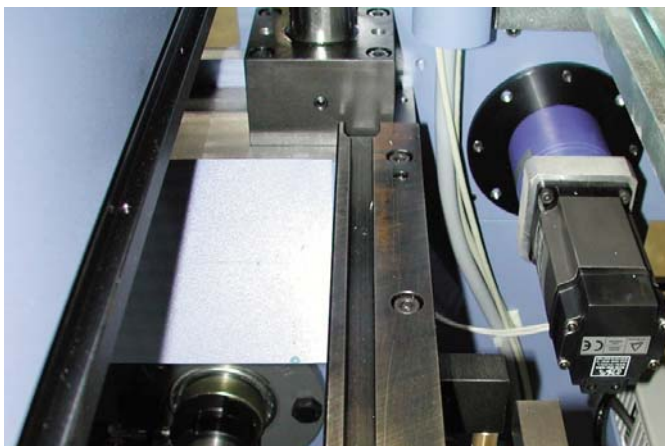


Industry: Print finishing

Products Used: Servo/Motion

New Dimensions: Cutting paper by the millisecond

Bograma AG of Turbenthal in Switzerland manufactures paper processing machines, including machines for cutting, punching and perforating tasks. The company has long experience and extensive expertise in post-processing applications for the printing industry.



Machines with clutch-brake control can only achieve maximum throughputs of 8,000 cycles per hour and have significant wear problems, and even solutions based on servo technology have hitherto only managed to achieve maximum performance of around 10,000 cycles per hour. A punching throughput of 18,000 cycles means a cycle period of just 200 milliseconds for the entire process, including feeding the paper into the punching area, the punching operation itself and the follow-through after the punching operation. The new high-speed paper cutting machine conceived by Bograma was to be a completely new development, with capabilities exceeding those of all previous solutions.

After examining a number of solutions the engineers chose to build the new machine around two automation systems from Mitsubishi Electric: the modular Melsec System Q controller system, which combines PLC and motion control functions in a single platform, and the MR J2 Super high-end servo drive system.

“We finally opted for the products from Mitsubishi Electric,” says Bograma’s CTO Alexander Caliebe. “The decisive factor was that Mitsubishi was able to deliver a complete, integrated system that had faster cycle times than all the other available systems.”

The system’s impressive performance is built on the integrated automation platform with multi-processor technology, which makes it possible to minimize delays and dead time throughout the entire system and to use the full potential of the high-end servo amplifiers to maximise overall system speed. The advanced control technology of the servo drives enable automatic adaptation to the mechanical environment so that the internal control circuits can be optimised continuously to changing process requirements (real-time Autotuning).

The Plug & Play network can be set up quickly without time-consuming configuration work.

The motion CPU coordinates all the movement processes of the drives and synchronises them with one another. A second CPU handles the machine control operations, operating independently of the movement profiles.

The first trials confirmed the potential of the system. “The control system for the servo drives is really excellent,” reports Alexander Caliebe with satisfaction, “and the complex interaction between the individual drives in the overall system is also perfect.”

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Alexander Caliebe,
technischer Leiter Bograma AG

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Application story first released in ?