Lochinvar®
High Efficiency Water Heaters, Boilers and Pool Heaters

POWER-fin®

High Efficiency Commercial Gas Boilers

Lochinvar
THE BUILT-IN ADVANTAGE

LOW NOx Certified
PROTECTING THE ENVIRONMENT

1.5, 1.7, & 2.0 Million Btu/hr
Less Than 30 ppm NOx
87% Thermal Efficiency

Reliability

Since 1986, when Lochinvar invented this technology, Lochinvar has manufactured and sold thousands of Power-Fins, which through years of operation in the field have proven themselves reliable. The same quality and intelligent design that has been the hallmark of the Power-Fin since 1986 is the foundation for the larger models.

These models come equipped with a **gasketless heat exchanger**. This means no gaskets or O-rings to crack or leak. To ensure quality, the manufacturing process is not complete until every Power-Fin heat exchanger assembly is hydrostatically tested and proven to perform at the highest standards.

Each function of the boiler is automatically monitored and controlled by a **digital control system,** accurate to +/- 1°F. A digital display indicates temperature while LED indicators prove operation and status. This monitoring system not only warns against failure, it can actually help pinpoint the source of any problems, leading to faster solutions. In addition, all of the components are field replaceable, so down-time is reduced.

And like all Lochinvar boilers, no Power-Fin leaves the factory without first being 100% fire-tested to ensure the highest level of quality. Lochinvar offers a full 5 year warranty on the Power-Fin burner and a 10-year warranty on the heat exchanger. Which means you can rest assured that there will be heat in the facility whenever it's needed.

High Efficiency

Efficiency is gained or lost in the transfer of heat to the water. This process takes place in the combustion chamber. The Power-Fin combustion chamber is created by surrounding the burner with 24 straight, vertically mounted finned copper tubes. Using a special process, the outer wall of each tube is extruded into fins spaced with exactly seven fins per inch. The high thermal conductivity of copper combined with the increased surface area provided by the design of the fins maximizes the heat transfer into the water flowing through the tubes. In fact, this design transfers heat nine times better than ordinary copper tubing. The result is 87% thermal efficiency, which means for every fuel dollar, 87 cents is converted into usable heat.

Infinite Proportionality with 4:1 Turndown

However, there is more to efficiency than just a number. Efficiency can fluctuate depending on several factors, such as the length of time the boiler runs before satisfying the demand for heat and the ratio of the elements involved in the combustion process. Boilers are typically most efficient when they fire for an extended period of time at their full Btu/hr capacity, which happens only a small percentage of the heating season, during peak demand or on design temperature days.

The Power-Fin is designed to take advantage of this principle. Capable of firing from 100% down to 25% of rated input in 1% increments to match heat input demand, the Power-Fin can supply the exact amount of heat necessary to maintain the desired building temperature for an extended period of time.

Adjusting the heat output means that the Power-Fin can exactly match heating demand without over-firing and wasting energy. This prevents the cycling process that occurs when boilers satisfy demand quickly and then shut down until heat is required again, which can cause wear and tear on boiler controls and lead to boiler inefficiency. Additionally, by firing at a lower Btu/hr level for an extended period of time, energy is saved because the boiler doesn't have to be heated up in each cycle. In much the same way driving your car at a steady speed on the highway costs less than starting and stopping in traffic, this benefit can add up to big savings.

The combustion process is most efficient, when the elements involved are in the correct proportion. The Power-Fin has been designed to adjust both *gas and air* in infinitely proportional amounts. By keeping the gas and air proportionally equal, the Power-Fin is able to maintain a more ideal ratio of the elements involved in the combustion process even at lower inputs - which keeps the efficiency rating high along the entire efficiency curve. This uncommon advantage translates into even greater savings, no matter how much heat is needed.

formance with High Efficiency

Flexibility

The models can be vented in six different configurations, up to 50 equivelent feet using a two pipe venting system. The Category IV vent system allows both air and vent to be installed horizontally through a sidewall or vertically through the roof. This flexibility means fewer hassles and more options when architectural integrity is a high priority.

