

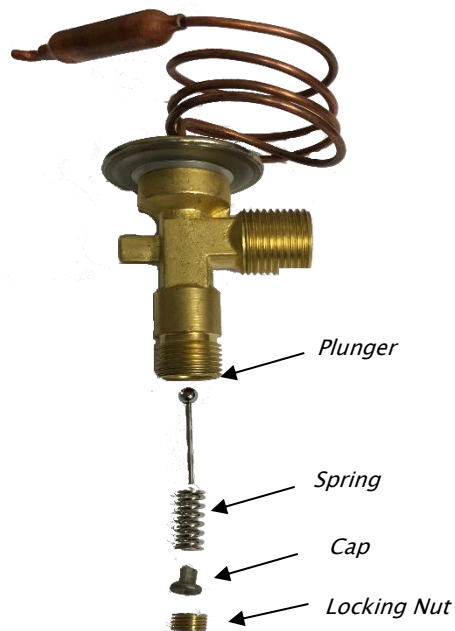
# Expansion Valves

## What do Expansion Valves do?

An expansion valve is a metering device that speeds up or slows down the refrigerant flowing into the evaporator. Think of them as a tap; the hotter it is, the more refrigerant you need so the valve will open. The cooler it is, the less refrigerant you need, so the valve will close. The expansion valve slows the refrigerant down and allows just enough liquid through, so in the evaporator it changes from a liquid to a gas; absorbing more heat and leaving about 1 / 4 of the top of the evaporator completely gas (superheat). If liquid refrigerant gets through, there is nothing stopping it from getting to the compressor. Compressors do not compress liquid, and it will be destroyed.

## What Types of Expansion Valves are there?

**Internally Equalized**—In an internally equalized expansion valve, refrigerant enters at the inlet, and has to pass through a metered device, which restricts the refrigerant. As the refrigerant routes through the device, it passes from the high side to the low side of the



Refrigerant enters inlet as a high pressure liquid, and as it passes the orifice, it changes from a high pressure liquid to a low pressure gas.

This is the thermal bulb, which is attached to the evaporator outlet. This bulb is filled with blended refrigerant gas, and as the temperature rises on the evaporator line, the gas will then expand, which causes pressure. This pressure will open up the device, which allows an increased refrigerant flow.

