

**Elite Premier VWH Hot Water Supply Boiler**

***VWH Models: EP-220 / 299 / 301 / 399***

The Elite Premier VWH Hot Water Supply Boiler, manufactured by HTP, includes four (4) models with inputs ranging from 220,000 to 399,000 Btu/Hr. Model EP- , having 10 to 1 modulation and an input range of Btu / Hr., shall operate on either Natural or LP gas.

The boiler shall be a high efficiency condensing unit that exceeds ASHRAE/103-93 minimum efficiency requirements and offers up to 95.2% AFUE and thermal efficiency up to 96.5. The boiler shall e ETL Listed and constructed in accordance with the latest edition of the harmonized ANSI Z21.13 testing standard for Gas-Fired Low-Pressure Steam and Hot Water Boilers for the US and Canada. The boiler shall bear the ASME “H” stamp for working pressure of 160 psi and be National Board Listed.

The boiler cabinet shall be constructed of durable 18 gauge steel. The boiler heat exchanger and combustion shell shall be constructed of 316 L stainless steel. The heat exchanger tubes shall be rolled and formed in a helical pattern in a wet base design, and shall be watertight and welded securely to the stainless steel headers to ASME standards. The combustion shell shall be designed to collect condensation in the back of the heat exchanger.

Condensate is discharged by gravity from the rear of the boiler down to a condensate collection trap with an accessible clean out. Condensate shall be directed outside or to a drain via a minimum ¾” plastic tube at a ¼” per foot slope away from the boiler (larger diameter pipe may be necessary for longer lengths). If condensate is directed to a drain, a condensate neutralizer (p/n 7450-212) must be utilized. If proper boiler condensate grade is not obtainable, a condensate pump must be installed to elevate condensate to proper grade to drain.

The boiler shall be supplied with a combination fitting on the supply (heater outlet) which incorporates many connection points for a temperature and pressure gauge, flow switch, manual reset, and low water cut-off probe. The boiler shall have a connection size of 1” for the 220 model, 1 ¼” for the 299 and 301 models, and 1 ½” for the 399 model.

Gas supply shall be 1” for all models. Refer to gas piping sizing chart if larger sizes are required due to long distances and/or competing gas appliances.

The boiler shall operate in an open-loop pressurized system. The boiler should be directly connected to a storage unit which shall have properly sized thermal expansion tank(s) or meet local codes. All VWH models will be supplied with an ASME rated 150psi relief valve.

The blower motor shall have permanently lubricated sealed ball bearings with inherent overload protection.

The boiler shall have an **integrated digital control system** utilizing an algorithm to fully adjust firing rate while maintaining the desired output temperature of the boiler. The combustion system has a specialized mixer with an internal shutter which seals off a portion of the mixer opening to increase combustion system turndown ratio to 10 to 1. This specialized mixer is connected to a variable speed fan which controls the amount of air and gas that is injected into the burner for extremely clean, reliable combustion. The control uses pulse width modulation to send a command signal to the fan which adjusts the volume of combustion air and gas supplied to the burner based on the unit’s ability to meets its target set point.

The control is connected to a digital 2 line 20 character per line LCD display that provides information on the operation of the boiler. The display will show a fault code and narrative to aid in troubleshooting and also provide a means for adjustment of the operating temperature ranging from 68° - 190°F and differential temperature ranging from of 5°- 30°F. The control shall feature a dry contact output to connect an optional alarm monitoring device. The control shall also regulate up to eight (8) boilers through a cascade system functioning as one system. This allows for greater turndown ratios and systematic control to maximize efficiency. The control shall have a 0-10 volt input available to control boiler output temperatures. The display interface shall have a resettable ECO switch button.

The boiler shall also have the ability to accept optional controls such as a UL 353 Compliant Low Water Cut Off and Manual Reset High Limit Temperature Switch.

The boiler will have a sealed combustion system, taking outside air for combustion and exhausting the flue gas with a ULC-S636 CPVC connector for 3" PVC or CPVC. Higher BTU EP-299, 301, and 399 models shall have a stainless steel adapter for 4" PVC or CPVC. The boiler's total combined equivalent vent length, including fitting allowances for both intake and exhaust, shall not exceed 200 feet. The vent connections shall be located on the top of the boiler to allow for optional wall mounted installations.

**Horizontal Venting** shall be done as a balanced system only. Both intake and exhaust must terminate on the same side of the building.

**Vertical Venting** shall be done either as a balanced or unbalanced system. An unbalanced system shall ONLY be allowed when the exhaust is installed vertically and the intake horizontally. Both exhaust and intake must remain within the boiler’s combined equivalent length.

**Indoor Combustion Venting from a Confined or Unconfined Space** refers to systems where the exhaust runs vertically and combustion air is drawn either from the mechanical room or from outdoors. (Refer to the boiler’s installation manual venting section for additional venting requirements.)

**CAUTION: Foam core pipe is NOT an approved material for either intake or exhaust piping.**

The combustion chamber will be designed to drain condensate to a collection container located at the back of the boiler. The condensate collection container will have a float switch to monitor condensate flow and have a clean out for periodic maintenance.

The boiler shall be in compliance with the NOx emissions limit set forth in SCAQMD Rule 1146.2. The manufacturer shall verify proper operation of the burner, the combustion and control systems, as well as all related safety functions, to ensure the boiler will operate based on its designed parameters before shipping. Complete operating and installation instructions shall be furnished with every heater as packaged by the manufacturer for shipping.

The surfaces of these products contacted by consumable water contain less than 0.25% lead by weight as required by the Safe Drinking Water Act, Section 1417.

The appliance shall operate at high elevations without additional parts. However, adjustments to the combustion system may be required at any elevation. See installation manual for combustion system setting details.

Maximum unit dimensions shall be: Length inches, Width inches and Height inches. Maximum unit weight shall be pounds.

**Note: Due to the variations in CSD-1 requirements from state to state, please consult with the factory all controls required in your jurisdiction.**

**NOTE:** HTP reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.