

**Typical Specification for HTP
Phoenix[®] Gas-Fired Water Heaters
Models: PH-100/130/160/199 Btu /Hr**

The Phoenix[®] Gas-Fired Water Heater shall be manufactured by HTP with an identification of model number PH- _____ and a modulation input range of _____ Btu/Hr. The Phoenix[®] Gas-Fired Water Heater shall operate on either Natural or LP gas.

The heater tank shall be constructed of 316L stainless steel. The primary condensing heat exchanger shall be constructed of 90/10 cupronickel. The secondary heat exchanger shall be constructed of 800H stainless steel and 90/10 cupronickel. Solar models shall have an additional heat exchanger on the bottom of the tank to connect to a solar system.

Tank insulation shall be water blown foam 2” thick in the side wall with a rating of R14.2, and 3” thick in the top with a rating of R21.3. Insulation shall be enclosed in a plastic jacket. All components shall be located on the front of the heater for easy service access. All related hardware shall be constructed of stainless steel studs with brass nuts. All water connection nipples shall be constructed of stainless steel and attached to the side of the tank. The top and bottom of the tank shall be smooth.

The heaters shall be UL/ULC listed and will exceed the minimum efficiency requirements of ASHRAE 90.1b-1992. All heaters shall be approved in accordance with ANSI Z 21.10.3. All heaters will be supplied with a factory installed ASME rated temperature and pressure relief valve, a low water cutoff, an upper hot water sensor, a lower cold water sensor, and a condensate trap assembly ready for easy connection to a field supplied condensate drain.

The heater shall have an integrated digital controller device with integral diagnostics, LED fault and temperature settings for establishing set point and temperature differential. Ignition shall be direct spark and take place at a speed pre-set for the burner blower. The control shall utilize an algorithm to fully adjust the burner modulating firing rate while maintaining the desired temperature. The pre-mix stainless steel burner uses a 120 volt motor with pulse wave modulation control to change the fan speed, thus the combustion air volume of fuel and air through the burner to establish an infinite BTU input range equal to the water heating set point requirement. The digital LED control display shall provide means, via push buttons, for adjustments of operating temperatures, differential adjustment, ECO reset, service mode, and real time status mode. In addition, there shall be provided a computer connection for perpetual history, including all fault codes and hours of operation above 50% input, below 50% input, as well as real time status reporting of all operations. The burner assembly shall be mounted so as to be easily removed as an integral unit for ease of service.

The heater combustion system can be designed for either two pipe (intake and exhaust) closed combustion, or a single pipe system taking mechanical room air and piping exhaust outside. Plastic or stainless steel piping materials are approved for venting applications. The vent connections (intake and exhaust) shall be located on the bottom of the heater with connection size 2” for 100-130k Btu/Hr sizes and 3” for 160k-199k Btu/Hr sizes.

Venting can be installed using several different methods:

(NOTE: Foam core pipe is not an approved exhaust venting material.)

Direct Vent Side Wall – Where the intake and exhaust shall terminate in a two pipe configuration or through a factory approved sidewall termination kit where both the intake and exhaust are located on the

same side of the outside wall of any given structure.

Direct Vent Vertical – Where intake and exhaust terminate either in two pipe configuration or through a factory approved termination kit where both the intake and exhaust are located on the rooftop of any given structure.

Vertical Venting with Intake Drawing Air from Mechanical Room or Outside – Where the exhaust can run vertically and the combustion air can be drawn either from the room or outside the structure horizontally.

The total combined length of exhaust and intake vents cannot exceed 200 combined feet for the vent connection size supplied with each unit. Adequate combustion air must be supplied when drawing air from the mechanical room. Avoid the room contaminants listed in the installation manual.

The heater shall be in compliance with the NOx emissions limit set forth in SCAQMD Rule 1146.2-1998. The heater shall be factory assembled, test-fired for correct BTU input, and adjusted for proper combustion parameters. Complete operating and installation instructions shall be furnished with every heater as packaged by the manufacturer for shipping.

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

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.

LP-193
Rev 8.23.10