

## Specification for Heat Transfer Products, Inc. Munchkin Boiler

### Typical Specification for the Munchkin High Efficiency Boiler

**Model Numbers: T50/T80M/80M /140M/ 199M (Modulation Range 18,000 to 199,000)**

**The Boiler shall be a Munchkin Boiler, manufactured by Heat Transfer Products Inc. Model \_\_\_\_ M. Having a modulation input range of \_\_\_\_\_ Btu/Hr, a modulation output range of \_\_\_\_\_ Btu/Hr 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 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 92% AFUE Rating. 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 complete heat exchanger assembly shall carry a 12 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. Foam Core pipe is not an approved material for either intake/exhaust piping. The boiler's total combined equivalent venting length, less fitting allowances for both the intake and exhaust venting shall not exceed 85' for 2" and 3" pipe sizes and 125' in 4" pipe size.

The boiler shall have a 3/4 gas connection on the right side and electrical and 1-1/4" nipple connections on the right hand side of the boiler. The venting connection shall be located in the rear of the boiler. The operation of the boiler shall be in a closed loop pressurized system, which must have a properly sized thermal expansion tank, or 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 an efficiency of no less than 96% . The heater shall be UL/ULC (File # MH 27745) listed and exceed the minimum efficiency requirements of Ashrae/103-1993. The heater shall have an AFUE rating of 92%.

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 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 – 203F, a 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 heaters parameters. Complete operating and installation manual are to be furnished with every heater.

Maximum unit dimensions shall be:

Length \_\_\_\_\_ Width \_\_\_\_\_ Height \_\_\_\_\_

Maximum weight of unit shall be \_\_\_\_\_

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