

PRESS RELEASE

Scan System Teaches Robots How to Take Aim

High-power welding with online seam tracking proves its mettle in the automotive industry

Puchheim / Garching (near Munich) – June 13, 2014 – At LASYS in Stuttgart, laser positioning and deflection technology leader SCANLAB AG presents together with its subsidiary Blackbird Robotersysteme GmbH an industry-proven system solution for robot-assisted 3D scanner welding. The system's key advantage lies in how it combines flexible industrial robots with high-dynamics scanners. This combination enables complex on-the-fly welding operations – which means welding during robotic motion – now for the first time with online tracking of position-critical seams. The system has already proven its impressive capabilities in the automotive industry.



Process technology's speed and precision requirements continue to press ahead, particularly in the area of automation. Across numerous sectors, the response is increased reliance on industrial robots for specific operations. Precisely to better harness the strengths of such robots – six degrees of freedom and a large working field of several meters – SCANLAB and Blackbird have developed a system solution that gives

robots speed and highest accuracy in welding. With the *intelliWELD* high-power scan head and the RobotSyncUnit controller as its main components, the system will be presented at Lasys in Stuttgart on June 24-26, 2014. In cooperation with BMW, the system was enhanced for position-critical seams via a coaxial illumination unit and a camera system by Lessmüller Lasertechnik GmbH, and successfully placed into series production.

Practical Test: Fillet Welding of Car Doors

Remote laser welding of galvanized steel surfaces (e.g. car doors) has required creation of a defined gap between the surfaces for degassing zinc. This time-intensive and costly preparatory step can be avoided by switching to alternative joint geometries, such as fillet seams. However, they require a level of precision during laser beam positioning that is unattainable without real-time sensors and control.

"This is precisely where our system solution comes in. We wanted robot-based scanner welding's advantages – high flexibility with maximum efficiency – to also be made

available for position-critical seams," is how Dr. Wolfgang Vogl, CEO of Blackbird Robotersysteme GmbH, explains the concept. "The system's intelligent control technology considers the robot's motion path and positions the scan mirrors in accordance with sensor data to enable not only complex welding operations, but also simultaneous correction of positioning inaccuracies during the motion sequence." For the first time, this technology can meet fillet welding's precision requirements in a remote process. Here, the significant advantage of short process times is further enhanced by intelligent, easily programmable control.

Carefully-Conceived and Focused Down to the Last Detail

The *intelliWELD* scan system's optical design is an essential prerequisite for this achievement. The head offers two ports that can serve as separate inputs and outputs for coaxial sensors – camera monitoring and illumination in this case. Moreover, a prefocus optic is used in place of an objective to attain sharp camera imaging free of chromatic aberration throughout the entire working volume. And maximum transmission of sensor wavelengths is guaranteed.

BMW's industrial application of scanner technology for Mini door fabrication drastically reduced process times, while seam tracking ensured robust and precise welding of front fillet seams. For sure, other auto manufacturing applications can profit from this integrated system solution, too, as can automotive suppliers and any high volume industry requiring precisely-aimed welding of defined seams.

Print-ready images are available for download at www.scanlab.de/en/Archive/picture_library

Upcoming Tradeshows:

At LASYS in Stuttgart on June 24 - 26, 2014, you'll find SCANLAB in Hall 4, Booth C35 and Blackbird Robotersysteme in Hall 4, Booth D33.

About SCANLAB:

With over 15,000 systems produced annually, SCANLAB AG is the world-leading and independent OEM manufacturer of scan solutions for deflecting and positioning laser beams in three dimensions. Its exceptionally fast and precise high-performance galvanometer scanners, scan heads and scan systems find application in industrial materials processing, as well as biotech and medical technology.

For nearly 25 years, SCANLAB has secured its international technology leadership through pioneering innovations in electronics, mechanics, optics and software, as well as the highest quality standards.

About Blackbird Robotersysteme:

A division of the leading scanner system manufacturer SCANLAB AG, Munich-based Blackbird Robotersysteme GmbH is dedicated to the development and production implementation of remote laser processing solutions. Developing high performance control systems and intuitive application software is Blackbird's core competency. In combination with SCANLAB's portfolio of scan heads, Blackbird offers a broad range of pre-integrated scanning solutions for machine integrators and line builders. Blackbird welding solutions are used by automotive OEMs, their suppliers and a variety of other industries.

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