Grease Consumption Reduction with Molub-Alloy 777-2 ES

MINING (USA)
DRAGLINES
Castrol Molub-Alloy® 777-2 ES
Annual Savings: $25,308

THE SITUATION

A Marion 8200 dragline operated by a large mining company in Florida was pumping grease, supplied by Company "W", at a very high rate. This was done to reduce the high working temperature of the high speed input shaft bearings of the Hoist intermediate open gear drives, which was up to 230-240°F.

Hoist intermediate open gear drive lube system was equipped with 6 Lincoln SL-V XL and 2 Lincoln SL-1 injectors.

Note: Output of fully open Lincoln SL-V XL injector is 0.31 in^3 and SL-1 injector is 0.08 in^3.

BEFORE

- Grease from Company "W"
- Number of injectors: 8
- Annual grease usage: 10,080 lbs
- Annual cost of grease: $65,520
- Bearing max working temp: 240°F

AFTER

- Castrol Molub-Alloy 777-2 ES
- Number of injectors: 4
- Annual grease usage: 6,186 lbs
- Annual cost of grease: $40,212
- Bearing max working temp: 135°F

THE SOLUTION

- Compatibility of Molub-Alloy 777-2 ES with the "W" grease was tested before changeover and found to have slight softening (11 points).
- A special changeover procedure was developed based on the compatibility test result.
- Changeover process was constantly monitored by grease samples, inspections, and temp readings performed by Castrol engineer.
- Due to the improved performance, additional grease lines that had been added to the bearings were removed (4 injectors no longer needed) and usage was greatly reduced.

Castrol Molub-Alloy 777-2 ES bearing grease is the right lubricant for the very heavy duty service in adverse mining environments.

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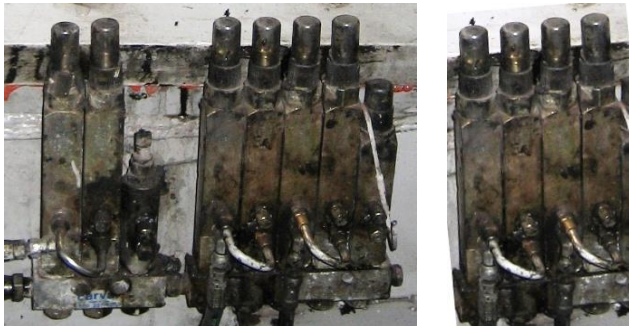
RECOMMENDATIONS

Side-by-side comparison of Castrol Molub-Alloy 777-2 ES with previous grease

TEST	MA 777 grease	"W" grease
NLGI Grade	2	0
Four Ball EP, Weld load, Kg	620	500
Four Ball Wear, scar dia.	0.5	1.1
Timken EP, OK load, kg/lb	23/50	16/35
SRV wear scar, mm	0.64	1.2
Timken Retention, min.	24	17

Hoist intermediate open gear drive injectors

Before **After**



CONCLUSION

- Molub-Alloy 777 reduced max working temp to 135°F due to much higher wear protection and friction reduction properties such as:
  - Four Ball weld and scar diameter
  - Timken EP load
  - SRV wear scar diameter
- Grease usage was reduced 43% by eliminating 4 extra injectors. This was possible due to the much higher mechanical stability and Timken retention characteristics of the Molub-Alloy 777.

The result of conversion to Molub-Alloy 777-2 ES was $25,308 annual cost savings due to 43% grease consumption reduction and over 100°F lower operating temperature.

OTHER POTENTIAL APPLICATIONS

Castrol Molub-Alloy 777-2 ES is excellent for bearing lubrication on all mining machines including draglines, shovels, excavators, etc. The high performance formula provides lower temps, less grease usage, and longer bearing life.

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