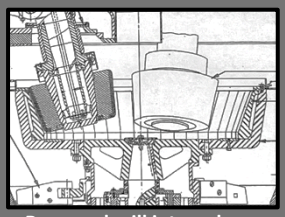
Case Study

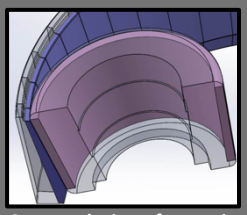
MITAK

Raymond Mill Grinding Spares

In the search for improved grinding performance and lower maintenance costs, Mitak IC composite was successfully used on the Raymond Mill.



Raymond mill internals



Custom design of ceramic

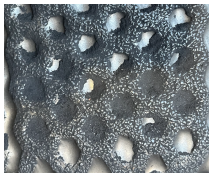
A large coal grinding facility had for years depended on weld overlay as the best means of extending the wear life of its Raymond Mill grinding spares: grinding rollers and segmented bull rings.

The chromium carbide overlay was reported to offer better wear life than standard 600BHW high chrome castings. In time, the coal quality badly deteriorated and contaminants increased. The plant's maintenance team was being overwhelmed with more frequent mill overhauls. Also, the need for more weld overlays greatly added to costs. Trials of new types of weld overlays did little to improve the situation and were expensive.

Mitak carefully studied the mills and the worn components. A proposal was made to use its Mitak IC material. The profiles of the ceramic in the parts were specified to ensure maximum wear life. Close consultation with the customer resulted in a series of carefully managed trials being conducted over two years.

The result was that Mitak IC outlasted the weld overlay by a factor of 3-4 times – and the trials are still in operation with no plans for them to be removed. Furthermore, grinding efficiency of the mills improved because the flat profile of the tyres was retained for longer – resulting in better coal throughput and less power consumption per ton milled.

A key reason for the improvement in the wear life was the build-up of coal in the wear face, which resulted in autogenous 'coal-on-coal' grinding taking place.



The Mitak IC material is now being rolled out in all the mills and weld overlay will be phased out.

View inside mill showing excellent wear profile.

Ceramic bull ring segments show minimal wear.

Weld overlay (left) compared to Mitak IC (right) after the same running hours.

Mitak is a global leader in the supply of hi alloy, abrasion-resistant wear parts.
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