

1. Recirculating Ball Bearing, drawn shell design, compact type, series KH

The Linear Recirculating Ball Bearings KH are composed of a steel drawn shell, made of case hardened steel, a retainer made from engineered resin and precision balls. The drawn shell has pockets designed to allow the recirculation of the balls. This bearing type can only be used for linear movement and does not allow rotational movements.

1.1 Seals

The linear bearings of KH type are available in two different variants.

Without seals: KH

With contact seals: KH.PP

The seals have the dual function to prevent ingress of contaminants and the retention of lubricants in the bearings.

1.2 Lubrication

Linear bearings type KH are supplied coated with rust inhibiting oil. Linear bearings type KH.PP are supplied packaged with lithium soap grease.

1.3 Mounting tolerances

The table below shows the tolerances to be used for a proper bearing installation. They insure a precise and smooth motion.

1.4 Assembly

Linear bearings type KH are assembled with a light press fit. This insures not only the retention of the bearing but also the proper rounding of the unit. A proper fitting should be performed with the help of a mounting arbor as shown in Fig. 1.

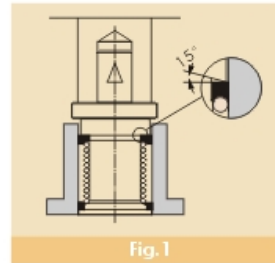


Table 1.1 Recommended mounting tolerances

Housing material	General application		Vertical operation Precision application	
	Housing tolerance	Shaft tolerance	Housing tolerance	Shaft tolerance
Steel/cast iron	H7	h6	H6	i5
Aluminium/alloy	K7	h6	K6	i5

2. Linear Recirculating Ball Bearing precision series type LMR - LME

NIKO Linear Recirculating Bearing type LME and LMR are composed by a cylindrical outer ring, by a cage that retains the balls, by two end rings to retain the cage and/or, when required, contact seals. All of the components are designed and assembled to optimize the unit performance. The outer ring is suitably hardened to provide the longest possible life expectancy. The cage made of steel or engineered resin, depending upon the type of bearing selected, provide the retention and allow the proper recirculation of the balls.



2.1 Characteristics of linear bearings type LME

2.1.1 High rigidity

Linear bearings with steel outer ring offer high rigidity due to the large number of balls in contact. The units can be supplied with a steel cage and, when low weight is required, with resin cage.

2.1.2 Ease of assembly

The standard units can carry load in every direction. The large variety of housing units and shaft supports allow simple and easy mounting.

2.1.3 Ease of replacement

These units follow internationally recognized boundary and are therefore dimensionally interchangeable with competitive units. Replacement due to wear or damage is quick and simple.

2.1.4 Complete range

The NIKO range of products is quite broad. The characteristics can be summarized as follows:

- A) Closed type - standard version
- B) Adjustable type - These units have a longitudinal slot that allows the reduction of the operating clearance and the optimization of the unit rigidity.
- C) Open type - These units have an opening that corresponds to a single recirculating channel (50 to 100 deg). These units are used in conjunction with long shafts that are typically supported along the entire length to reduce the elastic deflection. When mounted in a suitable housing, the units allow the adjustment of the operating clearance.
- D) Flanged type - These units have a flange on the outer ring to allow the mounting without conventional housings.

2.2 Seals

Linear bearings LME and LMB can be supplied in the following versions:

- Without seals - LME/LMB
- With contact seals - LME..UU/LMB..UU

The seals have the following functions:

- Prevent the ingress of contaminants
- Retain the lubricant in the bearing

In some applications, it may be necessary to use additional seals to prevent grease migration and thus prolong the maintenance interval.

3. Linear Recirculating Ball Bearing precision series type LME - LMB

3.1 Lubrication

Linear bearings type LME-LMB are supplied coated with rust inhibiting oil. Linear bearings type LME..UU/LMB..UU are supplied packaged with lithium soap grease.

3.2 Mounting tolerances

The bearing assembly should be performed as to insure operation with adequate clearance. Unsuitable operating clearance could lead to poor running performance or lower than expected durability. The operating clearance of the adjustable or open version of the linear bearings can be adjusted by elastically deforming the outer ring. The suitable mounting tolerances for the mating components are shown in table 3.1.

Note: The operating clearance is application dependent and could be zero or negative (preload). In the latter case the friction as well as the smooth running should be checked for suitability.