



WATER HEATER TEMPERING VALVE INSTALLATION & SERVICING INSTRUCTIONS

The Webstone Water Heater Tempering Valve (WHTV) is designed for use in domestic hot water systems, and provides outlet temperatures ranging between 86°–120° F (30°–49° C), with a factory setting of 115°–120° F (46°–49° C). Inspect the WHTV at least once per year to verify it is operating within the correct temperature range. If faulty operation is suspected, immediately reset the water heater temperature to the maximum safe temperature of 120° F following the manufacturer's instructions.

It may be necessary to check the valve more frequently in installations with poor or unknown water quality. In such installations, the use of a filter or strainer is required. To prevent cross flow, the WHTV is equipped with integrated check valves on the cold and hot water inlets. Verify the check valves are functioning correctly to ensure safe system operation.

IMPORTANT: Follow all federal/national, state and local codes when installing, testing or performing work on systems. All parts are covered by a lifetime warranty against manufacturing defects provided they are installed by a licensed plumber and operated under normal working conditions. Disassembling will void this warranty. If you have any questions or comments, please contact us at (800) 225-9529 or visit us on the web at www.webstonevalves.com.

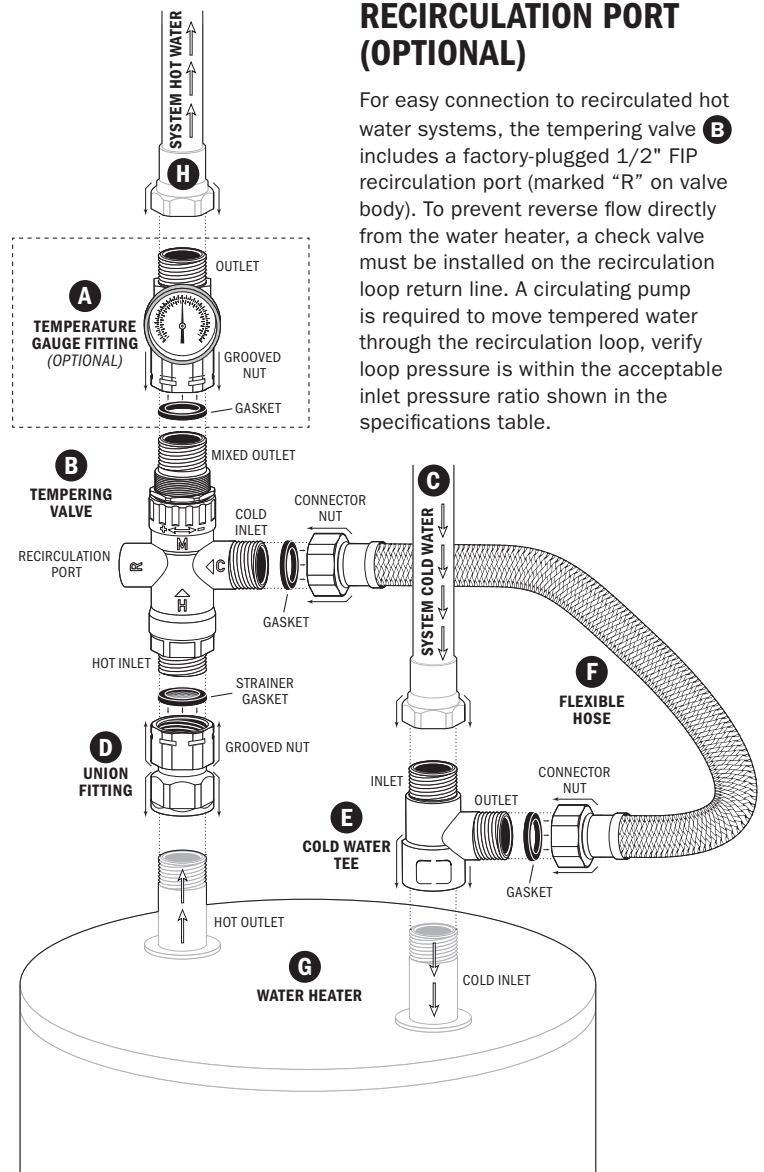
WARNING: This valve was not designed for installations exposed to subfreezing conditions; use suitable insulation if this possibility exists in your installation. Subjecting the Webstone WHTV to heat during installation may damage the valve internals. The Webstone WHTV is designed for use in water systems only. DO NOT use the WHTV in steam systems. The use of excessive thread sealant may cause the Webstone WHTV to fail. Water in excess of 120° F can cause scalding, severe injury, or death. Verify after initial installation, and recheck annually that the WHTV is providing water in the appropriate temperature range by following the procedure specified in this document.

