



**Lochinvar**<sup>®</sup>  
HIGH EFFICIENCY BOILERS & WATER HEATERS

**KNIGHT XL  
COMMERCIAL BOILER  
Submittal Sheet**

**KBX-Sub-06**

**KNIGHT<sup>®</sup> XL COMMERCIAL CONDENSING HEATING BOILERS**

**JOB NAME** \_\_\_\_\_

**LOCATION** \_\_\_\_\_

**ENGINEER** \_\_\_\_\_

**WHOLESALE** \_\_\_\_\_

**MECH. CONTRACTOR** \_\_\_\_\_

**MODEL NO.** \_\_\_\_\_

**TYPE GAS** \_\_\_\_\_

**Btu/hr INPUT** \_\_\_\_\_

**Btu/hr OUTPUT** \_\_\_\_\_

**NOTES**

**STANDARD FEATURES**

- › **94% Thermal Efficiency**
- › **Modulating Burner with 5:1 Turndown**
  - › Direct-Spark Ignition
  - › Low NOx Operation
  - › Sealed Combustion
  - › Low Gas Pressure Operation
- › **ASME Stainless Steel Heat Exchanger**
  - › ASME Certified, "H" Stamped Gasketless Heat Exchanger
  - › 160 psi Working Pressure
  - › 50 psi ASME Relief Valve
  - › Highly efficient, condensing design
- › **Vertical & Horizontal Direct-Vent**
  - › Category IV venting up to 100 feet
  - › PVC, CPVC, Polypropylene or AL29-4C Venting up to 100 Feet
  - › Factory Supplied Sidewall Vent Termination
- › **Smart System Control**
- › **Other Features**
  - › On/Off Switch
  - › Adjustable High Limit w/ Manual Reset
  - › Automatic Reset High Limit
  - › Flow Switch
  - › Flue Temperature Sensor
  - › Low Air Pressure Switch
  - › Temperature & Pressure Gauge
  - › Adjustable Leveling Legs
  - › Condensate Trap
  - › Zero Clearances to Combustible Material
  - › 10 Year Limited Warranty (See Warranty)

**SMART SYSTEM FEATURES**

- › **SMART SYSTEM Digital Operating Control**
  - › Multi-Color Graphic LCD Display w/ Navigation Dial
- › **Three Reset Temperature Inputs with curves for three set point temperature inputs**
- › **Built in Cascading Sequencer for up to 8 Boilers**
  - › Multiple Size Boiler Cascade
  - › Lead Lag
  - › Efficiency Optimization
- › **Outdoor Reset Control with Outdoor Air Sensor**
- › **Programmable System Efficiency Optimizers**
  - › Night Setback
  - › DHW Night Setback
  - › Anti-Cycling
  - › Outdoor Air Reset Curve

- › Ramp Delay
- › Boost Temperature & Time
- › **Three Pump Control**
  - › System Pump With Parameter for Continuous Operation
  - › Boiler Pump With Variable Speed Pump Control\*
  - › Domestic Hot Water Pump
- › **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 SH/DHW Switching Times\*
- › **Building Management System Integration**
  - › 0-10VDC Input to Control Modulation or Set Point
  - › 0-10VDC Input Signal from Variable Speed System Pump\*
  - › 0-10VDC Modulation Rate Output
  - › 0-10VDC Input to Enable/Disable call for heat
  - › Access to BMS Settings through Display
- › **High Voltage Terminal Strip**
  - › 120 VAC / 60 Hertz / 1 Phase Power Supply
  - › Three sets of Pump Contacts with Pump Relays
- › **Low Voltage Terminal Strip**
  - › 24 VAC Device Relay
  - › Proving Switch 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
- › **Other Features**
  - › Low Water Flow Safety Control & Indication
  - › Password Security
  - › Inlet & Outlet Temperature Readout
  - › Customizable Freeze Protection Parameters
  - › Custom Maintenance Reminder with Contractor Info

