SKF Condition Based Lubrication

Increase wind turbine reliability by combining SKF condition monitoring and automatic lubrication systems

Onshore and offshore, anything that can prevent an up-tower service trip contributes to increased worker safety and reduced maintenance costs. Accordingly, demand for greater equipment serviceability and intelligent, connected solutions is increasing. Consequently, condition-based maintenance to extend wind turbine life cycles is gaining importance. SKF provides several proven solutions, including the SKF WindCon online condition monitoring system, plus a range of automatic, centralized lubrication systems.

To complement these offerings, an active interface has been added to the range. SKF Condition Based Lubrication links together SKF WindCon and SKF Windlub, featuring SKF and Lincoln lubrication systems. It enables an automatic, additional dose of lubrication to turbine bearings in distress and offers full monitoring of the lubrication pump.

SKF Condition Based Lubrication allows original equipment manufacturers and wind farm operators to control maintenance demands and reduce their costs per kilowatt-hour.

Remotely activated lubrication for optimum bearing life

Benefits

- Remotely trigger additional lubrication cycles
- Extend wind turbine life cycle
- Increase wind turbine availability
- Reduce risk of unplanned shutdowns
- Remote lubrication system control and functionality
- Incorporate GL-certified solutions
- Cut operating costs and costs per kWh produced
- Extend maintenance intervals
- Reduce up-tower costs

Applications

- Main shaft
- Generator

Reduced life cycle costs

SKF WindLub delivers preset lubricant amounts to key wind turbine bearing systems at preset intervals. When the SKF Condition Based Lubrication interface links these lubrication systems to SKF WindCon, they can respond to developing bearing irregularities as they occur.

If SKF WindCon measures vibration levels above a certain limit, it alerts the SKF Condition Based Lubrication interface. The interface then activates the lubrication pump automatically, supplying extra lubricant to the specific bearing. Additionally, the SKF WindCon system triggers a warning signal at the monitoring centre.

For wind turbine operators, the added lubrication functionality keeps maintenance crews on the ground instead of traveling to remote locations to manually lubricate the bearings. It helps reduce life cycle energy costs, since poorly functioning bearings can increase energy consumption. For original equipment manufacturers, SKF Condition Based Lubrication can help to increase equipment reliability and product value.

Enhanced bearing life

SKF Condition Based Lubrication helps operators to enhance bearing life, plan repairs and prevent cascading bearing failures, thereby extending maintenance intervals.

Every extra lubrication cycle initiated by SKF Condition Based Lubrication is reported to the monitoring centre to help avoid cascading bearing failures. However, to avoid over-lubrication, one additional lubrication cycle is possible per day while the pump secures the preset lubrication intervals.

Monitor lubrication systems

SKF Condition Based Lubrication allows the SKF WindCon system to monitor lubrication pumps and components, including pump status and grease levels. If failures such as empty or blocked pumps or torn feed lines are detected, operators are notified immediately.

Enabling a more functional tribological system

1

SKF WindLub lubrication systems

A lack of proper lubrication can bring your equipment to a standstill. Vibration, high mechanical loads, contamination and moisture are all threats to the life of your bearings. With an SKF or Lincoln automatic lubrication system, you can lengthen bearing life by delivering frequent, small amounts of grease to each bearing while the machine is running. Precisely controlled amounts of lubricant, delivered at preset intervals, keeps bearings coated, enabling them to perform to their rated capacity.

