


# Laser Cladding & Hardening

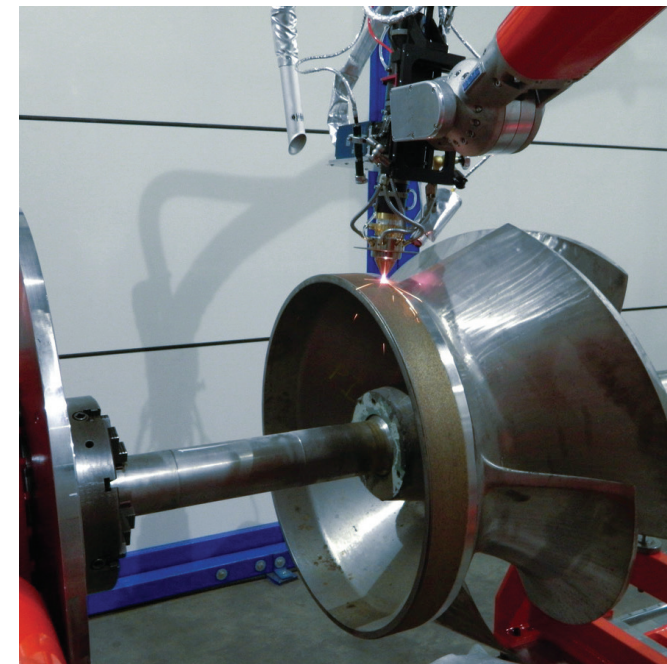






# Focusing on Prolonging your Machinery Life Cycle

KIMI



For more than twelve years, KIMI has applied advanced laser cladding technique for repair welding and hardening that recovers and prolongs the lifecycle of high value machinery components. The laser beam creates a shallow molten pool at the workpiece to which a filler material is fused. The bond created between the fused powder and the base metal is metallurgical.

KIMI makes a leap forward and invests in portable laser equipment we believe will provide our customers with the optimum repair solutions. Our portable laser cladding equipment enables us to react swiftly wherever and whenever it is needed.

What are the advantages of laser cladding?

- **No cracking or peeling**
- **No porosity**
- **Small heat affected zone**
- **Low dilution between** the depositing and the base metal
- **Wide range of powder options** (ability to clad materials like cast iron or nickel-based super-alloys)



