Munich, January 29, 2019

Press Release

Barbara Kals
PR Manager
Tel. +49 89 949 21473
Barbara.Kals@messe-muenchen.de

LASER World of PHOTONICS 2019

Focus on electro-mobility: lasers and imaging for the drive systems of tomorrow

- World's leading trade fair showcases photonics for a new era of mobility
- Laser processes and optical inline inspection are key technologies for affordable and reliable electro-mobility
- Breakneck global growth to 2030

With electro-mobility and autonomous driving, the automotive industry is pushing forward with two global projects for the future at once. This dramatic change is currently gathering momentum: by as early as 2030, one in every two new vehicles worldwide is slated to be electric-propelled. Laser technology and imaging have a pivotal role in breaking into the mass market. Leading providers will be showcasing the latest solutions for the mobility of tomorrow at the world's leading trade fair LASER World of PHOTONICS in Munich from June 24 to 27, 2019.

LASER World of PHOTONICS 2019 takes a look at two automotive industry global megatrends. Leading laser technology and imaging system providers will demonstrate how their solutions are contributing to the efficient mass production of electric vehicles and the key role smart sensors play in autonomous driving.

The very fact that from 2019 onward China will be setting an electric vehicle quota of ten per cent for new vehicle registrations is driving a dramatic growth in the world market to more than three million vehicles. Market observers anticipate that by 2025 one in every four new cars worldwide will be electric-propelled. And the forecasts for 2030 are for an electro-mobility market share of between 50 and 75 per cent. This dynamism poses enormous manufacturing challenges for established and new car manufacturers. Manufacturing safe, reliable and

affordable electric vehicles in large volumes requires them to create a new process ecosystem.

Lasers play a key role in battery manufacturing

Lasers are already performing all the welding processes in battery factories and a rapidly increasing number of cutting and structuring tasks. The manufacturing input into the high voltage batteries that are used is enormous. One third of an electric vehicle's added value is accounted for by this process chain alone – considered to be the very nucleus of electro-mobility. Lasers are just as indispensable here as seamless in-line process monitoring. The same is true of the mass production of electric motors, power electronics or lightweight designs.

Providers such as TRUMPF, Coherent|ROFIN, II-VI HIGHYAG, IPG-Laser GmbH or Manz AG provide the laser processes. The important thing here is that the joining and cutting of different metals does not cause any splatter, because this would quickly become a safety risk in battery operation. Moreover, longevity requires absolute accuracy in terms of gas-tight and watertight weld seams. Manufacturers rely first and foremost on fiber and disk lasers and highly flexible process strategies involving variable intensity and focusing of the laser beam.

Optically monitored accuracy for greater safety and long service life

Imaging specialists such as KEYENCE, STEMMER or PCO contribute in-line inspection solutions. These are indispensable in cell manufacturing, because cell service life and operating safety are frequently a question of nanometers and micro-meters. Sensors measure electrode thickness, monitor the homogeneous distribution of active materials, and control all the rolling, drying, cutting and welding processes, enabling production defects and deviations in tolerances to be immediately rectified. The danger if they go undetected is expensive scrappage, because more than three quarters of the cost of a lithium-ion cell goes on material and process costs.

Laser and imaging technologies also provide the necessary accuracy and flexibility for the production of millions of electric motors, power electronics and

lightweight components, or 3D-printed metals and plastics. Laser-welded hairpins are replacing costly windings in electric motors. Laser-cut electrical sheets offer clear advantages compared with mechanically machined sheets in the variable production of different types of motor. And last but not least, lasers play a key role in bionic lightweight construction involving additive processes or fiber composites. In a nutshell: the efficiency and range of electric vehicles, and their affordability as well, stands and falls in each case with photonics solutions.

Photonics is the enabler of automated driving

In a current compendium, the McKinsey Center for Future Mobility declares 2018 to be the pivotal year for the automotive industry. This sector, it says, in the electro-mobility and autonomous driving arenas alike, has transitioned from the planning phase to implementation – accompanied by massive investment. Photonics provides the technological backbone of automated driving. Camera and radar sensors, and, ever more frequently, laser-based LiDAR (light detection and ranging) systems are replacing human drivers' sensory perception – being superior to it especially at night and in difficult weather conditions. As optical sensors generate volumes of data in the terabyte range every hour, the trend is towards intelligent sensor systems that perform their own data analysis in deciding which data to forward to the on-board computers. Photonics is again the enabler here, because the necessary computing power in the most confined of spaces, allied with efficient data transmission would be completely unthinkable without laser technology and optical inspection in the semiconductor industry.

Trade fair and Congress showcase future mobility technologies

Alongside numerous exhibitors at the trade fair, the World of Photonics Congress and various application panels are focusing on enabling technologies for future mobility. Be it laser machining and additive manufacturing at LiM 2019 - Lasers in Manufacturing, inline inspection at Imaging and Applied Optics or optical metrology and digital optical technologies at the Optical Metrology and Digital Optical Technologies conferences. And visitors can also find out about the up-and-coming LiDAR technology at an application panel where experts from

exhibitors such as Jenoptik will give an introduction to the technology and showcase concrete applications.

Further information, interviews, trends and topics can also be found in the photonics industry portal, the information platform for photonics.

About LASER World of PHOTONICS

The LASER World of PHOTONICS is the world's leading platform for 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 a variety of scientific conferences of leading global organizations. Supplementing this Messe München GmbH will be offering practical lectures on the applications of photonics ("Application Panels"). In 2017 the trade fair set an exhibitor record with 1,293 exhibitors from 42 countries. More than 32,000 trade visitors from 90 countries entered the Messe München site. The World of Photonics Congress registered around 3500 participants, with around 3,000 lectures and presentations including poster presentations on offer. The LASER World of PHOTONICS has been organized by Messe München International every two years since 1973; the next event will take place in Munich from June 24–27, 2019, the next World of Photonics Congress will take place in parallel from June 23–27, 2019 in the ICM - International Congress Center Munich.
www.world-of-photonics.com

About the LASER World of PHOTONICS global network

The LASER World of PHOTONICS has developed an international trade fair network. The LASER World of PHOTONICS in Munich is the world's leading laser and photonics trade fair and as the innovation pacemaker is where the global photonics industry gathers every two years. The LASER World of PHOTONICS CHINA and the LASER World of PHOTONICS INDIA are leading regional trade fairs for laser and optical technologies and are staged annually in China (Shanghai) and in India (alternating between Bengaluru, Mumbai, Bangalore and New Delhi). With these trade fairs in Munich, China and India, Messe München is the world's leading trade fair organizer for lasers and photonics.

Messe München

Messe München is one of the leading exhibition organizers worldwide with more than 50 of its own trade shows for capital goods, consumer goods and new technologies. Every year, a total of over 50,000 exhibitors and around three million visitors take part in more than 200 events at the exhibition center in Munich, at the ICM – Internationales Congress Center München and the MOC Veranstaltungscenter München as well as abroad. Together with its subsidiary companies, Messe München organizes trade shows in China, India, Brazil, Russia, Turkey, South Africa, Nigeria, Vietnam and Iran. With a network of associated companies in Europe, Asia, Africa and South America as well as around 70 representations abroad for over 100 countries, Messe München has a global presence.