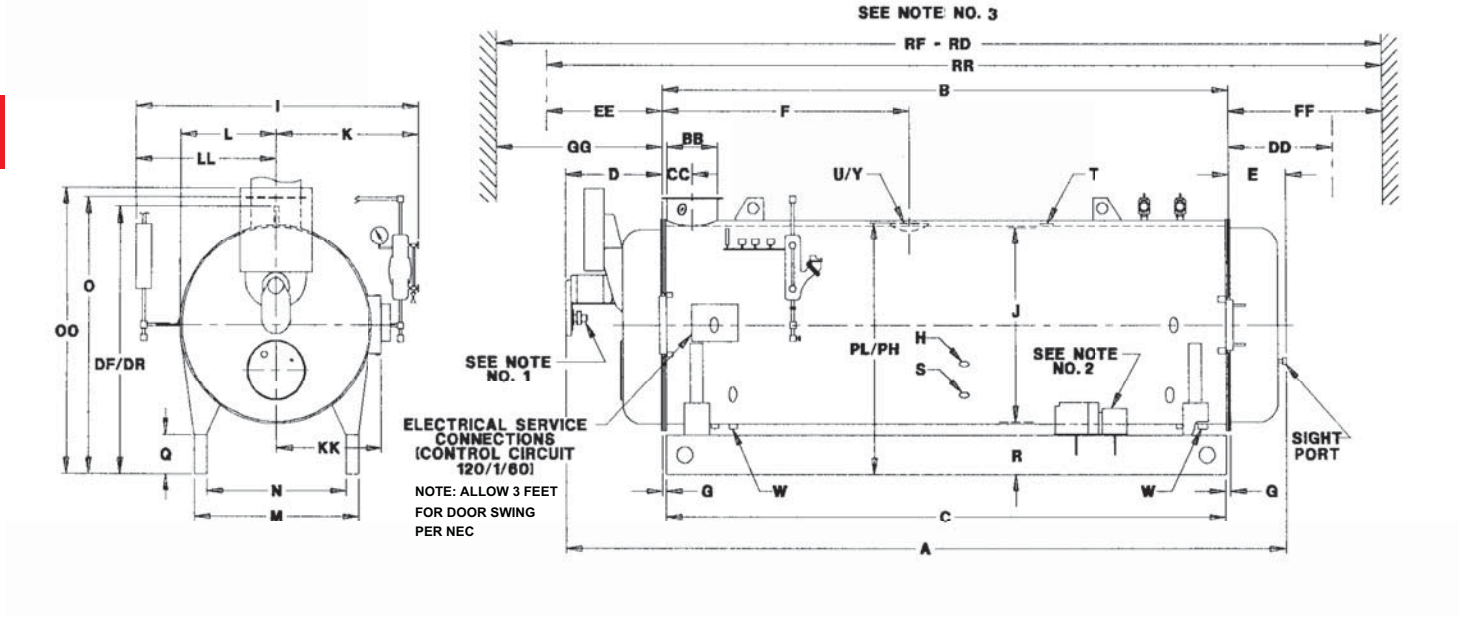

BOILER HP	DIM	15	20	30	40	50	60	70	80	100
LENGTHS										
Overall	A	96-5/8	96-5/8	114-5/8	140-5/8	129	129	168	168	187
Shell	B	62-5/8	62-5/8	80-5/8	106-5/8	92	92	131	131	150
Base Frame	C	59	59	77	103	91	91	130	130	148
Front Head Extension	D	18-1/2	18-1/2	18-1/2	18-1/2	18-1/2	18-1/2	18-1/2	18-1/2	18-1/2
Rear Head Extension	E	15-1/2	15-1/2	15-1/2	15-1/2	18-1/2	18-1/2	18-1/2	18-1/2	18-1/2
Front Ring Flange to Nozzle - 15 psig	F	36	36	45	57	46	46	65-1/2	65-1/2	75
Front Ring Flange to Nozzle - 150 psig	F	36	36	45	57	46	46	72-1/2	72-1/2	82
Ring Flange to Base	G	1-13/16	1-13/16	1-13/16	1-13/16	5/8	1/2	1/2	1/2	1/2
WIDTHS										
Overall	I	61	61	61	61	73	73	73	73	73
ID, Boiler	J	36	36	36	36	48	48	48	48	48
Center to Water Column	K	33	33	33	33	39	39	39	39	39
Center to Outside Hinge	KK	22	22	22	22	29	29	29	29	29
Center to Lagging	L	20	20	20	20	27	27	27	27	27
Center to Auxiliary LWCO	LL	28	28	28	28	34	34	34	34	34
Base, Outside	M	28	28	28	28	37-5/8	37-3/8	37-3/8	37-3/8	37-3/8
Base, Inside	N	22	22	22	22	29-5/8	29-5/8	29-5/8	29-5/8	29-5/8

