

CASE STUDY - WBG MWH2024

Engineering Superior Wear Life on Coal Wash Baskets & Screen Panels

Efficient dewatering and classifying of coal is essential.



A Coal Handling Preparation Plant (CHPP) uses large screening equipment, such as screening panels and coal wash baskets. It is estimated that maintenance accounts for over 40% of the total costs of washing coal, and the frequent replacement of screens and baskets constitutes a large proportion of these maintenance costs.

The Problem

CHPPs' use stainless steel or Hardchrome coated screens to separate coal and water during processing. During this process, the baskets are subject to abrasive wear from the high throughput of fine coal slurry.

The graph above compares the erosion resistance of LaserBond's Crushalloy™ and HVOF Tungsten Carbide with white cast iron, the wear plate material Bisalloy® 500 and a hard chrome coating. The wear resistance of Crushalloy™ is more than 5 times as high than Bisalloy® 500 at shallow angles and twice as high at 90°, making it the ultimate choice for applications with varying impact angles. HVOF Tungsten Carbide.

The Solution

After extensive research and development using Laserbond's specialised material laboratories, several field trials were undertaken. The specialised coating developed by Laserbond is applied to the screen panels or the face of the centrifuge basket to extend service life of these components, while ensuring that critical dimensions and geometries are maintained. Thorough testing in lab and field it was demonstrated that Laserbond's coating solution provides 2-4 times longer service life.

After Benefits and Feedback

Key Benefits

- Laserbond can tailor the coating to target high wear areas or specific wear patterns and can also coat components made from a wide range of materials and in various configurations including sieve screens (banana screens), flat panels and wedge wire rings (baskets)
- Cost savings over multiple replacement parts
- Increases up-time and production by keeping shut down times to a minimum
- A better outcome for environment; less waste and lower carbon footprint

The Outcome

Customer Feedback Customer written endorsement:

"The LaserBond coated fine coal centrifuge baskets that we have trialled so far have lasted 3 times what we were previously getting. There was no obvious change in dewatering performance. I want to wash coal without hassles and these coated baskets will help."

About Laserbond

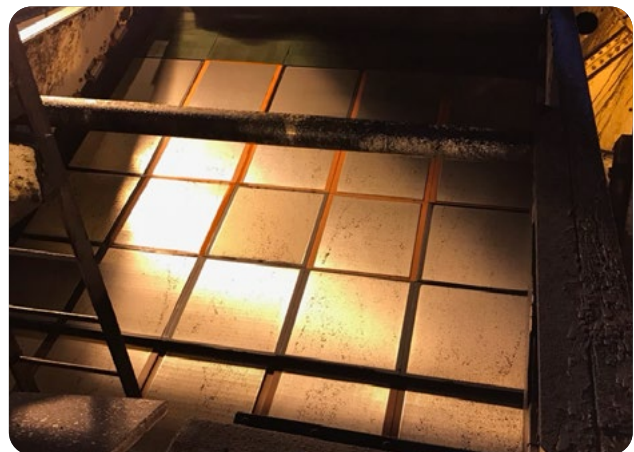
We are a specialist surface engineering company, founded in 1992, that focuses on the development and application of materials, technologies and methodologies to increase operating performance and wear life of capital intensive machinery components. Our surface engineering technology has applications across many industries, such as resources and energy, agriculture, advanced manufacturing, defence and infrastructure construction.



A. Uncoated area: Severe material loss (top section of pictured), Laserbond coated area: No wear (lower section of pictured)



B. Coal Wash Buckets



C. Screening Pannel



Laserbond

info@laserbond.com.au
laserbond.com

Sydney
2/57 Anderson Road
Smeaton Grange NSW 2567
+61 2 4631 4500

Brisbane
74 High Road
Bethania QLD 4205
+61 7 3200 9733

Adelaide
112 Levels Road
Cavan SA 5094
+61 8 8262 2289

Melbourne
26-32 Aberdeen Road
Altona VIC 3018
+61 3 9398 5925