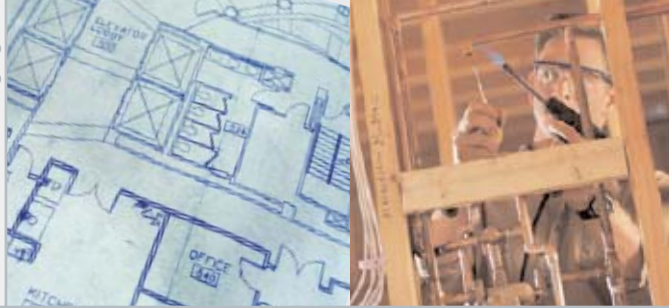


to expand  
your business Kingdom...



[www.knightheatingboiler.com](http://www.knightheatingboiler.com)

# you need the Power of **a** KNIGHT

For more than 80 years, Lochinvar has played a legendary role in commercial water heating. Now we're bringing that proven performance to the condensing market with the KNIGHT—today's most advanced fully modulating high-efficiency condensing boiler.

The KNIGHT is an installer's dream: lightweight and compact, with key components that are easy to access. The KNIGHT offers PVC venting versatility, rugged reliability, seven models with inputs ranging from 80,000 to 500,000 Btu/hr,



and 93% DOE AFUE. And you'll love the SMART SYSTEM™ control, which includes a service indicator, contractor-accessible password protection, and a 2-line display with simple fault descriptions, not codes.

Best of all, the KNIGHT offers more standard features than any other heating boiler available today—including outdoor reset and a boiler circulating pump supplied with every KB 080-285 unit. Plus every KNIGHT is backed by an outstanding 12-year warranty.



## STAINLESS STEEL HEAT EXCHANGER

The KNIGHT essentially combines two heat exchangers in one: the primary heat exchanger that gets exposed to the burner flame and a secondary heat exchanger which is exposed to flue gases only. This design allows entering water temperatures to be as low as 50° F without the need for an additional low temperature bypass.

Tolerant of varying pH levels, the KNIGHT heat exchanger does not require special glycol. And it is a completely welded assembly that contains no O-rings or gaskets. It is ASME Section IV approved and is marked with an "H" stamp that indicates ASME compliance.

## ADVANCED COMBUSTION SYSTEM

The KNIGHT's Negative Regulation (Neg/Reg) technology enables the fan speed to constantly adjust the volume of fuel and air entering the burner. This ensures that the KNIGHT can safely and reliably operate with supply gas pressure as low as 4 inches water column.



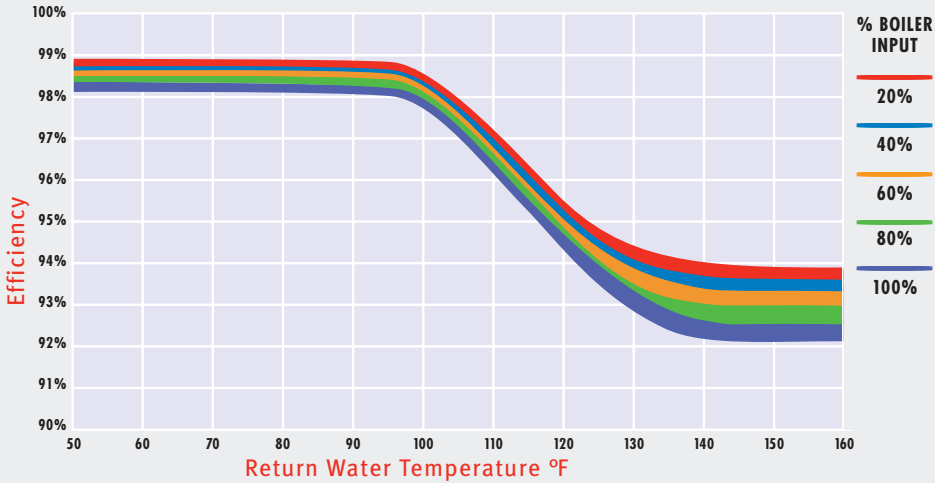
## FULLY MODULATING BURNER w/5:1 TURNDOWN

The KNIGHT's burner is made of stainless steel with woven steel mesh. The burner covers the entire length of the primary heat exchanger, which keeps the KNIGHT's dimensions compact.

