



AG series

ISO 9001

ATMOSPHERIC GAS STORAGE WATER HEATER *

140,000 to 1,400,000 Btu/h
125 and 250 Gallon Tank Series



80%
THERMAL
EFFICIENCY

WARRANTED
UP TO
10 YEARS
WITH A
NICKELSHIELD®
PLATED TANK

3-YEAR
SCALE
FAILURE
WARRANTY

“THE “HARD WATER” WATER HEATER”

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



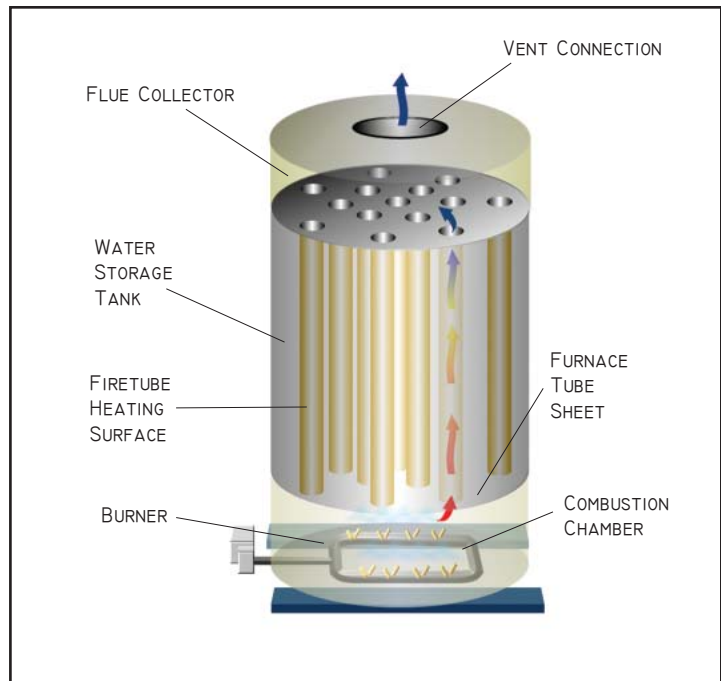
ASHRAE 90.1
compliant

AG series

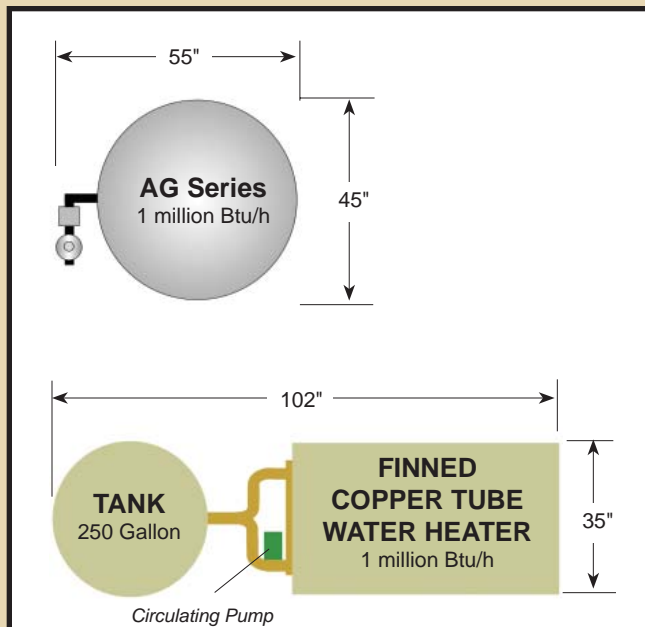
ATMOSPHERIC GAS STORAGE WATER HEATER

PVI AG series is a fully packaged atmospheric gas 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 80%. The cast-iron and brass burner is equipped with spark ignition and a 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. AG series is fully insulated and jacketed and surpasses the latest ASHRAE standards for thermal efficiency and standby losses.



Installation and Operating Comparison: AG Series vs. Finned-tube Water Heaters



Less Floor Space

Depending upon input, the amount of floor space occupied by AG Series is from 30% to 56% less than the typical boiler-and-tank water heater.

