

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

2304 TN9

Self-aligning ball bearing

Self-aligning ball bearings have two rows of balls, a common sphered raceway in the outer ring and two deep uninterrupted raceway grooves in the inner ring. They are insensitive to angular misalignment of the shaft relative to the housing, which can be caused, for example, by shaft deflection.

- Accommodate static and dynamic misalignment
- Excellent high-speed performance
- Excellent light load performance
- Low friction

Overview

Dimensions

Bore diameter	20 mm
Outside diameter	52 mm
Width	21 mm

Performance

Basic dynamic load rating	18.2 kN
Basic static load rating	4.75 kN
Reference speed	26 000 r/min
Limiting speed	19 000 r/min

Properties

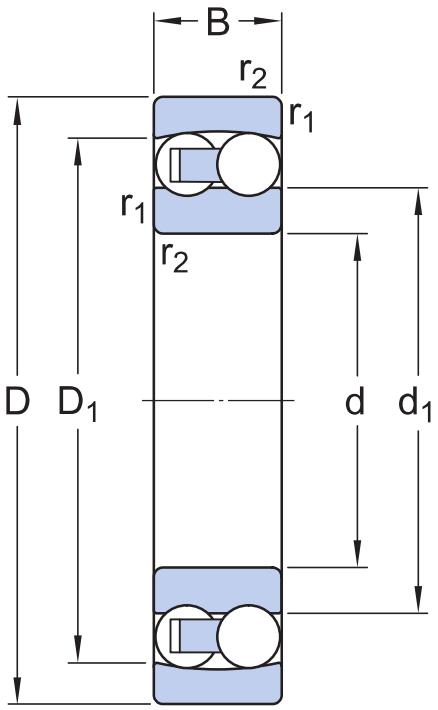
Retaining feature, inner ring	None
Locating feature, bearing outer ring	None
Number of rows	2
Bore type	Cylindrical
Cage	Non-metallic
Radial internal clearance	CN
Tolerance class	Normal
Material, bearing	Bearing steel
Coating	Without
Sealing	Without
Lubricant	None
Relubrication feature	Without

Logistics

Product net weight	0.22 kg
eClass code	23-05-08-06
UNSPSC code	31171532

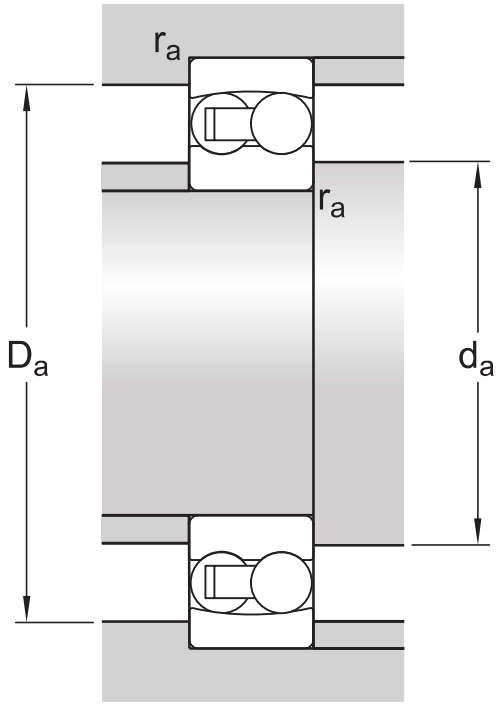
Technical specification

Bore type	Cylindrical



Dimensions

d	20 mm	Bore diameter
D	52 mm	Outside diameter
B	21 mm	Width
d_1	≈ 29.15 mm	Shoulder diameter inner ring
D_1	≈ 41.9 mm	Shoulder diameter outer ring
$r_{1,2}$	min. 1.1 mm	Chamfer dimension



Abutment dimensions

d_a	min. 27 mm	Abutment diameter shaft
D_a	max. 45 mm	Abutment diameter housing
r_a	max. 1.1 mm	Fillet radius

Calculation data

Basic dynamic load rating	C	18.2 kN
Basic static load rating	C_0	4.75 kN
Fatigue load limit	P_u	0.24 kN
Reference speed		26 000 r/min
Limiting speed		19 000 r/min
Permissible angular misalignment	α	3 °
Calculation factor	k_r	0.05
Limiting value	e	0.52
Calculation factor	Y_0	1.3
Calculation factor	Y_1	1.2
Calculation factor	Y_2	1.9

Tolerances and clearances

GENERAL BEARING SPECIFICATIONS

- Tolerances: Normal, JS7
- Radial internal clearance: table

BEARING INTERFACES

- Seat tolerances for standard conditions
- Tolerances and resultant fits

More Information

Product details

- Designs and variants
- General bearing specifications
- Loads
- Temperature limits
- Permissible speed
- Design considerations
- Mounting
- Designation system

Engineering information

- Principles of rolling bearing selection
- General bearing knowledge
- Bearing selection process
- Bearing interfaces
- Seat tolerances for standard conditions
- Selecting internal clearance
- Lubrication
- Sealing, mounting and dismounting
- Bearing failure and how to prevent it

Tools

- SKF Product select - Select and evaluate bearing
- SKF Product select - Combine housing with bearing
- SimPro Quick
- LubeSelect for SKF greases
- Heater selection tool
- Drive-up Method Program
- Oil Injection Method Program
- Tool and Accessory Selector for sleeves and shafts

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