



Image may differ from product. See technical specification for details.

7009 CD/P4ADBA

Matched set of two super-precision, high-capacity, D design, single row angular contact ball bearings

These matched sets of two super-precision, high-capacity, D design, single row angular contact ball bearings are available in a variety of arrangements. They are designed for high-load capacity and relatively high speed operation and, compared to the equivalent SKF B and E design high-speed bearings, are best suited for heavier loads.

- Very high running accuracy
- Very high load carrying capacity

Overview

Dimensions

Bore diameter	45 mm
Outside diameter	75 mm
Width	32 mm
Contact angle	15 °

Performance

Basic dynamic load rating	46.8 kN
Basic static load rating	45 kN
Note	Refer to catalogue data or contact SKF for the attainable speeds

Properties

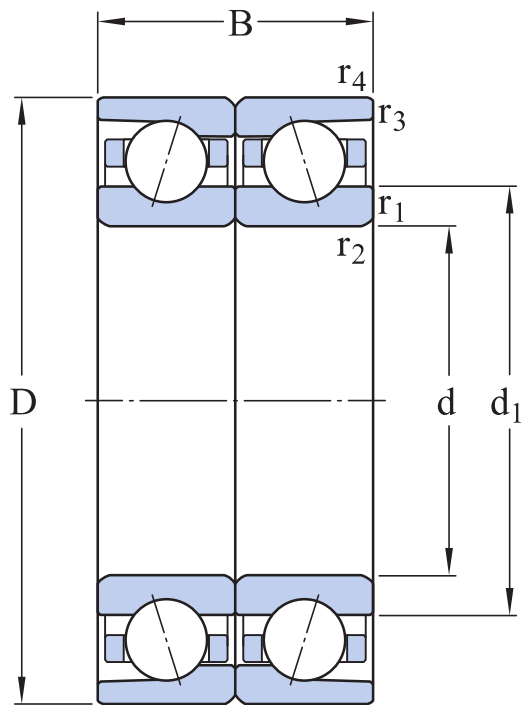
Contact type	Normal contact (two-point contact)
Number of rows	2
Ring type	One-piece inner and outer rings
Design	High-capacity D
Universal matching bearing	No
Matched arrangement	Back-to-back <>
Number of bearings in matched set	2
Matched condition (axial clearance/ preload)	Extra light preload
Tolerance class	P4A
Material, bearing	Bearing steel
Coating	Without
Sealing	Without
Lubricant	None

Logistics

Product net weight	0.462 kg
eClass code	23-05-08-04
UNSPSC code	31171531

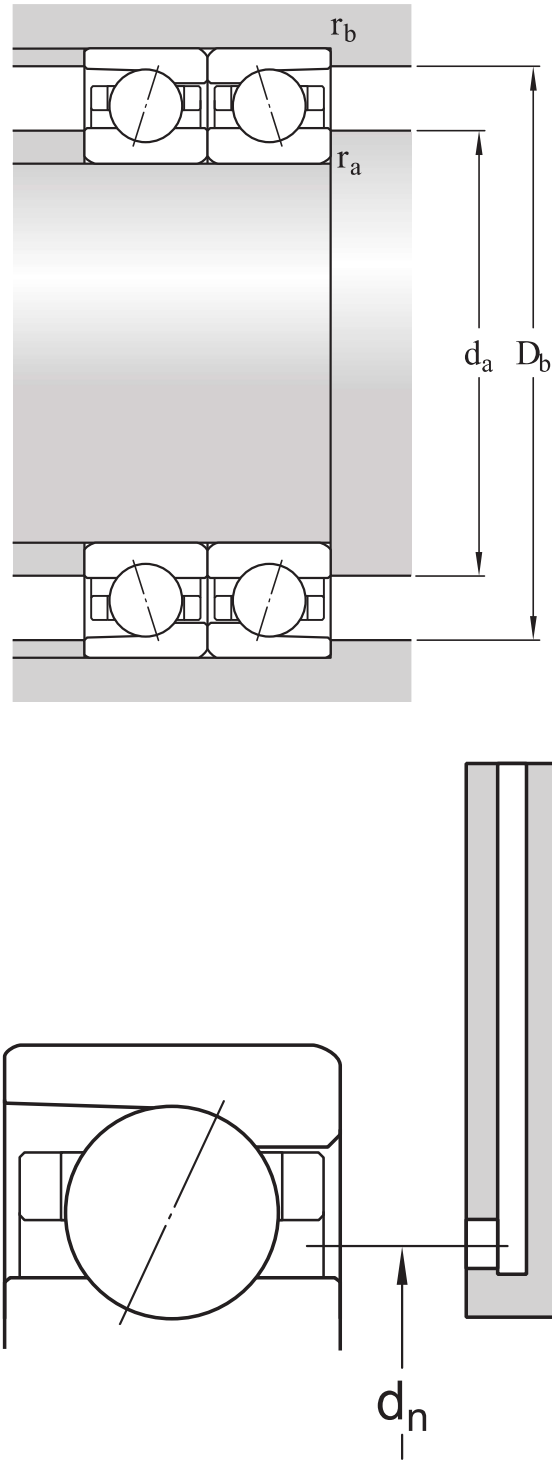
Technical specification

Universal matching bearing(s)	No
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Dimensions

d	45 mm	Bore diameter
D	75 mm	Outside diameter
B	32 mm	Width
d ₁	54.2 mm	Shoulder diameter of inner ring (large side face)
r _{1,2}	min. 1 mm	Chamfer dimension
r _{3,4}	min. 0.3 mm	Chamfer dimension