Lower Standby Losses

As a tank-type heater, AG series incorporates both a storage tank and a heating section in an integrated package. Conversely, finned-tube water heaters must be plumbed to a sidearm tank and require a pump to circulate water between these two components. A pump that runs non-stop is now in violation of ASHRAE 90.1 energy efficiency guidelines, but, even with intermittent operation, it can still use a few hundred dollars per year of electricity. AG series 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.

AG series 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, AG series is less prone to condensation as cold water blends with warmer water upon entering the vessel.

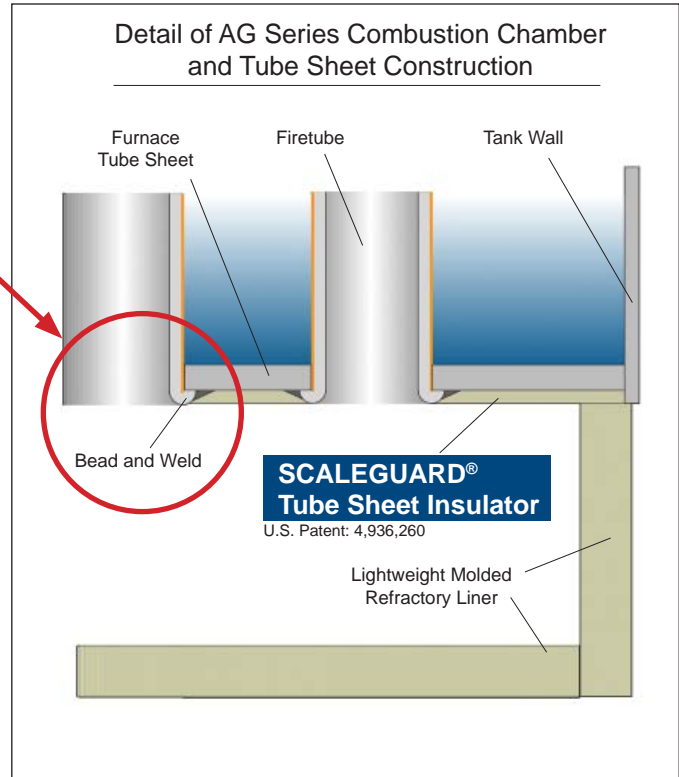
Exclusive manufacturing processes and patented features for long service life under difficult water conditions...

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.

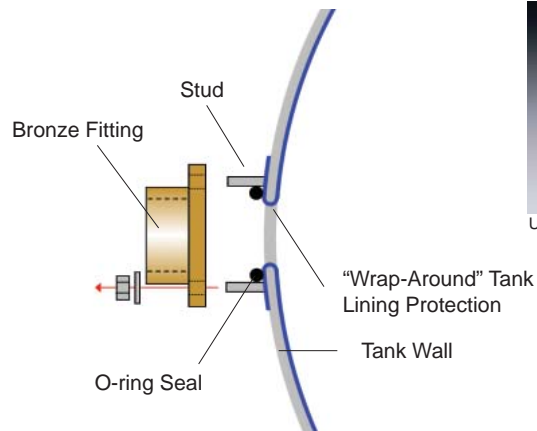
Tube Sheet Thermal Protection

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

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.

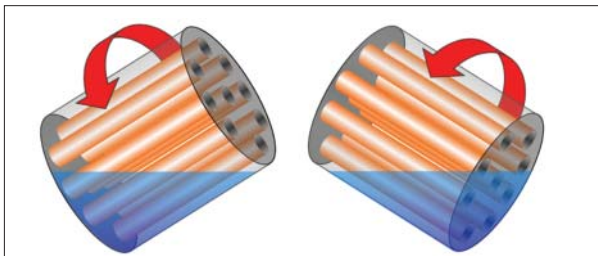


Three vertical tube water heater tanks are withdrawn from the electroless nickel plating bath.

