

Image may differ from product. See technical specification for details.

# BSD 4090 CGA

## Super-precision single direction angular contact thrust ball bearing

These super-precision ball bearings offer very high running accuracy and are well suited for screw drive applications. They are also beneficial in other applications, where safe radial and axial support is required, together with extremely precise axial guidance of the shaft.

They provide a high degree of axial stiffness and can accommodate heavy axial loads in one direction, high speeds and rapid accelerations.

- Very high running accuracy
- High axial stiffness
- High axial load carrying capacity in one direction
- Universally matchable
- Well suited for screw drive applications

# Overview

## Dimensions

| | |
|---|---|
| Bore diameter | 40 mm |
| Outside diameter | 90 mm |
| Height | 20 mm |
| Contact angle | 62 ° |

## Performance

| | |
|---|---|
| Basic dynamic load rating | 64 kN |
| Basic static load rating | 170 kN |
| Attainable speed for grease lubrication | 6 000 r/min |
| Attainable speed for oil-air lubrication | 7 000 r/min |

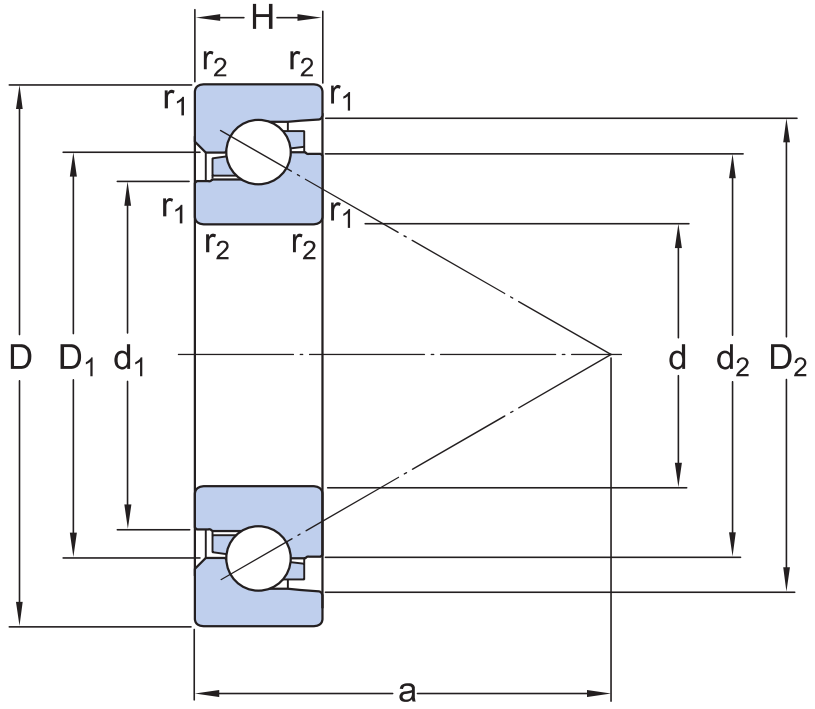
## Properties

| | |
|---|---|
| Axial load capability | Single-direction |
| Number of rows | 1 |
| Locating feature, bearing outer ring | None |
| Cage | Non-metallic |
| Tolerance class | Special |
| Material, bearing | Bearing steel |
| Coating | Without |
| Sealing | Without |
| Relubrication feature | Without |

