

FUTERA

FUSION

FUSION^{XLF}

**Condensing High Efficiency
Domestic Water Heaters,
Pool Heaters and Boilers**



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Fully Condensing – Ultra Efficient

The gas-fired Futera Fusion Series brings the field-proven performance of RBI boilers and water heaters to the ultimate levels of efficiency and reliability.

Fusion's innovative design makes it the ideal choice for applications with low operating, return or make-up water temperatures. Unlike most condensing products on the market today which publish the highest efficiencies at the lowest inputs, the Fusion Series can attain efficiencies as high as 99% at full input!

The fully modulating firing system continuously varies the energy input to precisely match the heating load without over-firing and wasting fuel providing extremely high part-load efficiencies.

If you're looking to maximize operating efficiency, reliability, and flexibility in domestic hot water and hydronic heating applications, the Fusion Series is your heating solution.

Features and Benefits

- 500 – 2000 (Water Heater / Boiler - Fusion)
- 2500 – 4000 (Boiler Only - Fusion XLF)
- Copper 4-Pass Heat Exchanger (160 PSI)
- Stainless Steel Secondary Heat Exchanger
- PVC & Polypropylene (PP) Venting
- HeatNet Integrated Boiler Control Platform
- Modulating Temperature Control Mixing Valve
- Variable Speed Blower
- Flame Safeguard
- Flow Switch (Mounted & Wired)
- Integral Primary Pump
- Service Friendly Design



Premium Performance & Superior Reliability

- 99% Maximum Efficiency
- Full Modulation (5:1 Fusion XLF / 4:1 Fusion)
- Sealed Combustion/Direct Vent
- Symmetrically Air/Fuel Coupled
- Commercial Combustion Controls
- Linked Operating Control System for Multiple Unit Applications
- Gasket-less Heat Exchanger Assembly

Optional Features

- BACnet or LonWorks Interface Module
- Cupro-nickel Finned Tubes
- Freeze Protection Package
- Honeywell Keyboard Display Module S7800
- Outdoor Sensor with Housing
- Outdoor Installation
- Knockdown Ready (Fusion XLF)
- Knockdown Available (Fusion)
- Category II & IV Venting
- Pool Heating



In the interest of product improvement, RBI reserves the right to make changes without notice.



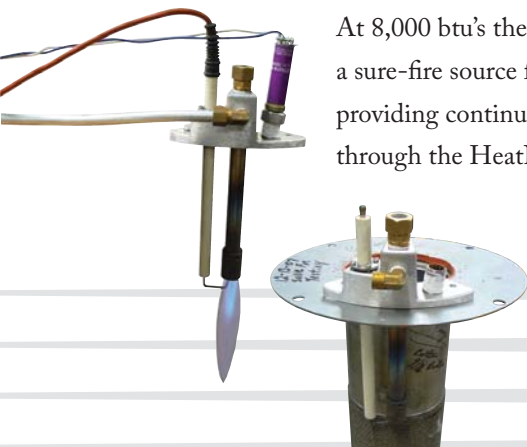
Smart Service Design

Large capacity in a small footprint offers greater flexibility and ease of installation in a space-saving design that leaves more elbowroom in the mechanical room. The rugged structural steel base is designed to fit through a standard 30" doorway. A variety of venting options provides added installation flexibility. Quick-release latches allow for easy access to all components to make short work of service and maintenance.

The Turbo Pilot®: Reliability At Its Best

The Futera Series independent "Turbo-Pilot" system with UV detection is far more durable and reliable than any competitive ignition system available today.

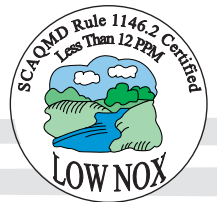
At 8,000 btu's the "Turbo-Pilot" provides a sure-fire source for burner ignition while providing continuous performance feedback through the HeatNet control platform.



