

PRODUCT APPLICATION No: LCGMGH2020



PRODUCT APPLICATION

LaserBond® Cladding



The LaserBond® Cladding process improves the service life of components in capital intensive industries.

LaserBond's® proprietary Cladding process enables the deposition of metallic alloys and metal matrix composite (MMC) overlays by utilising an accurately focussed and infinitely controllable high power laser beam. The laser beam creates a very small weld pool on the surface to be clad and enables precise control of the heat transfer into the base material and the deposited layer. The resulting overlay is metallurgically bonded to the base material with the advantages of a small heat affected zone (HAZ) and very minimal dilution/weld penetration.

Typically, MMC overlays with tungsten carbides for wear resistance have been deposited by manual arc welding or Plasma Transfer Arc processes. These processes generate excessive heat in the overlay and parent material resulting in degradation of the hard phase tungsten carbide and increasing the dilution of base material into the overlay. By contrast LaserBond® Cladding enables the deposition of MMC overlays with significantly smaller WC particles, resulting in increased concentrations of hard phase WC and reduction of the distance between them. The metallurgical bond with small HAZ and minimal dilution allows applied layers to be used in high impact, heavily loaded environments with no risk of spalling or separation of the overlay.

The LaserBond® Cladding deposition method also allows the application of a large suite of specialty alloys which will resist corrosion, impact, abrasion and erosion, galling and/or high temperature wear. By selecting the appropriate overlay material to best suit the operating environments, LaserBond can extend the life of equipment by up to 20 times the original life.

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The benefits of LaserBond® Cladding are:

1. Superior wear and/or corrosion resistance to suit operational environments
2. Metallurgical bond for impact resistance
3. Extremely low dilution of the base material and overlay
4. Minimal heat affected zones so no damage to the substrates structural integrity, especially compared with traditional methods
5. Negligible distortion enabling the laser cladding of dimensionally sensitive components
6. Backed by 28 years of in-house R&D to ensure the highest quality cladding techniques and material selection for our customers

LaserBond was Australia's first specialist surface engineering company to design, build and operate Laser Cladding systems and now has more than 20 years' experience. This experience means materials are selected, customised and applied to deliver the very best properties of abrasion and impact resistance, optimised to suit the customer's specific operating environment.



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