A PERFECT BOILER FOR EVERY NEED
ALWAYS LEADING THE CHARGE

Introduced in 2005, the KNIGHT® boiler was a major step forward for Lochinvar. Designed for both new construction and replacement applications, the KNIGHT quickly became recognized by the industry as the gold standard for installation flexibility and ease of serviceability.

In 2008, the KNIGHT boiler line was broadened to reach up to 800,000 BTU/hr with the introduction of the KNIGHT XL residential and light commercial boiler, and in 2010 a new and innovative SMART SYSTEM™ control was added to both the KNIGHT and KNIGHT XL boiler products to increase their feature set.

The SMART SYSTEM control makes the setup and operation of KNIGHT boilers easier through its large display, color-coded screens, soft keys and navigation dial used for transitioning from screen to screen quickly.

With over 100,000 units sold to date, the KNIGHT boiler line has continued to benefit from Lochinvar’s commitment to perpetual innovation with four model generations and a host of design, efficiency and installation enhancements.

THE BEST KNIGHT EVER

Lochinvar is proud to introduce the new, improved KNIGHT fire tube boiler—delivering ultimate ease of installation and unmatched operational reliability and serviceability.

Recent upgrades keep KNIGHT at the head of the class, allowing it to continue to lead the charge as the industry-leading high-efficiency residential boiler. With more adjustable parameters than any other competitor, KNIGHT is the most flexible residential boiler you can install.

Today, the new KNIGHT boiler family is available in 13 model options—six floor mounts and seven wall mounts. It also offers a broader range of heating capacity from 55,000 to 399,999 BTU/hr—while continuing to work at 95% AFUE efficiency.

NO ONE BRINGS IT ALL TOGETHER LIKE LOCHINVAR

Lochinvar is the industry leader that other leading companies call upon for the most advanced and efficient water heating products in the world. For that reason, Lochinvar is trusted to go beyond the call of duty to find a solution for every project, no matter the size. You will not find a water heating company that works harder or cares more.

That’s why no one brings it all together quite like Lochinvar.

A HISTORY OF INNOVATION

For nearly 80 years, Lochinvar, an American company, has been a leader of innovation and high-efficiency water heating. Through Lochinvar’s pride in leadership and commitment to excellence, the company has continually improved year after year.

Today, Lochinvar touts the broadest line of high-efficiency water heating solutions, a world-class research & development department, comprehensive service with every sale and industry-leading training through Lochinvar University.

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KNIGHT FEATURES

1. UNIVERSAL VENT CONNECTOR*
   Allows for easy installation of multiple vent materials.

2. FIRE-TUBE HEAT EXCHANGE
   Low pressure drop saves on pump operation costs and provides installation flexibility, while stainless steel fights off corrosion.

3. SMART SYSTEM USER INTERFACE
   A plain English, code free interface with multicolor diagnostic display.

4. 10:1 MODULATION TURNDOWN
   Saves money on fuel cost.

5. ELECTRICAL OUTLET (not shown on WHB)*
   Plug available for work light or condensate pump.

6. LOCH-N-LINK® USB PROGRAMMING
   Allows for saving of parameters onto a USB drive for use at a different job site.

7. INSTALLATION FLEXIBILITY
   Top and bottom water connection for the WHB. Top and left side connections for the KHB for easy retro-fitting, such as a cast iron efficiency upgrade.

VARIABLE SPEED ECM PUMP*
   Saves electricity and lowers operating cost.

*New Features on WHB and KHB models.
BOILER CONTROL FROM ANYWHERE

The industry’s most advanced boiler control system now includes the CON·X·US® Remote Connect option and Loch-N-Link® USB drive programming feature. See below for a complete list of SMART SYSTEM™ functions and features.

From wherever you are, the CON·X·US option lets you use any internet-capable device to link up with the SMART SYSTEM on an unlimited number of KNIGHT boilers. With CON·X·US, you’re always in touch and in control. Optional CON·X·US control board is sold separately.

» DO REGULAR CON·X·US CHECKS FOR ALL YOUR KNIGHT CUSTOMERS, AND LET THEM KNOW YOU’RE MONITORING THEIR BOILER’S PERFORMANCE.

» ADJUST SETPOINTS, DOMESTIC HOT WATER, RESET CURVES, PUMP DELAYS AND MORE, USING THE CON·X·US INTERACTIVE DISPLAY.

