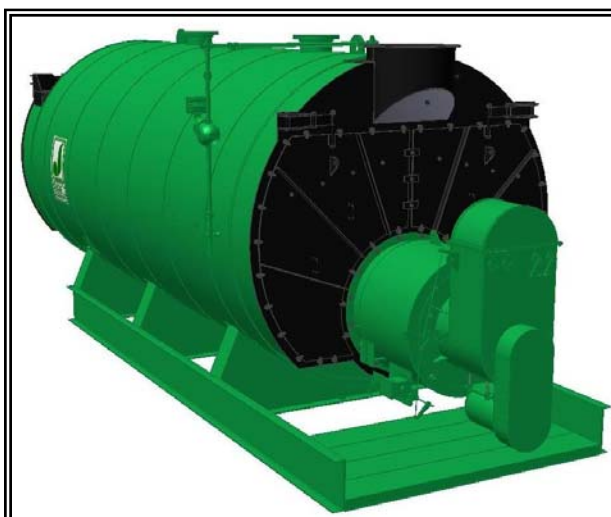


MODEL: PFTA 1200-4

4-Pass Hot Water Packaged Firetube Boiler

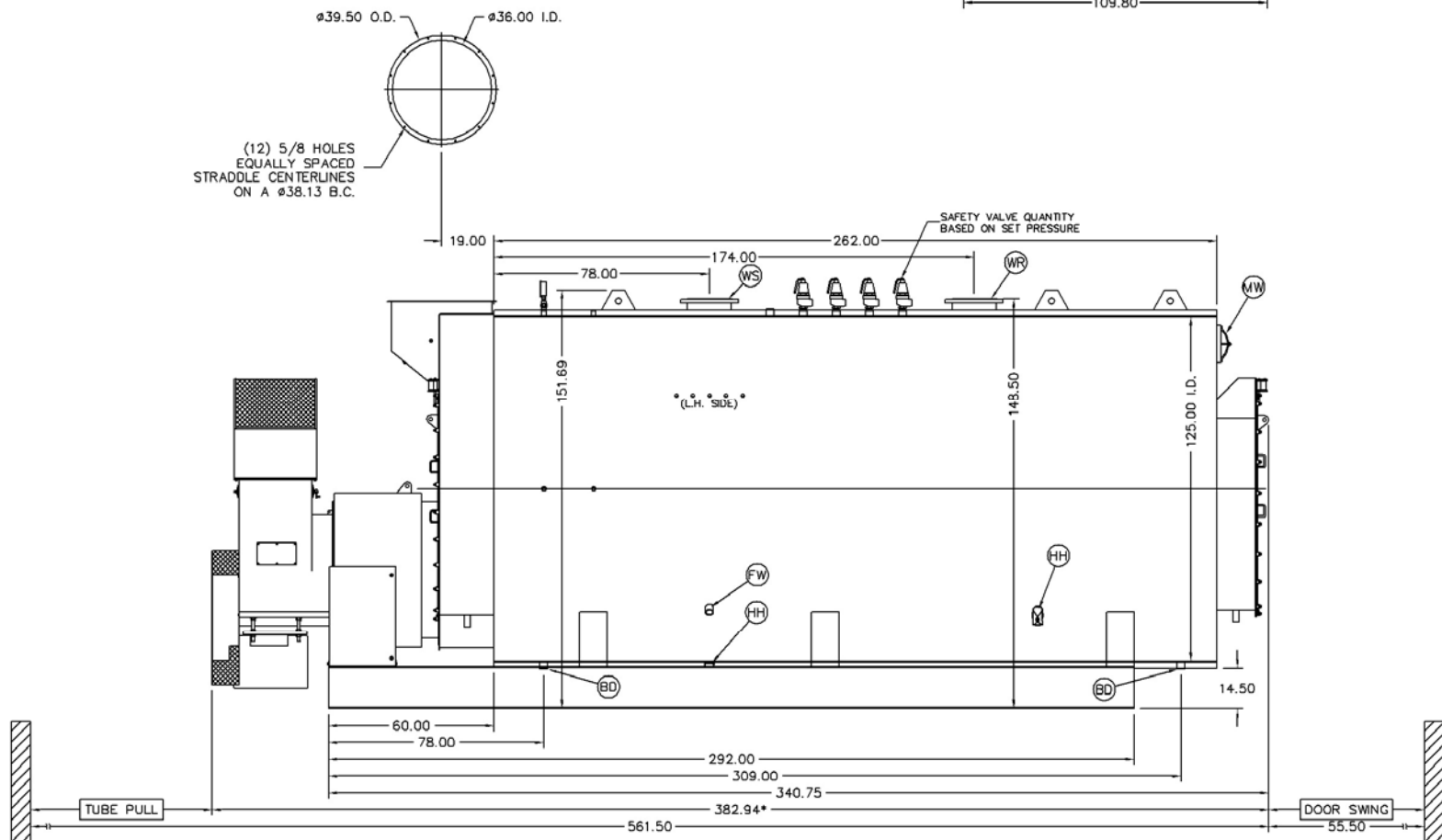
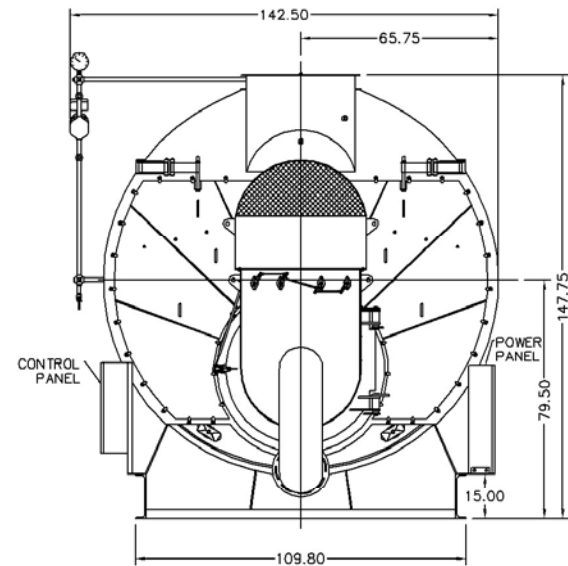


