# Clearance adjustment of single row tapered roller bearings

The assembly of rolling bearings is a common operation in machine assembly and repair, and the adjustment of clearance of rolling bearings is an important part of the assembly of rolling bearings. Accurate grasp of the concept of clearance adjustment process, and in the assembly of the correct use of this process method, is the quality of bearing assembly assurance. The clearance of rolling bearing refers to the maximum movement of the other ring along the radial or axial direction when one ring is fixed, so the clearance is divided into radial clearance and axial clearance. When the rolling bearing is assembled, the clearance should not be too big or too small. If the clearance is too large, the number of rolling elements bearing loads will be reduced, so that the load of a single rolling element will be increased, thus reducing the rotating accuracy of the bearing and reducing the service life; if the clearance is too small, the friction force will be increased, the heat generated will be increased, and the wear will be aggravated. The overload of motor can not operate normally, shaft fracture and so on. Therefore, many bearings must be tightly controlled and adjusted during assembly.

The actual ideal working clearance of rolling bearing is the clearance adjusted after the temperature rise of the bearing is stable. Therefore, the adjustment of bearing clearance should be carried out in two stages: first, adjust the bearing clearance according to the relevant operating specifications and technical requirements at room temperature, until the clearance is suitable and rotating by hand should be flexible; then, the adjusting mechanism should be loosened properly (to prevent the sudden locking of the bearing due to the temperature rise during the test run). The air running test is carried out. The air running time from low speed to high speed is no more than 2 hours, the air running time at the highest speed is no less than 30 minutes, the bearing should be flexible, low noise, working temperature is no more than 50 C, and finally the adjusting mechanism can be reset and locked. The adjustment of clearance is usually accomplished by making the inner ring and outer ring of the bearing displace properly. Tapered roller bearings are usually separated, that is, the conical inner ring assembly consisting of the inner ring with the roller and cage assembly can be installed separately from the conical outer ring (outer ring). Tapered roller bearings mainly bear combined radial and axial loads, so the adjustment of tapered roller bearing clearance is very important.

Adjustment of clearance of rolling bearings is an effective means to improve bearing rotating accuracy and bearing capacity, reduce vibration and noise of transmission system. In addition to meeting the general technical requirements of rolling bearing assembly, the effect of bearing temperature rise and lubrication on adjustment should also be taken into account in operation, and after empty running test. Careful inspection and secondary adjustment should be carried out. Patient and meticulous work attitude is also an indispensable quality of assembly and maintenance work.