

How to grease the bearings of an electric motor ?

Internal statistics of a number of plants in the United States indicate that about 60 percent of all failures of the electric motors are caused by bearing problems. If a defect in the bearing is allowed to progress to the point of failure, motor rewinding will be much more expensive prone to extensive downtime.

Improved bearing life should not be difficult to justify, especially if you can easily set that the most dangerous incidents bearing failures are caused by lack of sound lubrication procedures.

However, there is some disagreement among manufacturers of electric motors for better lubrication of the bearing of horizontal type, which are lubricated with grease.

There is also disagreement about the best technique to replenish the supply of grease in the bearing cartridge. If the user of these electric motors want to follow the recommendations of all these manufacturers for their motors, then you must be stocked with ball or roller bearings available for a given size without shield, only one shield and double shield.

Then you must also train personnel in techniques of lubrication for each brand of motor. The confusion thus created in the minds of the maintenance staff can bring concerns about a less satisfactory method of maintaining expensive and important equipment.

This discussion will focus on the methods of bearing grease lubrication of electric motors. Too often, an industrial user strategies employed less than ideal lubrication.

These are the issues addressed first.

Function: How grease lubricate bearings in electric motors.

A shielded ball bearings, grease lubricated (Figure 1) can be compared with a centrifugal pump assembly of ball and cage as the impeller and the stationary bearing outer race and the inner race rotating as the eye of the pump. Shielded bearings are not necessarily sealed bearings.

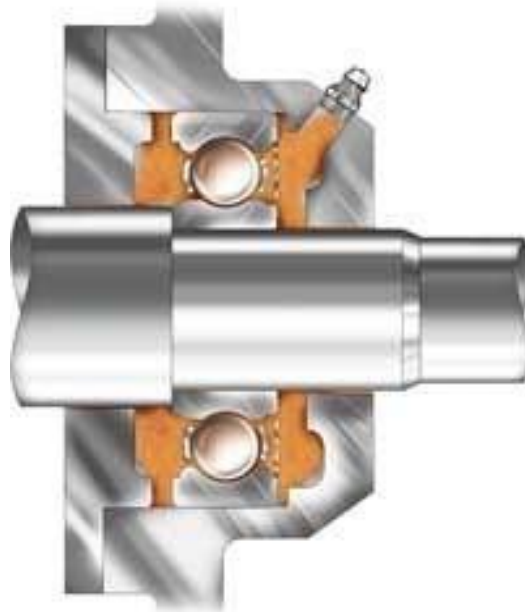


Figure 1. Shielded bearings, grease lubricated

With a shielded bearing grease you can easily enter in contact with the internal elements of the bearing, but the output is restricted by dirt adjustment caps.

By contrast, bearings with sealed design (double shield) will not allow the entry of new grease, while armored bearings, grease is drawn by capillary action as it rotates the entire bearing cage. Then the grease will come off by the centrifugal force of the ball or rolling element in the outer race. If no shield in the rear of this bearing, it can relieve excess grease in the lid bearing housing into the motor.

Another issue to consider in the use of shielded bearings (double shield) is that the manufacturer does not know the bearing operating speed or temperature or load to which the bearing is subjected, and this is why we not recommend the use of sealed bearings.

Shielded bearings on one side

Many users consider only fair bearing shield bearing the shield against the grease source (Figure 2) as the best arrangement.

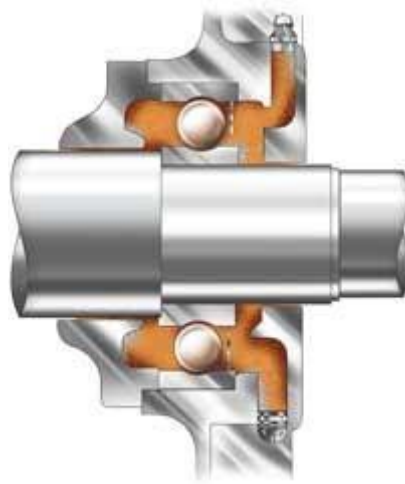


Figure 2. Motor armored shield bearing against the rotor

Experience shows that this simple arrangement will extend the life. This arrangement also allows an extremely simple technique of lubrication and re-lubrication. The shield serves as a baffle against agitation and minimize the possible entry of grease into the motor.

The protective shield serves as the inner track a measuring device for controlling the flow of grease. These features prevent premature bearing failures caused by the accumulation of heat due to grease in excess. For other services where necessary, as some arrangements of an open bearing, you can remove the shield in the field.

Spherical double protection

Some automakers subscribe a different approach, favoring bearings dual protection. These are generally arranged as shown in Figure 3.

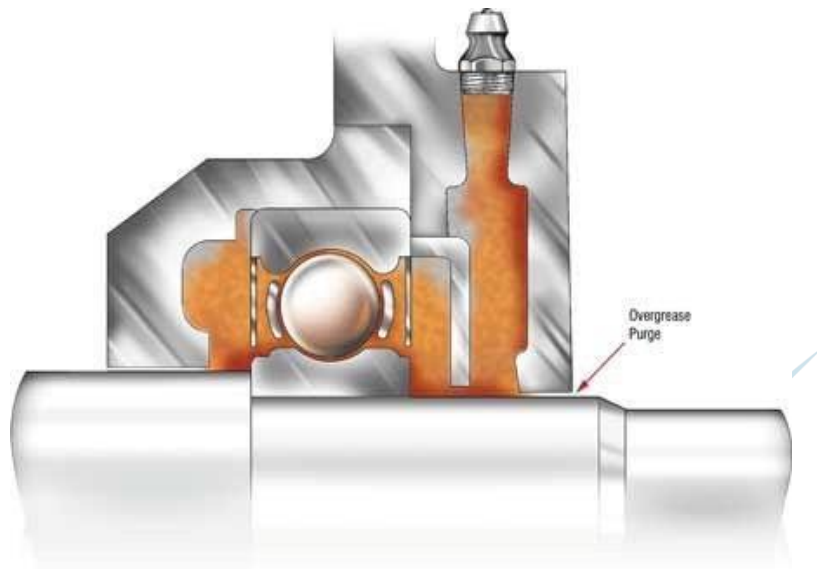


Figure 3. Double bearing with grease income versus grease deposit.

Accommodations serve as a lubricant reservoir and fill with grease. Usually in the flow of grease in the bearing, shields act to prevent excessive amounts being forced into the bearing. A labyrinth of grease retainer is designed to prevent grease from reaching the motor windings in the inside of the bearing.

In this configuration engines and bearing assembly, it is not necessary to pack the box next to the bearing filled with grease for lubrication of the correct bearing. However, the packing with grease helps prevent dirt and moisture from entering. Over a long period, this oil deposit in the form of grease enters the bearing to revitalize the lube inside the shields. The grease in the housing outside the stationary shields is not stirred by churning or rotation of the bearing and therefore is less susceptible to oxidation.

Many motors with grease lubricated bearings double shielded brackets usually do not have a drain plug. When fat is added to the box is full, you have some grease in the bearing, and any excess grease will be squeezed.

Other themes:

How to mount the bearing?

Calculation of base oil viscosity of the grease

How to choose the grease thickener for an electric motor?

Amount of fat that should be put into the first bearing grease

Amount of fat that should be put into the re-greasing the bearing

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