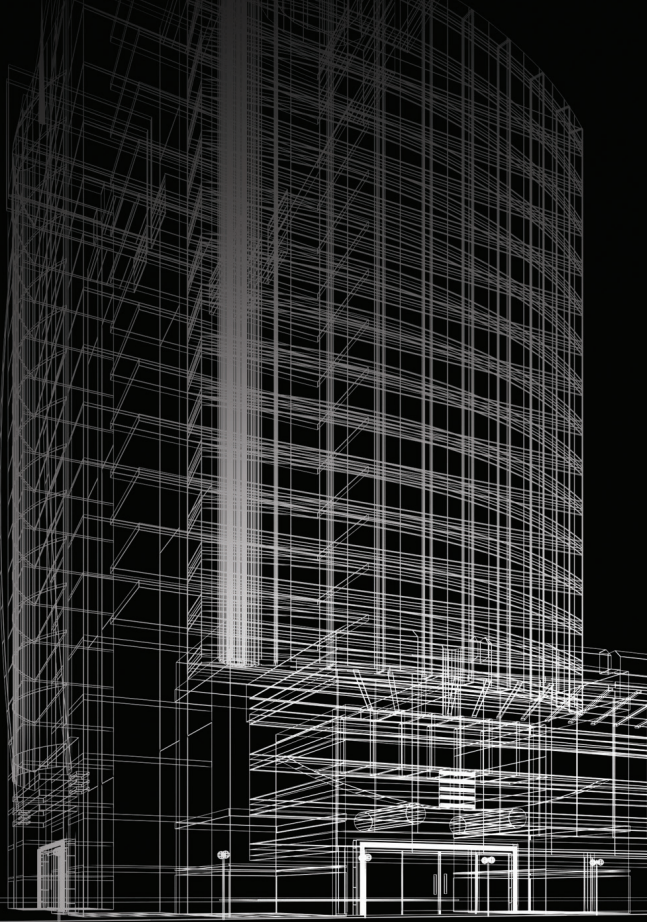


# **FUTERA** **FUSION** **FUSION<sup>XL</sup>**

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



# FUTERA

## FUSION

### FUSION<sup>XLF</sup>

## 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 MBH (Fusion)
- 2500 – 4000 MBH (Fusion XLF)
- Copper 4-Pass Heat Exchanger (125 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 up to (5:1 Fusion XLF / 4:1 Fusion)
- 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.



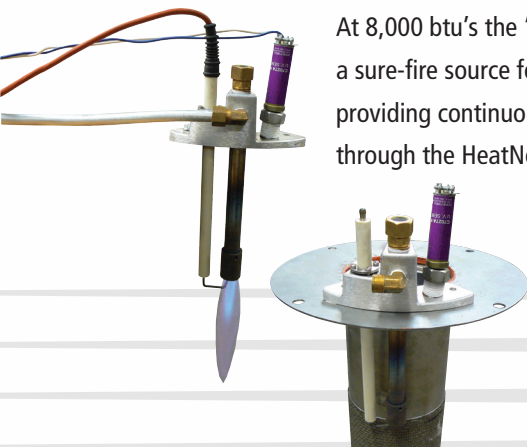
## Smart Service Design

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.

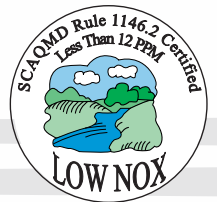
At 8,000 btu's the "Turbo-Pilot" provides a sure-fire source for burner ignition while providing continuous performance feedback through the HeatNet control platform.



## 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 (boiler) or bronze (water heater) 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.



