

**HIGH EFFICIENCY
CONDENSING BOILERS**

FTXL™

FIRE TUBE BOILER

5 MODELS FROM 399,000 TO 850,000 BTU/HR

UP TO 98% THERMAL EFFICIENCY

UP TO 10:1 TURNDOWN RATIO

FLOW RATES FROM 10 TO 150 GPM

SMART SYSTEM™
W/OPERATING CONTROL

CONXUS®
REMOTE CONNECT CAPABLE



DESIGNED ★ ENGINEERED ★ ASSEMBLED

USA

 **Lochinvar®**



THE NEW 98% STANDARD

Lochinvar re-defined the fire-tube boiler category with its KNIGHT® Wall-Mount and CREST® lines. For residential and light commercial applications, the FTXL™ adds models from 399,000 to 850,000 Btu/hr, and takes Lochinvar's fire-tube technology to the next level. FTXL offers best-in-class AHRI Thermal Efficiency and footprints, plus remote connectivity that puts the SMART SYSTEM™ control at your fingertips, anywhere!

REDUCE INSTALLATION COST WITH VARIABLE FLOW TECHNOLOGY

FTXL can operate over a wide range of flow rates* with very low pressure drop. This permits installation of a "full flow" (variable primary) system eliminating the time and materials cost of primary/secondary piping, and pumps needed to maintain flow in a water-tube boiler. Variable flow also makes FTXL more flexible at handling frequent fluctuations in the system flow rate.

*See back page for minimum and maximum flow rates by model.

SMOOTH-RUNNING, MODULATING COMBUSTION

FTXL boilers have a top-mounted, micrometal fiber burner, with a blower/gas valve assembly that drives heat energy downward, through stainless steel fire tubes, with exhaust venting through the bottom of the unit. With up to 10:1 modulation turndown, the burner automatically changes its firing rate as building heat loads vary. An FTX500 fires at its maximum 500,000 Btu/hr rate when heat load is highest, then gradually "turns down" to as low as 10% (50,000 Btu/hr) as load decreases. A modulating system runs smoothly and efficiently, without frequent on/off cycling.

MINIMUM SUPPLY PRESSURE, INSTALLER-FRIENDLY

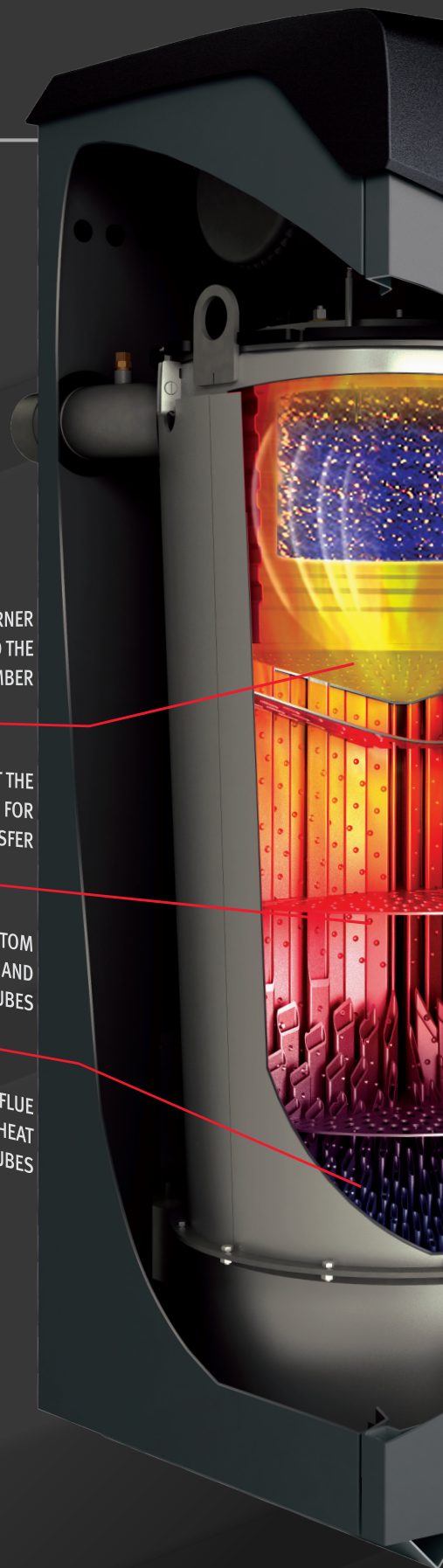
FTXL operates with supply gas pressure as low as 4 inches water column. *Negative Regulation* draws gas into a pre-mix combustion system, instead of relying on utility pressure through the gas valve. The result is steady operation in low gas pressure systems or when peak demand occurs on gas supply. Automatic fan speed control fine-tunes the correct fuel/air ratio entering the burner, providing superior combustion throughout the entire operating range.

