Model CBLE Boilers

Dimensions and Ratings 125 - 800 HP

Table A1-1. Model CBLE Steam Boiler Ratings

BOILER HP	125	150	200	250	300	350	400	500	600	700	750	800
	RATINGS SEA LEVEL TO 700 FT											
Rated Steam Cap. (lbs/hr from and @ 212 °F)	4313	5175	6900	8625	10350	12075	13800	17250	20700	24150	25875	27600
Btu Output (1000 Btu/hr)	4184	5021	6695	8369	10043	11716	13390	16738	20085	23432	25106	26779
	APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY											
Light Oil (gph)[A]	36.4	43.7	58.3	72.9	87.5	102.1	116.6	145.8	175.0	204.1	218.7	233.3
Natural Gas (cfh) MBtu	5103	6124	8165	10206	12247	14288	16329	20412	24494	28576	30618	32659
Gas (Therm/hr)	51.0	61.2	81.7	102.1	122.5	142.8	163.3	204.2	245.0	285.8	306.2	326.6
	POWER REQUIREMENTS - SEA LEVEL TO 700 FT, 60 HZ											
Blower Motor hp	Refer to Tables A1-9 and A1-10											
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
Air Compressor Motor hp (Oil firing Only)	3	3	3	5	5	5	7-1/2	7-1/2	7-1/2	7-1/2	7-1/2	7-1/2

NOTES:
A. Based on 140,000 Btu/gal.

Table A1-2. Model CBLE Hot Water Boiler Ratings

BOILER HP	125	150	200	250	300	350	400	500	600	700	750	800
	POWER REQUIREMENTS - SEA LEVEL TO 700 FT, 60 HZ											
Rated Cap. Btu Output (1000 Btu/hr)	4184	5021	6695	8369	10043	11716	13390	16738	20085	23432	25106	26779
	APPROXIMATE FUEL CONSUMPTON AT RATED CAPACITY											
Light Oil (gph)[A]	36.4	43.7	58.3	72.9	87.5	102.1	116.6	145.8	175.0	204.1	218.7	233.3
Natural Gas (cfh) MBtu	5103	6124	8165	10206	12247	14288	16329	20415	24494	28576	30618	32659
Gas (Therm/hr)	51.0	61.2	81.7	102.1	122.5	142.9	163.3	204.2	245.0	285.8	306.2	326.6
	POWER REQUIREMENTS - SEA LEVEL TO 700 FT, 60 HZ											
Blower Motor hp	Refer to Tables A1-9 and A1-10											
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
Air Compressor Motor hp (Oil firing Only)	3	3	3	5	5	5	7-1/2	7-1/2	7-1/2	7-1/2	7-1/2	7-1/2

NOTES:
A. Based on 140,000 Btu/gal.

