Analysis of wind power gearbox bearings

Wind turbine gearboxes are very important components in the entire wind turbine. Due to the impact of variable loads and strong gusts throughout the year, they are different in design, manufacture and maintenance from ordinary gearboxes. And as the power of the fan design continues to increase, the wind turbine gearbox must be as small as possible and the weight must be as light as possible, so that the weight must be as light as possible.
The service life is still more than 20 years. The application practice at home and abroad shows that the bearing is one of the weakest links in all parts of the wind turbine gearbox. Therefore, the necessary application analysis of the bearing is an important means to ensure the reliability of the gearbox. This article will take the most common wind turbine gearbox design as an example. It will introduce how to improve the reliability of wind turbine gearbox by reducing the application of bearing, to reduce the downtime and improve the reliability of wind turbine gearbox.

Lubrication analysis of wind power gearbox bearings

The input shaft speed of the wind turbine gearbox is generally 10-20 r/min. Due to the relatively low speed, it is often difficult to form the oil film of the input shaft bearing, which is the support of the planet carrier. The function of the oil film is to separate the two metal contact faces while the bearing is running, to avoid direct contact between the metal and the metal. A parameter ? can be introduced to characterize the lubrication effect of the bearing (? is defined as the ratio of the thickness of the oil film to the sum of the roughness of the two contact surfaces). If ?>1, it means that the thickness of the oil film is enough to separate the two metal surfaces, and the lubrication effect is good; if ?