



Lochinvar[®]
High Efficiency Water Heaters, Boilers and Pool Heaters

**KNIGHT XL
COMMERCIAL BOILER
Submittal Sheet
KBX-Sub-05b**

KNIGHT[®] XL COMMERCIAL CONDENSING HEATING BOILERS

JOB NAME _____

LOCATION _____

ARCH./ENGR. _____

WHOLESALE _____

MECH. CONTRACTOR _____

MODEL NO. _____

TYPE GAS _____

Btu/hr INPUT _____

Btu/hr OUTPUT _____

NOTES

STANDARD FEATURES

- › **Up to 94.6% 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
 - › 0-10VDC Boiler Rate Output Contacts
 - › 0-10VDC Variable Speed System Pump Signal Input
 - › 0-10VDC 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

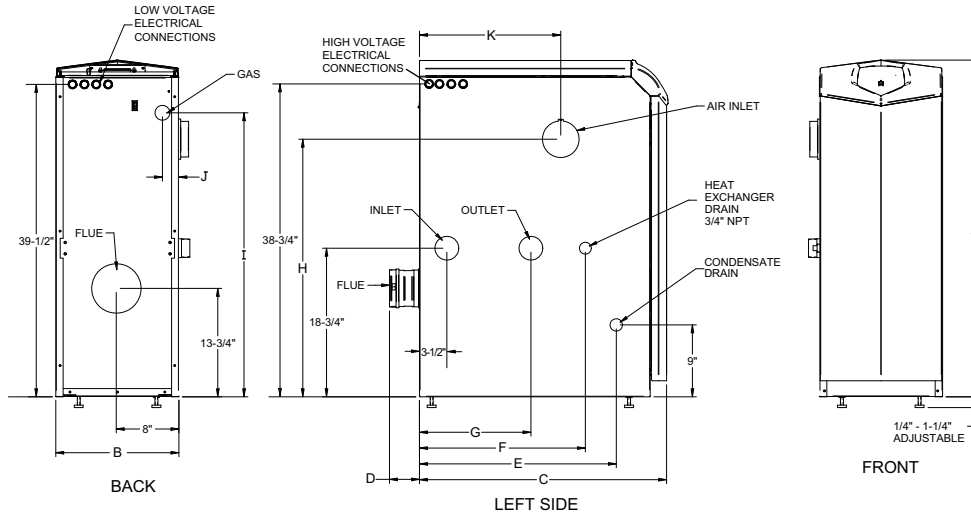
- Alarm Bell
- Condensate Neutralization Kit
- Concentric Vent Kit (KB400-KB601)
- BMS Gateway to LON or BacNet
- High & Low Gas Pressure Switches w/ Manual Reset (KB501-KB801)
- MODBUS Communication
- Multi Temperature Loop Control
- Low Water Cutoff w/Manual Reset & Test
- Boiler Circulation Pump
- SMART SYSTEM PC Software
- Stainless Steel Vent Kits (KB701-KB801)
- Stack Frame

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 Min MBH	Input Max MBH	Thermal Efficiency	Output MBH	Net I=B=R MBH	A	B	C	D	E	F	G	H	I	J	K	Gas Conn.	Water Conn.	Air Inlet	Vent Size	Shipping Wt. (lbs.)
KBN400	80	399	93.3%	373	324	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	93.3%	467	406	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	94.6%	567	493	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	94.3%	660	574	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.

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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