

TXV Tips Part 1 of 3

The thermostatic expansion valve (TXV) is a metering device designed to regulate the flow of liquid refrigerant into the evaporator at a rate equal to the evaporation of the liquid in the evaporator. The TXV responds to both the temperature and the pressure of the refrigerant exiting the evaporator to maintain a constant superheat at the evaporator outlet. Positive superheat at the evaporator outlet in the suction line will help ensure that only refrigerant vapor returns to the compressor. Here are some tips to ensure maximum TXV performance.

TXV Selection Tips

What is it that you need to know before selecting a Thermostatic Expansion Valve for your job? One thing that is not necessary is to replace a preset (non field adjustable) TXV with another preset valve. Any valve can be used as the replacement valve including adjustable superheat valves when you follow the guideline below.

Application: AC, Heat pump, Refrigeration, Freezer, Cooler, etc. This gets you in the correct suction temperature range for determining capacity.

Capacity: What is the actual design capacity of your fixture in BTUH or Tons.

Refrigerant Before selecting the correct valve, you must know the refrigerant being used in the fixture so the valve will have the correct Thermal bulb charge.

Body style / connections: Selecting a TXV with the appropriate orientation and connections will simplify the installation.

Bulb Mounting/Location Tips

Extreme care should be taken when mounting the thermal bulb of the TXV, since this is crucial to proper operation of the valve. Too often, this function is "rushed" and not done correctly. The results can be erratic valve operation and unnecessary valve adjustments along the way.

- During installation of the system, create a straight, clean piping surface to mount the thermal bulb.
- Locate the thermal bulb as close to the evaporator outlet as possible (generally 3 to 10 inches).
- Using the factory authorized and supplied metal clamp, secure the thermal bulb tightly. You should not be able to move the bulb on the suction line after this process. Using the metal clamp supplied will also increase the thermal conductivity to the bulb.
- The thermal bulb itself is not position sensitive in relation to its process tube.
- Avoid mounting the bulb on couplings or other brazed joints. Thermal conductivity is decreased through pipe fittings.
- Avoid mounting the bulb on vertical lines.
- Be sure to mount the bulb away from any traps.
- On suction lines that are 5/8" O.D. or smaller, the bulb should be installed on top or on the side – (preferably at the 2 o'clock or 11 o'clock position).
- On suction lines that are 7/8" O.D. or larger, the bulb should be installed closer to the bottom side of the pipe – (preferably at the 4 o'clock or 8 o'clock position).
- On systems that have multiple evaporators, the bulb must be mounted on the evaporator suction line for which it controls.
- Fully insulate the thermal bulb regardless of the refrigerant or application. This ensures that the bulb responds to the evaporator suction gas temperature and not to any other outside influences.