HIGH EFFICIENCY COMMERCIAL BOILERS

CREST®
CONDENSING BOILER

SMART TOUCH™

CON·X·US® REMOTE CONNECT

MODBUS AND BACnet MSTP PROTOCOL

CASCADING SEQUENCER WITH CASCADE REDUNDANCY

6 INPUTS FROM 750,000 TO 2.0 MILLION BTU/HR

UP TO 25:1 TURNDOWN RATIO

DIRECT-VENTING UP TO 100 FEET USING PVC, CPVC, POLYPROPYLENE OR STAINLESS STEEL

FLEXIBLE FLOW RATES UP TO 350 GPM

FRONT END LOADING CAPABILITY

96.2% AHRI CERTIFIED
THERMAL EFFICIENCY

Registered under U.S. Patent #9,746,176

Lochinvar®
HIGH EFFICIENCY BOILERS & WATER HEATERS

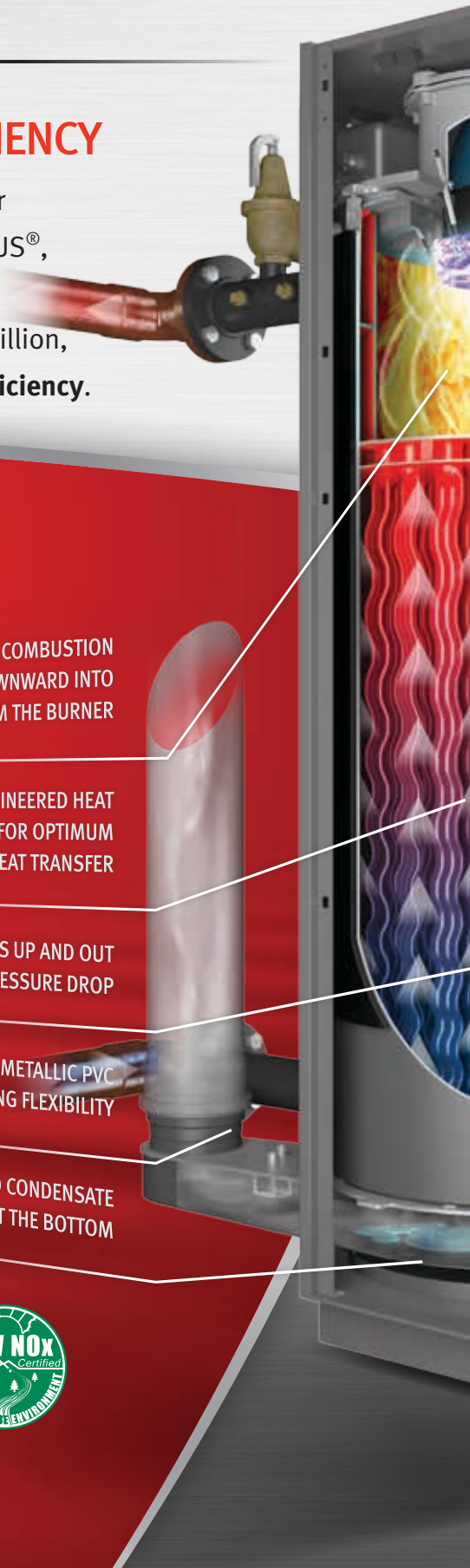
DESIGNED ★ ENGINEERED ★ ASSEMBLED
USA

Lochinvar.com

CREST®
CONDENSING BOILER

RIDE THE LOCHINVAR WAVE™ TO **96.2%** EFFICIENCY

With the exclusive **Wave** fire-tube design, advancements in Lochinvar combustion technology and the SMART TOUCH™ control with CON·X·US®, CREST changed how the industry thinks about fire-tube boilers. Now, six new CREST boilers, with 750,000, 1.0 million, 1.25 million, 1.5 million, 1.75 million and 2.0 million Btu/hr inputs, deliver **96.2% thermal efficiency**.



