



KNIGHT FIRE TUBE BOILERS - FLOOR AND WALL MOUNT MODELS

Job Name:

Engineer:

Contractor:

Model #:

Location:

Agent/Wholesaler:

Type Gas:

Equipment Tag(s):

JOB NOTES:

Smart System Features

- › **Smart System Digital Operating Control**
Multi-Color Graphic LCD Display w/Navigation Dial, Soft Keys and Loch-N-Link USB programming
- › **Three Boiler Setpoint Temperature Inputs**
Plus Domestic Hot Water Prioritization
- › **Built-in Cascading Sequencer for up to 8 Boilers, with Cascade Redundancy**
Multiple Size Boiler Cascade
Lead Lag
Efficiency Optimization
Front End Loading Capability
- › **Outdoor Reset Control with Outdoor Air Sensor**
Programmable for Three Reset Temperature Inputs
- › **Programmable System Efficiency Optimizers**
SH Night Setback
DHW Night Setback
Anti-Cycling
Outdoor Air Reset Curve
Ramp Delay
Modulation Factor Control
Boost Temperature & Time

Standard Features

- › **95% DOE AFUE Efficiency (55-285)**
- › **Modulating Burner with up to 10:1 Turndown**
Direct Spark Ignition
Low NOx Operation
- › **ASME Stainless Steel Heat Exchanger**
30 PSI ASME Relief Valve
- › **Top and bottom water connections (MNPT, WHB 55-285 Only)**
- › **Vertical & Horizontal Direct Vent**
PVC, CPVC, Polypropylene or SS Venting up to 100 ft.
- › **Universal Vent Adapter**
Built-in Combustion Analyzer Port
- › **SMART SYSTEM™ Control**
- › **Condensate Trap**
- › **ECM Variable Speed Boiler Circulating Pump**
- › **110V Convenience Outlet**
- › **High Altitude Models Available**
- › **Other Features**
Automatic Reset High Limit
Adjustable High Limit w/Manual Reset
Zero Clearances to Combustible Materials
15-Year Limited Warranty (See Warranty for Details)
5-Year Limited Parts Warranty

- › **Four Pump Control**
System Pump with Parameter for Continuous Operation
Boiler Pump with Variable Speed Control
Domestic Hot Water Pump
Domestic Hot Water Recirculation
- › **Domestic Hot Water Prioritization**
DHW tank piped with priority in the boiler loop
DHW tank piped as a zone in the system with the pumps controlled by the SMART SYSTEM
DHW Modulation Limiting
Separately Adjustable Space Heat/DHW Switching Times
- › **Building Management System Integration**
0-10 VDC Input to Control Modulation or Setpoint
0-10 VDC Modulation Rate Output
0-10 VDC Input to Enable/Disable Call for Heat
- › **Access to BMS Settings through Graphic LCD Display**
- › **High-Voltage Terminal Strip**
120 VAC / 60 Hertz / 1 Phase Power Supply
Three Sets of Pump Contacts
- › **Low-Voltage Terminal Strip**
DHW Recirculation Pump Start/Stop
24 VAC Device Relay
Configurable Proving Contacts
Flow Switch Contacts
Alarm on Any Failure Contacts
Runtime Contacts
DHW Thermostat Contacts
3 Space Heat Thermostat Contacts
System Sensor Contacts
DHW Tank Sensor Contacts
Outdoor Air Sensor Contacts
Cascade Contacts

