

SPECIFICATION FOR DOMESTIC WATER HEATERS

Condensing, Low NOx, Gas-Fired Water Heaters with Nickel-Plated Storage Tanks

Furnish and install POWER VT condensing gas water heater(s) as manufactured by PVI Industries, LLC of Fort Worth, Texas. Supply in quantities and model numbers as indicated on the plumbing schedule.

Emissions

NOx emissions will not exceed 30 ppm when corrected to 3% O₂ (for inputs greater than 399,000 Btu). NOx emissions will not exceed 55 ppm when corrected to 3% O₂ (for 399,000 Btu input). These levels will be certified by independent agency.

Gas and Electrical Consumption

The water heater will operate at a minimum of 94% thermal efficiency when tested to ANSI Z21.10.3. The water heater will comply with paragraph 7.2.4.4, the thermal efficiency, the standby loss, and all other requirements of ASHRAE 90.1-1999.

Pressure Vessel and Heating Surfaces

The water heater will be a vertical fire tube design that is constructed and stamped in accordance with Section IV, Part HLW of the ASME code. Both the storage and heating sections of the water heater will be National Board Registered for a working pressure of 150 psi and will be pressure tested at 1-1/2 times working pressure. The fireside of the heating surfaces will be of boiler-grade steel. The waterside of the heating tubes will be sealed in copper. The heating tubes will be rolled, beaded, and seal welded into the tube sheets. The combustion side of the tube sheet will be insulated by a layer of ceramic fiber that will protect the tube sheet from both thermal stresses and failure that can result from the accumulation of scale and precipitants.

Lining

The tank will be a plated with electroless nickel (EN). Plating will occur after the pressure vessel is completely fabricated and all welding is completed. The EN plating will be a high-phosphorus (10%) and nonporous composition suitable for submersion service (ASTM B733 standard may be used as a guideline). The finished lining will not require sacrificial anode rods. For additional protection against galvanic corrosion, which may occur within the potable water system, the EN plating may have a high-dielectric-strength polymer overcoat.

Burner and Venting

Combustion will be provided by an induced-draft power burner with a gas train meeting the following agency requirement for the input specified:

UL (standard) FM IRI Other _____

Water heater will be a category IV, condensing appliance, UL listed for use with CPVC vent or AL 29-4C stainless steel vent. Burner will be configured to accept _____ room air _____ direct inlet combustion air. Water heater will operate with a minimum gas pressure of 4-½ inches water column.

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(continued)

Safety Controls

As a minimum, the heater will be equipped with the following:

- a solid-state flame safeguard with pre-purge, programmable post-purge, and flame status indicating lights
- two *immersion* operating thermostats
- an *immersion* temperature limiting device
- a stack temperature limiting device
- an ASME- or AGA-rated temperature and pressure relief valve
- and options as selected on form PV 6435

Warranty Summary

The burner and all heater parts will have a one-year warranty. Storage tank, heating surfaces, and combustion chamber will have a **ten-year** warranty covering manufacturing or material defects, leaks, and/or the production of rusty water. Tank and heating surfaces will have a **three-year** warranty against failure due to scale buildup with no provisions for periodic cleaning. The heater will have a _____ first year or _____ long-life service policy, which will cover replacement labor and freight costs under certain conditions. Initiation and /or continuation of warranty coverage will not be dependent upon annual inspections, regular replacement of anode rods, or water chemistry. Complete copies of all warranties and service policies, including all exclusions and conditions, will be presented to the owner as part of the submittal package. *These summaries are not warranties. Consult warranty and policies for full details.*

Finishing

The storage and heating sections will be completely factory packaged on a single skid, requiring only job site hookup to utilities, venting, and water inlet and outlet piping. The heater will be insulated, jacketed with steel panels finished with an industrial-quality coating. The heater will fit properly in the space provided and installation will conform to all local, state, and national codes.

Start Up

Start up on the unit will be performed by factory trained and authorized personnel. A copy of the start up report will be provided to the owner.

Quality Certification and Safety Standards

The heater will be UL or CGA listed. The water heaters will be manufactured by a company that has achieved certification to the ISO 9001 International Quality System.

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