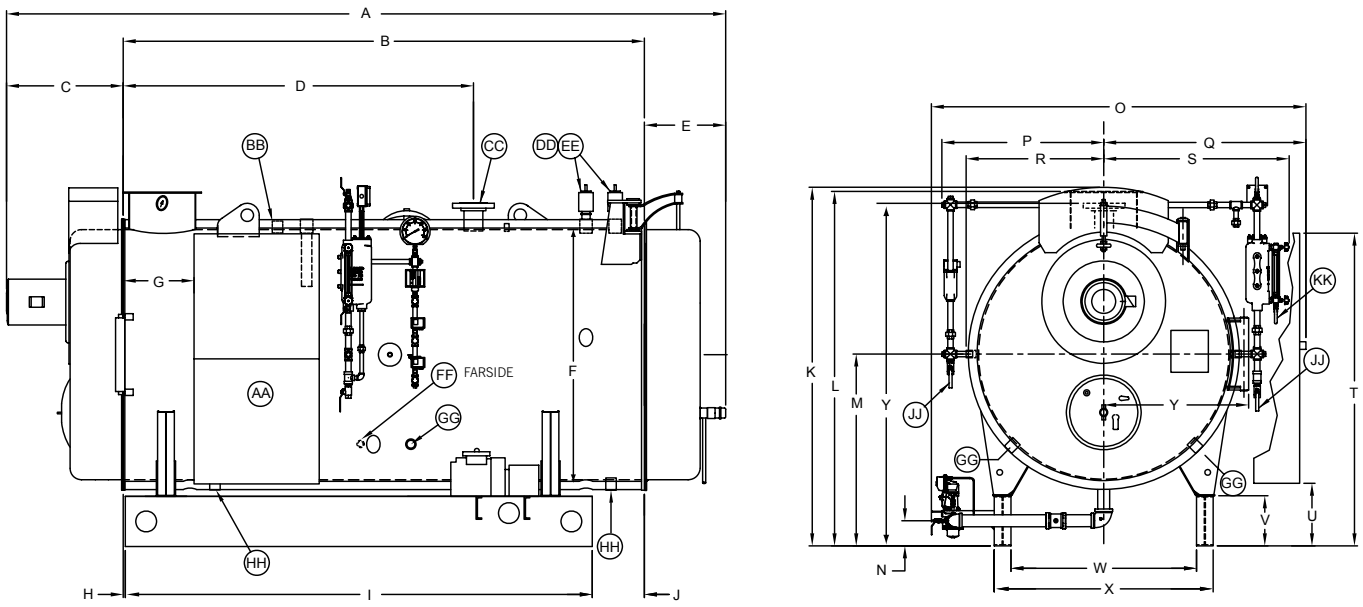

Figure A1-1. CBLE Steam - 125-200 HP

Table A1-3. Model CBLE Steam Boiler Dimensions, 60" (15 - 150 psig Design Pressure) - Sheet 1 of 2

(measurements shown in inches)

Description	DIM	Boiler HP		
		125	150	200
LENGTHS				
Length Overall	A	173	196.5	228.5
Shell	B	125	149	180
Front Head Extension	C	28	28	29
Front Ring Flange to Nozzle - 15#	D	88	90	96
Front Ring Flange to Nozzle - 150#	D	84	84	96
Rear Head Extension	E	19.5	19.5	19.5
Front Ring Flange to Panel	G	17	17	17
Ring Flange to Base	H	0.5	0.5	0.5
Base Frame	I	112	136	167
Rear Flange Ring to Base	J	12.5	12.5	12.5
HEIGHTS				
Ht Overall	K	86	86	86
Base to Vent Outlet	L	85	85	85
Base to Boiler Centerline	M	46	46	46
Base to Gas Train	N	6	8.5	8.5

Table A1-3. Model CBLE Steam Boiler Dimensions, 60" (15 - 150 psig Design Pressure) - Sheet 2 of 2

Description	DIM	Boiler HP		
		125	150	200
HEIGHTS (continued)				
Base to Panel Top	T	75	75	77
Base to Panel Bottom	U	15	15	17
Height of Base	V	12	12	12
Base to Steam Nozzle	Y	82.38	82.38	82.38
WIDTHS				
Width Overall	O	89.88	89.875	90.5
Center to ALWCO	P	38.75	38.75	38.75
Center to Outside Control Panel	Q	48.5	48.5	48.5
Center to Lagging	R	33	33	33
Center to WC	S	44.5	45	45
Base Inside	W	44.5	44.5	44.5
Base Outside	X	52.5	52.5	52.5
Boiler I.D.	F	60	60	60
CONNECTIONS				
Electric - Main Power Supply	AA	460 / 3 / 60	460 / 3 / 60	460 / 3 / 60
Surface Blowoff (with collector pipe)	BB	1	1	1
Steam Outlet 15# (150# Flange)	CC	4	4	4
Steam Outlet 150# (300# Flange)	CC	4	4	4
Chemical Feed	FF	1	1	1
Feed Water (2)	GG	1.5	1.5	2
Blowdown/Drain (2)	HH	1.5	1.5	1.5
Water Column Blowdown	JJ	0.75	0.75	0.75
Gauge Glass Blowdown	KK	.025	0.25	0.25
VENT STACK				
Diameter (OD) (flgd. connection)		16	16	16
CLEARANCES				
Rear Door Swing (Davited)		32	32	32
Front Door Swing		67	67	67
Tube Removal, Rear		115	139	170
Tube Removal, Front		103	127	158
MINIMUM BOILER ROOM LENGTH ALLOWING FOR DOOR SWING AND TUBE REMOVAL:				
From Rear of Boiler		307	355	417
From Front of Boiler		260	308	370
Through Window or Doorway		224	248	279
WEIGHT IN LBS				
Normal Water Capacity		5750	7250	8625
Approx. Ship Wt. 15 psig		11300	12600	14600
Approx. Ship Wt. 150 psig		12400	13500	15600
Approx. Ship Wt. 200 psig		13000	14200	16400

