

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND

# BUILDING PERMIT

This is to certify that Maine Medical Center

Located At 19 WEST ST

Job ID: 2011-11-2767-HVAC

CBL: 055- B-013-001

has permission to Install Lochinvar Gas Tank

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

**Fire Prevention Officer**

**Code Enforcement Officer / Plan Reviewer**

**THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY  
PENALTY FOR REMOVING THIS CARD**

## BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: [buildinginspections@portlandmaine.gov](mailto:buildinginspections@portlandmaine.gov)

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



# PORTLAND MAINE

*Strengthening a Remarkable City, Building a Community for Life • [www.portlandmaine.gov](http://www.portlandmaine.gov)*

Director of Planning and Urban Development  
Penny St. Louis

Job ID: 2011-11-2767-HVAC

Located At: 19 WEST ST

CBL: 055- B-013-001

## **Conditions of Approval:**

### **Building**

The installation must comply with the State of Maine gas regulations.

All penetrations through rated assemblies must be protected by an approved firestop system installed in accordance with ASTM E 814 or UL 1479, per IBC 2009 Section 713.

### **Fire**

Installation shall comply with City Code Chapter 10.

Fuel-fired boilers shall be protected in accordance with NFPA 101, *Life Safety Code*.

Installation shall comply with NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*;

NFPA 54, *National Fuel Gas Code*;

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*;

NFPA 91, *Standard for Exhaust Systems for Air Conveying Vapors, Gases, Mists, and Noncombustible Particulate Solids*;

NFPA 70, *National Electrical Code*; and the manufacturer's published instructions.

**City of Portland, Maine - Building or Use Permit Application**

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No: 2011-11-2767-HVAC	Date Applied: 11/16/2011	CBL: 055- B-013-001	
Location of Construction: 19 WEST ST	Owner Name: ME MED. CENTER	Owner Address: 22 BRAMHALL ST PORTLAND, ME 04102	Phone:
Business Name:	Contractor Name: Airtemp Inc	Contractor Address: 11 Wallace AVE SOUTH PORTLAND MAINE 04106	Phone: (207) 774-2300
Lessee/Buyer's Name:	Phone:	Permit Type: HVAC	Zone: R-6
Past Use: <b>Professional Medical Offices</b>	Proposed Use: <b>Same: Professional Medical Offices – to install Lochinar boiler</b>	Cost of Work: \$29,000.00	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved w/conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: <b>B</b> Type: <b>HVAC</b>
Proposed Project Description: HVAC		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Gayle		<b>Zoning Approval</b>	

<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building Permits do not include plumbing, septic or electrical work.</p> <p>3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.</p>	<b>Special Zone or Reviews</b> <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan <input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM Date: <i>OKT 11/30/11</i>	<b>Zoning Appeal</b> <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	<b>Historic Preservation</b> <i>With</i> <input type="checkbox"/> Not in Dist or Landmark <input type="checkbox"/> Does not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: <i>my exterior work requires a separate review &amp; approval</i>
	<b>CERTIFICATION</b>		

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

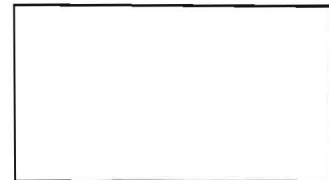
SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

2011-11-2707



FILL IN AND SIGN WITH INK

# APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 055 B013001 R-C Use of Building Office 19 West St Date 11/14/11  
 Name and address of owner of appliance ME MED  
22 Bramhall rd Portland  
 Installer's name and address Air temp  
11 Walker Ave Telephone 774-2300

### Location of appliance:

- Basement
- Floor
- Attic
- Roof

### Type of Fuel:

- Gas
- Oil
- Solid

Appliance Name: Lochinvar

U.L. Approved  Yes  No

Will appliance be installed in accordance with the manufacture's installation instructions?  Yes  No

IF NO Explain: \_\_\_\_\_

### The Type of License of Installer:

- Master Plumber # \_\_\_\_\_
- Solid Fuel # \_\_\_\_\_
- Oil # \_\_\_\_\_
- Gas # PNT1199
- Other \_\_\_\_\_

### Type of Chimney:

Masonry Lined  
Factory built \_\_\_\_\_

Metal  
Factory Built U.L. Listing # \_\_\_\_\_

Direct Vent  
Type PVC UL# \_\_\_\_\_

### Type of Fuel Tank

- Oil
- Gas

Size of Tank \_\_\_\_\_

Number of Tanks \_\_\_\_\_

Distance from Tank to Center of Flame \_\_\_\_\_ feet.

