



Previous Name: **Shell Tivela S**

Shell Omala **S4 WE**

Advanced Synthetic Industrial Gear Oil

- **EXTRA PROTECTION & LIFE**
- **ENERGY SAVING**
- **WORM DRIVE APPLICATIONS**

Shell Omala S4 WE is an advanced synthetic heavy duty industrial worm drive gear oil formulated using specially selected polyalkylene glycol base fluids and additives. It offers outstanding lubrication performance under severe operating conditions, including improved energy efficiency, long service life and high resistance to micro-pitting.

Performance Benefits

- **Long oil life – Maintenance saving**

Shell Omala S4 WE is formulated to provide excellent oxidation and thermal stability, extending lubricant life and resisting the formation of harmful oxidation products at high operating temperatures. This helps maintain system cleanliness over extended maintenance intervals.

This performance is recognised by Flender AG where a formal approval for 20,000 hours (four years) at 80°C (bulk oil temperature) usage has been granted.

Shell Omala S4 WE offers the potential to extend service intervals significantly compared to conventional industrial gear oils.

- **Excellent wear protection**

Shell Omala S4 WE is formulated to have excellent load carrying capacity providing long component life even under shock loading conditions. It also has a high resistance to micro-pitting. These features provide benefits over mineral oil-based products in terms of gear and bearing component life.

- **Maintaining system efficiency**

Shell Omala S4 WE offers improved energy efficiency and lower operating temperatures in worm gear applications. Rig testing has shown efficiency improvements of up to 15% in comparison with mineral oil-based products and 11% over other synthetic hydrocarbon-based lubricants. These results have been confirmed by OEM testing and field experience.

Applications

- **Enclosed industrial worm gear systems**

Recommended for industrial worm gear reduction systems operating under severe operating conditions, such as high load, very low or elevated temperatures and wide temperature variations.

- **Extended life systems**

Shell Omala S4 WE is particularly recommended for certain systems where maintenance is infrequent or systems are inaccessible (eg yaw gears in wind turbine installations).

- **Other applications**

Shell Omala S4 WE oils are suitable for lubrication of bearings and other components in circulating and splash-lubricated systems.

Shell Omala S4 WE is not recommended for the lubrication of components manufactured from aluminium or aluminium alloys.

For highly-loaded spur and helical gears the Shell Omala "G" series oils are recommended.

For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

Specifications and Approvals

Meets David Brown S1.53.105 G

Meets ISO 12925-1 Type CKE

Meets ANSI/AGMA 9005-E02 (EP)

Fully approved by Flender AG

Fully approved by Bonfiglioli



Seal and Paint Compatibility

High quality epoxy paints are recommended, as polyalkylene glycols will tend to attack certain conventional paints. Shell Omala S4 WE has been found to be satisfactory with nitrile and Viton seal materials, although Viton seals are preferred.

Change-over procedure

Shell Omala S4 WE contains polyalkylene glycols and is not compatible with mineral oils or most other synthetic lubricant types. Care should be taken when changing from such products to Shell Omala S4 WE. The system should be flushed with the minimum quantity of Shell Omala S4 WE, operating under no load and draining whilst warm. Ideally, seals exposed to mineral oils should also be replaced. Inspect the lubricant after a few days use. Ensure that oil systems are clean and free from contamination.

Shell Omala S4 WE is also not miscible with some other polyalkylene glycols, so caution is needed when topping-up. Generally the preference is to avoid mixtures by draining and refilling.

Health and Safety

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from your Shell representative.

Protect the Environment

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

Advice

Advice on applications not covered in this leaflet may be obtained from your Shell representative.

Typical Physical Characteristics

Shell Omala S4 WE		150	220	320
ISO Viscosity Grade	ISO 3448	150	220	320
Kinematic Viscosity	ISO 3104			
at 40°C	mm ² /s	136	222	321
at 100°C	mm ² /s	22.5	34.4	52.7
Viscosity Index	ISO 2909	188	203	230
Flash Point COC	°C ISO 2592	302	298	286
Pour Point	°C ISO 3016	-42	-39	-39
Density at 15°C	kg/m ³ ISO 12185	1076	1074	1069
FZG Load Carrying Test	DIN 51354-2			
Failure load stage	A/8.3/90	>12	>12	>12

Shell Omala S4 WE		460	680
ISO Viscosity Grade	ISO 3448	460	680
Kinematic Viscosity	ISO 3104		
at 40°C	mm ² /s	460	664
at 100°C	mm ² /s	73.2	107
Viscosity Index	ISO 2909	239	259
Flash Point COC	°C ISO 2592	308	296
Pour Point	°C ISO 3016	-36	-39
Density at 15°C	kg/m ³ ISO 12185	1072	1070
FZG Load Carrying Test	FZG		
Failure load stage	A/16.6/90	>12	>12

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