Model 4WI

Dimensions and Ratings 100 - 800 HP

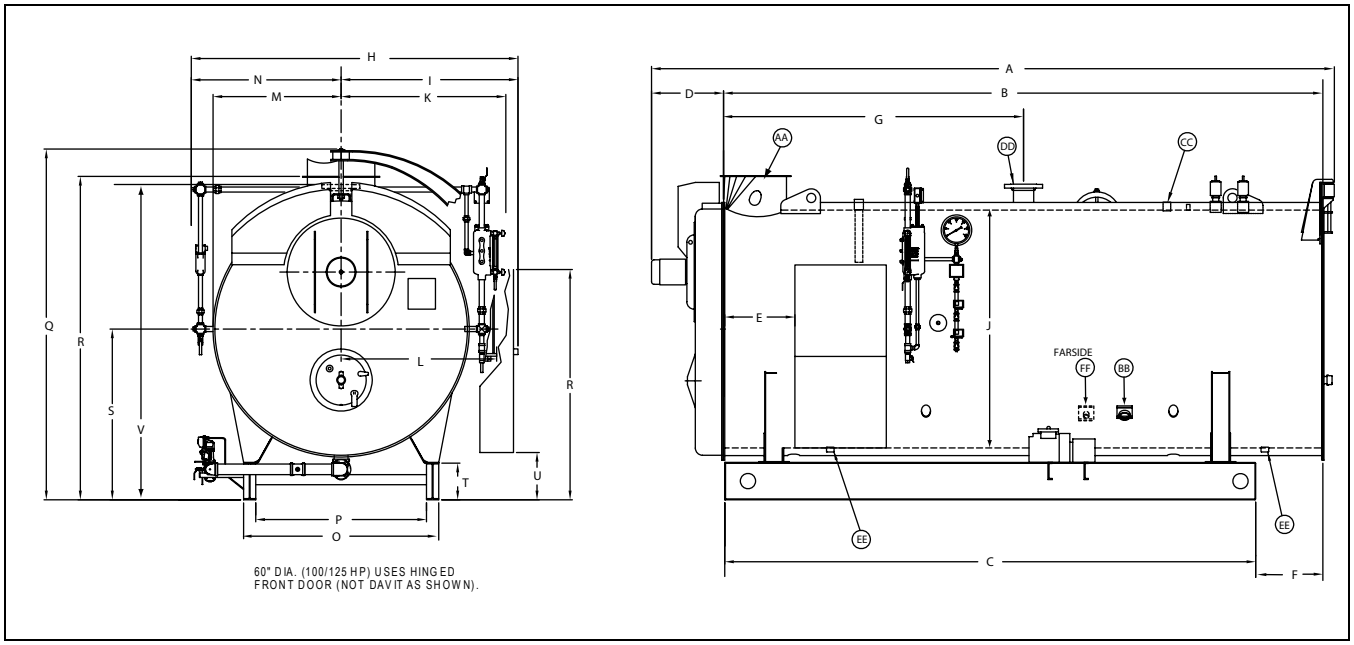

Figure 1. Model 4WI Steam Boiler 100-800 HP

Table 1. Model 4WI Steam Boiler Ratings 100 to 800 HP

BOILER H.P.	100	125	150	200	250	300	350	400	500	600	700	800
RATINGS - SEA LEVEL TO 700 FT.												
Rated Capacity (lbs-steam/hr from and at 212°F)	3450	4313	5175	6900	8625	10350	12075	13800	17250	20700	24150	27600
Btu Output (1000 Btu/hr)	3347	4184	5021	6694	8368	10042	11715	13389	16736	20083	23430	26778
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY BASED ON NOMINAL 82% EFFICIENCY												
Light Oil gph (140,000 Btu/gal)	29.2	36.4	43.7	58.3	72.9	87.5	102.0	116.6	145.8	174.9	204.1	233.3
Gas CFH (1000 Btu)	4082	5102	6123	8164	10205	12246	14287	16328	20410	24492	28574	32656
Gas (Therm/hr)	40.8	51.0	61.2	81.6	102.0	122.5	142.9	163.3	204.1	244.9	285.7	326.6
POWER REQUIREMENTS - SEA LEVEL TO 700 FT. (60 HZ)												
Blower Motor hp (60 ppm) (See Note “A”)	2	5	5	7-1/2	10	15	15	20	15	25	30	50
Blower Motor hp (30 ppm) (See Note “A”)	3	7-1/2	7-1/2	15	15	20	20	25	30	40	50	75
“Oil Pump Motor, No. 2 Oil”	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	1	1
Air Compressor Motor hp (No. 2 Oil firing Only)	3	3	3	3	5	5	5	5	7-1/2	7-1/2	7-1/2	7-1/2
BOILER DATA												
Heating Surface sq-ft. (Fireside)	500	625	750	1000	1250	1500	1750	2000	2500	3000	3500	See Note "B"