» STATUS ALERTS VIA TEXT OR E-MAIL LET YOU KNOW WHEN A KNIGHT BOILER NEEDS ATTENTION.

SMART SYSTEM™ FUNCTIONS AND FEATURES

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

» Four Pump Control
  System Pump with Parameter for Continuous Operation
  Boiler Pump with Variable Speed Control
  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
  0-10 VDC Input to Control Modulation or Setpoint
  0-10 VDC Modulation Rate Output
  0-10 VDC Input to Enable/Disable Call for Heat

» Access to BMS Settings through Graphic LCD Display

» 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
  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

» 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

STANDARD FEATURES

» ENERGY STAR Most Efficient Product

» 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

» MNPT Top and Bottom Water Connections
  (WHB 55-285 only)

» Vertical & Horizontal Direct Vent
  PVC, CPVC, Polypropylene or SS Venting up to 100 feet

» Universal Vent Adapter
  Built-in Combustion Analyzer Port

» 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
  Boiler Circulating Pump
  Zero Clearances to Combustible Materials
  15-Year Limited Warranty (See Warranty for Details)
  5-Year Limited Parts Warranty

» Firing Codes
  M9 Standard Construction
  M7 California Code

OPTIONAL EQUIPMENT

CON·X·US® Remote Connectivity
Modbus Communication
BAConet MSTP
Flow Switch
Low-Water Cutoff w/Manual Reset & Test
Alarm Bell
Concentric Vent Kit
SMART SYSTEM™ PC Software
Condensate Neutralization Kit
BMS Gateway to LON or BAConet IP
Multi-Temperature Loop Control
Sidewall Vent Termination
Wireless Outdoor Sensor
LP Conversion Kit
Information subject to change without notice. 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.

**10:1 Turndown ratio and top and bottom water connections are not included on WHB399. WHB399 operates with a 5:1 turndown.**
Lochinvar is proud to introduce the EPIC™ boiler—our newest high-efficiency residential boiler. EPIC, Lochinvar’s first-ever value-inspired boiler, comes with many of the industry-leading features you would expect to find in a Lochinvar residential boiler. With the addition of the EPIC fire-tube boiler, Lochinvar now offers one of the broadest lines of residential condensing boiler products in the industry.

The EPIC boiler delivers performance far beyond other value-priced residential boilers in its class. It touts several of the industry-leading features first pioneered by Lochinvar’s KNIGHT boiler—the top-selling residential boiler since 2005 and still the leading premium solution in hydronic heating.

**VALUE PRICED AT THE TOP OF ITS CLASS**

EPIC comes to market as a leader in standard residential boilers, and the best option to step up from a traditional cast iron boiler to a high efficiency design. It comes with many standard features, including a Universal Vent Connector—a multi-material connector that allows for PVC, CPVC, polypropylene and stainless steel connections directly into the unit. It also offers a 10:1 turndown ratio, a built-in cascading sequencer for up to eight units, and Lochinvar’s revered SMART CONTROL™ system, the gold standard for boiler control systems that includes an intuitive setup wizard and text-based display.

Because it is a Lochinvar boiler, EPIC is easy to install, set up and service, and promises to deliver the lasting reliability and serviceability the industry has come to expect from a Lochinvar boiler.

**COMPETITIVE COMPARISON**

<table>
<thead>
<tr>
<th>COMPETITION</th>
<th>DISPLAY</th>
<th>HEAT EXCHANGER</th>
<th>VENT CONNECTOR</th>
<th>MODULATION TURNDOWN</th>
<th>DESIGNED, ENGINEERED AND ASSEMBLED IN THE USA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPIC™</strong></td>
<td>ENGLISH</td>
<td>FIRE TUBE HEAT EXCHANGER</td>
<td>UNIVERSAL VENT CONNECTOR</td>
<td>10:1</td>
<td>YES</td>
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<tr>
<td>BRAND B</td>
<td>CODES</td>
<td>WATER TUBE HEAT EXCHANGER</td>
<td>VENT ADAPTERS NEEDED</td>
<td>5:1</td>
<td>YES</td>
</tr>
<tr>
<td>BRAND N</td>
<td>CODES</td>
<td>WATER TUBE HEAT EXCHANGER</td>
<td>VENT ADAPTERS NEEDED</td>
<td>UP TO 15:1</td>
<td>NO</td>
</tr>
<tr>
<td>BRAND V</td>
<td>CODES</td>
<td>WATER TUBE HEAT EXCHANGER</td>
<td>VENT ADAPTERS NEEDED</td>
<td>LESS THAN 5:1</td>
<td>NO</td>
</tr>
</tbody>
</table>
The EPIC residential boiler is the perfect hydronic heating solution for homeowners seeking the reliability, ease of installation, and engineering prowess of a Lochinvar high efficiency product. The EPIC boiler is available in three sizes: the EPB080N with max input of 80,000 BTU/hr, the EPB110N with max input of 110,000 BTU/hr, and the EPB199N with max input of 199,999 BTU/hr.

