



LLT

APPLIKATION



Laser Machines For Micromanufacturing

Photonics 4 Masterpieces, EPHJ 13.06.2024

“

**Our tool is
always sharp.**

Dr. Siegfried Pause

”

CONTENT

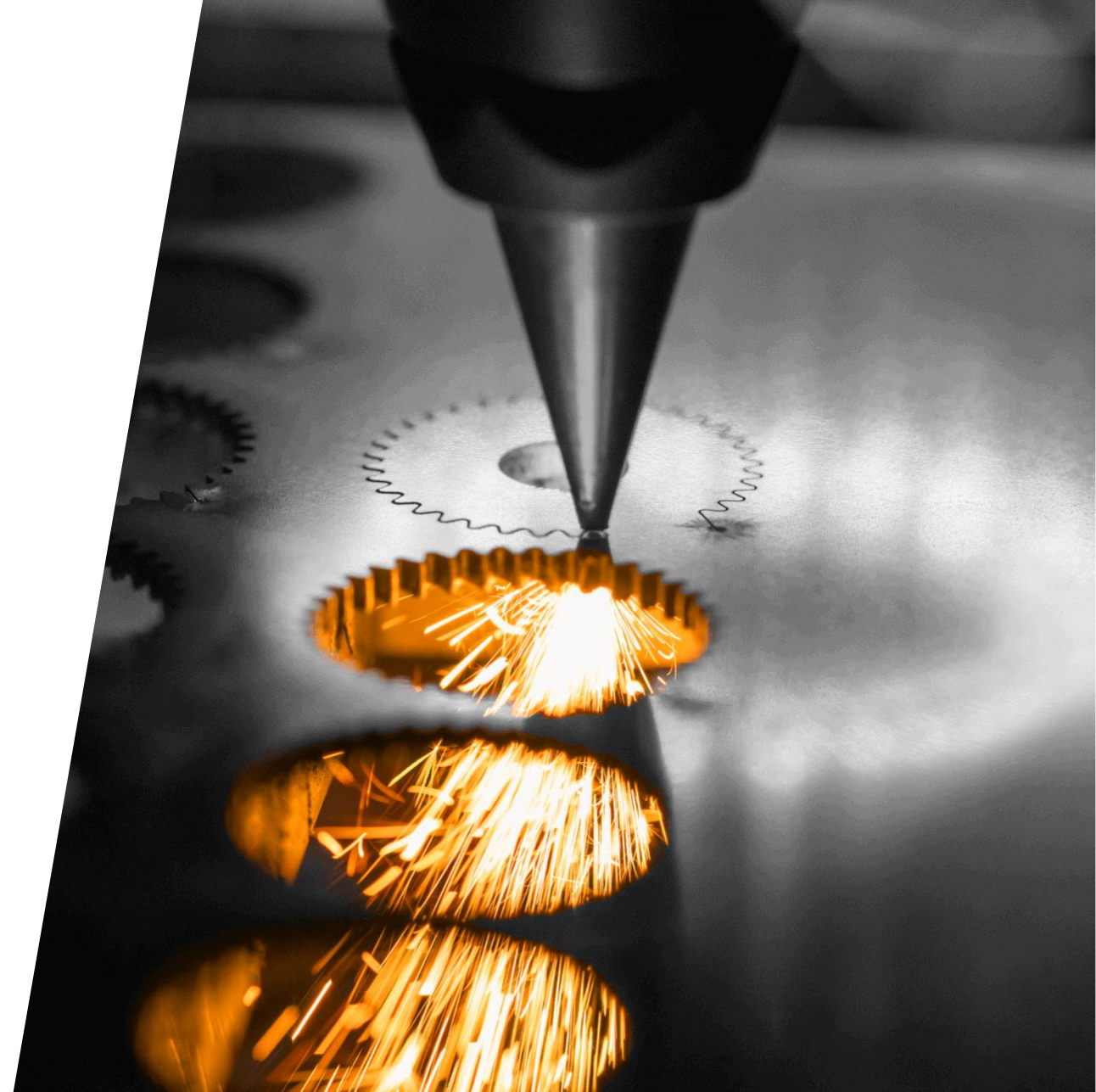
LLT Applikation GmbH

Laser systems

Laser job shop

Applications

Quality



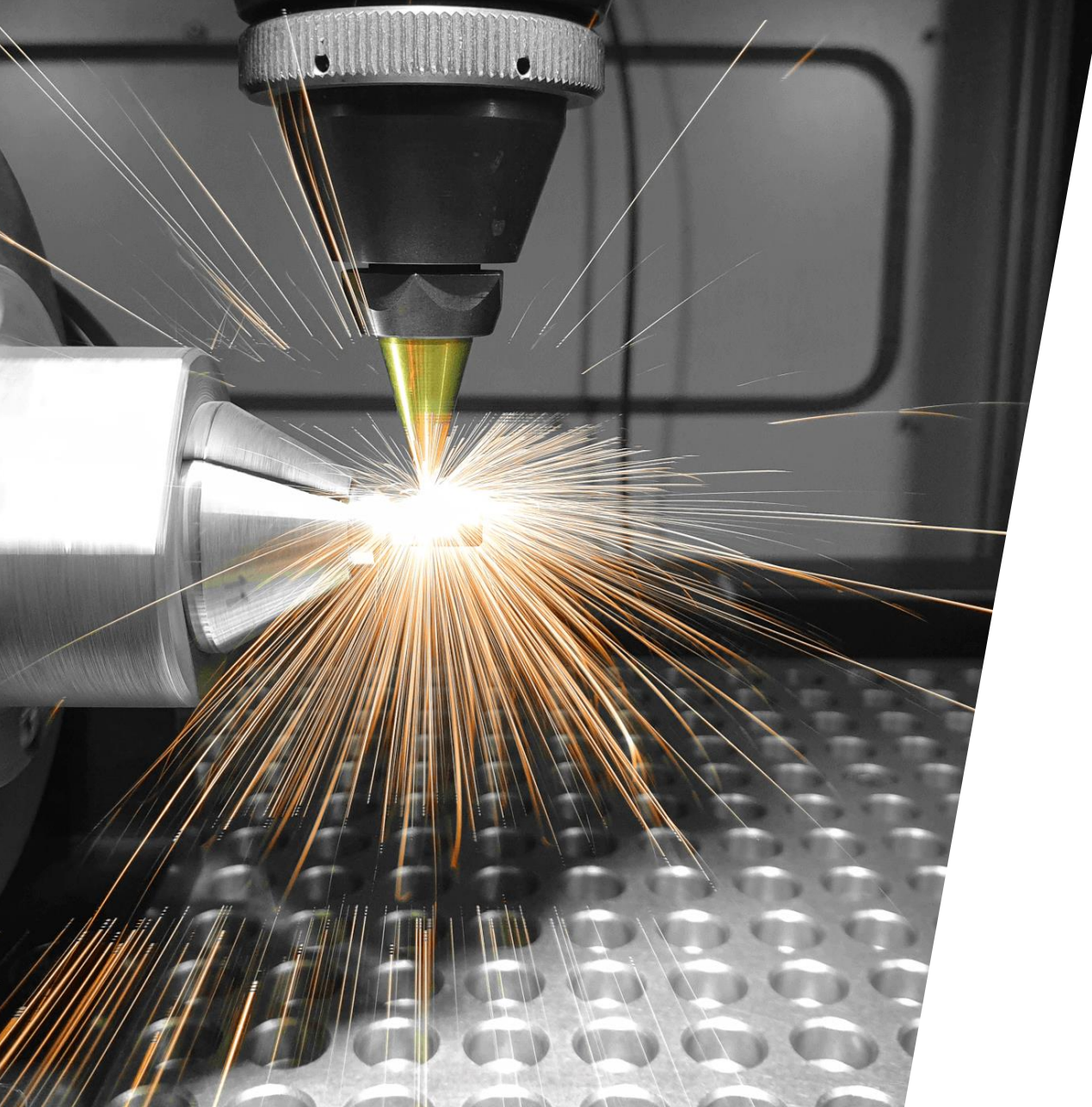


LLT Applikation GmbH

Company

- Experts for laser micromachining since 1997
- Based in Germany
- Independent and family-owned
- 50 employees
- Serves customers across europe
- 150 machines in the market





Portfolio

One Stop Shop: From consulting to customised manufacturing solution

- Design and production of machines for laser micromachining
- Contract manufacturing of precision components



Industries

- Medical technology
- Micromechanics (Watch and Jewellery)
- Electronics & Semiconductors
- Others...