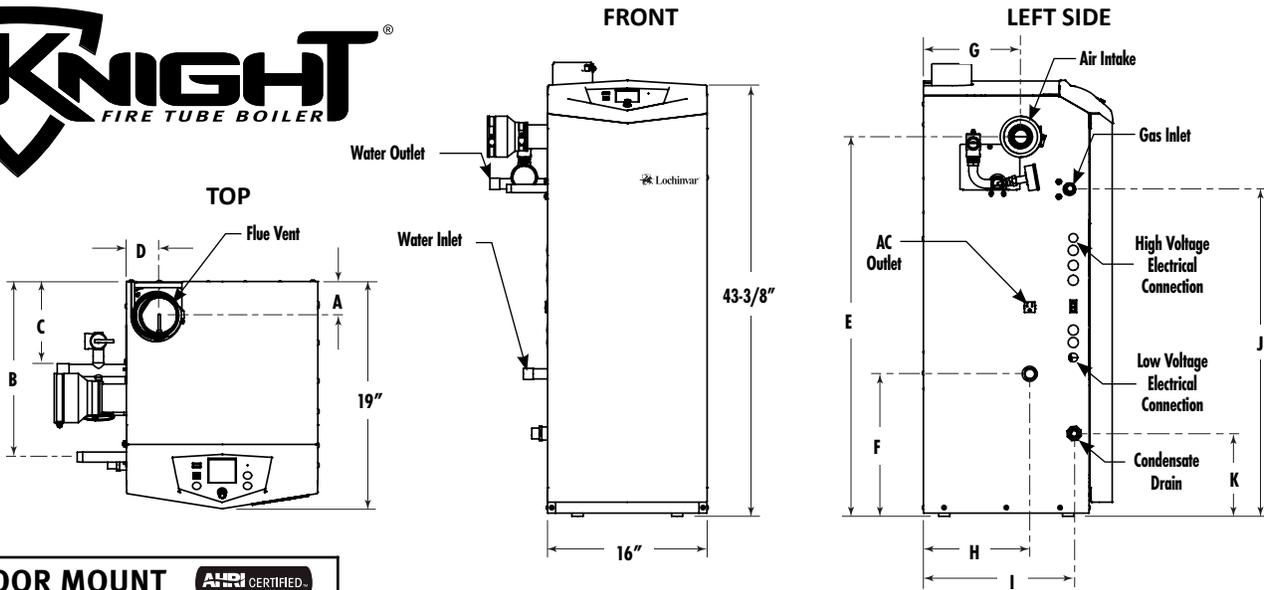


- 0-10 VDC BMS External Control Contact
- 0-10 VDC Boiler Rate Output Contacts
- 0-10 VDC Variable Speed System Pump Signal Input
- 0-10 VDC Signal to Control Variable Speed Boiler Pump
- Modbus Contacts

- › **Time Clock**
- › **Data Logging**
Hours Running, Space Heating
Hours Running, Domestic Hot Water
Ignition Attempts
Last 10 Lockouts
- › **Maintenance Reminder**
Custom Maintenance Reminder with Contractor Contact Information
Installer Ability to De-activate Service Reminder
- › **Low-Water Flow Safety Control & Indication**
- › **Password Security**
- › **Customizable Freeze Protection Parameters**

