



Lube *notes*:

Design Engineers' Guide to Selecting a Lubricant

Synthetic Greases for Rolling Element Bearings

Quality rolling bearing greases have certain, often interdependent, characteristics. They function over a wide temperature range; they offer thermooxidative stability and low volatility; and to fulfill their primary mission, their base oils retain the viscosity needed to provide an adequate lubricant film throughout a specified range of operating temperatures, speeds and loads. In theory, the "perfect lubricant" won't oxidize, suffer thermal breakdown, evaporate, or allow metal-to-metal contact for the life of the device. While there is often a gap between theory and practice, using these general characteristics as the yardstick for selecting a lubricant will help ensure high performance and long life for rolling element bearing applications.

Enhancing grease performance. Greases are formulated by combining a base oil with a thickening agent. They lubricate rolling bearings by bleeding a small amount of oil out of the "reservoir" of the grease thickener and into the raceway. The oil provides the elastohydrodynamic lubricating film needed to reduce friction and wear. Greases can also serve as effective seals to protect bearings from contaminants and moisture. For greater loads, especially where vibration or shock loading is likely, special anti-wear additives can improve grease performance. Likewise, special thickeners and additive packages can augment a grease's natural resistance to wash-out by water or salt-water spray. Thickeners can also be processed to reduce the noise-generating characteristics of a grease. Finally, other additives can tailor a grease to specific application needs: PTFE for low temperature torque, molybdenum disulfide for high loads, special additives to promote electrical conductivity, and specific chemistry for low vapor pressure applications.

Ultrafiltration services. Nye will ultra-filter any of its oils and greases, and recommends this service for precision bearing applications to extend bearing life. Ultrafiltration removes virtually all particulate matter greater than 35 microns. For greases, it also improves the homogeneity of the thickening agent. For more information, please see our Application Summary on Ultrafiltration.

Selecting the right grease for your application. Following is a partial list of popular Nye greases designed for rolling element bearings. Additional Nye greases are available to meet a wide range of application requirements. For technical specifications, evaluation samples, or questions about any Nye products — or to discuss a lubricant *custom-designed* for your application — call us at (508) 996-6721. Nye is ready to work with you to ensure you make the best possible lubricant choice.

For the best choice in lubricants,

Call Nye 508-996-6721

General Purpose Bearing Greases	Temp Range (C°)	Low Torque	Low Noise	High Load	Salt water Resistance	Enhanced Rust Prevention
Rheolube 375	-54 to 125	•				
Rheolube 368A*	-40 to 125			•		•
Rheolube 789DM*	-40 to 150			•	•	
UniFlor™ 8531R	-30 to 225				•	•

*Use with caution around polycarbonate, a-b-s resins, Buna N, and other ester-vulnerable plastics and elastomers.

High Speed Bearing Greases	Temp Range (C°)	Low Torque	Low Noise	High Load	Enhanced Rust Prevention
Rheolube 350SBG-2	-15 to 120				•
Rheotemp 500*	-54 to 175	•			
Rheoplex 6000HT*	-40 to 180		•	•	•

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Low Noise Bearing Greases	Temp Range (C°)	Industrial Bearings	Precision Bearings	Low Vapor Pressure	Enhanced Rust Prevention
Rheolube 716L*	-54 to 150	•			•
NyeTorr 5100*	-54 to 150	•	•	•	
Rheolube 716R*	-40 to 150		•		•

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Extreme Environment Bearing Greases	Temp Range (C°)	Low Torque	High Load	Low Vapor Pressure	Chemical/Solvent Resistance	Enhanced Rust Prevention
Fluorocarbon Gel 813-1	-70 to 200	•				
UniFlor™ 8511R	-50 to 225		•		•	•
UniFlor™ 8751	-70 to 225	•		•	•	•
UniFlor™ 8981R	-65 to 250	•		•	•	•

Specialty Greases	Temp Range (C°)	Engineering Focus
Nyogel 753G	-40 to 150	Electrical Conductivity
Nyogel 718S	+4 to 260	Radiation Resistance

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