

# FUTERA FUSION

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





## CONDENSING, MODULATING, HOT WATER SUPPLY, POOL, AND HYDRONIC HEATING BOILERS

The gas-fired Futera Fusion™ now brings the field-proven performance of Futera III Modulation boilers and water heaters to the ultimate levels of efficiency and reliability. This innovative design is the ideal choice for applications with low operating, return, or make-up water temperatures. Unlike most condensing products available today which publish the highest efficiencies at the lowest inputs, the Fusion is capable of attaining efficiencies as high as 98% at Full Input! The full modulation firing system continuously varies the energy input to precisely match heating load without over-firing and wasting fuel. This provides extremely high part-load efficiencies. System sizing is made simple with models available from 500 MBH to 2000 MBH. If you're looking to maximize operating efficiency, reliability, and flexibility in domestic hot water, pool, and hydronic heating applications, the Fusion is your heating solution.



### STANDARD FEATURES

- 500 – 1999 MBH
- Finned copper tube heat exchanger, ASME 160 psi MAWP, 4-pass design
- Rugged solid stainless steel secondary heat exchanger with extremely low pressure drop
- Commercial grade modulating temperature control mixing valve accurate to +/- 1 deg F
- Solid bronze headers
- Variable speed blower
- Digital text annunciator
- Flame safeguard control
- Quick-release service latches
- Small vent sizes
- Seismic restraint base assembly
- Mounted and wired flow switch
- Integral primary pump
- HeatNet integrated boiler management system
- Modbus protocol for BMS communications

### DEPENDABLE, EFFICIENT PERFORMANCE

- Highest available efficiencies - up to 99%
- Full modulation with continuous, 4:1 turndown
- Sealed combustion/direct vent
- Symmetrically air/fuel coupled
- Commercial combustion controls
- Linked operating control system for multiple unit applications
- Gasket-less heat exchanger assemblies

### OPTIONAL FEATURES

- BACnet or LonWorks interface module
- Cupro-nickel finned tubes
- Freeze protection package
- Honeywell keyboard display Module S7800
- Outdoor sensor with housing



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



## 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 bronze headers 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.



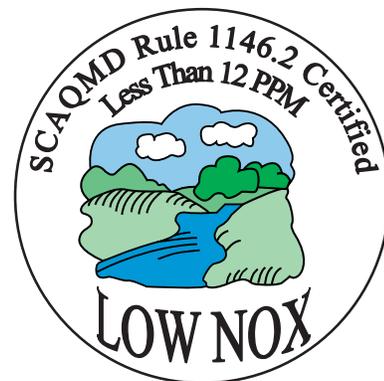
## Smart Service Design

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 metal fiber burner delivers excellent performance using the latest metal fiber technology. The robust, pre-mix burner allows seamless modulating turndown while ensuring ultra-low emission levels, and noise-free operation at extremely high efficiencies.*

*Ignition components can be easily removed, serviced and reinstalled without removal of the burner assembly.*

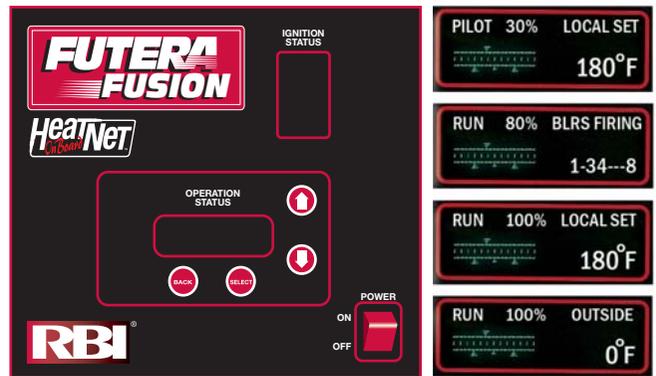


## 'On Board' control integrated with Building Management Systems

HeatNet controls are built into each Futera Fusion boiler to enhance efficiency and provide constant communication with the Building Management System (BMS). 'On board' HeatNet controls for Futera Fusion boilers eliminate the need for bulky, wall-mounted control panels. HeatNet maximizes operating efficiency and turndown rates to create substantial energy savings for Futera Fusion boiler plants. The control provides flexible operation in a



variety of set-up configurations – as a stand-alone boiler, a boiler in a Master/Member network using HeatNet protocol, or as a member in a system for up to 16 boilers. HeatNet provides a higher



level of control precision, repeatability and feedback with digital communications control, featuring four (4) temperature sensor inputs: outside air supply (outlet) temperature; return (inlet) temperature and header temperature. An optional 'ProtoCessor' module can also be installed for compatibility with BACnet and LonWorks BMS protocols with no redesign of the HeatNet control.



