
1088®	2-5"	2-5"	1-6"	1-6"	
1188®	2-5"	2-5"	1-6"	1-6"	
1288®	3-5"	2-5"	1-6"	1-6"	
1388®	3-5"	2-5"	1-6"	1-6"	
1488®	3-5"	2-5"	1-6"	1-6"	
1588®	3-5"	2-5"	1-6"	1-6"	
1688R®	3-5"	2-5"	1-6"	1-6"	
1688®	3-5"	2-5"	1-6"	1-6"	
1788®	4-5"	2-5"	1-6"	1-6"	
1888®	4-5"	2-5"	1-6"	1-6"	

*Use recommended piping connections.
†For 18" diameter breaching, flue collar is oval (19 1/8 x 16 1/16")

See Burner Specification & Data Sheets

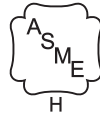


Model	I=B=R Vent or Liner Dia (in)		Boiler Flue Collar Dimensions (in)
	Forced Draft	Balanced Draft	
488®	10	12	10 round
588®	10	15	10 round
688®	12	15	10 round
788®	12	18	12 round
888®	14	18	12 round
988®	14	18	14 round
1088®	14	21	14 round
1188®	16	21	14 round
1288®	16	21	14 round
1388®	16	24	14 round
1488®	18	24	16 round
1588®	18	24	16 round
1688®	18	24	16 round
1788®	18	24	16 1/8 x 19 7/8 oval
1888®	20	27	16 1/8 x 19 7/8 oval



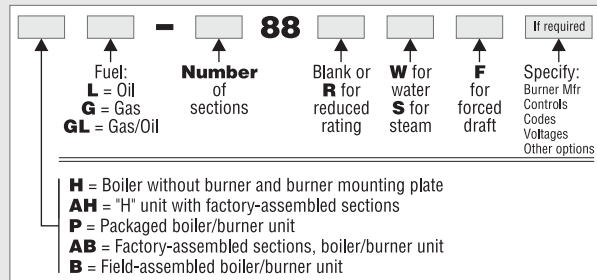


Ratings



Boiler model number	AHRI burner capacity		Gross AHRI output		Net AHRI ratings			Combustion efficiency		Thermal efficiency		Boiler H.P.	Net firebox volume	Flue gas volume	Flue outlet dia.	Boiler water content	Packaged boiler weight
	Light oil	Gas	Steam	Water	Steam	Steam	Water	Oil	Gas	Oil	Gas		Cubic feet	CFM	Inches	Gallons	Pounds
	GPH	MBH	MBH	MBH	Sq. Ft	MBH	MBH	%	%	%	%						
Notes: 1, 10	2, 3	2, 4	5, 6	5, 6	8	8	8	%	%	%	%	—	—	7	—	—	—
488R	6.9	996	827	833	2,583	620	719	87.5	84.8	85.6	83.1	24.7	11.02	376	10	109	2,860
488	7.0	1,010	839	844	2,621	629	730	87.5	84.8	85.6	83.1	25.1	11.02	370	10	109	2,860
588	9.4	1,356	1,126	1,135	3,521	845	979	87.0	84.4	85.6	83.1	33.6	14.45	507	10	132	3,340
688	11.8	1,701	1,413	1,424	4,469	1,072	1,229	86.7	84.1	85.6	83.1	42.2	18.08	639	10	155	3,820
788	14.2	2,046	1,700	1,713	5,463	1,311	1,478	86.5	83.9	85.6	83.1	50.8	21.61	772	12	178	4,345
788R	--	1999	1661	1673	5,463	1279	1,444	--	84.0	--	83.1	50.8	21.61	772	12	178	4,345
888	16.6	2,382	1,987	1,994	6,427	1,543	1,728	86.3	83.7	85.6	83.1	59.4	25.14	906	12	201	4,925
988R	17.2	2,482	2,062	2,080	6,671	1,601	1,793	86.2	83.7	85.6	83.1	61.6	28.67	1,031	14	224	5,600
988	18.8	2,737	2,274	2,294	7,358	1,766	1,977	86.2	83.7	85.6	83.1	67.9	28.67	954	14	224	5,600
1088R	20.0	2,887	2,399	2,419	7,763	1,863	2,086	86.2	83.6	85.6	83.1	71.7	32.20	1,184	14	247	6,130
1088	21.5	3,082	2,561	2,583	8,283	1,988	2,227	86.2	83.6	85.6	83.1	76.5	32.20	1,101	14	247	6,130
1188	23.5	3,428	2,848	2,873	9,213	2,211	2,477	86.1	83.5	85.7	83.1	85.1	35.76	1,299	14	270	6,695
1288	26.0	3,773	3,135	3,162	10,147	2,434	2,726	86.0	83.5	85.7	83.1	93.7	39.26	1,443	14	293	7,260
1388	28.5	4,119	3,422	3,456	11,071	2,657	2,976	86.0	84.4	85.7	83.1	102.2	42.79	1,588	14	316	7,890
1488	31.0	4,464	3,709	3,745	12,000	2,880	3,225	86.0	83.4	85.7	83.1	110.8	46.32	1,735	16	339	8,410
1588	33.0	4,809	3,996	4,035	12,925	3,102	3,475	85.9	83.3	85.7	83.1	119.4	49.85	1,854	16	362	9,005
1688R	34.5	4,979	4,137	4,182	13,383	3,212	3,597	85.9	83.3	85.7	83.1	123.6	53.38	2,003	16	385	9,525
1688	35.5	5,155	4,283	4,330	13,854	3,325	3,724	85.9	83.3	85.7	83.1	127.9	53.38	1,945	16	385	9,525
1788	38.0	5,494	4,570	4,615	14,783	3,548	3,974	85.9	83.3	85.7	83.1	136.5	56.91	2,152	18 *	408	9,780
1888	40.5	5,845	4,857	4,910	15,713	3,771	4,223	85.9	83.3	85.7	83.1	145.1	60.44	2,303	18 *	431	10,775

1. See below to specify complete model number.



2. Burner input based on maximum of 2,000 feet altitude. For other altitudes, consult Weil-McLain distributor/agent or sales office.
3. No. 2 fuel oil — Commercial Standard Spec CS75-56. Heating value of oil = 140,000 Btu per gallon.
4. Gas pressure required at burner gas train inlet for rated burner input; based on 1,000 Btu per cubic foot natural gas, specific gravity of 0.60. Refer to burner manual for required pressure.

5. Gross AHRI ratings have been determined under the AHRI provision governing forced draft boiler-burner units.
 6. Flue gas volume at outlet temperature.
 7. Net AHRI ratings are based on net installed radiation of sufficient quantity for the requirements of the building. 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 – 588 = 1.333; 688 = 1.323; 788 = 1.301; 888 = 1.289; 988 – 1888 = 1.288. An additional allowance should be made for gravity hot water systems or for unusual piping and pick-up loads. Consult local Weil-McLain distributor/agent or sales office.
 8. With 0.10" W.C. positive pressure at flue collar.
 9. Water boilers tested for 80 PSIG, ASME water working pressure. Steam boilers tested for 15 PSIG, ASME steam working pressure.
- * Flue collar connection is oval, 16 1/8" x 19 7/8"



