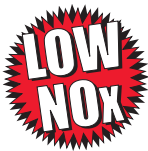
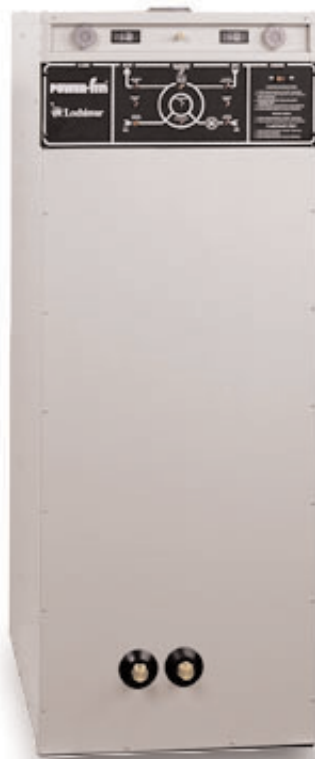




**POWER-fin<sup>®</sup>**

**Gas Fired  
Boilers**



**88% Thermal Efficiency**  
**Compact Design**  
**Multiple Venting Options**  
**Category II Venting**

# POWER-fin<sup>®</sup> by Lochinvar<sup>®</sup>

## The High-Efficiency, High-Output Compact Boiler

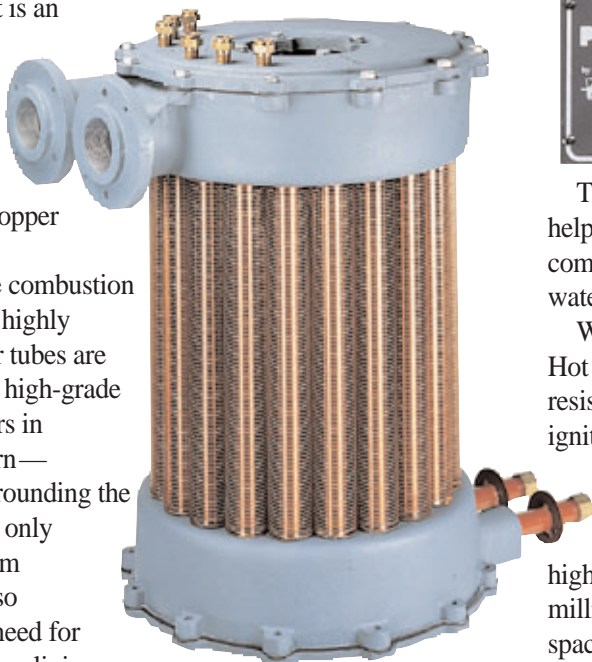
The Power-Fin's unique approach to boiler design means benefits everyone will enjoy. For the installer, it means lighter weight and easier servicing. And end-users everywhere will appreciate the significant energy savings and fast, accurate response to the call for heat.

What's more, unit capacities range as high as 1,000,000 Btu/hr but require just 5.75 sq. ft. of floor space. Only the Power-Fin—with its high efficiency output—can offer such heavyweight performance in a boiler so compact. Here's how.

## Unique Circular Copper-Fin<sup>®</sup> Heat Exchanger

At the heart of this unit is our circular Power-Fin heat exchanger. Using a special process, the outer wall of the copper tube is precision extruded to form exactly 7 fins per inch. The result is an integrated design with a heat transfer ratio that is 9 times greater than ordinary copper tubing.

To create the combustion chamber, these highly efficient copper tubes are secured by two high-grade cast iron headers in a circular pattern—completely surrounding the flame. This not only ensures optimum efficiency, it also eliminates the need for a bulky refractory lining. Finally, the entire assembly is hydrostatically-tested, ASME stamped and approved for 160 psi working pressure.



## The Advantages Of Sealed Combustion

Another feature contributing to the remarkable efficiency of the Power-Fin boiler is its unique combination of a sealed chamber and fan-assisted combustion. This design allows the amount of intake air to be precisely metered to match gas input for better, cleaner and more complete combustion. And the unique burner design projects flames in a full 360° pattern.

The combustion air fan serves a dual function by providing the exact volume of combustion air as well

as inducing a continuous flow of cooling air around the combustion chamber. Pre-purge and post-purge cycles provide added protection, while a pressurized, sealed chamber prevents spillage of gas and combustion by-products.

