

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND BUILDING PERMIT



This is to certify that

NINETY HIGH LP /Pine State Services /Lee Nicely

Located at

90 HIGH ST

PERMIT ID: 2012-65685

CBL: 039 D014001

has permission to **install a Lochinvar Knight XL399 gas boiler in basement** provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues 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 cloed-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 procured prior to occupancy.

Fire Prevention Officer

Code Enforcement Officer / Plan Reviewer

A handwritten signature in black ink, appearing to read "Jamie Bank".

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

PERMIT ID: 2012-65685

Located at: 90 HIGH ST

CBL: 039 D014001

City of Portland, Maine - Building or Use Permit Application

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

Permit No: 2012-65685	Issue Date:	CBL: 039 D014001
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Location of Construction: 90 HIGH ST	Owner Name: NINETY HIGH LP	Owner Address: 106 GILMAN ST PORTLAND, ME 04102	Phone:
Business Name:	Contractor Name: Pine State Services /Lee Nicely	Contractor Address: 5 Industry road South Portland ME 04106	Phone (207) 321-2269
Lessee/Buyer's Name	Phone:	Permit Type: HVAC	Zone: C25
Past Use: Multi - Unit - Shalom House 10 dwelling units	Proposed Use: Multi - Unit - Shalom House 10 dwelling units	Permit Fee: \$130.00	Cost of Work: \$11,000.00
Proposed Project Description: install a Lochinvar Knight XL399 in basement - gas boiler		FIRE DEPT: 2/20/13 <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A Signature: <i>[Signature]</i> (58)	INSPECTION: Use Group: R-2 Type: HVAC MUBEC 2009 Signature: <i>[Signature]</i> 1/18/13
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: _____ Date: _____	

Permit Taken By: Idobson	Date Applied For: 12/26/2012	Zoning Approval
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<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 information may invalidate a building permit and stop all work..</p>	<p>Special Zone or Reviews</p> <p><input type="checkbox"/> Shoreland</p> <p><input type="checkbox"/> Wetland</p> <p><input type="checkbox"/> Flood Zone</p> <p><input type="checkbox"/> Subdivision</p> <p><input type="checkbox"/> Site Plan</p> <p>Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/></p> <p>OK Date: 12/31/12 <i>[Signature]</i></p>	<p>Zoning Appeal</p> <p><input type="checkbox"/> Variance</p> <p><input type="checkbox"/> Miscellaneous</p> <p><input type="checkbox"/> Conditional Use</p> <p><input type="checkbox"/> Interpretation</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Denied</p> <p>Date: _____</p>	<p>Historic Preservation</p> <p><input type="checkbox"/> Not in District or Landmark</p> <p><input type="checkbox"/> Does Not Require Review</p> <p><input type="checkbox"/> Requires Review</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Approved w/Conditions</p> <p><input type="checkbox"/> Denied</p> <p>Any exterior work Date: requires a separate review! approval thru historic.</p>
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CERTIFICATION

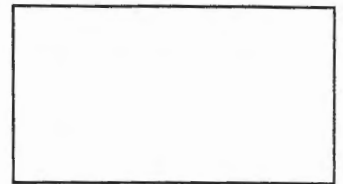
I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, 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



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 90 High St. Portland Use of Building _____ Date 12-26-12
 Name and address of owner of appliance Shalom House
90 High St. Portland ME 04102
 Installer's name and address Prime State Services Inc.
5 Industry Rd. South Portland Telephone 321-2269

Location of appliance:

- Basement Floor
 Attic Roof

Type of Fuel:

- Gas Oil Solid

Appliance Name: Lochinvar Knight XL 399

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 # PMT 1218
 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 Natural gas

Size of Tank _____

Number of Tanks _____

Distance from Tank to Center of Flame _____ feet.

Cost of Work: \$ 10,174

Permit Fee: \$ _____

Approved

Fire: _____
 Ele.: _____
 Bldg.: _____

Approved with Conditions

- See attached letter or requirement

Signature of Installer [Signature] Inspector's Signature _____ Date Approved _____