Optional Equipment

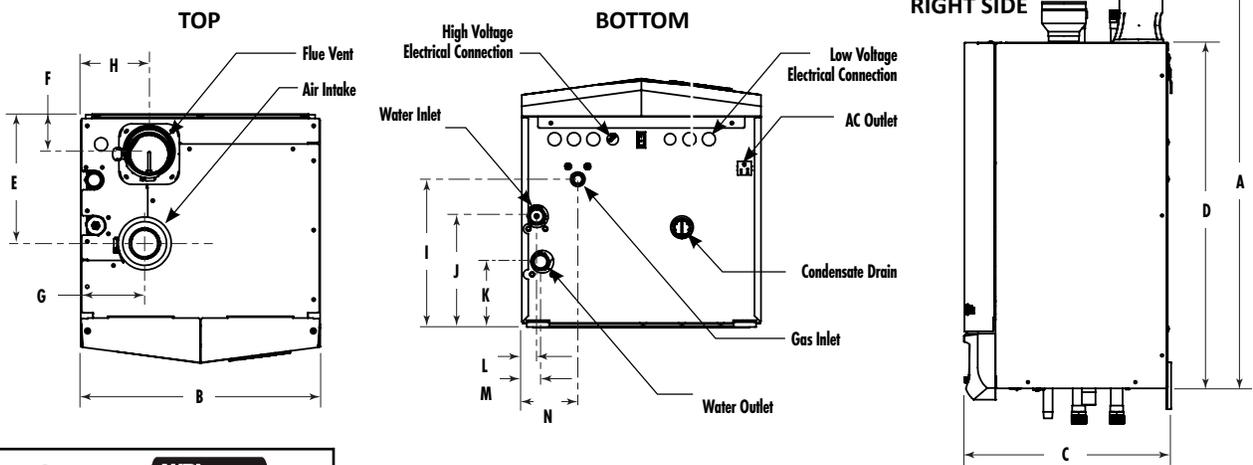
- CON-X-US Remote Connectivity
- Modbus Communication
- BACnet MSTP
- Flow Switch
- Low-Water Cutoff w/Manual Reset & Test
- Alarm Bell
- Concentric Vent Kit
- Condensate Neutralization Kit
- BMS Gateway to LON or BACnet IP
- Sidewall Vent Termination
- Wireless Outdoor Sensor
- LP Gas Conversion Kit
- › **Firing Codes**
M9 Standard Construction
M7 California Code



FLOOR MOUNT



| Model Number | Input MBH | | Heating Capacity MBH | Net AHRI Rating MBH | AFUE% | A | B | C | D | E | F | G | H | I | J | K | Gas Conn. | Water Conn. | Air Inlet | Vent Size | Shipping Weight (lbs.) |
|--------------|-----------|-----|----------------------|---------------------|-------|--------|---------|--------|--------|---------|---------|---------|---------|-----|---------|--------|-----------|-------------|-----------|-----------|------------------------|
| | Min | Max | | | | | | | | | | | | | | | | | | | |
| KHB055N | 8.3 | 55 | 51 | 44 | 95 | 3-1/2" | 13-1/4" | 6" | 2-3/4" | 37-2/3" | 13-1/2" | 8-1/3" | 10-1/2" | 15" | 32-1/2" | 8-1/3" | 1/2" | 1" | 2" | 2" | 160 |
| KHB085N | 8.5 | 85 | 79 | 69 | 95 | 3-1/2" | 13-1/4" | 6" | 2-3/4" | 37-2/3" | 13-1/2" | 8-1/3" | 10-1/2" | 15" | 32-1/2" | 8-1/3" | 1/2" | 1" | 2" | 2" | 165 |
| KHB110N | 11 | 110 | 102 | 89 | 95 | 2-3/4" | 14-3/4" | 7-1/2" | 2-3/4" | 38" | 14-1/3" | 9-3/4" | 10-1/2" | 15" | 33" | 8-1/3" | 1/2" | 1" | 3" | 3" | 170 |
| KHB155N | 15.5 | 155 | 143 | 124 | 95 | 2-3/4" | 14-3/4" | 7-1/2" | 2-1/2" | 38" | 14-1/3" | 9-3/4" | 10-1/2" | 15" | 33" | 8-1/3" | 1/2" | 1" | 3" | 3" | 175 |
| KHB199N | 19.9 | 199 | 184 | 160 | 95 | 3" | 15-1/2" | 7-1/2" | 2-1/2" | 38-1/3" | 14-1/3" | 10-1/2" | 11-1/2" | 15" | 33" | 8-1/3" | 1/2" | 1-1/4" | 3" | 3" | 195 |
| KHB285N | 28.5 | 285 | 264 | 230 | 95 | 3" | 15-1/2" | 7-1/2" | 2-1/2" | 38-1/3" | 14-1/3" | 10-1/2" | 11-1/2" | 15" | 33" | 8-1/3" | 1/2" | 1-1/4" | 3" | 3" | 205 |



