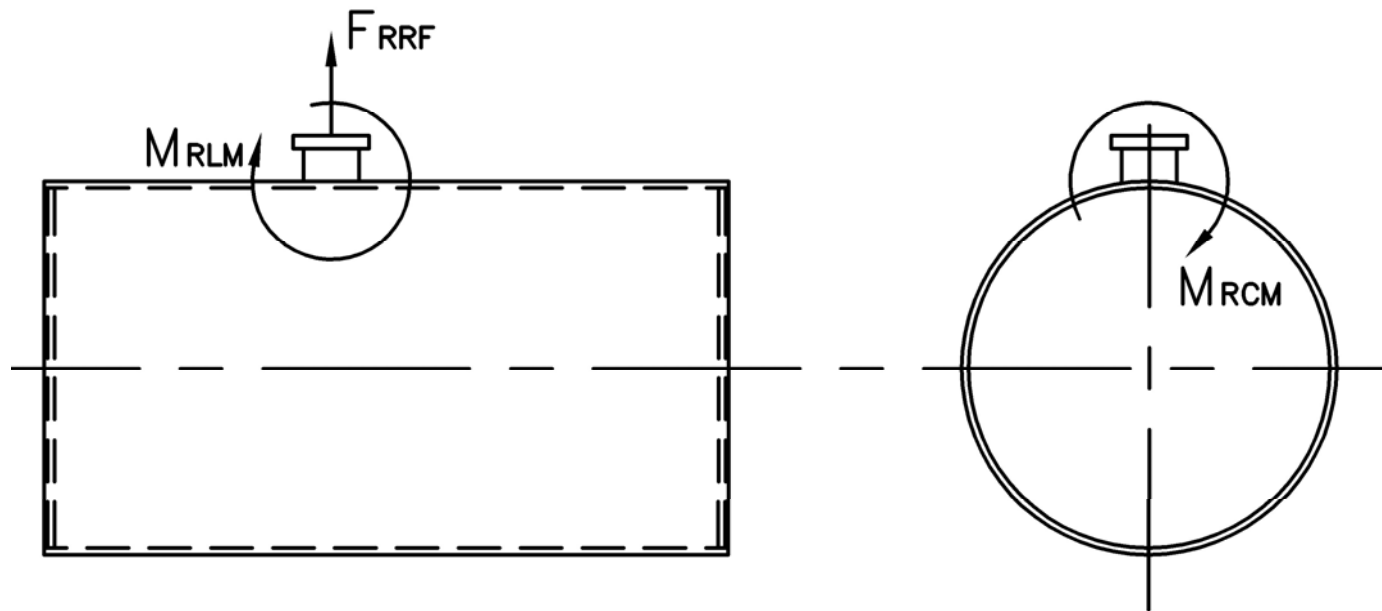


# MODEL: PFTA 250-4

## Nozzle Loadings

Maximum Allowable Load on Boiler Steam Nozzle					
	15# Design	150# Design	200# Design	250# Design	300# Design
$F_{RRF}$ , lb	6,675	2,460	2,460	3,750	4,680
$M_{RCM}$ , in-lb	40,360	22,115	22,115	32,100	48,935
$M_{RLM}$ , in-lb	66,435	17,095	17,095	26,490	35,420



Distributed By:

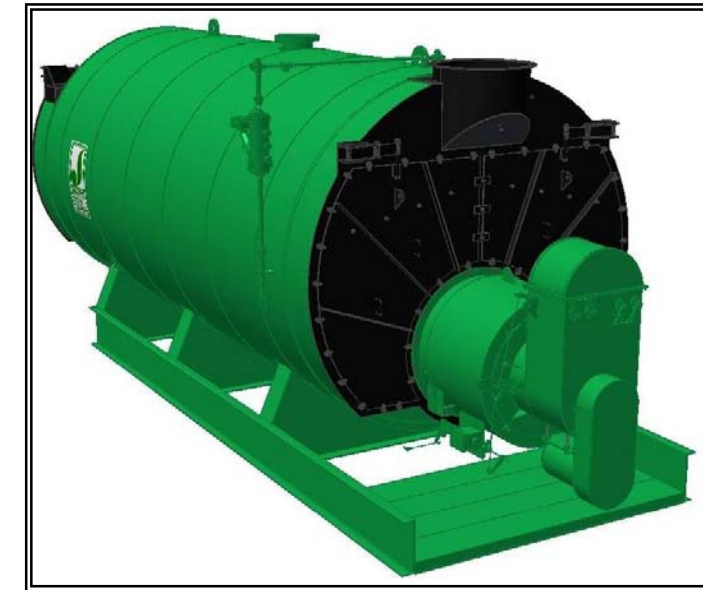
Stack Emissions-Natural Gas (1,000 Btu/CF)				
	PPMv (Corr to 3% O <sub>2</sub> )	lb/MBtu	lb/hr @ Full Rate	Ton/Yr @ Full Rate
NO <sub>x</sub> *	110	0.131	1.340	5.867
	30	0.036	0.365	1.600
	9	0.011	0.110	0.480
CO	50	0.037	0.38	1.646
CO <sub>2</sub>	2.55 lb/lb fuel	119.76	1,225	5,366
H <sub>2</sub> O	2.03 lb/lb fuel	106.16	1,086	4,757
Stack Emissions-#2 Oil** (140,000 Btu/gal)				
NO <sub>x</sub>	128	0.174	1.718	7.524
CO	50	0.037	0.362	1.588
CO <sub>2</sub>	3.20 lb/lb fuel	168.53	1,663	7,283
H <sub>2</sub> O	1.12 lb/lb fuel	71.20	702	3,077

