



Issue 7: Bud's Take on Importance of Correct Bearing Selection

Digging to find the root cause is a difficult and tedious task. Bearings fail in so many unique ways. Once you determine the root cause, the next hurdle is getting everyone to agree and take steps to resolve the issue. This is very seldom an easy task! If you conclude the root cause is the wrong bearing for the application the difficulty increases tenfold.

Why is this Such a Difficult Task?

The percentage of premature bearing failures compared to the number of bearings produced and sold is a very low percentage. When a premature failure occurs, the goal of analysis should be to find the root cause of the failure. The individual performing the failure analysis wants to provide an accurate conclusion based on the information provided. When the facts point to possible error in bearing selection the task becomes daunting.



Picture 1. Deep Groove Ball Bearing with flaking

Possible Scenarios:

The failure being evaluated is a deep groove ball bearing. You find deep flakes on the inner ring. The flakes are at positions that line up with the ball interval. The flakes appear to have started subsurface so you conclude the damage was caused by severe impact. The root cause could be severe impact from unknown source. If the impact was expected in the application the root cause may be incorrect bearing selection.



Picture 2. Cylindrical Roller Bearing with skidding

In this scenario we evaluate a cylindrical roller bearing. Skid marks are detected on the inner ring. We are able to rule out contamination, lubrication and fitting. Discussion leads to the fact that the bearing was used in a direct coupled motor application. You conclude that the skidding is a result of the bearing not having required minimum load. A direct coupled application normally does not generate radial load. Without this load the rollers will not be engaged to avoid skidding. The root cause could be the wrong bearing for the application.



When tearing down a motor we always note the bearing nomenclature. An exact interchange is ordered to replace the original bearing. This is the suggested tear down practice. Consideration should be given to the repair if the motor has experienced issues with repetitive failures? Are you following the leader? It is possible that the bearing could be over-engineered or not meet requirement for the specific application. These type failures are very difficult to find the root cause but falls into the category of wrong bearing for the application.

Conclusion:

Concluding a root cause as the wrong bearing for the application is difficult to prove and resolve. Design engineers do their best to recommend the best bearing for the application. In the industrial aftermarket it is virtually impossible to determine the exact application.

My recommendation is to ensure your bearing distributor is ***Factory Authorized***. This allows you to have open conversation with the manufacturers engineering team.



“KNOWLEDGE THROUGH EXPERIENCE”