MICROMETAL FIBER BURNER
DELIVERS HEAT TO THE
COMBUSTION CHAMBER

BAFFLES DIRECT THE
FLOW OF WATER FOR
OPTIMAL HEAT TRANSFER

WATER ENTERS THE BOTTOM
AND TRAVERSES UP AND
AROUND FIRE TUBES

DOWNWARD FLOW OF FLUE
GASES TRANSFER HEAT
WITHIN FIRE TUBES





INTRODUCING BOILER PLANT CONTROL, *FROM ANYWHERE.*

FTXL features the next generation of Lochinvar's all-in-one SMART SYSTEM operating control with a re-designed multi-color LCD interface. SMART SYSTEM provides outstanding functionality, and can be integrated directly into a Building Automation System via ModBus and other communications protocols. And now, the CON-X-US mobile communication platform allows SMART SYSTEM to go where no other boiler has gone before.†



CON-X-US provides the ability to monitor and manage multiple FTXL boiler plants without ever stepping into the mechanical room. CON-X-US will send alerts via text or e-mail notifying of changes in system status, and anytime, from anywhere, a user can check system status and re-program any boiler function. Once downloaded, the free CON-X-US mobile application allows for remote access to all SMART SYSTEM functions using any Internet-capable device.



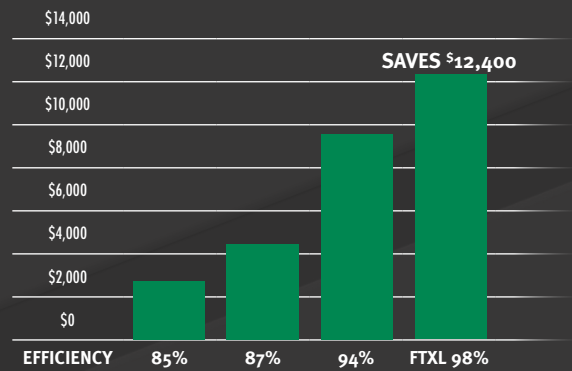
†CON-X-US control board sold separately. See back cover for a complete list of SMART SYSTEM features.

HOW 98% TRANSLATES INTO FTXL SAVINGS

Even when compared to other condensing boilers, the FTXL fire-tube combustion system will produce significant fuel cost savings. Here are three comparisons, based on building load of approximately 19,000 therms/year, at a cost of \$1.09 per therm of natural gas.

Fuel savings is based on a heating load of 19,000 therms per year being supplied by an 82% efficient boiler at the DOE National average for natural gas of \$1.09.

3 - Year Fuel Savings

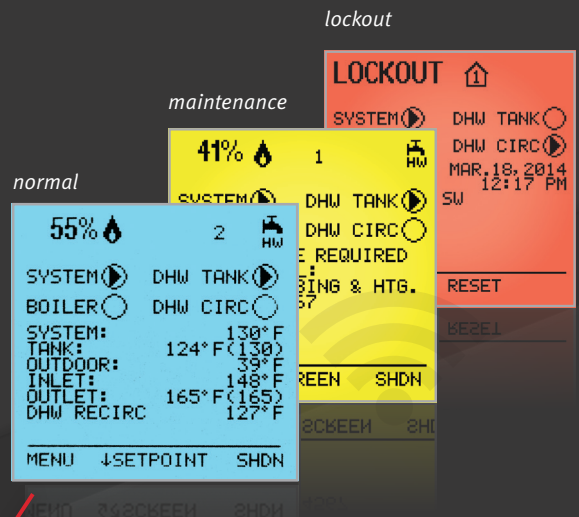


WIRELESS OUTDOOR SENSOR

Easy to install, greatly reduces time and materials cost for running sensor wire from standard outdoor temperature sensor to boiler control. Approximate range 2,000 feet line-of-sight.



