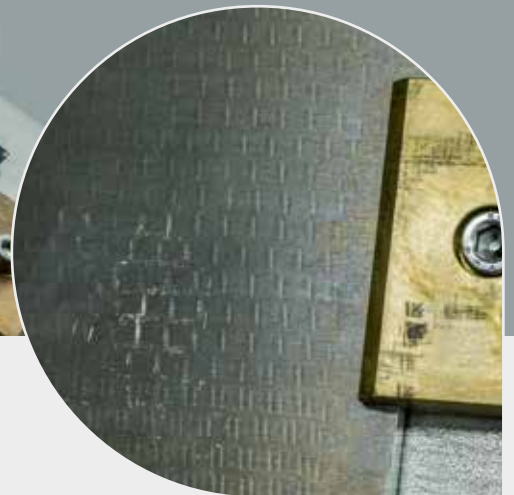
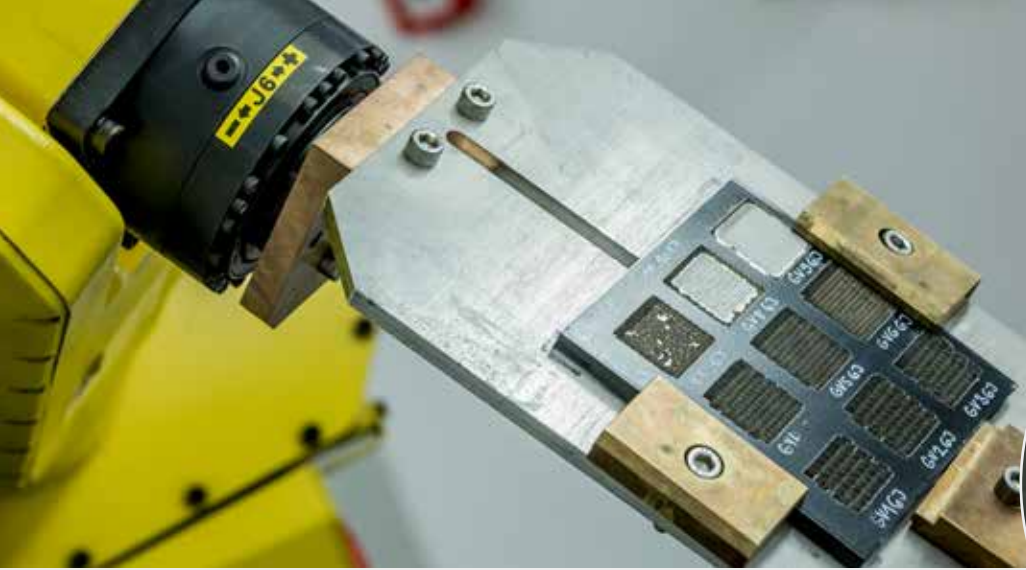




 SUPERLASERS FOR THE REAL WORLD

## LASER SHOCK PROCESSING

Laser shock peening (LSP) is a surface treatment process designed to improve fatigue life of components made of various metals and alloys. The principle of LSP is to use a high intensity laser with suitable overlays to generate high pressure shock waves on the material surface. Fatigue life of components is increased by introducing compressive residual stresses of large magnitudes which prevent surface crack formation and crack propagation. Besides improvements of fatigue life, LSP can also be applied for prevention of stress corrosion, cracking/corrosion resistance and wear resistance. The LSP technology, along with inducing 4 to 5 times deeper residual stress than the conventional shot peening, also tends to produce a better final treatment of surface in comparison with conventional methods. LSP can treat complex surfaces and shapes, and allows a high level of automation.



TESTING OF DIFFERENT PARAMETERS ON VARIOUS MATERIALS

## FEATURES / ADVANTAGES

The BiVOJ laser in HiLASE is a unique tool for the precise treatment of cyclic loaded parts.

- Unique laser parameters (10 J, 10 Hz, 10 ns) with temporal pulse shaping
- Capability of treating components up to 20 kg
- Process control and real time monitoring
- Residual stress analysis

Advantages of LSP compared to conventional shot peening:

- Deeper residual stress by laser
- Higher lifetime
- Precise application and good repeatability
- Treatment of selected areas even on complex geometries

## APPLICATIONS

It is applicable to metallic components such as steel, titanium, aluminum, nickel, alloys, etc., during manufacturing and maintenance.

LSP is already used in the following industries:

- Aerospace and Automotive
- Power and Energy
- Medical
- Heavy duty machines and tools production
- Security and defence

## OFFERED SERVICES

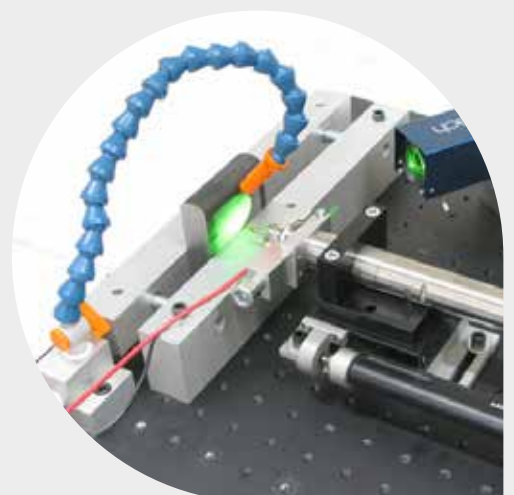
Complex solutions customized to your needs, including:

- Laser development
- Technology development
- Post-process characterization

**For more information please contact: [solutions@hilase.cz](mailto:solutions@hilase.cz)**



SOLUTION FOR COMPLEX PARTS



CHARACTERIZATION OF ARCHIVED MATERIAL PROPERTIES BY VARIOUS METHODS