## Diagnostic Systems And Controls

To ensure fail-safe operation, every major function of the Power-Fin is automatically controlled and checked by a convenient plug-in control panel with advanced diagnostic features. A series of relays, warning lights and proving switches continually monitor each phase of the system's operation.



These not only warn against boiler failure, they actually help pinpoint the source of any problems—from combustion air or low gas pressure, to water temperature or water flow.

We also designed the Power-Fin with our own fuel-saving Hot Surface Ignition. And a convenient built-in temperature resistant glass viewing port allows for visual checks of ignition and burner operation.

## Compact, Accessible Design

The Power-Fin gives you the best of both worlds: high efficiency and a compact design. In fact, our one million Btu/hr system requires just 5.75 square feet of floor space—making it a designer's dream. Plus, its high efficiency and unique circular heat exchanger eliminates the need for a bulky refractory lining. So at just over 700 pounds, it's an installers' dream too.

For added flexibility, the Power-Fin is approved for zero clearance installations and offers five convenient venting options from which to choose. Both vertical and horizontal direct-vent sealed combustion configurations are available, as well as venting for outdoor applications.

The Power-Fin is designed for faster servicing, too. The bolted header inspection cover on all models can be easily removed for field inspection of tube interiors. And the entire heat exchanger can be removed through the front of the boiler.

## Modular Flexibility

With input capacities from 250,000 to 1,000,000, Btu/hr there's a Power-Fin boiler to meet every need. And our exclusive Mod-U-Pak™ sequencer gives you the flexibility to create larger systems. As demand increases, additional units can easily be added for greater flexibility.

A single sequencing controller monitors and provides stage-firing for up to eight separate boilers. Multiple devices can even be combined to control more units—for virtually unlimited capacity. This makes it possible to meet peak demands, while also reducing system wear and achieving maximum energy savings during off-peak periods.

Model Number	Btu/hr Rated Input	Boiler Output @ 75% Thermal Efficiency	Boiler Output @ 88% Thermal Efficiency	Btu Savings per Hour of Operation	Year One Fuel Savings	Fuel Savings Over 5 Years
PBN0250	250,000	187,500	220,000	32,500	\$320	\$1,599
PBN0500	500,000	375,000	440,000	65,000	640	3,198
PBN0750	750,000	562,500	660,000	97,500	959	4,797
PBN1000	1,000,000	750,000	880,000	130,000	1,279	6,396

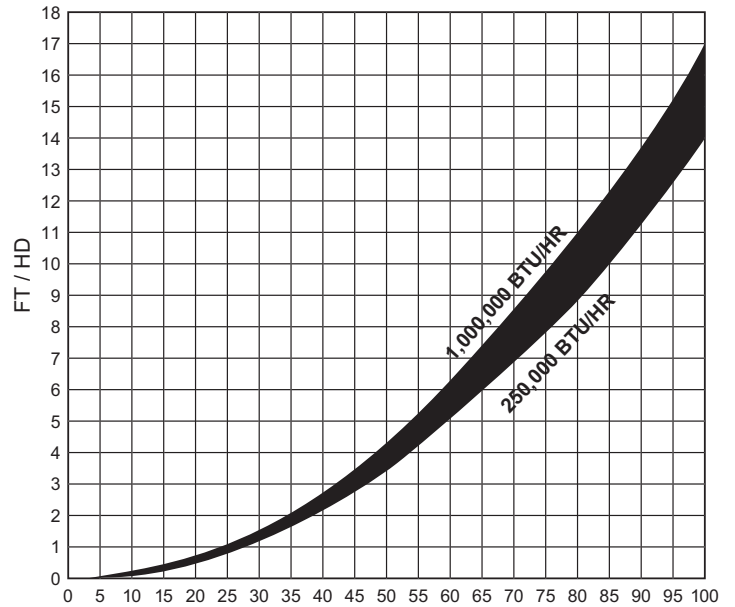
Fuel savings calculated a \$0.66 per therm.  
Based on 1500 hours of operation per year.

