ThermOmegaTech®

Case Study

CUSTOM DESIGNED HYDRAULIC THERMAL BYPASS VALVE FOR AEROSPACE & DEFENSE APPLICATION

An established leader in self-actuating thermostatic technology, ThermOmegaTech's line of products is making waves in the aerospace and defense (A&D) industry. Even for unusual or extreme applications, our experienced team of multi-disciplinary engineers can devise a unique and practical solution to meet your project's challenges.

The Opportunity

A system supplier to the U.S. Department of Defense recently came to us with a need for a product that would act as a thermal bypass valve on a military vehicle's hydraulic manifold. The valve would allow cold hydraulic fluid to bypass the heat exchanger to reduce the load on the system and quickly bring it up to operating temperature. Some of the challenges for this application included high operating pressure, specific flow and pressure drop requirements, and size restrictions to fit into the existing manifold.

The Process

ThermOmegaTech's engineers worked one-on-one with the customer, overcoming roadblocks to design a solution that satisfied all the project's requirements.

The custom modifications made to a stock thermal bypass valve for this project included increasing the size of the actuator to handle higher loads, increased flow rate, using a stronger return spring to accommodate operating at high pressure, and implementing an actuator with a custom temperature set-point, all made to fit into the available 0.75" x 3.0" space.

Left: Modified Valve Right: Stock Valve

The Result

After successful prototype testing, the customer implemented this custom thermal bypass valve into hundreds of military vehicles.

Throughout the project, our engineers maintained constant contact with the customer, considering several iterations and providing prototypes before proceeding to production, to ensure a product that functioned optimally under the project's unique conditions. The customer valued ThermOmegaTech®'s constant communication, quick turnaround time, and commitment to finding the optimal design, ultimately awarding the project to ThermOmegaTech®.