

Model **FLX** Steam

300 - 600 HP (2943 - 5886 kW)



Dimensions and Ratings

Figure 1. Model FLX 1250-2500 Steam Boiler Dimensions

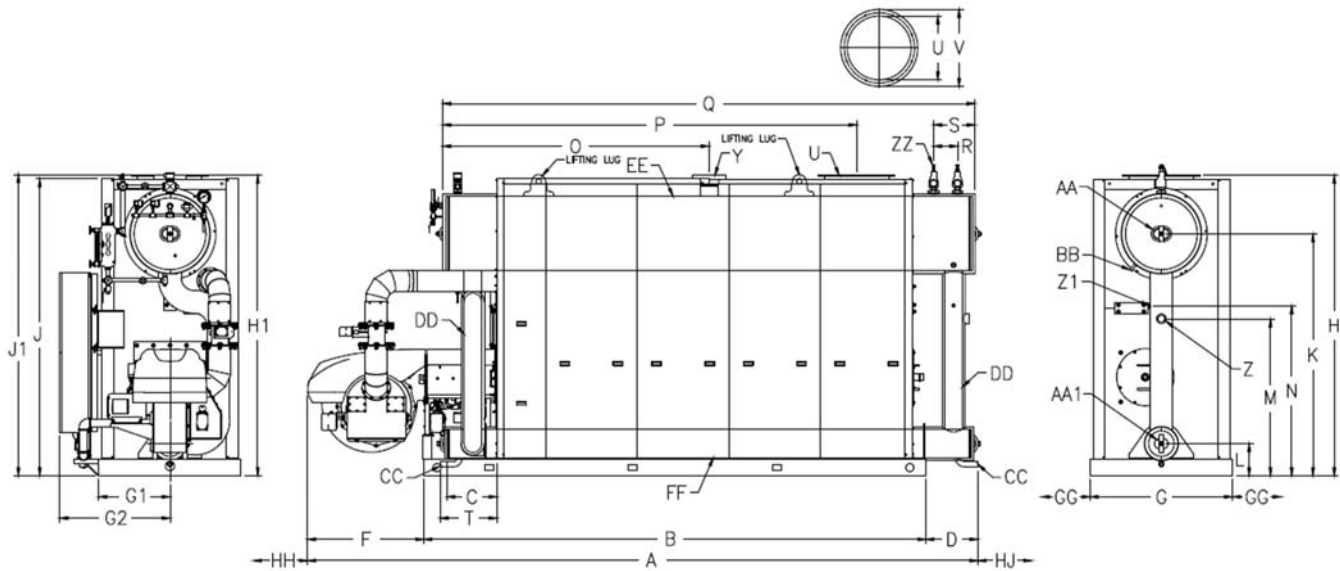


Table 1. FLX 1250-2500 Steam Dimensions

Dimension	BOILER SIZE [SEE NOTE 1]						
	1250	1450	1650	1850	2100	2500	
LENGTHS Inches							
Overall [See Note 2]	A	250.5	264.5	275.5	267.38	276.75	306.125
Boiler Base Frame	B	183.75	198.813	212.813	226.88	240.88	271.25
Front Extension Lower Drum	C	18.75	18.75	21.5	21.5	21.5	21.5
Rear Extension Lower Drum	D	19.5	19.5	22.25	22.25	22.25	22.25
Burner Extension [See Note 2]	F	43.75	43.75	38.75	43.75	38.75	38.75
WIDTHS Inches							
Boiler Base Frame [See Note 3]	G	53.5	53.5	60	60	75	75
Centerline to Casing	G1	26.75	26.75	30	30	37.5	37.5
Width to outside of Control Panel/Gas Train	G2	41.5	41.5	45	45	52.5	52.5
HEIGHTS Inches							
Base to Stack Flange	H	113	113	121	121	149	149
Base to Steam Nozzle	H1	113	113	121	121	149	149
Base to Top of Casing	J	111.5	111.5	119.5	119.5	147.5	147.5
Base to Lifting Lug	J1	113.25	113.25	121.25	121.25	149.25	149.25
Base to Upper Drum Centerline	K	91	91	99	99	125	125
Base to Lower Drum Centerline	L	12	12	12	12	15	15
Base to Feedwater Connection	M	59	59	67	67	81	81
Base to Chemical Feed	N	64	64	72	72	86	86
LOCATIONS Inches							
Front of Steam Drum to Steam Nozzle	O	100	106.5	115.75	122.75	129.75	144.75
Steam Drum to Flue Outlet Centerline	P	155.5	169.5	186.1	201	214.25	244.5

Table 1. FLX 1250-2500 Steam Dimensions (Continued)

