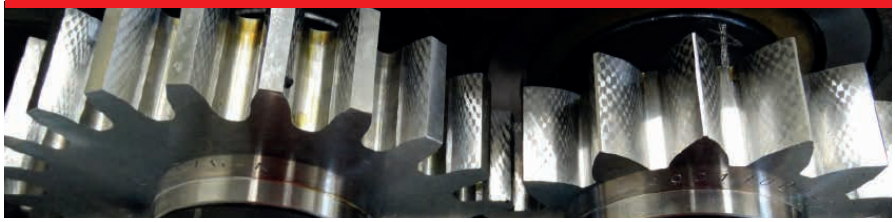
SHELL
LUBRICANT
SOLUTIONS

FROM EXTENDING GEARBOX LIFE TO DRIVING INDUSTRY

SHELL OMALA® GEAR OILS HELP MAKE IT POSSIBLE

Gearboxes keep industry moving. You need to keep your industrial gearboxes working efficiently for longer to maximize value for your business whether they are in an airport baggage handling system drive, a mining grinding mill or a wind turbine.



Equipment manufacturers are designing and producing longer-life gearboxes that take advantage of advances in metallurgy, manufacturing methods, filtration media and lubrication technologies.

The Shell Omala® range of gear oils can help to extend gearbox life. The range has products for a wide range of applications, including for challenging operational environments that need long service intervals, and oils with higher specifications than international standards for the latest gearboxes technologies.

A RANGE OF INDUSTRIAL GEAR OILS TO MEET YOUR NEEDS

To meet the challenges of a wide range of gear types and applications, Shell has designed a portfolio of oils that enables you to choose a product to match your technical and operational needs.

INCREASING PROTECTION, OIL LIFE, AND SYSTEM EFFICIENCY →

	SHELL OMALA® "G" RANGE Enclosed industrial spur and bevel gear applications from standard to demanding high-load and extended-duty applications	**SHELL OMALA® SPECIALTY RANGE** Enclosed industrial spur and bevel gears for special applications where, for example, extra shock-load protection is needed or particulate contamination occurs	**SHELL OMALA® "W" RANGE** Industrial worm-drive applications from standard to demanding high-load and extended-duty applications
ADVANCED TIERS 4 AND 5	**Shell Omala® S4 GXV** ■ Extra protection ■ Extra long oil life ■ Versatile, special applications		**Shell Omala® S4 WE** ■ Extra protection and long oil life ■ Energy saving ■ Worm drives
PREMIUM TIER 3		**Shell Omala® S4 Wheel** ■ Extra protection ■ Geared wheel hubs **Shell Omala® S3 GP** ■ Load protection ■ Molybdenum-free product ■ Worn systems or where contamination is an issue	**Shell Omala S3 A** ■ Excellent lubrication ■ Reduced Friction ■ Extended service life
MAIN LINE TIER 2	**Shell Omala® S2 GX** ■ Heavy-duty gears		
ENTRY TIER 1			**Shell Omala® S1 W** ■ Reliable protection ■ Worm drives

APPLICATION ICON KEY

Shock load · Worm drive · Long life · High temperature · Factory
Enclosed gear · Extreme load · Mining · Wind turbine

DESIGNED TO HELP EXTEND GEARBOX LIFE

According to Freudenberg, seal issues are the main limits on extending operating times before maintenance is required and about 40% of seal failures relate to oil compatibility problems. This has led some manufacturers to introduce seal compatibility specifications for gear oils that are much tougher than international standards. Shell Omala® S4 GXV is designed to meet these seal requirements.

Shell Omala® S4 GXV has a high viscosity index, excellent low-temperature fluidity, low foaming tendencies, and outstanding filtration performance. This product can help increase productivity by providing excellent load-carrying performance, wear-protection, as well as being very stable thermally and oxidatively.

Shell Omala® S2 GX is formulated to have outstanding oxidation stability, demulsibility, and micropitting performance to help your gearbox last longer[1], which can help reduce your total cost of ownership.

DEDICATED PRODUCTS FOR SPECIAL APPLICATIONS

Shell has products to meet your specific needs, from marine to mining. We can help you to simplify operations and lessen the risk of product misapplication with versatile, high-performance gear oils such as Shell Omala® S4 GXV. However, for some applications, the benefits of using specialty products outweigh the advantages of versatility. For example, Shell Omala® S4 WE is available for worm gear drives and Shell Omala® S4 is for the wheel motor drives on heavy mining trucks.

REAL-WORLD VALUE DELIVERY

Users of Shell Omala® oils across a wide range of industries can benefit from robust and reliable lubrication that may help add value to their operations. For instance:

- Huaneng Power in China was experiencing frequent reducer gearbox breakdowns that shut down its roller-grinding mills and thus reduced plant productivity.
- The mineral gear oil it was using could not withstand the high operating temperatures.
- After switching to Shell Omala® S4 WE, the company has:
  - been able to operate the power plant with increased productivity in part due to fewer oil-related shutdowns.
  - extended the oil-drain interval from one to more than three years, thus reducing the frequency of oil changes and the volume of oil consumed.
- Huaneng Power has reported total annual savings of US$278,860[2] related to the switch to Shell Omala® S4 WE.

