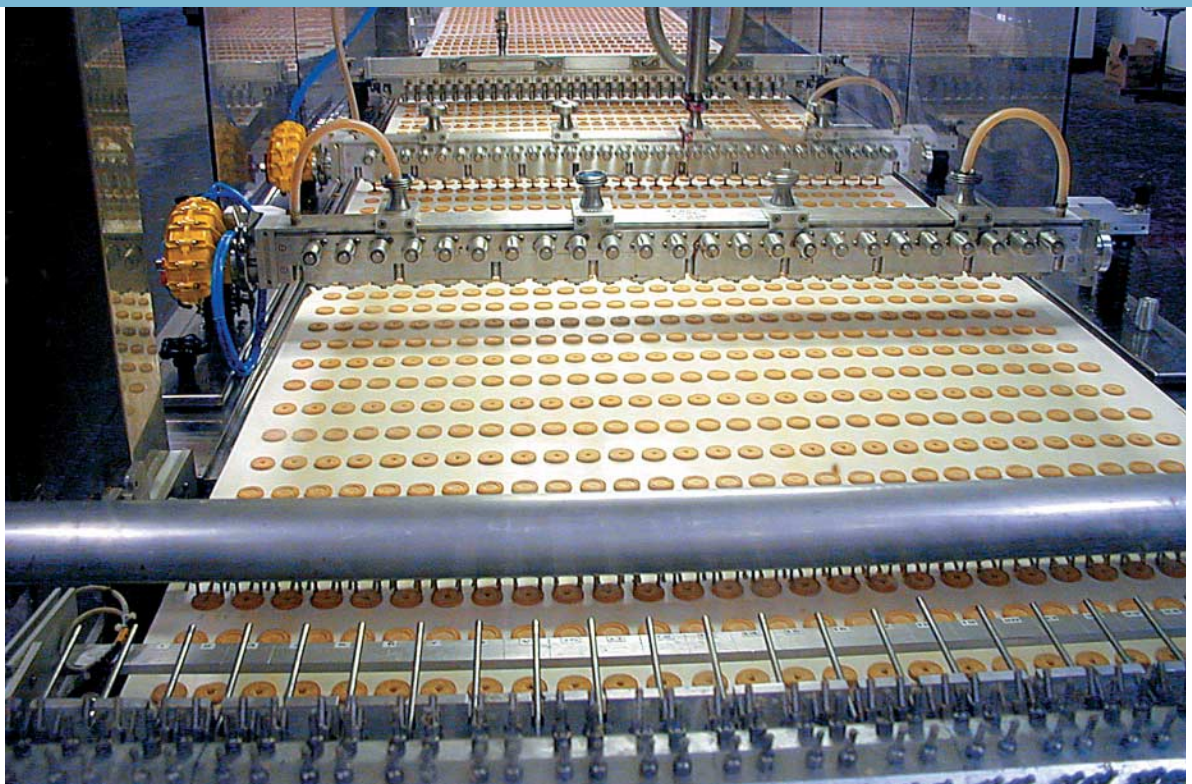




→ With the modular "Concept Capper," a decorating machine for filling and decorating confectionery foods, Sogem FL is breaking new ground in control technology: The control platform, consisting of Industrial PC, Control Panel, I/O components, Servo Drives and TwinCAT automation software from Beckhoff, offers a high-tech automation solution that meets stringent requirements in terms of precision and flexibility.

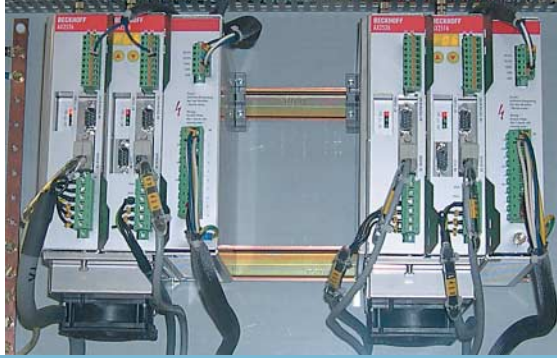


A sweet solution: TwinCAT decorates biscuits

## Costs reduced, reliability increased

Sogem FL, based at Paimboeuf, in France, is part of the Sogem Group and specializes in production lines for biscuits and confectionery. All processes, including the oven, press, deep-freeze chamber and feeding of packing machines are fully automated.

