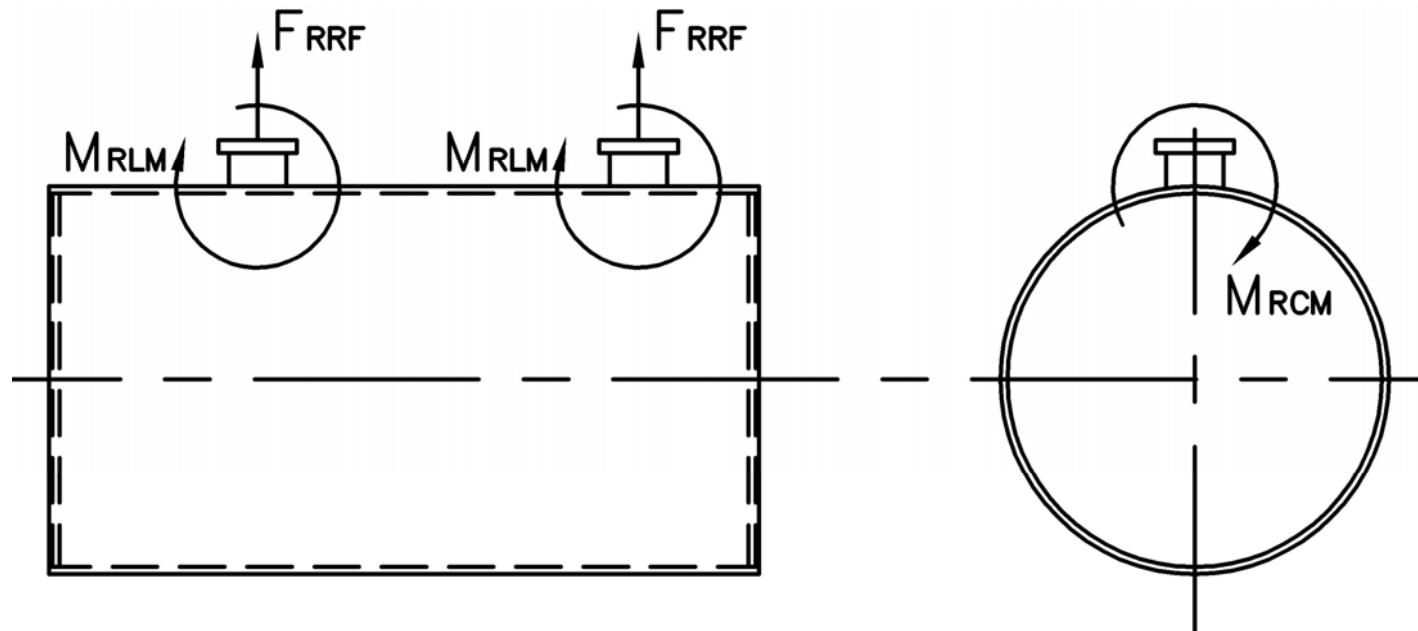


# MODEL: PFTA 800-4

## Nozzle Loadings

| Maximum Allowable Load on Outlet & Return Nozzles |            |            |             |             |
|---|------------|------------|-------------|-------------|
|   | 30# Design | 60# Design | 125# Design | 160# Design |
| $F_{RRF}$ , lb                                    | 4,985      | 3,865      | 5,260       | 6,590       |
| $M_{RCM}$ , in-lb                                 | 36,915     | 36,915     | 73,425      | 92,710      |
| $M_{RLM}$ , in-lb                                 | 48,235     | 37,405     | 58,470      | 70,870      |



