

# White Paper

## Things to look for when problems occur with bearings.



There are many moving parts to any piece of machine or equipment. One moving part which requires particular attention are the bearings. When maintained and operating well, they allow the machinery to run with very few problems. When the bearings fail, though, the machine fails along with it.

**Below are some common reasons for bearing failure. They include:**

1. Bearing misalignments
2. Improper mounting
3. Contaminated or improper lubrication
4. High temperatures
5. Bearing fatigue
6. Improper storage techniques.

These are on average the first things to look for when problems occur with bearings. There are also other issues that arise and result in premature bearing failure. Here are three that may not be on the usual radar.

### **1. Damage to the Bearing Cage**

Many different issues occur with the bearing cage, resulting in a shortened bearing life. Included among these matters is cage pillar fractures and guide or pocket wear.

Damage occurs to the bearing cage for different reasons, some of them include:

- Improper handling
- Improper mounting of the bearings
- Vibrations
- Inadequate lubrication
- High temperatures
- Large loads.

To avoid a problem with the bearing cage, reduce vibration and mount the bearings as instructed. You should also lubricate the bearings to reduce temperature and friction.

### **2. Bearing Seizure**

Seizure of the bearings occurs when excessive heat exists during rotation. As a result of the excessive heat, many of the elements associated with the bearings begin to soften and melt, including the rolling elements, raceway rings, and the cage. These issues lead to bearing seizure and the possibility of damage to the equipment where they are used.

Some of the issues that lead to bearing seizure include:

- Improper lubrication techniques
- Lubrication contamination
- Excessive rotational speed
- Load and shaft misalignments.

It is possible to avoid many of these problems using proper lubrication and sealing the bearings. These two tasks reduce excessive loads. Making regular examinations of shaft alignment becomes part of an effective maintenance program.

### **3. Fretting**

Another issue that occurs with bearings is fretting. Fretting takes place between the rolling elements and the raceway ring. It often shows up as black or brown particles.

Like many issues associated with the bearings, fretting result because the bearings are not lubricated following a set schedule. Fretting also occurs with certain types of vibration.

The bearings often tell a tale when equipment failure takes place. Take the time to examine the bearings inside and out. Learn from any mistakes.

Above all, apply the principles of a preventive maintenance program at your facility to ensure that problems are few and far between.