# **FUTERA**

## **FUSION**

### **FUSION<sup>XLF</sup>**

## **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.

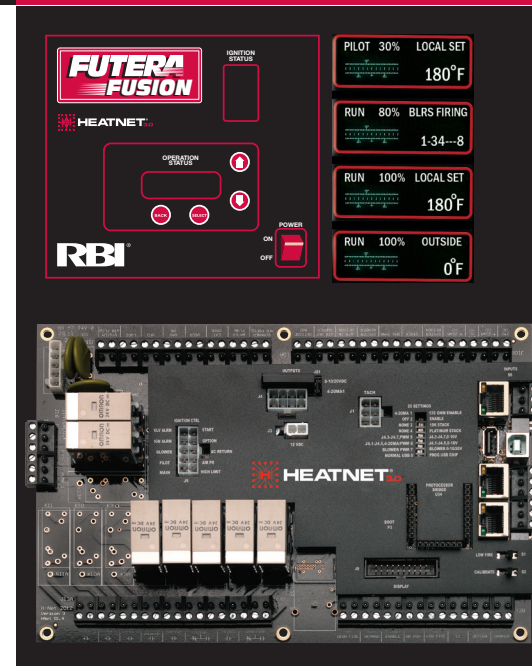
## Versatile

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

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



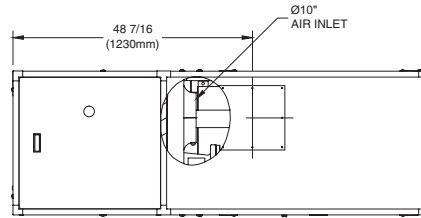
inputs. Boiler firing rotations can be programmed for First On/First Off, First On/Last Off or "True Rotation." HeatNet also modulates the local boiler pump for Primary/Secondary systems, ensuring optimum boiler Delta T.

## Straightforward

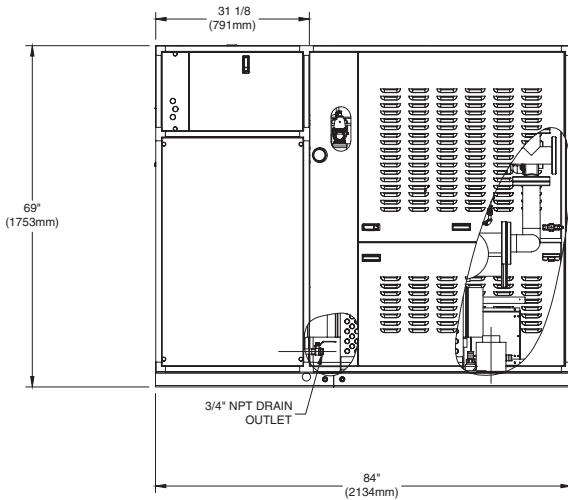
HeatNet's intuitive interface, with plug-and-play connections, speeds the installation, set-up, and diagnostic process for technicians. HeatNet's electronics are conveniently located in a self-contained control enclosure, with all internal components and terminal blocks easily accessible. The standard 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.

# FUTERA FUSION<sup>XLF</sup>

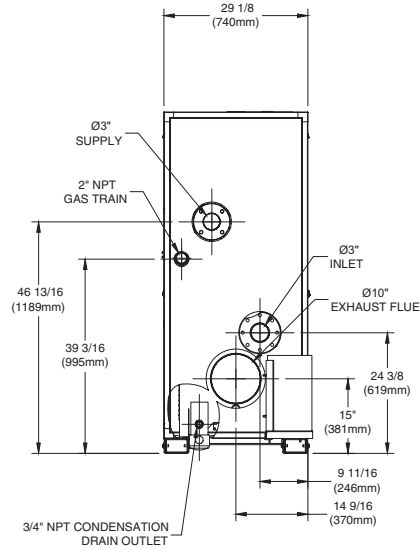
## Fusion XLF 4000



Top View



Side View



Back View

**Models**

CB = Boiler

CW = Water Heater

### Futera Fusion XLF — Dimensions and Ratings\*

Size	Input		Boiler Output		Flue Vent			Air Intake	Connections			Shipping Weight	
					Cat IV Positive		Cat II		Gas				
	MBH	kW	MBH	kW	UL Listed Stainless Steel**	PVC/PP Option	Negative**		Nat	LP	Water	Lbs	Kg
2500	2500	733	2350	689	8"	8"	12"	8"	1 1/2"	1 1/2"	3"	2330	1057
3000	3000	879	2820	826	8"	8"	12"	8"	1 1/2"	1 1/2"	3"	2384	1081
3500	3500	1026	3290	964	10"	10"	14"	10"	2"	1 1/2"	3"	2614	1186
4000	4000	1172	3760	1102	10"	10"	14"	10"	2"	1 1/2"	3"	2726	1236

\* Ratings reflect boilers only. For boiler efficiency information please visit [www.ahridirectory.org](http://www.ahridirectory.org).

\*\* Diameters may vary based on system design.

