

# EVOLUTION<sup>®</sup>

Higher Efficiency Heating Equipment



# HIGH EFFICIENCY HEATING EQUIPMENT

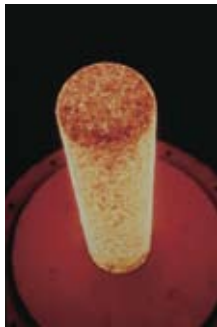
## Model EVA

Thermal Solutions has designed the Evolution® high efficiency copper-finned boilers to meet the needs of today's commercial heating requirements.

The Evolution takes the very best of existing copper-finned boiler technology to the next level by incorporating a list of design features not found in competitors' products. *Real-life serviceability, innovative heat exchanger design, clean and efficient advanced combustion, and unique timesaving controls* are all combined in a compact, quick-connect package with efficiencies of up to 88%. The Evolution is truly a step above the rest.



Heat Exchanger



Ceramic Radiant Burner



Honeywell® RM 7800

### Real-Life Serviceability

The Evolution is adaptable to virtually any installation. Rear connection ports and complete front and rear access to the unit's components and controls simplify side-by-side modular applications. When venting is a concern, the Evolution offers sealed (direct vent) and power vent options so the need to construct a costly chimney is eliminated. In addition, the easy setup and even easier maintenance make Evolution boilers ideal for either retrofit or new construction projects.

### Innovative Heat Exchanger Design

Central to the Evolution's highly efficient operation is the design of its copper-tube heat exchanger. Not only does it efficiently maintain heat transfer, but the innovative gasketless carbon steel header allows easy inspection, cleaning and individual tube replacement. The combustion chamber is also completely enclosed in a stainless steel compartment and features collection/evaporation components to effectively handle cold-start condensate. Combining these features, the Evolution offers state-of-the-art heat transfer properties while effectively dealing with start-up condensate.

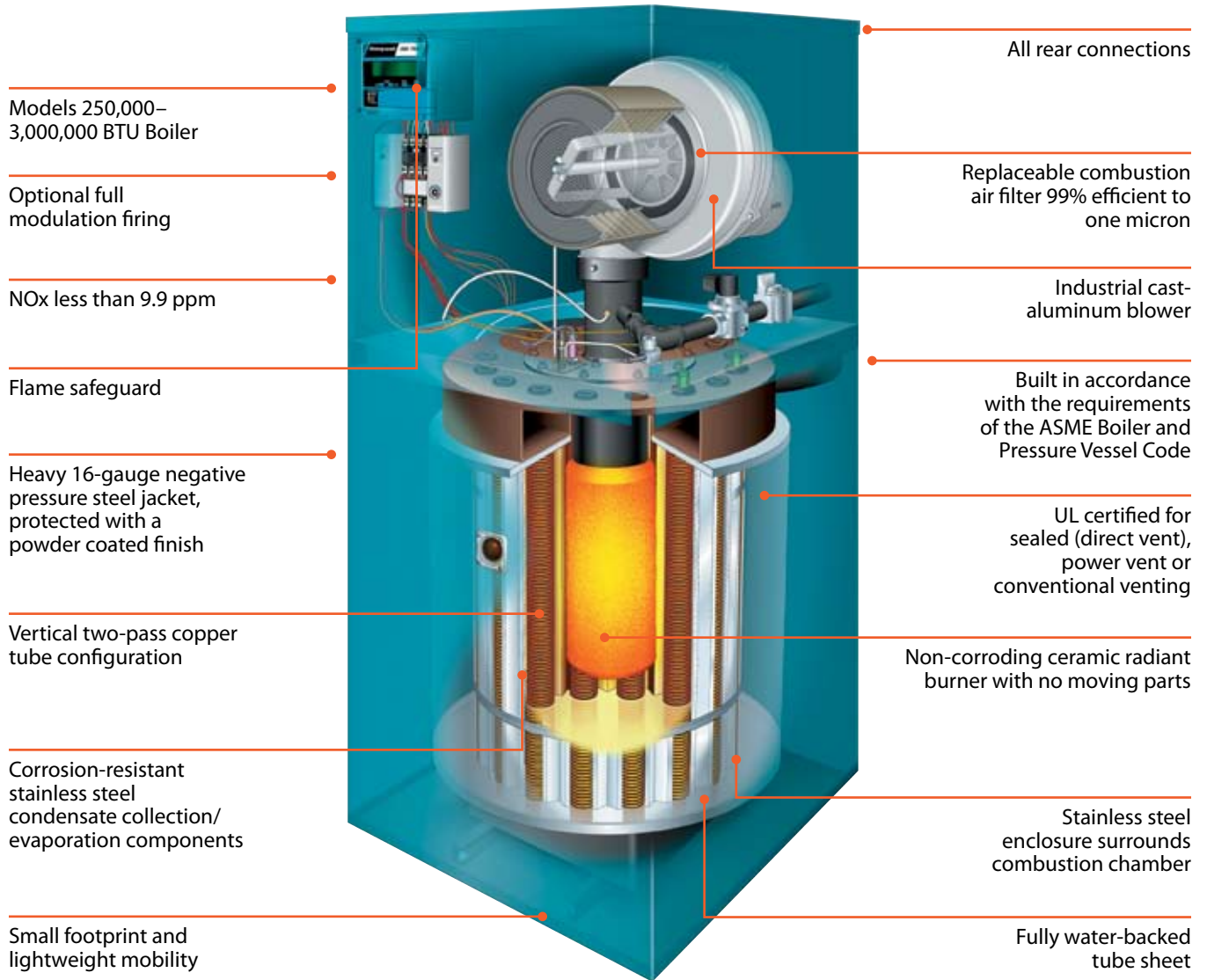
### Clean and Efficient Advanced Combustion

