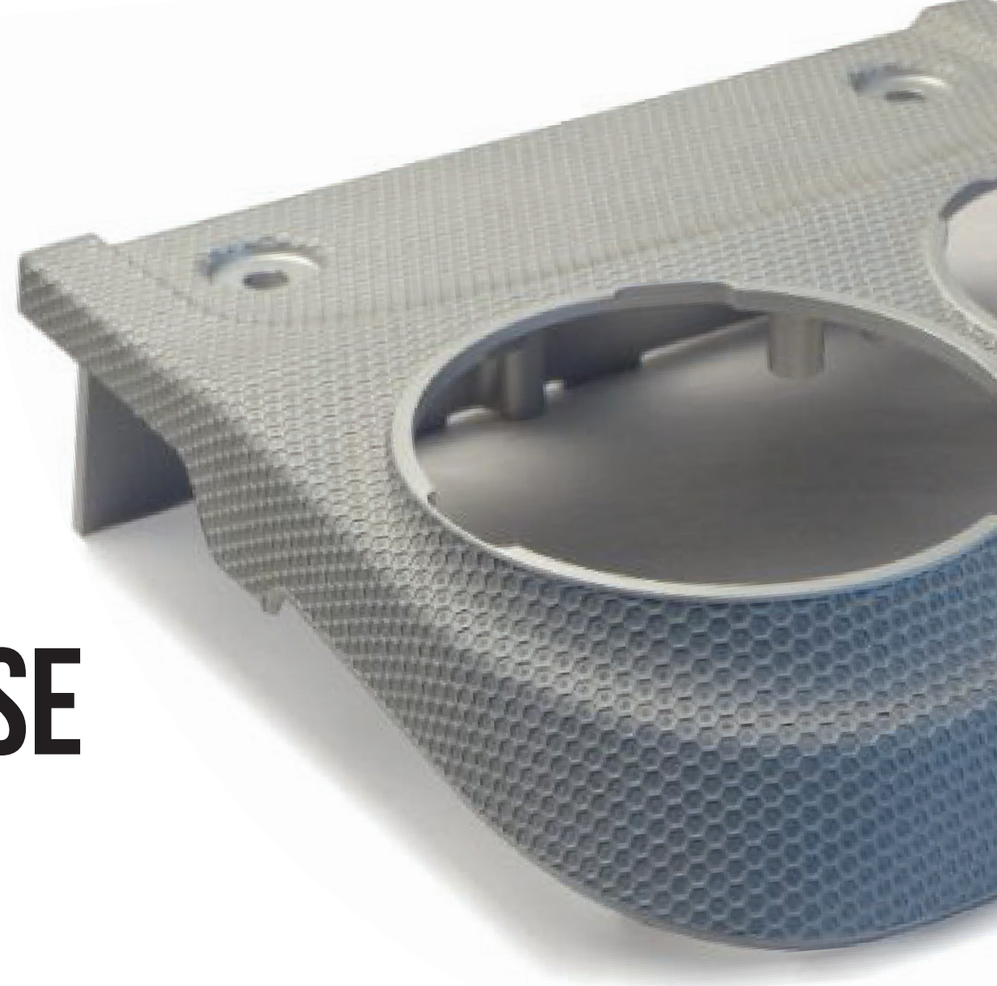
# PROMETHEUS

RAPID ULTRA-SHORT PULSE LASER SURFACE TEXTURING TECHNOLOGY



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

Develop high power ultra-short pulse lasers and the associated optics to enable the precise periodic texturing of surfaces to impart a range of surface functionalities at unprecedented processing speeds.

## OBJECTIVES

- Manufacture textured functional surfaces utilising fewer raw materials
- Improve accuracy, power, and control over existing technologies
- Achieve fast materials processing withprocessing speeds 2-5 $m^2$/min.
- Increase achievable precision
- Minimize heat impact on sensitive materials
- Increase productivity
- Increase achievable flexibility and product customization
- Significantly reduce processing costs

## BENEFITS OF THE PROJECT

- More than 1000 jobs will be created
- An increase of investment in innovation
- Reduction of harmful chemical usage
- High-throughput efficient material removal at up to 5 $m^2$/min.

Technology that can be used on a range of diverse materials like metals / polymers / ceramics and cermets.

Expected results of end user case studies:

### FMCG PACKAGING

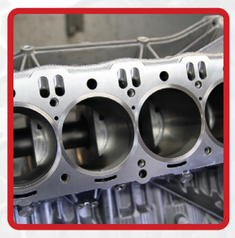
- Improve product evacuation from packaging to avoid overfilling
- Improved customer satisfaction
- Improved sustainability as customers use more product from their purchases

### DISHWASHER

- 26.7 GWh of electrical power saving per year
- The Offset of 11000 tonnes $CO_2$ per year

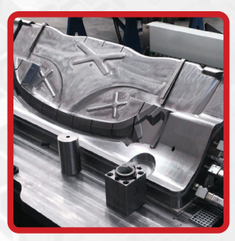
### TUMBLEDRYER

- 6.16 GWh of electrical power saving per year
- The offset of 2538 tonnes of $CO_2$ per year



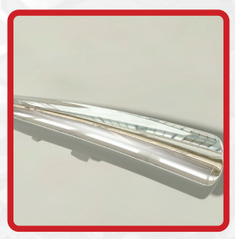
### AUTOMOTIVE CYLINDER PISTON LINER

- 1.1% fuel economy due to reduced friction
- Potential to deliver savings of 49,611 tonnes of $CO_2$ per year



### AUTOMOTIVE HIGH STRENGTH ALUMINIUM PRESSING

- 257 million litres of fuel saving per year
- The offset of 664 million tonnes of $CO_2$ per year



### AESTHETIC CHROME COMPONENTS FOR AUTOMOTION

- Obtain super-hydrophobic textured surfaces
- Improve the easy-clean capability

**www.prometheus-laser.eu**

PHOTONICS21

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