**The market leader for** **filing room equipment and saw production uses open automation platform from Bosch Rexroth to ensure greater precision**

**Kohlbacher has equipped a fully automatic straightening center with AI on the basis of ctrlX AUTOMATION**

**Kohlbacher GmbH’s HAMMERHEAD 3000 machine automatically tensions and straightens band saw blades which become deformed during use in sawmills. However, even new saw blades must be adapted to the particular saw. In spite of the automated process, errors can still occur. In this case, manual reworking by so-called saw doctors was necessary. To optimize this process, Kohlbacher has now equipped the machine with artificial intelligence (AI) on the basis of Bosch Rexroth’s ctrlX AUTOMATION platform. The benefits for end customers include greater precision and reduced use of resources.**

Kohlbacher GmbH is a market leader when it comes to filing room equipment and saw production. The specialist company improves its machines for the timber industry such as filing machines, benching machines and straightening centers on an ongoing basis.

Recently, the firm revolutionized an essential process for the fully automatic HAMMERHEAD 3000 straightening center: a typical task which was always performed by a saw doctor is now carried out with the help of artificial intelligence.

Siegfried Kohlbacher, Managing Director of Kohlbacher GmbH, described the previous process: “During straightening, the back of the band saw blade is rolled to produce a slightly convex curved form. This compensates for the lengthening of the toothed side when the saw is used. Grinding the bottom of the teeth also lengthens the tooth base line compared to the back. In spite of the automated process, the error rate is 10 to 15 %. Reducing the error rate to below 5 % requires manual reworking by experts – this is performed by so-called saw doctors.”

However, saw doctors are gradually dying out. Siegfried Kohlbacher explained: “These experts are very scarce and people are no longer entering the profession. The manual reworking of saw blades is also a very time-consuming process and costs a great deal of money. Sawmills therefore require a specialist solution which makes it possible to repair saw blades. An employee who has not been given specific training is unable to do this. We were therefore on the lookout for a technical solution which would carry out this task.”

Kohlbacher therefore opted to use the ctrlX AUTOMATION solution from Bosch Rexroth. This is an open automation platform that includes all necessary software and hardware components for complete system solutions.

**Straightforward development and integration of AI functions**

The following automation platform components are used: ctrlX MOTION (motion, robotics and CNC software), ctrlX DRIVE (compact drive system), ctrlX CORE (ultra compact control system) and an AI app.

Kohlbacher uses the ctrlX AUTOMATION toolkit. “The heart of the system is the ctrlX CORE control platform. The drive-integrated control system saves space in the control cabinet. Together with the drive system, it is one of the most compact solutions of its type available on the market. The open ctrlX AUTOMATION architecture gives Kohlbacher direct access to all data in the control system. This is possible thanks to the ctrlX Data Layer, the central data backbone for all process and machine data, which also makes it easier to integrate AI functions which can be written in Python for example,” explained Volker Schlotz, Head of Business Development Business Unit Automation & Electrification Solutions.

Bosch Rexroth and Kohlbacher GmbH developed the AI solution together. The automation platform serves as the technological basis for the AI app. The AI “learns” during the process and thus minimizes straightening times and the resulting downtimes in sawmills.

The fact that Kohlbacher was involved in the development of the app and could put together the overall solution from the automation toolkit means that the complete system has exactly the properties that the company needs. This is possible thanks to the ctrlX AUTOMATION platform’s open design. The platform has an entire ecosystem for industrial applications. Users can use apps from Bosch Rexroth, apps from third party providers or apps they have created themselves and thus expand the scope of functions according to their individual requirements. As a result, software developers can develop and offer industrial applications in all popular programming languages – quickly, easily and flexibly.

**Tapping into new markets with the alternative to saw doctors**

The AI app which can be combined with HAMMERHEAD 3000 quickly proved successful. Siegfried Kohlbacher explained: “During the first learning phase, the straightening time could be significantly reduced. The longer the learning phases last, the better the AI can influence the straightening time by manipulating or putting pressure in the saw blade in a certain way.

Kohlbacher could therefore tap into a new market which had come to a standstill in the past owing to a lack of innovations. Siegfried Kohlbacher continued: “Our AI solution is changing the market. For the first time ever, the experience of a saw doctor can be transferred to a machine and the machine can then continue learning independently. Not only can saw blades be reused, there are no more waiting times – the solution is always available.”

Kohlbacher GmbH is already seeing increasing global demand for the system with these features. Kohlbacher is currently checking what other machine types could be combined with ctrlX AUTOMATION and suitable apps.

“Not every machine needs artificial intelligence but the system’s open design gives machine manufacturers and users maximum flexibility. In terms of functionality and connectivity, ctrlX AUTOMATION is the future – and a big opportunity to offer greater added value,” said Siegfried Kohlbacher.