



Temperature And Pressure Relief Valves

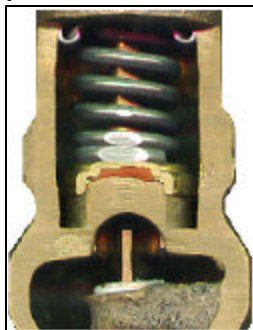
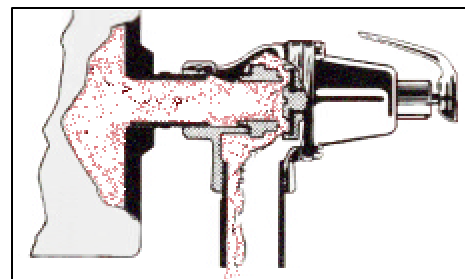
**Discharge of the T&P valve may indicate that an unsafe temperature or pressure condition exists.
 Contact a licensed plumber immediately!**



Temperature and Pressure Relief Valves, also called T&P valves, are emergency safety limit devices that will prevent or relieve overheated water and pressure. Without a relief valve during an unsafe condition, the pressure inside the tank would rise to the point the tank may rupture or explode. This would cause potential damage to both people and property. Rheem water heaters are pressure tested to 300 pounds per square inch (PSI) and have a working pressure of 150 PSI. The T&P valve is designed to open when the pressure inside the tank exceeds 150 PSI, allowing pressure to vent safely. The T&P valve will also open if the water temperature reaches 210⁰ F. The valve will remain open allowing cold water into the tank until the unsafe condition is over.

Why is hot water over 212° F dangerous? The containment vessel or storage tank used to store the hot water causes the danger. This tank is under pressure – the normal working pressure caused by the cold water supply. As water is heated under pressure, the boiling point rises. For example, with a nominal incoming supply pressure of 50 PSI, water will not boil under pressure until the temperature reaches approximately 297° F. The energy potential in the superheated water is called latent heat energy and will flash to steam when exposed to normal atmospheric pressure. This flash to steam has the explosive potential of over two million foot-pounds of energy.

The Temperature and Pressure Relief Valve is the safety device that prevents these conditions from happening. It is a 2-in-1 device that responds to both pressure increases and temperature increases. When actuating by pressure, the T&P valve will open and allow the tanks internal pressure to drop below 150PSI. Generally, when you see a T&P valve weeping or dribbling, it is due to



pressure (thermal expansion) or foreign material such as calcium buildup in the valve seat. This material on the valve seat will prevent the valve from closing tightly. If the valve is discharging large quantities of water, then the release is due to temperature. Recall the T&P is installed in the top six inches of the tank. If the temperature probe on the T&P senses water temperatures of 210° F, it will open the valve. The valve will stay open until the temperature probe cools. With cold water entering the bottom area of the tank, you can see a large volume of water (gallons) will be discharged before the temperature probe cools.

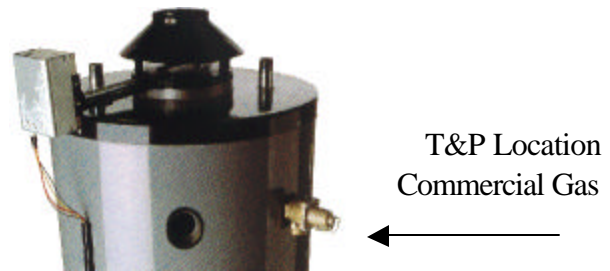
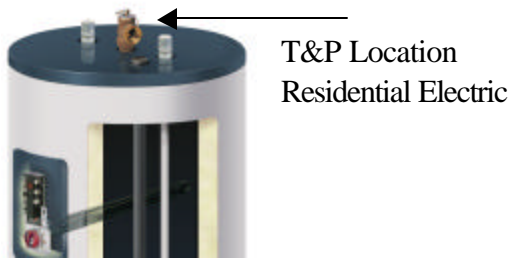


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T&P valves should be inspected and tested on every service call. When checking the valve, also check the rating plate on the valve. Many changes may take place in a plumbing system after the original installation. Through a systemic reinspection program, we can insure that the safety device is working properly. The T&P Valve must be capable of discharging more BTUs than the heater is capable of putting into the water.

Installation of a temperature and pressure relief valve is critical to the safe operation of a water heater. The basic rule is that the T&P valve must be installed so that the temperature-sensing probe is immersed in the hottest water in the top six inches of the tank. All water heaters manufactured by Rheem – Ruud have a separate and special connection designed for the T&P valve.



Here are some common T&P valve errors:

- No T&P installed or pressure only relief valve installed
- Non-code or insufficient rating T&P valve installed
- T&P installed in the cold water line
- T&P installed a distance from the tank, such as in the hot outlet line
- T&P has been altered or repaired
- T&P valve drain line is plugged or restricted

Tips for the Temperature and Pressure Relief drain line:

- Run to a safe place of disposal (floor drain or outside)
- Drain piping should be the same size as the valve discharge through its entire length
- Pitch downward from the valve
- Terminate 6 inches above the floor drain
- No longer than 30 feet
- Not use more than four elbows
- Do not install a shut off valve in the drain line
- Terminate unthreaded