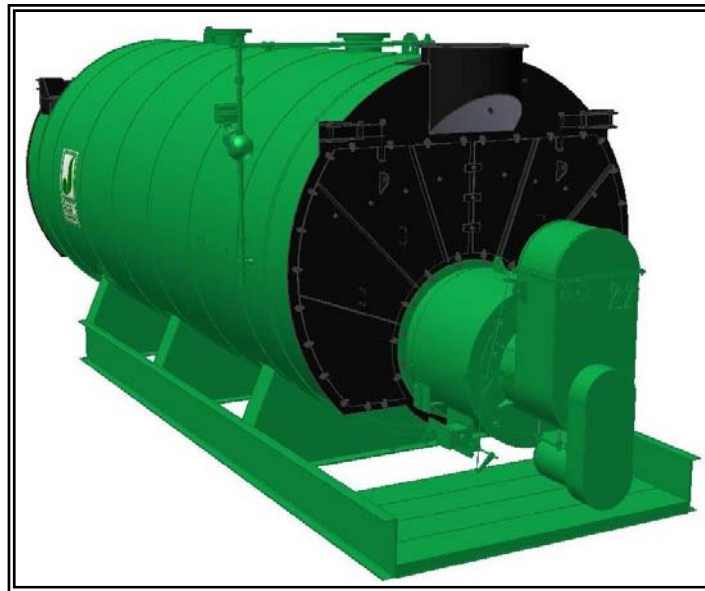


MODEL: PFTA 350-4

4-Pass Hot Water Packaged Firetube Boiler

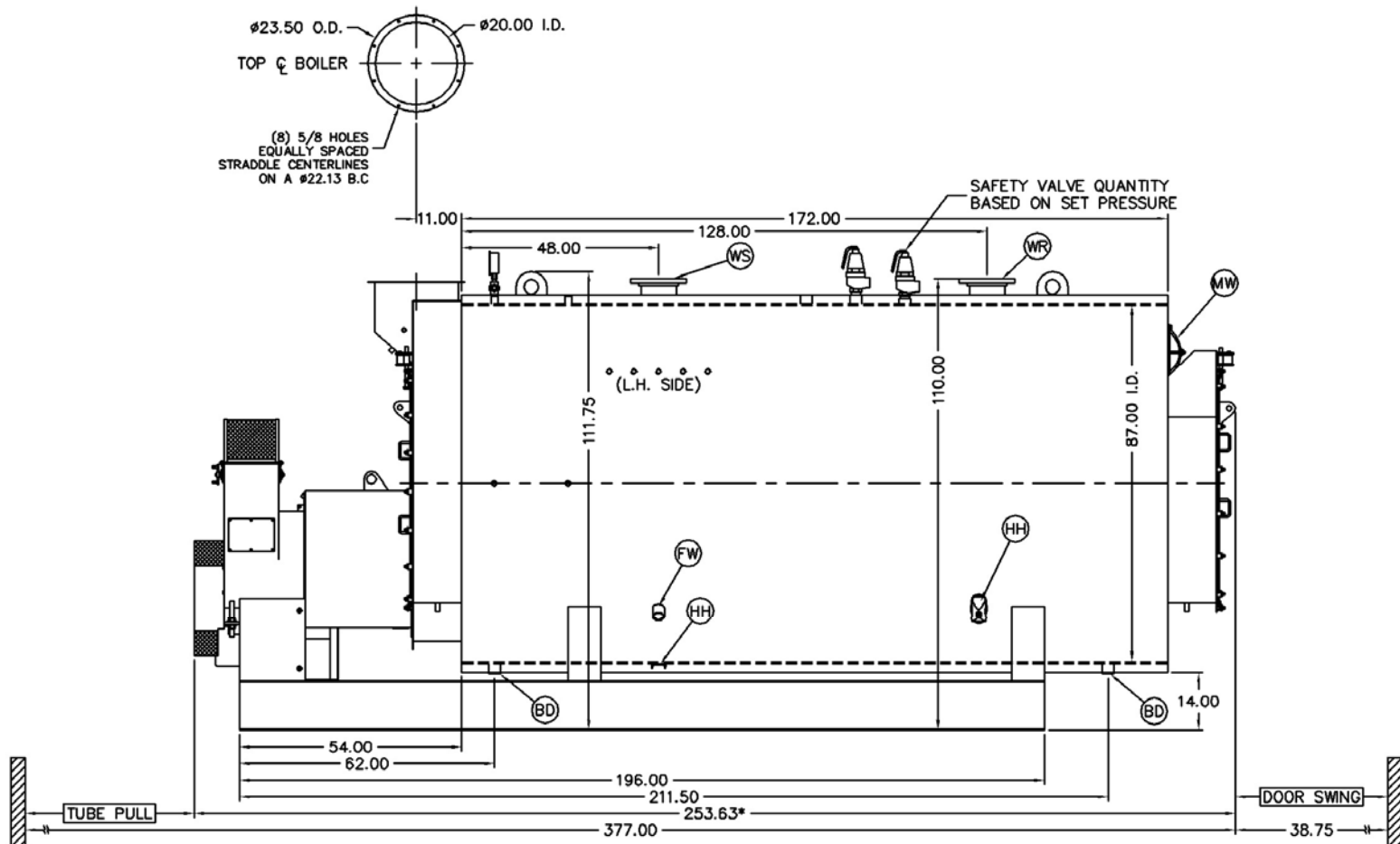
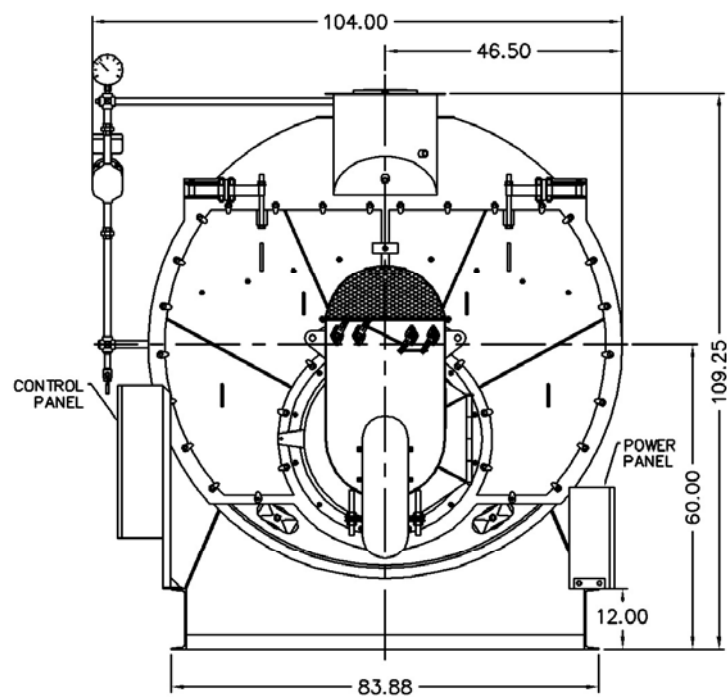


