

# 7005 CDGA/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 arrangement to provide effective load sharing, within a predetermined preload range, without the use of shims or similar devices.

- 15° or 25° contact angle
- Very high running accuracy
- Very high load carrying capacity
- Relatively high speed and stiffness
- Universally matchable

## Overview

### Dimensions

Bore diameter	0.984 in
Outside diameter	1.85 in
Width	0.472 in

### Performance

Basic dynamic load rating	2 149 lbf
Basic static load rating	1 169 lbf

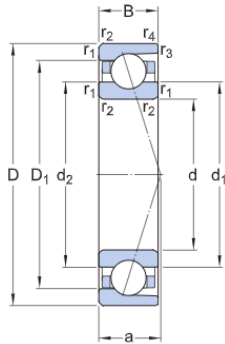
### Properties

Coating	Without
Contact type	Normal contact (two-point contact)
Design	High-capacity D
Lubricant	None
Matched arrangement	No
Matched condition (axial clearance/ preload)	Measuring load, class A
Material, bearing	Bearing steel
Number of rows	1
Ring type	One-piece inner and outer rings
Sealing	Without
Tolerance class	P4A

Universal matching bearing

Yes

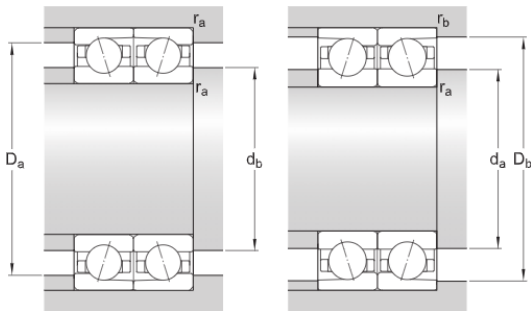
# Technical Specification



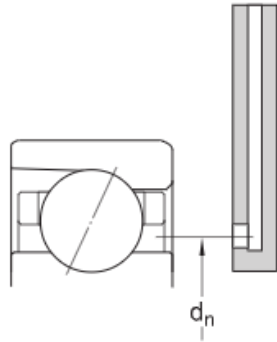
## Dimensions

d	0.984 in	Bore diameter
D	1.85 in	Outside diameter
B	0.472 in	Width
d <sub>1</sub>	1.264 in	Shoulder diameter of inner ring (large side face)
d <sub>2</sub>	1.264 in	Shoulder diameter of inner ring (small side face)
D <sub>1</sub>	1.571 in	Shoulder diameter of outer ring (large side face)
r <sub>1,2</sub>	min. 0.024 in	Chamfer dimension (large side face)
r <sub>3,4</sub>	min. 0.012 in	Chamfer dimension (small side face)
a	0.429 in	Distance from side face to pressure point

## Abutment dimensions



d <sub>a</sub>	min. 1.11 in	Diameter of shaft abutment
d <sub>b</sub>	min. 1.11 in	Diameter of shaft abutment
D <sub>a</sub>	max. 1.724 in	Diameter of housing abutment
D <sub>b</sub>	max. 1.772 in	Diameter of housing abutment
r <sub>a</sub>	max. 0.024 in	Radius of fillet
r <sub>b</sub>	max. 0.012 in	Radius of fillet
d <sub>n</sub>	1.315 in	Position of oil nozzle



### Calculation data

Basic dynamic load rating	C	2 149 lbf
Basic static load rating	C <sub>0</sub>	1 169 lbf
Fatigue load limit	P <sub>u</sub>	49 lbf
Contact angle	α	15 °
Ball diameter	D <sub>w</sub>	0.25 in
Number of balls	z	14
Reference grease quantity	G <sub>ref</sub>	0.06224 in

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

Preload class A	G <sub>A</sub>	7.9 lbf
Axial stiffness for preload A (sets of two brgs back-to-back or face-to-face)		142 753.679 lbf/in

### Calculation factors

Correction factor dependent on bearing series and size	f	1.05
Correction factor dependent on contact angle	f <sub>1</sub>	1
Correction factor, preload class A	f <sub>2A</sub>	1
Correction factor for hybrid bearings	f <sub>HC</sub>	1
Calculation factor	f <sub>0</sub>	9.6
Axial load factor (single, tandem)	Y <sub>1</sub>	0
Axial load factor (single, tandem)	Y <sub>0</sub>	0.46
Radial load factor (single, tandem)	X <sub>1</sub>	1

Radial load factor (single, tandem)	$X_2$	0.44
Radial load factor (single, tandem)	$X_0$	0.5
Axial load factor (back-to-back, face-to-face)	$Y_0$	0.92
Radial load factor (back-to-back, face-to-face)	$X_1$	1
Radial load factor (back-to-back, face-to-face)	$X_2$	0.72
Radial load factor (back-to-back, face-to-face)	$X_0$	1

## Mass

Mass	0.174 lb
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