

7004 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	0.787 in
Outside diameter	1.654 in
Width	0.472 in

Performance

Basic dynamic load rating	1 958 lbf
Basic static load rating	967 lbf

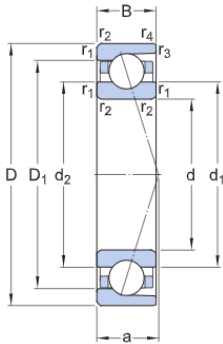
Properties

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

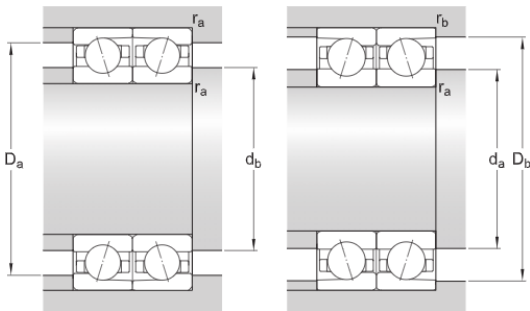
Technical Specification



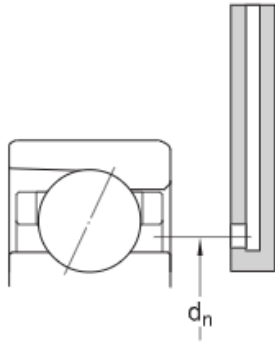
Dimensions

d	0.787 in	Bore diameter
D	1.654 in	Outside diameter
B	0.472 in	Width
d ₁	1.067 in	Shoulder diameter of inner ring (large side face)
d ₂	1.067 in	Shoulder diameter of inner ring (small side face)
D ₁	1.37 in	Shoulder diameter of outer ring (large side face)
r _{1,2}	min. 0.024 in	Chamfer dimension (large side face)
r _{3,4}	min. 0.012 in	Chamfer dimension (small side face)
a	0.402 in	Distance from side face to pressure point

Abutment dimensions



d _a	min. 0.913 in	Diameter of shaft abutment
d _b	min. 0.913 in	Diameter of shaft abutment
D _a	max. 1.528 in	Diameter of housing abutment
D _b	max. 1.575 in	Diameter of housing abutment
r _a	max. 0.024 in	Radius of fillet
r _b	max. 0.012 in	Radius of fillet
d _n	1.118 in	Position of oil nozzle



Calculation data

Basic dynamic load rating	C	1 958 lbf
Basic static load rating	C_0	967 lbf
Fatigue load limit	P_u	40 lbf
Contact angle	α	15 °
Ball diameter	D_w	0.25 in
Number of balls	z	12
Reference grease quantity	G_{ref}	0.05492 in

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

Preload class A	G_A	7.9 lbf
Axial stiffness for preload A (sets of two brgs back-to-back or face-to-face)		131 333.384 lbf/in

Calculation factors

Correction factor dependent on bearing series and size	f	1.03
Correction factor dependent on contact angle	f_1	1
Correction factor, preload class A	f_{2A}	1
Correction factor for hybrid bearings	f_{HC}	1
Calculation factor	f_0	9.2
Axial load factor (single, tandem)	Y_1	0
Axial load factor (single, tandem)	Y_0	0.46
Radial load factor (single, tandem)	X_1	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	0.15 lb
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