Figure A2-1. Model CB Steam Boiler Dimensions and Weights (15 and 150 psig Design Pressure - 15 to 100 hp) Sheet 1 of 2

BOILER HP	DIM	15	20	30	40	50	60	70	80	100
HEIGHTS										
Base to Steam Outlet (15 psig only)	PL	50-1/4	50-1/4	50-1/4	50-1/4	64-3/4	64-3/4	64-3/4	64-3/4	64-3/4
Overall	OO	66	66	66	66	78-3/4	78-3/4	78-3/4	78-3/4	78-3/4
Base to Vent Outlet	O	53-1/2	53-1/2	53-1/2	53-1/2	70	70	70	70	70
Base to Steam Outlet (150 psig only)	PH	50-1/4	50-1/4	50-1/4	50-1/4	66-31/2	66-1/2	66-1/2	66-1/2	64-3/4
Height of Base	Q	8	8	8	8	12	12	12	12	12
Base to Bottom of Boiler	R	12	12	12	12	16	16	16	16	16
BOILER CONNECTIONS										
Chemical Feed	H	1	1	1	1	1	1	1	1	1
Feedwater, Right and Left	S	1	1	1	1	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4
Low Pressure (15 psig only) Steam Nozzle Drain, Front and Rear	 U W	 4 1	 4 1	 4 1	 6[A] 1-1/4	 6[A] 1-1/4	 6[A] 1-1/4	 6[A] 1-1/2	 6[A] 1-1/2	 8[A] 1-1/2
High Pressure (150 psig only) Surface Blowoff, Top C_L Steam Nozzle Blowdown, Front and Rear	 T Y W	 1 1-1/2 1	 1 1-1/2 1	 1 2 1	 1 2 1	 1 3 1-1/4	 1 3 1-1/4	 1 3 1-1/4	 1 3 1-1/4	 1 4[B] 1-1/4
VENT STACK										
Diameter (flgd connection)	BB	6	6	8	8	10	10	12	12	12
Front Ring Flange to Vent C_L	CC	4	4	5	5	6	6	7	7	7
MINIMUM CLEARANCES										
Rear Door Swing[C]	DD	44	44	44	44	55	55	55	55	55
Front Door Swing[C]	EE	44	44	44	44	55	55	55	55	55
Tube Removal, Rear	FF	56	56	74	100	84	84	123	123	142
Tube Removal, Front	GG	46	46	64	90	74	74	113	113	132
MINIMUM BOILER ROOM LENGTH ALLOWING FOR DOOR SWING AND TUBE REMOVAL FROM:										
Rear of Boiler	RR	163	163	199	251	231	231	309	309	347
Front of Boiler	RF	153	153	189	241	221	221	299	299	337
Thru Window or Doorway	RD	151	151	169	195	202	202	241	241	260
WEIGHT IN LBS										
Normal Water Capacity		1340	1300	1710	2290	3130	2920	4620	4460	5088
Approx. Ship Wgt - 15 psig		3000	3100	3650	4350	6900	7000	8100	8200	9000
Approx. Ship Wgt - 150 psig		3100	3200	3800	4500	7000	7200	8800	9000	9500
Approx. Ship Wgt - 200 psig		3300	3400	4100	4700	7400	7600	9300	9500	10000

NOTES:
1. Air compressor belt driven from blower motor on sizes 15 thru 40
2. Air compressor module on sizes 50 thru 100 hp.
3. Accompanying dimensions, while sufficiently accurate for layout purposes, must be confirmed for construction by certified dimension prints.