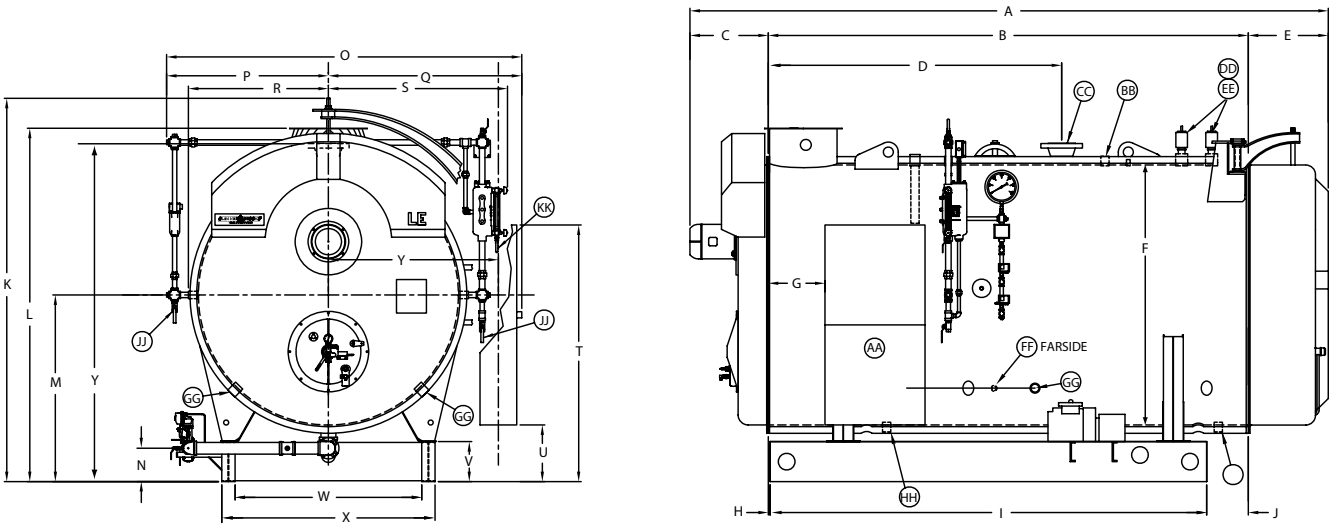

Figure A1-2. CBLE Steam - 250-350 HP

Table A1-4. Model CBLE Steam Boiler Dimensions, 78" (15 - 150 psig Design Pressure) - Sheet 1 of 2

(measurements shown in inches)

Description	DIM	Boiler HP		
		250	300	350
LENGTHS				
Length Overall	A	191.5	220	250
Shell	B	144	171	201
Front Head Extension	C	23.5	25	25
Front Ring Flange to Nozzle - 15#	D	90	98	112
Front Ring Flange to Nozzle - 150#	D	88	98	112
Rear Head Extension	E	24	24	24
Front Ring Flange to Panel	G	17	23	23
Ring Flange to Base	H	0.5	0.5	0.5
Base Frame	I	131	158	188
Rear Flange Ring to Base	J	12.5	12.5	12.5
HEIGHTS				
Ht Overall	K	115	115	115
Base to Vent Outlet	L	106	106	106

Table A1-4. Model CBLE Steam Boiler Dimensions, 78" (15 - 150 psig Design Pressure) - Sheet 2 of 2

Description	DIM	Boiler HP		
		250	300	350
HEIGHTS (continued)				
Base to Boiler Centerline	M	56	56	56
Base to Gas Train	N	10	10	10
Base to Panel Top	T	77	77	77
Base to Panel Bottom	U	17	17	17
Height of Base	V	12	12	12
Base to Steam Nozzle	Y	101.50	101.50	101.50
WIDTHS				
Width Overall	O	106.5	106.5	108.75
Center to ALWCO	P	48.5	48.5	48.5
Center to Outside Control Panel	Q	58	58	58
Center to Lagging	R	42	42	42
Center to WC	S	53.75	53.75	53.75
Base Inside	W	56	56	56
Base Outside	X	64	64	64
Boiler I.D.	F	78	78	78
CONNECTIONS				
Electric - Main Power Supply	AA	460 / 3 / 60	460 / 3 / 60	460 / 3 / 60
Surface Blowoff (with collector pipe)	BB	1	1	1
Steam Outlet 15# (150# Flange)	CC	10	12	12
Steam Outlet 150# (300# Flange)	CC	6	6	6
Chemical Feed	FF	1	1	1
Feed Water (2)	GG	2	2	2.5
Blowdown/Drain (2)	HH	1.5	1.5	1.5
Water Column Blowdown	JJ	0.75	0.75	0.75
Gauge Glass Blowdown	KK	0.25	0.25	0.25
VENT STACK				
Diameter (OD) (flgd. connection)		20	20	20
CLEARANCES				
Rear Door Swing		43	43	43
Front Door Swing		89	89	89
Tube Removal, Rear		131	157	187
Tube Removal, Front		116	142	172
MINIMUM BOILER ROOM LENGTH ALLOWING FOR DOOR SWING AND TUBE REMOVAL				
From Rear of Boiler		364	417	477
From Front of Boiler		303	356	416
Through Window or Doorway		275	302	332
WEIGHT IN LBS				
Normal Water Capacity		10670	13000	15465
Approx. Ship Wt. 15 psig		21500	23600	26800
Approx. Ship Wt. 150 psig		22800	25200	27800
Approx. Ship Wt. 200 psig		24600	27200	29300