## Logistics

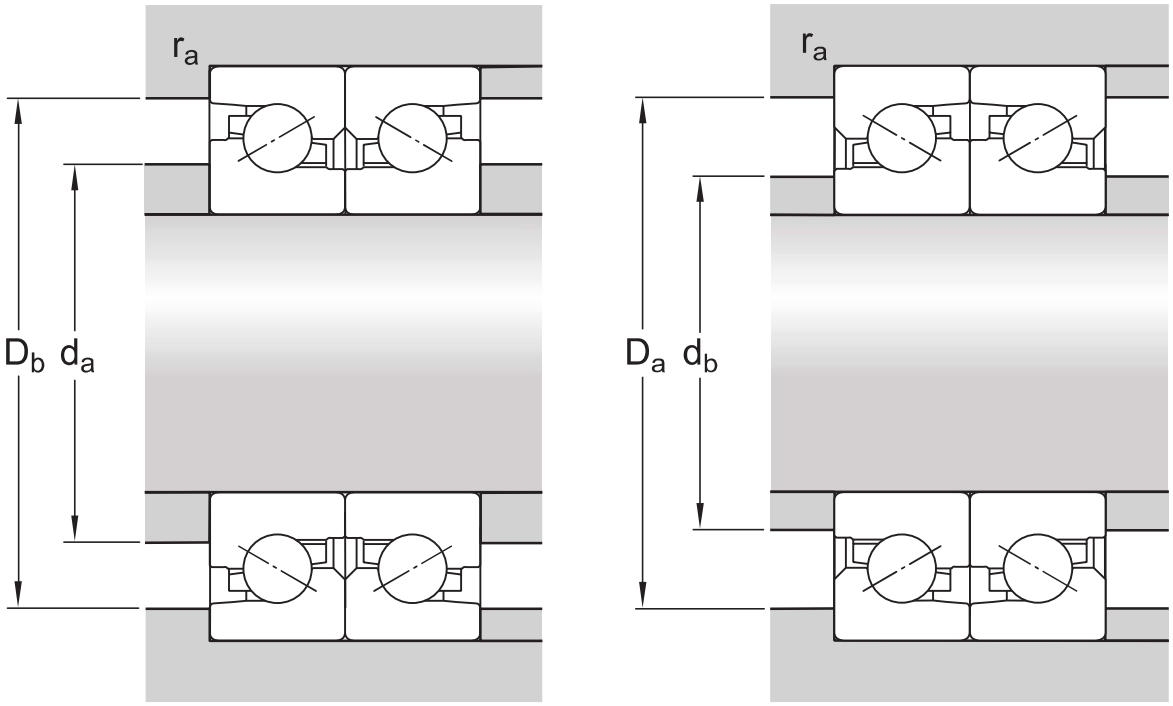
| | |
|---|---|
| Product net weight | 0.63 kg |
| eClass code | 23-05-08-03 |
| UNSPSC code | 31171507 |

## Technical specification




## Dimensions

| | | |
|---|---|---|
| d | 40 mm | Bore diameter |
| D | 90 mm | Outside diameter |
| H | 20 mm | Height |
| $d_1$ | 57.55 mm | Shoulder diameter |
| $d_2$ | 66.5 mm | Shoulder diameter |
| $D_1$ | 66.6 mm | Shoulder/recess diameter |
| $D_2$ | 77.27 mm | Shoulder/recess diameter |
| $r_{1,2}$ | min. 1.5 mm | Chamfer dimension |
| a | 73 mm | Distance to pressure point |




## Abutment dimensions

| | | |
|---|---|---|
| $d_a$ | min. 53 mm | Diameter of shaft abutment |
| $d_b$ | min. 53 mm | Diameter of shaft abutment |
| $D_a$ | max. 81 mm | Diameter of housing abutment |
| $D_b$ | max. 81 mm | Diameter of housing abutment |
| $r_a$ | max. 1.5 mm | Radius of housing fillet |

## Calculation data

| | | |
|---|---|---|
| Basic dynamic load rating | C | 64 kN |
| Basic static load rating | $C_0$ | 170 kN |
| Fatigue load limit | $P_u$ | 6.3 kN |
| Attainable speed for grease lubrication | | 6 000 r/min |
| Attainable speed for oil-air lubrication | | 7 000 r/min |
| Contact angle | α | 62 ° |
| Preload | | 5 100 N |
| Frictional moment | | 0.35 N·m |
| Axial stiffness for preload A (sets of two brgs back-to-back or face-to-face) | | 1 340 N/µm |
| Maximum axial load carrying capacity | $F_a$ | max. 78.2 kN |

| | | |
|---|---|---|
| Reference grease quantity | $G_{ref}$ | 5.2 $cm^3$ |

## Tolerances and clearances

### PRODUCT DETAILS

- Tolerances: table
- Bearing preload
- Design considerations: shafts, housings

## PRINCIPLES OF BEARING SELECTION AND APPLICATION

- Chamfer dimensions
- Speed dependent initial grease fill → Initial grease fill

## More Information

### Product details

- Designs and variants
- Markings on bearings
- General bearing specifications
- Preload, clearance, and stiffness
- Frictional moment
- Loads
- Attainable speeds
- Design considerations
- Mounting
- Designation system

### Engineering information

- Principles of bearing selection and application
- General bearing knowledge
- Bearing selection process
- Bearing failure and how to prevent it

### Tools

- SimPro Quick
- SimPro Spindle
- Bearing Frequency Calculator
- LubeSelect for SKF greases
- Heater selection tool

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