



#### Technical Data Sheet

- LONG LIFE
- EXTRA PROTECTION
- ENHANCED SYSTEM EFFICIENCY

# Shell Omala S5 Wind 320

## Advanced Synthetic Wind Turbine Gear Oil

Shell Omala S5 Wind advanced fully synthetic wind turbine gear oil offers exceptional lubrication performance, even under severe operating conditions.

The innovative formulation is developed to protect your wind turbine gears and bearings by minimizing wear, protecting against micro-pitting, maintaining effective fluidity at extremes of low temperature and minimizing foam formation.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

- **Long oil life – Maintenance saving**

Shell Omala S5 Wind is designed with an innovative additive technology blended in a new generation, very high performance metallocene Poly-Alpha-Olefin (mPAO) base fluid that delivers an outstanding resistance to degradation throughout the maintenance interval. It will defend against deposit formation to prolong oil and gearbox life. Shell Omala S5 Wind offers the potential to significantly extend service intervals when compared to conventional mineral industrial gear oils and has been developed to reduce bearing surface stresses.

- **Excellent wear & corrosion protection**

Shell Omala S5 Wind provides high levels of load carrying capacity, high micro-pitting performance and scuffing resistance in a wide range of operating temperatures, even under low speed / high torque loading conditions. These features provide significant benefits to promote long term gear and bearing life.

Shell Omala S5 Wind demonstrates excellent rust and corrosion resistance, even in the presence of seawater.

- **Enhanced system efficiency**

Shell Omala S5 Wind is developed to maintain and enhance the efficiency of wind turbine gearboxes through improved low temperature fluidity, rapid air release, resistance to foam formation, and excellent water separation properties.

- **Cleanliness**

High levels of fluid cleanliness are maintained throughout manufacture, offering the levels required by stringent leading Wind Turbine and gearbox Original Equipment Manufacturers (OEM).

Shell Omala S5 Wind exceeds the requirements of relevant filtration equipment manufacturers for the wind turbine industry.

#### Main Applications

- **Wind turbines main gearboxes**

Shell Omala S5 Wind is specifically designed to provide optimum performance and long service life. It is designed to lubricate and protect wind turbine main gearboxes, even under the very harsh conditions found in cold climate and humid regions, including offshore locations.

- **Yaw and pitch drive gearboxes**

Shell Omala S5 Wind is also suitable for use in wind turbine auxiliary gearboxes such as yaw and pitch drives where an ISO 320 mm<sup>2</sup>s<sup>-1</sup> viscosity, PAO or mineral oil is specified.

## Specifications, Approvals & Recommendations

### Meets or exceeds the following industry standards

- ISO 12925-1 Type CKD
- ANSI/AGMA 9005-E02 (EP)
- IEC 61400-4
- DIN 51517-3 (CLP)
- GB/T 33540.3-2017

### Designed to meet or exceed the OEM requirements of

- Suzlon

### Approved by

- NGC
- Winergy
- ZF Wind
- Moventas
- Eickhoff
- Bonfiglioli
- Dalian Huarui Heavy Industries (DHHI)
- SANY Heavy Energy Machinery
- Tianjin TEEK Transmission
- Taiyuan Heavy Industry (TYHI)
- Envision
- Nordex Acciona
- Siemens Gamesa

- GE
- Vestas

### Meets or exceeds the following OEM component requirements of

- SKF
- Schaeffler
- Timken
- Hydac
- CC Jensen
- Mintai
- Freudenberg

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

## Compatibility & Miscibility

Shell Omala S5 Wind is compatible with seals, sealants and paints used by major wind turbine gearbox OEMs.

### Changing to Shell Omala S5 Wind

Shell Omala S5 Wind is compatible with other Shell PAO gearbox oils. To realise the full performance benefits of Shell Omala S5 Wind, it is recommended to completely drain the gearbox, flush and fill with Shell Omala S5 Wind.

## Typical Physical Characteristics

Properties			Method	Shell Omala S5 Wind 320
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ISO 3104	320
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ISO 3104	39
Viscosity Index			ISO 2909	170
Flash Point (COC)		°C	ISO 2592	240
Pour Point		°C	ISO 3016	-48
Density	@15°C	kg/m <sup>3</sup>	ISO 12185	862
Rust Protection, Sea Water (24 hours)			ASTM D665B	Pass
Bearing Corrosion Protection, Sea Water		Rating	SKF EMCOR	0-0
Foaming Characteristics Sequences I,II,III Tendency/Stability		mL/mL	ASTM D892	5/0, 0/0, 5/0
Flender Foam				
Neat Volume Increase, after 1 minute	@25°C	% maximum	ISO 12152	5
Air-Oil Dispersion, after 5 minutes	@25°C	% maximum	ISO 12152	5
FZG Scuffing				
Standard Test (A20/8.3/90)		failure load stage minimum	ISO 14635-1 (mod) DIN 51534 (mod)	14
Double Speed (A20/16.6/90)		failure load stage minimum		14

Properties		Method	Shell Omala S5 Wind 320
Low Temperature (A20/8.3/60)	failure load stage minimum		12
FVA Micro-pitting			
Fail Load Stage	minimum	FVA Proc. No. 54	10
GFT-Class		FVA Proc. No. 54	High
FAG FE-8 Bearing Test	Stages 1 - 4	DIN 51819	Pass

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

- **Health and Safety**

Shell Omala S5 Wind is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Safety Data Sheet, which can be obtained from <https://www.epc.shell.com>

- **Protect the Environment**

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Advice**

Advice on applications not covered here may be obtained from your Shell representative.