The KNIGHT burner aids in the boiler's overall quiet operation, high efficiency and low NOx operation. And it modulates the firing rate down to 20% of input to precisely match heating load requirements for greater efficiency and less cycling.



## LOW TEMPERATURE APPLICATION EFFICIENCY



Low Temperature Application Annual Efficiency is based on ASHRAE 103 test method, with boiler return water temperature at 90° F and outlet water temperature at 110° F. Graph applies to KB 080-285 models.

The KNIGHT heating boiler can provide exceptionally high efficiencies when its modulating capabilities are utilized in low boiler return water temperature applications such as those found in radiant systems. With efficiencies as high as 98.6%, the KNIGHT makes optimum use of fuel dollars and provides maximum savings.

And thanks to the KNIGHT's 93% AFUE rating, 93¢ out of every energy dollar goes directly to heating.

## GO INTO BATTLE WITH THE KNIGHT

### SMART CONTROL SYSTEM™

#### Easy To Use

Makes set-up and service a breeze.

#### 2-Line, 16-Character LCD Display

Uses words, not codes.

#### Password Security

Separate passwords for owner and service professional.

#### Multiple Pump Control

Control up to three pumps (boiler pump, system pump, and DHWP pump).

#### Outdoor Reset

Provides more comfort and eliminates temperature swings.

#### Product Service Indicator

Can be easily programmed to display based on number of cycles, hours of operation, or time since last service.

#### Pump Relay w/Freeze Protection

Continues to work, even if the owner turns off the boiler.

#### Night Setback

Programmable temperature setback for any time of day.

#### 0-10 Vdc Input

Lets you adjust modulation from a remote radiant control panel.

#### PC Software

Connect to a laptop for extensive logging and trending—optional.



### INSTALLATION & SERVICE EASE

The KNIGHT doesn't need a sealed outer jacket assembly because it uses a direct air intake connection to the combustion air inlet fan. Other service-friendly features include:

#### 8 Conduit Knockouts

For field wiring connections.

#### Easy Field Wiring

No tools required to access the terminal strip; easy to connect pumps and controls.

#### PVC Venting

Up to 100 ft. of air intake and 100 ft. of exhaust vent with PVC, CPVC, or ABS. All vent connections are made through the rear (KB 080-285) or side (KB 285-500) of the unit.

#### Easy Access Cabinet

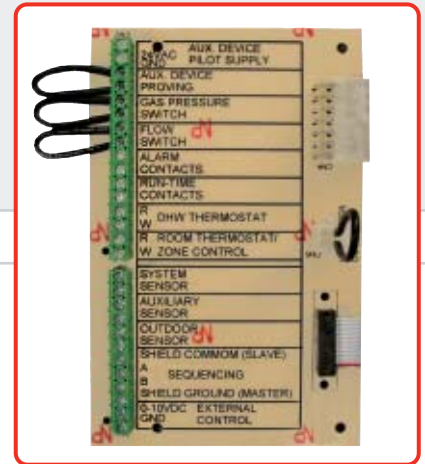
Simply pull front and top panels off by hand. No tools required.

#### Leveling Legs

Design certified for installation on combustible floors.

#### Boiler Circulating Pump

Included as standard equipment (KB 080-285).



The KNIGHT comes with a user-friendly terminal strip that allows for 28 points of low voltage field connections for additional safeties or accessories.

#### Natural to LP Gas Conversion Kit

The right product for every installation.

#### Small Footprint

Conserves valuable floor space.

#### 7 Models To Choose From

To match the heating load more precisely.

#### Whisper-Quiet Operation

So quiet you can't tell it's running.

