

Etching - Controlled ablation

Layer by layer material removal



ALPhA **NOV**

Optics & Lasers Technology Center

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Layer by layer material removal

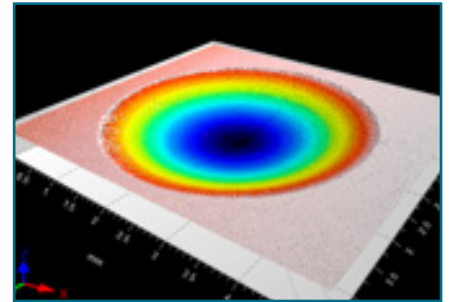
Laser engraving is carried out by removing material layer by layer to obtain a 2D or 3D effect on all material types.



Ceramic engraving (zirconia)



Etching composite material



Metal engraving - isometric view



BENEFITS

- Controlled ablation up to a few μm depth
- 3D part machining



PERFORMANCES

- Roughness less than a few μm
- Tolerance of a few μm
- Accuracy of a few μm



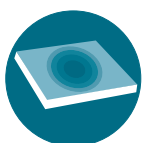
THROUGHPUT

Variable depending on the material and the pulse duration: on the order of a few $\text{mm}^3.\text{min}^{-1}$



LASER WORKSTATION

- IR, green or UV laser
- Femtosecond to nanoscale pulse
- Scanning systems



SURFACE CONDITION

Final surface roughness up to $0.5 \mu\text{m}$



AREAS OF APPLICATION

- Texturing of injection moulds
- Watchmaking
- Stamping tools