



Intelli-Fin[®]
**High Efficiency
Commercial Gas
Boilers**



Up to 97% Thermal Efficiency
1.5, 1.7 & 2.0 Million Btu/hr
Less than 20ppm NOx

Variable Frequency Drive Lets You Change Output to Match Demand

Intelli-Fin is the first boiler to feature variable frequency drive technology. Variable frequency drive further increases the thermal efficiency by precisely supplying the proper amount of gas and air to the burner. Ensuring this balance yields complete combustion and therefore increased Btu/hr output. Just as the electronic fuel injection system in your car adapts to changes in atmosphere, Intelli-Fin's variable frequency drive allows the system to adjust. This means maximum efficiency, no matter what the building demand may be.

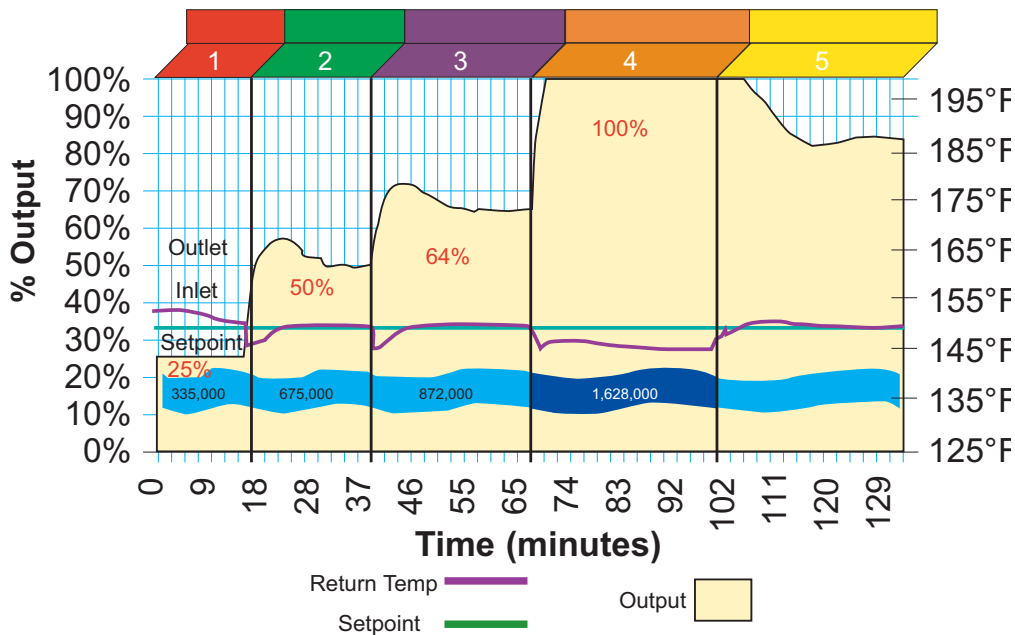
In addition to the tight control of the combustion system, variable frequency drive allows Intelli-Fin to adjust its output to meet demand, limiting excessive heat thereby maximizing efficiency. Because the variable frequency drive controls fan motor speed in an infinitely proportional manner, Btu/hr output can be adjusted to match any heating demand. In fact, Intelli-Fin can reduce output from 100% down to 25% of rated capacity and efficiently provide heat at any fraction of the load in between.

This variable combustion process combined with Lochinvar's new temperature control, accurate to within 1°F, enables Intelli-Fin to track the heating load precisely. By precisely tracking the heat load, Btu/hr output equals the facility heat loss. This means that your heating system can automatically provide the required amount of heat on warm fall afternoons and frigid winter mornings, without wasting energy. With Intelli-Fin, it is now possible to tailor system output to meet demand, while significant energy is saved and short cycling is eliminated. That's an intelligent new advantage for you.

Flexibility in Water and Gas Supplies

Intelli-Fin's advanced burner technology operates within a broader range of inlet gas supply pressures. Intelli-Fin can operate with a minimum inlet gas pressure as low as 4 inches water column. This advanced design prevents nuisance operational problems in areas of varying gas supply pressures. Unlike other high efficiency products, Intelli-Fin will not require high-pressure gas service or additional gas pressure boosters.

Intelli-Fin Precisely Tracks the Building Heat Load and Adjusts Heat Output



1 One key advantage of the Intelli-Fin's variable frequency drive, is that it adjusts output capacity anywhere between 100% and 25%. (yellow bar shows output capacity). In this chart, Intelli-Fin operates at minimum output to satisfy a small night set-back load (this 1.5 million Btu/hr boiler is operating on inlet temperature).

