

Automated Mill Relining – Current Progress and the Future

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ABSTRACT

The profitable operation of minerals processing mine sites is heavily reliant upon mill availability and the effective use of that availability. Despite technology and equipment advancements since 1990, grinding mill relining remains a major source of plant downtime in many mineral concentrators primarily due to the issue of variability. The time it takes to complete a mill reline varies significantly between sites and even between relines. Relines are infrequent, typically occurring only every 5 to 6 months, so opportunities to practice and perfect the work are limited.

The safety risks associated with conventional relining activities also contribute to site personnel's unfavourable perception of this necessary maintenance task. Hazards faced by relining personnel include manual handling, working near suspended loads, falling from heights and confined spaces.

Reducing the variability of repetitive and dangerous tasks, like mill relining, is possible through implementation of Automation technology. Automating the relining process enables autonomous placement and removal of liners with better speed and predictability than most human operators.

Increasing mill availability and personnel safety through automated mill relining is no longer a mere pipe dream; rather advanced technologies including automation for relining are being deployed now. Every mill, liner set, mill relining machine, and plant layout is different, so collaboration between site personnel, RME engineers, relining crew and liner and bolt suppliers, is essential to create a tailored and successful automated solution for the site's mill. This collaboration has allowed RME to implement world first AutoMotion technology, enabling the site to complete liner exchange without any personnel inside the mill. The result is an unparalleled safety standard for mill relining.

This paper presents the results of recent automated relines on customer sites, and provides an analysis of the data collected in order to generate insights into the future potential of automated relining.