TTING & REWINDING | MARKET REPORT

"We have renewed the heart of the machine"

Glatfelter Gernsbach and GOEBEL IMS present the advantages of a modernisation by means of an extensive retrofit of the slitter rewinder OPTISLIT

he availability of their machinery is crucial for companies: as soon as unplanned standstill times occur, costly production stoppages are impending. A reliable machine therefore boasts high operational safety. The latter, however, is not guaranteed anymore even in robust and durable machines, if the electronics become outdated or spare parts are discontinued. Nonetheless, a new investment is not the right way for every company. Rather, it is recommended to exactly evaluate whether a modernisation of the machine might even be the better option. Before making a decision, the criteria to look for are efficiency and profitability.

Not all retrofits are the same

One has to individually decide whether the modernisation only affects the electronics, or additionally the drive technology and mechanics. This determines the extent, costs and result of the retrofit. If extensive measures are necessary, a current risk assessment of the machine functions is the basis that determines the future safety standard of the machine. From this starting point, different retrofit variants are developed.

Once a decision has been made, the construction and implementation phase begins. After a few months, the delivery of hard- and software marks the starting point of the actual reconstruction phase. During reconstruction, further advantages of modernisation become evident: Extensive interferences in the installation site, for instance, into the foundation, connections or floor



The OPTISLIT at Glatfelter Gernsbach after the successful retrofit

INFORMATION

With the advent of programmable logic controllers (PLC) in the 1980s, GOEBEL IMS (at the time still Maschinenfabrik GOEBEL GmbH) has established itself as innovative leader. Starting from the usual, simple contactor control, the traditional company from Darmstadt equipped its slitting and winding lines with proprietary microprocessor-based measuring and control technology, the so-called GOEBEL electronics. This completed the first PLC of the generation S5 from Siemens and enabled, for instance, the complex calculation of target values and the visualisation of results. The GOEBEL electronics have been built into several hundred machines and most of them are still running solidly. However, due to certain components no longer being available, the technology was discontinued completely after more than 25 years in 2006. In the course of retrofit projects, GOEBEL IMS has been exchanging this technology since the end of the 1990s in close cooperation with customers for the current systems of the generation S7.

10

INFORMATION

Glatfelter Gernsbach GmbH is a subsidiary of P.H. Glatfelter Company, an American company based in York, Pennsylvania. Glatfelter produces specialty papers in several sites worldwide. Glatfelter Gernsbach has predominantly specialised in filter papers for the food industry and metallized papers for self-adhesive labels. GOEBEL IMS manufactures slitting and winding machines for the processing of paper, cardboard, plastics and aluminium foils, aseptic packaging materials and other specialty materials. The product portfolio comprises slitter rewinders, winding machines, as well as inspection machines for both manufacturers and converters. The portfolio also comprises a machine reconditioning, updating and complex individual solutions to make processes innovative.

channels, are not necessary; neither spatial reconstructions, nor structural modifications in the site are required. In comparison to a new investment, the costs of a retrofit are not only lower thanks to the direct expenses, but also thanks to shortened reconstruction schedules. They are also significantly lower compared to the price for a new machine.

Glatfelter Gernsbach, an international manufacturer of specialty papers and products especially for the food industry, was recently convinced by the advantages of a retrofit. The company has had a long-standing relationship with GOEBEL IMS, a leading provider of slitting and winding solutions, for more than 100 years. Over the years, the headquarters in Gernsbach, Germany, have been equipped with more than 100 slitting and winding machines from GOEBEL IMS.

Modernisation from one source

One of them is an OPTISLIT from 1988, a slitter rewinder especially designed for the processing of pressure and surface sensitive papers. Thanks to the centre winding concept of OPTISLIT, the machine allows the most sensitive pressure and winding tension adjustments and therefore guarantees an optimal quality for the finished rolls. It enables the production of both large and narrow rolls and offers a working width of up to 5000mm, an unwinding diameter of up to 3200mm and a rewinding diameter of up to 1650mm. The overall weight of paper roll and tambour can amount to up to 50t. In the machinery bank at Glatfelter's plant the OPTISLIT is used for the processing of specialised, metallized label papers and complements the main production line, which produces filter papers for tea and coffee. In its field of usage, the OPTISLIT in Gernsbach is unique; its availability and operational safety is paramount. "The retrofitting schedule for this machine had to be planned very well," explains Martin Weiler, head of technology and maintenance at Glatfelter Gernsbach.

After several successful retrofit projects in the main production lines, the modernisation of OPTISLIT took place in the summer of 2016. "For us, it was evident that we would contact the manufacturer GOEBEL IMS concerning our demand for more operational safety for the OPTISLIT. As a long-standing partner, we know that the well-known company accompanies its machines throughout their entire lifecycles - and therefore they are also the ideal partners for retrofits," underlines Weiler. Initially, GOEBEL IMS designed four retrofit variants based on intensive talks and several visits on-site at Glatfelter. One of them was a basic version, which only included an electrical renovation, another one entailed a complete redesign.

The specialty paper producer opted for a version that included the modernisation of electronics, drives and mechanics. After the signing of the order, the engineers at GOE-BEL IMS designed detailed construction plans and manufactured the required building parts. As all components originate from one source, Glatfelter was supplied with a perfectly balanced system – and in connection with it a full guarantee on the production performance of the modernised machine.

Glatfelter underlined the importance of meeting highest safety standards; therefore the necessary risk assessment was conducted according to today's CE regulations. This matter alone required several visits of the GOEBEL IMS engineers in Gernsbach. Finally, this risk assessment resulted in a complete fencing of the machine, so that operational staff is not endangered in any way during operation. After the retrofit, OPTISLIT boasts the most modern safety standards.

Focus on drive technology

The controls of the OPTISLIT were updated from the original SIMATIC S5 to the latest safety controls of the type S7-300. In this process, both the existing electronics cabinet and the old control desk were replaced. The new desk with new industry monitor and PC enables data collection, visualisation and storage via Simatic WinCC. The open character of this software allows proprietary additional tools that have been programmed in C++. In many cases, this can raise operational comfort and functionality considerably and enables a more efficient and safe machine operation. Remote diagnosis and maintenance are easily possible in future with this equipment.

The drive technology of the OPTISLIT was modernised by exchanging the old DC motors with new, energy-efficient AC drives; the respective control cabinet was replaced as well. Due to discontinued building parts in the hydraulics, the two winding stations were upgraded with new rewinding heads and winding arms. "We have actually renewed the heart of the machine," concludes Harald Loos, senior manager electrical design at GOEBEL IMS. A related measure that was not necessarily required was the upgrade of the OPTISLIT according to ergonomic standards. While machine operators had to handle up to 35kg during roll changes, in order to insert new winding cores with laterally-inserted clamping elements into the winding stations before, this load could now be reduced to under 7kg. The clamping elements are now fixed at the winding arms and the operator only has to move the winding core.

As soon as the necessary building parts arrived on time in Gernsbach in November 2016, Glatfelter and GOEBEL IMS started with the retrofit, which also entailed a necessary standstill time of the machine. "Thanks to the good collaboration and the close exchange between the responsible persons, we could realise the standstill times of the OPTISLIT as planned," stresses Loos. "The result, as well as the entire retrofitting process of our OPTISLIT has been very satisfying for us. Good cooperation and a reliable partnership reward this decision. With this experience, we are looking forward to upcoming retrofit projects," says Weiler.