ThermOmegaTech®

Mixing & Diverting

Thermostatic Temperature Control Valves



ThermOmegaTech's mixing & diverting valves are designed with advanced thermal actuator technology to accurately proportion flow in response to temperature in a variety of industrial applications.

ThermOmegaTech's QMS is certified to the AS9100D Standards

www.ThermOmegaTech.com
877-379-8258

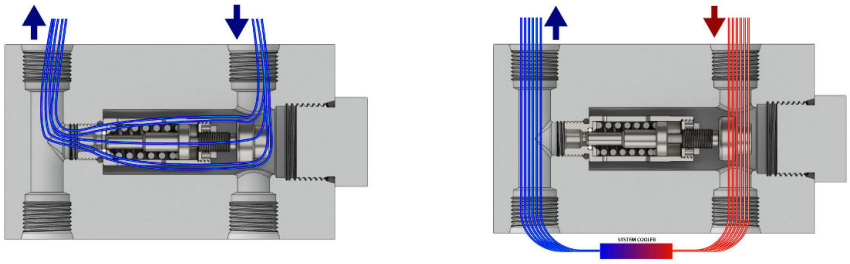
3-Way Mixing & Diverting Valves

ThermOmegaTech's M/D temperature control valves are designed for 3-way mixing or diverting applications. Utilizing our exclusive Thermoloid® thermal actuator, M/D valves automatically and accurately proportion flow in response to fluid temperature. Reactive, compact, and low mass, the thermal actuator is the most advanced and reliable phase change actuator of its type available today.

These valves can act as thermal bypass valves (TBVs) to modulate fluid temperature. They divert return flow through a cooler/heat exchanger or bypass a reservoir/bypass loop when fluid temperatures are satisfied. This action assures rapid system warm-up, accurate fluid temperature control, and reduced back pressure in the return. They can also operate as mixing valves by adjusting the flow through ports "B" and "C" to provide the desired temperature exiting the "A" port.

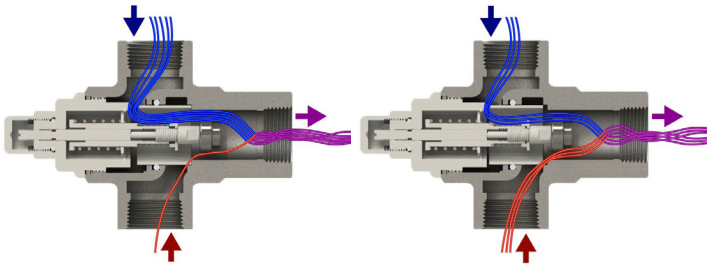
Thermal Bypassing

The TBV cartridge can be integrated into a 4-way manifold to monitor inlet flow and divert the fluid based on temperature. Cooler fluid goes through the valve bypass, while hotter fluid goes through the system's cooler.



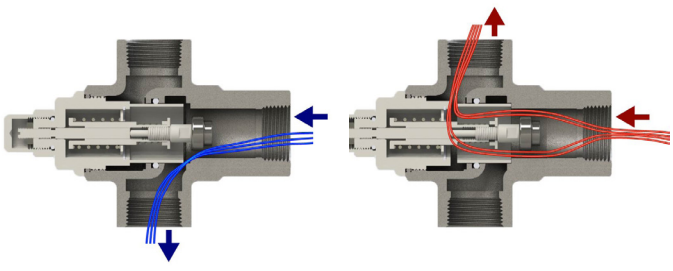
Thermal Mixing

In **mixing applications** with a controlled temperature outlet requirement, the mixing valve's thermal actuator will automatically proportion the flow of hot and cold fluid from two inlet ports to produce the desired outlet port temperature.



Thermal Diverting

In **diverting applications** where fluid must be directed from one section of a system to another, the thermal actuator of the thermostatic diverter will automatically divert or switch the inlet flow to either of the two outlet ports depending on fluid temperature.