INSTALLATION

- Prepare the system:
 - Flush the system thoroughly before installation.** It is critical to flush all debris from the pipework before installation. This step eliminates the most common cause of system difficulties.
 - Check the specifications of your tempering valve against site parameters, such as temperature and pressure. Rectify any conditions outside the valves specifications before installation.
 - To protect against damage caused by a poor quality water supply, install a strainer or filter in the cold water supply line before the tempering valve and water heaters inlets.
- Plan installation. Ensure alignment permits the flexible hose **F** connection to be made between the tempering valve **B** and cold water tee **E**, and temperature adjustments components remain accessible.
- Apply PTFE tape to water heater **G** cold inlet and hot outlet
- Connect the fixed (non-grooved) end of union fitting **D** to the water heater **G** hot outlet.
- Insert strainer gasket into union fitting **D** grooved nut, and connect grooved nut to tempering valve **B** hot inlet (marked "H" on valve body).
- Connect cold water tee **E** to water heater **G** cold inlet. Ensure cold water tee **E** alignment permits flexible hose **F** to reach tempering valve **B** cold inlet.
- Confirm gaskets are in both flexible hose **F** connector nuts. Connect flexible hose **F** to tempering valve **B** cold inlet (marked "C" on valve body), then connect flexible hose **B** to cold water tee **E**.
- Optional temperature gauge (Item #74313)** – insert gasket into temperature gauge fitting **A** grooved nut. Connect gauge fitting **A** to tempering valve **B** mixed outlet (marked "M" on valve body)
- Connect system cold water **C** supply line to cold water tee **E** inlet.
- Connect system hot water **H** piping to tempering valve **B** mixed outlet (marked "M" on valve body) or temperature gauge fitting **A** outlet.
- Verify the correct mixed output temperature is being achieved following the instructions on the next page.

RECIRCULATION PORT (OPTIONAL)

For easy connection to recirculated hot water systems, the tempering valve **B** includes a factory-plugged 1/2" FIP recirculation port (marked "R" on valve body). To prevent reverse flow directly from the water heater, a check valve must be installed on the recirculation loop return line. A circulating pump is required to move tempered water through the recirculation loop, verify loop pressure is within the acceptable inlet pressure ratio shown in the specifications table.

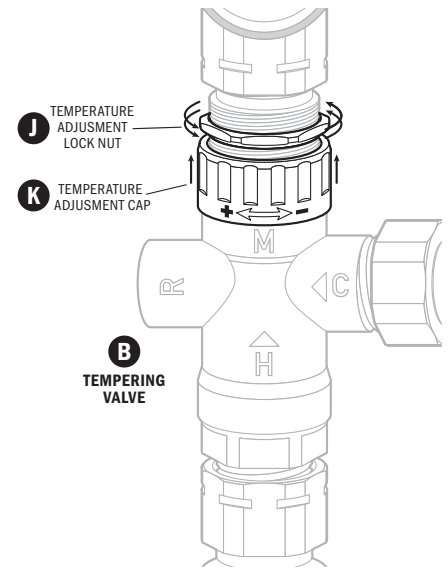


VERIFYING & ADJUSTING OUTLET TEMPERATURE

With the water heater switched on and stored water fully heated to the set temperature, use a thermometer to verify mixed water temperature at nearest hot water outlet supplied by mixing valve. Run water for at least 1 minute, at a minimum flow rate of 1.5 GPM to ensure temperature has settled.

The tempering valve is set at factory to a maximum output temperature of 115°–120° F (46°–49° C). If adjustment is required, or a different output temperature is desired:

1. Loosen temperature adjustment lock nut **J** two full rotations using a wrench.
2. Pull temperature adjustment cap **K** towards loosened lock nut **J**. You should hear and feel the cap **K** click.
3. With water flowing through the tempering valve **B**, rotate the temperature adjustment cap **K** in the direction of the desired temperature.
4. Verify desired temperature output has been achieved by directly measuring the water, using a thermometer at the nearest outlet with a minimum flow rate of 1.5 GPM. Run the water for at least 1 minute after making any adjustments to allow temperature to settle.
5. Tighten temperature adjustment lock nut **J** using a wrench. The plastic cap should click as it locks in place. Verify temperature adjustment cap **K** cannot be turned to prevent tampering.