Dimensions

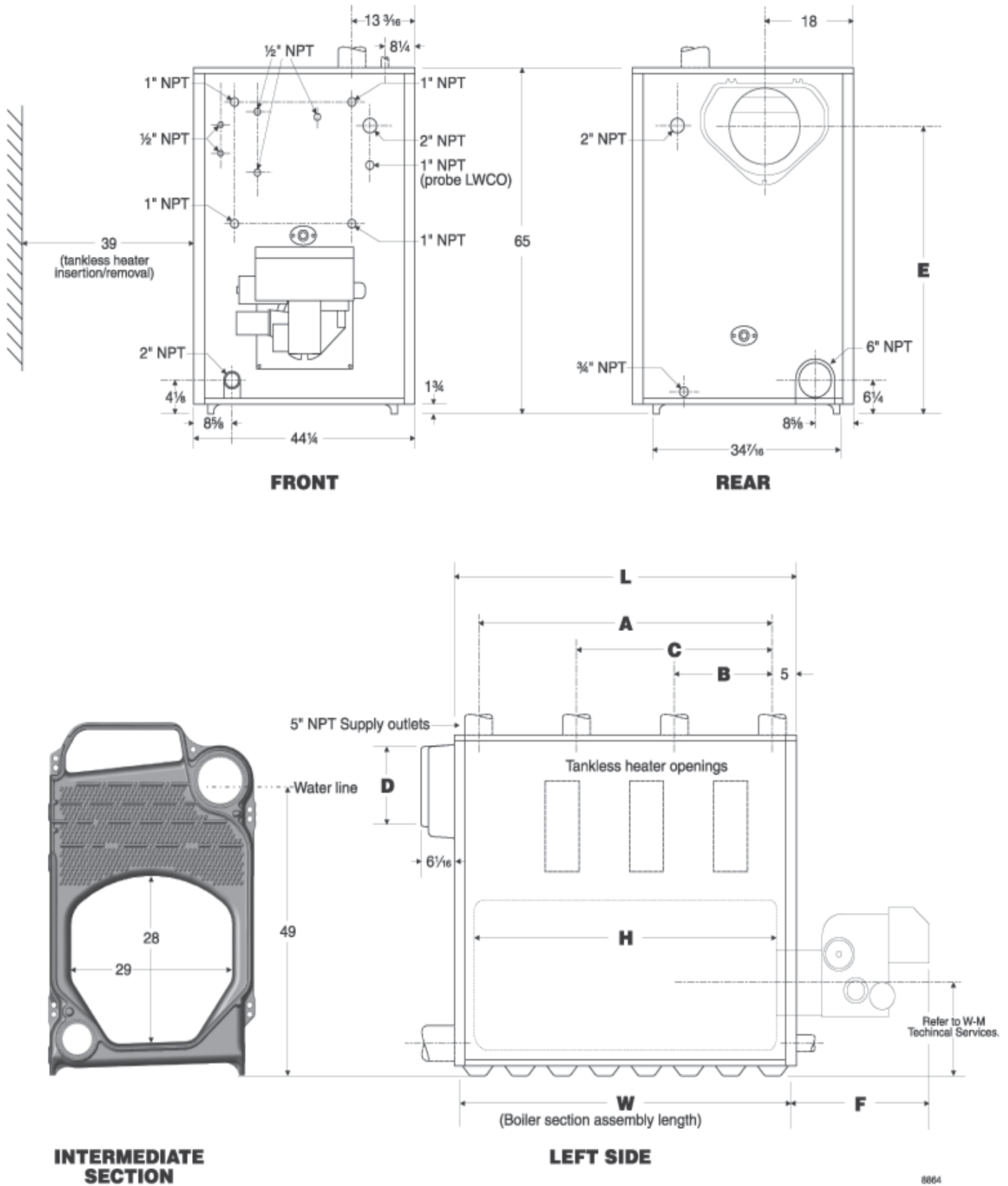
Dimensions (inches)								
Model	A	B	C	D	E	L	W	H
488	23	—	—	10	54 ³ / ₄	34 ³ / ₄	30	23 ³ / ₈
588	31	—	—	10	54 ³ / ₄	42 ³ / ₄	38	31 ³ / ₈
688	39	—	—	10	54 ³ / ₄	50 ³ / ₄	46	39 ³ / ₈
788	47	—	—	12	53 ³ / ₄	58 ³ / ₄	54	47 ³ / ₈
888	55	—	—	12	53 ³ / ₄	66 ³ / ₄	62	55 ³ / ₈
988	63	—	—	14	52 ³ / ₄	74 ³ / ₄	70	63 ³ / ₈
1088	71	—	—	14	52 ³ / ₄	82 ³ / ₄	78	71 ³ / ₈
1188	79	—	—	14	52 ³ / ₄	90 ³ / ₄	86	79 ³ / ₈
1288	87	39 ¹ / ₂	—	14	52 ³ / ₄	98 ³ / ₄	94	87 ³ / ₈
1388	95	47 ¹ / ₂	—	14	52 ³ / ₄	106 ³ / ₄	102	95 ³ / ₈
1488	103	55 ¹ / ₂	—	16	51 ³ / ₄	114 ³ / ₄	110	103 ³ / ₈
1588	111	63 ¹ / ₂	—	16	51 ³ / ₄	122 ³ / ₄	118	111 ³ / ₈
1688	119	47 ¹ / ₂	—	16	51 ³ / ₄	130 ³ / ₄	126	119 ³ / ₈
1788	127	31 ¹ / ₂	79 ¹ / ₂	16 ¹ / ₈ " x 19 ⁷ / ₈ " oval	51 ³ / ₄	138 ³ / ₄	134	127 ³ / ₈
1888	135	39 ¹ / ₂	87 ¹ / ₂		51 ³ / ₄	146 ³ / ₄	142	135 ³ / ₈

Model	Supply & return tapplings				Burner lengths (Dimension F)				
	Supply tapplings (No. & size)		Return tapplings (No. & size)		Carlin	Riello	Power-Flame	Beckett Oil	Beckett Gas
	Steam	Water	Steam	Water					
488R	2 – 5"	2 – 5"	1 – 6"	1 – 6"	21	33	31	21	29
488	2 – 5"	2 – 5"	1 – 6"	1 – 6"	21	33	31	21	30
588	2 – 5"	2 – 5"	1 – 6"	1 – 6"	21	33	31	21	30
688	2 – 5"	2 – 5"	1 – 6"	1 – 6"	21	33	34	22	30
788	2 – 5"	2 – 5"	1 – 6"	1 – 6"	21	33	34	22	30
888	2 – 5"	2 – 5"	1 – 6"	1 – 6"	21	49	34	22	30
988R	2 – 5"	2 – 5"	1 – 6"	1 – 6"	21	49	34	22	30
988	2 – 5"	2 – 5"	1 – 6"	1 – 6"	26	49	34	22	30
1088R	2 – 5"	2 – 5"	1 – 6"	1 – 6"	26	49	34	22	30
1088	2 – 5"	2 – 5"	1 – 6"	1 – 6"	26	49	34	22	30
1188	2 – 5"	2 – 5"	1 – 6"	1 – 6"	26	49	39	23	30
1288	3 – 5"	2 – 5"	1 – 6"	1 – 6"	26	49	39	23	30
1388	3 – 5"	2 – 5"	1 – 6"	1 – 6"	26	49	39	23	30
1488	3 – 5"	2 – 5"	1 – 6"	1 – 6"	26	49	39	—	30
1588	3 – 5"	2 – 5"	1 – 6"	1 – 6"	—	49	39	—	—
1688R	3 – 5"	2 – 5"	1 – 6"	1 – 6"	—	49	39	—	—
1688	3 – 5"	2 – 5"	1 – 6"	1 – 6"	—	49	39	—	—
1788	4 – 5"	2 – 5"	1 – 6"	1 – 6"	—	49	44	—	—
1888	4 – 5"	2 – 5"	1 – 6"	1 – 6"	—	56	44	—	—



Dimensions *(continued)*

Figure 52 Dimensions (see lettered dimensions on opposite page)



8864

Water & Steam Boilers – Series 2

For Gas, Light Oil, & Gas/Light Oil – Fired Burners

Burner Specification & Data Sheet

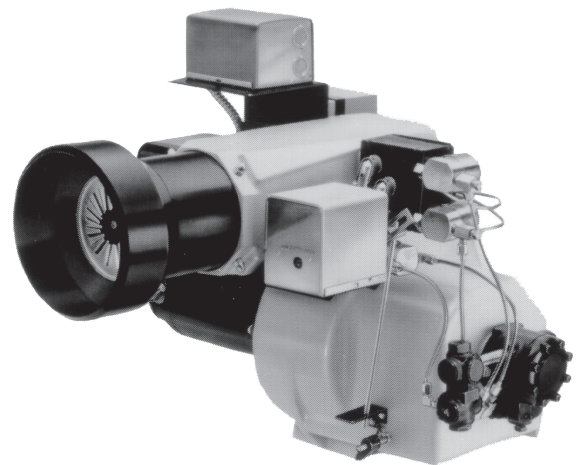
Beckett Oil Burners

Models CF1400-W, CF2300A-W,
CF2500-W, CF3500A-W

Figure 1 Model CF1400-W



Figure 2 Model CF2300A-W



Dimensions in Inches					
Burner Model Number	Length (From Mounting Flange To Label Area On Burner Front)	Overall Width	Motor Size H.P.	Standard Motor Electrical Characteristics	Optional Motor Electrical Characteristics
CF1400-W	20.75	22.50	1/2	120/60/1	208-240/60/1* 208-240-480/60/3
CF2300A-W	21.25	24.00	3/4	120/60/1	208-240/60/1* 208-240-480/60/3
CF2500-W	23.50	27.00	2	240/60/1	208-240-480/60/3
CF3500A-W	23.50	27.00	2	240/60/1	208-240-480/60/3

* Optional motor contactor supplied.



