

BIONORICA

Romaco prescribes the modular solution

To improve overall equipment effectiveness of its liquid production, Bionorica decided to automate various steps that were being executed manually, enabling the firm to realise its full potential finds *Lynda Searby*

Who Bionorica

What Romaco Macofar MED 003 depackaging system, Promatic PC 4250 cartoner and Spectra inspection unit

When June 2018

Why To increase the output of one of its liquid lines to match the 200bpm speed of the filler.

Challenge

Since it was founded 85 years ago, German pharmaceutical manufacturer Bionorica has grown from a one-man outfit to a global player, employing some 1,700 people and operating in more than 40 countries worldwide. A producer of herbal medicines, Bionorica is mainly known for Sinupret, Germany's top selling cold remedy, which is also sold internationally.

At Bionorica's Neumarkt site in Bavaria, non-sterile liquids are filled and packed in glass bottles on two liquid lines for therapeutic nose, throat and lung applications.

To improve overall equipment effectiveness of its liquid production, in 2016, Bionorica decided to automate various steps that were being executed manually. In addition to depalletising and unpacking foil-sealed packs of empty bottles, the firm wanted to automate feeding and inspection of the bottles, initially on one line. In doing so, the goal was to bring the rest of the line up to speed with the filling machine, whose theoretical maximum output of 200 bottles per minute (bpm) had never actually been reached in practice. This was because the other modules in the line, in particular the cartoner, could not match this speed.

Strategy

Romaco Group develops, manufactures and distributes GMP-compliant processing and packaging equipment for the pharmaceutical industry. The two companies had never worked together before, but Romaco convinced Bionorica with "good value for money solutions" that were individually tailored to its needs, as well as "prompt, efficient support".

"Romaco has a broad, premium-quality product portfolio – which is a great advantage when implementing complex plants like ours, because it means we can source several machines from just one supplier," explains Howard Fick of Bionorica's engineering department.

The first part of the solution was Romaco's Macofar MED 003 depackaging system. Once the protective 'safe' packs of



Bionorica: best known for selling a German cold remedy, the producer turned to Romaco to improve overall equipment effectiveness

incoming bottles had been depalletised, this system would cut open the thermo-shrink packaging with three heated, moving blades. Unlike conventional depackaging systems the MED 003 has a separate servo motor for every single movement. This makes format changeovers quicker because far fewer format parts have to be replaced compared to a depackaging machine with a central motor. This was an important factor for Bionorica, which switches between 30, 50 and 100ml bottle sizes.

The second element of the project was an inspection unit for detecting and removing faulty bottles prior to filling.

About 1-2% of the blow-moulded bottles Bionorica uses for its medicines are outside of the tolerance range, for example, they are not exactly vertical or the base is too thick. These out-of-spec bottles were regularly damaging the filling machine, causing lengthy stoppages.

Romaco and Bionorica collaborated on the development of an inspection unit, which goes by the name of Spectra, that would overcome this issue.

"An inspection unit capable of meeting our requirements, with damage avoidance as its sole purpose, didn't yet exist, which is why we took the decision to collaborate with Romaco and design a new solution," says Fick.

He continues: "Spectra is not only an exact-fit answer to our needs, it was also much cheaper than any of the standard

products on offer in the market, which in any case were way too complex for our situation."

Thirdly, Romaco's Promatic PC 4250 continuous motion cartoner was selected to pack the bottles individually into cartons. Romaco was confident that this cartoning module would have no problem keeping pace with the filling machine.

"Aside from the very short ramp-up phase, the PC 4250 impresses with its ease of handling and straightforward maintenance," says Gerhard Garthe, area sales manager at Romaco and responsible for supporting all Romaco technologies in place at Bionorica.

"In practical use, the PC 4250 completes tool-less format changes in under 30 minutes and stack heights can be modified in less than 10," he adds.

Implementation

The line was built at Romaco's Bologna factory and delivered to Bionorica in June 2018.

In the first section of the fully automated liquid line, glass bottles delivered in 'safe' packs are automatically depalletised and unpacked with the help of the Macofar MED 003 depackaging system. They are then screened by the Spectra inspection unit, before being fed via a rotary table to the filling machine, where they are filled, capped and labelled. The Promatic PC 4250 cartoner subsequently packs the bottles into cartons together with a leaflet. Finally, they are serialised with a 2D code and packed into crates, sealed and serialised again by a case packer-palletiser before being automatically loaded onto pallets.

Results

The line has been up and running at Bionorica since the end of 2018, delivering a 20% increase in productivity compared to the old line.

In normal operation, the line achieves around 200bpm, matching the performance limit of the filling machine. Thanks to an accumulation table with in-built sensors, this can be maintained even if a downstream stoppage causes the cartoner to have to stand still. Bottles collect on the table, and, detecting their presence, the cartoner automatically ramps up to 240bpm to clear the backlog.

Bionorica's second liquid line is being upgraded in the same way, starting with the Promatic PC 4250 cartoner. The cartoner was delivered in June 2019 and is already in operation. ■

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