



ROFIN SWS

Scanner Welding System
Highly dynamic and robotically guided

ROFIN SWS

THE PRODUCT

3D-Scanner Welding "on the fly"

The Scanner Welding System (SWS) is a fast beam deflection system used for robotically guided multi-spot welding. The SWS has been specifically developed for connection to the ROFIN fiber laser series.

The fiber laser is integrated into fully automated welding systems in combination with a 3-axis scanner and a robot. Complex shaped 3D components can be welded with the flexibility of the SWS, making it an ideal tool for laser welding in the automotive industry. By coupling all axes of the scanner with those of the robot as a guiding machine, the system commands a total of nine selectable axes.

Regardless of whether we are talking about spot-, circular-, wave- or stitching seams – the seam geometry is freely programmable and can therefore be adjusted to strength and component requirements.

THE PRINCIPLE

Laser:

The high brightness fiber lasers of the ROFIN FL Series with a wavelength in the range of $1\mu\text{m}$ are the heart of the Scanner Welding System. The excellent beam quality allows the efficient use with "dynamic beam" scanner systems such as the SWS.

Scanner:

The Z-adjustment, two rotating deflection mirrors and the focusing device are integrated in the scanner head. The beam of a fiber laser is transmitted to the scanner head via an optical fiber. The scanner allows use of the laser as a highly dynamic flexible tool for material processing and enables fast, precise, fine positioning of the laser spot in the space. For this purpose, the laser beam is positioned quickly, precisely and reliably in three dimensions with the help of moveable mirrors and optical elements.

RobotSyncUnit:

The RobotSyncUnit, which ensures efficient planning and set-to-work, achieves optimum cycle times and offers the ideal solution for programming, controlling and monitoring the SWS. As integrated operating and programming interface, the RobotSyncUnit takes care of an optimized interaction of the robot, scanner and laser. Optional offline programming software allows simple import of CAD data.

THE BENEFIT

- Reduction of non-productive welding times for fast return on investment
- Interactive cycle time optimization
- Simple CAD import of the component's geometrical data
- Graphical user interface with 3D preview of the programmed welding task
- Projection mode for a preview of the seam position on the actual component
- The complete welding task can be prepared by teach-in process
- Offline programming tool RobotMotionCenter (RMC) available as an option
- Fiber coupling using QBH or QD connector

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