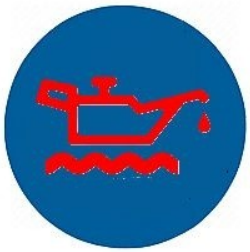
Maximizing Bearing Performance with the Right Lubrication

BEARING CW

Lubrication is a critical factor in ensuring the longevity and reliability of bearings. Whether you're designing for high speeds, extreme temperatures, or precision applications, selecting the right lubricant can enhance performance and reduce maintenance requirements.

Why Lubrication Matters

- ✓ Reduces friction and prevents metal–to-metal contact
- ✓ Minimizes wear on retainers and rolling elements
- ✓ Prevents oxidation and corrosion
- ✓ Acts as a barrier against contaminants
- ✓ Transfers heat away from the bearing



Oil vs. Grease – Which One is Right for Your Application?

Oils:

The fundamental lubricant for ball and roller bearings, avalable in both petroleum based and synthetic formulations (diesters, silicone polymers, and florinated compounds). These offer superior low-temperature properties, reduced volatility, and improved viscosity stability.

Greases

A pre-lubricated solution that simplifies maintenance by keeping the lubricant in place, requiring less frequent reapplication. Ideal for applications where an external lubrication system isn't feasible. However, grease can increase initial torque and is less effective at dissipating heat compared to oil

Key Factors in Lubricant Selection

- ✓ **Viscosity** – Must match the bearing's operating temperature and speed requirements
- ✓ **Temperature Range** – Standard greases perform up to 150°C, while specialty greases can handle up to 250°C for short periods
- ✓ **Speed Limitations** – Grease has a lower maximum speed capacity than oil due its thickening agents
- ✓ **Consistency (NLGi Class)** – Softer greases are ideal for low temperatures, while stiffer greases work best for high temperatures and outer ring rotation applications

- ✗ Over-greasing can cause ball skidding and overheating
- ✓ Under-greasing can lead to premature wear and failure