B7010 C/HQ1 P4 QBT A



Technical sheet of B7010 C/HQ1 P4 QBT A

What are the Benefits of choosing B7010 C/HQ1 P4 QBT A 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 :		B7010 C/HQ1 P4 QBT A
Main demensions :	50 mm × 80 mm × 64 mm	Bore Dia × Outside Dia × Width Dia
HS Code :	8482103000	Bearing customs code
d mm:	50	inner ring diameter
D mm:	80	Outer ring diameter
B(T) mm:	64	Overall Width
Cr kN:	15.9	Radial dynamic load rating
C0r kN:	10	Radial static load rating
Grease r/min:	26000	Reference speed
Oil r/min:	43000	Limiting speed

Detailed parameters and installation dimensions:

rs(min): 1 mm, r1s(min): 0.3 mm

What are the applications of the B7010 C/HQ1 P4 QBT A 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?

Direction Selection

High-speed priority: Select small contact angles (15°/18°), such as SKF's E/B/A design or NSK's ROBUST series.
Heavy-duty/high-rigidity priority: Select large contact angles (25° and above), such as SKF's D design or NSK's TAC-F series.

Parameter Selection

Size series: Ultra-light 718, Extra-light 719, Light and narrow 70, Heavy-duty 72.
Internal design: Correspond to the high-speed or heavy-duty optimization code of each brand.
Material: Ceramic balls (hybrid ceramic bearings) can significantly improve high-speed performance.

Accuracy and Combination Selection

Accuracy: Machine tool spindles generally select ISO P4 grade (ABEC 7 grade) or higher.
Matching: DB (back-to-back) has good rigidity; DF (face-to-face) has good thermal conductivity; DT (tandem) can withstand unidirectional heavy loads.
Preload: Select light, medium, or heavy-duty according to the load; universal matching models are more convenient.

What is the mounting procedure for B7010 C/HQ1 P4 QBT A 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 ≤1μm. 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 B7010 C/HQ1 P4 QBT A bearings?

Clean Environment: Operation must be performed in a dust-free cleanroom with humidity ≤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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