

**Typical Specification for HTP  
Elite VWH Hot Water Supply Boiler  
Models: 80 / 110 / 150 / 220 / 299 / 301 / 399**

**Guide Specification Sheet**

**Elite VWH  
Hot Water Supply Boiler**

The Elite VWH® hot water supply boiler, manufactured by HTP, Inc., includes seven (7) models with inputs ranging from 80,000 Btu to 399,000 Btu. Model EL- \_\_\_\_\_, having a modulation input range of \_\_\_\_\_ Btu / Hr., shall operate on either Natural \_\_\_\_\_ or LP \_\_\_\_\_ gas. The Elite VWH shall be capable of full modulation firing down to 20% of rated input with a turndown ratio of 5:1.

The boiler shall be a high efficiency condensing unit that exceeds ASHRAE/103-93 minimum efficiency requirements and offers up to 95.9% AFUE and up to 96.1 thermal efficiency. The boiler shall be 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 160psi 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 entirely of 316L 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 80, 110, 150, and 220 models, 1 ¼” for the 299 and 301 models, and 1 ½” for the 399 model.

Gas supply shall be ¾” inside diameter for the Elite 80, 110, and 150 models, and 1” for Elite 220, 299, 301, and 399 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. Combustion gas and air are premixed prior to introduction to the stainless steel sintered burner using a low voltage gas valve and variable speed fan. 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.

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 5° - 30°F. The control shall feature a dry contact output to connect to an optional alarm monitoring device. The control shall also regulate up to (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-636 CPVC connector for 3" PVC or CPVC. The larger BTU models EL-299, EL-301, and EL-399 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, thus requiring both intake and exhaust to 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. (Refer to boiler installation manual venting section for additional venting requirements.)

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

The boiler requires minimum flow space. Zero clearance to combustibles. 24" front service clearance in is recommended.

The manufacturer shall verify proper operation of the burner, all controls and heat exchanger prior to shipping.

The boiler shall operate at altitudes up to 4500 feet above sea level without additional parts or adjustment.

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.

Maximum unit dimensions shall be length \_\_\_\_\_ inches, width \_\_\_\_\_ inches and height \_\_\_\_\_ inches. Maximum unit weight shall be \_\_\_\_\_ pounds.

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