WALL MOUNT



| Model Number | Input MBH | | Net AHRI Rating, Water, MBH | AFUE% | Combustion Efficiency % | Thermal Efficiency % | A | B | C | D | E | F | G | H | I | J | K | L | M | N | Gas Conn. | Water Conn. | Air Inlet | Vent Size | Ship Wt. (lbs.) |
|--------------|-----------|-----|-----------------------------|-------|-------------------------|----------------------|---------|---------|---------|---------|---------|--------|--------|--------|---------|---------|--------|--------|--------|--------|-----------|-------------|-----------|-----------|-----------------|
| | Min | Max | | | | | | | | | | | | | | | | | | | | | | | |
| WHB055N | 8.3 | 55 | 51 | 44 | 95.0 | - | 40" | 18-3/4" | 16" | 31-1/8" | 8-1/2" | 3-3/4" | 4-1/2" | 6-1/2" | 7-1/4" | 8-7/8" | 3-1/2" | 1-1/2" | 1-1/2" | 6" | 1/2" | 1" | 2" | 2" | 139 |
| WHB085N | 8.5 | 85 | 79 | 69 | 95.0 | - | 39-3/4" | 18-3/4" | 16" | 31-1/8" | 8-1/2" | 3-3/4" | 4-1/2" | 6-1/2" | 7-1/4" | 8-7/8" | 3-1/2" | 1-1/2" | 1-1/2" | 6" | 1/2" | 1" | 2" | 2" | 142 |
| WHB110N | 11 | 110 | 102 | 89 | 95.0 | - | 41-1/4" | 18-3/4" | 19" | 31-1/8" | 10" | 2-3/4" | 5" | 5-1/4" | 11-1/2" | 8-1/2" | 5" | 1" | 1" | 4-1/2" | 1/2" | 1" | 3" | 3" | 159 |
| WHB155N | 15.5 | 155 | 144 | 125 | 95.0 | - | 41-1/4" | 18-3/4" | 19-1/8" | 31-1/8" | 10" | 2-3/4" | 5" | 5-1/4" | 11-1/2" | 8-1/2" | 5" | 1" | 1" | 4-1/2" | 1/2" | 1" | 3" | 3" | 166 |
| WHB199N | 19.9 | 199 | 184 | 160 | 95.0 | - | 41-1/4" | 18-3/4" | 19-1/8" | 31-1/8" | 10-1/2" | 3" | 5-1/4" | 6" | 11" | 9-1/2" | 6-1/4" | 1-1/2" | 1-1/2" | 4-1/2" | 1/2" | 1-1/4" | 3" | 3" | 175 |
| WHB285N | 28.5 | 285 | 264 | 230 | 95.0 | - | 41-3/4" | 18-3/4" | 21-1/8" | 31-1/8" | 15" | 3" | 3-3/4" | 5-1/4" | 12-1/4" | 11" | 6-1/4" | 1-1/2" | 1-1/2" | 6-1/2" | 1/2" | 1-1/4" | 3" | 3" | 184 |
| WHB399N | 39.9 | 399 | 377 | 328 | 96.0 | 94.4 | 43-5/8" | 25-1/4" | 21-7/8" | 34-3/8" | 3-1/8" | 4-1/4" | 23" | 3-7/8" | 8-3/4" | 12-1/2" | 9-1/4" | 2" | 2" | 23" | 3/4" | 1-1/2" | 4" | 4" | 213 |

• Information subject to change without notice. • Dimensions shown are approximate and should not be used for construction purposes. • *Output* is "Heating Capacity" for units with inputs <300 MBH and "Gross Output" for units ≥300 MBH. • Change "N" to "L" for LP gas models. • The Net AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15. • Lochinvar should be consulted before selecting a boiler for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc. • The ratings have been determined under the provisions governing forced draft burners.

For technical information call 800-722-2101. Lochinvar, LLC reserves the right to make product changes or improvements without prior notice.



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