Packaging machinery

Performance is in the bag

In the highly competitive global market for packaging machinery, Masipack differentiates its products using three of B&R's latest innovations: mapp Technology, the Panel PC 2100 for integrated visualization and control, and the ACOPOS P3 family of servo drives.

Brazil-based Masipack supplies innovative, turnkey packaging equipment solutions with over 160,000 machines installed worldwide. Masipack machines run a broad range of consumer products, while machines from sister company Fabrima focus on the unique requirements of pharmaceutical packaging. Masipack systems range from primary to end-of-line, from economical systems optimized for small and mid-sized businesses to fully automated systems for the largest production facilities. Nevertheless, the company knew that to be competitive, they would need to innovate. Explains Mauricio Moreno, President of Masipack Group: "The market is constantly seeking better quality machines that increase productivity, have high availability and are easy and low in cost to maintain."

A break from tradition

Traditionally, Masipack had developed a bespoke control system in-house for multi-head scales. They saw the need – particularly for export sales – to adopt a commercial system in order to fulfill international certifications, meet customer specifications and assure the global availability of technical support. In their first application with a commercial control platform, the existing supplier was unable to provide vibration and strain gauge modules or sufficient processing speed to run the multi-head scales. B&R was able to meet these requirements – and a whole lot more.

Change for the better

The move to B&R began with PP400 and then PP500 Power Panels, using MATLAB Simulink simulation and subsequent programming in Automation Studio. Now Masipack has standardized on the Panel PC 2100 as its integrated control and operator panel running Automation Runtime embedded and featuring a customized black Masipack-branded HMI bezel. "The HMI design is a differentiator," continues Mauricio Moreno, "It is very elegant and a perfect fit with the machine design. Besides that, it is so versatile to integrate the VFFS with multi-head scales. And the large 12" HMI mounted vertically

The Ultra VS 300 design contributes to a cleaner work environment and continues to facilitate machine operation.

Masipack machines are completely enclosed in accordance with current international safety standards.

Mauricio Moreno
President, Masipack

"The compact I/O, cabinet space savings and operator-friendly HMI complement B&R's great advantage in software development, with code that is easy to reuse in other types of machines."

allows you to display much more information." Once the multi-head scales were completely converted, Masipack developed the first VFFS (vertical form fill sealing) machine in its new product range with B&R in just one week, using mapp Technology and ACOPOS P3 motion. Whereas conventional control platforms require two separate controllers, the Panel PC 2100 integrates VFFS with scales in a single controller, saving both cabinet space and communications overhead.

Precise, distributed multi-axis motion

B&R's unique machine-mounted X67 stepper modules control two stepper motors per weigh hopper (head) – also saving cabinet space and wiring. The top of the head vibrates the feeder and precharge. When the bottom of the head is empty, the top motor then opens the hopper and the bottom of the head correctly senses the product weight. A motor at the bottom opens the head to discharge material into the former. Machines are available with up to 28 heads, with a typical configuration featuring between 14 and 24. Accurate fill weights require a software filter, and with B&R control the measurement is more precise than ever before. A common application in North America is filling vitamins into plastic bottles. Filling by weight is a faster method for doing this than using a slat counter.

mapp Technology adapts to new requirements

Masipack's next step was to apply B&R technology to additional machines across the packaging line. Having used mapp Technology to generate modular, reusable code for the VFFS, the software was easily modified to run different machine types. Now, Fabrima is developing pharmaceutical cartoners and blister pack machines

Equipped with B&R HMI systems, the Ultra VS 300 bagger stands out through its flexibility and high performance.

with B&R that will comply to CFR 21 Part 11 through mapp Audit and mapp Recipe. These machines will benefit from standardizing on the Panel PC 2100, which provides full industrial PC capabilities and can therefore run Windows-based pharmaceutical software applications.

Efficient servo motion

The same Panel PC2100 controller used for the scales is combined with ACOPOS P3 servo drives to deliver a faster and more cost effective solution than the previous control supplier. Along with increased performance, the ability to run up to three servos from a single, compact drive contributes once again to cabinet space and wiring reduction. In the past, Masipack used conventional single-axis servo drives. With the multi-axis ACOPOS P3 drives, the machines are more energy efficient because they share a common bus for regeneration. In cases where a volumetric feeder is used in place of a scale, the feeder is servo driven. One servomotor controls dosing by volume while another runs the horizontal seal bars. Continuous-motion machines use a third servo for film draw.

More machines, more servos

Sachet and stick pack machines use eleven servos to individually control the multiple filling heads. Masipack also uses three to five axes per machine on its horizontal flow wrappers. Fabrima changed from a third-party check weigher to develop its own check weigher controlled by B&R, with three servo axes for infeed, measurement and exit conveyors. Mauricio Moreno concludes: "The compact I/O, cabinet space savings and operator-friendly HMI complement B&R's great advantage in software development, with code that is easy to reuse in other types of machines." ←