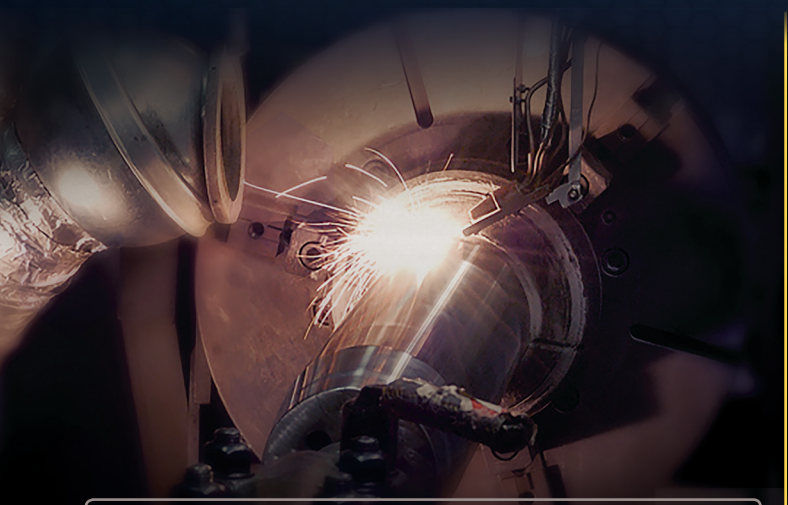
# Laser Cladding Surface Technology

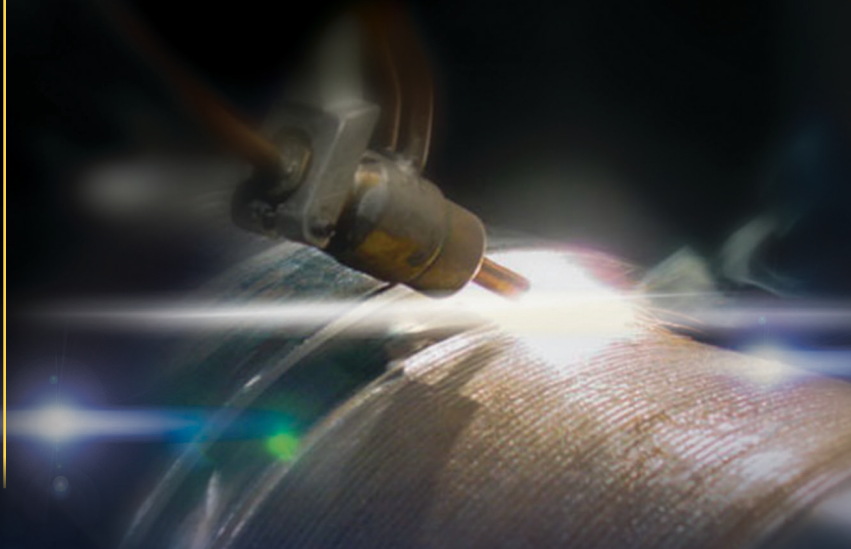


**Laser Cladding Advantages:**

- Selective hardness ranges
- Various levels of corrosion resistance
- Matching substrate chemistry
- Minimal inter-metallic dilution
- Low heat input
- Low thermal distortion
- Narrow heat-affected zone

**ABS/DNV Approved Processes**

- Improved Reliability
- Increase Service Life
- Reduce Wear
- Eliminate Corrosion
- Salvage Sensitive Components



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Laser cladding enables the application of superior alloys to high volume surfaces, complex geometries, irregularly shaped parts, and multidimensional profiles.

| ALLOY | APPLICATION | TYPE | TYPICAL HARDNESS |
|---|---|---|---|
| Austenitic Stainless Steels | Corrosion resistance and welding | 309L \| 316L \| 347 | 20-22 HRC |
| Cobalt Based | Corrosion and high-temperature wear resistance | Alloy 6<br>ULTIMET® | 45-50 HRC<br>28-33 HRC |
| Precipitation-Hardening Stainless Steel | Corrosion and wear resistance | 17-4 P-H | 33-38 HRC |
| Martensitic Stainless Steels | Wear resistance | 410L/410<br>420<br>431 | 38-42 / 44-46 HRC<br>50-55 HRC<br>50-53 HRC |
| Nickel-Based Alloys | Corrosion resistance | Inconel 625<br>Inconel 718<br>C-22 \| C-276 | 22-25 HRC<br>22-25 HRC<br>< 24 HRC |
| Tungsten Carbide | Abrasive wear resistance | 60% WC in Nickel binder | 74-76 HRC |

| ADVANTAGES | LASER CLAD | HVOF | PTA |
|---|---|---|---|
| Metallurgical Bond | Yes | No (mechanical) | Yes |
| Low Dilution | < 5% | --- | < 10% |
| Heat-Affected Zone HAZ | 0.020"- 0.040" typical | --- | 0.080" - 0.100" |
| Minimal Distortion | Yes | Yes | More than laser |

## Common Applications, but not limited to:

- Hydraulic Surfaces
- Bearing Journals
- Seal Journals
- High-wear Surfaces
- Areas exposed to corrosive agents
- Mechanical profile restoration

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