

71830 CDGA/P4



Super-precision, high-capacity, universally matchable single row angular contact ball bearing

These super-precision, high-capacity, single row angular contact ball bearings accommodate radial and axial loads acting simultaneously, where the axial load acts in one direction only. They are designed to accommodate heavy loads at relatively high speeds under low to moderate operating temperatures. Being universally matchable, they can be used together in arrangement to provide effective load sharing, within a predetermined preload range, without the use of shims or similar devices.

- 15° or 25° contact angle
- Very high running accuracy
- Very high load carrying capacity
- Relatively high speed and stiffness
- Universally matchable

Overview

Dimensions

Bore diameter	5.906 in
Outside diameter	7.48 in
Width	0.787 in

Performance

Basic dynamic load rating	11 690 lbf
Basic static load rating	16 186 lbf

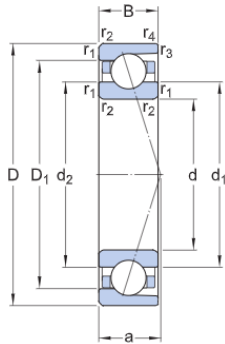
Properties

Coating	Without
Contact type	Normal contact (two-point contact)
Design	High-capacity D
Lubricant	None
Matched arrangement	No
Matched condition (axial clearance/ preload)	Measuring load, class A
Material, bearing	Bearing steel
Number of rows	1
Ring type	One-piece inner and outer rings
Sealing	Without
Tolerance class	P4

Universal matching
bearing

Yes

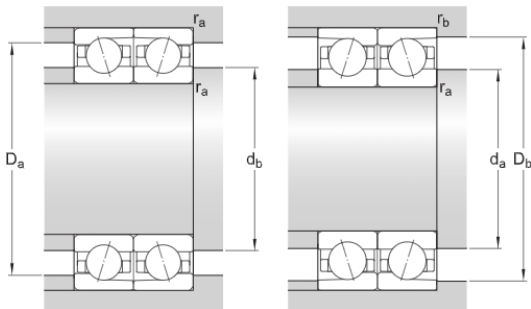
Technical Specification



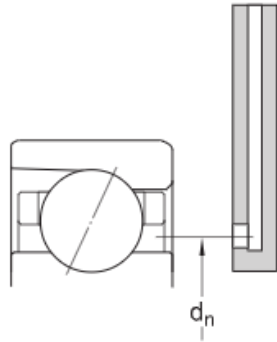
Dimensions

d	5.906 in	Bore diameter
D	7.48 in	Outside diameter
B	0.787 in	Width
d ₁	6.431 in	Shoulder diameter of inner ring (large side face)
d ₂	6.431 in	Shoulder diameter of inner ring (small side face)
D ₁	6.957 in	Shoulder diameter of outer ring (large side face)
r _{1,2}	min. 0.043 in	Chamfer dimension (large side face)
r _{3,4}	min. 0.024 in	Chamfer dimension (small side face)
a	1.291 in	Distance from side face to pressure point

Abutment dimensions



d _a	min. 6.142 in	Diameter of shaft abutment
d _b	min. 6.142 in	Diameter of shaft abutment
D _a	max. 7.244 in	Diameter of housing abutment
D _b	max. 7.354 in	Diameter of housing abutment
r _a	max. 0.039 in	Radius of fillet
r _b	max. 0.024 in	Radius of fillet
d _n	6.52 in	Position of oil nozzle



Calculation data

Basic dynamic load rating	C	11 690 lbf
Basic static load rating	C_0	16 186 lbf
Fatigue load limit	P_u	531 lbf
Contact angle	α	15 °
Ball diameter	D_w	0.437 in
Number of balls	z	35
Reference grease quantity	G_{ref}	0.7933 in

Preload and stiffness (back-to-back, face-to-face)

Preload class A	G_A	61 lbf
Axial stiffness for preload A (sets of two brgs back-to-back or face-to-face)		776 580.012 lbf/in

Calculation factors

Correction factor dependent on bearing series and size	f	1.37
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
Calculation factor	f_0	17.3
Axial load factor (single, tandem)	Y_1	0
Axial load factor (single, tandem)	Y_0	0.46
Radial load factor (single, tandem)	X_1	1

Radial load factor (single, tandem)	X_2	0.44
Radial load factor (single, tandem)	X_0	0.5
Axial load factor (back-to-back, face-to-face)	Y_0	0.92
Radial load factor (back-to-back, face-to-face)	X_1	1
Radial load factor (back-to-back, face-to-face)	X_2	0.72
Radial load factor (back-to-back, face-to-face)	X_0	1

Mass

Mass	2.425 lb
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