A. ANSI 150 psig flange.
B. ANSI 300 psig flange.
C. 15 thru 100 hp standard hinged door.

Figure A2-1. Model CB Steam Boiler Dimensions and Weights (15 and 150 psig Design Pressure - 15 to 100 hp) Sheet 2 of 2

Table A2-1. Model CB Steam Boiler Ratings (15 - 100 hp)

BOILER HP	15[C]	20[C]	30[C]	40[C]	50	60	70	80	100
RATINGS - SEA LEVEL TO 3000 FT									
Rated Cap. (lbs steam/hr @212°F) Btu Output (1000 Btu/hr)	518 502	690 670	1035 1004	1380 1339	1725 1674	2070 2009	2415 2343	2760 2678	3450 3348
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY									
Light Oil (gph)[A]	4.5	6.0	9.0	12.0	15.0	18.0	21.0	24.0	30.0
Heavy Oil (gph)[B]	-	-	-	-	14.0	16.5	19.5	22.5	28.0
Gas (cfh) 1000 Btu-Nat Gas (Therm/hr)	625 6.3	835 8.4	1255 12.6	1675 16.8	2095 21.0	2510 25.1	2930 29.3	3350 33.5	4185 41.9
POWER REQUIREMENTS - SEA LEVEL TO 3000 FT, 60 HZ									
Blower Motor hp (except gas)	1	1	1-1/2	2	2	2	2	2[D]	3
Gas Models (only)	1	1	1-1/2	2	2	2	2	2[D]	3
Oil Pump Motor, hp No. 2 Oil	Belt-Driven From Blower				1/3	1/3	1/3	1/3	1/3
Oil Pump Motor, hp No. 6 Oil	-	-	-	-	1/3	1/3	1/3	1/3	1/3
Oil Heater kW No. 6 Oil	-	-	-	-	5	5	5	5	5
Air Compressor Motor hp (Oil firing Only)	Air Compressor Belt-Driven from Blower Motor				2	2	2	2	2

NOTES:
1. For altitudes above 3000 ft, contact your local Cleaver-Brooks authorized representative for verification of blower motor hp.
A. Based on 140,000 Btu/gal.
B. Based on 150,000 Btu/gal.
C. No. 6 Oil not available in 15-40 hp range.
D. 3 hp above 2000 ft.

Table A2-2. Model CB Steam Boiler Ratings (125 - 800 hp)

BOILER HP	125	150	200	250	300	350	400	500	600	700	750	800
RATINGS SEA LEVEL TO 3000 FT [J]												
Rated Cap. (lbs steam/hr @ 212°F) Btu Output (1000 Btu/hr)	4313 4184	5175 5021	6900 6695	8625 8369	10350 10043	12075 11716	13800 13390	17250 16738	20700 20085	24150 23432	25875 25106	27600 26779
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY												
Light Oil (gph)[A]	37.5	45.0	60.0	74.5	89.5	104.5	119.5	149.5	179.5	209.0	224.2	239.3
Heavy Oil (gph)[B]	35.0	42.0	56.0	69.5	83.5	97.5	111.5	139.5	167.5	195.5	209.2	223.4
Gas (cfh) MBTU-nat Gas (Therm/hr)	5230 52.3	6280 62.8	8370 83.7	10460 104.6	12555 125.5	14650 146.5	16750 167.5	20925 209.3	25100 251.0	29300 293.0	31385 313.8	33480 334.8
POWER REQUIREMENTS - SEA LEVEL TO 3000 FT, 60 HZ												
Blower Motor hp (except gas)	5	7-1/2	15	7-1/2	10[C]	15[D]	10[C]	15[E]	20[F]	30[G]	40[L]	50[H]
Gas Models (only)	5	5	10	7-1/2	7-1/2[I]	15	10[C]	15[E]	20[F]	30[G]	40[L]	50[H]
Oil Pump Motor, hp No. 2 Oil	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	1	1	1
Oil Pump Motor, hp No. 6 Oil	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Oil Heater kW No. 6 Oil	5	5	5	7-1/2	7-1/2	7-1/2	7-1/2	7-1/2[K]	7-1/2[K]	7-1/2[K]	7-1/2[K]	7-1/2[K]
Air Compressor Motor hp (Oil firing Only)	Air Compressor Belt-Driven From Blower Motor						7-1/2	7-1/2	7-1/2	7-1/2	7-1/2	7-1/2

NOTES:
1. For altitudes above 3000 ft, contact your local Cleaver-Brooks authorized representative for verification of blower motor hp.
A. Based on 140,000 Btu/gal.
B. Based on 150,000 Btu/gal.
C. 15 hp above 2500 ft.
D. 20 hp above 2500 ft.
E. 20 hp above 2000 ft.
F. 30 hp above 2500 ft.
G. 40 hp above 2000 ft.
H. 60 hp above 3000 ft.
I. 10 hp above 2500 ft.
J. Sea level to 2,500 ft for 300 and 350 Hp sizes.
K. 10 kW on low pressure.
L. 50 hp above 2500 ft.