The EPIC boiler was designed for durability with 95% AFUE efficiency, a fire-tube stainless steel heat exchanger, and a 10/5 (heat exchanger/parts) warranty. The EPIC boiler is also engineered with installation and serviceability in mind, including a simple layout and construction as well as technical support from Lochinvar professionals to assist with troubleshooting.
**EPIC BOILER DIMENSIONS AND SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Input MBH</th>
<th>AFUE%</th>
<th>Heating Capacity MBH</th>
<th>Net MBH</th>
<th>Gas Conn.</th>
<th>Water Conn.</th>
<th>Air Inlet</th>
<th>Vent Size</th>
<th>Shipping Wt. (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPB080N</td>
<td>80</td>
<td>8.3</td>
<td>95.0</td>
<td>74</td>
<td>64</td>
<td>24&quot;</td>
<td>17-1/4&quot;</td>
<td>17-1/4&quot;</td>
<td>8-1/2&quot;</td>
</tr>
<tr>
<td>EPB110N</td>
<td>110</td>
<td>11</td>
<td>95.0</td>
<td>102</td>
<td>89</td>
<td>24&quot;</td>
<td>17-1/4&quot;</td>
<td>18&quot;</td>
<td>9&quot;</td>
</tr>
<tr>
<td>EPB150N</td>
<td>150</td>
<td>15.0</td>
<td>95.0</td>
<td>139</td>
<td>125</td>
<td>24&quot;</td>
<td>17-1/4&quot;</td>
<td>18&quot;</td>
<td>9-1/8&quot;</td>
</tr>
<tr>
<td>EPB199N</td>
<td>199.9</td>
<td>19.9</td>
<td>95.0</td>
<td>185</td>
<td>161</td>
<td>24&quot;</td>
<td>17-1/4&quot;</td>
<td>18&quot;</td>
<td>9-3/8&quot;</td>
</tr>
</tbody>
</table>

**EPIC FIRE TUBE**

**SMART CONTROL™ FEATURES AND FUNCTIONS**

- **SMART CONTROL Digital Operating Control**
  LCD Display with words not codes
- **Outdoor Reset Control with Outdoor Air Sensor**
- **Programmable System Efficiency Optimizers**
- **Three Pump Control**
  System Pump
  Boiler Pump
  DHW Pump
- **High-Voltage Junction Box**
  120 VAC / 60 Hertz / 1 Phase Power Supply
- **Low Voltage Terminal Strip**
  Flow Switch Contacts
  Low-Water Cutoff Connection
  System Sensor Contacts
  Outdoor Air Sensor Contacts
  Cascade Contacts
- **Time Clock for Data Logging**
  Last 10 Lockouts
- **Low-Water Flow Safety Control & Indication**
- **Password Security**
- **Built-in Cascading Sequencer for up to 8 units**

**STANDARD FEATURES**

- Modulating Burner with 10:1 Turndown
  - Direct-Spark Ignition
- Low-NOx Operation
- ASME Stainless Steel Heat Exchanger
- Vertical & Horizontal Direct-Vent
  - PVC, CPVC, Polypropylene or SS Venting up to 100 feet
- Condensate Trap
- California Code Compliant
- Other Features
  - Automatic Reset High Limit
  - Adjustable High Limit w/Manual Reset
  - Wall-Mount Bracket
  - Zero Clearances to Combustible Materials
  - 10-Year HEX Warranty (See Warranty for Details)
  - 5-Year Parts Warranty

**OPTIONAL EQUIPMENT**

- Low-Water Cutoff w/Manual Reset & Test
- Concentric Vent Kit
- Condensate Neutralization Kit
- Sidewall Vent Termination
- Floor Stand
- Wireless Outdoor Sensor
- Nat to LP Gas Conversion Kit

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