

# 7024 ACDGB/P4A



## Super-precision, high-capacity, universally matchable single row angular contact ball bearing

These super-precision, high-capacity, single row angular contact ball bearings accommodate radial and axial loads acting simultaneously, where the axial load acts in one direction only. They are designed to accommodate heavy loads at relatively high speeds under low to moderate operating temperatures. Being universally matchable, they can be used together in arrangements to provide effective load sharing, within a predetermined preload range, without the use of shims or similar devices.

- Very high running accuracy
- Very high load carrying capacity
- Relatively high speed and stiffness
- Universally matchable

## Overview

### Dimensions

Bore diameter	120 mm
Outside diameter	180 mm
Width	28 mm
Contact angle	25 °

### Performance

Basic dynamic load rating	111 kN
Basic static load rating	116 kN
Note	Contact SKF for the attainable speeds

### Properties

Contact type	Normal contact (two-point contact)
Number of rows	1
Ring type	One-piece inner and outer rings
Design	High-capacity D
Universal matching bearing	Yes, back-to-back (<->), face-to-face (><) or tandem (>>)
Matched arrangement	No
Matched condition (axial clearance/ preload)	Measuring load, class B

Tolerance class	P4A
Material, bearing	Bearing steel
Coating	Without
Sealing	Without
Lubricant	None

# Technical Specification

Universal matching bearing(s)

Yes, back-to-back (<>), face-to-face (><) or tandem (>>)



## Dimensions

d	120 mm	Bore diameter
D	180 mm	Outside diameter
B	28 mm	Width
d <sub>1</sub>	138.5 mm	Shoulder diameter of inner ring (large side face)
d <sub>2</sub>	138.5 mm	Shoulder diameter of inner ring (small side face)
D <sub>1</sub>	161.5 mm	Shoulder diameter of outer ring (large side face)
r <sub>1,2</sub>	min. 2 mm	Chamfer dimension
r <sub>3,4</sub>	min. 1 mm	Chamfer dimension
a	49.1 mm	Distance from side face to pressure point

## Abutment dimensions

d <sub>a</sub>	min. 129 mm	Diameter of shaft abutment
d <sub>b</sub>	min. 129 mm	Diameter of shaft abutment
D <sub>a</sub>	max. 171 mm	Diameter of housing abutment
D <sub>b</sub>	max. 175 mm	Diameter of housing abutment
r <sub>a</sub>	max. 2 mm	Radius of fillet
r <sub>b</sub>	max. 1 mm	Radius of fillet
d <sub>n</sub>	142.6 mm	Position of oil nozzle





## Calculation data

Basic dynamic load rating	C	111 kN
Basic static load rating	C <sub>0</sub>	116 kN
Fatigue load limit	P <sub>u</sub>	4 kN
Attainable speeds	Contact SKF for the attainable speeds	
Contact angle	α	25 °
Ball diameter	D <sub>w</sub>	19.05 mm
Number of rows	i	1
Number of balls (per bearing)	z	22
Reference grease quantity (per bearing)	G <sub>ref</sub>	27 cm <sup>3</sup>

### Preload and stiffness (back-to-back, face-to-face)

Preload class	B
Axial stiffness	416 N/μm

### Correction factors for preload calculation

Correction factor dependent on bearing series and size	f	1.17
Correction factor dependent on contact angle	f <sub>1</sub>	0.99
Correction factor, preload class B	f <sub>2B</sub>	1.02
Correction factor for hybrid bearings	f <sub>HC</sub>	1

### Factors for equivalent bearing load calculation

Limiting value	e	0.68
Axial load factor (single, tandem)	$Y_1$	0
Axial load factor (single, tandem)	$Y_2$	0.87
Axial load factor (single, tandem)	$Y_0$	0.38
Radial load factor (single, tandem)	$X_1$	1
Radial load factor (single, tandem)	$X_2$	0.41
Radial load factor (single, tandem)	$X_0$	0.5
Axial load factor (back-to-back, face-to-face)	$Y_1$	0.92
Axial load factor (back-to-back, face-to-face)	$Y_2$	1.41
Axial load factor (back-to-back, face-to-face)	$Y_0$	0.76
Radial load factor (back-to-back, face-to-face)	$X_1$	1
Radial load factor (back-to-back, face-to-face)	$X_2$	0.67
Radial load factor (back-to-back, face-to-face)	$X_0$	1

## Mass

Mass	2.13 kg
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