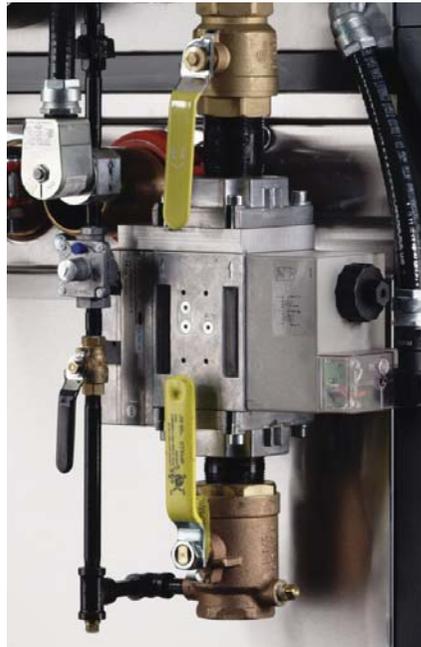
## Space-saving Footprint

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.

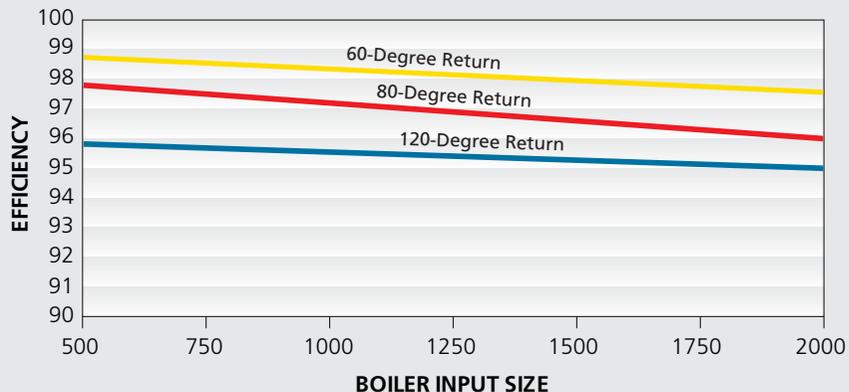
## Symmetric Air/Fuel Coupling

The boiler will operate without producing dangerous emission levels with the flue or air inlet significantly blocked. The Fusion will react to a change in air or fuel flow, from any cause, by reducing its input while maintaining high combustion quality. This feature, while providing a high degree of safety, reduces sensitivity to flue installation and allows use in areas of variable air inlet pressures with no degradation in 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.*



### FUTERA FUSION EFFICIENCY vs RETURN TEMPERATURE



*Unlike most condensing products available today which publish highest efficiencies at lowest inputs, the Futera Fusion is capable of attaining efficiencies as high as 98% at full input.*

