

Dodge® mounted bearings: re-lubrication quantity

The correct Re-lubrication Quantity is essential in achieving the maximum life of a bearing. The Re-lubrication Quantity is the amount of lubrication that should be added to the bearing at each Re-lubrication interval. An incorrect Re-lubrication Quantity can decrease the life of the bearing in several ways.

1. Insufficient Amount of Lubrication:

- A. Bearing can fail due to lubrication breakdown causing premature metal to metal contact between the rollers and raceways.
- B. Grease acts as a barrier/seal and aids in decreasing the incursion of contaminate into the bearing. When sufficient lubrication is not present the sealing ability of the bearing is decreased, and contaminants can more easily enter the bearing.

2. Excessive Amount of Lubrication:

- A. In a high speed application the bearing could actually over heat due to the amount of grease being pumped into the bearing. All Dodge mounted bearing products have seals that will purge excess lubrication, but this purging is spread out over time. If the amount of grease pumped into the bearing is greater than the amount that can be purged from the bearing the additional grease will begin to accumulate. At this point, due to the additional grease, the bearing will begin to generate excess heat. If excess amounts of lubrication continue to be added, the bearing will continue to fill with grease and eventually overheat and fail.

The most efficient way of determining the proper re-lubrication quantity is to use the BEST program. Simply enter the chosen bearing and all relevant application data and allow the BEST program to generate the solution. The remaining portion of this article focuses on how to manually determine the proper Re-lubrication quantity. This information will prove to be beneficial if and when the BEST program is unavailable. The BEST program is available at www.baldor.com.

To manually determine the correct Re-lubrication Quantity we must first obtain the following information.

Needed Information:

- 1. D = Bearing Outer Diameter (mm)
- 2. B = Bearing Width (mm)
- 3. Q = Re-lubrication Interval Factor

- Use Q = 0.002 If You Have A Weekly Re-Lube Interval
- Use Q = 0.003 If You Have A Monthly Re-Lube Interval
- Use Q = 0.004 If You Have A Yearly Re-Lube Interval

NOTE: The Re-lubrication Interval should have been determined prior to this exercise.

See the white paper entitled “Determining the Proper Re-lubrication Interval”.

4. Re-lubrication Quantity Equations: $Grease\ Quantity\ (grams) = D \times B \times Q$

$$Grease\ Quantity\ (oz) = (D \times B \times Q) / 28.35$$

Once the above information is known the Grease Quantity can be determined. Below two examples are given.

Example #1:

1-15/16” SC Ball Bearing

Re-lubrication Interval = Weekly

Step #1 Determine: D = Bearing Outer Diameter (mm)

Given: Dodge Bearing Engineering Catalog

D = 90mm

Step #2 Determine: B = Bearing Width (mm)

Given: Dodge Bearing Engineering Catalog

B = 22mm

Step #3 Determine: Q = Re-lubrication Interval Factor

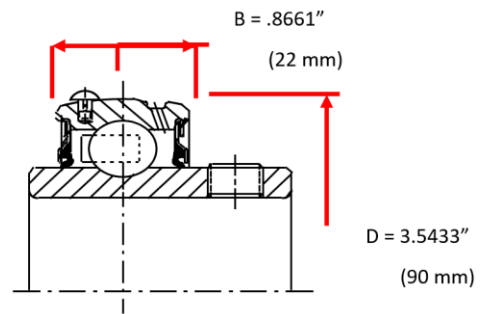
Given : Q = 0.002 (Weekly)

You now have all the information you need to use the following equations, and determine the correct grease quantity.

$$Re-Lube\ Quantity\ (grams) = D \times B \times Q$$

$$Re-Lube\ Quantity\ (grams) = 90mm \times 22mm \times 0.002 = \mathbf{3.96\ grams}$$

$$Re-Lube\ Quantity\ (oz) = (D \times B \times Q) / 28.35$$



Re- Lube Quantity (oz) = (90mm x 22mm x 0.002) / 28.35 = **.14 oz**

Example #2:

2-7/16" Imperial Spherical Roller Bearing

Re-lubrication Interval = Monthly

Step #1 Determine: D = Bearing Outer Diameter (mm)

Given: Dodge Bearing Engineering Catalog

D = 120mm

Step #2 Determine: B = Bearing Width (mm)

Given: Dodge Bearing Engineering Catalog

B = 32.3mm

Step #3 Determine: Q = Re-lubrication Interval Factor

Given: Q = 0.003 (Monthly)

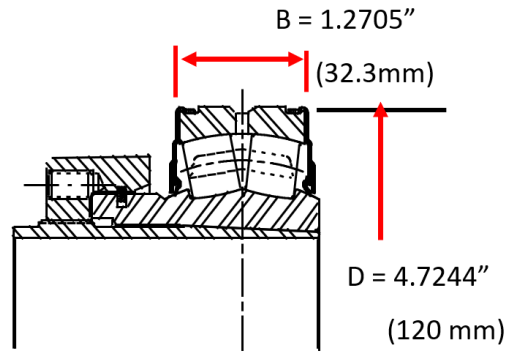
You now have all the information you need to use the following equations and determine the correct grease quantity.

$$\text{Re-Lube Quantity (grams)} = D \times B \times Q$$

$$\text{Re-Lube Quantity (grams)} = 120\text{mm} \times 32.3\text{mm} \times 0.003 = \mathbf{11.6 \text{ grams}}$$

$$\text{Re-Lube Quantity (oz)} = (D \times B \times Q)/28.35$$

$$\text{Re- Lube Quantity (oz)} = (120\text{mm} \times 32.3\text{mm} \times 0.003) / 28.35 = \mathbf{.41 \text{ oz}}$$



NOTE: If circumstances exist such that you cannot calculate the correct Re-lubrication Quantity then the following Rule of Thumb can be used. While the bearing is operating, if safe to do so, continue to add grease until fresh grease can be seen purging past the seals.