Laser Systems

Machine engineering

- 27 years of expertise
- Series machines, everyone customised
- High quality components „Made in Germany“
- Know-how from our laser job shop





LLT.micro

- Cutting, welding, drilling, ablating
- For 2D and 3D components
- Two process heads integrated
- Accuracies up to $\pm 3 \mu\text{m}$
- Femtosecond and fiber laser
- 450 mm * 250 mm * 300 mm (X * Y * Z)
- Material thickness up to 2 mm



LLT.preci

- Cutting, welding, drilling
- For 2D, 3D and tubular components
- Accuracies up to $\pm 10 \mu\text{m}$
- Fiber laser
- 500 mm * 500 mm * 300 mm (X * Y * Z)
- Material thickness up to 4 mm

Video





LLT.tube

- Cutting, drilling, ablation
- For tubular components (Option: 2D)
- Accuracies up to $\pm 3 \mu\text{m}$
- Radial and und Off-axis cutting
- Femtosecond and fiber laser
- 600 mm * 50 mm * 35 mm (X * Y * Z)
- Material thickness up to 1,5 mm
- Tube feeder and wet cutting system



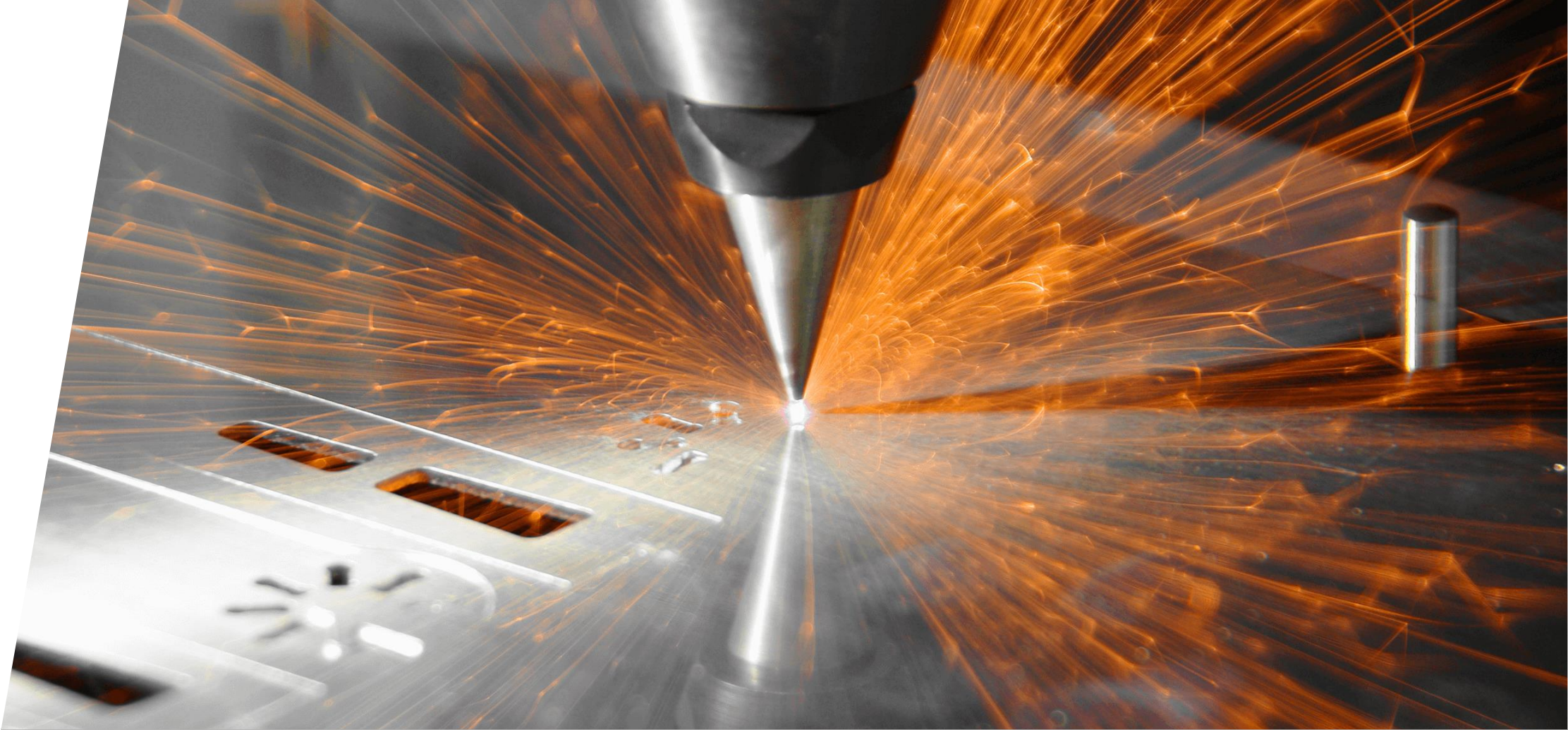


Laser Job Shop

Laser job shop

- 25+ machines for 2D & 3D precision components
- Prototype to high volume production
- micrometer accuracy
- Nearly all materials
- Modern facilities with grey room conditions





Applications

Application examples

Laser cutting 2D



Product: Springs, Levers and gearwheels

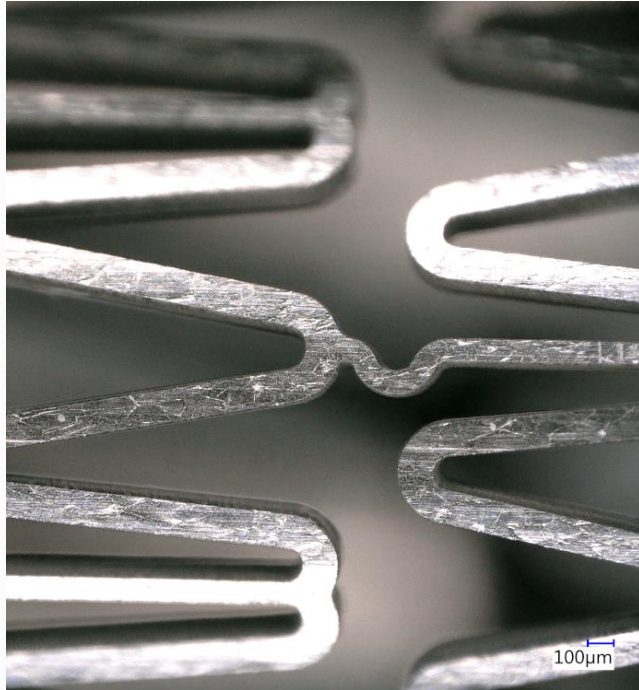
Material: Precious metals, non-ferrous metals, steels