Advanced Heat Exchanger Technology

The Fusion's heat exchanger was designed using the most efficient and dependable heat transfer materials available today. The low-mass, gasket-less primary heat exchanger has solid cast iron and finned copper or cupronickel tubing for superior heat transfer, resistance to scaling, and protection against thermal shock.

The condensing secondary heat exchanger is solid stainless steel and designed to operate at the boiler's full flow rate. It operates in full condensing mode at all times, while a state of the art temperature mixing system protects the boiler's primary heat exchanger. Each Fusion carries a full non-prorated 20 year warranty against damage from condensate or thermal shock. There's simply no better way to protect an owner's investment. This design also offers a larger heat transfer surface area than any competitive product currently available. This translates into the highest available efficiencies – at full operating input! We challenge you to look closely at competing products' efficiency data. No other water heater or boiler on the market has full input efficiencies as high as The Fusion's.



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Symmetric Air/Fuel Coupling

Fusion Series units operate safely and efficiently at all times by reacting to changes in the air or fuel flow which can compromise combustion. Air/Fuel coupling automatically adjusts to any changes in the environment by reducing input levels to maintain optimum combustion quality while providing the highest degree of safety.

Air/Fuel coupling further increases application flexibility by allowing installation of Fusion units in areas of variable air inlet and gas pressures without compromising safety or performance.

Advanced gas train design monitors and regulates gas input based on combustion air pressure, which in turn provides highly repeatable air/fuel ratio throughout the operating range.



Space-saving Footprint

The compact footprint of Futera Fusion boilers allows for multiple boiler installations while conserving valuable boiler room space for ease of service and maintenance access.





Intelligence Built In

HeatNet, RBI's proprietary integrated boiler management system, is the driving force behind RBI's energy optimization philosophy for its high-efficiency equipment. HeatNet is designed for precise system control and is standard on all Futera Series boilers.

Through continuous monitoring of several system characteristics, including boiler temperatures, limit circuit inputs, and overall system demands, HeatNet modulates boiler firing rates to maximize turndown ratios to maintain peak efficiency regardless of the load.

Versatile

In addition to maintaining peak efficiency in our stand-alone boilers, HeatNet can operate as part of a multi-boiler Master/Member network of up to 16 boilers, where typical Master/Member systems using 2, 3, 4 or 5 boiler configurations can see total turndown ratio of 8, 10, 12, 15, 20 or even a maximum of over 28:1* depending on the number of units in the application.

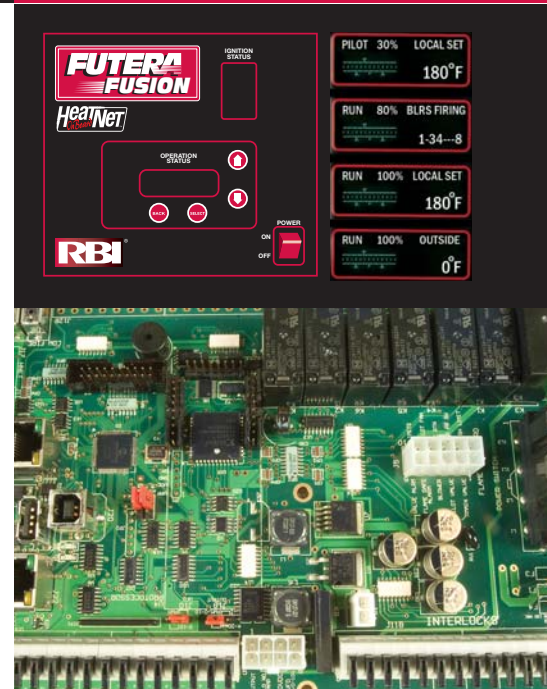
HeatNet can also function as a boiler management system, incorporating a mix of both condensing and non-condensing boilers, or in base-load applications with existing boilers, eliminating the need for costly additional third-party, wall-mounted control platforms.

