CASE STUDY

Custom Hydraulic Fluid Improves Performance

CHALLENGE

Operate a hydraulic power unit from -40 degrees F to +150 degrees F without dramatic changes in design.

Our client required operation of a hydraulic unit regardless of the climate and temperatures. Sub zero performance was expected without heaters even if the system sat unused for long periods as well as hot climates where oil temperatures could exceed 150 degrees without coolers.

The size and weight of the system were also important so larger valves and cooling systems were out of the question.

SOLUTION

The solution was to develop a unique, multi-temperature, synthetic fluid with a major oil producer. Price Engineering determined operating parameters and viscosity requirements and worked with fluid engineers who designed a fluid that exceeds viscosity requirements of competitive ISO 32 fluids in both cold and hot temperatures. The fluid also has a high flash point, which is often a trade–off when fluid viscosity indexes are higher, so the fluid is safe to use in many higher temperature applications.

Price Engineering worked with a local national provider of design verification and quality testing services to prove out the hydraulic fluid in an environmentally controlled test chamber where temperatures could be regulated to our requirements over a 24 hour testing period. Data acquisition results confirmed that valve, pump and actuator performance was not significantly impacted by wide swings in the fluid temperatures.

BENEFITS

1. High system productivity over wide temperature swings.
2. Improved performance of all hydraulic components.
3. Clients can operate hydraulic systems in many applications without fluid heaters and cooling systems saving space and extra costs.