



# THERM-X-TROL®

## THERMAL EXPANSION ABSORBERS

### INSTALLATION & OPERATION INSTRUCTIONS

Models ST-447C through ST-457C



**NOTE:** Inspect for shipping damage and notify freight carrier or store where purchased immediately if damage is present. To avoid risk of personal injury and property damage, if the product appears to be malfunctioning or shows signs of corrosion, call a qualified professional immediately. Current copies of the Product manual can be viewed at [www.amtrol.com](http://www.amtrol.com). Use proper safety equipment when installing.



**THIS IS THE SAFETY ALERT SYMBOL. IT IS USED TO ALERT YOU TO POTENTIAL PERSONAL INJURY AND OTHER HAZARDS. OBEY ALL SAFETY MESSAGES THAT FOLLOW THIS SYMBOL TO REDUCE THE RISK OF PERSONAL INJURY AS WELL AS PROPERTY DAMAGE.**

**WARNING** READ CAREFULLY THE PRODUCT INSTALLATION & OPERATION INSTRUCTIONS. FAILURE TO FOLLOW THE INSTRUCTIONS AND WARNINGS IN THE MANUAL MAY RESULT IN SERIOUS OR FATAL INJURY AND/OR PROPERTY DAMAGE, AND WILL VOID THE PRODUCT WARRANTY. THIS PRODUCT MUST BE INSTALLED BY A LICENSED PROFESSIONAL. FOLLOW ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS, IN THE ABSENCE OF SUCH CODES, FOLLOW THE CURRENT EDITIONS OF THE NATIONAL PLUMBING CODE AND NATIONAL ELECTRIC CODE, AS APPLICABLE.

**WARNING** EXPLOSION OR RUPTURE HAZARD. THE EXPANSION TANK MUST BE OPERATED SO THAT THE PRESSURE DOES NOT EXCEED THE MAXIMUM WORKING PRESSURE.

**WARNING** EXPLOSION HAZARD. Failure to follow the instructions in the accompanying product manual can cause a rupture or explosion; possibly causing serious or fatal injury, leaking or flooding and/or property damage.

**WARNING** Use only with potable water system. Do not operate in a setting with freezing temperatures or where the temperature can exceed 240°F and do not exceed the maximum working pressure specified for this Product in the Manual. Mount vertically only.

**WARNING** Chlorine & Aggressive Water: The water quality can significantly influence the life of this Product. You should test for corrosive elements, acidity, total solids and other relevant contaminants, including chlorine and treat your water appropriately to insure satisfactory performance and prevent premature failure.

**WARNING** This Product, like most Products under pressure, may over time corrode, weaken and burst or explode, causing serious or fatal injury, leaking or flooding and/or property damage.

To minimize risk, a licensed professional must install and periodically inspect and service the Product. A drip pan connected to an adequate drain must be installed if leaking or flooding could cause property damage. Do not locate in an area where leakage of the tank or connections could cause property damage to the area adjacent to the appliance or to lower floors of the structure.

**WARNING** Do not expose Product to freezing temperatures or temperatures in excess of 240° F. Do not adjust the pre-charge or re-pressure this Product except for any adjustments required at the time of initial installation, especially if Product corroded, damaged or with diminished integrity. Adjustments to pre-charge must be done at ambient temperature only. Failure to properly size the Product or follow these instructions may result in excessive strain on the system lead to Product failure, serious or fatal personal injury, leakage and/or property damage.

**WARNING** EXPLOSION OR RUPTURE HAZARD A relief valve must be installed to prevent pressure in excess of local code requirement or maximum working pressure designated in the Product Manual, whichever is less. At least once every 3 years or if discharge is present, a licensed contractor should inspect the temperature and pressure relief valve and replace if corrosion is evident or the valve does not function. **FAILURE TO INSPECT THIS VALVE AS DIRECTED COULD RESULT IN UNSAFE TEMPERATURE OR PRESSURE BUILD-UP WHICH CAN RESULT IN PRODUCT FAILURE, SERIOUS INJURY OR DEATH AND/OR SEVERE PROPERTY DAMAGE AND VOID THE PRODUCT WARRANTY.**

**WARNING** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY**  
**IMPORTANT GENERAL SAFETY INFORMATION -**  
**ADDITIONAL SPECIFIC SAFETY ALERTS APPEAR IN THE FOLLOWING INSTRUCTIONS.**

**WARNING** FAILURE TO PROPERLY SEAL WILL RESULT IN LOSS OF PRECHARGE CAUSING PRODUCT TO FAIL.

**Installation**

**WARNING** THIS PRODUCT MUST BE INSTALLED BY A LICENSED PROFESSIONAL.

1. Visually inspect THERM-X-TROL for any damage. If damage exists return product for replacement.
2. Adjust pre-charge to equal incoming pressure.

