

# EVOLUTION<sup>®</sup>

Higher Efficiency Heating Equipment



## WORKING SMARTER NOT HARDER

- Feature-Rich Operating Control
- Intelligent Multiple Boiler Staging
- Building Management System Interface
- Auxiliary Device Control
- Rugged Heat Exchanger Design
- Unmatched Fireside Heating Surface
- Advanced Combustion  
<10 ppm Ultra-Low NOx Emissions  
<50 dBA Noise Levels
- Maintenance-Free Burner  
10-Year Warranty
- Up to 87% Efficiency
- UL Certified Boiler Package



**THERMAL<sup>®</sup>**  
**SOLUTIONS**  
Innovative Equipment for Hot Water Systems

# HIGH EFFICIENCY HEATING BOILERS

## Model EVS

**T**hermal Solutions designed its Evolution high efficiency copper-fin tube boiler to meet the complexities of today's building systems. For nearly two decades, the Evolution boiler has been the industry benchmark for quality, reliability, and performance. Coupled with the Thermal Solutions Boiler Control (TSBC™), the Evolution is the most sophisticated and easily integrated boiler product available.

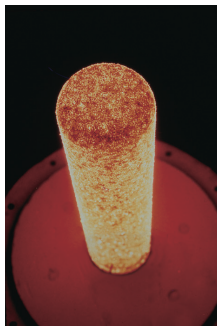
The Evolution takes copper-fin tube boiler technology to the next level by incorporating a list of unique design features. These include Rugged Heat Exchanger Design, Advanced Maintenance-Free Combustion, Feature-Rich Operating Control, and Ease of Installation and Service. ***The Evolution Boiler truly is a step above the rest.***



Heat Exchanger

### Rugged Heat Exchanger Design

Central to the Evolution Boiler's design is its heat exchanger, which boasts twice as much heating surface than our competition. The rolled copper-fin tube, patented H/F True Fin, is extruded from a solid piece of copper that results in high quality and unsurpassed heat transfer. The gasket-less header design allows for easy inspection, cleaning, and individual tube replacement. Completely enclosed in a stainless steel compartment, the combustion chamber effectively handles short-term condensing periods (cold start) to protect the boiler. The Evolution heat exchanger has thicker tubes (.072") and more robust heads than any other hot water boiler product (compare the weights) that makes it very forgiving, more durable and built to last!



Ceramic Radiant Burner

### Advanced Maintenance-Free Combustion

*The Evolution ceramic radiant burner never requires inspection or maintenance!* Designed to operate with NOx emissions less than 10 ppm, the whisper quiet ceramic radiant burner (<50 dBA) runs at minimal excess air levels providing high efficient, trouble-free operation. The burner features a larger surface area and lower flux that allows for greater heat transfer and more uniform heating that extends the life of the copper tubes. A rugged cast-aluminum blower assembly, fitted with a replaceable combustion air filter that is 99% efficient to two micron, is used to keep the burner free of contaminants. A commercial-grade microprocessor based flame safeguard with LED diagnostic display, proven spark ignition, and a UV flame scanner complete the Evolution's unsurpassed combustion system for safety and reliability. The Evolution boiler can be operated with its jacket panels removed during inspection, avoiding the nuisance problems associated with pressurized compartments.

### Feature-Rich Operating Control

Designed by boiler experts, as stand-alone or easily integrated into today's complex building management systems, the Thermal Solutions Boiler Control (TSBC) provides unparalleled design characteristics. Key features include advanced boiler modulation, intelligent multiple boiler staging (peer-to-peer) by connecting an RJ11 telephone cable between boilers for communication, outdoor air temperature reset, warm weather shutdown, domestic hot water priority and multiple auxiliary device control, making the TSBC the most advanced onboard boiler control in the industry.



Thermal Solutions Boiler Control (TSBC)

### Ease of Installation & Service

All rear connections and complete front and rear access to the unit's components allows for space saving side-by-side modular arrangements. The Evolution's flexible venting options include sealed or room air combustion, direct vent, or conventional venting for multiple boiler common stack arrangements. Quick setup and low maintenance make the Evolution boiler an ideal choice for either retrofit or new construction projects.

