

Maxim[®]

Power Combustion Storage Water Heater
Gas, Oil or Combination Gas/Oil



AquaPLEX[®]
Engineered Duplex Alloy

199 to 1200 MBH | 125 and 250 Gallon Tanks | 15-year Warranty

PVI.com



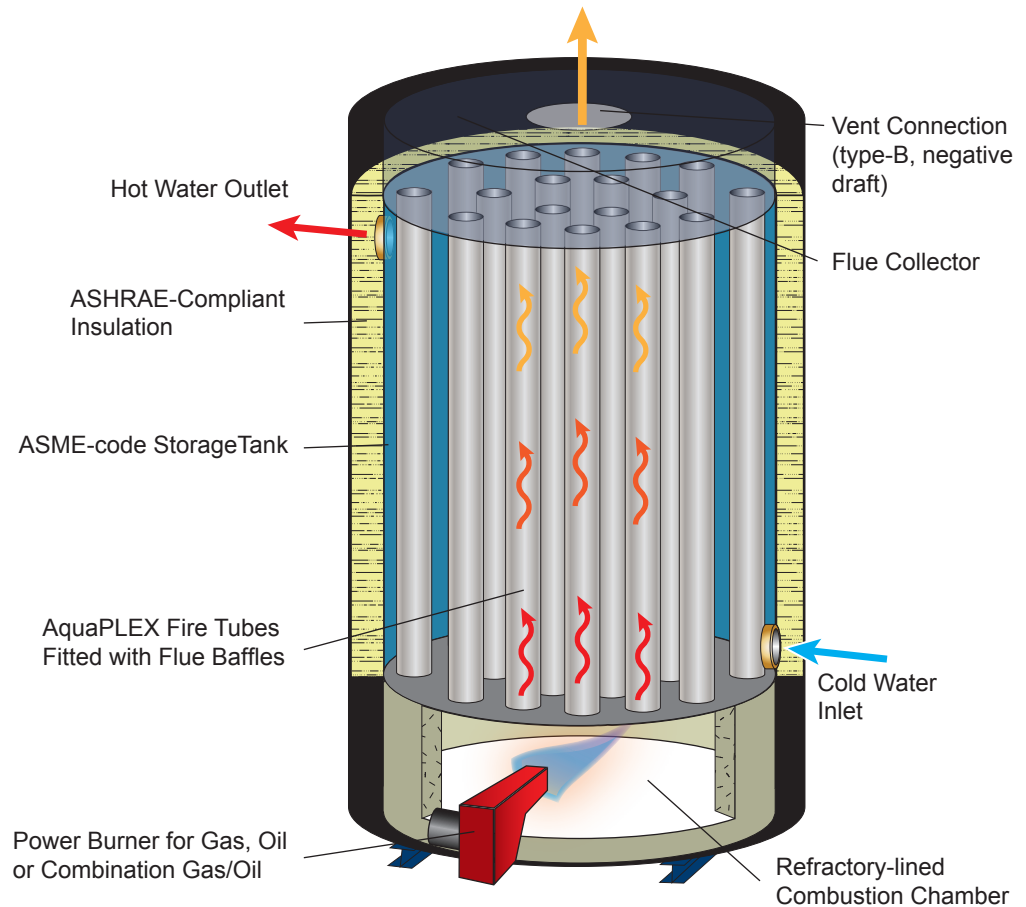
The 'Hard Water' Water Heater

Maxim® is a fully packaged gas- or oil-fired vertical firetube water heater that provides reliable domestic hot water even under the most difficult water conditions. It's designed as a free-standing storage heater requiring no field piping between a boiler and tank.

Combustion occurs below the water storage tank and the hot combustion gases move upward through the fire-tubes transferring heat to the stored water. Baffles in the firetubes create turbulence in the gases, forcing more frequent contact with the tube walls and helping to raise thermal efficiency to 83%. Combustion is provided by a durable power burner and monitored by electronic flame safeguard. Water temperature and burner operation are controlled by submerged upper and lower operating thermostats and a submerged high limit control. The storage tank is constructed and stamped in accordance with the ASME code for 150 psi maximum working pressure. The tank and the firetubes are fabricated entirely from AquaPLEX® duplex stainless steel alloy. Maxim is fully insulated and jacketed and surpasses the latest ASHRAE standards for thermal efficiency and standby heat losses.