ENHANCED MULTI-COLOR LCD INTERFACE



LOCH-N-LINK® EASY USB FLASH PROGRAMMING

Use a USB drive to name, store and easily manage multiple existing proven parameter sets. Quickly upload them via the front panel port into the FTXL boiler, reducing installation and programming time by up to 30 minutes per boiler.





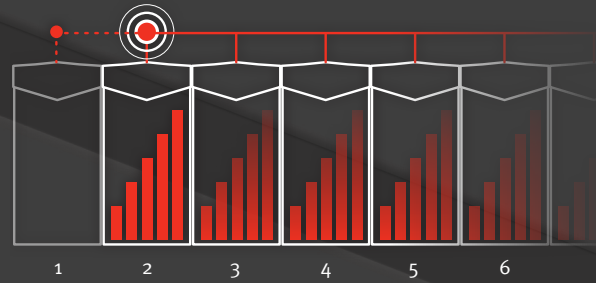
PEACE OF MIND, WHEN IT MATTERS MOST

Up to eight FTXL boilers can be sequenced using a 2-wire daisy-chain connection. Cascade sequencing can be programmed for "Lead-Lag" or "Efficiency Optimized" operation.

With Lead-Lag operation, one lead boiler modulates to capacity on demand. As load increases, the system then cascades to additional lag boilers in sequence. The first-on role shifts daily, distributing equal runtimes to each unit.

In an Efficiency Optimized system, all boilers fire and modulate simultaneously at the same BTU/hr input rates, maximizing thermal efficiency.

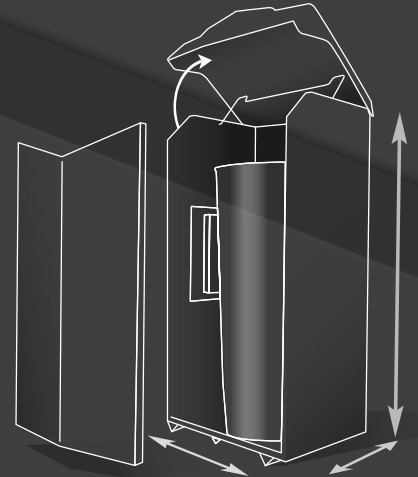
If the lead boiler is turned off for maintenance, Cascade Redundancy automatically shifts the lead role to the second sequenced boiler. Peace of mind comes from knowing the system will still function with no downtime until the original lead boiler is back online.



THE SMALLEST FOOTPRINT, EASY TO INSTALL & SERVICE

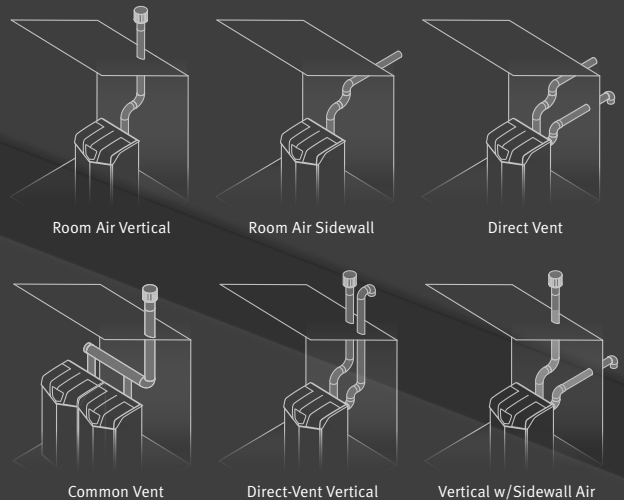
FTXL can be installed with zero clearance on the left and right, and the boiler's installed footprint is just 6.2 sq. ft.

All water, gas and vent connections are in the back of the unit. A hinged top opens for easy access to components and the front panel is easily removed using no tools.



