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## Laser Cladding

In cooperation with partner, Fortis Marine assists in selection of most suitable reconditioning method. Laser cladding may be utilized for reconditioning of whole range of high value mechanical parts like turbine shafts, big-size electromotor shafts, transmission shafts, piston crowns, etc.

**Laser cladding is unique technology, which gives following qualities:**

- Environmentally friendly approach
- Enhanced Durability – reconditioned components last longer than new
- Ideal for surface improvements – wear resistance and protection
- Cost effective repairs of high value parts
- Repair layer is bonded to base material by weld connection
- **Low heat input, low thermal distortion on components**
- Close to net shape – short machining time, low wastage
- Possibility of repair conventionally non-repairable parts
- Possibility of repair of thin-walled parts
- Shorter down times / cost savings



## Material Compatibility MATRIX (Table 1)

Cladded Material		Stellite	Manganese Steel	Chrome Steel	HHS	Nickel-based alloys	Copper-based alloys	Aluminum Bronze	Aluminum
Base Material	Steel	•	•	•	•	•	•		
	Cast Iron GGG	•				•	•		
	Brass							•	
	Bronze							•	
	Aluminum								•
	Nickel based alloys	•					•		

## Reconditioning of Large Shafts

- Cladding time 36 h
- Temperature after Cladding: 58 °C in Cladding Area
- Cladding material Stellite 21
- Local hardness and toughness increased
- High corrosion and erosion resistance

Neglected alternative:  
**MIG/MAG-Cladding**



## Reconditioning of Rudder Shaft

Primary damage in Bearing and Seal areas

- Length of Part 3800 mm
- Diameter 400 mm
- Damage area 560 mm
- Damage depth 3 mm

Additional damage:

- Local damage of 1/3 diameter
- Depth 6 mm

