

Extended Maintenance Intervals
Providing Continuous Reliable Power



LUBCON® Wind Energy Plant Services

Wind farms are a quickly becoming a major source of renewable, economic and ecological energy. Significant improvements have been made in the efficiency and power of wind turbines by research and development within the last twenty years. In the early Nineties, the average power of a turbine was approximately 250 kW. Today, due to further developments the produced power of 2.5-5 Megawatts has become standard.

LUBCON provides a complete package of specifically adapted lubricants, engineering and maintenance solutions for optimum performance of wind turbines. Our greases and oils have been formulated using the latest technology, raw materials and additives to improve reliability and performance of wind turbines.

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

Generator Bearing

Varying conditions from icy 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
Turmogrease® Li 802 EP
Turmogrease® L 802 EP plus

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
EasyMatic HD

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
Turmogrease® WKA

Main Bearing

The main shaft bearings experience large load variations and even shock loads due to 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
Turmogrease® PU 702

Pitch Bearing

Most of the time the pitch bearings do not rotate 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
Turmogrease® Li 802 EP

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
EasyMatic HD

Pitch/Yaw Drive

Gears operating mostly in mixed friction conditions require special solutions. Semi liquid lubricants significantly reduce friction and wear. The thickener matrix contributes to better corrosion protection of all components.

Turmogear® fluid WKA

Wind Power Plants

Extended Maintenance Intervals
Providing Continuous Reliable Power



Bearings



Turmogrease® PU 702

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

- ✓ excellent low temperature behaviour
- ✓ very good ageing resistance
- ✓ lower lubricant consumption
- ✓ Approved by **ABB**

Turmogrease® SLF 4001

Adhesive Li/Ca soap grease with outstanding resistance against 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 behaviour 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 a well-balanced additive package in order to optimise lubrication properties.

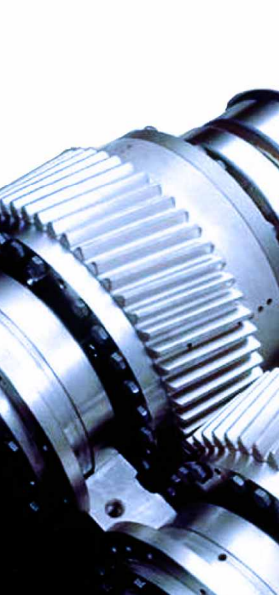
- ✓ high corrosion protection
- ✓ ageing resistant
- ✓ excellent lubricating film stability
- ✓ very good low and medium temperature behaviour

Turmogrease® HDC 2

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

- ✓ very good behaviour under vibrations and shock loads
- ✓ lower running temperature
- ✓ prevents tribocorrosion
- ✓ 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 behaviour at 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 maintenance costs considerably.

- ✓ 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, significantly prevents 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 with very good protection against wear and corrosion. It constantly keeps the dynamic viscosity under shear action and shows excellent low temperature behaviour and oxidation stability even if contaminated with water.

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

LUBRICANT CONSULT GmbH
Lubricants · Lubrication Engineering

Gutenbergstraße 13 · 63477 Maintal · GERMANY · Postfach 200 240 · 63469 Maintal · GERMANY
Tel.: +49 6109/7650-0 · Fax: +49 6109/7650-51 0 · webmaster@lubcon.com · www.lubcon.com