ThermOmegaTech®

Thermal Bypass Valves



ThermOmegaTech® specializes in temperature control based solutions. Our self-actuating thermostatic temperature control valves are designed around our exclusive Thermoloid® sensor/controller that automatically and accurately proportions the flow in response to fluid temperature.

Designed with the most advanced and reliable thermal actuator technology available today, our thermal bypass valves are compact, low mass, reliable and fast acting.

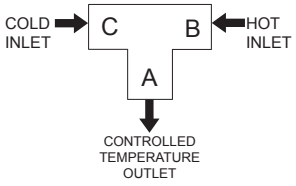
OPERATION

In mixing applications, the thermal cartridge will proportion the flow from two inlet ports to produce the desired outlet port temperature.

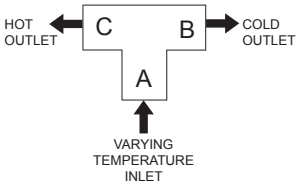
In diverting applications, the thermal cartridge will divert/switch the inlet flow to either of two outlet ports depending on the fluid temperature.

PLUMBING DIAGRAMS

MIXING APPLICATIONS:



DIVERTING APPLICATIONS:



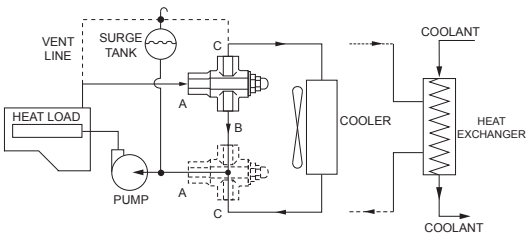
TYPICAL APPLICATIONS

- Cooling water control for radiators & heat exchangers
- Hydraulic fluid cooling systems
- Direct cooling with water
- Lube oil cooling control
- Engine and compressor cooling systems
- Loop-type circulation systems
- Direct injection water heating
- Process control
- Make-up water
- Mobile oil coolers
- Electronics system cooling
- Battery cooling
- Water conservation

SAMPLE APPLICATIONS

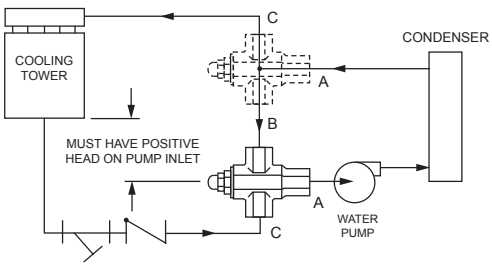
ELECTRONICS COOLING USING RADIATOR OR HEAT EXCHANGER

Valve shown in “diverting” position to control outlet temperature. In dotted position, valve will “mix” to control inlet water to engine.



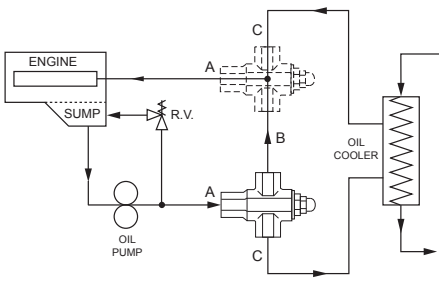
DIRECT COOLING WITH WATER

Valve shown in “mixing” position to control temperature of inlet water to refrigeration system condenser. Valve in dotted position controls outlet temperature.



LUBE OIL CONTROL

Valve shown in “diverting” position to control oil sump temperature. In dotted position, valve will “mix” to control oil temperature to bearings or manifold.

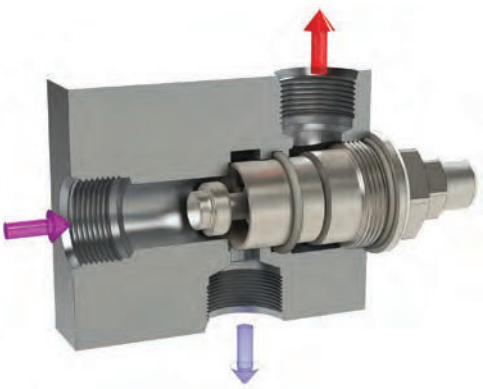


INTEGRATED MANIFOLD SOLUTIONS

ThermOmegaTech® offers thermostatic cartridge-style valve designs to be integrated into a custom manifold design if one of our standard valve styles does not meet your system's needs.

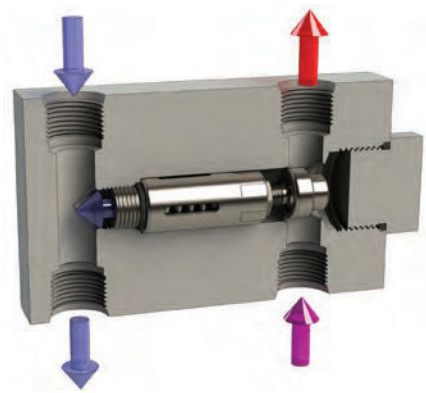
TBV CARTRIDGE SAMPLES

THERMAL DIVERTER CARTRIDGE



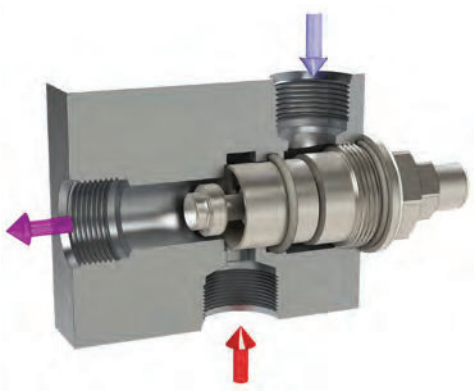
The cartridge will divert the inlet flow to one of two outlet ports based on a specified temperature.

THERMAL BYPASS CARTRIDGE



The thermal actuator will monitor the inlet flow and divert the fluid based on temperature.
Cooler fluid will go through the bypass of the valve.
Hot fluid will activate the thermal actuator, causing the internal cartridge to close and forcing the fluid through the system cooler.

THERMAL MIXING CARTRIDGE



The cartridge will modulate between the hot and cold "inlet feeds" to mix your fluid to the desired specified temperature.

BENEFITS

- Self-operating - No external power source required
- Applicable for mixing or diverting applications
- Compact and low mass for fast response
- Minimal maintenance needed
- Few moving parts

DESIGN FEATURES

- Easy installation
- Operates in narrow temperature band
- Exclusive self-actuating Thermoloid® sensor/controller
- Standard housings bronze or stainless steel with 1/2", 1", & 2" NPT threads

CUSTOMIZATION

The ability to customize valves to suit our customers' needs is one of ThermOmegaTech®'s greatest strengths. If one of our standard valve offerings does not meet your exact requirements, our in-house engineering staff will work with you to design a solution to solve your problem. We can customize opening/closing temperatures, flow rates, threads, materials, as well as the number of ports, including their size and configuration.

Does your application require a small amount of leakage? A manual override to allow for a bypass mode? Lock wires to secure connections against vibration or tampering? A diffuser to oscillate/mix the fluid, or a valve integrated into a manifold? Contact us to help you design your custom offering and provide a prototype that you can evaluate prior to moving forward with your project.

If you are unsure of what you need our versatile team of experienced engineers will be here to provide you with ongoing and responsive customer service at all stages of the product's life cycle. A unique application requires an equally unique valve, and we welcome the challenge.