Cost of Work: \$ 28,852

Permit Fee: \$ 310

RECEIVED

NOV 16 2011

Dept. of Building Inspections  
City of Portland Maine

11-28-11

### Approved

### Approved with Conditions

Fire: \_\_\_\_\_  
 Ele.: \_\_\_\_\_  
 Bldg.: \_\_\_\_\_

See attached letter or requirement

Signature of Installer [Signature]

Inspector's Signature Jeff Gergler Date Approved \_\_\_\_\_



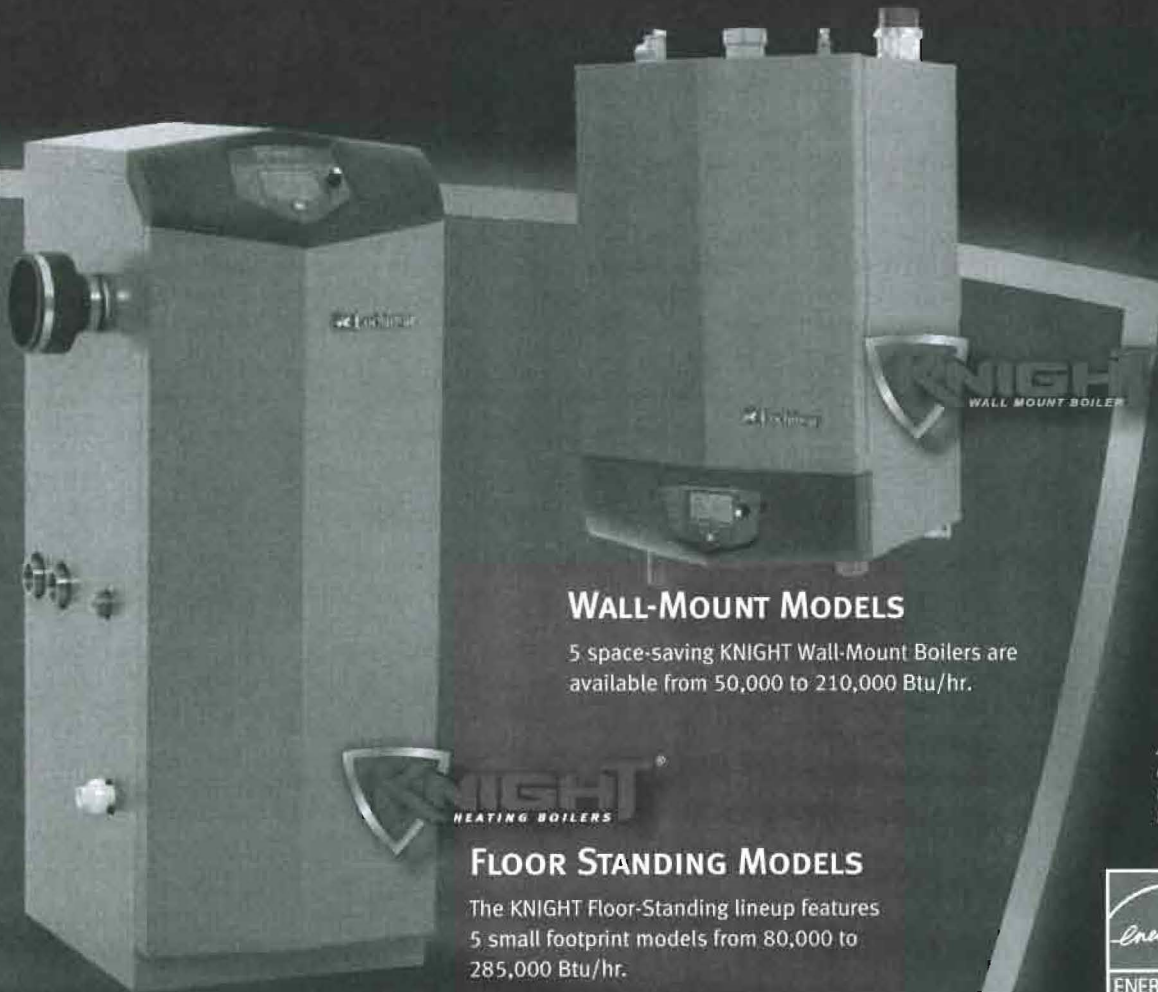
**UP TO 96% DOE AFUE EFFICIENCY**

*THE BEST YOU CAN BUY IS NOW EVEN BETTER!*

KNIGHT is recognized for its reliable, proven performance and high quality standards. Its award winning design assures contractors and home owners peace of mind and long term savings in operating costs.

