



TWIN CREEK WATER SUPPLY CORPORATION

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CAUTION TO THE MEMBERSHIP

Please be advised that Twin Creek WSC operates a **CLOSED SYSTEM**. This is a result of installing a check valve at each meter to lessen the chance of contamination caused by a back-flow into the main water distribution system.

You are encouraged to read the following information about a closed system, thermal expansion protection, and to take appropriate action to protect your private water distribution system from potential problems.

Closed System

Any one-way valve placed on the service connection, and in certain instances within the water system, can create a closed system. A backflow prevention assembly, a dual check, a swing check, a pressure reducing valve, are some examples of one-way valves that can create a closed system.

When water is heated, the water expands; it grows in volume. If the water is in a closed system the water becomes trapped and cannot return through the system. Since water is not compressible, it has to find a way to escape. One of the most likely places for the water to escape is out the Temperature and Pressure Relief Valve (T & P). The T & P is a valve installed to provide safety in an emergency. The T & P is not designed for on and off operation. Over time this valve may malfunction, causing a very dangerous situation.

If the water cannot escape through the T & P, it will seek other places to go. The water will back through the system to wherever the weakest points in the system are located. Some examples of weak points include washing machine hoses, supply lines to faucets, and ballcocks in toilets. These weak points may rupture, causing flooding and property damage.

Thermal Expansion Protection

If a one-way valve is installed on a water system, the threat of thermal expansion must be addressed. One way to protect the system is the use of a pressure relief valve. It is similar to the T & P on a water heater except that it is designed for on and off operation. These types of valves may be part of a ball valve that would be installed with the water heater.

Table 3.2: 30 TAC Chapter 291 Subchapter E-§291-81(2)

30 TAC 291-Subchapter E

§291.81(2) The utility shall notify each service applicant or customer who is required to have a customer service inspection performed. This notification must be in writing and include the applicant's or customer's right to get a second customer service inspection performed by a qualified inspector at their expense and their right to use the least expensive backflow prevention assembly acceptable under §290.44(h) of this title (relating to Water Distribution) if such is required. The utility shall ensure that the customer or service applicant receives a copy of the completed and signed customer service inspection form **and information related to thermal expansion problems that may be created if a backflow prevention assembly or device is installed.**

Some benefits of this type of protection are low cost and easy installation. In addition, the pressure relief valve does not require additional space for the protection. Some disadvantages include water loss; water must be piped to a sanitary drain, and possible undetected leakage.

Another way to protect the system from the effects of thermal expansion is the use of a thermal expansion tank.

The thermal expansion tank is usually attached to the cold water line near the water heater (Figure 3.20). The tank has a diaphragm built into the tank with an air pre-charge. The pre-charge should be the same pressure as the system water pressure. When the water is heated, the water will expand. Water is not compressible but air is. When the water expands due to thermal expansion, the water will expand into the tank (Figure 3.21)

Diagrams

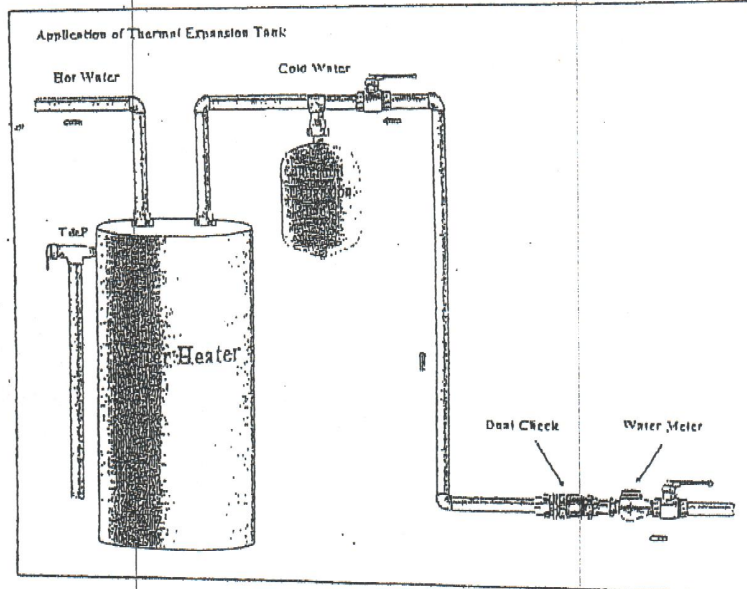


Figure 3.20: Application of Thermal Expansion Tank (Courtesy of the EPA)

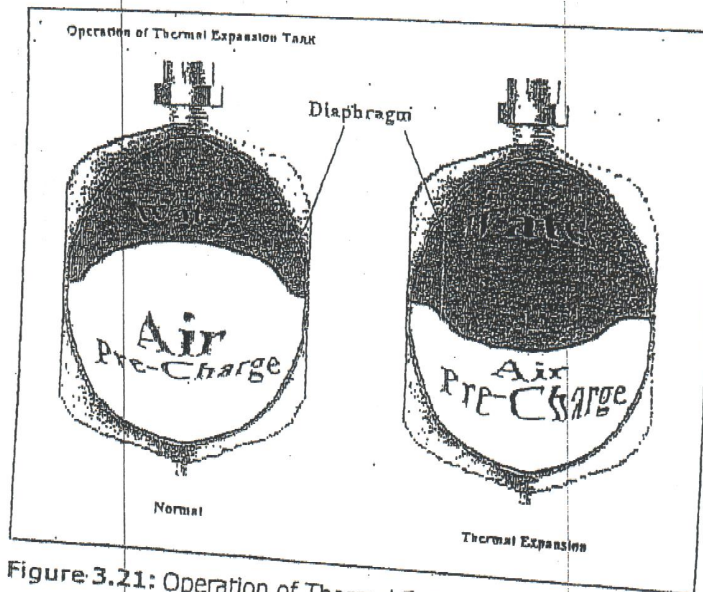


Figure 3.21: Operation of Thermal Expansion Tank (Courtesy of the EPA)

NOTE: Your acknowledgement for receipt of this information is required for all new accounts.