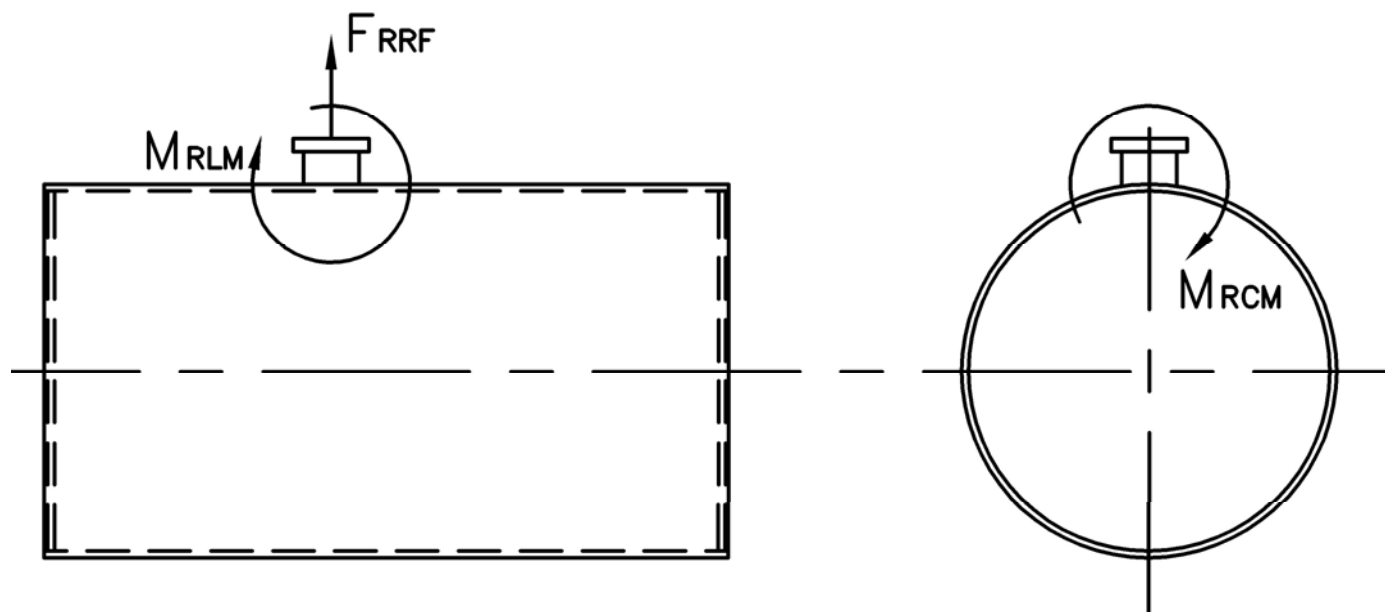


MODEL: PFTX 100-4

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:



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



MODEL: PFTX 100-4

4-Pass Steam Packaged Firetube Boiler



Ratings & Performance Data

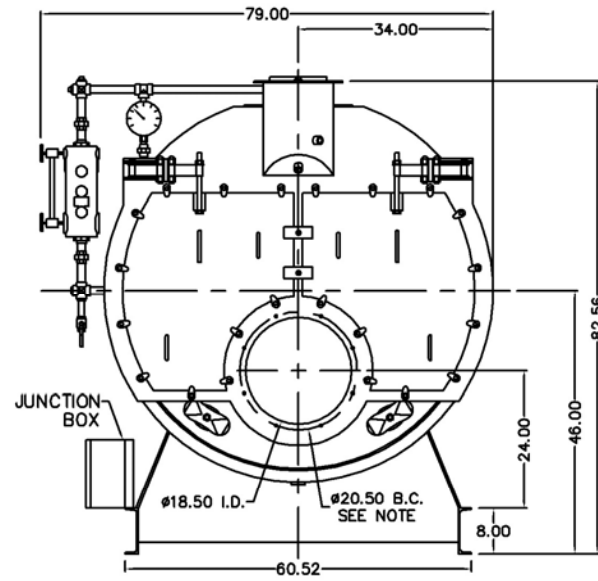
| Horsepower 100 | | | |
|---|---------|---|--------|
| Steam Storage, ft ³ | 22.5 | Natural Gas Flow, SCFH (1,000 Btu/ft ³)** | 4,098 |
| Steam Disengaging Area, ft ² | 35.3 | Combustion Air (15% Excess), SCFM*** | 750 |
| Total Heating Surface, ft ² | 507 | Flue Gas Flow Rate, lb/hr*** | 3,574 |
| 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

