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Press release

LASER World of PHOTONICS

Laser revolution in manufacturing on the advance

Whether additive manufacturing, lightweight carbon production or machining of high-strength steel and hardened glass, lasers are paving the way towards new material and process worlds. The industry will meet in Munich for the leading trade fair [LASER World of PHOTONICS](#) from June 22 - 25, 2015. Exhibitors and leading experts will show on exhibition stands, in [Application Panels](#) and during the accompanying [World of Photonics Congress](#) that the laser revolution in manufacturing is advancing with unabated power.

More and more companies throughout the world are starting to use additive manufacturing: this technology is on the advance in the aerospace, car manufacturing and mechanical engineering industries, as well as at automation specialists and manufacturers of turbines, implants, jewelry and sports equipment. LASER World of PHOTONICS will present the potential and specific applications of this technology in Halls A2 and A3. The World of Photonics Congress, which will be held at the International Congress Center Munich (ICM) from June 21 - 25, 2015, will also focus on the young technology in a separate session.

Experts are still debating whether additive manufacturing will replace or supplement conventional methods. However, other laser processes have long proved their revolutionary potential for industrial production. They are replacing conventional processes in a wide range of industries. Lasers harden, weld, solder, cut, drill, inscribe and structure metals, plastics, glass, ceramics, crystals and many other materials. Their impressive characteristics are hitherto unmatched precision and speed. Unlike mechanical tools, focused light does not create any wear and tear - not even during machining of high-

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strength steels in modern car bodies or hardened glass for smartphones. And by contrast with mechanical processes, heat input into the machined material can be controlled precisely.

Optimized performance and beam characteristics for fast cycles

This proportioned heat input is paving the way towards the use of new materials and new designs. Whether flexible displays, which are initially built up on glass and are then removed by a laser without thermal stress, or the industrialization of the lightweight construction material carbon in automobile and aircraft production, lasers are the material of choice for welding, cutting and drilling carbon fiber-reinforced plastics. There is demand here for "cold" processes since the fibers conduct heat. Heat would creep along the fibers into the component and weaken their bond with the plastic. However, ultra-short pulsed lasers are the key to "cold" but still fast material processing. The performance of picosecond lasers or femtosecond lasers has been increasing continuously for years. The first systems have broken through the kilowatt barrier in laboratory tests. Combined with ultra-high-speed scanners for beam guidance and optimized control technology, they have the potential to reduce current cycle times many times over.

Innovations in all areas - welding, hardening or soldering

The laser revolution in manufacturing is advancing unabated, for example with fast, highly precise remote laser welding in which robots place complex weld seams on car bodies "on the fly" and real-time sensors permanently monitor their position and seam quality. Or selective laser hardening in which heat input is 90 percent lower than with conventional processes. Thin components or certain sections of surfaces can also be hardened precisely using a laser without introduced heat warping them. Another innovation area: energy-efficient, compact direct diode lasers which reach the high single-digit kilowatt range. They are suitable both for hardening and soldering and laser deposit welding. Worn or damaged metal parts are purposefully built up in this case. For this purpose, lasers melt metal powder on the worn or damaged spots.

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Several exhibitors will also present solutions for these additive processes during LASER World of PHOTONICS.

Lasers in manufacturing: key topic during the World of Photonics Congress and in the supporting program

The Lasers in Manufacturing Conference (LiM), which will be staged as part of the World of Photonics Congress from June 22 - 15, 2015, will showcase the latest research trends in laser material processing. In addition to additive manufacturing, the focal points this year will primarily include laser-based applications for machining carbon or carbon fiber-reinforced plastic, as well as material combinations on this basis

The Photonics Forum in Hall A3 will be devoted to the area of "Lasers and laser systems for manufacturing". The Application Panels will provide information on the following topics: "Advanced Applications of Ultra-Short Pulsed Laser Systems", "3D Printing: Laser-Based Additive Manufacturing for Production of Metal Parts", "Ultra-Fast Laser Beam Deflection and Transportation", "Increased Automotive Efficiency Enabled by Laser Technology" and "Laser Processing of Glass".

Under the motto "Next Generation", the special show entitled "Photons in Production" in Hall A2 will show the application areas of lasers in industrial production. The key topics during the live demonstration will range from laser beam welding through to laser micromachining.

This and other press releases and related photos: [here](#)

More on World of Photonics Congress 2015: [here](#)

Photos LASER World of PHOTONICS 2013 and logos: [here](#)

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About LASER World of PHOTONICS

The [LASER World of PHOTONICS](#) is the world's leading get-together of the laser and photonics industry. Europe's largest [World of Photonics Congress](#) will be taking place in parallel with the trade fair. The program comprises five scientific conferences of leading global organizations. Supplementing this [Messe München GmbH](#) will be offering practical lectures on the applications of photonics ("Application Panels"). The combination of trade fair and congress brings together research and application, thereby promoting the use and continued development of optical technologies. In 2013 the trade fair set an exhibitor record with 1,130 exhibitors from 37 countries. A total of 26,582 trade visitors from 72 countries entered the Messe München site.

In 2013 the World of Photonics Congress registered 3,400 participants with an offering of more than 2,800 lectures and presentations including poster presentations.

The LASER World of PHOTONICS has been organized every two years by Messe München International since 1973; the next event will take place in Munich from 22-25 June 2015, the next World of Photonics Congress will take place in parallel from 21-25 June 2015 in the ICM - International Congress Center Munich.

About the LASER World of PHOTONICS global network

The LASER World of PHOTONICS has developed an international network. The [LASER World of PHOTONICS CHINA](#) and the [LASER World of PHOTONICS INDIA](#) are leading regional trade fairs for optical technologies and are staged annually in China (Shanghai) or in India (alternating between Mumbai, Bangalore, New Delhi).

Messe München International

Messe München International is one of the world's leading trade show companies. In Munich alone it organizes around 40 trade shows for capital and consumer goods, and key high tech industries. Each year more than 30,000 exhibitors and around two million visitors take part in the events held at the Messe München exhibition center, the ICM – International Congress Center München, and in the MOC Veranstaltungszentrum München.

The leading international trade fairs of Messe München International are all independently audited.

In addition, Messe München International organizes trade shows in China, India, Turkey and South Africa. With a combination of affiliates abroad – in Europe, Asia and in Africa – and over 60 foreign representatives actively serving over 100 countries, Messe München International has a worldwide business network. The Group also takes a pioneering role as regards sustainability: It is the first trade-fair company to be awarded energy-efficiency certification from the technical inspection authorities TÜV SÜD.

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