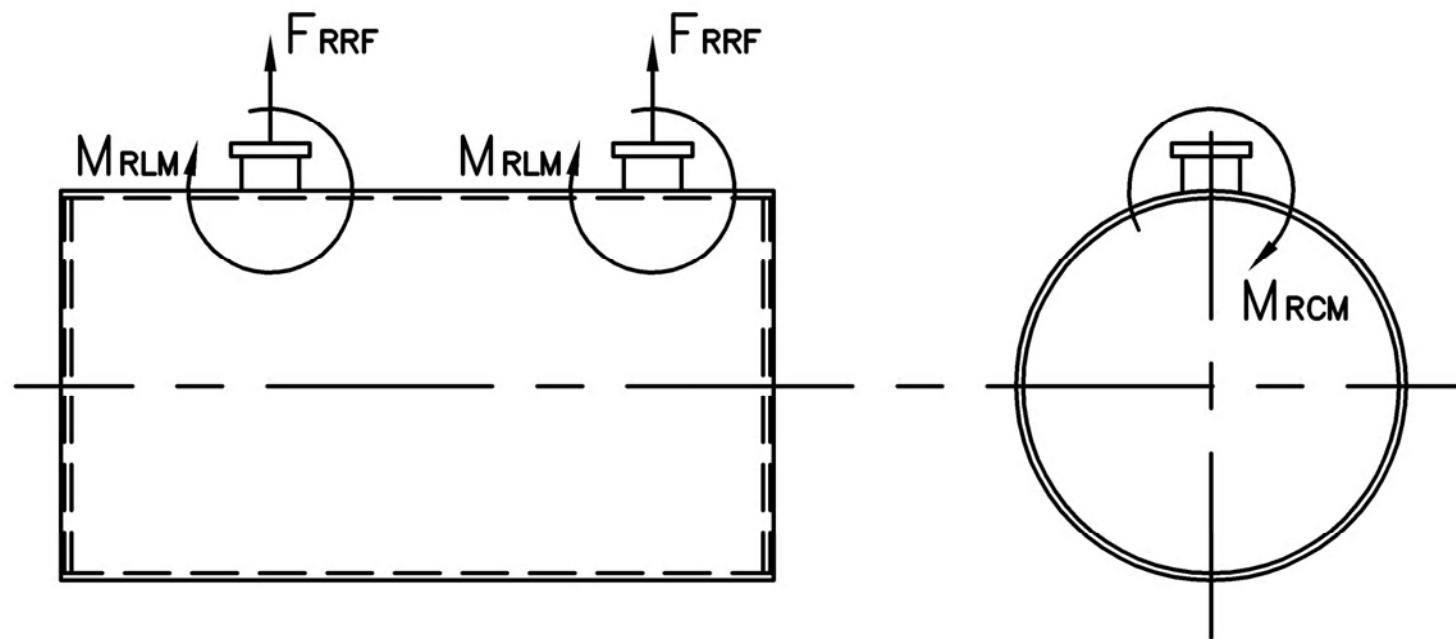


MODEL: PFTA 100-4

Nozzle Loadings

Maximum Allowable Load on Outlet & Return Nozzles				
	30# Design	60# Design	125# Design	160# Design
F_{RRF} , lb	2,200	1,865	1,230	2,100
M_{RCM} , in-lb	8,380	8,380	8,380	14,645
M_{RLM} , in-lb	12,130	10,190	6,720	10,495



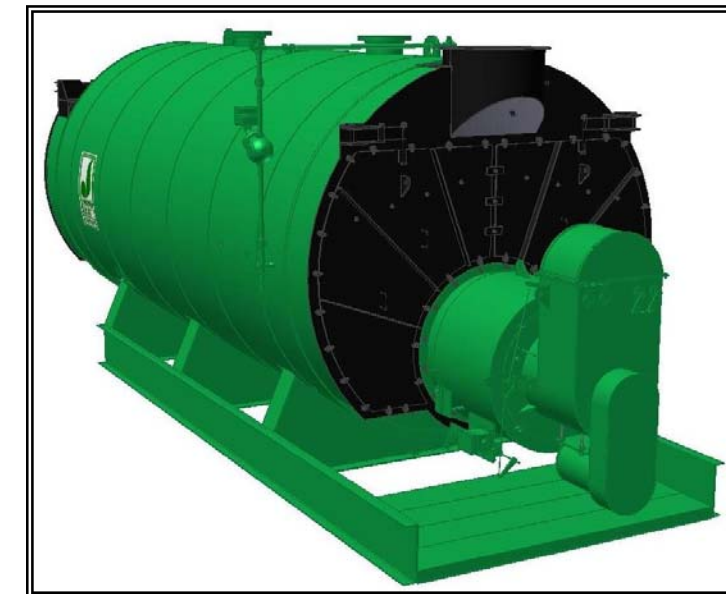
Distributed By:

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	0.515	2.254
	30	0.036	0.140	0.615
	9	0.011	0.042	0.184
CO	50	0.037	0.14	0.632
CO ₂	2.55 lb/lb fuel	119.76	471	2,061
H ₂ O	2.03 lb/lb fuel	106.16	417	1,827
Stack Emissions-#2 Oil** (140,000 Btu/gal)				
NO _x	128	0.174	0.660	2.893
CO	50	0.037	0.139	0.610
CO ₂	3.20 lb/lb fuel	168.53	639	2,800
H ₂ O	1.12 lb/lb fuel	71.20	270	1,183

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

MODEL: PFTA 100-4

4-Pass Hot Water Packaged Firetube Boiler



Ratings & Performance Data

Horsepower 100		Natural Gas Flow, SCFH (1,000 Btu/ft ³)**	3,929
Total Heating Surface, ft ²	507	Combustion Air (15% Excess), SCFM***	719
Furnace Outside Diameter, in	24.0	Flue Gas Flow Rate, lb/hr***	3,427
Furnace Heat Release Rate, Btu/ft ³ hr**	206,000	Stack Flue Gas Velocity, ft/min***	1,393
Total Combustion Volume, ft ³	33.8	#2 Oil Flow, gal/hr (140,000 Btu/gal)**	27.1
Total Heat Release Rate, Btu/ft ³ hr**	116,000	#6 Oil Flow, gal/hr (150,000 Btu/gal)**	25.0
Water Content Flooded, gal	982	Flue Gas Side Pressure Drop, in. H ₂ O	2.8
Approx. Dry Weight 30#, lb	11,900	Approx. Operating Weight 30#, lb	20,100
Approx. Dry Weight 60#, lb	12,000	Approx. Operating Weight 60#, lb	20,200
Approx. Dry Weight 125#, lb	12,400	Approx. Operating Weight 125#, lb	20,600

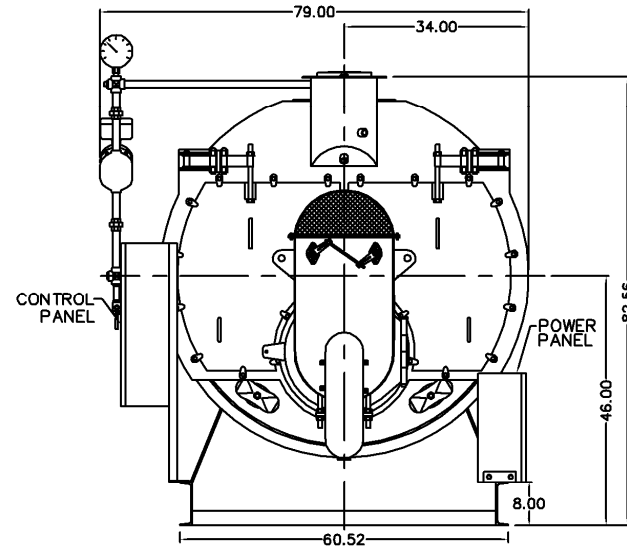
Performance Data*						
Operating Temperature (F)	Natural Gas		#2 Oil		#6 Oil	
	Stack Temp (F)	%Eff	Stack Temp	%Eff	Stack Temp (F)	%Eff
180	260	85.7	273	88.7	270	89.7
200	279	85.2	292	88.2	289	89.2
220	298	84.7	311	87.7	309	88.7
240	317	84.2	330	87.2	328	88.2

*Based on 20°F difference in supply/return, ** Values calculated at 200°F operating temperature, ***Calculated Firing Natural Gas