NOTE:
A. Blower motor size for boiler operating pressures 125 psig and less, contact your local Cleaver-Brooks authorized representative for higher pressures and altitude.
B. 800 hp boilers are available w/ 3500 or 4000 sq. ft. of heating surface

Table 2. Model 4WI Steam Boiler Dimensions

BOILER H.P.	DIM	100	125	150	200	250	300	350	400	500	600	700/800	*800
LENGTHS													See Note "C"
Overall Length (60 PPM system)	A	161.63	185.63	175	208	200	220.13	223.5	238.75	245.75	282.75	270.75	297.75
Overall Length (30 PPM system)	A	161.63	185.63	175	208	200	220.13	223.5	247	253.5	287.25	276.75	303.75
Shell	B	131	155	143	176.5	172.3	196.1	189.75	207.75	213.75	248.75	232.75	259.75
Base Frame	C	110	134.13	122	156	150.1	174.1	167.25	185.25	188.25	223.25	207.25	234.25
Front Head Extension (60 PPM system)	D	27	27	28	27.63	28	30	34.25	27	28	34	34	34
Front Head Extension (30 PPM system)	D	27	27	28	27.63	28	30	34.25	35.25	36.75	38.5	38.5/40.5	40.5
Shell Ring Flange to Panel	E	17	17	17	17	17	23	23	26	26	26	26	26
Rear Ring Flange to Base	F	20.5	20.5	20.63	20.5	22	22	22.5	22	25	25	25	25
Shell Flange to Steam Nozzle 15 psi	G	78.38	88.38	87.38	93.38	84.38	98.38	94.5	104.5	101.5	124.5	110.5	128.5
Shell Flange to Steam Nozzle 150 psi	G	70.38	90.38	73.38	87.38	92.38	98.38	95.5	104.5	106.5	124.5	115.5	128.5
WIDTHS													
Overall Width	H	90.25	90.25	94.38	94.38	107	107	114	114	124.75	124.75	134.68	134.68
Center to Panel	II	48.5	48.5	52	52	58	58	61.5	61.5	67	67	72	72
I.D. Boiler	J	60	60	67	67	78	78	85	85	96	96	106	106
Center to Water Column	K	44.38	44.38	48.5	48.5	54	54	57.5	57.5	63	63	68	68
Center to Outside Davit/Hinge	L	35	35	41.5	41.5	51	51	58	56.5	62	64.65	67	67
Center to Lagging	M	32.5	32.5	36.75	36.75	42	42	45	45	50.46	50.46	56	56
Center to Auxiliary LWCO	N	38.75	38.75	42.38	43.38	49	49	52	52	59	57.68	62.68	62.68
Base Outside	O	52.5	52.5	51	51	64	64	60	60	71.88	71.88	74.75	74.75
