

# **SPECIFICATION FOR DOMESTIC WATER HEATERS**

## ***Power Combustion, Oil-Fired Water Heaters with Polymer-Lined Storage Tanks***

Furnish and install **TURBOPOWER®** oil water heater(s) as manufactured by PVI Industries, L.L.C. of Fort Worth, Texas. Supply quantities and model numbers as indicated on the plumbing schedule.

### **Efficiency**

The water heater will operate at a minimum of 83% 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 constructed and stamped in accordance with Section IV, Part HLW of the ASME code.

The storage section of the water heater will be National Board Registered for a working pressure of \_\_\_\_ 125 psi (standard) or \_\_\_\_ 150 psi and will be pressure tested at 1-1/2 times working pressure. The heating section 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 heat exchanger will be a firetube design with the combustion chamber and all heating surfaces completely water-backed. The fireside of the combustion chamber will be of boiler-grade steel. The waterside of the combustion chamber will be non-ferrous. The fire tubes will be solid copper. The heating surfaces will be removable by unbolting from the pressure vessel, allowing 100% access to waterside surfaces. The tank will be accessible in the field through a manway sized opening, allowing access to 100% of interior surfaces. All tank connection fittings will be nonferrous and removable from the tank.

### **Tank Lining**

The entire lining will:

- be applied only after the tank is completely fabricated and all welding is completed.
- be a thermoplastic polymer that is NSF 61 approved and consist of FDA compliant materials.
- consist of multiple applications creating a continuous and nonporous barrier with no interruptions or discontinuities, particularly at the tank-to-fitting transitions.
- be confirmed after all welding is completed to be 100% void-free by the ASTM D-5162 wet electrode standard.
- have a dielectric resistance of 1600 volts per mil.

The lined tank will not require anode rods and none will be used. *Water heaters that use anode rods in a vessel that contains non-ferrous heating surfaces will not be acceptable.*

### **Burner and Venting**

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

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

Burner will be configured to accept \_\_\_\_ room air \_\_\_\_ direct inlet combustion air.

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(continued)

### **Safety Controls**

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

- electronic flame monitoring with pre-purge (140,000 to 399,000 Btu/h burners) or electronic flame safeguard with pre-purge and flame status indicating lights (600,000 to 3,200,000 Btu/h burners)
- 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 6006

### **Warranty Summary**

Storage tank: \_\_\_\_\_ year (5 standard, 15 optional) Covers manufacturing or material defects, leaks and /or the production of rusty water. Tank coverage will include failure due to scale buildup for \_\_\_\_\_ full years (3 standard, 6 optional) and \_\_\_\_\_ prorated years (2 standard, 9 optional) with no provision or condition for maintenance or inspections and no limitations on water chemistry.

Heat exchanger and combustion chamber: 5 year. Covers manufacturing or material defects, leaks, and/or the production of rusty water.

Burner and all heater parts: 1 year

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 have an independent test laboratory listing to safety standard UL732. The water heaters will be manufactured by a company that has achieved certification to the ISO 9001 International Quality System.