

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

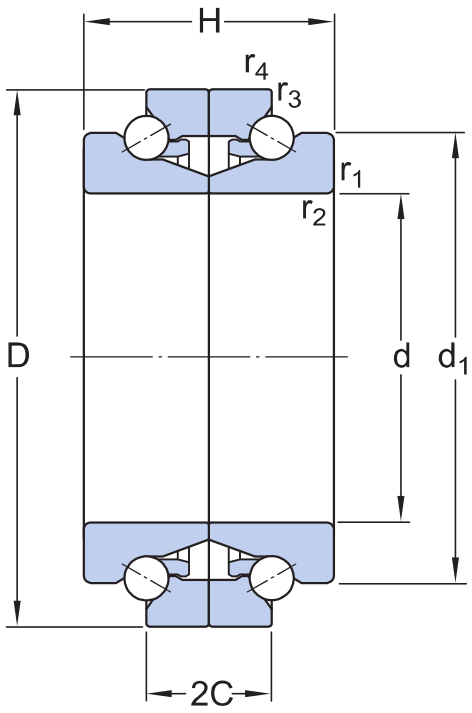
Properties

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

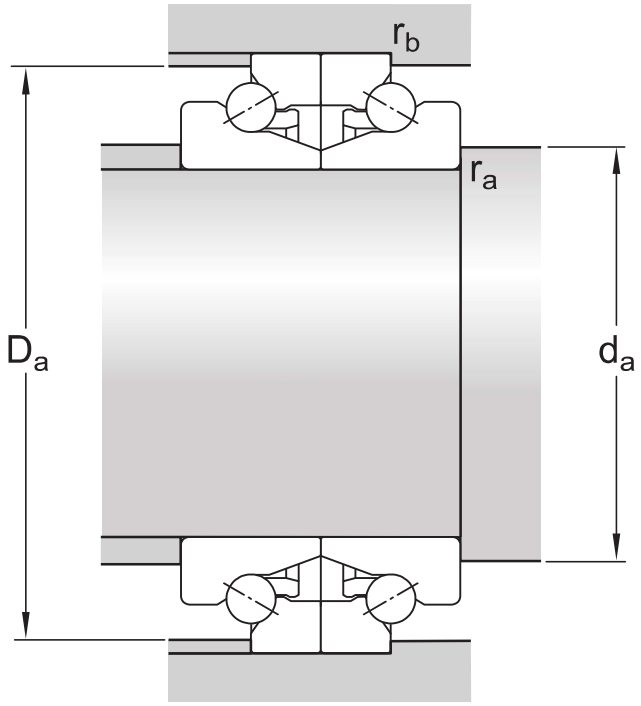
Product net weight	0.578 kg
eClass code	23-05-10-02
UNSPSC code	31171531

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

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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