The "Concept Capper" decorating machine is one of the most efficient production lines in its segment. A simple machine (1 decorating head and 1 head for the coating) can process up to 200 rows of confectionery per minute. Doubling the number of nozzle tubes enables throughput to be increased to up to 350 rows, or products decorated on both sides can be produced. The horizontal and vertical axes of the "Concept Capper" are driven independently by Beckhoff AX2000 or AX2500 Servo Drives, ensuring maximum precision and flexibility. The machine settings (dosage, pressure on the confectionery, position, thickness, defects etc.) can be modified during production, because all valves can be controlled individ-



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ually via the Control Panel without having to stop the machine or open the flaps. The individual product recipes are stored automatically.

## Intelligent decorating head

Sogem offers different decorating heads with different technologies, dependent of whether the decorating material is a low-viscosity substance or a product with higher viscosity. Unlike conventional nozzle tubes, where the decoration is systematically applied either to all products or no product within a row, the decorating heads from Sogem are able to block individual nozzles if a defective product is detected. The positioning head uses a photocell to check the presence of confectionery and, as an option, a camera to check the shape of the product placed. This is ideal for sticky products, such as jam or caramel, particularly during decoration on the oven conveyor.

## Efficient control architecture optimises production costs

The previous control solution used by Sogem consisted of a PLC handling I/Os (e.g. management of operating/stop modes, error handling, etc.), a separate Motion Control solution, and an Industrial PC for the HMI and for communication with the Ethernet company network.

The new, PC-based control architecture integrates PLC, Motion Control (for synchronization of 2 to 30 axes), full I/O management, and visualization. A PC is used as central control unit. The system is operated via Beckhoff Control Panels with touch screen. The previous system required five networks, now only two are required: Ethernet for communication and integration into the company network, and SERCOS for axis control and interfacing the I/Os.

## SERCOS networking for drives and I/Os

"Overall we reduced the number of system components significantly and now largely use standard components," said Rodolphe Duchateau, Control Expert at Sogem. "This automatically led to a reduction of purchasing and installation costs. Not only that, due to the smaller number of individual components the risk

of faults is also minimized. Where other manufacturers would have proposed a second fieldbus for the I/Os, Beckhoff has opted for processing of the I/Os on the same network, thanks to the existence of SERCOS BK7520 Bus Coupler," Duchateau continued.

"Moreover, subnets for AS interface sensors and actuators can be configured via the KL6201 AS interface master terminal. The time required for electrical wiring is thus reduced by half. It took four weeks to fully wire the machine in the former version versus just two weeks for the new version," said the Control Expert.

## Development environment for PLC and Motion Control

"The special technological advantage of the new controller is that all functions have a common development environment and run on the same hardware," Rodolphe Duchateau pointed out. "The TwinCAT control software integrates PLC (TwinCAT PLC), axis positioning (TwinCAT NC PTP), axis synchronization (TwinCAT Cam Design Tool) and axis coupling (TwinCAT NC Camming)." "A further benefit is that the development time per project has been reduced significantly. The TwinCAT PLC software enables us to focus development work on functional models of the object type that have been pre-programmed and tested," said Mathieu Boucard, Head of Advance Development at Sogem. "Central management of machine data is an important factor for us, as is the option of protecting individual program elements, concerning the 'vital' functions of the machine, i.e. we are able to define and control access at different levels such as maintenance personnel, developers, automatic control technicians, etc."

## For Sogem the future belongs to PC-based control

"The Beckhoff control solution is characterized by its consistent openness. For example, the system can easily be expanded with further axis robots, e.g. for loading the machine. Or we can integrate elements from third-party suppliers into the control system," said Rodolphe Duchateau. "This is what sets Beckhoff apart from its competitors. The high modularity of the I/O components enables us to expand our system at any time, or to replace elements via simple plug-and-play."

"PC-based control technology is without doubt the future of automation. It is a reliable solution that is faster and much more cost effective, and we were able to integrate without problem, thanks to technical support from Beckhoff," said Rodolphe Duchateau, expressing his satisfaction with the new "Concept Capper." "The solution was implemented without compromise in terms of reliability. The software PLC is not only just as reliable such as a hardware controller, it also offers shorter cycle times (< 1 ms)."

→ Sogem FL [www.sogem.fr](http://www.sogem.fr)

→ Beckhoff France [www.beckhoff.fr](http://www.beckhoff.fr)

→ AX2000/AX2500 Servo Drives [www.beckhoff.com/drives](http://www.beckhoff.com/drives)