Ratings & Performance Data

Horsepower 350		Natural Gas Flow, SCFH (1,000 Btu/ft ³)**		13,660		
Total Heating Surface, ft ²	1,756	Combustion Air (15% Excess), SCFM***		2,500		
Furnace Outside Diameter, in	40.0	Flue Gas Flow Rate, lb/hr***		11,912		
Furnace Heat Release Rate, Btu/ft ³ hr**	147,000	Stack Flue Gas Velocity, ft/min***		1,703		
Total Combustion Volume, ft ³	134.3	#2 Oil Flow, gal/hr (140,000 Btu/gal)**		94.2		
Total Heat Release Rate, Btu/ft ³ hr**	102,000	#6 Oil Flow, gal/hr (150,000 Btu/gal)**		87.2		
Water Content Flooded, gal	2,637	Flue Gas Side Pressure Drop, in. H ₂ O		3.9		
Approx. Dry Weight 30#, lb	24,200	Approx. Operating Weight 30#, lb		46,700		
Approx. Dry Weight 60#, lb	24,300	Approx. Operating Weight 60#, lb		46,800		
Approx. Dry Weight 125#, lb	25,300	Approx. Operating Weight 125#, lb		47,800		
Performance Data						
Operating Temperature (F)	Natural Gas		#2 Oil		#6 Oil	
	Stack Temp (F)	%Eff	Stack Temp	%Eff	Stack Temp (F)	%Eff
180	242	86.3	254	89.4	261	90.1
200	262	85.8	274	88.9	281	89.6
220	275	85.2	284	88.3	321	89.1
240	301	84.8	313	87.9	321	88.6
*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.

