

# Bearing Failure

## Causes & Cures

# 10B



bearings manufactured annually

# 90%

Outlive equipment

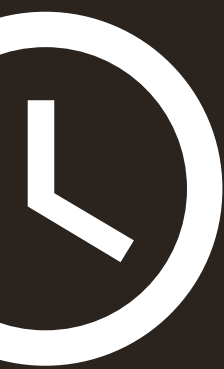
# 9.5%

Replaced for preventative reasons

# 0.5%

Replaced due to damage or failure

That's 50M bearings replaced annually!



# \$25K-\$50K

lost hourly in productivity, unplanned outages & downtime due to bearing failures

### Causes:

Lubrication Failure  
33.3%

# 60%

of equipment breakdowns involve bearing wear



Fatigue  
33.3%

Other  
16.7%

Contamination  
16.7%

### Cures:

#### Lubrication Problems

- Use the appropriate type and correct amount of lubricant, avoid grease loss, and follow appropriate relubrication intervals. Implement a routine lubricant analysis and vibration monitoring program.

#### Fatigue

- Replace bearing and/or consider redesigning to use a bearing with a greater calculated fatigue life and internal clearances. Confirm proper shaft and housing recommendations with the bearing manufacturer.

#### Contamination & Corrosion

- Filter lubricants, keep work areas, tools, fixtures and keep hands clean when handling.
- Use integrally sealed bearings or external seals in hostile environments. Make sure the correct bearing material (e.g. stainless steel) is used in corrosive environments.
- Follow proper bearing storage practices: covered in a dry room at room temperature.

#### Other

- Follow recommended mounting instructions and provide training on the difference between properly and improperly mounted and installed bearings.
- Inspect shafts and housings for run-out of shoulders and bearing seats. Note: Run-out can cause vibration of the machine and increased loads on the bearings.
- Eliminate or absorb external vibration that could cause the balls to move. Use lubricants containing anti-wear additives.
- Ground or use insulated bearings to prevent electrical currents flowing through.

#### Resources:

1. <https://www.piprocessinstrumentation.com/bearings-seals/article/15564253/major-causes-of-roller-bearing-failure-and-prevention-tools>
2. <https://www.industr.com/en/the-true-cost-of-bearing-lubrication-695499>
3. <https://www.ibtiinc.com/causes-of-bearing-failure/>
4. [https://www.skf.com/binaries/pub12/Images/0901d1968064c148-Bearing-failures--14219\\_2-EN\\_tcm\\_12-297619.pdf](https://www.skf.com/binaries/pub12/Images/0901d1968064c148-Bearing-failures--14219_2-EN_tcm_12-297619.pdf)
5. <https://www.reliableplant.com/Read/30255/reasons-bearings-fail>

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