

EVOLUTION[®]

High Efficiency Domestic Hot Water Heating

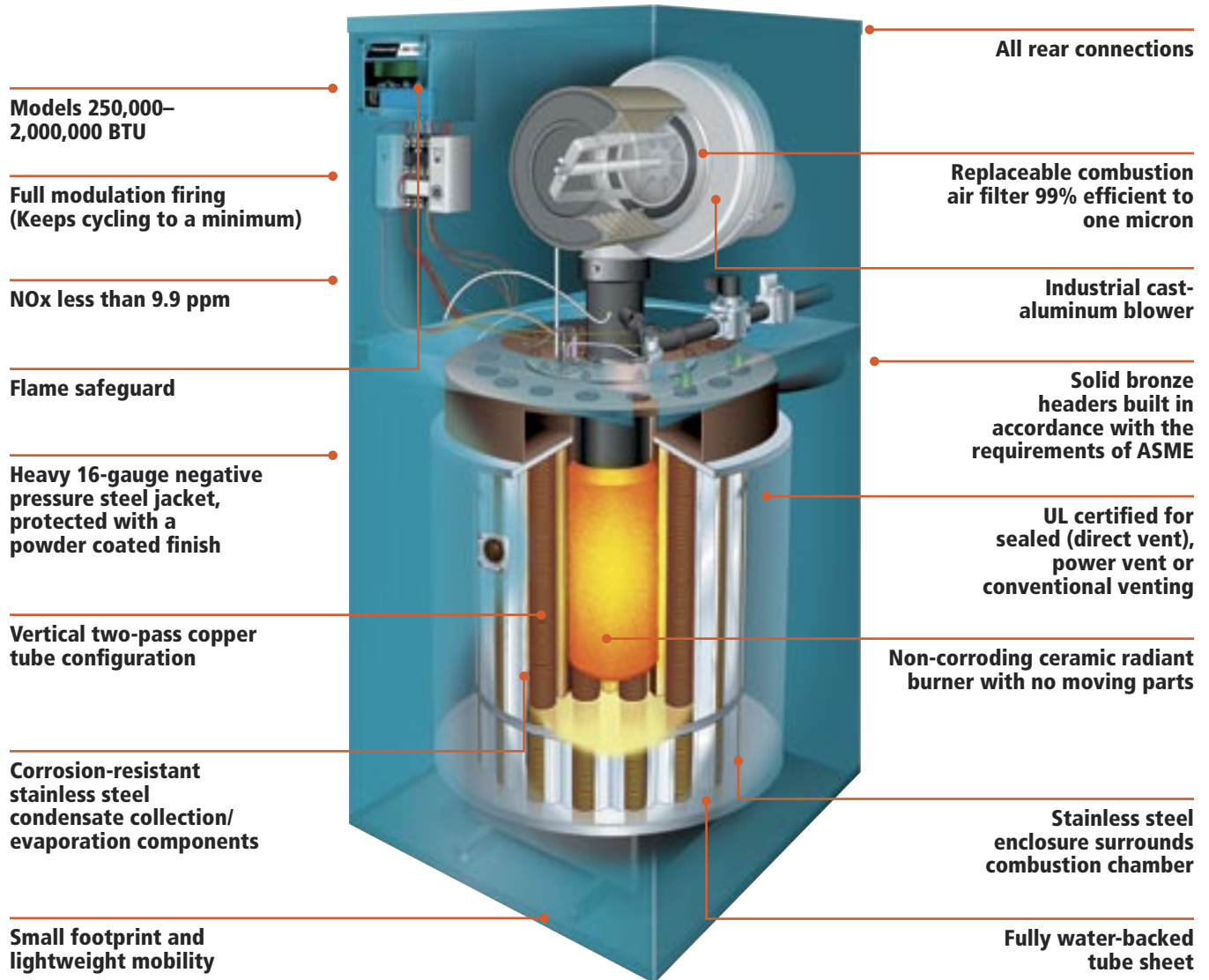


 **THERMAL[®]**
SOLUTIONS
Innovative Equipment for Hot Water Systems

HIGH EFFICIENCY DOMESTIC WATER HEATING

Model EVAW

EVOLUTION® FEATURES



- Efficiencies up to 88%
- Non-proprietary parts
- Factory fire-test on every unit
- Single-point electrical hook-up for all voltage options (120/208/230 1-phase, 208/230/460/575 3-phase)
- Standard sealed combustion
- Standard UL/FM/CSD-1 controls and gas train (optional IRI or IRI with proof of closure)

- Quiet operation (<60 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

The Thermal Solutions Evolution® Water Heater raises the standard by which other commercial water heaters shall be measured. The Evolution Water Heater combines a host of industry leading features along with an easy to service design that ensures long-term, dependable operation. And with the Thermal Solutions Products name behind it, you can trust the Evolution Water Heater to be a reliable, efficient source for hot water heating.

