PRESS RELEASE

LASER World of Photonics China: Expertise, Tools and Processes from Aachen

At the LASER World of Photonics China, which will be held in Shanghai from March 15 to 17, 2016, the Fraunhofer Institute for Laser Technology ILT and Laserfact GmbH will be presenting laser tools and sample applications for joining, separating, deposition welding, and material ablation using ultrafast lasers. A presentation by Fraunhofer ILT scientist Christian Fornaroli will also explore the application possibilities of these extremely fast beam sources.

A trio of trade fairs all kicking off on the same date – March 15, 2016 – at the Shanghai New International Expo Centre (SNIEC) will also be a special event for China: electronica China, productronica China, and LASER World of PHOTONICS CHINA. At Asia's leading trade fair for the full range of photonics products, Fraunhofer ILT is presenting four technical product highlights and a wealth of application know-how.

Multi-beam optics and combination head: speed and flexibility thanks to laser technology

"The four laser processing heads we're exhibiting are a definite highlight," explains Christian Hördemann, scientist at Fraunhofer ILT. Multi-beam optics are designed for use on ultrafast lasers. Thanks to the splitting of the beam into over 196 single beamlets, they permit processing speeds of several hundred structures a second. They are suitable for traditional surface structuring processes as well as for drilling, cutting, and other applications.

Another highlight is bringing previously unimagined productivity and quality advantages to the sheet metal industry while also offering maximum flexibility. Laserfact's innovative combi-head unites cutting, component measurement, and welding in a single process chain, with one machine and one processing tool. Invented at Fraunhofer ILT, this technology is used for cutting strip ends to length and welding them in steel industry coating and inspection lines as well as in the manufacture of high-precision metal assemblies. Additional functionalities and fields of application of the latest combi-head generation will also be unveiled at the trade fair.

Editorial Notes
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Between helical cutting and additive manufacturing

The third exhibit is guaranteed to make heads turn: the HelicalOptic v6 cutting head. Hördemann describes it thus: "A rotating laser beam moves in a circle like the Moon around the Earth. This rotation of the laser beam makes it possible to drill high-precision holes. When this drilling motion runs in a machine tool with a feed, helical drilling becomes helical cutting."
In Shanghai, Fraunhofer ILT is also presenting a processing head for laser metal deposition. The process developed in Aachen has already proved its worth at well-known companies, where it has been used for near-net-shape repairing and for the manufacture of turbine components. It involves a laser beam melting a small part of the substrate and converting the powder into a fusion-bonded layer.

Ultrafast lasers on the rise

Ultrafast lasers are suitable in particular for precise applications that go easy on material – from drilling holes in printed circuit boards to processing diamonds. On March 16, 2016, Fraunhofer ILT scientist Christian Fornaroli will be discussing the possibilities for using ultrafast lasers in industrial manufacturing. In his presentation "Using ultrafast lasers for industrial applications: combining both excellent quality and high throughput" at the Shanghai New International Expo Centre (SNIEC), he will show how users can get the most out of the special characteristics of ultrafast lasers – excellent quality and high productivity.

Practical examples of ultrafast laser applications

The presentation is complemented by a variety of process examples drawn from industrial practice, which scientists will be explaining in detail at the Fraunhofer ILT stand. These range from laser-structuring tools and processing CFRP (carbon fiber reinforced plastic) components, to special solutions for the manufacture of batteries and solar cells. The latter case, for example, involves the industrial roll-to-roll production of solid-state lithium batteries or solar modules using thin-film technology.

Fraunhofer ILT at LASER World of Photonics China in Shanghai

If you are interested in these subjects, you will find a wealth of useful information at the Fraunhofer ILT's stand 4240 in hall W4 from March 15 to 17, 2016.

Picture 1:
The laser combi-head cuts, measures and welds metallic assemblies without tool change.
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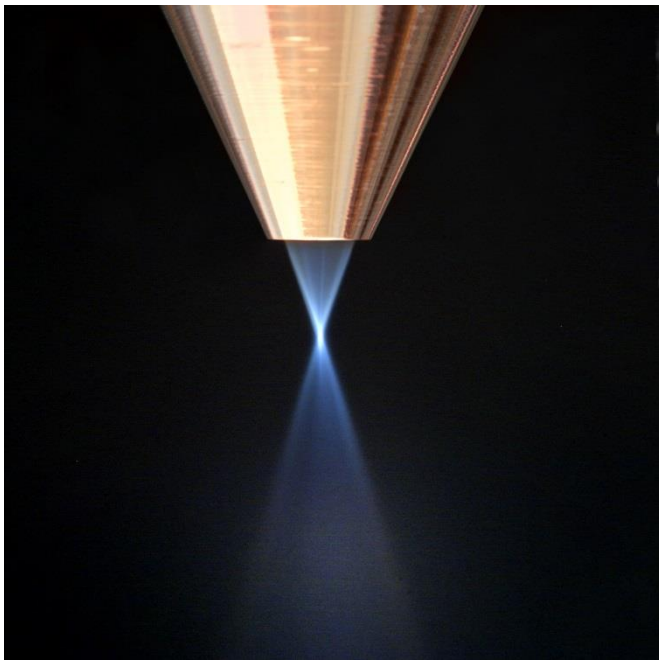

Picture 2:
The powder nozzle generates and focuses the precise powder jet used for laser metal deposition.
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