

Schaeffler Global Technology Solutions

Raw material extraction and processing

Greater Reliability for Roller Presses

The customer is a leading open-pit copper mining producer in South America with a production volume of more than 300 000 tons per year.

Challenge for Schaeffler

The customer's concentrator plant is amongst the first ones in South America that uses roller presses. This technology is a new trend in copper mining, presenting a major potential for savings in power and water consumption compared with conventional crushing and grinding technology (e.g. SAG mills). As it is the case with every new design or application, the roller presses experienced some problems at the beginning of operation at the customer's plant. At around 2 500 to 5 000 hours, the performance of the large size bearings in particular was well below the expected operating life of 8 000 up to 12 000 hours, and they were severely damaged at the end of the operating period. High material throughput, incorrect lubrication and inefficient seals were regarded as possible causes.

Schaeffler Solution

The goal was to create a cost-effective solution to increase the bearing life for this specific application. Using on the Global Technology Network, Schaeffler's worldwide knowledge network, Schaeffler staff from Peru, Chile, Germany and Australia set up the following measures: Arcanol LOAD1000 became the new grease standard, reconditioning service Level III was set up as cost-effective measure to recondition used bearings instead of purchasing new ones and various proposals for alternative rolling bearing seals were made.



Technical Information about the Roller Press

Number of roller presses:

4 units

Capacity of each high pressure grinding roll:

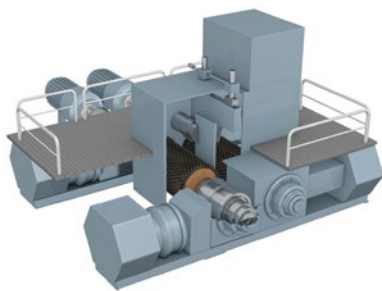
2 500 t/h

Speed:

6,3 – 20 RPM

Bearings used:

4 large size bearings
241/900 B-K30-MB-C3



The main bearings of the roller presses failed after only a short time in operation



Reconditioning of large size bearings



Arcanol LOAD1000 – Premium grease for high loads

Customer Benefit

The reliability of the roller presses was increased significantly with these measures. By using premium bearings lubricated with Arcanol LOAD1000, the bearing operating life has reached 8 000 operating hours without serious failures. At the same time, productivity was increased and unplanned downtimes were minimized. The customer's request to cut bearing purchasing costs was met by implementing a bearing reconditioning service with Schaeffler. Used bearings are now refurbished to operate for another 8 000 hours before being replaced by new bearings.

Measure	Benefit	Savings
Arcanol Load1000 grease and improved seals	Increased bearing operating life	+ 50% (to 8 000 hrs)
		avoidance of 1 unplanned stoppage of 48h/year
Reconditioning of 15 large size bearings	Reduced purchasing costs for new bearings	› € 250 000
Increased productivity	Up to a maximum of 15 000 t	approx. € 4 M
Total savings:		› € 4 M

Technical Information about the Solution

Reconditioning Level III:

- Disassemble rolling bearings
- Clean components
- Inspect and assess components
- Measure components
- Prepare assessment report
- Polish components
- Regrind functional surfaces
- Replace components
- Assemble, apply preservative and pack rolling bearings

Lubrication:

Arcanol LOAD1000

What's special

The customer was very satisfied with the dedicated and professional teamwork performed by Schaeffler in bringing different engineering capabilities together for an overall bearing solution package. This is essential for a long-term partnership. Schaeffler has now received a request for a framework agreement for reconditioning for the additional roller presses which will go into operation as part of the customer's planned expansion project.