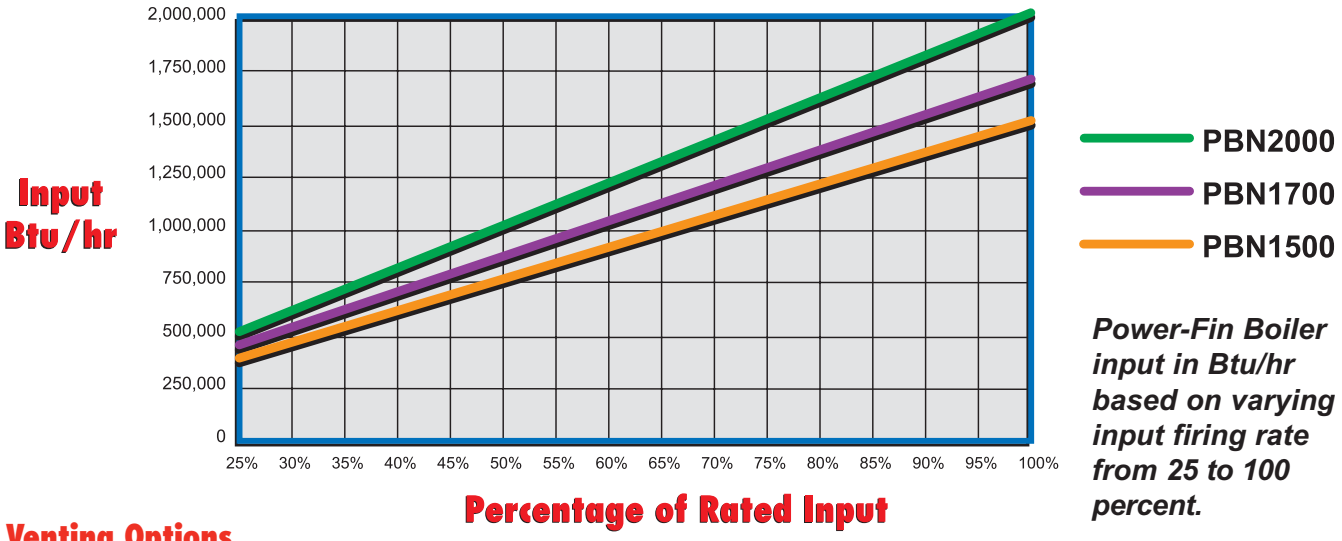
Power-Fin makes use of vertical space, keeping its footprint unusually small. In fact, all three models will fit in just over 5.5 square feet. And because all service can be performed from the front, top and back, Power-Fins can be placed side by side to create a high output boiler plant with a reduced space requirement. So no matter how big the system requirements or how small the installation space, there's a Power-Fin to meet the need.

What It All Boils Down To

Efficiency, reliability, and flexibility are the three most important factors to consider when it comes to selecting a boiler. The more efficient the boiler is, the less money it costs to provide the correct amount of heat at the right time. Reliability offers peace of mind that there will never be a time when heat is required and none is provided.

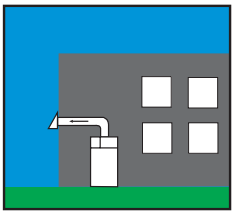
And flexibility in design means that the boiler will be easy to install and maintain. The time-tested Power-Fin design, coupled with new and advanced technologies has resulted in a boiler that excels in each of these important areas. The Power-Fin is boiler technology you can count on.

Btu/hr Input Chart



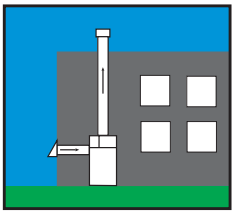
Power-Fin Boiler input in Btu/hr based on varying input firing rate from 25 to 100 percent.

Venting Options



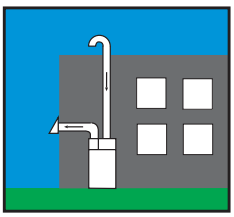
*Sidewall**

Vents horizontally up to 50 equivalent feet, using Category IV approved vent material.



*DirectAire Vertical w/ Sidewall Inlet**

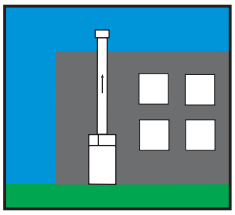
Vents vertically up to 50 equivalent feet, using Category IV approved vent material. Directly draws combustion air 50 equivalent feet from a side wall.



*DirectAire Horizontal w/ Rooftop Inlet**

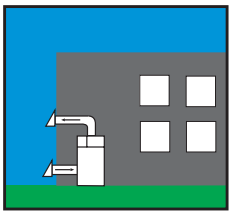
Vents horizontally up to 50 equivalent feet, using Category IV approved vent material. Directly draws combustion air 50 equivalent feet from the roof top.

**Requires factory supplied vent kits*



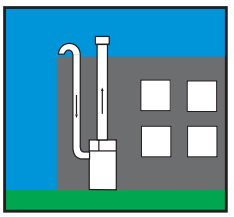
*Vertical**

Vents vertically using Category IV approved vent material.