Serviceable Efficiency, Exceptional Heat Transfer

Thermal Solutions' innovative gasket-less bronze header allows access to individual tubes for inspection and cleaning by mechanical or chemical methods. It also allows for individual tube replacement, unlike the "disposable" type heat exchangers already on the market. The combustion chamber is completely enclosed in a stainless steel compartment that includes collection/evaporation components to effectively handle cold-start condensate.

Clean and Efficient, Advanced Combustion

Designed to operate at 88% efficiency with NOx ratings less than 9.9 ppm, the Evolution's ceramic radiant burner runs at minimal excess air levels creating clean burning, highly efficient, trouble-free operation. Our rugged industrial cast aluminum blower and fan wheel are equipped with a replaceable combustion air filter 99% efficient to one micron, creating excellent combustion characteristics with ensured even air distribution.

Troubleshooting, Timesaving Diagnostic Controls

State-of-the-art microprocessor flame safeguard controls provide extensive diagnostic information — including first out fault annunciation — using a LED diagnostic display. Each water heater undergoes complete factory fire testing to fully calibrate the fuel/air mixture to pre-set precise combustion set-up and operation.

Domestic Hot Water Sizing Requirements

Commercial buildings have different domestic hot water needs. The building type will be the major variable and the following chart shows the demand based on the fixture method.

[Gallons of hot water per hour per fixture, calculated at a final temperature of 140°F]

	Apt./ House	Club	Gym	Hospital	Hotel	Ind. Plant	Office Bldg.	Priv. Res.	School	YMCA
1. Basins, private lavatory	2	2	2	2	2	2	2	2	2	2
2. Basins, public lavatory	4	6	8	6	6	12	6	—	15	8
3. Bathtubs	20	20	30	20	20	—	—	20	—	30
4. Dishwashers	15	50–150	—	50–150	50–200	20–100	—	15	20–100	20–100
5. Foot basins	3	3	12	3	3	12	—	3	3	12
6. Kitchen sink	10	20	—	20	30	20	20	20	20	20
7. Laundry, stationary tubs	20	28	—	28	28	—	—	20	—	28
8. Pantry sink	5	10	—	10	10	—	10	5	10	10
9. Showers	30	150	225	75	75	225	30	30	225	225
10. Slop sink	20	20	—	20	30	20	20	15	20	20
11. Hydrotherapeutic showers	—	—	—	400	—	—	20	—	—	—
12. Circular wash sinks	—	—	—	20	20	30	20	—	30	—
13. Semicircular wash sinks	—	—	—	10	10	15	10	15	—	—
14. Demand Factor	0.30	0.30	0.40	0.25	0.25	0.40	0.30	0.30	0.40	0.40
15. Storage Capacity Factor	1.25	0.90	1.00	0.60	0.80	1.00	2.00	0.70	1.00	1.00



