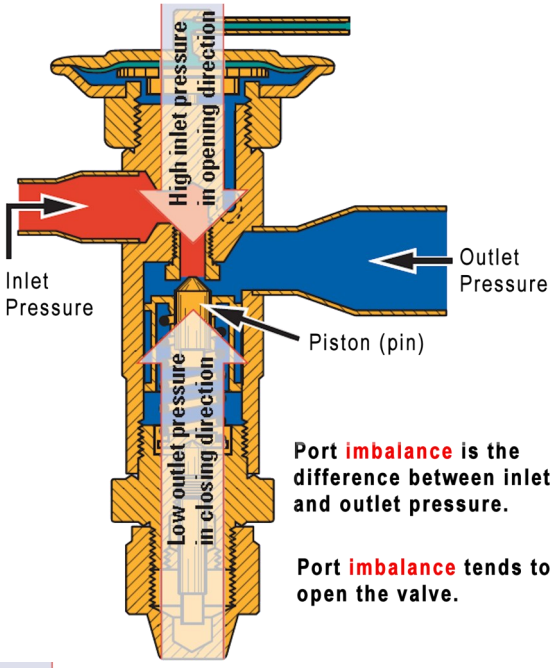
Parker Refrigeration Tech Tips

April 2013

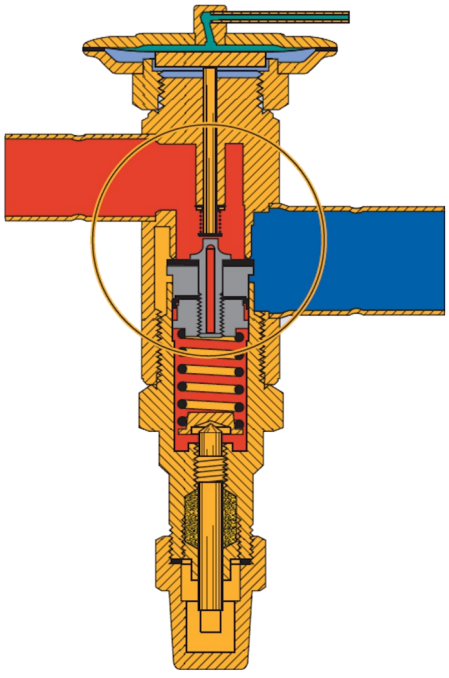
What Makes the Type "O" TXV Different?

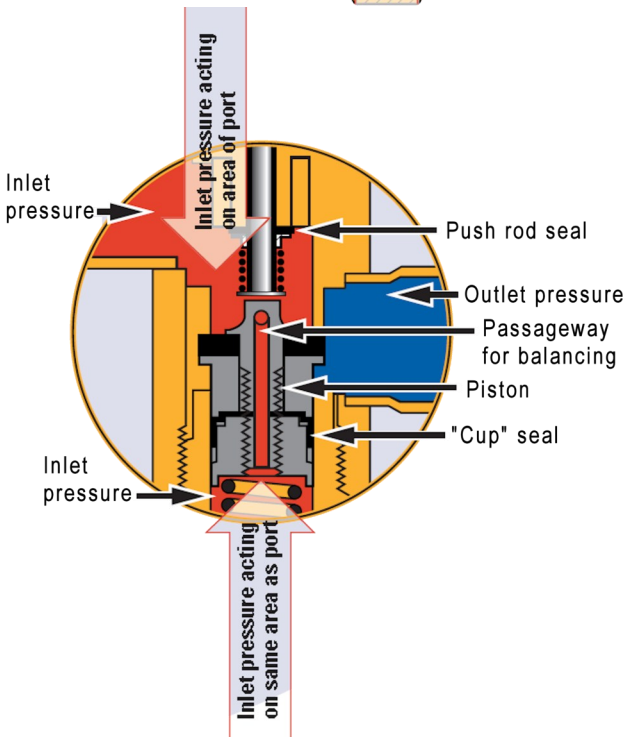
The O valve uses a forced balanced piston to reduce the impact of varying condensing or valve inlet pressure on the valve's superheat control setting. The piston (pin) in a conventional TXV design is exposed to high inlet pressure on the top and low outlet pressure on the bottom. The pressure imbalance across the pin acts as an opening force that will vary the superheat control setting of the valve by increasing the load on the superheat adjustment spring. As pressure differential across a conventional TXV pin increases, typically caused by increasing condensing pressure, the valve's superheat control setting will decrease. Inversely, if the differential across the TXV pin decreases the valve's superheat control setting will increase. The force balanced piston in the O-valve is specially designed to transmit the inlet pressure such that force created by the pressure acting on the piston across the port, is "balanced" by the inlet pressure acting on an equal area opposing the port. Balanced port valve designs are essential for the effective operation of large capacity valves, and/or on systems that experience a wide range of evaporator loads and varying condensing pressures.

Conventional TXV



Type "O" Valve





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