



MAXIM

ISO 9001

POWER COMBUSTION STORAGE WATER HEATER *

*Gas, Oil or Combination Gas/Oil
140,000 to 1,400,000 Btu/h
90 • 125 • 250 Gallon Tanks*



**83% to 85%
THERMAL
EFFICIENCY**

**WARRANTED
UP TO
10 YEARS
WITH A
NICKELSHIELD®
PLATED TANK**

**3-YEAR
SCALE
FAILURE
WARRANTY**

**AVAILABLE WITH
CERTIFIED
LOW NO_x
EMISSIONS**

“THE “HARD WATER” WATER HEATER”

*** FEATURES SIMPLIFIED INSTALLATION
WITH NO SIDARM TANKS, NO SIDARM PIPING,
NO PUMPS, NO LOW-TEMPERATURE BYPASS,
NO MIXING VALVES, NO BALANCING VALVES
AND NO CRITICAL FLOW RATE REQUIREMENTS**



Intertek

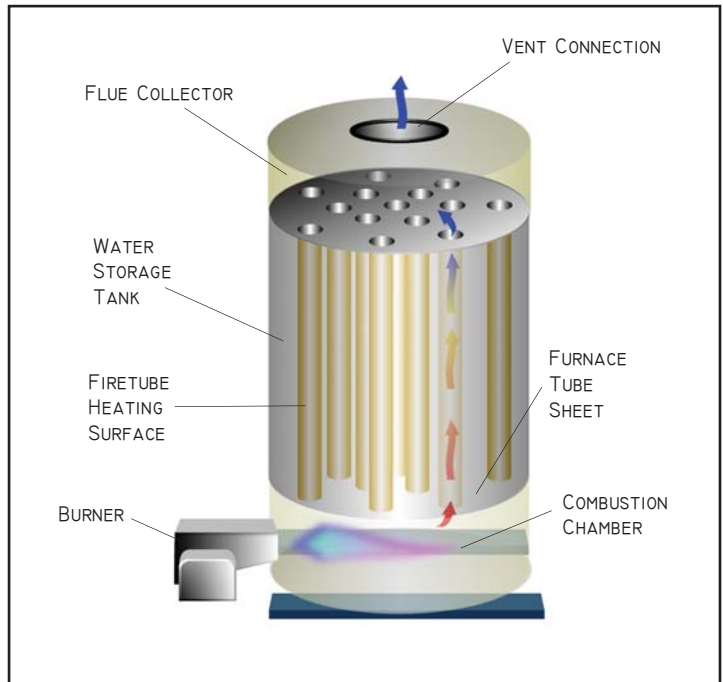
ASHRAE 90.1
compliant

MAXIM

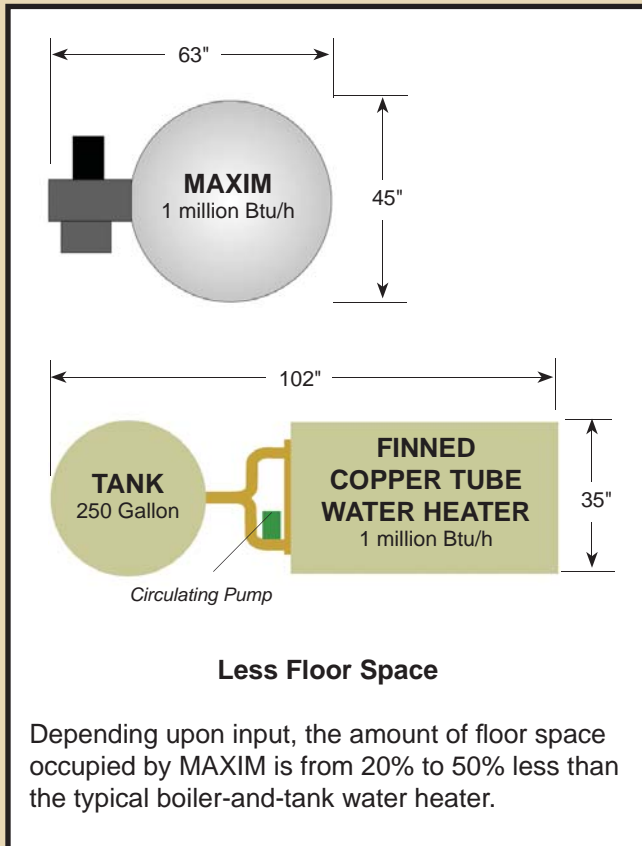
POWER COMBUSTION STORAGE WATER HEATER

MAXIM is a fully packaged gas- or oil-fired vertical firetube water heater. Combustion occurs below the water storage tank and the hot combustion gases move upward through the firetubes transferring heat by convection into 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 85%. Combustion is provided by a power burner with electronic sequencer and flame safeguard. Water temperature and burner operation are controlled by submerged upper and lower operating thermostats and a submerged high limit control.

