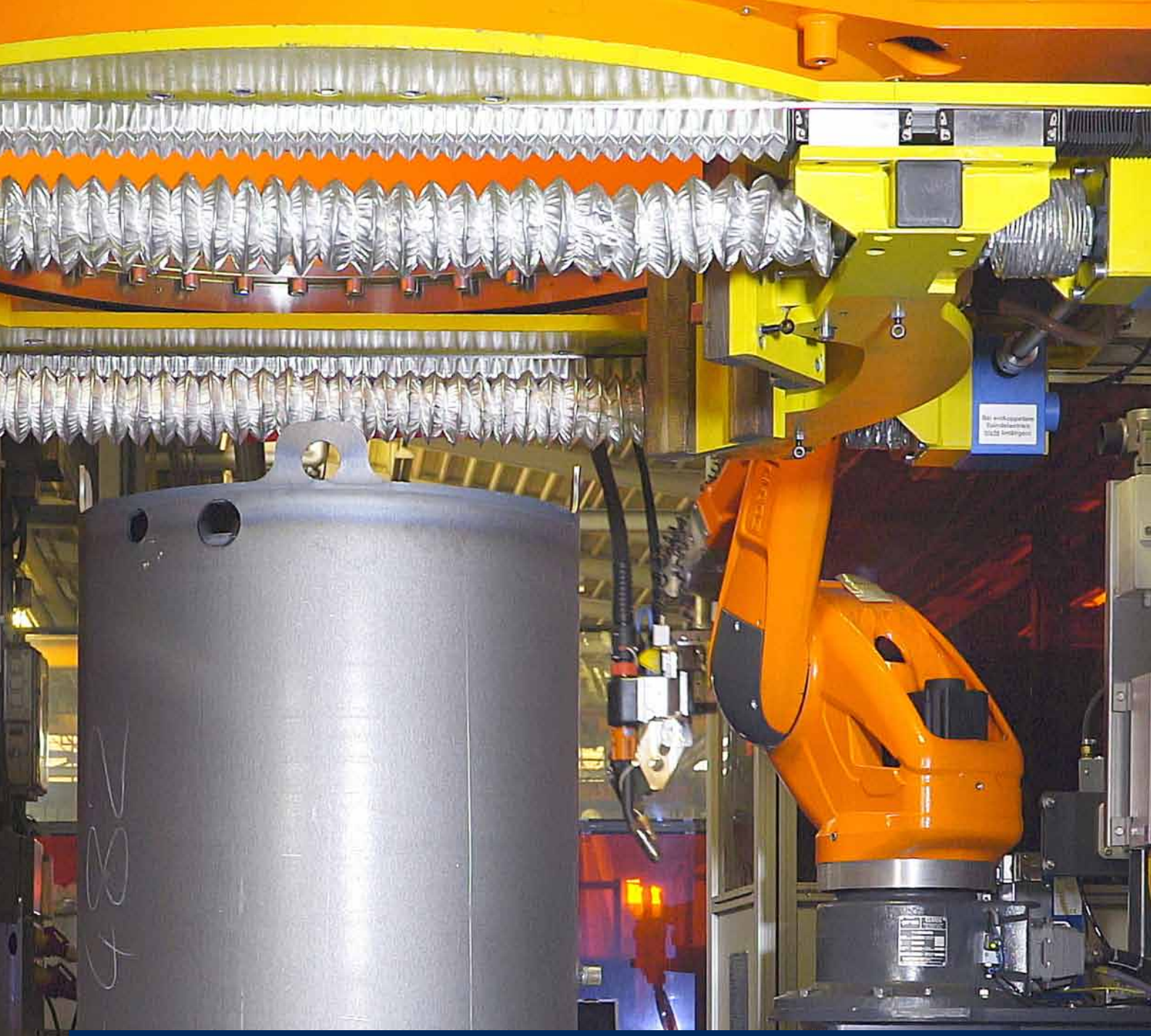

Success Story

Innovative welding and handling technology

New robot system reduces production times at Viessmann

CLOOS

Weld your way.