2/3 As the heat load begins to increase a drop in return temperature is sensed. To compensate the firing rate is increased and once again Intelli-Fin begins to track the heating load.

4 Suddenly, a change in building occupancy doubles the required heat load, forcing Intelli-Fin to operate at its full rated output. Although this single unit is not sized to handle a load of 1,628,000 Btu/hr it is able to maintain a system temperature within 6°F of setpoint.

5 As building load decreases, the boiler reduces its firing rate making infinite adjustments to meet the changing demand.

The sophisticated heat transfer system of Intelli-Fin integrates dual heat transfer surfaces with a fully automatic pumped bypass. This innovative design provides increased installation flexibility within low return water temperature applications such as heat pump, snow melting, and radiant floor systems. This design allows Intelli-Fin to operate with return water temperatures as low as 50°F. The fully automatic bypass controls the point where condensate occurs within Intelli-Fin. This innovative design increases the product flexibility, maximizes efficiency and eliminates worry.

Intelligent Enough to Speak Your Language

Intelli-Fin is the first boiler designed to be compatible with LonWorks®, the interoperability language that is fast becoming the language standard for building management systems. LonWorks allows Intelli-Fin to provide open control protocols that let it function in a broad range of building management systems*.

*Lonworks Systems requires professional integration.

The LonWorks network protocols are in use across a broad range of building management products, and with the introduction of Intelli-Fin, it is easier to link components for simplified building integration. LonWorks also simplifies building upgrades in the future.

To enhance this LonWorks performance Lochinvar has developed a new control, which provides a remarkable amount of information and the ability to customize equipment for a specific application. This control along with the Command Display allows local monitoring of 21 diagnostic points and adjustment of 6 operational characteristics. If remote system management is



LonWorks compatible, Intelli-Fin's Command Display also allows for up to 21 diagnostic readouts. Custom controls also allow you to equalize run time in sequenced boilers.



Multiple Intelli-Fin units can be sequenced to add capacity and enhance efficiency. Sequencing options include first on/first off with lead lag, first on/last off, efficiency optimization, and run time optimization. Efficiency optimization uses advanced processing technology to determine how units can most effectively balance demand and available capacity.

desired, all Intelli-Fin functionality can be accessed, reviewed and adjusted via a phone line and personal computer. This means increased peace of mind and the ability to adjust the system without an expensive service call.

An Intelligent Use of Space

Intelli-Fin is about the size of a four-drawer filing cabinet. This remarkably small footprint makes it ideal for retrofit installations as well as new construction. In fact, it's often easier to retrofit an Intelli-Fin system than remove an existing system because it's so much smaller and easier to install.

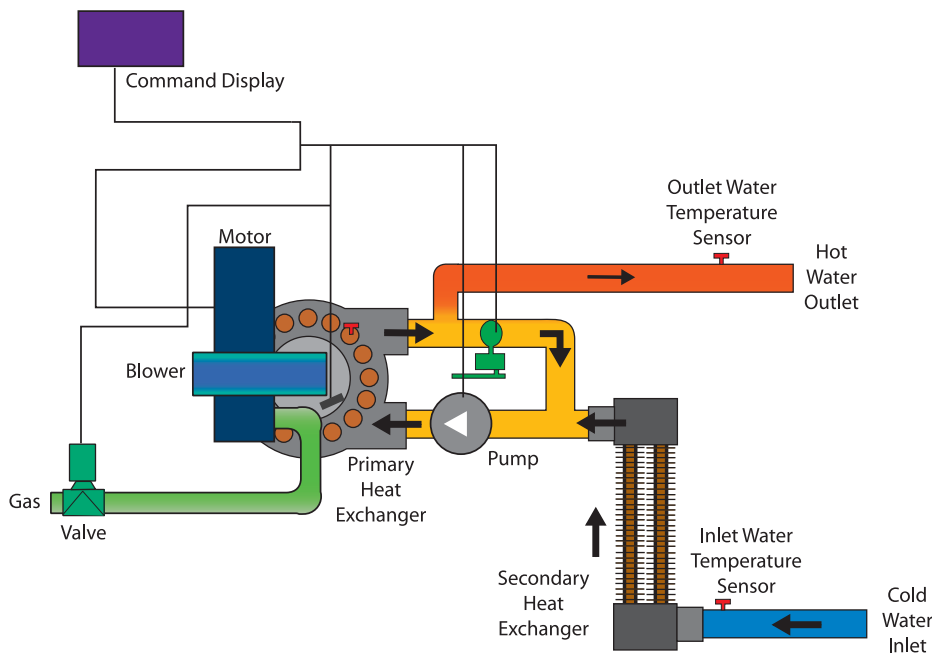
Intelli-Fin's chassis has been engineered so that it makes use of vertical rather than horizontal space. This allows the smaller footprint, but the unit is still so compact that it fits in spaces no higher than 80 inches.

