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PolyBright – the New FP7 Project on Extending the Process Limits of Laser Polymer Welding with High-Brilliance Beam Sources

Since last October, 18 partners from 9 countries have been working together in the frame of PolyBright. The aim of the project is to develop high power high brilliance lasers with new wavelengths between 1500 and 1900 nm which are adapted to the absorption properties of polymers. The EC has allocated € 6.6 mio of public funding to this project with an overall budget of € 10.2 mio under the contract number 228725.

The objective of PolyBright is to provide high speed and flexible laser manufacturing technology and expand the limits of current plastic part assembly. New laser polymer joining processes for optimized thermal management in combination with wavelength adapted polymers and additives will provide higher quality, high processing speed up to 1 m/s and robust manufacturing processes at lower costs. Key innovations of the PolyBright project are high brilliance mid-IR-wavelength fibre and diode lasers with powers up to 500 W, high speed scanning and flexible beam manipulation systems, such as dynamic masks and multi kHz scanning heads.

The project covers the whole process chain for laser based plastic part assembly and includes laser companies, optics suppliers, material and processing specialists as well as machine suppliers. The developed machine equipment and the new laser process approaches will be validated by end users from medical, consumer goods and automotive industry.

With this initial step, PolyBright will forge new paths in processing of advanced plastic products overcoming the quality and speed limitations of conventional plastic part assembly. PolyBright will thus open new markets for laser
systems with a short-term potential of several 100 laser installations per year and a future much larger market share in a multi billion plastic market. PolyBright will hence establish a comprehensive and sustainable development activity on new high brilliance lasers that will strengthen the EU’s laser system industry.

Please find more information under www.polybright.eu

Captions:
Laser polymer welding: a versatile process for high quality assembly in many industrial applications.
Picture 1: Fluidic parts
Picture 2: Pump housing
Picture 3: Sensor housing
Picture 4: Filters
Picture 5: Key systems
Picture 6: Medical products
Source: Fraunhofer ILT.

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