



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

S7020 CEGA/P4A

Super-precision, high speed, E design, universally matchable single row angular contact ball bearing with seals

These super-precision, high-speed, E design, single row angular contact ball bearings, with non-contact seals, accommodate radial and axial loads acting simultaneously, where the axial load acts in one direction only. They are designed for high-speed operation and, compared to SKF B design high-speed bearings, have a slightly higher speed capability and can accommodate heavier loads. Being universally matchable, they can be used together in arrangements to provide effective load sharing, without the use of shims or similar devices.

- Very high running accuracy
- Accomodate very high speeds
- Universally matchable
- Non-contact seals
- Integral sealing prolongs bearing service life

Overview

Dimensions

Bore diameter	100 mm
Outside diameter	150 mm
Width	24 mm
Contact angle	15 °

Properties

Contact type	Normal contact (two-point contact)
Number of rows	1
Ring type	One-piece inner and outer rings
Design	High-speed E
Universal matching bearing	Yes, back-to-back (<>), face-to-face (><) or tandem (>>)
Matched arrangement	No
Matched condition (axial clearance/ preload)	Measuring load, class A
Tolerance class	P4A
Material, bearing	Bearing steel
Coating	Without
Sealing	Seal on both sides
Sealing type	Non-contact
Lubricant	Grease
Indicative carbon footprint for new product	4.9 kg CO ₂ e

Performance

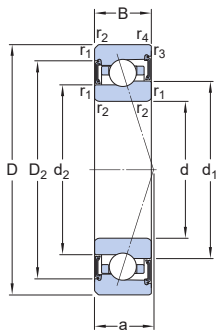
Basic dynamic load rating	44.9 kN
Basic static load rating	40 kN
Note	Refer to catalogue data or contact SKF for the attainable speeds

Logistics

Product net weight	1.33 kg
eClass code	23-05-08-04
UNSPSC code	31171531

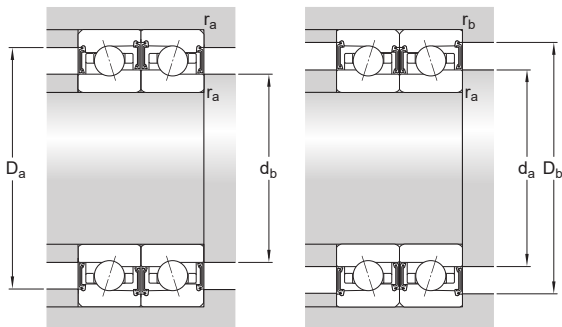
Technical specification

Universal matching bearing(s)	Yes, back-to-back (<>), face-to-face (><) or tandem (>>)
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Dimensions

d	100 mm	Bore diameter
D	150 mm	Outside diameter
B	24 mm	Width
d ₁	117.38 mm	Shoulder diameter of inner ring (large side face)
d ₂	114.2 mm	Shoulder diameter of



		inner ring (small side face)
D_2	136 mm	Recess diameter of outer ring (large side face)
$r_{1,2}$	min. 1.5 mm	Chamfer dimension
$r_{3,4}$	min. 1 mm	Chamfer dimension
a	28.9 mm	Distance from side face to pressure point

Abutment dimensions

d_a	min. 107 mm	Diameter of shaft abutment
d_a	max. 116.7 mm	Diameter of shaft abutment
d_b	min. 107 mm	Diameter of shaft abutment
d_b	max. 113.5 mm	Diameter of shaft abutment
D_a	max. 143 mm	Diameter of housing abutment
D_b	max. 144.4 mm	Diameter of housing abutment
r_a	max. 1.5 mm	Radius of fillet
r_b	max. 1 mm	Radius of fillet

Calculation data

Basic dynamic load rating	C	44.9 kN
Basic static load rating	C_0	40 kN
Fatigue load limit	P_u	1.5 kN
Attainable speed for grease lubrication		To be calculated: Single bearing (12300) x speed reduction factor (see table below)
Attainable speed for oil-air lubrication		To be calculated: Single bearing () x speed reduction factor (see table below)
Contact angle	α	15 °
Ball diameter	D_w	12.7 mm
Number of rows	i	1

Number of balls (per bearing)	z	27
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PRELOAD AND STIFFNESS (BACK-TO-BACK, FACE-TO-FACE)

Preload class		A
Preload when unmounted	G	240 N
Axial stiffness		88 N/ μm

CORRECTION FACTORS FOR PRELOAD CALCULATION

Correction factor dependent on bearing series and size	f	1.1
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

FACTORS FOR EQUIVALENT BEARING LOAD CALCULATION

Calculation factor for equivalent loads	f_0	9.5
Additional factors for equivalent loads		Refer to Notes 1 and 2 below
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

Tolerances and clearances

GENERAL BEARING SPECIFICATIONS

- Tolerances: P4A, P4B, P4, PA9A, P2

PRINCIPLES OF BEARING SELECTION AND APPLICATION

- [Chamfer dimensions](#)
- [Seat tolerances for standard conditions: shafts, housings](#)
- Values for ISO tolerance classes: [shafts](#), [housings](#)
- Speed dependent initial grease fill → [Initial grease fill](#)
- Clamping and fitting forces: [D design](#), [E design](#), [B design](#)
- Designation suffixes H, H1, L and L1 identify variants for [direct oil-air lubrication](#).

FACTORS FOR EQUIVALENT BEARING LOAD CALCULATION

- Note 1: [Single bearings and bearings arranged in tandem](#)
- Note 2: [Bearings paired back-to-back or face-to-face](#)

SPEED REDUCTION FACTORS FOR SPEED CALCULATION

Number of bearings	Arrangement	Designation suffix	Speed reduction factors											
			for bearings in the series											
			for matched sets											
			718 .. D, 719 .. E, and 70 .. E						S70 .. W		719 .. A and 70 .. A		719 .. B and 70 .. B	
for preload class												for preload class		
A	L	B	M	C	F	–	–	A	B	C	D			
2	Back-to-back	DB	0,8	–	0,65	–	0,4	–	0,81	0,8	0,83	0,78		
	Face-to-face	DF	0,77	–	0,61	–	0,36	–	–	–	0,8	0,74		
3	Back-to-back and tandem	TBT	0,69	0,72	0,49	0,58	0,25	0,36	–	–	0,72	0,66		
	Face-to-face and tandem	TFT	0,63	0,66	0,42	0,49	0,17	0,24	–	–	0,64	0,56		
4	Tandem back-to-back	QBC	0,64	–	0,53	–	0,32	–	–	–	0,67	0,64		
	Tandem face-to-face	QFC	0,62	–	0,48	–	0,27	–	–	–	0,64	0,6		

For spring-loaded tandem sets, designation suffix DT, a speed reduction factor of 0,9 should be applied.

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