### Futera Fusion XLF — Delta T/Boiler Recovery Table

Inlet Temp (°F)	Inlet Temp (°C)	2500				3000				3500				4000			
		Flow Rate (gph)	Δt (°F)	Flow Rate (l/h)	Δt (°C)	Flow Rate (gph)	Δt (°F)	Flow Rate (l/h)	Δt (°C)	Flow Rate (gph)	Δt (°F)	Flow Rate (l/h)	Δt (°C)	Flow Rate (gph)	Δt (°F)	Flow Rate (l/h)	Δt (°C)
60	16	2787	105	10534	58	3163	111	11958	62	3691	111	13951	62	4218	111	15944	62
80	27	3308	85	12506	47	3708	91	14017	51	4326	91	16354	51	4944	91	18690	51
100	38	4192	65	15847	36	4606	71	17410	39	5373	71	20312	39	6141	71	23213	39
120	49	5889	45	22261	25	6235	51	23570	28	7275	51	27498	28	8314	51	31427	28
140	60	10432	25	39434	14	9780	32	36969	18	11410	32	43131	18	13040	32	49292	18

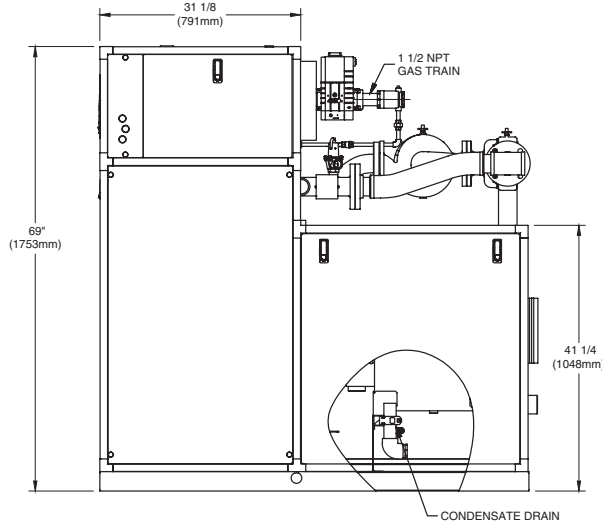
### Futera Fusion XLF Water Heaters — Hourly Recovery Capacity ΔT (GPH & LPH)\*\*\*

Size	40°F	22°C	60°F	33°C	80°F	44°C	100°F	56°C	120°F	67°C	140°F	78°C
2500	6880	26007	4587	17338	3440	13004	2752	10403	2293	8669	1966	7431
3000	8355	31583	5570	21055	4178	15792	3342	12633	2785	10528	2387	9024
3500	9863	37284	6576	24856	4932	18642	3945	14914	3288	12428	2818	10653
4000	11405	43109	7603	28739	5702	21555	4562	17244	3802	14370	3258	12317

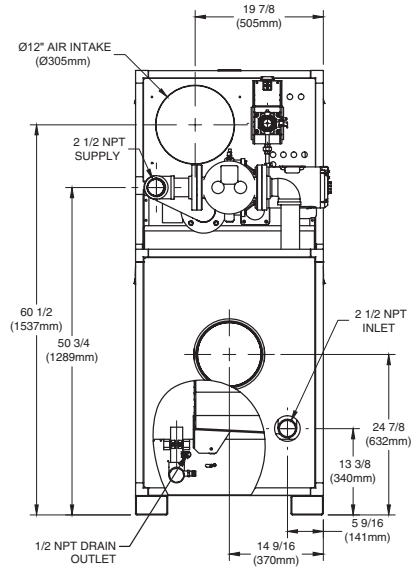
\*\*\* For water heater efficiency information please visit [www.ahridirectory.org](http://www.ahridirectory.org).

# FUTERA FUSION

## Fusion 2000



Side View



Back View

### Models

CB = Boiler

CW = Water Heater

### Futera Fusion — Dimensions and Ratings\*

Size	Input		Boiler Output		Flue Vent			Air Intake	Connections		Shipping Weight	
					Cat IV Positive		Cat II		Gas	Water	Lbs	Kg
	MBH	kW	UL Listed Stainless Steel**	PVC/PP Option	Negative**							
500	500	147	476	139	7"	8"	7"	8"	1"	2"	875	397
750	750	220	713	209	7"	8"	7"	8"	1"	2"	900	408
1000	1,000	293	952	279	7"	8"	8"	8"	1"	2"	1000	454
1250	1,250	366	1190	349	8"	8"	8"	10"	1"	2-1/2"	1257	570
1500	1,500	440	1430	419	8"	8"	8"	10"	1-1/4"	2-1/2"	1350	612
1750	1,750	513	1668	489	10"	10"	10"	12"	1-1/2"	2-1/2"	1440	653
2000	1,999	586	1906	558	10"	10"	10"	12"	1-1/2"	2-1/2"	1500	680

\* Ratings reflect boilers only. For boiler efficiency information please visit [www.ahridirectory.org](http://www.ahridirectory.org).