Burner specifications and settings

Table 1 Burner data

Boiler Model Number	Burner Input (Forced Draft) No. 2 Oil	Low Fire Firing Rate No. 2 Oil	Positive Pressure in Firebox	Standard Burner Model Designation	Becket Part Number for Ordering
	GPH	GPH	Inches W.C.		
488R	6.90	4.90	0.60	CF1400-W	WL 7001
488	7.00	5.00	0.60	CF1400-W	WL 7001
588	9.40	6.8	0.60	CF2300A-W	WL7101
688	11.80	8.51	0.65	CF2300A-W	WL7102
788	14.20	10.41	0.65	CF2300A-W	WL7103
888	16.60	8.30	0.65	CF2500A-W	WL7201
988R	17.20	11.60	0.65	CF2500A-W	WL7202
988	18.80	9.53	0.65	CF2500A-W	WL7202
1088R	20.00	9.54	0.65	CF2500A-W	WL7301
1088	21.50	11.26	0.65	CF2500-W	WL7301
1188	23.50	12.30	0.65	CF2500-W	WL7302
1288	26.00	13.00	0.65	CF3500A-W	WL7401
1388	28.50	15.00	0.70	CF3500A-W	WL7402

Boiler Model Number	Standard Combustion Control	Air Tube Combination	Starting Head Setting	Approximate Air Settings	
				Low Fire	High Fire
488R	Beckett 7505P1515/CC	CF66KD	4	39	54
488	Beckett 7505P1515/CC	CF66KD	4	39	54
588	Beckett 7505P1515/CC	CF66KG	0	34	42
688	Beckett 7505P1515/CC	CF66KG	3	41	51
788	Beckett 7505P1515/CC	CF66KG	6	43	54
888	Beckett 7505P1515/CC	CF66KP	2	25	50
988R	Beckett 7505P1515/CC	CF66KP	4	28	54
988	Beckett 7505P1515/CC	CF66KP	4	27	52
1088R	Honeywell RM7840M	CF66KP	8	29	59
1088	Honeywell RM7840M	CF66KP	8	29	59
1188	Honeywell RM7840M	CF66KP	3	29	44
1288	Honeywell RM7840M	CF80KM	3	31	63
1388	Honeywell RM7840M	CF80KM	6	33	98



Burner specifications and settings *(continued)*

Table 2 Burner data, continued

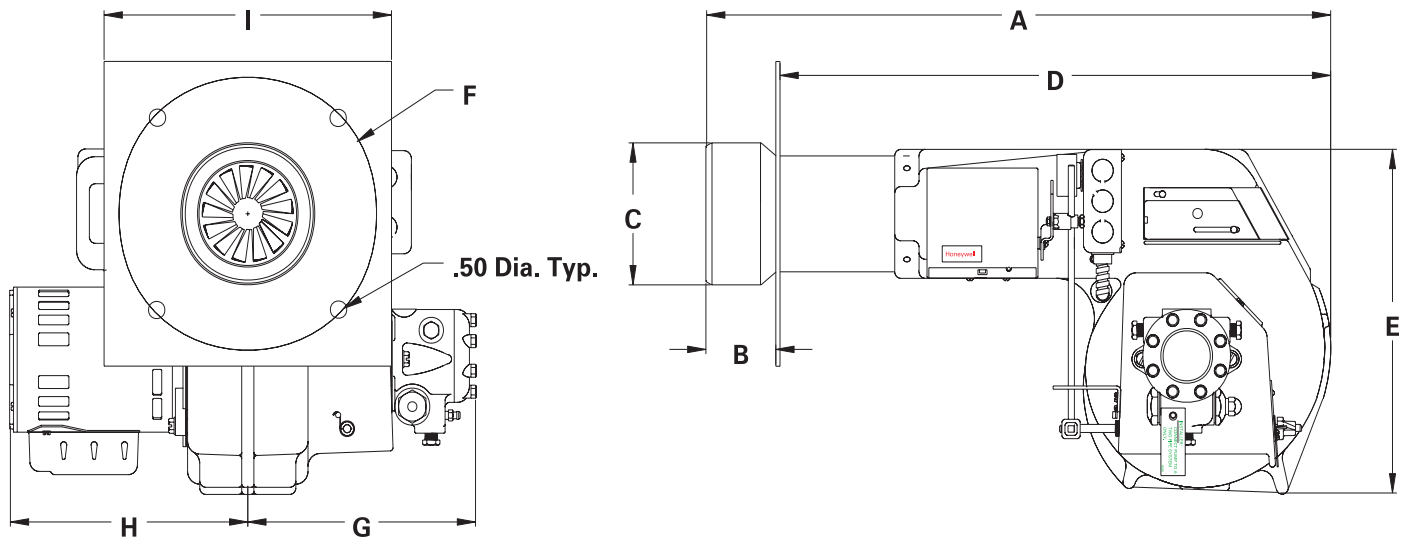
Boiler Model Number	Oil Nozzle(s)										Operating Oil Pressures PSIG		Fuel Unit Burner-Motor Driven 3450 RPM		
	Preferred nozzles					Alternate nozzles									
	Qty.	Size GPH	Brand	Type	Spray Angle	Qty.	Size GPH	Brand	Type	Spray Angle	Low Fire	High Fire	Type (Suntec)	Nozzle Capacity GPH	Gearset Capacity GPH
488R	1	4.00	Delavan	B	70°	None					150	290	B2TA-8851	16	33
488	1	4.00	Delavan	B	70°	None					150	300	B2TA-8851	16	33
588	1	5.50	Hago	P	60°	1	5.50	Delavan	B	60°	150	300	B2TA-8851	16	33
688	1	7.00	Delavan	B	60°	None					150	300	B2GA-8852	23	39
788	1	8.50	Delavan	B	60°	1	8.50	Hago	P	60°	150	300	J4PA-C1050G	30	46
888	2	5.00	Delavan	B	60°	2	5.00	Monarch	PLP	45°	300	300	J4PA-C1050G	30	46
988R	2	5.50	Hago	P	60°	2	5.50	Delavan	B	60°	290	290	J4PA-C1050G	30	46
988	2	5.50	Hago	P	60°	2	5.50	Delavan	B	60°	300	300	J4PA-C1050G	30	46
1088R	2	6.00	Delavan	B	70°	2	6.00	Delavan	B	60°	300	300	J4PA-C1050G	30	46
1088	2	6.50	Delavan	B	70°	2	6.50	Delavan	B	60°	300	300	J4PA-C1050G	30	46
1188	2	7.00	Delavan	B	45°	2	7.00	Delavan	B	60°	300	300	J4PA-C1050G	30	46
1288	2	7.50	Delavan	B	45°	2	7.50	Monarch	PLP	45°	300	300	J4PA-C1050G	30	46
1388	2	8.50	Delavan	B	60°	2	8.50	Hago	P	45°	300	300	J4PA-C1050G	30	46

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.
- 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.
- Control Systems:
 - LHO: On-off operation, low fire start, high fire run. Two-position air, two-position oil.
 - LHL: Low-high-low-off firing conditions. Two-position air, two-position oil.**
- 120/60/1 control circuit is used for all burners.
- Combustion Controls:
 - Beckett 7505P1515/CC combustion control uses cadmium cell for flame detector to monitor oil burner flame, also furnishes intermittent ignition.
 - RM7840M flame safeguard control monitors the oil 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. Photocell electronic flame detector is standard with ultraviolet and infrared detector available.
- Burners will be completely assembled and wired.
- Burners listed by Underwriters Laboratories, Inc., Underwriters Laboratory Canada, State of Connecticut, Fire Marshal state of Massachusetts, city of New York MEA, and others.
- Settings shown are for initial set-up. Final settings should be determined after combustion readings.



Burner dimensions



Dimensions in Inches										
Burner Model Number	Air Tube Combination	A	B	C	D	E	F	G	H	I
		Overall Length	Insertion Depth	Maximum Tube O.D.	Burner Length (External To Appliance)	Overall Height	Bolt Circle	Centerline To Pump	Centerline To Motor	Square Flange Width & Height
CF1400-W	CF66KD	24.75	4.00	5.50	20.63	13.50	10.25	9.50	9.82	12.00
CF2300A-W	CF66KG	25.25	4.00	6.50	21.13	15.60	10.25	10.40	12.00	12.00
CF2500-W	CF66KP	26.25	4.00	6.50	22.13	17.70	10.25	12.70	14.10	12.00
CF3500A-W	CF80KM	27.50	4.50	7.87	23.38	17.70	10.25	12.70	14.10	12.00

94 Commercial Boiler
Weil-McLain

Series 3
Gas, Oil & Gas/Oil
Water or Steam
MBH: 2,540-8,660
Combustion Eff.: 84%



- ▶ **PACKAGED FOR KNOCK DOWN**
- ▶ **EASY TO INSTALL AND SERVICE**
- ▶ **GAS, OIL, GAS/OIL**
- ▶ **WATER OR STEAM**
- ▶ **MADE WITH WEIL-McLAIN QUALITY**



Presenting... the Weil-McLain

No. 94 heavy-duty cast iron boiler is designed for heating apartments, schools, churches, offices, and other commercial and institutional buildings. The boiler is available for hot water or steam in 18 sizes with net I-B-R ratings from 1,763.5 to 6,060.9 MBH.

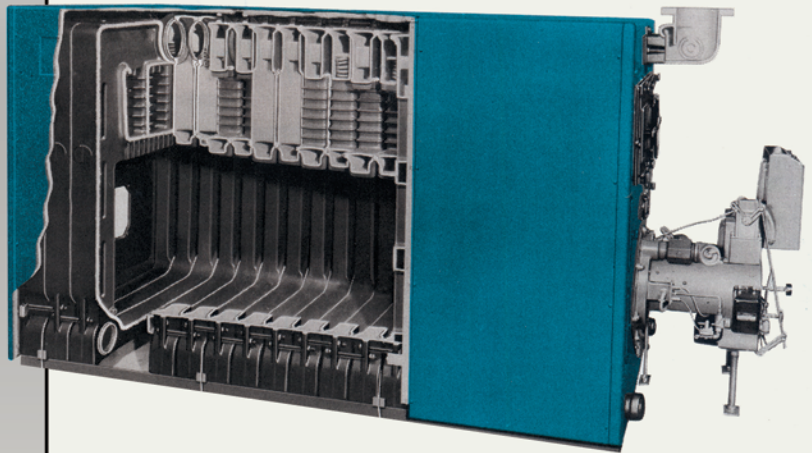
The 94 is available as a complete boiler-burner unit furnished with a light oil burner (BL Unit), power gas burner (BG Unit), or combination gas light oil burner (BGL Unit). It is also available as a boiler only (H Unit) for use with heavy oil burners approved by Weil-McLain.