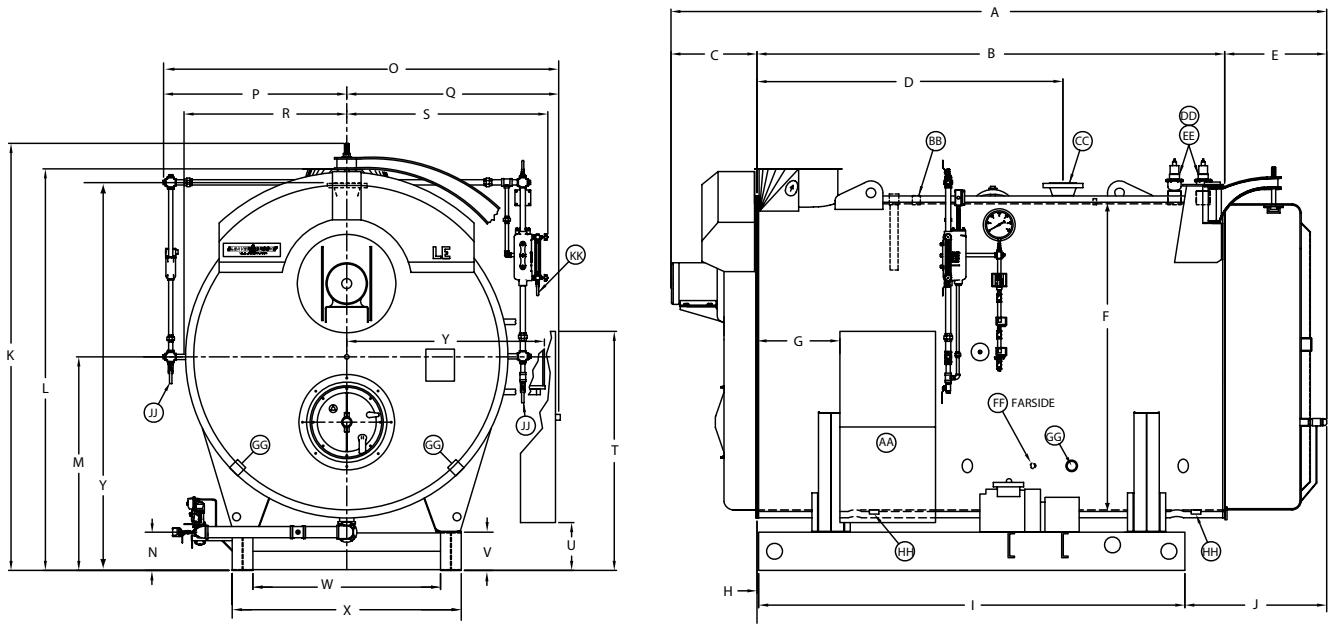

Figure A1-3. CBLE Steam - 400-800 HP

Table A1-5. Model CBLE Steam Boiler Dimensions, 96" (15 - 150 psig Design Pressure) - Sheet 1 of 2

(measurements shown in inches)

Description	DIM	Boiler HP					
		400	500	600	700	750	800
LENGTHS							
Length Overall	A	205.75	227.75	259.75	298.75	298.75	298.75
Shell	B	146.75	167.5	199.75	232.75	232.75	232.75
Front Head Extension	C	27	28	28	34	34	34
Front Ring Flange to Nozzle - 15#	D	98	101	96	112	112	112
Front Ring Flange to Nozzle - 150#	D	96	100	96	112	112	112
Rear Head Extension	E	32	32	32	32	32	32
Front Ring Flange to Panel	G	26	26	26	26	26	26
Ring Flange to Base	H	0.5	0.5	0.5	0.5	0.5	0.5
Base Frame	I	133.75	154.75	186.75	219.75	219.75	219.75
Rear Flange Ring to Base	J	12.5	12.5	12.5	12.5	12.5	12.5

Table A1-5 Model CBLE Steam Boiler Dimensions, 96" (15 - 150 psig Design Pressure) - Sheet 2 of 2

