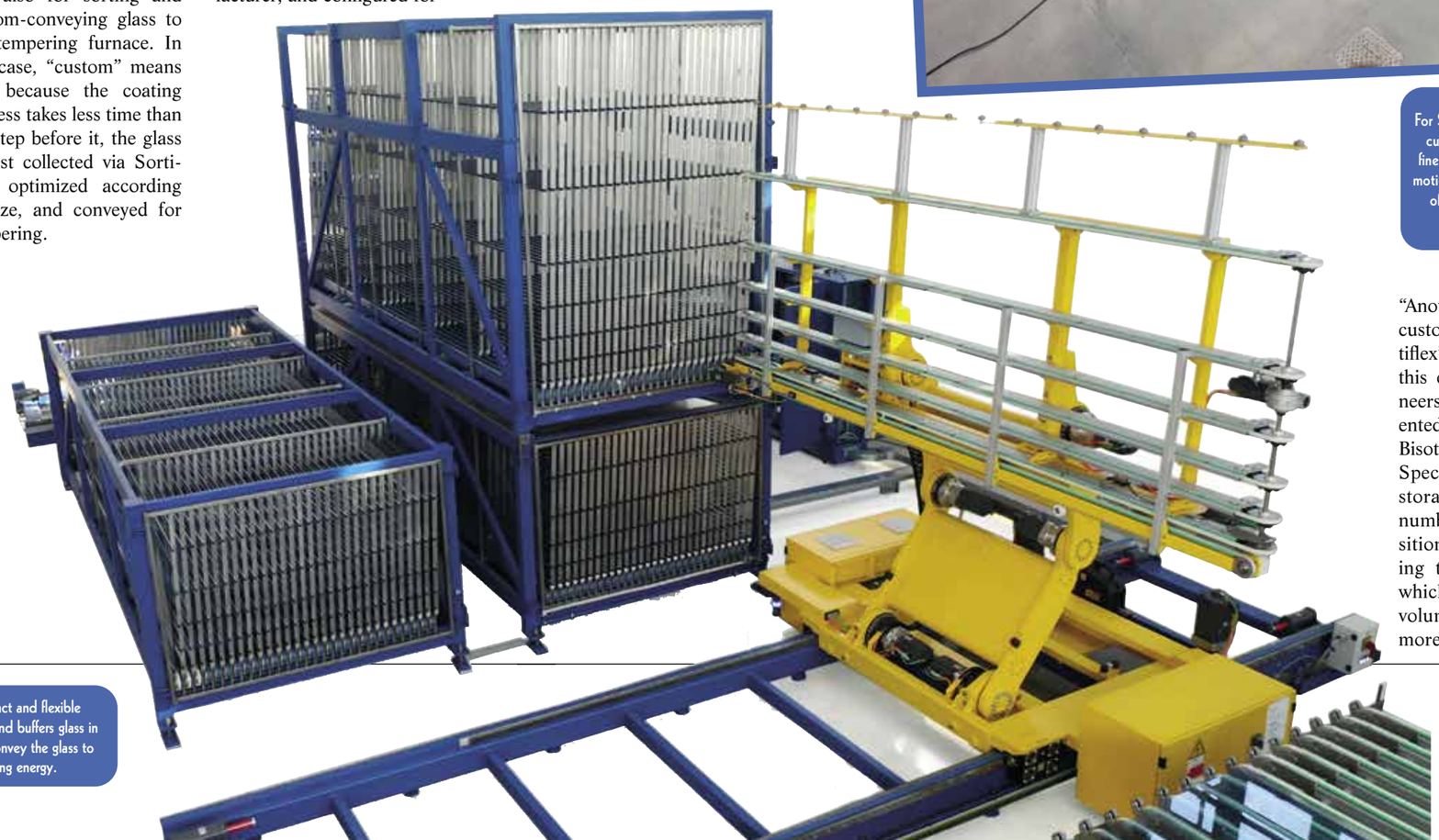
A highly productive kind of "stop and go"

Forvet has increasingly integrated all its processing steps into consistent, end-to-end complete systems and lines at the cold end in order to reduce throughput time and boost output. One of the newest elements in support of an optimized material flow is Sortiflex, and to operate this system, Forvet is once again opting for a finely tuned and highly flexible motion control system from its long-time partner, Siemens.

