



Success Story

Opening up new business areas

CLOOS robot welding system for efficiency and flexibility

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HAIGER/FRANKENTHAL — The rollers produced by Albert-Frankenthal are traditionally used in the printing press industry. Due to the stagnant printing press market, the company has increased its focus on other industries for some years which in turn has placed increased demands on the efficiency and quality of its production processes. A new CLOOS automated robot system is playing a significant role in helping the company to achieve its objectives.

As a leading specialist in the production of rollers and rotationally symmetrical components, Albert-Frankenthal GmbH can look back on over 150 years of manufacturing tradition at its Frankenthal site. The company is a wholly owned subsidiary of Koenig & Bauer AG and manufactures primarily on behalf of its parent company, with responsibility for all roller manufacturing within the Group. Albert-Frankenthal has around 85 employees and produces more than 40,000 rollers each year.

In addition, Albert-Frankenthal has become increasingly active as a contract manufacturer. "Since the traditional printing press market has experienced heavy losses in the last years, we are developing new business areas in industries such as packaging printing, shipbuilding, gear manufacturing, pumps and special purpose machines," explains Markus Spiegel, Production Manager at Albert-Frankenthal GmbH. "In addition, the service business is becoming increasingly important for us."

Increasing demands on roller production

In some respects, the requirements of the new business areas differ considerably from those of the printing press industry. For this reason, the company is investing in new production technologies to keep pace with its new competitors. In the past, the rollers were mainly welded by hand. "We also had an older CLOOS robot which has performed reliable automated welding for 19 years," says Spiegel. However, the new business areas require different types of rollers. "Since the handling effort needed with the old system was very large, particularly for frontal rollers, we decided to invest in a new robot system," says Spiegel.



Photo 1: The new robot system consists of two stations at which welding can take place in parallel.

New robot system enables flexible production

The new robot system consists of two stations which speeds up the entire process enormously. Whilst the robots at one station weld the workpiece, the person on the other side removes the welded parts and loads the devices again. The two QRC-350 welding robots are mounted overhead to a vertical stroke and can be moved on 12 m gantry from

one side to the other. Thus the robots can weld either together at one station or parallel at both stations which increases the system flexibility enormously. Small batch sizes or bigger series, the system can weld different roller types up to a workpiece length of 4.0 m.



Photo 2: Depending on requirements, the robots can either weld components in parallel at both stations or together on the same component.

The first station is equipped with a workpiece positioner which incorporates a horizontal swivelling axis to which an L-shaped extension arm is mounted. A vertical rotary axis with a faceplate is built into the extension arm. The integrated vertical stroke is used to flexibly adjust the height of the workpiece and brings it into the optimum position for welding and loading/unloading. The workpiece positioner at the second station has two vertically arranged face plates — the tool for receiving the workpiece is mounted between them. The manually movable counter bearing stabilises even long workpieces during welding and can be adjusted to different workpiece sizes.



Photo 3: The workpiece positioners bring the rollers always into the optimal welding position.

The welding robots are fitted with two welding torches: Whilst the bent single wire torch is used for welding small, segmented and difficult-to-reach welds, the straight tandem torch can perform long straight welds at high speed. The torch change is performed automatically via a command from the respective program, enabling the system to be used flexibly for different component types.



Photo 4: Due to the use of automated welding, Albert-Frankenthal made significant further improvements to the quality of its rollers.

An investment that pays for itself

Since the system began operating around two years ago, the processing time for peripheral rollers has been more than halved. "For frontal rollers, the welding time is now just a third of the original processing time," says Spiegel. More than 90 per cent of the company's rollers now pass through the new CLOOS system which meets the strict requirements of Albert-Frankenthal to precision and quality. "Previously, we often had to rework the rollers, but now the robots achieve exactly reproducible welding results," says Spiegel.

The employees at Albert-Frankenthal received intensive training in robot programming from CLOOS, both on the spot and at the CLOOS training centre in Haiger — and even today they remain in close contact with the service and commissioning team at Haiger. "If they have any questions, our people know they can contact CLOOS at any time."



Video on CLOOS TV



Photo 5: Robot operator Thorsten Reffert (left), Production Manager Markus Spiegel and robot operator Jürgen Diehl (right) are very satisfied with the new system.

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