THE CREST COMBUSTION SYSTEM

CREST boilers are equipped with a top-mounted micro-metal fiber burner, engineered specifically for fire-tube technology. The system is designed to ensure smooth, quiet modulating combustion with up to 25:1 turndown. A FBN-2001 fires at its maximum 2,000,000 Btu/hr rate when the heat load is highest, and then gradually turns down to as low as 4% (80,000 Btu/hr) as load decreases. A modulating system runs smoothly and efficiently, without frequent on/off cycling. When the system is zoned, CREST's high turndown works to match the actual system demand. In return, CREST reduces the customer's fuel bill and provides better comfort by load-matching the heat loss of the system.

REDUCE INSTALLATION COST WITH VARIABLE FLOW TECHNOLOGY

CREST can operate over a wide range of flow rates with very low pressure drop. This permits installation of a *full flow* (variable primary) system. Installation is streamlined, without the time and materials cost of primary/secondary piping, and pumps needed to maintain flow in a water-tube boiler. Variable flow also makes CREST more flexible at handling frequent fluctuations in the system flow rate.

HIGH EFFICIENCY WITH MINIMUM SUPPLY PRESSURE

CREST operates reliably with supply gas pressure as low as 4 inches water column. Negative Regulation technology draws gas into a pre-mix combustion system, instead of relying on utility pressure through the gas valve. Operation is steady in low gas pressure systems or when peak gas supply demand occurs. Plus, Neg/Reg fan control fine-tunes the fuel/air ratio entering the burner, providing an even, cleaner-burning flame, achieving high combustion efficiency.

LOW NOx Certified
PROTECTING AIR QUALITY & ENVIRONMENT

SMART TOUCH™

INTRODUCING BOILER PLANT CONTROL, *FROM ANYWHERE.*

Crest features the next generation of Lochinvar's all-in-one SMART TOUCH™ operating control with the integration of the CON·X·US® advanced technology. SMART TOUCH with CON·X·US provides outstanding functionality, and can be integrated directly into a Building Automation Systems via Modbus and BACnet MSTP as standard equipment.

And now, the CON·X·US mobile communication platform allows the SMART TOUCH to go where no other boiler has gone before.

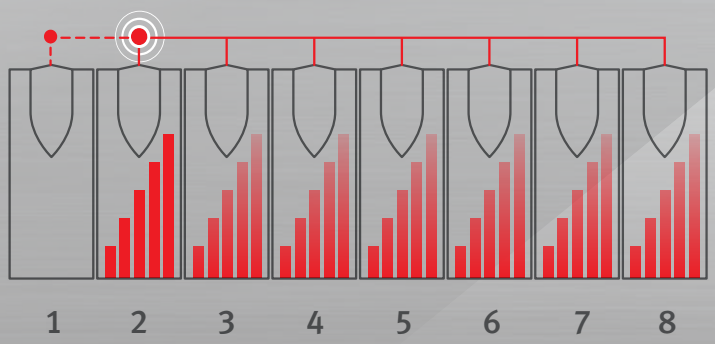
CON·X·US provides the ability to monitor and manage multiple Crest boiler plants without ever stepping into the mechanical rooms. CON·X·US will send alerts via text or email notifying of changes in system status, and anytime, from anywhere, a user can check system status and re-program any boiler function.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

PEACE OF MIND, WHEN IT MATTERS MOST

Cascade Redundancy provides peace of mind because it helps ensure that a CREST boiler system will always deliver reliable performance with no downtime. If the lead boiler is turned off for maintenance, Cascade Redundancy automatically shifts the lead role to the second sequenced boiler. Up to eight CREST 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 (see illustration below), all boilers fire and modulate simultaneously at the same Btu/hr input rates, maximizing thermal efficiency.

