

# **SPECIFICATION FOR DOMESTIC WATER HEATERS**

## ***Power Combustion, Low NOx, Gas-Fired Water Heaters with Nickel-Plated Storage Tanks***

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

### **Gas and Electrical Consumption**

The water heater will operate at a minimum of 82% thermal efficiency. 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. All tank connections will be non-ferrous. 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.

### **Tank Lining**

The tank will be 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 a forced-draft power burner with a gas train meeting the following agency requirement for the input specified:

UL (standard)       FM       IRI       Other \_\_\_\_\_

Burner and heating section will be certified to operate with NOx emissions not to exceed 30 ppm corrected to 3% O<sub>2</sub> (at or above 400,000 Btu) and 55 ppm corrected to 3% O<sub>2</sub> or 40 nanograms per joule (below 400,000 Btu). Water heater will be a category I, non-condensing appliance. It will be UL listed for use with non-pressurized, type B venting material.

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(continued)

### Safety Controls

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

- electronic flame monitoring with pre- and post-purge
- two *immersion* operating thermostats
- an *immersion* temperature limiting device
- an \_\_\_\_ ASME- or \_\_\_\_ AGA-rated temperature and pressure relief valve
- and options as selected on form PV 6382

### 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, requiring only job site hookup to utilities, venting, and plumbing. The heater will be insulated, jacketed with enameled steel panels, and mounted on heavy-duty channel skids. 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 have an independent test laboratory listing to safety standard UL 795 or ANSI Z21.10.3. The water heaters will be manufactured by a company that has achieved certification to the ISO 9001 International Quality System.