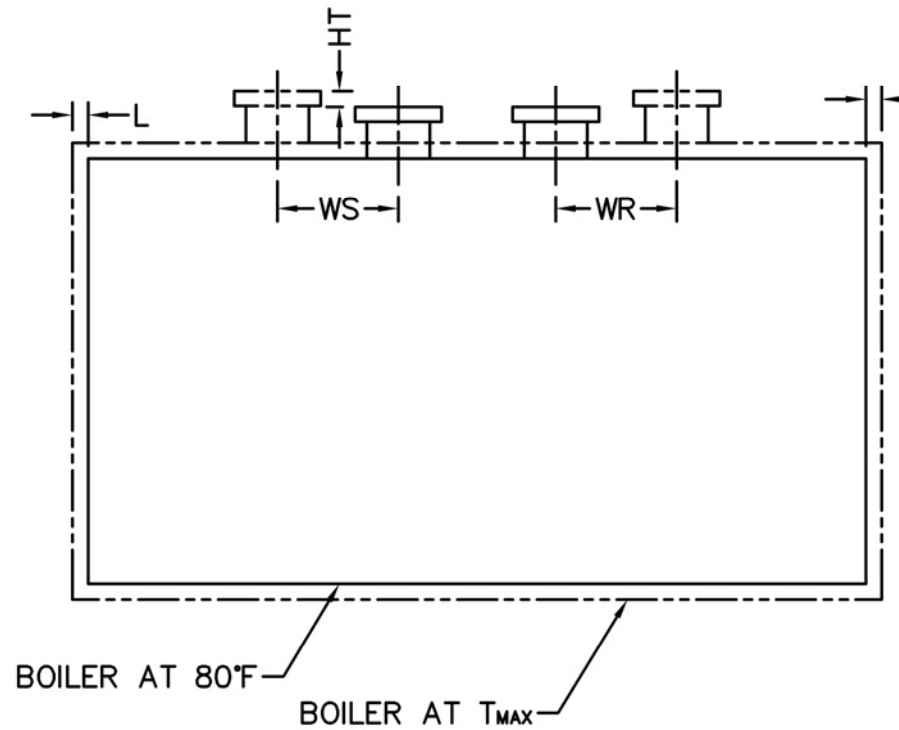
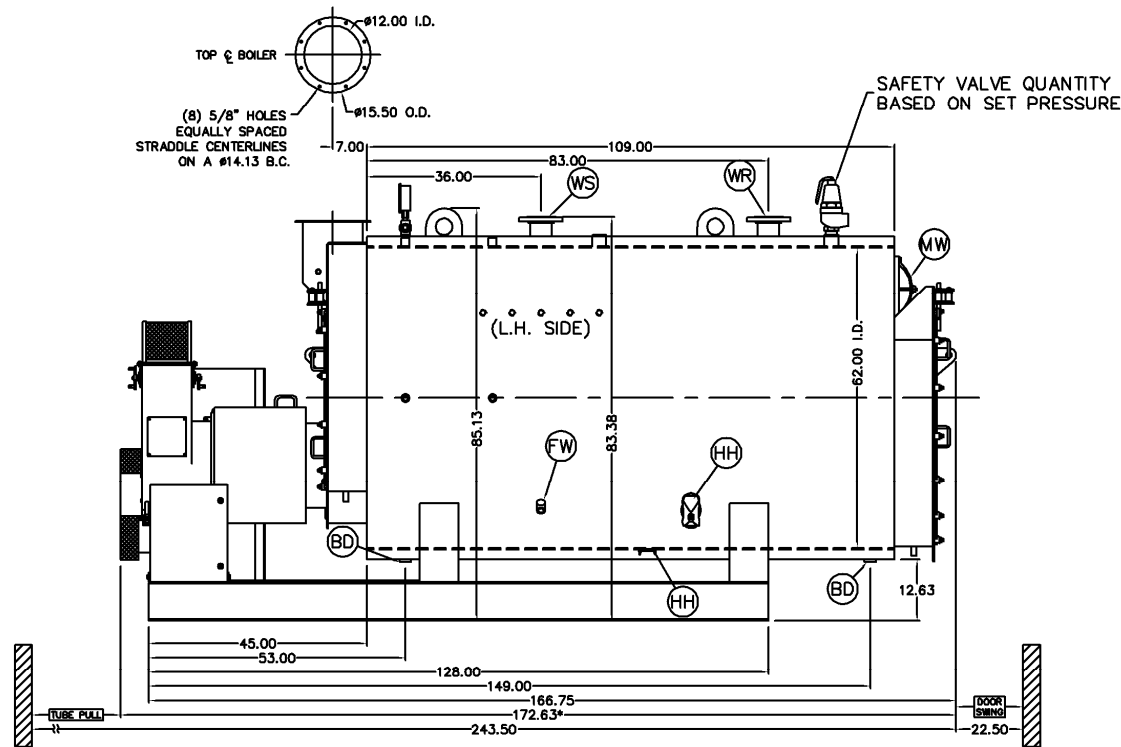
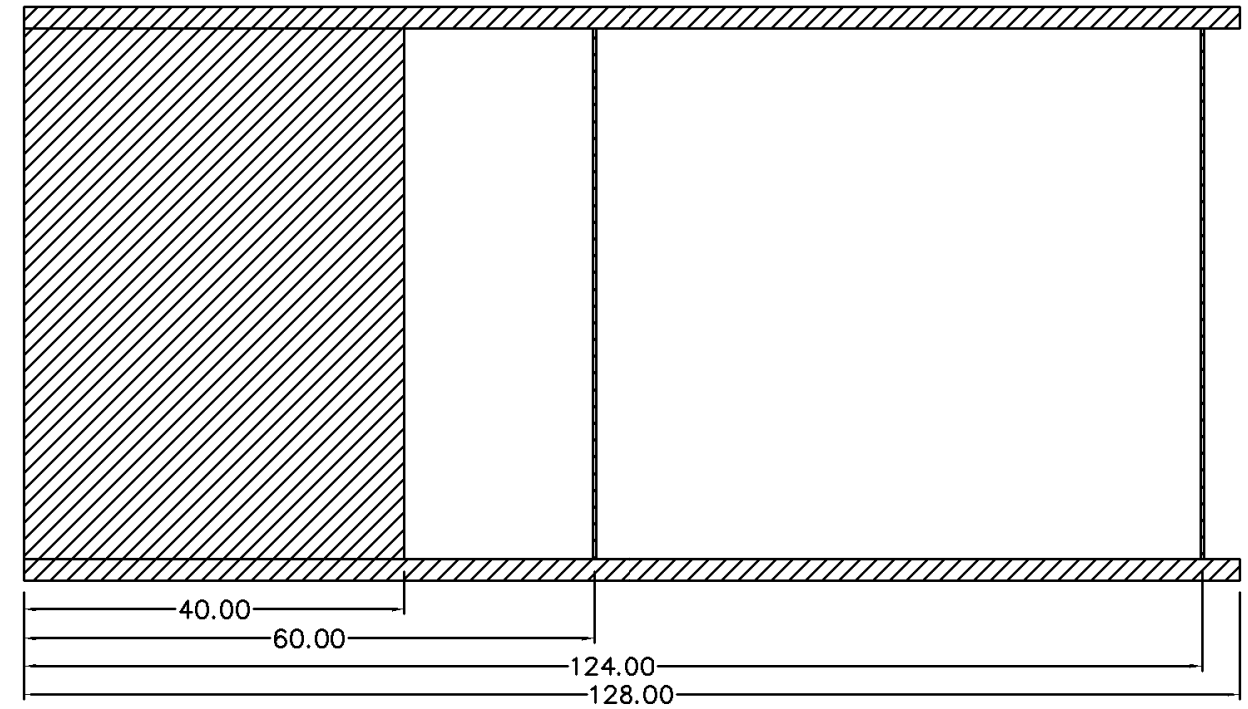


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Telephone: (616) 842-5050
Net: www.johnstonboiler.com

Connection & Opening Schedule			
Conn.	Description	Type	Qty
FW	Feedwater Inlet	1.00 FNPT	2
WS	Water Supply	4.00 150#RF	1
WR	Water Return	4.00 150#RF	1
DO	Drain Outlet	1.50 FNPT	2
MW	Manway	12 X 16	1
HH	Hand Hole	4 X 6	6
Supply and return outlets ASME flanged drilling			



Base Diagram



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.

Thermal Expansion				
Metal T _{MAX} (F)	180	200	220	240
L (in)	0.033	0.039	0.046	0.052
WS (in)	0.011	0.013	0.016	0.018
WR (in)	0.017	0.021	0.024	0.027
HT (in)	0.037	0.045	0.052	0.060