Success Story

Quality inspection with CLOOS robot

Intelligent test cell fulfils the highest quality requirements

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HAIGER/ASBACH-BÄUMENHEIM – CLOOS robots are not only used for welding tractor cabs at AGCO Fendt. A QIROX robot equipped with intelligent sensor technology inspects the quality of the finished cabs. They are only sent for further processing after successfully passing the inspection. "With the test cell, we increase the quality of our welding production while reducing costly rework," says Peter Baumgarten, who is responsible for automated welding processes at AGCO Fendt.

Fendt is the high-tech brand within the AGCO agricultural machinery corporation which is one of the biggest manufacturers and suppliers of tractors and agricultural machinery in the world. At the Asbach-Bäumenheim site approximately 1,000 employees manufacture the comfort cabins for Fendt tractors and other tractor brands in the group. Manufacture starts with plate and profile production and continues through welding and spraying to cab assembly, with around 18,000 tractor cabs being produced each year. For decades, AGCO Fendt has relied on CLOOS technology for both manual and automated welding.

A few years ago, the company began operating a complete production line for the welding of tractor cabs. This is over 70 metres long and consists of twelve welding stations equipped with the latest technology. In the summer of 2014, an additional production line was installed consisting of six stations with a total of 13 robots. On both lines, robots, workpiece positioners, handling systems and manual welding technology work hand-in-hand.

Photo 1: After the welding process, a CLOOS QIROX robot checks the quality of the finished tractor cabs.

Robot can be used for more than just welding

In addition to the welding robots, a CLOOS test cell has also been in use since spring 2015, in which fully welded tractor cabs from the new line are measured in 3D and tested for tolerances. The heart of the test cell is a CLOOS QIROX QRC-410 welding robot which is mounted on a base and equipped with modern sensor technology by Perceptron. The workpiece positioner has a horizontally arranged faceplate which rotates the cabs around the vertical rotary axis and thus always brings them into an optimum working position.

During the testing process, the robot moves to defined points on the cab and measures them. The software displays precisely which points are being measured and whether the individual points are within the permitted tolerance. The entire process takes about ten minutes

Photo 2: The entire testing process takes about ten minutes.

After program completion, a signal light is illuminated. If the light is green, the cab has been processed without errors and goes directly into the next production area. If the light is red, the cab is sent to a special area for reworking. The measurement protocol shows the employees all the error details. The cab is then only allowed to enter the next production area after passing another quality check.

Software enables transparent quality control

Because the software deviations are accurately documented, many errors arising in earlier production steps can be analysed and eliminated permanently. "The cell allows 100% control of welded components in the line," says Baumgarten. So, AGCO Fendt is able to meet the demands of its customers for increased quality and productivity.

The test cell is the first joint project undertaken by CLOOS in collaboration with sensor specialists Perceptron. "Together, we successfully implemented the cell within just six months," says Rene Kring, the project manager at CLOOS. A real first for everyone involved: "The new test cell is unique throughout the AGCO family of companies," says Baumgarten. "We have never used this kind of technology before in any production area." The concept will now be transferred to other AGCO sites around the world.

Photo 3: The CLOOS robot is equipped with an intelligent sensor system by Perceptron.

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