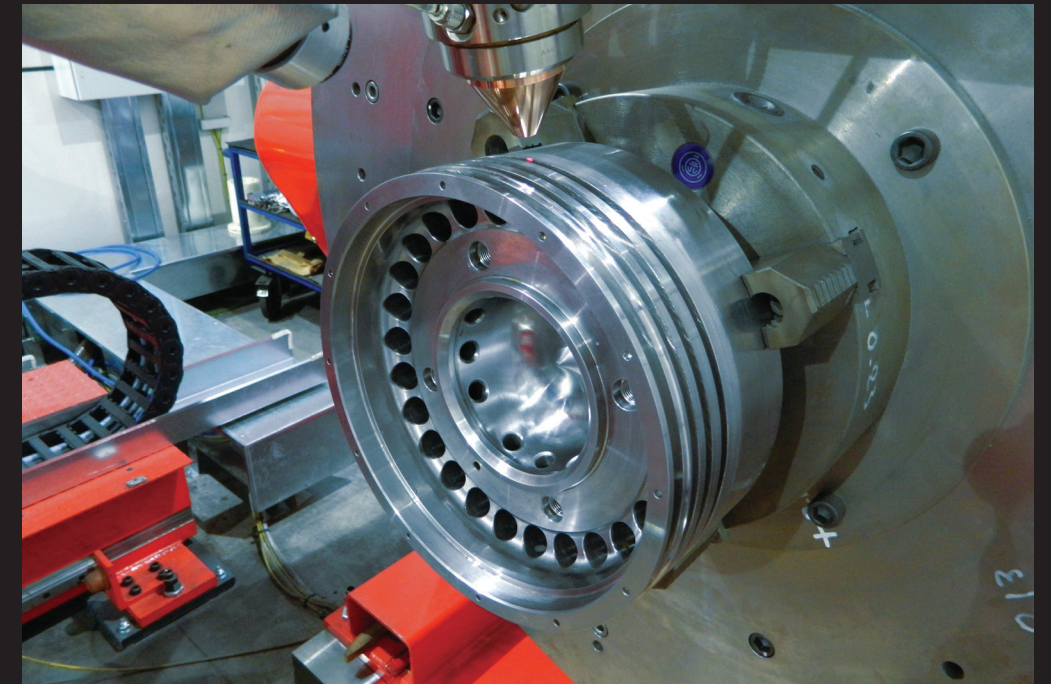


## 4-Stroke Crankshaft

In collaboration with the National Technical University of Athens and other European Institutes, we have developed a process for the rebuilding of worn journals to their original diameter with laser cladding. The journal recovery process has been certified by Bureau Veritas.

In addition to laser cladding, bent crankshaft straightening and journal grinding are performed with high-precision automatic machines, guaranteeing the quality of our service. Crankshafts that are considered as scrap, due to extensive machining that needs to be carried out or undersized bearings that have long delivery time, can be salvaged successfully, fast and cost effectively. Our crankshaft recovery solutions include:

- **Journals recovery** to the original diameter with laser cladding (BV Certification)
- **High-precision journals machining and grinding** with our CNC grinding machine
- **NDT Inspection, magnetic particle inspection (MPI)** conducted by level II PCN certified engineers
- **Hardness testing** and certification in accordance with ISO 17025
- **Crankshaft straightening**
- **Heat treatment**
- **In-situ** evaluation and reconditioning if needed
- **Bearings supply** to the required size



## 4-Stroke Piston

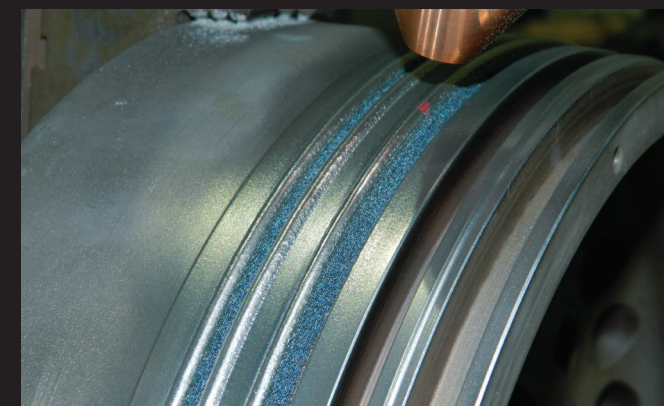
4-Stroke pistons are subjected to high forces and temperatures. Their grooves become wider with time and when exceeding Maker's maximum acceptable limit, they have to be replaced with new ones.

We offer the laser cladding repair option as a cost- saving, sustainable repair solution that not only restores grooves but also prolongs pistons service life by improving grooves resistance to erosion and corrosion.

Why reconditioning 4-Stroke pistons with laser cladding?

- Cost- effective solution compared to replacing
- Standard size piston rings can be fitted again
- Applicable not only to steel but also cast iron and aluminum pistons
- The material used for building up piston grooves achieves very low coefficient of friction. After repair piston obtains higher resistance to erosion than before