Heat Exchanger



Ceramic Radiant Burner



Honeywell® RM 7800

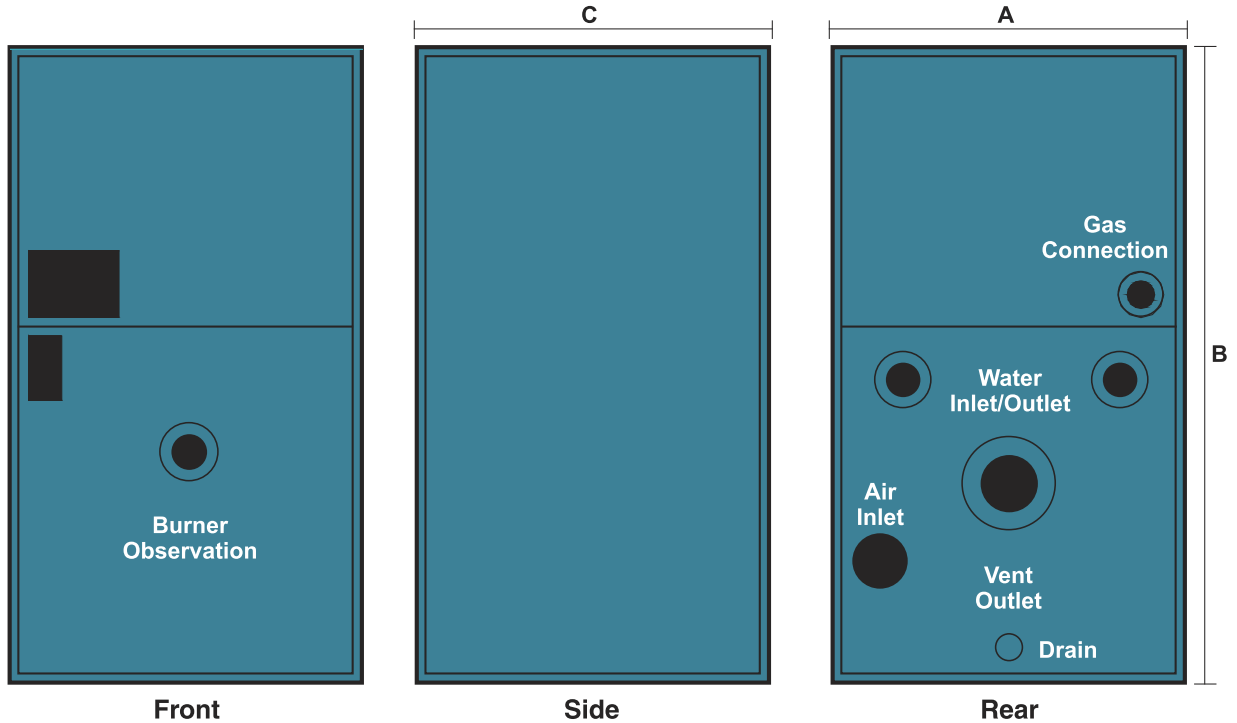
Notes:

- A. #1 through #13 — Possible Maximum Demand
- B. #14 (Demand Factor) — Probable Maximum Demand
- C. #15 Ratio of Storage Tank Capacity to Probable Maximum Demand per hour

EXAMPLE:

- 50 Unit Apartment Building**
- 50 lavatories x 2 = 100 GPH
 - 50 showers x 30 = 1500 GPH
 - 50 kitchen sinks x 10 = 500 GPH
 - 10 laundry tubs x 20 = 200 GPH
- A. Possible Maximum Demand = 2300 GPH**
Demand Factor x .30
- B. Probable Maximum Demand = 690 GPH**
Storage Capacity Factor x 1.25
- C. Storage Tank Size = 863 Gal**

Ratings and Dimensional Data



	EV-250	EV-500	EV-750	EV-1000	EV-1500	EV-2000
Input: High Fire BTUH	250,000	500,000	750,000	1,000,000	1,500,000	2,000,000
Output: High Fire BTUH	220,000	440,000	660,000	880,000	1,320,000	1,760,000
Input: 2-Stage Low Fire BTUH	N/A	N/A	375,000	500,000	750,000	1,000,000
Output: 2-Stage Low Fire BTUH	N/A	N/A	330,000	440,000	660,000	880,000
Input: Mod Low Fire BTUH	N/A	166,666	250,000	333,333	500,000	666,667
Output: Mod Low Fire BTUH	N/A	146,666	220,000	293,333	440,000	586,667
GPH Heating Based on 40–140° F	264	528	792	1056	1584	2112
Sq. Ft. per BHP	9.9	9.4	6.6	6.7	6.7	6.7
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)
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)
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)
Gas Connection: NPT	1" NPT	1-1/4" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT
Water Connection: NPT	2" NPT	2" NPT	3" NPT	3" NPT	3" NPT	3" NPT
Air Inlet Connection	3" (76.2)	4" (101.6)	6" (152.4)	6" (152.4)	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)
Shipping Weight: lbs.	500	552	955	1110	1215	1350

Dimensions are inches (mm)

Hard Working Quality. Built to Last.

Without question, the Evolution Water Heater is the most advanced, best-designed water heater on the market. Thermal Solutions designed the Evolution Water Heater to address the realities of today's operational environment. You can trust the Evolution Water Heater to be your reliable, efficient source of hot water for years to come.

Packaged Water Heater Systems

Thermal Solutions also offers two types of factory-assembled Packaged Water Heater Systems: Direct and Indirect Systems. Each system includes a boiler or water heater, a vertical storage tank, pump, controls and all necessary components for a totally operational, skid mounted and factory certified package.

The ASME Section VIII tanks are certified at 150 psi MAWP. They are available with a cement or epoxy lining and all connections are 150 psi design stainless steel.