\*\* Diameters may vary based on system design.

### Futera Fusion — Delta T/Boiler Recovery Table

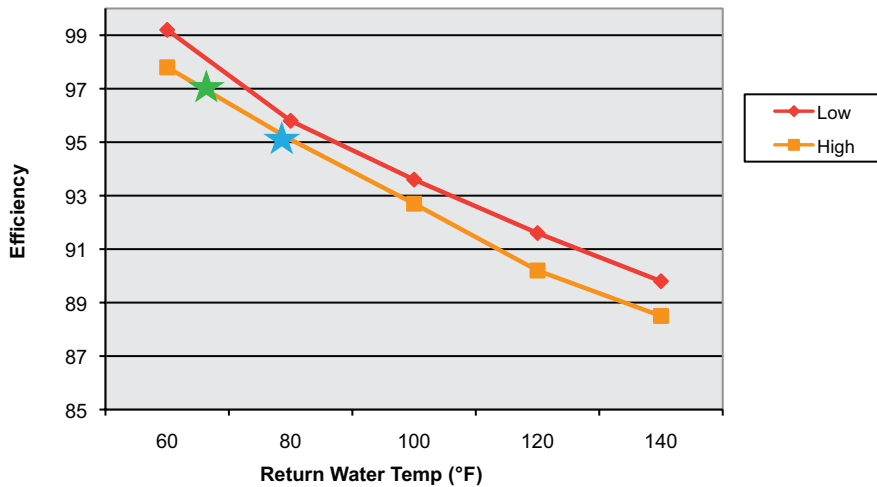
Inlet Temp (°F)	Inlet Temp (°C)	500		750		1000		1250		1500		1750		2000															
		Flow Rate (gph)	Δt (°F)	Flow Rate (l/h)	Δt (°C)	Flow Rate (gph)	Δt (°F)	Flow Rate (l/h)	Δt (°C)	Flow Rate (gph)	Δt (°F)	Flow Rate (l/h)	Δt (°C)	Flow Rate (gph)	Δt (°F)	Flow Rate (l/h)	Δt (°C)												
60	16	613	96	2316	53	831	106	3140	59	1047	112	3958	62	1456	101	5504	56	1660	106	6274	59	1855	111	7011	62	2113	111	7988	62
80	27	751	76	2839	42	996	86	3763	48	1242	92	4696	51	1764	81	6667	45	1995	86	7543	48	2200	91	8316	51	2514	91	9504	51
100	38	997	56	3768	31	1265	66	4780	37	1542	72	5830	40	2288	61	8648	34	2524	66	9540	37	2752	71	10402	39	3128	71	11824	39
120	49	1509	36	5704	20	1765	46	6674	26	2078	52	7854	29	3312	41	12520	23	3523	46	13318	26	3728	51	14092	28	4237	51	16016	28
140	60	3328	16	12578	9	3065	26	11585	14	3313	32	12522	18	6338	21	23959	12	6116	26	23117	14	6011	31	22722	17	6839	31	25851	17

### Futera Fusion Water Heaters — Hourly Recovery Capacity ΔT (GPH & LPH)\*\*\*

Size	40°F	22°C	60°F	33°C	80°F	44°C	100°F	56°C	120°F	67°C	140°F	78°C
500	1460	5519	973	3679	730	2760	584	2208	487	1840	417	1577
750	2168	8194	1445	5462	1084	4097	867	3277	723	2731	619	2341
1000	2878	10879	1919	7253	1439	5440	1151	4352	959	3626	822	3108
1250	3583	13543	2388	9028	1791	6771	1433	5417	1194	4514	1024	3869
1500	4277	16166	2851	10777	2138	8083	1711	6466	1426	5389	1222	4619
1750	4968	18781	3312	12521	2484	9390	1987	7512	1656	6260	1420	5366
2000	5654	21373	3770	14249	2827	10687	2262	8549	1885	7124	1616	6107

\*\*\* For water heater efficiency information please visit [www.ahridirectory.org](http://www.ahridirectory.org).

**Futura Fusion Series Efficiency  
(Water Heaters & Boilers)**



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

Performance values based on 500MBH boiler Official AHRI Certified Performance Ratings