In addition to total fuel flexibility, the 94 also features total installation flexibility: It is available in individual sections, with factory-assembled sections, or as a completely assembled and factory fire-tested package boiler.

The 94 features forced draft firing at over 80% operating efficiency. Outstanding design and construction features include provision for multiple tankless water heaters, patented section sealing method, Hydro-Wall wet-base design, insulated steel jacket, provision for easy cleaning, built-in air eliminator in water boilers, simplified piping no refractory combustion course, Weil-McLain cast iron construction.

Forced Draft Firing

The No. 94 boiler is pressurized for forced draft firing and therefore does not require a chimney for draft... only a 3-foot vent above the roof is necessary. 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: No mechanical draft equipment is required, boiler room space requirements are reduced, and a pressurized boiler is more energy efficient.



Design Features

1. Forced draft firing with light oil, gas combination gas-light oil, or heavy oil. Burner mounting plate furnished as standard equipment (additional equipment for heavy oil boilers).
2. Hydro-Wall design with water circulating completely around the combustion area... no refractory combustion chamber, no separate base.
3. Cast iron sections for corrosion resistance and extra long life... special sealing rope assures a gastight seal.
4. Short draw rods permit faster, easier assembly of boiler sections.
5. Patented section sealing method assures a watertight seal and reduces installation time.
6. Simplified piping reduces installation time. No return header necessary.
7. Multiple tankless heaters. Up to eight heaters can be installed in larger boilers.
8. Supply outlets with built-in air eliminator simplify piping.
9. Extra-large top port opening forms internal header for better water circulation... large steam area assures rapid production of dry steam.
10. Steel jacket finished in attractive blue hammerloid, completely insulated, designed for fast installation.
11. Designed for easy cleaning through front cleanout doors and openings.
12. Stronger boiler construction. H and T-shaped cross sections provide maximum design strength, 80 lbs. working pressure available.

Hydro Wall Design

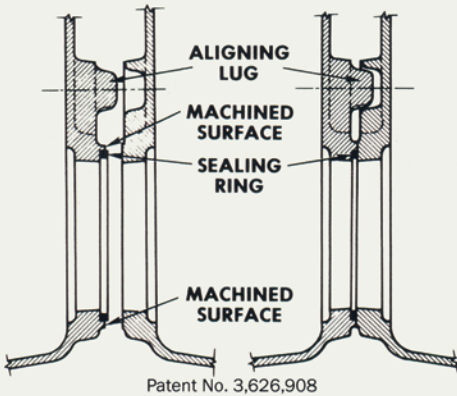
The No. 94 boiler has a water-backed combustion area with water circulating completely around the firebox. The crown sheet and sidewalls maximize heat-transfer surface.

Hydro-Wall section design also 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 rust and corrosion.

No Refractory Combustion Chamber

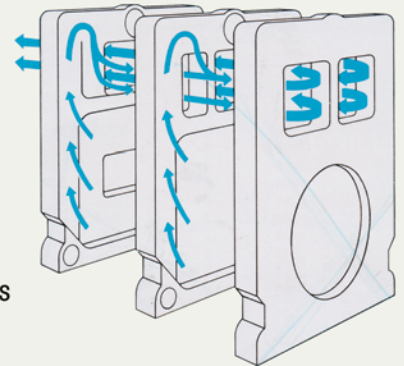
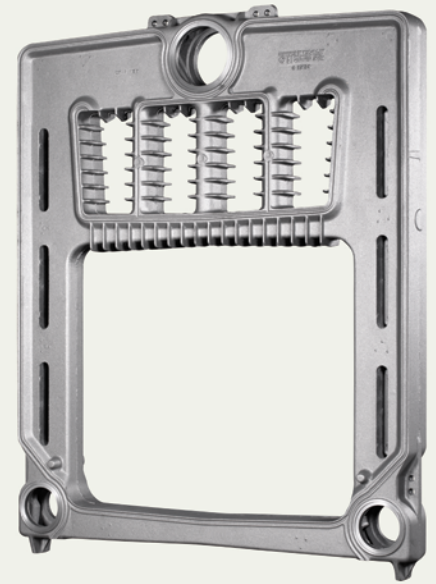
A refractory combustion chamber is not required for the 94 boiler because the combustion area is entirely surrounded by water, and flame retention burners do not require hot refractory for combustion. This feature of the boiler saves the cost of combustion chamber material, the labor to install it, and there is no future replacement cost.



Section Sealing Method

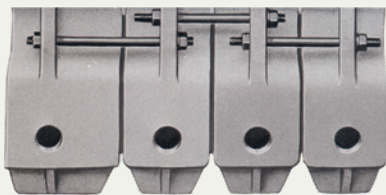
A flexible elastomer sealing ring is used in each port opening of the 94 boiler to assure a permanent, water-tight seal between sections. This sealing method, combined with the use of short draw rods to tie sections together, also permits faster section assembly.

As shown in the illustrations, the machined surface of the port opening controls the compression ratio of the sealing ring for a watertight seal. The aligning lugs assure proper section alignment during assembly and positive locking of the sections.



Flue Gas Traveler

Multiple uptakes, combined with “3-pass” design, force hot gases to wipe the entire flue area, assure balanced flue gas travel, and prevent shortcuts to the chimney. Extra-long flue gas travel and higher velocities increases heat absorption of the secondary heating surfaces.



Assembled with short draw rods

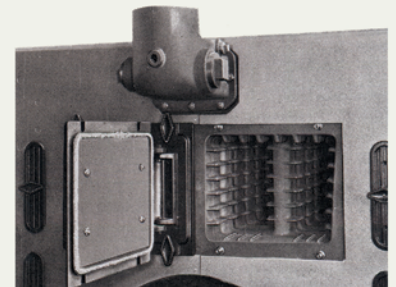
Multiple short draw rods, instead of a single long rod and expansion washers,

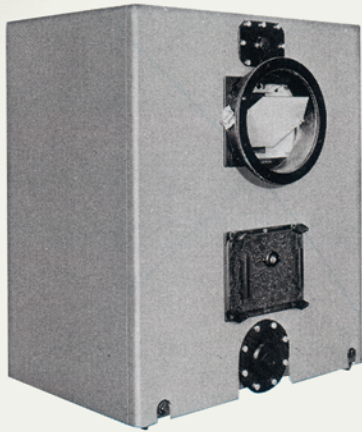
are used to tie the sections of the 94 boiler together. This is a standard feature of Weil-McLain boilers and is recognized by leading insurance companies. Short draw rods permit faster, easier assembly of boiler sections.

Tappings (1 1/2”) may be provided in front, back and intermediate sections for access to waterway areas and for inspection above the crown sheet and at the bottom of the boiler.

Front Cleanout Openings

The No. 94 boiler has two large cleanout doors that give complete access to center flueways for easy cleaning. These frameless doors are hinged to a center plate, sealed with rope, and made airtight by tightening the wing nuts. There are also six rope-sealed cleanout plates at the front of the boiler for cleaning the side flues.





No Return Header... Flanged flue collar

No separate return header is necessary for the 94 boiler, saving valuable installation time and material costs. Return water or condensate enters the center opening and is directed to the left and right port openings by internal vanes in the section.

For water boilers 894 through 1294 and all steam boilers, the center opening is

covered with a plate with a 6" tapping. For water boilers 1394 through 2094, the opening accepts a standard 8" counter flange; for water boilers 2194 through 2594, the opening accepts a 10" counter flange.

The flanged flue collar has a steel counter flange so the breeching may be welded to the collar of the gastight seal required for forced draft firing. (Note: 2294 through 2594 boilers are furnished with a counter flange with a 12-inch-long male adapter.) Rope seal between the flange and counter flange eliminates air leakage. The flue collar has a built-in breeching damper that can be locked in position to maintain positive pressure over fire.

The large access panel gives easy access to the firebox for servicing. The panel has a refractory liner; an additional refractory heat shield provides further cooling of the panel. An observation port on the access panel permits close study of the flame.

Supply Outlets

The 94 boiler requires only one or two supply outlets, which reduces installation time. All water boilers and the 894 steam boiler use one supply outlet; remaining steam boilers use two. Three types of supply outlets are furnished as standard equipment depending on boiler size: (1) supply elbow with 6" tapping, (2) supply elbow with 8" flanged opening, and (3) top outlet with 10" flanged opening (see table). The outlets feature a built-in trap, which separates the air from the water.

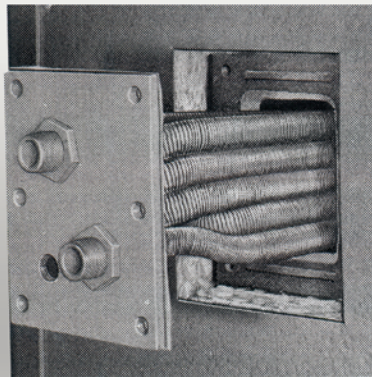


	One 6" Tapped Elbow	One 8" Flanged Elbow	Two 8" Flanged Elbow	One 10" Top Outlet	Two 10" Top Outlet
Water Boilers	894 through 1294	1394 through 2094	-	2194 through 2594	-
Steam Boilers	-	894	994 through 2094	-	2194 through 2594

Multiple Tankless Water Heaters

Up to eight tankless water heaters can be installed in the 94 boiler. Storage heaters are also available.

