Angular-Contact Ball Bearing Assemblies

Series ZKLR...2RS, ZKLR...2Z



Angular-Contact Ball Bearing Assemblies

- Consist of a deep-drawn steel flange housing and two radial or angular-contact ball bearings in an “X” arrangement with:
  - optional lip or gap seals on both sides of the bearings
  - axially and radially preloaded bearing arrangement
- Provide ready-to-mount economical systems solutions
- Support radial loads and axial loads in either direction
- Are protected against contamination through integrated seals
- Have low frictional torque:
  - frictional torque is slightly higher in bearings with
    .

Angular-Contact Ball Bearing Assemblies

Bearing Size

The selection of the suitable bearing size depends on the following:

- Basic rating life L or L_h
- Static limiting load diagrams (Figures 1 and 2)

Basic Rating Life

The basic rating life is calculated as follows:

L_h h
Basic rating life in operating hours

n min^{-1}
Operating speed

C N
Basic dynamic load rating according to the *Dimension Table*

P N
Equivalent dynamic bearing load according to Table 1

p –
Life exponent for ball bearings: p = 3

F_a N
Axial operating load

F_r N
Radial operating load

Table 1 · Factors for calculating the equivalent bearing load P

Bearing Assembly Designation	Equivalent Dynamic Load Factor Calculation
ZKLR 0624.2Z	P = 140 +0,13 $F_a^{1,4}$ +0,003 F_r 0.6667 TD0.0749 Tc[1,

Figure 1 · Static limiting load diagram for ZKLR 0624.2Z, ZKLR 0828.2Z, ZKLR 1035.2Z

Figure 2 · Static limiting load diagram for ZKLR 1244.2RS, ZKLR 1547.2RS, ZKLR 2060.2RS

Static Limiting Load Diagrams

The easy-to-use diagrams for the static limiting load (Figures 1 and 2) allow quick verification of the correct bearing size – regardless of the axial and radial operating loads. The deciding factor is that the intersection of axial load and radial load must lie below the curve for the selected bearing.

Example:

- If the operating loads F_a and F_r are below the curve, then the bearing size is suitable for the application (Figure 3):
  - operating load F_a = 300 N, operating load F_r = 600 N

Figure 3 · Sample application of the static limiting load diagram for ZKLR 1035.2Z

Accuracy

Series ZKLR..2RS and ZKLR..2Z angular-contact ball bearing assemblies have lateral and radial runout accuracy on the inner ring of P5 to DIN 620.

Locating the Bearing Assembly on the Screw/Installation

ZKLR angular-contact ball bearing assemblies are particularly easy to install, as these bearing arrangements:

- Are bolted directly onto the supporting structure
- No longer require preloading after installation

Thus the bearing arrangement can usually be fixed on the screw simply by means of clearance-free clamping – however, the type of axial location required depends on the load to be supported.

A milled, or if necessary even an unmachined flat surface without additional radial location suffices as a supporting structure (see *Dimension Table*).

Table 2 lists the advantages of the INA ZKLR bearing assemblies over conventional solutions.

Installation (Figure 4)

- Locate the bearing assembly on the screw ② with locknut ① or clearance-free clamping device
- Bolt the bearing assembly onto the supporting structure ③:
  – bolts should be only hand-tightened
- Move the screw nut ④ to the end positions (the position of the screw is the reference for the linear guidance system; the movable screw nut serves as a functional element for positioning the flanged unit):
  – the bearing adjusts automatically into the optimum radial position (as a result of the constraining forces exerted by the reference)
- Bolt the bearing assembly down on the supporting structure using the tightening torque specified in the assembly drawing ⑤

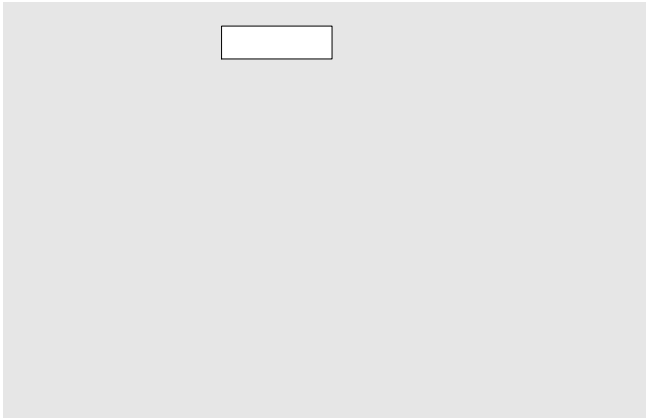
Figure 4 · Installation of a ZKLR bearing assembly on the screw/machine wall

Table 2 · Comparison of requirements on mounting structure

Angular-Contact Ball Bearing Assemblies

Double direction, suitable for flange mounting

Series ZKLR...**.**2RS
ZKLR...**.**2Z



ZKLR 0624**.**2Z
ZKLR 0828**.**2Z

1 035.2Z

Companies Worldwide
USA Regional Offices

America

USA

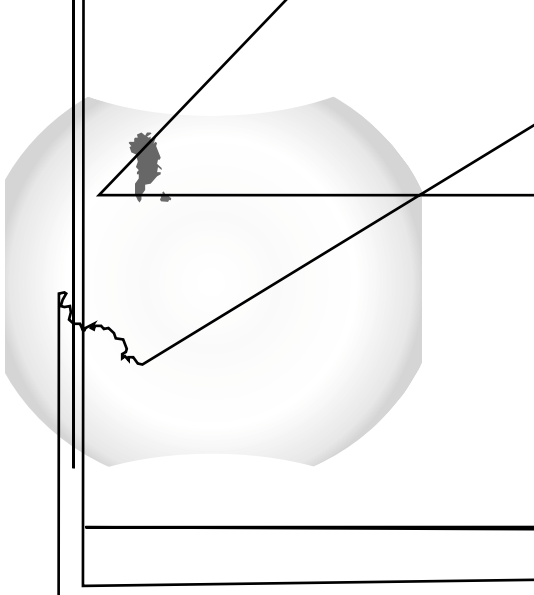
INA USA CORPORATION
308 Springhill Farm Road
Fort Mill
South Carolina 29715
Tel. +1/803/548 8500
Fax +1/803/548 8594

Fort Mill
377 Carowinds Boulevard, Suite 120
Fort Mill, South Carolina 29708
Tel. +1/803/547-7970
Fax +1/803/548-6361

Lisle
2525 Cabot Drive,
Corporate Lakes 1, Suite 202
Lisle, Illinois 60532
Tel. +1/630/955-9360
Fax +1/630/955-9365

Troy
335 East Big Beaver Road, Suite 101
Troy, Michigan 48083
Tel. +1/248/528-9080
Fax +1/248/619-2139

Centerville
261 Regency Ridge Drive



INA-Schaeffler KG

91072 Herzogenaurach
Internet www.ina.com
E-Mail info@ina.com

In Germany:
Phone 0180/5 00 38 72
Fax 0180/5 00 38 73

From Other countries:
Phone +49/9132/82-0
Fax +49/9132/82-49 50

Sach-Nr. 010-030-700/MAI 72 US-D 05021 ○ · Printed in Germany