



LASERVORM



Laser cladding

A new level of freedom thanks to beam modulation

It is possible to have variable track widths and track cross-sections through spatial, high-frequency deflections of laser beams and synchronously modulated laser power.




Advantages and examples of applications

Excellent fibre laser technology with the options of modern PLC and NC controls and 20 years of experience in laser cladding build the foundations for outstanding new possibilities in the laser cladding method.

The new, special features include:

- Variable track width with energy input modulation,
- Influence on the track cross-section geometry and
- Increase in the productivity of pulsed laser cladding.

The machining examples presented here were carried out using a robust single-axis scanner LV®LineScan. The system can be used at up to a medium power level of 3 kW at 100% power-on time under rough industrial conditions. A control solution, which is based on an open and standardised realtime Ethernet-based bus system with Jitter under 1µs and which was developed especially for laser cladding technologies, made it possible to operate a wide range of components in synchronisation with one laser system. (Analogue and digital) control operations can thus be transmitted for control frequencies of up to 40 kHz and can be received and sent out by different bus devices with µs precision. This facilitates the synchronisation of powered axes, laser parameters, scanner parameters and process values with a precision of 1 µs.



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Laser cladding using wire and powder

Laser equipment

The laser equipment includes 12 laser systems with varying beam qualities, wavelengths and operation regimes. For example:

- 2 kW-cw-Nd:YAG laser
- 120 W-pw-Nd:YAG laser
- 1 kW-cw- fibre laser
- 3 kW-cw-fibre laser
- 1,5 kW-QCW fibre laser

All laser systems are connected to multi-axis, NC-controlled machines.

Peripheral technology

In addition to the most modern lasers and dynamic machines, we offer a variety of peripheral components:

- Wire conveyor 0.6 mm to 1.6 mm
- Wire conveyor 0.2 mm to 0.5 mm
- Powder feed system and conveyor in TWIN design
- Powder feed system and conveyor in single design
- Beam forming technique
- Concentric and lateral powder nozzles with LV[®]CNozzle technology also available in a very slim design for the best component accessibility (e. g. during blisk repairs)
- Metallographic equipment
- Sharpening and recontouring technique
- Induction pre-heating
- Microscopy equipment
- Red-white test and UV test

Experience

Many technicians and engineers have been working with laser cladding methods for decades. Their research and development activities result in constant improvements in technology and systems engineering.

Other areas of application of this technology are the production of lightweight structural components in micro applications (such as medical devices) and macro applications (such as dynamically moving machine components that are dimensioned for minimising deformation).

Your solution

A suitable technique is not the only solution we offer for your tasks. In addition to productive technique, you will also receive a complete solution comprising technology, technique and training.

LASERVORM - we are open for your tasks because we enjoy innovations.