Multiple tankless heaters offer these advantages: (1) increased volume of hot water, (2) hot water at different temperatures, or (3) one heater for snow melting.



Domestic Water Heater Capacities Tankless Heaters*

Heater Number	**Intermittent Draw GPM 100° Average Temperature Rise	***Continuous Draw GPM 100° Temperature Rise	Inlet and Outlet Tappings
92-K-34	9 GPM	11 GPM	3/4"

*Weil-McLain ratings

**Gallons of water per min. heated 40° to 140° with 200°F. boiler water temp.

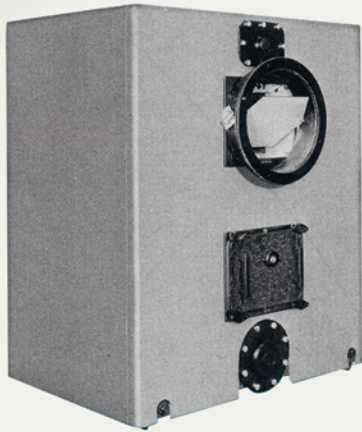
***Continuous draw—no recovery period.

Tankless Heater Section Location

Location of TI sections (intermediate sections with tankless heater opening) counting from front to back to match jacket knockouts.

Boiler	Max No. Of Heaters	All Heaters Must Be on R.H. Side of Boiler			
		Steam	Water	Steam	Water
894	3			2, 4, 6	
994	4			2, 4, 6, 8	
1094	4			2, 4, 7, 9	
1194	4			2, 4, 8, 10	
1294	5			2, 4, 6, 9, 11	
1394	5			2, 4, 6, 9, 11	
1494	6			2, 4, 6, 9, 11, 13	
1594	6			2, 4, 6, 10, 12, 14	
1694	7			2, 4, 6, 8, 11, 13, 15	
1794	7			2, 4, 6, 8, 11, 13, 15	
1894	8			2, 4, 6, 8, 11, 13, 15, 17	
1994	8			2, 4, 6, 9, 11, 14, 16, 18	
2094	8			2, 4, 6, 9, 11, 15, 17, 19	
		Steam	Water	Steam	Water
2194	5	5	7	2, 9, 11, 13, 20	6, 9, 11, 13, 16, 18, 20
2294	5	5	7	2, 9, 11, 13, 21	6, 9, 11, 13, 17, 19, 21
2394	6	6	8	2, 9, 11, 13, 15, 22	6, 9, 11, 13, 15, 18, 20, 22
2494	6	6	8	2, 9, 11, 13, 17, 23	6, 9, 11, 13, 17, 19, 21, 23
2594	7	7	8	2, 9, 11, 13, 15, 18, 24	6, 9, 11, 13, 17, 19, 21, 23

Note: If TI sections are ordered (see boiler rating table footnote), it is important to position them in the boiler section assembly in the exact location shown in the table above so that heater openings will match the jacket knockouts. If one or two TI sections are ordered with boiler, they MUST be located in one jacket panel because only ONE jacket side panel will have knockouts for tankless heaters. If more than two TI sections are ordered, additional jacket side panels with knockouts will be provided according to the table. The location of TI sections in other positions in the section assembly is possible, but jacket openings must then be cut by the installer.



No Return Header... Flanged flue collar

No separate return header is necessary for the 94 boiler, saving valuable installation time and material costs. Return water or condensate enters the center opening and is directed to the left and right port openings by internal vanes in the section.

For water boilers 894 through 1294 and all steam boilers, the center opening is

covered with a plate with a 6" tapping. For water boilers 1394 through 2094, the opening accepts a standard 8" counter flange; for water boilers 2194 through 2594, the opening accepts a 10" counter flange.

The flanged flue collar has a steel counter flange so the breeching may be welded to the collar of the gastight seal required for forced draft firing. (Note: 2294 through 2594 boilers are furnished with a counter flange with a 12-inch-long male adapter.) Rope seal between the flange and counter flange eliminates air leakage. The flue collar has a built-in breeching damper that can be locked in position to maintain positive pressure over fire.

The large access panel gives easy access to the firebox for servicing. The panel has a refractory liner; an additional refractory heat shield provides further cooling of the panel. An observation port on the access panel permits close study of the flame.

Supply Outlets

The 94 boiler requires only one or two supply outlets, which reduces installation time. All water boilers and the 894 steam boiler use one supply outlet; remaining steam boilers use two. Three types of supply outlets are furnished as standard equipment depending on boiler size: (1) supply elbow with 6" tapping, (2) supply elbow with 8" flanged opening, and (3) top outlet with 10" flanged opening (see table). The outlets feature a built-in trap, which separates the air from the water.

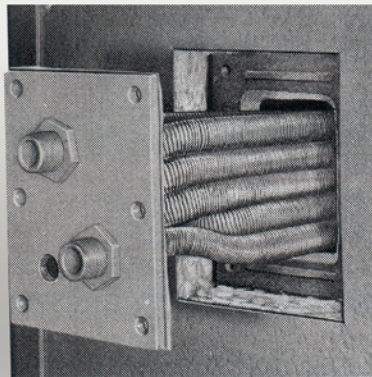


	One 6" Tapped Elbow	One 8" Flanged Elbow	Two 8" Flanged Elbow	One 10" Top Outlet	Two 10" Top Outlet
Water Boilers	894 through 1294	1394 through 2094	-	2194 through 2594	-
Steam Boilers	-	894	994 through 2094	-	2194 through 2594

Multiple Tankless Water Heaters

Up to eight tankless water heaters can be installed in the 94 boiler. Storage heaters are also available.

Multiple tankless heaters offer these advantages: (1) increased volume of hot water, (2) hot water at different temperatures, or (3) one heater for snow melting.



Domestic Water Heater Capacities Tankless Heaters*

Heater Number	**Intermittent Draw GPM 100° Average Temperature Rise	***Continuous Draw GPM 100° Temperature Rise	Inlet and Outlet Tappings
92-K-34	9 GPM	11 GPM	3/4"

*Weil-McLain ratings

**Gallons of water per min. heated 40° to 140° with 200°F. boiler water temp.

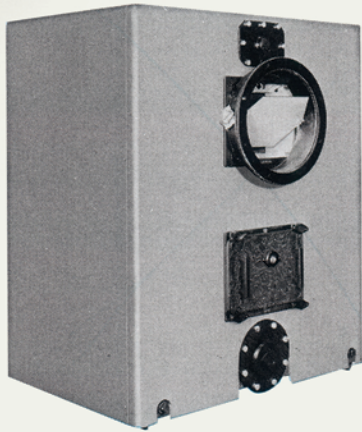
***Continuous draw—no recovery period.

Tankless Heater Section Location

Location of TI sections (intermediate sections with tankless heater opening) counting from front to back to match jacket knockouts.

Boiler	Max No. Of Heaters	All Heaters Must Be on R.H. Side of Boiler			
		Steam	Water	Steam	Water
894	3			2, 4, 6	
994	4			2, 4, 6, 8	
1094	4			2, 4, 7, 9	
1194	4			2, 4, 8, 10	
1294	5			2, 4, 6, 9, 11	
1394	5			2, 4, 6, 9, 11	
1494	6			2, 4, 6, 9, 11, 13	
1594	6			2, 4, 6, 10, 12, 14	
1694	7			2, 4, 6, 8, 11, 13, 15	
1794	7			2, 4, 6, 8, 11, 13, 15	
1894	8			2, 4, 6, 8, 11, 13, 15, 17	
1994	8			2, 4, 6, 9, 11, 14, 16, 18	
2094	8			2, 4, 6, 9, 11, 15, 17, 19	
		Steam	Water	Steam	Water
2194	5	7		2, 9, 11, 13, 20	6, 9, 11, 13, 16, 18, 20
2294	5	7		2, 9, 11, 13, 21	6, 9, 11, 13, 17, 19, 21
2394	6	8		2, 9, 11, 13, 15, 22	6, 9, 11, 13, 15, 18, 20, 22
2494	6	8		2, 9, 11, 13, 17, 23	6, 9, 11, 13, 17, 19, 21, 23
2594	7	8		2, 9, 11, 13, 15, 18, 24	6, 9, 11, 13, 17, 19, 21, 23

Note: If TI sections are ordered (see boiler rating table footnote), it is important to position them in the boiler section assembly in the exact location shown in the table above so that heater openings will match the jacket knockouts. If one or two TI sections are ordered with boiler, they MUST be located in one jacket panel because only ONE jacket side panel will have knockouts for tankless heaters. If more than two TI sections are ordered, additional jacket side panels with knockouts will be provided according to the table. The location of TI sections in other positions in the section assembly is possible, but jacket openings must then be cut by the installer.



No Return Header... Flanged flue collar

No separate return header is necessary for the 94 boiler, saving valuable installation time and material costs. Return water or condensate enters the center opening and is directed to the left and right port openings by internal vanes in the section.

