



MODEL: PFTA 300-4

4-Pass Hot Water Packaged Firetube Boiler

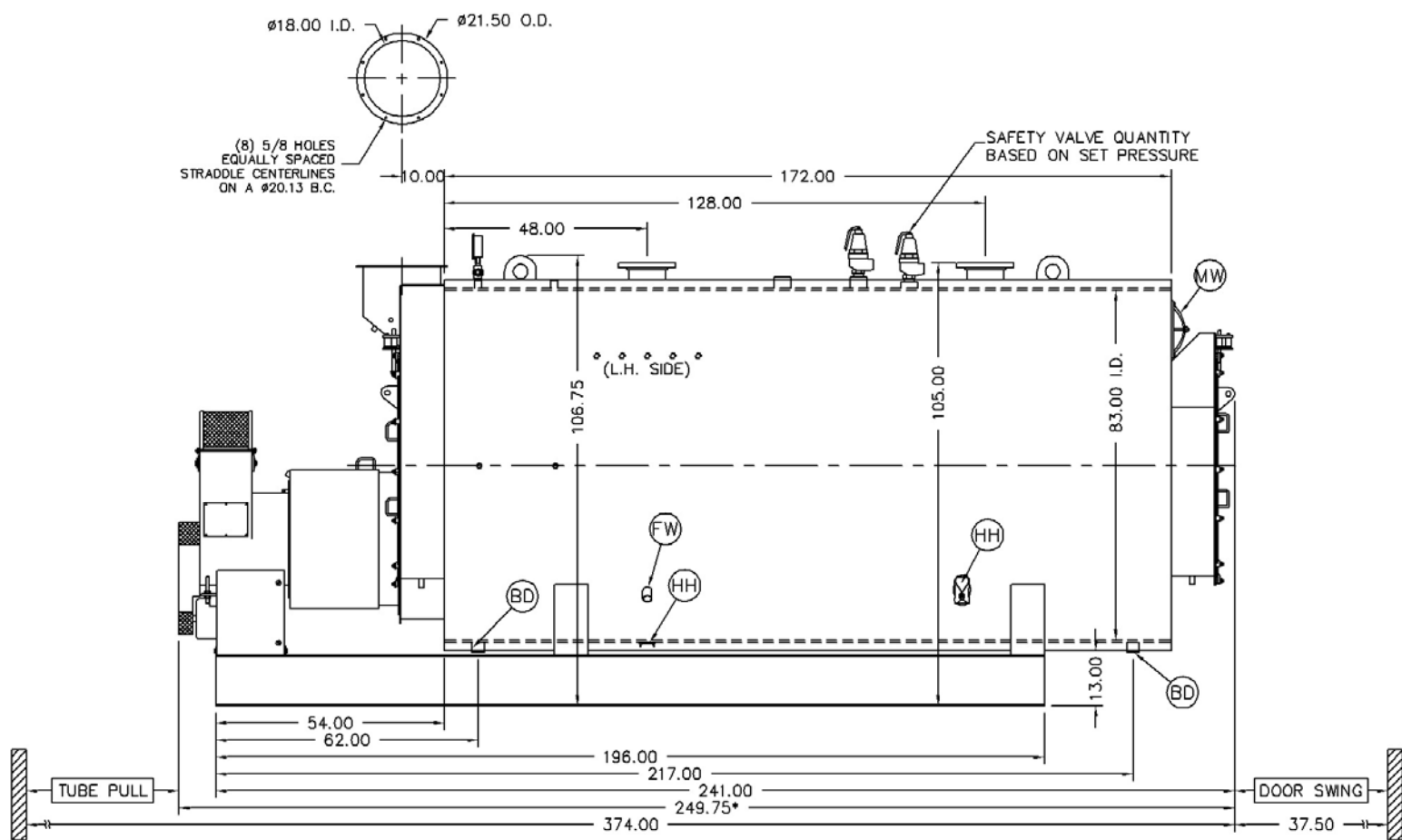
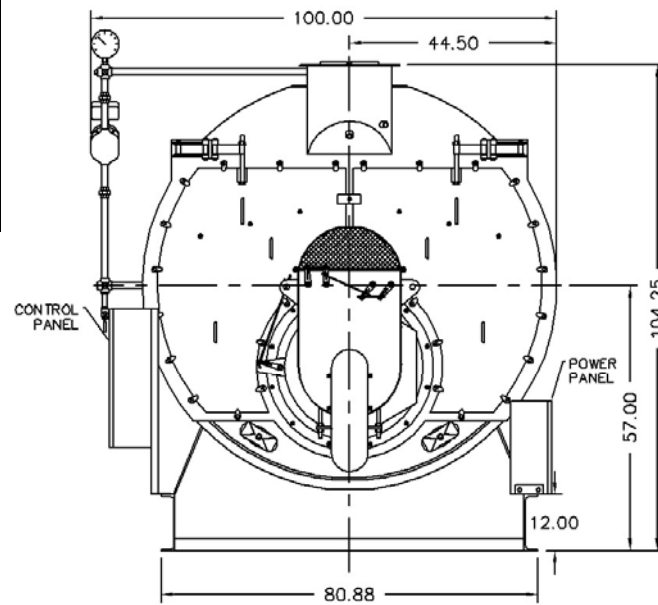