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



# MODEL: PFTA 250-4

## 4-Pass Steam Packaged Firetube Boiler



## Ratings & Performance Data

Horsepower 250							
Steam Storage, ft <sup>3</sup>	53.9	Natural Gas Flow, SCFH (1,000 Btu/ft <sup>3</sup> )**	10,229				
Steam Disengaging Area, ft <sup>2</sup>	56.3	Combustion Air (15% Excess), SCFM***	1,872				
Total Heating Surface, ft <sup>2</sup>	1,295	Flue Gas Flow Rate, lb/hr***	8,921				
Furnace Outside Diameter, in	40.5	Stack Flue Gas Velocity, ft/min***	1,910				
Furnace Heat Release Rate, Btu/ft <sup>3</sup> hr**	164,000	#2 Oil Flow, gal/hr (140,000 BTU/gal)**	70.5				
Total Combustion Volume, ft <sup>3</sup>	97.4	#6 Oil Flow, gal/hr (150,000 BTU/gal)**	65.3				
Total Heat Release Rate, Btu/ft <sup>3</sup> hr**	105,000	Flue Gas Side Pressure Drop, in. H <sub>2</sub> O	3.0				
Water Content N.W.L., gal	1,584	Water Content Flooded, gal.	1,988				
Approx. Dry Weight 15#, lb	21,200	Approx. Operating Weight 15#, lb.	32,700				
Approx. Dry Weight 150#, lb	23,800	Approx. Operating Weight 150#, lb.	35,300				
Approx. Dry Weight 200#, lb	24,700	Approx. Operating Weight 200#, lb.	36,200				
Approx. Dry Weight 250#, lb	25,900	Approx. Operating Weight 250#, lb.	37,400				
Approx. Dry Weight 300#, lb	27,000	Approx. Operating Weight 300#, lb.	38,500				
Performance Data							
Operating Pressure (psig)	Steam Rate (lb/hr)	Natural Gas		#2 Oil		#6 Oil	
		Stack Temp (F)	%Eff	Stack Temp (F)	%Eff	Stack Temp (F)	%Eff
10	8,682	319	84.3	332	87.3	342	88.0
50	8,514	376	82.8	390	85.9	401	86.5
100	8,423	416	81.8	429	84.8	442	85.4
150	8,372	444	81.1	457	84.1	472	84.7
200	8,340	466	80.5	480	83.5	494	84.1
250	8,320	485	80.0	498	83.0	514	83.6
300	8,307	501	79.6	514	82.6	530	83.1

\*Based on 228°F feedwater and 3% O<sub>2</sub>, \*\* Values calculated at 100 psi operating pressure, \*\*\*Calculated Firing Natural Gas



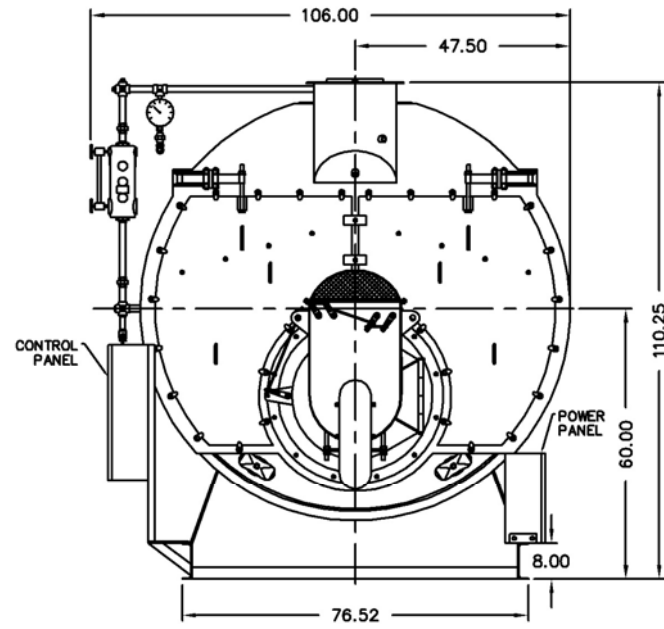
300 Pine Street  
P.O. Box 300  
Ferrysburg, MI 49409-0300  
Telephone: (616) 842-5050  
Net: www.johnstonboiler.com

