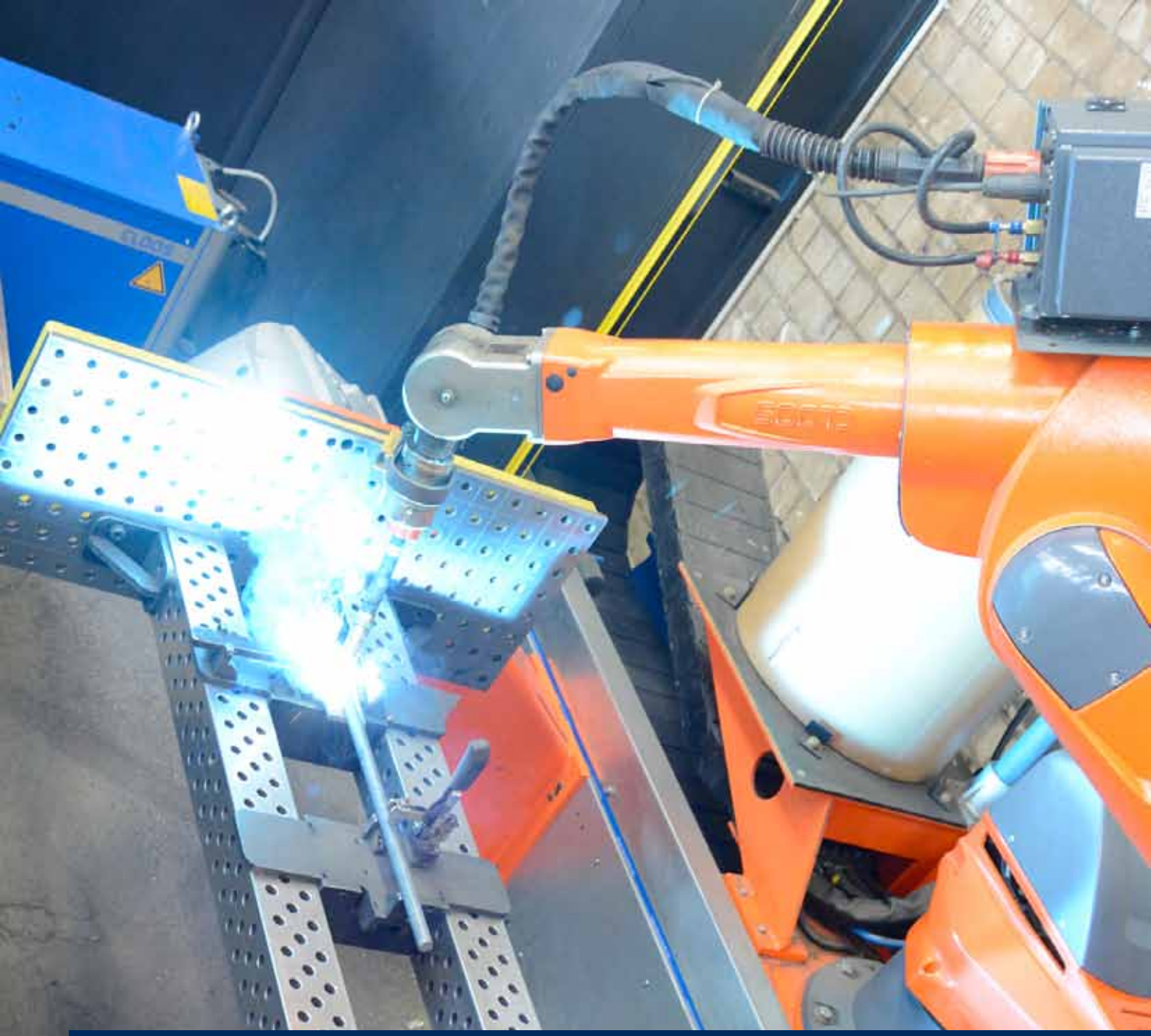

Success Story

Speed, quality and flexibility in focus

Two new robot systems ensure efficient production

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HAIGER/BUCHLOE – For more than 20 years now, Rudolf Hörmann GmbH & Co. KG with head office in Buchloe (Bavaria, Germany) has placed its trust in welding technology from CLOOS. Last year he commercial and agricultural construction and power engineering specialists began operating two new CLOOS robot systems. This has enabled the company to considerably accelerate the production process for various components, whilst at the same time to increase quality and flexibility.

Since being established by Rudolf Hörmann in 1960, Rudolf Hörmann GmbH & Co. KG has posted respectable growth. In the early years, the company specialised in the steel construction sector. This was joined over the years by agricultural & commercial building construction and photovoltaics. About two years ago, Hörmann also included mobile lightweight construction and industrial buildings into the product portfolio, offering users the highest levels of flexibility and mobility. "We support our customers from planning to the turnkey realisation of construction projects", explains Ewald Schunn, Production Manager for Metal Construction at Hörmann. The company now employs more than 600 people in Germany, Austria and Switzerland.

Photo 1: Head office of Rudolf Hörmann GmbH & Co. KG.

Successful collaboration

Trusting collaboration over decades binds Hörmann and CLOOS. "The key benefit with CLOOS is that they provide everything from a single source - starting with the robot, then positioner and now power source", Schunn highlights. PG Schweisstechnik in Kirchberg (Germany), CLOOS sales and service partner of many years, assumes the on-site support role.

Hörmann now has more than 30 CLOOS welding machines in use in different production areas. The first robot system from CLOOS for automated welding entered operation at the company in 1989. It was joined by another robot system in 2007. Last year saw the 1990 system replaced by two new CLOOS systems. Now a QIROX compact cell and a QIROX "All in one" compact system assume the welding work of the diverse components. Recently, Hörmann also invested in a large, used robot system for the automated welding of semi-circular arches for mobile buildings.

