

CNC Turntable Bearings

As an important accessory of CNC machine tools, CNC turntable is one of the key functional parts of CNC machine tools with more than four axes, which can be used as the worktable of machine tools directly or installed on the worktable of machine tools as the four axes of machine tools. The two-axis turntable installed on the worktable can even promote the common three-axis machining center to a five face machining center that can realize the machining of any shape in space.

No matter it is used as the accessory of CNC machine tool, or as the CNC turntable of CNC machine tool table, or in the common machining center, or as a part of the flexible manufacturing unit, the CNC turntable directly affects or even determines the accuracy and overall performance of the machine tool.

The key to the performance of turntable lies in the structure and accuracy of its supporting bearing type.

CNC Turntable Bearings Development History:

No matter what form of turntable, its rotary table needs axial and radial support. The rotary support of CNC turntable originally comes from the rotary support of mechanical turntable. Before the numerical control turntable, the support of the mechanical rotary table basically uses the sliding bearing. As shown in Figure 1 below, the radial rotation support B of the turntable and the axial support of the turntable are composed of A and C.

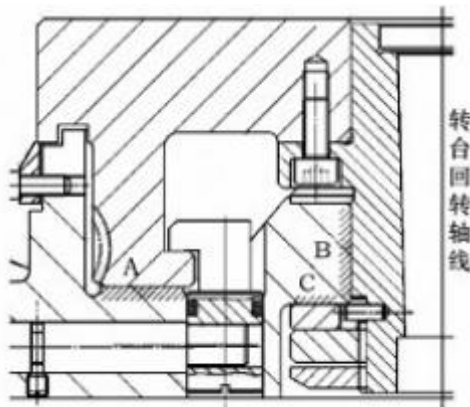
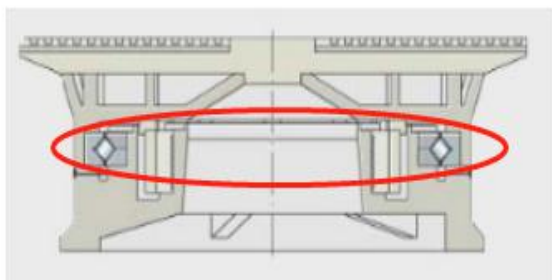


Figure 1

Why choose crossed roller bearings used as CNC turntable bearings?

With the continuous application of new technology and new process, the machining capacity of machine tool is improved, and the process method is more perfect. Large size surface roller bearing is gradually applied to CNC turntable, and the supporting structure begins to change to rolling mode. As shown in the figure below, one set of cross roller bearing can bear axial, radial and overturning moment load, thus replacing the support structure of traditional multiple bearing combinations. In recent years, with the universal application of CNC machine tools, CNC turntable has also been greatly developed, and the use of a single set of cross roller bearing as the bearing of turntable has been widely used.

**The internal structure of crossed roller bearings:**

Crossed roller bearing is also called turntable bearing. Generally, cylindrical rollers or tapered rollers are used as the rolling body to cross and arrange each other on a single raceway. The distance between roller and roller is separated by retainer or isolated block, which has high rotation accuracy, large loading capacity, small size, high rotating speed and rigidity. Crossed roller bearing has a wide range of applications. It is suitable for industrial robot joints, CNC turntables, motors, medical equipments and other fields.

In terms of structure, the structure of cross roller bearing is much simpler than that of traditional bearing. Through a single row of cross arranged cylindrical rolling elements, considerable axial and radial bearing capacity and overturning moment can be obtained. The structure is much simpler. However, traditional bearings must be arranged in order to achieve the same result, This brings great convenience in design and assembly. Compared with the traditional bearings, the space crossed roller bearings occupied by the equipment is much smaller, and the assembly difficulty is also greatly reduced.

In terms of installation, the crossed roller bearing is more convenient to install, and the mechanism design is more simplified. In addition, the crossed roller bearing RU series, XU series and XSU series, increase the installation holes design, and its installation is more simple, greatly simplifying the structure of the turntable and optimizing its performance.

In terms of maintenance, the outer ring of crossed roller bearing is designed with lubricating oil hole and groove, which is convenient for lubrication. Lithium based pressure grease is used, which does



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not need to change grease frequently, and it 's guarantee for bearing stability and service life. If the rotating speed of turntable is high, it can also be designed as circulating oil lubrication, which can prevent the aging of lubricating oil caused by bearing temperature rising, When more heat is caused, the wear debris in the rotating friction can be discharged. The lubricating oil can be recycled, and the bearing can work at a lower temperature, which is extending the service life of the bearing.

To sum up, the crossed roller bearing is suitable for various turntable applications such as: precision CNC turntable, indexing disc, multi axis turntable, optical machine turntable, welding multi station turntable, medical turntable, measuring equipment turntable, etc.

TEDIN produce **RB/RE/RU/CRBC/CRBH/SX standard series crossed roller bearings** in high precision grade (P5, P4, P2). We also have large quantity bearings in stock, and capable to arrange delivery in 7 days to our customers. You can check all series crossed roller bearing's catalogue in "Products" list on our website.

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