



STEADFAST AND RESILIENT: IO-LINK® EMPOWERS FILLING AND PACKAGING

For over five decades, the Doypack® brand has been synonymous with practical stand-up pouches. The French company Thimonnier, the patent holder and a pioneer in mechatronics and Industry 4.0, relies on Festo's pneumatic and electric automation technology to advance its filling and packaging machines.

Thimonnier's unwavering commitment to mechatronics and digitalization has earned them numerous accolades, making them a key player in the French government's "Industrie du futur" initiative. With 15% of its revenue dedicated to research and development, Thimonnier consistently achieves an impressive annual revenue growth of 10%, cementing its position as a global leader in packaging technology.



Still in the assembly process: SF102—filling and sealing system for Doypack® pouches with screw cap.

The Evolution of Stand-Up Pouches: From Sewing to Sealing

Rooted in the Lyon region, Thimonnier boasts a rich history. The company's journey began in 1830 when Barthélemy Thimonnier became the world's first sewing machine manufacturer. In the 1950s, a fashion designer approached the company with a unique request to create a waterproof raincoat using PVC.

"At that time, my grandfather, Louis Doyen, the company's Managing Director, realized that conventional sewing machines couldn't fulfill this demand. He integrated a high-frequency generator into the sewing machines, enabling the sealing of PVC film," explained Sylvie Guinard, the current CEO. This innovation in sealing flexible materials laid the groundwork for the revolutionary Doypack®.

In 1963, Doyen obtained a patent for the stand-up pouch, propelling the company to specialize in filling and packaging technology for flexible materials. "Doypack® pouches represent the future of packaging. Manufacturers and consumers alike appreciate the numerous benefits of these high-quality stand-up pouches," stated Guinard. "The stand-up pouch serves as a powerful marketing tool, being lightweight, resealable, efficient for logistics, easy to handle, and visually appealing."

Efficient Filling and Secure Closure

One eagerly anticipated machine from Thimonnier is the SF102, a versatile filling and sealing machine for Doypack® pouches with screw caps. It boasts user-friendly operation, easy accessibility for cleaning, and a compact footprint. Manufacturers in various industries, including compotes, baby food, dairy products, fruit juices, soups and sauces, liquid detergents and cleaning products, liquid soaps, creams, shampoos, and even engine oil, find the SF102 highly desirable.

Once the stand-up pouch is introduced, Festo's compact cylinder ADNGF guides it to the filling station. The correct filling quantity is determined based on the customer's requirements, utilizing electromagnetic or mass flow measurement, or a dosing pump. At the subsequent station, the screw caps are securely fastened onto the stand-up pouches. The Festo swivel module DSM-B expertly transports the filled and sealed pouches to a conveyor, ensuring a smooth and efficient process.

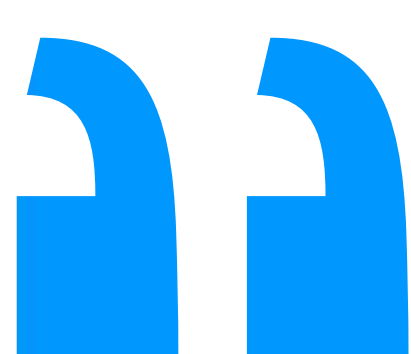
IO-Link® at Work: A Closer Look

The valve manifold VTUG controls all pneumatic functions of the SF102. This compact manifold boasts a high flow rate and comes equipped with IO-Link® technology. The implementation of IO-Link® streamlines the wiring of sensor-actuator combinations, using standardized, unscreened cables. This not only reduces material costs but also simplifies logistics and saves precious time. With such a connection technology in place, installation becomes significantly easier.

Pierre Gualino, Assistant to the Head of Development, expresses his enthusiasm, stating,

