



Mobilgear SHC XMP 320

Taking wind turbines to new heights



Wind turbine gearbox lubrication

Wind turbines are highly engineered, sophisticated pieces of machinery, invariably operating in harsh environments. Take for example the lubrication of the main gearbox, the one pivotal component of the wind turbine that needs particular attention. To maximise its life, the gear oil should offer the following product profile:

- Superb long term gear and bearing wear protection
- Excellent oxidation stability to extend service life
- Outstanding rust and corrosion protection
- Exceptional filterability and keep clean performance

The correctly selected oil can potentially extend the life of the gear box, reduce downtime and lower maintenance costs to enhance competitiveness and help unleash the productivity of the wind turbine.

Lubrication challenges

Lubricating the gear box of a wind turbine gearbox poses many challenges, which can all have a direct impact on the required properties of the lubricant namely:

- Weight restrictions such as compact design and high load handling capabilities require excellent protection against micropitting and scuffing
- Extended oil drain interval demands make lubricant property retention important as well as long term protection against ageing
- Fine filtration systems with mesh size of 10µm or smaller make oil filterability under dry and wet conditions critical
- Off-shore applications require outstanding rust and corrosion protection from salt water
- Wide range of operating environments – extreme temperatures and intermittent operations - call for flowability at low temperature and anti wear capability at high temperature.

Mobilgear SHC XMP 320 - Proven performance for your wind turbine gearbox

Scientifically engineered to meet the demands of wind turbine applications, Mobil Industrial Lubricants offers Mobilgear SHC XMP 320 for the lubrication of the main and ancillary gearbox. Its use in more than 15,000 wind turbines worldwide over the past ten years speaks volumes for its success and broad acceptance both by customers and equipment builders alike. Mobil application expertise and global technical support complete the offer.

Equipment Builder Recognition*

Wind Turbines

Acciona, Bard, Ecotecnia, Goldwind, MHI, Multibrid, Nordex, REpower, Suzlon, Vestas, WinWind

Gears

Bosch Rexroth, Hansen, Moventas, Renk, Winergy

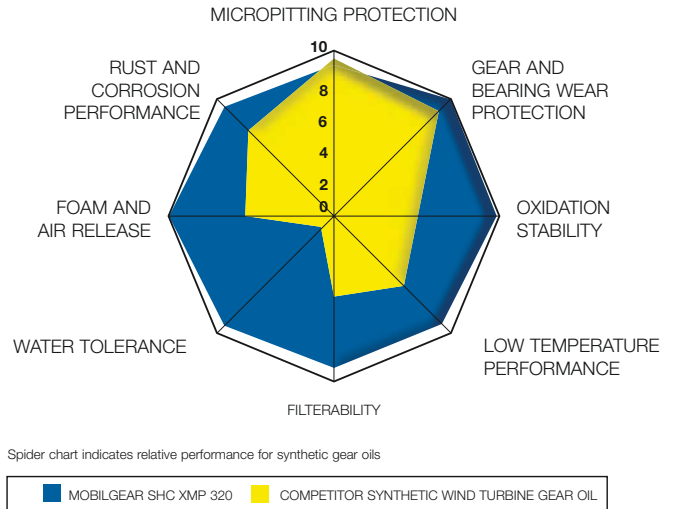
Bearings

FAG, NSK, SKF, Timken

* Endorsed, approved or proven performance. This is not a complete listing.

Mobilgear SHC XMP 320 - Performance

Mobilgear SHC XMP 320 must perform well on multiple dimensions to meet the demands of gear boxes in wind turbines. The product is characterized by outstanding anti wear and load carrying properties and provides long term protection against rust and corrosion. Alongside with superb filterability and excellent water tolerance it is the product of choice for the wind power industry.



Performance Dimension	Test Method	Mobilgear SHC XMP 320 Test Result	Benefit(s)
Wear Protection – Gear Micropitting – Gear Scuffing – Bearing	FVA 54 Micropitting Test FZG Scuffing Test (DIN 51534 Mod) FAG FE8, 4-Stage Bearing Test	=10 High FLS > 14 Consolidated rating 1.2	Excellent gear and bearing wear protection for extended equipment life
Oxidation Stability – US Steel Oxidation Test – Thermal Stability Test	ASTM D 2893 ASTM D 2070	2.3% Visc Increase – 0.01 Δ TAN	Extended oil life
Low Temperature Properties – Scanning Brookfield Viscosity – Pour Point	ASTM D 5133 ASTM D 97	31000 cP @ – 20°C – 39°C	Easier startup and better wear protection at low temperatures
Filterability – Sediment and Filterability Test – Wet Pall Filterability	Mobil Method Mobil Method	135 seconds, 0.1mg Pass	Less filter changes and reduced maintenance costs
Water Tolerance – Demulsibility – Demulsibility of industrial gear oils – Water Tolerance Test	ASTM D 1401 ASTM D 2711 Mobil Method	15 minutes 83 mL Visual	Good keep clean performance for long equipment life and reduced downtime
Foam and Air Release – Foam Test – Flender Foam Test – Air Release Test	ASTM D 892 - Seq 1,2,3 Flender Method GG-V 425 ASTM D 3427	0/0 for all three Seq. 9% @ 25°C <20 minutes	Excellent foam and air release behaviour for optimal gearbox operation
Rust and Corrosion Protection – ASTM Rust Tests – Bethlehem Rust Test – Thermal Stability – SKF Emcor Bearing Rust Test – Copper Corrosion	ASTM D 665A/B/Mod (syn. sea water) Mobil Method ASTM D 2070 Distilled water ASTM D 130	Pass/Pass/Pass Pass Fe 1, Cu 2 0,0 1B	Strong corrosion protection for extended equipment life

For more information on Mobilgear SHC XMP 320 and other Mobil industrial lubricants and services, please contact the Mobil Technical Helpdesk on TechDeskEurope@exxonmobil.com or visit our website at www.mobilindustrial.com