For water boilers 894 through 1294 and all steam boilers, the center opening is

covered with a plate with a 6" tapping. For water boilers 1394 through 2094, the opening accepts a standard 8" counter flange; for water boilers 2194 through 2594, the opening accepts a 10" counter flange.

The flanged flue collar has a steel counter flange so the breeching may be welded to the collar of the gastight seal required for forced draft firing. (Note: 2294 through 2594 boilers are furnished with a counter flange with a 12-inch-long male adapter.) Rope seal between the flange and counter flange eliminates air leakage. The flue collar has a built-in breeching damper that can be locked in position to maintain positive pressure over fire.

The large access panel gives easy access to the firebox for servicing. The panel has a refractory liner; an additional refractory heat shield provides further cooling of the panel. An observation port on the access panel permits close study of the flame.

Supply Outlets

The 94 boiler requires only one or two supply outlets, which reduces installation time. All water boilers and the 894 steam boiler use one supply outlet; remaining steam boilers use two. Three types of supply outlets are furnished as standard equipment depending on boiler size: (1) supply elbow with 6" tapping, (2) supply elbow with 8" flanged opening, and (3) top outlet with 10" flanged opening (see table). The outlets feature a built-in trap, which separates the air from the water.

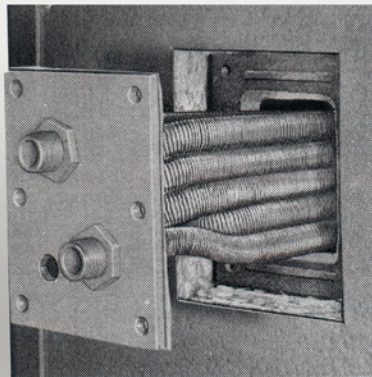


	One 6" Tapped Elbow	One 8" Flanged Elbow	Two 8" Flanged Elbow	One 10" Top Outlet	Two 10" Top Outlet
Water Boilers	894 through 1294	1394 through 2094	-	2194 through 2594	-
Steam Boilers	-	894	994 through 2094	-	2194 through 2594

Multiple Tankless Water Heaters

Up to eight tankless water heaters can be installed in the 94 boiler. Storage heaters are also available.

Multiple tankless heaters offer these advantages: (1) increased volume of hot water, (2) hot water at different temperatures, or (3) one heater for snow melting.



Domestic Water Heater Capacities Tankless Heaters*

Heater Number	**Intermittent Draw GPM 100° Average Temperature Rise	***Continuous Draw GPM 100° Temperature Rise	Inlet and Outlet Tappings
92-K-34	9 GPM	11 GPM	3/4"

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

Tankless Heater Section Location

Location of TI sections (intermediate sections with tankless heater opening) counting from front to back to match jacket knockouts.

Boiler	Max No. Of Heaters	All Heaters Must Be on R.H. Side of Boiler			
		Steam	Water	Steam	Water
894	3			2, 4, 6	
994	4			2, 4, 6, 8	
1094	4			2, 4, 7, 9	
1194	4			2, 4, 8, 10	
1294	5			2, 4, 6, 9, 11	
1394	5			2, 4, 6, 9, 11	
1494	6			2, 4, 6, 9, 11, 13	
1594	6			2, 4, 6, 10, 12, 14	
1694	7			2, 4, 6, 8, 11, 13, 15	
1794	7			2, 4, 6, 8, 11, 13, 15	
1894	8			2, 4, 6, 8, 11, 13, 15, 17	
1994	8			2, 4, 6, 9, 11, 14, 16, 18	
2094	8			2, 4, 6, 9, 11, 15, 17, 19	
		Steam	Water	Steam	Water
2194	5	5	7	2, 9, 11, 13, 20	6, 9, 11, 13, 16, 18, 20
2294	5	5	7	2, 9, 11, 13, 21	6, 9, 11, 13, 17, 19, 21
2394	6	6	8	2, 9, 11, 13, 15, 22	6, 9, 11, 13, 15, 18, 20, 22
2494	6	6	8	2, 9, 11, 13, 17, 23	6, 9, 11, 13, 17, 19, 21, 23
2594	7	7	8	2, 9, 11, 13, 15, 18, 24	6, 9, 11, 13, 17, 19, 21, 23

Note: If TI sections are ordered (see boiler rating table footnote), it is important to position them in the boiler section assembly in the exact location shown in the table above so that heater openings will match the jacket knockouts. If one or two TI sections are ordered with boiler, they MUST be located in one jacket panel because only ONE jacket side panel will have knockouts for tankless heaters. If more than two TI sections are ordered, additional jacket side panels with knockouts will be provided according to the table. The location of TI sections in other positions in the section assembly is possible, but jacket openings must then be cut by the installer.

Ratings

Boiler Unit No. Steam or Water	I=B=R Burner Capacity			I=B=R Burner Capacity				Net Sq. Ft. Water	Boiler H.P.	Net Firebox Volume Cu. Ft.	Stack Gas Volume CFM Light Oil & Gas	Draft Loss Through Boiler-in. H2O	I=B=R Chimney Size Vent Dia. Inches
	Light Oil GPH	Heavy Oil GPH	Gas MBH	Gross I=B=R Output MBH	Steam Sq. Ft.	Steam MBH	Water MBH						
894	17.50	16.65	2526	2,028	6,560	1,574	1,763	11,755	60.6	45.40	1088	.175	14
994	20.00	19.00	2887	2,320	7,505	1,801	2,017	13,450	69.3	51.48	1242	.215	14
1094	22.50	21.35	3247	2,612	8,450	2,028	2,271	15,140	78.0	57.58	1397	.255	16
1194	25.00	23.75	3608	2,904	9,395	2,254	2,525	16,835	86.7	63.64	1555	.295	16
1294	27.50	26.10	3969	3,190	10,320	2,476	2,773	18,490	95.3	69.72	1710	.335	16
1394	30.00	28.45	4330	3,480	11,260	2,701	3,026	20,175	104.0	75.80	1866	.375	18
1494	32.50	30.80	4691	3,770	12,195	2,927	3,278	21,855	112.6	81.88	2020	.415	18
1594	35.00	33.15	5052	4,070	13,165	3,159	3,539	23,595	121.6	87.96	2175	.455	18
1694	37.50	35.55	5412	4,360	14,105	3,385	3,791	25,275	130.2	94.04	2325	.485	18
1794	40.00	37.90	5773	4,650	15,045	3,610	4,043	26,955	138.9	100.12	2480	.525	20
1894	42.50	40.25	6134	4,940	15,980	3,835	4,295	28,640	147.6	106.20	2640	.565	20
1994	45.00	42.60	6495	5,230	16,920	4,060	4,542	30,285	156.2	112.28	2795	.605	20
2094	47.50	45.00	6856	5,520	17,855	4,285	4,800	32,000	164.9	118.36	2945	.650	20
2194	50.00	47.40	7216	5,810	18,795	4,510	5,052	33,675	173.6	124.44	3120	.750	20
2294	52.50	49.80	7577	6,100	19,735	4,736	5,304	35,360	182.2	130.52	3255	.850	22
2394	55.00	52.20	7938	6,390	20,670	4,961	5,556	37,045	190.9	136.60	3410	.950	22
2494	57.50	54.60	8299	6,680	21,610	5,186	5,808	38,725	199.6	142.68	3565	1.050	22
2594	60.00	57.00	8660	6,970	22,550	5,411	6,060	40,406	208.2	148.76	3730	1.150	22

- Burner input based on maximum of 2,000 ft. altitude-for higher altitudes consult Weil-McLain applications Engineering Department.
- No. 2 oil-Commercial standard spec. CS75-56. Heat value 140,000 BTU/G.
- Consult Weil-McLain Applications Engineering Department 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 quality 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 115. Steam ratings on an allowance of 1,288.
- An additional allowance should be made for gravity hot water systems or for unusual piping and pick-up loads. Consult Weil-McLain Applications Engineering Department.
- Based on average water temperature of 170F. In heat distributing units.
- Stack gas volume at outlet temperature.
- Add 100 to obtain firebox pressure.

