Wind turbine shaft wear

What is the main shaft bearing of a wind turbine?

The main shaft bearing is one of the core componentsof the wind turbine,and its role is mainly to support the wind turbine,bear the load of the wind turbine,and enable the wind turbine to operate smoothly . The main forms of wear of the wind turbine main shaft bearings are abrasive wear,fatigue wear,and oxidative wear .

What are the different types of wind turbine bearing wear?

The main forms of wear of the wind turbine main shaft bearings are abrasive wear,fatigue wear,and oxidative wear. Abrasive wear is caused by particulate matter,such as hard particles or surface impurities,entering the bearing and generating a cutting action,resulting in grooves and scratches on the bearing surface .

How to improve the lubrication performance of wind power bearings?

To improve the lubrication performance of wind power bearings, this study takes wind power bearings as the research object and comprehensively analyzes the wear forms of wind power bearings as well as intelligent lubrication methods. Firstly, the main roles and wear forms of wind turbine bearings are sorted out and analyzed.

Why is wear in wind turbine pitch bearings a tribological issue?

1. Introduction Wear in wind turbine (WT) pitch bearings is a tribological issue that has attracted increased research interest in recent years,motivated by the challenge of improving the reliability of components in modern large-scale WTs,which are rapidly increasing their size.

A recently developed main-shaft speciic grease with base oil viscosity of 670 cSt and a common wind tur-bine main-shaft bearing grease with base oil viscosity of 460 cSt were chosen for ...

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To know how to avoid wear in these bearings is important since they ensure the operational safety of the turbine. Oscillations of blade bearings vary in load, speed, and amplitude. The objective of this work ...

This paper investigates wear in wind turbine pitch bearings resulting from small-amplitude oscillations. The investigation focuses on assessing the impact of key parameters influencing wear ...

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Several mechanical and environmental factors cause shaft wear: Without prompt attention, these issues lead to larger failures. That"s why regular wind turbine is essential. When ...

Increasing oil supply pressure improves lubrication performance and shaft acceleration, while appropriate pad-edge modifications mitigate localized contact, thereby reducing friction and wear.

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Modern wind turbines use pitch control to limit their power output and aerodynamic loads. 1 The blades of the wind turbine change their aerodynamic angle of attack with the wind speed.

Volume 18 addresses friction and wear from a systems perspective, while providing a detailed understanding of why it occurs and how to control it. It explains the basic theory of friction and...

Fretting tests have been carried out to measure the friction and wear performance of four commercial wind turbine greases, for a range of temperatures (25, 7, -20, -40 °C).

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