COPPER-FIN II®

HIGH EFFICIENCY COMMERCIAL BOILERS

85% Thermal Efficiency

ADVANCED OPERATING CONTROL FEATURING A BUILT-IN CASCADING SEQUENCER

9 MODELS - 400,000 - 2,070,000 BTU/HR

PROPORTIONAL FIRING UP TO 4:1

LESS THAN 20 ppm NOx

VENT FLEXIBILITY TO 100 FEET

Lochinvar.com
Copper-finned tube, non-condensing appliances are the foundation of Lochinvar's success. In 1993, Lochinvar
introduced the Copper-Fin II, the first horizontal chassis, copper-finned tube boiler to operate with fan-assisted combustion. Now, the Copper-fin II is even better. Along with high thermal efficiency, gasketless heat exchangers and multiple venting options we have added Lochinvar’s exclusive SMART SYSTEM™ control.

Nine models from 399,999 to 2,070,000 Btu/hr input provide you with exceptional products with a long list of new features in addition to the established features which redefined the industry. The Copper-fin II was the first proportional fired, fan-assisted boiler on the market. Every model features a small footprint for easy passage through a 36” door, low NOx – third party tested to less than 20 PPM, Stack Frames that can put twice the Btu/hr input in the same space and vent diameters up to 8” smaller than conventional atmospheric boilers.

### THERMAL EFFICIENCY
Copper-Fin II boilers offer a remarkably high 85% thermal efficiency. This means that 85¢ out of every fuel dollar goes into heating the water, dramatically reducing the operating cost of the equipment. Copper-Fin II achieves this efficiency through the combination of an advanced fan assisted combustion system and gasketless heat exchanger. The heat energy from the combustion process is transferred to the water as it passes through the solid copper finned tube heat exchanger. The sealed combustion design of the Copper-Fin II eliminates external heat losses, this means that the energy dollars heat the water, not the mechanical room.

### GASKETLESS HEAT EXCHANGER
In 1989, Lochinvar was the first water heater manufacturer to offer gasketless cast iron & copper-finned tube heat exchangers. Our unique gasketless design enhances reliability by eliminating o-rings and gaskets found on other brands. The heat exchanger features glass lined headers and copper-finned tubes with extruded integral fins spaced 7-fins per inch for exceptional heat transfer. The heat exchanger is built to ASME construction standards for 160 psi working pressure and is backed by a ten year limited warranty.

### SPACE SAVING, SERVICE FRIENDLY DESIGN
Our enhanced Copper-fin II models offer the same reliable operation in a new service friendly design. The gas inlet, internal controls and Building Management connections have been repositioned to the front of the appliance for easier service and simpler installation. The built-in air filter reduces maintenance and improves performance with a field convertible option to install the air intake on the rear or the right side of the boiler. In addition, Lochinvar was the first manufacturer to offer factory welded Stack Frames that allow you to put two boilers in the space for one.

### MULTIPLE VENTING OPTIONS
The Copper-fin II offers **eight venting options** to meet the most challenging installation requirements. The Copper-fin II can vent vertically in Category I with double wall “B” vent or horizontally in Category IV with AL29-4C stainless steel vent material. Vent termination can be Rooftop or Sidewall with combustion air drawn naturally from the equipment room or via dedicated air intake piping. And if floor space is limited, the Copper-fin II boiler can be installed outdoors with an optional Outdoor Vent Cap.
High Efficiency Commercial Boilers

**SMART SYSTEM**

**Refined Design Puts More Control and Information at your Fingertips**

The most exciting addition to the Copper-Fin II is the SMART SYSTEM™ control. The SMART SYSTEM is an advanced, state of the art integrated operating control. We introduced the SMART SYSTEM control in 2005 and it has delivered proven operation in thousands of demanding commercial applications. The control provides the installer, owners and operators with precise temperature control and diagnostic information.

**Advanced features include:**
- **2-Line, 16 Character LCD display of Setup, System Status and Diagnostic Data in Words, not codes**
- **Built-in Cascade sequencer controlling up to 8 Boilers**
- **Front End Loading Capability with Crest or Knight Boilers**
- **Outdoor Reset adjusts setpoint based on reset curve**
- **Domestic hot water prioritization allows the boiler to provide space heating and produce domestic hot water all in one system**
- **0-10 VDC BMS Input to control boiler operation**
- **Modbus protocol - optional**

**Cascade Options**

The “lead unit” 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.

**Proportional Firing**

Proportional firing divides a single manifold of multiple burners into smaller, independent stages.