Base Inside	P	44.5	44.5	43	43	56	56	47	47	58.88	58.88	61.75	61.75
HEIGHTS													
Overall Height	Q	86	86	101.75	101.75	115	115	123.5	123.5	134	134	145.5	145.5
Base to Vent Outlet	R	85	85	92.63	92.63	106	106	115	115	126	126	135.63	135.63
Base to Boiler Centerline	S	46	46	50	50	56	56	61	61	67	67	71	71
Height of Base Frame	T	12	12	12	12	12	12	12	12	12	12	12.25	12.25
Base to Bottom of Panel	U	16.5	16.5	14.75	14.75	15.5	15.5	17	17	16.5	16.5	16.75	16.75
Base to Steam Nozzle	V	82.38	82	89.88	89.88	101.5	103.5	110	109.5	121	122	130.5	130.5
BOILER CONNECTIONS													
Feedwater Inlet (Both Sides)	BB	1.25	1.5	1.5	2	2	2	2.5	2.5	2.5	2.5	2.5	2.5
Surface Blowoff (150 lb only)	CC	1	1	1	1	1	1	1	1	1	1	1	1
Steam Nozzle 15 lb (See Note "A")	DD	8	8	8	10	10	12	12	12	12	12	12	12
Steam Nozzle 150 lb (See Note "B")	DD	4	4	4	4	6	6	6	6	8	8	8	8
Blowdown-Front & Rear (15 lb)	EE	1.5	1.5	1.5	2	2	2	2	2	2	2	2	2
Blowdown-Front & Rear (150 lb)	EE	1.25	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2
Chemical Feed	FF	1	1	1	1	1	1	1	1	1	1	1	1
VENT STACK													
Vent Stack Diameter (Flanged)	AA	16	16	16	16	20	20	24	24	24	24	24	24
MINIMUM CLEARANCES													
Rear Door Swing		36	36	40	40	46	46	50	50	55	55	60	60
Front Door Swing		67	67	78	78	89	89	97	97	108	108	118	118
Tube Removal - Front Only		96	120	108	142	132.5	156.5	148	166	169	204	188	215
MINIMUM BOILER ROOM LENGTH ALLOWING FOR DOOR SWING AND TUBE REMOVAL FROM:													
Thru Window or Door		234	258	261	295	308	332	337	355	377	412	411	438
Front of Boiler		263	311	291	359	351	399	388	424	438	508	481	535
WEIGHTS IN LBS													
Normal Water Weight	-	5,870	7,310	7,625	10,000	12,590	14,848	16,025	17,960	21,055	25,355	28,700	32,770
Approx. Shipping Weight - (15psig)	-	11,760	12,980	14,200	16,260	20,130	22,080	25,810	27,950	33,810	38,170	41,980	46,300
Approx. Shipping Weight - (150psig)	-	12,500	13,900	15,200	17,700	22,640	24,200	28,000	30,400	36,700	39,580	45,940	50,480

