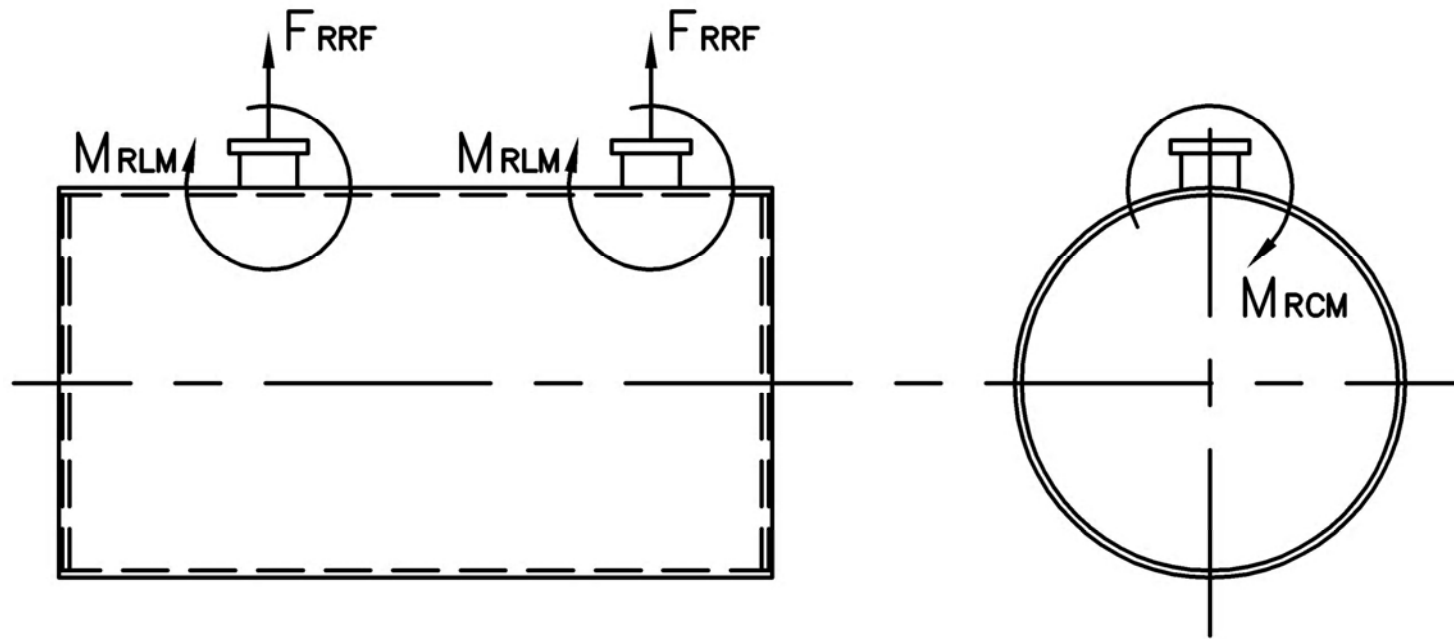


MODEL: PFTA 100-4

Nozzle Loadings

Maximum Allowable Load on Boiler Steam Nozzle					
	15# Design	150# Design	200# Design	250# Design	300# Design
F _{RRF} , lb	4,180	1,230	2,100	2,100	2,100
M _{RCM} , in-lb	19,865	8,380	14,125	14,125	14,125
M _{RLM} , in-lb	37,000	6,720	12,190	12,190	12,190



Distributed By:

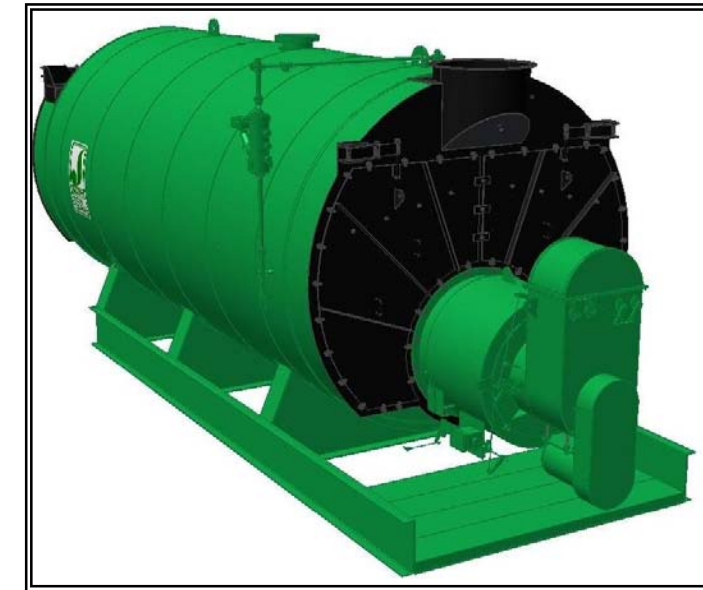
Stack Emissions-Natural Gas (1,000 Btu/CF)				
	PPMv (Corr to 3% O ₂)	lb/MBtu	lb/hr @ Full Rate	Ton/Yr @ Full Rate
NO _x *	110	0.131	0.537	2.351
	30	0.036	0.146	0.641
	9	0.011	0.044	0.192
CO	50	0.037	0.15	0.659
CO ₂	2.55 lb/lb fuel	119.76	491	2,150
H ₂ O	2.03 lb/lb fuel	106.16	435	1,906
Stack Emissions-#2 Oil** (140,000 Btu/gal)				
NO _x	128	0.174	0.688	3.013
CO	50	0.037	0.145	0.636
CO ₂	3.20 lb/lb fuel	168.53	666	2,917
H ₂ O	1.12 lb/lb fuel	71.20	281	1,232