Description	DIM	Boiler HP					
		400	500	600	700	750	800
HEIGHTS							
Ht Overall	K	134	134	134	134	134	134
Base to Vent Outlet	L	126	126	126	126	126	126
Base to Boiler Centerline	M	67	67	67	67	67	67
Base to Gas Train	N	12	12	12	12	12	12
Base to Panel Top	T	75	75	75	75	75	75
Base to Panel Bottom	U	15	15	15	15	15	15
Height of Base	V	12	12	12	12	12	12
Base to Steam Nozzle	Y	121.5	123.5	121.5	121	121	121
WIDTHS							
Width Overall	O	124	124.25	124	124	124	124
Center to ALWCO	P	57.5	57.5	57.5	57.5	57.5	57.5
Center to Outside Control Panel	Q	66.5	66.5	66.5	66.5	66.5	66.5
Center to Lagging	R	51	51	51	51	51	51
Center to WC	S	63	63	63	63	63	63
Base Inside	W	58.88	58.88	58.88	58.88	58.88	58.88
Base Outside	X	71.88	71.88	71.88	71.88	71.88	71.88
Boiler I.D.	F	96	96	96	96	96	96
CONNECTIONS							
Electric - Main Power Supply	AA	460 / 3 / 60	460 / 3 / 60	460 / 3 / 60	460 / 3 / 60	460 / 3 / 60	460 / 3 / 60
Surface Blowoff (with collector pipe)	BB	1	1	1	1	1	1
Steam Outlet 15# (150# Flange)	CC	12	12	12	12	12	12
Steam Outlet 150# (300# Flange)	CC	6	8	8	8	8	8
Chemical Feed	FF	1	1	1	1	1	1
Feed Water (2)	GG	2.5	2.5	2.5	2.5	2.5	2.5
Blowdown/Drain (2)	HH	2	2	2	2	2	2
Water Column Blowdown	JJ	0.75	0.75	0.75	0.75	0.75	0.75
Gauge Glass Blowdown	KK	0.25	0.25	0.25	0.25	0.25	0.25
VENT STACK							
Diameter (OD) (flgd. connection)		24	24	24	24	24	24
CLEARANCES							
Rear Door Swing		53	53	53	53	53	53
Front Door Swing		108	108	108	108	108	108
Tube Removal, Rear		131	152	184	217	217	217
Tube Removal, Front		114	135	167	200	200	200
MINIMUM BOILER ROOM LENGTH ALLOWING FOR DOOR SWING AND TUBE REMOVAL							
From Rear of Boiler		386	428	492	558	558	558
From Front of Boiler		314	356	420	486	486	486
Through Window or Doorway		308	329	361	394	394	394
WEIGHT IN LBS							
Normal Water Capacity		14810	15950	19270	23000	23000	23000
Approx. Ship Wt. 15 psig		33500	37110	42300	49500	49600	49600
Approx. Ship Wt. 150 psig		36570	39970	45025	52050	52150	52150
Approx. Ship Wt. 200 psig		39680	43580	49400	57315	57415	57415

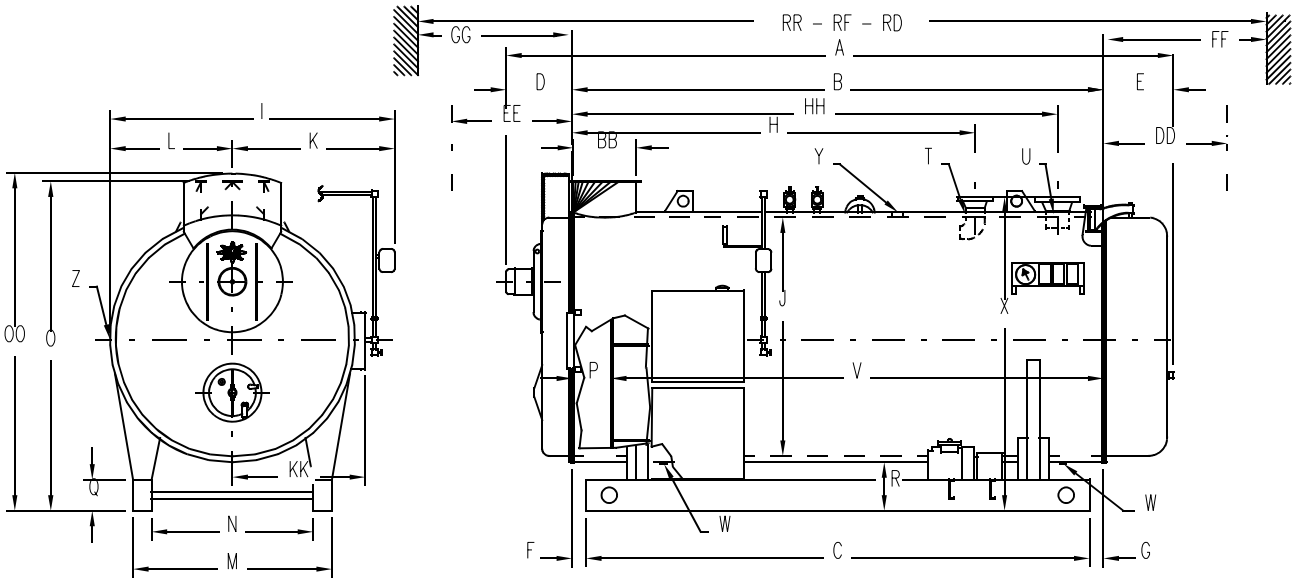

Figure A1-4. CBLE Hot Water - 125-200 HP

Table A1-6. Model CBLE Hot Water Boiler Dimensions, 60” (30 and 125 psig Design Pressure) - Sheet 1 of 2

BOILER HP	DIM	125	150	200
LENGTHS				
Overall (60 ppm System)	A	171-1/2	196-1/2	228-1/2
Shell	B	125	149	180
Base Frame	C	112	136	167
Front Head Extension (60 ppm System)	D	27	28	29
Rear Head Extension	E	19-1/2	19-1/2	19-1/2
Front Ring Flange to Outlet	HH	114	136	167
Front Ring Flange to Return	H	89	102	131
Ring Flange to Base	F	1/2	1/2	1/2
Over Tubesheets	V	113	137	168
Shell Extension	P	12	12	12
Rear Flange Ring to Base	G	12-1/2	12-1/2	12-1/2