#### Direct Vent, Sealed Combustion

Meets the most stringent low NOx air quality standards.

#### Lightweight Design

Easy to handle, simple to install.

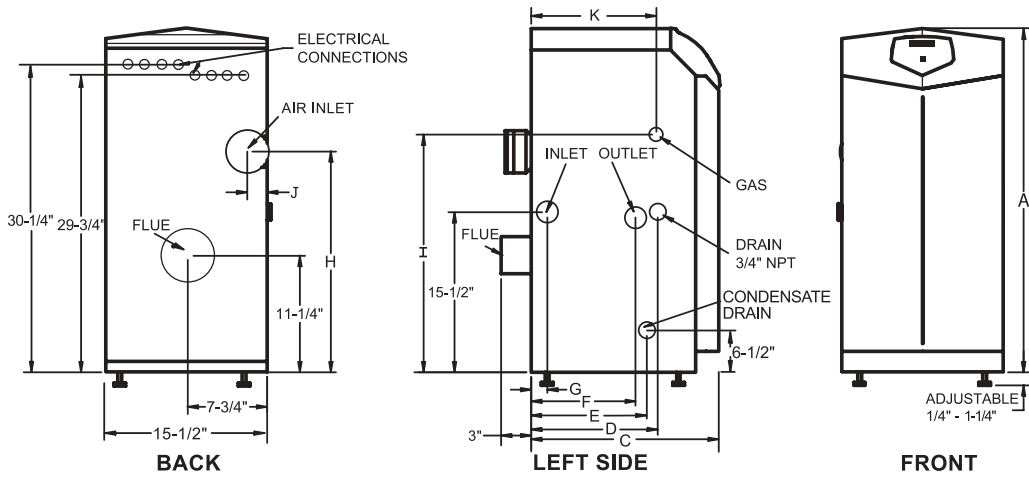
### Sell Smart With Lochinvar And ENERGY STAR®

The United States Department of Energy (DOE) and Environmental Protection Agency (EPA) established the ENERGY STAR® program to promote the use of energy-efficient products. Lochinvar is proud to help our customers and the environment through our voluntary participation in this innovative program.