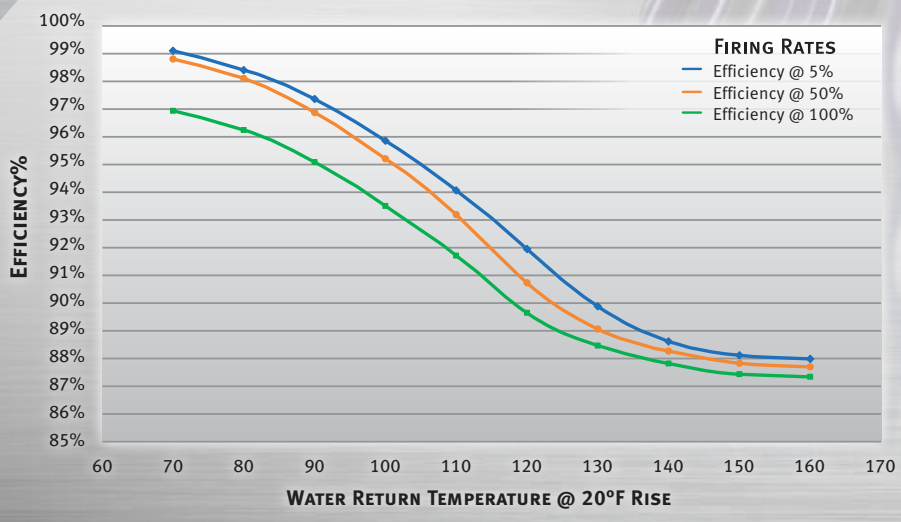


SUPERIOR FIRE-TUBE HEAT EXCHANGER DESIGN BOOSTS THERMAL EFFICIENCY

The CREST boiler takes fire-tube technology to a new level. The patented Wave™ configuration creates turbulence as flue gas products flow down the tube, scrubbing the energy from the flue products. The Wave design also enhances the life of the heat exchanger by allowing the tubes to flex, so they operate stress free with none of the adverse effects suffered by traditional fire-tube boilers.

Each fire tube is welded into the heat exchanger and surrounded by water, and the heat transfer process is enhanced by the water's counterflow. As water flows up inside the vessel, super-heated flue products flow down the fire tube. With one pass, heat is effectively captured, reaching condensing temperatures. At the top of the vessel, the combustion chamber is also water-backed for additional heat transfer.

