



Krytox™

Performance Lubricants

For Pilot-Type Solenoid Valve Applications

Krytox™ fluoropolymer lubricants reduced damage claims for a Korean valve manufacturer.

A 5-Port Pilot-Type Solenoid Valve Application

Electromagnetic force causes the spools in the solenoid assembly to move to the left and right, reciprocally (see Figure 1). The fast movement creates friction. Pressure is gauged at 0.1–0.7 MPa (1–7.1 kgf), and the response time is less than 12–38 ms.

The Challenge

The valve manufacturer had the following requirements:

- Guarantee cycle operation of 3,000,000 for one year
- Resist water and oil that enter an air port from other processes and attack the greases on the spools and seals, causing failure of the cycle
- Must operate at room temperature and withstand atmospheric pressure

The Solution

High performance Krytox™ oils and greases stand up to tough conditions. Applying Krytox™ oil to the solenoid coil in the assembly helped to reduce the friction and heat, allowing for longer cycles. Coating the spools and seals with Krytox™ grease helped to extend the life of these components, while enabling them to resist the environmental effects of water and other oils.

Success Factors

- Water and oil resistance: immiscible with water or oil in air and not subject to water wash-off
- Durability proven in a 3,000,000 operation cycle of opening and closing
- Compatibility with aluminum spool and EPDM spool seal

Benefits of Krytox™ Oils and Greases

Synthetic fluorinated lubricants from Chemours can also be used successfully in other manufacturing applications. These oils and greases are ideal for many conditions, such as:

- Continuous high temperatures up to 288 °C (550 °F)
- Use around hazardous chemicals
- Plastics, elastomer, or metal applications
- Where flammability is a concern, including reactive gases and oxygen service

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