

The background of the cover is a collage of industrial images. On the left, a large blue robotic arm is visible, partially obscured by a blue diagonal overlay. On the right, a yellow industrial machine, likely a laser welding unit, is shown with a green diagonal overlay. The bottom half of the image features a dynamic pattern of blue and white light streaks radiating from the center, creating a sense of speed and technology.

**LASERBOND®**  
PRODUCTIVITY | INNOVATION | CONSERVATION

LASERBOND  
Technology Sales



# LaserBond Technology Sales

## **BENEFIT FROM 30 YEARS OF SURFACE ENGINEERING EXPERIENCE**

For over 30 years LaserBond® has been focussed on providing customer solutions to reclaim and repair parts using a variety of surface engineering techniques. For the last 24 years much of LaserBond's focus, research and development has been on LaserBond® Cladding. Since that time thousands of highly satisfied customers have received repaired parts with 'greater than new' operating lives. This sustained performance excellence has seen LaserBond expand to operate 9 lasers across 4 sites in Australia, testament to the benefits delivered to our customers. Our customers include many major OEMs and our products and services are exported globally. You can participate in that success. LaserBond distributes its Cladding Cells globally.

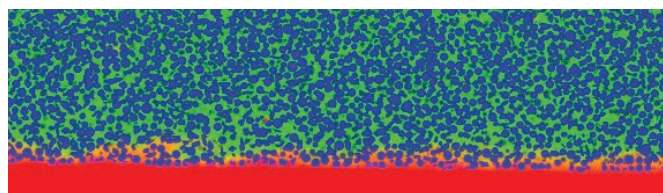
LaserBond offers tailored multi-component, turnkey, equipment, software, materials, training and support packages to shortcut 24 years of learning and get you underway immediately, with proven technology, and adding significant value to your customers.

Tailored packages typically include LaserBond® hardware/ software integration supported by the necessary know-how, training, installation, onsite commissioning, proven cladding materials and ongoing technical support. We provide fully configured

"production ready" systems and open access to many years of the exacting, unique experience and support required to deliver the shortest possible timeline from equipment purchase to return on investment, be it internal cost saving or external revenue generation.

## **LASERBOND® CLADDING DELIVERS THESE FEATURES**

- ❖ Metallurgical bond – cladding and substrate are inseparable
- ❖ Precisely controlled energy source so minimisation of metallurgical side effects, including Heat Affected Zone (HAZ)
- ❖ Very low heat input compared with conventional weld hard facing
- ❖ Minimal dilution of the cladding alloy composition by the substrate meaning its performance and characteristics are optimised
- ❖ Rapid solidification, fine grain structure
- ❖ Alloys considered "unweldable" can be LaserBond® Clad



*XFM Map of Optimized LaserBond® Clad Tungsten Carbide (WC)*



## THE BENEFITS DELIVERED BY LASERBOND® AS A LICENSOR INCLUDE:

- ❖ A system designed and built by LaserBond who are long term multiple cladding cell operators and acknowledged global experts in cladding.
- ❖ A fully integrated, modular designed and built cell, ready to generate revenue from day 1.
- ❖ Greater ongoing technical support based upon years of LaserBond® Cladding experience, solving problems and providing customer solutions for jobs the same as facing our Licensees.
- ❖ A comprehensive training package which provides our Licensees with skilled operators and comprehensive instructions, enabling you to deliver high quality outcomes.
- ❖ Tried and proven consumable materials providing best results

## COMMON LASERBOND® CLADDING MATERIALS

- ❖ Carbides (Tungsten, Chromium, Titanium)
- ❖ Ceramics
- ❖ Stainless Steels (martensitic, austenitic, ferritic)
- ❖ Nickel Alloys (eg. Hastelloys, Inconels)
- ❖ Cobalt Alloys (eg. Stellites, Triballoys)
- ❖ Copper Alloys (eg. Bronzes)
- ❖ Self-fluxing and fusing alloys (eg. Nickel Chromium Silicon Boron)
- ❖ Galvanic metals (eg. zinc, aluminium and alloys)