Features and Benefits

- 199, 270, 399, 540, 720, 800, 1000, 1200 MBH
- 125 and 250 gallon tanks
- 83% thermal efficiency
- Available with certified Low NOx emissions
- 15-year warranty (8 years full, 7 years prorated)



Durable Tank with no Linings or Anodes Required

100% AquaPLEX® Unlined Duplex Stainless Steel

The Maxim storage tank, tube sheets and fire tubes are fabricated entirely from AquaPLEX, an engineered duplex stainless steel.

Fully pickle-passivated after tank fabrication, the AquaPLEX material is immune to corrosion in potable water and the vessel requires no supplemental linings or anode rods. All glass linings and many anodes erode away over time leaving the underlying carbon steel tank unprotected against water and corrosion.

AquaPLEX is also more suitable for potable water applications than the traditional 304L or 316L austenitic stainless steels. These materials contain the single austenitic grain structure. AquaPLEX, being a duplex stainless steel, contains both austenitic and ferritic grain structure. The ferritic structure provides for greater resistance to chloride stress corrosion cracking, a known weakness of austenitic stainless steel that can result when the water supply contains higher levels of dissolved salts.



Maxim vs. Finned-tube Water Heaters

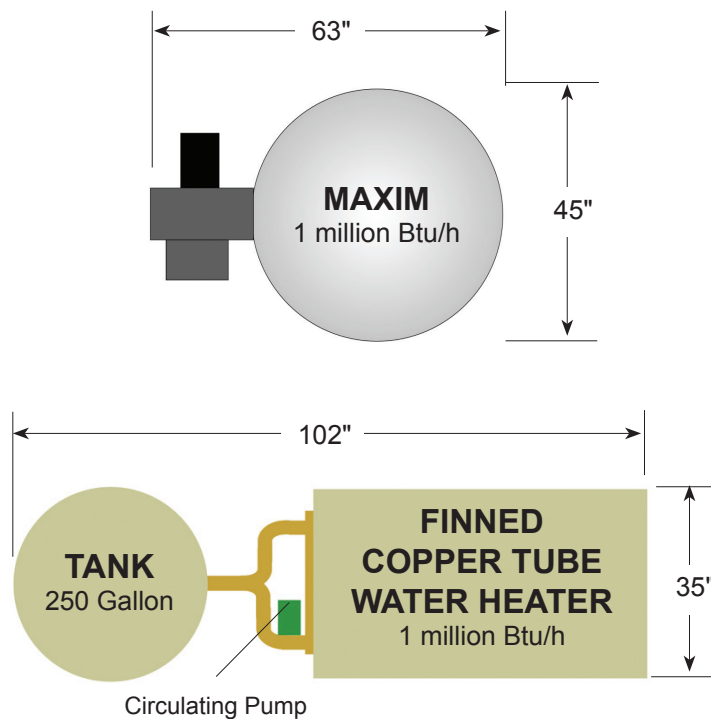
Lower Standby Losses

As a tank-type heater, Maxim incorporates both a storage tank and a heating section in an integrated package. Competitors', finned-tube water heaters must be plumbed to a sidearm tank and require a pump to circulate water between these two components. Operating the pump can consume a few hundred dollars per year of electricity. Maxim saves owners this hidden cost.

Less Costly and Simpler Installation

Tank and finned-tube water heating systems are often field assembled. Frequently overlooked in the purchase price is the cost of the copper pipe, fittings, valves and labor required to connect the heater and tank. If the tank-to-heater piping is improperly sized or designed, it may impact the pump's ability to provide the proper flow through the heat exchanger and affect performance and longevity. If a low-temperature by-pass pipe is omitted, damage from condensation can also shorten the life of the heat exchanger.