For even more convenience, Intelli-Fin offers several venting options. It's even possible to direct vent the Intelli-Fin through a side wall.

Intelligent Enough To Provide Diagnostic Support

Intelli-Fin adds a new dimension to communications. Thanks to its intelligence, it can identify problems and notify the proper maintenance people, even providing diagnostic codes for as many as 21 separate functions. It's even possible to communicate remotely with the system, so maintenance staff can investigate alarms from offsite and determine specific needs, therefore being better prepared should onsite service be necessary.

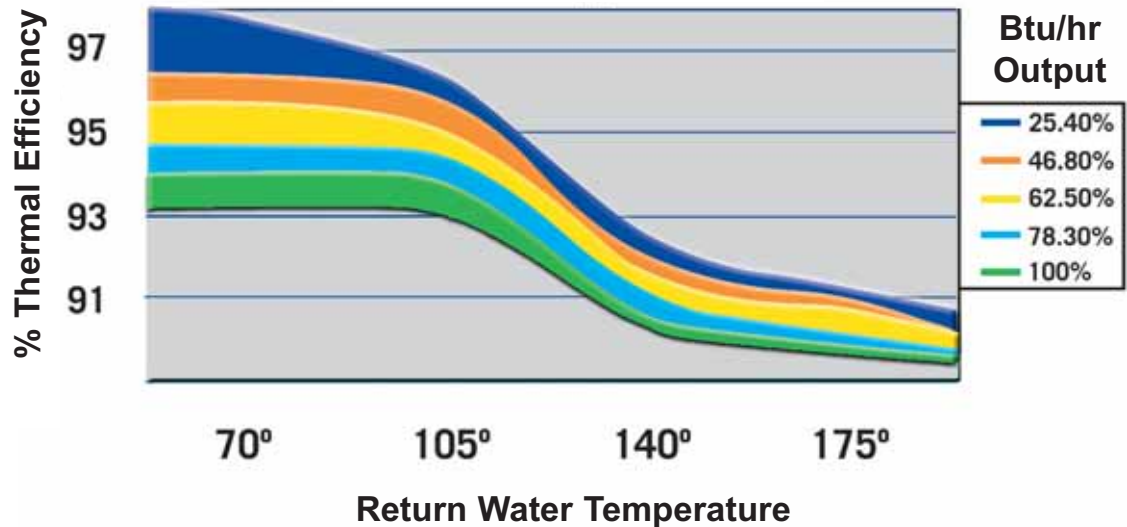
Intelli-Fin® Operating Schematic



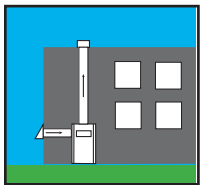
Intelli-Fin can operate with a broad range of gas pressure and water temperature situations thanks to its intelligent controls and unique heat exchanger arrangement. The dual heat exchanger arrangement preheats return water to control condensate formation. Using a pumped bypass, a portion of the heated supply water is recirculated to raise inlet temperature to a point where condensation on the primary heat exchanger is avoided. In addition, gas and air supply for combustion are also adjusted to ensure sufficient Btu/hr output to raise supply water temperature to the prescribed set point.

Intelli-Fin Efficiency Data at Firing Rate

Intelli-Fin provides thermal efficiency ratings as high as 97%. Because of its ability to infinitely modulate operation, efficiency is maintained at maximum levels to provide lowest total operating cost.

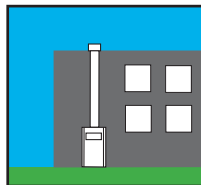


Venting Options



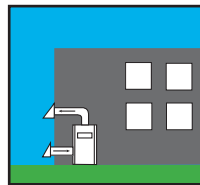
Intelli-Vent Vertical

Vents vertically up to 100 equivalent feet. Directly draws combustion air 100 equivalent feet from a side wall.



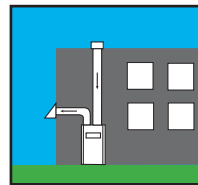
Vertical

Vents vertically using Category IV approved vent material.



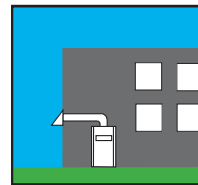
Direct Vent Horizontal

Vents horizontally up to 100 equivalent feet. Directly draws combustion air 100 equivalent feet from a side wall.