	Dimension	BOILER SIZE [SEE NOTE 1]					
		1250	1450	1650	1850	2100	2500
Steam Drum End to End	Q	198	213	231.5	245.5	258.25	289.5
Safety Valves 15 PSIG Setpoint	R	9	9	[Note 4]	[Note 4]	[Note 4]	[Note 4]
Safety Valves 15 PSIG Setpoint	S	15.5	15.5	[Note 4]	[Note 4]	[Note 4]	[Note 4]
Safety Valves 150 PSIG Setpoint	R	9	9	9	9	9	9
Safety Valves 150 PSIG Setpoint	S	14.5	14.5	14.5	14.5	13.875	14.5
Bottom Drain/Blowdown	T	21.5	21.5	24.75	24.75	24.75	24.75
PIPING CONNECTIONS Inches							
Flue Gas ID	U	24	24	24	24	24	24
Flue Gas Outlet Flange	V	29	29	29	29	29	29
Flange Bolt Circle Diameter	W	26.5	26.5	26.5	26.5	26.5	26.5
Number of Bolt Holes	X	8	8	8	8	8	8
Steam Nozzle 15 PSIG Design Boiler	Y	12	12	12	12	12	12
Steam Nozzle 150 PSIG Design Boiler	Y	6	6	6	8	8	8
Feedwater Makeup	Z	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Chemical Feed	Z1	1/2	1/2	1/2	1/2	1/2	1/2
Surface Blowff	BB	1	1	1	1	1	1
Bottom Drain/Blowdown 15 PSIG Design	CC	2	2	2	2	2	2
Bottom Drain/Blowdown 150 PSIG Design	CC	1 1/2	1 1/2	2	2	2	2
Safety Valves, 15 psig [qty and outlet size]	ZZ	2 @ 3	2 @ 3	1 @ 2 1/2 2 @ 3	1 @ 2 1/2 2 @ 3	4 @ 3	4 @ 3
Safety Valves, 150 psig [qty and outlet size]	ZZ	2 @ 2	1 @ 2 1/2 1 @ 2	1 @ 2 1/2 1 @ 2	1 @ 2 1/2 1 @ 2	2 @ 2 1/2	2 @ 2 1/2
GENERAL DATA							
Manway Upper Drum, 15 PSIG	AA	12x16	12x16	12x16	12x16	12x16	12x16
Handhole Upper Drum, 150 PSIG	AA	4x6	4x6	4x6	4x6	4x6	4x6
Handhole Lower Drum	AA1	4x5	4x5	4x5	4x5	4x5	4x5
Downcomer Size [NPS]	DD	6	6	8	8	8	8
Upper Drum OD	EE	28	28	28	28	32	32
Lower Drum OD	FF	10.75	10.75	10.75	10.75	12.75	12.75
MINIMUM SERVICE CLEARANCES							
Tube removal each side	GG	40	40	47	47	62	62
Rear service area	HJ	24	24	24	24	24	24
Front service area - burner removal	HH	36	36	36	36	36	36

Dimension letters E and I are not used.

Notes:

- Multiply size by 10,000 to obtain BTU/hr input of the boiler.
- Subtract 5 inches to the overall length (A) and burner extension (F) for FLX 1250, 1450, 1850 with uncontrolled burner.
Add 5 inches to the overall length (A) and burner extension (F) for FLX 2500 with NT burner.
- Add 4 inches to each side of base frame width (G) to account for optional seismic anchor pads on each side.
- Quantity and size of valves are based on the standard settings noted; quantity and size may change depending on non standard valves settings.