Maxim installation is far easier with water connections made only at the cold inlet, hot outlet, drain and relief valve. Also, as a tank-type heater, Maxim is less prone to condensing.



Less Floor Space - depending upon input, the amount of floor space occupied by Maxim is from 20% to 50% less than the typical boiler-and-tank water heater.

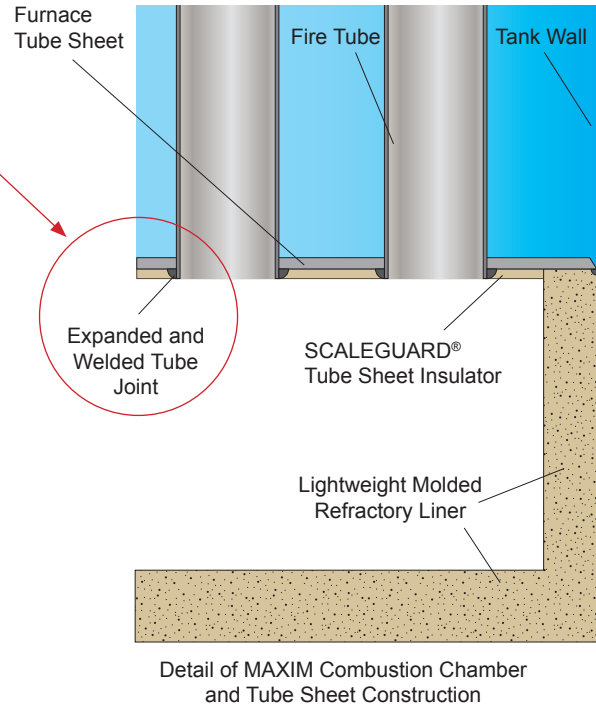
Exclusive Designs for Long Service Life

Long-Life Tube Joint

The tube sheets are drilled or water-jet cut, and the fire tubes are expanded and robotically welded to the tube sheets. This is similar to the construction of ASME boilers.

Tube Sheet Thermal Protection

PVI's patented SCALEGUARD® tube sheet insulator protects against metallurgical failure that can result from scale buildup in the water heater. SCALEGUARD keeps the temperature of the furnace tube sheet below the critical ductile-to-brittle transition temperature by separating it from the heat of combustion. Because the tube sheet is not used as a heat transfer surface, scale buildup on the waterside has no heat trapping (and hence damaging) effect. In addition, because it's not a heat transfer surface, a buildup of scale on the tube sheet will not reduce thermal efficiency. A few additional firetubes compensate for the heating surface lost by insulating the tube sheet.

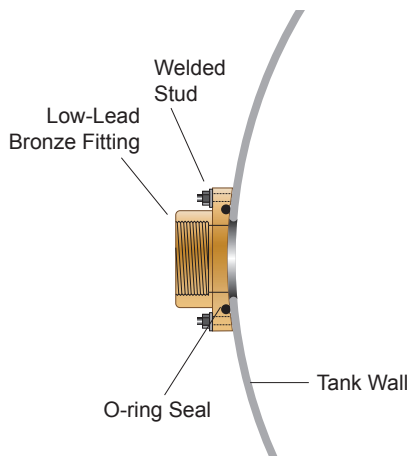


Corrosion-Proof, Low-Lead Bronze, Threaded Tank Fittings

The obvious advantage of this design is an inherently corrosion-proof fitting where other manufacturers use glass-lined or epoxy-lined steel fittings. Lined fittings provide only temporary corrosion protection as is evident by the requirement to use dielectric nipples when connecting their heaters to copper piping.