Now, Lochinvar has raised the KNIGHT standard to even greater heights. The dramatically enhanced SMART SYSTEM™ control with color display gives installers and maintenance personnel a greater level of control than ever before. It's easier to access all the information they need to setup, troubleshoot and monitor all boiler functions. Additionally, two new cascading options allow the installer to fine-tune sequencing of multiple boiler installations.

*More than ever, KNIGHT is the best choice for traditional hydronic space heating, radiant floor heating and domestic hot water applications.*



### WALL-MOUNT MODELS

5 space-saving KNIGHT Wall-Mount Boilers are available from 50,000 to 210,000 Btu/hr.

### FLOOR STANDING MODELS

The KNIGHT Floor-Standing lineup features 5 small footprint models from 80,000 to 285,000 Btu/hr.



All KNIGHT Boilers meet or exceed the most stringent requirements, with less than 20 ppm NOx.



The KNIGHT Boiler has earned the ENERGY STAR, signifying that it has met strict energy-efficiency guidelines set by the EPA and U.S. Department of Energy.



### KNIGHT XL COMMERCIAL

Need more BTU's? KNIGHT XL Commercial Boilers are available in 5 sizes from 399,000 to 800,000 Btu/hr. See KNIGHT XL literature for more details.

## DIAL IN SYSTEM PERFORMANCE

### INTERNAL CASCADING SEQUENCER NEW! WITH MULTIPLE PROGRAMMABLE SYSTEM EFFICIENCY OPTIMIZERS

Fine-tune installations using Lead-Lag or Efficiency Optimization Cascade features.

### NEW! CONTROLS UP TO THREE SETPOINT TEMPERATURES

Allows three different temperature inputs to be controlled. Boiler can be run at the lowest temperature demand for optimal efficiency.

### NEW! OUTDOOR RESET FOR EACH TEMP LOOP

The boiler setpoint temperature responds to changes in outdoor air temperature. Outdoor temperature monitor guides the reset schedule to meet the load.

### NIGHT SETBACK

Program a heating loop temperature setback for any time of the day, each day of the week.

### DOMESTIC HOT WATER PRIORITIZATION W/PUMP CONTROL

On DHW call, SMART SYSTEM overrides the outdoor reset and starts the DHW pump to the indirect water heater alternating to meet both heating and hot water demands.

### NEW! DHW NIGHT SETBACK

Resets DHW setpoint to save water-heating energy during times of low or no usage.

### NEW! DHW MAX FIRING RATE

Allows you to limit the maximum percentage of firing rate when in DHW mode.

### NEW! SEPARATELY ADJUSTABLE SH/DHW MODE SWITCHING TIMES

Allows controls to be tailored to meet system demand. Design system setup for flexibility.

### NEW! INDIRECT WATER HEATER ZONE PUMP CONTROL

All boilers in cascade can be used to meet DHW demand as well as satisfy building load.

### SYSTEM & BOILER PUMP CONTROLS

Provides power to system and boiler pumps on a call for heat. Programmable post purge allows pumps to operate after a call has been satisfied. Option for Continuous System Pump Operation.

### NEW! PUMP RELAY WITH FREEZE PROTECTION

Parameters adjustable by installer for flexibility in low-temperature applications.

### NEW! INSTALLER ACCESS TO BMS AND RAMP DELAY SETTINGS

Set up or change these parameters through the control itself on the front of the boiler; no PC software required.

### LOW-WATER FLOW INDICATOR

Uses temperature differential to protect against low flow in heat exchanger by reducing modulation or forcing boiler shutdown.

### PASSWORD SECURITY

Allows only qualified personnel to access parameters

### NEW! PRODUCT SERVICE INDICATOR

Program reminders for cycle count, operation hours or last service. Installer's name and number may be displayed.

## BUILDING MANAGEMENT INPUTS & OUTPUTS

### NEW! OPTIONAL MODBUS CAPABILITY

Allows boiler communication through Modbus protocol. Simplifies BMS/boiler interface for status monitoring.

### 0-10V BUILDING MANAGEMENT SYSTEM (BMS) CONTROL INPUT

BMS-driven input for modulation rate or temperature control.

