

# WM97+ Wall Mount Boiler

## Questions & Answers

*Models 70, 110 & 155*



### INSTALLATION

1. Can the boiler be installed in a living area?

Yes, the WM97+ is a wall mounted boiler. The sealed combustion and internal circulator make for very quiet operation.

2. What will be the amount of condensate the boiler produces?

Boiler	Minimum recommended condensate pump capacity, per boiler, GPH
WM97+70	2
WM97+110	3
WM97+155	4

3. What is the dry weight of the WM97+?

WM97+ 70 & 110            117 lbs.  
WM97+ 155                122 lbs.

4. Can the WM97+ be floor mounted?

No, the boiler is designed to only be wall mounted.

5. Why is Sentinel X-100 Inhibitor provided with the WM97+ boiler?

X100 is meant to provide and maintain total system performance. System performance requires effective heat emitters (radiant tubing, baseboard, etc.) as well as high efficiency boilers to be maintained to provide maximum efficiency and operating savings. X-100 prevents scale and corrosion in cast iron, aluminum and stainless steel boilers and system components. It also helps prevent noise and hydrogen gas formation in hot water heating systems.

## VENTING

1. What vent material can be used on the WM97+ boilers?

The boiler is approved to be vented with PVC, CPVC, Polypropylene (PP) or AL29-4C stainless steel.

Special PP note: if one wants to sidewall concentric vent the 155 model using Centrotherm's pipe system (Eco Systems InnoFlue Single-wall), Centrotherm's stainless steel concentric termination kit must be used.

2. Does a vent/intake termination come with the WM97+ boiler?

Yes, the same black 3" PVC sidewall termination as the Ultra gas boiler.

3. Can the included PVC vent/intake termination plate be painted?

Yes.

4. What is the clearance to combustibles for the PVC vent?

3/16" (or to state and local codes, whichever is greater)

5. What is the approximate vent temperature of the WM97+?

Approximately 10 to 15 degrees F above system return water temperature.

6. How can I vent with PVC when flue gas temperatures are as high as approximately 190 degrees Fahrenheit?

There is a difference between flue gas temperature and vent material temperature. In the case of flue gas going through the pipe, it is not able to transfer as much heat into the pipe as could be transferred with water. The WM97+ boiler is designed, tested, and certified to ANSI Z21.13/CSA 4.9 which limits the PVC vent material to 158 degrees Fahrenheit. The WM97+ also utilizes a flue temperature sensor to insure the flue gas temperature does not exceed 216° F.

7. What size vent can be used with the WM97+ boilers?

2" or 3" for the WM97+ 70 and 110, pipe size depends on vent length and number of elbows.

3" only for the WM97+155.

## PIPING

1. What size boiler supply/return piping is recommended for the WM97+ boilers?

WM97+70 and 110 utilize 1" piping.  
WM97+155 utilizes 1 ¼" piping.

2. Can the WM97+ internal circulator be increased in size?

No, a Taco 007 IFC (with an integrated flow check) is provided with the WM97+70 and a Taco 0015 IFC is provided with the WM97+110 and the WM97+155 boilers to provide proper flow through the boiler. If multiple circulators or a larger circulator is required, the additional circulators must be external to the boiler. And the boiler's internal primary/secondary by-pass valve should be opened to hydraulically separate the boiler's internal flow requirement from the system's requirement.

3. What circulator can be used for replacement in the WM97+?

The quickest and preferred method would be to change the circulator cartridge, it can be easily replaced on both models without removing the circulator and is available at both WM and Taco distributors (WM part # 511-405-142 for the WM97+70 model, and part 511-405-143 for the WM97+110 & 155 models). If replacing the circulator is desired, the Taco 007 or equivalent can be used for the WM97+70. For the WM97+110 & 155, a Taco 0015 can be replaced with a Taco 00R 3 - please note that the 0015 for the 110 is the standard flange 00R-3, and the 155 uses the 0015 w/ rotated flanges, 00R-3 w/ rotated flanges. The factory installed boiler circulators have an integrated flow check (IFC) in them-either replace with a circulator that has this feature, or know that you no longer have this capability.

4. For a small zone or zones, can the primary/secondary connection be disabled in order to utilize the internal boiler circulator as the system circulator?

Yes, the WM97+ 70 & 110 boiler circulator alone, can be used satisfy a small zone(s). The boiler has an internal primary/secondary by-pass valve which allows selecting whether the boiler is direct connected or primary/secondary connected to the system. If only piping to a single zone (may require multiple branches) or multiple small zones with zone valves, the primary/secondary connection can be turned off, which removes the primary/secondary connection to the system. Zone valve systems, in which the valves are not controlled by the boiler, require a pressure differential bypass valve to be installed.

The WM97+ 155 boiler circulator should not be used to satisfy the system by itself.

5. How are circulator speeds selected?

The WM97+ control can select low, medium, or high speed for the internal circulator on both DHW and Heat settings. Low speed is typical for primary/secondary connection and may be acceptable for very a small zone(s). If in doubt, verify the boiler out and boiler in temperature difference is approximately 30 degrees. Higher speeds will lower the temperature rise through the boiler.

6. What is the maximum relief valve pressure for the WM97+ boiler?

30 PSI

## **GAS VALVE AND CONTROL**

1. What is the maximum and minimum inlet gas pressure to the boiler?

Maximum is 13" water column (W.C.), minimum is 3.5" W.C. for WM97+70 and the WM97+155, and 4.5" for WM97+110 with boiler operating at high fire.

2. What is the manifold pressure of the gas valve?

The gas valve is a negative regulation gas valve and the manifold pressure cannot be measured. A combustion analyzer must be used to properly adjust the gas valve.

3. What is the procedure for converting from Natural Gas to Propane?

All WM97+ boilers are factory tested and shipped as natural gas boilers. Every boiler comes with a propane conversion orifice and instructions.

4. What is the operating voltage of the gas valve?

This is a DC gas valve. Voltage is typically 19 to 21 volts DC measured on the two outer pins of the gas valve connector.

5. What is the trial for ignition and number of ignition retries for the gas control?

The ignition control trial for ignition is 4 seconds before shutting down and recycling. The control module tries for ignition 5 times before ignition lockout. To reset an ignition lockout, select "MANUAL RESET" on the boiler display and follow the step and warnings. If an ignition lockout occurs, the control module will perform a new complete ignition cycle after a 60 minute wait.

6. How can priority be turned off on the WM97+ control?

Turning the DHW setting to “OFF” will return the control to a 3-zone control. Any or all of the 3 zones can run in any combination and will operate on the temperature settings entered under “HEAT SETTINGS”.

7. How many circulator zones can be wired directly into the boiler?

The WM97+ control module is capable of operating 3 circulators in addition to the internal circulator that can be adjusted to three different speeds or turn off through the boiler control.

The boiler can use these three circulator outputs to run three separate heating zones, or one DHW (with priority) and two heating zones.

8. What if I want to run 3 circulator zones with no priority?

Setting the DHW SETTING to OFF will allow the control to turn any or all of the three circulator outputs on, based on the status of their respective thermostat inputs connected to the boiler.