Ratings & Performance Data

Horsepower 300		Natural Gas Flow, SCFH (1,000 Btu/ft ³)**	11,762			
Total Heating Surface, ft ²	1,527	Combustion Air (15% Excess), SCFM***	2,152			
Furnace Outside Diameter, in	38.0	Flue Gas Flow Rate, lb/hr***	10,257			
Furnace Heat Release Rate, Btu/ft ³ hr**	141,000	Stack Flue Gas Velocity, ft/min***	1,848			
Total Combustion Volume, ft ³	120.8	#2 Oil Flow, gal/hr (140,000 Btu/gal)**	80.4			
Total Heat Release Rate, Btu/ft ³ hr**	97,000	#6 Oil Flow, gal/hr (150,000 Btu/gal)**	75.0			
Water Content Flooded, gal	2,453	Flue Gas Side Pressure Drop, in. H ₂ O	4.0			
Approx. Dry Weight 15#, lb	18,847	Approx. Operating Weight 15#, lb	35,504			
Approx. Dry Weight 150#, lb	20,821	Approx. Operating Weight 150#, lb	37,954			
Approx. Dry Weight 200#, lb	22,187	Approx. Operating Weight 200#, lb	39,227			
Approx. Dry Weight 250#, lb	24,581	Approx. Operating Weight 250#, lb	41,597			
Approx. Dry Weight 300#, lb	26,975	Approx. Operating Weight 300#, lb	43,968			
Performance Data						
Operating Temperature (F)	Natural Gas		#2 Oil		#6 Oil	
	Stack Temp (F)	%Eff	Stack Temp	%Eff	Stack Temp (F)	%Eff
180	238	86.4	249	89.5	254	90.2
200	257	85.9	268	89.0	274	89.7
220	277	85.4	288	88.5	294	89.2
240	296	84.9	307	88.0	314	88.7
*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	1.50 FNPT	2
WS	Water Supply	8.00 150#RF	1
WR	Water Return	8.00 150#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.

