Causes Of Overheating Of Motor Bearing And Its Treatment Method

Y-Bearings

First, the concept of bearing overheating:

In general, bearing overheating refers to the rolling bearing temperature rise of more than 55 ?, sliding bearing temperature rise of more than 40 ?.

Second, the motor bearing overheating reasons and treatment methods:

1, Reason: The rolling bearing is not installed correctly, with tolerance too tight or too loose.

Treatment method: The working performance of rolling bearings depends not only on the manufacturing accuracy of the bearing itself, but also on the dimensional accuracy, geometric tolerances and surface roughness, mating and installation correctness of the shaft and bore with which it fits. In general horizontal motors, well-assembled rolling bearings are only subjected to radial stress, but if the bearing inner ring is too tight with the shaft, or if the bearing outer ring is too tight with the end cap, that is, when the male surplus is too large, the bearing clearance becomes too small, sometimes even close to zero. This turns out to be inflexible and will heat up during operation. If the bearing inner ring is too loose with the shaft, or the bearing outer ring and the end cover are too loose, then the bearing inner ring and the shaft, or the bearing outer ring and the end cover, will occur relative rotation, resulting in friction and heat, causing the bearing overheating. In general, the standard of the bearing inner diameter tolerance band as a reference part is moved below the 0 line, which fits the tolerance band of the same shaft with the inner ring of the bearing, which is much more important than the fit that is formed with the general reference hole.

2, Reason: Grease is not suitable or improper use of maintenance, grease quality is bad or has deteriorated, or mixed with dust impurities can cause bearing heat.

Treatment: Too much or too little grease will cause the bearing to heat up, because when the grease is too high, the rotation of the bearing and the grease will produce a lot of friction, and when the grease is too low, there may be dry friction and heat. Therefore, the amount of grease must be adjusted so that it is approximately the 1/2-2/3 of the space volume of the bearing chamber. For unsuitable or deteriorated grease should be cleaned and replaced with suitable clean grease.

3, Reason: the axial clearance between the outer bearing cover and the rolling bearing

outer circle is too small.

Treatment method: Large and medium-sized motors generally use ball bearings on non-shaft ends. The shaft ends are roller bearings, so that when the rotor is heated and expanded, it is free to elongate. The small motor because the two ends are used ball bearings, outer bearing cover and the bearing outer ring should be an appropriate gap, otherwise, the bearing may be subjected to excessive axial heat elongation and heating. When this phenomenon occurs, the front or rear bearing cover car should be a little, or between the bearing cover and the end cover is padded with a thin paper pad, so that one end of the outer bearing cover and the bearing outer ring form a sufficient gap between.

4, Reason: The motor side cover or bearing cover is not installed well.

Treatment method: If the motor side cover or bearing cover is not parallel or the end of the valve is not strict, it will make the ball off the track rotation and heat. Both end caps or bearing caps must be re-flattened and fastened with bolts evenly rotated.

5, Reason: Ball, roller, inner and outer ring, ball frame serious wear or metal peeling.

Handling method: The bearing should be updated at this time.

6, Reason: The connection with the load machine is bad. Including: poor coupling assembly, belt tension is too large, and the axis of the load machine is inconsistent, with the wheel diameter is too small, pulley is too far from the bearing, the axial or radial load is too large.

Treatment method: Correct the incorrect connection and avoid the bearing being subjected to abnormal force.

7, Reason: The shaft has been bent.

Treatment method: At this time the shaft endurance is no longer pure radial force, which causes bearing heat. You should try to straighten the bent shaft or replace the new shaft.

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