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Diversity of systems for laser-based material processing – Fraunhofer IWS Dresden participates at LASYS 2016

From 31. May to 2. June Fraunhofer IWS Dresden will present at the International trade fair for laser material processing LASYS in Stuttgart innovative technologies and systems capable for integration into industrial production processes. An emphasis is laid on the long-standing systems COAXn und COAXwire for powder and wire deposition welding. For the first time the recent development COAXwire2016, which is operational also in combination with a diode laser, will be presented. This development is convenient for the processing of flux cored wire and thus offers an even broader spectrum of applications as its forerunner.

Laser-based coating processes play a key role in modern manufacturing and repair processes. The requirements towards functionalization of surfaces, repair and design change of durable and complex components as well as the generative manufacturing of customized components are extremely diverse. Fraunhofer IWS responds to these requirements with an impressive number of variable and tailored laser processing heads. The modular systems COAXn and COAXwire will be presented at Stand C31 in Hall 4. These systems take in consideration form and size, strain, construction material, productivity and profitability of the component and represent the basis for numerous solutions in the industrial manufacturing process designed to user specifications.

Customers will be supported in the development of their technologies and the characterization of components, as a matter of course, by the researchers from Dresden. The area of coating encompasses the span from deposition of single traces of 30 µm with 20 W-lasers to coating of big surfaces of up to the square meter area with up to 20 KW laser power. A variety of metallic materials (steel, titanium, nickel, cobalt, copper-based materials) and carbide-like alloys (wolfram or titanium carbide with different binder materials) have been already processed and evaluated.

Alongside COAX systems for deposition welding, IWS offers in different laser processes tried and tested system engineering for the temperature-controlled process monitoring and regulation (e.g. for laser hardening processes as well). An industrially applicable facility for high speed laser structuring of component surfaces in the area of micro- and submicrometers offers the possibility for an advantageous manipulation of the mechanical, biological or as well the optical features of component surfaces.

At LASYS Fraunhofer IWS presents as well process developments for difficult-to-weld and non-weldable materials, such as laser welding of die-cast aluminum. The offer according cross-cutting issues and research topics is completed by the laser beam cutting technology for metals, non-metals, as well as for reinforced composites and the implementation of highest cutting speeds at improved cutting edge quality due to remote processing.



COAXwire optical equipment for deposition welding and additive manufacturing
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Laser beam cutting of die-cast aluminum components
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