7212 CD/P4A

Super-precision, high-capacity, single row angular contact ball bearing with 15° contact angle

These super-precision, high-capacity, single row angular contact ball bearings, with 15° contact angle, 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.

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

Overview

Dimensions

Bore diameter	60 mm
Contact angle	15 °
Outside diameter	110 mm
Width	22 mm

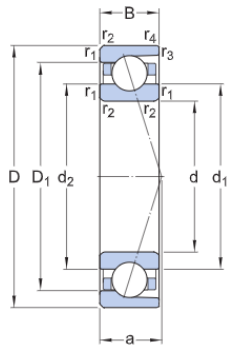
Performance

Attainable speed for grease lubrication	13 000 r/min
Attainable speed for oil-air lubrication	20 000 r/min
Basic dynamic load rating	57.2 kN
Basic static load rating	46.5 kN

Properties

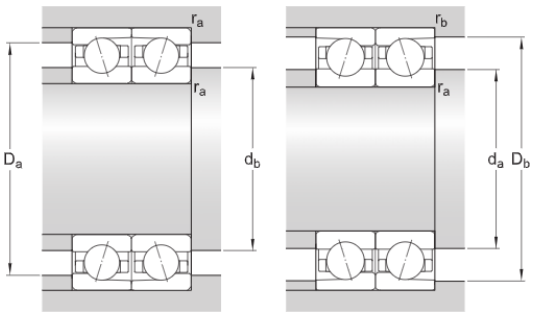
Coating	Without
Contact type	Normal contact (two-point contact)
Design	High-capacity D
Lubricant	None
Matched arrangement	No
Matched condition (axial clearance/ preload)	Not applicable
Material, bearing	Bearing steel
Number of rows	1
Ring type	One-piece inner and outer rings
Sealing	Without
Tolerance class	P4A
Universal matching bearing	No

Technical Specification



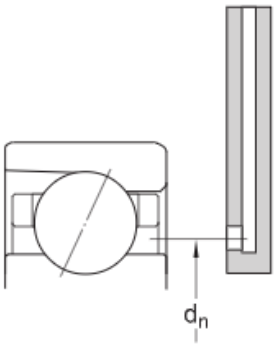
Dimensions

d	60 mm	Bore diameter
D	110 mm	Outside diameter
B	22 mm	Width
d_1	76.4 mm	Shoulder diameter of inner ring (large side face)
d_2	76.4 mm	Shoulder diameter of inner ring (small side face)
D_1	93.6 mm	Shoulder diameter of outer ring (large side face)
$r_{1,2}$	min. 1.5 mm	Chamfer dimension (large side face)
$r_{3,4}$	min. 0.6 mm	Chamfer dimension (small side face)
a	22.5 mm	Distance from side face to pressure point



Abutment dimensions

d_a	min. 69 mm	Diameter of shaft abutment
d_b	min. 69 mm	Diameter of shaft abutment
D_a	max. 101 mm	Diameter of housing abutment
D_b	max. 105.8 mm	Diameter of housing abutment
r_a	max. 1.5 mm	Radius of fillet
r_b	max. 0.6 mm	Radius of fillet
d_n	80.1 mm	Position of oil nozzle



Calculation data

Basic dynamic load rating	C	57.2 kN
Basic static load rating	C_0	46.5 kN
Fatigue load limit	P_u	2 kN
Attainable speed for grease lubrication		13 000 r/min
Attainable speed for oil-air lubrication		20 000 r/min
Contact angle	α	15 °
Ball diameter	D_w	14.288 mm
Number of balls	z	16
Reference grease quantity	G_{ref}	10.08 cm

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

Preload class A	G_A	215 N
Axial stiffness for preload A (sets of two brgs back-to-back or face-to-face)		75 N/µm
Preload class B	G_B	430 N
Axial stiffness for preload B (sets of two brgs back-to-back or face-to-face)		102 N/µm
Preload class C	G_C	860 N
Axial stiffness for preload C (sets of two brgs back-to-back or face-to-face)		142 N/µm
Preload class D	G_D	1 720 N
Axial stiffness for preload D (sets of two brgs back-to-back or face-to-face)		205 N/µm

Calculation factors

Correction factor dependent on bearing series and size	f	1.07
Correction factor dependent on contact angle	f_1	1
Correction factor, preload class A	f_{2A}	1
Correction factor, preload class B	f_{2B}	1.01
Correction factor, preload class C	f_{2C}	1.03
Correction factor, preload class D	f_{2D}	1.05
Correction factor for hybrid bearings	f_{HC}	1
Calculation factor	f_0	14.9

Mass

Mass	0.81	kg

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