

HIGH EFFICIENCY COMMERCIAL POOL HEATERS

# COPPER-FIN<sup>2</sup><sup>®</sup>



 **SMART SYSTEM**<sup>™</sup>

ADVANCED OPERATING CONTROL

8 MODELS - 500,000 - 2,070,000 BTU/HR

PROPORTIONAL FIRING UP TO 4:1

LESS THAN 20 ppm NOx

VENT FLEXIBILITY TO 100 FEET

 **Lochinvar**<sup>®</sup>  
HIGH EFFICIENCY BOILERS & WATER HEATERS

DESIGNED ★ ENGINEERED ★ ASSEMBLED

**USA**

[Lochinvar.com](http://Lochinvar.com)

# COPPER-FIN<sup>2</sup><sup>®</sup>

## THE FOUNDATION OF LOCHINVAR BECOMES STRONGER

Copper-finned tube, non-condensing appliances are the foundation of Lochinvar's success. In 1993, Lochinvar introduced the Copper-Fin<sup>2</sup>, the first horizontal chassis, copper-finned tube pool heater to operate with fan-assisted combustion. Now, the Copper-fin<sup>2</sup> is even better. Along with high thermal efficiency, gasketless heat exchangers and multiple venting options we have added Lochinvar's exclusive SMART SYSTEM™ control.

Eight models from 500,000 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 that redefined the industry. The Copper-fin<sup>2</sup> was the first proportional fired, fan assisted pool heater 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 pool heaters.

### THERMAL EFFICIENCY

Copper-Fin<sup>2</sup> pool heaters offer a remarkably high thermal efficiency, dramatically reducing the operating cost of the equipment. Copper-Fin<sup>2</sup> achieves this efficiency through the combination of an advanced fan assisted combustion system and a gasketless heat exchanger. The heat energy from the combustion process is transferred to the water as it passes through the copper finned tube heat exchanger. The sealed combustion design of the Copper-Fin<sup>2</sup> eliminates external heat losses, this means the energy dollars heat the water, not the mechanical room.

### GASKETLESS HEAT EXCHANGER

In 1989, Lochinvar was the first manufacturer to offer gasketless 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 five year warranty.



### SPACE SAVING, SERVICE FRIENDLY DESIGN

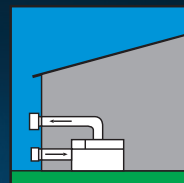
Our enhanced Copper-fin<sup>2</sup> models offer the same reliable operation in a new service friendly design. The gas inlet, internal controls and Building Management connections have been repositioned to the front of the appliance for easier service and simpler installation. The built-in air filter reduces maintenance and improves performance with a field convertible option to install the air intake on the rear or the right side of the pool heater. In addition, Lochinvar was the first manufacturer to offer factory welded Stack Frames that allow you to put two pool heaters in the space for one.

**STACK  
FRAME**

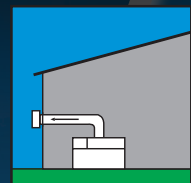
### MULTIPLE VENTING OPTIONS

The Copper-fin<sup>2</sup> offers **eight venting options** to meet the most challenging installation requirements. The Copper-fin<sup>2</sup> 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<sup>2</sup> pool heater can be installed outdoors with an optional Outdoor Vent Cap.

Aire-Lock<sup>®</sup> Direct Vent



Sidewall



# High Efficiency Commercial Pool Heaters

## Lochinvar™ SMART SYSTEM™

**REFINED DESIGN PUTS MORE CONTROL AND INFORMATION AT YOUR FINGERTIPS**

The most exciting addition to the Copper-fin<sup>2</sup> 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 POOL HEATERS
- MODBUS PROTOCOL - OPTIONAL



## 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 pool heater's firing capacity to the heat loss of the pool or spa. 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.

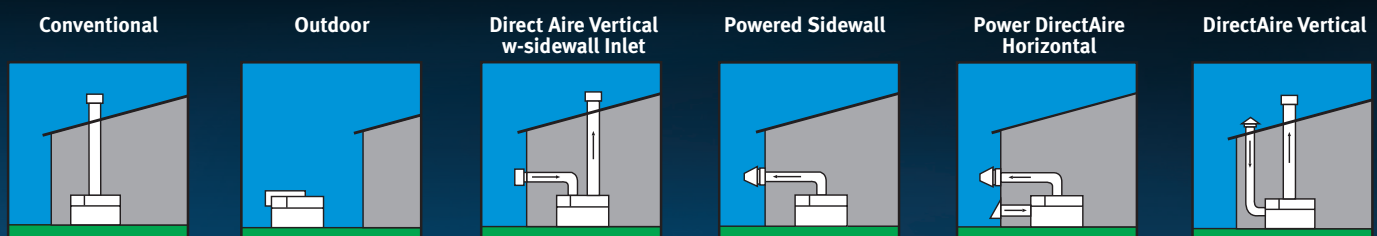
## AUTOMATIC PUMPED BYPASS

All Copper-fin<sup>2</sup> pool heaters are equipped with an automatic pumped bypass ensuring proper flow and return water temperatures to the heat exchanger resulting in longer life and trouble free operation.

