CASE STUDY

CHESTERTON®
Global Solutions, Local Service.

MINING INDUSTRY

Packing and Gaskets

Pump Improvements Increase Safety and Reliability in Mining

Product Solutions: 1730 Glaze-Resistant General Service Packing, and AMPS™ Active Loading Technology

Challenge

The superintendent of a SAG (Semi-Autogenous Grinding)[1] mill was looking to mitigate exposure and unnecessary risk to their workers when when manually adjusting the gland follower for packing. The primary grinding operation of the copper mill is used to reduce large rocks into finer particles for further processing. This environment in the mill is one of the most punishing, harsh, and demanding areas on both equipment and sealing.

Goal

- **Eliminate or reduce workplace hazards**
- **Increase MTBR and reduce maintenance costs**
- **Extend packing life to scheduled shutdowns**

1–A SAG mill is a large rotating cylinder. As it rotates, the mixture of ore and steel balls is lifted and then falls, using a combination of impact, attrition, and abrasion to crush the material.

Solution

The pump was repacked with three rings of Chesterton® 1730 Glaze-Resistant General Service Packing, each measuring 193 mm (7.598") I.D. x 228 mm (8.976") O.D. x 17,5 mm (0.689") C/S, combined with AMPS™ Active Loading Technology, and setup with the plant air supply system. The regulator control was mounted in a safe location for ease of adjustments. The regulator was first set to 20 psi then increased slowly to a steady constant state of 40 psi.

Application Details

- **Pump: Heavy-duty Horizontal Centrifugal Type 16" suction x 14" discharge, solid particles up to 135 mm**
- **Pressure: 3,5 bar (50 psi)**
- **Speed: 500 rpm/ 5m/s (995 fpm)**
- **Temperature: 20°C (68°F); Solids: 60%**
- **Medium: Slurry of sand/ gravel and water**

Results

The client experienced frequent operational failures—primarily from gland adjustment issues—that prevented pumps from reaching the **5,000-hour** mark. Average run times were closer to **2,500 hours**, and in some instances only **1,800 hours**.

After implementation of this solution, the customer noted a substantial improvement in performance. During the tests, the pumps have maintained their optimal performance while preserving a continuous long lasting seal for the life of the packing set.