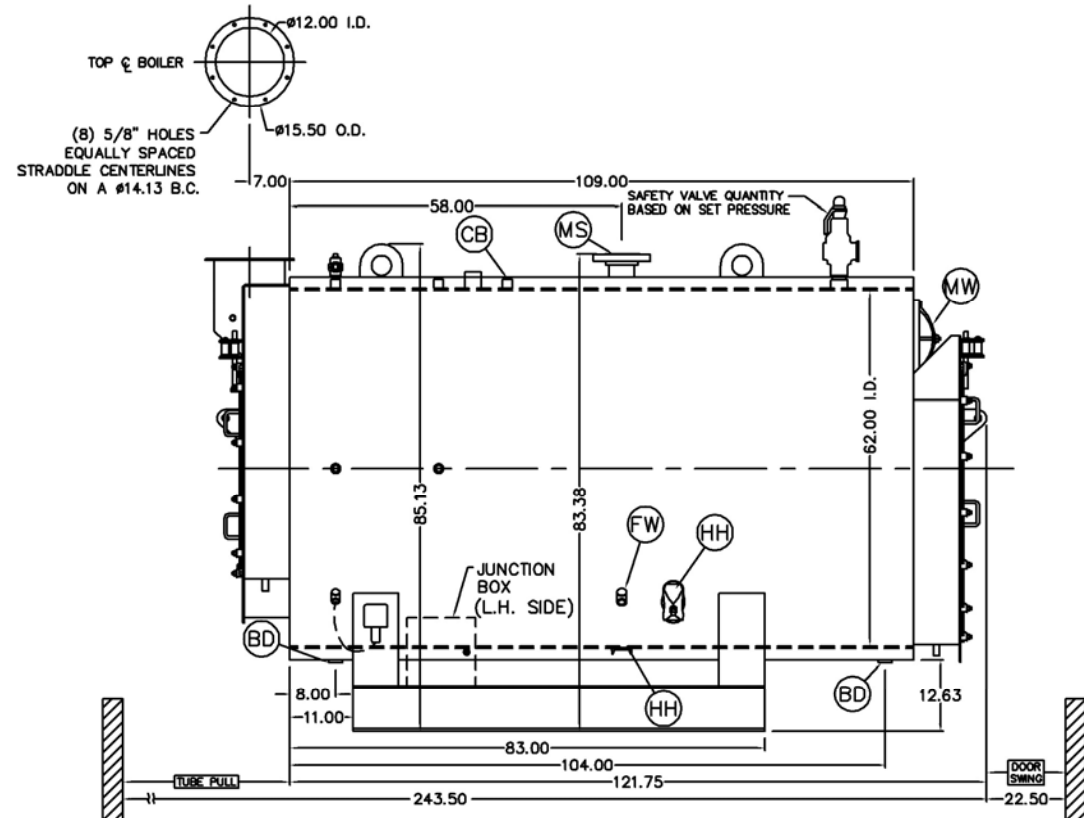
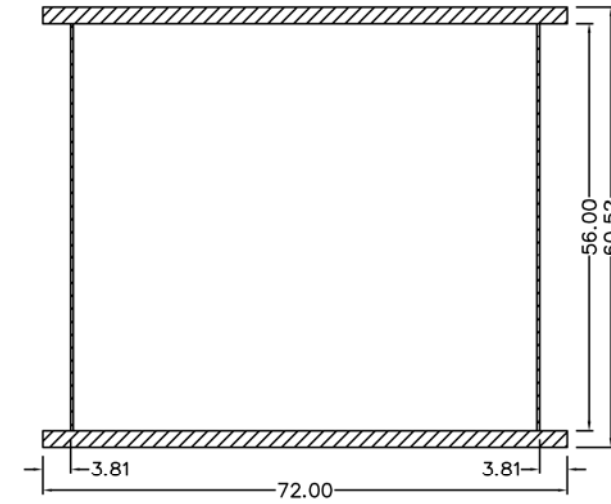
| Connection & Opening Schedule | | | |
|-------------------------------|--------------------|--------------|-----|
| Conn. | Description | Type | Qty |
| FW | Feedwater Inlet | 1.00 FNPT | 2 |
| MS* | Main Steam | 4.00 300# RF | 1 |
| CB | Continuous Blowoff | 1.00 FNPT | 1 |
| BD | Blowdown Outlet | 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