Ratings & Performance Data

Horsepower 1200		Natural Gas Flow, SCFH (1,000 Btu/ft ³)**		46,289		
Total Heating Surface, ft ²	6,071	Combustion Air (15% Excess), SCFM***		8,470		
Furnace Outside Diameter, in	56.0	Flue Gas Flow Rate, lb/hr***		40,367		
Furnace Heat Release Rate, Btu/ft ³ hr**	153,000	Stack Flue Gas Velocity, ft/min***		1,690		
Total Combustion Volume, ft ³	394.5	#2 Oil Flow, gal/hr (140,000 Btu/gal)**		318.8		
Total Heat Release Rate, Btu/ft ³ hr**	117,000	#6 Oil Flow, gal/hr (150,000 Btu/gal)**		295.3		
Water Content Flooded, gal	8,331	Flue Gas Side Pressure Drop, in. H ₂ O		9.6		
Approx. Dry Weight 30#, lb	76,700	Approx. Operating Weight 30#, lb		147,100		
Approx. Dry Weight 60#, lb	76,900	Approx. Operating Weight 60#, lb		147,300		
Approx. Dry Weight 125#, lb	79,100	Approx. Operating Weight 125#, lb		149,500		
Performance Data						
Operating Temperature (F)	Natural Gas		#2 Oil		#6 Oil	
	Stack Temp (F)	%Eff	Stack Temp	%Eff	Stack Temp (F)	%Eff
180	205	87.3	211	90.5	218	91.2
200	225	86.8	231	90.0	238	90.7
220	244	86.3	251	89.5	258	90.2
240	264	85.8	271	89.0	279	89.7
*Based on 20°F difference in supply/return, ** Values calculated at 200°F operating temperature, ***Calculated Firing Natural Gas						

Drawings - 4-Pass Hot Water Packaged Firetube Boiler

Connection & Opening Schedule			
Conn.	Description	Type	Qty
FW	Feedwater Inlet	2.00 FNPT	2
WS	Water Supply	14.00 150#RF	1
WR	Water Return	14.00 150#RF	1
DO	Drain Outlet	2.00 FNPT	2
MW	Manway	12 X 16	1
HH	Hand Hole	4 X 6	7
Supply and return outlets ASME flanged drilling			



Notes:

30# Hot Water design shown, all dimensions given in inches.

