

7003 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	17 mm
Outside diameter	35 mm
Width	10 mm
Contact angle	25 °

Performance

Basic dynamic load rating	6.5 kN
Basic static load rating	3.1 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	17 mm	Bore diameter
D	35 mm	Outside diameter
B	10 mm	Width
d ₁	22.6 mm	Shoulder diameter of inner ring (large side face)
d ₂	22.6 mm	Shoulder diameter of inner ring (small side face)
D ₁	29.3 mm	Shoulder diameter of outer ring (large side face)
r _{1,2}	min. 0.3 mm	Chamfer dimension
r _{3,4}	min. 0.2 mm	Chamfer dimension
a	11.2 mm	Distance from side face to pressure point

Abutment dimensions

d _a	min. 19 mm	Diameter of shaft abutment
d _b	min. 19 mm	Diameter of shaft abutment
D _a	max. 33 mm	Diameter of housing abutment
D _b	max. 33.6 mm	Diameter of housing abutment
r _a	max. 0.3 mm	Radius of fillet
r _b	max. 0.2 mm	Radius of fillet
d _n	23.7 mm	Position of oil nozzle





Calculation data

Basic dynamic load rating	C	6.5 kN
Basic static load rating	C ₀	3.1 kN
Fatigue load limit	P _u	0.132 kN
Attainable speeds	Contact SKF for the attainable speeds	
Contact angle	α	25 °
Ball diameter	D _w	5.556 mm
Number of rows	i	1
Number of balls (per bearing)	z	12
Reference grease quantity (per bearing)	G _{ref}	0.54 cm ³

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

Preload class		A
Preload when unmounted	G	40 N
Axial stiffness		48 N/μm

Correction factors for preload calculation

Correction factor dependent on bearing series and size	f	1.04
Correction factor dependent on contact angle	f ₁	0.99
Correction factor, preload class A	f _{2A}	1
Correction factor for hybrid bearings	f _{HC}	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	0.038 kg
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