NOTES:

Accompanying dimensions, while sufficiently accurate for layout purposes, must be confirmed for construction by certified dimension diagram/drawing.

All Connections are Threaded Unless Otherwise Indicated:

NOTE "A": ANSI 150 psig Flange

NOTE "B": ANSI 300 psig Flange

NOTE "C": *800 hp w/ 4000 sq. ft. of heating surface

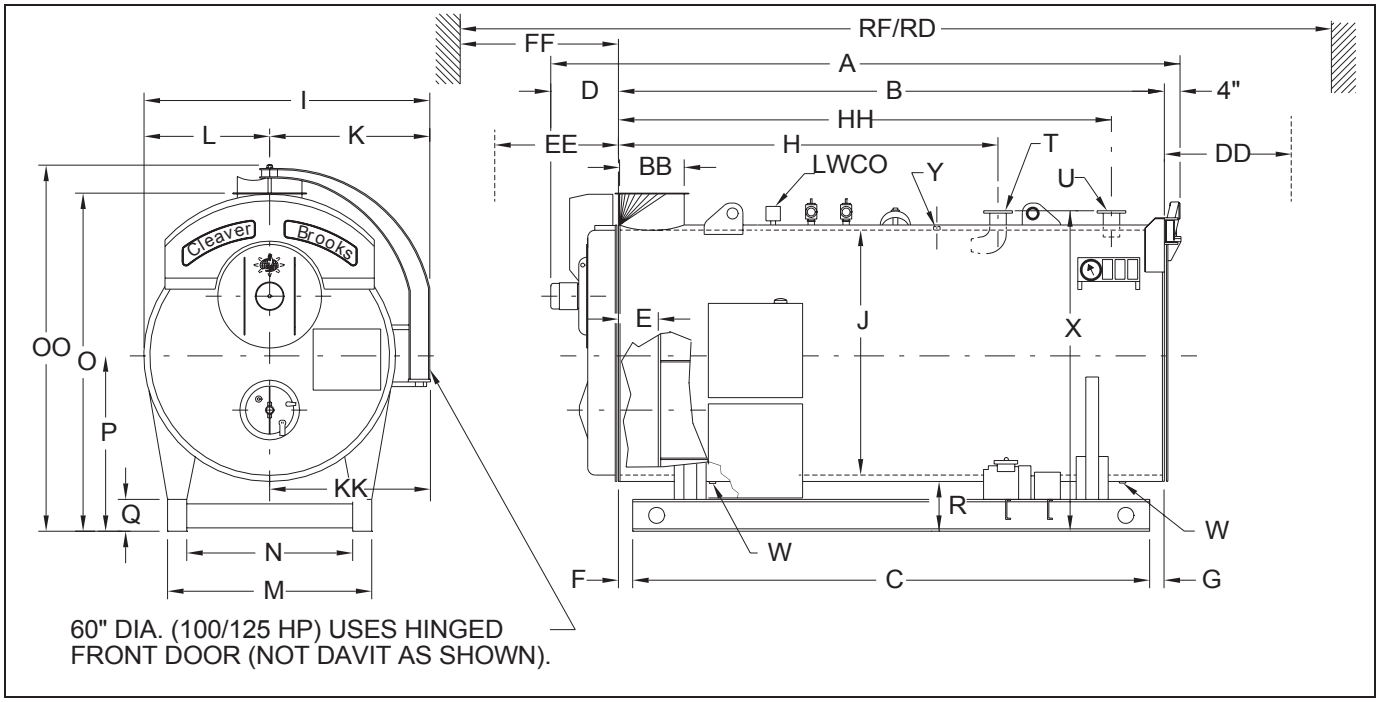

Figure 2. Model 4WI Hot Water Boiler 100-800HP

Table 3. Model 4WI Hot Water Boiler Ratings

BOILER H.P.	100	125	150	200	250	300	350	400	500	600	700	800
RATINGS - SEA LEVEL TO 700 FT.												
Btu Output (1000 Btu/hr)	3347	4184	5021	6694	8368	10042	11715	13389	16736	20083	23430	26778
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY BASED ON NOMINAL 82% EFFICIENCY												
Light Oil gph (140,000 Btu/gal)	29.2	36.4	43.7	58.3	72.9	87.5	102.0	116.6	145.8	174.9	204.1	233.3
Gas CFH (1000 Btu)	4082	5102	6123	8164	10205	12246	14287	16328	20410	24492	28574	32656
Gas (Therm/hr)	40.8	51.0	61.2	81.6	102.0	122.5	142.9	163.3	204.1	244.9	285.7	326.6
POWER REQUIREMENTS - SEA LEVEL TO 700 FT. (60 HZ)												
Blower Motor hp (60 ppm)	2	5	5	7-1/2	10	15	15	20	15	25	30	50
Blower Motor hp (30 ppm)	3	7-1/2	7-1/2	15	10	15	20	25	25	40	50	75
Oil Pump Motor, No. 2 Oil	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	1	1
Air Compressor Motor hp (No. 2 Oil firing Only)	3	3	3	3	5	5	5	5	7-1/2	7-1/2	7-1/2	7-1/2
BOILER DATA												
Heating Surface sq-ft. (Fireside)	500	625	750	1000	1250	1500	1750	2000	2500	3000	3500	See Note "A"

NOTE 'A': 800 hp boilers are available w/ 3500 or 4000 sq. ft. of heating surface