## Power-Fin Performance

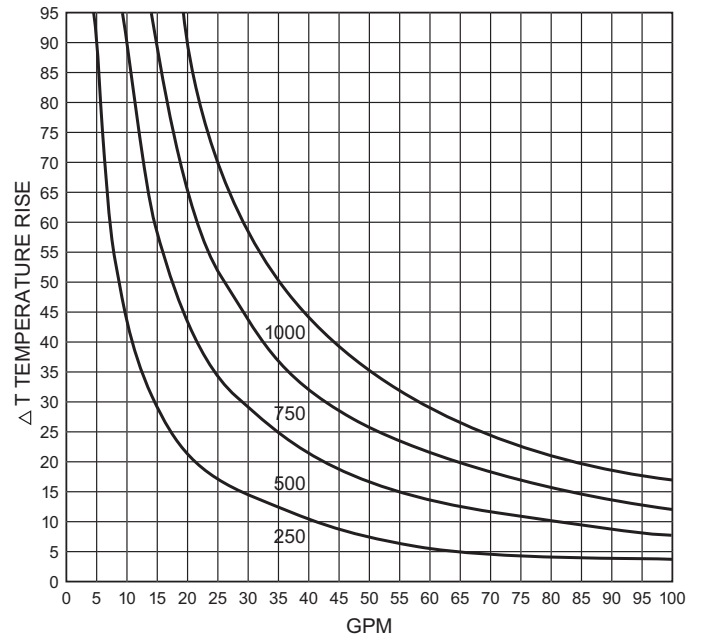
What's more, the Power-Fin operates condensate-free with boiler water temperatures as low as 150°F or, when combined with a simple external piping by-pass arrangement, at system temperatures as low as 80°F with no damage to the boiler.

With its instantaneous response and high heat transfer ratio, the Power-Fin is ideal for water source heat pump systems. In fact—thanks to a small footprint, 88% thermal efficiency, and greater installation options—the Power-Fin is perfect for almost every application. And it's only available from Lochinvar.

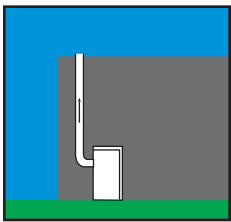
## Pressure Drop Chart



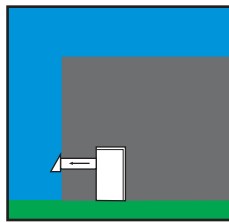
## Boiler Temperature Rise Chart



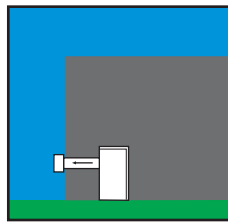
## Venting Options



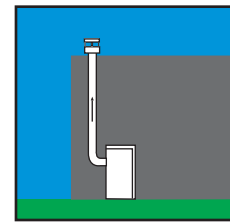
**Conventional Vent:**  
Power-Fin may be vented into a conventional flue or vent breaching if it is convenient and cost-effective. Requires Category II venting.



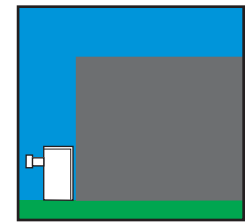
**Through-Wall Vent:**  
Provides a quick and easy means of installation when no vent stack is readily available.



**Direct Vent/Sealed Combustion:**  
Combustion air is drawn into the heater from out-of-doors, then exhaust is vented back out through the same wall. Especially good for contaminated indoor air situations.

