Success Story

A "real eye-catcher" in hall production

STAHA welds with CLOOS robots

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HAIGER/LAMSTEDT – Staha Systemhallen GmbH as one of the biggest hall manufacturers of Northern Germany relies on a modern production with a high degree of automation. For some time now, the company has used a CLOOS robot system for automated welding of complex steel components. This has enabled STAHA to increase both efficiency and quality of the hall production by a significant factor.

As one of the most important manufacturers of steel halls in northern Germany, STAHA has a special commitment to quality and performance. In particular, STAHA has made a name for itself in the production of indoor arenas, heated halls and agricultural buildings as well as logistics halls and warehouses. In these structures, span widths of up to 120 m and eaves heights of up to 30 m are possible. And when it comes to hall length, there are no limits.

STAHA began operating in 1999, at first concentrating on the import, distribution and construction of halls. Since then the company has grown continuously and has now a total of 46 employees, including many engineers, structural engineers and technicians. Currently STAHA produces about 130 to 150 buildings per year — an increase to 230 to 250 buildings per year is planned in the future.

Everything from a single source

"Since 2009, we have been offering our customers everything from a single source, from planning and design to production and assembly of the finished hall," explains Kim Heidmann, Production Manager at STAHA. "Upon request, we can manage the complete hall construction process for our customers, virtually from the foundations right up to the guttering." There are no standard halls — the specific needs of the customer are considered individually for each and every hall. "Our customers also appreciate our fast delivery and set-up times," adds Heidmann.

The company relies on modern technology and a high level of vertical integration combined with a high degree of automation. "In order to offer the best possible quality, we produce all the steel structures, steel sub-structures and steel trapezoid sheeting ourselves at our Lamstedt production site," emphasises Heidmann.

Photo 1: The QIROX robots weld complex steel components for hall production.

Photo 2: Components with a length of 7 to 16 m can be welded on the CLOOS system.

Customised robot system with state-of-the-art technology

For around two years, STAHA has employed a CLOOS robot system to weld steel beams for hall construction. The heart of the system are two QIROX QRC-410 welding robots. The robots are mounted overhead to a C-frame and can be moved flexibly back and forth on the floor-mounted linear track with a travelling length of 18 m to facilitate welding of the complex components.

The system was designed so that components with a total length of 7 m up to a maximum of 16 m can be welded. The workpiece positioners were specially designed for steel construction — they can support a maximum total weight of 2.5 t and the distances can be manually adjusted. This ensures that the system can be used flexibly for steel beams of different lengths and sizes.

Photo 3: Mounted in an overhead position, the robots can be moved flexibly back and forth on the floor track

Offline-programming saves time

When STAHA needs to produce more than eight identical steel beams, the new robot system really comes into its own. The offline programming of the robot system is carried out using RoboPlan software by CLOOS. While the system is in 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. This process is less time-consuming than producing a whole new programme in the system. Meanwhile STAHA has an extensive program library which speeds up the programming enormously.

Photo 4: The workpiece positioners can support a maximum total weight of 2.5 t and can be manually moved.

Accelerated welding process and increased quality

In addition to the large robot system, the company also uses several QINEO Pulse manual welding machines made by CLOOS. Since the full potential of the robot system has not yet been exhausted, STAHA is not currently planning any further major investment in the field of welding technology. "However, we are considering retrofitting the system with a laser sensor and tandem welding technology to further speed up the welding process," explains Heidmann.

Nevertheless, STAHA's investment in modern welding technology is already paying for itself. "By switching from manual to automated welding we've reduced the welding time from about two hours to 30 minutes," says Heidmann. The robot system thus plays an active role in helping the company to achieve its sales targets.

As well as reduced welding times, STAHA has succeeded in further improving component quality due to exactly reproducible welding results. This enables the company to better meet the increasing demands placed on construction in the form of new standards.

In addition, the robot system contributes significantly to raising the firm's profile. "The system is a real eye-catcher," says Heidmann. "When we show customers our production facility, they are always amazed when they watch the robots welding."

Video on CLOOS TV

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