# Drawings - 4-Pass Steam Packaged Firetube Boiler

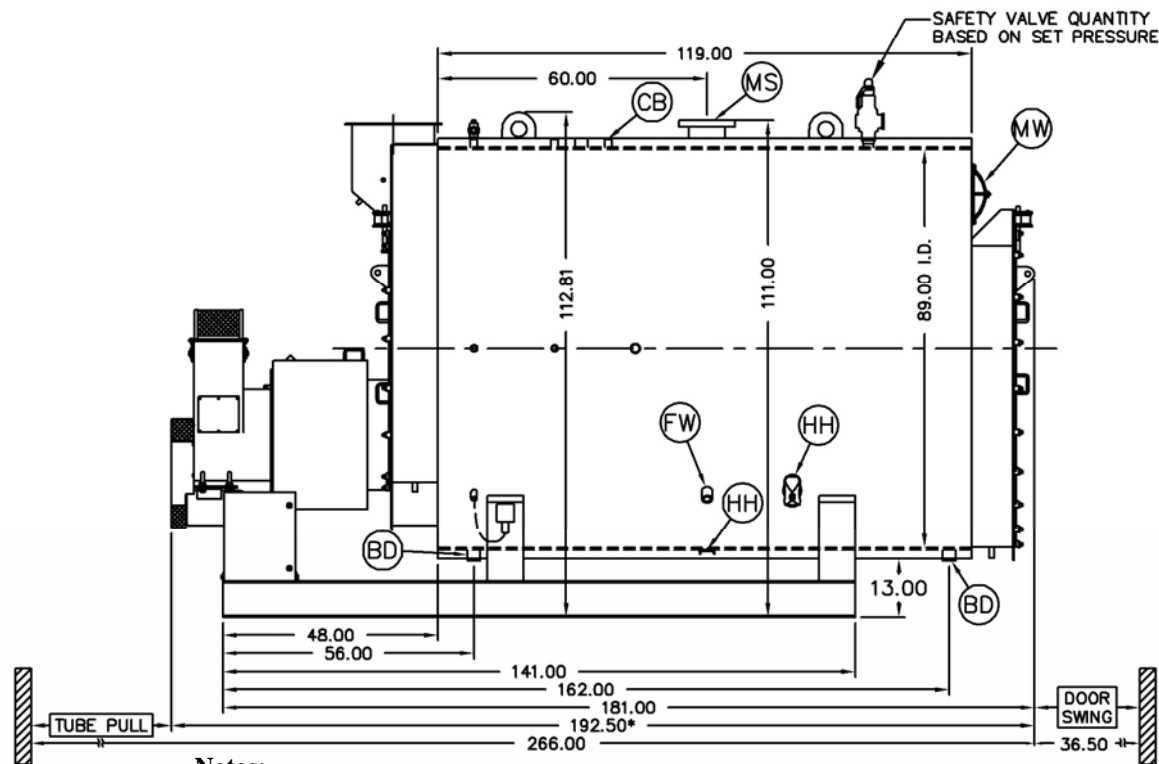
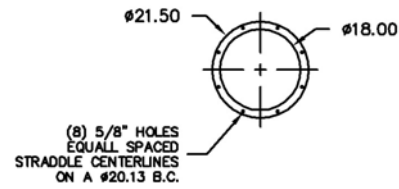
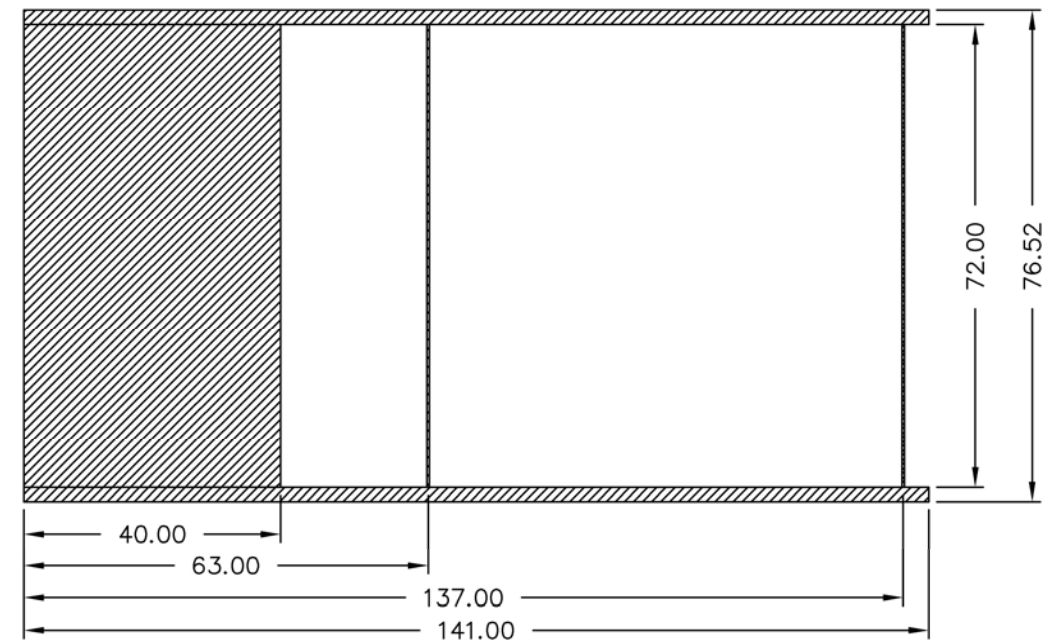
**MODEL: PFTA 250-4**