HAIGER/BERLIN — The Viessmann Group relies on innovative production technologies worldwide. At its Berlin site, a new robot system from CLOOS not only carries out welding, it also handles the boilers. This enables Viessmann to reduce set-up and cycle times to a minimum and to make the entire production process more flexible.

Founded in 1917, Viessmann is a family company that employs around 11,600 people worldwide. With 22 production companies in 11 countries, sales and service facilities in 74 countries and 120 sales offices worldwide, the company is one of the leading international manufacturers of heating, industrial and cooling systems. At its production site in Berlin, where heat generators from 80 kW to 2000 kW are manufactured, around 400 employees produce more than 12,000 boilers each year. "Automation plays a key role in our production process," explains Bernhard Rothkegel who programs robot systems and automated welding machines at Viessmann. “We now have five CLOOS robot systems in operation."

Intelligent positioning system and adaptive sensor technology

The latest robot system with a QIROX QRC-350 welding robot was added in spring 2016. Its stand-out feature is its well-designed handling system — the positioner grips and clamps the boiler automatically to bring the workpiece into the optimum position for welding, loading and unloading. When one side has been fully welded, the positioner rotates the boiler automatically to weld the other side. In older systems, the rotation of the boiler is not yet integrated and is performed externally.

Photo 1: The positioner grips, clamps and rotates the boilers automatically.

The welding robot is equipped with two sensor systems — an online laser sensor and an arc sensor — to compensate for any component tolerances. During welding, the online laser sensor measures both the position of the weld and its geometry (air gap and weld volume). Using these values, the robot controller moves the welding torch into the correct position and simultaneously adjusts the welding parameters to ensure a perfect weld (adaptive mode).

Significantly reduced set-up and cycle times

"The new system plays a key role in our production process," says Rothkegel. Documentation of the welds, optimisation of the welding parameters and creation and management of the robot programs are all carried out using the CLOOS software solutions PDM, QDM and Carola Edi. This enables Viessmann to extensively document the production of each component and therefore also its quality which increases the performance of the system and thus the productivity of the plant.

Photo 2: The online laser sensor compensates for component tolerances during the welding process.

Since the boilers are automatically rotated directly in the system and the component tolerances are automatically compensated for during the welding process, the set-up and cycle times — and thus also the production costs — are also reduced considerably.

Photo 3: The new system has enabled Viessmann to significantly reduce set-up and cycle times.

Robot system enables flexible production

The new system can flexibly process a range of boiler types. In Berlin, Viessmann recently began manufacturing a new smaller and more powerful boiler in a modular design for the American market. In the future, the new boiler will primarily be welded on the new CLOOS system. "We are very pleased that CLOOS has developed such a unique design for us which provides optimum flexibility and efficiency," says Rothkegel. "The project team at CLOOS is extremely knowledgeable and has actively supported us in overcoming the demanding technical challenges presented by this project.”

Photo 4: The QIROX robot welds the boiler on both sides.

Photo 5: The new CLOOS robot system is able to process a wide range of different boiler types.

New technologies in focus

The new CLOOS system is currently situated at an interim location in the company's production facility and will in future be part of a fully automated production line for the new boilers. The system thus meets all requirements for automated loading and unloading. The implementation of the new production line is planned for 2017.

In addition, Viessmann recently began operating an experimental CLOOS robot to test new technologies, material combinations, processes and sensors. "The new robot will be equipped with both MIG/MAG and TIG technology as well as an online laser sensor," explains Rothkegel. "This will enable us to carry out extensive tests to further improve our products and make our production processes even more efficient."

Partnership-based co-operation

To ensure that all operators can handle the new robot systems, CLOOS has provided intensive training sessions for the Viessmann employees, both at CLOOS headquarters in Haiger and on-site at Viesmann's Berlin plant. In addition, the CLOOS branch in Berlin provides further on-site support for Viessmann. "We greatly value the reliable service provided both by CLOOS in Haiger and their service personnel in Berlin," says Rothkegel.

Video on CLOOS TV

Press contact:
Carl Cloos Schweisstechnik GmbH
Industriestrasse 22-36, 35708 Haiger, GERMANY
Stefanie Nüchtern-Baumhoff
Tel. +49 (0)2773 85-478
E-Mail: stefanie.nuechtern@cloos.de