## THE BENEFITS DELIVERED BY LASERBOND® AS A LICENSOR INCLUDE:

- ❖ Extended wear or operational life - 3-20+ x component life extension over other surface engineering technologies, delivered from greater impact, corrosion and/or abrasion resistance
- ❖ Greater impact resistance delivered via a metallurgical bond
- ❖ Operating cost savings – fewer parts replacements, less operational downtime
- ❖ Environmentally friendly – repairing and reclaiming parts instead of replacing them with new lowers the carbon footprint by 10-30 times.
- ❖ Ability to LaserBond® Clad a wide range of alloy substrates - components traditionally considered “unweldable” can be LaserBond® Clad, including high carbon steels, cast iron and aluminium (meaning a wider range of components than ever before can be reclaimed and repaired).
- ❖ Very low porosity meaning greater corrosion resistance

- ❖ Vast cladding material range means customised solutions to match operating environments and customer requirements.
- ❖ No damage to or distortion of the substrate dimensions, meaning parts can be reclaimed or repaired time and again. And cladding can be applied over cladding.

## LICENSE AGREEMENT

LaserBond cladding technology is being licensed worldwide, with licensees in Europe, Australasia, North America and Asia. A license agreement includes:

1. The design, installation and commissioning of a fully operable LaserBond® Cladding system.
  2. Access to LaserBond’s customised powders which have been developed over the last 30 years and are proven to perform better.
  3. Comprehensive training and ongoing, 24-hour technical support to ensure rapid response times
- ❖ The LaserBond Technology training system delivers a safe, consistent and sustainable approach to delivering competent and proficient operators in a range of surface engineered metal cladding processes. Our staged training packages deliver 4 certified competency levels for Cladding and additional modules cover pre and post machining, robotics programming, and surface coating tribology and metallurgy.
  - ❖ Technical support from vastly experienced laser operators who have seen many jobs and problems which our Licensees are seeking to solve. Talk direct to our full time operators for easy and rapid solution development.



## COMPONENTS OF A MODULAR LASERBOND CLADDING SYSTEM\*

There are many components that go into the manufacture of one of our 8 axis motion systems. For each system these components usually include the following:

- ❖ German Fibre Coupled Diode Laser
- ❖ Powder cladding head
- ❖ German Laser Fibre and focusing optics
- ❖ A Japanese or Swedish manufactured long reach multi axis robot
- ❖ Synchronized horizontal rotation axis with headstock, tailstock and bed
- ❖ A synchronised vertical axis rotation turntable
- ❖ An integrated chiller for cooling of diode laser, optics and cladding head
- ❖ Dual Powder Feeders, specifically set up for laser cladding
- ❖ An integrated PLC based safety and control system, including all axes of motion, laser, powder feeders, shielding gases etc.
- ❖ The control system will include a user-friendly fully programmed Human-Machine Interface (HMI) panel for simple, safe and efficient operation, storage and loading of programs for the common types of jobs
- ❖ A Laser Safety Enclosure fitted with safety interlock switches.

*\* All components will be new and supplied with manufacturer's warranties.*

## LASERBOND® MODULAR CLADDING CELLS:

- ❖ Our modular cladding cells can be configured to meet your needs using our range of modular components engineered to work with any cell configuration.
- ❖ The system is scalable by adding additional modular components, reducing the need for large capital expenditure when there is the need to increase the systems throughput or capability.
- ❖ Our software, pattern files and recipes are also modular and adaptable to your requirement allowing your operators to quickly adapt their operation to your customers' requirements without extended trial and error to develop the results required.

LaserBond systems have been engineered to get you started quicker without the need for specialist trained technicians. Machine operators can operate our laser cladding systems.

Our control system contains custom pattern files developed over many years, seamlessly integrated with our industrial robots to enable a near infinite range of parts and coatings to be processed.

Our process and system knowledge are encapsulated in the control system and through our close application support.

Our systems are modular and scalable to your needs. Systems can be expanded using the core equipment, as your business and capabilities grow.

If your business wants to save internal operating costs or add value to customer's operations, LaserBond® Cladding is the leading edge surface engineering technology which can help you do this. For more information, please contact LaserBond.

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