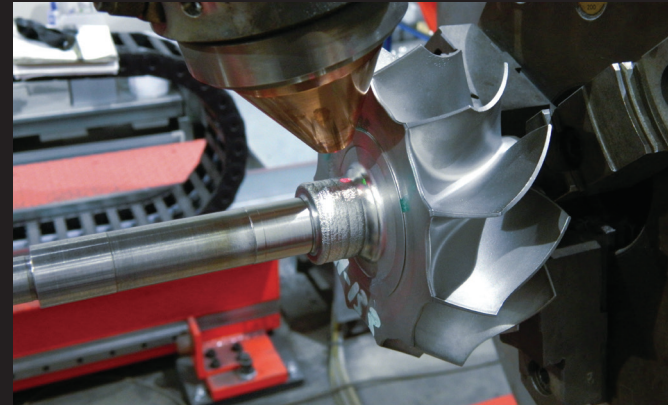
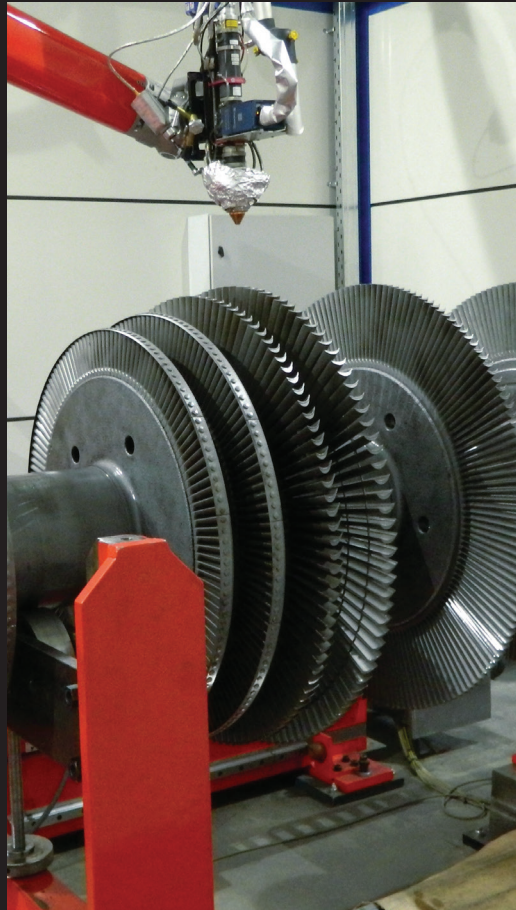
As a supplementary service, we provide our customers with full-reporting- including dimensional reports, photos and NDT certificates- before and after repair. NDT services and certificates are issued by certified personnel (Level II PCN).





# Other Critical Spares Repair

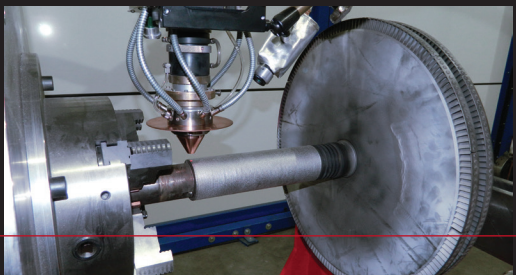
Based on our extensive, in-house engineering capabilities and metallurgical expertise, we offer flexible and cost-efficient repair solutions for a wide range of critical spares. From worn or bent shafts and rotors of a wide range of sizes and types to aluminum impellers and cast iron pumps casings, laser cladding can be the only sustainable repair solution for the restoration of these parts.



