

HIGH EFFICIENCY OUTDOOR CERTIFIED COMMERCIAL BOILERS

🎇 Lochinvar

CREST CONDENSING BOILER

12 MODELS FROM 750,000 TO 6.0 MILLION BTU/HR

UP TO 96% THERMAL EFFICIENCY

UP TO 25:1 TURNDOWN RATIO





NOW AVAILABLE WITH REALTIME O₂ FEEDBACKTM



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





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 1,999,999 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.

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 above), all boilers fire and modulate simultaneously at the same Btu/hr input rates, maximizing thermal efficiency.



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 System via Modbus and BACnet MSTP as standard equipment.

A 8" touch screen along with an updated user interface allows users to quickly see what their unit is doing. On screen graphs can help diagnose issues in the field. A new screen saver mode identifies the status of the boiler. Dark green indicates running mode, olive green is blocking mode and red is lockout mode. This is another way Lochinvar is leading the charge with boiler controls.







SMART TOUCH FUNCTIONS AND FEATURES

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

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

- > 120V/1PH/60Hz (OF 0751-2001) > 208V/3PH/60Hz (OF 2501-3501)
- > 480V/3PH/60Hz (OF 4001-6001)
- > 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

Outdoor Hood Kit

BMS Gateway - BACnet IP or LonWorks

Wireless Outdoor Temperature Sensor Condensate Neutralization Kit

Common Vent Damper Kits

Motorized Isolation Valve (NEMA 4)

Electrical Transformer Options (Shipped Loose):

OF 0751-2001

- $> 208V/3PH/60Hz \rightarrow 120V/1PH/60Hz$
- > 480V/3PH/60Hz → 120V/1PH/60Hz
- > 600V/3PH/60Hz → 120V/1PH/60Hz
- > 480V/3PH/60Hz → 208V/3PH/60Hz
- $> 600V/3PH/60Hz \rightarrow 208V/3PH/60Hz$ OF 4001-6001
- > 208V/3PH/60Hz → 480V/3PH/60Hz > 600V/3PH/60Hz → 480V/3PH/60Hz

RealTime o₂ Feedback

Modbus Communication

Short Circuit Current Rating Options:

- OF 2501 6001 > 100,000 A
 - > 200,000 A

Codes & Registrations
ANSI Z21.13/CSA Certified

ASME Certified, "H" Stamp / National Board California Code Compliant

CSD1 / Factory Mutual / GE Gap Compliant South Coast Air Quality Management District

Qualified 0751-2001 AHRI Certified

Standard Features

Proof of Closure Valve (6001)

Modulating Burner with up to 25:1 Turndown

Direct-Spark Ignition

Low NOx Operation

Sealed Combustion

Air Inlet Filter

Low Gas Pressure Operation

Vertical and Horizontal Direct Venting

> Direct Vent up to 100 Feet

> PVC, CPVC, Polypropylene or AL29-4C

(0751-4001)

> AL29-4C (751-6001) 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

SCCR of 5,000 A

10-Year Limited Warranty (See Warranty for Details) 1-Year Warranty on Parts (See Warranty for Details)

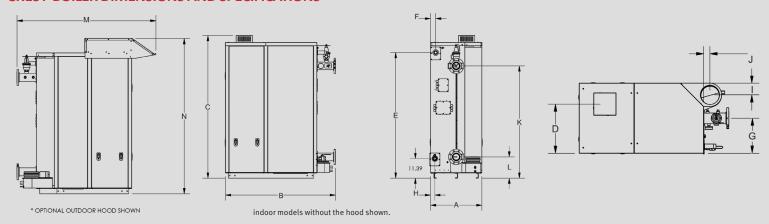
SUPERIOR FIRE-TUBE HEAT EXCHANGER DESIGN BOOSTS THERMAL EFFICIENCY

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.

For technical information call 800-722-2101. Lochinvar LLC reserves the right to make product changes or improvements without prior notice. Dimensions are approximate and should not be used for construction purposes.

