# High Temperature Wind Generator Bearing Grease

*MOVING YOUR WORLD*

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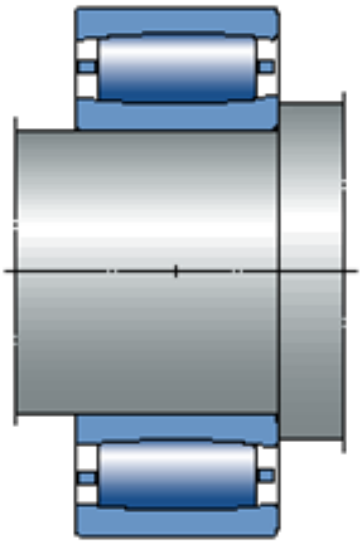
## URETHYN XHD 2

Generator bearings differ from all other grease applications throughout a wind turbine. Pitch and main bearing applications focus on low temperature, low speed and high loads, whereas the generator is defined by high speed (up to 18,000 RPM), high temperature (up to 150°C) and fluctuating operating conditions.

These different parameters within generator bearings require a grease that is specific to the application and has to mitigate the extreme vibratory wear potential within the wind turbine. Not only does the grease need to be designed for generator bearings, but it should be specifically developed for the unique challenges that a generator faces up tower.



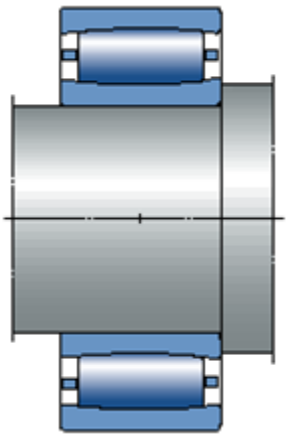
Reoccurring temperature faults within the generator caused by lubricant failure and lack of protection of the bearings can result in downtime and the loss of power generation. Bearings can reach temperatures of above 150°C. Most standard industry generator greases are not rated to operate at such high temperatures. FUCHS URETHYN XHD 2 is designed to handle temperature spikes up to 180°C and provides for user safety margin when it comes to high temperature.

When the grease cannot withstand the heat it starts to break down and separate the oil from the thickener. This results in clear oil bleeding into the grease traps or on the side of the bearing. Since the oil is clear it can go unnoticed by the technician until the lack of oil causes the grease to harden, and create a strain on the bearing as it tries to rotate. As the bearing works harder to turn, the heat in the bearing increases causing more oil bleed and results in temperature faults. FUCHS has formulated URETHYN XHD 2 with a specific selection of synthetic base oils and a high temperature polyurea thickener with less bleed even at high temperatures. URETHYN XHD 2 remains grease-like and does not harden in the bearing like other standard generator bearing greases.

# TYPICAL PROPERTIES

| Properties | URETHYN XHD 2 | Competitor Product |
|---|---|---|
| Thickener | Polyurea | Special Lithium |
| Base Oil | Full Synthetic (PAO) | Semi-Synthetic |
| FAG FE 9 (Service life and upper service temperature of grease) | F50 > 100 h @ 180 °C | F50 >= 100 h @ 150 °C |
| Temperature Range | -40 °C/+180 °C | -40 °C/+150 °C |
| Oil Separation 7d, 40 C | 2.5% | 4% |
| BO visc @ 40 °C | 290 cst | 120 cst |
| BO visc @ 100 °C | 32 cst | 14 cst |
| Dropping Point | >260 °C | >= 250 °C |

# GREASE FROM GENERATOR IN THE FIELD



### COMPETITIVE GREASE

- Heavy
- Hardened Lumps

### FUCHS GREASE

- No Oil Separation
- No Lumps
- Maintains Consistency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