



7414 BCBM

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	70 mm
Contact angle	40 °
Outside diameter	180 mm
Width	42 mm

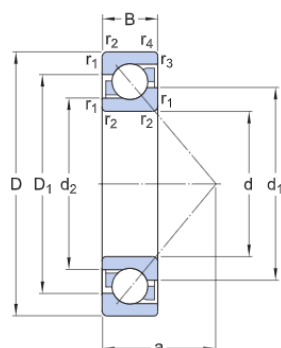
Performance

Basic dynamic load rating	159 kN
Basic static load rating	127 kN
Limiting speed	6 300 r/min
Reference speed	4 800 r/min

Properties

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

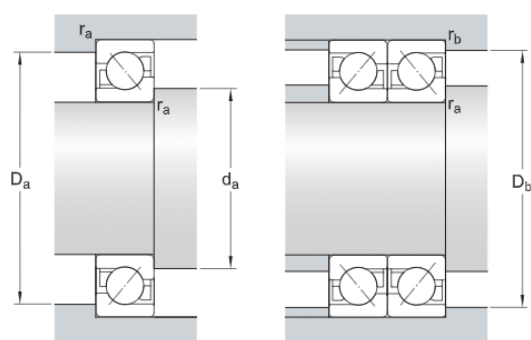
Technical Specification



Dimensions

d	70 mm	Bore diameter
D	180 mm	Outside diameter
B	42 mm	Width
d ₁	≈ 111.76 mm	Shoulder diameter of inner ring (large side face)
d ₂	≈ 91.03 mm	Shoulder diameter of inner ring (small side face)
D ₁	≈ 140.45 mm	Shoulder diameter of outer ring (large side face)
a	74 mm	Distance side face to pressure point
r _{1,2}	min. 3 mm	Chamfer dimension
r _{3,4}	min. 3 mm	Chamfer dimension

Abutment dimensions



d _a	min. 84 mm	Diameter of shaft abutment
D _a	max. 188 mm	Abutment diameter housing
D _b	max. 144.5 mm	Diameter of housing abutment
r _a	max. 2 mm	Radius of fillet
r _b	max. 2 mm	Radius of fillet

Calculation data

Basic dynamic load rating	C	159 kN
Basic static load rating	C ₀	127 kN
Fatigue load limit	P _u	4.8 kN
Reference speed		4 800 r/min
Limiting speed		6 300 r/min

Minimum axial load factor	A	0.31
Minimum radial load factor	k_r	0.1
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	5.8 kg
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