CREST®BOILER DIMENSIONS AND SPECIFICATIONS



CREST HEATING BOILER					DIMENSIONS AND SPECIFICATIONS												
Model Number	Input <u>Min</u>	MBH <u>Max</u>	Gross Output MBH	Net AHRI Rating MBH	Combustion Efficiency	Thermal Efficiency		Flow Ro Min	ate GPM <u>Max</u>	A	В	С	D	E	F	G	Н
OF*0751	50	750	720	626	96.4%	96.0%	15:1	18	750	30"	53-7/8"	83"	21-1/4"	72-7/8"	3-1/4"	15"	3-1/4"
OF*1001	50	999	959	834	96.4%	96.0%	20:1	18	350	30"	53-7/8"	83"	21-1/4"	72-7/8"	3-1/4"	15"	4-1/2"
OF*1251	62.5	1,250	1,200	1,043	96.4%	96.0%	20:1	18	350	30"	53-7/8"	83"	21-1/4"	72-7/8"	3-1/4"	15"	3-3/4"
OF*1501	60	1,500	1,440	1,252	96.4%	96.0%	25:1	25	350	30"	63-7/8"	83"	21"	70"	3″	15"	3-1/2"
OF*1751	70	1,750	1,680	1,461	96.4%	96.0%	25:1	25	350	30"	64-3/8	83"	21"	70"	3″	15"	2-7/8"
OF*2001	80	1,999	1,919	1,669	96.4%	96.0%	25:1	25	350	30"	64-3/8"	83"	21"	70"	3″	15"	2-1/2"
OF*2501	125	2,500	2,400	2,087	96.1%	96.0%	20:1	25	350	37"	79-3/8"	83"	26-13/16"	73-1/16"	7-5/16"	18-9/16"	2-11/16"
OF*3001	150	3,000	2,883	2,507	96.1%	96.0%	20:1	25	350	37"	79-3/8"	83"	26-13/16"	73-1/16"	7-5/16"	18-9/16"	2-11/16"
OF*3501	175	3,500	3,364	2,925	96.1%	96.0%	20:1	45	350	42"	81-7/8"	83-1/8"	29-5/16"	73-5/16"	6-1/2"	21-1/16"	4-1/8"
OF*4001	333.3	3,999	3,843	3,342	96.1%	96.0%	12:1	45	350	48"	93-1/8"	83-1/8"	33-3/8"	74-11/16"	7-3/8"	24	7-1/8"
OF*5001	499.9	4,999	4,804	4,177	96.1%	96.0%	10:1	50	600	48"	94-1/16"	83-1/8"	33-3/8"	74-11/16"	7-5/8"	24-1/16"	5-9/16"
OF*6001	600	6,000	5,766	5,014	96.1%	96.0%	10:1	60	600	52-1/16"	96-1/8"	83-1/8"	35-3/8"	73-13/16"	7-7/16"	26-1/16"	6"

Model							Gas	Water	Air	Vent	Operating	Shipping
Number	ı	J	K	L	М	N	Conn.	Conn.	Inlet	Size	Wt. (lbs.)	Wt. (lbs.)
OF*0751	7-3/8"	3″	66-1/8"	11-7/8"	67-3/8"	87-1/8"	1-1/4"	3″	6"	6"	1,768	1,560
OF*1001	6-1/2"	4"	66-1/8"	11-7/8"	67-3/8"	87-1/8"	1-1/4"	3″	6"	6"	1,838	1,596
OF* 1251	6-1/2"	3-1/8"	66-1/8"	11-7/8"	67-3/8"	87-1/8"	1-1/2"	3″	6"	8″	1,975	1,648
OF*1501	5-1/8"	3-7/8"	65-3/8"	12-3/8"	77-3/8"	87-1/8"	1-1/2"	4"	8″	8″	2,307	1,961
OF* 1751	5-1/8"	2-7/8"	65-3/8"	12-3/8"	77-3/8"	87-1/8"	1-1/2"	4"	8″	8″	2,458	2,017
OF*2001	5-1/8"	2-7/8"	65-3/8"	12-3/8"	77-3/8"	87-1/8"	1-1/2"	4"	8″	8″	2,570	2,087
OF*2501	8-7/16"	5-1/16"	63-13/16"	13-1/2"	92-3/4"	87-3/16"	2″	4"	8″	9"	3,600	2,577
OF*3001	8-7/16"	5-1/16"	63-13/16"	13-1/2"	92-3/4"	87-3/16"	2″	4"	10"	10"	3,900	2,881
OF*3501	8-7/8"	5-3/16"	63-1/2"	13-5/8"	95-7/16"	87-1/4"	2″	4"	10"	10"	4,600	3,218
OF*4001	11-7/8"	5-1/16"	63-1/4"	13-3/8"	106-3/4"	87-1/4"	2-1/2"	4"	12"	12"	5,200	3,805
OF*5001	9-9/16"	4-1/16"	63-3/16"	14-7/8"	95-7/16"	87-1/4"	2-1/2"	6"	14"	14"	5,900	4,101
OF*6001	10-3/8"	4-1/2"	63-3/16"	14-7/8"	109-3/4"	87-5/16"	3″	6"	14"	14"	6,900	4,711

NOTES: Indoor installation only. Change "N" to "L" for LP gas models . Outdoor hood width matches the indoor product width. *The Net AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15.