Designed to operate at up to 88% thermal efficiency with NOx ratings less than 9.9 ppm, the Evolution's noiseless ceramic radiant burner runs at minimal excess air levels creating highly efficient, trouble-free operation. The rugged, industrial-cast-aluminum blower and fan wheel are equipped with a replaceable combustion air filter (99% efficient to one micron) to create excellent combustion characteristics and even air distribution. There's no need for tricky pressurized compartments...the Evolution can even be operated with its jacket panels removed for easy inspection or maintenance.

### Unique Timesaving Controls

Instead of using a series of relays, the Evolution utilizes state-of-the-art microprocessor flame safeguard controls to provide extensive diagnostic information including first-out fault annunciation using an LED diagnostic display. The proven spark-to-pilot ignition system ensures that the pilot is lit before allowing the main gas valve to open. The optional display unit, as shown at the left, can be easily incorporated to provide additional operational information and history.

# EVOLUTION® FEATURES



- Efficiencies up to 88%
- Non-proprietary parts
- Factory fire-test on every unit
- Single-point electrical hook-up for all voltage options
- Standard sealed combustion
- Standard UL/FM/CSD-1 controls and gas train (optional IRI or IRI with proof of closure)

- Quiet operation (<50 dB)
- Electric spark-to-pilot-ignition system
- Aluminum non-sparking fan assembly
- Filtered combustion air
- Jacket design lends itself to complete access to all components for easy serviceability
- Quick-connect compact package
- Reduced stack sizes — multiple venting options

## Firing Modes

Evolution boilers are available in two firing modes:

- Standard On-Off
- Full Modulation

Full modulation is achieved using a VFD and an air-fuel ratio modulating control valve. The control valve is actuated by an air signal from the fan — as the fan varies so does the gas valve. It is truly a linkage-less system and allows for safe fuel-air combustion. The full modulation uses a digital operating controller for infinitely proportional firing. Full modulation is available in models 250–3000 MBH input.

The Evolution boiler is available as a single or multi phase electric input, both 50 and 60 hertz. With no requirement for step-down transformers, the Evolution package comes complete and ready for single point electrical connection.

	MBH In	On-Off	Modulating	Elect. 1-Phase	Elect 3-Phase
EV-250	250	yes	yes	120/208*/230	208*/230/460
EV-500	500	yes	yes	120/208*/230	208*/230/460
EV-750	750	yes	yes	120/208/230	208/230/460
EV-1000	1000	yes	yes	120/208/230	208/230/460
EV-1500	1500	yes	yes	120/208/230	208/230/460
EV-2000	2000	yes	yes	120/208/230	208/230/460
EV-2000S	2000	no	yes	120/208/230	208/230/460
EV-2500	2500	no	yes	208/230	208/230/460
EV-3000	3000	no	yes	208/230	208/230/460

\*208v/1ph and 208v/3ph only available as a Modulating unit for EV-250 and EV-500

## Evolution® Outdoor Model

A specially designed, fully UL-approved outdoor jacket enclosure allows outdoor placement and all-weather operation.

In a response to industry demand, the Evolution outdoor unit enters the scene with the same robust design as the superior indoor model. The Evolution outdoor boiler is also designed to operate at up to 88% efficiency with NOx ratings as low as 9.9 ppm. Manufactured in six sizes from 250,000 to 2,000,000 BTU, the outdoor unit is available in on/off and full modulation firing modes. It is also available in both single and three-phase voltages. The outdoor model occupies the same footprint as the indoor unit, and its specially designed, fully UL-approved outdoor jacket enclosure allows outdoor placement and all-weather operation with lockable panel.



