

## **Specification for Heat Transfer Products, Inc. Rev 2-199/399VWH Munchkin Hot Water Supply Boiler**

### **Typical Specification for the Rev 2 -199/399VWH Munchkin High Efficiency Hot Water Supply Boiler**

**Model Number 199VWH ( Modulation Range 66,000 to 199,000)**

**Model Number 399VWH ( Modulation Range 100,000 to 399,000)**

**The Boiler shall be a Munchkin, Hot Water Supply Boiler, manufactured by Heat Transfer Products Inc. and shall be operated on Natural Gas or L.P. Gas.**

The heat exchanger shall be constructed of 316L stainless steel. The 316L stainless steel combustion chamber shell shall be designed to drain condensation to the back of the heat exchanger section. A thermoplastic condensate hose with a built in trap shall allow condensation to drain from the heat exchanger sections. The Heat Exchanger Tubes shall be rolled and formed in a helical pattern. These tubes shall be secured in a welded module and shall not require any gaskets. The water side and combustion gas side will have baffle plates that will allow the boiler to control the flow of each medium in order to condense the flue gas. The entire heat exchanger shall be insulated and secured in a plastic enclosure. All components shall be located in the front of the heater for easy access for future serviceability. The boiler shall bear the ASME "H" Stamp for working pressure of 160 PSI and shall be National Board Listed. The complete heat exchanger assembly shall carry a 5 year limited warranty.

The boiler shall be a sealed combustion system, taking only outside air for combustion and exhausting the flue gas with plastic schedule 40 or 80 PVC pipe or CPVC pipe.

**CAUTION Foam Core pipe is not an approved material for either intake or exhaust piping.**

The boiler's total combined equivalent venting length, including fitting allowances for both the intake and exhaust venting shall not exceed 85' in 4" pipe size or 125' in 6" pipe size.

The boiler shall have a gas connection of 3/4" NPT (for the 199VWH) on the left side and 1-1/4" NPT (for the 399VWH) on the right side. Electrical and water connections 1-1/4" NPT (for the 199VWH and 2" NPT for the 399VWH) are located on the left hand side of the boiler. The venting connection shall be located in the rear of the boiler. The boiler shall be connected to a storage tank that will re-circulate back to the boiler to heat domestic hot water. The boiler's optional high velocity pump will supply the required water flow through the heat exchanger to assure the boiler's overall performance. The high velocity pump shall be wired for continuous operation. Construction of the pump shall be suitable for potable water. The Hot Water Supply Boiler must be properly sized for thermal expansion and to

meet local codes. The boiler construction is in accordance with ANSI Standard for Gas Fired Low-Pressure steam and Hot Water Boilers, ANSI Z21.13b-2002, and Canadian National Standard CGA-4.9-1999.26UB. The 399VWH boiler shall run at a combustion efficiency of no less than 95.1% with a thermal Efficiency of 93.4. The 199 VWH Shall have an AFUE of 95.1 The boiler shall be UL/ULC (File # MH 27745) listed.

The boiler shall have an integrated digital control system utilizing an algorithm to fully adjust the firing rate while maintaining the desired output temperature. Combustion gas and air are premixed prior to introduction to the stainless steel “inconel” burner using a low voltage gas valve and variable speed fan. The boiler control uses pulse width modulation to send a speed command signal to the fan which varies the volume of combustion air and gas supplied to the burner. The control is connected to a digital display that provides information on the operation of the boiler. The control shall provide means for adjustments of the operating temperature from 50F to 203 F, a differential temperature adjustment 5 to 30 degrees and temperature measurement in Fahrenheit F or Celsius C. The control shall provide a button for a manual ECO reset . In the event of a fault in the boiler, the display will show a fault code to aid in troubleshooting.

The boiler shall be factory assembled and test fired to ensure the correct operating parameters of the boiler. Combustion tests shall also be performed during testing to assure compliance to boiler parameters. Complete operating and installation instructions shall be furnished with every boiler.

The Hot Water Supply Boiler shall be packaged with an optional High Velocity Pump, including connection tee and flange. A flow switch to monitor the flow through the heat exchanger is also included.

**199 VWH** Maximum unit dimensions shall be : **Length** 24-1/2”,**Width** 18-1/4” and **Height** 25-7/8” Maximum unit **weight** shall be approx. 126 pounds ( including pump )

**399 VWH** Maximum unit dimensions shall be : **Length** 44-1/2”,**Width** 18-1/4” and **Height** 25-7/8” Maximum unit **weight** shall be approx. 267 pounds ( including pump )