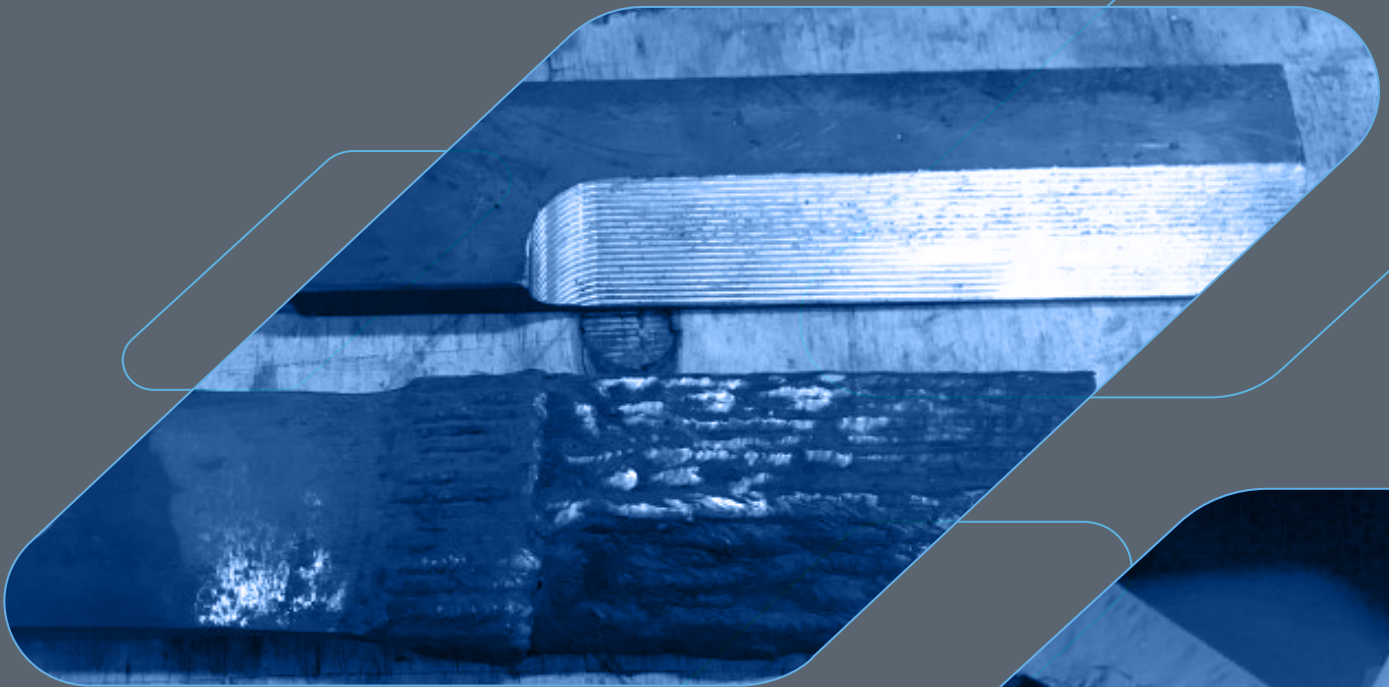
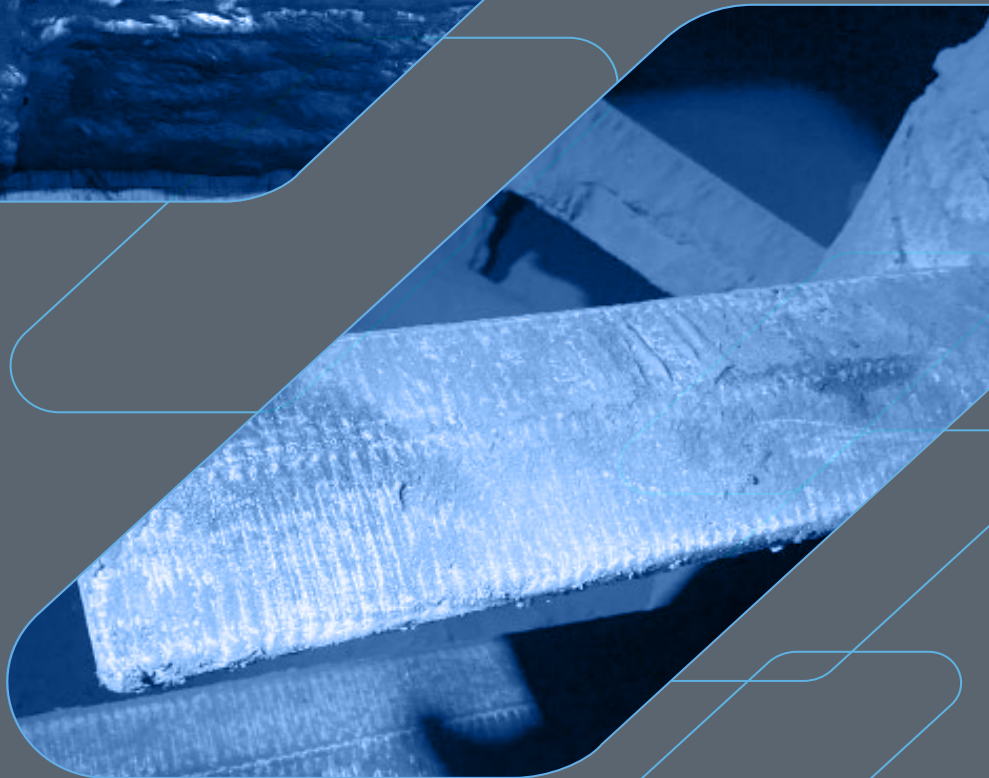