## Evolution High Efficiency Domestic Hot Water Heating

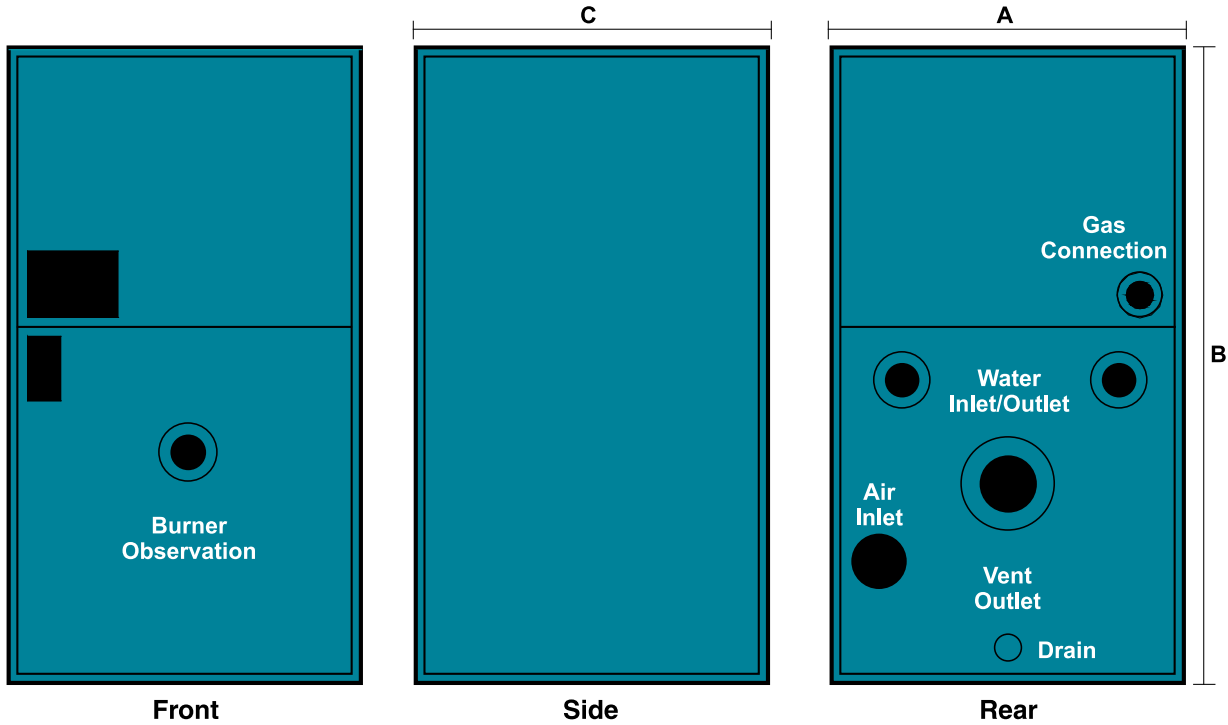
Get advanced Evolution high-efficiency heating technology in a factory-assembled Packaged Water Heater System. Available in direct and indirect designs, each comes complete with storage tank, pump, and controls to serve as your single-source solution for domestic water heating needs.



See more in our *Evolution High Efficiency Domestic Hot Water Heating* brochure, available from Thermal Solutions.



## Ratings and Dimensional Data



	EV-250	EV-500	EV-750	EV-1000	EV-1500	EV-2000	EV-2000S	EV-2500	EV-3000
Input: BTUH	250,000	500,000	750,000	1,000,000	1,500,000	2,000,000	2,000,000	2,500,000	3,000,000
Output: BTUH	220,000	440,000	660,000	880,000	1,320,000	1,760,000	1,760,000	2,200,000	2,640,000
Low Input: BTUH	83,333	166,666	250,000	333,333	500,000	666,667	666,667	833,333	1,000,000
Low Output: BTUH	73,333	146,666	220,000	293,333	440,000	586,667	573,334	716,666	860,000
Sq. Ft. per BHP	9.9	9.4	6.6	6.7	6.7	6.7	8.0	8.1	8.1
Width: "A"	28.25" (717.55)	28.25" (717.55)	28.25" (717.55)	28.25" (717.55)	28.25" (717.55)	28.25" (717.55)	38.25" (971.55)	38.25" (971.55)	38.25" (971.55)
Depth: "C"	30.25" (768.35)	30.25" (768.35)	30.25" (768.35)	30.25" (768.35)	30.25" (768.35)	30.25" (768.35)	40.25" (1022.35)	40.25" (1022.35)	40.25" (1022.35)
Height: "B"	56.75" (1441.45)	71.188" (1808.18)	60.938" (1547.81)	65.188" (1655.76)	79.438" (2017.71)	91.813" (2332.04)	70.5" (1790.7)	77.5" (1968.5)	84.5" (2146.3)
Gas Connection	1" NPT	1-1/4" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT	2" NPT	2" NPT
Water Connections	2" NPT	2" NPT	3" NPT	3" NPT	3" NPT	3" NPT	4" NPT	4" NPT	4" NPT
Air Inlet Connection	3" (76.2)	4" (101.6)	6" (152.4)	6" (152.4)	8" (203.2)	8" (203.2)	8" (203.2)	8" (203.2)	8" (203.2)
Vent Connection	3" (76.2)	4" (101.6)	4" (101.6)	6" (152.4)	6" (152.4)	6" (152.4)	6" (152.4)	8" (203.2)	8" (203.2)
Shipping Weight: lbs.	561	643	970	1047	1163	1280	2237	2482	2860

Dimensions are inches (mm)

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