The automatic pumped bypass is provided as standard equipment in a horizontal configuration. A vertical configuration\* is also available offering the flexibility to meet mechanical room space requirements or piping constraints.

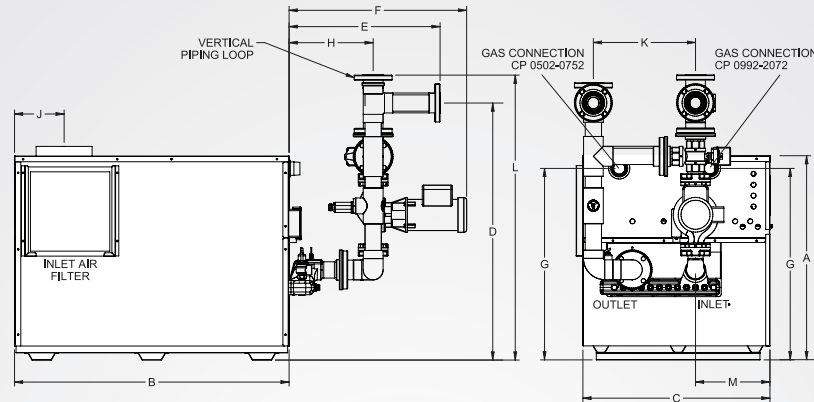


\* Horizontal shown





# COPPER-FIN<sup>2</sup> Commercial Gas Pool Heater Dimensions & Specifications



| Model Number | Input MBH | A       | B       | C       | D       | E       | F       | G       | H       | J       | K       | L       | M   | Vent Size | Air Inlet | Gas Conn | Ship Wt. |
|--------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----|-----------|-----------|----------|----------|
| CPN502       | 500       | 31-1/2" | 45-1/2" | 22-1/4" | 38"     | 20-1/4" | 26-1/2" | 29"     | 9-3/4"  | 7"      | 12-3/4" | 41-1/4" | 9"  | 6"        | 6"        | 1-1/4"   | 523      |
| CPN652       | 650       | 31-1/2" | 56-3/4" | 22-1/4" | 38"     | 20-1/4" | 26-1/2" | 29"     | 9-3/4"  | 8-1/2"  | 12-3/4" | 41-1/4" | 9"  | 8"        | 8"        | 1-1/4"   | 665      |
| CPN752       | 750       | 31-1/2" | 64"     | 22-1/4" | 38"     | 20-1/4" | 26-1/2" | 29"     | 9-3/4"  | 8-1/2"  | 12-3/4" | 41-1/4" | 9"  | 8"        | 8"        | 1-1/4"   | 713      |
| CPN0992      | 990       | 36"     | 48-1/4" | 33-1/2" | 48-1/4" | 26-3/4" | 30-1/4" | 33-1/4" | 13-1/4" | 8-1/2"  | 18-1/4" | 52"     | 13" | 10"       | 10"       | 2"       | 864      |
| CPN1262      | 1,260     | 36"     | 58-1/2" | 33-1/2" | 48-1/4" | 26-3/4" | 30-1/4" | 33-1/4" | 13-1/4" | 10-1/2" | 18-1/4" | 52"     | 13" | 12"       | 12"       | 2"       | 954      |
| CPN1442      | 1,440     | 36"     | 68-3/4" | 33-1/2" | 48-1/4" | 26-3/4" | 30-1/4" | 33-1/4" | 13-1/4" | 10-1/2" | 18-1/4" | 52"     | 13" | 12"       | 12"       | 2"       | 1,042    |
| CPN1802*     | 1,800     | 36"     | 82-1/4" | 33-1/2" | 48-1/4" | 26-3/4" | 30-1/4" | 33-1/4" | 13-1/4" | 11"     | 18-1/4" | 52"     | 13" | 14"       | 12"       | 2"       | 1,233    |
| CPN2072*     | 2,070     | 36"     | 92-1/2" | 33-1/2" | 48-1/4" | 26-3/4" | 30-1/4" | 33-1/4" | 13-1/4" | 11"     | 18-1/4" | 52"     | 13" | 14"       | 12"       | 2"       | 1,285    |

Notes: Change 'N' to 'L' for LP gas models. No deration on LP models.  
 Water connections for models CP 0502-0752 are 2" flanged. Water connections for models CP 0992-2072 are 2-1/2" flanged.  
 Performance data is based on manufacturer test results. \*Cupro-Nickel Heat Exchanger is standard on these models.

