

DeltaPValve Application News

Water Source Heat Pumps

Over the past 30 years, the benefits of installing pressure independent [DeltaPValves](#) have become increasingly clear for typical hydronic heating and cooling systems. Their simple application, precise flow control, efficient operation and long-term reliability benefits each project and facility, from design through installation, and into ongoing operation and maintenance.

What about less conventional applications? The use of [water source heat pumps](#) has grown in recent years with their potential to deliver high efficiency heating and cooling. These units can be installed in a variety of applications and facility types, but they still require a hydronic connection to deliver the “water cooled” performance.

Historically these heat pumps or self-contained units have operated with a constant condenser water flow rate, typically managed by a 2-position control valve in series with a balancing device or flow limiter. However, advancements in technology have permitted varying the condenser water flow rate at part load conditions to [improve the overall unit efficiency](#), in addition to reducing the total flow required throughout the system. Essentially, this makes the water source heat pump operate like a heating or cooling coil in a hydronic system with variable flow. On/Off control is no longer adequate, and modulating control is required to maximize efficiency.

Pressure independent DeltaPValves provide a [cost-effective improvement](#) over the conventional method of control for heat pumps and self-contained units with the following benefits:

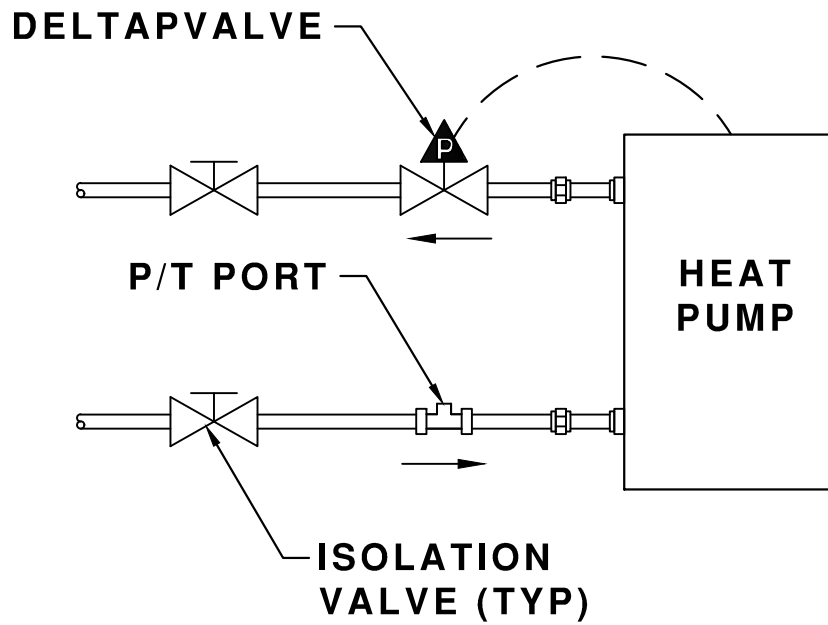
Control Type: On/Off

- Simple selection based on design flow rate
- Factory mounted actuator
- Factory flow tested and set for design flow rate
- No balancing valve required
- No straight run required
- Simplified field startup & commissioning
- Accurate & stable flow control
- No rebalancing required with system changes