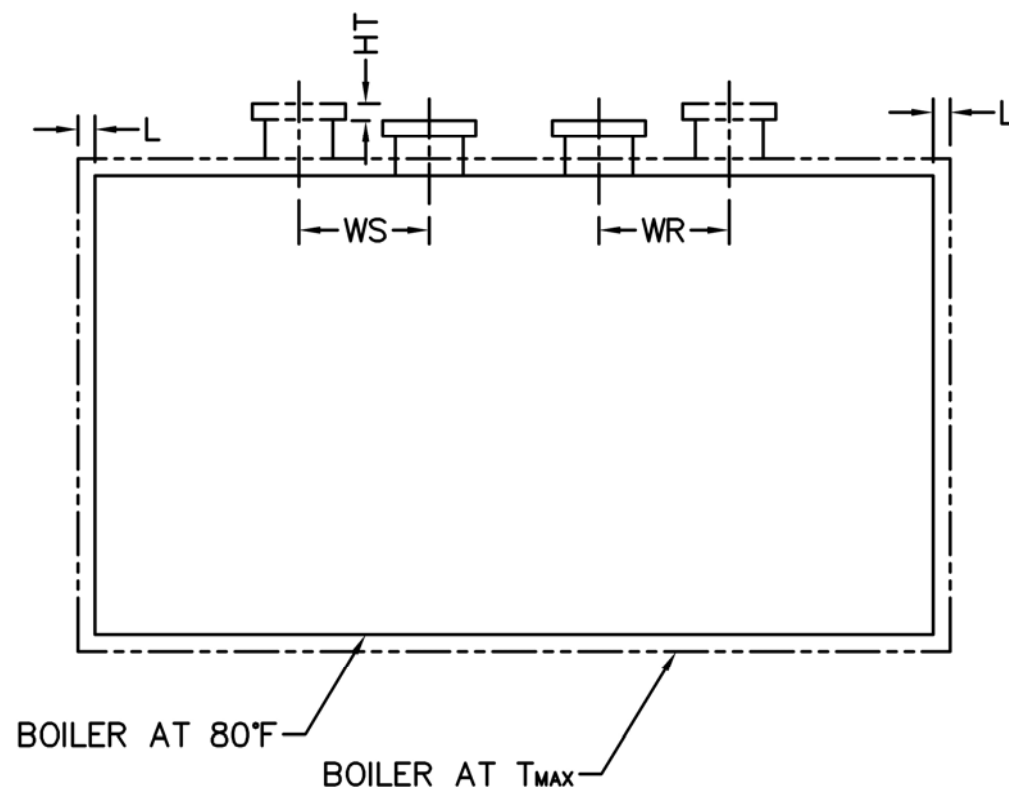
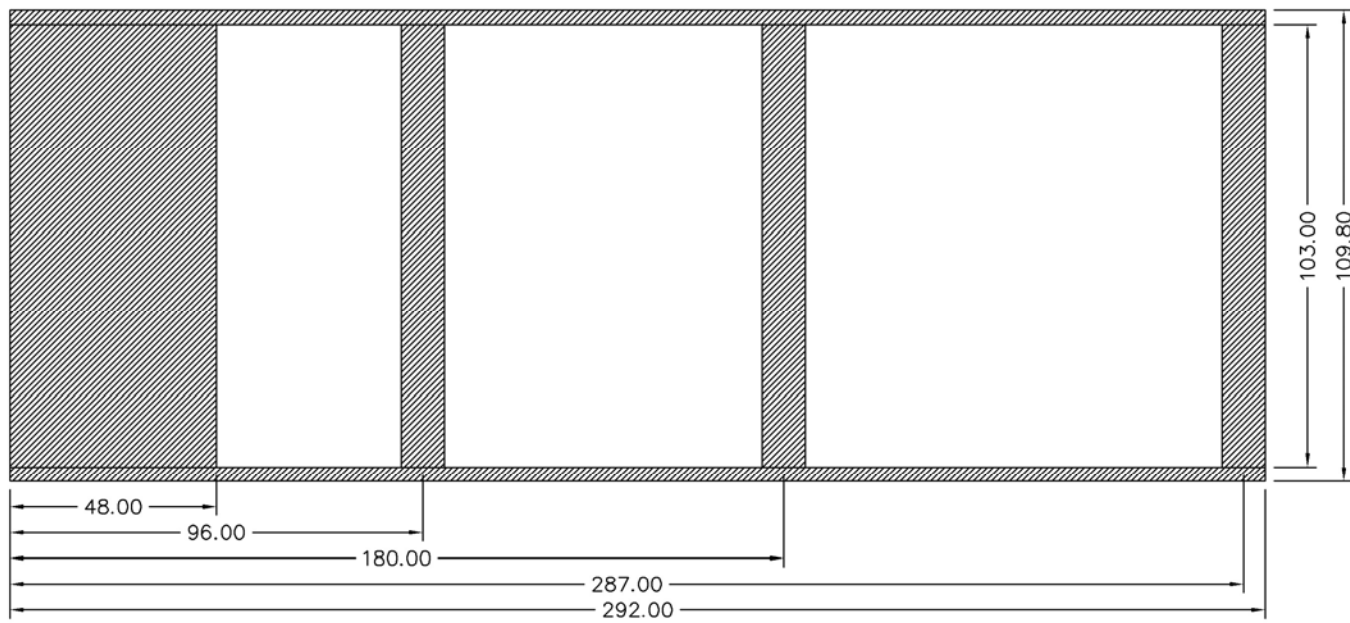
Fuel piping and/or optional boiler trim may increase overall width.

Specifications subject to change to incorporate engineering advances.

*May vary on low-NO_x designs.

