

## Amtrol ST-5

# Amtrol ST-5 Expansion Tank User Manual

Model: ST-5 | Brand: Amtrol

## 1. INTRODUCTION

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The Amtrol ST-5 (Therm-X-Trol) expansion tank is designed for use in domestic hot water heating systems. Its primary function is to manage the thermal expansion of water, which occurs when water is heated. By accommodating this expansion, the tank helps to protect the water heater and plumbing fixtures from premature failure, reduces potential safety hazards, and prevents dangerous pressure build-up in the system.

This manual provides essential information for the safe and effective installation, operation, and maintenance of your Amtrol ST-5 expansion tank. Please read all instructions carefully before proceeding with installation or use.

## 2. SAFETY INFORMATION

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Always observe basic safety precautions when installing or servicing plumbing equipment. Failure to follow these instructions could result in property damage, personal injury, or death.

- Ensure the main water supply is turned off and the water heater is depressurized before beginning any work.
- Wear appropriate personal protective equipment, including safety glasses and gloves.
- Do not locate this product where leaking or flooding could cause damage to the surrounding area or where no floor drain exists.
- This product should be inspected annually by a licensed professional.
- For use with domestic potable hot water systems only.
- Do not exceed the maximum operating pressure of 150 PSI or maximum temperature of 200°F.

## 3. SETUP AND INSTALLATION

Proper installation is crucial for the efficient operation and longevity of the expansion tank. It is recommended that installation be performed by a qualified plumber.

### 3.1 Pre-Installation Checks

- Verify that the tank's pre-charge pressure matches the incoming cold water supply pressure. Adjust if necessary using a tire pressure gauge and an air pump at the Schrader valve.
- Ensure the installation location is accessible for future maintenance and inspection.
- Confirm that the tank capacity (2 gallons) is suitable for your water heater size.

### 3.2 Installation Steps

1. Turn off the water supply to the water heater and drain a small amount of water to relieve pressure.
2. Locate a suitable connection point on the cold water inlet line to the water heater, typically after any backflow preventer, check valve, or pressure reducing valve.
3. Install a tee fitting at the chosen connection point.
4. Apply pipe thread sealant to the 3/4" NPT connection of the expansion tank.
5. Thread the expansion tank onto the tee fitting. Ensure it is securely tightened but do not overtighten. The tank can be installed in any orientation (vertical, horizontal, or inverted) as long as it is properly supported.
6. If mounting horizontally or inverted, use a support bracket such as the HydroClaw Expansion Tank Support Bracket to prevent stress on the plumbing connections.
7. Slowly turn the water supply back on and check for leaks.
8. Bleed any air from the hot water system by opening a hot water faucet until water flows smoothly.



Figure 1: Top connection point of the Amtrol ST-5 expansion tank. This is the 3/4 inch NPT threaded connection for plumbing into the cold water supply line of the water heater.



Figure 2: Bottom view of the Amtrol ST-5 expansion tank, highlighting the Schrader valve. This valve is used to adjust the internal air pre-charge pressure of the tank.

## 4. OPERATING PRINCIPLES

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The Amtrol ST-5 expansion tank contains an internal diaphragm that separates a factory pre-charged air cushion from the system water. As water in the hot water heater heats up, it expands. Since water is incompressible, this expansion would normally cause a significant increase in system pressure, potentially leading to the activation of the temperature and pressure relief (TPR) valve.

The expansion tank provides a space for this expanded water to enter, compressing the air cushion on the other side of the diaphragm. This absorption of expanded water prevents excessive pressure build-up, keeping the system pressure within safe limits and preventing the TPR valve from unnecessarily discharging water.

## 5. MAINTENANCE

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Regular maintenance ensures the continued safe and efficient operation of your expansion tank. It is recommended to inspect the tank annually.

- **Annual Pressure Check:** Turn off the water supply to the water heater and drain a small amount of water to depressurize the system. Check the air pressure at the Schrader valve on the bottom of the tank using a tire pressure gauge. The pressure should match the incoming cold water supply pressure. Adjust if necessary.
- **Visual Inspection:** Check the tank for any signs of corrosion, leaks, or physical damage.
- **Water in Air Valve:** If water comes out when checking the air valve, the internal diaphragm may have failed, and the tank will need to be replaced.

## 6. TROUBLESHOOTING

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This section addresses common issues you might encounter with your expansion tank.

Problem	Possible Cause	Solution
Temperature and Pressure Relief (TPR) valve frequently discharges.	Expansion tank pre-charge pressure is too low or diaphragm has failed.	Check and adjust tank pre-charge pressure. If water comes out of the air valve, replace the tank.

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
Water hammering noise in pipes.	System pressure fluctuations due to thermal expansion not being absorbed.	Verify expansion tank is properly installed and functioning. Check pre-charge pressure.
Tank feels heavy and full of water.	Diaphragm failure, allowing water into the air chamber.	Replace the expansion tank.

## 7. SPECIFICATIONS

<b>Feature</b>	<b>Detail</b>
Model	ST-5 (THERM-X-TROL)
Tank Volume	2 Gallons
Diameter	8 inches
Height	12-5/6 inches (approx. 12.83 inches)
Weight	5 lbs
Connection Size	3/4" NPT
Material	Alloy Steel
Maximum Pressure	150 PSI
Maximum Temperature	200°F (93°C)
Application	Domestic Potable Hot Water Systems



Figure 3: The Amtrol ST-5 expansion tank as packaged for retail, showing model and brand information.

## 8. WARRANTY

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The Amtrol ST-5 expansion tank comes with a **5-Year Limited Warranty**. This warranty covers defects in materials and workmanship under normal use and service. For specific terms, conditions, and claim procedures, please refer to the official warranty documentation provided with your product or contact Amtrol customer service.

## 9. SUPPORT

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For technical assistance, installation questions, or warranty claims, please contact Amtrol customer support. It is highly recommended to consult with a licensed plumbing professional for any installation or complex troubleshooting beyond the scope of this manual.

For more information, visit the official Amtrol website or consult your local plumbing supplier.