

Image Captions and Copyrights, Article "Laser Symposium on Electromobility LSE'21: Electrifying Inspiration from Aachen"

Portrait images:

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- Image 2: Thibault Bautze. ©Blackbird Robotersysteme GmbH, Garching.
- Image 3: Dr. Reiner Ramsayer, Chief Expert Joining Technology (Group Manager Laser Material Processing) at Robert Bosch GmbH in Renningen, Germany: "Because there are a very high number of welds per component, reliability is a very important issue. After all, in electrification we need cost-effective laser processes that are fast, precise and spatter-free." ©Robert Bosch GmbH.
- Image 4: Jeffrey Hill. ©F&K Delvotec Bondtechnik GmbH, Ottobrunn.
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- Image 9: Christian Otten. ©LaVa-X GmbH, Herzogenrath.
- Image 10: Mauritz Möller, Automotive Industry Manager, TRUMPF Laser- und Systemtechnik GmbH, Ditzingen, Germany: "Cost-effective solutions are now more in demand than lightweight construction. " ©TRUMPF GmbH + Co. KG.

Images article:

- Image 1: Audi is proud of the laser remote welding process it uses for the A8 aluminum door; according to the automaker, it was the first time the process had been carried out anywhere in the world. ©Audi AG.
- Image 2: ©Audi AG.
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- Image 4: An additively manufactured strain gauge on a metal component using printing and laser processes (including wireless telemetry from i4M technologies). ©Fraunhofer ILT, Aachen.
- Image 5: Laser-treated heat conductor tracks printed on glass fiber mats before further processing into a FRP component. ©Fraunhofer ILT, Aachen.
- Image 6: For Dr. Jan-Philipp Weberpals (left), who is responsible for strategic overall planning of laser beam technology at Audi AG in Neckarsulm, the laser is an operating tool that can take on several tasks. ©Audi AG.
- Image 7: Selective gold contacts on a metal component made with printing and laser processes. ©Fraunhofer ILT, Aachen.

- Image 8: Battery electrode layer applied to copper foil and laser dried. ©Fraunhofer ILT, Aachen.
- Image 9: Laser cleaning of solder pads. ©Fraunhofer ILT, Aachen.
- Image 10: Apart from the usual infrared beam sources, green and blue lasers are being used increasingly due to the higher absorption of copper. ©TRUMPF GmbH + Co. KG.
- Image 11: ©TRUMPF GmbH + Co. KG.
- Image 12: Intelligent, high-resolution scanner technology is also in demand for laser welding in electromobility, enabling the distance to the workpiece to be measured, the component position to be detected and the process to be monitored in real time. ©Precitec
- Image 13: Automobile manufacturers are increasingly relying on hairpin welding with blue or green lasers, a laser-based process that is now fully automated, very productive and of high quality without creating spatter. ©TRUMPF GmbH + Co. KG.