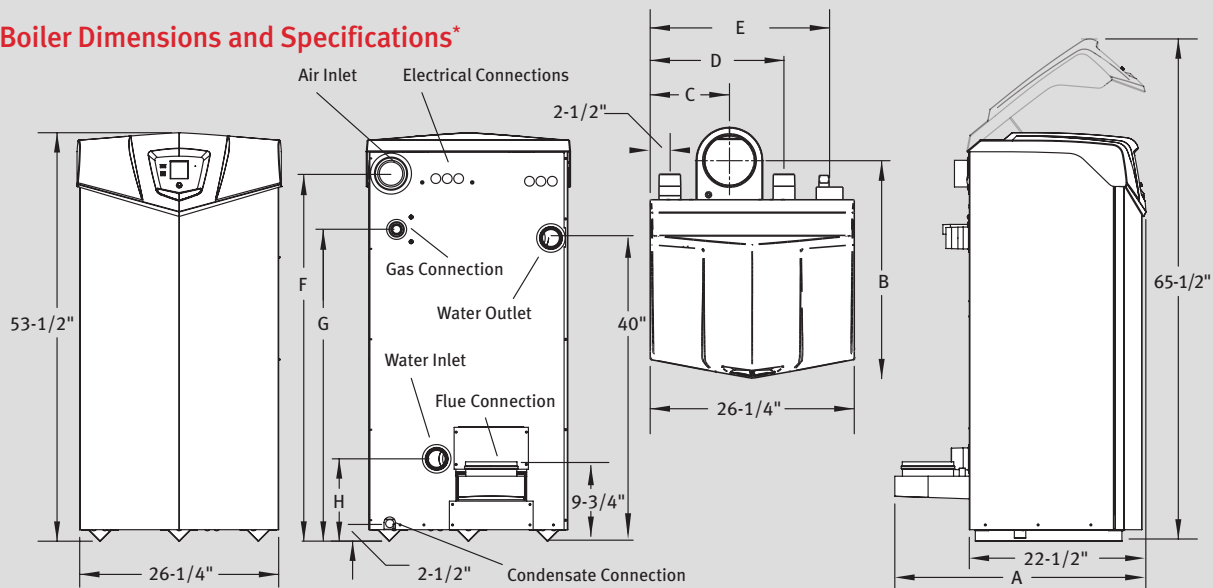
FLEXIBLE VENTING OPTIONS

FTXL offers 6 venting options, and permits direct-vent air intake and exhaust runs up to 100 equivalent feet, using PVC, CPVC, polypropylene or stainless steel pipe. Plus multiple units can be common-vented to reduce time and materials costs.



TO LEARN MORE, LOG ON TO WWW.FTXLBOILER.COM TODAY!

FTXL™ Boiler Dimensions and Specifications*



FTXL BOILER									DIMENSIONS AND SPECIFICATIONS														
Model Number	Input MBH			Gross Output MBH	Net AHRI Rating Water MBH	Therm. Eff. %	Flow(GPM)			HEX Water Volume (Gal)									Water Conn.	Vent Size	Air Inlet	Gas Conn.	Ship. Wt. (lbs.)
	Min Btu/Hr	Max Btu/Hr	Turn-down				Min	Max	A		B	C	D	E	F	G	H						
FTX400(N,L)	39.9	399	10:1	392	341	98.0	10	105	13	30-1/2	27-1/2	10-1/4	17	23-1/4	46-1/4	39-1/2	10-3/4	2	4	4	1	478	
FTX500(N,L)	50	500	10:1	489	425	97.7	15	105	12	30-1/2	27-1/2	10-1/4	17	23-1/4	46-1/4	39-1/2	10-3/4	2	4	4	1	504	
FTX600(N,L)	85.7	600	7:1	585	509	97.5	15	105	12	30-1/2	27-1/2	10-1/4	17	23-1/4	46-1/4	39-1/2	10-3/4	2	4	4	1	504	
FTX725(N,L)	103.6	725	7:1	705	613	97.2	20	150	17	33	28-1/2	10-1/2	17-1/2	23-1/2	48-1/2	41-1/4	11	2-1/2	6	4	1	575	
FTX850(N,L)	121.4	850	7:1	825	717	97.0	25	150	16	33	28-1/2	10-1/2	17-1/2	23-1/2	48-1/2	41-1/4	11	2-1/2	6	4	1	604	

*Information subject to change without notice. Dimensions are in inches. Select "N" or "L" for Natural or LP gas. *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.