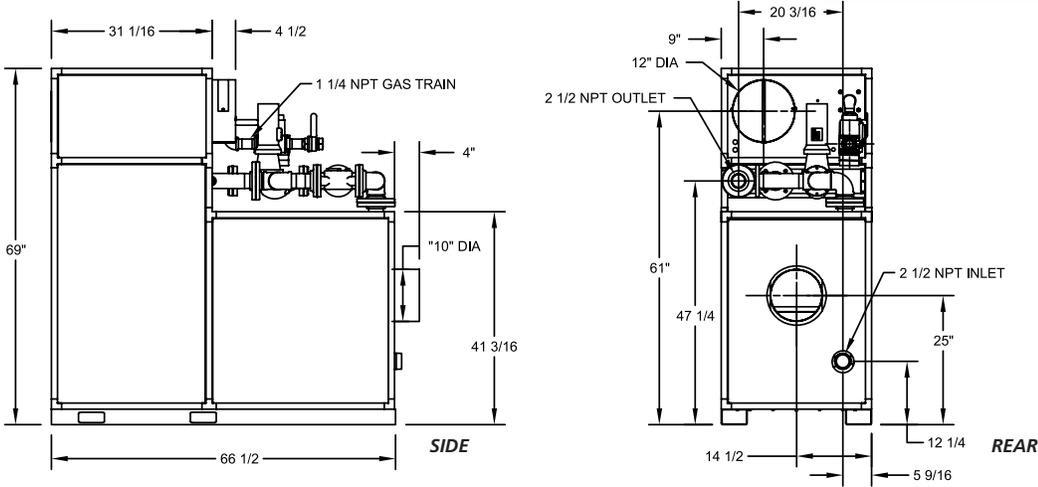


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FUSION 2000



**DIMENSIONS & RATINGS**

Model	Flue Vent				Air Intake		Connections		Weight	
	Input		Output		Positive (Up to 60')	For Horizontal (Up to 60')	Gas	Water	Lbs	Kg
	MBH	kW	MBH	kW						
CB/CW 500	500	147	490	144	7"	6"	1"	2"	566	257
CB/CW 750	750	220	728	213	7"	6"	1"	2"	695	315
CB/CW 1000	1,000	293	970	284	7"	6"	1 1/4"	2"	705	320
CB/CW 1250	1,250	366	1200	352	8"	8"	1 1/4"	2 1/2"	800	363
CB/CW 1500	1,500	440	1440	422	8"	10"	1 1/4"	2 1/2"	863	392
CB/CW 1750	1,750	513	1663	487	10"	12"	1 1/2"	2 1/2"	1054	478
CB/CW 2000	1,999	586	1899	556	10"	12"	1 1/2"	2 1/2"	1133	514

**HOURLY RECOVERY CAPACITY ΔT (GPH & LPH)**

Model	Temperature Rise											
	40° F	22° C	60° F	33° C	80° F	44° C	100° F	56° C	120° F	67° C	140° F	78° C
CB/CW 500	1,471	5,567	980	3,711	735	2,783	588	2,227	490	1,856	420	1,591
CB/CW 750	2,183	8,265	1,456	5,510	1,092	4,132	873	3,306	728	2,755	624	2,361
CB/CW 1000	2,911	11,020	1,941	7,347	1,456	5,510	1,164	4,408	970	3,673	832	3,149
CB/CW 1250	3,601	13,633	2,401	9,089	1,801	6,816	1,441	5,453	1,200	4,544	1,029	3,895
CB/CW 1500	4,322	16,360	2,881	10,906	2,161	8,180	1,729	6,544	1,441	5,453	1,235	4,674
CB/CW 1750	4,989	18,887	3,326	12,592	2,495	9,444	1,996	7,555	1,663	6,396	1,426	5,396
CB/CW 2000	5,699	21,575	3,800	14,383	2,850	10,787	2,280	8,630	1,900	7,192	1,628	6,164

**TEMPERATURE RISE/PRESSURE DROP**

Model	Temperature Rise Across Heat Exchanger															
	15° F		8.3° C		20° F		11.1° C		25° F		13.9° C		30° F		16.7° C	
	Flow Rate GPM	Pres. Drop Ft.	Flow Rate l/s	Pres. Drop kPa	Flow Rate GPM	Pres. Drop Ft.	Flow Rate l/s	Pres. Drop kPa	Flow Rate GPM	Pres. Drop Ft.	Flow Rate l/s	Pres. Drop kPa	Flow Rate GPM	Pres. Drop Ft.	Flow Rate l/s	Pres. Drop kPa
CB/CW 500	58.0	8.8	3.7	26.3	—	—	—	—	—	—	—	—	—	—	—	—
CB/CW 750	—	—	—	—	65.3	10.5	4.1	31.4	52.2	7.7	3.3	23.0	—	—	—	—
CB/CW 1000	—	—	—	—	—	—	—	—	—	—	—	—	58.0	9.5	3.7	28.4
CB/CW 1250	—	—	—	—	108.8	11.6	6.9	34.7	87.0	8.19	5.5	24.4	—	—	—	—
CB/CW 1500	—	—	—	—	—	—	—	—	104.4	11.6	6.6	34.7	87.0	8.49	5.5	25.4
CB/CW 1750	—	—	—	—	—	—	—	—	121.8	14.7	7.7	43.9	101.5	10.6	6.4	31.7
CB/CW 2000	—	—	—	—	—	—	—	—	—	—	—	—	116.0	13.8	7.3	41.2