Typical Applications

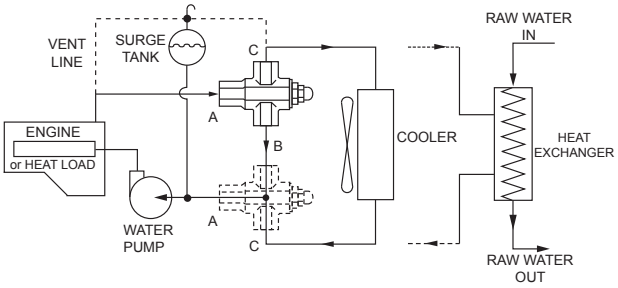
- Cooling water control - radiator
- Cooling water control - heat exchanger
- Hydraulic fluid cooling systems
- Direct cooling with raw water
- Lube oil cooling control
- Constant temperature bath, wash basins & sinks
- Loop-type circulation systems
- Direct injection water heating
- Hot water washdown stations
- Make-up water
- Electric system cooling
- Air conditioning
- Water conservation

For product dimensions, specifications, and customizations, visit www.ThermOmegaTech.com

Sample Applications

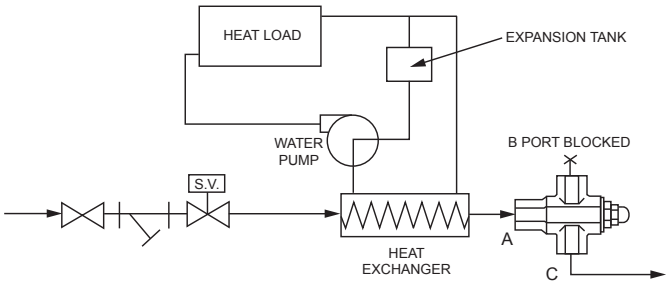
Cooling Water Control Using Radiator or Heat Exchanger

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



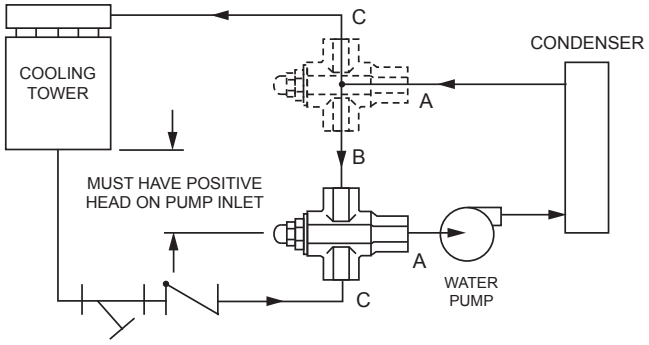
Water Saving Application

Valve as shown maintains minimum flow through cooler to conserve water, requires internal leak port to permit small flow for sensing.



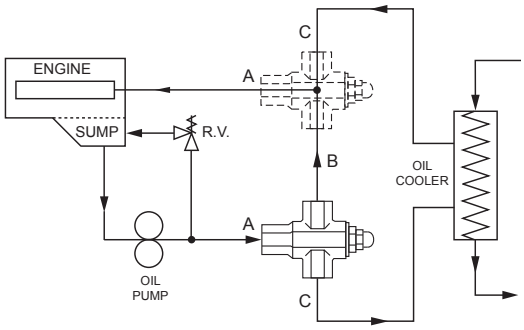
Direct Cooling with Raw Water

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

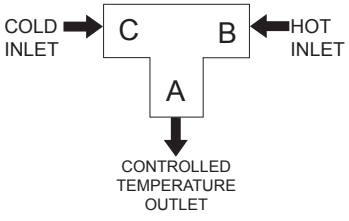
Valve shown in "diverting" position to control oil sump temperature. In dotted position, valve will "mix" to control oil temperature to bearings or manifold.



