



LaserAge Ltd.

Using Lasers as Manufacturing Tools

Flexible Cladding System

LaserAge has the capability for flexible repairing of high value workpieces by using laser cladding technology. These systems can be used for the treatment of components, which cannot be transported due to technical (size) or for economical reasons (down-time). As a consequence a flexible system is required, which allows on-site treatment.

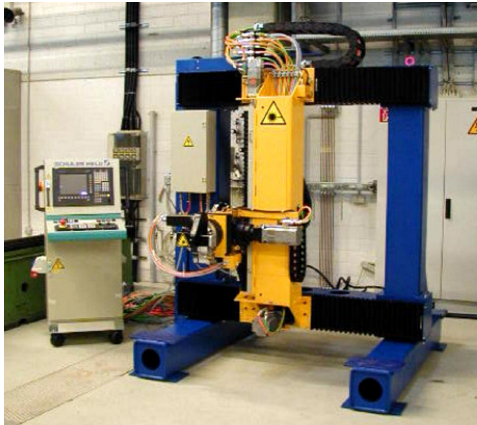


Figure 1. Flexible 5-axes handling system
(designed by Schuler Held Lasertechnik)

The handling system is designed and manufactured by Schuler Held Lasertechnik and consists of three linear and two rotary axes. The integrated beam delivery system consists of a fibre coupled high power diode laser and a cladding head, which enables 3D cladding. The Fraunhofer Institut Lasertechnik, (ILT), our research partners, designed the cladding head. Its unique design allows overhead cladding.

Applications:

- Heavy forming tools
- Large crankshafts
- Wear protection of gas & steam turbine components

Market research shows that applying laser cladding to the gas turbine power industry is desirable, especially since the current order boom from gas turbines deregulation. The traditional way of repairing these blades is by brazing or manual TIG

welding. These processes have limitations, which the automated laser cladding process overcomes.

The cladding process is fast and accurate and does not depend on a welder's experience. Low heat input assures low distortion. Costs are reduced because there is less rework and less post machining afterwards. Because of the predictable nature of the process quality is assured, which leads to an increase in production and a reduction in Turn Around Times.



Overhead Cladding (designed by ILT)

Specifications

- 3D treatment, adapted cladding head
- Low weight, 1200 kg
- Fast assembly/disassembly
- Sufficient robustness
- 3-linear, 2-rotary axes
- Fibre coupled 2kW diode laser
- Highly automated
- Flexible & accurate
- Easy to operate
- Less skills needed for the operator
- Cost effective
- Space required:
 - $2 \times 2 \times 2.6 \text{ m}^3$
- Total strokes:
 - x = 600 mm
 - y = 600 mm
 - z = 700 mm

LaserAge offers support and advice to prospective or existing industrial laser users. LaserAge re-manufacture and repair components for the Aerospace, Injection Mould Medical and Power Generation Industries.

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