

Extended Maintenance Intervals Providing Continuous Reliable Power



LUBCON® Wind Energy Plant Services

Wind farms are a quickly becoming a major source of renewable, economical and ecological energy. Within the last 20 years, research and development have made significant improvements in the efficiency and power of wind turbines. In the early 90's, the average accomplished power of a turbine was approximately 250 kW. Today, with many advancements the produced power of 2.5-5 Megawatts has become standard.

LUBCON provides a complete package of specifically matched lubricants,

engineering and maintenance solutions for optimum performance of wind turbines. Our greases and oils have been formulated using the most recent technology, raw materials and additives to improve reliability and optimum performance in wind turbines.

LUBCON lubricants, in combination with highly developed lubricating systems contribute to safety, improve reliability and reduce maintenance costs.

Generator Bearing

Varying conditions from ice and cold to extremely hot, unpredictable vibrations and shock loads require extraordinary bearing lubricants to assure low friction and long term performance. Advanced lubrication technology enables maintenance free operation.

Turmogrease® PU 702
EasyMatic HD

Yaw Bearing

High static load and unpredictable wind conditions result in high vibration levels under load within the bearing roller and raceway contact. Consequently micro pitting occurs and can develop severe false Brinelling if not protected with adequate lubricants.

Turmogrease® SLF 4001
Turmogrease® Li 802 EP

Main Gear

Humidity, temperature variations, high speeds and unpredictable load conditions are demanding parameters for gear lubrication. Lubricants with extreme shear resistance, excellent adhesion properties and high load carrying capacities are required to cope with such an environment.

Turmogear®oil PE 220 / 320

Main Bearing

The main shaft bearings experience large load variations and even shock loads due unpredictable wind and weather conditions. High humidity levels require excellent corrosion protection capabilities. During standby of the rotor blades high levels of micro vibrations take place. Consequently the lubricant is required to protect the bearing under high dynamic loading as well as under quasi static condition in a harsh environment.

Turmogrease® Li 802 EP
Turmogrease® HDC 2

Pitch Bearing

Most of the time the pitch bearings are not rotating around their own axis but spinning around the central rotor axis. High centrifugal forces in combination with shock loads and high vibration levels require lubricants that can operate under increased gravity and cope with false Brinelling.

Turmogrease® SLF 4001

Pitch / Yaw Gear

Open gears have always been a challenge for lubrication, in particular when they are exposed to high static loads as well as increased gravity (pitch gears). Lubrication under such conditions requires higher levels of adhesion and lubricity.

GrizzlyGrease® No. 1

Pitch/Yaw Drive

Gears operating most of the time in mixed friction regime require special solutions to cope with such conditions. Semi liquid lubricants reduce friction and wear significantly. The thickener matrix contributes to better corrosion protection of all components.

Turmogear®fluid WKA

Wind Power Plants

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Bearings



Turmogrease® PU 702

Synthetic high performance long term lubricating grease for roller bearings in generators in low and high temperatures. Due to its special additives it provides excellent friction protection even under extreme operating conditions like shock load and vibrations.

- ✓ excellent low temperature behavior
- ✓ very good aging resistance
- ✓ lower lubricant consumption
- ✓ Approved by **ABB**

Turmogrease® SLF 4001

Adhesive Li/Ca soap grease with outstanding stability towards pressure and high loads for pitch and yaw bearings. It proves very good load carrying capacity at high static and dynamic loads as well as excellent behavior at vibrations and high oscillation levels.

- ✓ prevents fretting corrosion
- ✓ protects against false Brinelling
- ✓ vibration damping

Turmogrease® Li 802 EP

High performance grease based on lithium soap for rolling and journal bearings in pitch, yaw and main bearings of wind turbines. The base oil is a blend of selected synthetic and mineral oils with well balanced additive package in order to optimize lubrication properties.

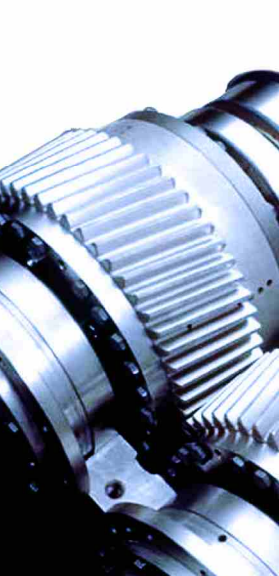
- ✓ high corrosion protection
- ✓ aging resistant
- ✓ excellent lubricating film stability
- ✓ very good low and medium temperature behavior

Turmogrease® HDC 2

Calcium sulfonate complex soap with extraordinary resistance to water and other media, showing optimum work stability and high load carrying capacity at high and medium temperatures. Due to the special combination of thickener and additives it protects significantly against friction and wear showing very high metal affinity.

- ✓ very good behavior under vibrations and shock loads
- ✓ lower running temperature
- ✓ prevents tribo-corrosion
- ✓ high base oil viscosity
- ✓ compatibility with sealing materials and elastomers

Gears and Drives



Turmogear® oil PE 220 / Turmogear® oil PE 320

Synthetic gear oil for the main gears in wind turbines with excellent behavior in high speeds and loads. Due to lower friction levels it decreases operating temperature, avoids smoke and sludge formations and prevents foaming. Very good friction and wear properties enable long oil change intervals and minimize considerably maintenance costs.

- ✓ low evaporation losses
- ✓ noise damping
- ✓ increased gear efficiency
- ✓ neutral towards elastomers and varnishes
- ✓ FZG Test results >14

GrizzlyGrease® No.1

High performance grease for open gears under continuous static, dynamic or shock loads in harsh environments. It has very good sealing properties, prevents significantly against friction and provides optimum wear protection.

- ✓ protects against micro pitting
- ✓ excellent damping
- ✓ excellent wear protection
- ✓ optimum adhesion to metal surfaces

Turmogear® fluid WKA

Developed for the lubrication of gears in wind energy plants having very good protection against wear and corrosion. It keeps constantly the dynamic viscosity under shear action and shows excellent low temperature behavior and oxidation stability even if contaminated with water.

- ✓ long oil change intervals
- ✓ no leakage
- ✓ optimum surface affinity
- ✓ oxidation stability
- ✓ high water resistance

LUBCON Turmo® Lubrication, Inc.
Lubricants · Lubrication Engineering

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