

EALA 2020 – European Automotive Laser Applications

21st European Expert Conference

E-mobility is finding its way into automobile production and requires lightweight construction and innovation in the production steps

Under the motto "Lasers go e-mobile", around 180 trade visitors from the automotive industry met in Bad Nauheim on February, 11th and 12th, 2020. New developments in laser-based production technology for car bodies, battery cells, battery housings and electric motors were presented. hema presented itself at this meeting place of engineers and developers from the automotive industry from all over the world with the innovative quality assurance system **seelector/CAM Laser**.

seelector/CAM Laser unmask "false friends" – quality assurance in robot welding with laser

The inspection of laser-welded seams in car body construction – especially the reliable connection of the joining partners – is anything but trivial. A challenge for quality assurance.

Laser-welded seams are state of the art in car body construction. Laser welding with robots is extremely fast and economical. It enables considerable weight savings due to narrow welding flanges. Strength is the most important criterion for a weld seam.



Measuring the annealing

The quality assurance system from hema electronic in connection with the 3D scan unit for remote laser welding applications from Blackbird and Trumpf detects the so-called "false friends" (connection errors) by measuring the annealing, which in the case of steel is clearly visible for a few milliseconds after the end of the energy input by the laser on the weld seam. The intensity and spread of the annealing of the seam form the basis for the evaluation of the weld seam.

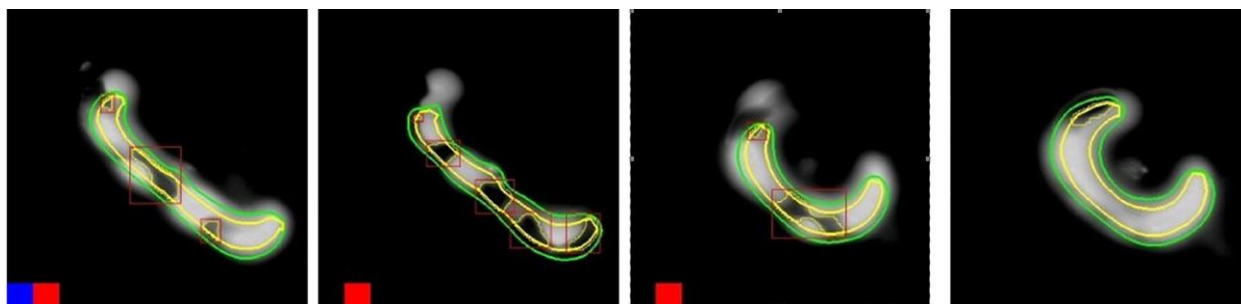
This provides access to the primary characteristics of the weld, which actually provide information about the strength and quality. This enables reliable testing within the production process. The variant of the system for aluminium inspects the weld seams just as quickly and reliably despite the lack of annealing for this material.

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Each weld is immediately inspected and evaluated. After welding the body part, the quality statement is already available when the part is ejected from the robotic cell and determines the further processing.

Perfect integration into the production plant, transfer of test data and detailed data documentation ensure quality assurance in production and subsequent traceability. This is the practical implementation of Industry 4.0. The successful system has proven itself with around 200 applications in automotive production worldwide.



About hema electronic

hema electronic GmbH – the embedded vision expert

hema is a leading development service provider in the electrical industry, providing hardware and software design for embedded vision boards and systems for applications in industrial automation, defence and security. From consulting and conception to design (FPGAs, DSPs, embedded processors), qualifications, rapid prototyping and small series production up to lifecycle management – hema offers everything from one source. hema supports their customers effectively in being the world market leaders of tomorrow.

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