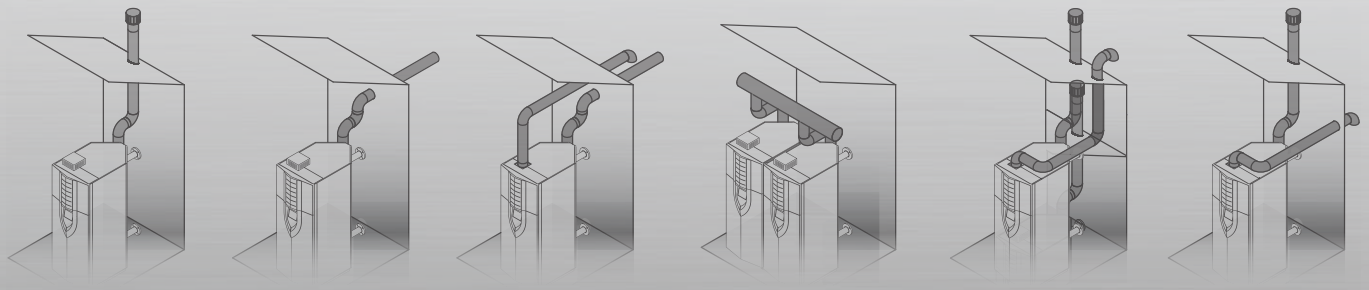
CREST BOILER EFFICIENCY



CONX US®

FLEXIBLE VENTING OPTIONS

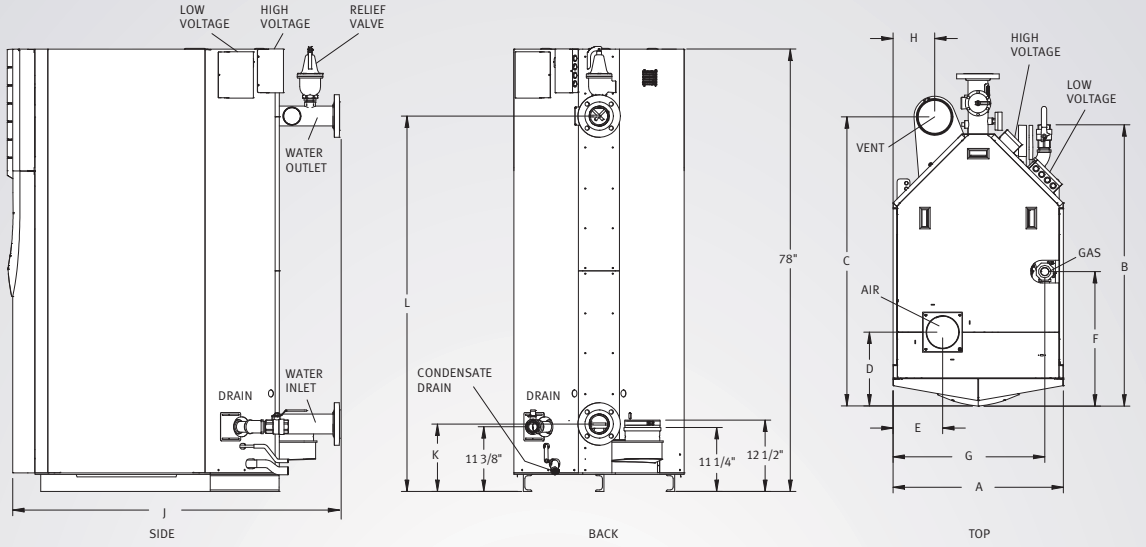
CREST offers 6 venting options, and permits direct-vent air intake and exhaust runs up to 100 equivalent feet, using PVC, CPVC, polypropylene or stainless steel pipe. Plus, multiple units can be common-vented to reduce time and materials cost.



Room Air Vertical | Room Air Sidewall | Direct-Vent | Common-Vent* | Direct-Vent Vertical | Vertical w/Sidewall Air

*Contact Lochinvar for information on common venting of CREST boilers.

CREST® BOILER DIMENSIONS AND SPECIFICATIONS



CREST HEATING BOILER — DIMENSIONS AND SPECIFICATIONS

Model Number	Input MBH Min	Input MBH Max	AHRI Thermal %	Gross Output MBH	Net AHRI Rating MBH	Turndown	A	B	C	D	E	F	G	H	J	K	L	Gas Conn.	Water Inlet/ Outlet	Air Intake	Vent Size	Oper. Weight	Ship. Weight
FBN0751	50	750	96.2%	722	627	15:1	30"	49-1/2"	51"	13"	8-3/4"	23-3/4"	26-3/4"	7-3/8"	57-5/8"	11-7/8"	66-1/8"	1-1/4"	3"	6"	6"	1,768	1,560
FBN1001	50	1,000	96.2%	962	837	20:1	30"	49-1/2"	51"	13"	8-3/4"	23-1/8"	26-3/4"	6-1/2"	57-5/8"	11-7/8"	66-1/8"	1-1/4"	3"	6"	6"	1,838	1,596
FBN1251	63	1,250	96.2%	1,203	1,046	20:1	30"	49-1/2"	51-3/8"	13"	8-3/4"	21-5/8"	26-3/4"	6-1/2"	57-3/4"	11-7/8"	66-1/8"	1-1/4"	3"	6"	8"	1,975	1,648
FBN1501	60	1,500	96.2%	1,443	1,255	25:1	30"	59-1/4"	62-3/8"	15-7/8"	9"	27-7/8"	26-7/8"	5-1/8"	68"	12-3/8"	65-3/8"	1-1/2"	4"	8"	8"	2,307	1,961
FBN1751	70	1,750	96.2%	1,684	1,464	25:1	30"	58-3/4"	61-1/2"	15-7/8"	9"	27-1/8"	27"	5-1/8"	68"	12-3/8"	65-3/8"	1-1/2"	4"	8"	8"	2,458	2,017
FBN2001	80	1,999	96.2%	1,924	1,673	25:1	30"	58-3/4"	61-1/2"	15-7/8"	9"	26-3/4"	27"	5-1/8"	68"	12-3/8"	65-3/8"	1-1/2"	4"	8"	8"	2,570	2,087

NOTES: Indoor installation only. Change "N" to "L" for LP gas models and to "D" for dual fuel models. (Consult factory for availability of Dual Fuel models)
**The Net AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15. *Information subject to change without notice.*