Table A1-6. Model CBLE Hot Water Boiler Dimensions, 60” (30 and 125 psig Design Pressure) - Sheet 2 of 2

BOILER HP	DIM	125	150	200
WIDTHS				
Overall	I	75-1/2	75-1/2	75-1/2
I.D. Boiler	J	60	60	60
Center to Entrance Box	K	42-1/2	42-1/2	42-1/2
Center to Outside Hinge	KK	35	35	35
Center to Lagging	L	33	33	33
Base, Outside	M	52-1/2	52-1/2	52-1/2
Base, Inside	N	44-1/2	44-1/2	44-1/2
HEIGHTS				
Overall	OO	86	86	86
Base to Vent Outlet	O	85	85	85
Base to Return and Outlet	X	82-3/8	82-3/8	82-3/8
Height of Base	Q	12	12	12
Base to Bottom of Boiler	R	16	16	16
BOILER CONNECTIONS				
Auxiliary Connection	Z	1	1	1
Water Return Flange	T	6[A]	6[A]	6[A]
Water Outlet Flange (2" Dip Tube Included)	U	6[A]	6[A]	6[A]
Drain, Front and Rear	W	1-1/2	1-1/2	2
Air Vent	Y	1-1/2	1-1/2	1-1/2
VENT STACK				
Diameter (flgd. connection)	BB	16	16	16
MINIMUM CLEARANCES				
Rear Door Swing	DD	32	32	32
Front Door Swing	EE	67	67	67
Tube Removal, Rear	FF	115	139	170
Tube, Removal, Front	GG	103	127	158
MINIMUM BOILER ROOM LENGTH ALLOWING FOR DOOR SWING AND TUBE REMOVAL FROM:				
Rear of Boiler	RR	307	355	417
Front of Boiler	RF	260	308	370
Thru Window or Doorway	RD	224	248	279
WEIGHT IN LBS				
Water Capacity Flooded		7670	9295	11130
Approx. Ship. Wgt. – 30 psig Approx. Ship. Wgt. – 125 psig		11400 11800	12500 12900	14500 14900

NOTES: All connections are threaded unless indicated.
A. ANSI 150 psig flange.

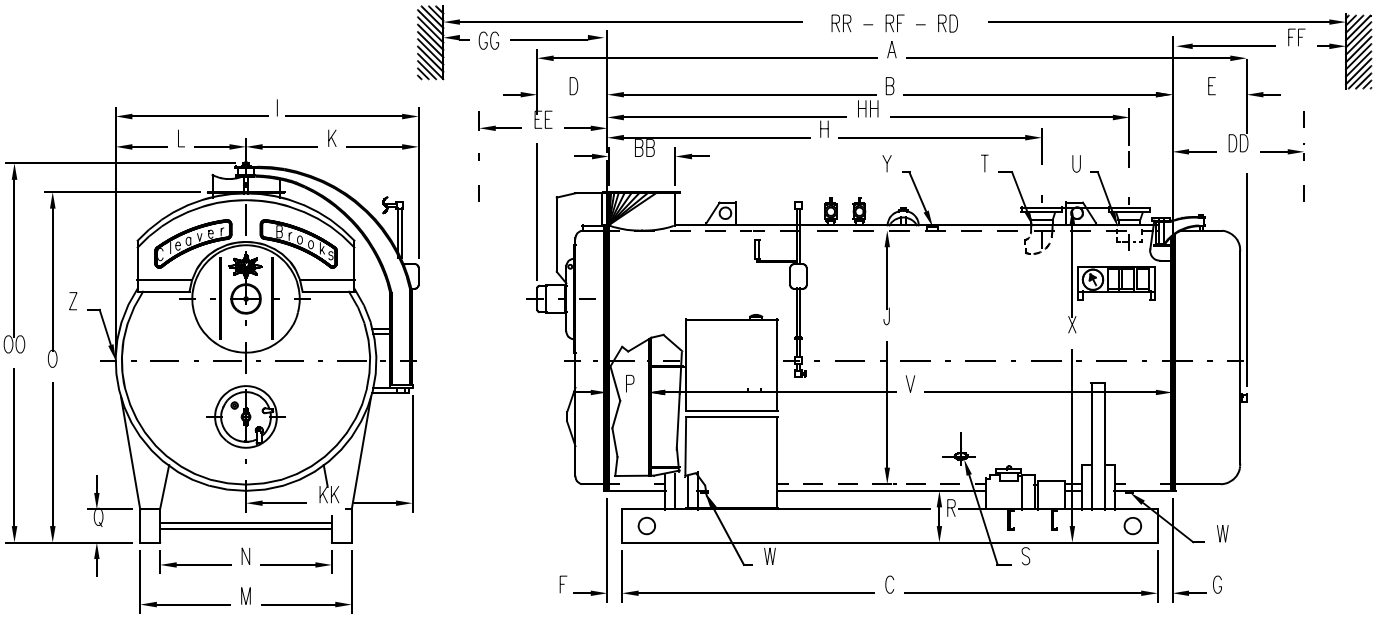

Figure A1-5. CBLE Hot Water 250-350 HP

Table A1-7. Model CBLE Hot Water Boiler Dimensions, 78" (30 and 125 psig Design Pressure) - Sheet 1 of 2

