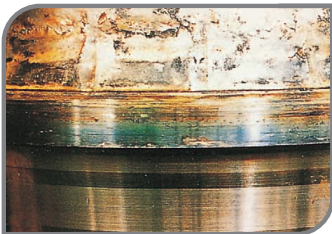


Bearing Damage and Countermeasures

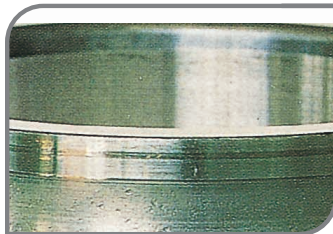
SEIZURE

Damage condition	Possible causes	Countermeasures
<p>When sudden overheating occurs during rotation, the bearing becomes discolored, and the raceway rings, rolling elements, and cage soften, melt, and deform as damage accumulates.</p>	<ul style="list-style-type: none"> • Incorrect lubrication • Excessive load (excessive preload) • Excessive rotational speed • Excessively small internal clearance • Entry of water and foreign matter • Poor precision of shaft and housing, excessive shaft bending 	<ul style="list-style-type: none"> • Investigate the lubricant and lubrication method • Reinvestigate the suitability of the bearing type selected • Investigate the preload, bearing clearance, and fitting • Improve the sealing mechanism • Check the precision of the shaft and housing • Improve the mounting method



SEIZURE

Part: Inner ring of a spherical roller bearing
Symptom: Discoloration and melting of raceway; worn particles from the cage were rolled and attached to the raceway
Cause: Insufficient lubrication



SEIZURE

Part: Inner ring of an angular contact ball bearing
Symptom: Raceway discoloration; melting occurs at ball pitch intervals
Cause: Excessive preload



SEIZURE

Part: Balls and cage of an angular contact ball bearing
Symptom: Cage is damaged by melting; balls become discolored and melted
Cause: Excessive preload



SEIZURE

Part: Convex rollers of a spherical roller bearing
Symptom: Discoloration and melting of roller rolling surface, adhesion of abrasion fragments from cage
Cause: Insufficient lubrication



SEIZURE

Part: Outer ring of an angular contact ball bearing
Symptom: Raceway discoloration; melting occurs at ball pitch intervals
Cause: Excessive preload