

LAARS[®] LOW-TEMP PENNANT[®]

Low Return Water
Temperature Boilers and
Volume Water Heaters



LAARS[®] 
Heating Systems Company
A subsidiary of **BRADFORD WHITE[®]** Corporation

LAARS® LOW-TEMP PENNANT®

BOILERS AND WATER HEATERS

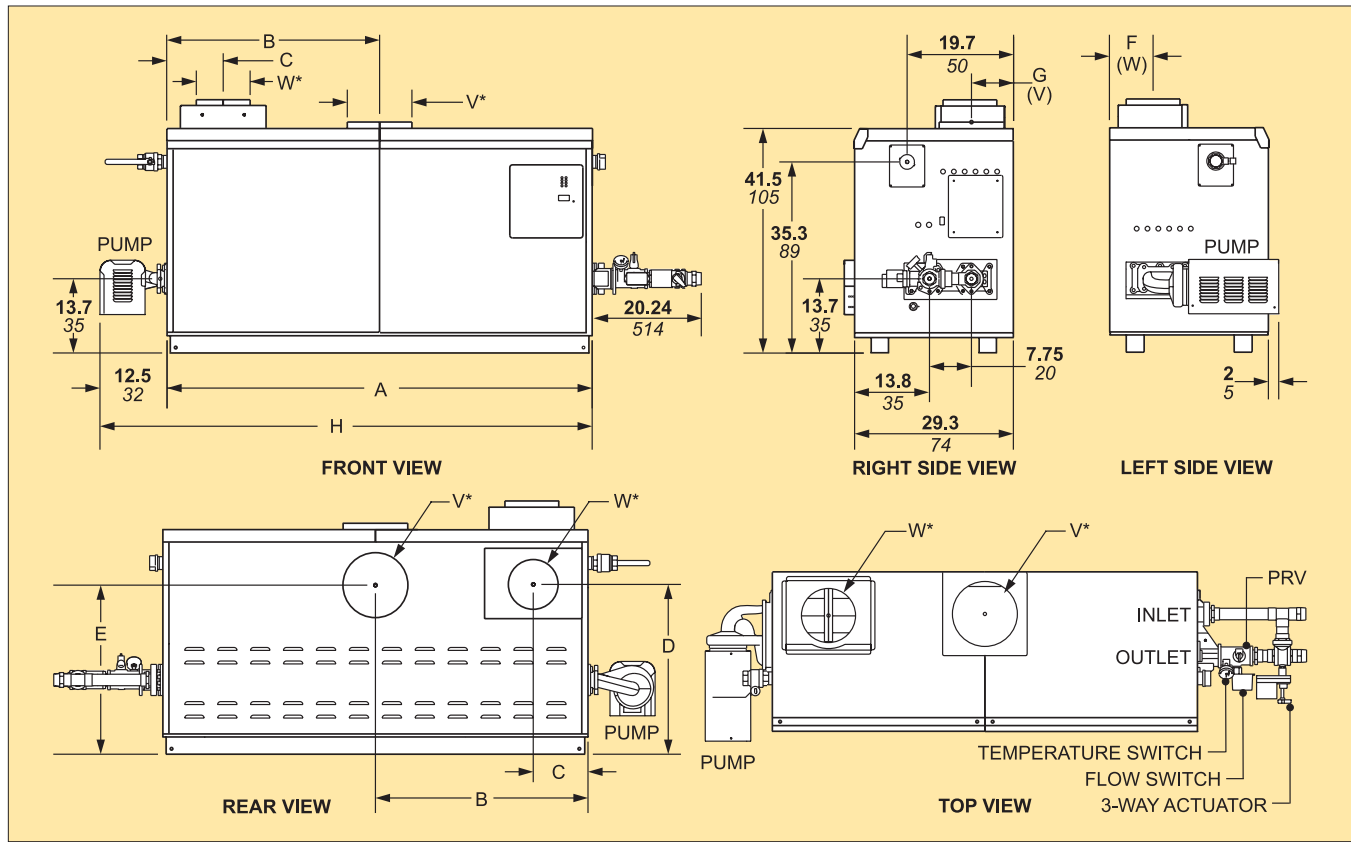
The Problem: When boilers and water heaters operate with return water temperature that is lower than specified by the manufacturer, condensation can form on the heat exchanger, inside the unit. This condensation can be destructive and can shorten the life of the heat exchanger, and even damage other parts of the unit. In the past, external by-pass piping, balancing valves, and careful water balancing were required to raise the internal temperature of the boiler water above the dew point to control condensation. Careful manual water balancing was required on start-up to protect the boiler from low return water temperature, and sometimes this procedure had to be repeated frequently as conditions changed within the system.