Material thickness: from 0,01 mm to 0,5 mm



Application examples

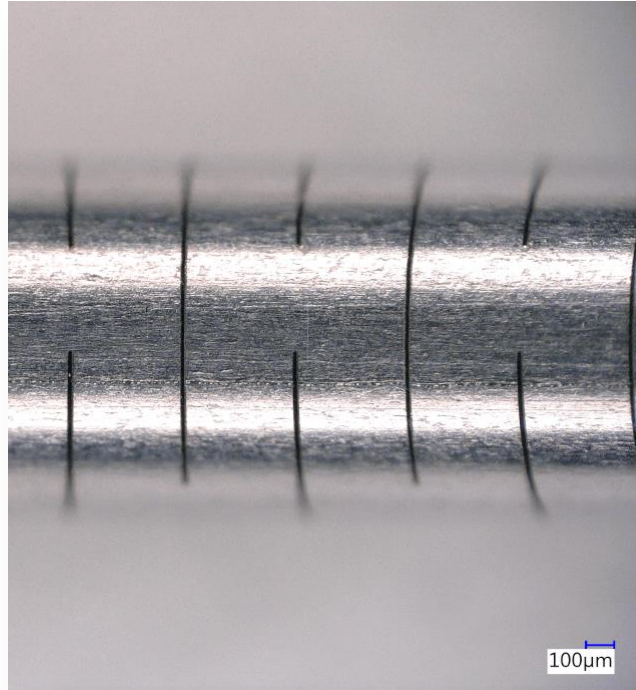
Laser tube cutting



Product: Medical stent

Material: NiTi, CoCr

Material thickness: 120 µm



Product: Hypotube

Material: NiTi, stainless steel

Material thickness: 100 µm



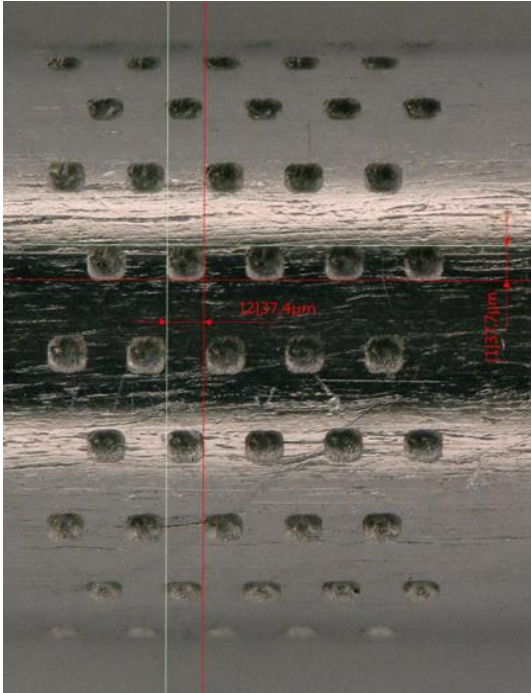
Application examples

Laser tube cutting