# EVOLUTION® FEATURES

Wide Range of Sizes:  
500,000-3,000,000 BTUh.

Commercial-Grade  
Microprocessor based flame  
safeguard providing combustion  
management and safety.

Heavy 16-gauge negative pressure  
steel jacket that protects the boiler  
and eliminates nuisance problems  
associated with pressurized  
compartments.

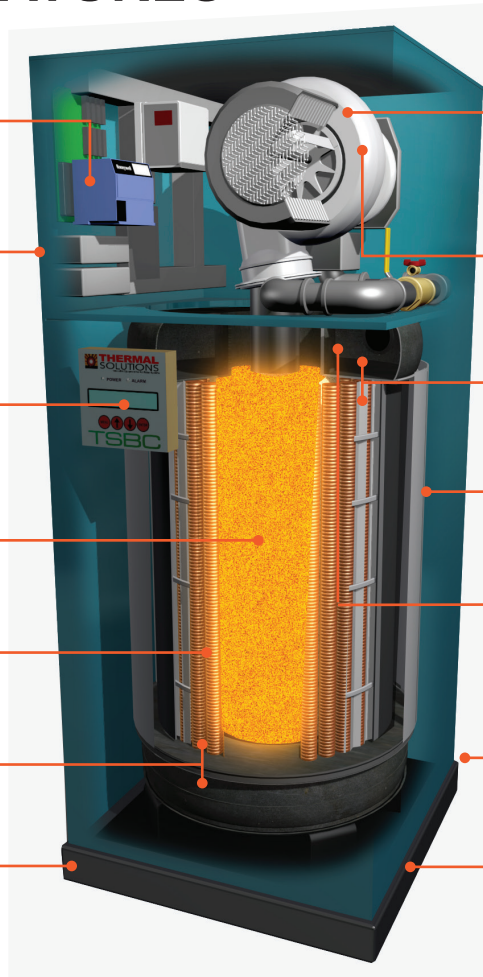
Thermal Solutions Boiler Control  
(TSBC) is a complete boiler  
operating, monitoring, and  
automated control system.

Non-corroding ceramic radiant  
burner with no moving parts  
(NOx emissions to less than 10 ppm)

Vertical two-pass copper-fin tube  
configuration with symmetrical heating  
for improved heat transfer.

Thick tubes (.072") and robust  
headers for durability

Small footprint (6 sq. ft. / 11 sq.  
ft.) for space saving multiple-unit  
installation.



All rear connections allows for  
minimum side-to-side clearances

Replaceable combustion air  
filter 99% efficient to two micron  
to ensure burner reliability and  
trouble-free maintenance

Industrial cast-aluminum  
non-sparking blower assembly  
contributes to our whisper quiet  
(<50 dBA) operation

Gasketless header design allows for  
easy tube inspection and cleaning

Corrosion-resistant stainless steel  
enclosure surrounds combustion  
chamber.

Fully water-backed tube sheet and  
unmatched fireside heating surface (6.9  
sq.ft./9.6 sq.ft. to boiler horse power)  
provides longevity

Flexible venting options include sealed  
or room air combustion, direct vent or  
conventional venting.

Meets the stringent UL testing  
requirements and certified as a  
boiler package.

# STANDARD EQUIPMENT

## Pressure Vessel Design

Copper Fin-Tube Construction  
Carbon Steel or Cast Iron Header Design  
Gasketless Heat Exchanger  
ASME Section IV Certified, "H" Stamp  
MAWP 160 PSIG & Max Temp 250°F  
Five Year Heat Exchanger Warranty  
Twenty Year Thermal Shock Warranty

## Combustion Design

Ceramic Radiant Burner, Non-Corroding  
Maintenance-Free Burner Design  
Ultra-Low NOx Emissions (to <10 ppm)  
Whisper Quiet Operation (<50 dBA)  
Combustion Air Filter, 99% Efficient  
Industrial Cast-Aluminum Blower Assembly  
Variable Frequency Drive  
Electric Spark-to-Pilot Ignition System  
Ten Year Burner Warranty