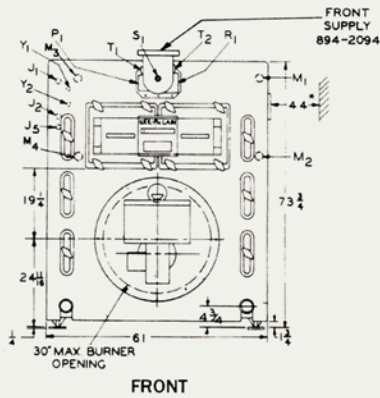
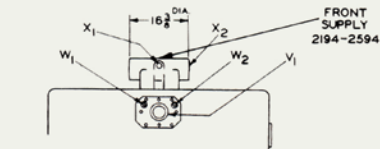
Control Tappings

Identification	Location	Size	Steam		Water	
			Description	Location	Description	Location
J1†	Front Section	1/2"	See J1 and J5	-	High Limit Control or Pressure Gauge	AL
J2†	Front Section	1/2"	Plug	NA	Plug	NA
J5†	Front Section	1/2"	See J1 and J5	-	Plug	NA
J1† & J5†	Front Section	1/2"	Gauge Glass	DL	-	-
M1† & M2†	Front Section	1"	Low-Water Cutoff; or Low-Water Cutoff & Pump Control; or Low-Water Cutoff & Feeder Combination	DL	Low-Water Cutoff; or Low-Water Cutoff & Feeder Combination	DL
M3† & M4†	Front Section	1"	Low-Water Cutoff; or Low-Water Cutoff & Pump Control; or Low-Water Cutoff & Feeder Combination	AL	Low-Water Cutoff; or Low-Water Cutoff & Feeder Combination	AL
P1*	Front Supply Elbow	3"	Skim Tapping	AL	High Limit or Dual Operating and Limit Control	DL
P2	Back Supply Elbow	3"	•Steam Safety Valve (994 through 2094 boilers only)	DL	-	-
R1*	Front Supply Elbow	4"	Skim Tapping	DL	Plug	NA
R2	Back Supply Elbow	4"	•Steam Safety Valve (1294 through 2094 boilers only)	DL	-	-
S1*	Front Supply Elbow	3/4"	Steam Pressure Gauge and/or Pressure Limit & Operating Controls	DL	-	-
S2	Back Supply Elbow	3/4"	Pressure Limit and Operating Control (994-2094 only)	AL	-	-
T1†*	Front Supply Elbow	1 1/4"	Pressure Limit and Operating Control	AL	Piping to Compression Tank or Pressure Gauge	DL
T2†*	Front Supply Elbow	1 1/4"	Pressure Limit and Operating Control (and Firing Rate Control, where used)	DL	Piping to Compression Tank or Pressure Gauge	DL
T3†	Back Supply Elbow	1 1/4"	•Pressure Limit and Operating Control (Steam Safety Valve 1094 & 1194 steam boilers only)	AL	-	-
T4†	Back Supply Elbow	1 1/4"	•Pressure Limit and Operating Control (Steam Safety Valve 1094 & 1194 steam boilers only)	AL	-	-
U1▲	Back Outlet Cover	2"	•Steam Safety Valve (894 steam boilers only)	DL	•Pressure Relief Valve (2094 through 2594)	DL
U2▲	Back Outlet Cover Plate	2"	Plug (894 steam boilers only)	NA	•Pressure Relief Valve (2094 through 2594; Plug (894 through 1994)	DL
V1	Front Outlet Cover Plate	4"	•Steam Safety Valve and Skim Tapping	DL	Fire Rate Control	DL
W1	Front Outlet Cover Plate	3/4"	Pressure Limit Control, Pressure Operating Control and Firing Rate Control	DL	Combination High-Limit and Low-Limit Control; or High-Limit Control	DL
W2	Front Outlet Cover Plate	3/4"	Steam Pressure Gauge	DL	Combination Pressure-Temperature-Altitude Gauge; or Temp Gauge	DL
V2◆	Back Outlet Cover Plate	4"	•Steam Safety Valve and Skim Tapping	DL	-	DL
W3◆	Back Outlet Cover Plate	3/4"	Pressure Limit and Operating Control	AL	-	-
W4◆	Back Outlet Cover Plate	3/4"	Pressure Limit and Operating Control	AL	-	-
X1†	10" Front Supply Outlet	1 1/4"	Pressure Gauge	AL	Pressure Gauge	AL
X2†	10" Front Supply Outlet	1 1/4"	Plug	NA	Piping to Compression Tank	DL
X3◆	10" Back Supply Outlet	1 1/4"	Pressure Gauge	AL	-	-
X4◆	10" Back Supply Outlet	1 1/4"	Pressure Gauge	NA	-	-
Y1†	Front Section	3/8"	Try Cock	-	Plug	-
Y2†	Front Section	3/8"	Try Cock	-	Plug	-

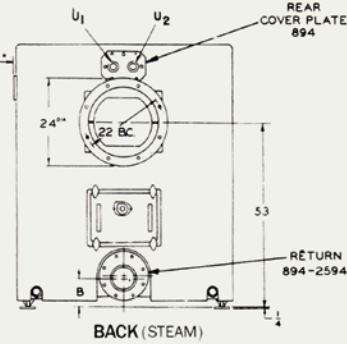
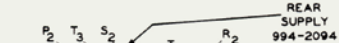
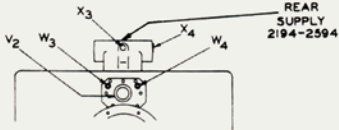
- DL - Most Desired Location AL - Alternate Location NA - Not Allowed
- NOTES:
1. Tappings Marked optional will be provided only when specified on the boiler order.
 2. Try Cock Tappings are standard for front section and optional for back section.
 - † Do not use these tappings for operating control location on water boilers.
 - * Furnished with 894 through 2094 steam and water boilers only.
 - ◆ When internal water heater (s) are installed in boiler, use temperature control tapping in heater plate for additional operating (low-limit) control.
 - Furnished with 994 through 2094 steam boilers only.
 - ▲ Furnished with 894 steam boiler only, and 894 through 2594 water boilers.
 - Furnished with 2194 through 2594 steam and water boilers only.
 - ◆ Furnished with 2194 through 2594 steam boilers only.
 - For 894 and 994 steam boilers, one Steam Safety Valve is furnished; 1094 through 2594 steam boilers are furnished with two Steam Safety Valves.
 - For 894 through 1994 water boilers, one Pressure Relief Valve is furnished; 2094 through 2594 water boilers are furnished with two Pressure Relief Valves.

Boiler No.	Water		Steam		A	B		C	D		E	F		J	L	W
	Supply Outlet No. & Size	Return Inlet Size	Supply Outlet Size	Return Inlet Size	Steam Only	Water	Steam		Water	Steam		Light Oil	Gas & Gas-Oil	Steam Only		
894	1-6"	6"	1-8"	6"	-	7 ^{11/16}	7 ^{11/16}	45	-	-	76	29 ^{1/2}	25	-	52 ^{1/2}	51
994	1-6"	6"	2-8"	6"	77 ^{5/8}	7 ^{11/16}	7 ^{11/16}	51	-	-	76	29 ^{1/2}	25	16 ^{3/8}	58 ^{1/2}	57
1094	1-6"	6"	2-8"	6"	83 ^{5/8}	7 ^{11/16}	7 ^{11/16}	57	-	-	76	21 ^{1/4}	25	16 ^{3/8}	64 ^{1/2}	63
1194	1-6"	6"	2-8"	6"	89 ^{5/8}	7 ^{11/16}	7 ^{11/16}	63	-	-	76	24 ^{15/16}	25	16 ^{3/8}	70 ^{1/2}	69
1294	1-6"	6"	2-8"	6"	95 ^{5/8}	7 ^{11/16}	7 ^{11/16}	69	-	-	76	24 ^{15/16}	25	16 ^{3/8}	76 ^{1/2}	75
1394	1-8"	8"	2-8"	6"	101 ^{5/8}	8 ^{3/8}	7 ^{11/16}	75	-	-	76	24 ^{15/16}	25	16 ^{3/8}	82 ^{1/2}	81
1494	1-8"	8"	2-8"	6"	107 ^{5/8}	8 ^{3/8}	7 ^{11/16}	81	-	-	76	24 ^{15/16}	30 ^{1/4}	16 ^{3/8}	88 ^{1/2}	87
1594	1-8"	8"	2-8"	6"	113 ^{5/8}	8 ^{3/8}	7 ^{11/16}	87	-	-	76	24 ^{15/16}	30 ^{1/4}	16 ^{3/8}	94 ^{1/2}	93
1694	1-8"	8"	2-8"	6"	119 ^{5/8}	8 ^{3/8}	7 ^{11/16}	93	-	-	76	24 ^{15/16}	30 ^{1/4}	16 ^{3/8}	100 ^{1/2}	99
1794	1-8"	8"	2-8"	6"	125 ^{5/8}	8 ^{3/8}	7 ^{11/16}	99	-	-	76	24 ^{15/16}	30 ^{1/4}	16 ^{3/8}	106 ^{1/2}	105
1894	1-8"	8"	2-8"	6"	131 ^{5/8}	8 ^{3/8}	7 ^{11/16}	105	-	-	76	24 ^{15/16}	30 ^{1/4}	16 ^{3/8}	112 ^{1/2}	111
1994	1-8"	8"	2-8"	6"	137 ^{5/8}	8 ^{3/8}	7 ^{11/16}	111	-	-	76	30 ^{3/4}	30 ^{1/4}	16 ^{3/8}	118 ^{1/2}	117
2094	1-8"	8"	2-8"	6"	143 ^{5/8}	8 ^{3/8}	7 ^{11/16}	117	-	-	76	30 ^{3/4}	30 ^{1/4}	16 ^{3/8}	124 ^{1/2}	123
2194	1-10"	10"	2-10"	6"	72	8 ^{3/8}	7 ^{11/16}	123	17 ^{1/4}	29 ^{1/4}	82 ^{1/2}	30 ^{3/4}	30 ^{1/4}	-	130 ^{1/2}	129
2294	1-10"	10"	2-10"	6"	78	8 ^{3/8}	7 ^{11/16}	129	17 ^{1/4}	29 ^{1/4}	82 ^{1/2}	30 ^{3/4}	30 ^{1/4}	-	136 ^{1/2}	135
2394	1-10"	10"	2-10"	6"	84	8 ^{3/8}	7 ^{11/16}	135	17 ^{1/4}	29 ^{1/4}	82 ^{1/2}	37 ^{3/4}	37 ^{3/4}	-	142 ^{1/2}	141
2494	1-10"	10"	2-10"	6"	90	8 ^{3/8}	7 ^{11/16}	141	17 ^{1/4}	29 ^{1/4}	82 ^{1/2}	37 ^{3/4}	37 ^{3/4}	-	148 ^{1/2}	147
2594	1-10"	10"	2-10"	6"	96	8 ^{3/8}	7 ^{11/16}	147	17 ^{1/4}	29 ^{1/4}	82 ^{1/2}	37 ^{3/4}	37 ^{3/4}	-	154 ^{1/2}	153