TEMPERATURE INDICATOR STRIP

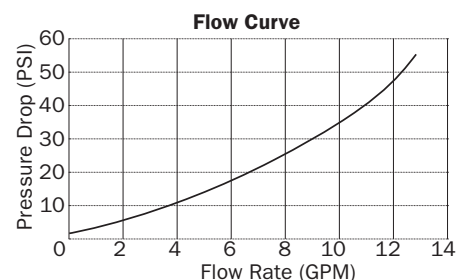
Outlet temperature MUST be verified by direct measurement of water using a thermometer after installation, and after making any temperature adjustments. The included temperature indicator strip can be used to monitor the outlet temperature of the tempering valve. The temperature strip can be attached directly to steel or copper pipe, no less than 10" from the mixed water outlet connection.

SERVICING AND SPECIFICATIONS

- The Webstone Water Heater Tempering Valve is a SAFETY VALVE. Inspect the WHTV at least once per year to verify it is operating correctly. It may be necessary to check the valve more frequently in installations with poor or unknown water quality. Outlet temperature may vary due to seasonal changes in cold water supply temperatures.
- When testing, verify the temperature at the same water outlet measured during initial setup. Allow water temperature to stabilize before measuring. If the temperature differs more than 5°F from initial setup, refer to the troubleshooting table below.

Problem	Solution
Unable or difficult to set correct mixed water temperature	<ul style="list-style-type: none"> • Ensure inlet temperatures meet WHTV specifications • Ensure that hot and cold supply lines have not been reversed • Ensure strainers are not blocked
Mixed water temperature is not stable or changes over time	<ul style="list-style-type: none"> • Ensure strainers are not blocked • Ensure supply pressures are stable. Install pressure regulating valves to correct if necessary
Full hot or full cold water flowing from MIX outlet	<ul style="list-style-type: none"> • Verify valve temperature setting • Ensure that hot and cold supply lines have not been reversed • Ensure that check valves are not clogged or damaged • Ensure inlet temperatures meet WHTV specifications
No flow from MIX outlet	<ul style="list-style-type: none"> • Ensure adequate hot or cold water supply • Ensure inlets are not blocked
Reduced or inconsistent flow rate	<ul style="list-style-type: none"> • Ensure inlets are not blocked • Ensure supply pressures are stable. Install pressure regulating valves to correct if necessary
Mixed water temperature remains same when handle is moved	<ul style="list-style-type: none"> • Ensure that hot and cold supply lines have not been reversed
Hot water flows into the cold water system, or cold water flows into hot water system	<ul style="list-style-type: none"> • Ensure that check valves are not clogged or damaged
WHTV is noisy	<ul style="list-style-type: none"> • Ensure water supply pressures are within WHTV specifications. Install pressure regulating valves to correct if necessary • Ensure WHTV is correct size for required flow

Mixed Outlet Temperature Range	86–120°F (30–49°C)
Factory Set Mixed Outlet Temperature	115–120°F (46–49°C)
Hot Inlet Temperature Supply Range	118–194°F (48–90°C)
Cold Inlet Temperature Supply Range	39–80°F (4–27°C)
Outlet Temperature Stability¹	± 5°F (3°C)
Maximum Working Pressure	150 psi (10 bar)
Minimum Temperature Differential Between Hot Supply and Mixed Outlet²	20°F (11°C)
Maximum Inlet Pressure Ratio³	2:1
Minimum Flow Rate	1 GPM (4 L/min)



1. As tested in accordance with ASSE 1017.

2. Required minimum temperature difference between the mixed outlet and the hot supply to enable the valve to function correctly and ensure automatic reduction of outlet flow in the event of cold supply failure.

3. Maximum permitted variation in Hot/Cold or Cold/Hot supply pressure in order to control the outlet temperature to within ± 5°F. Excessive fluctuation in supply pressures may cause outlet temperature to be outside of specified tolerance.