The Precision Alliance

Technical Report — Lubrication Do's and Don'ts

All bearings use some form of lubrication to:

1. prevent corrosion
2. lower friction
3. separate bearing surfaces,
4. cool
5. Flush contaminates
6. or all of the above

Lubrication is often treated as black magic by bearing manufacturers. Their catalogs are usually full of "please contact our technical department for additional information" when it comes to questions on Lubrication. Oil is generally preferred by bearing manufacturers, but often grease is the only practical way to lubricate.

The list of FAQ's is long and the potential pitfalls are many in the selection of the ideal lubrication for precision motion systems. However, we can provide you with some valuable guidelines and a list of Do's and Don'ts that may save your application or at least prevent some serious headaches.

Do's

Do make sure that the preservative on your bearings or ball screws is removed prior to applying you lubricant. There can be an adverse reaction between the two products that destroys the lubricant properties

Do ensure that the lubricant reaches all moving parts. In some linear guide bearings, the upper two tracks of balls or rollers will not receive oil and special modifications may need to be applied

Do make sure the lubricant is suited to the operating environment, food processing, high temperature, vacuum, or cleanroom all have special lubricant needs

Do make sure that high duty cycle applications have previsions for re-lubrication, intervals based on operating speed, load, temperature, and environmental contamination

Don’ts

Don’t over pack bearings or ball screws with grease. Too much grease can destroy seals, increase friction and drive force requirements, and destroy seals.

Don’t use high viscosity lubricants on high speed applications as the thicker lubricants can cause churning at high speed resulting in heat buildup and lower bearing life

Don’t use lubrications with Moly additives roller or ball bearings or ball screws because the Moly can plate onto the rolling elements, making them larger on diameter, reducing the clearance in the bearing or screw and burning up the bearing.