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Disruptive compact line layout at BINA Switzerland with an ultra-flexible shrink-wrapping infeed for squared bottles



Part of Swiss M-Industry (Migros Group), Bischofszell Nahrungsmittel AG (BINA) is driving the increasing health and wellness trend in the country via new formats for their organic juices and iced teas. To help shrink-wrap their latest, squared bottles alongside the traditional rounded ones, BINA needed a flexible, compact and easy-to-handle shrink-wrapping system for film packs and tray plus film packs. The solution came from Sidel in the form of a lean, unifilar 90° infeed system integrated in one of their proven shrink-wrappers to deliver a reliable, disruptive and compact line layout.

Founded in 1909, Bischofszell Nahrungsmittel AG (BINA) is a leading manufacturer of convenience and fruit products as well as ready meals and beverages. “Our more than 1,000 employees make products for daily enjoyment, using state-of-the-art equipment and a wide variety of manufacturing processes,” explains Yasin Kapusuzoglu, Project Manager Technology at Bischofszell Nahrungsmittel. In addition to the production facility in Ecublens, the BINA Group also has plants in Vuadens and in Frastanz, Austria. BINA belongs to M-Industry, which combines 23 companies in Switzerland as well as nine production facilities and various trading platforms abroad. M-Industry offers over 20,000 high quality food and near-food products, making it one of the largest private label producers worldwide.

Like many other nations across the globe, Switzerland is currently experiencing a health and wellness surge. One way in which this manifests itself is portion control. To benefit from this

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trend, while also addressing the busy on-the-go lifestyles of consumers, juice manufacturers are expanding their product offerings by reducing the size of their bottles, thus increasing the portfolio of formats they serve. Additionally, organic beverages, such as juices and smoothies are on the rise with a current value CAGR of 9% until 2023 because consumers perceive them to be of high quality and 'better for them'. Lastly, Swiss consumers continue to trust private labels across both soft drinks and hot drinks, with Migros being one of the two domestic frontrunners who are expected to perform strongly throughout 2023.¹

Flexible shrink-wrapping solution handles twenty different pack configurations

As a trend setter on the market, BINA wanted to process new squared bottles for its juice and iced tea drinks while still running round bottles on the same line. All of that in a very compact area of the plant at up to 50 cycles per minute at the shrink-wrapping stage. "We wanted to package our new juice and iced tea bottles in shrink-wrap film while also having the option of using a tray plus film for some batches; all while keeping the footprint of the solution to a minimum," says Yasin. This was challenging for three main reasons: first, the orientation of squared containers has to be controlled within the whole process to get a pack with correctly facing bottles. As a result, a traditional mass flow infeed system was not possible.

Secondly, flexibility was a key requirement for BINA given the large range of bottle formats – from 250 ml to 2 L – they are processing on the line. Due to numerous combinations of bottles, SKUs and/or secondary packaging, twenty different configurations are conceivable. Therefore, production runs are shorter, leading to the need for frequent changeovers – between three and four per day. "For us, changeovers' speed and ease were important features of the overwrapping solution provided," Yasin highlights.

Last but not least, compactness has really been the key deciding factor. "The alternative of having a lane divider feeding the traditional channels of the shrink-wrapper, consequently avoiding mass accumulation, was not appropriate in terms of the footprint. In fact, the area taken by the divider and its conveyors upstream and downstream would require too much space while reducing the circulation around the line," explains Valérie Cattenoz, Overwrapping Product Manager at Sidel. In addition, managing different SKUs in tray and film, in principle contradicts the availability of a very compact solution, as tray modules usually automatically lead to a bigger layout of the shrink-wrapper.

Fast and automatic changeovers with streamlined unifilar infeed system

"We evaluated various possible solutions and Sidel's new infeed system was the only one allowing a one-of-a-kind, compact line layout with the guarantee of no jamming at the shrink-wrapper's infeed due to its design," Yasin highlights. The new shrink-wrapper is equipped with a

¹ Euromonitor International 2019

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very compact and reliable unifilar 90° infeed system where the flow is managed on one lane – directly from the sleeving machine with no lane dividing system needed. The flow of juice and iced tea bottles is instead going straight to the shrink-wrapper.

The high reliability of this innovative and unique infeed secures a very critical part of the shrink-packer, allowing the management of any shape of bottle, round or squared. Valérie explains the unique design, “First, a selecting device with lateral brackets delivers the right number of products per row while ensuring the necessary distance between each row. These rows are then transferred at a 90° angle by an ‘on the fly’ pusher, which redirects the flow of three to five bottles² in accordance with the shrink-wrapper’s flow direction.” The installed system is technically capable of running at a maximum speed of 150 cycles/minute, depending on the exact product size and shape. “The solution is complemented by a tray module, delivering tray plus film packs,” she adds.

For changeovers, the proven shrink-wrapping solution embeds automatic and easy-to-adjust systems, with operators guided through each step directly via the HMI. Most of the adjustments are done automatically, while the non-automated ones are supported by LED digital counters. The latter ones ease and speed up the process while securing it, because they are blocking the machine from restarting if the expected settings are not met. “We appreciate the simple, streamlined unifilar infeed system where all changeover tasks are carried out automatically in three minutes, delivering a maximum changeover time of 15 minutes for the entire shrink-wrapper – worst case scenario when moving from film only to tray plus film or vice versa,” says Yasin.

Increased ergonomics and compactness for a successful project

To also accommodate the need of the tray plus film option, Sidel designed a removable rolling tray magazine, which can be extracted from the shrink-wrapper when running a format without tray support. The circulation around the line is then much easier for the consumables and the operators. It is, in essence, a Plug & Play module with a central cabling connector. In a traditional solution, the tray magazine is typically located underneath the product infeed. Thanks to the 90° infeed configuration, the upper part of the magazine is now open and accessible and therefore allows an easy and ergonomic manual refilling of the trays in the magazine.

Yasin sums up the success of the project for the Swiss company, “From project planning to implementation, the collaboration with Sidel worked well. The challenges that arose were approached in a structured way and handled in a professional manner. For us, the greatest advantage of the Sidel solution lies in the space saving from the infeed system.”

² The number of bottles depends on the chosen collation.

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Sidel is a leading provider of equipment and services solutions for packaging beverage, food, home and personal care products in PET, can, glass and other materials.

With over 40,000 machines installed in more than 190 countries, we have nearly 170 years of proven experience, with a strong focus on the factory of tomorrow with advanced systems, line engineering and innovation. Our 5,500+ employees worldwide are passionate about providing solutions that fulfil customer needs and boost the **performance** of their lines, products and businesses.

Delivering this level of performance requires that we stay flexible. We continuously ensure we **understand** our customers' changing challenges and commit to meeting their unique performance and sustainability goals. We do this through dialogue and by understanding the needs of their markets, production and value chains. In turn, we apply our solid technical knowledge and smart data analytics to ensure lifetime productivity reaches its full potential.

We call it **Performance through Understanding**.

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