SHELL CAN HELP YOU SIMPLIFY OPERATIONS AND LESSEN THE RISK OF PRODUCT MISAPPLICATION WITH VERSATILE, HIGH-PERFORMANCE GEAR OILS.

PRODUCT	BENEFITS AND APPLICATIONS	TECHNOLOGY	ISO VISCOSITY GRADES	SPECIFICATIONS AND APPROVALS (Full details of approvals for all products can be obtained from your Shell representative; approvals and claims will vary by viscosity grade.)
SHELL OMALA® "G" RANGE FOR ENCLOSED INDUSTRIAL SPUR AND BEVEL GEARS				
Shell Omala® S4 GXV	■ Extra protection ■ Extra long oil life ■ Versatile, special applications	Synthetic (advanced EP system)	150, 220, 320, 460	Approved by Siemens for Flender gearboxes and gear units Industry standards: ANSI/AGMA 9005-F16 (EP); ISO 12925-1 Type CKD; ISO 5157-3 (CLP); China National Standard GB 5903-2011 L-CKD; AIST (US Steel) 224
Shell Omala® S2 GX	■ Heavy-duty gears	Conventional (EP)	68, 100, 150, 220, 320, 460, 680	Approved by Siemens for Flender, helical, bevel and planetary gear units (ISO 100 to 680); Fives Cincinnati; and many other equipment manufacturers Industry standards: AGMA EP 9005-F16; ISO 12925-1 Type CKD (ISO 68–460); ISO 12925 Type CKC (ISO 680 and 1000); DIN 51517-Part 3 CLP; AIST (Steel) 224 (ISO 68–460); China National Standard GB 5903-2011 CKD (ISO 68–460); China National Standard GB 5903-2011 CKC (ISO 680)
SHELL OMALA® SPECIALTY RANGE FOR SPECIAL ENCLOSED INDUSTRIAL SPUR AND BEVEL GEAR APPLICATIONS				
Shell Omala® S4 Wheel	■ Extra protection ■ Wheel motors, mining haul trucks	Synthetic (EP)	680	Approved by GE (approved GEK-30375H – ISO 680) Industry standards: ANSI/AGMA 9005-F16 (EP); ISO 12925-1 CKD; DIN 51517-3 (CLP); AIST (US Steel) 224
Shell Omala® S3 GP	■ Extra load protection ■ Worn systems or where contamination is an issue	Conventional (advanced EP system)	1500	Industry standards: ANSI/AGMA 9005-F16 (EP); ISO 12925-1 CKC; DIN 51517-3 (CLP)
SHELL OMALA® "W" RANGE FOR INDUSTRIAL WORM DRIVES				
Shell Omala® S4 WE	■ Extra protection and longer oil life ■ Energy saving ■ Worm drives	Synthetic (polyalkylene glycol)	220, 320, 460	Approved by or meets Bonfiglioli, David Brown and many other equipment manufacturers Industry standards: ANSI/AGMA 9005-F16 (EP); ISO 12925-1 CKE
Shell Omala® S1 W	■ Reliable protection ■ Worm drives	Conventional (compounded mineral oil)	460, 680	Industry standards: ANSI/AGMA 9005–F16 (EP) (CP)
SHELL MORLINA® S4 B FOR WORM GEARS AND LIGHT-DUTY GEARS; SHELL SPIRAX® RANGE OF AUTOMOTIVE GEAR, AXLE AND TRANSMISSION OILS FOR ON- AND OFF-HIGHWAY VEHICLES. **CONTACT YOUR SHELL REPRESENTATIVE FOR DETAILS**				

FULL PRODUCT AND SERVICE PORTFOLIO

Shell Lubricants is the number one global lubricants supplier.[3] We constantly invest to develop better lubrication solutions, including advanced synthetic technologies such as

- **Shell Tellus® S4 ME** synthetic hydraulic oil – for long oil life and energy saving
- **Shell Corena® S4 R** air compressor oil – for up to 12,000 hours of protection.

In addition, Shell provides the Shell LubeAnalyst™ oil condition monitoring service, which as part of a preventative maintenance program to help maximize your equipment and lubricant performance.

Whatever your needs or application, we can provide a full range of oils and greases, including synthetic, high-performance products and additional services. TOGETHER ANYTHING IS POSSIBLE.

For more information, please contact your Shell Lubricants representative.

www.shell.us/lubricants

"Shell Lubricants" refers to the various Shell companies engaged in the lubricants business.

[1]Compared with the previous-generation Shell Omala® S2 G and selected competitors

[2]Saving reported by one customer. Actual savings may vary, depending on the application, the current oil used, the maintenance procedures and the condition of the equipment.

[3]Source: Kline & Company, "Competitive Intelligence for the Global Lubricants Industry, 2008–2018"