## Boiler Equipment

Thermal Solutions Boiler Control (24 Vac)  
High Limit w/Manual Reset Safety Temperature Control  
Water Flow Switch  
Low Water Cut-Off w/Manual Reset Safety Controller  
Inlet & Outlet Temperature Sensors  
Combustion Air Switch  
Blocked Filter Switch  
Pressure & Temperature Gauge  
Safety Relief Valve (Available Settings 30 to 150 PSI)  
Single-Point Electrical Supply (Available in 1 or 3 phase)

## Burner Equipment

UL/FM/CSD-1 Gas Train  
Full Modulation with Infinite Proportional Firing  
Natural or LP Gas  
Inlet gas pressure available from 4" wc to 5 psig  
Pilot Gas Valve  
Pilot Gas Regulator  
Pilot/Leak Test Cocks  
Modulating Gas Valve  
Low & High Gas Pressure Switches w/Manual Reset

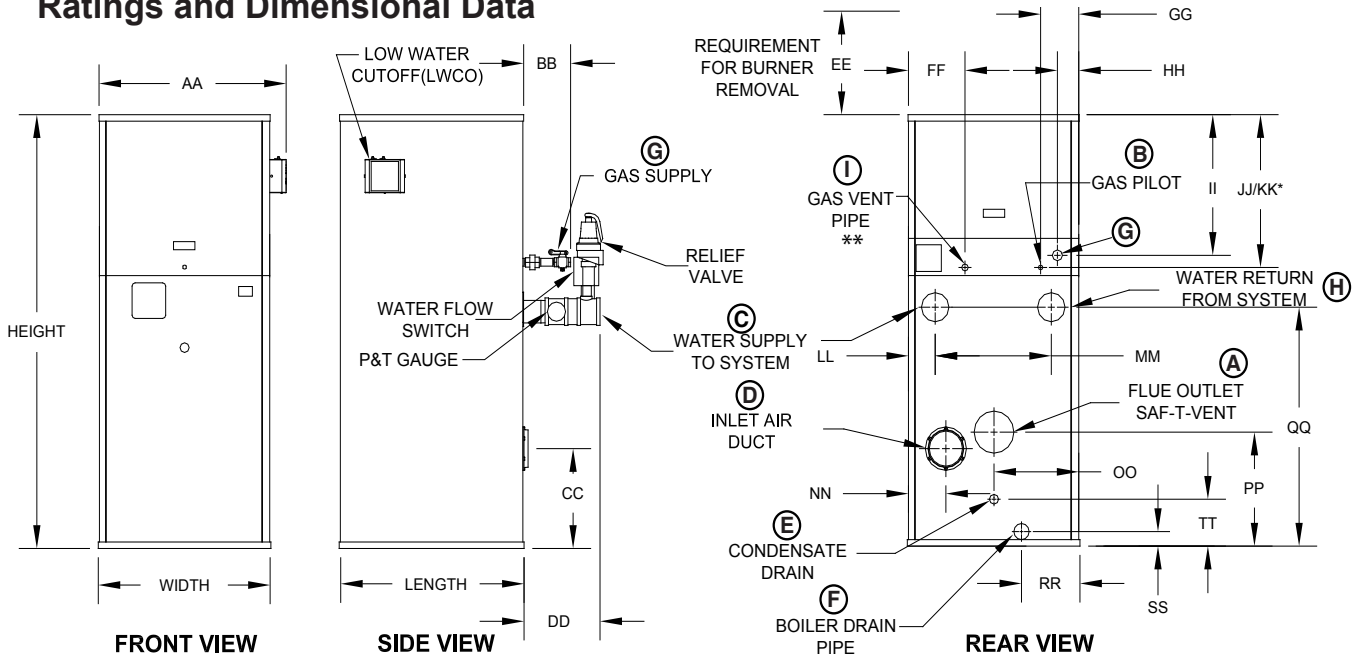
## Venting

Sealed or Room Air Combustion (Cat IV)  
Direct Vent (sidewall or vertical) up to 50ft (Cat. IV)  
Conventional (Cat. II)

## TSBC Control Key Features

Advanced Boiler Modulation  
Intelligent Multiple Boiler Staging (8 Boilers)  
Building Management System Interface  
Outdoor Air Temperature Reset  
Remote System Temperature  
Warm Weather Shutdown  
Domestic Hot Water Priority  
Auxiliary Device Control  
- Mixing Valve  
- Boiler Pump  
- System Pump(s)  
- Combustion Air Damper or Inducer  
0-10 VDC Input

