

7002HTDB/GMP5



Technical sheet of 7002HTDB/GMP5

What are the Benefits of choosing 7002HTDB/GMP5 bearings?

- **High simultaneous load-bearing capacity:** Capable of simultaneously withstanding combined radial and axial loads and operating at high speeds.
- **High speed limit:** Optimized contact angle and cage design suitable for ultra-high-speed operation (e.g., machine tool spindles).
- **Rigidity and precision:** Provides extremely high rotational accuracy and system rigidity, ensuring precision in machining or operation.
- **Preload adjustment:** Precise preload adjustment is possible through paired installation (back-to-back/face-to-face), eliminating backlash and improving system stability.
- **Versatile design:** Offers different contact angles (e.g., 15°, 25°) to accommodate different speeds and load requirements.

Type :	Angular contact ball bearings, super-precision	
Model :	7002HTDB/GMP5	
Main demensions :	15 mm × 32 mm × 18 mm	Bore Dia × Outside Dia × Width Dia
M kg:	0.056	Mass
HS Code :	8482103000	Bearing customs code
d mm:	15	inner ring diameter
D mm:	32	Outer ring diameter
B(T) mm:	18	Overall Width

Detailed parameters and installation dimensions:

Part Number: 7002HTDB/GMP5 NTN

Technical description (HTDB/GMP5): Series 7200C...7220C Have A Nylon Cage, Bigger Is Machined Phenol Resin Cage Except 7226C=Machined High Tensile Brass Cage. HT=Duplex Angular Contact Ball Bearing With

30 ° Contact Angle, Generally Used With Grease Lubrication. DB=Duplex (Back To Back). GM=Central Preload. P5=Dimensional And Running Accuracy To ISO Tolerance Class 5.

Bearing Type: Angular Contact Ball Bearings, Single Row

Bearing Size (metric): Inner dia. (d): 15,00 mm X Outer dia. (D): 32,00 mm X Width (B): 18,00 mm or Size: 15,00 mm * 32,00 mm * 18,00 mm

Original Equipment Manufacture(OEM NO.): 7002HTDB/GMP5

Seals Type: No Seal

Cage Design: P (Plastic Molded Cage)

Precision Rating: P5 Precision (Higher than P6)

Contact Angle: 30 Degrees

Pairing: DB - O-arrangement, 2

Axial internal clearance: GB - Medium Preload

Type of lubrication: Standard class lubrication

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What are the applications of the 7002HTDB/GMP5 bearing?

- **Machine tool manufacturing (spindles, grinding heads):** Achieve extremely high speeds and machining accuracy, improving surface quality and production efficiency.
- **Aerospace (accessory gearboxes, gyroscopes):** Maintain high reliability and long lifespan during high-speed operation, adapting to harsh environments.
- **Precision instruments (measuring equipment, optical instruments):** Provide extremely low vibration and smooth operation, ensuring measurement accuracy.
- **High-speed motors (electric spindles, permanent magnet motors):** Support ultra-high speed operation, reducing temperature rise and power consumption.
- **Semiconductor equipment (wafer dicing machines, lithography machines):** Ensure micron-level positioning accuracy and long-term stability, improving yield.
- **Medical devices (CT scanners, surgical robots):** Achieve quiet and smooth rotation, meeting medical safety standards.
- **Robotics (joint reducers):** Improve joint response speed and repeatability, enhancing dynamic performance.

How should choose the right model for a Angular contact ball bearings, super-precision?

Accuracy Class: Select ABEC 7 (P4) or ABEC 9 (P2) class according to equipment requirements. The higher the class, the higher the operating accuracy.

Contact Angle: 15° suitable for high speed and light load, 25° suitable for medium-high speed and medium load, 30° suitable for heavy axial load.

Preload Class: Light preload (Class A) for ultra-high speed, medium preload (Class B) for standard operating conditions, heavy preload (Class C/D) for high rigidity requirements.

Matching Method: Back-to-back (DB) for torque loads, face-to-face (DF) for compact structure, series (DT) for unidirectional heavy loads.

What is the mounting procedure for 7002HTDB/GMP5 bearings?

Cleaning and Inspection: Clean the bearing in a dust-free environment. After a rough wash to remove contaminants, perform a fine wash until the bearing feels smooth and responsive to the touch. Simultaneously check the accuracy of the mating surfaces of the shaft and bearing housing.

Measurement and Fitting: Precisely measure the bearing's inner and outer diameters. Mark the corresponding positions on the shaft and housing bores for alignment during assembly to compensate for any deviations.

Installation and Positioning: Apply pressure evenly using a specialized tool, focusing only on the interference fit rings. If heat fitting is used, tighten the inner ring during cooling to prevent clearance from affecting the preload.

Preload Adjustment: When installing in pairs, ensure the parallelism of the inner and outer spacers is $\leq 1\mu\text{m}$. Adjust the preload force to the specified value by grinding the spacers.

Lubrication Inspection: Add the specified amount of grease or oil mist lubricant. After installation, manually rotate the bearing to check its flexibility and operating noise.

Special Note for mounting 7002HTDB/GMP5 bearings?

Clean Environment: Operation must be performed in a dust-free cleanroom with humidity $\leq 65\%$ to prevent dust and impurities from affecting accuracy.

No Striking: Direct striking of the bearings is strictly prohibited. Special tools must be used, and force must be applied evenly.

Matching Marks: Bearings used in pairs are not interchangeable. Installation must strictly follow the factory matching marks.

Rust-Proof Storage: Long-term storage requires regular rust-proofing treatment. Maintain ventilation and avoid corrosive gases.

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