Table 4. 4WI Hot Water Boiler Dimensions

BOILER H.P.	DIM	100	125	150	200	250	300	350	400	500	600	700/800	*800
LENGTHS													See Note "C"
Overall Length (60 PPM system)	A	162	186	175	209	200	225.5	221.75	238.75	245.75	282.75	270.75	297.75
Overall Length (30 PPM system)	A	162	186	175	209	200	225.5	221.75	247	253.5	287.25	276.75	303.75
Shell	B	131	155	143	177	172.5	196.5	189.75	207.75	213.75	248.75	232.75	259.75
Base Frame	C	110	124	122	156	150.12	174.12	167.25	185.25	188.25	223.25	207.25	207.25
Front Head Extension (60 PPM	D	27	27	28	28	23.5	25	28	27	28	30	34	34
Front Head Extension (30 PPM	D	27	27	28	28	23.5	25	28	35.25	35.75	34.5	40	40
Shell Extension	E	12	12	12	12	14.5	14.5	16.75	16.75	16.25	16.25	16.75	16.75
Shell Ring Flange to Base	F	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rear Ring Flange to Base	G	20.5	20.5	20.5	20.5	22	22	22	22	25	25	25	25
Shell Flange to Return	H	78	99	87	121	113.5	137.5	130.75	148.75	143	151.75	146.75	173.75
Shell Flange to Outlet	HH	103	124	112	146	139.5	163.5	156.75	174.75	179	187.75	182.75	209.75
WIDTHS													
Overall Width	I	75.5	75.5	82.75	82.75	93	93	102	102	113	113	123	123
I.D. Boiler	J	60	60	67	67	78	78	85	85	96	96	106	106
Center to Entrance Box	K	42.5	42.5	46	46	51	51	56.5	56.5	62	62	67	67
Center to Outside Davit/Hinge	KK	35	35	41.5	41.5	51	51	56.5	56.5	62	62	67	67
Center to Lagging	L	33	33	36.75	36.75	42	42	45.5	45.5	51	51	56	56
Base Outside	M	52.5	52.5	51	51	64	64	60	60	71.88	71.88	74.75	74.75
Base Inside	N	44.5	44.5	43	43	56	56	47	47	58.88	58.88	61.75	61.75
HEIGHTS													
Overall Height	OO	86	86	101.75	101.75	115	115	123.5	123.5	134	134	145.5	145.5
Base to Vent Outlet	O	85	85	92.63	92.63	106	106	115	115	126	126	135.63	135.63
Base to Boiler Centerline	P	46	46	50	50	56	56	61	61	67	67	71	71
Height of Base Frame	Q	12	12	12	12	12	12	12	12	12	12	12	12
Base to Bottom of Boiler	R	15.63	15.63	16.13	16.13	16.5	16.5	18	18	18.5	18.5	17.5	17.5
Base to Return & Outlet	X	82.38	82.38	89.88	89.88	101.5	101.5	110	110	121.5	121.5	130.5	130.5
BOILER CONNECTIONS													
Water Return (See Note "A")	T	4	6	6	6	8	8	8	10	10	12	12	12
Water Outlet (See Notes "A & B")	U	4	6	6	6	8	8	8	10	10	12	12	12
Drain-Front & Rear	W	1.5	1.5	1.5	2	2	2	2	2	2	2	2	2
Air Vent	Y	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2
VENT STACK													
Vent Stack Diameter (Flanged)	BB	16	16	16	16	20	20	24	24	24	24	24	24
MINIMUM CLEARANCES													
Rear Door Swing	DD	36	36	40	40	46	46	50	50	55	55	60	60
Front Door Swing	EE	67	67	78	78	89	89	97	97	108	108	118	118
Tube Removal - Front Only	FF	96	120	108	142	132.5	156.5	148	166	169	204	188	215
MINIMUM BOILER ROOM LENGTH													
Thru Window or Door	RD	234	258	261	295	308	332	337	355	377	412	411	438
Front of Boiler	RF	263	311	291	359	351	399	388	424	438	508	481	535
WEIGHTS IN LBS													
Normal Water Weight	-	6,888	8,569	8,857	11,590	14,746	17,368	19,212	21,507	26,251	31,571	35,878	40,930
Approx. Shipping Weight - (30psig)	-	11,760	12,980	14,200	16,260	20,130	22,080	25,810	27,950	33,810	38,170	41,980	45,960
Approx. Shipping Weight - (125psig)	-	12,500	13,870	15,150	17,680	21,690	24,170	27,980	30,370	35,900	40,560	45,090	49,400

NOTES:

Accompanying dimensions, while sufficiently accurate for layout purposes, must be confirmed for construction by certified dimension diagram/drawing.

All Connections are Threaded Unless Otherwise Indicated:

NOTE "A": ANSI 150 psig Flange

NOTE "B": Water Outlet includes 2" Dip Tube

NOTE “C”: 800 HP w/ 4000 sq. ft. of heating surface