With up to four stages of individual operation, the Smart System control can reduce the firing rate down to approximately 25% Btu/hr input. This simple but effective design matches the boiler's firing capacity to the constantly changing system demand. Full Fire or On/Off combustion systems often fire the entire gas train in short, inefficient bursts. Stage firing delivers the Btu's required in smoother and longer burn cycles which will improve operation and reduce component fatigue.
Copper-Fin II®
Commercial Gas Boiler Dimensions & Specifications

Copper-Fin II Heating Boiler Dimensions & Specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Input MBH</th>
<th>Thermal Efficiency</th>
<th>Output MBH</th>
<th>Net AHRI Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHN0402</td>
<td>399</td>
<td>85%</td>
<td>339</td>
<td>295</td>
</tr>
<tr>
<td>CHN0502</td>
<td>500</td>
<td>85%</td>
<td>425</td>
<td>370</td>
</tr>
<tr>
<td>CHN0652</td>
<td>650</td>
<td>85%</td>
<td>553</td>
<td>483</td>
</tr>
<tr>
<td>CHN0752</td>
<td>750</td>
<td>85%</td>
<td>638</td>
<td>555</td>
</tr>
<tr>
<td>CHN0992</td>
<td>990</td>
<td>85%</td>
<td>842</td>
<td>732</td>
</tr>
<tr>
<td>CHN1262</td>
<td>1,260</td>
<td>85%</td>
<td>1,071</td>
<td>931</td>
</tr>
<tr>
<td>CHN1442</td>
<td>1,440</td>
<td>85%</td>
<td>1,224</td>
<td>1,064</td>
</tr>
<tr>
<td>CHN1802</td>
<td>1,800</td>
<td>85%</td>
<td>1,530</td>
<td>1,330</td>
</tr>
<tr>
<td>CHN2072</td>
<td>2,070</td>
<td>85%</td>
<td>1,760</td>
<td>1,530</td>
</tr>
<tr>
<td>CHN2672</td>
<td>2,670</td>
<td>85%</td>
<td>1,920</td>
<td>1,720</td>
</tr>
</tbody>
</table>

CHN-10 (Reprint CHN-10 - 6/15)

Lochinvar, LLC
300 Maddox Simpson Parkway
Lebanon, Tennessee 37090
P: 615.889.8900 / F: 615.547.1000

For Easy Ordering By Model Number

CHN 502 M9

This heater is 500,000 Btu/hr natural gas Copper-Fin II boiler. It has M9 firing control.

Lochinvar.com

SMART SYSTEM™ Operating Control
- Built in Cascading Sequencer for up to 8 boilers
- Front End Loading Capability with Crest or Knight Boilers
- Building Management System Integration

SIREN SYSTEM™ Operating Control
- Programmable System Efficiency Optimizers
- Night Setback
- Anti-Cycling
- Outdoor Air Reset Curve
- Boost Temperature & Time

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

High Voltage Terminal Strip
- 24 VAC Auxiliary Device Relay Output - Louvers
- Auxiliary Proving Switch Contacts - Louvers
- 3-way Valve Contacts for Low Temperature Protection
- Alarm on Any Failure Contacts
- 0-10 VDC System Pump Speed Contacts
- Runtime Contacts
- DWH Thermostat Contacts
- DWH Tank Sensor Contacts
- Unit Enable/Disable Contacts
- System Sensor Contacts - Supply and Return
- Outdoor Air Sensor Contacts
- Contacts for Air Louvers
- Contacts on Any Failure
- Cascade Contacts
- 0-10 VDC BMS External Control Contact
- 0-10 VDC Rate Contacts

Fuel Types
- Natural Gas
- LP Gas

ASME Copper Finned Tube Heat Exchanger
- ASME Certified, “H” Stamped
- Gasketless design
- 160 psi working pressure
- On/Off Switch
- Combustible Floor Rated (CH 0992 - 2072)

CHN-10 with 3-1/2” or 6-1/4” Header
- Standard Features
- Temperature & Pressure Gauge
- Easy Access Terminal Strips
- Inlet & Outlet Temperature Sensors
- Low Air Pressure Switch
- Flow Switch
- Low Pressure Switch
- Inlet & Outlet Temperature Sensors
- Gasketless design

CHN-10 with 2” NPT
- Optional Equipment
- 0-10 VDC System Pump Speed Input
- Data Logging
- Time Clock
- Condensing Protection
- 0-10 VDC System Pump Speed Input

Copper Fins
- ASME Copper Finned Tube Heat Exchanger
- AL29-4C Stainless Steel Vent Material
- Double Wall “B” Vent Material
- Category IV Venting

CopperFin II Heating Boiler
- Copper Fin Heat Exchanger
- Category IV Venting
- 160 psi working pressure
- On/Off Switch
- Combustible Floor Rated (CH 0992 - 2072)

For Ease In Ordering By Model Number

CHN 502 M9

This heater is 500,000 Btu/hr natural gas Copper-Fin II boiler. It has M9 firing control.