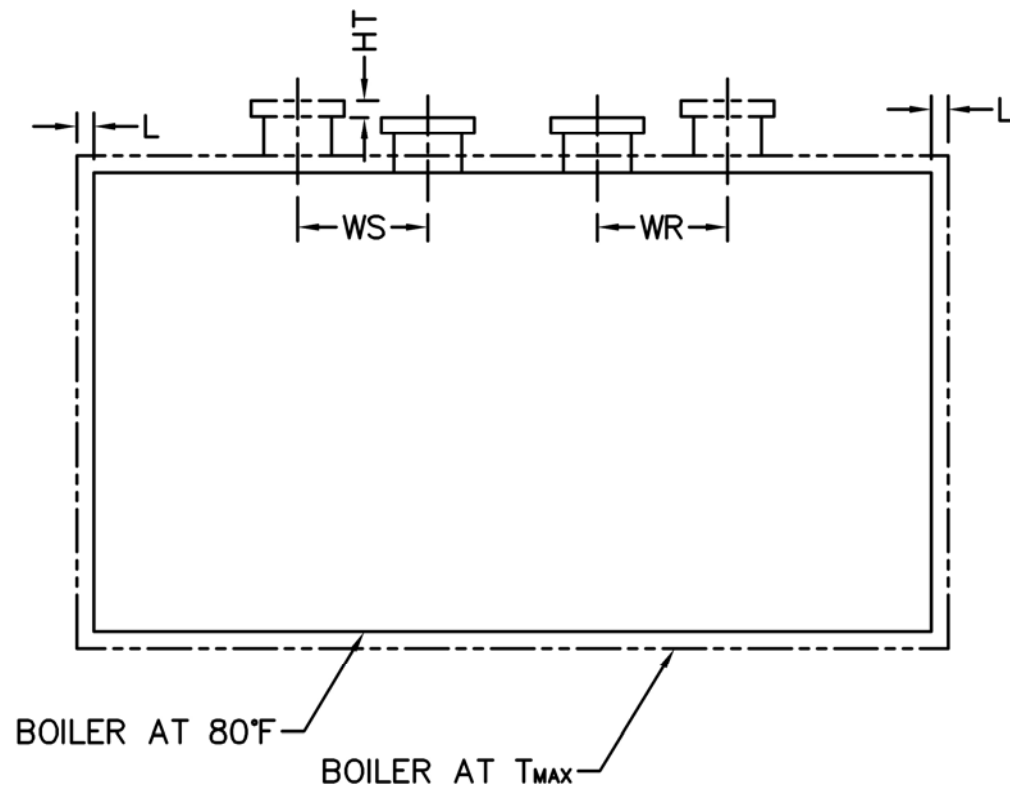
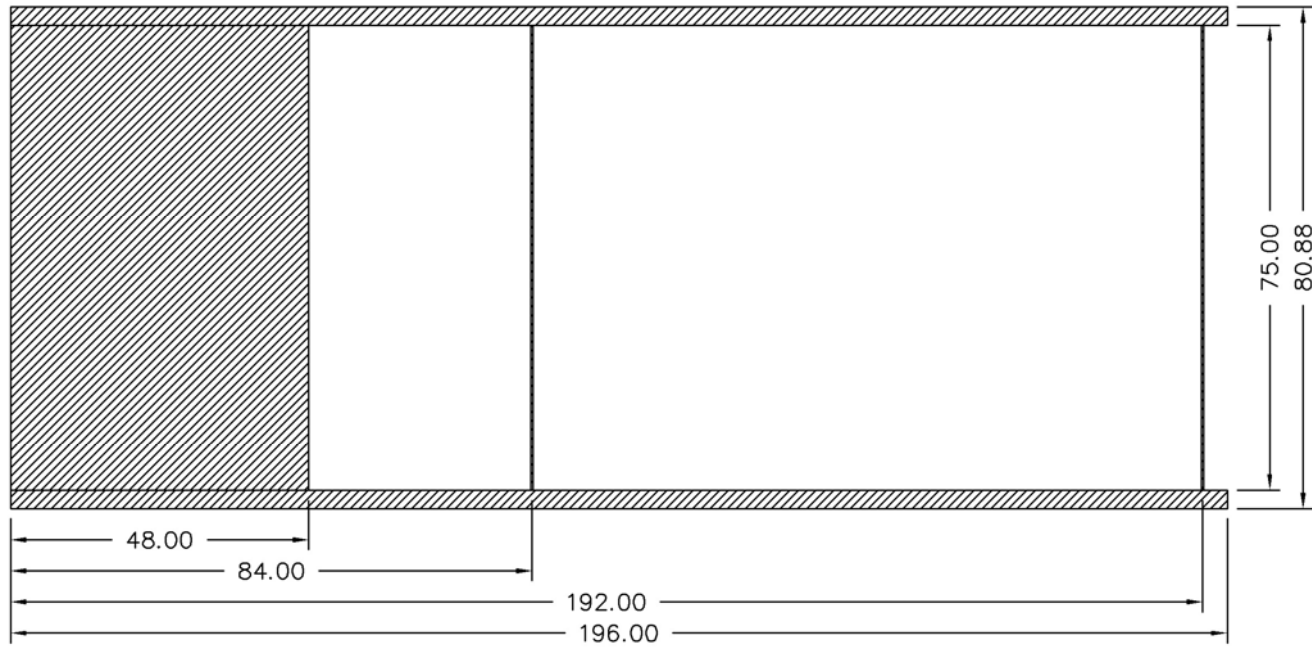
Fuel piping and/or optional boiler trim may increase overall width.

Specifications subject to change to incorporate engineering advances.

*May vary on low-NO_x designs.

