

# Servos for precious cases

**Finishing:** More servo-individual drives, high-performance motion control, and a modular multi-touch operating concept all contribute to the high degree of efficiency of the new casemaker at Kolbus GmbH & Co. KG for lining large-format semifinished goods for high-end packaging and displays.



Kolbus GmbH & Co. KG

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Jens Erich Beermann, Head of Mechanical Engineering, Kolbus

The machine manufacturer Kolbus from Rahden in Germany has drawn on its decades of experience in book slipcase production to develop the new DA 290 casemaker for fully automatic and thus very efficient lining of large-format semifinished goods for high-quality luxury packaging and displays. The goal was to enable production without additional product-specific forming tools, in order to achieve the shortest possible change-

over and cycle times while maintaining consistent quality. This would enable low unit costs when producing both smaller and larger formats.

The DA 290 is designed for case sizes from around 300 x 200 mm to large formats up to 1,050 x 735 mm. With the former, the machine completes around 40 rectangular, covered cases per minute with turned-in edges on all four sides. These can also be

grooved and split in the direction they pass through the machine (lengthwise along the case). It is also possible to add a second cover to a board.

### **More servos allow for even greater flexibility**

A quality-related aspect that is even more important for large-format cases than for smaller ones is that the glue must be applied as quickly and as thinly as possible, yet thickly enough

to guarantee good adhesion in the shortest of cycle times without any material warpage. To offer an even greater degree of freedom, Kolbus has equipped the gluing unit with two Simotics servomotors, a frequency-controlled individual drive, and other adjustment drives. As a result, the deflection of the long glue applicator rolls can be corrected very precisely, thus allowing for a gap size that is accurate to within a few hundredths of a millimeter across the entire width of the covering. Thanks to the servo-drives on the rollers, the two application rollers can achieve precisely coordinated speeds, which means that gluing can be optimally adjusted to different products. Equally decisive for a stable process are the two suction bars for lifting and moving the glued cases for wrapping. These can be moved individually or together using servomotors so that products of any length can be moved. Additional servos are installed on the main drive and on the board feed and cover feed.

Overall, more than a dozen servo-axes guarantee a stable, flexibly configurable process that is perfected from the feeder to the stacker. "No other Kolbus casemaker has ever had such a high density of servomotors," says Jens Erich Beermann, head of mechanical engineering at Kolbus. "Thanks to the indi-

vidual drives, complex couplings and gearboxes are now unnecessary, which considerably improves accessibility."

#### Motion control at its best

The motion sequences of all the sections are coordinated by a high-performance Simotion D445-2. The clock generator for the entire system is a virtual master axis generated in Simotion. Subordinate to this are further virtual master axes for the individual sections, to which the real axes are ultimately linked. Kolbus uses all the options offered by motion control here, from simple positioning of axes, to standard gear synchronization, to complex format-dependent curve calculations during the machine's changeover process. Communication via Profinet IRT allows for the shortest possible cycle times.

#### Modular monitoring and control with multi-touch

The DA290 casemaker is also the first to feature a new class of modular HMI systems that can be applied to all individual machines at Kolbus (the Copilot). The goal is to substantially simplify functions with standardized screen masks and operating sequences that can be individually combined like building blocks, further simplifying engineering. Key components here are robust Simatic IPC477D

industrial PCs that can be integrated into the systems. Kolbus is one of the first in the industry to implement multi-touch operation. This means that operator functions familiar from smartphones and tablets can now also be used in industrial systems. A simple swipe on the main panel switches between the individual units in the line. Also included is a favorites bar in which every machine operator can put together his or her own individual menu containing shortcuts to preferred operating screens by using a finger to simply drag and drop them. "When it comes to multi-touch, we are still open to go in any direction and are happy to incorporate the requirements of the market in future developments," says Beermann.

All the goals of the first innovation phase have been reached, an achievement that would not have been possible in this time frame and with this degree of quality and flexibility without high-performance control, drive, and HMI technology from Siemens. ■

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