HeatNet "learns" the optimal firing rates of a given application, thereby determining the system's load for maximum energy efficiency. The variable control settings for Mod/Max firing rates allow technicians to adjust the maximum firing rates, enabling all boilers to run at extremely efficient levels until all units in the sequence have fired. HeatNet keeps the firing rate

as low as possible, taking advantage of increased efficiencies at lower inputs. Boiler firing rotations can be programmed for First On/First Off, First On/Last Off or "True Rotation." HeatNet also modulates the local boiler pump for Primary/Secondary systems, ensuring optimum boiler Delta T.

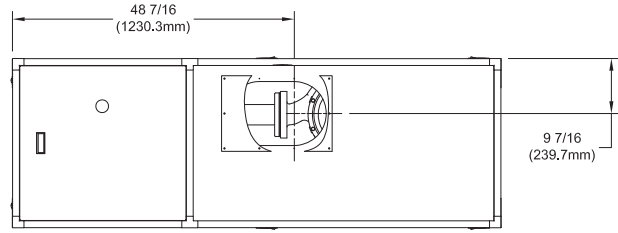
Straightforward

HeatNet's intuitive interface, with plug-and-play connections, speeds the installation, set-up, and diagnostic process for technicians. HeatNet's electronics are conveniently located in a self-contained control enclosure, with all internal components and terminal blocks easily accessible. The standard HeatNet control uses a Modbus protocol with optional processor boards for BACnet- and Lon Works-based building management systems. Its proprietary design allows for seamless flash drive or laptop-driven updateable firmware, adding continuous value and boiler system control without physical control platform updates that can make some equipment obsolete.



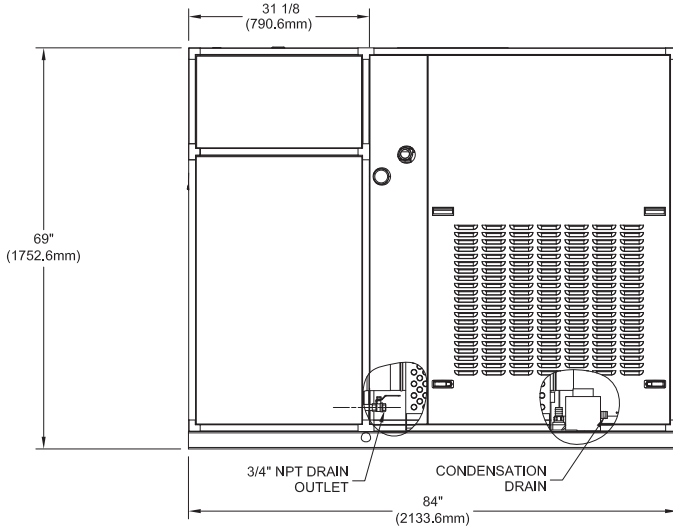
*Total turndown ratio's based on multiple units linked in a master/member configuration controlled through HeatNet.

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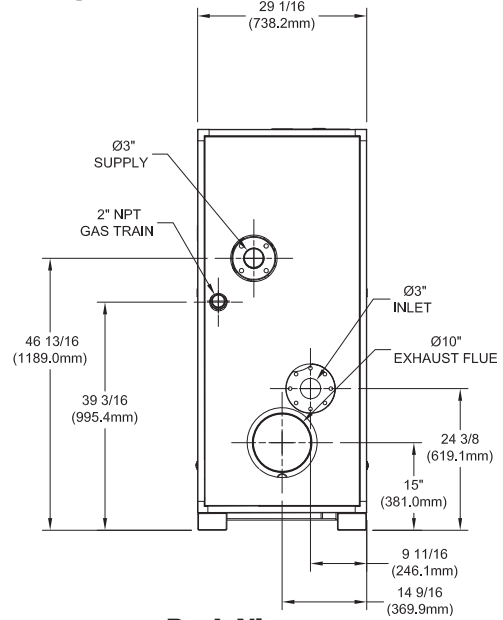