CHN-10 with 3-1/2” or 6-1/4” Header
- Standard Features
- Temperature & Pressure Gauge
- Easy Access Terminal Strips
- Inlet & Outlet Temperature Sensors
- Low Air Pressure Switch
- Flow Switch
- Low Pressure Switch
- Inlet & Outlet Temperature Sensors
- Gasketless design

CHN-10 with 2” NPT
- Optional Equipment
- 0-10 VDC System Pump Speed Input
- Data Logging
- Time Clock
- Condensing Protection
- 0-10 VDC System Pump Speed Input

Copper Fins
- ASME Copper Finned Tube Heat Exchanger
- AL29-4C Stainless Steel Vent Material
- Double Wall “B” Vent Material
- Category IV Venting

CopperFin II Heating Boiler
- Copper Fin Heat Exchanger
- Category IV Venting
- 160 psi working pressure
- On/Off Switch
- Combustible Floor Rated (CH 0992 - 2072)

For Ease In Ordering By Model Number

CHN 502 M9

This heater is 500,000 Btu/hr natural gas Copper-Fin II boiler. It has M9 firing control.

CHN-10 with 3-1/2” or 6-1/4” Header
- Standard Features
- Temperature & Pressure Gauge
- Easy Access Terminal Strips
- Inlet & Outlet Temperature Sensors
- Low Air Pressure Switch
- Flow Switch
- Low Pressure Switch
- Inlet & Outlet Temperature Sensors
- Gasketless design

CHN-10 with 2” NPT
- Optional Equipment
- 0-10 VDC System Pump Speed Input
- Data Logging
- Time Clock
- Condensing Protection
- 0-10 VDC System Pump Speed Input

Copper Fins
- ASME Copper Finned Tube Heat Exchanger
- AL29-4C Stainless Steel Vent Material
- Double Wall “B” Vent Material
- Category IV Venting

CopperFin II Heating Boiler
- Copper Fin Heat Exchanger
- Category IV Venting
- 160 psi working pressure
- On/Off Switch
- Combustible Floor Rated (CH 0992 - 2072)

For Ease In Ordering By Model Number

CHN 502 M9

This heater is 500,000 Btu/hr natural gas Copper-Fin II boiler. It has M9 firing control.

CHN-10 with 3-1/2” or 6-1/4” Header
- Standard Features
- Temperature & Pressure Gauge
- Easy Access Terminal Strips
- Inlet & Outlet Temperature Sensors
- Low Air Pressure Switch
- Flow Switch
- Low Pressure Switch
- Inlet & Outlet Temperature Sensors
- Gasketless design

CHN-10 with 2” NPT
- Optional Equipment
- 0-10 VDC System Pump Speed Input
- Data Logging
- Time Clock
- Condensing Protection
- 0-10 VDC System Pump Speed Input

Copper Fins
- ASME Copper Finned Tube Heat Exchanger
- AL29-4C Stainless Steel Vent Material
- Double Wall “B” Vent Material
- Category IV Venting

CopperFin II Heating Boiler
- Copper Fin Heat Exchanger
- Category IV Venting
- 160 psi working pressure
- On/Off Switch
- Combustible Floor Rated (CH 0992 - 2072)

For Ease In Ordering By Model Number

CHN 502 M9

This heater is 500,000 Btu/hr natural gas Copper-Fin II boiler. It has M9 firing control.

CHN-10 with 3-1/2” or 6-1/4” Header
- Standard Features
- Temperature & Pressure Gauge
- Easy Access Terminal Strips
- Inlet & Outlet Temperature Sensors
- Low Air Pressure Switch
- Flow Switch
- Low Pressure Switch
- Inlet & Outlet Temperature Sensors
- Gasketless design

CHN-10 with 2” NPT
- Optional Equipment
- 0-10 VDC System Pump Speed Input
- Data Logging
- Time Clock
- Condensing Protection
- 0-10 VDC System Pump Speed Input

Copper Fins
- ASME Copper Finned Tube Heat Exchanger
- AL29-4C Stainless Steel Vent Material
- Double Wall “B” Vent Material
- Category IV Venting

CopperFin II Heating Boiler
- Copper Fin Heat Exchanger
- Category IV Venting
- 160 psi working pressure
- On/Off Switch
- Combustible Floor Rated (CH 0992 - 2072)

For Ease In Ordering By Model Number

CHN 502 M9

This heater is 500,000 Btu/hr natural gas Copper-Fin II boiler. It has M9 firing control.