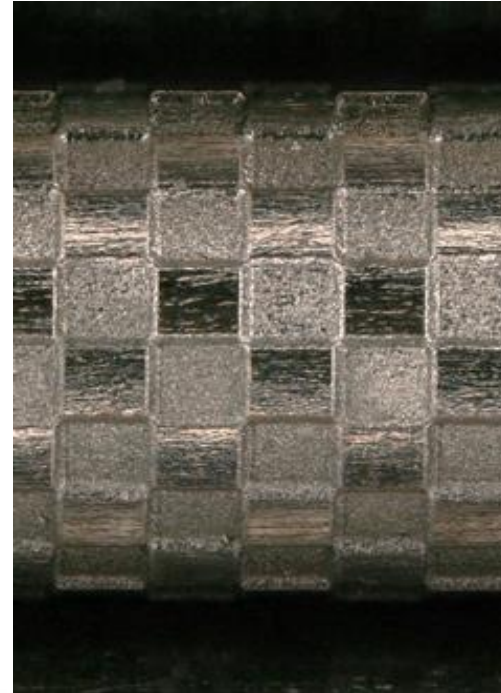


Application examples

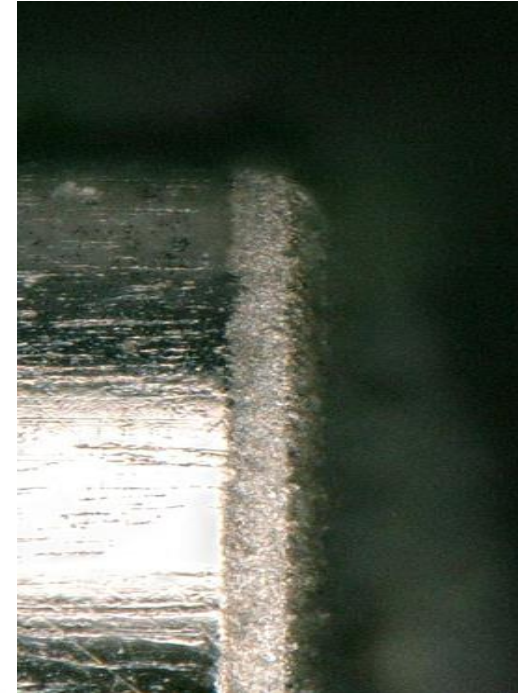
Ablation on tubes



Product: Biopsy needle
Material: NiTi
Material diameter: 0,7 mm



Product: Biopsy needle
Material: NiTi
Material thickness: 80 µm

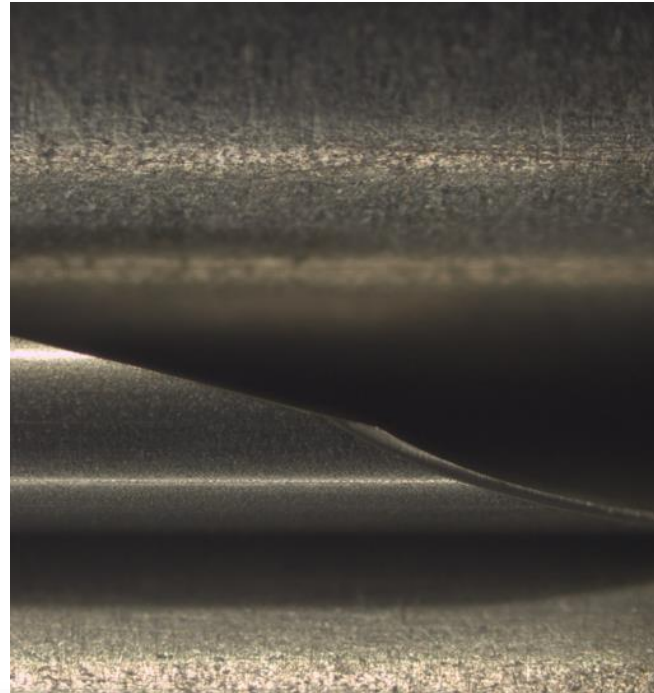
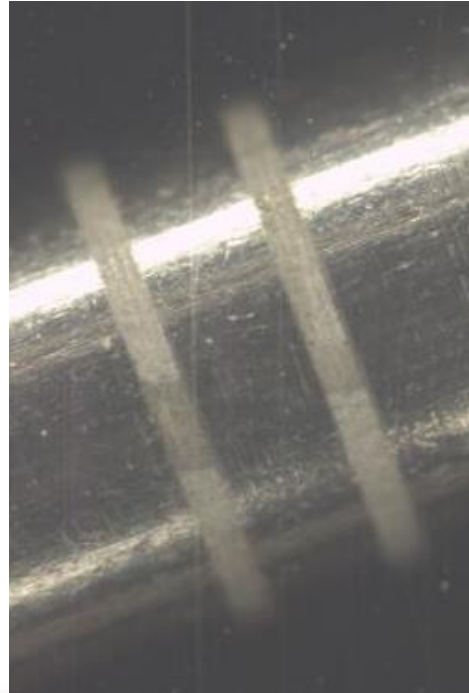
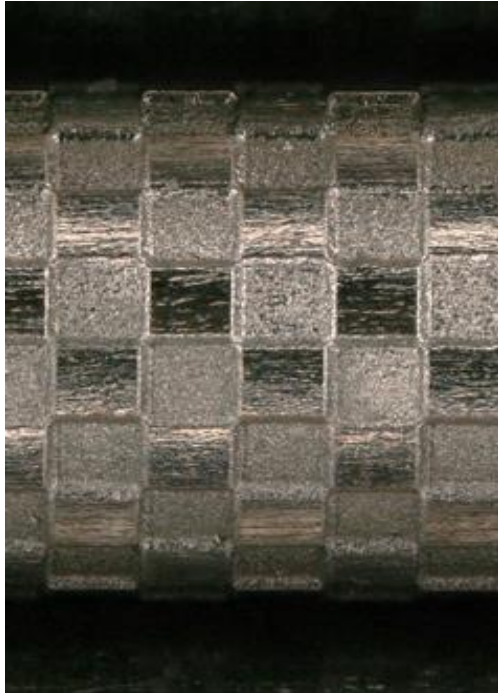