Table 2. FLX 1250-2500 Steam Ratings

Boiler SIZE	1250	1450	1650	1850	2100	2500
Ratings [Notes A and B]						
Steam Capacity (lbs. steam/hr from & at 212° F.)	10,350	12,075	13,800	15,525	17,250	20,700
Steam Capacity [kg/hr from and at 100 C]	4,695	5,478	6,260	7,043	7,825	9,390
Output Btu/hr	10,042,500	11,716,250	13,390,000	15,063,750	16,737,500	20,085,000
Output Kcal/Hr	2,530,800	2,952,600	3,374,400	3,796,200	4,218,000	5,061,600
Output kW	2,943	3,434	3,924	4,415	4,906	5,887
Output Boiler Horsepower	300	350	400	450	500	600
Approximate Fuel Consumption [Input - Note C]						
Natural Gas [ft ³ /hr] - 15# Steam	12,173	14,202	16,230	18,259	20,288	24,345
Natural Gas Therms/Hour - Steam 1.03 Bar	121.7	142.0	162.3	182.6	202.9	243.5
Natural Gas [m ³ /hr] - 15# Steam [1.03 Bar]	34,469	40,214	45,959	51,704	57,449	68,939
Natural Gas [ft ³ /hr] - 150# Steam [10.34 Bar]	12,491	14,645	16,717	18,597	20,664	24,796
Natural Gas Therms/Hour - 150# Steam [10.34 Bar]	124.9	146.5	167.2	186.0	206.6	248.0
Natural Gas [m ³ /hr] - 150# Steam [10.34 Bar]	35,370	41,471	47,336	52,661	58,513	70,215
No.2 Oil Fuel - gph, 15# Steam [1.03 Bar]	86.9	101.4	115.9	130.4	144.9	173.9
No.2 Oil Fuel - gph, 150# Steam [10.34 Bar]	89.2	104.6	119.4	132.8	147.6	177.1
No.2 Oil Fuel - liters/hour, 15# Steam [1.03 Bar]	328.7	383.4	438.2	493.0	547.8	657.3
No.2 Oil Fuel - liters/hour, 150# Steam [10.34 Bar]	337.2	395.4	451.3	502.1	557.9	669.5
Power Requirements - [Notes A,D, and E]						
Blower Motor HP - Gas Firing	10(15)	15	15	20	10(15)	20(25)
Blower Motor kW - Gas Firing	7.46(11.19)	11.19	11.19	14.92	7.46(11.19)	14.92(18.65)
Air Compressor Motor HP- Oil or Combination	5	5	7.5	7.5	7.5	7.5
Air Compressor Motor kW - Oil or Combination	3.73	3.73	5.60	5.60	5.60	5.60
Fuel Oil Metering Pump HP for Oil or Combination	0.5	0.5	0.5	0.5	0.75	0.75
Fuel Oil Metering Pump kW for Oil or Combination	0.37	0.37	0.37	0.37	0.56	0.56
Remote Fuel Oil Supply Pump HP for Oil or Combination	0.5	0.5	0.5	0.5	0.5	0.5
Remote Fuel Oil Supply Pump kW for Oil or Combination	0.37	0.37	0.37	0.37	0.37	0.37
Minimum Ampacity - Note E						
Blower Motor - 230/3/60	30.6(45.9)	45.9	45.9	61.3	30.6(45.9)	61.3(76.5)
Blower Motor - 460/3/60	15.3(23)	23	23	30.6	15.3(23)	30.6(38.3)
Blower Motor - 400/3/50	17.6(26.4)	26.4	26.4	35.3	17.6(26.4)	35.3(44)
Blower Motor - 575/3/60	12.2(18.4)	18.4	18.4	24.5	12.2(18.4)	24.5(30.6)
Air Compressor - 230/3/60	15.3	15.3	23	23	23	23
Air Compressor - 460/3/60	7.65	7.65	11.5	11.5	11.5	11.5
Air Compressor - 400/3/50	8.8	8.8	13.3	13.3	13.3	13.3
Air Compressor - 575/3/60	6.13	6.13	9.18	9.18	9.18	9.18
Fuel Oil Metering Pump - 230/3/60	1.53	1.53	1.53	1.53	2.53	2.53
Fuel Oil Metering Pump - 460/3/60	1.15	1.15	1.53	2.3	1.15	1.15
Fuel Oil Metering Pump - 400/3/50	1.33	1.33	1.76	2.64	1.33	1.33
Fuel Oil Metering Pump - 575/3/60	0.91	0.91	1.23	1.84	0.91	0.91
Remote Oil Supply Pump, [230]460/3/60	[1.53] 1.15	[1.53] 1.15	[1.53] 1.15	[1.53] 1.15	[1.53] 1.15	[1.53] 1.15
Remote Oil Supply Pump, 575/3/60	0.91	0.91	0.91	0.91	0.91	0.91
Control Circuit @115/1/60	2.4	1.9	1.9	1.9	2.4	2.4
Weights						
Operating Weight, lbs.	19,200	20,800	26,300	27,700	38,400	43,100
Operating Weight, kg	8,709	9,435	11,930	12,565	17,418	19,550
Water Content Normal, gallons	389	423	612	655	951	1,077
Water Content Normal, liters	1,472	1,600	2,315	2,478	3,601	4,077
Water Content Flooded, gallons	751	812	1,036	1,105	1,548	1,744
Water Content Flooded, liters	2,842	3,076	3,921	4,182	5,860	6,603
Shipping Weight, approximate lb.	16,000	17,300	21,200	22,200	30,500	34,100
Shipping Weight, approximate kg	7,258	7,847	9,616	10,070	13,835	15,468

Notes: A. Ratings shown for elevation to 2000 Feet @ 60HZ and uncontrolled emissions. For ratings above 2000 Feet, controlled emissions, and/or 50HZ, contact your local Cleaver-Brooks Representative as fan motor sizes will change.

B. Steam ratings are for operating pressure of 10 psig and 125 psig with water at 180 F supply.

C. Input calculated with Nat. Gas @ 1000 Btu/ft³ and Oil @ 140,000Btu/gal.

D. Standard Motors meet the requirements of UL & NEMA and include the following:

Open drip proof design
1.15 Service Factor
Class "B" Insulation

NEMA Design "B"
Ball Bearing
Continuous Duty, 40° C

E. Motor horsepower and amp ratings are for uncontrolled(30 PPM) configurations.

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