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

- 80% thermal efficiency per ANSI Z21.10.3,
- 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
- Cast-iron burner with solid brass burner jets
- UL and FM compliant gas train
- Energy-saving spark ignition with electronic flame monitoring
- 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 diverter
- Flue damper (125 gallon series only)
- 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 *
- GE-GAP and CSD-1 compliance
- AGA-rated temperature and pressure relief valve
- Dial temperature and pressure gauges
- Redundant main gas valve
- Electronic low-water cutoff
- Manual-reset temperature limit
- LP gas operation
- Seven-day time clock

* see complete warranty or policy for details

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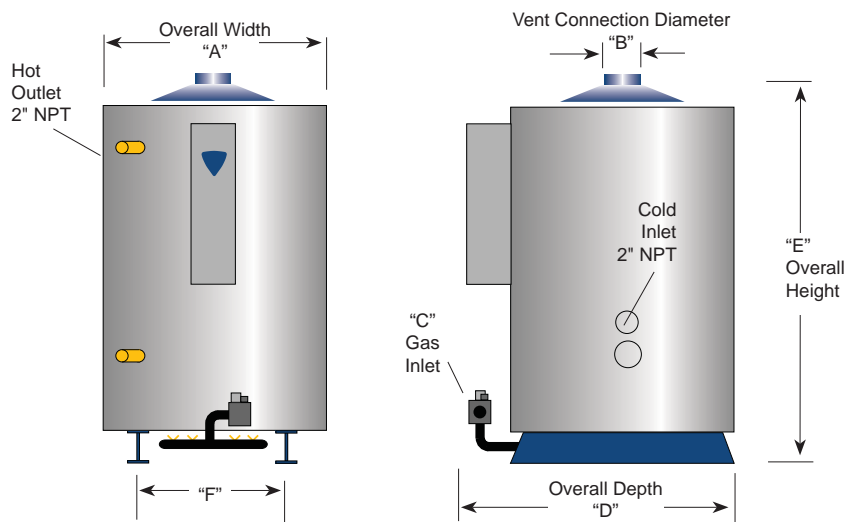
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ATMOSPHERIC GAS WATER HEATER

Specifications and Dimensions - 125 Gallon Series											
Input MBtu/h	Recovery Rate (gallons per hour)		Minimum Inlet Flow Gas Pressure inches W.C.	Approx. Gallons Storage	Dimensions (inches)						Approx. Shipping Weight (lbs.)
	40 to 120°F	40 to 140°F			A	B	C	D	E	F	
140	168	134	4.5	125	34-1/2	5	3/4	42	86	27	980
199	239	191	4.5	125	34-1/2	6	3/4	42	86	27	1030
270	324	259	4.5	125	34-1/2	7	3/4	42	86	27	1090
399	479	383	4.5	125	34-1/2	8	3/4	42	87	27	1170
540	648	518	6.5	125	34-1/2	10	1	42	87	27	1330
720	864	691	6.5	125	34-1/2	12	1	42	87	27	1430
800	960	768	7.0	125	34-1/2	12	1-1/4	42	87	27	1490

Specifications and Dimensions - 250 Gallon Series											
Input MBtu/h	Recovery Rate (gallons per hour)		Minimum Inlet Flow Gas Pressure inches W.C.	Approx. Gallons Storage	Dimensions (inches)						Approx. Shipping Weight (lbs.)
	40 to 120°F	40 to 140°F			A	B	C	D	E	F	
270	324	259	4.5	250	45	7	3/4	53	83	36	1440
399	479	383	4.5	250	45	8	3/4	53	84	36	1570
540	648	518	6.5	250	45	10	1	53	85	36	1680
720	864	691	6.5	250	45	12	1	53	85	36	1860
800	960	768	7.0	250	45	12	1-1/4	53	85	36	1880
1000	1200	960	7.0	250	45	14	1-1/4	55	86	36	2000
1200	1440	1152	7.0	250	45	16	1-1/4	55	86	36	2150
1400	1680	1344	7.0	250	45	16	1-1/4	55	86	36	2270

Recoveries shown for gas at 80% thermal efficiency.



STANDARD GAS PRESSURE REQUIREMENTS

SEE CHARTS FOR MINIMUM REQUIRED FLOW PRESSURE
MAXIMUM STATIC GAS PRESSURE 14" W.C.

FOR GAS PRESSURE OUTSIDE OF THIS RANGE,
CONTACT YOUR PVI REPRESENTATIVE.

STANDARD ELECTRICAL REQUIREMENTS

120 Volt, 60 Hz.
CONTROL CIRCUIT: 2 AMPS

VENTING REQUIREMENTS

CATEGORY I - TYPE B VENTING
Never size a vent based upon the vent connection diameter exclusively. For proper vent sizing, consult the National Fuel Gas Code for atmospheric appliances.

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