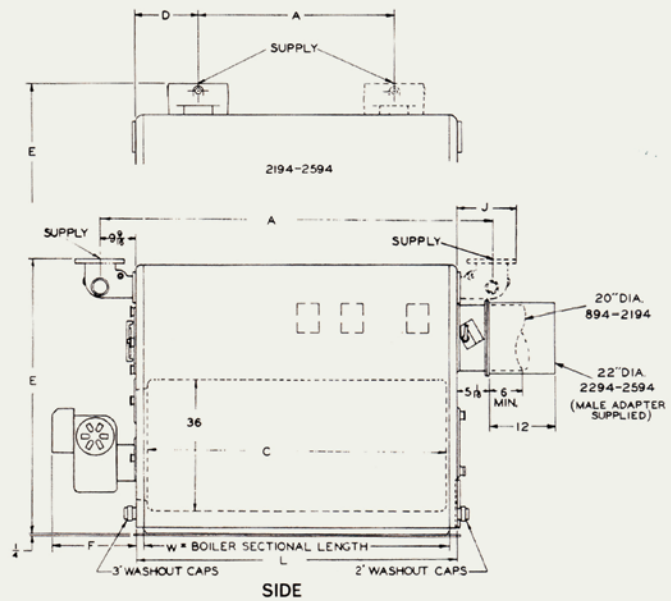
*All 6" supply outlets are tapped—all 8" and 10" supply outlets are flanged. 6" return is tapped.



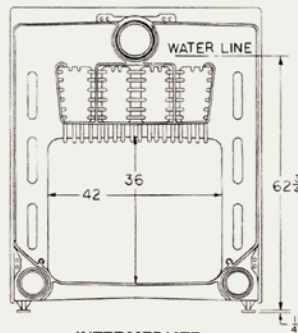
FRONT



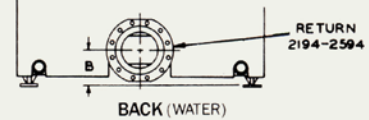
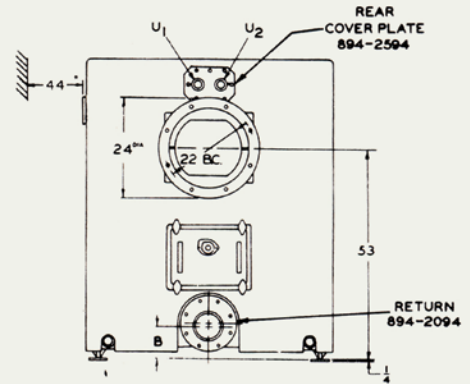
BACK (STEAM)



SIDE



INTERMEDIATE



BACK (WATER)

*Minimum clearance for tankless heater.

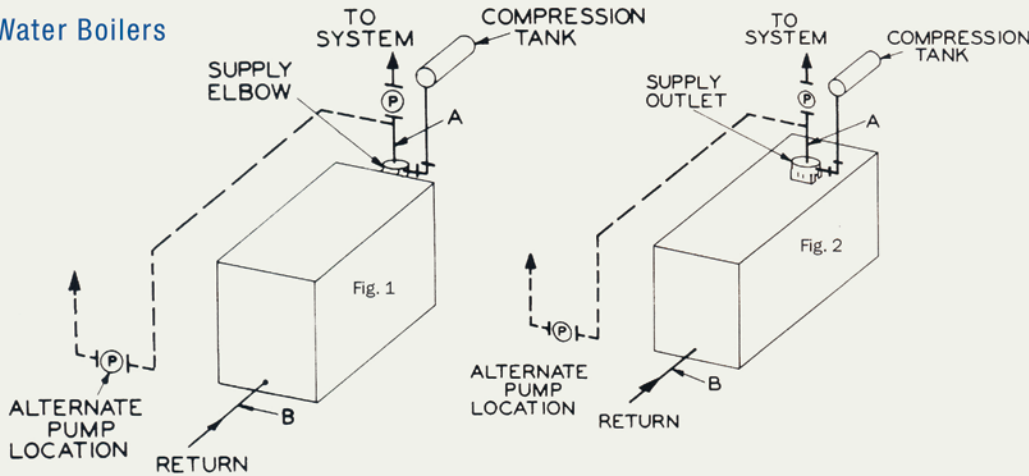
94 Output 2,028-6,970 MBH (60-208 HP)

- 3 pass heat exchange design for maximum heat transfer
- Approved for heavy oil

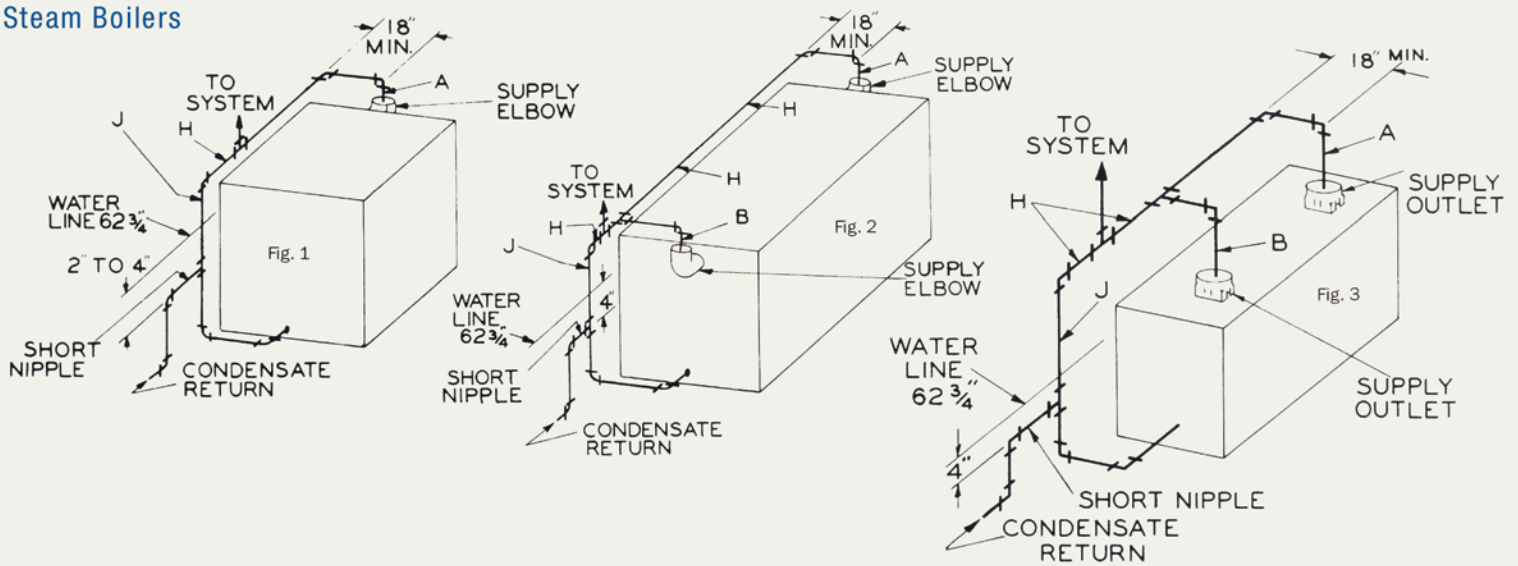


Oil	Gas
Combustion 84%	81%
Thermal 83%	81%

Water Boilers



Steam Boilers



Standard Equipment

All Boilers

- Insulated Flush Jacket
- Flue Collar with Built-in Breeching Damper
- Front Cleanout Doors and Wing Nuts
- Front Cleanout Plates and Wing Nuts
- Back Access Door
- Flue Brushes and Handles
- TwoClose Nipples and Caps for Washout
- Tappings on Front Section
- Supply Elbow(s) or Top Outlet(s)

Water Boilers

- ASME Safety Relief Valve
- Combination High-Limit and Low-Limit Control
- Combination Pressure-Temperatures-

Steam Boilers

- ASME Side Outlet Safety Valve
- Low-Limit and High-Limit Pressure Controls
- 4.2" Steam Pressure Gauge
- Syphon
- Gauge Glass
- Gauge Cocks

Additional Equipment

Optional Equipment

- Factory-Assembled Sections (894-2194 only)
- Fire-Tested Package Units
- Burner Controls
- Water Level Controls and Low-Water Cutoffs
- Barometric Damper
- 1.2" Side Inspection Openings with Plugs
- 80 PSI Working Pressure
- Manometer
- Tankless Heater(s)
- Flame Retention Oil, Gas, or Gas/Oil Burner
- Burner Mounting Plate with Refractory