



## Starfire Zephyrus



### SUPERIOR EFFICIENCY

#### FVA Micropitting Test

- Passed Load Stage 10 at 60°C and 90°C

#### FZG Scuffing Test

- Passed Load Stage 14 at Single and Double Speeds

Proven to run at lower temperatures than mineral oils and PAO formulations

### EXCEEDS INDUSTRY & OEM SPECIFICATIONS

- DIN 51517-3
- ANSI/AGMA 9005-E02
- IEC 61400-4
- Schaeffler/FAG
- Moventas
- Winergy (Field Trial)
- Siemens MD Rev 15

### PROVIDING SOLUTIONS

Wind turbines are one of the most challenging applications for Industrial lubrication. Harsh environmental conditions, varying loads and speeds, and necessary lubricant compatibility all contribute to stressed wind turbine gearbox lubricant performance. The industry's expectation of an increasing service life for gearboxes requires lubricants to exhibit exceptional durability and reliability of service.

The wind turbine gear oils (WTGO) are a significant contributor to the overall operating cost of wind power generation, especially the attendant costs of replacements and quality monitoring. Consequently, WTGOs must offer innovative and sustainable solutions that not only extend performance, but also minimize cost.

Starfire Zephyrus utilizes a proprietary additive technology that when combined with a fully-synthetic, high-viscosity base fluid, achieves unparalleled performance when compared to mineral oils and more expensive PAO formulations. Starfire Zephyrus synthetic base fluids play a critical role in the lubricants capabilities as the fluids have been uniquely developed to retain protective film strength and provide excellent lubricity. The proof is in the test results; a DIN 51819-3 FE8 Bearing Test measured 3.5 mg at 80 kN, easily passing the industry standard of 30 mg.

### SPECIFICATIONS

ISO Class	220	320	460	680
Kinematic Viscosity @ 100°C, cSt	27.7	37.0	48.8	65.5
Kinematic Viscosity @ 40°C, cSt	223.0	319.6	464.5	687.9
Viscosity Index	161	165	165	167
Pour Point, °C	-39	-39	-36	-33
Kinematic Viscosity @ -10°C, cSt	7,058	11,815	19,239	33,394
Brookfield Viscosity @ -26°C, cP	50,000	82,000	150,00	290,000
FZG Failure Load Stage A/8.3/90	>14	>14	>14	>14

### SALES & TECHNICAL SUPPORT

Starfire Zephyrus proprietary technology addresses modern wind turbine equipment challenges to deliver durability, energy efficiency, and extended service life. Not only does Starfire Zephyrus exceed leading industry standards and has Siemens MD Rev 15 approval status, but offers a highly competitive cost position for a synthetic formulation manufactured in the USA.



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