

ADB developed fully compatible with deep groove ball bearings and double row angular contact ball bearings

Coo Space Co., Ltd. has developed a deep groove ball bearing with a newly developed "inner ring hole filling structure", a double-row angular contactor for ADB (Autonomous Decentralized Bearing), a technology that makes balls non-contact with each other without a cage. We have developed ball bearings.



[Features]

- 1. Fully compatible with conventional deep groove ball bearings and double row angular contact ball bearings (With seal, no restrictions on front and back and mounting direction) and more balls.**
- 2. Inner ring hole filling structure that prevents cage damage, ball dropout, and inner / outer ring separation (patent pending)**
- 3. Features ADB features such as low torque and high alignment without relying on lubrication**

【background】

This is because the ADB structure that fills the cage space with balls is easy to apply to angular ball bearings. *

ADB, a general deep groove ball bearing, required filling the balls from the grooves provided in the inner and outer rings **.

However, depending on wear and load, the trajectory of the ball may shift toward the filling slots and lock the rotation, so restrictions such as "install the filling slots in the top direction" and "only for low speed" were required.

Furthermore, the filling slots could not be sealed.

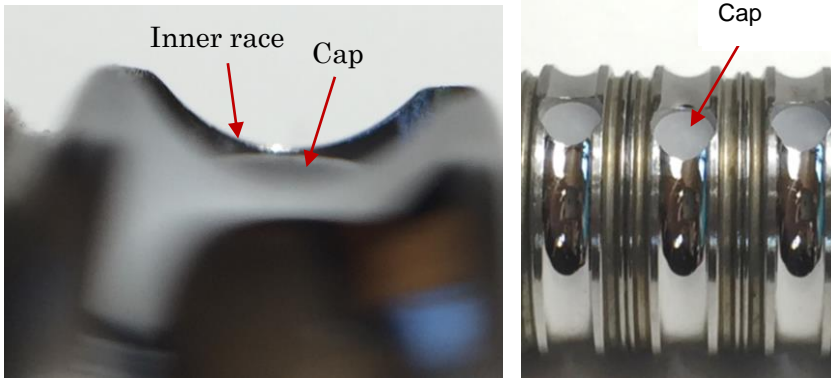
[Inner ring hole filling structure]

In order to solve this problem in the Coo Space, we have developed an "inner ring hole filling structure" in which balls are filled from the hole provided in the inner ring, and the cap is covered with a cap from the inner diameter side.

The cap is fixed between the shaft and inner ring when the bearing is assembled to the device, so it will not fall off.

* Angular contact ball bearings have a structure in which a cooled inner ring and a heated outer ring are inserted into the ball assembly from the axial direction, so that the balls can be fully filled with or without a cage.

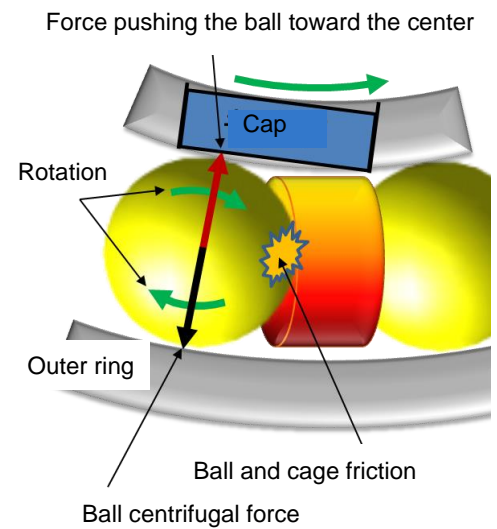
** This is a low-speed bearing that is conventionally called a full ball bearing or maximum type.



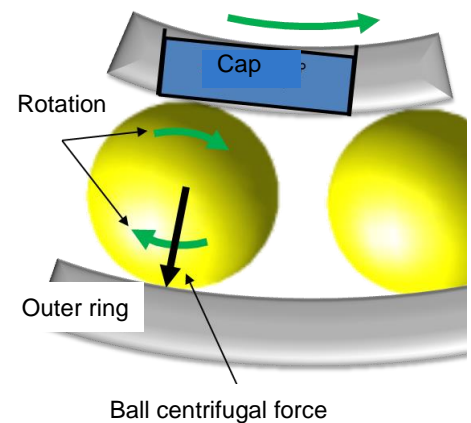
This structure makes use of the characteristics of ADB. The tip of the cap has a bowl shape with the same curvature as the radius of the groove bottom of the inner raceway. However, the relative position between the raceway and the tip of the cap has an error. Therefore, the ball has a large internal clearance at the cap position

In conventional bearings, the revolving force of the ball may move toward the shaft center due to the friction between the ball and the cage (meandering due to clogging). In that case, the ball hit the edge (not flush) between the inner ring hole and the cap, and could be damaged. <Upper figure>

On the other hand, the ADB ball receives no normal force other than centrifugal force, so at least the ball operating at high speed follows the outer ring without contacting the cap. So this problem does not occur. <Figure below>



Conventional bearing touches cap



ADB does not contact the cap

[Manufacturing and sales]

It is “additional product of existing bearing”.

Production example 1 Deep groove ball bearing 6901LLB (ball diameter 3.175 with seal, number of balls increased from 10 to 17)

Production example 2 Double row angular contact ball bearing 5200 (ball diameter 4.763 with seal, number of balls increased from 7 / row to 12 / row)

Coo Space is looking for ADB manufacturing and sales partners.