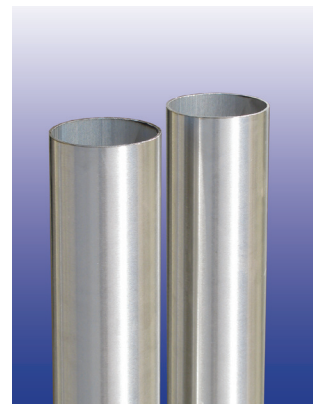


ASME tested and approved design



AquaPLEX Firetubes

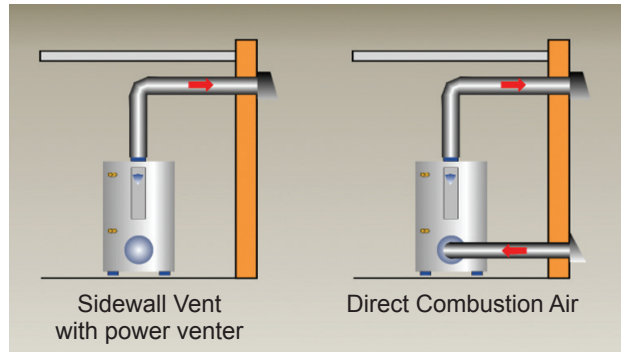
All the fire tubes in a Maxim water heater are solid AquaPLEX, an engineered duplex stainless steel alloy. Stronger than ordinary steel AquaPLEX is naturally resistant to corrosion in potable water and no additional material such as copper cladding or glass lining is required.



Venting Flexibility, Features and Codes

Venting Flexibility

In addition to conventional venting, Maxim water heaters offer installation flexibility with sidewall venting and direct inlet combustion air capability.



Standard Features

- 81% thermal efficiency per ANSI Z21.10.3, 83% thermal efficiency with 40°F entering water
- AquaPLEX® duplex alloy tank with a 15-year warranty (8 years full, 7 years prorated)
- First-year service policy*
- AquaPLEX duplex alloy fire tubes
- SCALEGUARD® tube sheet protection
- Non-ferrous, removable, replaceable tank fittings
- Power combustion burner with UL and FM compliant gas or oil train
- Electronic operating/temperature control with LED readouts and BAS connectivity using Modbus RTU protocol through RS-485 connection
- Electronic combustion sequencer and flame safeguard with spark ignition and pre-purge
- Flame status indicating and diagnostic lights (540 MBH and higher)
- Differential air pressure switch
- Adjustable immersion operating thermostat(s)
- High temperature limit control
- ASME-rated temperature and pressure relief valve
- Drain valve
- Heavy-density fiberglass insulation
- Steel jacket panels with powder coat finish
- Steel skids
- Barometric damper
- Hand-hole tank cleanout

- ASME stamped for 225 psi test pressure and 150 psi operating pressure
- ETL listed to U.S. and Canadian standards
- FM compliant
- ASHRAE 90.1 compliant
- NSF/ANSI 372 lead free compliant

Optional Equipment

- Gateways for BacNet
- CSD-1 compliant controls
- CSA-rated temperature and pressure relief valve(s)
- Air intake assembly for direct combustion air (for connection to ductwork supplied by others)
- LP gas operation

*See complete warranty or policy for details



Specifications and Dimensions

Maxim 125 Gallon Series

Input MBH	Recovery Rate (gallons per hour)		Minimum Inlet Flow Gas Pressure inches W.C.	Approx. Gallons Storage	Dimensions (inches)					Blower Motor hp Gas	Blower Motor hp Oil	Blower Motor amps Gas	Blower Motor amps Oil	Approx. Shipping Weight (lbs.)
	70 to 140°F ①	40 to 140°F ②			A	B	C	E	J*					
199	276	200	4.5	125	34-1/2	5	1/2	75	11	1/5	1/3	1.3	8	1020
270	376	270	4.5	125	34-1/2	6	3/4	75	11	1/5	1/3	1.3	8	1070
399	555	400	4.5	125	34-1/2	7	3/4	75	11	1/5	1/3	1.3	8	1120
540	751	540	4.5	125	34-1/2	8	1	82	18	1/3	1/2	8	10	1260
720	1001	720	4.5	125	34-1/2	10	1-1/4	82	18	1/3	1/2	8	10	1370
800	1113	800	4.5	125	34-1/2	10	1-1/4	82	18	1/3	n/a	8	n/a	1390