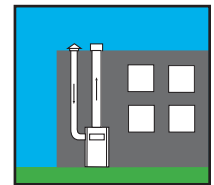
Intelli-Vent Horizontal

Vents horizontally up to 100 equivalent feet. Directly draws combustion air 100 equivalent feet from the roof top.



Sidewall

Vents horizontally up to 100 equivalent feet.



Direct Vent Vertical

Vents vertically up to 100 equivalent feet. Directly draws combustion air 100 equivalent feet from the roof top.

See Installation and Design Documents for details



by Lochinvar

The Intelligent Approach to Hydronics

Lochinvar has a tradition of setting industry standards for boiler efficiency, and our new Intelli-Fin Series takes efficiency to a new level – not just with superior boiler technology, but with a new level of intelligence.

Our 1.5 million, 1.7 million, and 2 million-Btu/hr Intelli-Fin boilers are whisper-quiet. They are engineered to take advantage of the power of digital communications. That's a powerful advantage, because this capability, along with Lochinvar's engineering, means Intelli-Fin provides you with **the lowest total cost of boiler operation.**

Pushing the Upper Limits of Efficiency

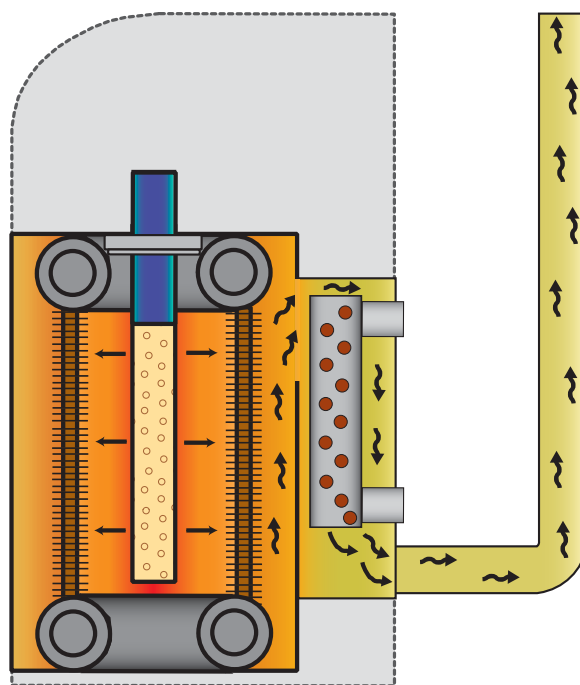
Intelli-Fin has been engineered so that it offers a dramatic increase in efficiency. Independent testing shows that Intelli-Fin reaches 97% thermal efficiency. That means for every energy dollar, 97 cents is converted into useable heat. That's pushing the limits of what is possible within the laws of physics.

To achieve this higher efficiency, Lochinvar utilizes a dual heat exchanger arrangement to create a heat trap. One heat exchanger surrounds the unit's burner, absorbing heat at the point of combustion. A second heat exchanger captures additional heat as the spent gases are extracted from the combustion chamber. The position of this second heat exchanger forces the products of combustion to flow over its entire surface allowing the remaining heat to be absorbed and transferred to the heating water.

If your project demands high efficiency, Intelli-Fin delivers. In fact, it's virtually impossible to be any better.



97%
Thermal Efficiency
97 cents from every
energy dollar goes into
useable heat.



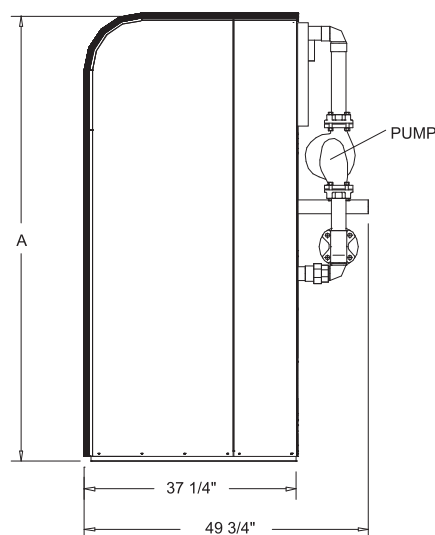
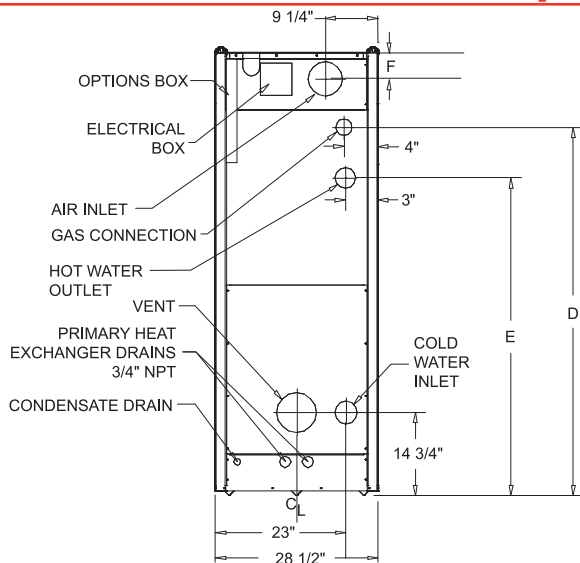
Intelli-Fin's dual heat exchanger arrangement creates a heat trap to capture convective heat flow. Trapping this latent heat reduces flue losses, increases efficiency and saves energy dollars.