*Direct Vent Horizontal**

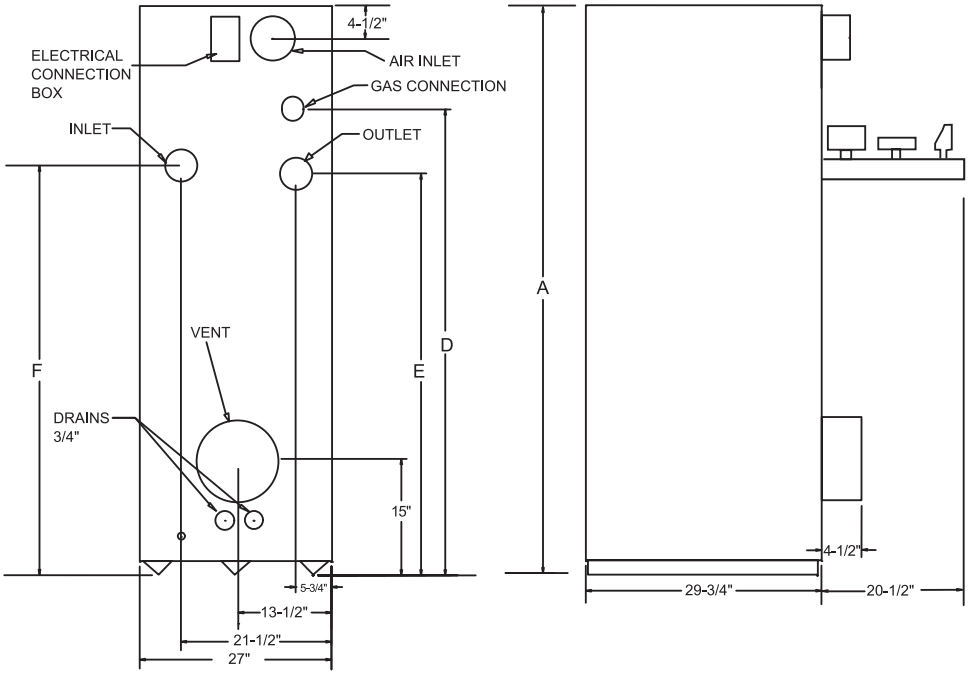
Vents horizontally up to 50 equivalent feet, using Category IV approved vent material. Directly draws combustion air 50 equivalent feet from a side wall.



Direct Vent Vertical

Vents vertically up to 50 equivalent feet, using Category IV approved vent material. Directly draws combustion air 50 equivalent feet from the roof top.

Power-Fin® Boiler Dimensions and Specifications:



FOR EASE IN ORDERING BY MODEL NUMBER

PB	N	1500	M9
Model	Natural Gas	Btu/hr Input	Firing Controls

This boiler is a natural gas, 1.5 MBH, Power-Fin boiler. It has M9 firing controls.

Model Number	Btu/Hr Input	Btu/Hr Output	A	D	E	F	Air Inlet Size	Vent Size	Shipping Weight
PBN1500	1,500,000	1,305,000	66-3/4"	52-1/4"	42"	44-1/2"	6"	8"	1,115
PBN1700	1,700,000	1,479,000	71-1/4"	56-3/4"	46-1/2"	49"	7"	8"	1,150
PBN2000	2,000,000	1,740,000	78"	63-1/2"	53-1/4"	55-3/4"	8"	10"	1,245

Notes: *Change 'N' to 'L' for L.P. Gas Model. No deration on L.P. models. All gas connections are 1-1/2" NPT. All water connections are 2-1/2". Performance data based on manufacturer test results. 120 VAC / 15 AMP circuit required.*

Standard Features

- 87% Thermal Efficiency
- 25 - 100% Infinitely Proportional Firing Rate
- Digital Display w/ Alarm & Status LED's
- Variable Frequency Drive
- Digital Temperature Control Accurate to 1ºF
- Tamper Resistant Temperature Controls
- Alcromesh Burner with 5-Year Limited Warranty
- Low NOx Operation Exceeds the most Stringent Air Quality Requirements
- Low Gas Pressure Operation
- Selectable Supply/Return Temperature Controls
- ASME Copper Finned TubeHeat Exchanger
- 160 PSI Working Pressure
- Gasketless Heat Exchanger Design
- Pump Delay
- Freeze Protection
- Glass-Lined Water Surfaces
- Low Gas Pressure Operation
- Zero Clearance to Combustible Materials
- Temperature and Pressure Gauge
- ASME Pressure Relief Valve
- Down Stream Test Cock
- Adjustable High Limit w/ Manual Reset
- Flow Switch
- Small Footprint
- 24 Volt Circuit Breaker
- Construction Air Filter
- 10 Year Limited Warranty on Heat Exchanger

Firing Control Systems

M9	Hot-Surface Ignition with Electronic Supervision (Standard)
M13	GE GAP/FM/IRI
M7	California Code

Registered under U.S. patents #6,428,312 & 6,619,951.

Optional Equipment

- Alarm Bell
- Contacts for Air Louvers
- Contacts on any Failure
- Cupro-Nickel Heat Exchanger
- High or Low Gas Pressure Switch
- Indoor/Outdoor Reset
- Low Water Cut-Off w/Manual Reset

Harmony Sequencer

- 1-4 Unit Master Control Module
- 5-12 Unit Extension Module
- Outdoor Air Sensor

Venting

- Horizontal Air Intake Cap
- Horizontal Vent Cap

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