The Solution: A factory mounted three-way valve and an automatic by-pass system working in concert with the boiler operating control maintains a minimum boiler return temperature of 120°F (49°C). Heat exchanger condensation is prevented, ensuring a long boiler life, even when there are rapid swings in the return water temperature from the system. The Pennant LT can handle return water temperatures as low as 70°F (21°C) — making it the perfect unit for your low temperature boiler and water heater systems.

APPLICATIONS IDEAL FOR PENNANT LT:

- **Back-up to heat pump systems**
- **Radiant floor heating**
- **Snow melting systems**
- **Process water heating**
- **Low-temp baseboard systems**

DIMENSIONAL AND SIZING DATA



| Size | A | | B | | C | | D | | E | | F | | G | | H | | Air Conn. W* | Vent Conn. V* | Horiz Vent Pipe | | | |
|------|--------|-----|--------|-----|--------|----|--------|----|--------|----|-------|----|-------|----|-----|-----|--------------|---------------|-----------------|----|----|----|
| | in. | cm | in. | cm | in. | cm | in. | cm | in. | cm | in. | cm | in. | cm | in. | cm | in. | cm | in. | cm | | |
| 500 | 33 1/2 | 85 | 15 3/4 | 40 | 5 3/4 | 15 | 29 3/4 | 76 | 32 3/4 | 83 | 7 3/4 | 20 | 8 3/4 | 22 | 46 | 117 | 6 | 15 | 8 | 20 | 6 | 15 |
| 750 | 45 1/2 | 116 | 21 3/4 | 55 | 5 3/4 | 15 | 29 3/4 | 76 | 32 3/4 | 83 | 7 3/4 | 20 | 8 3/4 | 22 | 58 | 147 | 6 | 15 | 10 | 25 | 8 | 20 |
| 1000 | 57 1/2 | 146 | 28 3/4 | 73 | 5 3/4 | 15 | 29 3/4 | 76 | 32 3/4 | 83 | 7 3/4 | 20 | 7 | 18 | 70 | 178 | 8 | 20 | 10 | 25 | 8 | 20 |
| 1250 | 68 | 172 | 34 | 86 | 10 1/4 | 26 | 30 3/4 | 78 | 29 1/2 | 75 | 8 3/4 | 22 | 8 3/4 | 22 | 80 | 203 | 8 | 20 | 12 | 30 | 8 | 20 |
| 1500 | 78 1/2 | 199 | 39 3/4 | 101 | 10 1/4 | 26 | 30 3/4 | 78 | 29 1/2 | 75 | 8 3/4 | 22 | 8 3/4 | 22 | 91 | 231 | 8 | 20 | 12 | 30 | 8 | 20 |
| 1750 | 89 | 226 | 44 1/2 | 113 | 10 1/4 | 26 | 30 3/4 | 78 | 29 1/2 | 75 | 8 3/4 | 22 | 8 3/4 | 22 | 101 | 256 | 8 | 20 | 14 | 36 | 8 | 20 |
| 2000 | 99 1/2 | 253 | 49 3/4 | 126 | 10 1/4 | 26 | 30 3/4 | 78 | 29 1/2 | 75 | 8 3/4 | 22 | 8 3/4 | 22 | 112 | 284 | 12 | 20 | 14 | 36 | 12 | 30 |

*Air and vent connections may be on top or back of the Pennant, and are field convertible.

| Size | Input ¹ | Output ¹ | IBR Net Rating ^{1,3} | Gas Conn. Size Inches ² | Heater Water Conn. Size Inches ² | Shipping Weight | |
|------|--------------------|---------------------|-------------------------------|------------------------------------|---|-----------------|-----|
| | BTU/h x1000 | BTU/h x1000 | BTU/h x1000 | | | lbs. | kg |
| 500 | 500 | 425 | 361 | 1 1/4 | 2 | 495 | 225 |
| 750 | 750 | 638 | 524 | 1 1/4 | 2 | 575 | 261 |
| 1000 | 999 | 849 | 722 | 1 1/2 | 2 | 685 | 311 |
| 1250 | 1250 | 1063 | 903 | 2 | 2 | 730 | 331 |
| 1500 | 1500 | 1275 | 1084 | 2 | 2 | 830 | 377 |
| 1750 | 1750 | 1488 | 1264 | 2 | 2 | 880 | 400 |
| 2000 | 1999 | 1699 | 1444 | 2 | 2 | 1025 | 465 |

- NOTES:**
1. Input and output must be derated 4% per 1000 feet above sea level when installed above 2000 feet altitude.
 2. Dimensions are nominal.
 3. For other boiler ratings:
 Boiler Horsepower: $HP = \text{Output}/33,475$
 Radiation Surface: $EDR \text{ sq. ft.} = \text{Output}/150$
 IBR sq. ft. = $\text{Net IBR}/150$



View our entire product line at www.Laars.com

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