Top View

Fusion XL F 4000



Side View



Back View

Dimensions and Ratings

Model	Input		Output		Flue Vent			Air Intake	Connections			Weight	
	MBH	kW	MBH	kW	Cat IV Positive (Up to 60')		Cat II		Gas	Water	Lbs	Kg	
					UL Listed Stainless Steel	PVC/PP Option							Negative
CB2500	2500	733	2350	689	8"	8"	Common	8"	1½"	3"	2700	1225	
CB3000	3000	879	2820	826	8"	8"	Vent	8"	1½"	3"	2900	1315	
CB3500	3500	1026	3290	964	10"	10"	Engineered	10"	2"	3"	3100	1406	
CB4000	4000	1172	3760	1102	10"	10"	Systems*	10"	2"	3"	3200	1451	

* Diameters may vary based on system design.

MODEL

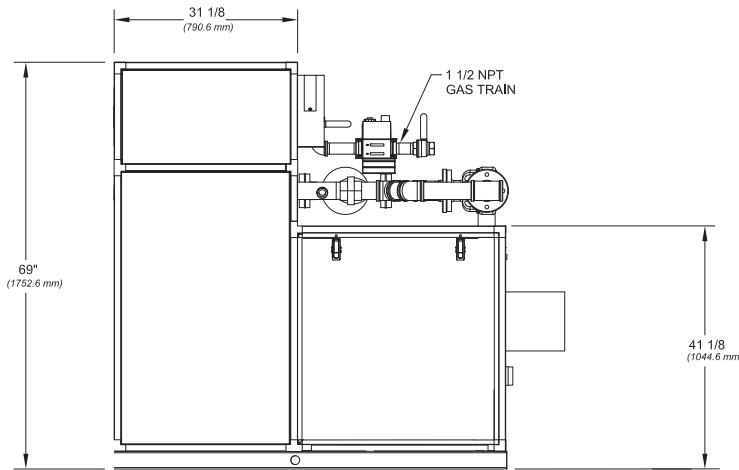
Inlet Temp (°F)	2500		3000		3500		4000	
	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)
60	2794	105	3171	111	3700	111	4228	111
80	3316	85	3717	91	4337	91	4956	91
100	4203	65	4617	71	5386	71	6156	71
120	5903	45	6250	51	7292	51	8334	51
140	10457	25	9804	32	11438	32	13072	32

MODEL

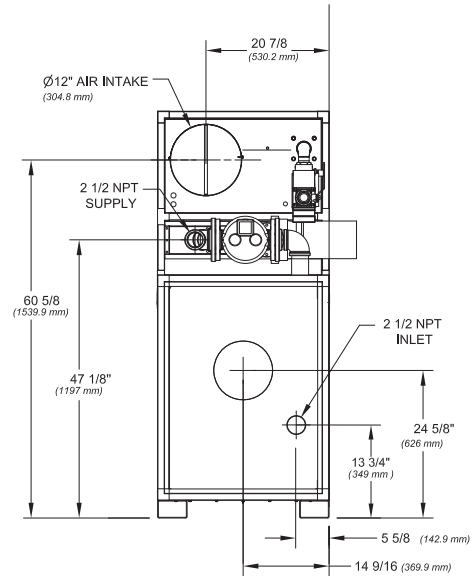
Inlet Temp (°C)	2500		3000		3500		4000	
	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)
16	10560	58	11987	62	13984	62	15982	62
27	12536	47	14051	51	16393	51	18735	51
38	15886	36	17452	39	20360	39	23269	39
49	22314	25	23627	28	27564	28	31502	28
60	39529	14	37058	18	43234	18	49411	18