Abutment dimensions

d_a	min. 49.6 mm	Diameter of shaft abutment
D_b	max. 73 mm	Diameter of housing abutment
r_a	max. 1 mm	Radius of fillet
r_b	max. 0.3 mm	Radius of fillet
d_n	56.2 mm	Position of oil nozzle

Calculation data

Basic dynamic load rating	C	46.8 kN
Basic static load rating	C ₀	45 kN
Fatigue load limit	P _u	1.9 kN
Attainable speed for grease lubrication		To be calculated: Single bearing (19000) x speed reduction factor (see table below)
Attainable speed for oil-air lubrication		To be calculated: Single bearing (30000) x speed reduction factor (see table below)
Contact angle	α	15 °
Ball diameter	D _w	9.525 mm
Number of rows	i	2
Number of balls (per bearing)	z	17
Reference grease quantity (per bearing)	G _{ref}	3.3 cm ³

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

Preload class		A
Preload	G	110 N
Axial stiffness		56 N/μm

CORRECTION FACTORS FOR PRELOAD CALCULATION

Correction factor dependent on bearing series and size	f	1.09
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

FACTORS FOR EQUIVALENT BEARING LOAD CALCULATION

Calculation factor for equivalent loads	f ₀	15.1
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Additional factors for equivalent loads

Refer to Notes 1 and 2 below

Tolerances and clearances

GENERAL BEARING SPECIFICATIONS

- Tolerances: [P4A](#), [P4B](#), [P4](#), [PA9A](#), [P2](#)

PRINCIPLES OF BEARING SELECTION AND APPLICATION

- [Chamfer dimensions](#)
- [Seat tolerances for standard conditions: shafts, housings](#)
- Values for ISO tolerance classes: [shafts](#), [housings](#)
- Speed dependent initial grease fill → [Initial grease fill](#)
- Clamping and fitting forces: [D design](#), [E design](#), [B design](#)
- Designation suffixes H, H1, L and L1 identify variants for [direct oil-air lubrication](#).

FACTORS FOR EQUIVALENT BEARING LOAD CALCULATION

- Note 1: [Single bearings and bearings arranged in tandem](#)
- Note 2: [Bearings paired back-to-back or face-to-face](#)

SPEED REDUCTION FACTORS FOR SPEED CALCULATION

Number of bearings	Arrangement	Designation suffix	Speed reduction factors																	
			for matched sets								for bearings in the series									
			718 .. D, 719 .. E, and 70 .. E								S70 .. W	719 .. A and 70 .. A	719 .. B and 70 .. B				719 .. D, 70 .. D and 72 .. D			
			for preload class										for preload class				for preload class			
			A	L	B	M	C	F	–	–		A	B	C	A	B	C	D		
2	Back-to-back	DB	0,8	–	0,65	–	0,4	–	0,81	0,8		0,83	0,78	0,58	0,81	0,75	0,65	0,4		
	Face-to-face	DF	0,77	–	0,61	–	0,36	–	–	–		0,8	0,74	0,54	0,77	0,72	0,61	0,36		
3	Back-to-back and tandem	TBT	0,69	0,72	0,49	0,58	0,25	0,36	–	–		0,72	0,66	0,4	0,7	0,63	0,49	0,25		
	Face-to-face and tandem	TFT	0,63	0,66	0,42	0,49	0,17	0,24	–	–		0,64	0,56	0,3	0,63	0,56	0,42	0,17		
4	Tandem back-to-back	QBC	0,64	–	0,53	–	0,32	–	–	–		0,67	0,64	0,48	0,64	0,6	0,53	0,32		
	Tandem face-to-face	QFC	0,62	–	0,48	–	0,27	–	–	–		0,64	0,6	0,41	0,62	0,58	0,48	0,27		

For spring-loaded tandem sets, designation suffix DT, a speed reduction factor of 0,9 should be applied.

Compatible products

Aftermarket replacement

Matched set of two super-precision, high-capacity, D design, single row angular contact ball bearings	7009 CD/P4ADGA
Super-precision, high-capacity, universally matchable single row angular contact ball bearing	2 x 7009 CDGA/P4A <u>Verify quantity of bearing rows</u>

More Information

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