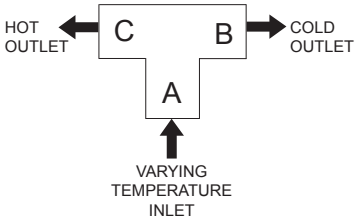
FLOW RATE CALCULATION USING "Cv" FACTOR SHOWN BELOW IN TABLE		
$GPM = C_v\sqrt{\Delta P}$	$C_v = \frac{GPM}{\sqrt{\Delta P}}$	$\Delta P = \left[\frac{GPM}{C_v}\right]^2$

Plumbing Diagrams

For Mixing Applications



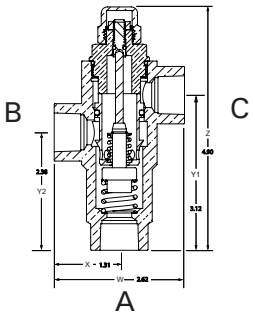
For Diverting Applications



**Customized temperature, material, and port positions available upon request*

Part Numbers & Ordering

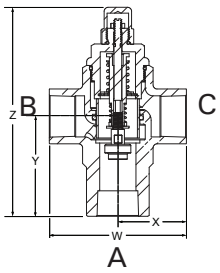




1/2" M/D

Part Number[1]	Description
353-00X000-XXX	1/2" M/D Valve - 316 SS Body, 300 Series SS Internals
353-02X000-XXX	1/2" M/D Valve - all 316 SS construction
353-01X000-XXX	1/2" M/D Valve - Bronze

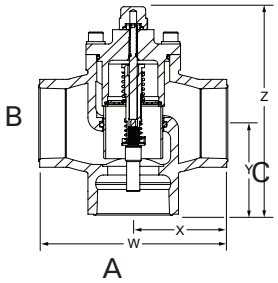




1" M/D

Part Number[1]	Description
356-00X000-XXX	1" M/D Valve - Bronze
356-01X000-XXX	1" M/D Valve - 303 SS
356-02X000-XXX	1" M/D Valve - 316 SS Special Order Only





2" M/D

Part Number[1]	Description
359-0X4000-XXX	2" M/D Valve - SS

Dimensions & Capacities

Size NPT	Body Material	W		X		Y		Y1		Y2		Z		Weight		C_v	Maximum Operating Pressure	Maximum Operating Temperature	ANSI Body Compliance
		IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	Lb	Kg				
1/2"	SS	2.62	67	1.31	33	N/A		3.12	79	2.38	60	4.90	124	1.5	0.6	2.7	350 PSIG (24 BAR)	250°F (121°C)	300 Class
1/2"	Bronze																		250 Class
1"	Bronze	4.37	111	2.20	56	3.19	81	N/A	N/A	N/A	N/A	6.70	170	5.0	2.27	10.0	250 PSIG (17.2 BAR)		250 Class
1"	SS																		150 Class
2"	SS	6.00	152	3.00	76	3.00	76					6.80	173	11	5.0	19.3			

1. Seal material compatibility "X" available (replace singular X of part number with corresponding number below.
   - 0 - Buna-N for air (to 250°F), water, fuel, oil, gas, and petroleum-based hydraulic oils.
   - 1 - Viton for air (to 450°F), fuel, oil, gas, and petroleum-based hydraulic oils.
   - 2 - EPDM for air (to 300°F), water, ketones, and synthetic hydraulic oils.
   - 3 - Fluorosilicone for air (to 400°F), aerospace industry petroleum oils/fuels, and diester-based lubricants.
2. For fuels such as Diesel, Gasoline, Aviation fuels, and Kerosene use only NPTF-threaded fittings with a compatible thread sealant when connecting to our valves. For added vibration resistance, Loctite 577 sealant may be applied For mixing applications, pressure difference between the hot and cold ports should not exceed 10 PSI.
3. Set-point temperatures "XXX" available: 035°F, 045°F, 050°F, 060°F, 070°F (+/- 8°F), 085°F, 090°F, 100°F, 105°F, 110°F, 125°F, 130°F (+/- 8°F), 135°F, 147°F (+/- 8°F), 152°F (+/- 8°F), 160°F, 170°F, 190°F, 200°F, 205°F, 210°F.
   Note: Unless otherwise noted, during operation the valve will modulate the Cold side (C port) closed at 5°F below the set-point, and the Hot side (B port) closed at 5°F above the set-point.
4. Customized temperature, materials, and port positions available upon request.
5. M/D valves are not suitable for mixing steam and water.