

# FRAUNHOFER INSTITUTE FOR ENVIRONMENTAL, SAFETY, AND ENERGY TECHNOLOGY UMSICHT



# Ultrashortpulsed Laser for surface microstructuring **USP-LASER**

# Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT

Osterfelder Strasse 3 46047 Oberhausen, Germany

Dr.-Ing. Ilka Gehrke

Head of Department
Photonics and Environment
Phone +49 208 8598-1260
ilka.gehrke@umsicht.fraunhofer.de

Dennis Schlehuber, M. Sc.

Photonics and Environment
Phone +49 208 8598-1193
dennis.schlehuber@umsicht.fraunhofer.de

www.umsicht.fraunhofer.de

You want to bring finest structures on materials and come up against limiting factors with the mechanical machining methods?

As required, we provide high precision micro textures on large surfaces and on almost all materials.

### Keywords

- Machining of almost all materials
- Removal, engraving, cutting, drilling
- Microstructures up to 1 µm resolution
- Laserdrilling up to 10000 holes per second

### **Industrial sectors**

- Sample production: production and machining of components from metals, stainless steels, ceramics, glasses and polymers
- Feasibility studies
- Development and implementation of machining processes and prototypes
- Market study
- Comprehensive analysis



- 1 Confocal microscope
- 2 Laser microsieve

# **Technological specifications**

### Laser parameters:

- Wavelength 343 nm
- Average power 5 W
- Pulse length 10 ps
- Traveling distance 640\*440 mm²
- 3 axes + rotation axis

# Labor analysis:

- 3-D-optical measurement
- Scanning electron micrograph (SEM)
- Zetasizer

# Our service

- Sample production: production and processing of components made of metal, stainless steel, ceramics, glass and polymers
- Feasibility studies
- Development and implementation of machining processes and prototypes
- Market studies
- Comprehensive laboratory analytics

# Your benefit

- Access to specialized and expensive processing equipment
- Customer-specific solution
- High quality of components

