



7416 M

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	3.15 in
Outside diameter	7.874 in
Width	1.89 in

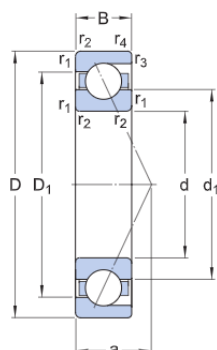
Performance

Basic dynamic load rating	40 016 lbf
Basic static load rating	34 396 lbf
Limiting speed	4 300 r/min
Reference speed	4 000 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

Technical Specification

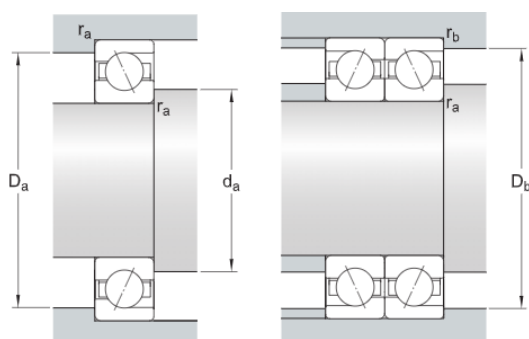


Dimensions

d	3.15 in	Bore diameter
D	7.874 in	Outside diameter
B	1.89 in	Width
d ₁	≈ 4.615 in	Shoulder diameter of inner ring (large side face)
D ₁	≈ 6.372 in	Shoulder diameter of outer ring (large side face)
a	3.268 in	Distance side face to pressure point
r _{1,2}	min. 0.118 in	Chamfer dimension
r _{3,4}	min. 0.118 in	Chamfer dimension

Abutment dimensions

d _a	min. 2.165 in	Diameter of shaft abutment
D _a	max. 4.331 in	Abutment diameter housing
D _b	max. 7.063 in	Diameter of housing abutment
r _a	max. 0.079 in	Radius of fillet
r _b	max. 0.079 in	Radius of fillet



Calculation data

Basic dynamic load rating	C	40 016 lbf
Basic static load rating	C ₀	34 396 lbf
Fatigue load limit	P _u	1 236 lbf
Reference speed		4 000 r/min
Limiting speed		4 300 r/min

Minimum axial load factor	A	0.453
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	17.857 lb
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