## Ratings and Dimensional Data



\* GAS PILOT DIMENSION ON MODELS 2000S, 2500, & 3000 ONLY  
 \*\* DB&B AND DB&B WITH PROOF OF CLOSURE OPTION ONLY

<b>Boiler Ratings</b> 	<b>Dimensions and Specifications</b>
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Model	Input MBH	Gross Output MBH	Net Ratings Water MBH*	SQ.Ft Per BHP	Footprint			Rear Connections									Shipping Wt. (lbs.)
					Height	Width	Length	A	B	C	D	E	F	G	H	I	
EVS-500	500	431	375	9.6	71.2	28.3	30.3	4.0	1/4	2.0	4.0	5/8	1.0	1.0	2.0	3/4	772
EVS-750	750	623	542	7.0	60.9	28.3	30.3	4.0	1/4	3.0	6.0	5/8	1.0	1.0	3.0	3/4	1,097
EVS-1000	1,000	819	712	7.2	67.3	28.3	30.3	6.0	1/4	3.0	6.0	5/8	1.0	1.5	3.0	3/4	1,185
EVS-1500	1,500	1,251	1,088	7.1	79.4	28.3	30.3	6.0	1/4	3.0	8.0	5/8	1.0	1.5	3.0	3/4	1,327
EVS-2000	2,000	1,696	1,475	6.9	91.8	28.3	30.3	6.0	1/4	3.0	8.0	5/8	1.0	1.5	3.0	3/4	1,461
EVS-2000S	2,000	1,732	1,506	7.9	70.5	38.1	40.1	6.0	1/4	4.0	8.0	5/8	1.0	1.5	4.0	3/4	1,835
EVS-2500	2,500	2,170	1,887	8.0	77.5	38.1	40.1	8.0	1/4	4.0	8.0	5/8	1.0	2.0	4.0	1.0	2,052
EVS-3000	3,000	2,610	2,270	8.0	84.5	38.1	40.1	8.0	1/4	4.0	8.0	5/8	1.0	2.0	4.0	1.0	2,193

Model	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO	PP	QQ	RR	SS	TT
EVS-500	31.0	10.0	14.4	10.8	16.0	9.3	6.3	3.5	21.8	23.6	23.6	8.1	11.3	5.5	14.1	17.1	41.1	13.3	2.4	6.1
EVS-750	31.0	8.8	15.4	11.8	16.0	9.3	6.3	3.5	21.8	23.6	23.6	4.4	19.0	6.1	13.9	17.9	30.6	9.6	2.3	7.0
EVS-1000	31.0	10.0	15.4	11.8	16.0	9.3	6.3	3.5	21.8	23.6	23.6	4.4	19.0	6.1	13.9	17.6	36.9	9.6	2.3	7.3
EVS-1500	31.0	10.0	27.4	11.8	19.0	9.3	6.3	3.5	21.8	23.6	23.6	4.4	19.0	6.1	13.9	17.9	49.0	9.6	2.3	7.0
EVS-2000	31.0	10.0	27.4	11.8	31.0	9.3	6.3	3.5	21.8	23.6	23.6	4.4	19.0	6.1	13.9	17.9	61.4	9.6	2.3	7.0
EVS-2000S	40.8	10.5	19.6	13.3	13.0	4.0	8.5	5.0	20.9	22.4	23.4	5.9	26.2	7.0	19.0	18.6	39.6	14.4	2.2	6.9
EVS-2500	40.8	11.5	19.6	13.3	20.0	4.0	8.5	5.0	20.9	22.4	23.4	5.9	26.3	7.0	19.0	18.6	46.6	14.4	2.2	6.9
EVS-3000	40.8	11.5	19.6	13.3	26.5	4.0	8.5	5.0	20.9	22.4	23.4	5.9	26.2	7.0	19.0	18.6	53.6	14.4	2.2	6.9

\*Net water ratings shown are based upon an allowance of 1.15. Dimensions are shown in Inches  
 The manufacturer should be consulted before selecting a boiler for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc. The ratings have been determined under the provisions governing forced draft boiler-burner units.