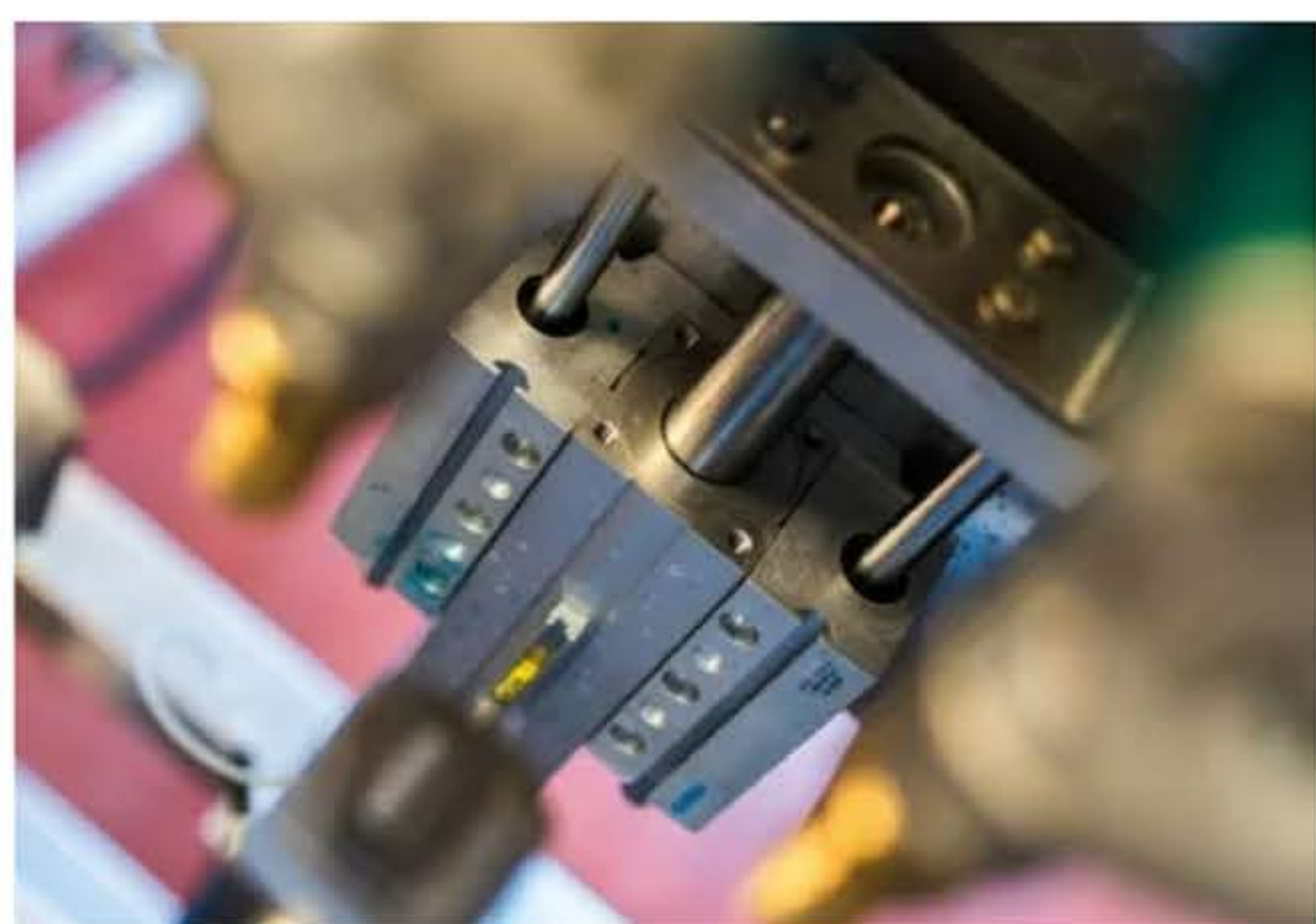


By adopting this modern connection technology, Festo empowers our packaging machines with a remarkable upgrade, bringing us one step closer to Industry 4.0.



Small but beautiful: The controller CMMO controls the electric cylinder EPCO, connected via IO-Link®.

In addition, Festo's MS series service unit components, responsible for compressed air preparation, feature fine, ultrafine, and activated carbon food filters. These filters ensure direct contact with food, guaranteeing optimal food quality for Thimonnier's machines.



Accurate positioning of the filling unit: with the electric cylinder EPCO and its guide unit EAGF.

Different pouch sizes

The THD400 machine is specifically designed to handle larger pouches, capable of accommodating up to 5 liters of content. Utilizing advanced heat-sealing technology, this machine efficiently fills and seals various types of pre-formed pouches, including Doypack®, in a four-step process.

To initiate the process, Festo grippers of the HGPL type are employed at the loading station. These grippers securely grasp the pouches from the workpiece carriers and transport them to the opening station, where they are gently opened using compressed air. The next station is dedicated to the filling operation.

To ensure precise positioning of the dosing needles, the EPCO, an electric cylinder provided by Festo, is utilized. This electric cylinder facilitates accurate placement of the needles

for optimal filling. At the final station, the pouches are sealed, and once sealed, they are ejected onto a conveyor for further processing.

Controlling the EPCO electric cylinder is made possible through the CMMO controller, which seamlessly integrates with the machine via IO-Link®. Similarly, the pneumatic movements of the THD400 are regulated using the valve manifold VTUG, equipped with IO-Link® technology for efficient control.

Intelligent sensors and actuators

IO-Link®, as an intelligent interface, is an ideal choice for Industry 4.0 when it comes to sensors and actuators. It enables the rapid transfer of complex diagnostics through standardized protocols and facilitates the implementation of condition monitoring concepts. Festo, a trusted automation partner, offers a wide range of IO-Link® devices, including various sensor series, valve manifolds, electric drives, and stepper motor controllers.

CEO Sylvie Guinard acknowledges the valuable support of automation partners like Festo in staying updated with the latest advancements in mechatronics and Industry 4.0. She highlights that their



"State-of-the-art technologies such as IO-Link®, integrated in Festo components, help us greatly in perfecting our machines."

Sylvie Guinard
CEO of Thimonnier



versatile machines boast intuitive human-machine interfaces, energy efficiency, reduced maintenance requirements, and lowered process costs.