SMART TOUCH™ FEATURES

CON·X·US Remote Connect
SMART TOUCH Touchscreen Operating Control
Full-Color 8" Touchscreen LCD Display
Built-in Cascading Sequencer for up to 8 Boilers
- › Built-in Redundancy
- › Cascade Multiple Sized Boilers
- › Lead/Lag Cascade
- › Efficiency Optimized Cascade

Front-End Loading Capability with Copper-Fin II® and Power-Fin® Boilers
Building Management System Integration with 0-10 VDC Input
BACnet MSTP Communications
Modbus Communication
Outdoor Reset Control with Outdoor Air Sensor
Password Security
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

Low Water Flow Safety Control & Indication
Inlet & Outlet Temperature Readout
Freeze Protection
Service Reminder
Time Clock
Data Logging
- › Hours Running, Space Heating
- › Hours Running, Domestic Hot Water
- › Hours Running, Modulation Rate
- › Ignition Attempts
- › Last 10 Lockouts

Programmable System Efficiency Optimizers
- › Night Setback
- › Anti-Cycling
- › Outdoor Air Reset Curve
- › Ramp Delay
- › Boost Temperature & Time
- › Modulation Factor Control

Three Pump Control
- › System Pump
- › Boiler Pump
- › Domestic Hot Water Pump

High-Voltage Terminal Strip
- › 120 VAC / 60 Hertz / 1 Phase Power Supply
- › System Pump, Boiler Pump and DHW Pump Power

Low-Voltage Terminal Strip
- › 24 VAC Auxiliary Device Relay
- › Auxiliary Proving Switch Contacts
- › Alarm on Any Failure Contacts
- › Runtime Contacts
- › DHW Thermostat Contacts
- › Unit Enable/Disable Contacts
- › System Sensor Contacts
- › DHW Tank Sensor Contacts
- › Outdoor Air Sensor Contacts
- › Cascade Contacts
- › 0-10 VDC BMS External Control Contact
- › 0-10 VDC Variable Speed Boiler Pump Control Contact

OPTIONAL EQUIPMENT

Alarm Bell
BMS Gateway - BACnet IP or LonWorks
Wireless Outdoor Temperature Sensor
Condensate Neutralization Kit
SMART TOUCH PC Software
Common Vent Kits
Dual Fuel Gas Train
Motorized Isolation Valve
Variable Speed Boiler Pump
Electrical Options (Shipped Loose):
- › 208V/3Ø/60Hz
- › 480V/3Ø/60Hz
- › 600V/3Ø/60Hz

*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.

CODES & REGISTRATIONS

ANSI Z21.13/CSA Certified
ASME Certified, "H" Stamp / National Board
California Code Compliant
CSD1 / Factory Mutual / GE Gap Compliant
Canadian Registration Number (CRN)
South Coast Air Quality Management District Qualified
AHRI Certified

STANDARD FEATURES

96.2% Thermal Efficiency (AHRI)
Up to 99% Thermal Efficiency in Low-Temp. Applications
Modulating Burner with up to 25:1 Turndown
Direct-Spark Ignition
Low NOx Operation
Sealed Combustion
Air Inlet Filter w/Replacement Reminder
Low Gas Pressure Operation
Vertical and Horizontal Direct Venting
- › Direct Vent up to 100 Feet
- › PVC, CPVC, Polypropylene or AL29-4C

ASME "H" Stamped Heat Exchanger
316L Stainless Steel Fire Tubes
160 psi Working Pressure
On/Off Switch
Adjustable High Limit with Manual Reset
Low Water Cutoff with Manual Reset & Test
High & Low Gas Pressure Switches w/Manual Reset
Low Air Pressure Switches
Condensate Trap w/Blocked Drain Switch
Drain Valve
System Sensor
Outdoor Air Sensor
Inlet & Outlet Temperature Sensors
High-Voltage Terminal Strip
Low-Voltage Terminal Strip
Downstream Gas Test Cocks
50 psi ASME Relief Valve
Temperature & Pressure Gauge
Zero Clearances to Combustible Materials
10-Year Limited Warranty (See Warranty for Details)
1-Year Warranty on Parts (See Warranty for Details)

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HIGH EFFICIENCY BOILERS & WATER HEATERS

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