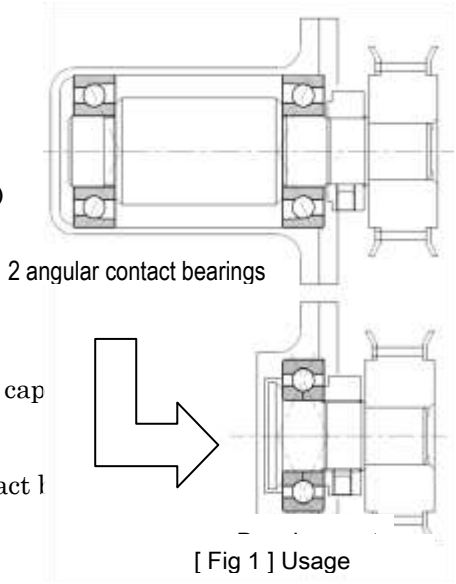
ADB 4-point contact ball bearing, sample order start

Coo Space CO., Ltd. (Tokyo, Japan) has developed a technology that makes balls non-contact without using a cage, ADB (Autonomous Decentralized Bearing). Developed 4-point contact ball bearing ADB-QJ002 (dimension compatible with deep groove ball bearing 6002) and started sample orders.

Up to now, the Coo Space has offered 2 types ADB of “simple and high-performance angular contact ball bearings” and “deep groove ball bearings that have no front and back and do not choose the load direction”. The newly developed product not only has performance exceeding these types, but also can support a single shaft that was previously supported by two.

Conventional four-point contact bearings have limited applications due to problems such as cage wear when subjected to compound loads *, but the developed product solves this problem with the ADB's "ball decentralized function". As a result, it can be used widely. [Figure 1]



[Fig 1] Usage

Features of ADB-QJ002

1. Less axial and angular gaps

1) Axial gap: 0.012mm or less (about 0.1mm for deep groove ball bearings)

2) The inclination is 1/10 of the conventional (back end of load 0.1mm)

[Fig 2]

2. High load capacity

1) Radial direction: Since the contact point of the ball is doubled, the load cap

2) Axial direction: High axial load resistance due to contact angle ± 25 °

3) Moment: Moment resistance performance equivalent to 2 angular contact l

- Fig. 2 to Fig. 3 posture, nano diamond lubrication to no lubrication, operation check for a total of 240 hours [Fig. 4].

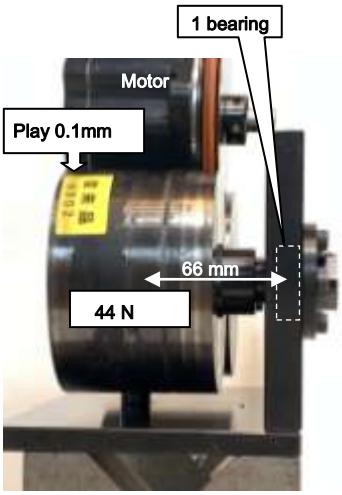
3. Stable high-speed rotation with low loss

1) Orbit curvature ratio (orbit curvature radius / ball diameter) 62% ⇒ friction coefficient 0.0008 [Fig. 3]

2) Same as the 0 ° centrifugal force acting on the ball during high-speed operation, with a combined contact angle of 0 °

The Gothic arch trajectory to be guided and the ball revolution are stable.

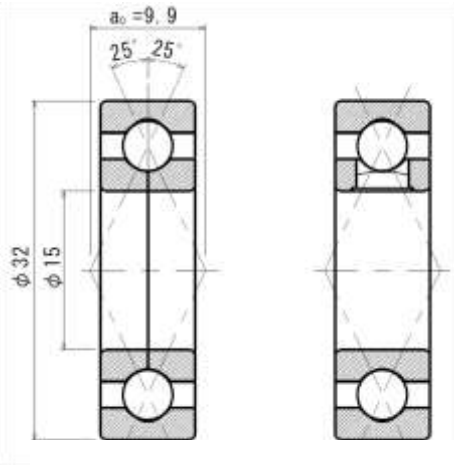
[fig3]2.7 °inclined vertical axis



[fig2]Cantilever horizontal axis

Specification

Bearing number	ADB-QJ002S(Split radially inner-ring) **
	ADB-QJ002H(Hole filling structure) **
O.D. / I.D. / WIDTH	32 / 15 / 9 mm
Material	Rings SUS440C / Balls Si3N4
Lubrication	Non (Option:Nano Diamond coat)
Price	@JPY96,000 When ordering 2 pcs
	@JPY68,000 When ordering 10 pcs
	@JPY11,200 When ordering 200 pcs



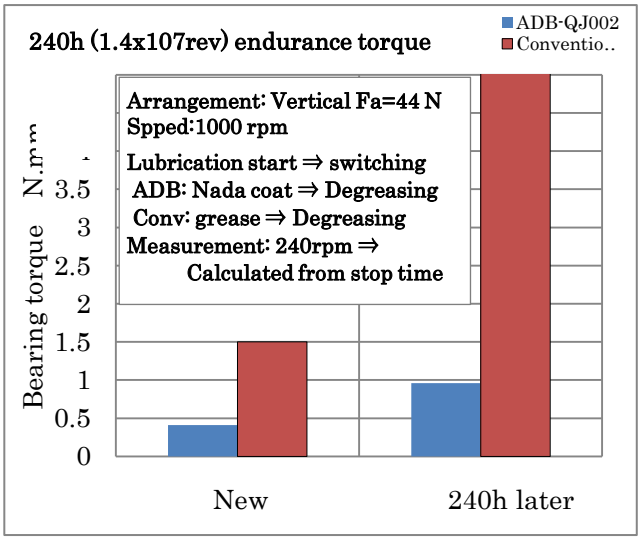
QJ002S QJ002H

Since this ADB is a work made from materials, the maximum outer diameter of 300 mm and special groove shapes can be individually handled. Please contact us by e-mail.

** Notes on S type and H type

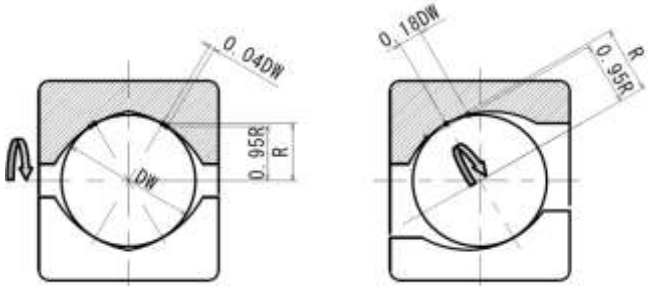
Inner ring split structure QJ002S
Until this product is installed and fixed with two inner rings on the shaft,
All parts are easily disassembled. (Because there is no cage)

Inner ring hole filling structure QJ002H
This product has vibrations through the cap of the ball, especially at low speeds."S" is recommended for applications where vibration is aversion.
The cap is shipped with a temporary stop and fixed by inserting the shaft.



[fig 4]

* The cage wear of 4-point contact ball bearings is due to strong friction with the balls due to fluctuations in ball speed (= ball span).
The ball speed varies depending on the change in the effective radius R of the ball. In the lower right angular contact ball bearing, the contact point is 0.18 DW (ball diameter)
If it deviates, R will be reduced to 95%, which is not strange even if a problem occurs.
· With 4-point contact ball bearings, the contact point shift of only 0.04DW reduces R to the same 95%, which can easily cause problems.
◎ ADB allows individual ball speed to be freely distributed by ball dispersion, and to allow varying ball speed of 4-point contact ball bearings.



4 point contct bearing Angular contact bearing