



# 7205 BEY Single row angular contact ball bearing

## Single row angular contact ball bearing

These single row angular contact ball bearings can accommodate radial and axial loads acting simultaneously, where the axial load acts in one direction only. They can operate at high speeds and, depending on the variant, even very high speeds. They are more suitable than deep groove ball bearings for supporting large axial forces acting in one direction.

- High-speed capability
- Accommodate relatively high radial loads and large unilateral axial loads

## Overview

## Dimensions

Bore diameter	25 mm
Outside diameter	52 mm
Width	15 mm
Contact angle	40 °

## Performance

Basic dynamic load rating	14.8 kN
Basic static load rating	9.3 kN
Reference speed	16 000 r/min
Limiting speed	15 000 r/min

## Properties

Contact type	Normal contact (two-point contact)
Number of rows	1
Locating feature, bearing outer ring	None
Ring type	One-piece inner and outer rings
Cage	Brass sheet metal
Matched arrangement	No
Axial internal clearance	Not applicable
Tolerance class	Normal
Material, bearing	Bearing steel
Coating	Without
Sealing	Without
Lubricant	None

Relubrication  
feature

Without

# Technical Specification



## Dimensions

d	25 mm	Bore diameter
D	52 mm	Outside diameter
B	15 mm	Width
$d_1$	$\approx 35.85$ mm	Shoulder diameter of inner ring (large side face)
$d_2$	$\approx 30.87$ mm	Shoulder diameter of inner ring (small side face)
$D_1$	$\approx 41.5$ mm	Shoulder diameter of outer ring (large side face)
a	24 mm	Distance side face to pressure point
$r_{1,2}$	min. 1 mm	Chamfer dimension
$r_{3,4}$	min. 0.6 mm	Chamfer dimension

## Abutment dimensions

$d_a$	min. 30.6 mm	Diameter of shaft abutment
$D_a$	max. 46.4 mm	Abutment diameter housing
$D_b$	max. 47.8 mm	Diameter of housing abutment
$r_a$	max. 1 mm	Radius of fillet
$r_b$	max. 0.6 mm	Radius of fillet



## Calculation data

Basic dynamic load rating	C	14.8 kN
Basic static load rating	$C_0$	9.3 kN
Fatigue load limit	$P_u$	0.4 kN
Reference speed		16 000 r/min

Limiting speed		15 000 r/min
Minimum axial load factor	A	0.00159
Minimum radial load factor	$k_r$	0.095
Limiting value	e	1.14

#### Single bearing or bearing pair arranged in tandem

Calculation factor (single, tandem)	X	0.35
Calculation factor (single, tandem)	$Y_0$	0.26
Calculation factor (single, tandem)	$Y_2$	0.57

#### Bearing pair arranged back-to-back or face-to-face

Calculation factor (back-to-back, face-to-face)	X	0.57
Calculation factor (back-to-back, face-to-face)	$Y_0$	0.52
Calculation factor (back-to-back, face-to-face)	$Y_1$	0.55
Calculation factor (back-to-back, face-to-face)	$Y_2$	0.93

## Mass

Mass	0.13 kg
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