

# Molub-Alloy GM 969 Eliminates Leaks and Gearbox Failures

## MINING (USA)

### CONTINUOUS MINER “CUTTER HEAD” GEARBOX

Castrol Molub-Alloy® GM 969/320 Leak Resistant Gear Oil\*

**ANNUAL SAVINGS: \$113,800**



#### THE SITUATION

A coal mining company uses three Joy Global 12CM Continuous Miners for subsurface coal removal. The previous gear oil was leaking heavily from the cutter head gearbox seals during production due to the excessive vibration and shock loads. The lack of oil caused frequent gearbox failures.

The average gearbox life after rebuild was 6 to 9 months. Failures caused a total of 40 hours lost production time per year at \$1,250 per hour.

Monthly consumption of the previous gear oil was 80-100 gallons due to the leaks and refills after rebuild.

#### BEFORE

- Average gearbox rebuilds per year: 5
- Annual rebuild cost due to leaks: \$35,000
- Annual lost production due to leaks: \$50,000
- Annual oil cost: \$36,000

**Total Maintenance cost: \$121,000**

#### AFTER

- Average gearbox rebuilds per year: 0 (No failures)
- Annual rebuild cost due to leaks: \$0
- Annual lost production due to leaks: \$0
- Annual oil cost: \$7,200

**Total Maintenance cost: \$7,200**

#### THE SOLUTION

- The mine was searching for ways to increase gearbox service life, to reduce lost production time, and eliminate environmental concerns of leaking oil.
- Castrol engineers conducted a cutter head gearbox inspection. It was evident that the heavy vibration and shock loads during operation caused seal damage, misalignment, and leaking oil.
- Castrol Molub-Alloy GM 969 leak resistant gear oil was selected because of its ability to prevent leaks even with damaged and misaligned seals.

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## RECOMMENDATIONS

After a thorough investigation of cutter head gearbox failures and working conditions, Castrol engineers concluded that very heavy vibration and shock loads during operation are unavoidable, and complete prevention of seal damage and leaking is nearly impossible.

Castrol Molub-Alloy GM 969 leak resistant gear oil was designed for these situations. It was specially formulated to control leaks in gearboxes when leak repairs cannot be readily performed. The synthetic thickener forms a mat-like matrix at the points of leakage to minimize and even eliminate the flow of oil.

**Note: Some applications are unsuitable for this product, e.g. filtration systems, sprays, pumps, and bearings fed by small oil channels. Molub-Alloy GM 969 will clog this type of equipment due to its leak resistant design.**

## CONCLUSION

Castrol Molub-Alloy GM 969/320 leak resistant gear oil has been used in the cutter head gearboxes for over a year with no failures due to oil leaks.

**Due to this, no lost production and no repair costs have been incurred. In addition, gear oil consumption was reduced by 80% leading to a total annual savings of \$113,800.**

**“It just stops our problems”.**

**– (Customer quote about Castrol Molub-Alloy GM 969/320 leak resistant gear oil)**



**Joy Global 12CM  
Continuous  
Miner**

## OTHER POTENTIAL APPLICATIONS

Castrol Molub-Alloy GM 969 is designed for leaky gearboxes where repairs cannot be readily made, such as those subjected to heavy vibration & shock loads or located in difficult areas (i.e. shakers, hoist trolleys, bridge cranes, transfer cars, caster withdraw, shovels, draglines, and many others.)