SMART SYSTEM FEATURES

- ▶ **Smart System Digital Operating Control**
Multi-Color Graphic LCD Display w/Navigation Dial
- ▶ **Loch-N-Link® USB Thumb Drive Port for Easy Programming**
- ▶ **Cascading Sequencer with Built-in Redundancy**
Selectable Cascade Type:
Lead Lag/Efficiency Optimization
Multiple Size Boilers
Front-End Loading
- ▶ **3 Reset Temperatures Inputs w/Independent Outdoor Reset Curves for Each Outdoor Sensor**
- ▶ **Four-Pump Control**
System Pump with Parameter for Continuous Operation
Boiler Pump with Variable-Speed Control
Domestic Hot Water Boiler Pump
Domestic Hot Water Recirculation Pump Control with Sensor
- ▶ **Building Management System Integration**
0-10 VDC Input to Control Modulation or Setpoint
0-10 VDC Input from Variable-Speed System Pump
0-10 VDC Modulation Rate Output Signal
0-10 VDC Enable/Disable Signal
- ▶ **Programmable System Efficiency Optimizers**
Space Heating Night Setback
DHW Night Setback
Anti-Cycling
Ramp Delay
Boost Time and Temperature
- ▶ **High-Voltage Terminal Strip**
120 VAC/60 Hertz/1 Phase
Pump Contacts for 3 Pumps
- ▶ **Low-Voltage Terminal Strip**
Building Recirculation Pump Start/Stop
Proving Switch Contacts

- Flow Switch Contacts
- Alarm Contacts
- Runtime Contacts
- 3 Space Heat Thermostat Contacts
- Tank Thermostat Contacts
- System Sensor Contacts
- Tank Sensor Contacts
- Cascade Contacts
- 0-10 VDC BMS Contacts
- 0-10 VDC Boiler Rate Output Contacts
- 0-10 VDC Boiler Pump Speed Contacts
- 0-10 VDC System Pump Speed Contacts
- ModBus Contacts
- ▶ **Time Clock**
- ▶ **Data Logging**
Ignition Attempts
Last 10 Lockouts
Space Heat Run Hours
Domestic Hot Water Run Hours

STANDARD FEATURES

- ▶ **97%-98% Thermal Efficiency**
- ▶ **Modulating Burner with up to 10:1 Turndown**
Direct Spark Ignition
Low NOx Operation
Sealed Combustion
Low Gas Pressure Operation
- ▶ **Stainless Steel Fire-Tube Heat Exchanger**
ASME-Certified, "H" Stamped
160 psi Working Pressure
50 psi Relief Valve
Combustion Analyzer Test Port
Fully Welded Design
- ▶ **Vertical and Horizontal Direct Vent**
Direct Vent up to 100 feet
PVC, CPVC, Polypropylene or AL29-4C
Factory Supplied Sidewall Vent Termination

Smart System Control

- ▶ **Other Features**
On/Off Switch
Adjustable High Limit with Manual Reset
Automatic Reset High Limit
Manual Reset Low Water Cutoff
Flue Temperature Sensor
Low Air Pressure Switch
Temperature and Pressure Gauge
Condensate Trap
Zero Service Clearances
10-Year Limited Warranty (See Warranty)
Custom Maintenance Reminder with Contact Info
Password Security
Customizable Freeze Protection Parameters

OPTIONAL EQUIPMENT

- CON-X-US® Remote Connectivity
- Motorized Isolation Valve
- Wireless Outdoor Temperature Sensor
- Multi-Temperature Loop Control
- Variable-Speed Boiler Circulator
- Constant-Speed Boiler Circulator
- ModBus Communication
- Alarm Bell
- Condensate Neutralization Kit
- Concentric Vent Kit (FTX400-FTX600)
- BMS Gateway to BACnet or LonWorks
- BACnet MSTP
- High and Low Gas Pressure Switches w/Manual Reset (FTX500-FTX850)
- ▶ **Firing Controls**
M9-Standard Construction
M13-CSD-1/FM/GE Gap (FTX500-FTX850)