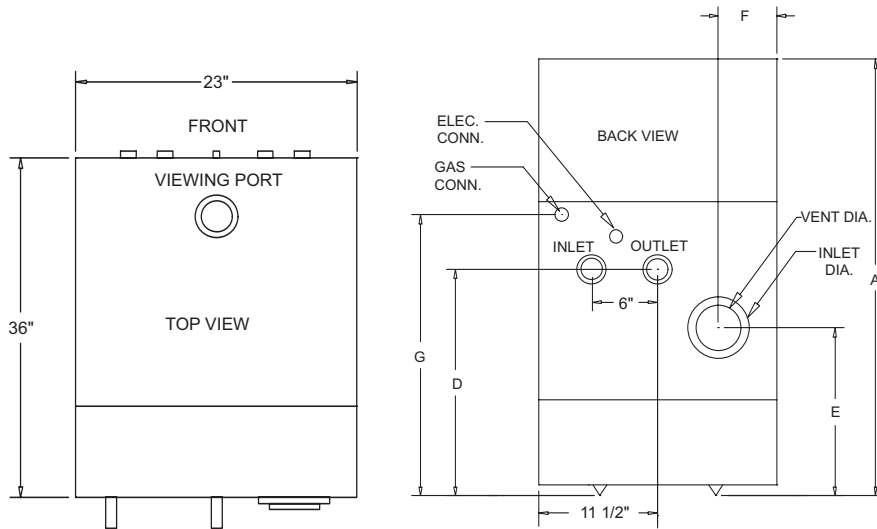


**Vertical Vent/Sealed Combustion:**  
Provides the advantages of direct venting in a vertical configuration.



**Outdoor:**  
An all-weather system for even the most rugged outdoor applications. Use when space is not available or when outdoor location provides better access to hot water point-of-use.

# Power-Fin® Boilers Dimensions & Specifications



**FOR EASE IN ORDERING  
BY MODEL NUMBER**

<b>PB</b>	<b>N</b>	<b>0250</b>	<b>F9</b>
<i>Model</i>	<i>Natural Gas</i>	<i>MBH Input</i>	<i>Firing Controls</i>

*This is a 250,000 Btu/hr natural gas Power-Fin boiler with F9 firing controls.*

Model Number	Btu/hr Input	Btu/hr Output	A	D	E	F	G	Gas Conn.	Air Inlet Size	Shipping Weight
PBN0250	250,000	220,000	34"	16-1/4"	20-1/4"	5"	28-1/4"	3/4"	8"	460
PBN0500	500,000	440,000	41-1/2"	24-1/4"	26-1/2"	5"	35-1/2"	1"	10"	520
PBN0750	750,000	660,000	52-1/2"	33-1/4"	25-1/2"	6-1/2"	40-1/4"	1-1/4"	12"	615
PBN1000	1,000,000	880,000	60-1/2"	41-1/4"	28-1/2"	8-1/2"	47-1/2"	1-1/2"	14"	650

VENT DIAMETER		
Conventional†	Through Wall*	Direct Vent**
5"	4"	4"
7"	6"	6"
9"	8"	8"
10"	10"	10"

Notes: Change 'N' to 'L' to denote L.P. models. All water connections are 2".

U.S. and Foreign patent numbers 3650248 and 4723513

Performance data based on manufacturer test results.

† Requires Category II venting material.

\* Requires factory supplied venting material.

\*\* Requires factory supplied venting material and concentric combustion air intake piping (Inlet diameter).

## Standard Features

- 88% Thermal Efficiency
- Aquastat with Adjustable Differential
- Sequential & Diagnostic Control Panel
- Radial Stainless Steel Burner
- Low NOx Operation Exceeds the most Stringent Air Quality Requirements
- ASME Copper Finned Tube Heat Exchanger
- 160 PSI Working Pressure
- Glass-Lined Water Surfaces
- Two Water Temperature Gauges (inlet/outlet)
- Redundant Gas Valves
- Main Gas Pressure Regulator
- Low Gas Pressure Switch
- High & Low Air Pressure Switches
- Hot Surface Ignition
- Adjustable High Limit with Manual Reset

- Down Stream Test Cock
- Zero Clearance to Combustible Materials
- ASME Pressure Relief Valve
- Flow Switch
- Small Footprint
- 24 Volt Control System
- Barometric Damper
- 10 Year Limited Warranty on Heat Exchanger

## Available Firing Systems

- F9 Hot Surface Ignition with Electronic Supervision (Standard)
- F13 Factory Mutual (FM)
- F14 Industrial Risk Insurers (IRI) (PB 0500 - 1000)
- F7 California Code

## Optional Equipment

- Alarm Bell
- Contacts for Air Louvers
- Contacts on any Failure
- Cupro-Nickel Heat Exchanger
- High or Low Gas Pressure Switch
- Indoor/Outdoor Control
- Low Water Cut-Off
- Pump Relay
- Solenoid Gas Valve
- Time Clock

## Mod-U-Pak Sequencer

- 2-6 Stage
- 7-10 Stage
- Indoor/Outdoor Reset



**Lochinvar®**  
High Efficiency Water Heaters, Boilers and Pool Heaters



Lochinvar Corporation • 300 Maddox Simpson Pkwy • Lebanon, TN 37090 • 615-889-8900 / Fax: 615-547-1000

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