Maxim 250 Gallon Series

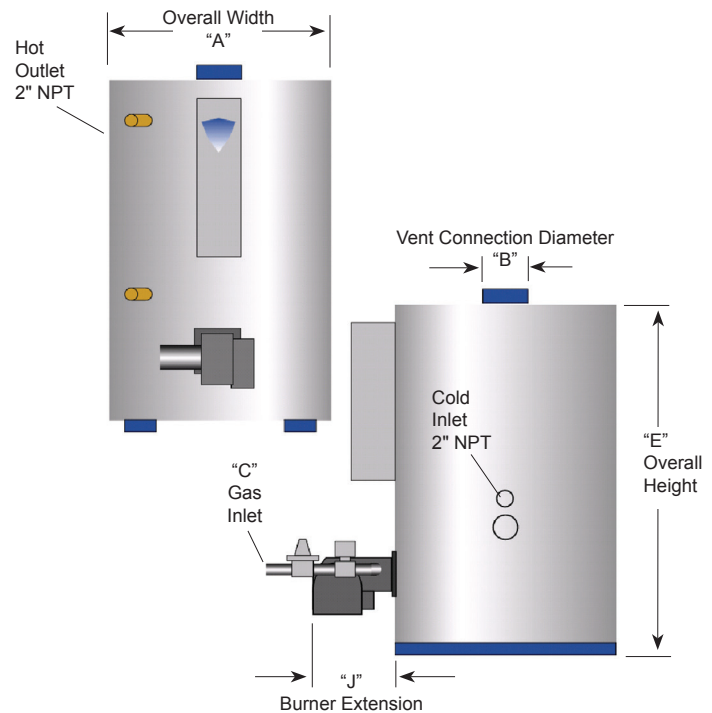
Input MBH	Recovery Rate (gallons per hour)		Minimum Inlet Flow Gas Pressure inches W.C.	Approx. Gallons Storage	Dimensions (inches)					Blower Motor hp Gas	Blower Motor hp Oil	Blower Motor amps Gas	Blower Motor amps Oil	Approx. Shipping Weight (lbs.)
	40 to 120°F ①	40 to 140°F ②			A	B	C	E	J*					
270	376	270	4.5	250	45	6	3/4	75	11	1/5	1/3	1.3	8	1470
399	555	400	4.5	250	45	7	3/4	75	11	1/5	1/3	1.3	8	1520
540	751	540	4.5	250	45	8	1	82	18	1/3	1/2	8	10	1600
720	1001	720	4.5	250	45	10	1-1/4	82	18	1/3	1/2	8	10	1710
800	1113	800	4.5	250	45	10	1-1/4	82	18	1/3	n/a	8	n/a	1810
1000	1391	1000	4.5	250	45	10	2	82	18	1/2	1/2	10	10	1870
1200	1669	1200	6	250	45	12	2	82	18	1/2	1/2	10	10	2000

① Recovery rate based on DOE 10 CFR 431 (ANSI Z21.10.3 @ 70°F to 140°F)

② Recovery based on 83% thermal efficiency with 40°F entering cold water

Oil inlet is 1/2" for all models. For reduced NOx heaters, consult factory. Models with inputs 199 to 399 MBH are available with less than 55 ppm NOx.

*For combination gas/oil heaters (J dimension), consult PVI representative. PVI reserves the right to change the design and specification without notice.



Standard Gas Pressure Requirements

See charts for minimum required flow pressure.
Maximum static gas pressure 10.5" W.C.
For gas pressure outside of this range, contact PVI representative.
Information is for natural gas. For LP gas, consult your PVI representative.

Standard Electrical Requirements

120 Volt, 60 Hz. Control Circuit: 2 AMPS
See chart for blower motor AMPS
For combination gas/oil AMPS, consult your PVI representative.

Venting Requirements

Category I - negative pressure, non-condensing.
Type B Venting (Gas) or Type L Venting (Oil)
With -.02 to -.06 W.C. Draft at the heater.
For other venting conditions, consult your PVI representative.



Hot Water Solutions

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