### NEW! 0-10V CASCADE SETPOINT AND MODULATION CONTROL

BMS-driven input for modulation rate or temperature control of cascade.

### NEW! 0-10V HEAT DEMAND INPUT

Enables thermostat or a 0-10V signal to initiate a call for heat. Gives the BMS options on how to enable boiler or cascade.

### NEW! 0-10V BOILER RATE OUTPUT

Signal output of modulation rate allows BMS to monitor boiler firing rate.

### NEW! 0-10V PUMP SIGNAL INPUT

Input from variable speed system pump allows faster reaction to changes of flow in system, reducing possibility of temperature over-shoot and cycling.

### NEW! 0-10V SIGNAL TO CONTROL VARIABLE SPEED BOILER PUMP

Allows control to maintain a higher  $\Delta T$  at low firing rates and reduces boiler flow when it responds to lower flow rates in the system loop.

## 5 FLEXIBLE OPTIONS FOR DIRECT-VENTING UP TO 100 FEET!

Placement of units within a building will never be a problem with KNIGHT. It permits up to 100 feet of air intake and 100 feet of exhaust vent with 3" PVC, CPVC or stainless steel pipe. Three Wall-Mounted KNIGHT models (WBN 51 -106) also permit intake and vent runs up to 40 feet using 2" pipe



**SIDEWALL  
VENT  
TERMINATION**

FACTORY SUPPLIED AND SHIPPED WITH EVERY MODEL



Direct-Vent Vertical



Vertical with Sidewall Air



Direct-Vent Vertical\*



Direct-Vent Sidewall\*



Direct-Vent Sidewall

\*An optional concentric vent kit is sold separately to allow a single penetration for both combustion air and vent pipes.

# STATE-OF-THE-ART MODULATING COMBUSTION SYSTEM

## Advanced Negative Regulation Technology

KNIGHT safely and reliably operates with supply gas pressures as low as 4 inches water column. Plus "Neg/Reg" technology automatically adjusts gas pressure to ensure the correct volume of fuel and air entering the burner.

## Direct-Spark Ignition

With each call for heat, two electrodes ignite the fuel/air mixture. A third electrode then senses for flame. The SMART SYSTEM will generate a soft lockout and display a fault if ignition does not occur after 3 attempts.

## Fully Modulating Burner with 5:1 Turndown

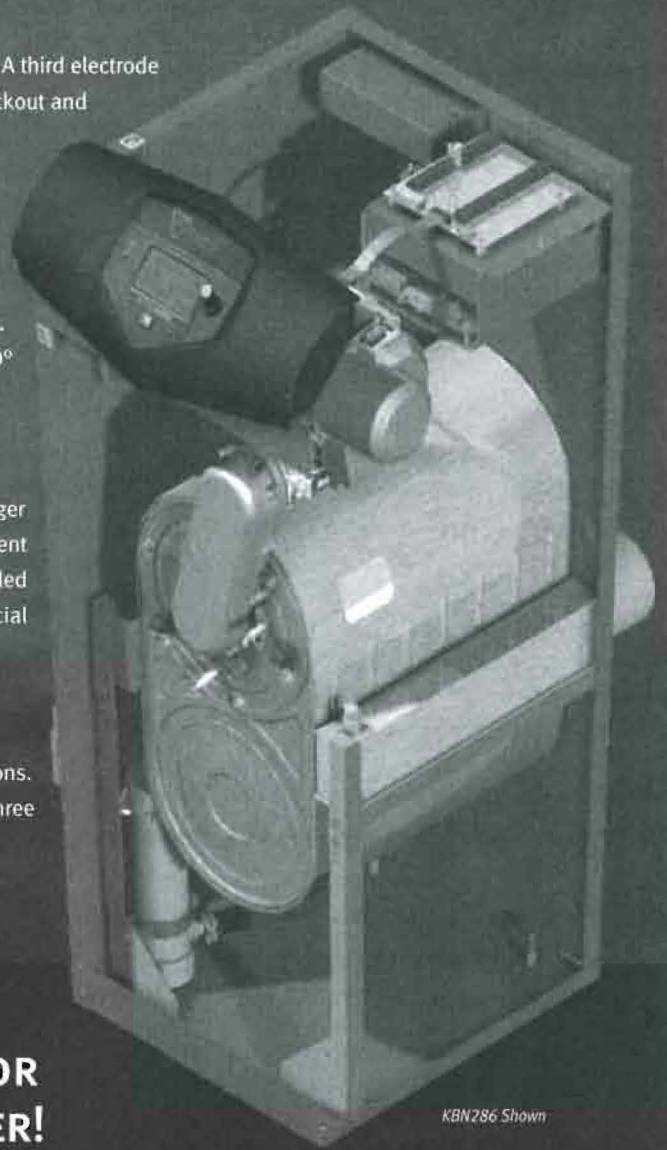
The SMART SYSTEM allows fully modulating combustion with 5:1 turndown. The burner can fire as low as 20% of maximum input and modulate the firing rate up to 100% as demand increases. A woven stainless steel mesh enclosed burner tube fires in a 360° pattern along the entire length of the primary heat exchanger.