**IMPORTANT** If increasing the pre-charge pressure above 55 psig, the following steps must be followed:

- a. Tank must be connected to the system with isolation valve open.
- b. System must be pressurized to 55-60 psi or slightly higher than the pre-charge setting of the tank.
- c. Isolation valve then needs to be closed.
- d. The pre-charge pressure of the tank can now be increased to the recommended high pressure setting.
- e. Bring system up to pressure, and then open the isolation valve to the tank.

**Failure to follow these instructions could result in damage to the bladder or diaphragm and void all warranties.**

3. Replace and tighten plastic cap on air fitting.
4. Install the THERM-X-TROL on the city supply line to the water heater at a point between the water heater and backflow preventer, check valve or pressure reducing valve (see Figure 1).
5. Once the THERM-X-TROL is installed, check the city supply line for any leakage. Make repairs if necessary.
6. Before the initial firing of the water heater, open any hot water fixture and draw water until all air is removed from the system. Turn the water heater temperature control to desired ending temperature level, (see water heater instructions).
7. To relieve initial thermal expansion, slightly open a hot water faucet. Continue until water heater aquastat temperature is satisfied. Once heater is at its operating range, no further bleeding of expanded water is required.
8. The system water heater and THERM-X-TROL will now be operational. The THERM-X-TROL will control temperature and pressure increases caused by thermal expansion to a level well below the water heater relief valve setting.

**Maintenance**

1. A professional plumber should check the complete heating system, including the THERM-X-TROL, yearly and more frequently as the system ages.

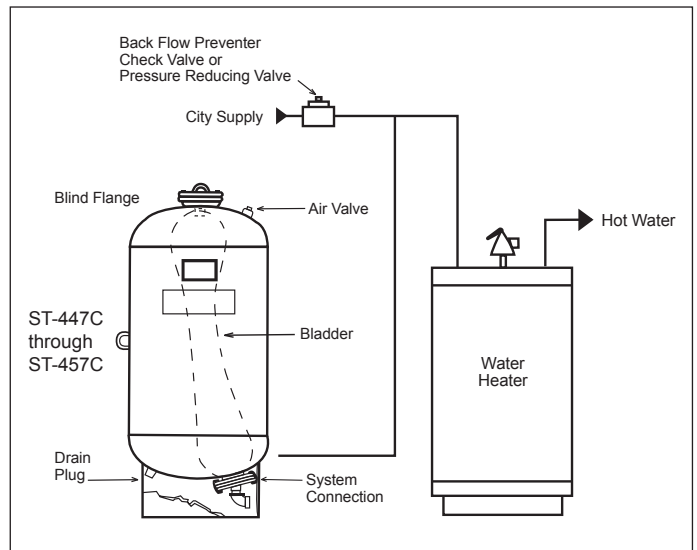
**Operation**

1. The THERM-X-TROL is installed in the supply line between the backflow preventer and the water heater. Its sealed-in air pre-charge prevents water from entering it until the system pressure exceeds the pre-charge pressure.
2. As the water temperature rises, expanded water enters the THERM-X-TROL's non-corrosive water reservoir. The pre-charged air chamber absorbs the pressure increase, keeping system pressures below the relief valve setting.
3. As hot water is used, the pressure in the air chamber forces water back into the system until the THERM-X-TROL is empty. At this point, the pressure in the air chamber once again equals the supply pressure.
4. Water treatment is not to exceed 240° F or fall below 35° F.

**Warranty**

ST-400C through ST-450C Models: Three (3) Year Limited Warranty  
**Visit [www.amtrol.com](http://www.amtrol.com) for complete warranty details.**

Figure 1



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