The steel water storage tank is constructed and stamped in accordance with the ASME code for lined pressure vessels. MAXIM is fully insulated and jacketed and surpasses the latest ASHRAE standards for thermal efficiency and standby heat losses.



Installation and Operating Comparison: 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. Conversely, finned-tube water heaters must be plumbed to a side-arm tank and require a pump to circulate water between these two components. A pump that runs non-stop is now in violation of ASHRAE's 90.1 energy efficiency guidelines, but, even with intermittent operation, it can still 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. Another important consideration is that finned copper heaters are highly prone to condensation if cold water enters the heat exchanger. To pre-heat inlet water and reduce condensation, a bypass pipe and flow control valve should be installed. 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 the 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 condensation as cold water blends with warmer water upon entering the vessel.

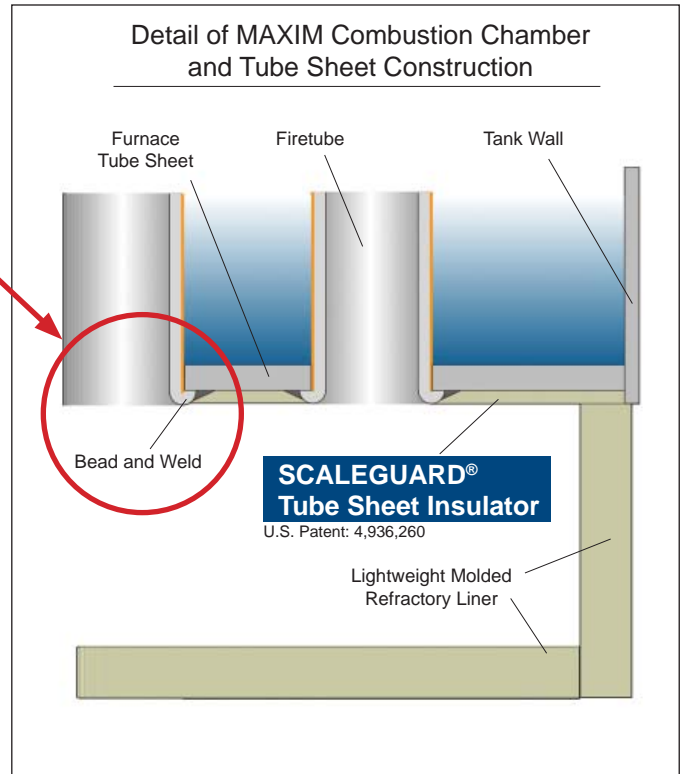
Exclusive manufacturing processes and patented features for long service life under difficult water conditions...

Long-Life Tube Joint

The 1/2-inch-thick steel tube sheets are drilled, and the firetubes are rolled, beaded, and welded to the tube sheets. This is similar to the construction of steam power boilers.

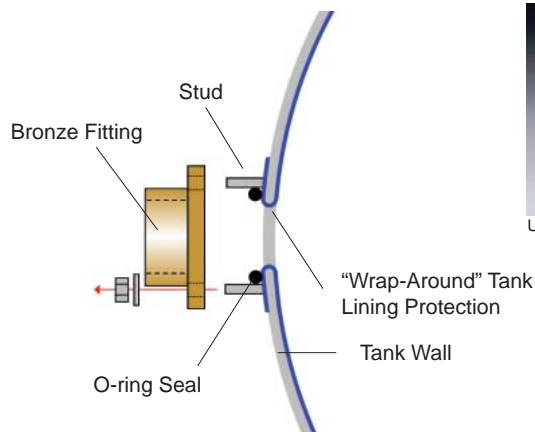
Tube Sheet Thermal Protection

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).



Copper-Clad Firetubes

Boiler-grade steel tubes are protected on the waterside with dead-soft copper that is fused into a continuous barrier by a homogenizing weld. This design combines the greater thermal strength of steel on the fireside with the corrosion resistance of a nonferrous metal on the waterside.



Corrosion-Proof, Solid-Bronze, Threaded Tank Fittings



U.S. Patent: 4,968,066

The first advantage of this patented design is an inherently corrosion-proof bronze fitting where others use steel. Secondly, the design allows the lining to wrap through the opening to the outside of the tank, providing an uninterrupted barrier between the hot water and the steel vessel. In other designs, linings stop at the fittings and invite corrosion.