**12 +**  
**Years of laser cladding expertise**

**15 +**  
**KW of installed laser power plant capacity**

**200 +**  
**Spares portfolio for Marine, Power, Oil & Gas**

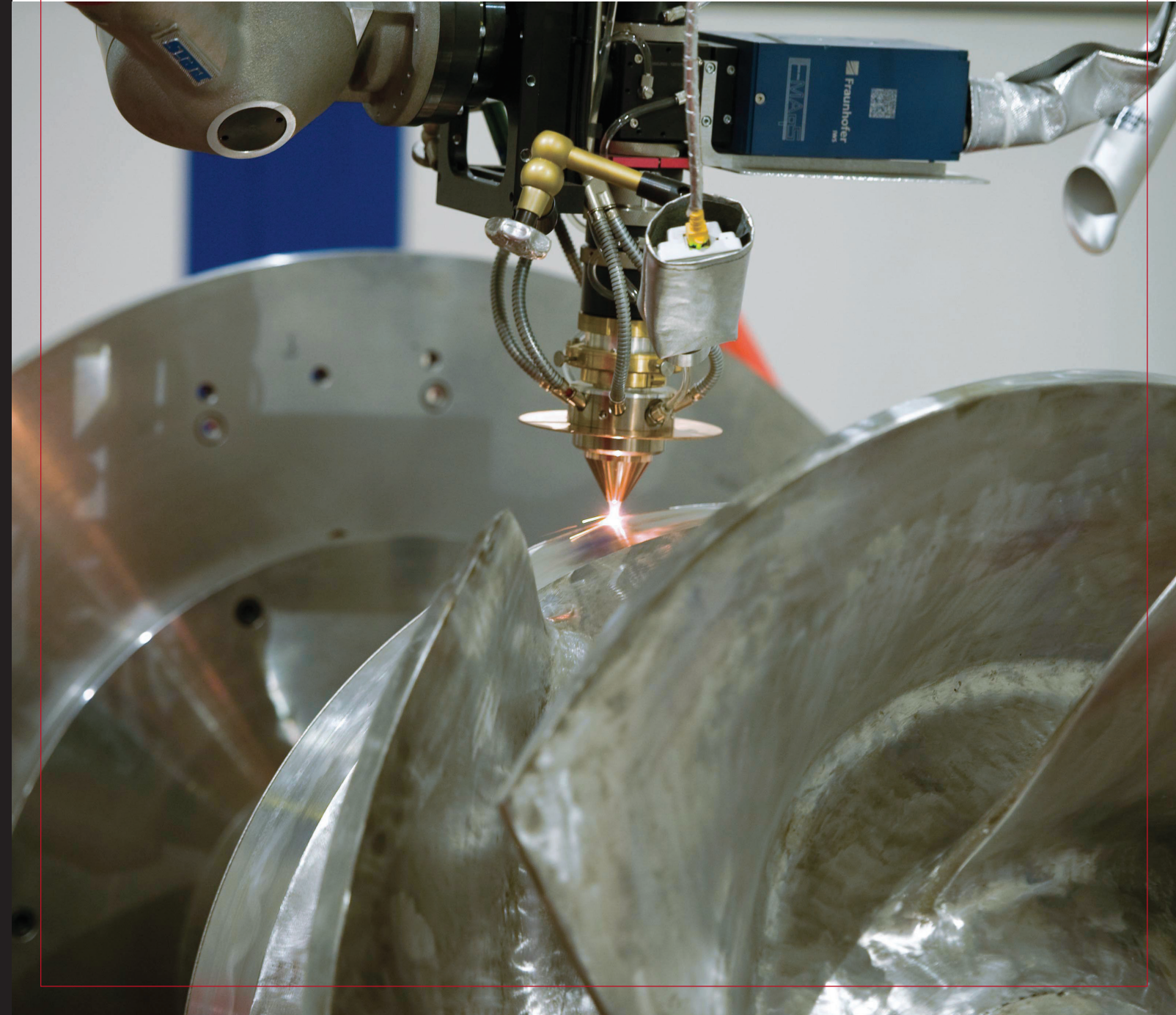


Our extensive product portfolio includes:

- Turbocharger rotor shafts and blades repair
- 4-Stroke cylinder covers- pockets and O-ring groove
- Various pump shafts and casings repair
- Electric motor rotors
- COP turbine repair (Shinko, Mitsubishi etc)
- Heavy duty spares: tail shaft, propeller, impeller, blades repair

Customers maintain high visibility on the undertaken repair actions from beginning to completion of the order and are provided with full-reporting prior and after the repairs.

Our **In-house quality laboratory** ensures metallurgical excellence and adherence to Classification standards with certification available upon client's request.







SCAN ME



KIMI is an independent service organization that offers premium repair solutions for marine and power equipment. The company was established in 1984 and has since then evolved to a one-stop shop with a wide service portfolio.



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