BOILER HP	DIM	250	300	350
LENGTHS				
Overall (60 ppm System)	A	191-1/2	220	252
Shell	B	144	171	201
Base Frame	C	131	158	188
Front Head Extension (60 ppm System)	D	23-1/2	25	27
Rear Head Extension	E	24	24	24
Front Ring Flange to Return	H	103-1/2	130	160
Front Ring Flange to Outlet	HH	131	158	188
Ring Flange to Base	F	1/2	1/2	1/2
Over Tubesheets	V	129	156	186
Shell Extension	P	15	15	15
Rear Flange Ring to Base	G	12-1/2	12-1/2	12-1/2

Table A1-7. Model CBLE Hot Water Boiler Dimensions, 78" (30 and 125 psig Design Pressure) - Sheet 2 of 2

BOILER HP	DIM	250	300	350
WIDTHS				
Overall	I	93	93	93
I.D. Boiler	J	78	78	78
Center to Entrance Box	K	51	51	51
Center to Outside Hinge	KK	51	51	51
Center to Lagging	L	42	42	42
Base, Outside	M	64	64	64
Base, Inside	N	52	52	52
HEIGHTS				
Overall	OO	115	115	115
Base to Vent Outlet	O	106	106	106
Base to Return and Outlet	X	101-1/2	101-1/2	101-1/2
Height of Base	Q	10	10	10
Base to Bottom of Boiler	R	17	17	17
BOILER CONNECTION				
Waterfill Conn. Right & Left	S	2	2	2-1/2
Auxiliary Connection	Z	1-1/4	1-1/4	1-1/4
Water Return Flange (2" Dip Tube included)	T	8[A]	8[A]	8[A]
Water Outlet Flange (2" Dip Tube Included)	U	8[A]	8[A]	8[A]
Air Vent	Y	1-1/2	1-1/2	1-1/2
Drain, Front and Rear	W	2	2	2
VENT STACK				
Diameter (flgd. connection)	BB	20	20	20
MINIMUM CLEARANCES				
Rear Door Swing	DD	43	43	43
Front Door Swing	EE	89	89	89
Tube Removal, Rear	FF	131	157	187
Tube, Removal, Front	GG	116	142	172
MINIMUM BOILER ROOM LENGTH ALLOWING FOR DOOR SWING AND TUBE REMOVAL FROM:				
Rear of Boiler	RR	364	417	477
Front of Boiler	RF	303	356	416
Thru Window or Doorway	RD	275	302	332
WEIGHT IN LBS				
Water Capacity Flooded		13880	16840	20090
Approx. Ship. Wgt. – 30 psig Approx. Ship. Wgt. – 125 psig		21400 22200	23500 24300	26700 27500

NOTES: All connections are threaded unless indicted.
A. ANSI 150 psig flange.

