





## 1. Design features and characteristics

The outer ring raceway of self-aligning ball bearings forms a spherical surface whose center is common to the bearing center. The inner ring of the bearing has two raceways. The balls, cage, and inner ring of these bearings are capable of a shifting in order to compensate for a certain degree of misalignment with the outer rings. As a result, the bearing is able to align itself and compensate for shaft / housing finishing unevenness, bearing fitting error, and other sources of misalignment as shown in **Diagram 1**.

However, since axial load capacity is limited, self-aligning ball bearings are not suitable for applications with heavy axial loads.

Furthermore, if an adapter is used on the tapered bore of the inner diameter, installation and disassembly are much simpler and for this reason adapters are often used on equipment with drive shafts.

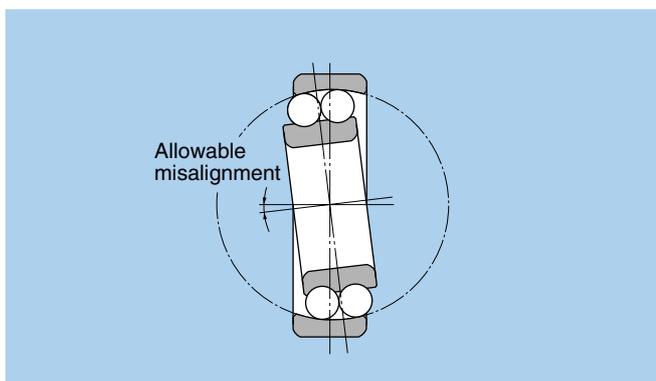


Diagram 1.

## 2. Standard cage types

All bearing series are equipped with a pressed cage, except 2322S, which is equipped with a machined cage.

## 3. Ball protrusion

Bearings with part numbers listed in **Diagram 2** below have balls which protrude slightly from the bearing face.

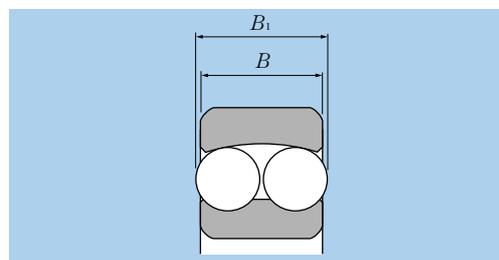


Diagram 2.

their degree of protrusion is listed below

Units mm

| Bearing number | Width dimension $B$ | Total width dimension $B_1$ |
|----------------|---------------------|-----------------------------|
| 2222S (K)      | 53                  | 54                          |
| 2316S (K)      | 58                  | 59                          |
| 2319S (K)      | 67                  | 68                          |
| 2320S (K)      | 73                  | 74                          |
| 2321S          | 77                  | 78                          |
| 2322S (K)      | 80                  | 81                          |
| 1318S (K)      | 43                  | 46                          |
| 1319S (K)      | 45                  | 49                          |
| 1320S (K)      | 47                  | 53                          |
| 1321S          | 49                  | 55                          |
| 1322S (K)      | 50                  | 56                          |

## 4. Allowable misalignment angle

Listed below are the allowable misalignment angles for bearings with self-aligning characteristics when placed under normal load conditions. This degree of allowable misalignment may be limited by the design of structures around the bearing.

Allowable misalignment under normal loads (loads equivalent to  $0.09 C_r$ ):  $0.07 \text{ rad } (4^\circ)$