2

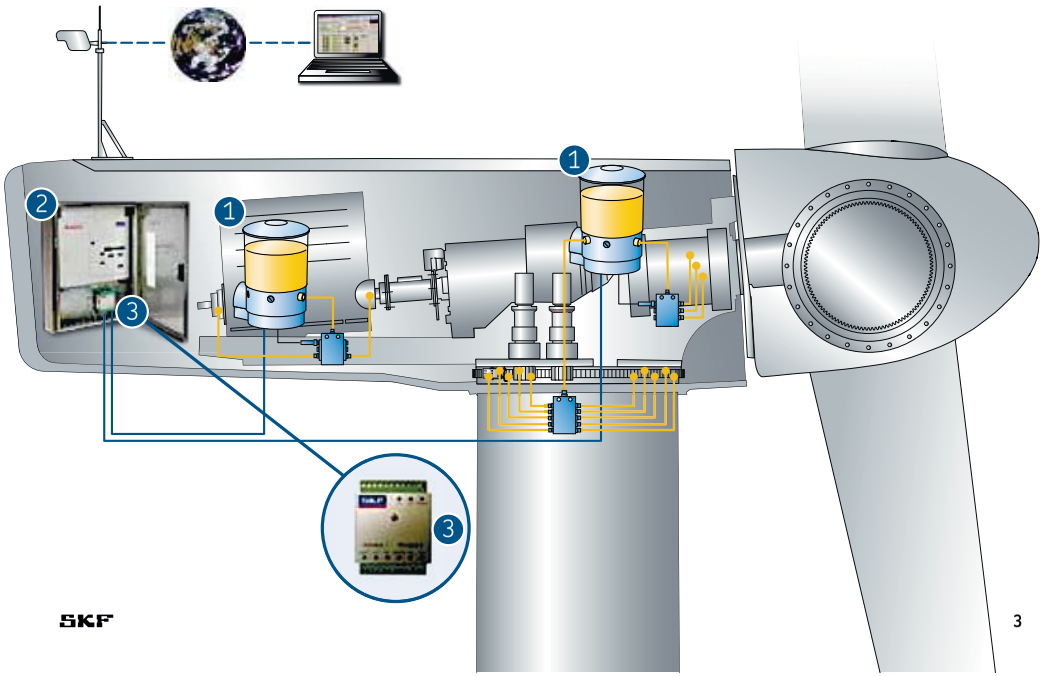
SKF WindCon online condition monitoring system

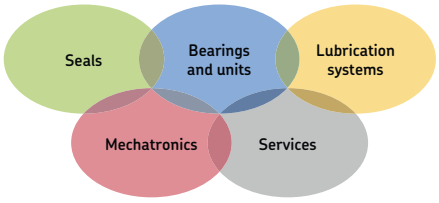
By enabling operators to monitor and track deteriorating component conditions in real time, SKF WindCon enables maintenance decisions to be based on actual machine conditions, rather than arbitrary maintenance schedules. Along with the possibility that maintenance intervals can be extended, the system provides a powerful tool for managing day-to-day maintenance routines and consolidating risky, costly maintenance activities.

3

SKF Condition Based Lubrication

With the SKF Condition Based Lubrication interface in place, the SKF WindCon system can communicate with and activate the SKF WindLub to address bearing lubrication needs if they arise. In essence, SKF Condition Based Lubrication upgrades a time-based lubrication system, turning it into a more functional condition-based system.





The Power of Knowledge Engineering
Combining products, people, and application-specific knowledge, SKF delivers innovative solutions to equipment manufacturers and production facilities in every major industry worldwide. Having expertise in multiple competence areas supports SKF Life Cycle Management, a proven approach to improving equipment reliability, optimizing operational and energy efficiency and reducing total cost of ownership.

These competence areas include bearings and units, seals, lubrication systems, mechatronics, and a wide range of services, from 3-D computer modelling to cloud-based condition monitoring and asset management services.

SKF's global footprint provides SKF customers with uniform quality standards and worldwide product availability. Our local presence provides direct access to the experience, knowledge and ingenuity of SKF people.

SKF BeyondZero is more than our climate strategy for a sustainable environment: it is our mantra; a way of thinking, innovating and acting.

For us, SKF BeyondZero means that we will reduce the negative environmental impact from our own operations and at the same time, increase the positive environmental contribution by offering our customers the SKF BeyondZero portfolio of products and services with enhanced environmental performance characteristics.

For inclusion in the SKF BeyondZero portfolio, a product, service or solution must deliver significant environmental benefits without serious environmental trade-offs.

All our solutions for the renewable energy sector have been selected for inclusion in the SKF BeyondZero portfolio, which includes products and solutions with significant environmental benefits, such as improved energy efficiency and the enabling of increased renewable energy generation.

PUB 74/P2 13986 EN · September 2013