Product: Biopsy needle
Material: Stainless steel
Material thickness: 150 µm



Application examples

Reduction of manufacturing steps



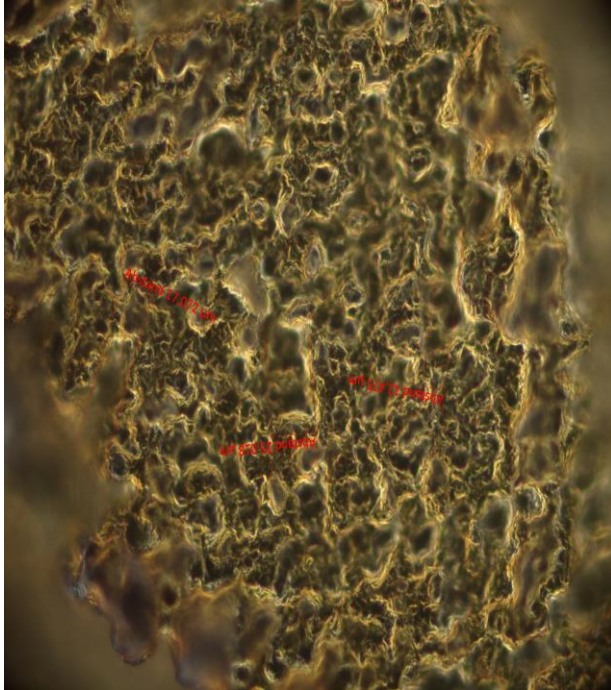
Product: Biopsy needle

Material: NiTi

Reduction of manufacturing steps EC-cutting, grinding, laser marking and sand blasting

Application examples

Laser microstructuring



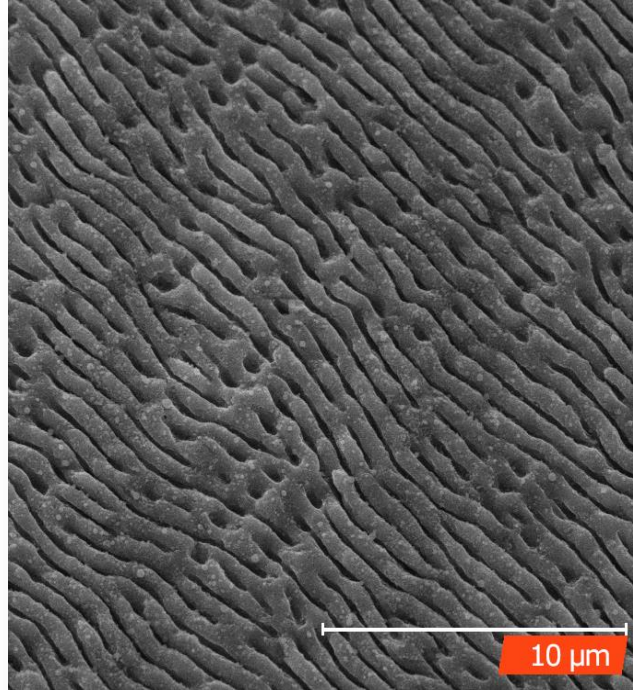
Product: Dial of a luxury watch

Material: Brass

Purpose: Surface polishing of 3d-shape

„swiss alps“

www.LLT-Applikation.de/en



Produkt: Semiconductor component

Material: Silicon

Purpose: Optimised wetting behaviour



Application examples

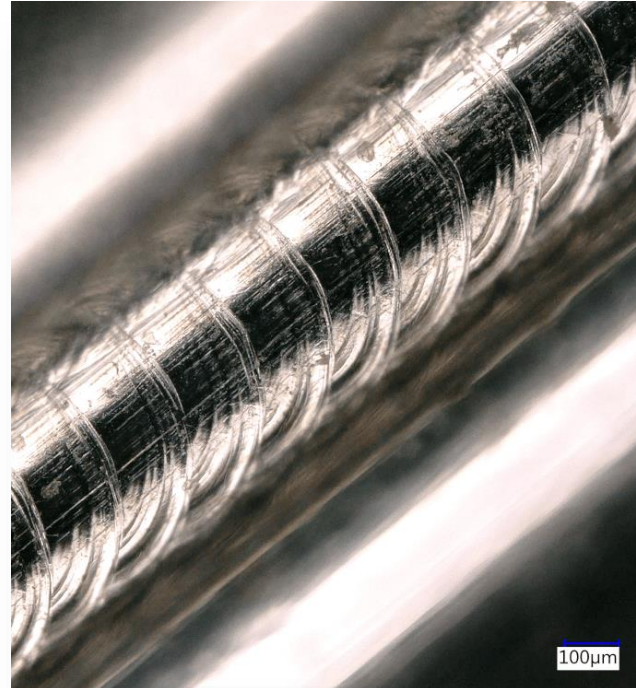
Laser welding



Product: Demonstrator

Material: Stainless steel

Material thickness: 500 µm



Product: Cannula

Material: Stainless steel

Material thickness: 300 µm



Thank you for your attention!

PRECISION TO PERFECTION

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