MODEL: PFTA 1200-4

Base Diagram

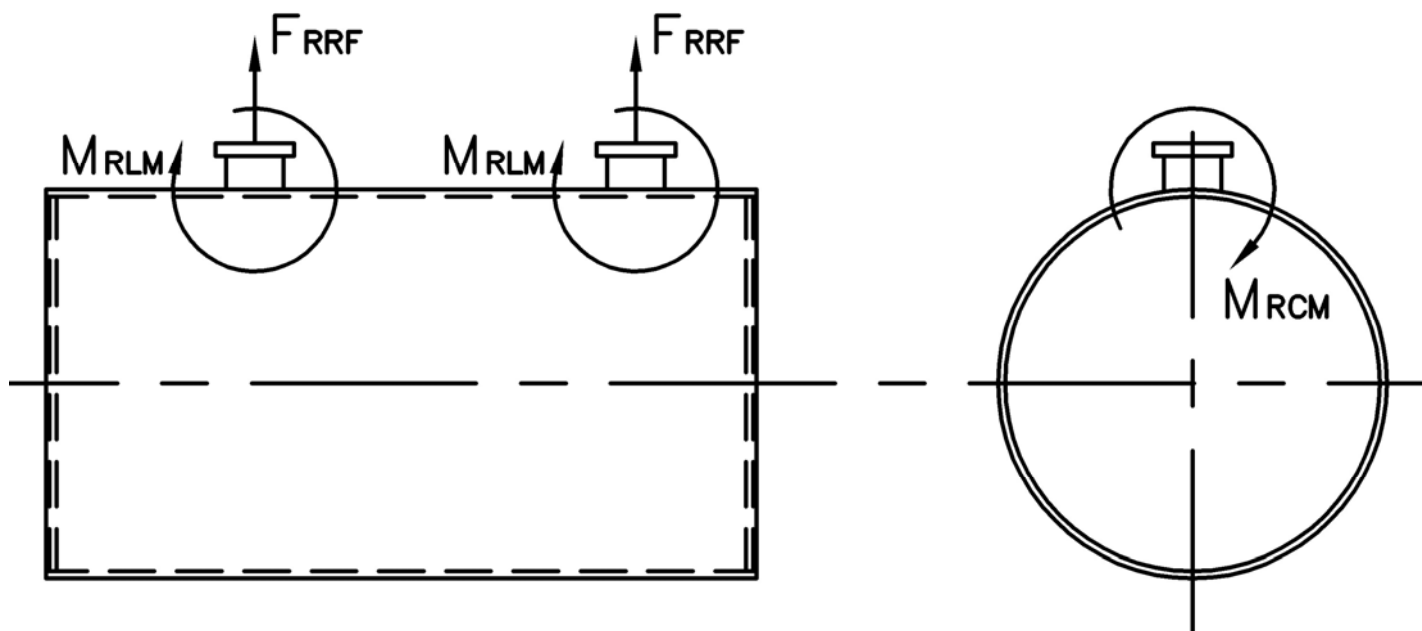


Thermal Expansion				
Metal T _{MAX} (F)	180	200	220	240
L (in)	0.079	0.094	0.110	0.126
WS (in)	0.032	0.038	0.045	0.051
WR (in)	0.026	0.031	0.036	0.041
HT (in)	0.075	0.091	0.106	0.121

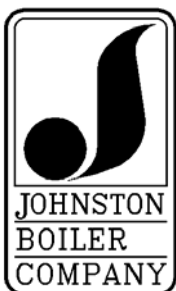
MODEL: PFTA 1200-4

Nozzle Loadings

Maximum Allowable Load on Outlet & Return Nozzles				
	30# Design	60# Design	125# Design	160# Design
F_{RRF} , lb	6,230	4,590	8,500	9,730
M_{RCM} , in-lb	70,875	70,875	148,900	196,690
M_{RLM} , in-lb	93,515	68,905	138,895	151,400



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Stack Emissions-Natural Gas (1,000 Btu/CF)				
	PPMv (Corr to 3% O ₂)	lb/MBtu	lb/hr @ Full Rate	Ton/Yr @ Full Rate
NO _x *	110	0.131	6.062	26.550
	30	0.036	1.653	7.241
	9	0.011	0.496	2.172
CO	50	0.037	1.70	7.448
CO ₂	2.55 lb/lb fuel	119.76	5,544	24,281
H ₂ O	2.03 lb/lb fuel	106.16	4,914	21,524
Stack Emissions-#2 Oil** (140,000 Btu/gal)				
NO _x	128	0.174	7.771	34.037
CO	50	0.037	1.640	7.182
CO ₂	3.20 lb/lb fuel	168.53	7,522	32,947
H ₂ O	1.12 lb/lb fuel	71.20	3,178	13,919

* 110 ppm "A" Burner, 30 ppm A-FGR Burner, 9 ppm FIR Burner
**0.02% fuel bound Nitrogen

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