Five Year Burner Warranty



Our Alcromesh (aluminum/chromium alloy) metallic burner disperses the flame to improve heat transfer. This unique construction also improves durability. In fact, our burner features a five year warranty.

Intelli-Fin® Boiler Dimensions & Specifications



Intelli-Fin Boiler				Dimensions & Specifications						
Model Number	Input MBH	Output MBH	Net I=B=R MBH	A	D	E	F	Air Inlet Size	Vent Size	Shipping Wt. (lbs)
IBN1500	1,500	1,380	1,200	67-3/4"	52-3/4"	40-3/4"	4-1/2"	6"	6"	1,475
IBN1700	1,700	1,564	1,360	72-1/4"	57-1/4"	45-1/4"	4-1/2"	7"	7"	1,545
IBN2000	2,000	1,840	1,600	79"	64"	52"	6-1/2"	8"	8"	1,610

Note: Change 'N' to 'L' for L.P. Gas Model. All gas connections are 1-1/2" NPT.

No deration on LP models. All water connections are 3".

Performance data based on manufacturer test results.

Standard Features

- Up to 97% Thermal Efficiency
- 25 - 100% Infinitely Proportional Firing Rate
- LonMark Building Management System Compatibility
- Command Display - 21 Point Diagnostic Control*
- Variable Frequency Drive
- Digital Temperature Control Accurate to 1°F
- Alcomesh Burner with 5-Year Limited Warranty
- Low NOx Operation Exceeds the most Stringent Air Quality Requirements
- ASME Copper Finned Tube Heat Exchanger
- 160 PSI Working Pressure
- Gasketless Heat Exchanger Design
- Bronze Fitted Circulating Pump Mounted and Wired
- Glass-Lined Water Surfaces
- Internal Stainless Steel Jacket
- Internal Corrosion Protection
- Low Gas Pressure Operation
- Zero Clearance to Combustible Materials
- Alarm Contacts on any Failure
- Contacts for Air Louver
- ASME Pressure Relief Valve
- Temperature and Pressure Gauge
- Down Stream Test Cock
- Adjustable High Limit w/ Manual Reset
- Flow Switch
- Small Footprint

- Whisper Quite Operation
- 24 Volt Circuit Breaker
- Pump Delay
- Freeze Protection
- Construction Air Filter
- Manual Operation Override
- 10 Year Limited Warranty on Heat Exchanger (See warranty for details)

Monitoring Options

- **Local Monitoring via Personal Computer** includes serial LonTalk adapter & serial cable
- **Remote Monitoring via Personal Computer** includes serial LonTalk adapter, approved network modem and adapter cable

Sequencing Options

- **Standard Sequencing Package**
First On/Last Off
First On/First Off with Lead-Lag
- **Standard Sequencing with Outdoor Air Reset or 4-20 mA Control**
- **Custom Sequencing Package:**
Efficiency Optimization
Efficiency Optimization with Run Time Equalization
First On/Last Off
First On/First Off with Lead-Lag
- **Custom Sequencing with Outdoor Air Reset or 4-20 mA Control**

*Multiple boilers factory sequenced together receive one Command Display

Optional Equipment

- Alarm Bell
- Additional Command Display
- Cupro-Nickel Gasketless Heat Exchanger
- High Gas Pressure Switch w/ Manual Reset
- Low Gas Pressure Switch w/ Manual Reset
- Outdoor Air Reset Control
- Low Water Cut-Off
- Neutralization Kit
- 4-20 mA Control (Stand alone boilers only)
- Remote Mount Command Display

Firing Control Systems

M9	HSI (Standard)
M13	GE GAP/FM/IRI
M7	California Code

Registered under U.S. Patents # 6,428,312 and #6,619,951



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