

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.

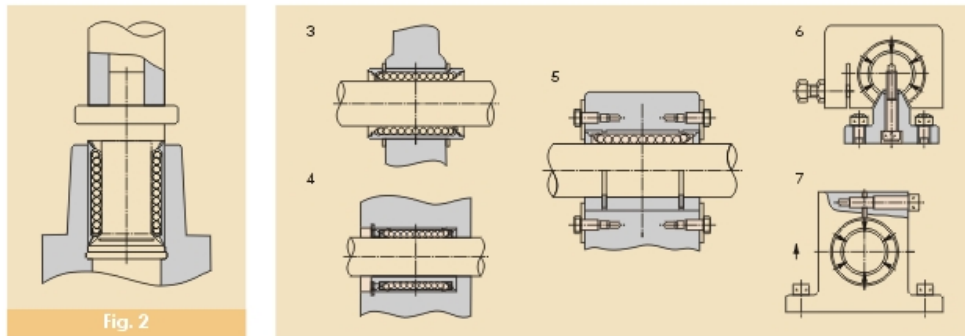
3.2 Mounting tolerances

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.

Table 3.1

Dimensional series	Shaft		Housing	
	Normal operating clearance	Operation without clearance	Normal operating clearance	Operation without clearance
LME	h6	j6	H7	J7



3.3 Installation

Some cleanliness precautions should be taken before assembling NIKO Linear Bearings in their housings. Lack of cleanliness could lead to reduction of the bearing life. The installation of the units is not particularly difficult though precaution should be observed to avoid potential damages to the unit. Direct pressing onto the cage retaining rings should be avoided. A suitable tool should be used (Fig. 2) to provide pressure on the rim of the outer ring. Once the bearing is mounted in the housing, the assembled unit should be installed onto the shaft paying attention not to score the shaft or to pop the balls from the bearing. When two shaft assemblies are assembled in a parallel assembly, the parallelism between the shafts should be checked to insure smooth running. The mounting examples shown in Fig. 3 through 7 should be used as guidelines to design and select the suitable bearings and support units.

4 Load ratings

Dynamic load rating C

The dynamic load rating C is a load of constant magnitude under which 90% of a statistically significant number of apparently identical bearings would reach a theoretical life of 50 km without the apparent appearance of metal fatigue.

Static load rating Co

The static load rating Co is defined as the load that would cause a permanent deformation equal to 1/10,000 of the ball diameter at the most stressed contact point.

4.1 Life of a Linear Recirculating Ball Bearing

Repeated stresses onto the contact surfaces could lead to material fatigue. This will lead to the appearance of surface pitting. The life of the unit is defined as the duration before the appearance of pitting.