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



MODEL: PFTA 100-4

4-Pass Steam Packaged Firetube Boiler



Ratings & Performance Data

Horsepower 100							
Steam Storage, ft ³	22.5	Natural Gas Flow, SCFH (1,000 Btu/ft ³)**	4,098				
Steam Disengaging Area, ft ²	35.3	Combustion Air (15% Excess), SCFM***	750				
Total Heating Surface, ft ²	507	Flue Gas Flow Rate, lb/hr***	3,574				
Furnace Outside Diameter, in	24.0	Stack Flue Gas Velocity, ft/min***	1,714				
Furnace Heat Release Rate, Btu/ft ³ hr**	215,000	#2 Oil Flow, gal/hr (140,000 Btu/gal)**	28.2				
Total Combustion Volume, ft ³	33.8	#6 Oil Flow, gal/hr (150,000 Btu/gal)**	26.1				
Total Heat Release Rate, Btu/ft ³ hr**	121,000	Flue Gas Side Pressure Drop, in. H ₂ O	2.8				
Water Content N.W.L., gal	814	Water Content Flooded, gal	982				
Approx. Dry Weight 15#, lb	11,900	Approx. Operating Weight 15#, lb	20,100				
Approx. Dry Weight 150#, lb	12,300	Approx. Operating Weight 150#, lb	20,500				
Approx. Dry Weight 200#, lb	13,200	Approx. Operating Weight 200#, lb	21,400				
Approx. Dry Weight 250#, lb	14,000	Approx. Operating Weight 250#, lb	22,200				
Approx. Dry Weight 300#, lb	14,800	Approx. Operating Weight 300#, lb	23,000				
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	3,473	317	84.2	330	87.3	328	88.2
50	3,405	373	82.7	385	85.8	385	86.7
100	3,369	412	81.7	424	84.7	426	85.6
150	3,349	439	81.0	451	84.0	454	84.9
200	3,336	461	80.4	473	83.4	476	84.3
250	3,328	479	79.9	491	82.9	495	83.8
300	3,323	494	79.5	506	82.5	511	83.3

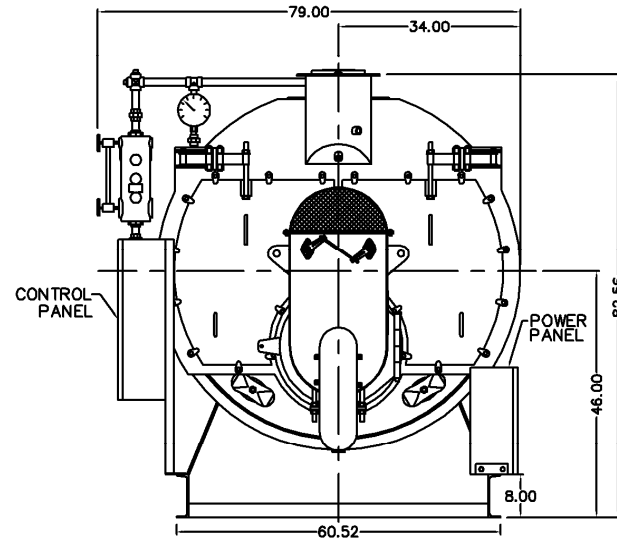
*Based on 228°F feedwater and 3% O₂, ** Values calculated at 100 psi operating pressure, ***Calculated Firing Natural Gas



