

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

Typical Specification for the 199/399VWH Munchkin High Efficiency Hot Water Supply Boiler

Model Number 199VWH (Modulation Range 50,000 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 Entire 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 Rubber Neoprene condensate hose with a built in trap shall allow condensation to drain from the Heat Exchanger sections. The water containing Heat Exchanger Tubes shall be rolled and formed in a helical pattern. These tubes shall be secured in a header with o-ring seals, which are held together in place with stainless steel banding material. The water side and combustion gas side will have baffle plates which will allow the boiler to control the flow of each median in order to condense the flue gas and achieve a 96% Efficiency. 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 125 lbs 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. The intake/exhaust shall be piped with solid PVC or solid ABS schedule 40 or 80. **CAUTION Foam Core pipe is not an approved material for either intake or exhaust piping.** The boiler's total combined equivalent venting length, less 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" (for the 199VWH) and 1-1/4"(for the 399VWH on the right side. Electrical and nipple connections (1-1/4" for the 199VWH and 2" for the 399VWH) are 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 which will re-circulate back to the heater to heat domestic hot water water. The boilers high velocity pump will supply the required GPM through the heat exchanger to assure the boilers overall performance. The high velocity pump will 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's construction is in accordance with ANSI Standard for Gas Fired Low-Pressure steam and Hot Water Boilers, ANSI Z21.13b-1994, and Canadian National Standard CGA-4.9-1999.26UB. The heater should run at a combustion efficiency of no less than 96% . The boiler shall be UL/ULC (File # MH 27745) listed. The boiler shall have a thermal efficiency of 90.5 % . as tested with a 119 Gallon Storage Tank and tested by an accredited testing agency to ANSI Z21.10.3-1998

The boiler shall have integrated digital controller device with temperature and spark or hot surface igniter. The control utilizes an algorithm to fully adjust the firing rate while maintaining the desired output temperature. The pre-mix Stainless steel "NIT" burner has a low voltage direct current drive motor with pulse width modulation, which allows the control to change the fan speed and combustion air volumes of fuel and air through the burner. The control is connected to a digital display that provides information and operation of the boiler. The display shall provide means for adjustments, operating temperature from 50F – 201F, differential temperature adjustment 5 to 30 degrees, temperature measurement Fahrenheit F or Celsius C. The display shall provide a button to provide a manual ECO reset .

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

The Hot Water Supply Boiler shall be packaged with a High Velocity pump, including connection tee and flange.

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 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 267 pounds (including pump)

CSD-1 Note : Due to the large discrepancy in CSD-1 requirements from state to state , please confirm to the factory all controls required in your jurisdiction,