ThermOmegaTech®

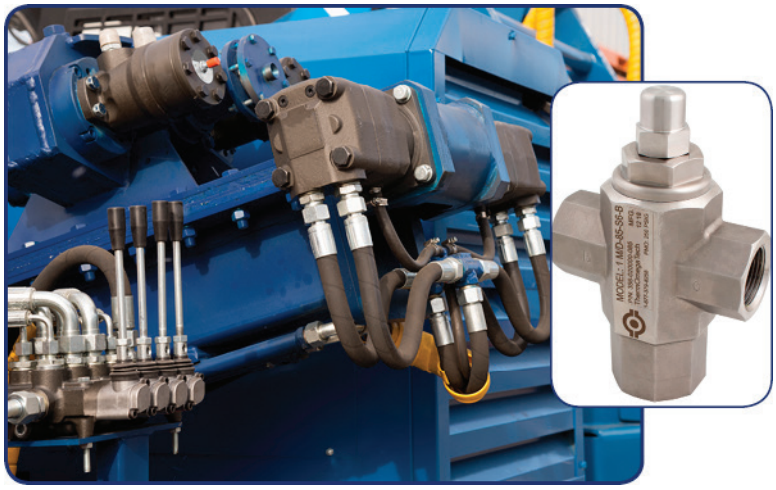
THE IMPORTANCE OF TEMPERATURE CONTROL

IN HYDRAULIC AND LUBE OIL SYSTEMS

Hydraulic Systems

Hydraulic systems are used for precise control of a large force in many industrial, mobile, and aerospace applications. To maintain system performance it is important to control the fluid temperatures.

Temperatures above recommended limits cause reduced system life due to lower fluid viscosity leading to poor lubrication, higher internal leakage, higher risk of pump cavitation, thermal degradation of seals and other components. Temperatures below the recommended range increase hydraulic fluid viscosity leading to higher stress on pumps, valves, fittings, seals, and other components.



ThermOmegaTech's 3-way temperature control valves are ideal for these applications. These self-actuating thermostatic valves monitor the inlet flow and divert the fluid based on temperature.

Cooler fluid will go through the bypass of the valve directly to the reservoir or bypass loop while hot fluid will activate the thermal actuator, causing the internal cartridge to close and forcing the fluid through the system cooler.

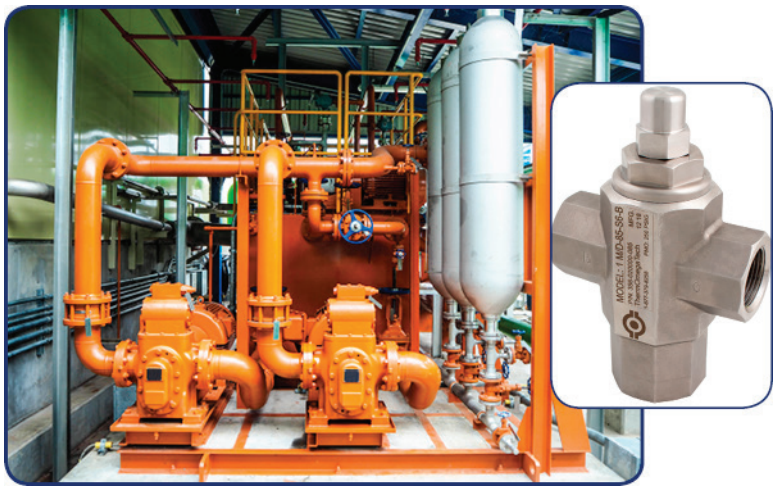
Thermal control in hydraulic systems offers a number of performance, economic, and environmental benefits including:

- Maintaining correct temperature keeps hydraulic fluid within its recommended viscosity range ensuring that mechanical components are properly lubricated and hydraulic devices run at peak efficiency.
- Keeping temperatures down helps ensure the hydraulic fluid and other system components last longer. Excess heat degrades hydraulic fluid, forms harmful varnish on component surfaces, and deteriorates seals.
- Operating within recommended temperature ranges increases a hydraulic system's availability and efficiency, improving equipment productivity.
- Increased machine uptime and fewer shutdowns reduces service and repair costs.

Lube Oil Systems

Lubrication oil systems are used in many industrial, mobile, and aerospace applications to reduce system wear and increase performance of pumps and engines. Proper temperature control of these systems is very important.

Lube oil temperatures above recommended limits cause lower oil viscosity leading to poor lubrication, increased emissions, higher internal leakage, increased wear on bearings and seals, thermal degradation of seals and other components. Temperatures below the recommended range increase lube oil viscosity leading to poor lubrication, increased wear, poor fuel economy, higher stress on pumps, valves, fittings, seals, and other components.



ThermOmegaTech's temperature control valves automatically mix or divert fluids in proportion to temperature in any fluid system.

In lube oil systems these thermostatic valves modulate fluid temperature by shifting return line flow through a cooler/heat exchanger, or bypassing it directly to the reservoir. This action assures rapid system warm-up, accurate control of fluid temperature, and reduced back pressure in the return.

Thermal control in lube oil systems offers a number of performance, economic, and environmental benefits including:

- Maintaining correct temperature keeps lube oil within its recommended viscosity range ensuring that mechanical components like bearings and seals are properly lubricated and the system runs at peak efficiency.
- Keeping temperatures down helps ensure the lube oil and other system components last longer. Excess heat degrades lube oil, forms harmful varnish on component surfaces, and deteriorates bearings and seals.
- Operating within recommended temperature ranges increases system availability and efficiency, improving equipment productivity.
- Increased machine uptime and fewer shutdowns reduces service and repair costs.

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 fit your needs. We can customize opening/closing temperatures, flow rates, threads, materials, as well as the number of ports, including their size and configuration, and more.

Contact us to help you design your custom offering and provide a prototype that you can evaluate prior to moving forward with your project.