

Mespic's all-in-one solution...

... Versatile and flexible

Mespic, with headquarters in northeast Italy, has worked with Omron to develop innovative all-in-one packaging solutions that end-users now demand, and that successful machine makers strive to provide. A recent example is this end-of-line plant for secondary and final packaging of tea.

Flexibility and versatility are the two main drivers for the evolution of packaging machinery. In particular, the need to change formats quickly, or to handle different products on the same line, has led more innovative manufacturers to develop new solutions in terms of machinery layout, materials and technologies.

Italian manufacturer Mespic is just such a company. Specializing in the design and construction of integrated end-of-line packaging machinery, Mespic looked at what the market was demanding, and established partnerships with specialist suppliers to meet those demands. In particular, it has investigated new materials and innovative technologies that enable it to offer solutions that are more efficient in terms of productivity and energy saving.

Sort, pack, box, code: the end-of-the-line for tea

One of Mespic's most recent advances is the development of an end-of-line secondary and final packaging solution for packs of tea. This is a dedicated line which incorporates transport of the packs, aggregating different product types and formats, and automatically placing them in different packing cases.

The key issue is that the packs containing different flavours of tea – each coming from a different production line – must be properly and accurately placed into separate cases for despatch. So when the different teas arrive at the Mespic end-of-line plant, they are first scanned by an Omron FQ vision system, which identifies the different product types. The data is sent via an Ethernet link to the pick-and-place system, which takes the packs of tea and puts them into different cases. The open cases are first marked with a Data Matrix code, and then automatically sealed: finally, a second Omron FQ-CR vision system reads the code printed on the case, to identify the contents and ensure accurate despatch.

Developed in collaboration with Omron, the end-of-line plant benefits from the know-how and product philosophies of both companies. One of Mespic's core strengths is its ability to offer not only standalone machines but also complete lines. These "all-in-one" systems, born out of the need to run multiple processes within the same area, are designed in co-operation with the customer to take into account the specific packaging and the space limitations. The Mespic machines make use of innovative materials such as carbon fibre and have fewer moving parts. This makes them lighter, which in turn enables the use of smaller motors to reduce component costs as well as saving energy up to 60% compared with traditional machines.



Ideal partner

Mespici has found an ideal partner in Omron, which shares its customer-focused ideals. Francesca Gaetani, Packaging Project Leader at Omron Electronics Italy, explains that "Our automation philosophy was to provide a solution based on the new NJ controller on an EtherCAT network. This architecture allows us to take a unique approach in meeting differing requirements in terms of complexity, while ensuring cost saving. We achieved this because the NJ machine controller - scaled in different sizes - handles the logic I/O as well as the machine movements. The EtherCAT network - on which the entire Sysmac platform is based - provides the speed of data exchange necessary to ensure application flexibility."

In the case of the tea-packaging solution, the NJ501 machine controller manages the conveyors carrying the packs of tea, as well as servo drives that operate the casing machine, the pick-and-place module, and the aggregation of the different packs. Mespici's case-packing systems are all top-loading, and use a Cartesian-axis gantry with both motors fixed, to reduce weight - and therefore wear - on the moving parts.

Extensive and continuous collaboration from Omron has provided the flexibility and versatility with which Mespici has been able to meet the specific and complex needs of each customer. The technology has delivered several customer benefits, including:

- a method of consistent communication
- the same remote control unit operating a large number of axes, vision systems, and delta robot I/O modules
- Accurax G5 servo motors used for the pick-and-place module, also controlled by the NJ motion controller
- Omron technical assistance during development and after installation

Most importantly, the collaboration between Mespici and Omron has enabled the deployment of new technologies to meet new objectives, and to open up new and increasingly competitive markets.