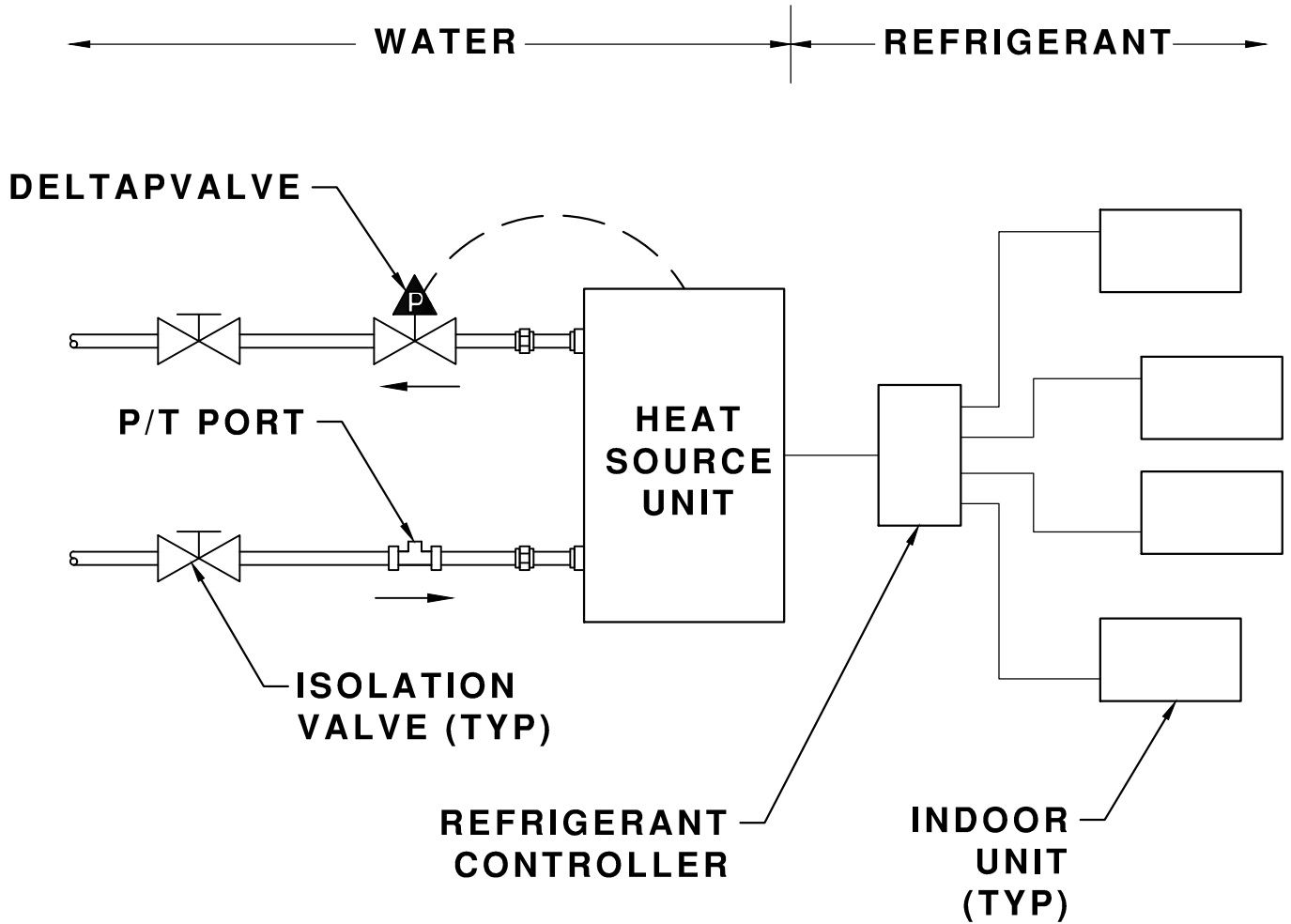
Control Type: Modulating

- All benefits of On/Off control type, plus:
- Multiple input control signal types accepted
- High turndown for precise low flow control
- Improved equipment efficiency
- Lower system pump energy consumption
- Lowest total cost of ownership

Reference the following schematic diagrams for DeltaPValve installations with different heat pump applications. In many cases, the heat pump will provide the required control signal directly to each DeltaPValve actuator to maintain the required flow rate, whether in heating or cooling mode. Backed by a [10-year warranty](#), DeltaPValves are well suited for this application by providing precise flow control at each unit regardless of system pressure variations or changing operating conditions. Stable flow is a critical step in achieving maximum efficiency, and the DeltaPValve delivers.



Water Source Heatpump with DeltaP Valve® Piping Diagram



Heat Recovery VRF Heatpump with DeltaP Valve®
Piping Diagram