

TECHNICAL INSIGHT

A PUBLICATION OF NSK EUROPE

Next Generation Creep-Free Bearing

Development focus or purpose of development

Improve creep resistance for all internal and external load conditions

Features or Background

Features

Optimised Ring Rigidity

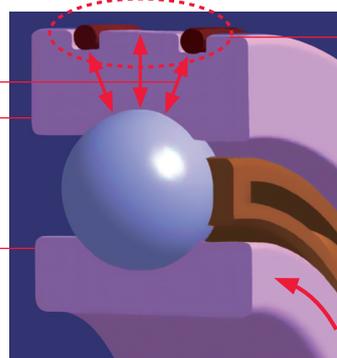
Prevent creep by reducing the race deformation which is from one-directional loading.

Countermeasure of creep mode I

Optimised Internal Specifications

Reduce dynamic torque which causes corotation.

Countermeasure of creep mode III



Optimised O-ring's Retention Force

Prevent creep which is from rotating load and corotation.

Countermeasure of creep mode II, III

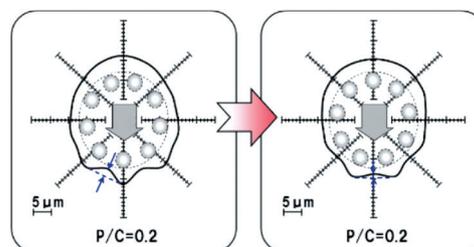
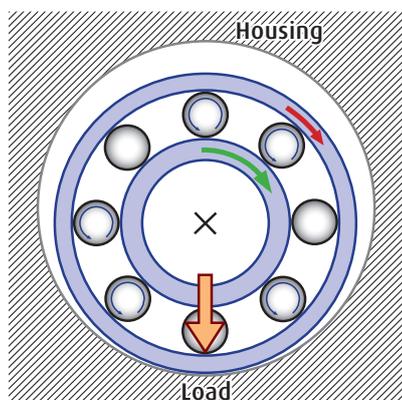
Improve Assembly Performance

Easy assembling compared with mechanical fastening methods, such as flanged.

Creep Mode

Mode I: One-directional Loading

The rotating direction of the outer ring due to the creep is the same as the inner ring rotating direction.

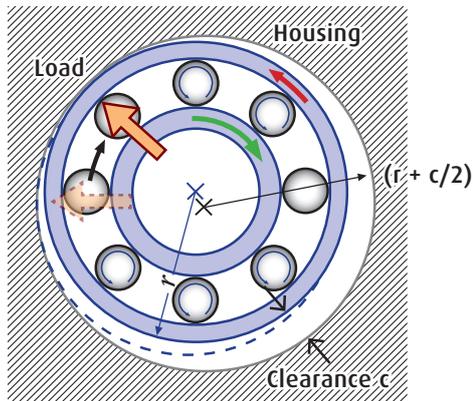


Undulating deformation

Creep due to the undulating deformation of outer ring by rolling element load

Mode II: Rotating Load

The rotating direction of the outer ring due to the creep is the opposite to the inner ring rotating direction.

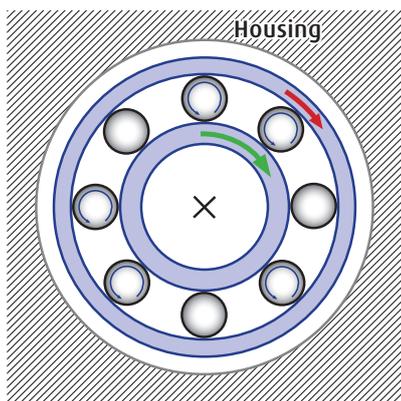


$$[\text{inner circumferential length of housing}] - [\text{outer circumferential length of outer ring}] = \pi c$$

Creep due to difference of circumferential length between housing and outer ring

Mode III: Corotation

The rotating direction of the outer ring due to the corotation is the same as the inner ring rotating direction.



Corotation of the outer ring due to the friction force between rolling element and raceway.

Creep due to the dynamic torque

Measurement Result of Allowable Imbalance Load [Mode II]