"All in one" system with two welding stations

Hörmann is now welding mid-sized workpieces on the new QIROX "All in one" system. All relevant components are positioned on a joint base frame. They are fixed on a base plate so that a fine adjustment is not necessary. The heart of the system is the QIROX QRC-350-E welding robot. The large range of the seven-axis robot both simplifies and speeds up the welding of the partly complex workpieces. While the robot is welding the components on one side, loading or unloading is carried out simultaneously on the other station. The movable counter bearing can be used to adjust the clamping lengths within range 2.5 to 3 metres.

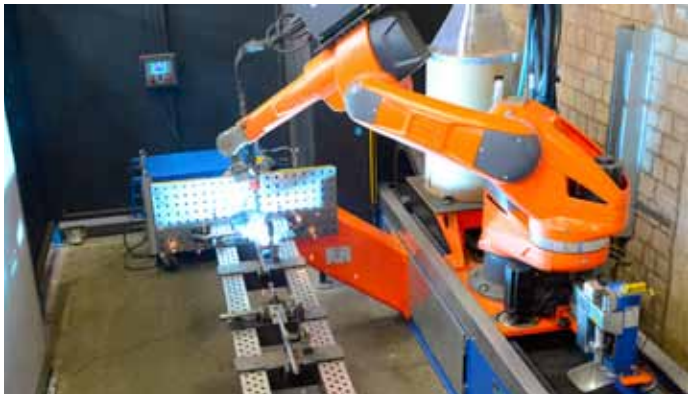

Photo 2: On the "All in one", all relevant components are positioned on a joint base frame.

QIROX compact cell for small parts

The QIROX QR-CC-40 compact cell for welding smaller components has a 2-station workpiece positioner with vertical change and vertical rotation. By means of the rotary axis the station is turned from the loading area to the robot within 3 sec. During this procedure, the loading area is protected by a light barrier and an additional lateral safety fence There is a glare shield between the two stations. The system operator therefore has optimal protection and is able to load a station whilst welding is performed on the other station. All robot and positioner axes are fully synchronised. This provides excellent welding results, reduces the secondary processing times and speeds the entire process run enormously.

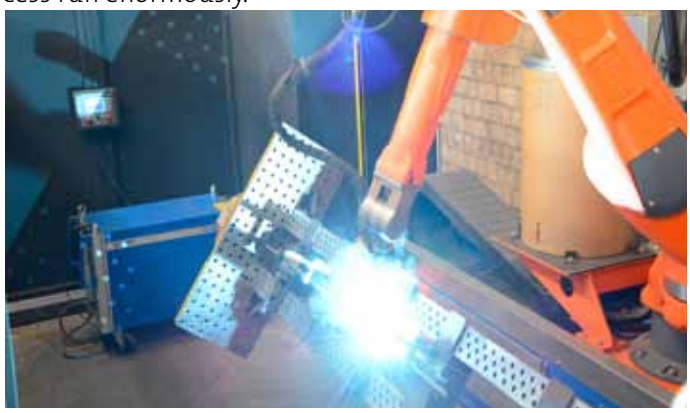

Photo 3: The QIRX QRC-350-E welding robot has 7 axes, thereby greatly simplifying welding of components.

Maximum production flexibility

As "ready to weld" systems, they are fully pre-installed both electrically and mechanically. They could therefore be integrated into the production process quickly and easily.
The flexible clamping system means the systems can work on a number of different components. Currently 50 to 60

part types for example are being processed by the "All in one" system. 100 to 120 different and constantly changing types are planned for the future.

Photo 4: The compact cell welds small parts in particular.

Also, the fixtures can be used flexibly on both systems. "The part change possible between the systems means we can also guarantee our delivery times when one robot is already occupied", explains Schunn. "Before, we had to resort to manual welding in emergencies."

Photo 5: The operator can load one compact cell station whilst welding is performed on the other station on the robot.

Offline-programming saves time

The robot system is programmed offline with the RoboPlan software by CLOOS. During production, a new program can be simultaneously produced in RoboPlan. In the software, 3D models are used to set welding and search paths as well as travelling lengths and tools, for which the weld parameters and other functions required by the program are then defined. The program is then transferred to the robot controller and optimised in the workplace itself.

Quality increase and process reliability

Hörmann is certified to DIN EN 1090 to guarantee the highest of quality standards. Thanks to the new CLOOS systems, Hörmann has been able to raise further still component quality by means of precisely reproducible welding results. The automated welding process guarantees maximum process reliability, something which was not guaranteed before with manual welding.
An additional benefit is that using the QINEO Data Manager (QDM) software by CLOOS enables continual welding data monitoring and documentation of the welding processes.

Automation as a future concept

Hörmann has changed the overall building concept with the new robot systems. Material flow within all of production has been optimised. Hörmann is looking to increase yet further the level of automation in all of production. "Our technologies must be state-of-the-art because the requirements of our customers are becoming increasingly discerning", says Ewald Schunn. "Our customers expect process reliability first and foremost, something we are able to guarantee perfectly with automation." Hörmann is also affected by a skills shortage and is facing increasing difficulties in finding qualified personnel. Employees have attended internal and external seminars to familiarise themselves with the new systems. PG Schweisstechnik, the representative of CLOOS, was also at Hörmann for a week in a production support role. "We greatly appreciate the personal contact to both PG and CLOOS in Haiger, and look forward to continued collaboration", says Schunn, summing up.

Photo 6: Example reference - a commercial building from Hörmann.

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