

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

BSD 45100 CGB

Super-precision single direction angular contact thrust ball bearing

These super-precision ball bearings offer very high running accuracy and are well suited for screw drive applications. They are also beneficial in other applications, where safe radial and axial support is required, together with extremely precise axial guidance of the shaft. They provide a high degree of axial stiffness and can accommodate heavy axial loads in one direction, high speeds and rapid accelerations.

- Very high running accuracy
- High axial stiffness
- High axial load carrying capacity in one direction
- Universally matchable
- Well suited for screw drive applications

Overview

Dimensions

Bore diameter	45 mm
Outside diameter	100 mm
Height	20 mm
Contact angle	62 °

Performance

Basic dynamic load rating	65.5 kN
Basic static load rating	183 kN
Attainable speed for grease lubrication	5 600 r/min
Attainable speed for oil-air lubrication	6 700 r/min

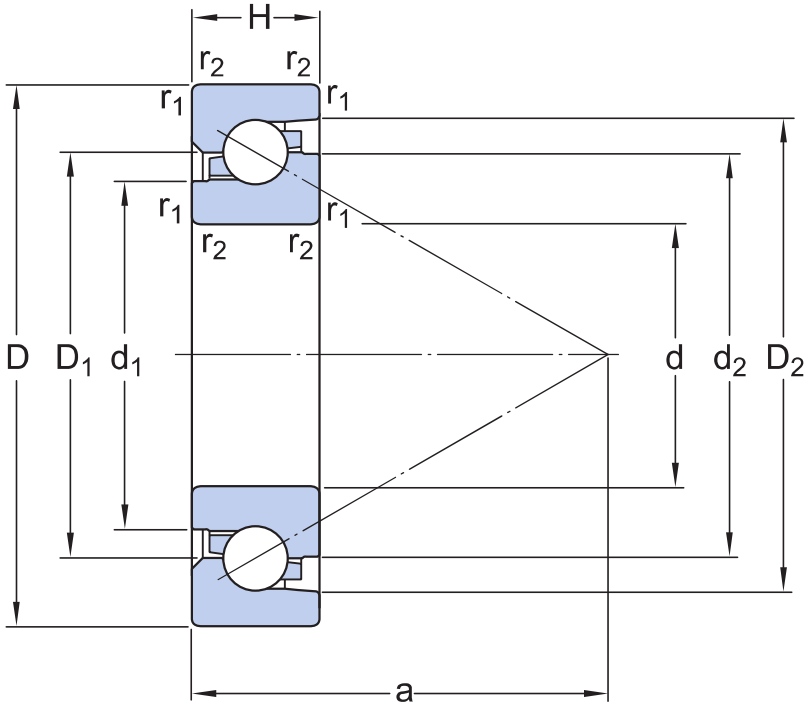
Properties

Axial load capability	Single-direction
Number of rows	1
Locating feature, bearing outer ring	Without
Cage	Non-metallic
Tolerance class	Special
Material, bearing	Bearing steel
Coating	Without
Sealing	Without
Relubrication feature	Without
Indicative carbon footprint for new product	2.9 kg CO_2e

Logistics

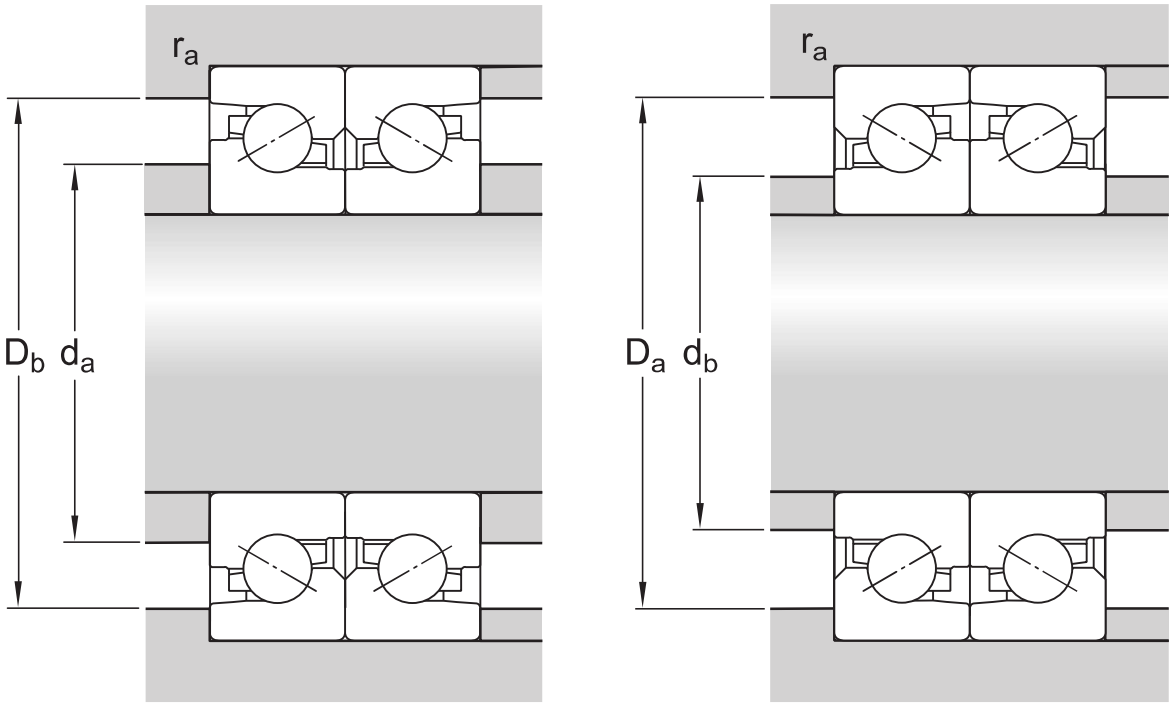
Product net weight	0.791 kg
eClass code	23-05-08-03
UNSPSC code	31171507

Technical specification



Dimensions

d	45 mm	Bore diameter
D	100 mm	Outside diameter
H	20 mm	Height
d_1	61.7 mm	Shoulder diameter
d_2	71.5 mm	Shoulder diameter
D_1	71.6 mm	Shoulder/recess diameter
D_2	82.27 mm	Shoulder/recess diameter
$r_{1,2}$	min. 1.5 mm	Chamfer dimension
a	77 mm	Distance to pressure point



Abutment dimensions

d_a	min. 59 mm	Diameter of shaft abutment
d_b	min. 59 mm	Diameter of shaft abutment
D_a	max. 90 mm	Diameter of housing abutment
D_b	max. 90 mm	Diameter of housing abutment
r_a	max. 1.5 mm	Radius of housing fillet

Calculation data

Basic dynamic load rating	C	65.5 kN
Basic static load rating	C_0	183 kN
Fatigue load limit	P_u	6.7 kN
Attainable speed for grease lubrication		5 600 r/min
Attainable speed for oil-air lubrication		6 700 r/min
Contact angle	α	62 °
Preload		5 850 N
Frictional moment		0.97 N·m
Axial stiffness for preload A (sets of two brgs back-to-back or face-to-face)		1 870 N/µm
Maximum axial load carrying capacity	F_a	max. 107 kN
Reference grease quantity	G_{ref}	5.9 cm^3

Tolerances and clearances

PRODUCT DETAILS

- Tolerances: table
- Bearing preload
- Design considerations: shafts, housings

PRINCIPLES OF BEARING SELECTION AND APPLICATION

- Chamfer dimensions
- Speed dependent initial grease fill → Initial grease fill

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