Connection & Opening Schedule			
Conn.	Description	Type	Qty
FW	Feedwater Inlet	1.50 FNPT	2
MS*	Main Steam	6.00 300# RF	1
CB	Continuous Blowoff	1.00 FNPT	1
BD	Blowdown Outlet	2.00 FNPT	2
MW	Manway	12 X 16	1
HH	Hand Hole	4 X 6	6

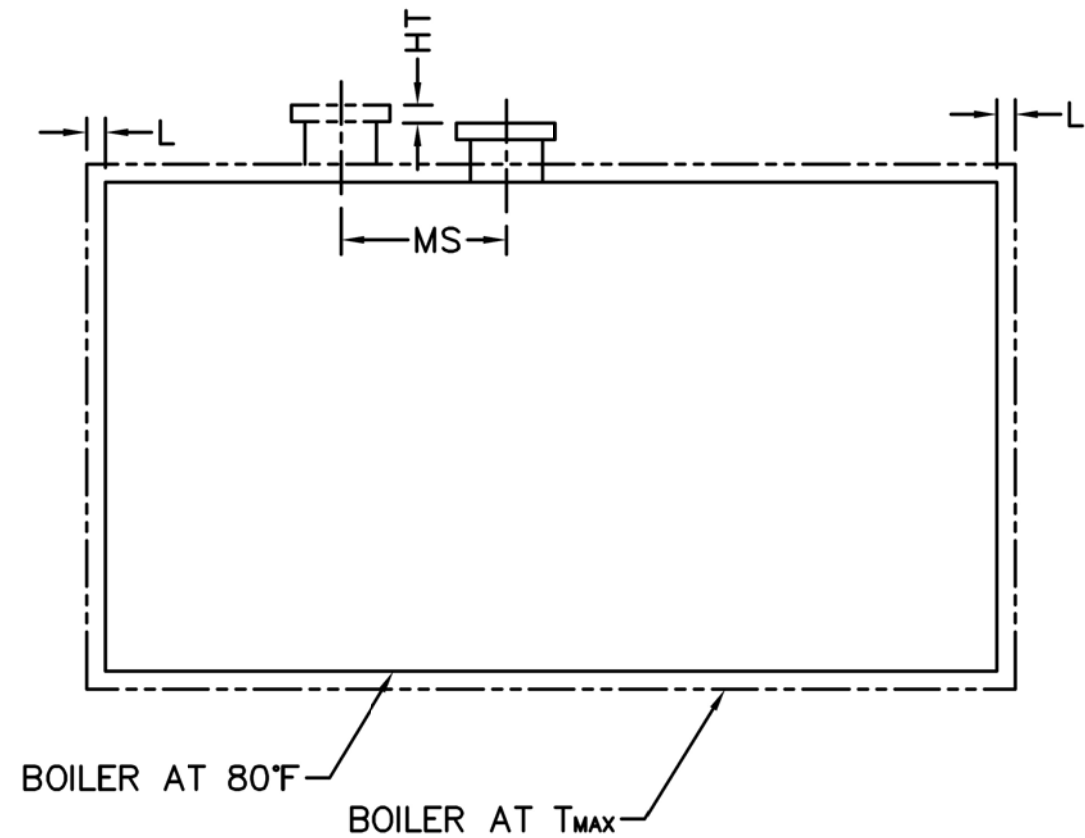
\*10.00 150#RF Flange on 15 psig Design



**Base Diagram**



Notes:  
 150# Steam 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<sub>x</sub> designs



Thermal Expansion					
psig	15	150	200	250	300
Metal T <sub>MAX</sub> (F)	240	366	388	406	421
L (in)	0.061	0.102	0.110	0.116	0.122
MS (in)	0.001	0.001	0.001	0.001	0.001
HT (in)	0.091	0.153	0.165	0.175	0.184