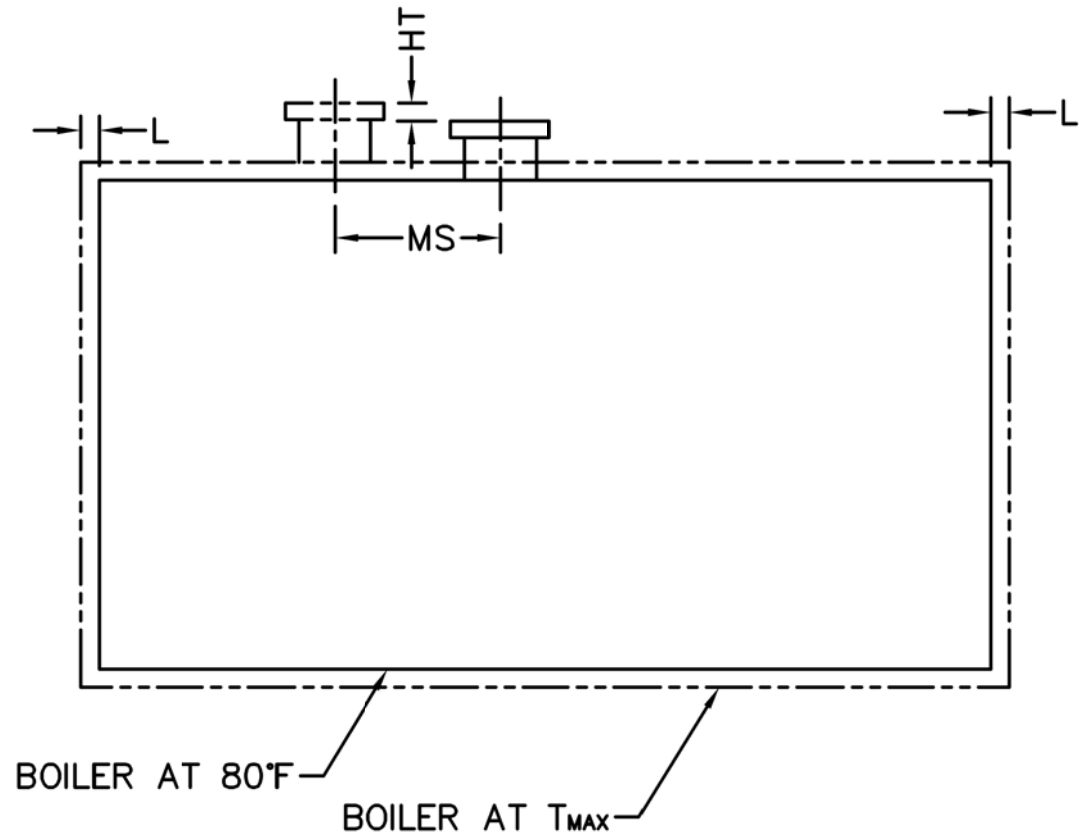


NOTE: (8) 1/2 UNC X 1.375 LONG STUDS EQUALLY SPACED STRADDLE CENTERLINES. STUDS FOR BURNER REFRACTORY (DRY OVEN) MOUNTING. REFRACTORY MUST EXTEND 12.25" MINIMUM PAST MOUNTING FLANGE.

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.



| 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 |