Table A2-26. Minimum Required Gas Pressure at Entrance to Standard and FM Gas Trains (Downstream of Gas Pressure Regulator)

BOILER HP	MODEL CB		
	CONN SIZE (IN.)	NET REG'D PRESS. REQ'D (IN. WC)	HTB[B] MIN GAS PRESS. REQ'D
15	1-1/4	3.5	-
20	1-1/4	6.0	-
25	-	-	-
30	2	7.0	-
40	2	7.5	-
50A	2	6.5	-
50	2	4.5	-
60	2	5.5	-
70	2	8.0	-
80	2	9.5	-
100A	2	8.5	-
100	2	9.5	-
125A	2-1/2	11.5	-
125	2-1/2	7.5	-
150	2-1/2	8.5	-
175A	2-1/2	11.5	-
200	2-1/2	15.5	-
250	3	17.5	22.0
300	3	23.0	31.0
350	3	32.5	42.5
400	4	16.5	21.0
500	4	25.5	35.0
600	4	36.0	41.5
700	4	50.0	57.5
750	4	57.0	66.0
800	4	64.0	75.5

NOTES:
1.These gas pressure requirements effective on all boiler shipped after July 1,1992 for 15 - 350 hp and Sept. 1, 1993 for 400 - 800 hp.
2. BHP followed by "A" designates hot water boilers furnished in a smaller vessel size with additional tubes in the upper portion of the vessel.
3. For standard and FM gas pressure requirements for Canada, refer to Table A2-27, IRI Trains.
A. Based on 1000 Btu/cu-ft natural gas and elevations up to 700 feet.
B. HTB is for high turndown (10:1) burners.

Table A2-27. Minimum Gas Pressure at Entrance to Gas Trains Equipped with Industrial Risk Insurers (IRI) Requirements (Downstream of Gas Pressure Regulator)

BOILER HP	MODEL CB		
	CONN SIZE (IN)	MIN PRESS REQ'D (IN WC)	HTB[B] MIN GAS PRESS. REQ'D
15	1-1/4	4.0	-
20	1-1/4	6.5	-
25	-	-	-
30	2	7.0	-
40	2	8.0	-
50A	2	7.5	-
50	2	5.5	-
60	2	6.5	-
70	2	9.0	-
80	2	10.5	-
100A	2	11.0	-
100	2	11.0	-
125A	2-1/2	11.5	-
125	2-1/2	7.5	-
150	2-1/2	9.5	-
175A	2-1/2	12.5	-
200	2-1/2	15.5	-
250	3	17.5	22.0
300	3	23.0	31.0
350	3	32.5	42.5
400	4	16.5	21.0
500	4	25.5	35.0
600	4	36.0	41.5
700	4	50.0	57.5
750	4	57.0	66.0
800	4	64.0	75.5

NOTES:
1.These gas pressure requirements effective on all boilers shipped after July 1,1992 for 15 - 350 hp and Sept. 1, 1993 for 400 - 800 hp.
2. BHP followed by "A" designates hot water boiler furnished in a smaller vessel size with additional tubes in the upper portion of the vessel.
3. Pressures shown also apply to standard and FM gas trains for Canada.
A. Based on 1000 Btu/cu-ft natural gas and elevation up to 700 feet.
B. HTB is for high turndown (10:1) burners.

Table A2-26 shows regulated gas pressure requirements for Model CB Boilers with standard or FM gas trains.

Table A2-27 shows regulated gas pressure requirements for Model CB Boilers with IRI gas trains.

Table A2-28 and A2-29 show regulated gas pressure with over and undersized gas trains.

Table A2-30 shows minimum required gas pressure altitude conversion.

Gas Pressure Regulator

The following items should be considered when selecting a regulator:

- Pressure Rating: The regulator must have a pressure rating at least equivalent to that of the gas distribution system.
- Capacity: The capacity can be determined by multiplying the maximum burning rate (CFH) by 1.15, see Table A2-31. This 15 percent over-capacity rating of the regulator provides for proper regulation.
- Spring Adjustment: The spring should be suitable for a range of adjustment from 50 percent under the desired regulated pressure to 50 percent over.
- Sharp Lock-Up: The regulator should include this feature to prevent the downstream pressure (between the regulator and the boiler) from climbing when there is no gas flow.
- Regulators in Parallel: This type of installation can be used if the required gas volume is very large and if the pressure drop must be kept to a minimum.
- Regulators in Series: This type of installation can be used if the available gas pressure is over 5, 10, or 20 psig.