

Powerful and Open Control Platform

INTELLIGENT AUTOMATION FOR BOTTLE FILLING

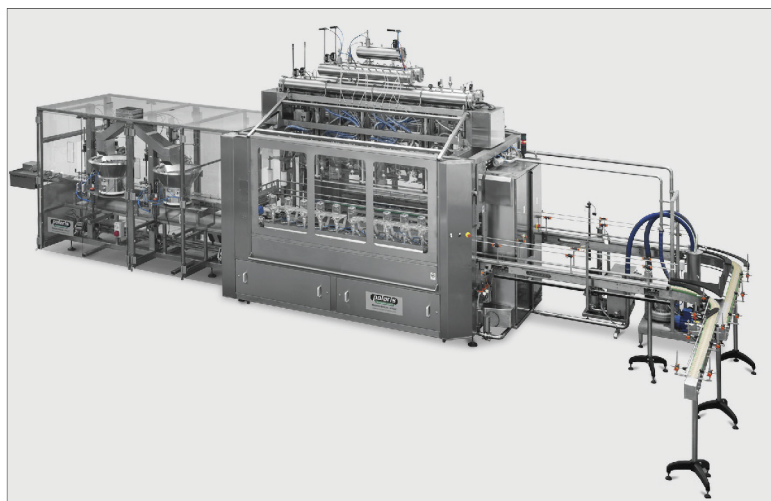
The filling lines developed by Polaris Automazioni are designed for maximum flexibility in bottle format. They offer exclusive features realized using advanced control and automation components from one hand.

TEXT: Ingrid Traininger, SIGMATEK

PICTURES: Sigmatek; Polaris Automazioni; iStock, seamartini



The highly modern, automated B12 bottling line from Polaris Automazioni, which fills up to 2,500 bottles per hour, uses control and automation components from SIGMATEK.



Polaris Automazioni, based in Reggio Emilia, Italy, is an established player in the world of bottling processes. The bottling experts' target market is the spirits and liqueur industry as well as the food and especially the olive oil industry. In recent years, the company, which has its roots in Italy, has greatly expanded its business activities beyond the country's borders. The export quota is currently higher than the national turnover.

Simple and economical format changeovers

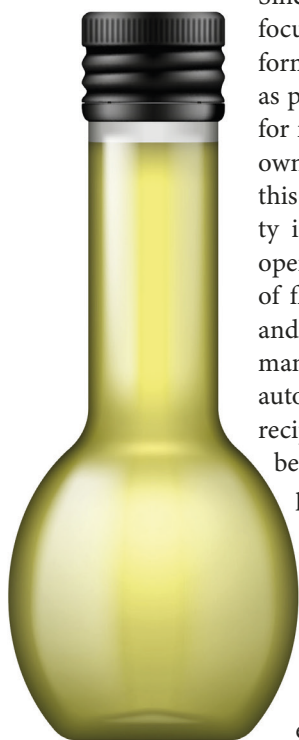
Since its founding, Polaris Automazioni has focused its machine development on making format changeovers as simple and economical as possible. This philosophy has been pursued for more than half a century, and anyone who owns or takes a closer look at a filling line from this company today will recognize its superiority in terms of flexibility and adaptability in operation. In recent years, the understanding of flexibility has become even more extreme, and many adjustments that used to be made manually by operators are now carried out automatically by servomotors. In addition, the recipes for each individual product are becoming more and more sophisticated. The precision required for applying a closure or label or even filling at product level is becoming increasingly important.

The degree of automation in Polaris Automazioni's bottle filling lines is constantly increasing, which requires an even more powerful control system.

At the same time, it is important to reduce software development time and thus achieve a faster time to market. To fulfill these requirements, Polaris Automazioni relies on SIGMATEK's complete automation system with scalable hardware: CPUs, I/Os, integrated functional safety with safety controllers and I/Os – all combined in a user-friendly, comprehensive software engineering environment are available. Added to this is the know-how and commitment of Sigma Motion, SIGMATEK's long-standing sales partner in Italy. A partner who is able to offer comprehensive service: competent in advising on mechatronic design, selecting the ideal solution and supporting the commissioning of machines and systems. Polaris has successfully utilized this expertise. Sigma Motion supported the manufacturer of filling machines as a real extension of the internal technical department during development.

Everything in one hand

The SIGMATEK platform has made it possible to overcome the structural limitations of the traditional PLC. Additional peripheral devices are no longer required to control stepper motors or brushless motors. Furthermore, there is no need to set up complicated interfaces to exchange variables between the different components – everything now takes place in the control CPU: Every function is implemented simply, efficiently and with maximum integration. Another advantage of this integrated architecture is the possibility of remote maintenance of all automation components both in the control cabinet and in the field. This is an aspect that can certainly be seen as a great advantage, especially after the pandemic years we have experienced. All these considerations and experiences have led to SIGMATEK being the exclusive supplier of programmable controls and automation components to Polaris Automazioni.





Automated with SIGMATEK technology, the B12 offers the flexibility required for frequent format changeovers and small batches. Glass and PET bottles, cylindrical, conical, amphora-shaped, triangular and shaped bottles from 100 ml to 2,000 ml can be filled.

for several years. The Austrian complete solution provider also proved that it has the perfect components for the latest version of the filling machines, the modern and automated B12, and was able to deliver them on time via Sigma Motion – despite supply bottlenecks on the global market.

Completely digitalized

Polaris Automazioni's mission is to keep its systems up to date. The Industry 4.0 approach has revolutionized the way companies analyze their production results: Production data is combined and analyzed with operational data from ERP, supply chain, customer service and other enterprise systems, leading to process optimization and predictive maintenance. "For this reason," says Davide Ugoletti, Technical Director of Polaris Automazioni, "it is essential that our systems are connected to the company LAN and are in constant communication with the management software."

The CPUs used are therefore not limited to process and motion management, but also handle the continuous exchange of files via FTP for the start of orders and the subsequent creation of reports. The production data is also made available via LAN or VPN for the system engineers working on Industry 4.0. This means Polaris is always at the cutting edge.

HIGHSPEED AUTOMATION



For several years, Polaris Automazioni has relied on Sigma Motion / SIGMATEK as its exclusive supplier of programmable controls and automation components for its bottling machines. This was also the case with the

latest, highly modern and automated version of the B12. The machine, which is over 20 m long and features automatic format changeover, is a versatile automation powerhouse. For example, more than 20 servo motors, all synchronized, ensure maximum positioning accuracy and speed. Among all the various devices and operating units, the wrap-around labeling machine stands out. This takes each bottle, aligns it with a notch on the bottom of the bottle, and then, with the combined action of two stepper motors, pulls off a label of different dimensions and applies it to the body. All this takes just 1.5 seconds. This process, like many others in the B12 and other machines, has been made possible by the power of the SIGMATEK CP 112 CPU and the versatility of the S-DIAS ST 151 and DC 061 stepper and brushless motion modules.