

Damage, Cause, Remedy

Incorrect handling of bearing can cause damage and shorten the life. The following list shows typical causes and suggested remedies.

PROBLEM	DAMAGE	CAUSE	REMEDY
Flaking	Flaking on one side of entire raceway	Excessive axial load by poor fitting or linear expansion	Use clearance fit on non-rotating bearing outer ring
	Flaking at rolling element pitch on raceways	Raceways brinelled during fitting	Careful fitting
		Corrosion during down time	Apply corrosion protective
	Premature flaking of raceway and rolling element surfaces	Excessive load	Check fitting Correct clearance Use correct lubricant quantity
		Clearance too small	
		Poor lubrication	
		Poor fitting	
Flaking across the raceway	Corrosion		
	Poor fitting and eccentricity	Fitting and centering with care	
	Shaft deflection	Use bearing with larger internal clearance	
Flaking around raceway	Geometric inaccuracy of shaft and housing	Shaft and abutments to be square	
	Poor housing accuracy	Check geometric accuracy of housing bore	
	Indentations on raceway at rolling element pitch	Shock loads during fitting or poor handling	Handling with care
		Excessive static load	Check static load
Overrolling	Ingress of foreign matter	Ensure cleanliness of components and integrity of seals	
	Pick-up	Discolouration of raceway and rolling element surface	Excessive load Check fitting
Softening of surfaces		Clearance too small	Correct clearance
		Poor lubrication	Use correct lubricant quantity
		Poor fitting	Check fitting method
Electrical erosion	Raceway eroded at regular intervals	Arcing due to bearing conducting electricity	Ground the bearing, insulate the bearing
Fracture	Raceway surface fracture	Excessive shock loads	Correct loading
		High interference fit	Proper fitting
		Increase of flaking and softening, welding of inner ring to shaft	Ensure correct geometry of shaft and housing
		Corner fillet radii too large	Correct fillet radii
	Rolling element fracture	Excessive shock loads	Correct loading
		Excessive internal clearance	Check fitting and clearance
	Cage fracture	Tilting moments	Fit with care
High speed impulse and high acceleration		Ensure uniform rotation	
Incorrect lubrication		Check lubricant and lubrication method	
Skidding	Scoring of raceway and rolling element surfaces	Ingress of foreign matter in bearing	Improve sealing
		Hard grease	Use soft grease
Abrasion	Extreme abrasion of raceway, rolling element and cage	High start-up acceleration	Control acceleration
		Corrosion	Improve lubrication
		Poor lubrication	
	Creep	Loose fit	Correct tolerances and fitting
		Incorrectly fixed	Correct fixing
Fretting corrosion	Small movements between surfaces	Increase interference fit	
False brinelling	Vibration in non-rotating bearing	Insulate bearing from vibration	
		Small oscillations in application	Use oil as lubricant Apply preload
Corrosion	Rust inside bearing	Poor storage	Careful storage and handling
		Condensation	
	Rust on fitting surface	Fretting	Increase interference fit
		Fluctuating load	Use oil as lubricant
Corrosion	Ingress of acid, alkali or gas	Check sealing	
	Chemical reaction with lubricant	Use correct lubricant	

Technical

Dimension