The benefits of oil and gas lubrication for high speed bearing lubrication

Bearings are an indispensable part of mechanical equipment. The reliable operation of bearings in electrospindles is more important and directly affects the performance of the machine tools. In addition to bearing properties, the choice of lubrication and cooling method is also important. To realize the high-speed cutting of the machine tool, firstly, the shaft rotation speed should be high, and the high rotation speed requires stable bearing performance. Lubrication is an important factor to ensure bearing performance. The use of bearing oil and air lubrication, the bearing can be well lubricated, the operation of the electric spindle is more stable, and get a good running index.

Among the factors that affect the speed and performance of the motor spindle, heat distortion is associated with lubrication. The internal heat source of the electric spindle comes from two aspects: the heating of the built-in motor and the spindle bearing.

Spindle bearing heating can be solved by using oil and gas lubrication. The bearing size of the electric spindle is not too large and does not require a large amount of lubricant to lubricate. If a large amount of lubricating oil is used for intrusive lubrication with a conventional lubrication method, the method is not desirable. The main reason is that it does not provide good lubrication, and it also wastes a lot of lubricating oil. Lubricating oil will also cause the oil temperature to rise due to the friction between oil molecules during the continuous cycle. The temperature rise is not conducive to the operation of the electric spindle. Therefore, the use of bearing oil and gas lubrication, this type of lubrication can reduce the amount of lubricant supply, not only eliminates the heat generated by the friction of a large number of oil molecules, lubrication is also better and better. Bearing oil and gas lubrication, follow the principle of a single small amount in the oil supply, each time in a very slight amount of quantitative oil, increase the frequency of oil to meet the bearing lubrication requirements. This lubrication method is driven by compressed air lubricant film to the friction surface, the lubricant fully play a role in lubrication, compressed air can also take away the heat generated by friction, play a role in cooling.

The selection of oil-air lubrication for bearings is summarized as follows?

1, Low consumption of lubricants, cost savings,
2. The lubrication effect is good and the design performance of the electric spindle is guaranteed.
3, compressed air can take away the heat generated inside the spindle, effectively prevent the bearing deformation due to heat,
4, positive pressure within the bearing, to prevent the intrusion of impurities.

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