

## Ultra High-Speed Angular Contact Ball Bearings

### BTR Series BAR Series Ultra High-Speed Angular Contact Ball Bearings-50BTR10S



|                             |                 |
|-----------------------------|-----------------|
| Bearing NO.                 | <b>50BTR10S</b> |
| Dimensions                  |                 |
| D (mm)                      | <b>50</b>       |
| d (mm)                      | 80              |
| 2B (mm)                     | 28.5            |
| r Min                       | <b>1</b>        |
| r1 Min                      | 0.6             |
| Basic Loading Ratings(KN)   |                 |
| Cr (Dynamic)                | 17.4            |
| C0r (Static)                | 31.5            |
| Permissible axial load (KN) | 21.5            |
| Effective load center(mm) a | 34.1            |
| Limiting speeds □rpm□min-1  |                 |
| Grease                      | 10000           |
| Oil                         | 13100           |
| Weight (kg)                 | 0.272           |

BAR/BTR High-Speed Angular Contact Thrust Ball Bearings are high-performance products developed for high-speed and high-rigidity applications such as lathe spindles. This series has two contact angles: 30° (BAR) and 40° (BTR), and three ball materials: steel balls (S), ultra-long-life bearing rolling elements (E), and ceramic balls (H). Bearings with a 30° contact angle can withstand faster speeds, while bearings with a 40° contact angle are more suitable for applications that require higher axial rigidity. BAR and BTR are designed with special width dimensions and can be used interchangeably with 2344 series bidirectional thrust angular contact bearings. They can meet the needs of low heat, high speed, and high rigidity applications.

BAR/BTR High-Speed Angular Contact Thrust Ball Bearings are suitable for shaft diameters of 50-200 mm. They have high-speed performance, strong axial load-bearing capacity, low friction design, low heat generation, high rigidity, and longer bearing life. BAR and BTR series high-speed thrust angular contact ball bearings can provide high reliability and ultra high operating accuracy for various applications such as surface grinding, milling machines, machining centers, lathes, etc. The design of BAR and BTR series high speed thrust angular contact ball bearings is equivalent to two non-separable single-row angular contact ball bearings paired back to back, and can withstand axial loads

in both directions. These bearings are manufactured with a predetermined preload as standard, so they have an appropriate working preload after installation.

This preload is formed by accurately adjusting the protrusion of the inner and outer rings during the manufacturing process. This series of bearings can provide hybrid ceramic types with the suffix H, such as 50BAR10H. BAR and BTR series high-speed thrust angular contact ball bearings have the same inner and outer diameters as 2344 series bearings, but the bearing width is reduced by about 25%, making them particularly suitable for very compact configurations. BAR and BTR series operate faster than 2344 series, but cannot withstand the same loads and provide the same axial stiffness as 2344 series. BAR and BTR series hybrid ceramic bearings consist of bearing steel rings and bearing-grade silicon nitride (ceramic) rolling elements.

Since ceramic balls are lighter, have a higher elastic modulus and lower thermal expansion coefficient than steel balls, hybrid ceramic bearings can provide the following advantages:

1. Higher stiffness
2. Higher speed performance
3. Smaller centrifugal and inertial forces in the bearing
4. Greatly reduced outer ring rolling contact stress at high speeds
5. Smaller friction heat
6. Lower energy loss
7. Longer bearing and grease service life
8. Less prone to slippage and cage damage when subjected to frequent rapid starts and stops
9. Less sensitive to differences in temperature in the bearing
10. Higher preload/clearance control accuracy.

The V-shaped mark on the outer diameter surface of the outer ring of the BAR and BTR series high-speed thrust angular contact ball bearings indicates how the bearing should be installed to obtain the appropriate preload for the bearing set. The bearing parts and bearing sets must be supplied together and installed in the specified order.

Our company has professional sales and technical engineers who are

responsible for providing users with technical consultation, technical services and product technical training on precision bearing data and installation and use. Perfect pre-sales, in-sales and after-sales services constitute a guarantee system for high-quality services, providing users with reliable quality bearing products and creating excellent user experience and rich benefits for every customer.

If you have any questions about products and services, please contact the company's service department directly.