



Technical Topic

Regreasing Rolling Element Bearings

Rolling element bearings need to be relubricated from time to time to replace grease that has deteriorated, leaked away or become contaminated. Because the conditions under which rolling element bearings operated vary so widely, it takes on-the-spot know-how to determine proper relubrication intervals — intervals that can range from once a day to once a year. No one lubricant or relubrication schedule can take care of the wide range of loads, speeds and operating temperatures at which individual bearings demonstrate optimal performance.

How Often Should You Relubricate?

Don't feel alone if you find yourself asking this question. Unfortunately, there's no one single answer, because there's a long list of factors that influence relubrication frequency. Generally, the smaller the bearing and faster the speed, the less frequent the interval for relubrication with grease. Larger, slower speed bearings require more frequent relubrication. Major considerations are:

Different types of bearings require different relubrication frequencies

- Radial Ball = Base Interval
- Cylindrical Roller = 5 Times as Frequent
- Thrust-ball and Roller = 10 Times as Frequent

Operating Temperature

- Higher temperatures increase a grease's oxidation rate, doubling it for every 18°F (10°C) rise above 150°F (65°C). For example, a bearing operating at 250°F (120°C) will require greasing 10 times as often as one operating below 150°F (65°C).
- Grease softens as temperatures increase and may become fluid enough to leak out of housings.
- High-temperature operation requires relubrication more often; high-temperature greases can help extend that frequency.

Environmental Conditions

- Where bearings are subject to contamination, more frequent relubrication may be necessary.

Be sure to report any unusual condition such as hot, noisy, vibrating or leaking bearings.



Adding Grease Between Flushing Intervals

Many rolling element bearings require relubrication of small quantities of grease between grease flushing intervals. This is best done with a low-pressure grease gun. If seals are in good condition, the quantity of grease needed may be small and infrequent.

1. Check the amount of grease in the bearing — remove fitting or grease plug to see if excess grease comes out.
2. Check bearings and seals for excess leakage.
3. Apply a few “shots” of grease at a time.
DO NOT OVER LUBRICATE!!

Grease Flushing

The following “pressure-relief” methods are recommended for grease flushing:

Bearings Equipped With Fitting and Drain

1. Remove lower drain plug; clean out any hardened grease.
2. Wipe the grease fitting clean.
3. Pump grease into the fitting until old grease is purged and new grease appears. If it is safe and practical, it is preferable to run the machine while performing this task.
4. While the drain plug is removed, allow the machine to run at operating temperature. This allows the grease to expand and forces the excess out the drain orifice, thus relieving the internal pressure. The excess grease will cease draining when normal pressure in the bearing housing is reached (approximately 10 to 30 minutes).
5. Clean and replace the drain plug.

Bearings Equipped with Fitting and No Drain

1. If safe, remove fitting while equipment is running at operating temperature to allow any purging of excess grease in the bearing.
2. Clean and replace fitting. Pump a limited quantity of grease into the bearing to avoid rupturing the grease seal.
3. Remove the fitting and allow the equipment to run at its operating temperature for several minutes to purge excessive grease. If no grease purges, the bearing was most likely very dry; this requires repeating steps 2 and 3 until excess grease purges.
4. Replace the grease fitting.

Bearings Equipped with Relief-Type Fitting and No Drain

1. Clean the fitting and pump grease into the bearing until grease relieves from the relief fitting.
2. If, after considerable grease pumping, grease does not come out of the relief fitting, the relief slot may be plugged. Remove the relief fitting and clean the relief slot or replace with a new fitting. Repeat step 1 after the fitting has been cleaned or replaced.
3. Run the equipment at operating temperature and check for excess grease at the relief fitting.

Precautions

- Be sure to clean up all excess grease and dirt from the bearing and surrounding area. Excess grease and dirt on external surfaces acts as an insulator and prevents heat dissipation. Additionally, excess grease on the external surfaces and floors can introduce a safety hazard to personnel.
- These procedures should be followed closely, especially where electric motor bearings are concerned. For more information regarding electric motors, please refer to ExxonMobil Technical Information sheet titled "Electric Motors: Care and Maintenance."



- In instances where there are hard soap deposits, flush the bearing housing with hot oil in the grease gun. Be sure to purge all the oil out of the bearing with new grease prior to operating.
- It may be impractical to flush grease out of very large bearings, such as paper machines. Follow the manufacturer's instructions to determine the amount of grease to add to a bearing.
- Watch for "danger signs" of improper bearing operation such as excessive noise, vibration and temperatures. Assuring proper vigilance for these signs will go a long way in maintaining your operations. Condition monitoring instrumentation is available to help you spot bearings in poor operating condition.