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Fusion 2000



Side View



Back View

Dimensions and Ratings

Model	Input		Output		Flue Vent			Connections			Weight	
					Cat IV Positive (Up to 60')		Cat II	Air Intake	Gas	Water	Lbs	Kg
	MBH	kW	MBH	kW	UL Listed Stainless Steel	PVC/PP Option	Negative					
CB/CW 500	500	147	476	139	7"	8"	Common Vent	8"	1"	2"	569	258
CB/CW 750	750	220	713	209	7"	8"		8"	1"	2"	699	317
CB/CW 1000	1,000	293	952	279	7"	8"	Engineered Systems*	10"	1-1/4"	2"	709	322
CB/CW 1250	1,250	366	1189	348	8"	8"		10"	1-1/4"	2-1/2"	868	394
CB/CW 1500	1,500	440	1430	419	8"	8"		10"	1-1/4"	2-1/2"	905	411
CB/CW 1750	1,750	513	1668	489	10"	10"	12"	1-1/2"	2-1/2"	1059	481	
CB/CW 2000	1,999	586	1904	558	10"	10"		12"	1-1/2"	2-1/2"	1139	517

* Diameters may vary based on system design.

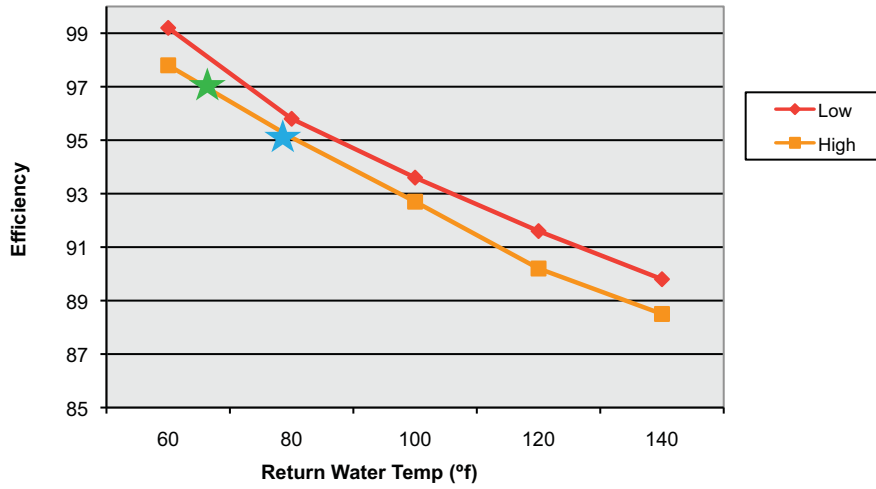
MODEL

Inlet Temp (°F)	500		750		1000		1250		1500		1750		2000	
	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)	Flow Rate (gph)	Δt (°F)
60	614	96	833	106	1050	112	1460	101	1664	106	1859	111	2118	111
80	753	76	998	86	1245	92	1768	81	2000	86	2205	91	2520	91
100	999	56	1268	66	1546	72	2293	61	2530	66	2758	71	3136	71
120	1513	36	1770	46	2083	52	3320	41	3532	46	3737	51	4247	51
140	3336	16	3072	26	3321	32	6354	21	6130	26	6026	31	6855	31

MODEL

Inlet Temp (°C)	500		750		1000		1250		1500		1750		2000	
	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)	Flow Rate (l/h)	Δt (°C)
16	2322	53	3148	59	3968	62	5517	56	6289	59	7028	62	8007	62
27	2846	42	3773	48	4707	51	6683	45	7561	48	8336	51	9527	51
38	3777	31	4792	37	5844	40	8669	34	9563	37	10427	39	11852	39
49	5718	20	6690	26	7873	29	12551	23	13350	26	14126	28	16054	28
60	12609	9	11612	14	12552	18	24016	12	23172	14	22777	17	25913	17

Futera Fusion Series Efficiency



- ★ 95.1% is AHRI Certified Product Performance Thermal Efficiency
- ★ 97% is AHRI Certified Product Performance Combustion Efficiency

Performance values based on BTS2000 official testing protocol



® **260 North Elm Street, Westfield, MA 01085**
Tel. (413) 568-9571 Fax (413) 568-9613
7555 Tranmere Drive, Mississauga, Ontario L5S 1L4
Tel. (905) 670-5888 Fax (905) 670-5782
www.rbiwaterheaters.com