HIGH EFFICIENCY COMMERCIAL CONDENSING BOILERS



SMART SYSTEM

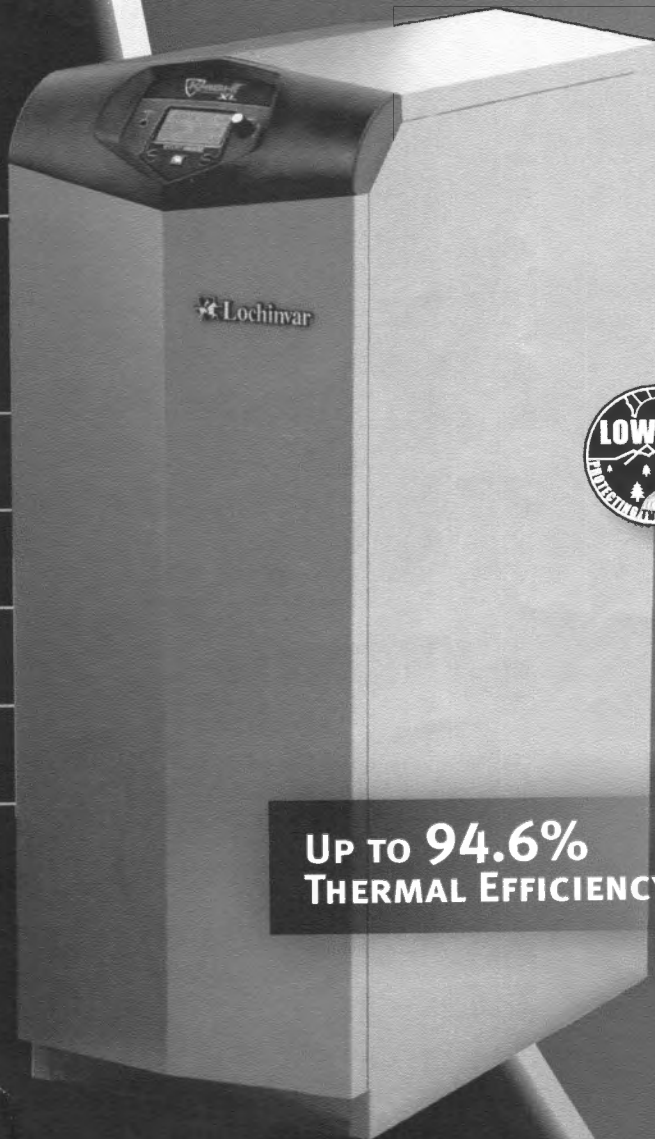
OPERATING CONTROL FEATURING
A BUILT-IN CASCADING SEQUENCER

5 MODELS: 399,000 – 800,000 BTU/HR

FIRING RATE MODULATION TO 5:1

LESS THAN 20 ppm NOx

DIRECT VENT FLEXIBILITY TO 100 FEET



**UP TO 94.6%
THERMAL EFFICIENCY**



Lochinvar.com

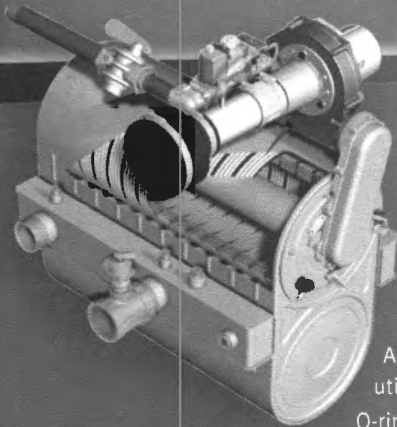


THE SMARTEST CHOICE FOR CONDENSING BOILER PERFORMANCE

The KNIGHT® XL, engineered with Lochinvar's exclusive SMART SYSTEM™ control and an array of other innovative features, places it far ahead of any commercial heating boiler in its class. It promises and delivers ultimate ease of installation and maintenance. With up to 94.6% thermal efficiency, low-NOx emissions and a fully modulating burner, it is the best "green choice" for today's environmentally focused market.

Five modulating/condensing stainless steel KNIGHT XL boilers are available with 399,000–800,000 Btu/hr inputs and remarkably small space-saving footprints. All are equipped for direct-vent installation with air intake and exhaust runs up to 100 feet using PVC, CPVC, Polypropylene or AL29-4C vent materials. This range of choices is ideal for light-duty applications such as small hotels, schools and office buildings. For higher-demand applications, up to eight KNIGHT XL units can be installed utilizing the built-in cascading sequencer to deliver up to 6.4 million Btu/hr heating capacity. THE KNIGHT XL BOILER reflects Lochinvar's constant commitment to providing all the options you need to serve every application.

KNIGHT XLs installed and commissioned by Black & McDonald



ADVANCED NEGATIVE REGULATION TECHNOLOGY

KNIGHT XL safely and reliably operates with supply gas pressure as low as 4 inches water column. Negative Regulation (Neg/Reg) technology automatically adjusts fan speed that ensures the correct volume and mix of fuel and air throughout the firing range.

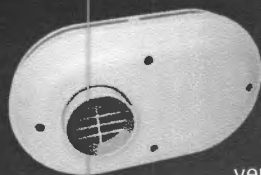
TWO-IN-ONE STAINLESS STEEL HEAT EXCHANGER

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.

