

### *Temperature Considerations*

#### **TEMPERATURE, OIL VISCOSITY, VALVE PERFORMANCE AND SEAL LIFE**

The temperature rating given for each cartridge should be considered a storage temperature range. In general, when the hydraulic system is operating at low temperatures the oil is higher viscosity and valve response may be slower than in warm oil conditions. Conversely, when the system is operating at extremely high temperatures the oil is lower viscosity and the viscous damping action will be reduced. This can result in valve instability and system noise.

Some electrically-operated valves may not shift fully when the system voltage is below the nominal level in low-temperature, high-viscosity conditions. Please consult the factory for application assistance if you know your hydraulic system will be operating at either end of the temperature extreme.

As per ASTM Standard D2000/SAE J200 Standard Buna N (standard) seals are designed for applications that operate within the -40°C to 100°C (-40° to 212°F) temperature range. Maximum temperature for optimum seal life is 107°C with reduced life if operated within the 107°C to 120°C range. Fluorocarbon (V) seals should be used for applications with an average temperature range between -26°C to 204°C (-15°F to 400°F). Polyurethane (P) seals should be used for applications with an average temperature range between -54°C to 104°C (-65°F to 225°F).