



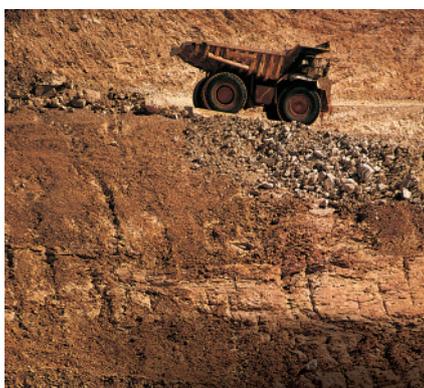
Shell Lubricants

MINING & QUARRYING

Changing to a premium Shell product led to an impressive 100% increase in bearing life

Total customer saving

US\$2,287,300
(AUS\$2,690,941)



The customer is a world leading mining and exploration company. This particular exercise relates to an iron ore mine in Australia.

Shell identified the opportunity to improve the life of the slew bearing beyond its specified lifecycle of 37,000 hours.

Shell Malleus Grease GL 500 was recommended to improve the lubrication of slew bearings, which resulted in bearing life increasing from 37,000 hours to last the life of the excavator (60,000 hours).

Country: Australia

Application: Open cast mining – slew bearing

Saving: US\$2,287,300 (AUS\$2,690,941) total customer saving over the life of eight machines

Key edge: Shell Malleus GL 500

RT181

DESIGNED TO MEET CHALLENGES



1 The Challenge:

The customer was operating a fleet of eight excavators with a life expected of 60,000 hours and the machine's slew bearing had a life expectancy of 37,000 hours. At approximately US\$300,000, it is an expensive exercise to replace a slew bearing and Shell identified the opportunity to extend the life of the slew bearings through the use of a premium grease.

3 The Outcome:

Through this exercise, positive and valuable outcomes were achieved. These included:

- The extension of slew bearing life to match the excavators operational life – an increase of 100%
- An increase in production time of 930 hours (time previously used to change the slew bearing)
- Cost savings through the avoidance of bolt rotation that usually comes with slew bearing replacement
- Reduced grease usage by 50%
- Reduced HSE risk through avoiding 3,240 man hours of major maintenance tasks, and reduced lubrication hours

2 The Solution:

After assessing the customer's operation, Shell recommended the slew bearing grease to be upgraded to Shell Malleus GL500. With the customer's support, Shell applied this recommendation and inspected the excavator greasing systems every month for the last twelve years. Over this time three Hitachi EX 3500 Excavators were decommissioned with their original slew bearings in good working condition.

4 The Value:

Having an excellent working relationship with this customer, Shell was able to identify an operational opportunity, recommend a premium product and conduct a trial which produced very convincing results. Through the use of Shell Malleus GL 500, the slew bearing's life was extended by 100%, eliminating the maintenance, component replacement and downtime costs usually incurred at least once throughout the lifecycle of an excavator. The total cost savings for this exercise can be calculated as US\$2,287,300 (AUS\$2,690,941) over the operating life of eight excavators.

The savings indicated are specific to the calculation date and mentioned site. These calculations may vary from site to site depending on application, operating conditions, current products being used, condition of the equipment and maintenance practices.

Shell Malleus Grease GL

Superior performance open gear grease

Shell Malleus GL is a range of a premium quality, lead and solvent free, full EP lubricants developed for the lubrication and protection of open gears and wire ropes subjected to extremes of ambient temperature and operating conditions. They are a unique blend of high quality paraffinic mineral and synthetic base oils with carefully selected additives to provide optimum performance. Its balanced formulation allows the lubricant to stay soft and pliable over long periods, while eliminating the build-up of lubricant in the roots of the gear teeth.

Exceptional physical and mechanical stability

Shell Malleus GL retains its natural protective properties over its long working life.

Excellent anti-wear performance

At working temperatures, speeds and pressures, Shell Malleus GL forms a protective cushion between the large gear (girth, bull etc) and pinion teeth.

Superb load carrying capacity

Molybdenum disulphide and other solid lubricants combine to reduce tooth contact zone temperatures, reduce gear surface pitting and alleviate 'stick-slip' conditions.



Water repellent and corrosion protection

Effectively resists water 'wash-off' by immersion or spray. Protects metal surfaces from corrosion in hostile environments such as salt-water conditions. Repels dirt and dust.

Main applications:

Heavily loaded open gears, particularly those found in grinding mills, kilns, shovels, draglines, ship loaders, stackers and reclaimers and excavator applications.

Complementary products

Equipment	Products
Draglines	Shell Omala, Shell Albida
Shovels and Extractors	Shell Omala, Shell Albida, Shell Tellus
Mills	Shell Omala
Crushers and Conveyors	Shell Albida, Shell Alvania, Shell Tactic, Shell Tivela, Shell Omala
Ore Processing	Shell Albida, Shell Alvania, Shell Tactic, Shell Omala, Shell Tivela, Shell Tellus, Shell Corena
Haul Trucks	Shell Rimula, Shell Hyperia, Shell Spirax, Shell Retinax, Shell Albida, Shell Donax
Power Plant	Shell Argina, Shell Gardina, Shell Turbo



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