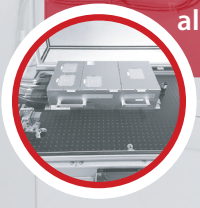
PROMETHEUS

RAPID ULTRA-SHORT PULSE LASER SURFACE TEXTURING TECHNOLOGY

THE NEXT GENERATION IN HIGH POWER ULTRA-SHORT PULSE LASER SURFACE PROCESSING

PROMETHEUS system has a 3-axis Cartesian machine equipped with a head capable of supplying energy to the process.

This machine is made up from profiles and panels in anodized aluminum, with a working volume of 1000 X 750 x 500 mm.



The movement of the gantry is delegated to linear modules consisting of ball screws actuated by servomotors.

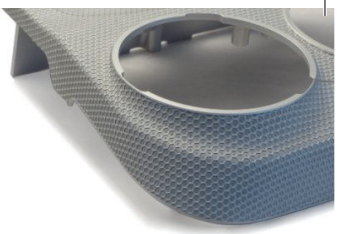
PHOTONICS21

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 825503 – PROMETHEUS and from the "Photonics Public Private Partnership" www.photonics21.org

PROMETHEUS

RAPID ULTRA-SHORT PULSE LASER SURFACE TEXTURING TECHNOLOGY

EXPECTED RESULTS OF END USER CASE STUDIES



ORTHOPAEDIC IMPLANTS

- Surface texturing of medical implants and composites to improve functional outcomes.
- Increased polymer/metal surface energies to improve adhesion and bond strength at material and peri-implant interfaces.

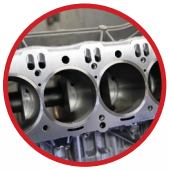
DISHWASHER

- Improve the energy efficiency of dishwasher drying by 4%
- Residual water on the surface of the samples after the drying process has been reduced by 76-78%.

TUMBLEDRYER

- Improve the energy efficiency of tumble dryer heat exchangers by 5%
- The offset of 2538 tonnes of CO2 per year

AUTOMOTIVE CYLINDER PISTON LINER



- Deliver piston cylinder inserts exhibit 30% less blow by and with 40% less friction enabling engines with > 1.1% reduction in fuel consumption
- Reduce friction
- Reduce engine oil consumption
- 257 million litres of fuel saving per year
- The offset of 664 million tonnes of CO2 per year

AUTOMOTIVE HIGH STRENGTH ALUMINIUM PRESSING

- Improve friction and wear of stamping tool for cold forming and reduce the use of lubricant in the process
- Avoid aluminium adhesion on tool
- Reduce friction to increase sheet formability

AESTHETIC CHROME COMPONENTS FOR AUTOMOTION

- Obtain super-hydrophobic textured surfaces on chrime polymer components
- Improve the easy-clean capability
- New changes to the design og the parts

Partners:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 825503 – PROMETHEUS and from the 'Photonics Public Private Partnership' www.photonics21.org

www.prometheus-laser.eu