## STANDARD FEATURES

- ▶ 85% Thermal Efficiency
- ▶ Proportional Firing up to 4:1 Turndown
  - ▶ Hot Surface Ignition
  - ▶ Low NOx Operation
  - ▶ Sealed Combustion
  - ▶ Low Gas Pressure Operation
- ▶ Vertical & Horizontal Venting
  - ▶ Category I Venting
    - ▶ Double Wall "B" Vent Material
  - ▶ Category IV Venting
    - ▶ AL29-4C Stainless Steel Vent Material
- ▶ ASME Copper Finned Tube Heat Exchanger
  - ▶ ASME Certified, "H" Stamped
  - ▶ Gasketless design
  - ▶ 160 psi working pressure
- ▶ On/Off Switch
- ▶ Adjustable High Limit w/ Manual Reset
- ▶ Combustible Floor Rated (0992-2072)
- ▶ Temperature & Pressure Gauge
- ▶ Flow Switch
- ▶ All Bronze Pump
- ▶ Low Air Pressure Switch
- ▶ Inlet & Outlet Temperature Sensors
- ▶ Easy Access Terminal Strips
- ▶ Downstream Test Cocks
- ▶ 150 psi ASME Temperature & Pressure Relief Valve
- ▶ 1 Year Warranty on Parts (See Warranty for Details)
- ▶ 5 Year Limited Warranty (See Warranty for Details)

## SMART SYSTEM™ FEATURES

- ▶ SMART SYSTEM™ Operating Control
  - ▶ 2 Line/16 Character LCD Display
  - ▶ Built in Cascading Sequencer for up to 8 heaters
  - ▶ Password Security
  - ▶ Low Water Flow Control & Indication
  - ▶ Inlet & Outlet Temperature Readout
  - ▶ Freeze Protection
  - ▶ Service Reminder
  - ▶ Time Clock
- ▶ Data Logging
  - ▶ Hours Running
  - ▶ Ignition Attempts
  - ▶ Last 10 Lockouts
- ▶ Pump Control
  - ▶ Pool Heater Pump
- ▶ High Voltage Terminal Strip
  - ▶ 120 VAC / 60 Hertz / 1 Phase Power Supply
  - ▶ Pump Contacts with Pump Relay
- ▶ Low Voltage Terminal Strip
  - ▶ 24 VAC Auxiliary Device Relay Output - Louvers
  - ▶ Auxiliary Proving Switch Contacts - Louvers
  - ▶ Alarm on Any Failure Contacts
  - ▶ Runtime Contacts
  - ▶ Contacts on Any Failure
  - ▶ Contacts for Air Louvers
  - ▶ Unit Enable/Disable Contacts
  - ▶ 0-10V Rate Contacts
  - ▶ Pool Sensor Contacts
  - ▶ Pool Supply Sensor Contacts
  - ▶ Cascade Contacts

## OPTIONAL EQUIPMENT

- ▶ Vertical Bypass Loop
- ▶ Alarm
- ▶ High & Low Gas Pressure Switches w/ Manual Reset
- ▶ Cupro-Nickel Heat Exchanger
- ▶ Low Water Cut Off, Probe Type w/ Manual Reset & Test
- ▶ Texas Pool Code (Outdoor Flow Switch and T&P Gauge)
- ▶ Modbus Communications
- ▶ Combustible Floor Kit (0502-0752)
- ▶ Stack Frame

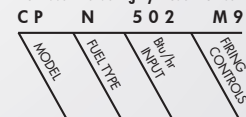
## FIRING CODES

- ▶ M7 Firing Code - California Code
- ▶ M9 Firing Code - Hot surface ignition with Electronic Supervision

## CERTIFICATIONS

- ▶ ANSI Z21.13/CSA 4.9 certified
- ▶ CSD1 / Factory Mutual / GE Gap Compliant
- ▶ South Coast Air Quality Management District registered
- ▶ Texas Commission on Environmental Quality

For Ease In Ordering By Model Number



This heater is 500,000 Btu/hr natural gas Copper-Fin 2 Pool Heater. It has M9 firing controls.

Registered under U.S. Patent # 5,989,020



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