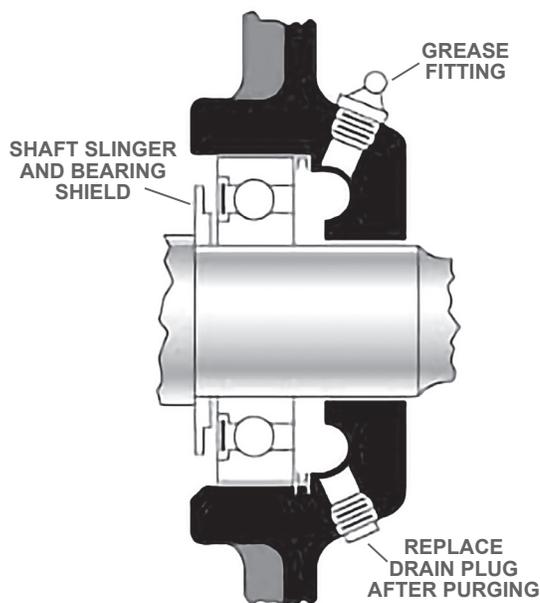


FINE TUNING YOUR MOTOR SKILLS: MOTOR LUBRICATION EDITION

Motors should be frequently relubricated as part of preventative motor maintenance. But at what frequency and how? This guide will give you a quick overview of how to properly lubricate your motor, as well as identify common bearing issues that result from failing to do so.

When determining how frequent to lubricate your motor, the best guide of all is the motor manufacturer instructions. However, if motor manufacturer instructions are not available, there are several online calculators that can be utilized to determine the appropriate grease relubrication intervals (see below). An important word of caution is to ensure that one is utilizing the proper compatible lubrication.



LUBRICATION PROCEDURE

1. Ensure the grease gun contains the appropriate lubricant.
2. Clean the areas around the relief and fill fittings.
3. Remove the grease relief valve or drain plug.
4. Grease the bearing with a calculated amount of grease. Slowly add grease to minimize excessive pressure buildup in the grease cavity.
5. Watch for grease coming out the relief port. If excessive amounts of grease are pumped into the motor and the old, used grease is not being purged, stop and check for hardened grease blocking the relief passage.
6. If regreasing is performed with the motor out of service, run the motor until bearing temperature increases to operating temperature to allow for thermal expansion of the grease. Ensure the relief valve or drain plug is left out during this process.
7. Allow the motor to run at this temperature for a short time to expel any excess grease before installing the bottom grease relief valves.
8. After excessive grease has been purged, reinstall the drain plug and clean excessive grease from the relief port area.

A Final Word: With scheduled relubrication and preventative maintenance *you can extend the life of your motor as well as the reliability.* However, if you begin hearing abnormal sounds from your motor or believe you might be having bearing failure, give Applied Dynamics a call. **We are available 24/7 for emergency repairs, offer on-site maintenance, as well as motor repair repairs and new motor sales.**

**24/7
EMERGENCY
SERVICE**

Word of Caution: Overgreasing. Too much lubrication is a very common problem and can result in higher operating temperatures, premature bearing failure and an increased risk of introducing contaminants.

Lubrication Calculator: Machinery Lubrication: <https://www.machinerylubrication.com/Read/29620/grease-quantity-frequency>



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Determining Grease Type

Another important consideration is utilizing the best lube type and manufacturer for your motor. According to MachineryLubrication.com the following is a list of qualities of a good electric motor grease:

Good channeling characteristics:

- NLGI Grades 2 to 3
- Base oil viscosity of an ISO VG 100 to 150 or more specifically 90 to 120 cSt at 40°C
- High dropping point, 400°F minimum
- Low oil bleed characteristics, per D1742 or D6184
- Excellent resistance to high-temperature oxidation
- Good low-temperature torque characteristics
- Good antiwear performance (but not EP)

Polyurea grease is popular with many bearing and motor manufacturers. However, one should be aware that polyurea-based grease is incompatible with most other thickeners and thus care needs to be taken to assure there is no mixing one brand of polyurea with another. Due to this risk, it is important to inform your motor rebuild shop of what grease to use.

Grease Volume Control

Controlling grease volume is a common issue in the industry, and while following OEM recommendations is a great starting point using additional resources will optimize your maintenance program. One such resource is the formula below to determine the volume of grease needed:

$$G = 0.114 \times D \times B$$

Where *G* = the amount of grease in ounces, *D* = the bearing outside diameter in inches and *B* = the bearing width in inches.

Once the volume is found, it must be converted into shots, or pumps of the grease gun. There is one way to obtain the value used to convert the number; for this the user will need the grease gun to be used and a postal scale. After finding the output per full stroke of the handle, label the gun so that it is now "calibrated". The average manual grease gun output can vary by a FACTOR OF 10, so it is important to calibrate each gun and label them accordingly.

NLGI Grade Grease Appearance

NLGI GRADE	RANGE, 1/10 MM	APPEARANCE	DESCRIPTION
000	445-475	Fluid	Cooking Oil
00	400-430	Semi-Fluid	Apple Sauce
0	355-385	Very Soft	Brown Mustard
1	310-340	Soft	Tomato Sauce
2	265-295	Normal Grease	Peanut Butter
3	220-250	Firm	Vegetable Shortening
4	175-205	Very Firm	Frozen Yogurt
5	130-160	Hard	Smooth Pate
6	85-115	Very Hard	Cheddar Cheese



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