Forvet is known in the industry for its high performance flat-glass processing systems, since November 2021 totally part of the Biesse Group. The Italian special machinery manufacturer has a solution for all processing steps, from drilling and milling, grinding and cutting, engraving and mitering, to washing and drying. Forvet has invested a lot of engineering skill in its efforts to integrate the individual steps more and more fully into complete but flexible glass working centers and lines, with significant added value for purchasers of the systems. The result has been drastically reduced throughput time and increased output and revenue. In 2020, a new element was added that end customers have been deploying in practical applications since 2021 with the greatest satisfaction: Sortiflex. Sortiflex is an extremely compact, flexible, and energy-saving system for (temporarily) storing and buffering glass in slotted racks and also for sorting and custom-conveying glass to the tempering furnace. In this case, "custom" means that because the coating process takes less time than the step before it, the glass is first collected via Sortiflex, optimized according to size, and conveyed for tempering.

"We developed Sortiflex so that flat-glass producers can control their material flow even more flexibly in order to improve it," said Sebastiano Bisotto, Automation Manager at Forvet. "By flexible, we mean that it's just used in different process steps in glass working and intralogistics, it can also be integrated in overall systems, independent of manufacturer, and configured for a wide range of glass sizes." To guarantee flexibility in the process, Forvet patented a key feature of Sortiflex, its buffer function. The unique advantage of this function is that the glass can either come from different sources, be channeled in Sortiflex and, if necessary, be placed in a standby position in the rack – or the glass can come from a single source and be flexibly conveyed to the next process step, including to multiple lines. The added value is that the sequences are fully automated and the cycle periods are extremely short. Thanks to the faster throughput, manufacturers can be more efficient and more effective.

For Sortiflex, long-time Siemens customer Forvet opted for a finely tuned and highly flexible motion control system consisting of a controller, drives, and motors.



Sortiflex is an extremely compact and flexible system that (temporarily) stores and buffers glass in slotted racks and can sort and convey the glass to the furnace, while also saving energy.

"Another aspect that our customers value is Sortiflex's compactness. In this case, too, our engineers invented and patented a special design," Bisotto explained. Specifically, the two storage levels double the number of available positions while maintaining the same footprint, which maximizes storage volume without using up more valuable space in

The patented double-deck storage racks double the number of available positions while maintaining the same footprint, which maximizes the storage volume without using up more valuable space in the production hall.

the production hall. In addition to flexibility, speed, and compactness, customers are impressed by the high level of precision that the system achieves, despite the complex requirements.

MOTION CONTROL SYSTEM CONSISTING OF A CONTROLLER, CONVERTERS, AND MOTORS

That's where Siemens comes in. The company is known for supplying optimized solutions that include all the electrical equipment needed for flat-glass production. Whereas raw material preparation and the furnace process are primarily handled by process automation, drive technology and precise motion control play an extremely important role in the moulding process and later steps. In particular, the cutting, conveying, distributing, and stacking process steps place high demands on drive technology.

For Sortiflex, longtime Siemens customer Forvet opted for a finely tuned and highly flexible motion control system consisting of a controller, drives, and motors. The controller is an extremely compact motion control platform and PLC 1512SP F-1 PN for Profisafe. What was important to Forvet was Safety Integrated via bus and the open, platform independent OPC UA communication standard.

The CPU coordinates interactions between the Simotics S-1FK7 servomotors via Sinamics S120 converters. The motors are distinguished by their high overload capacity, ruggedness, and compactness. Connection via rotatable connectors and preassembled cables ensures a fast, flexible, and safe link to the converter. As Sortiflex's drive, Sinamics performs both motion and positioning tasks.

The system is connected to a very powerful and robust Simatic IPC477E embedded Panel PC with a 19-inch TFT Touch on which software patented by Forvet provides services specifically for Sortiflex. What stands out about the PC platform isn't just that it's maintenance-free and flexibly configurable, but also that it's suitable for sophisticated tasks in PC-based automation thanks to its extremely high industrial compatibility. "Siemens gave us very good advice on choosing the motion control system and provided expert and personalized support for implementing the turning robots," says Bisotto, adding: "That's why we'll be sure to rely on Siemens' expertise for Forvet's future innovations."

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SIEMENS - FORVET

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