



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

BTW 50 CTN9/SP

Super-precision, basic design double direction angular contact thrust ball bearing

These double direction angular contact thrust ball bearings consist of two single row angular contact thrust ball bearings, arranged back-to-back. They accommodate high axial loads in both directions and provide a high degree of system rigidity.

- Accommodate axial loads in both directions
- Maximum system rigidity
- Separable

Overview

Dimensions

Bore diameter	50 mm
Outside diameter	80 mm
Height	38 mm
Contact angle	60 °

Performance

Basic dynamic load rating	22.5 kN
Basic static load rating	60 kN
Attainable speed for grease lubrication	9 000 r/min
Attainable speed for oil-air lubrication	11 000 r/min

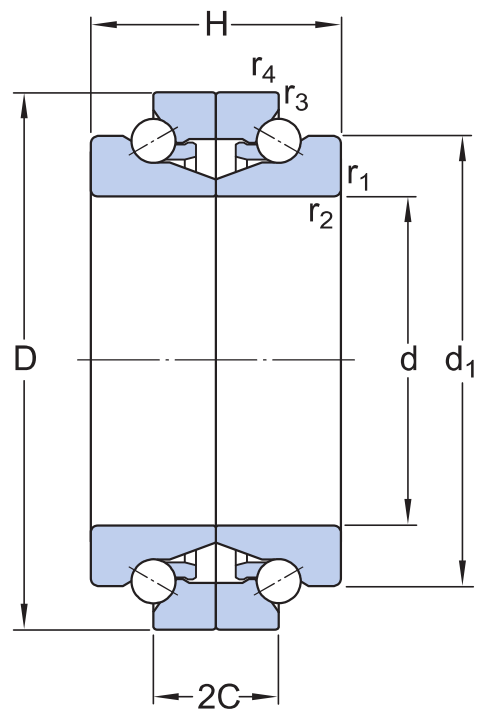
Properties

Axial load capability	Double-direction
Number of rows	2
Locating feature, bearing outer ring	None
Design	Basic (BTW series)
Housing washer type (double-row angular contact thrust ball bearings)	Two-piece
Cage	Non-metallic
Tolerance class	SP
Material, bearing	Bearing steel
Coating	Without
Sealing	Without
Lubricant	None
Relubrication feature	Without

Logistics

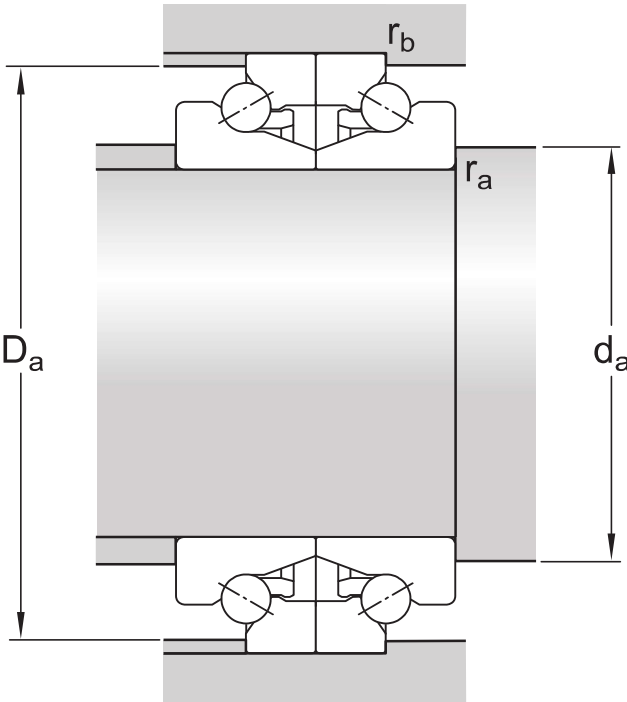
Product net weight	0.578 kg
eClass code	23-05-10-02
UNSPSC code	31171531

Technical specification



Dimensions

d	50 mm	Bore diameter
D	80 mm	Outside diameter
H	38 mm	Height
d ₁	67.5 mm	Shoulder diameter shaft washer (high shoulder)
D ₁	74.9 mm	Shoulder diameter housing washer (low shoulder)
2C	19 mm	Height of both housing washers
r _{1,2}	min. 1 mm	Shaft washer chamfer radius
r _{3,4}	min. 0.3 mm	Housing washer small chamfer radius



Abutment dimensions

d_a	min. 61 mm	Abutment diameter shaft
D_a	min. 74.9 mm	Abutment diameter shaft
D_a	max. 76 mm	Abutment diameter housing
r_a	max. 1 mm	Fillet radius
r_b	max. 0.3 mm	Fillet radius

Calculation data

Basic dynamic load rating	C	22.5 kN
Basic static load rating	C_0	60 kN
Fatigue load limit	P_u	2.85 kN
Attainable speed for grease lubrication		9 000 r/min
Attainable speed for oil-air lubrication		11 000 r/min
Contact angle	α	60 °
Ball diameter	D_w	6.35 mm
Number of rolling element rows	i	2
Number of balls (per bearing)	z	25
Reference grease quantity	G_{ref}	3.3 cm ³

Preload	415 N
Static axial stiffness	559 N/μm

PRELOAD AND STIFFNESS

Axial stiffness for preload A (sets of two brgs back-to-back or face-to-face)	559 N/μm
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Tolerances and clearances

GENERAL BEARING SPECIFICATIONS

- Tolerances: P4C, SP, UP

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](#)

More Information

 Product details Designs and variants Markings on bearings General bearing specifications Preload, clearance, and stiffness Loads Attainable speeds Mounting Designation system	 Engineering information Principles of bearing selection and application General bearing knowledge Bearing selection process Bearing failure and how to prevent it	 Tools SimPro Quick SimPro Spindle Bearing Frequency Calculator LubeSelect for SKF greases Heater selection tool
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