

## Tapered Roller Bearing Damage

Recognizing causes and types of bearing damage can help you prevent further damage resulting in improved bearing life and performance.

### Fatigue Spalling



**Geometric stress concentration (GSC):** Misalignment, system deflections and heavy loading.



**Point surface origin (PSO):** Debris and raised metal exceeding the lubricant film thickness.



**Inclusion origin:** Oxides or other hard inclusions in bearing steel.

### Deformation



**Bearing cone (inner race) large rib face deformation:** Metal flow from excessive heat generation.

### Deformation



**Total bearing lock-up:** Rollers skew and slide sideways.

### Handling Damage



**Roller spaced nicking:** Raised metal on races from contact with roller edges.



**Roller nicking and denting:** Rough handling or installation damage.



**Bearing cup (outer race) -face denting:** Indentations from hardened driver.