The Direct System incorporates an EVAW bronze water heater with an all bronze pump, vertical storage tank, and controls. The Indirect System uses an EVA series boiler with a cast iron pump and a heat transfer tube bundle installed in the tank. This system features a closed loop operation with the water circulating between the boiler and the heat transfer bundle.

This fully assembled, pre-packaged equipment gives the owner and designer the ease and confidence of a single-source responsibility that meets their domestic water needs.

Which System Should Be Used?

When specifying or selecting a water heating system, it is important to consider the water in your area. If water quality is questionable or if the water hardness level is 8.5 grains or more, the Indirect System should be used. The Indirect System prevents any scale from building up on the inside of the boiler tubes. This keeps the system maintenance free and prolongs the life of the water heater.



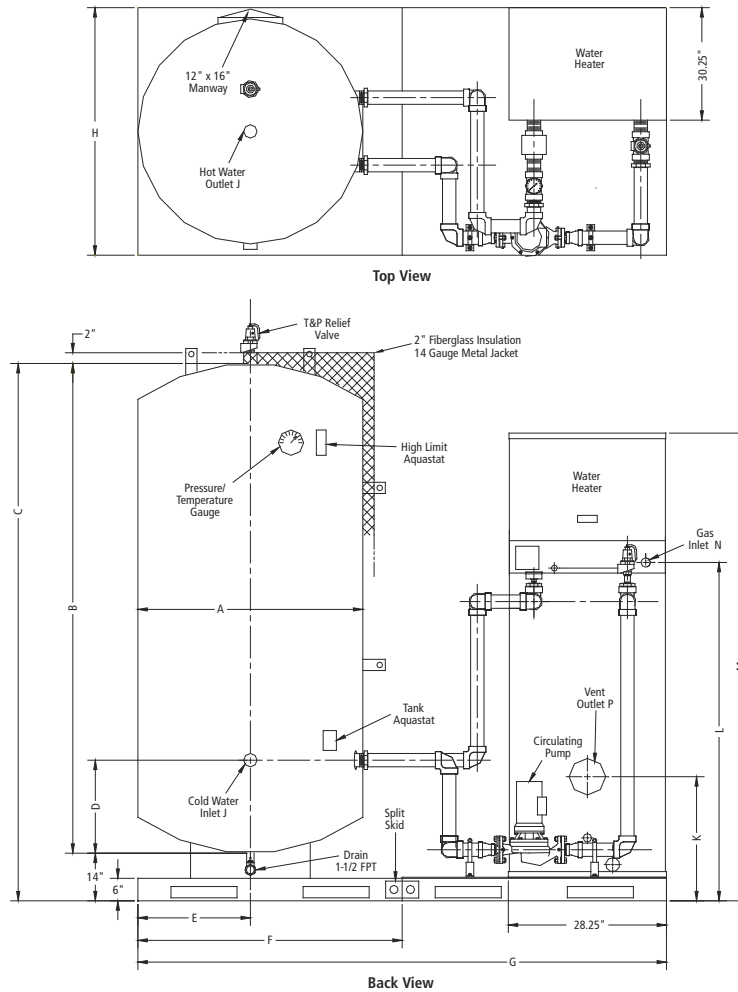
Storage Tank/Skid Dimension (in inches)

Tank Model No.	Storage Capacity	A	B	C	D	E	F	G	H	J
TSV220*	220	30	78	94	15	17	46	87	46	2
TSV271*	271	36	68	84	16	20	52	93	46	2
TSV322*	322	36	80	96	16	20	52	93	46	2
TSV378*	378	42	70	86	17	23	58	99	46	2
TSV508*	508	48	74	90	19	26	64	105	52	2
TSV693*	693	48	98	114	19	26	64	105	52	2
TSV837	837	60	78	94	21	32	76	117	64	3
TSV1041	1041	66	82	98	23	35	82	123	70	3
TSV1480	1480	72	96	112	24	38	88	129	76	3
TSV2098	2098	84	103	119	28	44	100	141	88	3

Water Heater Dimensions (in inches)

Model No.	K	L	M	Gas Inlet N	Vent Outlet P
EVAW250	23	41	63	1	3
EVAW500	23	55	77	1-1/4	4
EVAW750	24	45	67	1-1/2	4
EVAW1000	24	49	71	1-1/2	6
EVAW1500	24	64	85	1-1/2	6
EVAW2000	24	76	98	1-1/2	6

*Stock sizes
Other tank sizes available, consult factory



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©2006 Thermal Solutions Products, LLC
P.O. Box 3244, Lancaster, PA 17604-3244
Telephone: 717-239-7642, Fax: 877-501-5212
www.thermalsolutions.com