The old, original worn away mixing blades.

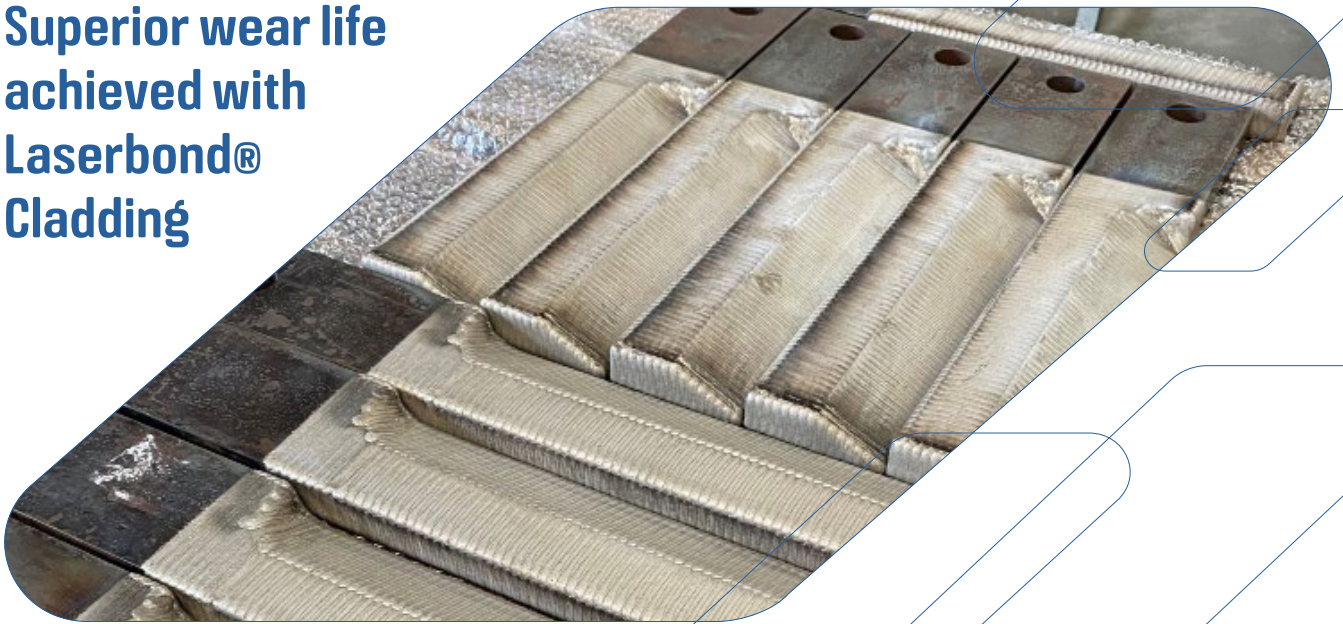


Condition of the blades at 32 weeks in service

CASE STUDY LCGMWH2023

Foundry Sand Mixing Blades

Superior wear life achieved with Laserbond® Cladding



This photo shows the new Laserbond Clad mixing blades.

The Problem

One of our key customers in a foundry was experiencing an extreme wear issue on their OEM sand mixing blades.

We were astounded to learn that they were only lasting 4 weeks in service due to the extremely erosive operating environment. After only 4 weeks they needed to be replaced with brand new parts despite being designed and manufactured with hard facing. The short life-span of the parts meant a high frequency of change-outs, leading to a lot of lost productivity, and high operating costs to purchase replacement parts.

We worked with our customer to find the best possible solution to improve wear life on the mixing blades.

The Solution

The solution our customer was looking for was a way to prolong component life. We went down a discovery process with our customer to analyse their sand particles and matched them with a Laserbond® Clad wear coating. We conducted trials that took place over a period of time before we could definitively make a call on how these have performed in the real world. As the sand particle sizes were extremely fine, we needed to develop a coating that would not allow these tiny particles to penetrate our

wear coating, so we chose an extremely fine blend of our laser powders to combat this problem. We selected a Tungsten Carbide cladding.

Our customer has had the new Laserbond Clad mixing blades in service for 8 months now and they are showing no signs of wear. Furthermore, they have been able to increase their capacity, improve productivity and therefore reduce maintenance costs.

After Benefits and Feedback

Cost Benefit Analysis