FULLY MODULATING BURNER

The SMART SYSTEM allows fully modulating combustion with 5:1 turndown. The burner can fire as low as 20% of maximum input and modulates the firing rate up to 100% as demand increases. The burner is a single stainless steel assembly covered with woven steel mesh and fires in a 360° pattern along the entire length of the primary heat exchanger. This allows the compact KNIGHT XL to exceed the capacity of units with larger multiple burners.

DIRECT VENTING UP TO 100 FEET



SIDEWALL VENT TERMINATION

KNIGHT XL offers 7 venting options and tremendous flexibility for placement of units within the building, because it permits direct-vent air intake and exhaust runs up to 100 equivalent feet using either PVC, CPVC, Polypropylene or AL29-4C stainless steel vent pipe. A sidewall vent termination kit is shipped standard with every KNIGHT boiler.

Sidewall Vent Termination



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
- COMPATIBILITY WITH COPPER-FIN II NON-CONDENSING BOILER TO CREATE A FRONT-END LOADING SYSTEM
- BOILERS WITH DIFFERENT INPUTS CAN BE CASCADED TOGETHER TO MAXIMIZE BOILER PLANT TURNDOWN
- 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



AT-A-GLANCE COLOR CODING



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

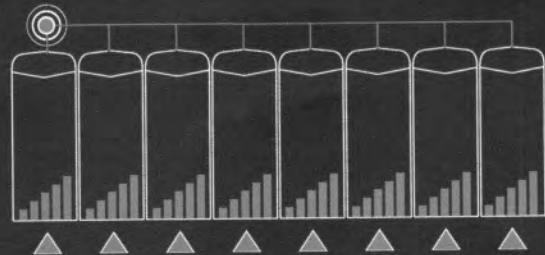
When multiple KNIGHT boilers are installed together, the SMART SYSTEM built-in sequencer can be set for "Lead-Lag" cascade or "Efficiency Optimized" cascade operation.

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

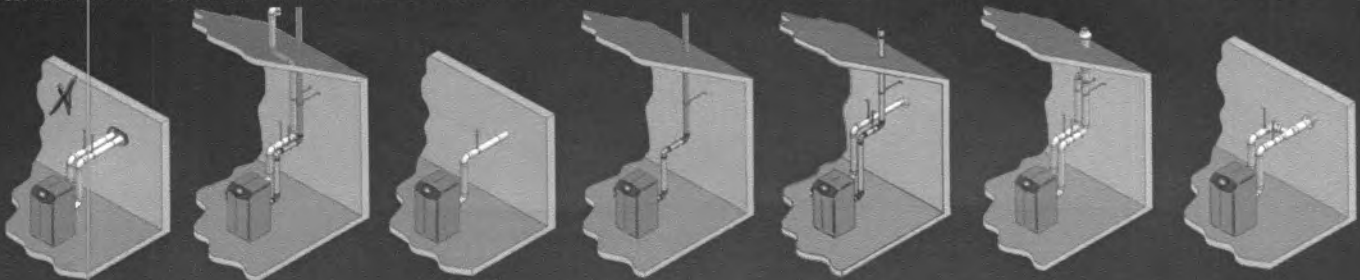
Room Air Sidewall

Room Air Vertical

Vertical w/Sidewall Air

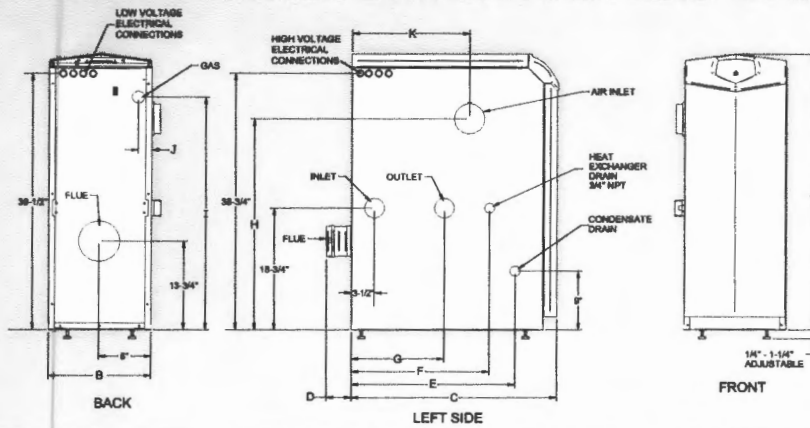
Direct Vent Vertical*

Direct Vent Sidewall*



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

KNIGHT® 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						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.

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

*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)
- › 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



Patent Pending



Lochinvar®
 High Efficiency Water Heaters, Boilers and Pool Heaters