

Advantages of linear bearings

[Linear cross bearings](#) can provide more precise motion control than spherical bearings, and higher loads and larger ones. The stiffness. Microprocessor based manufacturing, diagnostic equipment and automatic control require higher precision motion control. In these applications, linear cross bearings can meet this requirement better than spherical bearings. Among them, cross roller bearings or sliding bearings are increasingly used in chip manufacturing, robotics, visual inspection and high-tech microscopy and other fields. In these crossed roller bearings, the cylindrical bearing is 90. Crisscross crisscross motion between two parallel axes. The roller is placed in the "Ya" shaped guide rail or raceway groove outside the axis. The larger the metal, the greater the load. The contact between the roller and the guide determines the load capacity. The contact area of the roller is larger than that of the ball. At the same time, the roller can provide greater stiffness and higher load than the ball, because the roller usually does not roll circularly and can be used to bear all the load. Because the load capacity is closely related to the contact area, the small spacing between the rollers can increase the load capacity by 250%. The metal cage is made through the notch on the top and bottom ends of the roller.

The frame can support the roller. Compared with the metal cage, the gasket energy of a synthetic resin is installed on the roller. An additional 30% to 58% contact area is added. But the metal cage is much cheaper. It can be made of stainless steel or ordinary steel. It can be used in high-temperature environments or medical applications and has waterproof and rust-proof functions. Synthetic resins require degassing, so they are prone to problems in highly vacuum environments. Using cross roller bearings, due to the track in different directions, assembly must complete two times stroke. On some lines

In the cross roller products of the sex slideway, the cross roller is not cross cross, and it will roll in circle, changing once every four times to the opposite direction of the roller. The synthetic resin cage can achieve longer strokes on a given length of rail because it is shorter under the same load. However, there is almost no difference between static friction and sliding friction resistance between metal and synthetic resin. For extremely fast acceleration and deceleration motion control applications (size in the following range: 30-600 mm long, 2-12 mm roller), linear cross bearings can be affordable, 50,000,000 rounds. The creep resistance mechanism of cage frame in bearing design can prolong the life of guide rail and avoid repeated adjustment due to unbalanced preloading.

Greater contact area between cross rollers ensures consistent and precise motion, while non-cyclic rolling is designed. The fluctuation of friction resistance is small, which ensures that it can move extremely quietly and smoothly. The rigidity of linear bearings means that the accuracy of the mounting surface is higher, allowing the deflection to be the highest but only 2 microns.