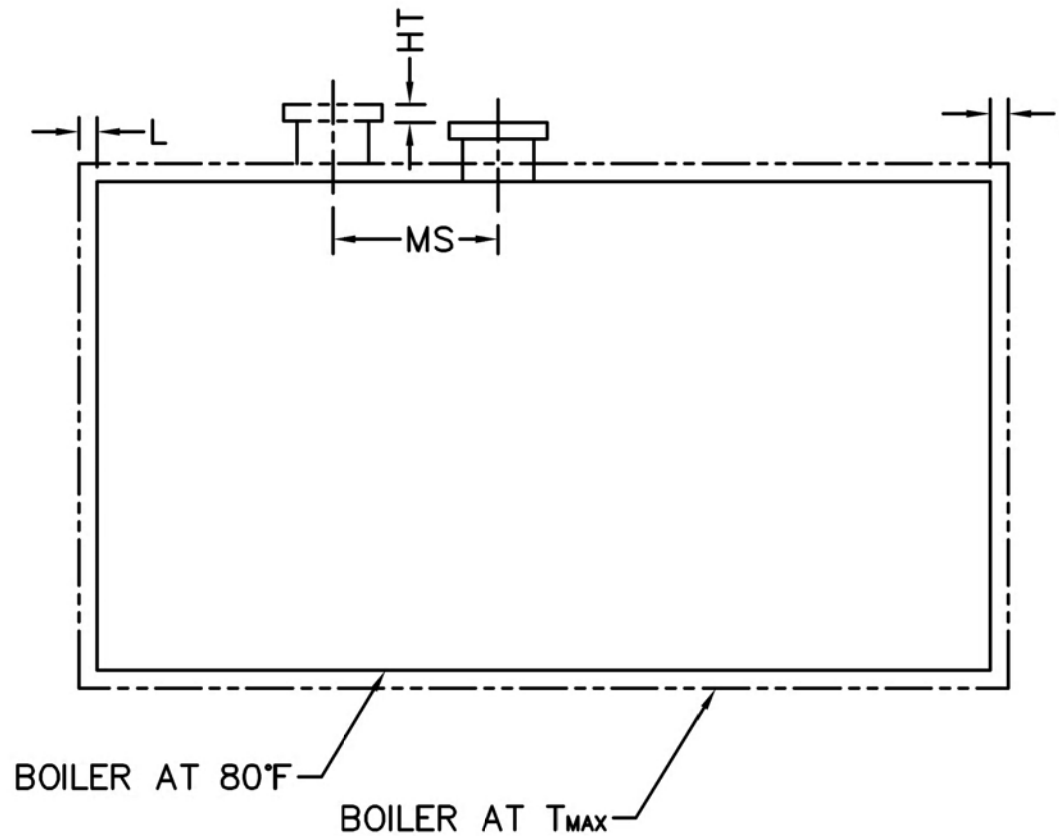
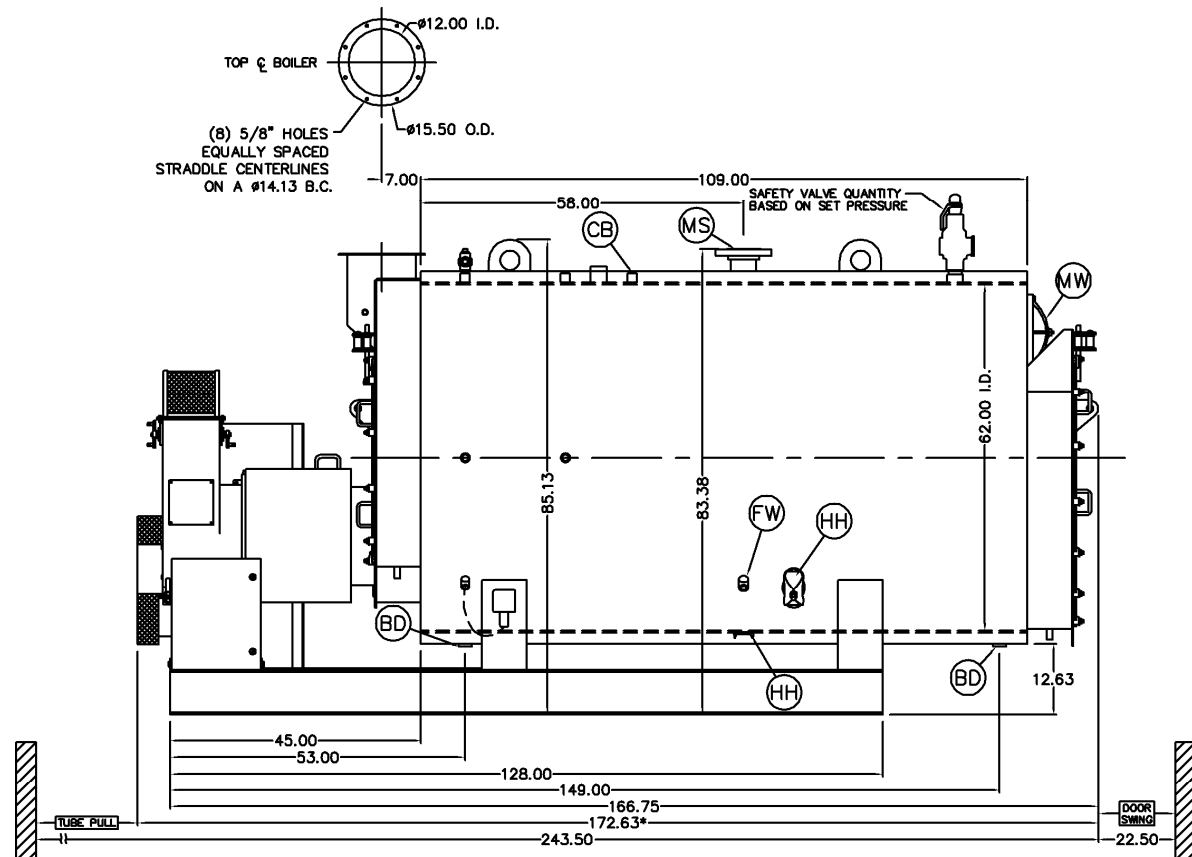
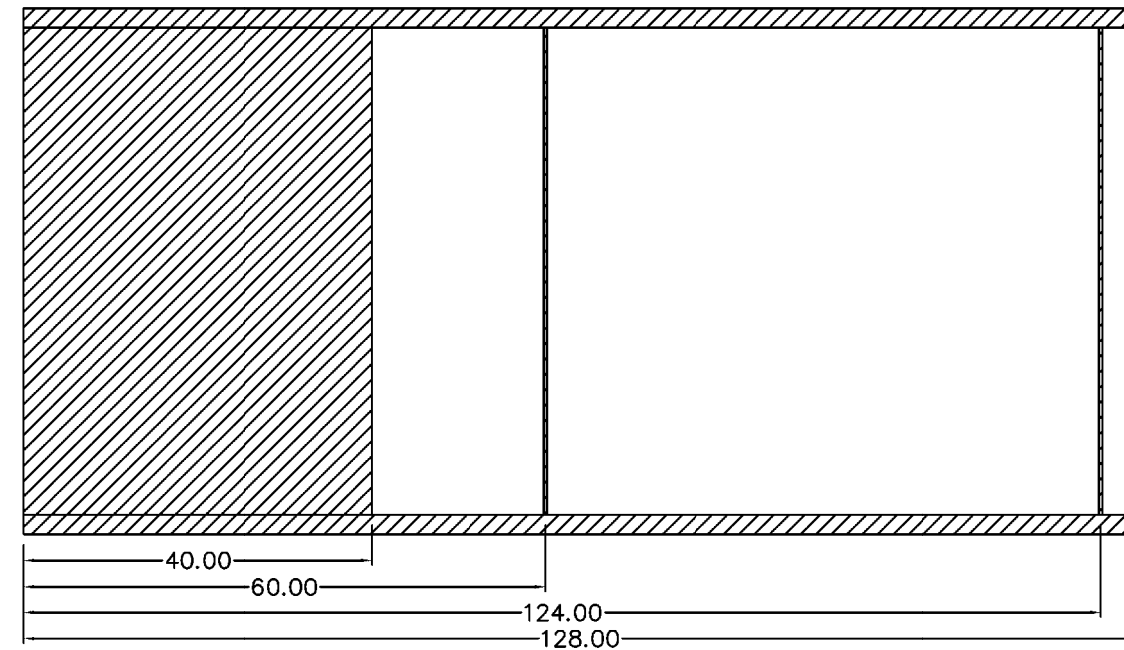
300 Pine Street
P.O. Box 300
Ferrysburg, MI 49409-0300
Telephone: (616) 842-5050
Net: www.johnstonboiler.com

Connection & Opening Schedule			
Conn.	Description	Type	Qty
FW	Feedwater Inlet	1.00 FNPT	2
MS*	Main Steam	4.00 300# RF	1
CB	Continuous Blowoff	1.00 FNPT	1
BD	Blowdown Outlet	1.50 FNPT	2
MW	Manway	12 X 16	1
HH	Hand Hole	4 X 6	6

*8.00 150#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_x designs

Thermal Expansion					
psig	15	150	200	250	300
Metal T _{MAX} (F)	240	366	388	406	421
L (in)	0.055	0.093	0.101	0.107	0.112
MS (in)	0.004	0.006	0.006	0.007	0.007
HT (in)	0.063	0.107	0.115	0.122	0.128