Written by Special To LMT From NSK
Tuesday, 01 September 2009 12:35

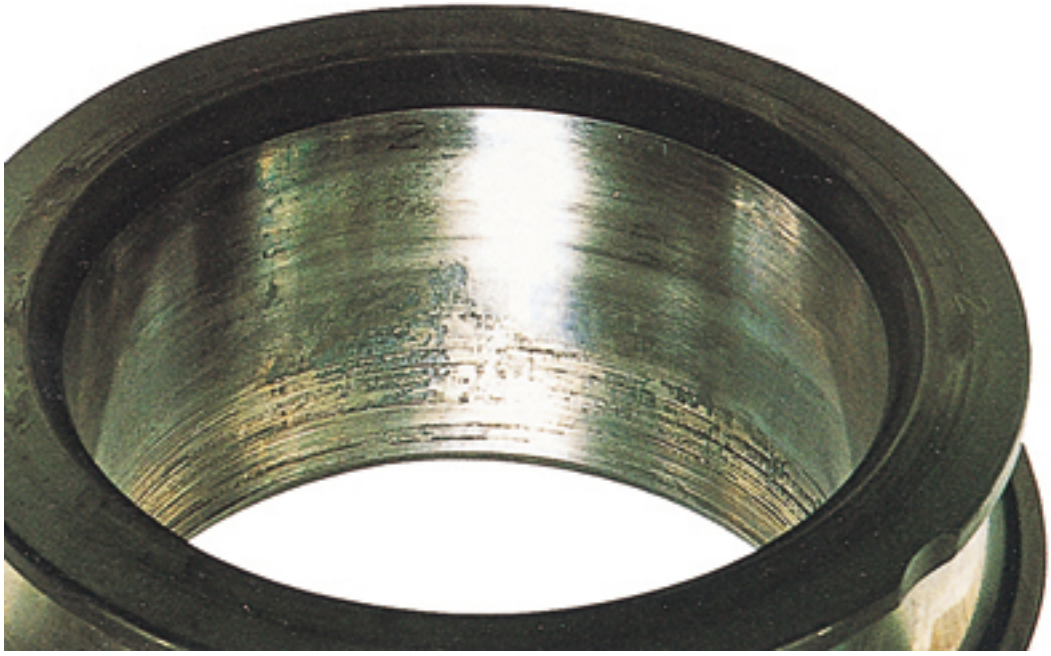
Don’t let your bearings down. Be on the lookout for these killers.

Every failed bearing tells a story — *one that can help identify machinery problems, maintenance issues, bearing selection errors and other important matters*. Are you interested?

You should be.

Bearings face harsh conditions every day, and this can result in premature bearing failure. When bearings fail, quick replacement to minimize downtime is the first priority. In fact, taking the time to investigate the causes of bearing failure can actually increase uptime and decrease both maintenance time and cost.

When it comes to protecting your equipment and processes, you'll want to be aware of the following three problems with your bearings. They can be killers.



#1: Creep

Creep is where slipping occurs at the fitting surfaces, thereby creating a clearance at the fitting surface.

Evidence of creep...

- A shiny bearing surface, occasionally with scoring or wear

Causes...

- Insufficient interference or loose fit
- Insufficient sleeve tightening

Solutions...

- Check the interference and prevent rotation
- Correct the sleeve tightening
- Study the shaft and housing precision
- Preload in the axial direction
- Tighten the raceway ring side face
- Apply adhesive to the fitting surface
- Apply a film of lubricant to the fitting surface

#2: Flaking

Flaking occurs when small pieces of bearing material are split off from the smooth surface of the raceway or rolling elements due to rolling fatigue, thereby creating regions having rough and coarse texture.

Evidence of flaking...

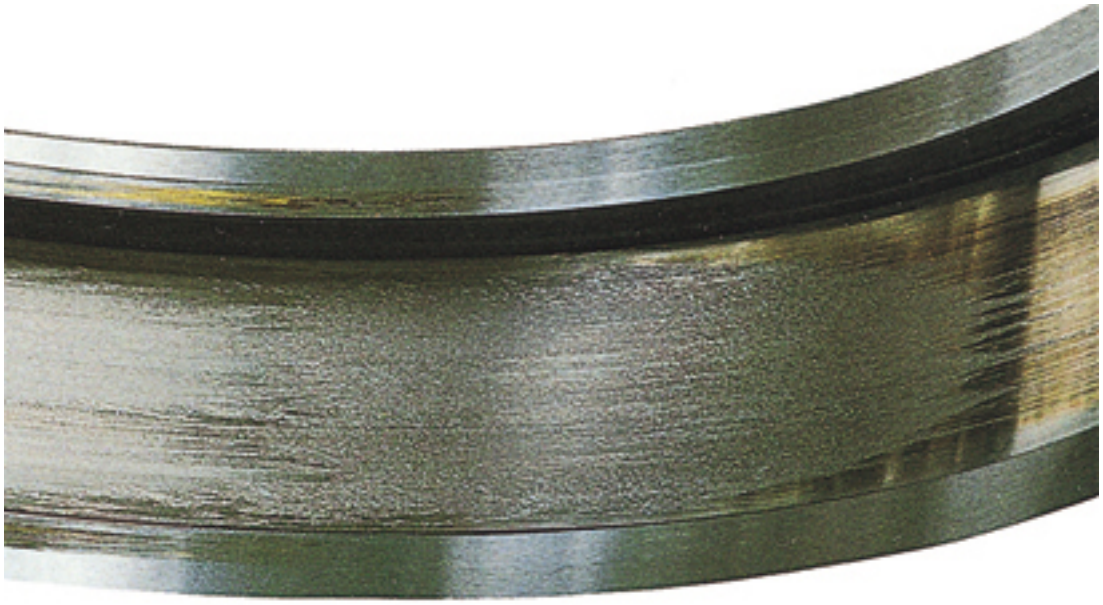
- Rough, coarse texture on the bearing surface

Causes...

- Excessive load
- Poor mounting (misalignment)
- Moment load
- Entry of foreign debris, water penetration
- Poor lubrication, improper lubricant
- Unsuitable bearing clearance
- Improper precision for shaft or housing, uneven in housing rigidity, large shaft bending
- Progression from rust, corrosion pits, smearing, dents (brinelling)

Solutions...

- Reconfirm the bearing application and check the load conditions
- Improve the mounting method
- Improve the sealing mechanism, prevent rusting during non-running
- Use a lubricant with a proper viscosity, improve the lubrication method
- Check the precision of shaft and housing
- Check the bearing internal clearance



#3: Smearing

Smearing is surface damage that occurs from a collection of small seizures between bearing components, caused by oil film rupture and/or sliding.

Evidence of smearing...

- Surface roughening occurs along with melting

Causes...

- High speed and light load
- Sudden acceleration/deceleration
- Improper lubricant
- Entry of water

Solutions...

- Improve the preload
- Improve the bearing clearance
- Use a lubricant with good oil film formation ability
- Improve the lubrication method
- Improve the sealing mechanism

Remember this

A bearing failure doesn't just affect specific equipment. These types of failures can — *and do* — cause entire facilities to grind to a halt.

Don't address an immediate problem by simply installing a new bearing-investigate the cause of bearing failure. You may be able to prolong bearing life, improve productivity and reduce maintenance costs by identifying and resolving issues around bearing selection, mounting, lubrication and application. **LMT**

For more information on the many NSK products designed to withstand demanding operating conditions, as well as a wealth of resources, tools and services to help you achieve maximum uptime, please visit www.thinknsk.com

For more info, enter 1 at www.LMTfreeinfo.com