

Effytec

SYSMAC – at the heart of EFFYTEC's new continuous process concept

Until recently, Spanish packaging machine maker EFFYTEC manufactured only intermittent-process packaging machines. When the company decided to develop continuous-process machines, they turned to their automation partner Omron, and created a new concept around the SYSMAC automation platform.

With headquarters in Barcelona, Eficiencia y Tecnologia SA (EFFYTEC) specialises in the development and manufacture of Horizontal Form Fill Seal (HFFS) machines for packaging all kinds of products in sachets, pouches and bags. It exports about 95 percent of its production, and has customers in food, cosmetics, pharmaceuticals and chemicals sectors all over the world.

EFFYTEC machines use flexible material such as laminated foils or film to make the pouches or sachets, filling, sealing and finally separating them ready for secondary and final packaging and onward delivery to the consumer. The different processes are fully integrated, and the machines can be adapted to most packaging formats.

Since it was established in 2004, the company has maintained a policy of developing advanced equipment, working alongside partners such as Omron to take advantage of the latest technological innovations. As a result EFFYTEC has established a reputation as a pioneer in the market.

The company has previously concentrated on building intermittent processing machines, but increasing customer demands for more output at lower cost has led EFFYTEC to develop continuous-flow machines using form/fill/seal (FFS) technologies. Continuous flow processing enables packages to be filled on the move, which increases throughput. In addition, products which have a tendency to foam - such as conditioners, liquid soap or shampoo - can be handled more effectively.

One challenge in the redesign process was the need to replace cam-drives with continuous servo-drives. This was addressed by using Omron's Accurax G5 servo system and SYSMAC automation platform. As a result, EFFYTEC has created a machine that delivers improved throughput, but which is also more compact, taking up less floor space.

Another advantage – to which the SYSMAC platform is also well suited - is that the continuous-process machine is modular in design. It also offers considerable production flexibility, and can be readily adapted, using menus selected at the operator station, to meet precise batch requirements.



Effytec's new continuous horizontal form, fill and seal machine

The machine can also be retrofitted with additional stations if this becomes necessary after installation. New modules can be slotted into position easily, so that the machines will continue to meet a customer's developing needs. This future-ready functionality is a particular benefit of the SYSMAC platform: for example, the mechanical modularity is pre-programmed, and is simply activated or updated using the inbuilt remote maintenance system.

The most advanced technology on the market

On the new machines, forming and filling is a continuous process. The packaging material is fed from a reel, and heat is applied to weld a bottom seal. The bag or pocket created by this process is then opened under suction before being filled with product.

With the number of separate operations – folding, sealing, cutting etc – it is essential to guard against the constant potential for film slippage and movement. Detection and correction of this requires the absolute precision and accurate timing provided by the Accurax G5 servo.

An ultrasound weld is applied to close the package, and a second weld is created by a heated blade which creates the finished package. This is then inspected using Omron vision sensors to make sure there are no leakages. Omron equipment is used throughout the process, controlled by the SYSMAC NJ controller, which interfaces with a range of sensors, I/O and drives. All of the devices are linked in the embedded EtherCAT network.

The control is very flexible, with pre-programmed recipes for different types of packaging and products, enabling exceptionally rapid product changeovers. All machine parameters can be accessed by the operator from the touchscreen NS12 HMI.

EFFYTEC is very happy with the effectiveness of the SYSMAC platform, which has shortened development and implementation time. In particular, they noted that the single motion control software made programming much easier, while ensuring that all motion on the production line is fully synchronised.



Omron Accurax G5 Servo with EtherCAT



Omron Sysmac Automation Platform

About EFFYTEC

EFFYTEC is a company leader in the technology and manufacturing of horizontal pouch machinery, for packaging all type of products from different sectors in sachets and pouches: food, cosmetics, chemicals, pharma and other applications. A company with over 30 years of packaging industry experience.