



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

## BTW 85 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    | 85 mm  |
| Outside diameter | 130 mm |
| Height           | 54 mm  |
| Contact angle    | 60 °   |

Performance

|                                          |             |
|------------------------------------------|-------------|
| Basic dynamic load rating                | 48.8 kN     |
| Basic static load rating                 | 146 kN      |
| Attainable speed for grease lubrication  | 5 600 r/min |
| Attainable speed for oil-air lubrication | 6 700 r/min |

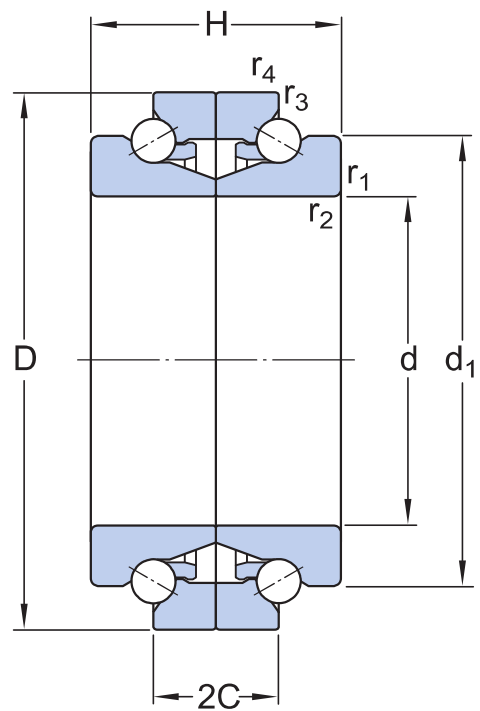
Properties

|                                                                       |                    |
|-----------------------------------------------------------------------|--------------------|
| 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

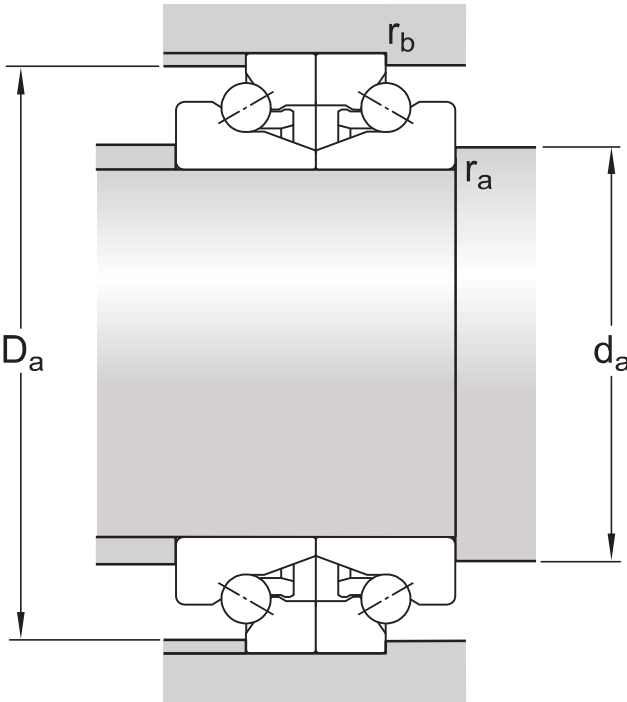
|                    |             |
|--------------------|-------------|
| Product net weight | 2.05 kg     |
| eClass code        | 23-05-10-02 |
| UNSPSC code        | 31171531    |

Technical specification



Dimensions

|                  |             |                                                 |
|------------------|-------------|-------------------------------------------------|
| d                | 85 mm       | Bore diameter                                   |
| D                | 130 mm      | Outside diameter                                |
| H                | 54 mm       | Height                                          |
| d <sub>1</sub>   | 111.2 mm    | Shoulder diameter shaft washer (high shoulder)  |
| D <sub>1</sub>   | 122.3 mm    | Shoulder diameter housing washer (low shoulder) |
| 2C               | 27 mm       | Height of both housing washers                  |
| r <sub>1,2</sub> | min. 1.1 mm | Shaft washer chamfer radius                     |
| r <sub>3,4</sub> | min. 0.6 mm | Housing washer small chamfer radius             |



Abutment dimensions

|       |               |                           |
|-------|---------------|---------------------------|
| $d_a$ | min. 102 mm   | Abutment diameter shaft   |
| $D_a$ | min. 122.3 mm | Abutment diameter shaft   |
| $D_a$ | max. 124 mm   | Abutment diameter housing |
| $r_a$ | max. 1 mm     | Fillet radius             |
| $r_b$ | max. 0.6 mm   | Fillet radius             |

Calculation data

|                                          |           |                      |
|------------------------------------------|-----------|----------------------|
| Basic dynamic load rating                | C         | 48.8 kN              |
| Basic static load rating                 | $C_0$     | 146 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                            | $\alpha$  | 60 °                 |
| Ball diameter                            | $D_w$     | 9.525 mm             |
| Number of rolling element rows           | i         | 2                    |
| Number of balls (per bearing)            | z         | 27                   |
| Reference grease quantity                | $G_{ref}$ | 11.2 cm <sup>3</sup> |

|                        |          |
|------------------------|----------|
| Preload                | 600 N    |
| Static axial stiffness | 763 N/μm |

PRELOAD AND STIFFNESS

|                                                                                  |          |
|----------------------------------------------------------------------------------|----------|
| Axial stiffness for preload A (sets of two<br>brgs back-to-back or face-to-face) | 763 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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div> <b>Product details</b></div> <div><div><a href="#">Designs and variants</a></div><div><a href="#">Markings on bearings</a></div><div><a href="#">General bearing specifications</a></div><div><a href="#">Preload, clearance, and stiffness</a></div><div><a href="#">Loads</a></div><div><a href="#">Attainable speeds</a></div><div><a href="#">Mounting</a></div><div><a href="#">Designation system</a></div></div> | <div> <b>Engineering information</b></div> <div><div><a href="#">Principles of bearing selection and application</a></div><div><a href="#">General bearing knowledge</a></div><div><a href="#">Bearing selection process</a></div><div><a href="#">Bearing failure and how to prevent it</a></div></div> | <div> <b>Tools</b></div> <div><div><a href="#">SimPro Quick</a></div><div><a href="#">SimPro Spindle</a></div><div><a href="#">Bearing Frequency Calculator</a></div><div><a href="#">LubeSelect for SKF greases</a></div><div><a href="#">Heater selection tool</a></div></div> |
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