## Two-in-One Stainless Steel Heat Exchanger

A primary heat exchanger combined with a secondary heat exchanger captures flue gas heat and condenses to utilize available latent energy. The stainless steel, pH-tolerant design features a weld-sealed assembly with no O-rings or gaskets and does not require special glycol. ASME Section IV approved and stamped.

## Field Connection Versatility

User-friendly terminal strip allows for 44 low-voltage field connections. Four-line voltage connections supply power to the unit and up to three pumps operated by the SMART SYSTEM.



*KBN286 Shown*

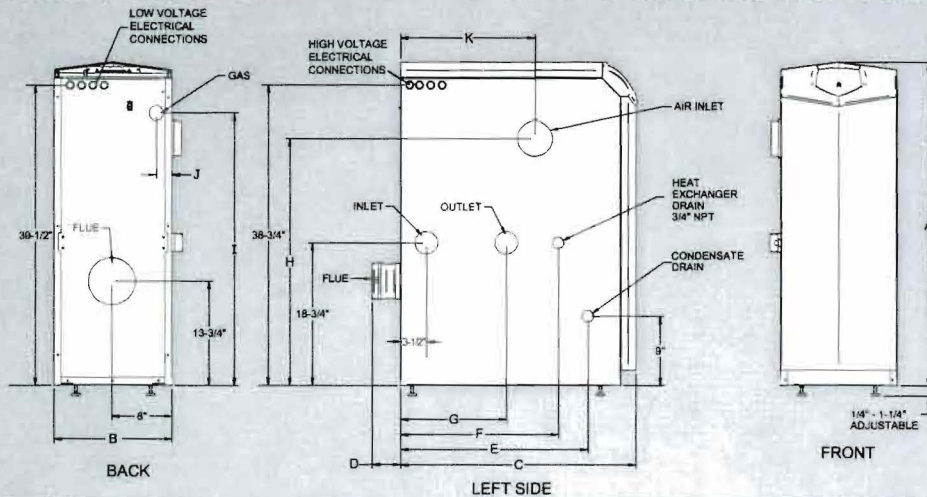
## TEAM KNIGHT WITH SQUIRE FOR LOW-COST DOMESTIC HOT WATER!



KNIGHT's Domestic Hot Water Prioritization feature means you can easily install it with Lochinvar's SQUIRE<sup>®</sup> indirect water heater, available in 30, 40, 50, 65, 80 and 119 gallons. This combination will give homeowners high-efficiency space heating from KNIGHT, and abundant domestic hot water from SQUIRE. With a stainless steel tank and heat exchanger, SQUIRE provides more hot water and lower water heating costs than standard gas or electric water heaters.



# KNIGHT<sup>®</sup> XL BOILER DIMENSIONS AND SPECIFICATIONS



Model Number Guide			
KB	N	701	M13
Model	Natural Gas	Btu/hr Input	Firing Controls

*Knight XL Boiler,  
Natural Gas,  
700,000 Btu/hr Input,  
M13 firing controls*

## KNIGHT XL HEATING BOILER

Model Number	Input Min MBH	Input Max MBH	Thermal Efficiency	Output MBH	Net I=B=R MBH
KBN400	80	399	93.3%	373	324
KBNS01	100	500	93.3%	467	406
KBNG01	120	600	94.6%	567	493
KBN701	140	700	94.3%	660	574
KBN801	160	800	94.0%	752	654

## DIMENSIONS AND SPECIFICATIONS

A	B	C	D	E	F	G	H	I	J	K	Gas Conn.	Water Conn.	Air Inlet Size	Vent Size	Shipping Wt. (lbs.)
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
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
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
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
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.

