

Rolling Bearings Classifications

Rolling Bearing Construction

Most rolling bearings consist of rings with raceway (inner ring and outer ring), rolling elements (either balls or rollers) and cage. The cage separates the rolling elements at regular intervals, holds them in place within the inner and outer raceways, and allows them to rotate freely.

Classification of Rolling Bearings

Rolling bearings divide into two main classifications: ball bearings and roller bearings. Ball bearings are classified according to their bearing ring configurations: deep groove type and angular contact type. Roller are classified according to the shape of the rollers: cylindrical, needle, tapered and spherical.

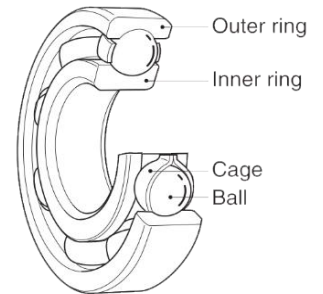
Rolling bearings can be further classified according to the direction in which the load is applied; radial bearings carry radial loads and thrust bearings carry axial loads.

Other classifications

- 1) Number of rolling rows (single, double, or 4-row),
- 2) Separable and non-separable, in which either the inner ring or the outer ring can be detached.
- 3) There are also bearings designed for special purposes, such as Automotive and other applications

Deep Groove Ball Bearings

The most common type of bearing, deep groove ball bearings are widely used in a variety of fields. Deep groove ball bearings include shield bearings and sealed bearings with grease enabling easier usage. Deep groove ball bearings also include bearings with a locating snap-ring to facilitate positioning when mounting the outer ring. These type of bearings supports radial load on both directions. Deep groove ball bearings are groove ball bearings are also classified into Thin series, Light series, Medium series and Heavy series ball bearings.



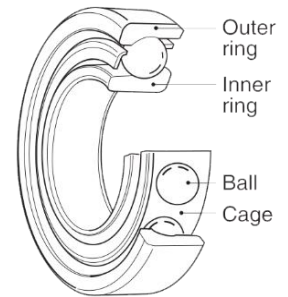
Deep groove ball bearing

Angular Contact Ball Bearings

Angular contact ball bearings unite point of contact of the inner ring, ball and the outer ring runs at a certain angle (contact angle) in the radial direction. Bearings are generally designed with three contact angles. Angular contact ball bearings can support an axial load, but can't be used as single bearing because of the contact angle.

They must instead be used in pairs or in combinations. Angular contact ball bearings include double row angular contact ball bearings for which the inner and outer rings are combined single unit. as aThe contact angle of double row angular contact ball bearings is 25°.

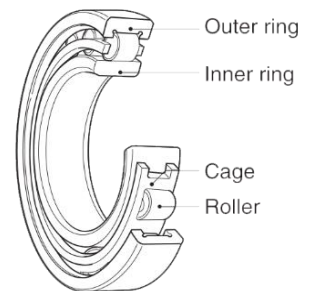
These type support certain amount of combined loads.



Angular contact ball bearing

Cylindrical Roller Bearings

Cylindrical roller bearings use rollers for rolling elements, and therefore has a high load capacity. The rollers are guided by the ribs of the inner or outer ring. The inner and outer rings can be separated to facilitate assembly, and both can be fitted with shaft or housing tightly. If there are no ribs, either the inner or the outer ring can move freely in the axial direction. Cylindrical roller bearings are of different types, like N, NU, NJ, NUP, NF depending upon the construction of inner and outer rings. Cylindrical roller bearings are designed with multiple row rollers and full compliment rollers without cage depending on the applications. These bearings are suitable for heavy radial and impact loading and are appropriate for high speed applications.



Cylindrical roller bearing