Concrete slip forming machines allow the continuous in-situ pouring of concrete structures. Typical applications include kerbing and roadside barriers. An important part of the machines is the feed auger which continuously elevates the wet concrete into the mould.

Laserclad concrete slipform auger is 25% more productive

Slip form machine augers with conventional hard facing could be expected to last roughly 400 hours, transferring approximately 1000 cubic meters of concrete. In contrast with this, a LaserBond® clad auger has lasted over 3000 hours. State Wide Kerbing have conveyed approximately 8000 cubic metres without any decrease of the auger diameter and retained operating at peak efficiency. A significant productivity gain of 8 times longer life, less downtime and reduced labour costs have contributed to increased profitability for this customer.

The Problem:

The concrete is very abrasive and wears the feed auger aggressively. As the auger wears, the diameter decreases, increasing the clearance between the flights and the chute greatly diminishing the rate at which the concrete can be fed to the moulds. This has a dramatic effect on the productivity of the machine. In an attempt to extend life, operators apply hard facing at least twice which costs downtime and labour hours.

Worn standard auger conveyor after 400 hours. Note large gap from outside of flights to chute.

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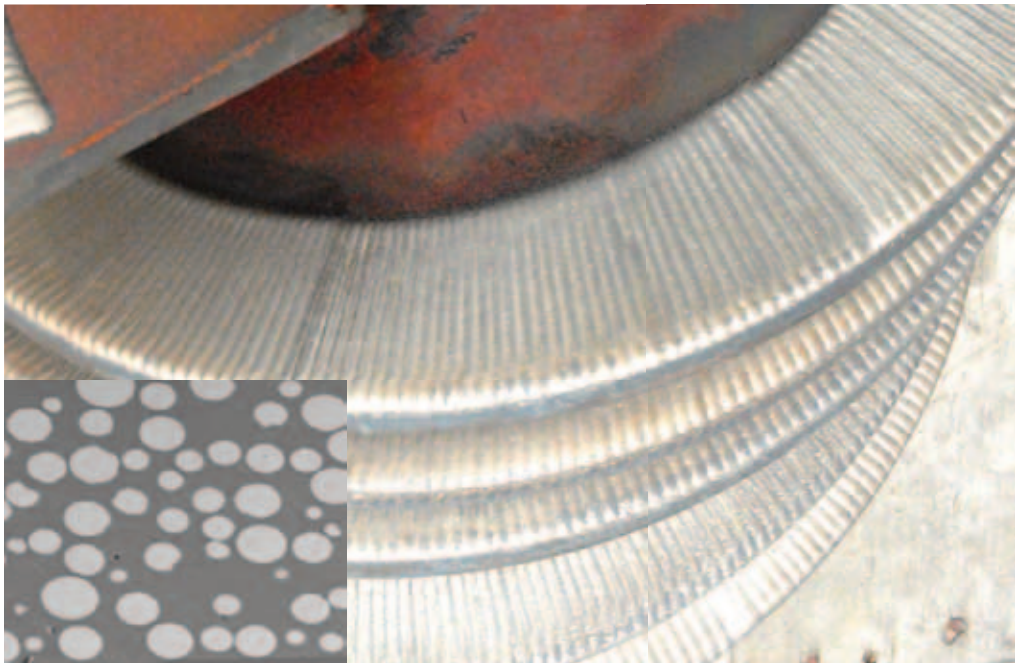
After benefits and feedback

The Solution

Apply an extremely wear resistant layer of LaserBond® cladding to the outside diameter and faces of the flights, increasing the life of the auger to approximately eight times that of conventionally hardfaced augers.

The edge of the auger was laser clad with a high wear resistant material selected for this wet corrosive and abrasive environment. This enabled the auger screw to maintain its diameter many times longer than uncoated and unprotected OEM parts.



Close up of LaserBond® clad auger flights Inset: Microscopic image of LaserBond® clad area. Note the high concentration of hard wear resistant particles.

Key Benefits

- Operating efficiency of auger enables machine to run longer, delivers more concrete at higher travel speed, with better quality placement (less voids that need manual patching).
- Cost savings over multiple OEM replacement parts.
- Machine availability improved with less downtime for manual hard facing and maintenance.
- Better outcome for environment; less waste, low carbon footprint

LaserBond® clad auger after 1900 hours of operation. Note outside diameter is hardly worn.

Feedback

Customer conveyed approximately 8000 cubic metres without any decrease of the auger diameter whilst operating at peak efficiency. Significant productivity gain, less downtime, reduced labour costs, increased profitability. LaserBond cladding provided a better than new replacement part that increased productivity for the customer by 25%.

About LaserBond

LaserBond Limited is an Australian engineering company specialising in surface reclamation and engineering, precision machining and fabrication. LaserBond manufactures, repairs, reclaims and enhances the performance of high wear, critical metal components in a range of capital intensive industries including mining, minerals processing, energy, agricultural, transport, steel, aluminium, marine and manufacturing sectors.

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