Distributed By:

| Stack Emissions-Natural Gas (1,000 Btu/CF) |                                      |         |                      |                       |
|--|--------------------------------------|---------|----------------------|-----------------------|
|  | PPMv<br>(Corr to 3% O <sub>2</sub> ) | lb/MBtu | lb/hr @<br>Full Rate | Ton/Yr @<br>Full Rate |
| NO <sub>x</sub> *                          | 110                                  | 0.131   | 4.053                | 17.753                |
|  | 30                                   | 0.036   | 1.105                | 4.842                 |
|  | 9                                    | 0.011   | 0.332                | 1.453                 |
| CO   | 50                                   | 0.037   | 1.14                 | 4.981                 |
| CO <sub>2</sub>                            | 2.55 lb/lb fuel                      | 119.76  | 3,707                | 16,236                |
| H <sub>2</sub> O                           | 2.03 lb/lb fuel                      | 106.16  | 3,286                | 14,392                |
| Stack Emissions-#2 Oil** (140,000 Btu/gal) |                                      |         |                      |                       |
| NO <sub>x</sub>                            | 128                                  | 0.174   | 5.198                | 22.767                |
| CO   | 50                                   | 0.037   | 1.097                | 4.804                 |
| CO <sub>2</sub>                            | 3.20 lb/lb fuel                      | 168.53  | 5,031                | 22,038                |
| H <sub>2</sub> O                           | 1.12 lb/lb fuel                      | 71.20   | 2,126                | 9,310                 |

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

# MODEL: PFTA 800-4

## 4-Pass Hot Water Packaged Firetube Boiler



## Ratings & Performance Data

|   |         |   |         |
|---|---------|---|---------|
| Horsepower 800                                      |         | Natural Gas Flow, SCFH (1,000 Btu/ft <sup>3</sup> )** | 30,952  |
| Total Heating Surface, ft <sup>2</sup>              | 4,041   | Combustion Air (15% Excess), SCFM***                  | 5,664   |
| Furnace Outside Diameter, in                        | 49.5    | Flue Gas Flow Rate, lb/hr***                          | 26,992  |
| Furnace Heat Release Rate, Btu/ft <sup>3</sup> hr** | 152,000 | Stack Flue Gas Velocity, ft/min***                    | 1,892   |
| Total Combustion Volume, ft <sup>3</sup>            | 267.5   | #2 Oil Flow, gal/hr (140,000 Btu/gal)**               | 213.3   |
| Total Heat Release Rate, Btu/ft <sup>3</sup> hr**   | 116,000 | #6 Oil Flow, gal/hr (150,000 Btu/gal)**               | 197.4   |
| Water Content Flooded, gal                          | 5,553   | Flue Gas Side Pressure Drop, in. H <sub>2</sub> O     | 7.0     |
| Approx. Dry Weight 30#, lb                          | 53,500  | Approx. Operating Weight 30#, lb                      | 98,700  |
| Approx. Dry Weight 60#, lb                          | 53,600  | Approx. Operating Weight 60#, lb                      | 98,800  |
| Approx. Dry Weight 125#, lb                         | 55,500  | Approx. Operating Weight 125#, lb                     | 100,700 |

