

7009 ACE/P4A

Angular contact ball bearings,
super-precision

Product details

[Tolerances,](#)

P4A, P4B, P4, PA9A, P2, D design,

E design, B design,

[direct oil-air lubrication](#)

Principles of bearing

selection and application

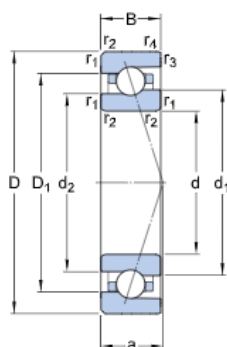
[Chamfer dimensions,](#)

[Seat tolerances for standard conditions,](#)

shafts, housings, shafts, housings,

[Initial grease fill](#)

Technical specification

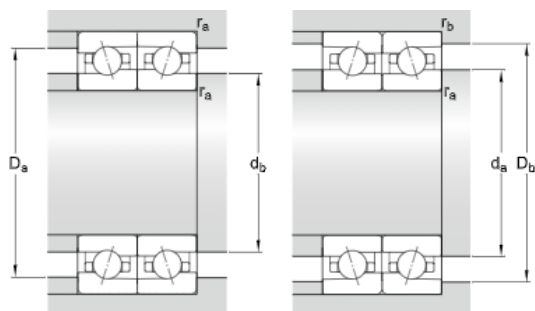


DIMENSIONS

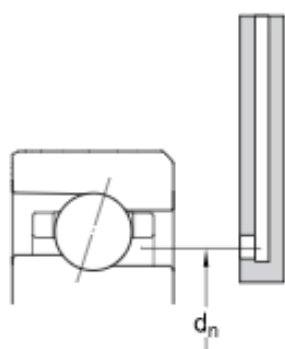
d	45 mm
D	75 mm
B	16 mm
d ₁	55.7 mm
d ₂	53.6 mm
D ₁	64.25 mm
r _{1,2}	min. 1 mm
r _{3,4}	min. 0.6 mm
a	22.2 mm

ABUTMENT DIMENSIONS

d _a	min. 49.6 mm
d _b	min. 49.6 mm
D _a	max. 70.4 mm
D _b	max. 70.8 mm



r_a	max. 1 mm
r_b	max. 0.6 mm
d_n	57.6 mm



CALCULATION DATA

Basic dynamic load rating	C	12.1 kN
Basic static load rating	C_0	8.15 kN
Fatigue load limit	P_u	0.345 kN
Attainable speed for grease lubrication		24000 r/min
Attainable speed for oil-air lubrication		37000 r/min
Contact angle	α	25 °
Ball diameter	D_w	7.144 mm
Number of balls	z	21
Reference grease quantity	G_{ref}	3.4 cm

PRELOAD AND STIFFNESS (BACK-TO-BACK, FACE-TO-FACE)

Preload class A	G_A	110 N
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Static axial stiffness, preload class A		94 N/μm
Preload class B	G_B	330 N
Static axial stiffness, preload class B		140 N/μm
Preload class C	G_C	660 N
Static axial stiffness, preload class C		183 N/μm

CALCULATION FACTORS

Calculation factor	f	1.06
Calculation factor	f_1	0.99
Calculation factor	f_{2A}	1
Calculation factor	f_{2B}	1.03
Calculation factor	f_{2C}	1.06
Calculation factor	f_{HC}	1
Calculation factor	e	0.68
Calculation factor (single, tandem)	Y_2	0.87
Calculation factor (single, tandem)	Y_0	0.38
Calculation factor (single, tandem)	X_2	0.41
Calculation factor (back-to-back, face-to-face)	Y_1	0.92
Calculation factor (back-to-back, face-to-face)	Y_2	1.41
Calculation factor (back-to-back, face-to-face)	Y_0	0.76
Calculation factor (back-to-back, face-to-face)	X_2	0.67

MASS

Mass bearing	0.24 kg
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More information

Product details	Engineering information	Tools
Designs and variants	Principles of bearing selection and application	SimPro Quick
Markings on bearings and bearing sets	General bearing knowledge	SimPro Spindle
Bearing data	Bearing selection process	Engineering Calculator
Preload, clearance, and stiffness	Bearing failure and how to prevent it	LubeSelect for SKF greases
Loads		Heater selection tool
Attainable speeds		
Mounting		
Designation system		

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