The cost of bare blades with Laserbond cladding is less than the cost of the OEM price of the hard faced mixer blades. With the increased life of these mixing blades, our customer is saving over \$14,000 per year per blade. This equates to \$154,000 per annum in direct operating cost savings.

The Laserbond® clad blades have been in service for 8 months now or 35 weeks versus 4-6 weeks for the OEM mixer blades which is a minimum of 6 times longer operational life. The customer expects the blades, given their current condition, to last well over a year giving an estimated eventual 10 times life extension.

The operational uptime of the Laserbond® clad blades has also saved the customer time of having to stop the machine to swap out blades and in turn less exposure for the maintenance team in the very dirty and dusty environment of being in this mixing tank.

Key Benefits

Results demonstrate that Laserbond® Cladding® prolonged wear life by more than 6 times and likely more than 10 times.

The OEM mixing blades lasted on average of 5 weeks, which was originally accepted by the customer as standard. After Laserbond® Cladding the bare blades, they have lasted up to 8 months in service to date. The key benefits of Laserbond® Cladding® include:

- Greater production with fewer maintenance shuts,
- Lower operating costs from purchasing replacement parts,
- Greater protection of the main rotating assembly,
- Lower risk of an unplanned maintenance event, and
- A smaller carbon footprint through fewer replacement

The Outcome

Customer Feedback Customer written endorsement:

'We are so pleased with the results we have achieved since working with Laserbond to clad our mixing blades. We have blades that have been in service now for just over 8 months and show no sign of wear or damage. This is just such a contrast for us, as we previously struggled to get 4 weeks' worth of service from our blades. The process of working with Laserbond and conducting the trial has exceeded our expectations and we are looking forward to a continued partnership.'

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.



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