### Performance Data

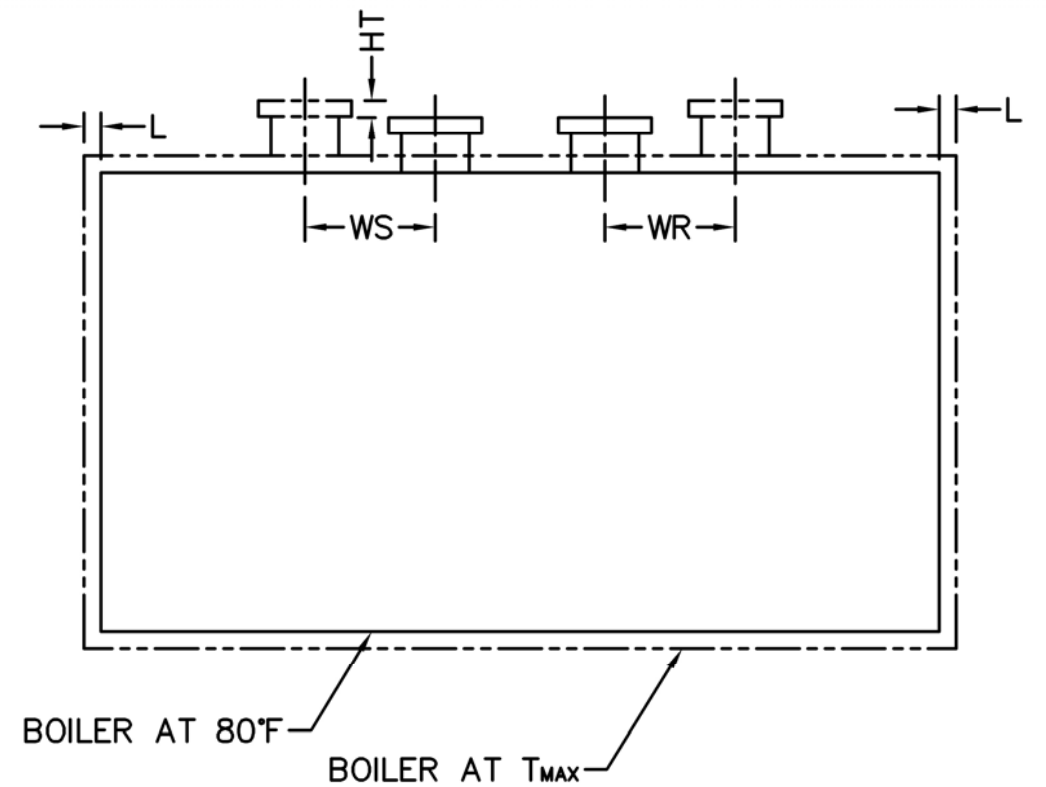
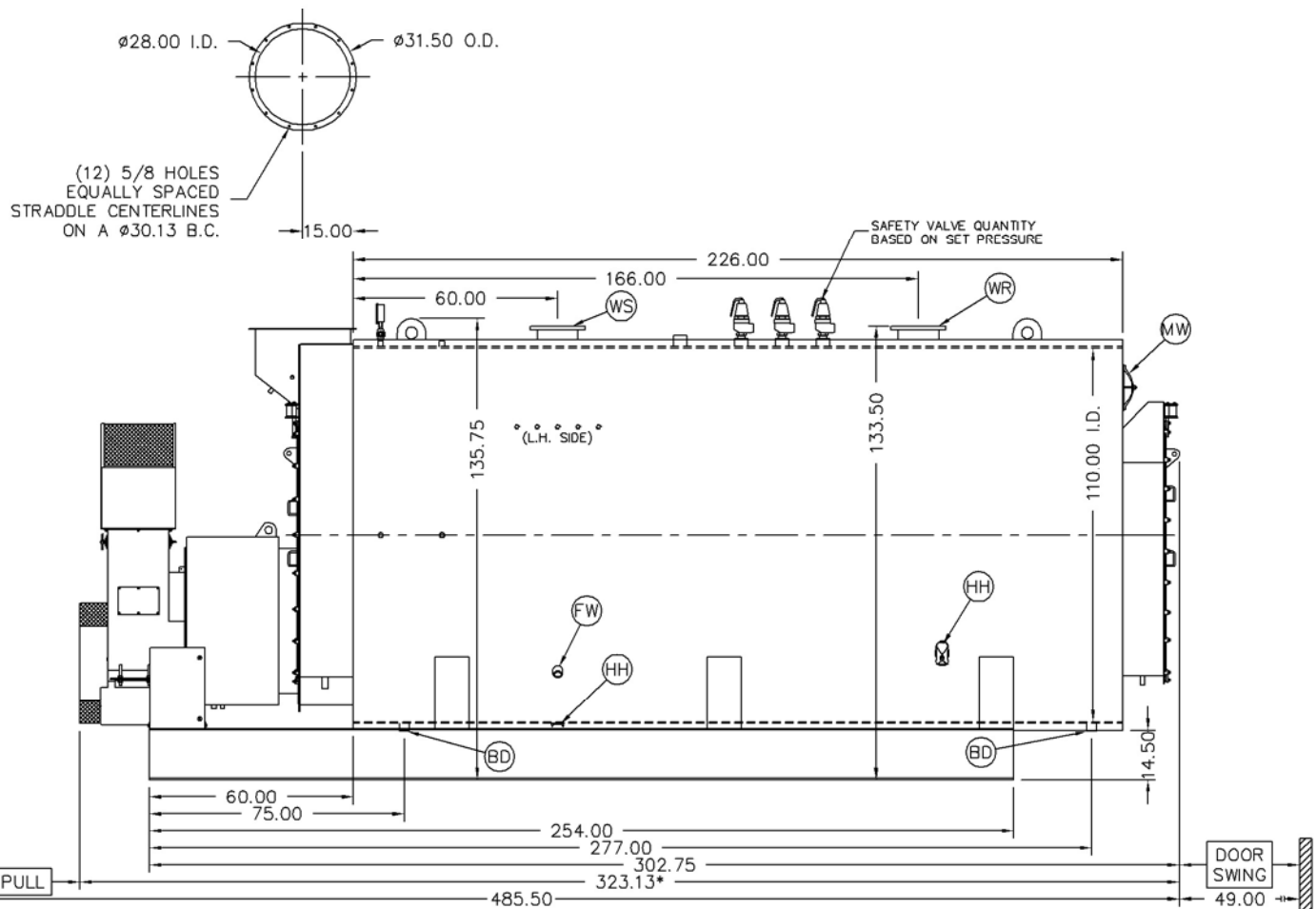
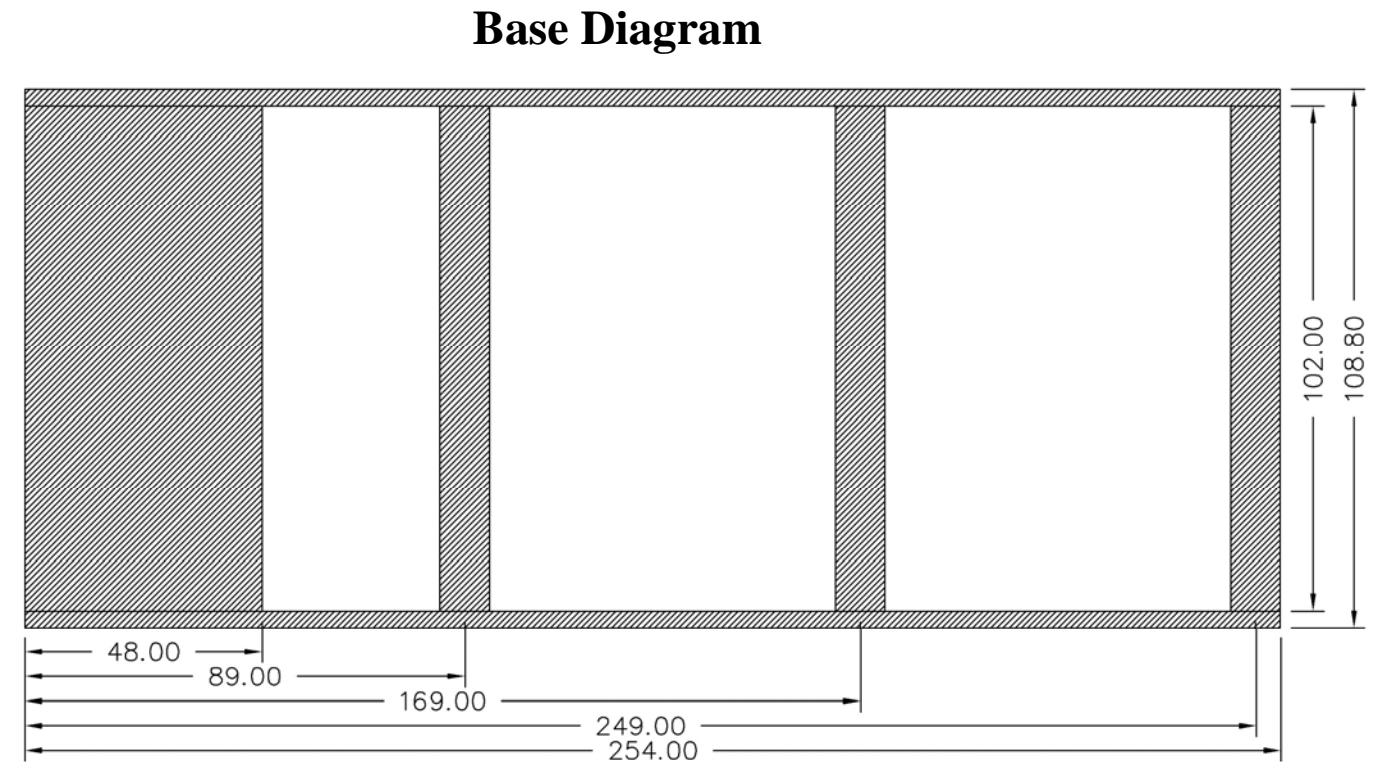
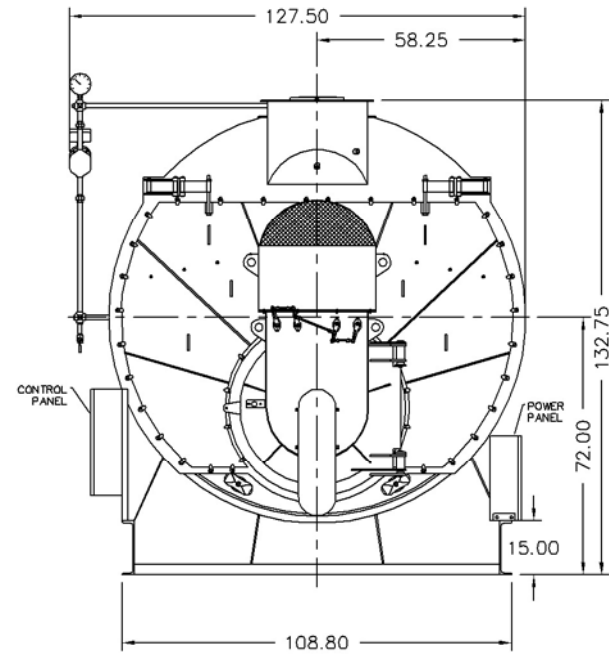
| Operating Temperature (F) | Natural Gas    |      | #2 Oil     |      | #6 Oil         |      |
|---------------------------|----------------|------|------------|------|----------------|------|
|                           | Stack Temp (F) | %Eff | Stack Temp | %Eff | Stack Temp (F) | %Eff |
| 180                       | 214            | 87.0 | 222        | 90.2 | 228            | 90.9 |
| 200                       | 234            | 86.5 | 242        | 89.7 | 248            | 90.5 |
| 220                       | 254            | 86.0 | 261        | 89.2 | 267            | 90.0 |
| 240                       | 273            | 85.6 | 281        | 88.7 | 287            | 89.5 |

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



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Net: www.johnstonboiler.com

| Connection & Opening Schedule                   |                 |              |     |
|---|-----------------|--------------|-----|
| Conn.   | Description     | Type         | Qty |
| FW  | Feedwater Inlet | 2.00 FNPT    | 2   |
| WS  | Water Supply    | 10.00 150#RF | 1   |
| WR  | Water Return    | 10.00 150#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<sub>x</sub> designs.

| Thermal Expansion          |       |       |       |       |
|----------------------------|-------|-------|-------|-------|
| Metal T <sub>MAX</sub> (F) | 180   | 200   | 220   | 240   |
| L (in)                     | 0.068 | 0.081 | 0.095 | 0.108 |
| WS (in)                    | 0.032 | 0.038 | 0.045 | 0.051 |
| WR (in)                    | 0.032 | 0.038 | 0.045 | 0.051 |
| HT (in)                    | 0.066 | 0.080 | 0.093 | 0.106 |