

CO2 Laser Cladding System for Mining Machinery Remanufacturing

This CO2 laser cladding system is designed for remanufacturing and repairing mining machinery. It enhances the lifespan and performance of critical components through precise material deposition.



ADDITIONAL IMAGES



Overview

High-Efficiency Laser Cladding for Industrial Remanufacturing

This CO2 laser cladding system is specifically engineered for the high-precision remanufacturing of mining machinery and heavy industrial components. By utilizing advanced laser deposition technology, it restores worn surfaces like gears, shafts, and bearings to their original dimensions with superior material density. The system offers a cost-effective alternative to part replacement, significantly extending the service life of critical equipment while reducing operational downtime.

Performance Metrics

Key Performance Indicators

60 % Market Share	5 Years Maintenance-Free Period	2 x Efficiency vs 7kW Units
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Technical Capabilities

Available Power Configurations

3kW • 4kW • 6kW • 10kW • 20kW

Core Equipment Features

- Low material consumption through selective cladding
- Uniform and dense microstructure with minimal microscopic defects
- Non-contact process suitable for flexible automation
- Precise control over laser beam power, position, and shape
- Minimal thermal effect on the substrate
- Small, precisely controlled dilution of the cladding layer

Comparison

Laser Fusion vs. Traditional Procedures

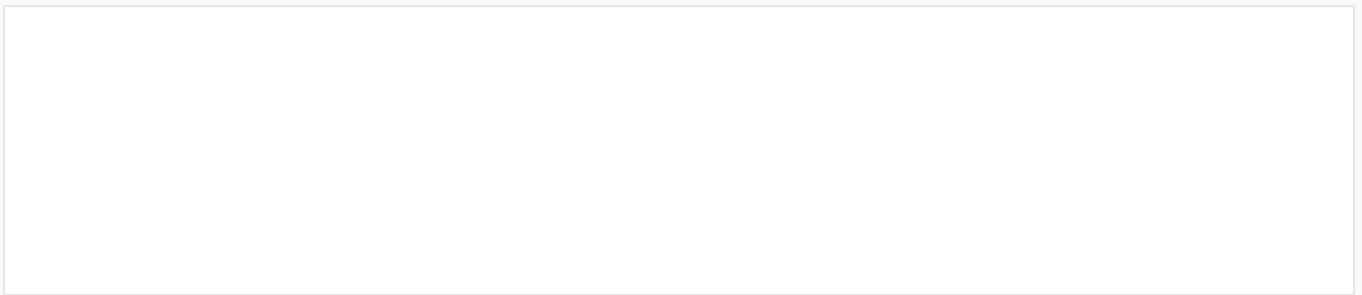
Feature	Laser Fusion Covering	Traditional Procedure
Environmental Impact	No coating procedure	Coating, environment hurting
Repair Scope	Partial restoration for partial wear	Integral restoration for partial wear
Bonding Type	Combined with matrix	Tied with matrix
Maintenance Cycle	No maintenance within 5 years	Maintenance every 1-2 years
Lifecycle	Recyclable after repairing	Junked after 2-3 maintenances

System Components

Critical Hardware Components

Component	Origin/Type
CNC Control System	High-end Industrial Grade
Drive Motor	Precision Servo
Motion Hardware	Ball screw, guide rail, and slider
Transmission	High-precision Reducer

Applications

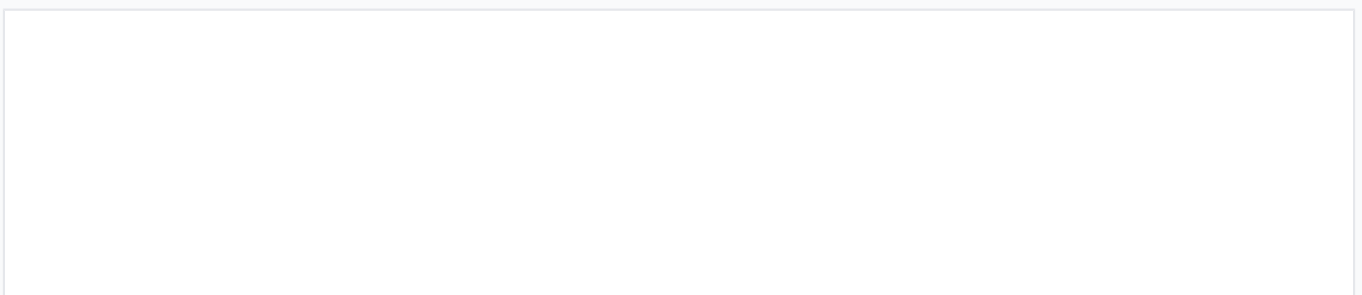


Application of laser cladding technology on turbine rotating equipment within the steel and metallurgical industries.

Target Industries & Parts

Mining Machinery, Metallurgical Industry, Iron & Steel Industry, Petrochemical Equipment, Automotive Molds, Turbine Rotating Equipment, Gears, Rolls, Shafts

Process Workflow



System architecture showing the integration of the laser source, chiller, CNC control, and automatic powder feeder.

System Architecture

- Integrated Chiller Cooling System
- External light path with red light indication
- Safety protection monitoring system
- Automatic powder feeder integration
- Multi-axis CNC coordinated processing