

LMD AND VR: SUSTAINABLE MANUFACTURING AND TRAINING IN ADDITIVE MANUFACTURING

+ Christoph Machowetz

Pace Maker for
High-End
Precision Parts

TOOLCRAFT – IN FACTS AND FIGURES

442 Employees

3 Board members

43 Trainees

2 Facilities

8 Certificates

Year of foundation
1989

Sales growth
Ø14% p.a.



ADDITIVE MANUFACTURING

11 L-PBF machines
1 LMD machine (powder)
1 LMD robotic system (wire)
AM centre, AM laboratory



ROBOTICS

Universally applicable
automation solutions and
machining cells



MACHINING

60 CNC machining centres
3-to 9-axis technology
Turning-milling systems



INJECTION MOULDING + MOULD MAKING

28 Injection moulding machines
0.01 to 350 g component weight
150 to 2,200 kn clamping force



LMD - TECHNOLOGY

LMD APPLICATIONS

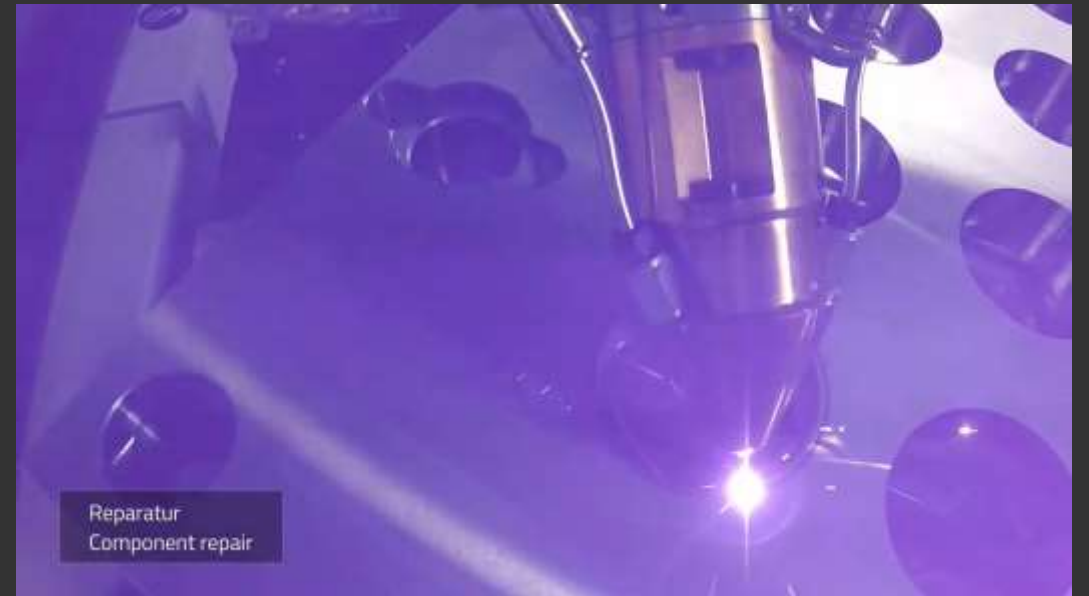
COMPONENT REPAIR

Usually makes more sense than manufacturing a new component

- Sustainability
- Time and cost savings

Typical applications:

- Turbine blades, shafts, tools



LMD APPLICATIONS

EHLA COATING

Application of functional layers

- Wear protection
- Corrosion protection

Refinements → Economic potential



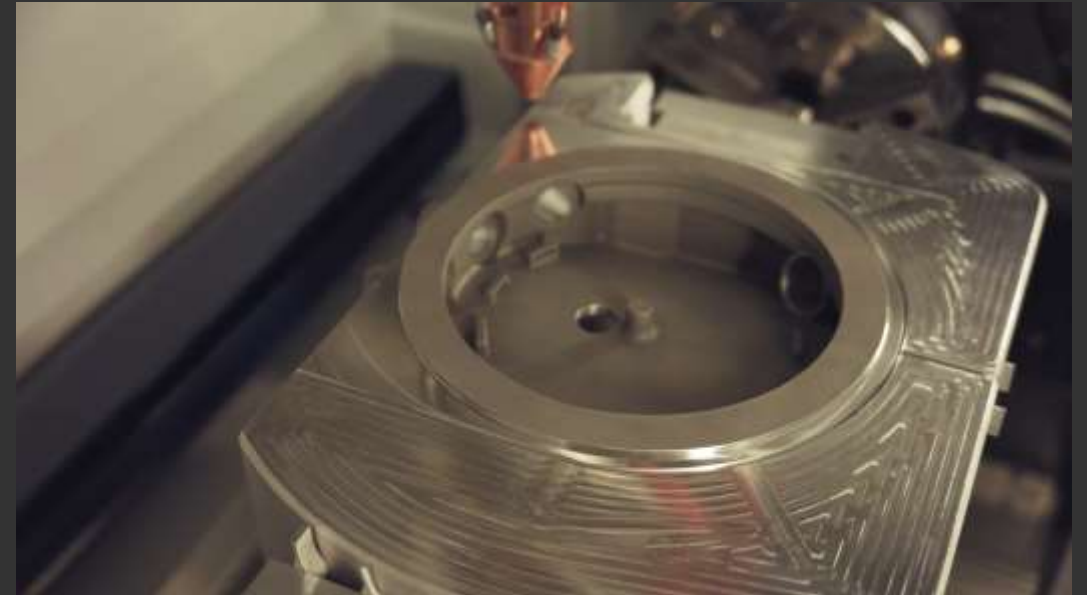
LMD APPLICATIONS

JOINING

Joining of different materials

Formation of homogeneous, dense seams

Implementation of large additive components



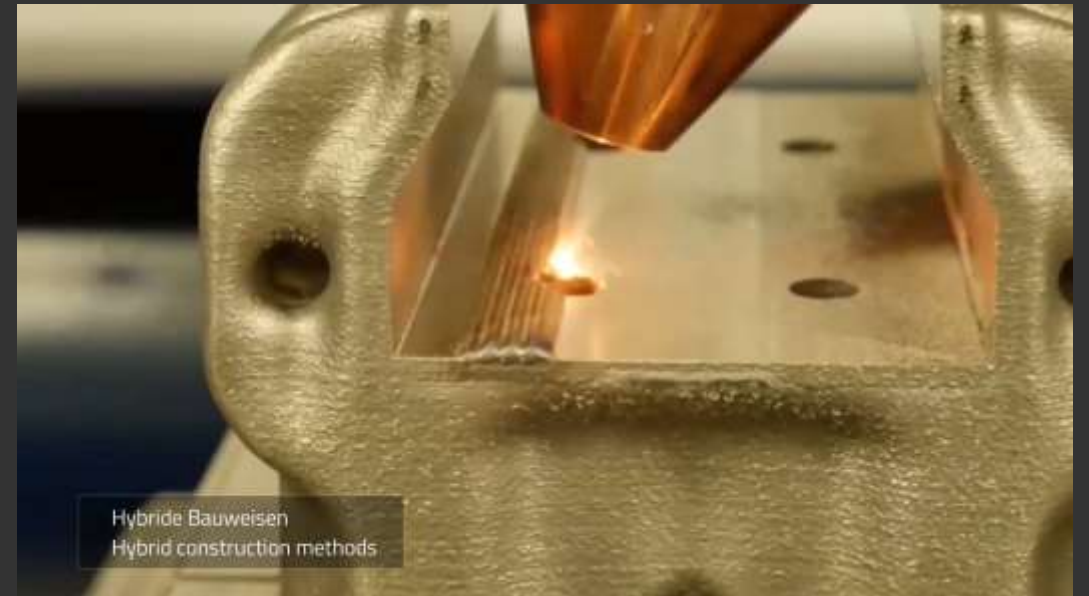
LMD APPLICATIONS

HYBRID CONSTRUCTION METHODS

Innovative materials

Complexity

Material-friendly



SUCCESS STORY:
TRUMPF + P&G + TOOLCRAFT



ADDITIVE MANUFACTURING

CONSULTING | TRAINING | SOFTWARE
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ADDITIVE MANUFACTURING



Gemeinsam Weiterbilden

IHK-
CERTIFICATE

Industrial specialist for additive manufacturing

Developing and using the potential
of additive manufacturing

IHK Certificate Course

AMbitious
POWERED BY **toolcraft**

A small inset photo showing two people, a man and a woman, working at a computer workstation in a technical environment. They appear to be in a control room or a laboratory setting, looking at a monitor. The photo is partially obscured by a teal triangle in the top right corner of the slide.

ADDITIVE MANUFACTURING

CONSULTING | TRAINING | SOFTWARE
ADDITIVE MANUFACTURING



VIRTUELLES TRAINING STARTEN

STARTEN



LET'S REACH YOUR
NEXT LEVEL IN METAL



Pace Maker for High-End Precision Parts



Christoph Machowetz

toolcraft AG
Handelsstraße 1
91166 Georgensgmünd

T +49 9172 6956-0

F +49 9172 6956-560

christophmachowetz@toolcraft.de