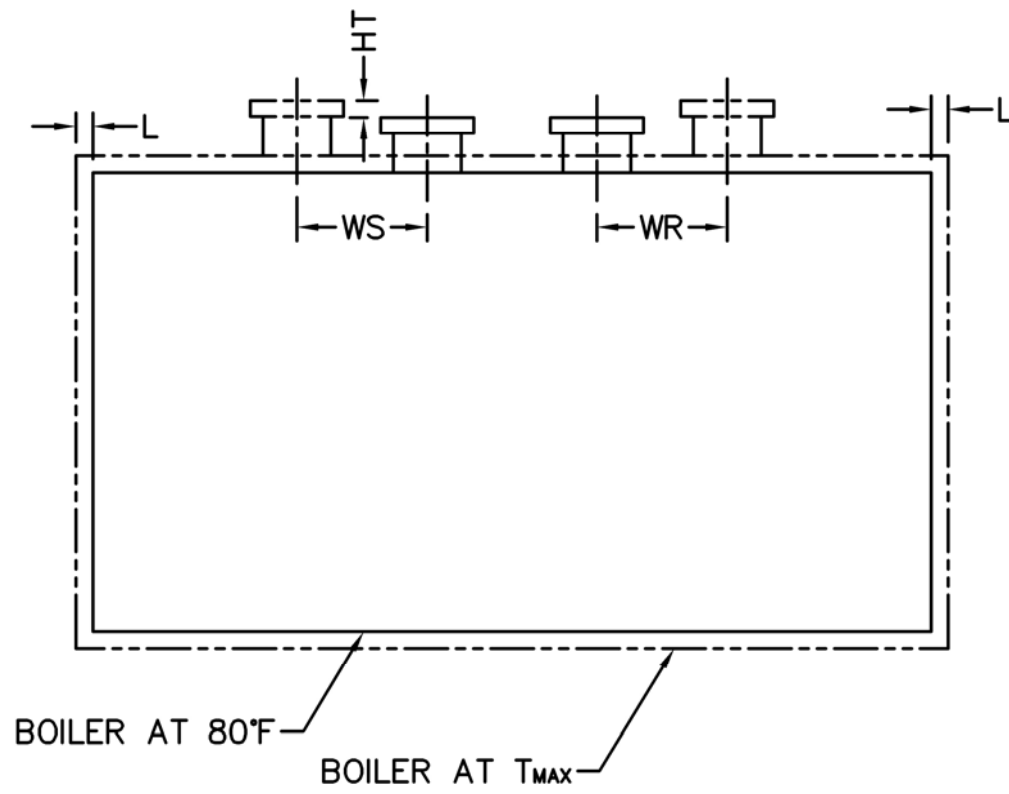
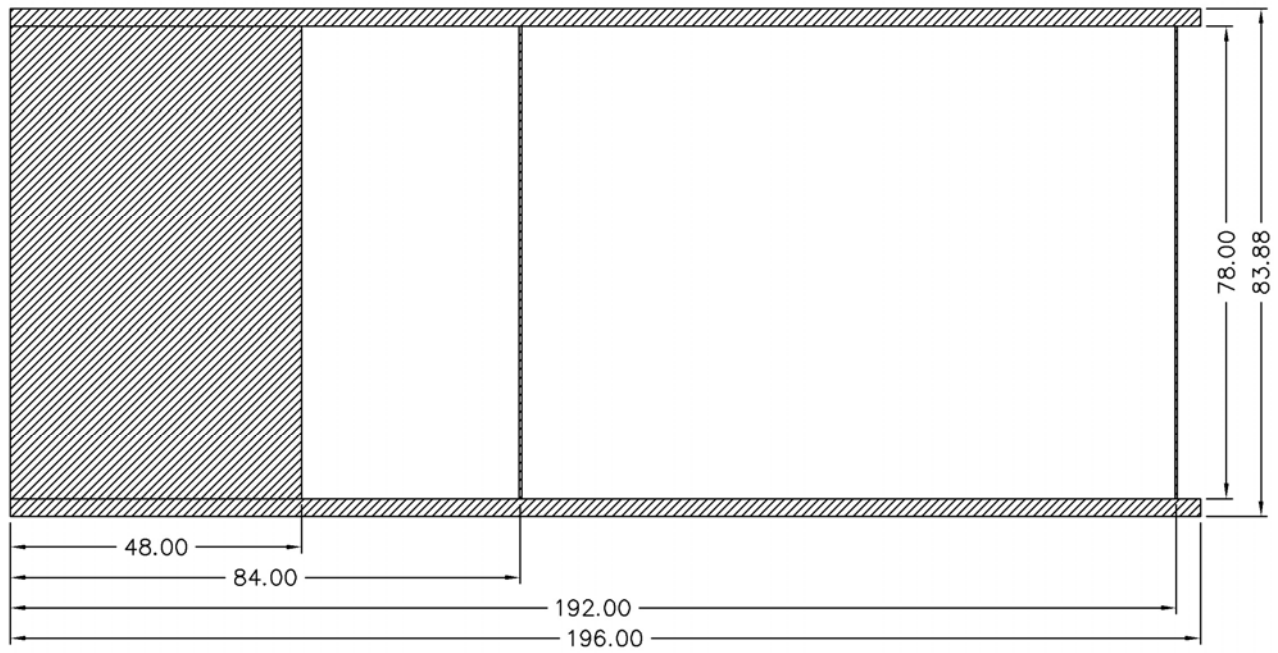
Fuel piping and/or optional boiler trim may increase overall width.