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Base Diagram

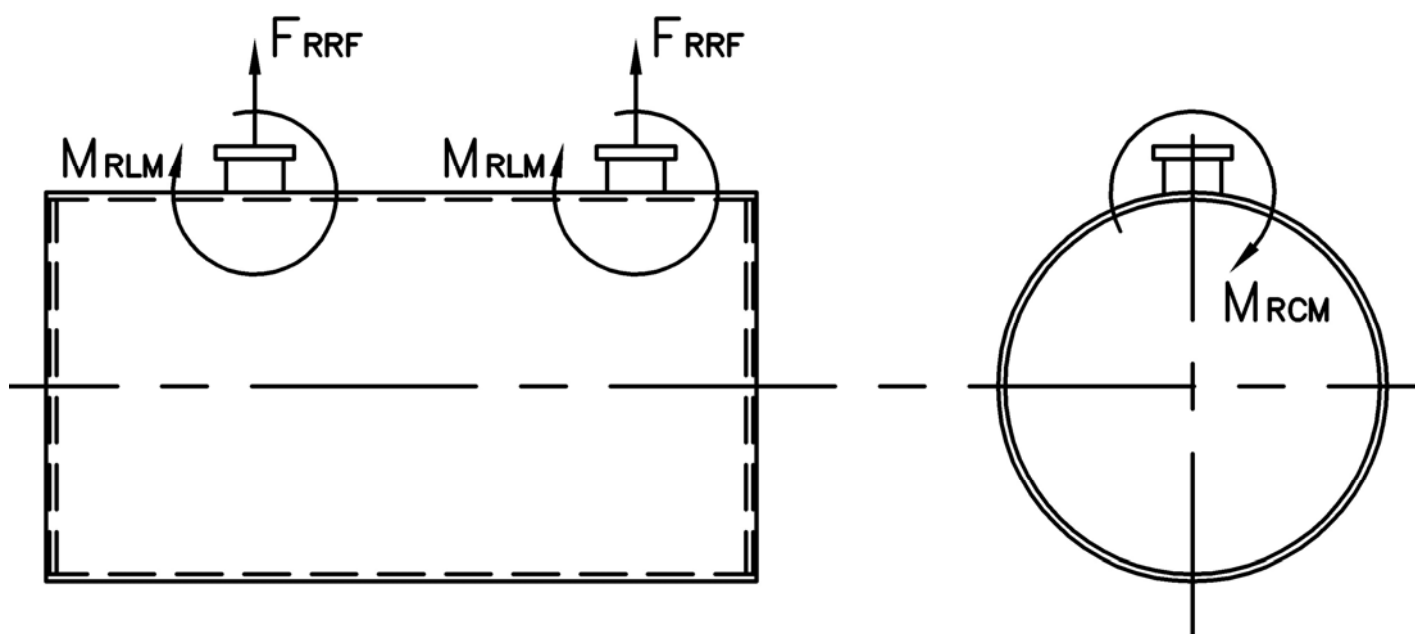


Thermal Expansion				
Metal T _{MAX} (F)	180	200	220	240
L (in)	0.052	0.062	0.072	0.083
WS (in)	0.023	0.027	0.032	0.036
WR (in)	0.025	0.030	0.035	0.040
HT (in)	0.050	0.060	0.070	0.080

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Nozzle Loadings

Maximum Allowable Load on Outlet & Return Nozzles				
	30# Design	60# Design	125# Design	160# Design
F_{RRF} , lb	6,140	5,150	3,565	3,855
M_{RCM} , in-lb	35,605	35,600	41,335	37,695
M_{RLM} , in-lb	46,635	39,145	31,770	36,020



Distributed By:

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	1.531	6.707
	30	0.036	0.418	1.829
	9	0.011	0.125	0.549
CO	50	0.037	0.43	1.882
CO ₂	2.55 lb/lb fuel	119.76	1,400	6,134
H ₂ O	2.03 lb/lb fuel	106.16	1,241	5,437
Stack Emissions-#2 Oil** (140,000 Btu/gal)				
NO _x	128	0.174	1.965	8.607
CO	50	0.037	0.415	1.816
CO ₂	3.20 lb/lb fuel	168.53	1,902	8,331
H ₂ O	1.12 lb/lb fuel	71.20	804	3,520

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



300 Pine Street
 P.O. Box 300
 Ferrysburg, MI 49409-0300
 Telephone: (616) 842-5050
 Net: www.johnstonboiler.com