... and tank linings so good
that anode rods
are not required.

NICKELSHIELD®
Electroless Nickel Plating



As an option, the storage tank and firetubes can be plated with electroless nickel; a 90% nickel-10% phosphorus metallic alloy deposited on the storage tank by chemical plating process. The non-ferrous alloy is nonporous and continuous on all tank surfaces; interior and exterior. The tanks are plated after they are fully fabricated and all welding is completed. No anodes are needed.

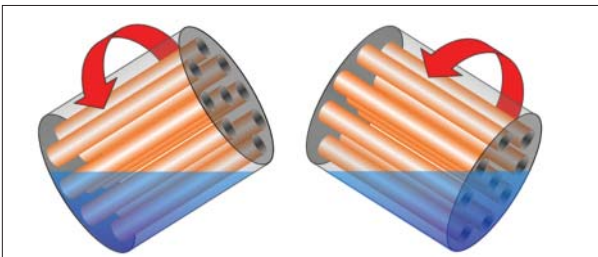


Three vertical tube water heater tanks are withdrawn from the electroless nickel plating bath.

POLYSHIELD®
PVDF Fluoropolymer



The standard tank lining consists of several layers of a thermosetting fluoropolymer. Each layer is slush coated and oven cured. Because of their chemical stability and durability, fluoropolymers are often used in ultra-pure water systems and perform remarkably well in potable hot water applications. The tanks are lined after all welding is finished and, because lining coverage is complete with no steel exposed, no anode rods are needed.



Finished tanks are filled with a measured amount of POLYSHIELD and then rotated and rocked to distribute the material evenly across interior tank surfaces.

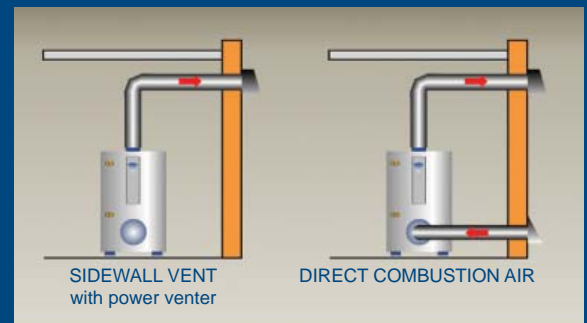
STANDARD EQUIPMENT

- 83% thermal efficiency per ANSI Z21.10.3, 85% thermal efficiency when firing oil
- NICKELSHIELD® tank with a 10-year warranty or POLYSHIELD® tank with a 5-year warranty *
- 3-year scale failure warranty *
- First-year "Owner Pays Nothing" service, repair, and replacement policy on entire heater *
- Copper-clad steel firetubes
- SCALEGUARD® tube sheet protection
- Non-ferrous removable, replaceable tank fittings
- Power combustion burner with UL and FM compliant gas or oil train
- 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 limit control
- ASME-rated temperature and pressure relief valve
- Drain valve
- Heavy-density fiberglass insulation
- Steel jacket panels with industrial finish
- Draft regulator
- Hand-hole tank cleanout
- ASME stamped for 225 psi test pressure and 150 psi operating pressure
- ETL listed
- FM compliant
- ASHRAE 90.1 compliant

SELECTED OPTIONAL EQUIPMENT

- Long-life service policy *
- Low NOx (SCAQMD and TCEQ compliant)
- GE-GAP and CSD-1 compliance
- AGA-rated temperature and pressure relief valve
- Dial temperature and pressure gauges
- 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 90 Gallon Series GAS ONLY

Input MBtu/h	Recovery Rate (gallons per hour)		Minimum Inlet Flow Gas Pressure inches W.C.	Approx. Gallons Storage	Dimensions (inches)					Blower Motor hp	Blower Motor amps	Approx. Shipping Weight (lbs.)
	40 to 120°F	40 to 140°F			A	B	C	E	J*			
199	250	200	4.5	90	34-1/2	5	1/2	64	19	1/6	1.75	930
270	340	270	4.5	90	34-1/2	6	3/4	64	19	1/6	1.75	970
399	500	400	4.5	90	34-1/2	7	3/4	64	19	1/6	1.75	1010
540	670	540	4.5	90	34-1/2	8	1	72	19	1/3	8	1130

