

# 7020 ACDGA/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	100 mm
Outside diameter	150 mm
Width	24 mm
Contact angle	25 °

## Performance

Basic dynamic load rating	79.3 kN
Basic static load rating	80 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 A

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	100 mm	Bore diameter
D	150 mm	Outside diameter
B	24 mm	Width
d <sub>1</sub>	115.4 mm	Shoulder diameter of inner ring (large side face)
d <sub>2</sub>	115.4 mm	Shoulder diameter of inner ring (small side face)
D <sub>1</sub>	134.6 mm	Shoulder diameter of outer ring (large side face)
r <sub>1,2</sub>	min. 1.5 mm	Chamfer dimension
r <sub>3,4</sub>	min. 1 mm	Chamfer dimension
a	41.3 mm	Distance from side face to pressure point

## Abutment dimensions

d <sub>a</sub>	min. 107 mm	Diameter of shaft abutment
d <sub>b</sub>	min. 107 mm	Diameter of shaft abutment
D <sub>a</sub>	max. 143 mm	Diameter of housing abutment
D <sub>b</sub>	max. 146 mm	Diameter of housing abutment
r <sub>a</sub>	max. 1.5 mm	Radius of fillet
r <sub>b</sub>	max. 1 mm	Radius of fillet
d <sub>n</sub>	118.7 mm	Position of oil nozzle





## Calculation data

Basic dynamic load rating	C	79.3 kN
Basic static load rating	C <sub>0</sub>	80 kN
Fatigue load limit	P <sub>u</sub>	3.05 kN
Attainable speeds	Contact SKF for the attainable speeds	
Contact angle	α	25 °
Ball diameter	D <sub>w</sub>	15.875 mm
Number of rows	i	1
Number of balls (per bearing)	z	22
Reference grease quantity (per bearing)	G <sub>ref</sub>	16.2 cm <sup>3</sup>

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

Preload class		A
Preload when unmounted	G	500 N
Axial stiffness		270 N/μm

## Correction factors for preload calculation

Correction factor dependent on bearing series and size	f	1.16
Correction factor dependent on contact angle	f <sub>1</sub>	0.99
Correction factor, preload class A	f <sub>2A</sub>	1
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	1.26 kg
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