**OPTIONAL EQUIPMENT**

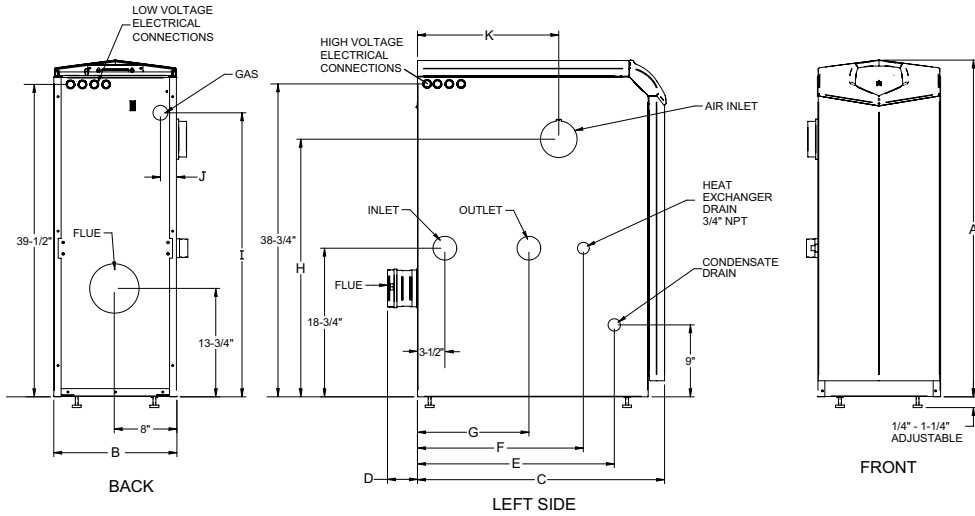
- Alarm Bell
- Condensate Neutralization Kit
- Concentric Vent Kit (KB400-KB601)
- BMS Gateway to LON or BacNet IP
- BACnet MSTP Communication
- High & Low Gas Pressure Switches w/ Manual Reset (KB501-KB801)
- MODBUS Communication
- Multi Temperature Loop Control
- Low Water Cutoff w/Manual Reset & Test
- Boiler Circulation Pump
- Variable Speed Boiler Pump
- SMART SYSTEM PC Software
- Stainless Steel Vent Kits (KB701-KB801)
- Stack Frame
- 30 psi ASME Relief Valve
- 75 psi ASME Relief Valve
- 100 psi ASME Relief Valve
- 125 psi ASME Relief Valve
- 150 psi ASME Relief Valve


**FIRING CODES**

- |     |                                  |
|-----|----------------------------------|
| M9  | Standard Construction            |
| M7  | California Code                  |
| M13 | CSD1 / FM / GE Gap (KB501-KB801) |

*\*Exclusive feature, available only from Lochinvar*

# KNIGHT XL Commercial Boiler Dimensions & Specifications



KNIGHT XL HEATING BOILER 						DIMENSIONS AND SPECIFICATIONS															
Model Number	Input		Thermal Efficiency	Gross Output MBH	Net AHRI Rating MBH	A	B	C	D	E	F	G	H	I	J	K	Gas Conn.	Water Conn.	Air Inlet	Vent Size	Shipping Wt. (lbs.)
	Min MBH	Max MBH				42-1/2"	15-1/2"	27-3/4"	3-3/4"	20-3/4"	21"	14"	34"	34"	2"	18-3/4"	1"	1-1/2"	4"	4"	280
KBN400	80	399	94.0%	376	327	42-1/2"	15-1/2"	27-3/4"	3-3/4"	20-3/4"	21"	14"	34"	34"	2"	18-3/4"	1"	1-1/2"	4"	4"	280
KBN501	100	500	94.0%	470	409	42-1/2"	15-1/2"	31-1/2"	3-3/4"	25-1/2"	21"	14"	32-1/2"	36"	2"	18"	1"	1-1/2"	4"	4"	310
KBN601	120	600	94.0%	564	490	42-1/2"	15-1/2"	36-1/4"	3-3/4"	25"	21"	14"	36"	32-3/4"	5-1/2"	19-1/2"	1"	2"	4"	4"	340
KBN701	140	700	94.0%	658	572	42-1/2"	15-1/2"	40-1/4"	3-3/4"	29"	23"	17"	36"	32-3/4"	3-1/4"	23-1/2"	1"	2"	4"	6"	370
KBN801	160	800	94.0%	752	654	42-1/2"	15-1/2"	45-1/4"	3-3/4"	33-1/4"	23"	17"	36"	32-3/4"	3-1/4"	27-3/4"	1"	2"	4"	6"	405

Notes: Indoor installation only. All information subject to change. 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.

## VENTING OPTIONS

- Direct Vent Vertical
- Direct Vent Horizontal
- Vertical Vent with Sidewall Air Intake
- Sidewall Vent with Rooftop Air Intake
- Vertical Vent with Optional Room Air
- Sidewall Vent with Optional Room Air



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