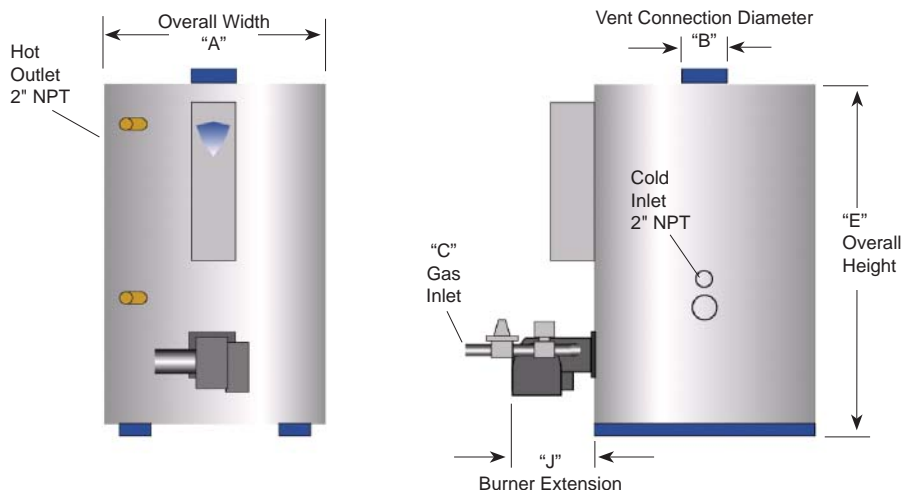
Specifications and Dimensions - MAXIM 125 Gallon Series GAS, OIL and COMBINATION GAS/OIL

Input MBtu/h	Recovery Rate (gallons per hour)		Minimum Inlet Flow Gas Pressure inches W.C.	Approx. Gallons Storage	Dimensions (inches)					Blower Motor hp	Blower Motor hp	Blower Motor amps	Blower Motor amps	Approx. Shipping Weight (lbs.)
	40 to 120°F	40 to 140°F			A	B	C	E	J*	Gas	Oil	Gas	Oil	
140	170	140	4.5	125	34-1/2	5	1/2	75	18	1/6	1/3	1.75	8	1020
199	250	200	4.5	125	34-1/2	5	1/2	75	18	1/6	1/3	1.75	8	1020
270	340	270	4.5	125	34-1/2	6	3/4	75	18	1/6	1/3	1.75	8	1070
399	500	400	4.5	125	34-1/2	7	3/4	75	18	1/6	1/3	1.75	8	1120
540	670	540	4.5	125	34-1/2	8	1	82	18	1/3	1/2	8	10	1260
720	900	720	4.5	125	34-1/2	10	1-1/4	82	18	1/3	1/2	8	10	1370
800	1000	800	4.5	125	34-1/2	10	1-1/4	82	18	1/3	n/a	8	n/a	1390

Specifications and Dimensions - MAXIM 250 Gallon Series GAS, OIL and COMBINATION GAS/OIL

Input MBtu/h	Recovery Rate (gallons per hour)		Minimum Inlet Flow Gas Pressure inches W.C.	Approx. Gallons Storage	Dimensions (inches)					Blower Motor hp	Blower Motor hp	Blower Motor amps	Blower Motor amps	Approx. Shipping Weight (lbs.)
	40 to 120°F	40 to 140°F			A	B	C	E	J*	Gas	Oil	Gas	Oil	
270	340	270	4.5	250	45	6	3/4	75	18	1/6	1/3	1.75	8	1470
399	500	400	4.5	250	45	7	3/4	75	18	1/6	1/3	1.75	8	1520
540	670	540	4.5	250	45	8	1	82	18	1/3	1/2	8	10	1600
720	900	720	4.5	250	45	10	1-1/4	82	18	1/3	1/2	8	10	1710
800	1000	800	4.5	250	45	10	1-1/4	82	18	1/3	n/a	8	n/a	1810
1000	1250	1000	4.5	250	45	10	2	82	18	1/2	1/2	10	10	1870
1200	1500	1200	6	250	45	12	2	82	18	1/2	1/2	10	10	2000
1400	1750	1400	6	250	45	12	2	82	18	1/2	1/2	10	10	2120

Recoveries shown for gas at 83% thermal efficiency. Oil will be slightly higher.
 Oil inlet is 1/2" for all models.
 For low NOx heaters, consult factory. For combination gas/oil heaters, consult factory.



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 YOUR PVI REPRESENTATIVE.

STANDARD ELECTRICAL REQUIREMENTS

120 Volt, 60 Hz.
 CONTROL CIRCUIT: 2 AMPS
 SEE CHART FOR BLOWER MOTOR AMPS

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, CONTACT FACTORY.

PVI reserves the right to change the design and specification without notice.