

SKF High Endurance Slewing Bearing

Improved performance and reliability to meet wind industry demands

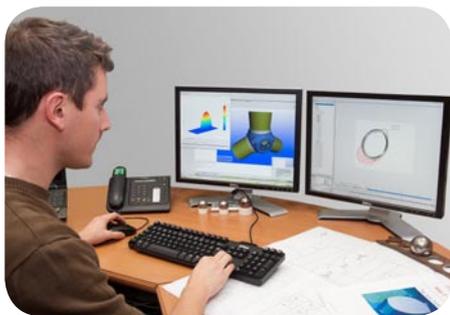
Benefits

- Increased turbine reliability even in harsh environments
- Extended seal and bearing service life
- Reduced operation and maintenance costs
- Improved pitch control for increased performance
- Reduced installation and replacement time

Typical applications

Pitch bearings to optimise the blade position for different wind conditions

Yaw bearings to correctly position the nacelle during operation



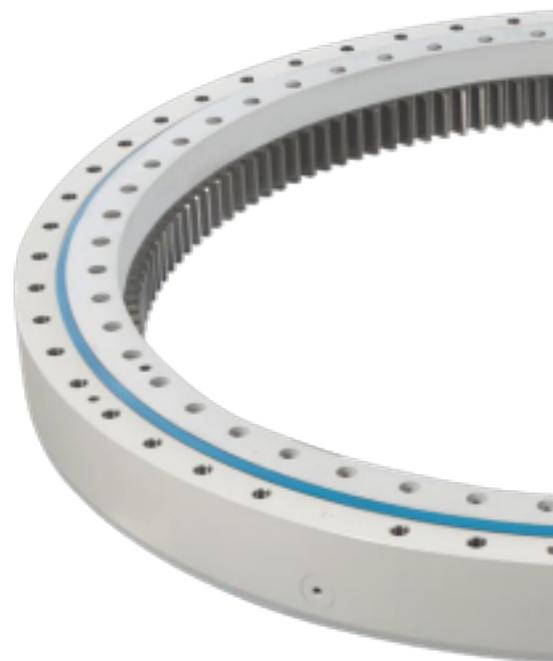
SKF High Endurance Slewing Bearing uses advanced technology for improved performance and reliability in wind turbines.

The operational challenges for wind turbines cannot be overestimated. Increased turbine power and size, extreme weather conditions, heavy loads and remote locations are just a few. SKF has developed an innovative slewing bearing design with enhanced sealing capabilities and redesigned internal geometry to meet these challenges. The SKF High Endurance Slewing Bearing offers increased resistance to harsh environmental conditions to improve reliability and performance and extend bearing service life.

Design, material and knowledge engineering combine for high endurance

New internal bearing geometry in the cage and raceways reduces friction and increases turbine and pitch control performance. Reduced friction contributes to pitch system effectiveness and efficiency to maximize energy production. A new seal material, manufactured from polyurethane, provides better resistance to ozone, UV and salt water, reducing wear and providing longer service life than traditional nitrile-based sealing solutions.

The seal design is engineered to be less sensitive to ring deformation during operation for improved sealing efficiency, reducing grease leakage and water ingress, which results in improved robustness and lower maintenance costs. The innovative way the bearing and seal are attached provides simplified installation and replacement, while at the same time the seal efficiency is maintained despite ring deformations under maximum operating loads.



SKF offers a complete approach

As the world leader and innovator in bearing technology for more than 100 years, SKF has a unique understanding of rotating equipment and how machine components and industrial processes are interrelated, in every major industry worldwide. This knowledge – coupled with our expertise in sealing solutions, lubrication systems, linear motion, machinery maintenance, mechatronics, and services – enables us to deliver real-world solutions that help maximize mechanical performance over the entire lifecycle of an asset. As a result, SKF is your single source for off-the-shelf and customized technology products, solutions and services.



SKF High Endurance Slewing Bearing

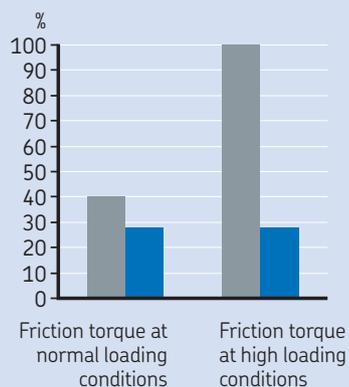
Improved performance and reliability to meet wind industry demands

Features	Conventional slewing bearing	SKF High Endurance Slewing Bearing	Benefits
New seal design	–	✓	Improved seal function under high loads, reducing lubricant leakage and water ingress
EcoPur seal material	–	✓	Increased resistance to wear, UV, ozone and salt water, improving seal reliability and service life even in harsh environments
Optimized cage design	–	✓	Adjustments to the cage design and a special coating reduce the internal friction of the bearing
Optimized raceway design	–	✓	Reduced internal friction and increased service life

SKF comparisons of traditional and SKF High Endurance Slewing Bearings, testing results:

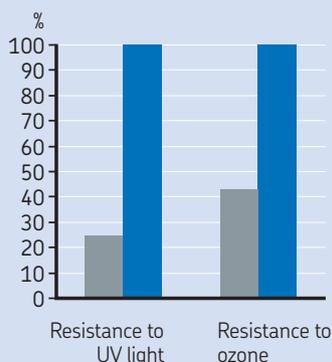
SKF compared the high endurance slewing bearing design and materials with traditional slewing bearings that are currently widely used in the wind industry. Results of testing are shown below.

Seal friction torque at different loading conditions [Nm]



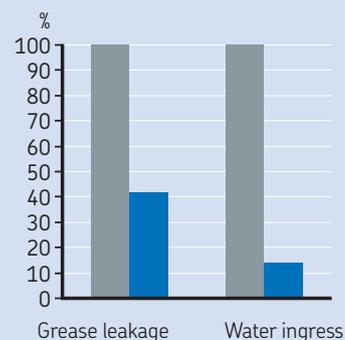
■ Competitor seal
■ SKF High Endurance Slewing Bearing seal

UV light and ozone resistance [-]



■ Competitor seal
■ SKF High Endurance Slewing Bearing seal

Grease leakage and water ingress [g]



■ Competitor seal
■ SKF High Endurance Slewing Bearing seal

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