

# KNIGHT FIRE TUBE BOILER

Submittal Sheet

KHBWHB-Sub-02

#### KNIGHT FIRE TUBE BOILERS - FLOOR AND WALL MOUNT MODELS

iob ivanic.		
Engineer:		
Contractor:		
Nodel #:		
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

#### Location:

Agent/Wholesaler:

Type Gas:

Equipment Tag(s):

#### > Four Pump Control

System Pump with Parameter for Continuous Operation Boiler Pump with Variable Speed Control Domestic Hot Water Pump

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 o-10 VDC Input to Control Modulation or Setpoint o-10 VDC Modulation Rate Output o-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

#### > 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





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

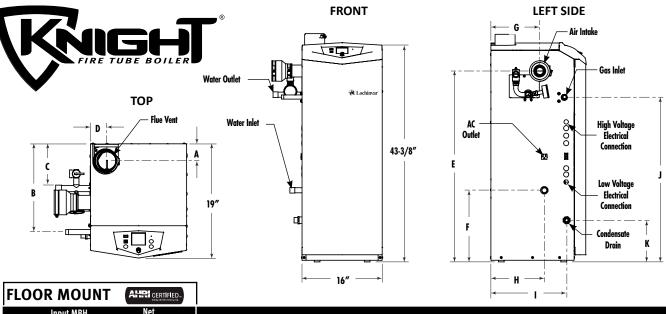
LP Gas Conversion Kit

### > Firing Codes

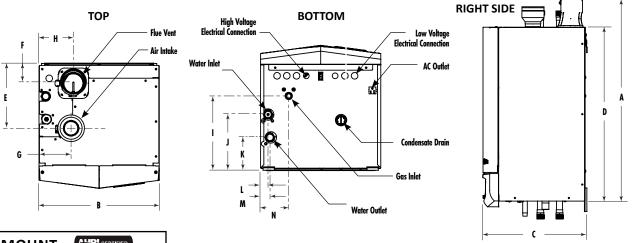
M9 Standard Construction M7 California Code

## **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



Not																					
Model Number	Min	MBH	Heating Capacity MBH	Net AHRI Rating MBH	AFUE%	A	В	С	D	E	F	G	Н	ı	J	К	Gas Conn.	Water Conn.	Air Inlet	Vent Size	Shipping Weight (lbs.)
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 I	MBH Max	*Output	Net AHRI Rating, Water, MBH	AFUE,%	Combustion Efficiency %	Thermal Efficiency %	A	В	c	D	F	F	G	н			к		м	N		Water Conn.	Air Inlet	Vent Size	Ship Wt.
WHB055N	8.3	55	51	44	95.0	-		40"	18-3/4"	16"		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"		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.