### 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 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
  - › 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

\*Exclusive feature, available only from Lochinvar

### FIRING CODES

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

### OPTIONAL EQUIPMENT

- › Alarm Bell
- › Condensate Neutralization Kit
- › Concentric Vent Kit (KB400-KB601)
- › High & Low Gas Pressure Switches w/ Manual Reset (KB501-KB801)

- › MODBUS Communication
- › Low Water Cutoff w/ Manual Reset & Test
- › SMART SYSTEM PC Software
- › Stainless Steel Vent Kits (KB701-KB801)
- › Stack Frame



Patent Pending



**Lochinvar**  
High Efficiency Water Heaters, Boilers and Pool Heaters

# SMART SYSTEM™

REFINED DESIGN PUTS MORE CONTROL AND INFORMATION AT YOUR FINGERTIPS

## Advanced features include:

- MULTI-COLOR GRAPHIC LCD DISPLAY
- NAVIGATION DIAL
- USB PORT
- ABILITY TO CONTROL UP TO THREE DIFFERENT SETPOINT TEMPERATURES
- MODBUS CAPABILITY (OPTIONAL)
- DHW MODULATION LIMITING
- DHW NIGHT SETBACK\*
- 0-10 V BOILER RATE OUTPUT
- 0-10V SIGNAL TO CONTROL VARIABLE SPEED BOILER PUMP\*
- 0-10V SYSTEM PUMP SIGNAL INPUT\*
- HEAT DEMAND FROM 0-10V INPUT
- INSTALLER CAN PROGRAM NAME AND NUMBER INTO THE BOILER
- INSTALLER ADJUSTABLE FREEZE PROTECTION PARAMETERS
- SEPARATELY ADJUSTABLE SH/DHW SWITCHING TIMES\*
- INSTALLER ACCESS TO BMS AND RAMP DELAY SETTINGS

\*EXCLUSIVE TO LOCHINVAR SMART SYSTEM



**BLUE SCREEN**  
Normal system operation.

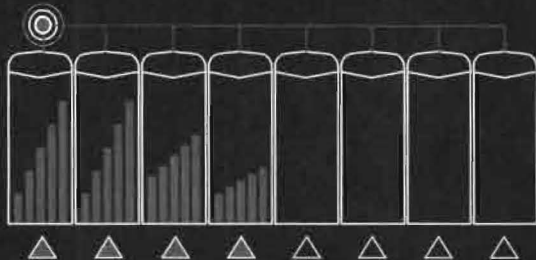
**YELLOW SCREEN**  
Maintenance due - shows the installer's name and number on the display.

**RED SCREEN**  
Lockout mode.

## NEW SELECTABLE CASCADE OPTIONS

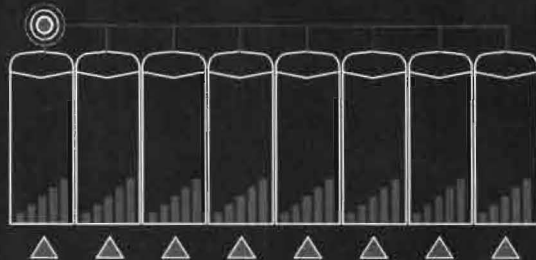
When multiple KNIGHT boilers are installed together, the SMART SYSTEM built-in sequencer can be set for "Lead-Lag" cascade or "Efficiency Optimized" cascade operation.

### LEAD-LAG CASCADE



The "lead" boiler modulates with demand to capacity. As demand increases, additional boilers fire and modulate to capacity. This continues, with additional boilers firing and modulating to capacity until all units are operating. Every 24 hours, the SMART SYSTEM automatically shifts the lead boiler role to the next in the sequence, distributing lead-lag runtimes equally.

### EFFICIENCY OPTIMIZED CASCADE



This feature optimizes the modulation capabilities of the Boiler Plant while evenly distributing run time across all cascaded boilers. Every 24 hours the SMART SYSTEM automatically shifts the 1st boiler on role to the next in the sequence, distributing run time equally.

SMART SYSTEM Cascade option allows 2 - 8 boilers to be sequenced.

## 7 FLEXIBLE VENTING OPTIONS

Direct Vent Sidewall    Direct Vent Vertical    Room Air Sidewall    Room Air Vertical    Vertical w/Sidewall Air    Direct Vent Vertical\*    Direct Vent Sidewall\*



\*Optional Concentric Vent Kit Sold Separately (for 400-601 Models)