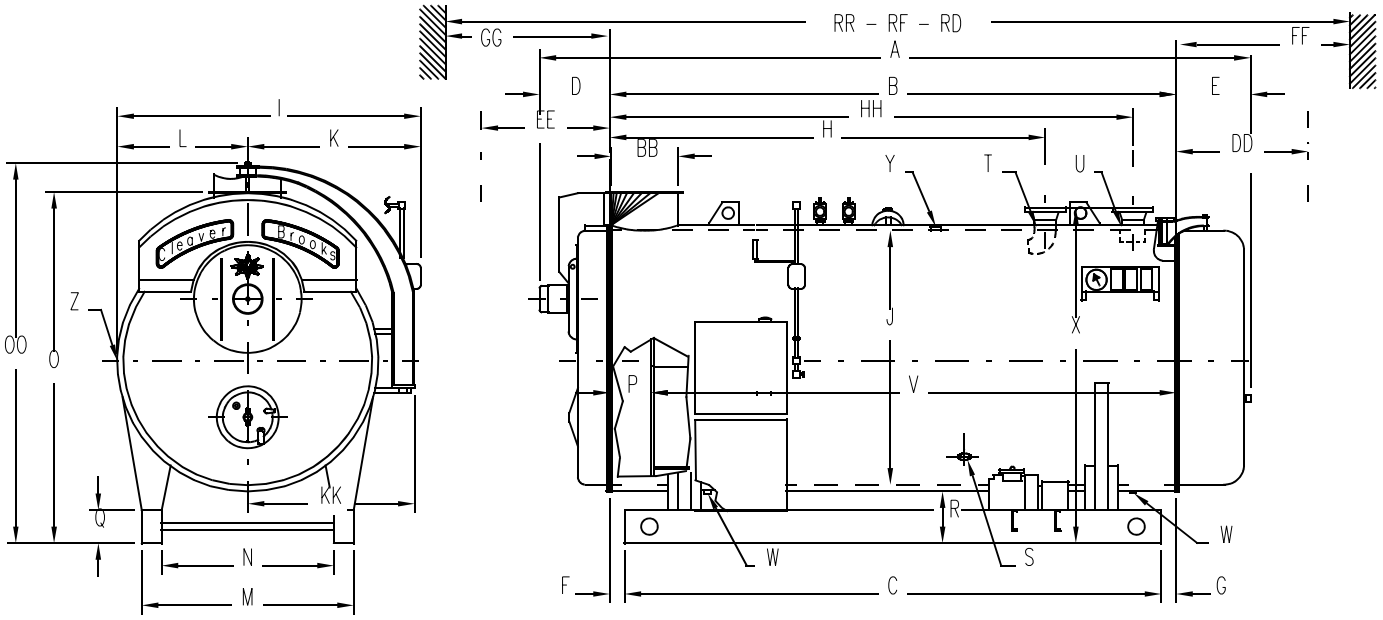

Figure A1-6. CBLE Hot Water 400-800 HP

Table A1-8. Model CBLE Hot Water Boiler Dimensions, 96" (30 and 125 psig Design Pressure) - Sheet 1 of 2

BOILER HP	DIM	400	500	600	700	750	800
LENGTHS							
Overall (60 ppm System)	A	206	228	262	299	300	300
Shell	B	147	168	200	233	233	233
Base Frame	C	134	155	187	220	220	220
Front Head Extension (60 ppm System)	D	27	28	30	34	35	35
Rear Head Extension	E	32	32	32	32	32	32
Shell Ring Flange to Base	F	1/2	1/2	1/2	1/2	1/2	1/2
Rear Ring Flange to Base	G	12-1/2	12-1/2	12-1/2	12-1/2	12-1/2	12-1/2
Shell Flange to Outlet	HH	139-1/2	156-1/2	182-1/2	216-1/2	216-1/2	216-1/2
Shell Flange to Return	H	107	125	151-1/2	185	185	185
Over Tubesheets	V	130	151	183	216	216	216
Shell Extension	P	17	17	17	17	17	17

Table A1-8. Model CBLE Hot Water Boiler Dimensions, 96" (30 and 125 psig Design Pressure) - Sheet 2 of 2

BOILER HP	DIM	400	500	600	700	750	800
WIDTHS							
Overall	I	113	113	113	113	115	115
I.D. Boiler	J	96	96	96	96	96	96
Center to Entrance Box	K	62	62	62	62	64	64
Center to Outside Hinge	KK	62	62	62	62	62	62
Center to Lagging	L	51	51	51	51	51	51
Base, Outside	M	72	72	72	72	72	72
Base, Inside	N	56	56	56	56	56	56
HEIGHTS							
Overall	OO	134	134	134	134	134	134
Base to Vent Outlet	O	126	126	126	126	126	126
Height of Base	Q	12	12	12	12	12	12
Base to Bottom of Boiler	R	19	19	19	19	19	19
Base to Return and Outlet	X	121-9/16	121-9/16	121-9/16	121-9/16	121-9/16	121-9/16
BOILER CONNECTIONS							
Waterfill Connection, Right and Left	S	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2
Auxiliary Connection	Z	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4
Drain, Front and Rear	W	2	2	2	2	2	2
Water Return	T	10[A]	10[A]	12[A]	12[A]	12[A]	12[A]
Water Outlet (2" Dip Tube Included)	U	10[A]	10[A]	12[A]	12[A]	12[A]	12[A]
Air Vent	Y	2	2	2	2	2	2
VENT STACK							
Diameter (Flanged Connection)	BB	24	24	24	24	24	24
MINIMUM CLEARANCES							
Rear Door Swing	DD	53	53	53	53	53	53
Front Door Swing	EE	108	108	108	108	108	108
Tube Removal, Rear	FF	131	152	184	217	217	217
Tube Removal, Front	GG	114	135	167	200	200	200
MINIMUM BOILER ROOM LENGTH ALLOWING FOR DOOR SWING AND TUBE REMOVAL FROM:							
Rear of Boiler	RR	386	428	492	558	558	558
Front of Boiler	RF	314	356	420	486	486	486
Thru Window or Doorway	RD	308	329	361	394	394	394
WEIGHT IN LBS							
Normal Water Capacity		20015	23300	28260	33360	33360	33360
Approx. Ship. Wgt. – 30 psig Approx. Ship. Wgt. – 125 psig		33300 37270	36900 40780	42150 46005	49650 53300	49750 53400	49750 53400

NOTES: All connections are threaded unless indicated:
A. ANSI 150 psig flange.