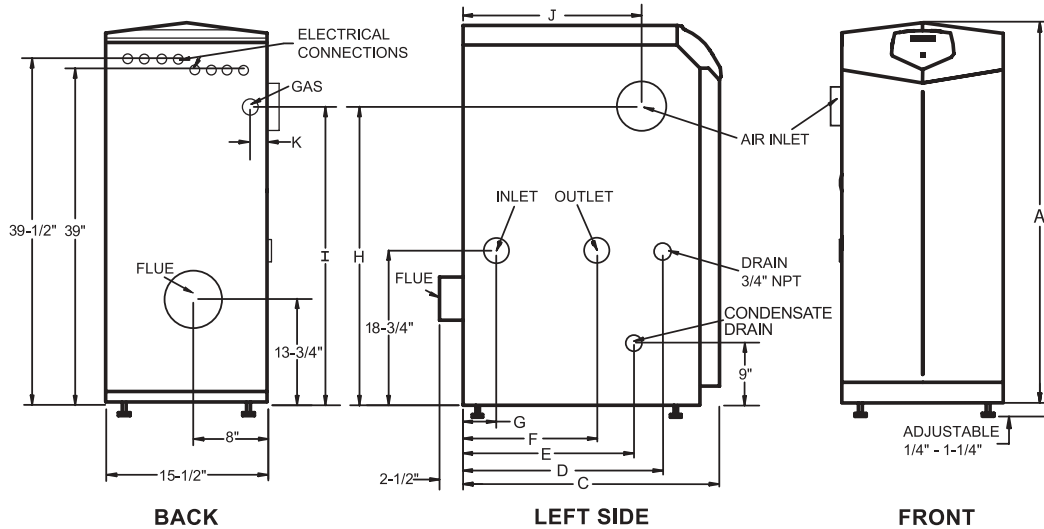


# KNIGHT Heating Boiler Dimensions & Specifications

## Models: 80-210



## Models: 285-500



Model Number	Btu/Hr Input Modulation	Max. Btu/Hr Output	Net I=B=R	A	C	D	E	F	G	H	I	J	K	Water Conn.	Gas Conn.	Air Inlet Vent	Shipping Weight
KBN080	16,000 - 80,000	73,000	63	33-1/4"	14"	7"	5-3/4"	5"	3"	20-1/2"	22"	1-3/4"	6-1/2"	1"	1/2"	3"	55
KBN105	21,000 - 105,000	95,000	83	33-1/4"	14"	6-1/2"	5-3/4"	4-1/2"	1-1/2"	20-1/2"	22"	1-3/4"	6-1/2"	1"	1/2"	3"	72
KBN150	30,000 - 150,000	136,000	118	33-1/4"	18"	12-1/4"	11-1/2"	10"	1-1/2"	21-1/4"	23"	1-3/4"	12"	1"	1/2"	3"	120
KBN210	42,000 - 210,000	191,000	166	33-1/4"	22-1/4"	16-1/2"	15-3/4"	14-1/4"	5-1/4"	21-1/4"	23"	1-3/4"	16-1/4"	1"	1/2"	3"	165
KBN285	57,000 - 285,000	259,000	225	42-1/2"	19-3/4"	12-3/4"	13-1/2"	6"	2"	34"	31"	11-3/4"	4-1/4"	1-1/4"	3/4"	4"	220
KBN399	79,800 - 399,000	360,000	313	42-1/2"	27"	21"	20-3/4"	14"	3-1/2"	34"	34"	18-3/4"	2"	1-1/2"	1"	4"	260
KBN500	100,000 - 500,000	451,000	392	42-1/2"	31-1/4"	21"	25"	14"	3-1/2"	35"	35"	22"	5-3/4"	1-1/2"	1"	4"	275

**Notes:** Performance data based on manufacturer's test results. Change "N" to "L" for L.P. gas models. Indoor installation only. All information subject to change.

### Standard Features

Standard features in **BOLD** text indicate equipment you would pay extra for on competing models.

- 93% AFUE Efficiency (KB 080-285)
- 90.3% Thermal Efficiency (KB 399-500)
- Modulating Burner with 5:1 Turndown
- ENERGY STAR® Qualified
- ASME Stainless Steel Heat Exchanger
- Direct Vent Sealed Combustion
- PVC Venting up to 100 Feet
- **Digital Operating Control**
- **2-Line, 16-Character LCD Display**
- 30 psi Relief Valve (KB 080-285)
- 50 psi Relief Valve (KB 399-500)
- Automatic Reset High Limit
- **Password Security**
- Direct Spark Ignition
- Low NOx Operation
- Low Gas Pressure Operation
- Zero Clearance to Combustibles
- Easy Access Terminal Strip
- Natural to LP Gas Conversion Kit
- Inlet & Outlet Temperature Sensors
- **Product Service Indicator**
- **Outdoor Reset**
- Pump Relay w/ Freeze Protection
- Low Water Flow Indication
- **Domestic Hot Water Prioritization w/ Pump Control**
- **Boiler Circulating Pump w/ Control (KB 080-285)**
- Adjustable Leveling Legs
- Sidewall Vent Terminals
- On/Off Switch
- **0-10 Vdc Input Control**
- **Contacts on Any Failure**
- 12 Year Limited Warranty (See Warranty for Details)

### Optional Equipment

- Adjustable High Limit w/ Manual Reset
- Alarm Bell on Any Failure
- Condensate Neutralization Kit
- Concentric Vent Kit (KB 080-210)
- Flow Switch
- High & Low Gas Pressure Switches (KB 500)
- Low Water Cut-off w/ Manual Reset and Test
- Multi-Stack Frame
- SMART SYSTEM™ PC Software
- Wall Mount Kit (KB 080-105)



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