Specifications subject to change to incorporate engineering advances.

*May vary on low-NO_x designs.

MODEL: PFTA 350-4

Base Diagram

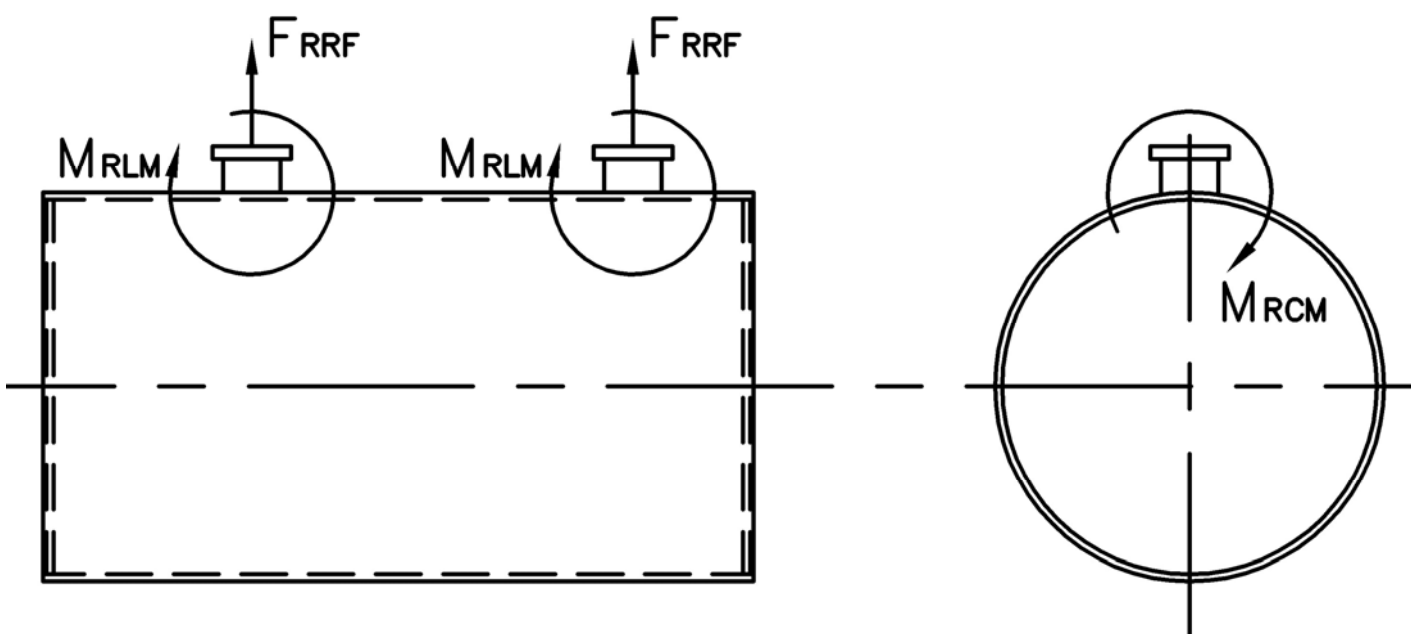


Thermal Expansion				
Metal T_{MAX} (F)	180	200	220	240
L (in)	0.052	0.062	0.072	0.083
WS (in)	0.023	0.027	0.032	0.036
WR (in)	0.025	0.030	0.035	0.040
HT (in)	0.052	0.063	0.073	0.084

MODEL: PFTA 350-4

Nozzle Loadings

Maximum Allowable Load on Outlet & Return Nozzles				
	30# Design	60# Design	125# Design	160# Design
F_{RRF} , lb	5,890	4,890	3,290	4,340
M_{RCM} , in-lb	33,015	33,015	33,015	53,215
M_{RLM} , in-lb	45,365	37,675	25,350	39,550



Distributed By:



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Telephone: (616) 842-5050
Net: www.johnstonboiler.com

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	1.789	7.835
	30	0.036	0.488	2.137
	9	0.011	0.146	0.641
CO	50	0.037	0.50	2.198
CO ₂	2.55 lb/lb fuel	119.76	1,636	7,165
H ₂ O	2.03 lb/lb fuel	106.16	1,450	6,352
Stack Emissions-#2 Oil** (140,000 Btu/gal)				
NO _x	128	0.174	2.296	10.056
CO	50	0.037	0.484	2.122
CO ₂	3.20 lb/lb fuel	168.53	2,222	9,734
H ₂ O	1.12 lb/lb fuel	71.20	939	4,112

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