Linear bearing with inclined ball tracks

KKB
KKP

Presentation

Inclined ball tracks
The slight angle enlarges the contact area with the shaft and enables a greater load capacity and a longer working life.

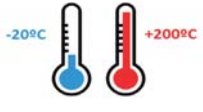
Structure

seal **balls** **internal cage** **outer housing** **seal**

Outer housing *is made from 100Cr6 hardened steel (63 ± 2 HRC), precision ground*
Internal cage *is made from bronze (DIN1705)*
High-precision steel ***balls***
VITON® ***seals*** *capable of supporting high temperatures*

Working temperature

The structure of the materials and their treatment makes these bearings suitable for use over a wide range of temperatures from -20 up to +200°C.
Note that extreme conditions may have an impact on the performance of linear bearings.
Please refer to the Temperature Factor table.



Speed and acceleration

The maximum speed (Vmax) is 5 m/s
The maximum acceleration (Amax) is 100 m/s2
When used at high speeds, it is recommended to decelerate before changing direction.

Linear bearing with inclined ball tracks

Presentation

KKB
KKP

These linear bearings with inclined balls exist in 2 versions: the **KKB** standard range and the **KKP** range suitable for heavier loads.The rated load of a linear bearing will vary according to the position of the balls in relation to the load direction.

The **KKB** range has equidistant lines of balls which allow for the symmetrical load distribution on the shaft.
For the **KKP** range, the lines of balls are grouped together so as to support heavier loads.

KKB

KKP

Calculating the working life

The nominal life of these linear bearings can be obtained using the following equation:

$$L_h = \frac{833}{H \times n_{ose}} \times \left(\frac{C}{P}\right)^3 \times fr$$

Lh: Normal working life in hours
H: Stroke length (h)
n_{ose}: Number of return strokes per minute (m)
C: Basic dynamic load (min-1)
P: Equivalent bearing load (N)
Ft: Temperature factor (see Fig.1) (N)

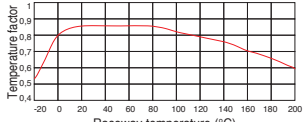


Fig.1- Temperature factor (f_T)

The nominal working life is defined as the life actually achieved by a shaft guidance system. It may differ significantly from the calculated life. The following influences can lead to premature failure through wear or fatigue:
- Contamination
- Misalignment between the shafts or guiding elements
- Vibration
- Inadequate lubrication
- Rotating movement

Due to the wide variety of possible mounting and operating conditions, it is not possible to precisely predetermine the operating life of a shaft guidance system.
The safest way to arrive at an appropriate estimate of operating life is comparison with similar applications.

Lubrification

The type of lubricant used is determined on the speed and working temperature.
In some cases, no lubricant is required.

	Temperature	Speed
Oil	Low	High
Grease*	High	Low

* Grease should have a Lithium or oil base